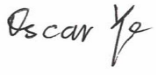
SAR EVALUATION REPORT

For

MAXWEST COMMUNICATION LIMITED

FLAT/RM 707 7/F, FORTRESS TOWER 250 KING'S ROAD,NORTH POINT, HONG KONG

FCC ID: 2ASP8RANGER4G

Report Type: Original Report	**Product Type:** Phone	
Project Engineer:	Bard Liu	
Report Number:	RDG241203002-20B	
Report Date:	2025-02-19	
Reviewed By:	Oscar Ye EMC Manager	
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248, Chenghu Road, Development Zone, Yushan, Kunshan, Suzhou, Jiangsu, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn	

Attestation of Test Results			
EUT Information	EUT Description	Phone	
	Tested Model	RANGER 4G	
	FCC ID	2ASP8RANGER4G	
	Serial Number	RDG241203002-1	
	Test Date	2025-01-13~ 2025-01-18	
MODE		Max. SAR Level(s) Reported(W/kg)	Limit
GSM850		0.20 W/kg 1g Head SAR 0.62 W/kg 1g Body SAR	1.6 W/kg(Head and Body)
GSM1900		0.12 W/kg 1g Head SAR 0.67 W/kg 1g Body SAR	
WCDMA II		0.16 W/kg 1g Head SAR 0.98 W/kg 1g Body SAR	
WCDMA lV		0.08 W/kg 1g Head SAR 0.94 W/kg 1g Body SAR	
WCDMA V		**0.61** W/kg 1g Head SAR 0.69 W/kg 1g Body SAR	
LTE Band 2		0.31 W/kg 1g Head SAR 1.09 W/kg 1g Body SAR	
LTE Band 5		0.56 W/kg 1g Head SAR 0.79 W/kg 1g Body SAR	
LTE Band 7		0.10 W/kg 1g Head SAR 1.05 W/kg 1g Body SAR	
LTE Band 12&LTE Band 17		0.23 W/kg 1g Head SAR 0.68 W/kg 1g Body SAR	
LTE Band 41& LTE Band 38		0.02 W/kg 1g Head SAR 0.46 W/kg 1g Body SAR	
LTE Band 66&4		0.15 W/kg 1g Head SAR **1.30** W/kg 1g Body SAR	
LTE Band 71		0.13 W/kg 1g Head SAR 0.43 W/kg 1g Body SAR	
Simultaneous		0.64 W/kg 1g Head SAR 1.33 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		
	IEEE 1528:2013 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques		
	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		
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
1.0	RDG241203002-20B	Original Report	2025-02-19

EUT DESCRIPTION

**All measurement and test data in this report was gathered from production sample serial number: : RDG241203002-1 Assigned by BACL(kunshan).The EUT supplied by the applicant was received on 2024-12-06.*

Technical Specification

Device Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Proximity Sensor:	None
Carrier Aggregation:	None
Operation Mode :	GSM Voice, GPRS Data, WCDMA(R99 (Voice+Data), HSUPA/HSDPA/DC-HSDPA/HSPA+), FDD-LTE, TDD-LTE, Bluetooth
Frequency Band:	GSM 850: 824-849 MHz(TX), 869-894 MHz(RX) GSM1900: 1850-1910MHz(TX), 1930-1990MHz(RX) WCDMA Band II: 1850-1910 MHz MHz(TX), 1930-1990 MHz(RX) WCDMA Band IV: 1710-1755 MHz(TX), 2110-2155MHz(RX) WCDMA Band V: 824-849 MHz(TX), 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX), 1930-1990MHz(RX) LTE Band 4: 1710-1755 MHz(TX), 2110-2155MHz(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 38: 2570-2620 MHz(TX), 2570-2620 MHz(RX) LTE Band 41: 2535-2655 MHz(TX), 2535-2655 MHz(RX) LTE Band 66: 1710-1780 MHz(TX), 2110-2180 MHz(RX) LTE Band 71: 663-698 MHz(TX); 617-652 MHz(RX) BT: 2402-2480 MHz
Power Source:	DC3.7V from Rechargeable Battery
Normal Operation:	Head 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

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)	**1.60**	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 may be 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.

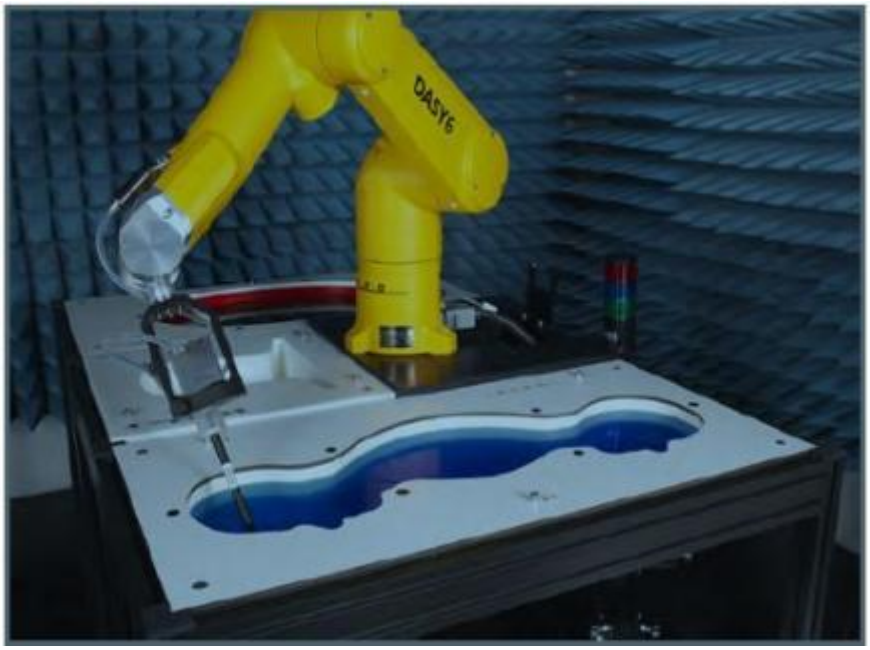
FACILITIES

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN5055.

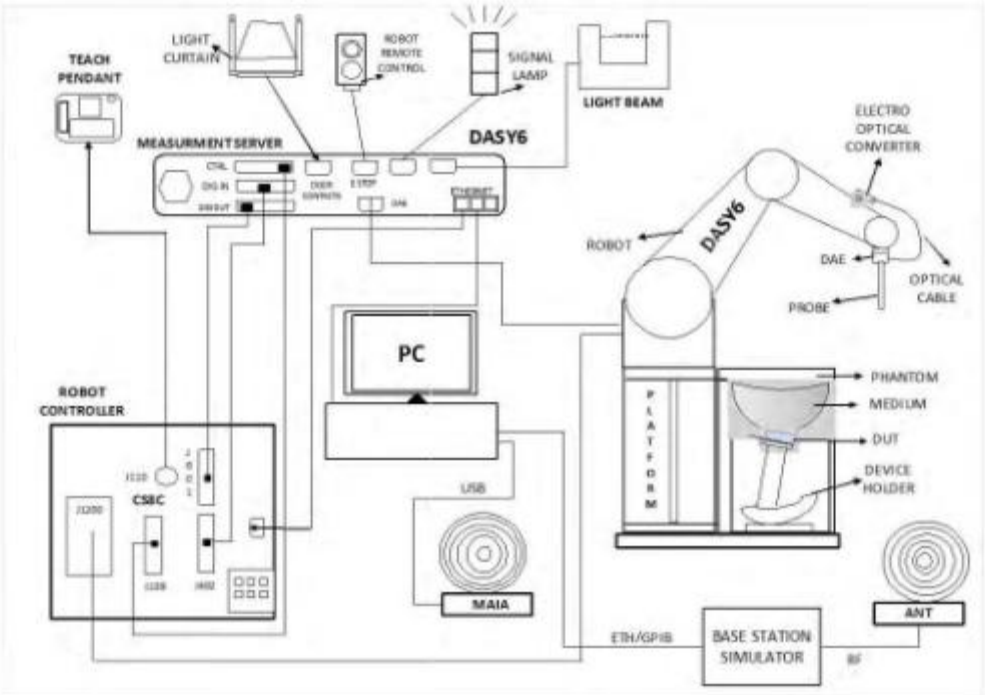
DESCRIPTION OF TEST SYSTEM

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 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

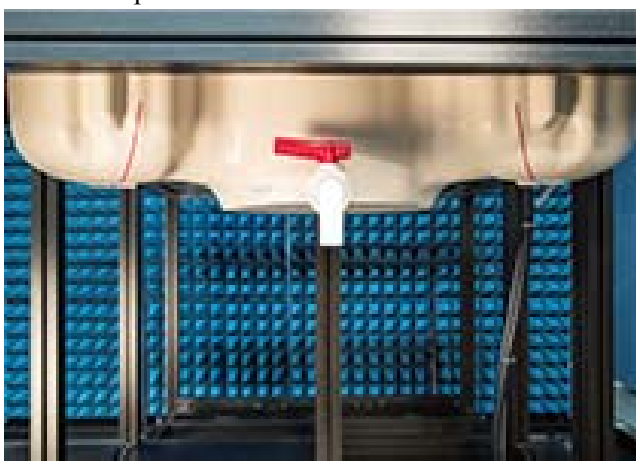
EX3DV4 E-Field Probes

Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 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, 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.



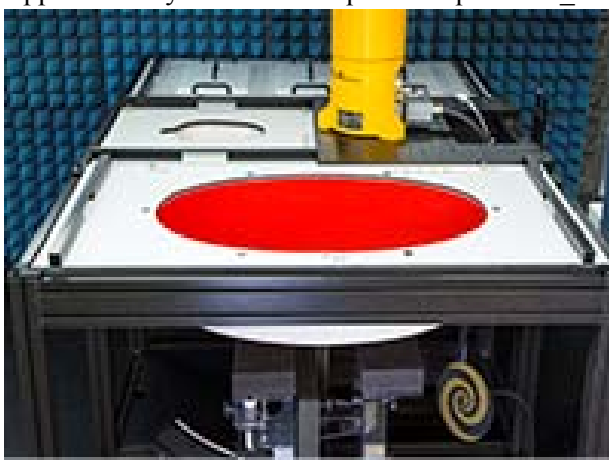
ELI Phantom

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 IEEE 1528:2013 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 St aubli 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

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 15mm 2 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.

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/m^3 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 10mm,with the side length of the 10g cube is 21.5mm.

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 x7 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 IEEE 1528:2013

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.

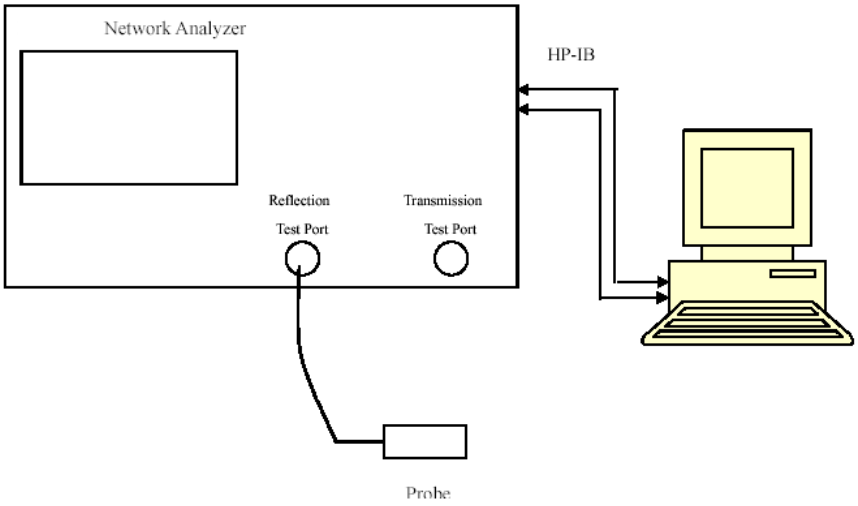
EQUIPMENT LIST AND CALIBRATION

Equipments List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52 52.10.2	N/A	N/A	N/A
DASY6 Measurement Server	DASY6 6.0.31	N/A	N/A	N/A
Data Acquisition Electronics	DAE4	527	2024/03/26	2025/03/25
E-Field Probe	EX3DV4	7557	2024/03/26	2025/03/25
Mounting Device	MD4HHTV5	SD 000 H01 KA	N/A	N/A
ELI V8.0 Phantom	QD OVA 004 Ax	2095	N/A	N/A
Dipole, 750MHz	D750V3	1166	2024/06/17	2027/06/16
Dipole, 835MHz	D835V2	445	2023/02/10	2026/02/09
Dipole,1750MHz	D1750V2	1140	2024/06/17	2027/06/16
Dipole,1900MHz	D1900V2	5d206	2024/06/15	2027/06/14
Dipole,2450MHz	D2450V2	970	2024/06/15	2027/06/14
Dipole,2600MHz	D2600V2	1162	2022/08/22	2025/08/21
Simulated Tissue LiquidHead	HBBL600-6000V6	180611-3	Each Time	
Network Analyzer	E5071B	SG42400155	2024/04/23	2025/04/22
Dielectric Assessment Kit	DAK-3.5	SM DAK 300AB	N/A	N/A
Signal Generator	N5182B	MY53051592	2024/04/24	2025/04/23
Power Amplifier	5S1G4	71377	N/A	N/A
Directional Coupler	4242-10	3307	N/A	N/A
Attenuator	3dB	5402	N/A	N/A
Attenuator	10dB	AU 3842	N/A	N/A
Radio Communication Analyzer	MT8820C	6200930956	2024/04/24	2025/04/23
Hygrothermograph	HTC-1	N/A	2024/04/20	2025/04/19
Thermometer	UL-IL01	N/A	2024/04/20	2025/04/19
Power Meter	E4419B	MY41291878	2024/04/23	2025/04/22
USB Wideband Power Sensor	U2022XA	MY5417011	2024/04/23	2025/04/22

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)	$\Delta\varepsilon_r$	$\Delta\sigma$	
673	Head	43.382	0.855	42.31	0.88	2.53	-2.84	±5
680.5	Head	43.315	0.862	42.27	0.89	2.47	-3.15	±5
688	Head	43.139	0.867	42.23	0.89	2.15	-2.58	±5
704	Head	43.069	0.872	42.15	0.89	2.18	-2.02	±5
707.5	Head	42.901	0.882	42.13	0.89	1.83	-0.9	±5
711	Head	42.757	0.889	42.11	0.89	1.54	-0.11	±5
750	Head	42.527	0.896	41.9	0.89	1.5	0.67	±5

**Liquid Verification above was performed on 2025/01/13.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$	
824.2	Head	42.576	0.877	41.54	0.9	2.49	-2.56	±5
826.4	Head	42.543	0.878	41.54	0.9	2.41	-2.44	±5
829	Head	42.449	0.887	41.53	0.9	2.21	-1.44	±5
835	Head	42.351	0.896	41.5	0.9	2.05	-0.44	±5
836.5	Head	42.334	0.902	41.5	0.9	2.01	0.22	±5
836.6	Head	42.323	0.904	41.5	0.9	1.98	0.44	±5
844	Head	42.271	0.914	41.5	0.91	1.86	0.44	±5
846.6	Head	42.164	0.919	41.5	0.91	1.6	0.99	±5
848.8	Head	42.134	0.921	41.5	0.91	1.53	1.21	±5

**Liquid Verification above was performed on 2025/01/14.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$	
1712.4	Head	41.391	1.329	40.13	1.35	3.14	-1.56	±5
1720	Head	41.347	1.333	40.13	1.35	3.03	-1.26	±5
1732.6	Head	40.985	1.359	40.12	1.36	2.16	-0.07	±5
1745	Head	40.658	1.361	40.1	1.37	1.39	-0.66	±5
1750	Head	40.289	1.364	40.1	1.37	0.47	-0.44	±5
1752.6	Head	39.932	1.371	40.09	1.37	-0.39	0.07	±5
1770	Head	39.802	1.393	40.06	1.38	-0.64	0.94	±5

**Liquid Verification above was performed on 2025/01/15.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$	
1850.2	Head	40.304	1.403	40	1.4	0.76	0.21	±5
1860	Head	40.188	1.407	40	1.4	0.47	0.5	±5
1880	Head	39.873	1.418	40	1.4	-0.32	1.29	±5
1900	Head	39.343	1.426	40	1.4	-1.64	1.86	±5
1909.8	Head	39.112	1.433	40	1.4	-2.22	2.36	±5

**Liquid Verification above was performed on 2025/01/16.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$	
1852.4	Head	40.141	1.397	40	1.4	0.35	-0.21	±5
1880	Head	39.663	1.408	40	1.4	-0.84	0.57	±5
1900	Head	39.508	1.423	40	1.4	-1.23	1.64	±5
1907.6	Head	39.356	1.436	40	1.4	-1.61	2.57	±5

**Liquid Verification above was performed on 2025/01/17.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$	
2450	Head	39.092	1.823	39.2	1.8	-0.28	1.28	±5
2510	Head	38.716	1.862	39.12	1.86	-1.03	0.11	±5
2535	Head	38.601	1.879	39.09	1.89	-1.25	-0.58	±5
2545	Head	38.482	1.898	39.07	1.9	-1.5	-0.11	±5
2560	Head	38.382	1.907	39.05	1.92	-1.71	-0.68	±5
2570	Head	38.287	1.922	39.04	1.93	-1.93	-0.41	±5
2595	Head	38.207	1.964	39.01	1.95	-2.06	0.72	±5
2600	Head	38.156	1.986	39	1.96	-2.16	1.33	±5
2645	Head	38.055	2.027	38.94	2.01	-2.27	0.85	±5

**Liquid Verification above was performed on 2025/01/18.*

System Accuracy Verification

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

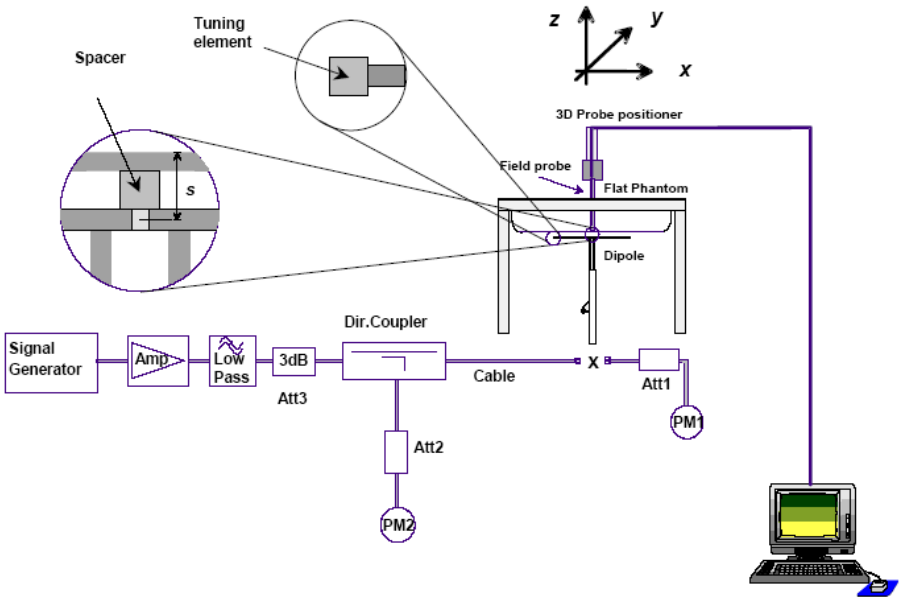
The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

a) s = 15 mm ± 0,2 mm for 300 MHz ≤ f ≤ 1 000 MHz;

b) s = 10 mm ± 0,2 mm for 1 000 MHz < f ≤ 3 000 MHz;

c) s = 10 mm ± 0,2 mm for 3 000 MHz < f ≤ 6 000 MHz.

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/kg)	Delta (%)	Tolerance (%)
2025/01/13	750 MHz	Head	100	1g	0.862	8.62	8.45	2.01	±10
2025/01/14	835 MHz	Head	100	1g	0.976	9.76	9.53	2.41	±10
2025/01/15	1750 MHz	Head	100	1g	3.76	37.6	36	4.44	±10
2025/01/16	1900 MHz	Head	100	1g	4.14	41.4	39.2	5.61	±10
2025/01/17	1900 MHz	Head	100	1g	4.2	42	39.2	7.14	±10
2025/01/18	2450 MHz	Head	100	1g	5.36	53.6	53.1	0.94	±10
2025/01/18	2600 MHz	Head	100	1g	5.72	57.2	54.9	4.19	±10

*The SAR values above are normalized to 1 Watt forward power.

SAR SYSTEM VALIDATION DATA

System Check_Head_750MHz was performed on 2025/01/13

DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1166

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

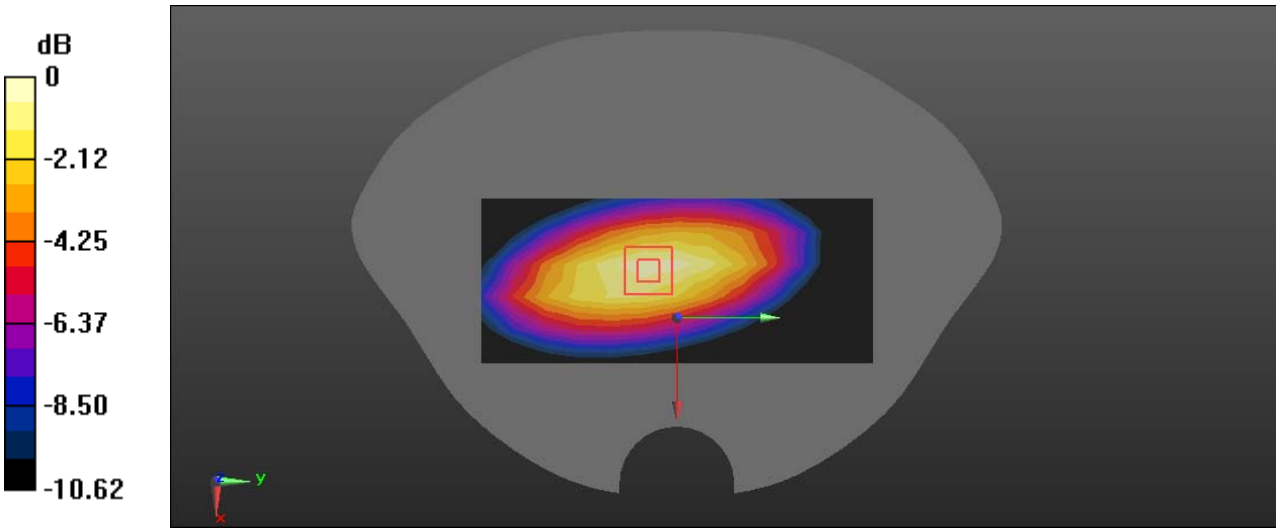
Medium parameters used: f = 750 MHz; σ = 0.896 S/m; ε_r = 42.527; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(10.27, 10.27, 10.27); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.752 W/kg

Pin=100mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.62 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.862 W/kg; SAR(10 g) = 0.544 W/kg
Maximum value of SAR (measured) = 0.926 W/kg



0 dB = 0.926 W/kg = -0.33 dBW/kg

System Check_Head_835MHz was performed on 2025/01/14
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:445

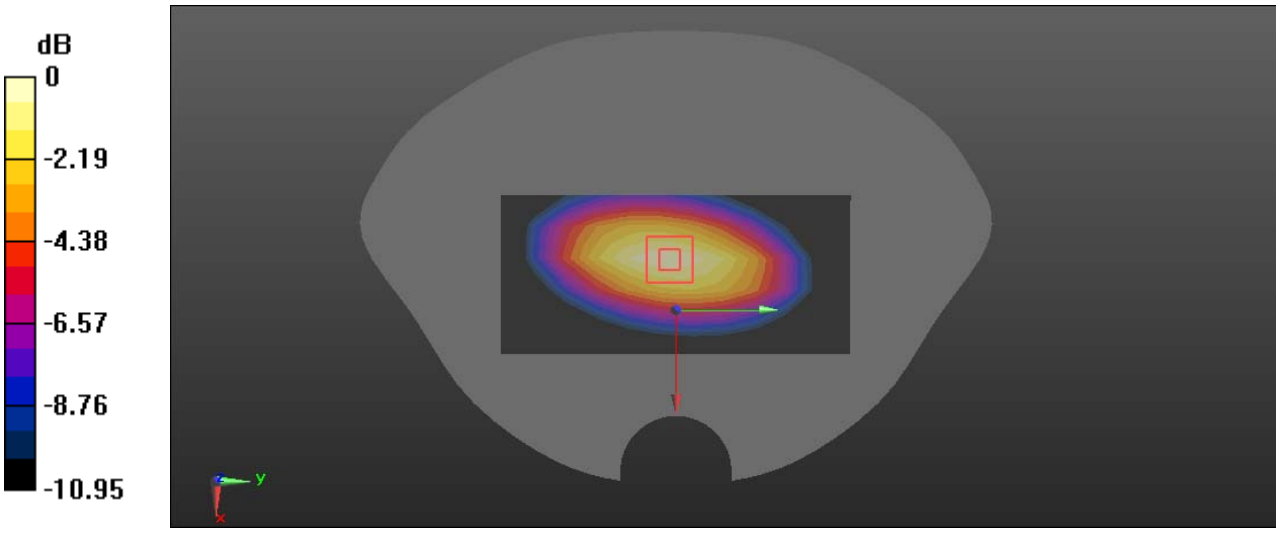
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.896 S/m; ε_r = 42.351; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(9.88, 9.88, 9.88); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.25 W/kg

Pin=100mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.42 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.976 W/kg; SAR(10 g) = 0.625 W/kg
Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.27 W/kg = 1.04 dBW/kg

System Check_Head_1750MHz was performed on 2025/01/15
DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1140

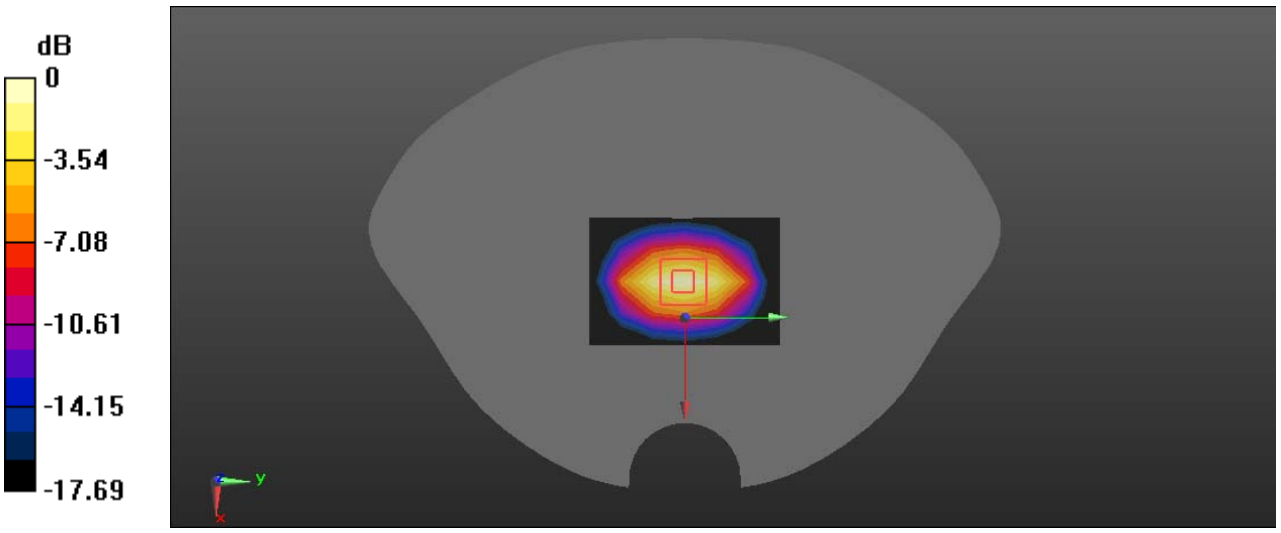
Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.364 S/m; ε_r = 40.289; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(8.28, 8.28, 8.28); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.90 W/kg

Pin=100mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.62 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 7.89 W/kg
SAR(1 g) = 3.76 W/kg; SAR(10 g) = 1.9 W/kg
Maximum value of SAR (measured) = 4.14 W/kg



0 dB = 4.14 W/kg = 6.17 dBW/kg

System Check_Head_1900MHz was performed on 2025/01/16
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d206

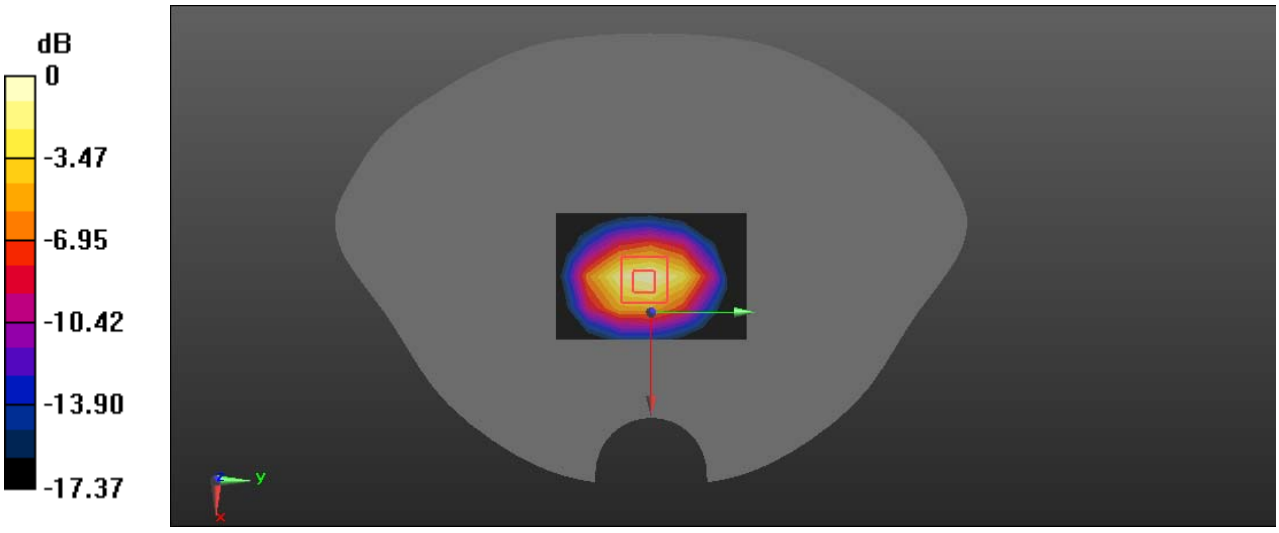
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.426 S/m; ε_r = 39.343; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(7.92, 7.92, 7.92); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.16 W/kg

Pin=100mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.83 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 8.98 W/kg
SAR(1 g) = 4.14 W/kg; SAR(10 g) = 2.05 W/kg
Maximum value of SAR (measured) = 4.55 W/kg



0 dB = 4.55 W/kg = 6.58 dBW/kg

System Check_Head_1900MHz was performed on 2025/01/17
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d206

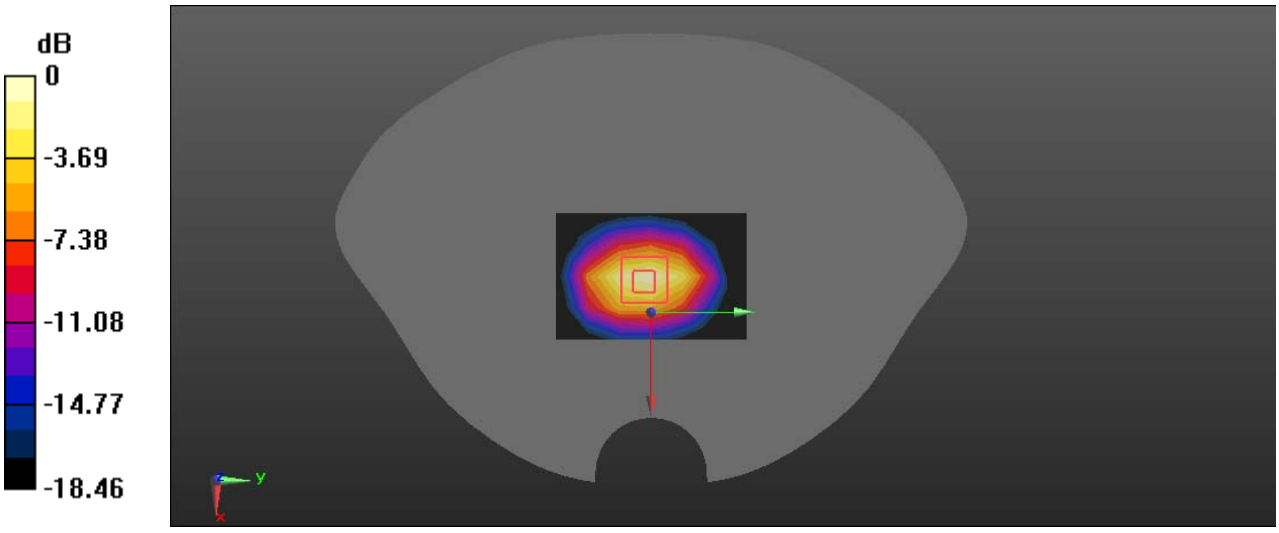
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.423 S/m; ε_r = 39.508; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(7.92, 7.92, 7.92); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.13 W/kg

Pin=100mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.62 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 9.08 W/kg
SAR(1 g) = 4.2 W/kg; SAR(10 g) = 2.08 W/kg
Maximum value of SAR (measured) = 4.61 W/kg



0 dB = 4.61 W/kg = 6.64 dBW/kg

System Check_Head_2450MHz was performed on 2025/01/18
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:970

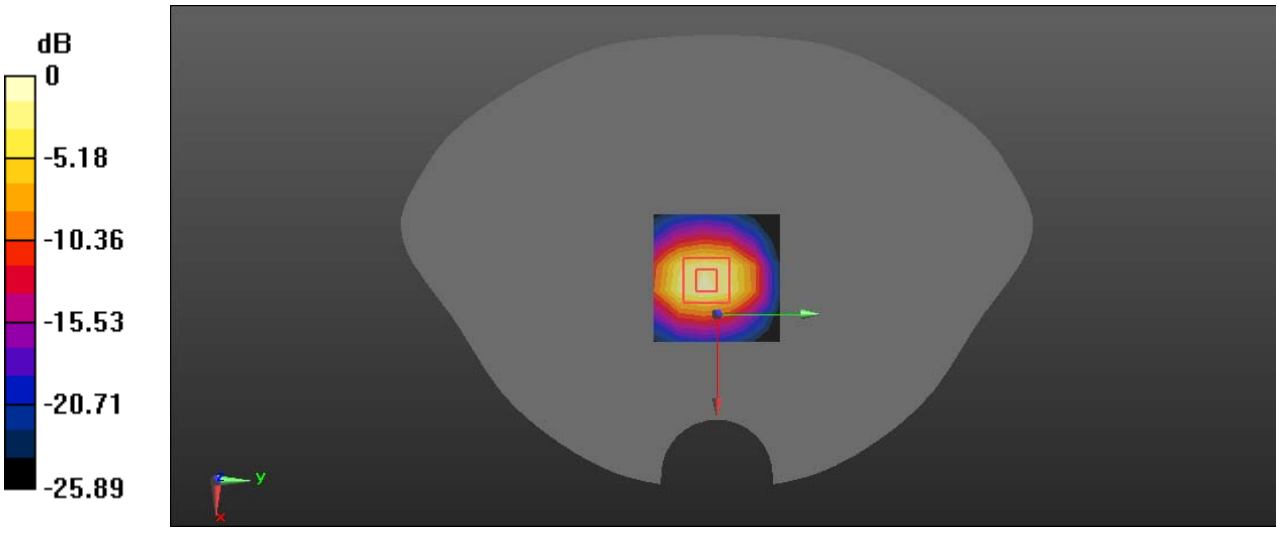
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.823 S/m; ε_r = 39.092; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(7.27, 7.27, 7.27); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 7.22 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 68.45 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 11.2 W/kg
SAR(1 g) = 5.36 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 8.93 W/kg



0 dB = 8.93 W/kg = 9.51 dBW/kg

System Check_Head_2600MHz was performed on 2025/01/18
DUT: D2600V2-1162; Type: D2600V2; Serial: D2600V2 - SN:1162

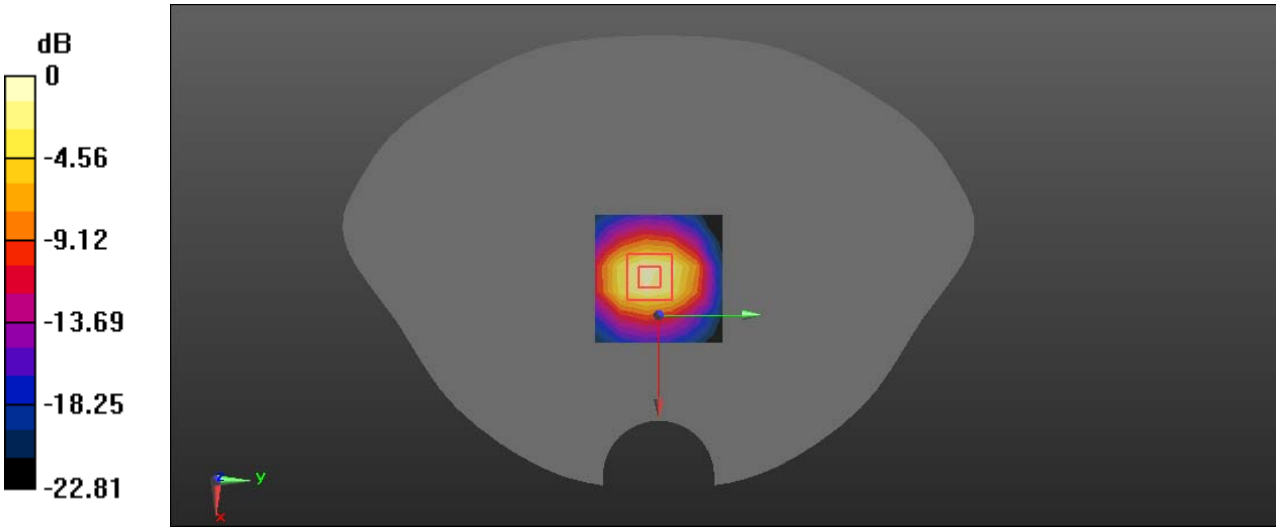
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.986 S/m; ε_r = 38.156; ρ = 1000 kg/m^3

DASY5 Configuration:

- Probe: EX3DV4 - SN7557; ConvF(7.02, 7.02, 7.02); Calibrated: 3/26/2024;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn527; Calibrated: 3/26/2024
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 1963
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7437)

Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 7.30 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 74.73 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 11.8 W/kg
SAR(1 g) = 5.72 W/kg; SAR(10 g) = 2.63 W/kg
Maximum value of SAR (measured) = 9.61 W/kg



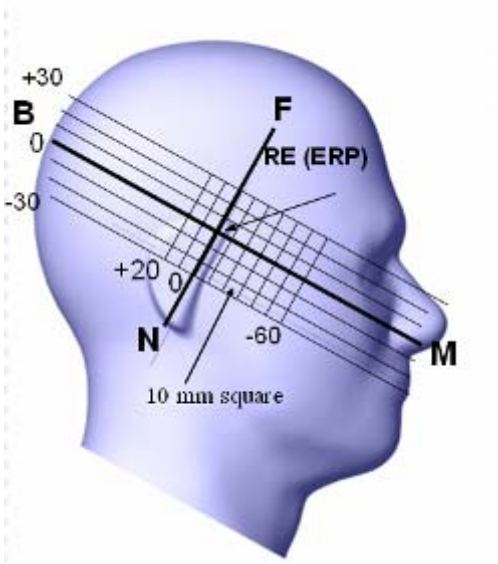
0 dB = 9.61 W/kg = 9.83 dBW/kg

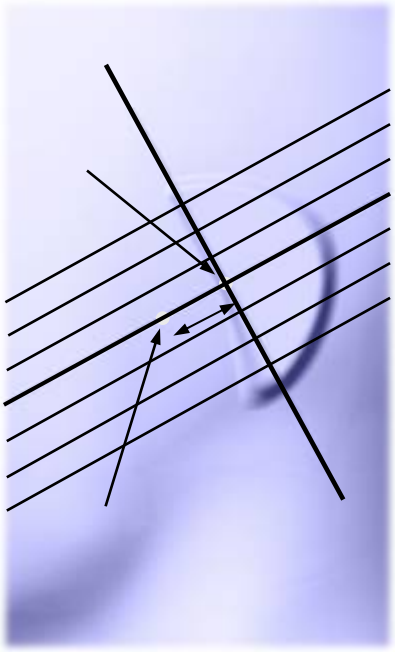
EUT TEST STRATEGY AND METHODOLOGY

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.

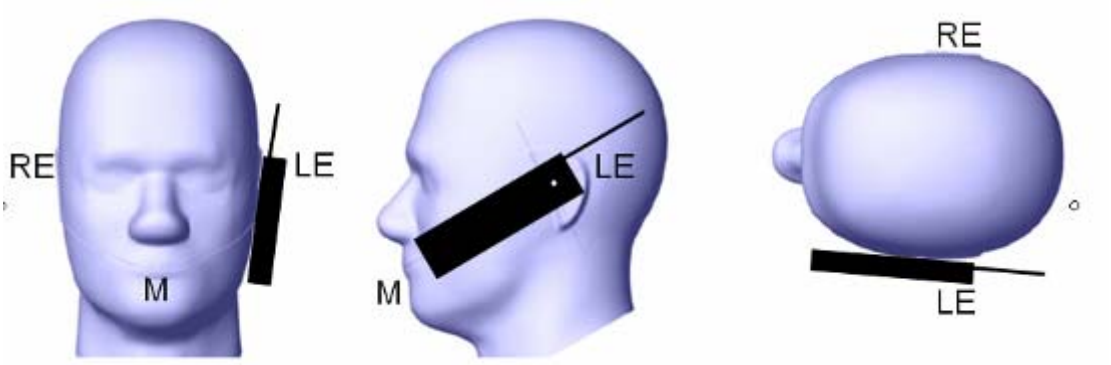
This test position is established:

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

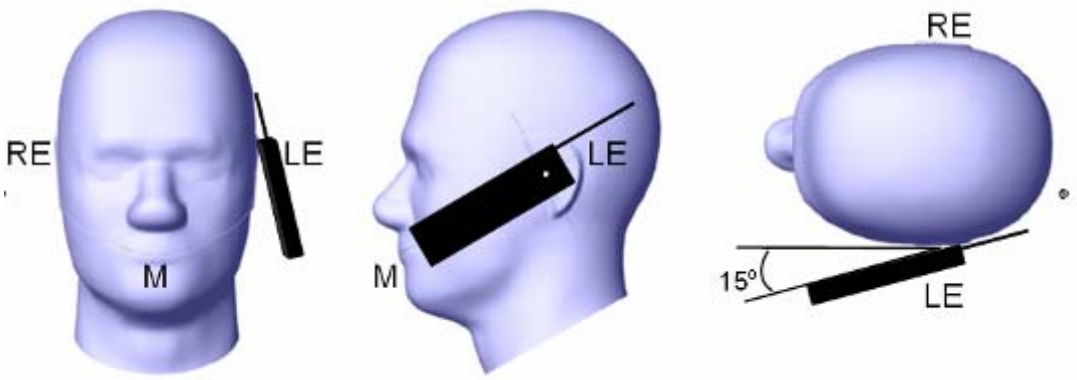
With the handset aligned in the "Cheek/Touch Position":

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 isby 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.

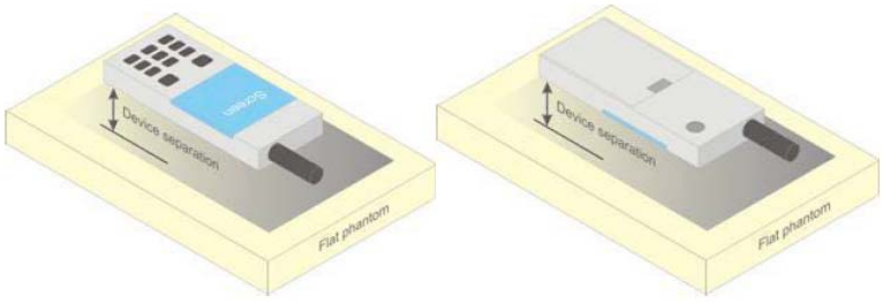


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

In this case the EUT (Equipment under Test) is set against from the phantom, the test distance is 5mm(Body).

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 interpolated 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 interpolated to calculate the averages.

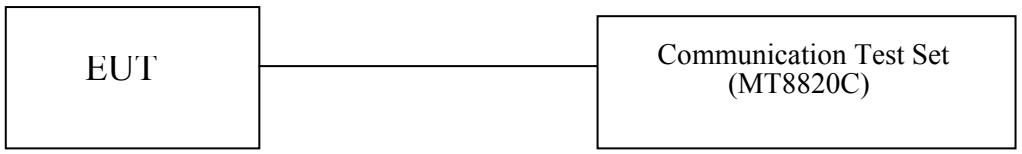
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

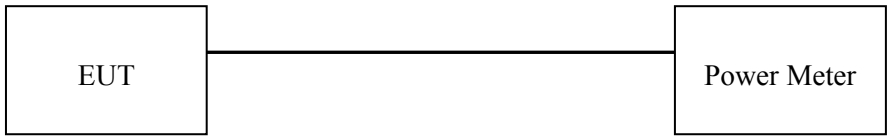
CONDUCTED OUTPUT POWER MEASUREMENT

Test Procedure

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



GSM&GPRS&WCDMA&LTE



Bluetooth

Radio Configuration

The power measurement was configured by the Wireless Communication Test Set.

GSM/GPRS

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 Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH
BCCH Level > -85 dBm (May need to adjust if link is not stabe)
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 Signal on to turn on the signal and change settings

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_c/β_d	8/15

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 Settings	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	15/15	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=βhs/ βc	30/15			

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**	**3**	**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				
	$Ahs=\beta_{hs}/\beta_c$	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 kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCIs	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	

DC-HSDPA

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Proces ses	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

HSPA+

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

FDD-LTE

For UE Power Class 1 and 3, the allowed Maximum Power Reduction (MPR) for the maximum output power in Table 6.2.2-1due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1.

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

Modulation	Channel bandwidth / Transmission bandwidth (N_{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
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

For UE Power Class 1 and 3 the specific requirements and identified sub clauses are specified in Table 6.2.4-1 along with the allowed A-MPR values that may be used to meet these requirements. The allowed A-MPR values specified below in Table 6.2.4.-1 to 6.2.4-15 are in addition to the allowed MPR requirements specified in sub clause 6.2.3.

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

Network Signalling value	Requirements (subclause)	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	N/A
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
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 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 6.6.3.3.2	13	10	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	
NS_11	6.6.2.2.1	23	1.4, 3, 5, 10, 15, 20	Table 6.2.4-5	
NS_12	6.6.3.3.5	26	1.4, 3, 5	Table 6.2.4-6	
NS_13	6.6.3.3.6	26	5	Table 6.2.4-7	
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4-8	
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4-9 Table 6.2.4-10	
NS_16	6.6.3.3.9	27	3, 5, 10	Table 6.2.4-11, Table 6.2.4-12, Table 6.2.4-13	
NS_17	6.6.3.3.10	28	5, 10	Table 5.6-1	N/A
NS_18	6.6.3.3.11	28	5	≥ 2	≤ 1
			10, 15, 20	≥ 1	≤ 4
NS_19	6.6.3.3.12	44	10, 15, 20	Table 6.2.4-14	
NS_20	6.2.2 6.6.2.2.1 6.6.3.2	23	5, 10, 15, 20	Table 6.2.4-15	
...					
NS_32	-	-	-	-	-

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	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
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.

Maximum Target Output Power

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
GSM 850	34.3	34.3	34.3
GPRS 1 TX Slot	34.2	34.2	34.2
GPRS 2 TX Slot	32.4	32.4	32.4
GPRS 3 TX Slot	30.8	30.8	30.8
GPRS 4 TX Slot	28.9	28.9	28.9
PCS 1900	28.6	28.6	28.6
GPRS 1 TX Slot	28.5	28.5	28.5
GPRS 2 TX Slot	26.7	26.7	26.7
GPRS 3 TX Slot	25	25	25
GPRS 4 TX Slot	23	23	23
WCDMA Band 2	21.3	21.3	21.3
HSDPA	19	19	19
HSUPA	19	19	19
DC-HSDPA	18.9	18.9	18.9
HSPA+	18.8	18.8	18.8
WCDMA Band 4	20.2	20.2	20.2
HSDPA	17	17	17
HSUPA	17.2	17.2	17.2
DC-HSDPA	17.2	17.2	17.2
HSPA+	17.1	17.1	17.1
WCDMA Band 5	23.5	23.5	23.5
HSDPA	21.2	21.2	21.2
HSUPA	21.3	21.3	21.3
DC-HSDPA	21.1	21.1	21.1
HSPA+	21	21	21
LTE Band 2	21.8	21.8	21.8
LTE Band 4	22	22	22
LTE Band 5	24.7	24.7	24.7
LTE Band 7	17.6	17.6	17.6
LTE Band 12	23.7	23.7	23.7
LTE Band 17	23.7	23.7	23.7
LTE Band 38	16.4	16.4	16.4
LTE Band 41	16.4	16.4	16.4
LTE Band 66	22	22	22
LTE Band 71	24.3	24.3	24.3
Bluetooth BDR	-2.0	-2.0	-2.0
Bluetooth EDR	-1.0	-1.0	-1.0

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	34.06
	190	836.6	**34.22**
	251	848.8	34.04
PCS 1900	512	1850.2	28.21
	661	1880	28.41
	810	1909.8	**28.46**

GPRS:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	34.11	32.30	30.66	28.75
	190	836.6	34.05	32.27	30.52	28.69
	251	848.8	34.07	32.23	30.57	28.61
PCS 1900	512	1850.2	28.28	26.06	24.41	22.61
	661	1880.0	28.37	26.43	24.70	22.74
	810	1909.8	28.44	26.55	24.85	22.93

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	25.11	26.3	**26.41**	25.75
	190	836.6	25.05	26.27	26.27	25.69
	251	848.8	25.07	26.23	26.32	25.61
PCS 1900	512	1850.2	19.28	20.06	20.16	19.61
	661	1880	19.37	20.43	20.45	19.74
	810	1909.8	19.44	20.55	**20.6**	19.93

Note:

1. Rohde & Schwarz Radio Communication Tester (MT8820C) 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:

WCDMA Band II

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	Rel 99	1	21.23	21.22	21.21
		HSDPA	1	18.27	18.92	18.59
			2	18.35	18.75	18.41
			3	18.18	18.83	18.38
			4	18.33	18.82	18.52
		HSUPA	1	18.58	18.69	18.52
			2	18.38	18.89	18.44
			3	18.39	18.75	18.6
			4	18.27	18.8	18.49
			5	18.45	18.78	18.49
		DC-HSDPA	1	18.37	18.77	18.44
			2	18.42	18.82	18.36
			3	18.45	18.73	18.37
			4	18.42	18.79	18.51
		HSPA+	1	18.37	18.66	18.42

WCDMA Band lV

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band lV)	Normal	Rel 99	1	20.01	19.94	20.05
		HSDPA	1	16.4	16.82	16.45
			2	16.34	16.86	16.38
			3	16.45	16.87	16.42
			4	16.43	16.73	16.43
		HSUPA	1	16.51	17.11	16.45
			2	16.56	16.94	16.33
			3	16.49	17.1	16.49
			4	16.6	17.09	16.5
			5	16.47	16.97	16.56
		DC-HSDPA	1	16.48	17.05	16.48
			2	16.48	16.96	16.52
			3	16.47	16.92	16.35
			4	16.43	17.08	16.44
		HSPA+	1	16.57	17.04	16.33

WCDMA Band V

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	Rel 99	1	23.25	23.41	23.28
		HSDPA	1	20.73	20.86	21.03
			2	20.79	20.94	21.01
			3	20.76	20.79	20.99
			4	20.77	20.77	21.05
		HSUPA	1	21.09	21.19	20.9
			2	21.09	21.05	21.04
			3	21.02	21.02	20.9
			4	21.07	20.93	20.92
			5	21	20.94	20.87
		DC-HSDPA	1	21.02	20.93	20.95
			2	20.92	20.94	20.96
			3	20.94	20.99	20.95
			4	20.87	21.04	20.95
		HSPA+	1	20.86	20.92	20.93

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/DC-HSDPA /HSPA+ 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	1#0	21.27	21.3	21.58
		1#3	21.47	21.45	21.63
		1#5	21.27	21.38	21.59
		3#0	21.47	21.45	21.48
		3#3	21.45	21.5	21.48
		6#0	20.26	20.39	20.33
	16-QAM	1#0	20.63	20.42	21.31
		1#3	20.47	20.34	21.39
		1#5	20.55	20.37	21.33
		3#0	20.88	20.44	20.65
		3#3	20.84	20.53	20.78
		6#0	19.5	19.48	19.14
3M	QPSK	1#0	21.52	21.31	21.72
		1#8	21.57	21.35	21.59
		1#14	21.49	21.33	21.71
		6#0	20.29	20.47	20.49
		6#9	20.19	20.26	20.35
		15#0	20.28	20.28	20.36
	16-QAM	1#0	20.67	20.15	21.12
		1#8	20.62	19.88	21.19
		1#14	20.56	20.08	21.23
		6#0	19.48	19.4	19.5
		6#9	19.44	19.39	19.35
		15#0	19.45	19.43	19.66

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.42	21.18	21.27
		1#13	21.52	21.15	21.22
		1#24	21.43	21.22	21.24
		15#0	20.21	20.4	20.39
		15#10	20.22	20.44	20.39
		25#0	20.17	20.23	20.37
	16-QAM	1#0	20.75	20.19	20.02
		1#13	20.75	20.18	20.01
		1#24	20.77	20.13	19.98
		15#0	19.38	19.47	19.42
		15#10	19.39	19.44	19.53
		25#0	19.41	19.47	19.66
10M	QPSK	1#0	21.53	21.69	21.63
		1#25	21.47	21.68	21.66
		1#49	21.53	21.54	**21.73**
		25#0	20.43	20.44	20.27
		25#25	20.23	20.46	20.42
		50#0	20.32	20.54	20.53
	16-QAM	1#0	20.64	21.18	20.86
		1#25	20.54	21.24	20.6
		1#49	20.59	21.17	20.72
		25#0	19.61	19.59	19.54
		25#25	19.59	19.66	19.57
		50#0	19.42	19.61	19.47

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.61	21.44	21.71
		1#38	21.52	21.38	21.65
		1#74	21.62	21.47	21.6
		36#0	20.18	20.34	20.38
		36#39	20.25	20.29	20.45
		75#0	20.26	20.5	20.36
	16-QAM	1#0	21.15	21.1	21.17
		1#38	21.19	21.09	21.16
		1#74	21.3	21.09	21.24
		36#0	19.33	19.57	19.53
		36#39	19.29	19.47	19.55
		75#0	19.45	19.62	19.61
20M	QPSK	1#0	21.33	21.49	21.56
		1#50	21.53	21.62	21.58
		1#99	21.37	21.51	21.44
		50#0	20.61	20.64	20.47
		50#50	20.53	20.45	20.43
		100#0	20.31	20.38	20.44
	16-QAM	1#0	20.68	20.26	20.43
		1#50	20.65	20.14	20.36
		1#99	20.84	20.34	20.43
		50#0	19.24	19.44	19.57
		50#50	19.35	19.49	19.44
		100#0	19.36	19.52	19.41

LTE Band 4

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	21.20	21.65	21.63
		1#3	21.18	21.68	21.58
		1#5	21.28	21.63	21.66
		3#0	21.19	21.61	21.60
		3#3	21.18	21.54	21.71
		6#0	20.13	20.67	20.49
	16-QAM	1#0	21.07	21.24	21.30
		1#3	21.09	21.17	21.32
		1#5	21.16	21.34	21.41
		3#0	20.38	20.88	21.05
		3#3	20.37	20.77	20.95
		6#0	18.78	19.60	19.23
3M	QPSK	1#0	21.72	21.67	21.52
		1#8	21.72	21.63	21.61
		1#14	21.64	21.61	21.51
		6#0	20.60	20.45	20.45
		6#9	20.36	20.58	20.54
		15#0	20.50	20.42	20.63
	16-QAM	1#0	20.79	20.67	20.69
		1#8	20.82	20.82	20.85
		1#14	20.63	20.73	20.72
		6#0	19.70	19.55	19.45
		6#9	19.76	19.63	19.61
		15#0	19.65	19.53	19.74

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.74	21.45	21.41
		1#13	21.57	21.38	21.49
		1#24	21.66	21.42	21.57
		15#0	20.55	20.63	20.64
		15#10	20.59	20.69	20.67
		25#0	20.37	20.48	20.57
	16-QAM	1#0	20.81	20.48	20.16
		1#13	20.80	20.43	20.29
		1#24	20.88	20.42	20.30
		15#0	19.60	19.63	19.54
		15#10	19.52	19.55	19.54
		25#0	19.64	19.60	19.92
10M	QPSK	1#0	21.61	21.44	21.56
		1#25	21.59	21.69	21.60
		1#49	21.59	21.49	21.53
		25#0	20.49	20.61	20.47
		25#25	20.43	20.68	20.49
		50#0	20.65	20.56	20.64
	16-QAM	1#0	21.48	20.38	21.39
		1#25	21.37	20.55	21.30
		1#49	21.53	20.49	21.42
		25#0	19.64	19.72	19.71
		25#25	19.67	19.63	19.64
		50#0	19.66	19.56	19.61

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.57	21.80	21.58
		1#38	21.53	**21.91**	21.66
		1#74	21.68	21.85	21.64
		36#0	20.60	20.67	20.52
		36#39	20.40	20.45	20.53
		75#0	20.50	20.63	20.48
	16-QAM	1#0	21.58	21.30	21.31
		1#38	21.46	21.42	21.46
		1#74	21.42	21.31	21.39
		36#0	19.54	19.56	19.56
		36#39	19.63	19.56	19.56
		75#0	19.66	19.68	19.73
20M	QPSK	1#0	21.61	21.56	21.54
		1#50	21.64	21.75	21.62
		1#99	21.49	21.60	21.45
		50#0	20.43	20.43	20.47
		50#50	20.45	20.51	20.64
		100#0	20.59	20.47	20.54
	16-QAM	1#0	20.89	20.95	20.62
		1#50	20.98	20.93	20.73
		1#99	20.96	20.96	20.64
		50#0	19.50	19.69	19.72
		50#50	19.53	19.69	19.65
		100#0	19.72	19.76	19.49

LTE Band 5

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	24.45	24.51	24.46
		1#3	24.5	24.47	24.28
		1#5	24.43	24.62	24.39
		3#0	24.41	24.37	24.27
		3#3	24.4	24.53	24.51
		6#0	23.25	23.4	23.32
	16-QAM	1#0	23.58	24.5	24.16
		1#3	23.68	24.5	24.04
		1#5	23.51	24.48	24.16
		3#0	23.6	23.69	23.65
		3#3	23.69	23.79	23.72
		6#0	22.7	22.6	22.13
3M	QPSK	1#0	24.61	24.52	24.31
		1#8	24.42	24.57	24.49
		1#14	24.39	24.56	24.46
		6#0	23.47	23.36	23.39
		6#9	23.44	23.33	23.27
		15#0	23.19	23.41	23.5
	16-QAM	1#0	23.72	23.73	24.01
		1#8	23.64	23.73	24.05
		1#14	23.71	23.78	24.04
		6#0	23	22.53	22.34
		6#9	22.79	22.47	22.2
		15#0	22.76	22.55	22.54

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	24.45	24.28	24.29
		1#13	24.55	24.35	24.3
		1#24	24.41	24.32	24.19
		15#0	23.38	23.46	23.43
		15#10	23.38	23.32	23.4
		25#0	23.27	23.42	23.39
	16-QAM	1#0	23.67	23.23	22.82
		1#13	23.73	23.23	22.99
		1#24	23.84	23.22	22.97
		15#0	22.64	22.32	22.41
		15#10	22.65	22.47	22.34
		25#0	22.86	22.33	22.61
10M	QPSK	1#0	24.45	24.3	24.57
		1#25	24.56	24.55	**24.64**
		1#49	24.49	24.41	24.47
		25#0	23.55	23.51	23.41
		25#25	23.78	23.87	23.59
		50#0	23.33	23.48	23.43
	16-QAM	1#0	24.26	23.29	24.03
		1#25	24.25	23.43	24.13
		1#49	24.39	23.21	24.11
		25#0	22.79	22.58	22.6
		25#25	22.4	22.66	22.49
		50#0	22.74	22.55	22.3

LTE Band 7

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	17.48	16.89	17
		1#13	17.35	17.18	17.16
		1#24	17.41	17.07	16.96
		15#0	16.37	16.28	16.24
		15#10	16.22	16.26	16.33
		25#0	16.35	16.31	16.13
	16-QAM	1#0	16.36	16.1	15.79
		1#13	16.3	16.13	15.66
		1#24	16.32	16.07	15.71
		15#0	15.5	15.78	15.02
		15#10	15.38	15.34	15.53
		25#0	15.56	15.82	15.5
10M	QPSK	1#0	17.44	17.24	17.16
		1#25	17.49	17.49	17.2
		1#49	**17.51**	17.4	17.2
		25#0	16.37	16.14	16
		25#25	16.27	16.06	16.25
		50#0	16.31	16.3	16.24
	16-QAM	1#0	16.48	17.27	16.26
		1#25	16.54	16.76	16.37
		1#49	16.55	16.86	16.3
		25#0	16.03	15.67	15.63
		25#25	15.42	15.17	15.23
		50#0	15.88	15.57	15.64

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	17.37	16.85	17.05
		1#38	17.34	16.51	16.87
		1#74	17.29	16.74	16.98
		36#0	16.05	15.97	15.96
		36#39	16.2	15.96	15.8
		75#0	16.2	15.67	15.74
	16-QAM	1#0	17.22	15.41	15.48
		1#38	17.17	15.45	15.43
		1#74	17.04	15.57	15.35
		36#0	15.49	14.49	14.38
		36#39	15.47	14.39	13.95
		75#0	15.32	14.38	14.48
20M	QPSK	1#0	17.16	17.11	17.14
		1#50	17.05	17	17.07
		1#99	17.15	17.11	16.93
		50#0	16.72	16.96	16.82
		50#50	16.56	16.67	16.64
		100#0	16.34	16.66	16.24
	16-QAM	1#0	16.58	16.51	15.96
		1#50	16.36	16.39	16.1
		1#99	16.49	16.54	15.99
		50#0	15.43	15.67	14.98
		50#50	15.54	15.48	15.59
		100#0	15.64	15.53	14.97

LTE Band 12

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	23.52	23.54	23.42
		1#3	23.40	23.44	23.51
		1#5	23.47	23.35	23.57
		3#0	23.47	23.36	23.58
		3#3	23.51	23.38	23.47
		6#0	22.23	22.34	22.34
	16-QAM	1#0	23.05	22.54	23.13
		1#3	23.00	22.69	23.18
		1#5	23.13	22.59	23.18
		3#0	22.64	22.77	22.59
		3#3	22.55	22.74	22.61
		6#0	21.32	21.65	21.15
3M	QPSK	1#0	23.39	23.50	23.35
		1#8	23.36	**23.59**	23.29
		1#14	23.54	23.37	23.41
		6#0	22.22	22.38	22.32
		6#9	22.47	22.55	22.32
		15#0	22.34	22.36	22.42
	16-QAM	1#0	22.53	22.81	23.01
		1#8	22.54	22.69	23.03
		1#14	22.58	22.61	22.94
		6#0	21.47	21.32	21.62
		6#9	21.93	21.27	21.36
		15#0	21.51	21.47	21.74

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	23.53	23.22	23.39
		1#13	23.56	23.11	23.29
		1#24	23.52	23.12	23.27
		15#0	22.40	22.41	22.50
		15#10	22.35	22.43	22.32
		25#0	22.36	22.40	22.40
	16-QAM	1#0	22.80	22.14	22.01
		1#13	22.83	22.14	21.90
		1#24	22.79	22.20	22.06
		15#0	21.25	21.42	21.46
		15#10	21.68	21.38	21.63
		25#0	21.87	21.35	21.90
10M	QPSK	1#0	23.50	23.45	23.35
		1#25	23.54	23.34	23.46
		1#49	23.56	23.57	23.54
		25#0	22.41	22.32	22.41
		25#25	22.59	22.63	22.51
		50#0	22.39	22.39	22.44
	16-QAM	1#0	23.28	22.29	22.81
		1#25	23.24	22.22	22.88
		1#49	23.24	22.21	22.96
		25#0	21.74	21.39	21.51
		25#25	21.51	21.78	21.72
		50#0	21.41	21.35	21.81

LTE Band 17

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	23.22	23.58	23.17
		1#13	23.44	23.52	23.18
		1#24	23.38	23.52	23.24
		15#0	22.49	22.26	22.32
		15#10	22.37	22.36	22.48
		25#0	22.33	22.29	22.43
	16-QAM	1#0	22.2	22.37	21.99
		1#13	22.08	22.44	22.2
		1#24	22.19	22.27	22.07
		15#0	21.35	21.76	21.71
		15#10	21.39	21.27	21.79
		25#0	21.39	21.8	21.9
10M	QPSK	1#0	23.52	23.43	**23.59**
		1#25	23.52	23.47	23.56
		1#49	23.59	23.46	23.54
		25#0	22.37	22.3	22.36
		25#25	22.24	22.38	22.48
		50#0	22.37	22.34	22.36
	16-QAM	1#0	23.2	22.43	23.3
		1#25	23.31	22.18	23.22
		1#49	23.3	22.3	23.16
		25#0	21.45	21.75	21.87
		25#25	21.57	21.51	21.9
		50#0	21.38	21.67	21.85

LTE Band 38

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	15.59	15.49	15.46
		1#13	15.67	15.55	15.47
		1#24	15.52	15.61	15.44
		15#0	14.60	14.51	14.48
		15#10	14.70	14.62	14.48
		25#0	14.56	14.50	14.49
	16-QAM	1#0	13.75	14.19	14.68
		1#13	13.64	14.15	14.75
		1#24	13.65	14.13	14.57
		15#0	13.51	13.47	13.44
		15#10	13.50	13.28	13.59
		25#0	13.70	13.59	13.51
10M	QPSK	1#0	15.84	15.71	15.68
		1#25	15.79	15.50	15.57
		1#49	15.93	15.67	15.52
		25#0	14.52	14.53	14.63
		25#25	14.59	14.67	14.71
		50#0	14.50	14.75	14.56
	16-QAM	1#0	14.56	15.75	14.99
		1#25	14.63	15.35	14.98
		1#49	14.63	15.36	15.06
		25#0	13.73	13.63	13.71
		25#25	13.51	13.63	13.63
		50#0	13.56	13.70	13.58

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	**16.08**	15.73	15.62
		1#38	15.77	15.39	15.38
		1#74	15.97	15.29	15.37
		36#0	14.66	14.47	14.59
		36#39	14.46	14.50	14.52
		75#0	14.45	14.53	14.56
	16-QAM	1#0	14.60	14.66	14.66
		1#38	14.67	14.47	14.61
		1#74	14.74	14.48	14.74
		36#0	13.42	13.53	13.48
		36#39	13.30	13.55	13.57
		75#0	13.60	13.46	13.55
20M	QPSK	1#0	15.49	15.57	15.69
		1#50	15.53	15.37	15.61
		1#99	15.57	15.45	15.58
		50#0	14.44	14.50	14.53
		50#50	14.61	14.47	14.55
		100#0	14.46	14.42	14.54
	16-QAM	1#0	14.56	14.01	13.46
		1#50	14.56	13.99	13.36
		1#99	14.41	13.98	13.39
		50#0	13.57	13.53	13.64
		50#50	13.67	13.54	13.59
		100#0	13.48	13.39	13.52

LTE Band 41

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2570 MHz (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	16.23	15.6	15.49	15.51
		1#13	16.06	15.49	15.51	15.35
		1#24	16.11	15.72	15.67	15.32
		15#0	15.22	14.45	14.73	14.65
		15#10	15.13	14.48	14.65	14.52
		25#0	15.1	14.46	14.54	14.47
	16-QAM	1#0	14.8	14.93	14.8	13.56
		1#13	14.76	14.76	14.77	13.55
		1#24	14.82	14.8	14.67	13.56
		15#0	14.08	13.56	13.51	13.37
		15#10	14.01	13.64	13.56	13.13
		25#0	14.37	13.62	13.49	13.57
10M	QPSK	1#0	16.26	15.79	15.71	15.38
		1#25	**16.32**	15.57	15.61	15.44
		1#49	16.21	15.53	15.53	15.44
		25#0	15.09	14.63	14.61	14.57
		25#25	15.12	14.77	14.73	14.66
		50#0	15.04	14.6	14.57	14.74
	16-QAM	1#0	15.16	15.74	15.71	14.95
		1#25	14.97	15.51	15.44	14.99
		1#49	15.22	15.21	15.22	15.1
		25#0	14.32	13.88	13.82	13.71
		25#25	14.3	13.74	13.67	13.64
		50#0	14.15	13.58	13.63	13.48

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2570 MHz (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	16.19	15.46	15.47	15.26
		1#38	16.18	15.35	15.38	15.4
		1#74	16.11	15.29	15.32	15.21
		36#0	15.13	14.52	14.67	14.54
		36#39	15.02	14.56	14.55	14.56
		75#0	15.13	14.68	14.56	14.59
	16-QAM	1#0	15.13	14.53	14.58	14.37
		1#38	15.11	14.56	14.45	14.36
		1#74	14.91	14.48	14.47	14.53
		36#0	14.07	13.67	13.59	13.28
		36#39	13.99	13.6	13.45	13.37
		75#0	14.26	13.56	13.6	13.45
20M	QPSK	1#0	16.16	15.79	15.81	15.42
		1#50	16.09	15.59	15.57	15.5
		1#99	16.19	15.87	15.89	15.62
		50#0	15.03	14.69	14.82	14.66
		50#50	15.13	14.94	15.05	14.84
		100#0	15.24	14.57	14.48	14.46
	16-QAM	1#0	14.69	13.43	13.39	14.47
		1#50	14.61	13.4	13.27	14.39
		1#99	14.81	13.7	13.69	14.38
		50#0	14.17	13.73	13.59	13.47
		50#50	14.04	13.58	13.53	13.51
		100#0	14.19	13.54	13.53	13.46

LTE Band 66

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	21.39	21.46	21.48
		1#3	21.48	21.30	21.39
		1#5	21.37	21.33	21.49
		3#0	21.35	21.20	21.27
		3#3	21.53	21.28	21.27
		6#0	20.25	20.14	20.31
	16-QAM	1#0	21.06	20.99	21.29
		1#3	21.06	21.03	21.34
		1#5	21.35	21.02	21.24
		3#0	20.64	20.75	20.51
		3#3	20.60	20.69	20.60
		6#0	19.73	18.91	18.77
3M	QPSK	1#0	21.61	21.42	21.35
		1#8	21.60	21.41	21.18
		1#14	21.63	21.34	21.35
		6#0	20.46	20.10	20.09
		6#9	20.43	20.15	20.33
		15#0	20.38	20.13	20.39
	16-QAM	1#0	21.10	21.22	20.52
		1#8	21.08	21.15	20.43
		1#14	21.24	21.09	20.47
		6#0	19.41	19.46	19.25
		6#9	19.40	19.52	19.28
		15#0	19.60	19.48	19.24

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.46	20.99	20.99
		1#13	21.45	20.94	21.00
		1#24	21.43	21.06	20.96
		15#0	20.36	20.13	20.30
		15#10	20.27	20.12	20.13
		25#0	20.40	20.28	20.13
	16-QAM	1#0	20.80	20.02	20.03
		1#13	20.83	20.03	19.99
		1#24	20.76	20.03	19.99
		15#0	19.41	19.32	19.31
		15#10	19.35	19.24	19.30
		25#0	19.69	19.57	19.38
10M	QPSK	1#0	21.63	21.18	21.32
		1#25	21.59	21.07	21.51
		1#49	21.46	21.11	21.29
		25#0	20.41	20.20	20.28
		25#25	20.30	20.19	20.30
		50#0	20.32	20.26	20.33
	16-QAM	1#0	21.34	20.37	20.93
		1#25	21.30	20.53	20.98
		1#49	21.40	20.42	20.95
		25#0	19.64	19.39	19.36
		25#25	19.52	19.53	19.39
		50#0	19.49	19.40	19.40

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.51	21.26	21.48
		1#38	21.48	21.37	21.58
		1#74	21.49	21.22	21.41
		36#0	20.32	20.15	20.24
		36#39	20.38	20.20	20.41
		75#0	20.41	20.25	20.45
	16-QAM	1#0	20.70	21.11	21.20
		1#38	20.61	21.29	21.29
		1#74	20.71	21.08	21.32
		36#0	19.61	19.35	19.38
		36#39	19.64	19.38	19.37
		75#0	19.50	19.35	19.46
20M	QPSK	1#0	**21.92**	21.87	21.69
		1#50	21.84	21.54	21.47
		1#99	21.80	21.49	21.49
		50#0	20.88	20.93	20.72
		50#50	21.04	21.01	20.95
		100#0	20.86	20.93	20.60
	16-QAM	1#0	20.79	20.58	20.54
		1#50	20.90	20.46	20.71
		1#99	20.71	20.51	20.64
		50#0	19.50	19.38	19.46
		50#50	19.51	19.39	19.37
		100#0	19.64	19.32	19.41

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Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	23.85	24.03	23.69
		1#13	23.87	23.9	23.86
		1#24	23.65	23.88	23.74
		15#0	22.94	22.79	22.68
		15#10	22.9	22.92	22.85
		25#0	23.06	22.8	23.03
	16-QAM	1#0	22.66	22.91	22.64
		1#13	22.63	22.87	22.63
		1#24	22.78	23.03	22.72
		15#0	21.89	22	22.23
		15#10	21.79	22.14	22.17
		25#0	21.99	22.14	22.17
10M	QPSK	1#0	24.09	24.05	23.97
		1#25	24.03	23.96	23.99
		1#49	24.06	24.04	24.18
		25#0	22.99	23.02	22.74
		25#25	22.78	22.77	22.84
		50#0	22.93	22.94	22.91
	16-QAM	1#0	23.51	22.92	23.27
		1#25	23.67	22.75	23.36
		1#49	23.66	23.04	23.36
		25#0	21.95	22.23	21.85
		25#25	22.11	22.17	22.1
		50#0	21.89	22.23	21.81

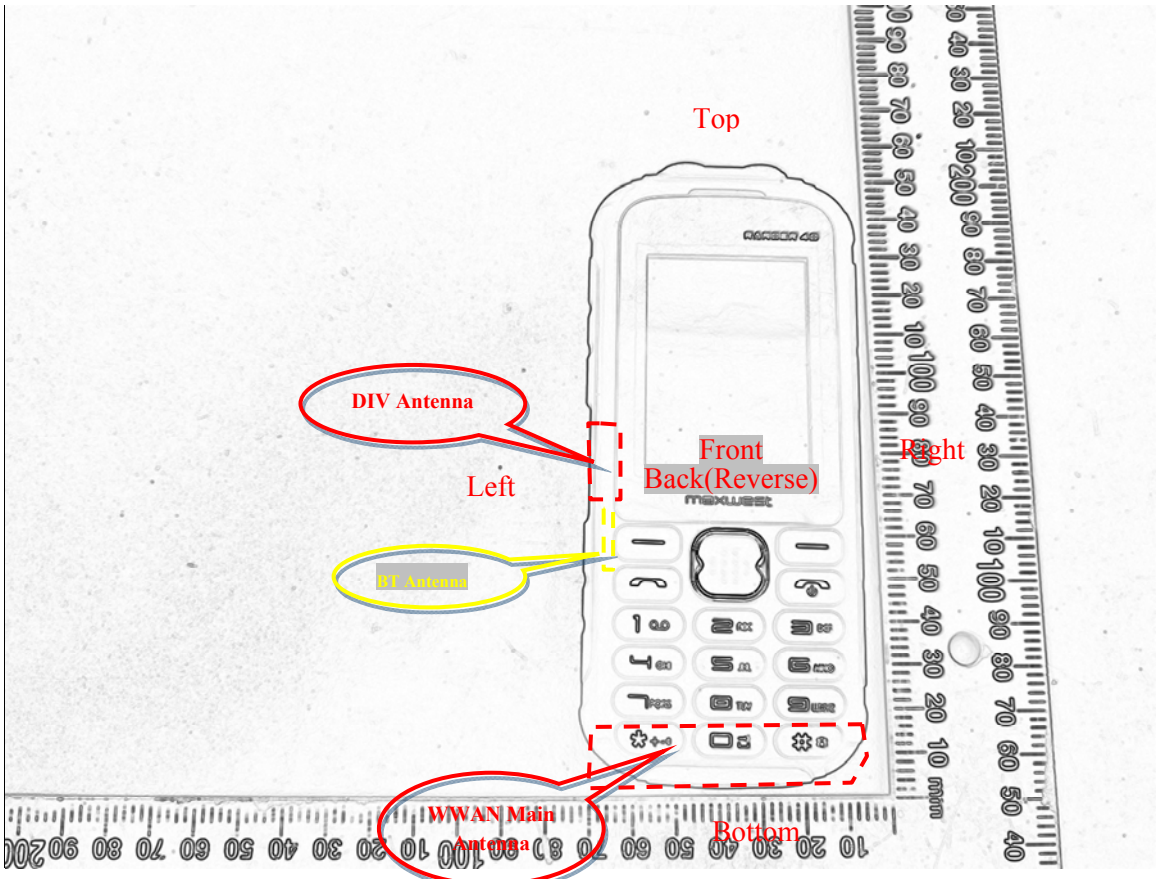
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	24.12	23.86	24.14
		1#38	23.92	23.89	**24.21**
		1#74	24.13	23.94	24.16
		36#0	22.81	22.81	22.82
		36#39	22.73	23.06	22.87
		75#0	22.67	22.81	22.93
	16-QAM	1#0	23.04	23.41	23.71
		1#38	23.04	23.44	23.49
		1#74	23.08	23.47	23.48
		36#0	22.21	22.09	21.85
		36#39	21.97	21.98	21.99
		75#0	22.17	22.17	21.92
20M	QPSK	1#0	23.98	23.94	23.88
		1#50	23.93	24	23.88
		1#99	24.02	24.07	23.92
		50#0	22.92	23.07	22.87
		50#50	23.02	23.18	22.94
		100#0	22.86	22.92	22.74
	16-QAM	1#0	23.1	22.79	22.99
		1#50	23.17	22.79	23.07
		1#99	23.17	22.88	23.07
		50#0	21.87	22.08	21.98
		50#50	21.98	22.16	21.74
		100#0	21.92	22.15	21.85

Bluetooth:

Mode	Channel frequency (MHz)	RF Output Power (dBm)
BDR(GFSK)	2402	-2.74
	2441	-2.71
	2480	-2.83
EDR(π/4-DQPSK)	2402	**-1.65**
	2441	-1.89
	2480	-1.91
EDR(8DPSK)	2402	-2.16
	2441	-1.93
	2480	-1.87

Standalone SAR test exclusion considerations

Antennas Location:



Note:.*The DIV Antenna cannot transmit,and is receiving only.*

Standalone SAR Test Exclusion Considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
Bluetooth	2480	-1.0	0.79	0	0.2	3	YES

Note: *The bluetooth based peak output 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:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(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.

Standalone SAR estimation

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Estimated 1-g (W/kg)
BT Head	2480	-1.0	0.79	0	0.03
BT Body	2480	-1.0	0.79	5	0.03

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:
[(max. power of channel, including tune-up tolerance , mW)/(min. test separation distance,mm)] · [√f(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.

SAR Test Data

Environmental Conditions

Temperature:	21.6-22.5 ℃	21.3-22.1 ℃	21.1-22.2℃	21.6-22.6 ℃
Relative Humidity:	49 %	52 %	47 %	53 %
Test Date:	2025/01/13	2025/01/14	2025/01/15	2025/01/16
Temperature:	21.9-22.7 ℃	21.5-22.2 ℃	/	/
Relative Humidity:	46 %	52 %	/	/
Test Date:	2025/01/17	2025/01/18	/	/

Testing was performed by Jason and Allen

GSM 850：

EUT Position	Freq. (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	824.2	GSM Voice	34.06	34.3	1.057	0.18	0.19	/
Head Left Cheek	836.6	GSM Voice	34.22	34.3	1.019	0.198	0.20	1#
Head Left Cheek	848.8	GSM Voice	34.04	34.3	1.062	0.163	0.17	/
Head Left Tilt	836.6	GSM Voice	34.22	34.3	1.019	0.063	0.06	/
Head Right Cheek	836.6	GSM Voice	34.22	34.3	1.019	0.165	0.17	/
Head Right Tilt	836.6	GSM Voice	34.22	34.3	1.019	0.065	0.07	/
Body Worn Front(5mm)	836.6	GSM Voice	34.22	34.3	1.019	0.131	0.13	/
Body Worn Back(5mm)	824.2	GSM Voice	34.06	34.3	1.057	0.582	0.62	2#
Body Worn Back(5mm)	836.6	GSM Voice	34.22	34.3	1.019	0.52	0.53	/
Body Worn Back(5mm)	848.8	GSM Voice	34.04	34.3	1.062	0.574	0.61	/
Body Front(5mm)	836.6	GPRS 3 Tx slots	30.52	30.8	1.067	0.139	0.15	/
Body Back(5mm)	836.6	GPRS 3 Tx slots	30.52	30.8	1.067	0.46	0.49	/
Body Bottom(5mm)	836.6	GPRS 3 Tx slots	30.52	30.8	1.067	0.122	0.13	/

The data above was performed on 2025/01/14.

GSM 1900：

EUT Position	Freq. (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	1880	GSM Voice	28.41	28.6	1.045	0.09	0.09	/
Head Left Tilt	1880	GSM Voice	28.41	28.6	1.045	0.052	0.05	/
Head Right Cheek	1850.2	GSM Voice	28.21	28.6	1.094	0.109	0.12	3#
Head Right Cheek	1880	GSM Voice	28.41	28.6	1.045	0.104	0.11	/
Head Right Cheek	1909.8	GSM Voice	28.46	28.6	1.033	0.094	0.1	/
Head Right Tilt	1880	GSM Voice	28.41	28.6	1.045	0.066	0.07	/
Body Worn Front(5mm)	1880	GSM Voice	28.41	28.6	1.045	0.258	0.27	/
Body Worn Back(5mm)	1880	GSM Voice	28.41	28.6	1.045	0.492	0.51	/
Body Front(5mm)	1880	GPRS 3 Tx slots	24.7	25	1.072	0.322	0.35	/
Body Back(5mm)	1850.2	GPRS 3 Tx slots	24.41	25	1.146	0.475	0.54	/
Body Back(5mm)	1880	GPRS 3 Tx slots	24.7	25	1.072	0.624	0.67	4#
Body Back(5mm)	1909.8	GPRS 3 Tx slots	24.85	25	1.035	0.46	0.48	/
Body Bottom(5mm)	1880	GPRS 3 Tx slots	24.7	25	1.072	0.376	0.40	/

The data above was performed on 2025/01/16.

Note:

1. When the SAR value is less than half of the limit, 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. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

WCDMA Band II：

EUT Position	Freq. (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	1880	RMC	21.22	21.3	1.019	0.089	0.09	/
Head Left Tilt	1880	RMC	21.22	21.3	1.019	0.072	0.07	/
Head Right Cheek	1852.4	RMC	21.23	21.3	1.016	0.143	0.15	/
Head Right Cheek	1880	RMC	21.22	21.3	1.019	0.155	0.16	5#
Head Right Cheek	1907.6	RMC	21.21	21.3	1.021	0.122	0.12	/
Head Right Tilt	1880	RMC	21.22	21.3	1.019	0.094	0.10	/
Body Front(5mm)	1880	RMC	21.22	21.3	1.019	0.678	0.69	/
Body Back(5mm)	1852.4	RMC	21.23	21.3	1.016	0.88	0.89	/
Body Back(5mm)	1880	RMC	21.22	21.3	1.019	0.966	0.98	6#
Body Back(5mm)	1907.6	RMC	21.21	21.3	1.021	0.845	0.86	/
Body Bottom (5mm)	1852.4	RMC	21.23	21.3	1.016	0.665	0.68	/
Body Bottom (5mm)	1880	RMC	21.22	21.3	1.019	0.853	0.87	/
Body Bottom (5mm)	1907.6	RMC	21.21	21.3	1.021	0.784	0.80	/

The data above was performed on 2025/01/17.

WCDMA Band IV：

EUT Position	Freq. (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	1732.6	RMC	19.94	20.2	1.062	0.038	0.04	/
Head Left Tilt	1732.6	RMC	19.94	20.2	1.062	0.026	0.03	/
Head Right Cheek	1712.4	RMC	20.01	20.2	1.045	0.062	0.06	/
Head Right Cheek	1732.6	RMC	19.94	20.2	1.062	0.073	0.08	/
Head Right Cheek	1752.6	RMC	20.05	20.2	1.035	0.077	0.08	7#
Head Right Tilt	1732.6	RMC	19.94	20.2	1.062	0.044	0.05	/
Body Front(5mm)	1732.6	RMC	19.94	20.2	1.062	0.326	0.35	/
Body Back(5mm)	1712.4	RMC	20.01	20.2	1.045	0.818	0.85	/
Body Back(5mm)	1732.6	RMC	19.94	20.2	1.062	0.885	0.94	/
Body Back(5mm)	1752.6	RMC	20.05	20.2	1.035	0.905	0.94	8#
Body Bottom (5mm)	1732.6	RMC	19.94	20.2	1.062	0.299	0.32	/

The data above was performed on 2025/01/15.

WCDMA Band V：

EUT Position	Freq. (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	836.6	RMC	23.41	23.5	1.021	0.523	0.53	/
Head Left Tilt	836.6	RMC	23.41	23.5	1.021	0.285	0.29	/
Head Right Cheek	826.4	RMC	23.25	23.5	1.059	0.496	0.53	/
Head Right Cheek	836.6	RMC	23.41	23.5	1.021	0.596	0.61	9#
Head Right Cheek	846.6	RMC	23.28	23.5	1.052	0.508	0.53	/
Head Right Tilt	836.6	RMC	23.41	23.5	1.021	0.329	0.34	/
Body Front(5mm)	836.6	RMC	23.41	23.5	1.021	0.188	0.19	/
Body Back(5mm)	826.4	RMC	23.25	23.5	1.059	0.65	0.69	/
Body Back(5mm)	836.6	RMC	23.41	23.5	1.021	0.672	0.69	10#
Body Back(5mm)	846.6	RMC	23.28	23.5	1.052	0.645	0.68	/
Body Bottom (5mm)	836.6	RMC	23.41	23.5	1.021	0.195	0.20	/

The data above was performed on 2025/01/14.

Note:

1. When the SAR value is less than half of the limit, 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 Test Loop Model.
4. KDB 941225 D01-Body SAR is not required for HSUPA/HSDPA/DC-HSDPA/HSPA+ 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.
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 FDD Band 2:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	1860	QPSK	20M	1	21.53	21.8	1.064	0.294	0.31	/
Head Left Cheek	1880	QPSK	20M	1	21.62	21.8	1.042	0.223	0.23	/
Head Left Cheek	1900	QPSK	20M	1	21.58	21.8	1.052	0.296	0.31	11#
Head Left Cheek	1880	QPSK	20M	50	20.64	21.8	1.306	0.183	0.24	/
Head Left Tilt	1880	QPSK	20M	1	21.62	21.8	1.042	0.094	0.10	/
Head Left Tilt	1880	QPSK	20M	50	20.64	21.8	1.306	0.072	0.09	/
Head Right Cheek	1880	QPSK	20M	1	21.62	21.8	1.042	0.161	0.17	/
Head Right Cheek	1880	QPSK	20M	50	20.64	21.8	1.306	0.127	0.17	/
Head Right Tilt	1880	QPSK	20M	1	21.62	21.8	1.042	0.117	0.12	/
Head Right Tilt	1880	QPSK	20M	50	20.64	21.8	1.306	0.094	0.12	/
Body Front(5mm)	1880	QPSK	20M	1	21.62	21.8	1.042	0.642	0.67	/
Body Front(5mm)	1880	QPSK	20M	50	20.64	21.8	1.306	0.51	0.67	/
Body Back(5mm)	1860	QPSK	20M	1	21.53	21.8	1.064	1.02	1.09	12#
Body Back(5mm)	1880	QPSK	20M	1	21.62	21.8	1.042	1	1.04	/
Body Back(5mm)	1900	QPSK	20M	1	21.58	21.8	1.052	0.95	1	/
Body Back(5mm)	1860	QPSK	20M	50	20.61	21.8	1.315	0.827	1.09	/
Body Back(5mm)	1880	QPSK	20M	50	20.64	21.8	1.306	0.794	1.04	/
Body Back(5mm)	1900	QPSK	20M	50	20.47	21.8	1.358	0.76	1.03	/
Body Back(5mm)	1880	QPSK	20M	100	20.38	21.8	1.387	0.771	1.07	/
Body Bottom (5mm)	1880	QPSK	20M	1	21.62	21.8	1.042	0.757	0.79	/
Body Bottom (5mm)	1880	QPSK	20M	50	20.64	21.8	1.306	0.596	0.78	/

The data above was performed on 2025/01/16.

LTE FDD Band 5:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	829	QPSK	10M	1	24.56	24.7	1.033	0.537	0.55	/
Head Left Cheek	836.5	QPSK	10M	1	24.55	24.7	1.035	0.486	0.5	/
Head Left Cheek	844	QPSK	10M	1	24.64	24.7	1.014	0.548	0.56	13#
Head Left Cheek	836.5	QPSK	10M	25	23.87	24.7	1.211	0.41	0.5	/
Head Left Tilt	836.5	QPSK	10M	1	24.55	24.7	1.035	0.21	0.22	/
Head Left Tilt	836.5	QPSK	10M	25	23.87	24.7	1.211	0.168	0.20	/
Head Right Cheek	836.5	QPSK	10M	1	24.55	24.7	1.035	0.269	0.28	/
Head Right Cheek	836.5	QPSK	10M	25	23.87	24.7	1.211	0.227	0.27	/
Head Right Tilt	836.5	QPSK	10M	1	24.55	24.7	1.035	0.142	0.15	/
Head Right Tilt	836.5	QPSK	10M	25	23.87	24.7	1.211	0.118	0.14	/
Body Front(5mm)	836.5	QPSK	10M	1	24.55	24.7	1.035	0.471	0.49	/
Body Front(5mm)	836.5	QPSK	10M	25	23.87	24.7	1.211	0.385	0.47	/
Body Back(5mm)	829	QPSK	10M	1	24.56	24.7	1.033	0.533	0.55	/
Body Back(5mm)	836.5	QPSK	10M	1	24.55	24.7	1.035	0.768	0.79	14#
Body Back(5mm)	844	QPSK	10M	1	24.64	24.7	1.014	0.658	0.67	/
Body Back(5mm)	836.5	QPSK	10M	25	23.87	24.7	1.211	0.65	0.79	/
Body Bottom (5mm)	836.5	QPSK	10M	1	24.55	24.7	1.035	0.179	0.19	/
Body Bottom (5mm)	836.5	QPSK	10M	25	23.87	24.7	1.211	0.142	0.17	/

The data above was performed on 2025/01/14.

LTE Band 7：

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	2510	QPSK	20M	1	17.16	17.6	1.107	0.087	0.1	15#
Head Left Cheek	2535	QPSK	20M	1	17.11	17.6	1.119	0.074	0.08	/
Head Left Cheek	2560	QPSK	20M	1	17.14	17.6	1.112	0.074	0.08	/
Head Left Cheek	2535	QPSK	20M	50	16.96	17.6	1.159	0.046	0.05	/
Head Left Tilt	2535	QPSK	20M	1	17.11	17.6	1.119	0.015	0.02	/
Head Left Tilt	2535	QPSK	20M	50	16.96	17.6	1.159	0.00825	0.01	/
Head Right Cheek	2535	QPSK	20M	1	17.11	17.6	1.119	0.044	0.05	/
Head Right Cheek	2535	QPSK	20M	50	16.96	17.6	1.159	0.036	0.04	/
Head Right Tilt	2535	QPSK	20M	1	17.11	17.6	1.119	0.022	0.02	/
Head Right Tilt	2535	QPSK	20M	50	16.96	17.6	1.159	0.019	0.02	/
Body Front(5mm)	2535	QPSK	20M	1	17.11	17.6	1.119	0.117	0.13	/
Body Front(5mm)	2535	QPSK	20M	50	16.96	17.6	1.159	0.103	0.12	/
Body Back(5mm)	2510	QPSK	20M	1	17.16	17.6	1.107	0.947	1.05	16#
Body Back(5mm)	2535	QPSK	20M	1	17.11	17.6	1.119	0.804	0.9	/
Body Back(5mm)	2560	QPSK	20M	1	17.14	17.6	1.112	0.767	0.85	/
Body Back(5mm)	2535	QPSK	20M	50	16.96	17.6	1.159	0.689	0.8	/
Body Back(5mm)	2535	QPSK	20M	100	16.66	17.6	1.242	0.63	0.78	/
Body Bottom (5mm)	2535	QPSK	20M	1	17.11	17.6	1.119	0.145	0.16	/
Body Bottom (5mm)	2535	QPSK	20M	50	16.96	17.6	1.159	0.125	0.14	/

The data above was performed on 2025/01/18.

LTE FDD Band 12& LTE FDD Band 17:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	704	QPSK	10M	1	23.56	23.7	1.033	0.083	0.09	/
Head Left Cheek	707.5	QPSK	10M	1	23.57	23.7	1.03	0.181	0.19	/
Head Left Cheek	711	QPSK	10M	1	23.54	23.7	1.038	0.224	0.23	17#
Head Left Cheek	707.5	QPSK	10M	25	22.63	23.7	1.279	0.164	0.21	/
Head Left Tilt	707.5	QPSK	10M	1	23.57	23.7	1.03	0.096	0.10	/
Head Left Tilt	707.5	QPSK	10M	25	22.63	23.7	1.279	0.083	0.11	/
Head Right Cheek	707.5	QPSK	10M	1	23.57	23.7	1.03	0.072	0.07	/
Head Right Cheek	707.5	QPSK	10M	25	22.63	23.7	1.279	0.062	0.08	/
Head Right Tilt	707.5	QPSK	10M	1	23.57	23.7	1.03	0.043	0.04	/
Head Right Tilt	707.5	QPSK	10M	25	22.63	23.7	1.279	0.039	0.05	/
Body Front(5mm)	707.5	QPSK	10M	1	23.57	23.7	1.03	0.223	0.23	/
Body Front(5mm)	707.5	QPSK	10M	25	22.63	23.7	1.279	0.187	0.24	/
Body Back(5mm)	704	QPSK	10M	1	23.56	23.7	1.033	0.607	0.63	/
Body Back(5mm)	707.5	QPSK	10M	1	23.57	23.7	1.03	0.625	0.64	/
Body Back(5mm)	711	QPSK	10M	1	23.54	23.7	1.038	0.658	0.68	18#
Body Back(5mm)	707.5	QPSK	10M	25	22.63	23.7	1.279	0.508	0.65	/
Body Bottom (5mm)	707.5	QPSK	10M	1	23.57	23.7	1.03	0.048	0.05	/
Body Bottom (5mm)	707.5	QPSK	10M	25	22.63	23.7	1.279	0.038	0.05	/

The data above was performed on 2025/01/13.

Note:

LTE FDD Band 12 and LTE FDD Band 17 have the same power, we only tested the LTE Band 12 because it has a larger frequency range, so the LTE FDD Band 17 does not need to be tested

LTE TDD Band 41& LTE TDD Band 38:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	2545	QPSK	20M	1	16.19	16.4	1.05	0.013	0.01	/
Head Left Cheek	2570	QPSK	20M	1	15.87	16.4	1.13	0.016	0.02	/
Head Left Cheek	2595	QPSK	20M	1	15.89	16.4	1.125	0.02	0.02	19#
Head Left Cheek	2645	QPSK	20M	1	15.62	16.4	1.197	0.017	0.02	/
Head Left Cheek	2595	QPSK	20M	50	15.05	16.4	1.365	0.017	0.02	/
Head Left Tilt	2595	QPSK	20M	1	15.89	16.4	1.125	< 0.01	0.01	/
Head Left Tilt	2595	QPSK	20M	50	15.05	16.4	1.365	< 0.01	0.01	/
Head Right Cheek	2595	QPSK	20M	1	15.89	16.4	1.125	0.02	0.02	/
Head Right Cheek	2595	QPSK	20M	50	15.05	16.4	1.365	0.018	0.02	/
Head Right Tilt	2595	QPSK	20M	1	15.89	16.4	1.125	< 0.01	0.01	/
Head Right Tilt	2595	QPSK	20M	50	15.05	16.4	1.365	< 0.01	0.01	/
Body Front(5mm)	2595	QPSK	20M	1	15.89	16.4	1.125	0.052	0.06	/
Body Front(5mm)	2595	QPSK	20M	50	15.05	16.4	1.365	0.03	0.04	/
Body Back(5mm)	2545	QPSK	20M	1	16.19	16.4	1.05	0.436	0.46	20#
Body Back(5mm)	2570	QPSK	20M	1	15.87	16.4	1.13	0.387	0.44	/
Body Back(5mm)	2595	QPSK	20M	1	15.89	16.4	1.125	0.355	0.4	/
Body Back(5mm)	2645	QPSK	20M	1	15.62	16.4	1.197	0.292	0.35	/
Body Back(5mm)	2595	QPSK	20M	50	15.05	16.4	1.365	0.275	0.38	/
Body Bottom (5mm)	2595	QPSK	20M	1	15.89	16.4	1.125	0.048	0.05	/
Body Bottom (5mm)	2595	QPSK	20M	50	15.05	16.4	1.365	0.039	0.05	/

The data above was performed on 2025/01/18

Note: *1.LTE TDD Band 41 and LTE TDD Band 38 have the same power, we only tested the LTE Band 41 because it has a larger frequency range, so the LTE TDD Band 38 does not need to be tested*

2.The frequency range of LTE Band 41 is 2535~ 2655MHz. Per KDB 447498 D01, according to the following formula Calculate Nc is 4.

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]

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

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 FDD Band 66& LTE FDD Band 4:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	1720	QPSK	20M	1	21.92	22	1.019	0.085	0.09	/
Head Left Cheek	1745	QPSK	20M	1	21.87	22	1.03	0.142	0.15	21#
Head Left Cheek	1770	QPSK	20M	1	21.69	22	1.074	0.133	0.14	/
Head Left Cheek	1745	QPSK	20M	50	21.01	22	1.256	0.115	0.14	/
Head Left Tilt	1745	QPSK	20M	1	21.87	22	1.03	0.044	0.05	/
Head Left Tilt	1745	QPSK	20M	50	21.01	22	1.256	0.037	0.05	/
Head Right Cheek	1745	QPSK	20M	1	21.87	22	1.03	0.117	0.12	/
Head Right Cheek	1745	QPSK	20M	50	21.01	22	1.256	0.098	0.12	/
Head Right Tilt	1745	QPSK	20M	1	21.87	22	1.03	0.074	0.08	/
Head Right Tilt	1745	QPSK	20M	50	21.01	22	1.256	0.064	0.08	/
Body Front(5mm)	1745	QPSK	20M	1	21.87	22	1.03	0.471	0.49	/
Body Front(5mm)	1745	QPSK	20M	50	21.01	22	1.256	0.398	0.5	/
Body Back(5mm)	1720	QPSK	20M	1	21.92	22	1.019	1.25	1.27	/
Body Back(5mm)	1745	QPSK	20M	1	21.87	22	1.03	1.26	1.3	22#
Body Back(5mm)	1770	QPSK	20M	1	21.69	22	1.074	1.18	1.27	/
Body Back(5mm)	1720	QPSK	20M	50	21.04	22	1.247	1	1.25	/
Body Back(5mm)	1745	QPSK	20M	50	21.01	22	1.256	1	1.26	/
Body Back(5mm)	1770	QPSK	20M	50	20.95	22	1.274	0.995	1.27	/
Body Back(5mm)	1745	QPSK	20M	100	20.93	22	1.279	1.01	1.29	/
Body Back with headset(5mm)	1745	QPSK	20M	1	21.87	22	1.03	1.09	1.12	/
Body Bottom (5mm)	1745	QPSK	20M	1	21.87	22	1.03	0.418	0.43	/
Body Bottom (5mm)	1745	QPSK	20M	50	21.01	22	1.256	0.359	0.45	/

The data above was performed on 2025/01/15.

Note:

LTE FDD Band 66 and LTE FDD Band 4 have the same power, we only tested the LTE Band 66 because it has a larger frequency range, so the LTE FDD Band 4 does not need to be tested

LTE FDD Band 71:

EUT Position	Freq. (MHz)	Modulation Type	Bandwidth (MHz)	RB	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	Scaled Factor	Meas. (W/Kg)	Scaled SAR (W/Kg)	Plot
Head Left Cheek	673	QPSK	20M	1	24.02	24.3	1.067	0.078	0.08	/
Head Left Cheek	680.5	QPSK	20M	1	24.07	24.3	1.054	0.103	0.11	/
Head Left Cheek	688	QPSK	20M	1	23.92	24.3	1.091	0.118	0.13	23#
Head Left Cheek	680.5	QPSK	20M	50	23.18	24.3	1.294	0.084	0.11	/
Head Left Tilt	680.5	QPSK	20M	1	24.07	24.3	1.054	0.071	0.07	/
Head Left Tilt	680.5	QPSK	20M	50	23.18	24.3	1.294	0.059	0.08	/
Head Right Cheek	680.5	QPSK	20M	1	24.07	24.3	1.054	0.054	0.06	/
Head Right Cheek	680.5	QPSK	20M	50	23.18	24.3	1.294	0.042	0.05	/
Head Right Tilt	680.5	QPSK	20M	1	24.07	24.3	1.054	0.032	0.03	/
Head Right Tilt	680.5	QPSK	20M	50	23.18	24.3	1.294	0.033	0.04	/
Body Front(5mm)	680.5	QPSK	20M	1	24.07	24.3	1.054	0.063	0.07	/
Body Front(5mm)	680.5	QPSK	20M	50	23.18	24.3	1.294	0.051	0.07	/
Body Back(5mm)	673	QPSK	20M	1	24.02	24.3	1.067	0.333	0.36	/
Body Back(5mm)	680.5	QPSK	20M	1	24.07	24.3	1.054	0.388	0.41	/
Body Back(5mm)	688	QPSK	20M	1	23.92	24.3	1.091	0.398	0.43	24#
Body Back(5mm)	680.5	QPSK	20M	50	23.18	24.3	1.294	0.317	0.41	/
Body Bottom (5mm)	680.5	QPSK	20M	1	24.07	24.3	1.054	0.034	0.04	/
Body Bottom (5mm)	680.5	QPSK	20M	50	23.18	24.3	1.294	0.026	0.03	/

The data above was performed on 2025/01/13.

Note:

1. When the SAR value is less than half of the limit, 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- 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 ≤ 0.8 W/kg.
4. 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 > ½ 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 W/kg.

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 (~ 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.

Note: The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

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	
1750MHz (1650-1850MHz)	LTE Band 66&4	1745	Body Back	1.26	1.19	1.06
1900MHz (1850-2000MHz)	LTE Band 2	1860	Body Back	1.02	0.987	1.03
2450MHz (2400-2550MHz)	LTE Band 7	2510	LTE Band 2	0.947	0.942	1.01

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..

DUT HOLDER PERTURBATIONS

In accordance with TCB workshop October 2016:

1) SAR perturbation due to test device holders, depending on antenna locations, buttons locations on phones or device, form factor (e.g. dongles etc.), the measured SAR could be influenced by the relative positions of the test device and its holder
2) SAR measurement standards have included protocols to evaluate this with a flat phantom, with and without the device holder
3) When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands in the same exact device and holder positions used for head and body SAR measurements; i.e. same device/button locations in the holder

Per IEEE 1528: 2013/Annex E/E.4.1.1: Device holder perturbation tolerance for a specific test device: Type B

When it is unknown if a device holder perturbs the fields of a test device, the SAR uncertainty shall be assessed with a flat phantom (see Clause 5) by comparing the SAR with and without the device holder according to the following tests:

The SAR tolerance for device holder disturbance is computed using Equation (E.21) and entered in the corresponding row of the appropriate uncertainty table with an assumed rectangular probability distribution and *vi* = ∞ degrees of freedom:

$$SAR_{\text{tolerance}}[\%] = 100 \times \left(\frac{SAR_{\text{w/ holder}} - SAR_{\text{w/o holder}}}{SAR_{\text{w/o holder}}} \right) \quad \text{(E.21)}$$

The Highest Measured SAR Configuration among all applicable Frequency Band

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
LTE Band 66&4	1745	Body Back(5mm)	1.26	1.22	3.3%

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

Description of Simultaneous Transmit Capabilities		
Transmitter Combination	**Simultaneous?**	**Hotsport**
WWAN(GSM/WCDMA/LTE) Antenna + Bluetooth	√	×

Simultaneous SAR test exclusion considerations

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
MAX.WWAN(GSM/WCDMA/LTE)+Bluetooth	Head	0.61	0.03	0.64
	Body	1.3	0.03	1.33

Conclusion:

Sum of SAR:**ΣSAR ≤1.6 W/kg** therefore simultaneous transmission SAR with Volume Scans is **not required**.

APPENDIX A SAR PLOTS OF SAR MEASUREMENT

Please Refer to the Attachment.

APPENDIX B MEASUREMENT UNCERTAINTY

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

Measurement uncertainty evaluation for IEEE 1528:2013 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	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions–reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Post-processing	2.0	R	√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	3.3	N	1	1	1	3.3	3.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√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	√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)						24.3	23.9

APPENDIX C EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX D CALIBRATION CERTIFICATES

Please Refer to the Attachment.

Declarations

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with "★".

2. The test data was only valid for the test sample(s).

3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95.45% confidence interval.

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