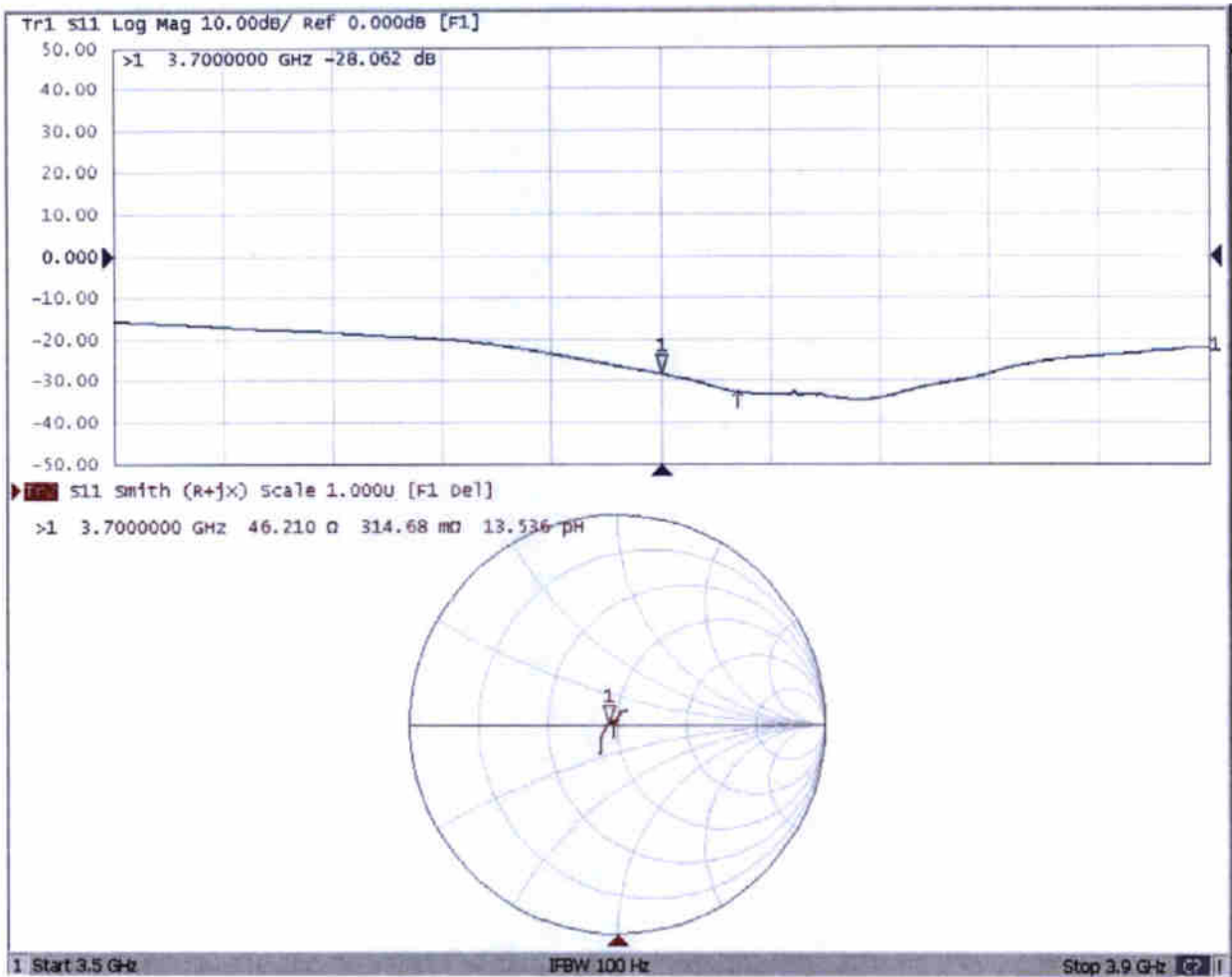




Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
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### Impedance Measurement Plot for Head TSL





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **D3900V2-1048\_May20**

## CALIBRATION CERTIFICATE

Object **D3900V2 - SN:1048**

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

Calibration date: **May 14, 2020**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 5$ )°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: 3503	31-Dec-19 (No. EX3-3503_Dec19)	Dec-20
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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 14, 2020

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



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

Accreditation No.: **SCS 0108**

**Glossary:**

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

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

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

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

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

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



## Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3900 MHz $\pm$ 1 MHz 4100 MHz $\pm$ 1 MHz	

## Head TSL parameters at 3900 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.5	3.32 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	36.4 $\pm$ 6 %	3.21 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

## SAR result with Head TSL at 3900 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>70.2 W/kg <math>\pm</math> 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.4 W/kg <math>\pm</math> 19.5 % (k=2)</b>

## Head TSL parameters at 4100 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.2	3.53 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	36.2 $\pm$ 6 %	3.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

## SAR result with Head TSL at 4100 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>68.9 W/kg <math>\pm</math> 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>23.7 W/kg <math>\pm</math> 19.5 % (k=2)</b>

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL at 3900 MHz

Impedance, transformed to feed point	48.6 $\Omega$ - 3.2 j $\Omega$
Return Loss	- 29.1 dB

### Antenna Parameters with Head TSL at 4100 MHz

Impedance, transformed to feed point	59.7 $\Omega$ + 1.3 j $\Omega$
Return Loss	- 21.0 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.106 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: 14.05.2020

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN:1048**

Communication System: UID 0 - CW; Frequency: 3900 MHz, Frequency: 4100 MHz

Medium parameters used:  $f = 3900$  MHz;  $\sigma = 3.21$  S/m;  $\epsilon_r = 36.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 4100$  MHz;  $\sigma = 3.39$  S/m;  $\epsilon_r = 36.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(7.39, 7.39, 7.39) @ 3900 MHz, ConvF(7.26, 7.26, 7.26) @ 4100 MHz; Calibrated: 31.12.2019
- 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=100 mW, d=10mm, f=3900MHz/Zoom Scan,**

**dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 73.46 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 20.2 W/kg

**SAR(1 g) = 7.03 W/kg; SAR(10 g) = 2.45 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.9 mm

Ratio of SAR at M2 to SAR at M1 = 73.5%

Maximum value of SAR (measured) = 13.8 W/kg

### **Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=4100MHz/Zoom Scan,**

**dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 71.71 V/m; Power Drift = -0.02 dB

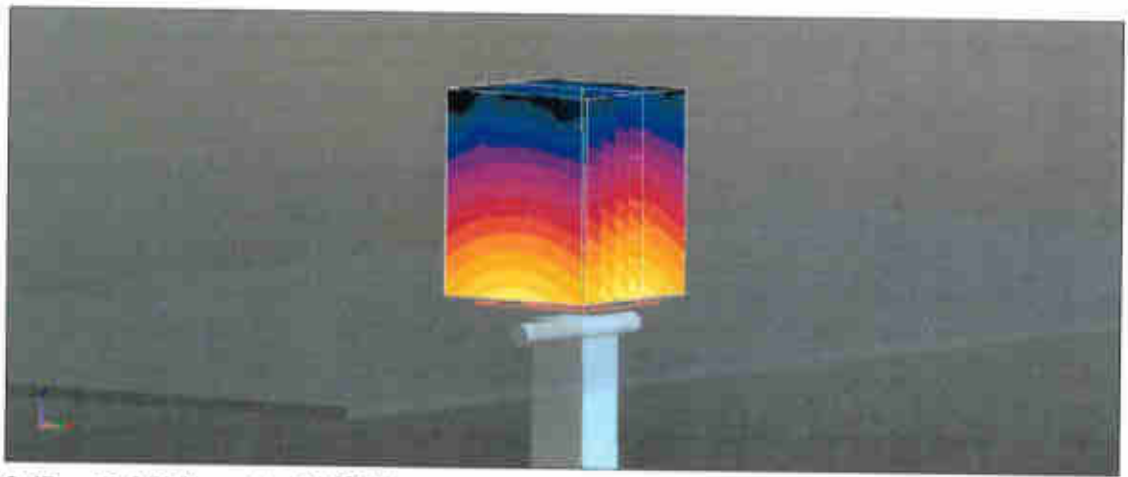
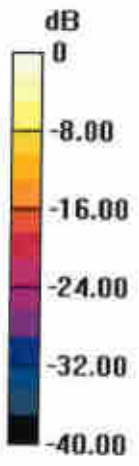
Peak SAR (extrapolated) = 19.8 W/kg

**SAR(1 g) = 6.89 W/kg; SAR(10 g) = 2.39 W/kg**

Smallest distance from peaks to all points 3 dB below = 8 mm

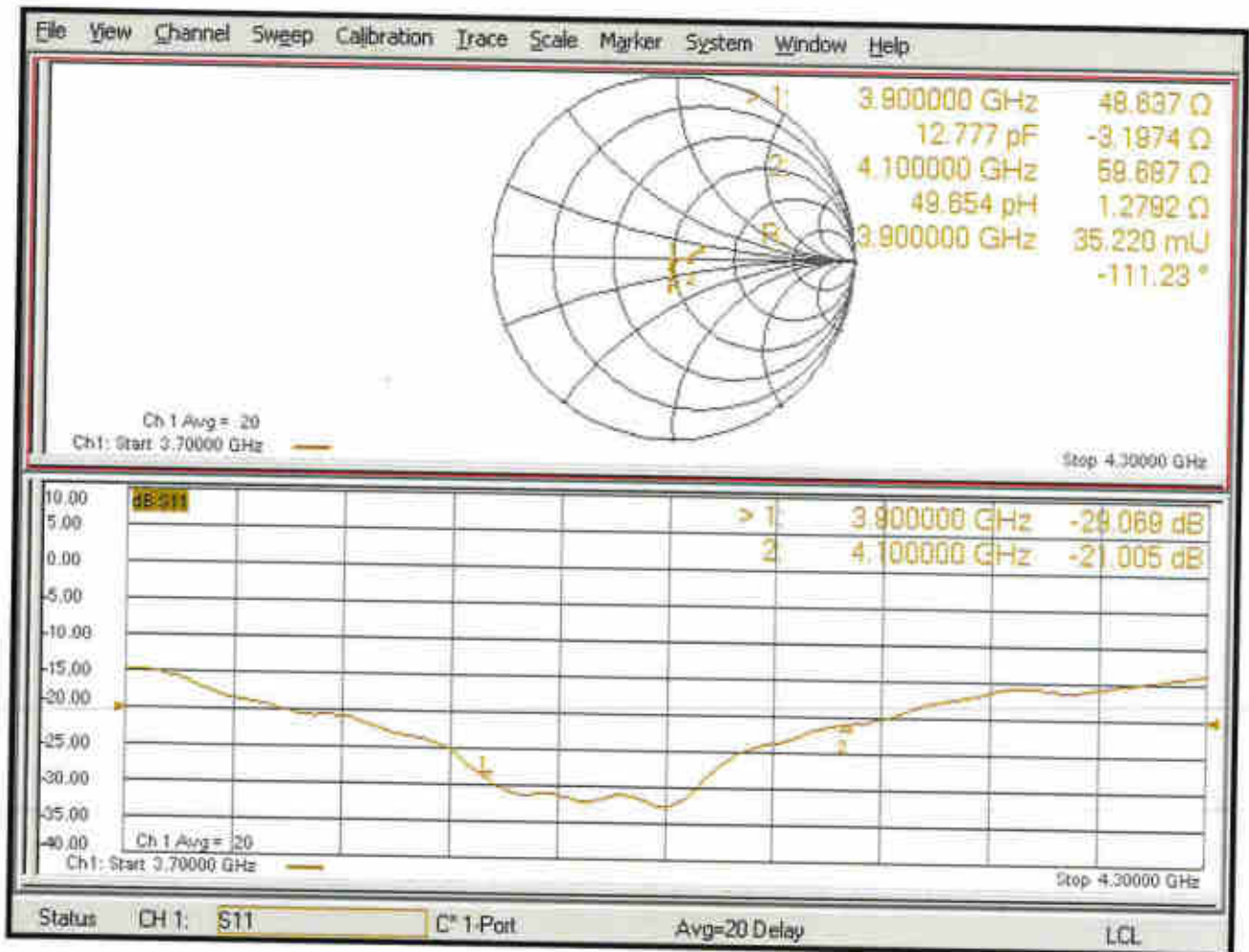
Ratio of SAR at M2 to SAR at M1 = 73.3%

Maximum value of SAR (measured) = 13.8 W/kg



0 dB = 13.8 W/kg = 11.40 dBW/kg

# Impedance Measurement Plot for Head TSL







## D3900V2, Serial No. 1048 Extended Dipole Calibrations

Referring to KDB 865664 D01 v01r04, if dipoles are verified in return loss ( $< -20\text{dB}$ , within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

D3900V2 – serial no. 1048						
3900 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2020.5.14	-29.069		48.637		-3.1974	
2021.5.13	-30.03	-0.03	51.501	-2.86	-2.8249	-0.37
2022.5.13	-28.285	-0.058	49.473	2.028	-2.3186	-0.51

D3900V2 – serial no. 1048						
4100 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2020.5.14	-21.005		59.687		1.2792	
2021.5.13	-22.284	-0.06	58.278	1.41	0.8744	0.40
2022.5.13	-20.924	1.36	60.071	-1.793	-2.7781	3.65

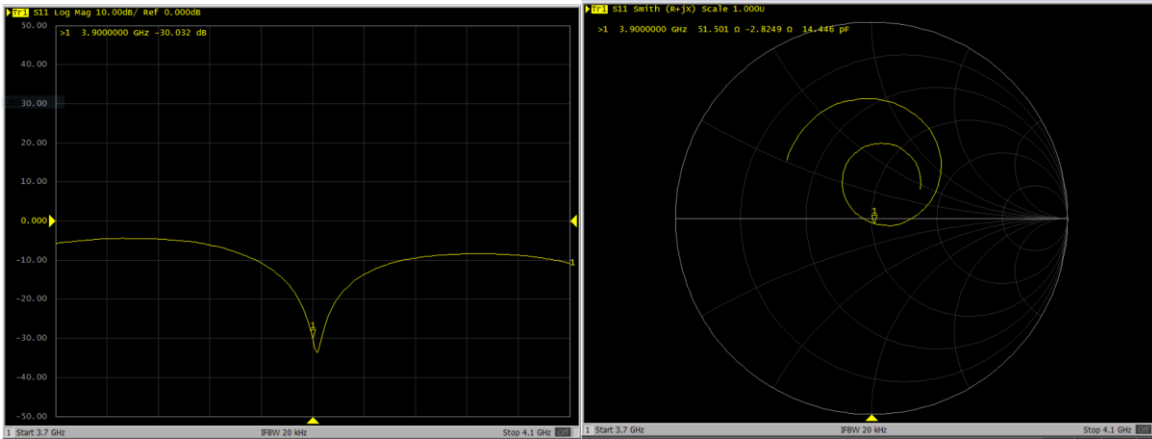
### <Justification of the extended calibration>

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

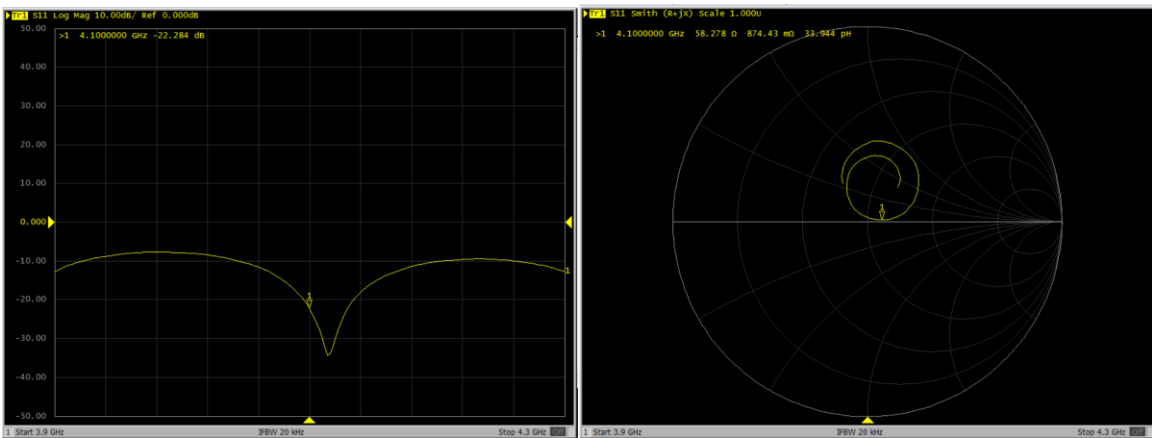


Dipole Verification Data> D3900V2, serial no. 1048

3900MHz – Head - 2021.5.13

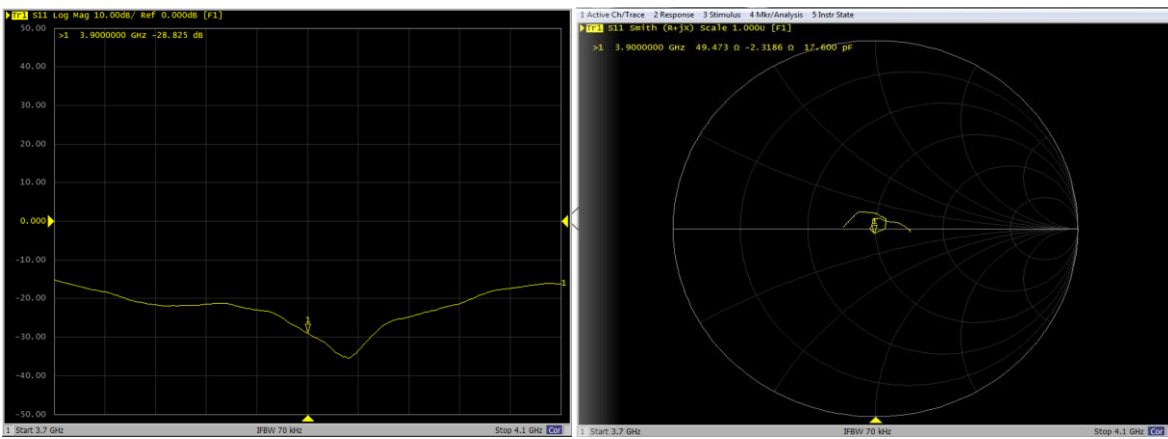


4100MHz – Head - 2021.5.13

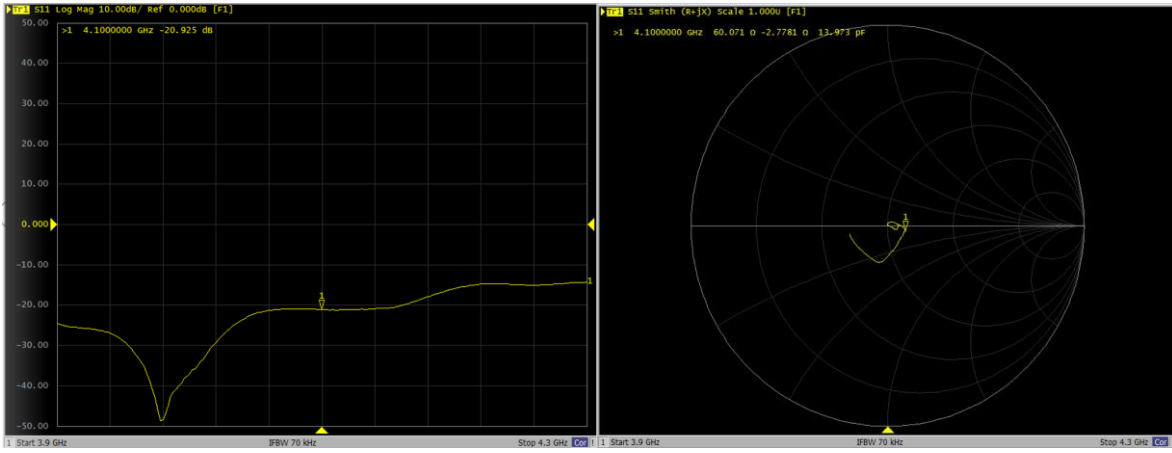


Dipole Verification Data> D3900V2, serial no. 1048

3900MHz – Head - 2022.5.13



## 4100MHz – Head - 2022.5.13





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Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **D5GHzV2-1341\_Dec21**

## CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1341**

Calibration procedure(s) **QA CAL-22.v6  
Calibration Procedure for SAR Validation Sources between 3-10 GHz**

Calibration date: **December 13, 2021**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe EX3DV4	SN: 3503	30-Dec-20 (No. EX3-3503_Dec20)	Dec-21
DAE4	SN: 601	01-Nov-21 (No. DAE4-601_Nov21)	Nov-22

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

Calibrated by: **Jeffrey Katzman**      Name: Jeffrey Katzman      Function: Laboratory Technician

Approved by: **Niels Kuster**      Name: Niels Kuster      Function: Quality Manager

Signature:

Issued: December 14, 2021

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





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

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

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

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

**Additional Documentation:**

- c) DASY System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The source is mounted in a touch configuration below the center marking of the flat phantom.
- *Return Loss:* This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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

## Measurement Conditions

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

<b>DASY Version</b>	DASY52	V52.10.4
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Modular Flat Phantom V5.0	
<b>Distance Dipole Center - TSL</b>	10 mm	with Spacer
<b>Zoom Scan Resolution</b>	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
<b>Frequency</b>	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
<b>Nominal Head TSL parameters</b>	22.0 °C	35.9	4.71 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	34.9 ± 6 %	4.56 mho/m ± 6 %
<b>Head TSL temperature change during test</b>	< 0.5 °C	----	----

## SAR result with Head TSL at 5250 MHz

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	Condition	
SAR measured	100 mW input power	8.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>80.7 W/kg ± 19.9 % (k=2)</b>

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

## Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	35.5	5.07 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	34.4 ± 6 %	4.91 mho/m ± 6 %
<b>Head TSL temperature change during test</b>	< 0.5 °C	----	----

## SAR result with Head TSL at 5600 MHz

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	Condition	
SAR measured	100 mW input power	8.52 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>84.5 W/kg ± 19.9 % (k=2)</b>

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b>	condition	
SAR measured	100 mW input power	2.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.0 W/kg ± 19.5 % (k=2)</b>

### 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	34.2 ± 6 %	5.06 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>80.6 W/kg ± 19.9 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>22.7 W/kg ± 19.5 % (k=2)</b>

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	48.4 $\Omega$ + 0.1 j $\Omega$
Return Loss	- 35.7 dB

### Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	53.8 $\Omega$ + 7.2 j $\Omega$
Return Loss	- 22.2 dB

### Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	51.4 $\Omega$ + 5.0 j $\Omega$
Return Loss	- 25.8 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.211 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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

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

### Additional EUT Data

Manufactured by	SPEAG
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## DASY5 Validation Report for Head TSL

Date: 13.12.2021

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1341**

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.56$  S/m;  $\epsilon_r = 34.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 4.91$  S/m;  $\epsilon_r = 34.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.06$  S/m;  $\epsilon_r = 34.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.5, 5.5, 5.5) @ 5250 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.08, 5.08, 5.08) @ 5750 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 01.11.2021
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan,**

**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 77.28 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 27.0 W/kg

**SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.33 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.4 mm

Ratio of SAR at M2 to SAR at M1 = 71.5%

Maximum value of SAR (measured) = 18.5 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan,**

**dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 77.67 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 30.9 W/kg

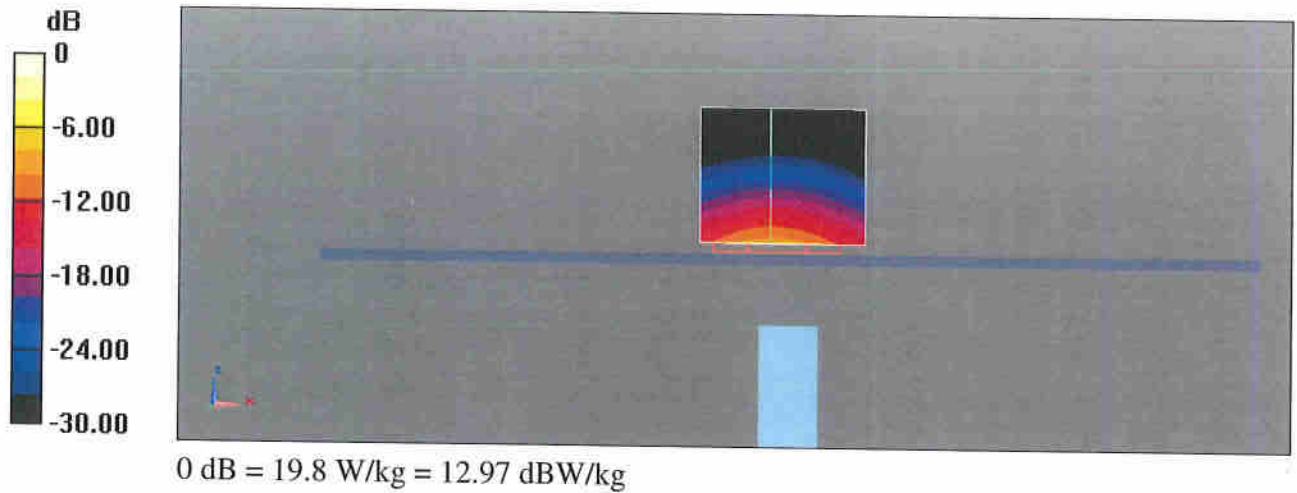
**SAR(1 g) = 8.52 W/kg; SAR(10 g) = 2.42 W/kg**

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

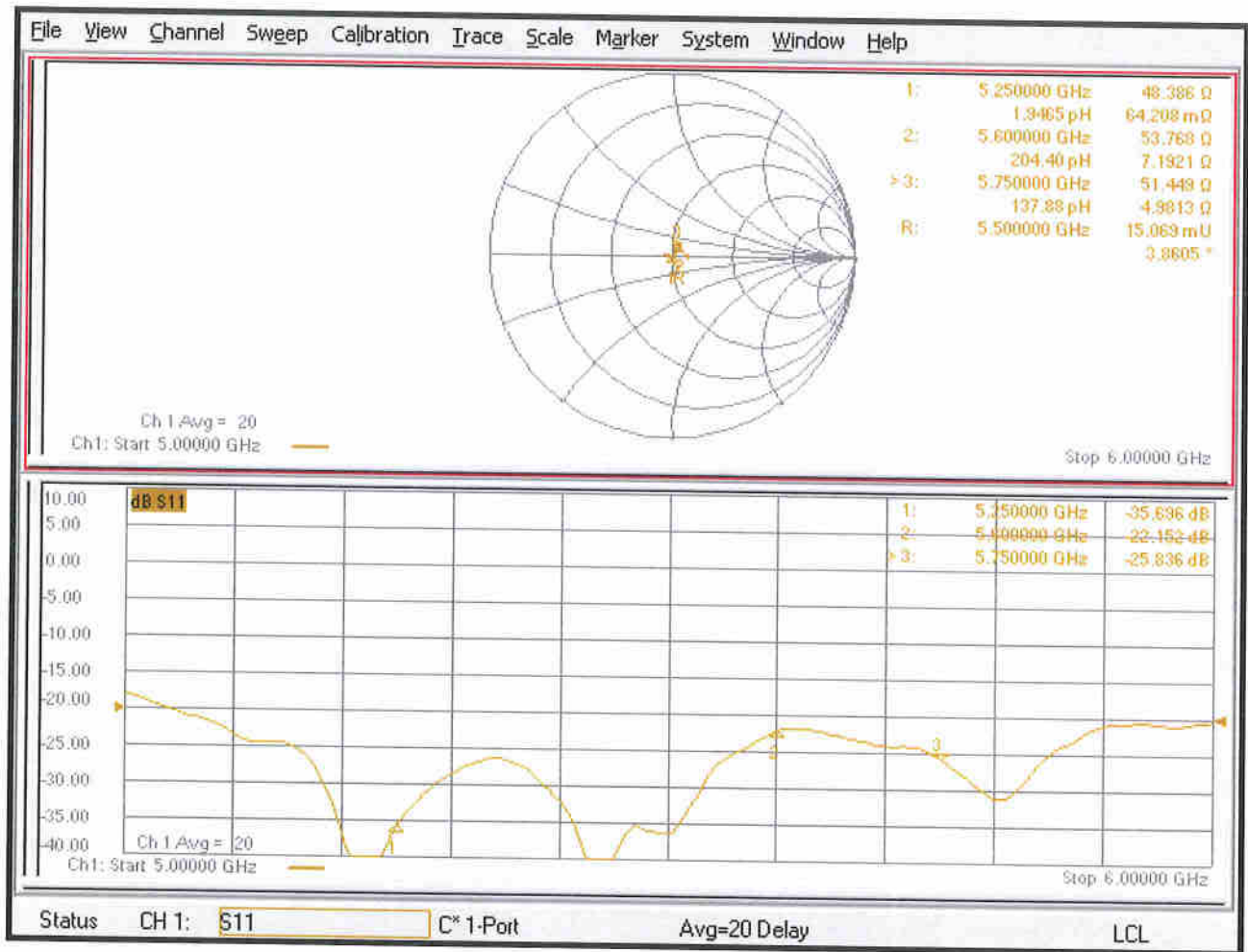
Ratio of SAR at M2 to SAR at M1 = 68.6%

Maximum value of SAR (measured) = 20.2 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 74.44 V/m; Power Drift = -0.00 dB  
Peak SAR (extrapolated) = 31.2 W/kg  
**SAR(1 g) = 8.13 W/kg; SAR(10 g) = 2.29 W/kg**  
Smallest distance from peaks to all points 3 dB below = 7.4 mm  
Ratio of SAR at M2 to SAR at M1 = 66.7%  
Maximum value of SAR (measured) = 19.8 W/kg



# Impedance Measurement Plot for Head TSL





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Client : **Sporton**

Certificate No: **Z21-60491**

## CALIBRATION CERTIFICATE

Object: **DAE4 - SN: 715**

Calibration Procedure(s): **FF-Z11-002-01**  
Calibration Procedure for the Data Acquisition Electronics (DAEx)

Calibration date: **December 29, 2021**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	15-Jun-21 (CTTL, No.J21X04465)	Jun-22

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

Issued: December 31, 2021

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





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### **Glossary:**

DAE

data acquisition electronics

Connector angle

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

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

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

### DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 $\mu$ V, 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	405.122 $\pm$ 0.15% (k=2)	404.671 $\pm$ 0.15% (k=2)	404.495 $\pm$ 0.15% (k=2)
Low Range	3.99094 $\pm$ 0.7% (k=2)	3.97897 $\pm$ 0.7% (k=2)	3.97797 $\pm$ 0.7% (k=2)

### Connector Angle

Connector Angle to be used in DASY system	330.5 $^{\circ}$ $\pm$ 1 $^{\circ}$
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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

**EX-3819\_May22**

**CALIBRATION CERTIFICATE**

Object

**EX3DV4 - SN:3819**

Calibration procedure(s)

**QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v6, QA CAL-23.v5,  
QA CAL-25.v7  
Calibration procedure for dosimetric E-field probes**

Calibration date

**May 30, 2022**

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	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
OCP DAK-3.5 (weighted)	SN: 1249	20-Oct-21 (OCP-DAK3.5-1249_Oct21)	Oct-22
OCP DAK-12	SN: 1016	20-Oct-21 (OCP-DAK12-1016_Oct21)	Oct-22
Reference 20 dB Attenuator	SN: CC2552 (20x)	04-Apr-22 (No. 217-03527)	Apr-23
DAE4	SN: 660	13-Oct-21 (No. DAE4-660_Oct21)	Oct-22
Reference Probe ES3DV2	SN: 3013	27-Dec-21 (No. ES3-3013_Dec21)	Dec-22

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by	Leif Klysner	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: June 9, 2022

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## Calibration Laboratory of

Schmid & Partner  
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
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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

## Glossary

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

## Calibration is Performed According to the Following Standards:

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

## Methods Applied and Interpretation of Parameters:

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



## Parameters of Probe: EX3DV4 - SN:3819

### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ( $k = 2$ )
Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.46	0.41	0.45	$\pm 10.1\%$
DCP (mV) <sup>B</sup>	105.0	103.0	105.2	$\pm 4.7\%$

### Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc <sup>E</sup> $k = 2$
0	CW	X	0.00	0.00	1.00	0.00	152.4	$\pm 2.7\%$	$\pm 4.7\%$
		Y	0.00	0.00	1.00		169.3		
		Z	0.00	0.00	1.00		155.1		

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

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Linearization parameter uncertainty for maximum specified field strength.

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

**Parameters of Probe: EX3DV4 - SN:3819****Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle	-65.5°
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

**Note:** Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

## Parameters of Probe: EX3DV4 - SN:3819

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity <sup>F</sup> (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unc (k = 2)
750	41.9	0.89	9.82	9.82	9.82	0.45	0.92	±12.0%
835	41.5	0.90	9.51	9.51	9.51	0.55	0.80	±12.0%
900	41.5	0.97	9.42	9.42	9.42	0.53	0.80	±12.0%
1750	40.1	1.37	8.57	8.57	8.57	0.33	0.86	±12.0%
1900	40.0	1.40	8.32	8.32	8.32	0.24	0.86	±12.0%
2000	40.0	1.40	8.14	8.14	8.14	0.29	0.86	±12.0%
2300	39.5	1.67	7.76	7.76	7.76	0.35	0.90	±12.0%
2450	39.2	1.80	7.57	7.57	7.57	0.29	0.90	±12.0%
2600	39.0	1.96	7.39	7.39	7.39	0.32	0.90	±12.0%
3300	38.2	2.71	6.92	6.92	6.92	0.20	1.20	±14.0%
3500	37.9	2.91	6.78	6.78	6.78	0.25	1.20	±14.0%
3700	37.7	3.12	6.72	6.72	6.72	0.25	1.25	±14.0%
3900	37.5	3.32	6.60	6.60	6.60	0.30	1.60	±14.0%
4100	37.2	3.53	6.47	6.47	6.47	0.30	1.60	±14.0%
4400	36.9	3.84	6.12	6.12	6.12	0.30	1.60	±14.0%
4600	36.7	4.04	6.10	6.10	6.10	0.30	1.70	±14.0%
4800	36.4	4.25	6.09	6.09	6.09	0.40	1.80	±14.0%
4950	36.3	4.40	5.97	5.97	5.97	0.40	1.80	±14.0%
5250	35.9	4.71	5.07	5.07	5.07	0.40	1.80	±14.0%
5600	35.5	5.07	4.55	4.55	4.55	0.40	1.80	±14.0%
5750	35.4	5.22	4.65	4.65	4.65	0.40	1.80	±14.0%

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

<sup>F</sup> At frequencies up to 6 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) 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.

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

## Parameters of Probe: EX3DV4 - SN:3819

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity <sup>F</sup> (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unc (k = 2)
6500	34.5	6.07	5.50	5.50	5.50	0.20	2.50	±18.6%

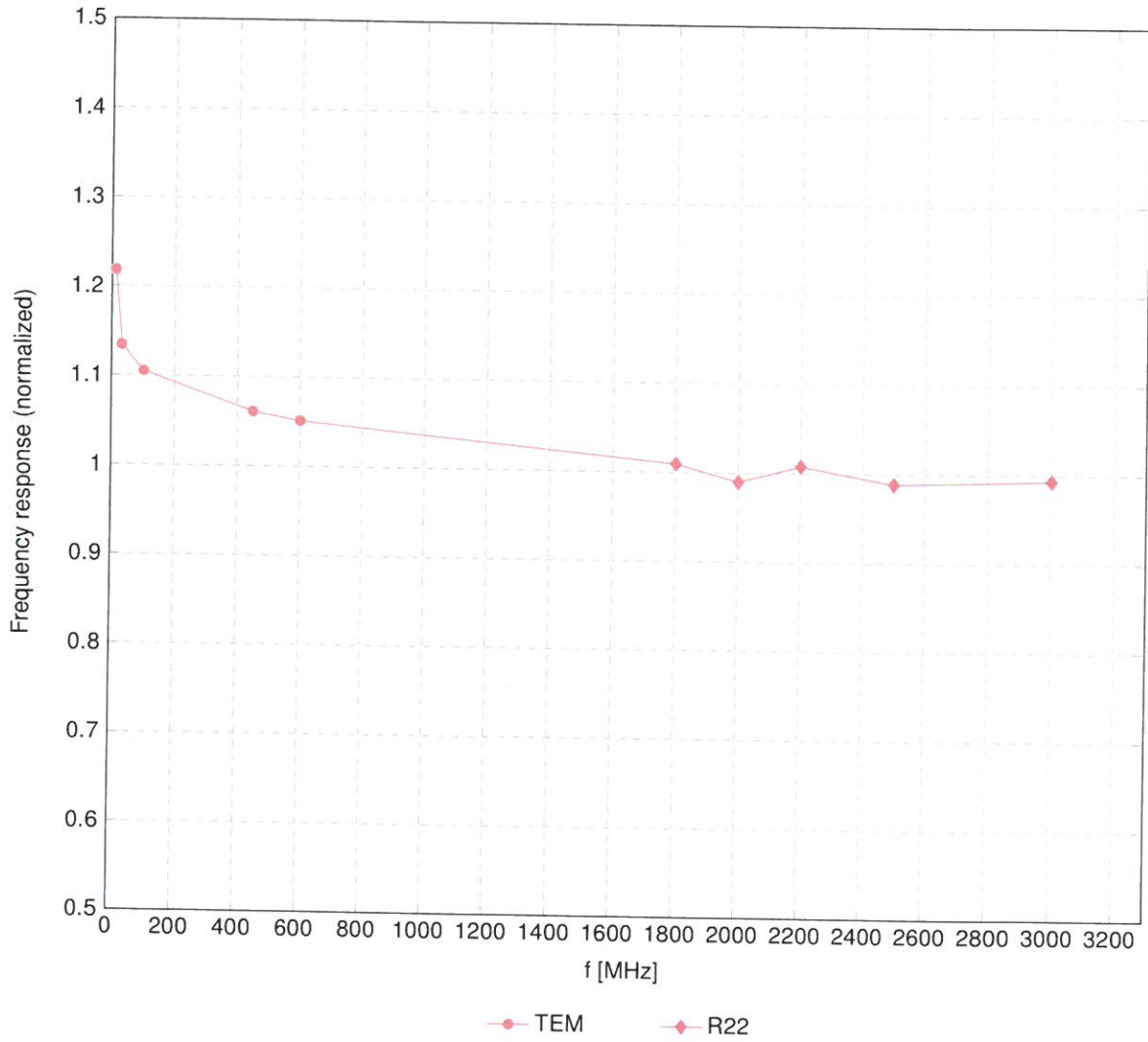
<sup>C</sup> Frequency validity at 6.5 GHz is -600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies 6–10 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) 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.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

### Frequency Response of E-Field

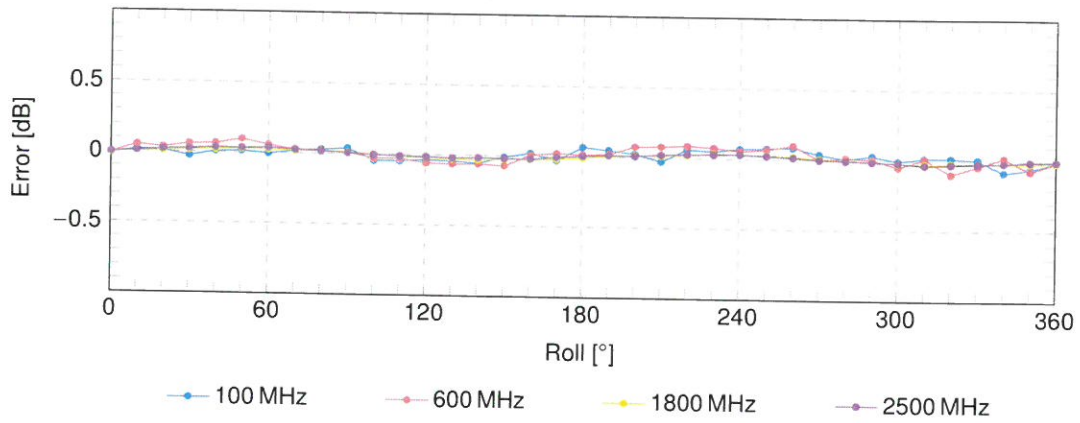
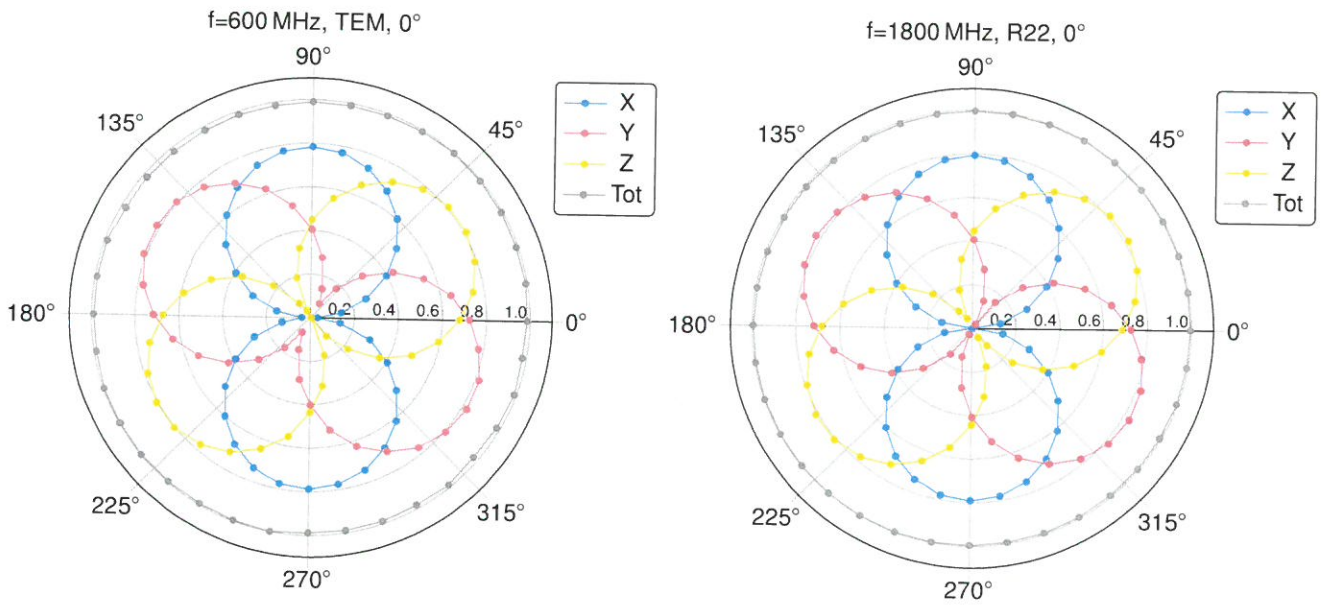
(TEM-Cell:ifi110 EXX, Waveguide:R22)



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



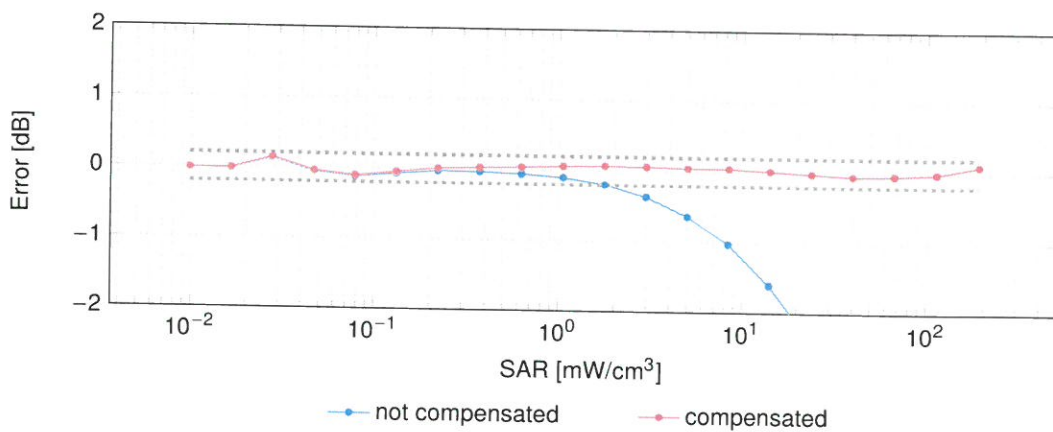
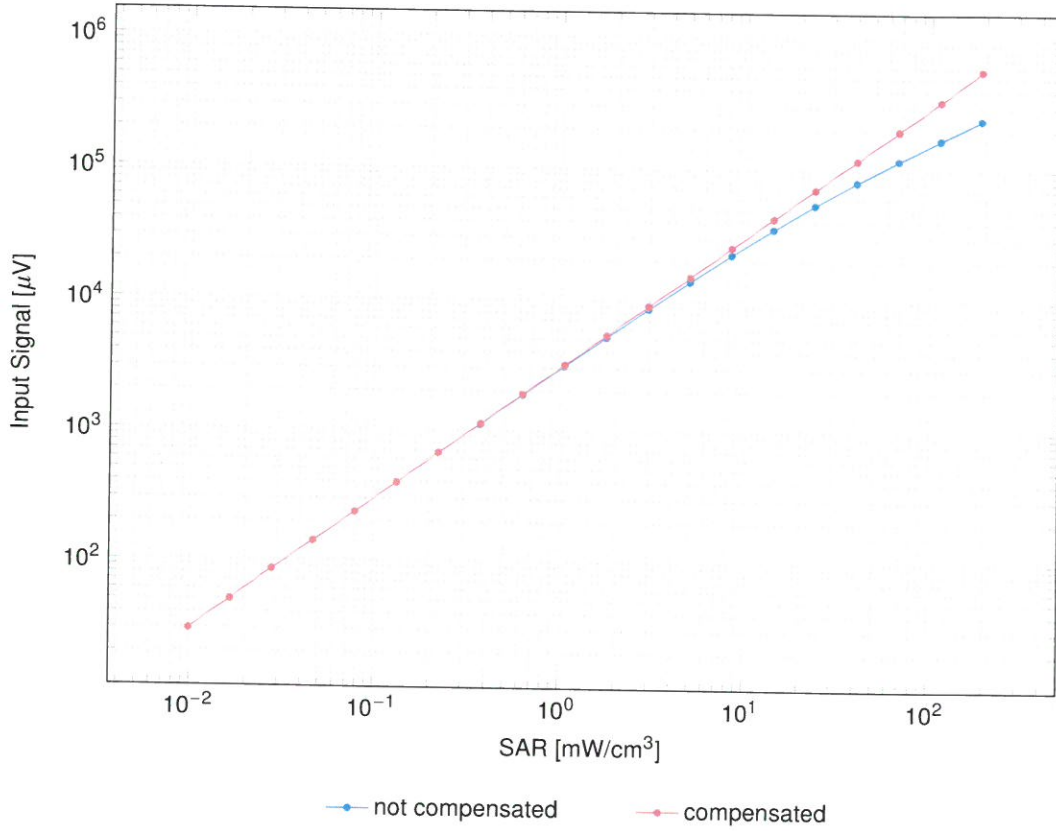
### Receiving Pattern ( $\phi$ ), $\vartheta = 0^\circ$



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

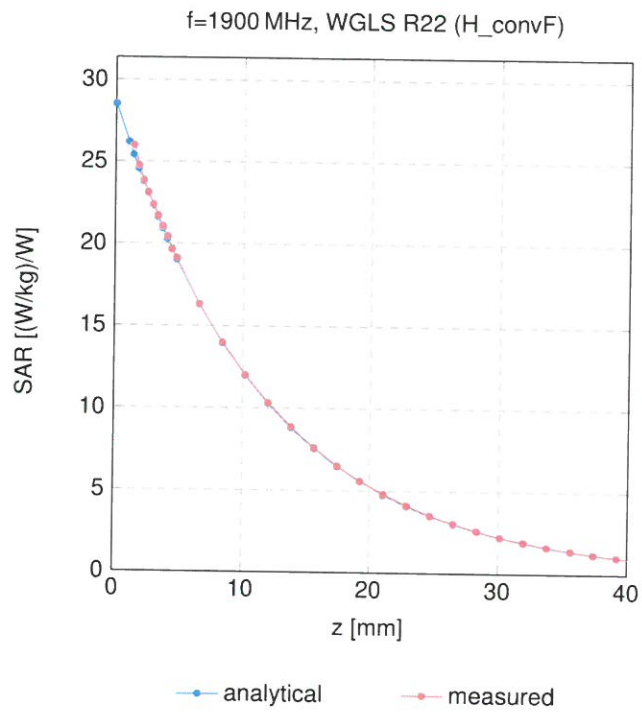
### Dynamic Range $f(\text{SAR}_{\text{head}})$

(TEM cell,  $f_{\text{eval}} = 1900\text{MHz}$ )



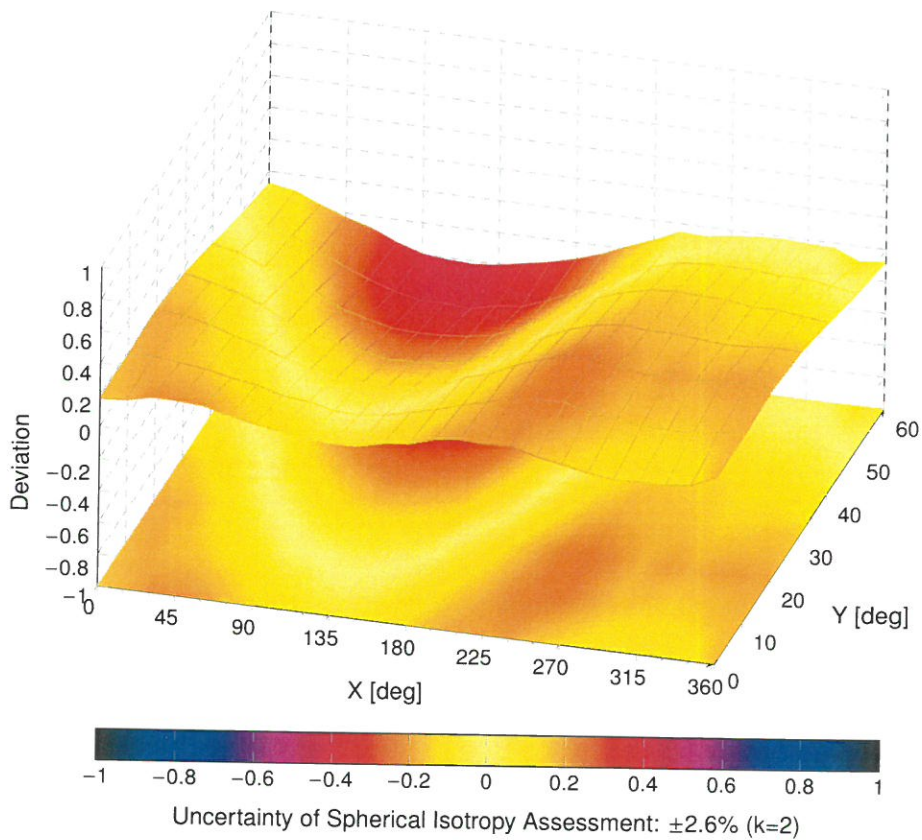
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

### Conversion Factor Assessment



### Deviation from Isotropy in Liquid

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





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

The detailed power table are shown as follows.



### Full Power for WWAN

GSM850_Ant11	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	152	159	251		152	159	251	
TX Channel	834.2	836.4	848.8	834.2	836.4	848.8	834.2	836.4
Frequency (MHz)	834.2	836.4	848.8	834.2	836.4	848.8	834.2	836.4
GSM 1 Tx slot	32.09	32.20	32.22	33.50	33.09	33.20	33.22	34.50
GPRS 1 Tx slot	32.08	32.17	32.21	33.50	33.08	33.17	33.21	34.50
GPRS 2 Tx slots	30.33	30.34	30.32	31.50	24.33	24.34	24.32	25.50
GPRS 3 Tx slots	28.13	28.13	28.12	29.50	23.87	23.87	23.86	25.24
GPRS 4 Tx slots	26.44	26.45	26.52	28.00	23.44	23.45	23.52	25.00
EDGE 1 Tx slot	27.00	27.04	28.93	28.00	18.00	18.04	17.93	19.00
EDGE 2 Tx slots	24.42	24.51	24.45	25.70	18.42	18.51	18.45	19.70
EDGE 3 Tx slots	22.15	22.25	22.30	23.50	17.89	17.99	18.04	18.24
EDGE 4 Tx slots	20.30	20.31	20.28	21.70	17.30	17.31	17.28	18.70

GSM1900_Ant1	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
TX Channel	1850.2	1880	1909.8	1850.2	1880	1909.8	1850.2	1880
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1850.2	1880
GSM 1 Tx slot	30.01	30.13	29.92	30.50	21.01	21.13	20.92	21.50
GPRS 1 Tx slot	29.96	30.12	29.90	30.50	20.96	21.12	20.90	21.50
GPRS 2 Tx slots	27.70	27.85	27.74	28.30	21.70	21.85	21.71	22.30
GPRS 3 Tx slots	25.45	25.64	25.48	26.00	21.16	21.38	21.22	21.74
GPRS 4 Tx slots	23.76	23.94	23.78	24.50	20.76	20.94	20.78	21.50
EDGE 1 Tx slot	25.47	25.51	25.18	26.50	16.47	16.51	16.18	17.50
EDGE 2 Tx slots	23.51	23.60	23.22	24.50	17.51	17.60	17.22	18.50
EDGE 3 Tx slots	21.38	21.42	21.30	22.70	17.12	17.16	17.04	18.44
EDGE 4 Tx slots	20.10	20.05	19.84	21.20	17.10	17.05	16.84	18.20

GSM850_Ant11	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	152	159	251		152	159	251	
TX Channel	834.2	836.4	848.8	834.2	836.4	848.8	834.2	836.4
Frequency (MHz)	834.2	836.4	848.8	834.2	836.4	848.8	834.2	836.4
GSM 1 Tx slot	32.08	32.12	32.20	33.50	33.08	33.12	33.20	34.50
GPRS 1 Tx slot	32.05	32.11	32.15	33.50	33.05	33.11	33.15	34.50
GPRS 2 Tx slots	30.21	30.27	30.26	31.50	24.21	24.27	24.26	25.50
GPRS 3 Tx slots	28.09	28.09	28.14	29.50	23.83	23.83	23.88	25.24
GPRS 4 Tx slots	26.33	26.35	26.45	28.00	23.33	23.35	23.45	25.00
EDGE 1 Tx slot	26.70	26.72	26.84	28.00	17.70	17.72	17.84	19.00
EDGE 2 Tx slots	24.34	24.42	24.33	25.70	18.34	18.42	18.33	19.70
EDGE 3 Tx slots	22.15	22.21	22.16	23.50	17.89	17.95	17.90	18.24
EDGE 4 Tx slots	20.34	20.33	20.25	21.70	17.34	17.33	17.25	18.70

GSM1900_Ant14	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
TX Channel	1850.2	1880	1909.8	1850.2	1880	1909.8	1850.2	1880
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1850.2	1880
GSM 1 Tx slot	29.85	29.86	29.78	30.50	20.85	20.88	20.78	21.50
GPRS 1 Tx slot	29.80	29.85	29.72	30.50	20.80	20.85	20.72	21.50
GPRS 2 Tx slots	27.53	27.66	27.46	28.30	21.53	21.60	21.46	22.30
GPRS 3 Tx slots	25.35	25.40	25.39	26.00	21.09	21.14	21.13	21.74
GPRS 4 Tx slots	23.70	23.78	23.82	24.50	20.70	20.78	20.82	21.50
EDGE 1 Tx slot	25.26	25.35	25.18	26.50	16.26	16.35	16.18	17.50
EDGE 2 Tx slots	23.67	23.66	23.43	24.50	17.67	17.66	17.43	18.50
EDGE 3 Tx slots	21.84	21.82	21.85	22.70	17.58	17.56	17.59	18.44
EDGE 4 Tx slots	20.26	20.36	20.25	21.20	17.26	17.36	17.25	18.20

Band	WCDMA I_Ant1			Tune-up Limit (dBm)	WCDMA I_Ant1			Tune-up Limit (dBm)	WCDMA V_Ant1			Tune-up Limit (dBm)
	9262	9400	9538		1312	1413	1513		4132	4182	4233	
TX Channel	9662	9660	9638	9662	9660	9638	9662	9660	9638	9662	9660	9638
Frequency (MHz)	1852.4	1880	1907.6	1852.4	1880	1907.6	1852.4	1880	1907.6	1852.4	1880	1907.6
3GPP Rel 99 AMR 12.2kops	22.50	22.54	22.48	24.00	24.25	24.41	24.33	25.50	23.63	23.68	23.62	25.00
3GPP Rel 99 RMC 12.2kops	22.55	22.59	22.47	24.00	24.26	24.42	24.35	25.50	23.66	23.70	23.68	25.00
3GPP Rel 6 HSDPA Subtest-1	21.35	21.50	21.40	23.00	23.06	23.24	23.08	24.50	22.60	22.70	22.61	24.00
3GPP Rel 6 HSDPA Subtest-2	21.48	21.47	21.41	23.00	23.12	23.25	23.25	24.50	22.72	22.74	22.72	24.00
3GPP Rel 6 HSDPA Subtest-3	20.95	21.03	20.86	22.50	22.63	22.81	22.66	24.00	22.15	22.21	22.15	23.50
3GPP Rel 6 HSDPA Subtest-4	20.81	21.00	20.95	22.50	22.74	22.77	22.73	24.00	22.09	22.18	22.18	23.50
3GPP Rel 6 DC-HSDPA Subtest-1	21.30	21.35	21.35	23.00	23.01	23.18	23.03	24.50	22.46	22.56	22.47	24.00
3GPP Rel 6 DC-HSDPA Subtest-2	21.44	21.40	21.39	23.00	23.10	23.15	23.23	24.50	22.72	22.62	22.72	24.00
3GPP Rel 6 DC-HSDPA Subtest-3	20.84	20.89	20.75	22.50	22.82	22.75	22.85	24.00	21.98	22.05	21.98	23.50
3GPP Rel 6 DC-HSDPA Subtest-4	20.87	20.96	20.81	22.50	22.88	22.80	22.87	24.00	22.06	22.03	22.15	23.50
3GPP Rel 6 HSUPA Subtest-1	20.43	20.45	20.27	22.00	21.52	21.61	21.54	22.50	20.87	20.88	20.82	22.00
3GPP Rel 6 HSUPA Subtest-2	20.29	20.47	20.43	22.00	21.33	21.38	21.40	22.50	20.65	20.72	20.67	22.00
3GPP Rel 6 HSUPA Subtest-3	21.39	21.50	21.48	23.00	22.41	22.43	22.36	23.50	21.75	21.75	21.60	23.00
3GPP Rel 6 HSUPA Subtest-4	19.97	20.04	19.94	21.50	21.00	21.00	20.95	22.00	20.34	20.35	20.20	22.00
3GPP Rel 6 HSUPA Subtest-5	21.33	21.50	21.31	23.00	22.44	22.43	22.30	23.50	21.57	21.70	21.55	23.00
3GPP Rel 7 HSPA+ (16QAM) Subtest-1	21.03	21.11	21.07	22.00	21.52	21.60	21.55	22.50	21.10	21.13	21.05	22.00

Band	WCDMA I_Ant14			Tune-up Limit (dBm)	WCDMA V_Ant14			Tune-up Limit (dBm)	WCDMA V_Ant11			Tune-up Limit (dBm)
	9262	9400	9538		1312	1413	1513		4132	4182	4233	
TX Channel	9662	9660	9638	9662	9660	9638	9662	9660	9638	9662	9660	9638
Frequency (MHz)	1852.4	1880	1907.6	1852.4	1880	1907.6	1852.4	1880	1907.6	1852.4	1880	1907.6
3GPP Rel 99 AMR 12.2kops	22.44	22.55	22.46	24.00	24.25	24.30	24.22	25.50	23.65	23.70	23.65	25.00
3GPP Rel 99 RMC 12.2kops	22.48	22.55	22.50	24.00	24.28	24.33	24.30	25.50	23.72	23.67	23.67	25.00
3GPP Rel 6 HSDPA Subtest-1	21.52	21.57	21.51	23.00	23.22	23.28	23.17	24.50	22.83	22.68	22.62	24.00
3GPP Rel 6 HSDPA Subtest-2	21.48	21.56	21.46	23.00	23.16	23.26	23.26	24.50	22.50	22.62	22.51	24.00
3GPP Rel 6 HSDPA Subtest-3	21.00	21.06	20.99	22.50	22.68	22.80	22.65	24.00	22.16	22.19	22.03	23.50
3GPP Rel 6 HSDPA Subtest-4	21.03	21.05	20.94	22.50	22.72	22.76	22.72	24.00	22.04	22.16	22.04	23.50
3GPP Rel 6 DC-HSDPA Subtest-1	21.33	21.52	21.32	23.00	23.09	23.28	23.04	24.50	22.57	22.65	22.56	24.00
3GPP Rel 6 DC-HSDPA Subtest-2	21.39	21.40	21.39	23.00	23.01	23.23	23.11	24.50	22.36	22.44	22.36	24.00
3GPP Rel 6 DC-HSDPA Subtest-3	20.97	20.94	20.96	22.50	22.65	22.71	22.62	24.00	22.04	22.16	21.91	23.50
3GPP Rel 6 DC-HSDPA Subtest-4	21.02	20.87	20.93	22.50	22.81	22.74	22.81	24.00	22.04	22.08	22.04	23.50
3GPP Rel 6 HSUPA Subtest-1	20.46	20.62	20.47	22.00	21.23	21.24	21.24	22.50	20.43	20.62	20.57	22.00
3GPP Rel 6 HSUPA Subtest-2	20.53	20.61	20.50	22.00	21.08	21.22	21.16	22.50	20.58	20.59	20.44	22.00
3GPP Rel 6 HSUPA Subtest-3	21.83	21.85	21.80	23.00	22.21	22.29	22.24	23.50	21.57	21.67	21.49	23.00
3GPP Rel 6 HSUPA Subtest-4	20.03	20.20	20.06	21.50	20.73	20.83	20.74	22.00	20.09	20.14	20.04	22.00
3GPP Rel 6 HSUPA Subtest-5	21.58	21.80	21.47	23.00	22.20	22.20	22.03	23.50	21.43	21.50	21.48	23.00
3GPP Rel 7 HSPA+ (16QAM) Subtest-1	21.13	21.15	21.20	22.00	21.45	21.50	21.60	22.50	21.01	21.05	21.10	22.00







Band 5_Ant11										
BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. / Freq.	Power Ch. / Freq.	Power Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
10	QPSK	1	0	23.37	23.52	23.52				
10	QPSK	1	25	23.51	23.56	23.49	24.8	0		
10	QPSK	1	49	23.60	23.47	23.51				
10	QPSK	25	0	22.67	22.58	22.44				
10	QPSK	25	12	22.48	22.50	22.53				
10	QPSK	25	25	22.41	22.52	22.49	23.8	1		
10	QPSK	25	37	22.51	22.50	22.53				
10	HQAM	1	0	22.75	22.84	22.71				
10	HQAM	1	25	22.72	22.72	22.68	23.8	1		
10	HQAM	1	49	22.74	22.68	22.70				
10	HQAM	1	25	21.49	21.53	21.52				
10	HQAM	25	12	21.49	21.54	21.52	22.8	2		
10	HQAM	25	25	21.44	21.61	21.53				
10	HQAM	50	0	21.43	21.51	21.53				
10	HQAM	1	0	21.33	21.46	21.31				
10	HQAM	1	25	21.36	21.79	21.78	22.8	2		
10	HQAM	1	49	21.28	21.80	21.83				
10	HQAM	25	0	20.70	20.81	20.70				
10	HQAM	25	12	20.62	20.60	20.67	21.8	3		
10	HQAM	25	25	20.51	20.71	20.61				
10	HQAM	50	0	20.43	20.71	20.64				
Channel										
Frequency (MHz)										
5	QPSK	1	0	23.37	23.36	23.30				
5	QPSK	1	12	23.37	23.40	23.30	24.8	0		
5	QPSK	12	0	23.38	23.35	23.45				
5	QPSK	12	6	23.34	22.41	22.51				
5	QPSK	12	7	22.25	22.38	22.40	23.8	1		
5	QPSK	12	14	22.38	22.38	22.45				
5	QPSK	25	0	22.37	22.38	22.38				
5	HQAM	1	0	22.79	22.74	22.86				
5	HQAM	1	12	22.69	22.90	22.72	23.8	1		
5	HQAM	12	0	21.27	21.36	21.36				
5	HQAM	12	6	21.27	21.38	21.50	22.8	2		
5	HQAM	12	7	21.34	21.31	21.32				
5	HQAM	25	0	21.23	21.31	21.39				
5	HQAM	1	0	21.11	21.43	21.41	22.8	2		
5	HQAM	1	12	21.48	21.60	21.71				
5	HQAM	12	0	20.45	20.64	20.79				
5	HQAM	12	6	20.45	20.64	20.79				
5	HQAM	12	7	20.53	20.55	20.53	21.8	3		
5	HQAM	25	0	20.42	20.54	20.50				
5	HQAM	25	0	20.42	20.54	20.50				
Channel										
Frequency (MHz)										
3	QPSK	1	0	23.37	23.36	23.30				
3	QPSK	1	6	23.27	23.36	23.31	24.8	0		
3	QPSK	1	14	23.28	23.34	23.38				
3	QPSK	8	0	22.32	22.38	22.45				
3	QPSK	8	4	22.29	22.42	22.41				
3	QPSK	8	7	22.28	22.41	22.45	23.8	1		
3	QPSK	16	0	22.29	22.33	22.44				
3	HQAM	1	0	22.32	22.41	22.49				
3	HQAM	1	13	22.41	22.71	22.49	23.8	1		
3	HQAM	1	14	22.63	22.84	22.42				
3	HQAM	8	0	21.38	21.29	21.51				
3	HQAM	8	4	21.40	21.47	21.46	22.8	2		
3	HQAM	8	7	21.34	21.50	21.48				
3	HQAM	16	0	21.29	21.26	21.39				
3	HQAM	1	0	21.12	21.36	21.68				
3	HQAM	1	13	21.31	21.62	21.63	22.8	2		
3	HQAM	1	14	21.29	21.61	21.27				
3	HQAM	8	0	20.44	20.44	20.56				
3	HQAM	8	4	20.45	20.67	20.59				
3	HQAM	8	7	20.55	20.67	20.63	21.8	3		
3	HQAM	16	0	20.42	20.53	20.63				
Channel										
Frequency (MHz)										
1.4	QPSK	1	0	23.21	23.37	23.38				
1.4	QPSK	1	3	23.22	23.35	23.32				
1.4	QPSK	1	5	23.26	23.22	23.01	24.8	0		
1.4	QPSK	3	0	23.40	23.32	23.27				
1.4	QPSK	3	1	23.39	23.21	23.33				
1.4	QPSK	3	3	23.39	23.09	23.24				
1.4	QPSK	6	0	22.68	22.22	22.24	23.8	1		
1.4	QPSK	6	0	22.68	22.22	22.24				
1.4	HQAM	1	0	22.48	22.51	22.07				
1.4	HQAM	1	3	22.56	22.05	22.16	23.8	1		
1.4	HQAM	3	0	22.31	22.30	22.26				
1.4	HQAM	3	1	22.31	22.16	22.33				
1.4	HQAM	3	3	22.33	22.15	22.13				
1.4	HQAM	6	0	21.27	21.08	21.19	22.8	2		
1.4	HQAM	6	0	21.27	21.39	21.45				
1.4	HQAM	1	3	21.48	20.36	21.15				
1.4	HQAM	1	5	21.57	21.18	21.18	22.8	2		
1.4	HQAM	3	0	21.33	21.30	21.38				
1.4	HQAM	3	1	21.09	21.33	21.43				
1.4	HQAM	3	3	21.40	21.34	21.30				
1.4	HQAM	6	0	20.38	20.33	20.33	21.8	3		

Band 5_Ant41										
BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. / Freq.	Power Ch. / Freq.	Power Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
10	QPSK	1	0	23.46	23.65	23.54				
10	QPSK	1	25	23.37	23.07	23.58	24.8	0		
10	QPSK	1	49	23.46	23.06	23.59				
10	QPSK	25	0	22.52	22.61	22.52				
10	QPSK	25	12	22.5	22.51	22.58				
10	QPSK	25	25	22.49	22.55	22.57	23.8	1		
10	QPSK	25	37	22.52	22.58	22.57				
10	HQAM	1	0	22.84	22.88	22.81				
10	HQAM	1	25	22.68	22.68	22.6	23.8	1		
10	HQAM	1	49	22.79	22.61	22.68				
10	HQAM	25	0	21.52	21.52	21.45				
10	HQAM	25	12	21.48	21.47	21.56	22.8	2		
10	HQAM	25	25	21.48	21.58	21.56				
10	HQAM	50	0	21.54	21.69	21.53				
10	HQAM	1	0	21.37	21.69	21.82				
10	HQAM	1	25	21.64	21.75	21.36	22.8	2		
10	HQAM	1	49	21.49	21.6	21.58				
10	HQAM	25	0	20.64	20.78	20.8				
10	HQAM	25	12	20.67	20.7	20.8	21.8	3		
10	HQAM	25	25	20.63	20.79	20.71				
10	HQAM	50	0	20.81	20.7	20.71				
Channel										
Frequency (MHz)										
5	QPSK	1	0	23.35	23.68	23.41				
5	QPSK	1	12	23.33	23.46	23.45	24.8	0		
5	QPSK	12	0	23.30	23.46	23.45				
5	QPSK	12	6	23.33	23.39	22.51				
5	QPSK	12	7	22.27	22.38	22.46	23.8	1		
5	QPSK	12	14	22.38	22.38	22.54				
5	QPSK	25	0	22.31	22.40	22.40				
5	HQAM	1	0	22.73	22.50	22.32				
5	HQAM	1	12	22.84	22.88	22.75	23.8	1		
5	HQAM	12	0	21.34	21.45	21.49				
5	HQAM	12	6	21.31	21.40	21.52	22.8	2		
5	HQAM	12	7	21.19	21.31	21.32				
5	HQAM	25	0	21.22	21.45	21.43				
5	HQAM	1	0	21.25	21.38	21.69	22.8	2		
5	HQAM	1	12	21.68	21.48	21.50				
5	HQAM	12	0	20.47	20.61	20.75				
5	HQAM	12	7	20.48	20.54	20.54	21.8	3		
5	HQAM	12	14	20.52	20.52	20.53				
5	HQAM	25	0	20.48	20.51	20.56				
Channel										
Frequency (MHz)										
3	QPSK	1	0	23.36	23.44	23.52				
3	QPSK	1	6	23.36	23.33	23.34	24.8	0		
3	QPSK	1	14	23.32	23.38	23.41				
3	QPSK	8	0							



### Band 12\_Ant11

BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. 1 / Freq.	Power Ch. 2 / Freq.	Power Ch. 3 / Freq.	Turn-up time (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.78	23.97	23.83		
10	QPSK	1	25	23.85	23.86	23.75	25	0
10	QPSK	1	49	23.83	23.80	23.84		
10	QPSK	25	0	22.60	22.74	22.81	24	1
10	QPSK	25	12	22.67	22.86	22.65		
10	QPSK	25	25	22.64	22.67	22.64		
10	QPSK	25	37	22.68	22.70	22.64		
10	HQAM	1	0	22.85	22.69	22.64		
10	HQAM	1	25	22.77	22.84	22.89	24	1
10	HQAM	1	49	22.52	22.68	22.83		
10	HQAM	25	0	21.78	21.83	21.99		
10	HQAM	25	12	21.89	21.90	21.85	23	2
10	HQAM	25	25	21.89	21.81	21.84		
10	HQAM	50	0	21.86	21.79	21.84		
10	HQAM	50	1	21.85	22.03	21.99		
10	HQAM	1	25	22.13	22.07	21.96	23	2
10	HQAM	1	49	22.13	21.95	21.99		
10	HQAM	25	0	20.74	20.80	20.76		
10	HQAM	25	12	20.83	20.80	20.87	22	3
10	HQAM	25	25	20.77	20.80	20.83		
10	HQAM	50	0	20.78	20.88	20.83		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.57	23.75	23.69		
5	QPSK	1	12	23.67	23.81	23.76	25	0
5	QPSK	1	24	23.71	23.72	23.82		
5	QPSK	12	0	22.61	22.62	22.72		
5	QPSK	12	7	22.66	22.64	22.68	24	1
5	QPSK	12	14	22.68	22.65	22.68		
5	QPSK	25	0	22.69	22.61	22.68		
5	HQAM	1	0	22.81	22.74	22.86	24	1
5	HQAM	1	12	22.74	22.96	22.96		
5	HQAM	1	24	22.70	22.99	22.91		
5	HQAM	12	0	21.89	21.86	21.77		
5	HQAM	12	7	21.79	21.91	21.84	23	2
5	HQAM	12	14	21.80	21.87	21.88		
5	HQAM	25	0	21.87	21.92	21.93		
5	HQAM	1	0	21.83	21.83	21.88	23	2
5	HQAM	1	12	21.92	21.91	22.10		
5	HQAM	1	24	21.90	22.08	22.06		
5	HQAM	12	0	20.83	20.85	20.93		
5	HQAM	12	7	20.92	20.90	20.85	22	3
5	HQAM	12	14	20.90	20.88	20.83		
5	HQAM	25	0	20.89	20.83	20.83		
Channel								
Frequency (MHz)								
3	QPSK	1	0	23.67	23.75	23.74		
3	QPSK	1	6	23.59	23.72	23.67	25	0
3	QPSK	1	14	23.73	23.68	23.69		
3	QPSK	8	0	22.59	22.59	22.74		
3	QPSK	8	4	22.63	22.61	22.70	24	1
3	QPSK	8	7	22.68	22.63	22.69		
3	QPSK	15	0	22.50	22.80	22.88		
3	HQAM	1	0	22.48	22.00	22.91	24	1
3	HQAM	1	13	22.50	22.85	22.98		
3	HQAM	1	14	22.59	22.91	23.11		
3	HQAM	8	0	21.85	21.74	22.02		
3	HQAM	8	4	21.80	21.80	22.01	23	2
3	HQAM	8	7	21.96	21.88	21.95		
3	HQAM	15	0	21.88	21.77	21.89		
3	HQAM	1	0	21.80	22.06	22.17	23	2
3	HQAM	1	13	22.01	22.05	21.77		
3	HQAM	1	14	21.91	21.90	21.98		
3	HQAM	8	0	20.83	20.78	20.87		
3	HQAM	8	4	20.85	20.86	20.94	22	3
3	HQAM	8	7	20.80	20.90	20.91		
3	HQAM	15	0	20.78	20.89	20.78		
Channel								
Frequency (MHz)								
1.4	QPSK	1	0	23.67	23.69	23.73		
1.4	QPSK	1	3	23.79	23.76	23.77	25	0
1.4	QPSK	1	5	23.63	23.55	23.81		
1.4	QPSK	3	0	23.61	23.68	23.62		
1.4	QPSK	3	1	23.60	23.68	23.72	24	1
1.4	QPSK	3	3	23.64	23.72	23.71		
1.4	QPSK	6	0	22.63	22.64	22.67		
1.4	HQAM	1	0	22.57	22.82	23.12	24	1
1.4	HQAM	1	3	22.80	22.73	22.86		
1.4	HQAM	1	5	22.91	22.89	22.83		
1.4	HQAM	3	0	22.60	22.72	22.77		
1.4	HQAM	3	1	22.61	22.69	22.61	23	2
1.4	HQAM	3	3	22.63	22.69	22.83		
1.4	HQAM	6	0	21.87	21.90	22.11		
1.4	HQAM	6	1	22.00	21.98	22.01		
1.4	HQAM	1	3	22.12	22.15	21.86		
1.4	HQAM	1	5	22.09	21.84	21.90	23	2
1.4	HQAM	3	0	21.87	21.80	21.90		
1.4	HQAM	3	1	21.89	22.08	21.72		
1.4	HQAM	3	3	21.99	21.93	21.89	22	3
1.4	HQAM	6	0	20.78	20.78	20.85		

### Band 12\_Ant41

BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. 1 / Freq.	Power Ch. 2 / Freq.	Power Ch. 3 / Freq.	Turn-up time (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.70	23.70	23.69		
10	QPSK	1	25	23.86	23.89	23.85	25	0
10	QPSK	1	49	23.81	23.79	23.71		
10	QPSK	25	0	22.63	22.71	22.69		
10	QPSK	25	12	22.68	22.71	22.67	24	1
10	QPSK	25	25	22.70	22.69	22.64		
10	QPSK	25	37	22.68	22.71	22.68		
10	HQAM	1	0	22.90	22.58	22.58		
10	HQAM	1	25	22.75	22.91	22.77	24	1
10	HQAM	1	49	22.61	23.20	23.24		
10	HQAM	25	0	21.88	21.88	21.84		
10	HQAM	25	12	21.88	21.90	21.80	23	2
10	HQAM	25	25	21.82	21.82	21.86		
10	HQAM	50	0	21.82	21.83	21.80		
10	HQAM	1	25	22.22	21.97	21.79	23	2
10	HQAM	1	49	21.90	21.81	21.99		
10	HQAM	25	0	20.88	20.88	21.00		
10	HQAM	25	12	20.91	20.90	20.83	22	3
10	HQAM	25	25	20.81	20.77	20.89		
10	HQAM	50	0	20.88	20.93	20.85		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.62	23.62	23.60		
5	QPSK	1	12	23.69	23.70	23.78	25	0
5	QPSK	1	24	23.67	23.70	23.82		
5	QPSK	12	0	22.62	22.68	22.66		
5	QPSK	12	7	22.63	22.69	22.71	24	1
5	QPSK	12	14	22.65	22.65	22.66		
5	QPSK	25	0	22.68	22.69	22.69		
5	HQAM	1	0	22.68	22.73	23.00		
5	HQAM	1	12	22.06	22.80	22.87	24	1
5	HQAM	1	24	22.03	22.82	22.90		
5	HQAM	12	0	21.75	21.87	21.86		
5	HQAM	12	7	21.80	21.88	21.93	23	2
5	HQAM	12	14	21.82	21.87	21.87		
5	HQAM	25	0	21.82	21.77	21.81		
5	HQAM	1	0	21.84	22.10	21.75	23	2
5	HQAM	1	12	21.89	22.07	21.90		
5	HQAM	1	24	21.87	22.01	22.00		
5	HQAM	12	0	20.78	20.87	20.88		
5	HQAM	12	7	20.87	20.85	20.88	22	3
5	HQAM	12	14	20.88	20.88	20.80		
5	HQAM	25	0	20.84	20.80	20.80		
Channel								
Frequency (MHz)								
3	QPSK	1	0	23.59	23.64	23.70		
3	QPSK	1	6	23.69	23.62	23.72	25	0
3	QPSK	1	14	23.64	23.65	23.73		
3	QPSK	8	0	22.62	22.62	22.69		
3	QPSK	8	4	22.64	22.64	22.72	24	1
3	QPSK	8	7	22.63	22.60	22.71		
3	QPSK	15	0	22.59	22.61	22.82		
3	HQAM	1	0	22.01	22.60	22.78	24	1
3	HQAM	1	13	22.04	22.61	22.83		
3	HQAM	1	14	22.68	23.02	22.87		
3	HQAM	8	0	21.87	21.87	21.89		
3	HQAM	8	4	21.88	21.80	21.80	23	2
3	HQAM	8	7	21.86	21.84	21.98		
3	HQAM	15	0	21.77	21.87	21.76		
3	HQAM	1	0	22.04	22.08	21.97	23	2
3	HQAM	1	13	21.80	22.00	21.98		
3	HQAM	1	14	22.18	21.88	22.17		
3	HQAM							



### Band 17\_Ant11

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. / Freq.	Power Min. Ch. / Freq.	Power Max. Ch. / Freq.	Take-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.63	23.71	23.84	25	0
10	QPSK	1	25	23.71	23.75	23.72		
10	QPSK	1	49	23.66	23.49	23.57		
10	QPSK	25	0	22.64	22.88	22.96	24	1
10	QPSK	25	12	22.61	22.81	22.87		
10	QPSK	25	25	22.66	22.67	22.63		
10	QPSK	25	0	22.66	22.71	22.69		
10	HQAM	1	0	22.65	23.01	23.01	24	1
10	HQAM	1	25	22.64	22.68	22.48		
10	HQAM	1	49	22.65	22.60	23.02		
10	HQAM	25	0	21.62	21.77	21.50	23	2
10	HQAM	25	12	21.67	21.90	21.80		
10	HQAM	25	25	21.66	21.65	21.65		
10	HQAM	50	0	21.60	21.62	21.67		
10	HQAM	1	0	21.59	21.67	21.75	23	2
10	HQAM	1	25	21.70	22.17	22.17		
10	HQAM	1	49	21.51	21.50	22.18		
10	HQAM	25	0	20.79	20.86	20.90	22	3
10	HQAM	25	12	20.51	20.77	20.82		
10	HQAM	25	25	20.67	20.92	20.75		
10	HQAM	50	0	20.45	20.52	20.86		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.61	23.64	23.67	25	0
5	QPSK	1	12	23.47	23.67	23.69		
5	QPSK	1	24	23.60	23.64	23.63		
5	QPSK	12	0	22.58	22.56	22.58	24	1
5	QPSK	12	7	22.56	22.58	22.60		
5	QPSK	12	13	22.57	22.52	22.52		
5	QPSK	25	0	22.57	22.54	22.53		
5	HQAM	1	0	22.52	22.56	22.53	24	1
5	HQAM	1	12	22.71	22.56	22.79		
5	HQAM	1	24	22.63	22.60	22.59		
5	HQAM	12	0	21.72	21.75	21.76	23	2
5	HQAM	12	7	21.69	21.74	21.71		
5	HQAM	12	13	21.73	21.67	21.66		
5	HQAM	25	0	21.75	21.79	21.71	23	2
5	HQAM	1	0	21.63	21.74	21.62		
5	HQAM	1	12	21.68	22.00	22.16	23	2
5	HQAM	1	24	21.62	22.02	22.09		
5	HQAM	12	0	20.69	20.82	20.84	22	3
5	HQAM	12	7	20.72	20.86	20.84		
5	HQAM	12	13	20.72	20.79	20.86		
5	HQAM	25	0	20.74	20.77	20.68		

### Band 17\_Ant41

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. / Freq.	Power Min. Ch. / Freq.	Power Max. Ch. / Freq.	Take-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.65	23.60	23.60	25	0
10	QPSK	1	25	23.59	23.78	23.67		
10	QPSK	1	49	23.69	23.71	23.70		
10	QPSK	25	0	22.64	22.68	22.67	24	1
10	QPSK	25	12	22.62	22.61	22.63		
10	QPSK	25	25	22.60	22.65	22.65		
10	QPSK	50	0	22.68	22.73	22.67		
10	HQAM	1	0	22.64	23.05	23.05	24	1
10	HQAM	1	25	22.69	23.26	22.96		
10	HQAM	1	49	22.57	22.65	23.27		
10	HQAM	25	0	21.62	21.67	21.55	23	2
10	HQAM	25	12	21.78	21.84	21.89		
10	HQAM	25	25	21.63	21.79	21.91		
10	HQAM	50	0	21.77	21.78	21.85		
10	HQAM	1	0	21.67	21.81	21.99	23	2
10	HQAM	1	25	21.77	21.65	22.09		
10	HQAM	1	49	22.24	21.89	22.00		
10	HQAM	25	0	20.82	20.77	20.86	22	3
10	HQAM	25	12	20.85	20.81	20.81		
10	HQAM	25	25	20.83	20.83	20.74		
10	HQAM	50	0	20.83	20.83	20.81		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.54	23.50	23.56	25	0
5	QPSK	1	12	23.52	23.65	23.68		
5	QPSK	1	24	23.64	23.59	23.62		
5	QPSK	12	0	22.53	22.58	22.65	24	1
5	QPSK	12	7	22.58	22.62	22.58		
5	QPSK	12	13	22.58	22.63	22.60		
5	QPSK	25	0	22.65	22.68	22.56		
5	HQAM	1	0	22.62	23.03	22.67	24	1
5	HQAM	1	12	22.83	23.24	22.98		
5	HQAM	1	24	22.53	22.68	23.21		
5	HQAM	12	0	21.76	21.79	21.90	23	2
5	HQAM	12	7	21.69	21.81	21.81		
5	HQAM	12	13	21.73	21.75	21.81		
5	HQAM	25	0	21.74	21.72	21.77	23	2
5	HQAM	1	0	21.64	21.71	21.83		
5	HQAM	1	12	21.79	21.89	22.04	23	2
5	HQAM	1	24	21.65	21.83	21.93		
5	HQAM	12	0	20.78	20.72	20.75	22	3
5	HQAM	12	7	20.68	20.69	20.69		
5	HQAM	12	13	20.79	20.74	20.69		
5	HQAM	25	0	20.77	20.77	20.78		

### Band 18\_Ant 11

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. / Freq.	Power Min. Ch. / Freq.	Power Max. Ch. / Freq.	Take-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
15	QPSK	1	0	23.35			25	0
15	QPSK	1	37	23.47				
15	QPSK	1	74	23.16				
15	QPSK	38	0	22.30			24	1
15	QPSK	38	39	22.33				
15	QPSK	75	0	22.34				
15	HQAM	1	0	22.42			24	1
15	HQAM	1	37	22.83				
15	HQAM	1	74	22.40				
15	HQAM	38	0	21.23			23	2
15	HQAM	38	39	21.31				
15	HQAM	38	39	21.36				
15	HQAM	75	0	21.26			23	2
15	HQAM	1	0	21.33			23	2
15	HQAM	1	37	21.59				
15	HQAM	1	74	21.57				
15	HQAM	38	0	20.51			22	3
15	HQAM	38	39	20.46				
15	HQAM	38	39	20.53				
15	HQAM	75	0	20.49				
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.33	23.35	23.42	25	0
5	QPSK	1	25	23.38	23.41	23.42		
5	QPSK	1	49	23.30	23.45	23.33		
5	QPSK	25	0	22.34	22.21	22.22	24	1
5	QPSK	25	12	22.37	22.32	22.32		
5	QPSK	25	25	22.41	22.37	22.38		
5	QPSK	50	0	22.41	22.38	22.34		
5	HQAM	1	0	22.68	22.73	22.29	24	1
5	HQAM	1	25	22.41	22.48	22.42		
5	HQAM	1	49	22.71	22.76	22.70		
5	HQAM	25	0	21.33	21.26	21.28	23	2
5	HQAM	25	12	21.37	21.28	21.36		
5	HQAM	25	25	21.40	21.33	21.40		
5	HQAM	50	0	21.39	21.32	21.33	23	2
5	HQAM	1	0	21.55	21.39	21.55	23	2
5	HQAM	1	25	21.14	21.36	21.45		
5	HQAM	1	49	21.67	21.62	21.17		
5	HQAM	25	0	20.50	20.38	20.34	22	3
5	HQAM	25	12	20.47	20.47	20.50		
5	HQAM	25	25	20.55	20.52	20.52		
5	HQAM	50	0	20.51	20.47	20.47		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.41	23.34	23.42	25	0
5	QPSK	1	12	23.45	23.41	23.45		
5	QPSK	1	24	23.38	23.33	23.44		
5	QPSK	12	0	22.45	22.29	22.42	24	1
5	QPSK	12	7	22.48	22.34	22.41		
5	QPSK	12	13	22.40	22.32	22.37		
5	QPSK	25	0	22.44	22.31	22.41		
5	HQAM	1	0	22.65	22.37	22.49	24	1
5	HQAM	1	12	22.65	22.37	22.78		
5	HQAM	1	24	22.33	22.40	22.27		
5	HQAM	12	0	21.37	21.29	21.39	23	2
5	HQAM	12	7	21.46	21.34	21.38		
5	HQAM	12	13	21.32	21.35	21.28		
5	HQAM	25	0	21.42	21.33	21.38	23	2
5	HQAM	1	0	21.68	21.41	21.66		
5	HQAM	1	12	21.69	21.63	21.69		
5	HQAM	1	24	21.66	21.59	21.41	23	2
5	HQAM	12	0	2				



Band 19_Ant 11										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Mid Ch. / Freq.	Power High Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
15	QPSK	1	0	23.17						
15	QPSK	1	37	23.50			24.0	0		
15	QPSK	1	74	23.22						
15	QPSK	36	0	22.61						
15	QPSK	36	20	22.34						
15	QPSK	36	39	22.40						
15	QPSK	75	0	22.37			23.0	1		
15	HQAM	1	0	22.13						
15	HQAM	1	37	22.32			23.0	1		
15	HQAM	1	74	22.46						
15	HQAM	36	0	21.33						
15	HQAM	36	20	21.33						
15	HQAM	36	39	21.36						
15	HQAM	75	0	21.26			22.0	2		
15	HQAM	1	37	21.80			22.0	2		
15	HQAM	1	74	21.14						
15	HQAM	36	0	20.96						
15	HQAM	36	20	20.92						
15	HQAM	36	39	20.92						
15	HQAM	75	0	20.98			21.0	3		
Channel	3450	3450	3450	Time-up (min)	MPR (dB)					
Frequency (MHz)	835	837.5	840							
10	QPSK	1	0	23.30	23.37	23.37				
10	QPSK	1	25	23.26	23.31	23.39	24.0	0		
10	QPSK	1	49	23.36	23.31	23.41				
10	QPSK	25	0	22.41	22.37	22.26				
10	QPSK	25	12	22.28	22.38	22.38				
10	QPSK	25	25	22.41	22.44	22.39	23.0	1		
10	QPSK	50	0	22.49	22.44	22.43				
10	HQAM	1	0	22.69	22.22	22.73				
10	HQAM	1	25	22.44	22.48	22.89	23.0	1		
10	HQAM	1	49	22.46	22.83	22.74				
10	HQAM	25	0	21.44	21.40	21.29				
10	HQAM	25	12	21.38	21.28	21.35				
10	HQAM	25	25	21.39	21.42	21.42	22.0	2		
10	HQAM	50	0	21.43	21.33	21.37				
10	HQAM	1	0	21.27	21.83	21.43				
10	HQAM	1	25	21.29	21.62	21.45	22.0	2		
10	HQAM	1	49	21.13	21.37	21.69				
10	HQAM	25	0	20.58	20.52	20.48				
10	HQAM	25	12	20.54	20.57	20.59				
10	HQAM	25	25	20.58	20.64	20.55	21.0	3		
10	HQAM	50	0	20.68	20.64	20.49				
Channel	3450	3450	3450	Time-up (min)	MPR (dB)					
Frequency (MHz)	835	837.5	840							

Band 19_Ant 41										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Mid Ch. / Freq.	Power High Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
15	QPSK	1	0	23.18						
15	QPSK	1	37	23.43			24.0	0		
15	QPSK	1	74	23.16						
15	QPSK	36	0	22.37						
15	QPSK	36	20	22.34			23.0	1		
15	QPSK	36	39	22.31						
15	QPSK	75	0	22.30						
15	HQAM	1	0	22.55						
15	HQAM	1	37	22.48			23.0	1		
15	HQAM	1	74	22.68						
15	HQAM	36	0	21.29						
15	HQAM	36	20	21.42			22.0	2		
15	HQAM	36	39	21.31						
15	HQAM	75	0	21.26			22.0	2		
15	HQAM	1	37	21.48			22.0	2		
15	HQAM	1	74	21.36						
15	HQAM	36	0	20.95						
15	HQAM	36	20	20.95						
15	HQAM	36	39	20.93						
15	HQAM	75	0	20.98			21.0	3		
Channel	2400	2400	2410	Time-up (min)	MPR (dB)					
Frequency (MHz)	835	837.5	840							
10	QPSK	1	0	23.25	23.32	23.36				
10	QPSK	1	25	23.38	23.41	23.26	24.0	0		
10	QPSK	1	49	23.19	23.36	23.33				
10	QPSK	25	0	22.24	22.18	22.24				
10	QPSK	25	12	22.29	22.28	22.29				
10	QPSK	25	25	22.32	22.38	22.35	23.0	1		
10	QPSK	50	0	22.30	22.38	22.28				
10	HQAM	1	0	22.48	22.86	22.63				
10	HQAM	1	25	22.62	22.76	22.79	23.0	1		
10	HQAM	1	49	22.48	22.11	22.14				
10	HQAM	25	0	21.24	21.17	21.21				
10	HQAM	25	12	21.18	21.26	21.35				
10	HQAM	25	25	21.26	21.33	21.30	22.0	2		
10	HQAM	50	0	21.33	21.23	21.24				
10	HQAM	1	0	21.19	21.53	21.55				
10	HQAM	1	25	21.23	21.52	21.52	22.0	2		
10	HQAM	1	49	21.03	21.05	21.11				
10	HQAM	25	0	20.45	20.43	20.38				
10	HQAM	25	12	20.45	20.43	20.42				
10	HQAM	25	25	20.53	20.53	20.36	21.0	3		
10	HQAM	50	0	20.58	20.41	20.39				
Channel	2400	2400	2410	Time-up (min)	MPR (dB)					
Frequency (MHz)	835	837.5	840							

Band 26_Ant11										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Mid Ch. / Freq.	Power High Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
15	QPSK	1	0	23.30	23.28	23.30				
15	QPSK	1	37	23.40	23.33	23.48	25	0		
15	QPSK	1	74	23.47	23.62	23.60				
15	QPSK	36	0	22.67	22.62	22.63				
15	QPSK	36	20	22.45	22.42	22.51				
15	QPSK	36	39	22.46	22.52	22.43				
15	QPSK	75	0	22.67	22.62	22.63				
15	HQAM	1	0	22.52	22.80	22.63	24	1		
15	HQAM	1	37	22.65	22.60	22.78	24	1		
15	HQAM	1	74	22.79	22.94	22.74				
15	HQAM	36	0	21.44	21.54	21.49				
15	HQAM	36	20	21.55	21.49	21.53				
15	HQAM	36	39	21.45	21.54	21.41	23	2		
15	HQAM	75	0	21.48	21.55	21.48				
15	HQAM	1	37	21.39	21.38	21.49				
15	HQAM	1	74	21.89	21.81	21.86	23	2		
15	HQAM	1	74	21.41	21.64	21.75				
15	HQAM	36	0	20.95	20.68	20.62				
15	HQAM	36	20	20.99	20.73	20.72	22	3		
15	HQAM	36	39	20.88	20.68	20.56				
15	HQAM	75	0	20.98	20.66	20.57				
Channel	2400	2400	2410	Time-up (min)	MPR (dB)					
Frequency (MHz)	810	811.5	814							
10	QPSK	1	0	23.40	23.25	23.40				
10	QPSK	1	25	23.32	23.44	23.42	25	0		
10	QPSK	1	49	23.28	23.31	23.34				
10	QPSK	25	0	22.44	22.38	22.37				
10	QPSK	25	12	22.39	22.35	22.32				
10	QPSK	25	25	22.45	22.32	22.34	24	1		
10	QPSK	50	0	22.40	22.43	22.33				
10	HQAM	1	0	22.24	22.42	22.43				
10	HQAM	1	25	22.86	22.77	22.41	24	1		
10	HQAM	1	49	21.55	21.66	21.84				
10	HQAM	25	0	21.38	21.35	21.38				
10	HQAM	25	12	21.43	21.27	21.34				
10	HQAM	25	25	21.41	21.52	21.61	23	2		
10	HQAM	50	0	21.46	21.40	21.37				
10	HQAM	1	0	21.37	21.30	21.66	23	2		
10	HQAM	1	25	21.18	21.65	21.36				
10	HQAM	1	49	21.05	21.05	21.05				
10	HQAM	25	0	20.81	20.86	20.40				
10	HQAM	25	12	20.82	20.81	20.49				
10	HQAM	25	25	20.91	20.92	20.48	22	3		
10	HQAM	50	0	20.94	20.65	20.58				
Channel	2400	2400	2410	Time-up (min)	MPR (dB)					
Frequency (MHz)	810	811.5	814							

Band 26_Ant41										
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Mid Ch. / Freq.	Power High Ch. / Freq.	Time-up (min)	MPR (dB)		
Channel										
Frequency (MHz)										
15	QPSK	1	0	23.50	23.60	23.37				
15	QPSK	1	37	23.32	23.38	23.48	25	0		
15	QPSK	1	74	23.64	23.64	23.50				
15	QPSK	36	0	22.67	22.66	22.62				
15	QPSK	36	20	22.49	22.55	22.54				
15	QPSK	36	39	22.46	22.52	22.46				
15	QPSK	75	0	22.67	22.63	22.49				
15	HQAM	1	0	22.45	22.71	22.64				
15	HQAM	1	37	22.38	22.78	22.52	24	1		
15	HQAM	1	74	22.77	22.67	22.60				
15	HQAM	36	0	21.41	21.27	21.54				
15	HQAM	36	20	21.50	21.48	21.37				
15	HQAM	36	39	21.47	21.63	21.49	23	2		
15	HQAM	75	0	21.48	21.61	21.48				
15	HQAM	1	37	21.69	2					











DSI 2 Power

GSM850_Ant11	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)	
	128	189	251		128	189	251		
TX Channel	128	189	251	128	189	251	128	189	251
Frequency (MHz)	852.2	858.4	863.8	852.2	858.4	863.8	852.2	858.4	863.8
GSM 1 Tx slot	32.09	32.50	32.22	33.50	23.09	23.50	23.22	24.50	
GPRS 1 Tx slot	32.08	32.17	32.21	33.50	23.08	23.17	23.21	24.50	
GPRS 2 Tx slots	30.33	30.34	30.32	31.50	24.33	24.34	24.32	25.50	
GPRS 3 Tx slots	28.13	28.13	28.12	29.50	23.87	23.87	23.86	25.24	
GPRS 4 Tx slots	26.44	26.45	26.52	28.00	23.44	23.45	23.52	25.00	
EDGE 1 Tx slot	27.00	27.04	26.93	28.00	18.00	18.04	17.93	19.00	
EDGE 2 Tx slots	24.42	24.51	24.45	25.70	18.42	18.51	18.45	19.70	
EDGE 3 Tx slots	22.15	22.25	22.30	23.50	17.89	17.89	18.04	19.24	
EDGE 4 Tx slots	20.30	20.31	20.28	21.70	17.30	17.31	17.28	18.70	

GSM1900_Ant11	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)	
	512	661	810		512	661	810		
TX Channel	512	661	810	512	661	810	512	661	810
Frequency (MHz)	1850.2	1860	1869.8	1850.2	1860	1869.8	1850.2	1860	1869.8
GSM 1 Tx slot	30.01	30.13	29.92	30.50	21.01	21.13	20.92	21.50	
GPRS 1 Tx slot	29.96	30.12	29.90	30.50	20.96	21.12	20.90	21.50	
GPRS 2 Tx slots	27.70	27.85	27.71	28.30	21.70	21.85	21.71	22.30	
GPRS 3 Tx slots	25.45	25.64	25.48	26.00	21.19	21.38	21.22	21.74	
GPRS 4 Tx slots	23.76	23.94	23.78	24.50	20.76	20.94	20.78	21.50	
EDGE 1 Tx slot	25.47	25.51	25.18	26.50	16.47	16.51	16.18	17.50	
EDGE 2 Tx slots	23.51	23.60	23.22	24.50	17.51	17.60	17.22	18.50	
EDGE 3 Tx slots	21.38	21.42	21.30	22.70	17.12	17.16	17.04	18.44	
EDGE 4 Tx slots	20.10	20.05	19.84	21.20	17.10	17.05	16.84	18.20	

GSM850_Ant11	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)	
	128	189	251		128	189	251		
TX Channel	128	189	251	128	189	251	128	189	251
Frequency (MHz)	852.2	858.4	863.8	852.2	858.4	863.8	852.2	858.4	863.8
GSM 1 Tx slot	30.54	30.43	30.55	31.50	21.54	21.43	21.55	22.50	
GPRS 1 Tx slot	30.12	30.09	30.23	31.50	21.12	21.09	21.23	22.50	
GPRS 2 Tx slots	27.91	27.96	27.89	29.50	21.91	21.96	21.89	23.50	
GPRS 3 Tx slots	25.86	25.86	25.96	27.50	21.60	21.60	21.70	23.24	
GPRS 4 Tx slots	24.69	24.70	24.78	26.00	21.69	21.70	21.78	23.00	
EDGE 1 Tx slot	26.70	26.72	26.64	28.00	17.70	17.72	17.64	19.00	
EDGE 2 Tx slots	24.34	24.42	24.33	25.70	18.34	18.42	18.33	19.70	
EDGE 3 Tx slots	22.15	22.21	22.16	23.50	17.89	17.95	17.90	19.24	
EDGE 4 Tx slots	20.34	20.33	20.25	21.70	17.34	17.33	17.25	18.70	

GSM1900_Ant14	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)	
	512	661	810		512	661	810		
TX Channel	512	661	810	512	661	810	512	661	810
Frequency (MHz)	1850.2	1860	1869.8	1850.2	1860	1869.8	1850.2	1860	1869.8
GSM 1 Tx slot	24.75	24.88	24.69	26.00	15.75	15.88	15.69	17.00	
GPRS 1 Tx slot	24.64	24.71	24.68	26.00	15.64	15.71	15.68	17.00	
GPRS 2 Tx slots	22.48	22.51	22.44	23.80	17.48	17.51	17.44	17.80	
GPRS 3 Tx slots	21.35	21.32	21.28	21.50	17.09	17.06	17.02	17.24	
GPRS 4 Tx slots	20.14	20.15	20.12	20.00	17.14	17.15	17.12	17.00	
EDGE 1 Tx slot	24.83	24.82	24.72	26.00	15.83	15.82	15.72	17.00	
EDGE 2 Tx slots	23.12	23.16	23.05	24.00	17.12	17.16	17.05	18.00	
EDGE 3 Tx slots	21.30	21.40	21.35	22.20	17.04	17.14	17.09	17.94	
EDGE 4 Tx slots	19.88	19.70	19.85	20.70	16.88	16.70	16.85	17.70	

Band	TX Channel	WCDMA I_Ant11			Tune-up Limit (dBm)	WCDMA I_Ant11			Tune-up Limit (dBm)	WCDMA V_Ant11			Tune-up Limit (dBm)
		9662	9600	9638		1312	1413	1513		4132	4182	4233	
3GPP Rel 99	AMR 12.2kpps	16.52	16.60	16.74	18.00	17.12	17.23	17.32	18.50	18.64	18.65	23.50	
3GPP Rel 99	AMR 12.2kpps	16.55	16.67	16.57	18.00	17.25	17.46	17.41	18.50	22.33	22.36	23.50	
3GPP Rel 6	HS-PA Subtest-1	15.21	15.20	15.20	17.00	16.43	16.51	16.30	17.50	21.34	21.37	21.34	
3GPP Rel 6	HS-PA Subtest-2	15.61	15.70	15.66	17.00	16.26	16.39	16.41	17.50	21.11	21.32	21.23	
3GPP Rel 6	HS-PA Subtest-3	15.22	15.28	15.18	16.50	15.88	15.93	15.84	17.00	20.85	20.83	20.63	
3GPP Rel 6	HS-PA Subtest-4	15.26	15.21	15.12	16.50	15.85	15.89	15.82	17.00	20.77	20.85	20.67	
3GPP Rel 6	DC-HSPA Subtest-1	15.52	15.63	15.48	17.00	16.21	16.41	16.24	17.50	21.19	21.32	21.28	
3GPP Rel 6	DC-HSPA Subtest-2	15.59	15.51	15.55	17.00	16.12	16.34	16.23	17.50	21.02	21.08	21.11	
3GPP Rel 6	DC-HSPA Subtest-3	15.07	15.12	15.16	16.50	15.78	15.82	15.77	17.00	20.66	20.87	20.55	
3GPP Rel 6	DC-HSPA Subtest-4	15.25	15.09	15.11	16.50	15.84	15.89	15.76	17.00	20.67	20.72	20.70	
3GPP Rel 6	HS-PA Subtest-1	14.56	14.85	14.84	16.00	14.33	14.42	14.45	15.50	19.16	19.22	19.29	
3GPP Rel 6	HS-PA Subtest-2	14.63	14.81	14.71	16.00	14.22	14.42	14.27	15.50	19.20	19.32	19.08	
3GPP Rel 6	HS-PA Subtest-3	14.74	15.78	15.74	17.00	15.31	15.49	15.44	16.50	20.21	20.39	20.20	
3GPP Rel 6	HS-PA Subtest-4	14.26	14.35	14.25	15.50	13.85	14.06	13.96	15.00	18.76	18.86	18.67	
3GPP Rel 6	HS-PA Subtest-5	15.69	15.78	15.67	17.00	15.34	15.30	15.19	16.50	20.10	20.22	20.13	
3GPP Rel 7	HSPA+ (10QAM) Subtest-1	15.27	15.25	15.37	16.00	14.56	14.69	14.63	15.50	19.65	19.67	19.72	

Band	TX Channel	WCDMA I_Ant14			Tune-up Limit (dBm)	WCDMA I_Ant14			Tune-up Limit (dBm)	WCDMA V_Ant11			Tune-up Limit (dBm)
		9662	9600	9638		1312	1413	1513		4132	4182	4233	
3GPP Rel 99	AMR 12.2kpps	16.55	16.67	16.57	18.00	17.25	17.46	17.41	18.50	22.33	22.36	23.50	
3GPP Rel 99	AMR 12.2kpps	16.69	16.76	16.73	18.00	17.44	17.48	17.40	18.50	22.26	22.44	22.31	
3GPP Rel 6	HS-PA Subtest-1	15.70	15.72	15.70	17.00	16.43	16.51	16.30	17.50	21.34	21.37	21.34	
3GPP Rel 6	HS-PA Subtest-2	15.61	15.70	15.66	17.00	16.26	16.39	16.41	17.50	21.11	21.32	21.23	
3GPP Rel 6	HS-PA Subtest-3	15.22	15.28	15.18	16.50	15.88	15.93	15.84	17.00	20.85	20.83	20.63	
3GPP Rel 6	HS-PA Subtest-4	15.26	15.21	15.12	16.50	15.85	15.89	15.82	17.00	20.77	20.85	20.67	
3GPP Rel 6	DC-HSPA Subtest-1	15.52	15.63	15.48	17.00	16.21	16.41	16.24	17.50	21.19	21.32	21.28	
3GPP Rel 6	DC-HSPA Subtest-2	15.59	15.51	15.55	17.00	16.12	16.34	16.23	17.50	21.02	21.08	21.11	
3GPP Rel 6	DC-HSPA Subtest-3	15.07	15.12	15.16	16.50	15.78	15.82	15.77	17.00	20.66	20.87	20.55	
3GPP Rel 6	DC-HSPA Subtest-4	15.25	15.09	15.11	16.50	15.84	15.89	15.76	17.00	20.67	20.72	20.70	
3GPP Rel 6	HS-PA Subtest-1	14.56	14.85	14.84	16.00	14.33	14.42	14.45	15.50	19.16	19.22	19.29	
3GPP Rel 6	HS-PA Subtest-2	14.63	14.81	14.71	16.00	14.22	14.42	14.27	15.50	19.20	19.32	19.08	
3GPP Rel 6	HS-PA Subtest-3	14.74	15.78	15.74	17.00	15.31	15.49	15.44	16.50	20.21	20.39	20.20	
3GPP Rel 6	HS-PA Subtest-4	14.26	14.35	14.25	15.50	13.85	14.06	13.96	15.00	18.76	18.86	18.67	
3GPP Rel 6	HS-PA Subtest-5	15.69	15.78	15.67	17.00	15.34	15.30	15.19	16.50	20.10	20.22	20.13	
3GPP Rel 7	HSPA+ (10QAM) Subtest-1	15.27	15.25	15.37	16.00	14.56	14.69	14.63	15.50	19.65	19.67	19.72	









Band 12\_Ant11

Table with columns: BW (MHz), Modulation, RB Size, RB Offset, Power, Power, Power, Turn-up, MPR. Includes sub-tables for Frequency (MHz) and Channel.

Band 12\_Ant41

Table with columns: BW (MHz), Modulation, RB Size, RB Offset, Power, Power, Power, Turn-up, MPR. Includes sub-tables for Frequency (MHz) and Channel.

Band 13\_Ant11

Table with columns: BW (MHz), Modulation, RB Size, RB Offset, Power, Power, Power, Turn-up, MPR. Includes sub-tables for Frequency (MHz) and Channel.

Band 13\_Ant41

Table with columns: BW (MHz), Modulation, RB Size, RB Offset, Power, Power, Power, Turn-up, MPR. Includes sub-tables for Frequency (MHz) and Channel.















### DSI 3 Power

GSM850_AntH1 TX Channel	Burst Average Power (dBm)			Turn-up Limit (dBm)	Frame-Average Power (dBm)			Turn-up Limit (dBm)
	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.99	32.20	32.22	33.50	23.99	23.20	23.22	24.50
GPRS 1 Tx slot	32.08	32.17	32.21	33.50	23.08	23.17	23.21	24.50
GPRS 2 Tx slots	30.33	30.34	30.32	31.50	24.33	24.34	24.32	25.50
GPRS 3 Tx slots	28.13	28.13	28.12	29.50	23.87	23.87	23.86	25.24
GPRS 4 Tx slots	26.44	26.45	26.52	28.00	23.44	23.45	23.52	25.00
EDGE 1 Tx slot	27.00	27.04	26.93	28.00	18.00	18.04	17.93	19.00
EDGE 2 Tx slots	24.42	24.51	24.45	25.70	18.42	18.51	18.45	19.70
EDGE 3 Tx slots	22.15	22.25	22.30	23.50	17.89	17.99	18.04	19.24
EDGE 4 Tx slots	20.30	20.31	20.28	21.70	17.30	17.31	17.28	18.70

GSM1900_AntS1 TX Channel	Burst Average Power (dBm)			Turn-up Limit (dBm)	Frame-Average Power (dBm)			Turn-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1850	1850.8		1850.2	1850	1850.8	
GSM 1 Tx slot	30.01	30.13	29.92	30.50	21.01	21.13	20.92	21.50
GPRS 1 Tx slot	29.96	30.12	29.90	30.50	20.96	21.12	20.90	21.50
GPRS 2 Tx slots	27.70	27.85	27.71	28.30	21.70	21.85	21.71	22.30
GPRS 3 Tx slots	25.45	25.64	25.48	26.00	21.19	21.38	21.22	21.74
GPRS 4 Tx slots	23.76	23.94	23.78	24.50	20.76	20.94	20.78	21.50
EDGE 1 Tx slot	25.47	25.51	25.18	26.50	16.47	16.51	16.18	17.50
EDGE 2 Tx slots	23.51	23.60	23.22	24.50	17.51	17.60	17.22	18.50
EDGE 3 Tx slots	21.38	21.42	21.30	22.70	17.12	17.16	17.04	18.44
EDGE 4 Tx slots	20.10	20.05	19.84	21.20	17.10	17.05	16.84	18.20

GSM850_AntH1 TX Channel	Burst Average Power (dBm)			Turn-up Limit (dBm)	Frame-Average Power (dBm)			Turn-up Limit (dBm)
	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	29.20	29.12	29.29	30.50	20.20	20.12	20.29	21.50
GPRS 1 Tx slot	29.13	29.10	29.24	30.50	20.13	20.10	20.24	21.50
GPRS 2 Tx slots	26.88	26.98	26.91	28.50	20.88	20.98	20.91	22.50
GPRS 3 Tx slots	24.88	24.86	24.97	26.50	20.82	20.80	20.71	22.24
GPRS 4 Tx slots	23.70	23.68	23.72	25.00	20.70	20.68	20.72	22.00
EDGE 1 Tx slot	26.70	26.72	26.64	28.00	17.70	17.72	17.64	19.00
EDGE 2 Tx slots	24.34	24.42	24.33	25.70	18.34	18.42	18.33	19.70
EDGE 3 Tx slots	22.15	22.21	22.16	23.50	17.89	17.95	17.90	19.24
EDGE 4 Tx slots	20.34	20.33	20.25	21.70	17.34	17.33	17.25	18.70

GSM1900_AntH4 TX Channel	Burst Average Power (dBm)			Turn-up Limit (dBm)	Frame-Average Power (dBm)			Turn-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1850	1850.8		1850.2	1850	1850.8	
GSM 1 Tx slot	24.02	24.04	23.98	25.00	15.02	15.04	14.98	16.00
GPRS 1 Tx slot	23.05	23.06	23.01	25.00	14.05	14.06	14.01	16.00
GPRS 2 Tx slots	22.51	22.55	22.62	22.80	16.51	16.55	16.52	18.00
GPRS 3 Tx slots	20.34	20.36	20.38	20.50	16.08	16.10	16.12	16.24
GPRS 4 Tx slots	19.14	19.17	19.18	19.00	16.14	16.17	16.18	16.00
EDGE 1 Tx slot	24.06	24.11	23.98	25.00	15.06	15.11	14.98	16.00
EDGE 2 Tx slots	22.31	22.41	22.17	23.00	16.31	16.41	16.17	17.00
EDGE 3 Tx slots	20.45	20.54	20.28	21.20	16.19	16.28	16.00	16.94
EDGE 4 Tx slots	18.88	18.07	18.87	18.70	15.88	16.07	15.87	16.70

Band	WCDMA I_AntS1			Turn-up Limit (dBm)	WCDMA IV_AntS1			Turn-up Limit (dBm)	WCDMA V_AntH1			Turn-up Limit (dBm)	
	9262	8400	9538		1312	1413	1513		4132	4162	4233		
TX Channel	9862	8900	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 12.2kops	22.50	22.54	22.48	24.00	24.25	24.41	24.33	25.50	23.63	23.88	23.62	25.00
3GPP Rel 99	RMC 12.2kops	22.55	22.59	22.47	24.00	24.26	24.42	24.35	25.50	23.66	23.70	23.68	25.00
3GPP Rel 6	HSDPA Subtest-1	21.35	21.50	21.40	23.00	23.08	23.24	23.08	24.50	22.80	22.70	22.81	24.00
3GPP Rel 6	HSDPA Subtest-2	21.46	21.47	21.41	23.00	23.12	23.25	23.25	24.50	22.72	22.74	22.72	24.00
3GPP Rel 6	HSDPA Subtest-3	20.95	21.03	20.86	22.50	22.83	22.81	22.86	24.00	22.15	22.21	22.15	23.50
3GPP Rel 6	HSDPA Subtest-4	20.81	21.00	20.95	22.50	22.74	22.77	22.73	24.00	22.09	22.18	22.18	23.50
3GPP Rel 6	DC-HSDPA Subtest-1	21.30	21.35	21.35	23.00	23.01	23.18	23.03	24.50	22.46	22.56	22.47	24.00
3GPP Rel 6	DC-HSDPA Subtest-2	21.44	21.40	21.39	23.00	23.10	23.15	23.23	24.50	22.72	22.62	22.72	24.00
3GPP Rel 6	DC-HSDPA Subtest-3	20.84	20.89	20.75	22.50	22.82	22.75	22.85	24.00	21.98	22.05	21.98	23.50
3GPP Rel 6	DC-HSDPA Subtest-4	20.67	20.98	20.81	22.50	22.68	22.60	22.67	24.00	22.06	22.03	22.15	23.50
3GPP Rel 6	HSUPA Subtest-1	20.43	20.45	20.27	22.00	21.52	21.51	21.54	22.50	20.67	20.68	20.62	22.00
3GPP Rel 6	HSUPA Subtest-2	20.29	20.47	20.43	22.00	21.33	21.36	21.40	22.50	20.65	20.72	20.67	22.00
3GPP Rel 6	HSUPA Subtest-3	21.39	21.50	21.48	23.00	22.41	22.43	22.36	23.50	21.75	21.75	21.60	23.00
3GPP Rel 6	HSUPA Subtest-4	19.97	20.04	19.94	21.50	21.00	21.00	20.95	22.00	20.34	20.35	20.20	22.00
3GPP Rel 6	HSUPA Subtest-5	21.33	21.50	21.31	23.00	22.44	22.43	22.30	23.50	21.57	21.70	21.55	23.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	21.03	21.11	21.07	22.00	21.52	21.60	21.55	22.50	21.10	21.13	21.05	22.00

Band	WCDMA I_AntH4			Turn-up Limit (dBm)	WCDMA IV_AntH4			Turn-up Limit (dBm)	WCDMA V_AntH1			Turn-up Limit (dBm)	
	9262	8400	9538		1312	1413	1513		4132	4162	4233		
TX Channel	9862	8900	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 12.2kops	15.62	15.62	15.57	17.00	16.35	16.40	16.43	17.50	21.30	21.37	21.36	22.50
3GPP Rel 99	RMC 12.2kops	15.66	15.78	15.72	17.00	16.44	16.50	16.43	17.50	21.38	21.39	21.38	22.50
3GPP Rel 6	HSDPA Subtest-1	14.75	14.68	14.73	16.00	15.36	15.47	15.30	16.50	20.23	20.39	20.28	21.50
3GPP Rel 6	HSDPA Subtest-2	14.66	14.76	14.67	16.00	15.32	15.48	15.38	16.50	20.11	20.28	20.20	21.50
3GPP Rel 6	HSDPA Subtest-3	14.21	14.23	14.13	15.50	14.80	14.88	14.76	16.00	19.77	19.80	19.69	21.00
3GPP Rel 6	HSDPA Subtest-4	14.21	14.21	14.04	15.50	14.88	14.81	14.88	16.50	19.72	19.88	19.73	21.00
3GPP Rel 6	DC-HSDPA Subtest-1	14.48	14.62	14.50	16.00	15.24	15.46	15.16	16.50	20.24	20.33	20.24	21.50
3GPP Rel 6	DC-HSDPA Subtest-2	14.50	14.61	14.59	16.00	15.11	15.40	15.29	16.50	20.07	20.09	20.12	21.50
3GPP Rel 6	DC-HSDPA Subtest-3	14.15	14.11	14.11	15.50	14.80	14.80	14.83	16.00	19.77	19.86	19.61	21.00
3GPP Rel 6	DC-HSDPA Subtest-4	14.25	14.10	14.15	15.50	14.72	14.88	14.71	16.50	19.65	19.72	19.75	21.00
3GPP Rel 6	HSUPA Subtest-1	13.58	13.75	13.68	15.00	13.33	13.35	13.42	14.50	18.10	18.35	18.21	19.50
3GPP Rel 6	HSUPA Subtest-2	13.87	13.74	13.60	15.00	13.24	13.40	13.33	14.50	18.29	18.29	18.06	19.50
3GPP Rel 6	HSUPA Subtest-3	14.75	14.84	14.74	16.00	14.41	14.47	14.42	15.50	19.27	19.29	19.22	20.50
3GPP Rel 6	HSUPA Subtest-4	13.13	13.40	13.21	14.50	12.93	13.01	12.94	14.00	17.76	17.85	17.61	18.50
3GPP Rel 6	HSUPA Subtest-5	14.81	14.70	14.66	16.00	14.38	14.32	14.22	15.50	19.03	19.20	19.15	20.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	14.34	14.28	14.31	15.00	13.80	13.60	13.81	14.50	18.88	18.72	18.77	19.50









### Band 12\_Ant11

BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. 1 / Freq.	Power Ch. 2 / Freq.	Power Ch. 3 / Freq.	Turn-up time (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.78	23.97	23.83		
10	QPSK	1	25	23.85	23.86	23.75	25	0
10	QPSK	1	49	23.83	23.80	23.84		
10	QPSK	25	0	22.60	22.74	22.81	24	1
10	QPSK	25	12	22.67	22.86	22.65		
10	QPSK	25	25	22.64	22.67	22.64		
10	QPSK	25	37	22.68	22.70	22.64		
10	HQAM	1	0	22.85	22.69	22.64		
10	HQAM	1	25	22.77	22.84	22.89	24	1
10	HQAM	1	49	22.52	22.68	22.83		
10	HQAM	25	0	21.75	21.83	21.99		
10	HQAM	25	12	21.89	21.90	21.85	23	2
10	HQAM	25	25	21.89	21.81	21.84		
10	HQAM	50	0	21.86	21.76	21.84		
10	HQAM	50	1	21.85	22.03	21.95		
10	HQAM	1	25	22.13	22.07	21.96	23	2
10	HQAM	1	49	22.13	21.95	21.99		
10	HQAM	25	0	20.74	20.80	20.76		
10	HQAM	25	12	20.83	20.80	20.87	22	3
10	HQAM	25	25	20.77	20.80	20.83		
10	HQAM	50	0	20.78	20.88	20.83		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.57	23.75	23.69		
5	QPSK	1	12	22.87	22.87	22.87	25	0
5	QPSK	1	24	23.71	23.72	23.72		
5	QPSK	12	0	22.81	22.82	22.72		
5	QPSK	12	7	22.86	22.84	22.88	24	1
5	QPSK	12	14	22.88	22.85	22.85		
5	QPSK	25	0	22.69	22.61	22.68		
5	HQAM	1	0	22.81	22.74	22.56	24	1
5	HQAM	1	12	22.14	22.56	22.46		
5	HQAM	1	24	22.10	22.59	22.61		
5	HQAM	12	0	21.89	21.86	21.77	23	2
5	HQAM	12	7	21.79	21.91	21.84		
5	HQAM	12	14	21.80	21.87	21.83		
5	HQAM	25	0	21.87	21.92	21.93		
5	HQAM	1	0	21.83	21.83	21.88	23	2
5	HQAM	1	12	21.92	21.91	22.10		
5	HQAM	1	24	21.90	21.92	21.90		
5	HQAM	12	0	20.83	20.85	20.93		
5	HQAM	12	7	20.92	20.90	20.85	22	3
5	HQAM	12	14	20.89	20.83	20.83		
5	HQAM	25	0	20.89	20.83	20.83		
Channel								
Frequency (MHz)								
3	QPSK	1	0	23.61	23.61	23.61		
3	QPSK	1	8	23.59	23.72	23.67	25	0
3	QPSK	1	14	23.73	23.58	23.69		
3	QPSK	8	0	22.59	22.59	22.74		
3	QPSK	8	4	22.63	22.61	22.70	24	1
3	QPSK	8	7	22.68	22.63	22.59		
3	QPSK	15	0	22.50	22.80	22.88		
3	HQAM	1	0	22.48	22.00	22.91	24	1
3	HQAM	1	13	22.02	22.85	22.98		
3	HQAM	1	14	22.59	22.91	23.11		
3	HQAM	8	0	21.85	21.74	22.02		
3	HQAM	8	4	21.80	21.80	22.01	23	2
3	HQAM	8	7	21.56	21.88	21.95		
3	HQAM	15	0	21.86	21.77	21.89		
3	HQAM	1	0	21.80	22.06	22.17	23	2
3	HQAM	1	13	22.01	22.05	21.77		
3	HQAM	1	14	21.81	21.90	21.98		
3	HQAM	8	0	20.83	20.76	20.87		
3	HQAM	8	4	20.85	20.86	20.94	22	3
3	HQAM	8	7	20.80	20.90	20.91		
3	HQAM	15	0	20.78	20.89	20.78		
Channel								
Frequency (MHz)								
1.4	QPSK	1	0	23.87	23.99	23.73		
1.4	QPSK	1	3	23.79	23.76	23.77	25	0
1.4	QPSK	1	5	23.83	23.55	23.81		
1.4	QPSK	3	0	23.81	23.88	23.82		
1.4	QPSK	3	1	23.80	23.88	23.72		
1.4	QPSK	3	3	23.84	23.72	23.71	24	1
1.4	QPSK	6	0	22.83	22.84	22.87		
1.4	HQAM	1	0	22.97	22.92	23.12		
1.4	HQAM	1	3	22.86	22.73	22.86	24	1
1.4	HQAM	1	5	22.95	22.79	22.83		
1.4	HQAM	3	0	22.60	22.72	22.77		
1.4	HQAM	3	1	22.61	22.69	22.61		
1.4	HQAM	3	3	22.63	22.69	22.83		
1.4	HQAM	6	0	21.87	21.90	22.11	23	2
1.4	HQAM	6	2	22.06	21.88	22.21		
1.4	HQAM	1	3	22.12	22.15	21.86		
1.4	HQAM	1	5	22.09	21.84	21.90	23	2
1.4	HQAM	3	0	21.87	21.80	21.90		
1.4	HQAM	3	1	21.89	22.08	21.72		
1.4	HQAM	3	3	21.99	21.93	21.89	22	3
1.4	HQAM	6	0	20.78	20.78	20.85		

### Band 12\_Ant41

BW (MHz)	Modulation	RB Size	RB Offset	Power Ch. 1 / Freq.	Power Ch. 2 / Freq.	Power Ch. 3 / Freq.	Turn-up time (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.70	23.70	23.69		
10	QPSK	1	25	23.86	23.89	23.85	25	0
10	QPSK	1	49	23.81	23.79	23.71		
10	QPSK	25	0	22.83	22.71	22.89		
10	QPSK	25	12	22.68	22.71	22.87	24	1
10	QPSK	25	25	22.70	22.69	22.64		
10	QPSK	25	37	22.68	22.71	22.68		
10	HQAM	1	0	22.90	22.56	22.56		
10	HQAM	1	25	22.75	22.91	22.77	24	1
10	HQAM	1	49	22.61	23.20	23.24		
10	HQAM	25	0	21.88	21.88	21.84		
10	HQAM	25	12	21.88	21.90	21.80	23	2
10	HQAM	25	25	21.82	21.82	21.86		
10	HQAM	50	0	21.82	21.83	21.80		
10	HQAM	1	25	22.22	21.97	21.79	23	2
10	HQAM	1	49	21.90	21.81	21.99		
10	HQAM	25	0	20.88	20.86	21.00		
10	HQAM	25	12	20.91	20.50	20.83	22	3
10	HQAM	25	25	20.81	20.77	20.89		
10	HQAM	50	0	20.88	20.93	20.85		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.62	23.62	23.60		
5	QPSK	1	12	22.68	23.70	23.78	25	0
5	QPSK	1	24	23.67	23.70	23.82		
5	QPSK	12	0	22.62	22.68	22.86		
5	QPSK	12	7	22.63	22.69	22.71	24	1
5	QPSK	12	14	22.68	22.65	22.65		
5	QPSK	25	0	22.68	22.69	22.69		
5	HQAM	1	0	22.68	22.73	23.00		
5	HQAM	1	12	22.06	22.80	22.87	24	1
5	HQAM	1	24	22.03	22.85	22.90		
5	HQAM	12	0	21.75	21.87	21.86		
5	HQAM	12	7	21.80	21.88	21.93	23	2
5	HQAM	12	14	21.82	21.87	21.87		
5	HQAM	25	0	21.82	21.77	21.81		
5	HQAM	1	0	21.84	22.10	21.75	23	2
5	HQAM	1	12	21.89	22.07	21.90		
5	HQAM	1	24	21.87	21.91	22.00		
5	HQAM	12	0	20.76	20.87	20.88		
5	HQAM	12	7	20.87	20.85	20.88	22	3
5	HQAM	12	14	20.88	20.85	20.88		
5	HQAM	25	0	20.84	20.80	20.80		
5	HQAM	25	0	20.83	20.74	20.91		
Channel								
Frequency (MHz)								
3	QPSK	1	0	23.59	23.54	23.78		
3	QPSK	1	8	23.89	23.82	23.72	25	0
3	QPSK	1	14	23.64	23.55	23.73		
3	QPSK	8	0	22.62	22.62	22.69		
3	QPSK	8	4	22.64	22.64	22.72	24	1
3	QPSK	8	7	22.63	22.60	22.71		
3	QPSK	15	0	22.59	22.61	22.82		
3	HQAM	1	0	22.91	22.62	22.78	24	1
3	HQAM	1	8	22.64	22.61	22.83		
3	HQAM	1	14	22.68	23.02	22.87		
3	HQAM	8	0	21.87	21.87	21.89		
3	HQAM	8	4	21.88	21.80	21.80	23	2
3	HQAM	8	7	21.86	21.84	21.98		
3	HQAM	15	0	21.77	21.87	21.76		
3	HQAM	1	0	22.04	22.08	21.97	23	2
3	HQAM	1	8	21.87	21.91	22.00		
3	HQAM	1						



### Band 17\_Ant11

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. 1 / Freq.	Power Level Ch. 2 / Freq.	Power Level Ch. 3 / Freq.	Turn-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.63	23.71	23.84	25	0
10	QPSK	1	25	23.71	23.75	23.72		
10	QPSK	1	49	23.66	23.49	23.67		
10	QPSK	25	0	22.64	22.88	22.86	24	1
10	QPSK	25	12	22.61	22.81	22.87		
10	QPSK	25	25	22.66	22.67	22.63		
10	QPSK	39	0	22.66	22.71	22.69		
10	HQAM	1	0	22.65	23.01	23.01	24	1
10	HQAM	1	25	22.64	22.68	22.48		
10	HQAM	1	49	22.65	22.60	23.02		
10	HQAM	25	0	21.62	21.77	21.62	23	2
10	HQAM	25	12	21.67	21.90	21.80		
10	HQAM	25	25	21.66	21.85	21.85		
10	HQAM	39	0	21.60	21.82	21.87		
10	HQAM	1	0	21.59	21.87	21.75	23	2
10	HQAM	1	25	21.70	22.17	22.17		
10	HQAM	1	49	21.51	21.90	22.18		
10	HQAM	25	0	20.79	20.86	20.90	22	3
10	HQAM	25	12	20.51	20.77	20.82		
10	HQAM	25	25	20.87	20.92	20.75		
10	HQAM	39	0	20.85	20.82	20.86		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.61	23.64	23.67	25	0
5	QPSK	1	12	22.67	22.87	22.89		
5	QPSK	1	24	22.60	23.04	23.03		
5	QPSK	12	0	22.58	22.56	22.58	24	1
5	QPSK	12	7	22.56	22.58	22.60		
5	QPSK	12	13	22.57	22.52	22.52		
5	QPSK	25	0	22.57	22.54	22.53	24	1
5	HQAM	1	0	22.52	22.56	22.53	24	1
5	HQAM	1	12	22.71	22.56	22.79		
5	HQAM	1	24	22.63	22.49	23.17		
5	HQAM	12	0	21.72	21.75	21.76	23	2
5	HQAM	12	7	21.69	21.74	21.71		
5	HQAM	12	13	21.73	21.67	21.66		
5	HQAM	25	0	21.75	21.79	21.71	23	2
5	HQAM	1	0	21.63	21.74	21.62	23	2
5	HQAM	1	12	21.66	22.00	22.16		
5	HQAM	1	24	21.62	22.02	22.09		
5	HQAM	12	0	20.69	20.85	20.84	22	3
5	HQAM	12	7	20.72	20.86	20.84		
5	HQAM	12	13	20.72	20.79	20.86		
5	HQAM	25	0	20.74	20.77	20.68		

### Band 17\_Ant41

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. 1 / Freq.	Power Level Ch. 2 / Freq.	Power Level Ch. 3 / Freq.	Turn-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
10	QPSK	1	0	23.65	23.60	23.60	25	0
10	QPSK	1	25	23.59	23.78	23.67		
10	QPSK	1	49	23.69	23.71	23.70		
10	QPSK	25	0	22.64	22.68	22.67	24	1
10	QPSK	25	12	22.62	22.61	22.63		
10	QPSK	25	25	22.60	22.65	22.65		
10	QPSK	39	0	22.66	22.73	22.67		
10	HQAM	1	0	22.64	23.05	23.05	24	1
10	HQAM	1	25	22.69	23.20	22.96		
10	HQAM	1	49	22.57	22.65	23.27		
10	HQAM	25	0	21.62	21.67	21.65	23	2
10	HQAM	25	12	21.78	21.84	21.89		
10	HQAM	25	25	21.63	21.79	21.91		
10	HQAM	39	0	21.77	21.78	21.85		
10	HQAM	1	0	21.67	21.81	21.90	23	2
10	HQAM	1	25	21.77	21.65	22.09		
10	HQAM	1	49	22.24	21.89	22.00		
10	HQAM	25	0	20.82	20.77	20.86	22	3
10	HQAM	25	12	20.85	20.81	20.81		
10	HQAM	25	25	20.83	20.83	20.74		
10	HQAM	39	0	20.83	20.81	20.81		
Channel								
Frequency (MHz)								
5	QPSK	1	0	23.54	23.50	23.56	25	0
5	QPSK	1	12	22.52	22.65	22.68		
5	QPSK	1	24	22.64	23.09	23.02		
5	QPSK	12	0	22.53	22.58	22.65	24	1
5	QPSK	12	7	22.58	22.62	22.58		
5	QPSK	12	13	22.49	22.63	22.60		
5	QPSK	25	0	22.65	22.68	22.56	24	1
5	HQAM	1	0	22.62	23.03	22.67	24	1
5	HQAM	1	12	22.83	22.24	22.96		
5	HQAM	1	24	22.11	22.88	23.21		
5	HQAM	12	0	21.76	21.79	21.90	23	2
5	HQAM	12	7	21.69	21.81	21.81		
5	HQAM	12	13	21.73	21.75	21.81		
5	HQAM	25	0	21.74	21.72	21.77	23	2
5	HQAM	1	0	21.64	21.71	21.83	23	2
5	HQAM	1	12	21.79	21.89	22.04		
5	HQAM	1	24	22.16	21.83	21.93		
5	HQAM	12	0	20.78	20.72	20.75	22	3
5	HQAM	12	7	20.68	20.69	20.69		
5	HQAM	12	13	20.79	20.74	20.69		
5	HQAM	25	0	20.77	20.77	20.78		

### Band 18\_Ant 11

BW (MHz)	Modulation	RB Size	RB Offset	Power Level Ch. 1 / Freq.	Power Level Ch. 2 / Freq.	Power Level Ch. 3 / Freq.	Turn-up (dB)	MPR (dB)
Channel								
Frequency (MHz)								
15	QPSK	1	0	22.01			23.5	0
15	QPSK	1	37	22.22				
15	QPSK	1	74	21.98				
15	QPSK	39	0	22.00			23.5	0
15	QPSK	39	39	22.04				
15	QPSK	75	0	22.02				
15	HQAM	1	0	22.07			23.5	0
15	HQAM	1	37	22.20				
15	HQAM	1	74	22.20				
15	HQAM	39	0	21.87			23	0.5
15	HQAM	39	39	21.81				
15	HQAM	75	0	21.98				
15	HQAM	1	0	21.72			23	0.5
15	HQAM	1	37	21.77				
15	HQAM	1	74	21.81				
15	HQAM	39	0	20.73			22	1.5
15	HQAM	39	39	20.81				
15	HQAM	39	39	20.79				
15	HQAM	75	0	20.76				
Channel								
Frequency (MHz)								
5	QPSK	1	0	21.96	21.91	21.98	23.5	0
5	QPSK	1	25	22.02	22.11	22.02		
5	QPSK	1	49	21.83	21.84	21.83		
5	QPSK	25	0	22.03	22.01	22.03	23.5	0
5	QPSK	25	12	22.06	21.95	22.06		
5	QPSK	25	25	22.00	22.04	21.92		
5	QPSK	50	0	22.09	21.96	22.09	23.5	0
5	HQAM	1	0	22.09	22.16	22.09	23.5	0
5	HQAM	1	25	22.11	22.13	22.15		
5	HQAM	1	49	22.06	22.15	22.17		
5	HQAM	25	0	21.41	21.46	21.41	23	0.5
5	HQAM	25	12	21.60	21.81	21.60		
5	HQAM	25	25	21.67	21.61	21.63		
5	HQAM	50	0	21.42	21.43	21.42	23	0.5
5	HQAM	1	0	21.56	21.70	21.56	23	0.5
5	HQAM	1	25	21.69	21.63	21.65		
5	HQAM	1	49	21.65	21.60	21.65		
5	HQAM	25	0	20.69	20.65	20.69	22	1.5
5	HQAM	25	12	20.69	20.66	20.65		
5	HQAM	25	25	20.79	20.77	20.79		
5	HQAM	50	0	20.76	20.64	20.78		
Channel								
Frequency (MHz)								
5	QPSK	1	0	21.60	21.66	21.60	23.5	0
5	QPSK	1	12	22.09	22.08	22.09		
5	QPSK	1	24	21.87	21.86	21.87		
5	QPSK	12	0	21.61	22.07	21.61	23.5	0
5	QPSK	12	7	22.06	21.92	22.06		
5	QPSK	12	13	22.04	21.98	22.04		
5	QPSK	25	0	22.08	22.01	22.08	23.5	0
5	HQAM	1	0	22.14	22.10	22.14	23.5	0
5	HQAM	1	12	22.13	22.15	22.17		
5	HQAM	1	24	22.12	22.17	22.13		
5	HQAM	12	0	21.64	21.41	21.64	23	0.5
5	HQAM	12	7	21.62	21.55	21.63		
5	HQAM	12	13	21.57	21.43	21.57		
5	HQAM	25	0	21.47	21.54	21.47	23	0.5
5	HQAM	1	0	21.64	21.86	21.64	23	0.5
5	HQAM	1	12	21.62	21.76	21.62		
5	HQAM	1	24	21.83	21.61	21.83		
5	HQAM	12	0	2				