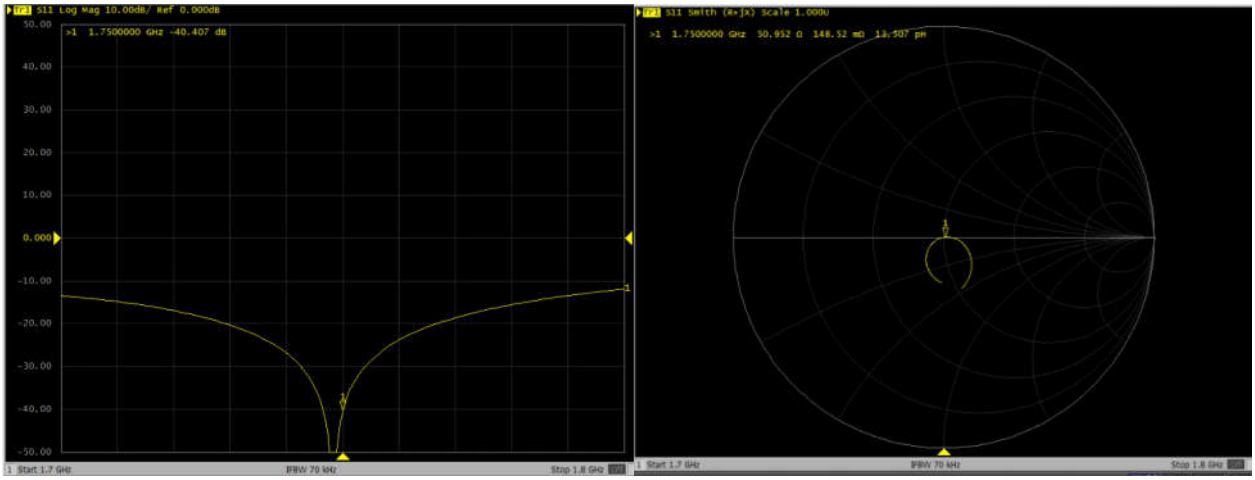
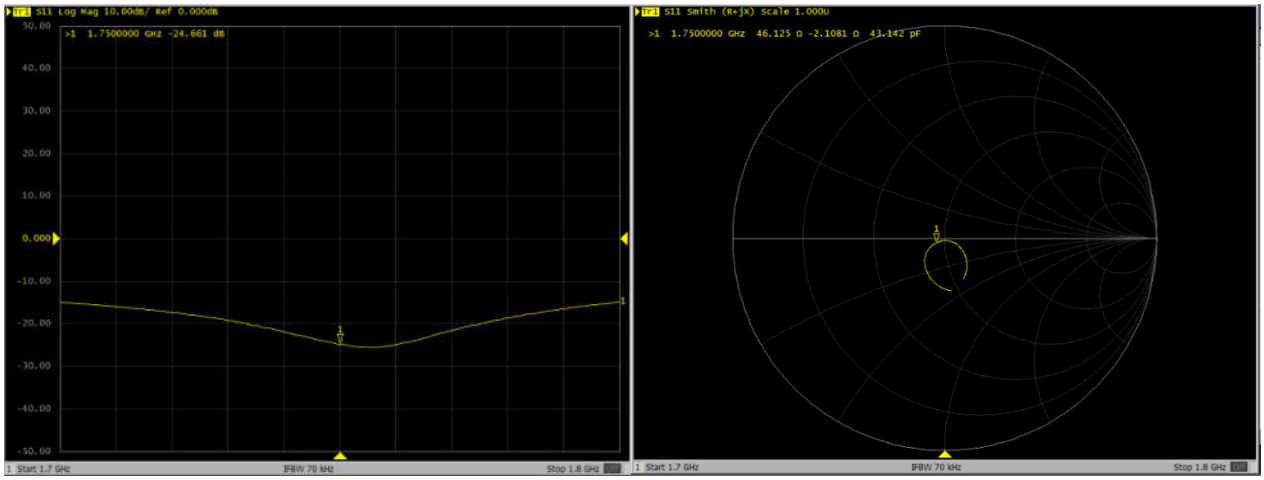
Dipole Verification Data> D1750V2, serial no. 1137

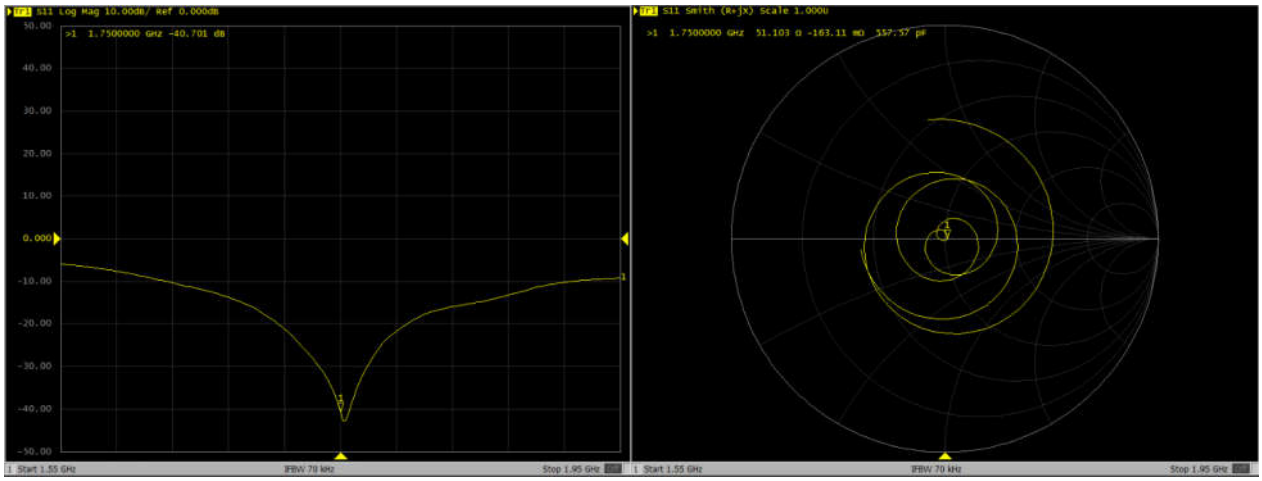
1750MHz – Head----2019.7.23



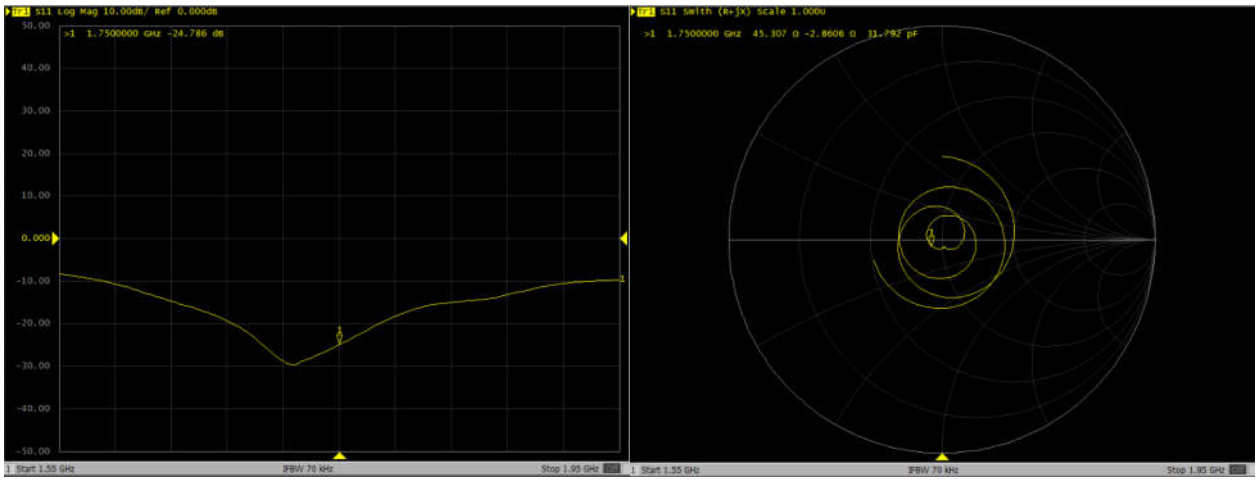
1750MHz – Body----2019.7.23



1750MHz – Head----2020.7.23



1750MHz – Body----2020.7.23



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校准
CALIBRATION
CNAS L0570

Certificate No: Z18-60536

Client Sporton

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d182

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
NetworkAnalyzer 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

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lossary:

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%.

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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.44 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	10.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.6 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.25 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	1.56 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	10.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**39.9 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.31 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.9 mW /g ± 18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.1Ω+ 5.35jΩ
Return Loss	- 25.0dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.9Ω+ 6.19jΩ
Return Loss	- 24.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.067 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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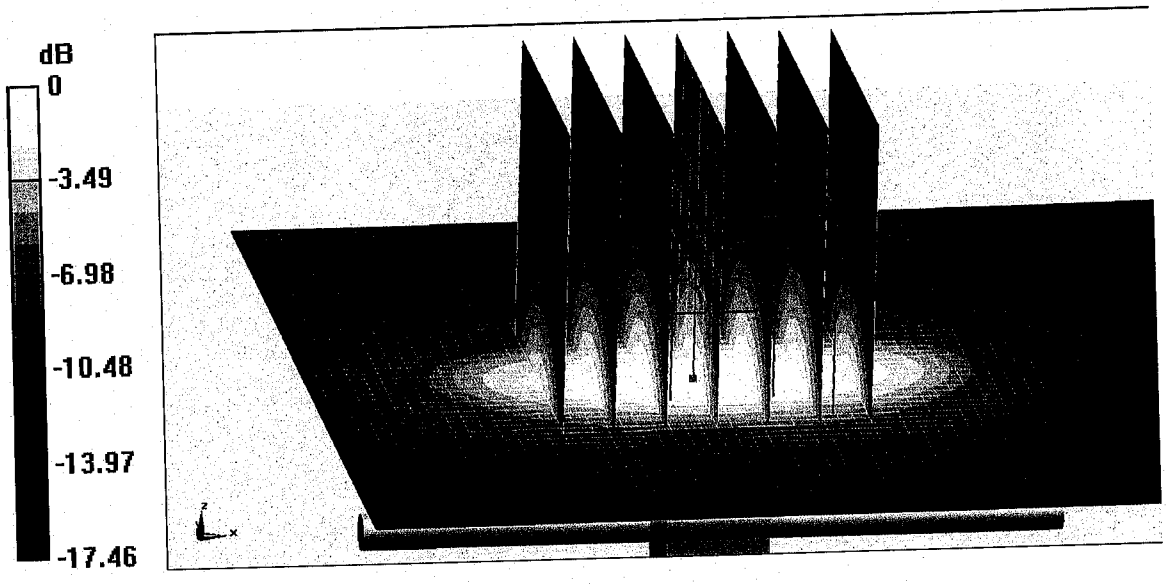
Date: 12.06.2018

DASY5 Validation Report for Head TSL
Test Laboratory: CTTL, Beijing, China
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d182
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.441 S/m; ε_r = 39.59; ρ = 1000 kg/m3
Phantom section: Center Section
DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.73, 7.73, 7.73) @ 1900 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)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.91 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 19.3 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.25 W/kg
Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.99 dBW/kg

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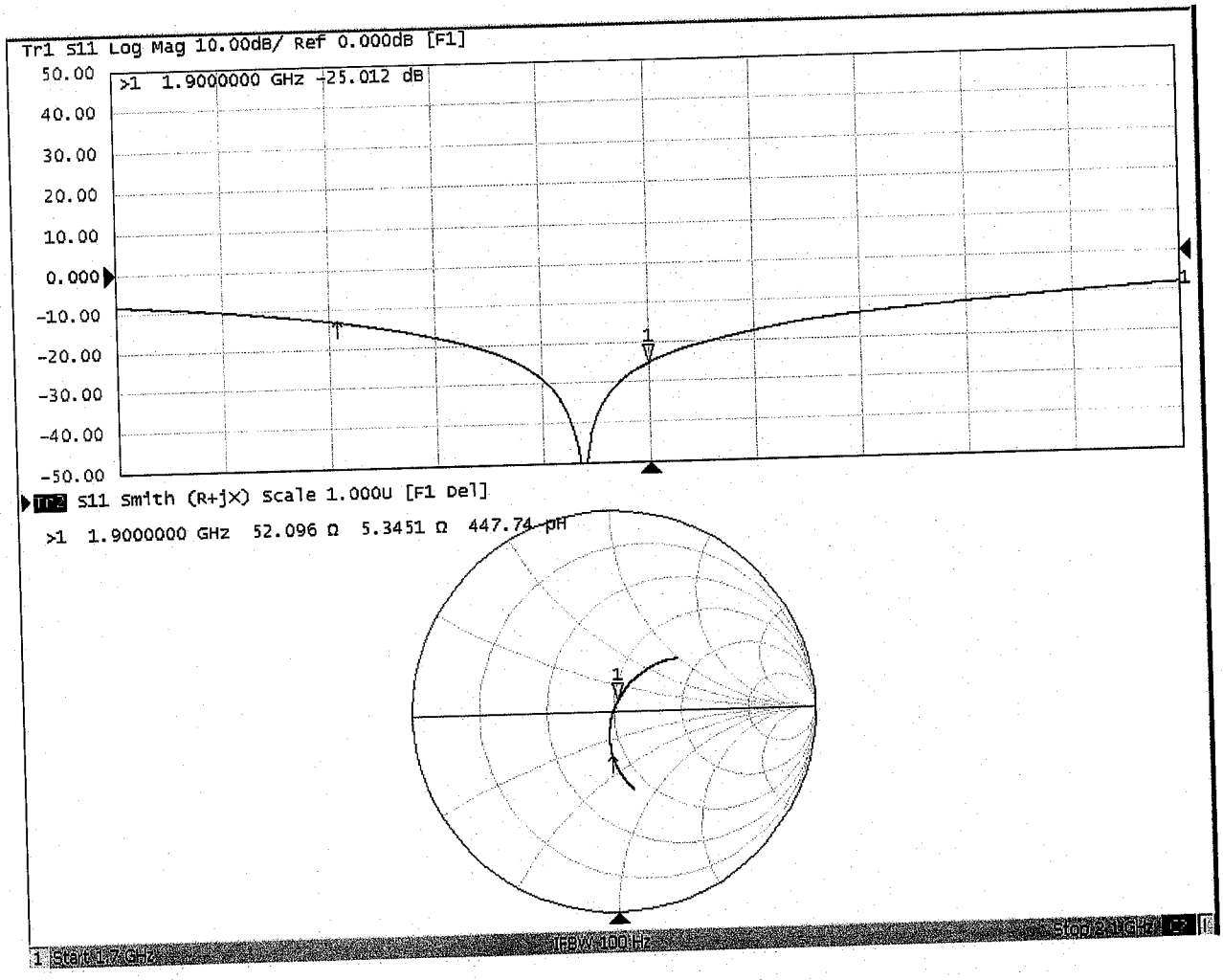
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 12.05.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d182

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.564 S/m; ε_r = 51.82; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(7.53, 7.53, 7.53) @ 1900 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)

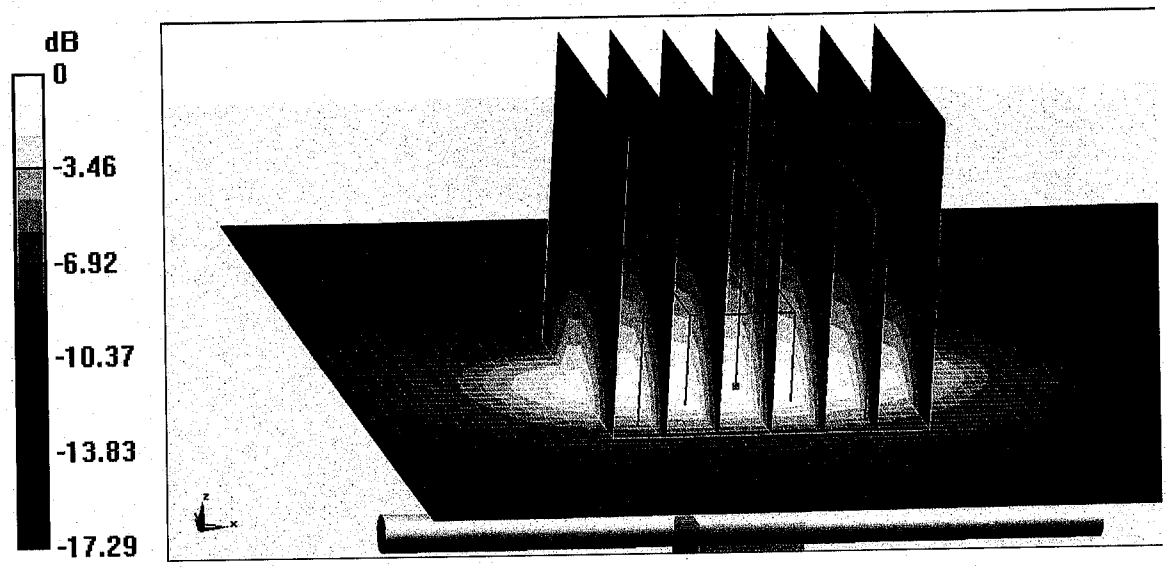
System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 84.07 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.31 W/kg

Maximum value of SAR (measured) = 15.7 W/kg



0 dB = 15.7 W/kg = 11.96 dBW/kg

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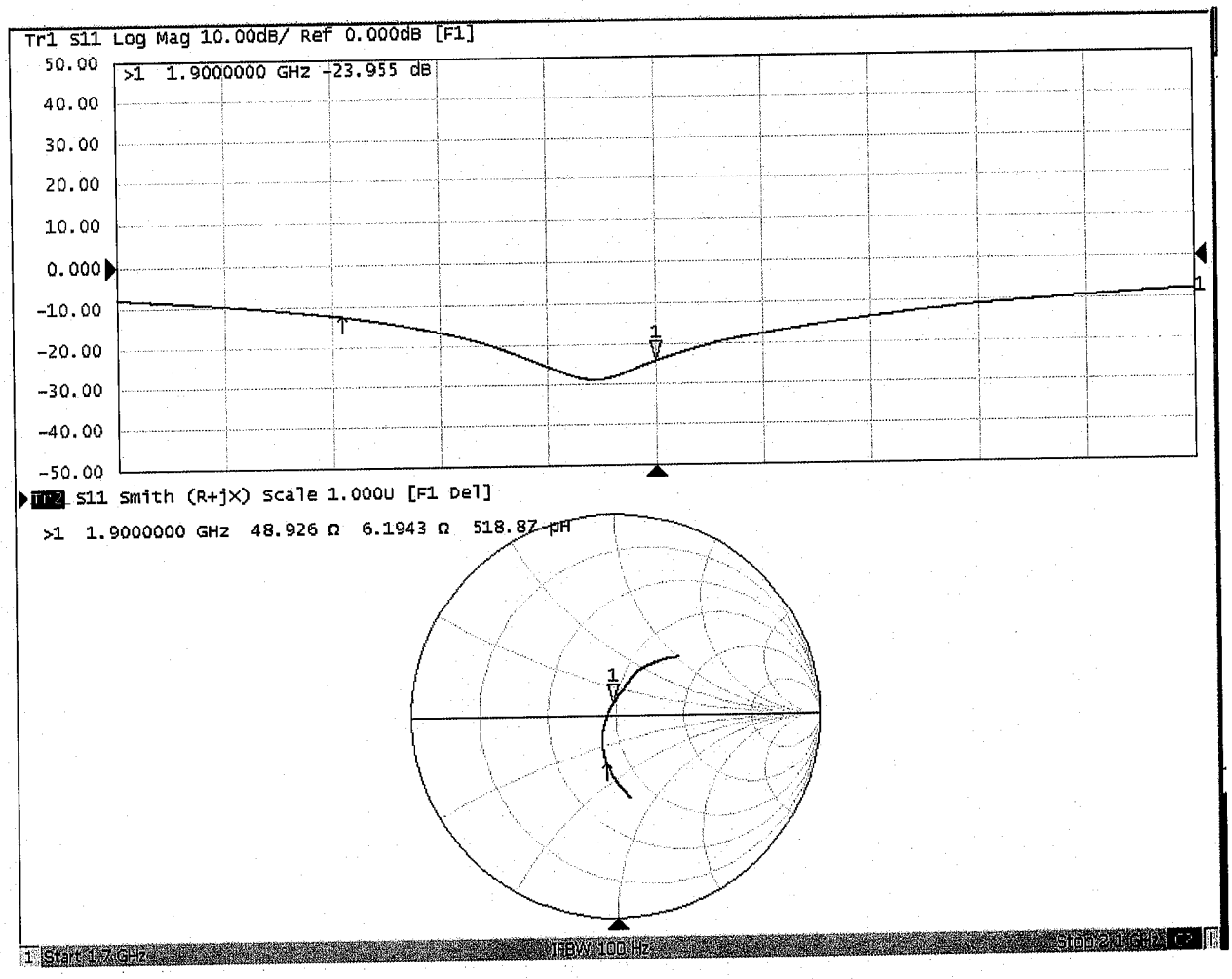
Impedance Measurement Plot for Body TSL



D1900V2, Serial No. 5d182 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.

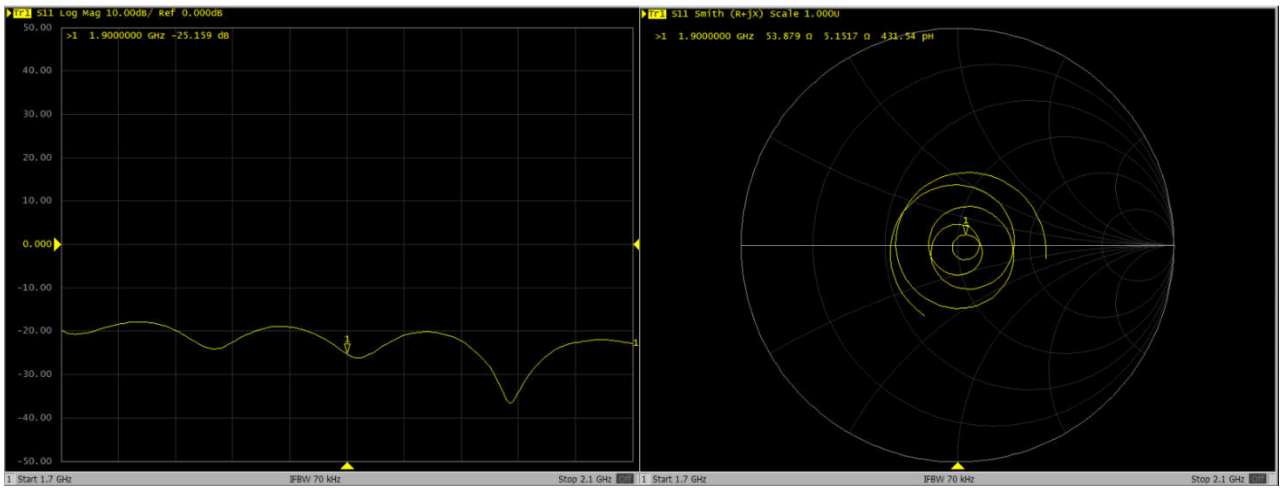
D1900V2 – serial no. 5d182												
	1900 Head						1900 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.12.7	-25		52.1		5.35		-24		48.9		6.19	
2019.11.25	-25.2	-0.8	53.9	1.8	5.15	-0.2	-24.2	-0.8	48.7	-0.2	5.93	-0.26
2020.11.25	-25.8	3.2	52.6	0.5	4.56	-0.79	-24.2	-0.8	49.6	0.7	6.11	-0.08

<Justification of the extended calibration>

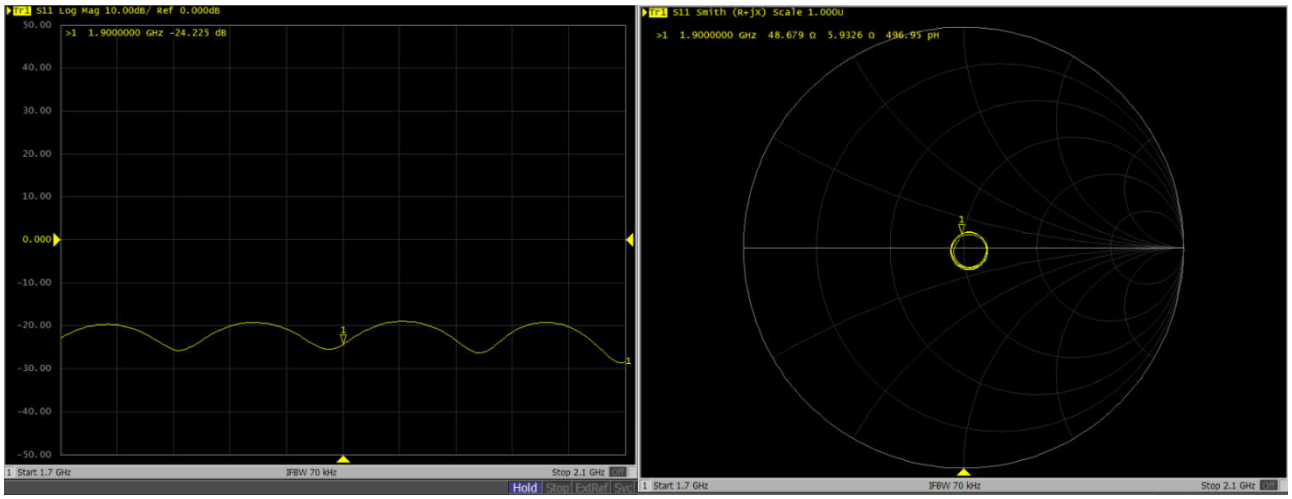
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D1900V2, serial no. 5d182

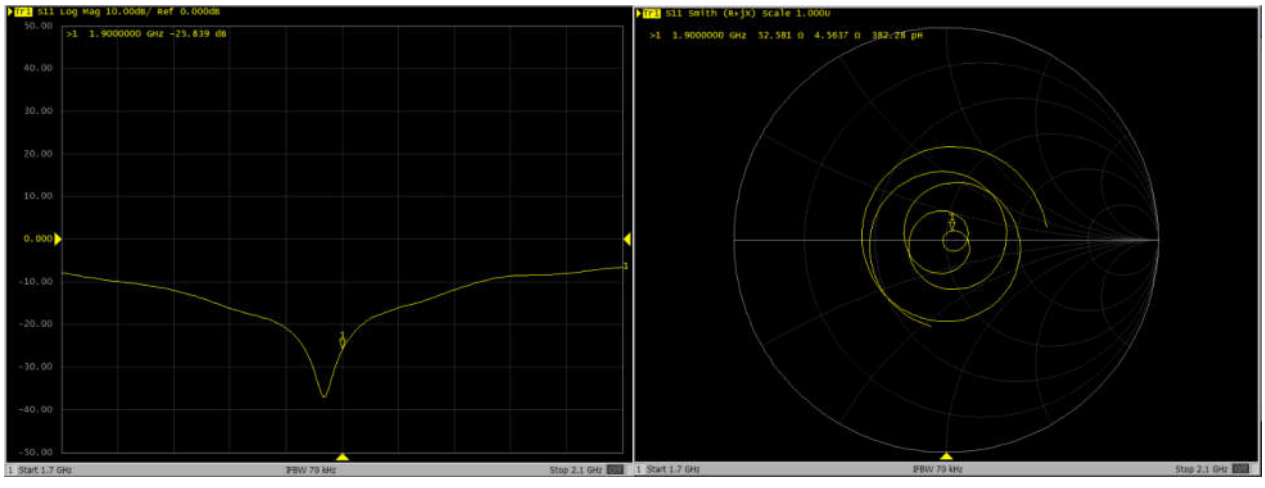
1900MHz – Head----2019.11.25



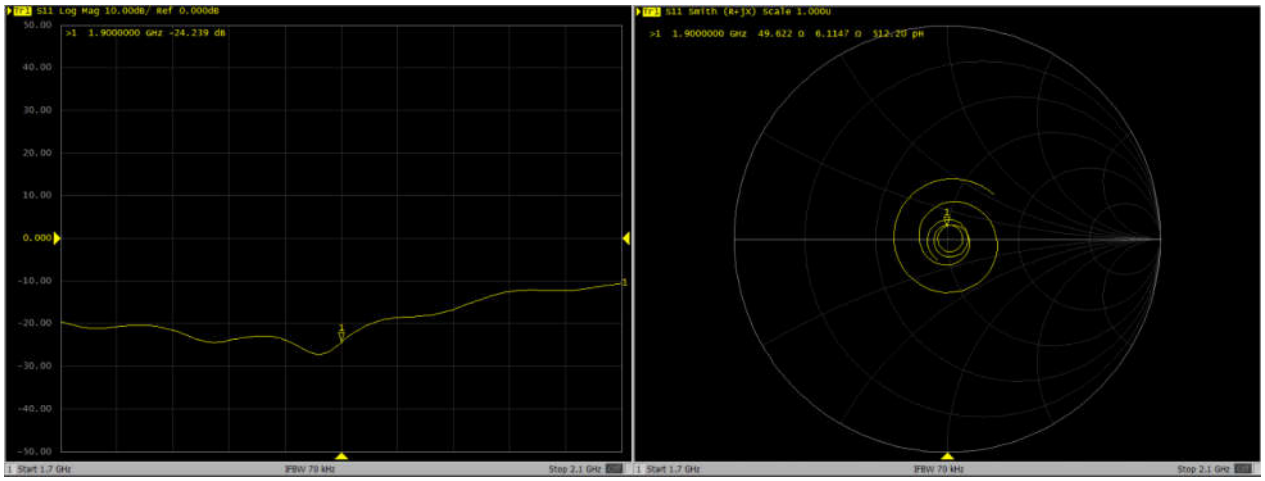
1900MHz – Body----2019.11.25



1900MHz – Head----2020.11.25



1900MHz – Body----2020.11.25



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
S 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 **Sporton**

Certificate No: **D2450V2-924_Sep20**

CALIBRATION CERTIFICATE

Object: D2450V2 - SN:924

Calibration procedure(s): QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: September 02, 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
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 2, 2020

Glossary:

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

Calibration is Performed According to the Following Standards:

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"

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**51.4 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.0 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.9 Ω + 7.2 jΩ
Return Loss	- 22.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.155 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

Date: 02.09.2020

Test Laboratory: SPEAG, Zurich, Switzerland

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

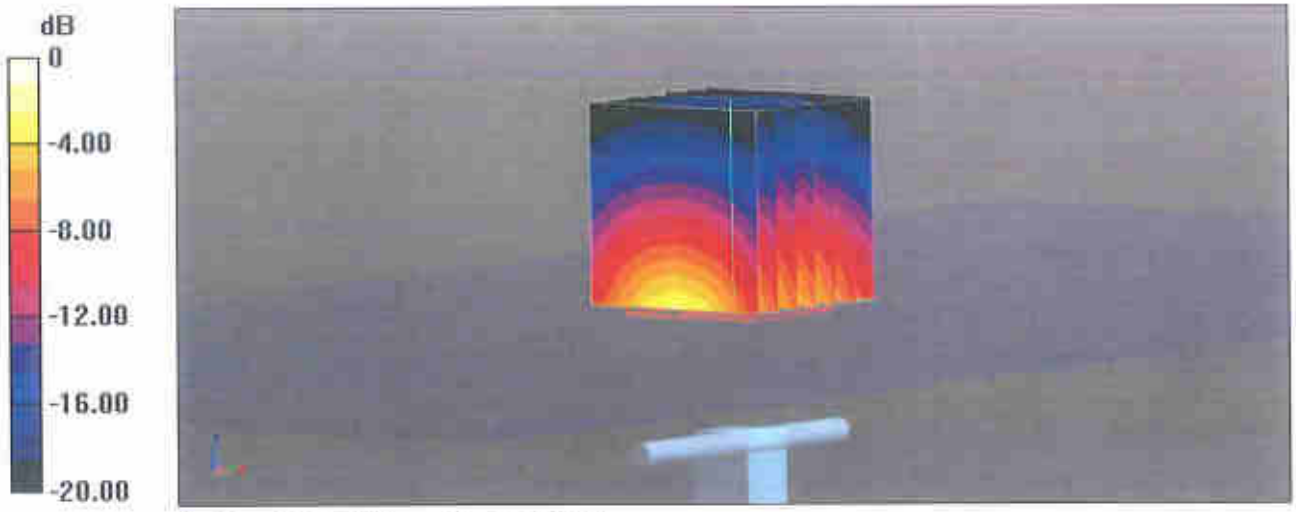
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.84 S/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.74, 7.74, 7.74) @ 2450 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

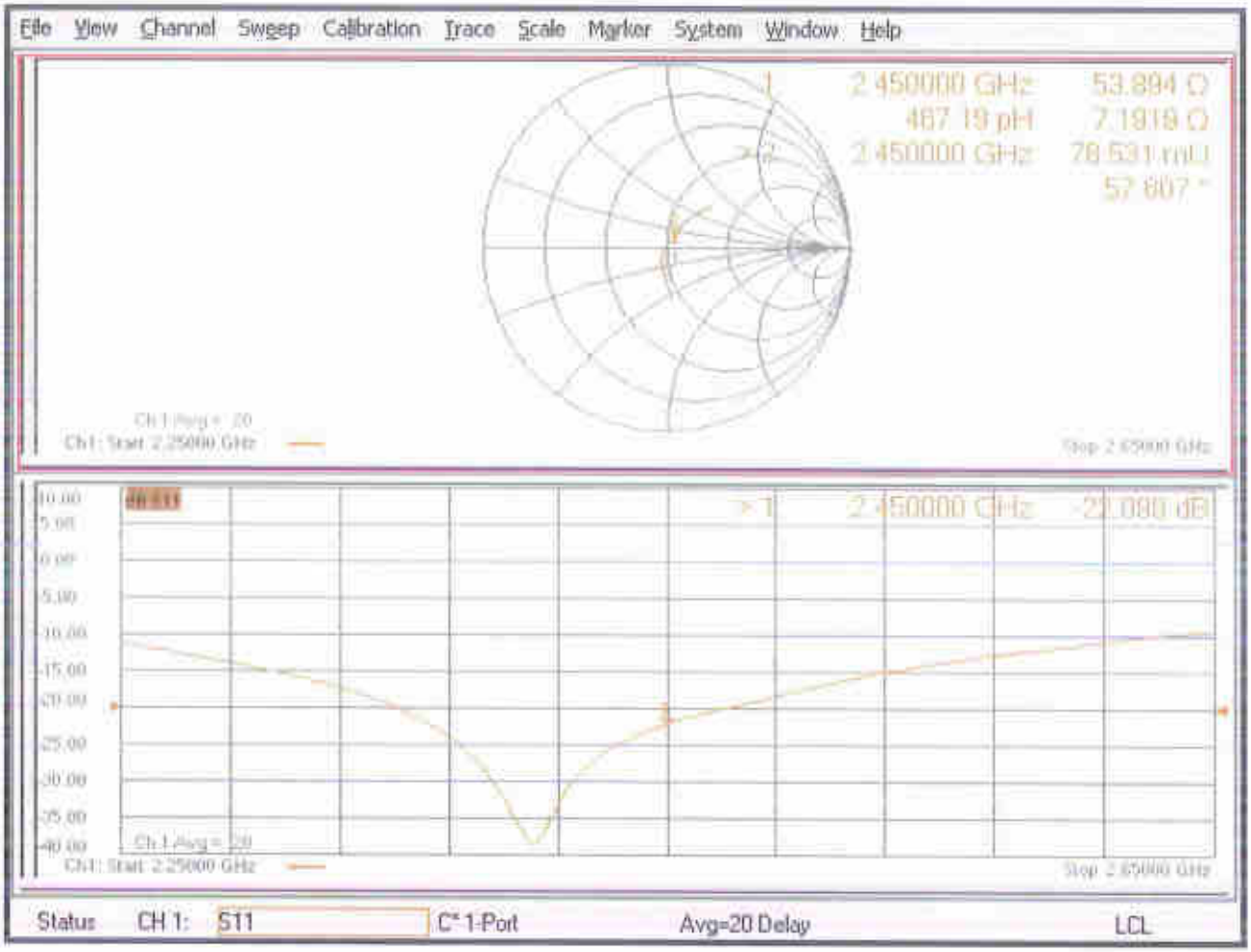
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.2 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 25.4 W/kg
SAR(1 g) = 13.0 W/kg; SAR(10 g) = 6.04 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 51%
Maximum value of SAR (measured) = 21.2 W/kg



0 dB = 21.2 W/kg = 13.26 dBW/kg

Impedance Measurement Plot for Head TSL



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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

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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%.

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Measurement Conditions

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

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

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Appendix(Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

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

Antenna Parameters with Body TSL

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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.015 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 2600 MHz; 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)

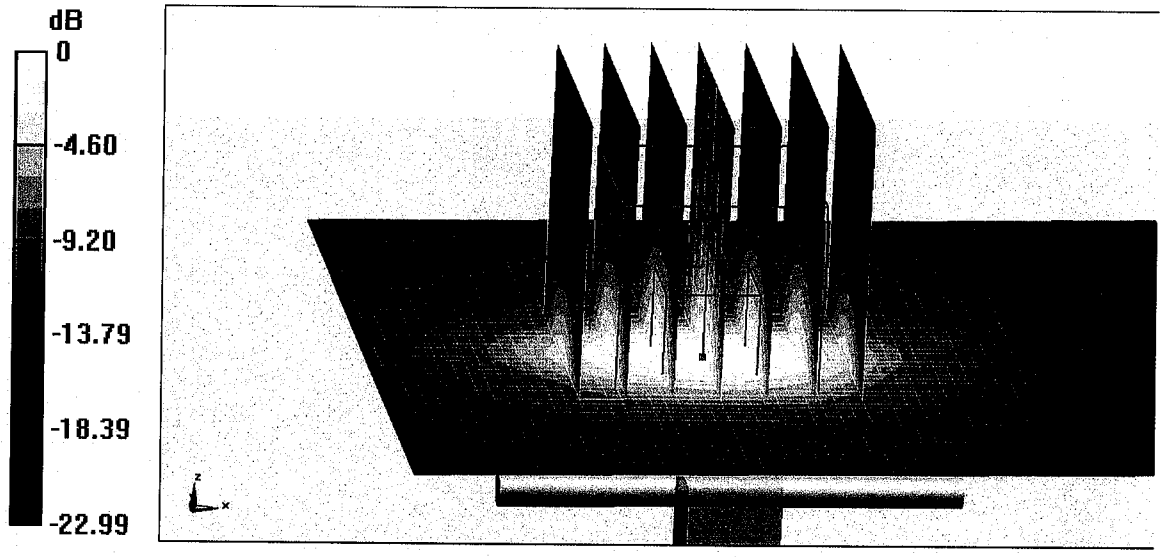
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

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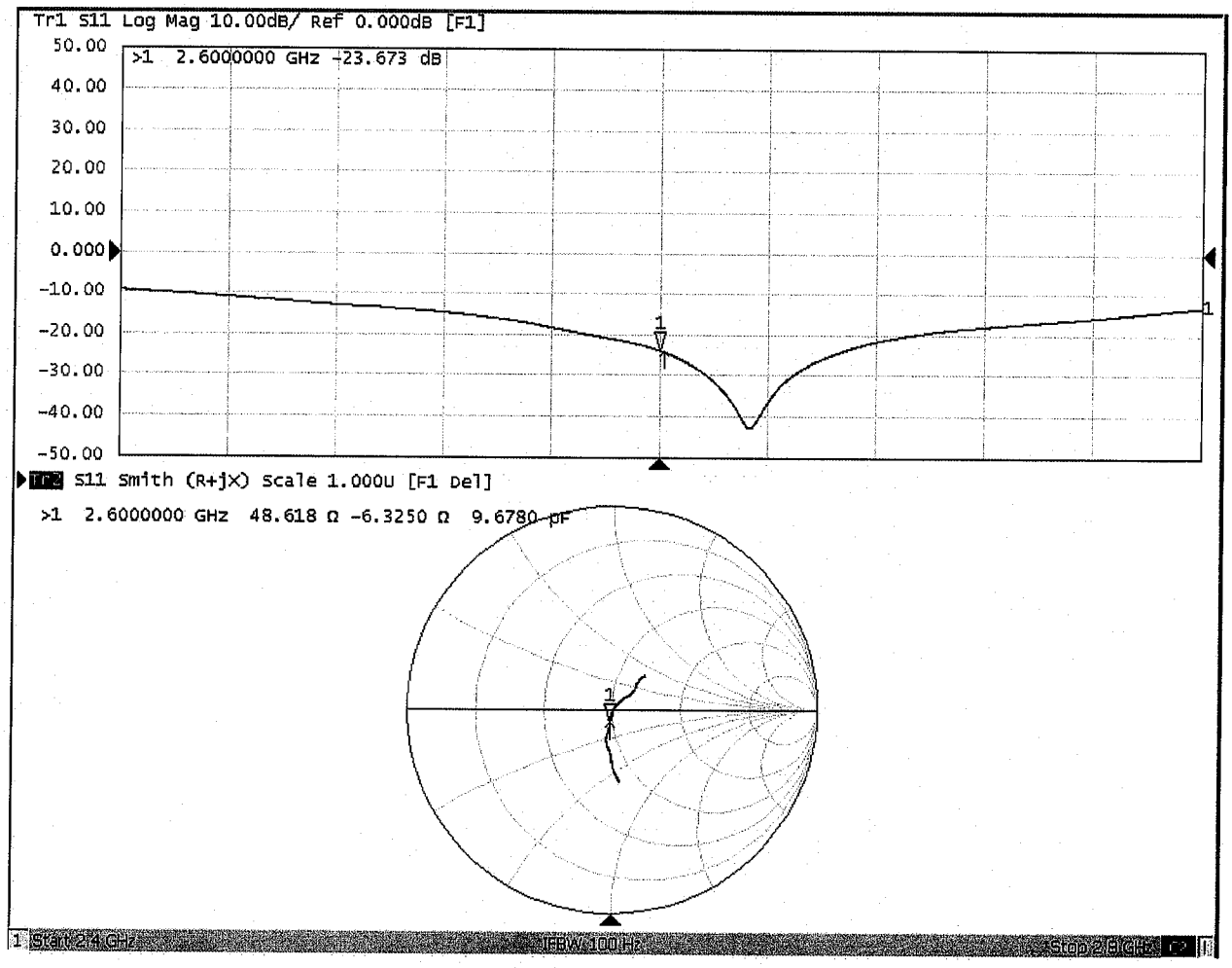
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 12.06.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 2600 MHz; 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)

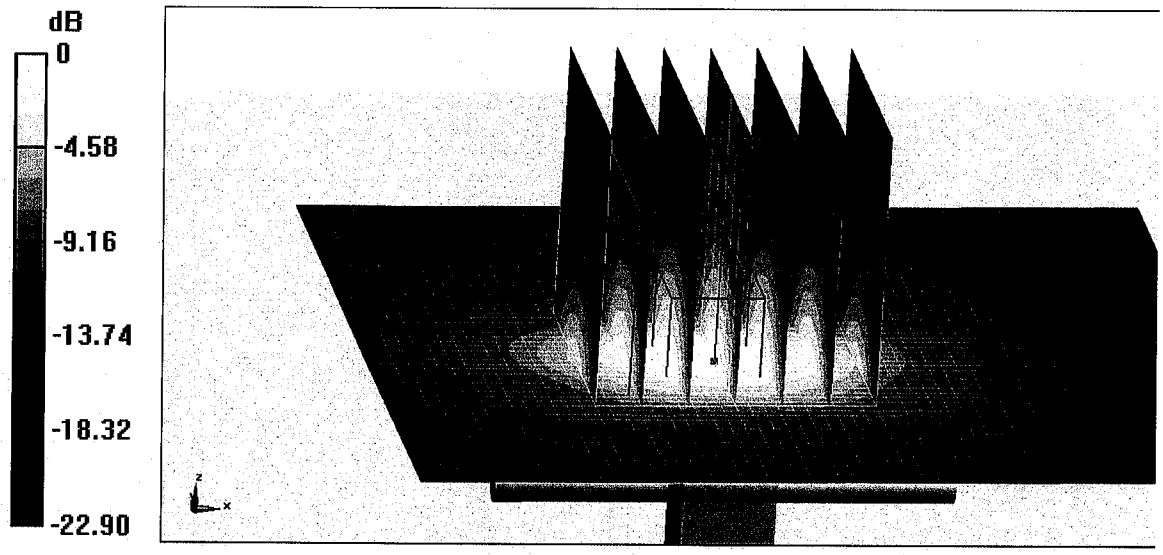
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

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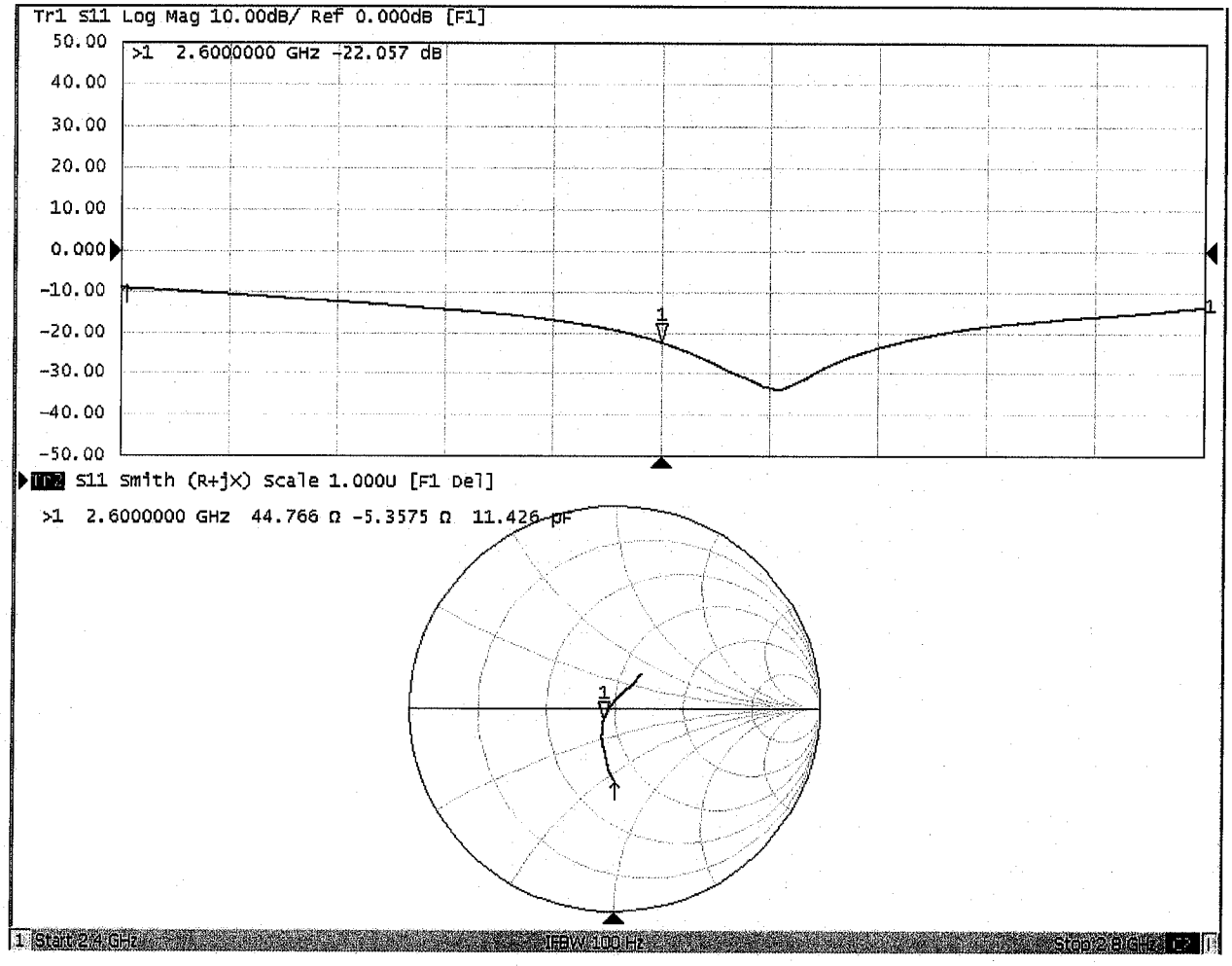
Impedance Measurement Plot for Body TSL



D2600V2, Serial No. 1070 Extended Dipole Calibrations

Referring to KDB 865664 D01 v01r02, if dipoles are verified in return loss (<-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.

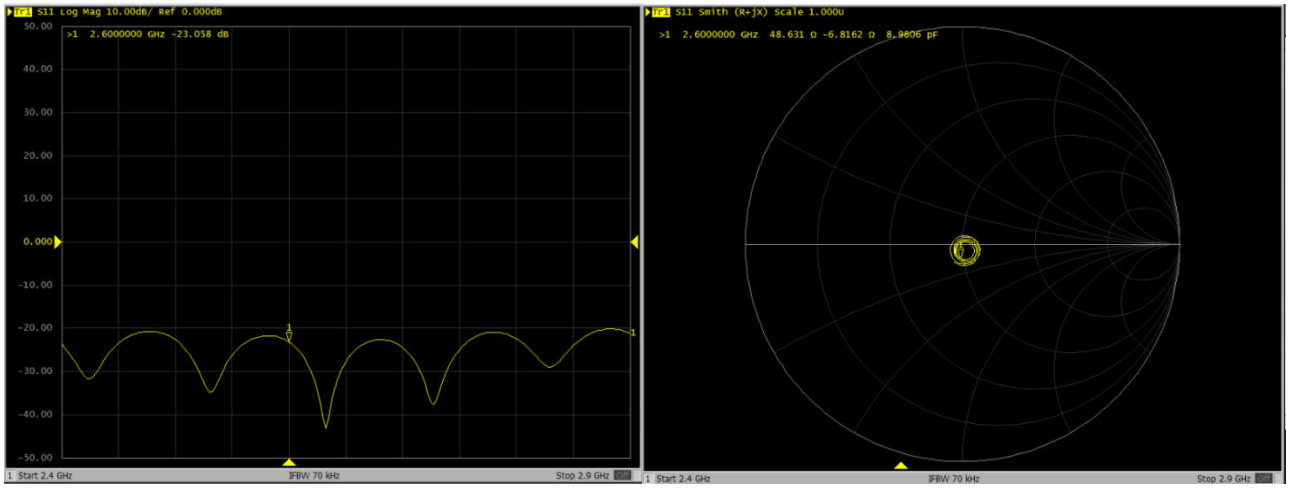
D2600V2 – serial no. 1070												
	2600 Head						2600 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.12.7	-23.7		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
2020.11.25	-23.5	0.8	48.8	0.2	-5.93	0.4	-22.0	0.5	44.5	-0.3	-5.04	0.32

<Justification of the extended calibration>

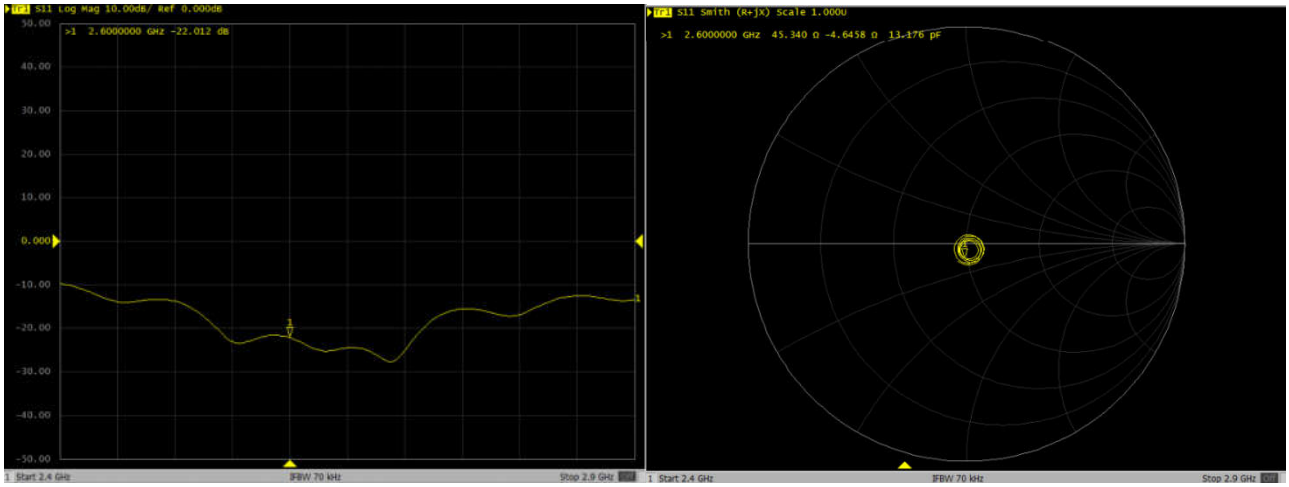
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D2600V2, serial no. 1070

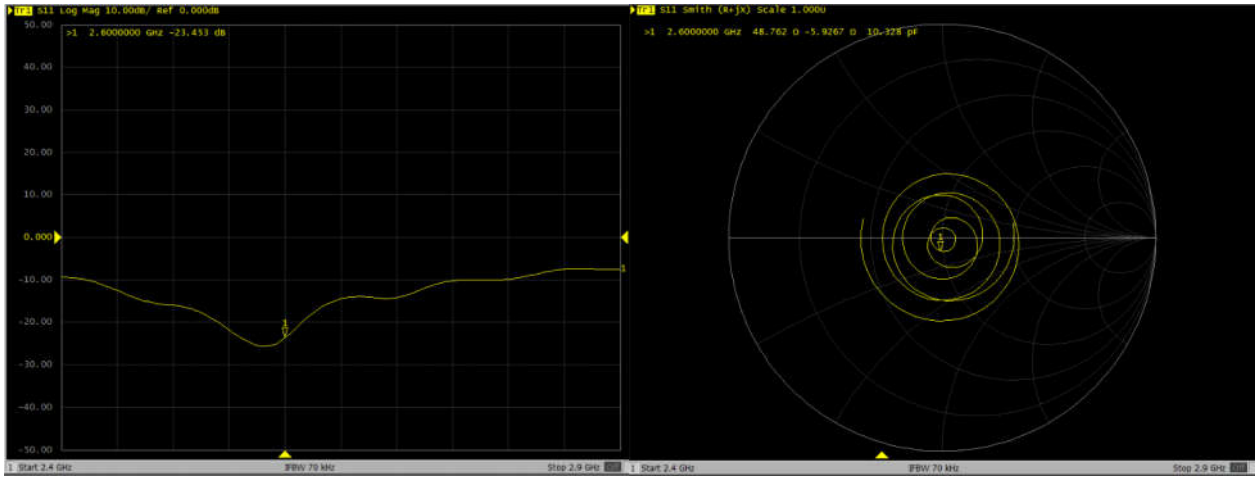
2600MHz – Head----2019.11.25



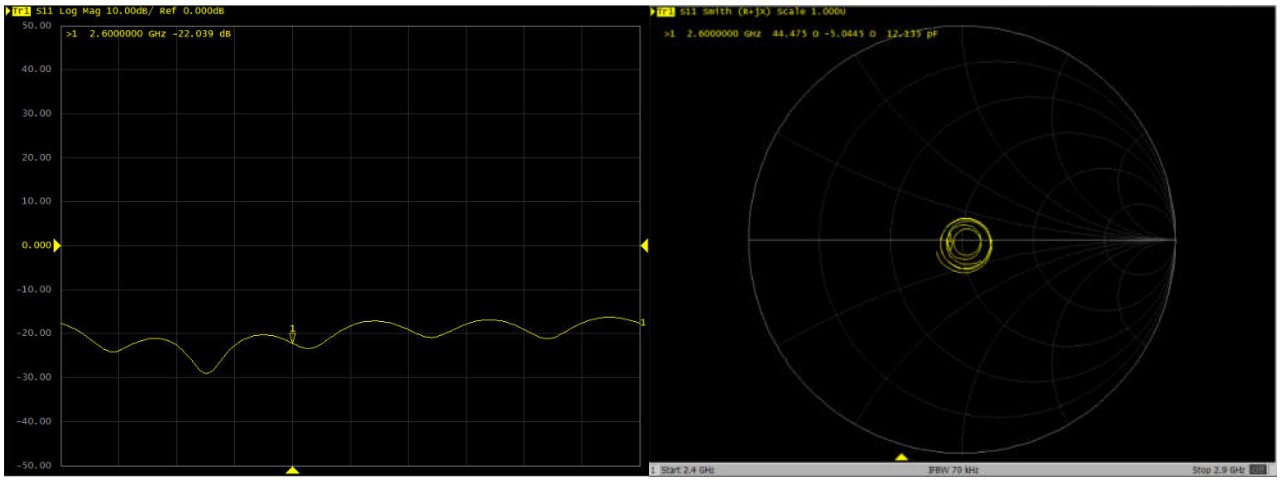
2600MHz – Body----2019.11.25



2600MHz – Head----2020.11.25



2600MHz – Body----2020.11.25



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

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1167

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

Calibration date: August 03, 2018

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

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ 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

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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%.

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Measurement Conditions

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

DASY Version	DASY52	52.10.1.1476
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 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)**

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Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

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

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^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)**

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Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

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

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^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)**

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Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

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

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^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)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.3Ω - 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

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General Antenna Parameters and Design

Electrical Delay (one direction)	1.065 ns

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

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

Additional EUT Data

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DASY5 Validation Report for Head TSL Date: 07.27.2018

Test Laboratory: CTTL, Beijing, China

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

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

Medium parameters used: f = 5250 MHz; 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

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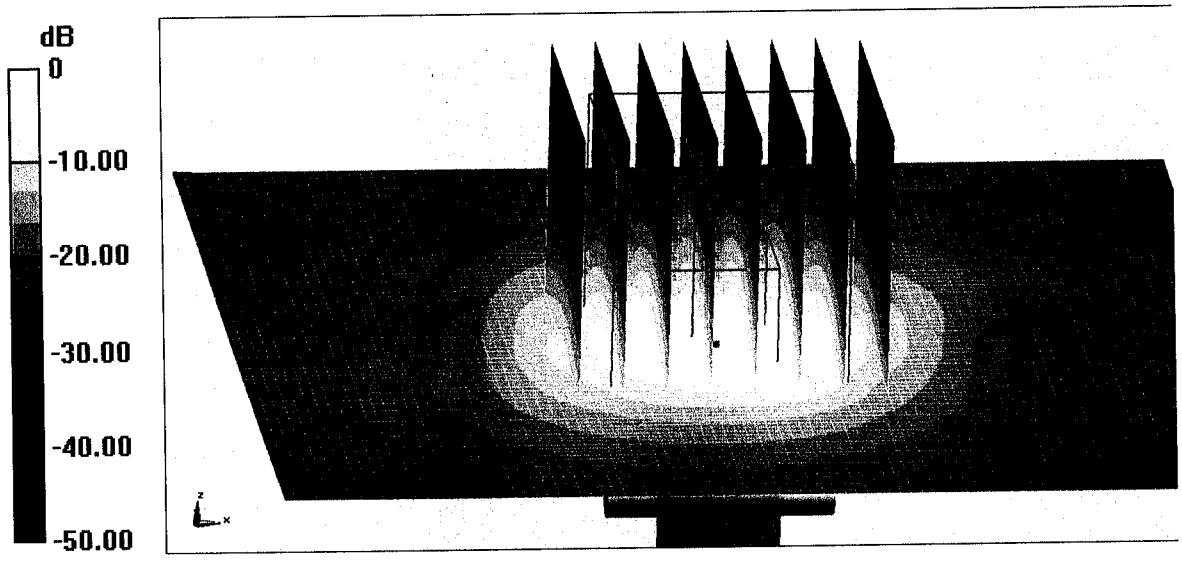

0 dB = 19.0 W/kg = 12.79 dBW/kg

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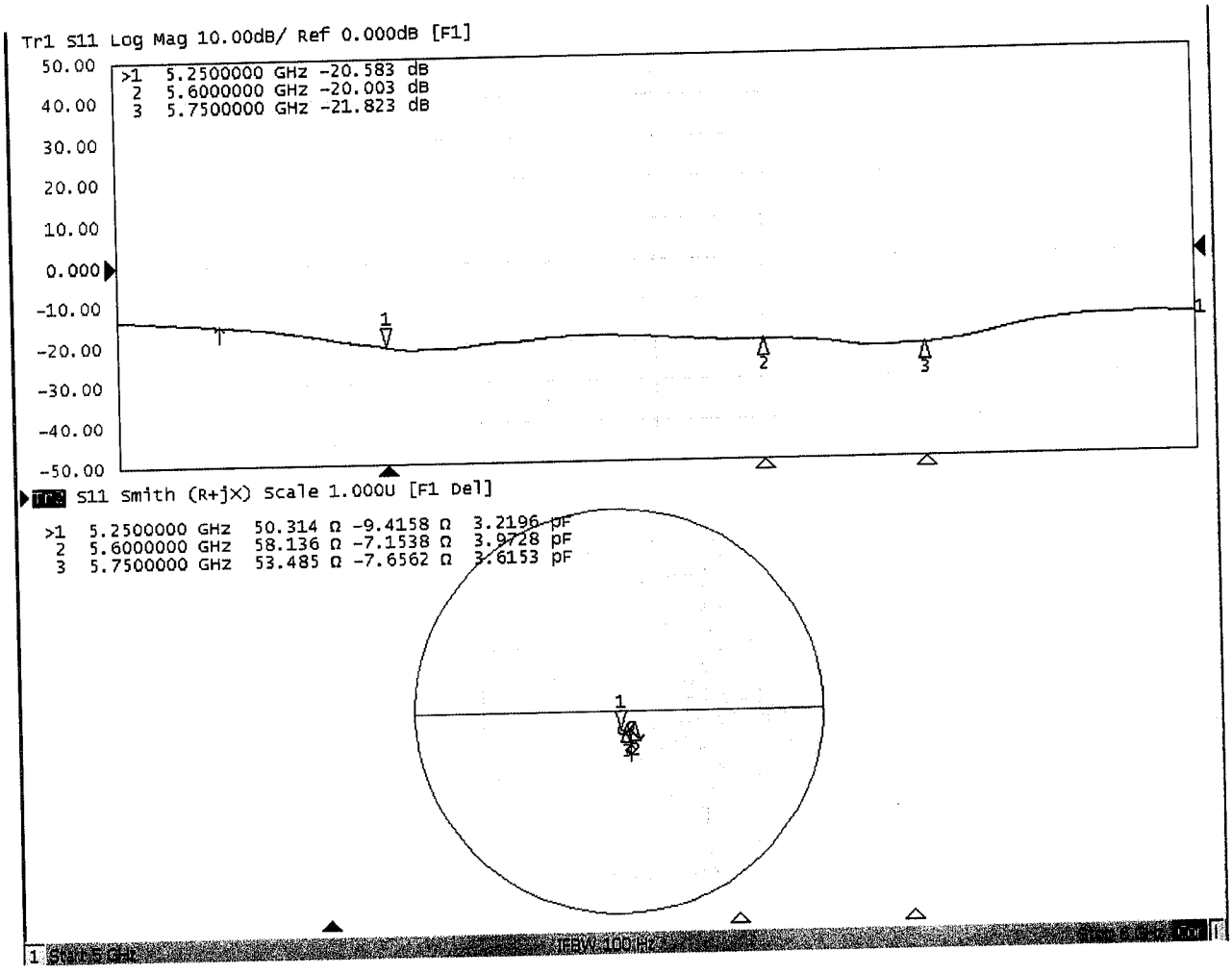
Impedance Measurement Plot for Head TSL



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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

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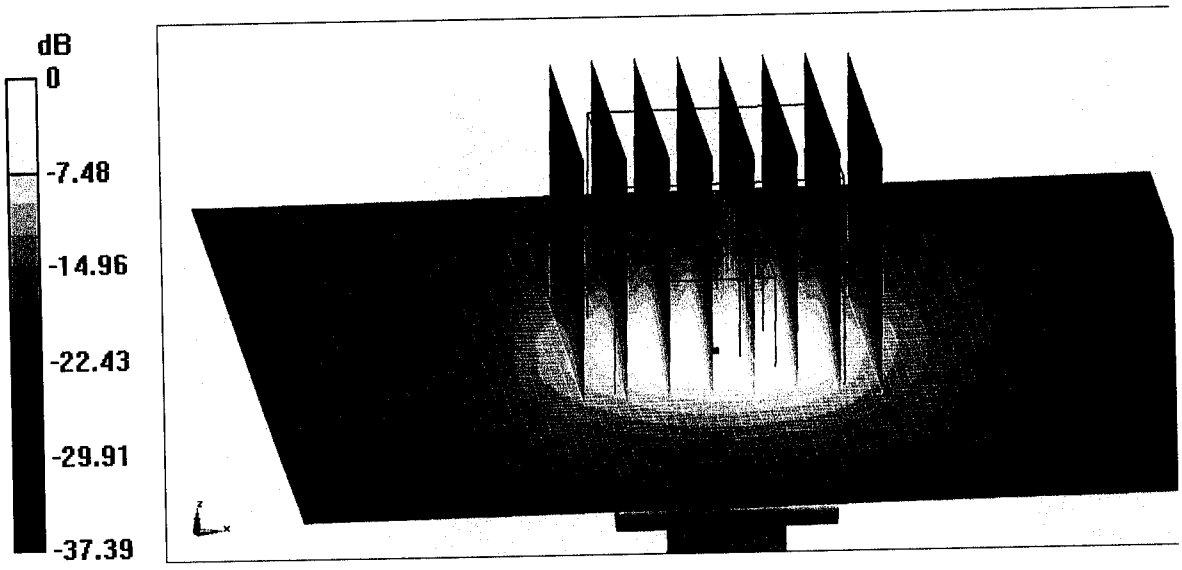

0 dB = 18.0 W/kg = 12.55 dBW/kg

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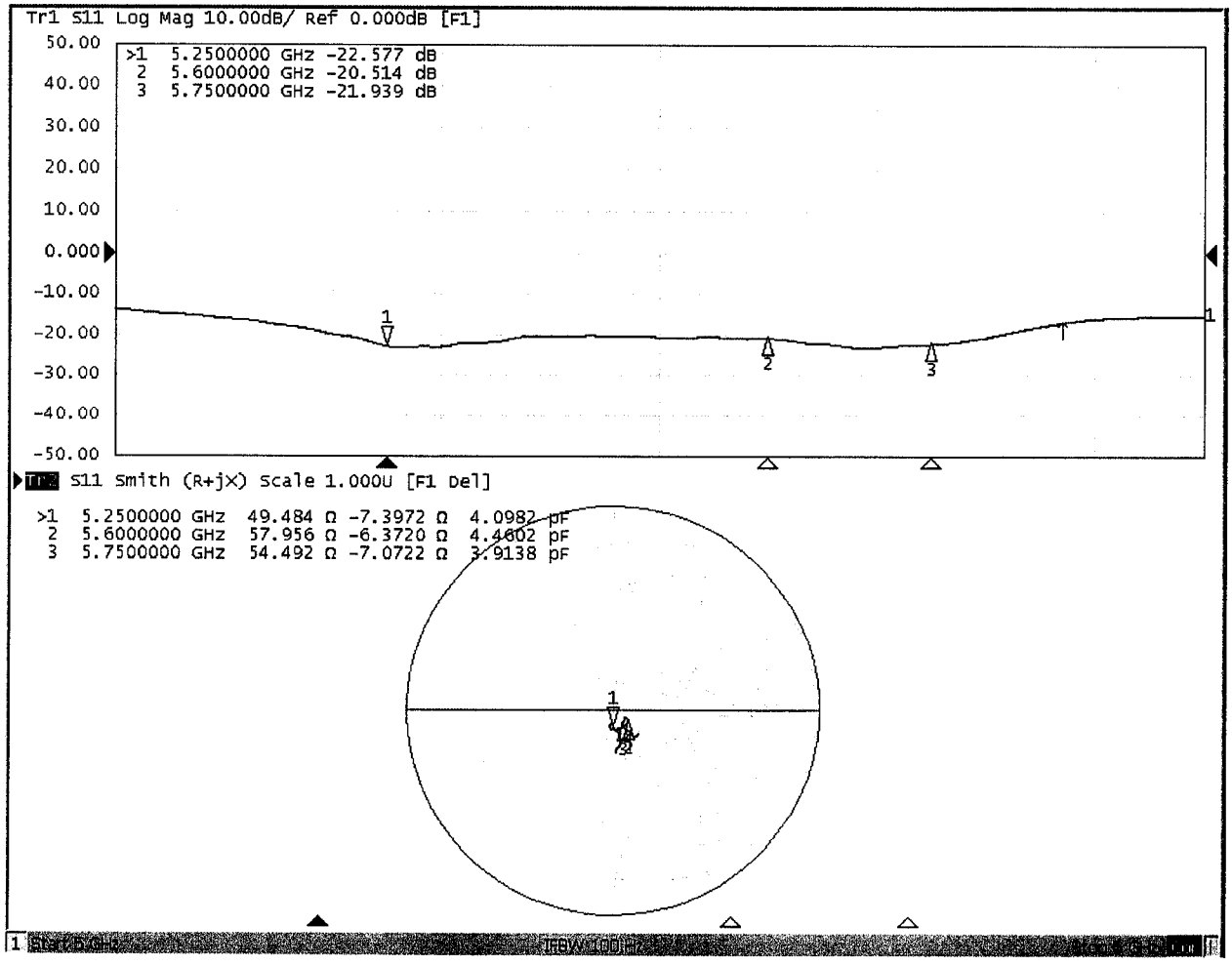
Impedance Measurement Plot for Body TSL



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
2020.10.30	-20.7	-0.05	50.19	-0.11	-9.09	0.33	-23.1	-2.2	50.2	0.7	-7.03	0.37

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
2020.10.30	-19.99	0.05	58.2	0.1	-7.13	0.02	-20.1	1.95	58.9	0.9	-5.96	0.41

5750MHz

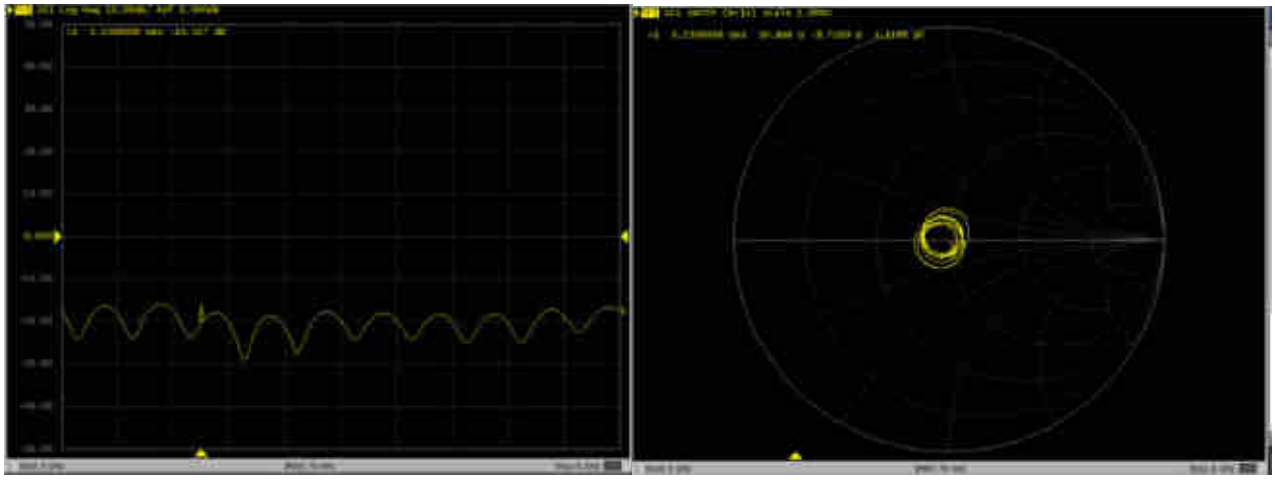
D5GHzV3 – serial no. 1167												
	5750 Head						5750 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2018.08.03	-21.8		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
2020.10.30	-21.9	0.05	53.2	-0.3	-7.35	0.31	-21.6	1.4	54.2	-0.3	-7.60	-0.53

<Justification of the extended calibration>

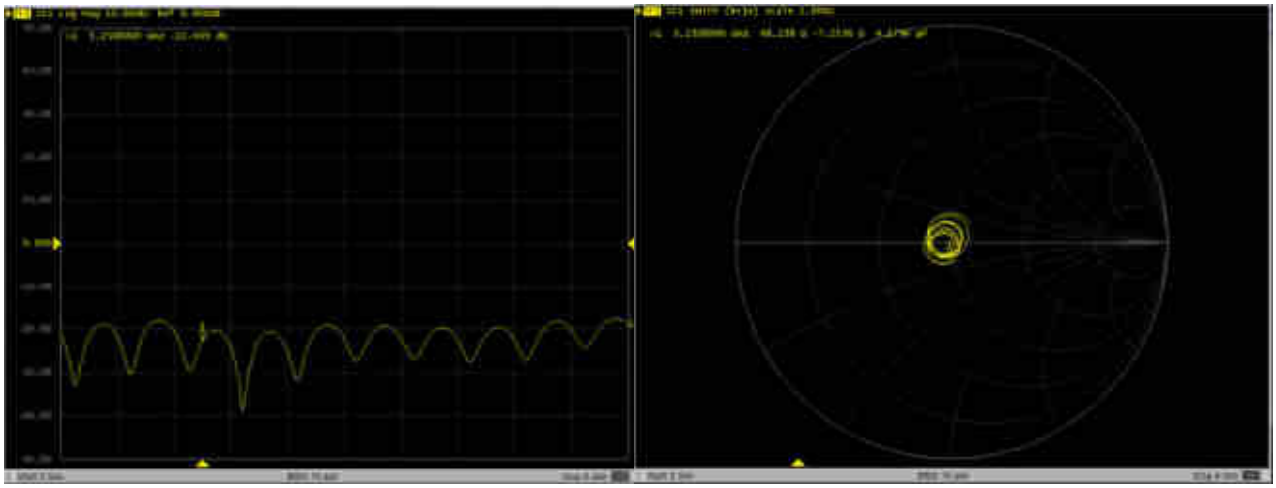
The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data> D5GHzV3, serial no. 1167

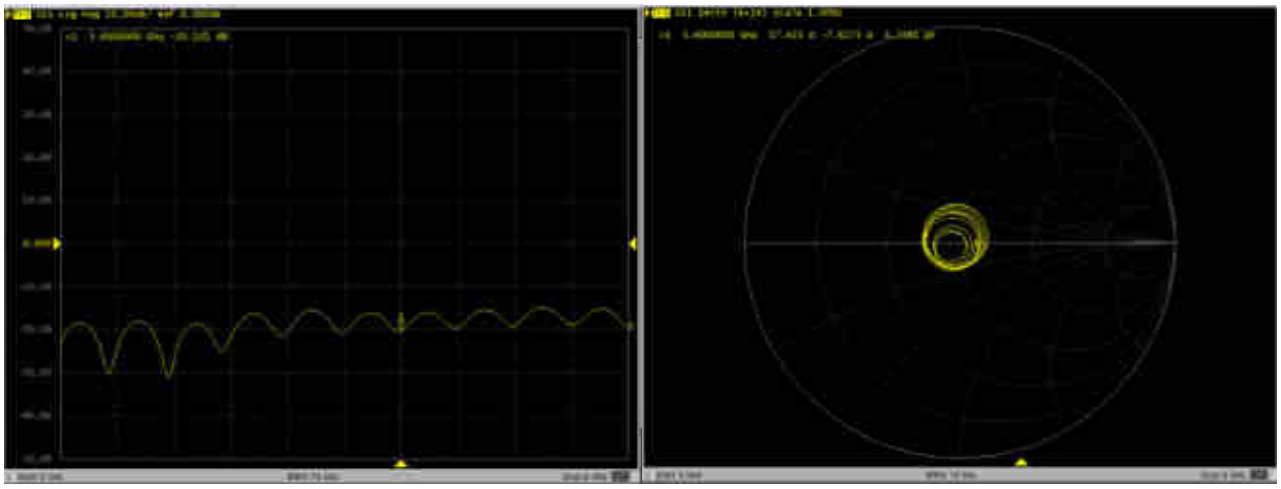
5250MHz – Head----2019.10.30



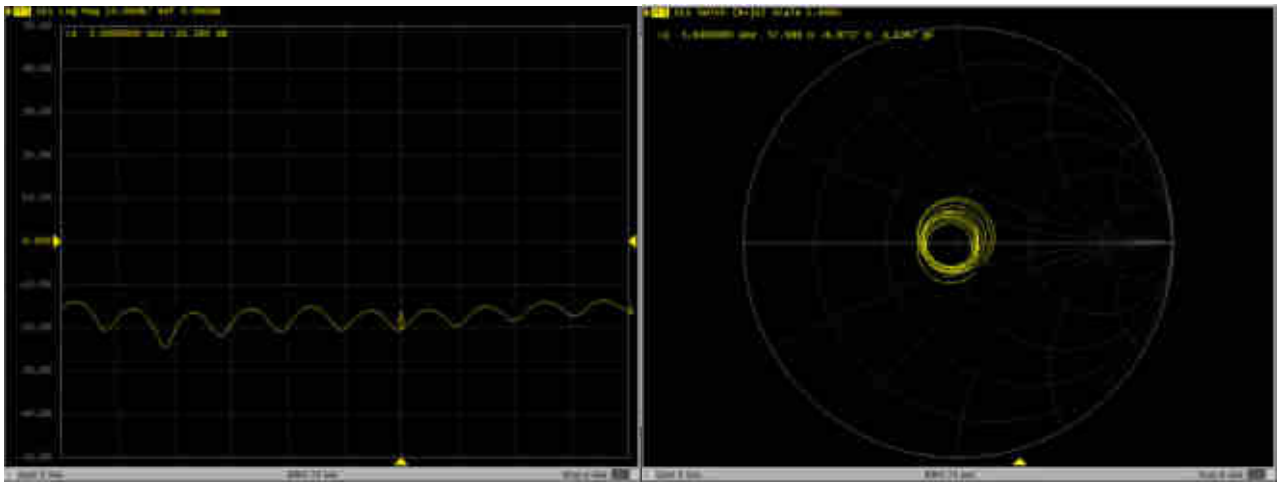
5250MHz – Body----2019.10.30



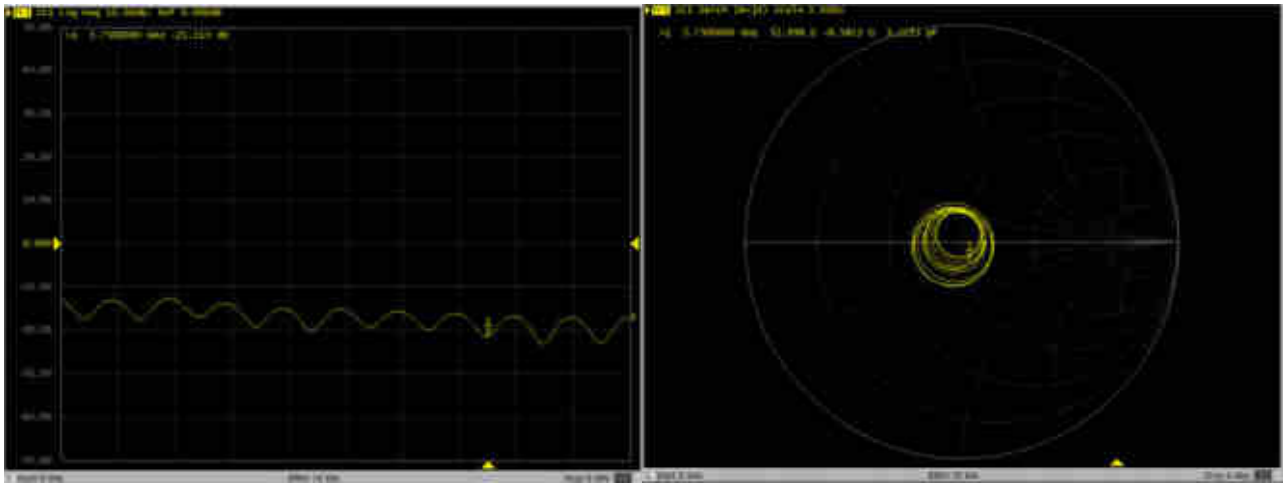
5600MHz – Head----2019.10.30



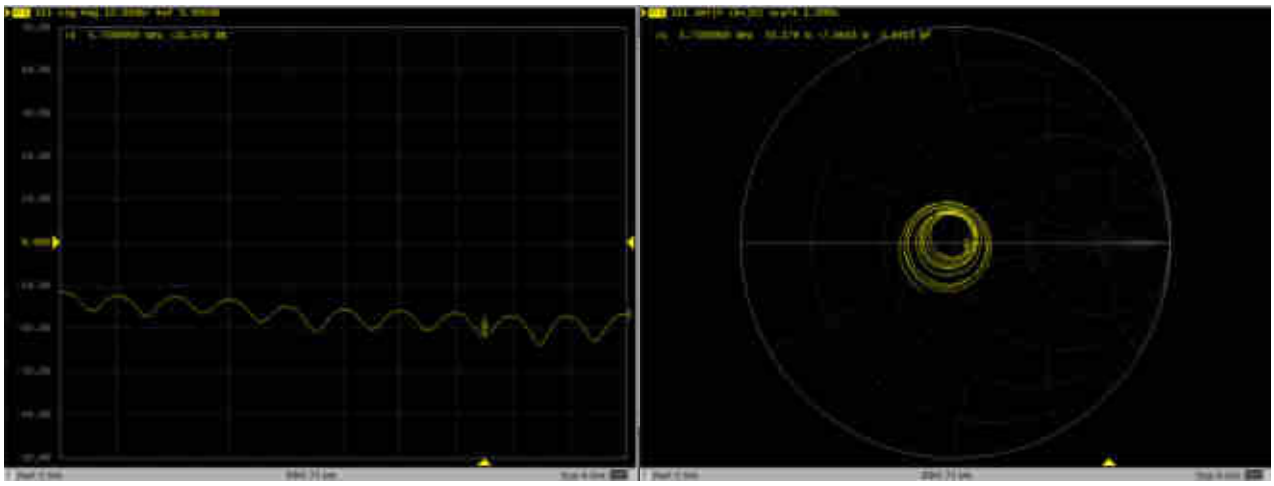
5600MHz – Body----2019.10.30



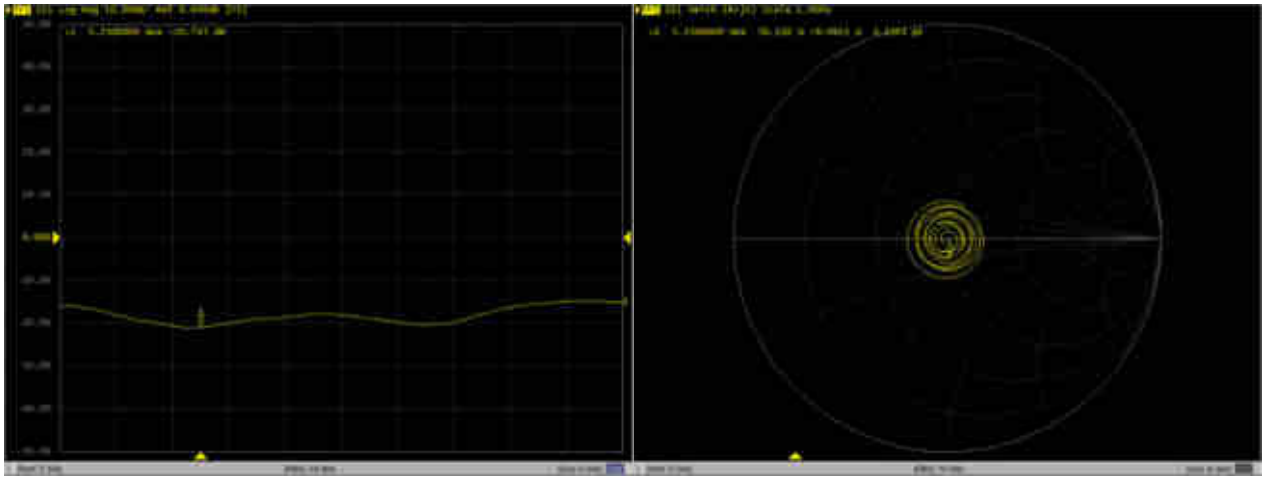
5750MHz – Head----2019.10.30



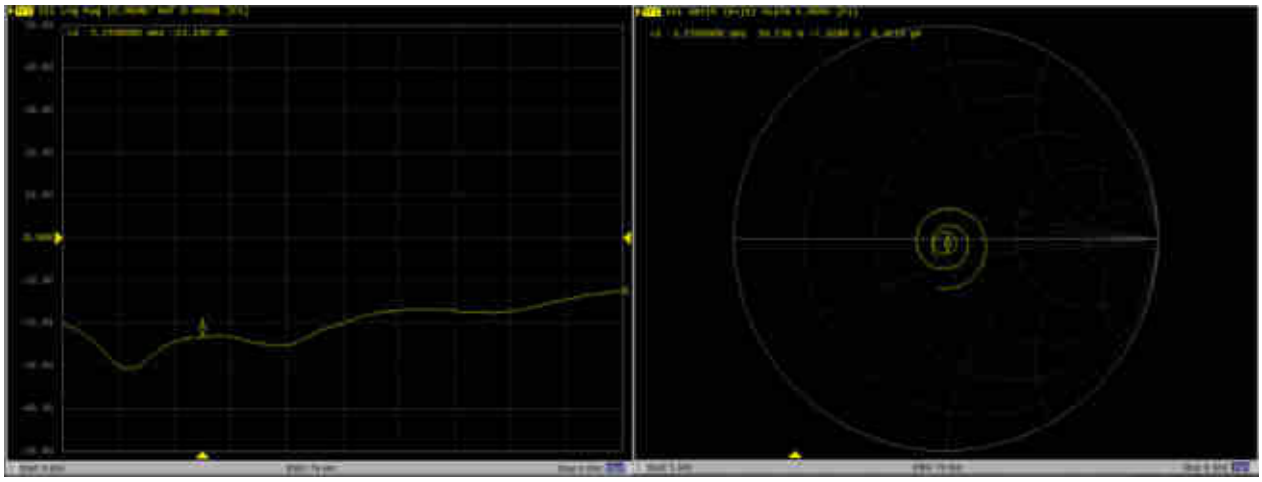
5750MHz – Body----2019.10.30



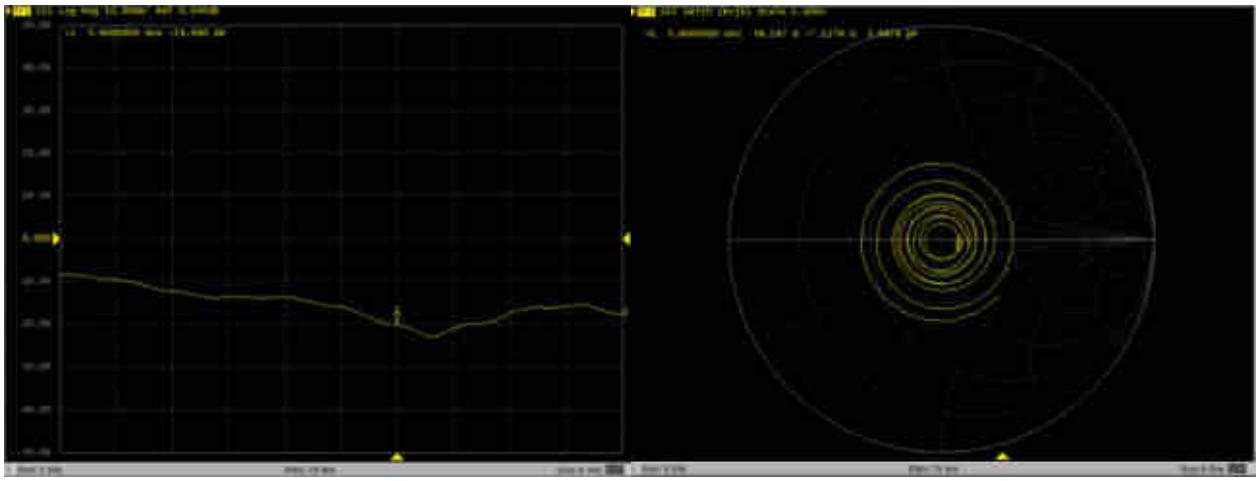
5250MHz – Head----2020.10.30



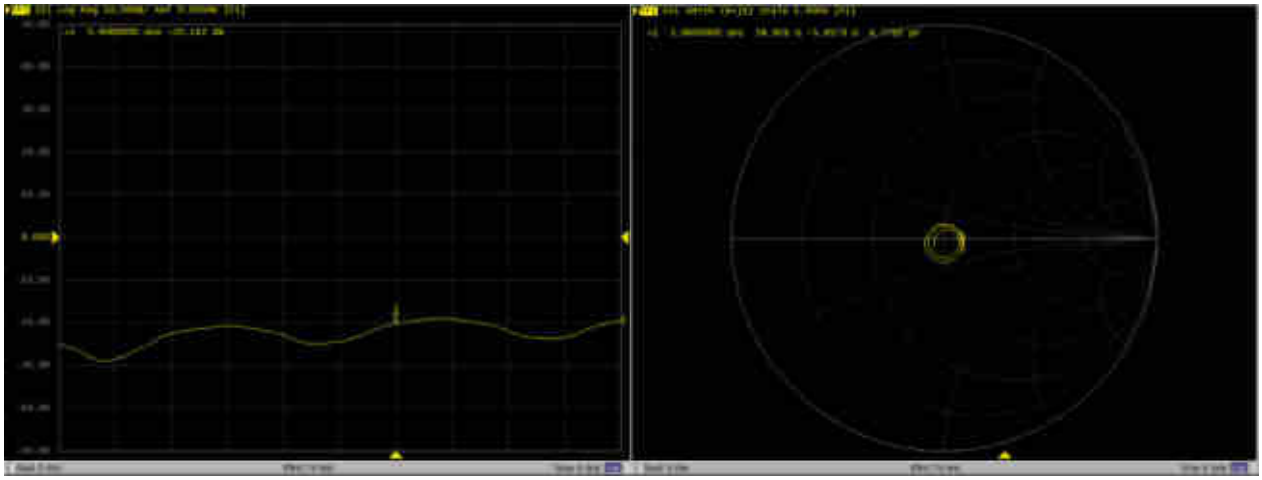
5250MHz – Body----2020.10.30



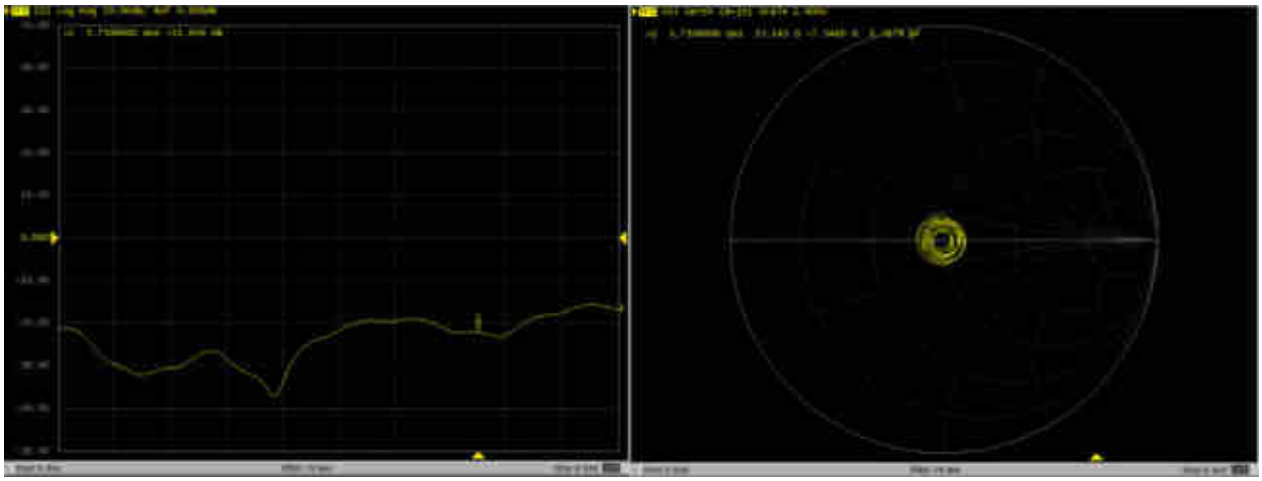
5600MHz – Head----2020.10.30



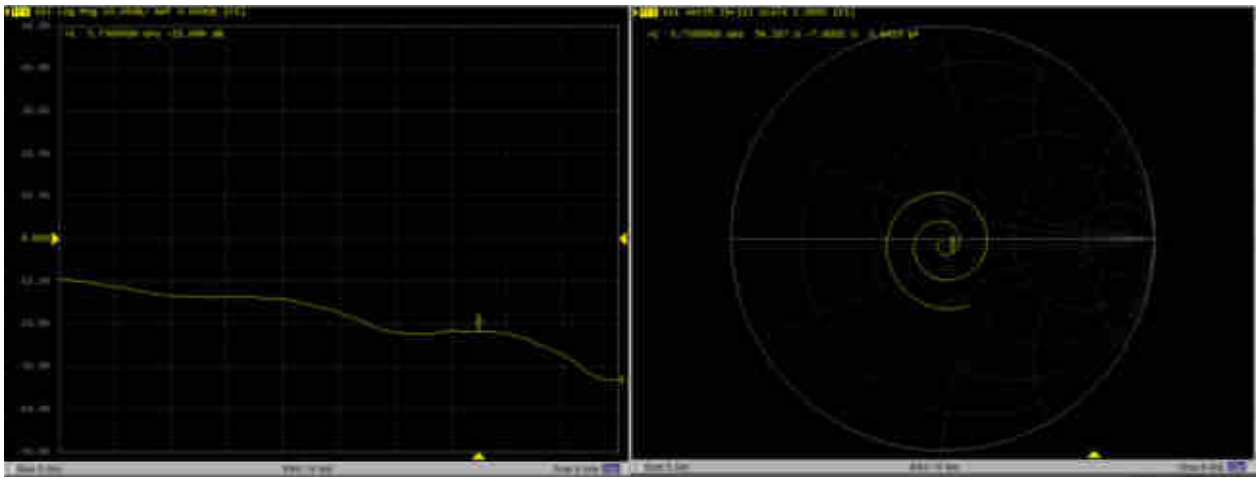
5600MHz – Body----2020.10.30



5750MHz – Head----2020.10.30



5750MHz – Body----2020.10.30



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: DAE3-528_Mar20

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 528
Calibration procedure(s)	QA CAL-06.v30 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	March 16, 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:	Eric Hainfeld	Laboratory Technician	
Approved by:	Sven Kühn	Deputy Manager	

Issued: March 16, 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	404.513 ± 0.02% (k=2)	404.615 ± 0.02% (k=2)	404.537 ± 0.02% (k=2)
Low Range	3.97109 ± 1.50% (k=2)	3.95930 ± 1.50% (k=2)	3.96568 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	50.0 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200037.58	3.28	0.00
Channel X	+ Input	20009.65	3.92	0.02
Channel X	- Input	-20001.89	3.62	-0.02
Channel Y	+ Input	200037.90	3.50	0.00
Channel Y	+ Input	20005.83	0.31	0.00
Channel Y	- Input	-20005.73	-0.03	0.00
Channel Z	+ Input	200033.51	-0.62	-0.00
Channel Z	+ Input	20006.48	0.89	0.00
Channel Z	- Input	-20006.01	-0.27	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.68	0.24	0.01
Channel X	+ Input	201.09	-0.22	-0.11
Channel X	- Input	-198.93	-0.12	0.06
Channel Y	+ Input	2001.70	0.49	0.02
Channel Y	+ Input	200.70	-0.24	-0.12
Channel Y	- Input	-199.76	-0.76	0.38
Channel Z	+ Input	2001.03	-0.04	-0.00
Channel Z	+ Input	201.25	0.40	0.20
Channel Z	- Input	-199.29	-0.32	0.16

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	9.59	7.82
	- 200	-7.34	-8.76
Channel Y	200	14.74	14.93
	- 200	-16.81	-17.15
Channel Z	200	-3.39	-3.82
	- 200	3.03	3.16

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	-	3.19	-1.66
Channel Y	200	6.79	-	4.73
Channel Z	200	7.16	5.28	-

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	15972	16183
Channel Y	15900	16376
Channel Z	16167	15841

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	1.19	0.18	2.38	0.46
Channel Y	0.15	-1.39	1.24	0.47
Channel Z	0.36	-1.22	1.42	0.42

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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

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Accreditation No.: SCS 0108

Client Sporton

Certificate No: EX3-7576_Jan20

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:7576

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

Calibration date: January 22, 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
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ES3DV2	SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

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

Issued: January 25, 2020

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Accreditation No.: SCS 0108

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.e., 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 ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z*: *A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *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 ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7576

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.63	0.63	± 10.1 %
DCP (mV)[B]	103.8	99.8	103.6	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	164.4	± 2.7 %	± 4.7 %
		Y	0.0	0.0	1.0		161.8		
		Z	0.0	0.0	1.0		164.7		

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 5).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7576

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	112.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7576

Calibration Parameter Determined in Head Tissue Simulating Media

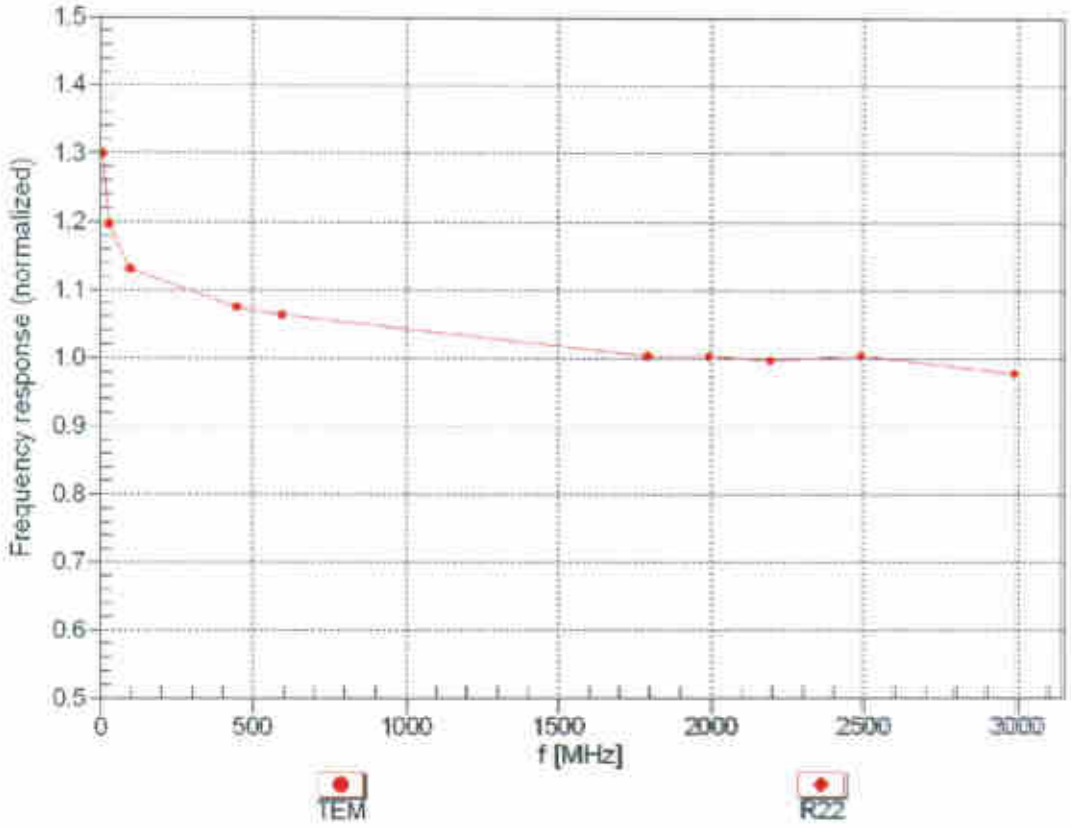
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	10.71	10.71	10.71	0.62	0.80	± 12.0 %
835	41.5	0.90	10.45	10.45	10.45	0.46	0.94	± 12.0 %
900	41.5	0.97	10.16	10.16	10.16	0.33	1.09	± 12.0 %
1750	40.1	1.37	8.88	8.88	8.88	0.42	0.86	± 12.0 %
1900	40.0	1.40	8.58	8.58	8.58	0.38	0.86	± 12.0 %
2000	40.0	1.40	8.48	8.48	8.48	0.39	0.86	± 12.0 %
2300	39.5	1.67	8.03	8.03	8.03	0.41	0.90	± 12.0 %
2450	39.2	1.80	7.76	7.76	7.76	0.44	0.90	± 12.0 %
2600	39.0	1.96	7.47	7.47	7.47	0.41	0.96	± 12.0 %
3300	38.2	2.71	7.08	7.08	7.08	0.30	1.35	± 14.0 %
3500	37.9	2.91	6.77	6.77	6.77	0.30	1.35	± 14.0 %
3700	37.7	3.12	6.74	6.74	6.74	0.30	1.35	± 14.0 %
3900	37.5	3.32	6.56	6.56	6.56	0.40	1.40	± 14.0 %
4100	37.2	3.53	6.26	6.26	6.26	0.40	1.40	± 14.0 %
4400	36.9	3.84	6.19	6.19	6.19	0.40	1.60	± 14.0 %
4600	36.7	4.04	6.06	6.06	6.06	0.40	1.60	± 14.0 %
4800	36.4	4.25	5.89	5.89	5.89	0.40	1.80	± 14.0 %
4950	36.3	4.40	5.59	5.59	5.59	0.40	1.80	± 14.0 %
5250	35.9	4.71	5.20	5.20	5.20	0.40	1.80	± 14.0 %
5600	35.5	5.07	4.62	4.62	4.62	0.40	1.80	± 14.0 %
5750	35.4	5.22	4.83	4.83	4.83	0.40	1.80	± 14.0 %

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

[F] At frequencies up to 6 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

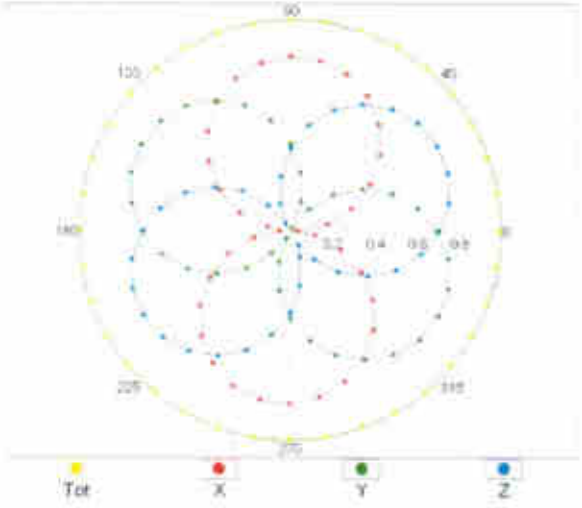
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



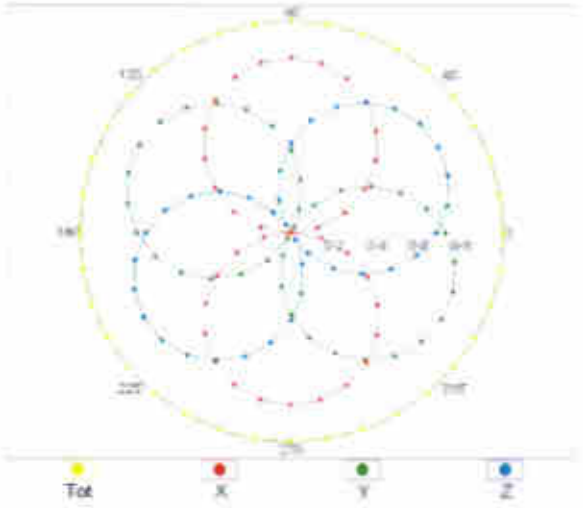
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

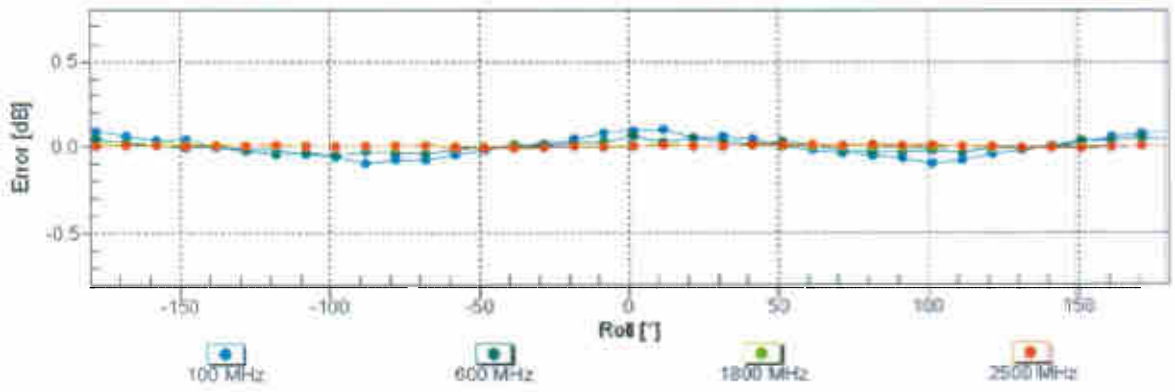
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



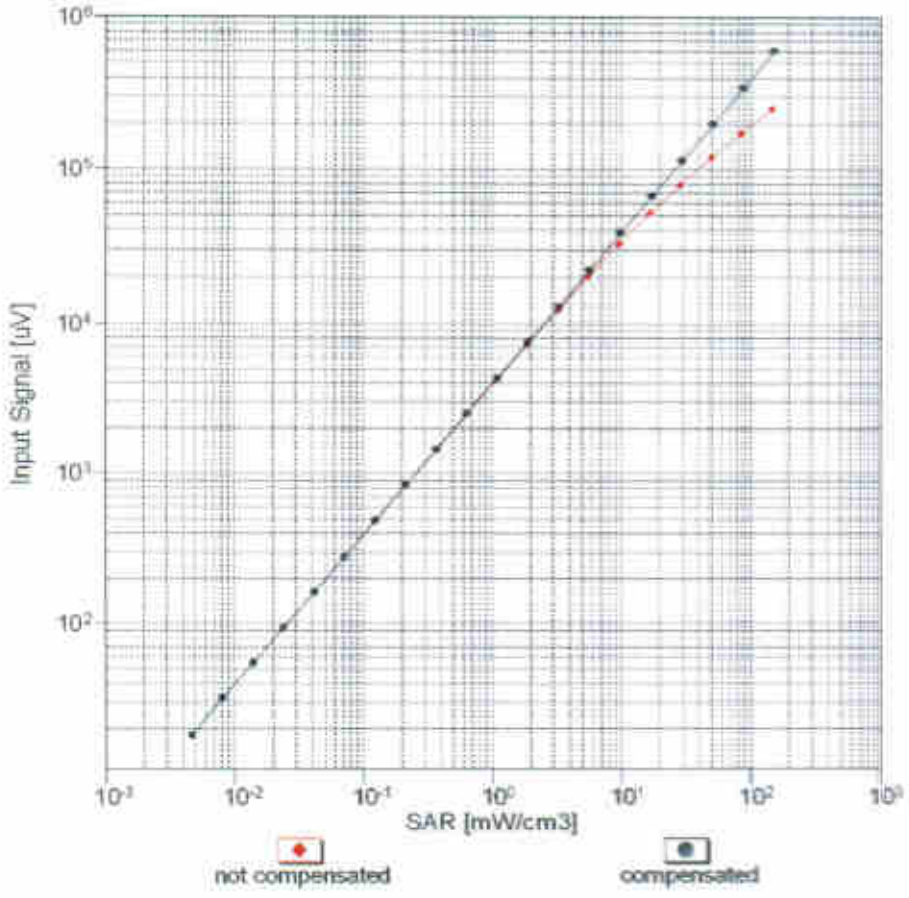
f=1800 MHz,R22

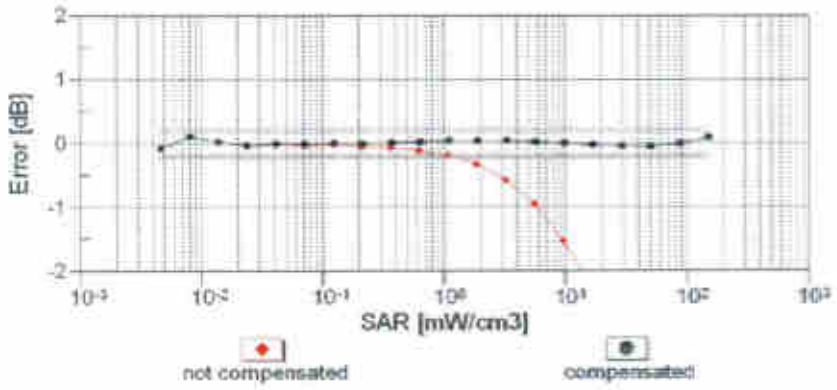




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

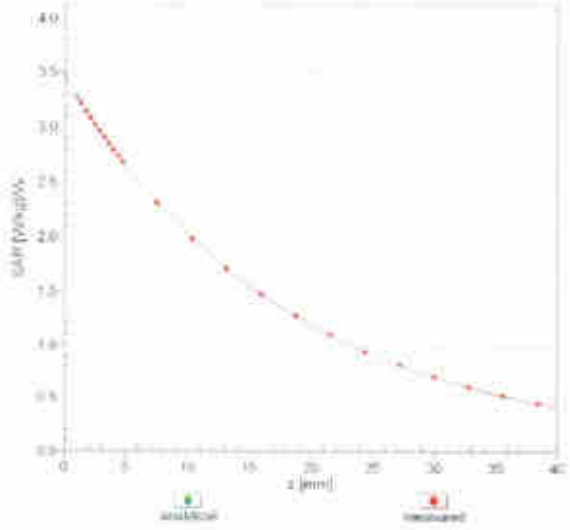




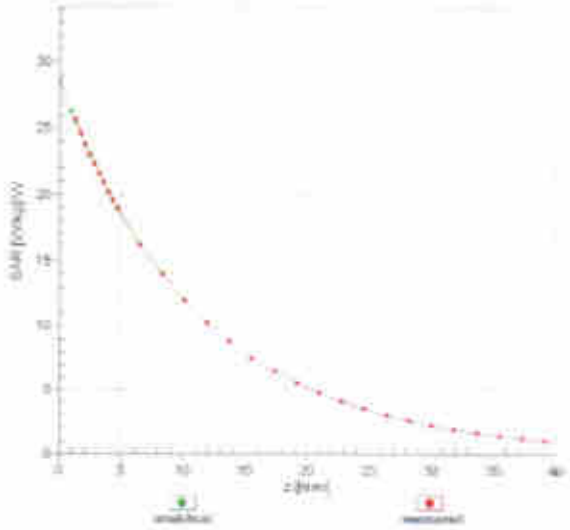
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

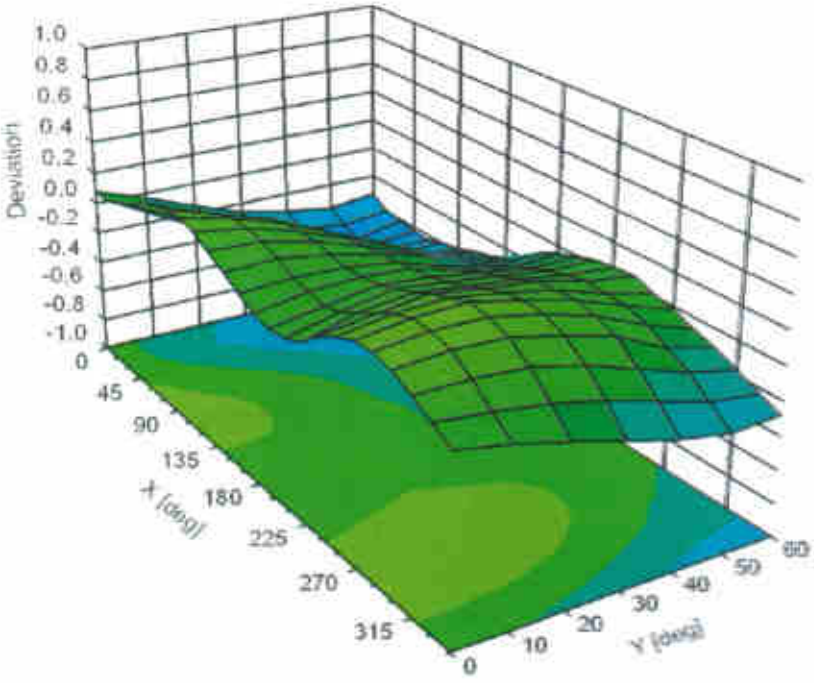


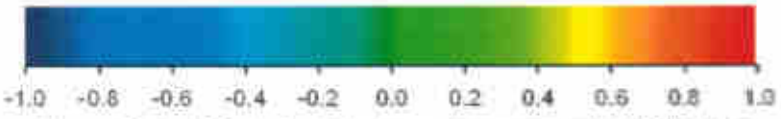
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2

Appendix E. Conducted RF Output Power Table

The detailed power table are shown as follows.

Full Power

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.56	32.62	32.66	33.50	23.56	23.62	23.66	24.50
GPRS 1 Tx slot	32.54	32.60	32.64	33.50	23.54	23.60	23.64	24.50
GPRS 2 Tx slots	30.65	30.74	30.82	32.00	24.65	24.74	24.82	26.00
GPRS 3 Tx slots	28.36	28.35	28.30	30.00	24.10	24.09	24.04	25.74
GPRS 4 Tx slots	26.12	26.25	26.13	28.00	23.12	23.25	23.13	25.00
EDGE 1 Tx slot	25.33	25.36	25.43	27.00	16.33	16.36	16.43	18.00
EDGE 2 Tx slots	23.59	23.66	23.58	25.00	17.59	17.66	17.58	19.00
EDGE 3 Tx slots	21.16	21.25	21.43	23.00	16.90	16.99	17.17	18.74
EDGE 4 Tx slots	19.03	19.23	19.24	21.00	16.03	16.23	16.24	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	29.12	29.39	28.93	30.50	20.12	20.39	19.93	21.50
GPRS 1 Tx slot	29.10	29.36	28.90	30.50	20.10	20.36	19.90	21.50
GPRS 2 Tx slots	27.89	28.14	27.85	29.50	21.89	22.14	21.85	23.50
GPRS 3 Tx slots	25.56	25.77	25.85	27.50	21.30	21.51	21.59	23.24
GPRS 4 Tx slots	23.58	23.72	23.50	25.50	20.58	20.72	20.50	22.50
EDGE 1 Tx slot	24.79	24.85	24.80	26.50	15.79	15.85	15.80	17.50
EDGE 2 Tx slots	23.65	23.71	23.74	25.50	17.65	17.71	17.74	19.50
EDGE 3 Tx slots	21.58	21.66	21.63	23.50	17.32	17.40	17.37	19.24
EDGE 4 Tx slots	19.54	19.52	19.57	21.50	16.54	16.52	16.57	18.50

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	22.50	22.63	22.69	24.00	22.68	22.70	22.58	24.00	22.76	22.65	22.60	24.00
3GPP Rel 99	RMC 12.2Kbps	22.52	22.65	22.71	24.00	22.70	22.73	22.61	24.00	22.78	22.67	22.62	24.00
3GPP Rel 6	HSDPA Subtest-1	21.46	21.62	21.65	23.00	21.60	21.61	21.54	23.00	21.67	21.68	21.54	23.00
3GPP Rel 6	HSDPA Subtest-2	21.47	21.62	21.62	23.00	21.64	21.60	21.47	23.00	21.74	21.67	21.54	23.00
3GPP Rel 6	HSDPA Subtest-3	20.93	21.11	21.10	22.50	21.11	21.09	21.06	22.50	21.27	21.17	21.04	22.50
3GPP Rel 6	HSDPA Subtest-4	20.94	21.12	21.20	22.50	21.22	21.08	21.05	22.50	21.26	21.18	21.05	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.39	21.58	21.59	23.00	21.50	21.53	21.45	23.00	21.56	21.55	21.45	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.42	21.57	21.59	23.00	21.51	21.54	21.43	23.00	21.61	21.58	21.42	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.81	21.06	21.12	22.50	21.08	21.03	20.98	22.50	21.17	21.08	20.98	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.80	21.05	21.16	22.50	21.07	21.02	20.95	22.50	21.15	21.05	20.99	22.50
3GPP Rel 6	HSUPA Subtest-1	21.49	21.72	21.79	22.50	21.71	21.65	21.54	22.50	21.75	21.66	21.67	22.50
3GPP Rel 6	HSUPA Subtest-2	19.61	19.76	19.84	20.50	19.77	19.75	19.70	20.50	19.80	19.66	19.65	20.50
3GPP Rel 6	HSUPA Subtest-3	20.62	20.80	20.87	21.50	20.77	20.80	20.72	21.50	20.86	20.71	20.67	21.50
3GPP Rel 6	HSUPA Subtest-4	19.57	19.86	19.85	20.50	19.79	19.72	19.63	20.50	19.81	19.67	19.65	20.50
3GPP Rel 6	HSUPA Subtest-5	21.60	21.90	21.90	22.50	21.80	21.80	21.60	22.50	21.80	21.70	21.80	22.50

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	22.44	22.46	22.47		
20	QPSK	1	49	22.54	22.52	22.65	24	0
20	QPSK	1	99	22.44	22.48	22.53		
20	QPSK	50	0	21.50	21.57	21.61		
20	QPSK	50	24	21.47	21.54	21.58	23	1
20	QPSK	50	50	21.39	21.51	21.59		
20	QPSK	100	0	21.45	21.58	21.60		
20	16QAM	1	0	21.08	21.36	21.52		
20	16QAM	1	49	21.09	21.52	21.12	23	1
20	16QAM	1	99	21.09	21.11	21.56		
20	16QAM	50	0	20.48	20.69	20.53		
20	16QAM	50	24	20.33	20.59	20.67	22	2
20	16QAM	50	50	20.65	20.49	20.63		
20	16QAM	100	0	20.50	20.42	20.54		
20	64QAM	1	0	20.32	20.18	20.15		
20	64QAM	1	49	20.46	20.34	20.44	22	2
20	64QAM	1	99	20.41	20.55	20.55		
20	64QAM	50	0	19.49	19.65	19.56		
20	64QAM	50	24	19.53	19.68	19.64	21	3
20	64QAM	50	50	19.63	19.65	19.52		
20	64QAM	100	0	19.56	19.62	19.67		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.27	22.23	22.56		
15	QPSK	1	37	22.60	22.61	22.54	24	0
15	QPSK	1	74	22.44	22.45	22.49		
15	QPSK	36	0	21.53	21.62	21.54		
15	QPSK	36	20	21.55	21.53	21.68	23	1
15	QPSK	36	39	21.30	21.43	21.59		
15	QPSK	75	0	21.54	21.58	21.58		
15	16QAM	1	0	21.08	21.37	21.46		
15	16QAM	1	37	21.06	21.50	21.22	23	1
15	16QAM	1	74	21.00	21.18	21.42		
15	16QAM	36	0	20.58	20.72	20.48		
15	16QAM	36	20	20.31	20.50	20.73	22	2
15	16QAM	36	39	20.65	20.46	20.55		
15	16QAM	75	0	20.50	20.48	20.50		
15	64QAM	1	0	20.36	20.25	20.20		
15	64QAM	1	37	20.54	20.41	20.44	22	2
15	64QAM	1	74	20.40	20.46	20.57		
15	64QAM	36	0	19.40	19.59	19.62		
15	64QAM	36	20	19.60	19.73	19.65	21	3
15	64QAM	36	39	19.62	19.74	19.54		
15	64QAM	75	0	19.65	19.67	19.62		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.21	22.36	22.56		
10	QPSK	1	25	22.54	22.45	22.44	24	0
10	QPSK	1	49	22.38	22.42	22.53		
10	QPSK	25	0	21.46	21.49	21.56		
10	QPSK	25	12	21.45	21.64	21.51	23	1
10	QPSK	25	25	21.44	21.54	21.53		
10	QPSK	50	0	21.60	21.50	21.57		
10	16QAM	1	0	21.11	21.32	21.52		
10	16QAM	1	25	21.08	21.55	21.13	23	1
10	16QAM	1	49	21.19	21.16	21.55		
10	16QAM	25	0	20.44	20.74	20.53		
10	16QAM	25	12	20.34	20.56	20.66	22	2
10	16QAM	25	25	20.58	20.45	20.61		
10	16QAM	50	0	20.51	20.33	20.62		
10	64QAM	1	0	20.37	20.19	20.09		
10	64QAM	1	25	20.54	20.44	20.40	22	2
10	64QAM	1	49	20.45	20.52	20.45		
10	64QAM	25	0	19.48	19.58	19.56		
10	64QAM	25	12	19.56	19.63	19.61	21	3
10	64QAM	25	25	19.67	19.56	19.47		
10	64QAM	50	0	19.60	19.55	19.71		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.37	22.23	22.42		
5	QPSK	1	12	22.52	22.49	22.53	24	0
5	QPSK	1	24	22.37	22.49	22.61		
5	QPSK	12	0	21.42	21.47	21.55		
5	QPSK	12	7	21.40	21.64	21.62	23	1
5	QPSK	12	13	21.43	21.49	21.57		
5	QPSK	25	0	21.47	21.68	21.59		
5	16QAM	1	0	21.03	21.40	21.50		
5	16QAM	1	12	21.18	21.45	21.05	23	1
5	16QAM	1	24	21.02	21.08	21.52		
5	16QAM	12	0	20.46	20.70	20.56		
5	16QAM	12	7	20.27	20.62	20.71	22	2
5	16QAM	12	13	20.58	20.52	20.68		
5	16QAM	25	0	20.52	20.39	20.46		
5	64QAM	1	0	20.32	20.15	20.09		
5	64QAM	1	12	20.49	20.36	20.52	22	2
5	64QAM	1	24	20.40	20.55	20.57		
5	64QAM	12	0	19.55	19.73	19.46		
5	64QAM	12	7	19.63	19.67	19.54	21	3
5	64QAM	12	13	19.67	19.72	19.57		
5	64QAM	25	0	19.60	19.59	19.61		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.26	22.35	22.49		
3	QPSK	1	8	22.48	22.51	22.55	24	0
3	QPSK	1	14	22.42	22.43	22.51		
3	QPSK	8	0	21.52	21.66	21.68		
3	QPSK	8	4	21.56	21.67	21.48	23	1
3	QPSK	8	7	21.30	21.54	21.61		
3	QPSK	15	0	21.55	21.49	21.61		
3	16QAM	1	0	21.04	21.38	21.53		
3	16QAM	1	8	21.10	21.51	21.07	23	1
3	16QAM	1	14	21.03	21.12	21.46		
3	16QAM	8	0	20.50	20.65	20.50		
3	16QAM	8	4	20.33	20.68	20.68	22	2
3	16QAM	8	7	20.55	20.52	20.59		
3	16QAM	15	0	20.43	20.42	20.59		
3	64QAM	1	0	20.38	20.21	20.09		
3	64QAM	1	8	20.47	20.29	20.45	22	2
3	64QAM	1	14	20.47	20.48	20.50		
3	64QAM	8	0	19.48	19.58	19.62		
3	64QAM	8	4	19.56	19.74	19.66	21	3
3	64QAM	8	7	19.67	19.69	19.49		
3	64QAM	15	0	19.58	19.63	19.57		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.37	22.52	22.42		
1.4	QPSK	1	3	22.45	22.59	22.52		
1.4	QPSK	1	5	22.31	22.49	22.47	24	0
1.4	QPSK	3	0	22.39	22.62	22.34		
1.4	QPSK	3	1	22.39	22.63	22.56		
1.4	QPSK	3	3	22.43	22.60	22.48		
1.4	QPSK	6	0	21.37	21.53	21.52	23	1
1.4	16QAM	1	0	21.33	21.17	21.58		
1.4	16QAM	1	3	21.39	21.55	21.66		
1.4	16QAM	1	5	21.40	21.18	21.51	23	1
1.4	16QAM	3	0	21.43	21.72	21.57		
1.4	16QAM	3	1	21.48	21.68	21.61		
1.4	16QAM	3	3	21.23	21.58	21.62		
1.4	16QAM	6	0	20.17	20.37	20.39	22	2
1.4	64QAM	1	0	20.38	20.51	20.55		
1.4	64QAM	1	3	20.43	20.51	20.71		
1.4	64QAM	1	5	20.37	20.50	20.86	22	2
1.4	64QAM	3	0	20.44	20.56	20.59		
1.4	64QAM	3	1	20.50	20.61	20.64		
1.4	64QAM	3	3	20.41	20.55	20.55		
1.4	64QAM	6	0	19.28	19.46	19.41	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	22.27	22.52	22.51		
20	QPSK	1	49	22.40	22.70	22.63	24	0
20	QPSK	1	99	22.25	22.25	22.23		
20	QPSK	50	0	21.58	21.71	21.65		
20	QPSK	50	24	21.49	21.68	21.60	23	1
20	QPSK	50	50	21.57	21.66	21.58		
20	QPSK	100	0	21.57	21.69	21.62		
20	16QAM	1	0	21.35	21.60	21.68		
20	16QAM	1	49	21.48	21.62	21.33	23	1
20	16QAM	1	99	21.22	21.26	21.27		
20	16QAM	50	0	20.59	20.64	20.75		
20	16QAM	50	24	20.57	20.56	20.64	22	2
20	16QAM	50	50	20.65	20.63	20.60		
20	16QAM	100	0	20.58	20.55	20.53		
20	64QAM	1	0	20.49	20.72	20.67		
20	64QAM	1	49	20.78	20.79	20.89	22	2
20	64QAM	1	99	20.45	20.42	20.39		
20	64QAM	50	0	19.66	19.72	19.7		
20	64QAM	50	24	19.57	19.62	19.59	21	3
20	64QAM	50	50	19.64	19.49	19.63		
20	64QAM	100	0	19.69	19.63	19.61		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.47	22.63	22.65		
15	QPSK	1	37	22.67	22.69	22.68	24	0
15	QPSK	1	74	22.57	22.39	22.17		
15	QPSK	36	0	21.47	21.62	21.61		
15	QPSK	36	20	21.49	21.54	21.51	23	1
15	QPSK	36	39	21.56	21.59	21.51		
15	QPSK	75	0	21.61	21.55	21.52		
15	16QAM	1	0	21.46	21.27	21.38		
15	16QAM	1	37	21.83	21.96	21.41	23	1
15	16QAM	1	74	21.48	21.23	21.38		
15	16QAM	36	0	20.44	20.49	20.49		
15	16QAM	36	20	20.39	20.43	20.43	22	2
15	16QAM	36	39	20.49	20.47	20.44		
15	16QAM	75	0	20.55	20.54	20.53		
15	64QAM	1	0	20.64	20.62	20.69		
15	64QAM	1	37	20.87	20.93	20.92	22	2
15	64QAM	1	74	20.57	20.31	20.33		
15	64QAM	36	0	19.61	19.69	19.71		
15	64QAM	36	20	19.55	19.71	19.59	21	3
15	64QAM	36	39	19.66	19.66	19.61		
15	64QAM	75	0	19.59	19.49	19.5		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.32	22.41	22.27		
10	QPSK	1	25	22.69	22.68	22.51	24	0
10	QPSK	1	49	22.28	22.26	22.59		
10	QPSK	25	0	21.58	21.65	21.56		
10	QPSK	25	12	21.46	21.54	21.58	23	1
10	QPSK	25	25	21.44	21.55	21.47		
10	QPSK	50	0	21.47	21.59	21.59		
10	16QAM	1	0	21.42	21.49	21.48		
10	16QAM	1	25	21.31	21.43	21.38	23	1
10	16QAM	1	49	21.27	21.23	21.48		
10	16QAM	25	0	20.62	20.56	20.53		
10	16QAM	25	12	20.47	20.45	20.56	22	2
10	16QAM	25	25	20.45	20.55	20.56		
10	16QAM	50	0	20.51	20.58	20.52		
10	64QAM	1	0	20.43	20.48	20.91		
10	64QAM	1	25	20.5	20.92	20.96	22	2
10	64QAM	1	49	20.39	20.46	20.52		
10	64QAM	25	0	19.74	19.81	19.77		
10	64QAM	25	12	19.71	19.71	19.75	21	3
10	64QAM	25	25	19.56	19.5	19.67		
10	64QAM	50	0	19.47	19.56	19.53		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.17	22.29	22.07		
5	QPSK	1	12	22.65	22.63	22.62	24	0
5	QPSK	1	24	22.15	22.33	22.35		
5	QPSK	12	0	21.42	21.58	21.53		
5	QPSK	12	7	21.57	21.6	21.59	23	1
5	QPSK	12	13	21.54	21.58	21.52		
5	QPSK	25	0	21.54	21.62	21.54		
5	16QAM	1	0	21.32	21.42	21.45		
5	16QAM	1	12	21.43	21.33	21.39	23	1
5	16QAM	1	24	21.19	21.3	21.18		
5	16QAM	12	0	20.42	20.53	20.36		
5	16QAM	12	7	20.51	20.5	20.5	22	2
5	16QAM	12	13	20.51	20.4	20.46		
5	16QAM	25	0	20.5	20.52	20.4		
5	64QAM	1	0	20.35	20.43	20.39		
5	64QAM	1	12	20.87	20.86	20.83	22	2
5	64QAM	1	24	20.32	20.42	20.4		
5	64QAM	12	0	19.58	19.74	19.61		
5	64QAM	12	7	19.56	19.7	19.59	21	3
5	64QAM	12	13	19.45	19.69	19.66		
5	64QAM	25	0	19.43	19.38	19.69		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.21	22.62	22.10		
3	QPSK	1	8	22.24	22.65	22.21	24	0
3	QPSK	1	14	22.28	22.44	22.34		
3	QPSK	8	0	21.53	21.59	21.47		
3	QPSK	8	4	21.56	21.66	21.51	23	1
3	QPSK	8	7	21.56	21.57	21.51		
3	QPSK	15	0	21.47	21.68	21.54		
3	16QAM	1	0	21.29	21.84	21.18		
3	16QAM	1	8	21.66	21.79	21.32	23	1
3	16QAM	1	14	21.70	21.78	21.32		
3	16QAM	8	0	20.49	20.65	20.35		
3	16QAM	8	4	20.66	20.60	20.60	22	2
3	16QAM	8	7	20.57	20.56	20.45		
3	16QAM	15	0	20.15	20.58	20.33		
3	64QAM	1	0	20.45	20.51	20.38		
3	64QAM	1	8	20.41	20.48	20.35	22	2
3	64QAM	1	14	20.42	20.53	20.49		
3	64QAM	8	0	19.37	19.68	19.45		
3	64QAM	8	4	19.30	19.56	19.50	21	3
3	64QAM	8	7	19.22	19.57	19.35		
3	64QAM	15	0	19.42	19.54	19.45		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.29	22.44	22.00		
1.4	QPSK	1	3	22.12	22.45	22.58		
1.4	QPSK	1	5	22.29	22.33	22.34	24	0
1.4	QPSK	3	0	22.53	22.62	22.49		
1.4	QPSK	3	1	22.52	22.65	22.62		
1.4	QPSK	3	3	22.52	22.69	22.63		
1.4	QPSK	6	0	21.49	21.63	21.64	23	1
1.4	16QAM	1	0	21.48	21.31	21.10		
1.4	16QAM	1	3	21.57	21.70	21.29		
1.4	16QAM	1	5	21.39	21.34	21.76	23	1
1.4	16QAM	3	0	21.55	21.63	21.54		
1.4	16QAM	3	1	21.56	21.68	21.67		
1.4	16QAM	3	3	21.56	21.60	21.26		
1.4	16QAM	6	0	20.42	20.61	20.26	22	2
1.4	64QAM	1	0	20.53	20.88	20.80		
1.4	64QAM	1	3	20.86	20.56	20.59		
1.4	64QAM	1	5	20.36	20.53	20.51	22	2
1.4	64QAM	3	0	20.48	20.49	20.25		
1.4	64QAM	3	1	20.56	20.53	20.09		
1.4	64QAM	3	3	20.41	20.44	20.40		
1.4	64QAM	6	0	19.38	19.46	19.49	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	22.30	22.32	22.20		
10	QPSK	1	25	22.69	22.59	22.50	24	0
10	QPSK	1	49	22.24	22.22	22.23		
10	QPSK	25	0	21.65	21.59	21.50		
10	QPSK	25	12	21.62	21.58	21.47	23	1
10	QPSK	25	25	21.49	21.49	21.41		
10	QPSK	50	0	21.57	21.55	21.49		
10	16QAM	1	0	21.10	21.09	21.53		
10	16QAM	1	25	21.25	21.59	21.11	23	1
10	16QAM	1	49	21.19	21.12	21.29		
10	16QAM	25	0	20.56	20.52	20.42		
10	16QAM	25	12	20.54	20.53	20.30	22	2
10	16QAM	25	25	20.66	20.45	20.33		
10	16QAM	50	0	20.61	20.43	20.50		
10	64QAM	1	0	20.61	20.51	20.17		
10	64QAM	1	25	20.26	20.43	20.33	22	2
10	64QAM	1	49	20.56	20.30	20.34		
10	64QAM	25	0	19.53	19.51	19.44		
10	64QAM	25	12	19.51	19.43	19.69	21	3
10	64QAM	25	25	19.49	19.26	19.32		
10	64QAM	50	0	19.55	19.43	19.41		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.34	22.01	22.25		
5	QPSK	1	12	22.44	22.43	22.49	24	0
5	QPSK	1	24	22.28	22.30	22.20		
5	QPSK	12	0	21.61	21.50	21.22		
5	QPSK	12	7	21.67	21.38	21.36	23	1
5	QPSK	12	13	21.56	21.34	21.41		
5	QPSK	25	0	21.54	21.59	21.27		
5	16QAM	1	0	21.00	21.05	21.60		
5	16QAM	1	12	21.12	21.45	21.05	23	1
5	16QAM	1	24	21.27	21.20	21.26		
5	16QAM	12	0	20.39	20.35	20.48		
5	16QAM	12	7	20.45	20.52	20.14	22	2
5	16QAM	12	13	20.53	20.45	20.26		
5	16QAM	25	0	20.65	20.26	20.32		
5	64QAM	1	0	20.56	20.51	20.58		
5	64QAM	1	12	20.34	20.43	20.33	22	2
5	64QAM	1	24	20.40	20.39	20.38		
5	64QAM	12	0	19.34	19.32	19.45		
5	64QAM	12	7	19.53	19.23	19.74	21	3
5	64QAM	12	13	19.53	19.33	19.22		
5	64QAM	25	0	19.38	19.48	19.32		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.11	22.15	22.18		
3	QPSK	1	8	22.59	22.49	22.38	24	0
3	QPSK	1	14	22.09	22.12	22.10		
3	QPSK	8	0	21.68	21.58	21.48		
3	QPSK	8	4	21.71	21.38	21.53	23	1
3	QPSK	8	7	21.51	21.29	21.28		
3	QPSK	15	0	21.42	21.64	21.29		
3	16QAM	1	0	21.06	21.18	21.47		
3	16QAM	1	8	21.22	21.61	21.13	23	1
3	16QAM	1	14	21.17	21.08	21.29		
3	16QAM	8	0	20.66	20.59	20.42		
3	16QAM	8	4	20.54	20.37	20.20	22	2
3	16QAM	8	7	20.55	20.32	20.27		
3	16QAM	15	0	20.71	20.37	20.45		
3	64QAM	1	0	20.65	20.31	20.23		
3	64QAM	1	8	20.26	20.32	20.25	22	2
3	64QAM	1	14	20.50	20.11	20.18		
3	64QAM	8	0	19.51	19.61	19.51		
3	64QAM	8	4	19.59	19.45	19.79	21	3
3	64QAM	8	7	19.48	19.25	19.35		
3	64QAM	15	0	19.45	19.44	19.26		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.40	22.31	22.24		
1.4	QPSK	1	3	22.63	22.38	22.29		
1.4	QPSK	1	5	22.59	22.46	22.27	24	0
1.4	QPSK	3	0	22.54	22.39	22.08		
1.4	QPSK	3	1	22.47	22.55	22.25		
1.4	QPSK	3	3	22.46	22.45	22.30		
1.4	QPSK	6	0	21.70	21.62	21.37	23	1
1.4	16QAM	1	0	21.63	21.19	21.19		
1.4	16QAM	1	3	21.65	21.56	21.37		
1.4	16QAM	1	5	21.29	21.21	21.23	23	1
1.4	16QAM	3	0	21.68	21.60	21.44		
1.4	16QAM	3	1	21.72	21.75	21.48		
1.4	16QAM	3	3	21.67	21.71	21.41		
1.4	16QAM	6	0	20.61	20.56	20.26	22	2
1.4	64QAM	1	0	20.68	20.69	20.36		
1.4	64QAM	1	3	20.73	20.45	20.35		
1.4	64QAM	1	5	20.68	20.76	20.72	22	2
1.4	64QAM	3	0	20.74	20.60	20.37		
1.4	64QAM	3	1	20.72	20.67	20.44		
1.4	64QAM	3	3	20.68	20.57	20.33		
1.4	64QAM	6	0	19.53	19.42	19.31	21	3

Band 7 (2600MHz Band)
Part 27

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	22.88	22.89	22.80	24	0
20	QPSK	1	49	22.91	23.17	23.03		
20	QPSK	1	99	22.89	23.13	22.99		
20	QPSK	50	0	22.02	22.16	22.08	23	1
20	QPSK	50	24	21.99	22.11	22.02		
20	QPSK	50	50	21.97	22.15	22.01		
20	QPSK	100	0	21.98	22.13	22.08		
20	16QAM	1	0	21.67	21.69	21.66	23	1
20	16QAM	1	49	21.75	21.95	21.85		
20	16QAM	1	99	22.01	21.81	21.59		
20	16QAM	50	0	21.02	21.16	20.93	22	2
20	16QAM	50	24	21.11	21.07	21.11		
20	16QAM	50	50	20.91	21.08	21.17		
20	16QAM	100	0	20.96	21.14	21.08		
20	64QAM	1	0	21.20	21.35	21.14	22	2
20	64QAM	1	49	21.39	21.44	21.40		
20	64QAM	1	99	21.15	21.59	21.22		
20	64QAM	50	0	20.18	20.07	20.07	21	3
20	64QAM	50	24	20.12	20.06	20.00		
20	64QAM	50	50	20.27	20.07	20.15		
20	64QAM	100	0	20.11	20.09	20.18		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.91	22.96	22.70	24	0
15	QPSK	1	37	22.87	22.99	23.02		
15	QPSK	1	74	22.88	22.99	23.08		
15	QPSK	36	0	22.17	22.25	22.05	23	1
15	QPSK	36	20	21.93	22.10	22.11		
15	QPSK	36	39	22.02	22.13	22.01		
15	QPSK	75	0	21.95	22.14	22.15		
15	16QAM	1	0	21.65	21.62	21.62	23	1
15	16QAM	1	37	21.81	21.99	21.83		
15	16QAM	1	74	22.04	21.78	21.51		
15	16QAM	36	0	20.99	21.07	20.86	22	2
15	16QAM	36	20	21.02	21.01	21.11		
15	16QAM	36	39	20.90	21.12	21.22		
15	16QAM	75	0	21.00	21.12	21.09		
15	64QAM	1	0	21.22	21.37	21.09	22	2
15	64QAM	1	37	21.31	21.49	21.35		
15	64QAM	1	74	21.20	21.56	21.15		
15	64QAM	36	0	20.26	20.10	19.97	21	3
15	64QAM	36	20	20.19	19.99	20.07		
15	64QAM	36	39	20.25	20.14	20.06		
15	64QAM	75	0	20.01	20.13	20.17		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.86	22.97	22.84	24	0
10	QPSK	1	25	22.93	23.16	23.11		
10	QPSK	1	49	22.93	22.78	22.93		
10	QPSK	25	0	22.05	22.06	22.02	23	1
10	QPSK	25	12	21.92	22.09	21.93		
10	QPSK	25	25	21.97	22.18	22.06		
10	QPSK	50	0	21.98	22.11	22.01		
10	16QAM	1	0	21.75	21.65	21.71	23	1
10	16QAM	1	25	21.66	21.86	21.80		
10	16QAM	1	49	22.01	21.72	21.61		
10	16QAM	25	0	21.11	21.07	21.03	22	2
10	16QAM	25	12	21.16	21.11	21.03		
10	16QAM	25	25	20.83	21.13	21.16		
10	16QAM	50	0	20.97	21.22	21.18		
10	64QAM	1	0	21.11	21.29	21.23	22	2
10	64QAM	1	25	21.29	21.52	21.30		
10	64QAM	1	49	21.12	21.68	21.18		
10	64QAM	25	0	20.15	20.11	19.98	21	3
10	64QAM	25	12	20.09	20.01	20.09		
10	64QAM	25	25	20.26	19.99	20.13		
10	64QAM	50	0	20.01	20.10	20.21		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.79	22.97	22.76	24	0
5	QPSK	1	12	22.96	23.13	22.98		
5	QPSK	1	24	22.88	23.03	23.02		
5	QPSK	12	0	22.08	22.11	21.96	23	1
5	QPSK	12	7	22.00	22.07	22.01		
5	QPSK	12	13	21.94	22.07	22.00		
5	QPSK	25	0	22.08	22.22	22.09		
5	16QAM	1	0	21.63	21.64	21.69	23	1
5	16QAM	1	12	21.85	21.89	21.80		
5	16QAM	1	24	22.09	21.74	21.55		
5	16QAM	12	0	20.93	21.16	20.84	22	2
5	16QAM	12	7	21.17	21.02	21.05		
5	16QAM	12	13	20.92	21.00	21.09		
5	16QAM	25	0	20.92	21.14	21.07		
5	64QAM	1	0	21.25	21.31	21.17	22	2
5	64QAM	1	12	21.43	21.41	21.38		
5	64QAM	1	24	21.22	21.63	21.28		
5	64QAM	12	0	20.28	20.13	20.04	21	3
5	64QAM	12	7	20.11	20.16	20.06		
5	64QAM	12	13	20.20	20.11	20.21		
5	64QAM	25	0	20.09	20.03	20.14		

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	22.40	22.38	22.37	24	0
20	QPSK	1	49	22.59	22.71	22.46		
20	QPSK	1	99	22.41	22.40	22.39		
20	QPSK	50	0	21.80	21.83	21.58	23	1
20	QPSK	50	24	21.75	21.81	21.45		
20	QPSK	50	50	21.72	21.76	21.56		
20	QPSK	100	0	21.74	21.80	21.53		
20	16QAM	1	0	21.49	21.54	21.45	23	1
20	16QAM	1	49	21.46	21.82	21.52		
20	16QAM	1	99	21.44	21.55	21.41		
20	16QAM	50	0	20.62	20.82	20.62	22	2
20	16QAM	50	24	20.69	20.84	20.47		
20	16QAM	50	50	20.76	20.70	20.39		
20	16QAM	100	0	20.67	20.79	20.43		
20	64QAM	1	0	20.55	21.16	20.76	22	2
20	64QAM	1	49	21.25	21.26	21.14		
20	64QAM	1	99	20.58	20.77	20.66		
20	64QAM	50	0	19.54	19.84	19.59	21	3
20	64QAM	50	24	19.68	19.77	19.34		
20	64QAM	50	50	19.59	19.76	19.29		
20	64QAM	100	0	19.74	19.8	19.44		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.23	22.28	22.19	24	0
15	QPSK	1	37	22.44	22.55	22.2		
15	QPSK	1	74	22.21	22.17	22.12		
15	QPSK	36	0	21.51	21.76	21.49	23	1
15	QPSK	36	20	21.5	21.76	21.38		
15	QPSK	36	39	21.6	21.72	21.31		
15	QPSK	75	0	21.52	21.81	21.39		
15	16QAM	1	0	21.44	21.75	21.55	23	1
15	16QAM	1	37	21.82	22.14	21.74		
15	16QAM	1	74	22.05	21.54	21.41		
15	16QAM	36	0	20.47	20.75	20.35	22	2
15	16QAM	36	20	20.5	20.77	20.25		
15	16QAM	36	39	20.49	20.75	20.25		
15	16QAM	75	0	20.58	20.79	20.36		
15	64QAM	1	0	20.59	20.54	20.48	22	2
15	64QAM	1	37	20.96	21.08	20.99		
15	64QAM	1	74	20.6	20.96	20.38		
15	64QAM	36	0	19.64	19.84	19.51	21	3
15	64QAM	36	20	19.66	19.95	19.38		
15	64QAM	36	39	19.67	19.61	19.38		
15	64QAM	75	0	19.72	19.61	19.25		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.01	22.22	22.01	24	0
10	QPSK	1	25	22.17	22.41	22.15		
10	QPSK	1	49	22.11	22.35	22.03		
10	QPSK	25	0	21.63	21.88	21.38	23	1
10	QPSK	25	12	21.58	21.78	21.3		
10	QPSK	25	25	21.54	21.79	21.3		
10	QPSK	50	0	21.58	21.81	21.33		
10	16QAM	1	0	21.31	21.57	21.26	23	1
10	16QAM	1	25	21.44	21.62	21.23		
10	16QAM	1	49	21.46	21.62	21.07		
10	16QAM	25	0	20.52	20.98	20.38	22	2
10	16QAM	25	12	20.5	20.89	20.42		
10	16QAM	25	25	20.39	20.6	20.38		
10	16QAM	50	0	20.46	20.75	20.37		
10	64QAM	1	0	20.25	20.77	20.36	22	2
10	64QAM	1	25	21.03	21.03	20.73		
10	64QAM	1	49	20.55	20.7	20.37		
10	64QAM	25	0	19.68	19.67	19.49	21	3
10	64QAM	25	12	19.66	19.71	19.43		
10	64QAM	25	25	19.41	19.64	19.2		
10	64QAM	50	0	19.53	19.72	19.29		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.01	22.03	22.04	24	0
5	QPSK	1	12	22.37	22.51	22.19		
5	QPSK	1	24	22.03	22.34	22.05		
5	QPSK	12	0	21.6	21.79	21.37	23	1
5	QPSK	12	7	21.61	21.75	21.4		
5	QPSK	12	13	21.5	21.83	21.29		
5	QPSK	25	0	21.51	21.84	21.31		
5	16QAM	1	0	21.35	21.66	21.15	23	1
5	16QAM	1	12	21.34	21.63	21.16		
5	16QAM	1	24	21.28	21.54	21.03		
5	16QAM	12	0	20.47	20.56	20.1	22	2
5	16QAM	12	7	20.48	20.76	20.26		
5	16QAM	12	13	20.35	20.75	20.33		
5	16QAM	25	0	20.67	20.87	20.36		
5	64QAM	1	0	20.42	20.71	20.46	22	2
5	64QAM	1	12	20.83	21.16	20.66		
5	64QAM	1	24	20.46	20.64	20.55		
5	64QAM	12	0	19.56	19.69	19.15	21	3
5	64QAM	12	7	19.51	19.65	19.17		
5	64QAM	12	13	19.49	19.64	19.12		
5	64QAM	25	0	19.53	19.66	19.38		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.07	22.26	22.18	24	0
3	QPSK	1	8	22.30	22.20	22.17		
3	QPSK	1	14	22.17	22.23	22.02		
3	QPSK	8	0	21.66	21.76	21.55	23	1
3	QPSK	8	4	21.59	21.75	21.46		
3	QPSK	8	7	21.66	21.79	21.53		
3	QPSK	15	0	21.56	21.76	21.48		
3	16QAM	1	0	21.54	21.81	21.16	23	1
3	16QAM	1	8	21.40	21.61	21.19		
3	16QAM	1	14	21.49	21.50	21.31		
3	16QAM	8	0	20.69	20.79	20.40	22	2
3	16QAM	8	4	20.44	20.81	20.27		
3	16QAM	8	7	20.66	20.84	20.52		
3	16QAM	15	0	20.53	20.77	20.28		
3	64QAM	1	0	20.46	20.78	20.32	22	2
3	64QAM	1	8	20.39	20.66	20.29		
3	64QAM	1	14	20.45	20.74	20.25		
3	64QAM	8	0	19.63	19.78	19.46	21	3
3	64QAM	8	4	19.41	19.78	19.37		
3	64QAM	8	7	19.40	19.74	19.31		
3	64QAM	15	0	19.39	19.84	19.32		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.47	22.53	22.16	24	0
1.4	QPSK	1	3	22.28	22.61	22.20		
1.4	QPSK	1	5	22.20	22.49	22.09		
1.4	QPSK	3	0	22.32	22.61	22.17		
1.4	QPSK	3	1	22.49	22.54	22.46		
1.4	QPSK	3	3	22.41	22.55	22.09		
1.4	QPSK	6	0	21.29	22.00	21.45	23	1
1.4	16QAM	1	0	21.43	21.67	21.36	23	1
1.4	16QAM	1	3	21.52	21.81	21.43		
1.4	16QAM	1	5	21.40	21.52	21.30		
1.4	16QAM	3	0	21.41	22.10	21.48		
1.4	16QAM	3	1	21.57	21.95	21.52		
1.4	16QAM	3	3	21.71	21.85	21.52		
1.4	16QAM	6	0	20.39	20.69	20.08	22	2
1.4	64QAM	1	0	20.84	21.08	20.76	22	2
1.4	64QAM	1	3	20.57	21.00	20.39		
1.4	64QAM	1	5	20.93	21.05	20.41		
1.4	64QAM	3	0	20.70	20.85	20.31		
1.4	64QAM	3	1	20.40	20.81	20.26		
1.4	64QAM	3	3	20.33	20.80	20.20		
1.4	64QAM	6	0	19.37	19.71	19.07	21	3

Reduced Power Mode for Sensor on

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	26.59	26.75	26.56	28.00	17.59	17.75	17.56	19.00
GPRS 1 Tx slot	26.34	26.69	26.44	28.00	17.34	17.69	17.44	19.00
GPRS 2 Tx slots	25.35	25.39	25.34	27.00	19.35	19.39	19.34	21.00
GPRS 3 Tx slots	23.11	23.03	23.02	25.00	18.85	18.77	18.76	20.74
GPRS 4 Tx slots	21.01	21.02	21.06	23.00	18.01	18.02	18.06	20.00
EDGE 1 Tx slot	22.26	22.21	22.41	24.00	13.26	13.21	13.41	15.00
EDGE 2 Tx slots	21.33	21.35	21.39	23.00	15.33	15.35	15.39	17.00
EDGE 3 Tx slots	19.24	19.19	19.17	21.00	14.98	14.93	14.91	16.74
EDGE 4 Tx slots	17.06	17.02	17.11	19.00	14.06	14.02	14.11	16.00

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	17.86	18.02	18.05	19.50	17.64	17.70	17.52	19.00
3GPP Rel 99	RMC 12.2Kbps	17.90	18.05	18.07	19.50	17.66	17.72	17.55	19.00
3GPP Rel 6	HSDPA Subtest-1	16.76	17.00	16.91	18.50	16.41	16.44	16.37	18.00
3GPP Rel 6	HSDPA Subtest-2	16.84	17.02	16.76	18.50	16.52	16.54	16.39	18.00
3GPP Rel 6	HSDPA Subtest-3	16.30	16.51	16.52	18.00	15.96	16.01	15.86	17.50
3GPP Rel 6	HSDPA Subtest-4	16.28	16.51	16.52	18.00	15.95	16.02	15.86	17.50
3GPP Rel 8	DC-HSDPA Subtest-1	16.81	16.90	16.91	18.50	16.45	16.38	16.25	18.00
3GPP Rel 8	DC-HSDPA Subtest-2	16.72	16.82	16.83	18.50	16.41	16.35	16.28	18.00
3GPP Rel 8	DC-HSDPA Subtest-3	16.22	16.33	16.35	18.00	15.82	15.92	15.73	17.50
3GPP Rel 8	DC-HSDPA Subtest-4	16.23	16.35	16.38	18.00	15.80	15.93	15.73	17.50
3GPP Rel 6	HSUPA Subtest-1	16.91	17.00	17.03	18.00	16.52	16.55	16.48	17.50
3GPP Rel 6	HSUPA Subtest-2	14.89	15.00	15.06	16.00	14.63	14.63	14.59	15.50
3GPP Rel 6	HSUPA Subtest-3	15.93	16.06	16.10	17.00	15.59	15.59	15.45	16.50
3GPP Rel 6	HSUPA Subtest-4	14.87	15.10	15.16	16.00	14.71	14.73	14.56	15.50
3GPP Rel 6	HSUPA Subtest-5	16.90	17.00	17.00	18.00	16.50	16.50	16.40	17.50

Band 2 (1900MHz Band)
Part 24E

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	18.88	18.96	19.07		
20	QPSK	1	49	19.12	19.18	19.32	20.5	0
20	QPSK	1	99	19.01	18.96	18.82		
20	QPSK	50	0	19.16	19.15	19.26		
20	QPSK	50	24	18.98	19.06	19.14	20.5	0
20	QPSK	50	50	18.98	19.02	19.11		
20	QPSK	100	0	19.03	19.11	19.22		
20	16QAM	1	0	18.81	18.76	18.89		
20	16QAM	1	49	18.76	18.86	19.08	20.5	0
20	16QAM	1	99	18.69	18.83	18.86		
20	16QAM	50	0	19.11	19.01	19.26		
20	16QAM	50	24	18.98	19.10	19.17	20.5	0
20	16QAM	50	50	19.09	19.02	18.99		
20	16QAM	100	0	19.02	19.13	19.05		
20	64QAM	1	0	19.13	19.02	19.21		
20	64QAM	1	49	19.22	19.15	19.11	20.5	0
20	64QAM	1	99	19.28	19.00	19.10		
20	64QAM	50	0	19.03	19.12	19.12		
20	64QAM	50	24	18.97	19.20	19.28	20.5	0
20	64QAM	50	50	19.08	19.24	19.05		
20	64QAM	100	0	19.06	19.23	19.18		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	18.76	18.78	18.81		
15	QPSK	1	37	19.04	19.07	19.12	20.5	0
15	QPSK	1	74	18.68	18.90	18.80		
15	QPSK	36	0	18.80	18.89	18.99		
15	QPSK	36	20	18.85	18.91	18.90	20.5	0
15	QPSK	36	39	18.76	18.93	18.94		
15	QPSK	75	0	18.86	18.87	18.99		
15	16QAM	1	0	19.06	19.15	19.26		
15	16QAM	1	37	18.98	19.06	19.14	20.5	0
15	16QAM	1	74	18.98	19.02	19.11		
15	16QAM	36	0	18.84	18.96	18.97		
15	16QAM	36	20	18.79	18.84	18.85	20.5	0
15	16QAM	36	39	18.66	18.81	18.92		
15	16QAM	75	0	18.95	18.91	18.93		
15	64QAM	1	0	18.81	18.76	18.89		
15	64QAM	1	37	18.76	18.86	19.08	20.5	0
15	64QAM	1	74	18.69	18.83	18.86		
15	64QAM	36	0	18.81	19.01	19.05		
15	64QAM	36	20	18.84	18.85	19.10	20.5	0
15	64QAM	36	39	18.78	19.01	19.02		
15	64QAM	75	0	18.72	18.79	19.02		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	18.59	18.79	18.77		
10	QPSK	1	25	18.93	19.03	19.00	20.5	0
10	QPSK	1	49	18.72	18.58	18.62		
10	QPSK	25	0	18.80	18.86	18.92		
10	QPSK	25	12	18.68	18.89	19.03	20.5	0
10	QPSK	25	25	18.68	18.92	18.90		
10	QPSK	50	0	18.78	18.92	19.06		
10	16QAM	1	0	18.88	18.76	18.83		
10	16QAM	1	25	18.88	19.03	19.05	20.5	0
10	16QAM	1	49	18.73	18.59	19.07		
10	16QAM	25	0	18.86	18.96	19.04		
10	16QAM	25	12	18.83	18.79	19.03	20.5	0
10	16QAM	25	25	18.55	18.81	18.93		
10	16QAM	50	0	18.71	19.02	18.96		
10	64QAM	1	0	18.80	18.84	18.70		
10	64QAM	1	25	18.77	18.87	18.72	20.5	0
10	64QAM	1	49	18.70	18.68	18.67		
10	64QAM	25	0	18.79	18.91	19.08		
10	64QAM	25	12	18.86	18.99	18.98	20.5	0
10	64QAM	25	25	18.62	19.06	18.94		
10	64QAM	50	0	18.91	19.06	19.08		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	18.88	18.71	18.86		
5	QPSK	1	12	18.82	18.94	19.08	20.5	0
5	QPSK	1	24	18.73	18.99	18.89		
5	QPSK	12	0	18.74	18.88	18.92		
5	QPSK	12	7	18.82	18.86	18.92	20.5	0
5	QPSK	12	13	18.75	18.78	18.92		
5	QPSK	25	0	18.75	18.88	18.93		
5	16QAM	1	0	18.63	18.92	18.84		
5	16QAM	1	12	18.90	18.89	18.77	20.5	0
5	16QAM	1	24	18.63	18.77	18.68		
5	16QAM	12	0	18.67	18.69	18.95		
5	16QAM	12	7	18.97	18.79	18.98	20.5	0
5	16QAM	12	13	18.66	18.90	18.92		
5	16QAM	25	0	18.85	18.87	19.05		
5	64QAM	1	0	18.78	18.92	18.94		
5	64QAM	1	12	18.79	19.03	19.00	20.5	0
5	64QAM	1	24	18.85	18.57	18.80		
5	64QAM	12	0	18.75	18.69	18.79		
5	64QAM	12	7	18.65	18.70	18.77	20.5	0
5	64QAM	12	13	18.51	18.69	18.64		
5	64QAM	25	0	18.80	18.93	19.05		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	18.71	18.61	18.67		
3	QPSK	1	8	18.68	18.58	18.67	20.5	0
3	QPSK	1	14	18.57	18.52	18.56		
3	QPSK	8	0	18.73	18.89	18.98		
3	QPSK	8	4	18.80	18.89	18.86	20.5	0
3	QPSK	8	7	18.73	18.87	18.91		
3	QPSK	15	0	18.80	18.82	18.87		
3	16QAM	1	0	18.76	18.96	18.81		
3	16QAM	1	8	18.96	19.10	19.17	20.5	0
3	16QAM	1	14	18.81	19.03	19.15		
3	16QAM	8	0	18.99	19.05	19.09		
3	16QAM	8	4	18.84	18.98	19.08	20.5	0
3	16QAM	8	7	18.64	18.61	18.80		
3	16QAM	15	0	18.64	18.81	19.01		
3	64QAM	1	0	18.60	18.69	18.77		
3	64QAM	1	8	18.95	18.92	19.08	20.5	0
3	64QAM	1	14	19.10	19.07	19.02		
3	64QAM	8	0	18.74	18.81	18.90		
3	64QAM	8	4	18.93	18.73	18.95	20.5	0
3	64QAM	8	7	18.65	18.86	18.81		
3	64QAM	15	0	18.85	18.81	19.02		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	18.64	18.83	18.94		
1.4	QPSK	1	3	18.68	18.92	19.13		
1.4	QPSK	1	5	18.76	18.93	18.92	20.5	0
1.4	QPSK	3	0	18.86	18.91	19.03		
1.4	QPSK	3	1	18.92	19.01	19.17		
1.4	QPSK	3	3	18.91	18.92	18.93		
1.4	QPSK	6	0	18.73	18.88	18.89	20.5	0
1.4	16QAM	1	0	19.05	19.10	19.05		
1.4	16QAM	1	3	18.81	18.85	19.07		
1.4	16QAM	1	5	18.89	18.89	19.14	20.5	0
1.4	16QAM	3	0	18.84	18.90	19.05		
1.4	16QAM	3	1	18.65	18.80	18.76		
1.4	16QAM	3	3	18.72	18.73	18.87		
1.4	16QAM	6	0	18.70	18.67	18.68	20.5	0
1.4	64QAM	1	0	18.74	19.14	18.76		
1.4	64QAM	1	3	18.76	18.75	19.23		
1.4	64QAM	1	5	19.11	18.76	19.13	20.5	0
1.4	64QAM	3	0	18.90	18.72	18.74		
1.4	64QAM	3	1	18.86	18.88	19.01		
1.4	64QAM	3	3	18.71	18.88	19.01		
1.4	64QAM	6	0	18.86	18.79	18.88	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	16.82	17.02	16.94		
20	QPSK	1	49	17.22	17.28	17.06	18.5	0
20	QPSK	1	99	16.84	16.83	16.95		
20	QPSK	50	0	17.13	17.20	17.02		
20	QPSK	50	24	16.99	17.08	16.98	18.5	0
20	QPSK	50	50	17.10	16.99	17.00		
20	QPSK	100	0	17.10	17.14	17.00		
20	16QAM	1	0	16.75	16.94	16.86		
20	16QAM	1	49	16.73	16.89	16.80	18.5	0
20	16QAM	1	99	16.66	16.65	16.64		
20	16QAM	50	0	17.14	17.17	17.24		
20	16QAM	50	24	17.08	17.13	17.09	18.5	0
20	16QAM	50	50	17.18	17.10	17.05		
20	16QAM	100	0	17.14	17.12	16.99		
20	64QAM	1	0	17.00	17.27	17.23		
20	64QAM	1	49	17.24	17.21	17.25	18.5	0
20	64QAM	1	99	17.05	16.89	17.00		
20	64QAM	50	0	17.04	17.16	17.14		
20	64QAM	50	24	17.11	17.01	17.01	18.5	0
20	64QAM	50	50	17.24	17.00	17.00		
20	64QAM	100	0	17.04	17.14	16.96		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	16.82	16.89	16.93		
15	QPSK	1	37	17.12	17.09	16.91	18.5	0
15	QPSK	1	74	16.95	16.62	16.71		
15	QPSK	36	0	16.91	16.93	16.84		
15	QPSK	36	20	16.78	16.83	16.79	18.5	0
15	QPSK	36	39	16.82	16.74	16.82		
15	QPSK	75	0	16.87	16.86	16.89		
15	16QAM	1	0	16.79	16.50	16.57		
15	16QAM	1	37	16.56	16.91	16.74	18.5	0
15	16QAM	1	74	16.53	16.68	16.71		
15	16QAM	36	0	16.83	16.87	16.76		
15	16QAM	36	20	16.79	16.77	16.92	18.5	0
15	16QAM	36	39	16.89	16.80	16.82		
15	16QAM	75	0	16.97	16.98	16.93		
15	64QAM	1	0	17.13	17.08	16.85		
15	64QAM	1	37	17.26	17.21	17.26	18.5	0
15	64QAM	1	74	17.13	16.90	16.90		
15	64QAM	36	0	16.97	16.90	16.97		
15	64QAM	36	20	17.00	17.08	17.07	18.5	0
15	64QAM	36	39	16.88	16.83	16.88		
15	64QAM	75	0	17.11	16.87	16.85		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	16.63	16.81	16.92		
10	QPSK	1	25	17.01	16.96	16.86	18.5	0
10	QPSK	1	49	16.87	16.73	16.78		
10	QPSK	25	0	16.97	16.87	16.84		
10	QPSK	25	12	16.75	16.87	16.88	18.5	0
10	QPSK	25	25	16.76	16.86	16.80		
10	QPSK	50	0	16.86	16.81	16.87		
10	16QAM	1	0	16.58	17.04	16.94		
10	16QAM	1	25	17.06	17.07	16.96	18.5	0
10	16QAM	1	49	16.74	16.72	16.88		
10	16QAM	25	0	17.15	16.85	16.84		
10	16QAM	25	12	16.98	16.84	16.97	18.5	0
10	16QAM	25	25	16.87	16.93	16.93		
10	16QAM	50	0	16.81	16.87	17.03		
10	64QAM	1	0	16.70	16.81	16.96		
10	64QAM	1	25	17.17	17.13	16.95	18.5	0
10	64QAM	1	49	16.79	16.72	16.75		
10	64QAM	25	0	16.87	17.05	16.85		
10	64QAM	25	12	16.90	16.95	17.09	18.5	0
10	64QAM	25	25	17.00	16.89	16.94		
10	64QAM	50	0	16.84	16.83	16.82		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	16.53	16.56	16.51		
5	QPSK	1	12	16.76	16.80	16.89	18.5	0
5	QPSK	1	24	16.56	16.56	16.60		
5	QPSK	12	0	16.69	16.89	16.88		
5	QPSK	12	7	16.86	16.83	16.80	18.5	0
5	QPSK	12	13	16.93	16.82	16.86		
5	QPSK	25	0	16.80	16.86	16.82		
5	16QAM	1	0	16.61	16.75	16.66		
5	16QAM	1	12	16.58	16.58	16.67	18.5	0
5	16QAM	1	24	16.74	16.68	16.70		
5	16QAM	12	0	16.96	16.91	16.87		
5	16QAM	12	7	17.03	16.96	16.89	18.5	0
5	16QAM	12	13	16.83	16.80	16.89		
5	16QAM	25	0	16.77	16.81	16.91		
5	64QAM	1	0	16.74	16.54	16.50		
5	64QAM	1	12	16.97	16.95	17.00	18.5	0
5	64QAM	1	24	16.81	16.57	16.98		
5	64QAM	12	0	17.05	17.11	16.97		
5	64QAM	12	7	16.94	17.04	16.84	18.5	0
5	64QAM	12	13	16.75	16.89	16.93		
5	64QAM	25	0	16.79	16.92	16.98		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	16.50	16.51	16.56		
3	QPSK	1	8	16.59	16.78	16.68	18.5	0
3	QPSK	1	14	16.54	16.57	16.59		
3	QPSK	8	0	16.79	16.96	16.68		
3	QPSK	8	4	16.85	16.87	16.72	18.5	0
3	QPSK	8	7	16.76	16.76	16.71		
3	QPSK	15	0	16.85	16.78	16.74		
3	16QAM	1	0	16.68	16.68	16.62		
3	16QAM	1	8	16.56	16.70	16.59	18.5	0
3	16QAM	1	14	16.54	16.52	16.70		
3	16QAM	8	0	16.88	16.76	16.79		
3	16QAM	8	4	16.61	16.86	16.80	18.5	0
3	16QAM	8	7	17.07	16.93	16.71		
3	16QAM	15	0	16.56	16.90	16.64		
3	64QAM	1	0	16.83	16.69	16.69		
3	64QAM	1	8	16.87	17.08	16.73	18.5	0
3	64QAM	1	14	17.05	17.02	16.69		
3	64QAM	8	0	16.73	16.83	16.61		
3	64QAM	8	4	16.83	16.80	16.84	18.5	0
3	64QAM	8	7	17.06	16.87	16.83		
3	64QAM	15	0	17.09	16.70	16.92		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	16.77	16.86	16.75		
1.4	QPSK	1	3	16.88	16.81	16.85		
1.4	QPSK	1	5	16.82	16.76	16.70	18.5	0
1.4	QPSK	3	0	16.87	16.65	16.76		
1.4	QPSK	3	1	17.13	16.71	16.89		
1.4	QPSK	3	3	16.86	16.79	16.82		
1.4	QPSK	6	0	16.73	16.80	16.75	18.5	0
1.4	16QAM	1	0	16.81	16.76	16.57		
1.4	16QAM	1	3	17.01	16.95	16.52		
1.4	16QAM	1	5	16.66	17.00	16.60	18.5	0
1.4	16QAM	3	0	16.76	16.94	16.83		
1.4	16QAM	3	1	16.94	16.81	16.61		
1.4	16QAM	3	3	16.87	16.96	16.78		
1.4	16QAM	6	0	16.62	16.86	16.52	18.5	0
1.4	64QAM	1	0	16.85	16.84	16.64		
1.4	64QAM	1	3	16.83	17.08	16.91		
1.4	64QAM	1	5	16.72	17.02	16.70	18.5	0
1.4	64QAM	3	0	16.98	17.00	16.78		
1.4	64QAM	3	1	16.98	17.08	16.76		
1.4	64QAM	3	3	16.68	16.89	16.86		
1.4	64QAM	6	0	16.52	16.70	16.57	18.5	0

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	15.24	15.21	15.22		
20	QPSK	1	49	15.60	15.69	15.53	16.5	0
20	QPSK	1	99	15.22	15.34	15.39		
20	QPSK	50	0	15.58	15.65	15.51		
20	QPSK	50	24	15.56	15.57	15.45	16.5	0
20	QPSK	50	50	15.54	15.64	15.43		
20	QPSK	100	0	15.55	15.62	15.48		
20	16QAM	1	0	15.13	15.12	15.15		
20	16QAM	1	49	15.28	15.33	15.36	16.5	0
20	16QAM	1	99	15.23	15.22	15.26		
20	16QAM	50	0	15.48	15.64	15.66		
20	16QAM	50	24	15.55	15.60	15.59	16.5	0
20	16QAM	50	50	15.65	15.67	15.61		
20	16QAM	100	0	15.53	15.65	15.50		
20	64QAM	1	0	15.46	15.44	15.60		
20	64QAM	1	49	15.67	15.64	15.59	16.5	0
20	64QAM	1	99	15.58	15.64	15.60		
20	64QAM	50	0	15.37	15.68	15.60		
20	64QAM	50	24	15.68	15.56	15.54	16.5	0
20	64QAM	50	50	15.52	15.57	15.56		
20	64QAM	100	0	15.68	15.66	15.45		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	15.12	15.15	15.24		
15	QPSK	1	37	15.51	15.62	15.34	16.5	0
15	QPSK	1	74	15.18	15.19	15.31		
15	QPSK	36	0	15.61	15.52	15.54		
15	QPSK	36	20	15.50	15.56	15.45	16.5	0
15	QPSK	36	39	15.56	15.41	15.21		
15	QPSK	75	0	15.37	15.47	15.31		
15	16QAM	1	0	15.04	15.02	15.13		
15	16QAM	1	37	15.09	15.14	15.15	16.5	0
15	16QAM	1	74	15.09	15.26	15.27		
15	16QAM	36	0	15.26	15.46	15.68		
15	16QAM	36	20	15.52	15.58	15.52	16.5	0
15	16QAM	36	39	15.60	15.60	15.50		
15	16QAM	75	0	15.44	15.40	15.44		
15	64QAM	1	0	15.46	15.49	15.61		
15	64QAM	1	37	15.54	15.68	15.62	16.5	0
15	64QAM	1	74	15.51	15.62	15.59		
15	64QAM	36	0	15.27	15.52	15.51		
15	64QAM	36	20	15.53	15.37	15.41	16.5	0
15	64QAM	36	39	15.43	15.37	15.49		
15	64QAM	75	0	15.53	15.68	15.44		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	15.15	15.07	15.08		
10	QPSK	1	25	15.50	15.46	15.32	16.5	0
10	QPSK	1	49	15.10	15.27	15.42		
10	QPSK	25	0	15.42	15.67	15.33		
10	QPSK	25	12	15.31	15.39	15.32	16.5	0
10	QPSK	25	25	15.39	15.56	15.42		
10	QPSK	50	0	15.45	15.66	15.33		
10	16QAM	1	0	15.00	15.08	15.12		
10	16QAM	1	25	15.33	15.38	15.11	16.5	0
10	16QAM	1	49	15.03	15.24	15.23		
10	16QAM	25	0	15.35	15.62	15.51		
10	16QAM	25	12	15.39	15.49	15.40	16.5	0
10	16QAM	25	25	15.63	15.49	15.42		
10	16QAM	50	0	15.53	15.43	15.49		
10	64QAM	1	0	15.40	15.28	15.46		
10	64QAM	1	25	15.53	15.63	15.64	16.5	0
10	64QAM	1	49	15.52	15.51	15.50		
10	64QAM	25	0	15.32	15.65	15.63		
10	64QAM	25	12	15.49	15.32	15.31	16.5	0
10	64QAM	25	25	15.44	15.57	15.36		
10	64QAM	50	0	15.60	15.68	15.37		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	15.20	15.10	15.21		
5	QPSK	1	12	15.18	15.11	15.26	16.5	0
5	QPSK	1	24	15.25	15.27	15.18		
5	QPSK	12	0	15.55	15.60	15.29		
5	QPSK	12	7	15.60	15.46	15.41	16.5	0
5	QPSK	12	13	15.55	15.42	15.30		
5	QPSK	25	0	15.50	15.38	15.38		
5	16QAM	1	0	15.50	15.62	15.50		
5	16QAM	1	12	15.50	15.47	15.44	16.5	0
5	16QAM	1	24	15.58	15.51	15.28		
5	16QAM	12	0	15.53	15.58	15.59		
5	16QAM	12	7	15.36	15.49	15.57	16.5	0
5	16QAM	12	13	15.60	15.58	15.38		
5	16QAM	25	0	15.40	15.48	15.25		
5	64QAM	1	0	15.30	15.29	15.65		
5	64QAM	1	12	15.68	15.62	15.62	16.5	0
5	64QAM	1	24	15.35	15.50	15.35		
5	64QAM	12	0	15.20	15.54	15.38		
5	64QAM	12	7	15.60	15.34	15.48	16.5	0
5	64QAM	12	13	15.44	15.36	15.57		
5	64QAM	25	0	15.44	15.46	15.41		

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	16.88	17.16	16.95	18.5	0
20	QPSK	1	49	17.12	17.30	16.97		
20	QPSK	1	99	16.98	17.21	16.92		
20	QPSK	50	0	17.08	17.24	17.03	18.5	0
20	QPSK	50	24	17.04	17.19	16.82		
20	QPSK	50	50	16.99	17.15	16.80		
20	QPSK	100	0	17.05	17.24	16.92		
20	16QAM	1	0	16.67	17.05	16.85	18.5	0
20	16QAM	1	49	16.85	16.98	16.61		
20	16QAM	1	99	16.73	16.89	16.61		
20	16QAM	50	0	16.95	17.07	16.93	18.5	0
20	16QAM	50	24	16.98	17.08	16.85		
20	16QAM	50	50	17.06	17.09	16.76		
20	16QAM	100	0	17.10	17.20	16.74		
20	64QAM	1	0	16.98	17.01	16.97	18.5	0
20	64QAM	1	49	16.99	16.98	16.97		
20	64QAM	1	99	16.84	17.07	16.64		
20	64QAM	50	0	17.00	17.02	16.87	18.5	0
20	64QAM	50	24	16.98	17.04	16.92		
20	64QAM	50	50	17.01	17.14	16.72		
20	64QAM	100	0	17.10	17.20	16.92		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	16.77	17.09	16.80	18.5	0
15	QPSK	1	37	16.93	17.14	16.76		
15	QPSK	1	74	16.83	17.09	16.69		
15	QPSK	36	0	17.00	17.14	16.73	18.5	0
15	QPSK	36	20	16.84	17.09	16.64		
15	QPSK	36	39	16.92	17.05	16.80		
15	QPSK	75	0	17.01	17.28	16.93		
15	16QAM	1	0	16.60	16.86	16.66	18.5	0
15	16QAM	1	37	16.88	16.87	16.95		
15	16QAM	1	74	16.73	16.84	17.03		
15	16QAM	36	0	16.71	16.95	16.80	18.5	0
15	16QAM	36	20	16.84	17.05	16.68		
15	16QAM	36	39	16.88	16.88	16.65		
15	16QAM	75	0	17.03	17.06	16.62		
15	64QAM	1	0	16.95	16.87	16.95	18.5	0
15	64QAM	1	37	16.91	16.94	16.72		
15	64QAM	1	74	16.87	17.02	16.79		
15	64QAM	36	0	16.80	17.07	16.80	18.5	0
15	64QAM	36	20	16.73	16.93	16.85		
15	64QAM	36	39	16.97	17.12	16.67		
15	64QAM	75	0	16.97	17.25	16.95		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	16.80	16.92	16.91	18.5	0
10	QPSK	1	25	17.04	17.13	16.95		
10	QPSK	1	49	17.03	17.04	16.97		
10	QPSK	25	0	17.11	17.16	16.71	18.5	0
10	QPSK	25	12	16.92	17.01	16.84		
10	QPSK	25	25	16.95	16.98	16.80		
10	QPSK	50	0	17.09	17.00	16.96		
10	16QAM	1	0	16.71	16.83	16.78	18.5	0
10	16QAM	1	25	16.63	16.81	16.76		
10	16QAM	1	49	16.69	16.70	16.73		
10	16QAM	25	0	16.76	16.86	16.92	18.5	0
10	16QAM	25	12	16.86	16.96	16.75		
10	16QAM	25	25	17.05	16.90	16.79		
10	16QAM	50	0	16.90	17.16	16.74		
10	64QAM	1	0	16.95	16.81	16.78	18.5	0
10	64QAM	1	25	16.78	16.98	16.82		
10	64QAM	1	49	16.89	16.96	16.75		
10	64QAM	25	0	16.78	17.03	16.76	18.5	0
10	64QAM	25	12	16.96	17.00	16.68		
10	64QAM	25	25	16.79	17.08	16.97		
10	64QAM	50	0	16.97	16.97	16.85		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	16.90	17.16	16.87	18.5	0
5	QPSK	1	12	17.11	17.16	16.93		
5	QPSK	1	24	16.78	17.04	16.85		
5	QPSK	12	0	17.05	17.11	16.80	18.5	0
5	QPSK	12	7	17.06	17.09	16.77		
5	QPSK	12	13	16.80	17.20	16.87		
5	QPSK	25	0	17.07	17.15	16.82		
5	16QAM	1	0	16.68	16.83	16.90	18.5	0
5	16QAM	1	12	16.63	16.91	16.88		
5	16QAM	1	24	16.75	16.85	16.84		
5	16QAM	12	0	16.98	17.11	16.70	18.5	0
5	16QAM	12	7	16.75	17.05	16.78		
5	16QAM	12	13	16.94	17.06	16.64		
5	16QAM	25	0	16.95	17.21	16.89		
5	64QAM	1	0	16.98	17.06	16.97	18.5	0
5	64QAM	1	12	16.76	16.96	17.00		
5	64QAM	1	24	16.71	16.87	16.66		
5	64QAM	12	0	16.94	17.00	16.83	18.5	0
5	64QAM	12	7	16.99	16.94	16.71		
5	64QAM	12	13	16.88	17.12	16.68		
5	64QAM	25	0	16.94	16.98	16.88		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	16.83	17.13	16.92	18.5	0
3	QPSK	1	8	16.90	17.20	16.97		
3	QPSK	1	14	16.95	17.19	16.90		
3	QPSK	8	0	17.10	17.10	16.71	18.5	0
3	QPSK	8	4	16.84	17.19	16.81		
3	QPSK	8	7	16.86	17.06	16.84		
3	QPSK	15	0	16.97	17.11	16.81		
3	16QAM	1	0	16.70	16.88	16.89	18.5	0
3	16QAM	1	8	16.76	16.98	16.89		
3	16QAM	1	14	16.75	16.71	16.65		
3	16QAM	8	0	17.00	16.88	16.81	18.5	0
3	16QAM	8	4	16.89	16.95	16.77		
3	16QAM	8	7	16.89	16.97	16.77		
3	16QAM	15	0	16.99	17.23	16.74		
3	64QAM	1	0	17.00	17.00	16.89	18.5	0
3	64QAM	1	8	16.85	17.00	16.78		
3	64QAM	1	14	16.88	17.04	16.65		
3	64QAM	8	0	16.96	16.81	16.72	18.5	0
3	64QAM	8	4	16.82	16.82	16.76		
3	64QAM	8	7	16.93	17.09	16.64		
3	64QAM	15	0	16.92	17.13	16.92		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	16.74	16.99	16.86	18.5	0
1.4	QPSK	1	3	17.09	17.15	16.89		
1.4	QPSK	1	5	16.86	16.96	16.80		
1.4	QPSK	3	0	17.04	17.15	16.68		
1.4	QPSK	3	1	16.88	17.17	16.95		
1.4	QPSK	3	3	16.91	17.09	16.82		
1.4	QPSK	6	0	17.02	17.12	16.88	18.5	0
1.4	16QAM	1	0	16.71	16.82	16.79	18.5	0
1.4	16QAM	1	3	16.67	16.78	16.94		
1.4	16QAM	1	5	16.76	16.66	17.02		
1.4	16QAM	3	0	16.74	17.06	16.87		
1.4	16QAM	3	1	16.99	16.95	17.09		
1.4	16QAM	3	3	17.11	17.03	17.01		
1.4	16QAM	6	0	17.15	17.16	16.94	18.5	0
1.4	64QAM	1	0	17.01	16.84	16.74	18.5	0
1.4	64QAM	1	3	16.82	16.73	16.71		
1.4	64QAM	1	5	16.88	16.84	16.88		
1.4	64QAM	3	0	16.87	16.78	16.93		
1.4	64QAM	3	1	16.76	17.04	17.02		
1.4	64QAM	3	3	16.92	16.91	17.01		
1.4	64QAM	6	0	16.90	17.06	16.82	18.5	0

Reduced Power Mode for Hotspot on

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	25.00	25.02	24.86	26.50	16.00	16.02	15.86	17.50
GPRS 1 Tx slot	24.97	25.00	24.83	26.50	15.97	16.00	15.83	17.50
GPRS 2 Tx slots	23.76	23.91	23.73	25.50	17.76	17.91	17.73	19.50
GPRS 3 Tx slots	21.60	21.50	21.56	23.50	17.34	17.24	17.30	19.24
GPRS 4 Tx slots	19.50	19.55	19.64	21.50	16.50	16.55	16.64	18.50
EDGE 1 Tx slot	20.65	20.84	20.64	22.50	11.65	11.84	11.64	13.50
EDGE 2 Tx slots	19.59	19.68	19.66	21.50	13.59	13.68	13.66	15.50
EDGE 3 Tx slots	17.52	17.53	17.53	19.50	13.26	13.27	13.27	15.24
EDGE 4 Tx slots	15.50	15.55	15.61	17.50	12.50	12.55	12.61	14.50

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	16.77	17.01	17.04	18.50	16.38	16.40	16.28	18.00
3GPP Rel 99	RMC 12.2Kbps	16.82	17.04	17.06	18.50	16.40	16.43	16.35	18.00
3GPP Rel 6	HSDPA Subtest-1	15.90	15.98	16.10	17.50	15.59	15.67	15.58	17.00
3GPP Rel 6	HSDPA Subtest-2	15.87	16.00	16.12	17.50	15.63	15.62	15.61	17.00
3GPP Rel 6	HSDPA Subtest-3	15.38	15.59	15.61	17.00	15.11	15.21	15.09	16.50
3GPP Rel 6	HSDPA Subtest-4	15.43	15.59	15.61	17.00	15.11	15.21	15.09	16.50
3GPP Rel 8	DC-HSDPA Subtest-1	15.77	15.96	16.07	17.50	15.45	15.52	15.47	17.00
3GPP Rel 8	DC-HSDPA Subtest-2	15.78	15.97	16.08	17.50	15.50	15.50	15.50	17.00
3GPP Rel 8	DC-HSDPA Subtest-3	15.26	15.45	15.54	17.00	15.03	15.11	15.00	16.50
3GPP Rel 8	DC-HSDPA Subtest-4	15.28	15.46	15.57	17.00	15.00	15.14	14.99	16.50
3GPP Rel 6	HSUPA Subtest-1	15.98	16.06	16.20	17.00	15.58	15.65	15.45	16.50
3GPP Rel 6	HSUPA Subtest-2	13.77	13.92	14.00	15.00	13.60	13.68	13.52	14.50
3GPP Rel 6	HSUPA Subtest-3	15.01	15.11	15.25	16.00	14.60	14.66	14.53	15.50
3GPP Rel 6	HSUPA Subtest-4	13.83	14.03	14.11	15.00	13.65	13.69	13.54	14.50
3GPP Rel 6	HSUPA Subtest-5	15.90	16.00	16.10	17.00	15.60	15.70	15.50	16.50

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	17.51	17.55	17.59		
20	QPSK	1	49	17.70	17.90	17.95	19	0
20	QPSK	1	99	17.58	17.66	17.52		
20	QPSK	50	0	17.66	17.83	17.90		
20	QPSK	50	24	17.51	17.62	17.77	19	0
20	QPSK	50	50	17.46	17.55	17.61		
20	QPSK	100	0	17.58	17.80	17.87		
20	16QAM	1	0	17.18	17.02	17.00		
20	16QAM	1	49	17.20	17.17	17.10	19	0
20	16QAM	1	99	17.01	17.02	17.13		
20	16QAM	50	0	17.44	17.61	17.68		
20	16QAM	50	24	17.41	17.61	17.65	19	0
20	16QAM	50	50	17.47	17.51	17.55		
20	16QAM	100	0	17.41	17.45	17.51		
20	64QAM	1	0	17.43	17.62	17.76		
20	64QAM	1	49	17.68	17.79	17.88	19	0
20	64QAM	1	99	17.51	17.41	17.65		
20	64QAM	50	0	17.43	17.48	17.59		
20	64QAM	50	24	17.37	17.61	17.56	19	0
20	64QAM	50	50	17.62	17.41	17.51		
20	64QAM	100	0	17.50	17.62	17.56		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.22	17.36	17.43		
15	QPSK	1	37	17.49	17.57	17.65	19	0
15	QPSK	1	74	17.16	17.38	17.43		
15	QPSK	36	0	17.22	17.37	17.44		
15	QPSK	36	20	17.25	17.40	17.46	19	0
15	QPSK	36	39	17.21	17.40	17.43		
15	QPSK	75	0	17.23	17.38	17.44		
15	16QAM	1	0	17.21	17.27	17.59		
15	16QAM	1	37	17.69	17.42	17.35	19	0
15	16QAM	1	74	17.21	17.39	17.35		
15	16QAM	36	0	17.19	17.38	17.46		
15	16QAM	36	20	17.21	17.50	17.46	19	0
15	16QAM	36	39	17.35	17.29	17.47		
15	16QAM	75	0	17.21	17.53	17.58		
15	64QAM	1	0	17.42	17.39	17.62		
15	64QAM	1	37	17.45	17.56	17.79	19	0
15	64QAM	1	74	17.42	17.32	17.58		
15	64QAM	36	0	17.40	17.54	17.60		
15	64QAM	36	20	17.36	17.58	17.72	19	0
15	64QAM	36	39	17.40	17.49	17.62		
15	64QAM	75	0	17.58	17.40	17.41		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.10	17.26	17.18		
10	QPSK	1	25	17.25	17.51	17.47	19	0
10	QPSK	1	49	17.08	17.02	17.18		
10	QPSK	25	0	17.30	17.33	17.46		
10	QPSK	25	12	17.20	17.47	17.45	19	0
10	QPSK	25	25	17.20	17.43	17.45		
10	QPSK	50	0	17.30	17.38	17.45		
10	16QAM	1	0	17.36	17.24	17.57		
10	16QAM	1	25	17.35	17.31	17.60	19	0
10	16QAM	1	49	17.23	17.19	17.44		
10	16QAM	25	0	17.26	17.59	17.56		
10	16QAM	25	12	17.17	17.44	17.60	19	0
10	16QAM	25	25	17.45	17.43	17.45		
10	16QAM	50	0	17.35	17.39	17.42		
10	64QAM	1	0	17.28	17.29	17.58		
10	64QAM	1	25	17.49	17.73	17.63	19	0
10	64QAM	1	49	17.24	17.41	17.54		
10	64QAM	25	0	17.48	17.63	17.47		
10	64QAM	25	12	17.44	17.66	17.64	19	0
10	64QAM	25	25	17.46	17.54	17.43		
10	64QAM	50	0	17.28	17.32	17.47		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.29	17.58	17.47		
5	QPSK	1	12	17.60	17.62	17.63	19	0
5	QPSK	1	24	17.45	17.57	17.47		
5	QPSK	12	0	17.17	17.32	17.48		
5	QPSK	12	7	17.26	17.28	17.39	19	0
5	QPSK	12	13	17.23	17.33	17.41		
5	QPSK	25	0	17.28	17.30	17.40		
5	16QAM	1	0	17.30	17.52	17.61		
5	16QAM	1	12	17.47	17.44	17.54	19	0
5	16QAM	1	24	17.43	17.58	17.58		
5	16QAM	12	0	17.25	17.44	17.62		
5	16QAM	12	7	17.61	17.69	17.65	19	0
5	16QAM	12	13	17.19	17.21	17.36		
5	16QAM	25	0	17.42	17.36	17.54		
5	64QAM	1	0	17.37	17.19	17.23		
5	64QAM	1	12	17.53	17.68	17.67	19	0
5	64QAM	1	24	17.18	17.33	17.23		
5	64QAM	12	0	17.37	17.47	17.36		
5	64QAM	12	7	17.32	17.48	17.29	19	0
5	64QAM	12	13	17.28	17.44	17.46		
5	64QAM	25	0	17.25	17.23	17.27		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.21	17.26	17.29		
3	QPSK	1	8	17.18	17.15	17.11	19	0
3	QPSK	1	14	17.08	17.12	17.02		
3	QPSK	8	0	17.29	17.39	17.55		
3	QPSK	8	4	17.37	17.27	17.33	19	0
3	QPSK	8	7	17.20	17.29	17.38		
3	QPSK	15	0	17.27	17.34	17.46		
3	16QAM	1	0	17.25	17.33	17.51		
3	16QAM	1	8	17.27	17.26	17.46	19	0
3	16QAM	1	14	17.09	17.31	17.25		
3	16QAM	8	0	17.21	17.22	17.30		
3	16QAM	8	4	17.31	17.18	17.54	19	0
3	16QAM	8	7	17.48	17.10	17.53		
3	16QAM	15	0	17.27	17.05	17.14		
3	64QAM	1	0	17.43	17.37	17.62		
3	64QAM	1	8	17.39	17.46	17.55	19	0
3	64QAM	1	14	17.42	17.44	17.50		
3	64QAM	8	0	17.23	17.44	17.52		
3	64QAM	8	4	17.13	17.29	17.50	19	0
3	64QAM	8	7	17.15	17.05	17.43		
3	64QAM	15	0	17.22	17.51	17.57		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.04	17.30	17.47		
1.4	QPSK	1	3	17.17	17.27	17.49	19	0
1.4	QPSK	1	5	17.08	17.04	17.40		
1.4	QPSK	3	0	17.20	17.29	17.54		
1.4	QPSK	3	1	17.39	17.51	17.68		
1.4	QPSK	3	3	17.38	17.42	17.45		
1.4	QPSK	6	0	17.28	17.28	17.42	19	0
1.4	16QAM	1	0	17.08	17.19	17.30		
1.4	16QAM	1	3	17.06	17.24	17.10	19	0
1.4	16QAM	1	5	17.11	17.28	17.06		
1.4	16QAM	3	0	17.13	17.41	17.20		
1.4	16QAM	3	1	17.35	17.39	17.29		
1.4	16QAM	3	3	17.03	17.31	17.43		
1.4	16QAM	6	0	17.06	17.47	17.13	19	0
1.4	64QAM	1	0	17.12	17.59	17.57		
1.4	64QAM	1	3	17.13	17.42	17.45	19	0
1.4	64QAM	1	5	17.13	17.52	17.58		
1.4	64QAM	3	0	17.06	17.24	17.46		
1.4	64QAM	3	1	17.44	17.38	17.51		
1.4	64QAM	3	3	17.44	17.52	17.45		
1.4	64QAM	6	0	17.11	17.15	17.32	19	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	15.82	15.96	15.84		
20	QPSK	1	49	15.85	16.29	16.28	17.5	0
20	QPSK	1	99	15.82	15.85	15.91		
20	QPSK	50	0	16.02	16.08	16.07		
20	QPSK	50	24	15.95	15.95	15.93	17.5	0
20	QPSK	50	50	16.00	15.90	15.88		
20	QPSK	100	0	15.99	16.00	15.99		
20	16QAM	1	0	15.68	16.06	16.09		
20	16QAM	1	49	15.71	15.93	15.98	17.5	0
20	16QAM	1	99	15.64	15.72	15.81		
20	16QAM	50	0	16.03	16.15	16.15		
20	16QAM	50	24	15.92	16.02	15.90	17.5	0
20	16QAM	50	50	16.24	16.00	15.84		
20	16QAM	100	0	16.01	16.01	16.10		
20	64QAM	1	0	16.09	16.21	16.24		
20	64QAM	1	49	16.24	16.23	16.15	17.5	0
20	64QAM	1	99	16.1	15.86	16.02		
20	64QAM	50	0	15.96	16.16	16.07		
20	64QAM	50	24	15.96	16.05	15.94	17.5	0
20	64QAM	50	50	16.05	15.91	15.82		
20	64QAM	100	0	16.05	16.07	16.01		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	15.64	15.91	15.91		
15	QPSK	1	37	15.79	15.96	15.88	17.5	0
15	QPSK	1	74	15.62	15.82	15.74		
15	QPSK	36	0	15.79	15.82	15.83		
15	QPSK	36	20	15.68	15.83	15.79	17.5	0
15	QPSK	36	39	15.77	15.83	15.71		
15	QPSK	75	0	15.83	15.85	15.83		
15	16QAM	1	0	15.77	15.84	15.75		
15	16QAM	1	37	15.84	16.19	16.24	17.5	0
15	16QAM	1	74	15.85	15.96	15.74		
15	16QAM	36	0	15.77	15.97	15.86		
15	16QAM	36	20	15.75	15.92	15.78	17.5	0
15	16QAM	36	39	15.79	15.72	15.68		
15	16QAM	75	0	16.01	15.92	15.88		
15	64QAM	1	0	15.95	16.2	16.1		
15	64QAM	1	37	16.22	16.24	16.18	17.5	0
15	64QAM	1	74	16.07	16.2	15.96		
15	64QAM	36	0	15.89	16.04	15.92		
15	64QAM	36	20	15.84	16.03	16.05	17.5	0
15	64QAM	36	39	15.81	15.82	15.87		
15	64QAM	75	0	16.07	15.79	15.71		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	15.57	15.72	15.61		
10	QPSK	1	25	15.92	16.03	15.96	17.5	0
10	QPSK	1	49	15.69	15.66	15.63		
10	QPSK	25	0	15.93	15.95	15.84		
10	QPSK	25	12	15.76	15.85	15.79	17.5	0
10	QPSK	25	25	15.74	15.82	15.76		
10	QPSK	50	0	15.80	15.88	15.79		
10	16QAM	1	0	15.70	16.00	15.92		
10	16QAM	1	25	15.67	16.16	16.02	17.5	0
10	16QAM	1	49	15.70	16.12	15.93		
10	16QAM	25	0	16.15	15.97	16.20		
10	16QAM	25	12	15.84	15.77	15.98	17.5	0
10	16QAM	25	25	15.84	16.09	16.13		
10	16QAM	50	0	15.88	16.00	15.88		
10	64QAM	1	0	15.78	15.90	15.88		
10	64QAM	1	25	16.08	16.10	16.11	17.5	0
10	64QAM	1	49	15.63	15.77	16.00		
10	64QAM	25	0	16.03	16.10	16.05		
10	64QAM	25	12	15.89	16.02	15.92	17.5	0
10	64QAM	25	25	16.00	15.96	16.00		
10	64QAM	50	0	15.95	15.86	15.77		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	15.64	15.65	15.72		
5	QPSK	1	12	15.59	15.86	15.93	17.5	0
5	QPSK	1	24	15.61	15.60	15.63		
5	QPSK	12	0	15.79	15.92	15.77		
5	QPSK	12	7	15.85	15.89	15.70	17.5	0
5	QPSK	12	13	15.84	15.84	15.83		
5	QPSK	25	0	15.85	15.89	15.72		
5	16QAM	1	0	16.01	15.98	15.67		
5	16QAM	1	12	16.02	16.08	15.90	17.5	0
5	16QAM	1	24	15.74	15.61	15.64		
5	16QAM	12	0	15.87	15.82	15.86		
5	16QAM	12	7	16.14	15.95	15.88	17.5	0
5	16QAM	12	13	16.01	15.87	15.91		
5	16QAM	25	0	15.68	15.99	15.93		
5	64QAM	1	0	15.87	15.92	15.82		
5	64QAM	1	12	15.93	16.17	15.82	17.5	0
5	64QAM	1	24	15.73	15.90	15.81		
5	64QAM	12	0	15.83	16.11	15.90		
5	64QAM	12	7	16.01	15.91	15.68	17.5	0
5	64QAM	12	13	15.93	15.86	15.75		
5	64QAM	25	0	15.88	15.67	15.73		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	15.60	15.53	15.55		
3	QPSK	1	8	15.64	15.81	15.54	17.5	0
3	QPSK	1	14	15.55	15.68	15.52		
3	QPSK	8	0	15.77	15.96	15.63		
3	QPSK	8	4	15.87	15.87	15.67	17.5	0
3	QPSK	8	7	15.77	15.91	15.68		
3	QPSK	15	0	15.87	15.81	15.71		
3	16QAM	1	0	15.63	15.64	15.79		
3	16QAM	1	8	15.63	15.79	16.00	17.5	0
3	16QAM	1	14	15.51	15.67	15.96		
3	16QAM	8	0	15.94	15.76	15.59		
3	16QAM	8	4	15.83	15.84	15.90	17.5	0
3	16QAM	8	7	15.91	16.02	15.75		
3	16QAM	15	0	15.79	15.89	15.59		
3	64QAM	1	0	16.02	15.97	15.79		
3	64QAM	1	8	15.84	16.04	15.61	17.5	0
3	64QAM	1	14	15.99	15.69	15.90		
3	64QAM	8	0	15.79	16.01	15.58		
3	64QAM	8	4	15.82	15.83	15.57	17.5	0
3	64QAM	8	7	15.70	15.85	15.65		
3	64QAM	15	0	15.64	15.84	15.86		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	15.56	15.78	15.56		
1.4	QPSK	1	3	15.65	15.77	15.63	17.5	0
1.4	QPSK	1	5	15.52	15.79	15.66		
1.4	QPSK	3	0	15.76	15.76	15.53		
1.4	QPSK	3	1	15.77	15.87	15.78		
1.4	QPSK	3	3	15.72	15.81	15.59		
1.4	QPSK	6	0	15.77	15.83	15.70	17.5	0
1.4	16QAM	1	0	15.67	15.73	15.64		
1.4	16QAM	1	3	16.00	16.10	15.67	17.5	0
1.4	16QAM	1	5	16.12	15.89	15.71		
1.4	16QAM	3	0	15.84	15.96	15.73		
1.4	16QAM	3	1	15.83	16.04	15.66		
1.4	16QAM	3	3	15.82	16.00	15.80		
1.4	16QAM	6	0	15.58	15.69	15.58	17.5	0
1.4	64QAM	1	0	15.96	15.79	15.86		
1.4	64QAM	1	3	16.07	16.07	15.63	17.5	0
1.4	64QAM	1	5	15.89	15.97	15.92		
1.4	64QAM	3	0	15.65	16.07	15.81		
1.4	64QAM	3	1	15.73	16.11	15.85		
1.4	64QAM	3	3	15.74	16.07	15.80		
1.4	64QAM	6	0	15.72	15.69	15.84	17.5	0

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	13.63	13.60	13.63		
20	QPSK	1	49	14.06	14.10	13.96	15	0
20	QPSK	1	99	13.95	13.89	13.92		
20	QPSK	50	0	14.02	14.06	13.93		
20	QPSK	50	24	14.00	13.96	13.90	15	0
20	QPSK	50	50	14.00	13.99	13.92		
20	QPSK	100	0	14.01	14.04	13.91		
20	16QAM	1	0	13.50	13.49	13.56		
20	16QAM	1	49	13.69	13.65	13.69	15	0
20	16QAM	1	99	13.59	13.60	13.69		
20	16QAM	50	0	13.95	14.01	13.96		
20	16QAM	50	24	13.97	14.01	13.93	15	0
20	16QAM	50	50	13.86	13.99	13.95		
20	16QAM	100	0	13.85	13.90	13.85		
20	64QAM	1	0	13.85	13.82	13.93		
20	64QAM	1	49	13.93	13.98	13.91	15	0
20	64QAM	1	99	13.82	13.79	13.89		
20	64QAM	50	0	13.84	13.84	13.89		
20	64QAM	50	24	13.94	13.97	13.88	15	0
20	64QAM	50	50	13.94	13.98	13.89		
20	64QAM	100	0	13.96	13.95	13.98		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	13.69	13.68	14.04		
15	QPSK	1	37	14.03	14.03	13.90	15	0
15	QPSK	1	74	13.80	13.83	14.02		
15	QPSK	36	0	13.79	13.96	13.91		
15	QPSK	36	20	13.80	13.94	13.95	15	0
15	QPSK	36	39	13.95	14.03	13.98		
15	QPSK	75	0	13.80	13.98	13.93		
15	16QAM	1	0	13.58	13.48	13.77		
15	16QAM	1	37	13.69	13.75	13.67	15	0
15	16QAM	1	74	13.64	13.72	13.70		
15	16QAM	36	0	13.83	13.93	13.86		
15	16QAM	36	20	13.78	13.97	13.96	15	0
15	16QAM	36	39	13.94	13.96	14.03		
15	16QAM	75	0	13.89	13.91	14.01		
15	64QAM	1	0	13.87	13.84	13.97		
15	64QAM	1	37	13.89	13.97	13.89	15	0
15	64QAM	1	74	13.95	14.06	13.97		
15	64QAM	36	0	13.93	14.01	14.01		
15	64QAM	36	20	14.01	14.02	13.99	15	0
15	64QAM	36	39	14.02	13.99	14.07		
15	64QAM	75	0	13.76	14.05	13.96		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	13.54	13.51	13.54		
10	QPSK	1	25	13.78	14.01	13.78	15	0
10	QPSK	1	49	13.86	13.80	13.89		
10	QPSK	25	0	13.80	13.89	13.84		
10	QPSK	25	12	13.91	13.87	13.90	15	0
10	QPSK	25	25	13.91	13.90	13.93		
10	QPSK	50	0	13.92	13.95	13.84		
10	16QAM	1	0	13.47	13.46	13.53		
10	16QAM	1	25	13.66	13.62	13.66	15	0
10	16QAM	1	49	13.56	13.57	13.66		
10	16QAM	25	0	13.92	13.98	13.93		
10	16QAM	25	12	13.94	13.98	13.90	15	0
10	16QAM	25	25	13.83	13.96	13.92		
10	16QAM	50	0	13.82	13.87	13.82		
10	64QAM	1	0	13.82	13.79	13.90		
10	64QAM	1	25	13.90	13.95	13.88	15	0
10	64QAM	1	49	13.79	13.76	13.86		
10	64QAM	25	0	13.81	13.81	13.86		
10	64QAM	25	12	13.91	13.94	13.85	15	0
10	64QAM	25	25	13.91	13.95	13.86		
10	64QAM	50	0	13.93	13.92	13.95		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	13.59	13.60	13.63		
5	QPSK	1	12	13.99	14.02	14.00	15	0
5	QPSK	1	24	13.56	13.52	13.54		
5	QPSK	12	0	13.74	13.83	13.82		
5	QPSK	12	7	13.69	13.81	13.85	15	0
5	QPSK	12	13	13.68	13.85	13.84		
5	QPSK	25	0	13.81	13.92	13.95		
5	16QAM	1	0	13.47	13.74	13.53		
5	16QAM	1	12	13.65	13.75	13.77	15	0
5	16QAM	1	24	13.41	13.52	13.57		
5	16QAM	12	0	13.97	14.04	14.02		
5	16QAM	12	7	13.92	13.98	14.00	15	0
5	16QAM	12	13	13.57	13.82	14.01		
5	16QAM	25	0	13.67	13.97	13.99		
5	64QAM	1	0	13.80	13.80	13.80		
5	64QAM	1	12	13.89	13.95	13.97	15	0
5	64QAM	1	24	13.65	13.76	13.81		
5	64QAM	12	0	13.98	14.09	14.08		
5	64QAM	12	7	13.91	14.05	14.03	15	0
5	64QAM	12	13	13.68	14.07	14.04		
5	64QAM	25	0	13.63	13.83	13.77		

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	15.99	16.16	15.86	17.5	0
20	QPSK	1	49	16.22	16.31	15.94		
20	QPSK	1	99	16.17	15.93	15.90		
20	QPSK	50	0	16.10	16.22	15.90	17.5	0
20	QPSK	50	24	16.05	16.18	15.76		
20	QPSK	50	50	16.06	16.17	15.87		
20	QPSK	100	0	16.08	16.20	15.87		
20	16QAM	1	0	15.96	15.80	15.88	17.5	0
20	16QAM	1	49	15.71	16.13	15.67		
20	16QAM	1	99	15.73	15.76	15.79		
20	16QAM	50	0	16.01	16.11	15.84	17.5	0
20	16QAM	50	24	16.14	16.20	15.81		
20	16QAM	50	50	15.98	16.16	15.71		
20	16QAM	100	0	15.90	16.10	15.62		
20	64QAM	1	0	16.08	15.85	16.04	17.5	0
20	64QAM	1	49	15.79	15.97	16.09		
20	64QAM	1	99	15.97	15.72	15.78		
20	64QAM	50	0	15.81	16.12	15.9	17.5	0
20	64QAM	50	24	15.92	16.12	15.72		
20	64QAM	50	50	16.03	15.99	15.67		
20	64QAM	100	0	16.04	16.05	15.67		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	15.67	15.76	16.11	17.5	0
15	QPSK	1	37	15.89	16.02	16.16		
15	QPSK	1	74	15.8	15.97	15.93		
15	QPSK	36	0	15.84	16.06	16.12	17.5	0
15	QPSK	36	20	15.73	15.96	16.19		
15	QPSK	36	39	15.75	15.85	15.97		
15	QPSK	75	0	15.79	16.02	15.98		
15	16QAM	1	0	15.77	15.85	15.85	17.5	0
15	16QAM	1	37	15.87	15.66	16.02		
15	16QAM	1	74	15.84	15.71	15.82		
15	16QAM	36	0	15.72	15.85	15.88	17.5	0
15	16QAM	36	20	15.69	15.89	16.13		
15	16QAM	36	39	15.76	15.94	16.16		
15	16QAM	75	0	15.82	15.86	16.13		
15	64QAM	1	0	16	15.93	15.68	17.5	0
15	64QAM	1	37	16.13	15.83	16		
15	64QAM	1	74	15.67	15.82	15.78		
15	64QAM	36	0	15.91	15.69	15.99	17.5	0
15	64QAM	36	20	15.82	15.68	16.11		
15	64QAM	36	39	15.95	15.85	15.8		
15	64QAM	75	0	15.78	16.05	15.98		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	15.79	15.79	16.13	17.5	0
10	QPSK	1	25	16.2	16.22	16.17		
10	QPSK	1	49	16.04	16.03	15.88		
10	QPSK	25	0	16.02	16.01	16.18	17.5	0
10	QPSK	25	12	16.08	15.87	15.95		
10	QPSK	25	25	16.12	16.11	16.09		
10	QPSK	50	0	16.17	16.13	16.19		
10	16QAM	1	0	15.79	15.94	15.72	17.5	0
10	16QAM	1	25	15.7	15.9	16.06		
10	16QAM	1	49	15.6	15.63	15.77		
10	16QAM	25	0	15.87	15.85	16.13	17.5	0
10	16QAM	25	12	15.98	16.05	16.05		
10	16QAM	25	25	15.86	16.01	16.11		
10	16QAM	50	0	15.99	15.73	15.91		
10	64QAM	1	0	16	16.09	15.72	17.5	0
10	64QAM	1	25	16.05	16.17	15.69		
10	64QAM	1	49	15.79	15.98	15.7		
10	64QAM	25	0	15.66	15.86	16.13	17.5	0
10	64QAM	25	12	15.92	15.9	16.13		
10	64QAM	25	25	15.97	15.84	15.81		
10	64QAM	50	0	16.09	16.01	16.07		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	16.08	15.97	16.02	17.5	0
5	QPSK	1	12	16.05	16.18	16.17		
5	QPSK	1	24	16.20	16.18	15.79		
5	QPSK	12	0	16.07	16.15	15.98	17.5	0
5	QPSK	12	7	15.96	15.87	15.93		
5	QPSK	12	13	16.09	15.85	15.92		
5	QPSK	25	0	16.07	15.87	16.14		
5	16QAM	1	0	15.90	16.11	15.78	17.5	0
5	16QAM	1	12	15.97	16.02	15.78		
5	16QAM	1	24	15.80	15.67	15.90		
5	16QAM	12	0	15.81	16.02	15.84	17.5	0
5	16QAM	12	7	15.88	15.79	15.86		
5	16QAM	12	13	15.96	16.20	15.88		
5	16QAM	25	0	16.08	16.20	15.80		
5	64QAM	1	0	15.80	16.16	15.69	17.5	0
5	64QAM	1	12	15.78	15.96	15.69		
5	64QAM	1	24	15.93	15.94	15.77		
5	64QAM	12	0	15.79	15.80	16.17	17.5	0
5	64QAM	12	7	15.95	15.90	16.07		
5	64QAM	12	13	15.93	16.01	15.88		
5	64QAM	25	0	15.95	15.84	15.97		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	15.90	15.87	16.02	17.5	0
3	QPSK	1	8	16.03	15.97	16.22		
3	QPSK	1	14	16.04	16.14	15.95		
3	QPSK	8	0	15.94	15.99	16.06	17.5	0
3	QPSK	8	4	15.96	15.98	15.94		
3	QPSK	8	7	15.92	16.06	16.10		
3	QPSK	15	0	15.97	16.01	16.01		
3	16QAM	1	0	15.99	15.84	15.96	17.5	0
3	16QAM	1	8	15.78	15.88	15.88		
3	16QAM	1	14	15.66	15.97	15.73		
3	16QAM	8	0	15.93	15.78	15.92	17.5	0
3	16QAM	8	4	16.02	16.12	15.97		
3	16QAM	8	7	15.83	15.90	16.18		
3	16QAM	15	0	15.94	15.91	16.12		
3	64QAM	1	0	16.01	16.12	15.66	17.5	0
3	64QAM	1	8	15.69	15.68	15.84		
3	64QAM	1	14	16.04	15.72	15.74		
3	64QAM	8	0	15.73	15.80	15.95	17.5	0
3	64QAM	8	4	16.02	15.94	16.17		
3	64QAM	8	7	16.00	15.83	15.85		
3	64QAM	15	0	15.98	15.98	16.06		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	15.89	15.97	16.20	17.5	0
1.4	QPSK	1	3	16.26	16.20	16.11		
1.4	QPSK	1	5	16.11	15.98	15.90		
1.4	QPSK	3	0	16.14	16.14	16.25		
1.4	QPSK	3	1	16.01	15.96	16.00		
1.4	QPSK	3	3	15.90	16.10	16.26		
1.4	QPSK	6	0	15.99	16.05	16.17	17.5	0
1.4	16QAM	1	0	16.00	15.85	15.83	17.5	0
1.4	16QAM	1	3	15.62	15.71	16.02		
1.4	16QAM	1	5	15.67	15.67	15.84		
1.4	16QAM	3	0	15.97	16.08	16.19		
1.4	16QAM	3	1	16.16	16.06	16.18		
1.4	16QAM	3	3	15.84	15.89	16.05		
1.4	16QAM	6	0	15.98	15.97	15.96	17.5	0
1.4	64QAM	1	0	16.07	16.10	15.86	17.5	0
1.4	64QAM	1	3	15.75	15.80	15.87		
1.4	64QAM	1	5	15.90	15.88	15.68		
1.4	64QAM	3	0	15.90	15.89	16.05		
1.4	64QAM	3	1	15.80	15.80	16.06		
1.4	64QAM	3	3	15.98	16.09	15.82		
1.4	64QAM	6	0	15.87	16.02	16.11	17.5	0

Reduced Power Mode for Handheld on

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	28.16	28.20	27.92	29.50	19.16	19.20	18.92	20.50
GPRS 1 Tx slot	28.06	28.18	27.90	29.50	19.06	19.18	18.90	20.50
GPRS 2 Tx slots	26.77	26.88	26.84	28.50	20.77	20.88	20.84	22.50
GPRS 3 Tx slots	24.66	24.67	24.53	26.50	20.40	20.41	20.27	22.24
GPRS 4 Tx slots	22.55	22.58	22.51	24.50	19.55	19.58	19.51	21.50
EDGE 1 Tx slot	23.91	23.92	23.78	25.50	14.91	14.92	14.78	16.50
EDGE 2 Tx slots	22.94	22.99	22.86	24.50	16.94	16.99	16.86	18.50
EDGE 3 Tx slots	20.69	20.83	20.66	22.50	16.43	16.57	16.40	18.24
EDGE 4 Tx slots	18.60	18.56	18.58	20.50	15.60	15.56	15.58	17.50

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	20.53	20.57	20.61	22.00	20.12	20.16	20.07	21.50
3GPP Rel 99	RMC 12.2Kbps	20.56	20.60	20.63	22.00	20.15	20.18	20.10	21.50
3GPP Rel 6	HSDPA Subtest-1	19.32	19.60	19.54	21.00	19.19	19.21	19.24	20.50
3GPP Rel 6	HSDPA Subtest-2	19.35	19.61	19.53	21.00	19.29	19.29	19.18	20.50
3GPP Rel 6	HSDPA Subtest-3	18.88	19.09	19.01	20.50	18.76	18.75	18.65	20.00
3GPP Rel 6	HSDPA Subtest-4	18.86	19.10	19.01	20.50	18.76	18.75	18.65	20.00
3GPP Rel 8	DC-HSDPA Subtest-1	19.30	19.50	19.52	21.00	19.08	19.14	19.15	20.50
3GPP Rel 8	DC-HSDPA Subtest-2	19.29	19.49	19.50	21.00	19.12	19.20	19.10	20.50
3GPP Rel 8	DC-HSDPA Subtest-3	18.73	18.99	19.05	20.50	18.63	18.62	18.55	20.00
3GPP Rel 8	DC-HSDPA Subtest-4	18.75	19.00	19.04	20.50	18.60	18.63	18.55	20.00
3GPP Rel 6	HSUPA Subtest-1	19.40	19.56	19.58	20.50	19.19	19.22	19.11	20.00
3GPP Rel 6	HSUPA Subtest-2	17.32	17.57	17.49	18.50	17.21	17.31	17.14	18.00
3GPP Rel 6	HSUPA Subtest-3	18.34	18.62	18.54	19.50	18.18	18.29	18.13	19.00
3GPP Rel 6	HSUPA Subtest-4	17.41	17.56	17.59	18.50	17.19	17.30	17.10	18.00
3GPP Rel 6	HSUPA Subtest-5	19.40	19.60	19.50	20.50	19.20	19.30	19.20	20.00

Band 2 (1900MHz Band)
Part 24E

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	20.83	20.87	20.96		
20	QPSK	1	49	21.14	21.12	21.27	22.5	0
20	QPSK	1	99	21.10	20.96	21.00		
20	QPSK	50	0	21.12	21.11	21.22		
20	QPSK	50	24	21.06	21.10	21.20	22.5	0
20	QPSK	50	50	21.05	21.02	21.13		
20	QPSK	100	0	21.10	21.12	21.20		
20	16QAM	1	0	20.88	20.79	20.49		
20	16QAM	1	49	20.56	20.68	20.99	21.5	1
20	16QAM	1	99	20.93	20.92	20.54		
20	16QAM	50	0	20.60	20.60	20.80		
20	16QAM	50	24	20.59	20.67	20.66	22	0.5
20	16QAM	50	50	20.59	20.61	20.47		
20	16QAM	100	0	20.42	20.53	20.73		
20	64QAM	1	0	20.79	20.61	20.63		
20	64QAM	1	49	20.84	20.91	20.99	22	0.5
20	64QAM	1	99	20.91	20.71	21.05		
20	64QAM	50	0	19.69	19.83	19.68		
20	64QAM	50	24	19.50	19.70	19.78	21	1.5
20	64QAM	50	50	19.68	19.53	19.60		
20	64QAM	100	0	19.62	19.65	19.82		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.03	21.07	21.10		
15	QPSK	1	37	21.11	21.13	21.01	22.5	0
15	QPSK	1	74	20.86	21.01	21.04		
15	QPSK	36	0	20.91	21.04	21.04		
15	QPSK	36	20	20.95	21.06	21.07	22.5	0
15	QPSK	36	39	20.94	21.00	21.11		
15	QPSK	75	0	21.03	21.01	21.14		
15	16QAM	1	0	20.55	20.76	20.90		
15	16QAM	1	37	20.47	20.63	20.77	21.5	1
15	16QAM	1	74	20.93	20.67	20.49		
15	16QAM	36	0	20.41	20.52	20.49		
15	16QAM	36	20	20.39	20.44	20.61	22	0.5
15	16QAM	36	39	20.48	20.45	20.45		
15	16QAM	75	0	20.50	20.52	20.66		
15	64QAM	1	0	20.97	20.65	20.70		
15	64QAM	1	37	20.95	21.10	21.11	22	0.5
15	64QAM	1	74	20.92	20.63	21.02		
15	64QAM	36	0	19.56	19.59	19.84		
15	64QAM	36	20	19.51	19.71	19.69	21	1.5
15	64QAM	36	39	19.57	19.57	19.58		
15	64QAM	75	0	19.37	19.71	19.42		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.74	20.88	21.04		
10	QPSK	1	25	20.86	21.00	21.03	22.5	0
10	QPSK	1	49	20.59	20.66	20.92		
10	QPSK	25	0	20.85	21.05	21.10		
10	QPSK	25	12	20.84	21.08	21.05	22.5	0
10	QPSK	25	25	20.74	20.99	21.04		
10	QPSK	50	0	20.91	20.99	21.08		
10	16QAM	1	0	20.59	21.00	20.80		
10	16QAM	1	25	20.85	20.55	20.88	21.5	1
10	16QAM	1	49	20.69	20.58	20.73		
10	16QAM	25	0	20.42	20.62	20.84		
10	16QAM	25	12	20.40	20.49	20.84	22	0.5
10	16QAM	25	25	20.39	20.53	20.47		
10	16QAM	50	0	20.38	20.53	20.50		
10	64QAM	1	0	20.37	20.23	20.50		
10	64QAM	1	25	20.52	20.65	20.56	22	0.5
10	64QAM	1	49	20.53	20.32	20.46		
10	64QAM	25	0	19.43	19.67	19.65		
10	64QAM	25	12	19.36	19.64	19.80	21	1.5
10	64QAM	25	25	19.44	19.73	19.64		
10	64QAM	50	0	19.44	19.43	19.66		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.88	20.66	21.04		
5	QPSK	1	12	21.09	21.06	21.07	22.5	0
5	QPSK	1	24	20.92	20.59	20.72		
5	QPSK	12	0	20.93	21.04	20.94		
5	QPSK	12	7	20.80	21.02	21.01	22.5	0
5	QPSK	12	13	20.86	20.92	21.02		
5	QPSK	25	0	20.82	20.92	21.13		
5	16QAM	1	0	20.67	20.90	20.81		
5	16QAM	1	12	20.94	20.54	20.82	21.5	1
5	16QAM	1	24	20.74	20.68	21.01		
5	16QAM	12	0	20.43	20.50	20.53		
5	16QAM	12	7	20.57	20.50	20.66	22	0.5
5	16QAM	12	13	20.61	20.41	20.46		
5	16QAM	25	0	20.24	20.27	20.47		
5	64QAM	1	0	20.51	20.52	20.55		
5	64QAM	1	12	20.81	20.77	20.95	22	0.5
5	64QAM	1	24	20.41	20.42	20.50		
5	64QAM	12	0	19.54	19.37	19.74		
5	64QAM	12	7	19.38	19.66	19.62	21	1.5
5	64QAM	12	13	19.42	19.48	19.67		
5	64QAM	25	0	19.59	19.22	19.43		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.72	20.82	20.92		
3	QPSK	1	8	20.62	20.99	20.72	22.5	0
3	QPSK	1	14	20.69	21.02	20.65		
3	QPSK	8	0	20.94	21.00	21.26		
3	QPSK	8	4	20.90	21.01	20.90	22.5	0
3	QPSK	8	7	20.83	20.97	21.05		
3	QPSK	15	0	20.90	21.03	21.02		
3	16QAM	1	0	20.64	20.60	21.06		
3	16QAM	1	8	20.69	20.98	20.98	21.5	1
3	16QAM	1	14	20.75	20.92	20.74		
3	16QAM	8	0	20.47	20.16	20.46		
3	16QAM	8	4	20.24	20.28	20.32	22	0.5
3	16QAM	8	7	20.58	20.21	20.58		
3	16QAM	15	0	20.32	20.47	20.30		
3	64QAM	1	0	20.35	20.56	20.76		
3	64QAM	1	8	20.32	20.35	20.31	22	0.5
3	64QAM	1	14	20.30	20.53	20.57		
3	64QAM	8	0	19.15	19.38	19.57		
3	64QAM	8	4	19.15	19.24	19.55	21	1.5
3	64QAM	8	7	19.07	19.40	19.48		
3	64QAM	15	0	19.56	19.32	19.50		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.64	20.85	20.94		
1.4	QPSK	1	3	20.66	20.93	21.06		
1.4	QPSK	1	5	20.57	20.89	20.99	22.5	0
1.4	QPSK	3	0	20.85	20.77	21.09		
1.4	QPSK	3	1	20.85	20.97	20.98		
1.4	QPSK	3	3	20.95	20.95	21.11		
1.4	QPSK	6	0	20.99	20.97	21.04	22.5	0
1.4	16QAM	1	0	20.96	20.74	20.94		
1.4	16QAM	1	3	21.01	20.88	20.93		
1.4	16QAM	1	5	20.79	20.99	20.67	21.5	1
1.4	16QAM	3	0	20.80	20.83	21.17		
1.4	16QAM	3	1	20.92	20.90	21.16		
1.4	16QAM	3	3	21.11	20.80	21.05		
1.4	16QAM	6	0	20.40	20.40	20.57	22	0.5
1.4	64QAM	1	0	20.43	20.64	20.78		
1.4	64QAM	1	3	20.44	20.47	20.61		
1.4	64QAM	1	5	20.87	20.88	20.62	22	0.5
1.4	64QAM	3	0	20.55	20.59	20.57		
1.4	64QAM	3	1	20.46	20.24	20.71		
1.4	64QAM	3	3	20.37	20.55	20.43		
1.4	64QAM	6	0	19.23	19.33	19.36	21	1.5

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	18.71	18.97	18.80		
20	QPSK	1	49	18.87	19.12	19.11	20.5	0
20	QPSK	1	99	18.74	18.71	18.90		
20	QPSK	50	0	18.97	18.99	18.95		
20	QPSK	50	24	18.91	18.92	18.93	20.5	0
20	QPSK	50	50	18.95	18.93	18.89		
20	QPSK	100	0	18.95	18.96	18.94		
20	16QAM	1	0	18.71	18.94	18.72		
20	16QAM	1	49	18.66	18.86	18.51	20.5	0
20	16QAM	1	99	18.76	18.63	18.64		
20	16QAM	50	0	18.85	18.95	19.06		
20	16QAM	50	24	18.94	18.88	18.83	20.5	0
20	16QAM	50	50	18.82	18.77	18.78		
20	16QAM	100	0	18.98	18.95	18.84		
20	64QAM	1	0	18.90	18.97	18.96		
20	64QAM	1	49	19.09	19.01	18.76	20.5	0
20	64QAM	1	99	19.03	18.67	19.03		
20	64QAM	50	0	18.78	18.82	18.93		
20	64QAM	50	24	18.75	18.89	18.72	20.5	0
20	64QAM	50	50	18.77	18.77	18.79		
20	64QAM	100	0	18.92	18.91	18.95		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.67	18.87	18.90		
15	QPSK	1	37	18.83	18.95	19.07	20.5	0
15	QPSK	1	74	18.85	18.71	18.82		
15	QPSK	36	0	18.72	18.84	18.78		
15	QPSK	36	20	18.74	18.74	18.75	20.5	0
15	QPSK	36	39	18.82	18.74	18.78		
15	QPSK	75	0	18.76	18.78	18.77		
15	16QAM	1	0	18.76	18.65	18.57		
15	16QAM	1	37	18.73	18.50	18.55	20.5	0
15	16QAM	1	74	18.79	18.64	18.68		
15	16QAM	36	0	18.74	18.77	18.77		
15	16QAM	36	20	18.70	18.75	18.73	20.5	0
15	16QAM	36	39	18.81	18.81	18.75		
15	16QAM	75	0	18.84	18.89	18.86		
15	64QAM	1	0	18.70	19.05	19.09		
15	64QAM	1	37	19.10	19.10	19.09	20.5	0
15	64QAM	1	74	19.03	18.67	18.70		
15	64QAM	36	0	18.89	18.90	18.95		
15	64QAM	36	20	18.96	18.97	18.88	20.5	0
15	64QAM	36	39	18.79	18.84	18.87		
15	64QAM	75	0	18.75	19.01	18.75		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.56	18.59	18.61		
10	QPSK	1	25	18.85	18.92	18.78	20.5	0
10	QPSK	1	49	18.54	18.55	18.57		
10	QPSK	25	0	18.87	18.76	18.78		
10	QPSK	25	12	18.83	18.76	18.82	20.5	0
10	QPSK	25	25	18.76	18.73	18.74		
10	QPSK	50	0	18.72	18.8	18.81		
10	16QAM	1	0	18.63	18.79	18.53		
10	16QAM	1	25	18.5	18.55	18.61	20.5	0
10	16QAM	1	49	18.51	18.65	18.76		
10	16QAM	25	0	18.82	18.72	19.07		
10	16QAM	25	12	18.71	18.63	19.04	20.5	0
10	16QAM	25	25	19.03	19.05	19.09		
10	16QAM	50	0	18.82	18.86	18.83		
10	64QAM	1	0	18.93	18.93	18.99		
10	64QAM	1	25	19.06	18.99	19.05	20.5	0
10	64QAM	1	49	18.8	18.76	18.93		
10	64QAM	25	0	19.02	19.03	18.95		
10	64QAM	25	12	18.94	18.98	19.01	20.5	0
10	64QAM	25	25	18.94	18.92	19.01		
10	64QAM	50	0	18.74	18.78	18.8		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.52	18.51	18.53		
5	QPSK	1	12	18.75	18.92	18.84	20.5	0
5	QPSK	1	24	18.66	18.62	18.80		
5	QPSK	12	0	18.65	18.76	18.80		
5	QPSK	12	7	18.82	18.81	18.81	20.5	0
5	QPSK	12	13	18.81	18.79	18.91		
5	QPSK	25	0	18.80	18.82	18.73		
5	16QAM	1	0	18.83	18.54	18.59		
5	16QAM	1	12	18.57	18.78	18.51	20.5	0
5	16QAM	1	24	18.59	18.62	18.53		
5	16QAM	12	0	18.74	18.91	18.93		
5	16QAM	12	7	18.87	18.88	18.85	20.5	0
5	16QAM	12	13	18.80	18.88	18.93		
5	16QAM	25	0	18.74	18.72	18.95		
5	64QAM	1	0	18.59	18.96	18.59		
5	64QAM	1	12	18.84	18.79	18.84	20.5	0
5	64QAM	1	24	18.54	18.60	18.79		
5	64QAM	12	0	18.92	18.59	19.04		
5	64QAM	12	7	18.81	19.08	18.93	20.5	0
5	64QAM	12	13	18.90	18.69	18.91		
5	64QAM	25	0	18.74	18.74	18.91		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.53	18.60	18.58		
3	QPSK	1	8	18.55	18.51	18.65	20.5	0
3	QPSK	1	14	18.56	18.53	18.51		
3	QPSK	8	0	18.68	18.88	18.65		
3	QPSK	8	4	18.75	18.93	18.69	20.5	0
3	QPSK	8	7	18.79	18.82	18.71		
3	QPSK	15	0	18.83	18.72	18.62		
3	16QAM	1	0	18.68	18.69	18.50		
3	16QAM	1	8	18.75	18.81	18.54	20.5	0
3	16QAM	1	14	18.64	18.68	18.52		
3	16QAM	8	0	18.58	18.74	18.59		
3	16QAM	8	4	18.75	18.83	18.82	20.5	0
3	16QAM	8	7	18.87	18.79	18.70		
3	16QAM	15	0	18.70	18.82	18.54		
3	64QAM	1	0	18.97	18.87	18.54		
3	64QAM	1	8	18.92	18.86	18.76	20.5	0
3	64QAM	1	14	18.86	18.79	18.67		
3	64QAM	8	0	18.64	18.82	18.60		
3	64QAM	8	4	18.78	18.97	18.64	20.5	0
3	64QAM	8	7	18.83	18.76	18.78		
3	64QAM	15	0	18.88	18.84	18.84		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.54	18.78	18.70		
1.4	QPSK	1	3	18.71	18.88	18.82		
1.4	QPSK	1	5	18.63	18.75	18.72	20.5	0
1.4	QPSK	3	0	18.68	18.83	18.62		
1.4	QPSK	3	1	18.75	18.75	18.67		
1.4	QPSK	3	3	18.81	18.77	18.52		
1.4	QPSK	6	0	18.65	18.86	18.78	20.5	0
1.4	16QAM	1	0	18.50	18.50	18.55		
1.4	16QAM	1	3	18.50	18.57	18.82		
1.4	16QAM	1	5	18.51	18.53	18.74	20.5	0
1.4	16QAM	3	0	18.81	18.65	18.69		
1.4	16QAM	3	1	18.86	18.62	18.74		
1.4	16QAM	3	3	18.79	19.07	18.73		
1.4	16QAM	6	0	18.60	18.86	18.64	20.5	0
1.4	64QAM	1	0	18.59	18.53	18.51		
1.4	64QAM	1	3	18.91	18.88	18.82		
1.4	64QAM	1	5	18.53	18.77	18.74	20.5	0
1.4	64QAM	3	0	18.82	18.88	18.76		
1.4	64QAM	3	1	18.77	18.74	18.80		
1.4	64QAM	3	3	18.56	18.99	18.56		
1.4	64QAM	6	0	18.82	18.66	18.52	20.5	0

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	18.20	18.21	18.24		
20	QPSK	1	49	18.51	18.66	18.58	19	0
20	QPSK	1	99	18.25	18.31	18.52		
20	QPSK	50	0	18.47	18.61	18.55		
20	QPSK	50	24	18.43	18.55	18.54	19	0
20	QPSK	50	50	18.44	18.59	18.49		
20	QPSK	100	0	18.46	18.59	18.55		
20	16QAM	1	0	17.77	17.89	17.92		
20	16QAM	1	49	17.86	18.12	18.03	19	0
20	16QAM	1	99	17.89	18.06	17.99		
20	16QAM	50	0	18.42	18.51	18.52		
20	16QAM	50	24	18.58	18.49	18.45	19	0
20	16QAM	50	50	18.48	18.52	18.50		
20	16QAM	100	0	18.41	18.50	18.56		
20	64QAM	1	0	18.49	18.51	18.54		
20	64QAM	1	49	18.44	18.56	18.47	19	0
20	64QAM	1	99	18.47	18.57	18.46		
20	64QAM	50	0	18.16	18.38	18.38		
20	64QAM	50	24	18.60	18.55	18.38	19	0
20	64QAM	50	50	18.37	18.45	18.37		
20	64QAM	100	0	18.43	18.42	18.46		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	18.24	18.28	18.26		
15	QPSK	1	37	18.52	18.47	18.42	19	0
15	QPSK	1	74	18.21	18.19	18.53		
15	QPSK	36	0	18.31	18.59	18.60		
15	QPSK	36	20	18.46	18.56	18.43	19	0
15	QPSK	36	39	18.30	18.62	18.48		
15	QPSK	75	0	18.38	18.63	18.41		
15	16QAM	1	0	17.71	17.94	17.87		
15	16QAM	1	37	17.94	18.16	17.97	19	0
15	16QAM	1	74	17.76	18.14	17.82		
15	16QAM	36	0	18.29	18.35	18.47		
15	16QAM	36	20	18.57	18.36	18.53	19	0
15	16QAM	36	39	18.55	18.42	18.54		
15	16QAM	75	0	18.45	18.43	18.66		
15	64QAM	1	0	18.45	18.49	18.54		
15	64QAM	1	37	18.41	18.66	18.32	19	0
15	64QAM	1	74	18.44	18.56	18.53		
15	64QAM	36	0	18.19	18.19	18.23		
15	64QAM	36	20	18.47	18.43	18.45	19	0
15	64QAM	36	39	18.19	18.42	18.19		
15	64QAM	75	0	18.50	18.47	18.26		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	18.12	18.29	18.22		
10	QPSK	1	25	18.35	18.52	18.54	19	0
10	QPSK	1	49	18.11	18.34	18.56		
10	QPSK	25	0	18.45	18.59	18.44		
10	QPSK	25	12	18.29	18.47	18.50	19	0
10	QPSK	25	25	18.28	18.57	18.51		
10	QPSK	50	0	18.30	18.55	18.41		
10	16QAM	1	0	17.74	17.94	17.76		
10	16QAM	1	25	17.75	17.98	17.97	19	0
10	16QAM	1	49	17.76	17.98	18.09		
10	16QAM	25	0	18.49	18.54	18.48		
10	16QAM	25	12	18.47	18.55	18.28	19	0
10	16QAM	25	25	18.53	18.47	18.34		
10	16QAM	50	0	18.37	18.39	18.50		
10	64QAM	1	0	18.51	18.59	18.40		
10	64QAM	1	25	18.30	18.45	18.38	19	0
10	64QAM	1	49	18.40	18.47	18.36		
10	64QAM	25	0	18.32	18.20	18.43		
10	64QAM	25	12	18.62	18.63	18.24	19	0
10	64QAM	25	25	18.26	18.33	18.21		
10	64QAM	50	0	18.43	18.33	18.36		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	18.09	18.14	18.28		
5	QPSK	1	12	18.35	18.53	18.54	19	0
5	QPSK	1	24	18.28	18.33	18.43		
5	QPSK	12	0	18.29	18.41	18.57		
5	QPSK	12	7	18.28	18.48	18.39	19	0
5	QPSK	12	13	18.33	18.48	18.58		
5	QPSK	25	0	18.37	18.50	18.62		
5	16QAM	1	0	17.84	17.72	17.99		
5	16QAM	1	12	17.66	18.03	18.01	19	0
5	16QAM	1	24	17.88	17.93	18.08		
5	16QAM	12	0	18.47	18.60	18.46		
5	16QAM	12	7	18.62	18.31	18.54	19	0
5	16QAM	12	13	18.56	18.50	18.56		
5	16QAM	25	0	18.28	18.34	18.58		
5	64QAM	1	0	18.41	18.54	18.34		
5	64QAM	1	12	18.41	18.56	18.56	19	0
5	64QAM	1	24	18.57	18.56	18.33		
5	64QAM	12	0	18.21	18.35	18.21		
5	64QAM	12	7	18.57	18.41	18.47	19	0
5	64QAM	12	13	18.32	18.52	18.30		
5	64QAM	25	0	18.39	18.49	18.35		

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	18.98	19.00	18.67	20.5	0
20	QPSK	1	49	19.09	19.14	18.98		
20	QPSK	1	99	18.88	18.77	18.93		
20	QPSK	50	0	19.09	19.10	18.94	20.5	0
20	QPSK	50	24	19.05	19.07	18.79		
20	QPSK	50	50	19.07	19.08	18.69		
20	QPSK	100	0	19.05	19.06	18.90		
20	16QAM	1	0	19.02	19.09	18.72	20.5	0
20	16QAM	1	49	18.96	18.97	18.72		
20	16QAM	1	99	18.72	18.72	18.70		
20	16QAM	50	0	19.12	19.06	18.97	20.5	0
20	16QAM	50	24	19.09	19.04	18.78		
20	16QAM	50	50	19.05	19.09	18.69		
20	16QAM	100	0	19.04	19.09	18.81		
20	64QAM	1	0	18.79	19.09	19.08	20.5	0
20	64QAM	1	49	19.09	19.07	19.06		
20	64QAM	1	99	18.74	19.11	18.75		
20	64QAM	50	0	19.05	19.07	18.92	20.5	0
20	64QAM	50	24	19.04	19.03	18.85		
20	64QAM	50	50	19.04	19.13	18.82		
20	64QAM	100	0	19.07	19.09	18.94		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	18.83	19.08	18.69	20.5	0
15	QPSK	1	37	18.90	18.94	18.95		
15	QPSK	1	74	18.76	18.76	19.03		
15	QPSK	36	0	18.92	19.01	18.99	20.5	0
15	QPSK	36	20	19.05	18.96	18.75		
15	QPSK	36	39	19.06	19.05	18.70		
15	QPSK	75	0	18.93	18.86	18.96		
15	16QAM	1	0	18.98	19.11	18.82	20.5	0
15	16QAM	1	37	18.76	18.95	18.84		
15	16QAM	1	74	18.75	18.66	18.71		
15	16QAM	36	0	19.05	18.87	18.98	20.5	0
15	16QAM	36	20	19.01	19.05	18.78		
15	16QAM	36	39	18.87	19.01	18.77		
15	16QAM	75	0	18.87	19.05	18.88		
15	64QAM	1	0	18.79	19.12	18.88	20.5	0
15	64QAM	1	37	19.08	18.93	18.86		
15	64QAM	1	74	18.79	19.11	18.85		
15	64QAM	36	0	18.88	18.92	18.83	20.5	0
15	64QAM	36	20	18.99	19.03	18.72		
15	64QAM	36	39	18.87	19.08	18.66		
15	64QAM	75	0	18.96	19.04	18.89		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	19.03	18.88	18.76	20.5	0
10	QPSK	1	25	19.08	19.13	18.87		
10	QPSK	1	49	18.93	18.82	18.93		
10	QPSK	25	0	18.99	19.1	18.92	20.5	0
10	QPSK	25	12	18.9	18.89	18.89		
10	QPSK	25	25	19.02	19.04	19.01		
10	QPSK	50	0	18.88	19.1	19.07		
10	16QAM	1	0	19.1	18.97	19.04	20.5	0
10	16QAM	1	25	18.96	18.84	18.82		
10	16QAM	1	49	18.78	18.83	18.99		
10	16QAM	25	0	19	18.87	19.1	20.5	0
10	16QAM	25	12	19.07	19.08	18.92		
10	16QAM	25	25	19.13	19.13	18.91		
10	16QAM	50	0	18.96	19.04	18.85		
10	64QAM	1	0	18.81	18.96	19.04	20.5	0
10	64QAM	1	25	19.08	18.97	18.87		
10	64QAM	1	49	18.84	19.04	18.66		
10	64QAM	25	0	19.13	18.91	18.99	20.5	0
10	64QAM	25	12	19.03	18.98	18.86		
10	64QAM	25	25	19.04	19.02	18.84		
10	64QAM	50	0	18.97	18.94	18.84		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	18.92	18.97	18.75	20.5	0
5	QPSK	1	12	19.05	19.01	19.04		
5	QPSK	1	24	18.86	18.85	18.98		
5	QPSK	12	0	19.06	18.96	19.01	20.5	0
5	QPSK	12	7	19.02	19.07	18.84		
5	QPSK	12	13	18.95	19.08	18.73		
5	QPSK	25	0	18.90	18.99	19.00		
5	16QAM	1	0	18.95	18.93	18.66	20.5	0
5	16QAM	1	12	18.76	19.07	18.69		
5	16QAM	1	24	18.73	18.77	18.70		
5	16QAM	12	0	18.98	19.12	18.79	20.5	0
5	16QAM	12	7	19.07	18.85	18.81		
5	16QAM	12	13	19.05	18.95	18.76		
5	16QAM	25	0	18.90	18.91	18.75		
5	64QAM	1	0	18.88	19.02	18.98	20.5	0
5	64QAM	1	12	19.05	19.05	19.04		
5	64QAM	1	24	18.83	19.05	18.73		
5	64QAM	12	0	19.08	19.08	19.02	20.5	0
5	64QAM	12	7	18.97	19.12	18.79		
5	64QAM	12	13	18.88	18.98	18.86		
5	64QAM	25	0	19.05	19.10	18.95		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	18.95	18.80	18.75	20.5	0
3	QPSK	1	8	19.00	19.07	18.88		
3	QPSK	1	14	18.86	18.85	18.97		
3	QPSK	8	0	18.94	19.02	18.97	20.5	0
3	QPSK	8	4	18.97	19.04	19.11		
3	QPSK	8	7	19.04	18.92	19.09		
3	QPSK	15	0	18.89	18.90	18.91		
3	16QAM	1	0	18.88	19.07	18.92	20.5	0
3	16QAM	1	8	18.80	18.89	18.88		
3	16QAM	1	14	18.67	18.88	18.92		
3	16QAM	8	0	19.10	19.00	18.76	20.5	0
3	16QAM	8	4	18.97	19.07	19.07		
3	16QAM	8	7	19.04	19.02	19.07		
3	16QAM	15	0	19.07	18.98	19.06		
3	64QAM	1	0	18.69	19.09	18.91	20.5	0
3	64QAM	1	8	18.93	18.95	18.66		
3	64QAM	1	14	18.71	19.11	19.01		
3	64QAM	8	0	19.07	18.93	18.74	20.5	0
3	64QAM	8	4	18.99	19.10	19.05		
3	64QAM	8	7	18.94	19.04	18.85		
3	64QAM	15	0	18.91	19.04	19.03		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	18.87	19.10	18.81	20.5	0
1.4	QPSK	1	3	18.94	19.11	18.91		
1.4	QPSK	1	5	18.74	18.85	18.78		
1.4	QPSK	3	0	19.01	18.94	19.05		
1.4	QPSK	3	1	18.93	19.06	19.06		
1.4	QPSK	3	3	19.06	19.07	19.10		
1.4	QPSK	6	0	18.92	19.06	19.03	20.5	0
1.4	16QAM	1	0	19.07	19.09	18.97	20.5	0
1.4	16QAM	1	3	19.02	18.79	18.90		
1.4	16QAM	1	5	18.92	18.87	18.79		
1.4	16QAM	3	0	19.09	19.04	19.08		
1.4	16QAM	3	1	19.06	19.09	19.11		
1.4	16QAM	3	3	18.95	19.08	19.06		
1.4	16QAM	6	0	18.97	19.09	18.85	20.5	0
1.4	64QAM	1	0	18.69	19.00	18.85	20.5	0
1.4	64QAM	1	3	19.07	19.05	18.89		
1.4	64QAM	1	5	18.81	19.04	18.67		
1.4	64QAM	3	0	18.91	19.00	18.99		
1.4	64QAM	3	1	19.04	18.93	18.96		
1.4	64QAM	3	3	19.05	19.12	18.95		
1.4	64QAM	6	0	19.05	19.11	18.94	20.5	0

Full Power

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	18.50	19.50	98.96
		6	2437	18.40	19.50	
		11	2462	18.10	19.50	
	802.11g 6Mbps	1	2412	16.00	17.50	98.28
		6	2437	17.50	19.00	
		11	2462	16.40	18.00	
	802.11n-HT20 MCS0	1	2412	16.00	17.50	98.16
		6	2437	17.50	19.00	
		11	2462	15.50	17.00	

5.2GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.61	19.00	98.03
		40	5200	17.36	19.00	
		44	5220	17.43	19.00	
		48	5240	17.62	19.00	
	802.11n-HT20 MCS0	36	5180	17.56	19.00	98.27
		40	5200	17.62	19.00	
		44	5220	17.66	19.00	
		48	5240	17.52	19.00	
	802.11n-HT40 MCS0	38	5190	15.81	17.00	95.68
		46	5230	17.56	19.00	
	802.11ac-VHT20 MCS0	36	5180	17.55	19.00	97.84
		40	5200	17.60	19.00	
		44	5220	17.63	19.00	
		48	5240	17.50	19.00	
	802.11ac-VHT40 MCS0	38	5190	15.74	17.00	96.13
		46	5230	17.52	19.00	
	802.11ac-VHT80 MCS0	42	5210	15.01	16.00	92.65

5.3GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.41	19.00	98.03
		56	5280	17.36	19.00	
		60	5300	17.67	19.00	
		64	5320	17.49	19.00	
	802.11n-HT20 MCS0	52	5260	17.63	19.00	98.27
		56	5280	17.61	19.00	
		60	5300	17.60	19.00	
		64	5320	17.71	19.00	
	802.11n-HT40 MCS0	54	5270	17.58	19.00	95.68
		62	5310	15.88	17.00	
	802.11ac-VHT20 MCS0	52	5260	17.58	19.00	97.84
		56	5280	17.58	19.00	
		60	5300	17.52	19.00	
		64	5320	17.68	19.00	
	802.11ac-VHT40 MCS0	54	5270	17.54	19.00	96.13
		62	5310	15.79	17.00	
	802.11ac-VHT80 MCS0	58	5290	14.62	15.50	92.65

5.5GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.50	19.00	98.03
		116	5580	17.57	19.00	
		124	5620	17.48	19.00	
		132	5660	17.62	19.00	
		140	5700	16.97	18.50	
		144	5720	17.44	19.00	
	802.11n-HT20 MCS0	100	5500	17.43	19.00	98.27
		116	5580	17.50	19.00	
		124	5620	17.36	19.00	
		132	5660	17.48	19.00	
		140	5700	16.25	17.50	
		144	5720	17.57	19.00	
	802.11n-HT40 MCS0	102	5510	15.16	16.50	95.68
		110	5550	17.47	19.00	
		126	5630	17.64	19.00	
		134	5670	17.67	19.00	
		142	5710	17.56	19.00	
	802.11ac-VHT20 MCS0	100	5500	17.42	19.00	97.84
		116	5580	17.48	19.00	
		124	5620	17.32	19.00	
		132	5660	17.45	19.00	
		140	5700	16.21	17.50	
		144	5720	17.54	19.00	
	802.11ac-VHT40 MCS0	102	5510	15.11	16.50	96.13
		110	5550	17.43	19.00	
		126	5630	17.62	19.00	
		134	5670	17.62	19.00	
		142	5710	17.52	19.00	
	802.11ac-VHT80 MCS0	106	5530	13.97	15.00	92.65
		122	5610	17.51	19.00	
		138	5690	17.49	19.00	

5.8GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	12.29	13.50	98.03
		157	5785	12.39	13.50	
		165	5825	12.88	13.50	
	802.11n-HT20 MCS0	149	5745	12.12	13.50	98.27
		157	5785	12.20	13.50	
		165	5825	12.71	13.50	
	802.11n-HT40 MCS0	151	5755	12.14	13.50	95.68
		159	5795	12.20	13.50	
	802.11ac-VHT20 MCS0	149	5745	12.09	13.50	97.84
		157	5785	12.18	13.50	
		165	5825	12.66	13.50	
	802.11ac-VHT40 MCS0	151	5755	12.09	13.50	96.13
		159	5795	12.16	13.50	
	802.11ac-VHT80 MCS0	155	5775	12.29	13.50	92.65

Reduced Power Mode for Receiver on

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	17.10	18.00	98.96
		6	2437	17.00	18.00	
		11	2462	16.70	18.00	
	802.11g 6Mbps	1	2412	14.60	16.00	98.28
		6	2437	16.10	17.50	
		11	2462	15.00	16.50	
	802.11n-HT20 MCS0	1	2412	14.60	16.00	98.16
		6	2437	16.10	17.50	
		11	2462	14.10	15.50	

5.2GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.11	17.50	98.03
		40	5200	15.86	17.50	
		44	5220	15.93	17.50	
		48	5240	16.12	17.50	
	802.11n-HT20 MCS0	36	5180	16.06	17.50	98.27
		40	5200	16.12	17.50	
		44	5220	16.16	17.50	
		48	5240	16.02	17.50	
	802.11n-HT40 MCS0	38	5190	14.31	15.50	95.68
		46	5230	16.06	17.50	
	802.11ac-VHT20 MCS0	36	5180	16.05	17.50	97.84
		40	5200	16.10	17.50	
		44	5220	16.13	17.50	
		48	5240	16.00	17.50	
	802.11ac-VHT40 MCS0	38	5190	14.24	15.50	96.13
		46	5230	16.02	17.50	
	802.11ac-VHT80 MCS0	42	5210	13.51	14.50	92.65

5.3GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	15.91	17.50	98.03
		56	5280	15.86	17.50	
		60	5300	16.17	17.50	
		64	5320	15.99	17.50	
	802.11n-HT20 MCS0	52	5260	16.13	17.50	98.27
		56	5280	16.11	17.50	
		60	5300	16.10	17.50	
		64	5320	16.21	17.50	
	802.11n-HT40 MCS0	54	5270	16.08	17.50	95.68
		62	5310	14.38	15.50	
	802.11ac-VHT20 MCS0	52	5260	16.08	17.50	97.84
		56	5280	16.08	17.50	
		60	5300	16.02	17.50	
		64	5320	16.18	17.50	
	802.11ac-VHT40 MCS0	54	5270	16.04	17.50	96.13
		62	5310	14.29	15.50	
	802.11ac-VHT80 MCS0	58	5290	13.12	14.00	92.65

5.5GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	14.70	16.00	98.03
		116	5580	14.77	16.00	
		124	5620	14.68	16.00	
		132	5660	14.82	16.00	
		140	5700	14.17	15.50	
		144	5720	14.64	16.00	
	802.11n-HT20 MCS0	100	5500	14.63	16.00	98.27
		116	5580	14.70	16.00	
		124	5620	14.56	16.00	
		132	5660	14.68	16.00	
		140	5700	13.45	14.50	
		144	5720	14.77	16.00	
	802.11n-HT40 MCS0	102	5510	12.36	13.50	95.68
		110	5550	14.67	16.00	
		126	5630	14.84	16.00	
		134	5670	14.87	16.00	
		142	5710	14.76	16.00	
	802.11ac-VHT20 MCS0	100	5500	14.62	16.00	97.84
		116	5580	14.68	16.00	
		124	5620	14.52	16.00	
		132	5660	14.65	16.00	
		140	5700	13.41	14.50	
		144	5720	14.74	16.00	
	802.11ac-VHT40 MCS0	102	5510	12.31	13.50	96.13
		110	5550	14.63	16.00	
		126	5630	14.82	16.00	
		134	5670	14.82	16.00	
		142	5710	14.72	16.00	
	802.11ac-VHT80 MCS0	106	5530	11.17	12.00	92.65
		122	5610	14.71	16.00	
		138	5690	14.69	16.00	

Reduced Power Mode for Sensor on

5.5GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	13.20	14.50	98.03
		116	5580	13.27	14.50	
		124	5620	13.18	14.50	
		132	5660	13.32	14.50	
		140	5700	12.67	14.00	
		144	5720	13.14	14.50	
	802.11n-HT20 MCS0	100	5500	13.13	14.50	98.27
		116	5580	13.20	14.50	
		124	5620	13.06	14.50	
		132	5660	13.18	14.50	
		140	5700	11.95	13.00	
		144	5720	13.27	14.50	
	802.11n-HT40 MCS0	102	5510	10.86	12.00	95.68
		110	5550	13.17	14.50	
		126	5630	13.34	14.50	
		134	5670	13.37	14.50	
		142	5710	13.26	14.50	
	802.11ac-VHT20 MCS0	100	5500	13.12	14.50	97.84
		116	5580	13.18	14.50	
		124	5620	13.02	14.50	
		132	5660	13.15	14.50	
		140	5700	11.91	13.00	
		144	5720	13.24	14.50	
	802.11ac-VHT40 MCS0	102	5510	10.81	12.00	96.13
		110	5550	13.13	14.50	
		126	5630	13.32	14.50	
		134	5670	13.32	14.50	
		142	5710	13.22	14.50	
	802.11ac-VHT80 MCS0	106	5530	9.67	10.50	92.65
		122	5610	13.21	14.50	
		138	5690	13.19	14.50	

Reduced Power Mode for Hotspot on

5.2GHz WLAN				Ant 1		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.11	17.50	98.03
		40	5200	15.86	17.50	
		44	5220	15.93	17.50	
		48	5240	16.12	17.50	
	802.11n-HT20 MCS0	36	5180	16.06	17.50	98.27
		40	5200	16.12	17.50	
		44	5220	16.16	17.50	
		48	5240	16.02	17.50	
	802.11n-HT40 MCS0	38	5190	14.31	15.50	95.68
		46	5230	16.06	17.50	
	802.11ac-VHT20 MCS0	36	5180	16.05	17.50	97.84
		40	5200	16.10	17.50	
		44	5220	16.13	17.50	
		48	5240	16.00	17.50	
	802.11ac-VHT40 MCS0	38	5190	14.24	15.50	96.13
		46	5230	16.02	17.50	
	802.11ac-VHT80 MCS0	42	5210	13.51	14.50	92.65

BT 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	10.00	9.90	9.80	7.30	7.20	7.20	7.30	7.20	7.20	11
	CH 39	2441	**10.40**	10.30	10.30	**7.90**	7.80	7.80	**7.90**	7.80	7.80	
	CH 78	2480	9.50	9.40	9.40	7.20	7.10	7.10	7.20	7.10	7.10	

BT LE

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	5.80
	CH 19	2440	6.60
	CH 39	2480	6.00
Tune-up Limit			7.5