

TEST REPORT

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Report Number: SZGMA240130-06895E-SAA
FCC ID: 2AIV6-S380

Test Standard (s)

FCC 47 CFR part 2.1093

Sample Description

Product Type: Rugged PTTtoC Radio
Model No.: S380
Multiple Model(s) No.: N/A
Trade Mark: **Inrico**[®]
Serial Number: 2HCO-1
Date Received: 2024/01/30
Date of Test: 2024/06/06~2024/06/12
Report Date: 2024/06/16

Test Result:

Pass▲

▲In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

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Attestation of Test Results			
Frequency Band	Max. SAR Level(s) Reported(W/kg)	Limit(W/Kg)	
GSM 850	0.22 W/kg 1g Head SAR 0.09 W/kg 1g Face Up SAR 0.05 W/kg 1g Body SAR	1.6	
PCS 1900	0.05 W/kg 1g Head SAR 0.10 W/kg 1g Face Up SAR 0.18 W/kg 1g Body SAR		
WCDMA Band 2	0.12 W/kg 1g Head SAR 0.09 W/kg 1g Face Up SAR 0.19 W/kg 1g Body SAR		
WCDMA Band 5	0.48 W/kg 1g Head SAR 0.08 W/kg 1g Face Up SAR 0.05 W/kg 1g Body SAR		
LTE Band 2	0.11 W/kg 1g Head SAR 0.11 W/kg 1g Face Up SAR 0.22 W/kg 1g Body SAR		
LTE Band 7	0.14 W/kg 1g Head SAR 0.06 W/kg 1g Face Up SAR 0.24 W/kg 1g Body SAR		
LTE Band 12&17	0.27 W/kg 1g Head SAR 0.12 W/kg 1g Face Up SAR 0.12 W/kg 1g Body SAR		
LTE Band 26&5	0.27 W/kg 1g Head SAR 0.08 W/kg 1g Face Up SAR 0.05 W/kg 1g Body SAR		
LTE Band 40	0.10 W/kg 1g Head SAR 0.14 W/kg 1g Face Up SAR 0.05 W/kg 1g Body SAR		
LTE Band 41&38	0.01 W/kg 1g Head SAR 0.02 W/kg 1g Face Up SAR 0.09 W/kg 1g Body SAR		
LTE Band 66&4	0.17 W/kg 1g Head SAR 0.12 W/kg 1g Face Up SAR 0.19 W/kg 1g Body SAR		
WLAN 2.4G	0.21 W/kg 1g Head SAR 0.02 W/kg 1g Face Up SAR 0.08 W/kg 1g Body SAR		
WLAN 5.2G	0.43 W/kg 1g Head SAR 0.04 W/kg 1g Face Up SAR 0.01 W/kg 1g Body SAR		
WLAN 5.3G	0.44 W/kg 1g Head SAR 0.01 W/kg 1g Face Up SAR 0.01 W/kg 1g Body SAR		
WLAN 5.6G	0.54 W/kg 1g Head SAR 0.04 W/kg 1g Face Up SAR 0.03 W/kg 1g Body SAR		
WLAN 5.8G	0.49 W/kg 1g Head SAR 0.05 W/kg 1g Face Up SAR 0.05 W/kg 1g Body SAR		
Simultaneous(tx)	1.02 W/kg 1g Head SAR 0.19 W/kg 1g Face Up SAR 0.35 W/kg 1g Body SAR		
Applicable Standards	FCC 47 CFR part 2.1093 Radiofrequency radiation exposure evaluation: portable devices		
	RF Exposure Procedures: TCB Workshop April 2019		

IEEE1528:2013

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques

IEC 62209-1:2016

Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz)

KDB procedures

KDB 447498 D01 General RF Exposure Guidance v06

KDB 648474 D04 Handset SAR v01r03

KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04

KDB 865664 D02 RF Exposure Reporting v01r02

KDB 941225 D01 3G SAR Procedures v03r01

KDB 941225 D05 SAR for LTE Devices v02r05

KDB 248227 D01 802.11 Wi-Fi SAR v02r02

KDB 643646 D01 SAR Test for PTT Radios v01r03

Note: This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in **FCC 47 CFR part 2.1093** and has been tested in accordance with the measurement procedures specified in IEEE 1528-2013 and RF exposure KDB procedures.

The results and statements contained in this report pertain only to the device(s) evaluated.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZGMA240130-06895E-SAA	Original Report	2024/06/16

EUT DESCRIPTION

This report has been prepared on behalf of **Inrico Technologies Co.,Ltd** and their product **Rugged PTTtoC Radio**, Model: **S380**, FCC ID: 2AIV6-S380 or the EUT (Equipment under Test) as referred to in the rest of this report.

**All measurement and test data in this report was gathered from production sample serial number:2HCO-1 (Assigned by BACL, Shenzhen).The EUT supplied by the applicant was received on 2024-01-30.*

Technical Specification

Product Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Proximity Sensor:	None
Carrier Aggregation:	None
Operation modes:	GSM Voice, GPRS/EDGE Data, WCDMA (R99 (Voice + Data), HSUPA/HSDPA), FDD-LTE, TDD-LTE, WLAN, Bluetooth, NFC
Frequency Band:	GSM 850: 824-849 MHz(TX); 869-894 MHz(RX) PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) LTE Band 4: 1710-1755MHz(TX) ; 2110-2155 MHz(RX) LTE Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 7: 2500-2570 MHz(TX); 2620-2690 MHz(RX) LTE Band 12: 699-716 MHz(TX); 729-746 MHz(RX) LTE Band 17: 704-716 MHz(TX); 734-746 MHz(RX) LTE Band 26: 814-849 MHz(TX); 859-894MHz(RX) LTE Band 38: 2570-2620 MHz(TX/RX) LTE Band 40: 2305-2315 MHz(TX/RX) 2350-2360 MHz(TX/RX) LTE Band 41: 2496-2690 MHz(TX/RX) LTE Band 66: 1710-1780 MHz(TX) ; 2110-2180 MHz(RX) WLAN 2.4G: 2412-2472 MHz/2422MHz-2462 MHz(TX/RX) WLAN 5.2G: 5150 -5250 MHz(TX/RX) WLAN 5.3G: 5250 -5350 MHz(TX/RX) WLAN 5.6G: 5470 -5725 MHz(TX/RX) WLAN 5.8G: 5725-5850 MHz(TX/RX) Bluetooth: 2402-2480MHz(TX/RX) NFC:13.56MHz
Rated Input Voltage:	DC3.8V from Rechargeable Battery
Normal Operation:	Head, Face up and Body

REFERENCE, STANDARDS, AND GUIDELINES

FCC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

SAR Limits

FCC Limit(1g Tissue)

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	1.6	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that maybe incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).

General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg for 1g SAR applied to the EUT.

FACILITIES

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect data is located at 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 715558, the FCC Designation No.: CN5045.

Each test item follows test standards and with no deviation.

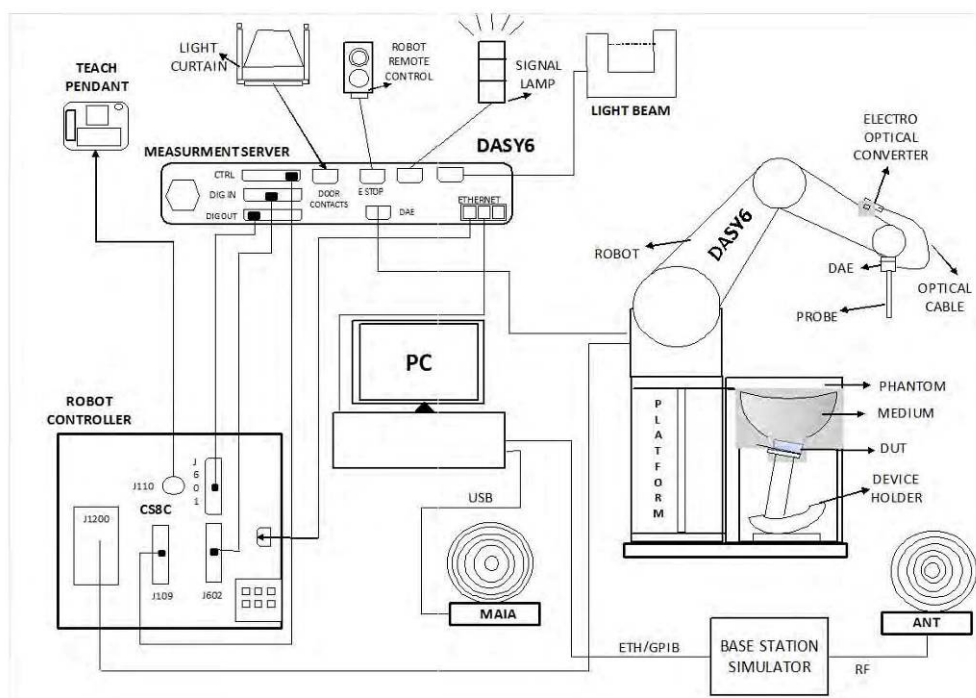
DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY6 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:



DASY6 System Description

The DASY6 system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal application, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 professional operating system and the DASY52 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

DASY6 Measurement Server

The DASY6 measurement server is based on a PC/104 CPU board with a 400 MHz Intel ULV Celeron, 128 MB chip-disk and 128 MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16-bit AD converter system for optical detection and digital I/O interface are contained on the DASY6 I/O board, which is directly connected to the PC/104 bus of the CPU board.



The measurement server performs all real-time data evaluations of field measurements and surface detection, controls robot movements, and handles safety operations. The PC operating system cannot interfere with these time-critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program- controlled robot movements. Furthermore, the measurement server is equipped with an expansion port, which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Connection of devices from any other supplier could seriously damage the measurement server.

Data Acquisition Electronics

The data acquisition electronics (DAE4) consist 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 with a 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 mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of both the DAE4 as well as of the DAE3 box is 200M Ω ; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

EX3DV4 E-Field Probes

Frequency	4 MHz to >10 GHz Linearity: ± 0.2 dB (30 MHz to 10 GHz)
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY6, EASY4/MRI

SAM Twin Phantom

The SAM Twin Phantom (shown in front of DASY6) is a fiberglass shell phantom with shell thickness 2 mm, except in the ear region where the thickness is increased to 6 mm. The phantom has three measurement areas: 1) Left Head, 2) Right Head, and 3) Flat Section. For larger devices, the use of the ELI-Phantom (shown behind DASY6) is required. For devices such as glasses with a wireless link, the Face Down Phantom is the most suitable (between the SAM Twin and ELI phantoms).

When the phantom is mounted inside allocated slot of the DASY6 platform, phantom reference points can be taught directly in the DASY5 V5.2 software. When the DASY6 platform is used to mount the

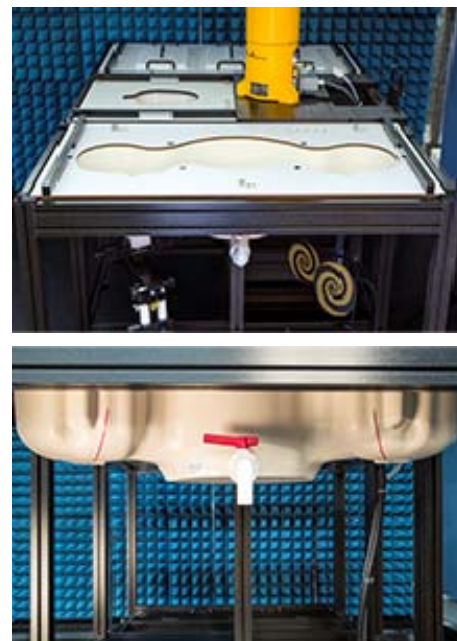
Phantom, some of the phantom teaching points cannot be reached by the robot in DASY5 V5.2. A special tool called P1a-P2aX-Former is provided to transform two of the three points, P1 and P2, to reachable locations. To use these new teaching points, a revised phantom configuration file is required.

In addition to our standard broadband liquids, the phantom can be used with the following tissue simulating liquids:

Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.

DGBE-based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom, and the phantom should be dried when the system is not in use (desirable at least once a week).

Do not use other organic solvents without previously testing the solvent resistivity of the phantom. Approximately 25 liters of liquid is required to fill the SAM Twin phantom.



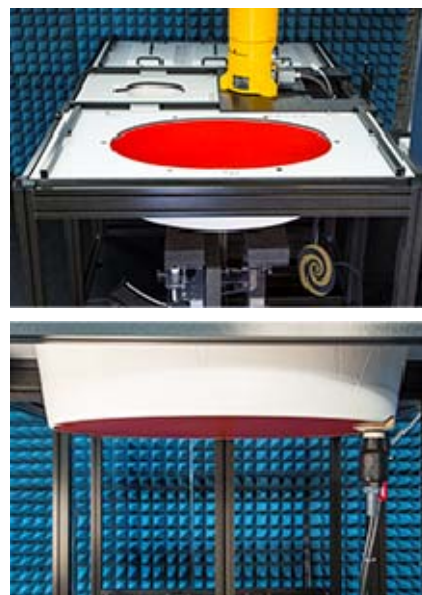
ELI Phantom

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI is fully compatible with the latest draft of the standard IEC 62209-2 and the use of all known tissue simulating liquids. ELI has been optimized for performance and can be integrated into a SPEAG standard phantom table. A cover is provided to prevent evaporation of water and changes in liquid parameters. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.

The phantom can be used with the following tissue simulating liquids:

- Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.
- DGBE-based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom, and the phantom should be dried when the system is not in use (desirable at least once a week).
- Do not use other organic solvents without previously testing the solvent resistivity of the phantom.

Approximately 25 liters of liquid is required to fill the ELI phantom.



Robots

The DASY6 system uses the high-precision industrial robots TX60L, TX90XL, and RX160L from Staubli SA (France). The TX robot family - the successor of the well-known RX robot family - continues to offer the features important for DASY6 applications:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchrony motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

The robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is provided

Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7382 Calibrated: 2023/09/27

Calibration Frequency Point(MHz)	Frequency Range(MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	850	10.65	10.65	10.65
900 Head	850	1000	10.19	10.19	10.19
1750 Head	1650	1850	8.60	8.60	8.60
1900 Head	1850	2000	8.30	8.30	8.30
2300 Head	2200	2400	8.16	8.16	8.16
2450 Head	2400	2550	7.89	7.89	7.89
2600 Head	2550	2700	7.65	7.65	7.65
3300 Head	3200	3400	7.39	7.39	7.39
3500 Head	3400	3600	7.24	7.24	7.24
3700 Head	3600	3800	7.10	7.10	7.10
3900 Head	3800	4000	6.98	6.98	6.98
5250 Head	5140	5360	5.62	5.62	5.62
5500 Head	5390	5610	5.10	5.10	5.10
5750 Head	5640	5860	5.08	5.08	5.08

SAR Scan Procedures**Step 1: 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. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 15mm² step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

Area Scan Parameters extracted from 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	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ 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.	

Step 3: Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m³ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 5mm, with the side length of the 10g cube is 21.5mm.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			$\leq 2 \text{ GHz}: \leq 8 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		$\leq 5 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 4 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 3 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	$\leq 4 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 3 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1) \text{ mm}$	
Minimum zoom scan volume	x, y, z		$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz}: \geq 28 \text{ mm}$ $4 - 5 \text{ GHz}: \geq 25 \text{ mm}$ $5 - 6 \text{ GHz}: \geq 22 \text{ mm}$
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 <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is $\leq 1.4 \text{ W/kg}$, $\leq 8 \text{ mm}$, $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x 7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEC 62209-1:2016

Recommended Tissue Dielectric Parameters for Head liquid

Table A.3 – Dielectric properties of the head tissue-equivalent liquid

Frequency MHz	Relative permittivity ϵ_r	Conductivity (σ) S/m
300	45,3	0,87
450	43,5	0,87
750	41,9	0,89
835	41,5	0,90
900	41,5	0,97
1 450	40,5	1,20
1 500	40,4	1,23
1 640	40,2	1,31
1 750	40,1	1,37
1 800	40,0	1,40
1 900	40,0	1,40
2 000	40,0	1,40
2 100	39,8	1,49
2 300	39,5	1,67
2 450	39,2	1,80
2 600	39,0	1,96
3 000	38,5	2,40
3 500	37,9	2,91
4 000	37,4	3,43
4 500	36,8	3,94
5 000	36,2	4,45
5 200	36,0	4,66
5 400	35,8	4,86
5 600	35,5	5,07
5 800	35,3	5,27
6 000	35,1	5,48

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 MHz are provided (i.e. the values shown *in italics*). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.

EQUIPMENT LIST AND CALIBRATION

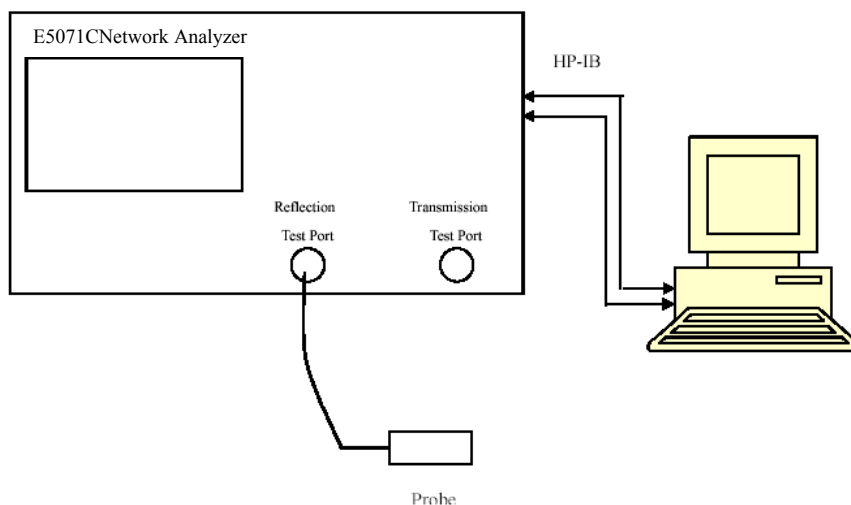
Equipment's List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52 52.10.2	N/A	NCR	NCR
DASY6 Measurement Server	DASY6 6.0.31	N/A	NCR	NCR
Data Acquisition Electronics	DAE4	1325	2023/09/27	2024/09/26
E-Field Probe	EX3DV4	7382	2023/09/27	2024/09/26
Mounting Device	MD4HHTV5	SD 000 H01 KA	NCR	NCR
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Dipole, 750MHz	D750V3	1229	2023/03/24	2026/03/23
Dipole, 1750MHz	D1750V2	1199	2023/03/27	2026/03/26
Dipole, 1900MHz	D1900V2	5d231	2023/02/17	2026/02/16
Dipole, 2300MHz	D2300V2	1136	2023/03/27	2026/03/26
Dipole, 2450MHz	D2450V2	1103	2023/03/27	2026/03/26
Dipole, 2600MHz	D2600V2	1207	2023/03/27	2026/03/26
Dipole,5GHz	D5GHZV2	1374	2023/03/27	2026/03/26
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	/
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Dielectric Assessment Kit	DAK-3.5	1248	NCR	NCR
MXG Analog Signal Generator	N5181A	MY48180408	2024/01/16	2025/01/15
USB wideband power sensor	U2021XA	MY52350001	2024/05/21	2025/05/20
Directional Coupler	855673	3307	NCR	NCR
20dB Attenuator	2	BH9879	NCR	NCR
RF Power Amplifier	5205FE	1014	NCR	NCR
Amplifier	ZVE-8G+	558401902	NCR	NCR
Radio Communication Analyzer	MT8820C	6201168800	2023/08/08	2024/08/07
Wideband Radio Communication Tester	CMW500	146520	2024/05/21	2025/05/20
Thermometer	DTM3000	N/A	2024/01/16	2025/01/15
Temperature & Humidity Meter	10316377	N/A	2024/01/17	2025/01/16

NCR: No Calibration Required.

SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
704	Simulated Tissue Liquid Head	43.053	0.864	42.15	0.89	2.14	-2.92	± 5
707.5	Simulated Tissue Liquid Head	42.854	0.868	42.13	0.89	1.72	-2.47	± 5
711	Simulated Tissue Liquid Head	42.734	0.873	42.11	0.89	1.48	-1.91	± 5
750	Simulated Tissue Liquid Head	42.456	0.881	41.9	0.89	1.33	-1.01	± 5
831.5	Simulated Tissue Liquid Head	41.974	0.898	41.52	0.9	1.09	-0.22	± 5
836.5	Simulated Tissue Liquid Head	41.869	0.905	41.5	0.9	0.89	0.56	± 5
841.5	Simulated Tissue Liquid Head	41.751	0.912	41.5	0.91	0.6	0.22	± 5

*Liquid Verification above was performed on 2024/06/06.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
750	Simulated Tissue Liquid Head	42.505	0.879	41.9	0.89	1.44	-1.24	± 5
824.2	Simulated Tissue Liquid Head	41.688	0.895	41.55	0.9	0.33	-0.56	± 5
826.4	Simulated Tissue Liquid Head	41.638	0.903	41.54	0.9	0.24	0.33	± 5
836.6	Simulated Tissue Liquid Head	41.344	0.915	41.5	0.9	-0.38	1.67	± 5
846.6	Simulated Tissue Liquid Head	41.141	0.921	41.5	0.91	-0.87	1.21	± 5
848.8	Simulated Tissue Liquid Head	41.117	0.927	41.5	0.91	-0.92	1.87	± 5

*Liquid Verification above was performed on 2024/06/07.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1720	Simulated Tissue Liquid Head	41.019	1.362	40.13	1.35	2.22	0.89	±5
1745	Simulated Tissue Liquid Head	40.916	1.375	40.1	1.37	2.03	0.36	±5
1750	Simulated Tissue Liquid Head	40.828	1.386	40.1	1.37	1.82	1.17	±5
1770	Simulated Tissue Liquid Head	40.796	1.393	40.06	1.38	1.84	0.94	±5

*Liquid Verification above was performed on 2024/06/09.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1850.2	Simulated Tissue Liquid Head	40.739	1.384	40	1.4	1.85	-1.14	±5
1852.4	Simulated Tissue Liquid Head	40.729	1.387	40	1.4	1.82	-0.93	±5
1860	Simulated Tissue Liquid Head	40.561	1.398	40	1.4	1.4	-0.14	±5
1880	Simulated Tissue Liquid Head	40.428	1.405	40	1.4	1.07	0.36	±5
1900	Simulated Tissue Liquid Head	39.831	1.412	40	1.4	-0.42	0.86	±5
1907.6	Simulated Tissue Liquid Head	39.789	1.417	40	1.4	-0.53	1.21	±5
1909.8	Simulated Tissue Liquid Head	39.726	1.423	40	1.4	-0.69	1.64	±5

*Liquid Verification above was performed on 2024/06/08.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
2300	Simulated Tissue Liquid Head	39.304	1.697	39.5	1.67	-0.5	1.62	±5
2310	Simulated Tissue Liquid Head	39.269	1.714	39.48	1.68	-0.53	2.02	±5
2355	Simulated Tissue Liquid Head	39.141	1.763	39.39	1.72	-0.63	2.5	±5

*Liquid Verification above was performed on 2024/06/09.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
2412	Simulated Tissue Liquid Head	39.838	1.732	39.28	1.77	1.42	-2.15	±5
2442	Simulated Tissue Liquid Head	39.576	1.762	39.22	1.79	0.91	-1.56	±5
2450	Simulated Tissue Liquid Head	39.575	1.769	39.2	1.8	0.96	-1.72	±5
2462	Simulated Tissue Liquid Head	39.015	1.811	39.18	1.81	-0.42	0.06	±5
2510	Simulated Tissue Liquid Head	38.996	1.842	39.12	1.86	-0.32	-0.97	±5
2535	Simulated Tissue Liquid Head	38.841	1.864	39.09	1.89	-0.64	-1.38	±5
2560	Simulated Tissue Liquid Head	38.396	1.884	39.05	1.92	-1.67	-1.88	±5
2593	Simulated Tissue Liquid Head	38.377	1.957	39.01	1.95	-1.62	0.36	±5
2600	Simulated Tissue Liquid Head	38.315	1.974	39	1.96	-1.76	0.71	±5
2680	Simulated Tissue Liquid Head	38.247	2.008	38.9	2.05	-1.68	-2.05	±5

*Liquid Verification above was performed on 2024/06/10.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
5180	Simulated Tissue Liquid Head	37.214	4.568	36.02	4.64	3.31	-1.55	±5
5200	Simulated Tissue Liquid Head	36.789	4.605	36	4.66	2.19	-1.18	±5
5240	Simulated Tissue Liquid Head	36.657	4.653	35.96	4.7	1.94	-1	±5
5250	Simulated Tissue Liquid Head	36.607	4.672	35.95	4.71	1.83	-0.81	±5
5260	Simulated Tissue Liquid Head	36.537	4.718	35.94	4.72	1.66	-0.04	±5
5280	Simulated Tissue Liquid Head	36.357	4.785	35.92	4.74	1.22	0.95	±5
5320	Simulated Tissue Liquid Head	36.198	4.808	35.88	4.78	0.89	0.59	±5

*Liquid Verification above was performed on 2024/06/11.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
5500	Simulated Tissue Liquid Head	35.915	4.965	35.65	4.97	0.74	-0.1	±5
5580	Simulated Tissue Liquid Head	35.766	5.055	35.53	5.05	0.66	0.1	±5
5600	Simulated Tissue Liquid Head	35.574	5.158	35.5	5.07	0.21	1.74	±5
5720	Simulated Tissue Liquid Head	35.026	5.162	35.38	5.19	-1	-0.54	±5
5745	Simulated Tissue Liquid Head	34.885	5.267	35.36	5.22	-1.34	0.9	±5
5750	Simulated Tissue Liquid Head	34.833	5.278	35.35	5.22	-1.46	1.11	±5
5785	Simulated Tissue Liquid Head	34.692	5.348	35.32	5.26	-1.78	1.67	±5
5800	Simulated Tissue Liquid Head	34.651	5.409	35.3	5.27	-1.84	2.64	±5
5825	Simulated Tissue Liquid Head	34.624	5.444	35.28	5.3	-1.86	2.72	±5

*Liquid Verification above was performed on 2024/06/12.

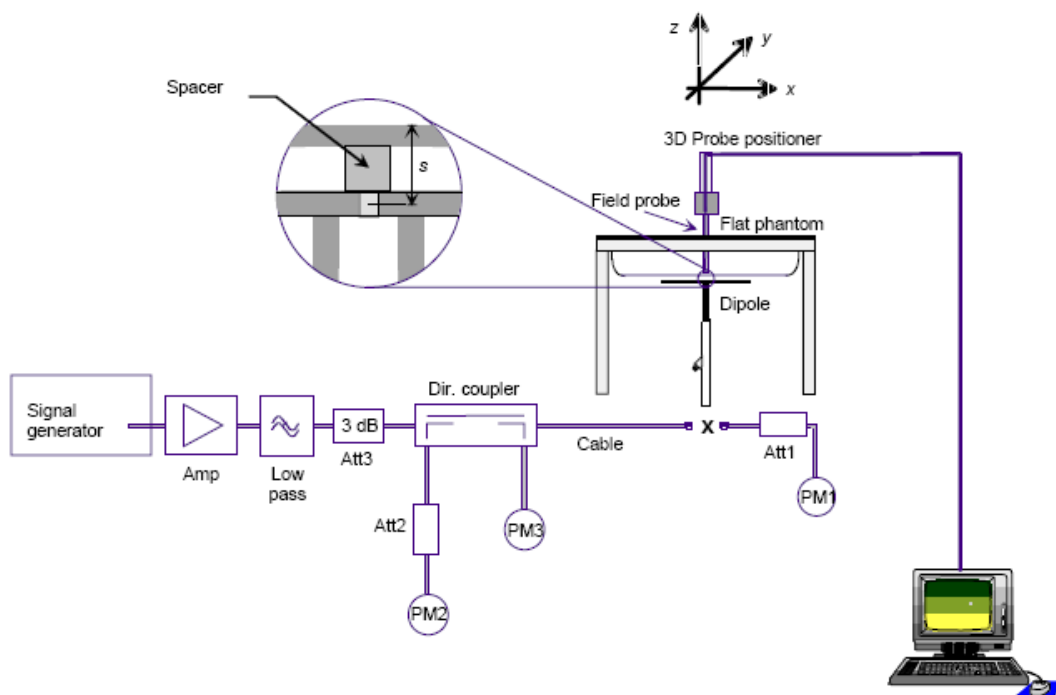
System Accuracy Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of $\pm 10\%$. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

- $s = 15 \text{ mm} \pm 0,2 \text{ mm}$ for $300 \text{ MHz} \leq f \leq 1\,000 \text{ MHz}$;
- $s = 10 \text{ mm} \pm 0,2 \text{ mm}$ for $1\,000 \text{ MHz} < f \leq 3\,000 \text{ MHz}$;
- $s = 10 \text{ mm} \pm 0,2 \text{ mm}$ for $3\,000 \text{ MHz} < f \leq 6\,000 \text{ MHz}$.

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band (MHz)	Liquid Type	Input Power (mW)	Measured SAR (W/kg)	Normalized to 1W (W/kg)	Target Value (W/Kg)	Delta (%)	Tolerance (%)
2024/06/06	750	Head	100	1g 0.852	8.52	8.41	1.31	± 10
2024/06/07	750	Head	100	1g 0.845	8.45	8.41	0.48	± 10
2024/06/09	1750	Head	100	1g 3.71	37.1	36.0	3.06	± 10
2024/06/08	1900	Head	100	1g 4.15	41.5	39.9	4.01	± 10
2024/06/09	2300	Head	100	1g 4.91	49.1	48.2	1.87	± 10
2024/06/10	2450	Head	100	1g 5.49	54.9	51.7	6.19	± 10
2024/06/10	2600	Head	100	1g 5.67	56.7	55.2	2.72	± 10
2024/06/11	5250	Head	100	1g 7.88	78.8	80.1	-1.62	± 10
2024/06/12	5600	Head	100	1g 7.99	79.9	83.6	-4.43	± 10
2024/06/12	5800	Head	100	1g 7.86	78.6	81.4	-3.44	± 10

Note: All the SAR values are normalized to 1Watt forward power.

SAR SYSTEM VALIDATION DATA**System Performance 750 MHz Head (Date 2024/06/06)****DUT: Dipole 750 MHz; Type: D750V3; Serial: 1229**

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.881$ S/m; $\epsilon_r = 42.456$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(10.65, 10.65, 10.65) @ 750 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 750MHz Pin=100mW/Area Scan (11x19x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 1.16 W/kg

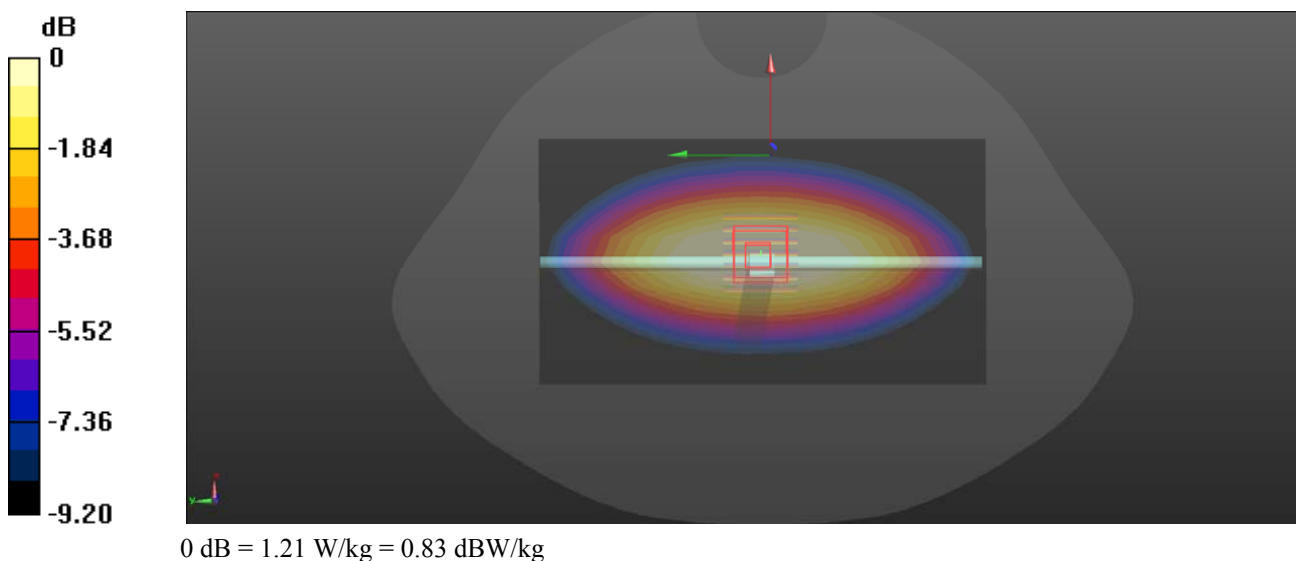
Head 750MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.75 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.565 W/kg

Maximum value of SAR (measured) = 1.21 W/kg



System Performance 750 MHz Head (Date 2024/06/07)**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1229**

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.879$ S/m; $\epsilon_r = 42.505$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(10.65, 10.65, 10.65) @ 750 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 750MHz Pin=100mW/Area Scan (11x19x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 1.19 W/kg

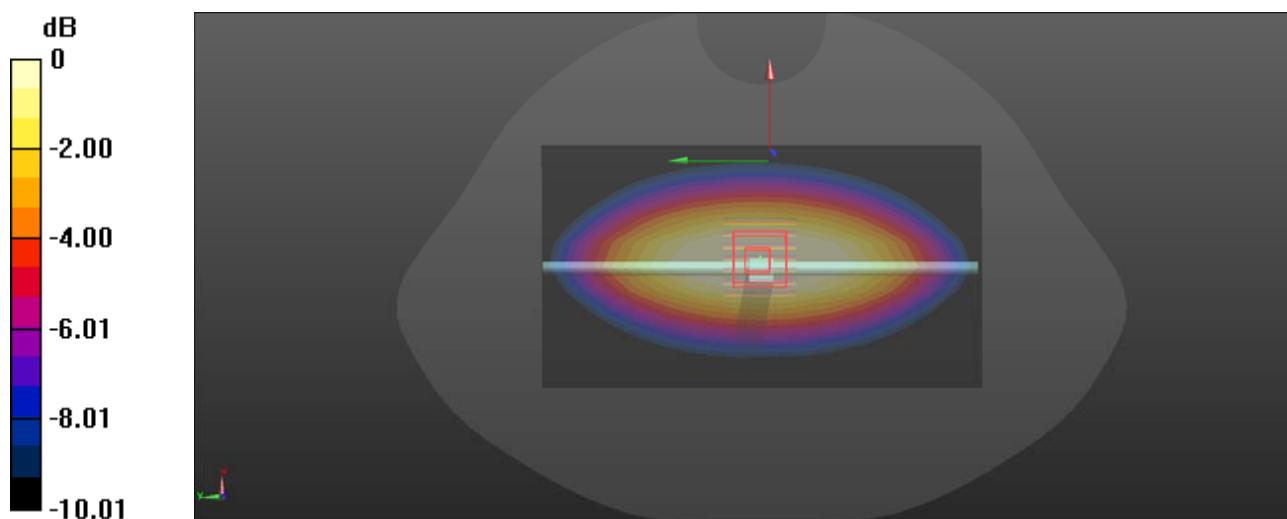
Head 750MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.97 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.845 W/kg; SAR(10 g) = 0.560 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

System Performance 1750 MHz Head (Date 2024/06/09)**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1199**

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.386$ S/m; $\epsilon_r = 40.828$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(8.6, 8.6, 8.6) @ 1750 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 1750MHz Pin=100mW/Area Scan (7x8x1): Measurement grid: dx=15 mm, dy=15 mm

Maximum value of SAR (measured) = 5.67 W/kg

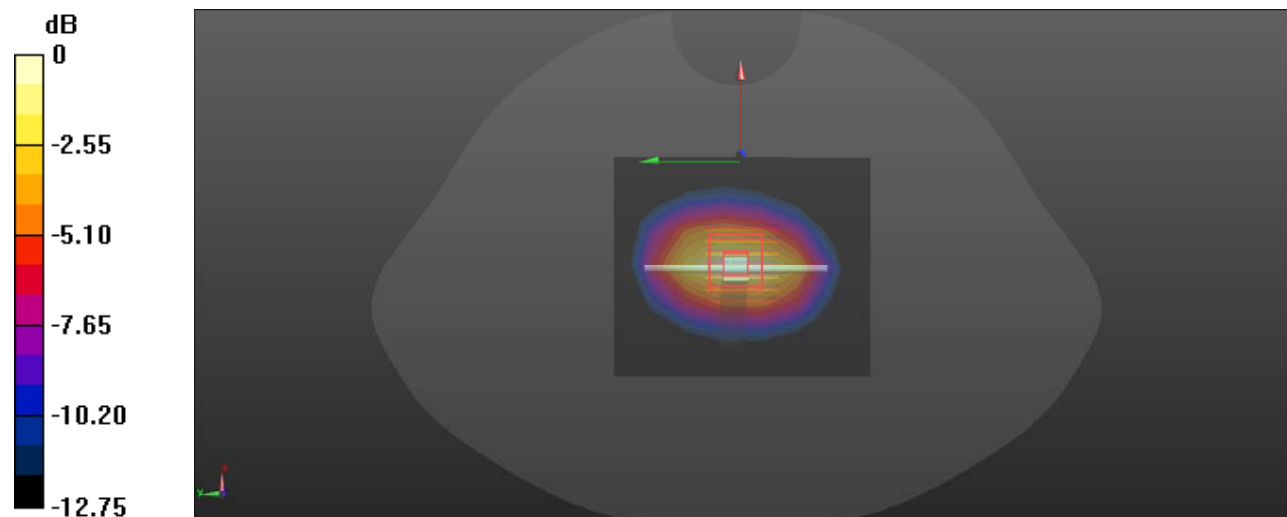
Head 1750MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 50.62 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 6.45 W/kg

SAR(1 g) = 3.71 W/kg; SAR(10 g) = 2.04 W/kg

Maximum value of SAR (measured) = 5.45 W/kg



0 dB = 5.45 W/kg = 7.36 dBW/kg

System Performance 1900 MHz Head (Date 2024/06/08)**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d231**

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.412$ S/m; $\epsilon_r = 39.831$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(8.3, 8.3, 8.3) @ 1900 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 1900MHz Pin=100mW/Area Scan (9x13x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 7.11 W/kg

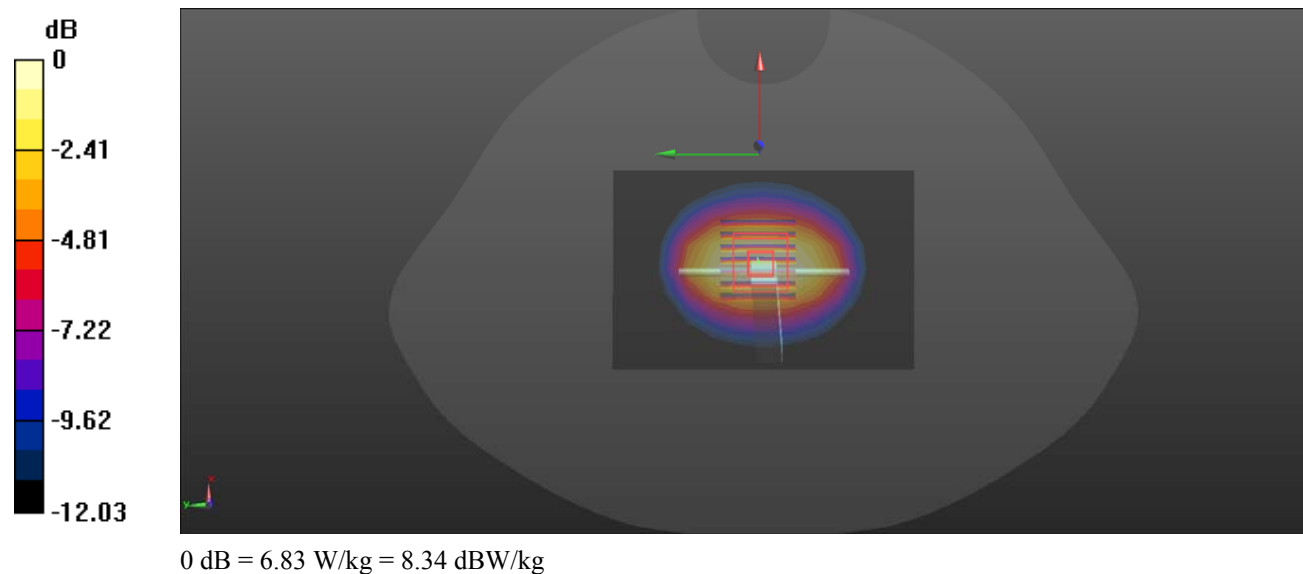
Head 1900MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.57 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 8.13 W/kg

SAR(1 g) = 4.15 W/kg; SAR(10 g) = 2.09 W/kg

Maximum value of SAR (measured) = 6.83 W/kg



System Performance 2300 MHz Head (Date 2024/06/09)**DUT: Dipole 2300 MHz; Type: 2300V2; Serial: 1136**

Communication System: UID 0, CW (0); Frequency: 2300 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2300$ MHz; $\sigma = 1.697$ S/m; $\epsilon_r = 39.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(8.16, 8.16, 8.16) @ 2300 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 2300MHz Pin=100mW/Area Scan (9x10x1): Measurement grid: dx=10 mm, dy=10 mm

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

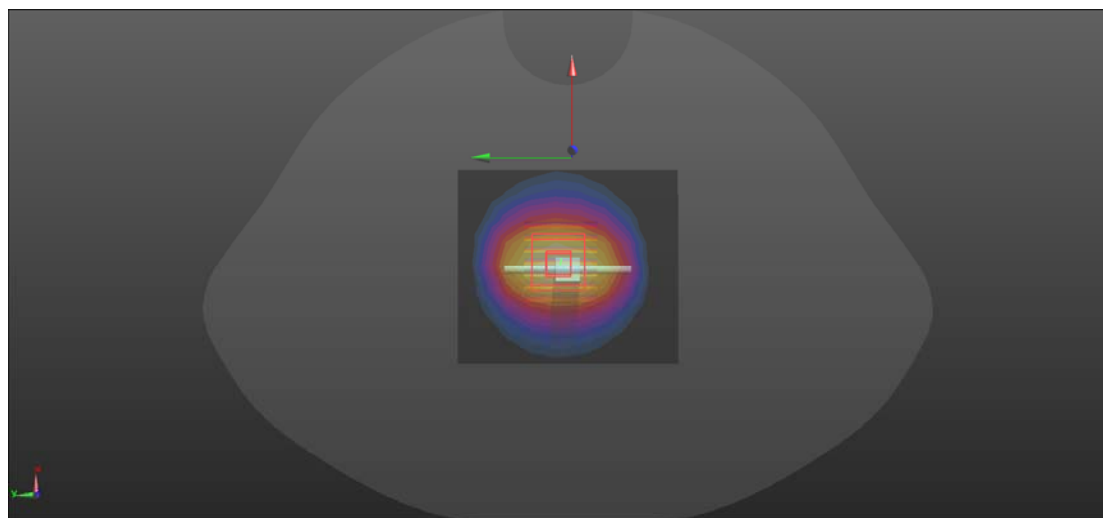
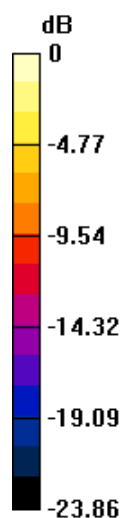
Head 2300MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.24 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 4.91 W/kg; SAR(10 g) = 2.35 W/kg

Maximum value of SAR (measured) = 8.82 W/kg



0 dB = 8.82 W/kg = 9.45 dBW/kg

System Performance 2450 MHz Head (Date 2024/06/10)**DUT: Dipole 2450 MHz; Type: 2450V2; Serial: 1103**

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.769$ S/m; $\epsilon_r = 39.575$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(7.89, 7.89, 7.89) @ 2450 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 2450MHz Pin=100mW/Area Scan (9x10x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 10.5 W/kg

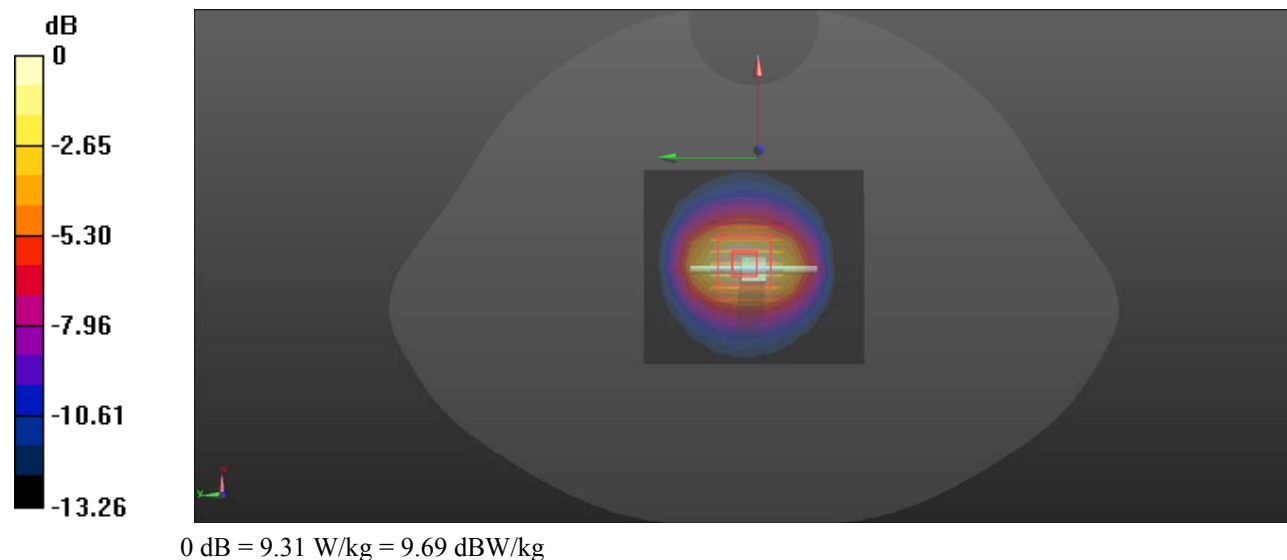
Head 2450MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.94 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 11.8 W/kg

SAR(1 g) = 5.49 W/kg; SAR(10 g) = 2.53 W/kg

Maximum value of SAR (measured) = 9.31 W/kg



System Performance 2600 MHz Head (Date 2024/06/10)**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1207**

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

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.974$ S/m; $\epsilon_r = 38.315$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(7.65, 7.65, 7.65) @ 2600 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 2600MHz Pin=100mW/Area Scan (9x10x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 11.6 W/kg

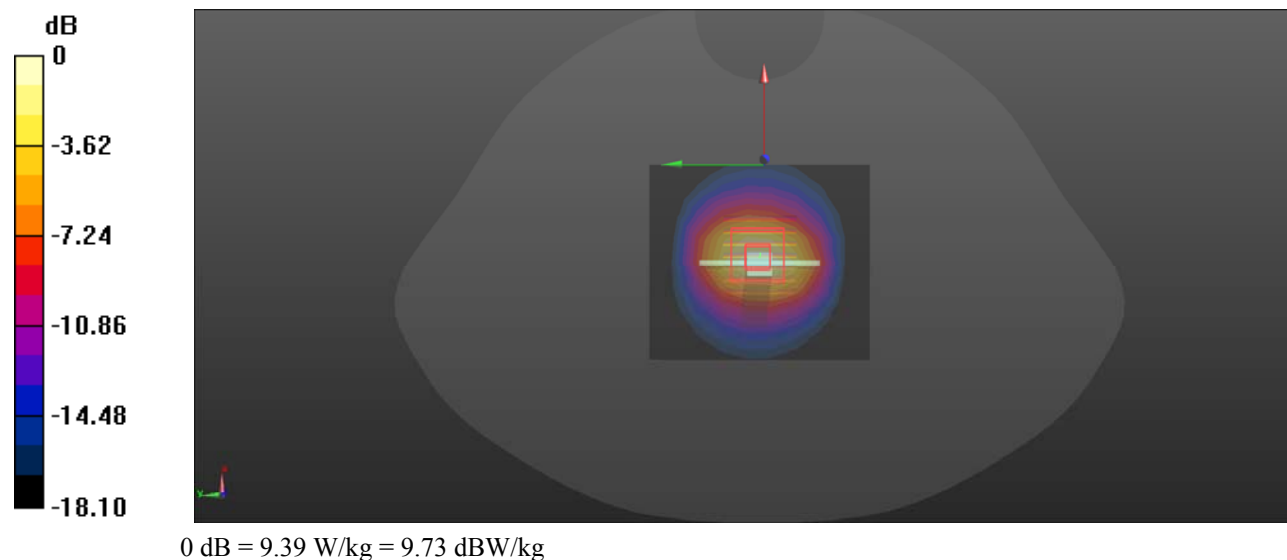
Head 2600MHz Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.72 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 11.7 W/kg

SAR(1 g) = 5.67 W/kg; SAR(10 g) = 2.51 W/kg

Maximum value of SAR (measured) = 9.39 W/kg



System Performance 5250 MHz Head (Date 2024/06/11)**DUT: Dipole 5GHz Type: D5GHzV2; Serial: 1374**

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.672$ S/m; $\epsilon_r = 36.607$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(5.62, 5.62, 5.62) @ 5250 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 5250MHz Pin=100mW/Area Scan (7x9x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 20.6 W/kg

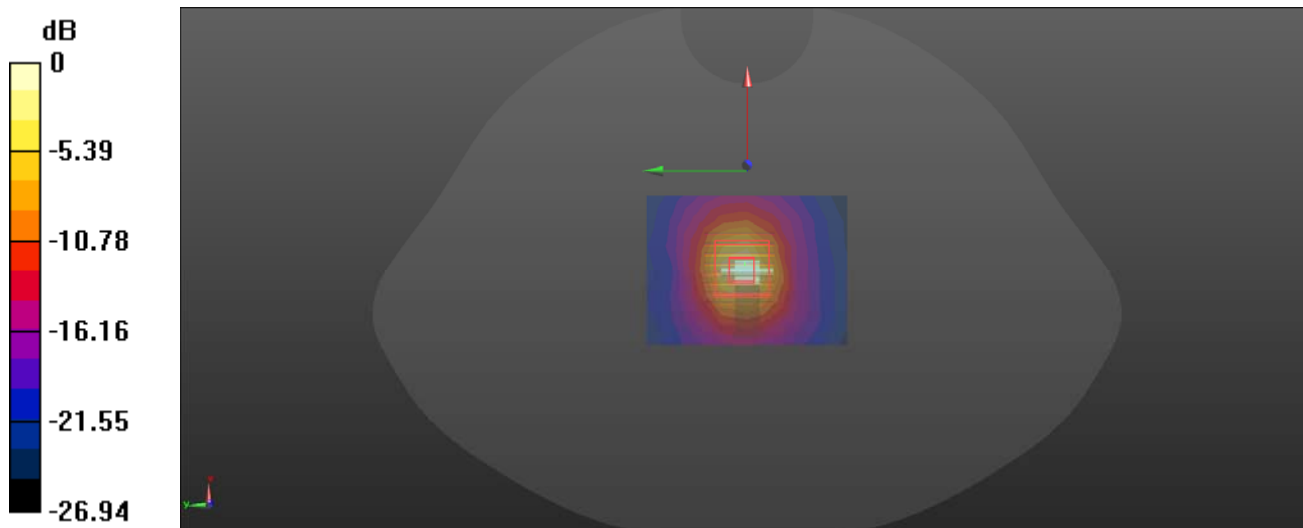
Head 5250MHz Pin=100mW/Zoom Scan (8x8x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.74 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 30.7 W/kg

SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.28 W/kg

Maximum value of SAR (measured) = 18.9 W/kg



0 dB = 18.9 W/kg = 12.76 dBW/kg

System Performance 5600 MHz Head (Date 2024/06/12)**DUT: Dipole 5GHz Type: D5GHzV2; Serial: 1374**

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.158$ S/m; $\epsilon_r = 35.574$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(5.10, 5.10, 5.10) @ 5600 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 5600MHz Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 21.1 W/kg

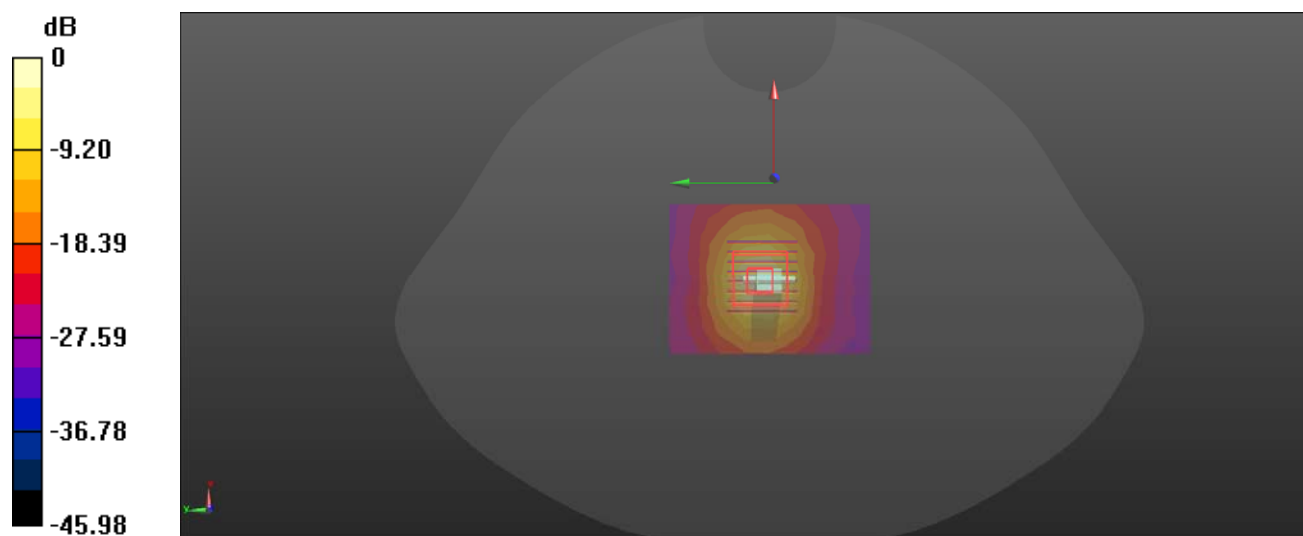
Head 5600MHz Pin=100mW/Zoom Scan (8x8x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 59.04 V/m; Power Drift = -0.18dB

Peak SAR (extrapolated) = 35.8 W/kg

SAR(1 g) = 7.99 W/kg; SAR(10 g) = 2.36 W/kg

Maximum value of SAR (measured) = 20.6 W/kg



0 dB = 20.6 W/kg = 13.14 dBW/kg

System Performance 5800 MHz Head (Date 2024/06/12)**DUT: Dipole 5GHz Type: D5GHzV2; Serial: 1374**

Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.409$ S/m; $\epsilon_r = 34.651$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 – SN7382; ConvF(5.08, 5.08, 5.08) @ 5800 MHz;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 9/27/2023
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962
- Measurement SW: DASY52, Version 52.10 (2);

Head 5800MHz Pin=100mW/Area Scan (7x9x1): Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (measured) = 20.7 W/kg

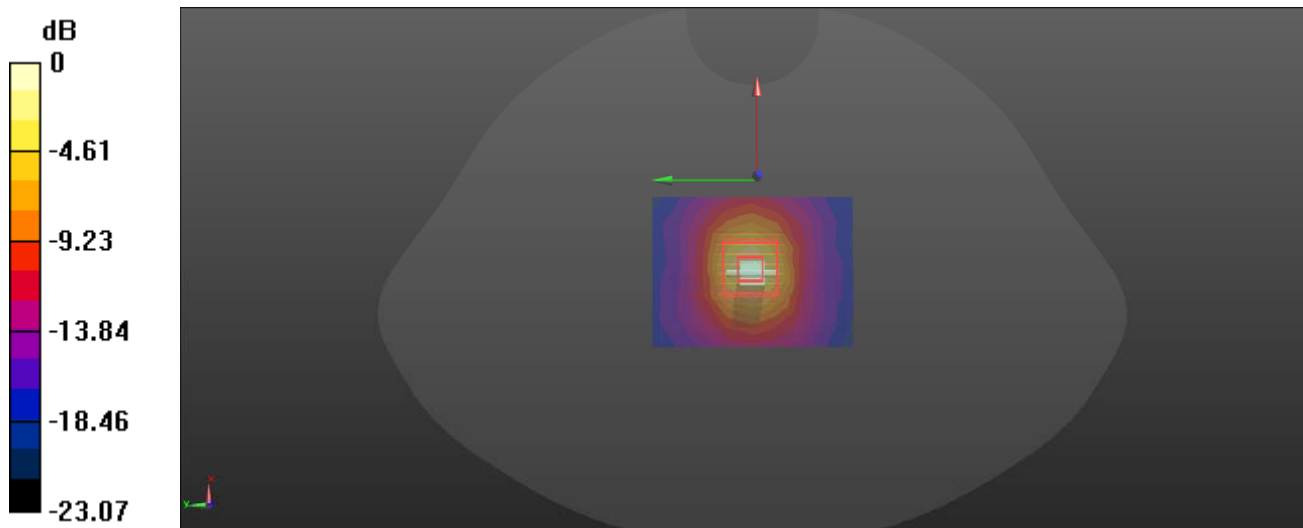
Head 5800MHz Pin=100mW/Zoom Scan (8x8x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.81 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 33.7 W/kg

SAR(1 g) = 7.86 W/kg; SAR(10 g) = 2.19 W/kg

Maximum value of SAR (measured) = 19.5 W/kg



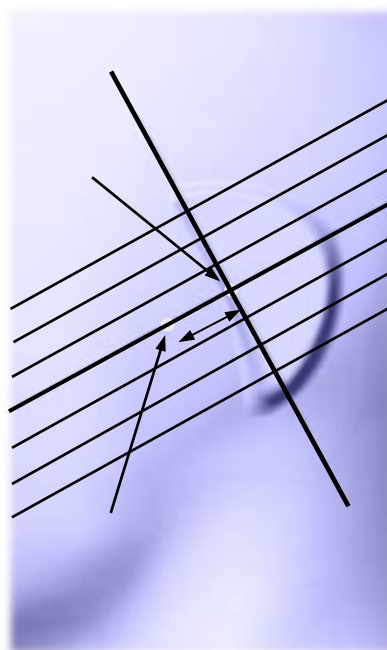
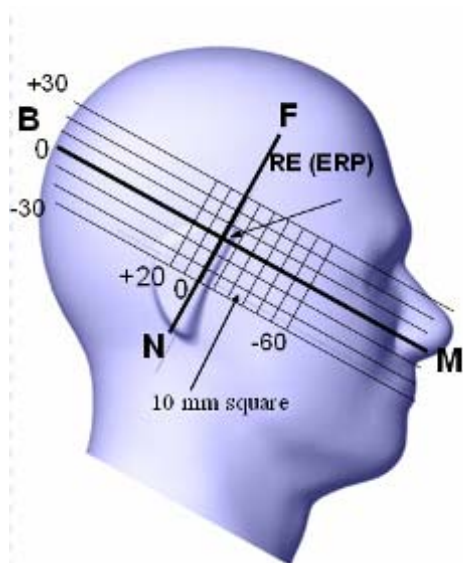
0 dB = 19.5 W/kg = 12.90 dBW/kg

EUT TEST STRATEGY AND METHODOLOGY

Test Positions for Device Operating Next to a Person's Ear

This category includes most wireless handsets with fixed, retractable or internal antennas located toward the top half of the device, with or without a foldout, sliding or similar keypad cover. The handset should have its earpiece located within the upper ¼ of the device, either along the centerline or off-centered, as perceived by its users. This type of handset should be positioned in a normal operating position with the “test device reference point” located along the “vertical centerline” on the front of the device aligned to the “ear reference point”. The “test device reference point” should be located at the same level as the center of the earpiece region. The “vertical centerline” should bisect the front surface of the handset at its top and bottom edges. A “ear reference point” is located on the outer surface of the head phantom on each ear spacer. It is located 1.5 cm above the center of the ear canal entrance in the “phantom reference plane” defined by the three lines joining the center of each “ear reference point” (left and right) and the tip of the mouth.

A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom. For the SCC-34/SC-2 head phantom, the device should be positioned parallel to the “N-F” line defined along the base of the ear spacer that contains the “ear reference point”. For interim head phantoms, the device should be positioned parallel to the cheek for maximum RF energy coupling. The “test device reference point” is aligned to the “ear reference point” on the head phantom and the “vertical centerline” is aligned to the “phantom reference plane”. This is called the “initial ear position”. While maintaining these three alignments, the body of the handset is gradually adjusted to each of the following positions for evaluating SAR:



Cheek/Touch Position

The device is brought toward the mouth of the head phantom by pivoting against the “ear reference point” or along the “N-F” line for the SCC-34/SC-2 head phantom.

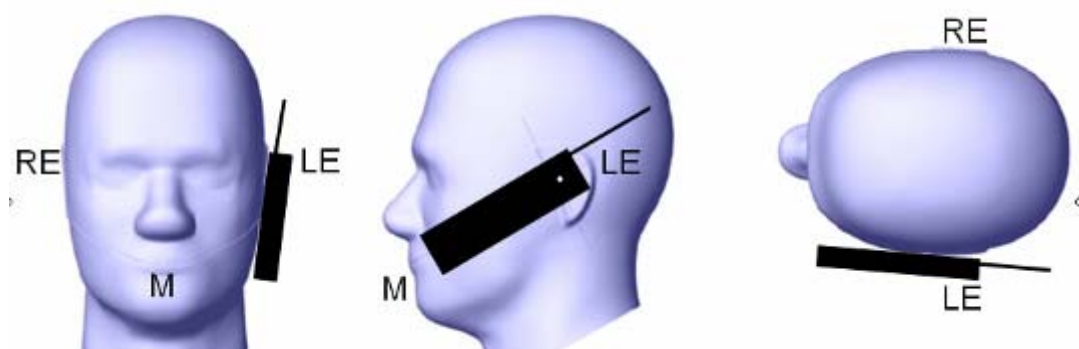
This test position is established:

When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.

(or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.

For existing head phantoms – when the handset loses contact with the phantom at the pivoting point, rotation should continue until the device touches the cheek of the phantom or breaks its last contact from the ear spacer.

Cheek /Touch Position



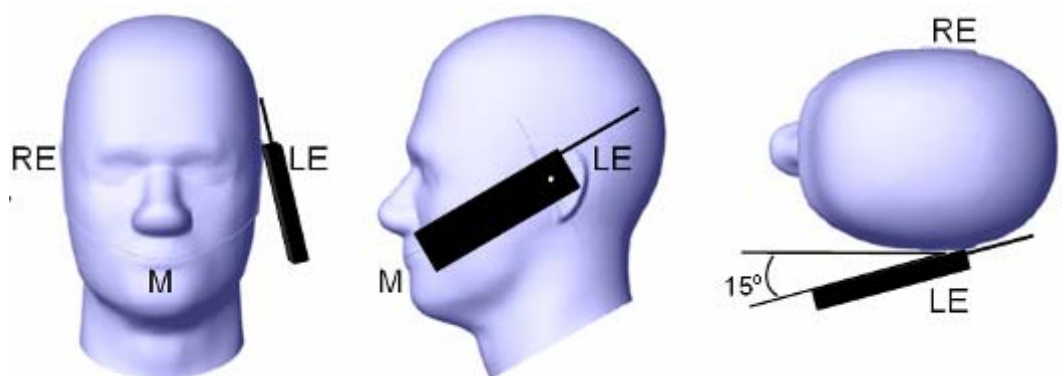
Ear/Tilt Position

With the handset aligned in the “Cheek/Touch Position”:

1) If the earpiece of the handset is not in full contact with the phantom’s ear spacer (in the “Cheek/Touch position”) and the peak SAR location for the “Cheek/Touch” position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the “initial ear position” by rotating it away from the mouth until the earpiece is in full contact with the ear spacer.

2) (otherwise) The handset should be moved (translated) away from the cheek perpendicular to the line passes through both “ear reference points” (note: one of these ear reference points may not physically exist on a split head model) for approximate 2-3 cm. While it is in this position, the device handset is tilted away from the mouth with respect to the “test device reference point” until the inside angle between the vertical centerline on the front surface of the phone and the horizontal line passing through the ear reference point is by 15 80°. After the tilt, it is then moved (translated) back toward the head perpendicular to the line passes through both “ear reference points” until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously. This test position may require a device holder or positioner to achieve the translation and tilting with acceptable positioning repeatability.

If a device is also designed to transmit with its keypad cover closed for operating in the head position, such positions should also be considered in the SAR evaluation. The device should be tested on the left and right side of the head phantom in the “Cheek/Touch” and “Ear/Tilt” positions. When applicable, each configuration should be tested with the antenna in its fully extended and fully retracted positions. These test configurations should be tested at the high, middle and low frequency channels of each operating mode; for example, AMPS, CDMA, and TDMA. If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tilt/Ear, extended and retracted) is at least 2.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s). If the transmission band of the test device is less than 10 MHz, testing at the high and low frequency channels is optional.

Ear /Tilt 15° Position**Test positions for body-worn and other configurations**

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

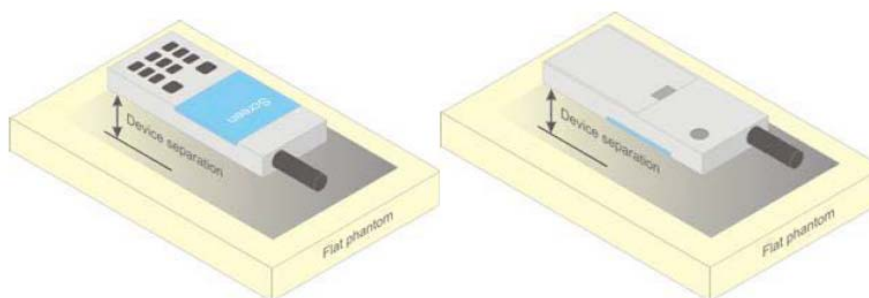


Figure 5 – Test positions for body-worn devices

SAR Evaluation Procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the ear point or central position was used as a reference value for assessing the power drop. The SAR at this point is measured at the start of the test and then again at the end of the testing.

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

2) The maximum Measured value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the "Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were Measured to calculate the averages.

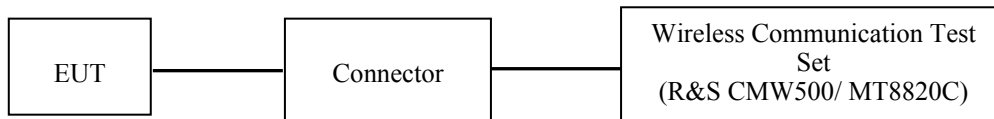
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

CONDUCTED OUTPUT POWER MEASUREMENT

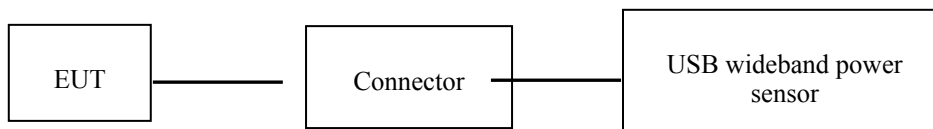
Test Procedure

The RF output of the transmitter was connected to the input of the Wireless Communication Test Set through Connector.



GSM/WCDMA/LTE

The RF output of the transmitter was connected to the input port of the USB wideband power sensor through Connector.



BT/WLAN

Description of Test Configuration

EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in each operation mode.
Equipment Modifications:	No
EUT Exercise Software:	No
The maximum power was configured per 3GPP Standard for each operation modes as below setting: GSM/GPRS/EGPRS Function: Menu select > GSM Mobile Station > GSM 850/1900 Press Connection control to choose the different menus Press RESET > choose all the reset all settings Connection Press Signal Off to turn off the signal and change settings Network Support > GSM + GPRS or GSM + EGSM Main Service > Packet Data Service selection > Test Mode A – Auto Slot Config. off MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting > Slot configuration > Uplink/Gamma > 33 dBm for GPRS 850 > 30 dBm for GPRS 1900 > 27 dBm for EGPRS 850 > 26 dBm for EGPRS 1900 BS Signal channel Enter the same channel number for TCH channel (test channel) and BCCH Frequency Offset > + 0 Hz Mode > BCCH and TCH BCCH Level > -85 dBm (May need to adjust if link is not stable) BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel] Channel Type > Off P0 > 4 dB Slot Config> Unchanged (if already set under MS signal) TCH > choose desired test channel Hopping > Off Main Timeslot > 3 Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS) Bit Stream > 2E9-1 PSR Bit Stream AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input Connection Press Sign	

WCDMA-Release 99

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β / β_d	8/15

WCDMA HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Set ings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	12/15	15/15	15/15
	β_d	1 /15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs= β_{hs}/β_c	30/15			

WCDMA HSUPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2		4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30 15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs= β_{hs}/β_c	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate k ps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCI	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
NS_04	6.6.2.2.2	41	20	>10	≤ 1
			5	>6	≤ 1
NS_05	6.6.3.3.1	1	10, 15, 20	See Table 6.2.4-4	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

TDD-LTE

P TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-		

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

We used configuration 0 for LTE Band 41&38 SAR test, that is 63.33%(1:1.58)for duty cycle.

We used configuration 3 for LTE Band 40 SAR test, that is 31.67%(1:3.16)for duty cycle.

Maximum Target Output Power

Mode/Band	Max Target Power(dBm)		
	Channel		
	Low	Middle	High
GSM 850	32.7	32.7	32.7
GPRS 1 TX Slot	32.5	32.5	32.5
GPRS 2 TX Slot	30.5	30.5	30.5
GPRS 3 TX Slot	28.4	28.4	28.4
GPRS 4 TX Slot	26.6	26.6	26.6
EDGE 1 TX Slot	27.8	27.8	27.8
EDGE 2 TX Slot	25.8	25.8	25.8
EDGE 3 TX Slot	23.8	23.8	23.8
EDGE 4 TX Slot	21.8	21.8	21.8
PCS 1900	29.7	29.7	29.7
GPRS 1 TX Slot	29.4	29.4	29.4
GPRS 2 TX Slot	27.5	27.5	27.5
GPRS 3 TX Slot	25.7	25.7	25.7
GPRS 4 TX Slot	23.4	23.4	23.4
EDGE 1 TX Slot	27	27	27
EDGE 2 TX Slot	25.3	25.3	25.3
EDGE 3 TX Slot	23.4	23.4	23.4
EDGE 4 TX Slot	21.4	21.4	21.4
WCDMA Band 2	22.9	22.9	22.9
WCDMA Band 5	21.4	21.4	21.4
LTE Band 2	22.8	22.8	22.8
LTE Band 4	21	21	21
LTE Band 5	19.2	19.2	19.2
LTE Band 7	22	22	22
LTE Band 12	23.2	23.2	23.2
LTE Band 17	23.2	23.2	23.2
LTE Band 26	19.2	19.2	19.2
LTE Band 38	21.5	21.5	21.5
LTE Band 40	21.9	21.9	21.9
LTE Band 41	21.5	21.5	21.5
LTE Band 66	21	21	21
WLAN 2.4G(802.11b)	16.5	16.5	16.5
WLAN 2.4G(802.11g)	11.5	11.5	11.5
WLAN 2.4G(802.11n20)	11.5	11.5	11.5
WLAN 2.4G(802.11n40)	11.1	11.1	11.1
WLAN 5.2G(802.11a)	16	16	16
WLAN5.2G(802.11n20)	15.8	15.8	15.8
WLAN5.2G(802.11n40)	15.9	/	15.9
WLAN5.2G(802.11ac20)	15.8	15.8	15.8
WLAN5.2G(802.11ac40)	15.9	/	15.9
WLAN 5.2G(802.11ac80)	/	14.3	/

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
WLAN 5.3G(802.11a)	15.8	15.8	15.8
WLAN5.3G(802.11n20)	15.5	15.5	15.5
WLAN5.3G(802.11n40)	15.7	/	15.7
WLAN5.3G(802.11ac20)	15.5	15.5	15.5
WLAN5.3G(802.11ac40)	15.7	/	15.7
WLAN 5.3G(802.11ac80)	/	14.7	
WLAN 5.6G(802.11a)	17.6	16.6	14.8
WLAN5.6G(802.11n20)	17.5	16.5	14.7
WLAN5.6G(802.11n40)	17.5	16.9	15.7
WLAN5.6G(802.11ac20)	17.5	16.5	14.7
WLAN5.6G(802.11ac40)	17.5	16.9	15.7
WLAN 5.6G(802.11ac80)	16.4	15.4	11.9
WLAN 5.8G(802.11a)	15.7	15.7	15.7
WLAN5.8G(802.11n20)	15.4	15.4	15.4
WLAN5.8G(802.11n40)	15.6	/	15.6
WLAN5.8G(802.11ac20)	15.4	15.4	15.4
WLAN5.8G(802.11ac40)	15.6	/	15.6
WLAN 5.8G(802.11ac80)	/	14.5	/
Bluetooth BDR/EDR	0.5	0.5	-2.0
BLE	4.0	4.0	1.5

Note: The Maximum Target Power for LTE bands corresponds to their maximum power in QPSK modes with maximum bandwidth.

Test Results**GSM:**

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)
GSM 850	128	824.2	32.60
	190	836.6	32.44
	251	848.8	32.26
PCS 1900	512	1850.2	29.40
	661	1880	29.58
	810	1909.8	29.47

GPRS:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	32.29	30.39	28.19	26.51
	190	836.6	32.38	30.35	28.27	26.46
	251	848.8	32.34	30.38	28.31	26.34
PCS 1900	512	1850.2	29.01	27.21	25.51	23.28
	661	1880	29.32	27.40	25.43	23.01
	810	1909.8	29.32	27.38	25.55	23.03

EGPRS:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	27.68	25.40	23.38	21.53
	190	836.6	27.69	25.65	23.73	21.55
	251	848.8	27.69	25.54	23.59	21.68
PCS 1900	512	1850.2	26.86	25.19	23.26	21.32
	661	1880	26.66	25.15	23.26	21.10
	810	1909.8	26.80	25.21	23.34	21.03

For SAR, the time based average power is relevant, the difference in between depends on the duty cycle of the TDMA signal.

Number of Time slot	1	2	3	4
Duty Cycle	1:8	1:4	1:2.66	1:2
Time based Ave. power compared to slotted Ave. power	-9 dB	-6 dB	-4.25 dB	-3 dB
Crest Factor	8	4	2.66	2

The time based average power for GPRS

Band	Channel No.	Frequency (MHz)	Time based average Power (dBm)			
			1 slot	2 slot	3 slots	4 slots
GSM 850	128	824.2	23.29	24.39	23.94	23.51
	190	836.6	23.38	24.35	24.02	23.46
	251	848.8	23.34	24.38	24.06	23.34
PCS 1900	512	1850.2	20.01	21.21	21.26	20.28
	661	1880	20.32	21.4	21.18	20.01
	810	1909.8	20.32	21.38	21.3	20.03

The time based average power for EGPRS

Band	Channel No.	Frequency (MHz)	Time based average Power (dBm)			
			1 slot	2 slot	3 slots	4 slots
GSM 850	128	824.2	18.68	19.4	19.13	18.53
	190	836.6	18.69	19.65	19.48	18.55
	251	848.8	18.69	19.54	19.34	18.68
PCS 1900	512	1850.2	17.86	19.19	19.01	18.32
	661	1880	17.66	19.15	19.01	18.1
	810	1909.8	17.8	19.21	19.09	18.03

Note:

1. Rohde & Schwarz Radio Communication Tester (CMW500) was used for the measurement of GSM peak and average output power for active timeslots.
2. For GSM voice, 1 timeslot has been activated with power level 5 (850 MHz band) and 0 (1900 MHz band).
3. For GPRS, 1, 2, 3 and 4 timeslots has been activated separately with power level 3(850 MHz band) and 3(1900 MHz band).

WCDMA:**Results (12.2kbps RMC)**

Band	Frequency (MHz)	RF Output Power (dBm)
WCDMA Band 2	1852.4	22.81
	1880	22.70
	1907.6	22.63
WCDMA Band 5	826.4	21.31
	836.6	21.24
	846.6	21.33

Results (HSDPA)

Band	Frequency (MHz)	RF Output Power (dBm)			
		Subset 1	Subset 2	Subset 3	Subset 4
WCDMA Band 2	1852.4	22.19	22.29	22.21	22.35
	1880	22.07	22.17	22.10	22.30
	1907.6	22.15	22.28	22.40	22.19
WCDMA Band 5	826.4	20.76	20.60	20.42	20.44
	836.6	20.69	20.36	20.41	20.52
	846.6	20.89	20.32	20.33	20.37

Results (HSUPA)

Band	Frequency (MHz)	RF Output Power (dBm)				
		Subset 1	Subset 2	Subset 3	Subset 4	Subset 5
WCDMA Band 2	1852.4	20.48	20.43	20.57	20.39	20.43
	1880	20.41	20.55	20.41	20.38	20.41
	1907.6	20.81	20.35	20.50	20.60	20.40
WCDMA Band 5	826.4	20.32	20.72	20.48	20.55	20.65
	836.6	20.41	20.40	20.57	20.68	20.45
	846.6	20.54	20.42	20.34	20.40	20.45

Note:

1. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model 1.
2. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA when the maximum average output of each RF channel is less than ¼ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is < 75% of SAR limit.

LTE Band 2:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	22.31	22.45	22.26
		RB1#3	22.62	22.64	22.12
		RB1#5	22.51	22.52	22.16
		RB3#0	22.35	22.45	22.28
		RB3#3	22.51	22.16	22.35
		RB6#0	21.34	21.28	21.31
	16-QAM	RB1#0	21.4	21.44	21.37
		RB1#3	21.49	21.49	21.66
		RB1#5	20.98	21.6	21.93
		RB3#0	21.22	21.27	21.06
		RB3#3	21.33	21.19	21.22
		RB6#0	20.2	20.27	20.19
3M	QPSK	RB1#0	22.48	22.64	22.52
		RB1#8	22.63	22.23	22.32
		RB1#14	22.61	22.51	22.19
		RB6#0	21.28	21.11	21.19
		RB6#9	21.38	21.15	21.19
		RB15#0	21.32	21.2	21.21
	16-QAM	RB1#0	21.31	21.63	21.5
		RB1#8	21.27	21.46	21.63
		RB1#14	21.31	21.78	21.86
		RB6#0	20.34	20.07	20.31
		RB6#9	20.06	20.36	20.38
		RB15#0	20.31	20.39	20.04
5M	QPSK	RB1#0	22.66	22.51	22.26
		RB1#13	22.69	22.19	22.35
		RB1#24	22.63	22.46	22.3
		RB15#0	21.31	21.15	21.19
		RB15#10	21.42	21.21	21.31
		RB25#0	21.44	21.17	21.14
	16-QAM	RB1#0	21.14	21.02	21.59
		RB1#13	21.15	20.61	21.49
		RB1#24	21.43	20.78	21.81
		RB15#0	20.34	20.1	20.12
		RB15#10	20.52	20.23	20.15
		RB25#0	20.51	20.39	20.24

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	22.63	22.51	22.39
		RB1#25	22.68	22.16	22.54
		RB1#49	22.41	22.3	22.19
		RB25#0	21.29	21.32	21.45
		RB25#25	21.41	21.21	21.02
		RB50#0	21.3	21.18	21.21
	16-QAM	RB1#0	21.45	21.93	21.85
		RB1#25	21.51	21.6	21.91
		RB1#49	21.08	21.37	22.13
		RB25#0	20.64	20.31	20.46
		RB25#25	20.73	20.34	20.57
		RB50#0	20.27	20.31	20.43
15M	QPSK	RB1#0	22.33	22.25	22.27
		RB1#38	22.51	22.29	22.34
		RB1#74	22.22	22.4	22.37
		RB36#0	21.5	21.4	21.3
		RB36#39	21.46	21.23	21.27
		RB75#0	21.37	21.13	21.38
	16-QAM	RB1#0	21.57	21.87	21.9
		RB1#38	21.71	21.57	22.37
		RB1#74	21.26	21.84	22.02
		RB36#0	20.51	20.39	20.56
		RB36#39	20.2	20.38	20.35
		RB75#0	20.43	20.27	20.36
20M	QPSK	RB1#0	22.35	22.19	22.51
		RB1#50	22.67	22.32	22.56
		RB1#99	22.26	22.32	22.53
		RB50#0	21.4	21.35	21.59
		RB50#50	21.38	21.27	21.21
		RB100#0	21.47	21.32	21.16
	16-QAM	RB1#0	21.95	21.62	21.59
		RB1#50	22.28	21.59	21.94
		RB1#99	22.07	21.45	21.21
		RB50#0	20.42	20.32	20.55
		RB50#50	20.41	20.45	20.28
		RB100#0	20.46	20.33	20.45

LTE Band 4:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	20.23	20.46	20.72
		RB1#3	20.48	20.83	20.84
		RB1#5	20.30	20.56	20.62
		RB3#0	20.46	20.46	20.67
		RB3#3	20.39	20.55	20.63
		RB6#0	19.54	19.51	19.68
	16-QAM	RB1#0	19.69	19.61	19.86
		RB1#3	20.20	19.69	19.92
		RB1#5	20.18	19.52	19.88
		RB3#0	19.44	19.98	19.57
		RB3#3	19.32	19.76	19.61
		RB6#0	18.38	18.48	18.90
3M	QPSK	RB1#0	20.67	20.61	20.42
		RB1#8	20.26	20.46	20.69
		RB1#14	20.50	20.69	20.74
		RB6#0	19.54	19.50	19.56
		RB6#9	19.47	19.78	19.66
		RB15#0	19.56	19.64	19.58
	16-QAM	RB1#0	19.57	20.00	19.76
		RB1#8	19.45	19.85	19.70
		RB1#14	19.35	20.02	20.39
		RB6#0	18.57	18.57	18.66
		RB6#9	18.40	18.58	18.70
		RB15#0	18.45	18.80	18.45
5M	QPSK	RB1#0	20.31	20.36	20.58
		RB1#13	20.06	20.60	20.49
		RB1#24	20.20	20.49	20.65
		RB15#0	19.50	19.59	19.58
		RB15#10	19.43	19.59	19.56
		RB25#0	19.39	19.68	19.80
	16-QAM	RB1#0	19.40	19.54	19.88
		RB1#13	19.20	19.28	19.88
		RB1#24	19.14	18.97	19.99
		RB15#0	18.44	18.65	18.49
		RB15#10	18.34	18.53	18.46
		RB25#0	18.41	18.62	18.64

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	20.71	20.62	20.63
		RB1#25	20.47	20.84	20.65
		RB1#49	20.62	20.52	20.68
		RB25#0	19.31	19.53	19.41
		RB25#25	19.52	19.54	19.77
		RB50#0	19.62	19.54	19.45
	16-QAM	RB1#0	19.36	19.81	20.12
		RB1#25	19.18	19.89	20.01
		RB1#49	19.18	19.67	20.45
		RB25#0	18.41	18.58	18.96
		RB25#25	18.44	18.65	18.93
		RB50#0	18.45	18.53	18.76
15M	QPSK	RB1#0	20.44	20.38	20.63
		RB1#38	20.47	20.63	20.72
		RB1#74	20.17	20.35	20.89
		RB36#0	19.42	19.66	19.87
		RB36#39	19.56	19.49	19.50
		RB75#0	19.51	19.48	19.71
	16-QAM	RB1#0	19.86	20.00	20.47
		RB1#38	19.71	19.62	20.26
		RB1#74	19.53	19.40	20.61
		RB36#0	18.35	18.79	18.85
		RB36#39	18.22	18.67	18.78
		RB75#0	18.37	18.60	18.65
20M	QPSK	RB1#0	20.38	20.48	20.71
		RB1#50	20.50	20.61	20.82
		RB1#99	20.54	20.44	20.88
		RB50#0	19.57	19.74	19.82
		RB50#50	19.61	19.61	19.65
		RB100#0	19.70	19.69	19.68
	16-QAM	RB1#0	20.25	19.73	19.57
		RB1#50	20.45	19.85	19.63
		RB1#99	20.41	19.61	19.53
		RB50#0	18.50	18.82	18.94
		RB50#50	18.46	18.72	18.69
		RB100#0	18.69	18.78	18.67

LTE Band 5:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	18.86	18.54	18.80
		RB1#3	19.08	18.63	19.08
		RB1#5	18.94	18.59	18.70
		RB3#0	18.63	18.70	18.66
		RB3#3	18.62	18.83	18.76
		RB6#0	17.74	17.65	17.79
	16-QAM	RB1#0	17.86	18.20	17.77
		RB1#3	17.92	18.02	17.54
		RB1#5	17.76	18.02	18.10
		RB3#0	17.81	17.67	17.96
		RB3#3	17.59	17.82	18.05
		RB6#0	16.79	16.86	16.22
3M	QPSK	RB1#0	18.79	18.51	18.53
		RB1#8	18.64	18.66	18.68
		RB1#14	18.62	18.55	19.00
		RB6#0	17.78	17.68	17.67
		RB6#9	17.68	17.69	17.55
		RB15#0	17.55	17.75	17.77
	16-QAM	RB1#0	17.93	17.87	17.64
		RB1#8	17.66	17.80	17.63
		RB1#14	18.28	17.95	17.81
		RB6#0	16.66	16.59	16.61
		RB6#9	16.70	16.92	16.89
		RB15#0	16.41	16.53	16.74
5M	QPSK	RB1#0	18.48	18.49	18.55
		RB1#13	18.66	18.78	18.66
		RB1#24	18.58	18.63	18.47
		RB15#0	17.69	17.56	17.74
		RB15#10	17.53	17.70	17.72
		RB25#0	17.63	17.68	17.71
	16-QAM	RB1#0	17.17	18.04	17.92
		RB1#13	17.06	17.62	17.34
		RB1#24	17.09	17.96	17.50
		RB15#0	16.19	16.60	16.54
		RB15#10	16.34	16.54	16.65
		RB25#0	16.59	16.63	16.87

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	18.95	18.73	18.54
		RB1#25	18.85	18.78	18.79
		RB1#49	18.95	18.99	18.98
		RB25#0	17.63	17.82	17.75
		RB25#25	17.86	17.89	17.76
		RB50#0	17.78	17.74	17.75
	16-QAM	RB1#0	18.06	18.44	17.65
		RB1#25	18.17	18.24	17.84
		RB1#49	17.84	18.27	17.68
		RB25#0	16.66	16.88	16.86
		RB25#25	16.64	16.75	16.93
		RB50#0	16.77	16.54	16.66

LTE Band 7:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	21.4	21.91	21.63
		RB1#13	21.74	21.65	21.64
		RB1#24	21.78	21.82	21.61
		RB15#0	20.81	20.61	20.52
		RB15#10	20.87	20.7	20.79
		RB25#0	20.92	20.76	20.85
	16-QAM	RB1#0	20.91	20.57	20.24
		RB1#13	20.95	20.99	20.26
		RB1#24	21.18	20.55	20.17
		RB15#0	19.94	19.75	19.83
		RB15#10	19.99	19.83	19.71
		RB25#0	19.8	19.85	19.99
10M	QPSK	RB1#0	21.66	21.75	21.14
		RB1#25	21.92	21.82	21.03
		RB1#49	21.51	21.85	21.02
		RB25#0	20.69	20.83	20.11
		RB25#25	20.73	20.08	20.1
		RB50#0	20.89	20.05	19.93
	16-QAM	RB1#0	20.78	20.67	20.45
		RB1#25	21.23	20.94	20.59
		RB1#49	21.12	20.91	20.91
		RB25#0	20.02	19.03	19.24
		RB25#25	19.82	19.08	19.29
		RB50#0	19.86	19.19	19.11
15M	QPSK	RB1#0	20.83	20.94	20.94
		RB1#38	21.08	21.21	21
		RB1#74	21.15	21.23	20.95
		RB36#0	20.18	20.13	20.15
		RB36#39	20.03	20.14	20.05
		RB75#0	20.29	20.11	20.1
	16-QAM	RB1#0	20.2	20.66	20.35
		RB1#38	19.57	20.45	20.45
		RB1#74	19.88	20.53	21.3
		RB36#0	19.26	19.07	18.98
		RB36#39	18.87	19.27	19.22
		RB75#0	19.19	19.2	18.82

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	20.64	21.15	21.18
		RB1#50	21.34	21.2	21.51
		RB1#99	21.29	20.94	21.5
		RB50#0	20.27	20.15	20.14
		RB50#50	20.03	20.11	20.1
		RB100#0	20.2	20.19	20.09
	16-QAM	RB1#0	20.1	21.06	19.98
		RB1#50	20.19	20.44	20.17
		RB1#99	20.23	20.53	20.09
		RB50#0	19.13	19.08	18.89
		RB50#50	19.06	19.05	18.91
		RB100#0	19.36	19.06	18.98

LTE Band 12:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	23.05	22.71	22.62
		RB1#3	23.05	22.73	22.80
		RB1#5	22.97	22.65	23.09
		RB3#0	22.66	23.03	22.70
		RB3#3	22.81	22.86	22.81
		RB6#0	21.83	21.89	21.71
	16-QAM	RB1#0	21.53	22.09	22.12
		RB1#3	21.69	22.23	22.07
		RB1#5	22.01	22.00	21.70
		RB3#0	21.59	21.88	21.93
		RB3#3	22.02	21.77	21.96
		RB6#0	20.97	20.92	21.21
3M	QPSK	RB1#0	22.80	22.90	23.07
		RB1#8	22.77	22.82	22.77
		RB1#14	22.92	22.76	23.09
		RB6#0	21.69	21.93	21.80
		RB6#9	21.74	21.77	21.70
		RB15#0	21.82	21.87	21.86
	16-QAM	RB1#0	21.97	22.02	22.36
		RB1#8	21.24	21.80	22.20
		RB1#14	21.79	22.05	22.51
		RB6#0	20.41	20.86	20.87
		RB6#9	20.63	20.84	20.80
		RB15#0	20.76	20.94	20.80
5M	QPSK	RB1#0	22.93	22.72	22.72
		RB1#13	22.61	22.78	22.72
		RB1#24	23.04	22.89	22.93
		RB15#0	21.73	21.78	21.81
		RB15#10	21.97	21.75	21.67
		RB25#0	21.76	21.81	21.81
	16-QAM	RB1#0	21.57	21.47	21.97
		RB1#13	21.54	21.34	22.02
		RB1#24	21.97	20.99	22.54
		RB15#0	20.78	20.76	20.65
		RB15#10	21.03	20.70	20.54
		RB25#0	20.71	20.88	20.83

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	22.92	22.79	22.79
		RB1#25	22.99	23.06	22.88
		RB1#49	22.94	22.65	22.86
		RB25#0	21.68	21.93	21.92
		RB25#25	21.85	22.14	21.95
		RB50#0	21.66	21.71	21.74
	16-QAM	RB1#0	21.74	22.57	22.37
		RB1#25	22.08	22.12	22.21
		RB1#49	21.73	22.09	22.20
		RB25#0	21.14	20.79	21.06
		RB25#25	21.01	20.78	20.98
		RB50#0	20.82	20.78	20.80

LTE Band 17:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	22.45	22.44	22.51
		RB1#13	22.44	22.11	22.41
		RB1#24	22.5	22.39	22.03
		RB15#0	21.58	21.37	21.49
		RB15#10	21.52	21.47	21.39
		RB25#0	21.65	21.37	21.38
	16-QAM	RB1#0	21.97	21.15	20.84
		RB1#13	21.78	21.4	20.92
		RB1#24	21.88	21.25	20.94
		RB15#0	20.53	20.49	20.42
		RB15#10	20.83	20.33	20.32
		RB25#0	20.33	20.41	20.41
10M	QPSK	RB1#0	22.83	22.45	22.59
		RB1#25	22.54	22.32	22.44
		RB1#49	22.56	22.58	22.24
		RB25#0	21.69	21.54	21.44
		RB25#25	21.37	21.47	21.4
		RB50#0	21.53	21.47	21.36
	16-QAM	RB1#0	21.65	22.32	22.1
		RB1#25	21.44	21.97	21.94
		RB1#49	21.62	22.2	21.65
		RB25#0	20.7	20.66	20.53
		RB25#25	20.62	20.43	20.39
		RB50#0	20.6	20.46	20.61

LTE Band 26:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	18.52	18.54	18.60
		RB1#3	18.65	18.28	18.66
		RB1#5	18.43	18.52	18.87
		RB3#0	18.78	18.30	18.60
		RB3#3	18.78	18.34	18.37
		RB6#0	17.53	17.43	17.52
	16-QAM	RB1#0	17.82	17.50	17.36
		RB1#3	17.80	17.45	17.67
		RB1#5	18.23	17.42	17.57
		RB3#0	17.59	17.61	17.12
		RB3#3	17.38	17.32	17.26
		RB6#0	16.72	16.52	16.26
3M	QPSK	RB1#0	18.83	18.87	18.85
		RB1#8	18.82	18.74	18.83
		RB1#14	18.84	18.92	18.87
		RB6#0	17.89	17.82	17.88
		RB6#9	17.85	17.65	17.83
		RB15#0	17.91	17.91	17.90
	16-QAM	RB1#0	18.06	18.42	18.28
		RB1#8	18.07	18.19	18.45
		RB1#14	18.02	18.41	18.54
		RB6#0	16.98	16.65	16.64
		RB6#9	16.81	16.74	17.03
		RB15#0	17.10	16.90	17.19
5M	QPSK	RB1#0	18.96	18.75	18.86
		RB1#13	18.99	18.87	18.81
		RB1#24	18.52	18.63	18.69
		RB15#0	17.94	17.78	17.88
		RB15#10	17.88	17.74	17.90
		RB25#0	17.84	17.86	17.83
	16-QAM	RB1#0	18.01	17.36	17.98
		RB1#13	17.55	17.05	17.64
		RB1#24	17.59	18.08	17.73
		RB15#0	17.11	16.62	16.99
		RB15#10	16.85	16.82	17.05
		RB25#0	16.92	16.73	16.75

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	18.99	18.91	19.05
		RB1#25	18.80	18.80	19.12
		RB1#49	18.87	18.76	18.97
		RB25#0	17.82	17.87	17.94
		RB25#25	17.87	17.77	18.07
		RB50#0	17.79	17.90	17.87
	16-QAM	RB1#0	17.99	18.61	18.55
		RB1#25	17.88	18.68	18.36
		RB1#49	17.96	18.83	18.22
		RB25#0	16.94	16.84	16.93
		RB25#25	16.93	16.84	17.08
		RB50#0	16.85	16.85	17.17
15M	QPSK	RB1#0	18.37	18.19	18.03
		RB1#38	18.26	18.35	18.31
		RB1#74	18.51	18.42	18.37
		RB36#0	17.56	17.34	17.34
		RB36#39	17.61	17.41	17.46
		RB75#0	17.40	17.30	17.39
	16-QAM	RB1#0	17.79	18.06	17.26
		RB1#38	17.85	17.76	17.20
		RB1#74	17.64	18.39	17.21
		RB36#0	16.40	16.49	16.41
		RB36#39	16.35	16.20	16.67
		RB75#0	16.52	16.37	16.27

LTE Band 38:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	21.1	20.86	20.8
		RB1#13	21.1	20.74	20.98
		RB1#24	21.04	20.97	20.79
		RB15#0	20.14	20.05	19.85
		RB15#10	20.12	19.9	19.88
		RB25#0	20.01	19.76	19.91
	16-QAM	RB1#0	19.73	20.21	20.2
		RB1#13	19.76	20.38	20.03
		RB1#24	19.82	20.22	19.84
		RB15#0	19.03	19.1	18.91
		RB15#10	18.93	19.04	19.19
		RB25#0	19.24	19.08	18.95
10M	QPSK	RB1#0	21.1	20.94	20.84
		RB1#25	21.12	21.18	20.79
		RB1#49	20.86	21.03	21.16
		RB25#0	20.21	19.9	19.96
		RB25#25	19.96	19.96	19.93
		RB50#0	20.03	20.06	19.88
	16-QAM	RB1#0	20.19	20.26	20.24
		RB1#25	20.26	20.3	20.47
		RB1#49	20.03	20.17	20.22
		RB25#0	19.12	19.36	19.1
		RB25#25	18.96	18.99	19.12
		RB50#0	19.02	18.97	19.01
15M	QPSK	RB1#0	21.17	21.03	20.86
		RB1#38	20.94	20.92	20.83
		RB1#74	21.2	21.28	20.73
		RB36#0	20.25	20.07	19.91
		RB36#39	20.1	20.16	19.9
		RB75#0	19.83	20.02	20.04
	16-QAM	RB1#0	20.13	20.53	19.93
		RB1#38	19.91	20.46	19.82
		RB1#74	20.04	20.19	19.79
		RB36#0	18.93	19.02	19.19
		RB36#39	18.97	18.87	18.98
		RB75#0	19.02	19.22	19.05

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	21.02	21.01	21.13
		RB1#50	21.19	21.34	21.18
		RB1#99	21.03	21.01	20.8
		RB50#0	19.96	20.21	20.04
		RB50#50	19.87	19.99	19.89
		RB100#0	19.99	19.99	19.99
	16-QAM	RB1#0	20.2	19.88	20.51
		RB1#50	20.56	19.69	20.79
		RB1#99	20.23	19.41	20.54
		RB50#0	19.2	19.25	19.1
		RB50#50	18.97	19.07	19.02
		RB100#0	19.27	18.86	19.04

LTE Band 40 Lower:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	21.1	/	21.51
		RB1#13	20.9	/	21.52
		RB1#24	21.01	/	21.51
		RB15#0	20.18	/	20.35
		RB15#10	20.24	/	20.55
		RB25#0	20.15	/	20.51
	16-QAM	RB1#0	20.2	/	20.2
		RB1#13	20.59	/	20.28
		RB1#24	20.66	/	20.22
		RB15#0	19.14	/	19.46
		RB15#10	19.26	/	19.49
		RB25#0	19.25	/	19.66
10M	QPSK	RB1#0	/	21.37	/
		RB1#25	/	21.31	/
		RB1#49	/	21.44	/
		RB25#0	/	20.3	/
		RB25#25	/	20.63	/
		RB50#0	/	20.42	/
	16-QAM	RB1#0	/	20.66	/
		RB1#25	/	20.62	/
		RB1#49	/	20.71	/
		RB25#0	/	19.16	/
		RB25#25	/	19.51	/
		RB50#0	/	19.27	/

LTE Band 40 Upper:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	21.1	/	21.75
		RB1#13	21.03	/	21.79
		RB1#24	21.18	/	21.7
		RB15#0	20.15	/	20.73
		RB15#10	20.24	/	20.47
		RB25#0	20.14	/	20.59
	16-QAM	RB1#0	20.3	/	21.08
		RB1#13	20.69	/	21.27
		RB1#24	20.33	/	20.93
		RB15#0	19.15	/	19.95
		RB15#10	19.69	/	19.75
		RB25#0	19.26	/	19.65
10M	QPSK	RB1#0	/	21.39	/
		RB1#25	/	21.41	/
		RB1#49	/	21.41	/
		RB25#0	/	20.5	/
		RB25#25	/	20.64	/
		RB50#0	/	20.39	/
	16-QAM	RB1#0	/	20.35	/
		RB1#25	/	20.6	/
		RB1#49	/	20.43	/
		RB25#0	/	19.28	/
		RB25#25	/	19.38	/
		RB50#0	/	19.5	/

Duty Cycle:

Operation Band	Modulation	Bandwidth	Ton (ms)	Ton+off (ms)	Duty Cycle (%)	Limit (%)
LTE Band 40 Lower	QPSK	5M	3	10	30.00	38
		10M	3	10	30.00	38
	16QAM	5M	3	10	30.00	38
		10M	3	10	30.00	38
LTE Band 40 Upper	QPSK	5M	3	10	30.00	38
		10M	3	10	30.00	38
	16QAM	5M	3	10	30.00	38
		10M	3	10	30.00	38

LTE Band 41:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2549.5 MHz (dBm)	Middle Channel (dBm)	2636.5 MHz (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	20.9	20.95	20.89	20.86	20.47
		RB1#13	20.88	20.76	20.64	20.64	20.58
		RB1#24	20.91	20.96	21.04	21.08	20.69
		RB15#0	19.89	19.9	19.96	19.90	19.62
		RB15#10	20.12	20.1	19.94	19.88	19.64
		RB25#0	19.91	19.93	19.87	19.75	19.6
	16-QAM	RB1#0	19.55	19.63	20.02	19.89	19.69
		RB1#13	19.61	19.49	20.34	20.15	19.6
		RB1#24	19.71	19.68	20.03	19.91	19.83
		RB15#0	18.81	18.73	18.93	18.79	18.55
		RB15#10	18.81	18.89	18.76	18.82	18.73
		RB25#0	19.24	19.06	19.11	19.08	18.68
10M	QPSK	RB1#0	21.04	21.04	20.92	20.80	20.95
		RB1#25	20.95	20.97	20.78	20.76	20.85
		RB1#49	21.34	21.24	20.96	20.98	20.74
		RB25#0	19.96	19.98	20.14	20.26	19.81
		RB25#25	20.18	20.1	20.01	20.06	19.6
		RB50#0	20.07	19.93	20.12	20.14	19.58
	16-QAM	RB1#0	20.21	20.27	20.02	19.97	19.56
		RB1#25	20.19	20.28	20.07	20.12	19.91
		RB1#49	20.47	20.41	19.9	19.88	20.13
		RB25#0	19.31	19.34	18.85	18.96	18.7
		RB25#25	19.52	19.53	18.87	18.77	18.7
		RB50#0	19.04	19	18.78	18.86	18.76
15M	QPSK	RB1#0	20.9	20.89	20.98	20.91	20.63
		RB1#38	20.89	20.95	20.85	20.82	20.54
		RB1#74	21.09	21.1	20.93	21.00	20.64
		RB36#0	19.92	19.94	19.87	19.91	19.58
		RB36#39	20.03	19.94	19.78	19.92	19.72
		RB75#0	20.01	20.08	20.09	20.09	19.56
	16-QAM	RB1#0	19.79	19.86	20.13	19.98	19.71
		RB1#38	19.7	19.7	19.82	19.74	19.74
		RB1#74	19.88	19.72	20.15	20.28	19.68
		RB36#0	18.82	18.98	18.97	19.03	19.03
		RB36#39	18.98	18.96	19.04	18.97	18.8
		RB75#0	19.06	19.08	18.9	18.94	18.72

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2549.5 MHz (dBm)	Middle Channel (dBm)	2636.5 MHz (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	21.07	21.07	20.87	20.81	20.81
		RB1#50	21.23	21.22	20.97	20.89	20.88
		RB1#99	21.11	21.13	20.82	20.67	20.78
		RB50#0	19.94	20.06	20.16	20.09	19.81
		RB50#50	20.16	20.05	20.05	20.01	19.78
		RB100#0	20.26	20.18	20.02	20.20	19.59
	16-QAM	RB1#0	20.68	20.62	20.04	20.02	19.23
		RB1#50	20.77	20.81	20.59	20.60	19.59
		RB1#99	20.51	20.38	20.1	20.18	19.36
		RB50#0	19.19	19.05	19.16	19.13	18.91
		RB50#50	19.19	19.23	19.08	19.09	18.83
		RB100#0	19.23	19.23	18.97	18.95	18.65

LTE Band 66:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	20.05	20.54	20.02
		RB1#3	20.27	20.32	20.25
		RB1#5	20.03	20.19	20.09
		RB3#0	20.02	20.37	20.23
		RB3#3	20.01	20.18	20.3
		RB6#0	19.05	19.23	19.07
	16-QAM	RB1#0	19.08	19.39	19.41
		RB1#3	19.19	19.6	19.55
		RB1#5	18.92	19.35	19.61
		RB3#0	19.41	19.24	19.42
		RB3#3	19.36	18.87	19.38
		RB6#0	17.89	18.25	18
3M	QPSK	RB1#0	20.28	20.34	20.12
		RB1#8	19.86	20.26	20.42
		RB1#14	20.02	20.39	20.19
		RB6#0	19.06	19.19	19.05
		RB6#9	19.09	19.17	19.06
		RB15#0	19.07	19.27	19.11
	16-QAM	RB1#0	19.14	19.62	19.5
		RB1#8	18.42	19.14	19.37
		RB1#14	18.4	19.52	19.93
		RB6#0	17.94	18.3	18.05
		RB6#9	17.95	18.15	18.09
		RB15#0	18.24	18.17	18.01
5M	QPSK	RB1#0	19.96	20.25	20.08
		RB1#13	19.87	20.19	20.02
		RB1#24	20.08	20.44	20.27
		RB15#0	19.13	19.36	19.15
		RB15#10	19.18	19.27	19.07
		RB25#0	19.12	19.27	19.23
	16-QAM	RB1#0	19.18	18.76	19.55
		RB1#13	18.61	18.78	19
		RB1#24	18.71	18.54	19.66
		RB15#0	17.99	18.14	17.81
		RB15#10	18.01	18.13	18.05
		RB25#0	18.04	18.37	18.01

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	20.03	20.3	20.13
		RB1#25	19.98	20.38	20.41
		RB1#49	19.97	20.34	20.2
		RB25#0	19.12	19.34	19.39
		RB25#25	19.08	19.15	19.16
		RB50#0	19.13	19.34	19.13
	16-QAM	RB1#0	19.02	19.59	20.09
		RB1#25	18.71	19.59	19.72
		RB1#49	18.65	19.39	19.49
		RB25#0	18.34	18.58	18.47
		RB25#25	18.22	18.4	18.21
		RB50#0	17.94	18.37	18.13
15M	QPSK	RB1#0	20.02	20.29	20.15
		RB1#38	19.8	20.26	20.04
		RB1#74	19.99	20.42	20.09
		RB36#0	19.19	19.16	19.24
		RB36#39	19.22	19.21	19.14
		RB75#0	19.17	19.27	19.25
	16-QAM	RB1#0	19.26	19.56	20.01
		RB1#38	18.96	19.49	19.94
		RB1#74	18.83	19.68	19.76
		RB36#0	18.18	18.27	18.41
		RB36#39	18.05	18.09	18.07
		RB75#0	18.08	18.4	18.27
20M	QPSK	RB1#0	19.83	20.17	20.42
		RB1#50	20.25	20.29	20.69
		RB1#99	20.22	20.09	20.06
		RB50#0	19.08	19.36	19.33
		RB50#50	19.12	19.43	19.54
		RB100#0	19.13	19.32	19.18
	16-QAM	RB1#0	19.27	19.76	19.53
		RB1#50	19.67	19.99	19.28
		RB1#99	19.67	20.07	19.07
		RB50#0	18	18.24	18.4
		RB50#50	17.95	18.23	18.21
		RB100#0	18.14	18.41	18.42

WLAN 2.4G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11b	2412	1Mbps	97.62	15.28
	2442			16.37
	2472			15.3
802.11g	2412	6Mbps	87.18	10.58
	2442			11.45
	2472			10.39
802.11n ht20	2412	MCS0	86.39	10.56
	2442		86.49	11.46
	2472		86.49	10.39
802.11n ht40	2422	MCS0	75.90	10.41
	2442		75.90	10.95
	2462		76.19	10.28

Note: WLAN 2.4G Duty Cycle please refer to RF Report Number: SZGMA240130-06895E-RFB.

WLAN 5.2G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5180	6Mbps	87.18	15.87
	5200			15.46
	5240			15.14
802.11n20	5180	MCS0	83.05	15.69
	5200		82.91	15.41
	5240		82.91	14.98
802.11n40	5190	MCS0	71.01	15.78
	5230			15.03
802.11ac20	5180	MCS0	83.05	15.71
	5200		82.91	15.37
	5240		82.91	14.95
802.11ac40	5190	MCS0	71.01	15.81
	5230			15.05
802.11ac80	5210	MCS0	54.55	14.19

WLAN 5.3G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5260	6Mbps	87.18	15.42
	5280			15.68
	5320			15.57
802.11n20	5260	MCS0	83.05	15.19
	5280		82.91	15.32
	5320		82.91	15.44
802.11n40	5270	MCS0	71.01	15.48
	5310			15.61
802.11ac20	5260	MCS0	83.05	15.18
	5280		82.91	15.36
	5320		82.91	15.42
802.11ac40	5270	MCS0	71.01	15.46
	5310			15.63
802.11ac80	5290	MCS0	54.55	14.54

WLAN 5.6G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5500	6Mbps	87.18	17.49
	5580			16.47
	5700			14.64
802.11n20	5500	MCS0	82.91	17.42
	5580		82.91	16.35
	5700		83.05	14.64
802.11n40	5510	MCS0	71.01	17.41
	5550			16.74
	5670			15.63
802.11ac20	5500	MCS0	82.91	17.45
	5580		82.91	16.37
	5700		83.05	14.59
802.11ac40	5510	MCS0	71.01	17.39
	5550			16.82
	5670			15.62
802.11ac80	5530	MCS0	54.55	16.25
	5610			15.27
	5690			11.84

WLAN 5.8G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5745	6Mbps	87.18	15.35
	5785			15.56
	5825			14.73
802.11n20	5745	MCS0	82.91	15.19
	5785			15.33
	5825			14.37
802.11n40	5755	MCS0	71.01	15.49
	5795			15.19
802.11ac20	5745	MCS0	82.91	15.21
	5785			15.32
	5825			14.35
802.11ac40	5755	MCS0	71.01	15.52
	5795			15.16
802.11ac80	5775	MCS0	54.55	14.39

Note: WLAN 5G Duty Cycle please refer to RF Report Number: SZGMA240130-06895E-RF-00A.

Bluetooth:

Mode	Channel frequency (MHz)	RF Output Power (dBm)
BDR(GFSK)	2402	-0.89
	2441	-0.71
	2480	-2.69
EDR($\pi/4$ -DQPSK)	2402	-0.78
	2441	-0.43
	2480	-2.68
EDR(8DPSK)	2402	-0.24
	2441	0.07
	2480	-2.36
BLE 1M	2402	3.56
	2440	3.65
	2480	1.03

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location:



Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
WLAN 2.4G	2462	16.5	44.67	0	14.0	3.0	NO
WLAN 5.2G	5240	16	39.81	0	18.2	3.0	NO
WLAN 5.3G	5320	15.8	38.02	0	17.5	3.0	NO
WLAN 5.6G	5720	17.6	57.54	0	27.5	3.0	NO
WLAN 5.8G	5825	15.7	37.15	0	17.9	3.0	NO
Bluetooth	2480	4.0	2.51	0	0.8	3.0	YES

Note: The Wi-Fi based average power for calculation, The Bluetooth based peak power for calculation.

NOTE:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot$$

$$[\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

1. $f(\text{GHz})$ is the RF channel transmit frequency in GHz.

2. Power and distance are rounded to the nearest mW and mm before calculation.

3. The result is rounded to one decimal place for comparison.

4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

According to KDB 447498 D01 General RF Exposure Guidance v06, clause 4.3. General SAR test exclusion guidance:

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):

- 1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by $[1 + \log(100/f(\text{MHz}))]$
- 2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz.

Measurement Result:

For NFC, the power of EUT: E Field@3m is 66.20dBuV/m = -29.00dBm(0.0013mW)

Note: $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$ for $d = 3$ m.

SAR test exclusion threshold for NFC(13.56MHz) separation distance < 50 mm

$$= [474 * (1 + \log(100/f_{(\text{MHz})}))] / 2$$

$$= 443\text{mW}$$

$$> 0.0013\text{mW}$$

Conclusion:

The NFC SAR evaluation can be exempted.

Standalone SAR estimation:

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Estimated 1-g (W/kg)
BT(Head)	2480	4.0	2.51	0	0.11
BT(Face Up)	2480	4.0	2.51	25	0.02
BT(Body)	2480	4.0	2.51	0	0.11

Note: The Bluetooth based peak power for calculation.

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})} / x]$$

W/kg for test separation distances ≤ 50 mm;

where $x = 7.5$ for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

Test Results:

Environmental Conditions:

Temperature:	21.6-22.5℃	21.8-22.9℃	21.7-22.8℃	22.9-23.1℃	21.4-22.6℃
Relative Humidity:	42-54%	42-54%	42-54%	42-54%	42-54%
ATM Pressure:	100.4 kPa	100.2 kPa	100.4 kPa	100.1 kPa	101.1 kPa
Test Date:	2024/06/06	2024/06/07	2024/06/08	2024/06/09	2024/06/10

Temperature:	21.3-22.5℃	21.7-22.6℃	/	/	/
Relative Humidity:	42-54%	42-54%	/	/	/
ATM Pressure:	100.3 kPa	100.1 kPa	/	/	/
Test Date:	2024/06/11	2024/06/12	/	/	/

* Testing was performed by Bob Lu, Calvin Li and Sid Luo.

GSM 850 :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.44	32.7	1.062	0.204	0.22	1#
	848.8	GSM	/	/	/	/	/	/
Head Left Tilt	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.44	32.7	1.062	0.066	0.07	2#
	848.8	GSM	/	/	/	/	/	/
Head Right Cheek	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.44	32.7	1.062	0.189	0.20	3#
	848.8	GSM	/	/	/	/	/	/
Head Right Tilt	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.44	32.7	1.062	0.077	0.08	4#
	848.8	GSM	/	/	/	/	/	/
Body Worn Back (0mm)	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.44	32.7	1.062	0.041	0.04	6#
	848.8	GSM	/	/	/	/	/	/
Face Up (25mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.35	30.5	1.035	0.084	0.09	7#
	848.8	GPRS	/	/	/	/	/	/
Body Back (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.35	30.5	1.035	0.048	0.05	8#
	848.8	GPRS	/	/	/	/	/	/

The data above was performed on 2024/06/07.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
2. The EUT transmit and receive through the same GSM antenna while testing SAR.
3. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
4. When the maximum output power variation across the required test channels is $> 0.5\text{ dB}$, instead of the middle channel, the highest output power channel must be used.
5. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 3DL+2UL is the worst case.

PCS 1900 :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.58	29.7	1.028	0.051	0.05	9#
	1909.8	GSM	/	/	/	/	/	/
Body Worn Back (0mm)	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.58	29.7	1.028	0.092	0.09	11#
	1909.8	GSM	/	/	/	/	/	/
Face Up (25mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	27.4	27.5	1.023	0.098	0.1	12#
	1909.8	GPRS	/	/	/	/	/	/
Body Back (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	27.4	27.5	1.023	0.177	0.18	13#
	1909.8	GPRS	/	/	/	/	/	/

The data above was performed on 2024/06/08.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
2. The EUT transmit and receive through the same GSM antenna while testing SAR.
3. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
4. When the maximum output power variation across the required test channels is $> 0.5\text{ dB}$, instead of the middle channel, the highest output power channel must be used.
5. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 3DL+2UL is the worst case.

WCDMA Band 2 :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	22.7	22.9	1.047	0.112	0.12	14#
	1907.6	RMC	/	/	/	/	/	/
Face Up (25mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	22.7	22.9	1.047	0.088	0.09	15#
	1907.6	RMC	/	/	/	/	/	/
Body Back (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	22.7	22.9	1.047	0.183	0.19	16#
	1907.6	RMC	/	/	/	/	/	/

The data above was performed on 2024/06/08.

WCDMA Band 5 :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.262	0.27	17#
	846.6	RMC	/	/	/	/	/	/
Head Left Tilt	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.135	0.14	18#
	846.6	RMC	/	/	/	/	/	/
Head Right Cheek	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.461	0.48	19#
	846.6	RMC	/	/	/	/	/	/
Head Right Tilt	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.153	0.16	20#
	846.6	RMC	/	/	/	/	/	/
Face Up (25mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.079	0.08	21#
	846.6	RMC	/	/	/	/	/	/
Body Back (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.24	21.4	1.038	0.044	0.05	22#
	846.6	RMC	/	/	/	/	/	/

The data above was performed on 2024/06/07.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
2. The EUT transmit and receive through the same antenna while testing SAR.
3. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in ALL1.
4. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA when the maximum average output of each RF channel is less than $\frac{1}{4}$ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is $< 75\%$ of SAR limit.
5. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

LTE Band 2 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.32	22.8	1.117	0.101	0.11	23#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.35	22.8	1.396	0.08	0.11	24#
Face Up (25mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.32	22.8	1.117	0.097	0.11	25#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.35	22.8	1.396	0.072	0.1	26#
Body Back (0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.32	22.8	1.117	0.193	0.22	27#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.35	22.8	1.396	0.146	0.20	28#

The data above was performed on 2024/06/08.

LTE Band 7 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	21.2	22	1.202	0.112	0.13	29#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	20.15	22	1.531	0.089	0.14	30#
Face Up (25mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	21.2	22	1.202	0.047	0.06	31#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	20.15	22	1.531	0.039	0.06	32#
Body Back (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	21.2	22	1.202	0.184	0.22	33#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	20.15	22	1.531	0.155	0.24	34#

The data above was performed on 2024/06/10.

LTE Band 12&17 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.263	0.27	35#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.214	0.27	36#
Head Left Tilt	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.156	0.16	37#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.127	0.16	38#
Head Right Cheek	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.234	0.24	39#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.183	0.23	40#
Head Right Tilt	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.127	0.13	41#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.103	0.13	42#
Face Up (25mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.117	0.12	43#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.093	0.12	44#
Body Back (0mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.06	23.2	1.033	0.115	0.12	45#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.14	23.2	1.276	0.092	0.12	46#

The data above was performed on 2024/06/06.

Note: The E-UTRA Operating Band 17 is a subset of band 12, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement.

LTE Band 26&5 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.222	0.27	47#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.177	0.27	48#
Head Left Tilt	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.065	0.08	49#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.053	0.08	50#
Head Right Cheek	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.2	0.24	51#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.157	0.24	52#
Head Right Tilt	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.067	0.08	53#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.053	0.08	54#
Face Up (25mm)	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.071	0.08	55#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.052	0.08	56#
Body Back (0mm)	831.5	15	1RB	/	/	/	/	/	/
	836.5	15	1RB	18.42	19.2	1.197	0.039	0.05	57#
	841.5	15	1RB	/	/	/	/	/	/
	836.5	15	50%RB	17.41	19.2	1.51	0.03	0.05	58#

The data above was performed on 2024/06/06.

Note: The E-UTRA Operating Band 5 is a subset of band 26, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement.

LTE Band 40 Lower :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2310	10	1RB	21.44	21.9	1.112	0.088	0.1	59#
	2310	10	50%RB	20.63	21.9	1.34	0.069	0.09	60#
Face Up (25mm)	2310	10	1RB	21.44	21.9	1.112	0.127	0.14	61#
	2310	10	50%RB	20.63	21.9	1.34	0.102	0.14	62#
Body Back (0mm)	2310	10	1RB	21.44	21.9	1.112	0.04	0.04	63#
	2310	10	50%RB	20.63	21.9	1.34	0.033	0.04	64#

The data above was performed on 2024/06/09.

LTE Band 40 Upper :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2355	10	1RB	21.41	21.9	1.119	0.079	0.09	65#
	2355	10	50%RB	20.64	21.9	1.337	0.064	0.09	66#
Face Up (25mm)	2355	10	1RB	21.41	21.9	1.119	0.117	0.13	67#
	2355	10	50%RB	20.64	21.9	1.337	0.091	0.12	68#
Body Back (0mm)	2355	10	1RB	21.41	21.9	1.119	0.049	0.05	69#
	2355	10	50%RB	20.64	21.9	1.337	0.04	0.05	70#

The data above was performed on 2024/06/09.

Note: The power class 3 used for LTE Band 40 SAR testing.

LTE Band 41&38 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	20.97	21.5	1.13	0.013	0.01	71#
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	20.16	21.5	1.361	0.011	0.01	72#
Face Up (25mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	20.97	21.5	1.13	0.016	0.02	73#
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	20.16	21.5	1.361	0.012	0.02	74#
Body Back (0mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	20.97	21.5	1.13	0.078	0.09	75#
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	20.16	21.5	1.361	0.062	0.08	76#

The data above was performed on 2024/06/10.

Note:

1.The E-UTRA Operating Band 38 is a subset of band 41, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement , LTE Band 41 (the wide frequency range) was selected to test.

2.The frequency range of LTE Band 41 is 2490~ 2680MHz. Per IEC/IEEE 62209-1528:2020, according to the following formula Calculate N_c is 5.

KDB procedures, the following should be applied to determine the number of required test channels. The test channels should be evenly spread across the transmission frequency band of each wireless mode.¹⁴

$$N_c = Round \left\{ \left[100(f_{high} - f_{low}) / f_c \right]^{0.5} \times (f_c / 100)^{0.2} \right\},$$

where

- N_c is the number of test channels, rounded to the nearest integer,
- f_{high} and f_{low} are the highest and lowest channel frequencies within the transmission band,
- f_c is the mid-band channel frequency,
- all frequencies are in MHz.

3. The power class 3 used for LTE Band 41 SAR testing.

LTE Band 66&4 :

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	20.29	21	1.178	0.141	0.17	77#
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	19.43	21	1.435	0.106	0.15	78#
Face Up (25mm)	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	20.29	21	1.178	0.103	0.12	79#
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	19.43	21	1.435	0.078	0.11	80#
Body Back (0mm)	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	20.29	21	1.178	0.162	0.19	81#
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	19.43	21	1.435	0.13	0.19	82#

The data above was performed on 2024/06/09.

Note: The E-UTRA Operating Band 4 is a subset of band 66, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
2. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
3. KDB941225D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is $> 0.5\text{ dB}$ higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is $> 1.45\text{ W/kg}$
4. KDB941225D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is $< 1.45\text{ W/kg}$, tests for the remaining required test channels are optional.
5. KDB941225D05- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are $\leq 0.8\text{ W/kg}$.
6. KDB941225D05- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offset the upper edge, middle and lower edge of each required test channel.
7. KDB941225D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> 0.5\text{ dB}$ higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is $> 1.45\text{ W/kg}$.
8. Worst case SAR for 50% RB allocation is selected to be tested.

WLAN 2.4G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.116	0.12	83#
	2472	802.11b	/	/	/	/	/	/	/
Head Left Tilt	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.197	0.21	84#
	2472	802.11b	/	/	/	/	/	/	/
Head Right Cheek	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.11	0.12	85#
	2472	802.11b	/	/	/	/	/	/	/
Head Right Tilt	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.172	0.18	86#
	2472	802.11b	/	/	/	/	/	/	/
Face Up (25mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.018	0.02	87#
	2472	802.11b	/	/	/	/	/	/	/
Body Back (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	16.37	16.5	1.03	1.024	0.073	0.08	88#
	2472	802.11b	/	/	/	/	/	/	/

The data above was performed on 2024/06/10.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

WLAN 5.2G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.172	0.22	89#
	5240	802.11 a	/	/	/	/	/	/	/
Head Left Tilt	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.143	0.19	90#
	5240	802.11 a	/	/	/	/	/	/	/
Head Right Cheek	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.33	0.43	91#
	5240	802.11 a	/	/	/	/	/	/	/
Head Right Tilt	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.221	0.29	92#
	5240	802.11 a	/	/	/	/	/	/	/
Face Up (25mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.033	0.04	93#
	5240	802.11 a	/	/	/	/	/	/	/
Body Back (0mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	15.46	16	1.132	1.147	0.011	0.01	94#
	5240	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2024/06/11.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80, 802.11 a mode as initial test configuration is selected to test.

WLAN 5.3G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.136	0.16	95#
	5320	802.11 a	/	/	/	/	/	/	/
Head Left Tilt	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.144	0.17	96#
	5320	802.11 a	/	/	/	/	/	/	/
Head Right Cheek	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.376	0.44	97#
	5320	802.11 a	/	/	/	/	/	/	/
Head Right Tilt	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.154	0.18	98#
	5320	802.11 a	/	/	/	/	/	/	/
Face Up (25mm)	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.011	0.01	99#
	5320	802.11 a	/	/	/	/	/	/	/
Body Back (0mm)	5260	802.11 a	/	/	/	/	/	/	/
	5280	802.11 a	15.68	15.8	1.028	1.147	0.00512	0.01	100#
	5320	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2024/06/11.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80, 802.11 a mode as initial test configuration is selected to test.

WLAN 5.6G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.167	0.20	101#
	5720	802.11 a	/	/	/	/	/	/	/
Head Left Tilt	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.158	0.19	102#
	5720	802.11 a	/	/	/	/	/	/	/
Head Right Cheek	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.457	0.54	103#
	5720	802.11 a	/	/	/	/	/	/	/
Head Right Tilt	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.269	0.32	104#
	5720	802.11 a	/	/	/	/	/	/	/
Face Up (25mm)	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.037	0.04	105#
	5720	802.11 a	/	/	/	/	/	/	/
Body Back (0mm)	5500	802.11 a	/	/	/	/	/	/	/
	5580	802.11 a	16.47	16.6	1.03	1.147	0.022	0.03	106#
	5720	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2024/06/12.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80, 802.11 a mode as initial test configuration is selected to test.

WLAN 5.8G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.131	0.16	107#
	5825	802.11 a	/	/	/	/	/	/	/
Head Left Tilt	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.114	0.14	108#
	5825	802.11 a	/	/	/	/	/	/	/
Head Right Cheek	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.411	0.49	109#
	5825	802.11 a	/	/	/	/	/	/	/
Head Right Tilt	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.147	0.17	110#
	5825	802.11 a	/	/	/	/	/	/	/
Face Up (25mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.038	0.05	111#
	5825	802.11 a	/	/	/	/	/	/	/
Body Back (0mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	15.56	15.7	1.033	1.147	0.043	0.05	112#
	5825	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2024/06/12.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80, 802.11 a mode as initial test configuration is selected to test.

SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results:

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

The Highest Measured SAR Configuration in Each Frequency Band

Head

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
/	/	/	/	/	/	/

Body

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
/	/	/	/	/	/	/

Note:

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20 .
2. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
3. SAR measurement variability must be assessed for each frequency band, which is determined by the **SAR probe calibration point and tissue-equivalent medium** used for the device measurements.

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

Description of Simultaneous Transmit Capabilities		
Transmitter Combination	Simultaneous?	Hotspot?
WWAN(GSM/WCDMA/LTE) Antenna + WLAN 2.4G+NFC	√	×
WWAN(GSM/WCDMA/LTE) Antenna + WLAN 5G+NFC	√	×
WWAN(GSM/WCDMA/LTE) Antenna + Bluetooth+NFC	√	×
WLAN 2.4G +Bluetooth	×	×
WLAN 5G + Bluetooth	×	×
WLAN 2.4G +WLAN 5G	×	×

Simultaneous SAR test exclusion considerations:

Mode (SAR1+SAR2)	Position	Reported SAR(W/kg)		Σ SAR < 1.6W/kg
		SAR1	SAR2	
MAX.WWAN(GSM/WCDMA/LTE) + Bluetooth	Head	0.48	0.11	0.59
	Face Up	0.14	0.02	0.16
	Body	0.24	0.11	0.35

Mode (SAR1+SAR2)	Position	Reported SAR(W/kg)		Σ SAR < 1.6W/kg
		SAR1	SAR2	
MAX.WWAN(GSM/WCDMA/LTE) + WLAN 2.4G	Head	0.48	0.21	0.69
	Face Up	0.14	0.02	0.16
	Body	0.24	0.08	0.32

Mode (SAR1+SAR2)	Position	Reported SAR(W/kg)		Σ SAR < 1.6W/kg
		SAR1	SAR2	
MAX.WWAN(GSM/WCDMA/LTE) + WLAN 5G	Head	0.48	0.54	1.02
	Face Up	0.14	0.05	0.19
	Body	0.24	0.05	0.29

Note:For the EIRP of NFC is 0.0013mW, per KDB447498 D01 clause 4.3, the estimated SAR is so lower, so the NFC almost have no influence on the results of simultaneous transmission.

Conclusion:

Sum of SAR: Σ SAR $\leq$ 1.6 W/kg therefore simultaneous transmission SAR with Volume Scans is **not required**.

SAR Plots

Please Refer to the Attachment.

APPENDIX A MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.

Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Source of uncertainty	Tolerance/ uncertainty y ± %	Probability distributio n	Divisor	ci (1 g)	ci (10 g)	Standard uncertai nty ± %, (1 g)	Standard uncertai nty ± %, (10 g)
Measurement system							
Probe calibration	13.9	N	1	1	1	13.9	13.9
Axial Isotropy	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0	0	0.0	0.0
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Modulation response	4.0	R	$\sqrt{3}$	1	1	2.3	2.3
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
Integration time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
RF ambient conditions—reflections	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	$\sqrt{3}$	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	$\sqrt{3}$	1	1	3.9	3.9
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	3.9	R	$\sqrt{3}$	1	1	2.3	2.3
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	$\sqrt{3}$	1	1	2.9	2.9
SAR scaling	2.0	R	$\sqrt{3}$	1	1	1.2	1.2
Phantom and tissue parameters							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.3	2.3
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.9	1.6
Liquid conductivity measurement	5.5	N	1	0.78	0.71	4.3	3.9
Liquid permittivity measurement	2.9	N	1	0.23	0.26	0.7	0.8
Liquid conductivity—temperature uncertainty	1.7	R	$\sqrt{3}$	0.78	0.71	0.8	0.7
Liquid permittivity—temperature uncertainty	2.7	R	$\sqrt{3}$	0.23	0.26	0.4	0.4
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.3	23.9

Measurement uncertainty evaluation for IEC62209-1 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	13.9	N	1	1	1	6.3	6.3
Axial Isotropy	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0	0	0.0	0.0
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Readout electronics	4.0	N	1	1	1	0.3	0.3
Response time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
Integration time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Probe positioning with respect to phantom shell	6.7	R	$\sqrt{3}$	1	1	3.9	3.9
Probe positioner mech. Restrictions	0.8	R	$\sqrt{3}$	1	1	0.5	0.5
RF ambient conditions–reflections	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Post-processing	2.0	R	$\sqrt{3}$	1	1	1.2	1.2
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	$\sqrt{3}$	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.0	23.6

APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX C CALIBRATION CERTIFICATES

Please Refer to the Attachment.

APPENDIX D DIPOLE CALIBRATION CERTIFICATES

Please Refer to the Attachment.

APPENDIX E RETURN LOSS&IMPEDANCE MEASUREMENT

Please Refer to the Attachment.

******* END OF REPORT *******