

TEST REPORT

Applicant Name: Shenzhen Harvilon Technology Co.,Ltd
Address: 2nd Floor, Building 2, No. 137 Bulan Road, Saitu Technology Park, Longgang district, Shenzhen, China
Report Number: 2501P42038E-SA
FCC ID: ZZJ-MF511

Test Standard (s)

FCC 47 CFR part 2.1093

Sample Description

Product Name: 5G Portable Wi-Fi
Model No.: MF511
Multiple Model(s) No.: MF510, JTN5G
Trade Mark: Harvilon
Serial Number: 306W-1
Date Received: 2025/01/14
Date of Test: 2025/05/08~2025/05/11
Issue Date: 2025/06/13

Test Result:

Pass▲

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

Prepared and Checked By:

Bob Lu

Bob Lu
SAR Engineer

Approved By:

Luke Jiang

Luke Jiang
SAR Engineer

Note: The information marked*is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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Bay Area Compliance Laboratories Corp. (Shenzhen)

5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China
Tel: +86-755-33320018Fax: +86-755-33320008www.baclcorp.com.cn

Attestation of Test Results		
Frequency Band	Max. SAR Level(s) Reported(W/kg)	Limit(W/Kg)
WCDMA Band 2	0.76 W/kg 1g Body SAR	1.6
WCDMA Band 5	0.05 W/kg 1g Body SAR	
LTE Band 2	0.69 W/kg 1g Body SAR	
LTE Band 5	0.78 W/kg 1g Body SAR	
LTE Band 12	0.66 W/kg 1g Body SAR	
LTE Band 41	0.48 W/kg 1g Body SAR	
LTE Band 66 & 4	1.14 W/kg 1g Body SAR	
LTE Band 71	0.71 W/kg 1g Body SAR	
5G NR n2	0.63 W/kg 1g Body SAR	
5G NR n5	0.24 W/kg 1g Body SAR	
5G NR n41	0.52 W/kg 1g Body SAR	
5G NR n66	1.14 W/kg 1g Body SAR	
5G NR n71	0.64 W/kg 1g Body SAR	
WLAN 2.4G	0.22 W/kg 1g Body SAR	
WLAN 5.2G	0.22 W/kg 1g Body SAR	
WLAN 5.8G	0.21 W/kg 1g Body SAR	
Simultaneous(tx)	1.58 W/kg 1g Body SAR 1.58 W/kg 1g Hotspot SAR	

Note:

In this case the EUT (Equipment Under Test) is set 10mm away from the phantom, the test distance is 10mm for body.

Applicable Standards	FCC 47 CFR part 2.1093 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 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04 KDB 865664 D02 RF Exposure Reporting v01r02 KDB 941225 D01 3G SAR Procedures v03r01 KDB 941225 D05 SAR for LTE Devices v02r05 KDB 941225 D06 Hotspot Mode v02r01 KDB 248227 D01 802.11 Wi-Fi SAR v02r02
Note: This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in FCC 47 CFR part 2.1093 and has been tested in accordance with the measurement procedures specified in IEEE 1528-2013 and RF exposure KDB procedures. The results and statements contained in this report pertain only to the device(s) evaluated.	

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2501P42038E-SA	Original Report	2025/06/13

EUT DESCRIPTION

This report has been prepared on behalf of **Shenzhen Harvilon Technology Co.,Ltd** and their product **5G Portable Wi-Fi**, Model: **MF511, MF510, JTN5G**. Test Model: **MF511**, FCC ID: **ZZJ-MF511** or the EUT (Equipment under Test) as referred to in the rest of this report.

**All measurement and test data in this report was gathered from production sample serial number: 306W-1(Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2025/01/14*

Technical Specification

Product Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Proximity Sensor:	None
EN-DC possible combinations:	None EN-DC combinations
Carrier aggregation:	None Carrier aggregation
Operation modes:	WCDMA, FDD-LTE, TDD-LTE, 5G NR, WLAN
Frequency Band:	WCDMA Band 2:1850-1910MHz(TX);1930-1990MHz(RX) WCDMA Band 5:824-849MHz(TX);869-894MHz(RX) LTE Band 2:1850-1910MHz(TX);1930-1990MHz(RX) LTE Band 4:1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 5:824-849MHz(TX);869-894MHz(RX) LTE Band 12:699-716MHz(TX);729-746MHz(RX) LTE Band 41:2496-2690MHz(TX/RX) LTE Band 66:1710-1780MHz(TX);2110-2200MHz(RX) LTE Band 71:663-698MHz(TX);617-652MHz(RX) 5G NR n2:1850-1910MHz(TX);1930-1990MHz(RX) 5G NR n5:824-849MHz(TX);869-894MHz(RX) 5G NR n41:2496-2690MHz(TX/RX) 5G NR n66:1710-1780MHz(TX);2110-2200MHz(RX) 5G NR n71:663-698MHz(TX); 617-652MHz(RX) WIFI 2.4G:2412-2462MHz(TX);2412-2462MHz(RX) WIFI 5.2G:5150-5250MHz(TX/RX) WIFI 5.8G:5725-5850MHz(TX/RX)
Dimensions (L×W×H):	68 × 128 × 17 mm(All models are the same size)
Rated Input Voltage:	DC3.85V from Rechargeable Li-ion Battery
Normal Operation:	Body
EUT Received Status:	Good
Note: The Multiple models are electrically identical with the test model except for model name and shell, The difference between MF510 and JTN5G is the model name and sales channel. Please refer to the declaration letter [#] for more detail, which was provided by manufacturer.	

REFERENCE, STANDARDS, AND GUIDELINES

FCC:

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

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

SAR Limits

FCC Limit (1g Tissue)

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

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

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

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

FACILITIES

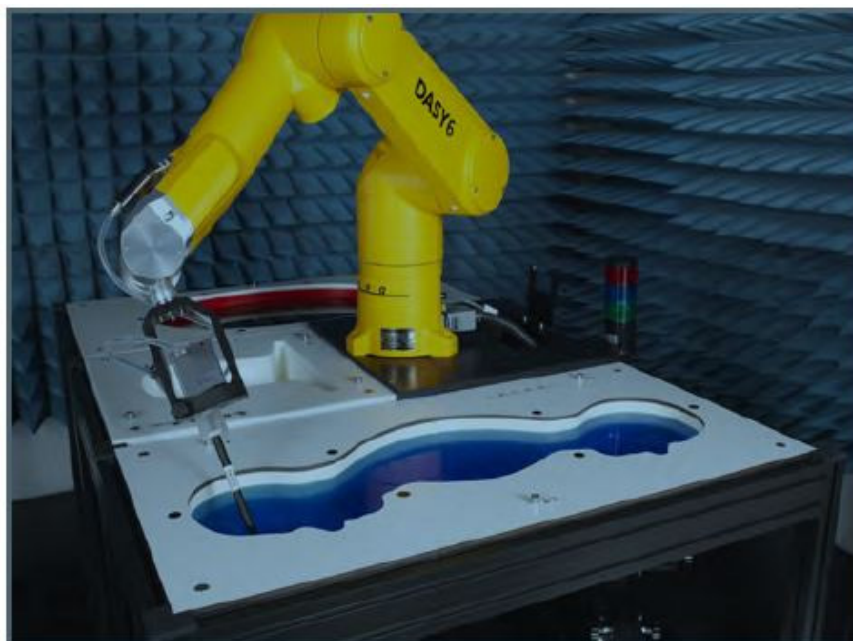
The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect data is located at 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China

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

Each test item follows test standards and with no deviation.

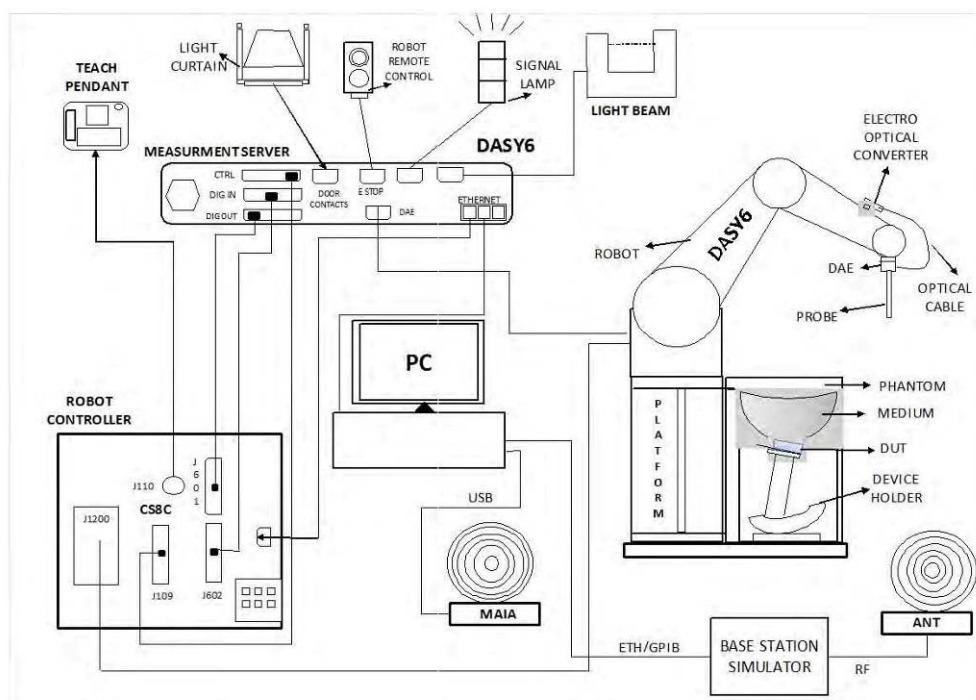
DESCRIPTION OF TEST SYSTEM

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



DASY6 System Description

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



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

DASY6 Measurement Server

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



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

Data Acquisition Electronics

The data acquisition electronics (DAE4) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

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

EX3DV4 E-Field Probes

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

SAM Twin Phantom

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

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

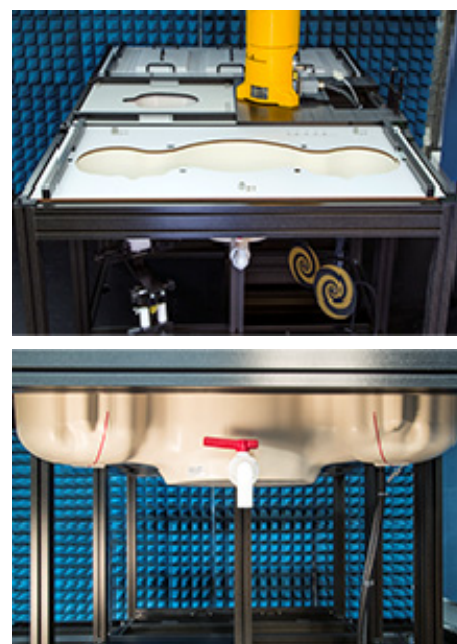
Phantom, some of the phantom teaching points cannot be reached by the robot in DASY5 V5.2. A special tool called P1a-P2aX-Former is provided to transform two of the three points, P1 and P2, to reachable locations. To use these new teaching points, a revised phantom configuration file is required.

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

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

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

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



ELI Phantom

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI is fully compatible with the latest draft of the standard IEEE 1528 and the use of all known tissue simulating liquids. ELI has been optimized for performance and can be integrated into a SPEAG standard phantom table. A cover is provided to prevent evaporation of water and changes in liquid parameters. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.

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

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

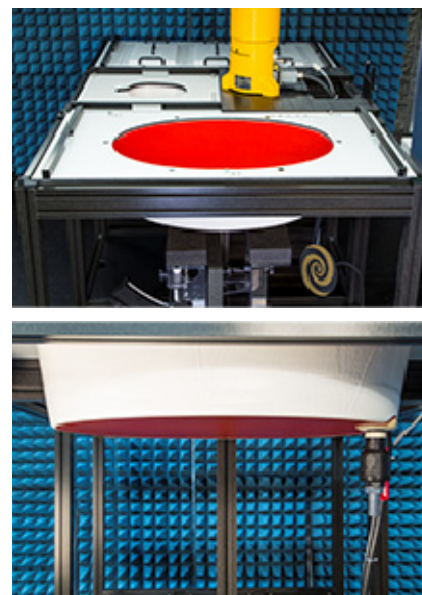
Approximately 25 liters of liquid is required to fill the ELI phantom.

Robots

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

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

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



Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7896 Calibrated: 2024/11/07

Calibration Frequency Point (MHz)	Frequency Range (MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	810	8.72	9.14	9.15
900 Head	810	1000	8.08	8.47	8.48
1750 Head	1650	1810	7.20	7.55	7.56
1900 Head	1810	2000	6.96	7.29	7.30
2300 Head	2200	2399	6.79	7.12	7.13
2450 Head	2399	2500	6.54	6.85	6.86
2600 Head	2500	2700	6.60	6.92	6.93
3300 Head	3200	3400	5.83	6.12	6.12
3500 Head	3400	3600	5.91	6.19	6.20
3700 Head	3600	3800	5.92	6.20	6.21
3900 Head	3800	4000	5.79	6.07	6.07
5250 Head	5140	5360	4.86	5.09	5.09
5600 Head	5490	5700	4.52	4.74	4.74
5800 Head	5700	5900	4.56	4.78	4.78
6500 Head	5900	7200	4.74	4.96	4.97

SAR Scan Procedures**Step 1: Power Reference Measurement**

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scans

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

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

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

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

Step 3: Zoom Scan (Cube Scan Averaging)

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

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

Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			$\leq 2 \text{ GHz}: \leq 8 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		$\leq 5 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 4 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 3 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	$\leq 4 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 3 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1) \text{ mm}$	
Minimum zoom scan volume	x, y, z		$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz}: \geq 28 \text{ mm}$ $4 - 5 \text{ GHz}: \geq 25 \text{ mm}$ $5 - 6 \text{ GHz}: \geq 22 \text{ mm}$
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is $\leq 1.4 \text{ W/kg}$, $\leq 8 \text{ mm}$, $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power Drift Measurement

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

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

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x 7 x 7 (5mm x 5mm x 5mm) 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

Equipment's List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52 52.10.4	N/A	NCR	NCR
DASY6 Measurement Server	DASY6 6.0.31	N/A	NCR	NCR
Data Acquisition Electronics	DAE4	1325	2024/10/8	2025/10/7
Dosimetric E-field Probes	EX3DV4	7896	2024/11/7	2025/11/6
Mounting Device	MD4HHTV5	SD 000 H01 KA	NCR	NCR
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Dipole, 750MHz	D750V3	1229	2023/3/24	2026/3/23
Dipole, 900MHz	D900V2	132	2023/9/26	2026/9/25
Dipole, 1750MHz	D1750V2	1199	2023/3/27	2026/3/26
Dipole, 1900MHz	D1900V2	5d231	2023/2/17	2026/2/16
Dipole, 2450MHz	D2450V2	1103	2023/3/27	2026/3/26
Dipole, 2600MHz	D2600V2	1207	2023/3/27	2026/3/26
Dipole,5GHz	D5GHzV2	1374	2023/3/27	2026/3/26
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808s-2	Each Time	Each Time
Network Analyzer	E5071C	SER MY46519680	2024/5/21	2025/5/20
MXG Analog Signal Generator	N5181A	MY48180408	2024/12/4	2025/12/3
Directional Coupler	855673	3307	NCR	NCR
RF Power Amplifier	5205FE	1014	NCR	NCR
Amplifier	ZVE-8G+	558401902	NCR	NCR
Wideband Radio Communication Tester	CMW500	141718	2024/8/6	2025/8/5
Thermometer	DTM3000	N/A	2024/12/10	2025/12/9
Temperature & Humidity Meter	10316377	N/A	2024/12/10	2025/12/9
UXM 5G Wireless Test Platform	E7515B	MY58120284	2024/5/17	2025/5/16
Spectrum Analyzer	FSV40	101942	2024/9/20	2025/9/19
Microwave peak power sensor	MA24418A	12622	2024/5/21	2025/5/20

Note :

NCR: No Calibration Required.

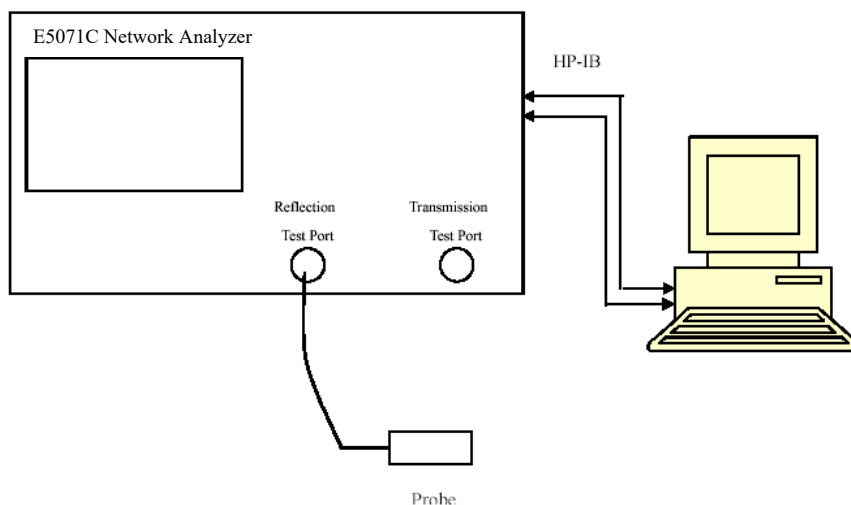
The Dipole calibration methods and procedures used were as detailed in:

FCC KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.
3. The verify result is on APPENDIX D.

SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
673	Simulated Tissue Liquid Head	41.658	0.866	42.31	0.88	-1.54	-1.59	± 5
680.5	Simulated Tissue Liquid Head	41.627	0.867	42.27	0.89	-1.52	-2.58	± 5
683	Simulated Tissue Liquid Head	41.617	0.867	42.26	0.89	-1.52	-2.58	± 5
688	Simulated Tissue Liquid Head	41.596	0.867	42.23	0.89	-1.50	-2.58	± 5
704	Simulated Tissue Liquid Head	41.530	0.868	42.15	0.89	-1.47	-2.47	± 5
707.5	Simulated Tissue Liquid Head	41.516	0.869	42.13	0.89	-1.46	-2.36	± 5
711	Simulated Tissue Liquid Head	41.501	0.869	42.11	0.89	-1.45	-2.36	± 5
750	Simulated Tissue Liquid Head	41.340	0.871	41.90	0.89	-1.34	-2.13	± 5

*Liquid Verification above was performed on 2025/05/08.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
826.4	Simulated Tissue Liquid Head	40.951	0.876	41.54	0.90	-1.42	-2.67	± 5
829	Simulated Tissue Liquid Head	40.945	0.878	41.53	0.90	-1.41	-2.44	± 5
834	Simulated Tissue Liquid Head	40.932	0.883	41.50	0.90	-1.37	-1.89	± 5
836.5	Simulated Tissue Liquid Head	40.926	0.885	41.50	0.90	-1.38	-1.67	± 5
836.6	Simulated Tissue Liquid Head	40.925	0.885	41.50	0.90	-1.39	-1.67	± 5
839	Simulated Tissue Liquid Head	40.919	0.887	41.50	0.90	-1.40	-1.44	± 5
844	Simulated Tissue Liquid Head	40.907	0.891	41.50	0.91	-1.43	-2.09	± 5
846.6	Simulated Tissue Liquid Head	40.900	0.893	41.50	0.91	-1.45	-1.87	± 5
900	Simulated Tissue Liquid Head	40.764	0.938	41.50	0.97	-1.77	-3.30	± 5

*Liquid Verification above was performed on 2025/05/09.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1720	Simulated Tissue Liquid Head	38.719	1.352	40.11	1.35	-3.47	0.15	± 5
1730	Simulated Tissue Liquid Head	38.713	1.359	40.10	1.36	-3.46	-0.07	± 5
1745	Simulated Tissue Liquid Head	38.703	1.371	40.08	1.37	-3.44	0.07	± 5
1750	Simulated Tissue Liquid Head	38.700	1.375	40.07	1.37	-3.42	0.36	± 5
1760	Simulated Tissue Liquid Head	38.693	1.382	40.06	1.38	-3.41	0.14	± 5
1770	Simulated Tissue Liquid Head	38.687	1.390	40.04	1.38	-3.38	0.72	± 5

*Liquid Verification above was performed on 2025/05/10.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1852.4	Simulated Tissue Liquid Head	40.404	1.378	40.00	1.40	1.01	-1.57	± 5
1860	Simulated Tissue Liquid Head	40.356	1.378	40.00	1.40	0.89	-1.57	± 5
1880	Simulated Tissue Liquid Head	40.227	1.379	40.00	1.40	0.57	-1.50	± 5
1900	Simulated Tissue Liquid Head	40.098	1.380	40.00	1.40	0.24	-1.43	± 5
1907.6	Simulated Tissue Liquid Head	40.050	1.380	40.00	1.40	0.12	-1.43	± 5

*Liquid Verification above was performed on 2025/05/09.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
2412	Simulated Tissue Liquid Head	38.563	1.759	39.27	1.77	-1.80	-0.62	± 5
2437	Simulated Tissue Liquid Head	38.492	1.790	39.22	1.79	-1.86	0.00	± 5
2450	Simulated Tissue Liquid Head	38.455	1.806	39.20	1.80	-1.90	0.33	± 5
2462	Simulated Tissue Liquid Head	38.420	1.820	39.18	1.81	-1.94	0.55	± 5

*Liquid Verification above was performed on 2025/05/08.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
2506	Simulated Tissue Liquid Head	40.017	1.792	39.13	1.86	2.27	-3.66	± 5
2546	Simulated Tissue Liquid Head	39.908	1.836	39.07	1.90	2.14	-3.37	± 5
2549.5	Simulated Tissue Liquid Head	39.898	1.839	39.07	1.91	2.12	-3.72	± 5
2569.5	Simulated Tissue Liquid Head	39.844	1.861	39.04	1.93	2.06	-3.58	± 5
2593	Simulated Tissue Liquid Head	39.780	1.886	39.01	1.95	1.97	-3.28	± 5
2600	Simulated Tissue Liquid Head	39.761	1.894	39.00	1.96	1.95	-3.37	± 5
2616.5	Simulated Tissue Liquid Head	39.716	1.912	38.98	1.98	1.89	-3.43	± 5
2636.5	Simulated Tissue Liquid Head	39.661	1.933	38.95	2.00	1.83	-3.35	± 5
2640	Simulated Tissue Liquid Head	39.652	1.937	38.95	2.00	1.80	-3.15	± 5
2680	Simulated Tissue Liquid Head	39.542	1.980	38.90	2.05	1.65	-3.41	± 5

*Liquid Verification above was performed on 2025/05/11.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
5180	Simulated Tissue Liquid Head	36.839	4.660	36.02	4.64	2.27	0.43	± 5
5200	Simulated Tissue Liquid Head	36.814	4.686	36.00	4.66	2.26	0.56	± 5
5240	Simulated Tissue Liquid Head	36.764	4.737	35.96	4.70	2.24	0.79	± 5
5250	Simulated Tissue Liquid Head	36.751	4.750	35.95	4.71	2.23	0.85	± 5

*Liquid Verification above was performed on 2025/05/11.

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
5745	Simulated Tissue Liquid Head	34.886	5.254	35.36	5.22	-1.34	0.65	± 5
5785	Simulated Tissue Liquid Head	34.866	5.315	35.32	5.26	-1.29	1.05	± 5
5800	Simulated Tissue Liquid Head	34.859	5.339	35.30	5.27	-1.25	1.31	± 5
5825	Simulated Tissue Liquid Head	34.847	5.378	35.28	5.30	-1.23	1.47	± 5

**Liquid Verification above was performed on 2025/05/11.*

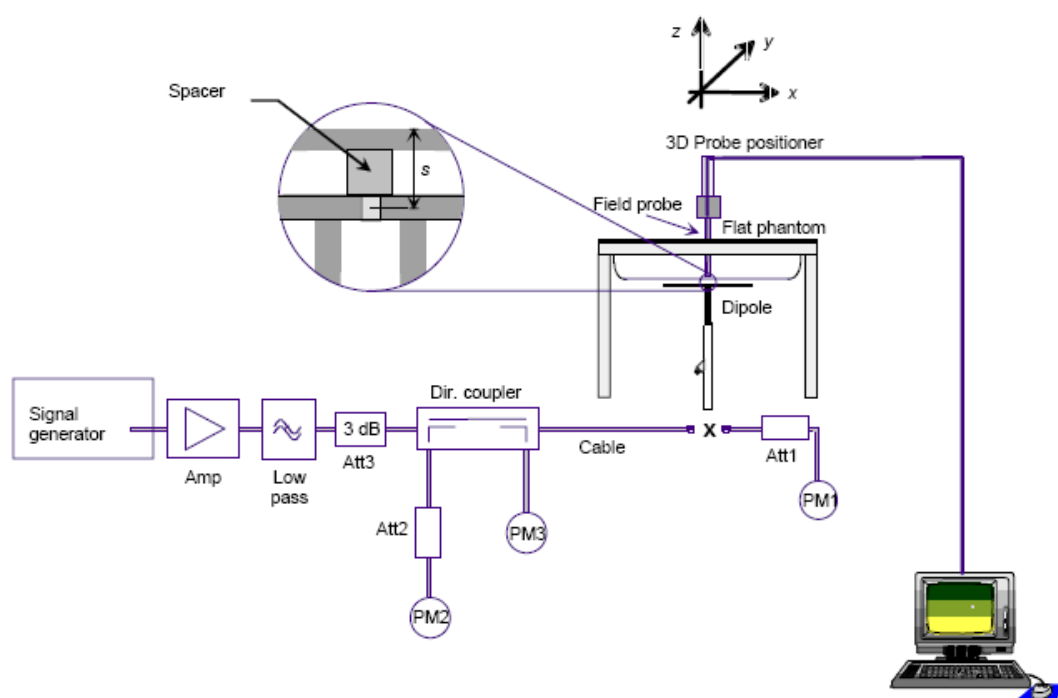
System Accuracy Verification

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

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

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

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band (MHz)	Liquid Type	Input Power (mW)	Measured SAR (W/kg)	Normalized to 1W (W/kg)	Target Value (W/Kg)	Delta (%)	Tolerance (%)
2025/05/08	750	Head	100	1g 0.812	8.12	8.41	-3.448	± 10
2025/05/09	900	Head	100	1g 1.07	10.7	10.8	-0.926	± 10
2025/05/10	1750	Head	100	1g 3.56	35.6	36.0	-1.111	± 10
2025/05/09	1900	Head	100	1g 3.85	38.5	39.9	-3.509	± 10
2025/05/08	2450	Head	100	1g 4.95	49.5	51.7	-4.255	± 10
2025/05/11	2600	Head	100	1g 5.12	51.2	55.2	-7.246	± 10
2025/05/11	5250	Head	100	1g 8.12	81.2	80.1	1.373	± 10
2025/05/11	5800	Head	100	1g 8.52	85.2	81.4	4.668	± 10

Note:

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

SAR SYSTEM VALIDATION DATA

System Performance 750 MHz Head was performed on 2025/05/08

DUT: Dipole 750 MHz; Type: 750 MHz; Serial: 1229

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

Medium parameters used: $f = 750$ MHz; $\sigma = 0.871$ S/m; $\epsilon_r = 41.34$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(8.72, 9.14, 9.15) @750 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 0.919 W/kg

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

Reference Value = 30.14 V/m; Power Drift = 0.11 dB

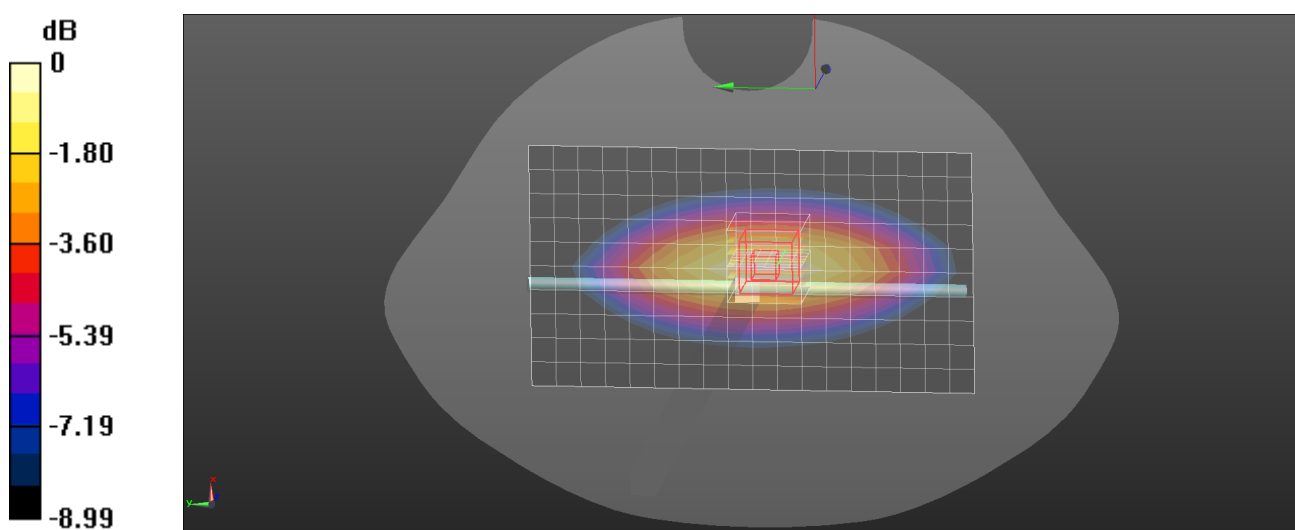
Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.812 W/kg; SAR(10 g) = 0.561 W/kg

Smallest distance from peaks to all points 3 dB below = 19.2 mm

Ratio of SAR at M2 to SAR at M1 = 71.9%

Maximum value of SAR (measured) = 1.01 W/kg



System Performance 900 MHz Head was performed on 2025/05/09**DUT: Dipole 900 MHz; Type: 900 MHz; Serial: 132**

Communication System: CW (0); Frequency: 900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 900$ MHz; $\sigma = 0.938$ S/m; $\epsilon_r = 40.764$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(8.08, 8.47, 8.48) @900 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Configuration/Head 900MHz Pin=100mW/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.37 W/kg

Configuration/Head 900MHz Pin=100mW/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 36.07 V/m; Power Drift = 0.18 dB

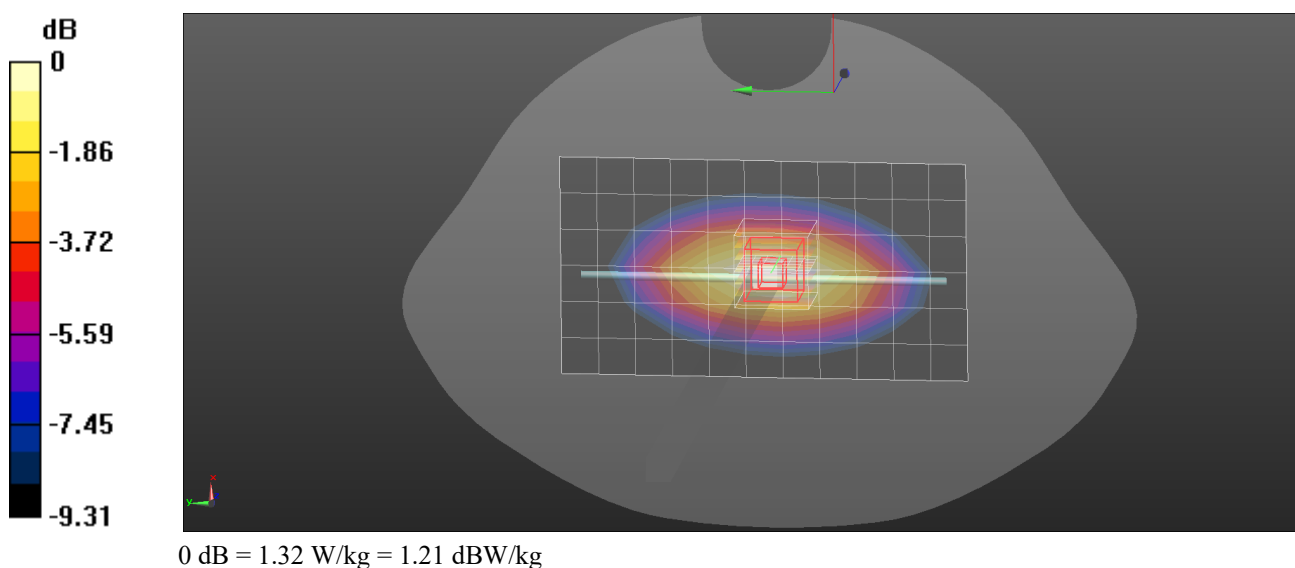
Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.722 W/kg

Smallest distance from peaks to all points 3 dB below = 18.4 mm

Ratio of SAR at M2 to SAR at M1 = 72.7%

Maximum value of SAR (measured) = 1.32 W/kg



System Performance 1750 MHz Head was performed on 2025/05/10**DUT: Dipole 1750 MHz; Type: 1750 MHz; Serial: 1199**

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.375$ S/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(7.2, 7.55, 7.56) @1750 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 5.05 W/kg

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

Reference Value = 54.81 V/m; Power Drift = -0.15 dB

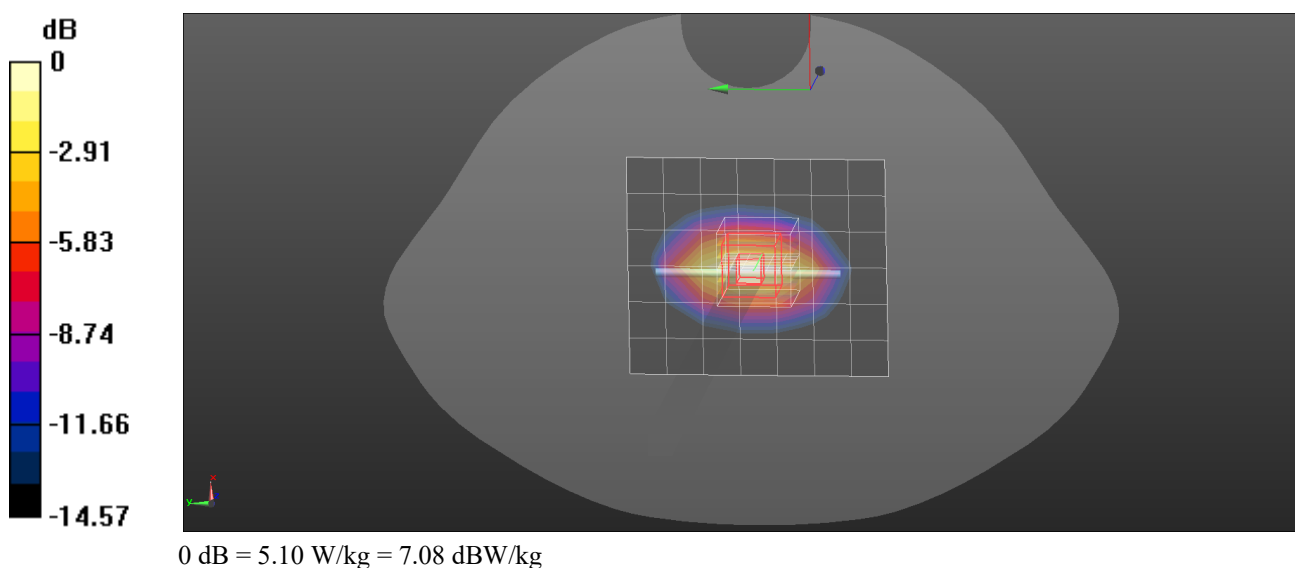
Peak SAR (extrapolated) = 5.78 W/kg

SAR(1 g) = 3.56 W/kg; SAR(10 g) = 2.02 W/kg

Smallest distance from peaks to all points 3 dB below = 10.4 mm

Ratio of SAR at M2 to SAR at M1 = 62.4%

Maximum value of SAR (measured) = 5.10 W/kg



System Performance 1900 MHz Head was performed on 2025/05/09**DUT: Dipole 1900 MHz; Type: 1900 MHz; Serial: 5d231**

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.38$ S/m; $\epsilon_r = 40.098$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @1900 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 5.92 W/kg

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

Reference Value = 60.23 V/m; Power Drift = 0.06 dB

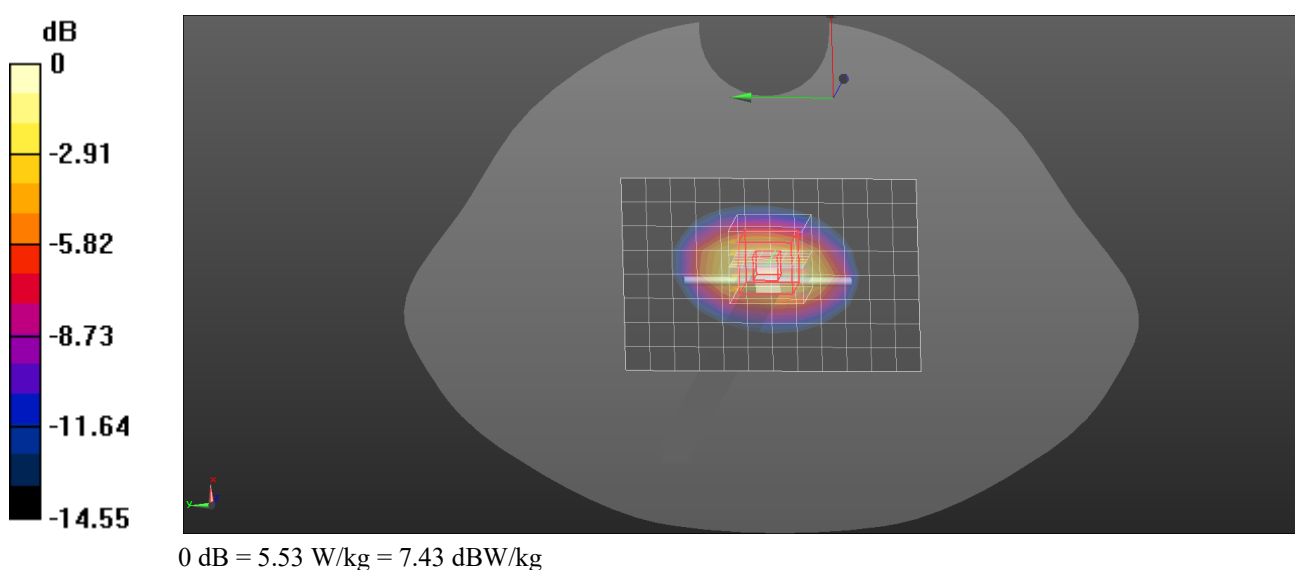
Peak SAR (extrapolated) = 6.26 W/kg

SAR(1 g) = 3.85 W/kg; SAR(10 g) = 2.15 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 62%

Maximum value of SAR (measured) = 5.53 W/kg



System Performance 2450 MHz Head was performed on 2025/05/08**DUT: Dipole 2450 MHz; Type: 2450 MHz; Serial: 1103**

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.806$ S/m; $\epsilon_r = 38.455$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.54, 6.85, 6.86) @2450 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 8.14 W/kg

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

Reference Value = 57.78 V/m; Power Drift = 0.10 dB

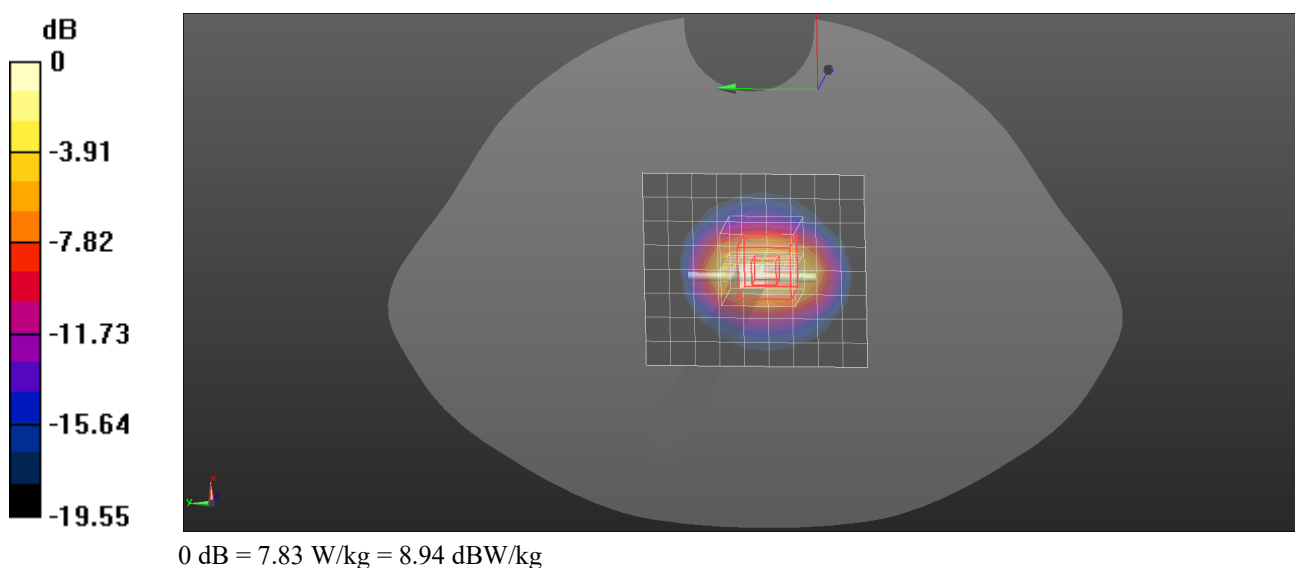
Peak SAR (extrapolated) = 9.43 W/kg

SAR(1 g) = 4.95 W/kg; SAR(10 g) = 2.46 W/kg

Smallest distance from peaks to all points 3 dB below = 8.9 mm

Ratio of SAR at M2 to SAR at M1 = 53.8%

Maximum value of SAR (measured) = 7.83 W/kg



System Performance 2600 MHz Head was performed on 2025/05/11**DUT: Dipole 2600 MHz; Type: 2600 MHz; Serial: 1207**

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

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.894$ S/m; $\epsilon_r = 39.761$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.6, 6.92, 6.93) @2600 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 7.61 W/kg

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

Reference Value = 57.56 V/m; Power Drift = 0.13 dB

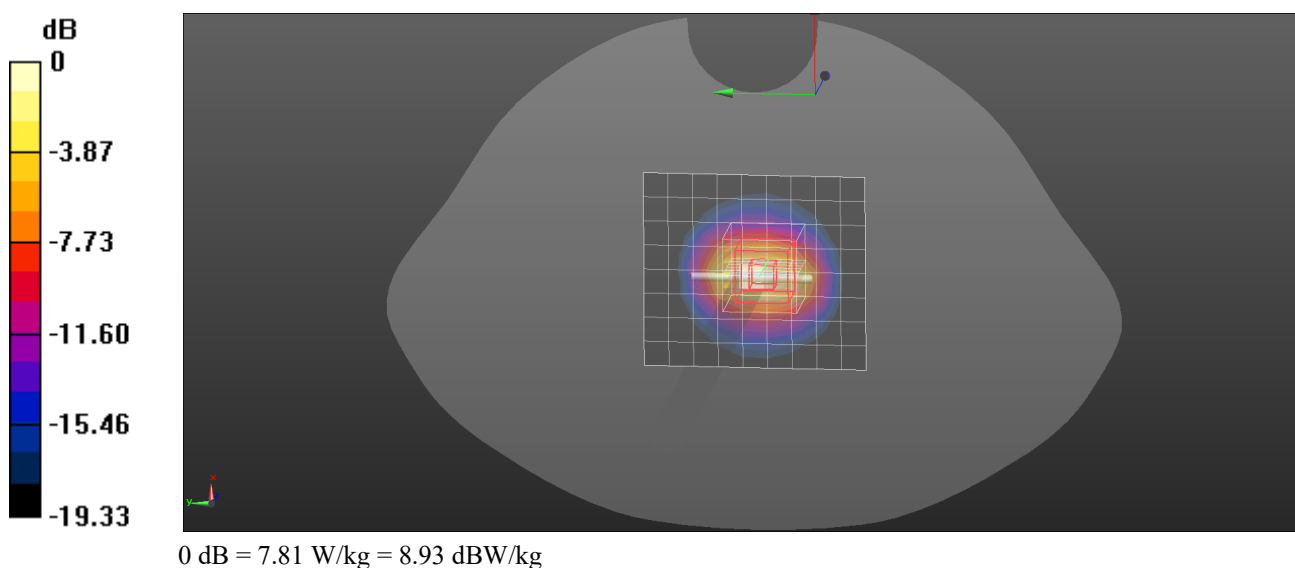
Peak SAR (extrapolated) = 9.11 W/kg

SAR(1 g) = 5.12 W/kg; SAR(10 g) = 2.49 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 56.5%

Maximum value of SAR (measured) = 7.81 W/kg



System Performance 5250 MHz Head was performed on 2025/05/11**DUT: Dipole D5GHz; Type: 5250 MHz; Serial: 1374**

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

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.75$ S/m; $\epsilon_r = 36.751$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(4.86, 5.09, 5.09) @5250 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

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

Maximum value of SAR (measured) = 19.7 W/kg

Configuration/Head 5250MHz Pin=100mW/Zoom Scan (8x8x12) /Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 47.35 V/m; Power Drift = 0.12 dB

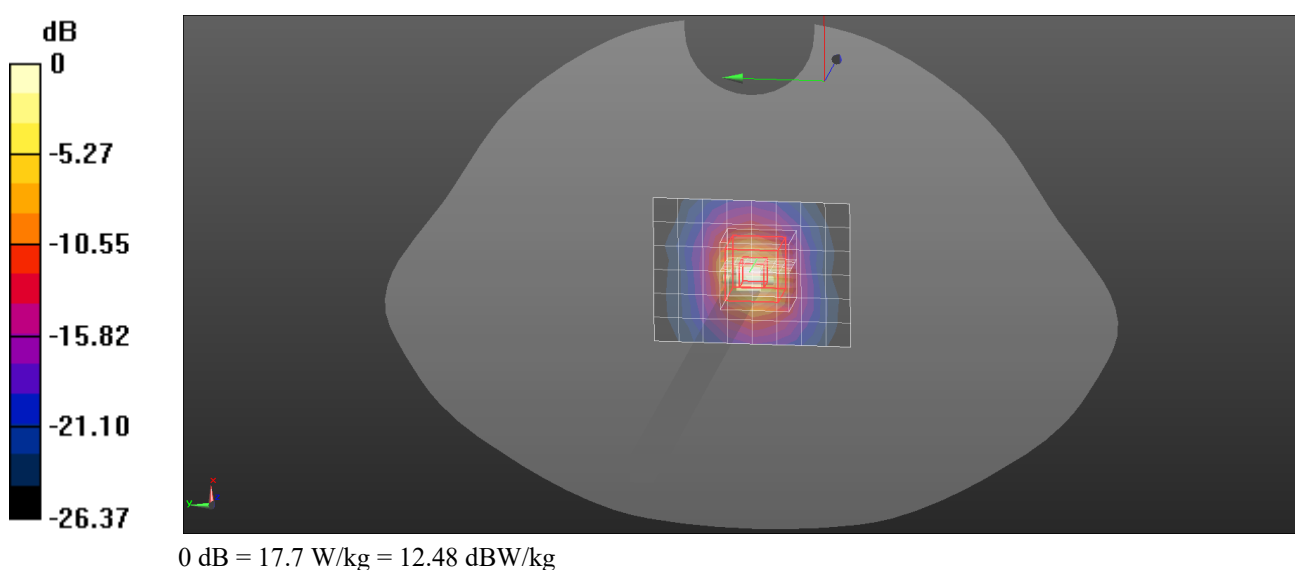
Peak SAR (extrapolated) = 27.3 W/kg

SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.45 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 61.1%

Maximum value of SAR (measured) = 17.7 W/kg



System Performance 5800 MHz Head was performed on 2025/05/11**DUT: Dipole D5GHz; Type: 5800 MHz; Serial: 1374**

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

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.339$ S/m; $\epsilon_r = 34.859$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(4.56, 4.78, 4.78) @5800 MHz; Calibrated: 2024/11/07
- Sensor-Surface: 1.4mm (Mechanical Surface Detection);
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Configuration/Head 5800MHz Pin=100mW/Area Scan (11x13x1): Measurement grid: dx=10mm, dy=10mm

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

Configuration/Head 5800MHz Pin=100mW/Zoom Scan (8x8x12) /Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 43.20 V/m; Power Drift = -0.08 dB

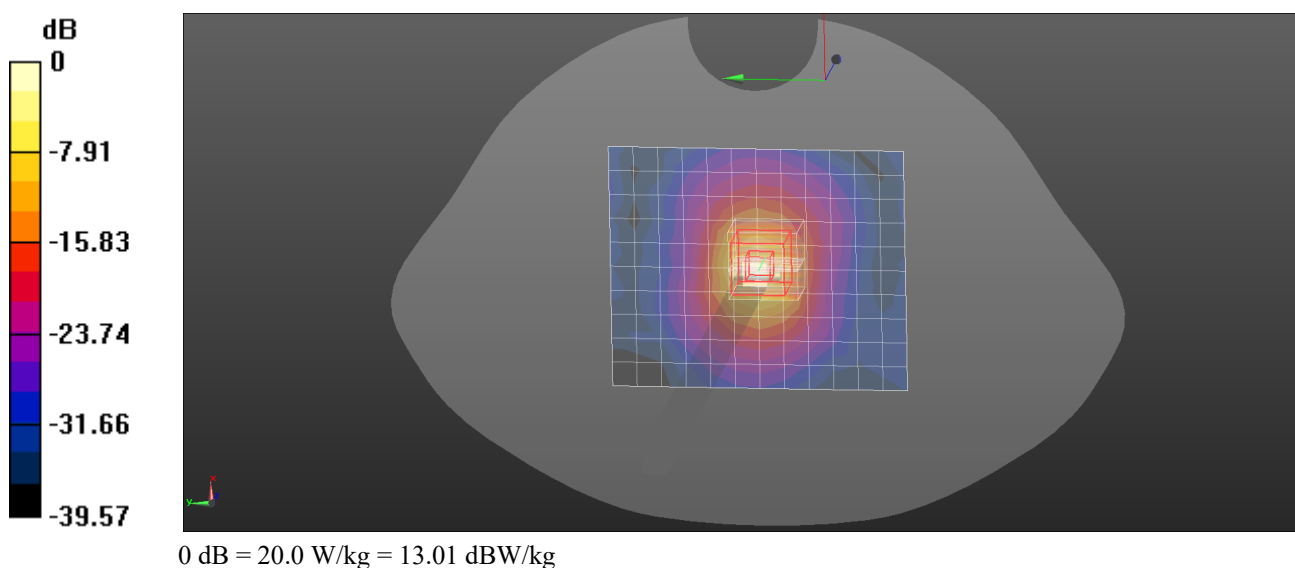
Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 8.52 W/kg; SAR(10 g) = 2.53 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 56.9%

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



EUT TEST STRATEGY AND METHODOLOGY

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.

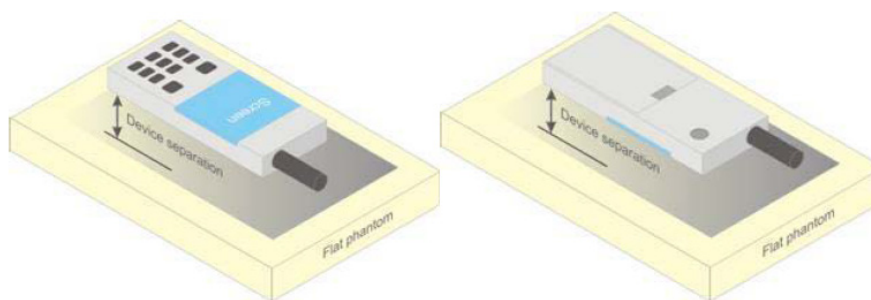


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

In this case the EUT(Equipment Under Test) is set 10mm away from the phantom, the test distance is 10mm for 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.

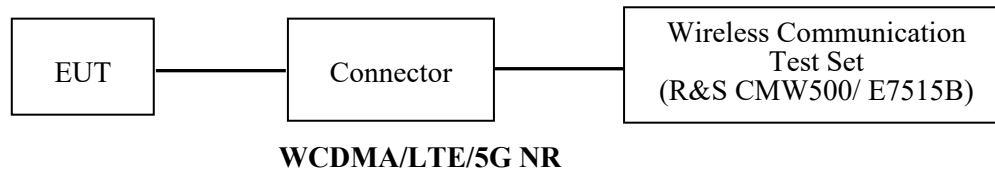
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

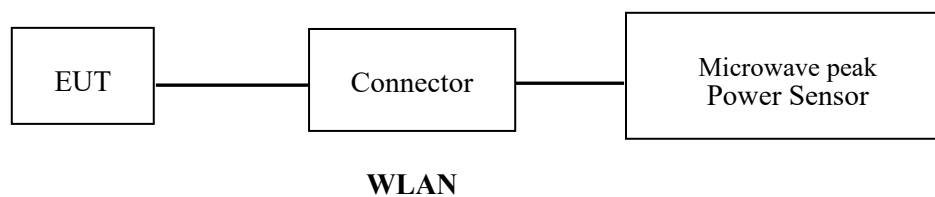
CONDUCTED OUTPUT POWER MEASUREMENT

Test Procedure

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



The RF output of the transmitter was connected to the input port of the Microwave peak Power Sensor through Connector.



Description of Test Configuration

EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in each operation mode.
Equipment Modifications:	No
EUT Exercise Software:	No

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
	$\beta_d(\text{SF})$	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs= β_{hs}/β_c	30/15			

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				
	$A_{hs}=\beta_{hs}/\beta_c$	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_FCI's	E-TFCI 11 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-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		

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_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105
Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. 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 $\beta_d = 0$ 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 6.2.2-1 due 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
NS_05	6.6.3.3.1	1	10, 15, 20	Table 6.2.4-4	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	N/A
NS_07	6.6.2.2.3 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

LTE TDD Band 41 supports 3GPP 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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
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 SAR test, that is 63.33%(1:1.58)for duty cycle.

5G NR

The general information supported by the NR band is as following table:

Band		TDD	FDD
NR mode		SA	Yes
		NSA	Yes
Modulation	DFT-s-OFDM	PI/2 BPSK	Yes
		QPSK	Yes
		16QAM	Yes
		64QAM	Yes
		256QAM	Yes
	CP-OFDM	QPSK	Yes
		16QAM	Yes
		64QAM	Yes
256QAM		Yes	
Duty Cycle		63.33%	100%

For 5G NR test procedure was following step similar FCC KDB 941225 D05:

- a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not $\frac{1}{2}$ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
- b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth.
- c. SAR testing start with the largest SCS and largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
- d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure e. 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. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- e. 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. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not $\frac{1}{2}$ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
- g. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device

Maximum Target Output Power

Mode/Band	Max Target Power(dBm)		
	Channel		
	Low	Middle	High
WCDMA Band 2	21.0	21.0	21.0
HSDPA	20.5	20.5	20.5
HSUPA	20.5	20.5	20.5
HSPA+	20.5	20.5	20.5
WCDMA Band 5	21.5	21.5	21.5
HSDPA	20.5	20.5	20.5
HSUPA	20.5	20.5	20.5
HSPA+	20.5	20.5	20.5
LTE Band 2	22.5	22.5	22.5
LTE Band 4	22.5	22.5	22.5
LTE Band 5	24.8	24.8	24.8
LTE Band 12	24.5	24.5	24.5
LTE Band 41	24.5	24.5	24.5
LTE Band 66	24.0	24.0	24.0
LTE Band 71	25.3	25.3	25.3
5G NR n2	21.3	21.3	21.3
5G NR n5	18.0	18.0	18.0
5G NR n41	23.7	23.7	23.7
5G NR n66	23.5	23.5	23.5
5G NR n71	21.3	21.3	21.3
WIFI 2.4G 802.11b WIFI1	16.0	16.0	16.0
WIFI 2.4G 802.11g WIFI1	9.5	9.5	9.5
WIFI 2.4G 802.11n20 WIFI1	9.5	9.5	9.5
WIFI 2.4G 802.11n40 WIFI1	8.5	8.5	8.5
WIFI 2.4G 802.11ax20 WIFI1	11.0	11.0	11.0
WIFI 2.4G 802.11ax40 WIFI1	9.5	9.5	9.5
WIFI 2.4G 802.11b WIFI2	16.0	16.0	16.0
WIFI 2.4G 802.11g WIFI2	9.5	9.5	9.5
WIFI 2.4G 802.11n20 WIFI2	9.5	9.5	9.5
WIFI 2.4G 802.11n40 WIFI2	8.5	8.5	8.5
WIFI 2.4G 802.11ax20 WIFI2	11.0	11.0	11.0
WIFI 2.4G 802.11ax40 WIFI2	9.5	9.5	9.5
WIFI 5.2G 802.11a WIFI1	12.0	12.0	12.0
WIFI 5.2G 802.11ac20 WIFI1	11.0	11.0	11.0
WIFI 5.2G 802.11ac40 WIFI1	11.0	/	11.0
WIFI 5.2G 802.11ac80 WIFI1	/	11.0	/
WIFI 5.2G 802.11ax20 WIFI1	11.0	11.0	11.0
WIFI 5.2G 802.11ax40 WIFI1	11.0	/	11.0
WIFI 5.2G 802.11ax80 WIFI1	/	11.0	/
WIFI 5.2G 802.11a WIFI2	10.0	10.0	10.0
WIFI 5.2G 802.11ac20 WIFI2	9.5	9.5	9.5
WIFI 5.2G 802.11ac40 WIFI2	9.5	/	9.5

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
WIFI 5.2G 802.11ac80 WIFI2	/	9.5	/
WIFI 5.2G 802.11ax20 WIFI2	9.5	9.5	9.5
WIFI 5.2G 802.11ax40 WIFI2	9.5	/	9.5
WIFI 5.2G 802.11ax80 WIFI2	/	9.5	/
WIFI 5.8G 802.11a WIFI1	7.0	7.0	7.0
WIFI 5.8G 802.11ac20 WIFI1	6.5	6.5	6.5
WIFI 5.8G 802.11ac40 WIFI1	6.5	/	6.5
WIFI 5.8G 802.11ac80 WIFI1	/	6.5	/
WIFI 5.8G 802.11ax20 WIFI1	6.5	6.5	6.5
WIFI 5.8G 802.11ax40 WIFI1	6.5	/	6.5
WIFI 5.8G 802.11ax80 WIFI1	/	6.5	/
WIFI 5.8G 802.11a WIFI2	7.0	7.0	7.0
WIFI 5.8G 802.11ac20 WIFI2	5.0	5.0	5.0
WIFI 5.8G 802.11ac40 WIFI2	5.0	/	5.0
WIFI 5.8G 802.11ac80 WIFI2	/	5.5	/
WIFI 5.8G 802.11ax20 WIFI2	5.0	5.0	5.0
WIFI 5.8G 802.11ax40 WIFI2	6.0	/	6.0
WIFI 5.8G 802.11ax80 WIFI2	/	6.0	/

Note: The Maximum Target Power for LTE and 5G NR bands corresponds to their maximum power in QPSK modes with maximum bandwidth. Specifically for 5G NR, this refers to the DFT-s-OFDM QPSK mode.

Test Results**WCDMA:****WCDMA Band 2:**

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA R99	20.46	20.15	19.99
HSDPA Subtest 1	19.43	19.82	19.55
HSDPA Subtest 2	19.53	19.76	19.31
HSDPA Subtest 3	18.85	19.02	18.68
HSDPA Subtest 4	18.80	18.97	18.58
HSUPA Subtest 1	18.66	19.08	18.55
HSUPA Subtest 2	19.45	19.59	19.12
HSUPA Subtest 3	18.71	18.52	18.54
HSUPA Subtest 4	19.28	19.43	19.54
HSUPA Subtest 5	18.58	18.75	18.54
HSPA+ Subtest 1	19.15	19.13	19.74

WCDMA Band 5:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA R99	20.90	21.16	21.13
HSDPA Subtest 1	19.96	20.04	20.09
HSDPA Subtest 2	20.16	19.78	19.81
HSDPA Subtest 3	19.60	19.88	19.56
HSDPA Subtest 4	19.56	19.55	19.60
HSUPA Subtest 1	19.78	19.67	19.66
HSUPA Subtest 2	20.16	19.84	20.06
HSUPA Subtest 3	19.33	19.22	18.75
HSUPA Subtest 4	20.37	19.76	19.77
HSUPA Subtest 5	18.82	19.28	18.91
HSPA+ Subtest 1	19.39	20.31	19.78

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 All 1.
2. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA/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	RB1#0	21.80	22.07	21.74
		RB1#3	21.59	22.16	21.76
		RB1#5	21.71	22.03	21.91
		RB3#0	21.86	21.92	21.85
		RB3#1	21.72	22.01	21.86
		RB3#3	21.82	21.90	21.91
		RB6#0	21.04	21.07	21.09
	16-QAM	RB1#0	20.90	21.46	20.90
		RB1#3	20.91	21.55	20.97
		RB1#5	20.78	21.43	20.98
		RB3#0	21.18	21.42	21.29
		RB3#1	21.05	21.35	21.31
		RB3#3	21.24	21.33	21.18
		RB6#0	20.06	20.01	20.41
3M	QPSK	RB1#0	21.72	22.22	21.84
		RB1#8	21.86	22.05	21.69
		RB1#14	21.90	22.26	21.86
		RB8#0	20.91	21.15	21.23
		RB8#4	20.99	21.16	21.23
		RB8#7	21.04	21.16	21.19
		RB15#0	21.00	21.09	21.25
	16-QAM	RB1#0	21.01	21.40	20.93
		RB1#8	20.82	21.44	21.00
		RB1#14	21.02	21.45	21.01
		RB8#0	20.06	20.14	20.15
		RB8#4	20.17	20.18	20.09
		RB8#7	20.11	20.30	20.04
		RB15#0	20.15	20.06	20.19
5M	QPSK	RB1#0	22.06	22.13	21.97
		RB1#12	22.03	22.06	21.98
		RB1#24	22.11	22.01	22.04
		RB12#0	21.15	21.22	21.24
		RB12#7	21.01	21.15	21.24
		RB12#13	20.98	21.00	21.18
		RB25#0	21.09	21.21	21.28
	16-QAM	RB1#0	21.08	21.80	21.21
		RB1#12	21.15	21.84	21.31
		RB1#24	21.18	21.67	21.28
		RB12#0	20.20	20.16	20.21
		RB12#7	20.06	20.26	20.21
		RB12#13	20.09	20.12	20.13
		RB25#0	20.09	20.17	20.17

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	21.94	22.14	21.97
		RB1#25	22.03	22.26	21.90
		RB1#49	22.10	22.26	21.95
		RB25#0	21.22	21.05	21.20
		RB25#12	21.20	21.12	21.18
		RB25#25	21.05	21.11	21.07
		RB50#0	21.09	21.09	21.20
	16-QAM	RB1#0	20.91	21.61	21.11
		RB1#25	20.97	21.48	20.94
		RB1#49	21.17	21.45	20.89
		RB25#0	20.10	20.11	20.19
		RB25#12	20.22	20.27	20.36
		RB25#25	19.95	20.05	20.21
		RB50#0	20.06	20.10	20.19
15M	QPSK	RB1#0	21.83	22.08	22.20
		RB1#37	21.90	22.15	22.18
		RB1#74	21.92	22.15	22.08
		RB36#0	21.19	21.07	21.28
		RB36#20	21.21	21.11	21.31
		RB36#39	21.14	21.12	21.11
		RB75#0	21.02	21.10	21.28
	16-QAM	RB1#0	21.00	21.38	21.22
		RB1#37	21.04	21.56	21.27
		RB1#74	20.94	21.50	21.08
		RB36#0	20.24	20.16	20.25
		RB36#20	20.07	20.20	20.18
		RB36#39	20.06	20.24	20.17
		RB75#0	20.11	20.08	20.15
20M	QPSK	RB1#0	21.83	22.04	21.96
		RB1#49	21.90	21.97	21.96
		RB1#99	22.18	22.15	22.35
		RB50#0	21.78	21.66	21.88
		RB50#24	21.16	21.22	21.34
		RB50#50	20.94	21.10	21.31
		RB100#0	21.19	20.99	21.33
	16-QAM	RB1#0	21.62	21.38	21.47
		RB1#49	21.70	21.40	21.42
		RB1#99	21.63	21.33	21.29
		RB50#0	20.17	20.06	20.34
		RB50#24	20.08	20.19	20.19
		RB50#50	20.07	20.00	20.26
		RB100#0	20.18	19.98	20.37

LTE Band 4:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	21.86	22.29	21.65
		RB1#3	21.81	22.27	22.08
		RB1#5	21.68	22.08	21.78
		RB3#0	22.06	22.25	21.71
		RB3#1	22.16	22.28	22.12
		RB3#3	21.88	21.62	21.75
		RB6#0	20.99	21.15	20.59
	16-QAM	RB1#0	20.86	21.56	20.52
		RB1#3	20.59	21.17	20.67
		RB1#5	20.76	21.36	20.59
		RB3#0	21.07	21.33	21.18
		RB3#1	20.74	21.55	21.05
		RB3#3	21.17	21.24	21.28
		RB6#0	20.15	19.80	20.13
3M	QPSK	RB1#0	22.00	22.13	22.23
		RB1#8	21.60	21.90	22.07
		RB1#14	21.54	21.94	21.70
		RB8#0	20.88	20.81	20.86
		RB8#4	20.71	21.11	20.93
		RB8#7	20.86	20.79	20.72
		RB15#0	20.98	20.95	20.83
	16-QAM	RB1#0	20.93	20.99	20.64
		RB1#8	20.43	21.56	21.06
		RB1#14	20.76	21.45	20.57
		RB8#0	20.19	20.21	19.92
		RB8#4	20.12	20.09	19.89
		RB8#7	19.84	19.92	20.31
		RB15#0	20.02	20.06	20.11
5M	QPSK	RB1#0	22.25	22.16	22.08
		RB1#12	22.23	21.76	22.05
		RB1#24	21.83	22.28	21.98
		RB12#0	20.90	20.67	20.73
		RB12#7	20.83	21.19	21.19
		RB12#13	20.97	20.98	20.91
		RB25#0	21.23	21.22	21.00
	16-QAM	RB1#0	21.07	21.91	20.94
		RB1#12	20.84	21.25	20.93
		RB1#24	21.11	21.73	21.14
		RB12#0	20.10	19.97	20.39
		RB12#7	19.91	20.36	19.98
		RB12#13	20.36	20.08	20.09
		RB25#0	19.95	20.09	20.35

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	22.22	22.25	21.78
		RB1#25	22.23	21.74	21.86
		RB1#49	22.08	22.13	21.68
		RB25#0	20.70	21.07	20.72
		RB25#12	20.84	20.65	21.11
		RB25#25	20.73	21.12	20.95
		RB50#0	20.73	20.83	20.78
	16-QAM	RB1#0	21.13	20.75	20.87
		RB1#25	21.09	21.16	20.51
		RB1#49	21.35	21.14	21.02
		RB25#0	20.01	20.18	20.20
		RB25#12	20.43	20.52	20.25
		RB25#25	19.85	20.11	20.06
		RB50#0	20.20	19.91	20.10
15M	QPSK	RB1#0	21.96	22.22	21.72
		RB1#37	21.71	21.97	21.78
		RB1#74	21.81	22.08	21.89
		RB36#0	21.01	20.95	20.81
		RB36#20	20.22	20.79	21.20
		RB36#39	21.03	21.12	20.97
		RB75#0	20.73	20.77	21.13
	16-QAM	RB1#0	20.84	21.54	20.66
		RB1#37	21.29	21.24	20.80
		RB1#74	21.20	21.08	20.66
		RB36#0	20.24	20.07	20.12
		RB36#20	20.40	19.89	20.48
		RB36#39	19.74	20.22	19.78
		RB75#0	20.34	19.89	20.42
20M	QPSK	RB1#0	22.30	22.19	22.23
		RB1#49	21.94	22.03	21.67
		RB1#99	21.69	21.89	22.26
		RB50#0	21.26	21.39	21.49
		RB50#24	21.17	21.20	20.98
		RB50#50	20.68	21.13	20.62
		RB100#0	21.10	21.00	21.17
	16-QAM	RB1#0	20.99	21.53	21.75
		RB1#49	21.24	21.49	21.89
		RB1#99	21.38	21.55	21.84
		RB50#0	19.99	20.12	20.33
		RB50#24	20.04	20.24	20.35
		RB50#50	19.88	20.36	20.35
		RB100#0	20.53	20.23	19.99

LTE Band 5:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	24.19	24.30	24.31
		RB1#3	24.25	24.36	24.17
		RB1#5	24.17	24.30	24.34
		RB3#0	24.26	24.38	24.36
		RB3#1	24.33	24.34	24.31
		RB3#3	24.29	24.37	24.21
		RB6#0	23.37	23.32	23.23
	16-QAM	RB1#0	23.20	23.92	23.24
		RB1#3	23.07	23.98	23.15
		RB1#5	23.06	23.90	23.33
		RB3#0	23.52	23.92	23.60
		RB3#1	23.38	23.93	23.45
		RB3#3	23.41	23.88	23.44
		RB6#0	22.39	22.41	22.75
3M	QPSK	RB1#0	23.98	24.32	24.23
		RB1#8	24.11	24.35	24.20
		RB1#14	24.27	24.37	24.27
		RB8#0	23.37	23.24	23.31
		RB8#4	23.23	23.22	23.32
		RB8#7	23.26	23.20	23.21
		RB15#0	23.34	23.27	23.21
	16-QAM	RB1#0	23.10	23.40	23.30
		RB1#8	23.06	23.53	23.26
		RB1#14	23.18	23.54	23.24
		RB8#0	22.25	22.60	22.41
		RB8#4	22.17	22.64	22.60
		RB8#7	22.25	22.51	21.75
		RB15#0	22.37	22.61	22.50
5M	QPSK	RB1#0	24.13	24.23	24.28
		RB1#12	24.15	24.28	24.22
		RB1#24	24.12	24.23	24.32
		RB12#0	23.17	23.21	23.48
		RB12#7	23.12	23.27	23.51
		RB12#13	23.16	23.21	23.28
		RB25#0	22.78	23.27	23.30
	16-QAM	RB1#0	23.23	24.20	23.52
		RB1#12	23.32	24.34	23.53
		RB1#24	23.99	24.32	23.52
		RB12#0	22.50	22.60	22.50
		RB12#7	22.53	22.67	22.67
		RB12#13	22.39	22.64	22.56
		RB25#0	22.53	22.72	21.58

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	24.04	24.10	24.39
		RB1#25	23.59	23.77	23.73
		RB1#49	23.52	23.86	23.76
		RB25#0	23.21	23.22	23.15
		RB25#12	22.90	22.86	22.87
		RB25#25	22.96	22.85	22.95
		RB50#0	22.84	22.83	23.03
	16-QAM	RB1#0	22.29	22.67	23.19
		RB1#25	22.41	22.84	23.27
		RB1#49	22.60	22.64	23.00
		RB25#0	21.86	21.88	22.08
		RB25#12	21.81	21.88	22.00
		RB25#25	22.11	21.82	22.08
		RB50#0	21.85	21.74	21.89

LTE Band 12:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	24.02	23.63	23.82
		RB1#3	23.86	23.72	23.91
		RB1#5	23.91	23.58	23.96
		RB3#0	23.84	23.63	23.98
		RB3#1	23.83	23.68	24.02
		RB3#3	23.82	23.84	23.93
		RB6#0	22.73	22.68	22.92
	16-QAM	RB1#0	23.31	22.41	22.72
		RB1#3	23.25	22.66	22.83
		RB1#5	23.10	22.67	22.97
		RB3#0	23.08	22.95	23.20
		RB3#1	23.17	22.87	23.25
		RB3#3	23.07	23.01	23.18
		RB6#0	21.69	21.87	22.24
3M	QPSK	RB1#0	23.49	23.74	23.94
		RB1#8	23.62	23.80	23.99
		RB1#14	23.60	23.66	24.09
		RB8#0	22.85	22.74	22.91
		RB8#4	22.65	22.73	22.89
		RB8#7	22.77	22.79	22.89
		RB15#0	22.81	22.70	22.99
	16-QAM	RB1#0	22.62	22.57	23.11
		RB1#8	22.54	22.78	23.31
		RB1#14	22.55	22.59	23.36
		RB8#0	21.78	21.81	22.03
		RB8#4	21.83	21.78	22.09
		RB8#7	21.73	21.79	22.08
		RB15#0	21.73	21.91	22.05
5M	QPSK	RB1#0	23.80	23.85	23.72
		RB1#12	23.82	23.84	23.82
		RB1#24	23.80	23.95	23.98
		RB12#0	22.82	22.91	23.01
		RB12#7	22.87	22.81	22.97
		RB12#13	22.79	22.86	22.84
		RB25#0	22.75	22.86	22.98
	16-QAM	RB1#0	22.80	22.82	23.40
		RB1#12	22.73	22.96	23.49
		RB1#24	22.69	22.79	23.53
		RB12#0	21.96	21.96	21.98
		RB12#7	21.84	21.76	21.99
		RB12#13	21.77	21.89	21.98
		RB25#0	21.81	21.88	22.11

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	23.79	23.88	23.94
		RB1#25	23.90	23.84	23.90
		RB1#49	24.26	24.27	24.30
		RB25#0	23.25	23.15	23.19
		RB25#12	22.78	22.83	22.68
		RB25#25	22.86	22.67	22.86
		RB50#0	22.87	22.79	22.80
	16-QAM	RB1#0	22.60	22.71	23.13
		RB1#25	22.59	22.73	23.16
		RB1#49	22.52	22.64	23.44
		RB25#0	21.96	21.84	21.89
		RB25#12	21.92	21.91	21.86
		RB25#25	21.98	21.87	21.80
		RB50#0	21.81	21.79	21.81

LTE Band 41:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2549.5 MHz (dBm)	Middle Channel (dBm)	2636.5 MHz (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	22.56	22.48	22.40	22.45	22.49
		RB1#12	22.59	22.53	22.46	22.52	22.57
		RB1#24	22.40	22.38	22.37	22.43	22.49
		RB12#0	21.67	21.67	21.66	21.57	21.48
		RB12#7	21.63	21.62	21.61	21.55	21.49
		RB12#13	21.61	21.60	21.58	21.55	21.51
		RB25#0	21.64	21.68	21.72	21.53	21.33
	16QAM	RB1#0	21.73	21.75	21.77	21.59	21.41
		RB1#12	21.88	21.85	21.83	21.64	21.45
		RB1#24	21.66	21.70	21.74	21.63	21.51
		RB12#0	20.56	20.60	20.65	20.58	20.50
		RB12#7	20.56	20.60	20.64	20.57	20.50
		RB12#13	20.65	20.63	20.60	20.56	20.52
		RB25#0	20.66	20.65	20.63	20.54	20.45
10M	QPSK	RB1#0	22.73	22.58	22.43	22.41	22.39
		RB1#25	22.82	22.64	22.46	22.42	22.38
		RB1#49	22.72	21.38	20.05	21.22	22.39
		RB25#0	21.65	21.63	21.61	21.48	21.35
		RB25#12	21.68	21.71	21.73	21.58	21.42
		RB25#25	21.75	21.60	21.44	21.47	21.50
		RB50#0	21.64	21.63	21.62	21.51	21.39
	16QAM	RB1#0	21.58	21.13	20.67	21.09	21.50
		RB1#25	21.53	20.30	19.07	20.27	21.47
		RB1#49	21.47	20.05	18.62	19.98	21.33
		RB25#0	20.56	20.65	20.74	20.70	20.66
		RB25#12	20.59	20.63	20.66	20.66	20.65
		RB25#25	20.67	20.68	20.68	20.67	20.66
		RB50#0	20.71	20.69	20.67	20.66	20.64
15M	QPSK	RB1#0	23.55	21.74	19.93	21.68	23.43
		RB1#37	22.60	20.78	18.96	21.26	23.55
		RB1#74	22.34	20.79	19.23	21.36	23.49
		RB36#0	21.47	21.63	21.80	22.26	22.71
		RB36#20	21.54	20.21	18.87	20.75	22.62
		RB36#39	21.47	20.88	20.28	21.44	22.59
		RB75#0	21.52	20.92	20.31	21.51	22.71
	16QAM	RB1#0	20.24	18.28	16.31	19.62	22.93
		RB1#37	21.10	18.82	16.54	19.69	22.83
		RB1#74	21.25	20.31	19.37	21.04	22.70
		RB36#0	20.68	20.61	20.54	21.23	21.92
		RB36#20	19.77	20.20	20.62	21.27	21.91
		RB36#39	20.21	20.37	20.52	21.19	21.86
		RB75#0	20.57	20.53	20.49	21.15	21.81

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	2549.5 MHz (dBm)	Middle Channel (dBm)	2636.5 MHz (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	24.34	23.97	24.10	23.97	24.04
		RB1#49	24.02	23.96	23.90	23.87	23.83
		RB1#99	23.84	23.79	23.73	23.69	23.64
		RB50#0	23.26	22.90	23.24	22.94	23.23
		RB50#24	22.82	22.91	23.00	22.91	22.82
		RB50#50	22.93	22.95	22.97	22.89	22.81
		RB100#0	22.82	22.89	22.96	22.90	22.83
	16QAM	RB1#0	23.14	23.21	23.27	23.01	22.74
		RB1#49	23.21	23.26	23.31	23.05	22.79
		RB1#99	22.94	23.07	23.19	22.94	22.69
		RB50#0	21.70	21.80	21.89	21.87	21.85
		RB50#24	21.72	21.85	21.97	21.94	21.91
		RB50#50	21.89	21.92	21.95	21.94	21.92
		RB100#0	21.84	21.88	21.91	21.84	21.76

LTE Band 66:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	23.21	23.40	23.79
		RB1#3	23.24	23.50	23.67
		RB1#5	23.18	23.39	23.74
		RB3#0	23.53	23.49	23.53
		RB3#1	23.34	23.56	23.60
		RB3#3	23.38	23.57	23.47
		RB6#0	22.49	22.46	22.49
	16-QAM	RB1#0	22.28	22.36	22.90
		RB1#3	22.15	22.35	22.84
		RB1#5	22.13	22.40	22.92
		RB3#0	22.48	22.68	22.77
		RB3#1	22.61	22.75	22.92
		RB3#3	22.58	22.77	22.74
		RB6#0	21.58	21.57	21.39
3M	QPSK	RB1#0	23.52	23.68	23.37
		RB1#8	23.44	23.53	23.47
		RB1#14	23.38	23.59	23.40
		RB8#0	22.40	22.37	22.52
		RB8#4	22.51	22.37	22.47
		RB8#7	22.47	22.43	22.55
		RB15#0	22.44	22.46	22.47
	16-QAM	RB1#0	22.41	22.77	22.43
		RB1#8	22.29	22.89	22.28
		RB1#14	22.33	22.93	22.31
		RB8#0	21.50	21.70	21.41
		RB8#4	21.46	21.48	21.49
		RB8#7	21.41	21.60	21.56
		RB15#0	21.40	21.45	21.58
5M	QPSK	RB1#0	23.68	23.55	23.54
		RB1#12	23.47	23.43	23.58
		RB1#24	23.60	23.45	23.64
		RB12#0	22.52	22.49	22.72
		RB12#7	22.46	22.44	22.47
		RB12#13	22.49	22.44	22.52
		RB25#0	22.45	22.56	22.62
	16-QAM	RB1#0	22.62	22.66	23.23
		RB1#12	22.59	22.67	23.16
		RB1#24	22.60	22.56	23.22
		RB12#0	21.42	21.66	21.64
		RB12#7	21.55	21.54	21.51
		RB12#13	21.43	21.37	21.59
		RB25#0	21.50	21.50	21.75

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	23.61	23.62	23.45
		RB1#25	23.58	23.72	23.36
		RB1#49	23.60	23.79	23.58
		RB25#0	22.46	22.43	22.56
		RB25#12	22.43	22.39	22.60
		RB25#25	22.32	22.22	22.32
		RB50#0	22.48	22.52	22.60
	16-QAM	RB1#0	22.55	22.94	22.29
		RB1#25	22.37	22.92	22.34
		RB1#49	22.33	22.94	22.38
		RB25#0	21.55	21.49	21.63
		RB25#12	21.63	21.46	21.58
		RB25#25	21.30	21.39	21.54
		RB50#0	21.34	21.37	21.48
15M	QPSK	RB1#0	23.55	23.63	23.62
		RB1#37	23.41	23.59	23.70
		RB1#74	23.44	23.69	23.48
		RB36#0	22.41	22.39	22.57
		RB36#20	22.49	22.36	22.59
		RB36#39	22.32	22.23	22.42
		RB75#0	22.36	22.39	22.56
	16-QAM	RB1#0	22.33	22.78	22.55
		RB1#37	22.30	22.88	22.52
		RB1#74	22.32	22.91	22.56
		RB36#0	21.54	21.52	21.52
		RB36#20	21.44	21.44	21.56
		RB36#39	21.42	21.28	21.55
		RB75#0	21.46	21.45	21.53
20M	QPSK	RB1#0	23.71	23.82	23.74
		RB1#49	23.48	23.44	23.57
		RB1#99	23.42	23.52	23.52
		RB50#0	23.01	23.05	23.06
		RB50#24	22.43	22.55	22.51
		RB50#50	22.51	22.33	22.26
		RB100#0	22.50	22.44	22.34
	16-QAM	RB1#0	22.65	23.00	22.81
		RB1#49	22.76	23.14	22.73
		RB1#99	22.69	23.23	22.82
		RB50#0	21.58	21.48	21.30
		RB50#24	21.39	21.61	21.49
		RB50#50	21.35	21.32	21.25
		RB100#0	21.59	21.37	21.31

LTE Band 71:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	24.91	24.67	24.39
		RB1#12	24.92	24.85	24.64
		RB1#24	25.00	24.52	24.51
		RB12#0	23.76	23.87	23.60
		RB12#7	23.86	23.82	23.35
		RB12#13	23.80	23.67	23.50
		RB25#0	23.68	23.81	23.50
	16-QAM	RB1#0	23.86	24.27	23.57
		RB1#12	23.88	23.80	23.48
		RB1#24	23.80	23.61	23.48
		RB12#0	22.58	22.80	22.61
		RB12#7	22.79	22.74	22.55
		RB12#13	22.94	22.64	22.56
		RB25#0	22.70	22.79	22.53
10M	QPSK	RB1#0	24.96	24.84	24.58
		RB1#25	24.95	24.73	24.49
		RB1#49	24.92	24.34	24.44
		RB25#0	23.64	23.82	23.57
		RB25#12	23.83	23.70	23.44
		RB25#25	23.92	23.58	23.43
		RB50#0	23.91	23.68	23.53
	16-QAM	RB1#0	24.30	23.60	23.38
		RB1#25	24.23	23.50	23.37
		RB1#49	24.34	23.27	23.47
		RB25#0	22.84	22.83	22.60
		RB25#12	22.81	22.76	22.55
		RB25#25	23.15	22.75	22.38
		RB50#0	22.96	22.84	22.45
15M	QPSK	RB1#0	24.91	24.79	24.41
		RB1#37	24.88	24.75	24.55
		RB1#74	24.80	24.44	24.41
		RB36#0	23.74	23.66	23.48
		RB36#20	23.74	23.60	23.46
		RB36#39	23.85	23.57	23.29
		RB75#0	23.87	23.65	23.44
	16-QAM	RB1#0	23.65	23.81	23.39
		RB1#37	23.95	23.79	23.40
		RB1#74	23.71	23.49	23.38
		RB36#0	22.86	22.73	22.44
		RB36#20	22.75	22.75	22.42
		RB36#39	22.91	22.60	22.47
		RB75#0	22.92	22.66	22.52

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	24.97	25.01	24.89
		RB1#49	24.77	24.71	24.55
		RB1#99	24.41	24.37	24.44
		RB50#0	24.16	24.24	24.03
		RB50#24	23.98	23.83	23.55
		RB50#50	23.95	23.59	23.39
		RB100#0	23.80	23.63	23.54
	16-QAM	RB1#0	23.87	24.25	24.03
		RB1#49	24.17	24.37	23.95
		RB1#99	23.71	24.13	23.73
		RB50#0	22.78	22.78	22.58
		RB50#24	22.93	22.75	22.48
		RB50#50	22.80	22.70	22.36
		RB100#0	22.68	22.58	22.49

FR1 n2

Mode	Value(dBm)
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.56
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.56
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	20.95
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	20.91
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM QPSK_RB1@1	20.66
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM QPSK_RB1@104	20.55
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM QPSK_RB50@25	20.47
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM QPSK_RB100@0	21.05
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM 16 QAM_RB100@0	20.74
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM 64 QAM_RB100@0	20.98
n2_20MHz_15kHz_1860MHz_DFT-s-OFDM 256 QAM_RB100@0	19.04
n2_20MHz_15kHz_1860MHz_CP-OFDM QPSK_RB1@1	20.45
n2_20MHz_15kHz_1860MHz_CP-OFDM QPSK_RB1@104	20.76
n2_20MHz_15kHz_1860MHz_CP-OFDM QPSK_RB53@26	20.75
n2_20MHz_15kHz_1860MHz_CP-OFDM QPSK_RB106@0	21.09
n2_20MHz_15kHz_1860MHz_CP-OFDM 16 QAM_RB106@0	20.89
n2_20MHz_15kHz_1860MHz_CP-OFDM 64 QAM_RB106@0	20.45
n2_20MHz_15kHz_1860MHz_CP-OFDM 256 QAM_RB106@0	17.09
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.59
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.68
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	20.98
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	20.88
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM QPSK_RB1@1	20.95
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM QPSK_RB1@104	20.89
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM QPSK_RB50@25	21.12
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM QPSK_RB100@0	20.40
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM 16 QAM_RB100@0	20.59
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM 64 QAM_RB100@0	20.97
n2_20MHz_15kHz_1880MHz_DFT-s-OFDM 256 QAM_RB100@0	19.09
n2_20MHz_15kHz_1880MHz_CP-OFDM QPSK_RB1@1	20.84
n2_20MHz_15kHz_1880MHz_CP-OFDM QPSK_RB1@104	20.78
n2_20MHz_15kHz_1880MHz_CP-OFDM QPSK_RB53@26	21.03
n2_20MHz_15kHz_1880MHz_CP-OFDM QPSK_RB106@0	20.76
n2_20MHz_15kHz_1880MHz_CP-OFDM 16 QAM_RB106@0	20.45
n2_20MHz_15kHz_1880MHz_CP-OFDM 64 QAM_RB106@0	20.16
n2_20MHz_15kHz_1880MHz_CP-OFDM 256 QAM_RB106@0	17.18
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.57

Mode	Value(dBm)
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.77
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	20.48
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	20.75
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM QPSK_RB1@1	20.72
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM QPSK_RB1@104	20.45
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM QPSK_RB50@25	20.64
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM QPSK_RB100@0	20.89
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM 16 QAM_RB100@0	20.92
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM 64 QAM_RB100@0	20.82
n2_20MHz_15kHz_1900MHz_DFT-s-OFDM 256 QAM_RB100@0	19.35
n2_20MHz_15kHz_1900MHz_CP-OFDM QPSK_RB1@1	20.44
n2_20MHz_15kHz_1900MHz_CP-OFDM QPSK_RB1@104	20.53
n2_20MHz_15kHz_1900MHz_CP-OFDM QPSK_RB53@26	20.97
n2_20MHz_15kHz_1900MHz_CP-OFDM QPSK_RB106@0	20.69
n2_20MHz_15kHz_1900MHz_CP-OFDM 16 QAM_RB106@0	20.98
n2_20MHz_15kHz_1900MHz_CP-OFDM 64 QAM_RB106@0	20.20
n2_20MHz_15kHz_1900MHz_CP-OFDM 256 QAM_RB106@0	17.06

FR1 n5

Mode	Value(dBm)
n5_20MHz_15kHz_834MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	17.66
n5_20MHz_15kHz_834MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	17.48
n5_20MHz_15kHz_834MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	17.72
n5_20MHz_15kHz_834MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	17.54
n5_20MHz_15kHz_834MHz_DFT-s-OFDM QPSK_RB1@1	17.82
n5_20MHz_15kHz_834MHz_DFT-s-OFDM QPSK_RB1@104	17.56
n5_20MHz_15kHz_834MHz_DFT-s-OFDM QPSK_RB50@25	17.37
n5_20MHz_15kHz_834MHz_DFT-s-OFDM QPSK_RB100@0	17.43
n5_20MHz_15kHz_834MHz_DFT-s-OFDM 16 QAM_RB100@0	17.34
n5_20MHz_15kHz_834MHz_DFT-s-OFDM 64 QAM_RB100@0	17.56
n5_20MHz_15kHz_834MHz_DFT-s-OFDM 256 QAM_RB100@0	16.15
n5_20MHz_15kHz_834MHz_CP-OFDM QPSK_RB1@1	17.58
n5_20MHz_15kHz_834MHz_CP-OFDM QPSK_RB1@104	17.25
n5_20MHz_15kHz_834MHz_CP-OFDM QPSK_RB53@26	17.22
n5_20MHz_15kHz_834MHz_CP-OFDM QPSK_RB106@0	17.39
n5_20MHz_15kHz_834MHz_CP-OFDM 16 QAM_RB106@0	17.10
n5_20MHz_15kHz_834MHz_CP-OFDM 64 QAM_RB106@0	16.68
n5_20MHz_15kHz_834MHz_CP-OFDM 256 QAM_RB106@0	13.96
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	17.42
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	17.42
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	17.89
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	17.56
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM QPSK_RB1@1	17.59
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM QPSK_RB1@104	17.53
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM QPSK_RB50@25	17.95
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM QPSK_RB100@0	17.53
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM 16 QAM_RB100@0	17.40
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM 64 QAM_RB100@0	17.23
n5_20MHz_15kHz_836.5MHz_DFT-s-OFDM 256 QAM_RB100@0	16.07
n5_20MHz_15kHz_836.5MHz_CP-OFDM QPSK_RB1@1	17.79
n5_20MHz_15kHz_836.5MHz_CP-OFDM QPSK_RB1@104	17.65
n5_20MHz_15kHz_836.5MHz_CP-OFDM QPSK_RB53@26	17.68
n5_20MHz_15kHz_836.5MHz_CP-OFDM QPSK_RB106@0	17.52
n5_20MHz_15kHz_836.5MHz_CP-OFDM 16 QAM_RB106@0	17.07
n5_20MHz_15kHz_836.5MHz_CP-OFDM 64 QAM_RB106@0	17.10
n5_20MHz_15kHz_836.5MHz_CP-OFDM 256 QAM_RB106@0	14.23
n5_20MHz_15kHz_839MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	17.82

Mode	Value(dBm)
n5_20MHz_15kHz_839MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	17.70
n5_20MHz_15kHz_839MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	17.61
n5_20MHz_15kHz_839MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	17.18
n5_20MHz_15kHz_839MHz_DFT-s-OFDM QPSK_RB1@1	17.44
n5_20MHz_15kHz_839MHz_DFT-s-OFDM QPSK_RB1@104	17.21
n5_20MHz_15kHz_839MHz_DFT-s-OFDM QPSK_RB50@25	17.42
n5_20MHz_15kHz_839MHz_DFT-s-OFDM QPSK_RB100@0	17.24
n5_20MHz_15kHz_839MHz_DFT-s-OFDM 16 QAM_RB100@0	17.34
n5_20MHz_15kHz_839MHz_DFT-s-OFDM 64 QAM_RB100@0	17.42
n5_20MHz_15kHz_839MHz_DFT-s-OFDM 256 QAM_RB100@0	16.04
n5_20MHz_15kHz_839MHz_CP-OFDM QPSK_RB1@1	17.74
n5_20MHz_15kHz_839MHz_CP-OFDM QPSK_RB1@104	17.52
n5_20MHz_15kHz_839MHz_CP-OFDM QPSK_RB53@26	17.52
n5_20MHz_15kHz_839MHz_CP-OFDM QPSK_RB106@0	17.56
n5_20MHz_15kHz_839MHz_CP-OFDM 16 QAM_RB106@0	17.52
n5_20MHz_15kHz_839MHz_CP-OFDM 64 QAM_RB106@0	16.95
n5_20MHz_15kHz_839MHz_CP-OFDM 256 QAM_RB106@0	14.04

FR1 n41

Mode	Value(dBm)
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	22.26
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@271	21.92
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM $\pi/2$ BPSK_RB135@67	22.59
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM $\pi/2$ BPSK_RB270@0	21.74
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM QPSK_RB1@1	22.80
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM QPSK_RB1@271	22.78
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM QPSK_RB135@67	23.05
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM QPSK_RB270@0	21.85
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM 16 QAM_RB270@0	20.83
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM 64 QAM_RB270@0	20.28
n41_100MHz_30kHz_2546.01MHz_DFT-s-OFDM 256 QAM_RB270@0	18.35
n41_100MHz_30kHz_2546.01MHz_CP-OFDM QPSK_RB1@1	21.04
n41_100MHz_30kHz_2546.01MHz_CP-OFDM QPSK_RB1@271	20.73
n41_100MHz_30kHz_2546.01MHz_CP-OFDM QPSK_RB137@68	21.76
n41_100MHz_30kHz_2546.01MHz_CP-OFDM QPSK_RB273@0	19.92
n41_100MHz_30kHz_2546.01MHz_CP-OFDM 16 QAM_RB273@0	19.72
n41_100MHz_30kHz_2546.01MHz_CP-OFDM 64 QAM_RB273@0	19.53
n41_100MHz_30kHz_2546.01MHz_CP-OFDM 256 QAM_RB273@0	16.24
n41_100MHz_30kHz_2569.5MHz_DFT-s-OFDM QPSK_RB1@1	22.78
n41_100MHz_30kHz_2569.5MHz_DFT-s-OFDM QPSK_RB1@271	22.71
n41_100MHz_30kHz_2569.5MHz_DFT-s-OFDM QPSK_RB135@67	23.03
n41_100MHz_30kHz_2569.5MHz_DFT-s-OFDM QPSK_RB270@0	21.83
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	21.82
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@271	22.52
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM $\pi/2$ BPSK_RB135@67	22.85
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM $\pi/2$ BPSK_RB270@0	22.36
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM QPSK_RB1@1	22.92
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM QPSK_RB1@271	23.01
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM QPSK_RB135@67	23.39
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM QPSK_RB270@0	21.81
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM 16 QAM_RB270@0	21.42
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM 64 QAM_RB270@0	21.01
n41_100MHz_30kHz_2592.99MHz_DFT-s-OFDM 256 QAM_RB270@0	18.65
n41_100MHz_30kHz_2592.99MHz_CP-OFDM QPSK_RB1@1	20.69
n41_100MHz_30kHz_2592.99MHz_CP-OFDM QPSK_RB1@271	20.77
n41_100MHz_30kHz_2592.99MHz_CP-OFDM QPSK_RB137@68	21.38
n41_100MHz_30kHz_2592.99MHz_CP-OFDM QPSK_RB273@0	20.32

Mode	Value(dBm)
n41_100MHz_30kHz_2592.99MHz_CP-OFDM 16 QAM_RB273@0	20.24
n41_100MHz_30kHz_2592.99MHz_CP-OFDM 64 QAM_RB273@0	19.56
n41_100MHz_30kHz_2592.99MHz_CP-OFDM 256 QAM_RB273@0	16.81
n41_100MHz_30kHz_2616.5MHz_DFT-s-OFDM QPSK_RB1@1	22.86
n41_100MHz_30kHz_2616.5MHz_DFT-s-OFDM QPSK_RB1@271	22.88
n41_100MHz_30kHz_2616.5MHz_DFT-s-OFDM QPSK_RB135@67	23.02
n41_100MHz_30kHz_2616.5MHz_DFT-s-OFDM QPSK_RB270@0	22.06
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	21.68
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@271	21.76
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM $\pi/2$ BPSK_RB135@67	22.86
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM $\pi/2$ BPSK_RB270@0	22.64
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM QPSK_RB1@1	22.93
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM QPSK_RB1@271	22.83
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM QPSK_RB135@67	23.02
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM QPSK_RB270@0	22.10
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM 16 QAM_RB270@0	20.86
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM 64 QAM_RB270@0	20.72
n41_100MHz_30kHz_2640MHz_DFT-s-OFDM 256 QAM_RB270@0	18.82
n41_100MHz_30kHz_2640MHz_CP-OFDM QPSK_RB1@1	21.12
n41_100MHz_30kHz_2640MHz_CP-OFDM QPSK_RB1@271	20.42
n41_100MHz_30kHz_2640MHz_CP-OFDM QPSK_RB137@68	21.44
n41_100MHz_30kHz_2640MHz_CP-OFDM QPSK_RB273@0	20.40
n41_100MHz_30kHz_2640MHz_CP-OFDM 16 QAM_RB273@0	20.37
n41_100MHz_30kHz_2640MHz_CP-OFDM 64 QAM_RB273@0	19.63
n41_100MHz_30kHz_2640MHz_CP-OFDM 256 QAM_RB273@0	16.89

FR1 n66

Mode	Value(dBm)
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	22.05
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@214	21.78
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM $\pi/2$ BPSK_RB108@54	22.50
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM $\pi/2$ BPSK_RB216@0	22.99
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM QPSK_RB1@1	21.83
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM QPSK_RB1@214	21.82
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM QPSK_RB108@54	22.85
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM QPSK_RB216@0	22.54
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM 16 QAM_RB216@0	22.24
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM 64 QAM_RB216@0	22.50
n66_40MHz_15kHz_1730MHz_DFT-s-OFDM 256 QAM_RB216@0	21.11
n66_40MHz_15kHz_1730MHz_CP-OFDM QPSK_RB1@1	22.16
n66_40MHz_15kHz_1730MHz_CP-OFDM QPSK_RB1@214	22.36
n66_40MHz_15kHz_1730MHz_CP-OFDM QPSK_RB108@54	22.37
n66_40MHz_15kHz_1730MHz_CP-OFDM QPSK_RB216@0	22.54
n66_40MHz_15kHz_1730MHz_CP-OFDM 16 QAM_RB216@0	22.20
n66_40MHz_15kHz_1730MHz_CP-OFDM 64 QAM_RB216@0	21.97
n66_40MHz_15kHz_1730MHz_CP-OFDM 256 QAM_RB216@0	19.25
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	22.43
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@214	21.97
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM $\pi/2$ BPSK_RB108@54	22.09
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM $\pi/2$ BPSK_RB216@0	22.73
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM QPSK_RB1@1	22.81
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM QPSK_RB1@214	22.73
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM QPSK_RB108@54	23.13
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM QPSK_RB216@0	22.66
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM 16 QAM_RB216@0	22.22
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM 64 QAM_RB216@0	22.40
n66_40MHz_15kHz_1745MHz_DFT-s-OFDM 256 QAM_RB216@0	20.80
n66_40MHz_15kHz_1745MHz_CP-OFDM QPSK_RB1@1	21.80
n66_40MHz_15kHz_1745MHz_CP-OFDM QPSK_RB1@214	21.86
n66_40MHz_15kHz_1745MHz_CP-OFDM QPSK_RB108@54	22.48
n66_40MHz_15kHz_1745MHz_CP-OFDM QPSK_RB216@0	22.24
n66_40MHz_15kHz_1745MHz_CP-OFDM 16 QAM_RB216@0	22.07
n66_40MHz_15kHz_1745MHz_CP-OFDM 64 QAM_RB216@0	21.71
n66_40MHz_15kHz_1745MHz_CP-OFDM 256 QAM_RB216@0	18.90

Mode	Value(dBm)
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	22.36
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@214	22.14
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM $\pi/2$ BPSK_RB108@54	22.63
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM $\pi/2$ BPSK_RB216@0	22.23
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM QPSK_RB1@1	22.47
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM QPSK_RB1@214	22.65
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM QPSK_RB108@54	22.89
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM QPSK_RB216@0	22.63
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM 16 QAM_RB216@0	22.58
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM 64 QAM_RB216@0	22.47
n66_40MHz_15kHz_1760MHz_DFT-s-OFDM 256 QAM_RB216@0	20.91
n66_40MHz_15kHz_1760MHz_CP-OFDM QPSK_RB1@1	22.44
n66_40MHz_15kHz_1760MHz_CP-OFDM QPSK_RB1@214	22.10
n66_40MHz_15kHz_1760MHz_CP-OFDM QPSK_RB108@54	22.58
n66_40MHz_15kHz_1760MHz_CP-OFDM QPSK_RB216@0	22.74
n66_40MHz_15kHz_1760MHz_CP-OFDM 16 QAM_RB216@0	22.50
n66_40MHz_15kHz_1760MHz_CP-OFDM 64 QAM_RB216@0	21.90
n66_40MHz_15kHz_1760MHz_CP-OFDM 256 QAM_RB216@0	19.30

FR1 n71

Mode	Value(dBm)
n71_20MHz_15kHz_673MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.84
n71_20MHz_15kHz_673MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.74
n71_20MHz_15kHz_673MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	21.01
n71_20MHz_15kHz_673MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	20.67
n71_20MHz_15kHz_673MHz_DFT-s-OFDM QPSK_RB1@1	20.63
n71_20MHz_15kHz_673MHz_DFT-s-OFDM QPSK_RB1@104	20.56
n71_20MHz_15kHz_673MHz_DFT-s-OFDM QPSK_RB50@25	21.09
n71_20MHz_15kHz_673MHz_DFT-s-OFDM QPSK_RB100@0	20.34
n71_20MHz_15kHz_673MHz_DFT-s-OFDM 16 QAM_RB100@0	20.38
n71_20MHz_15kHz_673MHz_DFT-s-OFDM 64 QAM_RB100@0	20.33
n71_20MHz_15kHz_673MHz_DFT-s-OFDM 256 QAM_RB100@0	19.19
n71_20MHz_15kHz_673MHz_CP-OFDM QPSK_RB1@1	20.50
n71_20MHz_15kHz_673MHz_CP-OFDM QPSK_RB1@104	20.16
n71_20MHz_15kHz_673MHz_CP-OFDM QPSK_RB53@26	20.14
n71_20MHz_15kHz_673MHz_CP-OFDM QPSK_RB106@0	20.30
n71_20MHz_15kHz_673MHz_CP-OFDM 16 QAM_RB106@0	20.11
n71_20MHz_15kHz_673MHz_CP-OFDM 64 QAM_RB106@0	20.11
n71_20MHz_15kHz_673MHz_CP-OFDM 256 QAM_RB106@0	17.60
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.38
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.65
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	21.06
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	20.55
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM QPSK_RB1@1	20.89
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM QPSK_RB1@104	20.70
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM QPSK_RB50@25	21.14
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM QPSK_RB100@0	20.60
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM 16 QAM_RB100@0	20.54
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM 64 QAM_RB100@0	20.37
n71_20MHz_15kHz_680.5MHz_DFT-s-OFDM 256 QAM_RB100@0	19.29
n71_20MHz_15kHz_680.5MHz_CP-OFDM QPSK_RB1@1	20.33
n71_20MHz_15kHz_680.5MHz_CP-OFDM QPSK_RB1@104	20.53
n71_20MHz_15kHz_680.5MHz_CP-OFDM QPSK_RB53@26	20.41
n71_20MHz_15kHz_680.5MHz_CP-OFDM QPSK_RB106@0	20.28
n71_20MHz_15kHz_680.5MHz_CP-OFDM 16 QAM_RB106@0	20.01
n71_20MHz_15kHz_680.5MHz_CP-OFDM 64 QAM_RB106@0	20.09
n71_20MHz_15kHz_680.5MHz_CP-OFDM 256 QAM_RB106@0	17.44

Mode	Value(dBm)
n71_20MHz_15kHz_688MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@1	20.87
n71_20MHz_15kHz_688MHz_DFT-s-OFDM $\pi/2$ BPSK_RB1@104	20.93
n71_20MHz_15kHz_688MHz_DFT-s-OFDM $\pi/2$ BPSK_RB50@25	20.65
n71_20MHz_15kHz_688MHz_DFT-s-OFDM $\pi/2$ BPSK_RB100@0	21.00
n71_20MHz_15kHz_688MHz_DFT-s-OFDM QPSK_RB1@1	20.79
n71_20MHz_15kHz_688MHz_DFT-s-OFDM QPSK_RB1@104	20.86
n71_20MHz_15kHz_688MHz_DFT-s-OFDM QPSK_RB50@25	21.04
n71_20MHz_15kHz_688MHz_DFT-s-OFDM QPSK_RB100@0	20.99
n71_20MHz_15kHz_688MHz_DFT-s-OFDM 16 QAM_RB100@0	20.54
n71_20MHz_15kHz_688MHz_DFT-s-OFDM 64 QAM_RB100@0	20.89
n71_20MHz_15kHz_688MHz_DFT-s-OFDM 256 QAM_RB100@0	19.37
n71_20MHz_15kHz_688MHz_CP-OFDM QPSK_RB1@1	20.37
n71_20MHz_15kHz_688MHz_CP-OFDM QPSK_RB1@104	20.07
n71_20MHz_15kHz_688MHz_CP-OFDM QPSK_RB53@26	20.39
n71_20MHz_15kHz_688MHz_CP-OFDM QPSK_RB106@0	20.54
n71_20MHz_15kHz_688MHz_CP-OFDM 16 QAM_RB106@0	20.69
n71_20MHz_15kHz_688MHz_CP-OFDM 64 QAM_RB106@0	20.11
n71_20MHz_15kHz_688MHz_CP-OFDM 256 QAM_RB106@0	17.41

WLAN 2.4G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle [%]	RF Average Output Power (dBm)		
				WIFI1	WIFI2	WIFI1 + WIFI2
802.11b	2412	1Mbps	100	15.82	15.66	18.75
	2437			15.39	15.50	18.46
	2462			15.21	15.25	18.24
802.11g	2412	6Mbps		8.66	8.96	11.82
	2437			8.40	8.94	11.69
	2462			8.53	9.03	11.80
802.11 n20	2412	MCS0		8.36	8.74	11.56
	2437			8.41	8.56	11.50
	2462			8.58	8.84	11.72
802.11 n40	2422	MCS0		7.55	7.86	10.72
	2437			6.57	8.00	10.35
	2452			7.33	7.65	10.50
802.11ax20	2412	MCS0		10.12	9.95	13.05
	2437			10.07	9.83	12.96
	2462			10.13	9.24	12.72
802.11ax40	2422	MCS0		8.02	7.94	10.99
	2437			8.06	7.84	10.96
	2452			8.12	7.70	10.93

Note: Duty cycle was from Radio report

WLAN 5.2G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle [%]	RF Average Output Power (dBm)		
				WIFI1	WIFI2	WIFI1 + WIFI2
802.11a	5180	6Mbps	100	11.18	9.66	13.50
	5200			11.68	9.64	13.79
	5240			11.07	9.09	13.20
802.11ac20	5180	10.33		8.67	12.59	
	5200	10.69		8.40	12.70	
	5240	10.01		8.77	12.44	
802.11ac40	5190	10.73		8.59	12.80	
	5230	10.06		8.47	12.35	
802.11ac80	5210	10.22		9.05	12.68	
802.11ax20	5180	MCS0		10.55	8.59	12.69
	5200			10.43	8.47	12.57
	5240			9.72	8.68	12.24
802.11ax40	5190			10.33	8.68	12.59
	5230			9.82	8.66	12.29
802.11ax80	5210			10.02	8.37	12.28

Note: Duty cycle was from Radio report

WLAN 5.8G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle [%]	RF Average Output Power (dBm)		
				WIFI1	WIFI2	WIFI1 + WIFI2
802.11a	5745	6Mbps	100	6.3	5.81	9.07
	5785			6.12	6.21	9.18
	5825			6.27	6.30	9.30
802.11ac20	5745	5.55		3.13	7.52	
	5785	5.38		3.67	7.62	
	5825	5.23		4.54	7.91	
802.11ac40	5755	5.7		4.14	8.00	
	5795	5.7		4.65	8.22	
802.11ac80	5775	5.86		5.00	8.46	
802.11ax20	5745	5.47		3.16	7.48	
	5785	5.17		4.36	7.79	
	5825	5.43		4.52	8.01	
802.11ax40	5755	6.01		4.31	8.25	
	5795	5.41		5.13	8.28	
802.11ax80	5775	5.79		5.70	8.76	

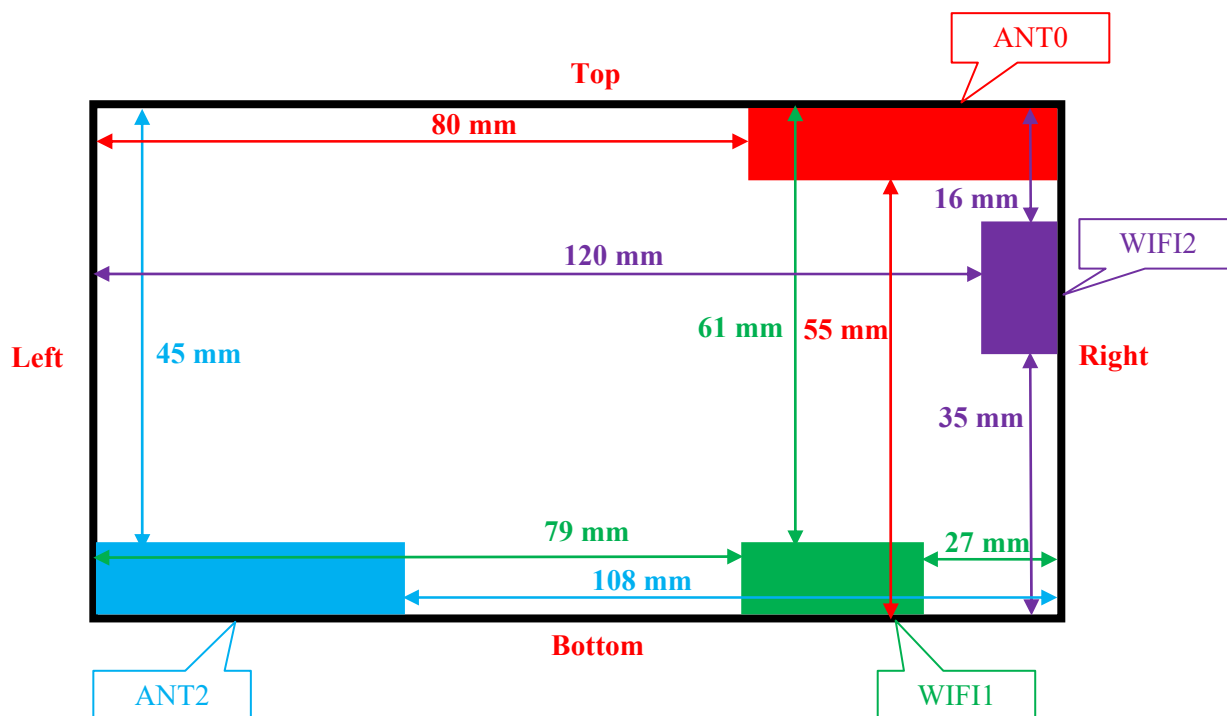
Note:

1. Duty cycle was from Radio report

2. The device support 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80, the n20/n40 mode was reduced test as identical parameter with ac20/ac40 mode.

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location:



EUT Front View

ANT	Description
ANT0	WCDMA B5 LTE B5/12/71 FR1 n5/71
ANT2	WCDMA B2 LTE B2/4/41/66 FR1 n2/41/66
WIFI1	2.4/5.2/5.8G Wi-Fi(Chain 0)
WIFI2	2.4/5.2/5.8G Wi-Fi(Chain 1)

Note: The above statistics only include antennas with transmitting

Antenna Distance To Edge (TRX)

Antenna Distance To Edge(mm)						
Antenna	Back	Front	Left	Right	Top	Bottom
Ant0	< 5	< 5	80	< 5	< 5	55
Ant2	< 5	< 5	< 5	108	45	< 5
WIFI1	< 5	< 5	79	27	61	< 5
WIFI2	< 5	< 5	120	< 5	16	35

SAR test exclusion for the EUT edge considerations Result

Mode	Back	Front	Left	Right	Top	Bottom
Ant0	Required	Required	Exclusion	Required	Required	Exclusion
Ant2	Required	Required	Required	Exclusion	Exclusion	Required
WIFI1	Required	Required	Exclusion	Exclusion	Exclusion	Required
WIFI2	Required	Required	Exclusion	Required	Required	Exclusion

Note:

Required : The distance to Edge is less than 25mm, testing is required.

Exclusion: The distance to Edge is more than 25 mm, testing is not required.

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetry evaluation.

Test Results:

Environmental Conditions:

Ambient Temperature:	20.6 ~ 22.5℃	21.1 ~ 22.9℃	20.1 ~ 21.6℃	19.6 ~ 21.5℃
Relative Humidity:	53 ~ 65%	53 ~ 65%	50 ~ 65%	43 ~ 59%
ATM Pressure:	100.2 kPa	100 kPa	100.2 kPa	100.6 kPa
Test Date:	2025/05/08	2025/05/09	2025/05/10	2025/05/11

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

WCDMA Band 2 (Ant2):

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	20.15	21.0	1.216	0.368	0.45	/
	1907.6	RMC	/	/	/	/	/	/
Body Back (10 mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	20.15	21.0	1.216	0.620	0.76	1#
	1907.6	RMC	/	/	/	/	/	/
Body Left (10 mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	20.15	21.0	1.216	0.220	0.27	/
	1907.6	RMC	/	/	/	/	/	/
Body Bottom (10 mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	20.15	21.0	1.216	0.346	0.43	/
	1907.6	RMC	/	/	/	/	/	/

The data above was performed on 2025/05/09.

WCDMA Band 5 (Ant0):

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.16	21.5	1.081	0.041	0.05	/
	846.6	RMC	/	/	/	/	/	/
Body Back (10 mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.16	21.5	1.081	0.045	0.05	/
	846.6	RMC	/	/	/	/	/	/
Body Right (10 mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.16	21.5	1.081	0.008	0.01	/
	846.6	RMC	/	/	/	/	/	/
Body Top (10 mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	21.16	21.5	1.081	0.046	0.05	2#
	846.6	RMC	/	/	/	/	/	/

The data above was performed on 2025/05/09.

Note:

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

LTE Band 2 (Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.15	22.5	1.084	0.387	0.42	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.66	22.5	1.213	0.327	0.40	/
Body Back (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.15	22.5	1.084	0.621	0.68	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.66	22.5	1.213	0.564	0.69	3#
Body Left (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.15	22.5	1.084	0.213	0.24	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.66	22.5	1.213	0.180	0.22	/
Body Bottom (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	22.15	22.5	1.084	0.343	0.38	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.66	22.5	1.213	0.292	0.36	/

The data above was performed on 2025/05/09.

LTE Band 5 (Ant0):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	24.10	24.8	1.175	0.515	0.61	/
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	23.22	24.8	1.439	0.433	0.63	/
Body Back (10 mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	24.10	24.8	1.175	0.653	0.77	/
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	23.22	24.8	1.439	0.541	0.78	4#
Body Right (10 mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	24.10	24.8	1.175	0.087	0.11	/
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	23.22	24.8	1.439	0.080	0.12	/
Body Top (10 mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	24.10	24.8	1.175	0.610	0.72	/
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	23.22	24.8	1.439	0.515	0.75	/

The data above was performed on 2025/05/09.

LTE Band 12 (Ant0):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	24.27	24.5	1.054	0.450	0.48	/
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	23.15	24.5	1.365	0.385	0.53	/
Body Back (10 mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	24.27	24.5	1.054	0.558	0.59	/
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	23.15	24.5	1.365	0.478	0.66	5#
Body Right (10 mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	24.27	24.5	1.054	0.100	0.11	/
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	23.15	24.5	1.365	0.082	0.12	/
Body Top (10 mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	24.27	24.5	1.054	0.511	0.54	/
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	23.15	24.5	1.365	0.449	0.62	/

The data above was performed on 2025/05/08.

LTE Band 41 (Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	24.10	24.5	1.096	0.235	0.26	/
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	23.24	24.5	1.337	0.166	0.23	/
Body Back (10 mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	24.10	24.5	1.096	0.432	0.48	6#
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	23.24	24.5	1.337	0.320	0.43	/
Body Left (10 mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	24.10	24.5	1.096	0.294	0.33	/
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	23.24	24.5	1.337	0.284	0.38	/
Body Bottom (10 mm)	2506	20	1RB	/	/	/	/	/	/
	2549.5	20	1RB	/	/	/	/	/	/
	2593	20	1RB	24.10	24.5	1.096	0.227	0.25	/
	2636.5	20	1RB	/	/	/	/	/	/
	2680	20	1RB	/	/	/	/	/	/
	2593	20	50%RB	23.24	24.5	1.337	0.207	0.28	/

The data above was performed on 2025/05/11.

Note:

1. The frequency range of LTE Band 41 is 2496~ 2690MHz. Per KDB 447498 D01, according to the following formula Calculate N_c is 5.

2. 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.

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

where

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

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

LTE Band 66 & 4(Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	1720	20	1RB	23.71	24.0	1.069	0.849	0.91	/
	1745	20	1RB	23.82	24.0	1.042	0.745	0.78	/
	1770	20	1RB	23.74	24.0	1.062	0.774	0.83	/
	1720	20	50%RB	23.01	24.0	1.256	0.652	0.82	/
	1745	20	50%RB	23.05	24.0	1.245	0.599	0.75	/
	1770	20	50%RB	23.06	24.0	1.242	0.614	0.77	/
	1720	20	100%RB	22.50	24.0	1.413	0.637	0.90	/
	1745	20	100%RB	22.44	24.0	1.432	0.595	0.86	/
	1770	20	100%RB	22.34	24.0	1.466	0.591	0.87	/
Body Back (10 mm)	1720	20	1RB	23.71	24.0	1.069	0.972	1.04	/
	1745	20	1RB	23.82	24.0	1.042	0.928	0.97	/
	1770	20	1RB	23.74	24.0	1.062	0.888	0.95	/
	1720	20	50%RB	23.01	24.0	1.256	0.815	1.03	/
	1745	20	50%RB	23.05	24.0	1.245	0.809	1.01	/
	1770	20	50%RB	23.06	24.0	1.242	0.725	0.91	/
	1720	20	100%RB	22.50	24.0	1.413	0.804	1.14	7#
	1745	20	100%RB	22.44	24.0	1.432	0.786	1.13	/
	1770	20	100%RB	22.34	24.0	1.466	0.714	1.05	/
Body Left (10 mm)	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	23.82	24.0	1.042	0.464	0.49	/
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	23.05	24.0	1.245	0.378	0.48	/
Body Bottom (10 mm)	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	23.82	24.0	1.042	0.448	0.47	/
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	23.05	24.0	1.245	0.385	0.48	/

The data above was performed on 2025/05/10.

Note: The LTE Band 4 is a subset of LTE Band 66, with the same modulation type, and the rated output power of LTE band 4 is not greater than LTE band 66, so LTE band 4 does not need to be tested.

LTE Band 71(Ant0):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	673	20	1RB	/	/	/	/	/	/
	683	20	1RB	25.01	25.3	1.069	0.353	0.38	/
	688	20	1RB	/	/	/	/	/	/
	683	20	50%RB	24.24	25.3	1.276	0.328	0.42	/
Body Back (10 mm)	673	20	1RB	/	/	/	/	/	/
	683	20	1RB	25.01	25.3	1.069	0.663	0.71	8#
	688	20	1RB	/	/	/	/	/	/
	683	20	50%RB	24.24	25.3	1.276	0.503	0.65	/
Body Right (10 mm)	673	20	1RB	/	/	/	/	/	/
	683	20	1RB	25.01	25.3	1.069	0.075	0.08	/
	688	20	1RB	/	/	/	/	/	/
	683	20	50%RB	24.24	25.3	1.276	0.066	0.09	/
Body Top (10 mm)	673	20	1RB	/	/	/	/	/	/
	683	20	1RB	25.01	25.3	1.069	0.603	0.65	/
	688	20	1RB	/	/	/	/	/	/
	683	20	50%RB	24.24	25.3	1.276	0.447	0.58	/

The data above was performed on 2025/05/08.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
2. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02r05.
3. KDB 941225 D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is $> 0.5\text{ dB}$ higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is $> 1.45\text{ W/kg}$.
4. KDB 941225 D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is $< 1.45\text{ W/kg}$, tests for the remaining required test channels are optional.
5. KDB 941225 D05- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are $\leq 0.8\text{ W/kg}$.
6. KDB 941225 D05- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offset the upper edge, middle and lower edge of each required test channel.
7. KDB 941225 D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> 0.5\text{ dB}$ higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is $> 1.45\text{ W/kg}$.

FR1 n2(Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	20.95	21.3	1.084	0.333	0.37	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.12	21.3	1.042	0.327	0.35	/
Body Back (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	20.95	21.3	1.084	0.580	0.63	9#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.12	21.3	1.042	0.556	0.58	/
Body Left (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	20.95	21.3	1.084	0.174	0.19	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.12	21.3	1.042	0.168	0.18	/
Body Bottom (10 mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	20.95	21.3	1.084	0.301	0.33	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	21.12	21.3	1.042	0.294	0.31	/

The data above was performed on 2025/05/09.

FR1 n5(Ant0):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	834	20	1RB	/	/	/	/	/	/
	836.5	20	1RB	17.59	18.0	1.099	0.162	0.18	/
	839	20	1RB	/	/	/	/	/	/
	836.5	20	50%RB	17.95	18.0	1.012	0.170	0.18	/
Body Back (10 mm)	834	20	1RB	/	/	/	/	/	/
	836.5	20	1RB	17.59	18.0	1.099	0.213	0.24	10#
	839	20	1RB	/	/	/	/	/	/
	836.5	20	50%RB	17.95	18.0	1.012	0.221	0.23	/
Body Right (10 mm)	834	20	1RB	/	/	/	/	/	/
	836.5	20	1RB	17.59	18.0	1.099	0.026	0.03	/
	839	20	1RB	/	/	/	/	/	/
	836.5	20	50%RB	17.95	18.0	1.012	0.031	0.04	/
Body Top (10 mm)	834	20	1RB	/	/	/	/	/	/
	836.5	20	1RB	17.59	18.0	1.099	0.204	0.23	/
	839	20	1RB	/	/	/	/	/	/
	836.5	20	50%RB	17.95	18.0	1.012	0.215	0.22	/

The data above was performed on 2025/05/09.

FR1 n41(Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	2546	100	1RB	/	/	/	/	/	/
	2569.5	100	1RB	/	/	/	/	/	/
	2593	100	1RB	23.01	23.7	1.172	0.221	0.26	/
	2616.5	100	1RB	/	/	/	/	/	/
	2640	100	1RB	/	/	/	/	/	/
	2593	100	50%RB	23.39	23.7	1.074	0.289	0.32	/
Body Back (10 mm)	2546	100	1RB	/	/	/	/	/	/
	2569.5	100	1RB	/	/	/	/	/	/
	2593	100	1RB	23.01	23.7	1.172	0.375	0.44	/
	2616.5	100	1RB	/	/	/	/	/	/
	2640	100	1RB	/	/	/	/	/	/
	2593	100	50%RB	23.39	23.7	1.074	0.479	0.52	11#
Body Left (10 mm)	2546	100	1RB	/	/	/	/	/	/
	2569.5	100	1RB	/	/	/	/	/	/
	2593	100	1RB	23.01	23.7	1.172	0.196	0.23	/
	2616.5	100	1RB	/	/	/	/	/	/
	2640	100	1RB	/	/	/	/	/	/
	2593	100	50%RB	23.39	23.7	1.074	0.277	0.30	/
Body Bottom (10 mm)	2546	100	1RB	/	/	/	/	/	/
	2569.5	100	1RB	/	/	/	/	/	/
	2593	100	1RB	23.01	23.7	1.172	0.230	0.27	/
	2616.5	100	1RB	/	/	/	/	/	/
	2640	100	1RB	/	/	/	/	/	/
	2593	100	50%RB	23.39	23.7	1.074	0.268	0.29	/

The data above was performed on 2025/05/11.

Note:

1. The frequency range of FR1 n41 is 2496~ 2690MHz. Per KDB 447498 D01, according to the following formula Calculate N_c is 5.

2. 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.

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

where

- N_c is the number of test channels, rounded to 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 FR1 n41 SAR testing.

FR1 n66(Ant2):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	1730	40	1RB	21.83	23.5	1.469	0.683	1.01	/
	1745	40	1RB	22.81	23.5	1.172	0.693	0.82	/
	1760	40	1RB	22.65	23.5	1.216	0.699	0.86	/
	1730	40	50%RB	22.85	23.5	1.161	0.761	0.89	/
	1745	40	50%RB	23.13	23.5	1.089	0.758	0.83	/
	1760	40	50%RB	22.89	23.5	1.151	0.777	0.90	/
	1730	40	100%RB	22.54	23.5	1.247	0.721	0.90	/
	1745	40	100%RB	22.66	23.5	1.213	0.728	0.89	/
	1760	40	100%RB	22.63	23.5	1.222	0.736	0.90	/
Body Back (10 mm)	1730	40	1RB	21.83	23.5	1.469	0.775	1.14	12#
	1745	40	1RB	22.81	23.5	1.172	0.833	0.98	/
	1760	40	1RB	22.65	23.5	1.216	0.793	0.97	/
	1730	40	50%RB	22.85	23.5	1.161	0.949	1.11	/
	1745	40	50%RB	23.13	23.5	1.089	0.964	1.05	/
	1760	40	50%RB	22.89	23.5	1.151	0.976	1.13	/
	1730	40	100%RB	22.54	23.5	1.247	0.903	1.13	/
	1745	40	100%RB	22.66	23.5	1.213	0.909	1.11	/
	1760	40	100%RB	22.63	23.5	1.222	0.920	1.13	/
Body Left (10 mm)	1730	40	1RB	/	/	/	/	/	/
	1745	40	1RB	22.81	23.5	1.172	0.409	0.48	/
	1760	40	1RB	/	/	/	/	/	/
	1745	40	50%RB	23.13	23.5	1.089	0.488	0.54	/
Body Bottom (10 mm)	1730	40	1RB	/	/	/	/	/	/
	1745	40	1RB	22.81	23.5	1.172	0.379	0.45	/
	1760	40	1RB	/	/	/	/	/	/
	1745	40	50%RB	23.13	23.5	1.089	0.391	0.43	/

The data above was performed on 2025/05/10.

FR1 n71(Ant0):

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	20.89	21.3	1.099	0.311	0.35	/
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	21.14	21.3	1.038	0.373	0.39	/
Body Back (10 mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	20.89	21.3	1.099	0.451	0.50	/
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	21.14	21.3	1.038	0.613	0.64	13#
Body Right (10 mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	20.89	21.3	1.099	0.063	0.07	/
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	21.14	21.3	1.038	0.071	0.08	/
Body Top (10 mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	20.89	21.3	1.099	0.386	0.43	/
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	21.14	21.3	1.038	0.448	0.47	/

The data above was performed on 2025/05/08.

Note:

1. SAR test for NR bands and LTE anchor Bands were performed separately due to limitations in SAR probe calibration factors. And, due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
2. KDB 941225 D05- SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is > 0.5 dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg
3. KDB 941225 D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is <1.45 W/kg, tests for the remaining required test channels are optional.
4. KDB 941225 D05- 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.
5. KDB 941225 D05- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offset the upper edge, middle and lower edge of each required test channel.
6. KDB 941225 D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > 0.5 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.
7. The SAR value calculation table only displays low, mid, and high channels. For detailed channel reference, please refer to the corresponding band's power table.

WLAN 2.4G(WIFI1) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.39	16.0	1.151	1.000	0.064	0.08	/
	2462	802.11 b	/	/	/	/	/	/	/
Body Back (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.39	16.0	1.151	1.000	0.156	0.18	/
	2462	802.11 b	/	/	/	/	/	/	/
Body Bottom (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.39	16.0	1.151	1.000	0.187	0.22	14#
	2462	802.11 b	/	/	/	/	/	/	/

The data above was performed on 2025/05/08.

WLAN 2.4G(WIFI2) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.50	16.0	1.122	1.000	0.129	0.15	/
	2462	802.11 b	/	/	/	/	/	/	/
Body Back (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.50	16.0	1.122	1.000	0.147	0.17	/
	2462	802.11 b	/	/	/	/	/	/	/
Body Right (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.50	16.0	1.122	1.000	0.188	0.22	15#
	2462	802.11 b	/	/	/	/	/	/	/
Body Top (10 mm)	2412	802.11 b	/	/	/	/	/	/	/
	2437	802.11 b	15.50	16.0	1.122	1.000	0.029	0.04	/
	2462	802.11 b	/	/	/	/	/	/	/

The data above was performed on 2025/05/08.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. According KDB 248227 D01, for SAR testing of 802.11 WIFI signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".

WLAN 5.2G(WIFI1) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	11.68	12.0	1.076	1.000	0.147	0.16	/
	5240	802.11 a	/	/	/	/	/	/	/
Body Back (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	11.68	12.0	1.076	1.000	0.139	0.15	/
	5240	802.11 a	/	/	/	/	/	/	/
Body Bottom (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	11.68	12.0	1.076	1.000	0.183	0.20	16#
	5240	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2025/05/11.

WLAN 5.2G(WIFI2) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	9.64	10.0	1.086	1.000	0.018	0.02	/
	5240	802.11 a	/	/	/	/	/	/	/
Body Back (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	9.64	10.0	1.086	1.000	0.196	0.22	17#
	5240	802.11 a	/	/	/	/	/	/	/
Body Right (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	9.64	10.0	1.086	1.000	0.126	0.14	/
	5240	802.11 a	/	/	/	/	/	/	/
Body Top (10 mm)	5180	802.11 a	/	/	/	/	/	/	/
	5200	802.11 a	9.64	10.0	1.086	1.000	0.011	0.02	/
	5240	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2025/05/11.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80, 802.11 a mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 802.11 WIFI signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".

WLAN 5.8G(WIFI1) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.12	7.0	1.225	1.000	0.066	0.09	/
	5825	802.11 a	/	/	/	/	/	/	/
Body Back (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.12	7.0	1.225	1.000	0.120	0.15	/
	5825	802.11 a	/	/	/	/	/	/	/
Body Bottom (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.12	7.0	1.225	1.000	0.168	0.21	18#
	5825	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2025/05/11.

WLAN 5.8G(WIFI2) :

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty Cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.21	7.0	1.199	1.000	0.027	0.04	/
	5825	802.11 a	/	/	/	/	/	/	/
Body Back (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.21	7.0	1.199	1.000	0.111	0.14	19#
	5825	802.11 a	/	/	/	/	/	/	/
Body Right (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.21	7.0	1.199	1.000	0.090	0.11	/
	5825	802.11 a	/	/	/	/	/	/	/
Body Top (10 mm)	5745	802.11 a	/	/	/	/	/	/	/
	5785	802.11 a	6.21	7.0	1.199	1.000	0.010	0.02	/
	5825	802.11 a	/	/	/	/	/	/	/

The data above was performed on 2025/05/11.

Note:

1. When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for other channels are optional.
2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For 802.11a mode power is the largest among 802.11a/n20/n40/ac20/ac40/ac80/ax20/ax40/ax80, 802.11 a mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 802.11 WIFI signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".

SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01.

These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results:

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

The Highest Measured SAR Configuration in Each Frequency Band

Head

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

Body

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
1750MHz	FR1 n66	1760	Body Back	0.976	0.931	1.05

Note:

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

SAR 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 $\nu_i = \infty$ 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

Head

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
/	/	/	/	/	/

Body

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
/	/	/	/	/	/

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

Description of Simultaneous Transmit Capabilities		
Transmitter Combination	Simultaneous?	Hotspot?
WWAN(WCDMA/LTE/5G NR) + 2.4G WLAN WIFI1 + 2.4G WLAN WIFI2	√	√
WWAN(WCDMA/LTE/5G NR) + 5.2G WLAN WIFI1 + 5.2G WLAN WIFI2	√	√
WWAN(WCDMA/LTE/5G NR) + 5.8G WLAN WIFI1 + 5.8G WLAN WIFI2	√	√
2.4G WLAN + 5G WLAN	×	×

Simultaneous SAR test exclusion considerations:

Mode (SAR1+SAR2)	Position	Reported SAR(W/kg)			Σ SAR < 1.6W/kg
		SAR1	SAR2	SAR3	
MAX.WWAN(WCDMA/LTE/5G NR) + 2.4G WLAN WIFI1 + 2.4G WLAN WIFI2	Body	1.14	0.22	0.22	1.58
MAX.WWAN(WCDMA/LTE/5G NR) + 5.2G WLAN WIFI1 + 5.2G WLAN WIFI2	Body	1.14	0.20	0.22	1.56
MAX.WWAN(WCDMA/LTE/5G NR) + 5.8G WLAN WIFI1 + 5.8G WLAN WIFI2	Body	1.14	0.21	0.14	1.49

Conclusion:

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

SAR Plots

Please Refer to the Attachment.

APPENDIX A MEASUREMENT UNCERTAINTY

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

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

APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX C CALIBRATION CERTIFICATES

Please Refer to the Attachment.

APPENDIX D RETURN LOSS&IMPEDANCE MEASUREMENT

Please Refer to the Attachment.

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