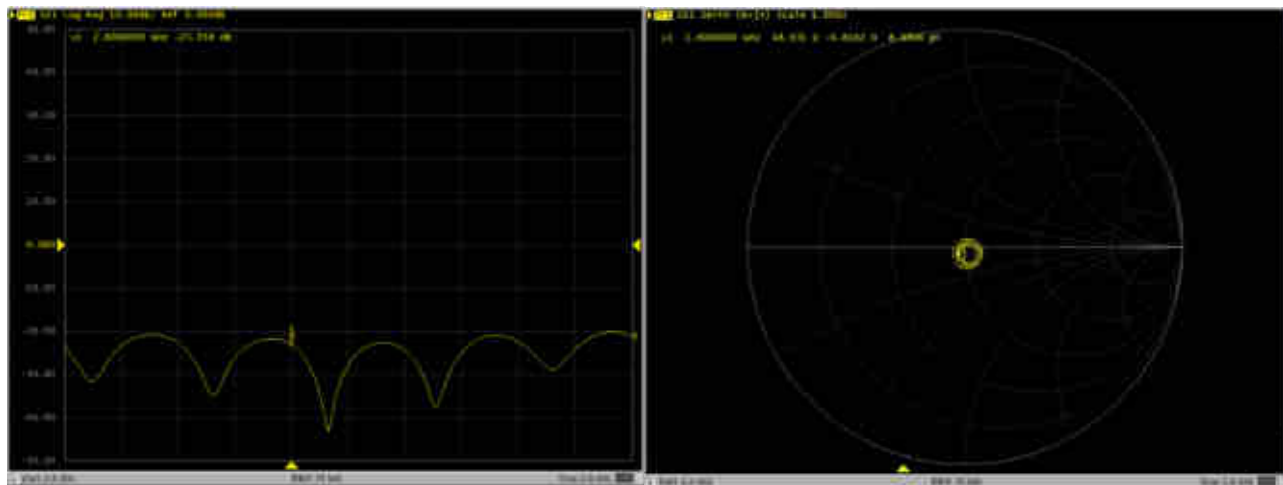
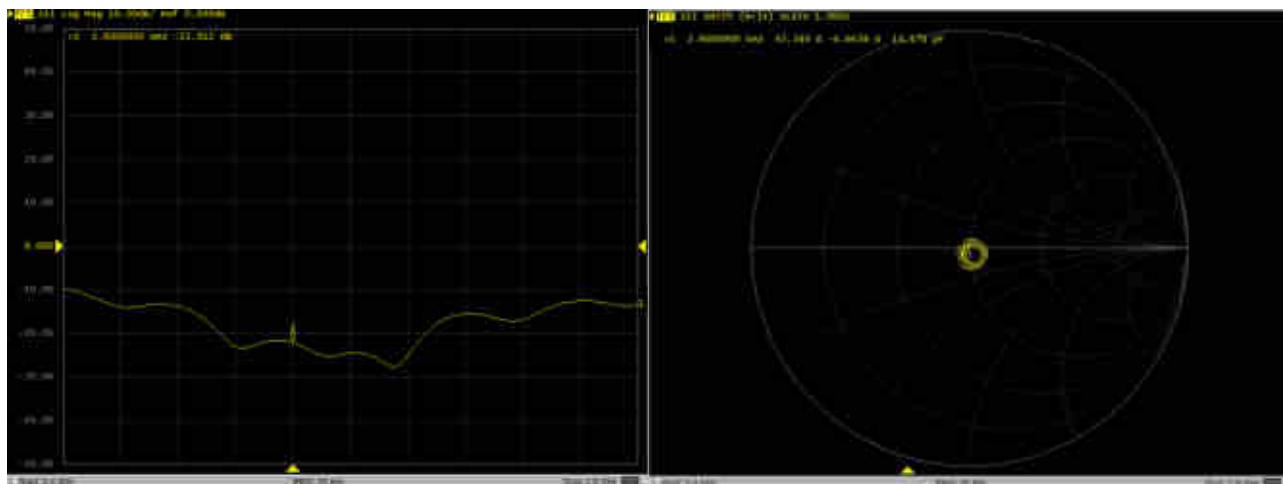


Dipole Verification Data> D2600V2, serial no. 1070

2600MHz - Head



2600MHz - Body





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **D5GHzV2-1113_Sep19**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1113**

Calibration procedure(s) **QA CAL-22.v4
Calibration Procedure for SAR Validation Sources between 3-6 GHz**

Calibration date: **September 24, 2019**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Reference Probe EX3DV4	SN: 3503	25-Mar-19 (No. EX3-3503_Mar19)	Mar-20
DAE4	SN: 601	30-Apr-19 (No. DAE4-601_Apr19)	Apr-20
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 25, 2019

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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:

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

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz $\pm$ 1 MHz 5600 MHz $\pm$ 1 MHz 5750 MHz $\pm$ 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.1 $\pm$ 6 %	4.53 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.5 W/kg $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.1 W/kg $\pm$ 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	34.6 $\pm$ 6 %	4.88 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	83.4 W/kg $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.8 W/kg $\pm$ 19.5 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.03 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.0 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.8 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	51.7 Ω - 6.2 j Ω
Return Loss	- 24.0 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	56.0 Ω - 2.7 j Ω
Return Loss	- 24.1 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	56.7 Ω - 1.0 j Ω
Return Loss	- 23.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.195 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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

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

Additional EUT Data

Manufactured by	SPEAG
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Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1113Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz,
Frequency: 5750 MHzMedium parameters used: $f = 5250$ MHz; $\sigma = 4.53$ S/m; $\epsilon_r = 35.1$; $\rho = 1000$ kg/m³,Medium parameters used: $f = 5600$ MHz; $\sigma = 4.88$ S/m; $\epsilon_r = 34.6$; $\rho = 1000$ kg/m³,Medium parameters used: $f = 5750$ MHz; $\sigma = 5.03$ S/m; $\epsilon_r = 34.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.4, 5.4, 5.4) @ 5250 MHz, ConvF(4.95, 4.95, 4.95) @ 5600 MHz, ConvF(4.98, 4.98, 4.98) @ 5750 MHz; Calibrated: 25.03.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 78.54 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 27.9 W/kg

SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.33 W/kg

Maximum value of SAR (measured) = 18.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 78.00 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 31.1 W/kg

SAR(1 g) = 8.40 W/kg; SAR(10 g) = 2.40 W/kg

Maximum value of SAR (measured) = 19.4 W/kg

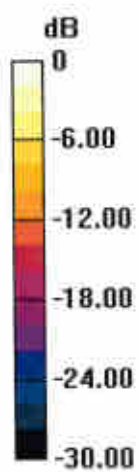
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan,**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 75.13 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 31.8 W/kg

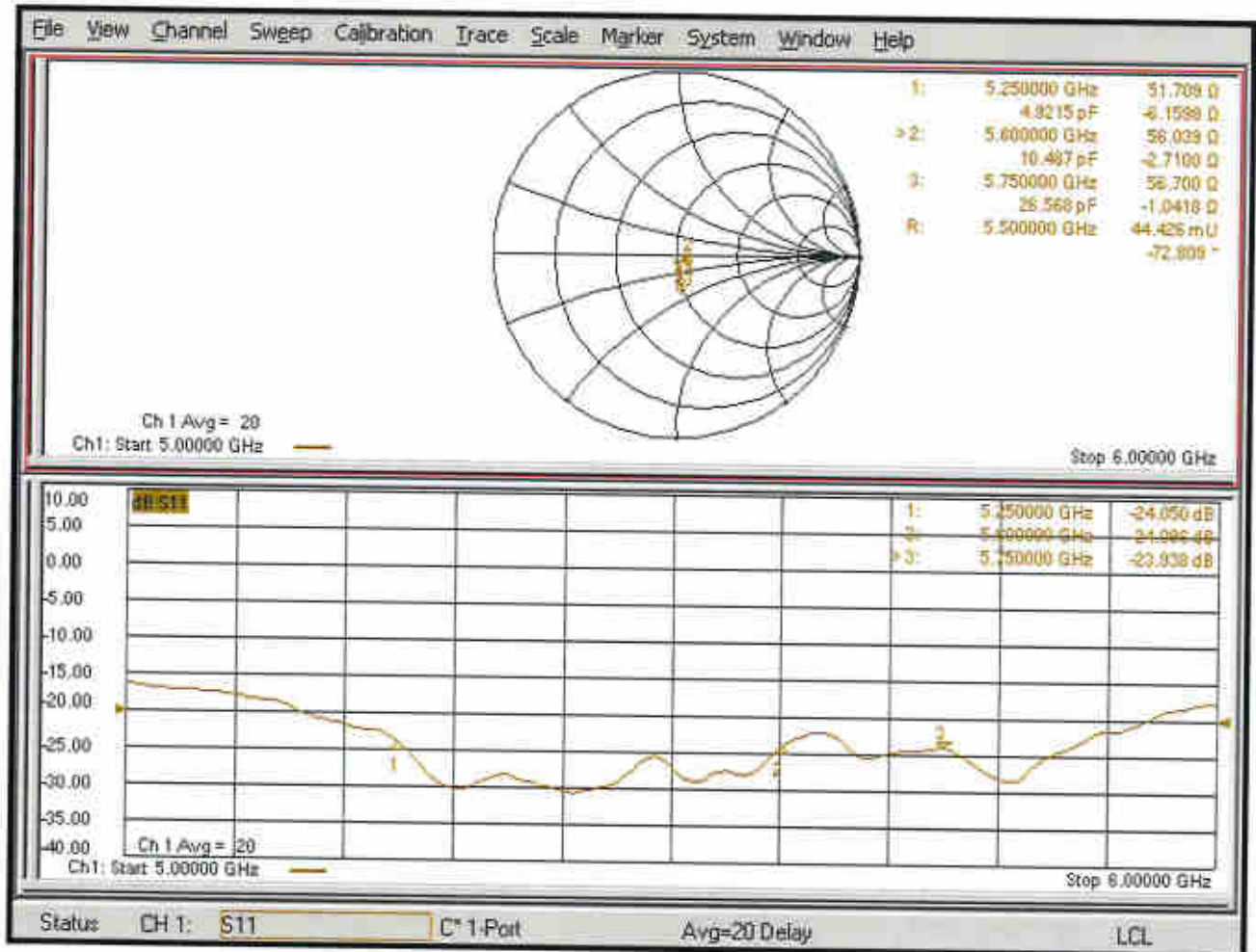
SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.30 W/kg

Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 18.1 W/kg = 12.58 dBW/kg

Impedance Measurement Plot for Head TSL



IMPORTANT NOTICE

USAGE OF THE DAE4

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

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

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

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

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

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

Important Note:

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

Important Note:

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

Important Note:

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



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

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Multilateral Agreement for the recognition of calibration certificates

Client **Sporton**

Certificate No: **DAE4-1358_Apr19**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BN - SN: 1358**

Calibration procedure(s) **QA CAL-06.v29
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **April 17, 2019**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	03-Sep-18 (No:23488)	Sep-19
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-19 (in house check)	In house check: Jan-20
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-19 (in house check)	In house check: Jan-20

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Laboratory Technician	
Approved by:	Sven Kühn	Deputy Manager	

Issued: April 17, 2019

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Accreditation No.: **SCS 0108**

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

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

Calibration Factors	X	Y	Z
High Range	403.463 $\pm$ 0.02% (k=2)	403.495 $\pm$ 0.02% (k=2)	403.499 $\pm$ 0.02% (k=2)
Low Range	3.96163 $\pm$ 1.50% (k=2)	3.98764 $\pm$ 1.50% (k=2)	3.99290 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	113.0 $^{\circ}$ $\pm$ 1 $^{\circ}$
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199991.46	-1.31	-0.00
Channel X	+ Input	20003.38	2.07	0.01
Channel X	- Input	-19999.84	1.82	-0.01
Channel Y	+ Input	199991.03	-1.92	-0.00
Channel Y	+ Input	20000.40	-0.91	-0.00
Channel Y	- Input	-20002.77	-1.13	0.01
Channel Z	+ Input	199994.09	1.49	0.00
Channel Z	+ Input	20001.51	0.27	0.00
Channel Z	- Input	-20002.76	-1.19	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.92	0.16	0.01
Channel X	+ Input	201.43	0.28	0.14
Channel X	- Input	-198.26	0.46	-0.23
Channel Y	+ Input	2000.61	-0.03	-0.00
Channel Y	+ Input	200.72	-0.33	-0.17
Channel Y	- Input	-199.37	-0.63	0.32
Channel Z	+ Input	2000.74	0.14	0.01
Channel Z	+ Input	199.99	-1.04	-0.52
Channel Z	- Input	-200.11	-1.38	0.69

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	23.19	21.08
	- 200	-19.67	-21.90
Channel Y	200	-27.40	-27.73
	- 200	26.53	26.79
Channel Z	200	-11.13	-11.37
	- 200	9.54	9.31

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	2.83	-3.89
Channel Y	200	8.40	-	3.80
Channel Z	200	9.80	6.24	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15584	17186
Channel Y	16049	15312
Channel Z	16077	16767

5. Input Offset Measurement

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

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.71	-0.27	1.96	0.43
Channel Y	-0.32	-1.14	0.46	0.37
Channel Z	-0.75	-2.06	0.69	0.43

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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



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Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **EX3-3843_Sep19**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3843**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7**
Calibration procedure for dosimetric E-field probes

Calibration date: **September 26, 2019**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	
			Issued: October 1, 2019
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Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3843

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.34	0.35	0.25	± 10.1 %
DCP (mV) ^B	110.9	96.1	101.1	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	134.1	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		146.5		
		Z	0.0	0.0	1.0		132.2		

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 5).

^B Numerical linearization parameter; uncertainty not required.

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3843

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-34.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3843

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	9.37	9.37	9.37	0.50	0.87	± 12.0 %
835	41.5	0.90	9.07	9.07	9.07	0.43	0.80	± 12.0 %
900	41.5	0.97	8.92	8.92	8.92	0.41	0.90	± 12.0 %
1450	40.5	1.20	8.17	8.17	8.17	0.32	0.80	± 12.0 %
1750	40.1	1.37	7.95	7.95	7.95	0.34	0.87	± 12.0 %
1900	40.0	1.40	7.67	7.67	7.67	0.32	0.87	± 12.0 %
2000	40.0	1.40	7.66	7.66	7.66	0.34	0.87	± 12.0 %
2300	39.5	1.67	7.30	7.30	7.30	0.26	0.90	± 12.0 %
2450	39.2	1.80	7.06	7.06	7.06	0.35	0.90	± 12.0 %
2600	39.0	1.96	6.90	6.90	6.90	0.43	0.80	± 12.0 %
5250	35.9	4.71	4.74	4.74	4.74	0.40	1.80	± 14.0 %
5600	35.5	5.07	4.47	4.47	4.47	0.40	1.80	± 14.0 %
5750	35.4	5.22	4.44	4.44	4.44	0.40	1.80	± 14.0 %

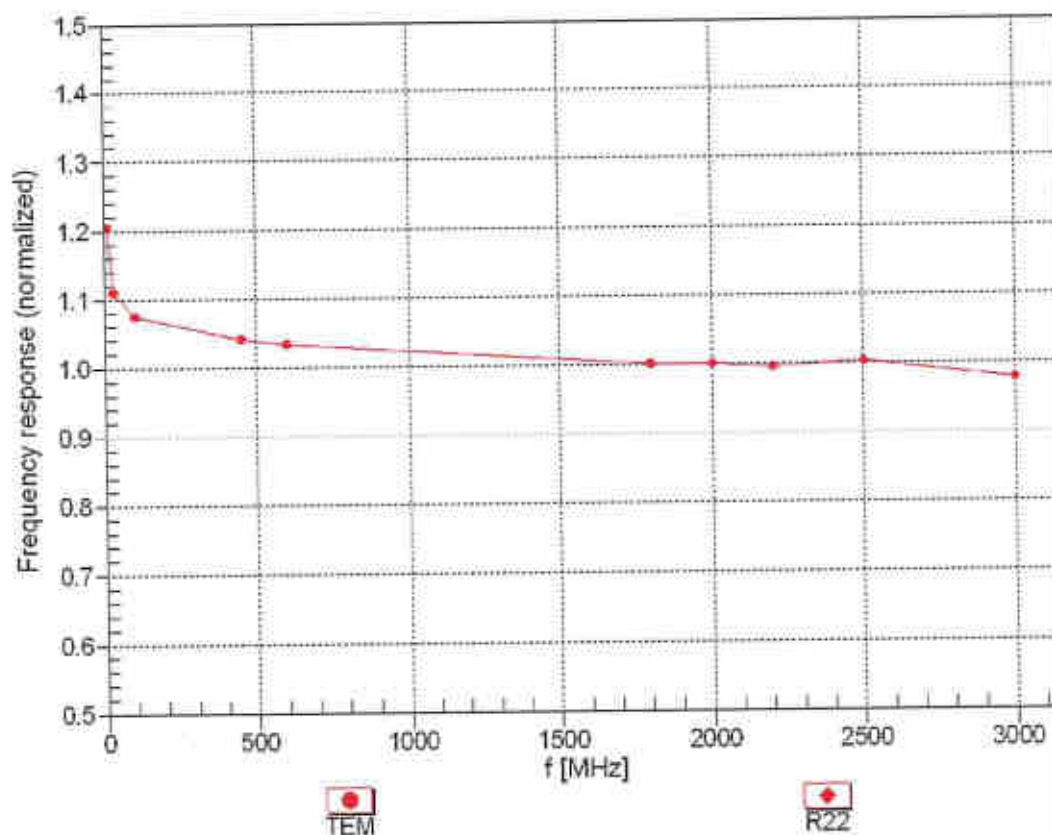
^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field

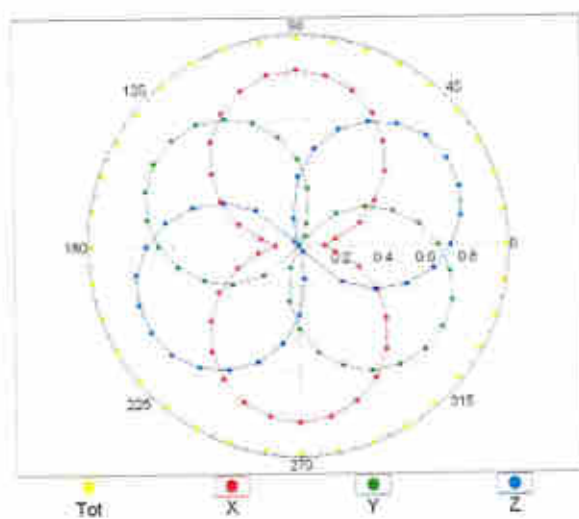
(TEM-Cell: ifi110 EXX, Waveguide: R22)



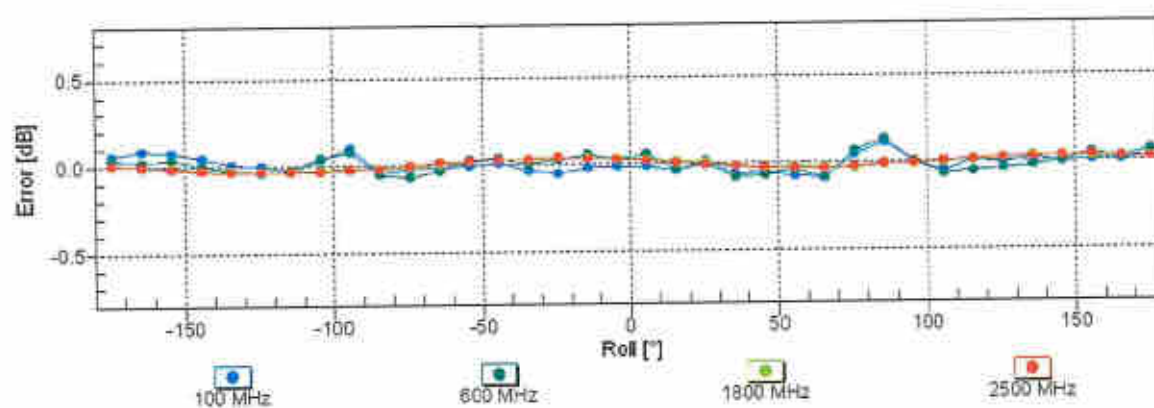
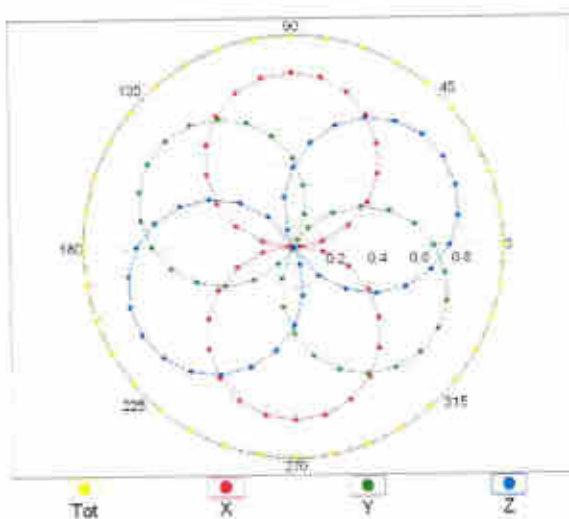
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

f=600 MHz,TEM

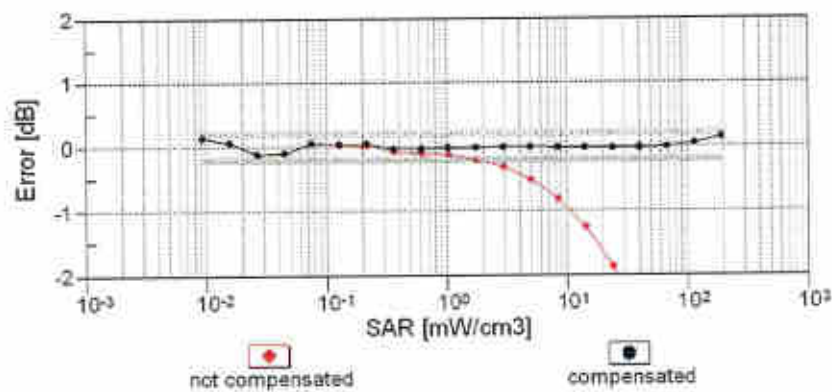
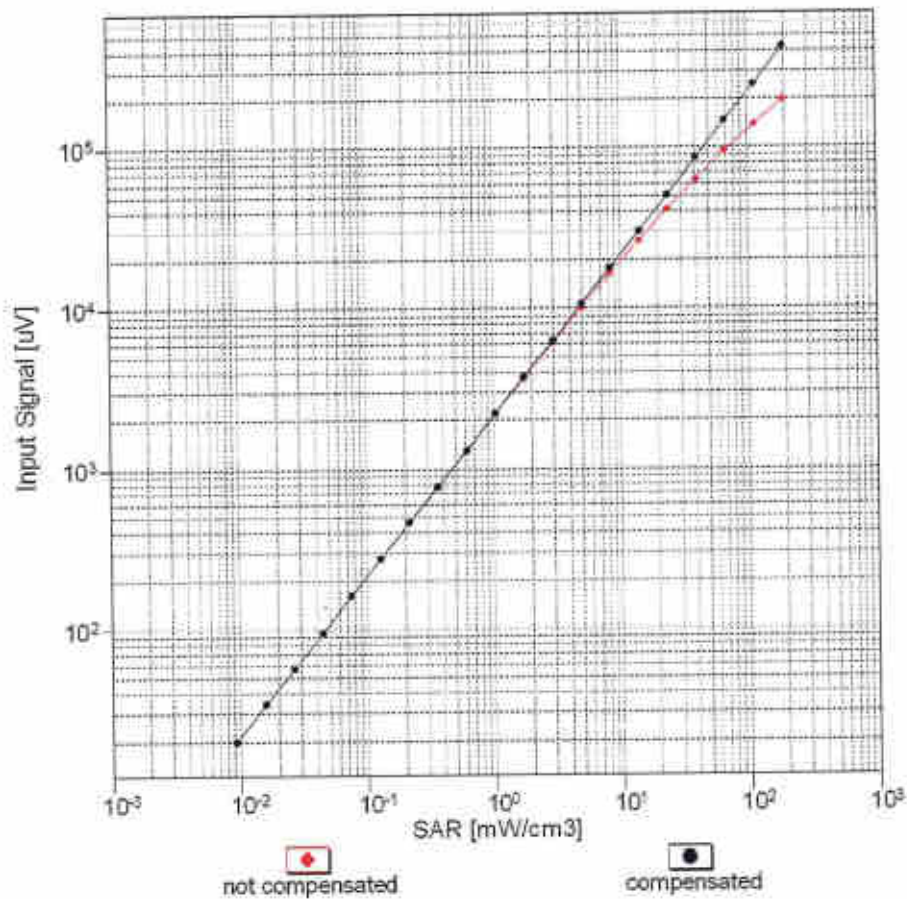


f=1800 MHz,R22



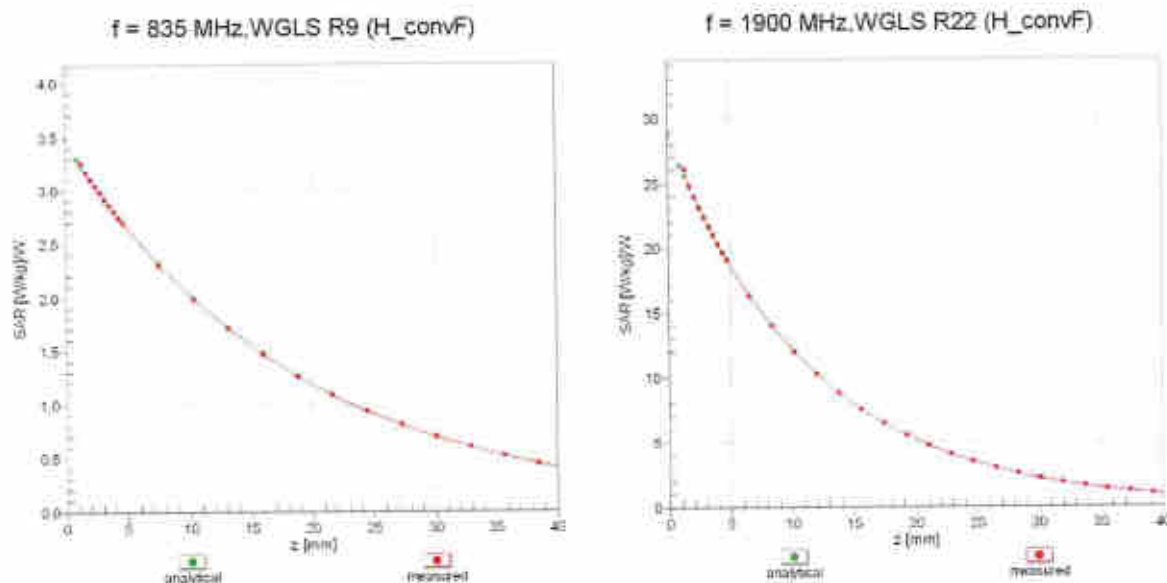
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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



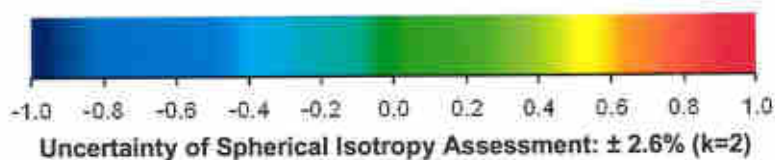
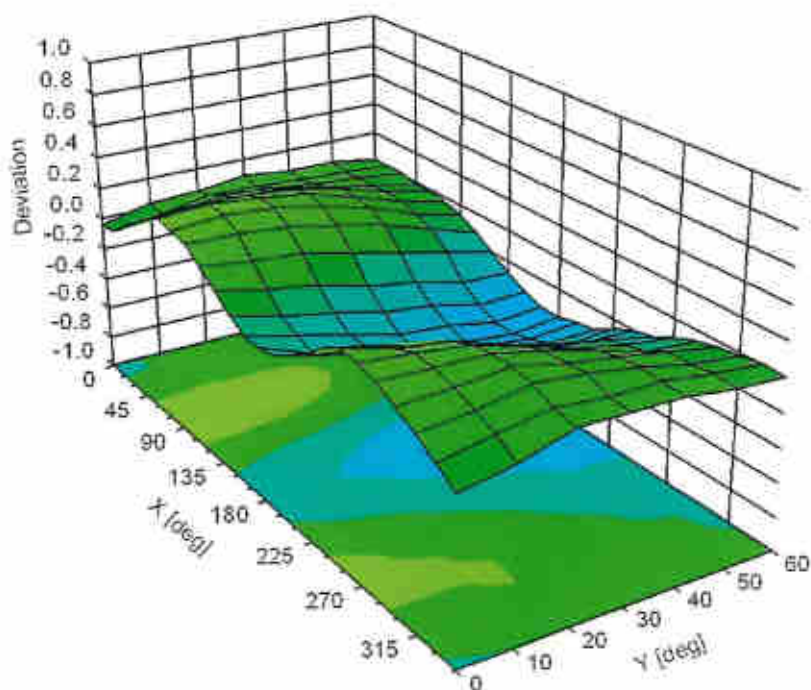
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$





Appendix E. Conducted RF Output Power Table

The detailed power table are shown as follows.

Full Power

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	128	189	251	128	189	251	
	Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	
GSM 1 Tx slot	31.69	31.91	31.77	32.50	22.69	22.91	22.77	23.50
GPRS 1 Tx slot	31.68	31.90	31.76	32.50	22.68	22.90	22.76	23.50
GPRS 2 Tx slots	28.51	28.77	28.87	29.50	22.51	22.77	22.87	23.50
GPRS 3 Tx slots	27.35	27.50	27.71	28.50	23.09	23.24	23.45	24.24
GPRS 4 Tx slots	25.60	25.74	25.62	26.50	22.60	22.74	22.62	23.50
EDGE 1 Tx slot	25.68	25.84	25.84	26.50	16.68	16.84	16.84	17.50
EDGE 2 Tx slots	23.17	23.44	23.25	24.50	17.17	17.44	17.25	18.50
EDGE 3 Tx slots	22.09	22.37	22.17	23.50	17.83	18.11	17.91	19.24
EDGE 4 Tx slots	20.18	20.35	20.32	21.50	17.18	17.35	17.32	18.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	512	601	810	512	601	810	
	Frequency (MHz)	1852.2	1860	1908.8	1852.2	1860	1908.8	
GSM 1 Tx slot	20.34	20.68	20.49	30.00	20.34	20.68	20.49	21.00
GPRS 1 Tx slot	20.33	20.67	20.48	30.00	20.33	20.67	20.48	21.00
GPRS 2 Tx slots	20.27	20.68	20.32	27.50	20.27	20.68	20.32	21.50
GPRS 3 Tx slots	25.11	25.55	25.16	26.50	20.85	21.29	20.90	22.24
GPRS 4 Tx slots	23.30	23.47	23.34	24.50	20.30	20.47	20.34	21.50
EDGE 1 Tx slot	24.89	25.34	25.12	26.50	15.89	16.34	16.12	17.50
EDGE 2 Tx slots	22.75	23.19	22.81	23.50	16.75	17.19	16.81	17.50
EDGE 3 Tx slots	21.64	22.08	21.70	23.00	17.38	17.82	17.44	18.74
EDGE 4 Tx slots	19.76	20.02	20.04	21.00	16.76	17.02	17.04	18.00

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9602	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1860	1907.6		1712.4	1722.6	1752.6		436.4	436.4	446.6	
3GPP Rel 99	AMR 12.2Kbps	23.91	23.87	23.69	24.00	23.90	23.91	23.86	24.00	23.32	23.35	23.51	24.00
3GPP Rel 99	RMV 12.2Kbps	23.94	23.89	23.90	24.00	23.91	23.92	23.87	24.00	23.33	23.36	23.33	24.00
3GPP Rel 6	HSDPA Subtest-1	22.98	22.93	22.95	23.00	22.92	22.87	22.84	23.00	22.32	22.41	22.37	23.00
3GPP Rel 6	HSDPA Subtest-2	22.97	22.95	22.98	23.00	22.86	22.94	22.85	23.00	22.34	22.45	22.40	23.00
3GPP Rel 6	HSDPA Subtest-3	22.44	22.47	22.46	22.50	22.38	22.35	22.33	22.50	21.84	21.90	21.91	22.50
3GPP Rel 6	HSDPA Subtest-4	22.41	22.43	22.46	22.50	22.40	22.35	22.33	22.50	21.85	21.92	21.92	22.50
3GPP Rel 6	DC-HSDPA Subtest-1	22.93	22.89	22.92	23.00	22.88	22.84	22.81	23.00	22.29	22.38	22.33	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.94	22.91	22.95	23.00	22.82	22.81	22.82	23.00	22.31	22.42	22.36	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	22.41	22.43	22.43	22.50	22.34	22.32	22.30	22.50	21.81	21.87	21.87	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	22.38	22.39	22.43	22.50	22.36	22.32	22.30	22.50	21.82	21.89	21.88	22.50
3GPP Rel 6	HSUPA Subtest-1	22.95	22.92	22.93	23.00	22.85	22.81	22.77	23.00	22.36	22.45	22.39	23.00
3GPP Rel 6	HSUPA Subtest-2	20.94	20.94	20.97	21.00	20.85	20.79	20.80	21.00	20.38	20.42	20.41	21.00
3GPP Rel 6	HSUPA Subtest-3	21.95	21.90	21.94	22.00	21.87	21.87	21.83	22.00	21.36	21.44	21.44	22.00
3GPP Rel 6	HSUPA Subtest-4	20.98	20.98	20.96	21.00	20.84	20.85	20.79	21.00	20.39	20.41	20.43	21.00
3GPP Rel 6	HSUPA Subtest-5	22.90	23.00	23.00	23.00	22.90	22.80	22.80	23.00	22.40	22.40	22.40	23.00

Band 2 (1800MHz Band) Part 24E										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq	Power Middle Ch. / Freq	Power High Ch. / Freq	Tune-up limit (dBm)	MPE (dB)		
Channel				1800	1880	1900				
Frequency (MHz)				1800	1880	1900				
20	QPSK	1	0	23.39	23.57	23.48	24	0		
20	QPSK	1	49	23.42	23.56	23.38				
20	QPSK	1	99	23.48	23.51	23.36				
20	QPSK	50	0	23.55	23.59	23.50				
20	QPSK	50	24	23.64	23.61	23.60	24	0		
20	QPSK	50	50	23.59	23.67	23.56				
20	QPSK	100	0	23.62	23.52	23.61				
20	16QAM	1	0	23.69	23.94	23.69				
20	16QAM	1	49	23.77	23.85	23.69	24	0		
20	16QAM	1	99	23.79	23.86	23.75				
20	16QAM	50	0	22.78	22.79	22.81				
20	16QAM	50	24	22.70	22.82	22.83				
20	16QAM	50	50	22.87	22.89	22.88	23	1		
20	16QAM	100	0	22.83	22.82	22.77				
20	64QAM	1	0	22.72	22.70	22.81				
20	64QAM	1	49	22.68	22.75	22.70				
20	64QAM	1	99	22.65	22.74	22.79	23	1		
20	64QAM	50	0	21.81	21.78	21.75				
20	64QAM	50	24	21.91	21.86	21.81				
20	64QAM	50	50	21.96	21.91	21.94				
20	64QAM	100	0	21.86	21.74	21.78	22	2		
Channel				1807.5	1880	1912.5				
Frequency (MHz)				1807.5	1880	1902.5				
15	QPSK	1	0	23.48	23.48	23.48	24	0		
15	QPSK	1	37	23.46	23.46	23.50				
15	QPSK	1	74	23.47	23.44	23.41				
15	QPSK	36	0	23.54	23.49	23.50				
15	QPSK	36	20	23.66	23.57	23.61	24	0		
15	QPSK	36	20	23.56	23.54	23.66				
15	QPSK	75	0	23.62	23.46	23.50				
15	16QAM	1	0	23.84	23.84	23.63				
15	16QAM	1	37	23.85	23.82	23.79	24	0		
15	16QAM	1	74	23.72	23.73	23.76				
15	16QAM	36	0	22.70	22.74	22.65				
15	16QAM	36	20	22.66	22.72	22.81				
15	16QAM	36	20	22.77	22.79	22.80	23	1		
15	16QAM	75	0	22.86	22.83	22.82				
15	64QAM	1	0	22.67	22.77	22.71				
15	64QAM	1	37	22.72	22.68	22.79				
15	64QAM	1	74	22.62	22.69	22.78	23	1		
15	64QAM	36	0	21.76	21.80	21.59				
15	64QAM	36	20	21.83	21.81	21.75				
15	64QAM	36	20	21.86	21.83	21.73				
15	64QAM	75	0	21.84	21.83	21.73	22	2		
Channel				1890.0	1900.0	1910.0				
Frequency (MHz)				1895	1880	1905				
10	QPSK	1	0	23.39	23.46	23.38	24	0		
10	QPSK	1	25	23.48	23.41	23.38				
10	QPSK	1	49	23.40	23.46	23.40				
10	QPSK	25	0	23.61	23.49	23.49				
10	QPSK	25	10	23.56	23.54	23.49	24	0		
10	QPSK	25	25	23.58	23.60	23.52				
10	QPSK	50	0	23.68	23.62	23.69				
10	16QAM	1	0	23.92	23.83	23.67				
10	16QAM	1	25	23.87	23.84	23.67	24	0		
10	16QAM	1	49	23.77	23.76	23.67				
10	16QAM	25	0	22.68	22.77	22.69				
10	16QAM	25	10	22.76	22.76	22.71				
10	16QAM	25	25	22.82	22.72	22.72	23	1		
10	16QAM	50	0	22.81	22.76	22.72				
10	64QAM	1	0	22.82	22.60	22.94				
10	64QAM	1	25	22.69	22.60	22.82				
10	64QAM	1	49	22.78	22.78	22.94	23	1		
10	64QAM	25	0	21.76	21.77	21.74				
10	64QAM	25	10	21.79	21.84	21.74				
10	64QAM	25	25	21.77	21.81	21.76				
10	64QAM	50	0	21.86	21.65	21.69	22	2		
Channel				1892.5	1890.0	1917.5				
Frequency (MHz)				1892.5	1880	1907.5				
5	QPSK	1	0	23.35	23.30	23.37	24	0		
5	QPSK	1	12	23.44	23.55	23.42				
5	QPSK	1	24	23.51	23.52	23.47				
5	QPSK	12	0	23.67	23.58	23.47				
5	QPSK	12	7	23.68	23.56	23.54	24	0		
5	QPSK	12	13	23.61	23.58	23.63				
5	QPSK	25	0	23.68	23.50	23.63				
5	16QAM	1	0	23.72	23.80	23.79				
5	16QAM	1	12	23.79	23.86	23.75	24	0		
5	16QAM	1	24	23.84	23.93	23.75				
5	16QAM	12	0	22.79	22.81	22.76				
5	16QAM	12	7	22.81	22.76	22.82				
5	16QAM	12	13	22.73	22.77	22.74	23	1		
5	16QAM	25	0	22.73	22.75	22.74				
5	64QAM	1	0	22.69	22.68	22.72				
5	64QAM	1	12	22.74	22.71	22.67				
5	64QAM	1	24	22.71	22.78	22.70	23	1		
5	64QAM	12	0	21.74	21.69	21.74				
5	64QAM	12	7	21.74	21.71	21.76				
5	64QAM	12	13	21.76	21.80	21.77				
5	64QAM	25	0	21.81	21.73	21.74	22	2		
Channel				1891.5	1890.0	1919.5				
Frequency (MHz)				1891.5	1880	1909.5				
3	QPSK	1	0	23.47	23.30	23.36	24	0		
3	QPSK	1	8	23.61	23.50	23.49				
3	QPSK	1	14	23.51	23.51	23.44				
3	QPSK	3	0	23.48	23.46	23.50				
3	QPSK	8	4	23.54	23.54	23.48	24	0		
3	QPSK	8	7	23.55	23.54	23.55				
3	QPSK	15	0	23.51	23.45	23.57				
3	16QAM	1	0	23.81	23.75	23.73				
3	16QAM	1	8	23.82	23.89	23.81	24	0		
3	16QAM	1	14	23.82	23.77	23.74				
3	16QAM	8	4	22.73	22.82	22.74				
3	16QAM	8	7	22.81	22.89	22.83				
3	16QAM	8	7	22.80	22.76	22.76	23	1		
3	16QAM	15	0	22.74	22.72	22.74				
3	64QAM	1	0	22.62	22.75	22.68				
3	64QAM	1	8	22.68	22.97	22.53				
3	64QAM	1	14	22.66	22.94	22.73	23	1		
3	64QAM	8	4	21.76	21.70	21.83				
3	64QAM	8	7	21.79	21.87	21.83				
3	64QAM	8	7	21.82	21.81	21.82				
3	64QAM	15	0	21.77	21.72	21.36	22	2		
Channel				1890.7	1890.0	1919.3				
Frequency (MHz)				1890.7	1880	1909.3				
1.4	QPSK	1	0	23.27	23.35	23.31	24	0		
1.4	QPSK	1	3	23.46	23.43	23.35				
1.4	QPSK	1	5	23.33	23.40	23.37				
1.4	QPSK	3	0	23.34	23.42	23.34				
1.4	QPSK	3	1	23.42	23.47	23.34	24	0		
1.4	QPSK	3	3	23.38	23.42	23.37				
1.4	QPSK	6	0	23.41	23.47	23.44				
1.4	16QAM	1	0	23.73	23.71	23.64				
1.4	16QAM	1	3	23.75	23.69	23.73	24	0		
1.4	16QAM	1	5	23.79	23.81	23.61				
1.4	16QAM	3	0	23.56	23.41	23.61				
1.4	16QAM	3	1	23.49	23.46	23.48				
1.4	16QAM	3	3	23.45	23.55	23.40	23	1		
1.4	16QAM	6	0	22.73	22.72	22.67				
1.4	64QAM	1	0	22.78	22.69	22.63				
1.4	64QAM	1	3	22.92	22.98	22.77				
1.4	64QAM	1	5	22.89	22.88	22.79	23	1		
1.4	64QAM	3	0	22.75	22.79	22.79				
1.4	64QAM	3	1	22.81	22.87	22.88				
1.4	64QAM	3	3	22.75	22.78	22.72				
1.4	64QAM	6	0	21.71	21.71	21.78	22	2		

Full Power

Band 7 (500MHz Band) Part 27									
BW (MHz)	Modulation	RB Size	RB Offset	Power Middle Ch / Freq	Power Middle Ch / Freq	Power High Ch / Freq	Tune-up limit (dBm)	MPE (dB)	
Channel				2510	2100	2100			
Frequency (MHz)				2510	2535	2550			
20	QPSK	1	0	23.45	23.80	23.81	24	0	
20	QPSK	1	49	23.52	23.72	23.61			
20	QPSK	1	99	23.59	23.68	23.62			
20	QPSK	50	0	23.37	23.54	23.54			
20	QPSK	50	24	23.58	23.56	23.62	24	0	
20	QPSK	50	50	23.63	23.64	23.64			
20	QPSK	100	0	23.49	23.47	23.61			
20	16QAM	1	0	23.60	23.92	23.98			
20	16QAM	1	49	23.74	23.87	23.71	24	0	
20	16QAM	1	99	23.76	23.67	23.69			
20	16QAM	50	0	22.41	22.52	22.54			
20	16QAM	50	24	22.52	22.56	22.65			
20	16QAM	50	50	22.53	22.63	22.65	23	1	
20	16QAM	100	0	22.46	22.64	22.62			
20	64QAM	1	0	22.49	22.77	22.75			
20	64QAM	1	49	22.65	22.66	22.69			
20	64QAM	1	99	22.61	22.55	22.69	23	1	
20	64QAM	50	0	21.34	21.51	21.43			
20	64QAM	50	24	21.54	21.61	21.54			
20	64QAM	50	50	21.53	21.53	21.63			
20	64QAM	100	0	21.50	21.49	21.61	22	2	
Channel				2002.5	21100	2137.5			
Frequency (MHz)				2007.5	2535	2562.5			
15	QPSK	1	0	23.41	23.65	23.73	24	0	
15	QPSK	1	37	23.57	23.65	23.69			
15	QPSK	1	74	23.65	23.64	23.55			
15	QPSK	36	0	23.35	23.56	23.38			
15	QPSK	36	20	23.52	23.50	23.44	24	0	
15	QPSK	36	36	23.45	23.53	23.39			
15	QPSK	72	0	23.46	23.53	23.45			
15	16QAM	1	0	23.50	23.86	23.74			
15	16QAM	1	37	23.70	23.80	23.65	24	0	
15	16QAM	1	74	23.57	23.74	23.58			
15	16QAM	36	0	22.34	22.57	22.48			
15	16QAM	36	20	22.51	22.55	22.45			
15	16QAM	36	36	22.47	22.53	22.40	23	1	
15	16QAM	72	0	22.49	22.55	22.44			
15	64QAM	1	0	22.35	22.67	22.67			
15	64QAM	1	37	22.52	22.68	22.45			
15	64QAM	1	74	22.66	22.51	22.46	23	1	
15	64QAM	36	0	21.35	21.53	21.44			
15	64QAM	36	20	21.26	21.49	21.49			
15	64QAM	36	36	21.50	21.53	21.49			
15	64QAM	72	0	21.51	21.55	21.41	22	2	
Channel				2000	21100	21400			
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	23.21	23.45	23.45	24	0	
10	QPSK	1	25	23.23	23.50	23.34			
10	QPSK	1	49	23.35	23.36	23.40			
10	QPSK	25	0	23.23	23.36	23.29			
10	QPSK	25	12	23.25	23.33	23.30	24	0	
10	QPSK	25	25	23.12	23.39	23.32			
10	QPSK	50	0	23.23	23.38	23.24			
10	16QAM	1	0	23.47	23.61	23.60			
10	16QAM	1	25	23.38	23.58	23.59	24	0	
10	16QAM	1	49	23.50	23.61	23.48			
10	16QAM	25	0	22.17	22.32	22.29			
10	16QAM	25	12	22.22	22.32	22.21			
10	16QAM	25	25	22.24	22.41	22.25	23	1	
10	16QAM	50	0	22.23	22.33	22.21			
10	64QAM	1	0	22.05	22.68	22.38			
10	64QAM	1	25	22.50	22.37	22.49			
10	64QAM	1	49	22.51	22.38	22.63	23	1	
10	64QAM	25	0	21.18	21.30	21.29			
10	64QAM	25	12	21.26	21.28	21.36			
10	64QAM	25	25	21.29	21.47	21.35			
10	64QAM	50	0	21.26	21.32	21.33	22	2	
Channel				2077.5	21100	21425			
Frequency (MHz)				2502.5	2535	2567.5			
5	QPSK	1	0	23.22	23.36	23.43	24	0	
5	QPSK	1	12	23.33	23.44	23.40			
5	QPSK	1	24	23.29	23.47	23.42			
5	QPSK	12	0	23.19	23.36	23.30			
5	QPSK	12	7	23.16	23.32	23.34	24	0	
5	QPSK	12	13	23.20	23.44	23.33			
5	QPSK	25	0	23.15	23.28	23.30			
5	16QAM	1	0	23.31	23.50	23.57			
5	16QAM	1	12	23.37	23.64	23.42	24	0	
5	16QAM	1	24	23.47	23.66	23.32			
5	16QAM	12	0	22.21	22.39	22.37			
5	16QAM	12	7	22.18	22.27	22.30			
5	16QAM	12	13	22.19	22.44	22.30	23	1	
5	16QAM	25	0	22.16	22.40	22.37			
5	64QAM	1	0	22.37	22.42	22.32			
5	64QAM	1	12	22.44	22.55	22.45			
5	64QAM	1	24	22.40	22.52	22.38	23	1	
5	64QAM	12	0	21.14	21.41	21.37			
5	64QAM	12	7	21.15	21.43	21.37			
5	64QAM	12	13	21.16	21.46	21.32			
5	64QAM	25	0	21.15	21.39	21.23	22	2	

Band 12 (700MHz Low Band) Part 27(only on channel required)									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch / Freq	Power Middle Ch / Freq	Power High Ch / Freq	Tune-up limit (dBm)	MPE (dB)	
Channel				2500	2500	2510			
Frequency (MHz)				704	707.5	711			
10	QPSK	1	0	22.98	22.90	22.98	24	0	
10	QPSK	1	25	22.83	22.88	22.81			
10	QPSK	1	49	22.70	22.84	22.78			
10	QPSK	25	0	23.12	23.05	22.99			
10	QPSK	25	12	23.05	22.95	23.06	24	0	
10	QPSK	25	25	22.97	23.02	22.97			
10	QPSK	50	0	23.09	23.03	23.05			
10	16QAM	1	0	23.05	23.33	23.45			
10	16QAM	1	25	23.13	23.23	23.24	24	0	
10	16QAM	1	49	23.22	23.20	23.07			
10	16QAM	25	0	22.71	22.72	22.78			
10	16QAM	25	12	22.80	22.71	22.77			
10	16QAM	25	25	22.82	22.74	22.82	23	1	
10	16QAM	50	0	22.81	22.84	22.75			
10	64QAM	1	0	22.52	22.85	22.87			
10	64QAM	1	25	22.54	22.98	22.93			
10	64QAM	1	49	22.66	22.81	22.79	23	1	
10	64QAM	25	0	21.53	21.81	21.80			
10	64QAM	25	12	21.55	21.80	21.87			
10	64QAM	25	25	21.76	21.79	21.68			
10	64QAM	50	0	21.64	21.68	21.73	22	2	
Channel				2502.5	2505	2515			
Frequency (MHz)				701.5	707.5	713.5			
5	QPSK	1	0	23.05	22.89	22.95			
5	QPSK	1	12	22.90	22.96	22.96			
5	QPSK	1	24	22.94	22.87	22.84			
5	QPSK	12	0	23.14	23.07	23.02			
5	QPSK	12	7	23.08	22.99	23.02	24	0	
5	QPSK	12	13	23.05	22.98	22.97			
5	QPSK	25	0	23.01	22.92	22.90			
5	16QAM	1	0	23.28	23.25	23.29			
5	16QAM	1	12	23.22	23.33	23.21	24	0	
5	16QAM	1	24	23.24	23.20	23.21			
5	16QAM	12	0	22.90	22.74	22.75			
5	16QAM	12	7	22.91	22.78	22.72			
5	16QAM	12	13	22.71	22.71	22.69	23	1	
5	16QAM	25	0	22.70	22.63	22.80			
5	64QAM	1	0	22.73	22.82	22.82			
5	64QAM	1	12	22.78	22.82	22.92			
5	64QAM	1	24	22.89	22.99	22.83	23	1	
5	64QAM	12	0	21.80	21.84	21.81			
5	64QAM	12	7	21.83	21.85	21.83			
5	64QAM	12	13	21.96	21.91	21.86			
5	64QAM	25	0	21.32	21.53	21.73	22	2	
Channel				2502.5	2505	2515			
Frequency (MHz)				700.5	707.5	714.5			
3	QPSK	1	0	23.04	22.95	22.98			
3	QPSK	1	8	23.00	23.03	23.03			
3	QPSK	1	14	22.88	22.87	22.90			
3	QPSK	8	0	23.10	23.00	23.02			
3	QPSK	8	4	23.03	23.02	22.99	24	0	
3	QPSK	8	7	23.07	23.04	23.03			
3	QPSK	15	0	23.06	22.98	22.95			
3	16QAM	1	0	23.51	23.31	23.24			
3	16QAM	1	8	23.39	23.25	23.38	24	0	
3	16QAM	1	14	23.28	23.19	23.24			
3	16QAM	8	0	22.85	22.82	22.70			
3	16QAM	8	4	22.85	22.76	22.86			
3	16QAM	8	7	22.80	22.78	22.73	23	1	
3	16QAM	15	0	22.83	22.70	22.68			
3	64QAM	1	0	22.63	22.93	22.80			
3	64QAM	1	8	22.61	22.97	22.80			
3	64QAM	1	14	22.67	22.80	22.66	23	1	
3	64QAM	8	0	21.56	21.64	21.70			
3	64QAM	8	4	21.57	21.60	21.65			
3	64QAM	8	7	21.58	21.64	21.72			
3	64QAM	15	0	21.31	21.64	21.65	22	2	
Channel				2501.7	2505	2513			
Frequency (MHz)				699.7	707.5	715.3			
1.4	QPSK	1	0	22.87	22.82	22.82			
1.4	QPSK	1	3	22.89	22.93	22.85			
1.4	QPSK	1	5	22.87	22.81	22.78			
1.4	QPSK	3	0	22.96	22.97	22.81			
1.4	QPSK	3	1	22.96	22.96	22.82	24	0	
1.4	QPSK	3	3	22.96	22.88	22.82			
1.4	QPSK	6	0	23.05	22.79	22.92			
1.4	16QAM	1	0	23.26	23.16	23.24			
1.4	16QAM	1	3	23.32	23.35	23.22	24	0	
1.4	16QAM	1	5	23.24	23.16	23.06			
1.4	16QAM	3	0	23.01	22.94	23.00			
1.4	16QAM	3	1	23.01	22.91	23.07			
1.4	16QAM	3	3	23.00	22.97	22.84	24	0	
1.4	16QAM	6	0	22.81	22.63	22.66			
1.4	64QAM	1	0	22.57	22.80	22.82			
1.4	64QAM	1	3	22.56	22.92	22.82			
1.4	64QAM	1	5	22.54	22.85	22.53	23	1	
1.4	64QAM	3	0	22.53	22.89	22.58			
1.4	64QAM	3	1	22.59	22.86	22.55			
1.4	64QAM	3	3	22.63	22.76	22.40			
1.4	64QAM	6	0	21.15	21.63	21.34	22	2	



Full Power

Band 28 for FCC (only on channel required)										Band 66											
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch / Freq	Power Middle Ch / Freq	Power High Ch / Freq	Tune-up limit (dBm)	MPE (dB)		BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch / Freq	Power Middle Ch / Freq	Power High Ch / Freq	Tune-up limit (dBm)	MPE (dB)			
Channel										Channel											
Frequency (MHz)										Frequency (MHz)											
15	QPSK	1	0	23.11	23.03	23.09	24	0		20	QPSK	1	0	23.59	23.60	23.42	24	0			
15	QPSK	1	37	23.04	23.06	23.08				20	QPSK	1	49	23.39	23.32	23.34					
15	QPSK	1	74	22.98	22.97	22.91				20	QPSK	1	99	23.52	23.50	23.45					
15	QPSK	36	0	23.10	23.21	23.22				20	QPSK	50	0	23.48	23.64	23.60					
15	QPSK	36	20	23.15	23.21	23.24	24	0		20	QPSK	50	24	23.58	23.60	23.52	24	0			
15	16QAM	36	39	23.21	23.11	23.16				20	QPSK	50	39	23.58	23.16	23.12					
15	QPSK	75	0	23.15	23.21	23.15				20	QPSK	100	0	23.62	23.60	23.64					
15	16QAM	1	0	23.59	23.25	23.41				20	16QAM	1	0	23.95	23.94	23.92					
15	16QAM	1	37	23.32	23.33	23.46	24	0		20	16QAM	1	49	23.83	23.70	23.77	24	0			
15	16QAM	1	74	23.35	23.34	23.15				20	16QAM	1	99	23.85	23.65	23.60					
15	16QAM	36	0	22.86	22.86	22.87				20	16QAM	50	0	22.82	22.80	22.85					
15	16QAM	36	20	22.84	22.82	22.84				20	16QAM	50	24	22.82	22.78	22.87					
15	16QAM	36	39	22.83	22.85	22.80	23	1		20	16QAM	50	39	22.86	22.82	22.89	23	1			
15	16QAM	75	0	22.77	22.85	22.81				20	16QAM	100	0	22.85	22.74	22.80					
15	64QAM	1	0	22.81	22.90	22.87				20	64QAM	1	0	22.84	22.59	22.94					
15	64QAM	1	37	22.88	22.88	22.95	23	1		20	64QAM	1	49	22.80	22.86	22.87	23	1			
15	64QAM	1	74	22.95	22.78	22.66				20	64QAM	1	99	22.89	22.88	22.83					
15	64QAM	36	0	21.67	21.93	21.96				20	64QAM	50	0	21.79	21.57	21.85					
15	64QAM	36	20	21.67	21.96	21.67				20	64QAM	50	24	21.83	21.74	21.83					
15	64QAM	36	39	21.80	21.89	21.86	22	2		20	64QAM	50	39	21.87	21.80	21.85	22	2			
15	64QAM	75	0	21.81	21.93	21.89				20	64QAM	100	0	21.89	21.72	21.78					
Channel										Channel											
Frequency (MHz)										Frequency (MHz)											
10	QPSK	1	0	23.04	23.10	23.05	24	0		15	QPSK	1	0	23.44	23.64	23.62	24	0			
10	QPSK	1	25	22.88	22.98	23.00				15	QPSK	1	37	23.44	23.45	23.55					
10	QPSK	1	49	22.83	23.03	22.84				15	QPSK	1	74	23.43	23.57	23.61					
10	QPSK	25	0	23.10	22.94	23.07				15	QPSK	36	0	23.58	23.59	23.64					
10	QPSK	25	12	22.94	23.07	23.10	24	0		15	QPSK	36	20	23.63	23.52	23.66	24	0			
10	QPSK	25	25	22.90	22.94	22.88				15	QPSK	36	39	23.62	23.38	23.61					
10	QPSK	50	0	22.98	23.07	23.02				15	QPSK	75	0	23.64	23.57	23.61					
10	16QAM	1	0	23.39	23.25	23.37				15	16QAM	1	0	23.75	23.89	23.77					
10	16QAM	1	25	23.20	23.43	23.31	24	0		15	16QAM	1	37	23.81	23.82	23.75	24	0			
10	16QAM	1	49	23.19	23.29	23.29				15	16QAM	1	74	23.81	23.81	23.78					
10	16QAM	25	0	22.75	22.75	22.72				15	16QAM	36	0	22.75	22.73	22.85					
10	16QAM	25	12	22.72	22.82	22.87				15	16QAM	36	20	22.80	22.74	22.79					
10	16QAM	25	25	22.70	22.71	22.68	23	1		15	16QAM	36	20	22.76	22.76	22.79	23	1			
10	16QAM	50	0	22.80	22.82	22.73				15	16QAM	50	0	22.85	22.73	22.73					
10	64QAM	1	0	22.95	22.92	23.00				15	64QAM	1	0	22.93	22.56	22.88					
10	64QAM	1	25	22.83	22.88	22.88	23	1		15	64QAM	1	37	22.96	22.83	22.77	23	1			
10	64QAM	1	49	22.85	22.95	22.74				15	64QAM	1	74	23.00	22.94	22.95					
10	64QAM	25	0	21.50	21.83	21.73				15	64QAM	36	0	21.82	21.48	21.84					
10	64QAM	25	12	21.48	21.87	21.79				15	64QAM	36	20	21.86	21.71	21.75					
10	64QAM	25	25	21.60	21.77	21.73	22	2		15	64QAM	36	20	21.87	21.80	21.80	22	2			
10	64QAM	50	0	21.82	21.81	21.72				15	64QAM	75	0	21.77	21.77	21.78					
Channel										Channel											
Frequency (MHz)										Frequency (MHz)											
5	QPSK	1	0	23.06	22.94	23.05	24	0		10	QPSK	1	0	23.43	23.33	23.40	24	0			
5	QPSK	1	12	23.05	23.09	23.01				10	QPSK	1	25	23.31	23.37	23.36					
5	QPSK	1	24	22.92	23.04	22.91				10	QPSK	1	49	23.31	23.42	23.23					
5	QPSK	12	0	23.11	23.07	23.12				10	QPSK	25	0	23.44	23.41	23.43					
5	QPSK	12	7	23.08	23.12	23.08	24	0		10	QPSK	25	12	23.40	23.46	23.43	24	0			
5	QPSK	12	13	23.05	23.00	22.97				10	QPSK	25	25	23.43	23.46	23.46					
5	QPSK	25	0	23.07	23.07	23.07				10	QPSK	50	0	23.46	23.44	23.43					
5	16QAM	1	0	23.49	23.27	23.40				10	16QAM	1	0	23.82	23.63	23.70					
5	16QAM	1	12	23.28	23.27	23.33	24	0		10	16QAM	1	25	23.71	23.78	23.74	24	0			
5	16QAM	1	24	23.14	23.39	23.32				10	16QAM	1	49	23.69	23.78	23.68					
5	16QAM	12	0	22.81	22.82	22.77				10	16QAM	25	0	22.67	22.65	22.65					
5	16QAM	12	7	22.81	22.81	22.76				10	16QAM	25	12	22.70	22.59	22.67					
5	16QAM	12	13	22.73	22.75	22.71	23	1		10	16QAM	25	25	22.67	22.70	22.70	23	1			
5	16QAM	25	0	22.84	22.74	22.74				10	16QAM	50	0	22.85	22.82	22.85					
5	64QAM	1	0	22.73	22.89	22.87				10	64QAM	1	0	22.83	22.53	22.66					
5	64QAM	1	12	22.54	22.89	22.54	23	1		10	64QAM	1	25	22.83	22.87	22.79	23	1			
5	64QAM	1	24	22.56	22.99	22.84				10	64QAM	1	49	22.83	22.81	22.80					
5	64QAM	12	0	21.66	21.85	21.66				10	64QAM	25	0	21.69	21.64	21.63					
5	64QAM	12	7	21.48	21.83	21.61				10	64QAM	25	12	21.73	21.67	21.67					
5	64QAM	12	13	21.43	21.73	21.70	22	2		10	64QAM	25	25	21.68	21.74	21.70	22	2			
5	64QAM	25	0	21.42	21.77	21.58				10	64QAM	50	0	21.85	21.67	21.68					
Channel										Channel											
Frequency (MHz)										Frequency (MHz)											
3	QPSK	1	0	23.14	22.93	22.94	24	0		5	QPSK	1	0	23.43	23.37	23.41	24	0			
3	QPSK	1	8	23.06	23.06	22.98				5	QPSK	1	12	23.46	23.37	23.42					
3	QPSK	1	14	22.92	23.02	22.86				5	QPSK	1	24	23.35	23.40	23.43					
3	QPSK	8	0	23.10	23.03	23.07				5	QPSK	12	0	23.49	23.43	23.53					
3	QPSK	8	4	23.11	23.10	22.97	24	0		5	QPSK	12	7	23.44	23.48	23.48	24	0			
3	QPSK	8	7	23.05	23.02	22.95				5	QPSK	12	13	23.49	23.46	23.49					
3	QPSK	15	0	23.08	23.05	23.00				5	QPSK	25	0	23.45	23.39	23.53					
3	16QAM	1	0	23.37	23.26	23.28				5	16QAM	1	0	23.79	23.74	23.79					
3	16QAM	1	8	23.48	23.44	23.36	24	0		5	16QAM	1	12	23.78	23.81	23.73	24	0			
3	16QAM	1	14	23.24	23.23	23.27				5	16QAM	1	24	23.71	23.82	23.74					
3	16QAM	8	0	22.87	22.75	22.83				5	16QAM	12	0	22.74	22.71	22.78					
3	16QAM	8	4	22.90	22.90	22.70				5	16QAM	12	7	22.74	22.86	22.78					
3	16QAM	8	7	22.84	22.82	22.68	23	1		5	16QAM	12	13	22.74	22.69	22.73	23	1			
3	16QAM	15	0	22.80	22.78	22.72				5	16QAM	25	0	22.74	22.68	22.73					
3	64QAM	1	0	22.90	22.89	22.81				5	64QAM	1	0	22.93	22.68	22.86					
3	64QAM	1	8	22.84	22.95	22.85	23	1		5	64QAM	1	12	22.86	22.87	22.87	23	1			
3	64QAM	1	14	22.63	22.83	22.86				5	64QAM	1	24	22.96	22.89	22.95					
3	64QAM	8	0	21.74	21.79	21.67				5	64QAM	12	0	21.74	21.74	21.76					
3	64QAM	8	4	21.69	21.96	21.75				5	64QAM	12	7	21.77	21.75	21.75					
3	64QAM	8	7	21.55	21.77	21.65	22	2		5	64QAM	12	13	21.68	21.74	21.74	22	2			
3	64QAM	15	0	21.59	21.80	21.67				5	64QAM	25	0	21.88	21.63	21.67					
Channel										Channel											
Frequency (MHz)										Frequency (MHz)											
1.4	QPSK	1	0	23.00	22.84	22.88	24	0		3	QPSK	1	0	23.46	23.34	23.35	24	0			
1.4	QPSK	1	3</																		

Band 30(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch./Freq.	Power Middle Ch./Freq.	Power High Ch./Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				37850	38000	38150	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2580	2595	2610			
20	QPSK	1	0	23.48	23.49	23.50	24	0	
20	QPSK	1	49	23.38	23.33	23.37			
20	QPSK	1	99	23.30	23.33	23.33			
20	QPSK	50	0	23.31	23.30	23.31			
20	QPSK	50	24	23.38	23.29	23.28	24	0	
20	QPSK	50	50	23.31	23.32	23.28			
20	QPSK	100	0	23.34	23.29	23.25			
20	16QAM	1	0	23.40	23.38	23.38			
20	16QAM	1	49	23.27	23.31	23.24	24	0	
20	16QAM	1	99	23.24	23.29	23.25			
20	16QAM	50	0	22.35	22.34	22.36			
20	16QAM	50	24	22.36	22.31	22.32			
20	16QAM	50	50	22.34	22.35	22.33	23	1	
20	16QAM	100	0	22.35	22.28	22.28			
20	64QAM	1	0	21.98	21.93	21.93			
20	64QAM	1	49	21.88	21.91	21.85			
20	64QAM	1	99	21.79	21.86	21.88	23	1	
20	64QAM	50	0	21.36	21.35	21.36			
20	64QAM	50	24	21.37	21.31	21.32			
20	64QAM	50	50	21.36	21.34	21.31			
20	64QAM	100	0	21.39	21.30	21.30	22	2	
Channel				37825	38000	38175			Tune-up limit (dBm)
Frequency (MHz)				2577.5	2595	2612.5			
15	QPSK	1	0	23.42	23.41	23.38	24	0	
15	QPSK	1	37	23.37	23.41	23.41			
15	QPSK	1	74	23.32	23.35	23.30			
15	QPSK	36	0	23.35	23.29	23.28			
15	QPSK	36	20	23.33	23.28	23.31	24	0	
15	QPSK	36	39	23.27	23.30	23.27			
15	QPSK	75	0	23.31	23.24	23.34			
15	16QAM	1	0	23.41	23.39	23.33			
15	16QAM	1	37	23.20	23.26	23.13	24	0	
15	16QAM	1	74	23.29	23.28	23.24			
15	16QAM	36	0	22.36	22.30	22.24			
15	16QAM	36	20	22.30	22.22	22.31			
15	16QAM	36	39	22.26	22.26	22.26	23	1	
15	16QAM	75	0	22.35	22.29	22.34			
15	64QAM	1	0	21.93	21.89	22.20			
15	64QAM	1	37	21.91	21.91	22.24			
15	64QAM	1	74	21.83	21.87	22.10	23	1	
15	64QAM	36	0	21.39	21.31	21.36			
15	64QAM	36	20	21.35	21.31	21.37			
15	64QAM	36	39	21.31	21.35	21.30			
15	64QAM	75	0	21.38	21.30	21.37	22	2	
Channel				37800	38000	38200			Tune-up limit (dBm)
Frequency (MHz)				2575	2595	2615			
10	QPSK	1	0	23.34	23.30	23.31	24	0	
10	QPSK	1	25	23.14	23.23	23.24			
10	QPSK	1	49	23.20	23.18	23.17			
10	QPSK	25	0	23.19	23.08	23.08			
10	QPSK	25	12	23.14	23.07	23.07	24	0	
10	QPSK	25	25	23.12	23.14	23.14			
10	QPSK	50	0	23.11	23.03	23.04			
10	16QAM	1	0	23.29	23.25	23.21			
10	16QAM	1	25	23.14	23.17	23.14	24	0	
10	16QAM	1	49	23.12	23.10	23.13			
10	16QAM	25	0	22.13	22.03	22.02			
10	16QAM	25	12	22.11	22.05	22.05			
10	16QAM	25	25	22.06	22.07	22.08	23	1	
10	16QAM	50	0	22.20	22.13	22.10			
10	64QAM	1	0	21.78	21.65	21.66			
10	64QAM	1	25	21.75	21.75	21.78			
10	64QAM	1	49	21.91	21.63	21.68	23	1	
10	64QAM	25	0	21.22	21.14	21.15			
10	64QAM	25	12	21.23	21.15	21.16			
10	64QAM	25	25	21.18	21.17	21.20			
10	64QAM	50	0	21.15	21.09	21.11	22	2	
Channel				37775	38000	38225			Tune-up limit (dBm)
Frequency (MHz)				2572.5	2595	2617.5			
5	QPSK	1	0	23.26	23.25	23.30	24	0	
5	QPSK	1	12	23.22	23.23	23.21			
5	QPSK	1	24	23.22	23.27	23.26			
5	QPSK	12	0	23.15	23.08	23.16			
5	QPSK	12	7	23.19	23.14	23.15	24	0	
5	QPSK	12	13	23.11	23.09	23.10			
5	QPSK	25	0	23.11	23.08	23.14			
5	16QAM	1	0	23.21	23.14	23.22			
5	16QAM	1	12	23.16	23.20	23.17	24	0	
5	16QAM	1	24	23.20	23.22	23.20			
5	16QAM	12	0	22.08	22.08	22.14			
5	16QAM	12	7	22.16	22.14	22.09			
5	16QAM	12	13	22.13	22.09	22.07	23	1	
5	16QAM	25	0	22.15	22.11	22.15			
5	64QAM	1	0	21.84	21.74	21.83			
5	64QAM	1	12	21.80	21.80	21.79			
5	64QAM	1	24	21.80	21.78	21.81	23	1	
5	64QAM	12	0	21.20	21.18	21.18			
5	64QAM	12	7	21.18	21.21	21.22			
5	64QAM	12	13	21.14	21.20	21.20			
5	64QAM	25	0	21.24	21.13	21.17	22	2	
Channel				37750	38000	38250			Tune-up limit (dBm)
Frequency (MHz)				2570	2595	2620			

Full Power

Band 41 (2.6G Band)										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40165	40620	41055	41490	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2626	2649.5	2693	2636.5	2680		
20	QPSK	1	0	23.42	23.53	23.55	23.15	23.13	24	0
20	QPSK	1	49	23.52	23.47	23.40	23.36	23.43		
20	QPSK	1	99	23.50	23.38	23.38	23.19	23.26		
20	QPSK	50	0	23.65	23.56	23.51	23.46	23.35		
20	QPSK	50	24	23.63	23.66	23.58	23.46	23.56	24	0
20	QPSK	50	50	23.62	23.57	23.54	23.29	23.48		
20	QPSK	100	0	23.65	23.65	23.56	23.35	23.45		
20	16QAM	1	0	23.60	23.67	23.71	23.32	23.28		
20	16QAM	1	49	23.63	23.57	23.51	23.51	23.57	24	0
20	16QAM	1	99	23.61	23.50	23.55	23.29	23.35		
20	16QAM	50	0	22.95	22.88	22.82	22.74	22.62		
20	16QAM	50	24	22.95	22.95	22.87	22.77	22.81		
20	16QAM	50	50	22.95	22.88	22.83	22.60	22.79	23	1
20	16QAM	100	0	22.95	22.92	22.96	22.65	22.73		
20	64QAM	1	0	22.48	22.47	22.48	22.12	22.12		
20	64QAM	1	49	22.44	22.45	22.39	22.39	22.33		
20	64QAM	1	99	22.48	22.40	22.25	22.25	22.07	23	1
20	64QAM	50	0	21.95	21.90	21.84	21.75	21.65		
20	64QAM	50	24	21.98	21.95	21.89	21.76	21.80		
20	64QAM	50	50	21.94	21.87	21.86	21.60	21.55		
20	64QAM	100	0	21.95	21.94	21.88	21.69	21.59	22	2
Channel				39725	40173	40620	41068	41515		
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	23.49	23.53	23.44	23.31	23.20		
15	QPSK	1	37	23.46	23.40	23.39	23.36	23.45		
15	QPSK	1	74	23.42	23.51	23.41	23.05	23.32		
15	QPSK	36	0	23.55	23.61	23.49	23.37	23.35		
15	QPSK	36	20	23.62	23.57	23.55	23.47	23.49	24	0
15	QPSK	36	39	23.56	23.54	23.49	23.34	23.44		
15	QPSK	75	0	23.59	23.59	23.52	23.40	23.39		
15	16QAM	1	0	23.60	23.68	23.59	23.46	23.29		
15	16QAM	1	37	23.47	23.46	23.45	23.50	23.50	24	0
15	16QAM	1	74	23.60	23.62	23.54	23.19	23.45		
15	16QAM	36	0	22.80	22.89	22.73	22.64	22.56		
15	16QAM	36	20	22.83	22.86	22.75	22.70	22.58		
15	16QAM	36	39	22.81	22.81	22.70	22.60	22.43	23	1
15	16QAM	75	0	22.87	22.89	22.84	22.71	22.55		
15	64QAM	1	0	22.50	22.47	22.35	22.26	22.17		
15	64QAM	1	37	22.42	22.46	22.35	22.40	22.15		
15	64QAM	1	74	22.38	22.54	22.39	22.14	22.10	23	1
15	64QAM	36	0	21.86	21.91	21.79	21.69	21.80		
15	64QAM	36	20	21.89	21.91	21.83	21.76	21.77		
15	64QAM	36	39	21.87	21.82	21.81	21.66	21.60		
15	64QAM	75	0	21.89	21.90	21.84	21.73	21.60	22	2
Channel				39700	40160	40620	41080	41540		
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	23.28	23.25	23.21	22.93	23.01		
10	QPSK	1	26	23.25	23.26	23.22	23.17	23.24		
10	QPSK	1	49	23.23	23.19	23.15	22.86	22.87		
10	QPSK	25	0	23.36	23.40	23.26	23.16	23.24		
10	QPSK	25	12	23.43	23.42	23.36	23.29	23.28	24	0
10	QPSK	25	25	23.39	23.36	23.32	23.21	23.24		
10	QPSK	50	0	23.36	23.39	23.33	23.26	23.16		
10	16QAM	1	0	23.42	23.49	23.44	23.16	23.19		
10	16QAM	1	25	23.44	23.46	23.39	23.37	23.36	24	0
10	16QAM	1	49	23.44	23.39	23.31	23.07	23.07		
10	16QAM	25	0	22.62	22.69	22.49	22.41	22.38		
10	16QAM	25	12	22.65	22.66	22.61	22.59	22.51		
10	16QAM	25	25	22.62	22.60	22.56	22.46	22.44	23	1
10	16QAM	50	0	22.75	22.76	22.67	22.57	22.48		
10	64QAM	1	0	22.31	22.22	22.14	22.07	22.14		
10	64QAM	1	25	22.29	22.35	22.25	22.22	22.12		
10	64QAM	1	49	22.44	22.27	22.06	22.07	22.13	23	1
10	64QAM	25	0	21.75	21.76	21.59	21.54	21.41		
10	64QAM	25	12	21.76	21.79	21.71	21.69	21.38		
10	64QAM	25	25	21.72	21.73	21.68	21.54	21.47		
10	64QAM	50	0	21.72	21.70	21.64	21.56	21.25	22	2
Channel				39675	40148	40620	41093	41565		
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	23.35	23.32	23.18	23.16	23.24		
5	QPSK	1	12	23.26	23.27	23.23	23.19	23.20		
5	QPSK	1	24	23.31	23.25	23.20	23.19	23.14		
5	QPSK	12	0	23.39	23.38	23.35	23.30	23.32		
5	QPSK	12	7	23.42	23.40	23.37	23.34	23.13	24	0
5	QPSK	12	13	23.37	23.37	23.32	23.30	23.02		
5	QPSK	25	0	23.40	23.36	23.32	23.29	23.05		
5	16QAM	1	0	23.46	23.46	23.33	23.29	23.28		
5	16QAM	1	12	23.41	23.44	23.46	23.41	23.12	24	0
5	16QAM	1	24	23.52	23.45	23.43	23.33	23.04		
5	16QAM	12	0	22.63	22.65	22.58	22.55	22.26		
5	16QAM	12	7	22.65	22.67	22.62	22.55	22.19		
5	16QAM	12	13	22.62	22.65	22.55	22.55	22.20	23	1
5	16QAM	25	0	22.66	22.67	22.60	22.61	22.47		
5	16QAM	1	0	22.40	22.40	22.25	22.25	22.29		
5	64QAM	1	12	22.36	22.34	22.24	22.26	22.21		
5	64QAM	1	24	22.39	22.38	22.22	22.24	22.11	23	1
5	64QAM	12	0	21.76	21.74	21.66	21.65	21.59		
5	64QAM	12	7	21.77	21.74	21.70	21.66	21.58		
5	64QAM	12	13	21.72	21.70	21.68	21.65	21.57		
5	64QAM	25	0	21.71	21.70	21.64	21.63	21.58	22	2

Reduced Power Mode for P-Sensor On

GSM 1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		25.28	25.50	25.34	26.00	16.28	16.50	16.34	17.00
GPRS 1 Tx slot		25.28	25.51	25.36	26.00	16.28	16.51	16.36	17.00
GPRS 2 Tx slots		22.30	22.45	22.13	23.50	16.30	16.45	16.13	17.50
GPRS 3 Tx slots		21.08	21.24	20.86	22.50	16.82	16.98	16.60	16.24
GPRS 4 Tx slots		19.30	19.40	19.23	20.50	16.30	16.40	16.23	17.50
EDGE 1 Tx slot		21.89	21.87	21.69	22.50	12.89	12.87	12.69	13.50
EDGE 2 Tx slots		18.78	18.93	18.64	19.50	12.78	12.93	12.64	13.50
EDGE 3 Tx slots		16.01	16.14	17.81	19.00	13.75	13.88	13.55	14.74
EDGE 4 Tx slots		15.88	16.03	15.98	17.00	12.88	13.03	12.98	14.00

Band		WCDMA 8			Tune-up Limit (dBm)	WCDMA 4			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1952.4	1980	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	16.61	16.51	16.52	16.00	17.55	17.67	17.64	18.00
3GPP Rel 99	RMC 12.2Kbps	16.63	16.52	16.53	18.00	17.56	17.68	17.66	18.00
3GPP Rel 6	HSDPA Subtest-1	15.48	15.40	15.34	17.00	16.30	16.41	16.55	17.00
3GPP Rel 6	HSDPA Subtest-2	15.47	15.44	15.09	17.00	16.31	16.48	16.53	17.00
3GPP Rel 6	HSDPA Subtest-3	14.99	14.92	14.70	16.50	15.82	15.96	16.02	16.50
3GPP Rel 6	HSDPA Subtest-4	14.96	14.94	14.71	16.50	15.80	15.97	16.05	16.50
3GPP Rel 6	DC-HSDPA Subtest-1	15.46	15.37	15.30	17.00	16.27	16.37	16.53	17.00
3GPP Rel 6	DC-HSDPA Subtest-2	15.45	15.41	15.05	17.00	16.28	16.44	16.51	17.00
3GPP Rel 6	DC-HSDPA Subtest-3	14.97	14.89	14.66	16.50	15.79	15.92	16.00	16.50
3GPP Rel 6	DC-HSDPA Subtest-4	14.94	14.91	14.67	16.50	15.77	15.93	16.03	16.50
3GPP Rel 6	HSPA Subtest-1	15.49	15.33	15.21	17.00	16.19	16.31	16.40	17.00
3GPP Rel 6	HSPA Subtest-2	13.48	13.35	13.19	15.00	14.16	14.28	14.38	15.00
3GPP Rel 6	HSPA Subtest-3	14.46	14.38	14.20	16.00	15.16	15.25	15.44	16.00
3GPP Rel 6	HSPA Subtest-4	13.42	13.42	13.25	15.00	14.20	14.25	14.40	15.00
3GPP Rel 6	HSPA Subtest-5	15.50	15.40	16.20	17.00	16.20	16.30	16.40	17.00

Reduced Power Mode for Hotspot On

GSM 1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
TX Channel	1850.2	1880	1909.8		1850.2	1880	1909.8	
Frequency (MHz)								
GSM 1 Tx slot	22.98	23.20	22.96	24.00	13.98	14.20	13.96	15.00
GPRS 1 Tx slot	23.00	23.21	22.98	24.00	14.00	14.21	13.98	15.00
GPRS 2 Tx slots	20.23	20.44	20.20	21.50	14.23	14.44	14.20	15.50
GPRS 3 Tx slots	19.02	19.34	19.12	20.50	14.76	15.08	14.86	16.24
GPRS 4 Tx slots	17.23	17.48	17.36	18.50	14.23	14.48	14.36	15.50
EDGE 1 Tx slot	19.87	20.13	19.89	20.50	10.87	11.13	10.89	11.50
EDGE 2 Tx slots	16.87	17.11	16.81	17.50	10.87	11.11	10.81	11.50
EDGE 3 Tx slots	15.83	16.12	15.83	17.00	11.57	11.86	11.57	12.74
EDGE 4 Tx slots	14.37	14.36	14.13	15.00	11.37	11.36	11.13	12.00

Band	WCDMA 8			Tune-up Limit (dBm)	WCDMA 4			Tune-up Limit (dBm)
	9262	9400	9538		1312	1413	1513	
TX Channel	9662	9800	9938		1537	1638	1738	
Rx Channel								
Frequency (MHz)	1952.4	1980	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99 AMR 12.2Kbps	14.10	14.08	13.90	15.50	16.60	16.62	16.55	17.50
3GPP Rel 99 RMC 12.2Kbps	14.11	14.10	13.94	15.50	16.62	16.65	16.57	17.50
3GPP Rel 6 HSDPA Subtest-1	13.18	13.11	12.90	14.50	15.37	15.42	15.49	16.50
3GPP Rel 6 HSDPA Subtest-2	13.20	13.20	12.93	14.50	15.36	15.48	15.50	16.50
3GPP Rel 6 HSDPA Subtest-3	12.71	12.65	12.40	14.00	14.85	14.95	15.00	16.00
3GPP Rel 6 HSDPA Subtest-4	12.71	12.66	12.41	14.00	14.83	14.91	15.02	16.00
3GPP Rel 6 DC-HSDPA Subtest-1	13.16	13.09	12.88	14.50	15.35	15.40	15.47	16.50
3GPP Rel 6 DC-HSDPA Subtest-2	13.18	13.16	12.91	14.50	15.34	15.46	15.48	16.50
3GPP Rel 6 DC-HSDPA Subtest-3	12.69	12.63	12.38	14.00	14.83	14.93	14.98	16.00
3GPP Rel 6 DC-HSDPA Subtest-4	12.69	12.66	12.39	14.00	14.81	14.89	15.00	16.00
3GPP Rel 6 HSUPA Subtest-1	12.96	12.94	12.73	14.50	15.43	15.50	15.56	16.50
3GPP Rel 6 HSUPA Subtest-2	11.07	10.97	10.67	12.50	13.36	13.55	13.54	14.50
3GPP Rel 6 HSUPA Subtest-3	11.97	11.96	11.70	13.50	14.40	14.54	14.57	15.50
3GPP Rel 6 HSUPA Subtest-4	11.01	10.86	10.78	12.50	13.37	13.54	13.56	14.50
3GPP Rel 6 HSUPA Subtest-5	13.00	12.90	12.80	14.50	15.40	15.50	15.60	16.50

Reduced Power Mode for Handheld On

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
TX Channel	1659.2	1660	1660.8	1659.2	1660	1660.8		
Frequency (MHz)	28.32	28.52	28.20	29.00	19.32	19.52	19.20	20.00
GSM 1 Tx slot	28.33	28.54	28.21	29.00	19.33	19.54	19.21	20.00
GPRS 1 Tx slot	25.73	25.72	26.43	26.50	19.73	19.72	19.43	20.50
GPRS 2 Tx slots	24.55	24.73	24.38	25.50	20.29	20.47	20.12	21.24
GPRS 3 Tx slots	22.42	22.45	22.03	23.50	19.42	19.45	19.03	20.50
GPRS 4 Tx slots	24.12	24.25	24.11	25.50	15.12	15.25	15.11	16.50
EDGE 1 Tx slot	22.14	22.49	22.04	22.50	16.14	16.49	16.04	16.50
EDGE 2 Tx slots	20.98	21.30	20.89	22.00	16.72	17.04	16.63	17.74
EDGE 3 Tx slots	19.24	19.36	19.18	20.00	16.24	16.36	16.18	17.00
EDGE 4 Tx slots								

Band	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
	9262	9400	9538		1312	1413	1513	
TX Channel	9662	9800	9938		1537	1638	1738	
Rx Channel	1852.4	1880	1907.6		1712.4	1732.6	1752.6	
Frequency (MHz)	19.62	19.62	19.44	21.00	21.22	21.29	21.28	22.00
3GPP Rel 99	19.62	19.62	19.44	21.00	21.22	21.29	21.28	22.00
3GPP Rel 99	19.55	19.64	19.43	21.00	21.25	21.30	21.27	22.00
3GPP Rel 6	18.46	18.43	18.19	20.00	20.14	20.26	20.32	21.00
3GPP Rel 6	18.45	18.43	18.20	20.00	20.14	20.27	20.28	21.00
3GPP Rel 6	17.96	17.88	17.71	19.50	19.63	19.72	19.63	20.50
3GPP Rel 6	17.97	17.87	17.68	19.50	19.63	19.77	19.79	20.50
3GPP Rel 8	18.43	18.38	18.17	20.00	20.09	20.24	20.29	21.00
3GPP Rel 8	18.42	18.38	18.18	20.00	20.09	20.25	20.25	21.00
3GPP Rel 8	17.93	17.83	17.69	19.50	19.58	19.70	19.80	20.50
3GPP Rel 8	17.94	17.82	17.66	19.50	19.58	19.75	19.76	20.50
3GPP Rel 6	18.47	18.40	18.19	20.00	20.09	20.24	20.30	21.00
3GPP Rel 6	16.43	16.36	16.24	18.00	18.10	18.21	18.30	19.00
3GPP Rel 6	17.48	17.36	17.20	19.00	19.12	19.27	19.32	20.00
3GPP Rel 6	16.48	16.37	16.22	18.00	18.14	18.21	18.20	19.00
3GPP Rel 6	18.40	18.40	18.20	20.00	20.20	20.20	20.30	21.00

Reduced Power Mode for P-Sensor On

Band 2 (1900MHz Band) Part 24E												
BW (MHz)	Modulation	RB Size	RB Offset	Power Low CA / Freq	Power Middle CA / Freq	Power High CA / Freq	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
20	QPSK	1	0	16.29	16.42	16.54	17.5	0				
20	QPSK	1	49	16.36	16.35	16.39						
20	QPSK	1	99	16.11	16.43	16.24						
20	QPSK	50	0	16.33	16.38	16.51	17.5	0				
20	QPSK	50	24	16.37	16.45	16.54						
20	QPSK	50	50	16.33	16.38	16.35						
20	QPSK	100	0	16.33	16.62	16.60	17.5	0				
20	16QAM	1	0	16.66	16.69	16.85						
20	16QAM	1	49	16.73	16.64	16.88						
20	16QAM	1	99	16.63	16.70	16.78	17.5	0				
20	16QAM	50	0	16.39	16.60	16.50						
20	16QAM	50	24	16.34	16.49	16.54						
20	16QAM	50	50	16.43	16.68	16.59	17.5	0				
20	16QAM	100	0	16.37	16.66	16.59						
20	64QAM	1	0	16.85	16.78	16.76	17.5	0				
20	64QAM	1	49	16.60	16.70	16.66						
20	64QAM	1	99	16.73	16.77	16.70						
20	64QAM	50	0	16.49	16.52	16.51	17.5	0				
20	64QAM	50	24	16.34	16.49	16.54						
20	64QAM	50	50	16.34	16.40	16.62						
20	64QAM	100	0	16.42	16.54	16.60	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
15	QPSK	1	0	16.25	16.38	16.45	17.5	0				
15	QPSK	1	37	16.16	16.38	16.45						
15	QPSK	1	74	16.13	16.30	16.39						
15	QPSK	36	0	16.30	16.47	16.58	17.5	0				
15	QPSK	36	20	16.34	16.44	16.59						
15	QPSK	36	39	16.35	16.39	16.59						
15	QPSK	75	0	16.38	16.47	16.57	17.5	0				
15	16QAM	1	0	16.70	16.62	16.78						
15	16QAM	1	37	16.79	16.62	16.42						
15	16QAM	1	74	16.51	16.63	16.62	17.5	0				
15	16QAM	36	0	16.34	16.46	16.66						
15	16QAM	36	20	16.43	16.51	16.69						
15	16QAM	36	39	16.40	16.41	16.60	17.5	0				
15	16QAM	75	0	16.35	16.51	16.48						
15	64QAM	1	0	16.64	16.85	16.45	17.5	0				
15	64QAM	1	37	16.81	16.81	16.78						
15	64QAM	1	74	16.68	16.61	16.63						
15	64QAM	36	0	16.30	16.47	16.56	17.5	0				
15	64QAM	36	20	16.38	16.75	16.54						
15	64QAM	36	39	16.36	16.47	16.45						
15	64QAM	75	0	16.32	16.56	16.59	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
10	QPSK	1	0	16.01	16.05	16.19	17.5	0				
10	QPSK	1	25	16.16	16.27	16.34						
10	QPSK	1	49	16.01	16.07	16.16						
10	QPSK	25	0	16.17	16.45	16.32	17.5	0				
10	QPSK	25	12	16.13	16.23	16.36						
10	QPSK	25	25	16.08	16.23	16.40						
10	QPSK	50	0	16.18	16.34	16.33	17.5	0				
10	16QAM	1	0	16.58	16.87	16.78						
10	16QAM	1	25	16.68	16.74	16.66						
10	16QAM	1	49	16.51	16.68	16.62	17.5	0				
10	16QAM	25	0	16.19	16.27	16.16						
10	16QAM	25	12	16.15	16.20	16.35						
10	16QAM	25	25	16.08	16.20	16.34	17.5	0				
10	16QAM	50	0	16.14	16.21	16.35						
10	64QAM	1	0	16.48	16.65	16.63	17.5	0				
10	64QAM	1	25	16.66	16.63	16.64						
10	64QAM	1	49	16.57	16.73	16.70						
10	64QAM	25	0	16.18	16.25	16.39	17.5	0				
10	64QAM	25	12	16.13	16.19	16.43						
10	64QAM	25	25	16.10	16.26	16.39						
10	64QAM	50	0	16.18	16.18	16.29	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
5	QPSK	1	0	16.01	16.01	16.15	17.5	0				
5	QPSK	1	12	16.03	16.33	16.44						
5	QPSK	1	24	16.02	16.20	16.29						
5	QPSK	12	0	16.06	16.23	16.40	17.5	0				
5	QPSK	12	7	16.10	16.32	16.35						
5	QPSK	12	13	16.10	16.35	16.34						
5	QPSK	25	0	16.02	16.20	16.33	17.5	0				
5	16QAM	1	0	16.58	16.65	16.71						
5	16QAM	1	12	16.44	16.28	16.47						
5	16QAM	1	24	16.46	16.42	16.45	17.5	0				
5	16QAM	12	0	16.02	16.21	16.43						
5	16QAM	12	7	16.08	16.24	16.41						
5	16QAM	12	13	16.19	16.26	16.40	17.5	0				
5	16QAM	25	0	16.12	16.29	16.34						
5	64QAM	1	0	16.49	16.66	16.28	17.5	0				
5	64QAM	1	12	16.69	16.38	16.53						
5	64QAM	1	24	16.42	16.42	16.39						
5	64QAM	12	0	16.01	16.22	16.41	17.5	0				
5	64QAM	12	7	16.16	16.23	16.44						
5	64QAM	12	13	16.12	16.26	16.32						
5	64QAM	25	0	16.16	16.33	16.42	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
3	QPSK	1	0	15.95	15.93	16.03	17.5	0				
3	QPSK	1	8	15.95	16.27	16.32						
3	QPSK	1	14	15.90	16.12	16.23						
3	QPSK	8	0	15.93	16.17	16.30	17.5	0				
3	QPSK	8	4	16.04	16.24	16.23						
3	QPSK	8	7	16.02	16.29	16.22						
3	QPSK	15	0	15.90	16.12	16.27	17.5	0				
3	16QAM	1	0	16.46	16.59	16.63						
3	16QAM	1	8	16.38	16.20	16.35						
3	16QAM	1	14	16.36	16.36	16.33	17.5	0				
3	16QAM	8	0	15.90	16.13	16.27						
3	16QAM	8	4	15.96	16.18	16.33						
3	16QAM	8	7	16.12	16.18	16.28	17.5	0				
3	16QAM	15	0	16.04	16.23	16.22						
3	64QAM	1	0	16.37	16.58	16.22						
3	64QAM	1	8	16.57	16.32	16.45	17.5	0				
3	64QAM	1	14	16.36	16.30	16.29						
3	64QAM	8	0	15.94	16.15	16.29						
3	64QAM	8	4	16.06	16.16	16.35	17.5	0				
3	64QAM	8	7	16.00	16.19	16.25						
3	64QAM	15	0	16.16	16.35	16.15						
Channel												
Frequency (MHz)												
1.4	QPSK	1	0	15.98	15.97	16.09	17.5	0				
1.4	QPSK	1	3	15.99	16.30	16.38						
1.4	QPSK	1	5	15.96	16.16	16.26						
1.4	QPSK	3	0	15.99	16.20	16.36	17.5	0				
1.4	QPSK	3	1	16.07	16.28	16.29						
1.4	QPSK	3	3	16.06	16.32	16.28						
1.4	QPSK	6	0	15.96	16.16	16.30	17.5	0				
1.4	16QAM	1	0	16.52	16.62	16.67						
1.4	16QAM	1	3	16.41	16.24	16.41	17.5	0				
1.4	16QAM	1	5	16.42	16.17	16.39						
1.4	16QAM	3	0	16.02	16.21	16.37						
1.4	16QAM	3	3	16.08	16.22	16.34	17.5	0				
1.4	16QAM	6	0	16.06	16.26	16.28						
1.4	64QAM	1	0	16.43	16.62	16.25	17.5	0				
1.4	64QAM	1	3	16.63	16.35	16.49						
1.4	64QAM	1	5	16.39	16.34	16.33						
1.4	64QAM	3	0	15.97	16.17	16.30	17.5	0				
1.4	64QAM	3	1	16.10	16.19	16.41						
1.4	64QAM	3	3	16.08	16.23	16.28						
1.4	64QAM	6	0	16.13	16.29	16.38	17.5	0				

Reduced Power Mode for P-Sensor On

Band 7 (2800MHz Band)									
Part 27									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq	Power Middle Ch. / Freq	Power High Ch. / Freq	Tune-up limit (dBm)	MPR (dB)	
Channel				20850	21100	21350			
Frequency (MHz)				20850	21100	21350			
20	QPSK	1	0	17.52	17.25	17.52	19	0	
20	QPSK	1	49	17.50	17.51	17.38			
20	QPSK	1	99	17.49	17.51	17.29			
20	QPSK	50	0	17.62	17.46	17.66	19	0	
20	QPSK	50	24	17.58	17.62	17.58			
20	QPSK	50	50	17.66	17.66	17.58			
20	QPSK	100	0	17.62	17.50	17.66	19	0	
20	16QAM	1	0	17.86	17.86	17.91			
20	16QAM	1	49	17.69	17.67	17.75			
20	16QAM	1	99	17.80	17.78	17.88	19	0	
20	16QAM	50	0	17.66	17.57	17.71			
20	16QAM	50	24	17.72	17.59	17.73			
20	16QAM	50	50	17.65	17.69	17.57	19	0	
20	16QAM	100	0	17.63	17.56	17.64			
20	84QAM	1	0	17.75	17.74	17.62			
20	84QAM	1	49	17.77	17.65	17.62	19	0	
20	84QAM	1	99	17.86	17.73	17.78			
20	84QAM	50	0	17.48	17.50	17.36			
20	84QAM	50	24	17.64	17.53	17.48	19	0	
20	84QAM	50	50	17.68	17.74	17.57			
20	84QAM	100	0	17.65	17.48	17.47			
Channel				20850	21100	21350	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2087.5	2095	2092.5			
15	QPSK	1	0	17.42	17.44	17.22	19	0	
15	QPSK	1	37	17.52	17.46	17.28			
15	QPSK	1	74	17.49	17.49	17.45			
15	QPSK	36	0	17.62	17.53	17.34	19	0	
15	QPSK	36	20	17.58	17.57	17.41			
15	QPSK	36	39	17.69	17.56	17.44			
15	QPSK	75	0	17.57	17.46	17.46	19	0	
15	16QAM	1	0	17.80	17.56	17.65			
15	16QAM	1	37	17.77	17.78	17.81			
15	16QAM	1	74	17.88	17.89	17.78	19	0	
15	16QAM	36	0	17.60	17.55	17.35			
15	16QAM	36	20	17.57	17.56	17.47			
15	16QAM	36	39	17.62	17.62	17.48	19	0	
15	16QAM	75	0	17.62	17.51	17.46			
15	84QAM	1	0	17.71	17.45	17.46			
15	84QAM	1	37	17.42	17.63	17.31	19	0	
15	84QAM	1	74	17.53	17.75	17.62			
15	84QAM	36	0	17.59	17.41	17.39			
15	84QAM	36	20	17.64	17.48	17.42	19	0	
15	84QAM	36	39	17.68	17.57	17.42			
15	84QAM	75	0	17.52	17.54	17.38			
Channel				20850	21100	21400	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	17.27	17.13	17.02	19	0	
10	QPSK	1	25	17.22	17.25	16.93			
10	QPSK	1	49	17.59	17.53	16.97			
10	QPSK	25	0	17.34	17.27	17.10	19	0	
10	QPSK	25	12	17.36	17.30	17.04			
10	QPSK	25	25	17.43	17.39	17.24			
10	QPSK	50	0	17.40	17.28	17.20	19	0	
10	16QAM	1	0	17.80	17.70	17.69			
10	16QAM	1	25	17.76	17.76	17.64			
10	16QAM	1	49	17.75	17.72	17.64	19	0	
10	16QAM	25	0	17.33	17.30	17.16			
10	16QAM	25	12	17.43	17.27	17.17			
10	16QAM	25	25	17.47	17.31	17.20	19	0	
10	16QAM	50	0	17.44	17.36	17.20			
10	84QAM	1	0	17.76	17.63	17.58			
10	84QAM	1	25	17.52	17.43	17.55	19	0	
10	84QAM	1	49	17.74	17.65	17.63			
10	84QAM	25	0	17.43	17.27	17.23			
10	84QAM	25	12	17.39	17.34	17.25	19	0	
10	84QAM	25	25	17.46	17.40	17.22			
10	84QAM	50	0	17.41	17.06	17.19			
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2502.5	2535	2567.5			
5	QPSK	1	0	17.02	17.07	17.20	19	0	
5	QPSK	1	12	16.94	17.11	17.20			
5	QPSK	1	24	16.92	17.29	17.34			
5	QPSK	12	0	17.16	17.32	17.38	19	0	
5	QPSK	12	7	17.21	17.25	17.38			
5	QPSK	12	13	17.08	17.34	17.39			
5	QPSK	25	0	17.07	17.21	17.42	19	0	
5	16QAM	1	0	17.54	17.46	17.78			
5	16QAM	1	12	17.59	17.67	17.80			
5	16QAM	1	24	17.56	17.46	17.54	19	0	
5	16QAM	12	0	17.16	17.31	17.44			
5	16QAM	12	7	17.16	17.28	17.41			
5	16QAM	12	13	17.14	17.31	17.44	19	0	
5	16QAM	25	0	17.13	17.24	17.32			
5	84QAM	1	0	17.65	17.55	17.75			
5	84QAM	1	12	17.55	17.43	17.46	19	0	
5	84QAM	1	24	17.66	17.44	17.51			
5	84QAM	12	0	17.08	17.11	17.45			
5	84QAM	12	7	17.09	17.22	17.53	19	0	
5	84QAM	12	13	17.07	17.25	17.39			
5	84QAM	25	0	17.18	17.27	17.43			

Band 66										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq	Power Middle Ch. / Freq	Power High Ch. / Freq	Tune-up limit (dBm)	MPR (dB)		
Channel				130702	130722	130773				
Frequency (MHz)				1725	1745	1770				
20	QPSK	1	0	16.44	16.34	16.44	17	0		
20	QPSK	1	49	16.28	16.30	16.25				
20	QPSK	1	99	16.43	16.32	16.30				
20	QPSK	50	0	16.56	16.56	16.51	17	0		
20	QPSK	50	24	16.53	16.58	16.58				
20	QPSK	50	50	16.61	16.44	16.53				
20	QPSK	100	0	16.32	16.34	16.17	17	0		
20	16QAM	1	0	16.94	16.67	16.77				
20	16QAM	1	49	16.79	16.74	16.67				
20	16QAM	1	99	16.74	16.78	16.80	17	0		
20	16QAM	50	0	16.65	16.44	16.51				
20	16QAM	50	24	16.42	16.57	16.47				
20	16QAM	50	50	16.45	16.64	16.52	17	0		
20	16QAM	100	0	16.54	16.53	16.51				
20	84QAM	1	0	16.49	16.61	16.62				
20	84QAM	1	49	16.59	16.50	16.76	17	0		
20	84QAM	1	99	16.52	16.63	16.58				
20	84QAM	50	0	16.24	16.43	16.49				
20	84QAM	50	24	16.26	16.42	16.56	17	0		
20	84QAM	50	50	16.35	16.37	16.45				
20	84QAM	100	0	16.39	16.33	16.33				
Channel				131067	130722	130667	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				1717.5	1745	1773.5				
15	QPSK	1	0	16.36	16.33	16.26	17	0		
15	QPSK	1	37	16.28	16.34	16.22				
15	QPSK	1	74	16.33	16.31	16.24				
15	QPSK	36	0	16.50	16.41	16.22	17	0		
15	QPSK	36	20	16.56	16.54	16.26				
15	QPSK	36	39	16.41	16.42	16.25				
15	QPSK	75	0	16.36	16.40	16.25	17	0		
15	16QAM	1	0	16.69	16.46	16.46				
15	16QAM	1	37	16.51	16.57	16.46				
15	16QAM	1	74	16.46	16.44	16.45	17	0		
15	16QAM	36	0	16.51	16.40	16.31				
15	16QAM	36	20	16.47	16.37	16.27				
15	16QAM	36	39	16.53	16.60	16.27	17	0		
15	16QAM	75	0	16.35	16.40	16.26				
15	84QAM	1	0	16.30	16.50	16.71				
15	84QAM	1	37	16.56	16.65	16.41	17	0		
15	84QAM	1	74	16.47	16.74	16.47				
15	84QAM	36	0	16.46	16.47	16.34				
15	84QAM	36	20	16.48	16.44	16.32	17	0		
15	84QAM	36	39	16.42	16.35	16.24				
15	84QAM	75	0	16.45	16.38	16.28				
Channel				130702	130722	130667	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				1715	1745	1775				
10	QPSK	1	0	15.96	16.28	16.12	17	0		
10	QPSK	1	25	16.06	16.36	16.00				
10	QPSK	1	49	16.09	16.23	16.08				
10	QPSK	25	0	16.17	16.15	16.20	17	0		
10	QPSK	25	12	16.07	16.23	16.27				
10	QPSK	25	25	16.07	16.25	16.25				
10	QPSK	50	0	16.17	16.18	16.24	17	0		
10	16QAM	1	0	16.57	16.59	16.44				
10	16QAM	1	25	16.65	16.74	16.45				
10	16QAM	1	49	16.37	16.54	16.64	17	0		
10	16QAM	25	0	16.06	16.12	16.29				
10	16QAM	25	12	16.16	16.14	16.24				
10	16QAM	25	25	16.25	16.26	16.35	17	0		
10	16QAM	50	0	16.15	16.26	16.23				
10	84QAM	1	0	16.54	16.53	16.67				
10	84QAM	1	25	16.62	16.65	16.67	17	0		
10	84QAM	1	49	16.53	16.59	16.76				
10	84QAM	25	0	16.13	16.36	16.27				
10	84QAM	25	12	16.32	16.25	16.21	17	0		
10	84QAM	25	25	16.20	16.32	16.27				
10	84QAM	50	0	16.23	16.23	16.19				
Channel				131067	130722	130667	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				1717.5	1745	1773.5				
3	QPSK	1	0	15.89	16.18	16.05	17	0		
3	QPSK	1	8	15.97	16.30	15.91				
3	QPSK	1	14	16.02	16.13	16.01				

Reduced Power Mode for P-Sensor On

Band 38(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				37850	38000	38150			
Frequency (MHz)				2580	2595	2610			
20	QPSK	1	0	19.53	19.87	19.93	21.5	0	
20	QPSK	1	49	19.68	19.96	19.63			
20	QPSK	1	99	19.58	19.96	19.96			
20	QPSK	50	0	19.83	20.04	19.68			
20	QPSK	50	24	19.66	19.98	19.77	21.5	0	
20	QPSK	50	50	19.93	20.05	19.71			
20	QPSK	100	0	19.67	20.10	19.72			
20	16QAM	1	0	19.86	20.06	19.78			
20	16QAM	1	49	19.74	20.24	19.91	21.5	0	
20	16QAM	1	99	19.83	20.17	19.89			
20	16QAM	50	0	19.72	20.04	19.96			
20	16QAM	50	24	19.70	20.11	19.79			
20	16QAM	50	50	19.87	20.12	19.71	21.5	0	
20	16QAM	100	0	19.79	20.13	19.78			
20	64QAM	1	0	19.84	19.72	19.96			
20	64QAM	1	49	19.65	19.82	19.80			
20	64QAM	1	99	19.83	19.98	19.97	21.5	0	
20	64QAM	50	0	19.74	20.09	19.68			
20	64QAM	50	24	19.78	20.14	19.82			
20	64QAM	50	50	19.83	20.12	19.72			
20	64QAM	100	0	19.64	20.12	19.78	21.5	0	
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2577.5	2595	2612.5			
15	QPSK	1	0	19.68	19.84	19.65	21.5	0	
15	QPSK	1	37	19.71	19.77	19.89			
15	QPSK	1	74	19.82	19.57	19.70			
15	QPSK	36	0	19.90	19.95	19.95			
15	QPSK	36	20	19.88	19.78	19.78	21.5	0	
15	QPSK	36	39	19.92	19.74	20.05			
15	QPSK	75	0	19.93	19.76	19.68			
15	16QAM	1	0	19.88	19.91	19.98			
15	16QAM	1	37	19.76	19.80	19.86	21.5	0	
15	16QAM	1	74	19.74	19.75	19.95			
15	16QAM	36	0	19.89	19.94	19.84			
15	16QAM	36	20	19.89	19.79	19.82			
15	16QAM	36	39	19.90	19.86	19.99	21.5	0	
15	16QAM	75	0	19.93	19.92	19.91			
15	64QAM	1	0	19.72	19.92	19.96			
15	64QAM	1	37	19.73	19.90	19.77			
15	64QAM	1	74	19.94	19.69	19.95	21.5	0	
15	64QAM	36	0	19.89	19.95	19.76			
15	64QAM	36	20	19.92	19.80	19.74			
15	64QAM	36	39	19.88	19.73	19.95			
15	64QAM	75	0	19.92	19.79	19.76	21.5	0	
Channel				37900	38000	38200	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2575	2595	2615			
10	QPSK	1	0	19.68	19.89	19.87	21.5	0	
10	QPSK	1	25	19.69	19.91	19.61			
10	QPSK	1	49	19.82	20.03	19.57			
10	QPSK	25	0	19.78	20.10	19.66			
10	QPSK	25	12	19.84	20.09	19.68	21.5	0	
10	QPSK	25	25	19.83	20.12	19.73			
10	QPSK	50	0	19.84	20.13	19.80			
10	16QAM	1	0	19.77	20.10	19.88			
10	16QAM	1	25	19.74	19.98	19.82	21.5	0	
10	16QAM	1	49	19.88	19.96	19.80			
10	16QAM	25	0	19.74	20.11	19.80			
10	16QAM	25	12	19.80	20.10	19.64			
10	16QAM	25	25	19.82	20.10	19.71	21.5	0	
10	16QAM	50	0	19.87	20.16	19.76			
10	64QAM	1	0	19.66	19.94	19.84			
10	64QAM	1	25	19.64	19.94	19.61			
10	64QAM	1	49	19.77	20.05	19.84	21.5	0	
10	64QAM	25	0	19.78	20.12	19.66			
10	64QAM	25	12	19.85	20.13	19.68			
10	64QAM	25	25	19.87	20.11	19.74			
10	64QAM	50	0	19.85	20.10	19.62	21.5	0	
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2572.5	2595	2617.5			
5	QPSK	1	0	19.73	19.89	19.85	21.5	0	
5	QPSK	1	12	19.76	19.63	19.88			
5	QPSK	1	24	19.87	19.60	19.99			
5	QPSK	12	0	19.96	19.58	19.85			
5	QPSK	12	7	19.95	19.70	20.02	21.5	0	
5	QPSK	12	13	19.98	19.75	20.02			
5	QPSK	25	0	19.99	19.62	20.03			
5	16QAM	1	0	19.95	19.90	19.94			
5	16QAM	1	12	19.82	19.85	19.91	21.5	0	
5	16QAM	1	24	19.81	19.84	20.06			
5	16QAM	12	0	19.96	19.83	19.92			
5	16QAM	12	7	19.94	19.68	19.99			
5	16QAM	12	13	19.95	19.73	20.00	21.5	0	
5	16QAM	25	0	20.00	19.66	20.04			
5	64QAM	1	0	19.78	19.87	19.83			
5	64QAM	1	12	19.80	19.63	19.82			
5	64QAM	1	24	20.01	19.87	19.96	21.5	0	
5	64QAM	12	0	19.96	19.58	19.96			
5	64QAM	12	7	19.98	19.70	20.04			
5	64QAM	12	13	19.95	19.76	20.04			
5	64QAM	25	0	19.97	19.64	20.02	21.5	0	

Band 41 (2.6G Band)										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2508	2549.5	2593	2636.5	2680		
20	QPSK	1	0	20.19	19.99	20.04	19.74	19.96	21.5	0
20	QPSK	1	49	20.05	20.00	20.07	19.89	19.89		
20	QPSK	1	99	20.04	20.08	20.13	19.79	19.69		
20	QPSK	50	0	20.30	20.16	20.10	20.04	20.07		
20	QPSK	50	24	20.31	20.10	20.15	19.87	19.90	21.5	0
20	QPSK	50	50	20.24	20.17	20.20	20.14	19.86		
20	QPSK	100	0	20.24	20.22	20.27	19.77	19.88		
20	16QAM	1	0	20.32	20.18	20.37	20.07	20.03		
20	16QAM	1	49	20.28	20.36	20.03	19.95	19.92	21.5	0
20	16QAM	1	99	20.35	20.29	20.08	20.04	19.87		
20	16QAM	50	0	20.33	20.16	20.11	19.93	20.06		
20	16QAM	50	24	20.22	20.23	20.35	19.91	19.91		
20	16QAM	50	50	20.30	20.24	20.21	20.08	19.98	21.5	0
20	16QAM	100	0	20.33	20.25	20.34	20.00	20.04		
20	64QAM	1	0	20.26	19.84	20.05	20.05	20.04		
20	64QAM	1	49	20.10	19.94	19.85	19.86	20.02		
20	64QAM	1	99	20.06	20.10	19.96	20.04	19.81	21.5	0
20	64QAM	50	0	20.08	20.21	20.01	19.85	20.07		
20	64QAM	50	24	20.21	20.26	20.10	19.83	19.92		
20	64QAM	50	50	20.15	20.24	20.16	20.04	19.85		
20	64QAM	100	0	20.08	20.24	20.17	19.85	19.91	21.5	0
Channel				39725	40173	40620	41066	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.5	2593	2637.5	2682.5		
15	QPSK	1	0	20.00	20.01	20.01	20.02	20.06	21.5	0
15	QPSK	1	37	20.02	20.03	19.95	19.72	19.80		
15	QPSK	1	74	20.13	20.15	20.13	20.05	19.77		
15	QPSK	36	0	20.09	20.22	20.08	19.77	19.75	21.5	0
15	QPSK	36	20	20.16	20.21	20.15	19.86	19.87		
15	QPSK	36	39	20.16	20.24	20.13	19.80	19.92		
15	QPSK	75	0	20.17	20.25	20.18	19.81	19.80		
15	16QAM	1	0	20.08	20.22	20.10	19.87	20.09	21.5	0
15	16QAM	1	37	20.06	20.10	20.04	20.00	20.02		
15	16QAM	1	74	20.22	20.08	20.17	19.77	20.01		
15	16QAM	36	0	20.08	20.23	20.05	20.05	20.00		
15	16QAM	36	20	20.13	20.22	20.14	19.88	19.85	21.5	0
15	16QAM	36	39	20.14	20.22	20.14	19.80	19.91		
15	16QAM	75	0	20.19	20.28	20.20	19.87	19.85		
15	64QAM	1	0	19.98	20.06	19.97	20.05	20.05		
15	64QAM	1	37	19.98	20.06	19.99	19.89	19.82	21.5	0
15	64QAM	1	74	20.11	20.27	20.05	20.06	20.04		
15	64QAM	36	0	20.10	20.24	20.10	19.77	19.75		
15	64QAM	36	20	20.18	20.25	20.18	19.91	19.88		
15	64QAM	36	39	20.19	20.23	20.18	19.81	19.93	21.5	0
15	64QAM	75	0	20.18	20.25	20.20	19.87	19.82		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	19.89	19.89	19.91	19.92	19.96	21.5	0
10	QPSK	1	25	19.90	19.92	19.85	19.62	19.70		
10	QPSK	1	49	20.03	20.03	20.01	19.93	19.66		
10	QPSK	25	0	19.99	20.11	19.94	19.66	19.63	21.5	0
10	QPSK	25	12	20.05	20.09	20.05	19.74	19.77		
10	QPSK	25	25	20.04	20.13	20.03	19.69	19.62		
10	QPSK	50	0	20.05	20.14	20.06	19.71	19.69		
10	16QAM	1	0	19.98	20.09	19.96	19.76	19.97	21.5	0
10	16QAM	1	25	19.95	19.97	19.94	19.88	19.91		
10	16QAM	1	49	20.09	19.95	20.07	19.65	19.89		
10	16QAM	25	0	19.95	20.10	19.93	19.95	19.89		
10	16QAM	25	12	20.01	20.10	20.00	19.77	19.73	21.5	0
10	16QAM	25	25	20.03	20.11	20.03	19.68	19.80		
10	16QAM	50	0	20.08	20.14	20.08	19.75	19.73		
10	64QAM	1	0	19.87	19.93	19.85	19.94	19.93		
10	64QAM	1	25	19.85	19.94	19.85	19.77	19.70	21.5	0
10	64QAM	1	49	19.98	20.15	19.93	19.92	19.93		
10	64QAM	25	0	19.99	20.10	19.98	19.66	19.65		
10	64QAM	25	12	20.06	20.13	20.07	19.80	19.77		
10	64QAM	25	25	20.08	20.09	20.05	19.68	19.83	21.5	0
10	64QAM	50	0	20.06	20.13	20.07	19.75	19.71		
Channel				39675	40146	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	19.94	19.94	19.96	19.97	20.01	21.5	0
5	QPSK	1	12	19.95	19.97	19.90	19.67	19.75		
5	QPSK	1	24	20.08	20.08	20.07	19.98	19.72		
5	QPSK	12	0	20.04	20.17	20.01	19.72	19.70	21.5	0
5	QPSK	12	7	20.11	20.16	20.10	19.81	19.82		
5	QPSK	12	13	20.11	20.19	20.08	19.75	19.87		
5	QPSK	25	0	20.12	20.20	20.12	19.76	19.74		
5	16QAM	1	0	20.03	20.16	20.03	19.81	20.02	21.5	0
5	16QAM	1	12	20.00	20.03	19.99	19.93	19.97		
5	16QAM	1	24	20.15	20.02	20.12	19.71	19.96		
5	16QAM	12	0	20.01	20.17	19.99	20.00	19.95		
5	16QAM	12	7	20.08	20.15	20.07	19.83	19.80	21.5	0
5	16QAM	12	13	20.09	20.16	20.09	19.75	19.85		
5	16QAM	25	0	20.13	20.21	20.15	19.81	19.78		
5	64QAM	1	0	19.92	19.99	19.91	20.00	19.99		
5	64QAM	1	12	19.91	20.01	19.92	19.83	19.75	21.5	0
5	64QAM	1	24	20.05	20.02	19.99	19.99	19.99		
5	64QAM	12	0	20.05	20.17	20.03	19.71	19.70		
5	64QAM	12	7	20.13	20.19	20.12	19.85	19.82		
5	64QAM	12	13	20.13	20.16	20.11	19.75	19.88	21.5	0
5	64QAM	25	0	20.11	20.18	20.14	19.80	19.76		

Reduced Power Mode for Hotspot On

Band 2 (1900MHz Band) Part 24E									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch / Freq 1880	Power Middle Ch / Freq 1880	Power High Ch / Freq 1880	Tune-up limit (dBm)	MPR (dB)	
Channel				1880	1880	1880			
Frequency (MHz)				1880	1880	1880			
20	QPSK	1	0	14.14	14.14	13.88	15	0	
20	QPSK	1	49	14.02	13.92	13.76			
20	QPSK	1	99	13.87	13.87	13.69			
20	QPSK	50	0	14.23	14.18	14.06	15	0	
20	QPSK	50	24	14.20	14.09	14.02			
20	QPSK	50	50	14.14	14.23	13.95			
20	QPSK	100	0	14.20	14.25	14.04	15	0	
20	16QAM	1	0	14.43	14.45	14.19			
20	16QAM	1	49	14.38	14.30	14.09			
20	16QAM	1	99	14.22	14.17	14.04	15	0	
20	16QAM	50	0	14.29	14.11	14.10			
20	16QAM	50	24	14.23	14.07	14.00			
20	16QAM	50	50	14.17	14.30	14.20	15	0	
20	16QAM	100	0	14.22	14.23	14.00			
20	64QAM	1	0	14.31	14.14	14.01	15	0	
20	64QAM	1	49	14.00	14.00	13.88			
20	64QAM	1	99	14.02	14.04	14.02			
20	64QAM	50	0	14.29	14.09	14.05	15	0	
20	64QAM	50	24	14.24	14.04	13.98			
20	64QAM	50	50	14.19	14.02	13.92			
20	64QAM	100	0	14.20	14.05	14.01			
Channel				1897.5	1890	1912.5	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1897.5	1890	1902.5			
15	QPSK	1	0	14.18	14.01	13.85	15	0	
15	QPSK	1	37	14.03	13.94	13.78			
15	QPSK	1	74	14.03	13.90	13.78			
15	QPSK	36	0	14.30	14.11	14.02	15	0	
15	QPSK	36	20	14.23	14.04	13.96			
15	QPSK	36	36	14.18	14.05	13.93			
15	QPSK	75	0	14.23	14.05	13.97	15	0	
15	16QAM	1	0	14.12	14.32	14.10			
15	16QAM	1	37	14.34	14.31	14.03			
15	16QAM	1	74	14.27	14.17	14.07	15	0	
15	16QAM	36	0	14.23	14.09	14.01			
15	16QAM	36	20	14.17	14.00	13.92			
15	16QAM	36	36	14.13	13.99	13.90	15	0	
15	16QAM	75	0	14.22	14.05	13.95			
15	64QAM	1	0	14.32	14.11	14.03	15	0	
15	64QAM	1	37	14.14	14.04	13.91			
15	64QAM	1	74	14.16	13.97	13.85			
15	64QAM	36	0	14.28	14.11	13.99	15	0	
15	64QAM	36	20	14.17	14.00	13.92			
15	64QAM	36	36	14.14	14.02	13.89			
15	64QAM	75	0	14.23	14.05	13.95			
Channel				1895	1890	1910	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1895	1890	1905			
10	QPSK	1	0	13.97	13.87	13.62	15	0	
10	QPSK	1	25	13.94	13.85	13.60			
10	QPSK	1	49	13.91	13.76	13.60			
10	QPSK	25	0	14.09	13.92	13.77	15	0	
10	QPSK	25	12	14.09	14.01	13.76			
10	QPSK	25	25	14.12	13.89	13.81			
10	QPSK	50	0	14.09	13.91	13.85	15	0	
10	16QAM	1	0	14.37	14.28	14.06			
10	16QAM	1	25	14.30	14.20	14.00			
10	16QAM	1	49	14.27	14.24	14.06	15	0	
10	16QAM	25	0	14.09	13.90	13.87			
10	16QAM	25	12	14.12	14.03	13.93			
10	16QAM	25	25	14.08	13.85	13.83	15	0	
10	16QAM	50	0	14.09	13.93	13.84			
10	64QAM	1	0	14.43	14.26	14.04	15	0	
10	64QAM	1	25	14.38	14.25	14.00			
10	64QAM	1	49	14.25	14.18	13.98			
10	64QAM	25	0	14.13	13.93	13.86	15	0	
10	64QAM	25	12	14.12	14.02	13.94			
10	64QAM	25	25	14.10	13.91	13.81			
10	64QAM	50	0	14.07	13.93	13.84			
Channel				1892.5	1890	1917.5	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1892.5	1890	1907.5			
5	QPSK	1	0	14.05	14.05	14.19	15	0	
5	QPSK	1	12	14.07	14.37	14.21			
5	QPSK	1	24	14.06	14.24	14.33			
5	QPSK	12	0	14.09	14.27	14.44	15	0	
5	QPSK	12	7	14.14	14.36	14.30			
5	QPSK	12	13	14.14	14.39	14.38			
5	QPSK	25	0	14.06	14.24	14.37	15	0	
5	16QAM	1	0	14.28	14.35	14.41			
5	16QAM	1	12	14.14	13.98	14.17			
5	16QAM	1	24	14.21	14.21	14.01	15	0	
5	16QAM	12	0	14.06	14.25	14.37			
5	16QAM	12	7	14.12	14.28	14.23			
5	16QAM	12	13	14.23	14.30	14.44	15	0	
5	16QAM	25	0	14.16	14.33	14.36			
5	64QAM	1	0	14.19	14.36	13.98	15	0	
5	64QAM	1	12	14.39	14.08	14.23			
5	64QAM	1	24	14.13	14.08	14.09			
5	64QAM	12	0	13.71	13.82	14.11	15	0	
5	64QAM	12	7	13.86	13.93	14.14			
5	64QAM	12	13	13.82	13.96	14.02			
5	64QAM	25	0	13.86	14.03	14.12			
Channel				1891.5	1890	1916.5	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1891.5	1890	1906.5			
3	QPSK	1	0	13.99	13.97	14.07	15	0	
3	QPSK	1	8	13.99	14.31	14.36			
3	QPSK	1	14	13.94	14.16	14.27			
3	QPSK	8	0	13.97	14.21	14.36	15	0	
3	QPSK	8	4	14.08	14.28	14.27			
3	QPSK	8	7	14.06	14.33	14.26			
3	QPSK	15	0	13.94	14.16	14.31	15	0	
3	16QAM	1	0	14.16	14.29	14.33			
3	16QAM	1	8	14.08	13.90	14.05			
3	16QAM	1	14	14.06	14.06	14.30	15	0	
3	16QAM	8	0	13.94	14.17	14.31			
3	16QAM	8	4	14.00	14.22	14.37			
3	16QAM	8	7	14.16	14.22	14.32	15	0	
3	16QAM	15	0	14.08	14.27	14.26			
3	64QAM	1	0	14.07	14.28	13.92	15	0	
3	64QAM	1	8	14.27	14.02	14.15			
3	64QAM	1	14	14.06	14.00	13.99			
3	64QAM	8	0	13.96	14.19	14.33	15	0	
3	64QAM	8	4	14.10	14.20	14.30			
3	64QAM	8	7	14.04	14.23	14.20			
3	64QAM	15	0	14.19	14.23	14.20			
Channel				1890.7	1890	1909.3	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1890.7	1890	1909.3			
1.4	QPSK	1	0	14.02	14.01	14.13	15	0	
1.4	QPSK	1	3	14.03	14.34	14.42			
1.4	QPSK	1	5	14.00	14.20	14.36			
1.4	QPSK	3	0	14.03	14.24	14.40	15	0	
1.4	QPSK	3	1	14.11	14.32	14.33			
1.4	QPSK	3	3	14.10	14.36	14.32			
1.4	QPSK	6	0	14.00	14.20	14.34	15	0	
1.4	16QAM	1	0	14.22	14.32	14.37			
1.4	16QAM	1	3	14.11	13.94	14.11			
1.4	16QAM	1	5	14.12	14.00	14.09	15	0	
1.4	16QAM	3	0	14.00	14.21	14.34			
1.4	16QAM	3	1	14.06	14.29	14.41	15	0	
1.4	16QAM	3	3	14.20	14.26	14.38			
1.4	16QAM	6	0	14.12	14.30	14.32	15	0	
1.4	64QAM	1	0	14.13	14.32	13.95			
1.4	64QAM	1	3	14.33	14.05	14.19			
1.4	64QAM	1	5	14.09	14.04	14.03	15	0	
1.4	64QAM	3	0	13.87	13.89	14.05			
1.4	64QAM	3	1	13.86	13.89	14.11			
1.4	64QAM	3	3	13.76	13.93	13.98	15	0	
1.4	64QAM	6	0	13.83	13.99	14.08			

Band 4 (AWS Band) Part 27L (only on channel required)									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch / Freq 2050	Power Middle Ch / Freq 2050	Power High Ch / Freq 2050	Tune-up limit (dBm)	MPR (dB)	
Channel				2050	2050	2050			
Frequency (MHz)				1720	1732.5	1746			
20	QPSK	1	0	15.01	15.05	15.11	16.5	0	
20	QPSK	1	49	14.92	15.01	14.99			
20	QPSK	1	99	15.00	15.00	14.98			
20	QPSK	50	0	15.09	15.14	15.17	16.5	0	
20	QPSK	50	24	15.16	15.09	15.09			
20	QPSK	50	50	15.08	15.14	15.13			
20	QPSK	100	0	15.12	15.15	15.05	16.5	0	
20	16QAM	1	0	15.27	15.23	15.23			
20	16QAM	1	49	15.08	15.16	15.31			
20	16QAM	1	99	15.12	15.15	15.35	16.5	0	
20	16QAM	50	0	14.97	15.04	15.10			
20	16QAM	50	24	14.98	14.98	15.12			
20	16QAM	50	50	14.93	14.97	15.07	16.5	0	
20	16QAM	100	0	14.97	14.99	15.00			
20	64QAM	1	0	15.13	15.15	15.14	16.5	0	
20	64QAM	1	49	14.93	15.00	14.96			
20	64QAM	1	99	15.02	14.96	15.00			
20	64QAM	50	0	14.95	15.03	15.08	16.5	0	
20	64QAM	50	24	14.95	15.00	15.08			
20	64QAM	50	50	14.90	15.00	15.01			
20	64QAM	100	0	14.97	14.98	15.06			
Channel				2052.5	2057.5	2062.5	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1717.5	1732.5	1747.5			
15	QPSK	1	0	14.98	15.02	15.10	16.5	0	
15	QPSK	1	37	14.93	15.03	15.08			
15	QPSK	1	74	14.97	15.05	15.06			
15	QPSK	36	0	15.03	15.11	15.13	16.5	0	
15	QPSK	36	20	15.08	15.14	15.12			
15	QPSK	36	36	15.09	15.20	15.15			
15	QPSK	75	0	15.09	15.11	15.12	16.5	0	
15									

Reduced Power Mode for Hotspot On

Band 7 (200MHz Band) Part 27										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch./Freq.	Power Middle Ch./Freq.	Power High Ch./Freq.	Tune-up limit (dBm)	MPR (dB)		
Channel				20550	20550	20550				
Frequency (MHz)				2510	2535	2550				
20	QPSK	1	0	14.31	14.15	14.41				
20	QPSK	1	49	14.32	14.40	14.27	16	0		
20	QPSK	1	99	14.38	14.40	14.16				
20	QPSK	50	0	14.51	14.35	14.21				
20	QPSK	50	24	14.47	14.51	14.46	16	0		
20	QPSK	50	50	14.55	14.55	14.57				
20	QPSK	100	0	14.31	14.39	14.45				
20	16QAM	1	0	14.75	14.79	14.80				
20	16QAM	1	49	14.58	14.56	14.64	16	0		
20	16QAM	1	99	14.69	14.67	14.57				
20	16QAM	50	0	14.54	14.46	14.60				
20	16QAM	50	24	14.61	14.48	14.62	16	0		
20	16QAM	50	50	14.54	14.58	14.59				
20	16QAM	100	0	14.52	14.45	14.53				
20	84QAM	1	0	14.64	14.63	14.51				
20	84QAM	1	49	14.66	14.54	14.51	16	0		
20	84QAM	1	99	14.75	14.62	14.67				
20	84QAM	50	0	14.37	14.39	14.25				
20	84QAM	50	24	14.53	14.42	14.37	16	0		
20	84QAM	50	50	14.57	14.63	14.46				
20	84QAM	100	0	14.54	14.37	14.37				
Channel				20625	21100	21375	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				2507.5	2538	2562.5				
15	QPSK	1	0	14.31	14.33	14.11				
15	QPSK	1	37	14.41	14.35	14.17	16	0		
15	QPSK	1	74	14.38	14.38	14.34				
15	QPSK	36	0	14.51	14.42	14.23				
15	QPSK	36	20	14.47	14.45	14.36	16	0		
15	QPSK	36	39	14.58	14.45	14.33				
15	QPSK	75	0	14.46	14.35	14.35				
15	16QAM	1	0	14.69	14.45	14.54				
15	16QAM	1	37	14.66	14.67	14.70	16	0		
15	16QAM	1	74	14.77	14.78	14.67				
15	16QAM	36	0	14.49	14.44	14.21				
15	16QAM	36	20	14.46	14.47	14.36	16	0		
15	16QAM	36	39	14.51	14.51	14.37				
15	16QAM	75	0	14.51	14.40	14.35				
15	84QAM	1	0	14.60	14.34	14.35				
15	84QAM	1	37	14.31	14.52	14.70	16	0		
15	84QAM	1	74	14.42	14.64	14.51				
15	84QAM	36	0	14.48	14.39	14.22				
15	84QAM	36	20	14.53	14.37	14.31	16	0		
15	84QAM	36	39	14.57	14.46	14.31				
15	84QAM	75	0	14.41	14.43	14.27				
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				2505	2535	2565				
10	QPSK	1	0	14.16	14.02	13.91				
10	QPSK	1	25	14.11	14.14	13.82	16	0		
10	QPSK	1	49	14.28	13.92	13.86				
10	QPSK	25	0	14.23	14.16	13.98				
10	QPSK	25	12	14.25	14.19	13.91	16	0		
10	QPSK	25	25	14.32	14.28	14.13				
10	QPSK	50	0	14.29	14.17	14.08				
10	16QAM	1	0	14.69	14.59	14.58				
10	16QAM	1	25	14.65	14.67	14.53	16	0		
10	16QAM	1	49	14.65	14.61	14.53				
10	16QAM	25	0	14.22	14.21	14.04				
10	16QAM	25	12	14.32	14.19	14.08	16	0		
10	16QAM	25	25	14.38	14.20	14.09				
10	16QAM	50	0	14.33	14.25	14.09				
10	84QAM	1	0	14.65	14.72	14.47				
10	84QAM	1	25	14.41	14.32	14.44	16	0		
10	84QAM	1	49	14.63	14.54	14.52				
10	84QAM	25	0	14.32	14.16	14.12				
10	84QAM	25	12	14.28	14.23	14.14	16	0		
10	84QAM	25	25	14.35	14.29	14.11				
10	84QAM	50	0	14.30	13.95	14.08				
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				2502.5	2535	2567.5				
5	QPSK	1	0	13.91	13.96	14.08				
5	QPSK	1	12	13.83	14.00	14.09	16	0		
5	QPSK	1	24	13.81	14.18	14.23				
5	QPSK	12	0	14.05	14.21	14.27				
5	QPSK	12	7	14.10	14.14	14.27	16	0		
5	QPSK	12	13	13.97	14.23	14.28				
5	QPSK	25	0	13.96	14.10	14.31				
5	16QAM	1	0	14.43	14.35	14.67				
5	16QAM	1	12	14.48	14.56	14.39	16	0		
5	16QAM	1	24	14.45	14.35	14.43				
5	16QAM	12	0	14.05	14.20	14.33				
5	16QAM	12	7	14.05	14.17	14.30	16	0		
5	16QAM	12	13	14.03	14.20	14.33				
5	16QAM	25	0	14.02	14.13	14.21				
5	84QAM	1	0	14.54	14.44	14.64				
5	84QAM	1	12	14.44	14.32	14.35	16	0		
5	84QAM	1	24	14.55	14.33	14.70				
5	84QAM	12	0	13.97	14.00	14.34				
5	84QAM	12	7	13.98	14.11	14.42	16	0		
5	84QAM	12	13	13.96	14.14	14.28				
5	84QAM	25	0	14.07	14.16	14.32				

Band 66										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch./Freq.	Power Middle Ch./Freq.	Power High Ch./Freq.	Tune-up limit (dBm)	MPR (dB)		
Channel				130070	130070	130070				
Frequency (MHz)				1720	1745	1770				
20	QPSK	1	0	15.18	15.06	15.16				
20	QPSK	1	49	15.00	15.02	14.97	16.5	0		
20	QPSK	1	99	15.15	15.04	15.02				
20	QPSK	50	0	15.16	15.16	15.23				
20	QPSK	50	24	15.02	15.10	15.30	16.5	0		
20	QPSK	50	50	15.38	15.16	15.25				
20	QPSK	100	0	15.14	15.06	14.89				
20	16QAM	1	0	15.45	15.34	15.43				
20	16QAM	1	49	15.19	15.14	15.26	16.5	0		
20	16QAM	1	99	15.14	15.18	15.20				
20	16QAM	50	0	15.37	15.16	15.23				
20	16QAM	50	24	15.14	15.29	15.19	16.5	0		
20	16QAM	50	50	15.17	15.36	15.24				
20	16QAM	100	0	15.26	15.25	15.23				
20	84QAM	1	0	15.21	15.33	15.34				
20	84QAM	1	49	15.31	15.22	15.12	16.5	0		
20	84QAM	1	99	15.24	15.35	15.30				
20	84QAM	50	0	14.96	15.15	15.21				
20	84QAM	50	24	14.96	15.14	15.26	16.5	0		
20	84QAM	50	50	15.07	15.09	15.25				
20	84QAM	100	0	15.05	15.05	15.05				
Channel				132047	132022	132097	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				1717.5	1745	1772.5				
15	QPSK	1	0	15.08	15.05	14.98				
15	QPSK	1	37	15.00	15.06	14.94	16.5	0		
15	QPSK	1	74	15.05	15.03	14.96				
15	QPSK	36	0	15.22	15.13	14.94				
15	QPSK	36	20	15.26	15.36	14.98	16.5	0		
15	QPSK	36	39	15.13	15.14	15.11				
15	QPSK	75	0	15.08	15.12	15.07				
15	16QAM	1	0	15.41	15.16	15.20				
15	16QAM	1	37	15.23	15.29	15.18	16.5	0		
15	16QAM	1	74	15.18	15.16	15.17				
15	16QAM	36	0	15.23	15.12	15.03				
15	16QAM	36	20	15.19	15.59	15.09	16.5	0		
15	16QAM	36	39	15.25	15.32	14.99				
15	16QAM	75	0	15.25	15.14	15.07				
15	84QAM	1	0	15.20	15.30	15.11				
15	84QAM	1	37	14.96	15.25	14.81	16.5	0		
15	84QAM	1	74	14.87	15.14	14.87				
15	84QAM	36	0	15.18	15.19	15.06				
15	84QAM	36	20	15.20	15.16	15.04	16.5	0		
15	84QAM	36	39	15.14	15.07	14.96				
15	84QAM	75	0	15.14	15.08	15.08				
Channel				132022	132022	132022	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				1715	1745	1775				
10	QPSK	1	0	14.89	15.21	15.05				
10	QPSK	1	25	14.99	15.29	14.93	16.5	0		
10	QPSK	1	49	15.02	15.16	15.01				
10	QPSK	25								

Reduced Power Mode for Hotspot On

Band 38(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				37850	38000	38150	2980		
Frequency (MHz)				2980	2995	2910			
20	QPSK	1	0	15.67	15.76	15.99	17.5	0	
20	QPSK	1	49	15.57	15.77	15.85			
20	QPSK	1	99	15.77	15.85	15.84			
20	QPSK	50	0	15.72	15.93	16.10			
20	QPSK	50	24	15.67	15.87	16.11	17.5	0	
20	QPSK	50	50	15.82	15.94	16.04			
20	QPSK	100	0	15.55	15.99	16.04			
20	16QAM	1	0	15.75	15.95	16.12			
20	16QAM	1	49	15.78	16.13	16.08	17.5	0	
20	16QAM	1	99	15.72	16.06	16.15			
20	16QAM	50	0	15.78	15.93	16.13			
20	16QAM	50	24	15.77	16.00	16.02			
20	16QAM	50	50	15.76	16.01	16.10	17.5	0	
20	16QAM	100	0	15.68	16.02	16.13			
20	64QAM	1	0	15.73	15.61	16.06			
20	64QAM	1	49	15.76	15.71	15.90			
20	64QAM	1	99	15.72	15.87	15.86	17.5	0	
20	64QAM	50	0	15.53	15.98	15.88			
20	64QAM	50	24	15.67	16.03	16.01			
20	64QAM	50	50	15.72	16.01	15.95			
20	64QAM	100	0	15.53	16.01	15.88	17.5	0	
Channel				37825	38000	38175			Tune-up limit (dBm)
Frequency (MHz)				2977.5	2995	2912.5			
15	QPSK	1	0	15.69	15.70	15.80	17.5	0	
15	QPSK	1	37	15.71	15.40	15.82			
15	QPSK	1	74	15.83	15.82	15.93			
15	QPSK	36	0	15.90	15.54	15.89			
15	QPSK	36	20	15.69	15.63	15.96	17.5	0	
15	QPSK	36	39	15.92	15.57	15.96			
15	QPSK	75	0	15.93	15.58	15.97			
15	16QAM	1	0	15.90	15.64	15.88			
15	16QAM	1	37	15.78	15.77	15.86	17.5	0	
15	16QAM	1	74	15.76	15.54	16.02			
15	16QAM	36	0	15.91	15.82	15.88			
15	16QAM	36	20	15.90	15.65	15.93			
15	16QAM	36	39	15.90	15.57	15.94	17.5	0	
15	16QAM	75	0	15.96	15.64	15.99			
15	64QAM	1	0	15.74	15.82	15.78			
15	64QAM	1	37	15.74	15.66	15.78	17.5	0	
15	64QAM	1	74	15.95	15.83	15.91			
15	64QAM	36	0	15.92	15.54	15.90			
15	64QAM	36	20	15.93	15.68	15.98	17.5	0	
15	64QAM	36	39	15.91	15.58	15.99			
15	64QAM	75	0	15.93	15.64	15.98			
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2975	2995	2915			
10	QPSK	1	0	15.57	15.69	15.69	17.5	0	
10	QPSK	1	25	15.58	15.39	15.72			
10	QPSK	1	49	15.71	15.70	15.83			
10	QPSK	25	0	15.67	15.43	15.91			
10	QPSK	25	12	15.73	15.51	15.89	17.5	0	
10	QPSK	25	25	15.72	15.46	15.93			
10	QPSK	50	0	15.73	15.48	15.94			
10	16QAM	1	0	15.66	15.53	15.89			
10	16QAM	1	25	15.63	15.65	15.77	17.5	0	
10	16QAM	1	49	15.77	15.42	15.75			
10	16QAM	25	0	15.63	15.72	15.90			
10	16QAM	25	12	15.69	15.54	15.90			
10	16QAM	25	25	15.71	15.45	15.91	17.5	0	
10	16QAM	50	0	15.76	15.52	15.94			
10	64QAM	1	0	15.55	15.71	15.73			
10	64QAM	1	25	15.53	15.54	15.74	17.5	0	
10	64QAM	1	49	15.66	15.69	15.95			
10	64QAM	25	0	15.67	15.56	15.90			
10	64QAM	25	12	15.74	15.57	15.93			
10	64QAM	25	25	15.76	15.45	15.89	17.5	0	
10	64QAM	50	0	15.74	15.52	15.93			
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2972.5	2995	2917.5			
5	QPSK	1	0	15.62	15.74	15.74	17.5	0	
5	QPSK	1	12	15.65	15.44	15.75			
5	QPSK	1	24	15.76	15.75	15.88			
5	QPSK	12	0	15.85	15.49	15.84			
5	QPSK	12	7	15.84	15.58	15.91	17.5	0	
5	QPSK	12	13	15.87	15.52	15.91			
5	QPSK	25	0	15.88	15.53	15.92			
5	16QAM	1	0	15.84	15.58	15.83			
5	16QAM	1	12	15.71	15.70	15.80	17.5	0	
5	16QAM	1	24	15.70	15.48	15.95			
5	16QAM	12	0	15.85	15.77	15.81			
5	16QAM	12	7	15.83	15.60	15.88			
5	16QAM	12	13	15.84	15.52	15.89	17.5	0	
5	16QAM	25	0	15.89	15.58	15.93			
5	64QAM	1	0	15.67	15.77	15.72			
5	64QAM	1	12	15.69	15.60	15.71	17.5	0	
5	64QAM	1	24	15.90	15.76	15.85			
5	64QAM	12	0	15.85	15.48	15.85			
5	64QAM	12	7	15.87	15.62	15.93			
5	64QAM	12	13	15.84	15.52	15.93	17.5	0	
5	64QAM	25	0	15.86	15.57	15.91			

Band 41 (2.6G Band)											
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				39750	40185	40620	41055	41490			
Frequency (MHz)				2906	2949.5	2993	2936.5	2980	17.5	0	
20	QPSK	1	0	16.08	15.88	15.93	15.63	15.85			
20	QPSK	1	49	15.94	15.89	15.96	15.78	15.78			
20	QPSK	1	99	15.93	15.97	16.02	15.68	15.58			
20	QPSK	50	0	16.19	16.05	15.99	15.93	15.96	17.5	0	
20	QPSK	50	24	16.20	15.99	16.04	15.76	15.79			
20	QPSK	50	50	16.13	16.06	16.09	16.03	15.75			
20	QPSK	100	0	16.13	16.11	16.16	15.66	15.77			
20	16QAM	1	0	16.21	16.07	16.26	15.96	15.92	17.5	0	
20	16QAM	1	49	16.17	16.25	15.92	15.84	15.81			
20	16QAM	1	99	16.24	16.18	15.97	15.93	15.76			
20	16QAM	50	0	16.22	16.05	16.00	15.82	15.95			
20	16QAM	50	24	16.11	16.12	16.24	15.80	15.80	17.5	0	
20	16QAM	50	50	16.19	16.13	16.10	15.97	15.87			
20	16QAM	100	0	16.22	16.14	16.23	15.89	15.93			
20	64QAM	1	0	16.15	15.73	15.94	15.94	15.93			
20	64QAM	1	49	15.99	15.83	15.74	15.75	15.91	17.5	0	
20	64QAM	1	99	15.95	15.99	15.85	15.93	15.70			
20	64QAM	50	0	15.97	16.10	15.90	15.74	15.96			
20	64QAM	50	24	16.10	16.15	15.99	15.72	15.81			
20	64QAM	50	50	16.04	16.13	16.05	15.93	15.74	17.5	0	
20	64QAM	100	0	15.97	16.13	16.06	15.74	15.80			
Channel				39725	40173	40620	41069	41515	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2903.5	2948.3	2993	2937.8	2982.5			
15	QPSK	1	0	15.89	15.90	15.90	15.91	15.95	17.5	0	
15	QPSK	1	37	15.91	15.92	15.84	15.61	15.69			
15	QPSK	1	74	16.02	16.04	16.02	15.94	15.66			
15	QPSK	36	0	15.98	16.11	15.97	15.66	15.64			
15	QPSK	36	20	16.05	16.10	16.04	15.75	15.78	17.5	0	
15	QPSK	36	39	16.05	16.13	16.02	15.69	15.81			
15	QPSK	75	0	16.06	16.14	16.07	15.70	15.69			
15	16QAM	1	0	15.97	16.11	15.99	15.76	15.98			
15	16QAM	1	37	15.95	15.99	15.93	15.89	15.91	17.5	0	
15	16QAM	1	74	16.11	15.97	16.06	15.66	15.90			
15	16QAM	36	0	15.97	16.12	15.94	15.94	15.89			
15	16QAM	36	20	16.02	16.11	16.03	15.77	15.74			
15	16QAM	36	39	16.03	16.11	16.03	15.69	15.80	17.5	0	
15	16QAM	75	0	16.08	16.17	16.09	15.76	15.74			
15	64QAM	1	0	15.87	15.95	15.86	15.94	15.94			
15	64QAM	1	37	15.87	15.95	15.88	15.78	15.71			
15	64QAM	1	74	16.00	16.16	15.94	15.95	15.93	17.5	0	
15	64QAM	36	0	15.99	16.13	15.99	15.66	15.64			
15	64QAM	36	20	16.07	16.14	16.07	15.80	15.77			
15	64QAM	36	39	16.08	16.12	16.07	15.70	15.82			
15	64QAM	75	0	16.07	16.14	16.09	15.76	15.71	17.5	0	
Channel				39700	40160	40620	41080	41540			
Frequency (MHz)				2901	2947	2993	2939	2985			
10	QPSK	1	0	15.78	15.78	15.80	15.81	15.85	17.5	0	
10	QPSK	1	25	15.79	15.81	15.74	15.51	15.59			
10	QPSK	1	49	15.92	15.92	15.90	15.82	15.55			
10	QPSK	25	0	15.88	16.00	15.83	15.55	15.52			
10	QPSK	25	12	15.94	15.98	15.94	15.63	15.66	17.5	0	
10	QPSK	25	25	15.93	16.02	15.92	15.58	15.71			
10	QPSK	50	0	15.94	16.03	15.95	15.60	15.58			
10	16QAM	1	0	15.87	15.98	15.85	15.65	15.86			
10	16QAM	1	25	15.84	15.86	15.83	15.77	15.80	17.5	0	
10	16QAM	1	49	15.98	15.84	15.96	15.54	15.78			
10	16QAM	25	0	15.84	15.99	15.82	15.84	15.78			
10	16QAM	25	12	15.90	15.99	15.89	15.66	15.62			
10	16QAM	25	25	15.92	16.00	15.92	15.57	15.69	17.5	0	
10	16QAM	50	0	15.97	16.03	15.97	15.64	15.62			
10	64QAM	1	0	15.76	15.82	15.74	15.83	15.82			
10	64QAM	1	25	15.74	15.83	15.74	15.66	15.59			
10	64QAM	1	49	15.87	16.04	15.82	15.81	15.82	17.5	0	
10	64QAM	25	0	15.88	15.99	15.87	15.55	15.54			
10	64QAM	25	12	15.95	16.02	15.96	15.69	15.66			
10	64QAM	25	25	15.97	15.98	15.94	15.57	15.72			
10	64QAM	50	0	15.95	16.02	15.96	15.64	15.60	17.5	0	
Channel				39675	40148	40620	41093	41565			
Frequency (MHz)				2498.5	2545.5	2593	2540.30	2587.5			
5	QPSK	1	0	15.83	15.83	15.85	15.86	15.90	17.5	0	
5	QPSK	1	12	15.84	15.86	15.79	15.56	15.64			
5	QPSK	1	24	15.97	15.97	15.96	15.87	15.61			
5	QPSK	12	0	15.93	16.06	15.90	15.61	15.59			
5	QPSK	12	7	16.00	16.05	15.99	15.70	15.71	17.5	0	
5	QPSK	12	13	16.03	16.08	15.97	15.64	15.76			
5	QPSK	25	0	16.01	16.09	16.01	15.65	15.63			
5	16QAM	1	0	15.92	16.05	15.92	15.70	15.91			
5	16QAM	1	12	15.89	15.92	15.88	15.82	15.86	17.5	0	
5	16QAM	1	24	16.04	15.91	16.01	15.60	15.85			
5	16QAM	12	0	15.90	16.06	15.88	15.89	15.84			
5	16QAM	12	7	15.97	16.04	15.96	15.72	15.69			
5	16QAM	12	13	15.98	16.05	15.98	15.64	15.74	17.5	0	
5	16QAM	25	0	16.02	16.10	16.04	15.70	15.67			
5	64QAM	1	0	15.81	15.88	15.80	15.89	15.88			
5	64QAM	1	12	15.80	15.90	15.81	15.72	15.64			
5	64QAM	1	24	15.94	16.11	15.88	15.88	15.88	17.5	0	
5	64QAM	12	0	15.94	16.06	15.92	15.60	15.59			
5	64QAM	12	7	16.02	16.08	16.01	15.74	15.71			
5	64QAM	12	13	16.02	16.05	16.00	15.64	15.77			
5	64QAM	25	0	16.00	16.07	16.03	15.69	15.65	17.5	0	

Reduced Power Mode for Handheld On

Band 2 (1900MHz Band) Part 24E												
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Main Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
20	QPSK	1	0	20.10	20.10	20.98	21	0				
20	QPSK	1	49	19.82	19.88	19.80						
20	QPSK	1	99	19.84	19.74	19.71						
20	QPSK	50	0	19.94	19.89	19.86	21	0				
20	QPSK	50	24	20.04	19.90	19.79						
20	QPSK	50	60	19.96	20.05	19.81						
20	QPSK	100	0	20.09	20.10	19.86	21	0				
20	16QAM	1	0	20.15	20.39	20.34						
20	16QAM	1	49	20.25	20.37	20.02						
20	16QAM	1	99	20.19	20.34	20.21	21	0				
20	16QAM	50	0	19.94	20.32	20.04						
20	16QAM	50	24	20.04	20.21	20.10						
20	16QAM	50	60	20.19	20.33	20.12	21	0				
20	16QAM	100	0	20.09	20.10	19.92						
20	64QAM	1	0	20.13	20.24	20.38	21	0				
20	64QAM	1	49	20.06	20.20	20.22						
20	64QAM	1	99	20.35	20.16	20.01						
20	64QAM	50	0	19.94	19.81	19.87	21	0				
20	64QAM	50	24	20.06	19.98	19.77						
20	64QAM	50	60	19.91	20.01	19.81						
20	64QAM	100	0	19.98	19.84	19.84	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
15	QPSK	1	0	19.80	19.97	19.80	21	0				
15	QPSK	1	37	19.83	19.86	19.85						
15	QPSK	1	74	19.77	19.75	19.58						
15	QPSK	36	0	19.96	19.87	19.82	21	0				
15	QPSK	36	20	20.09	19.93	19.82						
15	QPSK	36	39	20.08	19.91	19.84						
15	QPSK	75	0	19.98	19.93	19.78	21	0				
15	16QAM	1	0	19.93	20.03	20.04						
15	16QAM	1	37	20.08	20.02	19.86						
15	16QAM	1	74	20.23	20.04	20.01	21	0				
15	16QAM	36	0	20.13	19.90	19.78						
15	16QAM	36	20	20.04	20.03	19.87						
15	16QAM	36	39	20.06	19.92	19.83	21	0				
15	16QAM	75	0	19.91	19.89	19.82						
15	64QAM	1	0	20.23	20.18	19.89	21	0				
15	64QAM	1	37	20.02	20.11	20.05						
15	64QAM	1	74	19.96	19.97	20.06						
15	64QAM	36	0	20.07	19.88	19.70	21	0				
15	64QAM	36	20	19.93	19.92	19.85						
15	64QAM	36	39	20.06	19.91	20.03						
15	64QAM	75	0	19.91	19.89	19.82	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
10	QPSK	1	0	19.68	19.71	19.26	21	0				
10	QPSK	1	25	19.65	19.61	19.31						
10	QPSK	1	49	19.63	19.48	19.21						
10	QPSK	25	0	19.76	19.62	19.59	21	0				
10	QPSK	25	12	19.77	19.71	19.61						
10	QPSK	25	25	19.73	19.70	19.61						
10	QPSK	50	0	19.81	19.71	19.57	21	0				
10	16QAM	1	0	20.29	20.02	20.08						
10	16QAM	1	25	20.01	20.23	20.02						
10	16QAM	1	49	19.83	20.21	19.83	21	0				
10	16QAM	25	0	19.83	19.56	19.68						
10	16QAM	25	12	19.79	19.66	19.56						
10	16QAM	25	25	19.81	19.65	19.50	21	0				
10	16QAM	50	0	19.81	19.55	19.50						
10	64QAM	1	0	20.23	19.90	20.12	21	0				
10	64QAM	1	25	20.02	19.81	20.08						
10	64QAM	1	49	20.20	20.13	19.99						
10	64QAM	25	0	19.71	19.70	19.48	21	0				
10	64QAM	25	12	19.92	19.81	19.60						
10	64QAM	25	25	19.89	19.73	19.46						
10	64QAM	50	0	19.72	19.68	19.52	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
5	QPSK	1	0	19.69	19.69	19.32	21	0				
5	QPSK	1	12	19.72	19.67	19.43						
5	QPSK	1	24	19.84	19.67	19.41						
5	QPSK	12	0	19.81	19.66	19.53	21	0				
5	QPSK	12	7	19.82	19.77	19.59						
5	QPSK	12	13	19.84	19.84	19.44						
5	QPSK	25	0	19.79	19.70	19.49	21	0				
5	16QAM	1	0	20.26	20.06	20.02						
5	16QAM	1	12	20.11	20.14	19.97						
5	16QAM	1	24	19.84	19.83	20.03	21	0				
5	16QAM	12	0	19.78	19.78	19.48						
5	16QAM	12	7	19.81	19.84	19.50						
5	16QAM	12	13	19.80	19.79	19.67	21	0				
5	16QAM	25	0	19.86	19.70	19.48						
5	64QAM	1	0	20.02	19.82	20.08	21	0				
5	64QAM	1	12	19.98	19.77	19.80						
5	64QAM	1	24	19.90	19.61	19.60						
5	64QAM	12	0	19.81	19.65	19.52	21	0				
5	64QAM	12	7	19.84	19.83	19.62						
5	64QAM	12	13	19.86	19.79	19.49						
5	64QAM	25	0	19.80	19.73	19.49	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
3	QPSK	1	0	19.63	19.59	19.26	21	0				
3	QPSK	1	8	19.62	19.61	19.39						
3	QPSK	1	14	19.60	19.57	19.35						
3	QPSK	8	0	19.77	19.60	19.43	21	0				
3	QPSK	8	4	19.76	19.67	19.55						
3	QPSK	8	7	19.74	19.78	19.40						
3	QPSK	15	0	19.75	19.60	19.43	21	0				
3	16QAM	1	0	20.22	20.00	19.92						
3	16QAM	1	8	20.05	20.04	19.93						
3	16QAM	1	14	19.74	19.77	19.99	21	0				
3	16QAM	8	0	19.74	19.68	19.42						
3	16QAM	8	4	19.77	19.78	19.40						
3	16QAM	8	7	19.74	19.69	19.63	21	0				
3	16QAM	15	0	19.76	19.64	19.44						
3	64QAM	1	0	19.96	19.72	19.82	21	0				
3	64QAM	1	8	19.84	19.71	19.50						
3	64QAM	1	14	19.84	19.61	19.56						
3	64QAM	8	0	19.73	19.57	19.48	21	0				
3	64QAM	8	4	19.77	19.75	19.57						
3	64QAM	8	7	19.82	19.71	19.41						
3	64QAM	15	0	19.75	19.66	19.42	Tune-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
1.4	QPSK	1	0	19.66	19.64	19.36	21	0				
1.4	QPSK	1	3	19.67	19.64	19.41						
1.4	QPSK	1	5	19.62	19.62	19.38						
1.4	QPSK	3	0	19.79	19.63	19.48	21	0				
1.4	QPSK	3	1	19.79	19.72	19.57						
1.4	QPSK	3	3	19.79	19.81	19.42						
1.4	QPSK	6	0	19.77	19.65	19.46	21	0				
1.4	16QAM	1	0	20.24	20.03	19.97						
1.4	16QAM	1	3	20.08	20.09	19.96						
1.4	16QAM	1	5	19.79	19.80	20.01	21	0				
1.4	16QAM	3	0	19.76	19.73	19.45						
1.4	16QAM	3	1	19.79	19.83	19.45						
1.4	16QAM	3	3	19.77	19.74	19.56	21	0				
1.4	16QAM	6	0	19.81	19.67	19.46						
1.4	64QAM	1	0	19.98	19.77	19.85	21	0				
1.4	64QAM	1	3	19.86	19.74	19.55						
1.4	64QAM	1	5	19.87	19.56	19.58						
1.4	64QAM	3	0	19.76	19.62	19.50	21	0				
1.4	64QAM	3	1	19.79	19.78	19.39						
1.4	64QAM	3	3	19.84	19.76	19.44						
1.4	64QAM	6	0	19.77	19.68	19.47	21	0				

Reduced Power Mode for Handheld On

Band 7 (200MHz Band) Part 27									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch./Freq.	Power Mid Ch./Freq.	Power High Ch./Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20850	21100	21350	23.5	0	
Frequency (MHz)				2510	2535	2560			
20	QPSK	1	0	21.97	21.91	21.99	23.5	0	
20	QPSK	1	49	21.98	21.96	21.83			
20	QPSK	1	99	21.94	21.96	21.74			
20	QPSK	50	0	22.07	21.91	21.77			
20	QPSK	50	24	22.03	22.07	22.14	23.5	0	
20	QPSK	50	50	22.11	22.11	22.09			
20	QPSK	100	0	22.07	21.95	22.08			
20	16QAM	1	0	22.31	22.34	22.35			
20	16QAM	1	49	22.14	22.12	22.20	23.5	0	
20	16QAM	1	99	22.25	22.23	22.13			
20	16QAM	50	0	22.10	22.02	22.15			
20	16QAM	50	24	22.17	22.04	22.18			
20	16QAM	50	50	22.10	22.14	22.15	23	0.5	
20	16QAM	100	0	22.08	22.01	22.09			
20	64QAM	1	0	22.20	22.19	22.07			
20	64QAM	1	49	22.22	22.10	22.07			
20	64QAM	1	99	22.31	22.18	22.23	23	0.5	
20	64QAM	50	0	21.64	21.56	21.60			
20	64QAM	50	24	21.66	21.66	21.71			
20	64QAM	50	50	21.60	21.62	21.60			
20	64QAM	100	0	21.71	21.55	21.67	22	1.5	
Channel				20825	21100	21375			
Frequency (MHz)				2507.5	2530	2562.5	Tune-up limit (dBm)	MPR (dB)	
15	QPSK	1	0	21.87	21.89	21.87	23.5	0	
15	QPSK	1	37	21.97	21.91	21.73			
15	QPSK	1	74	21.94	21.94	21.90			
15	QPSK	36	0	22.07	21.98	21.79			
15	QPSK	36	20	22.03	22.02	21.95	23.5	0	
15	QPSK	36	39	22.14	22.01	21.89			
15	QPSK	75	0	22.02	21.91	21.91			
15	16QAM	1	0	22.25	22.01	22.10			
15	16QAM	1	37	22.22	22.23	22.26	23.5	0	
15	16QAM	1	74	22.33	22.34	22.25			
15	16QAM	36	0	22.05	22.00	21.77			
15	16QAM	36	20	22.02	22.03	21.92			
15	16QAM	36	39	22.07	22.07	21.93	23	0.5	
15	16QAM	75	0	22.07	21.96	21.91			
15	64QAM	1	0	22.16	21.90	21.91			
15	64QAM	1	37	21.87	22.08	22.26			
15	64QAM	1	74	21.96	22.20	22.07	23	0.5	
15	64QAM	36	0	21.56	21.70	21.76			
15	64QAM	36	20	21.62	21.67	21.68			
15	64QAM	36	39	21.70	21.66	21.60			
15	64QAM	75	0	21.61	21.67	21.96	22	1.5	
Channel				20800	21100	21400			
Frequency (MHz)				2395	2335	2395	Tune-up limit (dBm)	MPR (dB)	
10	QPSK	1	0	21.72	21.86	21.77	23.5	0	
10	QPSK	1	25	21.67	21.70	21.78			
10	QPSK	1	49	21.84	21.68	21.62			
10	QPSK	25	0	21.79	21.72	21.55			
10	QPSK	25	12	21.81	21.75	21.69	23.5	0	
10	QPSK	25	25	21.88	21.84	21.69			
10	QPSK	50	0	21.85	21.73	21.65			
10	16QAM	1	0	22.25	22.15	22.14			
10	16QAM	1	25	22.21	22.23	22.09	23.5	0	
10	16QAM	1	49	22.21	22.17	22.09			
10	16QAM	25	0	21.78	21.77	21.60			
10	16QAM	25	12	21.88	21.72	21.62			
10	16QAM	25	25	21.92	21.76	21.65	23	0.5	
10	16QAM	50	0	21.89	21.81	21.65			
10	64QAM	1	0	22.21	22.28	22.03			
10	64QAM	1	25	21.97	21.88	22.00			
10	64QAM	1	49	22.19	22.10	22.08	23	0.5	
10	64QAM	25	0	21.88	21.72	21.68			
10	64QAM	25	12	21.84	21.79	21.67			
10	64QAM	25	25	21.91	21.85	21.67			
10	64QAM	50	0	21.86	21.51	21.64	22	1.5	
Channel				20800	21100	21400			
Frequency (MHz)				2395	2335	2395	Tune-up limit (dBm)	MPR (dB)	
5	QPSK	1	0	21.77	21.92	21.65	23.5	0	
5	QPSK	1	12	21.79	21.96	21.66			
5	QPSK	1	24	21.67	21.74	21.79			
5	QPSK	12	0	21.61	21.77	21.83			
5	QPSK	12	7	21.66	21.70	21.83	23.5	0	
5	QPSK	12	13	21.53	21.79	21.84			
5	QPSK	25	0	21.52	21.66	21.87			
5	16QAM	1	0	21.99	21.91	22.23			
5	16QAM	1	12	22.04	22.12	21.95	23.5	0	
5	16QAM	1	24	22.01	21.91	21.99			
5	16QAM	12	0	21.61	21.76	21.89			
5	16QAM	12	7	21.61	21.73	21.86			
5	16QAM	12	13	21.59	21.76	21.89	23	0.5	
5	16QAM	25	0	21.58	21.69	21.77			
5	64QAM	1	0	22.10	22.06	22.20			
5	64QAM	1	12	22.00	21.88	21.91			
5	64QAM	1	24	22.11	21.89	22.26	23	0.5	
5	64QAM	12	0	21.53	21.56	21.90			
5	64QAM	12	7	21.54	21.67	21.98			
5	64QAM	12	13	21.52	21.70	21.84			
5	64QAM	25	0	21.63	21.72	21.88	22	1.5	
Channel				20775	21100	21425			
Frequency (MHz)				2092.5	2335	2092.5	Tune-up limit (dBm)	MPR (dB)	
10	QPSK	1	0	21.72	21.86	21.77	23.5	0	
10	QPSK	1	25	21.67	21.70	21.78			
10	QPSK	1	49	21.84	21.68	21.62			
10	QPSK	25	0	21.79	21.72	21.55			
10	QPSK	25	12	21.81	21.75	21.69	23.5	0	
10	QPSK	25	25	21.88	21.84	21.69			
10	QPSK	50	0	21.85	21.73	21.65			
10	16QAM	1	0	22.25	22.15	22.14			
10	16QAM	1	25	22.21	22.23	22.09	23.5	0	
10	16QAM	1	49	22.21	22.17	22.09			
10	16QAM	25	0	21.78	21.77	21.60			
10	16QAM	25	12	21.88	21.72	21.62			
10	16QAM	25	25	21.92	21.76	21.65	23	0.5	
10	16QAM	50	0	21.89	21.81	21.65			
10	64QAM	1	0	22.21	22.28	22.03			
10	64QAM	1	25	21.97	21.88	22.00			
10	64QAM	1	49	22.19	22.10	22.08	23	0.5	
10	64QAM	25	0	21.88	21.72	21.68			
10	64QAM	25	12	21.84	21.79	21.67			
10	64QAM	25	25	21.91	21.85	21.67			
10	64QAM	50	0	21.86	21.51	21.64	22	1.5	
Channel				20800	21100	21400			
Frequency (MHz)				2395	2335	2395	Tune-up limit (dBm)	MPR (dB)	
10	QPSK	1	0	21.72	21.86	21.77	23.5	0	
10	QPSK	1	25	21.67	21.70	21.78			
10	QPSK	1	49	21.84	21.68	21.62			
10	QPSK	25	0	21.79	21.72	21.55			
10	QPSK	25	12	21.81	21.75	21.69	23.5	0	
10	QPSK	25	25	21.88	21.84	21.69			
10	QPSK	50	0	21.85	21.73	21.65			
10	16QAM	1	0	22.25	22.15	22.14			
10	16QAM	1	25	22.21	22.23	22.09	23.5	0	
10	16QAM	1	49	22.21	22.17	22.09			
10	16QAM	25	0	21.78	21.77	21.60			
10	16QAM	25	12	21.88	21.72	21.62			
10	16QAM	25	25	21.92	21.76	21.65	23	0.5	
10	16QAM	50	0	21.89	21.81	21.65			
10	64QAM	1	0	22.21	22.28	22.03			
10	64QAM	1	25	21.97	21.88	22.00			
10	64QAM	1	49	22.19	22.10	22.08	23	0.5	
10	64QAM	25	0	21.88	21.72	21.68			
10	64QAM	25	12	21.84	21.79	21.67			
10	64QAM	25	25	21.91	21.85	21.67			
10	64QAM	50	0	21.86	21.51	21.64	22	1.5	
Channel				20775	21100	21425			
Frequency (MHz)				2092.5	2335	2092.5	Tune-up limit (dBm)	MPR (dB)	
5	QPSK	1	0	21.77	21.92	21.65	23.5	0	
5	QPSK	1	12	21.79	21.96	21.66			
5	QPSK	1	24	21.67	21.74	21.79			
5	QPSK	12	0	21.61	21.77	21.83			
5	QPSK	12	7	21.66	21.70	21.83	23.5	0	
5	QPSK	12	13	21.53	21.79	21.84			
5	QPSK	25	0	21.52	21.66	21.87			
5	16QAM	1	0	21.99	21.91	22.23			
5	16QAM	1	12	22.04	22.12	21.95	23.5	0	
5	16QAM	1	24	22.01	21.91	21.99			
5	16QAM	12	0	21.61	21.76	21.89			
5	16QAM	12	7	21.61	21.73	21.86			
5	16QAM	12	13	21.59	21.76	21.89	23	0.5	
5	16QAM	25	0	21.58	21.69	21.77			
5	64QAM	1	0	22.10	22.06	22.20			
5	64QAM	1	12	22.00	21.88	21.91			
5	64QAM	1	24	22.11	21.89	22.26	23	0.5	
5	64QAM	12	0	21.53	21.56	21.90			
5	64QAM	12	7	21.54	21.67	21.98			
5	64QAM	12	13	21.52	21.70	21.84			
5	64QAM	25	0	21.63	21.72	21.88	22	1.5	
Channel				20750	21100	21450			
Frequency (MHz)				2090.5	2335	2090.5	Tune-up limit (dBm)	MPR (dB)	
3	QPSK	1	0	20.59	20.62	20.72	21.5	0	
3	QPSK	1	8	20.31	20.54	20.62			
3	QPSK	1	14	20.44	20.47	20.60			
3	QPSK	8	0	20.48	20.77	20.85			
3	QPSK	8	4	20.61	20.75	20.73	21.5	0	
3	QPSK	8	7	20.51	20.70	20.83			
3	QPSK	15	0	20.57	20.47	20.93			
3	16QAM	1	0	20.83	21.08	21.26			
3	16QAM	1	8	20.80	21.11	21.00	21.5	0	
3	16QAM	1	14	20.88	20.76	21.11			
3	16QAM	8	0	20.53	20.89	20.86			
3	16QAM	8	4	20.71	20.75	20.81	21.5	0	
3	16QAM	8	7	20.57	20.72	20.82			
3	16QAM	15	0	20.63	20.67	20.82			
3									

CA Uplink

Full Power										
CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
21350	21152	QPSK	1	0	0	0	1	0	23.66	24

Reduced Power Mode for P-Sensor On										
CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
21100	20902	QPSK	1	0	0	0	1	0	17.41	19

Reduced Power Mode for Hotspot On										
CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	14.47	16
21100	20902	QPSK	1	0	0	0	1	0	14.56	16
21350	21152	QPSK	1	0	0	0	1	0	14.72	16

Reduced Power for Handheld On										
CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
21100	20902	QPSK	1	0	0	0	1	0	22.01	23.5

Full Power

<Inter-Band for Three Carrier Combination> (three bands)

Configure		PCC						SCC1				SCC2				Power		
		LTE	BW	UL	Channel	Mod.	UL#	UL	LTE	BW	DL	DL	LTE	BW	DL	DL	With CA	Without CA
		Band	(MHz)	Freq.			RB	RB	Band	(MHz)	Freq.	Channel	Band	(MHz)	Freq.	Channel	Tx. Power	Tx. Power
				(MHz)				Offset			(MHz)				(dBm)		(dBm)	
Inter-Band	CA_2A-4A-5A	Band 2	20M	1880	18900	16QAM	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	23.62	23.94
		Band 4	20M	1745	20300	16QAM	1	99	Band 5	10M	881.5	2525	Band 2	20M	1960	900	23.23	23.88
		Band 5	10M	836.5	20525	16QAM	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.82	23.52

Reduced Power Mode for P-Sensor On

<Inter-Band for Three Carrier Combination> (three bands)

Configure		PCC							SCC1				SCC2				Power	
		LTE	BW	UL	UL	Mod.	UL#	UL	LTE	BW	DL	DL	LTE	BW	DL	DL	With CA	Without CA
		Band	(MHz)	Freq	Channel		RB	RB	Band	(MHz)	Freq	Channel	Band	(MHz)	Freq	Channel	Tx. Power	Tx. Power
				(MHz)				Offset			(MHz)				(MHz)		(dBm)	(dBm)
Inter-Band	CA_2A-4A-5A	Band 2	20M	1880	18900	16QAM	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	16.62	16.89
		Band 4	20M	1745	20300	16QAM	1	99	Band 5	10M	881.5	2525	Band 2	20M	1960	900	16.43	16.91
		Band 5	10M	836.5	20525	16QAM	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.78	23.52

Reduced Power Mode for Hotspot On

<Inter-Band for Three Carrier Combination> (three bands)

Configure		PCC							SCC1				SCC2				Power	
		LTE	BW	UL	Channel	Mod.	UL#	UL	LTE	BW	DL	DL	LTE	BW	DL	DL	With CA	Without CA
		Band	(MHz)	Freq.			RB	RB	Band	(MHz)	Freq.	Channel	Band	(MHz)	Freq.	Channel	Tx. Power	Tx. Power
				(MHz)				Offset			(MHz)				(dBm)		(dBm)	
Inter-Band	CA_2A-4A-5A	Band 2	20M	1880	18900	16QAM	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	14.12	14.45
		Band 4	20M	1745	20300	16QAM	1	99	Band 5	10M	881.5	2525	Band 2	20M	1960	900	15.33	15.35
		Band 5	10M	836.5	20525	16QAM	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.76	23.52

Reduced Power for Handheld On

<Inter-Band for Three Carrier Combination> (three bands)

Configure		POC						SCC1				SCC2				Power		
		LTE	BW	UL	UL	Mod.	UL#	UL	LTE	BW	DL	DL	LTE	BW	DL	DL	With CA	Without CA
		Band	(MHz)	Freq	Channel		RB	RB	Band	(MHz)	Freq	Channel	Band	(MHz)	Freq	Channel	Tx. Power	Tx. Power
				(MHz)				(MHz)			(MHz)				(dBm)		(dBm)	
Inter-Band	CA_2A-4A-5A	Band 2	20M	1880	18900	16QAM	1	0	Band 4	20M	2132.5	2175	Band 5	10M	881.5	2525	20.11	20.39
		Band 4	20M	1745	20300	16QAM	1	0	Band 5	10M	881.5	2525	Band 2	20M	1960	900	20.95	21.25
		Band 5	10M	836.5	20525	16QAM	1	0	Band 2	20M	1960	900	Band 4	20M	2132.5	2175	22.82	23.52



2.4GHz WLAN MIMO	Full Power					
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11b 1Mbps	1	2412	22.58	23.00	100.00
		6	2437	21.94	23.00	
		11	2462	22.07	23.00	
	802.11g 6Mbps	1	2412	20.18	21.00	98.28
		6	2437	19.56	21.00	
		11	2462	19.71	21.00	
	802.11n-HT20 MCS0	1	2412	19.96	21.00	98.16
		6	2437	19.35	21.00	
		11	2462	19.54	21.00	

5GHz WLAN MIMO	Full Power					
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	19.21	20.50	98.28
		40	5200	19.68	20.50	
		44	5220	20.13	21.00	
		48	5240	20.71	21.00	
	802.11n-HT20 MCS0	36	5180	18.12	18.50	98.16
		40	5200	18.50	19.50	
		44	5220	19.02	19.50	
		48	5240	19.55	20.00	
	802.11n-HT40 MCS0	38	5190	14.35	15.00	96.32
		46	5230	19.68	20.00	
	802.11ac-VHT20 MCS0	36	5180	18.08	18.00	98.16
		40	5200	18.45	19.00	
		44	5220	19.05	19.50	
		48	5240	19.51	20.00	
	802.11ac-VHT40 MCS0	38	5190	14.42	15.00	96.32
		46	5230	19.72	20.50	
	802.11ac-VHT80 MCS0	42	5210	12.47	13.00	93.35

5GHz WLAN MIMO	Full Power					
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	19.95	21.00	98.28
		56	5280	19.70	21.00	
		60	5300	19.29	20.50	
		64	5320	19.09	20.50	
	802.11n-HT20 MCS0	52	5260	18.76	19.00	98.16
		56	5280	18.56	19.00	
		60	5300	18.00	18.50	
		64	5320	18.04	18.50	
	802.11n-HT40 MCS0	54	5270	19.10	19.50	96.32
		62	5310	16.63	17.00	
	802.11ac-VHT20 MCS0	52	5260	18.76	19.00	98.16
		56	5280	18.54	19.00	
		60	5300	18.10	18.50	
		64	5320	18.01	18.50	
	802.11ac-VHT40 MCS0	54	5270	19.18	19.50	96.32
		62	5310	16.61	17.00	
	802.11ac-VHT80 MCS0	58	5290	14.01	14.50	93.35

5GHz WLAN MIMO	Full Power					
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5550	20.35	20.50	98.28
		116	5580	20.42	21.00	
		124	5620	19.75	20.00	
		132	5660	19.49	20.00	
		140	5700	19.39	20.00	
	802.11n-HT20 MCS0	100	5550	19.25	19.50	98.16
		116	5580	19.26	19.50	
		124	5620	18.74	19.00	
		132	5660	18.41	18.50	
		140	5700	18.41	19.00	
	802.11n-HT40 MCS0	102	5510	17.34	17.50	96.32
		110	5550	20.18	21.00	
		126	5630	19.02	19.50	
		134	5670	18.82	19.00	
	802.11ac-VHT20 MCS0	100	5500	19.29	19.50	98.16
		116	5580	19.18	19.50	
		124	5620	18.69	19.00	
		132	5660	18.35	18.50	
		140	5700	18.36	18.50	
	802.11ac-VHT40 MCS0	102	5510	17.31	17.50	96.32
		110	5550	20.11	20.50	
		126	5630	18.94	19.50	
		134	5670	18.70	19.00	
		106	5530	15.03	15.50	93.35
	802.11ac-VHT80 MCS0	122	5610	17.86	18.50	

5GHz WLAN MIMO	Full Power					
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	148	5745	19.92	20.00	98.28
		157	5795	19.73	20.00	
		165	5825	19.61	20.00	
	802.11n-HT20 MCS0	148	5745	18.53	19.00	98.16
		157	5795	18.53	19.00	
		165	5825	18.50	19.00	
	802.11n-HT40 MCS0	151	5755	19.23	19.50	96.32
		159	5795	18.90	19.00	
	802.11ac-VHT20 MCS0	148	5745	18.87	19.00	98.16
		157	5795	18.54	19.00	
		165	5825	18.45	19.00	
	802.11ac-VHT40 MCS0	151	5755	19.15	19.50	96.32
		159	5795	18.94	19.00	
	802.11ac-VHT80 MCS0	155	5775	17.58	18.00	93.35

2.4GHz WLAN MIMO	Sensor On					
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11b 1Mbps	1	2412	19.03	19.50	100.00
		6	2437	18.36	19.50	
		11	2462	18.42	19.50	
	802.11g 6Mbps	1	2412	Not Required	19.50	98.28
		6	2437		19.50	
		11	2462		19.50	
	802.11n-HT20 MCS0	1	2412	Not Required	19.50	98.16
		6	2437		19.50	
		11	2462		19.50	

5GHz WLAN MIMO	Sensor On					
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	Not Required	17.50	98.28
		40	5200		17.50	
		44	5220		17.50	
		48	5240		17.50	
	802.11n-HT20 MCS0	36	5180		17.50	98.16
		40	5200		17.50	
		44	5220		17.50	
		48	5240		17.50	
	802.11n-HT40 MCS0	38	5190		15.00	96.32
		46	5230		17.50	
	802.11ac-VHT20 MCS0	36	5180		17.50	98.16
		40	5200		17.50	
		44	5220		17.50	
		48	5240		17.50	
	802.11ac-VHT40 MCS0	38	5190		15.00	96.32
		46	5230		17.50	
	802.11ac-VHT80 MCS0	42	5210		13.00	93.35

5GHz WLAN MIMO	Sensor On					
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	Not Required	17.50	98.28
		56	5280		17.50	
		60	5300		17.50	
		64	5320		17.50	
	802.11n-HT20 MCS0	52	5260		17.50	98.16
		56	5280		17.50	
		60	5300		17.50	
		64	5320		17.50	
	802.11n-HT40 MCS0	54	5270		17.00	96.32
		62	5310		16.63	
	802.11ac-VHT20 MCS0	52	5260		17.50	98.16
		56	5280		17.50	
		60	5300		17.50	
		64	5320		17.50	
	802.11ac-VHT40 MCS0	54	5270		17.50	96.32
		62	5310		17.00	
	802.11ac-VHT80 MCS0	58	5290		14.50	93.35

5GHz WLAN MIMO	Sensor On					
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm) [+2]	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5550	Not Required	17.50	98.28
		116	5580		17.50	
		124	5620		17.50	
		132	5660		17.50	
		140	5700		17.50	
	802.11n-HT20 MCS0	100	5550		17.50	98.16
		116	5580		17.50	
		124	5620		17.50	
		132	5660		17.50	
		140	5700		17.50	
	802.11n-HT40 MCS0	102	5510		17.34	96.32
		110	5550		17.14	
		126	5630		16.04	
		134	5670		15.72	
	802.11ac-VHT20 MCS0	100	5500	Not Required	17.50	98.16
		116	5580		17.50	
		124	5620		17.50	
		132	5660		17.50	
		140	5700		17.50	
	802.11ac-VHT40 MCS0	102	5510		17.50	96.32
		110	5550		17.50	
		126	5630		17.50	
802.11ac-VHT80 MCS0	134	5670	17.50	93.35		
	106	5530	15.03			
	122	5610	16.28			

Bluetooth BR/EDR

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	11.40	11.50	10.89
	CH 39	2441	11.87	11.59	11.29
	CH 78	2480	11.37	10.77	10.52
Tune-up Limit			12	12	12

Bluetooth LE v4.0

Mode	Channel	Frequency (MHz)	Average power (dBm)
LE	CH 00	2402	3.09
	CH 19	2440	3.85
	CH 39	2480	3.65
Tune-up Limit			5

Bluetooth LE v5.0

Mode	Channel	Frequency (MHz)	Average power (dBm)
LE	CH 00	2402	3.50
	CH 19	2440	3.86
	CH 39	2480	3.55
Tune-up Limit			5



Appendix F. Supplemental Tuner Head & Body SAR Results

The results are shown as follows.

Head

Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 123)	0	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
WCDMA II	RMC12.2K	1852.4	9262	N/A	N/A	Left Cheek	0 mm	0.084	0.116		0.042	0.089	0.013	0.080	0.023	0.070	0.089	0.070	0.042	0.051	0.080	0.013	0.004	0.070	0.070	0.099
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 81)	1	10	19	28	37	46	55	64	73	82	91	100	109	118	127	136
WCDMA IV	RMC12.2K	1732.6	1413	N/A	N/A	Right Cheek	0 mm	0.117	0.154		0.134	0.134	0.039	0.039	0.039	0.096	0.087	0.049	0.011	0.049	0.087	0.030	0.020	0.096	0.096	0.144
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 33)	2	11	20	29	38	47	56	65	74	83	92	101	110	119	128	137
WCDMA V	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.148	0.180		0.138	0.072	0.110	0.024	0.034	0.110	0.157	0.119	0.053	0.081	0.072	0.015	0.100	0.129	0.129	0.034
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 14)	3	12	21	30	39	48	57	66	75	84	93	102	111	120	129	138
LTE Band 2	QPSK	1880	18900	1	0	Left Cheek	0 mm	0.104	0.141		0.073	0.120	0.016	0.025	0.006	0.016	0.120	0.016	0.054	0.120	0.025	0.016	0.092	0.035	0.006	0.035
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 33)	4	13	22	31	40	49	58	67	76	85	94	103	112	121	130	139
LTE Band 7	QPSK	2560	21350	1	0	Right Cheek	0 mm	0.062	0.095		0.009	0.047	0.056	0.085	0.028	0.009	0.028	0.056	0.066	0.056	0.047	0.075	0.085	0.075	0.037	0.028
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 33)	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140
LTE Band 12	QPSK	707.5	23095	1	0	Right Cheek	0 mm	0.162	0.185		0.150	0.036	0.102	0.159	0.150	0.017	0.112	0.159	0.064	0.055	0.007	0.083	0.007	0.083	0.083	0.036
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 81)	6	15	24	33	42	51	60	69	78	87	96	105	114	123	132	141
LTE Band 26	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.114	0.136		0.116	0.059	0.069	0.040	0.059	0.012	0.021	0.040	0.040	0.116	0.040	0.040	0.012	0.088	0.031	0.107
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 33)	7	16	25	34	43	52	61	70	79	88	97	106	115	124	133	142
LTE Band 41	QPSK	2593	40620	1	0	Right Cheek	0 mm	0.045	0.069		0.036	0.045	0.017	0.055	0.055	0.055	0.007	0.007	0.017	0.017	0.007	0.007	0.055	0.036	0.026	0.055
Mode	Service/ Modulati on	Frequenc y (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measure d 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto- Tune	Default (State 14)	8	17	26	35	44	53	62	71	80	89	98	107	116	125	134	143
LTE Band 66	QPSK	1745	132322	1	0	Right Cheek	0 mm	0.138	0.183		0.112	0.074	0.027	0.017	0.036	0.017	0.103	0.065	0.055	0.131	0.160	0.103	0.027	0.027	0.131	0.150

Body																									
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 109)	0	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
WCDMA B2	RMCI2.2K	1907.6	9538	N/A	N/A	Bottom Side	5mm	0.964	1.280	0.827	0.951	0.894	1.084	1.018	0.113	0.522	0.151	0.979	0.418	0.818	0.465	0.875	0.827	0.656	0.132
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 08)	1	10	19	28	37	46	55	64	73	82	91	100	109	118	127	136
WCDMA B4	RMCI2.2K	1752.6	1513	N/A	N/A	Back	5mm	1.25	2.000	1.058	1.087	0.230	1.201	1.039	0.258	1.811	1.201	0.335	0.706	0.858	1.744	1.297	0.658	0.801	1.382
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 31)	2	11	20	29	38	47	56	65	74	83	92	101	110	119	128	137
WCDMA B5	RMCI2.2K	836.4	4182	N/A	N/A	Back	5mm	1.15	1.860	0.677	1.515	0.448	0.420	1.791	1.077	0.858	0.944	0.677	0.706	1.820	0.410	1.048	0.220	1.144	0.915
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 109)	3	12	21	30	39	48	57	66	75	84	93	102	111	120	129	138
LTE Band 2	QPSK	1880	18900	50	50	Front	5mm	1.08	1.580	0.770	0.379	0.122	1.198	0.408	1.294	1.389	1.027	1.284	1.046	0.751	0.751	0.284	0.722	1.246	0.313
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 72)	4	13	22	31	40	49	58	67	76	85	94	103	112	121	130	139
LTE Band 7	QPSK	2535	21100	1	0	Front	5mm	0.816	1.530	1.088	0.459	0.268	1.002	0.316	0.916	0.316	0.773	0.726	0.364	0.240	0.078	1.126	0.345	0.935	0.373
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 36)	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140
LTE Band 12	QPSK	707.5	23095	1	0	Back	5mm	0.845	1.370	0.860	0.298	0.422	1.032	0.784	0.879	0.460	1.222	0.803	0.403	0.165	0.270	0.632	1.298	0.394	1.184
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 14)	6	15	24	33	42	51	60	69	78	87	96	105	114	123	132	141
LTE Band 26	QPSK	831.5	26865	1	0	Back	5mm	1.09	1.690	0.638	0.114	0.723	1.238	1.257	0.885	0.504	0.390	0.247	0.895	0.971	0.933	1.333	0.114	0.095	1.552
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 72)	7	16	25	34	43	52	61	70	79	88	97	106	115	124	133	142
LTE Band 41	QPSK	2593	40620	50	24	Front	5mm	0.95	1.640	0.424	0.824	0.672	1.281	0.767	0.405	0.605	1.424	0.291	0.300	0.110	1.196	1.015	0.615	1.158	0.234
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																
									Auto-Tune (State 72)	8	17	26	35	44	53	62	71	80	89	98	107	116	125	134	143
LTE Band 66	QPSK	1770	132572	1	0	Back	13mm	1.15	1.640	1.428	0.228	1.390	1.066	0.418	1.285	1.085	0.647	1.209	1.352	0.990	1.095	0.790	1.142	0.333	0.685



Body-verified for SAR higher than 1.2W/Kg																													
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									Auto-Tune	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
WCDMA II	RMC12.2K	1907.6	9538	N/A	N/A	Bottom Side	5mm	0.964	1.280	0.827	0.637	1.151	1.018	1.056	0.675	0.503	0.789	0.798	0.951	0.989	0.656	0.827	0.837	0.932	0.465	1.103	0.103	0.894	1.008
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									1.008	0.389	0.065	0.494	0.722	1.103	0.903	1.084	0.827	0.398	0.275	0.960	1.008	1.132	0.837	0.970	1.018	0.418	0.475	0.598	0.065
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									0.837	0.275	0.398	1.046	0.113	0.808	0.494	0.189	0.570	0.589	1.046	0.608	0.589	0.522	0.170	0.065	0.798	0.503	0.198	0.398	0.446
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									1.151	0.151	1.132	0.760	0.084	1.056	0.789	0.970	0.989	0.798	0.979	0.275	0.332	0.475	0.465	0.941	0.256	0.160	0.656	0.418	0.484
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
									0.313	0.103	1.084	0.351	0.275	0.932	0.694	0.818	0.065	0.789	0.094	0.875	0.341	1.113	0.256	0.322	0.465	0.227	1.170	1.094	1.103
									104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
									0.589	0.065	0.637	0.446	0.875	1.210	0.522	0.827	0.741	0.418	0.637	0.084	0.237	0.827	1.094	1.103	0.503	0.170	1.122	0.437	0.437
									125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143		
									1.018	0.656	0.989	0.351	0.618	0.541	0.722	1.046	0.637	0.446	0.132	0.903	0.541	0.875	0.189	0.370	0.170	0.532	0.513		
WCDMA IV	RMC12.2K	1752.6	1513	N/A	N/A	Back	5mm	1.125	2.000	1.030	1.058	1.830	1.449	1.382	1.297	1.020	1.506	1.870	0.630	1.087	0.411	0.554	1.601	0.411	1.144	0.716	1.182	0.620	0.230
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									1.230	0.725	1.173	1.049	0.620	1.201	0.239	1.258	1.201	1.868	0.849	0.916	1.649	0.163	0.411	1.487	0.678	1.039	0.916	1.106	1.601
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									0.506	1.830	0.125	0.525	0.325	0.258	1.763	0.287	1.820	1.401	1.030	1.011	1.468	1.258	1.811	1.278	0.839	0.106	0.744	1.525	1.744
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									0.116	0.630	1.201	1.468	0.516	1.316	1.839	0.230	0.630	1.363	1.354	0.335	0.097	1.554	0.116	1.001	1.687	0.382	0.935	1.697	0.706
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
									0.649	0.458	1.230	0.554	0.763	1.068	1.849	1.592	0.858	1.049	0.097	0.144	0.658	1.173	0.592	0.163	1.792	1.744	1.430	0.125	0.725
									104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
									1.078	1.601	0.620	0.782	1.058	1.297	1.744	0.916	0.163	1.449	0.535	1.411	1.706	0.611	0.658	1.716	0.258	1.563	0.658	1.620	0.097
									125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143		
									1.468	1.220	0.801	1.078	1.106	0.782	1.773	0.554	0.744	1.163	0.744	1.382	1.754	1.411	1.182	0.830	1.706	0.506	1.116		
WCDMA V	RMC12.2K	836.4	4182	N/A	N/A	Back	5mm	1.115	1.860	1.134	0.210	0.677	0.496	1.439	1.287	1.001	1.239	1.087	1.248	0.248	1.515	1.344	1.563	0.906	0.925	0.648	0.620	0.477	0.944
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									0.448	1.506	1.668	1.039	0.763	1.153	0.544	1.182	1.134	0.420	0.191	1.860	1.010	0.182	0.972	0.115	1.715	1.725	1.791	0.410	0.782
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									1.429	1.315	0.668	0.258	1.677	0.506	1.077	0.268	1.248	1.791	0.229	1.363	1.096	0.791	1.182	0.858	1.277	0.353	0.868	0.915	1.668
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									0.325	0.668	1.382	0.944	1.820	0.172	0.629	0.391	0.210	1.725	0.153	0.125	0.677	0.353	1.296	0.772	0.591	0.687	0.277	1.477	0.858
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
									0.706	1.582	0.639	0.572	0.820	1.648	0.448	1.715	0.525	1.820	1.029	1.068	0.353	1.325	0.820	0.839	0.782	0.810	0.410	0.763	0.268
									104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
									0.925	1.848	1.258	1.848	1.801	1.020	1.048	1.858	1.429	1.810	1.591	0.448	0.677	0.458	0.334	0.220	1.296	0.915	1.677	1.477	0.487
									125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143		
									1.677	1.429	0.372	1.144	1.458	1.229	1.048	0.344	1.039	1.601	0.629	0.801	0.915	0.458	0.296	1.496	0.896	1.572	0.420		
LTE Band 2	QPSK	1880	18900	50	50	Front	5mm	1.108	1.580	0.846	1.246	0.846	0.770	1.227	0.446	1.075	0.637	0.779	1.179	0.865	0.646	0.379	1.141	0.637	1.227	0.198	0.170	0.884	0.237
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									1.122	0.122	0.608	0.722	0.313	1.113	1.389	1.341	0.427	0.437	1.198	1.389	1.322	1.256	1.265	1.389	0.684	1.256	0.570	0.408	0.065
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									0.170	0.398	0.418	0.465	1.037	0.227	1.103	1.294	1.237	0.332	0.313	0.951	1.018	1.008	0.751	1.141	1.389	0.618	0.979	1.332	0.541
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									0.951	0.513	0.151	0.656	1.027	1.313	0.875	1.075	0.951	1.284	1.389	0.103	0.427	1.284	0.960	1.189	0.494	1.360	1.351	1.094	0.646
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
									0.998	1.046	0.856	0.494	0.275	0.151	0.656	0.503	0.408	0.389	0.751	1.360	1.065	0.198	1.275	1.351	1.037	0.084	1.141	0.751	0.275
									104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
									0.713	0.307	0.827	1.160	0.570	1.410	1.048	0.284	1.189	0.170	0.208	0.646	0.608	1.170	0.884	0.220	0.722	1.341	0.894	0.351	0.265
									125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143		
									1.398	1.208	0.646	1.144	1.246	1.332	0.894	1.351	0.551	0.989	0.808	1.294	0.915	0.313	0.484	1.332	1.189	0.646	0.989		
LTE Band 7	QPSK	2535	21100	1	0	Front	5mm	0.816	1.530	0.507	0.288	0.897	1.183	1.088	0.468	0.859	1.011	0.211	1.059	0.297	0.630	0.926	0.459	1.345	1.192	1.173	0.764	0.545	1.288
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									1.421	1.240	0.168	1.278	1.154	1.468	1.221	0.611	0.564	0.583	1.259	1.002	1.221	0.202	1.173	0.192	0.659	1.449	1.021	1.097	0.316
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									0.373	0.126	0.649	1.068	0.707	1.145	1.211	1.154	0.916	1.049	0.630	0.649	1.088	0.440	0.621	0.516	0.107	0.316	0.488	0.878	0.307
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									0.630	0.488	1.421	0.097	1.354	0.773	1.430	0.983	0.783	1.440	1.480	0.916	0.259	1.345	0.726	1.097	0.526	0.545	0.192	0.830	0.211
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100			

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured Ig SAR (W/kg)	Average Value of Time Sweep (W/kg)																				
									Auto-Tune	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LTE Band 26	QPSK	831.5	26865	1	0	Back	5mm	1.09	1.690	0.428	1.057	1.009	1.542	1.142	0.695	0.638	0.618	0.352	1.428	0.733	0.180	1.085	0.857	1.630	0.114	0.152	0.933	1.438	1.542
									20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
									1.085	1.276	1.238	1.142	0.723	0.123	0.714	0.885	0.485	1.047	1.485	0.695	0.228	1.238	0.780	1.561	1.495	0.580	0.123	1.085	1.104
									41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
									0.142	1.257	1.552	0.628	0.771	1.409	1.561	0.952	1.057	1.171	0.885	1.618	1.038	1.228	0.190	1.571	0.228	1.571	1.352	0.504	1.161
									62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
									0.295	1.323	0.190	0.323	0.990	1.561	0.933	0.390	1.409	0.676	0.790	0.485	0.809	1.533	1.571	0.438	0.247	0.961	1.152	0.799	1.018
									83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
									1.428	1.304	0.628	1.618	0.895	0.723	0.714	1.257	0.123	0.333	1.161	0.866	1.161	0.971	1.618	1.399	1.238	0.333	1.628	0.161	0.790
									104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
									0.418	0.933	1.561	0.961	0.952	0.590	1.095	0.657	1.352	1.104	1.333	0.942	0.266	1.057	0.476	1.352	0.285	0.161	1.333	0.114	0.752
									125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143		
									0.428	0.733	0.990	0.742	1.190	0.152	1.257	0.095	1.361	1.323	0.666	1.190	0.380	1.180	1.104	0.571	1.552	1.009	0.904		