

TEST REPORT

Applicant Name: Telpo Technology Co.,Ltd.
Address: No.15, Juyuan South Road, Guicheng Street, Nanhai District,
Foshan City, Guangdong, China
Report Number: 2604R02814E-SA
FCC ID: 2AJ2B-M1T

Test Standard (s)
FCC 47 CFR part 2.1093

Sample Description

Product Name: POS Terminal
Model No.: M1T
Multiple Model(s) No.: N/A
Trade Mark: Telpo
Date Received: 2026-03-18
Issue Date: 2026-06-11

Test Result:	The EUT complied with the standards above.
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Prepared and Checked By:



Jack Yang
SAR Engineer

Approved By:



Lance Li
SAR Engineer

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Mode		Max. Reported SAR Level(s) (W/kg)	Limit (W/kg)
GSM 850	1g Body SAR	0.63	1.6
GSM 1900	1g Body SAR	0.56	
WCDMA Band 2	1g Body SAR	0.58	
WCDMA Band 5	1g Body SAR	0.19	
LTE Band 2	1g Body SAR	0.60	
LTE Band 4	1g Body SAR	0.27	
LTE Band 7	1g Body SAR	1.18	
WIFI 2.4G	1g Body SAR	0.36	
WIFI 5.2G	1g Body SAR	0.24	
Simultaneous	1g Body SAR	1.54	
	1g Body SAR	1.54(Hotspot)	
Applicable Standards	FCC 47 CFR part 2.1093 Radiation exposure evaluation: portable devices		
	RF Exposure Procedures: TCB WorkshopApril2019		
	IEEE1528:2013 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques		
	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. Unless otherwise stated there are no any additions to, deviations, or exclusions from the method.			

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2604R02814E-SA	Original Report	2026-06-11

EUT DESCRIPTION

This report has been prepared on behalf of **Telpo Technology Co.,Ltd.** and their product **POS Terminal**, Model: **M1T**,FCC ID: **2AJ2B-M1T** or the EUT (Equipment under Test) as referred to in the rest of this report.

Technical Specification

Device Type:	Portable
Exposure Category:	Population/Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Proximity Sensor:	None
Carrier Aggregation:	None
Operation Modes:	GPRS/EDGE Data, WCDMA, LTE, WLAN, Bluetooth/BLE, NFC
Operation Frequency:	GSM 850:824-849MHz(TX);869-894MHz(RX) GSM 1900:1850-1910MHz(TX);1930-1990MHz(RX) 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 7:2500-2570MHz(TX);2620-2690MHz(RX) WIFI 2.4G:2412-2472MHz(TX/RX) WIFI 5.2G:5150-5250MHz(TX/RX) Bluetooth:2402-2480MHz(TX/RX) BLE_1M:2402-2480MHz(TX/RX) BLE_2M:2404-2478MHz(TX/RX) NFC: 13.56 MHz
Dimensions (L*W*H):	231mm (L) *82mm (W) *47mm (H)
Rated Input Voltage:	DC7.6V from Rechargeable Battery
Serial Number:	3IPP-1
Date of Test:	2026-04-27~2026-04-30
Normal Operation:	Body

REFERENCE, STANDARDS, AND GUIDELINES

FCC:

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

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

SAR Limits

FCC Limit(1g Tissue)

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

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

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

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

FACILITIES

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

Accredited by American Association for Laboratory Accreditation (A2LA). The Certificate Number is 4297.01.

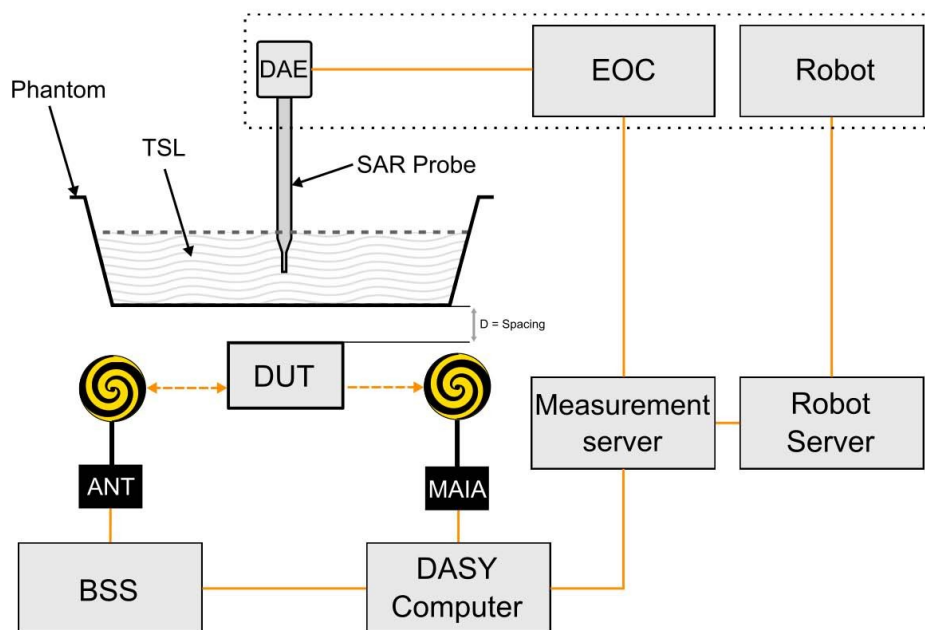
DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY8 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:



DASY8 System Description

The DASY8 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 Win11 PRO and the DASY8 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.

DASY8 Measurement Server

The safeguarding equipment is connected to the DOOR CONTACTS connector of the DASY8 Measurement Server according to the diagram below. The two wire safety chains must be fully closed through all safety equipment and the DOOR CONTACTS connector on the Measurement Server to enable operation of the DASY8 system.

Data Acquisition Electronics

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter, and a command decoder with a control logic unit. Transmission to the DASY8 Measurement Server is accomplished through an optical downlink for data and status information and an optical uplink for commands and the clock.

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

The input impedance of both DAEs is 200MΩ; the inputs are symmetric and floating. Common mode rejection is above 80 dB.

EX3DV4 E-Field Probes

Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 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, EASY4/MRI

SAM Twin Phantom

The SAM-Twin (Specific Anthropomorphic Mannequin) phantom has a fiberglass shell with a thickness of 2 mm, except in the ear region where the thickness is increased to 6 mm. The size of the phantom, including the top plate is 1.0×0.5m (1 full DASY8 platform slot). The filling volume is approximately 25 L. The phantom has three measurement areas, also called phantom sections, Left Head, Right Head, and Flat:

Left Head, Right Head to test exposure on the head. Please note that if the location of the peak is located in the upper part of the chin, the Chin20 phantoms should be used.

Flat to test exposure of small body-worn/hand-held devices (smartphones. . .). For larger devices (tablets, laptops) or measurements at low frequencies, the ELI phantom must be used.

Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7783 Calibrated: 2026/04/20

Calibration Frequency Point (MHz)	Frequency Range (MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	810	9.39	9.39	9.39
835 Head	810	935	9.04	9.04	9.04
1810 Head	1710	1850	7.71	7.71	7.71
1900 Head	1850	2000	7.50	7.50	7.50
2300 Head	2200	2400	7.21	7.21	7.21
2450 Head	2400	2500	6.95	6.95	8.95
2600 Head	2500	2700	6.77	6.77	6.77
5250 Head	5140	5360	4.91	4.91	4.91
5600 Head	5490	5700	4.30	4.30	4.30
5800 Head	5700	5900	4.40	4.40	4.40
6500 Head	5900	7200	4.98	4.98	4.98

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

Power reference measurements are performed during Area Scans and Zoom Scans if they have been enabled in the Application Preferences. The power reference measurements are anchored to the peak location found by the Fast Scan if available, else to the grid anchor point.

Step 2: Area Scan

Area Scans are used to determine the peak location of the measured field before doing a finer measurement around the hotspot.

Peak location can be found accurately even on coarse grids using the advanced interpolation routines implemented in DASY8. Area Scans measure a two dimensional volume covering the full device under test area. DASY8 uses Fast Averaged SAR algorithm to compute the 1 g and 10 g of simulated tissue from the Area Scan.

Step 3: Zoom Scan (Cube Scan Averaging)

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue.

Zoom scans measure a three dimensional volume (cube). The bottom face of the cube is centered on the maximum of the preceding Area Scan in the same measurement group.

For maxima at border of the phantom, Auto extend zoom scan when maxima on boundary feature can be enabled in Application Preferences >> Scan Settings with Administrator access level.

Step 4: Power Monitoring Scan

Power monitoring scans are used to monitor the power drift of the device under test. The local SAR strength is measured at a reference position at the beginning and at the end of the scan. The power drift is computed using the formula:

$$P_{\text{drift}}[\text{dB}] = 10 \cdot \log_{10} (\text{SAR}_{\text{beginning}} / \text{SAR}_{\text{end}})$$

Power monitoring scans are available for fully integrated in Area and Zoom Scans. They can be enabled in Application Preferences >> Scan Settings.

For Area Scans, the reference point is defined as the maximum location of the preceding Fast Scan. A Fast Scan will be automatically performed if none has been performed and power monitoring is enabled. For Zoom Scans, it is defined at the first point of the measured grid.

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE1528:2013

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
<i>750</i>	<i>41,9</i>	<i>0,89</i>
835	41,5	0,90
900	41,5	0,97
1 450	40,5	1,20
<i>1 500</i>	<i>40,4</i>	<i>1,23</i>
<i>1 640</i>	<i>40,2</i>	<i>1,31</i>
<i>1 750</i>	<i>40,1</i>	<i>1,37</i>
1 800	40,0	1,40
1 900	40,0	1,40
2 000	40,0	1,40
<i>2 100</i>	<i>39,8</i>	<i>1,49</i>
<i>2 300</i>	<i>39,5</i>	<i>1,67</i>
2 450	39,2	1,80
<i>2 600</i>	<i>39,0</i>	<i>1,96</i>
3 000	38,5	2,40
<i>3 500</i>	<i>37,9</i>	<i>2,91</i>
<i>4 000</i>	<i>37,4</i>	<i>3,43</i>
<i>4 500</i>	<i>36,8</i>	<i>3,94</i>
<i>5 000</i>	<i>36,2</i>	<i>4,45</i>
<i>5 200</i>	<i>36,0</i>	<i>4,66</i>
<i>5 400</i>	<i>35,8</i>	<i>4,86</i>
<i>5 600</i>	<i>35,5</i>	<i>5,07</i>
<i>5 800</i>	<i>35,3</i>	<i>5,27</i>
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

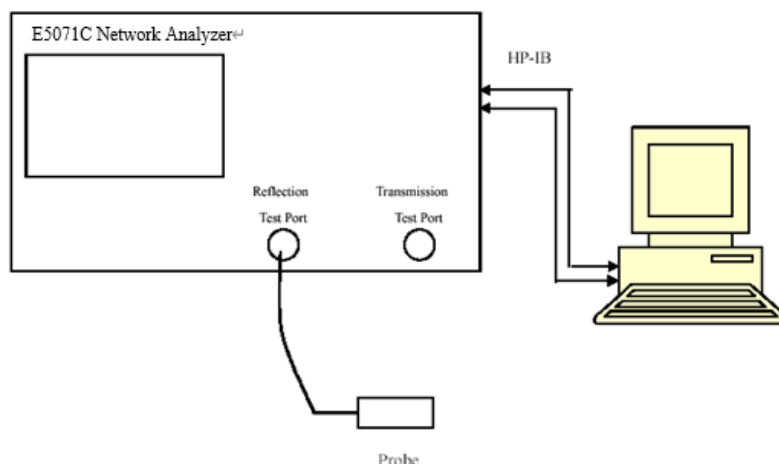
Equipment's List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY8 Test Software	V16.2.4.2524	N/A	NCR	NCR
DASY8 Measurement Server	V6.0.100	N/A	NCR	NCR
Data Acquisition Electronics	DAE4	1724	2026/04/17	2027/04/16
E-Field Probe	EX3DV4	7783	2026/04/20	2027/04/19
Mounting Device	MD4HHTV5	SD 000 H01 KA	NCR	NCR
SAM Twin Phantom	SAM-Twin V8.0	2124	NCR	NCR
Dipole,835MHz	D835V2	4d103	2024/12/02	2027/12/01
Dipole,1800MHz	D1800V2	2d018	2023/09/26	2026/09/25
Dipole,1900MHz	D1900V2	5d128	2024/12/02	2027/12/01
Dipole,2450MHz	D2450V2	751	2023/09/26	2026/09/25
Dipole,2600MHz	D2600V2	1073	2026/02/04	2029/02/03
Dipole,5GHz	D5GHzV2	1301	2026/02/09	2029/02/08
Simulated Tissue Liquid Head(500-9500MHz)	HBBL600-10000V6	220406-1	Each Time	/
Network Analyzer	E5071B	MY42403851	2025/09/18	2026/09/17
Dielectric Assessment Kit	DAK-3.5	1320	NCR	NCR
Signal Generator	N5183A	MY47420360	2025/08/28	2026/08/27
Power Sensor	E9301A	MY55270006	2025/09/17	2026/09/16
Power Amplifier(80 – 1000MHz)	CBA 1G-070	T44328	2025/09/17	2026/09/16
Linear Power Amplifier (1 – 6GHz)	AS0860-40/45	1060913	2025/09/17	2026/09/16
Directional Coupler	4226-20	3315	2025/09/18	2026/09/17
6dB Attenuator	WA59-6-33	A329	NCR	NCR
Spectrum Analyzer	FSV40	101949	2025/09/17	2026/09/16
Wideband Radio Communication Tester	CMW500	110566	2025/09/18	2026/09/17
Thermometer	DTM3000	N/A	2025/09/18	2026/09/17
Temperature & Humidity Meter	10316377	N/A	2025/09/18	2026/09/17

NCR: No Calibration Required.

SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
824.2	Simulated Tissue Liquid Head	43.061	0.902	41.55	0.90	3.64	0.22	± 5
826.4	Simulated Tissue Liquid Head	43.062	0.904	41.54	0.90	3.66	0.44	± 5
835	Simulated Tissue Liquid Head	43.066	0.909	41.50	0.90	3.77	1.00	± 5
836.6	Simulated Tissue Liquid Head	43.066	0.909	41.50	0.90	3.77	1.00	± 5
846.6	Simulated Tissue Liquid Head	43.070	0.915	41.50	0.91	3.78	0.55	± 5
848.8	Simulated Tissue Liquid Head	43.071	0.916	41.50	0.91	3.79	0.66	± 5

*Liquid Verification above was performed on 2026/04/27

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1720	Simulated Tissue Liquid Head	41.086	1.380	40.13	1.35	2.38	2.22	± 5
1732.5	Simulated Tissue Liquid Head	41.342	1.395	40.12	1.36	3.05	2.57	± 5
1745	Simulated Tissue Liquid Head	41.597	1.410	40.10	1.37	3.73	2.92	± 5
1800	Simulated Tissue Liquid Head	41.251	1.409	40.00	1.40	3.13	0.64	± 5

*Liquid Verification above was performed on 2026/04/28

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$ (S/m)	
1850.2	Simulated Tissue Liquid Head	40.645	1.380	40.00	1.40	1.61	-1.43	±5
1852.4	Simulated Tissue Liquid Head	40.666	1.381	40.00	1.40	1.66	-1.36	±5
1860	Simulated Tissue Liquid Head	40.739	1.385	40.00	1.40	1.85	-1.07	±5
1880	Simulated Tissue Liquid Head	40.930	1.397	40.00	1.40	2.33	-0.21	±5
1900	Simulated Tissue Liquid Head	41.121	1.409	40.00	1.40	2.80	0.64	±5
1907.6	Simulated Tissue Liquid Head	41.200	1.410	40.00	1.40	3.00	0.71	±5
1909.8	Simulated Tissue Liquid Head	41.222	1.410	40.00	1.40	3.06	0.71	±5

*Liquid Verification above was performed on 2026/04/28

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	40.446	1.782	39.28	1.77	2.97	0.68	±5
2442	Simulated Tissue Liquid Head	40.544	1.761	39.23	1.79	3.35	-1.62	±5
2450	Simulated Tissue Liquid Head	40.596	1.750	39.20	1.80	3.56	-2.78	±5
2472	Simulated Tissue Liquid Head	40.591	1.756	39.18	1.81	3.60	-2.98	±5

*Liquid Verification above was performed on 2026/04/29

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)	
2510	Simulated Tissue Liquid Head	40.314	1.799	39.12	1.86	3.05	-3.28	±5
2535	Simulated Tissue Liquid Head	39.655	1.858	39.09	1.89	1.45	-1.69	±5
2560	Simulated Tissue Liquid Head	39.493	1.917	39.05	1.92	1.13	-0.16	±5
2600	Simulated Tissue Liquid Head	40.431	2.010	39.00	1.96	3.67	2.55	±5

*Liquid Verification above was performed on 2026/04/29

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	36.969	4.684	36.02	4.64	2.63	0.95	±5
5200	Simulated Tissue Liquid Head	37.080	4.714	36.00	4.66	3.00	1.16	±5
5240	Simulated Tissue Liquid Head	36.586	4.615	35.96	4.70	1.74	-1.81	±5
5250	Simulated Tissue Liquid Head	36.462	4.591	35.95	4.71	1.42	-2.53	±5

*Liquid Verification above was performed on 2026/04/30

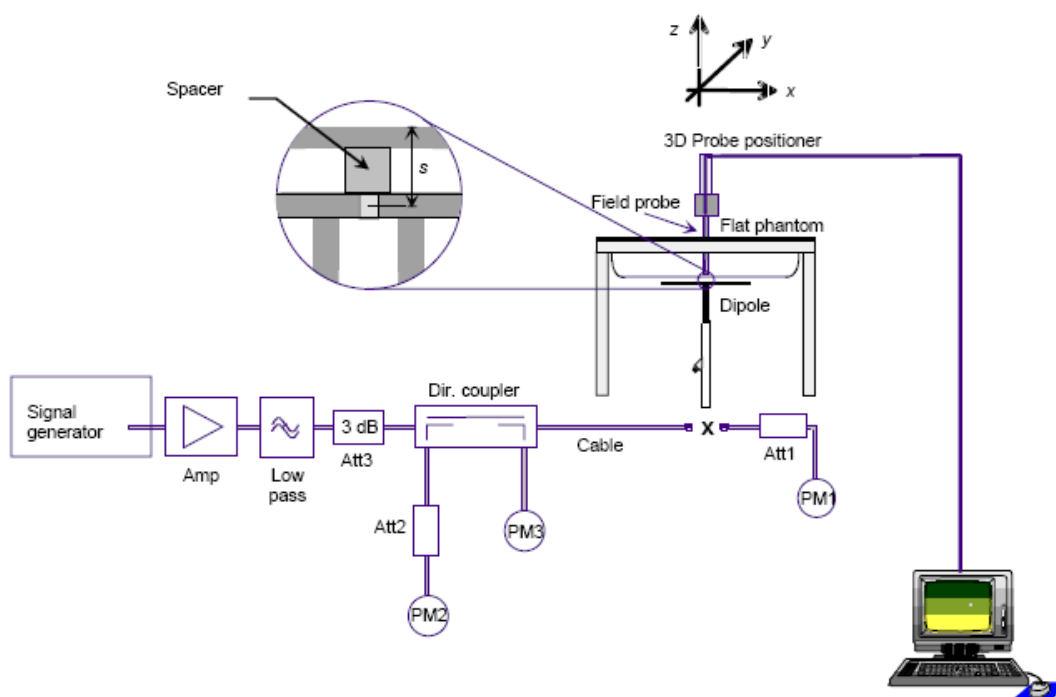
System Accuracy Verification

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 (%)
2026-04-27	835	Head	100	1g	0.899	8.99	9.54	-5.765	± 10
2026-04-28	1800	Head	100	1g	3.78	37.8	39.3	-3.817	± 10
2026-04-28	1900	Head	100	1g	3.75	37.5	40.1	-6.484	± 10
2026-04-29	2450	Head	100	1g	4.86	48.6	53.1	-8.475	± 10
2026-04-29	2600	Head	100	1g	5.11	51.1	55.9	-8.587	± 10
2026-04-30	5250	Head	100	1g	7.25	72.5	78.2	-7.289	± 10

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

SAR SYSTEM VALIDATION DATA

Please Refer to the Attachment of System Check.

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.

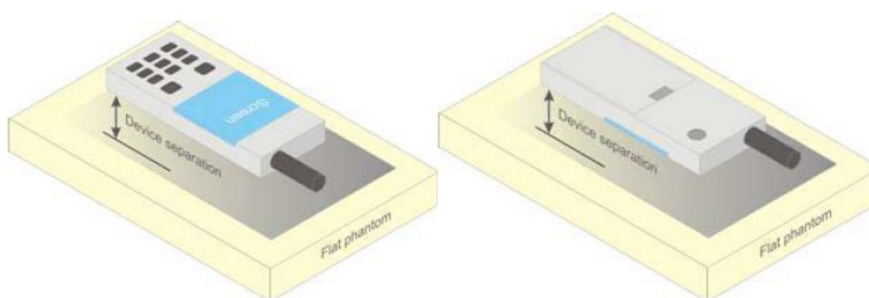


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

In this case the EUT(Equipment Under Test) is set 0mm away from the phantom, the test distance is 0mm 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.

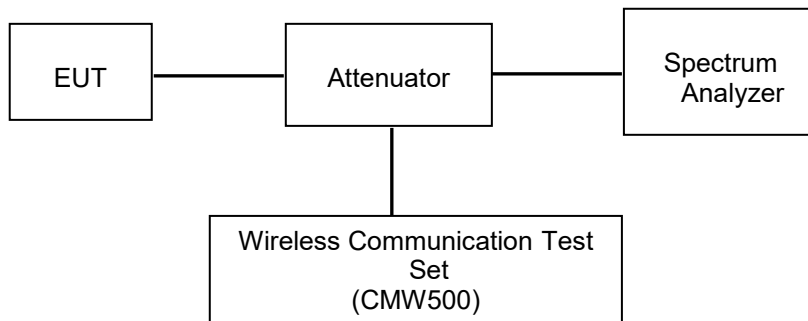
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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

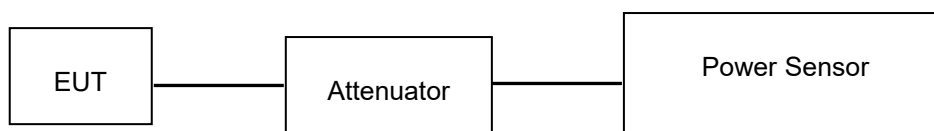
Test Procedure

The RF output of the transmitter was connected to the input of the Spectrum Analyzer through Attenuator



GSM/WCDMA/LTE

The RF output of the transmitter was connected to the input port of the Power Sensor through Attenuator.



WLAN/BT/BLE

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

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

> 27 dBm for EGPRS 850

> 26 dBm for EGPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desired test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

Slot Config > Unchanged (if already set under MS signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3

Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

Bit Stream > 2E9-1 PSR Bit Stream

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

WCDMA Release 99

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP

TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

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

HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP

TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	$\beta_d(\text{SF})$	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			
	$A_{hs} = \beta_{hs} / \beta_c$	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	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0

Settings	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	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18		E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27

HSPA+

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	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	
NS_06	6.6.2.2.3	12, 13, 14, 17	10, 15, 20	≥ 50	≤ 1
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	-	-	-	-	-

Maximum Target Output Power

Mode/Band	Max Target Power(dBm)		
	Channel		
	Low	Middle	High
GPRS 850 1 TX Slot	33.5	33.0	33.0
GPRS 850 2 TX Slot	32.0	32.0	32.0
GPRS 850 3 TX Slot	30.0	30.0	29.5
GPRS 850 4 TX Slot	29.0	28.5	28.5
EDGE 850 1 TX Slot	28.0	27.5	27.5
EDGE 850 2 TX Slot	26.5	26.0	26.0
EDGE 850 3 TX Slot	24.0	24.0	24.0
EDGE 850 4 TX Slot	22.5	22.5	22.5
GPRS 1900 1 TX Slot	30.0	29.5	28.5
GPRS 1900 2 TX Slot	29.0	28.5	27.5
GPRS 1900 3 TX Slot	27.0	26.5	25.5
GPRS 1900 4 TX Slot	26.0	25.0	24.5
EDGE 1900 1 TX Slot	26.5	26.0	26.0
EDGE 1900 2 TX Slot	25.0	25.0	24.5
EDGE 1900 3 TX Slot	23.5	23.0	23.0
EDGE 1900 4 TX Slot	22.0	22.0	22.0
WCDMA Band 2	23.5	23.5	23.5
HSDPA	22.0	21.5	21.5
HSUPA	22.5	22.5	22.5
HSPA+	20.5	21.5	22.0
WCDMA Band 5	22.0	22.0	22.0
HSDPA	21.0	21.0	21.0
HSUPA	21.5	21.5	21.5
HSPA+	21.5	21.5	21.5
LTE Band 2 1RB	24.5	24.5	24.5
LTE Band 2 50%RB	23.0	23.0	23.0
LTE Band 2 100%RB	23.0	23.0	23.0
LTE Band 4 1RB	24.5	24.5	24.5
LTE Band 4 50%RB	23.5	23.5	23.5
LTE Band 4 100%RB	23.5	23.5	23.5
LTE Band 7 1RB	24.0	24.0	24.0
LTE Band 7 50%RB	22.5	22.5	22.5
LTE Band 7 100%RB	22.5	22.5	22.5
WIFI 2.4G(802.11b)	13.5	13.5	13.5
WIFI 2.4G(802.11g)	8.5	8.5	7.5
WIFI 2.4G(802.11n20)	8.5	8.5	8.5
WIFI 2.4G(802.11n40)	10.0	10.0	11.5
WIFI 5.2G(802.11a)	13.0	13.0	13.0
WIFI 5.2G(802.11ac20)	13.0	13.0	13.0
WIFI 5.2G(802.11ac40)	10.5	/	10.5
WIFI 5.2G(802.11ac80)	/	10.0	/
BT (GFSK)	5.5	4.0	4.0
BT ($\pi/4$ -DQPSK)	5.5	3.0	3.5
BT (8DPSK)	5.5	3.5	4.0
BLE 1M	-6.0	-5.0	-6.5

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
BLE 2M	-3.5	-3.5	-3.5

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

Test Results

GPRS:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	33.03	31.91	29.83	28.68
	190	836.6	32.96	31.80	29.54	28.26
	251	848.8	32.75	31.56	29.32	28.15
GSM 1900	512	1850.2	29.75	28.71	26.72	25.50
	661	1880	29.12	28.09	26.12	24.78
	810	1909.8	28.42	27.29	25.32	24.02

EDGE:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	27.61	26.11	23.77	22.31
	190	836.6	27.38	25.94	23.52	22.05
	251	848.8	27.39	25.88	23.42	22.03
GSM 1900	512	1850.2	25.95	24.98	23.02	21.93
	661	1880	25.73	24.72	22.81	21.61
	810	1909.8	25.47	24.46	22.56	21.45

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

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

The time based average power for GPRS

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	24.03	25.91	25.58	25.68
	190	836.6	23.96	25.80	25.29	25.26
	251	848.8	23.75	25.56	25.07	25.15
GSM 1900	512	1850.2	20.75	22.71	22.47	22.50
	661	1880	20.12	22.09	21.87	21.78
	810	1909.8	19.42	21.29	21.07	21.02

The time based average power for EDGE

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	18.61	20.11	19.52	19.31
	190	836.6	18.38	19.94	19.27	19.05
	251	848.8	18.39	19.88	19.17	19.03
GSM 1900	512	1850.2	16.95	18.98	18.77	18.93
	661	1880	16.73	18.72	18.56	18.61
	810	1909.8	16.47	18.46	18.31	18.45

Note:

1. Rohde & Schwarz Radio Communication Tester (CMW500) was used for the measurement of GSM peak and average output power for active timeslots.
2. For GSM voice, 1 timeslot has been activated with power level 5 (850 MHz band) and 0 (1900 MHz band).
3. For GPRS, 1, 2, 3 and 4 timeslots has been activated separately with power level 3(850 MHz band) and 3(1900 MHz band).
4. For EGPRS, 1, 2, 3 and 4 timeslots has been activated separately with power level 6(850 MHz band) and 5(1900 MHz band).
5. According to KDB941225D01-SAR for EGPRS mode are not required when the source-based time-averaged output power for data mode is lower than that in the normal GPRS mode.

WCDMA Band 2:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA	23.43	23.15	23.21
HSDPA Subset 1	20.99	20.92	20.90
HSDPA Subset 2	21.70	21.41	21.46
HSDPA Subset 3	21.56	21.21	21.33
HSDPA Subset 4	21.53	21.22	21.25
HSUPA Subset 1	21.90	21.69	21.73
HSUPA Subset 2	21.90	21.74	21.76
HSUPA Subset 3	21.86	21.61	21.70
HSUPA Subset 4	21.98	21.65	21.76
HSUPA Subset 5	22.00	21.57	21.72
HSPA+ Subset 1	20.30	21.21	21.95

WCDMA Band 5:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA	21.24	20.95	21.01
HSDPA Subset 1	20.48	20.44	20.48
HSDPA Subset 2	20.82	20.79	20.81
HSDPA Subset 3	20.90	20.65	20.56
HSDPA Subset 4	20.94	20.70	20.65
HSUPA Subset 1	21.27	21.11	21.07
HSUPA Subset 2	21.27	21.13	21.05
HSUPA Subset 3	21.32	21.11	21.17
HSUPA Subset 4	21.13	20.95	21.03
HSUPA Subset 5	21.24	20.94	21.15
HSPA+ Subset 1	21.33	21.02	21.16

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	24.13	23.43	23.14
		RB1#3	24.39	23.50	23.22
		RB1#5	24.02	23.44	23.08
		RB3#0	24.32	23.25	23.30
		RB3#1	24.21	23.44	23.22
		RB3#3	24.21	23.29	23.31
		RB6#0	22.91	22.25	22.30
	16QAM	RB1#0	22.54	22.61	21.94
		RB1#3	22.61	22.74	22.25
		RB1#5	22.49	22.58	21.99
		RB3#0	22.89	22.57	22.42
		RB3#1	22.89	22.68	22.53
		RB3#3	22.97	22.73	22.47
		RB6#0	21.86	21.17	21.61
3M	QPSK	RB1#0	23.57	23.16	23.44
		RB1#8	23.54	23.28	23.53
		RB1#14	23.67	23.16	23.43
		RB8#0	22.82	22.39	22.30
		RB8#4	22.89	22.31	22.36
		RB8#7	22.80	22.29	22.34
		RB15#0	22.62	22.29	22.41
	16QAM	RB1#0	22.43	22.29	22.70
		RB1#8	22.50	22.15	22.75
		RB1#14	22.47	22.25	22.80
		RB8#0	21.82	21.28	21.52
		RB8#4	21.68	21.42	21.43
		RB8#7	21.73	21.33	21.51
		RB15#0	21.76	21.27	21.30
5M	QPSK	RB1#0	23.59	23.12	23.18
		RB1#12	23.79	23.40	23.47
		RB1#24	23.51	23.19	23.22
		RB12#0	22.69	22.29	22.34
		RB12#7	22.87	22.41	22.47
		RB12#13	22.72	22.28	22.41
		RB25#0	22.77	22.18	22.37
	16QAM	RB1#0	22.68	22.20	22.91
		RB1#12	22.79	22.45	23.05
		RB1#24	22.61	22.34	22.76
		RB12#0	21.80	21.25	21.50
		RB12#7	21.91	21.41	21.42
		RB12#13	21.71	21.35	21.52
		RB25#0	21.72	21.27	21.48

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	23.55	23.25	23.38
		RB1#25	23.78	23.45	23.70
		RB1#49	23.49	23.16	23.50
		RB25#0	22.83	22.27	22.30
		RB25#12	22.78	22.43	22.50
		RB25#25	22.59	22.37	22.43
		RB50#0	22.82	22.43	22.40
	16QAM	RB1#0	22.35	22.38	22.80
		RB1#25	22.66	22.49	22.90
		RB1#49	22.47	22.13	22.73
		RB25#0	21.92	21.47	21.33
		RB25#12	21.82	21.48	21.54
		RB25#25	21.75	21.39	21.33
		RB50#0	21.86	21.28	21.32
15M	QPSK	RB1#0	23.67	23.24	23.33
		RB1#37	23.92	23.39	23.70
		RB1#74	23.61	23.02	23.50
		RB36#0	22.90	22.39	22.29
		RB36#20	22.73	22.54	22.36
		RB36#39	22.78	22.32	22.45
		RB75#0	22.73	22.39	22.44
	16QAM	RB1#0	22.62	22.36	22.71
		RB1#37	22.80	22.36	22.93
		RB1#74	22.58	22.04	22.53
		RB36#0	21.86	21.50	21.32
		RB36#20	21.76	21.51	21.49
		RB36#39	21.64	21.27	21.42
		RB75#0	21.81	21.32	21.50
20M	QPSK	RB1#0	23.45	23.04	23.00
		RB1#49	23.39	23.36	23.35
		RB1#99	23.01	23.09	23.09
		RB50#0	22.55	22.31	22.30
		RB50#24	22.82	22.30	22.37
		RB50#50	22.68	22.39	22.39
		RB100#0	22.86	22.22	22.47
	16QAM	RB1#0	22.77	22.83	22.19
		RB1#49	22.91	23.04	22.67
		RB1#99	22.57	22.49	22.39
		RB50#0	21.79	21.42	21.36
		RB50#24	21.77	21.43	21.46
		RB50#50	21.69	21.15	21.50
		RB100#0	21.79	21.31	21.47

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	23.63	23.87	23.52
		RB1#3	23.72	24.05	23.74
		RB1#5	23.68	23.80	23.59
		RB3#0	23.65	23.86	23.70
		RB3#1	23.83	23.96	23.64
		RB3#3	23.78	23.90	23.68
		RB6#0	22.90	22.81	22.78
	16QAM	RB1#0	22.44	23.15	22.47
		RB1#3	22.65	23.42	22.55
		RB1#5	22.56	23.08	22.49
		RB3#0	22.85	23.09	22.66
		RB3#1	22.80	23.14	22.76
		RB3#3	22.83	23.17	22.76
		RB6#0	22.02	21.83	21.92
3M	QPSK	RB1#0	23.68	23.82	24.00
		RB1#8	23.62	23.79	23.91
		RB1#14	23.66	23.86	23.95
		RB8#0	22.84	22.80	22.83
		RB8#4	22.91	22.90	22.78
		RB8#7	22.77	22.81	22.86
		RB15#0	22.86	22.86	22.72
	16QAM	RB1#0	22.58	22.81	23.10
		RB1#8	22.50	22.84	23.08
		RB1#14	22.37	22.77	23.04
		RB8#0	21.69	21.82	21.81
		RB8#4	21.72	21.96	21.84
		RB8#7	21.72	21.82	21.88
		RB15#0	21.71	21.97	21.74
5M	QPSK	RB1#0	23.68	23.76	23.67
		RB1#12	23.75	24.02	23.85
		RB1#24	23.66	23.68	23.66
		RB12#0	22.85	22.97	22.72
		RB12#7	22.75	23.03	22.89
		RB12#13	22.86	22.92	22.72
		RB25#0	22.68	22.80	22.80
	16QAM	RB1#0	22.73	22.82	23.31
		RB1#12	22.79	23.07	23.53
		RB1#24	22.73	22.89	23.10
		RB12#0	21.84	21.91	21.93
		RB12#7	21.85	22.03	21.90
		RB12#13	21.88	21.85	21.75
		RB25#0	21.69	21.79	21.84

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	23.60	23.73	23.85
		RB1#25	23.74	23.87	24.04
		RB1#49	23.73	23.81	23.95
		RB25#0	22.79	23.01	22.89
		RB25#12	22.80	22.85	22.81
		RB25#25	22.79	22.98	22.72
		RB50#0	22.79	23.02	22.84
	16QAM	RB1#0	22.56	22.77	23.03
		RB1#25	22.54	23.01	23.16
		RB1#49	22.57	22.85	23.01
		RB25#0	21.88	22.04	21.91
		RB25#12	21.92	21.94	21.82
		RB25#25	21.98	22.12	21.78
		RB50#0	21.78	22.01	21.85
15M	QPSK	RB1#0	23.76	23.67	24.00
		RB1#37	23.94	23.98	24.06
		RB1#74	23.74	23.73	23.89
		RB36#0	22.88	23.05	22.94
		RB36#20	22.95	23.07	23.01
		RB36#39	22.86	22.86	22.84
		RB75#0	22.81	22.98	22.88
	16QAM	RB1#0	22.54	22.62	23.10
		RB1#37	22.84	23.03	23.31
		RB1#74	22.62	22.70	22.98
		RB36#0	21.70	21.87	21.97
		RB36#20	21.75	21.90	22.00
		RB36#39	21.77	21.93	21.87
		RB75#0	21.84	21.86	21.88
20M	QPSK	RB1#0	23.59	23.55	23.82
		RB1#49	23.83	23.97	23.96
		RB1#99	23.54	23.50	23.84
		RB50#0	22.99	22.82	23.03
		RB50#24	22.89	23.01	23.25
		RB50#50	22.85	22.86	23.10
		RB100#0	22.83	22.96	23.22
	16QAM	RB1#0	22.64	23.22	23.15
		RB1#49	23.00	23.55	23.55
		RB1#99	22.92	23.24	23.21
		RB50#0	21.60	22.21	22.31
		RB50#24	21.73	22.38	22.25
		RB50#50	21.83	22.18	22.26
		RB100#0	21.79	22.25	22.21

LTE Band 7:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	23.66	23.14	22.49
		RB1#12	23.89	23.47	22.82
		RB1#24	23.53	23.11	22.47
		RB12#0	22.72	22.15	21.70
		RB12#7	22.90	22.28	21.78
		RB12#13	22.72	22.27	21.78
		RB25#0	22.70	22.16	21.60
	16QAM	RB1#0	22.68	22.13	22.15
		RB1#12	22.85	22.38	22.41
		RB1#24	22.59	22.15	22.10
		RB12#0	21.83	21.18	20.85
		RB12#7	21.43	21.28	20.78
		RB12#13	21.68	21.17	20.70
		RB25#0	21.19	21.19	20.80
10M	QPSK	RB1#0	23.05	23.18	22.94
		RB1#25	23.46	23.46	23.03
		RB1#49	23.29	23.20	22.89
		RB25#0	22.30	22.34	21.76
		RB25#12	22.26	22.38	21.73
		RB25#25	22.44	22.20	21.71
		RB50#0	22.36	22.31	21.72
	16QAM	RB1#0	22.02	22.21	22.11
		RB1#25	22.30	22.37	22.13
		RB1#49	22.13	22.13	21.81
		RB25#0	21.49	21.41	21.03
		RB25#12	21.48	21.35	20.80
		RB25#25	21.60	21.41	20.37
		RB50#0	21.42	21.31	20.57
15M	QPSK	RB1#0	23.13	23.05	22.98
		RB1#37	23.43	23.25	23.11
		RB1#74	23.18	22.81	22.57
		RB36#0	22.23	22.36	21.91
		RB36#20	22.33	22.33	21.73
		RB36#39	22.28	22.27	21.64
		RB75#0	22.33	22.30	21.82
	16QAM	RB1#0	22.03	22.09	22.07
		RB1#37	22.43	22.24	22.19
		RB1#74	22.11	21.81	21.81
		RB36#0	21.20	21.31	20.77
		RB36#20	21.48	21.35	20.85
		RB36#39	21.23	21.26	20.64
		RB75#0	21.38	21.21	20.87

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	22.84	22.84	22.61
		RB1#49	22.80	22.91	22.76
		RB1#99	22.93	22.83	22.73
		RB50#0	21.96	22.06	21.87
		RB50#24	22.06	22.07	21.70
		RB50#50	21.96	22.08	21.70
		RB100#0	22.31	22.25	21.81
	16QAM	RB1#0	22.25	22.55	21.90
		RB1#49	22.50	22.89	22.23
		RB1#99	22.24	22.52	21.73
		RB50#0	21.28	21.22	20.87
		RB50#24	21.20	21.33	20.87
		RB50#50	21.29	21.20	20.62
		RB100#0	21.29	21.15	20.68

WLAN: 2.4G

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power (dBm)
802.11b	2412	1M	99.44	13.28
	2442			12.91
	2472			12.59
802.11g	2412	6M	/	8.03
	2442			8.39
	2472			7.36
802.11n20	2412	MCS0	/	8.08
	2442			8.17
	2472			7.42
802.11n40	2422	MCS0	/	9.80
	2442			9.87
	2462			11.04

Note:

1. Duty cycle was from the RF report 2601R02814E-RF-00C#.

WLAN: 5.2G

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power (dBm)
802.11a	5180	6M	96.80	12.84
	5200			12.86
	5240			12.34
802.11ac20	5180	MCS0	/	12.80
	5200			12.63
	5240			12.31
802.11ac40	5190	MCS0	/	10.25
	5230			9.78
802.11ac80	5210	MCS0	/	8.99

Note:

1. Duty cycle was from the RF report 2601R02814E-RF-00D#.

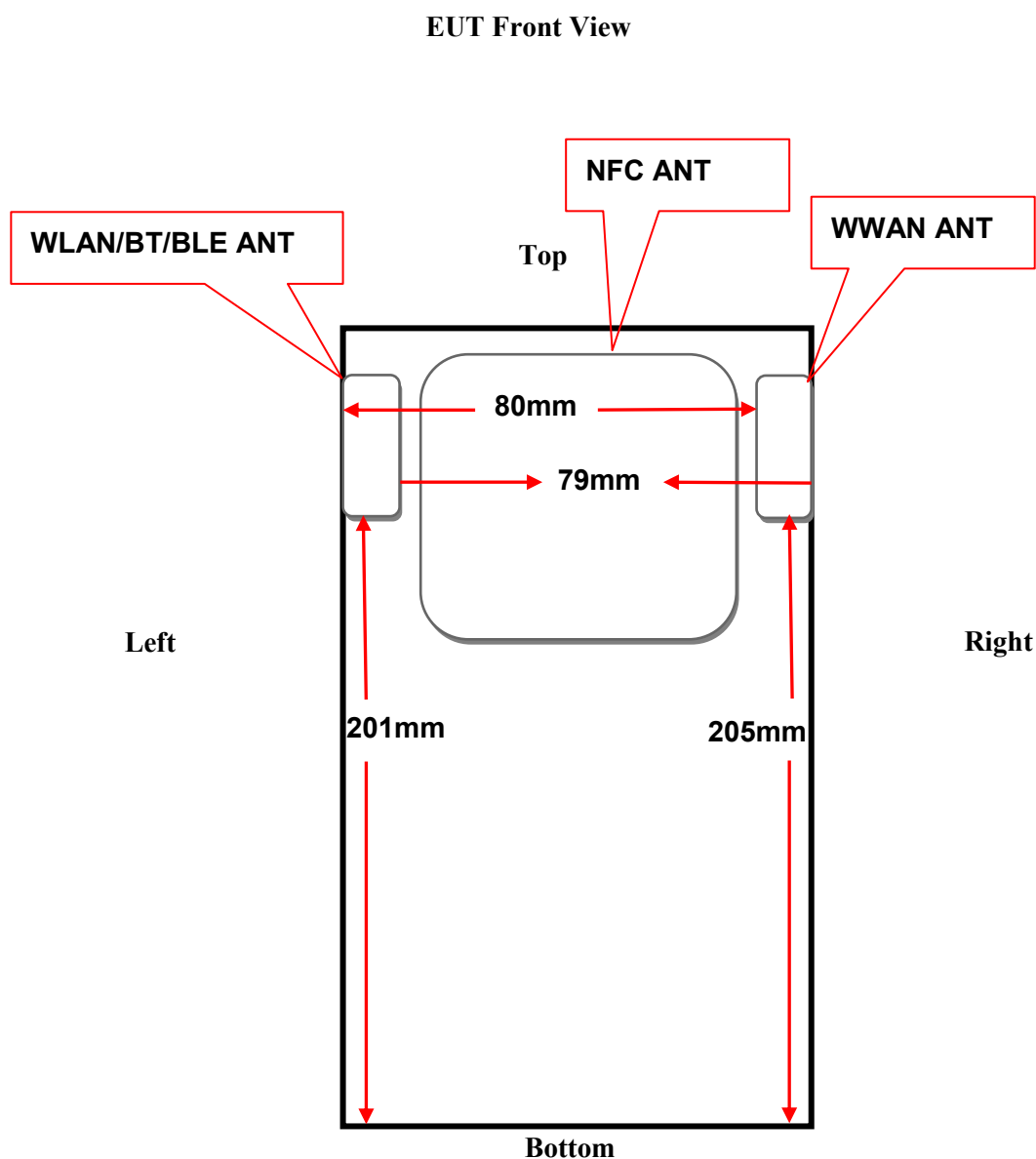
2. The device supports 802.11a/n/ac modes. The 802.11n modes were reduced since the identical parameters with 802.11ac.

Bluetooth/BLE:

Mode	Channel frequency (MHz)	Duty cycle (%)	RF Output Power (dBm)
GFSK	2402	/	5.16
	2441		3.83
	2480		3.70
$\pi/4$ -DQPSK	2402		4.80
	2441		2.89
	2480		3.33
8DPSK	2402		5.01
	2441		2.96
	2480		3.57
BLE 1M	2402		-6.06
	2440		-5.44
	2480		-6.64
BLE 2M	2404		-4.66
	2440		-4.37
	2478		-4.60

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location:



Antenna Distance To Edge(TRX)

Antenna Distance To Edge(mm)						
Antenna	Front	Back	Left	Right	Top	Bottom
WWAN Antenna(GSM/WCDMA/LTE)	< 5	< 5	80	< 5	< 5	205
WLAN/BT Antenna	< 5	< 5	< 5	79	< 5	201

Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
WIFI 2.4G	2472	13.5	22.39	0	7.0	3	NO
WIFI 5.2G	5240	13	19.95	0	9.1	3	NO
BT	2480	5.5	3.55	0	1.1	3	YES

NOTE:

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

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

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

1. $f(\text{GHz})$ is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

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

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

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

SAR test exclusion for the EUT edge considerations Result

Mode	Front	Back	Left	Right	Top	Bottom
WWAN(GSM/WCDMA/LTE)	Required	Required	Exclusion	Required	Required	Exclusion
WLAN	Required	Required	Required	Exclusion	Required	Exclusion
BT	Exclusion*	Exclusion*	Exclusion*	Exclusion*	Exclusion*	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.

Exclusion*: SAR test exclusion evaluation has been done above.

NFC Measurement Result:

For NFC, the power of EUT: E Field@3m is 65.69dBuV/m = -29.51dBm (0.0011mW)

Note: E[dBuV/m] = EIRP[dBm] + 95.2 for d = 3 m.

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

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

$$= 443\text{mW}$$

$$>0.0011\text{mW}$$

Conclusion:

The NFC SAR evaluation can be exempted.

Note: The data of NFC, please refer to the report of 2601R02814E-RF-00F[#], issued by Bay Area Compliance Laboratories Corp. (Shenzhen)

Standalone SAR estimation:

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Estimated (W/kg)
BT Body	2480	5.5	3.55	0	0.15@1g

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

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

W/kg for test separation distances ≤ 50 mm;

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

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

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetry evaluation.

Test Results:

Environment Temperature:	20.3-21.8 °C	20.7-21.2°C	20.6-21.3°C	20.1-21.6 °C
Relative Humidity:	51%	54%	52%	54%
ATM Pressure:	100.1 kPa	100.4 kPa	100.3 kPa	100.3 kPa
Test Date:	2026/4/27	2026/4/28	2026/4/29	2026/4/30

Testing was performed by Devon Liang, Jack Yang, Ryse Chai.

GSM 850:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			Plot
					Scaled Factor	Meas. SAR	Scaled SAR	
Body Front (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	31.80	32.0	1.047	0.233	0.24	/
	848.8	GPRS	/	/	/	/	/	/
Body Back (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	31.80	32.0	1.047	0.202	0.21	/
	848.8	GPRS	/	/	/	/	/	/
Body Right (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	31.80	32.0	1.047	0.602	0.63	1#
	848.8	GPRS	/	/	/	/	/	/
Body Top (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	31.80	32.0	1.047	0.014	0.02	/
	848.8	GPRS	/	/	/	/	/	/

Note:

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

GSM 1900:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	28.09	28.5	1.099	0.042	0.05	/
	1909.8	GPRS	/	/	/	/	/	/
Body Back (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	28.09	28.5	1.099	0.023	0.03	/
	1909.8	GPRS	/	/	/	/	/	/
Body Right (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	28.09	28.5	1.099	0.506	0.56	2#
	1909.8	GPRS	/	/	/	/	/	/
Body Top (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	28.09	28.5	1.099	0.005	0.01	/
	1909.8	GPRS	/	/	/	/	/	/

Note:

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

WCDMA Band 2:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.15	23.5	1.084	0.075	0.08	/
	1907.6	RMC	/	/	/	/	/	/
Body Back (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.15	23.5	1.084	0.057	0.06	/
	1907.6	RMC	/	/	/	/	/	/
Body Right (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.15	23.5	1.084	0.536	0.58	3#
	1907.6	RMC	/	/	/	/	/	/
Body Top (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.15	23.5	1.084	0.012	0.02	/
	1907.6	RMC	/	/	/	/	/	/

WCDMA Band 5:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	20.95	22.0	1.274	0.037	0.05	/
	846.6	RMC	/	/	/	/	/	/
Body Back (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	20.95	22.0	1.274	0.041	0.05	/
	846.6	RMC	/	/	/	/	/	/
Body Right (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	20.95	22.0	1.274	0.153	0.19	4#
	846.6	RMC	/	/	/	/	/	/
Body Top (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	20.95	22.0	1.274	0.003	0.01	/
	846.6	RMC	/	/	/	/	/	/

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:

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 (0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.36	24.5	1.300	0.075	0.10	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.39	23.0	1.151	0.065	0.07	/
Body Back (0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.36	24.5	1.300	0.054	0.07	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.39	23.0	1.151	0.047	0.05	/
Body Right (0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.36	24.5	1.300	0.46	0.60	5#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.39	23.0	1.151	0.37	0.43	/
Body Top (0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.36	24.5	1.300	0.01	0.01	/
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.39	23.0	1.151	0.008	0.01	/

LTE Band 4:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	1720	20	1RB	/	/	/	/	/	/
	1732.5	20	1RB	23.97	24.5	1.130	0.022	0.02	/
	1745	20	1RB	/	/	/	/	/	/
	1732.5	20	50%RB	23.01	23.5	1.119	0.018	0.02	/
Body Back (0mm)	1720	20	1RB	/	/	/	/	/	/
	1732.5	20	1RB	23.97	24.5	1.130	0.213	0.24	/
	1745	20	1RB	/	/	/	/	/	/
	1732.5	20	50%RB	23.01	23.5	1.119	0.171	0.19	/
Body Right (0mm)	1720	20	1RB	/	/	/	/	/	/
	1732.5	20	1RB	23.97	24.5	1.130	0.238	0.27	6#
	1745	20	1RB	/	/	/	/	/	/
	1732.5	20	50%RB	23.01	23.5	1.119	0.21	0.24	/
Body Top (0mm)	1720	20	1RB	/	/	/	/	/	/
	1732.5	20	1RB	23.97	24.5	1.130	0.016	0.02	/
	1745	20	1RB	/	/	/	/	/	/
	1732.5	20	50%RB	23.01	23.5	1.119	0.012	0.01	/

LTE Band 7:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.91	24.0	1.285	0.15	0.19	/
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	22.08	22.5	1.102	0.122	0.13	/
Body Back (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.91	24.0	1.285	0.137	0.18	/
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	22.08	22.5	1.102	0.116	0.13	/
Body Right (0mm)	2510	20	1RB	22.93	24.0	1.279	0.919	1.18	7#
	2535	20	1RB	22.91	24.0	1.285	0.89	1.14	/
	2560	20	1RB	22.76	24.0	1.330	0.782	1.04	/
	2510	20	50%RB	22.06	22.5	1.107	0.715	0.79	/
	2535	20	50%RB	22.08	22.5	1.102	0.526	0.58	/
	2560	20	50%RB	21.87	22.5	1.156	0.573	0.66	/
	2535	20	100%RB	22.25	22.5	1.059	0.73	0.77	/
Body Top (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.91	24.0	1.285	0.07	0.09	/
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	22.08	22.5	1.102	0.058	0.06	/

Note:

- When the 1-g SAR is $\leq 0.8\text{W/Kg}$, testing for other channels are optional.
- SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02r05.
- KDB 941225 D05 v02r05-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 $> 1.45\text{ W/kg}$
- KDB 941225 D05 v02r05-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.
- KDB 941225 D05 v02r05- 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 $\leq 0.8\text{ W/kg}$.
- KDB 941225 D05 v02r05- 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.
- KDB 941225 D05 v02r05- 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 $> 1.45\text{ W/kg}$.
- Worst case SAR for 50% RB allocation is selected to be tested.

WIFI 2.4G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	12.91	13.5	1.146	1.006	0.095	0.11	/
	2472	802.11b	/	/	/	/	/	/	/
Body Back (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	12.91	13.5	1.146	1.006	0.173	0.20	/
	2472	802.11b	/	/	/	/	/	/	/
Body Left (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	12.91	13.5	1.146	1.006	0.315	0.36	8#
	2472	802.11b	/	/	/	/	/	/	/
Body Top (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2442	802.11b	12.91	13.5	1.146	1.006	0.005	0.01	/
	2472	802.11b	/	/	/	/	/	/	/

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. KDB 248227 D01-SAR measurement is not required for 2.4 GHz OFDM(802.11g/n) when the highest reported SAR for DSSS(802.11b) is $\leq 1.2\text{ W/kg}$, and the output power for DSSS is not less than that for OFDM.
4. According KDB 248227 D01, for SAR testing of 2.4G WIFI 802.11b 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)".

WIFI 5.2G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	5180	802.11a	/	/	/	/	/	/	/
	5200	802.11a	12.86	13.0	1.033	1.033	0.026	0.03	/
	5240	802.11a	/	/	/	/	/	/	/
Body Back (0mm)	5180	802.11a	/	/	/	/	/	/	/
	5200	802.11a	12.86	13.0	1.033	1.033	0.177	0.19	/
	5240	802.11a	/	/	/	/	/	/	/
Body Left (0mm)	5180	802.11a	/	/	/	/	/	/	/
	5200	802.11a	12.86	13.0	1.033	1.033	0.224	0.24	9#
	5240	802.11a	/	/	/	/	/	/	/
Body Top (0mm)	5180	802.11a	/	/	/	/	/	/	/
	5200	802.11a	12.86	13.0	1.033	1.033	0.027	0.03	/
	5240	802.11a	/	/	/	/	/	/	/

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/n/ac, 802.11a mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 5G WIFI 802.11a 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

Body

SAR probe calibration point)	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
2600 Head	LTE Band 7	2510	Body Right	0.919	0.902	1.02

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

PerIEEE 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

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(GSM/WCDMA/LTE) + WIFI 2.4G + NFC	√	√
WWAN(GSM/WCDMA/LTE) + WIFI 5G + NFC	√	√
WWAN(GSM/WCDMA/LTE) + Bluetooth + NFC	√	×
WIFI + Bluetooth	×	×

Simultaneous SAR test exclusion considerations:

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		Σ SAR < 1.6W/kg
		SAR1	SAR2	
WWAN(GSM/WCDMA/LTE) + WIFI 2.4G + NFC	Body	1.18	0.36	1.54
	Body (Hotspot)	1.18	0.36	1.54
WWAN(GSM/WCDMA/LTE) + WIFI 5G + NFC	Body	1.18	0.24	1.42
	Body (Hotspot)	1.18	0.24	1.42
WWAN(GSM/WCDMA/LTE) + Bluetooth + NFC	Body	1.18	0.15	1.33

Note:

1. For the EIRP of NFC is 0.0011 mW, per KDB 447498 D01 v06 clause 4.3, the estimated SAR is so lower, so the NFC almost have no influence on the results of simultaneous transmission.

Conclusion:

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

SAR Plots

Please Refer to the Attachment of SAR Plots.

APPENDIX A MEASUREMENT UNCERTAINTY

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

Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Source of uncertainty	Tolerance/ Uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard Uncertainty ± %, (1 g)	Standard Uncertainty ± %, (10 g)
Measurement system							
Probe calibration	7.5	N	1	1	1	7.5	7.5
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	3.5	N	1	1	1	3.5	3.5
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				12.5	12.3
Expanded uncertainty 95 % confidence interval)						25.0	24.7

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 *****