

## D900V2 – SN: 1d111 Extended Dipole Calibrations

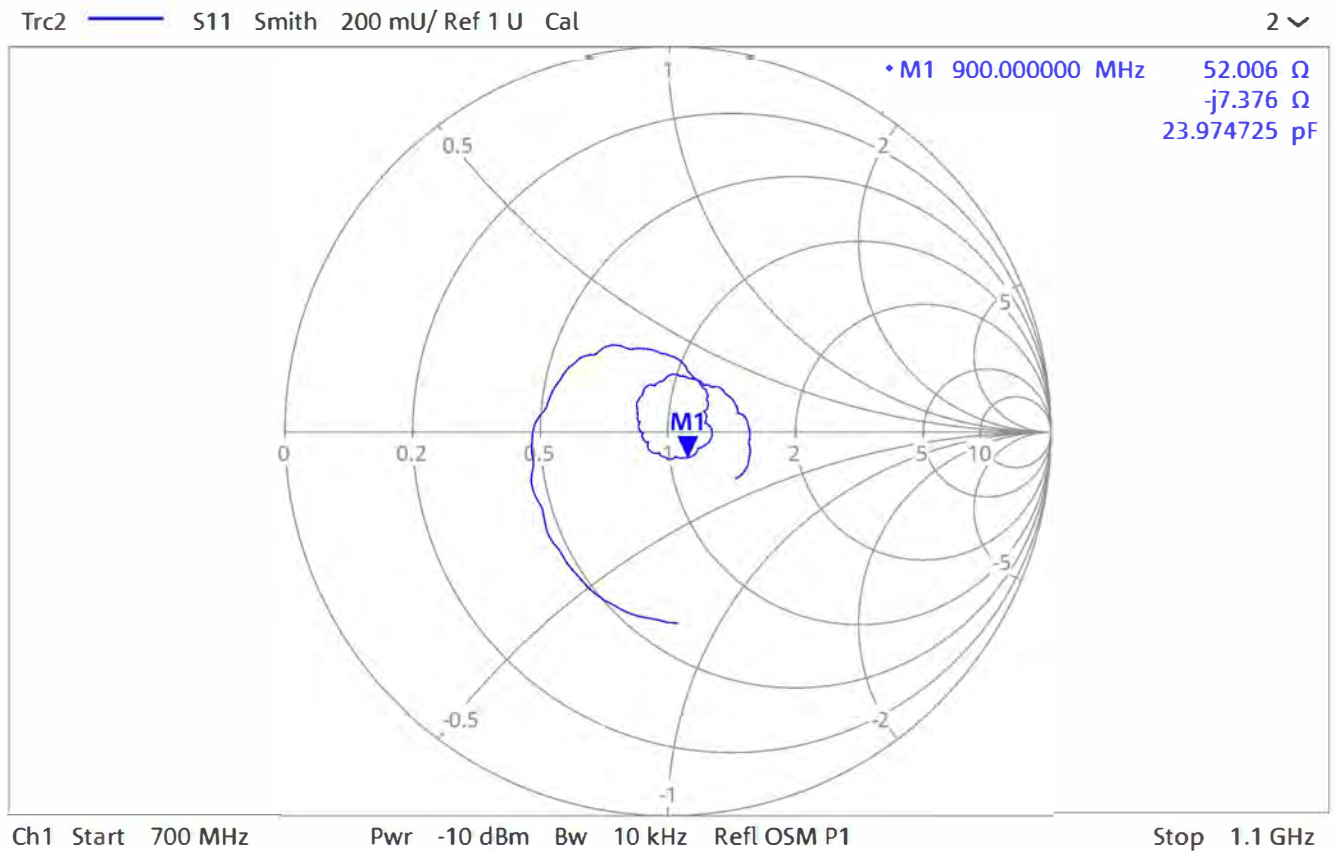
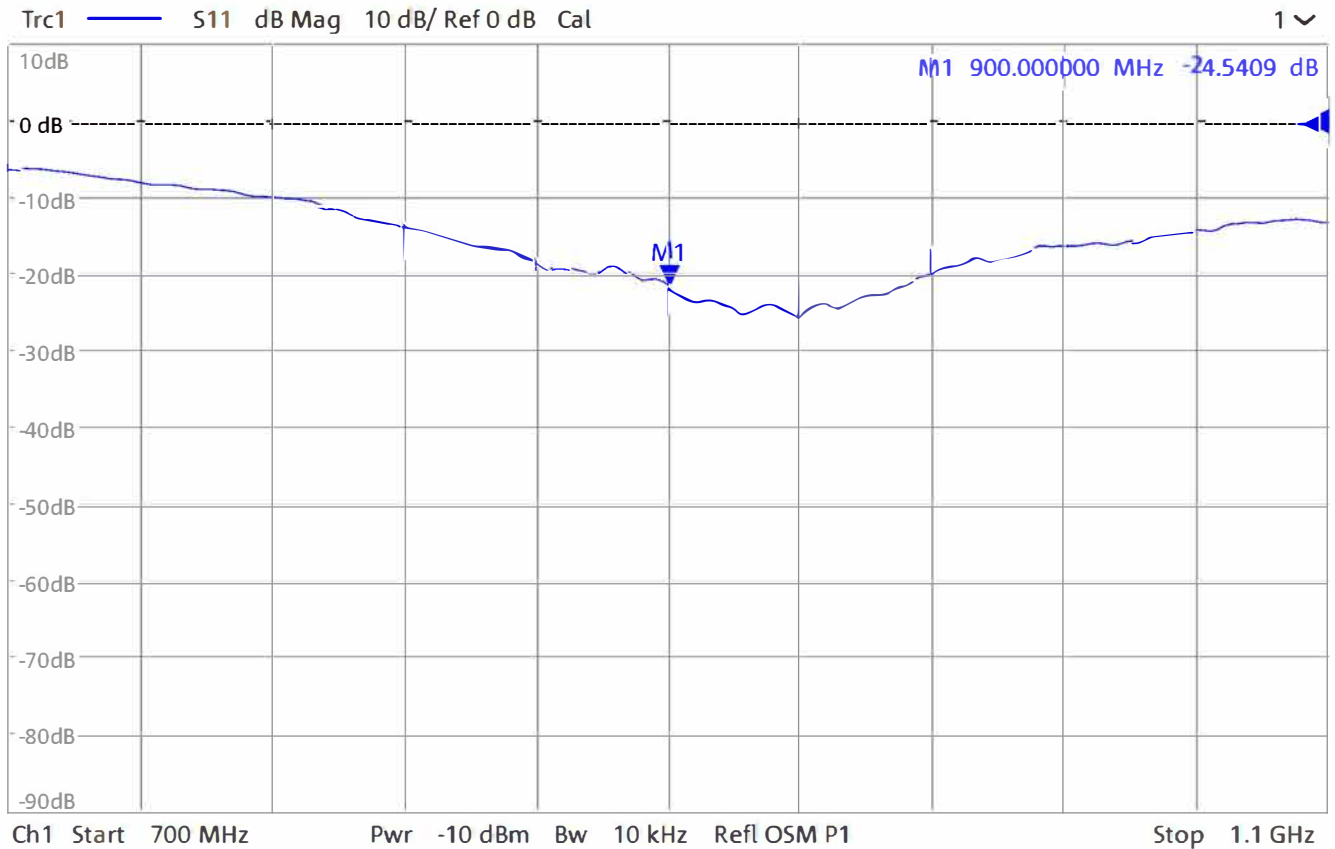
Referring to KDB 865664 D01, if dipoles are verified in return loss ( $\leq -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

| D900V2 – SN: 1d111  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 900MHz              |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/6           | -26.81           |           | 49.20                |             | -4.46                     |             |
| 2025/11/5           | -24.54           | -8.47     | 52.01                | 2.81        | -7.38                     | -2.91       |

### <Justification of the extended calibration>

The return loss is  $\leq -20\text{dB}$ , 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>  
Head 900MHz\_2025/11/5



Client      **7layers**

Certificate No:    **24J02Z000856**

## CALIBRATION CERTIFICATE

Object      D1750V2 - SN: 1176

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

Calibration date:      November 6, 2024

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.

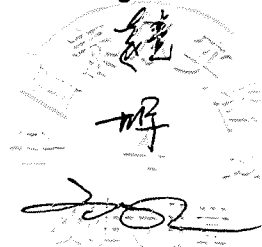
All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
|-------------------------|------------|--------------------------------------------|-----------------------|
| Power Meter NRP2        | 106276     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Power sensor NRP6A      | 101369     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Reference Probe EX3DV4  | SN 7517    | 21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)     | Feb-25                |
| DAE4                    | SN 1588    | 13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)    | Sep-25                |
| Secondary Standards     | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 25-Dec-23 (CTTL, No. J23X13426)            | Dec-24                |
| NetworkAnalyzer E5071C  | MY46110673 | 25-Dec-23 (CTTL, No. J23X13425)            | Dec-24                |
| OCP DAK-3.5(weighted)   | 1040       | 22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24) | Jan-25                |

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

Signature



Issued: November 15, 2024

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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:

- a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- c) 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.

|                                     |                          |             |
|-------------------------------------|--------------------------|-------------|
| <b>DASY Version</b>                 | DASY52                   | 52.10.4     |
| <b>Extrapolation</b>                | Advanced Extrapolation   |             |
| <b>Phantom</b>                      | Triple Flat Phantom 5.1C |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                    | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm        |             |
| <b>Frequency</b>                    | 1750 MHz $\pm$ 1 MHz     |             |

**Head TSL parameters**

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 40.1                | 1.37 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 41.1 $\pm$ 6 %      | 1.38 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | <1.0 °C             | ----                | ----                 |

**SAR result with Head TSL**

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>   | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 9.17 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>36.7 W/kg <math>\pm</math> 18.8 % (k=2)</b> |
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 4.87 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>19.5 W/kg <math>\pm</math> 18.7 % (k=2)</b> |



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

### Antenna Parameters with Head TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 50.6Ω- 2.87jΩ |
| Return Loss                          | - 30.7dB      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.135 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

### Additional EUT Data

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



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## DASY5 Validation Report for Head TSL

Date: 2024-11-06

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1176**

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.384$  S/m;  $\epsilon_r = 41.11$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(8.22, 8.22, 8.22) @ 1750 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP\_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 97.34 V/m; Power Drift = -0.03 dB

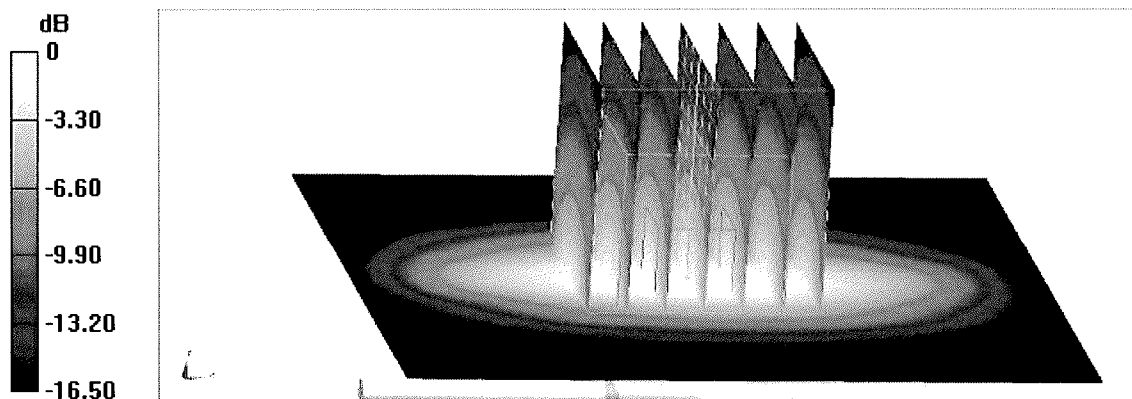
Peak SAR (extrapolated) = 17.0 W/kg

**SAR(1 g) = 9.17 W/kg; SAR(10 g) = 4.87 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 54.8%

Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.2 W/kg = 11.52 dBW/kg



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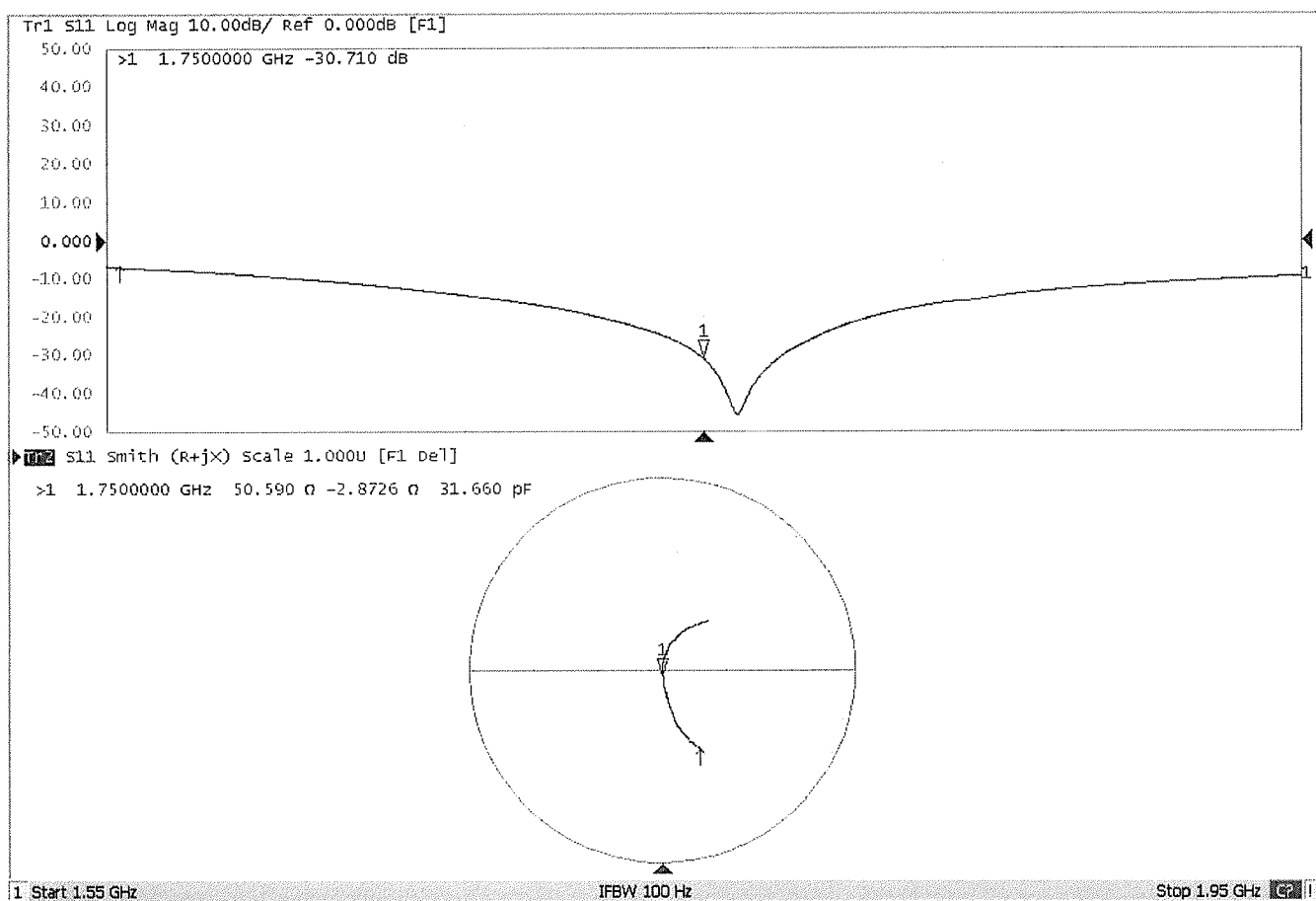
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## Impedance Measurement Plot for Head TSL



## D1750V2 – SN: 1176 Extended Dipole Calibrations

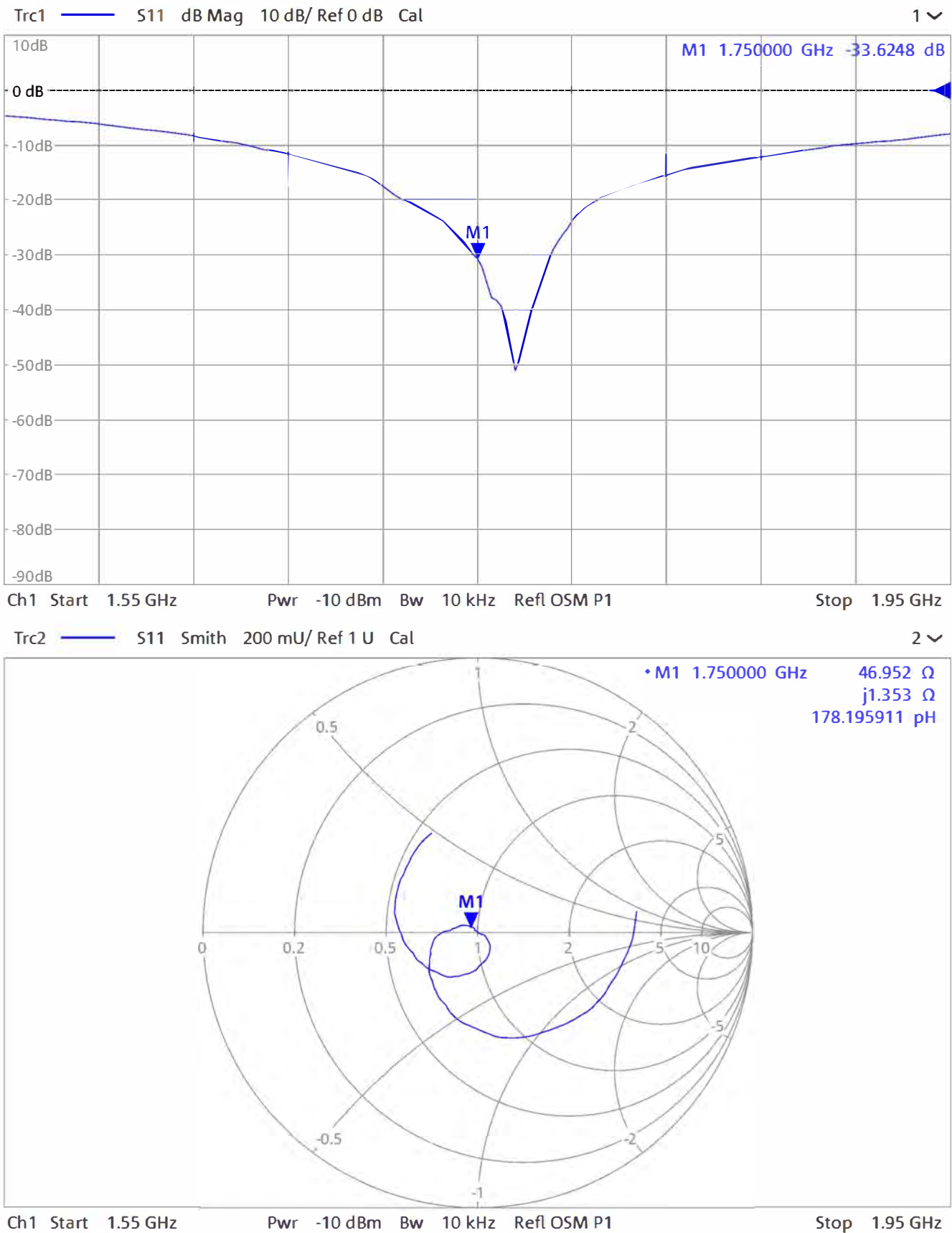
Referring to KDB 865664 D01, if dipoles are verified in return loss ( $\leq -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

| D1750V2 – SN: 1176  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 1750MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/6           | -30.71           |           | 50.59                |             | -2.87                     |             |
| 2025/11/5           | -33.62           | 9.49      | 46.95                | -3.64       | 1.35                      | 4.23        |

### <Justification of the extended calibration>

The return loss is  $\leq -20\text{dB}$ , 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>  
Head 1750MHz \_2025/11/5



**Client: 7layers**

**Certificate No: 24J02Z000857**

## CALIBRATION CERTIFICATE

**Object** D1950V3 - SN: 1229

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

**Calibration date:** November 7, 2024

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        | 106276     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Power sensor NRP6A      | 101369     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Reference Probe EX3DV4  | SN 7517    | 21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)     | Feb-25                |
| DAE4                    | SN 1588    | 13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)    | Sep-25                |
| Secondary Standards     | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 25-Dec-23 (CTTL, No. J23X13426)            | Dec-24                |
| NetworkAnalyzer E5071C  | MY46110673 | 25-Dec-23 (CTTL, No. J23X13425)            | Dec-24                |
| OCP DAK-3.5(weighted)   | 1040       | 22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24) | Jan-25                |

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

Issued: November 15, 2024

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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:

- a) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- c) 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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<http://www.caict.ac.cn>**Measurement Conditions**

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

|                                     |                          |             |
|-------------------------------------|--------------------------|-------------|
| <b>DASY Version</b>                 | DASY52                   | 52.10.4     |
| <b>Extrapolation</b>                | Advanced Extrapolation   |             |
| <b>Phantom</b>                      | Triple Flat Phantom 5.1C |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                    | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm        |             |
| <b>Frequency</b>                    | 1950 MHz $\pm$ 1 MHz     |             |

**Head TSL parameters**

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 40.0                | 1.40 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 40.7 $\pm$ 6 %      | 1.39 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | <1.0 °C             | ----                | ----                 |

**SAR result with Head TSL**

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>   | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 10.1 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>40.8 W/kg <math>\pm</math> 18.8 % (k=2)</b> |
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 5.18 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>20.9 W/kg <math>\pm</math> 18.7 % (k=2)</b> |



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

### Antenna Parameters with Head TSL

|                                      |                            |
|--------------------------------------|----------------------------|
| Impedance, transformed to feed point | $47.3\Omega + 2.24j\Omega$ |
| Return Loss                          | - 28.9dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.098 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

### Additional EUT Data

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



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## DASY5 Validation Report for Head TSL

Date: 2024-11-07

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 1950 MHz; Type: D1950V2; Serial: D1950V2 - SN: 1229**

Communication System: UID 0, CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1950$  MHz;  $\sigma = 1.385$  S/m;  $\epsilon_r = 40.68$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.95, 7.95, 7.95) @ 1950 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP\_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 103.1 V/m; Power Drift = 0.00 dB

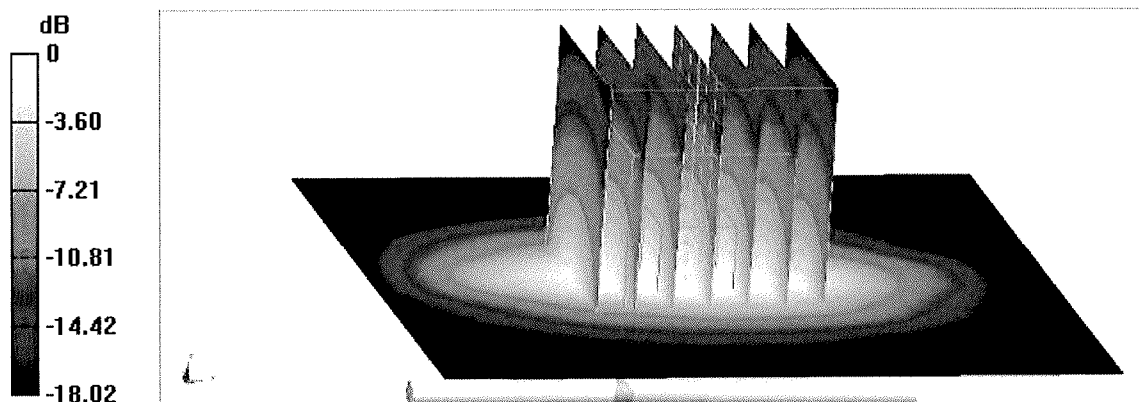
Peak SAR (extrapolated) = 19.3 W/kg

**SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.18 W/kg**

Smallest distance from peaks to all points 3 dB below = 9.1 mm

Ratio of SAR at M2 to SAR at M1 = 53.3%

Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg



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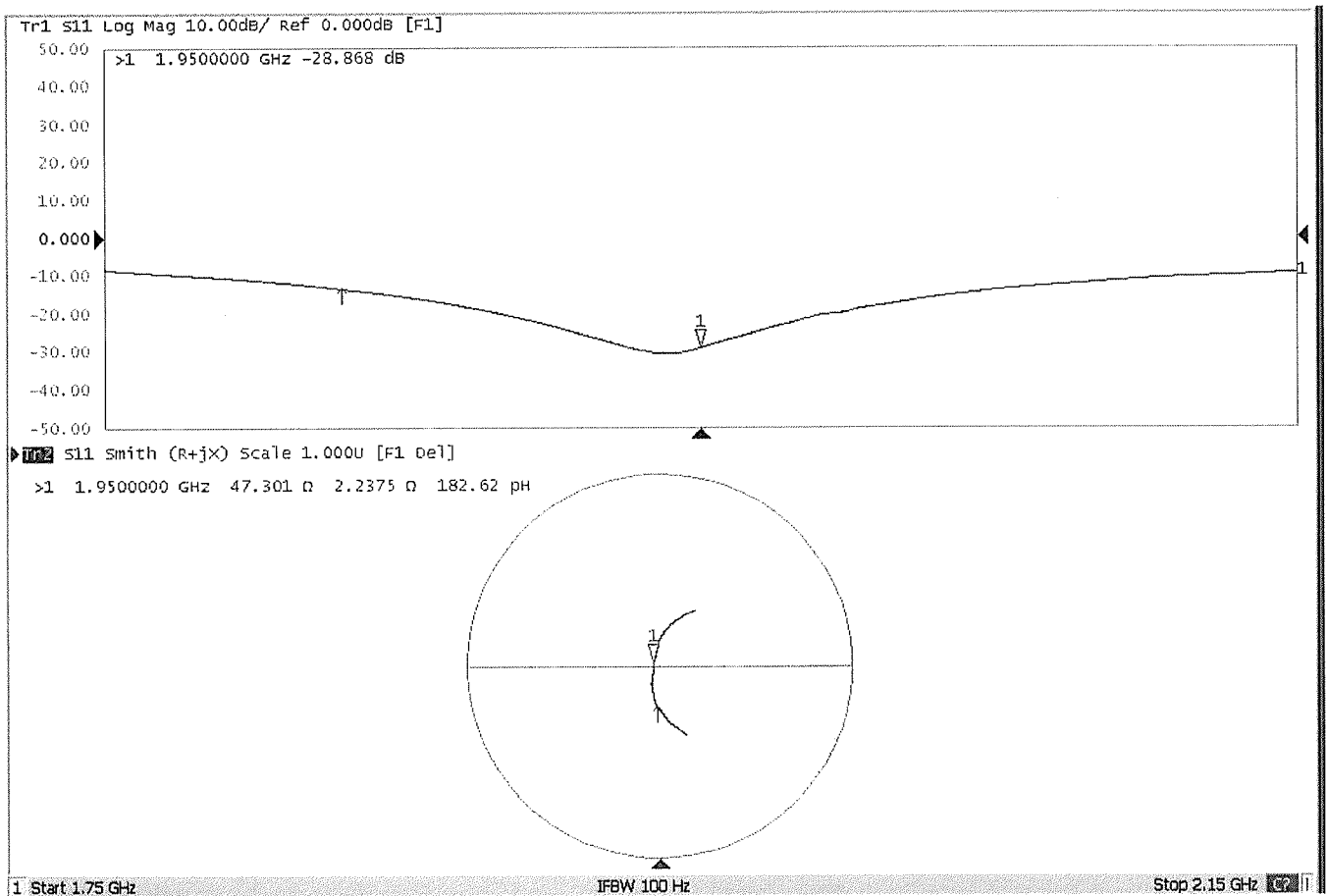
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## Impedance Measurement Plot for Head TSL



## D1950V3 – SN: 1229 Extended Dipole Calibrations

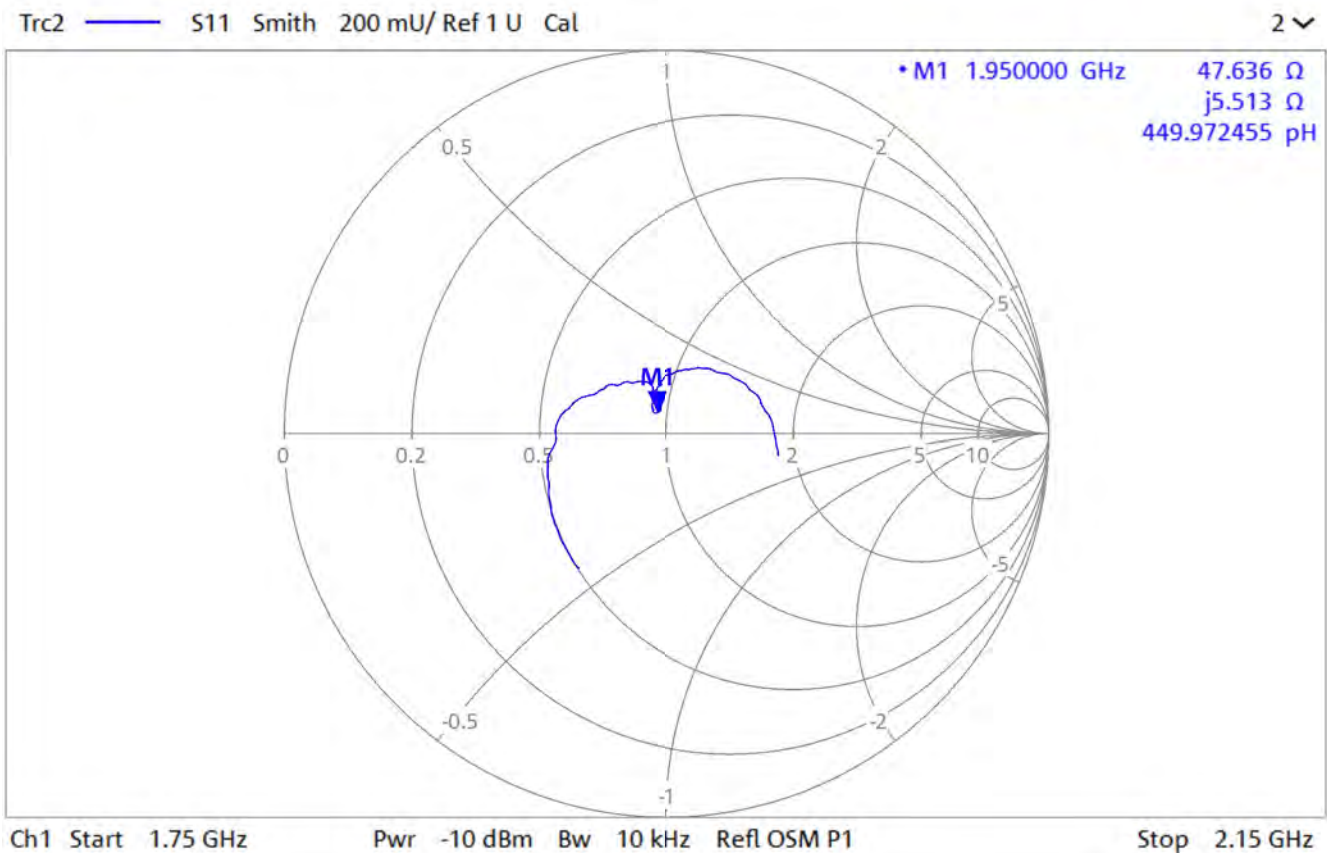
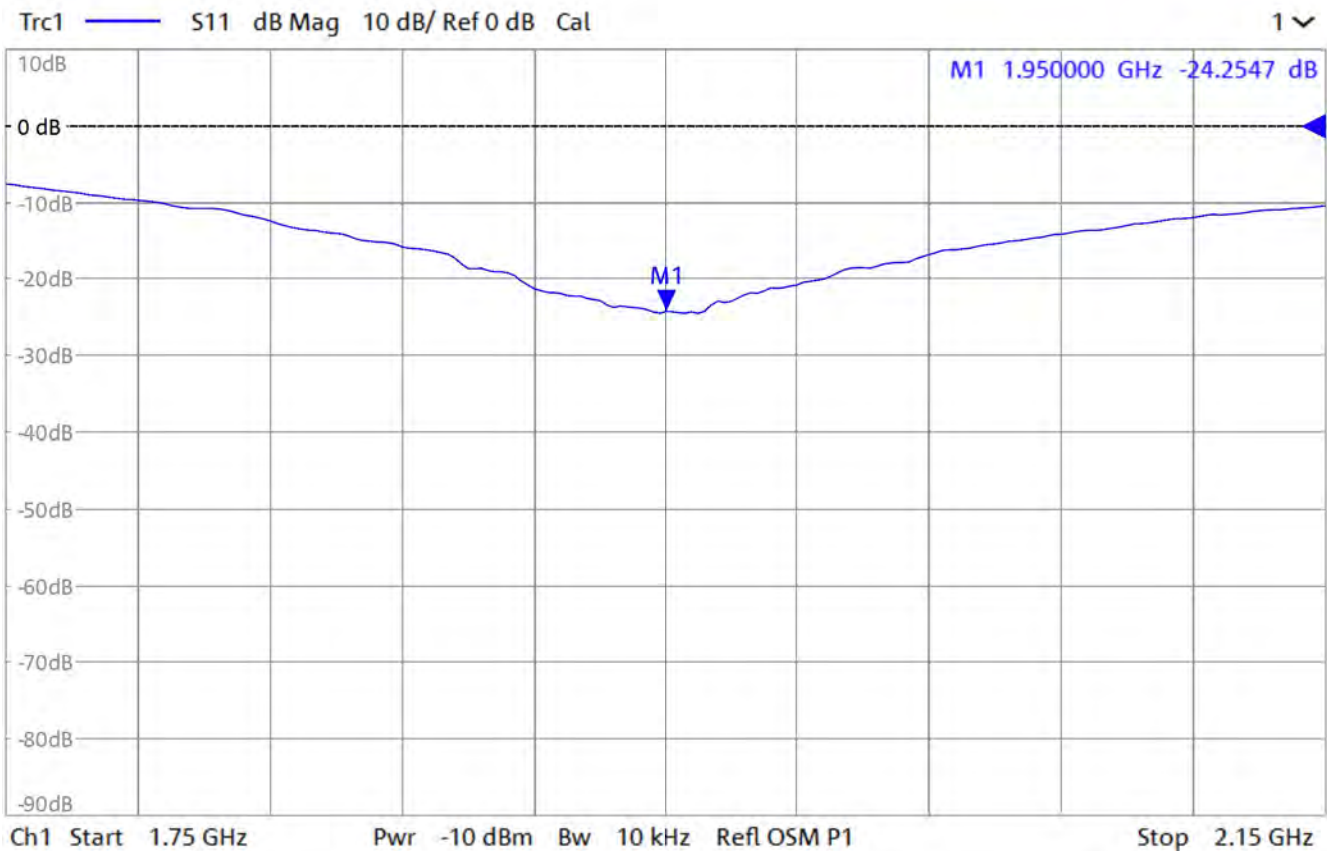
Referring to KDB 865664 D01, if dipoles are verified in return loss ( $\leq -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

| D1950V3 – SN: 1229  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 1950MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/7           | -28.87           |           | 47.30                |             | 2.24                      |             |
| 2025/11/6           | -24.25           | -15.98    | 47.64                | 0.34        | 5.51                      | 3.28        |

### <Justification of the extended calibration>

The return loss is  $\leq -20\text{dB}$ , 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>  
Head 1950MHz \_2025/11/6



Client      **7layers**

Certificate No:    **24J02Z000859**

## CALIBRATION CERTIFICATE

Object      D2450V2 - SN: 1048

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

Calibration date:      November 6, 2024

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.

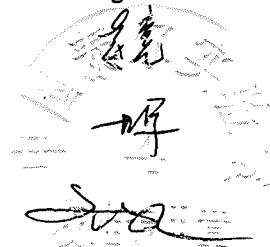
All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
|-------------------------|------------|--------------------------------------------|-----------------------|
| Power Meter NRP2        | 106276     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Power sensor NRP6A      | 101369     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Reference Probe EX3DV4  | SN 7517    | 21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)     | Feb-25                |
| DAE4                    | SN 1588    | 13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)    | Sep-25                |
| Secondary Standards     | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 25-Dec-23 (CTTL, No. J23X13426)            | Dec-24                |
| NetworkAnalyzer E5071C  | MY46110673 | 25-Dec-23 (CTTL, No. J23X13425)            | Dec-24                |
| OCP DAK-3.5(weighted)   | 1040       | 22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24) | Jan-25                |

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

Signature



Issued: November 15, 2024

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



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E-mail: cttl@chinattl.com

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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:

- IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- KDB 865664, "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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<http://www.caict.ac.cn>**Measurement Conditions**

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

|                                     |                          |             |
|-------------------------------------|--------------------------|-------------|
| <b>DASY Version</b>                 | DASY52                   | 52.10.4     |
| <b>Extrapolation</b>                | Advanced Extrapolation   |             |
| <b>Phantom</b>                      | Triple Flat Phantom 5.1C |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                    | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm        |             |
| <b>Frequency</b>                    | 2450 MHz $\pm$ 1 MHz     |             |

**Head TSL parameters**

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 39.2                | 1.80 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 40.1 $\pm$ 6 %      | 1.81 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | <1.0 °C             | ----                | ----                 |

**SAR result with Head TSL**

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>   | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 13.3 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>53.3 W/kg <math>\pm</math> 18.8 % (k=2)</b> |
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.14 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>24.6 W/kg <math>\pm</math> 18.7 % (k=2)</b> |



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

### Antenna Parameters with Head TSL

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 47.4Ω+ 9.16jΩ |
| Return Loss                          | - 20.2dB      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.059 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

### Additional EUT Data

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



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## DASY5 Validation Report for Head TSL

Date: 2024-11-06

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 1048**

Communication System: UID 0, CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.809$  S/m;  $\epsilon_r = 40.08$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

### DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP\_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 107.2 V/m; Power Drift = 0.00 dB

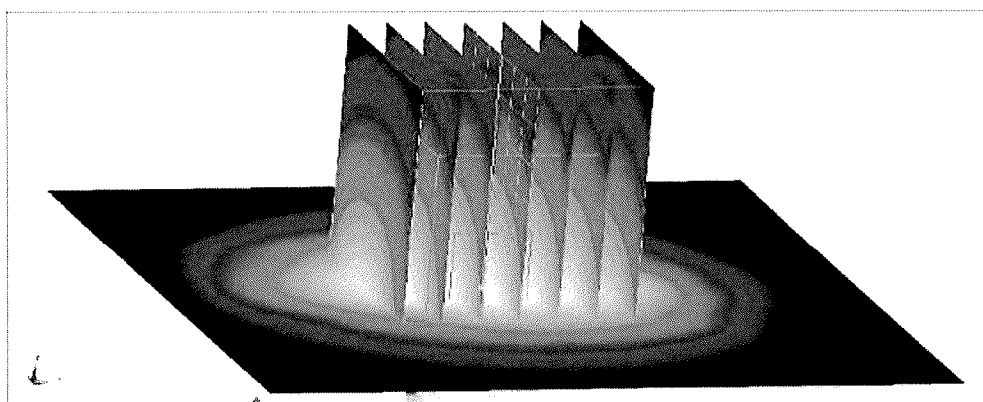
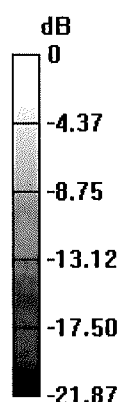
Peak SAR (extrapolated) = 27.1 W/kg

**SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.14 W/kg**

Smallest distance from peaks to all points 3 dB below = 8.5 mm

Ratio of SAR at M2 to SAR at M1 = 49.5%

Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.44 dBW/kg



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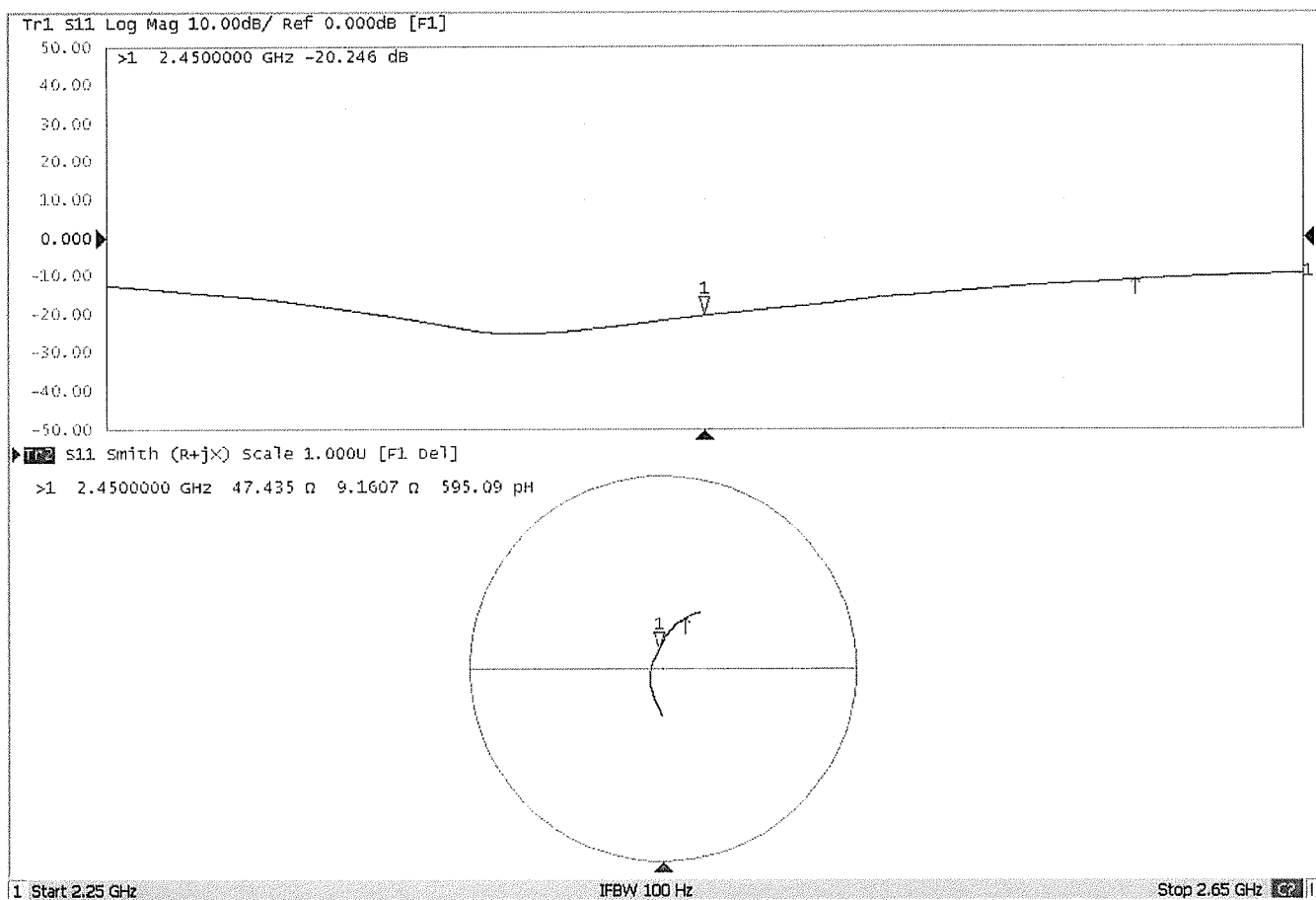
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## Impedance Measurement Plot for Head TSL



## D2450V2 – SN: 1048 Extended Dipole Calibrations

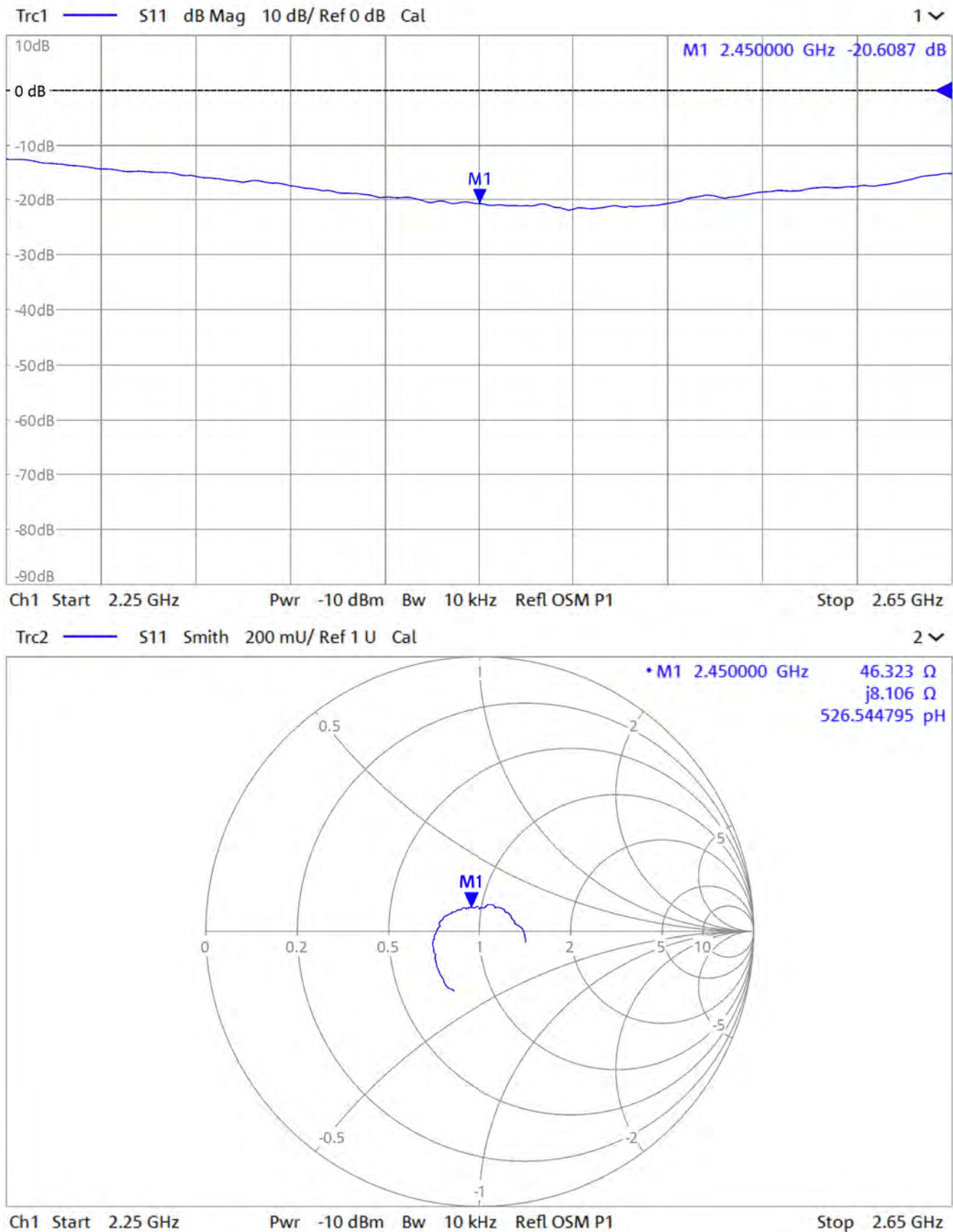
Referring to KDB 865664 D01, if dipoles are verified in return loss ( $\leq -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

| D2450V2 – SN: 1048  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 2450MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/6           | -20.25           |           | 47.44                |             | 9.16                      |             |
| 2025/11/5           | -20.61           | 1.79      | 46.32                | -1.11       | 8.11                      | -1.05       |

### <Justification of the extended calibration>

The return loss is  $\leq -20\text{dB}$ , 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>  
Head 2450MHz \_2025/11/5





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 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

**7Layers**  
 Suzhou

Certificate No.

**D2550V2-1022\_Jul25**

## CALIBRATION CERTIFICATE

Object **D2550V2 - SN: 1022**

Calibration procedure(s) **QA CAL-05.v12**  
**Calibration Procedure for SAR Validation Sources between 0.7 - 3 GHz**

Calibration date **July 4, 2025**

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 Cal |
|-----------------------------|------------|----------------------------------------|---------------|
| Power Sensor R&S NRP-33T    | SN: 100967 | 26-Mar-25 (No. 217-04290)              | Mar-26        |
| Power Sensor R&S NRP18A     | SN: 101859 | 06-Feb-25 (No. 4030A315009541)         | Feb-26        |
| Spectrum Analyzer R&S FSV40 | SN: 101832 | 29-Jan-25 (No. 4030A315009658)         | Jan-26        |
| 3.5mm mismatch combination  | SN: 1152   | 24-Mar-25 (No. 217-04293)              | Mar-26        |
| OCP DAK-12                  | SN: 1016   | 24-Sept-24 (No. OCP-DAK12-1016_Sep24)  | Sep-25        |
| OCP DAK-3.5                 | SN: 1249   | 23-Sept-24 (No. OCP-DAK3.5-1249_Sep24) | Sep-25        |
| Reference Probe EX3DV4      | SN: 7349   | 10-Jan-25 (No. EX3-7349_Jan25)         | Jan-26        |
| DAE4ip                      | SN: 1836   | 17-Apr-25 (No. DAE4ip-1836_Apr25)      | Apr-26        |

| Secondary Standards          | ID         | Check Date (in house)                      | Scheduled Check |
|------------------------------|------------|--------------------------------------------|-----------------|
| ACAD Setup 1                 | SN: 1000   | 27-May-25 (No. 675-ACAD_Source_Box-250527) | May-26          |
| Signal Generator R&S SMB100A | SN: 182081 | 27-May-25 (No. 675-CAL16-S4588-250527)     | May-26          |
| Mismatch; SMA                | SN: 1102   | 24-Apr-25 (No. 675-Mismatch_SMA-250424)    | Apr-26          |
| OCP DAK-12                   | SN: 1029   | 27-Feb-25 (No. OCP-DAK12-1029_Feb25)       | Feb-26          |
| OCP DAK-3.5                  | SN: 1336   | 09-Dec-24 (No. OCP-DAK3.5-1336_Dec24)      | Dec-25          |

|               |                 |                       |           |
|---------------|-----------------|-----------------------|-----------|
|               | Name            | Function              | Signature |
| Calibrated by | Jeffrey Katzman | Laboratory Technician |           |
| Approved by   | Sven Kühn       | Technical Manager     |           |

Issued: July 4, 2025

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

## Glossary

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

## Calibration is Performed According to the Following Standards

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Additional Documentation

- DASY 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%.

## Measurement Conditions

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

|                                     |                          |                                     |
|-------------------------------------|--------------------------|-------------------------------------|
| <b>DASY Version</b>                 | DASY8 Module SAR         | 16.4.0                              |
| <b>Extrapolation</b>                | Advanced Extrapolation   |                                     |
| <b>Phantom</b>                      | Modular Flat Phantom     |                                     |
| <b>Distance Dipole Center - TSL</b> | 10 mm                    | with spacer                         |
| <b>Zoom Scan Resolution</b>         | dx, dy = 5mm, dz = 1.5mm | Graded Ratio = 1.5 mm (Z direction) |
| <b>Frequency</b>                    | 2550MHz $\pm$ 1MHz       |                                     |

## HSL parameters at 2550 MHz

The following parameters and calculations were applied.

|                                           | Temperature        | Permittivity  | Conductivity        |
|-------------------------------------------|--------------------|---------------|---------------------|
| <b>Nominal HSL parameters</b>             | 22.0 °C            | 39.1          | 1.91 mho/m          |
| <b>Measured HSL parameters</b>            | (22.0 $\pm$ 0.2)°C | 38.2 $\pm$ 6% | 1.93 mho/m $\pm$ 6% |
| <b>HSL temperature change during test</b> | < 0.5 °C           |               |                     |

## SAR result with HSL at 2550 MHz

| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of HSL</b> | Condition          |                               |
|--------------------------------------------------------|--------------------|-------------------------------|
| SAR for nominal HSL parameters                         | 24 dBm input power | 13.9 W/kg                     |
| SAR for nominal HSL parameters                         | normalized to 1W   | 55.3 W/kg $\pm$ 17.0% (k = 2) |

| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of HSL</b> | Condition          |                               |
|----------------------------------------------------------|--------------------|-------------------------------|
| SAR for nominal HSL parameters                           | 24 dBm input power | 6.41 W/kg                     |
| SAR for nominal HSL parameters                           | normalized to 1W   | 25.5 W/kg $\pm$ 16.5% (k = 2) |

**Appendix (Additional assessments outside the scope of SCS 0108)****Antenna Parameters with HSL at 2550 MHz**

|             |                                |
|-------------|--------------------------------|
| Impedance   | 49.4 $\Omega$ – 2.6 j $\Omega$ |
| Return Loss | -31.5 dB                       |

**General Antenna Parameters and Design**

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.157 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 |
|-----------------|-------|

System Performance Check Report

Summary

|                  |                 |     |             |
|------------------|-----------------|-----|-------------|
| Dipole           | Frequency [MHz] | TSL | Power [dBm] |
| D2550V2 - SN1022 | 2550            | HSL | 24          |

Exposure Conditions

|                      |                    |      |            |                                 |                   |                        |                  |
|----------------------|--------------------|------|------------|---------------------------------|-------------------|------------------------|------------------|
| Phantom Section, TSL | Test Distance [mm] | Band | Group, UID | Frequency [MHz], Channel Number | Conversion Factor | TSL Conductivity [S/m] | TSL Permittivity |
| Flat                 | 10                 |      | CW, 0--    | 2550, 0                         | 7.29              | 1.93                   | 38.2             |

Hardware Setup

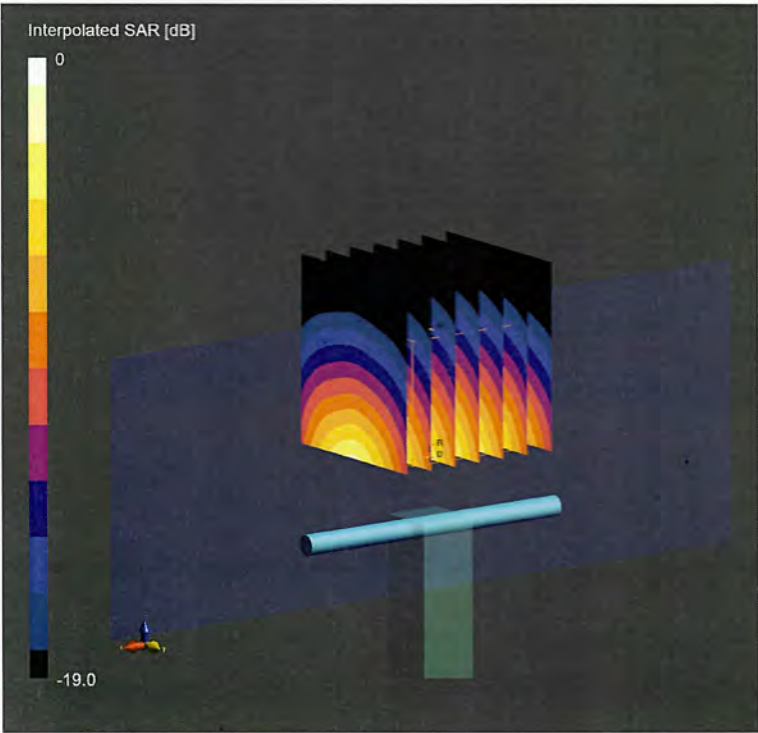
|                 |                    |                             |                           |
|-----------------|--------------------|-----------------------------|---------------------------|
| Phantom         | TSL, Measured Date | Probe, Calibration Date     | DAE, Calibration Date     |
| MFP V8.0 Center | HSL, 2025-07-04    | EX3DV4 - SN7349, 2025-01-10 | DAE4ip Sn1836, 2025-04-17 |

Scans Setup

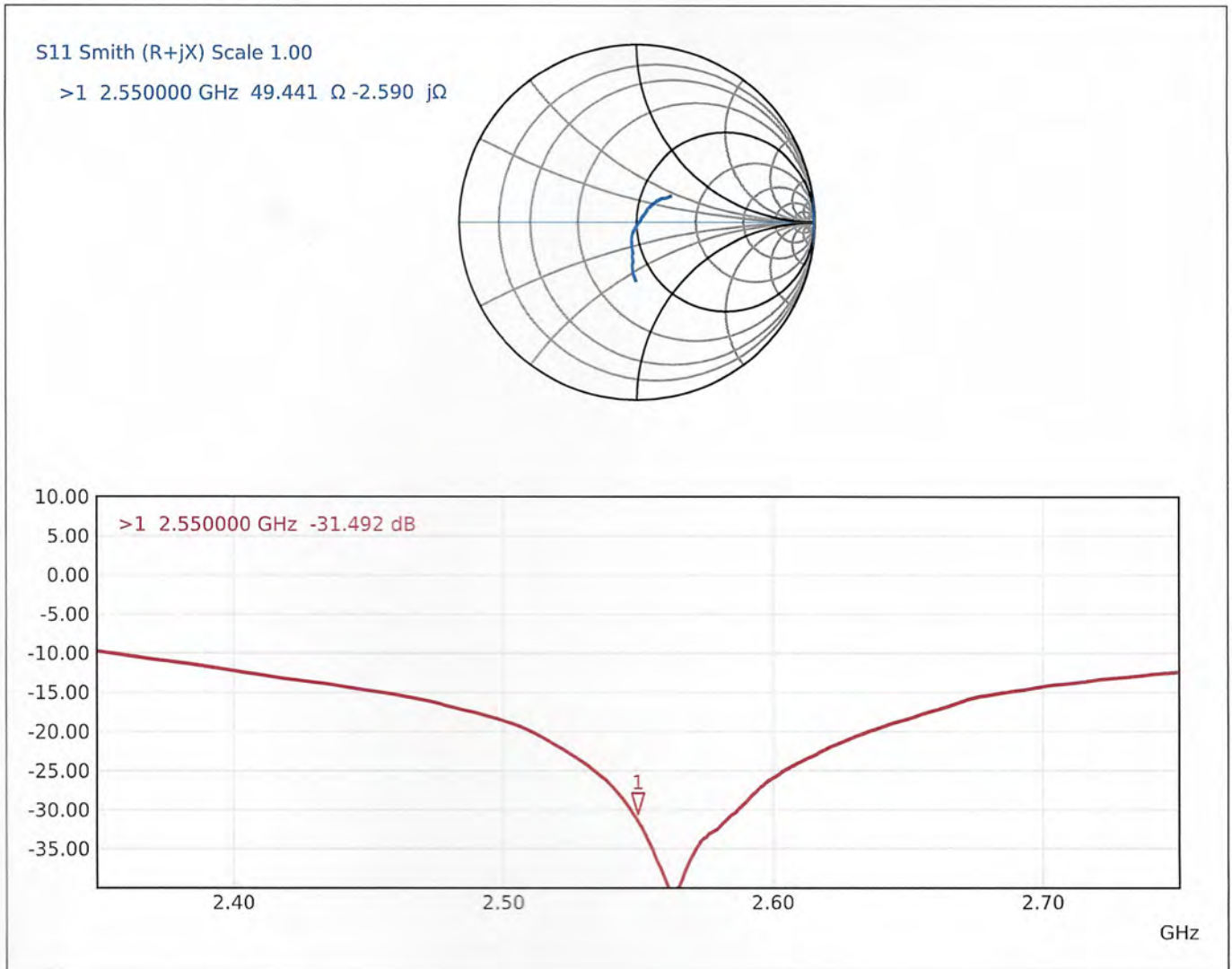
|                     |                 |
|---------------------|-----------------|
|                     | Zoom Scan       |
| Grid Extents [mm]   | 30 x 30 x 30    |
| Grid Steps [mm]     | 5.0 x 5.0 x 1.5 |
| Sensor Surface [mm] | 1.4             |
| Graded Grid         | Yes             |
| Grading Ratio       | 1.5             |
| MAIA                | N/A             |
| Surface Detection   | VMS + 6p        |
| Scan Method         | Measured        |

Measurement Results

|                     |                     |
|---------------------|---------------------|
|                     | Zoom Scan           |
| Date                | 2025-07-04          |
| psSAR1g [W/Kg]      | 13.9                |
| psSAR10g [W/Kg]     | 6.41                |
| Power Drift [dB]    | 0.02                |
| Power Scaling       | Disabled            |
| Scaling Factor [dB] |                     |
| TSL Correction      | Positive / Negative |



## Impedance Measurement Plot for HSL



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Tel: +86-10-62304633-2117

E-mail: emf@caict.ac.cn

http://www.caic.ac.cn

Client

**7layers**

**Certificate No: 24J02Z000865**

## CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1315

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

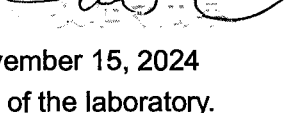
Calibration date: November 5, 2024

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Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
|-------------------------|------------|--------------------------------------------|-----------------------|
| Power Meter NRP2        | 106276     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Power sensor NRP6A      | 101369     | 17-May-24 (CTTL, No. J24X04107)            | May-25                |
| Reference Probe EX3DV4  | SN 7517    | 21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)     | Feb-25                |
| DAE4                    | SN 1588    | 13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)    | Sep-25                |
| Secondary Standards     | ID #       | Cal Date (Calibrated by, Certificate No.)  | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 25-Dec-23 (CTTL, No. J23X13426)            | Dec-24                |
| NetworkAnalyzer E5071C  | MY46110673 | 25-Dec-23 (CTTL, No. J23X13425)            | Dec-24                |
| OCP DAK-3.5(weighted)   | 1040       | 22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24) | Jan-25                |

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

Issued: November 15, 2024

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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             |

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- KDB 865664, "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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<http://www.caic.ac.cn>**Measurement Conditions**

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

|                                     |                                                                      |                                  |
|-------------------------------------|----------------------------------------------------------------------|----------------------------------|
| <b>DASY Version</b>                 | DASY52                                                               | 52.10.4                          |
| <b>Extrapolation</b>                | Advanced Extrapolation                                               |                                  |
| <b>Phantom</b>                      | Triple Flat Phantom 5.1C                                             |                                  |
| <b>Distance Dipole Center - TSL</b> | 10 mm                                                                | with Spacer                      |
| <b>Zoom Scan Resolution</b>         | dx, dy = 4 mm, dz = 1.4 mm                                           | Graded Ratio = 1.4 (Z direction) |
| <b>Frequency</b>                    | 5250 MHz $\pm$ 1 MHz<br>5600 MHz $\pm$ 1 MHz<br>5750 MHz $\pm$ 1 MHz |                                  |

**Head TSL parameters at 5250MHz**

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 35.9           | 4.71 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 35.8 $\pm$ 6 % | 4.70 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | <1.0 °C             | ----           | ----                 |

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

|                                     |                           |                    |                                                |
|-------------------------------------|---------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1</b>          | <b>(1 g) of Head TSL</b>  | Condition          |                                                |
| SAR measured                        |                           | 100 mW input power | 7.73 W/kg                                      |
| SAR for nominal Head TSL parameters |                           | normalized to 1W   | <b>77.3 W/kg <math>\pm</math> 24.4 % (k=2)</b> |
| <b>SAR averaged over 10</b>         | <b>(10 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                        |                           | 100 mW input power | 2.16 W/kg                                      |
| SAR for nominal Head TSL parameters |                           | normalized to 1W   | <b>21.6 W/kg <math>\pm</math> 24.2 % (k=2)</b> |



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**Head TSL parameters at 5600MHz**

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 | 35.2 ± 6 %   | 5.08 mho/m ± 6 % |
| Head TSL temperature change during test | <1.0 °C         | ----         | ----             |

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

|                                                |                    |                                 |
|------------------------------------------------|--------------------|---------------------------------|
| <b>SAR averaged over 1 (1 g) of Head TSL</b>   | Condition          |                                 |
| SAR measured                                   | 100 mW input power | 8.18 W/kg                       |
| SAR for nominal Head TSL parameters            | normalized to 1W   | <b>81.7 W/kg ± 24.4 % (k=2)</b> |
| <b>SAR averaged over 10 (10 g) of Head TSL</b> | Condition          |                                 |
| SAR measured                                   | 100 mW input power | 2.27 W/kg                       |
| SAR for nominal Head TSL parameters            | normalized to 1W   | <b>22.7 W/kg ± 24.2 % (k=2)</b> |

**Head TSL parameters at 5750MHz**

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 | 35.0 ± 6 %   | 5.24 mho/m ± 6 % |
| Head TSL temperature change during test | <1.0 °C         | ----         | ----             |

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

|                                                |                    |                                 |
|------------------------------------------------|--------------------|---------------------------------|
| <b>SAR averaged over 1 (1 g) of Head TSL</b>   | Condition          |                                 |
| SAR measured                                   | 100 mW input power | 7.73 W/kg                       |
| SAR for nominal Head TSL parameters            | normalized to 1W   | <b>77.1 W/kg ± 24.4 % (k=2)</b> |
| <b>SAR averaged over 10 (10 g) of Head TSL</b> | Condition          |                                 |
| SAR measured                                   | 100 mW input power | 2.13 W/kg                       |
| SAR for nominal Head TSL parameters            | normalized to 1W   | <b>21.2 W/kg ± 24.2 % (k=2)</b> |



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

### Antenna Parameters with Head TSL at 5250MHz

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 49.2Ω- 1.60jΩ |
| Return Loss                          | - 34.8dB      |

### Antenna Parameters with Head TSL at 5600MHz

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 53.2Ω+ 4.15jΩ |
| Return Loss                          | - 25.9dB      |

### Antenna Parameters with Head TSL at 5750MHz

|                                      |               |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 49.3Ω+ 4.49jΩ |
| Return Loss                          | - 26.8dB      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.099 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

### Additional EUT Data

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



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## DASY5 Validation Report for Head TSL

Date: 2024-11-05

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1315**

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

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.698$  S/m;  $\epsilon_r = 35.84$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.077$  S/m;  $\epsilon_r = 35.24$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.241$  S/m;  $\epsilon_r = 35.02$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(5.43, 5.43, 5.43) @ 5250 MHz; ConvF(4.83, 4.83, 4.83) @ 5600 MHz; ConvF(4.95, 4.95, 4.95) @ 5750 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP\_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

**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 = 61.02 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 32.1 W/kg

**SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.16 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 64.4%

Maximum value of SAR (measured) = 18.7 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 = 60.79 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 38.0 W/kg

**SAR(1 g) = 8.18 W/kg; SAR(10 g) = 2.27 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 60.8%

Maximum value of SAR (measured) = 20.4 W/kg



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**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 = 59.50 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 37.3 W/kg

**SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.13 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 59.4%

Maximum value of SAR (measured) = 19.7 W/kg



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## **Impedance Measurement Plot for Head TSL**

## D5GHzV2 – SN: 1315 Extended Dipole Calibrations

Referring to KDB 865664 D01, 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.

| D5GHzV2 – SN: 1315  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 5250MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/5           | -34.80           |           | 49.20                |             | -1.60                     |             |
| 2025/11/4           | -37.08           | 6.55      | 49.84                | 0.64        | -0.08                     | 1.52        |

| D5GHzV2 – SN: 1315  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 5600MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/5           | -25.90           |           | 53.20                |             | 4.15                      |             |
| 2025/11/4           | -23.44           | -9.50     | 49.94                | -3.26       | 5.59                      | 1.44        |

| D5GHzV2 – SN: 1315  |                  |           |                      |             |                           |             |
|---------------------|------------------|-----------|----------------------|-------------|---------------------------|-------------|
| 5750MHz             |                  |           |                      |             |                           |             |
| Date of Measurement | Return-Loss (dB) | Delta (%) | Real Impedance (ohm) | Delta (ohm) | Imaginary Impedance (ohm) | Delta (ohm) |
| 2024/11/5           | -26.80           |           | 49.30                |             | 4.49                      |             |
| 2025/11/4           | -26.29           | -1.91     | 47.13                | -2.17       | 3.20                      | -1.29       |

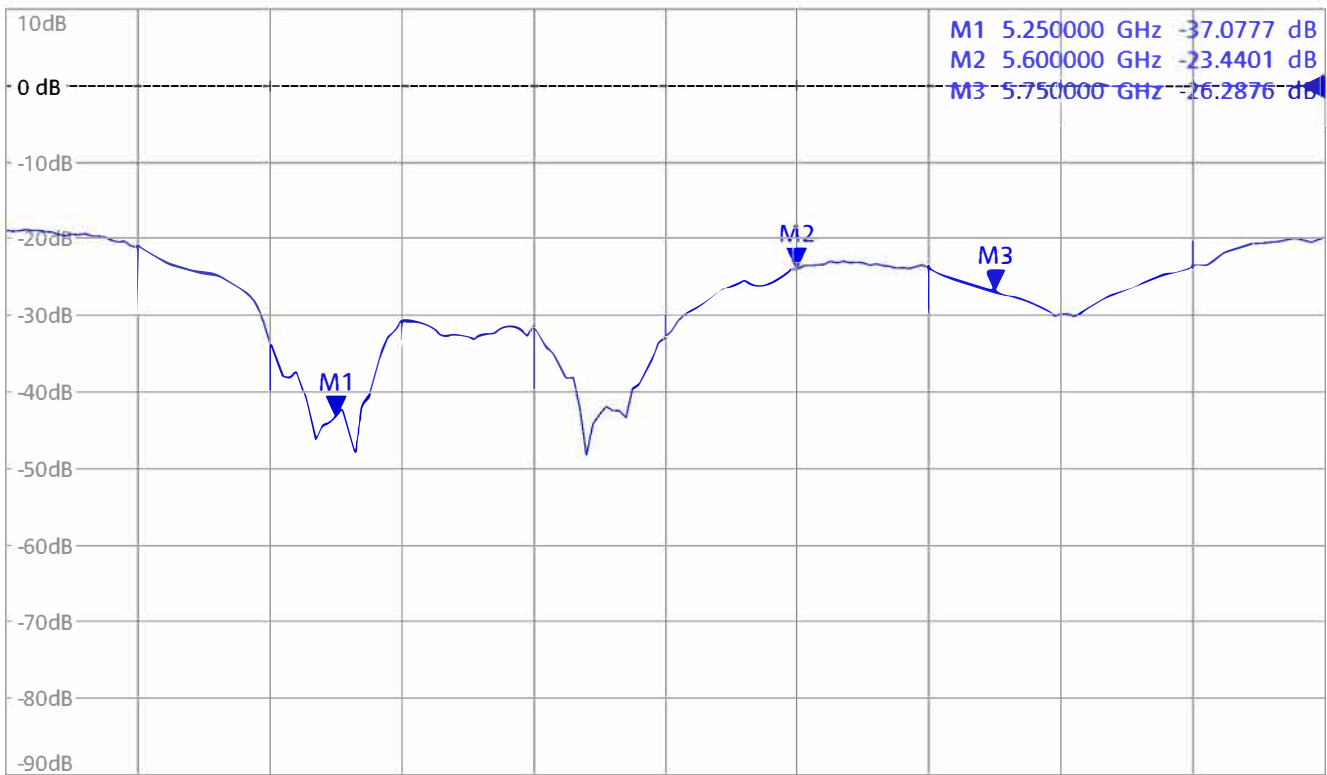
### <Justification of the extended calibration>

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>  
Head 5250MHz \_2025/11/4  
Head 5600MHz \_2025/11/4  
Head 5750MHz \_2025/11/4

Trc1 — S11 dB Mag 10 dB/ Ref 0 dB Cal

1

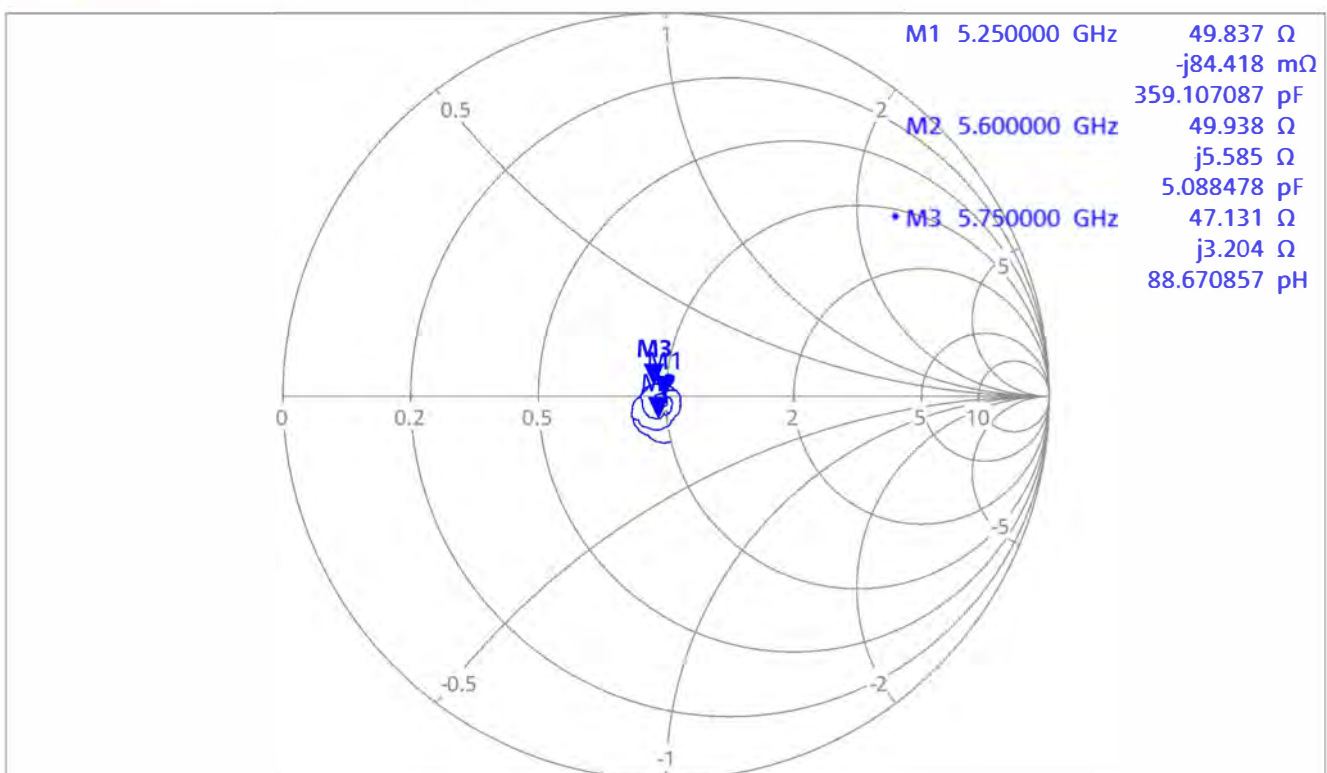


Ch1 Start 5 GHz Pwr -10 dBm Bw 10 kHz Refl OSM P1

Stop 6 GHz

Trc2 — S11 Smith 200 mU/ Ref 1 U Cal

2



Ch1 Start 5 GHz Pwr -10 dBm Bw 10 kHz Refl OSM P1

Stop 6 GHz

## Appendix D. Conducted RF Output Power Table

The detailed power table are shown as follows.

## GSM&WCDMA

| Band            | GSM850               |       |       |                          |                      |       |       |
|-----------------|----------------------|-------|-------|--------------------------|----------------------|-------|-------|
|                 | Burst Averaged Power |       |       | Max. Tune-up Power (dBm) | Frame Averaged Power |       |       |
| Channel         | 128                  | 189   | 251   |                          | 128                  | 189   | 251   |
| Frequency (MHz) | 824.2                | 836.4 | 848.8 |                          | 824.2                | 836.4 | 848.8 |
| GSM             | 33.26                | 33.30 | 33.35 | 33.90                    | 24.26                | 24.30 | 24.35 |
| GPRS 1Tx Slot   | 33.30                | 33.32 | 33.42 | 33.90                    | 24.30                | 24.32 | 24.42 |
| GPRS 2Tx Slot   | 30.47                | 30.40 | 30.56 | 30.90                    | 24.47                | 24.40 | 24.56 |
| GPRS 3Tx Slot   | 28.58                | 28.90 | 28.98 | 29.10                    | 24.32                | 24.64 | 24.72 |
| GPRS 4Tx Slot   | 26.89                | 27.30 | 27.46 | 27.90                    | 23.89                | 24.30 | 24.46 |

| Band            | GSM1900              |       |        |                          |                      |       |        |
|-----------------|----------------------|-------|--------|--------------------------|----------------------|-------|--------|
|                 | Burst Averaged Power |       |        | Max. Tune-up Power (dBm) | Frame Averaged Power |       |        |
| Channel         | 512                  | 661   | 810    |                          | 512                  | 661   | 810    |
| Frequency (MHz) | 1850.2               | 1880  | 1909.8 |                          | 1850.2               | 1880  | 1909.8 |
| GSM             | 29.20                | 29.49 | 29.48  | 30.90                    | 20.20                | 20.49 | 20.48  |
| GPRS 1Tx Slot   | 29.22                | 29.53 | 29.51  | 30.90                    | 20.22                | 20.53 | 20.51  |
| GPRS 2Tx Slot   | 26.95                | 27.06 | 27.09  | 27.90                    | 20.95                | 21.06 | 21.09  |
| GPRS 3Tx Slot   | 24.98                | 25.18 | 25.27  | 26.10                    | 20.72                | 20.92 | 21.01  |
| GPRS 4Tx Slot   | 23.42                | 23.70 | 23.77  | 24.90                    | 20.42                | 20.70 | 20.77  |

| Band            | WCDMA II |       |        |                          |
|-----------------|----------|-------|--------|--------------------------|
| TX Channel      | 9262     | 9400  | 9538   | Max. Tune-up Power (dBm) |
| Rx Channel      | 9662     | 9800  | 9938   |                          |
| Frequency (MHz) | 1852.4   | 1880  | 1907.6 |                          |
| RMC 12.2K       | 23.71    | 23.70 | 23.76  | 24.30                    |
| HSDPA Subtest-1 | 23.02    | 22.80 | 22.79  | 23.30                    |
| HSDPA Subtest-2 | 22.50    | 22.28 | 22.23  | 23.30                    |
| HSDPA Subtest-3 | 22.49    | 22.32 | 22.26  | 22.80                    |
| HSDPA Subtest-4 | 22.77    | 22.79 | 22.77  | 22.80                    |
| HSUPA Subtest-1 | 22.30    | 21.99 | 21.92  | 23.30                    |
| HSUPA Subtest-2 | 20.87    | 20.70 | 20.67  | 21.30                    |
| HSUPA Subtest-3 | 21.79    | 21.62 | 21.54  | 22.30                    |
| HSUPA Subtest-4 | 20.45    | 20.29 | 20.22  | 21.30                    |
| HSUPA Subtest-5 | 21.80    | 21.59 | 21.55  | 23.30                    |

| Band            | WCDMA IV |        |        |                          | WCDMA V |       |       |                          |
|-----------------|----------|--------|--------|--------------------------|---------|-------|-------|--------------------------|
|                 |          |        |        | Max. Tune-up Power (dBm) |         |       |       | Max. Tune-up Power (dBm) |
| TX Channel      | 1312     | 1413   | 1513   |                          | 4132    | 4182  | 4233  |                          |
| Rx Channel      | 1537     | 1638   | 1738   |                          | 4357    | 4407  | 4458  |                          |
| Frequency (MHz) | 1712.4   | 1732.6 | 1752.6 |                          | 826.4   | 836.4 | 846.6 |                          |
| RMC 12.2K       | 23.74    | 23.54  | 23.45  | 24.30                    | 23.88   | 23.91 | 24.06 | 24.30                    |
| HSDPA Subtest-1 | 22.96    | 22.82  | 22.74  | 23.30                    | 22.97   | 22.79 | 22.80 | 23.30                    |
| HSDPA Subtest-2 | 22.45    | 22.29  | 22.23  | 23.30                    | 22.47   | 22.33 | 22.25 | 23.30                    |
| HSDPA Subtest-3 | 22.47    | 22.34  | 22.27  | 22.80                    | 22.46   | 22.28 | 22.25 | 22.80                    |
| HSDPA Subtest-4 | 22.75    | 22.73  | 22.76  | 22.80                    | 22.74   | 22.71 | 22.78 | 22.80                    |
| HSUPA Subtest-1 | 22.77    | 22.50  | 22.49  | 23.30                    | 22.87   | 22.88 | 23.01 | 23.30                    |
| HSUPA Subtest-2 | 20.92    | 20.74  | 20.62  | 21.30                    | 20.86   | 20.73 | 20.69 | 21.30                    |
| HSUPA Subtest-3 | 21.77    | 21.64  | 21.50  | 22.30                    | 21.83   | 21.59 | 21.58 | 22.30                    |
| HSUPA Subtest-4 | 20.45    | 20.30  | 20.30  | 21.30                    | 20.44   | 20.30 | 20.29 | 21.30                    |
| HSUPA Subtest-5 | 21.80    | 21.58  | 21.56  | 23.30                    | 21.75   | 21.63 | 21.50 | 23.30                    |

## LTE

| LTE Band 2 |            |         |           |         |       |       |                 |           |                    |                      |
|------------|------------|---------|-----------|---------|-------|-------|-----------------|-----------|--------------------|----------------------|
| BW [MHz]   | Modulation | RB Size | RB Offset | Channel |       |       |                 | SPP [MHz] | Max. Tune-up [dBm] | Max. Tune-down [dBm] |
|            |            |         |           | Low     | Mid   | High  | Frequency [MHz] |           |                    |                      |
| 20         | QPSK       | 1       | 0         | 23.24   | 23.30 | 23.32 | 0               | 24.3      |                    |                      |
|            |            | 1       | 50        | 23.33   | 23.37 | 23.38 | 0               | 24.3      |                    |                      |
|            |            | 1       | 99        | 23.36   | 23.34 | 23.33 | 0               | 24.3      |                    |                      |
|            |            | 50      | 0         | 22.41   | 22.39 | 22.46 | 1               | 23.3      |                    |                      |
|            |            | 50      | 25        | 22.44   | 22.41 | 22.44 | 1               | 23.3      |                    |                      |
|            | 16QAM      | 50      | 50        | 22.36   | 22.36 | 22.37 | 1               | 23.3      |                    |                      |
|            |            | 100     | 0         | 22.16   | 22.30 | 22.32 | 1               | 23.3      |                    |                      |
|            |            | 1       | 0         | 22.60   | 22.56 | 22.56 | 1               | 23.3      |                    |                      |
|            |            | 1       | 50        | 22.54   | 22.61 | 22.48 | 1               | 23.3      |                    |                      |
|            |            | 1       | 99        | 22.60   | 22.66 | 22.55 | 1               | 23.3      |                    |                      |
| 20         | 16QAM      | 50      | 0         | 21.39   | 21.27 | 21.46 | 2               | 22.3      |                    |                      |
|            |            | 50      | 25        | 21.45   | 21.39 | 21.59 | 2               | 22.3      |                    |                      |
|            |            | 50      | 50        | 21.37   | 21.41 | 21.35 | 2               | 22.3      |                    |                      |
|            |            | 100     | 0         | 21.41   | 21.28 | 21.43 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.51   | 21.61 | 21.49 | 2               | 22.3      |                    |                      |
|            | 64QAM      | 1       | 50        | 21.63   | 21.67 | 21.64 | 2               | 22.3      |                    |                      |
|            |            | 1       | 99        | 21.45   | 21.43 | 21.68 | 2               | 22.3      |                    |                      |
|            |            | 50      | 0         | 20.37   | 20.25 | 20.41 | 3               | 21.3      |                    |                      |
|            |            | 50      | 25        | 20.44   | 20.43 | 20.49 | 3               | 21.3      |                    |                      |
|            |            | 50      | 50        | 20.46   | 20.38 | 20.45 | 3               | 21.3      |                    |                      |
| 15         | QPSK       | 1       | 0         | 20.38   | 20.33 | 20.40 | 3               | 21.3      |                    |                      |
|            |            | 1       | 50        | 20.38   | 20.33 | 20.40 | 3               | 21.3      |                    |                      |
|            |            | 1       | 99        | 20.38   | 20.33 | 20.40 | 3               | 21.3      |                    |                      |
|            |            | 36      | 0         | 22.30   | 22.36 | 22.39 | 1               | 23.3      |                    |                      |
|            |            | 36      | 19        | 22.34   | 22.37 | 22.50 | 1               | 23.3      |                    |                      |
|            | 16QAM      | 36      | 36        | 22.26   | 22.30 | 22.33 | 1               | 23.3      |                    |                      |
|            |            | 75      | 0         | 22.11   | 22.20 | 22.20 | 1               | 23.3      |                    |                      |
|            |            | 1       | 0         | 22.46   | 22.51 | 22.48 | 1               | 23.3      |                    |                      |
|            |            | 1       | 37        | 22.41   | 22.58 | 22.42 | 1               | 23.3      |                    |                      |
|            |            | 1       | 74        | 22.46   | 22.59 | 22.59 | 1               | 23.3      |                    |                      |
| 15         | 16QAM      | 36      | 0         | 21.28   | 21.16 | 21.33 | 2               | 22.3      |                    |                      |
|            |            | 36      | 19        | 21.33   | 21.38 | 21.43 | 2               | 22.3      |                    |                      |
|            |            | 36      | 39        | 21.35   | 21.40 | 21.23 | 2               | 22.3      |                    |                      |
|            |            | 75      | 0         | 21.31   | 21.20 | 21.30 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.39   | 21.49 | 21.47 | 2               | 22.3      |                    |                      |
|            | 64QAM      | 1       | 37        | 21.55   | 21.59 | 21.53 | 2               | 22.3      |                    |                      |
|            |            | 1       | 74        | 21.38   | 21.39 | 21.67 | 2               | 22.3      |                    |                      |
|            |            | 36      | 0         | 20.32   | 20.17 | 20.39 | 3               | 21.3      |                    |                      |
|            |            | 36      | 19        | 20.40   | 20.40 | 20.43 | 3               | 21.3      |                    |                      |
|            |            | 36      | 39        | 20.42   | 20.32 | 20.25 | 3               | 21.3      |                    |                      |
| 10         | QPSK       | 1       | 0         | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 1       | 50        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 1       | 99        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 25      | 0         | 22.28   | 22.32 | 22.31 | 1               | 23.3      |                    |                      |
|            |            | 25      | 12        | 22.36   | 22.32 | 22.52 | 1               | 23.3      |                    |                      |
|            | 16QAM      | 25      | 25        | 22.31   | 22.38 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 50      | 0         | 22.04   | 22.28 | 22.31 | 1               | 23.3      |                    |                      |
|            |            | 1       | 0         | 22.49   | 22.42 | 22.62 | 1               | 23.3      |                    |                      |
|            |            | 1       | 24        | 22.41   | 22.59 | 22.44 | 1               | 23.3      |                    |                      |
|            |            | 1       | 49        | 22.66   | 22.59 | 22.62 | 1               | 23.3      |                    |                      |
| 10         | 16QAM      | 25      | 0         | 21.27   | 21.23 | 21.36 | 2               | 22.3      |                    |                      |
|            |            | 25      | 12        | 21.38   | 21.32 | 21.47 | 2               | 22.3      |                    |                      |
|            |            | 25      | 25        | 21.23   | 21.29 | 21.25 | 2               | 22.3      |                    |                      |
|            |            | 50      | 0         | 21.37   | 21.19 | 21.38 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.47   | 21.48 | 21.40 | 2               | 22.3      |                    |                      |
|            | 64QAM      | 1       | 24        | 21.60   | 21.63 | 21.63 | 2               | 22.3      |                    |                      |
|            |            | 1       | 49        | 21.33   | 21.34 | 21.64 | 2               | 22.3      |                    |                      |
|            |            | 25      | 0         | 20.34   | 20.19 | 20.32 | 3               | 21.3      |                    |                      |
|            |            | 25      | 12        | 20.35   | 20.31 | 20.48 | 3               | 21.3      |                    |                      |
|            |            | 25      | 25        | 20.33   | 20.30 | 20.20 | 3               | 21.3      |                    |                      |
| 5          | QPSK       | 1       | 0         | 20.29   | 20.24 | 20.45 | 3               | 21.3      |                    |                      |
|            |            | 1       | 50        | 20.29   | 20.24 | 20.45 | 3               | 21.3      |                    |                      |
|            |            | 1       | 99        | 20.29   | 20.24 | 20.45 | 3               | 21.3      |                    |                      |
|            |            | 12      | 0         | 23.16   | 23.18 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 1       | 24        | 23.32   | 23.33 | 23.30 | 0               | 24.3      |                    |                      |
|            | 16QAM      | 1       | 49        | 23.21   | 23.21 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 25      | 0         | 22.28   | 22.32 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 25      | 12        | 22.36   | 22.32 | 22.52 | 1               | 23.3      |                    |                      |
|            |            | 25      | 25        | 22.31   | 22.38 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 50      | 0         | 22.04   | 22.28 | 22.31 | 1               | 23.3      |                    |                      |
| 5          | 16QAM      | 1       | 0         | 22.49   | 22.42 | 22.62 | 1               | 23.3      |                    |                      |
|            |            | 1       | 24        | 22.41   | 22.59 | 22.44 | 1               | 23.3      |                    |                      |
|            |            | 1       | 49        | 22.66   | 22.59 | 22.62 | 1               | 23.3      |                    |                      |
|            |            | 25      | 0         | 21.27   | 21.23 | 21.36 | 2               | 22.3      |                    |                      |
|            |            | 25      | 12        | 21.38   | 21.32 | 21.47 | 2               | 22.3      |                    |                      |
|            | 64QAM      | 25      | 25        | 21.23   | 21.29 | 21.25 | 2               | 22.3      |                    |                      |
|            |            | 50      | 0         | 21.37   | 21.19 | 21.38 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.47   | 21.48 | 21.40 | 2               | 22.3      |                    |                      |
|            |            | 1       | 24        | 21.60   | 21.63 | 21.63 | 2               | 22.3      |                    |                      |
|            |            | 1       | 49        | 21.33   | 21.34 | 21.64 | 2               | 22.3      |                    |                      |
| 5          | QPSK       | 25      | 0         | 20.34   | 20.19 | 20.32 | 3               | 21.3      |                    |                      |
|            |            | 25      | 12        | 20.35   | 20.31 | 20.48 | 3               | 21.3      |                    |                      |
|            |            | 25      | 25        | 20.33   | 20.30 | 20.20 | 3               | 21.3      |                    |                      |
|            |            | 50      | 0         | 20.29   | 20.24 | 20.45 | 3               | 21.3      |                    |                      |
|            |            | 1       | 0         | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            | 16QAM      | 1       | 50        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 1       | 99        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 12      | 0         | 23.16   | 23.18 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 1       | 24        | 23.32   | 23.33 | 23.30 | 0               | 24.3      |                    |                      |
|            |            | 1       | 49        | 23.21   | 23.21 | 23.17 | 0               | 24.3      |                    |                      |
| 3          | QPSK       | 1       | 0         | 23.16   | 23.18 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 1       | 50        | 23.32   | 23.33 | 23.30 | 0               | 24.3      |                    |                      |
|            |            | 1       | 99        | 23.21   | 23.21 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 12      | 0         | 22.28   | 22.32 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 12      | 12        | 22.36   | 22.32 | 22.52 | 1               | 23.3      |                    |                      |
|            | 16QAM      | 12      | 13        | 22.31   | 22.38 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 25      | 0         | 22.07   | 22.21 | 22.24 | 1               | 23.3      |                    |                      |
|            |            | 1       | 0         | 22.43   | 22.54 | 22.43 | 1               | 23.3      |                    |                      |
|            |            | 1       | 12        | 22.53   | 22.52 | 22.57 | 1               | 23.3      |                    |                      |
|            |            | 1       | 24        | 22.46   | 22.57 | 22.39 | 1               | 23.3      |                    |                      |
| 3          | 16QAM      | 12      | 0         | 21.35   | 21.25 | 21.53 | 2               | 22.3      |                    |                      |
|            |            | 12      | 6         | 21.31   | 21.25 | 21.53 | 2               | 22.3      |                    |                      |
|            |            | 12      | 13        | 21.25   | 21.32 | 21.28 | 2               | 22.3      |                    |                      |
|            |            | 25      | 0         | 21.38   | 21.16 | 21.41 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.38   | 21.47 | 21.41 | 2               | 22.3      |                    |                      |
|            | 64QAM      | 1       | 12        | 21.48   | 21.53 | 21.48 | 2               | 22.3      |                    |                      |
|            |            | 1       | 24        | 21.31   | 21.34 | 21.63 | 2               | 22.3      |                    |                      |
|            |            | 12      | 0         | 20.32   | 20.22 | 20.38 | 3               | 21.3      |                    |                      |
|            |            | 12      | 6         | 20.31   | 20.42 | 20.37 | 3               | 21.3      |                    |                      |
|            |            | 12      | 13        | 20.43   | 20.33 | 20.24 | 3               | 21.3      |                    |                      |
| 1.4        | QPSK       | 25      | 0         | 20.36   | 20.16 | 20.36 | 3               | 21.3      |                    |                      |
|            |            | 1       | 0         | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 1       | 50        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 1       | 99        | 20.38   | 20.35 | 20.35 | 3               | 21.3      |                    |                      |
|            |            | 12      | 0         | 23.16   | 23.18 | 23.17 | 0               | 24.3      |                    |                      |
|            | 16QAM      | 1       | 24        | 23.32   | 23.33 | 23.30 | 0               | 24.3      |                    |                      |
|            |            | 1       | 49        | 23.21   | 23.21 | 23.17 | 0               | 24.3      |                    |                      |
|            |            | 12      | 0         | 22.28   | 22.32 | 22.35 | 1               | 23.3      |                    |                      |
|            |            | 12      | 12        | 22.36   | 22.32 | 22.52 | 1               | 23.3      |                    |                      |
|            |            | 12      | 13        | 22.31   | 22.38 | 22.35 | 1               | 23.3      |                    |                      |
| 1.4        | QPSK       | 25      | 0         | 22.07   | 22.21 | 22.24 | 1               | 23.3      |                    |                      |
|            |            | 1       | 0         | 22.43   | 22.54 | 22.43 | 1               | 23.3      |                    |                      |
|            |            | 1       | 12        | 22.53   | 22.52 | 22.57 | 1               | 23.3      |                    |                      |
|            |            | 1       | 24        | 22.46   | 22.57 | 22.39 | 1               | 23.3      |                    |                      |
|            |            | 12      | 0         | 21.35   | 21.25 | 21.53 | 2               | 22.3      |                    |                      |
|            | 16QAM      | 12      | 6         | 21.31   | 21.25 | 21.53 | 2               | 22.3      |                    |                      |
|            |            | 12      | 13        | 21.25   | 21.32 | 21.28 | 2               | 22.3      |                    |                      |
|            |            | 25      | 0         | 21.38   | 21.16 | 21.41 | 2               | 22.3      |                    |                      |
|            |            | 1       | 0         | 21.38   | 21.47 | 21.41 | 2               | 22.3      |                    |                      |
|            |            | 1       | 12        | 21.48   | 21.53 | 21.48 | 2               | 22.3      |                    |                      |
| 1.4        | QPSK       | 1       | 24        | 21.31   | 21.34 | 21.63 | 2               | 22.3      |                    |                      |
|            |            | 12      | 0         | 20.32   | 20.22 | 20.38 | 3               | 21.3      |                    |                      |
|            |            | 12      | 6         | 20.31   | 20.42 | 20.37 | 3               | 21.3      |                    |                      |
|            |            | 12      | 13        | 20.43   | 20.33 | 20.24 | 3               | 21.3      |                    |                      |

| LTE Band 12 |            |                            |           |       |       |       |             |                          |             |                          |
|-------------|------------|----------------------------|-----------|-------|-------|-------|-------------|--------------------------|-------------|--------------------------|
| BW<br>[MHz] | Modulation | RB Size                    | RB Offset | Low   | Mid   | High  | SCPP        | Max.<br>Turn-up<br>[dBm] | MPR<br>[dB] | Max.<br>Turn-up<br>[dBm] |
|             |            | Channel<br>Frequency [MHz] | 23040     | 23055 | 23120 | 23135 | MPR<br>[dB] |                          |             |                          |
| 10          | QPSK       | 1                          | 0         | 23.38 | 23.57 | 23.48 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 24        | 23.65 | 23.58 | 23.64 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 49        | 23.51 | 23.53 | 23.55 | 0           | 24.3                     |             |                          |
|             |            | 25                         | 0         | 22.41 | 22.53 | 22.56 | 1           | 23.3                     |             |                          |
|             |            | 25                         | 12        | 22.68 | 22.68 | 22.68 | 1           | 23.3                     |             |                          |
|             |            | 25                         | 25        | 22.47 | 22.58 | 22.62 | 1           | 23.3                     |             |                          |
|             |            | 50                         | 0         | 22.73 | 22.80 | 22.48 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 0         | 22.54 | 22.56 | 22.58 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 24        | 22.71 | 22.73 | 22.76 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 49        | 22.59 | 22.59 | 22.78 | 1           | 23.3                     |             |                          |
|             | 16QAM      | 25                         | 0         | 21.64 | 21.56 | 21.57 | 2           | 22.3                     |             |                          |
|             |            | 25                         | 12        | 21.58 | 21.64 | 21.71 | 2           | 22.3                     |             |                          |
|             |            | 25                         | 25        | 21.51 | 21.58 | 21.72 | 2           | 22.3                     |             |                          |
|             |            | 50                         | 0         | 21.53 | 21.62 | 21.61 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 21.67 | 21.74 | 21.84 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 24        | 21.86 | 21.78 | 21.83 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 49        | 21.76 | 21.76 | 21.85 | 2           | 22.3                     |             |                          |
|             |            | 25                         | 0         | 20.47 | 20.54 | 20.60 | 3           | 21.3                     |             |                          |
|             |            | 25                         | 12        | 20.37 | 20.63 | 20.70 | 3           | 21.3                     |             |                          |
|             |            | 25                         | 25        | 20.52 | 20.65 | 20.63 | 3           | 21.3                     |             |                          |
| 5           | QPSK       | 1                          | 0         | 20.85 | 20.59 | 20.57 | 3           | 21.3                     |             |                          |
|             |            | 1                          | 0         | 20.85 | 20.59 | 20.57 | 3           | 21.3                     |             |                          |
|             |            | 1                          | 0         | 23.27 | 23.58 | 23.30 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 12        | 23.59 | 23.50 | 23.58 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 24        | 23.49 | 23.45 | 23.49 | 0           | 24.3                     |             |                          |
|             |            | 12                         | 0         | 22.37 | 22.45 | 22.50 | 1           | 23.3                     |             |                          |
|             |            | 12                         | 6         | 22.51 | 22.57 | 22.53 | 1           | 23.3                     |             |                          |
|             |            | 12                         | 13        | 22.63 | 22.65 | 22.59 | 1           | 23.3                     |             |                          |
|             |            | 25                         | 0         | 22.60 | 22.52 | 22.48 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 0         | 22.45 | 22.61 | 22.72 | 1           | 23.3                     |             |                          |
|             | 16QAM      | 1                          | 12        | 22.70 | 22.69 | 22.68 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 24        | 22.57 | 22.68 | 22.76 | 1           | 23.3                     |             |                          |
|             |            | 12                         | 0         | 21.46 | 21.42 | 21.45 | 2           | 22.3                     |             |                          |
|             |            | 12                         | 6         | 21.56 | 21.59 | 21.67 | 2           | 22.3                     |             |                          |
|             |            | 12                         | 13        | 21.45 | 21.54 | 21.69 | 2           | 22.3                     |             |                          |
|             |            | 25                         | 0         | 21.50 | 21.57 | 21.57 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 21.65 | 21.68 | 21.78 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 12        | 21.78 | 21.76 | 21.78 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 24        | 21.64 | 21.63 | 21.69 | 2           | 22.3                     |             |                          |
|             |            | 12                         | 0         | 20.43 | 20.47 | 20.50 | 3           | 21.3                     |             |                          |
| 3           | QPSK       | 12                         | 6         | 20.54 | 20.53 | 20.71 | 3           | 21.3                     |             |                          |
|             |            | 12                         | 13        | 20.47 | 20.56 | 20.52 | 3           | 21.3                     |             |                          |
|             |            | 25                         | 0         | 20.62 | 20.51 | 20.51 | 3           | 21.3                     |             |                          |
|             |            | 1                          | 0         | 23.34 | 23.52 | 23.34 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 7         | 23.51 | 23.51 | 23.55 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 14        | 23.46 | 23.44 | 23.48 | 0           | 24.3                     |             |                          |
|             |            | 8                          | 0         | 22.28 | 22.47 | 22.48 | 1           | 23.3                     |             |                          |
|             |            | 8                          | 3         | 22.47 | 22.61 | 22.54 | 1           | 23.3                     |             |                          |
|             |            | 8                          | 7         | 22.39 | 22.54 | 22.53 | 1           | 23.3                     |             |                          |
|             |            | 15                         | 0         | 22.68 | 22.47 | 22.36 | 1           | 23.3                     |             |                          |
|             | 16QAM      | 1                          | 0         | 22.39 | 22.57 | 22.67 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 7         | 22.88 | 22.71 | 22.74 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 14        | 22.49 | 22.65 | 22.72 | 1           | 23.3                     |             |                          |
|             |            | 8                          | 0         | 21.51 | 21.50 | 21.50 | 2           | 22.3                     |             |                          |
|             |            | 8                          | 3         | 21.58 | 21.53 | 21.56 | 2           | 22.3                     |             |                          |
|             |            | 8                          | 7         | 21.44 | 21.47 | 21.60 | 2           | 22.3                     |             |                          |
|             |            | 15                         | 0         | 21.44 | 21.50 | 21.60 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 21.66 | 21.69 | 21.70 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 7         | 21.76 | 21.68 | 21.71 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 14        | 21.71 | 21.75 | 21.79 | 2           | 22.3                     |             |                          |
| 1.4         | QPSK       | 8                          | 0         | 20.34 | 20.39 | 20.49 | 3           | 21.3                     |             |                          |
|             |            | 8                          | 3         | 20.54 | 20.50 | 20.61 | 3           | 21.3                     |             |                          |
|             |            | 8                          | 7         | 20.41 | 20.50 | 20.60 | 3           | 21.3                     |             |                          |
|             |            | 15                         | 0         | 20.57 | 20.55 | 20.41 | 3           | 21.3                     |             |                          |
|             |            | 1                          | 0         | 23.36 | 23.47 | 23.39 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 2         | 23.54 | 23.50 | 23.50 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 5         | 23.44 | 23.41 | 23.44 | 0           | 24.3                     |             |                          |
|             |            | 3                          | 0         | 23.21 | 23.29 | 23.28 | 0           | 24.3                     |             |                          |
|             |            | 3                          | 1         | 23.33 | 23.34 | 23.42 | 0           | 24.3                     |             |                          |
|             |            | 3                          | 3         | 23.16 | 23.39 | 23.42 | 0           | 24.3                     |             |                          |
|             | 16QAM      | 6                          | 0         | 22.64 | 22.68 | 22.47 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 0         | 22.48 | 22.61 | 22.75 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 2         | 22.86 | 22.71 | 22.72 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 5         | 22.48 | 22.64 | 22.64 | 1           | 23.3                     |             |                          |
|             |            | 3                          | 0         | 22.31 | 22.30 | 22.34 | 1           | 23.3                     |             |                          |
|             |            | 3                          | 1         | 22.27 | 22.37 | 22.41 | 1           | 23.3                     |             |                          |
|             |            | 3                          | 3         | 22.22 | 22.29 | 22.49 | 1           | 23.3                     |             |                          |
|             |            | 6                          | 0         | 21.50 | 21.53 | 21.52 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 21.69 | 21.61 | 21.62 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 2         | 21.79 | 21.63 | 21.78 | 2           | 22.3                     |             |                          |
| 5           | QPSK       | 1                          | 5         | 21.66 | 21.61 | 21.70 | 2           | 22.3                     |             |                          |
|             |            | 3                          | 0         | 21.17 | 21.24 | 21.31 | 2           | 22.3                     |             |                          |
|             |            | 3                          | 1         | 21.30 | 21.34 | 21.52 | 2           | 22.3                     |             |                          |
|             |            | 3                          | 3         | 21.26 | 21.32 | 21.45 | 2           | 22.3                     |             |                          |
|             |            | 6                          | 0         | 20.83 | 20.47 | 20.51 | 3           | 21.3                     |             |                          |
|             |            | 1                          | 0         | 23.47 | 23.30 | 23.34 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 12        | 23.49 | 23.20 | 23.07 | 0           | 24.3                     |             |                          |
|             |            | 1                          | 24        | 23.37 | 23.17 | 23.00 | 0           | 24.3                     |             |                          |
|             |            | 12                         | 0         | 22.48 | 22.30 | 22.11 | 0           | 24.3                     |             |                          |
|             |            | 50                         | 0         | 22.58 | 22.17 | 22.25 | 0           | 24.3                     |             |                          |
|             | 16QAM      | 50                         | 25        | 22.42 | 22.13 | 22.25 | 1           | 23.3                     |             |                          |
|             |            | 100                        | 0         | 22.46 | 22.25 | 22.10 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 22.50 | 22.37 | 22.16 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 24        | 22.56 | 22.31 | 22.17 | 1           | 23.3                     |             |                          |
|             |            | 1                          | 99        | 22.45 | 21.93 | 22.16 | 2           | 22.3                     |             |                          |
|             |            | 50                         | 0         | 21.51 | 21.43 | 21.14 | 2           | 22.3                     |             |                          |
|             |            | 50                         | 25        | 21.50 | 21.28 | 21.13 | 2           | 22.3                     |             |                          |
|             |            | 50                         | 50        | 21.46 | 21.27 | 21.10 | 2           | 22.3                     |             |                          |
|             |            | 100                        | 0         | 21.56 | 21.34 | 21.11 | 2           | 22.3                     |             |                          |
|             |            | 1                          | 0         | 21.44 | 21.21 | 21.28 | 2           | 22.3                     |             |                          |

CA

| CA 41C                                |                     |             |                     |            |         |           |         |           |               |                      |                   |
|---------------------------------------|---------------------|-------------|---------------------|------------|---------|-----------|---------|-----------|---------------|----------------------|-------------------|
| Combination 20MHz+20MHz (100RB+100RB) |                     |             |                     |            |         |           |         |           |               |                      |                   |
| PCC Channel                           | PCC Frequency (MHz) | SCC Channel | SCC Frequency (MHz) | Modulation | PCC     |           | SCC     |           | Total RB Size | Measured Power (dBm) | Max Tune-up (dBm) |
|                                       |                     |             |                     |            | RB Size | RB offset | RB Size | RB offset |               |                      |                   |
| 39750                                 | 2506                | 39948       | 2525.8              | QPSK       | 1       | 99        | 1       | 0         | 1             | 23.41                | 24.3              |
|                                       |                     |             |                     | 16QAM      | 1       | 99        | 1       | 0         | 1             | 22.47                | 23.3              |
|                                       |                     |             |                     | 64QAM      | 1       | 99        | 1       | 0         | 1             | 21.41                | 22.3              |
| 40521                                 | 2583.1              | 40719       | 2602.9              | QPSK       | 1       | 99        | 1       | 0         | 1             | 23.58                | 24.3              |
|                                       |                     |             |                     | 16QAM      | 1       | 99        | 1       | 0         | 1             | 22.75                | 23.3              |
|                                       |                     |             |                     | 64QAM      | 1       | 99        | 1       | 0         | 1             | 21.74                | 22.3              |
| 41292                                 | 2660.2              | 41490       | 2680                | QPSK       | 1       | 99        | 1       | 0         | 1             | 23.28                | 24.3              |
|                                       |                     |             |                     | 16QAM      | 1       | 99        | 1       | 0         | 1             | 22.25                | 23.3              |
|                                       |                     |             |                     | 64QAM      | 1       | 99        | 1       | 0         | 1             | 21.38                | 22.3              |

## Normal\_Default

| 2.4GHz WLAN |                    |         |                 |                     |               |
|-------------|--------------------|---------|-----------------|---------------------|---------------|
| 2.4GHz WLAN | Ant 3              |         |                 |                     |               |
| 2.4GHz WLAN | Mode               | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11b 1Mbps      | 1       | 2412            | 10.13               | 12.00         |
|             |                    | 6       | 2437            | 10.18               | 12.00         |
|             |                    | 11      | 2462            | 10.10               | 12.00         |
|             | 802.11g 6Mbps      | 1       | 2412            | 10.26               | 12.00         |
|             |                    | 6       | 2437            | <b>10.42</b>        | 12.00         |
|             |                    | 11      | 2462            | 10.22               | 12.00         |
|             | 802.11n-HT20 MCS0  | 1       | 2412            | 10.05               | 12.00         |
|             |                    | 6       | 2437            | 9.94                | 12.00         |
|             |                    | 11      | 2462            | 9.89                | 12.00         |
|             | 802.11ax-HE20 MCS0 | 1       | 2412            | 10.16               | 12.00         |
|             |                    | 6       | 2437            | 10.17               | 12.00         |
|             |                    | 11      | 2462            | 10.05               | 12.00         |

| 2.4GHz WLAN |                    |         |                 |                     |               |
|-------------|--------------------|---------|-----------------|---------------------|---------------|
| 2.4GHz WLAN | Ant 5              |         |                 |                     |               |
| 2.4GHz WLAN | Mode               | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11b 1Mbps      | 1       | 2412            | 9.21                | 12.00         |
|             |                    | 6       | 2437            | 9.53                | 12.00         |
|             |                    | 11      | 2462            | 9.69                | 12.00         |
|             | 802.11g 6Mbps      | 1       | 2412            | 9.35                | 12.00         |
|             |                    | 6       | 2437            | <b>9.74</b>         | 12.00         |
|             |                    | 11      | 2462            | <b>8.76</b>         | 12.00         |
|             | 802.11n-HT20 MCS0  | 1       | 2412            | 8.94                | 12.00         |
|             |                    | 6       | 2437            | 9.26                | 12.00         |
|             |                    | 11      | 2462            | 9.35                | 12.00         |
|             | 802.11ax-HE20 MCS0 | 1       | 2412            | 9.20                | 12.00         |
|             |                    | 6       | 2437            | 9.56                | 12.00         |
|             |                    | 11      | 2462            | 9.59                | 12.00         |

| 2.4GHz WLAN |                    |         |                 |                     |               |
|-------------|--------------------|---------|-----------------|---------------------|---------------|
| 2.4GHz WLAN | Total              |         |                 |                     |               |
| 2.4GHz WLAN | Mode               | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11b 1Mbps      | 1       | 2412            | 12.70               | 15.00         |
|             |                    | 6       | 2437            | <b>12.88</b>        | 15.00         |
|             |                    | 11      | 2462            | 12.91               | 15.00         |
|             | 802.11g 6Mbps      | 1       | 2412            | 12.84               | 15.00         |
|             |                    | 6       | 2437            | <b>13.19</b>        | 15.00         |
|             |                    | 11      | 2462            | 13.00               | 15.00         |
|             | 802.11n-HT20 MCS0  | 1       | 2412            | 12.54               | 15.00         |
|             |                    | 6       | 2437            | 12.82               | 15.00         |
|             |                    | 11      | 2462            | 12.64               | 15.00         |
|             | 802.11ax-HE20 MCS0 | 1       | 2412            | 12.72               | 15.00         |
|             |                    | 6       | 2437            | 12.89               | 15.00         |
|             |                    | 11      | 2462            | 12.84               | 15.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Ant 3               |         |                 |                     |               |
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 36      | 5180            | 9.75                | 12.00         |
|             |                     | 40      | 5200            | 9.62                | 12.00         |
|             |                     | 48      | 5240            | 9.62                | 12.00         |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 9.08                | 12.00         |
|             |                     | 40      | 5200            | 9.60                | 12.00         |
|             |                     | 48      | 5240            | 9.59                | 12.00         |
|             | 802.11n-HT40 MCS0   | 36      | 5180            | 8.10                | 12.00         |
|             |                     | 40      | 5200            | 8.69                | 12.00         |
|             |                     | 48      | 5240            | 8.63                | 12.00         |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 9.13                | 12.00         |
|             |                     | 40      | 5200            | 9.45                | 12.00         |
|             |                     | 48      | 5240            | 9.45                | 12.00         |
|             | 802.11ac-VHT40 MCS0 | 36      | 5180            | 8.28                | 12.00         |
|             |                     | 40      | 5230            | 8.52                | 12.00         |
|             |                     | 42      | 5210            | <b>10.36</b>        | 12.00         |
|             | 802.11ac-VHT80 MCS0 | 36      | 5180            | 9.31                | 12.00         |
|             |                     | 40      | 5230            | 8.89                | 12.00         |
|             |                     | 48      | 5240            | 8.83                | 12.00         |
|             | 802.11ax-HE20 MCS0  | 36      | 5180            | 9.36                | 12.00         |
|             |                     | 40      | 5230            | 9.70                | 12.00         |
|             |                     | 42      | 5210            | 10.21               | 12.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Ant 5               |         |                 |                     |               |
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 36      | 5180            | 10.62               | 12.00         |
|             |                     | 40      | 5200            | 10.52               | 12.00         |
|             |                     | 48      | 5240            | 10.63               | 12.00         |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 10.19               | 12.00         |
|             |                     | 40      | 5200            | 10.41               | 12.00         |
|             |                     | 48      | 5240            | 10.44               | 12.00         |
|             | 802.11n-HT40 MCS0   | 36      | 5180            | 8.93                | 12.00         |
|             |                     | 40      | 5230            | 9.44                | 12.00         |
|             |                     | 48      | 5240            | 10.34               | 12.00         |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 10.34               | 12.00         |
|             |                     | 40      | 5200            | 10.34               | 12.00         |
|             |                     | 48      | 5240            | 10.44               | 12.00         |
|             | 802.11ac-VHT40 MCS0 | 36      | 5180            | 9.10                | 12.00         |
|             |                     | 40      | 5230            | 9.29                | 12.00         |
|             |                     | 42      | 5210            | <b>10.91</b>        | 12.00         |
|             | 802.11ac-VHT80 MCS0 | 36      | 5180            | 10.56               | 12.00         |
|             |                     | 40      | 5230            | 10.79               | 12.00         |
|             |                     | 48      | 5240            | 10.81               | 12.00         |
|             | 802.11ax-HE20 MCS0  | 36      | 5180            | 10.24               | 12.00         |
|             |                     | 40      | 5230            | 10.55               | 12.00         |
|             |                     | 42      | 5210            | 10.81               | 12.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Total               |         |                 |                     |               |
| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 36      | 5180            | 13.22               | 15.00         |
|             |                     | 40      | 5200            | 13.10               | 15.00         |
|             |                     | 48      | 5240            | 13.09               | 15.00         |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 12.68               | 15.00         |
|             |                     | 40      | 5200            | 13.03               | 15.00         |
|             |                     | 48      | 5240            | 13.02               | 15.00         |
|             | 802.11n-HT40 MCS0   | 36      | 5180            | 11.55               | 15.00         |
|             |                     | 40      | 5230            | 12.09               | 15.00         |
|             |                     | 48      | 5240            | 12.99               | 15.00         |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 12.79               | 15.00         |
|             |                     | 40      | 5200            | 12.93               | 15.00         |
|             |                     | 48      | 5240            | 12.98               | 15.00         |
|             | 802.11ac-VHT40 MCS0 | 36      | 5180            | 11.72               | 15.00         |
|             |                     | 40      | 5230            | 11.93               | 15.00         |
|             |                     | 42      | 5210            | <b>13.65</b>        | 15.00         |
|             | 802.11ac-VHT80 MCS0 | 36      | 5200            | 12.99               | 15.00         |
|             |                     | 40      | 5230            | 13.33               | 15.00         |
|             |                     | 48      | 5240            | 13.30               | 15.00         |
|             | 802.11ax-HE20 MCS0  | 36      | 5180            | 12.83               | 15.00         |
|             |                     | 40      | 5230            | 13.16               | 15.00         |
|             |                     | 42      | 5290            | 13.53               | 15.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Ant 3               |         |                 |                     |               |
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 52      | 5280            | 9.71                | 12.00         |
|             |                     | 56      | 5280            | 9.69                | 12.00         |
|             |                     | 64      | 5320            | 9.62                | 12.00         |
|             | 802.11n-HT20 MCS0   | 52      | 5280            | 9.48                | 12.00         |
|             |                     | 56      | 5280            | 9.43                | 12.00         |
|             |                     | 64      | 5320            | 9.40                | 12.00         |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 8.66                | 12.00         |
|             |                     | 62      | 5310            | 8.45                | 12.00         |
|             |                     | 52      | 5280            | 9.39                | 12.00         |
|             | 802.11ac-VHT20 MCS0 | 56      | 5280            | 9.05                | 12.00         |
|             |                     | 64      | 5320            | 8.95                | 12.00         |
|             |                     | 54      | 5270            | 8.60                | 12.00         |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 8.60                | 12.00         |
|             |                     | 62      | 5310            | 8.33                | 12.00         |
|             |                     | 58      | 5290            | <b>10.06</b>        | 12.00         |
|             | 802.11ac-VHT80 MCS0 | 52      | 5280            | 9.80                | 12.00         |
|             |                     | 56      | 5280            | 9.78                | 12.00         |
|             |                     | 64      | 5320            | 9.63                | 12.00         |
|             | 802.11ax-HE40 MCS0  | 54      | 5270            | 9.43                | 12.00         |
|             |                     | 62      | 5310            | 9.58                | 12.00         |
|             |                     | 58      | 5290            | 9.89                | 12.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Ant 5               |         |                 |                     |               |
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 52      | 5280            | 10.18               | 12.00         |
|             |                     | 60      | 5280            | 10.25               | 12.00         |
|             |                     | 64      | 5320            | 10.38               | 12.00         |
|             | 802.11n-HT20 MCS0   | 52      | 5280            | 9.98                | 12.00         |
|             |                     | 60      | 5280            | 10.07               | 12.00         |
|             |                     | 64      | 5320            | 10.20               | 12.00         |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 9.20                | 12.00         |
|             |                     | 62      | 5310            | 9.27                | 12.00         |
|             |                     | 52      | 5280            | 9.97                | 12.00         |
|             | 802.11ac-VHT20 MCS0 | 60      | 5280            | 9.49                | 12.00         |
|             |                     | 64      | 5320            | 9.31                | 12.00         |
|             |                     | 54      | 5270            | 9.13                | 12.00         |
|             | 802.11ac-VHT40 MCS0 | 62      | 5310            | 9.11                | 12.00         |
|             |                     | 58      | 5290            | <b>10.97</b>        | 12.00         |
|             |                     | 52      | 5280            | 10.23               | 12.00         |
|             | 802.11ax-HE20 MCS0  | 60      | 5280            | 10.38               | 12.00         |
|             |                     | 64      | 5320            | 10.44               | 12.00         |
|             |                     | 54      | 5270            | 9.95                | 12.00         |
|             | 802.11ax-HE40 MCS0  | 62      | 5310            | 10.41               | 12.00         |
|             |                     | 58      | 5290            | 10.85               | 12.00         |

| 5GHz WLAN   |                     |         |                 |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5GHz WLAN   | Total               |         |                 |                     |               |
| 5.3GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 52      | 5280            | 12.96               | 15.00         |
|             |                     | 60      | 5280            | 13.02               | 15.00         |
|             |                     | 64      | 5320            | 13.03               | 15.00         |
|             | 802.11n-HT20 MCS0   | 52      | 5280            | 12.75               | 15.00         |
|             |                     | 60      | 5280            | 12.77               | 15.00         |
|             |                     | 64      | 5320            | 12.83               | 15.00         |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 11.95               | 15.00         |
|             |                     | 62      | 5310            | 11.89               | 15.00         |
|             |                     | 52      | 5280            | 12.70               | 15.00         |
|             | 802.11ac-VHT20 MCS0 | 60      | 5280            | 12.29               | 15.00         |
|             |                     | 64      | 5320            | 12.36               | 15.00         |
|             |                     | 54      | 5270            | 11.88               | 15.00         |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 11.88               | 15.00         |
|             |                     | 62      | 5310            | 11.75               | 15.00         |
|             |                     | 58      | 5290            | <b>13.54</b>        | 15.00         |
|             | 802.11ac-VHT80 MCS0 | 52      | 5280            | 13.03               | 15.00         |
|             |                     | 60      | 5280            | 13.10               | 15.00         |
|             |                     | 64      | 5320            | 13.06               | 15.00         |
|             | 802.11ax-HE20 MCS0  | 54      | 5270            | 12.71               | 15.00         |
|             |                     | 62      | 5310            | 13.03               | 15.00         |
|             |                     | 58      | 5290            | 13.41               | 15.00         |

| 5GHz WLAN   |                     |         | Ant 3           |                     |               |
|-------------|---------------------|---------|-----------------|---------------------|---------------|
| 5.5GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
|             | 802.11a 6Mbps       | 100     | 5500            | 10.15               | 12.00         |
|             |                     | 116     | 5580            | 10.08               | 12.00         |
|             |                     | 140     | 5700            | 10.43               | 12.00         |
|             |                     | 144     | 5720            | 8.06                | 12.00         |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 9.42                | 12.00         |
|             |                     | 116     | 5580            | 9.15                | 12.00         |
|             |                     | 140     | 5700            | 10.32               | 12.00         |
|             |                     | 144     | 5720            | 7.50                | 12.00         |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 8.95                | 12.00         |
|             |                     | 110     | 5550            | 9.00                | 12.00         |
|             |                     | 134     | 5670            | 8.68                | 12.00         |
|             |                     | 142     | 5710            | 8.91                | 12.00         |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 9.01                | 12.00         |
|             |                     | 116     | 5580            | 8.56                | 12.00         |
|             |                     | 140     | 5700            | 8.65                | 12.00         |
|             |                     | 144     | 5720            | 6.80                | 12.00         |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 8.76                | 12.00         |
|             |                     | 110     | 5550            | 8.91                | 12.00         |
|             |                     | 134     | 5670            | 8.54                | 12.00         |
|             |                     | 142     | 5710            | 8.44                | 12.00         |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 9.68                | 12.00         |
|             |                     | 122     | 5610            | 9.74                | 12.00         |
|             |                     | 138     | 5690            | 8.97                | 12.00         |
|             |                     | 100     | 5500            | 9.84                | 12.00         |
|             | 802.11ax-HE20 MCS0  | 116     | 5580            | 9.34                | 12.00         |
|             |                     | 140     | 5700            | 10.20               | 12.00         |
|             |                     | 144     | 5720            | 6.08                | 12.00         |
|             |                     | 102     | 5510            | 9.56                | 12.00         |
|             | 802.11ax-HE40 MCS0  | 110     | 5550            | 9.85                | 12.00         |
|             |                     | 134     | 5670            | 10.18               | 12.00         |
|             |                     | 142     | 5710            | 7.49                | 12.00         |
|             |                     | 106     | 5530            | 9.50                | 12.00         |
|             | 802.11ax-HE80 MCS0  | 122     | 5610            | 9.59                | 12.00         |
|             |                     | 138     | 5690            | 8.97                | 12.00         |

## 2.4GHz WLAN

| Ant 3      |                    |            |             |                    |                           |  |
|------------|--------------------|------------|-------------|--------------------|---------------------------|--|
| Test Mode  | Frequen<br>cy[MHz] | Ru<br>Size | Ru<br>Index | Peak<br>Power[dBm] | Tune-Up<br>Limit<br>[dBm] |  |
| 11AX20MIMO | 2412               | 26Tone     | RU0         | 10.80              | 12                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU4         | 10.25              | 12                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU8         | 10.42              | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU37        | 10.65              | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU38        | 10.68              | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU40        | 10.46              | 12                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU53        | 10.88              | 12                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU54        | 10.78              | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU0         | 10.83              | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU4         | 10.44              | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU8         | 11.07              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU37        | 10.59              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU38        | 10.64              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU40        | 10.84              | 12                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU53        | 10.81              | 12                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU54        | 10.94              | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU0         | 11.22              | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU4         | 10.28              | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU8         | 10.92              | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU37        | 10.94              | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU38        | 10.92              | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU40        | 10.35              | 12                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU53        | 11.03              | 12                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU54        | 10.80              | 12                        |  |

| Ant 5      |                    |            |             |                    |                           |  |
|------------|--------------------|------------|-------------|--------------------|---------------------------|--|
| Test Mode  | Frequen<br>cy[MHz] | Ru<br>Size | Ru<br>Index | Peak<br>Power[dBm] | Tune-Up<br>Limit<br>[dBm] |  |
| 11AX20MIMO | 2412               | 26Tone     | RU0         | 9.75               | 12                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU4         | 9.76               | 12                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU8         | 9.79               | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU37        | 9.75               | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU38        | 9.72               | 12                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU40        | 9.85               | 12                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU53        | 9.85               | 12                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU54        | 10.02              | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU0         | 10.49              | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU4         | 9.92               | 12                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU8         | 10.50              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU37        | 10.09              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU38        | 10.08              | 12                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU40        | 10.53              | 12                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU53        | 10.14              | 12                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU54        | 10.31              | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU0         | 10.77              | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU4         | 9.84               | 12                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU8         | 9.94               | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU37        | 10.88              | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU38        | 10.03              | 12                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU40        | 10.01              | 12                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU53        | 10.58              | 12                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU54        | 9.93               | 12                        |  |

| Total      |                    |            |             |                    |                           |  |
|------------|--------------------|------------|-------------|--------------------|---------------------------|--|
| Test Mode  | Frequen<br>cy[MHz] | Ru<br>Size | Ru<br>Index | Peak<br>Power[dBm] | Tune-Up<br>Limit<br>[dBm] |  |
| 11AX20MIMO | 2412               | 26Tone     | RU0         | 13.32              | 15                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU4         | 13.02              | 15                        |  |
| 11AX20MIMO | 2412               | 26Tone     | RU8         | 13.13              | 15                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU37        | 13.23              | 15                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU38        | 13.24              | 15                        |  |
| 11AX20MIMO | 2412               | 52Tone     | RU40        | 13.18              | 15                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU53        | 13.41              | 15                        |  |
| 11AX20MIMO | 2412               | 106Tone    | RU54        | 13.43              | 15                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU0         | 13.67              | 15                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU4         | 13.20              | 15                        |  |
| 11AX20MIMO | 2437               | 26Tone     | RU8         | 13.80              | 15                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU37        | 13.36              | 15                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU38        | 13.38              | 15                        |  |
| 11AX20MIMO | 2437               | 52Tone     | RU40        | 13.70              | 15                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU53        | 13.50              | 15                        |  |
| 11AX20MIMO | 2437               | 106Tone    | RU54        | 13.65              | 15                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU0         | 14.01              | 15                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU4         | 13.08              | 15                        |  |
| 11AX20MIMO | 2462               | 26Tone     | RU8         | 13.47              | 15                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU37        | 13.91              | 15                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU38        | 13.33              | 15                        |  |
| 11AX20MIMO | 2462               | 52Tone     | RU40        | 13.19              | 15                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU53        | 13.82              | 15                        |  |
| 11AX20MIMO | 2462               | 106Tone    | RU54        | 13.40              | 15                        |  |

## 5GHz WLAN

| Ant 3      |                     |            |             |                 |                           |  |
|------------|---------------------|------------|-------------|-----------------|---------------------------|--|
| Test Mode  | Freq uen<br>cy[MHz] | Ru<br>Size | Ru<br>Index | Result<br>[dBm] | Tune-Up<br>Limit<br>[dBm] |  |
| 11AX20MIMO | 5180                | 26Tone     | RU0         | 8.51            | 12                        |  |
| 11AX20MIMO | 5180                | 26Tone     | RU4         | 8.23            | 12                        |  |
| 11AX20MIMO | 5180                | 26Tone     | RU8         | 9.36            | 12                        |  |
| 11AX20MIMO | 5180                | 52Tone     | RU37        | 8.86            | 12                        |  |
| 11AX20MIMO | 5180                | 52Tone     | RU38        | 8.71            | 12                        |  |
| 11AX20MIMO | 5180                | 52Tone     | RU40        | 9.38            | 12                        |  |
| 11AX20MIMO | 5180                | 106Tone    | RU53        | 8.86            | 12                        |  |
| 11AX20MIMO | 5180                | 106Tone    | RU54        | 9.51            | 12                        |  |
| 11AX20MIMO | 5200                | 26Tone     | RU0         | 9.47            | 12                        |  |
| 11AX20MIMO | 5200                | 26Tone     | RU4         | 9.28            | 12                        |  |
| 11AX20MIMO | 5200                | 26Tone     | RU8         | 9.98            | 12                        |  |
| 11AX20MIMO | 5200                | 52Tone     | RU37        | 9.45            | 12                        |  |
| 11AX20MIMO | 5200                | 52Tone     | RU38        | 9.24            | 12                        |  |
| 11AX20MIMO | 5200                | 52Tone     | RU40        | 9.75            | 12                        |  |
| 11AX20MIMO | 5200                | 106Tone    | RU53        | 9.56            | 12                        |  |
| 11AX20MIMO | 5200                | 106Tone    | RU54        | 9.88            | 12                        |  |
| 11AX20MIMO | 5240                | 26Tone     | RU0         | 8.95            | 12                        |  |
| 11AX20MIMO | 5240                | 26Tone     | RU4         | 9.15            | 12                        |  |
| 11AX20MIMO | 5240                | 26Tone     | RU8         | 9.62            | 12                        |  |
| 11AX20MIMO | 5240                | 52Tone     | RU37        | 9.54            | 12                        |  |
| 11AX20MIMO | 5240                | 52Tone     | RU38        | 9.03            | 12                        |  |
| 11AX20MIMO | 5240                | 52Tone     | RU40        | 9.22            | 12                        |  |
| 11AX20MIMO | 5240                | 106Tone    | RU53        | 8.73            | 12                        |  |
| 11AX20MIMO | 5240                | 106Tone    | RU54        | 8.74            | 12                        |  |
| 11AX20MIMO | 5260                | 26Tone     | RU0         | 8.28            | 12                        |  |
| 11AX20MIMO | 5260                | 26Tone     | RU4         | 7.89            | 12                        |  |
| 11AX20MIMO | 5260                | 26Tone     | RU8         | 8.72            | 12                        |  |
| 11AX20MIMO | 5260                | 52Tone     | RU37        | 8.62            | 12                        |  |
| 11AX20MIMO | 5260                | 52Tone     | RU38        | 8.56            | 12                        |  |
| 11AX20MIMO | 5260                | 52Tone     | RU40        | 8.95            | 12                        |  |
| 11AX20MIMO | 5260                | 106Tone    | RU53        | 8.92            | 12                        |  |
| 11AX20MIMO | 5260                | 106Tone    | RU54        | 9.18            | 12                        |  |
| 11AX20MIMO | 5280                | 26Tone     | RU0         | 9.04            | 12                        |  |
| 11AX20MIMO | 5280                | 26Tone     | RU4         | 8.65            | 12                        |  |
| 11AX20MIMO | 5280                | 26Tone     | RU8         | 8.88            | 12                        |  |
| 11AX20MIMO | 5280                | 52Tone     | RU37        | 9.13            | 12                        |  |
| 11AX20MIMO | 5280                | 52Tone     | RU38        | 8.73            | 12                        |  |
| 11AX20MIMO | 5280                | 52Tone     | RU40        | 9.03            | 12                        |  |
| 11AX20MIMO | 5280                | 106Tone    | RU53        | 8.20            | 12                        |  |
| 11AX20MIMO | 5280                | 106Tone    | RU54        | 9.22            | 12                        |  |
| 11AX20MIMO | 5320                | 26Tone     | RU0         | 9.23            | 12                        |  |
| 11AX20MIMO | 5320                | 26Tone     | RU4         | 8.69            | 12                        |  |
| 11AX20MIMO | 5320                | 26Tone     | RU8         | 9.06            | 12                        |  |
| 11AX20MIMO | 5320                | 52Tone     | RU37        | 9.21            | 12                        |  |
| 11AX20MIMO | 5320                | 52Tone     | RU38        | 8.63            | 12                        |  |
| 11AX20MIMO | 5320                | 52Tone     | RU40        | 8.91            | 12                        |  |
| 11AX20MIMO | 5320                | 106Tone    | RU53        | 8.84            | 12                        |  |
| 11AX20MIMO | 5320                | 106Tone    | RU54        | 9.04            | 12                        |  |
| 11AX20MIMO | 5350                | 26Tone     | RU0         | 9.73            | 12                        |  |
| 11AX20MIMO | 5350                | 26Tone     | RU4         | 8.60            | 12                        |  |
| 11AX20MIMO | 5350                | 26Tone     | RU8         | 8.51            | 12                        |  |
| 11AX20MIMO | 5350                | 52Tone     | RU37        | 9.68            | 12                        |  |
| 11AX20MIMO | 5350                | 52Tone     | RU38        | 8.94            | 12                        |  |
| 11AX20MIMO | 5350                | 52Tone     | RU40        | 8.71            | 12                        |  |
| 11AX20MIMO | 5350                | 106Tone    | RU53        | 9.48            | 12                        |  |
| 11AX20MIMO | 5350                | 106Tone    | RU54        | 9.17            | 12                        |  |
| 11AX20MIMO | 5380                | 26Tone     | RU0         | 8.86            | 12                        |  |
| 11AX20MIMO | 5380                | 26Tone     | RU4         | 8.01            | 12                        |  |
| 11AX20MIMO | 5380                | 26Tone     | RU8         | 8.25            | 12                        |  |
| 11AX20MIMO | 5380                | 52Tone     | RU37        | 9.24            | 12                        |  |
| 11AX20MIMO | 5380                | 52Tone     | RU38        | 8.76            | 12                        |  |
| 11AX20MIMO | 5380                | 52Tone     | RU40        | 8.73            | 12                        |  |
| 11AX20MIMO | 5380                | 106Tone    | RU53        | 9.87            | 12                        |  |
| 11AX20MIMO | 5380                | 106Tone    | RU54        | 9.43            | 12                        |  |
| 11AX20MIMO | 5700                | 26Tone     | RU0         | 8.80            | 12                        |  |
| 11AX20MIMO | 5700                | 26Tone     | RU4         | 7.83            | 12                        |  |
| 11AX20MIMO | 5700                | 26Tone     | RU8         | 8.44            | 12                        |  |
| 11AX20MIMO | 5700                | 52Tone     | RU37        | 8.68            | 12                        |  |
| 11AX20MIMO | 5700                | 52Tone     | RU38        | 8.63            | 12                        |  |
| 11AX20MIMO | 5700                | 52Tone     | RU40        | 8.49            | 12                        |  |
| 11AX20MIMO | 5700                | 106Tone    | RU53        | 9.18            | 12                        |  |
| 11AX20MIMO | 5700                | 106Tone    | RU54        | 9.13            | 12                        |  |
| 11AX20MIMO | 5720                | 26Tone     | RU0         | 7.45            | 12                        |  |
| 11AX20MIMO | 5720                | 26Tone     | RU4         | 6.51            | 12                        |  |
| 11AX20MIMO | 5720                | 26Tone     | RU8         | -15.10          | 12                        |  |
| 11AX20MIMO | 5720                | 52Tone     | RU37        | 8.00            | 12                        |  |
| 11AX20MIMO | 5720                | 52Tone     | RU38        | 7.39            | 12                        |  |
| 11AX20MIMO | 5720                | 52Tone     | RU40        | -10.39          | 12                        |  |
| 11AX20MIMO | 5720                | 106Tone    | RU53        | 9.14            | 12                        |  |
| 11AX20MIMO | 5720                | 106Tone    | RU54        | 5.43            | 12                        |  |
| 11AX40MIMO | 5190                | 242Tone    | RU61        | 7.94            | 12                        |  |
| 11AX40MIMO | 5190                | 242Tone    | RU62        | 8.71            | 12                        |  |
| 11AX40MIMO | 5230                | 242Tone    | RU61        | 8.44            | 12                        |  |
| 11AX40MIMO | 5230                | 242Tone    | RU62        | 9.08            | 12                        |  |
| 11AX40MIMO | 5270                | 242Tone    | RU61        | 8.55            | 12                        |  |
| 11AX40MIMO | 5270                | 242Tone    | RU62        | 8.93            | 12                        |  |
| 11AX40MIMO | 5310                | 242Tone    | RU61        | 8.23            | 12                        |  |
| 11AX40MIMO | 5310                | 242Tone    | RU62        | 8.29            | 12                        |  |
| 11AX40MIMO | 5310                | 242Tone    | RU61        | 8.18            | 12                        |  |
| 11AX40MIMO | 5310                | 242Tone    | RU62        | 8.36            | 12                        |  |
| 11AX40MIMO | 5350                | 242Tone    | RU61        | 8.65            | 12                        |  |
| 11AX40MIMO | 5350                | 242Tone    | RU62        | 8.63            | 12                        |  |
| 11AX40MIMO | 5370                | 242Tone    | RU61        | 8.56            | 12                        |  |
| 11AX40MIMO | 5370                | 242Tone    | RU62        | 8.77            | 12                        |  |
| 11AX40MIMO | 5710                | 242Tone    | RU61        | 9.34            | 12                        |  |
| 11AX40MIMO | 5710                | 242Tone    | RU62        | 8.12            | 12                        |  |
| 11AX80MIMO | 5210                | 484Tone    | RU65        | 8.04            | 12                        |  |
| 11AX80MIMO | 5210                | 484Tone    | RU66        | 9.64            | 12                        |  |
| 11AX80MIMO | 5290                | 484Tone    | RU65        | 8.22            | 12                        |  |
| 11AX80MIMO | 5290                | 484Tone    | RU66        | 8.44            | 12                        |  |
| 11AX80MIMO | 5330                | 484Tone    | RU65        | 8.17            | 12                        |  |
| 11AX80MIMO | 5330                | 484Tone    | RU66        | 8.53            | 12                        |  |
| 11AX80MIMO | 5690                | 484Tone    | RU65        | 8.99            | 12                        |  |
| 11AX80MIMO | 5690                | 484Tone    | RU66        | 8.43            | 12                        |  |

| Ant 5      |                   |         |          |              |                     |  |
|------------|-------------------|---------|----------|--------------|---------------------|--|
| Test Mode  | Freq uen cy [MHz] | Ru Size | Ru Index | Result [dBm] | Tune-Up Limit [dBm] |  |
| 11AX20MIMO | 5180              | 26Tone  | RU0      | 9.62         | 12                  |  |
| 11AX20MIMO | 5180              | 26Tone  | RU4      | 9.33         | 12                  |  |
| 11AX20MIMO | 5180              | 26Tone  | RU8      | 9.89         | 12                  |  |
| 11AX20MIMO | 5180              | 52Tone  | RU37     | 9.92         | 12                  |  |
| 11AX20MIMO | 5180              | 52Tone  | RU38     | 9.63         | 12                  |  |
| 11AX20MIMO | 5180              | 52Tone  | RU40     | 9.86         | 12                  |  |
| 11AX20MIMO | 5180              | 106Tone | RU53     | 9.82         | 12                  |  |
| 11AX20MIMO | 5200              | 106Tone | RU54     | 10.01        | 12                  |  |
| 11AX20MIMO | 5200              | 26Tone  | RU0      | 10.45        | 12                  |  |
| 11AX20MIMO | 5200              | 26Tone  | RU4      | 10.01        | 12                  |  |
| 11AX20MIMO | 5200              | 26Tone  | RU8      | 10.24        | 12                  |  |
| 11AX20MIMO | 5200              | 52Tone  | RU37     | 10.14        | 12                  |  |
| 11AX20MIMO | 5200              | 52Tone  | RU38     | 9.71         | 12                  |  |
| 11AX20MIMO | 5200              | 52Tone  | RU40     | 10.14        | 12                  |  |
| 11AX20MIMO | 5200              | 106Tone | RU53     | 10.15        | 12                  |  |
| 11AX20MIMO | 5200              | 106Tone | RU54     | 10.21        | 12                  |  |
| 11AX20MIMO | 5240              | 26Tone  | RU0      | 10.78        | 12                  |  |
| 11AX20MIMO | 5240              | 26Tone  | RU4      | 10.10        | 12                  |  |
| 11AX20MIMO | 5240              | 26Tone  | RU8      | 10.42        | 12                  |  |
| 11AX20MIMO | 5240              | 52Tone  | RU37     | 10.39        | 12                  |  |
| 11AX20MIMO | 5240              | 52Tone  | RU38     | 9.72         | 12                  |  |
| 11AX20MIMO | 5240              | 52Tone  | RU40     | 9.64         | 12                  |  |
| 11AX20MIMO | 5240              | 106Tone | RU53     | 9.46         | 12                  |  |
| 11AX20MIMO | 5260              | 106Tone | RU54     | 9.33         | 12                  |  |
| 11AX20MIMO | 5260              | 26Tone  | RU0      | 8.93         | 12                  |  |
| 11AX20MIMO | 5260              | 26Tone  | RU4      | 8.85         | 12                  |  |
| 11AX20MIMO | 5260              | 26Tone  | RU8      | 9.50         | 12                  |  |
| 11AX20MIMO | 5260              | 52Tone  | RU37     | 9.23         | 12                  |  |
| 11AX20MIMO | 5260              | 52Tone  | RU38     | 8.91         | 12                  |  |
| 11AX20MIMO | 5260              | 52Tone  | RU40     | 9.39         | 12                  |  |
| 11AX20MIMO | 5260              | 106Tone | RU53     | 9.48         | 12                  |  |
| 11AX20MIMO | 5260              | 106Tone | RU54     | 9.60         | 12                  |  |
| 11AX20MIMO | 5280              | 26Tone  | RU0      | 9.98         | 12                  |  |
| 11AX20MIMO | 5280              | 26Tone  | RU4      | 9.60         | 12                  |  |
| 11AX20MIMO | 5280              | 26Tone  | RU8      | 9.70         | 12                  |  |
| 11AX20MIMO | 5280              | 52Tone  | RU37     | 9.77         | 12                  |  |
| 11AX20MIMO | 5280              | 52Tone  | RU38     | 9.48         | 12                  |  |
| 11AX20MIMO | 5280              | 52Tone  | RU40     | 9.57         | 12                  |  |
| 11AX20MIMO | 5280              | 106Tone | RU53     | 9.76         | 12                  |  |
| 11AX20MIMO | 5280              | 106Tone | RU54     | 9.56         | 12                  |  |
| 11AX20MIMO | 5320              | 26Tone  | RU0      | 10.10        | 12                  |  |
| 11AX20MIMO | 5320              | 26Tone  | RU4      | 9.64         | 12                  |  |
| 11AX20MIMO | 5320              | 26Tone  | RU8      | 10.09        | 12                  |  |
| 11AX20MIMO | 5320              | 52Tone  | RU37     | 9.79         | 12                  |  |
| 11AX20MIMO | 5320              | 52Tone  | RU38     | 9.41         | 12                  |  |
| 11AX20MIMO | 5320              | 52Tone  | RU40     | 9.47         | 12                  |  |
| 11AX20MIMO | 5320              | 106Tone | RU53     | 9.61         | 12                  |  |
| 11AX20MIMO | 5320              | 106Tone | RU54     | 9.62         | 12                  |  |
| 11AX20MIMO | 5500              | 26Tone  | RU0      | 10.27        | 12                  |  |
| 11AX20MIMO | 5500              | 26Tone  | RU4      | 9.80         | 12                  |  |
| 11AX20MIMO | 5500              | 26Tone  | RU8      | 10.15        | 12                  |  |
| 11AX20MIMO | 5500              | 52Tone  | RU37     | 10.14        | 12                  |  |
| 11AX20MIMO | 5500              | 52Tone  | RU38     | 9.86         | 12                  |  |
| 11AX20MIMO | 5500              | 52Tone  | RU40     | 9.96         | 12                  |  |
| 11AX20MIMO | 5500              | 106Tone | RU53     | 10.16        | 12                  |  |
| 11AX20MIMO | 5500              | 106Tone | RU54     | 10.00        | 12                  |  |
| 11AX20MIMO | 5580              | 26Tone  | RU0      | 10.25        | 12                  |  |
| 11AX20MIMO | 5580              | 26Tone  | RU4      | 9.84         | 12                  |  |
| 11AX20MIMO | 5580              | 26Tone  | RU8      | 10.14        | 12                  |  |
| 11AX20MIMO | 5580              | 52Tone  | RU37     | 10.04        | 12                  |  |
| 11AX20MIMO | 5580              | 52Tone  | RU38     | 9.81         | 12                  |  |
| 11AX20MIMO | 5580              | 52Tone  | RU40     | 9.99         | 12                  |  |
| 11AX20MIMO | 5580              | 106Tone | RU53     | 9.84         | 12                  |  |
| 11AX20MIMO | 5580              | 106Tone | RU54     | 10.35        | 12                  |  |
| 11AX20MIMO | 5700              | 26Tone  | RU0      | 9.40         | 12                  |  |
| 11AX20MIMO | 5700              | 26Tone  | RU4      | 9.11         | 12                  |  |
| 11AX20MIMO | 5700              | 26Tone  | RU8      | 9.64         | 12                  |  |
| 11AX20MIMO | 5700              | 52Tone  | RU37     | 9.07         | 12                  |  |
| 11AX20MIMO | 5700              | 52Tone  | RU38     | 8.86         | 12                  |  |
| 11AX20MIMO | 5700              | 52Tone  | RU40     | 9.24         | 12                  |  |
| 11AX20MIMO | 5700              | 106Tone | RU53     | 9.34         | 12                  |  |
| 11AX20MIMO | 5700              | 106Tone | RU54     | 9.34         | 12                  |  |
| 11AX20MIMO | 5720              | 26Tone  | RU0      | 8.44         | 12                  |  |
| 11AX20MIMO | 5720              | 26Tone  | RU4      | 8.34         | 12                  |  |
| 11AX20MIMO | 5720              | 26Tone  | RU8      | 9.11         | 12                  |  |
| 11AX20MIMO | 5720              | 52Tone  | RU37     | 8.33         | 12                  |  |
| 11AX20MIMO | 5720              | 52Tone  | RU38     | 8.07         | 12                  |  |
| 11AX20MIMO | 5720              | 52Tone  | RU40     | 9.53         | 12                  |  |
| 11AX20MIMO | 5720              | 106Tone | RU53     | 9.33         | 12                  |  |
| 11AX20MIMO | 5720              | 106Tone | RU54     | 9.78         | 12                  |  |
| 11AX40MIMO | 5190              | 242Tone | RU0      | 9.20         | 12                  |  |
| 11AX40MIMO | 5190              | 242Tone | RU1      | 9.21         | 12                  |  |
| 11AX40MIMO | 5230              | 242Tone | RU61     | 9.31         | 12                  |  |
| 11AX40MIMO | 5230              | 242Tone | RU62     | 9.43         | 12                  |  |
| 11AX40MIMO | 5270              | 242Tone | RU61     | 9.22         | 12                  |  |
| 11AX40MIMO | 5270              | 242Tone | RU62     | 9.26         | 12                  |  |
| 11AX40MIMO | 5310              | 242Tone | RU61     | 9.31         | 12                  |  |
| 11AX40MIMO | 5310              | 242Tone | RU62     | 8.90         | 12                  |  |
| 11AX40MIMO | 5510              | 242Tone | RU61     | 9.12         | 12                  |  |
| 11AX40MIMO | 5510              | 242Tone | RU62     | 9.49         | 12                  |  |
| 11AX40MIMO | 5550              | 242Tone | RU61     | 9.86         | 12                  |  |
| 11AX40MIMO | 5550              | 242Tone | RU62     | 9.72         | 12                  |  |
| 11AX40MIMO | 5670              | 242Tone | RU61     | 9.09         | 12                  |  |
| 11AX40MIMO | 5670              | 242Tone | RU62     | 9.19         | 12                  |  |
| 11AX40MIMO | 5710              | 242Tone | RU61     | 9.37         | 12                  |  |
| 11AX40MIMO | 5710              | 242Tone | RU62     | 8.51         | 12                  |  |
| 11AX80MIMO | 5210              | 484Tone | RU0      | 9.03         | 12                  |  |
| 11AX80MIMO | 5210              | 484Tone | RU66     | 9.36         | 12                  |  |
| 11AX80MIMO | 5290              | 484Tone | RU65     | 9.41         | 12                  |  |
| 11AX80MIMO | 5290              | 484Tone | RU66     | 8.78         | 12                  |  |
| 11AX80MIMO | 5530              | 484Tone | RU65     | 9.10         | 12                  |  |
| 11AX80MIMO | 5530              | 484Tone | RU66     | 9.37         | 12                  |  |
| 11AX80MIMO | 5690              | 484Tone | RU65     | 8.71         | 12                  |  |
| 11AX80MIMO | 5690              | 484Tone | RU66     | 8.77         | 12                  |  |

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| ANT3        |         |                |              |               |
|-------------|---------|----------------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Result [dBm] | Tune-Up Limit |
| 11AX20MIMO  | 1       | 5955           | -0.01        | 3.00          |
| 11AX20MIMO  | 45      | 6175           | 0.24         | 3.00          |
| 11AX20MIMO  | 93      | 6415           | 0.02         | 3.00          |
| 11AX40MIMO  | 3       | 5965           | 2.89         | 6.00          |
| 11AX40MIMO  | 43      | 6165           | 2.88         | 6.00          |
| 11AX40MIMO  | 91      | 6405           | 3.15         | 6.00          |
| 11AX80MIMO  | 7       | 5985           | 5.67         | 9.00          |
| 11AX80MIMO  | 39      | 6145           | 6.36         | 9.00          |
| 11AX80MIMO  | 87      | 6385           | 6.18         | 9.00          |
| 11AX160MIMO | 15      | 6025           | 10.12        | 12.00         |
| 11AX160MIMO | 47      | 6185           | 10.03        | 12.00         |
| 11AX160MIMO | 79      | 6345           | 10.00        | 12.00         |

| ANT5        |         |                |              |               |
|-------------|---------|----------------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Result [dBm] | Tune-Up Limit |
| 11AX20MIMO  | 1       | 5955           | 1.13         | 3.00          |
| 11AX20MIMO  | 45      | 6175           | 1.58         | 3.00          |
| 11AX20MIMO  | 93      | 6415           | 0.63         | 3.00          |
| 11AX40MIMO  | 3       | 5965           | 3.95         | 6.00          |
| 11AX40MIMO  | 43      | 6165           | 4.29         | 6.00          |
| 11AX40MIMO  | 91      | 6405           | 3.50         | 6.00          |
| 11AX80MIMO  | 7       | 5985           | 7.02         | 9.00          |
| 11AX80MIMO  | 39      | 6145           | 7.62         | 9.00          |
| 11AX80MIMO  | 87      | 6385           | 6.72         | 9.00          |
| 11AX160MIMO | 15      | 6025           | 11.08        | 12.00         |
| 11AX160MIMO | 47      | 6185           | 11.05        | 12.00         |
| 11AX160MIMO | 79      | 6345           | 10.41        | 12.00         |

| Total       |         |                |              |               |
|-------------|---------|----------------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Result [dBm] | Tune-Up Limit |
| 11AX20MIMO  | 1       | 5955           | 3.61         | 6.00          |
| 11AX20MIMO  | 45      | 6175           | 3.97         | 6.00          |
| 11AX20MIMO  | 93      | 6415           | 3.35         | 6.00          |
| 11AX40MIMO  | 3       | 5965           | 6.38         | 9.00          |
| 11AX40MIMO  | 43      | 6165           | 6.65         | 9.00          |
| 11AX40MIMO  | 91      | 6405           | 6.34         | 9.00          |
| 11AX80MIMO  | 7       | 5985           | 9.41         | 12.00         |
| 11AX80MIMO  | 39      | 6145           | 10.05        | 12.00         |
| 11AX80MIMO  | 87      | 6385           | 9.47         | 12.00         |
| 11AX160MIMO | 15      | 6025           | 13.64        | 14.00         |
| 11AX160MIMO | 47      | 6185           | 13.58        | 13.50         |
| 11AX160MIMO | 79      | 6345           | 13.22        | 13.00         |

6E\_RU

| ANT3        |         |                |         |          |              |               |
|-------------|---------|----------------|---------|----------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Ru Size | Ru Index | Result [dBm] | Tune-Up Limit |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU0      | -7.19        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU4      | -7.70        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU8      | -7.65        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU37     | -4.25        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU38     | -4.64        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU40     | -4.70        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU53     | -1.26        | 1.50          |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU54     | -1.60        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU0      | -6.67        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU4      | -7.14        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU8      | -6.64        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU37     | -4.05        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU38     | -4.18        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU40     | -3.92        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU53     | -0.84        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU54     | -0.95        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU0      | -8.96        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU4      | -9.14        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU8      | -8.80        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU37     | -5.81        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU38     | -6.17        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU40     | -6.03        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU53     | -2.95        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU54     | -3.07        | 1.50          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU61     | 0.35         | 3.00          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU62     | -0.30        | 3.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU61     | 0.13         | 3.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU62     | 0.48         | 3.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU61     | 0.12         | 3.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU62     | -0.19        | 3.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU65     | 1.94         | 6.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU66     | 2.13         | 6.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU65     | 2.84         | 6.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU66     | 2.69         | 6.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU65     | 2.40         | 6.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU66     | 2.35         | 6.00          |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU67     | 4.69         | 9.00          |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU68     | 4.78         | 9.00          |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU67     | 5.05         | 9.00          |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU68     | 4.80         | 9.00          |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU67     | 3.97         | 9.00          |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU68     | 3.68         | 9.00          |

| ANT5        |         |                |         |          |              |               |
|-------------|---------|----------------|---------|----------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Ru Size | Ru Index | Result [dBm] | Tune-Up Limit |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU0      | -6.72        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU4      | -6.16        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU8      | -6.85        | -4.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU37     | -2.99        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU38     | -3.19        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU40     | -2.99        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU53     | 0.13         | 1.50          |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU54     | -0.05        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU0      | -6.79        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU4      | -6.50        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU8      | -5.59        | -4.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU37     | -2.94        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU38     | -2.83        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU40     | -2.79        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU53     | 0.19         | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU54     | 0.27         | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU0      | -8.86        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU4      | -8.77        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU8      | -8.33        | -4.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU37     | -5.68        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU38     | -5.50        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU40     | -5.57        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU53     | -2.58        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU54     | -2.72        | 1.50          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU61     | 0.74         | 3.00          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU62     | 0.57         | 3.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU61     | 0.63         | 3.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU62     | 0.81         | 3.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU61     | -0.22        | 3.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU62     | -0.74        | 3.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU65     | 2.76         | 6.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU66     | 2.47         | 6.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU65     | 3.36         | 6.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU66     | 3.57         | 6.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU65     | 2.75         | 6.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU66     | 2.35         | 6.00          |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU67     | 5.94         | 9.00          |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU68     | 5.59         | 9.00          |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU67     | 6.08         | 9.00          |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU68     | 5.77         | 9.00          |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU67     | 5.43         | 9.00          |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU68     | 5.19         | 9.00          |

| Total       |         |                |         |          |              |               |
|-------------|---------|----------------|---------|----------|--------------|---------------|
| Test Mode   | Channel | Frequency[MHz] | Ru Size | Ru Index | Result [dBm] | Tune-Up Limit |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU0      | -3.38        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU4      | -3.85        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 26Tone  | RU8      | -3.65        | -1.50         |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU37     | -2.61        | 1.50          |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU38     | -2.79        | 1.50          |
| 11AX20MMMO  | 1       | 5955           | 52Tone  | RU40     | -2.75        | 1.50          |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU53     | 2.50         | 4.50          |
| 11AX20MMMO  | 1       | 5955           | 106Tone | RU54     | 2.25         | 4.50          |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU0      | -3.26        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU4      | -3.48        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 26Tone  | RU8      | -3.07        | -1.50         |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU37     | -2.45        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU38     | -2.44        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 52Tone  | RU40     | -2.31        | 1.50          |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU53     | 2.72         | 4.50          |
| 11AX20MMMO  | 45      | 6175           | 106Tone | RU54     | 2.71         | 4.50          |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU0      | -5.90        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU4      | -5.94        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 26Tone  | RU8      | -5.55        | -1.50         |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU37     | -2.73        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU38     | -2.81        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 52Tone  | RU40     | -2.78        | 1.50          |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU53     | 2.29         | 4.50          |
| 11AX20MMMO  | 93      | 6415           | 106Tone | RU54     | 0.12         | 4.50          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU61     | 3.56         | 6.00          |
| 11AX40MMMO  | 3       | 5955           | 242Tone | RU62     | 3.17         | 6.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU61     | 3.40         | 6.00          |
| 11AX40MMMO  | 43      | 6165           | 242Tone | RU62     | 3.65         | 6.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU61     | 2.96         | 6.00          |
| 11AX40MMMO  | 91      | 6405           | 242Tone | RU62     | 2.55         | 6.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU65     | 5.38         | 9.00          |
| 11AX80MMMO  | 7       | 5985           | 484Tone | RU66     | 5.96         | 9.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU65     | 6.23         | 9.00          |
| 11AX80MMMO  | 39      | 6145           | 484Tone | RU66     | 6.16         | 9.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU65     | 5.59         | 9.00          |
| 11AX80MMMO  | 87      | 6385           | 484Tone | RU66     | 5.36         | 9.00          |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU67     | 8.50         | 12.00         |
| 11AX160MMMO | 15      | 6025           | 996Tone | RU68     | 8.21         | 12.00         |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU67     | 8.61         | 12.00         |
| 11AX160MMMO | 47      | 6185           | 996Tone | RU68     | 8.32         | 12.00         |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU67     | 7.77         | 12.00         |
| 11AX160MMMO | 79      | 6345           | 996Tone | RU68     | 7.51         | 12.00         |

## Halow

| Ant 2 |      |         |                 |                     |               |
|-------|------|---------|-----------------|---------------------|---------------|
| Halow | Mode | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit |
| Halow | 1M   | 40      | 921             | 12.71               | 13.35         |
|       |      | 43      | 924             | 12.77               | 13.35         |
|       |      | 46      | 927             | <b>12.81</b>        | 13.35         |
|       | 2M   | 36      | 923.5           | 12.16               | 13.35         |
|       |      | 37      | 924.5           | 12.14               | 13.35         |
|       |      | 39      | 926.5           | 10.98               | 11.35         |
|       | 4M   | 47      | 924.5           | 11.82               | 12.35         |
|       |      | 48      | 925.5           | 8.05                | 8.35          |

## **Appendix E. Simultaneous Multi-band Transmission Evaluation**

The simultaneous transmission evaluation and analysis is shown as below.

Simultaneous Transmission analysis Head SAR

| WWAN Band | Test Position | 1         | 2                            | 3                            | 4                            | 5                          | 6                          | 7                          | 8                     | 9                 | 10               | 11                   | 1+2+11               | 1+3+11               | 1+4+11               | 1+10+11              | 5+10+11              | 10+11+11             | 7+10+11              | 8+10+11              | 9+10+11              | TBR |
|-----------|---------------|-----------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|-----------------------|-------------------|------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----|
|           |               | WWAN Band | WLAN 2.4G Ant3 1g SAR (W/kg) | WLAN 2.4G Ant5 1g SAR (W/kg) | WLAN 2.4G MIMO 1g SAR (W/kg) | WLAN 5G Ant3 1g SAR (W/kg) | WLAN 5G Ant5 1g SAR (W/kg) | WLAN 5G MIMO 1g SAR (W/kg) | WLAN 6E 1g SAR (W/kg) | WLAN 6E PD (W/m²) | BT 1g SAR (W/kg) | Hatlow 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) |     |
| GSM850    | Right Cheek   | 0.36      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.53                 | 0.57                 | 0.58                 | 0.61                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.11      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.20                 | 0.20                 | 0.25                 | 0.20                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.27      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.42                 | 0.43                 | 0.44                 | 0.61                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.15      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.22                 | 0.22                 | 0.26                 | 0.32                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| GSM1900   | Right Cheek   | 0.18      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.35                 | 0.39                 | 0.39                 | 0.42                 | 0.23                 | 0.21                 | 0.22                 | 0.22                 | 0.51                 |     |
|           | Right Tilted  | 0.07      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.15                 | 0.15                 | 0.21                 | 0.15                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.14      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.29                 | 0.30                 | 0.31                 | 0.48                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.07      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.14                 | 0.14                 | 0.20                 | 0.24                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| WCDMA II  | Right Cheek   | 0.37      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.54                 | 0.57                 | 0.58                 | 0.61                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.12      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.21                 | 0.21                 | 0.26                 | 0.21                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.28      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.43                 | 0.44                 | 0.45                 | 0.62                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.14      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.21                 | 0.21                 | 0.27                 | 0.31                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| WCDMA VI  | Right Cheek   | 0.07      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.24                 | 0.28                 | 0.29                 | 0.32                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.08      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.17                 | 0.17                 | 0.22                 | 0.17                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.19      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.35                 | 0.35                 | 0.37                 | 0.54                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.06      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.14                 | 0.14                 | 0.20                 | 0.24                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| WCDMA V   | Right Cheek   | 0.34      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.51                 | 0.54                 | 0.55                 | 0.58                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.13      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.21                 | 0.21                 | 0.27                 | 0.21                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.34      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.49                 | 0.50                 | 0.51                 | 0.68                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.20      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.27                 | 0.27                 | 0.33                 | 0.37                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| LTE B2    | Right Cheek   | 0.20      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.37                 | 0.40                 | 0.41                 | 0.44                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.12      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.21                 | 0.21                 | 0.27                 | 0.21                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.40      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.56                 | 0.56                 | 0.58                 | 0.75                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.13      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.21                 | 0.21                 | 0.27                 | 0.26                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| LTE B4    | Right Cheek   | 0.10      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.27                 | 0.30                 | 0.31                 | 0.34                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.07      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.15                 | 0.15                 | 0.21                 | 0.15                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.25      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.39                 | 0.40                 | 0.42                 | 0.58                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.00      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.08                 | 0.08                 | 0.14                 | 0.17                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| LTE B5    | Right Cheek   | 0.41      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.57                 | 0.61                 | 0.62                 | 0.65                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.22      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.31                 | 0.31                 | 0.36                 | 0.31                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.51      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.66                 | 0.67                 | 0.68                 | 0.85                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.29      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.37                 | 0.37                 | 0.43                 | 0.46                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| LTE B12   | Right Cheek   | 0.15      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.32                 | 0.35                 | 0.36                 | 0.39                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.07      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.16                 | 0.16                 | 0.22                 | 0.16                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.26      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.41                 | 0.42                 | 0.43                 | 0.60                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.12      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.20                 | 0.20                 | 0.26                 | 0.29                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |
| LTE B41   | Right Cheek   | 0.14      | 0.06                         | 0.09                         | 0.10                         | 0.09                       | 0.06                       | 0.08                       | 0.07                  | 3.57              | 0.13             | 0.11                 | 0.31                 | 0.34                 | 0.35                 | 0.38                 | 0.33                 | 0.31                 | 0.32                 | 0.32                 | 0.51                 |     |
|           | Right Tilted  | 0.09      | 0.00                         | 0.00                         | 0.06                         | 0.00                       | 0.00                       | 0.03                       | 0.06                  | 3.57              | 0.00             | 0.09                 | 0.18                 | 0.18                 | 0.23                 | 0.18                 | 0.09                 | 0.09                 | 0.11                 | 0.14                 | 0.41                 |     |
|           | Left Cheek    | 0.31      | 0.06                         | 0.07                         | 0.08                         | 0.22                       | 0.06                       | 0.15                       | 0.26                  | 3.57              | 0.25             | 0.09                 | 0.47                 | 0.47                 | 0.49                 | 0.66                 | 0.56                 | 0.40                 | 0.49                 | 0.61                 | 0.57                 |     |
|           | Left Tilted   | 0.07      | 0.00                         | 0.00                         | 0.06                         | 0.08                       | 0.00                       | 0.06                       | 0.06                  | 3.57              | 0.10             | 0.08                 | 0.14                 | 0.14                 | 0.20                 | 0.24                 | 0.25                 | 0.17                 | 0.24                 | 0.23                 | 0.46                 |     |

Simultaneous Transmission analysis Body Worn SAR

| WWAN Band | Test Position       | 1                | 2                                     | 3                                     | 4                                     | 5                                   | 6                                   | 7                                   | 8                                   | 9                                    | 10                                | 11                        | 1+2+11<br>Summed<br>1g SAR<br>(W/kg) | 1+3+11<br>Summed<br>1g SAR<br>(W/kg) | 1+4+11<br>Summed<br>1g SAR<br>(W/kg) | 1+10+11<br>Summed<br>1g SAR<br>(W/kg) | 2+10+11<br>Summed<br>1g SAR (W/kg) | 3+10+11<br>Summed<br>1g SAR (W/kg) | 7+10+11<br>Summed<br>1g SAR (W/kg) | 8+10+11<br>Summed<br>1g SAR (W/kg) | 9+10+11<br>Summed<br>1g SAR (W/kg) | 9+10+11<br>TER |
|-----------|---------------------|------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-----------------------------------|---------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|----------------|
|           |                     | WWAN Band        | WLAN 2.4G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 2.4G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 2.4G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 5G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 5G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 6E<br>PD<br>(W/m <sup>2</sup> ) | WLAN 6E<br>BT<br>1g SAR<br>(W/kg) | Halow<br>1g SAR<br>(W/kg) |                                      |                                      |                                      |                                       |                                    |                                    |                                    |                                    |                                    |                |
|           |                     | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg)                      | 1g SAR<br>(W/kg)                      | 1g SAR<br>(W/kg)                      | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                     | 1g SAR<br>(W/kg)                  | 1g SAR<br>(W/kg)          |                                      |                                      |                                      |                                       |                                    |                                    |                                    |                                    |                                    |                |
| GSM850    | Front Face at 1.5cm | 0.18             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.18                                 | 0.18                                 | 0.18                                 | 0.18                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.28             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.30                                 | 0.34                                 | 0.33                                 | 0.36                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| GSM1900   | Front Face at 1.5cm | 0.14             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.14                                 | 0.14                                 | 0.14                                 | 0.14                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.16             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.18                                 | 0.22                                 | 0.21                                 | 0.24                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| WCDMA II  | Front Face at 1.5cm | 0.20             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.20                                 | 0.20                                 | 0.20                                 | 0.20                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.26             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.28                                 | 0.32                                 | 0.31                                 | 0.34                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| WCDMA VI  | Front Face at 1.5cm | 0.13             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.13                                 | 0.13                                 | 0.13                                 | 0.13                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.39             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.41                                 | 0.45                                 | 0.44                                 | 0.47                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| WCDMA V   | Front Face at 1.5cm | 0.16             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.16                                 | 0.16                                 | 0.16                                 | 0.16                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.24             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.26                                 | 0.30                                 | 0.29                                 | 0.32                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| LTE B2    | Front Face at 1.5cm | 0.18             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.18                                 | 0.18                                 | 0.18                                 | 0.18                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.22             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.24                                 | 0.28                                 | 0.27                                 | 0.30                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| LTE B4    | Front Face at 1.5cm | 0.18             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.18                                 | 0.18                                 | 0.18                                 | 0.18                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.35             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.37                                 | 0.41                                 | 0.40                                 | 0.43                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| LTE B5    | Front Face at 1.5cm | 0.22             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.22                                 | 0.22                                 | 0.22                                 | 0.22                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.35             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.37                                 | 0.41                                 | 0.40                                 | 0.43                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| LTE B12   | Front Face at 1.5cm | 0.15             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.15                                 | 0.15                                 | 0.15                                 | 0.15                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.23             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.25                                 | 0.29                                 | 0.28                                 | 0.31                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |
| LTE B41   | Front Face at 1.5cm | 0.14             | 0.00                                  | 0.00                                  | 0.00                                  | 0.05                                | 0.00                                | 0.07                                | 0.06                                | 1.82                                 | 0.00                              | 0.00                      | 0.14                                 | 0.14                                 | 0.14                                 | 0.14                                  | 0.05                               | 0.00                               | 0.07                               | 0.06                               | 0.18                               |                |
|           | Rear Face at 1.5cm  | 0.51             | 0.00                                  | 0.04                                  | 0.03                                  | 0.08                                | 0.08                                | 0.09                                | 0.16                                | 3.57                                 | 0.06                              | 0.02                      | 0.53                                 | 0.57                                 | 0.56                                 | 0.59                                  | 0.16                               | 0.16                               | 0.17                               | 0.24                               | 0.41                               |                |

Simultaneous Transmission analysis Hotspot SAR

| WWAN Band | Test Position      | 1                             | 2                                     | 3                                     | 4                                     | 5                                   | 6                                   | 7                                   | 8                                   | 9                                   | 10                                  | 11                      | 1+2+11                 | 1+3+11                     | 1+4+11                     | 1+10+11                    | 5+10+11                    | 6+10+11                    | 7+10+11                    | 8+10+11                    | 9+10+11                    |      |
|-----------|--------------------|-------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------|
|           |                    | WWAN Band<br>1g SAR<br>(W/kg) | WLAN 2.4G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 2.4G<br>Ant5<br>1g SAR<br>(W/kg) | WLAN 2.4G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant5<br>1g SAR<br>(W/kg) | WLAN 5G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant3<br>1g SAR<br>(W/kg) | WLAN 5G<br>Ant5<br>1g SAR<br>(W/kg) | WLAN 5G<br>MIMO<br>1g SAR<br>(W/kg) | WLAN 6E<br>PD<br>(W/m²) | BT<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) |      |
| GSM850    | Front Face at 1cm  | 0.32                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.32                   | 0.32                       | 0.32                       | 0.32                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.51                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.55                   | 0.66                       | 0.66                       | 0.66                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.23                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.23                   | 0.29                       | 0.32                       | 0.23                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.13                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.00                    | 0.00                   | 0.19                       | 0.13                       | 0.21                       | 0.28                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.36                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.36                   | 0.36                       | 0.36                       | 0.36                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| GSM1900   | Front Face at 1cm  | 0.23                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.23                   | 0.23                       | 0.23                       | 0.23                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.26                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.31                   | 0.42                       | 0.41                       | 0.52                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.17                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.17                   | 0.24                       | 0.27                       | 0.17                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.07                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.12                       | 0.07                       | 0.14                       | 0.22                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.15                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.15                   | 0.15                       | 0.15                       | 0.15                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| WCDMA II  | Front Face at 1cm  | 0.43                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.43                   | 0.43                       | 0.43                       | 0.43                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.56                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.61                   | 0.72                       | 0.71                       | 0.82                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.50                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.50                   | 0.56                       | 0.59                       | 0.50                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.13                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.18                       | 0.13                       | 0.20                       | 0.28                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.29                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.29                   | 0.29                       | 0.29                       | 0.29                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| WCDMA VI  | Front Face at 1cm  | 0.22                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.22                   | 0.22                       | 0.22                       | 0.22                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.66                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.70                   | 0.81                       | 0.81                       | 0.92                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.28                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.28                   | 0.34                       | 0.37                       | 0.28                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.06                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.11                       | 0.06                       | 0.13                       | 0.21                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.54                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.54                   | 0.54                       | 0.54                       | 0.54                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| WCDMA V   | Front Face at 1cm  | 0.29                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.29                   | 0.29                       | 0.29                       | 0.29                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.44                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.48                   | 0.59                       | 0.59                       | 0.69                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.23                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.23                   | 0.29                       | 0.32                       | 0.23                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.12                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.18                       | 0.12                       | 0.20                       | 0.27                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.27                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.27                   | 0.27                       | 0.27                       | 0.27                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| LTE B2    | Front Face at 1cm  | 0.42                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.42                   | 0.42                       | 0.42                       | 0.42                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.50                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.55                   | 0.66                       | 0.65                       | 0.76                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.45                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.45                   | 0.51                       | 0.54                       | 0.45                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.09                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.14                       | 0.09                       | 0.16                       | 0.24                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.30                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.30                   | 0.30                       | 0.30                       | 0.30                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| LTE B4    | Front Face at 1cm  | 0.35                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.35                   | 0.35                       | 0.35                       | 0.35                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.66                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.71                   | 0.81                       | 0.81                       | 0.92                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.50                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.50                   | 0.56                       | 0.59                       | 0.50                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.06                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.11                       | 0.06                       | 0.13                       | 0.21                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.52                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.52                   | 0.52                       | 0.52                       | 0.52                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| LTE B5    | Front Face at 1cm  | 0.34                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.34                   | 0.34                       | 0.34                       | 0.34                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.55                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.59                   | 0.70                       | 0.70                       | 0.81                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.23                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.23                   | 0.29                       | 0.32                       | 0.23                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.13                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.18                       | 0.13                       | 0.20                       | 0.28                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.35                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.35                   | 0.35                       | 0.35                       | 0.35                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| LTE B12   | Front Face at 1cm  | 0.17                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.17                   | 0.17                       | 0.17                       | 0.17                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.26                          | 0.00                                  | 0.11                                  | 0.10                                  | 0.17                                | 0.10                                | 0.20                                | 0.21                                | 3.57                                | 0.21                                | 0.05                    | 0.30                   | 0.41                       | 0.41                       | 0.51                       | 0.42                       | 0.35                       | 0.46                       | 0.47                       | 0.52                       |      |
|           | Left Side at 1cm   | 0.19                          | 0.00                                  | 0.06                                  | 0.09                                  | 0.00                                | 0.08                                | 0.08                                | 0.13                                | 2.17                                | 0.00                                | 0.00                    | 0.19                   | 0.25                       | 0.28                       | 0.19                       | 0.00                       | 0.08                       | 0.08                       | 0.13                       | 0.22                       |      |
|           | Right Side at 1cm  | 0.13                          | 0.05                                  | 0.00                                  | 0.07                                  | 0.00                                | 0.22                                | 0.00                                | 0.23                                | 0.40                                | 2.89                                | 0.15                    | 0.00                   | 0.18                       | 0.13                       | 0.21                       | 0.28                       | 0.37                       | 0.15                       | 0.38                       | 0.55                       | 0.38 |
|           | Top Side at 1cm    | 0.00                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.11                                | 0.39                                | 0.00                                | 0.03                    | 0.03                   | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.03                       | 0.14                       | 0.06                       |      |
|           | Bottom Side at 1cm | 0.13                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.00                                | 0.00                                | 0.00                                | 0.19                                | 0.34                                | 0.00                                | 0.00                    | 0.13                   | 0.13                       | 0.13                       | 0.13                       | 0.00                       | 0.00                       | 0.00                       | 0.19                       | 0.03                       |      |
| LTE B41   | Front Face at 1cm  | 0.33                          | 0.00                                  | 0.00                                  | 0.00                                  | 0.10                                | 0.00                                | 0.10                                | 0.08                                | 1.82                                | 0.00                                | 0.00                    | 0.33                   | 0.33                       | 0.33                       | 0.33                       | 0.10                       | 0.00                       | 0.10                       | 0.00                       | 0.10                       |      |
|           | Rear Face at 1cm   | 0.15                          | 0.10                                  | 0.11                                  | 0.10                                  | 0.20                                | 0.10                                | 0.20                                | 0.21                                | 3                                   |                                     |                         |                        |                            |                            |                            |                            |                            |                            |                            |                            |      |

## Appendix F. Photographs of EUT and Setup