D2450V2, Serial No. 924 Extended Dipole Calibrations

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

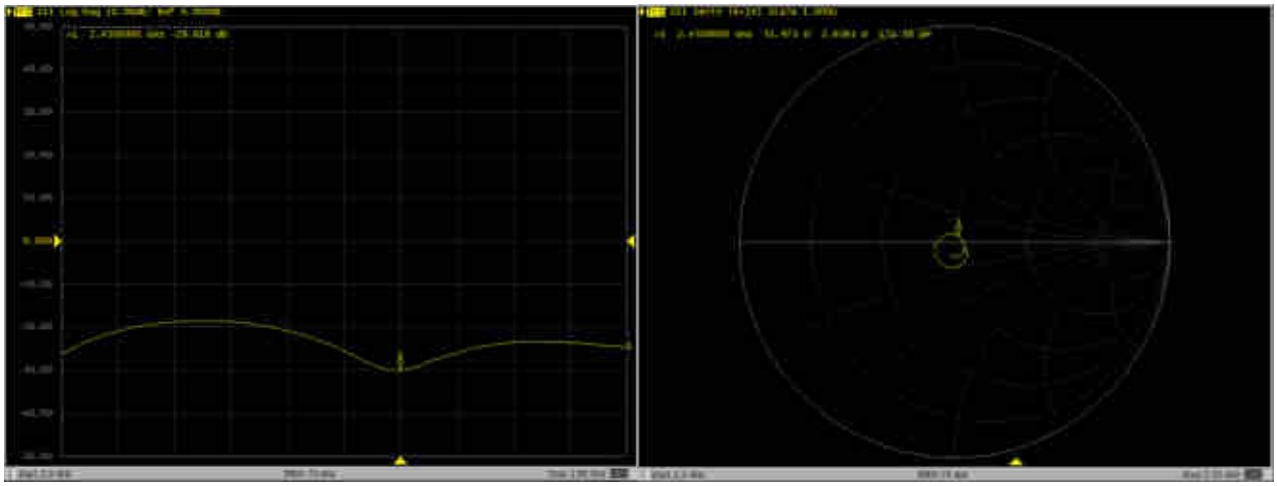
D2450V2 – serial no. 924												
	2450 Head						2450 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2019.04.15	-29.9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

<Justification of the extended calibration>

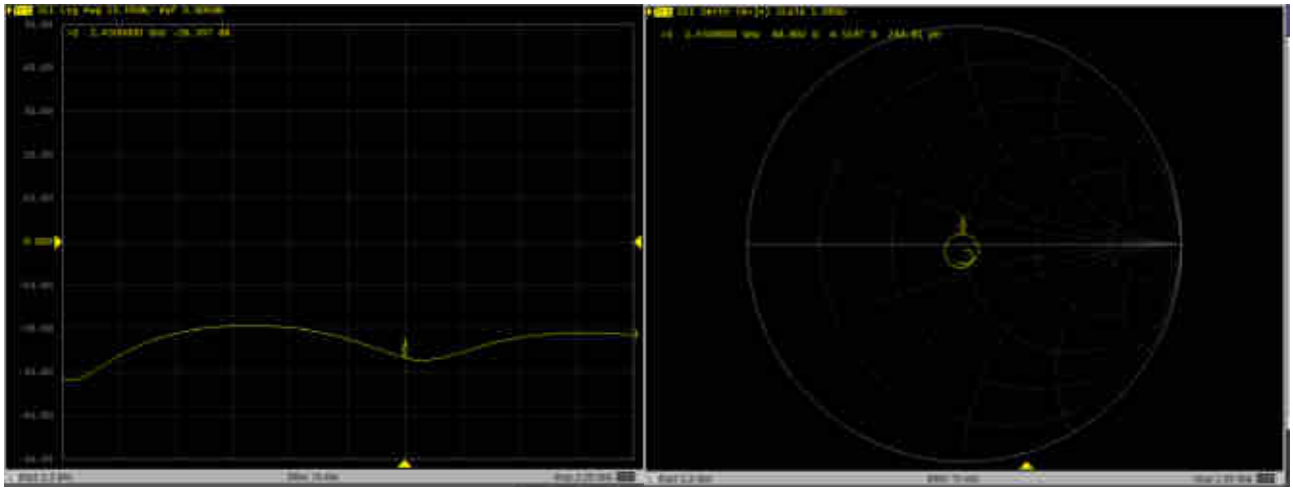
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D2450V2, serial no. 924

2450MHz - Head



2450MHz – Body



In Collaboration with
speag
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **Sporton** **Certificate No: Z18-60537**

CALIBRATION CERTIFICATE

Object D2600V2 - SN: 1070

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

Calibration date: December 7, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: December 10, 2018

In Collaboration with
speag
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) 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

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) 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%.

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

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

Head TSL parameters

The following parameters and calculations were applied.

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

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**58.1 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.50 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**26.1 mW /g ± 18.7 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

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

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**54.6 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	6.18 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.6 mW /g ± 18.7 % (k=2)**

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix(Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

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

Antenna Parameters with Body TSL

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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.015 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 2600 MHz; σ = 1.926 S/m; ε_r = 39.1; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(6.92, 6.92, 6.92) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

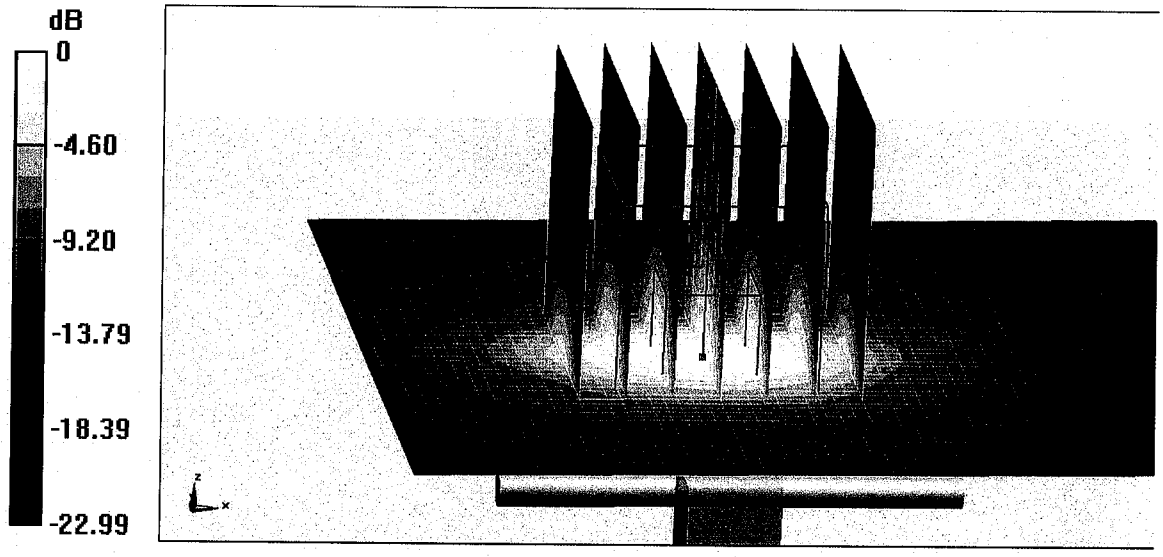
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

Peak SAR (extrapolated) = 31.1 W/kg

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

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

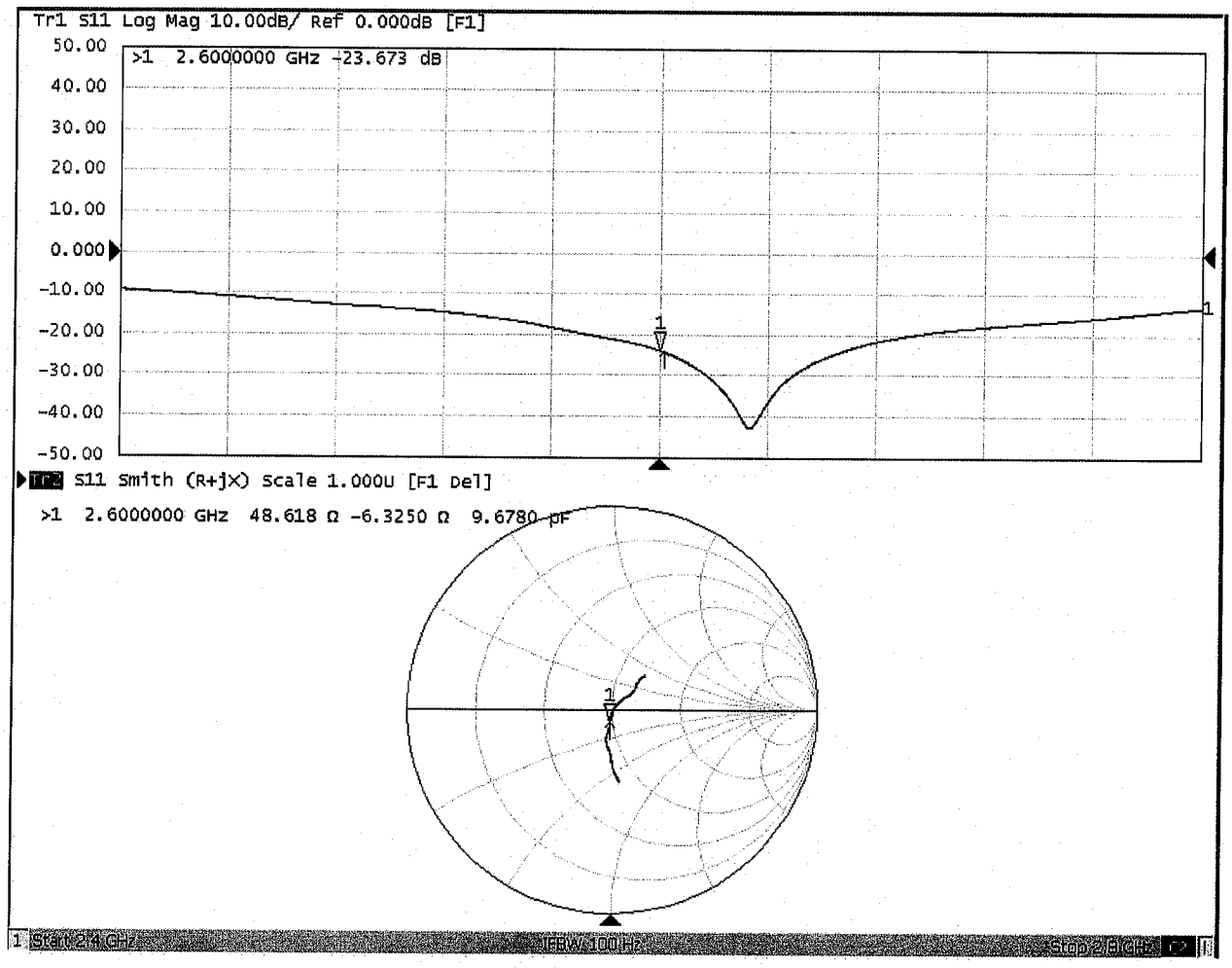


0 dB = 24.7 W/kg = 13.93 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Head TSL



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Body TSL Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 2600 MHz; σ = 2.181 S/m; ε_r = 51.03; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.06, 7.06, 7.06) @ 2600 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

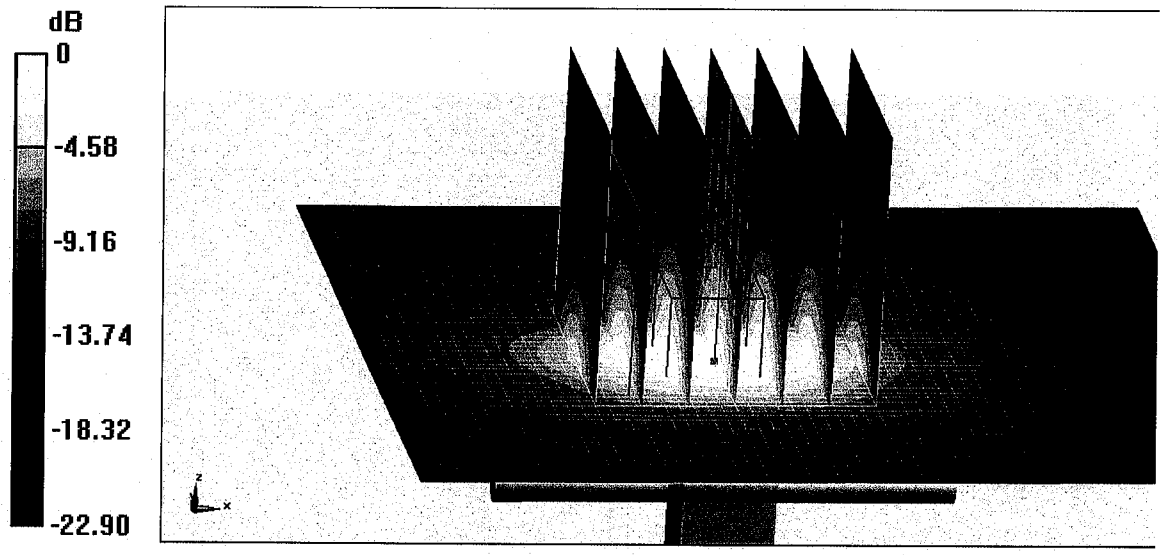
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

Peak SAR (extrapolated) = 29.5 W/kg

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

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

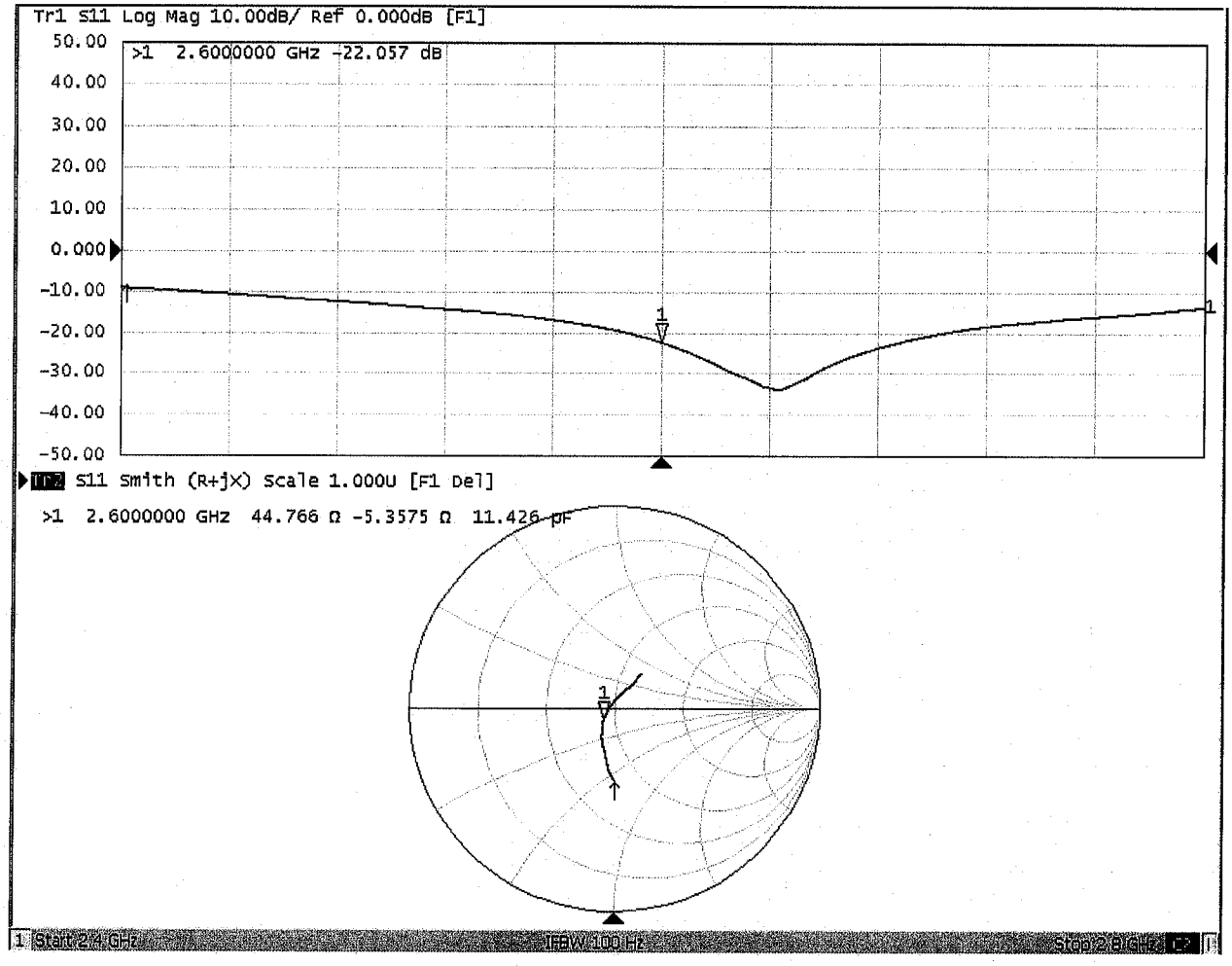


0 dB = 23.6 W/kg = 13.73 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Body TSL



D2600V2, Serial No. 1070 Extended Dipole Calibrations

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

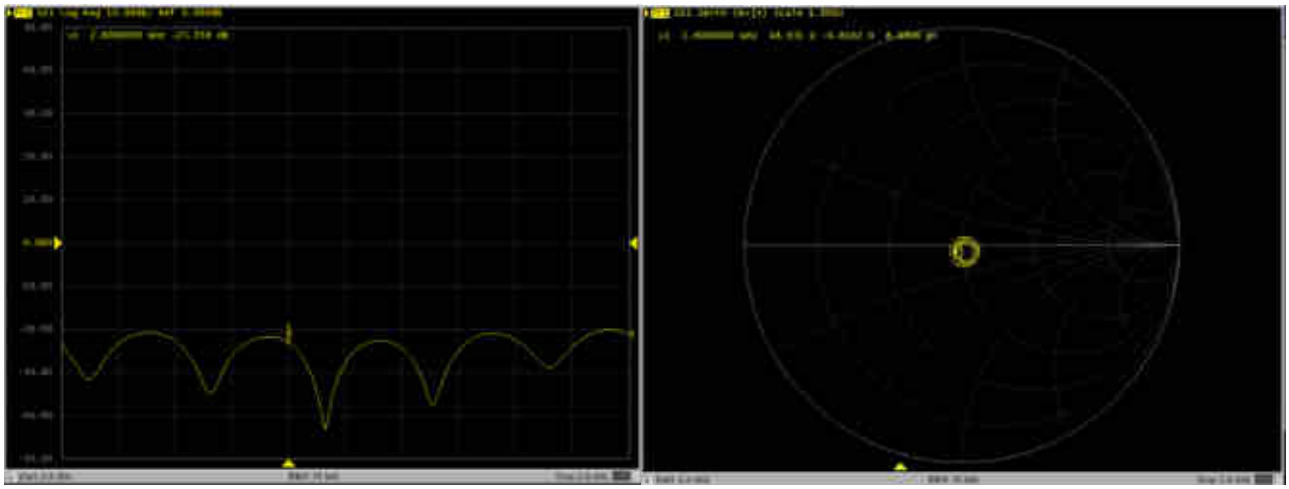
D2600V2 – serial no. 1070												
	2600 Head						2600 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.12.7	-23.7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

<Justification of the extended calibration>

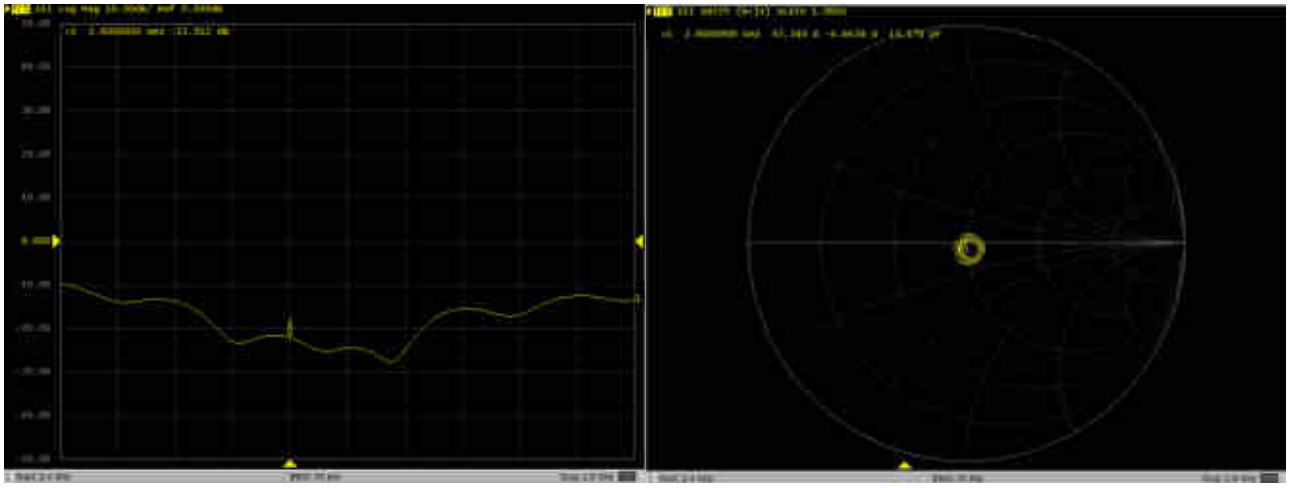
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D2600V2, serial no. 1070

2600MHz - Head



2600MHz – Body



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **Sporton** **Certificate No: Z18-60259**

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1167

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

Calibration date: August 03, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: August 6, 2018

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) 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

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) 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%.

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

DASY Version	DASY52	52.10.1.1476
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 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 ± 0.2) °C	35.9 ± 6 %	4.82 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5250 MHz

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5600 MHz

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

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5750 MHz

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

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

SAR result with Body TSL at 5250 MHz

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

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

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

SAR result with Body TSL at 5600 MHz

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

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

SAR result with Body TSL at 5750 MHz

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

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.3Ω - 9.42jΩ
Return Loss	- 20.6dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	58.1Ω - 7.15jΩ
Return Loss	- 20.0dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	53.5Ω - 7.66jΩ
Return Loss	- 21.8dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	49.5Ω - 7.40jΩ
Return Loss	- 22.6dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.0Ω - 6.37jΩ
Return Loss	- 20.5dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	54.5Ω - 7.07jΩ
Return Loss	- 21.9dB

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

General Antenna Parameters and Design

Electrical Delay (one direction)	1.065 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL Date: 07.27.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 5250 MHz; σ = 4.822 S/m; εr = 35.92; ρ = 1000 kg/m3, Medium parameters used: f = 5600 MHz; σ = 5.184 S/m; εr = 35.14; ρ = 1000 kg/m3, Medium parameters used: f = 5750 MHz; σ = 5.365 S/m; εr = 34.88; ρ = 1000 kg/m3,

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(5.68, 5.68, 5.68) @ 5250 MHz; Calibrated: 9/12/2017, ConvF(4.98, 4.98, 4.98) @ 5600 MHz; Calibrated: 9/12/2017, ConvF(5.04, 5.04, 5.04) @ 5750 MHz; Calibrated: 9/12/2017,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1524; Calibrated: 9/13/2017
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

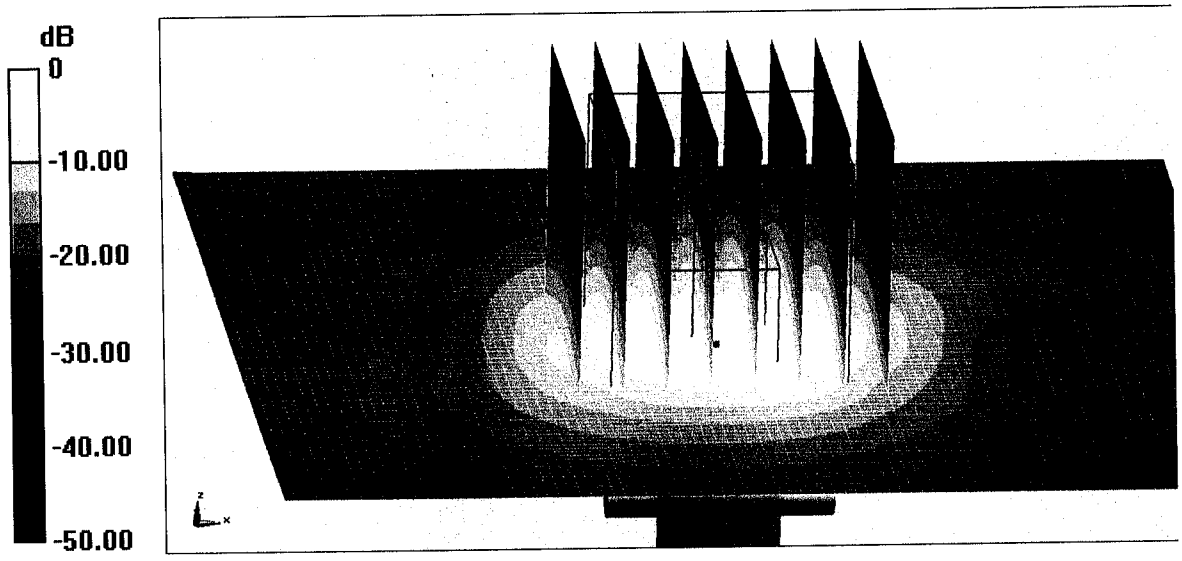
Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.09 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 7.69 W/kg; SAR(10 g) = 2.2 W/kg
Maximum value of SAR (measured) = 18.0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

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

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

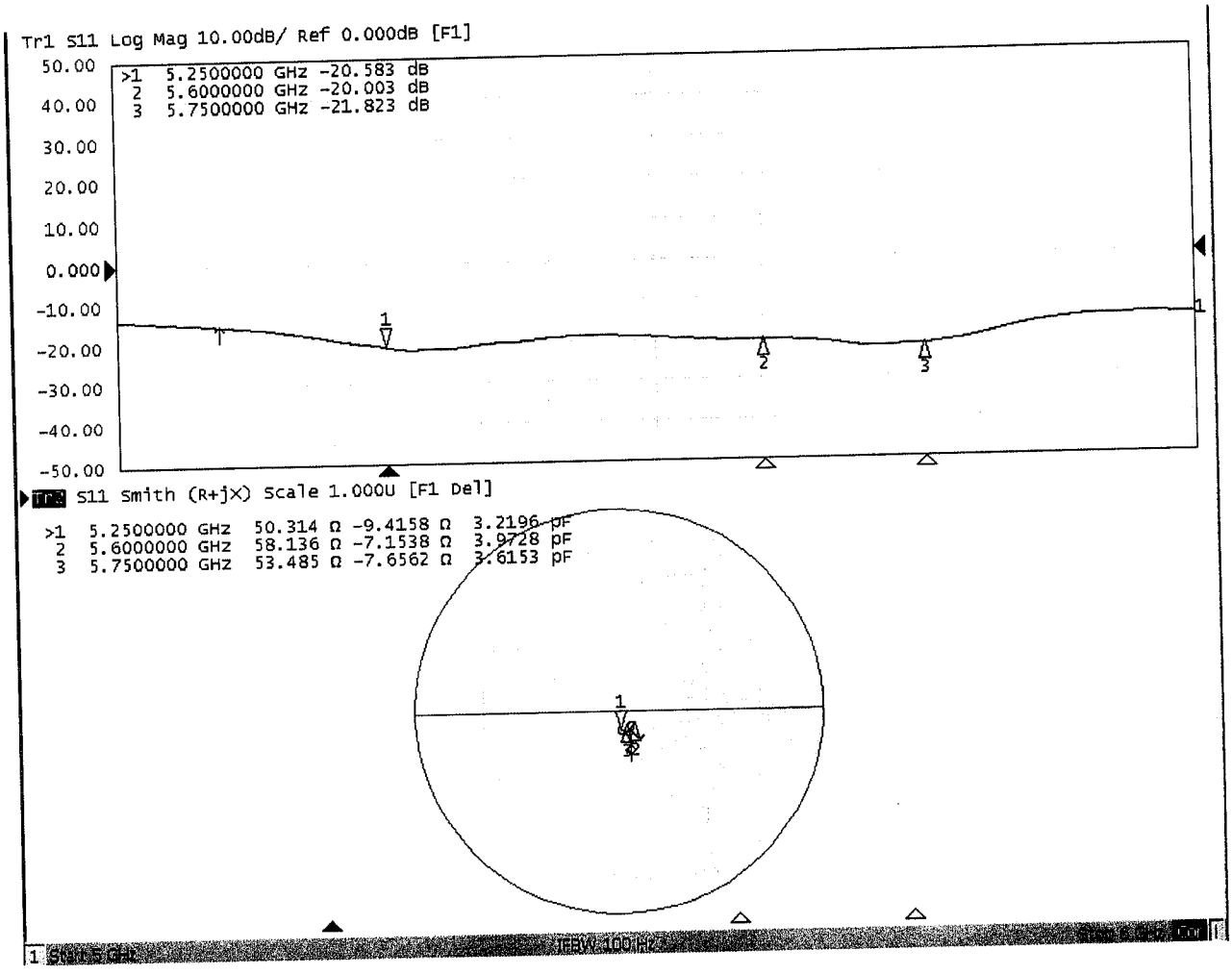


0 dB = 19.0 W/kg = 12.79 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Head TSL



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Body TSL Date: 08.02.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 5250 MHz; σ = 5.316 S/m; εr = 48.42; ρ = 1000 kg/m3, Medium parameters used: f = 5600 MHz; σ = 5.789 S/m; εr = 47.7; ρ = 1000 kg/m3, Medium parameters used: f = 5750 MHz; σ = 5.926 S/m; εr = 48.45; ρ = 1000 kg/m3,

Phantom section: Right Section

DASY5 Configuration:

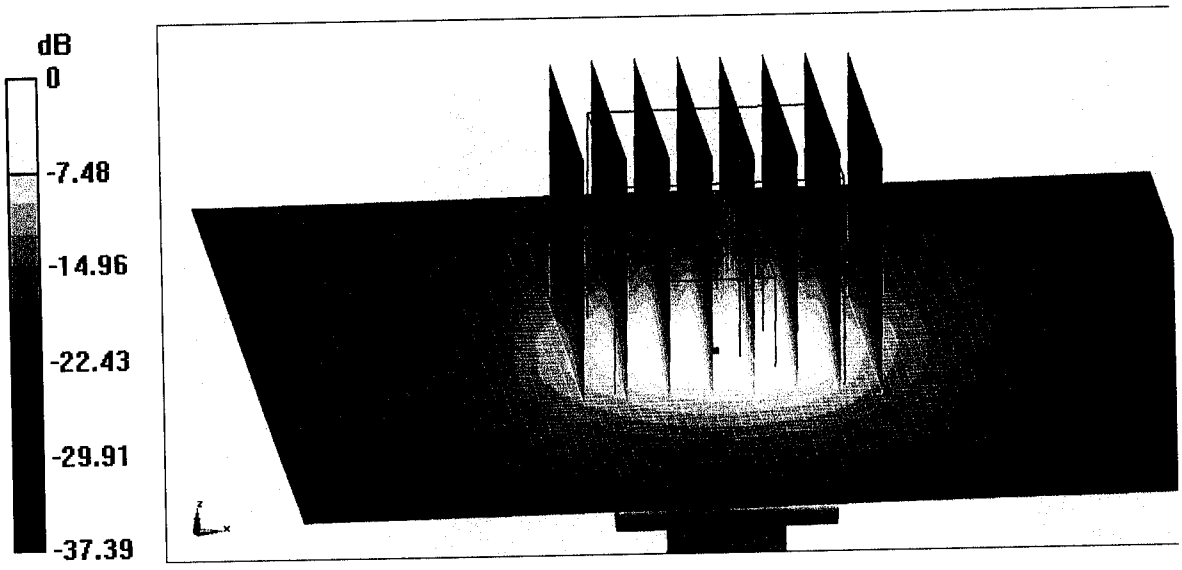
- Probe: EX3DV4 - SN7464; ConvF(5.29, 5.29, 5.29) @ 5250 MHz; Calibrated: 9/12/2017, ConvF(4.5, 4.5, 4.5) @ 5600 MHz; Calibrated: 9/12/2017, ConvF(4.59, 4.59, 4.59) @ 5750 MHz; Calibrated: 9/12/2017,
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1524; Calibrated: 9/13/2017
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

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

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

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

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

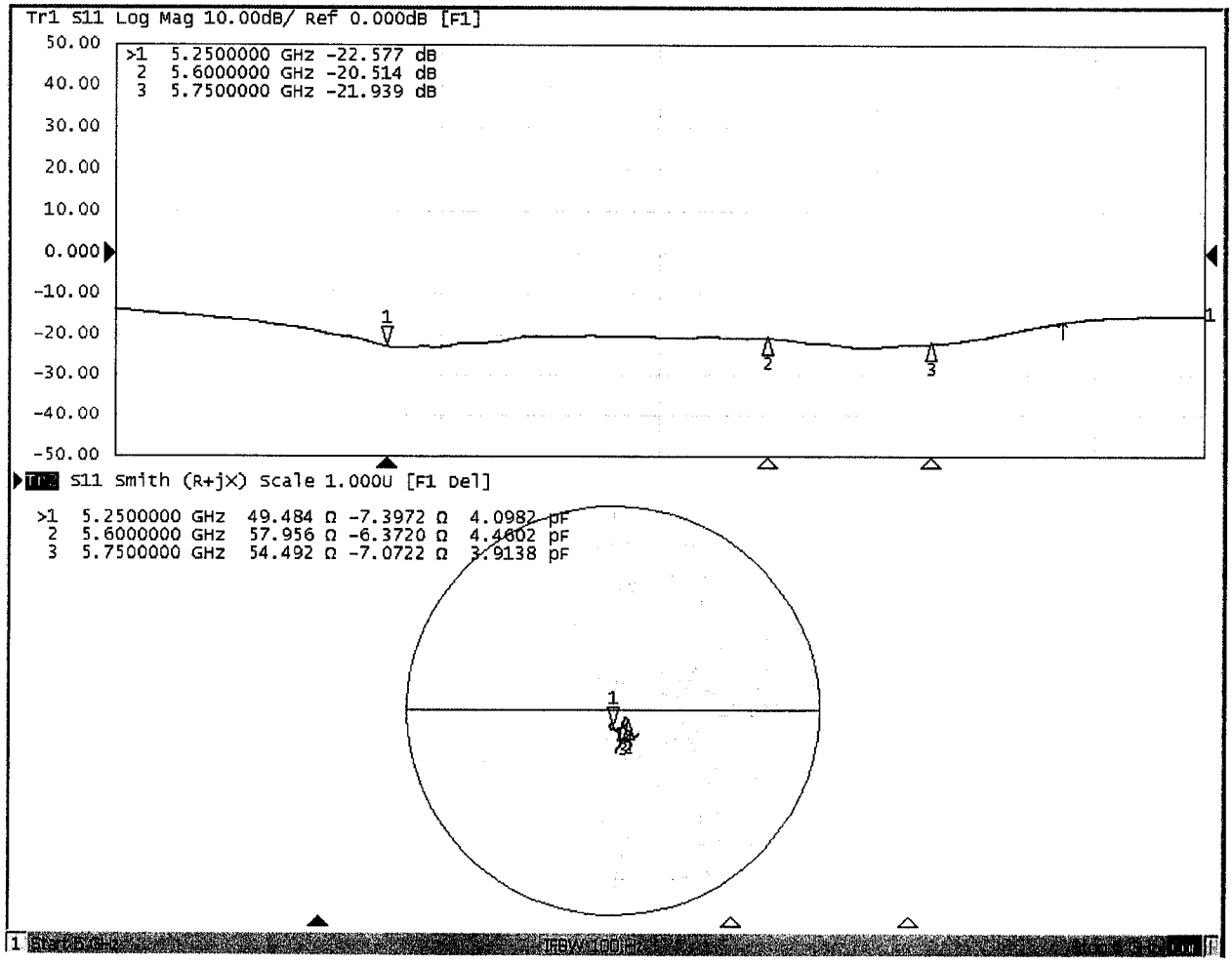


0 dB = 18.0 W/kg = 12.55 dBW/kg

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Impedance Measurement Plot for Body TSL



D5GHzV3, Serial No. 1167 Extended Dipole Calibrations

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

5250MHz

D5GHzV3 – serial no. 1167												
	5250 Head						5250 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.08.03	-20.6		50.3		-9.42		-22.6		49.5		-7.40	
2019.10.30	-20.3	1.5	50.9	0.6	-9.72	-0.3	-22.4	0.9	48.2	-1.3	-7.25	0.15

5600MHz

D5GHzV3 – serial no. 1167												
	5600 Head						5600 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.08.03	-20.0		58.1		-7.15		-20.5		58.0		-6.37	
2019.10.30	-20.1	-0.5	57.4	-0.7	-7.63	-0.48	-20.4	0.5	57.7	-0.3	-6.87	-0.5

5750MHz

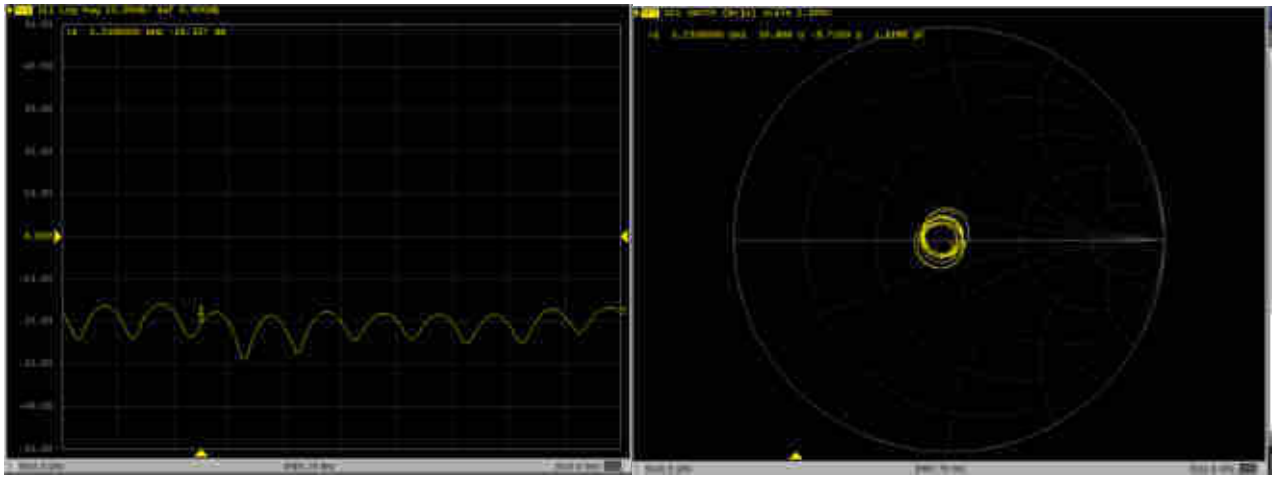
D5GHzV3 – serial no. 1167												
	5750 Head						5750 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.08.03	-21.8		53.5		-7.66		-21.9		54.5		-7.07	
2019.10.30	-21.1	3.2	53.0	-0.5	-8.58	-0.92	-21.6	1.4	55.2	0.7	-7.04	0.03

<Justification of the extended calibration>

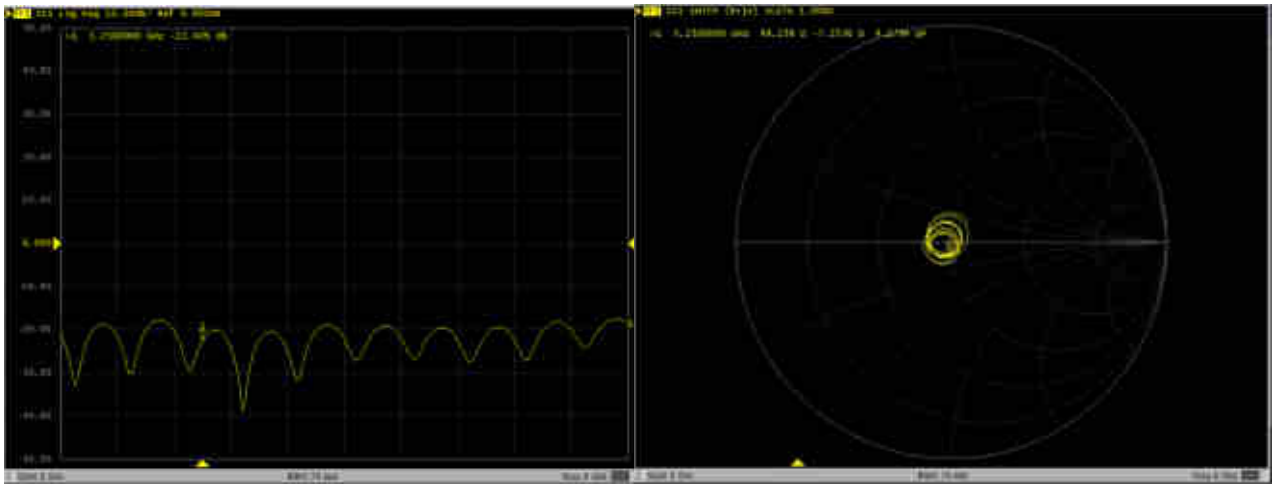
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D5GHzV3, serial no. 1167

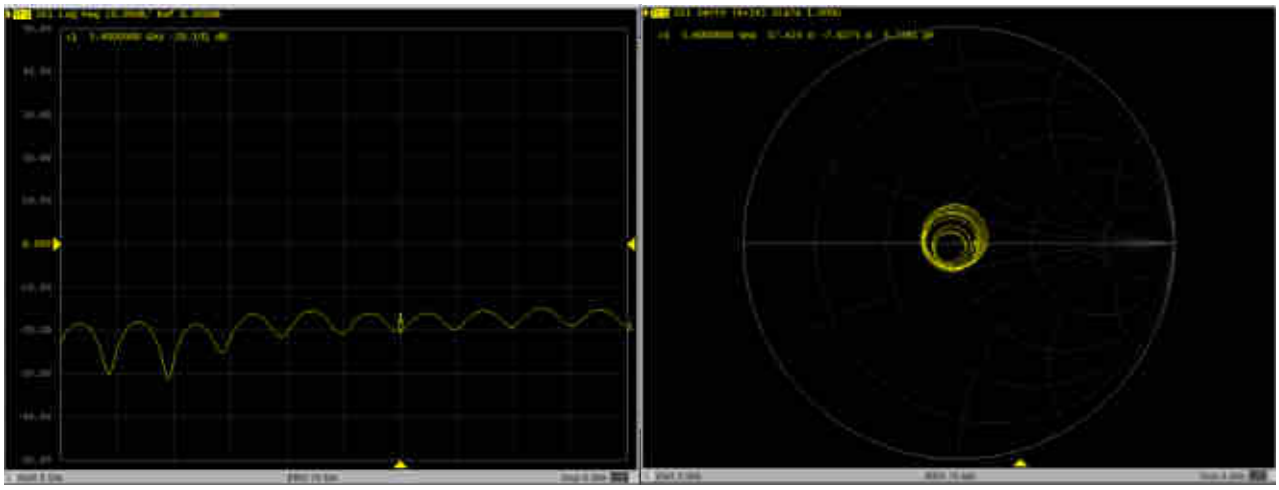
5250MHz - Head



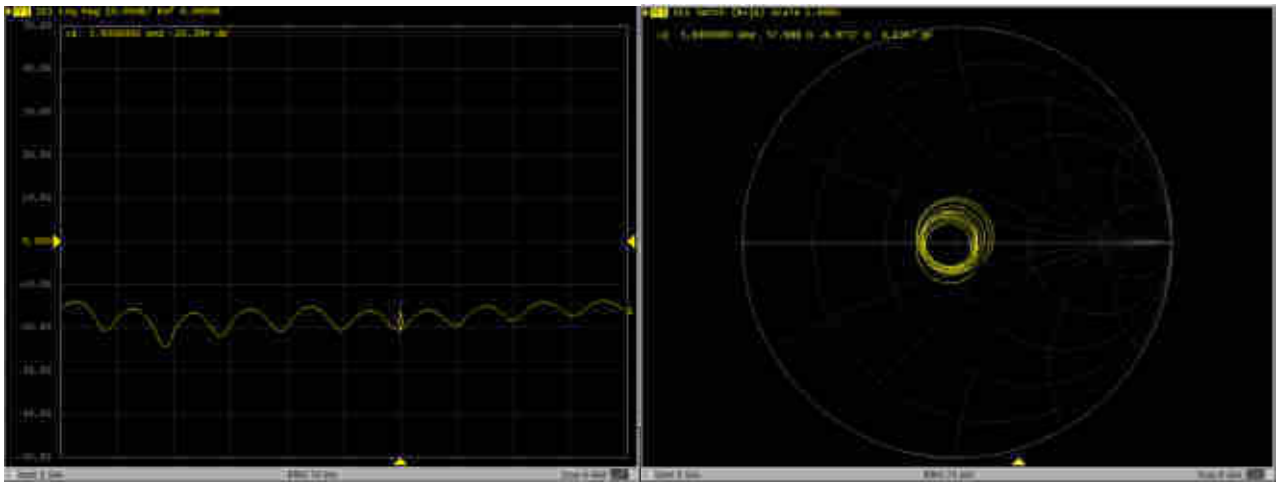
5250MHz – Body



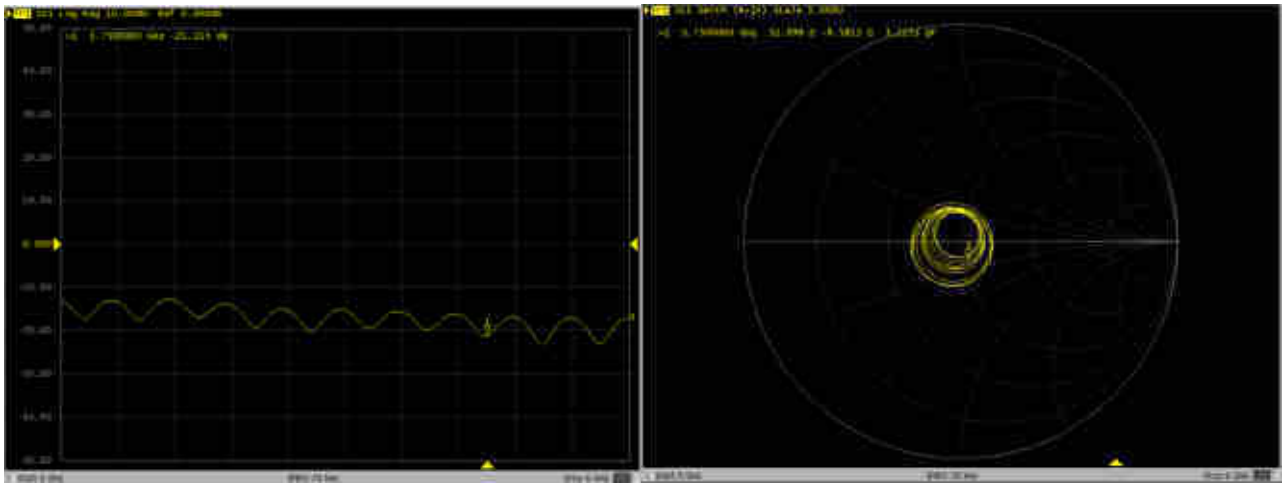
5600MHz – Head



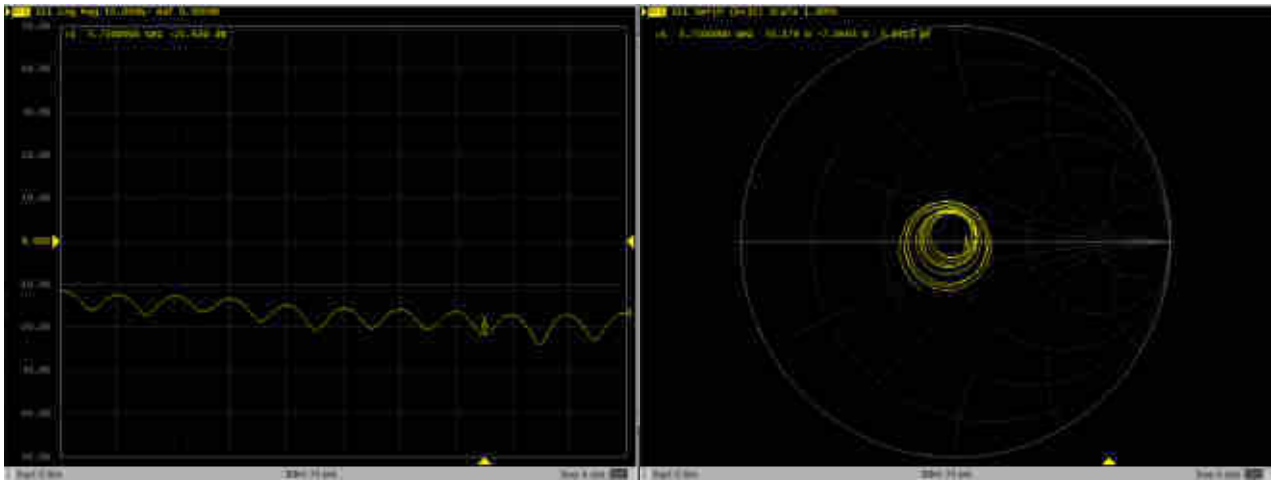
5600MHz – Body



5750MHz – Head



5750MHz – Body



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **Auden**

Certificate No: DAE4-1356_May20

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1356
Calibration procedure(s)	QA CAL-06.v30 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	May 19, 2020

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°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-19 (No:25949)	Sep-20
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	09-Jan-20 (in house check)	In house check: Jan-21
Calibrator Box V2.1	SE UMS 006 AA 1002	09-Jan-20 (in house check)	In house check: Jan-21

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Laboratory Technician	
Approved by:	Sven Kühn	Deputy Manager	

Issued: May 20, 2020

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 =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

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

Calibration Factors	X	Y	Z
High Range	404.180 ± 0.02% (k=2)	403.982 ± 0.02% (k=2)	404.201 ± 0.02% (k=2)
Low Range	3.97702 ± 1.50% (k=2)	3.96329 ± 1.50% (k=2)	3.97892 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	268.5 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200036.91	4.93	0.00
Channel X	+ Input	20003.33	-2.05	-0.01
Channel X	- Input	-20003.72	1.76	-0.01
Channel Y	+ Input	200031.46	-0.39	-0.00
Channel Y	+ Input	20003.32	-1.93	-0.01
Channel Y	- Input	-20005.93	-0.40	0.00
Channel Z	+ Input	200028.99	-3.17	-0.00
Channel Z	+ Input	20001.58	-3.59	-0.02
Channel Z	- Input	-20007.24	-1.55	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.23	0.11	0.01
Channel X	+ Input	201.14	-0.00	-0.00
Channel X	- Input	-199.01	-0.14	0.07
Channel Y	+ Input	2000.67	-0.35	-0.02
Channel Y	+ Input	199.89	-1.12	-0.56
Channel Y	- Input	-198.23	0.78	-0.39
Channel Z	+ Input	2000.97	-0.10	-0.01
Channel Z	+ Input	200.56	-0.38	-0.19
Channel Z	- Input	-199.65	-0.57	0.29

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	-7.39	-9.12
	- 200	10.05	8.28
Channel Y	200	-10.37	-10.55
	- 200	8.09	8.04
Channel Z	200	-16.40	-15.83
	- 200	14.16	14.37

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	-	2.10	-3.79
Channel Y	200	7.59	-	3.07
Channel Z	200	9.79	5.97	-

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	16325	15231
Channel Y	16143	12708
Channel Z	15880	15875

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.69	-0.54	1.75	0.38
Channel Y	-0.88	-2.99	1.75	0.75
Channel Z	-0.46	-1.79	0.32	0.37

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

In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **Auden** **Certificate No: Z20-60166**

CALIBRATION CERTIFICAT

Object EX3DV4 - SN : 3826

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

Calibration date: May 20, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

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

Issued: May 22, 2020

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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 θ=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:

a) 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

b) 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

c) 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

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,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.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z:* A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,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±50MHz to±100MHz.
- *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 *NORMx* (no uncertainty required).

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	0.48	0.41	0.36	±10.0%
DCP(mV)[B]	100.2	99.8	103.2	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	160.2	±2.7%
		Y	0.0	0.0	1.0		141.6	
		Z	0.0	0.0	1.0		130.8	

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

[A] The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

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

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)	Unct. (k=2)
750	41.9	0.89	9.37	9.37	9.37	0.40	0.80	±12.1%
835	41.5	0.90	9.12	9.12	9.12	0.17	1.26	±12.1%
900	41.5	0.97	9.10	9.10	9.10	0.18	1.30	±12.1%
1750	40.1	1.37	7.98	7.98	7.98	0.19	1.14	±12.1%
1900	40.0	1.40	7.67	7.67	7.67	0.22	1.14	±12.1%
2000	40.0	1.40	7.77	7.77	7.77	0.24	1.10	±12.1%
2300	39.5	1.67	7.35	7.35	7.35	0.51	0.73	±12.1%
2450	39.2	1.80	7.12	7.12	7.12	0.53	0.72	±12.1%
2600	39.0	1.96	6.94	6.94	6.94	0.45	0.85	±12.1%
3500	37.9	2.91	6.62	6.62	6.62	0.39	0.98	±13.3%
5250	35.9	4.71	5.09	5.09	5.09	0.45	1.30	±13.3%
5600	35.5	5.07	4.66	4.66	4.66	0.45	1.40	±13.3%
5750	35.4	5.22	4.68	4.68	4.68	0.45	1.40	±13.3%

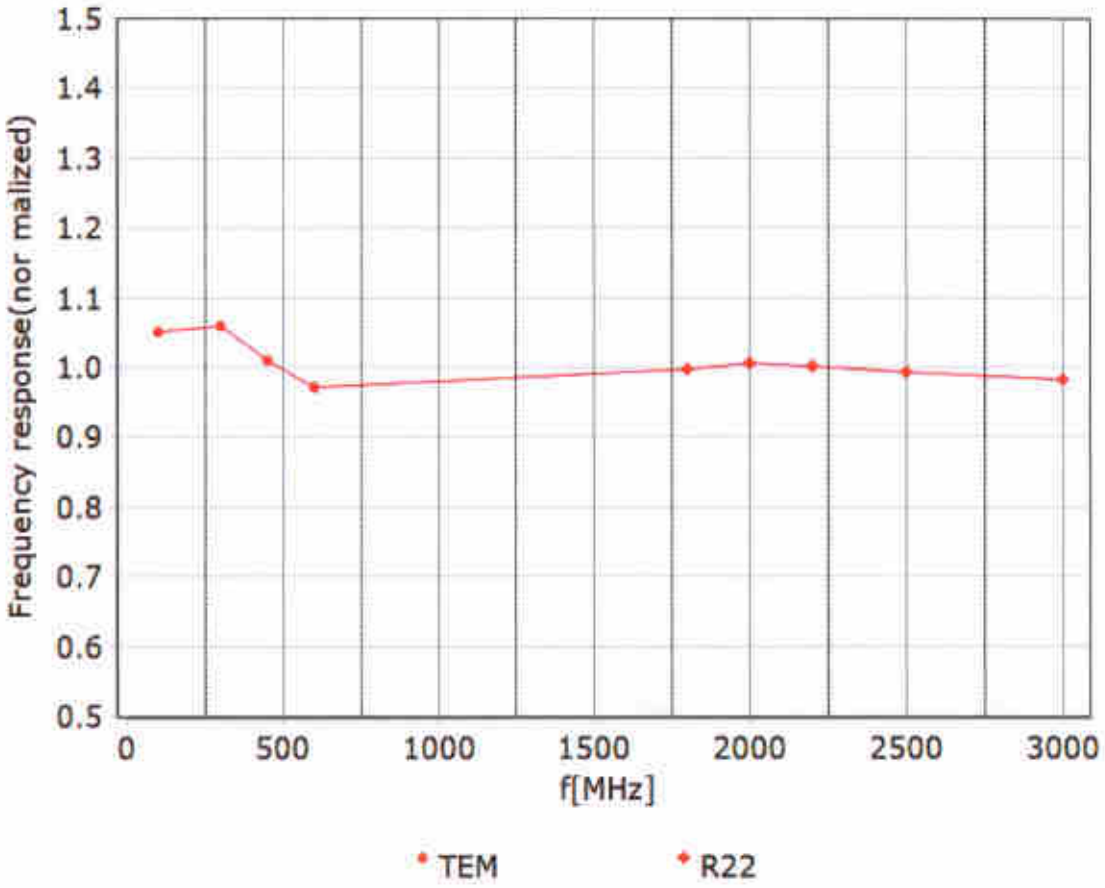
[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25,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

[F] At frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

In Collaboration with
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

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

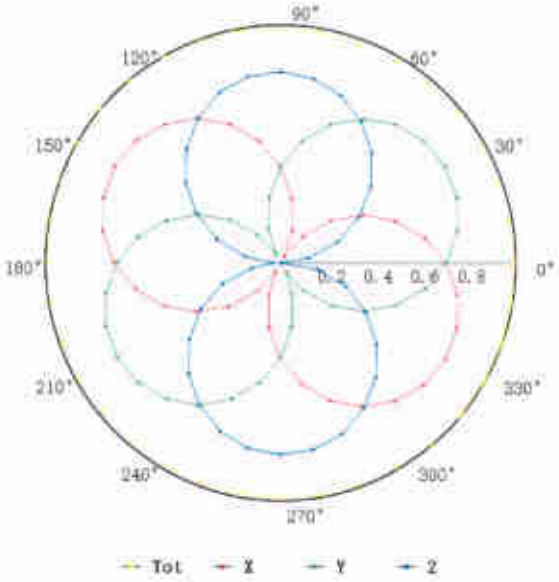


Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

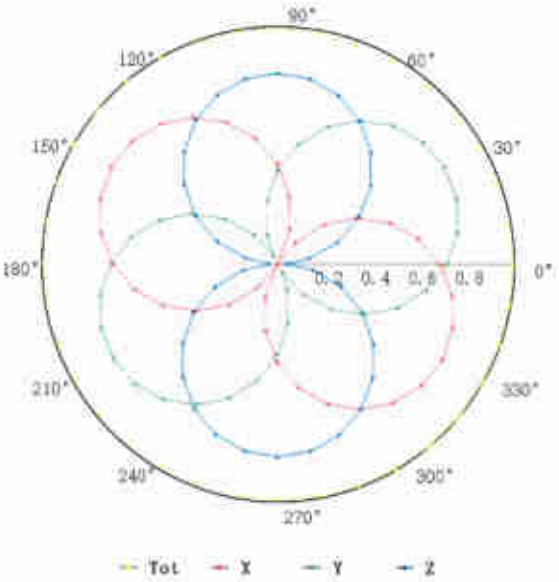
In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

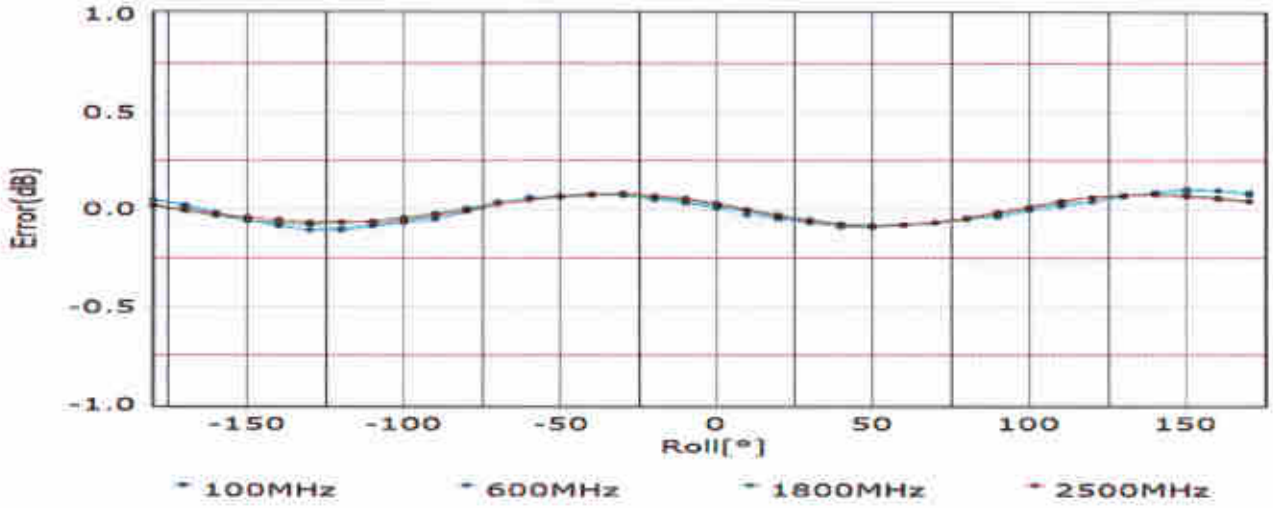
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22

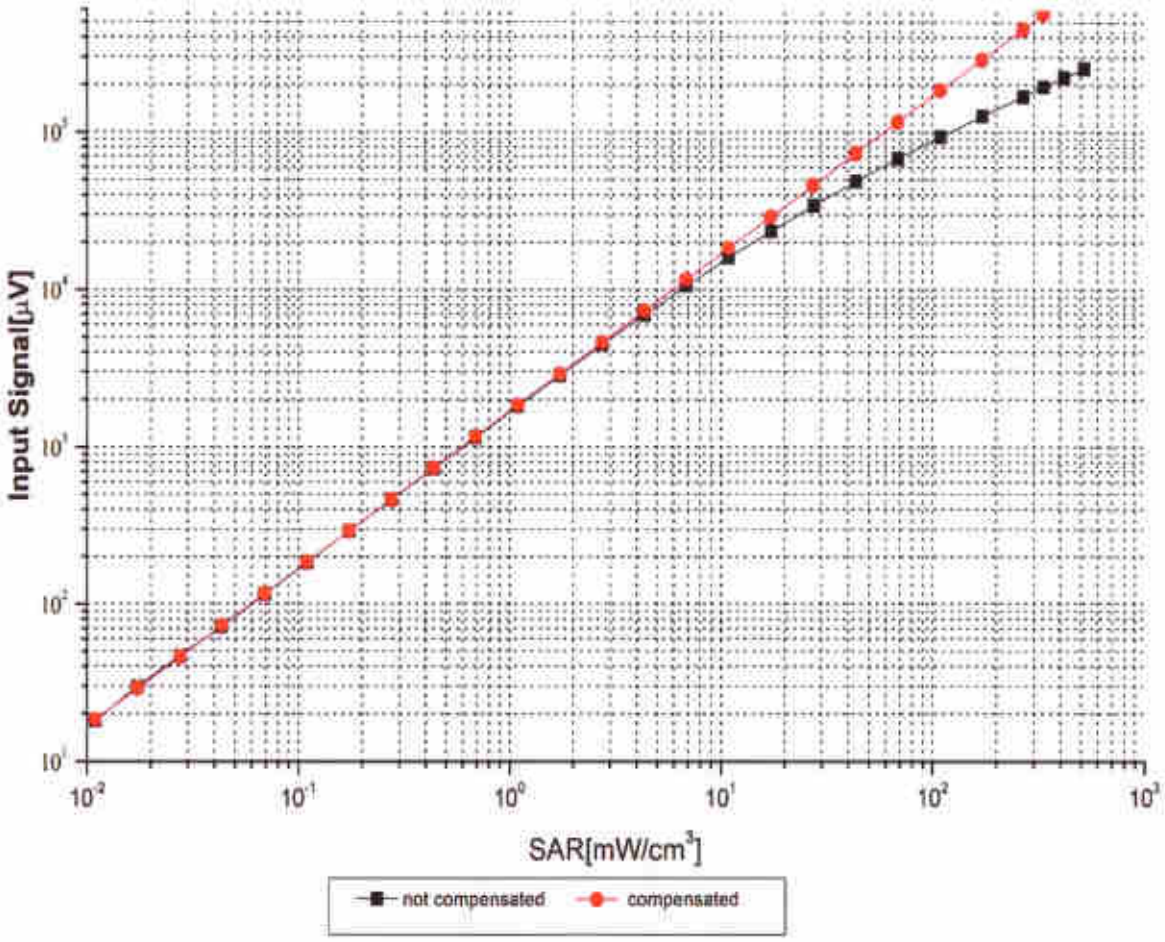


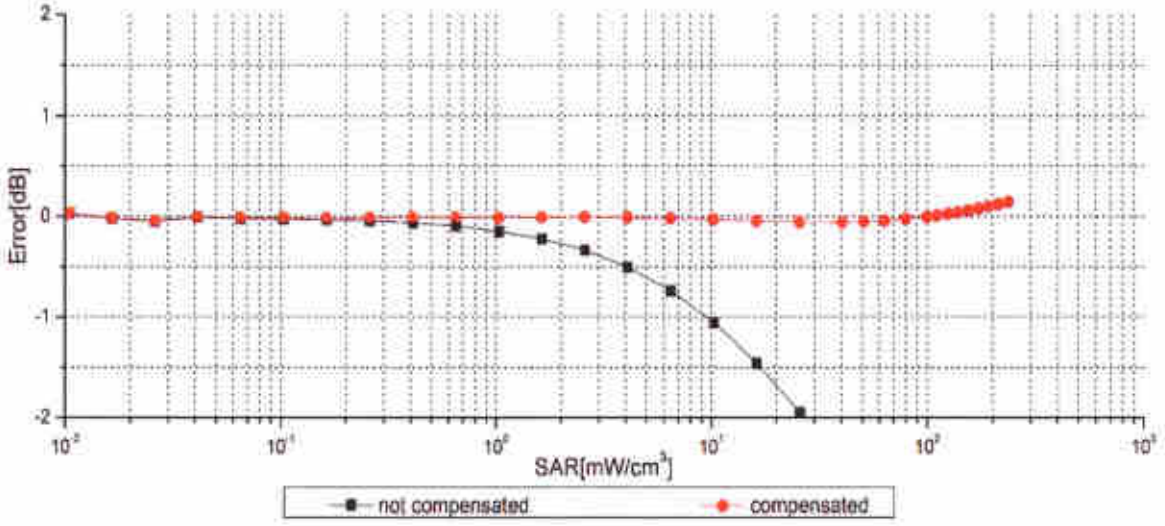


Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

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



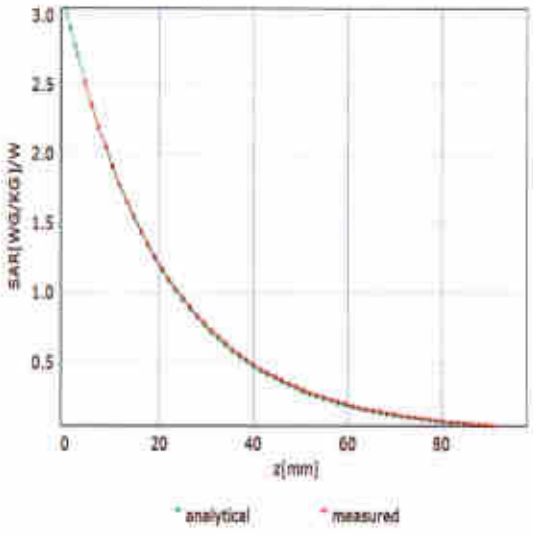


Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

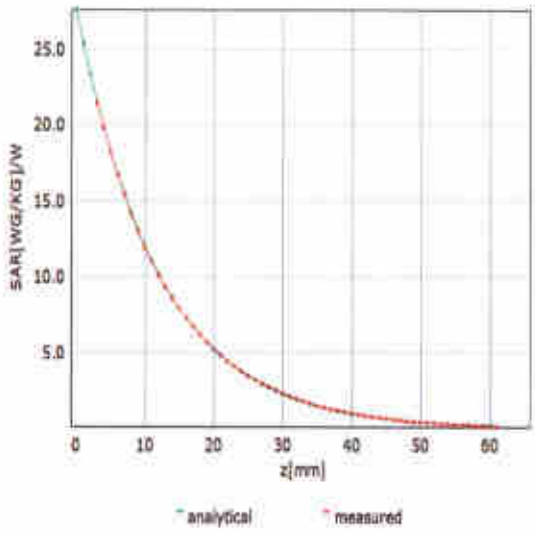
In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Conversion Factor Assessment

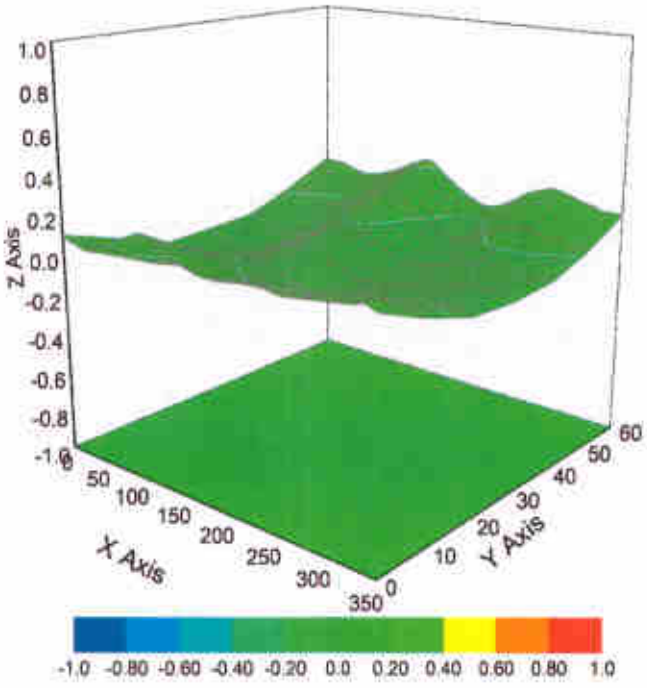
f=750 MHz,WGLS R9(H_convF)



f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

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

Other Probe Parameters

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

Appendix E. Conducted RF Output Power Table

The detailed power table are shown as follows.

Full Power Mode

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	32.89	32.91	32.96	33.50	23.89	23.91	23.96	24.50
GPRS 1 Tx slot	32.69	32.71	32.75	33.50	23.69	23.71	23.75	24.50
GPRS 2 Tx slots	31.34	31.44	31.56	32.00	25.34	25.44	25.56	26.00
GPRS 3 Tx slots	28.73	28.93	29.04	29.50	24.47	24.67	24.78	25.24
GPRS 4 Tx slots	26.44	26.67	26.84	27.50	23.44	23.67	23.84	24.50
EDGE 1 Tx slot	26.23	26.41	26.64	27.50	17.23	17.41	17.64	18.50
EDGE 2 Tx slots	23.85	23.83	24.12	25.00	17.85	17.83	18.12	19.00
EDGE 3 Tx slots	22.37	22.49	22.73	24.00	18.11	18.23	18.47	19.74
EDGE 4 Tx slots	20.24	20.32	20.58	21.00	17.24	17.32	17.58	18.00

GSM1900	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	29.81	29.86	29.82	31.00	20.81	20.86	20.82	22.00
GPRS 1 Tx slot	29.64	29.85	29.71	31.00	20.64	20.85	20.71	22.00
GPRS 2 Tx slots	28.76	28.95	28.91	29.50	22.76	22.95	22.91	23.50
GPRS 3 Tx slots	26.48	26.63	26.62	28.00	22.22	22.37	22.36	23.74
GPRS 4 Tx slots	24.18	24.26	24.24	25.00	21.18	21.26	21.24	22.00
EDGE 1 Tx slot	25.46	25.55	25.64	27.00	16.46	16.55	16.64	18.00
EDGE 2 Tx slots	24.33	24.33	24.45	25.50	18.33	18.33	18.45	19.50
EDGE 3 Tx slots	22.18	22.15	22.35	23.50	17.92	17.89	18.09	19.24
EDGE 4 Tx slots	20.04	19.98	20.19	21.00	17.04	16.98	17.19	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		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	23.11	23.31	23.26	24.00	22.96	22.99	22.94	24.00	23.21	23.24	23.02	24.00
3GPP Rel 99	RMC 12.2Kbps	23.13	23.34	23.28	24.00	22.98	23.01	22.96	24.00	23.23	23.26	23.04	24.00
3GPP Rel 6	HSDPA Subtest-1	22.31	22.50	22.42	23.00	21.96	22.05	21.90	23.00	22.31	22.38	22.11	23.00
3GPP Rel 6	HSDPA Subtest-2	22.26	22.45	22.43	23.00	21.91	22.03	21.87	23.00	22.28	22.37	22.13	23.00
3GPP Rel 6	HSDPA Subtest-3	21.74	21.96	21.91	22.50	21.40	21.54	21.38	22.50	21.74	21.86	21.63	22.50
3GPP Rel 6	HSDPA Subtest-4	21.78	21.94	21.94	22.50	21.40	21.53	21.37	22.50	21.75	21.90	21.62	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.27	22.38	22.30	23.00	21.98	21.99	21.95	23.00	22.30	22.35	22.09	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.25	22.40	22.29	23.00	21.89	22.04	21.92	23.00	22.27	22.32	22.10	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.76	21.85	21.79	22.50	21.37	21.50	21.41	22.50	21.71	21.80	21.60	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.73	21.81	21.80	22.50	21.36	21.43	21.33	22.50	21.69	21.74	21.57	22.50
3GPP Rel 6	HSUPA Subtest-1	22.28	22.49	22.45	22.50	21.79	22.03	21.81	22.50	22.24	22.25	22.16	22.50
3GPP Rel 6	HSUPA Subtest-2	20.30	20.50	20.38	20.50	19.89	20.00	19.90	20.50	20.26	20.25	20.11	20.50
3GPP Rel 6	HSUPA Subtest-3	21.29	21.48	21.41	21.50	20.88	21.03	20.85	21.50	21.21	21.25	21.13	21.50
3GPP Rel 6	HSUPA Subtest-4	20.27	20.49	20.44	20.50	19.87	20.00	19.88	20.50	20.24	20.35	20.13	20.50
3GPP Rel 6	HSUPA Subtest-5	22.30	22.50	22.40	22.50	21.80	22.00	21.90	22.50	22.30	22.30	22.10	22.50

SPORTON LAB.

Band 2 (1900MHz Band)
Part 24E

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.15	23.27	23.29		
20	QPSK	1	49	22.90	23.05	23.16	24	0
20	QPSK	1	99	22.96	23.17	23.19		
20	QPSK	50	0	21.75	21.95	22.09		
20	QPSK	50	24	21.79	22.00	22.11	23	1
20	QPSK	50	50	21.97	22.06	22.22		
20	QPSK	100	0	21.83	22.06	22.16		
20	16QAM	1	0	22.19	22.38	22.39		
20	16QAM	1	49	22.04	22.21	22.36	23	1
20	16QAM	1	99	22.24	22.43	22.43		
20	16QAM	50	0	20.89	20.97	21.12		
20	16QAM	50	24	20.81	20.99	21.12	22	2
20	16QAM	50	50	20.87	21.10	21.23		
20	16QAM	100	0	20.84	21.02	21.13		
20	64QAM	1	0	21.26	21.44	21.32		
20	64QAM	1	49	20.99	21.12	21.27	22	2
20	64QAM	1	99	21.21	21.46	21.54		
20	64QAM	50	0	19.98	20.02	20.16		
20	64QAM	50	24	19.89	20.07	20.14	21	3
20	64QAM	50	50	19.95	20.15	20.29		
20	64QAM	100	0	19.92	20.09	20.17		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.12	23.22	23.22		
15	QPSK	1	37	22.89	22.98	23.06	24	0
15	QPSK	1	74	22.9	23.08	23.12		
15	QPSK	36	0	22.05	22.14	22.23		
15	QPSK	36	20	22.04	22.13	22.32	23	1
15	QPSK	36	39	22.01	22.22	22.27		
15	QPSK	75	0	22.08	22.14	22.22		
15	16QAM	1	0	22.49	22.63	22.6		
15	16QAM	1	37	22.24	22.38	22.38	23	1
15	16QAM	1	74	22.49	22.7	22.63		
15	16QAM	36	0	21.05	21.1	21.2		
15	16QAM	36	20	21.04	21.11	21.31	22	2
15	16QAM	36	39	21	21.18	21.26		
15	16QAM	75	0	21.06	21.17	21.27		
15	64QAM	1	0	21.22	21.36	21.41		
15	64QAM	1	37	21.1	21.26	21.31	22	2
15	64QAM	1	74	21.45	21.7	21.7		
15	64QAM	36	0	20.07	20.12	20.26		
15	64QAM	36	20	20.03	20.11	20.34	21	3
15	64QAM	36	39	20.02	20.22	20.29		
15	64QAM	75	0	20.05	20.14	20.25		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.11	23.23	23.23		
10	QPSK	1	25	22.86	23.00	23.06	24	0
10	QPSK	1	49	22.94	23.09	23.11		
10	QPSK	25	0	22.04	22.12	22.29		
10	QPSK	25	12	22.03	22.13	22.19	23	1
10	QPSK	25	25	22.07	22.21	22.27		
10	QPSK	50	0	22.03	22.16	22.22		
10	16QAM	1	0	22.53	22.57	22.69		
10	16QAM	1	25	22.23	22.33	22.39	23	1
10	16QAM	1	49	22.43	22.65	22.60		
10	16QAM	25	0	21.07	21.15	21.31		
10	16QAM	25	12	21.05	21.12	21.22	22	2
10	16QAM	25	25	21.07	21.18	21.26		
10	16QAM	50	0	21.08	21.16	21.24		
10	64QAM	1	0	21.46	21.00	21.13		
10	64QAM	1	25	21.17	21.28	21.34	22	2
10	64QAM	1	49	21.41	21.56	21.58		
10	64QAM	25	0	20.07	20.19	20.35		
10	64QAM	25	12	20.09	20.19	20.26	21	3
10	64QAM	25	25	20.15	20.23	20.32		
10	64QAM	50	0	20.10	20.20	20.29		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.10	23.17	23.16		
5	QPSK	1	12	22.80	22.90	23.00	24	0
5	QPSK	1	24	22.84	23.07	23.10		
5	QPSK	12	0	21.94	22.05	22.21		
5	QPSK	12	7	21.94	22.09	22.13	23	1
5	QPSK	12	13	21.98	22.12	22.24		
5	QPSK	25	0	21.97	22.08	22.19		
5	16QAM	1	0	22.47	22.53	22.66		
5	16QAM	1	12	22.17	22.29	22.29	23	1
5	16QAM	1	24	22.41	22.64	22.51		
5	16QAM	12	0	21.04	21.05	21.22		
5	16QAM	12	7	21.01	21.02	21.16	22	2
5	16QAM	12	13	21.03	21.09	21.23		
5	16QAM	25	0	21.00	21.08	21.23		
5	64QAM	1	0	21.15	21.12	21.16		
5	64QAM	1	12	21.12	21.31	21.35	22	2
5	64QAM	1	24	21.22	21.31	21.31		
5	64QAM	12	0	20.12	20.21	20.36		
5	64QAM	12	7	20.09	20.21	20.28	21	3
5	64QAM	12	13	20.05	20.15	20.24		
5	64QAM	25	0	20.08	20.17	20.26		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.09	23.16	23.20		
3	QPSK	1	8	22.77	22.93	23.03	24	0
3	QPSK	1	14	22.84	23.04	23.07		
3	QPSK	8	0	21.94	22.08	22.26		
3	QPSK	8	4	21.95	22.07	22.11	23	1
3	QPSK	8	7	22.01	22.19	22.25		
3	QPSK	15	0	21.94	22.13	22.21		
3	16QAM	1	0	22.45	22.54	22.67		
3	16QAM	1	8	22.21	22.23	22.36	23	1
3	16QAM	1	14	22.38	22.56	22.59		
3	16QAM	8	0	21.01	21.09	21.22		
3	16QAM	8	4	20.95	21.07	21.17	22	2
3	16QAM	8	7	21.03	21.13	21.18		
3	16QAM	15	0	21.06	21.09	21.16		
3	64QAM	1	0	21.12	21.13	21.23		
3	64QAM	1	8	21.21	21.26	21.33	22	2
3	64QAM	1	14	21.18	21.30	21.34		
3	64QAM	8	0	20.08	20.19	20.27		
3	64QAM	8	4	20.10	20.20	20.26	21	3
3	64QAM	8	7	20.06	20.18	20.23		
3	64QAM	15	0	20.03	20.13	20.22		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.08	23.16	23.18		
1.4	QPSK	1	3	22.81	22.94	22.98		
1.4	QPSK	1	5	22.85	23.07	23.05	24	0
1.4	QPSK	3	0	22.09	22.07	22.24		
1.4	QPSK	3	1	22.01	22.07	22.11		
1.4	QPSK	3	3	22.02	22.11	22.18		
1.4	QPSK	6	0	21.99	22.09	22.19	23	1
1.4	16QAM	1	0	22.45	22.51	22.60		
1.4	16QAM	1	3	22.15	22.24	22.34		
1.4	16QAM	1	5	22.37	22.57	22.59	23	1
1.4	16QAM	3	0	21.08	21.10	21.30		
1.4	16QAM	3	1	21.03	21.10	21.12		
1.4	16QAM	3	3	21.02	21.16	21.22		
1.4	16QAM	6	0	21.06	21.14	21.21	22	2
1.4	64QAM	1	0	21.18	21.28	21.26		
1.4	64QAM	1	3	21.21	21.21	21.27		
1.4	64QAM	1	5	21.14	21.28	21.31	22	2
1.4	64QAM	3	0	21.16	21.27	21.33		
1.4	64QAM	3	1	21.24	21.37	21.40		
1.4	64QAM	3	3	21.15	21.25	21.34		
1.4	64QAM	6	0	20.02	20.15	20.15	21	3

Band 4 (AWS Band)
Part 27L (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				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.56	22.50	22.58		
20	QPSK	1	49	22.63	22.65	22.67	24	0
20	QPSK	1	99	22.45	22.52	22.51		
20	QPSK	50	0	22.01	21.95	22.10		
20	QPSK	50	24	22.02	21.99	22.02	23	1
20	QPSK	50	50	21.84	21.87	21.96		
20	QPSK	100	0	21.95	21.99	21.95		
20	16QAM	1	0	22.09	22.10	22.18		
20	16QAM	1	49	22.22	22.22	22.59	23	1
20	16QAM	1	99	22.11	22.10	22.15		
20	16QAM	50	0	20.94	20.97	21.05		
20	16QAM	50	24	20.98	21.00	21.02	22	2
20	16QAM	50	50	20.83	20.87	20.99		
20	16QAM	100	0	20.94	20.93	20.96		
20	64QAM	1	0	21.02	20.95	21.07		
20	64QAM	1	49	21.22	21.21	21.23	22	2
20	64QAM	1	99	21.02	21.03	21.08		
20	64QAM	50	0	20.01	20.04	20.15		
20	64QAM	50	24	20.04	20.10	20.11	21	3
20	64QAM	50	50	19.91	19.97	20.04		
20	64QAM	100	0	20.00	20.03	20.08		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.46	22.43	22.50		
15	QPSK	1	37	22.59	22.59	22.61	24	0
15	QPSK	1	74	22.36	22.42	22.41		
15	QPSK	36	0	22.08	22.06	22.02		
15	QPSK	36	20	22.10	22.05	22.02	23	1
15	QPSK	36	39	21.93	22.00	21.95		
15	QPSK	75	0	21.95	21.98	21.97		
15	16QAM	1	0	22.35	22.39	22.31		
15	16QAM	1	37	22.16	22.21	22.19	23	1
15	16QAM	1	74	22.16	22.21	22.16		
15	16QAM	36	0	21.07	21.05	21.01		
15	16QAM	36	20	21.07	21.03	21.01	22	2
15	16QAM	36	39	20.89	20.98	20.98		
15	16QAM	75	0	20.92	21.03	20.99		
15	64QAM	1	0	21.17	21.14	21.09		
15	64QAM	1	37	21.18	21.20	21.17	22	2
15	64QAM	1	74	21.09	21.16	21.15		
15	64QAM	36	0	20.09	20.14	20.12		
15	64QAM	36	20	20.09	20.12	20.11	21	3
15	64QAM	36	39	19.96	20.08	20.07		
15	64QAM	75	0	19.93	20.09	20.05		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.53	22.42	22.56		
10	QPSK	1	25	22.53	22.58	22.57	24	0
10	QPSK	1	49	22.41	22.43	22.43		
10	QPSK	25	0	22.09	22.06	22.05		
10	QPSK	25	12	22.02	22.11	22.00	23	1
10	QPSK	25	25	22.18	22.20	22.19		
10	QPSK	50	0	22.09	22.17	22.06		
10	16QAM	1	0	22.09	22.08	22.11		
10	16QAM	1	25	21.72	21.83	21.71	23	1
10	16QAM	1	49	22.20	22.19	22.19		
10	16QAM	25	0	21.06	21.05	21.09		
10	16QAM	25	12	21.02	21.11	21.01	22	2
10	16QAM	25	25	21.16	21.16	21.17		
10	16QAM	50	0	21.10	21.16	21.07		
10	64QAM	1	0	21.06	21.12	21.18		
10	64QAM	1	25	21.21	21.28	21.21	22	2
10	64QAM	1	49	21.65	21.63	21.65		
10	64QAM	25	0	20.11	20.14	20.18		
10	64QAM	25	12	20.07	20.17	20.11	21	3
10	64QAM	25	25	20.24	20.27	20.28		
10	64QAM	50	0	20.12	20.23	20.18		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.47	22.47	22.53		
5	QPSK	1	12	22.57	22.55	22.65	24	0
5	QPSK	1	24	22.38	22.44	22.43		
5	QPSK	12	0	22.14	22.11	22.05		
5	QPSK	12	7	22.06	22.10	22.05	23	1
5	QPSK	12	13	22.04	22.01	21.93		
5	QPSK	25	0	22.04	22.10	22.06		
5	16QAM	1	0	22.40	22.40	22.35		
5	16QAM	1	12	22.24	22.37	22.29	23	1
5	16QAM	1	24	22.23	22.30	22.24		
5	16QAM	12	0	21.14	21.14	21.07		
5	16QAM	12	7	21.03	21.10	21.07	22	2
5	16QAM	12	13	21.07	21.02	20.98		
5	16QAM	25	0	21.02	21.10	21.05		
5	64QAM	1	0	21.08	21.12	21.07		
5	64QAM	1	12	21.14	21.29	21.29	22	2
5	64QAM	1	24	21.14	21.23	21.21		
5	64QAM	12	0	20.23	20.21	20.20		
5	64QAM	12	7	20.08	20.22	20.17	21	3
5	64QAM	12	13	20.11	20.12	20.07		
5	64QAM	25	0	20.07	20.18	20.14		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.45	22.44	22.50		
3	QPSK	1	8	22.48	22.46	22.61	24	0
3	QPSK	1	14	22.32	22.34	22.37		
3	QPSK	8	0	22.07	22.07	22.00		
3	QPSK	8	4	21.99	22.02	22.03	23	1
3	QPSK	8	7	22.01	22.00	21.85		
3	QPSK	15	0	22.02	22.06	22.02		
3	16QAM	1	0	22.32	22.33	22.31		
3	16QAM	1	8	22.16	22.32	22.20	23	1
3	16QAM	1	14	22.21	22.22	22.19		
3	16QAM	8	0	21.09	21.13	21.04		
3	16QAM	8	4	21.00	21.03	21.05	22	2
3	16QAM	8	7	20.98	20.92	20.92		
3	16QAM	15	0	20.97	21.06	20.95		
3	64QAM	1	0	21.11	21.10	21.09		
3	64QAM	1	8	21.17	21.32	21.19	22	2
3	64QAM	1	14	21.17	21.22	21.21		
3	64QAM	8	0	20.18	20.18	20.18		
3	64QAM	8	4	20.08	20.22	20.09	21	3
3	64QAM	8	7	20.04	20.10	20.09		
3	64QAM	15	0	20.02	20.17	20.06		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.38	22.38	22.48		
1.4	QPSK	1	3	22.52	22.51	22.61		
1.4	QPSK	1	5	22.31	22.35	22.38	24	0
1.4	QPSK	3	0	22.11	22.05	22.07		
1.4	QPSK	3	1	22.04	22.00	22.07		
1.4	QPSK	3	3	22.09	22.05	22.01		
1.4	QPSK	6	0	22.02	22.02	22.05	23	1
1.4	16QAM	1	0	22.32	22.30	22.30		
1.4	16QAM	1	3	22.23	22.31	22.23		
1.4	16QAM	1	5	22.21	22.27	22.21	23	1
1.4	16QAM	3	0	21.08	21.10	21.00		
1.4	16QAM	3	1	21.00	21.04	21.06		
1.4	16QAM	3	3	21.07	21.06	21.07		
1.4	16QAM	6	0	20.94	21.03	20.95	22	2
1.4	64QAM	1	0	21.12	21.10	21.09		
1.4	64QAM	1	3	21.25	21.31	21.13		
1.4	64QAM	1	5	21.17	21.17	21.15	22	2
1.4	64QAM	3	0	21.19	21.26	21.17		
1.4	64QAM	3	1	21.21	21.30	21.22		
1.4	64QAM	3	3	21.15	21.13	21.12		
1.4	64QAM	6	0	20.03	20.11	20.06	21	3

Band 5 (Celluar Band)
Part 22H(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				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	23.32	23.21	23.23		
10	QPSK	1	25	23.15	23.08	23.06	24	0
10	QPSK	1	49	23.43	23.36	23.23		
10	QPSK	25	0	22.2	22.15	22.10		
10	QPSK	25	12	22.24	22.20	22.15	23	1
10	QPSK	25	25	22.34	22.27	22.16		
10	QPSK	50	0	22.26	22.18	22.09		
10	16QAM	1	0	22.53	22.47	22.53		
10	16QAM	1	25	22.41	22.35	22.37	23	1
10	16QAM	1	49	22.68	22.76	22.46		
10	16QAM	25	0	21.18	21.14	21.23		
10	16QAM	25	12	21.22	21.16	21.17	22	2
10	16QAM	25	25	21.21	21.23	21.16		
10	16QAM	50	0	21.17	21.22	21.18		
10	64QAM	1	0	21.32	21.25	21.11		
10	64QAM	1	25	21.22	21.13	21.15	22	2
10	64QAM	1	49	21.56	21.47	21.35		
10	64QAM	25	0	20.06	20.05	20.10		
10	64QAM	25	12	20.14	20.06	20.08	21	3
10	64QAM	25	25	20.11	20.09	20.08		
10	64QAM	50	0	20.02	20.05	20.09		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.28	23.13	23.14		
5	QPSK	1	12	23.08	23.02	23.01	24	0
5	QPSK	1	24	23.37	23.33	23.14		
5	QPSK	12	0	22.15	22.08	22.02		
5	QPSK	12	7	22.11	22.10	21.99	23	1
5	QPSK	12	13	22.21	22.06	21.98		
5	QPSK	25	0	22.14	22.14	22.01		
5	16QAM	1	0	22.43	22.34	22.35		
5	16QAM	1	12	22.32	22.31	22.24	23	1
5	16QAM	1	24	22.42	22.37	22.18		
5	16QAM	12	0	21.18	21.07	21.04		
5	16QAM	12	7	21.13	21.14	21.02	22	2
5	16QAM	12	13	21.24	21.05	21.03		
5	16QAM	25	0	21.16	21.11	21.01		
5	64QAM	1	0	20.79	20.71	20.68		
5	64QAM	1	12	21.17	21.11	21.09	22	2
5	64QAM	1	24	21.18	21.14	20.99		
5	64QAM	12	0	20.13	20.02	20.01		
5	64QAM	12	7	20.11	20.08	20.02	21	3
5	64QAM	12	13	20.15	20.03	20.00		
5	64QAM	25	0	20.07	20.01	19.96		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.24	23.12	23.17		
3	QPSK	1	8	23.14	22.98	23.02	24	0
3	QPSK	1	14	23.33	23.33	23.15		
3	QPSK	8	0	22.15	22.01	21.95		
3	QPSK	8	4	22.13	22.10	22.01	23	1
3	QPSK	8	7	22.12	22.06	21.97		
3	QPSK	15	0	22.12	22.11	21.98		
3	16QAM	1	0	22.48	22.30	22.35		
3	16QAM	1	8	22.43	22.35	22.32	23	1
3	16QAM	1	14	22.44	22.28	22.15		
3	16QAM	8	0	21.17	21.10	21.00		
3	16QAM	8	4	21.21	21.14	21.04	22	2
3	16QAM	8	7	21.15	21.10	20.99		
3	16QAM	15	0	21.14	21.10	21.05		
3	64QAM	1	0	20.75	20.64	20.65		
3	64QAM	1	8	21.20	21.03	21.04	22	2
3	64QAM	1	14	21.17	21.13	21.05		
3	64QAM	8	0	20.12	19.97	19.96		
3	64QAM	8	4	20.13	20.07	19.99	21	3
3	64QAM	8	7	20.09	20.04	19.93		
3	64QAM	15	0	20.06	20.01	19.97		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.16	23.11	23.11		
1.4	QPSK	1	3	23.04	22.88	23.01		
1.4	QPSK	1	5	23.32	23.28	23.12	24	0
1.4	QPSK	3	0	22.13	22.09	22.08		
1.4	QPSK	3	1	22.09	22.00	22.06		
1.4	QPSK	3	3	22.03	22.02	22.02		
1.4	QPSK	6	0	22.08	22.02	21.97	23	1
1.4	16QAM	1	0	22.41	22.23	22.28		
1.4	16QAM	1	3	22.40	22.27	22.31		
1.4	16QAM	1	5	22.35	22.22	22.05	23	1
1.4	16QAM	3	0	21.12	21.07	21.09		
1.4	16QAM	3	1	21.18	21.13	21.08		
1.4	16QAM	3	3	21.08	21.08	21.00		
1.4	16QAM	6	0	21.12	21.09	21.00	22	2
1.4	64QAM	1	0	20.71	20.59	20.58		
1.4	64QAM	1	3	21.19	21.17	21.03		
1.4	64QAM	1	5	21.16	21.14	20.96	22	2
1.4	64QAM	3	0	21.17	21.13	21.01		
1.4	64QAM	3	1	21.21	21.14	21.03		
1.4	64QAM	3	3	21.17	21.09	20.97		
1.4	64QAM	6	0	20.04	19.92	19.81	21	3

SPORTON LAB.

Band 7 (2600MHz Band)
Part 27

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	23.15	23.37	23.39	24	0
20	QPSK	1	49	23.13	23.34	23.36		
20	QPSK	1	99	23.14	23.31	23.37		
20	QPSK	50	0	22.28	22.41	22.45	23	1
20	QPSK	50	24	22.35	22.43	22.47		
20	QPSK	50	50	22.25	22.32	22.39		
20	QPSK	100	0	22.25	22.34	22.44		
20	16QAM	1	0	22.49	22.65	22.64	23	1
20	16QAM	1	49	22.51	22.63	22.64		
20	16QAM	1	99	22.53	22.55	22.63		
20	16QAM	50	0	21.27	21.37	21.38	22	2
20	16QAM	50	24	21.28	21.37	21.41		
20	16QAM	50	50	21.27	21.36	21.42		
20	16QAM	100	0	21.26	21.38	21.39		
20	64QAM	1	0	21.45	21.60	21.64	22	2
20	64QAM	1	49	21.46	21.59	21.66		
20	64QAM	1	99	21.49	21.56	21.67		
20	64QAM	50	0	20.27	20.40	20.46	21	3
20	64QAM	50	24	20.29	20.45	20.50		
20	64QAM	50	50	20.29	20.38	20.50		
20	64QAM	100	0	20.27	20.38	20.45		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	23.06	23.35	23.30	24	0
15	QPSK	1	37	23.07	23.26	23.28		
15	QPSK	1	74	23.09	23.22	23.31		
15	QPSK	36	0	22.20	22.42	22.42	23	1
15	QPSK	36	20	22.29	22.39	22.43		
15	QPSK	36	39	22.23	22.35	22.41		
15	QPSK	75	0	22.28	22.40	22.41		
15	16QAM	1	0	22.48	22.64	22.62	23	1
15	16QAM	1	37	22.52	22.61	22.62		
15	16QAM	1	74	22.53	22.59	22.60		
15	16QAM	36	0	21.20	21.44	21.38	22	2
15	16QAM	36	20	21.29	21.41	21.42		
15	16QAM	36	39	21.22	21.36	21.39		
15	16QAM	75	0	21.22	21.36	21.42		
15	64QAM	1	0	21.34	21.57	21.62	22	2
15	64QAM	1	37	21.27	21.49	21.59		
15	64QAM	1	74	21.39	21.52	21.65		
15	64QAM	36	0	20.17	20.48	20.48	21	3
15	64QAM	36	20	20.29	20.47	20.51		
15	64QAM	36	39	20.19	20.43	20.49		
15	64QAM	75	0	20.19	20.36	20.50		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	23.09	23.32	23.30	24	0
10	QPSK	1	25	23.11	23.32	23.30		
10	QPSK	1	49	23.09	23.26	23.36		
10	QPSK	25	0	22.33	22.47	22.49	23	1
10	QPSK	25	12	22.29	22.39	22.43		
10	QPSK	25	25	22.28	22.43	22.47		
10	QPSK	50	0	22.27	22.44	22.47		
10	16QAM	1	0	22.70	22.92	22.90	23	1
10	16QAM	1	25	22.51	22.66	22.68		
10	16QAM	1	49	22.66	22.77	22.85		
10	16QAM	25	0	21.31	21.46	21.49	22	2
10	16QAM	25	12	21.25	21.42	21.43		
10	16QAM	25	25	21.24	21.41	21.45		
10	16QAM	50	0	21.29	21.48	21.47		
10	64QAM	1	0	21.62	21.87	21.71	22	2
10	64QAM	1	25	21.44	21.63	21.68		
10	64QAM	1	49	21.60	21.76	21.80		
10	64QAM	25	0	20.23	20.45	20.53	21	3
10	64QAM	25	12	20.18	20.45	20.50		
10	64QAM	25	25	20.22	20.43	20.56		
10	64QAM	50	0	20.23	20.46	20.56		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	23.08	23.28	23.34	24	0
5	QPSK	1	12	23.09	23.29	23.31		
5	QPSK	1	24	23.13	23.24	23.31		
5	QPSK	12	0	22.20	22.51	22.46	23	1
5	QPSK	12	7	22.24	22.41	22.46		
5	QPSK	12	13	22.17	22.41	22.44		
5	QPSK	25	0	22.25	22.43	22.47		
5	16QAM	1	0	22.56	22.81	22.76	23	1
5	16QAM	1	12	22.52	22.68	22.66		
5	16QAM	1	24	22.47	22.68	22.74		
5	16QAM	12	0	21.19	21.51	21.48	22	2
5	16QAM	12	7	21.23	21.47	21.48		
5	16QAM	12	13	21.16	21.41	21.47		
5	16QAM	25	0	21.22	21.44	21.45		
5	64QAM	1	0	21.42	21.68	21.73	22	2
5	64QAM	1	12	21.34	21.63	21.65		
5	64QAM	1	24	21.32	21.57	21.63		
5	64QAM	12	0	20.18	20.57	20.55	21	3
5	64QAM	12	7	20.20	20.49	20.57		
5	64QAM	12	13	20.13	20.47	20.55		
5	64QAM	25	0	20.16	20.45	20.54		

Band 66

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.73	22.75	22.71	24	0
20	QPSK	1	49	22.75	22.85	22.80		
20	QPSK	1	99	23.15	23.17	22.99		
20	QPSK	50	0	21.89	22.00	21.81	23	1
20	QPSK	50	24	21.99	22.09	21.89		
20	QPSK	50	50	21.94	21.98	21.76		
20	QPSK	100	0	21.94	22.06	21.91		
20	16QAM	1	0	22.12	22.29	22.07	23	1
20	16QAM	1	49	22.19	22.32	22.14		
20	16QAM	1	99	22.60	22.61	22.26		
20	16QAM	50	0	20.88	21.01	20.85	22	2
20	16QAM	50	24	21.00	21.08	20.92		
20	16QAM	50	50	20.97	21.00	20.82		
20	16QAM	100	0	20.96	21.06	20.89		
20	64QAM	1	0	20.93	20.80	20.88	22	2
20	64QAM	1	49	21.22	21.33	21.13		
20	64QAM	1	99	21.63	21.69	21.35		
20	64QAM	50	0	19.99	20.13	19.92	21	3
20	64QAM	50	24	20.10	20.20	19.98		
20	64QAM	50	50	20.09	20.12	19.91		
20	64QAM	100	0	20.08	20.16	19.93		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.68	22.65	22.69	24	0
15	QPSK	1	37	22.74	22.77	22.66		
15	QPSK	1	74	23.09	23.14	22.92		
15	QPSK	36	0	22.04	22.11	21.97	23	1
15	QPSK	36	20	21.90	22.06	21.81		
15	QPSK	36	39	21.91	21.95	21.79		
15	QPSK	75	0	21.92	22.07	21.82		
15	16QAM	1	0	22.52	22.60	22.45	23	1
15	16QAM	1	37	22.25	22.36	22.06		
15	16QAM	1	74	22.39	22.42	22.16		
15	16QAM	36	0	21.05	21.10	20.98	22	2
15	16QAM	36	20	20.94	21.08	20.82		
15	16QAM	36	39	20.91	20.95	20.77		
15	16QAM	75	0	20.91	21.08	20.85		
15	64QAM	1	0	20.99	21.15	20.97	22	2
15	64QAM	1	37	21.10	21.31	21.02		
15	64QAM	1	74	21.42	21.42	21.18		
15	64QAM	36	0	20.16	20.22	20.06	21	3
15	64QAM	36	20	20.03	20.20	19.90		
15	64QAM	36	39	20.05	20.06	19.89		
15	64QAM	75	0	19.99	20.16	19.91		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.66	22.72	22.66	24	0
10	QPSK	1	25	22.66	22.83	22.63		
10	QPSK	1	49	23.07	23.11	22.90		
10	QPSK	25	0	21.89	21.96	21.81	23	1
10	QPSK	25	12	21.91	22.13	22.01		
10	QPSK	25	25	22.01	22.17	21.99		
10	QPSK	50	0	21.90	22.12	21.96		
10	16QAM	1	0	21.66	21.76	21.65	23	1
10	16QAM	1	25	22.17	22.36	22.17		
10	16QAM	1	49	22.67	22.71	22.48		
10	16QAM	25	0	20.94	21.00	20.85	22	2
10	16QAM	25	12	20.94	21.15	21.01		
10	16QAM	25	25	21.00	21.12	21.00		
10	16QAM	50	0	20.93	21.13	20.99		
10	64QAM	1	0	21.10	21.24	21.08	22	2
10	64QAM	1	25	21.13	21.28	21.10		
10	64QAM	1	49	21.61	21.68	21.43		
10	64QAM	25	0	20.00	20.12	19.94	21	3
10	64QAM	25	12	20.03	20.28	20.10		
10	64QAM	25	25	20.10	20.27	20.08		
10	64QAM	50	0	20.01	20.22	20.04		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.68	22.73	22.70	24	0
5	QPSK	1	12	22.70	22.84	22.64		
5	QPSK	1	24	23.09	23.11	22.93		
5	QPSK	12	0	21.96	22.16	21.93	23	1
5	QPSK	12	7	21.94	22.09	21.89		
5	QPSK	12	13	21.91	22.05	21.86		
5	QPSK	25	0	21.97	22.10	21.88		
5	16QAM	1	0	22.28	22.47	22.30	23	1
5	16QAM	1	12	22.12	22.33	22.18		
5	16QAM	1	24	22.09	22.36	22.13		
5	16QAM	12	0	21.01	21.22	21.00	22	2
5	16QAM	12	7	20.96	21.13	20.93		
5	16QAM	12	13	20.98	21.07	20.89		
5	16QAM	25	0	20.97	21.14	20.91		
5	64QAM	1	0	21.23	21.17	21.32	22	2
5	64QAM	1	12	21.20	21.35	21.10		
5	64QAM	1	24	21.13	21.31	21.10		
5	64QAM	12	0	20.11	20.32	20.10	21	3
5	64QAM	12	7	20.07	20.25	20.03		
5	64QAM	12	13	20.08	20.20	19.97		
5	64QAM	25	0	20.05	20.21	20.01		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.66	22.65	22.69	24	0
3	QPSK	1	8	22.62	22.81	22.59		
3	QPSK	1	14	23.03	23.06	22.83		
3	QPSK	8	0	21.93	22.06	21.85	23	1
3	QPSK	8	4	21.91	22.07	21.87		
3	QPSK	8	7	21.85	22.03	21.84		
3	QPSK	15	0	21.96	22.03	21.85		
3	16QAM	1	0	22.27	22.42	22.22	23	1
3	16QAM	1	8	22.04	22.26	22.08		
3	16QAM	1	14	22.03	22.33	22.03		
3	16QAM	8	0	20.98	21.17	20.94	22	2
3	16QAM	8	4	20.92	21.03	20.91		
3	16QAM	8	7	20.89	20.97	20.82		
3	16QAM	15	0	20.93	21.05	20.87		
3	64QAM	1	0	21.11	21.03	21.19	22	2
3	64QAM	1	8	21.16	21.36	21.00		
3	64QAM	1	14	21.18	21.33	21.07		
3	64QAM	8	0	20.08	20.27	20.00	21	3
3	64QAM	8	4	20.10	20.27	20.00		
3	64QAM	8	7	20.04	20.21	19.97		
3	64QAM	15	0	20.00	20.20	19.96		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.60	22.66	22.63	24	0
1.4	QPSK	1	3	22.66	22.77	22.62		
1.4	QPSK	1	5	23.00	23.08	22.87		
1.4	QPSK	3	0	22.05	22.15	22.08		
1.4	QPSK	3	1	22.09	22.02	22.06		
1.4	QPSK	3	3	22.11	22.19	22.05		
1.4	QPSK	6	0	21.96	22.03	21.78	23	1
1.4	16QAM	1	0	22.21	22.40	22.20	23	1
1.4	16QAM	1	3	22.07	22.32	22.08		
1.4	16QAM	1	5	22.01	22.34	22.05		
1.4	16QAM	3	0	21.00	21.16	21.02		
1.4	16QAM	3	1	21.06	21.05	21.06		
1.4	16QAM	3	3	21.01	21.00	21.09		
1.4	16QAM	6	0	20.94	21.05	20.82	22	2
1.4	64QAM	1	0	21.15	21.11	21.07	22	2
1.4	64QAM	1	3	21.16	21.35	21.08		
1.4	64QAM	1	5	21.11	21.29	21.06		
1.4	64QAM	3	0	21.1	21.29	21.07		
1.4	64QAM	3	1	21.14	21.36	21.09		
1.4	64QAM	3	3	21.06	21.24	21.03		
1.4	64QAM	6	0	19.95	20.17	19.9	21	3

Reduced Power Mode for Handheld On

Band		WCDMA IV			Tune-up Limit (dBm)
TX Channel		1312	1413	1513	
Rx Channel		1537	1638	1738	
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	21.64	21.82	21.67	22.50
3GPP Rel 99	RMC 12.2Kbps	21.66	21.85	21.68	22.50
3GPP Rel 6	HSDPA Subtest-1	20.66	20.81	20.70	21.50
3GPP Rel 6	HSDPA Subtest-2	20.74	20.75	20.72	21.50
3GPP Rel 6	HSDPA Subtest-3	20.21	20.28	20.22	21.00
3GPP Rel 6	HSDPA Subtest-4	20.22	20.25	20.23	21.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.62	20.78	20.74	21.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.59	20.75	20.63	21.50
3GPP Rel 8	DC-HSDPA Subtest-3	20.17	20.23	20.20	21.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.15	20.20	20.16	21.00
3GPP Rel 6	HSUPA Subtest-1	20.78	20.87	20.86	21.00
3GPP Rel 6	HSUPA Subtest-2	18.77	18.91	18.75	19.00
3GPP Rel 6	HSUPA Subtest-3	19.74	19.88	19.76	20.00
3GPP Rel 6	HSUPA Subtest-4	18.74	18.89	18.82	19.00
3GPP Rel 6	HSUPA Subtest-5	20.70	20.90	20.80	21.00

SPORTON LAB.

Band 4 (AWS Band)
Part 27L (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				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.99	22.02	21.99		
20	QPSK	1	49	21.95	22.09	22.14	23	0
20	QPSK	1	99	21.81	21.82	21.86		
20	QPSK	50	0	22.01	22.00	22.10		
20	QPSK	50	24	22.04	22.03	22.06	22.5	0.5
20	QPSK	50	50	21.87	21.90	21.98		
20	QPSK	100	0	21.96	22.00	22.02		
20	16QAM	1	0	21.82	21.83	21.89		
20	16QAM	1	49	22.00	22.00	22.02	22.5	0.5
20	16QAM	1	99	21.79	21.83	21.82		
20	16QAM	50	0	20.98	21.00	21.11		
20	16QAM	50	24	21.03	21.03	21.03	22	1
20	16QAM	50	50	20.87	20.91	20.99		
20	16QAM	100	0	20.98	20.97	21.00		
20	64QAM	1	0	21.33	21.29	21.31		
20	64QAM	1	49	21.20	21.23	21.20	22	1
20	64QAM	1	99	21.07	21.08	21.07		
20	64QAM	50	0	20.05	20.06	20.19		
20	64QAM	50	24	20.08	20.12	20.13	21	2
20	64QAM	50	50	19.94	19.98	20.08		
20	64QAM	100	0	20.01	20.03	20.08		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.09	22.05	21.89		
15	QPSK	1	37	21.88	21.93	21.90	23	0
15	QPSK	1	74	21.86	21.96	21.90		
15	QPSK	36	0	22.11	22.06	22.02		
15	QPSK	36	20	22.09	22.09	22.03	22.5	0.5
15	QPSK	36	39	21.93	22.03	21.98		
15	QPSK	75	0	21.95	22.01	21.98		
15	16QAM	1	0	22.05	22.09	22.05		
15	16QAM	1	37	21.85	21.96	21.93	22.5	0.5
15	16QAM	1	74	21.84	21.92	21.88		
15	16QAM	36	0	21.07	21.07	21.04		
15	16QAM	36	20	21.08	21.06	21.02	22	1
15	16QAM	36	39	20.93	21.00	20.96		
15	16QAM	75	0	20.93	21.05	20.99		
15	64QAM	1	0	21.15	21.19	21.25		
15	64QAM	1	37	21.19	21.25	21.23	22	1
15	64QAM	1	74	21.18	21.28	21.24		
15	64QAM	36	0	20.20	20.21	20.18		
15	64QAM	36	20	20.20	20.20	20.21	21	2
15	64QAM	36	39	20.06	20.15	20.13		
15	64QAM	75	0	20.01	20.15	20.11		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.11	22.13	21.92		
10	QPSK	1	25	22.03	22.12	22.00	23	0
10	QPSK	1	49	22.05	22.09	22.07		
10	QPSK	25	0	22.11	22.09	22.08		
10	QPSK	25	12	22.03	22.13	22.03	22.5	0.5
10	QPSK	25	25	22.12	22.10	22.07		
10	QPSK	50	0	22.09	22.07	22.07		
10	16QAM	1	0	21.99	22.03	22.03		
10	16QAM	1	25	21.95	22.04	21.97	22.5	0.5
10	16QAM	1	49	22.12	22.11	22.07		
10	16QAM	25	0	21.08	21.06	21.09		
10	16QAM	25	12	21.03	21.13	21.01	22	1
10	16QAM	25	25	21.17	21.17	21.15		
10	16QAM	50	0	21.10	21.19	21.10		
10	64QAM	1	0	21.44	21.29	21.25		
10	64QAM	1	25	21.23	21.32	21.22	22	1
10	64QAM	1	49	21.71	21.67	21.72		
10	64QAM	25	0	20.17	20.19	20.24		
10	64QAM	25	12	20.13	20.25	20.17	21	2
10	64QAM	25	25	20.31	20.32	20.32		
10	64QAM	50	0	20.19	20.29	20.24		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.96	21.86	21.85		
5	QPSK	1	12	22.03	22.10	22.02	23	0
5	QPSK	1	24	21.98	22.04	21.96		
5	QPSK	12	0	22.10	22.11	22.07		
5	QPSK	12	7	22.05	22.12	22.04	22.5	0.5
5	QPSK	12	13	22.05	22.02	21.95		
5	QPSK	25	0	22.05	22.13	22.06		
5	16QAM	1	0	22.13	22.11	22.07		
5	16QAM	1	12	21.91	22.04	21.98	22.5	0.5
5	16QAM	1	24	21.93	22.02	21.95		
5	16QAM	12	0	21.16	21.12	21.10		
5	16QAM	12	7	21.05	21.13	21.07	22	1
5	16QAM	12	13	21.08	21.05	21.00		
5	16QAM	25	0	21.04	21.10	21.07		
5	64QAM	1	0	21.19	21.30	21.28		
5	64QAM	1	12	21.23	21.29	21.29	22	1
5	64QAM	1	24	21.19	21.28	21.23		
5	64QAM	12	0	20.25	20.26	20.23		
5	64QAM	12	7	20.12	20.24	20.19	21	2
5	64QAM	12	13	20.15	20.15	20.09		
5	64QAM	25	0	20.10	20.21	20.16		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.86	22.11	22.00		
3	QPSK	1	8	21.96	21.92	21.97	23	0
3	QPSK	1	14	21.80	21.81	21.79		
3	QPSK	8	0	21.92	21.95	22.09		
3	QPSK	8	4	21.99	21.93	21.96	22.5	0.5
3	QPSK	8	7	21.86	21.85	21.92		
3	QPSK	15	0	21.87	21.93	21.87		
3	16QAM	1	0	21.73	21.73	21.79		
3	16QAM	1	8	21.96	21.97	21.94	22.5	0.5
3	16QAM	1	14	21.70	21.80	21.74		
3	16QAM	8	0	20.95	20.91	21.04		
3	16QAM	8	4	20.95	20.94	20.99	22	1
3	16QAM	8	7	20.81	20.83	20.98		
3	16QAM	15	0	20.90	20.92	20.91		
3	64QAM	1	0	21.33	21.40	21.21		
3	64QAM	1	8	21.24	21.34	21.18	22	1
3	64QAM	1	14	21.19	21.22	21.21		
3	64QAM	8	0	20.20	20.23	20.21		
3	64QAM	8	4	20.11	20.24	20.13	21	2
3	64QAM	8	7	20.08	20.12	20.12		
3	64QAM	15	0	20.03	20.17	20.07		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.93	22.05	21.97		
1.4	QPSK	1	3	21.94	21.94	21.91		
1.4	QPSK	1	5	21.71	21.81	21.76	23	0
1.4	QPSK	3	0	21.91	21.95	22.08		
1.4	QPSK	3	1	21.99	21.93	21.96		
1.4	QPSK	3	3	21.84	21.81	21.91		
1.4	QPSK	6	0	21.91	22.01	21.93	22.5	0.5
1.4	16QAM	1	0	21.74	21.79	21.82		
1.4	16QAM	1	3	21.90	21.91	21.98	22.5	0.5
1.4	16QAM	1	5	21.77	21.76	21.75		
1.4	16QAM	3	0	20.88	20.92	21.02		
1.4	16QAM	3	1	20.96	21.02	20.96	22	1
1.4	16QAM	3	3	20.78	20.87	20.94		
1.4	16QAM	6	0	20.96	20.91	20.98		
1.4	64QAM	1	0	21.19	21.24	21.05		
1.4	64QAM	1	3	21.27	21.25	20.98		
1.4	64QAM	1	5	21.21	21.18	21.19	22	1
1.4	64QAM	3	0	21.23	21.23	21.11		
1.4	64QAM	3	1	21.22	21.28	21.19		
1.4	64QAM	3	3	21.19	21.14	21.11		
1.4	64QAM	6	0	20.06	20.13	20.03	21	2

Band 7 (2600MHz Band)
Part 27

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	20.11	20.36	20.50		
20	QPSK	1	49	20.15	20.26	20.30	21	0
20	QPSK	1	99	20.15	20.21	20.32		
20	QPSK	50	0	20.17	20.23	20.36		
20	QPSK	50	24	20.22	20.31	20.37	21	0
20	QPSK	50	50	20.19	20.30	20.34		
20	QPSK	100	0	20.17	20.32	20.34		
20	16QAM	1	0	20.42	20.30	20.34		
20	16QAM	1	49	20.48	20.32	20.35	21	0
20	16QAM	1	99	20.49	20.22	20.30		
20	16QAM	50	0	20.17	20.30	20.37		
20	16QAM	50	24	20.21	20.34	20.38	21	0
20	16QAM	50	50	20.17	20.28	20.34		
20	16QAM	100	0	20.19	20.29	20.34		
20	64QAM	1	0	20.32	20.42	20.46		
20	64QAM	1	49	20.40	20.47	20.46	21	0
20	64QAM	1	99	20.35	20.42	20.47		
20	64QAM	50	0	20.20	20.30	20.33		
20	64QAM	50	24	20.22	20.32	20.36	21	0
20	64QAM	50	50	20.19	20.30	20.38		
20	64QAM	100	0	20.17	20.30	20.33		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.22	20.33	20.19		
15	QPSK	1	37	20.11	20.21	20.27	21	0
15	QPSK	1	74	20.15	20.26	20.31		
15	QPSK	36	0	20.12	20.35	20.33		
15	QPSK	36	20	20.21	20.32	20.39	21	0
15	QPSK	36	39	20.13	20.28	20.35		
15	QPSK	75	0	20.18	20.30	20.35		
15	16QAM	1	0	20.40	20.26	20.27		
15	16QAM	1	37	20.42	20.26	20.30	21	0
15	16QAM	1	74	20.41	20.25	20.29		
15	16QAM	36	0	20.12	20.36	20.35		
15	16QAM	36	20	20.21	20.33	20.38	21	0
15	16QAM	36	39	20.12	20.30	20.37		
15	16QAM	75	0	20.17	20.34	20.38		
15	64QAM	1	0	20.26	20.49	20.49		
15	64QAM	1	37	20.24	20.39	20.46	21	0
15	64QAM	1	74	20.28	20.44	20.48		
15	64QAM	36	0	20.10	20.38	20.38		
15	64QAM	36	20	20.23	20.37	20.40	21	0
15	64QAM	36	39	20.16	20.34	20.37		
15	64QAM	75	0	20.15	20.32	20.37		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.19	20.45	20.44		
10	QPSK	1	25	20.19	20.37	20.38	21	0
10	QPSK	1	49	20.30	20.40	20.43		
10	QPSK	25	0	20.21	20.39	20.44		
10	QPSK	25	12	20.14	20.31	20.38	21	0
10	QPSK	25	25	20.18	20.36	20.41		
10	QPSK	50	0	20.16	20.38	20.41		
10	16QAM	1	0	20.32	20.46	20.47		
10	16QAM	1	25	20.15	20.36	20.37	21	0
10	16QAM	1	49	20.28	20.43	20.42		
10	16QAM	25	0	20.20	20.42	20.42		
10	16QAM	25	12	20.13	20.34	20.37	21	0
10	16QAM	25	25	20.16	20.36	20.40		
10	16QAM	50	0	20.18	20.40	20.42		
10	64QAM	1	0	20.21	20.48	20.43		
10	64QAM	1	25	20.00	20.26	20.21	21	0
10	64QAM	1	49	20.17	20.33	20.37		
10	64QAM	25	0	20.19	20.37	20.43		
10	64QAM	25	12	20.13	20.35	20.39	21	0
10	64QAM	25	25	20.16	20.38	20.39		
10	64QAM	50	0	20.20	20.38	20.43		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.12	20.37	20.42		
5	QPSK	1	12	20.10	20.29	20.40	21	0
5	QPSK	1	24	20.11	20.33	20.38		
5	QPSK	12	0	20.10	20.43	20.40		
5	QPSK	12	7	20.13	20.35	20.40	21	0
5	QPSK	12	13	20.05	20.35	20.38		
5	QPSK	25	0	20.12	20.39	20.40		
5	16QAM	1	0	20.14	20.38	20.41		
5	16QAM	1	12	20.06	20.35	20.37	21	0
5	16QAM	1	24	20.09	20.32	20.38		
5	16QAM	12	0	20.09	20.45	20.44		
5	16QAM	12	7	20.14	20.41	20.44	21	0
5	16QAM	12	13	20.10	20.36	20.42		
5	16QAM	25	0	20.13	20.37	20.41		
5	64QAM	1	0	20.31	20.28	20.36		
5	64QAM	1	12	20.24	20.21	20.28	21	0
5	64QAM	1	24	20.27	20.21	20.24		
5	64QAM	12	0	20.09	20.49	20.47		
5	64QAM	12	7	20.16	20.45	20.46	21	0
5	64QAM	12	13	20.11	20.39	20.42		
5	64QAM	25	0	20.14	20.37	20.42		

Band 66

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.03	22.13	22.02		
20	QPSK	1	49	22.02	22.07	22.00	23	0
20	QPSK	1	99	22.49	22.50	22.48		
20	QPSK	50	0	21.99	22.10	21.90		
20	QPSK	50	24	22.08	22.18	21.96	22.5	0.5
20	QPSK	50	50	22.02	22.07	21.84		
20	QPSK	100	0	22.03	22.11	21.98		
20	16QAM	1	0	21.86	22.07	21.82		
20	16QAM	1	49	22.02	22.13	21.89	22.5	0.5
20	16QAM	1	99	22.31	22.30	22.09		
20	16QAM	50	0	20.96	21.11	20.91		
20	16QAM	50	24	21.06	21.19	20.99	22	1
20	16QAM	50	50	21.04	21.09	20.89		
20	16QAM	100	0	21.05	21.13	20.96		
20	64QAM	1	0	21.25	21.33	21.21		
20	64QAM	1	49	21.18	21.29	21.14	22	1
20	64QAM	1	99	21.65	21.70	21.39		
20	64QAM	50	0	20.02	20.16	19.95		
20	64QAM	50	24	20.11	20.21	20.05	21	2
20	64QAM	50	50	20.07	20.11	19.92		
20	64QAM	100	0	20.10	20.19	20.00		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	21.82	22.01	21.78		
15	QPSK	1	37	21.92	22.01	21.79	23	0
15	QPSK	1	74	22.18	22.27	21.97		
15	QPSK	36	0	22.18	22.20	22.06		
15	QPSK	36	20	22.03	22.16	21.91	22.5	0.5
15	QPSK	36	39	22.05	22.04	21.87		
15	QPSK	75	0	22.03	22.15	21.89		
15	16QAM	1	0	22.29	22.44	22.25		
15	16QAM	1	37	22.01	22.14	21.97	22.5	0.5
15	16QAM	1	74	22.17	22.29	21.95		
15	16QAM	36	0	21.15	21.22	21.06		
15	16QAM	36	20	21.05	21.18	20.92	22	1
15	16QAM	36	39	21.01	21.04	20.86		
15	16QAM	75	0	21.01	21.17	20.93		
15	64QAM	1	0	21.23	21.33	21.10		
15	64QAM	1	37	21.13	21.29	21.08	22	1
15	64QAM	1	74	21.32	21.47	21.19		
15	64QAM	36	0	20.21	20.26	20.10		
15	64QAM	36	20	20.08	20.21	19.95	21	2
15	64QAM	36	39	20.08	20.10	19.90		
15	64QAM	75	0	20.01	20.16	19.96		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	21.87	21.96	21.91		
10	QPSK	1	25	21.98	22.17	21.98	23	0
10	QPSK	1	49	22.32	22.30	22.35		
10	QPSK	25	0	22.00	22.07	21.93		
10	QPSK	25	12	22.02	22.24	22.07	22.5	0.5
10	QPSK	25	25	22.10	22.25	22.09		
10	QPSK	50	0	22.01	22.22	22.05		
10	16QAM	1	0	22.28	22.36	22.18		
10	16QAM	1	25	21.96	22.04	21.90	22.5	0.5
10	16QAM	1	49	22.13	22.23	21.86		
10	16QAM	25	0	21.01	21.11	20.95		
10	16QAM	25	12	21.04	21.26	21.09	22	1
10	16QAM	25	25	21.10	21.24	21.08		
10	16QAM	50	0	21.03	21.23	21.08		
10	64QAM	1	0	21.12	21.44	21.25		
10	64QAM	1	25	21.17	21.35	21.18	22	1
10	64QAM	1	49	21.66	21.74	21.57		
10	64QAM	25	0	20.03	20.11	19.98		
10	64QAM	25	12	20.06	20.27	20.15	21	2
10	64QAM	25	25	20.15	20.29	20.14		
10	64QAM	50	0	20.04	20.24	20.10		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	21.73	21.97	21.78		
5	QPSK	1	12	22.03	22.20	21.94	23	0
5	QPSK	1	24	21.96	22.11	21.90		
5	QPSK	12	0	22.08	22.26	22.03		
5	QPSK	12	7	22.06	22.20	21.98	22.5	0.5
5	QPSK	12	13	22.07	22.16	21.94		
5	QPSK	25	0	22.06	22.23	21.99		
5	16QAM	1	0	22.10	22.26	22.10		
5	16QAM	1	12	21.97	22.13	21.89	22.5	0.5
5	16QAM	1	24	21.95	22.15	21.86		
5	16QAM	12	0	21.10	21.30	21.10		
5	16QAM	12	7	21.08	21.24	21.02	22	1
5	16QAM	12	13	21.07	21.19	20.97		
5	16QAM	25	0	21.07	21.24	21.01		
5	64QAM	1	0	21.33	21.39	21.24		
5	64QAM	1	12	21.28	21.4	21.14	22	1
5	64QAM	1	24	21.17	21.34	21.09		
5	64QAM	12	0	20.14	20.35	20.15		
5	64QAM	12	7	20.11	20.26	20.06	21	2
5	64QAM	12	13	20.1	20.21	20.01		
5	64QAM	25	0	20.06	20.26	20.06		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	21.84	22.11	21.89		
3	QPSK	1	8	21.93	21.98	21.87	23	0
3	QPSK	1	14	22.33	22.31	22.30		
3	QPSK	8	0	21.91	22.03	21.86		
3	QPSK	8	4	22.04	22.17	21.90	22.5	0.5
3	QPSK	8	7	21.97	21.99	21.75		
3	QPSK	15	0	21.99	22.01	21.88		
3	16QAM	1	0	22.21	22.39	22.21		
3	16QAM	1	8	21.92	22.08	21.89	22.5	0.5
3	16QAM	1	14	22.09	22.27	21.92		
3	16QAM	8	0	20.89	21.09	20.89		
3	16QAM	8	4	21.02	21.12	20.97	22	1
3	16QAM	8	7	20.95	21.05	20.88		
3	16QAM	15	0	20.99	21.05	20.88		
3	64QAM	1	0	21.30	21.49	21.21		
3	64QAM	1	8	21.25	21.41	21.18	22	1
3	64QAM	1	14	21.22	21.31	21.10		
3	64QAM	8	0	20.10	20.28	20.01		
3	64QAM	8	4	20.12	20.27	20.05	21	2
3	64QAM	8	7	20.08	20.23	20.00		
3	64QAM	15	0	20.06	20.23	19.99		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	21.91	22.07	21.90		
1.4	QPSK	1	3	21.90	21.98	21.83		
1.4	QPSK	1	5	22.31	22.33	22.32	23	0
1.4	QPSK	3	0	21.96	22.00	21.89		
1.4	QPSK	3	1	22.00	22.17	21.89		
1.4	QPSK	3	3	21.92	22.00	21.83		
1.4	QPSK	6	0	22.01	22.10	21.93	22.5	0.5
1.4	16QAM	1	0	22.25	22.38	22.22		
1.4	16QAM	1	3	21.94	22.12	21.95		
1.4	16QAM	1	5	22.15	22.27	21.88	22.5	0.5
1.4	16QAM	3	0	20.91	21.08	20.83		
1.4	16QAM	3	1	21.00	21.11	20.97		
1.4	16QAM	3	3	20.96	20.99	20.86		
1.4	16QAM	6	0	21.00	21.05	21.01	22	1
1.4	64QAM	1	0	21.33	21.40	21.15		
1.4	64QAM	1	3	21.22	21.35	21.14		
1.4	64QAM	1	5	21.14	21.35	21.05	22	1
1.4	64QAM	3	0	21.14	21.33	21.09		
1.4	64QAM	3	1	21.14	21.38	21.1		
1.4	64QAM	3	3	21.06	21.31	21.04		
1.4	64QAM	6	0	19.96	20.15	19.95	21	2

Reduced Power Mode for Hotspot On

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	31.37	31.51	31.61	32.00	22.37	22.51	22.61	23.00
GPRS 1 Tx slot	31.42	31.62	31.58	32.00	22.42	22.62	22.58	23.00
GPRS 2 Tx slots	29.84	30.05	30.09	30.50	23.84	24.05	24.09	24.50
GPRS 3 Tx slots	27.19	27.44	27.41	28.00	22.93	23.18	23.15	23.74
GPRS 4 Tx slots	24.93	25.13	25.24	26.00	21.93	22.13	22.24	23.00
EDGE 1 Tx slot	25.01	25.34	25.44	26.00	16.01	16.34	16.44	17.00
EDGE 2 Tx slots	22.33	22.55	22.66	23.50	16.33	16.55	16.66	17.50
EDGE 3 Tx slots	21.12	21.55	21.58	22.50	16.86	17.29	17.32	18.24
EDGE 4 Tx slots	18.89	19.19	19.31	19.50	15.89	16.19	16.31	16.50

GSM1900	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	26.09	26.39	26.46	27.50	17.09	17.39	17.46	18.50
GPRS 1 Tx slot	26.07	26.37	26.44	27.50	17.07	17.37	17.44	18.50
GPRS 2 Tx slots	24.83	25.11	25.18	26.00	18.83	19.11	19.18	20.00
GPRS 3 Tx slots	22.56	22.79	22.72	24.50	18.30	18.53	18.46	20.24
GPRS 4 Tx slots	20.22	20.30	20.34	21.50	17.22	17.30	17.34	18.50
EDGE 1 Tx slot	22.53	22.88	22.95	23.50	13.53	13.88	13.95	14.50
EDGE 2 Tx slots	20.59	20.78	20.90	22.00	14.59	14.78	14.90	16.00
EDGE 3 Tx slots	18.36	18.55	18.68	20.00	14.10	14.29	14.42	15.74
EDGE 4 Tx slots	16.86	17.01	17.22	17.50	13.86	14.01	14.22	14.50

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	19.66	19.86	19.85	20.50	18.88	19.02	18.89	19.50	22.25	22.29	22.24	23.00
3GPP Rel 99	RMC 12.2Kbps	19.68	19.88	19.87	20.50	18.90	19.04	18.92	19.50	22.28	22.30	22.27	23.00
3GPP Rel 6	HSDPA Subtest-1	18.81	19.03	19.01	19.50	17.87	17.92	17.88	18.50	21.18	21.22	20.94	22.00
3GPP Rel 6	HSDPA Subtest-2	18.82	19.03	18.98	19.50	17.91	17.95	17.89	18.50	21.19	21.18	20.93	22.00
3GPP Rel 6	HSDPA Subtest-3	18.29	18.48	18.47	19.00	17.36	17.45	17.39	18.00	20.69	20.69	20.45	21.50
3GPP Rel 6	HSDPA Subtest-4	18.36	18.44	18.53	19.00	17.39	17.48	17.39	18.00	20.67	20.69	20.43	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	18.79	18.85	18.80	19.50	17.85	17.90	17.88	18.50	21.20	21.19	21.09	22.00
3GPP Rel 8	DC-HSDPA Subtest-2	18.71	18.78	18.73	19.50	17.88	17.86	17.82	18.50	21.17	21.18	21.11	22.00
3GPP Rel 8	DC-HSDPA Subtest-3	18.27	18.33	18.30	19.00	17.33	17.38	17.35	18.00	20.64	20.70	20.41	21.50
3GPP Rel 8	DC-HSDPA Subtest-4	18.25	18.30	18.27	19.00	17.30	17.33	17.31	18.00	20.60	20.65	20.38	21.50
3GPP Rel 6	HSUPA Subtest-1	18.79	18.90	18.87	19.00	17.95	18.00	17.92	18.00	21.17	21.17	21.02	21.50
3GPP Rel 6	HSUPA Subtest-2	16.79	16.86	16.88	17.00	15.89	16.00	15.88	16.00	19.17	19.13	19.11	19.50
3GPP Rel 6	HSUPA Subtest-3	17.80	17.88	17.88	18.00	16.88	16.98	17.00	17.00	20.12	20.16	20.12	20.50
3GPP Rel 6	HSUPA Subtest-4	16.81	16.90	16.87	17.00	15.97	15.89	15.91	16.00	19.16	19.11	19.05	19.50
3GPP Rel 6	HSUPA Subtest-5	18.80	18.95	18.95	19.00	17.90	17.88	17.90	18.00	21.20	21.20	21.14	21.50

SPORTON LAB.

Band 2 (1900MHz Band)
Part 24E

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	19.72	19.85	19.96	20.5	0
20	QPSK	1	49	19.50	19.55	19.68		
20	QPSK	1	99	19.68	19.82	19.91		
20	QPSK	50	0	19.50	19.64	19.72	20.5	0
20	QPSK	50	24	19.51	19.65	19.76		
20	QPSK	50	50	19.54	19.77	19.90		
20	QPSK	100	0	19.49	19.73	19.85		
20	16QAM	1	0	19.62	19.79	19.79	20.5	0
20	16QAM	1	49	19.46	19.60	19.71		
20	16QAM	1	99	19.61	19.87	19.94		
20	16QAM	50	0	19.57	19.64	19.77	20.5	0
20	16QAM	50	24	19.49	19.66	19.76		
20	16QAM	50	50	19.54	19.77	19.88		
20	16QAM	100	0	19.50	19.70	19.79		
20	64QAM	1	0	19.26	19.34	19.39	20.5	0
20	64QAM	1	49	19.19	19.31	19.40		
20	64QAM	1	99	19.47	19.64	19.79		
20	64QAM	50	0	19.20	19.23	19.36	20.5	0
20	64QAM	50	24	19.12	19.27	19.33		
20	64QAM	50	50	19.19	19.35	19.47		
20	64QAM	100	0	19.11	19.27	19.36		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	19.68	19.78	19.82	20.5	0
15	QPSK	1	37	19.45	19.50	19.63		
15	QPSK	1	74	19.58	19.72	19.70		
15	QPSK	36	0	19.57	19.65	19.81	20.5	0
15	QPSK	36	20	19.57	19.71	19.70		
15	QPSK	36	39	19.55	19.77	19.75		
15	QPSK	75	0	19.62	19.68	19.83		
15	16QAM	1	0	19.59	19.76	19.75	20.5	0
15	16QAM	1	37	19.42	19.53	19.60		
15	16QAM	1	74	19.80	19.74	19.65		
15	16QAM	36	0	19.57	19.69	19.82	20.5	0
15	16QAM	36	20	19.58	19.69	19.70		
15	16QAM	36	39	19.56	19.78	19.80		
15	16QAM	75	0	19.60	19.72	19.84		
15	64QAM	1	0	19.38	19.37	19.54	20.5	0
15	64QAM	1	37	19.29	19.36	19.49		
15	64QAM	1	74	19.61	19.80	19.91		
15	64QAM	36	0	19.22	19.28	19.38	20.5	0
15	64QAM	36	20	19.18	19.28	19.46		
15	64QAM	36	39	19.16	19.37	19.45		
15	64QAM	75	0	19.20	19.30	19.37		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	19.66	19.79	19.77	20.5	0
10	QPSK	1	25	19.44	19.51	19.65		
10	QPSK	1	49	19.64	19.87	19.94		
10	QPSK	25	0	19.49	19.60	19.80	20.5	0
10	QPSK	25	12	19.64	19.75	19.83		
10	QPSK	25	25	19.68	19.82	19.91		
10	QPSK	50	0	19.65	19.75	19.87		
10	16QAM	1	0	19.77	19.87	19.80	20.5	0
10	16QAM	1	25	19.55	19.71	19.77		
10	16QAM	1	49	19.71	19.90	19.80		
10	16QAM	25	0	19.63	19.76	19.93	20.5	0
10	16QAM	25	12	19.62	19.76	19.85		
10	16QAM	25	25	19.64	19.79	19.88		
10	16QAM	50	0	19.63	19.79	19.90		
10	64QAM	1	0	19.39	19.52	19.54	20.5	0
10	64QAM	1	25	19.33	19.42	19.49		
10	64QAM	1	49	19.48	19.77	19.78		
10	64QAM	25	0	19.25	19.33	19.51	20.5	0
10	64QAM	25	12	19.25	19.35	19.42		
10	64QAM	25	25	19.28	19.38	19.48		
10	64QAM	50	0	19.24	19.36	19.44		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	19.68	19.81	19.80	20.5	0
5	QPSK	1	12	19.54	19.63	19.78		
5	QPSK	1	24	19.58	19.70	19.81		
5	QPSK	12	0	19.63	19.76	19.94	20.5	0
5	QPSK	12	7	19.63	19.74	19.88		
5	QPSK	12	13	19.58	19.74	19.81		
5	QPSK	25	0	19.64	19.74	19.86		
5	16QAM	1	0	19.64	19.76	19.85	20.5	0
5	16QAM	1	12	19.53	19.68	19.76		
5	16QAM	1	24	19.54	19.68	19.77		
5	16QAM	12	0	19.67	19.80	19.95	20.5	0
5	16QAM	12	7	19.61	19.76	19.88		
5	16QAM	12	13	19.59	19.78	19.86		
5	16QAM	25	0	19.61	19.76	19.86		
5	64QAM	1	0	19.48	19.51	19.55	20.5	0
5	64QAM	1	12	19.37	19.44	19.54		
5	64QAM	1	24	19.34	19.44	19.49		
5	64QAM	12	0	19.27	19.38	19.51	20.5	0
5	64QAM	12	7	19.21	19.32	19.40		
5	64QAM	12	13	19.22	19.33	19.40		
5	64QAM	25	0	19.21	19.33	19.40		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	19.66	19.82	19.77	20.5	0
3	QPSK	1	8	19.56	19.67	19.82		
3	QPSK	1	14	19.55	19.71	19.79		
3	QPSK	8	0	19.57	19.70	19.81	20.5	0
3	QPSK	8	4	19.60	19.76	19.84		
3	QPSK	8	7	19.56	19.69	19.81		
3	QPSK	15	0	19.57	19.72	19.80		
3	16QAM	1	0	19.53	19.66	19.81	20.5	0
3	16QAM	1	8	19.52	19.61	19.83		
3	16QAM	1	14	19.48	19.65	19.74		
3	16QAM	8	0	19.65	19.78	19.89	20.5	0
3	16QAM	8	4	19.66	19.78	19.90		
3	16QAM	8	7	19.61	19.77	19.85		
3	16QAM	15	0	19.59	19.74	19.85		
3	64QAM	1	0	19.37	19.53	19.55	20.5	0
3	64QAM	1	8	19.33	19.43	19.47		
3	64QAM	1	14	19.31	19.41	19.48		
3	64QAM	8	0	19.23	19.32	19.43	20.5	0
3	64QAM	8	4	19.21	19.34	19.40		
3	64QAM	8	7	19.20	19.30	19.35		
3	64QAM	15	0	19.15	19.30	19.33		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	19.66	19.83	19.74	20.5	0
1.4	QPSK	1	3	19.62	19.77	19.85		
1.4	QPSK	1	5	19.55	19.70	19.74		
1.4	QPSK	3	0	19.60	19.74	19.77		
1.4	QPSK	3	1	19.66	19.79	19.83		
1.4	QPSK	3	3	19.55	19.70	19.78		
1.4	QPSK	6	0	19.54	19.69	19.74	20.5	0
1.4	16QAM	1	0	19.47	19.61	19.76	20.5	0
1.4	16QAM	1	3	19.52	19.64	19.75		
1.4	16QAM	1	5	19.45	19.54	19.71		
1.4	16QAM	3	0	19.60	19.76	19.81		
1.4	16QAM	3	1	19.67	19.80	19.88		
1.4	16QAM	3	3	19.59	19.72	19.79		
1.4	16QAM	6	0	19.62	19.72	19.87	20.5	0
1.4	64QAM	1	0	19.05	19.18	19.10	20.5	0
1.4	64QAM	1	3	18.95	18.98	19.00		
1.4	64QAM	1	5	19.00	19.54	19.42		
1.4	64QAM	3	0	19.31	19.36	19.51		
1.4	64QAM	3	1	19.22	19.44	19.57		
1.4	64QAM	3	3	19.25	19.54	19.52		
1.4	64QAM	6	0	19.22	19.32	19.26	20.5	0

Band 4 (AWS Band)
Part 27L (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				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	18.37	18.37	18.46	19.5	0
20	QPSK	1	49	18.45	18.50	18.74		
20	QPSK	1	99	18.34	18.39	18.36		
20	QPSK	50	0	18.53	18.53	18.57	19.5	0
20	QPSK	50	24	18.56	18.58	18.67		
20	QPSK	50	50	18.38	18.44	18.53		
20	QPSK	100	0	18.47	18.50	18.51		
20	16QAM	1	0	18.37	18.36	18.43	19.5	0
20	16QAM	1	49	18.51	18.57	18.59		
20	16QAM	1	99	18.38	18.39	18.37		
20	16QAM	50	0	18.16	18.16	18.27	19.5	0
20	16QAM	50	24	18.54	18.57	18.58		
20	16QAM	50	50	18.38	18.44	18.53		
20	16QAM	100	0	18.48	18.52	18.54		
20	64QAM	1	0	18.52	18.55	18.57	19.5	0
20	64QAM	1	49	18.47	18.46	18.49		
20	64QAM	1	99	18.22	18.37	18.33		
20	64QAM	50	0	18.24	18.27	18.4	19.5	0
20	64QAM	50	24	18.27	18.33	18.37		
20	64QAM	50	50	18.15	18.19	18.32		
20	64QAM	100	0	18.23	18.26	18.32		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.34	18.34	18.40	19.5	0
15	QPSK	1	37	18.40	18.45	18.37		
15	QPSK	1	74	18.42	18.50	18.46		
15	QPSK	36	0	18.61	18.62	18.56	19.5	0
15	QPSK	36	20	18.61	18.60	18.58		
15	QPSK	36	39	18.46	18.57	18.54		
15	QPSK	75	0	18.48	18.57	18.55		
15	16QAM	1	0	18.58	18.66	18.63	19.5	0
15	16QAM	1	37	18.41	18.48	18.47		
15	16QAM	1	74	18.36	18.51	18.45		
15	16QAM	36	0	18.58	18.59	18.58	19.5	0
15	16QAM	36	20	18.59	18.63	18.60		
15	16QAM	36	39	18.43	18.57	18.51		
15	16QAM	75	0	18.44	18.58	18.53		
15	64QAM	1	0	18.41	18.67	18.56	19.5	0
15	64QAM	1	37	18.34	18.57	18.51		
15	64QAM	1	74	18.34	18.43	18.42		
15	64QAM	36	0	18.35	18.37	18.37	19.5	0
15	64QAM	36	20	18.36	18.36	18.39		
15	64QAM	36	39	18.22	18.34	18.32		
15	64QAM	75	0	18.17	18.34	18.31		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.49	18.44	18.48	19.5	0
10	QPSK	1	25	18.54	18.63	18.54		
10	QPSK	1	49	18.59	18.56	18.56		
10	QPSK	25	0	18.60	18.62	18.62	19.5	0
10	QPSK	25	12	18.55	18.67	18.57		
10	QPSK	25	25	18.37	18.40	18.39		
10	QPSK	50	0	18.68	18.64	18.69		
10	16QAM	1	0	18.43	18.51	18.50	19.5	0
10	16QAM	1	25	18.45	18.57	18.54		
10	16QAM	1	49	18.58	18.60	18.59		
10	16QAM	25	0	18.61	18.62	18.63	19.5	0
10	16QAM	25	12	18.56	18.67	18.60		
10	16QAM	25	25	18.72	18.64	18.71		
10	16QAM	50	0	18.63	18.73	18.65		
10	64QAM	1	0	18.46	18.63	18.65	19.5	0
10	64QAM	1	25	18.36	18.55	18.5		
10	64QAM	1	49	18.38	18.44	18.45		
10	64QAM	25	0	18.31	18.39	18.42	19.5	0
10	64QAM	25	12	18.31	18.46	18.38		
10	64QAM	25	25	18.46	18.52	18.53		
10	64QAM	50	0	18.38	18.5	18.43		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.34	18.33	18.41	19.5	0
5	QPSK	1	12	18.51	18.63	18.57		
5	QPSK	1	24	18.49	18.56	18.52		
5	QPSK	12	0	18.65	18.66	18.63	19.5	0
5	QPSK	12	7	18.58	18.68	18.60		
5	QPSK	12	13	18.59	18.59	18.51		
5	QPSK	25	0	18.58	18.69	18.63		
5	16QAM	1	0	18.61	18.60	18.63	19.5	0
5	16QAM	1	12	18.41	18.54	18.51		
5	16QAM	1	24	18.42	18.55	18.44		
5	16QAM	12	0	18.68	18.69	18.64	19.5	0
5	16QAM	12	7	18.56	18.69	18.65		
5	16QAM	12	13	18.59	18.58	18.55		
5	16QAM	25	0	18.57	18.67	18.62		
5	64QAM	1	0	18.45	18.60	18.70	19.5	0
5	64QAM	1	12	18.48	18.56	18.6		
5	64QAM	1	24	18.38	18.54	18.53		
5	64QAM	12	0	18.43	18.44	18.43	19.5	0
5	64QAM	12	7	18.35	18.48	18.46		
5	64QAM	12	13	18.34	18.38	18.35		
5	64QAM	25	0	18.31	18.44	18.44		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.35	18.32	18.36	19.5	0
3	QPSK	1	8	18.53	18.62	18.47		
3	QPSK	1	14	18.51	18.54	18.48		
3	QPSK	8	0	18.6	18.64	18.62	19.5	0
3	QPSK	8	4	18.49	18.62	18.54		
3	QPSK	8	7	18.47	18.54	18.5		
3	QPSK	15	0	18.46	18.59	18.47		
3	16QAM	1	0	18.49	18.59	18.5	19.5	0
3	16QAM	1	8	18.4	18.58	18.45		
3	16QAM	1	14	18.38	18.41	18.41		
3	16QAM	8	0	18.62	18.68	18.63	19.5	0
3	16QAM	8	4	18.56	18.71	18.55		
3	16QAM	8	7	18.54	18.57	18.54		
3	16QAM	15	0	18.48	18.64	18.53		
3	64QAM	1	0	18.54	18.67	18.64	19.5	0
3	64QAM	1	8	18.42	18.59	18.47		
3	64QAM	1	14	18.44	18.54	18.48		
3	64QAM	8	0	18.37	18.45	18.44	19.5	0
3	64QAM	8	4	18.32	18.48	18.37		
3	64QAM	8	7	18.3	18.35	18.34		
3	64QAM	15	0	18.25	18.44	18.31		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.30	18.29	18.44	19.5	0
1.4	QPSK	1	3	18.62	18.63	18.56		
1.4	QPSK	1	5	18.51	18.49	18.46		
1.4	QPSK	3	0	18.51	18.58	18.53		
1.4	QPSK	3	1	18.59	18.68	18.53		
1.4	QPSK	3	3	18.53	18.54	18.48		
1.4	QPSK	6	0	18.49	18.58	18.47	19.5	0
1.4	16QAM	1	0	18.45	18.53	18.44	19.5	0
1.4	16QAM	1	3	18.49	18.61	18.44		
1.4	16QAM	1	5	18.40	18.42	18.40		
1.4	16QAM	3	0	18.58	18.60	18.55		
1.4	16QAM	3	1	18.61	18.66	18.56		
1.4	16QAM	3	3	18.56	18.51	18.50		
1.4	16QAM	6	0	18.58	18.64	18.51	19.5	0
1.4	64QAM	1	0	18.53	18.57	18.53	19.5	0
1.4	64QAM	1	3	18.31	18.37	18.41		
1.4	64QAM	1	5	18.35	18.32	18.3		
1.4	64QAM	3	0	18	18.27	18.27		
1.4	64QAM	3	1	18.18	18.44	18.22		
1.4	64QAM	3	3	18.43	18.54	18.53		
1.4	64QAM	6	0	18.27	18.39	18.31	19.5	0

Band 5 (Celluar Band)
Part 22H(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				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.26	22.15	22.17	23	0
10	QPSK	1	25	22.09	22.01	22.00		
10	QPSK	1	49	22.41	22.37	22.21		
10	QPSK	25	0	22.06	22.02	22.07	23	0
10	QPSK	25	12	22.11	22.04	22.04		
10	QPSK	25	25	22.12	22.11	22.05		
10	QPSK	50	0	22	22.05	22.04		
10	16QAM	1	0	22.08	22.01	21.97	23	0
10	16QAM	1	25	21.91	21.89	21.90		
10	16QAM	1	49	22.28	22.20	21.97		
10	16QAM	25	0	21.06	21.00	21.06	22	1
10	16QAM	25	12	21.09	21.03	21.06		
10	16QAM	25	25	21.06	21.10	21.04		
10	16QAM	50	0	21.03	21.05	21.08		
10	64QAM	1	0	20	20.2	20.04	22	1
10	64QAM	1	25	20.01	20.43	20.09		
10	64QAM	1	49	20.48	20.65	20.13		
10	64QAM	25	0	20.14	20.24	20.11	22	1
10	64QAM	25	12	20.24	20.25	20.22		
10	64QAM	25	25	20.24	20.21	20.18		
10	64QAM	50	0	20.14	20.18	20.15		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.23	22.08	22.08	23	0
5	QPSK	1	12	22.05	22.01	22.02		
5	QPSK	1	24	22.09	22.00	22.01		
5	QPSK	12	0	22.07	21.95	21.89	23	0
5	QPSK	12	7	22.04	22.02	21.90		
5	QPSK	12	13	22.09	21.94	21.90		
5	QPSK	25	0	22.04	22.03	21.89		
5	16QAM	1	0	22.35	22.29	22.25	23	0
5	16QAM	1	12	22.23	22.21	22.13		
5	16QAM	1	24	22.32	22.24	22.05		
5	16QAM	12	0	21.10	20.96	20.92	22	1
5	16QAM	12	7	21.09	21.00	20.91		
5	16QAM	12	13	21.10	20.98	20.93		
5	16QAM	25	0	21.05	21.02	20.92		
5	64QAM	1	0	21.21	21.34	21.29	22	1
5	64QAM	1	12	21.2	21.23	21.23		
5	64QAM	1	24	21.28	21.24	21.07		
5	64QAM	12	0	20.21	20.07	20.09	22	1
5	64QAM	12	7	20.16	20.18	20.06		
5	64QAM	12	13	20.26	20.09	20.08		
5	64QAM	25	0	20.15	20.09	20.06		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.19	22.14	22.08	23	0
3	QPSK	1	8	22.08	21.98	21.95		
3	QPSK	1	14	22.02	21.94	21.84		
3	QPSK	8	0	22.10	21.93	21.89	23	0
3	QPSK	8	4	22.10	22.05	21.93		
3	QPSK	8	7	22.07	22.00	21.87		
3	QPSK	15	0	22.08	22.01	21.92		
3	16QAM	1	0	22.11	21.94	21.92	23	0
3	16QAM	1	8	22.04	21.96	21.89		
3	16QAM	1	14	21.99	21.89	21.84		
3	16QAM	8	0	21.13	21.00	20.92	22	1
3	16QAM	8	4	21.12	21.05	21.01		
3	16QAM	8	7	21.11	21.01	20.91		
3	16QAM	15	0	21.08	21.04	20.95		
3	64QAM	1	0	21.35	21.29	21.26	22	1
3	64QAM	1	8	21.27	21.19	21.13		
3	64QAM	1	14	21.17	21.15	20.97		
3	64QAM	8	0	20.17	20.01	20	22	1
3	64QAM	8	4	20.16	20.12	20.03		
3	64QAM	8	7	20.14	20.08	20.01		
3	64QAM	15	0	20.11	20.06	20		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.25	22.09	22.10	23	0
1.4	QPSK	1	3	22.06	21.97	21.86		
1.4	QPSK	1	5	22.00	21.91	21.81		
1.4	QPSK	3	0	22.06	21.98	21.84		
1.4	QPSK	3	1	22.10	22.01	21.86		
1.4	QPSK	3	3	22.11	21.97	21.87		
1.4	QPSK	6	0	22.03	21.97	21.81	23	0
1.4	16QAM	1	0	22.35	22.18	22.13	23	0
1.4	16QAM	1	3	22.39	22.31	22.21		
1.4	16QAM	1	5	22.29	22.24	22.11		
1.4	16QAM	3	0	22.06	22.01	21.83		
1.4	16QAM	3	1	22.12	22.04	21.88		
1.4	16QAM	3	3	22.01	21.95	21.81		
1.4	16QAM	6	0	21.15	21.07	20.93	22	1
1.4	64QAM	1	0	21.26	21.12	21.08	22	1
1.4	64QAM	1	3	21.09	21.1	21.11		
1.4	64QAM	1	5	21.41	21.06	20.91		
1.4	64QAM	3	0	20.97	21.31	21.03		
1.4	64QAM	3	1	21.23	21.09	20.84		
1.4	64QAM	3	3	21.16	20.81	21.07		
1.4	64QAM	6	0	20.13	20.06	20.02	22	1

Band 7 (2600MHz Band)
Part 27

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	16.76	16.92	17.03	17.5	0
20	QPSK	1	49	16.83	16.88	16.93		
20	QPSK	1	99	16.85	16.88	16.92		
20	QPSK	50	0	16.87	16.95	16.93	17.5	0
20	QPSK	50	24	16.89	16.98	17.01		
20	QPSK	50	50	16.88	16.90	16.95		
20	QPSK	100	0	16.88	16.94	17.00		
20	16QAM	1	0	16.78	16.85	16.88	17.5	0
20	16QAM	1	49	16.79	16.85	16.93		
20	16QAM	1	99	16.73	16.84	16.83		
20	16QAM	50	0	16.87	16.95	16.97	17.5	0
20	16QAM	50	24	16.89	16.97	17.00		
20	16QAM	50	50	16.86	16.95	16.97		
20	16QAM	100	0	16.86	16.95	16.96		
20	64QAM	1	0	16.61	16.44	16.69	17.5	0
20	64QAM	1	49	16.51	16.37	16.61		
20	64QAM	1	99	16.94	16.91	16.91		
20	64QAM	50	0	16.84	16.73	16.72	17.5	0
20	64QAM	50	24	16.93	16.93	16.74		
20	64QAM	50	50	16.96	16.70	16.99		
20	64QAM	100	0	16.86	16.70	16.98		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	16.72	16.83	16.91	17.5	0
15	QPSK	1	37	16.78	16.82	16.91		
15	QPSK	1	74	16.81	16.90	16.93		
15	QPSK	36	0	16.77	17.00	16.95	17.5	0
15	QPSK	36	20	16.90	16.98	16.98		
15	QPSK	36	39	16.81	16.93	16.98		
15	QPSK	75	0	16.87	16.99	16.98		
15	16QAM	1	0	16.71	16.84	16.81	17.5	0
15	16QAM	1	37	16.70	16.85	16.84		
15	16QAM	1	74	16.71	16.82	16.82		
15	16QAM	36	0	16.78	16.84	16.81	17.5	0
15	16QAM	36	20	16.88	16.82	16.79		
15	16QAM	36	39	16.83	16.97	16.98		
15	16QAM	75	0	16.85	16.92	16.98		
15	64QAM	1	0	16.39	16.52	16.59	17.5	0
15	64QAM	1	37	16.34	16.47	16.41		
15	64QAM	1	74	16.74	16.89	16.89		
15	64QAM	36	0	16.82	16.76	16.75	17.5	0
15	64QAM	36	20	16.93	16.74	16.75		
15	64QAM	36	39	16.77	16.92	17.02		
15	64QAM	75	0	16.86	16.97	16.76		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	16.68	16.83	16.91	17.5	0
10	QPSK	1	25	16.80	16.94	16.97		
10	QPSK	1	49	16.80	16.90	16.98		
10	QPSK	25	0	16.87	16.83	16.85	17.5	0
10	QPSK	25	12	16.81	16.96	16.99		
10	QPSK	25	25	16.84	16.99	16.82		
10	QPSK	50	0	16.85	16.85	16.82		
10	16QAM	1	0	16.93	16.95	16.90	17.5	0
10	16QAM	1	25	16.74	16.87	16.91		
10	16QAM	1	49	16.85	16.90	16.91		
10	16QAM	25	0	16.86	16.84	16.83	17.5	0
10	16QAM	25	12	16.81	16.99	16.99		
10	16QAM	25	25	16.83	16.98	17.00		
10	16QAM	50	0	16.85	17.02	16.84		
10	64QAM	1	0	16.43	16.4	16.42	17.5	0
10	64QAM	1	25	16.23	16.69	16.53		
10	64QAM	1	49	16.73	16.54	16.78		
10	64QAM	25	0	16.86	16.82	16.77	17.5	0
10	64QAM	25	12	16.79	16.98	16.8		
10	64QAM	25	25	16.94	16.76	16.8		
10	64QAM	50	0	16.91	16.77	16.81		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	16.67	16.85	16.91	17.5	0
5	QPSK	1	12	16.75	16.95	16.96		
5	QPSK	1	24	16.78	16.94	16.96		
5	QPSK	12	0	16.78	16.87	16.83	17.5	0
5	QPSK	12	7	16.82	17.02	17.00		
5	QPSK	12	13	16.74	16.97	16.99		
5	QPSK	25	0	16.83	16.83	16.84		
5	16QAM	1	0	16.72	16.96	16.97	17.5	0
5	16QAM	1	12	16.66	16.90	16.95		
5	16QAM	1	24	16.66	16.86	16.86		
5	16QAM	12	0	16.78	16.89	16.83	17.5	0
5	16QAM	12	7	16.81	16.80	16.84		
5	16QAM	12	13	16.75	16.82	16.79		
5	16QAM	25	0	16.81	16.81	16.83		
5	64QAM	1	0	16.22	16.42	16.41	17.5	0
5	64QAM	1	12	16.45	16.27	16.56		
5	64QAM	1	24	16.66	17.00	17.01		
5	64QAM	12	0	16.84	16.88	16.80	17.5	0
5	64QAM	12	7	16.81	16.80	16.76		
5	64QAM	12	13	16.91	16.68	16.94		
5	64QAM	25	0	16.93	16.75	16.78		

Band 66

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	18.48	18.55	18.45	19.5	0
20	QPSK	1	49	18.43	18.53	18.41		
20	QPSK	1	99	18.91	18.99	18.82		
20	QPSK	50	0	18.49	18.58	18.39	19.5	0
20	QPSK	50	24	18.60	18.65	18.45		
20	QPSK	50	50	18.52	18.54	18.31		
20	QPSK	100	0	18.56	18.61	18.45		
20	16QAM	1	0	18.47	18.65	18.35	19.5	0
20	16QAM	1	49	18.56	18.65	18.39		
20	16QAM	1	99	18.79	18.80	18.64		
20	16QAM	50	0	18.46	18.58	18.39	19.5	0
20	16QAM	50	24	18.57	18.67	18.43		
20	16QAM	50	50	18.55	18.56	18.35		
20	16QAM	100	0	18.54	18.64	18.43		
20	64QAM	1	0	18.57	18.81	18.41	19.5	0
20	64QAM	1	49	18.60	18.76	18.39		
20	64QAM	1	99	18.31	18.86	18.59		
20	64QAM	50	0	18.23	18.31	18.21	19.5	0
20	64QAM	50	24	18.35	18.57	18.27		
20	64QAM	50	50	18.38	18.41	18.15		
20	64QAM	100	0	18.27	18.39	18.19		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	18.40	18.50	18.36	19.5	0
15	QPSK	1	37	18.38	18.46	18.36		
15	QPSK	1	74	18.86	18.83	18.55		
15	QPSK	36	0	18.66	18.68	18.49	19.5	0
15	QPSK	36	20	18.53	18.65	18.35		
15	QPSK	36	39	18.53	18.52	18.32		
15	QPSK	75	0	18.53	18.65	18.37		
15	16QAM	1	0	18.94	18.98	18.78	19.5	0
15	16QAM	1	37	18.62	18.78	18.53		
15	16QAM	1	74	18.77	18.80	18.51		
15	16QAM	36	0	18.64	18.69	18.50	19.5	0
15	16QAM	36	20	18.55	18.67	18.37		
15	16QAM	36	39	18.51	18.53	18.30		
15	16QAM	75	0	18.50	18.62	18.38		
15	64QAM	1	0	18.88	18.53	18.48	19.5	0
15	64QAM	1	37	18.74	18.53	18.41		
15	64QAM	1	74	18.62	18.72	18.71		
15	64QAM	36	0	18.30	18.48	18.34	19.5	0
15	64QAM	36	20	18.28	18.49	18.20		
15	64QAM	36	39	18.24	18.37	18.22		
15	64QAM	75	0	18.27	18.39	18.19		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	18.50	18.46	18.51	19.5	0
10	QPSK	1	25	18.46	18.59	18.44		
10	QPSK	1	49	18.90	18.91	18.84		
10	QPSK	25	0	18.50	18.55	18.39	19.5	0
10	QPSK	25	12	18.53	18.71	18.55		
10	QPSK	25	25	18.62	18.74	18.56		
10	QPSK	50	0	18.52	18.69	18.52		
10	16QAM	1	0	18.86	18.90	18.76	19.5	0
10	16QAM	1	25	18.57	18.68	18.44		
10	16QAM	1	49	18.74	18.71	18.42		
10	16QAM	25	0	18.49	18.59	18.39	19.5	0
10	16QAM	25	12	18.52	18.73	18.54		
10	16QAM	25	25	18.61	18.72	18.49		
10	16QAM	50	0	18.52	18.72	18.53		
10	64QAM	1	0	18.57	18.52	18.43	19.5	0
10	64QAM	1	25	18.60	18.62	18.49		
10	64QAM	1	49	18.97	18.77	18.73		
10	64QAM	25	0	18.23	18.34	18.19	19.5	0
10	64QAM	25	12	18.22	18.49	18.39		
10	64QAM	25	25	18.42	18.56	18.47		
10	64QAM	50	0	18.28	18.44	18.22		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	18.44	18.46	18.36	19.5	0
5	QPSK	1	12	18.54	18.67	18.33		
5	QPSK	1	24	18.41	18.58	18.34		
5	QPSK	12	0	18.57	18.74	18.49	19.5	0
5	QPSK	12	7	18.54	18.67	18.44		
5	QPSK	12	13	18.55	18.66	18.41		
5	QPSK	25	0	18.55	18.69	18.44		
5	16QAM	1	0	18.59	18.73	18.61	19.5	0
5	16QAM	1	12	18.47	18.61	18.41		
5	16QAM	1	24	18.45	18.57	18.34		
5	16QAM	12	0	18.60	18.79	18.51	19.5	0
5	16QAM	12	7	18.55	18.70	18.46		
5	16QAM	12	13	18.56	18.66	18.40		
5	16QAM	25	0	18.54	18.71	18.42		
5	64QAM	1	0	18.39	18.52	18.76	19.5	0
5	64QAM	1	12	18.46	18.54	18.60		
5	64QAM	1	24	18.71	18.95	18.63		
5	64QAM	12	0	18.37	18.51	18.32	19.5	0
5	64QAM	12	7	18.26	18.47	18.30		
5	64QAM	12	13	18.35	18.45	18.22		
5	64QAM	25	0	18.34	18.43	18.25		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	18.43	18.47	18.36	19.5	0
3	QPSK	1	8	18.50	18.62	18.39		
3	QPSK	1	14	18.53	18.58	18.37		
3	QPSK	8	0	18.51	18.65	18.39	19.5	0
3	QPSK	8	4	18.51	18.67	18.42		
3	QPSK	8	7	18.48	18.61	18.35		
3	QPSK	15	0	18.49	18.63	18.39		
3	16QAM	1	0	18.44	18.70	18.37	19.5	0
3	16QAM	1	8	18.46	18.66	18.39		
3	16QAM	1	14	18.43	18.53	18.31		
3	16QAM	8	0	18.55	18.75	18.46	19.5	0
3	16QAM	8	4	18.55	18.75	18.49		
3	16QAM	8	7	18.54	18.68	18.41		
3	16QAM	15	0	18.51	18.66	18.42		
3	64QAM	1	0	18.36	18.78	18.38	19.5	0
3	64QAM	1	8	18.75	18.88	18.38		
3	64QAM	1	14	18.62	18.57	18.24		
3	64QAM	8	0	18.40	18.50	18.27	19.5	0
3	64QAM	8	4	18.25	18.36	18.40		
3	64QAM	8	7	18.20	18.45	18.21		
3	64QAM	15	0	18.27	18.29	18.12		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	18.39	18.48	18.44	19.5	0
1.4	QPSK	1	3	18.54	18.65	18.44		
1.4	QPSK	1	5	18.42	18.56	18.36		
1.4	QPSK	3	0	18.45	18.66	18.38		
1.4	QPSK	3	1	18.51	18.67	18.39		
1.4	QPSK	3	3	18.44	18.61	18.35		
1.4	QPSK	6	0	18.41	18.60	18.30	19.5	0
1.4	16QAM	1	0	18.41	18.57	18.33	19.5	0
1.4	16QAM	1	3	18.44	18.59	18.36		
1.4	16QAM	1	5	18.35	18.52	18.28		
1.4	16QAM	3	0	18.51	18.72	18.38		
1.4	16QAM	3	1	18.56	18.77	18.45		
1.4	16QAM	3	3	18.52	18.69	18.37		
1.4	16QAM	6	0	18.45	18.61	18.37	19.5	0
1.4	64QAM	1	0	18.34	18.43	18.88	19.5	0
1.4	64QAM	1	3	18.47	18.55	18.87		
1.4	64QAM	1	5	18.9	18.91	18.87		
1.4	64QAM	3	0	18.41	18.34	18.39		
1.4	64QAM	3	1	18.56	18.23	18.4		
1.4	64QAM	3	3	18.4	18.58	18.3		
1.4	64QAM	6	0	18.34	18.56	18.09	19.5	0

Reduced Power Mode for P-Sensor On

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	31.37	31.51	31.61	32.00	22.37	22.51	22.61	23.00
GPRS 1 Tx slot	31.42	31.62	31.58	32.00	22.42	22.62	22.58	23.00
GPRS 2 Tx slots	29.84	30.05	30.09	30.50	23.84	24.05	24.09	24.50
GPRS 3 Tx slots	27.19	27.44	27.41	28.00	22.93	23.18	23.15	23.74
GPRS 4 Tx slots	24.93	25.13	25.24	26.00	21.93	22.13	22.24	23.00
EDGE 1 Tx slot	25.01	25.34	25.44	26.00	16.01	16.34	16.44	17.00
EDGE 2 Tx slots	22.33	22.55	22.66	23.50	16.33	16.55	16.66	17.50
EDGE 3 Tx slots	21.12	21.55	21.58	22.50	16.86	17.29	17.32	18.24
EDGE 4 Tx slots	18.89	19.19	19.31	19.50	15.89	16.19	16.31	16.50

GSM1900	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	27.65	28.01	28.05	29.00	18.65	19.01	19.05	20.00
GPRS 1 Tx slot	27.62	27.99	28.03	29.00	18.62	18.99	19.03	20.00
GPRS 2 Tx slots	26.40	26.70	26.77	27.50	20.40	20.70	20.77	21.50
GPRS 3 Tx slots	24.20	24.39	24.37	26.00	19.94	20.13	20.11	21.74
GPRS 4 Tx slots	21.77	21.80	22.13	23.00	18.77	18.80	19.13	20.00
EDGE 1 Tx slot	23.53	23.94	23.80	25.00	14.53	14.94	14.80	16.00
EDGE 2 Tx slots	22.01	22.17	22.33	23.50	16.01	16.17	16.33	17.50
EDGE 3 Tx slots	19.74	20.05	20.09	21.50	15.48	15.79	15.83	17.24
EDGE 4 Tx slots	17.59	17.75	17.81	19.00	14.59	14.75	14.81	16.00

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		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.16	21.45	21.42	22.00	19.97	19.98	19.92	20.50	22.25	22.29	22.24	23.00
3GPP Rel 99	RMC 12.2Kbps	21.19	21.47	21.45	22.00	19.92	20.01	19.88	20.50	22.28	22.30	22.27	23.00
3GPP Rel 6	HSDPA Subtest-1	20.24	20.49	20.40	21.00	18.95	19.01	18.90	19.50	21.18	21.22	20.94	22.00
3GPP Rel 6	HSDPA Subtest-2	20.19	20.48	20.43	21.00	18.94	19.01	18.96	19.50	21.19	21.18	20.93	22.00
3GPP Rel 6	HSDPA Subtest-3	19.73	19.96	19.95	20.50	18.41	18.50	18.41	19.00	20.69	20.69	20.45	21.50
3GPP Rel 6	HSDPA Subtest-4	19.71	19.95	19.94	20.50	18.42	18.49	18.43	19.00	20.67	20.69	20.43	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	20.22	20.41	20.37	21.00	18.91	18.98	18.95	19.50	21.15	21.19	21.18	22.00
3GPP Rel 8	DC-HSDPA Subtest-2	20.17	20.35	20.24	21.00	18.90	18.95	18.94	19.50	21.12	21.15	21.13	22.00
3GPP Rel 8	DC-HSDPA Subtest-3	19.70	19.75	19.63	20.50	18.39	18.44	18.41	19.00	20.65	20.70	20.65	21.50
3GPP Rel 8	DC-HSDPA Subtest-4	19.61	19.63	19.58	20.50	18.35	18.38	18.37	19.00	20.60	20.63	20.61	21.50
3GPP Rel 6	HSUPA Subtest-1	20.34	20.49	20.50	20.50	18.87	18.88	18.91	19.00	21.17	21.17	21.02	21.50
3GPP Rel 6	HSUPA Subtest-2	18.33	18.50	18.50	18.50	16.97	16.95	16.98	17.00	19.17	19.13	19.11	19.50
3GPP Rel 6	HSUPA Subtest-3	19.28	19.48	19.50	19.50	17.95	17.98	17.94	18.00	20.12	20.16	20.12	20.50
3GPP Rel 6	HSUPA Subtest-4	18.30	18.45	18.43	18.50	16.99	17.00	16.90	17.00	19.16	19.11	19.05	19.50
3GPP Rel 6	HSUPA Subtest-5	20.30	20.40	20.38	20.50	18.90	18.95	18.90	19.00	21.20	21.20	21.14	21.50

SPORTON LAB.

Band 2 (1900MHz Band)
Part 24E

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	21.95	21.98	22.11	22.5	0
20	QPSK	1	49	21.52	21.62	21.72		
20	QPSK	1	99	21.71	21.94	22.02		
20	QPSK	50	0	21.52	21.69	21.80	22.5	0
20	QPSK	50	24	21.55	21.70	21.83		
20	QPSK	50	50	21.60	21.80	21.91		
20	QPSK	100	0	21.58	21.76	21.87		
20	16QAM	1	0	21.62	21.77	21.83	22.5	0
20	16QAM	1	49	21.43	21.60	21.66		
20	16QAM	1	99	21.62	21.84	21.83		
20	16QAM	50	0	21.11	21.21	21.29	21.5	1
20	16QAM	50	24	21.03	21.21	21.32		
20	16QAM	50	50	21.10	21.31	21.42		
20	16QAM	100	0	21.04	21.24	21.34		
20	64QAM	1	0	20.61	20.21	20.44	21.5	1
20	64QAM	1	49	20.43	20.35	20.42		
20	64QAM	1	99	20.27	20.29	20.44		
20	64QAM	50	0	20.16	20.14	20.23	21.5	1
20	64QAM	50	24	19.95	20.15	20.21		
20	64QAM	50	50	19.94	20.12	20.37		
20	64QAM	100	0	19.92	20.12	20.34		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.71	21.93	21.9	22.5	0
15	QPSK	1	37	21.67	21.6	21.77		
15	QPSK	1	74	21.89	22.1	22.09		
15	QPSK	36	0	21.64	21.73	21.85	22.5	0
15	QPSK	36	20	21.64	21.74	21.93		
15	QPSK	36	39	21.6	21.8	21.9		
15	QPSK	75	0	21.64	21.74	21.85		
15	16QAM	1	0	21.75	21.94	21.93	22.5	0
15	16QAM	1	37	21.49	21.57	21.68		
15	16QAM	1	74	21.84	21.95	21.99		
15	16QAM	36	0	21.11	21.22	21.34	21.5	1
15	16QAM	36	20	21.11	21.24	21.41		
15	16QAM	36	39	21.08	21.29	21.37		
15	16QAM	75	0	21.15	21.24	21.35		
15	64QAM	1	0	20.59	20.14	20.39	21.5	1
15	64QAM	1	37	20.34	20.26	20.41		
15	64QAM	1	74	20.18	20.23	20.36		
15	64QAM	36	0	20.03	20.2	20.3	21.5	1
15	64QAM	36	20	20.07	20.12	20.25		
15	64QAM	36	39	20.07	20.33	20.33		
15	64QAM	75	0	20.12	20.22	20.27		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.68	21.94	21.93	22.5	0
10	QPSK	1	25	21.62	21.74	21.83		
10	QPSK	1	49	21.84	22.05	22.10		
10	QPSK	25	0	21.68	21.77	21.96	22.5	0
10	QPSK	25	12	21.65	21.78	21.86		
10	QPSK	25	25	21.71	21.84	21.96		
10	QPSK	50	0	21.66	21.78	21.88		
10	16QAM	1	0	21.72	21.86	22.03	22.5	0
10	16QAM	1	25	21.54	21.69	21.76		
10	16QAM	1	49	21.71	21.93	21.96		
10	16QAM	25	0	21.16	21.29	21.46	21.5	1
10	16QAM	25	12	21.15	21.29	21.36		
10	16QAM	25	25	21.19	21.32	21.40		
10	16QAM	50	0	21.19	21.28	21.40		
10	64QAM	1	0	20.57	20.17	20.34	21.5	1
10	64QAM	1	25	20.38	20.26	20.41		
10	64QAM	1	49	20.26	20.28	20.34		
10	64QAM	25	0	20.17	20.24	20.63	21.5	1
10	64QAM	25	12	20.05	20.24	20.40		
10	64QAM	25	25	20.20	20.28	20.53		
10	64QAM	50	0	20.18	20.22	20.21		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.73	21.85	21.91	22.5	0
5	QPSK	1	12	21.61	21.68	21.84		
5	QPSK	1	24	21.58	21.70	21.81		
5	QPSK	12	0	21.64	21.78	21.90	22.5	0
5	QPSK	12	7	21.62	21.76	21.85		
5	QPSK	12	13	21.61	21.75	21.82		
5	QPSK	25	0	21.63	21.77	21.87		
5	16QAM	1	0	21.64	21.78	21.82	22.5	0
5	16QAM	1	12	21.48	21.63	21.67		
5	16QAM	1	24	21.51	21.74	21.77		
5	16QAM	12	0	21.18	21.32	21.46	21.5	1
5	16QAM	12	7	21.12	21.28	21.35		
5	16QAM	12	13	21.11	21.26	21.34		
5	16QAM	25	0	21.10	21.25	21.38		
5	64QAM	1	0	20.58	20.12	20.36	21.5	1
5	64QAM	1	12	20.38	20.33	20.39		
5	64QAM	1	24	20.25	20.22	20.37		
5	64QAM	12	0	20.17	20.29	20.57	21.5	1
5	64QAM	12	7	20.12	20.23	20.33		
5	64QAM	12	13	20.21	20.20	20.30		
5	64QAM	25	0	20.09	20.29	20.20		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.73	21.85	21.88	22.5	0
3	QPSK	1	8	21.61	21.78	21.86		
3	QPSK	1	14	21.59	21.76	21.82		
3	QPSK	8	0	21.67	21.76	21.88	22.5	0
3	QPSK	8	4	21.65	21.79	21.90		
3	QPSK	8	7	21.59	21.73	21.84		
3	QPSK	15	0	21.60	21.77	21.87		
3	16QAM	1	0	21.58	21.73	21.92	22.5	0
3	16QAM	1	8	21.58	21.71	21.89		
3	16QAM	1	14	21.59	21.75	21.82		
3	16QAM	8	0	21.20	21.30	21.40	21.5	1
3	16QAM	8	4	21.21	21.33	21.40		
3	16QAM	8	7	21.14	21.29	21.36		
3	16QAM	15	0	21.14	21.29	21.38		
3	64QAM	1	0	21.19	21.41	21.47	21.5	1
3	64QAM	1	8	21.29	21.40	21.45		
3	64QAM	1	14	21.27	21.39	21.47		
3	64QAM	8	0	20.17	20.27	20.39	21.5	1
3	64QAM	8	4	20.16	20.26	20.35		
3	64QAM	8	7	20.13	20.25	20.33		
3	64QAM	15	0	20.15	20.23	20.31		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.73	21.85	21.92	22.5	0
1.4	QPSK	1	3	21.66	21.78	21.85		
1.4	QPSK	1	5	21.59	21.71	21.77		
1.4	QPSK	3	0	21.61	21.71	21.84		
1.4	QPSK	3	1	21.61	21.77	21.84		
1.4	QPSK	3	3	21.58	21.72	21.82		
1.4	QPSK	6	0	21.61	21.73	21.77	22.5	0
1.4	16QAM	1	0	21.57	21.64	21.81	22.5	0
1.4	16QAM	1	3	21.55	21.76	21.78		
1.4	16QAM	1	5	21.60	21.68	21.81		
1.4	16QAM	3	0	21.66	21.77	21.81		
1.4	16QAM	3	1	21.68	21.83	21.82		
1.4	16QAM	3	3	21.64	21.72	21.81		
1.4	16QAM	6	0	21.17	21.29	21.46	21.5	1
1.4	64QAM	1	0	21.36	21.47	21.48	21.5	1
1.4	64QAM	1	3	21.31	21.41	21.40		
1.4	64QAM	1	5	21.24	21.35	21.39		
1.4	64QAM	3	0	21.26	21.34	21.40		
1.4	64QAM	3	1	21.31	21.35	21.45		
1.4	64QAM	3	3	21.22	21.30	21.40		
1.4	64QAM	6	0	20.09	20.18	20.23	21.5	1

Band 4 (AWS Band)
Part 27L (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				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	20.02	20.12	20.15	21	0
20	QPSK	1	49	19.89	19.92	20.18		
20	QPSK	1	99	19.73	19.79	19.79		
20	QPSK	50	0	19.95	19.95	20.09	21	0
20	QPSK	50	24	19.97	19.97	20.01		
20	QPSK	50	50	19.79	19.85	19.94		
20	QPSK	100	0	19.89	19.92	19.95		
20	16QAM	1	0	19.61	19.61	19.74	21	0
20	16QAM	1	49	19.79	19.82	19.81		
20	16QAM	1	99	19.60	19.63	19.69		
20	16QAM	50	0	19.95	19.94	20.05	21	0
20	16QAM	50	24	19.95	19.98	19.99		
20	16QAM	50	50	19.80	19.88	19.99		
20	16QAM	100	0	19.91	19.93	19.95		
20	64QAM	1	0	19.83	19.85	19.89	21	0
20	64QAM	1	49	19.71	19.75	19.80		
20	64QAM	1	99	19.57	19.69	19.66		
20	64QAM	50	0	19.57	19.58	19.70	21	0
20	64QAM	50	24	19.60	19.63	19.66		
20	64QAM	50	50	19.45	19.50	19.61		
20	64QAM	100	0	19.56	19.55	19.60		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	19.94	20.09	20.06	21	0
15	QPSK	1	37	19.78	19.85	19.73		
15	QPSK	1	74	19.79	19.92	19.88		
15	QPSK	36	0	20.01	20.04	20.01	21	0
15	QPSK	36	20	20.01	20.04	20.02		
15	QPSK	36	39	19.85	19.97	19.99		
15	QPSK	75	0	19.89	19.98	20.00		
15	16QAM	1	0	19.81	19.92	19.83	21	0
15	16QAM	1	37	19.66	19.79	19.73		
15	16QAM	1	74	19.67	19.77	19.72		
15	16QAM	36	0	20.04	20.04	20.02	21	0
15	16QAM	36	20	20.04	20.04	20.02		
15	16QAM	36	39	19.85	19.97	19.95		
15	16QAM	75	0	19.87	20.03	19.96		
15	64QAM	1	0	19.72	19.88	19.75	21	0
15	64QAM	1	37	19.67	19.83	19.79		
15	64QAM	1	74	19.62	19.78	19.70		
15	64QAM	36	0	19.70	19.66	19.67	21	0
15	64QAM	36	20	19.69	19.69	19.64		
15	64QAM	36	39	19.53	19.63	19.60		
15	64QAM	75	0	19.51	19.63	19.60		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	19.93	20.08	20.13	21	0
10	QPSK	1	25	19.93	20.03	19.96		
10	QPSK	1	49	19.91	19.93	19.91		
10	QPSK	25	0	20.02	20.03	20.04	21	0
10	QPSK	25	12	19.98	20.07	20.00		
10	QPSK	25	25	19.61	19.67	19.64		
10	QPSK	50	0	20.02	20.16	20.04		
10	16QAM	1	0	20.06	20.13	20.11	21	0
10	16QAM	1	25	19.74	19.93	19.80		
10	16QAM	1	49	19.70	19.71	19.73		
10	16QAM	25	0	20.03	20.02	20.08	21	0
10	16QAM	25	12	19.99	20.10	20.00		
10	16QAM	25	25	20.13	20.15	20.16		
10	16QAM	50	0	20.07	20.15	20.07		
10	64QAM	1	0	19.76	19.89	19.87	21	0
10	64QAM	1	25	19.72	19.85	19.70		
10	64QAM	1	49	19.95	19.92	19.97		
10	64QAM	25	0	19.67	19.68	19.70	21	0
10	64QAM	25	12	19.63	19.78	19.66		
10	64QAM	25	25	19.82	19.82	19.83		
10	64QAM	50	0	19.67	19.78	19.70		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.00	20.08	20.09	21	0
5	QPSK	1	12	19.95	20.06	20.00		
5	QPSK	1	24	19.92	19.99	19.95		
5	QPSK	12	0	20.09	20.09	20.05	21	0
5	QPSK	12	7	19.99	20.11	20.06		
5	QPSK	12	13	19.99	19.99	19.96		
5	QPSK	25	0	20.02	20.11	20.08		
5	16QAM	1	0	19.91	19.92	19.85	21	0
5	16QAM	1	12	19.71	19.81	19.78		
5	16QAM	1	24	19.71	19.81	19.78		
5	16QAM	12	0	20.14	20.11	20.08	21	0
5	16QAM	12	7	20.01	20.10	20.07		
5	16QAM	12	13	20.04	20.02	19.96		
5	16QAM	25	0	20.02	20.11	20.07		
5	64QAM	1	0	19.87	19.91	19.88	21	0
5	64QAM	1	12	19.83	19.92	19.83		
5	64QAM	1	24	19.74	19.83	19.79		
5	64QAM	12	0	19.80	19.77	19.75	21	0
5	64QAM	12	7	19.69	19.79	19.77		
5	64QAM	12	13	19.66	19.67	19.65		
5	64QAM	25	0	19.63	19.76	19.73		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	19.99	20.07	20.11	21	0
3	QPSK	1	8	20	20.11	19.98		
3	QPSK	1	14	20.02	20	19.97		
3	QPSK	8	0	20.07	20.09	20.09	21	0
3	QPSK	8	4	20.01	20.14	20.02		
3	QPSK	8	7	19.98	19.99	19.98		
3	QPSK	15	0	19.98	20.12	19.99		
3	16QAM	1	0	19.87	19.88	19.89	21	0
3	16QAM	1	8	19.8	19.92	19.79		
3	16QAM	1	14	19.71	19.79	19.78		
3	16QAM	8	0	20.1	20.17	20.14	21	0
3	16QAM	8	4	20.05	20.17	20.05		
3	16QAM	8	7	20.02	20.03	20.04		
3	16QAM	15	0	20.01	20.12	20.01		
3	64QAM	1	0	19.83	19.97	19.88	21	0
3	64QAM	1	8	19.78	19.87	19.75		
3	64QAM	1	14	19.76	19.74	19.75		
3	64QAM	8	0	19.73	19.74	19.74	21	0
3	64QAM	8	4	19.60	19.75	19.64		
3	64QAM	8	7	19.59	19.62	19.63		
3	64QAM	15	0	19.57	19.68	19.59		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	19.94	20.03	20.07	21	0
1.4	QPSK	1	3	20.07	20.14	20.01		
1.4	QPSK	1	5	20.00	19.98	19.96		
1.4	QPSK	3	0	20.04	20.07	19.95		
1.4	QPSK	3	1	20.09	20.15	20.01		
1.4	QPSK	3	3	20.03	20.00	19.97		
1.4	QPSK	6	0	20.01	20.06	19.94	21	0
1.4	16QAM	1	0	19.81	19.89	19.71	21	0
1.4	16QAM	1	3	19.87	19.89	19.79		
1.4	16QAM	1	5	19.80	19.73	19.74		
1.4	16QAM	3	0	20.05	20.15	20.02		
1.4	16QAM	3	1	20.13	20.17	20.05		
1.4	16QAM	3	3	20.07	20.02	20.01		
1.4	16QAM	6	0	20.07	20.13	20.02	21	0
1.4	64QAM	1	0	19.79	20.01	19.82	21	0
1.4	64QAM	1	3	19.78	19.90	19.78		
1.4	64QAM	1	5	19.74	19.71	19.70		
1.4	64QAM	3	0	19.77	19.83	19.71		
1.4	64QAM	3	1	19.82	19.83	19.81		
1.4	64QAM	3	3	19.76	19.66	19.70		
1.4	64QAM	6	0	19.60	19.66	19.58	21	0

Band 5 (Celluar Band)
Part 22H(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				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.26	22.15	22.17	23	0
10	QPSK	1	25	22.09	22.01	22.00		
10	QPSK	1	49	22.41	22.37	22.21		
10	QPSK	25	0	22.06	22.02	22.07	23	0
10	QPSK	25	12	22.11	22.04	22.04		
10	QPSK	25	25	22.12	22.11	22.05		
10	QPSK	50	0	22	22.05	22.04		
10	16QAM	1	0	22.08	22.01	21.97	23	0
10	16QAM	1	25	21.91	21.89	21.90		
10	16QAM	1	49	22.28	22.20	21.97		
10	16QAM	25	0	21.06	21.00	21.06	22	1
10	16QAM	25	12	21.09	21.03	21.06		
10	16QAM	25	25	21.06	21.10	21.04		
10	16QAM	50	0	21.03	21.05	21.08		
10	64QAM	1	0	21.26	21.33	21.35	22	1
10	64QAM	1	25	21.24	21.21	21.20		
10	64QAM	1	49	21.59	21.58	21.49		
10	64QAM	25	0	20.14	20.11	20.14	22	1
10	64QAM	25	12	20.19	20.13	20.14		
10	64QAM	25	25	20.2	20.19	20.13		
10	64QAM	50	0	20.12	20.11	20.13		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.23	22.08	22.08	23	0
5	QPSK	1	12	22.05	22.01	22.02		
5	QPSK	1	24	22.09	22.00	22.01		
5	QPSK	12	0	22.07	21.95	21.89	23	0
5	QPSK	12	7	22.04	22.02	21.90		
5	QPSK	12	13	22.09	21.94	21.90		
5	QPSK	25	0	22.04	22.03	21.89		
5	16QAM	1	0	22.35	22.29	22.25	23	0
5	16QAM	1	12	22.23	22.21	22.13		
5	16QAM	1	24	22.32	22.24	22.05		
5	16QAM	12	0	21.10	20.96	20.92	22	1
5	16QAM	12	7	21.09	21.00	20.91		
5	16QAM	12	13	21.10	20.98	20.93		
5	16QAM	25	0	21.05	21.02	20.92		
5	64QAM	1	0	21.30	21.28	21.18	22	1
5	64QAM	1	12	21.25	21.19	21.09		
5	64QAM	1	24	21.30	21.22	21.06		
5	64QAM	12	0	20.18	20.05	20.05	22	1
5	64QAM	12	7	20.15	20.15	20.04		
5	64QAM	12	13	20.22	20.05	20.03		
5	64QAM	25	0	20.12	20.09	20.00		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.19	22.14	22.08	23	0
3	QPSK	1	8	22.08	21.98	21.95		
3	QPSK	1	14	22.02	21.94	21.84		
3	QPSK	8	0	22.10	21.93	21.89	23	0
3	QPSK	8	4	22.10	22.05	21.93		
3	QPSK	8	7	22.07	22.00	21.87		
3	QPSK	15	0	22.08	22.01	21.92		
3	16QAM	1	0	22.11	21.94	21.92	23	0
3	16QAM	1	8	22.04	21.96	21.89		
3	16QAM	1	14	21.99	21.89	21.84		
3	16QAM	8	0	21.13	21.00	20.92	22	1
3	16QAM	8	4	21.12	21.05	21.01		
3	16QAM	8	7	21.11	21.01	20.91		
3	16QAM	15	0	21.08	21.04	20.95		
3	64QAM	1	0	21.29	21.15	21.09	22	1
3	64QAM	1	8	21.25	21.17	21.12		
3	64QAM	1	14	21.24	21.12	21.04		
3	64QAM	8	0	20.20	20.04	20.00	22	1
3	64QAM	8	4	20.18	20.10	20.03		
3	64QAM	8	7	20.14	20.06	20.01		
3	64QAM	15	0	20.10	20.07	20.01		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.25	22.09	22.10	23	0
1.4	QPSK	1	3	22.06	21.97	21.86		
1.4	QPSK	1	5	22.00	21.91	21.81		
1.4	QPSK	3	0	22.06	21.98	21.84		
1.4	QPSK	3	1	22.10	22.01	21.86		
1.4	QPSK	3	3	22.11	21.97	21.87		
1.4	QPSK	6	0	22.03	21.97	21.81	23	0
1.4	16QAM	1	0	22.35	22.18	22.13	23	0
1.4	16QAM	1	3	22.39	22.31	22.21		
1.4	16QAM	1	5	22.29	22.24	22.11		
1.4	16QAM	3	0	22.06	22.01	21.83		
1.4	16QAM	3	1	22.12	22.04	21.88		
1.4	16QAM	3	3	22.01	21.95	21.81		
1.4	16QAM	6	0	21.15	21.07	20.93	22	1
1.4	64QAM	1	0	21.42	21.29	21.21	22	1
1.4	64QAM	1	3	21.32	21.19	21.11		
1.4	64QAM	1	5	21.29	21.20	21.04		
1.4	64QAM	3	0	21.28	21.19	21.08		
1.4	64QAM	3	1	21.31	21.21	21.12		
1.4	64QAM	3	3	21.26	21.16	21.04		
1.4	64QAM	6	0	20.10	20.01	20.01	22	1

Band 7 (2600MHz Band)
Part 27

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	18.92	18.99	19.01		
20	QPSK	1	49	18.80	18.82	18.84	19.5	0
20	QPSK	1	99	18.81	18.83	18.89		
20	QPSK	50	0	18.81	18.86	18.94		
20	QPSK	50	24	18.83	18.93	18.95	19.5	0
20	QPSK	50	50	18.80	18.86	18.91		
20	QPSK	100	0	18.80	18.86	18.92		
20	16QAM	1	0	18.68	18.82	18.85		
20	16QAM	1	49	18.75	18.88	18.90	19.5	0
20	16QAM	1	99	18.73	18.76	18.80		
20	16QAM	50	0	18.79	18.86	18.90		
20	16QAM	50	24	18.82	18.91	18.95	19.5	0
20	16QAM	50	50	18.80	18.88	18.92		
20	16QAM	100	0	18.80	18.87	18.92		
20	64QAM	1	0	18.85	18.69	18.66		
20	64QAM	1	49	18.91	18.71	18.72	19.5	0
20	64QAM	1	99	18.95	18.63	18.78		
20	64QAM	50	0	18.78	18.90	18.91		
20	64QAM	50	24	18.80	18.87	18.94	19.5	0
20	64QAM	50	50	18.78	18.88	18.92		
20	64QAM	100	0	18.78	18.89	18.91		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	18.82	18.91	18.88		
15	QPSK	1	37	18.68	18.75	18.86	19.5	0
15	QPSK	1	74	18.73	18.82	18.90		
15	QPSK	36	0	18.70	18.91	18.89		
15	QPSK	36	20	18.77	18.89	18.96	19.5	0
15	QPSK	36	39	18.72	18.85	18.93		
15	QPSK	75	0	18.75	18.90	18.92		
15	16QAM	1	0	18.98	18.85	18.81		
15	16QAM	1	37	18.99	18.73	18.81	19.5	0
15	16QAM	1	74	18.69	18.76	18.80		
15	16QAM	36	0	18.68	18.91	18.91		
15	16QAM	36	20	18.76	18.92	18.95	19.5	0
15	16QAM	36	39	18.74	18.87	18.93		
15	16QAM	75	0	18.70	18.90	18.93		
15	64QAM	1	0	18.87	18.94	18.91		
15	64QAM	1	37	18.85	18.92	18.94	19.5	0
15	64QAM	1	74	18.91	18.92	18.91		
15	64QAM	36	0	18.68	18.97	18.95		
15	64QAM	36	20	18.78	18.92	18.98	19.5	0
15	64QAM	36	39	18.72	18.86	18.94		
15	64QAM	75	0	18.72	18.86	18.95		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	18.90	18.95	18.91		
10	QPSK	1	25	18.75	18.89	18.92	19.5	0
10	QPSK	1	49	18.89	18.95	18.98		
10	QPSK	25	0	18.76	18.96	18.91		
10	QPSK	25	12	18.74	18.90	18.95	19.5	0
10	QPSK	25	25	18.73	18.93	18.97		
10	QPSK	50	0	18.76	18.96	18.97		
10	16QAM	1	0	18.84	18.96	18.99		
10	16QAM	1	25	18.67	18.90	18.92	19.5	0
10	16QAM	1	49	18.79	18.92	18.97		
10	16QAM	25	0	18.80	18.98	18.99		
10	16QAM	25	12	18.73	18.90	18.95	19.5	0
10	16QAM	25	25	18.73	18.93	18.96		
10	16QAM	50	0	18.76	18.97	18.99		
10	64QAM	1	0	18.79	18.93	18.97		
10	64QAM	1	25	18.55	18.70	18.74	19.5	0
10	64QAM	1	49	18.72	18.86	18.89		
10	64QAM	25	0	18.77	18.97	18.99		
10	64QAM	25	12	18.71	18.93	18.95	19.5	0
10	64QAM	25	25	18.72	18.93	18.98		
10	64QAM	50	0	18.77	18.94	18.98		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	18.75	18.97	18.85		
5	QPSK	1	12	18.66	18.88	18.99	19.5	0
5	QPSK	1	24	18.68	18.90	18.95		
5	QPSK	12	0	18.67	18.98	18.95		
5	QPSK	12	7	18.70	18.92	18.96	19.5	0
5	QPSK	12	13	18.67	18.94	18.96		
5	QPSK	25	0	18.71	18.97	18.98		
5	16QAM	1	0	18.68	18.95	18.90		
5	16QAM	1	12	18.90	18.84	18.89	19.5	0
5	16QAM	1	24	18.95	18.80	18.85		
5	16QAM	12	0	18.67	18.66	18.68		
5	16QAM	12	7	18.70	18.96	19.00	19.5	0
5	16QAM	12	13	18.63	18.93	18.98		
5	16QAM	25	0	18.71	18.97	18.98		
5	64QAM	1	0	18.56	18.84	18.85		
5	64QAM	1	12	18.84	18.81	18.80	19.5	0
5	64QAM	1	24	18.85	18.72	18.78		
5	64QAM	12	0	18.68	18.69	18.66		
5	64QAM	12	7	18.75	18.97	18.93	19.5	0
5	64QAM	12	13	18.68	18.98	19.00		
5	64QAM	25	0	18.69	18.94	18.96		

Band 66

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	20.08	20.13	20.05		
20	QPSK	1	49	19.89	19.97	19.80	21	0
20	QPSK	1	99	20.52	20.55	20.50		
20	QPSK	50	0	19.91	20.02	19.83		
20	QPSK	50	24	20.34	20.35	20.34	21	0
20	QPSK	50	50	19.94	20.02	19.78		
20	QPSK	100	0	19.96	20.13	19.89		
20	16QAM	1	0	19.77	19.98	19.71		
20	16QAM	1	49	19.90	19.97	19.73	21	0
20	16QAM	1	99	20.13	20.13	19.95		
20	16QAM	50	0	19.88	20.03	19.83		
20	16QAM	50	24	20.00	20.10	19.91	21	0
20	16QAM	50	50	20.00	20.02	19.76		
20	16QAM	100	0	20.00	20.06	19.85		
20	64QAM	1	0	20.32	20.44	20.29		
20	64QAM	1	49	20.21	20.37	20.20	21	0
20	64QAM	1	99	20.33	20.32	20.05		
20	64QAM	50	0	20.03	20.14	19.98		
20	64QAM	50	24	20.13	20.23	20.04	21	0
20	64QAM	50	50	20.07	20.13	19.93		
20	64QAM	100	0	20.09	20.18	19.99		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	20.02	20.09	20.04		
15	QPSK	1	37	19.64	19.88	19.65	21	0
15	QPSK	1	74	20.09	20.13	19.87		
15	QPSK	36	0	20.07	20.12	19.95		
15	QPSK	36	20	19.95	20.06	19.78	21	0
15	QPSK	36	39	19.98	19.96	19.76		
15	QPSK	75	0	19.94	20.04	19.79		
15	16QAM	1	0	20.18	20.22	20.08		
15	16QAM	1	37	19.95	20.05	19.73	21	0
15	16QAM	1	74	20.05	20.16	19.80		
15	16QAM	36	0	20.12	20.13	19.93		
15	16QAM	36	20	20.00	20.08	19.80	21	0
15	16QAM	36	39	19.94	19.94	19.77		
15	16QAM	75	0	19.93	20.06	19.83		
15	64QAM	1	0	20.23	20.39	20.20		
15	64QAM	1	37	20.17	20.32	20.07	21	0
15	64QAM	1	74	20.39	20.48	20.21		
15	64QAM	36	0	20.24	20.26	20.12		
15	64QAM	36	20	20.10	20.22	19.95	21	0
15	64QAM	36	39	20.09	20.10	19.94		
15	64QAM	75	0	20.03	20.18	19.95		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	20.05	20.10	20.01		
10	QPSK	1	25	19.98	20.12	19.99	21	0
10	QPSK	1	49	20.05	20.08	19.84		
10	QPSK	25	0	19.94	20.00	19.82		
10	QPSK	25	12	19.97	20.20	19.99	21	0
10	QPSK	25	25	20.04	20.18	19.97		
10	QPSK	50	0	19.96	20.15	19.98		
10	16QAM	1	0	20.14	20.13	19.98		
10	16QAM	1	25	19.93	20.01	19.64	21	0
10	16QAM	1	49	20.03	20.05	19.72		
10	16QAM	25	0	19.95	20.03	19.84		
10	16QAM	25	12	19.98	20.18	19.99	21	0
10	16QAM	25	25	20.05	20.15	19.95		
10	16QAM	50	0	19.96	20.16	19.96		
10	64QAM	1	0	20.21	20.41	20.24		
10	64QAM	1	25	20.13	20.36	20.12	21	0
10	64QAM	1	49	20.31	20.40	20.25		
10	64QAM	25	0	20.06	20.13	19.98		
10	64QAM	25	12	20.08	20.31	20.16	21	0
10	64QAM	25	25	20.19	20.30	20.17		
10	64QAM	50	0	20.06	20.26	20.10		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	20.03	20.12	20.02		
5	QPSK	1	12	19.93	20.01	19.83	21	0
5	QPSK	1	24	19.87	20.04	19.82		
5	QPSK	12	0	20.01	20.18	19.97		
5	QPSK	12	7	19.99	20.13	19.87	21	0
5	QPSK	12	13	19.99	20.09	19.85		
5	QPSK	25	0	20.00	20.16	19.91		
5	16QAM	1	0	19.93	20.06	19.91		
5	16QAM	1	12	19.90	20.04	19.75	21	0
5	16QAM	1	24	19.80	19.97	19.67		
5	16QAM	12	0	20.02	20.24	19.98		
5	16QAM	12	7	20.02	20.15	19.90	21	0
5	16QAM	12	13	20.02	20.11	19.87		
5	16QAM	25	0	20.02	20.16	19.91		
5	64QAM	1	0	20.44	20.42	20.19		
5	64QAM	1	12	20.30	20.38	20.17	21	0
5	64QAM	1	24	20.15	20.32	20.14		
5	64QAM	12	0	20.15	20.35	20.15		
5	64QAM	12	7	20.12	20.28	20.05	21	0
5	64QAM	12	13	20.09	20.22	20.01		
5	64QAM	25	0	20.10	20.25	20.05		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	20.03	20.07	19.95		
3	QPSK	1	8	19.99	20.12	19.84	21	0
3	QPSK	1	14	19.94	20.05	19.83		
3	QPSK	8	0	19.98	20.16	19.89		
3	QPSK	8	4	20.02	20.15	19.9	21	0
3	QPSK	8	7	19.95	20.08	19.85		
3	QPSK	15	0	19.97	20.12	19.87		
3	16QAM	1	0	19.84	20.06	19.8		
3	16QAM	1	8	19.86	20.01	19.79	21	0
3	16QAM	1	14	19.84	19.95	19.7		
3	16QAM	8	0	20.05	20.22	19.95		
3	16QAM	8	4	20.07	20.21	19.96	21	0
3	16QAM	8	7	20.03	20.18	19.92		
3	16QAM	15	0	20.02	20.17	19.9		
3	64QAM	1	0	20.33	20.39	20.09		
3	64QAM	1	8	20.26	20.41	20.17	21	0
3	64QAM	1	14	20.23	20.34	20.13		
3	64QAM	8	0	20.15	20.31	20.08		
3	64QAM	8	4	20.15	20.31	20.07	21	0
3	64QAM	8	7	20.11	20.26	20.03		
3	64QAM	15	0	20.07	20.23	20.02		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	19.99	20.04	19.98		
1.4	QPSK	1	3	20.00	20.16	19.89		
1.4	QPSK	1	5	19.90	20.04	19.84	21	0
1.4	QPSK	3	0	19.92	20.10	19.87		
1.4	QPSK	3	1	20.00	20.17	19.87		
1.4	QPSK	3	3	19.93	20.09	19.84		
1.4	QPSK	6	0	19.91	20.07	19.80	21	0
1.4	16QAM	1	0	19.73	20.02	19.69		
1.4	16QAM	1	3	19.86	20.00	19.80		
1.4	16QAM	1	5	19.76	19.93	19.68	21	0
1.4	16QAM	3	0	19.99	20.21	19.90		
1.4	16QAM	3	1	20.06	20.21	19.93		
1.4	16QAM	3	3	19.95	20.14	19.86		
1.4	16QAM	6	0	19.96	20.13	19.85	21	0
1.4	64QAM	1	0	20.31	20.44	20.15		
1.4	64QAM	1	3	20.22	20.37	20.14		
1.4	64QAM	1	5	20.19	20.32	20.15	21	0
1.4	64QAM	3	0	20.15	20.35	20.08		
1.4	64QAM	3	1	20.24	20.46	20.18		
1.4	64QAM	3	3	20.15	20.30	20.08		
1.4	64QAM	6	0	20.01	20.24	19.98	21	0

Full Power Mode

2.4GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	18.08	19.50	100.00
		6	2437	18.16	19.50	
		11	2462	18.18	19.50	
	802.11g 6Mbps	1	2412	17.90	19.00	98.28
		6	2437	17.91	19.00	
		11	2462	17.92	19.00	
	802.11n-HT20 MCS0	1	2412	17.00	18.50	98.16
		6	2437	16.96	18.50	
		11	2462	16.98	18.50	

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.90	19.00	98.28
		40	5200	18.01	19.00	
		44	5220	17.83	19.00	
		48	5240	17.36	19.00	
	802.11n-HT20 MCS0	36	5180	16.90	17.50	98.16
		40	5200	16.87	17.50	
		44	5220	16.73	17.50	
		48	5240	16.20	17.50	
	802.11n-HT40 MCS0	38	5190	16.08	17.50	96.32
		46	5230	15.66	17.50	
	802.11ac-VHT20 MCS0	36	5180	16.91	17.50	98.16
		40	5200	16.73	17.50	
		44	5220	16.84	17.50	
		48	5240	16.59	17.50	
	802.11ac-VHT40 MCS0	38	5190	16.96	17.50	96.35
		46	5230	16.64	17.50	
	802.11ac-VHT80 MCS0	42	5210	16.18	17.50	93.30

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.86	19.00	98.28
		56	5280	17.97	19.00	
		60	5300	17.80	19.00	
		64	5320	17.35	19.00	
	802.11n-HT20 MCS0	52	5260	16.89	17.50	98.16
		56	5280	16.91	17.50	
		60	5300	16.89	17.50	
		64	5320	16.40	17.50	
	802.11n-HT40 MCS0	54	5270	15.86	17.50	96.32
		62	5310	15.58	17.50	
	802.11ac-VHT20 MCS0	52	5260	16.94	17.50	98.16
		56	5280	16.91	17.50	
		60	5300	16.90	17.50	
		64	5320	16.88	17.50	
	802.11ac-VHT40 MCS0	54	5270	16.88	17.50	96.35
		62	5310	16.48	17.50	
	802.11ac-VHT80 MCS0	58	5290	15.58	17.50	93.30

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.43	18.00	98.28
		116	5580	16.66	18.50	
		124	5620	16.91	18.50	
		132	5660	16.91	18.50	
		140	5700	17.80	19.00	
		144	5720	17.87	19.00	
	802.11n-HT20 MCS0	100	5500	15.28	17.00	98.16
		116	5580	15.88	17.50	
		124	5620	15.98	17.50	
		132	5660	16.28	17.50	
		140	5700	16.70	17.50	
		144	5720	16.86	17.50	
	802.11n-HT40 MCS0	102	5510	14.66	16.50	96.32
		110	5550	14.98	16.50	
		126	5630	15.54	17.50	
		134	5670	15.84	17.50	
		142	5710	16.16	17.50	
	802.11ac-VHT20 MCS0	100	5500	16.38	17.50	98.16
		116	5580	16.72	17.50	
		124	5620	16.19	17.50	
		132	5660	16.61	17.50	
		140	5700	16.71	17.50	
		144	5720	16.96	17.50	
	802.11ac-VHT40 MCS0	102	5510	15.84	17.50	96.35
		110	5550	16.26	17.50	
		126	5630	16.92	17.50	
		134	5670	17.20	17.50	
		142	5710	17.16	17.50	
	802.11ac-VHT80 MCS0	106	5530	14.62	16.50	93.30
		122	5610	15.52	17.50	
		138	5690	16.20	17.50	

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	12.32	13.50	98.28
		157	5785	12.27	13.50	
		165	5825	12.46	13.50	
	802.11n-HT20 MCS0	149	5745	12.29	13.50	98.16
		157	5785	12.10	13.50	
		165	5825	12.36	13.50	
	802.11n-HT40 MCS0	151	5755	11.80	13.50	96.32
		159	5795	11.90	13.50	
	802.11ac-VHT20 MCS0	149	5745	12.33	13.50	98.16
		157	5785	12.05	13.50	
		165	5825	12.43	13.50	
	802.11ac-VHT40 MCS0	151	5755	11.87	13.50	96.35
		159	5795	11.95	13.50	
	802.11ac-VHT80 MCS0	155	5775	12.28	13.50	93.30

Reduced Power Mode for Hotspot On

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	15.87	17.00	98.28
		40	5200	15.94	17.00	
		44	5220	15.90	17.00	
		48	5240	15.54	17.00	
	802.11n-HT20 MCS0	36	5180	14.99	15.50	98.16
		40	5200	14.86	15.50	
		44	5220	14.69	15.50	
		48	5240	14.53	15.50	
	802.11n-HT40 MCS0	38	5190	14.09	15.50	96.32
		46	5230	13.72	15.50	
	802.11ac-VHT20 MCS0	36	5180	15.10	15.50	98.16
		40	5200	14.75	15.50	
		44	5220	14.94	15.50	
		48	5240	14.54	15.50	
	802.11ac-VHT40 MCS0	38	5190	15.12	15.50	96.35
		46	5230	14.58	15.50	
	802.11ac-VHT80 MCS0	42	5210	14.34	15.50	93.30

Reduced Power Mode for P-Sensor On

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.41	17.50	98.28
		40	5200	16.47	17.50	
		44	5220	16.32	17.50	
		48	5240	15.81	17.50	
	802.11n-HT20 MCS0	36	5180	15.37	16.00	98.16
		40	5200	15.26	16.00	
		44	5220	15.24	16.00	
		48	5240	14.97	16.00	
	802.11n-HT40 MCS0	38	5190	14.61	16.00	96.32
		46	5230	14.35	16.00	
	802.11ac-VHT20 MCS0	36	5180	15.31	16.00	98.16
		40	5200	15.29	16.00	
		44	5220	15.29	16.00	
		48	5240	15.25	16.00	
	802.11ac-VHT40 MCS0	38	5190	15.61	16.00	96.35
		46	5230	15.22	16.00	
	802.11ac-VHT80 MCS0	42	5210	14.76	16.00	93.30

5GHz WLAN	Ant 1					
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	16.53	17.50	98.28
		56	5280	16.57	17.50	
		60	5300	16.23	17.50	
		64	5320	15.87	17.50	
	802.11n-HT20 MCS0	52	5260	15.37	16.00	98.16
		56	5280	15.39	16.00	
		60	5300	15.38	16.00	
		64	5320	15.02	16.00	
	802.11n-HT40 MCS0	54	5270	14.43	16.00	96.32
		62	5310	14.01	16.00	
	802.11ac-VHT20 MCS0	52	5260	15.41	16.00	98.16
		56	5280	15.39	16.00	
		60	5300	15.37	16.00	
		64	5320	15.33	16.00	
	802.11ac-VHT40 MCS0	54	5270	15.37	16.00	96.35
		62	5310	15.02	16.00	
	802.11ac-VHT80 MCS0	58	5290	14.46	16.00	93.30

BR / EDR

Mode	Channel	Frequency (MHz)	Average power (dBm)									Tune-up Limit
			Packet Type									
			DH1	DH3	DH5	2DH1	2DH3	2DH5	3DH1	3DH3	3DH5	
Bluetooth	CH 0	2402	11.23	11.53	11.63	9.66	9.45	9.27	9.49	9.37	9.33	12
	CH 39	2441	11.26	11.65	**11.75**	**9.90**	9.76	9.64	**9.73**	9.68	9.60	
	CH 78	2480	11.06	11.16	11.31	9.61	9.16	8.62	9.63	9.24	8.76	

LE

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	6.98
	CH 19	2440	7.69
	CH 39	2480	7.51
Tune-up Limit			9