Shenzhen CTA Testing Technology Co., Ltd.
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

TEST REPORT

Report Reference No.....:	**CTA24102301410**
FCC ID .....:	**2BL6E-KDC-LT31**
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Date of issue..... :	Nov. 07, 2024
Testing Laboratory Name ..... :	**Shenzhen CTA Testing Technology Co., Ltd.**
Address..... :	Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name ..... :	**Eyesun Technology Co.,Ltd**
Address..... :	Room 301, 3rd Floor, No. 195, Humen Section, Humen Binhai Road, Dongguan City Guangdong Province, China
Test specification.....:	
Standard ..... :	**FCC 47CFR §2.1093; ANSI/IEEE C95.1-2019; IEEE 1528-2013; KDB 941225 D01;KDB 941225 D05; KDB 941225 D06; KDB 447498 D01; KDB 865664 D01; KDB 865664 D02; KDB 690783 D01**

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Test item description.....:	**Kids Smart Watch**
Trade Mark..... :	N/A
Manufacturer..... :	Eyesun Technology Co.,Ltd
Model/Type reference..... :	KDC-LT31
Rating ..... :	DC 3.8V From battery and DC 5.0V From external circuit
Result..... :	**PASS**

TEST REPORT

Equipment under Test	:	Kids Smart Watch
Model /Type	:	KDC-LT31
Listed Models	:	KDC-LT37, KDC-LT32A, KDC-LT32B, KDC-LT41, KDC-LT36C, KDC-LT36B, KDC-LT90A, KDC-LT36A, KDC-LT30, KDC-LT39, KDC-LT40, KDC-LT40A, KDC-LT35A, LT33A, LT33, KDCLT35B, KDC-M81A, KDC-M81B, KDC-M03, KDC-M01
Applicant	:	**Eyesun Technology Co.,Ltd**
Address	:	Room 301, 3rd Floor, No. 195, Humen Section, Humen Binhai Road, Dongguan City Guangdong Province, China
Manufacturer	:	**Eyesun Technology Co.,Ltd**
Address	:	Room 301, 3rd Floor, No. 195, Humen Section, Humen Binhai Road, Dongguan City Guangdong Province, China

Test Result:	**PASS**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

※ ※ Revision History ※ ※

REV.	ISSUED DATE	DESCRIPTION
Rev.1.0	Nov. 07, 2024	Initial Test Report Release

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1 Statement of Compliance

<Highest SAR Summary>

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 The maximum results of Specific Absorption Rate (SAR) found during testing are as follows.

<Highest SAR Summary>

Frequency Band	Highest Reported 1g-SAR(W/Kg)	Highest Reported 10g-SAR(W/Kg)
	Next to the Mouth (10mm)	Extremity (0mm)
GSM 850	0.255	0.441
GSM 1900	0.430	0.614
WCDMA V	0.244	0.377
WCDMA II	0.458	0.671
LTE Band 2	0.514	0.762
LTE Band 4	0.585	0.782
LTE Band 5	0.274	0.398
LTE Band 7	0.644	0.796
LTE Band 12/17	0.309	0.566
LTE Band 13	0.294	0.580
Simultaneous Reported SAR (W/Kg)	N/A	N/A
SAR Test Limit (W/Kg)	**1.6**	**4.0**
Test Result	**PASS**	

Note:

1) According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows:

a) The maximum output power, including tolerance, for the smaller band must be ≤ the larger band to qualify for the SAR test exclusion.

b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

•LTE Band 17 (704-716 MHz) is covered by LTE band 12 (699-716 MHz) and has the same maximum tune-up power, so only LTE Band 12 needs to be tested.

2 General Information

2.1 General Remarks

Date of receipt of test sample	:	Oct. 18, 2024
Testing commenced on	:	Oct. 18, 2024
Testing concluded on	:	Nov. 06, 2024

2.2 Description of Equipment Under Test (EUT)

Product Name:	Kids Smart Watch
Model/Type reference:	KDC-LT31
Listed Models:	KDC-LT37, KDC-LT32A, KDC-LT32B, KDC-LT41, KDC-LT36C, KDC-LT36B, KDC-LT90A, KDC-LT36A, KDC-LT30, KDC-LT39, KDC-LT40, KDC-LT40A, KDC-LT35A, LT33A, LT33, KDCLT35B, KDC-M81A, KDC-M81B, KDC-M03, KDC-M01
Power supply:	DC 3.8V From battery and DC 5.0V From external circuit
Adapter information (Auxiliary test supplied by test Lab):	Model: EP-TA20CBC Input: AC 100-240V 50/60Hz Output: DC 5V 2.0A
Testing sample ID：	CTA241023014-1# (Engineer sample) CTA241023014-2# (Normal sample)
Hardware version:	V1.0
Software version:	V1.0
GSM	
Modilation Type	GMSK
GSM/EDGE/GPRS	Supported GSM/GPRS
GSM/GPRS Power Class	GSM850:Power Class 4/ PCS1900:Power Class 1
GSM/GPRS Operation Frequency	GSM850 :824.2MHz-848.8MHz/PCS1900:1850.2MHz-1909.8MHz
GPRS Operation Frequency Band	GPRS850/GPRS1900
GPRS Multislot Class	Multi-slot Class 12
GPRS operation mode	Class B

Antenna Type:	PIFA antenna
Antenna Gain:	GSM850: 1.0 dBi, DCS1900: 1.0 dBi
WCDMA	
Operation Band:	FDD Band II & Band V
Power Class:	Power Class 3
Modilation Type:	QPSK for WCDMA/HSUPA/HSDPA,16QAM for HSPA+
Release Version:	R8
Antenna type:	PIFA antenna
Antenna gain:	FDD Band II: 1.0 dBi FDD Band V: 1.0 dBi
LTE	
Operation Band:	☒E-UTRA Band 2(U.S.-Band) ☒E-UTRA Band 4(U.S.-Band) ☒E-UTRA Band 5(U.S.-Band) ☒E-UTRA Band 7(U.S.-Band) ☒E-UTRA Band 12(U.S.-Band) ☒E-UTRA Band 13(U.S.-Band) ☒E-UTRA Band 17(U.S.-Band)
Release Version:	Release 9
Category:	Cat 1
Modulation Type:	QPSK, 16QAM
Antenna Description:	PIFA antenna 1.0dBi(max.) For E-UTRA Band 2 1.0dBi(max.) For E-UTRA Band 4 1.0dBi(max.) For E-UTRA Band 5 1.0dBi(max.) For E-UTRA Band 7 1.0dBi(max.) For E-UTRA Band 12 1.0dBi(max.) For E-UTRA Band 13 1.0dBi(max.) For E-UTRA Band 17
Remark: The above DUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

2.3 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

2.4 Applied Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01	3G SAR Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D06	Hotspot SARv02r01
KDB 447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03

2.5 Test Facility

FCC-Registration No.: 517856 Designation Number: CN1318

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6534.01

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

ISED#: 27890 CAB identifier: CN0127

Shenzhen CTA Testing Technology Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

2.6 Environment of Test Site

Items	Required	Actual
Temperature (℃)	18-25	22~23
Humidity (%RH)	30-70	55~65

2.7 Test Configuration

The device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during all tests. For WLAN SAR testing, WLAN engineering testing software installed on the EUT can provide continuous transmitting RF signal.

3 Specific Absorption Rate (SAR)

3.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

3.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ).The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

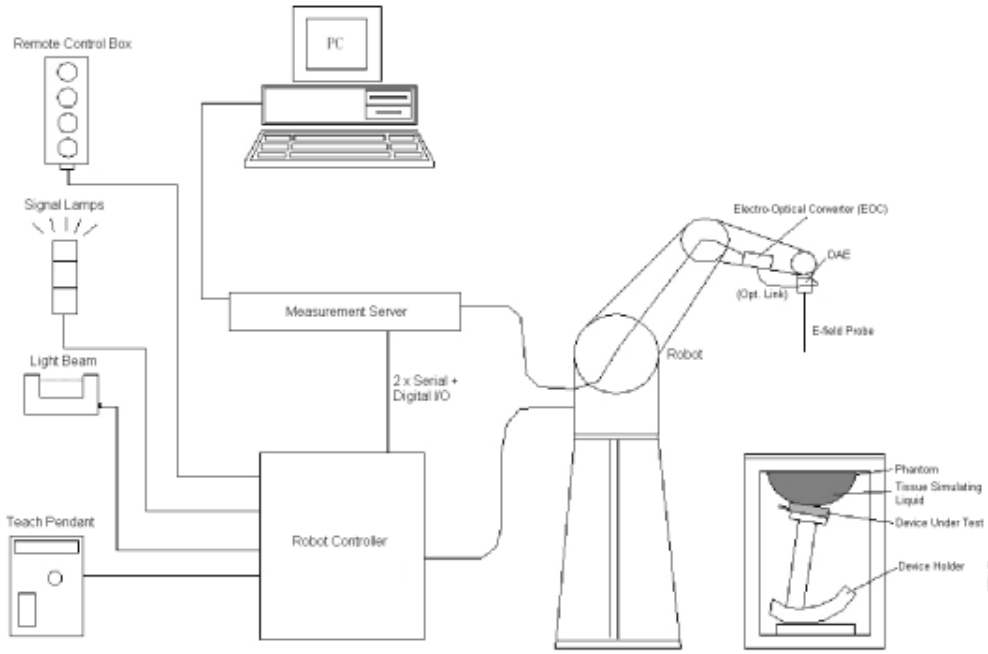
$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific head capacity, δT is the temperature rise and δtisthe exposure duration, or related to the electrical field in the tissue by

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where:σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.
However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4 SAR Measurement System



DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

components are described in details in the following sub-sections.

4.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

➢ E-Field Probe Specification

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 **Photo of EX3DV4**
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 W/kg; Linearity: ± 0.2 dB (noise: typically< 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

➢ E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

4.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The input impedance of the DAE is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.

Photo of DAE

4.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX60XL) type from Stäubli SA (France). For the 6-axis controllersystem, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäublirobot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

Photo of DASY5

4.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128 MB), RAM (DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

Photo of Server for DASY5

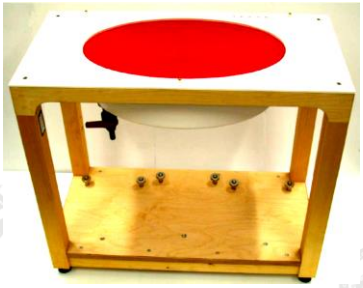
4.5 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	 **Photo of SAM Phantom**
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI4 Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	 **Photo of ELI4 Phantom**
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis:400 mm	

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

4.6 Device Holder

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ± 20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (ERP).Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Device Holder

4.7 Data Storage and Evaluation

➢ Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [W/kg]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

➢ Data Evaluation

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software：

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as：

$$\mathbf{V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}}$$

with V_i= compensated signal of channel i, (i = x, y, z)

U_i = input signal of channel i, (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated：

E-field Probes： $\mathbf{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$

H-field Probes： $\mathbf{H_i = \sqrt{V_i} \cdot \frac{a_{i0}+a_{i1}f+a_{i2}f^2}{f}}$

with V_i = compensated signal of channel i,(i= x, y, z)

$Norm_i$= sensor sensitivity of channel i, (i= x, y, z), μV/(V/m)^2 for E-field Probes

ConvF= sensitivity enhancement in solution

a_{ij}= sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i= electric field strength of channel iin V/m

H_i= magnetic field strength of channel iin A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude)：

$$\mathbf{E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}}$$

The primary field data are used to calculate the derived field units.

$$\mathbf{SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}}$$

with SAR = local specific absorption rate in W/kg

E_{tot}= total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

5 Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1118	Jun. 04,2024	Jun. 03,2027
SPEAG	835MHz System Validation Kit	D835V2	484	Aug. 25,2023	Aug. 24,2026
SPEAG	1800MHz System Validation Kit	D1800V2	2d158	Dec. 17,2021	Dec.16,2024
SPEAG	1900MHz System Validation Kit	D1900V2	5d002	Aug. 25,2023	Aug. 24,2026
SPEAG	2600MHz System Validation Kit	D2600V2	1073	Feb. 17,2023	Feb. 16,2026
Rohde & Schwarz	UNIVERSAL RADIO COMMUNICATION TESTER	CMW500	1201.0002K50-104209-JC	Aug.25, 2024	Aug.24, 2025
SPEAG	Data Acquisition Electronics	DAE4	387	Sep.02,2024	Sep.01,2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7396	May.06,2024	May.05,2025
Agilent	ENA Series Network Analyzer	E5071C	MY46317418	Aug.25, 2024	Aug.24, 2025
SPEAG	DAK	DAK-3.5	1226	Aug.25, 2024	Aug.24, 2025
SPEAG	SAM Twin Phantom	QD000P40CD	1802	NA1	NA1
SPEAG	ELI Phantom	QDOVA004AA	2058	NA1	NA1
AR	Amplifier	ZHL-42W	QA1118004	Aug.25, 2024	Aug.24, 2025
Agilent	Power Meter	N1914A	MY50001102	Aug.25, 2024	Aug.24, 2025
Agilent	Power Sensor	N8481H	MY51240001	Aug.25, 2024	Aug.24, 2025
R&S	Spectrum Analyzer	N9020A	MY51170037	Aug.25, 2024	Aug.24, 2025
Agilent	Signal Generation	N5182A	MY48180656	Aug.25, 2024	Aug.24, 2025
Worken	Directional Coupler	0110A05601O-10	COM5BNW1A2	Aug.25, 2024	Aug.24, 2025

Note:

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. The dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
4. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent.
5. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it
6. “1” : NA as this is not measurement equipment.

6 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown as followed:

Photo of Liquid Height

The following table gives the recipes for tissue simulating liquid.

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose		
HSL5GHz is composed of the following ingredients： Water：50-65% Mineral oil：10-30% Emulsifiers：8-25% Sodium salt：0-1.5%					

Table 1： Recipe of Tissue Simulate Liquid

The following table shows the measuring results for simulating liquid.

Measured Frequency (MHz)	Target Tissue		Measured Tissue				Liquid Temp.	Test Data
	εr	σ	εr	Dev. (%)	σ	Dev. (%)		
750	41.9	0.89	40.698	-2.87%	0.875	-1.69%	22.5	Oct.18, 2024
835	41.5	0.90	41.687	0.45%	0.897	-0.33%	21.8	Oct. 20, 2024
1800	40.1	1.37	39.254	-2.11%	1.425	4.01%	22.5	Oct. 25, 2024
1900	40.0	1.40	39.725	-0.69%	1.426	1.86%	22.8	Oct. 29, 2024
2600	39.0	1.96	38.524	-1.22%	2.015	2.81%	22.6	Nov. 03, 2024

7 System Verification Procedures

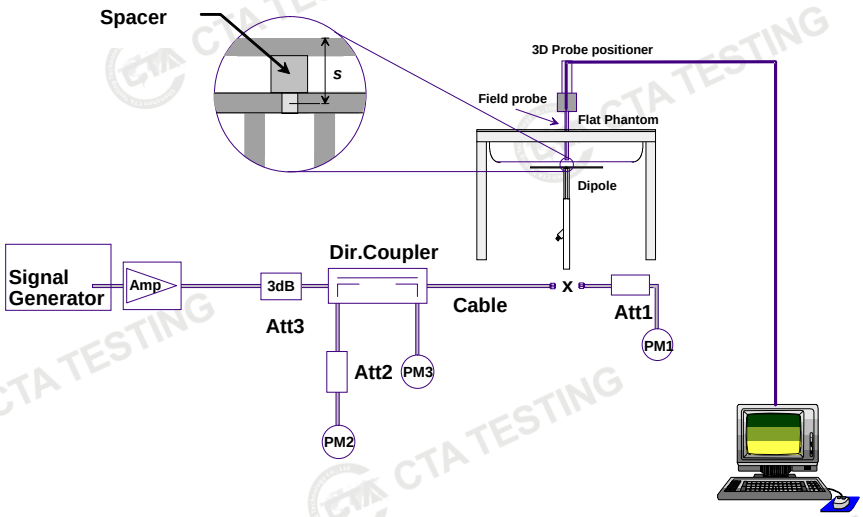
Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

➢ Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

➢ System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



System Setup for System Evaluation

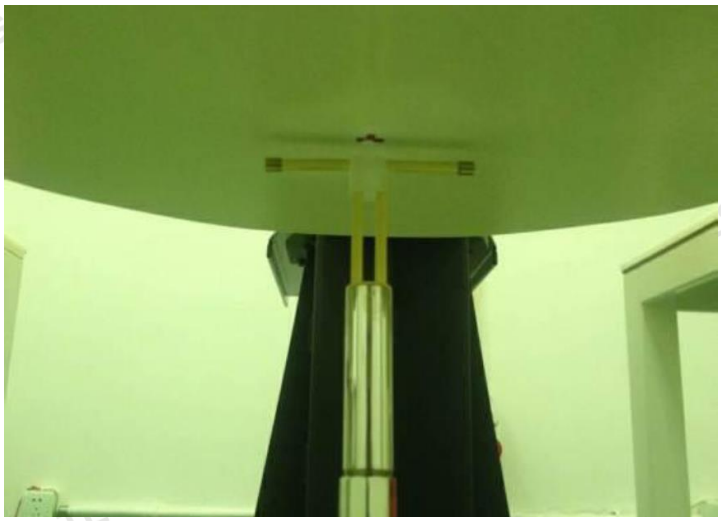


Photo of Dipole Setup

➢ Validation Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10%. The table below shows the target SAR and measured SAR after normalized to 1W input power. It indicates that the system performance check can meet the variation criterion and the plots can be referred to Appendix B of this report.

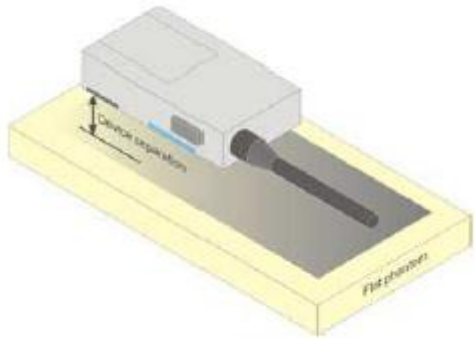
Date	Frequency (MHz)	Power fed onto reference dipole (mW)	Targeted SAR 1g (W/kg)	Measured SAR1g (W/kg)	Normalized SAR (W/kg)	Deviation (%)
10/18/2024	750	250	8.31	2.22	8.88	6.86%
10/20/2024	835	250	9.68	2.36	9.44	-2.48%
10/25/2024	1800	250	39.2	9.44	37.76	-3.67%
10/29/2024	1900	250	40.1	9.68	38.72	-3.44%
11/03/2024	2600	250	56.8	13.87	55.48	-2.32%

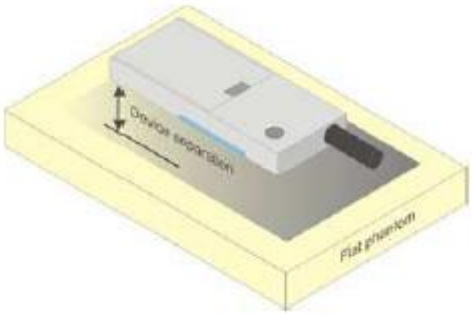
Date	Frequency (MHz)	Power fed onto reference dipole (mW)	Targeted SAR 10g (W/kg)	Measured SAR10g (W/kg)	Normalized SAR (W/kg)	Deviation (%)
10/18/2024	750	250	5.52	1.30	5.20	-5.80%
10/20/2024	835	250	6.24	1.52	6.08	-2.56%
10/25/2024	1800	250	20.1	5.04	20.16	0.30%
10/29/2024	1900	250	20.8	5.63	22.52	8.27%
11/03/2024	2600	250	25.5	6.85	27.4	7.45%

8 EUT Testing Position

8.1 Next to the Mouth Exposure Condition:

Transmitters that are built-in within a wrist watch or similar wrist-worn devices typically operate in speaker mode for voice communication, with the device worn on the wrist and positioned next to the mouth. When SAR evaluation is required, next to the mouth use is evaluated with the front of the device positioned at 10 mm from a flat phantom filled with head tissue-equivalent medium. The wrist bands should be strapped together to represent normal use conditions.

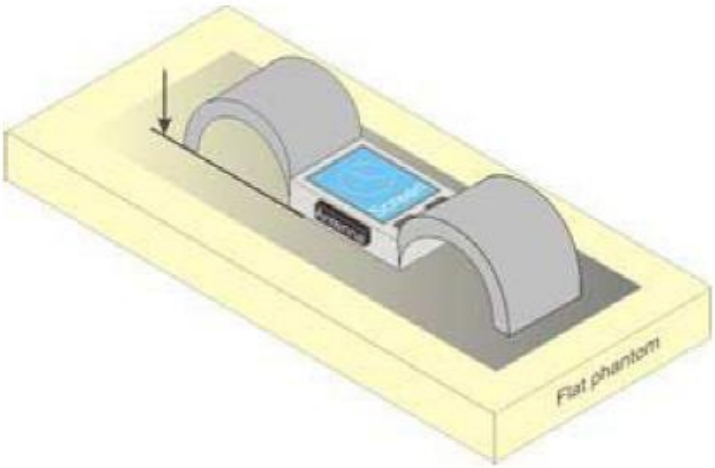




Extremity Exposure Condition:

A limb-worn device is a unit whose intended use includes being strapped to the arm or leg of the user while transmitting (except in idle mode). The strap shall be opened so that it is divided into two parts as shown in the following. The device shall be positioned directly against the phantom surface with the strap straightened as much as possible and the back of the device towards the phantom. If the strap cannot normally be opened to allow placing in direct contact with the phantom surface, it may be necessary to break the strap of the device but ensuring to not damage the antenna.

The wrist bands should be strapped together to represent normal use conditions. SAR for wrist exposure is evaluated with the back of the device positioned in direct contact against a flat phantom filled with body tissue-equivalent medium. The wrist bands should be unstrapped and touching the phantom. The space introduced by the watch or wrist bands and the phantom must be representative of actual use conditions; otherwise, if applicable, the neck or a curved head region of the SAM phantom may be used, provided the device positioning and SAR probe access issues have been addressed through a KDB inquiry. When other device positioning and SAR measurement considerations are necessary, a KDB inquiry is also required for the test results to be acceptable; for example, devices with rigid wrist bands or electronic circuitry and/or antenna(s) incorporated in the wrist bands. These test configurations are applicable only to devices that are worn on the wrist and cannot support other use conditions; therefore, the operating restrictions must be fully demonstrated in both the test reports and user manuals.


Flat phantom

9 Measurement Procedures

The measurement procedures are as follows:

(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the middle channel.
(b) Keep EUT to radiate maximum output power or 100% duty factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as setup photos demonstrates.
(e) Set scan area, grid size and other setting on the DASY software.
(f) Measure SAR transmitting at the middle channel for all applicable exposure positions.
(g) Identify the exposure position and device configuration resulting the highest SAR
(h) Measure SAR at the lowest and highest channels attheworst exposure position and device configuration if applicable.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan Procedures

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan Procedures

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregateSAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

10 TEST CONDITIONS AND RESULTS

10.1 Conducted Power Results

<GSM Conducted power>

Band GSM850	Burst Average Power (dBm)				Frame-Average Power (dBm)		
TX Channel	Tune-up limit (dBm)	128	190	251	128	190	251
Frequency (MHz)		824.2	836.6	848.8	824.2	836.6	848.6
GSM	33.50	33.03	32.98	32.62	23.84	23.79	23.43
GPRS (GMSK, 1 Tx slot)	32.50	32.45	32.49	32.13	23.26	23.30	22.94
GPRS (GMSK, 2 Tx slots)	32.00	31.59	31.23	31.45	25.41	25.05	25.27
GPRS (GMSK, 3 Tx slots)	30.50	29.40	30.01	29.30	24.98	**25.59**	24.88
GPRS (GMSK, 4 Tx slots)	28.00	27.72	27.91	27.46	24.55	24.74	24.29
Band PCS1900	**Burst Average Power (dBm)**				**Frame-Average Power (dBm)**		
TX Channel	Tune-up limit (dBm)	512	661	810	512	661	810
Frequency (MHz)		1850.2	1880.0	1909.8	1850.2	1880.0	1909.8
GSM	30.00	29.81	29.85	29.81	20.62	20.66	20.62
GPRS (GMSK, 1 Tx slot)	30.50	29.55	29.27	29.59	20.36	20.08	20.40
GPRS (GMSK, 2 Tx slots)	29.00	28.64	27.88	28.98	22.46	21.70	**22.80**
GPRS (GMSK, 3 Tx slots)	27.00	26.90	26.94	26.25	22.48	22.52	21.83
GPRS (GMSK, 4 Tx slots)	26.00	25.33	25.72	25.97	22.16	22.55	22.80

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) – 9.03 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) – 6.02 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) – 3.01 dB

Note:

1. Per KDB 447498 D01, the maximum output power channel is used for SAR testing and for further SAR test reduction
2. For Data mode SAR testing, GPRS should be evaluated, therefore the EUT was set in corresponding TX slots due to its highest frame-average power.

<WCDMA Conducted Power>

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings is illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

b. The RF path losses were compensated into the measurements.

c. A call was established between EUT and Base Station with following setting * :

   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK

   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121

   iii. Set Cell Power = -86 dBm

   iv. Set Channel Type = 12.2k + HSPA

   v. Set UE Target Power

   vi. Power Ctrl Mode= Alternating bits

   vii. Set and observe the E-TFCI

   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI

d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

<WCDMA Conducted Power>

WCDMA	Band V (dBm)			
TX Channel	Tune-up limit (dBm)	4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
RMC 12.2Kbps	24.00	23.48	23.71	22.96
HSDPA Subtest-1	22.50	22.24	22.41	21.88
HSDPA Subtest-2	21.50	20.51	21.46	21.44
HSDPA Subtest-3	22.00	21.64	21.03	21.75
HSDPA Subtest-4	20.50	20.08	20.24	20.30
HSUPA Subtest-1	23.00	21.81	22.28	22.54
HSUPA Subtest-2	22.00	21.21	21.85	21.44
HSUPA Subtest-3	22.00	21.94	21.63	21.95
HSUPA Subtest-4	21.00	20.40	21.00	20.64
HSUPA Subtest-5	22.00	20.75	21.46	21.66

WCDMA	Band II (dBm)			
TX Channel	Tune-up limit (dBm)	9262	9400	9538
Frequency (MHz)		1852.4	1880.0	1907.6
RMC 12.2Kbps	24.00	23.54	23.82	23.19
HSDPA Subtest-1	23.00	22.55	22.56	21.67
HSDPA Subtest-2	21.50	21.29	21.23	20.55
HSDPA Subtest-3	21.50	21.14	20.60	20.44
HSDPA Subtest-4	21.00	19.82	20.62	19.91
HSUPA Subtest-1	22.50	22.30	22.05	22.04
HSUPA Subtest-2	21.50	20.57	21.28	20.72
HSUPA Subtest-3	21.50	20.54	21.37	21.07
HSUPA Subtest-4	20.50	19.61	19.63	20.36
HSUPA Subtest-5	20.50	19.39	20.37	19.89

General Note

1. Per KDB 941225 D01 v02, RMC 12.2kbps setting is used to evaluate SAR as primary mode. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.
2. It is expected by the manufacturer that MPR for some HSDPA/HSUPA subtests may differ from the specification of 3GPP, according to the chipset implementation in this model. The implementation and expected deviation are detailed in tune-up procedure exhibit.

<LTE Conducted Power>

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band2	1.4MHz	QPSK	18607	1RB#0	23.97	24.00
Band2	1.4MHz	QPSK	18607	1RB#2	23.97	24.00
Band2	1.4MHz	QPSK	18607	1RB#5	24.01	25.00
Band2	1.4MHz	QPSK	18607	3RB#0	23.73	24.00
Band2	1.4MHz	QPSK	18607	3RB#1	23.87	24.00
Band2	1.4MHz	QPSK	18607	3RB#3	23.72	24.00
Band2	1.4MHz	QPSK	18607	6RB#0	22.74	23.00
Band2	1.4MHz	QPSK	18900	1RB#0	24.02	25.00
Band2	1.4MHz	QPSK	18900	1RB#2	24.12	25.00
Band2	1.4MHz	QPSK	18900	1RB#5	23.70	24.00
Band2	1.4MHz	QPSK	18900	3RB#0	23.92	24.00
Band2	1.4MHz	QPSK	18900	3RB#1	23.91	24.00
Band2	1.4MHz	QPSK	18900	3RB#3	23.94	24.00
Band2	1.4MHz	QPSK	18900	6RB#0	22.93	23.00
Band2	1.4MHz	QPSK	19193	1RB#0	23.49	24.00
Band2	1.4MHz	QPSK	19193	1RB#2	23.61	24.00
Band2	1.4MHz	QPSK	19193	1RB#5	23.61	24.00
Band2	1.4MHz	QPSK	19193	3RB#0	23.70	24.00
Band2	1.4MHz	QPSK	19193	3RB#1	23.68	24.00
Band2	1.4MHz	QPSK	19193	3RB#3	23.39	24.00
Band2	1.4MHz	QPSK	19193	6RB#0	22.53	23.00
Band2	1.4MHz	16QAM	18607	1RB#0	22.80	23.00
Band2	1.4MHz	16QAM	18607	1RB#2	23.09	24.00
Band2	1.4MHz	16QAM	18607	1RB#5	22.74	23.00
Band2	1.4MHz	16QAM	18607	3RB#0	22.46	23.00
Band2	1.4MHz	16QAM	18607	3RB#1	22.34	23.00
Band2	1.4MHz	16QAM	18607	3RB#3	22.49	23.00
Band2	1.4MHz	16QAM	18607	6RB#0	21.86	22.00
Band2	1.4MHz	16QAM	18900	1RB#0	23.38	24.00
Band2	1.4MHz	16QAM	18900	1RB#2	23.49	24.00
Band2	1.4MHz	16QAM	18900	1RB#5	23.19	24.00
Band2	1.4MHz	16QAM	18900	3RB#0	22.72	23.00
Band2	1.4MHz	16QAM	18900	3RB#1	22.71	23.00
Band2	1.4MHz	16QAM	18900	3RB#3	22.68	23.00
Band2	1.4MHz	16QAM	18900	6RB#0	22.04	23.00
Band2	1.4MHz	16QAM	19193	1RB#0	22.34	23.00
Band2	1.4MHz	16QAM	19193	1RB#2	22.65	23.00
Band2	1.4MHz	16QAM	19193	1RB#5	22.38	23.00
Band2	1.4MHz	16QAM	19193	3RB#0	22.16	23.00
Band2	1.4MHz	16QAM	19193	3RB#1	22.14	23.00

Band2	1.4MHz	16QAM	19193	3RB#3	22.15	23.00
Band2	1.4MHz	16QAM	19193	6RB#0	21.44	22.00
Band2	3MHz	QPSK	18615	1RB#0	23.74	24.00
Band2	3MHz	QPSK	18615	1RB#8	23.76	24.00
Band2	3MHz	QPSK	18615	1RB#14	24.01	25.00
Band2	3MHz	QPSK	18615	8RB#0	22.98	23.00
Band2	3MHz	QPSK	18615	8RB#4	22.98	23.00
Band2	3MHz	QPSK	18615	8RB#7	22.97	23.00
Band2	3MHz	QPSK	18615	15RB#0	22.98	23.00
Band2	3MHz	QPSK	18900	1RB#0	23.87	24.00
Band2	3MHz	QPSK	18900	1RB#8	23.90	24.00
Band2	3MHz	QPSK	18900	1RB#14	24.25	25.00
Band2	3MHz	QPSK	18900	8RB#0	23.03	24.00
Band2	3MHz	QPSK	18900	8RB#4	23.04	24.00
Band2	3MHz	QPSK	18900	8RB#7	23.05	24.00
Band2	3MHz	QPSK	18900	15RB#0	23.04	24.00
Band2	3MHz	QPSK	19185	1RB#0	23.52	24.00
Band2	3MHz	QPSK	19185	1RB#8	23.69	24.00
Band2	3MHz	QPSK	19185	1RB#14	23.33	24.00
Band2	3MHz	QPSK	19185	8RB#0	22.56	23.00
Band2	3MHz	QPSK	19185	8RB#4	22.55	23.00
Band2	3MHz	QPSK	19185	8RB#7	22.58	23.00
Band2	3MHz	QPSK	19185	15RB#0	22.52	23.00
Band2	3MHz	16QAM	18615	1RB#0	22.52	23.00
Band2	3MHz	16QAM	18615	1RB#8	22.81	23.00
Band2	3MHz	16QAM	18615	1RB#14	22.79	23.00
Band2	3MHz	16QAM	18615	8RB#0	22.12	23.00
Band2	3MHz	16QAM	18615	8RB#4	22.12	23.00
Band2	3MHz	16QAM	18615	8RB#7	21.74	22.00
Band2	3MHz	16QAM	18615	15RB#0	22.01	23.00
Band2	3MHz	16QAM	18900	1RB#0	22.52	23.00
Band2	3MHz	16QAM	18900	1RB#8	22.92	23.00
Band2	3MHz	16QAM	18900	1RB#14	23.08	24.00
Band2	3MHz	16QAM	18900	8RB#0	22.06	23.00
Band2	3MHz	16QAM	18900	8RB#4	22.06	23.00
Band2	3MHz	16QAM	18900	8RB#7	22.00	23.00
Band2	3MHz	16QAM	18900	15RB#0	21.87	22.00
Band2	3MHz	16QAM	19185	1RB#0	22.43	23.00
Band2	3MHz	16QAM	19185	1RB#8	22.35	23.00
Band2	3MHz	16QAM	19185	1RB#14	22.45	23.00
Band2	3MHz	16QAM	19185	8RB#0	21.67	22.00
Band2	3MHz	16QAM	19185	8RB#4	21.39	22.00
Band2	3MHz	16QAM	19185	8RB#7	21.23	22.00

Band2	3MHz	16QAM	19185	15RB#0	21.55	22.00
Band2	5MHz	QPSK	18625	1RB#0	24.05	25.00
Band2	5MHz	QPSK	18625	1RB#12	24.04	25.00
Band2	5MHz	QPSK	18625	1RB#24	23.67	24.00
Band2	5MHz	QPSK	18625	12RB#0	22.94	23.00
Band2	5MHz	QPSK	18625	12RB#6	22.94	23.00
Band2	5MHz	QPSK	18625	12RB#13	22.87	23.00
Band2	5MHz	QPSK	18625	25RB#0	22.90	23.00
Band2	5MHz	QPSK	18900	1RB#0	23.92	24.00
Band2	5MHz	QPSK	18900	1RB#12	24.06	25.00
Band2	5MHz	QPSK	18900	1RB#24	23.98	24.00
Band2	5MHz	QPSK	18900	12RB#0	23.05	24.00
Band2	5MHz	QPSK	18900	12RB#6	23.06	24.00
Band2	5MHz	QPSK	18900	12RB#13	23.08	24.00
Band2	5MHz	QPSK	18900	25RB#0	23.07	24.00
Band2	5MHz	QPSK	19175	1RB#0	23.63	24.00
Band2	5MHz	QPSK	19175	1RB#12	23.45	24.00
Band2	5MHz	QPSK	19175	1RB#24	23.52	24.00
Band2	5MHz	QPSK	19175	12RB#0	22.64	23.00
Band2	5MHz	QPSK	19175	12RB#6	22.63	23.00
Band2	5MHz	QPSK	19175	12RB#13	22.58	23.00
Band2	5MHz	QPSK	19175	25RB#0	22.60	23.00
Band2	5MHz	16QAM	18625	1RB#0	22.99	23.00
Band2	5MHz	16QAM	18625	1RB#12	23.44	24.00
Band2	5MHz	16QAM	18625	1RB#24	22.53	23.00
Band2	5MHz	16QAM	18625	12RB#0	22.02	23.00
Band2	5MHz	16QAM	18625	12RB#6	22.02	23.00
Band2	5MHz	16QAM	18625	12RB#13	21.86	22.00
Band2	5MHz	16QAM	18625	25RB#0	21.82	22.00
Band2	5MHz	16QAM	18900	1RB#0	23.48	24.00
Band2	5MHz	16QAM	18900	1RB#12	23.57	24.00
Band2	5MHz	16QAM	18900	1RB#24	22.47	23.00
Band2	5MHz	16QAM	18900	12RB#0	22.04	23.00
Band2	5MHz	16QAM	18900	12RB#6	22.04	23.00
Band2	5MHz	16QAM	18900	12RB#13	22.07	23.00
Band2	5MHz	16QAM	18900	25RB#0	22.08	23.00
Band2	5MHz	16QAM	19175	1RB#0	22.19	23.00
Band2	5MHz	16QAM	19175	1RB#12	22.59	23.00
Band2	5MHz	16QAM	19175	1RB#24	22.59	23.00
Band2	5MHz	16QAM	19175	12RB#0	21.74	22.00
Band2	5MHz	16QAM	19175	12RB#6	21.73	22.00
Band2	5MHz	16QAM	19175	12RB#13	21.85	22.00
Band2	5MHz	16QAM	19175	25RB#0	21.49	22.00

Band2	10MHz	QPSK	18650	1RB#0	23.89	24.00
Band2	10MHz	QPSK	18650	1RB#24	23.72	24.00
Band2	10MHz	QPSK	18650	1RB#49	23.71	24.00
Band2	10MHz	QPSK	18650	25RB#0	23.12	24.00
Band2	10MHz	QPSK	18650	25RB#12	23.13	24.00
Band2	10MHz	QPSK	18650	25RB#25	22.86	23.00
Band2	10MHz	QPSK	18650	50RB#0	22.87	23.00
Band2	10MHz	QPSK	18900	1RB#0	24.04	25.00
Band2	10MHz	QPSK	18900	1RB#24	24.43	25.00
Band2	10MHz	QPSK	18900	1RB#49	24.12	25.00
Band2	10MHz	QPSK	18900	25RB#0	23.15	24.00
Band2	10MHz	QPSK	18900	25RB#12	23.16	24.00
Band2	10MHz	QPSK	18900	25RB#25	23.13	24.00
Band2	10MHz	QPSK	18900	50RB#0	23.08	24.00
Band2	10MHz	QPSK	19150	1RB#0	23.56	24.00
Band2	10MHz	QPSK	19150	1RB#24	23.65	24.00
Band2	10MHz	QPSK	19150	1RB#49	23.62	24.00
Band2	10MHz	QPSK	19150	25RB#0	22.69	23.00
Band2	10MHz	QPSK	19150	25RB#12	22.69	23.00
Band2	10MHz	QPSK	19150	25RB#25	22.62	23.00
Band2	10MHz	QPSK	19150	50RB#0	22.65	23.00
Band2	10MHz	16QAM	18650	1RB#0	23.10	24.00
Band2	10MHz	16QAM	18650	1RB#24	22.93	23.00
Band2	10MHz	16QAM	18650	1RB#49	22.85	23.00
Band2	10MHz	16QAM	18650	25RB#0	21.91	22.00
Band2	10MHz	16QAM	18650	25RB#12	21.91	22.00
Band2	10MHz	16QAM	18650	25RB#25	21.74	22.00
Band2	10MHz	16QAM	18900	1RB#0	23.03	24.00
Band2	10MHz	16QAM	18900	1RB#24	23.38	24.00
Band2	10MHz	16QAM	18900	1RB#49	22.97	23.00
Band2	10MHz	16QAM	18900	25RB#0	22.23	23.00
Band2	10MHz	16QAM	18900	25RB#12	22.23	23.00
Band2	10MHz	16QAM	18900	25RB#25	22.20	23.00
Band2	10MHz	16QAM	19150	1RB#0	22.56	23.00
Band2	10MHz	16QAM	19150	1RB#24	22.94	23.00
Band2	10MHz	16QAM	19150	1RB#49	22.68	23.00
Band2	10MHz	16QAM	19150	25RB#0	21.83	22.00
Band2	10MHz	16QAM	19150	25RB#12	21.82	22.00
Band2	10MHz	16QAM	19150	25RB#25	21.65	22.00
Band2	15MHz	QPSK	18675	1RB#0	23.97	24.00
Band2	15MHz	QPSK	18675	1RB#38	23.67	24.00
Band2	15MHz	QPSK	18675	1RB#74	23.59	24.00
Band2	15MHz	QPSK	18675	38RB#0	22.87	23.00

Band2	15MHz	QPSK	18675	38RB#18	22.86	23.00
Band2	15MHz	QPSK	18675	38RB#37	22.86	23.00
Band2	15MHz	QPSK	18675	75RB#0	22.87	23.00
Band2	15MHz	QPSK	18900	1RB#0	23.92	24.00
Band2	15MHz	QPSK	18900	1RB#38	24.10	25.00
Band2	15MHz	QPSK	18900	1RB#74	24.03	25.00
Band2	15MHz	QPSK	18900	38RB#0	23.13	24.00
Band2	15MHz	QPSK	18900	38RB#18	23.13	24.00
Band2	15MHz	QPSK	18900	38RB#37	23.13	24.00
Band2	15MHz	QPSK	18900	75RB#0	23.11	24.00
Band2	15MHz	QPSK	19125	1RB#0	23.47	24.00
Band2	15MHz	QPSK	19125	1RB#38	23.73	24.00
Band2	15MHz	QPSK	19125	1RB#74	23.51	24.00
Band2	15MHz	QPSK	19125	38RB#0	22.47	23.00
Band2	15MHz	QPSK	19125	38RB#18	22.51	23.00
Band2	15MHz	QPSK	19125	38RB#37	22.68	23.00
Band2	15MHz	QPSK	19125	75RB#0	22.55	23.00
Band2	15MHz	16QAM	18675	1RB#0	22.97	23.00
Band2	15MHz	16QAM	18675	1RB#38	22.98	23.00
Band2	15MHz	16QAM	18675	1RB#74	22.48	23.00
Band2	15MHz	16QAM	18675	38RB#0	22.86	23.00
Band2	15MHz	16QAM	18675	38RB#18	22.86	23.00
Band2	15MHz	16QAM	18675	38RB#37	22.86	23.00
Band2	15MHz	16QAM	18900	1RB#0	23.06	24.00
Band2	15MHz	16QAM	18900	1RB#38	22.99	23.00
Band2	15MHz	16QAM	18900	1RB#74	22.91	23.00
Band2	15MHz	16QAM	18900	38RB#0	23.13	24.00
Band2	15MHz	16QAM	18900	38RB#18	23.13	24.00
Band2	15MHz	16QAM	18900	38RB#37	23.13	24.00
Band2	15MHz	16QAM	19125	1RB#0	22.39	23.00
Band2	15MHz	16QAM	19125	1RB#38	23.15	24.00
Band2	15MHz	16QAM	19125	1RB#74	22.48	23.00
Band2	15MHz	16QAM	19125	38RB#0	22.57	23.00
Band2	15MHz	16QAM	19125	38RB#18	22.57	23.00
Band2	15MHz	16QAM	19125	38RB#37	22.67	23.00
Band2	20MHz	QPSK	18700	1RB#0	24.02	25.00
Band2	20MHz	QPSK	18700	1RB#49	23.97	24.00
Band2	20MHz	QPSK	18700	1RB#99	23.53	24.00
Band2	20MHz	QPSK	18700	50RB#0	22.88	23.00
Band2	20MHz	QPSK	18700	50RB#25	22.87	23.00
Band2	20MHz	QPSK	18700	50RB#50	22.67	23.00
Band2	20MHz	QPSK	18700	100RB#0	22.87	23.00
Band2	20MHz	QPSK	18900	1RB#0	23.85	24.00

Band2	20MHz	QPSK	18900	1RB#49	24.08	25.00
Band2	20MHz	QPSK	18900	1RB#99	24.13	25.00
Band2	20MHz	QPSK	18900	50RB#0	23.04	24.00
Band2	20MHz	QPSK	18900	50RB#25	23.10	24.00
Band2	20MHz	QPSK	18900	50RB#50	23.04	24.00
Band2	20MHz	QPSK	18900	100RB#0	23.17	24.00
Band2	20MHz	QPSK	19100	1RB#0	23.37	24.00
Band2	20MHz	QPSK	19100	1RB#49	23.88	24.00
Band2	20MHz	QPSK	19100	1RB#99	23.60	24.00
Band2	20MHz	QPSK	19100	50RB#0	22.46	23.00
Band2	20MHz	QPSK	19100	50RB#25	22.52	23.00
Band2	20MHz	QPSK	19100	50RB#50	22.63	23.00
Band2	20MHz	QPSK	19100	100RB#0	22.60	23.00
Band2	20MHz	16QAM	18700	1RB#0	22.96	23.00
Band2	20MHz	16QAM	18700	1RB#49	23.70	24.00
Band2	20MHz	16QAM	18700	1RB#99	22.32	23.00
Band2	20MHz	16QAM	18900	1RB#0	23.04	24.00
Band2	20MHz	16QAM	18900	1RB#49	23.55	24.00
Band2	20MHz	16QAM	18900	1RB#99	22.89	23.00
Band2	20MHz	16QAM	19100	1RB#0	22.29	23.00
Band2	20MHz	16QAM	19100	1RB#49	23.07	24.00
Band2	20MHz	16QAM	19100	1RB#99	22.40	23.00

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band4	1.4MHz	QPSK	19957	1RB#0	23.34	24.00
Band4	1.4MHz	QPSK	19957	1RB#2	23.42	24.00
Band4	1.4MHz	QPSK	19957	1RB#5	23.39	24.00
Band4	1.4MHz	QPSK	19957	3RB#0	23.58	24.00
Band4	1.4MHz	QPSK	19957	3RB#1	23.39	24.00
Band4	1.4MHz	QPSK	19957	3RB#3	23.27	24.00
Band4	1.4MHz	QPSK	19957	6RB#0	22.41	23.00
Band4	1.4MHz	QPSK	20175	1RB#0	23.77	24.00
Band4	1.4MHz	QPSK	20175	1RB#2	23.88	24.00
Band4	1.4MHz	QPSK	20175	1RB#5	23.76	24.00
Band4	1.4MHz	QPSK	20175	3RB#0	23.66	24.00
Band4	1.4MHz	QPSK	20175	3RB#1	23.65	24.00
Band4	1.4MHz	QPSK	20175	3RB#3	23.55	24.00
Band4	1.4MHz	QPSK	20175	6RB#0	22.62	23.00
Band4	1.4MHz	QPSK	20393	1RB#0	23.82	24.00
Band4	1.4MHz	QPSK	20393	1RB#2	23.81	24.00
Band4	1.4MHz	QPSK	20393	1RB#5	24.11	25.00
Band4	1.4MHz	QPSK	20393	3RB#0	23.93	24.00
Band4	1.4MHz	QPSK	20393	3RB#1	23.92	24.00
Band4	1.4MHz	QPSK	20393	3RB#3	23.91	24.00
Band4	1.4MHz	QPSK	20393	6RB#0	22.97	23.00
Band4	1.4MHz	16QAM	19957	1RB#0	22.30	23.00
Band4	1.4MHz	16QAM	19957	1RB#2	22.34	23.00
Band4	1.4MHz	16QAM	19957	1RB#5	22.11	23.00
Band4	1.4MHz	16QAM	19957	3RB#0	22.42	23.00
Band4	1.4MHz	16QAM	19957	3RB#1	22.32	23.00
Band4	1.4MHz	16QAM	19957	3RB#3	22.30	23.00
Band4	1.4MHz	16QAM	19957	6RB#0	21.16	22.00
Band4	1.4MHz	16QAM	20175	1RB#0	22.59	23.00
Band4	1.4MHz	16QAM	20175	1RB#2	22.85	23.00
Band4	1.4MHz	16QAM	20175	1RB#5	22.67	23.00
Band4	1.4MHz	16QAM	20175	3RB#0	22.40	23.00
Band4	1.4MHz	16QAM	20175	3RB#1	22.13	23.00
Band4	1.4MHz	16QAM	20175	3RB#3	21.95	22.00
Band4	1.4MHz	16QAM	20175	6RB#0	21.61	22.00
Band4	1.4MHz	16QAM	20393	1RB#0	23.16	24.00
Band4	1.4MHz	16QAM	20393	1RB#2	23.19	24.00
Band4	1.4MHz	16QAM	20393	1RB#5	22.83	23.00
Band4	1.4MHz	16QAM	20393	3RB#0	22.63	23.00
Band4	1.4MHz	16QAM	20393	3RB#1	22.62	23.00
Band4	1.4MHz	16QAM	20393	3RB#3	22.52	23.00

Band4	1.4MHz	16QAM	20393	6RB#0	22.05	23.00
Band4	3MHz	QPSK	19965	1RB#0	23.10	24.00
Band4	3MHz	QPSK	19965	1RB#8	23.05	24.00
Band4	3MHz	QPSK	19965	1RB#14	23.23	24.00
Band4	3MHz	QPSK	19965	8RB#0	22.48	23.00
Band4	3MHz	QPSK	19965	8RB#4	22.38	23.00
Band4	3MHz	QPSK	19965	8RB#7	22.45	23.00
Band4	3MHz	QPSK	19965	15RB#0	22.46	23.00
Band4	3MHz	QPSK	20175	1RB#0	23.50	24.00
Band4	3MHz	QPSK	20175	1RB#8	23.73	24.00
Band4	3MHz	QPSK	20175	1RB#14	23.80	24.00
Band4	3MHz	QPSK	20175	8RB#0	22.80	23.00
Band4	3MHz	QPSK	20175	8RB#4	22.81	23.00
Band4	3MHz	QPSK	20175	8RB#7	22.76	23.00
Band4	3MHz	QPSK	20175	15RB#0	22.77	23.00
Band4	3MHz	QPSK	20385	1RB#0	23.78	24.00
Band4	3MHz	QPSK	20385	1RB#8	23.89	24.00
Band4	3MHz	QPSK	20385	1RB#14	23.81	24.00
Band4	3MHz	QPSK	20385	8RB#0	22.78	23.00
Band4	3MHz	QPSK	20385	8RB#4	22.79	23.00
Band4	3MHz	QPSK	20385	8RB#7	23.01	24.00
Band4	3MHz	QPSK	20385	15RB#0	22.83	23.00
Band4	3MHz	16QAM	19965	1RB#0	22.34	23.00
Band4	3MHz	16QAM	19965	1RB#8	22.36	23.00
Band4	3MHz	16QAM	19965	1RB#14	22.33	23.00
Band4	3MHz	16QAM	19965	8RB#0	21.61	22.00
Band4	3MHz	16QAM	19965	8RB#4	21.60	22.00
Band4	3MHz	16QAM	19965	8RB#7	21.57	22.00
Band4	3MHz	16QAM	19965	15RB#0	21.47	22.00
Band4	3MHz	16QAM	20175	1RB#0	22.65	23.00
Band4	3MHz	16QAM	20175	1RB#8	22.73	23.00
Band4	3MHz	16QAM	20175	1RB#14	22.59	23.00
Band4	3MHz	16QAM	20175	8RB#0	21.96	22.00
Band4	3MHz	16QAM	20175	8RB#4	21.91	22.00
Band4	3MHz	16QAM	20175	8RB#7	21.46	22.00
Band4	3MHz	16QAM	20175	15RB#0	21.68	22.00
Band4	3MHz	16QAM	20385	1RB#0	22.65	23.00
Band4	3MHz	16QAM	20385	1RB#8	22.70	23.00
Band4	3MHz	16QAM	20385	1RB#14	22.60	23.00
Band4	3MHz	16QAM	20385	8RB#0	21.90	22.00
Band4	3MHz	16QAM	20385	8RB#4	21.90	22.00
Band4	3MHz	16QAM	20385	8RB#7	22.01	23.00
Band4	3MHz	16QAM	20385	15RB#0	22.15	23.00

Band4	5MHz	QPSK	19975	1RB#0	23.32	24.00
Band4	5MHz	QPSK	19975	1RB#12	23.38	24.00
Band4	5MHz	QPSK	19975	1RB#24	23.37	24.00
Band4	5MHz	QPSK	19975	12RB#0	22.46	23.00
Band4	5MHz	QPSK	19975	12RB#6	22.46	23.00
Band4	5MHz	QPSK	19975	12RB#13	22.44	23.00
Band4	5MHz	QPSK	19975	25RB#0	22.40	23.00
Band4	5MHz	QPSK	20175	1RB#0	23.65	24.00
Band4	5MHz	QPSK	20175	1RB#12	23.90	24.00
Band4	5MHz	QPSK	20175	1RB#24	23.60	24.00
Band4	5MHz	QPSK	20175	12RB#0	22.83	23.00
Band4	5MHz	QPSK	20175	12RB#6	22.83	23.00
Band4	5MHz	QPSK	20175	12RB#13	22.75	23.00
Band4	5MHz	QPSK	20175	25RB#0	22.78	23.00
Band4	5MHz	QPSK	20375	1RB#0	23.96	24.00
Band4	5MHz	QPSK	20375	1RB#12	23.83	24.00
Band4	5MHz	QPSK	20375	1RB#24	24.07	25.00
Band4	5MHz	QPSK	20375	12RB#0	23.10	24.00
Band4	5MHz	QPSK	20375	12RB#6	23.11	24.00
Band4	5MHz	QPSK	20375	12RB#13	23.03	24.00
Band4	5MHz	QPSK	20375	25RB#0	23.01	24.00
Band4	5MHz	16QAM	19975	1RB#0	22.38	23.00
Band4	5MHz	16QAM	19975	1RB#12	22.40	23.00
Band4	5MHz	16QAM	19975	1RB#24	22.41	23.00
Band4	5MHz	16QAM	19975	12RB#0	21.44	22.00
Band4	5MHz	16QAM	19975	12RB#6	21.52	22.00
Band4	5MHz	16QAM	19975	12RB#13	21.53	22.00
Band4	5MHz	16QAM	19975	25RB#0	21.40	22.00
Band4	5MHz	16QAM	20175	1RB#0	22.75	23.00
Band4	5MHz	16QAM	20175	1RB#12	22.89	23.00
Band4	5MHz	16QAM	20175	1RB#24	22.33	23.00
Band4	5MHz	16QAM	20175	12RB#0	21.80	22.00
Band4	5MHz	16QAM	20175	12RB#6	21.69	22.00
Band4	5MHz	16QAM	20175	12RB#13	21.71	22.00
Band4	5MHz	16QAM	20175	25RB#0	21.77	22.00
Band4	5MHz	16QAM	20375	1RB#0	23.22	24.00
Band4	5MHz	16QAM	20375	1RB#12	23.41	24.00
Band4	5MHz	16QAM	20375	1RB#24	23.13	24.00
Band4	5MHz	16QAM	20375	12RB#0	22.10	23.00
Band4	5MHz	16QAM	20375	12RB#6	22.10	23.00
Band4	5MHz	16QAM	20375	12RB#13	22.13	23.00
Band4	5MHz	16QAM	20375	25RB#0	22.02	23.00
Band4	10MHz	QPSK	20000	1RB#0	23.35	24.00

Band4	10MHz	QPSK	20000	1RB#24	23.61	24.00
Band4	10MHz	QPSK	20000	1RB#49	23.71	24.00
Band4	10MHz	QPSK	20000	25RB#0	22.57	23.00
Band4	10MHz	QPSK	20000	25RB#12	22.57	23.00
Band4	10MHz	QPSK	20000	25RB#25	22.69	23.00
Band4	10MHz	QPSK	20000	50RB#0	22.64	23.00
Band4	10MHz	QPSK	20175	1RB#0	23.84	24.00
Band4	10MHz	QPSK	20175	1RB#24	23.58	24.00
Band4	10MHz	QPSK	20175	1RB#49	23.64	24.00
Band4	10MHz	QPSK	20175	25RB#0	22.89	23.00
Band4	10MHz	QPSK	20175	25RB#12	22.81	23.00
Band4	10MHz	QPSK	20175	25RB#25	22.73	23.00
Band4	10MHz	QPSK	20175	50RB#0	22.71	23.00
Band4	10MHz	QPSK	20350	1RB#0	23.88	24.00
Band4	10MHz	QPSK	20350	1RB#24	24.23	25.00
Band4	10MHz	QPSK	20350	1RB#49	24.11	25.00
Band4	10MHz	QPSK	20350	25RB#0	23.19	24.00
Band4	10MHz	QPSK	20350	25RB#12	23.18	24.00
Band4	10MHz	QPSK	20350	25RB#25	23.11	24.00
Band4	10MHz	QPSK	20350	50RB#0	23.15	24.00
Band4	10MHz	16QAM	20000	1RB#0	22.46	23.00
Band4	10MHz	16QAM	20000	1RB#24	22.77	23.00
Band4	10MHz	16QAM	20000	1RB#49	22.73	23.00
Band4	10MHz	16QAM	20000	25RB#0	21.62	22.00
Band4	10MHz	16QAM	20000	25RB#12	21.62	22.00
Band4	10MHz	16QAM	20000	25RB#25	21.56	22.00
Band4	10MHz	16QAM	20175	1RB#0	22.77	23.00
Band4	10MHz	16QAM	20175	1RB#24	23.02	24.00
Band4	10MHz	16QAM	20175	1RB#49	22.77	23.00
Band4	10MHz	16QAM	20175	25RB#0	21.65	22.00
Band4	10MHz	16QAM	20175	25RB#12	21.92	22.00
Band4	10MHz	16QAM	20175	25RB#25	21.89	22.00
Band4	10MHz	16QAM	20350	1RB#0	22.98	23.00
Band4	10MHz	16QAM	20350	1RB#24	23.36	24.00
Band4	10MHz	16QAM	20350	1RB#49	23.25	24.00
Band4	10MHz	16QAM	20350	25RB#0	22.25	23.00
Band4	10MHz	16QAM	20350	25RB#12	22.24	23.00
Band4	10MHz	16QAM	20350	25RB#25	22.19	23.00
Band4	15MHz	QPSK	20025	1RB#0	23.53	24.00
Band4	15MHz	QPSK	20025	1RB#38	23.82	24.00
Band4	15MHz	QPSK	20025	1RB#74	23.80	24.00
Band4	15MHz	QPSK	20025	38RB#0	22.66	23.00
Band4	15MHz	QPSK	20025	38RB#18	22.67	23.00

Band4	15MHz	QPSK	20025	38RB#37	22.67	23.00
Band4	15MHz	QPSK	20025	75RB#0	22.68	23.00
Band4	15MHz	QPSK	20175	1RB#0	23.74	24.00
Band4	15MHz	QPSK	20175	1RB#38	23.67	24.00
Band4	15MHz	QPSK	20175	1RB#74	23.62	24.00
Band4	15MHz	QPSK	20175	38RB#0	22.80	23.00
Band4	15MHz	QPSK	20175	38RB#18	22.79	23.00
Band4	15MHz	QPSK	20175	38RB#37	22.79	23.00
Band4	15MHz	QPSK	20175	75RB#0	22.79	23.00
Band4	15MHz	QPSK	20325	1RB#0	24.08	25.00
Band4	15MHz	QPSK	20325	1RB#38	24.05	25.00
Band4	15MHz	QPSK	20325	1RB#74	24.11	25.00
Band4	15MHz	QPSK	20325	38RB#0	23.11	24.00
Band4	15MHz	QPSK	20325	38RB#18	23.09	24.00
Band4	15MHz	QPSK	20325	38RB#37	23.08	24.00
Band4	15MHz	QPSK	20325	75RB#0	23.08	24.00
Band4	15MHz	16QAM	20025	1RB#0	22.44	23.00
Band4	15MHz	16QAM	20025	1RB#38	22.67	23.00
Band4	15MHz	16QAM	20025	1RB#74	22.69	23.00
Band4	15MHz	16QAM	20025	38RB#0	22.67	23.00
Band4	15MHz	16QAM	20025	38RB#18	22.67	23.00
Band4	15MHz	16QAM	20025	38RB#37	22.67	23.00
Band4	15MHz	16QAM	20175	1RB#0	22.74	23.00
Band4	15MHz	16QAM	20175	1RB#38	22.85	23.00
Band4	15MHz	16QAM	20175	1RB#74	22.73	23.00
Band4	15MHz	16QAM	20175	38RB#0	22.80	23.00
Band4	15MHz	16QAM	20175	38RB#18	22.79	23.00
Band4	15MHz	16QAM	20175	38RB#37	22.89	23.00
Band4	15MHz	16QAM	20325	1RB#0	23.15	24.00
Band4	15MHz	16QAM	20325	1RB#38	23.04	24.00
Band4	15MHz	16QAM	20325	1RB#74	23.08	24.00
Band4	15MHz	16QAM	20325	38RB#0	23.10	24.00
Band4	15MHz	16QAM	20325	38RB#18	23.09	24.00
Band4	15MHz	16QAM	20325	38RB#37	23.08	24.00
Band4	20MHz	QPSK	20050	1RB#0	23.43	24.00
Band4	20MHz	QPSK	20050	1RB#49	23.83	24.00
Band4	20MHz	QPSK	20050	1RB#99	23.78	24.00
Band4	20MHz	QPSK	20050	50RB#0	22.71	23.00
Band4	20MHz	QPSK	20050	50RB#25	22.70	23.00
Band4	20MHz	QPSK	20050	50RB#50	22.77	23.00
Band4	20MHz	QPSK	20050	100RB#0	22.77	23.00
Band4	20MHz	QPSK	20175	1RB#0	23.71	24.00
Band4	20MHz	QPSK	20175	1RB#49	24.08	25.00

Band4	20MHz	QPSK	20175	1RB#99	23.56	24.00
Band4	20MHz	QPSK	20175	50RB#0	22.76	23.00
Band4	20MHz	QPSK	20175	50RB#25	22.87	23.00
Band4	20MHz	QPSK	20175	50RB#50	22.72	23.00
Band4	20MHz	QPSK	20175	100RB#0	22.86	23.00
Band4	20MHz	QPSK	20300	1RB#0	24.32	25.00
Band4	20MHz	QPSK	20300	1RB#49	24.19	25.00
Band4	20MHz	QPSK	20300	1RB#99	24.16	25.00
Band4	20MHz	QPSK	20300	50RB#0	23.21	24.00
Band4	20MHz	QPSK	20300	50RB#25	23.26	24.00
Band4	20MHz	QPSK	20300	50RB#50	23.18	24.00
Band4	20MHz	QPSK	20300	100RB#0	23.14	24.00
Band4	20MHz	16QAM	20050	1RB#0	22.40	23.00
Band4	20MHz	16QAM	20050	1RB#49	23.40	24.00
Band4	20MHz	16QAM	20050	1RB#99	22.61	23.00
Band4	20MHz	16QAM	20175	1RB#0	22.75	23.00
Band4	20MHz	16QAM	20175	1RB#49	23.38	24.00
Band4	20MHz	16QAM	20175	1RB#99	22.49	23.00
Band4	20MHz	16QAM	20300	1RB#0	23.15	24.00
Band4	20MHz	16QAM	20300	1RB#49	23.61	24.00
Band4	20MHz	16QAM	20300	1RB#99	22.89	23.00

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band5	1.4MHz	QPSK	20407	1RB#0	24.08	25.00
Band5	1.4MHz	QPSK	20407	1RB#2	24.19	25.00
Band5	1.4MHz	QPSK	20407	1RB#5	24.08	25.00
Band5	1.4MHz	QPSK	20407	3RB#0	24.28	25.00
Band5	1.4MHz	QPSK	20407	3RB#1	24.26	25.00
Band5	1.4MHz	QPSK	20407	3RB#3	24.22	25.00
Band5	1.4MHz	QPSK	20407	6RB#0	23.35	24.00
Band5	1.4MHz	QPSK	20525	1RB#0	24.45	25.00
Band5	1.4MHz	QPSK	20525	1RB#2	24.30	25.00
Band5	1.4MHz	QPSK	20525	1RB#5	24.38	25.00
Band5	1.4MHz	QPSK	20525	3RB#0	24.48	25.00
Band5	1.4MHz	QPSK	20525	3RB#1	24.48	25.00
Band5	1.4MHz	QPSK	20525	3RB#3	24.43	25.00
Band5	1.4MHz	QPSK	20525	6RB#0	23.49	24.00
Band5	1.4MHz	QPSK	20643	1RB#0	24.02	25.00
Band5	1.4MHz	QPSK	20643	1RB#2	24.29	25.00
Band5	1.4MHz	QPSK	20643	1RB#5	23.96	24.00
Band5	1.4MHz	QPSK	20643	3RB#0	24.34	25.00
Band5	1.4MHz	QPSK	20643	3RB#1	24.18	25.00
Band5	1.4MHz	QPSK	20643	3RB#3	24.10	25.00
Band5	1.4MHz	QPSK	20643	6RB#0	23.20	24.00
Band5	1.4MHz	16QAM	20407	1RB#0	23.14	24.00
Band5	1.4MHz	16QAM	20407	1RB#2	23.16	24.00
Band5	1.4MHz	16QAM	20407	1RB#5	23.04	24.00
Band5	1.4MHz	16QAM	20407	3RB#0	23.03	24.00
Band5	1.4MHz	16QAM	20407	3RB#1	23.02	24.00
Band5	1.4MHz	16QAM	20407	3RB#3	23.27	24.00
Band5	1.4MHz	16QAM	20407	6RB#0	22.14	23.00
Band5	1.4MHz	16QAM	20525	1RB#0	23.60	24.00
Band5	1.4MHz	16QAM	20525	1RB#2	23.79	24.00
Band5	1.4MHz	16QAM	20525	1RB#5	23.50	24.00
Band5	1.4MHz	16QAM	20525	3RB#0	23.18	24.00
Band5	1.4MHz	16QAM	20525	3RB#1	23.18	24.00
Band5	1.4MHz	16QAM	20525	3RB#3	23.05	24.00
Band5	1.4MHz	16QAM	20525	6RB#0	22.52	23.00
Band5	1.4MHz	16QAM	20643	1RB#0	23.00	24.00
Band5	1.4MHz	16QAM	20643	1RB#2	23.28	24.00
Band5	1.4MHz	16QAM	20643	1RB#5	23.16	24.00
Band5	1.4MHz	16QAM	20643	3RB#0	22.92	23.00
Band5	1.4MHz	16QAM	20643	3RB#1	23.08	24.00
Band5	1.4MHz	16QAM	20643	3RB#3	22.94	23.00

Band5	1.4MHz	16QAM	20643	6RB#0	22.16	23.00
Band5	3MHz	QPSK	20415	1RB#0	24.00	25.00
Band5	3MHz	QPSK	20415	1RB#8	24.09	25.00
Band5	3MHz	QPSK	20415	1RB#14	24.12	25.00
Band5	3MHz	QPSK	20415	8RB#0	23.35	24.00
Band5	3MHz	QPSK	20415	8RB#4	23.35	24.00
Band5	3MHz	QPSK	20415	8RB#7	23.32	24.00
Band5	3MHz	QPSK	20415	15RB#0	23.32	24.00
Band5	3MHz	QPSK	20525	1RB#0	24.27	25.00
Band5	3MHz	QPSK	20525	1RB#8	24.65	25.00
Band5	3MHz	QPSK	20525	1RB#14	24.40	25.00
Band5	3MHz	QPSK	20525	8RB#0	23.61	24.00
Band5	3MHz	QPSK	20525	8RB#4	23.57	24.00
Band5	3MHz	QPSK	20525	8RB#7	23.56	24.00
Band5	3MHz	QPSK	20525	15RB#0	23.57	24.00
Band5	3MHz	QPSK	20635	1RB#0	23.99	24.00
Band5	3MHz	QPSK	20635	1RB#8	23.97	24.00
Band5	3MHz	QPSK	20635	1RB#14	24.02	25.00
Band5	3MHz	QPSK	20635	8RB#0	23.24	24.00
Band5	3MHz	QPSK	20635	8RB#4	23.25	24.00
Band5	3MHz	QPSK	20635	8RB#7	23.25	24.00
Band5	3MHz	QPSK	20635	15RB#0	23.19	24.00
Band5	3MHz	16QAM	20415	1RB#0	22.80	23.00
Band5	3MHz	16QAM	20415	1RB#8	23.14	24.00
Band5	3MHz	16QAM	20415	1RB#14	23.15	24.00
Band5	3MHz	16QAM	20415	8RB#0	22.47	23.00
Band5	3MHz	16QAM	20415	8RB#4	22.47	23.00
Band5	3MHz	16QAM	20415	8RB#7	22.54	23.00
Band5	3MHz	16QAM	20415	15RB#0	22.35	23.00
Band5	3MHz	16QAM	20525	1RB#0	23.51	24.00
Band5	3MHz	16QAM	20525	1RB#8	23.42	24.00
Band5	3MHz	16QAM	20525	1RB#14	23.39	24.00
Band5	3MHz	16QAM	20525	8RB#0	22.49	23.00
Band5	3MHz	16QAM	20525	8RB#4	22.97	23.00
Band5	3MHz	16QAM	20525	8RB#7	22.30	23.00
Band5	3MHz	16QAM	20525	15RB#0	22.61	23.00
Band5	3MHz	16QAM	20635	1RB#0	22.80	23.00
Band5	3MHz	16QAM	20635	1RB#8	23.15	24.00
Band5	3MHz	16QAM	20635	1RB#14	23.13	24.00
Band5	3MHz	16QAM	20635	8RB#0	21.94	22.00
Band5	3MHz	16QAM	20635	8RB#4	21.94	22.00
Band5	3MHz	16QAM	20635	8RB#7	22.38	23.00
Band5	3MHz	16QAM	20635	15RB#0	22.43	23.00

Band5	5MHz	QPSK	20425	1RB#0	24.31	25.00
Band5	5MHz	QPSK	20425	1RB#12	24.18	25.00
Band5	5MHz	QPSK	20425	1RB#24	24.18	25.00
Band5	5MHz	QPSK	20425	12RB#0	23.37	24.00
Band5	5MHz	QPSK	20425	12RB#6	23.37	24.00
Band5	5MHz	QPSK	20425	12RB#13	23.28	24.00
Band5	5MHz	QPSK	20425	25RB#0	23.38	24.00
Band5	5MHz	QPSK	20525	1RB#0	24.64	25.00
Band5	5MHz	QPSK	20525	1RB#12	24.35	25.00
Band5	5MHz	QPSK	20525	1RB#24	24.60	25.00
Band5	5MHz	QPSK	20525	12RB#0	23.60	24.00
Band5	5MHz	QPSK	20525	12RB#6	23.61	24.00
Band5	5MHz	QPSK	20525	12RB#13	23.53	24.00
Band5	5MHz	QPSK	20525	25RB#0	23.62	24.00
Band5	5MHz	QPSK	20625	1RB#0	24.30	25.00
Band5	5MHz	QPSK	20625	1RB#12	24.32	25.00
Band5	5MHz	QPSK	20625	1RB#24	23.90	24.00
Band5	5MHz	QPSK	20625	12RB#0	23.26	24.00
Band5	5MHz	QPSK	20625	12RB#6	23.27	24.00
Band5	5MHz	QPSK	20625	12RB#13	23.20	24.00
Band5	5MHz	QPSK	20625	25RB#0	23.33	24.00
Band5	5MHz	16QAM	20425	1RB#0	22.65	23.00
Band5	5MHz	16QAM	20425	1RB#12	23.80	24.00
Band5	5MHz	16QAM	20425	1RB#24	23.35	24.00
Band5	5MHz	16QAM	20425	12RB#0	22.27	23.00
Band5	5MHz	16QAM	20425	12RB#6	22.26	23.00
Band5	5MHz	16QAM	20425	12RB#13	22.28	23.00
Band5	5MHz	16QAM	20425	25RB#0	22.29	23.00
Band5	5MHz	16QAM	20525	1RB#0	23.32	24.00
Band5	5MHz	16QAM	20525	1RB#12	23.46	24.00
Band5	5MHz	16QAM	20525	1RB#24	23.15	24.00
Band5	5MHz	16QAM	20525	12RB#0	22.33	23.00
Band5	5MHz	16QAM	20525	12RB#6	22.52	23.00
Band5	5MHz	16QAM	20525	12RB#13	22.43	23.00
Band5	5MHz	16QAM	20525	25RB#0	22.39	23.00
Band5	5MHz	16QAM	20625	1RB#0	23.33	24.00
Band5	5MHz	16QAM	20625	1RB#12	23.73	24.00
Band5	5MHz	16QAM	20625	1RB#24	22.59	23.00
Band5	5MHz	16QAM	20625	12RB#0	22.38	23.00
Band5	5MHz	16QAM	20625	12RB#6	22.28	23.00
Band5	5MHz	16QAM	20625	12RB#13	22.21	23.00
Band5	5MHz	16QAM	20625	25RB#0	22.46	23.00
Band5	10MHz	QPSK	20450	1RB#0	24.29	25.00

Band5	10MHz	QPSK	20450	1RB#24	24.24	25.00
Band5	10MHz	QPSK	20450	1RB#49	24.49	25.00
Band5	10MHz	QPSK	20450	25RB#0	23.46	24.00
Band5	10MHz	QPSK	20450	25RB#12	23.44	24.00
Band5	10MHz	QPSK	20450	25RB#25	23.52	24.00
Band5	10MHz	QPSK	20450	50RB#0	23.40	24.00
Band5	10MHz	QPSK	20525	1RB#0	24.45	25.00
Band5	10MHz	QPSK	20525	1RB#24	24.46	25.00
Band5	10MHz	QPSK	20525	1RB#49	24.52	25.00
Band5	10MHz	QPSK	20525	25RB#0	23.58	24.00
Band5	10MHz	QPSK	20525	25RB#12	23.60	24.00
Band5	10MHz	QPSK	20525	25RB#25	23.55	24.00
Band5	10MHz	QPSK	20525	50RB#0	23.61	24.00
Band5	10MHz	QPSK	20600	1RB#0	24.02	25.00
Band5	10MHz	QPSK	20600	1RB#24	24.27	25.00
Band5	10MHz	QPSK	20600	1RB#49	24.16	25.00
Band5	10MHz	QPSK	20600	25RB#0	23.52	24.00
Band5	10MHz	QPSK	20600	25RB#12	23.52	24.00
Band5	10MHz	QPSK	20600	25RB#25	23.35	24.00
Band5	10MHz	QPSK	20600	50RB#0	23.37	24.00
Band5	10MHz	16QAM	20450	1RB#0	23.01	24.00
Band5	10MHz	16QAM	20450	1RB#24	23.44	24.00
Band5	10MHz	16QAM	20450	1RB#49	23.43	24.00
Band5	10MHz	16QAM	20450	25RB#0	22.59	23.00
Band5	10MHz	16QAM	20450	25RB#12	22.64	23.00
Band5	10MHz	16QAM	20450	25RB#25	22.65	23.00
Band5	10MHz	16QAM	20525	1RB#0	23.78	24.00
Band5	10MHz	16QAM	20525	1RB#24	24.12	25.00
Band5	10MHz	16QAM	20525	1RB#49	23.84	24.00
Band5	10MHz	16QAM	20525	25RB#0	22.63	23.00
Band5	10MHz	16QAM	20525	25RB#12	22.64	23.00
Band5	10MHz	16QAM	20525	25RB#25	22.48	23.00
Band5	10MHz	16QAM	20600	1RB#0	23.52	24.00
Band5	10MHz	16QAM	20600	1RB#24	23.33	24.00
Band5	10MHz	16QAM	20600	1RB#49	23.09	24.00
Band5	10MHz	16QAM	20600	25RB#0	22.23	23.00
Band5	10MHz	16QAM	20600	25RB#12	22.33	23.00
Band5	10MHz	16QAM	20600	25RB#25	22.36	23.00

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band7	5MHz	QPSK	20775	1RB#0	23.39	24.00
Band7	5MHz	QPSK	20775	1RB#12	23.86	24.00
Band7	5MHz	QPSK	20775	1RB#24	23.56	24.00
Band7	5MHz	QPSK	20775	12RB#0	22.73	23.00
Band7	5MHz	QPSK	20775	12RB#6	22.61	23.00
Band7	5MHz	QPSK	20775	12RB#13	22.73	23.00
Band7	5MHz	QPSK	20775	25RB#0	22.79	23.00
Band7	5MHz	QPSK	21100	1RB#0	23.73	24.00
Band7	5MHz	QPSK	21100	1RB#12	24.14	25.00
Band7	5MHz	QPSK	21100	1RB#24	23.81	24.00
Band7	5MHz	QPSK	21100	12RB#0	22.85	23.00
Band7	5MHz	QPSK	21100	12RB#6	22.88	23.00
Band7	5MHz	QPSK	21100	12RB#13	22.97	23.00
Band7	5MHz	QPSK	21100	25RB#0	22.94	23.00
Band7	5MHz	QPSK	21425	1RB#0	23.43	24.00
Band7	5MHz	QPSK	21425	1RB#12	23.76	24.00
Band7	5MHz	QPSK	21425	1RB#24	23.54	24.00
Band7	5MHz	QPSK	21425	12RB#0	22.65	23.00
Band7	5MHz	QPSK	21425	12RB#6	22.65	23.00
Band7	5MHz	QPSK	21425	12RB#13	22.47	23.00
Band7	5MHz	QPSK	21425	25RB#0	22.61	23.00
Band7	5MHz	16QAM	20775	1RB#0	22.19	23.00
Band7	5MHz	16QAM	20775	1RB#12	22.71	23.00
Band7	5MHz	16QAM	20775	1RB#24	22.65	23.00
Band7	5MHz	16QAM	20775	12RB#0	21.55	22.00
Band7	5MHz	16QAM	20775	12RB#6	21.76	22.00
Band7	5MHz	16QAM	20775	12RB#13	21.73	22.00
Band7	5MHz	16QAM	20775	25RB#0	21.62	22.00
Band7	5MHz	16QAM	21100	1RB#0	22.38	23.00
Band7	5MHz	16QAM	21100	1RB#12	22.55	23.00
Band7	5MHz	16QAM	21100	1RB#24	23.07	24.00
Band7	5MHz	16QAM	21100	12RB#0	21.97	22.00
Band7	5MHz	16QAM	21100	12RB#6	21.79	22.00
Band7	5MHz	16QAM	21100	12RB#13	21.98	22.00
Band7	5MHz	16QAM	21100	25RB#0	22.14	23.00
Band7	5MHz	16QAM	21425	1RB#0	22.70	23.00
Band7	5MHz	16QAM	21425	1RB#12	22.23	23.00
Band7	5MHz	16QAM	21425	1RB#24	22.55	23.00
Band7	5MHz	16QAM	21425	12RB#0	21.79	22.00
Band7	5MHz	16QAM	21425	12RB#6	21.60	22.00
Band7	5MHz	16QAM	21425	12RB#13	21.72	22.00

Band7	5MHz	16QAM	21425	25RB#0	21.51	22.00
Band7	10MHz	QPSK	20800	1RB#0	23.32	24.00
Band7	10MHz	QPSK	20800	1RB#24	23.78	24.00
Band7	10MHz	QPSK	20800	1RB#49	23.66	24.00
Band7	10MHz	QPSK	20800	25RB#0	22.74	23.00
Band7	10MHz	QPSK	20800	25RB#12	22.75	23.00
Band7	10MHz	QPSK	20800	25RB#25	22.67	23.00
Band7	10MHz	QPSK	20800	50RB#0	22.72	23.00
Band7	10MHz	QPSK	21100	1RB#0	23.80	24.00
Band7	10MHz	QPSK	21100	1RB#24	23.90	24.00
Band7	10MHz	QPSK	21100	1RB#49	23.77	24.00
Band7	10MHz	QPSK	21100	25RB#0	22.89	23.00
Band7	10MHz	QPSK	21100	25RB#12	22.99	23.00
Band7	10MHz	QPSK	21100	25RB#25	23.03	24.00
Band7	10MHz	QPSK	21100	50RB#0	22.90	23.00
Band7	10MHz	QPSK	21400	1RB#0	23.33	24.00
Band7	10MHz	QPSK	21400	1RB#24	23.82	24.00
Band7	10MHz	QPSK	21400	1RB#49	23.47	24.00
Band7	10MHz	QPSK	21400	25RB#0	22.46	23.00
Band7	10MHz	QPSK	21400	25RB#12	22.52	23.00
Band7	10MHz	QPSK	21400	25RB#25	22.56	23.00
Band7	10MHz	QPSK	21400	50RB#0	22.49	23.00
Band7	10MHz	16QAM	20800	1RB#0	22.92	23.00
Band7	10MHz	16QAM	20800	1RB#24	22.96	23.00
Band7	10MHz	16QAM	20800	1RB#49	22.53	23.00
Band7	10MHz	16QAM	20800	25RB#0	21.62	22.00
Band7	10MHz	16QAM	20800	25RB#12	21.83	22.00
Band7	10MHz	16QAM	20800	25RB#25	21.85	22.00
Band7	10MHz	16QAM	21100	1RB#0	22.79	23.00
Band7	10MHz	16QAM	21100	1RB#24	23.40	24.00
Band7	10MHz	16QAM	21100	1RB#49	22.81	23.00
Band7	10MHz	16QAM	21100	25RB#0	21.85	22.00
Band7	10MHz	16QAM	21100	25RB#12	21.94	22.00
Band7	10MHz	16QAM	21100	25RB#25	21.96	22.00
Band7	10MHz	16QAM	21400	1RB#0	22.30	23.00
Band7	10MHz	16QAM	21400	1RB#24	22.77	23.00
Band7	10MHz	16QAM	21400	1RB#49	22.49	23.00
Band7	10MHz	16QAM	21400	25RB#0	21.47	22.00
Band7	10MHz	16QAM	21400	25RB#12	21.47	22.00
Band7	10MHz	16QAM	21400	25RB#25	21.61	22.00
Band7	15MHz	QPSK	20825	1RB#0	23.64	24.00
Band7	15MHz	QPSK	20825	1RB#38	23.64	24.00
Band7	15MHz	QPSK	20825	1RB#74	23.77	24.00

Band7	15MHz	QPSK	20825	38RB#0	22.88	23.00
Band7	15MHz	QPSK	20825	38RB#18	22.77	23.00
Band7	15MHz	QPSK	20825	38RB#37	22.88	23.00
Band7	15MHz	QPSK	20825	75RB#0	22.72	23.00
Band7	15MHz	QPSK	21100	1RB#0	23.69	24.00
Band7	15MHz	QPSK	21100	1RB#38	24.12	25.00
Band7	15MHz	QPSK	21100	1RB#74	23.83	24.00
Band7	15MHz	QPSK	21100	38RB#0	22.85	23.00
Band7	15MHz	QPSK	21100	38RB#18	22.87	23.00
Band7	15MHz	QPSK	21100	38RB#37	22.88	23.00
Band7	15MHz	QPSK	21100	75RB#0	22.90	23.00
Band7	15MHz	QPSK	21375	1RB#0	23.51	24.00
Band7	15MHz	QPSK	21375	1RB#38	23.19	24.00
Band7	15MHz	QPSK	21375	1RB#74	23.47	24.00
Band7	15MHz	QPSK	21375	38RB#0	22.42	23.00
Band7	15MHz	QPSK	21375	38RB#18	22.44	23.00
Band7	15MHz	QPSK	21375	38RB#37	22.49	23.00
Band7	15MHz	QPSK	21375	75RB#0	22.49	23.00
Band7	15MHz	16QAM	20825	1RB#0	22.66	23.00
Band7	15MHz	16QAM	20825	1RB#38	22.83	23.00
Band7	15MHz	16QAM	20825	1RB#74	22.70	23.00
Band7	15MHz	16QAM	20825	38RB#0	22.71	23.00
Band7	15MHz	16QAM	20825	38RB#18	22.88	23.00
Band7	15MHz	16QAM	20825	38RB#37	22.83	23.00
Band7	15MHz	16QAM	21100	1RB#0	22.80	23.00
Band7	15MHz	16QAM	21100	1RB#38	22.83	23.00
Band7	15MHz	16QAM	21100	1RB#74	22.78	23.00
Band7	15MHz	16QAM	21100	38RB#0	22.86	23.00
Band7	15MHz	16QAM	21100	38RB#18	22.87	23.00
Band7	15MHz	16QAM	21100	38RB#37	22.88	23.00
Band7	15MHz	16QAM	21375	1RB#0	22.56	23.00
Band7	15MHz	16QAM	21375	1RB#38	22.25	23.00
Band7	15MHz	16QAM	21375	1RB#74	22.46	23.00
Band7	15MHz	16QAM	21375	38RB#0	22.45	23.00
Band7	15MHz	16QAM	21375	38RB#18	22.49	23.00
Band7	15MHz	16QAM	21375	38RB#37	22.49	23.00
Band7	20MHz	QPSK	20850	1RB#0	23.54	24.00
Band7	20MHz	QPSK	20850	1RB#49	23.90	24.00
Band7	20MHz	QPSK	20850	1RB#99	23.68	24.00
Band7	20MHz	QPSK	20850	50RB#0	22.64	23.00
Band7	20MHz	QPSK	20850	50RB#25	22.75	23.00
Band7	20MHz	QPSK	20850	50RB#50	22.65	23.00
Band7	20MHz	QPSK	20850	100RB#0	22.73	23.00

Band7	20MHz	QPSK	21100	1RB#0	23.87	24.00
Band7	20MHz	QPSK	21100	1RB#49	23.98	24.00
Band7	20MHz	QPSK	21100	1RB#99	23.83	24.00
Band7	20MHz	QPSK	21100	50RB#0	22.90	23.00
Band7	20MHz	QPSK	21100	50RB#25	22.85	23.00
Band7	20MHz	QPSK	21100	50RB#50	22.93	23.00
Band7	20MHz	QPSK	21100	100RB#0	22.82	23.00
Band7	20MHz	QPSK	21350	1RB#0	23.52	24.00
Band7	20MHz	QPSK	21350	1RB#49	23.42	24.00
Band7	20MHz	QPSK	21350	1RB#99	23.62	24.00
Band7	20MHz	QPSK	21350	50RB#0	22.58	23.00
Band7	20MHz	QPSK	21350	50RB#25	22.54	23.00
Band7	20MHz	QPSK	21350	50RB#50	22.38	23.00
Band7	20MHz	QPSK	21350	100RB#0	22.46	23.00
Band7	20MHz	16QAM	20850	1RB#0	22.68	23.00
Band7	20MHz	16QAM	20850	1RB#49	22.86	23.00
Band7	20MHz	16QAM	20850	1RB#99	22.62	23.00
Band7	20MHz	16QAM	21100	1RB#0	22.89	23.00
Band7	20MHz	16QAM	21100	1RB#49	23.51	24.00
Band7	20MHz	16QAM	21100	1RB#99	22.69	23.00
Band7	20MHz	16QAM	21350	1RB#0	22.41	23.00
Band7	20MHz	16QAM	21350	1RB#49	22.98	23.00
Band7	20MHz	16QAM	21350	1RB#99	22.34	23.00

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band12	1.4MHz	QPSK	23017	1RB#0	24.12	25.00
Band12	1.4MHz	QPSK	23017	1RB#2	24.15	25.00
Band12	1.4MHz	QPSK	23017	1RB#5	24.02	25.00
Band12	1.4MHz	QPSK	23017	3RB#0	24.04	25.00
Band12	1.4MHz	QPSK	23017	3RB#1	24.03	25.00
Band12	1.4MHz	QPSK	23017	3RB#3	23.90	24.00
Band12	1.4MHz	QPSK	23017	6RB#0	22.97	23.00
Band12	1.4MHz	QPSK	23095	1RB#0	24.08	25.00
Band12	1.4MHz	QPSK	23095	1RB#2	24.23	25.00
Band12	1.4MHz	QPSK	23095	1RB#5	24.18	25.00
Band12	1.4MHz	QPSK	23095	3RB#0	24.24	25.00
Band12	1.4MHz	QPSK	23095	3RB#1	24.24	25.00
Band12	1.4MHz	QPSK	23095	3RB#3	24.17	25.00
Band12	1.4MHz	QPSK	23095	6RB#0	23.26	24.00
Band12	1.4MHz	QPSK	23173	1RB#0	24.10	25.00
Band12	1.4MHz	QPSK	23173	1RB#2	24.35	25.00
Band12	1.4MHz	QPSK	23173	1RB#5	24.13	25.00
Band12	1.4MHz	QPSK	23173	3RB#0	24.21	25.00
Band12	1.4MHz	QPSK	23173	3RB#1	24.14	25.00
Band12	1.4MHz	QPSK	23173	3RB#3	24.19	25.00
Band12	1.4MHz	QPSK	23173	6RB#0	23.20	24.00
Band12	1.4MHz	16QAM	23017	1RB#0	22.99	23.00
Band12	1.4MHz	16QAM	23017	1RB#2	23.10	24.00
Band12	1.4MHz	16QAM	23017	1RB#5	23.05	24.00
Band12	1.4MHz	16QAM	23017	3RB#0	23.03	24.00
Band12	1.4MHz	16QAM	23017	3RB#1	23.02	24.00
Band12	1.4MHz	16QAM	23017	3RB#3	23.11	24.00
Band12	1.4MHz	16QAM	23017	6RB#0	21.86	22.00
Band12	1.4MHz	16QAM	23095	1RB#0	23.23	24.00
Band12	1.4MHz	16QAM	23095	1RB#2	23.28	24.00
Band12	1.4MHz	16QAM	23095	1RB#5	23.12	24.00
Band12	1.4MHz	16QAM	23095	3RB#0	22.93	23.00
Band12	1.4MHz	16QAM	23095	3RB#1	22.93	23.00
Band12	1.4MHz	16QAM	23095	3RB#3	22.79	23.00
Band12	1.4MHz	16QAM	23095	6RB#0	22.37	23.00
Band12	1.4MHz	16QAM	23173	1RB#0	23.26	24.00
Band12	1.4MHz	16QAM	23173	1RB#2	23.32	24.00
Band12	1.4MHz	16QAM	23173	1RB#5	23.14	24.00
Band12	1.4MHz	16QAM	23173	3RB#0	22.81	23.00
Band12	1.4MHz	16QAM	23173	3RB#1	22.97	23.00
Band12	1.4MHz	16QAM	23173	3RB#3	22.89	23.00

Band12	1.4MHz	16QAM	23173	6RB#0	22.17	23.00
Band12	3MHz	QPSK	23025	1RB#0	23.73	24.00
Band12	3MHz	QPSK	23025	1RB#8	23.68	24.00
Band12	3MHz	QPSK	23025	1RB#14	23.78	24.00
Band12	3MHz	QPSK	23025	8RB#0	22.86	23.00
Band12	3MHz	QPSK	23025	8RB#4	22.93	23.00
Band12	3MHz	QPSK	23025	8RB#7	22.91	23.00
Band12	3MHz	QPSK	23025	15RB#0	22.91	23.00
Band12	3MHz	QPSK	23095	1RB#0	24.14	25.00
Band12	3MHz	QPSK	23095	1RB#8	24.37	25.00
Band12	3MHz	QPSK	23095	1RB#14	24.34	25.00
Band12	3MHz	QPSK	23095	8RB#0	23.23	24.00
Band12	3MHz	QPSK	23095	8RB#4	23.15	24.00
Band12	3MHz	QPSK	23095	8RB#7	23.13	24.00
Band12	3MHz	QPSK	23095	15RB#0	23.23	24.00
Band12	3MHz	QPSK	23165	1RB#0	24.07	25.00
Band12	3MHz	QPSK	23165	1RB#8	24.06	25.00
Band12	3MHz	QPSK	23165	1RB#14	24.12	25.00
Band12	3MHz	QPSK	23165	8RB#0	23.33	24.00
Band12	3MHz	QPSK	23165	8RB#4	23.24	24.00
Band12	3MHz	QPSK	23165	8RB#7	23.21	24.00
Band12	3MHz	QPSK	23165	15RB#0	23.14	24.00
Band12	3MHz	16QAM	23025	1RB#0	22.77	23.00
Band12	3MHz	16QAM	23025	1RB#8	22.76	23.00
Band12	3MHz	16QAM	23025	1RB#14	22.86	23.00
Band12	3MHz	16QAM	23025	8RB#0	21.89	22.00
Band12	3MHz	16QAM	23025	8RB#4	21.58	22.00
Band12	3MHz	16QAM	23025	8RB#7	22.31	23.00
Band12	3MHz	16QAM	23025	15RB#0	22.04	23.00
Band12	3MHz	16QAM	23095	1RB#0	23.28	24.00
Band12	3MHz	16QAM	23095	1RB#8	23.27	24.00
Band12	3MHz	16QAM	23095	1RB#14	23.15	24.00
Band12	3MHz	16QAM	23095	8RB#0	22.06	23.00
Band12	3MHz	16QAM	23095	8RB#4	22.06	23.00
Band12	3MHz	16QAM	23095	8RB#7	22.04	23.00
Band12	3MHz	16QAM	23095	15RB#0	22.16	23.00
Band12	3MHz	16QAM	23165	1RB#0	22.93	23.00
Band12	3MHz	16QAM	23165	1RB#8	22.67	23.00
Band12	3MHz	16QAM	23165	1RB#14	23.12	24.00
Band12	3MHz	16QAM	23165	8RB#0	22.46	23.00
Band12	3MHz	16QAM	23165	8RB#4	22.01	23.00
Band12	3MHz	16QAM	23165	8RB#7	21.90	22.00
Band12	3MHz	16QAM	23165	15RB#0	22.29	23.00

Band12	5MHz	QPSK	23035	1RB#0	23.70	24.00
Band12	5MHz	QPSK	23035	1RB#12	24.13	25.00
Band12	5MHz	QPSK	23035	1RB#24	23.97	24.00
Band12	5MHz	QPSK	23035	12RB#0	22.98	23.00
Band12	5MHz	QPSK	23035	12RB#6	22.98	23.00
Band12	5MHz	QPSK	23035	12RB#13	22.89	23.00
Band12	5MHz	QPSK	23035	25RB#0	22.87	23.00
Band12	5MHz	QPSK	23095	1RB#0	23.97	24.00
Band12	5MHz	QPSK	23095	1RB#12	24.33	25.00
Band12	5MHz	QPSK	23095	1RB#24	24.08	25.00
Band12	5MHz	QPSK	23095	12RB#0	23.28	24.00
Band12	5MHz	QPSK	23095	12RB#6	23.20	24.00
Band12	5MHz	QPSK	23095	12RB#13	23.14	24.00
Band12	5MHz	QPSK	23095	25RB#0	23.18	24.00
Band12	5MHz	QPSK	23155	1RB#0	23.99	24.00
Band12	5MHz	QPSK	23155	1RB#12	24.26	25.00
Band12	5MHz	QPSK	23155	1RB#24	23.79	24.00
Band12	5MHz	QPSK	23155	12RB#0	23.28	24.00
Band12	5MHz	QPSK	23155	12RB#6	23.29	24.00
Band12	5MHz	QPSK	23155	12RB#13	23.12	24.00
Band12	5MHz	QPSK	23155	25RB#0	23.13	24.00
Band12	5MHz	16QAM	23035	1RB#0	22.92	23.00
Band12	5MHz	16QAM	23035	1RB#12	23.51	24.00
Band12	5MHz	16QAM	23035	1RB#24	22.45	23.00
Band12	5MHz	16QAM	23035	12RB#0	22.08	23.00
Band12	5MHz	16QAM	23035	12RB#6	22.08	23.00
Band12	5MHz	16QAM	23035	12RB#13	21.97	22.00
Band12	5MHz	16QAM	23035	25RB#0	22.04	23.00
Band12	5MHz	16QAM	23095	1RB#0	22.87	23.00
Band12	5MHz	16QAM	23095	1RB#12	23.17	24.00
Band12	5MHz	16QAM	23095	1RB#24	22.84	23.00
Band12	5MHz	16QAM	23095	12RB#0	22.35	23.00
Band12	5MHz	16QAM	23095	12RB#6	22.36	23.00
Band12	5MHz	16QAM	23095	12RB#13	22.22	23.00
Band12	5MHz	16QAM	23095	25RB#0	22.17	23.00
Band12	5MHz	16QAM	23155	1RB#0	23.30	24.00
Band12	5MHz	16QAM	23155	1RB#12	23.82	24.00
Band12	5MHz	16QAM	23155	1RB#24	23.18	24.00
Band12	5MHz	16QAM	23155	12RB#0	22.29	23.00
Band12	5MHz	16QAM	23155	12RB#6	22.29	23.00
Band12	5MHz	16QAM	23155	12RB#13	22.23	23.00
Band12	5MHz	16QAM	23155	25RB#0	22.35	23.00
Band12	10MHz	QPSK	23060	1RB#0	23.62	24.00

Band12	10MHz	QPSK	23060	1RB#24	24.05	25.00
Band12	10MHz	QPSK	23060	1RB#49	23.80	24.00
Band12	10MHz	QPSK	23060	25RB#0	22.97	23.00
Band12	10MHz	QPSK	23060	25RB#12	22.92	23.00
Band12	10MHz	QPSK	23060	25RB#25	23.20	24.00
Band12	10MHz	QPSK	23060	50RB#0	23.05	24.00
Band12	10MHz	QPSK	23095	1RB#0	23.98	24.00
Band12	10MHz	QPSK	23095	1RB#24	24.29	25.00
Band12	10MHz	QPSK	23095	1RB#49	24.09	25.00
Band12	10MHz	QPSK	23095	25RB#0	23.17	24.00
Band12	10MHz	QPSK	23095	25RB#12	23.19	24.00
Band12	10MHz	QPSK	23095	25RB#25	23.10	24.00
Band12	10MHz	QPSK	23095	50RB#0	23.10	24.00
Band12	10MHz	QPSK	23130	1RB#0	24.00	25.00
Band12	10MHz	QPSK	23130	1RB#24	24.35	25.00
Band12	10MHz	QPSK	23130	1RB#49	23.74	24.00
Band12	10MHz	QPSK	23130	25RB#0	23.24	24.00
Band12	10MHz	QPSK	23130	25RB#12	23.24	24.00
Band12	10MHz	QPSK	23130	25RB#25	23.14	24.00
Band12	10MHz	QPSK	23130	50RB#0	23.21	24.00
Band12	10MHz	16QAM	23060	1RB#0	23.06	24.00
Band12	10MHz	16QAM	23060	1RB#24	23.08	24.00
Band12	10MHz	16QAM	23060	1RB#49	22.98	23.00
Band12	10MHz	16QAM	23060	25RB#0	21.88	22.00
Band12	10MHz	16QAM	23060	25RB#12	21.88	22.00
Band12	10MHz	16QAM	23060	25RB#25	22.25	23.00
Band12	10MHz	16QAM	23095	1RB#0	22.82	23.00
Band12	10MHz	16QAM	23095	1RB#24	23.46	24.00
Band12	10MHz	16QAM	23095	1RB#49	23.15	24.00
Band12	10MHz	16QAM	23095	25RB#0	22.30	23.00
Band12	10MHz	16QAM	23095	25RB#12	22.28	23.00
Band12	10MHz	16QAM	23095	25RB#25	22.31	23.00
Band12	10MHz	16QAM	23130	1RB#0	23.32	24.00
Band12	10MHz	16QAM	23130	1RB#24	23.46	24.00
Band12	10MHz	16QAM	23130	1RB#49	22.90	23.00
Band12	10MHz	16QAM	23130	25RB#0	22.01	23.00
Band12	10MHz	16QAM	23130	25RB#12	22.11	23.00
Band12	10MHz	16QAM	23130	25RB#25	22.13	23.00

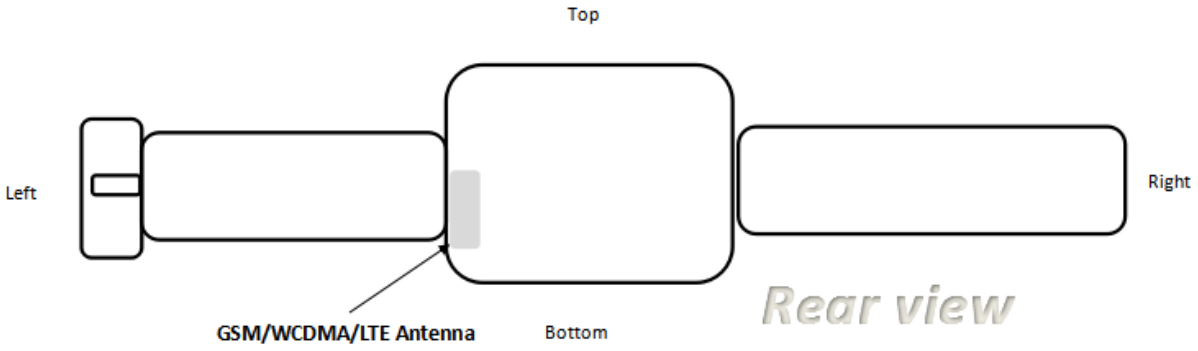
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band13	5MHz	QPSK	23205	1RB#0	24.00	25.00
Band13	5MHz	QPSK	23205	1RB#12	23.95	24.00
Band13	5MHz	QPSK	23205	1RB#24	23.97	24.00
Band13	5MHz	QPSK	23205	12RB#0	23.05	24.00
Band13	5MHz	QPSK	23205	12RB#6	23.04	24.00
Band13	5MHz	QPSK	23205	12RB#13	22.99	23.00
Band13	5MHz	QPSK	23205	25RB#0	23.11	24.00
Band13	5MHz	QPSK	23230	1RB#0	23.60	24.00
Band13	5MHz	QPSK	23230	1RB#12	23.89	24.00
Band13	5MHz	QPSK	23230	1RB#24	24.12	25.00
Band13	5MHz	QPSK	23230	12RB#0	22.80	23.00
Band13	5MHz	QPSK	23230	12RB#6	22.90	23.00
Band13	5MHz	QPSK	23230	12RB#13	22.93	23.00
Band13	5MHz	QPSK	23230	25RB#0	22.87	23.00
Band13	5MHz	QPSK	23255	1RB#0	23.89	24.00
Band13	5MHz	QPSK	23255	1RB#12	24.05	25.00
Band13	5MHz	QPSK	23255	1RB#24	23.83	24.00
Band13	5MHz	QPSK	23255	12RB#0	22.92	23.00
Band13	5MHz	QPSK	23255	12RB#6	22.94	23.00
Band13	5MHz	QPSK	23255	12RB#13	22.89	23.00
Band13	5MHz	QPSK	23255	25RB#0	22.99	23.00
Band13	5MHz	16QAM	23205	1RB#0	22.66	23.00
Band13	5MHz	16QAM	23205	1RB#12	23.45	24.00
Band13	5MHz	16QAM	23205	1RB#24	23.07	24.00
Band13	5MHz	16QAM	23205	12RB#0	22.13	23.00
Band13	5MHz	16QAM	23205	12RB#6	22.12	23.00
Band13	5MHz	16QAM	23205	12RB#13	21.99	22.00
Band13	5MHz	16QAM	23205	25RB#0	22.21	23.00
Band13	5MHz	16QAM	23230	1RB#0	22.72	23.00
Band13	5MHz	16QAM	23230	1RB#12	22.90	23.00
Band13	5MHz	16QAM	23230	1RB#24	22.84	23.00
Band13	5MHz	16QAM	23230	12RB#0	21.90	22.00
Band13	5MHz	16QAM	23230	12RB#6	21.81	22.00
Band13	5MHz	16QAM	23230	12RB#13	22.10	23.00
Band13	5MHz	16QAM	23230	25RB#0	21.89	22.00
Band13	5MHz	16QAM	23255	1RB#0	22.55	23.00
Band13	5MHz	16QAM	23255	1RB#12	22.95	23.00
Band13	5MHz	16QAM	23255	1RB#24	22.52	23.00
Band13	5MHz	16QAM	23255	12RB#0	21.87	22.00
Band13	5MHz	16QAM	23255	12RB#6	21.87	22.00
Band13	5MHz	16QAM	23255	12RB#13	21.87	22.00

Band13	5MHz	16QAM	23255	25RB#0	21.84	22.00
Band13	10MHz	QPSK	23230	1RB#0	23.60	24.00
Band13	10MHz	QPSK	23230	1RB#24	24.05	25.00
Band13	10MHz	QPSK	23230	1RB#49	23.57	24.00
Band13	10MHz	QPSK	23230	25RB#0	22.88	23.00
Band13	10MHz	QPSK	23230	25RB#12	22.65	23.00
Band13	10MHz	QPSK	23230	25RB#25	22.93	23.00
Band13	10MHz	QPSK	23230	50RB#0	22.87	23.00
Band13	10MHz	16QAM	23230	1RB#0	22.58	23.00
Band13	10MHz	16QAM	23230	1RB#24	23.09	24.00
Band13	10MHz	16QAM	23230	1RB#49	22.80	23.00
Band13	10MHz	16QAM	23230	25RB#0	22.03	23.00
Band13	10MHz	16QAM	23230	25RB#12	21.72	22.00
Band13	10MHz	16QAM	23230	25RB#25	21.90	22.00

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Tune-up limit (dBm)
Band17	5MHz	QPSK	23755	1RB#0	24.01	25.00
Band17	5MHz	QPSK	23755	1RB#12	23.86	24.00
Band17	5MHz	QPSK	23755	1RB#24	23.84	24.00
Band17	5MHz	QPSK	23755	12RB#0	23.06	24.00
Band17	5MHz	QPSK	23755	12RB#6	23.06	24.00
Band17	5MHz	QPSK	23755	12RB#13	23.12	24.00
Band17	5MHz	QPSK	23755	25RB#0	22.97	23.00
Band17	5MHz	QPSK	23790	1RB#0	23.76	24.00
Band17	5MHz	QPSK	23790	1RB#12	24.03	25.00
Band17	5MHz	QPSK	23790	1RB#24	23.87	24.00
Band17	5MHz	QPSK	23790	12RB#0	23.10	24.00
Band17	5MHz	QPSK	23790	12RB#6	23.10	24.00
Band17	5MHz	QPSK	23790	12RB#13	23.11	24.00
Band17	5MHz	QPSK	23790	25RB#0	22.99	23.00
Band17	5MHz	QPSK	23825	1RB#0	23.81	24.00
Band17	5MHz	QPSK	23825	1RB#12	24.19	25.00
Band17	5MHz	QPSK	23825	1RB#24	23.82	24.00
Band17	5MHz	QPSK	23825	12RB#0	23.06	24.00
Band17	5MHz	QPSK	23825	12RB#6	23.05	24.00
Band17	5MHz	QPSK	23825	12RB#13	23.01	24.00
Band17	5MHz	QPSK	23825	25RB#0	22.99	23.00
Band17	5MHz	16QAM	23755	1RB#0	22.94	23.00
Band17	5MHz	16QAM	23755	1RB#12	23.57	24.00
Band17	5MHz	16QAM	23755	1RB#24	22.94	23.00
Band17	5MHz	16QAM	23755	12RB#0	22.09	23.00
Band17	5MHz	16QAM	23755	12RB#6	22.14	23.00
Band17	5MHz	16QAM	23755	12RB#13	22.15	23.00
Band17	5MHz	16QAM	23755	25RB#0	22.18	23.00
Band17	5MHz	16QAM	23790	1RB#0	22.89	23.00
Band17	5MHz	16QAM	23790	1RB#12	23.60	24.00
Band17	5MHz	16QAM	23790	1RB#24	23.15	24.00
Band17	5MHz	16QAM	23790	12RB#0	22.09	23.00
Band17	5MHz	16QAM	23790	12RB#6	22.09	23.00
Band17	5MHz	16QAM	23790	12RB#13	22.10	23.00
Band17	5MHz	16QAM	23790	25RB#0	22.21	23.00
Band17	5MHz	16QAM	23825	1RB#0	22.90	23.00
Band17	5MHz	16QAM	23825	1RB#12	23.52	24.00
Band17	5MHz	16QAM	23825	1RB#24	22.93	23.00
Band17	5MHz	16QAM	23825	12RB#0	22.04	23.00
Band17	5MHz	16QAM	23825	12RB#6	22.03	23.00
Band17	5MHz	16QAM	23825	12RB#13	22.00	23.00

Band17	5MHz	16QAM	23825	25RB#0	22.00	23.00
Band17	10MHz	QPSK	23780	1RB#0	24.06	25.00
Band17	10MHz	QPSK	23780	1RB#24	24.25	25.00
Band17	10MHz	QPSK	23780	1RB#49	23.97	24.00
Band17	10MHz	QPSK	23780	25RB#0	23.21	24.00
Band17	10MHz	QPSK	23780	25RB#12	23.22	24.00
Band17	10MHz	QPSK	23780	25RB#25	23.19	24.00
Band17	10MHz	QPSK	23780	50RB#0	23.22	24.00
Band17	10MHz	QPSK	23790	1RB#0	23.99	24.00
Band17	10MHz	QPSK	23790	1RB#24	24.13	25.00
Band17	10MHz	QPSK	23790	1RB#49	23.90	24.00
Band17	10MHz	QPSK	23790	25RB#0	23.09	24.00
Band17	10MHz	QPSK	23790	25RB#12	23.18	24.00
Band17	10MHz	QPSK	23790	25RB#25	23.12	24.00
Band17	10MHz	QPSK	23790	50RB#0	23.09	24.00
Band17	10MHz	QPSK	23800	1RB#0	24.05	25.00
Band17	10MHz	QPSK	23800	1RB#24	24.12	25.00
Band17	10MHz	QPSK	23800	1RB#49	23.81	24.00
Band17	10MHz	QPSK	23800	25RB#0	23.32	24.00
Band17	10MHz	QPSK	23800	25RB#12	23.30	24.00
Band17	10MHz	QPSK	23800	25RB#25	23.14	24.00
Band17	10MHz	QPSK	23800	50RB#0	23.11	24.00
Band17	10MHz	16QAM	23780	1RB#0	23.09	24.00
Band17	10MHz	16QAM	23780	1RB#24	23.39	24.00
Band17	10MHz	16QAM	23780	1RB#49	23.14	24.00
Band17	10MHz	16QAM	23780	25RB#0	21.99	22.00
Band17	10MHz	16QAM	23780	25RB#12	21.99	22.00
Band17	10MHz	16QAM	23780	25RB#25	22.16	23.00
Band17	10MHz	16QAM	23790	1RB#0	23.08	24.00
Band17	10MHz	16QAM	23790	1RB#24	23.45	24.00
Band17	10MHz	16QAM	23790	1RB#49	22.92	23.00
Band17	10MHz	16QAM	23790	25RB#0	22.06	23.00
Band17	10MHz	16QAM	23790	25RB#12	22.15	23.00
Band17	10MHz	16QAM	23790	25RB#25	22.09	23.00
Band17	10MHz	16QAM	23800	1RB#0	23.13	24.00
Band17	10MHz	16QAM	23800	1RB#24	23.35	24.00
Band17	10MHz	16QAM	23800	1RB#49	22.94	23.00
Band17	10MHz	16QAM	23800	25RB#0	22.18	23.00
Band17	10MHz	16QAM	23800	25RB#12	22.17	23.00
Band17	10MHz	16QAM	23800	25RB#25	22.12	23.00

10.2 Transmit Antennas



10.3 SAR Test Results

General Note:

1 Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.

a) Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.

b) For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"

c) For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor

2 Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

3 Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.

<Body SAR>

SAR Values [GSM 850]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#1	GSM Voice	Next to the Mouth	128	824.2	33.03	33.50	1.114	0.15	**0.229**	**0.255**
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#2	GPRS 3Tx slots	Extremity	128	824.2	29.40	30.50	1.288	-0.17	**0.342**	**0.441**

SAR Values [GSM 1900]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#3	GSM Voice	Next to the Mouth	661	1880.0	29.85	30.00	1.035	0.06	**0.415**	**0.430**
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#4	GPRS 2Tx slots	Extremity	810	1909.8	28.98	29.00	1.005	-0.11	**0.611**	**0.614**

SAR Values [WCDMA V]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#5	RMC 12.2Kbps	Next to the Mouth	4183	836.6	23.71	24.00	1.069	-0.18	**0.228**	**0.244**
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR_{1g} (W/kg)**	**Reported SAR_{10g} (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#6	RMC 12.2Kbps	Extremity	4183	836.6	23.71	24.00	1.069	0.04	**0.315**	**0.377**

SAR Values [WCDMA II]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#7	RMC 12.2Kbps	Next to the Mouth	9400	1880.0	23.82	24.00	1.042	-0.02	**0.439**	**0.458**
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR_{1g} (W/kg)**	**Reported SAR_{10g} (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#8	RMC 12.2Kbps	Extremity	9400	1880.0	23.82	24.00	1.042	-0.15	**0.644**	**0.671**

SAR Values [LTE Band 2]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#9	QPSK_ 20MHz/1RB#99	Next to the Mouth	18900	1880	24.13	25.00	1.222	-0.17	**0.421**	**0.514**
	QPSK_ 20MHz/50RB#25	Next to the Mouth	18900	1880	23.10	24.00	1.230	-0.08	0.312	0.384
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#10	QPSK_ 20MHz/1RB#99	Extremity	18900	1880	24.13	25.00	1.222	-0.06	**0.624**	**0.762**
	QPSK_ 20MHz/50RB#25	Extremity	18900	1880	23.10	24.00	1.230	-0.17	0.516	0.635

SAR Values [LTE Band 4]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#11	QPSK_ 20MHz/1RB#0	Next to the Mouth	20300	1745	24.32	25.00	1.169	0.14	**0.500**	**0.585**
	QPSK_ 20MHz/50RB#25	Next to the Mouth	20300	1745	23.26	24.00	1.186	-0.19	0.399	0.473
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#12	QPSK_ 20MHz/1RB#0	Extremity	20300	1745	24.32	25.00	1.169	0.04	**0.669**	**0.782**
	QPSK_ 20MHz/50RB#25	Extremity	20300	1745	23.26	24.00	1.186	-0.19	0.536	0.636

SAR Values [LTE Band 5]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#13	QPSK_ 10MHz/1RB#49	Next to the Mouth	20525	836.5	24.52	25.00	1.117	-0.11	**0.245**	**0.274**
	QPSK_ 10MHz/25RB#12	Next to the Mouth	20525	836.5	23.60	24.00	1.096	-0.10	0.174	0.191
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#14	QPSK_ 10MHz/1RB#49	Extremity	20525	836.5	24.52	25.00	1.117	-0.15	**0.356**	**0.398**
	QPSK_10MHz/25RB#12	Extremity	20525	836.5	23.60	24.00	1.096	-0.06	0.264	0.289

SAR Values [LTE Band 7]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#15	QPSK_ 15MHz/1RB#38	Next to the Mouth	21100	2535.5	24.12	25.00	1.225	-0.11	**0.526**	**0.644**
	QPSK_ 15MHz/38RB#0	Next to the Mouth	20825	2507.5	22.88	23.00	1.028	0.16	0.429	0.441
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#16	QPSK_ 15MHz/1RB#38	Extremity	21100	2535.5	24.12	25.00	1.225	0.02	**0.650**	**0.796**
	QPSK_ 15MHz/38RB#0	Extremity	20825	2507.5	22.88	23.00	1.028	-0.03	0.489	0.503

SAR Values [LTE Band 12]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#17	QPSK_ 10MHz/1RB#24	Next to the Mouth	23130	711	24.35	25.00	1.161	0.18	**0.266**	**0.309**
	QPSK_ 10MHz/25RB#0	Next to the Mouth	23130	711	23.24	24.00	1.191	-0.19	0.164	0.195
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#18	QPSK_ 10MHz/1RB#24	Extremity	23130	711	24.35	25.00	1.161	0.01	**0.487**	**0.566**
	QPSK_ 10MHz/25RB#0	Extremity	23130	711	23.24	24.00	1.191	0.14	0.348	0.415

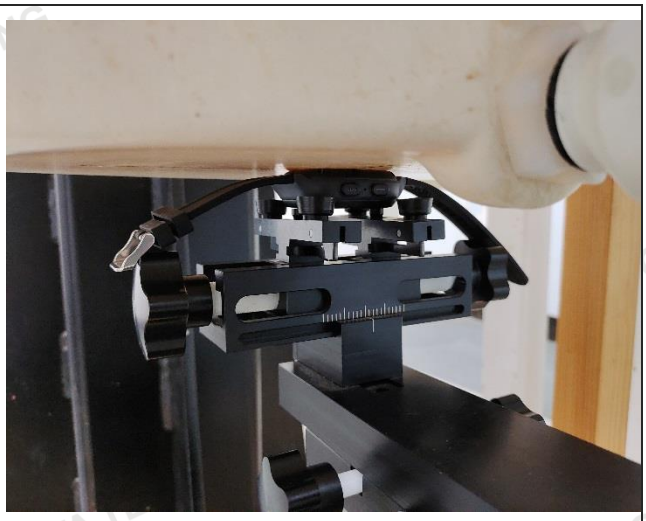
SAR Values [LTE Band 13]

Plot No.	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR1g (W/kg)	Reported SAR1g (W/kg)
measured / reported SAR numbers - Body (distance 10mm)										
#19	QPSK_ 10MHz/1RB#24	Next to the Mouth	23230	782	24.05	25.00	1.245	0.16	**0.236**	**0.294**
	QPSK_ 10MHz/25RB#25	Next to the Mouth	23230	782	22.93	23.00	1.016	-0.12	0.148	0.150
Plot No.	**Mode**	**Test Position**	**Ch.**	**Freq. (MHz)**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Scaling Factor**	**Power Drift (dB)**	**Measured SAR1g (W/kg)**	**Reported SAR10g (W/kg)**
measured / reported SAR numbers - Body (distance 0mm)										
#20	QPSK_ 10MHz/1RB#24	Extremity	23230	782	24.05	25.00	1.245	0.04	**0.466**	**0.580**
	QPSK_ 10MHz/25RB#25	Extremity	23230	782	22.93	23.00	1.016	-0.17	0.313	0.318

11 Measurement Uncertainty

When the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. to KDB 865664D01.

Appendix A. EUT Photos and Test Setup Photos

	
Next to the Mouth (10mm)	Extremity (0mm)

Appendix B. Plots of SAR System Check

750MHz System Check

Date: 10/18/2024

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1118

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.875 S/m; ε_r = 40.698; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7396; ConvF(9.82, 9.82, 9.82); Calibrated: May. 06, 2024;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Area Scan (5x18x1): Measured grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 4.96 W/kg

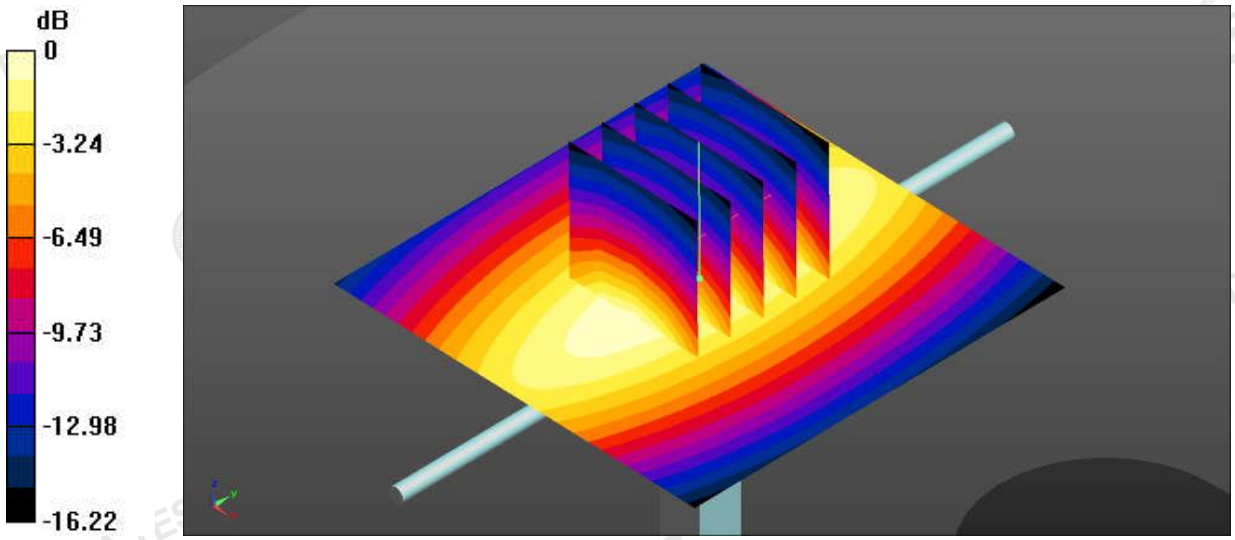
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.2 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.21 W/kg

SAR(1 g) = 2.22 W/kg; SAR(10 g) = 1.30 W/kg

Maximum value of SAR (measured) =4.90 W/kg



0 dB = 4.90 W/kg

System Performance Check 750MHz 250mW

835MHz System Check

Date: 10/20/2024

DUT: Dipole 835 MHz; Type: D835V2; Serial: 484

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.897 S/m; ε_r = 41.687; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7396; ConvF(9.71, 9.71, 9.71); Calibrated: May. 06, 2024;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Area Scan (5x18x1): Measured grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 3.65 W/kg

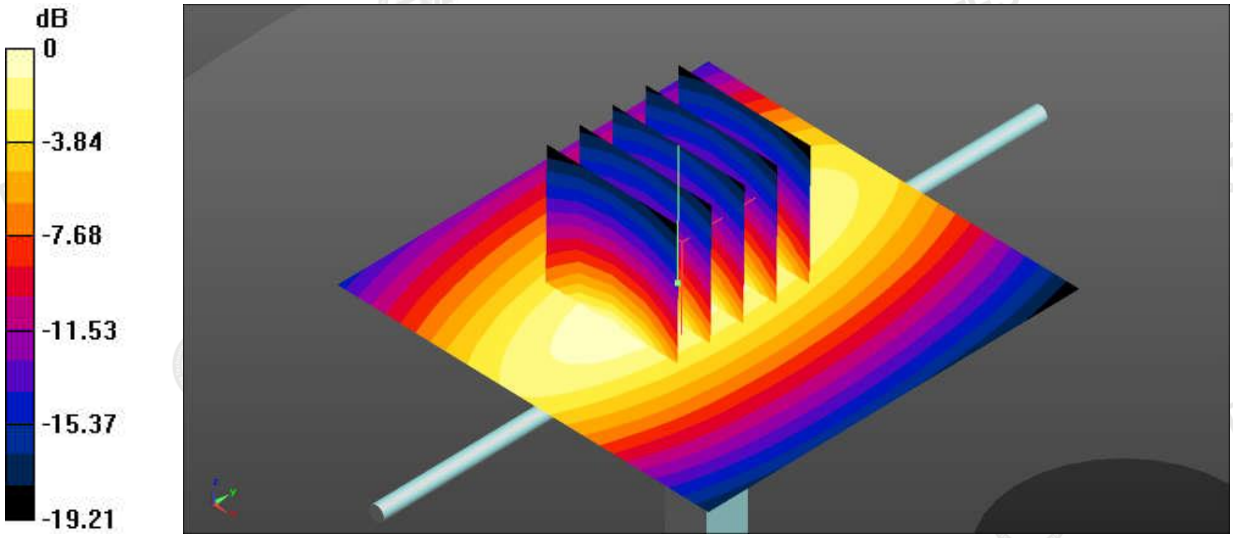
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 64.12 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 1.98 W/kg

SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.52 W/kg

Maximum value of SAR (measured) =3.59 W/kg



0 dB = 3.59 W/kg

System Performance Check 835MHz 250mW

1800 MHz System Check

Date: 10/25/2024

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: 2d158

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1800 MHz; σ = 1.425 S/m; ε_r = 39.254; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.61, 8.61, 8.61); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Area Scan (6x10x1): Measured grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 9.85 W/kg

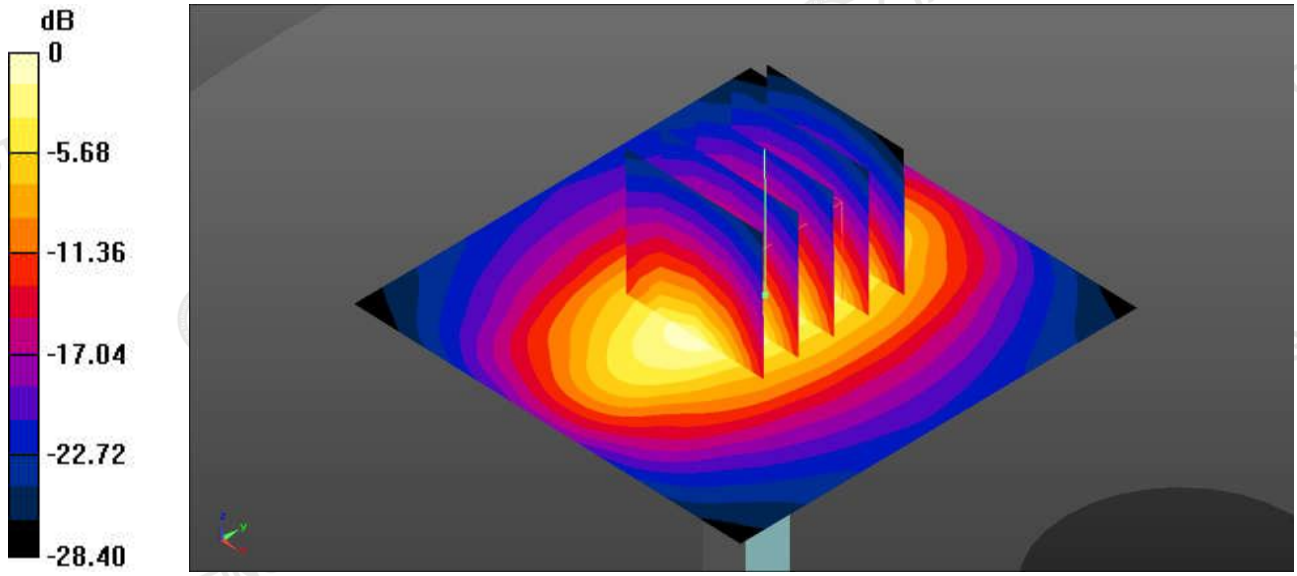
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.52 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 23.6 W/kg

SAR(1 g) = 9.44 W/kg; SAR(10 g) = 5.04 W/kg

Maximum value of SAR (measured) = 9.79 W/kg



0 dB = 9.79 W/kg

System Performance Check 1800MHz 250mW

1900MHz System Check

Date: 10/29/2024

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d002

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.426 S/m; εr =39.725; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13, 8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Area Scan (6x10x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 16.5 W/kg

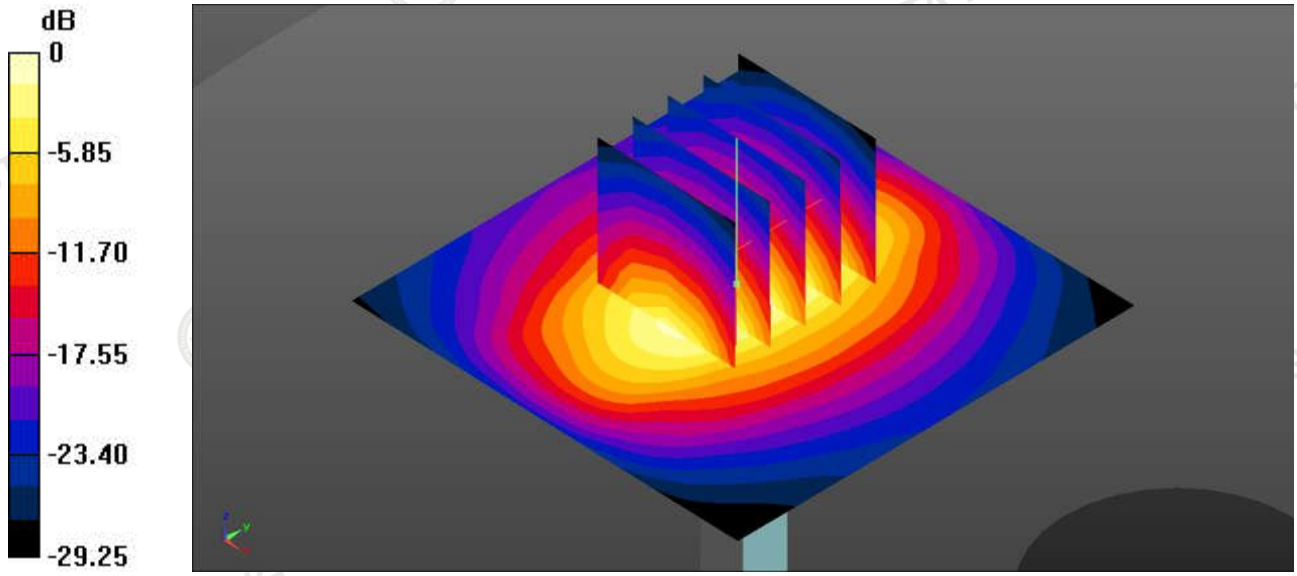
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 64.21 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 15.9 W/kg

SAR(1 g) = 9.68 W/kg; SAR(10 g) = 5.63 W/kg

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



0 dB = 15.7 W/kg

System Performance Check 1900MHz 250mW

2600MHz System Check

Date: 11/03/2024

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1073

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2600 MHz; σ = 2.015 S/m; εr = 38.524; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.38, 7.38, 7.38); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Area Scan (4x8x1): Measurement grid: dx=12 mm, dy=12 mm

Maximum value of SAR (measured) = 20.5 W/kg

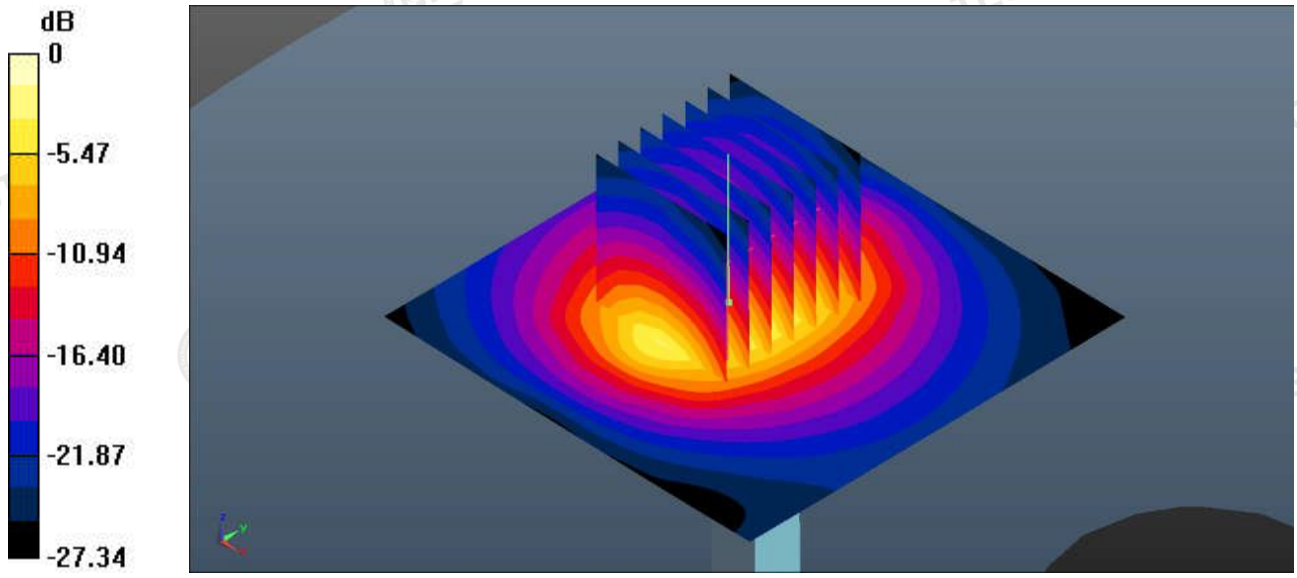
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 86.12 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 15.6 W/kg

SAR(1 g) = 13.87 W/kg; SAR(10 g) = 6.85 W/kg

Maximum value of SAR (measured) = 20.0 W/kg



0 dB = 20.0 W/kg

System Performance Check 2600MHz 250mW

Appendix C. Plots of SAR Test Data

#1

Date: 10/18/2024

GSM850_GSM Voice_ Next to the Mouth _10mm_Ch128

Communication System: UID 0, Generic GSM (0); Frequency: 824.2 MHz; Duty Cycle: 1:1

Medium parameters used: f = 824.2 MHz; σ = 0.887 S/m; εr =40.956; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.265 W/kg

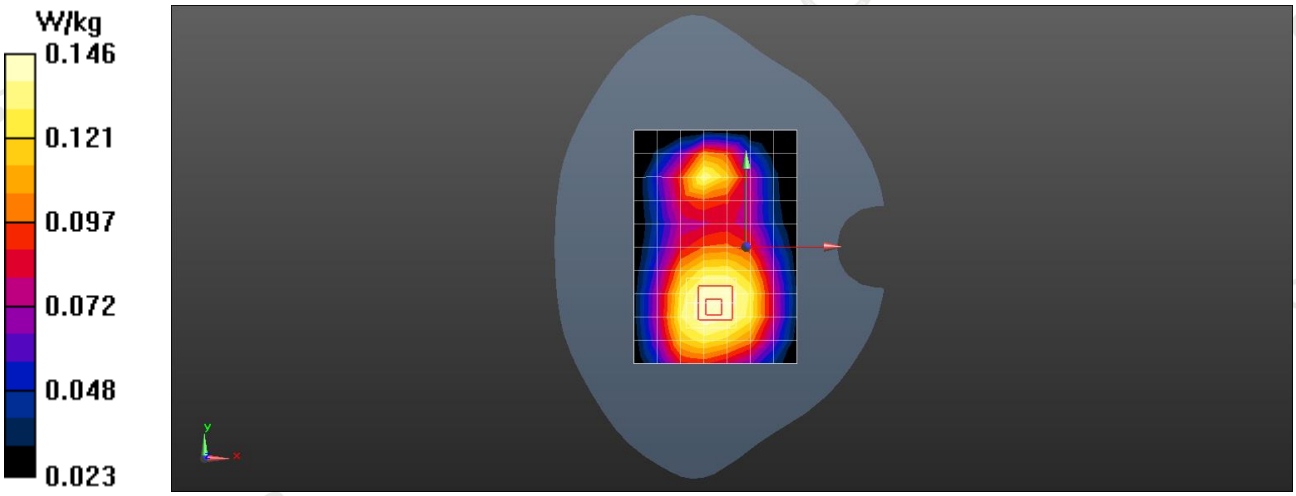
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.256V/m; Power Drift =0.15 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.106 W/kg

Maximum value of SAR (measured) = 0.258 W/kg



#2

Date: 10/18/2024

GPRS850_3Tx slots _ Extremity _0mm _CH128

Communication System: UID 0, Generic GSM (0); Frequency: 824.2 MHz; Duty Cycle: 1:2.77

Medium parameters used: f = 824.2 MHz; σ = 0.887 S/m; εr =40.956; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.458 W/kg

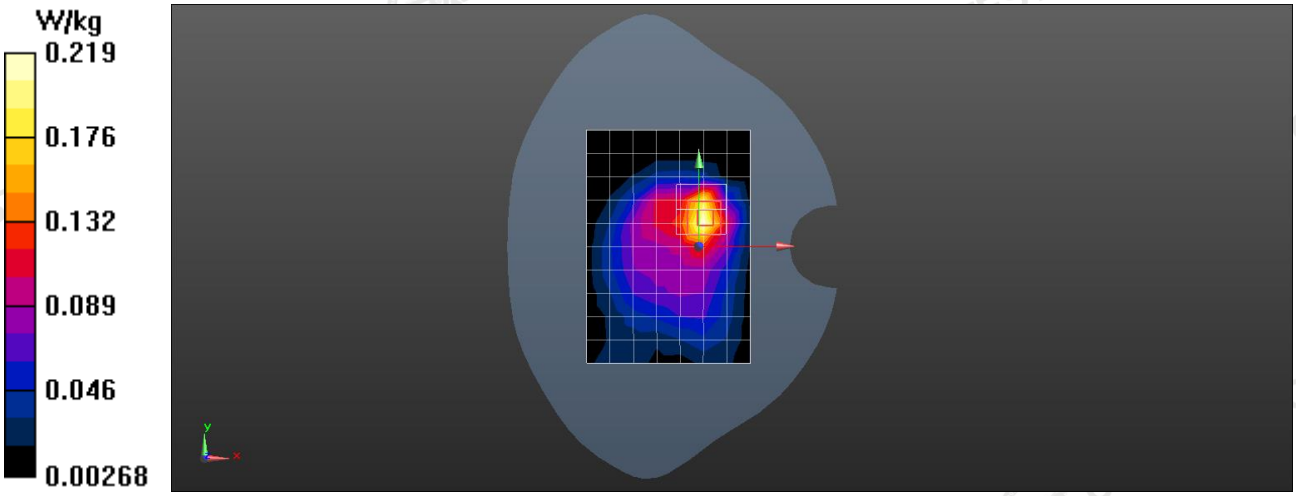
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.894V/m; Power Drift =-0.17 dB

Peak SAR (extrapolated) = 2.65 W/kg

SAR(1 g) = 0.598 W/kg; SAR(10 g) = 0.342 W/kg

Maximum value of SAR (measured) = 0.451 W/kg



#3

Date: 10/29/2024

GSM1900_GSM Voice_ Next to the Mouth _10mm_Ch661

Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ =1.442 S/m; εr =40.256; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.669 W/kg

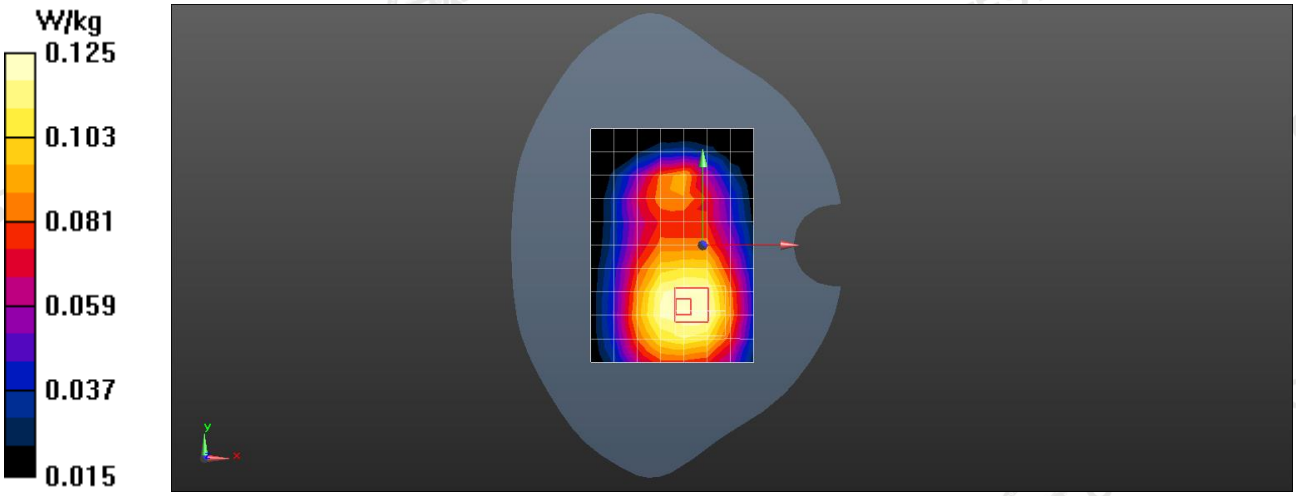
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.854V/m; Power Drift =0.06 dB

Peak SAR (extrapolated) = 2.15 W/kg

SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.268 W/kg

Maximum value of SAR (measured) = 0.661 W/kg



#4

Date: 10/29/2024

GPRS1900_2Tx slots _ Extremity _0mm _CH810

Communication System: UID 0, Generic GSM (0); Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium parameters used: f = 1909.8 MHz; σ = 1.396 S/m; εr =39.875; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.299 W/kg

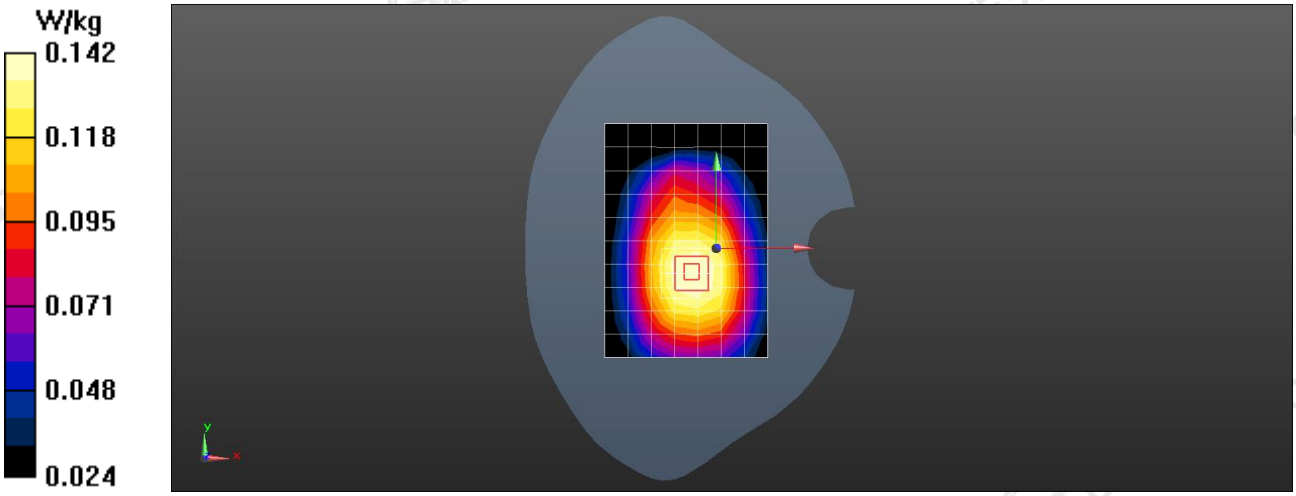
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.125V/m; Power Drift =-0.11 dB

Peak SAR (extrapolated) = 2.24 W/kg

SAR(1 g) = 0.965 W/kg; SAR(10 g) = 0.611 W/kg

Maximum value of SAR (measured) = 0.292 W/kg



#5

Date: 10/20/2024

WCDMA V_RMC 12.2Kbps_ Next to the Mouth_10mm_Ch4183

Communication System: UID 0, Generic WCDMA (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: f = 836.6 MHz; σ = 0.875 S/m; εr =40.265; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.441 W/kg

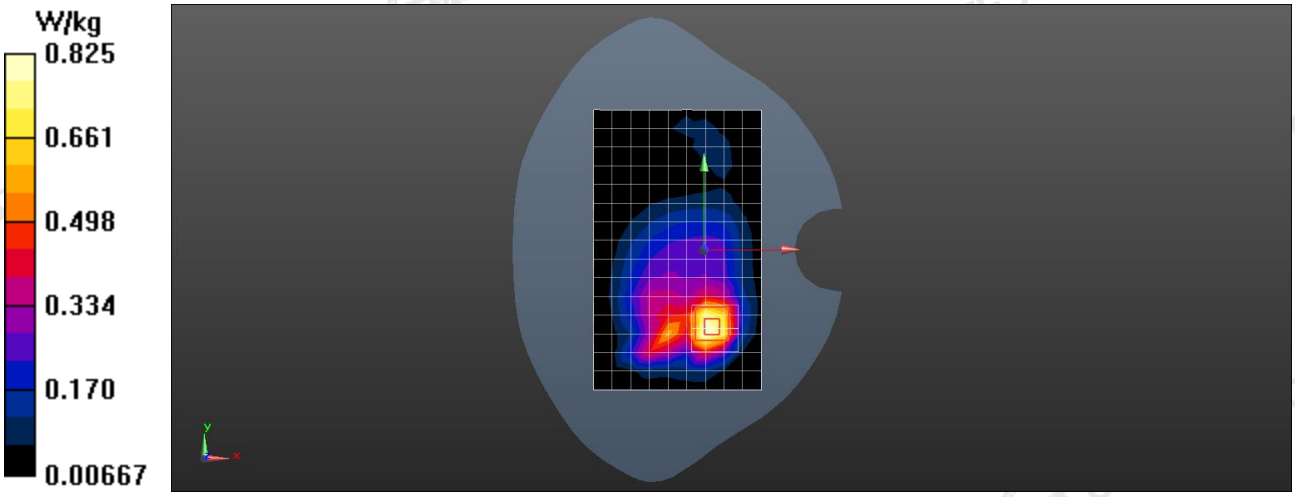
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.254V/m; Power Drift =-0.18 dB

Peak SAR (extrapolated) = 3.21 W/kg

SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.136 W/kg

Maximum value of SAR (measured) = 0.436 W/kg



#6

Date: 10/20/2024

WCDMA V_RMC 12.2Kbps_ Extremity _0mm_Ch4183

Communication System: UID 0, Generic WCDMA (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: f = 836.6 MHz; σ = 0.875 S/m; εr =40.265; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.785 W/kg

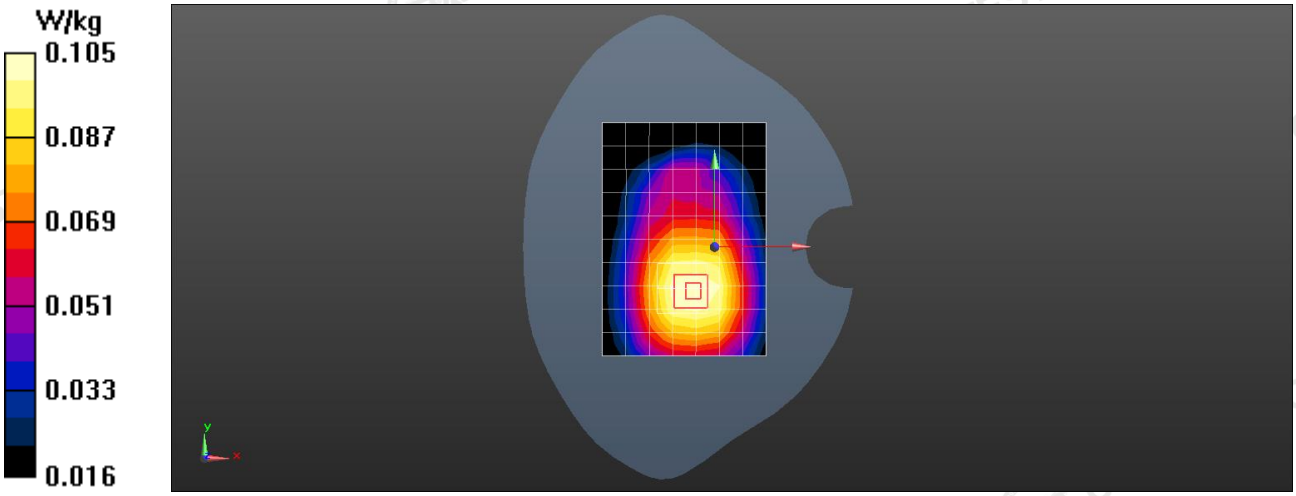
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.653V/m; Power Drift =0.04 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.596 W/kg; SAR(10 g) = 0.315 W/kg

Maximum value of SAR (measured) = 0.779 W/kg



#7

Date: 10/29/2024

WCDMA II_RMC 12.2Kbps_ Next to the Mouth_10mm_Ch9400

Communication System: UID 0, Generic WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ =1.442 S/m; εr =40.256; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.298 W/kg

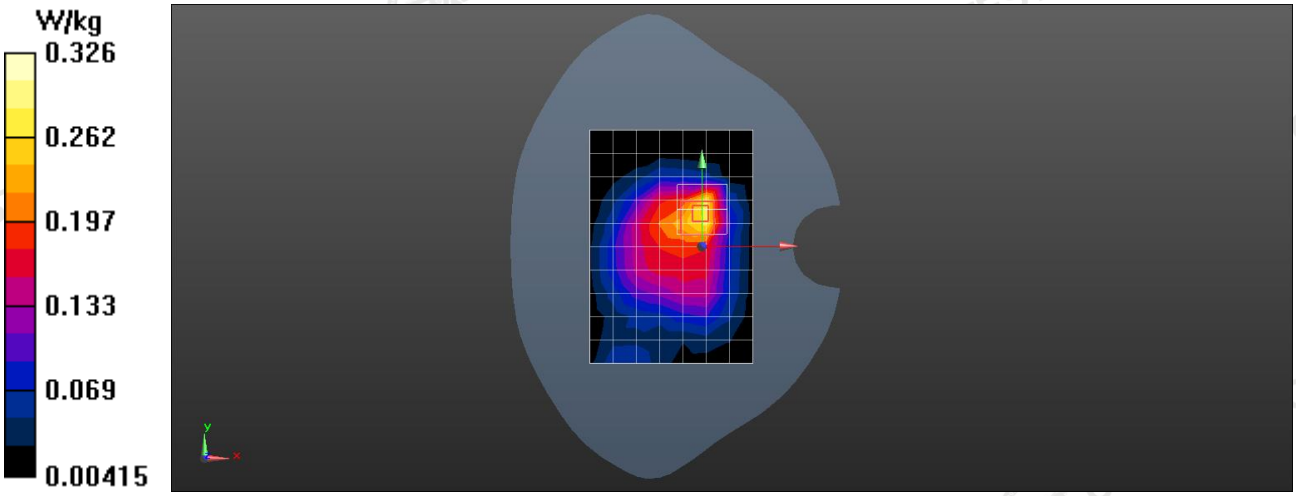
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.546V/m; Power Drift =-0.02 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.439 W/kg; SAR(10 g) = 0.226 W/kg

Maximum value of SAR (measured) = 0.293 W/kg



#8

Date: 10/29/2024

WCDMA II_RMC 12.2Kbps_ Extremity _0mm_ Ch9400

Communication System: UID 0, Generic WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ =1.442 S/m; εr =40.256; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.528 W/kg

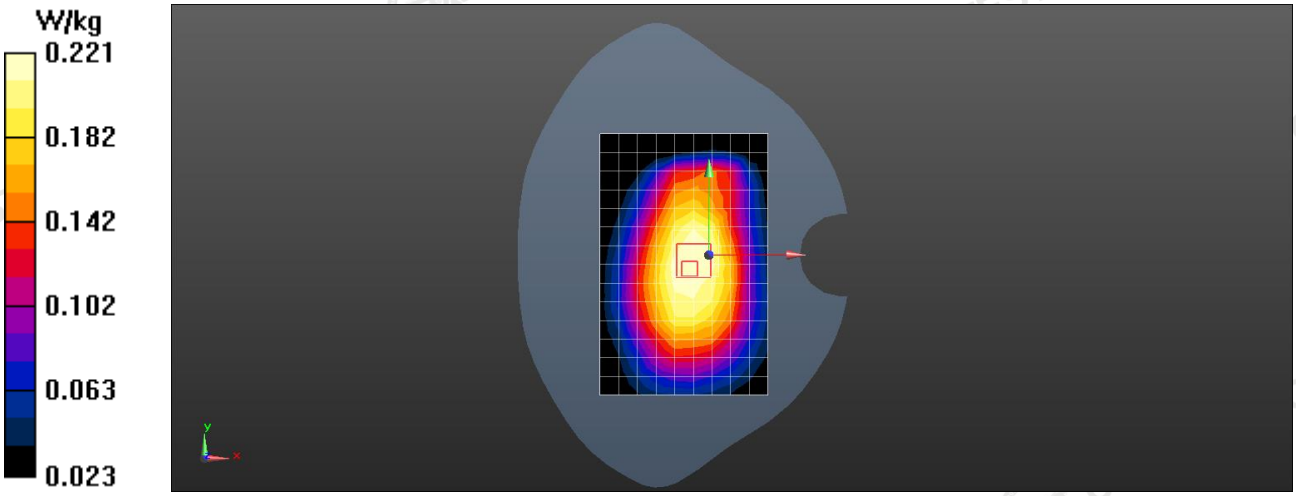
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.147V/m; Power Drift =-0.15 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.925 W/kg; SAR(10 g) = 0.644 W/kg

Maximum value of SAR (measured) = 0.522 W/kg



#9

Date: 10/29/2024

LTE Band 2_20MHz/1RB#99 _ Next to the Mouth _10mm _Ch18900

Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ =1.442 S/m; εr =40.256; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.774 W/kg

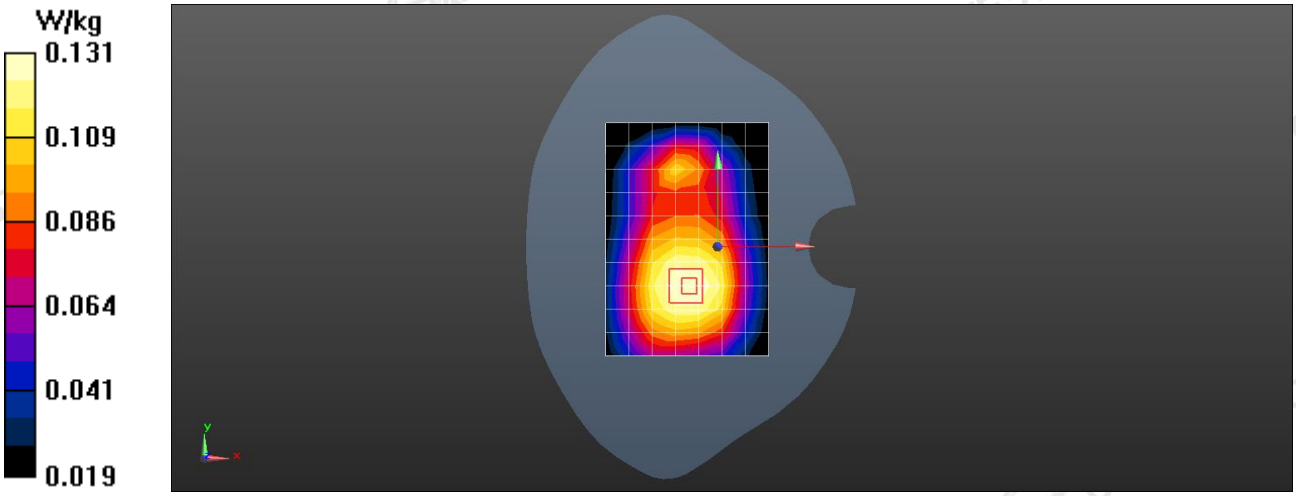
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.521V/m; Power Drift =-0.17 dB

Peak SAR (extrapolated) = 4.21 W/kg

SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.162 W/kg

Maximum value of SAR (measured) = 0.798 W/kg



#10

Date: 10/29/2024

LTE Band 2_20MHz/1RB#99 _ Extremity _0mm _Ch18900

Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ =1.442 S/m; εr =40.256; ρ = 1000 kg/m3

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.13,8.13, 8.13); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 0.332 W/kg

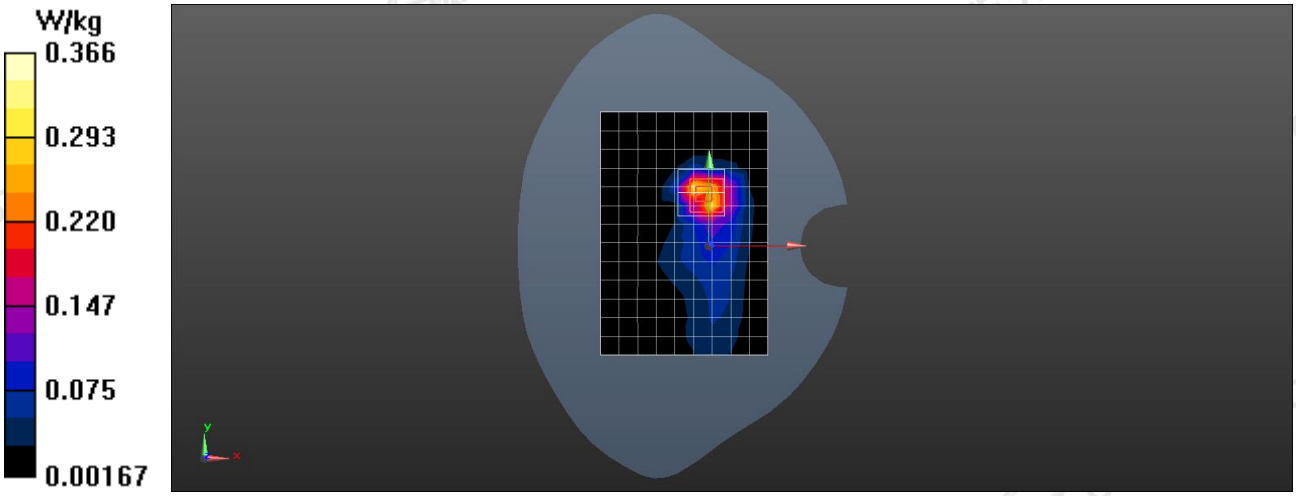
Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.452V/m; Power Drift =-0.06 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.895 W/kg; SAR(10 g) = 0.624 W/kg

Maximum value of SAR (measured) = 0.328 W/kg



#11

Date: 10/25/2024

LTE Band 4_20MHz/1RB#0 _Next to the Mouth_10mm_Ch20300

Communication System: UID 0, Generic LTE (0); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.442 S/m; ε_r = 39.621; ρ = 1000 kg/m^3
Phantom section: Flat Section

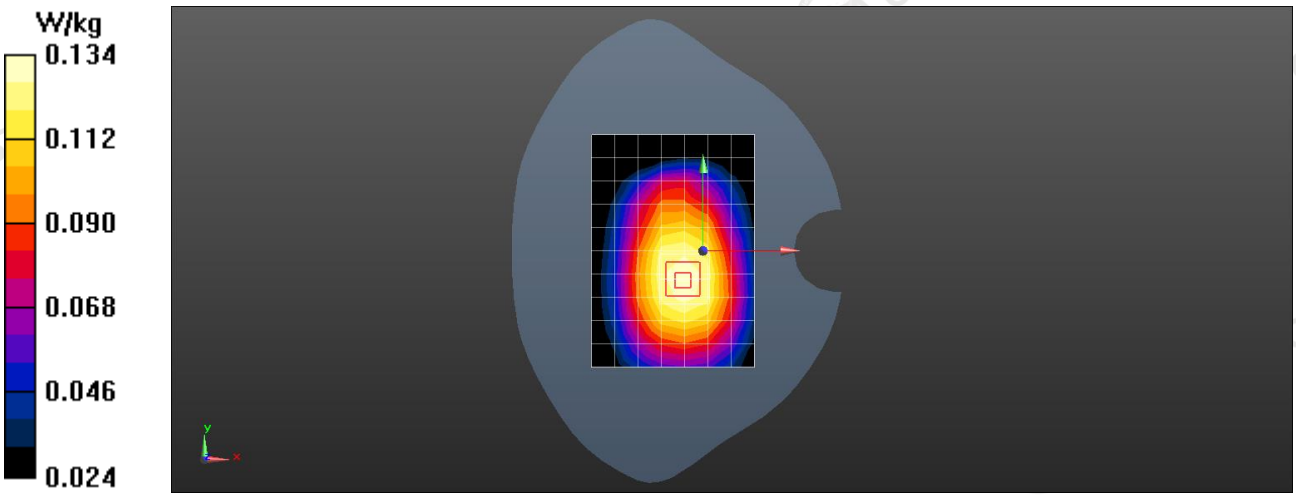
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.61,8.61, 8.61); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (10x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 0.131 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value =0.584 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.500 W/kg; SAR(10 g) = 0.366 W/kg
Maximum value of SAR (measured) = 0.127 W/kg



#12

Date: 10/25/2024

LTE Band 4_20MHz/1RB#0_ Extremity _0mm_Ch20300

Communication System: UID 0, Generic LTE (0); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.442 S/m; ε_r = 39.621; ρ = 1000 kg/m^3
Phantom section: Flat Section

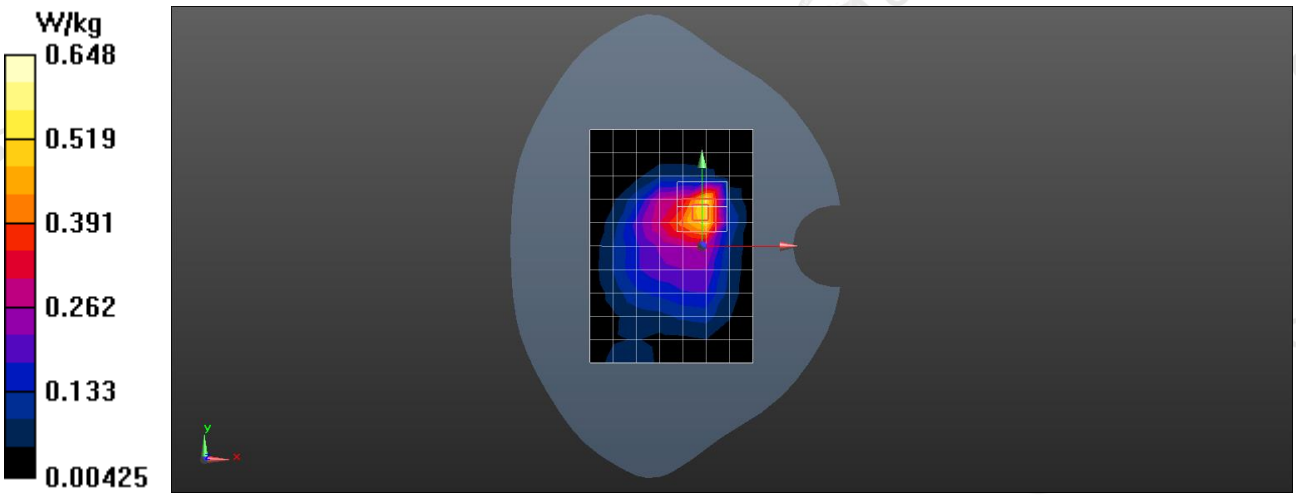
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(8.61,8.61, 8.61); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 0.625 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.524 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.42 W/kg

SAR(1 g) = 0.912 W/kg; SAR(10 g) = 0.669 W/kg
Maximum value of SAR (measured) = 0.616 W/kg



#13

Date: 10/20/2024

LTE Band 5_10MHz/1RB#49_ Next to the Mouth_10mm_Ch20525

Communication System: UID 0, Generic LTE (0); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.915 S/m; ε_r = 39.879; ρ = 1000 kg/m^3
Phantom section: Flat Section

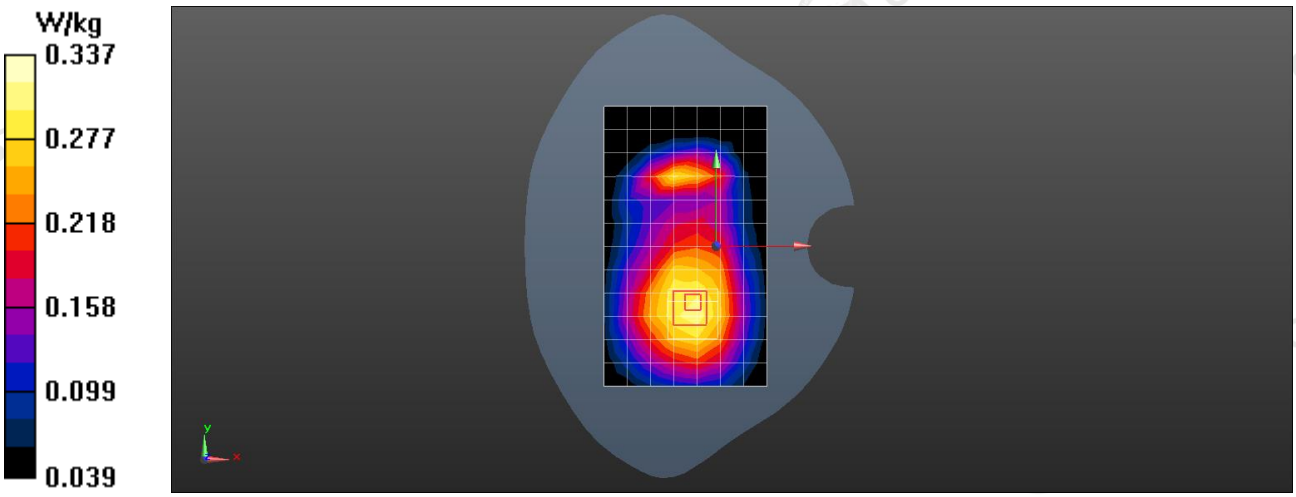
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 0.421 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.520 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.33 W/kg

SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.104 W/kg
Maximum value of SAR (measured) = 0.416 W/kg



#14

Date: 10/20/2024

LTE Band 5_10MHz/1RB#49_ Extremity _0mm_Ch20525

Communication System: UID 0, Generic LTE (0); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.915 S/m; ε_r = 39.879; ρ = 1000 kg/m^3
Phantom section: Flat Section

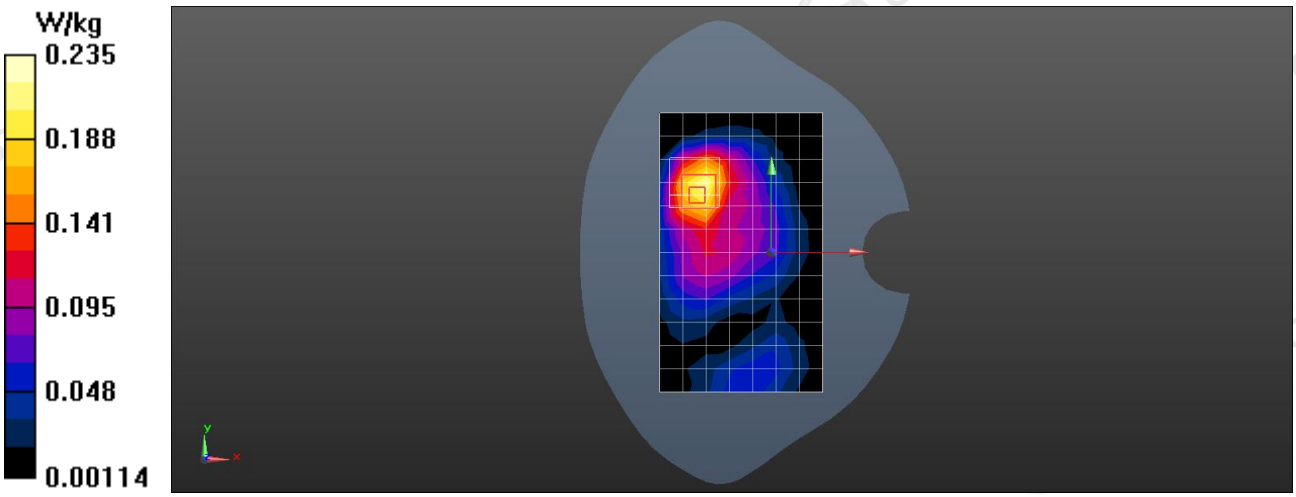
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.71,9.71, 9.71); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 0.169 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.874 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.529 W/kg; SAR(10 g) = 0.356 W/kg
Maximum value of SAR (measured) = 0.160 W/kg



#15

Date: 11/03/2024

LTE Band 7_15MHz/1RB#38_ Next to the Mouth _10mm_Ch21100

Communication System: UID 0, Generic LTE (0); Frequency 2535.5 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2535.5 MHz; σ = 1.965 S/m; εr = 38.421; ρ = 1000 kg/m3

Phantom section: Flat Section

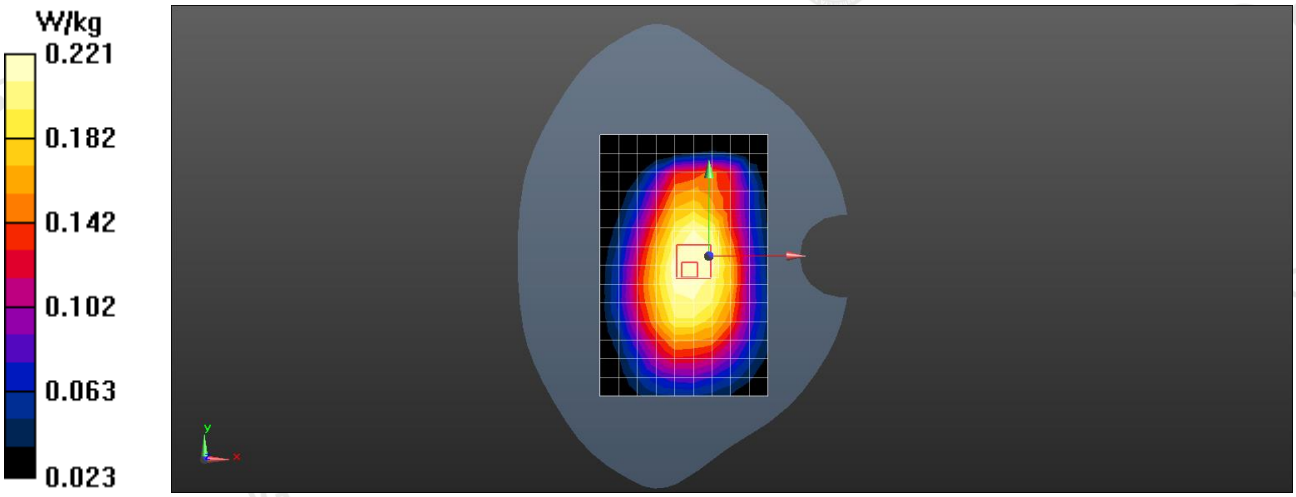
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.38,7.38,7.38); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=12 mm, dy=12 mm
Maximum value of SAR (measured) = 0.802 W/kg

Front /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.12 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 4.69 W/kg

SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.398 W/kg
Maximum value of SAR (measured) = 0.798 W/kg



#16

Date: 11/03/2024

LTE Band 7_15MHz/1RB#38_ Extremity _0mm_Ch21100

Communication System: UID 0, Generic LTE (0); Frequency 2535.5 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2535.5 MHz; σ = 1.965 S/m; εr = 38.421; ρ = 1000 kg/m3

Phantom section: Flat Section

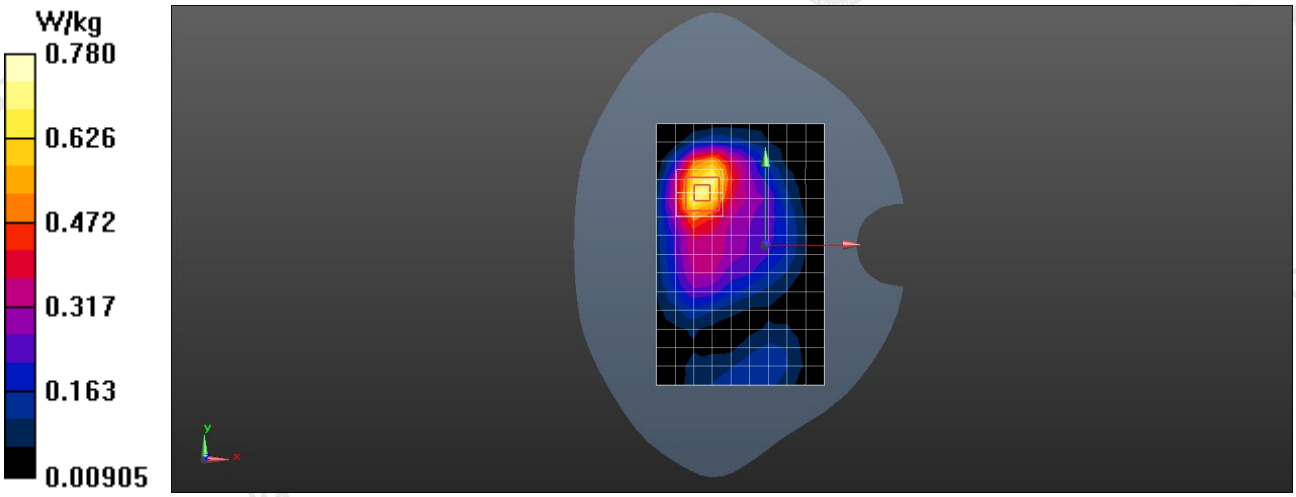
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(7.38,7.38,7.38); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=12 mm, dy=12 mm
Maximum value of SAR (measured) = 0.321 W/kg

Front /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.325 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.10 W/kg

SAR(1 g) = 0.887 W/kg; SAR(10 g) = 0.650 W/kg
Maximum value of SAR (measured) = 0.312 W/kg



#17

Date: 10/18/2024

LTE Band 12_10MHz/1RB#24_ Next to the Mouth _10mm_Ch23130

Communication System: UID 0, Generic LTE (0); Frequency:711 MHz; Duty Cycle: 1:1
Medium parameters used: f = 711 MHz; σ = 0.876 S/m; εr =42.321; ρ = 1000 kg/m^3
Phantom section: Flat Section

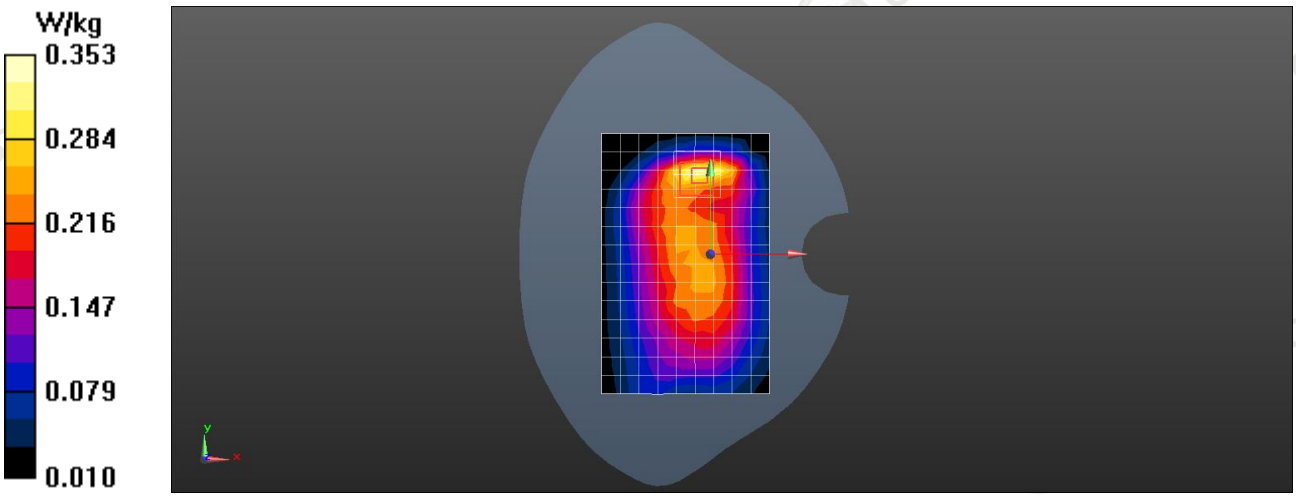
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.82,9.82,9.82); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x13x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 3.54 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value =0.986 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.122 W/kg
Maximum value of SAR (measured) = 3.46 W/kg



#18

Date: 10/18/2024

LTE Band 12_10MHz/1RB#24_ Extremity _0mm_Ch23130

Communication System: UID 0, Generic LTE (0); Frequency: 711 MHz; Duty Cycle: 1:1
Medium parameters used: f = 711 MHz; σ = 0.876 S/m; εr =42.321; ρ = 1000 kg/m^3
Phantom section: Flat Section

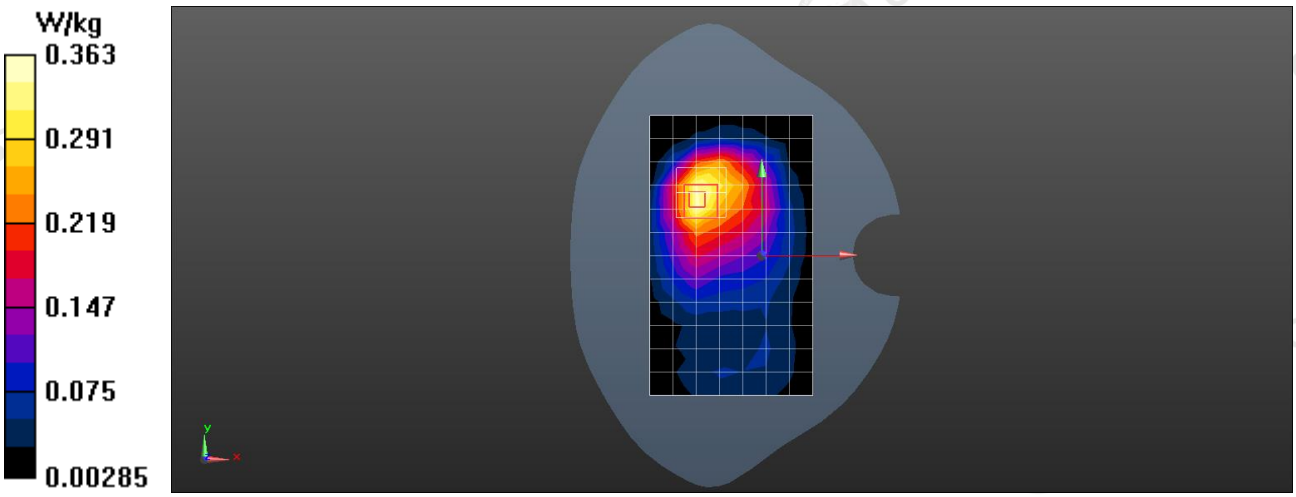
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.82,9.82,9.82); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x13x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 4.28 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.265 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.778 W/kg; SAR(10 g) = 0.487 W/kg
Maximum value of SAR (measured) = 0.421 W/kg



#19

Date: 10/18/2024

LTE Band 13_10MHz/1RB#24_ Next to the Mouth _10mm_Ch23230

Communication System: UID 0, Generic LTE (0); Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used: f = 782 MHz; σ = 0.915 S/m; εr =40.365; ρ = 1000 kg/m^3
Phantom section: Flat Section

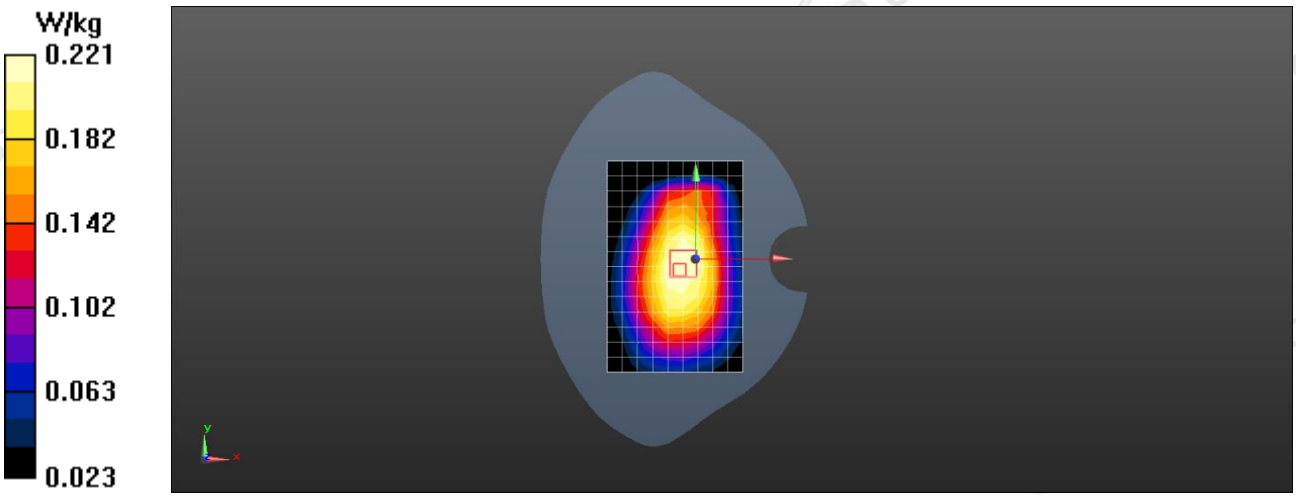
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.82,9.82,9.82); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 4.21 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.652 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 2.16 W/kg

SAR(1 g) = 0.236 W/kg; SAR(10 g) = 0.102 W/kg
Maximum value of SAR (measured) = 4.15 W/kg



#20

Date: 10/18/2024

LTE Band 13_10MHz/1RB#24_ Extremity _0mm_Ch23230

Communication System: UID 0, Generic LTE (0); Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used: f =782 MHz; σ = 0.915 S/m; εr =40.365; ρ = 1000 kg/m^3
Phantom section: Flat Section

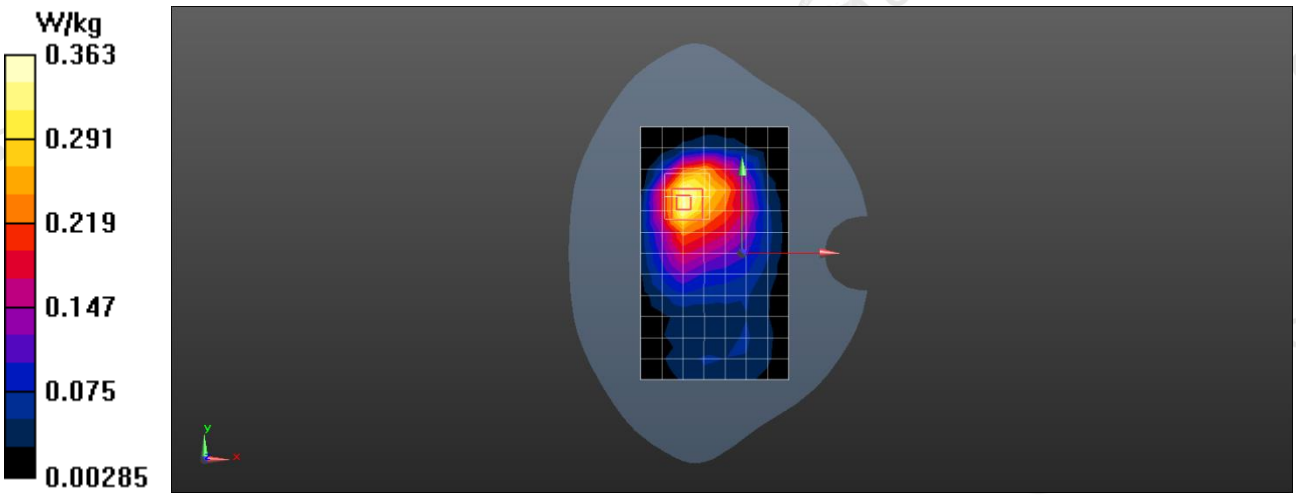
DASY5 Configuration:

- Probe: EX3DV4 - SN7396; ConvF(9.82,9.82,9.82); Calibrated: May. 06, 2024
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn387; Calibrated: 09/02/2024
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Front /Area Scan (8x11x1): Measurement grid: dx=15 mm, dy=15 mm
Maximum value of SAR (measured) = 5.98 W/kg

Front /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.69 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.96 W/kg

SAR(1 g) = 0.875 W/kg; SAR(10 g) = 0.466 W/kg
Maximum value of SAR (measured) = 6.11 W/kg



Appendix D. DASY System Calibration Certificate

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com Http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **Anbotek (Auden)** **Certificate No: Z24-98671**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7396
Calibration Procedure(s)	FF-Z12-006-08 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	May 06 , 2024

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	20-Jun-23 (CTTL, No.J23 X07447)	Jun-23
Power sensor NRP-Z91	101547	20-Jun-23 (CTTL, No.J23 X07447)	Jun-23
Power sensor NRP-Z91	101548	20-Jun-23 (CTTL, No.J23 X07447)	Jun-23
Reference10dBAttenuator	18N50W-10dB	13-Mar-24(CTTL,No.J24X01547)	Mar-24
Reference20dBAttenuator	18N50W-20dB	13-Mar-24(CTTL, No.J24X01548)	Mar-24
Reference Probe EX3DV4	SN 7433	26-Sep-23(SPEAG,No.EX3-7433_Sep22)	Sep-23
DAE4	SN 549	13-Dec-23(SPEAG, No.DAE4-549_Dec22)	Dec -23
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
SignalGeneratorMG3700A	6201052605	27-Jun-23 (CTTL, No.J23X04776)	Jun-23
Network Analyzer E5071C	MY46110673	13-Jan-24 (CTTL, No.J24X00285)	Jan -24

	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: May06 , 2024

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

In Collaboration with
CTTL speag
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005

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

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

Methods Applied and Interpretation of Parameters:

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

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Probe EX3DV4

SN: 7396

Calibrated: May 06, 2024

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7396

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(μV/(V/m)^2)[A]	0.54	0.53	0.50	±10.0%
DCP(mV)[B]	97.8	104.5	102.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	199.9	±2.4%
		Y	0.0	0.0	1.0		203.3	
		Z	0.0	0.0	1.0		195.0	

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

[A] The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 5 and Page 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7396

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	41.9	0.89	9.82	9.82	9.82	0.30	0.85	±12.1%
835	41.5	0.90	9.71	9.71	9.71	0.15	1.36	±12.1%
900	41.5	0.97	9.87	9.87	9.87	0.16	1.37	±12.1%
1750	40.1	1.37	8.61	8.61	8.61	0.25	1.04	±12.1%
1900	40.0	1.40	8.13	8.13	8.13	0.24	1.01	±12.1%
2100	39.8	1.49	8.14	8.14	8.14	0.24	1.04	±12.1%
2300	39.5	1.67	7.85	7.85	7.85	0.40	0.75	±12.1%
2450	39.2	1.80	7.57	7.57	7.57	0.50	0.75	±12.1%
2600	39.0	1.96	7.38	7.38	7.38	0.64	0.68	±12.1%
5250	35.9	4.71	5.33	5.33	5.33	0.45	1.30	±13.3%
5600	35.5	5.07	4.89	4.89	4.89	0.45	1.35	±13.3%
5750	35.4	5.22	4.92	4.92	4.92	0.45	1.45	±13.3%

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

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

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

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7396

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	55.5	0.96	10.09	10.09	10.09	0.30	0.90	±12.1%
835	55.2	0.97	9.88	9.88	9.88	0.19	1.32	±12.1%
900	55.0	1.05	9.82	9.82	9.82	0.23	1.15	±12.1%
1750	53.4	1.49	8.24	8.24	8.24	0.24	1.06	±12.1%
1900	53.3	1.52	7.97	7.97	7.97	0.19	1.24	±12.1%
2100	53.2	1.62	8.18	8.18	8.18	0.19	1.39	±12.1%
2300	52.9	1.81	7.88	7.88	7.88	0.55	0.80	±12.1%
2450	52.7	1.95	7.53	7.53	7.53	0.46	0.89	±12.1%
2600	52.5	2.16	7.38	7.38	7.38	0.52	0.80	±12.1%
5250	48.9	5.36	4.93	4.93	4.93	0.45	1.80	±13.3%
5600	48.5	5.77	4.19	4.19	4.19	0.48	1.90	±13.3%
5750	48.3	5.94	4.52	4.52	4.52	0.48	1.95	±13.3%

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

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

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

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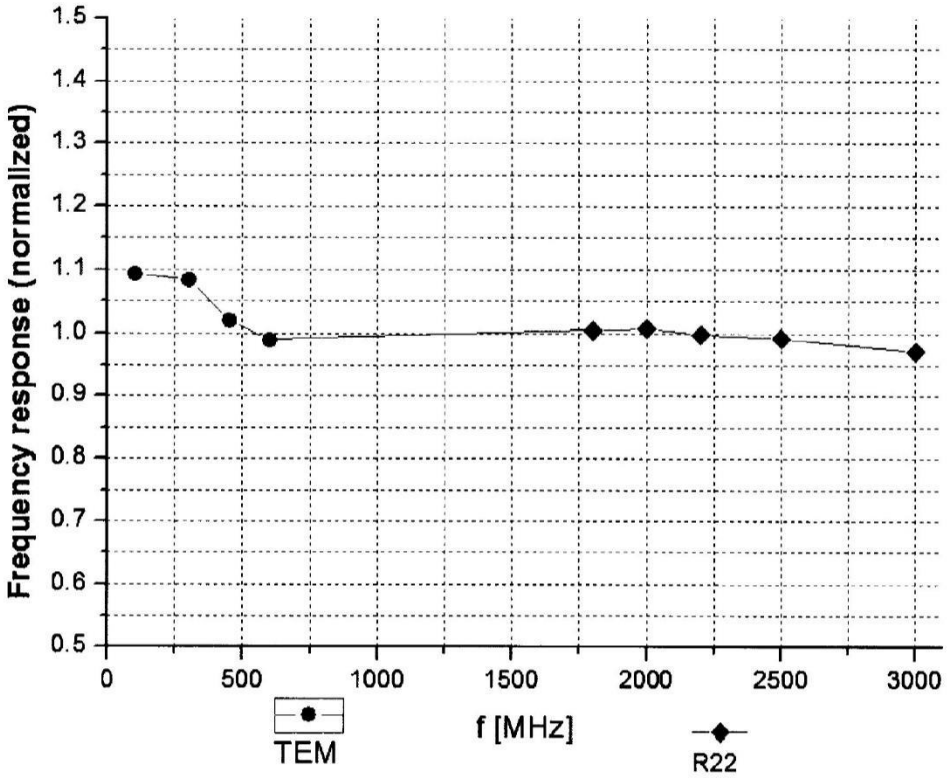
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



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

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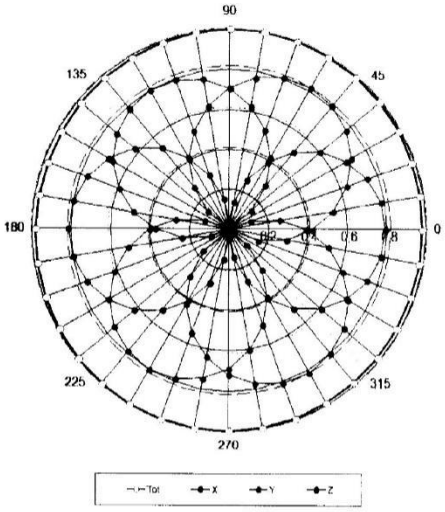
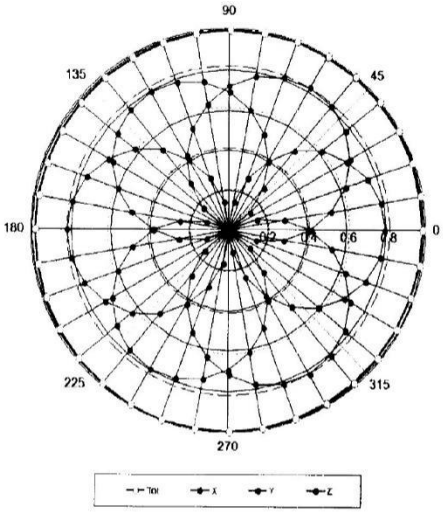
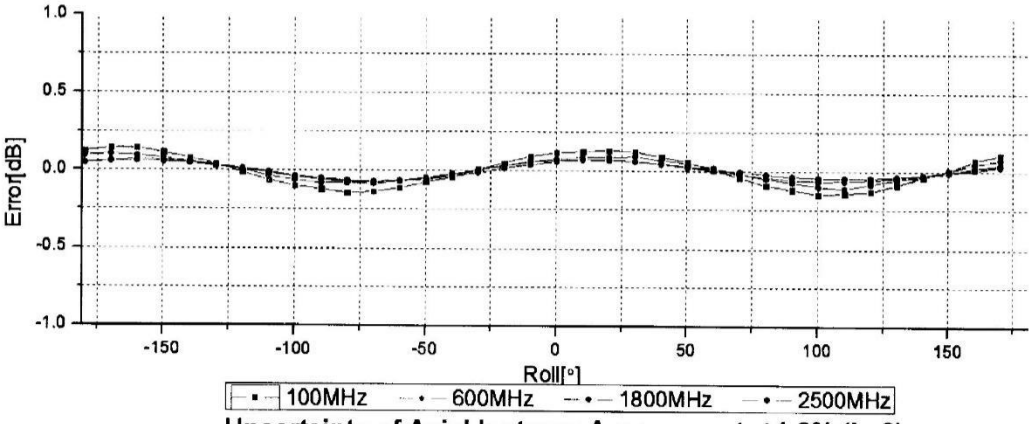
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





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