

## D1900V2, Serial No. 5d182 Extended Dipole Calibrations

Referring to KDB 865664 D01 v01r02, if dipoles are verified in return loss ( $< -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

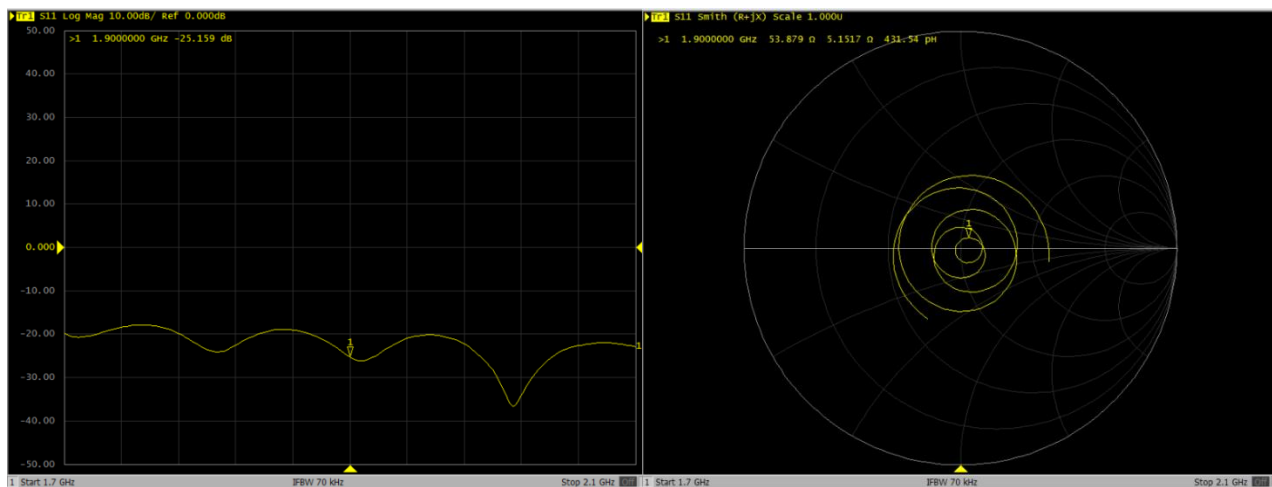
| D1900V2 – serial no. 5d182 |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |
|----------------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
|                            | 1900 Head        |           |                      |             |                           |             | 1900 Body        |           |                      |             |                           |             |
| Date of Measurement        | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2018.12.7                  | -25              |           | 52.1                 |             | 5.35                      |             | -24              |           | 48.9                 |             | 6.19                      |             |
| 2019.11.25                 | -25.2            | -0.8      | 53.9                 | 1.8         | 5.15                      | -0.2        | -24.2            | -0.8      | 48.7                 | -0.2        | 5.93                      | -0.26       |
|                            |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |

### <Justification of the extended calibration>

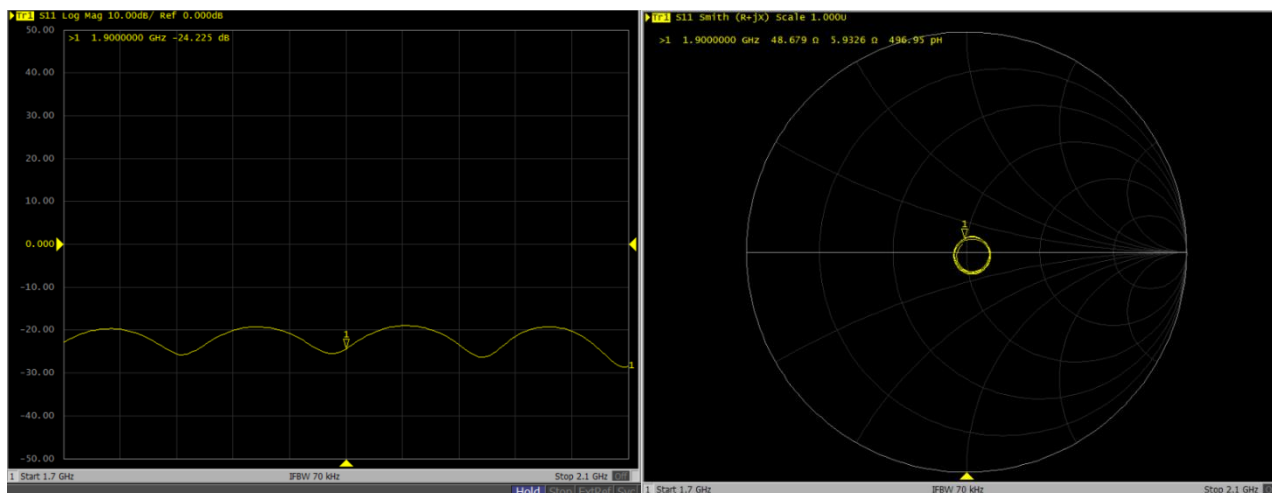
The return loss is  $< -20\text{dB}$ , within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

## Dipole Verification Data> D1900V2, serial no. 5d182

### 1900MHz - Head



### 1900MHz - Body





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Client

**Sporton**

Certificate No: **Z19-60134**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 924**

Calibration Procedure(s) **FF-Z11-003-01**  
Calibration Procedures for dipole validation kits

Calibration date: **April 15, 2019**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature( $22\pm 3$ )°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|------------|------------------------------------------|-----------------------|
| Power Meter NRP2        | 106277     | 20-Aug-18 (CTTL, No.J18X06862)           | Aug-19                |
| Power sensor NRP8S      | 104291     | 20-Aug-18 (CTTL, No.J18X06862)           | Aug-19                |
| Reference Probe EX3DV4  | SN 3617    | 31-Jan-19(SPEAG,No.EX3-3617_Jan19)       | Jan-20                |
| DAE4                    | SN 1331    | 06-Feb-19(SPEAG,No.DAE4-1331_Feb19)      | Feb-20                |
| Secondary Standards     | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-19 (CTTL, No.J19X00336)           | Jan-20                |
| NetworkAnalyzer E5071C  | MY46110673 | 24-Jan-19 (CTTL, No.J19X00547)           | Jan-20                |

|                | Name        | Function           |
|----------------|-------------|--------------------|
| Calibrated by: | Zhao Jing   | SAR Test Engineer  |
| Reviewed by:   | Lin Hao     | SAR Test Engineer  |
| Approved by:   | Qi Dianyuan | SAR Project Leader |

Signature

Issued: April 20, 2019

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### Glossary:

|       |                                            |
|-------|--------------------------------------------|
| TSL   | tissue simulating liquid                   |
| ConvF | sensitivity in TSL / NORM <sub>x,y,z</sub> |
| N/A   | not applicable or not measured             |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                          |              |
|------------------------------|--------------------------|--------------|
| DASY Version                 | DASY52                   | 52.10.2.1495 |
| Extrapolation                | Advanced Extrapolation   |              |
| Phantom                      | Triple Flat Phantom 5.1C |              |
| Distance Dipole Center - TSL | 10 mm                    | with Spacer  |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm        |              |
| Frequency                    | 2450 MHz $\pm$ 1 MHz     |              |

## Head TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 39.2           | 1.80 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 40.4 $\pm$ 6 % | 1.85 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | <1.0 °C             | ----           | ----                 |

## SAR result with Head TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL   | Condition          |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR measured                                            | 250 mW input power | 13.1 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 52.1 W/kg $\pm$ 18.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | Condition          |                              |
| SAR measured                                            | 250 mW input power | 5.99 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 23.9 W/kg $\pm$ 18.7 % (k=2) |

## Body TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 52.7           | 1.95 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 54.3 $\pm$ 6 % | 2.01 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | <1.0 °C             | ----           | ----                 |

## SAR result with Body TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR measured                                            | 250 mW input power | 12.6 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 50.1 W/kg $\pm$ 18.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                              |
| SAR measured                                            | 250 mW input power | 5.83 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 23.3 W/kg $\pm$ 18.7 % (k=2) |



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## Appendix (Additional assessments outside the scope of CNAS L0570)

### Antenna Parameters with Head TSL

|                                      |                |
|--------------------------------------|----------------|
| Impedance, transformed to feed point | 51.9Ω+ 2.68 jΩ |
| Return Loss                          | - 29.9dB       |

### Antenna Parameters with Body TSL

|                                      |                |
|--------------------------------------|----------------|
| Impedance, transformed to feed point | 48.8Ω+ 4.17 jΩ |
| Return Loss                          | - 27.2dB       |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.019 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.  
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |       |
|-----------------|-------|
| Manufactured by | SPEAG |
|-----------------|-------|



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## DASY5 Validation Report for Head TSL

Date: 04.15.2019

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 924**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.85$  S/m;  $\epsilon_r = 40.35$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.62, 7.62, 7.62) @ 2450 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

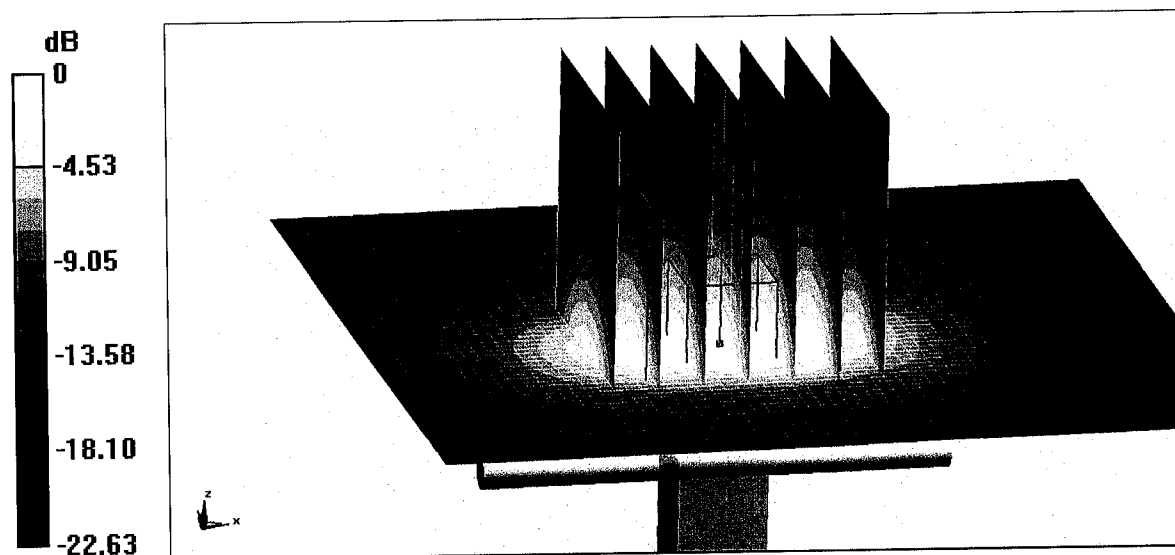
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 86.73 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 28.0 W/kg

**SAR(1 g) = 13.1 W/kg; SAR(10 g) = 5.99 W/kg**

Maximum value of SAR (measured) = 22.2 W/kg



0 dB = 22.2 W/kg = 13.46 dBW/kg

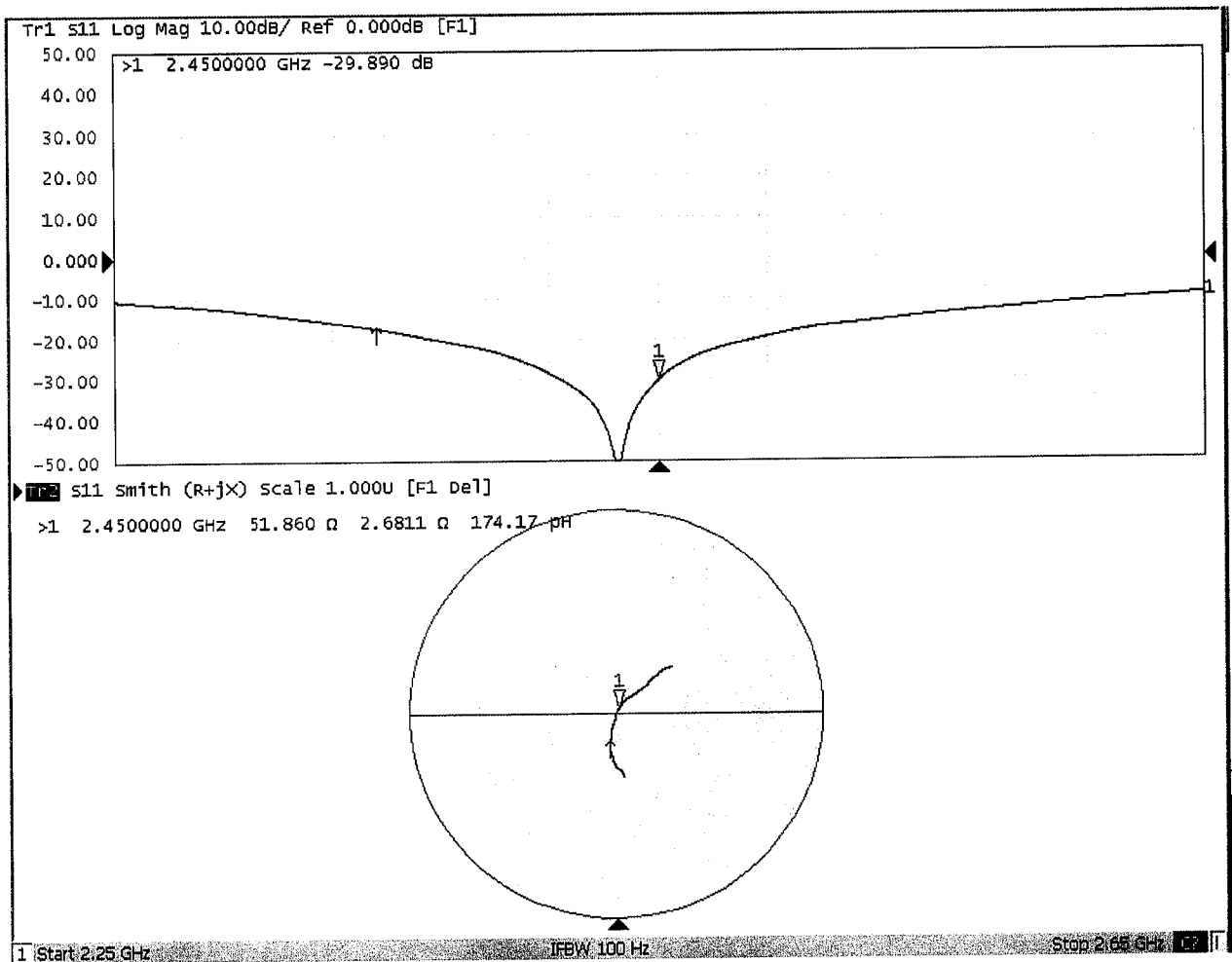


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## Impedance Measurement Plot for Head TSL





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## DASY5 Validation Report for Body TSL

Date: 04.15.2019

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 924**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.005$  S/m;  $\epsilon_r = 54.25$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.79, 7.79, 7.79) @ 2450 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

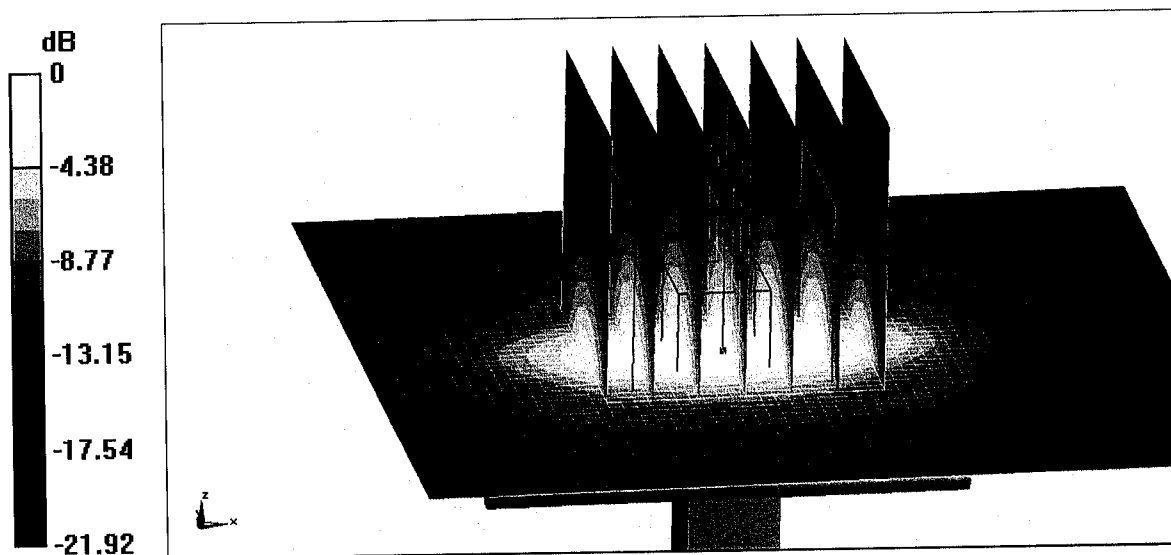
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.46 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 26.3 W/kg

**SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.83 W/kg**

Maximum value of SAR (measured) = 20.9 W/kg



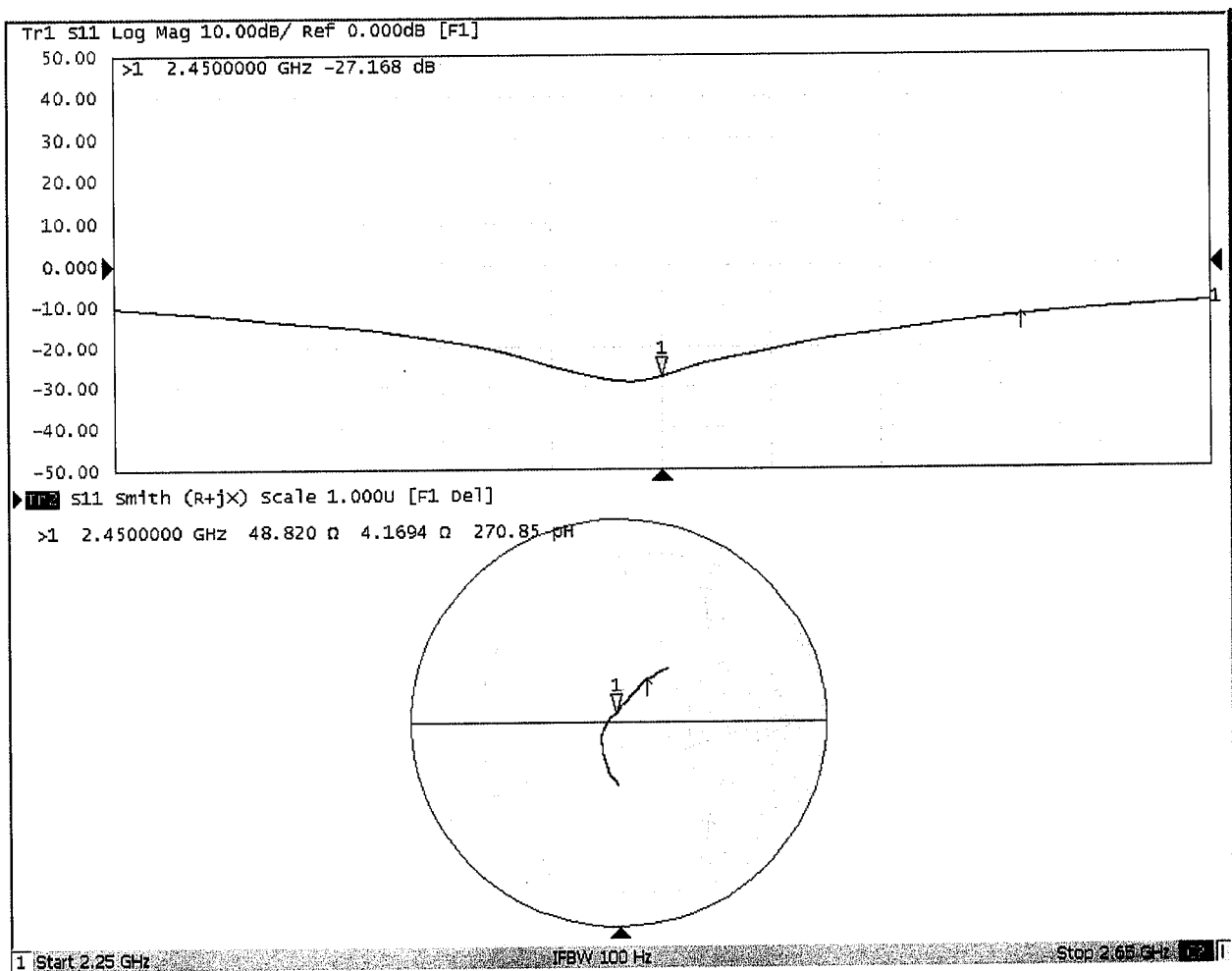
0 dB = 20.9 W/kg = 13.20 dBW/kg



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## Impedance Measurement Plot for Body TSL





## D2450V2, Serial No. 924 Extended Dipole Calibrations

Referring to KDB 865664 D01 v01r02, if dipoles are verified in return loss ( $< -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

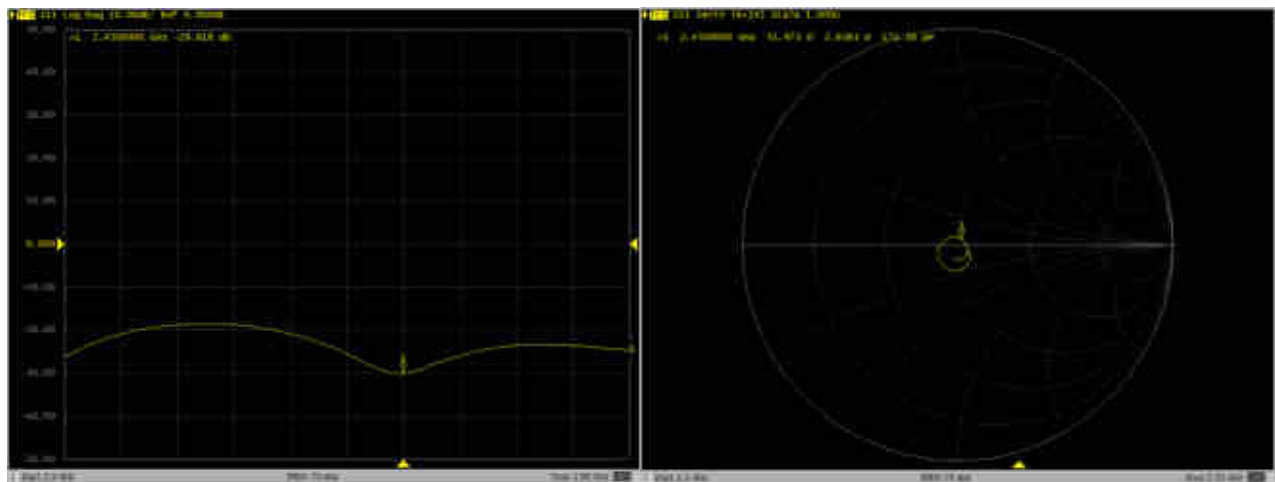
| D2450V2 – serial no. 924 |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |
|--------------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
|                          | 2450 Head        |           |                      |             |                           |             | 2450 Body        |           |                      |             |                           |             |
| Date of Measurement      | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2019.04.15               | -29.9            |           | 51.90                |             | 2.68                      |             | -27.2            |           | 48.80                |             | 4.17                      |             |
| 2020.04.11               | -29.8            | 0.3       | 51.97                | 0.07        | 2.64                      | -0.04       | -26.5            | 2.6       | 48.80                | 0           | 4.52                      | 0.35        |
|                          |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |

### <Justification of the extended calibration>

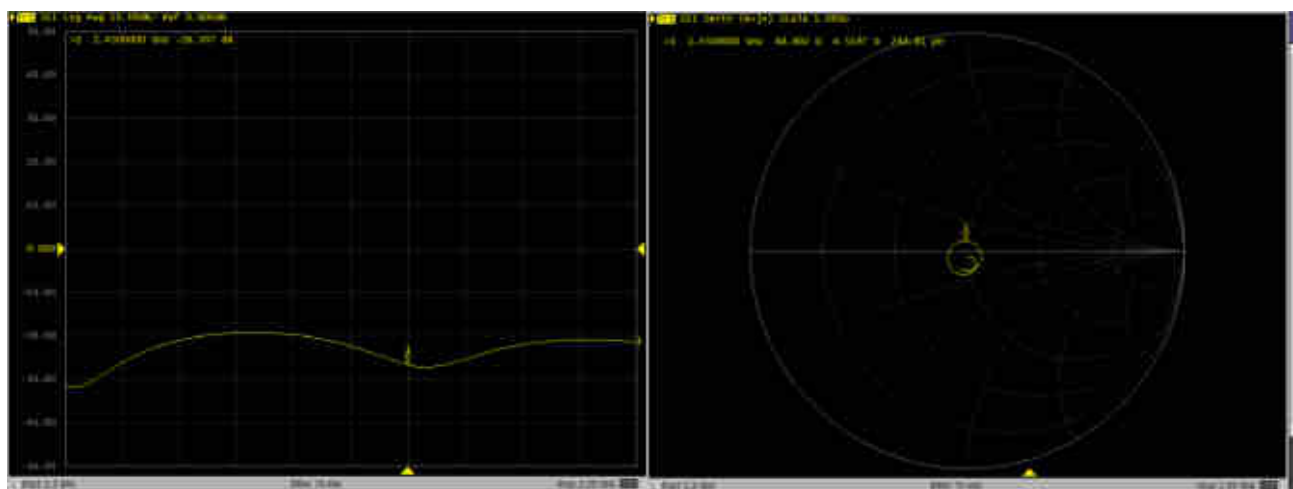
The return loss is  $< -20\text{dB}$ , within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

## Dipole Verification Data> D2450V2, serial no. 924

### 2450MHz - Head



### 2450MHz – Body





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Client **Sporton**

Certificate No: **Z18-60537**

## CALIBRATION CERTIFICATE

Object **D2600V2 - SN: 1070**

Calibration Procedure(s) **FF-Z11-003-01**  
**Calibration Procedures for dipole validation kits**

Calibration date: **December 7, 2018**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|------------|------------------------------------------|-----------------------|
| Power Meter NRVD        | 102196     | 07-Mar-18 (CTTL, No.J18X01510)           | Mar-19                |
| Power sensor NRV-Z5     | 100596     | 07-Mar-18 (CTTL, No.J18X01510)           | Mar-19                |
| Reference Probe EX3DV4  | SN 7514    | 27-Aug-18(SPEAG,No.EX3-7514_Aug18)       | Aug-19                |
| DAE4                    | SN 1555    | 20-Aug-18(SPEAG,No.DAE4-1555_Aug18)      | Aug-19                |
| Secondary Standards     | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-18 (CTTL, No.J18X00560)           | Jan-19                |
| Network Analyzer E5071C | MY46110673 | 24-Jan-18 (CTTL, No.J18X00561)           | Jan-19                |

|                |                    |                           |
|----------------|--------------------|---------------------------|
|                | <b>Name</b>        | <b>Function</b>           |
| Calibrated by: | <b>Zhao Jing</b>   | <b>SAR Test Engineer</b>  |
| Reviewed by:   | <b>Lin Hao</b>     | <b>SAR Test Engineer</b>  |
| Approved by:   | <b>Qi Dianyuan</b> | <b>SAR Project Leader</b> |

**Signature**



Issued: December 10, 2018

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### Glossary:

|       |                                            |
|-------|--------------------------------------------|
| TSL   | tissue simulating liquid                   |
| ConvF | sensitivity in TSL / NORM <sub>x,y,z</sub> |
| N/A   | not applicable or not measured             |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                          |              |
|------------------------------|--------------------------|--------------|
| DASY Version                 | DASY52                   | 52.10.2.1495 |
| Extrapolation                | Advanced Extrapolation   |              |
| Phantom                      | Triple Flat Phantom 5.1C |              |
| Distance Dipole Center - TSL | 10 mm                    | with Spacer  |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm        |              |
| Frequency                    | 2600 MHz $\pm$ 1 MHz     |              |

## Head TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 39.0           | 1.96 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 39.1 $\pm$ 6 % | 1.93 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | <1.0 °C             | ----           | ----                 |

## SAR result with Head TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL   | Condition          |                                |
|---------------------------------------------------------|--------------------|--------------------------------|
| SAR measured                                            | 250 mW input power | 14.4 mW / g                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 58.1 mW / g $\pm$ 18.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | Condition          |                                |
| SAR measured                                            | 250 mW input power | 6.50 mW / g                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 26.1 mW / g $\pm$ 18.7 % (k=2) |

## Body TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 52.5           | 2.16 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 51.0 $\pm$ 6 % | 2.18 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | <1.0 °C             | ----           | ----                 |

## SAR result with Body TSL

| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                                |
|---------------------------------------------------------|--------------------|--------------------------------|
| SAR measured                                            | 250 mW input power | 13.8 mW / g                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 54.6 mW / g $\pm$ 18.8 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                                |
| SAR measured                                            | 250 mW input power | 6.18 mW / g                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 24.6 mW / g $\pm$ 18.7 % (k=2) |



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## Appendix(Additional assessments outside the scope of CNAS L0570)

### Antenna Parameters with Head TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 48.6Ω- 6.33jΩ |
| Return Loss                          | - 23.7dB      |

### Antenna Parameters with Body TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 44.8Ω- 5.36jΩ |
| Return Loss                          | - 22.1dB      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.015 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |       |
|-----------------|-------|
| Manufactured by | SPEAG |
|-----------------|-------|



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## DASY5 Validation Report for Head TSL

Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1070**

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.926$  S/m;  $\epsilon_r = 39.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(6.92, 6.92, 6.92) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

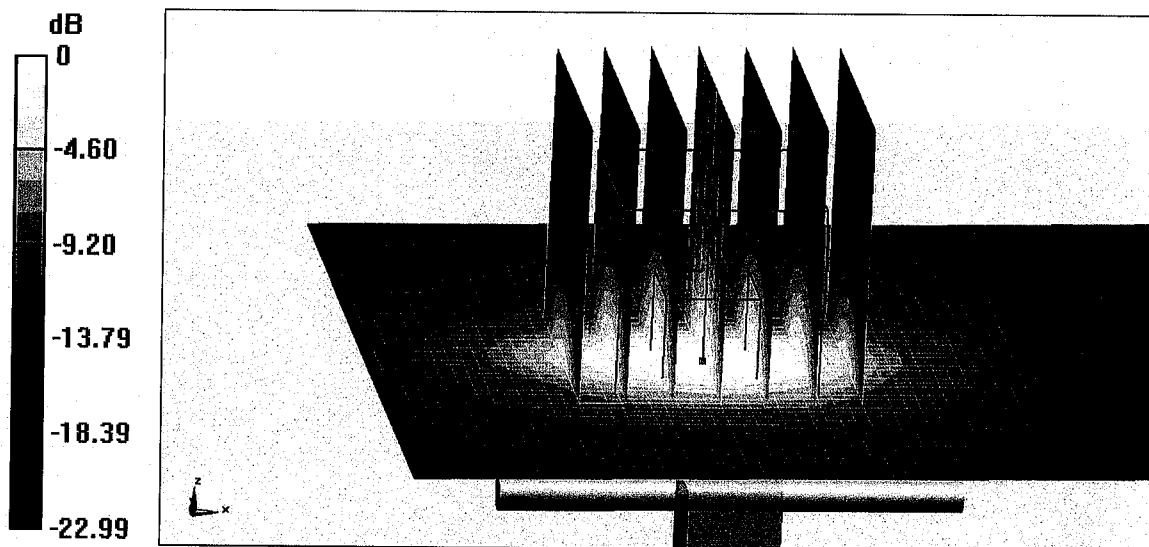
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 99.07 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 31.1 W/kg

**SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.5 W/kg**

Maximum value of SAR (measured) = 24.7 W/kg



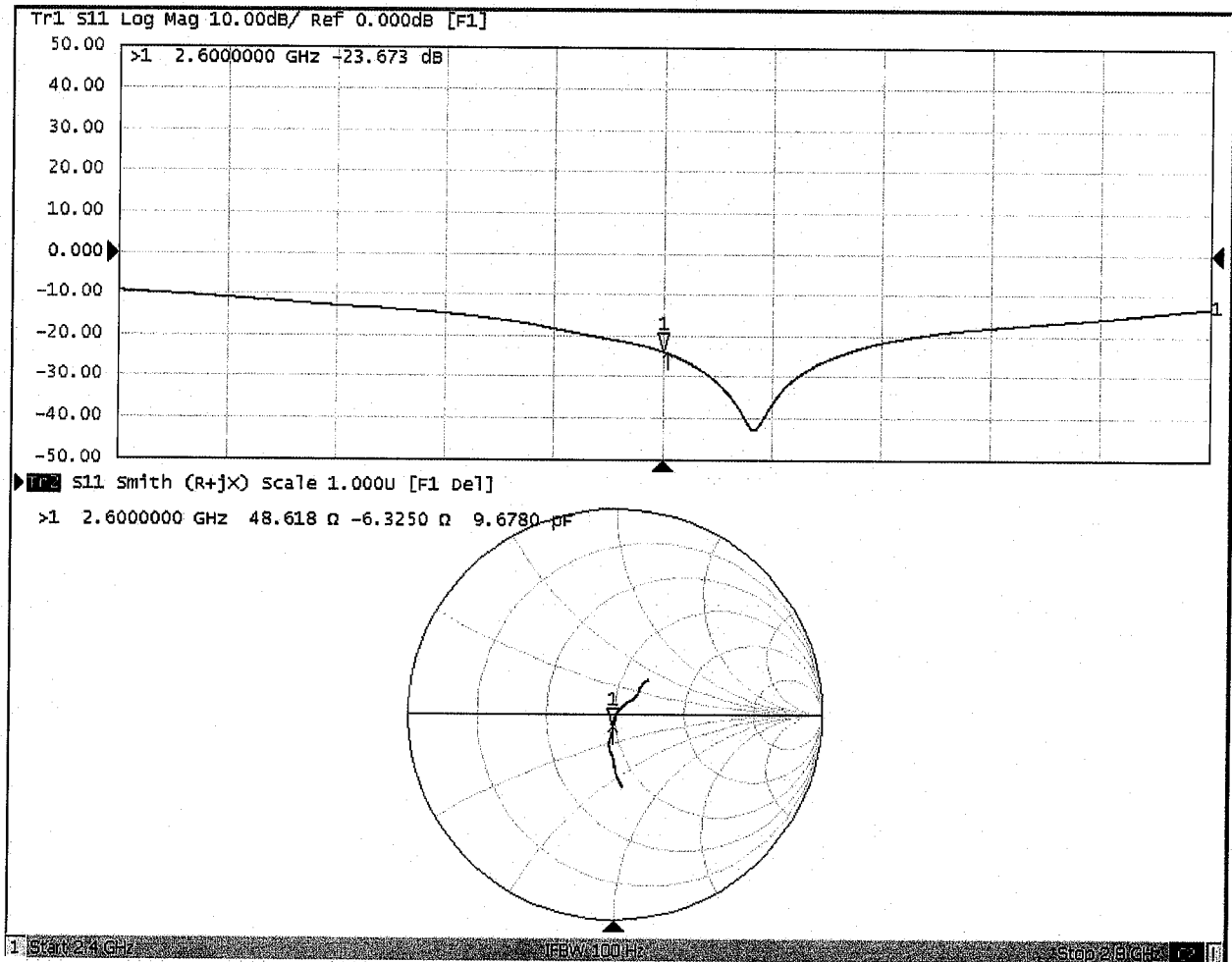
0 dB = 24.7 W/kg = 13.93 dBW/kg



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## Impedance Measurement Plot for Head TSL





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## DASY5 Validation Report for Body TSL

Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1070**

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.181$  S/m;  $\epsilon_r = 51.03$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.06, 7.06, 7.06) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

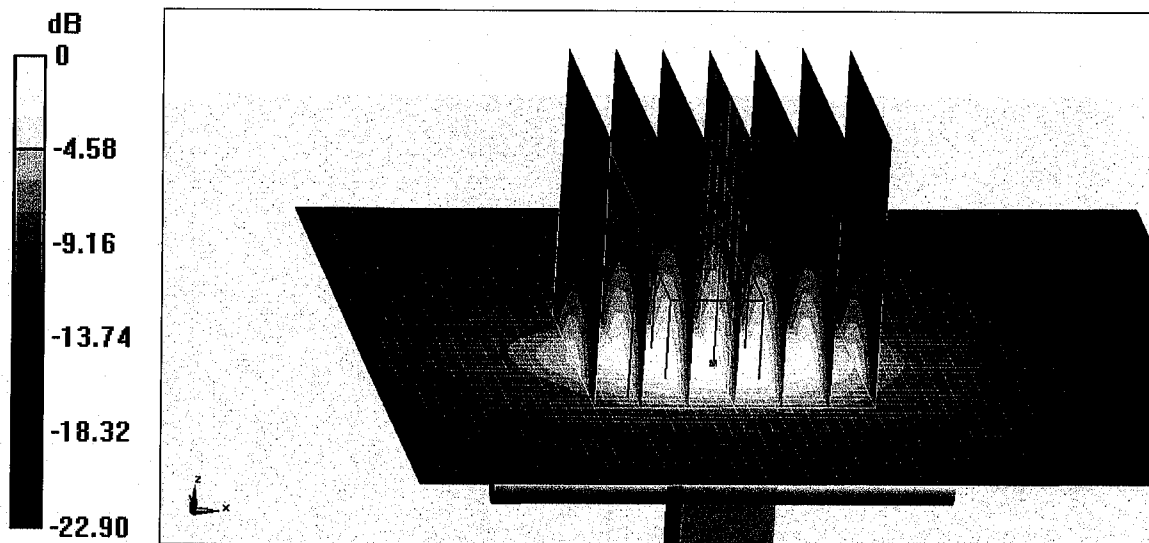
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 87.90 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 29.5 W/kg

**SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.18 W/kg**

Maximum value of SAR (measured) = 23.6 W/kg



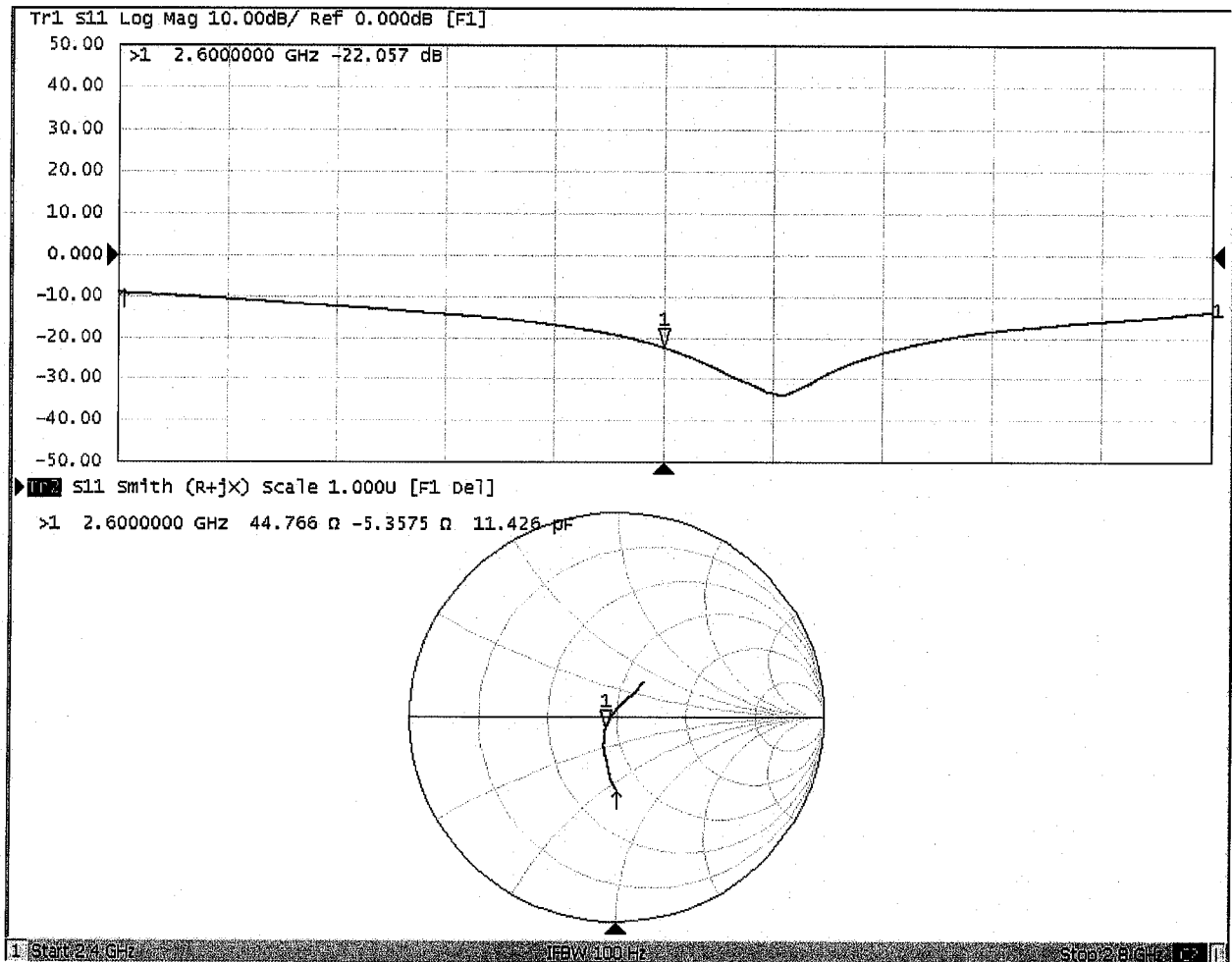
0 dB = 23.6 W/kg = 13.73 dBW/kg



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## Impedance Measurement Plot for Body TSL





## D2600V2, Serial No. 1070 Extended Dipole Calibrations

Referring to KDB 865664 D01 v01r02, if dipoles are verified in return loss ( $< -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

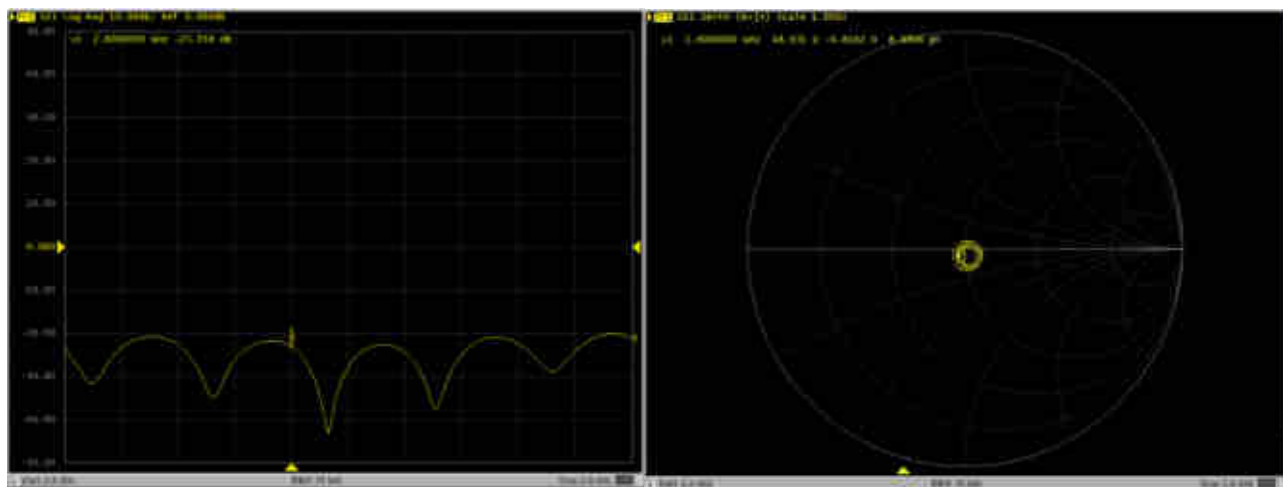
| D2600V2 – serial no. 1070 |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |
|---------------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
|                           | 2600 Head        |           |                      |             |                           |             | 2600 Body        |           |                      |             |                           |             |
| Date of Measurement       | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2018.12.7                 | -23.7            |           | 48.6                 |             | -6.33                     |             | -22.1            |           | 44.8                 |             | -5.36                     |             |
| 2019.11.25                | -23.1            | 2.5       | 48.6                 | 0           | -6.82                     | -0.49       | -22.0            | 0.5       | 45.3                 | 0.5         | -4.65                     | 0.71        |
|                           |                  |           |                      |             |                           |             |                  |           |                      |             |                           |             |

### <Justification of the extended calibration>

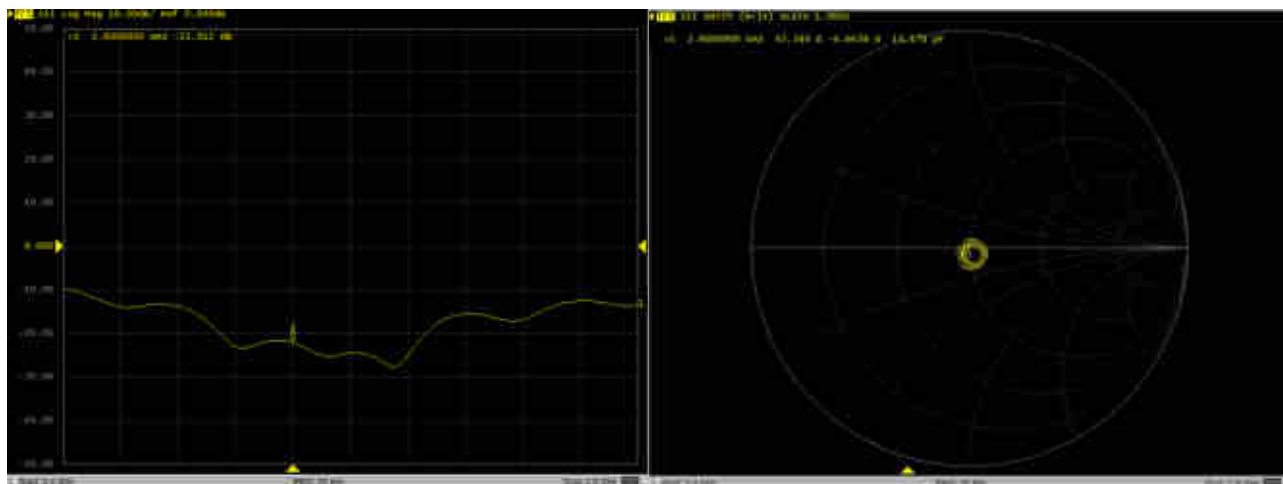
The return loss is  $< -20\text{dB}$ , within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

## Dipole Verification Data> D2600V2, serial no. 1070

### 2600MHz - Head



### 2600MHz - Body





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Client

**Sporton**

Certificate No: **Z18-60259**

## CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN: 1167**

Calibration Procedure(s) **FF-Z11-003-01**  
**Calibration Procedures for dipole validation kits**

Calibration date: **August 03, 2018**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|------------|------------------------------------------|-----------------------|
| Power Meter NRP2        | 102083     | 01-Nov-17 (CTTL, No.J17X08756)           | Oct-18                |
| Power sensor NRP-Z91    | 100542     | 01-Nov-17 (CTTL, No.J17X08756)           | Oct-18                |
| ReferenceProbe EX3DV4   | SN 7464    | 12-Sep-17(SPEAG,No.EX3-7464_Sep17)       | Sep-18                |
| DAE4                    | SN 1524    | 13-Sep-17(SPEAG,No.DAE4-1524_Sep17)      | Sep-18                |
| Secondary Standards     | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-18 (CTTL, No.J18X00560)           | Jan-19                |
| NetworkAnalyzerE5071C   | MY46110673 | 24-Jan-18 (CTTL, No.J18X00561)           | Jan-19                |

|                | Name        | Function           | Signature |
|----------------|-------------|--------------------|-----------|
| Calibrated by: | Zhao Jing   | SAR Test Engineer  |           |
| Reviewed by:   | Lin Hao     | SAR Test Engineer  |           |
| Approved by:   | Qi Dianyuan | SAR Project Leader |           |

Issued: August 6, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



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### Glossary:

|       |                                            |
|-------|--------------------------------------------|
| TSL   | tissue simulating liquid                   |
| ConvF | sensitivity in TSL / NORM <sub>x,y,z</sub> |
| N/A   | not applicable or not measured             |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                                                                      |                                  |
|------------------------------|----------------------------------------------------------------------|----------------------------------|
| DASY Version                 | DASY52                                                               | 52.10.1.1476                     |
| Extrapolation                | Advanced Extrapolation                                               |                                  |
| Phantom                      | Triple Flat Phantom 5.1C                                             |                                  |
| Distance Dipole Center - TSL | 10 mm                                                                | with Spacer                      |
| Zoom Scan Resolution         | dx, dy = 4 mm, dz = 1.4 mm                                           | Graded Ratio = 1.4 (Z direction) |
| Frequency                    | 5250 MHz $\pm$ 1 MHz<br>5600 MHz $\pm$ 1 MHz<br>5750 MHz $\pm$ 1 MHz |                                  |

## Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 35.9           | 4.71 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 35.9 $\pm$ 6 % | 4.82 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | <1.0 °C             | ----           | ----                 |

## SAR result with Head TSL at 5250 MHz

|                                                |                    |                                |
|------------------------------------------------|--------------------|--------------------------------|
| SAR averaged over 1 $cm^3$ (1 g) of Head TSL   | Condition          |                                |
| SAR measured                                   | 100 mW input power | 7.69 mW / g                    |
| SAR for nominal Head TSL parameters            | normalized to 1W   | 77.0 mW / g $\pm$ 24.4 % (k=2) |
| SAR averaged over 10 $cm^3$ (10 g) of Head TSL | Condition          |                                |
| SAR measured                                   | 100 mW input power | 2.20 mW / g                    |
| SAR for nominal Head TSL parameters            | normalized to 1W   | 22.0 mW / g $\pm$ 24.2 % (k=2) |



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**Head TSL parameters at 5600 MHz**

The following parameters and calculations were applied.

|                                         | Temperature     | Permittivity | Conductivity     |
|-----------------------------------------|-----------------|--------------|------------------|
| Nominal Head TSL parameters             | 22.0 °C         | 35.5         | 5.07 mho/m       |
| Measured Head TSL parameters            | (22.0 ± 0.2) °C | 35.1 ± 6 %   | 5.18 mho/m ± 6 % |
| Head TSL temperature change during test | <1.0 °C         | ----         | ----             |

**SAR result with Head TSL at 5600 MHz**

|                                                         |                    |                            |
|---------------------------------------------------------|--------------------|----------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL   | Condition          |                            |
| SAR measured                                            | 100 mW input power | 8.09 mW / g                |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 80.8 mW / g ± 24.4 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | Condition          |                            |
| SAR measured                                            | 100 mW input power | 2.32 mW / g                |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 23.2 mW / g ± 24.2 % (k=2) |

**Head TSL parameters at 5750 MHz**

The following parameters and calculations were applied.

|                                         | Temperature     | Permittivity | Conductivity     |
|-----------------------------------------|-----------------|--------------|------------------|
| Nominal Head TSL parameters             | 22.0 °C         | 35.4         | 5.22 mho/m       |
| Measured Head TSL parameters            | (22.0 ± 0.2) °C | 34.9 ± 6 %   | 5.37 mho/m ± 6 % |
| Head TSL temperature change during test | <1.0 °C         | ----         | ----             |

**SAR result with Head TSL at 5750 MHz**

|                                                         |                    |                            |
|---------------------------------------------------------|--------------------|----------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL   | Condition          |                            |
| SAR measured                                            | 100 mW input power | 7.70 mW / g                |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 76.9 mW / g ± 24.4 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | Condition          |                            |
| SAR measured                                            | 100 mW input power | 2.17 mW / g                |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 21.6 mW / g ± 24.2 % (k=2) |



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**Body TSL parameters at 5250 MHz**

The following parameters and calculations were applied.

|                                         | Temperature     | Permittivity | Conductivity     |
|-----------------------------------------|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.9         | 5.36 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 48.4 ± 6 %   | 5.32 mho/m ± 6 % |
| Body TSL temperature change during test | <1.0 °C         | ----         | ----             |

**SAR result with Body TSL at 5250 MHz**

|                                                         |                    |                           |
|---------------------------------------------------------|--------------------|---------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                           |
| SAR measured                                            | 100 mW input power | 7.46 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 74.4 mW /g ± 24.4 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                           |
| SAR measured                                            | 100 mW input power | 2.10 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 20.9 mW /g ± 24.2 % (k=2) |

**Body TSL parameters at 5600 MHz**

The following parameters and calculations were applied.

|                                         | Temperature     | Permittivity | Conductivity     |
|-----------------------------------------|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.5         | 5.77 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 47.7 ± 6 %   | 5.79 mho/m ± 6 % |
| Body TSL temperature change during test | <1.0 °C         | ----         | ----             |

**SAR result with Body TSL at 5600 MHz**

|                                                         |                    |                           |
|---------------------------------------------------------|--------------------|---------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                           |
| SAR measured                                            | 100 mW input power | 7.73 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 77.1 mW /g ± 24.4 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                           |
| SAR measured                                            | 100 mW input power | 2.16 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 21.5 mW /g ± 24.2 % (k=2) |



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### Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

|                                         | Temperature     | Permittivity | Conductivity     |
|-----------------------------------------|-----------------|--------------|------------------|
| Nominal Body TSL parameters             | 22.0 °C         | 48.3         | 5.94 mho/m       |
| Measured Body TSL parameters            | (22.0 ± 0.2) °C | 48.5 ± 6 %   | 5.93 mho/m ± 6 % |
| Body TSL temperature change during test | <1.0 °C         | ----         | ----             |

### SAR result with Body TSL at 5750 MHz

|                                                         |                    |                           |
|---------------------------------------------------------|--------------------|---------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL   | Condition          |                           |
| SAR measured                                            | 100 mW input power | 7.43 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 74.3 mW /g ± 24.4 % (k=2) |
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | Condition          |                           |
| SAR measured                                            | 100 mW input power | 2.08 mW / g               |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 20.8 mW /g ± 24.2 % (k=2) |



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## Appendix (Additional assessments outside the scope of CNAS L0570)

### Antenna Parameters with Head TSL at 5250 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 50.3 $\Omega$ - 9.42j $\Omega$ |
| Return Loss                          | - 20.6dB                       |

### Antenna Parameters with Head TSL at 5600 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 58.1 $\Omega$ - 7.15j $\Omega$ |
| Return Loss                          | - 20.0dB                       |

### Antenna Parameters with Head TSL at 5750 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 53.5 $\Omega$ - 7.66j $\Omega$ |
| Return Loss                          | - 21.8dB                       |

### Antenna Parameters with Body TSL at 5250 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 49.5 $\Omega$ - 7.40j $\Omega$ |
| Return Loss                          | - 22.6dB                       |

### Antenna Parameters with Body TSL at 5600 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 58.0 $\Omega$ - 6.37j $\Omega$ |
| Return Loss                          | - 20.5dB                       |

### Antenna Parameters with Body TSL at 5750 MHz

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 54.5 $\Omega$ - 7.07j $\Omega$ |
| Return Loss                          | - 21.9dB                       |



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## General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.065 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard. No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

## Additional EUT Data

|                 |       |
|-----------------|-------|
| Manufactured by | SPEAG |
|-----------------|-------|



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## **DASY5 Validation Report for Head TSL**

Date: 07.27.2018

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1167**

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz,  
Frequency: 5750 MHz,

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.822$  S/m;  $\epsilon_r = 35.92$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.184$  S/m;  $\epsilon_r = 35.14$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.365$  S/m;  $\epsilon_r = 34.88$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Phantom section: Center Section

### **DASY5 Configuration:**

- Probe: EX3DV4 - SN7464; ConvF(5.68, 5.68, 5.68) @ 5250 MHz; Calibrated: 9/12/2017, ConvF(4.98, 4.98, 4.98) @ 5600 MHz; Calibrated: 9/12/2017, ConvF(5.04, 5.04, 5.04) @ 5750 MHz; Calibrated: 9/12/2017,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1524; Calibrated: 9/13/2017
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 65.09 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 32.4 W/kg  
**SAR(1 g) = 7.69 W/kg; SAR(10 g) = 2.2 W/kg**  
Maximum value of SAR (measured) = 18.0 W/kg

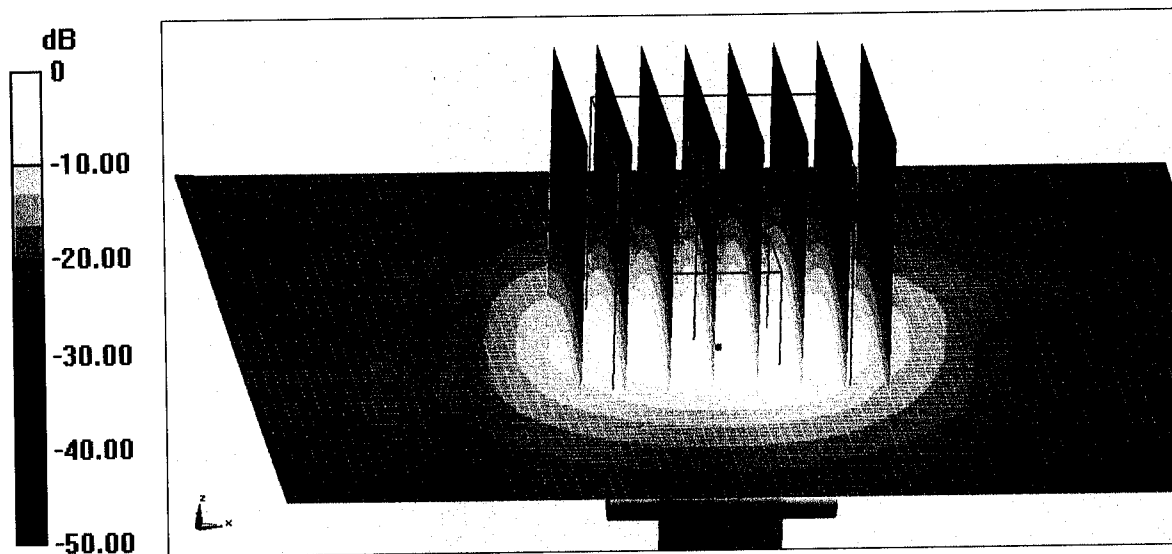
**Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 63.53 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 36.2 W/kg  
**SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.32 W/kg**  
Maximum value of SAR (measured) = 19.7 W/kg

**Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 63.79 V/m; Power Drift = 0.01 dB  
Peak SAR (extrapolated) = 36.2 W/kg  
**SAR(1 g) = 7.7 W/kg; SAR(10 g) = 2.17 W/kg**  
Maximum value of SAR (measured) = 19.0 W/kg



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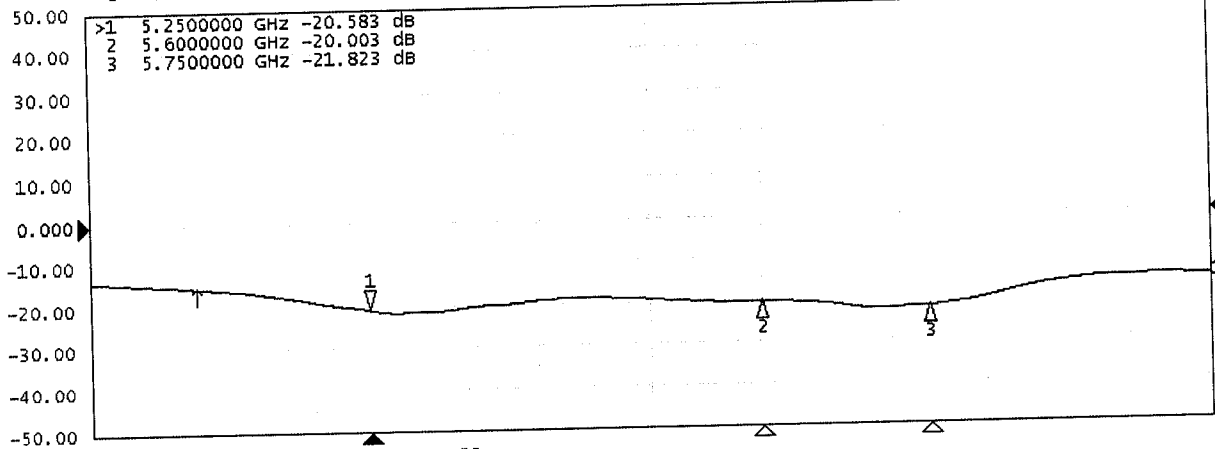
0 dB = 19.0 W/kg = 12.79 dBW/kg



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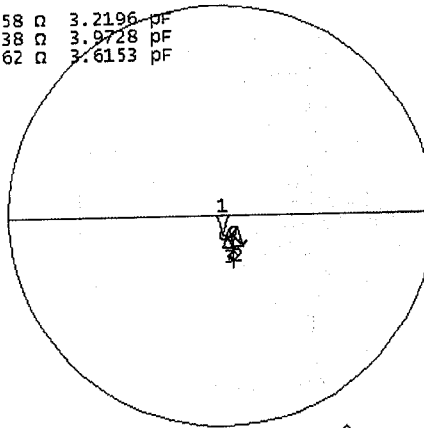
## Impedance Measurement Plot for Head TSL

Tr1 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]



Tr2 S11 Smith (R+jX) scale 1.000U [F1 Del]

|    |               |                 |                  |           |
|----|---------------|-----------------|------------------|-----------|
| >1 | 5.2500000 GHz | 50.314 $\Omega$ | -9.4158 $\Omega$ | 3.2196 pF |
| 2  | 5.6000000 GHz | 58.136 $\Omega$ | -7.1538 $\Omega$ | 3.9728 pF |
| 3  | 5.7500000 GHz | 53.485 $\Omega$ | -7.6562 $\Omega$ | 3.6153 pF |



1 5.2500000 GHz

5.7500000 GHz

Cor



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Date: 08.02.2018

## **DASY5 Validation Report for Body TSL**

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1167**

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz,  
Frequency: 5750 MHz,

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 5.316$  S/m;  $\epsilon_r = 48.42$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.789$  S/m;  $\epsilon_r = 47.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.926$  S/m;  $\epsilon_r = 48.45$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Phantom section: Right Section

### **DASY5 Configuration:**

- Probe: EX3DV4 - SN7464; ConvF(5.29, 5.29, 5.29) @ 5250 MHz; Calibrated: 9/12/2017, ConvF(4.5, 4.5, 4.5) @ 5600 MHz; Calibrated: 9/12/2017, ConvF(4.59, 4.59, 4.59) @ 5750 MHz; Calibrated: 9/12/2017,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1524; Calibrated: 9/13/2017
- Phantom: MFP\_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 64.14 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 31.9 W/kg  
**SAR(1 g) = 7.46 W/kg; SAR(10 g) = 2.1 W/kg**  
Maximum value of SAR (measured) = 17.6 W/kg

**Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 62.32 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 36.3 W/kg  
**SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.16 W/kg**  
Maximum value of SAR (measured) = 19.1 W/kg

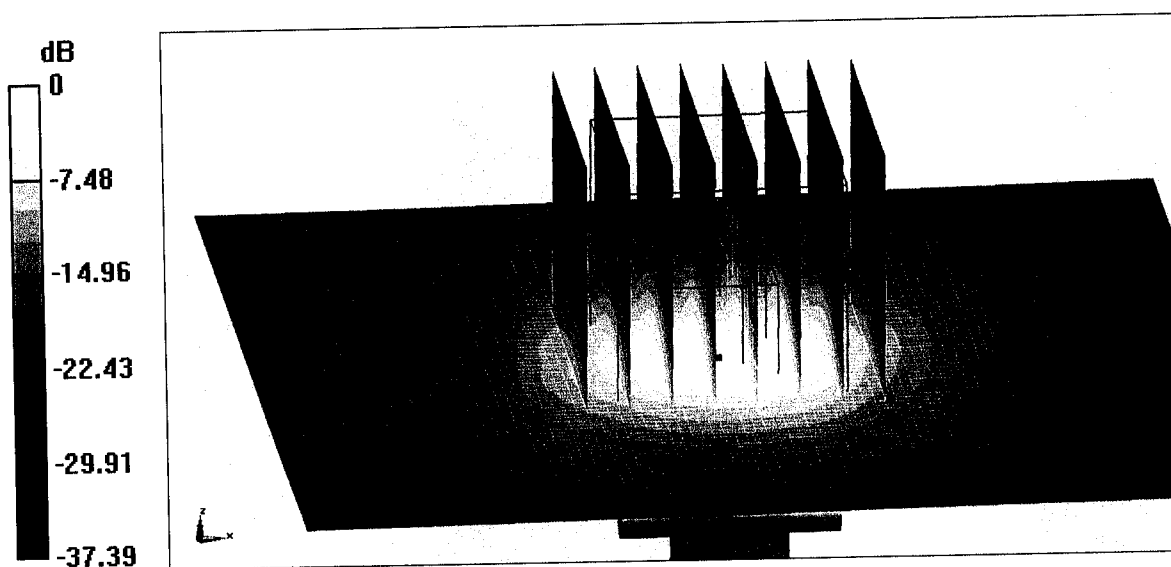
**Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 63.99 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 35.2 W/kg  
**SAR(1 g) = 7.43 W/kg; SAR(10 g) = 2.08 W/kg**  
Maximum value of SAR (measured) = 18.0 W/kg



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0 dB = 18.0 W/kg = 12.55 dBW/kg



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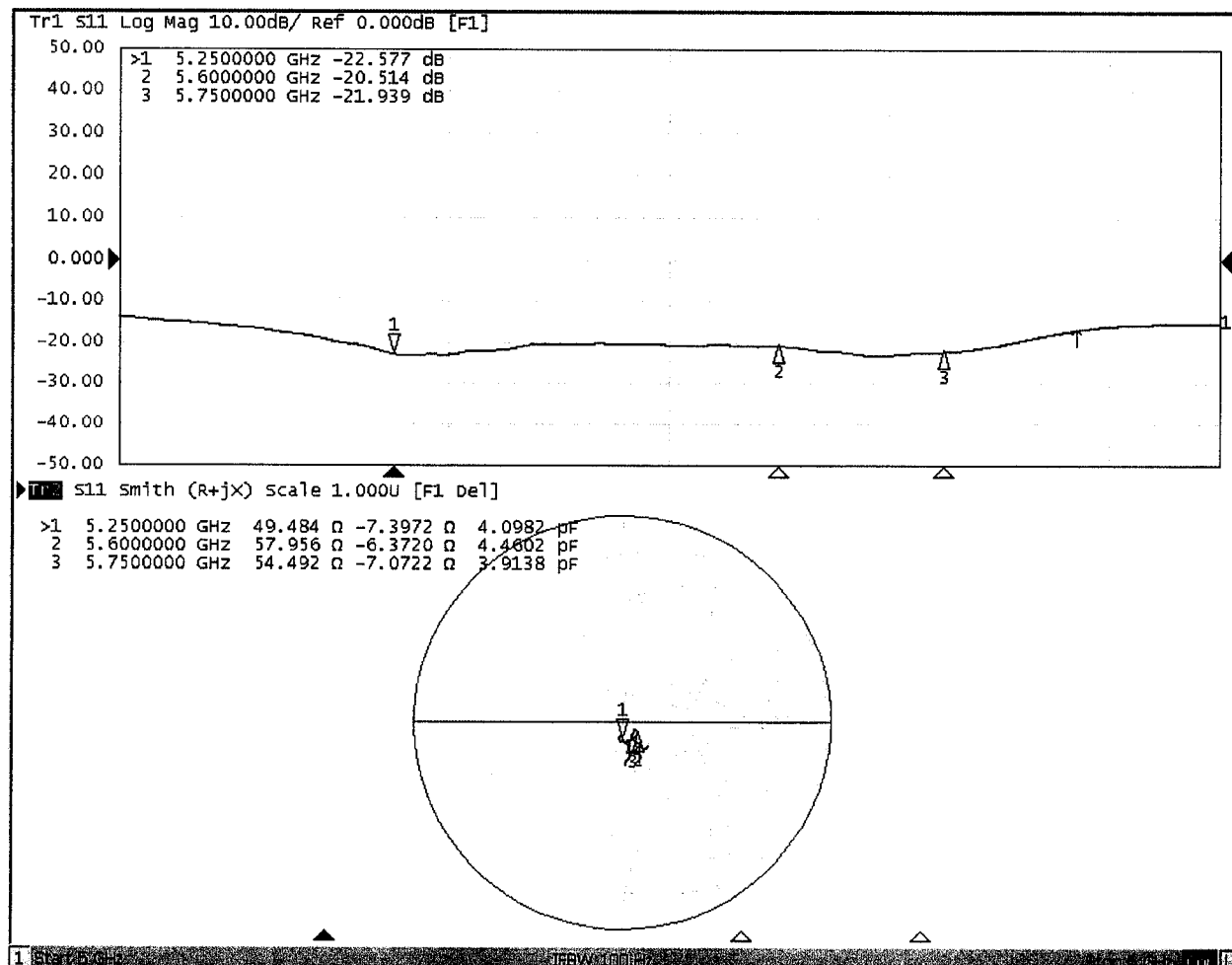
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## Impedance Measurement Plot for Body TSL



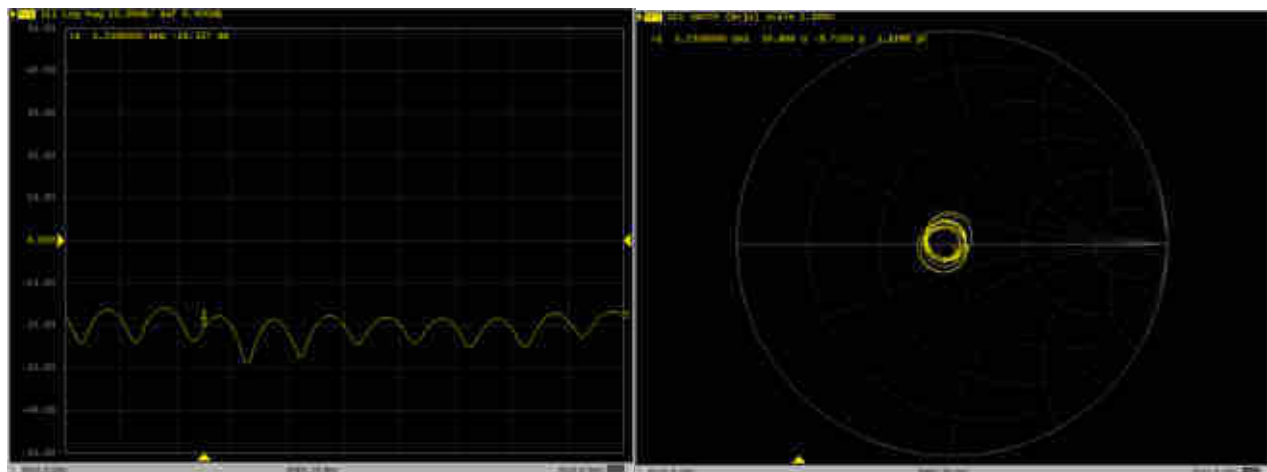
## D5GHzV3, Serial No. 1167 Extended Dipole Calibrations

## <Justification of the extended calibration>

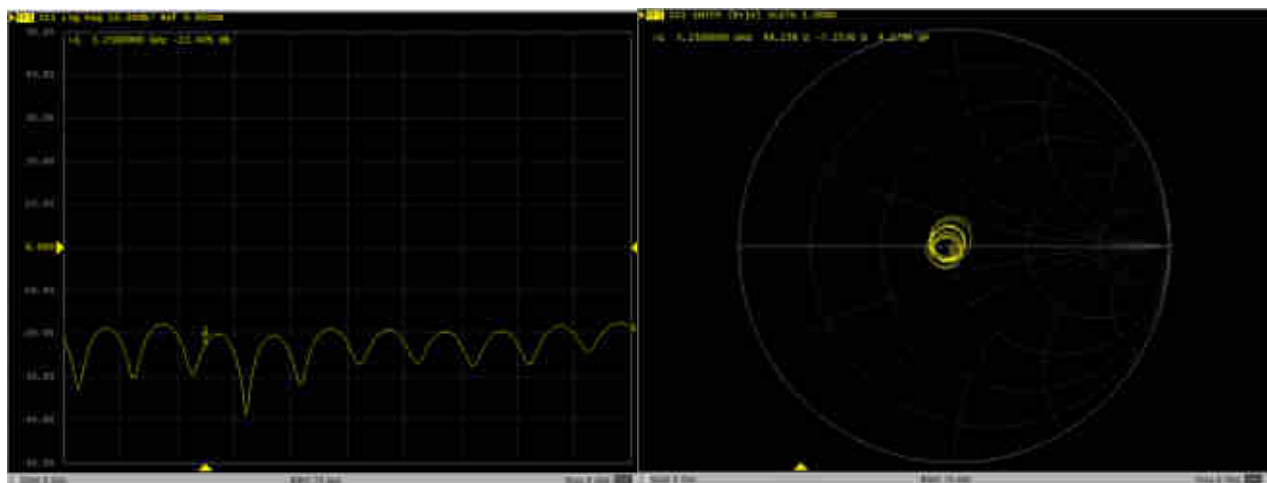
The return loss is  $< -20\text{dB}$ , within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

### Dipole Verification Data> D5GHzV3, serial no. 1167

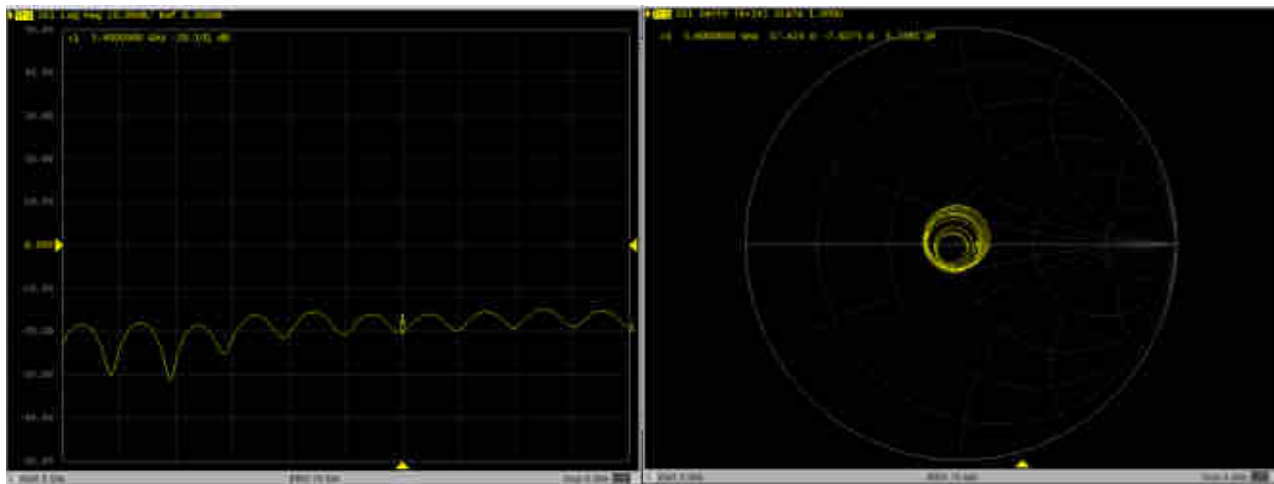
#### 5250MHz - Head



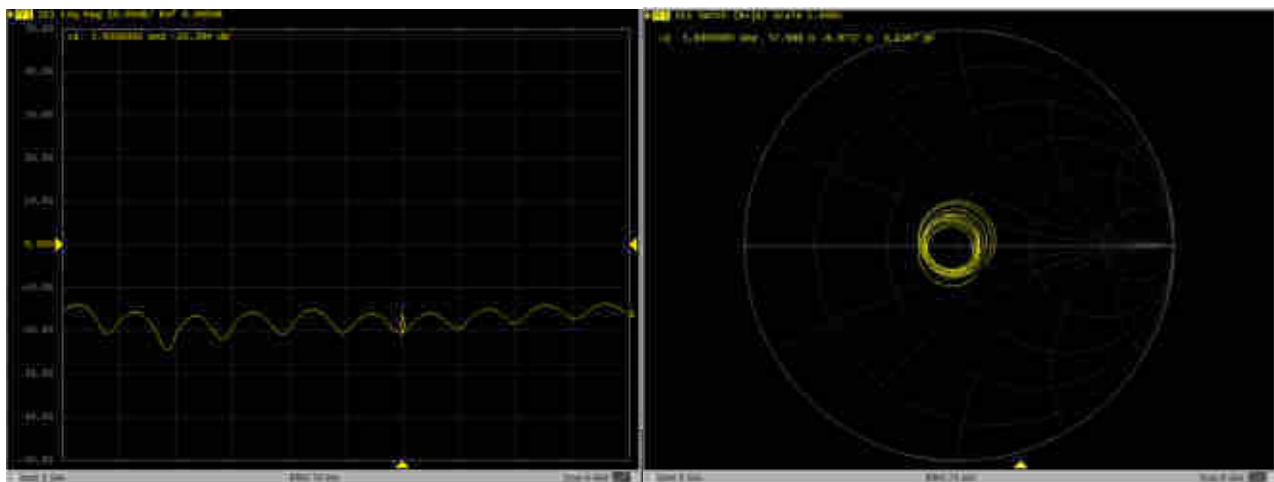
#### 5250MHz – Body



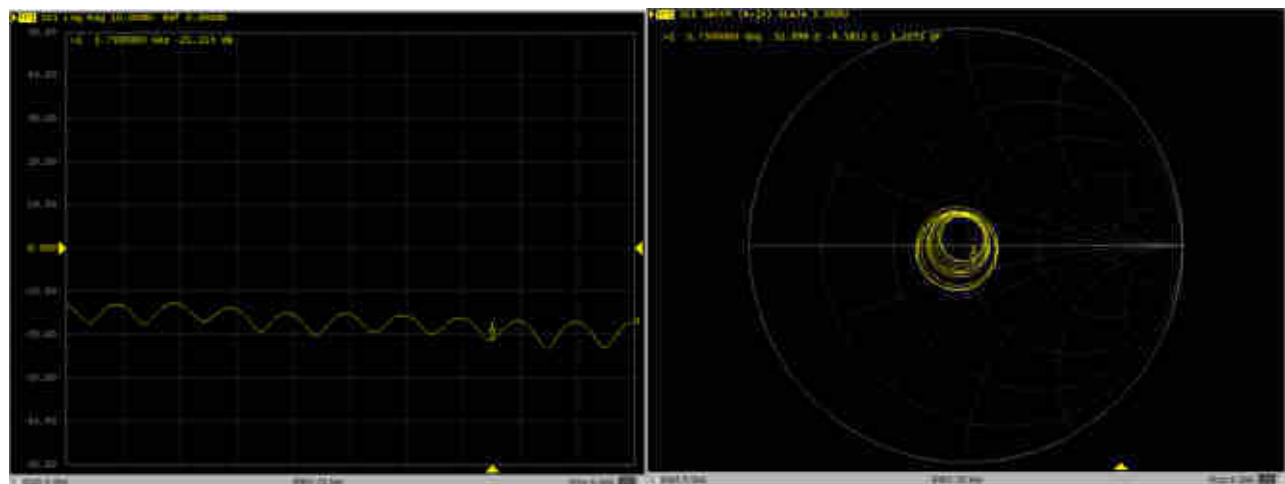
## 5600MHz – Head



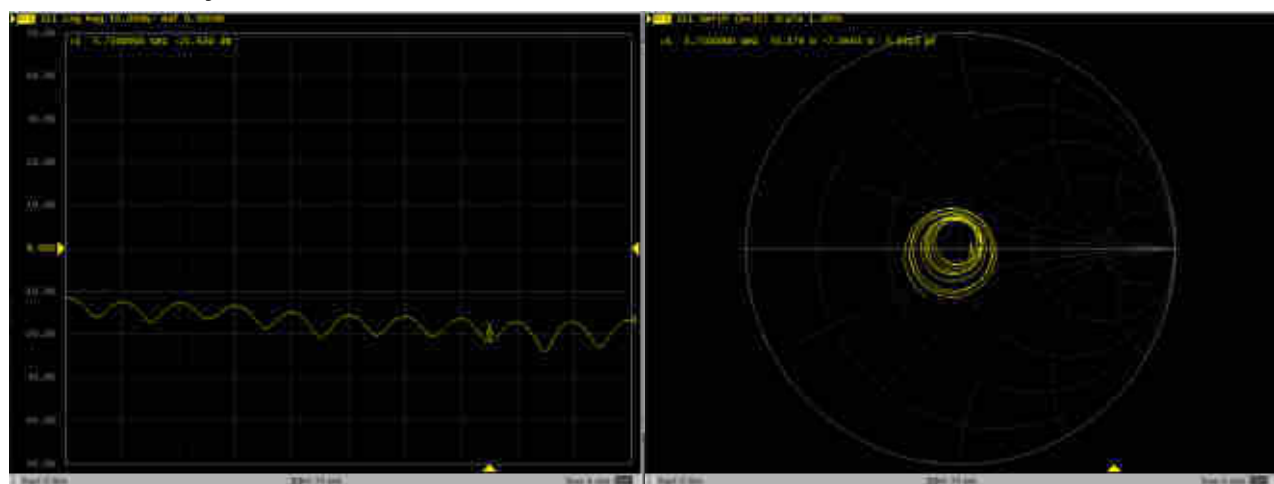
## 5600MHz – Body



## 5750MHz – Head



## 5750MHz – Body





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Client : **Sporton**

Certificate No: **Z19-60436**

## CALIBRATION CERTIFICATE

Object

DAE4 - SN: 1437

Calibration Procedure(s)

FF-Z11-002-01

Calibration Procedure for the Data Acquisition Electronics  
(DAEx)

Calibration date:

November 19, 2019

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature( $22\pm 3$ ) $^{\circ}\text{C}$  and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards      | ID #    | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|------------------------|---------|------------------------------------------|-----------------------|
| Process Calibrator 753 | 1971018 | 24-Jun-19 (CTTL, No.J19X05126)           | Jun-20                |

|                |             |                    |
|----------------|-------------|--------------------|
|                | Name        | Function           |
| Calibrated by: | Yu Zongying | SAR Test Engineer  |
| Reviewed by:   | Zhao Jing   | SAR Test Engineer  |
| Approved by:   | Qi Dianyuan | SAR Project Leader |

Signature

Issued: November 21, 2019

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### **Glossary:**

DAE data acquisition electronics  
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

### **Methods Applied and Interpretation of Parameters:**

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.



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## DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB =  $6.1\mu\text{V}$ , full range =  $-100\dots+300\text{ mV}$   
Low Range: 1LSB =  $61\text{nV}$ , full range =  $-1\dots+3\text{mV}$

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| Calibration Factors | X                          | Y                          | Z                          |
|---------------------|----------------------------|----------------------------|----------------------------|
| High Range          | $404.110 \pm 0.15\% (k=2)$ | $403.634 \pm 0.15\% (k=2)$ | $404.056 \pm 0.15\% (k=2)$ |
| Low Range           | $3.95185 \pm 0.7\% (k=2)$  | $3.93955 \pm 0.7\% (k=2)$  | $3.90561 \pm 0.7\% (k=2)$  |

## Connector Angle

|                                           |                        |
|-------------------------------------------|------------------------|
| Connector Angle to be used in DASY system | $65^\circ \pm 1^\circ$ |
|-------------------------------------------|------------------------|

1210

Speag - K3

## IMPORTANT NOTICE

### USAGE OF THE DAE4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

**Battery Exchange:** The battery cover of the DAE4 unit is fixed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

**Shipping of the DAE:** Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

**E-Stop Failures:** Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

**Repair:** Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

**DASY Configuration Files:** Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

#### Important Note:

**Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.**

#### Important Note:

**Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.**

#### Important Note:

**To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.**



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **DAE4-1210\_Jul20**

## CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BM - SN: 1210**

Calibration procedure(s) **QA CAL-05.v30**  
**Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **July 27, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards             | ID #               | Cal Date (Certificate No.) | Scheduled Calibration  |
|-------------------------------|--------------------|----------------------------|------------------------|
| Kelthley Multimeter Type 2001 | SN: 0810278        | 03-Sep-19 (No:25949)       | Sep-20                 |
| Secondary Standards           | ID #               | Check Date (in house)      | Scheduled Check        |
| Auto DAE Calibration Unit     | SE UWS 053 AA 1001 | 09-Jan-20 (in house check) | In house check: Jan-21 |
| Calibrator Box V2.1           | SE UMS 008 AA 1002 | 09-Jan-20 (in house check) | In house check: Jan-21 |

|                |                               |                                   |
|----------------|-------------------------------|-----------------------------------|
| Calibrated by: | Name<br><b>Adrian Gehring</b> | Function<br>Laboratory Technician |
| Approved by:   | Sven Kühn                     | Deputy Manager                    |

Signature

Issued: July 27, 2020

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Accreditation No.: **SCS 0108**

## Glossary

|                 |                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------|
| DAE             | data acquisition electronics                                                            |
| Connector angle | information used in DASY system to align probe sensor X to the robot coordinate system. |

## Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

## DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1  $\mu$ V, full range = -100...+300 mV

Low Range: 1LSB = 61 nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

| Calibration Factors | X                         | Y                         | Z                         |
|---------------------|---------------------------|---------------------------|---------------------------|
| High Range          | 404.162 $\pm$ 0.02% (k=2) | 404.982 $\pm$ 0.02% (k=2) | 405.090 $\pm$ 0.02% (k=2) |
| Low Range           | 3.99951 $\pm$ 1.50% (k=2) | 3.99092 $\pm$ 1.50% (k=2) | 3.95059 $\pm$ 1.50% (k=2) |

## Connector Angle

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Connector Angle to be used in DASY system | 346.0 $^{\circ}$ $\pm$ 1 $^{\circ}$ |
|-------------------------------------------|-------------------------------------|

## Appendix (Additional assessments outside the scope of SCS0108)

### 1. DC Voltage Linearity

| High Range |         | Reading ( $\mu\text{V}$ ) | Difference ( $\mu\text{V}$ ) | Error (%) |
|------------|---------|---------------------------|------------------------------|-----------|
| Channel X  | + Input | 199996.55                 | 0.86                         | 0.00      |
| Channel X  | + Input | 20003.46                  | 1.82                         | 0.01      |
| Channel X  | - Input | -19999.22                 | 2.95                         | -0.01     |
| Channel Y  | + Input | 199995.01                 | -0.81                        | -0.00     |
| Channel Y  | + Input | 20000.50                  | -0.99                        | -0.00     |
| Channel Y  | - Input | -20001.74                 | 0.48                         | -0.00     |
| Channel Z  | + Input | 199993.65                 | -2.05                        | -0.00     |
| Channel Z  | + Input | 20000.87                  | -0.52                        | -0.00     |
| Channel Z  | - Input | -20002.17                 | 0.12                         | -0.00     |

| Low Range |         | Reading ( $\mu\text{V}$ ) | Difference ( $\mu\text{V}$ ) | Error (%) |
|-----------|---------|---------------------------|------------------------------|-----------|
| Channel X | + Input | 2001.48                   | 0.71                         | 0.04      |
| Channel X | + Input | 202.17                    | 0.99                         | 0.49      |
| Channel X | - Input | -198.74                   | -0.08                        | 0.04      |
| Channel Y | + Input | 2001.11                   | 0.41                         | 0.02      |
| Channel Y | + Input | 200.90                    | -0.24                        | -0.12     |
| Channel Y | - Input | -199.54                   | -0.82                        | 0.42      |
| Channel Z | + Input | 2000.50                   | -0.11                        | -0.01     |
| Channel Z | + Input | 200.24                    | -0.82                        | -0.41     |
| Channel Z | - Input | -199.89                   | -1.02                        | 0.52      |

### 2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

|           | Common mode Input Voltage (mV) | High Range Average Reading ( $\mu\text{V}$ ) | Low Range Average Reading ( $\mu\text{V}$ ) |
|-----------|--------------------------------|----------------------------------------------|---------------------------------------------|
| Channel X | 200                            | -6.78                                        | -8.90                                       |
|           | - 200                          | 10.13                                        | 8.29                                        |
| Channel Y | 200                            | -8.84                                        | -9.15                                       |
|           | - 200                          | 8.75                                         | 8.46                                        |
| Channel Z | 200                            | 12.20                                        | 12.07                                       |
|           | - 200                          | -14.74                                       | -14.25                                      |

### 3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

|           | Input Voltage (mV) | Channel X ( $\mu\text{V}$ ) | Channel Y ( $\mu\text{V}$ ) | Channel Z ( $\mu\text{V}$ ) |
|-----------|--------------------|-----------------------------|-----------------------------|-----------------------------|
| Channel X | 200                | -                           | 2.65                        | -4.04                       |
| Channel Y | 200                | 8.36                        | -                           | 2.84                        |
| Channel Z | 200                | 9.58                        | 7.02                        | -                           |

#### 4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

|           | High Range (LSE) | Low Range (LSB) |
|-----------|------------------|-----------------|
| Channel X | 15961            | 15923           |
| Channel Y | 15952            | 15701           |
| Channel Z | 15867            | 16022           |

#### 5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M $\Omega$

|           | Average ( $\mu$ V) | min. Offset ( $\mu$ V) | max. Offset ( $\mu$ V) | Std. Deviation ( $\mu$ V) |
|-----------|--------------------|------------------------|------------------------|---------------------------|
| Channel X | -0.08              | -1.17                  | 1.37                   | 0.42                      |
| Channel Y | -0.23              | -1.47                  | 0.68                   | 0.40                      |
| Channel Z | 0.14               | -0.59                  | 1.76                   | 0.36                      |

#### 6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

#### 7. Input Resistance (Typical values for information)

|           | Zeroing (kOhm) | Measuring (MOhm) |
|-----------|----------------|------------------|
| Channel X | 200            | 200              |
| Channel Y | 200            | 200              |
| Channel Z | 200            | 200              |

#### 8. Low Battery Alarm Voltage (Typical values for information)

| Typical values | Alarm Level (VDC) |
|----------------|-------------------|
| Supply (+ Vcc) | +7.9              |
| Supply (- Vcc) | -7.6              |

#### 9. Power Consumption (Typical values for information)

| Typical values | Switched off (mA) | Stand by (mA) | Transmitting (mA) |
|----------------|-------------------|---------------|-------------------|
| Supply (+ Vcc) | +0.01             | +6            | +14               |
| Supply (- Vcc) | -0.01             | -8            | -9                |



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Accreditation No.: **SCS 0108**

Client **Tejet (Auden)**

Certificate No: **ES3-3241\_May20**

## CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3241**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v7**  
**Calibration procedure for dosimetric E-field probes**

Calibration date: **May 14, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|----------------------------|------------------|-----------------------------------|------------------------|
| Power meter NRP            | SN: 104778       | 01-Apr-20 (No. 217-03100/03101)   | Apr-21                 |
| Power sensor NRP-Z91       | SN: 103244       | 01-Apr-20 (No. 217-03100)         | Apr-21                 |
| Power sensor NRP-Z91       | SN: 103245       | 01-Apr-20 (No. 217-03101)         | Apr-21                 |
| Reference 20 dB Attenuator | SN: CC2552 (20x) | 31-Mar-20 (No. 217-03106)         | Apr-21                 |
| DAE4                       | SN: 660          | 27-Dec-19 (No. DAE4-660_Dec19)    | Dec-20                 |
| Reference Probe ES3DV2     | SN: 3013         | 31-Dec-19 (No. ES3-3013_Dec19)    | Dec-20                 |
| Secondary Standards        | ID               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B         | SN: GB41293874   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: MY41498087   | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A        | SN: 000110210    | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C      | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A    | SN: US41080477   | 31-Mar-14 (in house check Oct-19) | In house check: Oct-20 |

|                                                                                                                 | Name           | Function              | Signature            |
|-----------------------------------------------------------------------------------------------------------------|----------------|-----------------------|----------------------|
| Calibrated by:                                                                                                  | Jeton Kastrati | Laboratory Technician |                      |
| Approved by:                                                                                                    | Katja Pokovic  | Technical Manager     |                      |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       | Issued: May 16, 2020 |



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Accreditation No.: **SCS 0108**

### Glossary:

|                       |                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                   | tissue simulating liquid                                                                                                                          |
| NORM <sub>x,y,z</sub> | sensitivity in free space                                                                                                                         |
| ConvF                 | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                        |
| DCP                   | diode compression point                                                                                                                           |
| CF                    | crest factor (1/duty_cycle) of the RF signal                                                                                                      |
| A, B, C, D            | modulation dependent linearization parameters                                                                                                     |
| Polarization $\phi$   | $\phi$ rotation around probe axis                                                                                                                 |
| Polarization $\theta$ | $\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center),<br>i.e., $\theta = 0$ is normal to probe axis |
| Connector Angle       | information used in DASY system to align probe sensor X to the robot coordinate system                                                            |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; A, B, C, D** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Basic Calibration Parameters

|                                                    | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|----------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V/m})^2$ ) <sup>A</sup> | 1.16     | 0.84     | 1.11     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                              | 103.3    | 108.0    | 103.8    |               |

### Calibration Results for Modulation Response

| UID | Communication System Name |   | A<br>dB | B<br>dB $\sqrt{\mu\text{V}}$ | C   | D<br>dB | VR<br>mV | Max<br>dev.  | Unc <sup>C</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------------|-----|---------|----------|--------------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                          | 1.0 | 0.00    | 177.6    | $\pm 3.3 \%$ | $\pm 4.7 \%$              |
|     |                           | Y | 0.0     | 0.0                          | 1.0 |         | 168.8    |              |                           |
|     |                           | Z | 0.0     | 0.0                          | 1.0 |         | 173.6    |              |                           |

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 5).

<sup>B</sup> Numerical linearization parameter; uncertainty not required.

<sup>C</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 69         |
| Mechanical Surface Detection Mode             | enabled    |
| Optical Surface Detection Mode                | disabled   |
| Probe Overall Length                          | 337 mm     |
| Probe Body Diameter                           | 10 mm      |
| Tip Length                                    | 10 mm      |
| Tip Diameter                                  | 4 mm       |
| Probe Tip to Sensor X Calibration Point       | 2 mm       |
| Probe Tip to Sensor Y Calibration Point       | 2 mm       |
| Probe Tip to Sensor Z Calibration Point       | 2 mm       |
| Recommended Measurement Distance from Surface | 3 mm       |

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth (mm) <sup>G</sup> | Unc (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-----------|
| 750                  | 41.9                               | 0.89                            | 6.45    | 6.45    | 6.45    | 0.80               | 1.25                    | ± 12.0 %  |
| 835                  | 41.5                               | 0.90                            | 6.26    | 6.26    | 6.26    | 0.60               | 1.38                    | ± 12.0 %  |
| 1750                 | 40.1                               | 1.37                            | 5.22    | 5.22    | 5.22    | 0.31               | 1.81                    | ± 12.0 %  |
| 1900                 | 40.0                               | 1.40                            | 5.04    | 5.04    | 5.04    | 0.49               | 1.42                    | ± 12.0 %  |
| 2000                 | 40.0                               | 1.40                            | 4.99    | 4.99    | 4.99    | 0.47               | 1.43                    | ± 12.0 %  |
| 2300                 | 39.5                               | 1.67                            | 4.81    | 4.81    | 4.81    | 0.62               | 1.50                    | ± 12.0 %  |
| 2450                 | 39.2                               | 1.80                            | 4.59    | 4.59    | 4.59    | 0.56               | 1.60                    | ± 12.0 %  |
| 2600                 | 39.0                               | 1.96                            | 4.42    | 4.42    | 4.42    | 0.65               | 1.50                    | ± 12.0 %  |

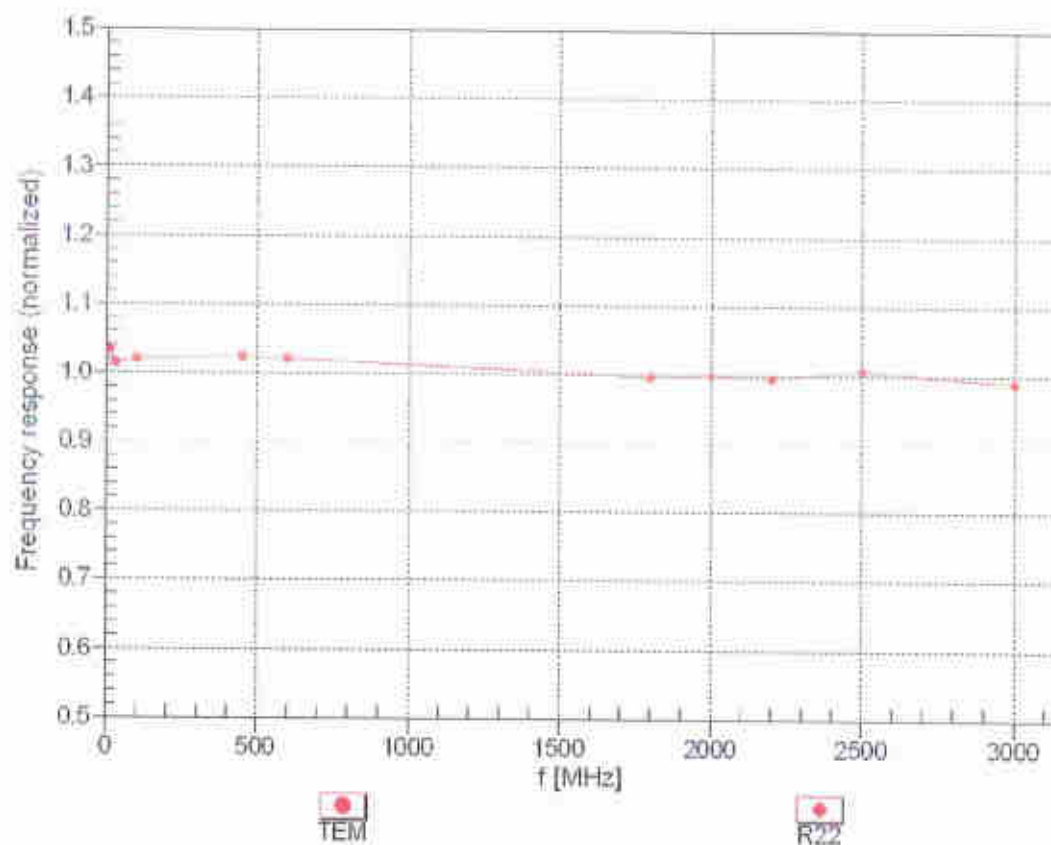
<sup>C</sup> Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

## Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



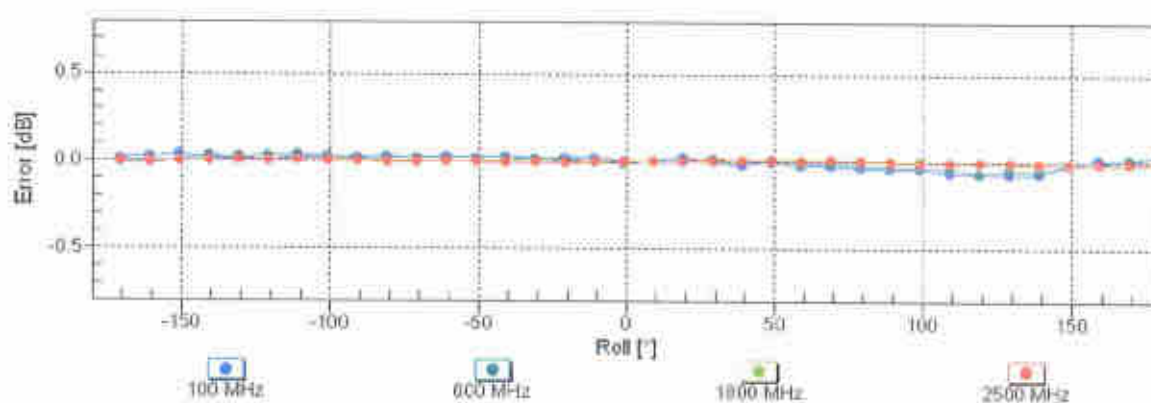
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$

f=600 MHz,TEM

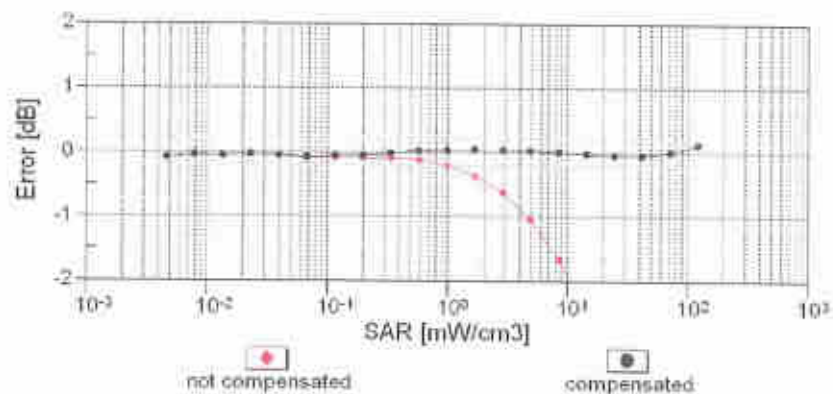
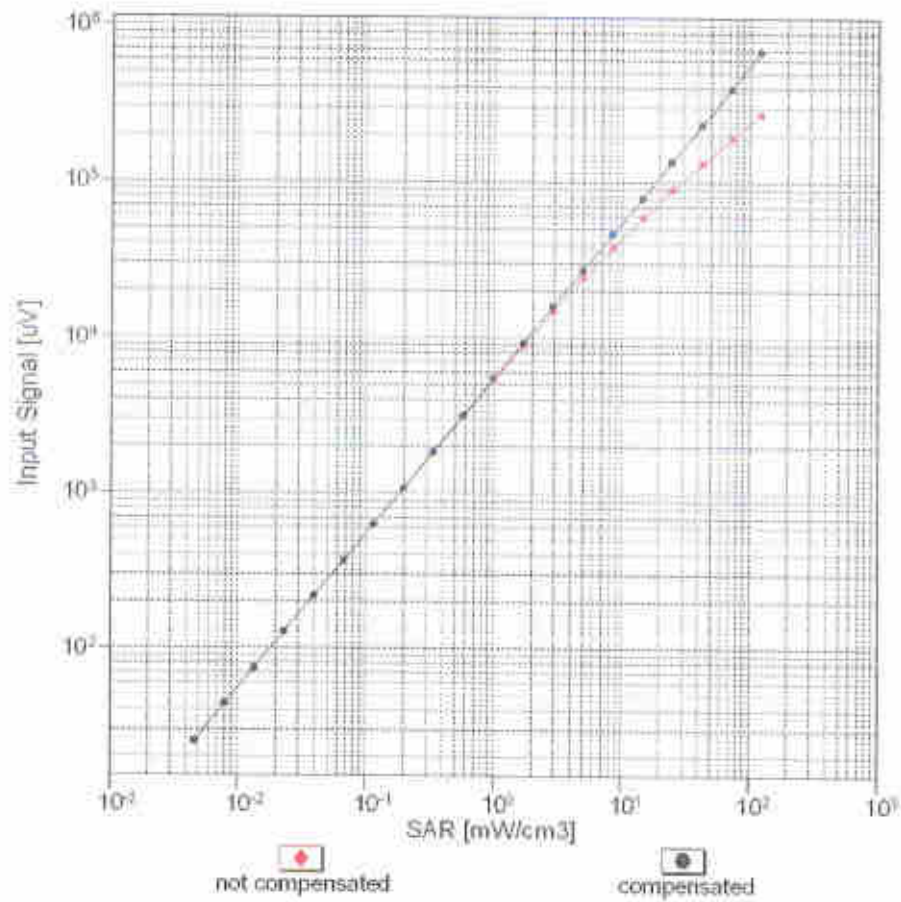


f=1800 MHz,R22



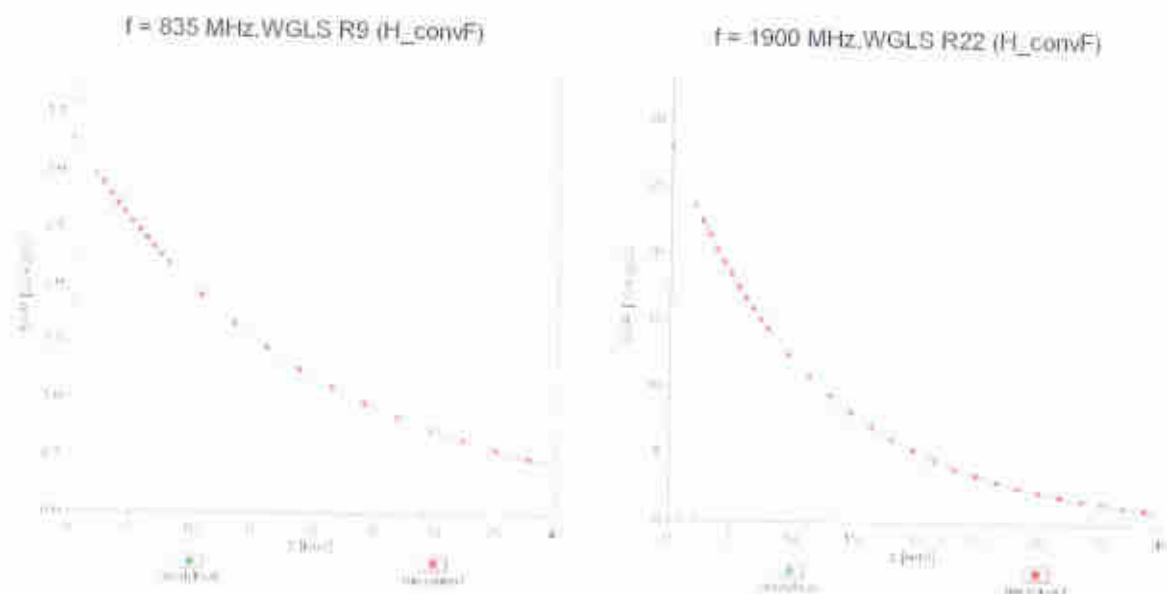
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

# Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f_{\text{eval}} = 1900 \text{ MHz}$ )



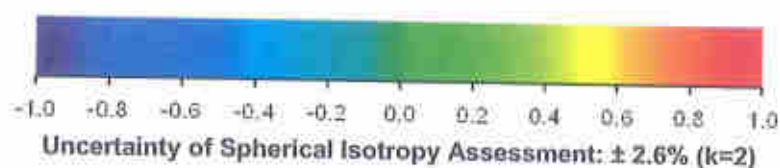
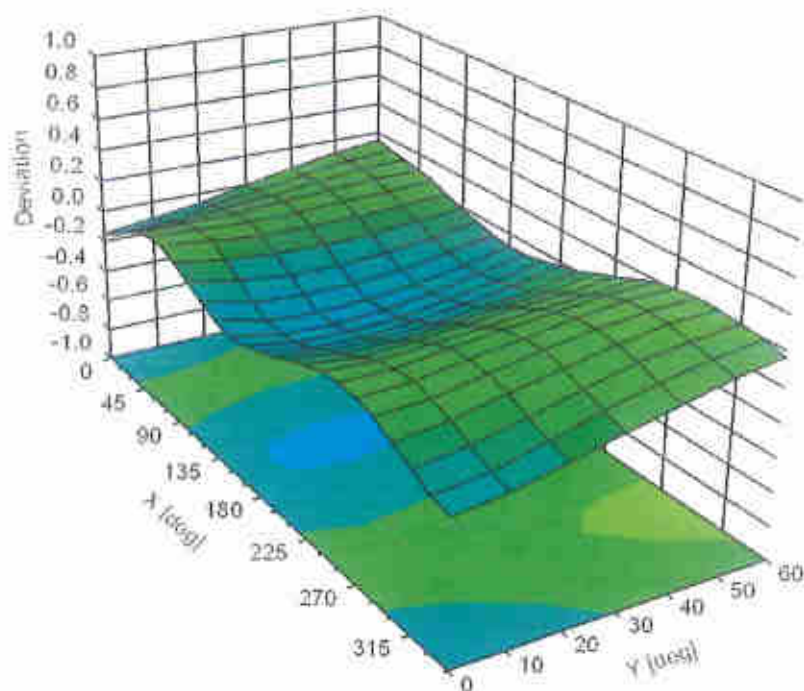
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

## Conversion Factor Assessment



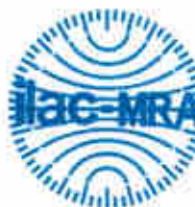
## Deviation from Isotropy in Liquid

Error ( $\phi, \theta$ ),  $f = 900 \text{ MHz}$





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Client

**Auden**

Certificate No: **Z20-60166**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN : 3826**

Calibration Procedure(s) **FF-Z11-004-01**  
**Calibration Procedures for Dosimetric E-field Probes**

Calibration date: **May 20, 2020**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature( $22\pm 3$ ) $^{\circ}\text{C}$  and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards        | ID #        | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|--------------------------|-------------|------------------------------------------|-----------------------|
| Power Meter NRP2         | 101919      | 18-Jun-19(CTTL, No.J19X05125)            | Jun-20                |
| Power sensor NRP-Z91     | 101547      | 18-Jun-19(CTTL, No.J19X05125)            | Jun-20                |
| Power sensor NRP-Z91     | 101548      | 18-Jun-19(CTTL, No.J19X05125)            | Jun-20                |
| Reference 10dBAttenuator | 18N50W-10dB | 10-Feb-20(CTTL, No.J20X00525)            | Feb-22                |
| Reference 20dBAttenuator | 18N50W-20dB | 10-Feb-20(CTTL, No.J20X00526)            | Feb-22                |
| Reference Probe EX3DV4   | SN 3617     | 30-Jan-20(SPEAG, No.EX3-3617_Jan20/2)    | Jan-21                |
| DAE4                     | SN 1556     | 4-Feb-20(SPEAG, No.DAE4-1556_Feb20)      | Feb-21                |

| Secondary Standards     | ID #       | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|------------|------------------------------------------|-----------------------|
| SignalGenerator MG3700A | 6201052605 | 18-Jun-19(CTTL, No.J19X05127)            | Jun-20                |
| Network Analyzer E5071C | MY46110673 | 10-Feb-20(CTTL, No.J20X00515)            | Feb-21                |

|                | Name        | Function           | Signature |
|----------------|-------------|--------------------|-----------|
| Calibrated by: | Yu Zongying | SAR Test Engineer  |           |
| Reviewed by:   | Lin Hao     | SAR Test Engineer  |           |
| Approved by:   | Qi Dianyuan | SAR Project Leader |           |

Issued: May 22, 2020

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## Glossary:

|                       |                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                   | tissue simulating liquid                                                                                                                    |
| NORM <sub>x,y,z</sub> | sensitivity in free space                                                                                                                   |
| ConvF                 | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                  |
| DCP                   | diode compression point                                                                                                                     |
| CF                    | crest factor (1/duty_cycle) of the RF signal                                                                                                |
| A,B,C,D               | modulation dependent linearization parameters                                                                                               |
| Polarization $\Phi$   | $\Phi$ rotation around probe axis                                                                                                           |
| Polarization $\theta$ | $\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i<br>$\theta=0$ is normal to probe axis |

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

## Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>: Assessed for E-field polarization  $\theta=0$  ( $f \leq 900\text{MHz}$  in TEM-cell;  $f > 1800\text{MHz}$ : waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- NORM( $f$ )<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800\text{MHz}$ ) and inside waveguide using analytical field distributions based on power measurements for  $f > 800\text{MHz}$ . The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50\text{MHz}$  to  $\pm 100\text{MHz}$ .
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).



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[Http://www.chinattl.cn](http://www.chinattl.cn)**DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826****Basic Calibration Parameters**

|                                      | Sensor X | Sensor Y | Sensor Z | Unc ( $k=2$ ) |
|--------------------------------------|----------|----------|----------|---------------|
| Norm( $\mu V/(V/m)^2$ ) <sup>A</sup> | 0.48     | 0.41     | 0.36     | $\pm 10.0\%$  |
| DCP(mV) <sup>B</sup>                 | 100.2    | 99.8     | 103.2    |               |

**Modulation Calibration Parameters**

| UID | Communication System Name |   | A<br>dB | B<br>dB/ $\mu V$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>( $k=2$ ) |
|-----|---------------------------|---|---------|------------------|-----|---------|----------|-------------------------------|
| 0   | CW                        | X | 0.0     | 0.0              | 1.0 | 0.00    | 160.2    | $\pm 2.7\%$                   |
|     |                           | Y | 0.0     | 0.0              | 1.0 |         | 141.6    |                               |
|     |                           | Z | 0.0     | 0.0              | 1.0 |         | 130.8    |                               |

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution Corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 4).

<sup>B</sup> Numerical linearization parameter; uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 41.9                               | 0.89                            | 9.37    | 9.37    | 9.37    | 0.40               | 0.80                    | ±12.1%      |
| 835                  | 41.5                               | 0.90                            | 9.12    | 9.12    | 9.12    | 0.17               | 1.26                    | ±12.1%      |
| 900                  | 41.5                               | 0.97                            | 9.10    | 9.10    | 9.10    | 0.18               | 1.30                    | ±12.1%      |
| 1750                 | 40.1                               | 1.37                            | 7.98    | 7.98    | 7.98    | 0.19               | 1.14                    | ±12.1%      |
| 1900                 | 40.0                               | 1.40                            | 7.67    | 7.67    | 7.67    | 0.22               | 1.14                    | ±12.1%      |
| 2000                 | 40.0                               | 1.40                            | 7.77    | 7.77    | 7.77    | 0.24               | 1.10                    | ±12.1%      |
| 2300                 | 39.5                               | 1.67                            | 7.35    | 7.35    | 7.35    | 0.51               | 0.73                    | ±12.1%      |
| 2450                 | 39.2                               | 1.80                            | 7.12    | 7.12    | 7.12    | 0.53               | 0.72                    | ±12.1%      |
| 2600                 | 39.0                               | 1.96                            | 6.94    | 6.94    | 6.94    | 0.45               | 0.85                    | ±12.1%      |
| 3500                 | 37.9                               | 2.91                            | 6.62    | 6.62    | 6.62    | 0.39               | 0.98                    | ±13.3%      |
| 5250                 | 35.9                               | 4.71                            | 5.09    | 5.09    | 5.09    | 0.45               | 1.30                    | ±13.3%      |
| 5600                 | 35.5                               | 5.07                            | 4.66    | 4.66    | 4.66    | 0.45               | 1.40                    | ±13.3%      |
| 5750                 | 35.4                               | 5.22                            | 4.68    | 4.68    | 4.68    | 0.45               | 1.40                    | ±13.3%      |

<sup>C</sup> Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

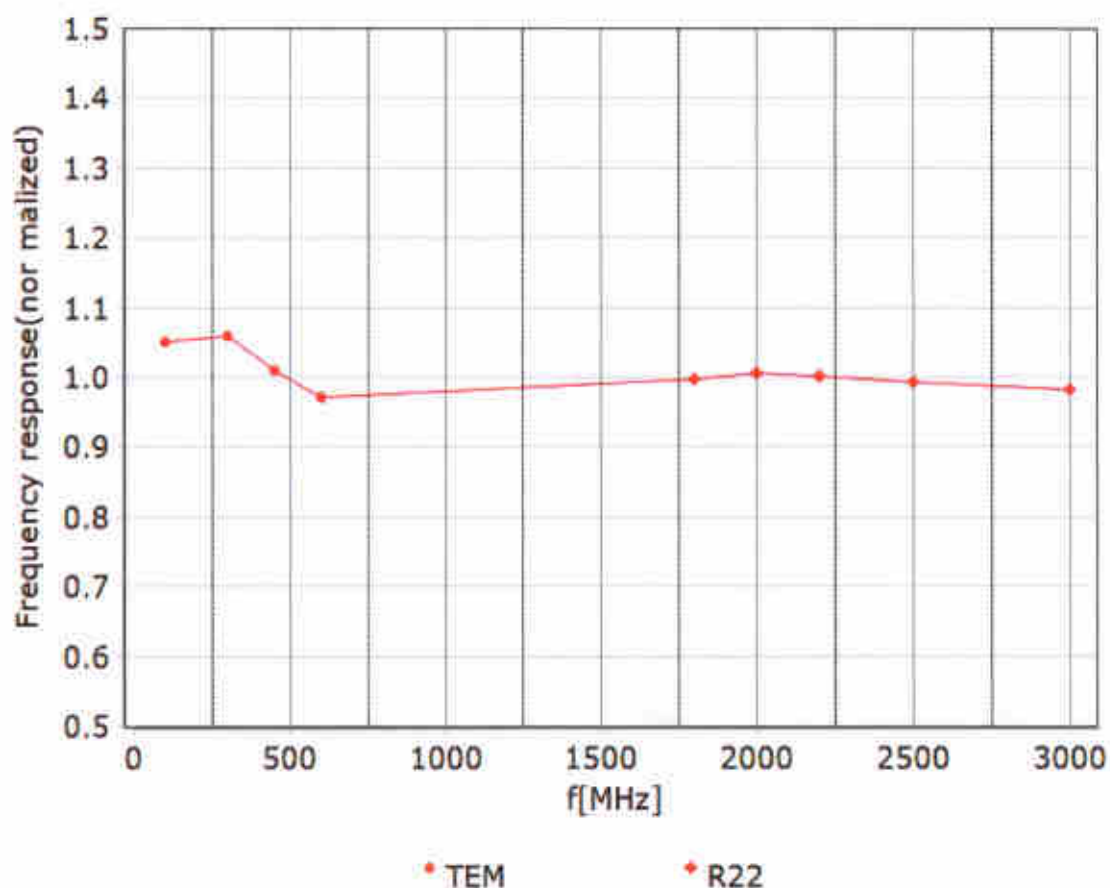
Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: [cttl@chinattl.com](mailto:cttl@chinattl.com)

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## Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 7.4\%$  ( $k=2$ )

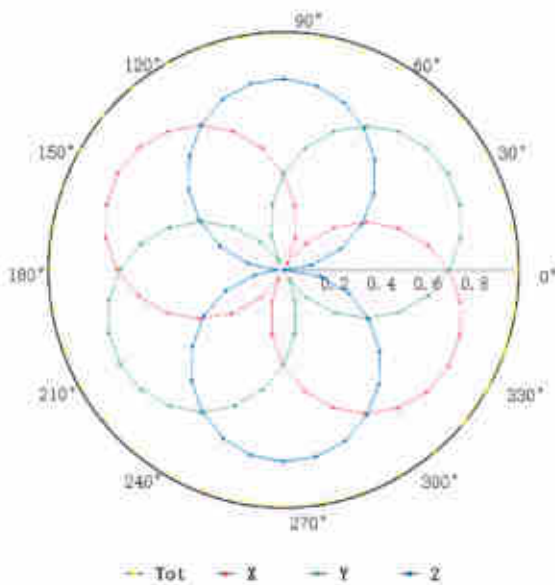


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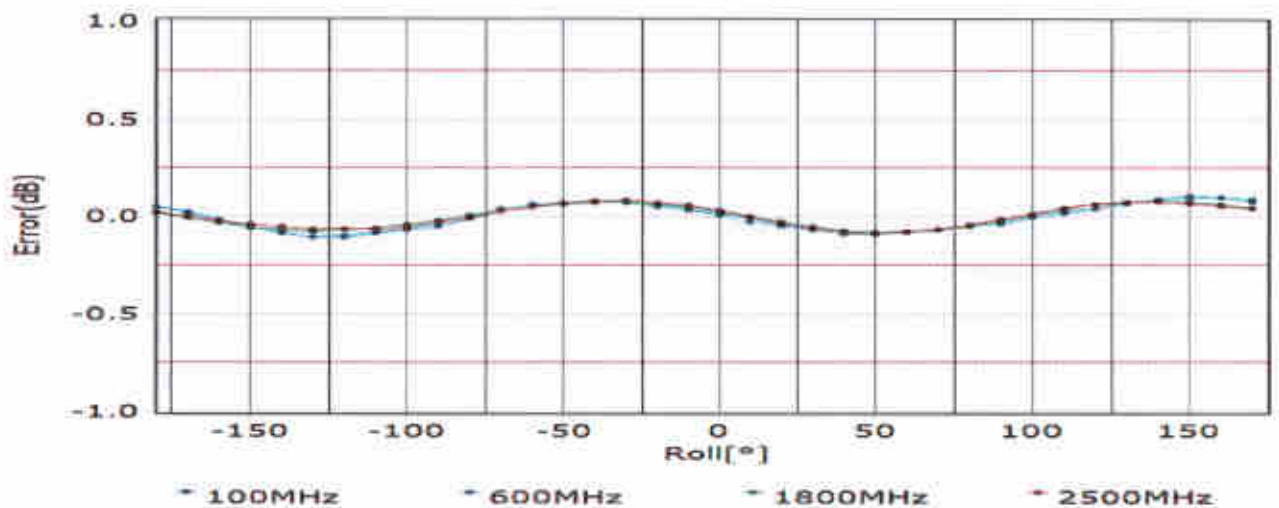
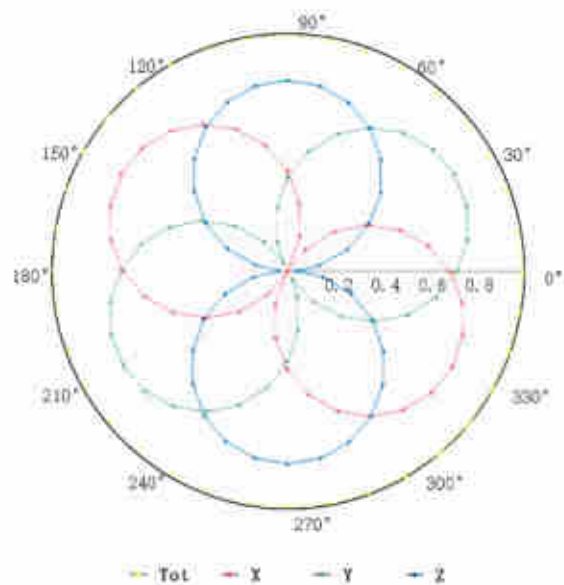
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
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E-mail: cttl@chinattl.com <http://www.chinattl.cn>

## Receiving Pattern ( $\Phi$ ), $\theta=0^\circ$

**f=600 MHz, TEM**



**f=1800 MHz, R22**



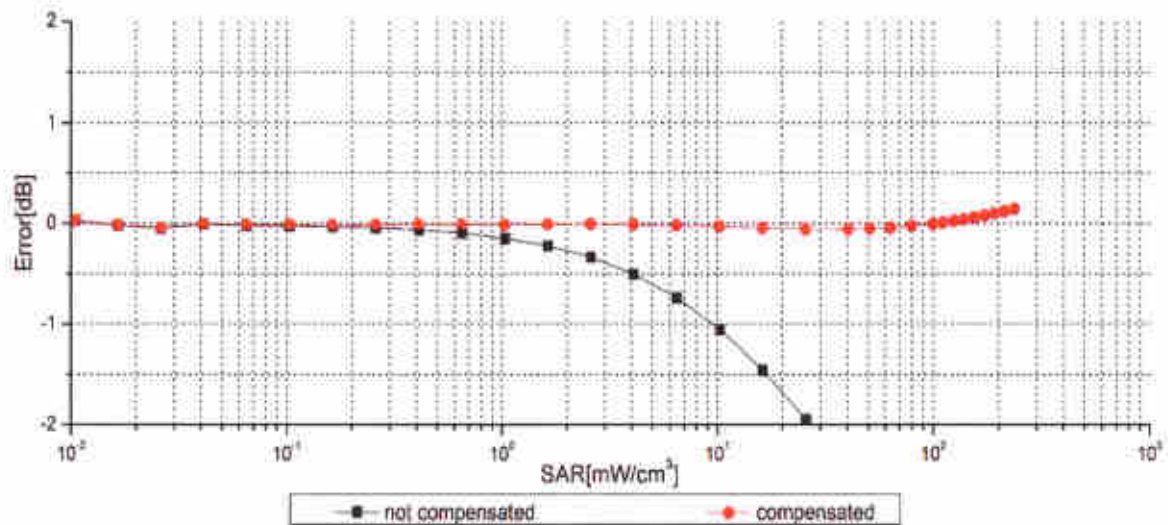
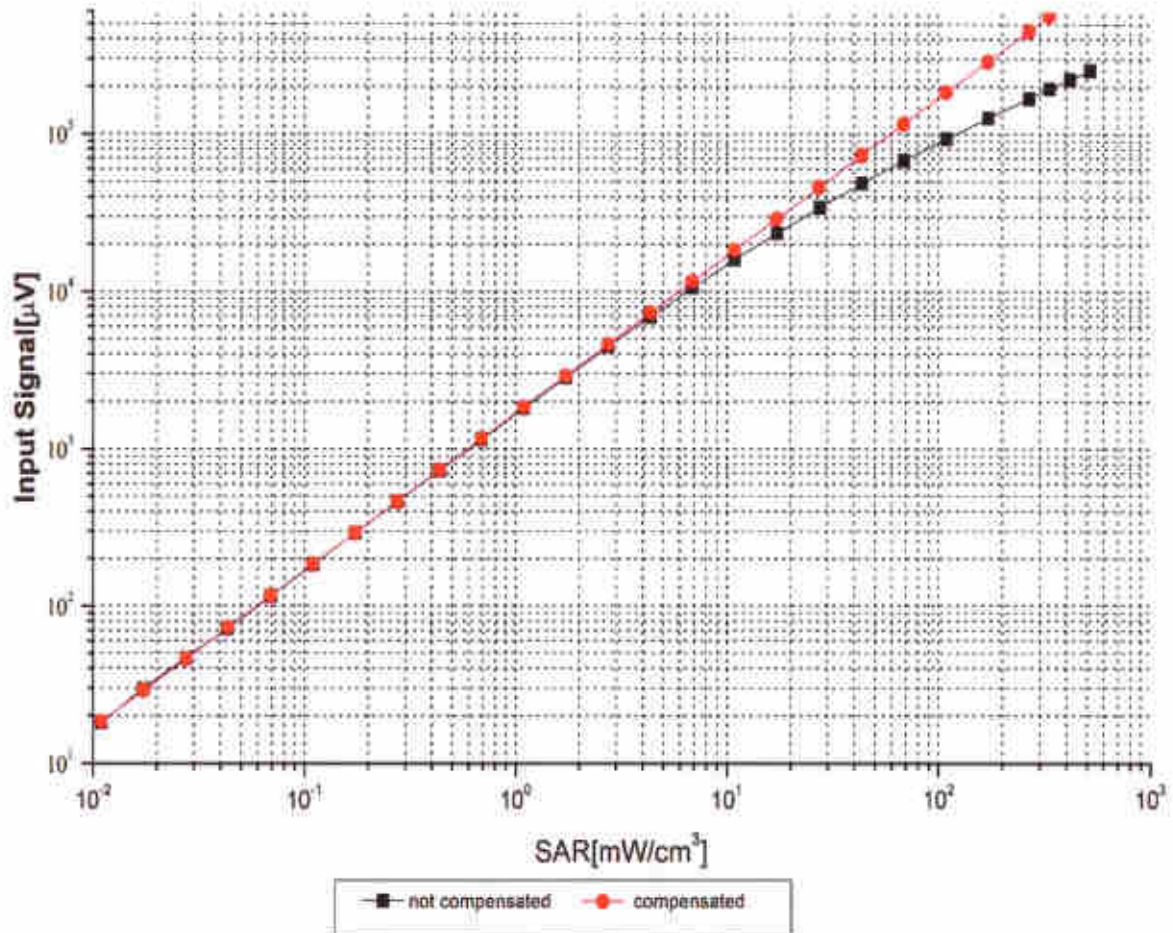
Uncertainty of Axial Isotropy Assessment:  $\pm 1.2\%$  ( $k=2$ )



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## Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$ )



Uncertainty of Linearity Assessment:  $\pm 0.9\%$  ( $k=2$ )



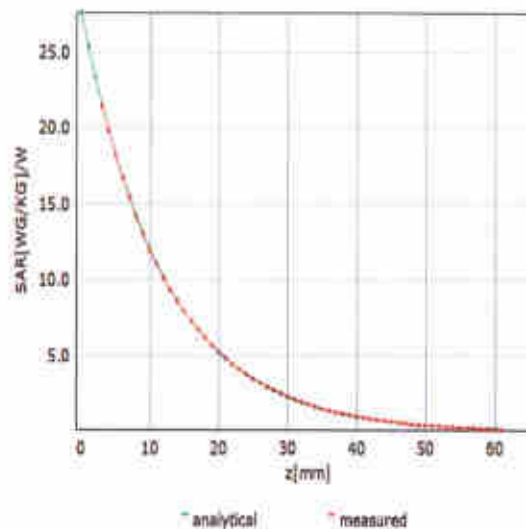
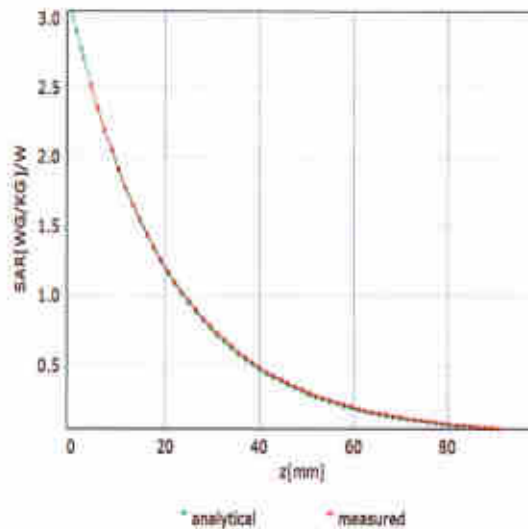
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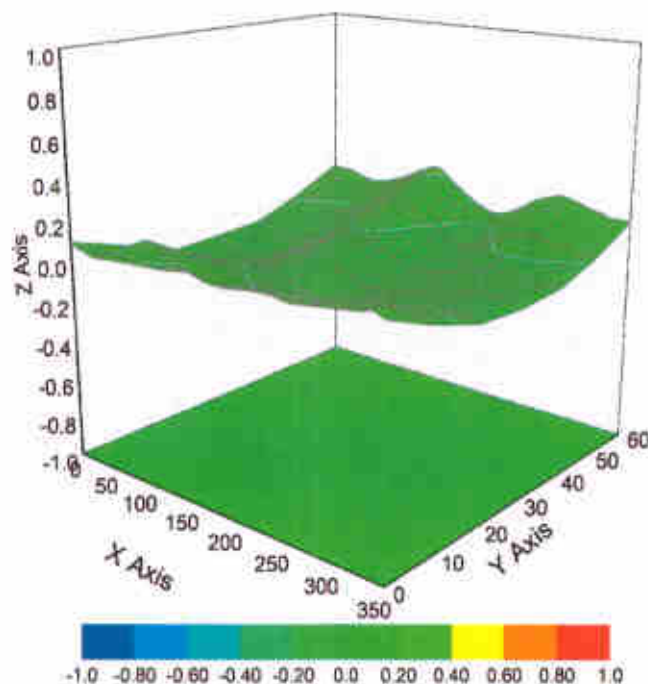
## Conversion Factor Assessment

f=750 MHz,WGLS R9(H\_convF)

f=1750 MHz,WGLS R22(H\_convF)



## Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment:  $\pm 3.2\%$  ( $k=2$ )



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## **DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826**

### **Other Probe Parameters**

|                                                      |                   |
|------------------------------------------------------|-------------------|
| <b>Sensor Arrangement</b>                            | <b>Triangular</b> |
| <b>Connector Angle (°)</b>                           | <b>51.5</b>       |
| <b>Mechanical Surface Detection Mode</b>             | <b>enabled</b>    |
| <b>Optical Surface Detection Mode</b>                | <b>disable</b>    |
| <b>Probe Overall Length</b>                          | <b>337mm</b>      |
| <b>Probe Body Diameter</b>                           | <b>10mm</b>       |
| <b>Tip Length</b>                                    | <b>10mm</b>       |
| <b>Tip Diameter</b>                                  | <b>2.5mm</b>      |
| <b>Probe Tip to Sensor X Calibration Point</b>       | <b>1mm</b>        |
| <b>Probe Tip to Sensor Y Calibration Point</b>       | <b>1mm</b>        |
| <b>Probe Tip to Sensor Z Calibration Point</b>       | <b>1mm</b>        |
| <b>Recommended Measurement Distance from Surface</b> | <b>1.4mm</b>      |



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## ***Appendix E. Conducted RF Output Power Table***

The detailed power table are shown as follows.

## Full Power

| GSM850          | Burst Average Power (dBm) |       |       | Tune-up<br>Limit<br>(dBm) | Frame-Average Power (dBm) |       |       | Tune-up<br>Limit<br>(dBm) |
|-----------------|---------------------------|-------|-------|---------------------------|---------------------------|-------|-------|---------------------------|
|                 | 125                       | 169   | 251   |                           | 125                       | 169   | 251   |                           |
| Tx Channel      | 824.2                     | 836.4 | 848.8 |                           | 824.2                     | 836.4 | 848.8 |                           |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 |                           | 824.2                     | 836.4 | 848.8 |                           |
| GSM 1 Tx slot   | 32.81                     | 32.99 | 32.87 | 33.50                     | 23.81                     | 23.99 | 23.87 | 24.50                     |
| GPRS 1 Tx slot  | 32.80                     | 32.97 | 32.83 | 33.50                     | 23.80                     | 23.97 | 23.83 | 24.50                     |
| GPRS 2 Tx slots | 31.46                     | 31.28 | 31.16 | 32.00                     | 25.46                     | 25.28 | 25.16 | 26.00                     |
| GPRS 3 Tx slots | 28.78                     | 28.76 | 28.76 | 29.50                     | 24.52                     | 24.50 | 24.50 | 25.24                     |
| GPRS 4 Tx slots | 26.22                     | 26.31 | 26.25 | 27.00                     | 23.22                     | 23.31 | 23.25 | 24.00                     |
| EDGE 1 Tx slot  | 26.64                     | 26.92 | 26.77 | 27.50                     | 17.84                     | 17.92 | 17.77 | 18.50                     |
| EDGE 2 Tx slots | 24.56                     | 24.58 | 24.44 | 25.50                     | 18.56                     | 18.58 | 18.44 | 19.50                     |
| EDGE 3 Tx slots | 22.34                     | 22.36 | 22.29 | 23.00                     | 18.08                     | 18.10 | 18.03 | 18.74                     |
| EDGE 4 Tx slots | 20.09                     | 20.13 | 20.04 | 21.00                     | 17.09                     | 17.13 | 17.04 | 18.00                     |

| GSM1900         | Burst Average Power (dBm) |       |        | Tune-up<br>Limit<br>(dBm) | Frame-Average Power (dBm) |       |        | Tune-up<br>Limit<br>(dBm) |
|-----------------|---------------------------|-------|--------|---------------------------|---------------------------|-------|--------|---------------------------|
|                 | 512                       | 661   | 810    |                           | 512                       | 661   | 810    |                           |
| Tx Channel      | 1852.2                    | 1860  | 1868.8 |                           | 1852.2                    | 1860  | 1868.8 |                           |
| Frequency (MHz) | 1852.2                    | 1860  | 1868.8 |                           | 1852.2                    | 1860  | 1868.8 |                           |
| GSM 1 Tx slot   | 29.63                     | 29.75 | 29.77  | 30.50                     | 20.63                     | 20.75 | 20.77  | 21.50                     |
| GPRS 1 Tx slot  | 29.58                     | 29.74 | 29.73  | 30.50                     | 20.58                     | 20.74 | 20.73  | 21.50                     |
| GPRS 2 Tx slots | 28.32                     | 28.51 | 28.50  | 29.50                     | 22.32                     | 22.51 | 22.50  | 23.50                     |
| GPRS 3 Tx slots | 25.97                     | 26.12 | 26.10  | 27.00                     | 21.71                     | 21.86 | 21.84  | 22.74                     |
| GPRS 4 Tx slots | 23.59                     | 23.72 | 23.68  | 24.50                     | 20.59                     | 20.72 | 20.68  | 21.50                     |
| EDGE 1 Tx slot  | 25.48                     | 25.62 | 25.46  | 26.50                     | 16.48                     | 16.62 | 16.46  | 17.50                     |
| EDGE 2 Tx slots | 23.16                     | 23.26 | 23.13  | 24.00                     | 17.16                     | 17.26 | 17.13  | 18.00                     |
| EDGE 3 Tx slots | 20.95                     | 20.97 | 20.89  | 22.00                     | 16.89                     | 16.71 | 16.63  | 17.74                     |
| EDGE 4 Tx slots | 18.55                     | 18.65 | 18.44  | 19.50                     | 15.55                     | 15.65 | 15.44  | 16.50                     |

| Band            |                         | WCDMA II |       |        | Tune-up<br>Limit<br>(dBm) | WCDMA IV |        |        | Tune-up<br>Limit<br>(dBm) | WCDMA V |       |       | Tune-up<br>Limit<br>(dBm) |
|-----------------|-------------------------|----------|-------|--------|---------------------------|----------|--------|--------|---------------------------|---------|-------|-------|---------------------------|
| Tx Channel      |                         | 9262     | 9400  | 9538   |                           | 1312     | 1413   | 1513   |                           | 4132    | 4182  | 4233  |                           |
| Rx Channel      |                         | 9662     | 9800  | 9938   |                           | 1537     | 1638   | 1738   |                           | 4367    | 4407  | 4458  |                           |
| Frequency (MHz) |                         | 1552.4   | 1600  | 1647.6 |                           | 1824.4   | 1872.3 | 1920.3 |                           | 235.4   | 239.4 | 243.6 |                           |
| 3GPP Rel 99     | AMR 12.2Kbps            | 23.07    | 23.10 | 23.24  | 24.00                     | 22.70    | 22.65  | 22.74  | 24.00                     | 22.72   | 23.03 | 23.12 | 24.00                     |
| 3GPP Rel 99     | RM-C 12.2Kbps           | 23.08    | 23.11 | 23.28  | 24.00                     | 22.72    | 22.68  | 22.77  | 24.00                     | 22.74   | 23.08 | 23.13 | 24.00                     |
| 3GPP Rel 6      | HS-PA Subtest-1         | 22.27    | 22.30 | 22.44  | 23.00                     | 21.34    | 21.17  | 21.35  | 23.00                     | 21.81   | 22.16 | 22.20 | 23.00                     |
| 3GPP Rel 6      | HS-PA Subtest-2         | 22.30    | 22.29 | 22.52  | 23.00                     | 21.38    | 21.22  | 21.41  | 23.00                     | 21.84   | 22.13 | 22.19 | 23.00                     |
| 3GPP Rel 6      | HS-PA Subtest-3         | 21.79    | 21.81 | 22.01  | 22.50                     | 20.84    | 20.79  | 20.91  | 22.50                     | 21.30   | 21.66 | 21.69 | 22.50                     |
| 3GPP Rel 6      | HS-PA Subtest-4         | 21.80    | 21.82 | 21.96  | 22.50                     | 20.87    | 20.77  | 20.87  | 22.50                     | 21.29   | 21.65 | 21.72 | 22.50                     |
| 3GPP Rel 8      | DC-HS-PA Subtest-4      | 22.14    | 22.17 | 22.32  | 23.00                     | 21.20    | 21.11  | 21.28  | 23.00                     | 21.73   | 22.07 | 22.09 | 23.00                     |
| 3GPP Rel 8      | DC-HS-PA Subtest-2      | 22.24    | 22.16 | 22.38  | 23.00                     | 21.22    | 21.15  | 21.33  | 23.00                     | 21.75   | 22.03 | 22.13 | 23.00                     |
| 3GPP Rel 8      | DC-HS-PA Subtest-3      | 21.65    | 21.75 | 21.86  | 22.50                     | 20.73    | 20.65  | 20.88  | 22.50                     | 21.23   | 21.54 | 21.63 | 22.50                     |
| 3GPP Rel 8      | DC-HS-PA Subtest-4      | 21.74    | 21.72 | 21.81  | 22.50                     | 20.77    | 20.64  | 20.84  | 22.50                     | 21.19   | 21.56 | 21.65 | 22.50                     |
| 3GPP Rel 6      | HS-PA Subtest-1         | 22.10    | 22.11 | 22.16  | 23.00                     | 21.34    | 21.25  | 21.39  | 23.00                     | 22.25   | 22.27 | 22.44 | 23.00                     |
| 3GPP Rel 6      | HS-PA Subtest-2         | 20.12    | 20.14 | 20.18  | 21.00                     | 19.35    | 19.24  | 19.57  | 21.00                     | 20.28   | 20.30 | 20.45 | 21.00                     |
| 3GPP Rel 6      | HS-PA Subtest-3         | 21.07    | 21.10 | 21.18  | 22.00                     | 20.22    | 20.15  | 20.36  | 22.00                     | 21.26   | 21.31 | 21.45 | 22.00                     |
| 3GPP Rel 6      | HS-PA Subtest-4         | 20.12    | 20.15 | 20.16  | 21.00                     | 19.36    | 19.30  | 19.48  | 21.00                     | 20.22   | 20.28 | 20.43 | 21.00                     |
| 3GPP Rel 6      | HS-PA Subtest-5         | 22.20    | 22.20 | 22.20  | 23.00                     | 21.30    | 21.20  | 21.40  | 23.00                     | 22.30   | 22.30 | 22.50 | 23.00                     |
| 3GPP Rel 7      | HSPA+ (16QAM) Subtest-1 | 19.77    | 19.83 | 19.86  | 20.50                     | 18.92    | 18.77  | 19.03  | 20.50                     | 19.78   | 19.81 | 19.92 | 20.50                     |

| Band             |  | CDMA BC0 |        |        | Tune-up<br>Limit<br>(dBm) | CDMA BC1 |       |         | Tune-up<br>Limit<br>(dBm) | CDMA BC10 |       |       | Tune-up<br>Limit<br>(dBm) |
|------------------|--|----------|--------|--------|---------------------------|----------|-------|---------|---------------------------|-----------|-------|-------|---------------------------|
| Tx Channel       |  | 1013     | 384    | 777    |                           | 25       | 600   | 1175    |                           | 476       | 580   | 684   |                           |
| Frequency (MHz)  |  | 824.7    | 836.52 | 848.31 |                           | 1851.25  | 1860  | 1908.75 |                           | 817.9     | 820.5 | 823.1 |                           |
| RC1 SOSS         |  | 23.97    | 24.06  | 24.10  | 25.00                     | 24.04    | 24.19 | 24.12   | 25.00                     | 23.80     | 23.90 | 23.97 | 25.00                     |
| RC3 SOSS         |  | 23.95    | 24.06  | 24.09  | 25.00                     | 24.04    | 24.18 | 24.12   | 25.00                     | 23.80     | 23.89 | 23.96 | 25.00                     |
| RC3 SO32 (F-SCH) |  | 23.92    | 24.04  | 24.06  | 25.00                     | 24.02    | 24.17 | 24.10   | 25.00                     | 23.78     | 23.88 | 23.94 | 25.00                     |
| RC3 SO32 (H-SCH) |  | 23.88    | 24.02  | 24.04  | 25.00                     | 24.00    | 24.15 | 24.06   | 25.00                     | 23.76     | 23.85 | 23.92 | 25.00                     |
| RTAP 153.6Kbps   |  | 23.96    | 24.04  | 24.08  | 25.00                     | 24.03    | 24.17 | 24.10   | 25.00                     | 23.79     | 23.88 | 23.94 | 25.00                     |
| RETAP 4096Bits   |  | 23.93    | 24.01  | 24.06  | 25.00                     | 24.02    | 24.16 | 24.10   | 25.00                     | 23.78     | 23.86 | 23.93 | 25.00                     |

| Band 2 (1900MHz Band) |            |         |           |                       |                          |                        |                     |           |  |                     |           |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|-----------|--|---------------------|-----------|
| Part 24E              |            |         |           |                       |                          |                        |                     |           |  |                     |           |
| BW [MHz]              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPRR (dB) |  |                     |           |
| Channel               |            |         |           | 18700                 | 18800                    | 19100                  |                     |           |  |                     |           |
| Frequency (MHz)       |            |         |           | 1860                  | 1880                     | 1900                   |                     |           |  |                     |           |
| 20                    | QPSK       | 1       | 0         | 22.69                 | 22.76                    | 22.82                  | 24                  | 0         |  |                     |           |
| 20                    | QPSK       | 1       | 49        | 22.70                 | 22.80                    | 22.70                  |                     |           |  |                     |           |
| 20                    | QPSK       | 1       | 99        | 22.62                 | 22.63                    | 22.67                  | 23                  | 1         |  |                     |           |
| 20                    | QPSK       | 50      | 0         | 21.81                 | 21.84                    | 21.80                  |                     |           |  |                     |           |
| 20                    | QPSK       | 50      | 24        | 21.77                 | 21.82                    | 21.78                  | 23                  | 1         |  |                     |           |
| 20                    | QPSK       | 50      | 50        | 21.72                 | 21.74                    | 21.75                  |                     |           |  |                     |           |
| 20                    | QPSK       | 100     | 0         | 21.73                 | 21.79                    | 21.68                  | 23                  | 1         |  |                     |           |
| 20                    | 16QAM      | 1       | 0         | 22.04                 | 22.05                    | 22.02                  |                     |           |  |                     |           |
| 20                    | 16QAM      | 1       | 49        | 22.02                 | 22.09                    | 22.08                  | 22                  | 2         |  |                     |           |
| 20                    | 16QAM      | 1       | 99        | 21.86                 | 22.01                    | 22.05                  |                     |           |  |                     |           |
| 20                    | 16QAM      | 50      | 0         | 20.86                 | 20.90                    | 20.76                  | 22.5                | 1.5       |  |                     |           |
| 20                    | 16QAM      | 50      | 24        | 20.90                 | 20.88                    | 20.85                  |                     |           |  |                     |           |
| 20                    | 16QAM      | 50      | 50        | 20.78                 | 20.83                    | 20.82                  | 21                  | 3         |  |                     |           |
| 20                    | 16QAM      | 100     | 0         | 20.86                 | 20.84                    | 20.76                  |                     |           |  |                     |           |
| 20                    | 64QAM      | 1       | 0         | 20.98                 | 20.97                    | 20.89                  | 22.5                | 1.5       |  |                     |           |
| 20                    | 64QAM      | 1       | 49        | 20.96                 | 21.02                    | 21.01                  |                     |           |  |                     |           |
| 20                    | 64QAM      | 1       | 99        | 20.81                 | 20.88                    | 20.99                  | 21                  | 3         |  |                     |           |
| 20                    | 64QAM      | 50      | 0         | 19.90                 | 19.95                    | 19.76                  |                     |           |  |                     |           |
| 20                    | 64QAM      | 50      | 24        | 19.88                 | 19.94                    | 19.88                  | 20                  | 2         |  |                     |           |
| 20                    | 64QAM      | 50      | 50        | 19.84                 | 19.86                    | 19.84                  |                     |           |  |                     |           |
| 20                    | 64QAM      | 100     | 0         | 19.84                 | 19.90                    | 19.75                  | 21                  | 3         |  |                     |           |
| Channel               |            |         |           | 18675                 | 18800                    | 19125                  |                     |           |  | Tune-up limit (dBm) | MPRR (dB) |
| Frequency (MHz)       |            |         |           | 1857.5                | 1880                     | 1900.5                 |                     |           |  |                     |           |
| 15                    | QPSK       | 1       | 0         | 22.74                 | 22.79                    | 22.74                  | 24                  | 0         |  |                     |           |
| 15                    | QPSK       | 1       | 37        | 22.69                 | 22.74                    | 22.68                  |                     |           |  |                     |           |
| 15                    | QPSK       | 1       | 74        | 22.65                 | 22.66                    | 22.66                  | 23                  | 1         |  |                     |           |
| 15                    | QPSK       | 36      | 0         | 21.75                 | 21.81                    | 21.71                  |                     |           |  |                     |           |
| 15                    | QPSK       | 36      | 20        | 21.76                 | 21.83                    | 21.81                  | 23                  | 1         |  |                     |           |
| 15                    | QPSK       | 36      | 39        | 21.73                 | 21.78                    | 21.75                  |                     |           |  |                     |           |
| 15                    | QPSK       | 75      | 0         | 21.73                 | 21.79                    | 21.75                  | 23                  | 1         |  |                     |           |
| 15                    | 16QAM      | 1       | 0         | 22.10                 | 22.11                    | 22.10                  |                     |           |  |                     |           |
| 15                    | 16QAM      | 1       | 37        | 22.02                 | 22.06                    | 22.08                  | 22                  | 2         |  |                     |           |
| 15                    | 16QAM      | 1       | 74        | 21.92                 | 22.02                    | 22.03                  |                     |           |  |                     |           |
| 15                    | 16QAM      | 36      | 0         | 20.87                 | 20.92                    | 20.84                  | 22.5                | 1.5       |  |                     |           |
| 15                    | 16QAM      | 36      | 20        | 20.89                 | 20.89                    | 20.91                  |                     |           |  |                     |           |
| 15                    | 16QAM      | 36      | 39        | 20.83                 | 20.84                    | 20.87                  | 21                  | 3         |  |                     |           |
| 15                    | 16QAM      | 75      | 0         | 20.87                 | 20.87                    | 20.83                  |                     |           |  |                     |           |
| 15                    | 64QAM      | 1       | 0         | 21.01                 | 21.02                    | 21.05                  | 22.5                | 1.5       |  |                     |           |
| 15                    | 64QAM      | 1       | 37        | 20.95                 | 21.00                    | 21.01                  |                     |           |  |                     |           |
| 15                    | 64QAM      | 1       | 74        | 20.87                 | 20.95                    | 20.95                  | 21                  | 3         |  |                     |           |
| 15                    | 64QAM      | 36      | 0         | 19.90                 | 19.92                    | 19.87                  |                     |           |  |                     |           |
| 15                    | 64QAM      | 36      | 20        | 19.93                 | 19.95                    | 19.88                  | 20                  | 2         |  |                     |           |
| 15                    | 64QAM      | 36      | 39        | 19.91                 | 19.95                    | 19.89                  |                     |           |  |                     |           |
| 15                    | 64QAM      | 75      | 0         | 19.83                 | 19.90                    | 19.84                  | 21                  | 3         |  |                     |           |
| Channel               |            |         |           | 18650                 | 18800                    | 19150                  |                     |           |  | Tune-up limit (dBm) | MPRR (dB) |
| Frequency (MHz)       |            |         |           | 1855                  | 1880                     | 1905                   |                     |           |  |                     |           |
| 10                    | QPSK       | 1       | 0         | 22.73                 | 22.79                    | 22.72                  | 24                  | 0         |  |                     |           |
| 10                    | QPSK       | 1       | 25        | 22.70                 | 22.74                    | 22.70                  |                     |           |  |                     |           |
| 10                    | QPSK       | 1       | 49        | 22.68                 | 22.75                    | 22.68                  | 23                  | 1         |  |                     |           |
| 10                    | QPSK       | 25      | 0         | 21.75                 | 21.80                    | 21.74                  |                     |           |  |                     |           |
| 10                    | QPSK       | 25      | 12        | 21.79                 | 21.78                    | 21.76                  | 23                  | 1         |  |                     |           |
| 10                    | QPSK       | 25      | 25        | 21.71                 | 21.78                    | 21.73                  |                     |           |  |                     |           |
| 10                    | QPSK       | 50      | 0         | 21.77                 | 21.76                    | 21.71                  | 23                  | 1         |  |                     |           |
| 10                    | 16QAM      | 1       | 0         | 22.04                 | 22.07                    | 22.10                  |                     |           |  |                     |           |
| 10                    | 16QAM      | 1       | 25        | 22.00                 | 22.07                    | 22.07                  | 22                  | 2         |  |                     |           |
| 10                    | 16QAM      | 1       | 49        | 21.95                 | 22.09                    | 22.04                  |                     |           |  |                     |           |
| 10                    | 16QAM      | 25      | 0         | 20.87                 | 20.86                    | 20.84                  | 22.5                | 1.5       |  |                     |           |
| 10                    | 16QAM      | 25      | 12        | 20.86                 | 20.90                    | 20.87                  |                     |           |  |                     |           |
| 10                    | 16QAM      | 25      | 25        | 20.83                 | 20.83                    | 20.82                  | 21                  | 3         |  |                     |           |
| 10                    | 16QAM      | 50      | 0         | 20.85                 | 20.89                    | 20.82                  |                     |           |  |                     |           |
| 10                    | 64QAM      | 1       | 0         | 21.02                 | 20.99                    | 21.05                  | 22.5                | 1.5       |  |                     |           |
| 10                    | 64QAM      | 1       | 25        | 20.96                 | 20.95                    | 21.01                  |                     |           |  |                     |           |
| 10                    | 64QAM      | 1       | 49        | 20.88                 | 20.94                    | 20.98                  | 21                  | 3         |  |                     |           |
| 10                    | 64QAM      | 25      | 0         | 19.87                 | 19.90                    | 19.87                  |                     |           |  |                     |           |
| 10                    | 64QAM      | 25      | 12        | 19.87                 | 19.88                    | 19.88                  | 20                  | 2         |  |                     |           |
| 10                    | 64QAM      | 25      | 25        | 19.86                 | 19.88                    | 19.84                  |                     |           |  |                     |           |
| 10                    | 64QAM      | 50      | 0         | 19.88                 | 19.87                    | 19.84                  | 21                  | 3         |  |                     |           |
| Channel               |            |         |           | 18625                 | 18800                    | 19175                  |                     |           |  | Tune-up limit (dBm) | MPRR (dB) |
| Frequency (MHz)       |            |         |           | 1852.5                | 1880                     | 1907.5                 |                     |           |  |                     |           |
| 5                     | QPSK       | 1       | 0         | 22.75                 | 22.77                    | 22.69                  | 24                  | 0         |  |                     |           |
| 5                     | QPSK       | 1       | 12        | 22.72                 | 22.78                    | 22.66                  |                     |           |  |                     |           |
| 5                     | QPSK       | 1       | 24        | 22.73                 | 22.78                    | 22.69                  | 23                  | 1         |  |                     |           |
| 5                     | QPSK       | 12      | 0         | 21.75                 | 21.75                    | 21.74                  |                     |           |  |                     |           |
| 5                     | QPSK       | 12      | 7         | 21.80                 | 21.79                    | 21.75                  | 23                  | 1         |  |                     |           |
| 5                     | QPSK       | 12      | 13        | 21.72                 | 21.78                    | 21.72                  |                     |           |  |                     |           |
| 5                     | QPSK       | 25      | 0         | 21.72                 | 21.79                    | 21.72                  | 23                  | 1         |  |                     |           |
| 5                     | 16QAM      | 1       | 0         | 22.10                 | 22.09                    | 22.04                  |                     |           |  |                     |           |
| 5                     | 16QAM      | 1       | 12        | 22.10                 | 22.05                    | 22.06                  | 22                  | 2         |  |                     |           |
| 5                     | 16QAM      | 1       | 24        | 22.06                 | 22.06                    | 22.04                  |                     |           |  |                     |           |
| 5                     | 16QAM      | 12      | 0         | 20.86                 | 20.88                    | 20.85                  | 22.5                | 1.5       |  |                     |           |
| 5                     | 16QAM      | 12      | 7         | 20.87                 | 20.90                    | 20.91                  |                     |           |  |                     |           |
| 5                     | 16QAM      | 12      | 13        | 20.85                 | 20.83                    | 20.85                  | 21                  | 3         |  |                     |           |
| 5                     | 16QAM      | 25      | 0         | 20.85                 | 20.86                    | 20.81                  |                     |           |  |                     |           |
| 5                     | 64QAM      | 1       | 0         | 21.04                 | 20.99                    | 20.97                  | 22                  | 2         |  |                     |           |
| 5                     | 64QAM      | 1       | 12        | 20.96                 | 21.04                    | 20.99                  |                     |           |  |                     |           |
| 5                     | 64QAM      | 1       | 24        | 20.97                 | 21.00                    | 20.99                  | 21                  | 3         |  |                     |           |
| 5                     | 64QAM      | 12      | 0         | 19.93                 | 19.90                    | 19.90                  |                     |           |  |                     |           |
| 5                     | 64QAM      | 12      | 7         | 19.90                 | 19.92                    | 19.95                  | 20                  | 2         |  |                     |           |
| 5                     | 64QAM      | 12      | 13        | 19.92                 | 19.94                    | 19.89                  |                     |           |  |                     |           |
| 5                     | 64QAM      | 25      | 0         | 19.89                 | 19.89                    | 19.82                  | 21                  | 3         |  |                     |           |
| Channel               |            |         |           | 18615                 | 18800                    | 19185                  |                     |           |  | Tune-up limit (dBm) | MPRR (dB) |
| Frequency (MHz)       |            |         |           | 1851.5                | 1880                     | 1908.5                 |                     |           |  |                     |           |
| 3                     | QPSK       | 1       | 0         | 22.70                 | 22.73                    | 22.67                  | 24                  | 0         |  |                     |           |
| 3                     | QPSK       | 1       | 8         | 22.72                 | 22.75                    | 22.68                  |                     |           |  |                     |           |
| 3                     | QPSK       | 1       | 14        | 22.69                 | 22.72                    | 22.65                  | 23                  | 1         |  |                     |           |
| 3                     | QPSK       | 8       | 0         | 21.77                 | 21.77                    | 21.71                  |                     |           |  |                     |           |
| 3                     | QPSK       | 8       | 4         | 21.75                 | 21.81                    | 21.76                  | 23                  | 1         |  |                     |           |
| 3                     | QPSK       | 8       | 7         | 21.76                 | 21.75                    | 21.73                  |                     |           |  |                     |           |
| 3                     | QPSK       | 15      | 0         | 21.70                 | 21.75                    | 21.71                  | 23                  | 1         |  |                     |           |
| 3                     | 16QAM      | 1       | 0         | 22.02                 | 22.07                    | 22.05                  |                     |           |  |                     |           |
| 3                     | 16QAM      | 1       | 8         | 22.01                 | 22.09                    | 22.10                  | 22                  | 2         |  |                     |           |
| 3                     | 16QAM      | 1       | 14        | 22.02                 | 22.03                    | 22.06                  |                     |           |  |                     |           |
| 3                     | 16QAM      | 8       | 0         | 20.87                 | 20.92                    | 20.90                  | 22.5                | 1.5       |  |                     |           |
| 3                     | 16QAM      | 8       | 4         | 20.94                 | 20.92                    | 20.91                  |                     |           |  |                     |           |
| 3                     | 16QAM      | 8       | 7         | 20.91                 | 20.89                    | 20.88                  | 21                  | 3         |  |                     |           |
| 3                     | 16QAM      | 15      | 0         | 20.83                 | 20.87                    | 20.84                  |                     |           |  |                     |           |
| 3                     | 64QAM      | 1       | 0         | 22.22                 | 22.23                    | 22.26                  | 22                  | 2         |  |                     |           |
| 3                     | 64QAM      | 1       | 8         | 22.26                 | 22.29                    | 22.28                  |                     |           |  |                     |           |
| 3                     | 64QAM      | 1       | 14        | 22.21                 | 22.26                    | 22.22                  | 22.5                | 1.5       |  |                     |           |
| 3                     | 64QAM      | 8       | 0         | 19.91                 | 19.93                    | 19.90                  |                     |           |  |                     |           |
| 3                     | 64QAM      | 8       | 4         | 19.93                 | 19.94                    | 19.93                  | 21                  | 3         |  |                     |           |
| 3                     | 64QAM      | 8       | 7         | 19.89                 | 19.93                    | 19.90                  |                     |           |  |                     |           |
| 3                     | 64QAM      | 15      | 0         | 19.83                 | 19.89                    | 19.85                  | 20                  | 2         |  |                     |           |
| Channel               |            |         |           | 18607                 | 18800                    | 19193                  |                     |           |  | Tune-up limit (dBm) | MPRR (dB) |
| Frequency (MHz)       |            |         |           | 1850.7                | 1880                     | 1909.3                 |                     |           |  |                     |           |
| 1.4                   | QPSK       | 1       | 0         | 22.67                 | 22.71                    | 22.60                  | 24                  | 0         |  |                     |           |
| 1.4                   | QPSK       | 1       | 3         | 22.73                 | 22.75                    | 22.68                  |                     |           |  |                     |           |
| 1.4                   | QPSK       | 1       | 5         | 22.66                 | 22.69                    | 22.60                  | 23                  | 1         |  |                     |           |
| 1.4                   | QPSK       | 3       | 0         | 22.68                 | 22.69                    | 22.67                  |                     |           |  |                     |           |
| 1.4                   | QPSK       | 3       | 1         | 22.77                 | 22.78                    | 22.69                  | 23                  | 1         |  |                     |           |
| 1.4                   | QPSK       | 3       | 3         | 22.67                 | 22.69                    | 22.65                  |                     |           |  |                     |           |
| 1.4                   | QPSK       | 6       | 0         | 21.67                 | 21.69                    | 21.67                  | 23                  | 1         |  |                     |           |
| 1.4                   | 16QAM      | 1       | 0         | 22.01                 | 22.03                    | 21.98                  |                     |           |  |                     |           |
| 1.4                   | 16QAM      | 1       | 3         | 22.09                 | 22.12                    | 22.05                  | 23                  | 1         |  |                     |           |
| 1.4                   | 16QAM      | 1       | 5         | 21.99                 | 21.98                    | 22.00                  |                     |           |  |                     |           |
| 1.4                   | 16QAM      | 3       | 0         | 21.77                 | 21.77                    | 21.79                  | 22                  | 2         |  |                     |           |
| 1.4                   | 16QAM      | 3       | 1         | 21.83                 | 21.86                    | 21.79                  |                     |           |  |                     |           |
| 1.4                   | 16QAM      | 3       | 3         | 21.77                 | 21.79                    | 21.74                  | 22                  | 2         |  |                     |           |
| 1.4                   | 16QAM      | 6       | 0         | 20.87                 | 20.88                    | 20.82                  |                     |           |  |                     |           |
| 1.4                   | 64QAM      | 1       | 0         | 20.95                 | 20.96                    | 20.92                  | 22.5                | 1.5       |  |                     |           |
| 1.4                   | 64QAM      | 1       | 3         | 20.97                 | 21.03                    | 20.99                  |                     |           |  |                     |           |
| 1.4                   | 64QAM      | 1       | 5         | 20.65                 | 20.96                    | 20.93                  | 21                  | 3         |  |                     |           |
| 1.4                   | 64QAM      | 3       | 0         | 20.91                 | 20.93                    | 20.90                  |                     |           |  |                     |           |
| 1.4                   | 64QAM      | 3       | 3         | 20.96                 | 20.97                    | 20.94                  | 20                  | 2         |  |                     |           |
| 1.4                   | 64QAM      | 3       | 3         | 20.92                 | 20.94                    | 20.88                  |                     |           |  |                     |           |
| 1.4                   | 64QAM      | 6       | 0         | 19.79                 | 19.80                    | 19.80                  | 21                  | 3         |  |                     |           |

| Band 7 (2600MHz Band) |            |         |           |                       |                          |                        |                     |          |  |                     |          |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|---------------------|----------|
| Part 27               |            |         |           |                       |                          |                        |                     |          |  |                     |          |
| BW (MHz)              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |                     |          |
| Channel               |            |         |           | 20850                 | 21100                    | 21550                  |                     |          |  |                     |          |
| Frequency (MHz)       |            |         |           | 2510                  | 2535                     | 2560                   |                     |          |  |                     |          |
| 20                    | QPSK       | 1       | 0         | 22.54                 | 22.78                    | 22.73                  | 24                  | 0        |  |                     |          |
| 20                    | QPSK       | 1       | 49        | 22.51                 | 22.82                    | 22.77                  |                     |          |  |                     |          |
| 20                    | QPSK       | 1       | 99        | 22.54                 | 22.83                    | 22.90                  |                     |          |  |                     |          |
| 20                    | QPSK       | 50      | 0         | 21.57                 | 21.83                    | 21.80                  |                     |          |  |                     |          |
| 20                    | QPSK       | 50      | 24        | 21.61                 | 21.84                    | 21.86                  | 23                  | 1        |  |                     |          |
| 20                    | QPSK       | 50      | 50        | 21.62                 | 21.81                    | 21.85                  |                     |          |  |                     |          |
| 20                    | QPSK       | 100     | 0         | 21.59                 | 21.82                    | 21.84                  |                     |          |  |                     |          |
| 20                    | 16QAM      | 1       | 0         | 21.80                 | 22.13                    | 22.04                  |                     |          |  |                     |          |
| 20                    | 16QAM      | 1       | 49        | 21.78                 | 22.20                    | 22.13                  | 23                  | 1        |  |                     |          |
| 20                    | 16QAM      | 1       | 99        | 21.91                 | 22.08                    | 22.26                  |                     |          |  |                     |          |
| 20                    | 16QAM      | 50      | 0         | 20.62                 | 20.98                    | 20.88                  |                     |          |  |                     |          |
| 20                    | 16QAM      | 50      | 24        | 20.66                 | 20.96                    | 20.92                  |                     |          |  |                     |          |
| 20                    | 16QAM      | 50      | 50        | 20.69                 | 21.01                    | 20.94                  | 22                  | 2        |  |                     |          |
| 20                    | 16QAM      | 100     | 0         | 20.63                 | 20.94                    | 20.91                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 1       | 0         | 20.75                 | 21.08                    | 20.99                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 1       | 49        | 20.75                 | 21.10                    | 21.05                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 1       | 99        | 20.85                 | 20.99                    | 21.13                  | 22                  | 2        |  |                     |          |
| 20                    | 64QAM      | 50      | 0         | 19.64                 | 19.96                    | 19.89                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 50      | 24        | 19.68                 | 20.00                    | 19.92                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 50      | 50        | 19.68                 | 19.99                    | 19.99                  |                     |          |  |                     |          |
| 20                    | 64QAM      | 100     | 0         | 19.67                 | 19.99                    | 19.92                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20825                 | 21100                    | 21375                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |  |                     |          |
| 15                    | QPSK       | 1       | 0         | 22.54                 | 22.83                    | 22.77                  |                     |          |  | 24                  | 0        |
| 15                    | QPSK       | 1       | 37        | 22.51                 | 22.86                    | 22.79                  |                     |          |  |                     |          |
| 15                    | QPSK       | 1       | 74        | 22.56                 | 22.83                    | 22.88                  |                     |          |  |                     |          |
| 15                    | QPSK       | 36      | 0         | 21.55                 | 21.83                    | 21.87                  |                     |          |  |                     |          |
| 15                    | QPSK       | 36      | 20        | 21.56                 | 21.90                    | 21.87                  | 23                  | 1        |  |                     |          |
| 15                    | QPSK       | 36      | 39        | 21.56                 | 21.86                    | 21.91                  |                     |          |  |                     |          |
| 15                    | QPSK       | 75      | 0         | 21.55                 | 21.86                    | 21.88                  |                     |          |  |                     |          |
| 15                    | 16QAM      | 1       | 0         | 21.83                 | 22.17                    | 22.05                  |                     |          |  |                     |          |
| 15                    | 16QAM      | 1       | 37        | 21.77                 | 22.18                    | 22.17                  | 22                  | 2        |  |                     |          |
| 15                    | 16QAM      | 1       | 74        | 21.86                 | 22.18                    | 22.18                  |                     |          |  |                     |          |
| 15                    | 16QAM      | 36      | 0         | 20.62                 | 20.98                    | 20.85                  |                     |          |  |                     |          |
| 15                    | 16QAM      | 36      | 20        | 20.63                 | 20.99                    | 20.99                  |                     |          |  |                     |          |
| 15                    | 16QAM      | 36      | 39        | 20.61                 | 21.03                    | 21.00                  | 22                  | 2        |  |                     |          |
| 15                    | 16QAM      | 75      | 0         | 20.64                 | 20.96                    | 20.96                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 1       | 0         | 20.78                 | 21.13                    | 20.99                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 1       | 37        | 20.75                 | 21.12                    | 21.01                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 1       | 74        | 20.81                 | 21.11                    | 21.21                  | 22                  | 2        |  |                     |          |
| 15                    | 64QAM      | 36      | 0         | 19.66                 | 19.99                    | 19.91                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 36      | 20        | 19.66                 | 20.05                    | 20.01                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 36      | 39        | 19.65                 | 20.03                    | 20.00                  |                     |          |  |                     |          |
| 15                    | 64QAM      | 75      | 0         | 19.65                 | 19.98                    | 19.96                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20800                 | 21100                    | 21400                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2505                  | 2535                     | 2565                   |                     |          |  |                     |          |
| 10                    | QPSK       | 1       | 0         | 22.50                 | 22.80                    | 22.76                  |                     |          |  | 24                  | 0        |
| 10                    | QPSK       | 1       | 25        | 22.47                 | 22.81                    | 22.81                  |                     |          |  |                     |          |
| 10                    | QPSK       | 1       | 49        | 22.53                 | 22.87                    | 22.86                  |                     |          |  |                     |          |
| 10                    | QPSK       | 25      | 0         | 21.54                 | 21.86                    | 21.83                  |                     |          |  |                     |          |
| 10                    | QPSK       | 25      | 12        | 21.56                 | 21.85                    | 21.87                  | 23                  | 1        |  |                     |          |
| 10                    | QPSK       | 25      | 25        | 21.56                 | 21.88                    | 21.87                  |                     |          |  |                     |          |
| 10                    | QPSK       | 50      | 0         | 21.53                 | 21.89                    | 21.85                  |                     |          |  |                     |          |
| 10                    | 16QAM      | 1       | 0         | 21.75                 | 22.16                    | 22.14                  |                     |          |  |                     |          |
| 10                    | 16QAM      | 1       | 25        | 21.77                 | 22.20                    | 22.16                  | 23                  | 1        |  |                     |          |
| 10                    | 16QAM      | 1       | 49        | 21.82                 | 22.21                    | 22.17                  |                     |          |  |                     |          |
| 10                    | 16QAM      | 25      | 0         | 20.58                 | 20.92                    | 20.92                  |                     |          |  |                     |          |
| 10                    | 16QAM      | 25      | 12        | 20.62                 | 20.96                    | 20.96                  |                     |          |  |                     |          |
| 10                    | 16QAM      | 25      | 25        | 20.57                 | 20.98                    | 20.96                  | 22                  | 2        |  |                     |          |
| 10                    | 16QAM      | 50      | 0         | 20.59                 | 20.98                    | 20.96                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 1       | 0         | 20.74                 | 21.05                    | 21.04                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 1       | 25        | 20.68                 | 21.15                    | 21.11                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 1       | 49        | 20.73                 | 21.16                    | 21.16                  | 22                  | 2        |  |                     |          |
| 10                    | 64QAM      | 25      | 0         | 19.57                 | 19.93                    | 19.92                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 25      | 12        | 19.64                 | 20.00                    | 19.97                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 25      | 25        | 19.60                 | 19.98                    | 19.97                  |                     |          |  |                     |          |
| 10                    | 64QAM      | 50      | 0         | 19.60                 | 19.96                    | 19.96                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20775                 | 21100                    | 21425                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2502.5                | 2535                     | 2567.5                 |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 0         | 22.47                 | 22.81                    | 22.80                  |                     |          |  | 24                  | 0        |
| 5                     | QPSK       | 1       | 12        | 22.49                 | 22.82                    | 22.78                  |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 24        | 22.50                 | 22.87                    | 22.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 0         | 21.51                 | 21.83                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 7         | 21.56                 | 21.89                    | 21.87                  | 23                  | 1        |  |                     |          |
| 5                     | QPSK       | 12      | 13        | 21.54                 | 21.87                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 25      | 0         | 21.52                 | 21.88                    | 21.83                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 0         | 21.76                 | 22.20                    | 22.10                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 12        | 21.74                 | 22.20                    | 22.14                  | 23                  | 1        |  |                     |          |
| 5                     | 16QAM      | 1       | 24        | 21.78                 | 22.25                    | 22.12                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 0         | 20.56                 | 20.94                    | 20.92                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 7         | 20.59                 | 21.00                    | 20.95                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 13        | 20.55                 | 20.94                    | 20.98                  | 22                  | 2        |  |                     |          |
| 5                     | 16QAM      | 25      | 0         | 20.56                 | 20.96                    | 20.91                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 0         | 20.68                 | 21.07                    | 21.04                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 21.10                    | 21.08                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 24        | 20.75                 | 21.08                    | 21.12                  | 22                  | 2        |  |                     |          |
| 5                     | 64QAM      | 12      | 0         | 19.61                 | 20.01                    | 19.96                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 7         | 19.64                 | 20.04                    | 20.01                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 13        | 19.60                 | 20.05                    | 20.00                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 25      | 0         | 19.59                 | 19.94                    | 19.90                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20750                 | 21100                    | 21400                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2500                  | 2535                     | 2565                   |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 0         | 22.47                 | 22.81                    | 22.80                  |                     |          |  | 24                  | 0        |
| 5                     | QPSK       | 1       | 12        | 22.49                 | 22.82                    | 22.78                  |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 24        | 22.50                 | 22.87                    | 22.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 0         | 21.51                 | 21.83                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 7         | 21.56                 | 21.89                    | 21.87                  | 23                  | 1        |  |                     |          |
| 5                     | QPSK       | 12      | 13        | 21.54                 | 21.87                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 25      | 0         | 21.52                 | 21.88                    | 21.83                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 0         | 21.76                 | 22.20                    | 22.10                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 12        | 21.74                 | 22.20                    | 22.14                  | 23                  | 1        |  |                     |          |
| 5                     | 16QAM      | 1       | 24        | 21.78                 | 22.25                    | 22.12                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 0         | 20.56                 | 20.94                    | 20.92                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 7         | 20.59                 | 21.00                    | 20.95                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 13        | 20.55                 | 20.94                    | 20.98                  | 22                  | 2        |  |                     |          |
| 5                     | 16QAM      | 25      | 0         | 20.56                 | 20.96                    | 20.91                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 0         | 20.68                 | 21.07                    | 21.04                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 21.10                    | 21.08                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 24        | 20.75                 | 21.08                    | 21.12                  | 22                  | 2        |  |                     |          |
| 5                     | 64QAM      | 12      | 0         | 19.61                 | 20.01                    | 19.96                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 7         | 19.64                 | 20.04                    | 20.01                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 13        | 19.60                 | 20.05                    | 20.00                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 25      | 0         | 19.59                 | 19.94                    | 19.90                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20725                 | 21100                    | 21400                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2497.5                | 2535                     | 2565                   |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 0         | 22.47                 | 22.81                    | 22.80                  |                     |          |  | 24                  | 0        |
| 5                     | QPSK       | 1       | 12        | 22.49                 | 22.82                    | 22.78                  |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 24        | 22.50                 | 22.87                    | 22.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 0         | 21.51                 | 21.83                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 7         | 21.56                 | 21.89                    | 21.87                  | 23                  | 1        |  |                     |          |
| 5                     | QPSK       | 12      | 13        | 21.54                 | 21.87                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 25      | 0         | 21.52                 | 21.88                    | 21.83                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 0         | 21.76                 | 22.20                    | 22.10                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 12        | 21.74                 | 22.20                    | 22.14                  | 23                  | 1        |  |                     |          |
| 5                     | 16QAM      | 1       | 24        | 21.78                 | 22.25                    | 22.12                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 0         | 20.56                 | 20.94                    | 20.92                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 7         | 20.59                 | 21.00                    | 20.95                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 13        | 20.55                 | 20.94                    | 20.98                  | 22                  | 2        |  |                     |          |
| 5                     | 16QAM      | 25      | 0         | 20.56                 | 20.96                    | 20.91                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 0         | 20.68                 | 21.07                    | 21.04                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 21.10                    | 21.08                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 24        | 20.75                 | 21.08                    | 21.12                  | 22                  | 2        |  |                     |          |
| 5                     | 64QAM      | 12      | 0         | 19.61                 | 20.01                    | 19.96                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 7         | 19.64                 | 20.04                    | 20.01                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 13        | 19.60                 | 20.05                    | 20.00                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 25      | 0         | 19.59                 | 19.94                    | 19.90                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20700                 | 21100                    | 21400                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2495                  | 2535                     | 2565                   |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 0         | 22.47                 | 22.81                    | 22.80                  |                     |          |  | 24                  | 0        |
| 5                     | QPSK       | 1       | 12        | 22.49                 | 22.82                    | 22.78                  |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 24        | 22.50                 | 22.87                    | 22.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 0         | 21.51                 | 21.83                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 7         | 21.56                 | 21.89                    | 21.87                  | 23                  | 1        |  |                     |          |
| 5                     | QPSK       | 12      | 13        | 21.54                 | 21.87                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 25      | 0         | 21.52                 | 21.88                    | 21.83                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 0         | 21.76                 | 22.20                    | 22.10                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 12        | 21.74                 | 22.20                    | 22.14                  | 23                  | 1        |  |                     |          |
| 5                     | 16QAM      | 1       | 24        | 21.78                 | 22.25                    | 22.12                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 0         | 20.56                 | 20.94                    | 20.92                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 7         | 20.59                 | 21.00                    | 20.95                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 13        | 20.55                 | 20.94                    | 20.98                  | 22                  | 2        |  |                     |          |
| 5                     | 16QAM      | 25      | 0         | 20.56                 | 20.96                    | 20.91                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 0         | 20.68                 | 21.07                    | 21.04                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 21.10                    | 21.08                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 24        | 20.75                 | 21.08                    | 21.12                  | 22                  | 2        |  |                     |          |
| 5                     | 64QAM      | 12      | 0         | 19.61                 | 20.01                    | 19.96                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 7         | 19.64                 | 20.04                    | 20.01                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 12      | 13        | 19.60                 | 20.05                    | 20.00                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 25      | 0         | 19.59                 | 19.94                    | 19.90                  | 21                  | 3        |  |                     |          |
| Channel               |            |         |           | 20675                 | 21100                    | 21400                  |                     |          |  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2490                  | 2535                     | 2565                   |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 0         | 22.47                 | 22.81                    | 22.80                  |                     |          |  | 24                  | 0        |
| 5                     | QPSK       | 1       | 12        | 22.49                 | 22.82                    | 22.78                  |                     |          |  |                     |          |
| 5                     | QPSK       | 1       | 24        | 22.50                 | 22.87                    | 22.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 0         | 21.51                 | 21.83                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 12      | 7         | 21.56                 | 21.89                    | 21.87                  | 23                  | 1        |  |                     |          |
| 5                     | QPSK       | 12      | 13        | 21.54                 | 21.87                    | 21.83                  |                     |          |  |                     |          |
| 5                     | QPSK       | 25      | 0         | 21.52                 | 21.88                    | 21.83                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 0         | 21.76                 | 22.20                    | 22.10                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 1       | 12        | 21.74                 | 22.20                    | 22.14                  | 23                  | 1        |  |                     |          |
| 5                     | 16QAM      | 1       | 24        | 21.78                 | 22.25                    | 22.12                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 0         | 20.56                 | 20.94                    | 20.92                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 7         | 20.59                 | 21.00                    | 20.95                  |                     |          |  |                     |          |
| 5                     | 16QAM      | 12      | 13        | 20.55                 | 20.94                    | 20.98                  | 22                  | 2        |  |                     |          |
| 5                     | 16QAM      | 25      | 0         | 20.56                 | 20.96                    | 20.91                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 0         | 20.68                 | 21.07                    | 21.04                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 21.10                    | 21.08                  |                     |          |  |                     |          |
| 5                     | 64QAM      | 1       |           |                       |                          |                        |                     |          |  |                     |          |

| Band 14 (700MHz Band) |            |         |           |                       |                          |                        |                     |          |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| BW [MHz]              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel               |            |         |           | 23330                 |                          |                        | 24                  | 0        |  |
| Frequency (MHz)       |            |         |           | 793                   |                          |                        |                     |          |  |
| 10                    | QPSK       | 1       | 0         | 22.64                 |                          |                        | 23                  | 1        |  |
| 10                    | QPSK       | 1       | 25        | 22.59                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 1       | 49        | 22.70                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 25      | 0         | 21.70                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 25      | 12        | 21.69                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 25      | 25        | 21.67                 |                          |                        | 23                  | 1        |  |
| 10                    | QPSK       | 50      | 0         | 21.69                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 1       | 0         | 21.85                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 1       | 25        | 21.84                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 1       | 49        | 21.94                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 25      | 0         | 20.73                 |                          |                        | 22                  | 2        |  |
| 10                    | 16QAM      | 25      | 12        | 20.75                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 25      | 25        | 20.72                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 50      | 0         | 20.75                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 1       | 0         | 20.80                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 1       | 25        | 20.85                 |                          |                        | 22                  | 2        |  |
| 10                    | 84QAM      | 1       | 49        | 20.88                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 25      | 0         | 19.73                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 25      | 12        | 19.75                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 25      | 25        | 19.70                 |                          |                        |                     |          |  |
| 10                    | 84QAM      | 50      | 0         | 19.75                 |                          |                        | 21                  | 3        |  |
| 10                    | 84QAM      | 50      | 0         | 19.75                 |                          |                        |                     |          |  |
| Channel               |            |         |           | 23305                 | 23330                    | 23355                  |                     |          |  |
| Frequency (MHz)       |            |         |           | 790.5                 | 793                      | 795.5                  | 24                  | 0        |  |
| 5                     | QPSK       | 1       | 0         | 22.66                 | 22.61                    | 22.60                  |                     |          |  |
| 5                     | QPSK       | 1       | 12        | 22.63                 | 22.62                    | 22.69                  | 23                  | 1        |  |
| 5                     | QPSK       | 1       | 24        | 22.59                 | 22.68                    | 22.67                  |                     |          |  |
| 5                     | QPSK       | 12      | 0         | 21.68                 | 21.66                    | 21.67                  |                     |          |  |
| 5                     | QPSK       | 12      | 7         | 21.70                 | 21.70                    | 21.68                  |                     |          |  |
| 5                     | QPSK       | 12      | 13        | 21.68                 | 21.67                    | 21.75                  |                     |          |  |
| 5                     | QPSK       | 25      | 0         | 21.72                 | 21.65                    | 21.65                  | 23                  | 1        |  |
| 5                     | 16QAM      | 1       | 0         | 21.83                 | 21.80                    | 21.85                  |                     |          |  |
| 5                     | 16QAM      | 1       | 12        | 21.84                 | 21.84                    | 21.95                  |                     |          |  |
| 5                     | 16QAM      | 1       | 24        | 21.86                 | 21.95                    | 21.87                  |                     |          |  |
| 5                     | 16QAM      | 12      | 0         | 20.73                 | 20.70                    | 20.72                  |                     |          |  |
| 5                     | 16QAM      | 12      | 7         | 20.78                 | 20.76                    | 20.73                  | 22                  | 2        |  |
| 5                     | 16QAM      | 12      | 13        | 20.74                 | 20.71                    | 20.80                  |                     |          |  |
| 5                     | 16QAM      | 25      | 0         | 20.75                 | 20.71                    | 20.71                  |                     |          |  |
| 5                     | 84QAM      | 1       | 0         | 20.84                 | 20.79                    | 20.80                  |                     |          |  |
| 5                     | 84QAM      | 1       | 12        | 20.82                 | 20.81                    | 20.93                  |                     |          |  |
| 5                     | 84QAM      | 1       | 24        | 20.81                 | 20.89                    | 20.85                  | 22                  | 2        |  |
| 5                     | 84QAM      | 12      | 0         | 19.77                 | 19.77                    | 19.74                  |                     |          |  |
| 5                     | 84QAM      | 12      | 7         | 19.82                 | 19.81                    | 19.80                  |                     |          |  |
| 5                     | 84QAM      | 12      | 13        | 19.79                 | 19.75                    | 19.82                  |                     |          |  |
| 5                     | 84QAM      | 25      | 0         | 19.76                 | 19.73                    | 19.71                  |                     |          |  |

| Band 17 (700MHz Band)<br>Part 27H(only on channel required) |            |         |           |                       |                          |                        |                     |          |  |
|-------------------------------------------------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| BW [MHz]                                                    | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dbm) | MPR (db) |  |
| Channel                                                     |            |         |           | 23750                 | 23790                    | 23830                  |                     |          |  |
| Frequency (MHz)                                             |            |         |           | 709                   | 710                      | 711                    |                     |          |  |
| 10                                                          | QPSK       | 1       | 0         | 22.71                 | 22.72                    | 22.67                  | 24                  | 0        |  |
| 10                                                          | QPSK       | 1       | 25        | 22.74                 | 22.80                    | 22.78                  |                     |          |  |
| 10                                                          | QPSK       | 1       | 49        | 22.73                 | 22.79                    | 22.77                  |                     |          |  |
| 10                                                          | QPSK       | 25      | 0         | 21.79                 | 21.89                    | 21.82                  |                     |          |  |
| 10                                                          | QPSK       | 25      | 12        | 21.91                 | 21.92                    | 21.89                  |                     |          |  |
| 10                                                          | QPSK       | 25      | 25        | 21.85                 | 21.85                    | 21.87                  | 23                  | 1        |  |
| 10                                                          | QPSK       | 50      | 0         | 21.90                 | 21.91                    | 21.89                  |                     |          |  |
| 10                                                          | 16QAM      | 1       | 0         | 22.01                 | 21.98                    | 21.99                  |                     |          |  |
| 10                                                          | 16QAM      | 1       | 25        | 22.05                 | 22.15                    | 22.14                  |                     |          |  |
| 10                                                          | 16QAM      | 1       | 49        | 22.16                 | 22.14                    | 22.13                  |                     |          |  |
| 10                                                          | 16QAM      | 25      | 0         | 20.86                 | 20.94                    | 20.96                  | 22                  | 2        |  |
| 10                                                          | 16QAM      | 25      | 12        | 20.99                 | 20.96                    | 20.94                  |                     |          |  |
| 10                                                          | 16QAM      | 25      | 25        | 20.93                 | 20.92                    | 20.92                  |                     |          |  |
| 10                                                          | 16QAM      | 50      | 0         | 20.99                 | 20.99                    | 20.97                  |                     |          |  |
| 10                                                          | 84QAM      | 1       | 0         | 20.95                 | 20.94                    | 20.95                  |                     |          |  |
| 10                                                          | 84QAM      | 1       | 25        | 20.98                 | 21.10                    | 21.06                  | 22                  | 2        |  |
| 10                                                          | 84QAM      | 1       | 49        | 21.08                 | 21.11                    | 21.06                  |                     |          |  |
| 10                                                          | 84QAM      | 25      | 0         | 19.86                 | 19.97                    | 19.94                  |                     |          |  |
| 10                                                          | 84QAM      | 25      | 12        | 19.97                 | 20.01                    | 20.00                  |                     |          |  |
| 10                                                          | 84QAM      | 25      | 25        | 19.99                 | 19.98                    | 19.92                  |                     |          |  |
| 10                                                          | 84QAM      | 50      | 0         | 19.98                 | 19.97                    | 19.94                  | 21                  | 3        |  |
| Channel                                                     |            |         |           | 23755                 | 23790                    | 23825                  |                     |          |  |
| Frequency (MHz)                                             |            |         |           | 706.5                 | 710                      | 713.5                  | Tune-up limit (dbm) | MPR (db) |  |
| 5                                                           | QPSK       | 1       | 0         | 22.72                 | 22.69                    | 22.76                  | 24                  | 0        |  |
| 5                                                           | QPSK       | 1       | 12        | 22.72                 | 22.78                    | 22.75                  |                     |          |  |
| 5                                                           | QPSK       | 1       | 24        | 22.73                 | 22.78                    | 22.75                  |                     |          |  |
| 5                                                           | QPSK       | 12      | 0         | 21.81                 | 21.88                    | 21.79                  |                     |          |  |
| 5                                                           | QPSK       | 12      | 7         | 21.82                 | 21.89                    | 21.88                  |                     |          |  |
| 5                                                           | QPSK       | 12      | 13        | 21.82                 | 21.89                    | 21.83                  | 23                  | 1        |  |
| 5                                                           | QPSK       | 25      | 0         | 21.77                 | 21.88                    | 21.80                  |                     |          |  |
| 5                                                           | 16QAM      | 1       | 0         | 22.02                 | 22.02                    | 22.07                  |                     |          |  |
| 5                                                           | 16QAM      | 1       | 12        | 22.03                 | 22.17                    | 22.07                  |                     |          |  |
| 5                                                           | 16QAM      | 1       | 24        | 22.05                 | 22.11                    | 22.04                  |                     |          |  |
| 5                                                           | 16QAM      | 12      | 0         | 20.87                 | 20.93                    | 20.93                  | 23                  | 1        |  |
| 5                                                           | 16QAM      | 12      | 7         | 20.90                 | 21.00                    | 20.93                  |                     |          |  |
| 5                                                           | 16QAM      | 12      | 13        | 20.90                 | 20.94                    | 20.90                  |                     |          |  |
| 5                                                           | 16QAM      | 25      | 0         | 20.85                 | 20.94                    | 20.87                  |                     |          |  |
| 5                                                           | 84QAM      | 1       | 0         | 20.97                 | 20.94                    | 21.07                  |                     |          |  |
| 5                                                           | 84QAM      | 1       | 12        | 20.96                 | 21.07                    | 21.00                  | 22                  | 2        |  |
| 5                                                           | 84QAM      | 1       | 24        | 20.99                 | 21.06                    | 21.01                  |                     |          |  |
| 5                                                           | 84QAM      | 12      | 0         | 19.89                 | 20.02                    | 19.94                  |                     |          |  |
| 5                                                           | 84QAM      | 12      | 7         | 19.95                 | 20.04                    | 20.00                  |                     |          |  |
| 5                                                           | 84QAM      | 12      | 13        | 19.92                 | 20.02                    | 19.95                  |                     |          |  |
| 5                                                           | 84QAM      | 25      | 0         | 19.91                 | 19.96                    | 19.93                  | 21                  | 3        |  |

| Band 25 (1900MHz Band) |            |         |           |                       |                          |                        |                     |          |  |
|------------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| Part 24E               |            |         |           |                       |                          |                        |                     |          |  |
| BW [MHz]               | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel                |            |         |           | 26140                 | 26340                    | 26590                  | 24                  | 0        |  |
| Frequency (MHz)        |            |         |           | 1860                  | 1880                     | 1905                   |                     |          |  |
| 20                     | QPSK       | 1       | 0         | 22.66                 | 22.81                    | 22.66                  | 23                  | 1        |  |
| 20                     | QPSK       | 1       | 49        | 22.67                 | 22.84                    | 22.75                  |                     |          |  |
| 20                     | QPSK       | 1       | 99        | 22.66                 | 22.74                    | 22.70                  |                     |          |  |
| 20                     | QPSK       | 50      | 0         | 21.71                 | 21.86                    | 21.68                  |                     |          |  |
| 20                     | QPSK       | 50      | 24        | 21.71                 | 21.84                    | 21.66                  |                     |          |  |
| 20                     | QPSK       | 50      | 50        | 21.80                 | 21.77                    | 21.67                  | 23                  | 1        |  |
| 20                     | QPSK       | 100     | 0         | 21.80                 | 21.81                    | 21.69                  |                     |          |  |
| 20                     | 16QAM      | 1       | 0         | 22.01                 | 22.09                    | 22.01                  |                     |          |  |
| 20                     | 16QAM      | 1       | 49        | 21.97                 | 22.08                    | 22.12                  |                     |          |  |
| 20                     | 16QAM      | 1       | 99        | 22.02                 | 22.11                    | 22.07                  |                     |          |  |
| 20                     | 16QAM      | 50      | 0         | 20.79                 | 20.96                    | 20.78                  | 22                  | 2        |  |
| 20                     | 16QAM      | 50      | 24        | 20.81                 | 20.96                    | 20.90                  |                     |          |  |
| 20                     | 16QAM      | 50      | 50        | 20.85                 | 20.90                    | 20.86                  |                     |          |  |
| 20                     | 16QAM      | 100     | 0         | 20.85                 | 20.92                    | 20.74                  |                     |          |  |
| 20                     | 84QAM      | 1       | 0         | 20.97                 | 21.09                    | 20.92                  |                     |          |  |
| 20                     | 84QAM      | 1       | 49        | 20.95                 | 21.05                    | 21.01                  | 22                  | 2        |  |
| 20                     | 84QAM      | 1       | 99        | 20.89                 | 21.08                    | 20.95                  |                     |          |  |
| 20                     | 84QAM      | 50      | 0         | 19.78                 | 19.93                    | 19.80                  |                     |          |  |
| 20                     | 84QAM      | 50      | 24        | 19.80                 | 19.98                    | 19.92                  |                     |          |  |
| 20                     | 84QAM      | 50      | 50        | 19.85                 | 19.94                    | 19.87                  |                     |          |  |
| 20                     | 84QAM      | 100     | 0         | 19.87                 | 19.90                    | 19.80                  | 21                  | 3        |  |
| Channel                |            |         |           | 26115                 | 26340                    | 26615                  |                     |          |  |
| Frequency (MHz)        |            |         |           | 1857.5                | 1880                     | 1907.5                 | 24                  | 0        |  |
| 15                     | QPSK       | 1       | 0         | 22.85                 | 22.81                    | 22.72                  |                     |          |  |
| 15                     | QPSK       | 1       | 37        | 22.65                 | 22.81                    | 22.75                  | 23                  | 1        |  |
| 15                     | QPSK       | 1       | 74        | 22.62                 | 22.72                    | 22.71                  |                     |          |  |
| 15                     | QPSK       | 36      | 0         | 21.67                 | 21.86                    | 21.78                  |                     |          |  |
| 15                     | QPSK       | 36      | 20        | 21.72                 | 21.90                    | 21.79                  |                     |          |  |
| 15                     | QPSK       | 36      | 39        | 21.74                 | 21.83                    | 21.76                  |                     |          |  |
| 15                     | QPSK       | 75      | 0         | 21.71                 | 21.86                    | 21.75                  | 23                  | 1        |  |
| 15                     | 16QAM      | 1       | 0         | 22.02                 | 22.08                    | 22.08                  |                     |          |  |
| 15                     | 16QAM      | 1       | 37        | 22.00                 | 22.10                    | 22.03                  |                     |          |  |
| 15                     | 16QAM      | 1       | 74        | 21.93                 | 22.10                    | 22.11                  |                     |          |  |
| 15                     | 16QAM      | 36      | 0         | 20.78                 | 20.90                    | 20.88                  |                     |          |  |
| 15                     | 16QAM      | 36      | 20        | 20.79                 | 20.93                    | 20.90                  | 22                  | 2        |  |
| 15                     | 16QAM      | 36      | 39        | 20.76                 | 20.88                    | 20.90                  |                     |          |  |
| 15                     | 16QAM      | 75      | 0         | 20.84                 | 20.97                    | 20.87                  |                     |          |  |
| 15                     | 84QAM      | 1       | 0         | 20.95                 | 21.04                    | 21.00                  |                     |          |  |
| 15                     | 84QAM      | 1       | 37        | 20.95                 | 21.03                    | 20.99                  |                     |          |  |
| 15                     | 84QAM      | 1       | 74        | 20.83                 | 20.97                    | 20.96                  | 21                  | 3        |  |
| 15                     | 84QAM      | 36      | 0         | 19.84                 | 19.93                    | 19.88                  |                     |          |  |
| 15                     | 84QAM      | 36      | 20        | 19.83                 | 19.97                    | 19.94                  |                     |          |  |
| 15                     | 84QAM      | 36      | 39        | 19.79                 | 19.97                    | 19.94                  |                     |          |  |
| 15                     | 84QAM      | 75      | 0         | 19.79                 | 19.89                    | 19.87                  |                     |          |  |
| Channel                |            |         |           | 26090                 | 26340                    | 26640                  | 24                  | 0        |  |
| Frequency (MHz)        |            |         |           | 1855                  | 1880                     | 1910                   |                     |          |  |
| 10                     | QPSK       | 1       | 0         | 22.79                 | 22.80                    | 22.73                  | 23                  | 1        |  |
| 10                     | QPSK       | 1       | 25        | 22.66                 | 22.81                    | 22.74                  |                     |          |  |
| 10                     | QPSK       | 1       | 49        | 22.71                 | 22.81                    | 22.73                  |                     |          |  |
| 10                     | QPSK       | 25      | 0         | 21.69                 | 21.85                    | 21.76                  |                     |          |  |
| 10                     | QPSK       | 25      | 12        | 21.71                 | 21.86                    | 21.77                  |                     |          |  |
| 10                     | QPSK       | 25      | 25        | 21.68                 | 21.80                    | 21.76                  | 23                  | 1        |  |
| 10                     | QPSK       | 50      | 0         | 21.69                 | 21.84                    | 21.76                  |                     |          |  |
| 10                     | 16QAM      | 1       | 0         | 22.11                 | 22.22                    | 22.12                  |                     |          |  |
| 10                     | 16QAM      | 1       | 25        | 22.04                 | 22.16                    | 22.11                  |                     |          |  |
| 10                     | 16QAM      | 1       | 49        | 22.00                 | 22.21                    | 22.00                  |                     |          |  |
| 10                     | 16QAM      | 25      | 0         | 20.81                 | 20.94                    | 20.86                  | 22                  | 2        |  |
| 10                     | 16QAM      | 25      | 12        | 20.84                 | 20.97                    | 20.88                  |                     |          |  |
| 10                     | 16QAM      | 25      | 25        | 20.77                 | 20.90                    | 20.85                  |                     |          |  |
| 10                     | 16QAM      | 50      | 0         | 20.82                 | 20.92                    | 20.84                  |                     |          |  |
| 10                     | 16QAM      | 50      | 0         | 21.03                 | 21.16                    | 20.98                  |                     |          |  |
| 10                     | 64QAM      | 1       | 25        | 20.91                 | 21.08                    | 21.06                  | 22                  | 2        |  |
| 10                     | 64QAM      | 1       | 49        | 20.98                 | 21.11                    | 21.00                  |                     |          |  |
| 10                     | 64QAM      | 25      | 0         | 19.81                 | 19.95                    | 19.88                  |                     |          |  |
| 10                     | 64QAM      | 25      | 12        | 19.84                 | 19.97                    | 19.90                  |                     |          |  |
| 10                     | 64QAM      | 25      | 25        | 19.75                 | 19.91                    | 19.86                  |                     |          |  |
| 10                     | 64QAM      | 50      | 0         | 19.79                 | 19.90                    | 19.86                  | 21                  | 3        |  |
| Channel                |            |         |           | 26065                 | 26340                    | 26665                  |                     |          |  |
| Frequency (MHz)        |            |         |           | 1852.5                | 1880                     | 1912.5                 | 24                  | 0        |  |
| 5                      | QPSK       | 1       | 0         | 22.67                 | 22.81                    | 22.72                  |                     |          |  |
| 5                      | QPSK       | 1       | 12        | 22.69                 | 22.82                    | 22.72                  | 23                  | 1        |  |
| 5                      | QPSK       | 1       | 24        | 22.64                 | 22.77                    | 22.69                  |                     |          |  |
| 5                      | QPSK       | 12      | 0         | 21.68                 | 21.82                    | 21.72                  |                     |          |  |
| 5                      | QPSK       | 12      | 7         | 21.73                 | 21.84                    | 21.77                  |                     |          |  |
| 5                      | QPSK       | 12      | 13        | 21.67                 | 21.83                    | 21.76                  |                     |          |  |
| 5                      | QPSK       | 25      | 0         | 21.67                 | 21.84                    | 21.71                  | 23                  | 1        |  |
| 5                      | 16QAM      | 1       | 0         | 22.02                 | 22.13                    | 22.09                  |                     |          |  |
| 5                      | 16QAM      | 1       | 12        | 22.04                 | 22.16                    | 22.05                  |                     |          |  |
| 5                      | 16QAM      | 1       | 24        | 21.99                 | 22.13                    | 22.06                  |                     |          |  |
| 5                      | 16QAM      | 12      | 0         | 20.82                 | 20.95                    | 20.90                  |                     |          |  |
| 5                      | 16QAM      | 12      | 7         | 20.81                 | 20.94                    | 20.88                  | 22                  | 2        |  |
| 5                      | 16QAM      | 12      | 13        | 20.81                 | 20.91                    | 20.84                  |                     |          |  |
| 5                      | 16QAM      | 25      | 0         | 20.79                 | 20.90                    | 20.83                  |                     |          |  |
| 5                      | 84QAM      | 1       | 0         | 20.93                 | 21.08                    | 20.97                  |                     |          |  |
| 5                      | 84QAM      | 1       | 12        | 20.96                 | 21.08                    | 21.01                  |                     |          |  |
| 5                      | 84QAM      | 1       | 24        | 20.92                 | 21.04                    | 20.96                  | 22                  | 2        |  |
| 5                      | 84QAM      | 12      | 0         | 19.87                 | 19.98                    | 19.96                  |                     |          |  |
| 5                      | 84QAM      | 12      | 7         | 19.87                 | 20.00                    | 19.95                  |                     |          |  |
| 5                      | 84QAM      | 12      | 13        | 19.81                 | 19.94                    | 19.91                  |                     |          |  |
| 5                      | 84QAM      | 25      | 0         | 19.76                 | 19.91                    | 19.85                  |                     |          |  |
| Channel                |            |         |           | 26055                 | 26340                    | 26655                  | 24                  | 0        |  |
| Frequency (MHz)        |            |         |           | 1851.5                | 1880                     | 1913.5                 |                     |          |  |
| 3                      | QPSK       | 1       | 0         | 22.82                 | 22.82                    | 22.69                  | 23                  | 1        |  |
| 3                      | QPSK       | 1       | 8         | 22.67                 | 22.79                    | 22.70                  |                     |          |  |
| 3                      | QPSK       | 1       | 14        | 22.60                 | 22.76                    | 22.68                  |                     |          |  |
| 3                      | QPSK       | 8       | 0         | 21.70                 | 21.82                    | 21.73                  |                     |          |  |
| 3                      | QPSK       | 8       | 4         | 21.72                 | 21.85                    | 21.78                  |                     |          |  |
| 3                      | QPSK       | 8       | 7         | 21.68                 | 21.82                    | 21.72                  | 23                  | 1        |  |
| 3                      | QPSK       | 15      | 0         | 21.65                 | 21.84                    | 21.75                  |                     |          |  |
| 3                      | 16QAM      | 1       | 0         | 21.99                 | 22.09                    | 22.04                  |                     |          |  |
| 3                      | 16QAM      | 1       | 8         | 22.02                 | 22.14                    | 22.03                  |                     |          |  |
| 3                      | 16QAM      | 1       | 14        | 21.95                 | 22.07                    | 21.98                  |                     |          |  |
| 3                      | 16QAM      | 8       | 0         | 20.82                 | 20.95                    | 20.89                  | 22                  | 2        |  |
| 3                      | 16QAM      | 8       | 4         | 20.89                 | 21.00                    | 20.94                  |                     |          |  |
| 3                      | 16QAM      | 8       | 7         | 20.83                 | 21.04                    | 20.88                  |                     |          |  |
| 3                      | 16QAM      | 15      | 0         | 20.80                 | 20.90                    | 20.84                  |                     |          |  |
| 3                      | 84QAM      | 1       | 0         | 20.91                 | 21.06                    | 20.99                  |                     |          |  |
| 3                      | 84QAM      | 1       | 8         | 20.91                 | 21.04                    | 21.00                  | 22                  | 2        |  |
| 3                      | 84QAM      | 1       | 14        | 20.94                 | 21.05                    | 20.95                  |                     |          |  |
| 3                      | 84QAM      | 8       | 0         | 19.83                 | 19.95                    | 19.91                  |                     |          |  |
| 3                      | 84QAM      | 8       | 4         | 19.89                 | 19.99                    | 19.95                  |                     |          |  |
| 3                      | 84QAM      | 8       | 7         | 19.83                 | 19.96                    | 19.91                  |                     |          |  |
| 3                      | 84QAM      | 15      | 0         | 19.77                 | 19.90                    | 19.85                  | 21                  | 3        |  |
| Channel                |            |         |           | 26047                 | 26340                    | 26583                  |                     |          |  |
| Frequency (MHz)        |            |         |           | 1850.7                | 1880                     | 1914.3                 | 24                  | 0        |  |
| 1.4                    | QPSK       | 1       | 0         | 22.81                 | 22.77                    | 22.64                  |                     |          |  |
| 1.4                    | QPSK       | 1       | 3         | 22.68                 | 22.81                    | 22.70                  | 23                  | 1        |  |
| 1.4                    | QPSK       | 1       | 5         | 22.63                 | 22.74                    | 22.68                  |                     |          |  |
| 1.4                    | QPSK       | 3       | 0         | 22.64                 | 22.77                    | 22.64                  |                     |          |  |
| 1.4                    | QPSK       | 3       | 3         | 22.68                 | 22.81                    | 22.72                  |                     |          |  |
| 1.4                    | QPSK       | 3       | 3         | 22.68                 | 22.77                    | 22.66                  |                     |          |  |
| 1.4                    | QPSK       | 6       | 0         | 21.84                 | 21.74                    | 21.68                  | 23                  | 1        |  |
| 1.4                    | 16QAM      | 1       | 0         | 21.93                 | 22.07                    | 21.95                  |                     |          |  |
| 1.4                    | 16QAM      | 1       | 3         | 22.05                 | 22.16                    | 22.02                  |                     |          |  |
| 1.4                    | 16QAM      | 1       | 5         | 21.92                 | 22.06                    | 21.95                  |                     |          |  |
| 1.4                    | 16QAM      | 3       | 1         | 21.79                 | 21.92                    | 21.78                  |                     |          |  |
| 1.4                    | 16QAM      | 3       | 1         | 21.75                 | 21.89                    | 21.72                  | 22                  | 2        |  |
| 1.4                    | 16QAM      | 6       | 0         | 20.82                 | 20.94                    | 20.82                  |                     |          |  |
| 1.4                    | 64QAM      | 1       | 0         | 20.95                 | 21.01                    | 20.92                  |                     |          |  |
| 1.4                    | 64QAM      | 1       | 3         | 20.92                 | 21.05                    | 20.97                  |                     |          |  |
| 1.4                    | 64QAM      | 1       | 5         | 20.87                 | 21.02                    | 20.84                  |                     |          |  |
| 1.4                    | 64QAM      | 3       | 0         | 20.89                 | 20.97                    | 20.90                  | 22                  | 2        |  |
| 1.4                    | 64QAM      | 3       | 1         | 20.92                 | 21.08                    | 20.95                  |                     |          |  |
| 1.4                    | 64QAM      | 3       | 3         | 20.90                 | 20.98                    | 20.87                  |                     |          |  |
| 1.4                    | 64QAM      | 6       | 0         | 19.77                 | 19.88                    | 19.78                  |                     |          |  |
| 1.4                    | 64QAM      | 6       | 0         | 19.77                 | 19.88                    | 19.78                  |                     |          |  |

| Band 26 for FCC<br>(only on channel required) |            |         |           |                       |                          |                        |                     |          |  |
|-----------------------------------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| BW (MHz)                                      | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel                                       |            |         |           | 26765                 | 26865                    | 26965                  |                     |          |  |
| Frequency (MHz)                               |            |         |           | 821.5                 | 831.5                    | 841.5                  |                     |          |  |
| 15                                            | QPSK       | 1       | 0         | 22.64                 | 22.74                    | 22.83                  | 24                  | 0        |  |
| 15                                            | QPSK       | 1       | 37        | 22.66                 | 22.79                    | 22.84                  |                     |          |  |
| 15                                            | QPSK       | 1       | 74        | 22.65                 | 22.78                    | 22.80                  | 23                  | 1        |  |
| 15                                            | QPSK       | 36      | 0         | 21.73                 | 21.86                    | 21.79                  |                     |          |  |
| 15                                            | QPSK       | 36      | 20        | 21.83                 | 21.87                    | 21.91                  | 23                  | 1        |  |
| 15                                            | QPSK       | 36      | 39        | 21.81                 | 21.78                    | 21.83                  |                     |          |  |
| 15                                            | QPSK       | 75      | 0         | 21.81                 | 21.81                    | 21.82                  | 23                  | 1        |  |
| 15                                            | 16QAM      | 1       | 0         | 22.11                 | 22.23                    | 22.20                  |                     |          |  |
| 15                                            | 16QAM      | 1       | 37        | 22.04                 | 22.25                    | 22.20                  | 23                  | 1        |  |
| 15                                            | 16QAM      | 1       | 74        | 22.21                 | 22.16                    | 22.21                  |                     |          |  |
| 15                                            | 16QAM      | 36      | 0         | 20.81                 | 21.01                    | 20.92                  | 22                  | 2        |  |
| 15                                            | 16QAM      | 36      | 20        | 20.91                 | 20.98                    | 20.92                  |                     |          |  |
| 15                                            | 16QAM      | 36      | 39        | 20.93                 | 20.91                    | 20.99                  | 22                  | 2        |  |
| 15                                            | 16QAM      | 75      | 0         | 20.92                 | 20.92                    | 20.90                  |                     |          |  |
| 15                                            | 64QAM      | 1       | 0         | 21.10                 | 21.11                    | 21.21                  | 22                  | 2        |  |
| 15                                            | 64QAM      | 1       | 37        | 20.93                 | 21.20                    | 21.11                  |                     |          |  |
| 15                                            | 64QAM      | 1       | 74        | 21.16                 | 21.08                    | 21.10                  | 21                  | 3        |  |
| 15                                            | 64QAM      | 36      | 0         | 19.84                 | 20.08                    | 19.93                  |                     |          |  |
| 15                                            | 64QAM      | 36      | 20        | 19.98                 | 20.01                    | 20.02                  | 21                  | 3        |  |
| 15                                            | 64QAM      | 36      | 39        | 19.95                 | 19.94                    | 19.97                  |                     |          |  |
| 15                                            | 64QAM      | 75      | 0         | 19.91                 | 19.94                    | 19.90                  |                     |          |  |
| Channel                                       |            |         |           | 26740                 | 26865                    | 26960                  | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)                               |            |         |           | 819                   | 831.5                    | 844                    |                     |          |  |
| 10                                            | QPSK       | 1       | 0         | 22.68                 | 22.69                    | 22.82                  | 24                  | 0        |  |
| 10                                            | QPSK       | 1       | 25        | 22.67                 | 22.77                    | 22.83                  |                     |          |  |
| 10                                            | QPSK       | 1       | 49        | 22.74                 | 22.76                    | 22.78                  | 23                  | 1        |  |
| 10                                            | QPSK       | 25      | 0         | 21.72                 | 21.83                    | 21.88                  |                     |          |  |
| 10                                            | QPSK       | 25      | 12        | 21.72                 | 21.85                    | 21.88                  | 23                  | 1        |  |
| 10                                            | QPSK       | 25      | 25        | 21.80                 | 21.78                    | 21.81                  |                     |          |  |
| 10                                            | QPSK       | 50      | 0         | 21.83                 | 21.81                    | 21.87                  | 23                  | 1        |  |
| 10                                            | 16QAM      | 1       | 0         | 22.11                 | 22.20                    | 22.22                  |                     |          |  |
| 10                                            | 16QAM      | 1       | 25        | 22.04                 | 22.25                    | 22.28                  | 23                  | 1        |  |
| 10                                            | 16QAM      | 1       | 49        | 22.14                 | 22.13                    | 22.09                  |                     |          |  |
| 10                                            | 16QAM      | 25      | 0         | 20.82                 | 20.96                    | 20.96                  | 22                  | 2        |  |
| 10                                            | 16QAM      | 25      | 12        | 20.82                 | 20.96                    | 20.96                  |                     |          |  |
| 10                                            | 16QAM      | 25      | 25        | 20.87                 | 20.94                    | 20.95                  | 22                  | 2        |  |
| 10                                            | 16QAM      | 50      | 0         | 20.92                 | 20.94                    | 20.98                  |                     |          |  |
| 10                                            | 64QAM      | 1       | 0         | 21.05                 | 21.03                    | 21.18                  | 22                  | 2        |  |
| 10                                            | 64QAM      | 1       | 25        | 20.99                 | 21.16                    | 21.18                  |                     |          |  |
| 10                                            | 64QAM      | 1       | 49        | 21.08                 | 21.02                    | 21.08                  | 21                  | 3        |  |
| 10                                            | 64QAM      | 25      | 0         | 19.83                 | 20.00                    | 19.97                  |                     |          |  |
| 10                                            | 64QAM      | 25      | 12        | 19.84                 | 19.99                    | 20.02                  | 21                  | 3        |  |
| 10                                            | 64QAM      | 25      | 25        | 19.94                 | 19.94                    | 19.94                  |                     |          |  |
| 10                                            | 64QAM      | 50      | 0         | 19.93                 | 19.97                    | 19.97                  |                     |          |  |
| Channel                                       |            |         |           | 26715                 | 26865                    | 27015                  | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)                               |            |         |           | 816.5                 | 831.5                    | 846.5                  |                     |          |  |
| 5                                             | QPSK       | 1       | 0         | 22.71                 | 22.80                    | 22.81                  | 24                  | 0        |  |
| 5                                             | QPSK       | 1       | 12        | 22.66                 | 22.76                    | 22.80                  |                     |          |  |
| 5                                             | QPSK       | 1       | 24        | 22.68                 | 22.73                    | 22.76                  | 23                  | 1        |  |
| 5                                             | QPSK       | 12      | 0         | 21.76                 | 21.87                    | 21.84                  |                     |          |  |
| 5                                             | QPSK       | 12      | 7         | 21.76                 | 21.88                    | 21.85                  | 23                  | 1        |  |
| 5                                             | QPSK       | 12      | 13        | 21.72                 | 21.83                    | 21.82                  |                     |          |  |
| 5                                             | QPSK       | 25      | 0         | 21.72                 | 21.82                    | 21.80                  | 23                  | 1        |  |
| 5                                             | 16QAM      | 1       | 0         | 22.09                 | 22.27                    | 22.18                  |                     |          |  |
| 5                                             | 16QAM      | 1       | 12        | 22.08                 | 22.19                    | 22.13                  | 23                  | 1        |  |
| 5                                             | 16QAM      | 1       | 24        | 22.04                 | 22.14                    | 22.06                  |                     |          |  |
| 5                                             | 16QAM      | 12      | 0         | 20.86                 | 21.01                    | 20.97                  | 22                  | 2        |  |
| 5                                             | 16QAM      | 12      | 7         | 20.87                 | 21.03                    | 21.00                  |                     |          |  |
| 5                                             | 16QAM      | 12      | 13        | 20.84                 | 20.96                    | 20.94                  | 22                  | 2        |  |
| 5                                             | 16QAM      | 25      | 0         | 20.85                 | 20.91                    | 20.94                  |                     |          |  |
| 5                                             | 64QAM      | 1       | 0         | 21.05                 | 21.18                    | 21.19                  | 22                  | 2        |  |
| 5                                             | 64QAM      | 1       | 12        | 21.05                 | 21.14                    | 21.11                  |                     |          |  |
| 5                                             | 64QAM      | 1       | 24        | 20.95                 | 21.07                    | 21.03                  | 21                  | 3        |  |
| 5                                             | 64QAM      | 12      | 0         | 19.89                 | 20.04                    | 20.00                  |                     |          |  |
| 5                                             | 64QAM      | 12      | 7         | 19.93                 | 20.05                    | 20.02                  | 21                  | 3        |  |
| 5                                             | 64QAM      | 12      | 13        | 19.96                 | 20.01                    | 19.98                  |                     |          |  |
| 5                                             | 64QAM      | 25      | 0         | 19.82                 | 19.94                    | 19.92                  |                     |          |  |
| Channel                                       |            |         |           | 26705                 | 26865                    | 27025                  | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)                               |            |         |           | 815.5                 | 831.5                    | 847.5                  |                     |          |  |
| 3                                             | QPSK       | 1       | 0         | 22.69                 | 22.76                    | 22.81                  | 24                  | 0        |  |
| 3                                             | QPSK       | 1       | 8         | 22.69                 | 22.80                    | 22.81                  |                     |          |  |
| 3                                             | QPSK       | 1       | 14        | 22.68                 | 22.77                    | 22.76                  | 23                  | 1        |  |
| 3                                             | QPSK       | 8       | 0         | 21.75                 | 21.81                    | 21.82                  |                     |          |  |
| 3                                             | QPSK       | 8       | 4         | 21.76                 | 21.83                    | 21.82                  | 23                  | 1        |  |
| 3                                             | QPSK       | 8       | 7         | 21.71                 | 21.79                    | 21.80                  |                     |          |  |
| 3                                             | QPSK       | 15      | 0         | 21.70                 | 21.81                    | 21.83                  | 23                  | 1        |  |
| 3                                             | 16QAM      | 1       | 0         | 22.09                 | 22.21                    | 22.15                  |                     |          |  |
| 3                                             | 16QAM      | 1       | 8         | 22.10                 | 22.23                    | 22.12                  | 23                  | 1        |  |
| 3                                             | 16QAM      | 1       | 14        | 22.09                 | 22.22                    | 22.07                  |                     |          |  |
| 3                                             | 16QAM      | 8       | 0         | 20.93                 | 21.03                    | 20.99                  | 22                  | 2        |  |
| 3                                             | 16QAM      | 8       | 4         | 20.92                 | 21.03                    | 21.01                  |                     |          |  |
| 3                                             | 16QAM      | 8       | 7         | 20.90                 | 20.97                    | 20.96                  | 22                  | 2        |  |
| 3                                             | 16QAM      | 15      | 0         | 20.85                 | 20.95                    | 20.94                  |                     |          |  |
| 3                                             | 64QAM      | 1       | 0         | 21.04                 | 21.15                    | 21.12                  | 22                  | 2        |  |
| 3                                             | 64QAM      | 1       | 8         | 21.10                 | 21.19                    | 21.09                  |                     |          |  |
| 3                                             | 64QAM      | 1       | 14        | 21.06                 | 21.10                    | 21.06                  | 21                  | 3        |  |
| 3                                             | 64QAM      | 8       | 0         | 19.95                 | 19.99                    | 20.01                  |                     |          |  |
| 3                                             | 64QAM      | 8       | 4         | 19.94                 | 20.02                    | 20.04                  | 21                  | 3        |  |
| 3                                             | 64QAM      | 8       | 7         | 19.97                 | 20.02                    | 20.00                  |                     |          |  |
| 3                                             | 64QAM      | 15      | 0         | 19.84                 | 19.96                    | 19.95                  |                     |          |  |
| Channel                                       |            |         |           | 26697                 | 26865                    | 27033                  | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)                               |            |         |           | 814.7                 | 831.5                    | 848.3                  |                     |          |  |
| 1.4                                           | QPSK       | 1       | 0         | 22.65                 | 22.72                    | 22.74                  | 24                  | 0        |  |
| 1.4                                           | QPSK       | 1       | 3         | 22.71                 | 22.76                    | 22.81                  |                     |          |  |
| 1.4                                           | QPSK       | 1       | 5         | 22.61                 | 22.69                    | 22.73                  | 23                  | 1        |  |
| 1.4                                           | QPSK       | 3       | 0         | 22.69                 | 22.79                    | 22.78                  |                     |          |  |
| 1.4                                           | QPSK       | 3       | 1         | 22.71                 | 22.80                    | 22.79                  | 23                  | 1        |  |
| 1.4                                           | QPSK       | 3       | 3         | 22.70                 | 22.76                    | 22.79                  |                     |          |  |
| 1.4                                           | QPSK       | 6       | 0         | 21.69                 | 21.79                    | 21.78                  | 23                  | 1        |  |
| 1.4                                           | 16QAM      | 1       | 0         | 22.02                 | 22.18                    | 22.08                  |                     |          |  |
| 1.4                                           | 16QAM      | 1       | 3         | 22.13                 | 22.24                    | 22.15                  | 23                  | 1        |  |
| 1.4                                           | 16QAM      | 1       | 5         | 22.05                 | 22.16                    | 22.01                  |                     |          |  |
| 1.4                                           | 16QAM      | 3       | 0         | 21.84                 | 21.91                    | 21.87                  | 22                  | 2        |  |
| 1.4                                           | 16QAM      | 3       | 1         | 21.85                 | 21.97                    | 21.90                  |                     |          |  |
| 1.4                                           | 16QAM      | 3       | 3         | 21.82                 | 21.90                    | 21.82                  | 22                  | 2        |  |
| 1.4                                           | 16QAM      | 6       | 0         | 20.86                 | 20.93                    | 20.92                  |                     |          |  |
| 1.4                                           | 64QAM      | 1       | 0         | 21.04                 | 21.08                    | 21.01                  | 22                  | 2        |  |
| 1.4                                           | 64QAM      | 1       | 3         | 21.04                 | 21.14                    | 21.04                  |                     |          |  |
| 1.4                                           | 64QAM      | 1       | 5         | 20.99                 | 21.10                    | 20.99                  | 21                  | 3        |  |
| 1.4                                           | 64QAM      | 3       | 0         | 20.97                 | 21.08                    | 21.06                  |                     |          |  |
| 1.4                                           | 64QAM      | 3       | 1         | 21.03                 | 21.13                    | 21.06                  | 21                  | 3        |  |
| 1.4                                           | 64QAM      | 3       | 3         | 20.99                 | 21.02                    | 21.00                  |                     |          |  |
| 1.4                                           | 64QAM      | 6       | 0         | 19.80                 | 19.89                    | 19.88                  | 21                  | 3        |  |

| Band 66         |            |         |           |                       |                          |                        |                     |          |  |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| BW (MHz)        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |  |
| 20              | QPSK       | 1       | 0         | 22.16                 | 22.09                    | 22.19                  | 24                  | 1        |  |
| 20              | QPSK       | 1       | 49        | 22.13                 | 22.08                    | 22.34                  |                     |          |  |
| 20              | QPSK       | 1       | 99        | 22.18                 | 22.12                    | 22.41                  | 23                  | 1        |  |
| 20              | QPSK       | 50      | 0         | 21.45                 | 21.35                    | 21.44                  |                     |          |  |
| 20              | QPSK       | 50      | 24        | 21.45                 | 21.38                    | 21.63                  | 23                  | 1        |  |
| 20              | QPSK       | 50      | 50        | 21.46                 | 21.39                    | 21.65                  |                     |          |  |
| 20              | QPSK       | 100     | 0         | 21.40                 | 21.38                    | 21.47                  | 23                  | 1        |  |
| 20              | 16QAM      | 1       | 0         | 21.87                 | 21.86                    | 21.82                  |                     |          |  |
| 20              | 16QAM      | 1       | 49        | 21.83                 | 21.87                    | 21.93                  | 23                  | 1        |  |
| 20              | 16QAM      | 1       | 99        | 21.71                 | 21.88                    | 21.75                  |                     |          |  |
| 20              | 16QAM      | 50      | 0         | 20.60                 | 20.43                    | 20.44                  | 22                  | 2        |  |
| 20              | 16QAM      | 50      | 24        | 20.63                 | 20.40                    | 20.54                  |                     |          |  |
| 20              | 16QAM      | 50      | 50        | 20.53                 | 20.43                    | 20.50                  |                     |          |  |
| 20              | 16QAM      | 100     | 0         | 20.57                 | 20.43                    | 20.46                  | 22                  | 2        |  |
| 20              | 16QAM      | 1       | 0         | 20.76                 | 20.56                    | 20.67                  |                     |          |  |
| 20              | 16QAM      | 1       | 49        | 20.80                 | 20.51                    | 20.62                  | 22                  | 2        |  |
| 20              | 16QAM      | 1       | 99        | 20.65                 | 20.59                    | 20.74                  |                     |          |  |
| 20              | 16QAM      | 50      | 0         | 19.63                 | 19.46                    | 19.48                  | 21                  | 3        |  |
| 20              | 16QAM      | 50      | 24        | 19.64                 | 19.46                    | 19.62                  |                     |          |  |
| 20              | 16QAM      | 50      | 50        | 19.56                 | 19.43                    | 19.60                  | 21                  | 3        |  |
| 20              | 16QAM      | 100     | 0         | 19.58                 | 19.46                    | 19.47                  |                     |          |  |
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 | Tune-up limit (dBm) | MPR (dB) |  |
| 15              | QPSK       | 1       | 0         | 22.31                 | 22.20                    | 22.10                  | 24                  | 1        |  |
| 15              | QPSK       | 1       | 37        | 22.13                 | 22.33                    | 22.15                  |                     |          |  |
| 15              | QPSK       | 1       | 74        | 22.10                 | 22.38                    | 22.35                  | 23                  | 1        |  |
| 15              | QPSK       | 36      | 0         | 21.47                 | 21.49                    | 21.27                  |                     |          |  |
| 15              | QPSK       | 36      | 20        | 21.37                 | 21.61                    | 21.43                  | 23                  | 1        |  |
| 15              | QPSK       | 36      | 39        | 21.23                 | 21.66                    | 21.54                  |                     |          |  |
| 15              | QPSK       | 75      | 0         | 21.36                 | 21.58                    | 21.58                  | 23                  | 1        |  |
| 15              | QPSK       | 1       | 0         | 21.77                 | 21.87                    | 21.56                  |                     |          |  |
| 15              | 16QAM      | 1       | 37        | 21.76                 | 21.78                    | 21.66                  | 23                  | 1        |  |
| 15              | 16QAM      | 1       | 74        | 21.58                 | 22.06                    | 21.92                  |                     |          |  |
| 15              | 16QAM      | 36      | 0         | 20.57                 | 20.59                    | 20.34                  | 22                  | 2        |  |
| 15              | 16QAM      | 36      | 20        | 20.49                 | 20.65                    | 20.50                  |                     |          |  |
| 15              | 16QAM      | 36      | 39        | 20.33                 | 20.70                    | 20.58                  | 22                  | 2        |  |
| 15              | 16QAM      | 75      | 0         | 20.46                 | 20.66                    | 20.46                  |                     |          |  |
| 15              | 16QAM      | 1       | 0         | 20.72                 | 20.60                    | 20.45                  | 22                  | 2        |  |
| 15              | 16QAM      | 1       | 37        | 20.65                 | 20.75                    | 20.60                  |                     |          |  |
| 15              | 16QAM      | 1       | 74        | 20.43                 | 20.93                    | 20.85                  | 21                  | 3        |  |
| 15              | 16QAM      | 36      | 0         | 19.55                 | 19.62                    | 19.47                  |                     |          |  |
| 15              | 16QAM      | 36      | 20        | 19.54                 | 19.67                    | 19.52                  | 21                  | 3        |  |
| 15              | 16QAM      | 36      | 39        | 19.37                 | 19.76                    | 19.67                  |                     |          |  |
| 15              | 16QAM      | 75      | 0         | 19.44                 | 19.65                    | 19.45                  |                     |          |  |
| Channel         |            |         |           | 132022                | 132322                   | 132622                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   | Tune-up limit (dBm) | MPR (dB) |  |
| 10              | QPSK       | 1       | 0         | 22.38                 | 22.28                    | 22.14                  | 24                  | 1        |  |
| 10              | QPSK       | 1       | 25        | 22.21                 | 22.36                    | 22.28                  |                     |          |  |
| 10              | QPSK       | 1       | 49        | 22.07                 | 22.38                    | 22.39                  | 23                  | 1        |  |
| 10              | QPSK       | 25      | 0         | 21.50                 | 21.55                    | 21.47                  |                     |          |  |
| 10              | QPSK       | 25      | 13        | 21.43                 | 21.57                    | 21.57                  | 23                  | 1        |  |
| 10              | QPSK       | 25      | 26        | 21.35                 | 21.61                    | 21.55                  |                     |          |  |
| 10              | QPSK       | 50      | 0         | 21.45                 | 21.57                    | 21.50                  | 23                  | 1        |  |
| 10              | 16QAM      | 1       | 0         | 21.85                 | 21.72                    | 21.65                  |                     |          |  |
| 10              | 16QAM      | 1       | 25        | 21.78                 | 21.87                    | 21.81                  | 23                  | 1        |  |
| 10              | 16QAM      | 1       | 49        | 21.66                 | 21.95                    | 21.94                  |                     |          |  |
| 10              | 16QAM      | 25      | 0         | 20.62                 | 20.63                    | 20.52                  | 22                  | 2        |  |
| 10              | 16QAM      | 25      | 13        | 20.56                 | 20.66                    | 20.56                  |                     |          |  |
| 10              | 16QAM      | 25      | 26        | 20.48                 | 20.65                    | 20.69                  | 22                  | 2        |  |
| 10              | 16QAM      | 50      | 0         | 20.53                 | 20.63                    | 20.65                  |                     |          |  |
| 10              | 16QAM      | 1       | 0         | 20.78                 | 20.63                    | 20.20                  | 22                  | 2        |  |
| 10              | 16QAM      | 1       | 25        | 20.76                 | 20.77                    | 20.79                  |                     |          |  |
| 10              | 16QAM      | 1       | 49        | 20.58                 | 20.88                    | 20.90                  | 21                  | 3        |  |
| 10              | 16QAM      | 25      | 12        | 19.65                 | 19.65                    | 19.65                  |                     |          |  |
| 10              | 16QAM      | 25      | 12        | 19.54                 | 19.71                    | 19.61                  | 21                  | 3        |  |
| 10              | 16QAM      | 25      | 25        | 19.45                 | 19.73                    | 19.65                  |                     |          |  |
| 10              | 16QAM      | 50      | 0         | 19.55                 | 19.67                    | 19.62                  |                     |          |  |
| Channel         |            |         |           | 131997                | 132322                   | 132647                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1712.5                | 1745                     | 1777.5                 | Tune-up limit (dBm) | MPR (dB) |  |
| 5               | QPSK       | 1       | 0         | 22.35                 | 22.29                    | 22.28                  | 24                  | 1        |  |
| 5               | QPSK       | 1       | 24        | 22.32                 | 22.39                    | 22.39                  |                     |          |  |
| 5               | QPSK       | 1       | 12        | 22.16                 | 22.34                    | 22.34                  | 23                  | 1        |  |
| 5               | QPSK       | 12      | 0         | 21.59                 | 21.51                    | 21.59                  |                     |          |  |
| 5               | QPSK       | 12      | 7         | 21.55                 | 21.59                    | 21.62                  | 23                  | 1        |  |
| 5               | QPSK       | 12      | 13        | 21.48                 | 21.56                    | 21.62                  |                     |          |  |
| 5               | QPSK       | 25      | 0         | 21.52                 | 21.60                    | 21.58                  | 22                  | 2        |  |
| 5               | 16QAM      | 1       | 0         | 21.82                 | 21.76                    | 21.83                  |                     |          |  |
| 5               | 16QAM      | 1       | 12        | 21.80                 | 21.83                    | 21.82                  | 22                  | 2        |  |
| 5               | 16QAM      | 1       | 24        | 21.72                 | 21.89                    | 21.69                  |                     |          |  |
| 5               | 16QAM      | 12      | 0         | 20.62                 | 20.60                    | 20.68                  | 21                  | 3        |  |
| 5               | 16QAM      | 12      | 7         | 20.64                 | 20.70                    | 20.73                  |                     |          |  |
| 5               | 16QAM      | 12      | 13        | 20.56                 | 20.69                    | 20.73                  | 21                  | 3        |  |
| 5               | 16QAM      | 25      | 0         | 20.63                 | 20.65                    | 20.70                  |                     |          |  |
| 5               | 16QAM      | 1       | 0         | 20.77                 | 20.73                    | 20.78                  | 22                  | 2        |  |
| 5               | 16QAM      | 1       | 12        | 20.67                 | 20.76                    | 20.87                  |                     |          |  |
| 5               | 16QAM      | 1       | 24        | 20.67                 | 20.82                    | 20.80                  | 22                  | 2        |  |
| 5               | 16QAM      | 12      | 0         | 19.68                 | 19.68                    | 19.70                  |                     |          |  |
| 5               | 16QAM      | 12      | 7         | 19.67                 | 19.75                    | 19.78                  | 21                  | 3        |  |
| 5               | 16QAM      | 12      | 13        | 19.62                 | 19.74                    | 19.82                  |                     |          |  |
| 5               | 16QAM      | 25      | 0         | 19.60                 | 19.67                    | 19.71                  |                     |          |  |
| Channel         |            |         |           | 131987                | 132322                   | 132657                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1711.5                | 1745                     | 1776.5                 | Tune-up limit (dBm) | MPR (dB) |  |
| 3               | QPSK       | 1       | 0         | 22.34                 | 22.27                    | 22.31                  | 24                  | 1        |  |
| 3               | QPSK       | 1       | 8         | 22.30                 | 22.31                    | 22.30                  |                     |          |  |
| 3               | QPSK       | 1       | 14        | 22.24                 | 22.33                    | 22.35                  | 23                  | 1        |  |
| 3               | QPSK       | 8       | 0         | 21.82                 | 21.85                    | 21.87                  |                     |          |  |
| 3               | QPSK       | 8       | 4         | 21.85                 | 21.88                    | 21.95                  | 23                  | 1        |  |
| 3               | QPSK       | 8       | 7         | 21.78                 | 21.85                    | 21.91                  |                     |          |  |
| 3               | QPSK       | 15      | 0         | 21.83                 | 21.86                    | 21.91                  | 23                  | 1        |  |
| 3               | 16QAM      | 1       | 0         | 21.79                 | 21.76                    | 21.88                  |                     |          |  |
| 3               | 16QAM      | 1       | 8         | 21.78                 | 21.85                    | 21.91                  | 22                  | 2        |  |
| 3               | 16QAM      | 1       | 14        | 21.71                 | 21.83                    | 21.96                  |                     |          |  |
| 3               | 16QAM      | 8       | 0         | 20.61                 | 20.64                    | 20.70                  | 22                  | 2        |  |
| 3               | 16QAM      | 8       | 4         | 20.64                 | 20.68                    | 20.80                  |                     |          |  |
| 3               | 16QAM      | 8       | 7         | 20.58                 | 20.67                    | 20.74                  | 22                  | 2        |  |
| 3               | 16QAM      | 15      | 0         | 20.63                 | 20.65                    | 20.70                  |                     |          |  |
| 3               | 16QAM      | 1       | 0         | 20.76                 | 20.75                    | 20.82                  | 22                  | 2        |  |
| 3               | 16QAM      | 1       | 8         | 20.68                 | 20.72                    | 20.85                  |                     |          |  |
| 3               | 16QAM      | 1       | 14        | 20.66                 | 20.77                    | 20.89                  | 21                  | 3        |  |
| 3               | 16QAM      | 8       | 0         | 19.64                 | 19.63                    | 19.73                  |                     |          |  |
| 3               | 16QAM      | 8       | 4         | 19.70                 | 19.69                    | 19.76                  | 21                  | 3        |  |
| 3               | 16QAM      | 8       | 7         | 19.63                 | 19.68                    | 19.77                  |                     |          |  |
| 3               | 16QAM      | 15      | 0         | 19.60                 | 19.64                    | 19.66                  |                     |          |  |
| Channel         |            |         |           | 131977                | 132322                   | 132695                 |                     |          |  |
| Frequency (MHz) |            |         |           | 1710.7                | 1745                     | 1779.3                 | Tune-up limit (dBm) | MPR (dB) |  |
| 1.4             | QPSK       | 1       | 0         | 22.31                 | 22.23                    | 22.36                  | 24                  | 1        |  |
| 1.4             | QPSK       | 1       | 3         | 22.36                 | 22.34                    | 22.40                  |                     |          |  |
| 1.4             | QPSK       | 1       | 5         | 22.26                 | 22.27                    | 22.37                  | 24                  | 1        |  |
| 1.4             | QPSK       | 3       | 0         | 22.33                 | 22.31                    | 22.39                  |                     |          |  |
| 1.4             | QPSK       | 3       | 1         | 22.37                 | 22.35                    | 22.38                  | 23                  | 1        |  |
| 1.4             | QPSK       | 3       | 3         | 22.36                 | 22.28                    | 22.37                  |                     |          |  |
| 1.4             | QPSK       | 8       | 0         | 21.51                 | 21.50                    | 21.62                  | 23                  | 1        |  |
| 1.4             | 16QAM      | 1       | 0         | 21.77                 | 21.73                    | 21.93                  |                     |          |  |
| 1.4             | 16QAM      | 1       | 3         | 21.82                 | 21.85                    | 22.04                  | 23                  | 1        |  |
| 1.4             | 16QAM      | 1       | 5         | 21.76                 | 21.81                    | 21.95                  |                     |          |  |
| 1.4             | 16QAM      | 3       | 0         | 21.56                 | 21.56                    | 21.69                  | 22                  | 2        |  |
| 1.4             | 16QAM      | 3       | 1         | 21.60                 | 21.54                    | 21.71                  |                     |          |  |
| 1.4             | 16QAM      | 3       | 3         | 21.50                 | 21.55                    | 21.71                  | 22                  | 2        |  |
| 1.4             | 16QAM      | 8       | 0         | 20.65                 | 20.65                    | 20.78                  |                     |          |  |
| 1.4             | 16QAM      | 1       | 0         | 20.70                 | 20.67                    | 20.88                  | 22                  | 2        |  |
| 1.4             | 16QAM      | 1       | 3         | 20.69                 | 20.78                    | 20.93                  |                     |          |  |
| 1.4             | 16QAM      | 1       | 5         | 20.64                 | 20.71                    | 20.84                  | 22                  | 2        |  |
| 1.4             | 16QAM      | 3       | 0         | 20.68                 | 20.67                    | 20.87                  |                     |          |  |
| 1.4             | 16QAM      | 3       | 3         | 20.70                 | 20.74                    | 20.82                  | 21                  | 3        |  |
| 1.4             | 16QAM      | 3       | 3         | 20.70                 | 20.71                    | 20.86                  |                     |          |  |
| 1.4             | 16QAM      | 6       | 0         | 19.70                 | 19.61                    | 19.72                  | 21                  | 3        |  |



| Band 38(only on channel required) |            |         |           |                     |                      |                      |                     |          |    |   |  |  |  |  |
|-----------------------------------|------------|---------|-----------|---------------------|----------------------|----------------------|---------------------|----------|----|---|--|--|--|--|
| BW [MHz]                          | Modulation | RB Size | RB Offset | Power Low Ch / Freq | Power Main Ch / Freq | Power High Ch / Freq | Turn-up limit (dBm) | MPR (dB) |    |   |  |  |  |  |
| Channel                           |            |         |           |                     |                      |                      |                     |          |    |   |  |  |  |  |
| Frequency (MHz)                   |            |         |           | 37950               | 38050                | 38150                |                     |          |    |   |  |  |  |  |
| 20                                | QPSK       | 1       | 0         | 22.88               | 22.66                | 22.72                | 24                  | 0        |    |   |  |  |  |  |
| 20                                | QPSK       | 1       | 48        | 22.81               | 22.75                | 22.71                |                     |          |    |   |  |  |  |  |
| 20                                | QPSK       | 1       | 80        | 22.85               | 22.72                | 22.78                |                     |          |    |   |  |  |  |  |
| 20                                | QPSK       | 50      | 0         | 21.50               | 21.69                | 21.85                |                     |          |    |   |  |  |  |  |
| 20                                | QPSK       | 50      | 24        | 21.81               | 21.68                | 21.74                | 23                  | 1        |    |   |  |  |  |  |
| 20                                | QPSK       | 50      | 50        | 21.88               | 21.89                | 21.84                |                     |          |    |   |  |  |  |  |
| 20                                | QPSK       | 100     | 0         | 21.45               | 21.84                | 21.85                |                     |          |    |   |  |  |  |  |
| 20                                | HS-DMA     | 1       | 0         | 21.37               | 21.77                | 21.83                |                     |          |    |   |  |  |  |  |
| 20                                | HS-DMA     | 1       | 48        | 21.53               | 21.82                | 21.96                | 23                  | 1        |    |   |  |  |  |  |
| 20                                | HS-DMA     | 1       | 96        | 22.13               | 21.82                | 21.84                |                     |          |    |   |  |  |  |  |
| 20                                | HS-DMA     | 50      | 0         | 21.06               | 20.93                | 20.89                |                     |          |    |   |  |  |  |  |
| 20                                | HS-DMA     | 50      | 24        | 21.08               | 20.91                | 20.90                |                     |          |    |   |  |  |  |  |
| 20                                | HS-DMA     | 50      | 50        | 21.15               | 20.94                | 20.92                | 22                  | 2        |    |   |  |  |  |  |
| 20                                | HS-DMA     | 100     | 0         | 21.14               | 20.97                | 20.97                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 1       | 0         | 20.51               | 20.51                | 20.51                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 1       | 48        | 20.67               | 20.64                | 20.58                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 1       | 96        | 20.78               | 20.65                | 20.75                | 22                  | 2        |    |   |  |  |  |  |
| 20                                | SAGA-M     | 50      | 0         | 19.86               | 19.79                | 19.96                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 50      | 24        | 19.95               | 19.87                | 19.97                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 50      | 50        | 20.19               | 19.82                | 19.89                |                     |          |    |   |  |  |  |  |
| 20                                | SAGA-M     | 100     | 0         | 20.02               | 19.89                | 19.93                | 21                  | 3        |    |   |  |  |  |  |
| Channel                           |            |         |           | 37950               | 38050                | 38150                |                     |          |    |   |  |  |  |  |
| 15                                | QPSK       | 1       | 0         | 22.59               | 22.66                | 22.82                | 24                  | 0        |    |   |  |  |  |  |
| 15                                | QPSK       | 1       | 37        | 22.73               | 22.66                | 22.73                |                     |          |    |   |  |  |  |  |
| 15                                | QPSK       | 1       | 74        | 22.90               | 22.76                | 22.85                |                     |          |    |   |  |  |  |  |
| 15                                | QPSK       | 36      | 0         | 21.78               | 21.85                | 21.90                |                     |          |    |   |  |  |  |  |
| 15                                | QPSK       | 36      | 37        | 21.87               | 21.70                | 21.87                | 23                  | 1        |    |   |  |  |  |  |
| 15                                | QPSK       | 36      | 74        | 21.93               | 21.81                | 21.77                |                     |          |    |   |  |  |  |  |
| 15                                | QPSK       | 75      | 0         | 21.87               | 21.88                | 21.71                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 1       | 0         | 21.06               | 20.93                | 20.96                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 1       | 37        | 21.81               | 21.74                | 21.87                | 23                  | 2        |    |   |  |  |  |  |
| 15                                | HS-DMA     | 1       | 74        | 22.08               | 21.86                | 21.91                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 36      | 0         | 20.81               | 20.76                | 20.85                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 36      | 20        | 21.00               | 20.79                | 20.95                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 36      | 37        | 20.94               | 20.75                | 20.97                | 22                  | 2        |    |   |  |  |  |  |
| 15                                | HS-DMA     | 75      | 0         | 20.74               | 20.59                | 20.64                |                     |          |    |   |  |  |  |  |
| 15                                | HS-DMA     | 75      | 0         | 20.74               | 20.75                | 20.66                |                     |          |    |   |  |  |  |  |
| 15                                | SAGA-M     | 1       | 0         | 20.74               | 20.70                | 20.74                |                     |          |    |   |  |  |  |  |
| 15                                | SAGA-M     | 1       | 37        | 20.74               | 20.67                | 20.70                | 22                  | 2        |    |   |  |  |  |  |
| 15                                | SAGA-M     | 1       | 74        | 20.74               | 20.70                | 20.73                |                     |          |    |   |  |  |  |  |
| 15                                | SAGA-M     | 36      | 0         | 19.52               | 19.77                | 19.83                |                     |          |    |   |  |  |  |  |
| 15                                | SAGA-M     | 36      | 20        | 20.02               | 19.78                | 19.85                |                     |          |    |   |  |  |  |  |
| 15                                | SAGA-M     | 36      | 37        | 19.97               | 19.84                | 19.92                | 21                  | 3        |    |   |  |  |  |  |
| 15                                | SAGA-M     | 75      | 0         | 20.02               | 19.88                | 19.94                |                     |          |    |   |  |  |  |  |
| Channel                           |            |         |           | 37950               | 38050                | 38150                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 1       | 0         | 22.58               | 22.71                | 22.77                |                     |          | 24 | 0 |  |  |  |  |
| 10                                | QPSK       | 1       | 25        | 22.85               | 22.75                | 22.85                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 1       | 49        | 22.91               | 22.76                | 22.83                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 0         | 21.87               | 21.71                | 21.87                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 12        | 21.90               | 21.78                | 21.83                | 23                  | 1        |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 25        | 21.89               | 21.77                | 21.86                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 50      | 0         | 21.08               | 21.79                | 21.83                |                     |          |    |   |  |  |  |  |
| 10                                | HS-DMA     | 1       | 0         | 21.06               | 21.82                | 21.85                |                     |          |    |   |  |  |  |  |
| 10                                | HS-DMA     | 1       | 25        | 21.37               | 21.84                | 21.85                | 23                  | 1        |    |   |  |  |  |  |
| 10                                | HS-DMA     | 1       | 49        | 22.00               | 21.84                | 21.87                |                     |          |    |   |  |  |  |  |
| 10                                | HS-DMA     | 25      | 0         | 20.98               | 20.85                | 20.94                |                     |          |    |   |  |  |  |  |
| 10                                | HS-DMA     | 25      | 12        | 20.97               | 20.87                | 20.96                |                     |          |    |   |  |  |  |  |
| 10                                | HS-DMA     | 25      | 25        | 20.98               | 20.88                | 20.99                | 22                  | 2        |    |   |  |  |  |  |
| 10                                | HS-DMA     | 50      | 0         | 20.99               | 20.84                | 20.94                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 1       | 0         | 20.71               | 20.77                | 20.66                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 1       | 25        | 20.73               | 20.59                | 20.73                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 1       | 49        | 20.75               | 20.63                | 20.72                | 22                  | 2        |    |   |  |  |  |  |
| 10                                | SAGA-M     | 25      | 0         | 19.36               | 19.89                | 19.92                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 25      | 12        | 20.02               | 19.89                | 19.95                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 25      | 25        | 20.01               | 19.85                | 19.95                |                     |          |    |   |  |  |  |  |
| 10                                | SAGA-M     | 50      | 0         | 19.97               | 19.84                | 19.92                | 21                  | 3        |    |   |  |  |  |  |
| Channel                           |            |         |           | 37776               | 38050                | 38228                |                     |          |    |   |  |  |  |  |
| 5                                 | QPSK       | 1       | 0         | 22.71               | 22.77                | 23.72                | 24                  | 0        |    |   |  |  |  |  |
| 5                                 | QPSK       | 1       | 12        | 22.87               | 22.69                | 22.74                |                     |          |    |   |  |  |  |  |
| 5                                 | QPSK       | 1       | 24        | 22.86               | 22.71                | 22.76                |                     |          |    |   |  |  |  |  |
| 5                                 | QPSK       | 12      | 0         | 21.51               | 21.74                | 21.85                |                     |          |    |   |  |  |  |  |
| 5                                 | QPSK       | 12      | 7         | 21.93               | 21.78                | 21.88                | 23                  | 1        |    |   |  |  |  |  |
| 5                                 | QPSK       | 12      | 13        | 21.91               | 21.77                | 21.87                |                     |          |    |   |  |  |  |  |
| 5                                 | QPSK       | 25      | 0         | 21.89               | 21.72                | 21.83                |                     |          |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 1       | 0         | 21.50               | 21.77                | 21.91                |                     |          |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 1       | 12        | 22.01               | 21.81                | 21.85                | 23                  | 1        |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 1       | 24        | 21.98               | 21.85                | 22.00                |                     |          |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 12      | 0         | 20.93               | 20.79                | 20.88                |                     |          |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 12      | 7         | 20.95               | 20.82                | 20.88                |                     |          |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 12      | 13        | 20.92               | 20.81                | 20.89                | 22                  | 2        |    |   |  |  |  |  |
| 5                                 | HS-DMA     | 25      | 0         | 20.97               | 20.84                | 20.94                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 1       | 0         | 20.70               | 20.65                | 20.67                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 1       | 12        | 20.78               | 20.58                | 20.72                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 1       | 24        | 20.75               | 20.62                | 20.70                | 22                  | 2        |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 12      | 0         | 19.37               | 19.91                | 19.92                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 12      | 7         | 19.88               | 19.84                | 19.85                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 12      | 13        | 19.95               | 19.87                | 19.87                |                     |          |    |   |  |  |  |  |
| 5                                 | SAGA-M     | 25      | 0         | 20.01               | 19.85                | 19.95                | 21                  | 3        |    |   |  |  |  |  |
| Frequency (MHz)                   |            |         |           | 37776               | 38050                | 38228                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 1       | 0         | 22.58               | 22.71                | 22.77                | 24                  | 0        |    |   |  |  |  |  |
| 10                                | QPSK       | 1       | 25        | 22.85               | 22.75                | 22.85                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 1       | 49        | 22.91               | 22.76                | 22.83                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 0         | 21.87               | 21.71                | 21.87                |                     |          |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 12        | 21.90               | 21.78                | 21.83                | 23                  | 1        |    |   |  |  |  |  |
| 10                                | QPSK       | 25      | 25        | 21.89               | 21.77                | 21.86                |                     |          |    |   |  |  |  |  |

## Reduced Power Mode for P-Sensor On

| GSM850          | Burst Average Power (dBm) |       |       | Tune-up Limit (dBm) | Frame-Average Power (dBm) |       |       | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|-------|---------------------|---------------------------|-------|-------|---------------------|
|                 | 125                       | 189   | 251   |                     | 125                       | 189   | 251   |                     |
| TX Channel      | 824.2                     | 836.4 | 848.8 | 32.50               | 824.2                     | 836.4 | 848.8 | 23.50               |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 | 32.50               | 824.2                     | 836.4 | 848.8 | 23.50               |
| GSM 1 Tx slot   | 31.87                     | 31.61 | 31.55 | 32.50               | 22.87                     | 22.61 | 22.55 | 23.50               |
| GPRS 1 Tx slot  | 31.85                     | 31.59 | 31.53 | 32.50               | 22.85                     | 22.59 | 22.53 | 23.50               |
| GPRS 2 Tx slots | 30.18                     | 30.17 | 30.06 | 31.00               | 24.18                     | 24.17 | 24.06 | 25.00               |
| GPRS 3 Tx slots | 27.81                     | 27.80 | 27.65 | 28.50               | 23.55                     | 23.54 | 23.39 | 24.24               |
| GPRS 4 Tx slots | 24.98                     | 24.99 | 25.05 | 26.00               | 21.99                     | 21.99 | 22.05 | 23.00               |
| EDGE 1 Tx slot  | 26.01                     | 25.99 | 25.84 | 26.50               | 17.91                     | 16.99 | 16.84 | 17.50               |
| EDGE 2 Tx slots | 23.77                     | 23.77 | 23.56 | 24.50               | 17.77                     | 17.77 | 17.56 | 18.50               |
| EDGE 3 Tx slots | 21.58                     | 21.56 | 21.42 | 22.00               | 17.32                     | 17.29 | 17.16 | 17.74               |
| EDGE 4 Tx slots | 19.48                     | 19.40 | 19.27 | 20.00               | 16.48                     | 16.40 | 16.27 | 17.00               |

| GSM1900         | Burst Average Power (dBm) |       |        | Tune-up Limit (dBm) | Frame-Average Power (dBm) |       |        | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|--------|---------------------|---------------------------|-------|--------|---------------------|
|                 | 512                       | 661   | 810    |                     | 512                       | 661   | 810    |                     |
| TX Channel      | 1859.2                    | 1860  | 1909.8 | 23.50               | 1859.2                    | 1860  | 1909.8 | 14.50               |
| Frequency (MHz) | 1859.2                    | 1860  | 1909.8 | 23.50               | 1859.2                    | 1860  | 1909.8 | 14.50               |
| GSM 1 Tx slot   | 22.94                     | 22.85 | 22.59  | 23.50               | 13.94                     | 13.85 | 13.59  | 14.50               |
| GPRS 1 Tx slot  | 22.92                     | 22.82 | 22.57  | 23.50               | 13.92                     | 13.82 | 13.57  | 14.50               |
| GPRS 2 Tx slots | 21.64                     | 21.73 | 21.71  | 22.50               | 15.64                     | 15.73 | 15.71  | 16.50               |
| GPRS 3 Tx slots | 19.27                     | 19.33 | 19.37  | 20.00               | 15.01                     | 15.07 | 15.11  | 15.74               |
| GPRS 4 Tx slots | 16.96                     | 17.11 | 17.08  | 17.50               | 13.96                     | 14.11 | 14.08  | 14.50               |
| EDGE 1 Tx slot  | 16.60                     | 16.66 | 16.73  | 19.50               | 9.60                      | 9.66  | 9.73   | 10.50               |
| EDGE 2 Tx slots | 16.36                     | 16.41 | 16.48  | 17.00               | 10.36                     | 10.41 | 10.48  | 11.00               |
| EDGE 3 Tx slots | 14.24                     | 14.43 | 14.45  | 15.00               | 9.98                      | 10.17 | 10.19  | 10.74               |
| EDGE 4 Tx slots | 11.70                     | 11.84 | 11.83  | 12.50               | 8.70                      | 8.84  | 8.83   | 9.50                |

| Band            | WCDMA II                |       |        |        | Tune-up Limit (dBm) | WCDMA IV |        |        | Tune-up Limit (dBm) | WCDMA V |       |       | Tune-up Limit (dBm) |
|-----------------|-------------------------|-------|--------|--------|---------------------|----------|--------|--------|---------------------|---------|-------|-------|---------------------|
|                 | Tx Channel              | 9262  | 9400   | 9538   |                     | 1312     | 1413   | 1513   |                     | 4132    | 4182  | 4233  |                     |
| Tx Channel      | 9662                    | 9600  | 9900   | 9938   | 1737                | 1638     | 1738   | 4367   | 4407                | 4458    |       |       |                     |
| Frequency (MHz) | 1652.4                  | 1660  | 1697.2 | 1707.8 | 1712.4              | 1722.2   | 1732.6 | 4357.4 | 4369.4              | 4381.6  |       |       |                     |
| 3GPP Rel 99     | AMR 12.2Kbps            | 15.08 | 15.16  | 15.18  | 16.00               | 15.65    | 15.62  | 15.85  | 17.00               | 21.82   | 21.85 | 21.88 | 23.00               |
| 3GPP Rel 99     | RM-C 12.2Kbps           | 15.40 | 15.46  | 15.47  | 16.00               | 15.67    | 15.60  | 15.87  | 17.00               | 21.85   | 21.87 | 21.90 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-1         | 14.15 | 14.20  | 14.05  | 15.00               | 14.57    | 14.42  | 14.75  | 16.00               | 20.94   | 20.95 | 20.96 | 22.00               |
| 3GPP Rel 6      | HSDPA Subtest-2         | 14.22 | 14.25  | 14.06  | 15.00               | 14.56    | 14.45  | 14.78  | 16.00               | 20.90   | 20.93 | 21.00 | 22.00               |
| 3GPP Rel 6      | HSDPA Subtest-3         | 13.69 | 13.71  | 13.60  | 14.50               | 14.06    | 13.98  | 14.29  | 15.50               | 20.44   | 20.46 | 20.52 | 21.50               |
| 3GPP Rel 6      | HSDPA Subtest-4         | 13.68 | 13.72  | 13.60  | 14.50               | 14.12    | 13.89  | 14.28  | 15.50               | 20.44   | 20.40 | 20.16 | 21.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1      | 14.13 | 14.11  | 13.98  | 15.00               | 14.20    | 14.11  | 14.28  | 16.00               | 20.73   | 21.07 | 21.09 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2      | 14.18 | 14.15  | 13.99  | 15.00               | 14.22    | 14.15  | 14.33  | 16.00               | 20.75   | 21.03 | 21.13 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3      | 13.60 | 13.65  | 13.48  | 14.50               | 13.73    | 13.65  | 13.88  | 15.50               | 20.23   | 20.54 | 20.63 | 21.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4      | 13.62 | 13.66  | 13.49  | 14.50               | 13.77    | 13.64  | 13.84  | 15.50               | 20.19   | 20.56 | 20.65 | 21.50               |
| 3GPP Rel 6      | HSUPA Subtest-1         | 14.15 | 14.21  | 14.31  | 15.00               | 14.28    | 14.22  | 14.50  | 16.00               | 21.12   | 21.15 | 21.19 | 22.00               |
| 3GPP Rel 6      | HSUPA Subtest-2         | 12.19 | 12.25  | 12.29  | 13.00               | 12.24    | 12.18  | 12.42  | 14.00               | 19.15   | 19.10 | 19.15 | 20.00               |
| 3GPP Rel 6      | HSUPA Subtest-3         | 13.20 | 13.22  | 13.33  | 14.00               | 13.25    | 13.19  | 13.41  | 15.00               | 20.10   | 19.97 | 20.12 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-4         | 12.20 | 12.29  | 12.35  | 13.00               | 12.20    | 12.15  | 12.39  | 14.00               | 19.14   | 19.16 | 19.23 | 20.00               |
| 3GPP Rel 6      | HSUPA Subtest-5         | 14.20 | 14.20  | 14.30  | 15.00               | 14.20    | 14.10  | 14.30  | 16.00               | 21.10   | 21.10 | 21.20 | 22.00               |
| 3GPP Rel 7      | HSPA+ (16QAM) Subtest-1 | 11.85 | 11.88  | 11.97  | 12.50               | 11.88    | 11.82  | 11.95  | 13.50               | 18.79   | 18.84 | 18.88 | 19.50               |

| Band             | CDMA BC0   |       |        | Tune-up<br>Limit<br>(dBm) | CDMA BC1 |       |         | Tune-up<br>Limit<br>(dBm) | CDMA BC10 |       |       | Tune-up<br>Limit<br>(dBm) |
|------------------|------------|-------|--------|---------------------------|----------|-------|---------|---------------------------|-----------|-------|-------|---------------------------|
|                  | TX Channel | 1013  | 384    |                           | 777      | 25    | 600     |                           | 1175      | 476   | 580   |                           |
| Frequency (MHz)  |            | 824.7 | 836.52 | 848.34                    | 1851.25  | 1880  | 1908.75 | 2317.0                    | 820.5     | 823.1 |       |                           |
| RC1 SOSS         |            | 22.99 | 23.01  | 23.04                     | 24.00    | 16.95 | 17.00   | 16.98                     | 17.50     | 23.00 | 23.05 | 24.00                     |
| RC3 SOSS         |            | 22.97 | 22.99  | 23.00                     | 24.00    | 16.94 | 16.97   | 16.95                     | 17.50     | 23.01 | 23.04 | 24.00                     |
| RC3 SO32 (F+SCH) |            | 22.95 | 22.97  | 22.99                     | 24.00    | 16.96 | 16.97   | 16.95                     | 17.50     | 23.03 | 23.03 | 24.00                     |
| RC3 SO32 (F+SCH) |            | 22.94 | 22.94  | 22.97                     | 24.00    | 16.94 | 16.96   | 16.93                     | 17.50     | 23.01 | 23.00 | 24.00                     |
| RTAP 153.6Kbps   |            | 22.98 | 22.98  | 23.01                     | 24.00    | 16.95 | 16.97   | 16.94                     | 17.50     | 22.99 | 23.02 | 24.00                     |
| RETAP 4096Bps    |            | 22.97 | 22.93  | 22.97                     | 24.00    | 16.93 | 16.96   | 16.90                     | 17.50     | 22.98 | 22.95 | 24.00                     |

| Band 2 (1900MHz Band) |            |         |           |                                     |                          |                        |                     |           |  |
|-----------------------|------------|---------|-----------|-------------------------------------|--------------------------|------------------------|---------------------|-----------|--|
| Part 24E              |            |         |           |                                     |                          |                        |                     |           |  |
| BW [MHz]              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq.               | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPRR (dB) |  |
| Channel               |            |         |           | 18700                               | 18800                    | 19100                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1860                                | 1880                     | 1900                   |                     |           |  |
| 20                    | QPSK       | 1       | 0         | 15.80                               | 15.94                    | 15.83                  | 17                  | 0         |  |
| 20                    | QPSK       | 1       | 49        | 15.82                               | 16.00                    | 15.88                  |                     |           |  |
| 20                    | QPSK       | 1       | 99        | 15.81                               | 15.84                    | 15.73                  |                     |           |  |
| 20                    | QPSK       | 50      | 0         | 15.81                               | 15.96                    | 15.86                  |                     |           |  |
| 20                    | QPSK       | 50      | 24        | 15.80                               | 15.89                    | 15.84                  | 17                  | 0         |  |
| 20                    | QPSK       | 50      | 50        | 15.78                               | 15.88                    | 15.83                  |                     |           |  |
| 20                    | QPSK       | 100     | 0         | 15.80                               | 15.95                    | 15.85                  |                     |           |  |
| 20                    | 16QAM      | 1       | 0         | 15.98                               | 15.93                    | 15.85                  |                     |           |  |
| 20                    | 16QAM      | 1       | 49        | 15.91                               | 15.99                    | 15.94                  | 17                  | 0         |  |
| 20                    | 16QAM      | 1       | 99        | 15.88                               | 15.97                    | 15.77                  |                     |           |  |
| 20                    | 16QAM      | 50      | 0         | 15.93                               | 15.83                    | 15.96                  |                     |           |  |
| 20                    | 16QAM      | 50      | 24        | 15.97                               | 15.78                    | 15.89                  |                     |           |  |
| 20                    | 16QAM      | 50      | 50        | 15.81                               | 15.77                    | 15.95                  | 17                  | 0         |  |
| 20                    | 16QAM      | 100     | 0         | 15.83                               | 15.99                    | 15.90                  |                     |           |  |
| 20                    | 64QAM      | 1       | 0         | 15.97                               | 15.86                    | 15.76                  |                     |           |  |
| 20                    | 64QAM      | 1       | 49        | 15.89                               | 15.96                    | 15.95                  |                     |           |  |
| 20                    | 64QAM      | 1       | 99        | 15.96                               | 15.87                    | 15.88                  | 17                  | 0         |  |
| 20                    | 64QAM      | 50      | 0         | 15.95                               | 15.86                    | 15.98                  |                     |           |  |
| 20                    | 64QAM      | 50      | 24        | 15.96                               | 15.87                    | 15.85                  |                     |           |  |
| 20                    | 64QAM      | 50      | 50        | 15.79                               | 15.82                    | 15.95                  |                     |           |  |
| 20                    | 64QAM      | 100     | 0         | 15.80                               | 15.98                    | 15.92                  | 17                  | 0         |  |
| Channel               |            |         |           | 18675                               | 18800                    | 19125                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1857.5                              | 18800                    | 1902.5                 |                     |           |  |
| 15                    | QPSK       | 1       | 0         | 15.74                               | 15.85                    | 15.87                  | 17                  | 0         |  |
| 15                    | QPSK       | 1       | 37        | 15.66                               | 15.89                    | 15.93                  |                     |           |  |
| 15                    | QPSK       | 1       | 74        | 15.61                               | 15.72                    | 15.84                  |                     |           |  |
| 15                    | QPSK       | 36      | 0         | 15.78                               | 15.76                    | 15.86                  |                     |           |  |
| 15                    | QPSK       | 36      | 20        | 15.75                               | 15.70                    | 15.81                  | 17                  | 0         |  |
| 15                    | QPSK       | 36      | 39        | 15.75                               | 15.69                    | 15.59                  |                     |           |  |
| 15                    | QPSK       | 75      | 0         | 15.69                               | 15.96                    | 15.66                  |                     |           |  |
| 15                    | 16QAM      | 1       | 0         | 15.92                               | 15.86                    | 15.66                  |                     |           |  |
| 15                    | 16QAM      | 1       | 37        | 15.88                               | 15.98                    | 15.91                  | 17                  | 0         |  |
| 15                    | 16QAM      | 1       | 74        | 15.92                               | 15.85                    | 15.71                  |                     |           |  |
| 15                    | 16QAM      | 36      | 0         | 15.87                               | 15.61                    | 15.88                  |                     |           |  |
| 15                    | 16QAM      | 36      | 20        | 15.77                               | 15.58                    | 15.67                  |                     |           |  |
| 15                    | 16QAM      | 36      | 39        | 15.59                               | 15.71                    | 15.96                  | 17                  | 0         |  |
| 15                    | 16QAM      | 75      | 0         | 15.66                               | 15.78                    | 15.65                  |                     |           |  |
| 15                    | 64QAM      | 1       | 0         | 15.79                               | 15.85                    | 15.74                  |                     |           |  |
| 15                    | 64QAM      | 1       | 37        | 15.94                               | 15.89                    | 15.94                  |                     |           |  |
| 15                    | 64QAM      | 1       | 74        | 15.86                               | 15.82                    | 15.85                  | 17                  | 0         |  |
| 15                    | 64QAM      | 36      | 0         | 15.98                               | 15.86                    | 15.91                  |                     |           |  |
| 15                    | 64QAM      | 36      | 20        | 16.00                               | 15.85                    | 15.76                  |                     |           |  |
| 15                    | 64QAM      | 36      | 39        | 15.61                               | 15.87                    | 15.98                  |                     |           |  |
| 15                    | 64QAM      | 75      | 0         | 15.68                               | 15.80                    | 15.92                  | 17                  | 0         |  |
| Channel               |            |         |           | 18650 <th>18990</th> <th>19150</th> | 18990                    | 19150                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1855                                | 18800                    | 1905                   |                     |           |  |
| 10                    | QPSK       | 1       | 0         | 15.65                               | 15.87                    | 15.73                  | 17                  | 0         |  |
| 10                    | QPSK       | 1       | 25        | 15.67                               | 15.99                    | 15.80                  |                     |           |  |
| 10                    | QPSK       | 1       | 49        | 15.72                               | 15.70                    | 15.81                  |                     |           |  |
| 10                    | QPSK       | 25      | 0         | 15.74                               | 15.78                    | 15.66                  |                     |           |  |
| 10                    | QPSK       | 25      | 12        | 15.77                               | 15.76                    | 15.89                  | 17                  | 0         |  |
| 10                    | QPSK       | 25      | 25        | 15.83                               | 15.93                    | 15.88                  |                     |           |  |
| 10                    | QPSK       | 50      | 0         | 15.85                               | 15.95                    | 15.76                  |                     |           |  |
| 10                    | 16QAM      | 1       | 0         | 15.74                               | 15.88                    | 15.63                  |                     |           |  |
| 10                    | 16QAM      | 1       | 25        | 15.70                               | 15.84                    | 15.77                  | 17                  | 0         |  |
| 10                    | 16QAM      | 1       | 49        | 15.82                               | 15.99                    | 15.67                  |                     |           |  |
| 10                    | 16QAM      | 25      | 0         | 15.84                               | 15.61                    | 15.84                  |                     |           |  |
| 10                    | 16QAM      | 25      | 12        | 15.94                               | 15.53                    | 15.81                  |                     |           |  |
| 10                    | 16QAM      | 25      | 25        | 15.99                               | 15.71                    | 15.87                  | 17                  | 0         |  |
| 10                    | 16QAM      | 50      | 0         | 15.72                               | 15.76                    | 15.81                  |                     |           |  |
| 10                    | 64QAM      | 1       | 0         | 15.82                               | 15.70                    | 15.55                  |                     |           |  |
| 10                    | 64QAM      | 1       | 25        | 15.79                               | 15.85                    | 15.97                  |                     |           |  |
| 10                    | 64QAM      | 1       | 49        | 15.91                               | 15.83                    | 15.76                  | 17                  | 0         |  |
| 10                    | 64QAM      | 25      | 0         | 15.99                               | 15.70                    | 15.76                  |                     |           |  |
| 10                    | 64QAM      | 25      | 12        | 15.99                               | 15.52                    | 15.74                  |                     |           |  |
| 10                    | 64QAM      | 25      | 25        | 15.63                               | 15.65                    | 15.92                  |                     |           |  |
| 10                    | 64QAM      | 50      | 0         | 15.80                               | 15.91                    | 15.80                  | 17                  | 0         |  |
| Channel               |            |         |           | 18625 <th>18990</th> <th>19175</th> | 18990                    | 19175                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1852.5                              | 18800                    | 1907.5                 |                     |           |  |
| 5                     | QPSK       | 1       | 0         | 15.79                               | 15.90                    | 15.77                  | 17                  | 0         |  |
| 5                     | QPSK       | 1       | 12        | 15.77                               | 15.94                    | 15.92                  |                     |           |  |
| 5                     | QPSK       | 1       | 24        | 15.59                               | 15.58                    | 15.60                  |                     |           |  |
| 5                     | QPSK       | 12      | 0         | 15.73                               | 15.93                    | 15.84                  |                     |           |  |
| 5                     | QPSK       | 12      | 7         | 15.83                               | 15.88                    | 15.85                  | 17                  | 0         |  |
| 5                     | QPSK       | 12      | 13        | 15.81                               | 15.88                    | 15.82                  |                     |           |  |
| 5                     | QPSK       | 25      | 0         | 15.71                               | 15.95                    | 15.77                  |                     |           |  |
| 5                     | 16QAM      | 1       | 0         | 15.74                               | 15.92                    | 15.67                  |                     |           |  |
| 5                     | 16QAM      | 1       | 12        | 15.90                               | 15.75                    | 15.78                  | 17                  | 0         |  |
| 5                     | 16QAM      | 1       | 24        | 15.93                               | 15.82                    | 15.75                  |                     |           |  |
| 5                     | 16QAM      | 12      | 0         | 15.87                               | 15.85                    | 16.00                  |                     |           |  |
| 5                     | 16QAM      | 12      | 7         | 15.86                               | 15.83                    | 15.80                  |                     |           |  |
| 5                     | 16QAM      | 12      | 13        | 15.81                               | 15.64                    | 15.92                  | 17                  | 0         |  |
| 5                     | 16QAM      | 25      | 0         | 15.68                               | 15.95                    | 15.71                  |                     |           |  |
| 5                     | 64QAM      | 1       | 0         | 15.95                               | 15.64                    | 15.51                  |                     |           |  |
| 5                     | 64QAM      | 1       | 12        | 15.77                               | 15.82                    | 15.88                  |                     |           |  |
| 5                     | 64QAM      | 1       | 24        | 15.80                               | 15.90                    | 15.94                  | 17                  | 0         |  |
| 5                     | 64QAM      | 12      | 0         | 15.78                               | 15.88                    | 15.89                  |                     |           |  |
| 5                     | 64QAM      | 12      | 7         | 15.74                               | 15.84                    | 15.83                  |                     |           |  |
| 5                     | 64QAM      | 12      | 13        | 15.65                               | 15.83                    | 15.75                  |                     |           |  |
| 5                     | 64QAM      | 25      | 0         | 15.63                               | 15.93                    | 15.87                  | 17                  | 0         |  |
| Channel               |            |         |           | 18615 <th>18990</th> <th>19185</th> | 18990                    | 19185                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1851.5                              | 18800                    | 1908.5                 |                     |           |  |
| 3                     | QPSK       | 1       | 0         | 15.73                               | 15.93                    | 15.81                  | 17                  | 0         |  |
| 3                     | QPSK       | 1       | 8         | 15.73                               | 15.76                    | 15.76                  |                     |           |  |
| 3                     | QPSK       | 1       | 14        | 15.58                               | 15.72                    | 15.63                  |                     |           |  |
| 3                     | QPSK       | 8       | 0         | 15.72                               | 15.92                    | 15.79                  |                     |           |  |
| 3                     | QPSK       | 8       | 4         | 15.68                               | 15.86                    | 15.76                  | 17                  | 0         |  |
| 3                     | QPSK       | 8       | 7         | 15.78                               | 15.86                    | 15.87                  |                     |           |  |
| 3                     | QPSK       | 15      | 0         | 15.67                               | 15.98                    | 15.73                  |                     |           |  |
| 3                     | 16QAM      | 1       | 0         | 15.93                               | 15.75                    | 15.67                  |                     |           |  |
| 3                     | 16QAM      | 1       | 8         | 15.95                               | 15.90                    | 15.78                  | 17                  | 0         |  |
| 3                     | 16QAM      | 1       | 14        | 15.86                               | 15.83                    | 15.81                  |                     |           |  |
| 3                     | 16QAM      | 8       | 0         | 15.78                               | 15.73                    | 15.91                  |                     |           |  |
| 3                     | 16QAM      | 8       | 4         | 15.92                               | 15.83                    | 15.83                  |                     |           |  |
| 3                     | 16QAM      | 8       | 7         | 15.65                               | 15.69                    | 15.89                  | 17                  | 0         |  |
| 3                     | 16QAM      | 15      | 0         | 15.84                               | 15.77                    | 15.87                  |                     |           |  |
| 3                     | 64QAM      | 1       | 0         | 15.80                               | 15.86                    | 15.59                  |                     |           |  |
| 3                     | 64QAM      | 1       | 8         | 15.90                               | 15.73                    | 15.95                  |                     |           |  |
| 3                     | 64QAM      | 1       | 14        | 15.86                               | 15.68                    | 15.89                  | 17                  | 0         |  |
| 3                     | 64QAM      | 8       | 0         | 15.83                               | 15.66                    | 15.88                  |                     |           |  |
| 3                     | 64QAM      | 8       | 4         | 15.87                               | 15.76                    | 15.76                  |                     |           |  |
| 3                     | 64QAM      | 8       | 7         | 15.80                               | 15.83                    | 15.80                  |                     |           |  |
| 3                     | 64QAM      | 15      | 0         | 15.82                               | 15.74                    | 15.75                  | 17                  | 0         |  |
| Channel               |            |         |           | 18607 <th>18990</th> <th>19193</th> | 18990                    | 19193                  |                     |           |  |
| Frequency (MHz)       |            |         |           | 1850.7                              | 18800                    | 1909.3                 |                     |           |  |
| 1.4                   | QPSK       | 1       | 0         | 15.70                               | 15.85                    | 15.83                  | 17                  | 0         |  |
| 1.4                   | QPSK       | 1       | 3         | 15.81                               | 15.97                    | 15.88                  |                     |           |  |
| 1.4                   | QPSK       | 1       | 5         | 15.79                               | 15.75                    | 15.60                  |                     |           |  |
| 1.4                   | QPSK       | 3       | 0         | 15.62                               | 15.80                    | 15.84                  |                     |           |  |
| 1.4                   | QPSK       | 3       | 3         | 15.79                               | 15.64                    | 15.83                  | 17                  | 0         |  |
| 1.4                   | QPSK       | 3       | 3         | 15.56                               | 15.71                    | 15.85                  |                     |           |  |
| 1.4                   | QPSK       | 6       | 0         | 15.77                               | 15.71                    | 15.80                  |                     |           |  |
| 1.4                   | 16QAM      | 1       | 0         | 15.88                               | 15.87                    | 15.73                  |                     |           |  |
| 1.4                   | 16QAM      | 1       | 3         | 15.74                               | 15.80                    | 15.97                  | 17                  | 0         |  |
| 1.4                   | 16QAM      | 1       | 5         | 15.86                               | 15.83                    | 15.85                  |                     |           |  |
| 1.4                   | 16QAM      | 3       | 0         | 15.83                               | 15.87                    | 15.90                  |                     |           |  |
| 1.4                   | 16QAM      | 3       | 1         | 16.00                               | 15.74                    | 15.89                  | 17                  | 0         |  |
| 1.4                   | 16QAM      | 3       | 3         | 15.84                               | 15.63                    | 15.86                  |                     |           |  |
| 1.4                   | 16QAM      | 6       | 0         | 15.79                               | 15.98                    | 15.68                  |                     |           |  |
| 1.4                   | 64QAM      | 1       | 0         | 15.95                               | 15.70                    | 15.58                  | 17                  | 0         |  |
| 1.4                   | 64QAM      | 1       | 3         | 15.66                               | 15.96                    | 15.95                  |                     |           |  |
| 1.4                   | 64QAM      | 1       | 5         | 15.77                               | 15.80                    | 15.79                  |                     |           |  |
| 1.4                   | 64QAM      | 3       | 0         | 15.85                               | 15.82                    | 15.84                  |                     |           |  |
| 1.4                   | 64QAM      | 3       | 1         | 15.77                               | 15.73                    | 15.77                  | 17                  | 0         |  |
| 1.4                   | 64QAM      | 3       | 3         | 15.55                               | 15.62                    | 15.72                  |                     |           |  |
| 1.4                   | 64QAM      | 6       | 0         | 15.61                               | 15.74                    | 15.79                  |                     |           |  |

| Band 7 (2600MHz Band) |            |         |           |                       |                          |                        |                     |          |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| Part 27               |            |         |           |                       |                          |                        |                     |          |  |
| BW (MHz)              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel               |            |         |           | 20850                 | 21100                    | 21350                  |                     |          |  |
| Frequency (MHz)       |            |         |           |                       |                          |                        |                     |          |  |
| 20                    | QPSK       | 1       | 0         | 19.65                 | 19.50                    | 19.68                  | 21                  | 0        |  |
| 20                    | QPSK       | 1       | 49        | 19.70                 | 19.59                    | 19.72                  |                     |          |  |
| 20                    | QPSK       | 1       | 99        | 19.72                 | 19.61                    | 19.80                  |                     |          |  |
| 20                    | QPSK       | 50      | 0         | 19.67                 | 19.56                    | 19.73                  |                     |          |  |
| 20                    | QPSK       | 50      | 24        | 19.70                 | 19.60                    | 19.76                  | 21                  | 0        |  |
| 20                    | QPSK       | 50      | 50        | 19.65                 | 19.56                    | 19.70                  |                     |          |  |
| 20                    | QPSK       | 100     | 0         | 19.68                 | 19.58                    | 19.73                  |                     |          |  |
| 20                    | 16QAM      | 1       | 0         | 19.78                 | 19.78                    | 19.76                  |                     |          |  |
| 20                    | 16QAM      | 1       | 49        | 19.80                 | 19.70                    | 19.77                  | 21                  | 0        |  |
| 20                    | 16QAM      | 1       | 99        | 19.49                 | 19.74                    | 19.79                  |                     |          |  |
| 20                    | 16QAM      | 50      | 0         | 19.57                 | 19.56                    | 19.29                  |                     |          |  |
| 20                    | 16QAM      | 50      | 24        | 19.67                 | 19.66                    | 19.67                  |                     |          |  |
| 20                    | 16QAM      | 50      | 50        | 19.62                 | 19.65                    | 19.67                  | 21                  | 0        |  |
| 20                    | 16QAM      | 100     | 0         | 19.62                 | 19.57                    | 19.63                  |                     |          |  |
| 20                    | 64QAM      | 1       | 0         | 19.64                 | 19.61                    | 19.50                  |                     |          |  |
| 20                    | 64QAM      | 1       | 49        | 19.59                 | 19.48                    | 19.58                  |                     |          |  |
| 20                    | 64QAM      | 1       | 99        | 19.52                 | 19.52                    | 19.33                  | 21                  | 0        |  |
| 20                    | 64QAM      | 50      | 0         | 19.63                 | 19.60                    | 19.65                  |                     |          |  |
| 20                    | 64QAM      | 50      | 24        | 19.72                 | 19.60                    | 19.62                  |                     |          |  |
| 20                    | 64QAM      | 50      | 50        | 19.65                 | 19.65                    | 19.65                  |                     |          |  |
| 20                    | 64QAM      | 100     | 0         | 19.64                 | 19.57                    | 19.56                  | 21                  | 0        |  |
| Channel               |            |         |           | 20825                 | 21100                    | 21375                  |                     |          |  |
| Frequency (MHz)       |            |         |           |                       |                          |                        |                     |          |  |
| 15                    | QPSK       | 1       | 0         | 19.54                 | 19.30                    | 19.57                  | 21                  | 0        |  |
| 15                    | QPSK       | 1       | 37        | 19.46                 | 19.46                    | 19.69                  |                     |          |  |
| 15                    | QPSK       | 1       | 74        | 19.59                 | 19.48                    | 19.77                  |                     |          |  |
| 15                    | QPSK       | 36      | 0         | 19.65                 | 19.32                    | 19.55                  |                     |          |  |
| 15                    | QPSK       | 36      | 20        | 19.68                 | 19.38                    | 19.78                  | 21                  | 0        |  |
| 15                    | QPSK       | 36      | 39        | 19.42                 | 19.57                    | 19.74                  |                     |          |  |
| 15                    | QPSK       | 75      | 0         | 19.55                 | 19.49                    | 19.75                  |                     |          |  |
| 15                    | 16QAM      | 1       | 0         | 19.73                 | 19.71                    | 19.60                  |                     |          |  |
| 15                    | 16QAM      | 1       | 37        | 19.63                 | 19.75                    | 19.61                  | 21                  | 0        |  |
| 15                    | 16QAM      | 1       | 74        | 19.43                 | 19.74                    | 19.79                  |                     |          |  |
| 15                    | 16QAM      | 36      | 0         | 19.55                 | 19.35                    | 19.31                  |                     |          |  |
| 15                    | 16QAM      | 36      | 20        | 19.65                 | 19.63                    | 19.59                  |                     |          |  |
| 15                    | 16QAM      | 36      | 39        | 19.40                 | 19.70                    | 19.58                  | 21                  | 0        |  |
| 15                    | 16QAM      | 75      | 0         | 19.40                 | 19.40                    | 19.65                  |                     |          |  |
| 15                    | 64QAM      | 1       | 0         | 19.54                 | 19.63                    | 19.55                  |                     |          |  |
| 15                    | 64QAM      | 1       | 37        | 19.53                 | 19.32                    | 19.49                  |                     |          |  |
| 15                    | 64QAM      | 1       | 74        | 19.36                 | 19.39                    | 19.15                  | 21                  | 0        |  |
| 15                    | 64QAM      | 36      | 0         | 19.67                 | 19.48                    | 19.55                  |                     |          |  |
| 15                    | 64QAM      | 36      | 20        | 19.62                 | 19.62                    | 19.58                  |                     |          |  |
| 15                    | 64QAM      | 36      | 39        | 19.44                 | 19.57                    | 19.57                  |                     |          |  |
| 15                    | 64QAM      | 75      | 0         | 19.49                 | 19.61                    | 19.35                  | 21                  | 0        |  |
| Channel               |            |         |           | 20800                 | 21100                    | 21400                  |                     |          |  |
| Frequency (MHz)       |            |         |           |                       |                          |                        |                     |          |  |
| 10                    | QPSK       | 1       | 0         | 19.42                 | 19.41                    | 19.70                  | 21                  | 0        |  |
| 10                    | QPSK       | 1       | 25        | 19.70                 | 19.57                    | 19.70                  |                     |          |  |
| 10                    | QPSK       | 1       | 49        | 19.53                 | 19.47                    | 19.56                  |                     |          |  |
| 10                    | QPSK       | 25      | 0         | 19.53                 | 19.44                    | 19.70                  |                     |          |  |
| 10                    | QPSK       | 25      | 12        | 19.66                 | 19.55                    | 19.77                  | 21                  | 0        |  |
| 10                    | QPSK       | 25      | 25        | 19.61                 | 19.36                    | 19.59                  |                     |          |  |
| 10                    | QPSK       | 50      | 0         | 19.68                 | 19.33                    | 19.60                  |                     |          |  |
| 10                    | 16QAM      | 1       | 0         | 19.72                 | 19.56                    | 19.78                  |                     |          |  |
| 10                    | 16QAM      | 1       | 25        | 19.61                 | 19.53                    | 19.62                  | 21                  | 0        |  |
| 10                    | 16QAM      | 1       | 49        | 19.36                 | 19.50                    | 19.67                  |                     |          |  |
| 10                    | 16QAM      | 25      | 0         | 19.60                 | 19.40                    | 19.27                  |                     |          |  |
| 10                    | 16QAM      | 25      | 12        | 19.58                 | 19.57                    | 19.42                  |                     |          |  |
| 10                    | 16QAM      | 25      | 25        | 19.67                 | 19.47                    | 19.52                  | 21                  | 0        |  |
| 10                    | 16QAM      | 50      | 0         | 19.42                 | 19.61                    | 19.46                  |                     |          |  |
| 10                    | 64QAM      | 1       | 0         | 19.55                 | 19.55                    | 19.26                  |                     |          |  |
| 10                    | 64QAM      | 1       | 25        | 19.34                 | 19.31                    | 19.35                  |                     |          |  |
| 10                    | 64QAM      | 1       | 49        | 19.30                 | 19.40                    | 19.25                  | 21                  | 0        |  |
| 10                    | 64QAM      | 25      | 0         | 19.39                 | 19.45                    | 19.62                  |                     |          |  |
| 10                    | 64QAM      | 25      | 12        | 19.49                 | 19.57                    | 19.45                  |                     |          |  |
| 10                    | 64QAM      | 25      | 25        | 19.59                 | 19.55                    | 19.63                  |                     |          |  |
| 10                    | 64QAM      | 50      | 0         | 19.56                 | 19.33                    | 19.47                  | 21                  | 0        |  |
| Channel               |            |         |           | 20775                 | 21100                    | 21425                  |                     |          |  |
| Frequency (MHz)       |            |         |           |                       |                          |                        |                     |          |  |
| 5                     | QPSK       | 1       | 0         | 19.43                 | 19.40                    | 19.70                  | 21                  | 0        |  |
| 5                     | QPSK       | 1       | 12        | 19.62                 | 19.62                    | 19.74                  |                     |          |  |
| 5                     | QPSK       | 1       | 24        | 19.63                 | 19.66                    | 19.56                  |                     |          |  |
| 5                     | QPSK       | 12      | 0         | 19.44                 | 19.34                    | 19.74                  |                     |          |  |
| 5                     | QPSK       | 12      | 7         | 19.64                 | 19.49                    | 19.70                  | 21                  | 0        |  |
| 5                     | QPSK       | 12      | 13        | 19.54                 | 19.59                    | 19.47                  |                     |          |  |
| 5                     | QPSK       | 25      | 0         | 19.57                 | 19.62                    | 19.74                  |                     |          |  |
| 5                     | 16QAM      | 1       | 0         | 19.77                 | 19.64                    | 19.70                  |                     |          |  |
| 5                     | 16QAM      | 1       | 12        | 19.72                 | 19.49                    | 19.52                  | 21                  | 0        |  |
| 5                     | 16QAM      | 1       | 24        | 19.46                 | 19.65                    | 19.69                  |                     |          |  |
| 5                     | 16QAM      | 12      | 0         | 19.32                 | 19.35                    | 19.29                  |                     |          |  |
| 5                     | 16QAM      | 12      | 7         | 19.36                 | 19.44                    | 19.58                  |                     |          |  |
| 5                     | 16QAM      | 12      | 13        | 19.63                 | 19.69                    | 19.52                  | 21                  | 0        |  |
| 5                     | 16QAM      | 25      | 0         | 19.45                 | 19.45                    | 19.43                  |                     |          |  |
| 5                     | 64QAM      | 1       | 0         | 19.63                 | 19.44                    | 19.48                  |                     |          |  |
| 5                     | 64QAM      | 1       | 12        | 19.41                 | 19.35                    | 19.35                  |                     |          |  |
| 5                     | 64QAM      | 1       | 24        | 19.55                 | 19.34                    | 19.27                  | 21                  | 0        |  |
| 5                     | 64QAM      | 12      | 0         | 19.40                 | 19.37                    | 19.46                  |                     |          |  |
| 5                     | 64QAM      | 12      | 7         | 19.63                 | 19.50                    | 19.62                  |                     |          |  |
| 5                     | 64QAM      | 12      | 13        | 19.53                 | 19.57                    | 19.66                  |                     |          |  |
| 5                     | 64QAM      | 25      | 0         | 19.39                 | 19.58                    | 19.41                  | 21                  | 0        |  |

| Band 14 (700MHz Band) |            |         |           |                       |                          |                        |                     |          |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|
| BW (MHz)              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel               |            |         |           | 23330                 |                          |                        |                     |          |  |
| Frequency (MHz)       |            |         |           | 793                   |                          |                        |                     |          |  |
| 10                    | QPSK       | 1       | 0         | 22.09                 |                          |                        | 23.5                | 0        |  |
| 10                    | QPSK       | 1       | 25        | 22.14                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 1       | 49        | 22.20                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 25      | 0         | 21.74                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 25      | 12        | 21.72                 |                          |                        | 23                  | 0.5      |  |
| 10                    | QPSK       | 25      | 25        | 21.70                 |                          |                        |                     |          |  |
| 10                    | QPSK       | 50      | 0         | 21.71                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 1       | 0         | 21.81                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 1       | 25        | 21.85                 |                          |                        | 23                  | 0.5      |  |
| 10                    | 16QAM      | 1       | 49        | 21.90                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 25      | 0         | 20.70                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 25      | 12        | 20.76                 |                          |                        |                     |          |  |
| 10                    | 16QAM      | 25      | 25        | 20.69                 |                          |                        | 22                  | 1.5      |  |
| 10                    | 16QAM      | 50      | 0         | 20.72                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 1       | 0         | 20.80                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 1       | 25        | 20.82                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 1       | 49        | 20.85                 |                          |                        | 22                  | 1.5      |  |
| 10                    | 64QAM      | 25      | 0         | 19.73                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 25      | 12        | 19.75                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 25      | 25        | 19.75                 |                          |                        |                     |          |  |
| 10                    | 64QAM      | 50      | 0         | 19.74                 |                          |                        | 21                  | 2.5      |  |
| Channel               |            |         |           | 23305                 | 23330                    | 23355                  |                     |          |  |
| Frequency (MHz)       |            |         |           | 790.5                 | 793                      | 795.5                  |                     |          |  |
| 5                     | QPSK       | 1       | 0         | 22.13                 | 22.01                    | 22.02                  | 23.5                | 0        |  |
| 5                     | QPSK       | 1       | 12        | 22.02                 | 22.07                    | 21.97                  |                     |          |  |
| 5                     | QPSK       | 1       | 24        | 22.04                 | 22.05                    | 22.15                  |                     |          |  |
| 5                     | QPSK       | 12      | 0         | 21.76                 | 21.71                    | 21.51                  |                     |          |  |
| 5                     | QPSK       | 12      | 7         | 21.65                 | 21.74                    | 21.55                  | 23                  | 0.5      |  |
| 5                     | QPSK       | 12      | 13        | 21.67                 | 21.63                    | 21.55                  |                     |          |  |
| 5                     | QPSK       | 25      | 0         | 21.69                 | 21.69                    | 21.69                  |                     |          |  |
| 5                     | 16QAM      | 1       | 0         | 21.64                 | 21.63                    | 21.83                  |                     |          |  |
| 5                     | 16QAM      | 1       | 12        | 21.67                 | 21.65                    | 21.85                  | 23                  | 0.5      |  |
| 5                     | 16QAM      | 1       | 24        | 21.90                 | 21.85                    | 21.86                  |                     |          |  |
| 5                     | 16QAM      | 12      | 0         | 20.60                 | 20.66                    | 20.68                  |                     |          |  |
| 5                     | 16QAM      | 12      | 7         | 20.67                 | 20.64                    | 20.68                  |                     |          |  |
| 5                     | 16QAM      | 12      | 13        | 20.52                 | 20.70                    | 20.71                  | 22                  | 1.5      |  |
| 5                     | 16QAM      | 25      | 0         | 20.62                 | 20.71                    | 20.56                  |                     |          |  |
| 5                     | 64QAM      | 1       | 0         | 20.55                 | 20.70                    | 20.85                  |                     |          |  |
| 5                     | 64QAM      | 1       | 12        | 20.72                 | 20.85                    | 20.77                  |                     |          |  |
| 5                     | 64QAM      | 1       | 24        | 20.75                 | 20.66                    | 20.84                  | 22                  | 1.5      |  |
| 5                     | 64QAM      | 12      | 0         | 19.51                 | 19.77                    | 19.73                  |                     |          |  |
| 5                     | 64QAM      | 12      | 7         | 19.67                 | 19.61                    | 19.51                  |                     |          |  |
| 5                     | 64QAM      | 12      | 13        | 19.71                 | 19.73                    | 19.58                  | 21                  | 2.5      |  |
| 5                     | 64QAM      | 25      | 0         | 19.77                 | 19.52                    | 19.65                  |                     |          |  |

| Band 26 for FCC<br>(only on channel required) |            |         |           |                    |                    |                     |                           |                           |             |
|-----------------------------------------------|------------|---------|-----------|--------------------|--------------------|---------------------|---------------------------|---------------------------|-------------|
| BW (MHz)                                      | Modulation | RB Size | RB Offset | Power              |                    | Power               |                           | Turn-up<br>limit<br>(dBm) | MPR<br>(dB) |
|                                               |            |         |           | Low<br>Ch. / Freq. | Mid<br>Ch. / Freq. | High<br>Ch. / Freq. |                           |                           |             |
| Channel                                       |            |         |           | 26765              | 26865              | 26965               | Turn-up<br>limit<br>(dBm) | MPR<br>(dB)               |             |
| Frequency (MHz)                               |            |         |           | 821.5              | 831.5              | 841.5               |                           |                           |             |
| 15                                            | QPSK       | 1       | 0         | 21.83              | 21.85              | 21.95               | 23                        | 0                         |             |
| 15                                            | QPSK       | 1       | 37        | 21.84              | 21.88              | 21.96               |                           |                           |             |
| 15                                            | QPSK       | 1       | 74        | 21.80              | 21.83              | 21.93               |                           |                           |             |
| 15                                            | QPSK       | 36      | 0         | 21.77              | 21.82              | 21.87               |                           |                           |             |
| 15                                            | QPSK       | 36      | 20        | 21.82              | 21.86              | 21.94               | 23                        | 0                         |             |
| 15                                            | QPSK       | 36      | 39        | 21.78              | 21.80              | 21.88               |                           |                           |             |
| 15                                            | QPSK       | 75      | 0         | 21.80              | 21.85              | 21.91               |                           |                           |             |
| 15                                            | 16QAM      | 1       | 0         | 21.81              | 21.85              | 21.92               |                           |                           |             |
| 15                                            | 16QAM      | 1       | 37        | 21.86              | 21.82              | 21.81               | 23                        | 0                         |             |
| 15                                            | 16QAM      | 1       | 74        | 21.86              | 21.87              | 21.75               |                           |                           |             |
| 15                                            | 16QAM      | 36      | 0         | 21.08              | 21.17              | 21.03               |                           |                           |             |
| 15                                            | 16QAM      | 36      | 20        | 21.06              | 21.15              | 20.98               |                           |                           |             |
| 15                                            | 16QAM      | 36      | 39        | 21.19              | 21.05              | 21.18               | 22                        | 1                         |             |
| 15                                            | 16QAM      | 75      | 0         | 21.21              | 21.19              | 21.08               |                           |                           |             |
| 15                                            | 64QAM      | 1       | 0         | 21.22              | 20.98              | 21.28               |                           |                           |             |
| 15                                            | 64QAM      | 1       | 37        | 21.23              | 21.11              | 21.23               |                           |                           |             |
| 15                                            | 64QAM      | 1       | 74        | 21.09              | 21.04              | 21.38               | 22                        | 1                         |             |
| 15                                            | 64QAM      | 36      | 0         | 20.09              | 20.15              | 20.09               |                           |                           |             |
| 15                                            | 64QAM      | 36      | 20        | 20.12              | 20.26              | 20.05               |                           |                           |             |
| 15                                            | 64QAM      | 36      | 39        | 20.18              | 20.06              | 20.21               |                           |                           |             |
| 15                                            | 64QAM      | 75      | 0         | 20.27              | 20.16              | 20.10               | 21                        | 2                         |             |
| Channel                                       |            |         |           | 26740              | 26865              | 26990               |                           |                           |             |
| Frequency (MHz)                               |            |         |           | 819                | 831.5              | 844                 |                           |                           |             |
| 10                                            | QPSK       | 1       | 0         | 21.87              | 21.81              | 21.87               | 23                        | 0                         |             |
| 10                                            | QPSK       | 1       | 25        | 21.79              | 21.81              | 21.85               |                           |                           |             |
| 10                                            | QPSK       | 1       | 49        | 21.83              | 21.58              | 21.90               |                           |                           |             |
| 10                                            | QPSK       | 25      | 0         | 21.69              | 21.62              | 21.81               |                           |                           |             |
| 10                                            | QPSK       | 25      | 12        | 21.87              | 21.83              | 21.73               | 23                        | 0                         |             |
| 10                                            | QPSK       | 25      | 25        | 21.87              | 21.65              | 21.87               |                           |                           |             |
| 10                                            | QPSK       | 50      | 0         | 21.81              | 21.71              | 21.89               |                           |                           |             |
| 10                                            | 16QAM      | 1       | 0         | 21.83              | 21.73              | 21.73               |                           |                           |             |
| 10                                            | 16QAM      | 1       | 25        | 21.89              | 21.62              | 21.58               | 23                        | 0                         |             |
| 10                                            | 16QAM      | 1       | 49        | 21.62              | 21.66              | 21.67               |                           |                           |             |
| 10                                            | 16QAM      | 25      | 0         | 21.08              | 21.20              | 21.04               |                           |                           |             |
| 10                                            | 16QAM      | 25      | 12        | 20.83              | 21.19              | 20.87               |                           |                           |             |
| 10                                            | 16QAM      | 25      | 25        | 21.06              | 20.92              | 21.14               | 22                        | 1                         |             |
| 10                                            | 16QAM      | 50      | 0         | 21.08              | 21.19              | 20.99               |                           |                           |             |
| 10                                            | 64QAM      | 1       | 0         | 21.04              | 20.98              | 21.16               |                           |                           |             |
| 10                                            | 64QAM      | 1       | 25        | 21.01              | 21.07              | 21.23               |                           |                           |             |
| 10                                            | 64QAM      | 1       | 49        | 21.05              | 20.86              | 21.16               | 22                        | 1                         |             |
| 10                                            | 64QAM      | 25      | 0         | 20.03              | 20.20              | 20.08               |                           |                           |             |
| 10                                            | 64QAM      | 25      | 12        | 19.99              | 20.19              | 20.09               |                           |                           |             |
| 10                                            | 64QAM      | 25      | 25        | 20.10              | 20.03              | 20.11               |                           |                           |             |
| 10                                            | 64QAM      | 50      | 0         | 20.28              | 20.21              | 20.14               | 21                        | 2                         |             |
| Channel                                       |            |         |           | 26715              | 26865              | 27015               |                           |                           |             |
| Frequency (MHz)                               |            |         |           | 816.5              | 831.5              | 846.5               |                           |                           |             |
| 5                                             | QPSK       | 1       | 0         | 21.87              | 21.87              | 21.87               | 23                        | 0                         |             |
| 5                                             | QPSK       | 1       | 12        | 21.67              | 21.82              | 21.91               |                           |                           |             |
| 5                                             | QPSK       | 1       | 24        | 21.81              | 21.83              | 21.89               |                           |                           |             |
| 5                                             | QPSK       | 12      | 0         | 21.88              | 21.60              | 21.90               |                           |                           |             |
| 5                                             | QPSK       | 12      | 7         | 21.59              | 21.78              | 21.94               | 23                        | 0                         |             |
| 5                                             | QPSK       | 12      | 13        | 21.89              | 21.63              | 21.88               |                           |                           |             |
| 5                                             | QPSK       | 25      | 0         | 21.81              | 21.79              | 21.69               |                           |                           |             |
| 5                                             | 16QAM      | 1       | 0         | 21.70              | 21.72              | 21.90               |                           |                           |             |
| 5                                             | 16QAM      | 1       | 12        | 21.91              | 21.81              | 21.77               | 23                        | 0                         |             |
| 5                                             | 16QAM      | 1       | 24        | 21.62              | 21.85              | 21.68               |                           |                           |             |
| 5                                             | 16QAM      | 12      | 0         | 21.02              | 20.97              | 20.87               |                           |                           |             |
| 5                                             | 16QAM      | 12      | 7         | 20.86              | 21.07              | 20.74               |                           |                           |             |
| 5                                             | 16QAM      | 12      | 13        | 21.01              | 21.02              | 21.08               | 22                        | 1                         |             |
| 5                                             | 16QAM      | 25      | 0         | 21.20              | 21.04              | 21.07               |                           |                           |             |
| 5                                             | 64QAM      | 1       | 0         | 21.01              | 20.87              | 21.27               |                           |                           |             |
| 5                                             | 64QAM      | 1       | 12        | 21.17              | 20.91              | 21.15               |                           |                           |             |
| 5                                             | 64QAM      | 1       | 24        | 21.01              | 20.82              | 21.29               | 22                        | 1                         |             |
| 5                                             | 64QAM      | 12      | 0         | 19.84              | 20.03              | 19.87               |                           |                           |             |
| 5                                             | 64QAM      | 12      | 7         | 19.91              | 20.15              | 19.96               |                           |                           |             |
| 5                                             | 64QAM      | 12      | 13        | 20.15              | 19.86              | 20.23               |                           |                           |             |
| 5                                             | 64QAM      | 25      | 0         | 20.09              | 20.01              | 19.90               | 21                        | 2                         |             |
| Channel                                       |            |         |           | 26705              | 26865              | 27025               |                           |                           |             |
| Frequency (MHz)                               |            |         |           | 815.5              | 831.5              | 847.5               |                           |                           |             |
| 3                                             | QPSK       | 1       | 0         | 21.80              | 21.85              | 21.73               | 23                        | 0                         |             |
| 3                                             | QPSK       | 1       | 8         | 21.77              | 21.84              | 21.76               |                           |                           |             |
| 3                                             | QPSK       | 1       | 14        | 21.82              | 21.78              | 21.93               |                           |                           |             |
| 3                                             | QPSK       | 8       | 0         | 21.80              | 21.86              | 21.86               |                           |                           |             |
| 3                                             | QPSK       | 8       | 7         | 21.66              | 21.70              | 21.78               | 23                        | 0                         |             |
| 3                                             | QPSK       | 15      | 0         | 21.56              | 21.69              | 21.68               |                           |                           |             |
| 3                                             | 16QAM      | 1       | 0         | 21.73              | 21.83              | 21.71               |                           |                           |             |
| 3                                             | 16QAM      | 1       | 8         | 21.81              | 21.73              | 21.72               |                           |                           |             |
| 3                                             | 16QAM      | 1       | 14        | 21.65              | 21.69              | 21.56               | 23                        | 0                         |             |
| 3                                             | 16QAM      | 8       | 0         | 20.87              | 21.07              | 20.78               |                           |                           |             |
| 3                                             | 16QAM      | 8       | 4         | 20.87              | 21.19              | 20.77               |                           |                           |             |
| 3                                             | 16QAM      | 8       | 7         | 21.23              | 20.88              | 20.98               |                           |                           |             |
| 3                                             | 16QAM      | 15      | 0         | 21.10              | 21.06              | 21.01               | 22                        | 1                         |             |
| 3                                             | 64QAM      | 1       | 0         | 20.98              | 20.92              | 21.05               |                           |                           |             |
| 3                                             | 64QAM      | 1       | 8         | 20.98              | 21.14              | 21.01               |                           |                           |             |
| 3                                             | 64QAM      | 1       | 14        | 21.11              | 21.07              | 21.27               |                           |                           |             |
| 3                                             | 64QAM      | 8       | 0         | 20.07              | 19.90              | 20.10               | 22                        | 1                         |             |
| 3                                             | 64QAM      | 8       | 4         | 20.00              | 20.02              | 19.82               |                           |                           |             |
| 3                                             | 64QAM      | 8       | 7         | 20.22              | 19.92              | 20.23               |                           |                           |             |
| 3                                             | 64QAM      | 15      | 0         | 20.28              | 20.14              | 20.11               |                           |                           |             |
| Channel                                       |            |         |           | 26697              | 26865              | 27033               |                           |                           |             |
| Frequency (MHz)                               |            |         |           | 814.7              | 831.5              | 848.3               |                           |                           |             |
| 1.4                                           | QPSK       | 1       | 0         | 21.64              | 21.85              | 21.91               | 23                        | 0                         |             |
| 1.4                                           | QPSK       | 1       | 3         | 21.76              | 21.66              | 21.92               |                           |                           |             |
| 1.4                                           | QPSK       | 1       | 5         | 21.60              | 21.74              | 21.86               |                           |                           |             |
| 1.4                                           | QPSK       | 3       | 0         | 21.69              | 21.85              | 21.92               |                           |                           |             |
| 1.4                                           | QPSK       | 3       | 1         | 21.83              | 21.87              | 21.85               | 23                        | 0                         |             |
| 1.4                                           | QPSK       | 3       | 3         | 21.93              | 21.63              | 21.79               |                           |                           |             |
| 1.4                                           | QPSK       | 6       | 0         | 21.83              | 21.85              | 21.83               |                           |                           |             |
| 1.4                                           | 16QAM      | 1       | 0         | 21.71              | 21.60              | 21.70               |                           |                           |             |
| 1.4                                           | 16QAM      | 1       | 3         | 21.76              | 21.74              | 21.79               | 23                        | 0                         |             |
| 1.4                                           | 16QAM      | 1       | 5         | 21.73              | 21.80              | 21.69               |                           |                           |             |
| 1.4                                           | 16QAM      | 3       | 0         | 21.58              | 21.83              | 21.83               |                           |                           |             |
| 1.4                                           | 16QAM      | 3       | 1         | 21.83              | 21.74              | 21.67               |                           |                           |             |
| 1.4                                           | 16QAM      | 3       | 3         | 21.86              | 21.75              | 21.77               | 22                        | 1                         |             |
| 1.4                                           | 16QAM      | 6       | 0         | 20.98              | 21.18              | 21.01               |                           |                           |             |
| 1.4                                           | 64QAM      | 1       | 0         | 21.27              | 20.95              | 21.16               |                           |                           |             |
| 1.4                                           | 64QAM      | 1       | 3         | 21.09              | 21.05              | 21.27               |                           |                           |             |
| 1.4                                           | 64QAM      | 1       | 5         | 21.00              | 21.08              | 21.24               | 22                        | 1                         |             |
| 1.4                                           | 64QAM      | 3       | 0         | 21.00              | 20.74              | 21.10               |                           |                           |             |
| 1.4                                           | 64QAM      | 3       | 1         | 21.17              | 20.89              | 21.01               |                           |                           |             |
| 1.4                                           | 64QAM      | 3       | 3         | 20.90              | 20.92              | 21.14               |                           |                           |             |
| 1.4                                           | 64QAM      | 6       | 0         | 20.04              | 20.11              | 19.94               | 21                        | 2                         |             |

| Band 66         |            |         |           |                          |                             |                           |                           |             |  |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|---------------------------|-------------|--|
| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up<br>limit<br>(dBm) | MPR<br>(dB) |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 20              | QPSK       | 1       | 0         | 17.60                    | 17.55                       | 17.70                     | 19                        | 0           |  |
| 20              | QPSK       | 1       | 49        | 17.55                    | 17.49                       | 17.61                     |                           |             |  |
| 20              | QPSK       | 1       | 99        | 17.65                    | 17.59                       | 17.81                     |                           |             |  |
| 20              | QPSK       | 50      | 0         | 17.54                    | 17.55                       | 17.52                     |                           |             |  |
| 20              | QPSK       | 50      | 24        | 17.60                    | 17.46                       | 17.65                     | 19                        | 0           |  |
| 20              | QPSK       | 50      | 50        | 17.62                    | 17.57                       | 17.78                     |                           |             |  |
| 20              | QPSK       | 100     | 0         | 17.60                    | 17.54                       | 17.56                     |                           |             |  |
| 20              | 16QAM      | 1       | 0         | 17.50                    | 17.54                       | 17.50                     | 19                        | 0           |  |
| 20              | 16QAM      | 1       | 49        | 17.45                    | 17.49                       | 17.45                     |                           |             |  |
| 20              | 16QAM      | 1       | 99        | 17.47                    | 17.55                       | 17.45                     |                           |             |  |
| 20              | 16QAM      | 50      | 0         | 17.48                    | 17.58                       | 17.49                     |                           |             |  |
| 20              | 16QAM      | 50      | 24        | 17.46                    | 17.52                       | 17.42                     | 19                        | 0           |  |
| 20              | 16QAM      | 50      | 50        | 17.37                    | 17.45                       | 17.37                     |                           |             |  |
| 20              | 16QAM      | 100     | 0         | 17.41                    | 17.47                       | 17.38                     |                           |             |  |
| 20              | 64QAM      | 1       | 0         | 17.50                    | 17.40                       | 17.40                     | 19                        | 0           |  |
| 20              | 64QAM      | 1       | 49        | 17.55                    | 17.27                       | 17.41                     |                           |             |  |
| 20              | 64QAM      | 1       | 99        | 17.59                    | 17.41                       | 17.63                     |                           |             |  |
| 20              | 64QAM      | 50      | 0         | 17.54                    | 17.32                       | 17.46                     |                           |             |  |
| 20              | 64QAM      | 50      | 24        | 17.40                    | 17.29                       | 17.40                     | 19                        | 0           |  |
| 20              | 64QAM      | 50      | 50        | 17.43                    | 17.36                       | 17.37                     |                           |             |  |
| 20              | 64QAM      | 100     | 0         | 17.39                    | 17.32                       | 17.29                     |                           |             |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 15              | QPSK       | 1       | 0         | 17.51                    | 17.41                       | 17.63                     | 19                        | 0           |  |
| 15              | QPSK       | 1       | 37        | 17.40                    | 17.37                       | 17.48                     |                           |             |  |
| 15              | QPSK       | 1       | 74        | 17.66                    | 17.43                       | 17.73                     |                           |             |  |
| 15              | QPSK       | 36      | 0         | 17.42                    | 17.42                       | 17.28                     |                           |             |  |
| 15              | QPSK       | 36      | 20        | 17.37                    | 17.50                       | 17.40                     | 19                        | 0           |  |
| 15              | QPSK       | 36      | 38        | 17.56                    | 17.46                       | 17.50                     |                           |             |  |
| 15              | QPSK       | 75      | 0         | 17.56                    | 17.48                       | 17.52                     |                           |             |  |
| 15              | 16QAM      | 1       | 0         | 17.40                    | 17.34                       | 17.46                     | 19                        | 0           |  |
| 15              | 16QAM      | 1       | 37        | 17.28                    | 17.32                       | 17.31                     |                           |             |  |
| 15              | 16QAM      | 1       | 74        | 17.50                    | 17.56                       | 17.38                     |                           |             |  |
| 15              | 16QAM      | 36      | 0         | 17.51                    | 17.51                       | 17.35                     |                           |             |  |
| 15              | 16QAM      | 36      | 20        | 17.43                    | 17.28                       | 17.45                     | 19                        | 0           |  |
| 15              | 16QAM      | 36      | 38        | 17.24                    | 17.21                       | 17.35                     |                           |             |  |
| 15              | 16QAM      | 75      | 0         | 17.42                    | 17.22                       | 17.14                     |                           |             |  |
| 15              | 64QAM      | 1       | 0         | 17.27                    | 17.50                       | 17.43                     | 19                        | 0           |  |
| 15              | 64QAM      | 1       | 37        | 17.57                    | 17.09                       | 17.30                     |                           |             |  |
| 15              | 64QAM      | 1       | 74        | 17.37                    | 17.26                       | 17.41                     |                           |             |  |
| 15              | 64QAM      | 36      | 0         | 17.46                    | 17.17                       | 17.25                     |                           |             |  |
| 15              | 64QAM      | 36      | 20        | 17.36                    | 17.11                       | 17.25                     | 19                        | 0           |  |
| 15              | 64QAM      | 36      | 38        | 17.32                    | 17.12                       | 17.60                     |                           |             |  |
| 15              | 64QAM      | 75      | 0         | 17.23                    | 17.42                       | 17.30                     |                           |             |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 10              | QPSK       | 1       | 0         | 17.53                    | 17.59                       | 17.55                     | 19                        | 0           |  |
| 10              | QPSK       | 1       | 25        | 17.43                    | 17.30                       | 17.55                     |                           |             |  |
| 10              | QPSK       | 1       | 49        | 17.47                    | 17.55                       | 17.71                     |                           |             |  |
| 10              | QPSK       | 25      | 0         | 17.45                    | 17.44                       | 17.42                     |                           |             |  |
| 10              | QPSK       | 25      | 12        | 17.46                    | 17.44                       | 17.50                     | 19                        | 0           |  |
| 10              | QPSK       | 25      | 25        | 17.56                    | 17.62                       | 17.53                     |                           |             |  |
| 10              | QPSK       | 50      | 0         | 17.49                    | 17.48                       | 17.57                     |                           |             |  |
| 10              | 16QAM      | 1       | 0         | 17.53                    | 17.55                       | 17.29                     | 19                        | 0           |  |
| 10              | 16QAM      | 1       | 25        | 17.25                    | 17.39                       | 17.36                     |                           |             |  |
| 10              | 16QAM      | 1       | 49        | 17.51                    | 17.56                       | 17.48                     |                           |             |  |
| 10              | 16QAM      | 25      | 0         | 17.43                    | 17.40                       | 17.45                     |                           |             |  |
| 10              | 16QAM      | 25      | 12        | 17.30                    | 17.27                       | 17.14                     | 19                        | 0           |  |
| 10              | 16QAM      | 25      | 25        | 17.29                    | 17.49                       | 17.37                     |                           |             |  |
| 10              | 16QAM      | 50      | 0         | 17.35                    | 17.29                       | 17.39                     |                           |             |  |
| 10              | 64QAM      | 1       | 0         | 17.37                    | 17.36                       | 17.39                     | 19                        | 0           |  |
| 10              | 64QAM      | 1       | 25        | 17.33                    | 17.37                       | 17.28                     |                           |             |  |
| 10              | 64QAM      | 1       | 49        | 17.47                    | 17.37                       | 17.36                     |                           |             |  |
| 10              | 64QAM      | 25      | 0         | 17.36                    | 17.30                       | 17.40                     |                           |             |  |
| 10              | 64QAM      | 25      | 12        | 17.25                    | 17.22                       | 17.22                     | 19                        | 0           |  |
| 10              | 64QAM      | 25      | 25        | 17.30                    | 17.20                       | 17.55                     |                           |             |  |
| 10              | 64QAM      | 50      | 0         | 17.37                    | 17.36                       | 17.35                     |                           |             |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 5               | QPSK       | 1       | 0         | 17.43                    | 17.50                       | 17.74                     | 19                        | 0           |  |
| 5               | QPSK       | 1       | 12        | 17.58                    | 17.45                       | 17.44                     |                           |             |  |
| 5               | QPSK       | 1       | 24        | 17.46                    | 17.41                       | 17.45                     |                           |             |  |
| 5               | QPSK       | 12      | 0         | 17.51                    | 17.57                       | 17.40                     |                           |             |  |
| 5               | QPSK       | 12      | 7         | 17.55                    | 17.26                       | 17.21                     | 19                        | 0           |  |
| 5               | QPSK       | 12      | 13        | 17.67                    | 17.41                       | 17.62                     |                           |             |  |
| 5               | QPSK       | 25      | 0         | 17.38                    | 17.46                       | 17.54                     |                           |             |  |
| 5               | 16QAM      | 1       | 0         | 17.45                    | 17.30                       | 17.35                     | 19                        | 0           |  |
| 5               | 16QAM      | 1       | 12        | 17.24                    | 17.22                       | 17.41                     |                           |             |  |
| 5               | 16QAM      | 1       | 24        | 17.30                    | 17.31                       | 17.45                     |                           |             |  |
| 5               | 16QAM      | 12      | 0         | 17.53                    | 17.58                       | 17.50                     |                           |             |  |
| 5               | 16QAM      | 12      | 7         | 17.31                    | 17.34                       | 17.34                     | 19                        | 0           |  |
| 5               | 16QAM      | 12      | 13        | 17.31                    | 17.39                       | 17.12                     |                           |             |  |
| 5               | 16QAM      | 25      | 0         | 17.46                    | 17.49                       | 17.42                     |                           |             |  |
| 5               | 64QAM      | 1       | 0         | 17.44                    | 17.34                       | 17.28                     | 19                        | 0           |  |
| 5               | 64QAM      | 1       | 12        | 17.40                    | 17.16                       | 17.36                     |                           |             |  |
| 5               | 64QAM      | 1       | 24        | 17.41                    | 17.38                       | 17.45                     |                           |             |  |
| 5               | 64QAM      | 12      | 0         | 17.34                    | 17.35                       | 17.23                     |                           |             |  |
| 5               | 64QAM      | 12      | 7         | 17.44                    | 17.09                       | 17.44                     | 19                        | 0           |  |
| 5               | 64QAM      | 12      | 13        | 17.24                    | 17.36                       | 17.54                     |                           |             |  |
| 5               | 64QAM      | 25      | 0         | 17.21                    | 17.36                       | 17.56                     |                           |             |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 3               | QPSK       | 1       | 0         | 17.65                    | 17.58                       | 17.77                     | 19                        | 0           |  |
| 3               | QPSK       | 1       | 8         | 17.55                    | 17.43                       | 17.47                     |                           |             |  |
| 3               | QPSK       | 1       | 14        | 17.40                    | 17.47                       | 17.57                     |                           |             |  |
| 3               | QPSK       | 8       | 0         | 17.40                    | 17.34                       | 17.33                     |                           |             |  |
| 3               | QPSK       | 8       | 4         | 17.38                    | 17.37                       | 17.14                     | 19                        | 0           |  |
| 3               | QPSK       | 8       | 7         | 17.45                    | 17.58                       | 17.60                     |                           |             |  |
| 3               | QPSK       | 15      | 0         | 17.44                    | 17.59                       | 17.61                     |                           |             |  |
| 3               | 16QAM      | 1       | 0         | 17.42                    | 17.30                       | 17.40                     | 19                        | 0           |  |
| 3               | 16QAM      | 1       | 8         | 17.40                    | 17.39                       | 17.34                     |                           |             |  |
| 3               | 16QAM      | 1       | 14        | 17.32                    | 17.53                       | 17.45                     |                           |             |  |
| 3               | 16QAM      | 8       | 0         | 17.37                    | 17.56                       | 17.50                     |                           |             |  |
| 3               | 16QAM      | 8       | 4         | 17.43                    | 17.37                       | 17.43                     | 19                        | 0           |  |
| 3               | 16QAM      | 8       | 7         | 17.15                    | 17.42                       | 17.12                     |                           |             |  |
| 3               | 16QAM      | 15      | 0         | 17.36                    | 17.38                       | 17.36                     |                           |             |  |
| 3               | 64QAM      | 1       | 0         | 17.39                    | 17.50                       | 17.30                     | 19                        | 0           |  |
| 3               | 64QAM      | 1       | 8         | 17.49                    | 17.23                       | 17.34                     |                           |             |  |
| 3               | 64QAM      | 1       | 14        | 17.64                    | 17.45                       | 17.59                     |                           |             |  |
| 3               | 64QAM      | 8       | 0         | 17.45                    | 17.24                       | 17.27                     |                           |             |  |
| 3               | 64QAM      | 8       | 4         | 17.17                    | 17.16                       | 17.27                     | 19                        | 0           |  |
| 3               | 64QAM      | 8       | 7         | 17.24                    | 17.18                       | 17.56                     |                           |             |  |
| 3               | 64QAM      | 15      | 0         | 17.34                    | 17.42                       | 17.30                     |                           |             |  |
| Channel         |            |         |           |                          |                             |                           |                           |             |  |
| Frequency (MHz) |            |         |           |                          |                             |                           |                           |             |  |
| 1.4             | QPSK       | 1       | 0         | 17.49                    | 17.44                       | 17.56                     | 19                        | 0           |  |
| 1.4             | QPSK       | 1       | 3         | 17.30                    | 17.51                       | 17.56                     |                           |             |  |
| 1.4             | QPSK       | 1       | 5         | 17.50                    | 17.44                       | 17.58                     |                           |             |  |
| 1.4             | QPSK       | 3       | 0         | 17.58                    | 17.34                       | 17.46                     |                           |             |  |
| 1.4             | QPSK       | 3       | 1         | 17.38                    | 17.26                       | 17.32                     | 19                        | 0           |  |
| 1.4             | QPSK       | 3       | 3         | 17.47                    | 17.36                       | 17.64                     |                           |             |  |
| 1.4             | QPSK       | 6       | 0         | 17.46                    | 17.32                       | 17.59                     |                           |             |  |
| 1.4             | 16QAM      | 1       | 0         | 17.62                    | 17.31                       | 17.31                     | 19                        | 0           |  |
| 1.4             | 16QAM      | 1       | 3         | 17.35                    | 17.50                       | 17.25                     |                           |             |  |
| 1.4             | 16QAM      | 1       | 5         | 17.27                    | 17.39                       | 17.36                     |                           |             |  |
| 1.4             | 16QAM      | 3       | 0         | 17.33                    | 17.62                       | 17.46                     |                           |             |  |
| 1.4             | 16QAM      | 3       | 1         | 17.31                    | 17.30                       | 17.27                     | 19                        | 0           |  |
| 1.4             | 16QAM      | 3       | 3         | 17.15                    | 17.30                       | 17.10                     |                           |             |  |
| 1.4             | 16QAM      | 6       | 0         | 17.28                    | 17.50                       | 17.20                     |                           |             |  |
| 1.4             | 64QAM      | 1       | 0         | 17.43                    | 17.48                       | 17.55                     | 19                        | 0           |  |
| 1.4             | 64QAM      | 1       | 3         | 17.55                    | 17.19                       | 17.45                     |                           |             |  |
| 1.4             | 64QAM      | 1       | 5         | 17.64                    | 17.29                       | 17.63                     |                           |             |  |
| 1.4             | 64QAM      | 3       | 0         | 17.46                    | 17.09                       | 17.28                     |                           |             |  |
| 1.4             | 64QAM      | 3       | 1         | 17.38                    | 17.17                       | 17.34                     | 19                        | 0           |  |
| 1.4             | 64QAM      | 3       | 3         | 17.29                    | 17.19                       | 17.50                     |                           |             |  |
| 1.4             | 64QAM      | 6       | 0         | 17.35                    | 17.47                       | 17.33                     |                           |             |  |

| Band 38(only on channel required) |            |         |           |                      |                       |                       |                     |          |  |  |  |
|-----------------------------------|------------|---------|-----------|----------------------|-----------------------|-----------------------|---------------------|----------|--|--|--|
| BW [MHz]                          | Modulation | RB Size | RB Offset | Power Low Ch / Freq. | Power Main Ch / Freq. | Power High Ch / Freq. | Tune-up limit (dBm) | MPR (dB) |  |  |  |
| Channel                           |            |         |           |                      |                       |                       |                     |          |  |  |  |
| Frequency (MHz)                   |            |         |           |                      |                       |                       |                     |          |  |  |  |
|                                   |            |         |           | 37850                | 38050                 | 38150                 |                     |          |  |  |  |
| 20                                | QPSK       | 1       | 0         | 20.78                | 20.82                 | 20.76                 | 22                  | 0        |  |  |  |
| 20                                | QPSK       | 1       | 48        | 20.79                | 20.80                 | 20.74                 |                     |          |  |  |  |
| 20                                | QPSK       | 1       | 96        | 20.80                | 20.80                 | 20.82                 |                     |          |  |  |  |
| 20                                | QPSK       | 50      | 24        | 20.86                | 20.86                 | 20.78                 |                     |          |  |  |  |
| 20                                | QPSK       | 50      | 50        | 20.88                | 20.78                 | 20.76                 | 22                  | 0        |  |  |  |
| 20                                | QPSK       | 100     | 0         | 20.96                | 20.85                 | 20.77                 |                     |          |  |  |  |
| 20                                | 16QAM      | 1       | 48        | 20.95                | 20.95                 | 20.88                 |                     |          |  |  |  |
| 20                                | 16QAM      | 1       | 96        | 20.92                | 20.95                 | 20.93                 |                     |          |  |  |  |
| 20                                | 16QAM      | 50      | 24        | 20.91                | 20.87                 | 20.89                 | 22                  | 0        |  |  |  |
| 20                                | 16QAM      | 50      | 50        | 20.94                | 20.94                 | 20.91                 |                     |          |  |  |  |
| 20                                | 16QAM      | 100     | 0         | 20.98                | 20.92                 | 20.91                 |                     |          |  |  |  |
| 20                                | 16QAM      | 100     | 24        | 20.97                | 20.87                 | 20.81                 |                     |          |  |  |  |
| 20                                | 16QAM      | 1       | 48        | 20.97                | 20.87                 | 20.81                 | 22                  | 0        |  |  |  |
| 20                                | 16QAM      | 1       | 96        | 20.97                | 20.88                 | 20.79                 |                     |          |  |  |  |
| 20                                | 16QAM      | 50      | 0         | 19.94                | 19.92                 | 19.85                 |                     |          |  |  |  |
| 20                                | 16QAM      | 50      | 24        | 19.94                | 19.92                 | 19.85                 |                     |          |  |  |  |
| 20                                | 16QAM      | 50      | 50        | 19.92                | 19.89                 | 19.85                 | 21                  | 1        |  |  |  |
| 20                                | 16QAM      | 100     | 0         | 19.97                | 19.93                 | 19.88                 |                     |          |  |  |  |
| Channel                           |            |         |           |                      |                       |                       |                     |          |  |  |  |
| Frequency (MHz)                   |            |         |           |                      |                       |                       |                     |          |  |  |  |
|                                   |            |         |           | 37875                | 38000                 | 38125                 |                     |          |  |  |  |
| 15                                | QPSK       | 1       | 0         | 20.73                | 20.76                 | 20.63                 | 22                  | 0        |  |  |  |
| 15                                | QPSK       | 1       | 37        | 20.74                | 20.72                 | 20.61                 |                     |          |  |  |  |
| 15                                | QPSK       | 1       | 74        | 20.83                | 20.79                 | 20.64                 |                     |          |  |  |  |
| 15                                | QPSK       | 36      | 0         | 20.70                | 20.67                 | 20.61                 |                     |          |  |  |  |
| 15                                | QPSK       | 36      | 20        | 20.68                | 20.68                 | 20.61                 | 22                  | 0        |  |  |  |
| 15                                | QPSK       | 36      | 36        | 20.62                | 20.67                 | 20.73                 |                     |          |  |  |  |
| 15                                | QPSK       | 75      | 0         | 20.64                | 20.67                 | 20.74                 |                     |          |  |  |  |
| 15                                | 16QAM      | 1       | 0         | 20.65                | 20.67                 | 20.66                 |                     |          |  |  |  |
| 15                                | 16QAM      | 1       | 37        | 20.68                | 20.64                 | 20.63                 | 22                  | 0        |  |  |  |
| 15                                | 16QAM      | 1       | 74        | 20.74                | 20.72                 | 20.66                 |                     |          |  |  |  |
| 15                                | 16QAM      | 36      | 0         | 20.63                | 20.64                 | 20.65                 |                     |          |  |  |  |
| 15                                | 16QAM      | 36      | 20        | 20.63                | 20.68                 | 20.76                 |                     |          |  |  |  |
| 15                                | 16QAM      | 36      | 36        | 20.68                | 20.68                 | 20.76                 | 22                  | 0        |  |  |  |
| 15                                | 16QAM      | 75      | 0         | 20.65                | 20.68                 | 20.62                 |                     |          |  |  |  |
| 15                                | 16QAM      | 1       | 0         | 20.67                | 20.63                 | 20.36                 |                     |          |  |  |  |
| 15                                | 16QAM      | 1       | 37        | 20.61                | 20.62                 | 20.62                 |                     |          |  |  |  |
| 15                                | 16QAM      | 1       | 74        | 20.62                | 20.62                 | 20.61                 | 21                  | 1        |  |  |  |
| 15                                | 16QAM      | 36      | 0         | 19.76                | 19.76                 | 19.64                 |                     |          |  |  |  |
| 15                                | 16QAM      | 36      | 20        | 19.93                | 19.87                 | 19.91                 |                     |          |  |  |  |
| 15                                | 16QAM      | 36      | 36        | 19.78                | 19.81                 | 19.85                 |                     |          |  |  |  |
| 15                                | 16QAM      | 75      | 0         | 19.85                | 19.79                 | 19.66                 |                     |          |  |  |  |
| Channel                           |            |         |           |                      |                       |                       |                     |          |  |  |  |
| Frequency (MHz)                   |            |         |           |                      |                       |                       |                     |          |  |  |  |
|                                   |            |         |           | 37900                | 38000                 | 38025                 |                     |          |  |  |  |
| 10                                | QPSK       | 1       | 0         | 20.67                | 20.67                 | 20.61                 | 22                  | 0        |  |  |  |
| 10                                | QPSK       | 1       | 25        | 20.76                | 20.63                 | 20.69                 |                     |          |  |  |  |
| 10                                | QPSK       | 1       | 48        | 20.86                | 20.61                 | 20.82                 |                     |          |  |  |  |
| 10                                | QPSK       | 5       | 0         | 20.61                | 20.68                 | 20.64                 |                     |          |  |  |  |
| 10                                | QPSK       | 25      | 12        | 20.69                | 20.76                 | 20.72                 | 22                  | 0        |  |  |  |
| 10                                | QPSK       | 25      | 25        | 20.67                | 20.77                 | 20.84                 |                     |          |  |  |  |
| 10                                | QPSK       | 50      | 0         | 20.68                | 20.62                 | 20.65                 |                     |          |  |  |  |
| 10                                | 16QAM      | 1       | 0         | 20.67                | 20.72                 | 20.66                 |                     |          |  |  |  |
| 10                                | 16QAM      | 1       | 25        | 20.64                | 20.63                 | 20.65                 | 22                  | 0        |  |  |  |
| 10                                | 16QAM      | 1       | 48        | 20.64                | 20.56                 | 20.60                 |                     |          |  |  |  |
| 10                                | 16QAM      | 25      | 0         | 20.63                | 20.76                 | 20.66                 |                     |          |  |  |  |
| 10                                | 16QAM      | 25      | 12        | 20.66                | 20.65                 | 20.65                 |                     |          |  |  |  |
| 10                                | 16QAM      | 50      | 0         | 20.64                | 20.60                 | 20.77                 | 22                  | 0        |  |  |  |
| 10                                | 16QAM      | 50      | 12        | 20.68                | 20.70                 | 20.66                 |                     |          |  |  |  |
| 10                                | 16QAM      | 1       | 25        | 20.64                | 20.58                 | 20.45                 |                     |          |  |  |  |
| 10                                | 16QAM      | 1       | 48        | 20.56                | 20.66                 | 20.66                 |                     |          |  |  |  |
| 10                                | 16QAM      | 25      | 0         | 19.96                | 19.92                 | 19.84                 | 21                  | 1        |  |  |  |
| 10                                | 16QAM      | 25      | 12        | 19.77                | 19.98                 | 19.92                 |                     |          |  |  |  |
| 10                                | 16QAM      | 25      | 48        | 19.96                | 19.78                 | 19.96                 |                     |          |  |  |  |
| 10                                | 16QAM      | 50      | 0         | 19.85                | 19.88                 | 19.86                 |                     |          |  |  |  |
| Channel                           |            |         |           |                      |                       |                       |                     |          |  |  |  |
| Frequency (MHz)                   |            |         |           |                      |                       |                       |                     |          |  |  |  |
|                                   |            |         |           | 37975                | 38050                 | 38025                 |                     |          |  |  |  |
| 5                                 | QPSK       | 1       | 0         | 20.63                | 20.69                 | 20.65                 | 22                  | 0        |  |  |  |
| 5                                 | QPSK       | 1       | 12        | 20.61                | 20.65                 | 20.58                 |                     |          |  |  |  |
| 5                                 | QPSK       | 1       | 24        | 20.64                | 20.71                 | 20.77                 |                     |          |  |  |  |
| 5                                 | QPSK       | 12      | 0         | 20.66                | 20.76                 | 20.78                 |                     |          |  |  |  |
| 5                                 | QPSK       | 12      | 7         | 20.61                | 20.67                 | 20.70                 | 22                  | 0        |  |  |  |
| 5                                 | QPSK       | 12      | 13        | 20.65                | 20.68                 | 20.63                 |                     |          |  |  |  |
| 5                                 | QPSK       | 25      | 0         | 20.67                | 20.72                 | 20.70                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 1       | 0         | 20.67                | 20.68                 | 20.64                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 1       | 12        | 20.75                | 20.72                 | 20.64                 | 22                  | 0        |  |  |  |
| 5                                 | 16QAM      | 1       | 24        | 20.75                | 20.65                 | 20.68                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 12      | 0         | 20.76                | 20.73                 | 20.71                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 12      | 7         | 20.69                | 20.60                 | 20.70                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 12      | 13        | 20.68                | 20.62                 | 20.67                 | 22                  | 0        |  |  |  |
| 5                                 | 16QAM      | 25      | 0         | 20.66                | 20.65                 | 20.66                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 1       | 0         | 20.66                | 20.62                 | 20.63                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 1       | 12        | 20.61                | 20.66                 | 20.46                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 1       | 24        | 20.66                | 20.69                 | 20.50                 | 21                  | 1        |  |  |  |
| 5                                 | 16QAM      | 12      | 0         | 19.92                | 19.75                 | 19.80                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 12      | 7         | 19.89                | 19.86                 | 19.77                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 12      | 13        | 19.85                | 19.85                 | 19.85                 |                     |          |  |  |  |
| 5                                 | 16QAM      | 25      | 0         | 19.96                | 19.87                 | 19.86                 |                     |          |  |  |  |

| Band 41 (2.6G Band)-PC3 |            |         |           |                      |                       |                        |                       |                       |                     |          |                     |          |
|-------------------------|------------|---------|-----------|----------------------|-----------------------|------------------------|-----------------------|-----------------------|---------------------|----------|---------------------|----------|
| BW [MHz]                | Modulation | RB Size | RB Offset | Power Low Ch / Freq. | Power Main Ch / Freq. | Power Power Ch / Freq. | Power High Ch / Freq. | Power High Ch / Freq. | Tune-up limit (dBm) | MPR (dB) |                     |          |
| Channel                 |            |         |           |                      |                       |                        |                       |                       |                     |          |                     |          |
| Frequency (MHz)         |            |         |           |                      |                       |                        |                       |                       |                     |          |                     |          |
|                         |            |         |           | 38750                | 40185                 | 40620                  | 41055                 | 41490                 |                     |          |                     |          |
| 20                      | QPSK       | 1       | 0         | 22.09                | 21.98                 | 21.90                  | 22.15                 | 22.30                 | 23                  | 0        |                     |          |
| 20                      | QPSK       | 1       | 48        | 21.79                | 21.87                 | 21.88                  | 21.89                 | 22.00                 |                     |          |                     |          |
| 20                      | QPSK       | 1       | 96        | 21.88                | 21.80                 | 21.85                  | 21.88                 | 21.99                 |                     |          |                     |          |
| 20                      | QPSK       | 50      | 0         | 21.95                | 21.28                 | 21.42                  | 21.37                 | 21.53                 |                     |          |                     |          |
| 20                      | QPSK       | 50      | 24        | 21.92                | 21.48                 | 21.57                  | 21.49                 | 21.67                 | 23                  | 0        |                     |          |
| 20                      | QPSK       | 50      | 50        | 21.92                | 21.33                 | 21.56                  | 21.37                 | 21.47                 |                     |          |                     |          |
| 20                      | QPSK       | 100     | 0         | 21.90                | 21.44                 | 21.55                  | 21.48                 | 21.65                 |                     |          |                     |          |
| 20                      | QPSK       | 100     | 24        | 21.92                | 21.45                 | 21.56                  | 21.49                 | 21.64                 |                     |          |                     |          |
| 20                      | 16QAM      | 1       | 48        | 21.92                | 21.38                 | 21.53                  | 21.63                 | 21.57                 | 23                  | 0        |                     |          |
| 20                      | 16QAM      | 1       | 96        | 21.36                | 21.45                 | 21.55                  | 21.69                 | 21.45                 |                     |          |                     |          |
| 20                      | 16QAM      | 50      | 24        | 20.90                | 20.90                 | 20.98                  | 20.90                 | 20.81                 |                     |          |                     |          |
| 20                      | 16QAM      | 50      | 50        | 20.98                | 20.42                 | 20.59                  | 20.55                 | 20.44                 |                     |          |                     |          |
| 20                      | 16QAM      | 100     | 0         | 20.45                | 20.36                 | 20.56                  | 20.48                 | 20.54                 | 22                  | 1        |                     |          |
| 20                      | 16QAM      | 100     | 24        | 20.45                | 20.36                 | 20.56                  | 20.48                 | 20.54                 |                     |          |                     |          |
| 20                      | 16QAM      | 1       | 0         | 21.19                | 21.19                 | 21.27                  | 21.39                 | 21.37                 |                     |          |                     |          |
| 20                      | 16QAM      | 1       | 96        | 21.15                | 21.15                 | 21.27                  | 21.37                 | 21.38                 |                     |          |                     |          |
| 20                      | 16QAM      | 50      | 0         | 20.33                | 20.31                 | 20.45                  | 20.48                 | 20.51                 | 21                  | 2        |                     |          |
| 20                      | 16QAM      | 50      | 24        | 20.43                | 20.36                 | 20.54                  | 20.50                 | 20.52                 |                     |          |                     |          |
| 20                      | 16QAM      | 50      | 50        | 20.32                | 20.34                 | 20.49                  | 20.52                 | 20.40                 |                     |          |                     |          |
| 20                      | 16QAM      | 100     | 0         | 20.50                | 20.37                 | 20.50                  | 20.52                 | 20.60                 |                     |          |                     |          |
| Channel                 |            |         |           | 38750                | 40185                 | 40620                  | 41055                 | 41490                 | Tune-up limit (dBm) | MPR (dB) |                     |          |
| Frequency (MHz)         |            |         |           | 38750                | 40185                 | 40620                  | 41055                 | 41490                 |                     |          |                     |          |
| 15                      | QPSK       | 1       | 0         | 21.81                | 21.80                 | 21.93                  | 21.79                 | 21.95                 | 23                  | 0        |                     |          |
| 15                      | QPSK       | 1       | 37        | 21.74                | 21.76                 | 21.84                  | 21.80                 | 21.92                 |                     |          |                     |          |
| 15                      | QPSK       | 1       | 74        | 21.74                | 21.78                 | 21.92                  | 21.82                 | 21.71                 |                     |          |                     |          |
| 15                      | QPSK       | 36      | 0         | 21.38                | 21.23                 | 21.38                  | 21.33                 | 21.47                 |                     |          |                     |          |
| 15                      | QPSK       | 36      | 36        | 21.63                | 21.46                 | 21.52                  | 21.54                 | 21.61                 | 23                  | 0        |                     |          |
| 15                      | QPSK       | 36      | 72        | 21.36                | 21.37                 | 21.59                  | 21.38                 | 21.49                 |                     |          |                     |          |
| 15                      | QPSK       | 36      | 108       | 21.45                | 21.45                 | 21.59                  | 21.59                 | 21.63                 |                     |          |                     |          |
| 15                      | QPSK       | 1       | 0         | 21.48                | 21.51                 | 21.57                  | 21.63                 | 21.64                 |                     |          |                     |          |
| 15                      | 16QAM      | 1       | 37        | 21.30                | 21.36                 | 21.60                  | 21.63                 | 21.69                 | 23                  | 0        |                     |          |
| 15                      | 16QAM      | 1       | 74        | 21.31                | 21.52                 | 21.73                  | 21.73                 | 21.41                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 0         | 20.37                | 20.39                 | 20.46                  | 20.50                 | 20.53                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 36        | 20.39                | 20.39                 | 20.54                  | 20.62                 | 20.59                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 72        | 20.40                | 20.42                 | 20.54                  | 20.62                 | 20.42                 | 22                  | 1        |                     |          |
| 15                      | 16QAM      | 36      | 108       | 20.52                | 20.52                 | 20.49                  | 20.51                 | 20.50                 |                     |          |                     |          |
| 15                      | 16QAM      | 1       | 0         | 21.21                | 21.21                 | 21.34                  | 21.36                 | 21.37                 |                     |          |                     |          |
| 15                      | 16QAM      | 1       | 37        | 21.03                | 21.17                 | 21.23                  | 21.32                 | 21.32                 |                     |          |                     |          |
| 15                      | 16QAM      | 1       | 74        | 21.14                | 21.22                 | 21.22                  | 21.30                 | 21.18                 | 22                  | 1        |                     |          |
| 15                      | 16QAM      | 36      | 0         | 20.38                | 20.35                 | 20.48                  | 20.48                 | 20.48                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 36        | 20.37                | 20.35                 | 20.58                  | 20.53                 | 20.50                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 72        | 20.35                | 20.29                 | 20.48                  | 20.45                 | 20.40                 |                     |          |                     |          |
| 15                      | 16QAM      | 36      | 108       | 20.53                | 20.43                 | 20.48                  | 20.48                 | 20.67                 | 21                  | 2        |                     |          |
| Channel                 |            |         |           | 38750                | 40185                 | 40620                  | 41055                 | 41490                 |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)         |            |         |           | 38750                | 40185                 | 40620                  | 41055                 | 41490                 |                     |          |                     |          |
| 10                      | QPSK       | 1       | 0         | 22.75                | 22.47                 | 22.53                  | 22.85                 | 22.86                 |                     |          | 23                  | 0        |
| 10                      | QPSK       | 1       | 25        | 21.81                | 21.79                 | 21.79                  | 21.85                 | 21.88                 |                     |          |                     |          |
| 10                      | QPSK       | 1       | 49        | 21.72                | 21.80                 | 21.99                  | 21.95                 | 21.77                 |                     |          |                     |          |
| 10                      | QPSK       | 12      | 0         | 21.44                | 21.20                 | 21.53                  | 21.53                 | 21.53                 |                     |          |                     |          |
| 10                      | QPSK       | 25      | 12        | 21.88                | 21.44                 | 21.45                  | 21.53                 | 21.56                 | 23                  | 0        |                     |          |
| 10                      | QPSK       | 25      | 25        | 21.39                | 21.38                 | 21.65                  | 21.39                 | 21.40                 |                     |          |                     |          |
| 10                      | QPSK       | 50      | 0         | 21.48                | 21.49                 | 21.59                  | 21.59                 | 21.60                 |                     |          |                     |          |
| 10                      | QPSK       | 50      | 25        | 21.54                | 21.53                 | 21.50                  | 21.60                 | 21.64                 |                     |          |                     |          |
| 10                      | 16QAM      | 1       | 25        | 21.26                | 21.52                 | 21.53                  | 21.67                 | 21.59                 | 23                  | 0        |                     |          |
| 10                      | 16QAM      | 1       | 49        | 21.32                | 21.49                 | 21.51                  | 21.59                 | 21.39                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 0         | 20.31                | 20.46                 | 20.53                  | 20.51                 | 20.67                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 25        | 20.51                | 20.45                 | 20.52                  | 20.59                 | 20.62                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 49        | 20.58                | 20.41                 | 20.53                  | 20.56                 | 20.39                 | 22                  | 1        |                     |          |
| 10                      | 16QAM      | 50      | 0         | 20.47                | 20.27                 | 20.43                  | 20.47                 | 20.48                 |                     |          |                     |          |
| 10                      | 16QAM      | 50      | 25        | 21.19                | 21.17                 | 21.17                  | 21.17                 | 21.33                 |                     |          |                     |          |
| 10                      | 16QAM      | 50      | 49        | 21.44                | 21.14                 | 21.25                  | 21.41                 | 21.38                 |                     |          |                     |          |
| 10                      | 16QAM      | 1       | 48        | 21.15                | 21.27                 | 21.27                  | 21.33                 | 21.13                 | 22                  | 1        |                     |          |
| 10                      | 16QAM      | 1       | 74        | 20.42                | 20.42                 | 20.42                  | 20.42                 | 20.48                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 0         | 20.39                | 20.32                 | 20.51                  | 20.54                 | 20.21                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 25        | 20.37                | 20.31                 | 20.47                  | 20.41                 | 20.43                 |                     |          |                     |          |
| 10                      | 16QAM      | 25      | 49        | 20.47                | 20.44                 | 20.49                  | 20.49                 | 20.60                 | 21                  | 2        |                     |          |
| Channel                 |            |         |           | 38678                | 40148                 | 40620                  | 41093                 | 41668                 |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)         |            |         |           | 38678                | 40148                 | 40620                  | 41093                 | 41668                 |                     |          |                     |          |
| 5                       | QPSK       | 1       | 0         | 21.79                | 21.80                 | 21.91                  | 21.79                 | 21.92                 |                     |          | 23                  | 0        |
| 5                       | QPSK       | 1       | 12        | 21.67                | 21.78                 | 21.79                  | 21.89                 | 21.85                 |                     |          |                     |          |
| 5                       | QPSK       | 12      | 24        | 21.77                | 21.84                 | 21.94                  | 21.96                 | 21.73                 |                     |          |                     |          |
| 5                       | QPSK       | 12      | 36        | 21.44                | 21.16                 | 21.53                  | 21.53                 | 21.53                 |                     |          |                     |          |
| 5                       | QPSK       | 12      | 7         | 21.64                | 21.38                 | 21.38                  | 21.57                 | 21.55                 | 23                  | 0        |                     |          |
| 5                       | QPSK       | 12      | 19        | 21.36                | 21.86                 | 21.60                  | 21.26                 | 21.45                 |                     |          |                     |          |
| 5                       | QPSK       | 12      | 31        | 21.42                | 21.55                 | 21.65                  | 21.65                 | 21.65                 |                     |          |                     |          |
| 5                       | QPSK       | 1       | 0         | 21.61                | 21.48                 | 21.45                  | 21.61                 | 21.63                 |                     |          |                     |          |
| 5                       | 16QAM      | 1       | 24        | 20.20                | 20.21                 | 20.21                  | 20.21                 | 20.56                 | 23                  | 0        |                     |          |
| 5                       | 16QAM      | 1       | 24        | 21.02                | 21.53                 | 21.54                  | 21.62                 | 21.69                 |                     |          |                     |          |
| 5                       | 16QAM      | 12      | 0         | 20.30                | 20.45                 | 20.50                  | 20.55                 | 20.55                 |                     |          |                     |          |
| 5                       | 16QAM      | 12      | 12        | 20.56                | 20.32                 | 20.32                  | 20.32                 | 20.68                 |                     |          |                     |          |
| 5                       | 16QAM      | 12      | 15        | 20.45                | 20.40                 | 20.50                  | 20.59                 | 20.37                 | 22                  | 1        |                     |          |
| 5                       | 16QAM      | 25      | 0         | 20.45                | 20.23                 | 20.43                  | 20.46                 | 20.39                 |                     |          |                     |          |
| 5                       | 16QAM      | 25      | 12        | 21.02                | 21.12                 | 21.23                  | 21.23                 | 21.52                 |                     |          |                     |          |
| 5                       | 16QAM      | 1       | 24        | 21.01                | 21.12                 | 21.21                  | 21.34                 | 21.45                 |                     |          |                     |          |
| 5                       | 16QAM      | 1       | 24        | 21.22                | 21.28                 | 21.24                  | 21.25                 | 21.10                 | 22                  | 1        |                     |          |
| 5                       | 16QAM      | 12      | 0         | 20.45                | 20.18                 | 20.20                  | 20.53                 | 20.53                 |                     |          |                     |          |
| 5                       | 16QAM      | 12      | 7         | 20.42                | 20.31                 | 20.44                  | 20.60                 | 20.50                 |                     |          |                     |          |
| 5                       | 16QAM      | 12      | 15        | 20.49                | 20.30                 | 20.51                  | 20.45                 | 20.40                 |                     |          |                     |          |
| 5                       | 16QAM      | 25      | 0         | 20.49                | 20.47                 | 20.47                  | 20.47                 | 20.47                 | 21                  | 2        |                     |          |
| 5                       | 16QAM      | 25      | 12        | 20.49                | 20.47                 | 20.47                  | 20.47                 | 20.47                 |                     |          |                     |          |
| 5                       | 16QAM      | 25      | 15        | 20.49                | 20.47                 | 20.47                  | 20.47                 | 20.47                 |                     |          |                     |          |
| 5                       | 16QAM      | 25      | 25        | 20.49                | 20.47                 | 20.47                  | 20.47                 | 20.47                 |                     |          |                     |          |

**Reduced Power Mode for Hotspot On**

| GSM850          | Burst Average Power (dBm) |       |       | Tune-up Limit (dBm) | Frame Average Power (dBm) |       |       | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|-------|---------------------|---------------------------|-------|-------|---------------------|
|                 | 125                       | 169   | 251   |                     | 125                       | 169   | 251   |                     |
| TX Channel      | 824.2                     | 836.4 | 848.8 |                     | 824.2                     | 836.4 | 848.8 |                     |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 |                     | 824.2                     | 836.4 | 848.8 |                     |
| GSM 1 Tx slot   | 31.87                     | 31.61 | 31.55 | 32.50               | 22.87                     | 22.61 | 22.55 | 23.50               |
| GPRS 1 Tx slot  | 31.85                     | 31.59 | 31.53 | 32.50               | 22.85                     | 22.59 | 22.53 | 23.50               |
| GPRS 2 Tx slots | 30.18                     | 30.17 | 30.06 | 31.00               | 24.18                     | 24.17 | 24.06 | 25.00               |
| GPRS 3 Tx slots | 27.81                     | 27.80 | 27.65 | 28.50               | 23.55                     | 23.54 | 23.39 | 24.24               |
| GPRS 4 Tx slots | 24.98                     | 24.99 | 25.05 | 26.00               | 21.99                     | 21.99 | 22.05 | 23.00               |
| EDGE 1 Tx slot  | 26.01                     | 25.99 | 25.84 | 26.50               | 17.91                     | 16.99 | 16.84 | 17.50               |
| EDGE 2 Tx slots | 23.77                     | 23.77 | 23.56 | 24.50               | 17.77                     | 17.77 | 17.56 | 18.50               |
| EDGE 3 Tx slots | 21.58                     | 21.55 | 21.42 | 22.00               | 17.32                     | 17.29 | 17.16 | 17.74               |
| EDGE 4 Tx slots | 19.48                     | 19.40 | 19.27 | 20.00               | 16.48                     | 16.40 | 16.27 | 17.00               |

| GSM1900         | Burst Average Power (dBm) |       |        | Tune-up Limit (dBm) | Frame Average Power (dBm) |       |        | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|--------|---------------------|---------------------------|-------|--------|---------------------|
|                 | 512                       | 661   | 810    |                     | 512                       | 661   | 810    |                     |
| TX Channel      | 1859.2                    | 1860  | 1909.8 |                     | 1859.2                    | 1860  | 1909.8 |                     |
| Frequency (MHz) | 1859.2                    | 1860  | 1909.8 |                     | 1859.2                    | 1860  | 1909.8 |                     |
| GSM 1 Tx slot   | 21.07                     | 21.08 | 20.93  | 21.50               | 12.07                     | 12.08 | 11.93  | 12.50               |
| GPRS 1 Tx slot  | 20.75                     | 20.85 | 20.77  | 21.50               | 11.75                     | 11.85 | 11.77  | 12.50               |
| GPRS 2 Tx slots | 19.38                     | 19.40 | 19.20  | 20.50               | 13.38                     | 13.40 | 13.20  | 14.50               |
| GPRS 3 Tx slots | 17.23                     | 17.31 | 17.31  | 18.00               | 12.97                     | 13.05 | 13.05  | 13.74               |
| GPRS 4 Tx slots | 15.01                     | 14.95 | 15.07  | 15.50               | 12.01                     | 11.95 | 12.07  | 12.50               |
| EDGE 1 Tx slot  | 16.90                     | 16.91 | 16.92  | 17.50               | 7.90                      | 7.91  | 7.92   | 8.50                |
| EDGE 2 Tx slots | 14.58                     | 14.68 | 14.74  | 15.00               | 8.58                      | 8.68  | 8.74   | 9.00                |
| EDGE 3 Tx slots | 11.75                     | 11.86 | 11.75  | 13.00               | 7.49                      | 7.60  | 7.49   | 8.74                |
| EDGE 4 Tx slots | 9.77                      | 9.80  | 9.67   | 10.50               | 6.77                      | 6.80  | 6.67   | 7.50                |

| Band        | WCDMA II                |       |       |       | Tune-up Limit (dBm) | WCDMA IV |        |        | Tune-up Limit (dBm) | WCDMA V |       |       | Tune-up Limit (dBm) |       |
|-------------|-------------------------|-------|-------|-------|---------------------|----------|--------|--------|---------------------|---------|-------|-------|---------------------|-------|
|             | Rx Channel              | 9262  | 9400  | 9538  |                     | 1312     | 1413   | 1513   |                     | 4132    | 4182  | 4233  |                     |       |
|             | Rx Channel              | 9662  | 9662  | 9600  | 9938                |          | 1537   | 1638   | 1738                |         | 4367  | 4407  | 4458                |       |
|             | Frequency (MHz)         | 1852  | 1852  | 1850  | 1907.8              |          | 1722.4 | 1722.2 | 1722.6              |         | 4324  | 4324  | 446.6               |       |
| 3GPP Rel 99 | AMR 12.2Kbps            | 13.81 | 13.91 | 13.93 | 14.50               |          | 14.80  | 14.85  | 15.01               | 16.00   | 21.82 | 21.85 | 21.88               | 23.00 |
| 3GPP Rel 99 | RM-C 12.2Kbps           | 13.83 | 13.94 | 13.96 | 14.50               |          | 14.92  | 14.88  | 15.04               | 16.00   | 21.85 | 21.87 | 21.90               | 23.00 |
| 3GPP Rel 6  | HSDPA Subtest-1         | 12.91 | 12.97 | 12.83 | 13.50               |          | 13.71  | 13.58  | 14.03               | 15.00   | 20.94 | 20.95 | 20.96               | 22.00 |
| 3GPP Rel 6  | HSDPA Subtest-2         | 12.99 | 12.99 | 12.85 | 13.50               |          | 13.72  | 13.56  | 14.03               | 15.00   | 20.90 | 20.93 | 21.00               | 22.00 |
| 3GPP Rel 6  | HSDPA Subtest-3         | 12.51 | 12.52 | 12.36 | 13.00               |          | 13.17  | 13.05  | 13.48               | 14.50   | 20.44 | 20.46 | 20.52               | 21.50 |
| 3GPP Rel 6  | HSDPA Subtest-4         | 12.43 | 12.46 | 12.32 | 13.00               |          | 13.20  | 13.07  | 13.46               | 14.50   | 20.44 | 20.40 | 20.16               | 21.50 |
| 3GPP Rel 8  | DC-HSDPA Subtest-1      | 12.78 | 12.85 | 12.72 | 13.50               |          | 13.65  | 13.50  | 13.93               | 15.00   | 20.73 | 21.07 | 21.09               | 22.00 |
| 3GPP Rel 8  | DC-HSDPA Subtest-2      | 12.86 | 12.88 | 12.73 | 13.50               |          | 13.66  | 13.48  | 13.90               | 15.00   | 20.75 | 21.03 | 21.13               | 22.00 |
| 3GPP Rel 8  | DC-HSDPA Subtest-3      | 12.44 | 12.46 | 12.28 | 13.00               |          | 13.10  | 12.98  | 13.38               | 14.50   | 20.23 | 20.54 | 20.63               | 21.50 |
| 3GPP Rel 8  | DC-HSDPA Subtest-4      | 12.37 | 12.39 | 12.26 | 13.00               |          | 13.12  | 12.99  | 13.37               | 14.50   | 20.19 | 20.56 | 20.65               | 21.50 |
| 3GPP Rel 6  | HSUPA Subtest-1         | 12.62 | 12.68 | 12.75 | 13.50               |          | 13.70  | 13.63  | 13.96               | 15.00   | 21.12 | 21.15 | 21.19               | 22.00 |
| 3GPP Rel 6  | HSUPA Subtest-2         | 10.71 | 10.85 | 10.98 | 11.50               |          | 11.73  | 11.65  | 11.93               | 13.00   | 19.15 | 19.10 | 19.15               | 20.00 |
| 3GPP Rel 6  | HSUPA Subtest-3         | 11.61 | 11.72 | 11.85 | 12.50               |          | 12.72  | 12.64  | 12.90               | 14.00   | 20.10 | 19.97 | 20.12               | 21.00 |
| 3GPP Rel 6  | HSUPA Subtest-4         | 10.68 | 10.74 | 10.83 | 11.50               |          | 11.66  | 11.58  | 11.87               | 13.00   | 19.14 | 19.16 | 19.23               | 20.00 |
| 3GPP Rel 6  | HSUPA Subtest-5         | 12.80 | 12.80 | 12.90 | 13.50               |          | 13.65  | 13.65  | 13.85               | 15.00   | 21.10 | 21.10 | 21.20               | 22.00 |
| 3GPP Rel 7  | HSPA+ (16QAM) Subtest-1 | 10.21 | 10.26 | 10.35 | 11.00               |          | 11.17  | 11.08  | 11.25               | 12.50   | 18.79 | 18.84 | 18.88               | 19.50 |

| Band             | CDMA BC0   |       |        | Tune-up<br>Limit<br>(dBm) | CDMA BC1 |         |       | Tune-up<br>Limit<br>(dBm) | CDMA BC10 |       |       | Tune-up<br>Limit<br>(dBm) |       |
|------------------|------------|-------|--------|---------------------------|----------|---------|-------|---------------------------|-----------|-------|-------|---------------------------|-------|
|                  | TX Channel | 1013  | 384    |                           | 777      | 25      | 600   |                           | 1175      | 476   | 580   |                           | 684   |
| Frequency (MHz)  |            | 824.7 | 836.52 | 848.34                    |          | 1851.25 | 1880  | 1908.75                   |           | 317.0 | 320.5 | 323.1                     |       |
| RC1 SOSS         |            | 22.99 | 23.01  | 23.04                     | 24.00    | 14.83   | 15.03 | 15.00                     | 15.50     | 23.00 | 23.02 | 23.05                     | 24.00 |
| RC3 SOSS         |            | 22.97 | 22.99  | 23.00                     | 24.00    | 14.79   | 15.01 | 14.98                     | 15.50     | 23.01 | 23.01 | 23.04                     | 24.00 |
| RC3 SO32 (F+SCH) |            | 22.95 | 22.97  | 22.99                     | 24.00    | 14.83   | 14.99 | 14.97                     | 15.50     | 23.03 | 23.03 | 23.04                     | 24.00 |
| RC3 SO32 (F+SCH) |            | 22.94 | 22.94  | 22.97                     | 24.00    | 14.80   | 14.97 | 14.96                     | 15.50     | 23.01 | 23.00 | 22.97                     | 24.00 |
| RTAP 153.6Kbps   |            | 22.98 | 22.98  | 23.01                     | 24.00    | 14.80   | 14.98 | 14.96                     | 15.50     | 22.99 | 23.02 | 23.03                     | 24.00 |
| RETAP 4096Bps    |            | 22.97 | 22.93  | 22.97                     | 24.00    | 14.78   | 14.96 | 14.95                     | 15.50     | 22.98 | 22.95 | 23.03                     | 24.00 |

| Band 2 (1900MHz Band) |            |         |           |                       |                          |                        |                     |          |  |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|--|
| Part 24E              |            |         |           |                       |                          |                        |                     |          |  |  |
| BW (MHz)              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |  |
| Channel               |            |         |           | 18700                 | 18900                    | 19100                  |                     |          |  |  |
| Frequency (MHz)       |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |  |  |
| 20                    | QPSK       | 1       | 0         | 13.70                 | 13.87                    | 13.69                  | 14.5                | 0        |  |  |
| 20                    | QPSK       | 1       | 49        | 13.72                 | 13.92                    | 13.72                  |                     |          |  |  |
| 20                    | QPSK       | 1       | 99        | 13.64                 | 13.77                    | 13.70                  |                     |          |  |  |
| 20                    | QPSK       | 50      | 0         | 13.70                 | 13.90                    | 13.70                  | 14.5                | 0        |  |  |
| 20                    | QPSK       | 50      | 24        | 13.68                 | 13.83                    | 13.69                  |                     |          |  |  |
| 20                    | QPSK       | 50      | 50        | 13.62                 | 13.78                    | 13.60                  |                     |          |  |  |
| 20                    | QPSK       | 100     | 0         | 13.68                 | 13.86                    | 13.69                  | 14.5                | 0        |  |  |
| 20                    | 16QAM      | 1       | 0         | 13.82                 | 13.87                    | 13.91                  |                     |          |  |  |
| 20                    | 16QAM      | 1       | 49        | 13.79                 | 13.87                    | 13.81                  |                     |          |  |  |
| 20                    | 16QAM      | 1       | 99        | 13.75                 | 13.84                    | 13.75                  | 14.5                | 0        |  |  |
| 20                    | 16QAM      | 50      | 0         | 13.90                 | 13.91                    | 13.79                  |                     |          |  |  |
| 20                    | 16QAM      | 50      | 24        | 13.82                 | 13.81                    | 13.78                  |                     |          |  |  |
| 20                    | 16QAM      | 50      | 50        | 13.87                 | 13.81                    | 13.85                  | 14.5                | 0        |  |  |
| 20                    | 16QAM      | 100     | 0         | 13.89                 | 13.73                    | 13.77                  |                     |          |  |  |
| 20                    | 64QAM      | 1       | 0         | 13.87                 | 13.69                    | 13.58                  |                     |          |  |  |
| 20                    | 64QAM      | 1       | 49        | 13.74                 | 13.78                    | 13.54                  | 14.5                | 0        |  |  |
| 20                    | 64QAM      | 1       | 99        | 13.72                 | 13.87                    | 13.82                  |                     |          |  |  |
| 20                    | 64QAM      | 50      | 0         | 13.81                 | 13.73                    | 13.72                  |                     |          |  |  |
| 20                    | 64QAM      | 50      | 24        | 13.89                 | 13.75                    | 13.76                  | 14.5                | 0        |  |  |
| 20                    | 64QAM      | 50      | 50        | 13.87                 | 13.88                    | 13.86                  |                     |          |  |  |
| 20                    | 64QAM      | 100     | 0         | 13.83                 | 13.73                    | 13.90                  |                     |          |  |  |
| Channel               |            |         |           | 1887.5                | 18900                    | 19125                  | Tune-up limit (dBm) | MPR (dB) |  |  |
| Frequency (MHz)       |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |  |  |
| 15                    | QPSK       | 1       | 0         | 13.51                 | 13.69                    | 13.60                  | 14.5                | 0        |  |  |
| 15                    | QPSK       | 1       | 37        | 13.56                 | 13.90                    | 13.68                  |                     |          |  |  |
| 15                    | QPSK       | 1       | 74        | 13.50                 | 13.78                    | 13.67                  |                     |          |  |  |
| 15                    | QPSK       | 36      | 0         | 13.66                 | 13.85                    | 13.55                  | 14.5                | 0        |  |  |
| 15                    | QPSK       | 36      | 20        | 13.48                 | 13.62                    | 13.44                  |                     |          |  |  |
| 15                    | QPSK       | 36      | 39        | 13.50                 | 13.57                    | 13.61                  |                     |          |  |  |
| 15                    | QPSK       | 75      | 0         | 13.71                 | 13.64                    | 13.70                  | 14.5                | 0        |  |  |
| 15                    | 16QAM      | 1       | 0         | 13.74                 | 13.90                    | 13.91                  |                     |          |  |  |
| 15                    | 16QAM      | 1       | 37        | 13.62                 | 13.91                    | 13.48                  |                     |          |  |  |
| 15                    | 16QAM      | 1       | 74        | 13.79                 | 13.66                    | 13.68                  | 14.5                | 0        |  |  |
| 15                    | 16QAM      | 36      | 0         | 13.86                 | 13.84                    | 13.78                  |                     |          |  |  |
| 15                    | 16QAM      | 36      | 20        | 13.72                 | 13.56                    | 13.78                  |                     |          |  |  |
| 15                    | 16QAM      | 36      | 39        | 13.72                 | 13.71                    | 13.81                  | 14.5                | 0        |  |  |
| 15                    | 16QAM      | 75      | 0         | 13.81                 | 13.54                    | 13.53                  |                     |          |  |  |
| 15                    | 64QAM      | 1       | 0         | 13.66                 | 13.63                    | 13.43                  |                     |          |  |  |
| 15                    | 64QAM      | 1       | 37        | 13.57                 | 13.60                    | 13.40                  | 14.5                | 0        |  |  |
| 15                    | 64QAM      | 1       | 74        | 13.53                 | 13.81                    | 13.72                  |                     |          |  |  |
| 15                    | 64QAM      | 36      | 0         | 13.64                 | 13.73                    | 13.70                  |                     |          |  |  |
| 15                    | 64QAM      | 36      | 20        | 13.69                 | 13.56                    | 13.67                  | 14.5                | 0        |  |  |
| 15                    | 64QAM      | 36      | 39        | 13.65                 | 13.72                    | 13.65                  |                     |          |  |  |
| 15                    | 64QAM      | 75      | 0         | 13.82                 | 13.69                    | 13.75                  |                     |          |  |  |
| Channel               |            |         |           | 1865.0                | 18900                    | 19150                  | Tune-up limit (dBm) | MPR (dB) |  |  |
| Frequency (MHz)       |            |         |           | 1855.0                | 1880                     | 1905                   |                     |          |  |  |
| 10                    | QPSK       | 1       | 0         | 13.56                 | 13.63                    | 13.61                  | 14.5                | 0        |  |  |
| 10                    | QPSK       | 1       | 25        | 13.50                 | 13.80                    | 13.73                  |                     |          |  |  |
| 10                    | QPSK       | 1       | 49        | 13.64                 | 13.79                    | 13.74                  |                     |          |  |  |
| 10                    | QPSK       | 25      | 0         | 13.64                 | 13.74                    | 13.54                  | 14.5                | 0        |  |  |
| 10                    | QPSK       | 25      | 12        | 13.50                 | 13.62                    | 13.68                  |                     |          |  |  |
| 10                    | QPSK       | 25      | 25        | 13.60                 | 13.71                    | 13.44                  |                     |          |  |  |
| 10                    | QPSK       | 50      | 0         | 13.69                 | 13.75                    | 13.55                  | 14.5                | 0        |  |  |
| 10                    | 16QAM      | 1       | 0         | 13.61                 | 13.65                    | 13.70                  |                     |          |  |  |
| 10                    | 16QAM      | 1       | 25        | 13.58                 | 13.90                    | 13.56                  |                     |          |  |  |
| 10                    | 16QAM      | 1       | 49        | 13.50                 | 13.60                    | 13.64                  | 14.5                | 0        |  |  |
| 10                    | 16QAM      | 25      | 0         | 13.85                 | 13.84                    | 13.82                  |                     |          |  |  |
| 10                    | 16QAM      | 25      | 12        | 13.75                 | 13.73                    | 13.69                  |                     |          |  |  |
| 10                    | 16QAM      | 25      | 25        | 13.69                 | 13.78                    | 13.68                  | 14.5                | 0        |  |  |
| 10                    | 16QAM      | 50      | 0         | 13.65                 | 13.52                    | 13.52                  |                     |          |  |  |
| 10                    | 64QAM      | 1       | 0         | 13.78                 | 13.73                    | 13.38                  |                     |          |  |  |
| 10                    | 64QAM      | 1       | 25        | 13.78                 | 13.69                    | 13.30                  | 14.5                | 0        |  |  |
| 10                    | 64QAM      | 1       | 49        | 13.48                 | 13.70                    | 13.84                  |                     |          |  |  |
| 10                    | 64QAM      | 25      | 0         | 13.71                 | 13.69                    | 13.77                  |                     |          |  |  |
| 10                    | 64QAM      | 25      | 12        | 13.88                 | 13.57                    | 13.71                  | 14.5                | 0        |  |  |
| 10                    | 64QAM      | 25      | 25        | 13.90                 | 13.75                    | 13.91                  |                     |          |  |  |
| 10                    | 64QAM      | 50      | 0         | 13.76                 | 13.67                    | 13.83                  |                     |          |  |  |
| Channel               |            |         |           | 1862.5                | 18900                    | 19175                  | Tune-up limit (dBm) | MPR (dB) |  |  |
| Frequency (MHz)       |            |         |           | 1852.5                | 1880                     | 1907.5                 |                     |          |  |  |
| 5                     | QPSK       | 1       | 0         | 13.52                 | 13.66                    | 13.67                  | 14.5                | 0        |  |  |
| 5                     | QPSK       | 1       | 12        | 13.59                 | 13.70                    | 13.54                  |                     |          |  |  |
| 5                     | QPSK       | 1       | 24        | 13.51                 | 13.61                    | 13.71                  |                     |          |  |  |
| 5                     | QPSK       | 12      | 0         | 13.45                 | 13.90                    | 13.56                  | 14.5                | 0        |  |  |
| 5                     | QPSK       | 12      | 7         | 13.65                 | 13.70                    | 13.53                  |                     |          |  |  |
| 5                     | QPSK       | 12      | 13        | 13.60                 | 13.75                    | 13.64                  |                     |          |  |  |
| 5                     | QPSK       | 25      | 0         | 13.67                 | 13.68                    | 13.65                  | 14.5                | 0        |  |  |
| 5                     | 16QAM      | 1       | 0         | 13.79                 | 13.71                    | 13.90                  |                     |          |  |  |
| 5                     | 16QAM      | 1       | 12        | 13.60                 | 13.65                    | 13.64                  |                     |          |  |  |
| 5                     | 16QAM      | 1       | 24        | 13.59                 | 13.73                    | 13.66                  | 14.5                | 0        |  |  |
| 5                     | 16QAM      | 12      | 0         | 13.90                 | 13.75                    | 13.55                  |                     |          |  |  |
| 5                     | 16QAM      | 12      | 7         | 13.76                 | 13.85                    | 13.78                  |                     |          |  |  |
| 5                     | 16QAM      | 12      | 13        | 13.78                 | 13.66                    | 13.83                  | 14.5                | 0        |  |  |
| 5                     | 16QAM      | 25      | 0         | 13.88                 | 13.72                    | 13.61                  |                     |          |  |  |
| 5                     | 64QAM      | 1       | 0         | 13.82                 | 13.52                    | 13.45                  |                     |          |  |  |
| 5                     | 64QAM      | 1       | 12        | 13.74                 | 13.78                    | 13.42                  | 14.5                | 0        |  |  |
| 5                     | 64QAM      | 1       | 24        | 13.72                 | 13.67                    | 13.71                  |                     |          |  |  |
| 5                     | 64QAM      | 12      | 0         | 13.77                 | 13.85                    | 13.48                  |                     |          |  |  |
| 5                     | 64QAM      | 12      | 7         | 13.69                 | 13.59                    | 13.61                  | 14.5                | 0        |  |  |
| 5                     | 64QAM      | 12      | 13        | 13.66                 | 13.79                    | 13.73                  |                     |          |  |  |
| 5                     | 64QAM      | 25      | 0         | 13.59                 | 13.60                    | 13.87                  |                     |          |  |  |
| Channel               |            |         |           | 1861.5                | 18900                    | 19185                  | Tune-up limit (dBm) | MPR (dB) |  |  |
| Frequency (MHz)       |            |         |           | 1851.5                | 1880                     | 1906.5                 |                     |          |  |  |
| 3                     | QPSK       | 1       | 0         | 13.73                 | 13.85                    | 13.54                  | 14.5                | 0        |  |  |
| 3                     | QPSK       | 1       | 8         | 13.73                 | 13.90                    | 13.67                  |                     |          |  |  |
| 3                     | QPSK       | 1       | 14        | 13.62                 | 13.53                    | 13.49                  |                     |          |  |  |
| 3                     | QPSK       | 8       | 0         | 13.58                 | 13.90                    | 13.49                  | 14.5                | 0        |  |  |
| 3                     | QPSK       | 8       | 4         | 13.48                 | 13.69                    | 13.58                  |                     |          |  |  |
| 3                     | QPSK       | 8       | 7         | 13.59                 | 13.61                    | 13.48                  |                     |          |  |  |
| 3                     | QPSK       | 15      | 0         | 13.70                 | 13.66                    | 13.72                  | 14.5                | 0        |  |  |
| 3                     | 16QAM      | 1       | 0         | 13.57                 | 13.68                    | 13.75                  |                     |          |  |  |
| 3                     | 16QAM      | 1       | 8         | 13.69                 | 13.90                    | 13.59                  |                     |          |  |  |
| 3                     | 16QAM      | 1       | 14        | 13.70                 | 13.72                    | 13.71                  | 14.5                | 0        |  |  |
| 3                     | 16QAM      | 8       | 0         | 13.69                 | 13.81                    | 13.72                  |                     |          |  |  |
| 3                     | 16QAM      | 8       | 4         | 13.71                 | 13.65                    | 13.81                  |                     |          |  |  |
| 3                     | 16QAM      | 8       | 7         | 13.87                 | 13.62                    | 13.67                  | 14.5                | 0        |  |  |
| 3                     | 16QAM      | 15      | 0         | 13.82                 | 13.66                    | 13.82                  |                     |          |  |  |
| 3                     | 64QAM      | 1       | 0         | 13.78                 | 13.60                    | 13.50                  |                     |          |  |  |
| 3                     | 64QAM      | 1       | 8         | 13.51                 | 13.70                    | 13.31                  | 14.5                | 0        |  |  |
| 3                     | 64QAM      | 1       | 14        | 13.66                 | 13.81                    | 13.79                  |                     |          |  |  |
| 3                     | 64QAM      | 8       | 0         | 13.78                 | 13.55                    | 13.77                  |                     |          |  |  |
| 3                     | 64QAM      | 8       | 4         | 13.71                 | 13.79                    | 13.63                  | 14.5                | 0        |  |  |
| 3                     | 64QAM      | 8       | 7         | 13.77                 | 13.68                    | 13.65                  |                     |          |  |  |
| 3                     | 64QAM      | 15      | 0         | 13.84                 | 13.64                    | 13.74                  |                     |          |  |  |
| Channel               |            |         |           | 18607                 | 18900                    | 19193                  | Tune-up limit (dBm) | MPR (dB) |  |  |
| Frequency (MHz)       |            |         |           | 18507                 | 18800                    | 19093                  |                     |          |  |  |
| 1.4                   | QPSK       | 1       | 0         | 13.55                 | 13.64                    | 13.72                  | 14.5                | 0        |  |  |
| 1.4                   | QPSK       | 1       | 3         | 13.57                 | 13.90                    | 13.56                  |                     |          |  |  |
| 1.4                   | QPSK       | 1       | 5         | 13.66                 | 13.63                    | 13.62                  |                     |          |  |  |
| 1.4                   | QPSK       | 3       | 0         | 13.71                 | 13.90                    | 13.57                  | 14.5                | 0        |  |  |
| 1.4                   | QPSK       | 3       | 1         | 13.65                 | 13.76                    | 13.55                  |                     |          |  |  |
| 1.4                   | QPSK       | 3       | 3         | 13.66                 | 13.69                    | 13.41                  |                     |          |  |  |
| 1.4                   | QPSK       | 6       | 0         | 13.64                 | 13.78                    | 13.44                  | 14.5                | 0        |  |  |
| 1.4                   | 16QAM      | 1       | 0         | 13.70                 | 13.76                    | 13.80                  |                     |          |  |  |
| 1.4                   | 16QAM      | 1       | 3         | 13.72                 | 13.86                    | 13.64                  |                     |          |  |  |
| 1.4                   | 16QAM      | 1       | 5         | 13.76                 | 13.90                    | 13.54                  | 14.5                | 0        |  |  |
| 1.4                   | 16QAM      | 3       | 0         | 13.65                 | 13.91                    | 13.59                  |                     |          |  |  |
| 1.4                   | 16QAM      | 3       | 1         | 13.65                 | 13.86                    | 13.71                  |                     |          |  |  |
| 1.4                   | 16QAM      | 3       | 3         | 13.80                 | 13.74                    | 13.79                  | 14.5                | 0        |  |  |
| 1.4                   | 16QAM      | 6       | 0         | 13.85                 | 13.62                    | 13.73                  |                     |          |  |  |
| 1.4                   | 64QAM      | 1       | 0         | 13.81                 | 13.52                    | 13.60                  |                     |          |  |  |
| 1.4                   | 64QAM      | 1       | 3         | 13.50                 | 13.68                    | 13.51                  | 14.5                | 0        |  |  |
| 1.4                   | 64QAM      | 1       | 5         | 13.63                 | 13.66                    | 13.57                  |                     |          |  |  |
| 1.4                   | 64QAM      | 3       | 0         | 13.78                 | 13.70                    | 13.51                  |                     |          |  |  |
| 1.4                   | 64QAM      | 3       | 1         | 13.72                 | 13.67                    | 13.65                  | 14.5                | 0        |  |  |
| 1.4                   | 64QAM      | 3       | 3         | 13.84                 | 13.67                    | 13.79                  |                     |          |  |  |
| 1.4                   | 64QAM      | 6       | 0         | 13.69                 | 13.67                    | 13.75                  |                     |          |  |  |

| Band 7 (2600MHz Band) |            |         |           |                       |                          |                        |                     |          |       |                     |          |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|-------|---------------------|----------|
| Part 27               |            |         |           |                       |                          |                        |                     |          |       |                     |          |
| BW [MHz]              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |       |                     |          |
| Channel               |            |         |           |                       |                          |                        |                     |          |       |                     |          |
| Frequency (MHz)       |            |         |           | 20850                 | 21100                    | 21350                  |                     |          |       |                     |          |
| 20                    | QPSK       | 1       | 0         | 19.65                 | 19.50                    | 19.68                  | 21                  | 0        |       |                     |          |
| 20                    | QPSK       | 1       | 49        | 19.70                 | 19.59                    | 19.72                  |                     |          |       |                     |          |
| 20                    | QPSK       | 1       | 99        | 19.72                 | 19.61                    | 19.80                  |                     |          |       |                     |          |
| 20                    | QPSK       | 50      | 0         | 19.67                 | 19.56                    | 19.73                  | 21                  | 0        |       |                     |          |
| 20                    | QPSK       | 50      | 24        | 19.70                 | 19.60                    | 19.76                  |                     |          |       |                     |          |
| 20                    | QPSK       | 50      | 50        | 19.65                 | 19.56                    | 19.70                  |                     |          |       |                     |          |
| 20                    | QPSK       | 100     | 0         | 19.68                 | 19.58                    | 19.75                  | 21                  | 0        |       |                     |          |
| 20                    | 16QAM      | 1       | 0         | 19.78                 | 19.78                    | 19.77                  |                     |          |       |                     |          |
| 20                    | 16QAM      | 1       | 49        | 19.77                 | 19.73                    | 19.76                  |                     |          |       |                     |          |
| 20                    | 16QAM      | 1       | 99        | 19.49                 | 19.74                    | 19.79                  | 21                  | 0        |       |                     |          |
| 20                    | 16QAM      | 50      | 0         | 19.57                 | 19.56                    | 19.29                  |                     |          |       |                     |          |
| 20                    | 16QAM      | 50      | 24        | 19.67                 | 19.66                    | 19.67                  |                     |          |       |                     |          |
| 20                    | 16QAM      | 50      | 50        | 19.62                 | 19.65                    | 19.67                  | 21                  | 0        |       |                     |          |
| 20                    | 16QAM      | 100     | 0         | 19.62                 | 19.57                    | 19.63                  |                     |          |       |                     |          |
| 20                    | 84QAM      | 1       | 0         | 19.64                 | 19.61                    | 19.50                  |                     |          |       |                     |          |
| 20                    | 84QAM      | 1       | 49        | 19.59                 | 19.48                    | 19.58                  | 21                  | 0        |       |                     |          |
| 20                    | 84QAM      | 1       | 99        | 19.52                 | 19.52                    | 19.33                  |                     |          |       |                     |          |
| 20                    | 84QAM      | 50      | 0         | 19.63                 | 19.60                    | 19.65                  |                     |          |       |                     |          |
| 20                    | 84QAM      | 50      | 24        | 19.72                 | 19.60                    | 19.62                  | 21                  | 0        |       |                     |          |
| 20                    | 84QAM      | 50      | 50        | 19.65                 | 19.65                    | 19.65                  |                     |          |       |                     |          |
| 20                    | 84QAM      | 100     | 0         | 19.64                 | 19.57                    | 19.56                  |                     |          |       |                     |          |
| Channel               |            |         |           |                       |                          |                        | 20825               | 21100    | 21375 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |       |                     |          |
| 15                    | QPSK       | 1       | 0         | 19.54                 | 19.30                    | 19.57                  | 21                  | 0        |       |                     |          |
| 15                    | QPSK       | 1       | 37        | 19.46                 | 19.46                    | 19.77                  |                     |          |       |                     |          |
| 15                    | QPSK       | 1       | 74        | 19.59                 | 19.48                    | 19.69                  |                     |          |       |                     |          |
| 15                    | QPSK       | 36      | 0         | 19.65                 | 19.32                    | 19.55                  | 21                  | 0        |       |                     |          |
| 15                    | QPSK       | 36      | 20        | 19.68                 | 19.38                    | 19.78                  |                     |          |       |                     |          |
| 15                    | QPSK       | 36      | 39        | 19.42                 | 19.57                    | 19.74                  |                     |          |       |                     |          |
| 15                    | QPSK       | 75      | 0         | 19.55                 | 19.49                    | 19.78                  | 21                  | 0        |       |                     |          |
| 15                    | 16QAM      | 1       | 0         | 19.73                 | 19.71                    | 19.60                  |                     |          |       |                     |          |
| 15                    | 16QAM      | 1       | 37        | 19.63                 | 19.75                    | 19.61                  |                     |          |       |                     |          |
| 15                    | 16QAM      | 1       | 74        | 19.43                 | 19.74                    | 19.79                  | 21                  | 0        |       |                     |          |
| 15                    | 16QAM      | 36      | 0         | 19.55                 | 19.35                    | 19.31                  |                     |          |       |                     |          |
| 15                    | 16QAM      | 36      | 20        | 19.65                 | 19.63                    | 19.59                  |                     |          |       |                     |          |
| 15                    | 16QAM      | 36      | 39        | 19.40                 | 19.70                    | 19.58                  | 21                  | 0        |       |                     |          |
| 15                    | 16QAM      | 75      | 0         | 19.44                 | 19.48                    | 19.65                  |                     |          |       |                     |          |
| 15                    | 84QAM      | 1       | 0         | 19.54                 | 19.63                    | 19.55                  |                     |          |       |                     |          |
| 15                    | 84QAM      | 1       | 37        | 19.53                 | 19.32                    | 19.49                  | 21                  | 0        |       |                     |          |
| 15                    | 84QAM      | 1       | 74        | 19.36                 | 19.39                    | 19.15                  |                     |          |       |                     |          |
| 15                    | 84QAM      | 36      | 0         | 19.67                 | 19.60                    | 19.55                  |                     |          |       |                     |          |
| 15                    | 84QAM      | 36      | 20        | 19.62                 | 19.62                    | 19.58                  | 21                  | 0        |       |                     |          |
| 15                    | 84QAM      | 36      | 39        | 19.44                 | 19.57                    | 19.57                  |                     |          |       |                     |          |
| 15                    | 84QAM      | 75      | 0         | 19.49                 | 19.61                    | 19.35                  |                     |          |       |                     |          |
| Channel               |            |         |           |                       |                          |                        | 20800               | 21100    | 21400 | tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2505                  | 2535                     | 2565                   |                     |          |       |                     |          |
| 10                    | QPSK       | 1       | 0         | 19.42                 | 19.41                    | 19.70                  | 21                  | 0        |       |                     |          |
| 10                    | QPSK       | 1       | 25        | 19.70                 | 19.57                    | 19.70                  |                     |          |       |                     |          |
| 10                    | QPSK       | 1       | 49        | 19.53                 | 19.47                    | 19.56                  |                     |          |       |                     |          |
| 10                    | QPSK       | 25      | 0         | 19.53                 | 19.44                    | 19.70                  | 21                  | 0        |       |                     |          |
| 10                    | QPSK       | 25      | 12        | 19.66                 | 19.55                    | 19.77                  |                     |          |       |                     |          |
| 10                    | QPSK       | 25      | 25        | 19.61                 | 19.35                    | 19.60                  |                     |          |       |                     |          |
| 10                    | QPSK       | 50      | 0         | 19.68                 | 19.33                    | 19.59                  | 21                  | 0        |       |                     |          |
| 10                    | 16QAM      | 1       | 0         | 19.72                 | 19.56                    | 19.78                  |                     |          |       |                     |          |
| 10                    | 16QAM      | 1       | 25        | 19.61                 | 19.53                    | 19.62                  |                     |          |       |                     |          |
| 10                    | 16QAM      | 1       | 49        | 19.36                 | 19.50                    | 19.67                  | 21                  | 0        |       |                     |          |
| 10                    | 16QAM      | 25      | 0         | 19.60                 | 19.40                    | 19.27                  |                     |          |       |                     |          |
| 10                    | 16QAM      | 25      | 12        | 19.58                 | 19.57                    | 19.42                  |                     |          |       |                     |          |
| 10                    | 16QAM      | 25      | 25        | 19.57                 | 19.47                    | 19.52                  | 21                  | 0        |       |                     |          |
| 10                    | 16QAM      | 50      | 0         | 19.42                 | 19.61                    | 19.46                  |                     |          |       |                     |          |
| 10                    | 84QAM      | 1       | 0         | 19.55                 | 19.55                    | 19.26                  |                     |          |       |                     |          |
| 10                    | 84QAM      | 1       | 25        | 19.34                 | 19.31                    | 19.35                  | 21                  | 0        |       |                     |          |
| 10                    | 84QAM      | 1       | 49        | 19.30                 | 19.40                    | 19.25                  |                     |          |       |                     |          |
| 10                    | 84QAM      | 25      | 0         | 19.39                 | 19.45                    | 19.62                  |                     |          |       |                     |          |
| 10                    | 84QAM      | 25      | 12        | 19.49                 | 19.57                    | 19.45                  | 21                  | 0        |       |                     |          |
| 10                    | 84QAM      | 25      | 25        | 19.59                 | 19.55                    | 19.63                  |                     |          |       |                     |          |
| 10                    | 84QAM      | 50      | 0         | 19.56                 | 19.33                    | 19.47                  |                     |          |       |                     |          |
| Channel               |            |         |           |                       |                          |                        | 20775               | 21100    | 21425 | tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz)       |            |         |           | 2602.5                | 2535                     | 2567.5                 |                     |          |       |                     |          |
| 5                     | QPSK       | 1       | 0         | 19.43                 | 19.40                    | 19.70                  | 21                  | 0        |       |                     |          |
| 5                     | QPSK       | 1       | 12        | 19.62                 | 19.62                    | 19.74                  |                     |          |       |                     |          |
| 5                     | QPSK       | 1       | 24        | 19.63                 | 19.66                    | 19.56                  |                     |          |       |                     |          |
| 5                     | QPSK       | 12      | 0         | 19.44                 | 19.34                    | 19.74                  | 21                  | 0        |       |                     |          |
| 5                     | QPSK       | 12      | 7         | 19.64                 | 19.49                    | 19.70                  |                     |          |       |                     |          |
| 5                     | QPSK       | 12      | 13        | 19.54                 | 19.59                    | 19.47                  |                     |          |       |                     |          |
| 5                     | QPSK       | 25      | 0         | 19.57                 | 19.62                    | 19.74                  | 21                  | 0        |       |                     |          |
| 5                     | 16QAM      | 1       | 0         | 19.77                 | 19.64                    | 19.70                  |                     |          |       |                     |          |
| 5                     | 16QAM      | 1       | 12        | 19.72                 | 19.40                    | 19.52                  |                     |          |       |                     |          |
| 5                     | 16QAM      | 1       | 24        | 19.46                 | 19.65                    | 19.69                  | 21                  | 0        |       |                     |          |
| 5                     | 16QAM      | 12      | 0         | 19.32                 | 19.35                    | 19.29                  |                     |          |       |                     |          |
| 5                     | 16QAM      | 12      | 7         | 19.56                 | 19.44                    | 19.58                  |                     |          |       |                     |          |
| 5                     | 16QAM      | 12      | 13        | 19.63                 | 19.69                    | 19.52                  | 21                  | 0        |       |                     |          |
| 5                     | 16QAM      | 25      | 0         | 19.45                 | 19.45                    | 19.43                  |                     |          |       |                     |          |
| 5                     | 84QAM      | 1       | 0         | 19.63                 | 19.44                    | 19.48                  |                     |          |       |                     |          |
| 5                     | 84QAM      | 1       | 12        | 19.41                 | 19.35                    | 19.35                  | 21                  | 0        |       |                     |          |
| 5                     | 84QAM      | 1       | 24        | 19.55                 | 19.34                    | 19.27                  |                     |          |       |                     |          |
| 5                     | 84QAM      | 12      | 0         | 19.40                 | 19.37                    | 19.46                  |                     |          |       |                     |          |
| 5                     | 84QAM      | 12      | 7         | 19.63                 | 19.50                    | 19.62                  | 21                  | 0        |       |                     |          |
| 5                     | 84QAM      | 12      | 13        | 19.53                 | 19.57                    | 19.66                  |                     |          |       |                     |          |
| 5                     | 84QAM      | 25      | 0         | 19.39                 | 19.58                    | 19.41                  |                     |          |       |                     |          |

| Band 14 (700MHz Band) |            |         |           |                       |                          |                        |                     |          |  |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|--|
| BW [MHz]              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |  |
| Channel               |            |         |           | 23330                 |                          |                        |                     |          |  |  |
| Frequency (MHz)       |            |         |           | 790.5                 |                          |                        |                     |          |  |  |
| 10                    | QPSK       | 1       | 0         |                       | 22.09                    |                        | 23.5                | 0        |  |  |
| 10                    | QPSK       | 1       | 25        |                       | 22.14                    |                        |                     |          |  |  |
| 10                    | QPSK       | 1       | 49        |                       | 22.20                    |                        |                     |          |  |  |
| 10                    | QPSK       | 25      | 0         |                       | 21.74                    |                        | 23                  | 0.5      |  |  |
| 10                    | QPSK       | 25      | 12        |                       | 21.72                    |                        |                     |          |  |  |
| 10                    | QPSK       | 25      | 25        |                       | 21.70                    |                        |                     |          |  |  |
| 10                    | QPSK       | 50      | 0         |                       | 21.74                    |                        | 23                  | 0.5      |  |  |
| 10                    | 16QAM      | 1       | 0         |                       | 21.51                    |                        |                     |          |  |  |
| 10                    | 16QAM      | 1       | 25        |                       | 21.85                    |                        |                     |          |  |  |
| 10                    | 16QAM      | 1       | 49        |                       | 21.90                    |                        | 22                  | 1.5      |  |  |
| 10                    | 16QAM      | 25      | 0         |                       | 20.70                    |                        |                     |          |  |  |
| 10                    | 16QAM      | 25      | 12        |                       | 20.76                    |                        |                     |          |  |  |
| 10                    | 16QAM      | 25      | 25        |                       | 20.69                    |                        | 22                  | 1.5      |  |  |
| 10                    | 16QAM      | 50      | 0         |                       | 20.72                    |                        |                     |          |  |  |
| 10                    | 84QAM      | 1       | 0         |                       | 20.80                    |                        |                     |          |  |  |
| 10                    | 84QAM      | 1       | 25        |                       | 20.82                    |                        | 22                  | 1.5      |  |  |
| 10                    | 84QAM      | 1       | 49        |                       | 20.85                    |                        |                     |          |  |  |
| 10                    | 84QAM      | 25      | 0         |                       | 19.73                    |                        |                     |          |  |  |
| 10                    | 84QAM      | 25      | 12        |                       | 19.75                    |                        | 21                  | 2.5      |  |  |
| 10                    | 84QAM      | 25      | 25        |                       | 19.75                    |                        |                     |          |  |  |
| 10                    | 84QAM      | 50      | 0         |                       | 19.74                    |                        |                     |          |  |  |
| Channel               |            |         |           | 23305                 | 23330                    | 23355                  |                     |          |  |  |
| Frequency (MHz)       |            |         |           | 790.5                 | 793                      | 795.5                  |                     |          |  |  |
| 5                     | QPSK       | 1       | 0         | 22.13                 | 22.01                    | 22.02                  | 23.5                | 0        |  |  |
| 5                     | QPSK       | 1       | 12        | 22.02                 | 22.07                    | 21.97                  |                     |          |  |  |
| 5                     | QPSK       | 1       | 24        | 22.04                 | 22.05                    | 22.15                  |                     |          |  |  |
| 5                     | QPSK       | 12      | 0         | 21.76                 | 21.71                    | 21.51                  | 23                  | 0.5      |  |  |
| 5                     | QPSK       | 12      | 7         | 21.65                 | 21.74                    | 21.55                  |                     |          |  |  |
| 5                     | QPSK       | 12      | 13        | 21.67                 | 21.63                    | 21.55                  |                     |          |  |  |
| 5                     | QPSK       | 25      | 0         | 21.89                 | 21.69                    | 21.69                  | 23                  | 0.5      |  |  |
| 5                     | 16QAM      | 1       | 0         | 21.64                 | 21.63                    | 21.83                  |                     |          |  |  |
| 5                     | 16QAM      | 1       | 12        | 21.67                 | 21.65                    | 21.88                  |                     |          |  |  |
| 5                     | 16QAM      | 1       | 24        | 21.90                 | 21.65                    | 21.85                  | 23                  | 0.5      |  |  |
| 5                     | 16QAM      | 12      | 0         | 20.60                 | 20.66                    | 20.68                  |                     |          |  |  |
| 5                     | 16QAM      | 12      | 7         | 20.67                 | 20.64                    | 20.68                  |                     |          |  |  |
| 5                     | 16QAM      | 12      | 13        | 20.52                 | 20.70                    | 20.71                  | 22                  | 1.5      |  |  |
| 5                     | 16QAM      | 25      | 0         | 20.62                 | 20.71                    | 20.56                  |                     |          |  |  |
| 5                     | 84QAM      | 1       | 0         | 20.55                 | 20.70                    | 20.85                  |                     |          |  |  |
| 5                     | 84QAM      | 1       | 12        | 20.72                 | 20.85                    | 20.77                  | 22                  | 1.5      |  |  |
| 5                     | 84QAM      | 1       | 24        | 20.75                 | 20.66                    | 20.84                  |                     |          |  |  |
| 5                     | 84QAM      | 12      | 0         | 19.51                 | 19.61                    | 19.73                  |                     |          |  |  |
| 5                     | 84QAM      | 12      | 7         | 19.67                 | 19.61                    | 19.51                  | 21                  | 2.5      |  |  |
| 5                     | 84QAM      | 12      | 13        | 19.71                 | 19.73                    | 19.58                  |                     |          |  |  |
| 5                     | 84QAM      | 25      | 0         | 19.77                 | 19.52                    | 19.65                  |                     |          |  |  |

| Band 26 for FCC<br>(only on channel required) |            |         |           |                             |                                |                              |                           |             |  |  |
|-----------------------------------------------|------------|---------|-----------|-----------------------------|--------------------------------|------------------------------|---------------------------|-------------|--|--|
| BW (MHz)                                      | Modulation | RB Size | RB Offset | Power<br>Low<br>Ch. / Freq. | Power<br>Middle<br>Ch. / Freq. | Power<br>High<br>Ch. / Freq. | Tune-up<br>limit<br>(dBm) | MPR<br>(dB) |  |  |
| Channel                                       |            |         |           | 26765                       | 26865                          | 26965                        |                           |             |  |  |
| Frequency (MHz)                               |            |         |           | 821.5                       | 831.5                          | 841.5                        |                           |             |  |  |
| 15                                            | QPSK       | 1       | 0         | 21.83                       | 21.85                          | 21.95                        | 23                        | 0           |  |  |
| 15                                            | QPSK       | 1       | 37        | 21.84                       | 21.88                          | 21.96                        |                           |             |  |  |
| 15                                            | QPSK       | 1       | 74        | 21.80                       | 21.83                          | 21.93                        |                           |             |  |  |
| 15                                            | QPSK       | 36      | 0         | 21.77                       | 21.82                          | 21.87                        |                           |             |  |  |
| 15                                            | QPSK       | 36      | 20        | 21.82                       | 21.86                          | 21.94                        |                           |             |  |  |
| 15                                            | QPSK       | 36      | 39        | 21.78                       | 21.80                          | 21.88                        | 23                        | 0           |  |  |
| 15                                            | QPSK       | 75      | 0         | 21.80                       | 21.85                          | 21.91                        |                           |             |  |  |
| 15                                            | 16QAM      | 1       | 0         | 21.81                       | 21.85                          | 21.92                        |                           |             |  |  |
| 15                                            | 16QAM      | 1       | 37        | 21.86                       | 21.82                          | 21.81                        |                           |             |  |  |
| 15                                            | 16QAM      | 1       | 74        | 21.86                       | 21.87                          | 21.75                        |                           |             |  |  |
| 15                                            | 16QAM      | 36      | 0         | 21.08                       | 21.17                          | 21.03                        | 22                        | 1           |  |  |
| 15                                            | 16QAM      | 36      | 20        | 21.06                       | 21.15                          | 20.98                        |                           |             |  |  |
| 15                                            | 16QAM      | 36      | 39        | 21.19                       | 21.05                          | 21.18                        |                           |             |  |  |
| 15                                            | 16QAM      | 75      | 0         | 21.21                       | 21.19                          | 21.08                        |                           |             |  |  |
| 15                                            | 64QAM      | 1       | 0         | 21.22                       | 20.98                          | 21.28                        |                           |             |  |  |
| 15                                            | 64QAM      | 1       | 37        | 21.23                       | 21.11                          | 21.23                        | 22                        | 1           |  |  |
| 15                                            | 64QAM      | 1       | 74        | 21.09                       | 21.04                          | 21.38                        |                           |             |  |  |
| 15                                            | 64QAM      | 36      | 0         | 20.09                       | 20.15                          | 20.09                        |                           |             |  |  |
| 15                                            | 64QAM      | 36      | 20        | 20.12                       | 20.26                          | 20.05                        |                           |             |  |  |
| 15                                            | 64QAM      | 36      | 39        | 20.18                       | 20.06                          | 20.21                        |                           |             |  |  |
| 15                                            | 64QAM      | 75      | 0         | 20.27                       | 20.16                          | 20.10                        | 21                        | 2           |  |  |
| Channel                                       |            |         |           | 26740                       | 26865                          | 26990                        |                           |             |  |  |
| Frequency (MHz)                               |            |         |           | 819                         | 831.5                          | 844                          |                           |             |  |  |
| 10                                            | QPSK       | 1       | 0         | 21.87                       | 21.61                          | 21.87                        | 23                        | 0           |  |  |
| 10                                            | QPSK       | 1       | 25        | 21.79                       | 21.81                          | 21.85                        |                           |             |  |  |
| 10                                            | QPSK       | 1       | 49        | 21.83                       | 21.58                          | 21.90                        |                           |             |  |  |
| 10                                            | QPSK       | 25      | 0         | 21.69                       | 21.62                          | 21.81                        |                           |             |  |  |
| 10                                            | QPSK       | 25      | 12        | 21.87                       | 21.63                          | 21.73                        |                           |             |  |  |
| 10                                            | QPSK       | 25      | 25        | 21.87                       | 21.65                          | 21.87                        | 23                        | 0           |  |  |
| 10                                            | QPSK       | 50      | 0         | 21.81                       | 21.71                          | 21.89                        |                           |             |  |  |
| 10                                            | 16QAM      | 1       | 0         | 21.63                       | 21.73                          | 21.73                        |                           |             |  |  |
| 10                                            | 16QAM      | 1       | 25        | 21.89                       | 21.62                          | 21.58                        |                           |             |  |  |
| 10                                            | 16QAM      | 1       | 49        | 21.82                       | 21.86                          | 21.67                        |                           |             |  |  |
| 10                                            | 16QAM      | 25      | 0         | 21.08                       | 21.20                          | 21.04                        | 22                        | 1           |  |  |
| 10                                            | 16QAM      | 25      | 12        | 20.83                       | 21.19                          | 20.87                        |                           |             |  |  |
| 10                                            | 16QAM      | 25      | 25        | 21.06                       | 20.92                          | 21.14                        |                           |             |  |  |
| 10                                            | 16QAM      | 50      | 0         | 21.08                       | 21.19                          | 20.99                        |                           |             |  |  |
| 10                                            | 64QAM      | 1       | 0         | 21.04                       | 20.98                          | 21.16                        |                           |             |  |  |
| 10                                            | 64QAM      | 1       | 25        | 21.01                       | 21.07                          | 21.23                        | 22                        | 1           |  |  |
| 10                                            | 64QAM      | 1       | 49        | 21.05                       | 20.86                          | 21.16                        |                           |             |  |  |
| 10                                            | 64QAM      | 25      | 0         | 20.03                       | 20.20                          | 20.08                        |                           |             |  |  |
| 10                                            | 64QAM      | 25      | 12        | 19.99                       | 20.19                          | 20.09                        |                           |             |  |  |
| 10                                            | 64QAM      | 25      | 25        | 20.10                       | 20.03                          | 20.11                        |                           |             |  |  |
| 10                                            | 64QAM      | 50      | 0         | 20.28                       | 20.21                          | 20.14                        | 21                        | 2           |  |  |
| Channel                                       |            |         |           | 26715                       | 26865                          | 27015                        |                           |             |  |  |
| Frequency (MHz)                               |            |         |           | 816.5                       | 831.5                          | 846.5                        |                           |             |  |  |
| 5                                             | QPSK       | 1       | 0         | 21.87                       | 21.87                          | 21.87                        | 23                        | 0           |  |  |
| 5                                             | QPSK       | 1       | 12        | 21.67                       | 21.82                          | 21.91                        |                           |             |  |  |
| 5                                             | QPSK       | 1       | 24        | 21.81                       | 21.83                          | 21.89                        |                           |             |  |  |
| 5                                             | QPSK       | 12      | 0         | 21.88                       | 21.60                          | 21.90                        |                           |             |  |  |
| 5                                             | QPSK       | 12      | 7         | 21.59                       | 21.78                          | 21.84                        |                           |             |  |  |
| 5                                             | QPSK       | 12      | 13        | 21.89                       | 21.63                          | 21.88                        | 23                        | 0           |  |  |
| 5                                             | QPSK       | 25      | 0         | 21.81                       | 21.79                          | 21.69                        |                           |             |  |  |
| 5                                             | 16QAM      | 1       | 0         | 21.70                       | 21.72                          | 21.90                        |                           |             |  |  |
| 5                                             | 16QAM      | 1       | 12        | 21.91                       | 21.61                          | 21.77                        |                           |             |  |  |
| 5                                             | 16QAM      | 1       | 24        | 21.62                       | 21.85                          | 21.68                        |                           |             |  |  |
| 5                                             | 16QAM      | 12      | 0         | 21.02                       | 20.97                          | 20.87                        | 22                        | 1           |  |  |
| 5                                             | 16QAM      | 12      | 7         | 20.86                       | 21.07                          | 20.74                        |                           |             |  |  |
| 5                                             | 16QAM      | 12      | 13        | 21.01                       | 21.02                          | 21.08                        |                           |             |  |  |
| 5                                             | 16QAM      | 25      | 0         | 21.20                       | 21.04                          | 21.07                        |                           |             |  |  |
| 5                                             | 64QAM      | 1       | 0         | 21.01                       | 20.87                          | 21.27                        |                           |             |  |  |
| 5                                             | 64QAM      | 1       | 12        | 21.17                       | 20.91                          | 21.15                        | 22                        | 1           |  |  |
| 5                                             | 64QAM      | 1       | 24        | 21.01                       | 20.82                          | 21.29                        |                           |             |  |  |
| 5                                             | 64QAM      | 12      | 0         | 19.84                       | 20.03                          | 19.87                        |                           |             |  |  |
| 5                                             | 64QAM      | 12      | 7         | 19.91                       | 20.15                          | 19.96                        |                           |             |  |  |
| 5                                             | 64QAM      | 12      | 13        | 20.18                       | 19.86                          | 20.23                        |                           |             |  |  |
| 5                                             | 64QAM      | 25      | 0         | 20.09                       | 20.01                          | 19.90                        | 21                        | 2           |  |  |
| Channel                                       |            |         |           | 26705                       | 26865                          | 27025                        |                           |             |  |  |
| Frequency (MHz)                               |            |         |           | 815.5                       | 831.5                          | 847.5                        |                           |             |  |  |
| 3                                             | QPSK       | 1       | 0         | 21.80                       | 21.85                          | 21.73                        | 23                        | 0           |  |  |
| 3                                             | QPSK       | 1       | 8         | 21.77                       | 21.84                          | 21.76                        |                           |             |  |  |
| 3                                             | QPSK       | 1       | 14        | 21.82                       | 21.78                          | 21.93                        |                           |             |  |  |
| 3                                             | QPSK       | 8       | 0         | 21.80                       | 21.86                          | 21.86                        |                           |             |  |  |
| 3                                             | QPSK       | 8       | 4         | 21.60                       | 21.71                          | 21.92                        |                           |             |  |  |
| 3                                             | QPSK       | 8       | 7         | 21.66                       | 21.70                          | 21.78                        | 23                        | 0           |  |  |
| 3                                             | QPSK       | 15      | 0         | 21.56                       | 21.69                          | 21.68                        |                           |             |  |  |
| 3                                             | 16QAM      | 1       | 0         | 21.73                       | 21.83                          | 21.71                        |                           |             |  |  |
| 3                                             | 16QAM      | 1       | 8         | 21.81                       | 21.73                          | 21.72                        |                           |             |  |  |
| 3                                             | 16QAM      | 1       | 14        | 21.65                       | 21.69                          | 21.56                        |                           |             |  |  |
| 3                                             | 16QAM      | 8       | 0         | 20.87                       | 21.07                          | 20.78                        | 22                        | 1           |  |  |
| 3                                             | 16QAM      | 8       | 4         | 20.87                       | 21.19                          | 20.77                        |                           |             |  |  |
| 3                                             | 16QAM      | 8       | 7         | 21.23                       | 20.88                          | 20.98                        |                           |             |  |  |
| 3                                             | 16QAM      | 15      | 0         | 21.10                       | 21.06                          | 21.01                        |                           |             |  |  |
| 3                                             | 64QAM      | 1       | 0         | 20.98                       | 20.92                          | 21.05                        |                           |             |  |  |
| 3                                             | 64QAM      | 1       | 8         | 20.98                       | 21.14                          | 21.01                        | 22                        | 1           |  |  |
| 3                                             | 64QAM      | 1       | 14        | 21.11                       | 21.07                          | 21.27                        |                           |             |  |  |
| 3                                             | 64QAM      | 8       | 0         | 20.07                       | 19.90                          | 20.10                        |                           |             |  |  |
| 3                                             | 64QAM      | 8       | 4         | 20.00                       | 20.02                          | 19.82                        |                           |             |  |  |
| 3                                             | 64QAM      | 8       | 7         | 20.22                       | 19.92                          | 20.23                        |                           |             |  |  |
| 3                                             | 64QAM      | 15      | 0         | 20.28                       | 20.14                          | 20.11                        | 21                        | 2           |  |  |
| Channel                                       |            |         |           | 26697                       | 26865                          | 27033                        |                           |             |  |  |
| Frequency (MHz)                               |            |         |           | 814.7                       | 831.5                          | 848.3                        |                           |             |  |  |
| 1.4                                           | QPSK       | 1       | 0         | 21.64                       | 21.85                          | 21.91                        | 23                        | 0           |  |  |
| 1.4                                           | QPSK       | 1       | 3         | 21.76                       | 21.66                          | 21.92                        |                           |             |  |  |
| 1.4                                           | QPSK       | 1       | 5         | 21.60                       | 21.74                          | 21.86                        |                           |             |  |  |
| 1.4                                           | QPSK       | 3       | 0         | 21.69                       | 21.85                          | 21.92                        |                           |             |  |  |
| 1.4                                           | QPSK       | 3       | 1         | 21.83                       | 21.87                          | 21.85                        |                           |             |  |  |
| 1.4                                           | QPSK       | 3       | 3         | 21.93                       | 21.63                          | 21.79                        | 23                        | 0           |  |  |
| 1.4                                           | QPSK       | 6       | 0         | 21.83                       | 21.85                          | 21.83                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 1       | 0         | 21.71                       | 21.60                          | 21.70                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 1       | 3         | 21.76                       | 21.74                          | 21.79                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 1       | 5         | 21.73                       | 21.80                          | 21.69                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 3       | 0         | 21.58                       | 21.83                          | 21.83                        | 23                        | 0           |  |  |
| 1.4                                           | 16QAM      | 3       | 1         | 21.83                       | 21.74                          | 21.67                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 3       | 3         | 21.86                       | 21.75                          | 21.77                        |                           |             |  |  |
| 1.4                                           | 16QAM      | 6       | 0         | 20.98                       | 21.18                          | 21.01                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 1       | 0         | 21.27                       | 20.95                          | 21.16                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 1       | 3         | 21.09                       | 21.05                          | 21.27                        | 22                        | 1           |  |  |
| 1.4                                           | 64QAM      | 1       | 5         | 21.00                       | 21.08                          | 21.24                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 3       | 0         | 21.00                       | 20.74                          | 21.10                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 3       | 1         | 21.17                       | 20.99                          | 21.01                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 3       | 3         | 20.90                       | 20.82                          | 21.14                        |                           |             |  |  |
| 1.4                                           | 64QAM      | 6       | 0         | 20.04                       | 20.11                          | 19.94                        | 21                        | 2           |  |  |



| Band 38(only on channel required) |            |         |           |                        |                           |                         |                        |             |  |  |  |
|-----------------------------------|------------|---------|-----------|------------------------|---------------------------|-------------------------|------------------------|-------------|--|--|--|
| BW [MHz]                          | Modulation | RB Size | RB Offset | Power Low<br>Ch / Freq | Power Middle<br>Ch / Freq | Power High<br>Ch / Freq | Tune-up limit<br>(dBm) | MPR<br>(dB) |  |  |  |
| Channel                           |            |         |           |                        |                           |                         |                        |             |  |  |  |
| Frequency (MHz)                   |            |         |           |                        |                           |                         |                        |             |  |  |  |
| 30                                | QPSK       | 1       | 0         | 20.78                  | 20.82                     | 20.70                   | 22                     | 0           |  |  |  |
| 30                                | QPSK       | 1       | 49        | 20.79                  | 20.89                     | 20.74                   |                        |             |  |  |  |
| 30                                | QPSK       | 1       | 99        | 20.79                  | 20.89                     | 20.82                   |                        |             |  |  |  |
| 30                                | QPSK       | 50      | 0         | 20.86                  | 20.88                     | 20.80                   |                        |             |  |  |  |
| 30                                | QPSK       | 50      | 24        | 20.88                  | 20.78                     | 20.78                   |                        |             |  |  |  |
| 30                                | QPSK       | 100     | 0         | 20.84                  | 20.86                     | 20.77                   | 22                     | 0           |  |  |  |
| 30                                | HQAM       | 1       | 0         | 20.86                  | 20.86                     | 20.86                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 49        | 20.86                  | 20.89                     | 20.89                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 24        | 20.81                  | 20.87                     | 20.89                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 50        | 20.84                  | 20.84                     | 20.81                   |                        |             |  |  |  |
| 30                                | HQAM       | 100     | 0         | 20.86                  | 20.82                     | 20.81                   | 22                     | 0           |  |  |  |
| 30                                | HQAM       | 1       | 0         | 20.87                  | 20.87                     | 20.81                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 49        | 20.87                  | 20.83                     | 20.70                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 0         | 19.94                  | 19.92                     | 19.85                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 24        | 19.94                  | 19.80                     | 19.80                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 50        | 19.92                  | 19.89                     | 19.85                   | 21                     | 1           |  |  |  |
| 30                                | HQAM       | 100     | 0         | 19.97                  | 19.93                     | 19.98                   |                        |             |  |  |  |
| Channel                           |            |         |           |                        |                           |                         |                        |             |  |  |  |
| Frequency (MHz)                   |            |         |           |                        |                           |                         |                        |             |  |  |  |
| 15                                | QPSK       | 1       | 0         | 25.73                  | 25.76                     | 25.63                   | 22                     | 0           |  |  |  |
| 15                                | QPSK       | 1       | 37        | 25.84                  | 25.72                     | 25.63                   |                        |             |  |  |  |
| 15                                | QPSK       | 1       | 74        | 25.83                  | 25.79                     | 25.64                   |                        |             |  |  |  |
| 15                                | QPSK       | 36      | 0         | 25.70                  | 25.87                     | 25.80                   |                        |             |  |  |  |
| 15                                | QPSK       | 36      | 20        | 25.86                  | 25.86                     | 25.81                   |                        |             |  |  |  |
| 15                                | QPSK       | 36      | 36        | 25.82                  | 25.87                     | 25.73                   | 22                     | 0           |  |  |  |
| 15                                | QPSK       | 75      | 0         | 25.84                  | 25.87                     | 25.74                   |                        |             |  |  |  |
| 15                                | HQAM       | 1       | 0         | 25.86                  | 25.82                     | 25.68                   |                        |             |  |  |  |
| 15                                | HQAM       | 1       | 37        | 25.89                  | 25.84                     | 25.65                   |                        |             |  |  |  |
| 15                                | HQAM       | 1       | 74        | 25.73                  | 25.79                     | 25.60                   |                        |             |  |  |  |
| 15                                | HQAM       | 36      | 0         | 25.83                  | 25.83                     | 25.81                   | 22                     | 0           |  |  |  |
| 15                                | HQAM       | 36      | 20        | 25.93                  | 25.88                     | 25.76                   |                        |             |  |  |  |
| 15                                | HQAM       | 36      | 36        | 25.86                  | 25.86                     | 25.81                   |                        |             |  |  |  |
| 15                                | HQAM       | 75      | 0         | 25.85                  | 25.88                     | 25.82                   |                        |             |  |  |  |
| 15                                | HQAM       | 1       | 0         | 25.87                  | 25.83                     | 25.69                   |                        |             |  |  |  |
| 15                                | HQAM       | 1       | 37        | 25.87                  | 25.82                     | 25.68                   | 22                     | 0           |  |  |  |
| 15                                | HQAM       | 1       | 74        | 25.82                  | 25.82                     | 25.61                   |                        |             |  |  |  |
| 15                                | HQAM       | 36      | 0         | 19.70                  | 19.85                     | 19.82                   |                        |             |  |  |  |
| 15                                | HQAM       | 36      | 20        | 19.93                  | 19.87                     | 19.81                   |                        |             |  |  |  |
| 15                                | HQAM       | 36      | 36        | 19.79                  | 19.81                     | 19.85                   |                        |             |  |  |  |
| 15                                | HQAM       | 75      | 0         | 19.85                  | 19.79                     | 19.86                   | 21                     | 1           |  |  |  |
| Channel                           |            |         |           |                        |                           |                         |                        |             |  |  |  |
| Frequency (MHz)                   |            |         |           |                        |                           |                         |                        |             |  |  |  |
| 30                                | QPSK       | 1       | 0         | 30.87                  | 30.82                     | 30.67                   | 22                     | 0           |  |  |  |
| 30                                | QPSK       | 1       | 25        | 30.78                  | 30.53                     | 30.69                   |                        |             |  |  |  |
| 30                                | QPSK       | 1       | 49        | 30.85                  | 30.81                     | 30.82                   |                        |             |  |  |  |
| 30                                | QPSK       | 25      | 0         | 30.81                  | 30.86                     | 30.84                   |                        |             |  |  |  |
| 30                                | QPSK       | 25      | 12        | 30.89                  | 30.76                     | 30.72                   |                        |             |  |  |  |
| 30                                | QPSK       | 25      | 25        | 30.87                  | 30.77                     | 30.85                   | 22                     | 0           |  |  |  |
| 30                                | QPSK       | 50      | 0         | 30.88                  | 30.82                     | 30.85                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 0         | 30.87                  | 30.72                     | 30.86                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 25        | 30.84                  | 30.83                     | 30.81                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 49        | 30.84                  | 30.86                     | 30.86                   |                        |             |  |  |  |
| 30                                | HQAM       | 25      | 0         | 30.93                  | 30.79                     | 30.96                   | 22                     | 0           |  |  |  |
| 30                                | HQAM       | 25      | 12        | 30.86                  | 30.82                     | 30.80                   |                        |             |  |  |  |
| 30                                | HQAM       | 25      | 25        | 30.74                  | 30.80                     | 30.85                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 0         | 30.84                  | 30.86                     | 30.77                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 25        | 30.84                  | 30.85                     | 30.45                   |                        |             |  |  |  |
| 30                                | HQAM       | 1       | 49        | 30.56                  | 30.86                     | 30.86                   | 21                     | 1           |  |  |  |
| 30                                | HQAM       | 25      | 0         | 19.96                  | 19.92                     | 19.84                   |                        |             |  |  |  |
| 30                                | HQAM       | 25      | 12        | 19.77                  | 19.88                     | 19.92                   |                        |             |  |  |  |
| 30                                | HQAM       | 25      | 25        | 19.90                  | 19.79                     | 19.86                   |                        |             |  |  |  |
| 30                                | HQAM       | 50      | 0         | 19.95                  | 19.89                     | 19.90                   |                        |             |  |  |  |
| Channel                           |            |         |           |                        |                           |                         |                        |             |  |  |  |
| Frequency (MHz)                   |            |         |           |                        |                           |                         |                        |             |  |  |  |
| 5                                 | QPSK       | 1       | 0         | 20.63                  | 20.69                     | 20.66                   | 22                     | 0           |  |  |  |
| 5                                 | QPSK       | 1       | 12        | 20.80                  | 20.55                     | 20.96                   |                        |             |  |  |  |
| 5                                 | QPSK       | 1       | 24        | 20.84                  | 20.71                     | 20.77                   |                        |             |  |  |  |
| 5                                 | QPSK       | 12      | 0         | 20.68                  | 20.75                     | 20.79                   |                        |             |  |  |  |
| 5                                 | QPSK       | 12      | 7         | 20.51                  | 20.87                     | 20.70                   |                        |             |  |  |  |
| 5                                 | HQAM       | 1       | 0         | 20.75                  | 20.72                     | 20.82                   | 22                     | 0           |  |  |  |
| 5                                 | HQAM       | 12      | 0         | 20.75                  | 20.72                     | 20.84                   |                        |             |  |  |  |
| 5                                 | HQAM       | 1       | 24        | 20.75                  | 20.59                     | 20.68                   |                        |             |  |  |  |
| 5                                 | HQAM       | 12      | 7         | 20.67                  | 20.86                     | 20.67                   |                        |             |  |  |  |
| 5                                 | HQAM       | 12      | 7         | 20.68                  | 20.80                     | 20.71                   |                        |             |  |  |  |
| 5                                 | HQAM       | 12      | 13        | 20.58                  | 20.82                     | 20.87                   | 22                     | 0           |  |  |  |
| 5                                 | HQAM       | 25      | 0         | 20.86                  | 20.82                     | 20.80                   |                        |             |  |  |  |
| 5                                 | HQAM       | 1       | 0         | 20.58                  | 20.52                     | 20.53                   |                        |             |  |  |  |
| 5                                 | HQAM       | 1       | 12        | 20.61                  | 20.46                     | 20.46                   |                        |             |  |  |  |
| 5                                 | HQAM       | 1       | 24        | 20.66                  | 20.60                     | 20.50                   |                        |             |  |  |  |
| 5                                 | HQAM       | 12      | 0         | 19.82                  | 19.75                     | 19.85                   | 21                     | 1           |  |  |  |
| 5                                 | HQAM       | 12      | 7         | 19.89                  | 19.86                     | 19.77                   |                        |             |  |  |  |
| 5                                 | HQAM       | 12      | 13        | 19.85                  | 19.85                     | 19.85                   |                        |             |  |  |  |
| 5                                 | HQAM       | 25      | 0         | 19.96                  | 19.87                     | 19.98                   |                        |             |  |  |  |
| 5                                 | HQAM       | 25      | 0         | 19.96                  | 19.87                     | 19.98                   |                        |             |  |  |  |

| Band 41 (2.6G Band)-PC3 |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
|-------------------------|------------|---------|-----------|--------------------|---------------------|---------------------|---------------------|--------------------|----------|---|----|---|
| BW [MHz]                | Modulation | RB Size | RB Offset | Power Low Ch [dBm] | Power Main Ch [dBm] | Power High Ch [dBm] | Power High Ch [dBm] | Turnup limit (dBm) | MPR (dB) |   |    |   |
| Channel                 |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| Frequency (MHz)         |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| 20                      | QPSK       | 1       | 0         | 22.09              | 21.98               | 21.90               | 22.15               | 22.20              | 23       | 0 |    |   |
| 20                      | QPSK       | 1       | 49        | 21.79              | 21.87               | 21.88               | 21.93               | 21.93              |          |   |    |   |
| 20                      | QPSK       | 1       | 99        | 21.86              | 21.80               | 21.85               | 21.96               | 21.88              |          |   |    |   |
| 20                      | QPSK       | 50      | 0         | 21.35              | 21.28               | 21.42               | 21.37               | 21.51              |          |   |    |   |
| 20                      | QPSK       | 50      | 24        | 21.52              | 21.46               | 21.57               | 21.48               | 21.60              |          |   |    |   |
| 20                      | QPSK       | 50      | 50        | 21.52              | 21.53               | 21.56               | 21.57               | 21.61              | 23       | 0 |    |   |
| 20                      | QPSK       | 100     | 0         | 21.50              | 21.44               | 21.55               | 21.48               | 21.66              |          |   |    |   |
| 20                      | HQAM       | 1       | 0         | 21.47              | 21.45               | 21.58               | 21.49               | 21.64              |          |   |    |   |
| 20                      | HQAM       | 1       | 49        | 21.52              | 21.38               | 21.53               | 21.63               | 21.57              |          |   |    |   |
| 20                      | HQAM       | 50      | 24        | 20.39              | 20.34               | 20.55               | 21.09               | 20.48              |          |   | 23 | 0 |
| 20                      | HQAM       | 50      | 50        | 20.38              | 20.46               | 20.55               | 20.98               | 20.58              |          |   |    |   |
| 20                      | HQAM       | 100     | 0         | 20.50              | 20.41               | 20.58               | 20.80               | 20.61              |          |   |    |   |
| 20                      | HQAM       | 50      | 24        | 20.38              | 20.42               | 20.59               | 20.99               | 20.44              | 22       | 1 |    |   |
| 20                      | HQAM       | 50      | 50        | 20.45              | 20.35               | 20.56               | 20.94               | 20.54              |          |   |    |   |
| 20                      | HQAM       | 1       | 0         | 21.19              | 21.19               | 21.27               | 21.30               | 21.32              |          |   |    |   |
| 20                      | HQAM       | 1       | 49        | 21.08              | 21.15               | 21.20               | 21.39               | 21.27              |          |   |    |   |
| 20                      | HQAM       | 1       | 99        | 21.15              | 21.15               | 21.27               | 21.37               | 21.16              |          |   | 22 | 1 |
| 20                      | HQAM       | 50      | 0         | 20.33              | 20.31               | 20.45               | 20.48               | 20.51              |          |   |    |   |
| 20                      | HQAM       | 50      | 24        | 20.43              | 20.38               | 20.54               | 20.99               | 20.53              |          |   |    |   |
| 20                      | HQAM       | 50      | 50        | 20.32              | 20.34               | 20.49               | 20.52               | 20.45              |          |   |    |   |
| 20                      | HQAM       | 100     | 0         | 20.50              | 20.37               | 20.50               | 20.52               | 20.60              |          |   |    |   |
| Channel                 |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| Frequency (MHz)         |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| 15                      | QPSK       | 1       | 0         | 21.81              | 21.80               | 21.93               | 21.79               | 21.85              | 23       | 0 |    |   |
| 15                      | QPSK       | 1       | 37        | 21.74              | 21.76               | 21.84               | 21.80               | 21.83              |          |   |    |   |
| 15                      | QPSK       | 1       | 74        | 21.74              | 21.78               | 21.92               | 21.92               | 21.71              |          |   |    |   |
| 15                      | QPSK       | 36      | 0         | 21.38              | 21.23               | 21.38               | 21.33               | 21.47              |          |   |    |   |
| 15                      | QPSK       | 36      | 20        | 21.53              | 21.46               | 21.52               | 21.48               | 21.55              |          |   |    |   |
| 15                      | QPSK       | 36      | 36        | 21.38              | 21.37               | 21.59               | 21.35               | 21.44              | 23       | 0 |    |   |
| 15                      | QPSK       | 75      | 0         | 21.45              | 21.45               | 21.49               | 21.52               | 21.63              |          |   |    |   |
| 15                      | HQAM       | 1       | 0         | 21.48              | 21.51               | 21.67               | 21.51               | 21.68              |          |   |    |   |
| 15                      | HQAM       | 1       | 37        | 21.30              | 21.36               | 21.60               | 21.63               | 21.59              |          |   |    |   |
| 15                      | HQAM       | 1       | 74        | 21.31              | 21.52               | 21.59               | 21.58               | 21.41              |          |   |    |   |
| 15                      | HQAM       | 36      | 0         | 20.38              | 20.35               | 20.40               | 20.26               | 20.55              | 22       | 1 |    |   |
| 15                      | HQAM       | 36      | 20        | 20.45              | 20.35               | 20.54               | 20.62               | 20.45              |          |   |    |   |
| 15                      | HQAM       | 36      | 36        | 20.35              | 20.42               | 20.56               | 20.56               | 20.42              |          |   |    |   |
| 15                      | HQAM       | 75      | 0         | 20.52              | 20.32               | 20.50               | 20.51               | 20.50              |          |   |    |   |
| 15                      | HQAM       | 1       | 0         | 21.21              | 21.15               | 21.34               | 21.24               | 21.37              |          |   |    |   |
| 15                      | HQAM       | 1       | 37        | 21.03              | 21.17               | 21.25               | 21.39               | 21.32              | 22       | 1 |    |   |
| 15                      | HQAM       | 1       | 74        | 21.14              | 21.22               | 21.22               | 21.37               | 21.18              |          |   |    |   |
| 15                      | HQAM       | 36      | 0         | 20.38              | 20.25               | 20.48               | 20.48               | 20.49              |          |   |    |   |
| 15                      | HQAM       | 36      | 20        | 20.37              | 20.35               | 20.58               | 20.53               | 20.50              |          |   |    |   |
| 15                      | HQAM       | 36      | 36        | 20.35              | 20.29               | 20.48               | 20.40               | 20.40              |          |   |    |   |
| 15                      | HQAM       | 75      | 0         | 20.52              | 20.43               | 20.55               | 20.46               | 20.57              | 21       | 2 |    |   |
| Channel                 |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| Frequency (MHz)         |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| 30                      | QPSK       | 1       | 0         | 22.01              | 22.03               | 22.06               | 21.80               | 21.94              | 23       | 0 |    |   |
| 30                      | QPSK       | 1       | 25        | 21.75              | 21.63               | 21.95               | 21.88               | 21.96              |          |   |    |   |
| 30                      | QPSK       | 1       | 25        | 21.81              | 21.70               | 21.79               | 21.63               | 21.69              | 23       | 0 |    |   |
| 30                      | QPSK       | 1       | 75        | 21.72              | 21.80               | 21.90               | 21.76               | 21.77              |          |   |    |   |
| 30                      | QPSK       | 25      | 0         | 21.44              | 21.20               | 21.32               | 21.29               | 21.53              |          |   |    |   |
| 30                      | QPSK       | 25      | 12        | 21.58              | 21.44               | 21.45               | 21.51               | 21.58              |          |   |    |   |
| 30                      | QPSK       | 25      | 25        | 21.30              | 21.31               | 21.54               | 21.49               | 21.55              |          |   |    |   |
| 30                      | QPSK       | 50      | 0         | 21.48              | 21.49               | 21.54               | 21.50               | 21.63              | 23       | 0 |    |   |
| 30                      | QPSK       | 50      | 25        | 21.50              | 21.50               | 21.55               | 21.57               | 21.64              |          |   |    |   |
| 30                      | HQAM       | 1       | 0         | 21.26              | 21.52               | 21.53               | 21.67               | 21.39              |          |   |    |   |
| 30                      | HQAM       | 1       | 49        | 21.52              | 21.49               | 21.63               | 21.60               | 21.71              |          |   |    |   |
| 30                      | HQAM       | 25      | 0         | 20.31              | 20.35               | 20.52               | 20.51               | 20.67              |          |   |    |   |
| 30                      | HQAM       | 25      | 12        | 20.51              | 20.35               | 20.52               | 20.51               | 20.62              | 23       | 0 |    |   |
| 30                      | HQAM       | 25      | 25        | 20.48              | 20.41               | 20.63               | 20.62               | 20.65              |          |   |    |   |
| 30                      | HQAM       | 50      | 0         | 20.47              | 20.44               | 20.65               | 20.62               | 20.48              |          |   |    |   |
| 30                      | HQAM       | 50      | 25        | 20.48              | 20.44               | 20.65               | 20.62               | 20.48              |          |   |    |   |
| 30                      | HQAM       | 1       | 0         | 21.15              | 21.17               | 21.34               | 21.21               | 21.31              |          |   |    |   |
| 30                      | HQAM       | 1       | 25        | 20.38              | 20.14               | 21.25               | 21.41               | 21.38              | 22       | 1 |    |   |
| 30                      | HQAM       | 1       | 49        | 21.15              | 21.27               | 21.27               | 21.33               | 21.13              |          |   |    |   |
| 30                      | HQAM       | 25      | 0         | 20.42              | 20.22               | 20.51               | 20.51               | 20.48              |          |   |    |   |
| 30                      | HQAM       | 25      | 12        | 20.37              | 20.32               | 20.51               | 20.54               | 20.48              |          |   |    |   |
| 30                      | HQAM       | 25      | 25        | 20.33              | 20.27               | 20.51               | 20.54               | 20.48              |          |   |    |   |
| 30                      | HQAM       | 50      | 0         | 20.47              | 20.44               | 20.66               | 20.60               | 20.45              | 21       | 2 |    |   |
| Channel                 |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| Frequency (MHz)         |            |         |           |                    |                     |                     |                     |                    |          |   |    |   |
| 5                       | QPSK       | 1       | 0         | 21.79              | 21.80               | 21.91               | 21.91               | 21.91              | 23       | 0 |    |   |
| 5                       | QPSK       | 1       | 12        | 21.67              | 21.78               | 21.79               | 21.88               | 21.86              |          |   |    |   |
| 5                       | QPSK       | 1       | 24        | 21.77              | 21.84               | 21.88               | 21.98               | 21.93              | 23       | 0 |    |   |
| 5                       | QPSK       | 12      | 0         | 21.40              | 21.16               | 21.38               | 21.25               | 21.53              |          |   |    |   |
| 5                       | QPSK       | 12      | 7         | 21.36              | 21.38               | 21.38               | 21.50               | 21.50              |          |   |    |   |
| 5                       | QPSK       | 12      | 14        | 21.36              | 21.38               | 21.38               | 21.52               | 21.45              |          |   |    |   |
| 5                       | QPSK       | 25      | 0         | 21.41              | 21.50               | 21.55               | 21.45               | 21.65              |          |   |    |   |
| 5                       | QPSK       | 25      | 0         | 21.61              | 21.48               | 21.45               | 21.61               | 21.63              | 23       | 0 |    |   |
| 5                       | HQAM       | 1       | 12        | 21.20              | 21.31               | 21.49               | 21.62               | 21.65              |          |   |    |   |
| 5                       | HQAM       | 1       | 24        | 21.20              | 21.53               | 21.64               | 21.65               | 21.35              |          |   |    |   |
| 5                       | HQAM       | 12      | 0         | 20.30              | 20.45               | 20.50               | 20.55               | 20.69              |          |   |    |   |
| 5                       | HQAM       | 12      | 7         | 20.36              | 20.32               | 20.52               | 20.50               | 20.68              |          |   |    |   |
| 5                       | HQAM       | 25      | 13        | 20.28              | 20.40               | 20.69               | 20.56               | 20.33              | 23       | 1 |    |   |
| 5                       | HQAM       | 25      | 0         | 20.45              | 20.23               | 20.43               | 20.40               | 20.59              |          |   |    |   |
| 5                       | HQAM       | 25      | 7         | 21.22              | 21.22               | 21.32               | 21.32               | 21.32              |          |   |    |   |
| 5                       | HQAM       | 1       | 12        | 21.01              | 21.12               | 21.21               | 21.34               | 21.45              |          |   |    |   |
| 5                       | HQAM       | 1       | 24        | 21.22              | 21.28               | 21.24               | 21.25               | 21.10              |          |   |    |   |
| 5                       | HQAM       | 12      | 0         | 20.45              | 20.48               | 20.53               | 20.55               | 20.42              | 22       | 1 |    |   |
| 5                       | HQAM       | 12      | 7         | 20.42              | 20.31               | 20.54               | 20.60               | 20.55              |          |   |    |   |
| 5                       | HQAM       | 25      | 0         | 20.39              | 20.30               | 20.53               | 20.53               | 20.53              |          |   |    |   |
| 5                       | HQAM       | 25      | 0         | 20.39              | 20.47               | 20.63               | 20.38               | 20.70              |          |   |    |   |
| 5                       | HQAM       | 25      | 0         | 20.39              | 20.47               | 20.63               | 20.38               | 20.70              |          |   |    |   |

# Reduced Power Mode for Handheld On

| GSM1900         | Const.Average Power (dBm) |       |        | Tune-up Limit (dBm) | FrameAverage Power (dBm) |       |        | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|--------|---------------------|--------------------------|-------|--------|---------------------|
|                 | 512                       | 661   | 810    |                     | 512                      | 661   | 810    |                     |
| TX Channel      | 1850.2                    | 1880  | 1909.8 |                     | 1850.2                   | 1880  | 1909.8 |                     |
| Frequency (MHz) | 1850.2                    | 1880  | 1909.8 |                     | 1850.2                   | 1880  | 1909.8 |                     |
| GSM 1 Tx slot   | 26.08                     | 26.20 | 26.23  | 27.00               | 17.08                    | 17.20 | 17.23  | 18.00               |
| GPRS 1 Tx slot  | 26.05                     | 26.17 | 26.21  | 27.00               | 17.05                    | 17.17 | 17.21  | 18.00               |
| GPRS 2 Tx slots | 24.41                     | 24.48 | 24.43  | 26.00               | 18.41                    | 18.48 | 18.43  | 20.00               |
| GPRS 3 Tx slots | 22.63                     | 22.71 | 22.73  | 23.50               | 18.37                    | 18.45 | 18.47  | 19.24               |
| GPRS 4 Tx slots | 20.22                     | 20.35 | 20.33  | 21.00               | 17.22                    | 17.35 | 17.33  | 18.00               |
| EDGE 1 Tx slot  | 21.82                     | 21.92 | 21.83  | 23.00               | 12.82                    | 12.92 | 12.83  | 14.00               |
| EDGE 2 Tx slots | 19.53                     | 19.64 | 19.53  | 20.50               | 13.53                    | 13.64 | 13.53  | 14.50               |
| EDGE 3 Tx slots | 17.17                     | 17.07 | 17.06  | 18.50               | 12.91                    | 12.81 | 12.80  | 14.24               |
| EDGE 4 Tx slots | 14.64                     | 14.72 | 14.73  | 16.00               | 11.64                    | 11.72 | 11.73  | 13.00               |

| Band            |                         | WCDMA II |       |       | Tune-up Limit (dBm) | WCDMA IV |       |       | Tune-up Limit (dBm) |
|-----------------|-------------------------|----------|-------|-------|---------------------|----------|-------|-------|---------------------|
| TX Channel      | Rx Channel              | 8262     | 8400  | 8538  |                     | 1312     | 1418  | 1513  |                     |
| Frequency (MHz) |                         | 8262     | 8400  | 8538  |                     | 1312     | 1418  | 1513  |                     |
| 3GPP Rel 99     | AMR 12.2Kbps            | 18.88    | 18.92 | 18.96 | 19.50               | 19.25    | 19.20 | 19.35 | 20.50               |
| 3GPP Rel 99     | RMC 12.2Kbps            | 18.90    | 18.95 | 18.99 | 19.50               | 19.27    | 19.20 | 19.37 | 20.50               |
| 3GPP Rel 6      | HSDPA Subtest-1         | 17.93    | 17.84 | 17.96 | 18.50               | 17.98    | 17.82 | 17.99 | 19.50               |
| 3GPP Rel 6      | HSDPA Subtest-2         | 17.98    | 17.80 | 17.98 | 18.50               | 17.97    | 17.91 | 17.88 | 19.50               |
| 3GPP Rel 6      | HSDPA Subtest-3         | 17.46    | 17.36 | 17.47 | 18.00               | 17.32    | 17.33 | 17.51 | 19.00               |
| 3GPP Rel 6      | HSDPA Subtest-4         | 17.48    | 17.35 | 17.51 | 18.00               | 17.40    | 17.35 | 17.41 | 19.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1      | 17.85    | 17.77 | 17.87 | 18.50               | 17.82    | 17.76 | 17.86 | 19.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2      | 17.91    | 17.75 | 17.90 | 18.50               | 17.82    | 17.84 | 17.83 | 19.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3      | 17.38    | 17.25 | 17.40 | 18.00               | 17.27    | 17.14 | 17.39 | 19.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4      | 17.38    | 17.27 | 17.42 | 18.00               | 17.30    | 17.14 | 17.35 | 19.00               |
| 3GPP Rel 6      | HSUPA Subtest-1         | 17.93    | 17.84 | 18.01 | 18.50               | 17.97    | 17.85 | 18.04 | 19.50               |
| 3GPP Rel 6      | HSUPA Subtest-2         | 16.00    | 15.90 | 15.96 | 16.50               | 15.82    | 15.89 | 16.12 | 17.50               |
| 3GPP Rel 6      | HSUPA Subtest-3         | 16.97    | 16.88 | 17.01 | 17.50               | 16.91    | 16.76 | 17.04 | 18.50               |
| 3GPP Rel 6      | HSUPA Subtest-4         | 15.94    | 15.83 | 16.01 | 16.50               | 15.87    | 15.85 | 15.94 | 17.50               |
| 3GPP Rel 6      | HSUPA Subtest-5         | 18.00    | 17.90 | 18.00 | 18.50               | 17.80    | 17.90 | 17.90 | 19.50               |
| 3GPP Rel 7      | HSPA+ (16QAM) Subtest-1 | 15.52    | 15.47 | 15.63 | 16.00               | 15.42    | 15.38 | 15.51 | 17.00               |

| Band            |            | CDMA BC0 |        |        | Tune-up Limit (dBm) | CDMA BC1 |       |         | Tune-up Limit (dBm) |
|-----------------|------------|----------|--------|--------|---------------------|----------|-------|---------|---------------------|
| TX Channel      | Rx Channel | 1013     | 384    | 777    |                     | 25       | 600   | 1175    |                     |
| Frequency (MHz) |            | 824.7    | 836.52 | 848.31 |                     | 1851.25  | 1880  | 1908.75 |                     |
| RC1 SQ55        |            |          |        |        |                     | 19.55    | 19.60 | 19.60   | 20.00               |
| RC3 SQ55        |            |          |        |        |                     | 19.54    | 19.57 | 19.58   | 20.00               |
| RC3 SQ32 (+SCH) |            |          |        |        |                     | 19.52    | 19.61 | 19.54   | 20.00               |
| RC3 SQ32 (+SCH) |            |          |        |        |                     | 19.55    | 19.57 | 19.57   | 20.00               |
| RTAP 153.6Kbps  |            |          |        |        |                     | 19.53    | 19.60 | 19.59   | 20.00               |
| RETAP 496Kbps   |            |          |        |        |                     | 19.52    | 19.59 | 19.58   | 20.00               |

| Band 2 (1900MHz Band) |            |         |           |                       |                          |                        |                     |          |  |  |  |
|-----------------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|--|--|--|
| Part 24E              |            |         |           |                       |                          |                        |                     |          |  |  |  |
| BW (MHz)              | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |  |  |  |
| Channel               |            |         |           | 18700                 | 18900                    | 19100                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |  |  |  |
| 20                    | QPSK       | 1       | 0         | 18.15                 | 18.32                    | 18.32                  | 19.5                | 0        |  |  |  |
| 20                    | QPSK       | 1       | 49        | 18.21                 | 18.39                    | 18.34                  |                     |          |  |  |  |
| 20                    | QPSK       | 1       | 99        | 18.16                 | 18.18                    | 18.30                  |                     |          |  |  |  |
| 20                    | QPSK       | 50      | 0         | 18.19                 | 18.36                    | 18.32                  |                     |          |  |  |  |
| 20                    | QPSK       | 50      | 24        | 18.11                 | 18.32                    | 18.31                  | 19.5                | 0        |  |  |  |
| 20                    | QPSK       | 50      | 50        | 18.17                 | 18.28                    | 18.30                  |                     |          |  |  |  |
| 20                    | QPSK       | 100     | 0         | 18.16                 | 18.33                    | 18.30                  |                     |          |  |  |  |
| 20                    | 16QAM      | 1       | 0         | 18.26                 | 18.38                    | 18.10                  |                     |          |  |  |  |
| 20                    | 16QAM      | 1       | 49        | 18.36                 | 18.33                    | 18.27                  | 19.5                | 0        |  |  |  |
| 20                    | 16QAM      | 1       | 99        | 18.28                 | 18.17                    | 18.16                  |                     |          |  |  |  |
| 20                    | 16QAM      | 50      | 0         | 18.14                 | 18.25                    | 18.12                  |                     |          |  |  |  |
| 20                    | 16QAM      | 50      | 24        | 18.16                 | 18.28                    | 18.16                  |                     |          |  |  |  |
| 20                    | 16QAM      | 50      | 50        | 18.18                 | 18.25                    | 18.16                  | 19.5                | 0        |  |  |  |
| 20                    | 16QAM      | 100     | 0         | 18.20                 | 18.21                    | 18.13                  |                     |          |  |  |  |
| 20                    | 64QAM      | 1       | 0         | 17.92                 | 18.26                    | 18.11                  |                     |          |  |  |  |
| 20                    | 64QAM      | 1       | 49        | 17.91                 | 18.16                    | 18.18                  |                     |          |  |  |  |
| 20                    | 64QAM      | 1       | 99        | 17.83                 | 18.04                    | 18.23                  | 19.5                | 0        |  |  |  |
| 20                    | 64QAM      | 50      | 0         | 18.22                 | 18.27                    | 18.17                  |                     |          |  |  |  |
| 20                    | 64QAM      | 50      | 24        | 18.09                 | 18.19                    | 18.25                  |                     |          |  |  |  |
| 20                    | 64QAM      | 50      | 50        | 18.22                 | 18.17                    | 18.15                  |                     |          |  |  |  |
| 20                    | 64QAM      | 100     | 0         | 18.25                 | 18.16                    | 18.10                  | 19.5                | 0        |  |  |  |
| Channel               |            |         |           | 18875                 | 18900                    | 19125                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 18875                 | 18900                    | 19025                  |                     |          |  |  |  |
| 15                    | QPSK       | 1       | 0         | 18.05                 | 18.14                    | 18.23                  | 19.5                | 0        |  |  |  |
| 15                    | QPSK       | 1       | 37        | 18.03                 | 18.26                    | 18.13                  |                     |          |  |  |  |
| 15                    | QPSK       | 1       | 74        | 17.96                 | 18.17                    | 18.34                  |                     |          |  |  |  |
| 15                    | QPSK       | 36      | 0         | 18.21                 | 18.20                    | 18.17                  |                     |          |  |  |  |
| 15                    | QPSK       | 36      | 20        | 18.02                 | 18.09                    | 18.27                  | 19.5                | 0        |  |  |  |
| 15                    | QPSK       | 36      | 39        | 18.10                 | 18.06                    | 18.24                  |                     |          |  |  |  |
| 15                    | QPSK       | 75      | 0         | 18.18                 | 18.21                    | 18.11                  |                     |          |  |  |  |
| 15                    | 16QAM      | 1       | 0         | 18.23                 | 18.28                    | 18.01                  |                     |          |  |  |  |
| 15                    | 16QAM      | 1       | 37        | 18.23                 | 18.12                    | 18.15                  | 19.5                | 0        |  |  |  |
| 15                    | 16QAM      | 1       | 74        | 18.32                 | 17.99                    | 18.15                  |                     |          |  |  |  |
| 15                    | 16QAM      | 36      | 0         | 17.90                 | 18.16                    | 17.87                  |                     |          |  |  |  |
| 15                    | 16QAM      | 36      | 20        | 18.14                 | 18.14                    | 18.07                  |                     |          |  |  |  |
| 15                    | 16QAM      | 36      | 39        | 18.01                 | 18.28                    | 17.99                  | 19.5                | 0        |  |  |  |
| 15                    | 16QAM      | 75      | 0         | 18.21                 | 18.10                    | 18.13                  |                     |          |  |  |  |
| 15                    | 64QAM      | 1       | 0         | 17.87                 | 18.04                    | 17.86                  |                     |          |  |  |  |
| 15                    | 64QAM      | 1       | 37        | 17.75                 | 18.03                    | 18.02                  |                     |          |  |  |  |
| 15                    | 64QAM      | 1       | 74        | 17.71                 | 17.99                    | 18.19                  | 19.5                | 0        |  |  |  |
| 15                    | 64QAM      | 36      | 0         | 18.06                 | 18.16                    | 18.14                  |                     |          |  |  |  |
| 15                    | 64QAM      | 36      | 20        | 18.00                 | 18.04                    | 18.26                  |                     |          |  |  |  |
| 15                    | 64QAM      | 36      | 39        | 18.20                 | 18.00                    | 17.97                  |                     |          |  |  |  |
| 15                    | 64QAM      | 75      | 0         | 18.25                 | 18.03                    | 18.05                  | 19.5                | 0        |  |  |  |
| Channel               |            |         |           | 18850                 | 18900                    | 19005                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 18850                 | 18900                    | 19005                  |                     |          |  |  |  |
| 10                    | QPSK       | 1       | 0         | 18.01                 | 18.26                    | 18.30                  | 19.5                | 0        |  |  |  |
| 10                    | QPSK       | 1       | 25        | 18.04                 | 18.36                    | 18.22                  |                     |          |  |  |  |
| 10                    | QPSK       | 1       | 49        | 18.14                 | 17.94                    | 18.22                  |                     |          |  |  |  |
| 10                    | QPSK       | 25      | 0         | 18.01                 | 18.30                    | 18.29                  |                     |          |  |  |  |
| 10                    | QPSK       | 25      | 12        | 18.14                 | 18.25                    | 18.16                  | 19.5                | 0        |  |  |  |
| 10                    | QPSK       | 25      | 25        | 18.14                 | 18.19                    | 18.34                  |                     |          |  |  |  |
| 10                    | QPSK       | 50      | 0         | 17.96                 | 18.21                    | 18.29                  |                     |          |  |  |  |
| 10                    | 16QAM      | 1       | 0         | 18.09                 | 18.25                    | 18.00                  |                     |          |  |  |  |
| 10                    | 16QAM      | 1       | 25        | 18.36                 | 18.16                    | 18.14                  | 19.5                | 0        |  |  |  |
| 10                    | 16QAM      | 1       | 49        | 18.16                 | 18.11                    | 18.17                  |                     |          |  |  |  |
| 10                    | 16QAM      | 25      | 0         | 18.17                 | 18.30                    | 17.95                  |                     |          |  |  |  |
| 10                    | 16QAM      | 25      | 12        | 17.93                 | 18.12                    | 18.15                  |                     |          |  |  |  |
| 10                    | 16QAM      | 25      | 25        | 17.94                 | 18.17                    | 18.01                  | 19.5                | 0        |  |  |  |
| 10                    | 16QAM      | 50      | 0         | 17.99                 | 18.18                    | 18.13                  |                     |          |  |  |  |
| 10                    | 64QAM      | 1       | 0         | 17.87                 | 18.28                    | 18.11                  |                     |          |  |  |  |
| 10                    | 64QAM      | 1       | 25        | 17.82                 | 17.99                    | 18.07                  |                     |          |  |  |  |
| 10                    | 64QAM      | 1       | 49        | 17.80                 | 17.84                    | 18.28                  | 19.5                | 0        |  |  |  |
| 10                    | 64QAM      | 25      | 0         | 18.12                 | 18.23                    | 17.94                  |                     |          |  |  |  |
| 10                    | 64QAM      | 25      | 12        | 18.07                 | 18.11                    | 18.07                  |                     |          |  |  |  |
| 10                    | 64QAM      | 25      | 25        | 18.23                 | 18.13                    | 17.91                  |                     |          |  |  |  |
| 10                    | 64QAM      | 50      | 0         | 18.02                 | 17.93                    | 18.02                  | 19.5                | 0        |  |  |  |
| Channel               |            |         |           | 18625                 | 18900                    | 19175                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 18625                 | 18900                    | 19075                  |                     |          |  |  |  |
| 5                     | QPSK       | 1       | 0         | 18.10                 | 18.21                    | 18.22                  | 19.5                | 0        |  |  |  |
| 5                     | QPSK       | 1       | 12        | 18.11                 | 18.14                    | 18.29                  |                     |          |  |  |  |
| 5                     | QPSK       | 1       | 24        | 17.92                 | 18.10                    | 18.33                  |                     |          |  |  |  |
| 5                     | QPSK       | 12      | 0         | 17.95                 | 18.31                    | 18.09                  |                     |          |  |  |  |
| 5                     | QPSK       | 12      | 7         | 18.16                 | 18.14                    | 18.19                  | 19.5                | 0        |  |  |  |
| 5                     | QPSK       | 12      | 13        | 18.16                 | 18.31                    | 18.09                  |                     |          |  |  |  |
| 5                     | QPSK       | 25      | 0         | 18.14                 | 18.22                    | 18.24                  |                     |          |  |  |  |
| 5                     | 16QAM      | 1       | 0         | 18.02                 | 18.30                    | 18.11                  |                     |          |  |  |  |
| 5                     | 16QAM      | 1       | 12        | 18.12                 | 18.12                    | 18.24                  | 19.5                | 0        |  |  |  |
| 5                     | 16QAM      | 1       | 24        | 18.08                 | 18.03                    | 18.06                  |                     |          |  |  |  |
| 5                     | 16QAM      | 12      | 0         | 17.97                 | 18.00                    | 18.08                  |                     |          |  |  |  |
| 5                     | 16QAM      | 12      | 7         | 18.10                 | 18.11                    | 18.14                  |                     |          |  |  |  |
| 5                     | 16QAM      | 12      | 13        | 18.06                 | 18.08                    | 18.09                  | 19.5                | 0        |  |  |  |
| 5                     | 16QAM      | 25      | 0         | 18.20                 | 18.12                    | 17.96                  |                     |          |  |  |  |
| 5                     | 64QAM      | 1       | 0         | 17.78                 | 18.27                    | 18.01                  |                     |          |  |  |  |
| 5                     | 64QAM      | 1       | 12        | 17.83                 | 17.98                    | 18.12                  |                     |          |  |  |  |
| 5                     | 64QAM      | 1       | 24        | 17.88                 | 18.08                    | 18.00                  | 19.5                | 0        |  |  |  |
| 5                     | 64QAM      | 12      | 0         | 18.22                 | 18.16                    | 18.02                  |                     |          |  |  |  |
| 5                     | 64QAM      | 12      | 7         | 17.89                 | 18.04                    | 18.30                  |                     |          |  |  |  |
| 5                     | 64QAM      | 12      | 13        | 18.07                 | 18.20                    | 18.13                  |                     |          |  |  |  |
| 5                     | 64QAM      | 25      | 0         | 18.25                 | 17.97                    | 18.14                  | 19.5                | 0        |  |  |  |
| Channel               |            |         |           | 18615                 | 18900                    | 19185                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 18615                 | 18900                    | 19065                  |                     |          |  |  |  |
| 3                     | QPSK       | 1       | 0         | 18.03                 | 18.37                    | 18.28                  | 19.5                | 0        |  |  |  |
| 3                     | QPSK       | 1       | 8         | 18.16                 | 18.35                    | 18.39                  |                     |          |  |  |  |
| 3                     | QPSK       | 1       | 14        | 17.87                 | 17.97                    | 18.32                  |                     |          |  |  |  |
| 3                     | QPSK       | 8       | 0         | 18.09                 | 18.30                    | 18.17                  |                     |          |  |  |  |
| 3                     | QPSK       | 8       | 4         | 17.94                 | 18.35                    | 18.17                  | 19.5                | 0        |  |  |  |
| 3                     | QPSK       | 8       | 7         | 18.07                 | 18.13                    | 18.31                  |                     |          |  |  |  |
| 3                     | QPSK       | 15      | 0         | 18.14                 | 18.30                    | 18.22                  |                     |          |  |  |  |
| 3                     | 16QAM      | 1       | 0         | 18.20                 | 18.14                    | 17.90                  |                     |          |  |  |  |
| 3                     | 16QAM      | 1       | 8         | 18.20                 | 18.29                    | 18.13                  | 19.5                | 0        |  |  |  |
| 3                     | 16QAM      | 1       | 14        | 18.10                 | 18.10                    | 18.20                  |                     |          |  |  |  |
| 3                     | 16QAM      | 8       | 0         | 18.14                 | 18.05                    | 17.91                  | 19.5                | 0        |  |  |  |
| 3                     | 16QAM      | 8       | 4         | 17.92                 | 18.16                    | 18.16                  |                     |          |  |  |  |
| 3                     | 16QAM      | 8       | 7         | 18.06                 | 18.11                    | 18.19                  |                     |          |  |  |  |
| 3                     | 16QAM      | 15      | 0         | 18.23                 | 18.12                    | 17.89                  |                     |          |  |  |  |
| 3                     | 64QAM      | 1       | 0         | 17.89                 | 18.23                    | 18.09                  | 19.5                | 0        |  |  |  |
| 3                     | 64QAM      | 1       | 8         | 17.87                 | 17.97                    | 18.03                  |                     |          |  |  |  |
| 3                     | 64QAM      | 1       | 14        | 17.85                 | 17.96                    | 18.26                  |                     |          |  |  |  |
| 3                     | 64QAM      | 8       | 4         | 18.09                 | 18.17                    | 18.27                  |                     |          |  |  |  |
| 3                     | 64QAM      | 8       | 7         | 18.15                 | 18.14                    | 17.98                  | 19.5                | 0        |  |  |  |
| 3                     | 64QAM      | 15      | 0         | 18.01                 | 17.93                    | 17.97                  |                     |          |  |  |  |
| Channel               |            |         |           | 18607                 | 18900                    | 19193                  |                     |          |  |  |  |
| Frequency (MHz)       |            |         |           | 18607                 | 18900                    | 19093                  |                     |          |  |  |  |
| 1.4                   | QPSK       | 1       | 0         | 18.14                 | 18.32                    | 18.18                  | 19.5                | 0        |  |  |  |
| 1.4                   | QPSK       | 1       | 3         | 18.16                 | 18.32                    | 18.33                  |                     |          |  |  |  |
| 1.4                   | QPSK       | 1       | 5         | 18.00                 | 18.19                    | 18.05                  |                     |          |  |  |  |
| 1.4                   | QPSK       | 3       | 0         | 18.12                 | 18.16                    | 18.25                  |                     |          |  |  |  |
| 1.4                   | QPSK       | 3       | 1         | 17.88                 | 18.15                    | 18.17                  | 19.5                | 0        |  |  |  |
| 1.4                   | QPSK       | 3       | 3         | 17.96                 | 18.18                    | 18.23                  |                     |          |  |  |  |
| 1.4                   | QPSK       | 6       | 0         | 18.04                 | 18.32                    | 18.33                  |                     |          |  |  |  |
| 1.4                   | 16QAM      | 1       | 0         | 18.29                 | 18.38                    | 18.14                  |                     |          |  |  |  |
| 1.4                   | 16QAM      | 1       | 3         | 18.28                 | 18.19                    | 18.30                  | 19.5                | 0        |  |  |  |
| 1.4                   | 16QAM      | 1       | 5         | 18.16                 | 18.16                    | 18.06                  |                     |          |  |  |  |
| 1.4                   | 16QAM      | 3       | 0         | 18.11                 | 18.21                    | 17.89                  |                     |          |  |  |  |
| 1.4                   | 16QAM      | 3       | 1         | 17.97                 | 18.32                    | 18.18                  |                     |          |  |  |  |
| 1.4                   | 16QAM      | 3       | 3         | 18.21                 | 18.07                    | 17.91                  | 19.5                | 0        |  |  |  |
| 1.4                   | 16QAM      | 6       | 0         | 18.22                 | 18.05                    | 17.94                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 1       | 0         | 17.94                 | 18.11                    | 18.04                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 1       | 3         | 17.79                 | 18.14                    | 18.14                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 1       | 5         | 17.82                 | 17.80                    | 18.13                  | 19.5                | 0        |  |  |  |
| 1.4                   | 64QAM      | 3       | 0         | 18.23                 | 18.13                    | 18.12                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 3       | 1         | 17.88                 | 17.96                    | 18.16                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 3       | 3         | 18.01                 | 18.13                    | 18.15                  |                     |          |  |  |  |
| 1.4                   | 64QAM      | 6       | 0         | 18.12                 | 18.10                    | 17.90                  | 19.5                | 0        |  |  |  |

| Band 25 (1900MHz Band) |            |         |           |                                                                |                        |                      |                     |          |  |
|------------------------|------------|---------|-----------|----------------------------------------------------------------|------------------------|----------------------|---------------------|----------|--|
| Part 24E               |            |         |           |                                                                |                        |                      |                     |          |  |
| BW (MHz)               | Modulation | RB Size | RB Offset | Power Low Ch./Freq.                                            | Power Middle Ch./Freq. | Power High Ch./Freq. | Tune-up limit (dBm) | MPR (dB) |  |
| Channel                |            |         |           | 26140                                                          | 26340                  | 26590                |                     |          |  |
| Frequency (MHz)        |            |         |           | 1860                                                           | 1880                   | 1905                 |                     |          |  |
| 20                     | QPSK       | 1       | 0         | 18.26                                                          | 18.50                  | 18.27                | 19.5                | 0        |  |
| 20                     | QPSK       | 1       | 49        | 18.42                                                          | 18.53                  | 18.37                |                     |          |  |
| 20                     | QPSK       | 1       | 99        | 18.37                                                          | 18.31                  | 18.33                |                     |          |  |
| 20                     | QPSK       | 50      | 0         | 18.40                                                          | 18.50                  | 18.35                | 19.5                | 0        |  |
| 20                     | QPSK       | 50      | 24        | 18.33                                                          | 18.42                  | 18.34                |                     |          |  |
| 20                     | QPSK       | 50      | 50        | 18.36                                                          | 18.36                  | 18.32                |                     |          |  |
| 20                     | QPSK       | 100     | 0         | 18.37                                                          | 18.48                  | 18.33                | 19.5                | 0        |  |
| 20                     | 16QAM      | 1       | 0         | 18.40                                                          | 18.47                  | 18.28                |                     |          |  |
| 20                     | 16QAM      | 1       | 49        | 18.39                                                          | 18.38                  | 18.36                |                     |          |  |
| 20                     | 16QAM      | 1       | 99        | 18.40                                                          | 18.35                  | 18.49                | 19.5                | 0        |  |
| 20                     | 16QAM      | 50      | 0         | 18.30                                                          | 18.40                  | 18.30                |                     |          |  |
| 20                     | 16QAM      | 50      | 24        | 18.32                                                          | 18.47                  | 18.39                |                     |          |  |
| 20                     | 16QAM      | 50      | 50        | 18.39                                                          | 18.42                  | 18.43                | 19.5                | 0        |  |
| 20                     | 16QAM      | 100     | 0         | 18.42                                                          | 18.41                  | 18.38                |                     |          |  |
| 20                     | 64QAM      | 1       | 0         | 18.32                                                          | 18.44                  | 18.37                |                     |          |  |
| 20                     | 64QAM      | 1       | 49        | 18.32                                                          | 18.19                  | 18.48                | 19.5                | 0        |  |
| 20                     | 64QAM      | 1       | 99        | 18.48                                                          | 18.42                  | 18.46                |                     |          |  |
| 20                     | 64QAM      | 50      | 0         | 18.36                                                          | 18.40                  | 18.35                |                     |          |  |
| 20                     | 64QAM      | 50      | 24        | 18.39                                                          | 18.47                  | 18.51                | 19.5                | 0        |  |
| 20                     | 64QAM      | 50      | 50        | 18.44                                                          | 18.40                  | 18.44                |                     |          |  |
| 20                     | 64QAM      | 100     | 0         | 18.42                                                          | 18.40                  | 18.34                |                     |          |  |
| Channel                |            |         |           | 26115                                                          | 26340                  | 26615                | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)        |            |         |           | 1857.5                                                         | 1880                   | 1907.5               |                     |          |  |
| 15                     | QPSK       | 1       | 0         | 18.23                                                          | 18.40                  | 18.13                | 19.5                | 0        |  |
| 15                     | QPSK       | 1       | 37        | 18.38                                                          | 18.50                  | 18.30                |                     |          |  |
| 15                     | QPSK       | 1       | 74        | 18.33                                                          | 18.32                  | 18.35                |                     |          |  |
| 15                     | QPSK       | 36      | 0         | 18.42                                                          | 18.48                  | 18.11                | 19.5                | 0        |  |
| 15                     | QPSK       | 36      | 20        | 18.26                                                          | 18.34                  | 18.15                |                     |          |  |
| 15                     | QPSK       | 36      | 39        | 18.28                                                          | 18.22                  | 18.31                |                     |          |  |
| 15                     | QPSK       | 75      | 0         | 18.31                                                          | 18.27                  | 18.12                | 19.5                | 0        |  |
| 15                     | 16QAM      | 1       | 0         | 18.23                                                          | 18.27                  | 18.33                |                     |          |  |
| 15                     | 16QAM      | 1       | 37        | 18.33                                                          | 18.19                  | 18.12                |                     |          |  |
| 15                     | 16QAM      | 1       | 74        | 18.32                                                          | 18.14                  | 18.34                | 19.5                | 0        |  |
| 15                     | 16QAM      | 36      | 0         | 18.17                                                          | 18.18                  | 18.06                |                     |          |  |
| 15                     | 16QAM      | 36      | 20        | 18.30                                                          | 18.22                  | 18.30                |                     |          |  |
| 15                     | 16QAM      | 36      | 39        | 18.25                                                          | 18.18                  | 18.31                | 19.5                | 0        |  |
| 15                     | 16QAM      | 75      | 0         | 18.20                                                          | 18.27                  | 18.26                |                     |          |  |
| 15                     | 64QAM      | 1       | 0         | 18.35                                                          | 18.39                  | 18.23                |                     |          |  |
| 15                     | 64QAM      | 1       | 37        | 18.13                                                          | 18.08                  | 18.49                | 19.5                | 0        |  |
| 15                     | 64QAM      | 1       | 74        | 18.24                                                          | 18.45                  | 18.26                |                     |          |  |
| 15                     | 64QAM      | 36      | 0         | 18.27                                                          | 18.36                  | 18.22                |                     |          |  |
| 15                     | 64QAM      | 36      | 20        | 18.14                                                          | 18.50                  | 18.50                | 19.5                | 0        |  |
| 15                     | 64QAM      | 36      | 39        | 18.41                                                          | 18.17                  | 18.28                |                     |          |  |
| 15                     | 64QAM      | 75      | 0         | 18.41                                                          | 18.26                  | 18.18                |                     |          |  |
| Channel                |            |         |           | 26090                                                          | 26340                  | 26660                | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)        |            |         |           | 1855 <th>1880</th> <th>1910</th> <th></th> <th></th> <th></th> | 1880                   | 1910                 |                     |          |  |
| 10                     | QPSK       | 1       | 0         | 18.04                                                          | 18.48                  | 18.06                | 19.5                | 0        |  |
| 10                     | QPSK       | 1       | 25        | 18.42                                                          | 18.52                  | 18.27                |                     |          |  |
| 10                     | QPSK       | 1       | 49        | 18.14                                                          | 18.08                  | 18.37                |                     |          |  |
| 10                     | QPSK       | 25      | 0         | 18.35                                                          | 18.47                  | 18.36                | 19.5                | 0        |  |
| 10                     | QPSK       | 25      | 12        | 18.16                                                          | 18.30                  | 18.18                |                     |          |  |
| 10                     | QPSK       | 25      | 25        | 18.13                                                          | 18.13                  | 18.28                |                     |          |  |
| 10                     | QPSK       | 50      | 0         | 18.13                                                          | 18.27                  | 18.19                | 19.5                | 0        |  |
| 10                     | 16QAM      | 1       | 0         | 18.24                                                          | 18.47                  | 18.09                |                     |          |  |
| 10                     | 16QAM      | 1       | 25        | 18.18                                                          | 18.22                  | 18.32                |                     |          |  |
| 10                     | 16QAM      | 1       | 49        | 18.32                                                          | 18.31                  | 18.38                | 19.5                | 0        |  |
| 10                     | 16QAM      | 25      | 0         | 18.15                                                          | 18.25                  | 18.16                |                     |          |  |
| 10                     | 16QAM      | 25      | 12        | 18.31                                                          | 18.38                  | 18.30                |                     |          |  |
| 10                     | 16QAM      | 25      | 25        | 18.18                                                          | 18.41                  | 18.19                | 19.5                | 0        |  |
| 10                     | 16QAM      | 50      | 0         | 18.33                                                          | 18.20                  | 18.15                |                     |          |  |
| 10                     | 64QAM      | 1       | 0         | 18.19                                                          | 18.19                  | 18.28                |                     |          |  |
| 10                     | 64QAM      | 1       | 25        | 18.21                                                          | 18.08                  | 18.32                | 19.5                | 0        |  |
| 10                     | 64QAM      | 1       | 49        | 18.49                                                          | 18.47                  | 18.36                |                     |          |  |
| 10                     | 64QAM      | 25      | 0         | 18.41                                                          | 18.45                  | 18.37                |                     |          |  |
| 10                     | 64QAM      | 25      | 12        | 18.35                                                          | 18.46                  | 18.46                | 19.5                | 0        |  |
| 10                     | 64QAM      | 25      | 25        | 18.44                                                          | 18.39                  | 18.28                |                     |          |  |
| 10                     | 64QAM      | 50      | 0         | 18.21                                                          | 18.21                  | 18.19                |                     |          |  |
| Channel                |            |         |           | 26065                                                          | 26340                  | 26565                | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)        |            |         |           | 1852.5                                                         | 1880                   | 1912.5               |                     |          |  |
| 5                      | QPSK       | 1       | 0         | 18.25                                                          | 18.27                  | 18.07                | 19.5                | 0        |  |
| 5                      | QPSK       | 1       | 12        | 18.40                                                          | 18.32                  | 18.42                |                     |          |  |
| 5                      | QPSK       | 1       | 24        | 18.42                                                          | 18.27                  | 18.13                |                     |          |  |
| 5                      | QPSK       | 12      | 0         | 18.34                                                          | 18.33                  | 18.36                | 19.5                | 0        |  |
| 5                      | QPSK       | 12      | 7         | 18.21                                                          | 18.41                  | 18.10                |                     |          |  |
| 5                      | QPSK       | 12      | 13        | 18.15                                                          | 18.18                  | 18.25                |                     |          |  |
| 5                      | QPSK       | 25      | 0         | 18.24                                                          | 18.47                  | 18.16                | 19.5                | 0        |  |
| 5                      | 16QAM      | 1       | 0         | 18.15                                                          | 18.35                  | 18.22                |                     |          |  |
| 5                      | 16QAM      | 1       | 12        | 18.34                                                          | 18.34                  | 18.14                |                     |          |  |
| 5                      | 16QAM      | 1       | 24        | 18.32                                                          | 18.19                  | 18.38                | 19.5                | 0        |  |
| 5                      | 16QAM      | 12      | 0         | 18.20                                                          | 18.22                  | 18.11                |                     |          |  |
| 5                      | 16QAM      | 12      | 7         | 18.23                                                          | 18.52                  | 18.37                |                     |          |  |
| 5                      | 16QAM      | 12      | 13        | 18.25                                                          | 18.40                  | 18.23                | 19.5                | 0        |  |
| 5                      | 16QAM      | 25      | 0         | 18.21                                                          | 18.24                  | 18.17                |                     |          |  |
| 5                      | 64QAM      | 1       | 0         | 18.19                                                          | 18.27                  | 18.25                |                     |          |  |
| 5                      | 64QAM      | 1       | 12        | 18.17                                                          | 17.95                  | 18.40                | 19.5                | 0        |  |
| 5                      | 64QAM      | 1       | 24        | 18.37                                                          | 18.41                  | 18.23                |                     |          |  |
| 5                      | 64QAM      | 12      | 0         | 18.30                                                          | 18.23                  | 18.27                |                     |          |  |
| 5                      | 64QAM      | 12      | 7         | 18.16                                                          | 18.23                  | 18.50                | 19.5                | 0        |  |
| 5                      | 64QAM      | 12      | 13        | 18.28                                                          | 18.32                  | 18.37                |                     |          |  |
| 5                      | 64QAM      | 25      | 0         | 18.38                                                          | 18.19                  | 18.31                |                     |          |  |
| Channel                |            |         |           | 26055                                                          | 26340                  | 26675                | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)        |            |         |           | 1851.5                                                         | 1880                   | 1913.5               |                     |          |  |
| 3                      | QPSK       | 1       | 0         | 18.12                                                          | 18.33                  | 18.13                | 19.5                | 0        |  |
| 3                      | QPSK       | 1       | 8         | 18.21                                                          | 18.38                  | 18.29                |                     |          |  |
| 3                      | QPSK       | 1       | 14        | 18.24                                                          | 18.11                  | 18.30                |                     |          |  |
| 3                      | QPSK       | 8       | 0         | 18.28                                                          | 18.48                  | 18.39                | 19.5                | 0        |  |
| 3                      | QPSK       | 8       | 4         | 18.14                                                          | 18.18                  | 18.13                |                     |          |  |
| 3                      | QPSK       | 8       | 7         | 18.23                                                          | 18.29                  | 18.13                |                     |          |  |
| 3                      | QPSK       | 15      | 0         | 18.14                                                          | 18.27                  | 18.26                | 19.5                | 0        |  |
| 3                      | 16QAM      | 1       | 0         | 18.25                                                          | 18.36                  | 18.28                |                     |          |  |
| 3                      | 16QAM      | 1       | 8         | 18.22                                                          | 18.38                  | 18.19                |                     |          |  |
| 3                      | 16QAM      | 1       | 14        | 18.45                                                          | 18.14                  | 18.29                | 19.5                | 0        |  |
| 3                      | 16QAM      | 8       | 0         | 18.35                                                          | 18.27                  | 18.30                |                     |          |  |
| 3                      | 16QAM      | 8       | 4         | 18.28                                                          | 18.33                  | 18.19                |                     |          |  |
| 3                      | 16QAM      | 8       | 7         | 18.19                                                          | 18.24                  | 18.41                | 19.5                | 0        |  |
| 3                      | 16QAM      | 15      | 0         | 18.25                                                          | 18.34                  | 18.33                |                     |          |  |
| 3                      | 64QAM      | 1       | 0         | 18.30                                                          | 18.37                  | 18.29                |                     |          |  |
| 3                      | 64QAM      | 1       | 8         | 18.26                                                          | 18.09                  | 18.30                | 19.5                | 0        |  |
| 3                      | 64QAM      | 1       | 14        | 18.53                                                          | 18.45                  | 18.50                |                     |          |  |
| 3                      | 64QAM      | 8       | 0         | 18.11                                                          | 18.19                  | 18.28                |                     |          |  |
| 3                      | 64QAM      | 8       | 4         | 18.40                                                          | 18.44                  | 18.50                | 19.5                | 0        |  |
| 3                      | 64QAM      | 8       | 7         | 18.43                                                          | 18.35                  | 18.19                |                     |          |  |
| 3                      | 64QAM      | 15      | 0         | 18.40                                                          | 18.40                  | 18.36                |                     |          |  |
| Channel                |            |         |           | 26047                                                          | 26340                  | 26683                | Tune-up limit (dBm) | MPR (dB) |  |
| Frequency (MHz)        |            |         |           | 1850.7                                                         | 1880                   | 1914.3               |                     |          |  |
| 1.4                    | QPSK       | 1       | 0         | 18.02                                                          | 18.51                  | 18.14                | 19.5                | 0        |  |
| 1.4                    | QPSK       | 1       | 3         | 18.47                                                          | 18.33                  | 18.39                |                     |          |  |
| 1.4                    | QPSK       | 1       | 5         | 18.13                                                          | 18.36                  | 18.34                |                     |          |  |
| 1.4                    | QPSK       | 3       | 0         | 18.15                                                          | 18.51                  | 18.12                | 19.5                | 0        |  |
| 1.4                    | QPSK       | 3       | 1         | 18.23                                                          | 18.26                  | 18.18                |                     |          |  |
| 1.4                    | QPSK       | 3       | 3         | 18.37                                                          | 18.38                  | 18.15                |                     |          |  |
| 1.4                    | QPSK       | 6       | 0         | 18.15                                                          | 18.44                  | 18.32                | 19.5                | 0        |  |
| 1.4                    | 16QAM      | 1       | 0         | 18.45                                                          | 18.50                  | 18.08                |                     |          |  |
| 1.4                    | 16QAM      | 1       | 3         | 18.39                                                          | 18.30                  | 18.17                |                     |          |  |
| 1.4                    | 16QAM      | 1       | 5         | 18.24                                                          | 18.38                  | 18.34                | 19.5                | 0        |  |
| 1.4                    | 16QAM      | 3       | 0         | 18.11                                                          | 18.19                  | 18.35                |                     |          |  |
| 1.4                    | 16QAM      | 3       | 1         | 18.20                                                          | 18.29                  | 18.29                |                     |          |  |
| 1.4                    | 16QAM      | 3       | 3         | 18.42                                                          | 18.25                  | 18.19                | 19.5                | 0        |  |
| 1.4                    | QPSK       | 1       | 0         | 18.39                                                          | 18.35                  | 18.36                |                     |          |  |
| 1.4                    | 64QAM      | 1       | 0         | 18.35                                                          | 18.37                  | 18.12                |                     |          |  |
| 1.4                    | 64QAM      | 1       | 3         | 18.24                                                          | 18.23                  | 18.48                | 19.5                | 0        |  |
| 1.4                    | 64QAM      | 1       | 5         | 18.41                                                          | 18.22                  | 18.44                |                     |          |  |
| 1.4                    | 64QAM      | 3       | 0         | 18.19                                                          | 18.38                  | 18.11                |                     |          |  |
| 1.4                    | 64QAM      | 3       | 1         | 18.28                                                          | 18.28                  | 18.48                | 19.5                | 0        |  |
| 1.4                    | 64QAM      | 3       | 3         | 18.21                                                          | 18.37                  | 18.41                |                     |          |  |
| 1.4                    | 64QAM      | 6       | 0         | 18.40                                                          | 18.22                  | 18.35                |                     |          |  |

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| CA_41C-Class 3                        |             |            |         |           |         |           |               |                       |                 |                      |                     |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|-----------------|----------------------|---------------------|
| Combination 20MHz+20MHz (100RB+100RB) |             |            |         |           |         |           |               |                       |                 |                      |                     |
| PCC Channel                           | SCC Channel | Modulation | PCC     |           | SCC     |           | Total RB Size | Target MPR Level (dB) | Power Reduction | Measured Power (dBm) | Tune up Power (dBm) |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                 |                      |                     |
| 39750                                 | 39948       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Full            | 23.63                | 25.00               |
| 40185                                 | 39987       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Full            | 23.81                | 25.00               |
| 40620                                 | 40422       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Full            | 23.82                | 25.00               |
| 41055                                 | 40857       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Full            | 23.97                | 25.00               |
| 41490                                 | 41292       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Full            | 23.99                | 25.00               |
| 39750                                 | 39948       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Sensor on       | 21.76                | 23.00               |
| 40185                                 | 39987       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Sensor on       | 21.73                | 23.00               |
| 40620                                 | 40422       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Sensor on       | 21.83                | 23.00               |
| 41055                                 | 40857       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Sensor on       | 21.89                | 23.00               |
| 41490                                 | 41292       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Sensor on       | 21.96                | 23.00               |
| 39750                                 | 39948       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Hospot on       | 21.76                | 23.00               |
| 40185                                 | 39987       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Hospot on       | 21.73                | 23.00               |
| 40620                                 | 40422       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Hospot on       | 21.83                | 23.00               |
| 41055                                 | 40857       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Hospot on       | 21.89                | 23.00               |
| 41490                                 | 41292       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | Hospot on       | 21.96                | 23.00               |

# DL CA Full Power

| DL CA Full Power |                |                        |          |          |                |            |      |        |              |          |          |                |            |                        |                       |
|------------------|----------------|------------------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|------------------------|-----------------------|
| 2CC              |                |                        |          |          |                |            |      |        |              |          |          |                |            |                        |                       |
| Configure        |                | CA Configuration (BCS) | PCC      |          |                |            |      |        | SCC          |          |          |                | Power      |                        |                       |
|                  |                |                        | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band       |                | CA_2A-13A              | 2        | 20       | 1880           | 18900      | QPSK | 1      | 49           | 13       | 10       | 751            | 5230       | 22.70                  | 22.80                 |
|                  |                | CA_4A-5A               | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 5        | 10       | 881.5          | 2525       | 22.20                  | 22.33                 |
|                  |                | CA_4A-13A              | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 13       | 10       | 751            | 5230       | 22.21                  | 22.33                 |
|                  |                | CA_5A-66A              | 5        | 10       | 829            | 20450      | QPSK | 1      | 49           | 66       | 20       | 2155           | 66886      | 22.43                  | 22.66                 |
|                  |                | CA_7A-66A              | 7        | 20       | 2560           | 21350      | QPSK | 1      | 99           | 66       | 20       | 2155           | 66886      | 22.73                  | 22.90                 |
|                  |                | CA_13A-66A             | 13       | 10       | 782            | 23230      | QPSK | 1      | 25           | 66       | 20       | 2155           | 66886      | 22.47                  | 22.60                 |
| Inter-Band       | Non-Contiguous | CA_25A-41A             | 25       | 20       | 1880           | 26340      | QPSK | 1      | 49           | 41       | 20       | 2593           | 40620      | 22.72                  | 22.84                 |
|                  |                | CA_41A-41A             | 41       | 20       | 2680           | 41490      | QPSK | 1      | 0            | 41       | 5        | 2498.5         | 39675      | 24.00                  | 24.02                 |
|                  | Contiguous     | CA_5A-5A               | 5        | 10       | 829            | 20450      | QPSK | 1      | 49           | 5        | 5        | 891.5          | 2625       | 22.60                  | 22.66                 |
|                  |                | CA_7B                  | 7        | 15       | 2557.7         | 21327      | QPSK | 1      | 99           | 7        | 5        | 2687.00        | 3420       | 22.83                  | 22.90                 |
|                  |                | CA_66B                 | 66       | 15       | 1772.5         | 132597     | QPSK | 1      | 99           | 66       | 5        | 2188.20        | 67218      | 22.37                  | 22.41                 |

| 3CC        |                |                        |          |          |                |            |      |        |              |          |          |                |            |          |          |                |            |                        |                       |
|------------|----------------|------------------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
| Configure  |                | CA Configuration (BCS) | PCC      |          |                |            |      |        | SCC1         |          |          |                | SCC2       |          |          |                | Power      |                        |                       |
|            |                |                        | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | CA_2A-2A-4A    | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 4          | 20       | 2132.5   | 2175           | 22.75      | 22.80                  |                       |
|            | CA_2A-2A-12A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 12         | 10       | 737.5    | 5095           | 22.72      | 22.80                  |                       |
|            | CA_2A-2A-14A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 14         | 10       | 763      | 5330           | 22.77      | 22.80                  |                       |
|            | CA_2A-2A-29A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 29         | 10       | 722.5    | 9715           | 22.76      | 22.80                  |                       |
|            | CA_2A-2A-66A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 66         | 20       | 2155     | 66886          | 21.74      | 22.80                  |                       |
|            | CA_2A-2A-71A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 5        | 1987.5   | 1175           | 71         | 20       | 637      | 68786          | 21.72      | 22.80                  |                       |
|            | CA_2A-4A-4A    | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 4          | 5        | 2152.5   | 2375           | 22.78      | 22.80                  |                       |
|            | CA_2A-4A-5A    | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 5          | 10       | 881.5    | 2525           | 22.75      | 22.80                  |                       |
|            | CA_2A-4A-7A    | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 7          | 20       | 2655     | 3100           | 22.79      | 22.80                  |                       |
|            | CA_2A-4A-12A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 12         | 10       | 737.5    | 5095           | 22.72      | 22.80                  |                       |
|            | CA_2A-4A-29A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 29         | 10       | 722.5    | 9715           | 22.73      | 22.80                  |                       |
|            | CA_2A-4A-71A   | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 4            | 20       | 2132.5   | 2175           | 71         | 20       | 637      | 68786          | 22.74      | 22.80                  |                       |
|            | CA_2A-7A-7A    | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 7            | 20       | 2655     | 3100           | 7          | 5        | 2687.5   | 3425           | 22.73      | 22.80                  |                       |
|            | CA_2A-12A-66A  | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 12           | 10       | 737.5    | 5095           | 66         | 20       | 2155     | 66886          | 22.70      | 22.80                  |                       |
|            | CA_2A-14A-66A  | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 14           | 10       | 763      | 5330           | 66         | 20       | 2155     | 66886          | 22.74      | 22.80                  |                       |
|            | CA_2A-66A-66A  | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 66           | 20       | 2155     | 66886          | 66         | 5        | 2197.5   | 67311          | 22.72      | 22.80                  |                       |
|            | CA_2A-66A-71A  | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 66           | 20       | 2155     | 66886          | 71         | 20       | 637      | 68786          | 22.72      | 22.80                  |                       |
|            | CA_2A-5B       | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 5            | 10       | 829      | 2450           | 5          | 10       | 883.9    | 2549           | 22.73      | 22.80                  |                       |
|            | CA_2A-12B      | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 12           | 5        | 702.8    | 5048           | 12         | 10       | 740      | 5120           | 22.72      | 22.80                  |                       |
|            | CA_2C-66A      | 2                      | 20       | 1880     | 18900          | QPSK       | 1    | 49     | 2            | 20       | 1979.8   | 1098           | 66         | 20       | 2155     | 66886          | 22.71      | 22.80                  |                       |
|            | CA_4A-4A-12A   | 4                      | 20       | 1745     | 20300          | QPSK       | 1    | 99     | 4            | 5        | 2112.5   | 1975           | 12         | 10       | 737.5    | 5095           | 22.22      | 22.33                  |                       |
|            | CA_4A-4A-29A   | 4                      | 20       | 1745     | 20300          | QPSK       | 1    | 99     | 4            | 5        | 2112.5   | 1975           | 29         | 10       | 722.5    | 9715           | 22.15      | 22.33                  |                       |
|            | CA_4A-4A-71A   | 4                      | 20       | 1745     | 20300          | QPSK       | 1    | 99     | 4            | 5        | 2112.5   | 1975           | 71         | 20       | 637      | 68786          | 22.18      | 22.33                  |                       |
|            | CA_4A-7A-7A    | 4                      | 20       | 1745     | 20300          | QPSK       | 1    | 99     | 7            | 20       | 2655     | 3100           | 7          | 5        | 2687.5   | 3425           | 22.13      | 22.33                  |                       |
|            | CA_4A-7A-12A   | 4                      | 20       | 1745     | 20300          | QPSK       | 1    | 99     | 7            | 20       | 2655     | 3100           | 12         | 10       | 737.5    | 5095           | 22.11      | 22.33                  |                       |
|            | CA_5A-7A-7A    | 5                      | 10       | 829      | 20450          | QPSK       | 1    | 49     | 7            | 20       | 2630     | 2850           | 7          | 20       | 2680     | 3350           | 22.56      | 22.68                  |                       |
|            | CA_5A-7C       | 5                      | 10       | 829      | 20450          | QPSK       | 1    | 49     | 7            | 20       | 2655     | 3100           | 7          | 20       | 2674.8   | 3298           | 22.57      | 22.68                  |                       |
|            | CA_5B-66A      | 5                      | 10       | 829      | 20450          | QPSK       | 1    | 49     | 5            | 10       | 883.9    | 2549           | 66         | 20       | 2155     | 66886          | 22.57      | 22.68                  |                       |
|            | CA_12A-66A-66A | 12                     | 10       | 707.5    | 23095          | QPSK       | 1    | 49     | 66           | 20       | 2155     | 66886          | 66         | 5        | 2197.5   | 67311          | 22.75      | 22.81                  |                       |
|            | CA_12A-66C     | 12                     | 10       | 707.5    | 23095          | QPSK       | 1    | 49     | 66           | 20       | 2155     | 66886          | 66         | 20       | 2174.8   | 67084          | 22.73      | 22.81                  |                       |
|            | CA_14A-66A-66A | 14                     | 10       | 793      | 23330          | QPSK       | 1    | 49     | 66           | 20       | 2155     | 66886          | 66         | 5        | 2197.5   | 67311          | 22.68      | 22.70                  |                       |
|            | CA_25A-25A-26A | 25                     | 20       | 1880     | 26340          | QPSK       | 1    | 49     | 25           | 5        | 1992.5   | 8665           | 26         | 5        | 876.5    | 8865           | 22.79      | 22.84                  |                       |
|            | CA_25A-41C     | 25                     | 20       | 1880     | 26340          | QPSK       | 1    | 49     | 41           | 20       | 2660.2   | 41292          | 41         | 20       | 2680     | 41490          | 22.80      | 22.84                  |                       |
|            | CA_41A-41C     | 41                     | 20       | 2680     | 41490          | QPSK       | 1    | 0      | 41           | 5        | 2498.2   | 39675          | 41         | 20       | 2509.9   | 39792          | 23.95      | 24.02                  |                       |
|            | CA_66A-66A-71A | 66                     | 20       | 1770     | 132572         | QPSK       | 1    | 99     | 66           | 5        | 2112.5   | 66461          | 71         | 20       | 637      | 68786          | 22.35      | 22.41                  |                       |
|            | CA_66C-71A     | 66                     | 20       | 1770     | 132572         | QPSK       | 1    | 99     | 66           | 20       | 2189.8   | 67234          | 71         | 20       | 637      | 68786          | 22.36      | 22.41                  |                       |
| Intra-Band | Contiguous     | CA_41D                 | 41       | 20       | 2680           | 41490      | QPSK | 1      | 0            | 41       | 20       | 2525.8         | 39948      | 41       | 20       | 2545.6         | 40146      | 23.96                  | 24.02                 |

#### Bluetooth BR/EDR

| Mode      | Channel | Frequency (MHz) | Average power (dBm) |      |      |      |      |      |      |      |      | Tune-up Limit |
|-----------|---------|-----------------|---------------------|------|------|------|------|------|------|------|------|---------------|
|           |         |                 | Packet Type         |      |      |      |      |      |      |      |      |               |
|           |         |                 | DH1                 | DH3  | DH5  | 2DH1 | 2DH3 | 2DH5 | 3DH1 | 3DH3 | 3DH5 |               |
| Bluetooth | CH 0    | 2402            | 8.70                | 8.60 | 8.60 | 6.70 | 6.60 | 6.50 | 6.70 | 6.60 | 6.50 | 9             |
|           | CH 39   | 2441            | 8.10                | 8.00 | 8.00 | 5.70 | 5.60 | 5.60 | 5.70 | 5.60 | 5.60 |               |
|           | CH 78   | 2480            | 7.60                | 7.50 | 7.40 | 5.70 | 5.60 | 5.60 | 5.70 | 5.60 | 5.60 |               |

#### Bluetooth LE v4.0

| Mode          | Channel | Frequency (MHz) | Average power (dBm) |
|---------------|---------|-----------------|---------------------|
|               |         |                 | GFSK                |
| LE            | CH 00   | 2402            | 3.00                |
|               | CH 19   | 2440            | 2.20                |
|               | CH 39   | 2480            | 3.00                |
| Tune-up Limit |         |                 | 4                   |

#### Bluetooth LE v5.0

| Mode          | Channel | Frequency (MHz) | Average power (dBm) |
|---------------|---------|-----------------|---------------------|
|               |         |                 | 2Mbps               |
| LE            | CH 00   | 2402            | 2.60                |
|               | CH 19   | 2440            | 1.90                |
|               | CH 39   | 2480            | 2.90                |
| Tune-up Limit |         |                 | 4                   |

## Full Power

| 2.4GHz WLAN | Ant 1             |         |                 |                     |               |              |
|-------------|-------------------|---------|-----------------|---------------------|---------------|--------------|
| 2.4GHz WLAN | Mode              | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11b 1Mbps     | 1       | 2412            | 21.60               | 23.00         | 99.02        |
|             |                   | 6       | 2437            | 22.00               | 23.00         |              |
|             |                   | 11      | 2462            | 22.10               | 23.00         |              |
|             | 802.11g 6Mbps     | 1       | 2412            | 19.00               | 21.00         | 99.28        |
|             |                   | 6       | 2437            | 19.40               | 21.00         |              |
|             |                   | 11      | 2462            | 19.60               | 21.00         |              |
|             | 802.11n-HT20 MCS0 | 1       | 2412            | 19.00               | 21.00         | 98.15        |
|             |                   | 6       | 2437            | 19.30               | 21.00         |              |
|             |                   | 11      | 2462            | 19.40               | 21.00         |              |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 36      | 5180            | 17.86               | 19.50         | 98.13        |
|             |                     | 40      | 5200            | 17.72               | 19.50         |              |
|             |                     | 44      | 5220            | 17.63               | 19.50         |              |
|             |                     | 48      | 5240            | 17.99               | 19.50         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 17.67               | 19.50         | 97.57        |
|             |                     | 40      | 5200            | 17.64               | 19.50         |              |
|             |                     | 44      | 5220            | 17.60               | 19.50         |              |
|             |                     | 48      | 5240            | 17.93               | 19.50         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 17.68               | 19.50         | 95.15        |
|             |                     | 46      | 5230            | 17.73               | 19.50         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 17.17               | 19.00         | 97.57        |
|             |                     | 40      | 5200            | 17.10               | 19.00         |              |
|             |                     | 44      | 5220            | 17.15               | 19.00         |              |
|             |                     | 48      | 5240            | 17.22               | 19.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 17.21               | 19.00         | 95.59        |
|             |                     | 46      | 5230            | 17.22               | 19.00         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 17.45               | 19.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 52      | 5260            | 17.78               | 19.50         | 98.13        |
|             |                     | 56      | 5280            | 17.77               | 19.50         |              |
|             |                     | 60      | 5300            | 17.81               | 19.50         |              |
|             |                     | 64      | 5320            | 17.83               | 19.50         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 17.68               | 19.50         | 97.57        |
|             |                     | 56      | 5280            | 17.76               | 19.50         |              |
|             |                     | 60      | 5300            | 17.72               | 19.50         |              |
|             |                     | 64      | 5320            | 17.91               | 19.50         |              |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 17.80               | 19.50         | 95.15        |
|             |                     | 62      | 5310            | 17.88               | 19.50         |              |
|             | 802.11ac-VHT20 MCS0 | 52      | 5260            | 17.08               | 19.00         | 97.57        |
|             |                     | 56      | 5280            | 17.15               | 19.00         |              |
|             |                     | 60      | 5300            | 17.26               | 19.00         |              |
|             |                     | 64      | 5320            | 17.13               | 19.00         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 17.25               | 19.00         | 95.59        |
|             |                     | 62      | 5310            | 17.16               | 19.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 17.06               | 19.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.5GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 100     | 5500            | 16.36               | 17.50         | 98.13        |
|             |                     | 116     | 5580            | 16.38               | 17.50         |              |
|             |                     | 132     | 5660            | 16.22               | 17.50         |              |
|             |                     | 140     | 5700            | 16.34               | 17.50         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 16.26               | 17.50         | 97.57        |
|             |                     | 116     | 5580            | 16.25               | 17.50         |              |
|             |                     | 132     | 5660            | 16.13               | 17.50         |              |
|             |                     | 140     | 5700            | 16.18               | 17.50         |              |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 16.32               | 17.50         | 95.15        |
|             |                     | 110     | 5550            | 16.42               | 17.50         |              |
|             | 802.11ac-VHT20 MCS0 | 134     | 5670            | 16.77               | 17.50         | 97.57        |
|             |                     | 100     | 5500            | 15.66               | 17.00         |              |
|             |                     | 116     | 5580            | 15.77               | 17.00         |              |
|             |                     | 132     | 5660            | 15.66               | 17.00         |              |
|             | 802.11ac-VHT40 MCS0 | 140     | 5700            | 15.74               | 17.00         | 95.59        |
|             |                     | 102     | 5510            | 15.83               | 17.00         |              |
|             | 802.11ac-VHT80 MCS0 | 110     | 5550            | 15.64               | 17.00         | 91.78        |
|             |                     | 134     | 5670            | 15.69               | 17.00         |              |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 149     | 5745            | 15.65               | 17.00         | 98.13        |
|             |                     | 157     | 5785            | 15.78               | 17.50         |              |
|             |                     | 165     | 5825            | 16.02               | 17.50         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 15.55               | 17.00         | 97.57        |
|             |                     | 157     | 5785            | 15.77               | 17.50         |              |
|             |                     | 165     | 5825            | 16.03               | 17.50         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 15.12               | 16.00         | 95.15        |
|             |                     | 159     | 5795            | 15.44               | 16.50         |              |
|             | 802.11ac-VHT20 MCS0 | 149     | 5745            | 14.55               | 16.00         | 97.57        |
|             |                     | 157     | 5785            | 14.62               | 16.50         |              |
|             |                     | 165     | 5825            | 14.73               | 16.50         |              |
|             | 802.11ac-VHT40 MCS0 | 151     | 5755            | 14.51               | 16.00         | 95.59        |
|             |                     | 159     | 5795            | 14.65               | 16.50         |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 14.59               | 16.00         | 91.78        |

# Reduced Power Mode for Head

| 2.4GHz WLAN | Ant 1             |         |                 |                     |               |              |
|-------------|-------------------|---------|-----------------|---------------------|---------------|--------------|
| 2.4GHz WLAN | Mode              | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11b 1Mbps     | 1       | 2412            | 17.90               | 19.00         | 99.02        |
|             |                   | 6       | 2437            | 18.20               | 19.00         |              |
|             |                   | 11      | 2462            | 18.30               | 19.00         |              |
|             | 802.11g 6Mbps     | 1       | 2412            | 15.10               | 17.00         | 99.28        |
|             |                   | 6       | 2437            | 15.70               | 17.00         |              |
|             |                   | 11      | 2462            | 15.70               | 17.00         |              |
|             | 802.11n-HT20 MCS0 | 1       | 2412            | 15.20               | 17.00         | 99.15        |
|             |                   | 6       | 2437            | 15.60               | 17.00         |              |
|             |                   | 11      | 2462            | 15.50               | 17.00         |              |

### Reduced Power Mode for Hotspot on

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 36      | 5180            | 9.38                | 11.00         | 98.13        |
|             |                     | 40      | 5200            | 9.24                | 11.00         |              |
|             |                     | 44      | 5220            | 9.18                | 11.00         |              |
|             |                     | 48      | 5240            | 9.50                | 11.00         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 9.21                | 11.00         | 97.57        |
|             |                     | 40      | 5200            | 9.18                | 11.00         |              |
|             |                     | 44      | 5220            | 9.29                | 11.00         |              |
|             |                     | 48      | 5240            | 9.51                | 11.00         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 9.32                | 11.00         | 95.15        |
|             |                     | 46      | 5230            | 9.35                | 11.00         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 8.71                | 10.00         | 97.57        |
|             |                     | 40      | 5200            | 8.68                | 10.00         |              |
|             |                     | 44      | 5220            | 8.81                | 10.00         |              |
|             |                     | 48      | 5240            | 8.77                | 10.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 8.74                | 10.00         | 95.59        |
|             |                     | 46      | 5230            | 9.17                | 10.00         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 8.97                | 10.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 149     | 5745            | 8.56                | 9.50          | 98.13        |
|             |                     | 157     | 5785            | 8.83                | 10.00         |              |
|             |                     | 165     | 5825            | 9.12                | 10.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 8.51                | 9.50          | 97.57        |
|             |                     | 157     | 5785            | 8.75                | 10.00         |              |
|             |                     | 165     | 5825            | 9.08                | 10.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 8.10                | 8.50          | 95.15        |
|             |                     | 159     | 5795            | 8.40                | 9.00          |              |
|             | 802.11ac-VHT20 MCS0 | 149     | 5745            | 7.51                | 8.50          | 97.57        |
|             |                     | 157     | 5785            | 7.69                | 9.00          |              |
|             |                     | 165     | 5825            | 7.93                | 9.00          |              |
|             | 802.11ac-VHT40 MCS0 | 151     | 5755            | 7.54                | 8.50          | 95.59        |
|             |                     | 159     | 5795            | 7.80                | 9.00          |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 7.57                | 8.50          | 91.78        |

## Reduced Power Mode for Sensor On

| 5GHz WLAN   |                     | Ant 1   |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 36      | 5180            | 9.38                | 11.00         | 98.13        |
|             |                     | 40      | 5200            | 9.24                | 11.00         |              |
|             |                     | 44      | 5220            | 9.18                | 11.00         |              |
|             |                     | 48      | 5240            | 9.50                | 11.00         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 9.21                | 11.00         | 97.57        |
|             |                     | 40      | 5200            | 9.18                | 11.00         |              |
|             |                     | 44      | 5220            | 9.29                | 11.00         |              |
|             |                     | 48      | 5240            | 9.51                | 11.00         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 9.32                | 11.00         | 95.15        |
|             |                     | 46      | 5230            | 9.35                | 11.00         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 8.71                | 10.00         | 97.57        |
|             |                     | 40      | 5200            | 8.68                | 10.00         |              |
|             |                     | 44      | 5220            | 8.81                | 10.00         |              |
|             |                     | 48      | 5240            | 8.77                | 10.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 8.74                | 10.00         | 95.59        |
|             |                     | 46      | 5230            | 9.17                | 10.00         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 8.97                | 10.00         | 91.78        |

| 5GHz WLAN   |                     | Ant 1   |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 52      | 5260            | 9.24                | 11.00         | 98.13        |
|             |                     | 56      | 5280            | 9.30                | 11.00         |              |
|             |                     | 60      | 5300            | 9.34                | 11.00         |              |
|             |                     | 64      | 5320            | 9.33                | 11.00         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 9.23                | 11.00         | 97.57        |
|             |                     | 56      | 5280            | 9.36                | 11.00         |              |
|             |                     | 60      | 5300            | 9.24                | 11.00         |              |
|             |                     | 64      | 5320            | 9.44                | 11.00         |              |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 9.44                | 11.00         | 95.15        |
|             |                     | 62      | 5310            | 9.52                | 11.00         |              |
|             | 802.11ac-VHT20 MCS0 | 52      | 5260            | 8.65                | 10.00         | 97.57        |
|             |                     | 56      | 5280            | 8.76                | 10.00         |              |
|             |                     | 60      | 5300            | 8.82                | 10.00         |              |
|             |                     | 64      | 5320            | 8.72                | 10.00         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 8.86                | 10.00         | 95.59        |
|             |                     | 62      | 5310            | 8.67                | 10.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 8.59                | 10.00         | 91.78        |

| 5GHz WLAN   |                     | Ant 1   |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.5GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 100     | 5500            | 8.86                | 10.00         | 98.13        |
|             |                     | 116     | 5580            | 8.88                | 10.00         |              |
|             |                     | 132     | 5660            | 8.90                | 10.00         |              |
|             |                     | 140     | 5700            | 8.95                | 10.00         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 8.68                | 10.00         | 97.57        |
|             |                     | 116     | 5580            | 8.77                | 10.00         |              |
|             |                     | 132     | 5660            | 8.71                | 10.00         |              |
|             |                     | 140     | 5700            | 8.54                | 10.00         |              |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 8.81                | 10.00         | 95.15        |
|             |                     | 110     | 5550            | 9.01                | 10.00         |              |
|             |                     | 134     | 5670            | 9.02                | 10.00         |              |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 8.15                | 9.00          | 97.57        |
|             |                     | 116     | 5580            | 8.37                | 9.00          |              |
|             |                     | 132     | 5660            | 8.30                | 9.00          |              |
|             |                     | 140     | 5700            | 8.24                | 9.00          |              |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 8.31                | 9.00          | 95.59        |
|             |                     | 110     | 5550            | 8.21                | 9.00          |              |
|             |                     | 134     | 5670            | 8.30                | 9.00          |              |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 8.54                | 9.00          | 91.78        |

| 5GHz WLAN   |                     | Ant 1   |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 149     | 5745            | 8.56                | 9.50          | 98.13        |
|             |                     | 157     | 5785            | 8.83                | 10.00         |              |
|             |                     | 165     | 5825            | 9.12                | 10.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 8.51                | 9.50          | 97.57        |
|             |                     | 157     | 5785            | 8.75                | 10.00         |              |
|             |                     | 165     | 5825            | 9.08                | 10.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 8.10                | 8.50          | 95.15        |
|             |                     | 159     | 5795            | 8.40                | 9.00          |              |
|             |                     | 149     | 5745            | 7.51                | 8.50          |              |
|             | 802.11ac-VHT20 MCS0 | 157     | 5785            | 7.69                | 9.00          | 97.57        |
|             |                     | 165     | 5825            | 7.93                | 9.00          |              |
|             |                     | 151     | 5755            | 7.54                | 8.50          |              |
|             | 802.11ac-VHT40 MCS0 | 159     | 5795            | 7.80                | 9.00          | 95.59        |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 7.57                | 8.50          | 91.78        |

## Reduced Power Mode for Handheld On

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
| 5.2GHz WLAN | 802.11a 6Mbps       | 36      | 5180            | 15.84               | 17.50         | 98.13        |
|             |                     | 40      | 5200            | 15.87               | 17.50         |              |
|             |                     | 44      | 5220            | 15.89               | 17.50         |              |
|             |                     | 48      | 5240            | 15.85               | 17.50         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 15.71               | 17.50         | 97.57        |
|             |                     | 40      | 5200            | 15.64               | 17.50         |              |
|             |                     | 44      | 5220            | 15.79               | 17.50         |              |
|             |                     | 48      | 5240            | 15.86               | 17.50         |              |
|             |                     | 38      | 5190            | 15.78               | 17.50         |              |
|             | 802.11n-HT40 MCS0   | 46      | 5230            | 15.88               | 17.50         | 95.15        |
|             |                     | 36      | 5180            | 15.21               | 17.00         | 97.57        |
|             | 802.11ac-VHT20 MCS0 | 40      | 5200            | 15.16               | 17.00         |              |
|             |                     | 44      | 5220            | 15.31               | 17.00         |              |
|             |                     | 48      | 5240            | 15.33               | 17.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 15.25               | 17.00         | 95.59        |
|             |                     | 46      | 5230            | 15.26               | 17.00         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 15.47               | 17.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
| 5.3GHz WLAN | 802.11a 6Mbps       | 52      | 5260            | 15.91               | 17.50         | 98.13        |
|             |                     | 56      | 5280            | 15.91               | 17.50         |              |
|             |                     | 60      | 5300            | 15.88               | 17.50         |              |
|             |                     | 64      | 5320            | 15.88               | 17.50         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 15.77               | 17.50         | 97.57        |
|             |                     | 56      | 5280            | 15.76               | 17.50         |              |
|             |                     | 60      | 5300            | 15.77               | 17.50         |              |
|             |                     | 64      | 5320            | 15.91               | 17.50         |              |
|             |                     | 54      | 5270            | 15.82               | 17.50         | 95.15        |
|             | 802.11n-HT40 MCS0   | 62      | 5310            | 15.92               | 17.50         |              |
|             |                     | 52      | 5260            | 15.10               | 17.00         | 97.57        |
|             | 802.11ac-VHT20 MCS0 | 56      | 5280            | 15.15               | 17.00         |              |
|             |                     | 60      | 5300            | 15.41               | 17.00         |              |
|             |                     | 64      | 5320            | 15.17               | 17.00         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 15.32               | 17.00         | 95.59        |
|             |                     | 62      | 5310            | 15.16               | 17.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 15.22               | 17.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
| 5.5GHz WLAN | 802.11a 6Mbps       | 100     | 5500            | 14.42               | 16.00         | 98.13        |
|             |                     | 116     | 5580            | 14.40               | 16.00         |              |
|             |                     | 132     | 5660            | 14.21               | 16.00         |              |
|             |                     | 140     | 5700            | 14.41               | 16.00         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 14.21               | 16.00         | 97.57        |
|             |                     | 116     | 5580            | 14.22               | 16.00         |              |
|             |                     | 132     | 5660            | 14.18               | 16.00         |              |
|             |                     | 140     | 5700            | 14.16               | 16.00         |              |
|             |                     | 102     | 5510            | 14.33               | 16.00         | 95.15        |
|             | 802.11n-HT40 MCS0   | 110     | 5550            | 14.46               | 16.00         |              |
|             |                     | 134     | 5670            | 14.48               | 16.00         |              |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 13.86               | 15.50         | 97.57        |
|             |                     | 116     | 5580            | 13.86               | 15.50         |              |
|             |                     | 132     | 5660            | 13.70               | 15.50         |              |
|             |                     | 140     | 5700            | 13.68               | 15.50         |              |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 13.83               | 15.50         | 95.59        |
|             |                     | 110     | 5550            | 13.64               | 15.50         |              |
|             |                     | 134     | 5670            | 13.85               | 15.50         |              |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 14.12               | 15.50         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
| 5.8GHz WLAN | 802.11a 6Mbps       | 149     | 5745            | 14.11               | 15.50         | 98.13        |
|             |                     | 157     | 5785            | 14.33               | 16.00         |              |
|             |                     | 165     | 5825            | 14.41               | 16.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 14.11               | 15.50         | 97.57        |
|             |                     | 157     | 5785            | 14.27               | 16.00         |              |
|             |                     | 165     | 5825            | 14.39               | 16.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 13.60               | 14.50         | 95.15        |
|             |                     | 159     | 5795            | 13.97               | 15.00         |              |
|             | 802.11ac-VHT20 MCS0 | 149     | 5745            | 13.01               | 14.50         | 97.57        |
|             |                     | 157     | 5785            | 13.11               | 15.00         |              |
|             |                     | 165     | 5825            | 13.31               | 15.00         |              |
|             | 802.11ac-VHT40 MCS0 | 151     | 5755            | 13.05               | 14.50         | 95.59        |
|             |                     | 159     | 5795            | 13.15               | 15.00         |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 13.01               | 14.50         | 91.78        |

## Reduced Power Mode for Handheld On - Simultaneous

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 36      | 5180            | 14.29               | 16.00         | 98.13        |
|             |                     | 40      | 5200            | 14.25               | 16.00         |              |
|             |                     | 44      | 5220            | 14.18               | 16.00         |              |
|             |                     | 48      | 5240            | 14.42               | 16.00         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 14.19               | 16.00         | 97.57        |
|             |                     | 40      | 5200            | 14.18               | 16.00         |              |
|             |                     | 44      | 5220            | 14.18               | 16.00         |              |
|             |                     | 48      | 5240            | 14.42               | 16.00         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 14.36               | 16.00         | 95.15        |
|             |                     | 46      | 5230            | 14.44               | 16.00         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 13.66               | 15.00         | 97.57        |
|             |                     | 40      | 5200            | 13.63               | 15.00         |              |
|             |                     | 44      | 5220            | 13.68               | 15.00         |              |
|             |                     | 48      | 5240            | 13.70               | 15.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 13.78               | 15.00         | 95.59        |
|             |                     | 46      | 5230            | 13.67               | 15.00         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 14.06               | 15.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 52      | 5260            | 14.32               | 16.00         | 98.13        |
|             |                     | 56      | 5280            | 14.35               | 16.00         |              |
|             |                     | 60      | 5300            | 14.42               | 16.00         |              |
|             |                     | 64      | 5320            | 14.36               | 16.00         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 14.26               | 16.00         | 97.57        |
|             |                     | 56      | 5280            | 14.27               | 16.00         |              |
|             |                     | 60      | 5300            | 14.23               | 16.00         |              |
|             |                     | 64      | 5320            | 14.36               | 16.00         |              |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 14.34               | 16.00         | 95.15        |
|             |                     | 62      | 5310            | 14.55               | 16.00         |              |
|             | 802.11ac-VHT20 MCS0 | 52      | 5260            | 13.56               | 15.00         | 97.57        |
|             |                     | 56      | 5280            | 13.70               | 15.00         |              |
|             |                     | 60      | 5300            | 13.78               | 15.00         |              |
|             |                     | 64      | 5320            | 13.64               | 15.00         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 13.77               | 15.00         | 95.59        |
|             |                     | 62      | 5310            | 13.73               | 15.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 13.55               | 15.00         | 91.78        |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.5GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 100     | 5500            | 13.44               | 15.00         | 98.13        |
|             |                     | 116     | 5580            | 13.42               | 15.00         |              |
|             |                     | 132     | 5660            | 13.30               | 15.00         |              |
|             |                     | 140     | 5700            | 13.20               | 15.00         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 13.17               | 15.00         | 97.57        |
|             |                     | 116     | 5580            | 13.24               | 15.00         |              |
|             |                     | 132     | 5660            | 13.30               | 15.00         |              |
|             |                     | 140     | 5700            | 13.16               | 15.00         |              |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 13.30               | 15.00         | 95.15        |
|             |                     | 110     | 5550            | 13.39               | 15.00         |              |
|             |                     | 134     | 5670            | 13.45               | 15.00         |              |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 12.58               | 14.00         | 97.57        |
|             |                     | 116     | 5580            | 12.78               | 14.00         |              |
|             |                     | 132     | 5660            | 12.61               | 14.00         |              |
|             |                     | 140     | 5700            | 12.61               | 14.00         |              |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 12.86               | 14.00         | 95.59        |
|             |                     | 110     | 5550            | 12.69               | 14.00         |              |
|             |                     | 134     | 5670            | 12.67               | 14.00         |              |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 13.13               | 14.00         | 91.78        |
|             |                     | 138     | 5690            | 13.23               | 14.00         |              |

| 5GHz WLAN   | Ant 1               |         |                 |                     |               |              |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|             | 802.11a 6Mbps       | 149     | 5745            | 13.14               | 14.50         | 98.13        |
|             |                     | 157     | 5785            | 13.34               | 15.00         |              |
|             |                     | 165     | 5825            | 13.45               | 15.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 13.08               | 14.50         | 97.57        |
|             |                     | 157     | 5785            | 13.31               | 15.00         |              |
|             |                     | 165     | 5825            | 13.43               | 15.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 12.67               | 13.50         | 95.15        |
|             |                     | 159     | 5795            | 12.92               | 14.00         |              |
|             |                     | 149     | 5745            | 12.01               | 13.50         |              |
|             | 802.11ac-VHT20 MCS0 | 157     | 5785            | 12.31               | 14.00         | 97.57        |
|             |                     | 165     | 5825            | 12.44               | 14.00         |              |
|             |                     | 151     | 5755            | 12.00               | 13.50         |              |
|             | 802.11ac-VHT40 MCS0 | 159     | 5795            | 12.30               | 14.00         | 95.59        |
|             |                     | 155     | 5775            | 12.02               | 13.50         |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 12.02               | 13.50         | 91.78        |