FCC

SAR EVALUATION REPORT

For

Bolt Modus Corp

Oficina N.33 EdificioOfidepositos Central, Calidonia - Distrito Federal, Panama

FCC ID：2APW4ART2P

Model：ART2PRO

Report Type：Original Report	**Product Name**：4G Smart Phone

Report Producer： **Anson Lu**

Report Number： **RXZ210607008SA01**

Report Date： **2021-07-06**

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ210607008	RXZ210607008SA01	2021.07.06	Original Report	Anson Lu

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Attestation of Test Results			
EUT Information	EUT Name	4G Smart Phone	
	Trade Name	N/A	
	Model Name	ART2PRO	
	Series Model	N/A	
	FCC ID	2APW4ART2P	
	Serial Number	N/A	
	Test Date	2021/06/25~2021/07/02	
MODE		Max. SAR Level(s) Reported(W/kg)	Limit
GSM850	1g Head SAR 1g Body SAR	0.082 W/kg 0.193 W/kg	1.6 (W/kg)
PCS1900	1g Head SAR 1g Body SAR	0.017 W/kg 0.121 W/kg	
WCDMA Band 2	1g Head SAR 1g Body SAR	0.038W/kg 0.294W/kg	
WCDMA Band 5	1g Head SAR 1g Body SAR	0.048 W/kg 0.099 W/kg	
LTE FDD Band 2	1g Head SAR 1g Body SAR	0.062W/kg 0.270 W/kg	
LTE FDD Band 4	1g Head SAR 1g Body SAR	0.050W/kg 0.219 W/kg	
LTE FDD Band 7	1g Head SAR 1g Body SAR	0.343W/kg 0.381 W/kg	
LTE FDD Band 12	1g Head SAR 1g Body SAR	0.077 W/kg 0.151 W/kg	
LTE FDD Band 17	1g Head SAR 1g Body SAR	0.083 W/kg 0.142 W/kg	
Simultaneous	1g Head SAR 1g Body SAR 1g Body SAR(Hotspot)	0.736W/kg 0.774W/kg 0.774 W/kg	
Applicable Standards	**FCC 47 CFR part 2.1091** Radiofrequency radiation exposure evaluation：mobile devices		
	FCC 47 CFR part 2.1093 Radiofrequency radiation exposure evaluation：portable devices		

Applicable Standards	**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
	FCC KDB KDB 865664 D01_SAR Measurement 100 MHz to 6 GHz v01r04 KDB 865664 D02_RF Exposure Reporting v01r02 KDB 447498 D01_General RF Exposure Guidance v06 KDB 648474 D04_Handset SAR v01r03
	RSS-102 Issue 5 March 2015 Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands).

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EUT DESCRIPTION

Technical Specification

Product Type	4G Smart Phone
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	PIFA Antenna for GSM/WCDMA/LTE PCB Antenna for WLAN/Bluetooth
Body-Worn Accessories:	None/Headset
Face-Head Accessories:	None/Headset
Operation Mode :	GSM Voice, GPRS Data WCDMA(R99 (Voice+Data), HSDPA/HSUPA/HSPA^{+}) FDD-LTE WiFi 2.4GHz incl. 802.11b/802.1g/802.11n HT20 Bluetooth/ Bluetooth LE
Frequency Band:	GSM/GPRS850:824.2.2~848.8 MHz (TX) PCS 1900:1850.2~1909.8 MHz(TX) WCDMA Band 2: 1850~1910 MHz (TX) WCDMA Band 5:824~849 MHz (TX) LTE Band2:1850~1910 MHz (TX) LTE Band 4: 1710~1755 MHz (TX) LTE Band 7:2500~2570 MHz (TX) LTE Band 12:699~716 MHz (TX) LTE Band 17:704~716 MHz (TX) 802.11b:2412~2462 MHz 802.11g:2412~2462 MHz 802.11n HT20:2412~2462 MHz Bluetooth:2402 MHz~2480 MHz Bluetooth LE:2402 MHz~2480 MHz
Conducted RF Power:	GSM 850:32.87dBm GPRS850:33.17dBm PCS 1900:29.52dBm GPRS1900:27.78dBm WCDMA Band 2:23.02dBm WCDMA Band 5:23.17dBm LTE Band2:23.08dBm LTE Band 4:22.93dBm LTE Band 7:22.36dBm LTE Band 12:22.73dBm LTE Band 17:22.71dBm 802.11b:9.77dBm 802.11g:9.54dBm 802.11n HT20:9.67dBm Bluetooth:5.25dBm Bluetooth LE: -0.2dBm
Dimensions (L*W*H):	164.2mm (H) x 76.3mm (W) x 8.8 mm (D)

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Power Source:	3.85VDCRechargeable Battery/ Battery：3.85VDC, 5000 mAh, 18.87Wh
Normal Operation:	Head and Body-worn

All measurement and test data in this report was gathered from production sample serial number：RXZ21060700801(Assigned by BACL, New Taipei Laboratory).The EUT supplied by the applicant was received on 2021/06/21

REFERENCE, STANDARDS, AND GUIDELINES

Statement of Compliance：

Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.

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 [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.

CE：

The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 2.0mW/g as recommended by EN62209-1 for an uncontrolled environment. According to the Standard, 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 Europe is 2.0mW/g average over 10 gram of tissue mass.

The test configurations were laid out on a specially designed test fixture to ensure the reproducibility of measurements. Each configuration was scanned for SAR. Analysis of each scan was carried out to characterize the above effects in the device.

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SAR Limits

FCC Limit

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	**1.60**	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

CE Limit

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 10 g of tissue)	**2.0**	10
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 ofindividual 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 employmentor occupation).

General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg (FCC) & 2.0 W/kg (CE) applied to the EUT.

FACILITIES

The Test site used by Bay Area Compliance Laboratories Corp.(New Taipei Laboratory) to collect test data is located on

☒70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

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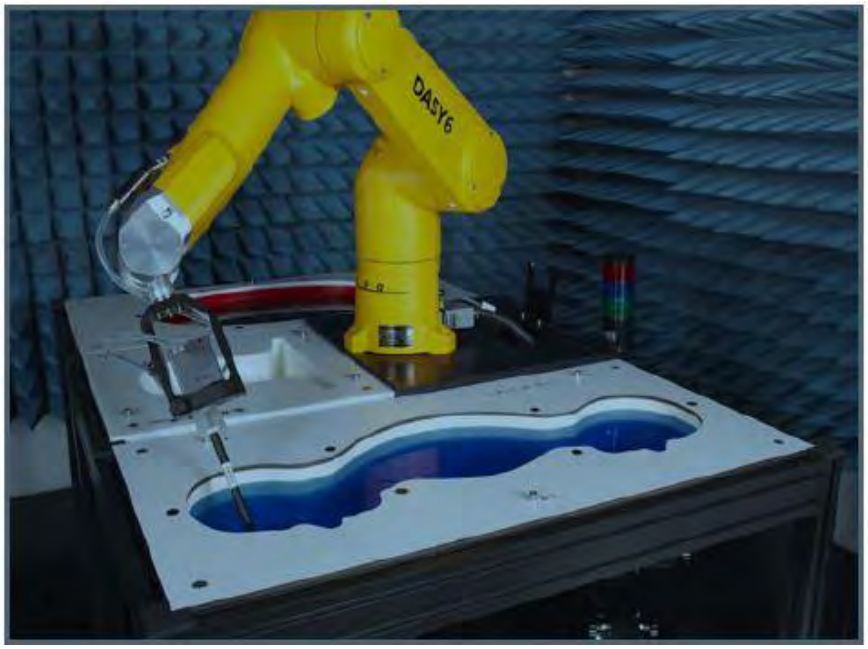
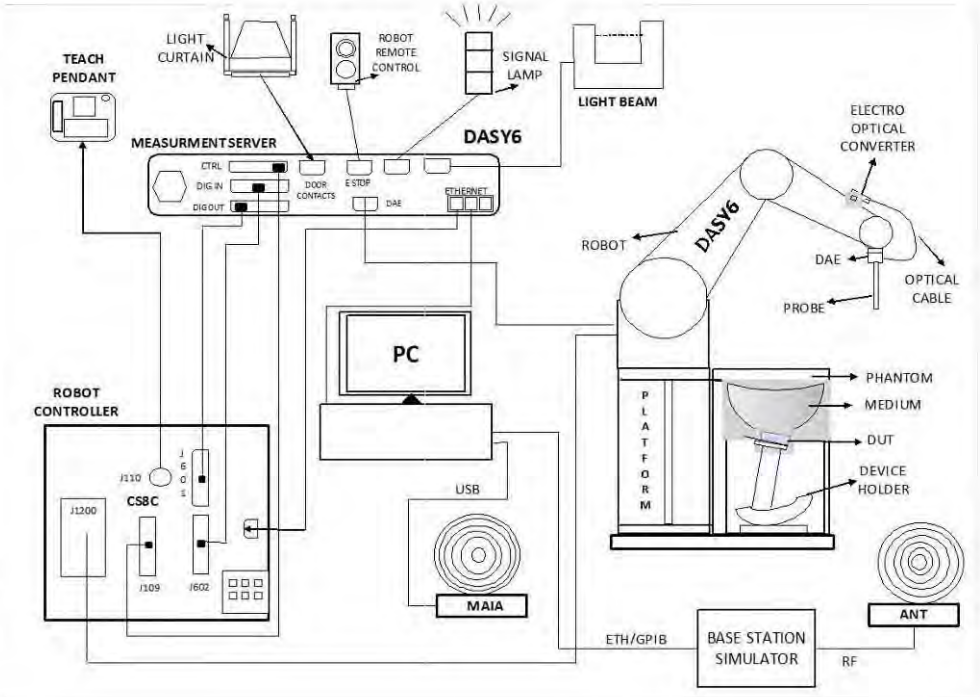
DESCRIPTION OF TEST SYSTEM

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



DASY6 System Description

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



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

DASY6 Measurement Server

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

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

Data Acquisition Electronics

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

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

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

EX3DV4 E-Field Probes

Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 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 Phantom (shown in front of DASY6) is a fiberglass shell phantom with shell thickness 2 mm, except in the ear region where the thickness is increased to 6 mm. The phantom has three measurement areas: 1) Left Head, 2) Right Head, and 3) Flat Section. For larger devices, the use of the ELI-Phantom (shown behind DASY6) is required. For devices such as glasses with a wireless link, the Face Down Phantom is the most suitable (between the SAM Twin and ELI phantoms).

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

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

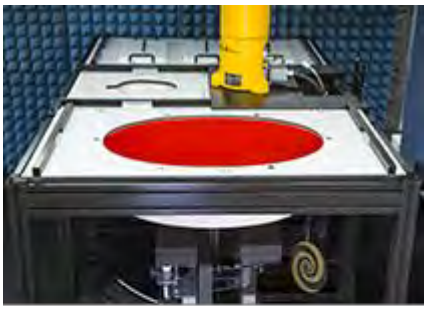
In addition to our standard broadband liquids, the phantom can be used with the following tissue simulating liquids:

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

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

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

ELI Phantom



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

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

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

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

- Do not use other organic solvents without previously testing the solvent resistivity of the phantom.

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

Robots
The DASY6 system uses the high-precision industrial robots TX60L, TX90XL, and RX160L from StaubliSA (France). The TX robot family - the successor of the well-known RX robot family - continues tooffer 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 andmaintenance of the robot arm and the robot controller is provided

Area Scans
Area scans are defined prior to the measurementprocess being executed with a user definedvariable spacing between each measurementpoint (integral) allowing low uncertaintymeasurements 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.

Zoom Scan (Cube Scan Averaging)
The averaging zoom scan volume utilized in the DASY6 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantomliquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm, with the side length of the 10g cube is 21.5mm.

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

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Recommended Tissue Dielectric Parameters for Head and Body

Tissue Dielectric Parameters for Head and Body Phantoms

Table A.3 shows the relative permittivity and conductivity of the resulting head tissueequivalent liquids as published in [33]. For dielectric properties of head tissue-equivalent liquid at other frequencies within the frequency range, a linear interpolation method shall be used.

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
Robot	TX90	5N26A1	N.C.R	N.C.R
DASY5 Test Software	DASY5.2	N/A	N.C.R	N.C.R
DASY6 Measurement Server	DASY 6.0	1588	N/A	N/A
Data Acquisition Electronics	DAE4	1561	2020/11/23	2021/11/22
E-Field Probe	EX3DV4	7520	2020/11/16	2021/11/15
Dipole, 750 MHz	D750V3	1079	2020/11/06	2023/11/06
Dipole, 850 MHz	D850V2	454	2020/11/18	2023/11/17
Dipole, 1800 MHz	D1800V2	2d207	2020/11/09	2023/11/08
Dipole,1900MHz	D1900V2	5d207	2020/11/11	2023/11/10
Dipole,2600MHz	D2600V2	1174	2020/11/18	2023/11/17
Twin SAM	Twin SAM V5.0	1368	N/A	N/A
Twin SAM	Twin SAM V8.0	1953	N/A	N/A
Twin ELI	Twin ELI V8.0	2088	N/A	N/A
Simulated Tissue 750 MHz Head / Body	TS-750-H / B	/	Each Time	/
Simulated Tissue 850 MHz Head / Body	TS-850-H / B	/	Each Time	/
Simulated Tissue 1800 MHz Head / Body	TS-1800-H / B	/	Each Time	/
Simulated Tissue 1900 MHz Head / Body	TS-1900-H / B	/	Each Time	/
Simulated Tissue 2600 MHz Head / Body	TS-2600-H / B	/	Each Time	/
Wideband Radio Communication Tester	CMU-200	106868	2021/04/07	2022/04/06
Functional radio communication tester	CMW 290	101741	2020/08/07	2021/08/06
Mounting Device	N/A	SD 000 H01 KA	N/A	N/A
Network Analyzer	E5063A	MY54402093	2020/12/29	2021/12/28
Dielectric probe kit	85070B	50207	/	/
Signal Generator	8648C	3537A01745	2020/12/30	2021/12/29
Power Meter	E4418B	GB43312279	2020/12/30	2021/12/29
Power Sensor	E9300A	US39210953	2021/05/05	2022/05/04
Power Amplifier	ZVE-8G+	365701647	2021/1/8	2022/1/7
Power Amplifier	ZHL-42W+	329401642	2021/1/8	2022/1/7
Temperature and Humidity Recoder	HTC-1	005	2020/10/30	2021/10/29
Directional Coupler	488Z	810	N.C.R	N.C.R
Attenuator	20dB, 100W	1453	N.C.R	N.C.R

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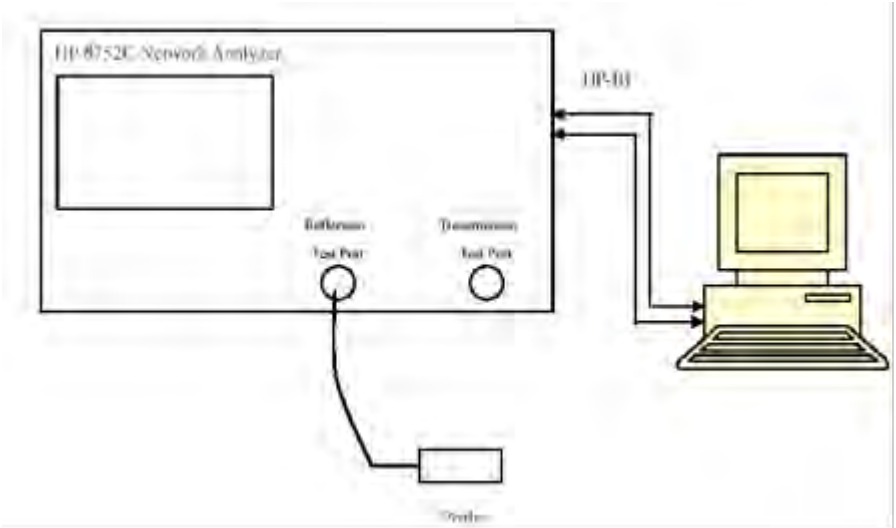
SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Test Date	Frequency (MHz)	LiquidType	Liquid parameter		Target Value		Delta (%)		Tolerance (%)
			σ (S/m)	εr	σ (S/m)	εr	σ (S/m)	εr	
2021/06/25	2600	HSL	1.895	38.364	1.96	39.00	-3.32	-1.63	±5
2021/06/26	2600	HSL	1.919	38.858	1.96	39.00	-2.09	-0.36	±5
2021/06/28	2600	HSL	1.918	38.792	1.96	39.00	-2.14	-0.53	±5
2021/06/28	1900	HSL	1.388	38.374	1.40	40.00	-0.86	-4.06	±5
2021/06/29	1900	HSL	1.397	38.556	1.40	40.00	-0.21	-3.61	±5
2021/06/30	850	HSL	0.927	40.606	0.90	41.50	3.00	-2.15	±5
2021/07/01	750	HSL	0.899	40.087	0.89	41.90	1.01	-4.33	±5
2021/07/02	750	HSL	0.903	40.152	0.89	41.90	1.46	-4.17	±5
2021/07/02	1800	HSL	1.365	39.932	1.40	40.00	-2.50	-0.17	±5

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System Accuracy Verification

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

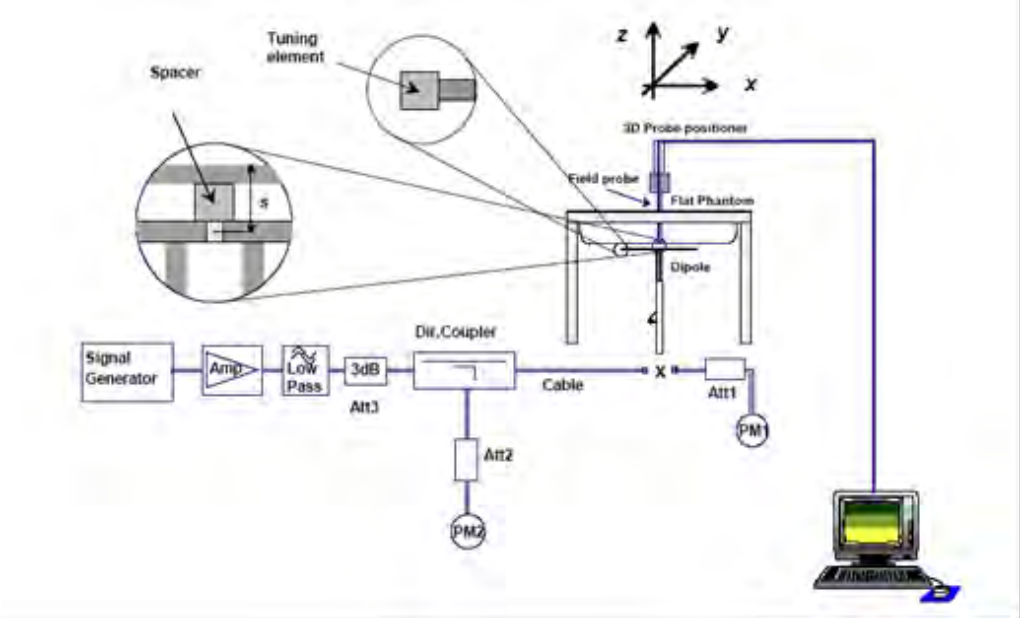
The spacing distance*s* in the **System Verification Setup Block Diagram** is given by the following:

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

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

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

System Verification Setup Block Diagram



System Accuracy Check Results

Test Date	Frequency Band (MHz)	Liquid Type	Input Power (mW)	Measured 1g SAR (W/kg)	Target Value (W/kg)	Normalized to 1W (W/kg)	Delta (%)	Tolerance (%)
2021/06/25	2600	HSL	250	13.50	55.30	54	-2.35	±10
2021/06/26	2600	HSL	250	13.70	55.30	54.8	-0.90	±10
2021/06/28	2600	HSL	250	12.90	55.30	51.6	-6.69	±10
2021/06/28	1900	HSL	250	9.93	40.10	39.72	-0.95	±10
2021/06/29	1900	HSL	250	9.33	40.10	37.32	-6.93	±10
2021/06/30	850	HSL	250	2.40	9.38	9.6	2.35	±10
2021/07/01	750	HSL	250	1.99	8.25	7.96	-3.52	±10
2021/07/02	750	HSL	250	2.00	8.25	8	-3.03	±10
2021/07/02	1800	HSL	250	9.81	38.90	39.24	0.87	±10

Note: *The power inputted to dipole is 0.25Watt; the SAR values are normalized to 1 Watt forward power by multiplying 4 times.*

SAR SYSTEM VALIDATION DATA

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_2600MHz_210625

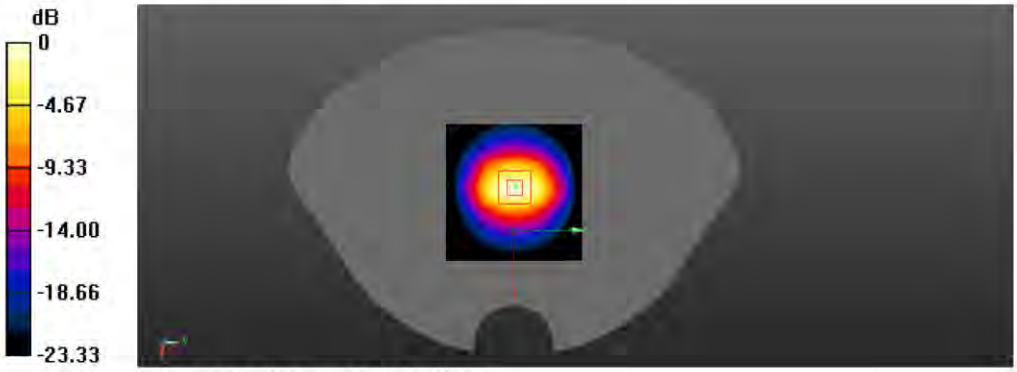
DUT: Dipole 2600 MHz D2600V2

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL2600 Medium parameters used: f = 2600 MHz; σ = 1.895 S/m; ε_r = 38.364; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(7.43, 7.43, 7.43) @ 2600 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Type: QD 000 P41 Ax; Serial: 1953
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 22.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 109.3 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.24 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 47.2%
Maximum value of SAR (measured) = 22.8 W/kg



0 dB = 22.8 W/kg = 13.58 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_2600MHz_210626

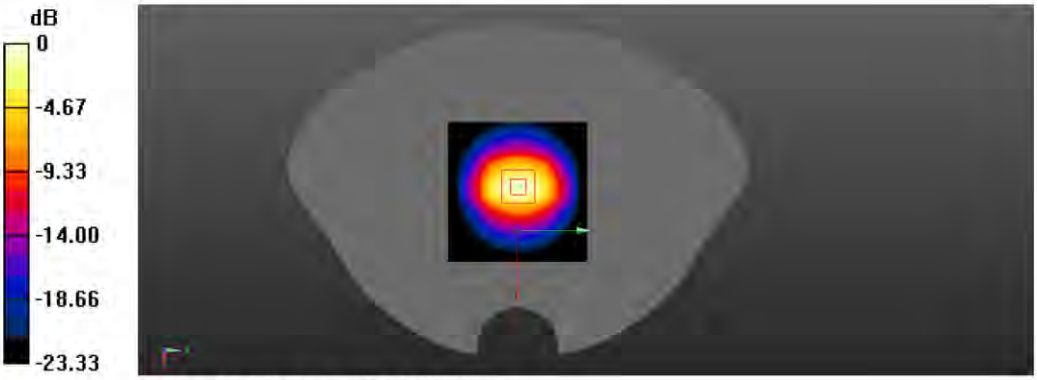
DUT: Dipole 2600 MHz D2600V2

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL2600 Medium parameters used: f = 2600 MHz; σ = 1.919 S/m; ε_r = 38.858; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(7.43, 7.43, 7.43) @ 2600 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Type: QD 000 P41 Ax; Serial: 1953
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 22.7 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 109.3 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 28.7 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.32 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 47.2%
Maximum value of SAR (measured) = 23.1 W/kg



0 dB = 23.1 W/kg = 13.64 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_2600MHz_210628

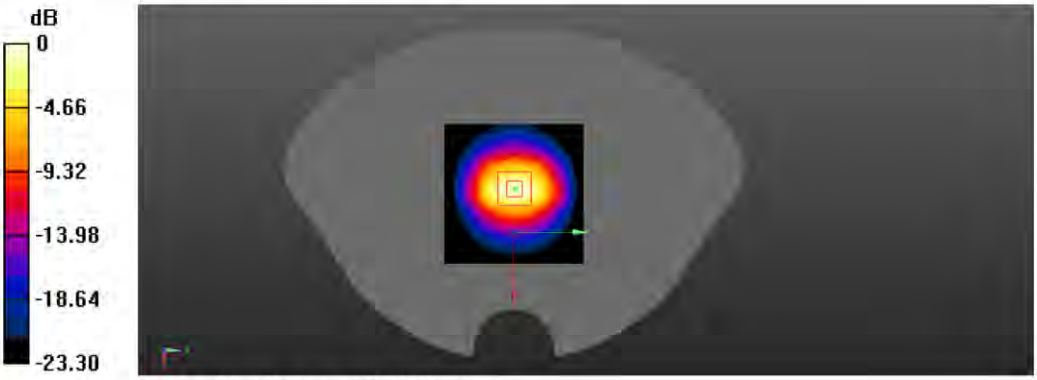
DUT: Dipole 2600 MHz D2600V2

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL2600 Medium parameters used: f = 2600 MHz; σ = 1.918 S/m; ε_r = 38.792; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(7.43, 7.43, 7.43) @ 2600 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Type: QD 000 P41 Ax; Serial: 1953
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 21.1 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 105.8 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.93 W/kg
Smallest distance from peaks to all points 3 dB below = 9.3 mm
Ratio of SAR at M2 to SAR at M1 = 47.2%
Maximum value of SAR (measured) = 21.6 W/kg



0 dB = 21.6 W/kg = 13.34 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_1900MHz_210628

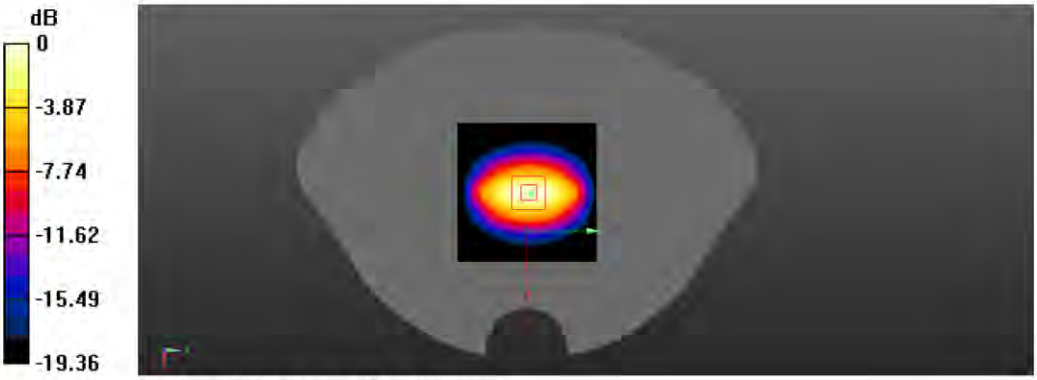
DUT: D1900V2-5d207

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1900 MHz; σ = 1.388 S/m; ε_r = 38.374; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 16.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 110.2 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 19.6 W/kg
SAR(1 g) = 9.93 W/kg; SAR(10 g) = 5.04 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 50.4%
Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_1900MHz_210629

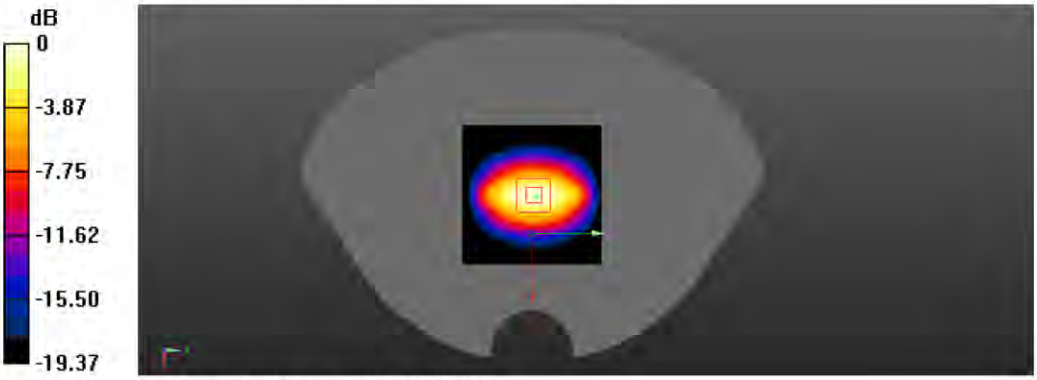
DUT: D1900V2-5d207

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1900 MHz; σ = 1.397 S/m; ε_r = 38.556; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 106.3 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.33 W/kg; SAR(10 g) = 4.73 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 50.2%
Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg = 11.76 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_835MHz_21630

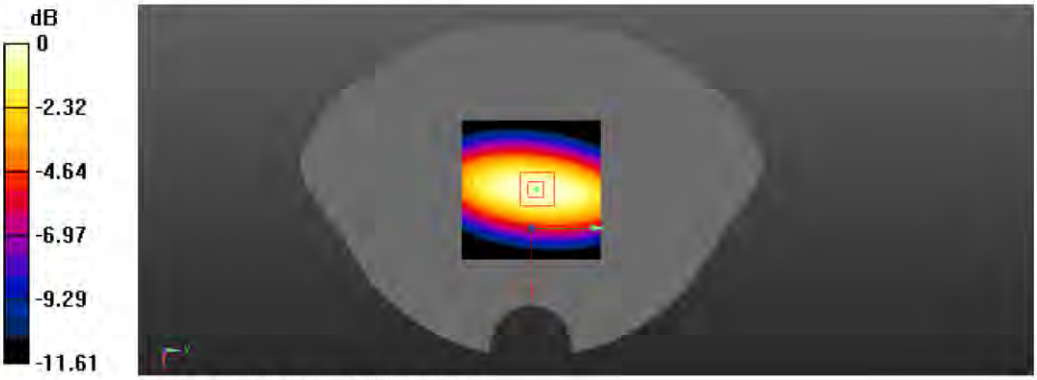
DUT: D835V2-454

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL835 Medium parameters used: f = 835 MHz; σ = 0.927 S/m; ε_r = 40.606; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.55, 9.55, 9.55) @ 835 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.14 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.87 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 3.72 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.54 W/kg
Smallest distance from peaks to all points 3 dB below = 17.2 mm
Ratio of SAR at M2 to SAR at M1 = 64.5%
Maximum value of SAR (measured) = 3.08 W/kg



0 dB = 3.08 W/kg = 4.89 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_750MHz_210701

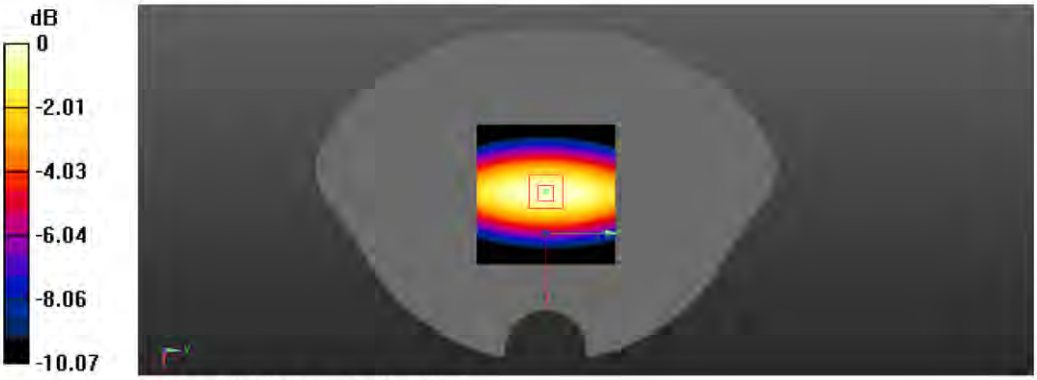
DUT: Dipole 750 MHz D750V3

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used: f = 750 MHz; σ = 0.899 S/m; ε_r = 40.087; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 750 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.61 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.03 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.97 W/kg
SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1.33 W/kg
Smallest distance from peaks to all points 3 dB below = 17.6 mm
Ratio of SAR at M2 to SAR at M1 = 67.2%
Maximum value of SAR (measured) = 2.62 W/kg



0 dB = 2.62 W/kg = 4.18 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_750MHz_210702

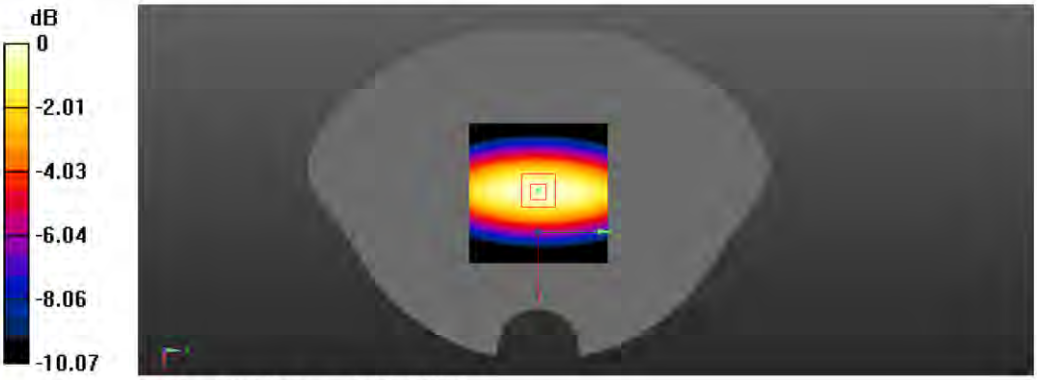
DUT: Dipole 750 MHz D750V3

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used: f = 750 MHz; σ = 0.903 S/m; ε_r = 40.152; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 750 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.62 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.03 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 2 W/kg; SAR(10 g) = 1.33 W/kg
Smallest distance from peaks to all points 3 dB below = 17.6 mm
Ratio of SAR at M2 to SAR at M1 = 67.2%
Maximum value of SAR (measured) = 2.63 W/kg



0 dB = 2.63 W/kg = 4.20 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

System Check_Head_1800MHz_210702

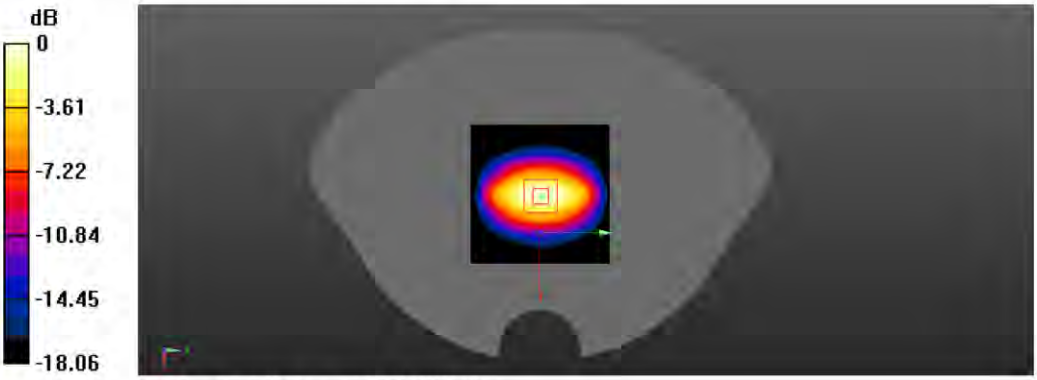
DUT: D1800V2-2d207

Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: HSL1800 Medium parameters used: f = 1800 MHz; σ = 1.365 S/m; ε_r = 39.932; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.66, 8.66, 8.66) @ 1800 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 111.8 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 9.81 W/kg; SAR(10 g) = 5.11 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 53%
Maximum value of SAR (measured) = 15.4 W/kg



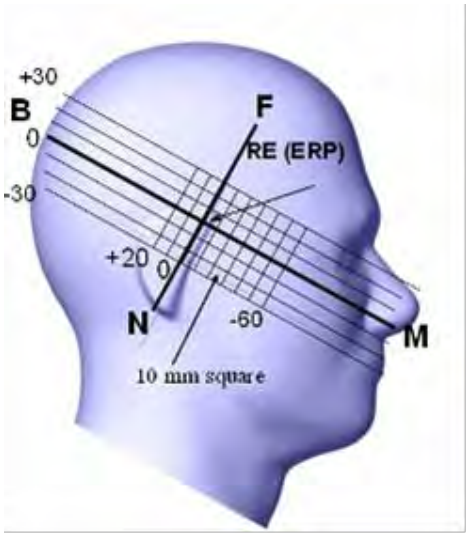
0 dB = 15.4 W/kg = 11.88 dBW/kg

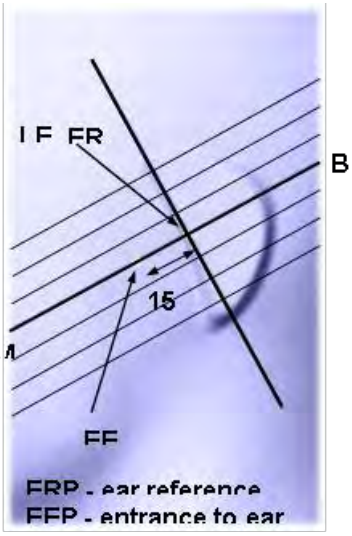
EUT TEST STRATEGY AND METHODOLOGY

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

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

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





Cheek/Touch Position

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

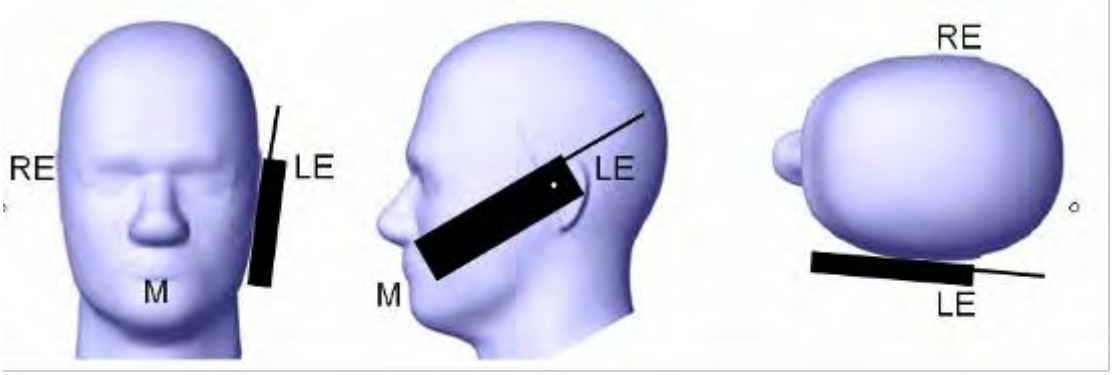
This test position is established:

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

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

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

Cheek /Touch Position



Ear/Tilt Position

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

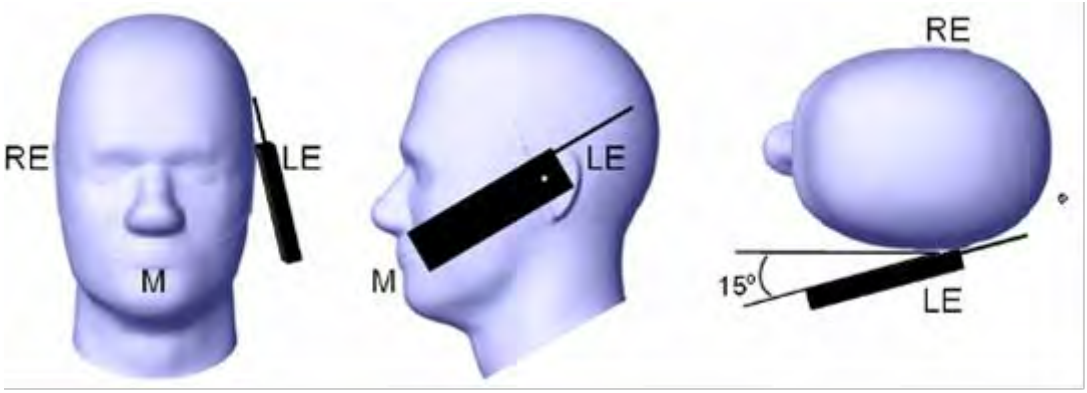
1) If the earpiece of the handset is not in full contact with the phantom's ear spacer (in the "Cheek/Touch position") and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the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

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

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

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

Ear /Tilt 15o Position



Test positions for body-worn and other configurations

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

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

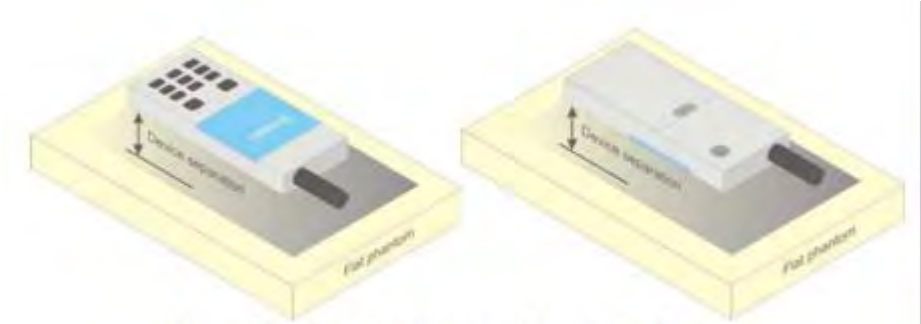


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

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

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.

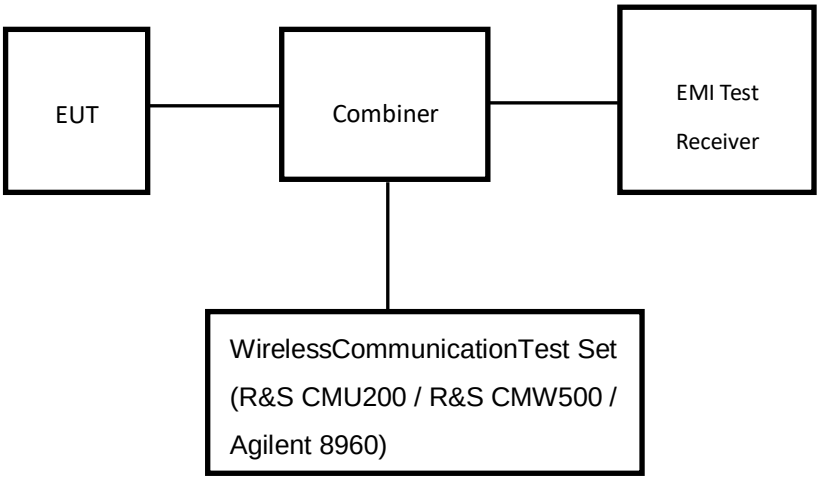
CONDUCTED OUTPUT POWER MEASUREMENT

Provision Applicable

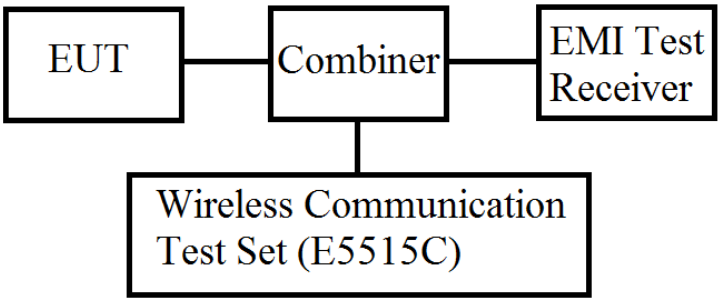
The measured peak output power should be greater and within 5% than EMI measurement.

Test Procedure

The RF output of the transmitter was connected to the input of the EMI Test Receiver through sufficient attenuation.



GSM&3G&LTE



WLEN

Radio Configuration

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

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

Channel Type > Off
P0 > 4 dB
Slot Config>Unchanged (if already set under MS signal)
TCH > choose desired test channel
Hopping > Off

Main Timeslot > 3
Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)
Bit Stream >2E9-1 PSR Bit Stream
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection Press Signal on to turn on the signal and change settings

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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
	βc / βd	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			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs=βhs/ βc	30/15			

HSUPA

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

	Mode	**HSUPA**	**HSUPA**	**HSUPA**	**HSUPA**	**HSUPA**
	Subset	**1**	**2**	**3**	**4**	**5**
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs=βhs/ βc	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_FCls	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 *(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	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

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

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

LTE

For UE Power Class 1 and 3, the allowed Maximum Power Reduction (MPR) for the maximum output power in Table6.2.2-1due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table6.2.3-1.

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 subclauses are specified in Table 6.2.4-1 alongwith the allowed A-MPR values that may be used to meet these requirements. The allowed A-MPR values specifiedbelow in Table 6.2.4.-1 to 6.2.4-15 are in addition to the allowed MPR requirements specified in subclause

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

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	N/A
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	
NS_11	6.6.2.2.1	23	1.4, 3, 5, 10, 15, 20	Table 6.2.4-5	
NS_12	6.6.3.3.5	26	1.4, 3, 5	Table 6.2.4-6	
NS_13	6.6.3.3.6	26	5	Table 6.2.4-7	
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4-8	
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4-9 Table 6.2.4-10	
NS_16	6.6.3.3.9	27	3, 5, 10	Table 6.2.4-11, Table 6.2.4-12, Table 6.2.4-13	
NS_17	6.6.3.3.10	28	5, 10	Table 5.6-1	N/A
NS_18	6.6.3.3.11	28	5	≥ 2	≤ 1
			10, 15, 20	≥ 1	≤ 4
NS_19	6.6.3.3.12	44	10, 15, 20	Table 6.2.4-14	
NS_20	6.2.2 6.6.2.2.1 6.6.3.2	23	5, 10, 15, 20	Table 6.2.4-15	
...					
NS_32	-	-	-	-	-

Wi-Fi

For 802.11b, 802.11g and 802.11n-HT20 mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442	/	/

For 802.11b, 802.11g, 802.11n-HT20 mode, EUT was tested withChannel 1, 6 and 11

Maximum Output Power:

WiFi

Mode	Channel	Frequency(MHz)	RMS Power(dBm)	Target RMS Power(dBm)
802.11 b	Low	2412	9.67	9.77
	Middle	2437	9.47	9.57
	High	2462	9.42	9.52
802.11 g	Low	2412	9.03	9.13
	Middle	2437	8.92	9.02
	High	2462	9.44	9.54
802.11 n20	Low	2412	9.57	9.67
	Middle	2437	9.32	9.42
	High	2462	9.52	9.62

Note: WiFiSAR Exclusion result is 2.9 < 3.0, so WiFistandalone SAR testing not needed.

Bluetooth

Maxi. RFTarget Power (dBm)			
Mode/Band	Channel		
	Low	Middle	High
Bluetooth(1M)	5.24	5.25	2.72
Bluetooth(2M)	4.06	3.94	3.22
Bluetooth(3M)	4.07	3.91	1.47
Bluetooth LE	-2.61	-0.20	-2.18
Maxi. RFPower(dBm)			
Mode/Band	Channel		
	Low	Middle	High
Bluetooth(1M)	5.04	5.05	2.52
Bluetooth(2M)	3.86	3.74	3.02
Bluetooth(3M)	3.87	3.71	1.27
Bluetooth LE	-2.81	-0.40	-2.38

Note: Bluetooth SAR Exclusion result is 1.07 < 3.0, so Bluetooth standalone SAR testing not needed.

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

Test Results：

GSM：

Band	Channel No	Frequency(MHz)	Conducted Target OutputPower(dBm)
GSM850	128	824.2	32.39
	190	836.5	32.42
	251	848.8	32.87
PCS1900	512	1850.2	29.03
	661	1880.0	29.51
	810	1909.8	29.52
Band	**Channel No**	**Frequency(MHz)**	**Conducted Output Power(dBm)**
GSM850	128	824.2	32.19
	190	836.5	32.22
	251	848.8	32.67
PCS1900	512	1850.2	28.83
	661	1880.0	29.31
	810	1909.8	29.32

GPRS：

Band	Channel No	Frequency (MHz)	Conducted Target Output Power(dBm)			
			1 slot	2 slots	3 slots	4 slots
GPRS 850	128	824.2	33.17	30.97	29.02	27.93
	190	836.5	33.11	30.98	29.01	27.95
	251	848.8	33.16	30.96	29.02	28.01
GPRS 1900	512	1850.2	24.71	22.92	20.96	20.26
	661	1880.0	25.05	23.01	20.92	19.77
	810	1909.8	27.78	25.05	22.81	21.27
Band	**Channel No**	**Frequency (MHz)**	**Conducted Output Power(dBm)**			
			1 slot	**2 slots**	**3 slots**	**4 slots**
GPRS 850	128	824.2	32.97	30.77	28.82	27.73
	190	836.5	32.91	30.78	28.81	27.75
	251	848.8	32.96	30.76	28.82	27.81
GPRS	512	1850.2	24.51	22.72	20.76	20.06

1900	661	1880.0	24.85	22.81	20.72	19.57
	810	1909.8	27.58	24.85	22.61	21.07

EGPRS：

Band	Channel No	Frequency (MHz)	Conducted Target Output Power(dBm)			
			1 slot	2 slots	3 slots	4 slots
GPRS 850	128	824.2	27.35	25.73	23.47	22.22
	190	836.5	27.37	25.98	23.42	22.11
	251	848.8	27.39	25.96	23.45	22.01
GPRS 1900	512	1850.2	27.12	25.68	23.37	22.12
	661	1880.0	27.11	25.77	23.32	22.07
	810	1909.8	26.72	25.49	22.94	21.71
Band	**Channel No**	**Frequency (MHz)**	**Conducted Output Power(dBm)**			
			1 slot	**2 slots**	**3 slots**	**4 slots**
GPRS 850	128	824.2	27.15	25.53	23.27	22.02
	190	836.5	27.17	25.78	23.22	21.91
	251	848.8	27.19	25.76	23.25	21.81
GPRS 1900	512	1850.2	26.92	25.48	23.17	21.92
	661	1880.0	26.91	25.57	23.12	21.87
	810	1909.8	26.52	25.29	22.74	21.51

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WDMA Band 2：

Test Condition	Test Mode	3GPP Subtest	Conducted Target Output Power(dBm)		
			Low Channel	Middle Channel	High Channel
Normal	Rel 99 RMC	1	23.02	23.02	22.95
	HSDPA	1	22.17	22.04	21.77
		2	21.97	21.82	21.61
		3	22.06	22.06	21.82
		4	22.31	21.89	21.77
	HSUPA	1	22.44	22.28	21.38
		2	22.12	22.08	21.75
		3	22.28	21.88	21.91
		4	22.21	21.74	21.42
		5	22.29	21.78	21.97
	DC-HSDPA	1	22.31	21.61	22.04
		2	22.32	22.02	21.81
		3	22.39	21.83	22.02
		4	22.41	22.04	21.74
	HSUPA^{+}	1	21.21	21.02	20.78
Test Condition	Test Mode	3GPP Subtest	Conducted Output Power(dBm)		
			Low Channel	Middle Channel	High Channel
Normal	Rel 99 RMC	1	22.82	22.82	22.75
	HSDPA	1	21.97	21.84	21.57
		2	21.77	21.62	21.41
		3	21.86	21.86	21.62
		4	22.11	21.69	21.57
	HSUPA	1	22.24	22.08	21.18
		2	21.92	21.88	21.55
		3	22.08	21.68	21.71
		4	22.01	21.54	21.22
		5	22.09	21.58	21.77
	DC-HSDPA	1	22.11	21.41	21.84
		2	22.12	21.82	21.61
		3	22.19	21.63	21.82
		4	22.21	21.84	21.54
	HSUPA^{+}	1	21.01	20.82	20.58

WDMA Band 5：

Test Condition	Test Mode	3GPP Subtest	Conducted Target Output Power(dBm)		
			Low Channel	Middle Channel	High Channel
Normal	Rel 99 RMC	1	23.05	23.17	23.07
	HSDPA	1	21.97	22.18	22.02
		2	21.91	22.19	22.06
		3	21.99	22.02	22.01
		4	21.81	21.93	22.05
	HSUPA	1	21.62	21.88	21.62
		2	21.63	21.93	21.71
		3	21.89	21.88	21.42
		4	21.61	21.76	21.58
		5	21.66	21.79	21.21
	DC-HSDPA	1	21.57	22.08	21.62
		2	21.69	21.83	21.78
		3	21.65	22.00	21.92
		4	21.44	21.60	21.68
	$HSUPA^{+}$	1	20.91	20.65	20.31
Test Condition	Test Mode	3GPP Subtest	Conducted Output Power(dBm)		
			Low Channel	Middle Channel	High Channel
Normal	Rel 99 RMC	1	22.85	22.97	22.87
	HSDPA	1	21.77	21.98	21.82
		2	21.71	21.99	21.86
		3	21.79	21.82	21.81
		4	21.61	21.73	21.85
	HSUPA	1	21.42	21.68	21.42
		2	21.43	21.73	21.51
		3	21.69	21.68	21.22
		4	21.41	21.56	21.38
		5	21.46	21.59	21.01
	DC-HSDPA	1	21.37	21.88	21.42
		2	21.49	21.63	21.58
		3	21.45	21.80	21.72
		4	21.24	21.40	21.48
	$HSUPA^{+}$	1	20.71	20.45	20.11

LTE Band 2：

Modulation	RB	Maxi. Conducted Target power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	23.08	22.96	22.88
	RB1#50	22.90	23.03	22.99
	RB1#99	23.01	23.05	23.01
	RB50#0	21.96	22.00	21.93
	RB50#50	21.94	22.07	22.06
	RB100#0	22.00	21.95	21.89
Modulation	RB	Maxi. Conducted power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.78	22.76	22.68
	RB1#50	22.70	22.83	22.79
	RB1#99	22.81	22.85	22.81
	RB50#0	21.76	21.80	21.73
	RB50#50	21.74	21.87	21.86
	RB100#0	21.80	21.75	21.69

LTE Band 4:

Modulation	RB	Maxi. Conducted Target power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.77	22.65	22.74
	RB1#50	22.86	22.67	22.81
	RB1#99	22.89	22.75	22.93
	RB50#0	21.63	21.73	21.65
	RB50#50	21.77	21.84	21.75
	RB100#0	21.69	21.78	21.68
Modulation	RB	Maxi. Conducted power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.57	22.45	22.54
	RB1#50	22.66	22.47	22.61
	RB1#99	22.69	22.55	22.73
	RB50#0	21.43	21.53	21.45
	RB50#50	21.57	21.64	21.55
	RB100#0	21.49	21.58	21.48

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

LTE Band 7:

Modulation	RB	Maxi. Conducted Target power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.36	22.04	21.90
	RB1#50	22.14	22.02	21.92
	RB1#99	22.10	21.97	21.92
	RB50#0	21.25	20.92	20.70
	RB50#50	21.19	20.92	20.76
	RB100#0	21.16	20.91	20.71
Modulation	RB	Maxi. Conducted power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.16	21.84	21.70
	RB1#50	21.94	21.82	21.72
	RB1#99	21.90	21.77	21.72
	RB50#0	21.05	20.72	20.50
	RB50#50	20.99	20.72	20.56
	RB100#0	20.96	20.71	20.51

LTE Band 12:

Modulation	RB	Maxi. Conducted Target power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.32	22.53	22.53
	RB1#25	22.41	22.43	22.68
	RB1#49	22.40	22.60	22.73
	RB25#0	21.37	21.99	21.47
	RB25#25	22.01	21.64	21.59
	RB50#0	21.46	21.62	21.57
Modulation	RB	Maxi. Conducted power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.12	22.33	22.33
	RB1#25	22.21	22.23	22.48
	RB1#49	22.20	22.40	22.53
	RB25#0	21.17	21.79	21.27
	RB25#25	21.81	21.44	21.39
	RB50#0	21.26	21.42	21.37

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

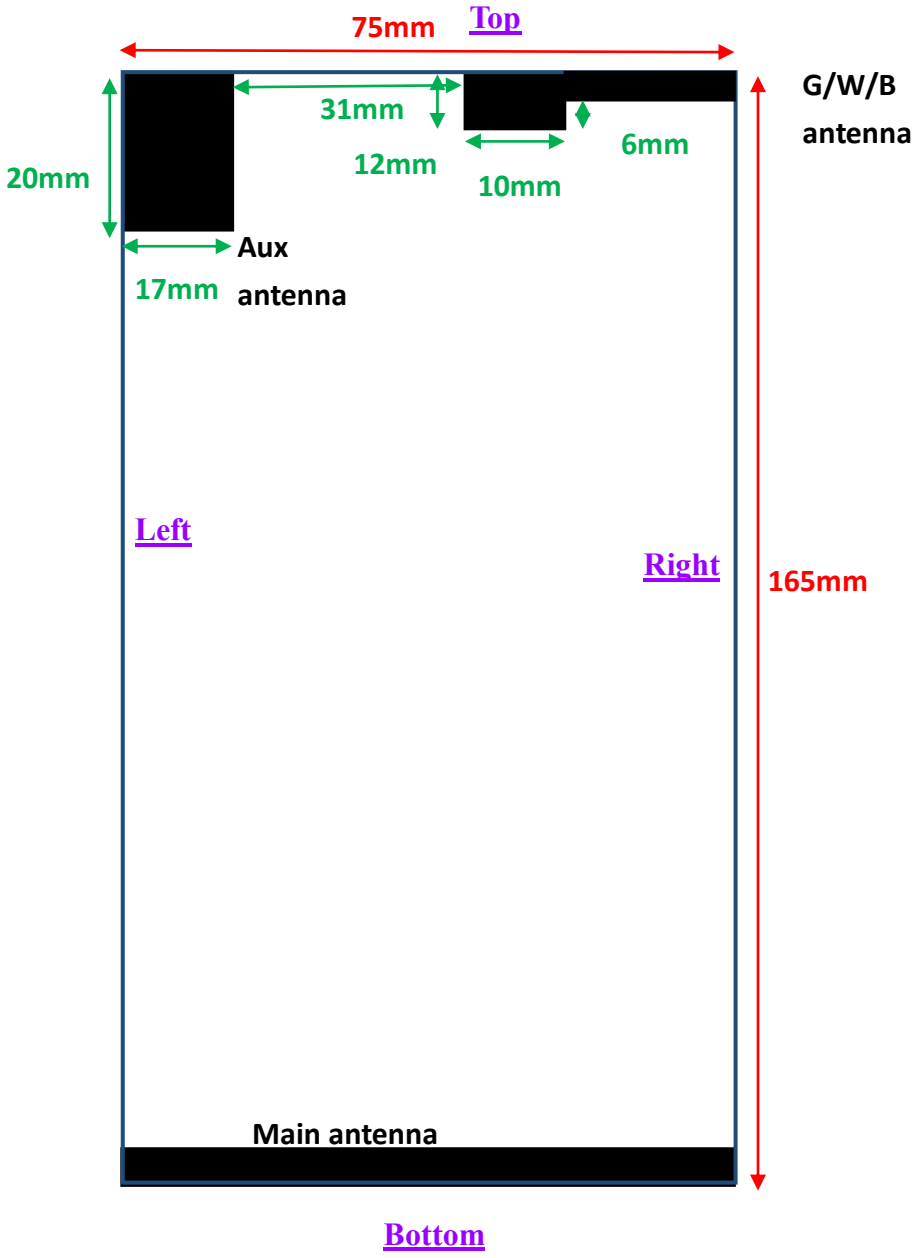
LTE Band 17:

Modulation	RB	Maxi. Conducted Target power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.28	22.45	22.48
	RB1#25	22.23	22.52	22.67
	RB1#49	22.53	22.52	22.71
	RB25#0	21.98	21.622	21.44
	RB25#25	21.55	21.51	21.55
	RB50#0	21.57	21.56	21.53
Modulation	RB	Maxi. Conducted power		
		Low channel(dBm)	Middle channel(dBm)	High channel(dBm)
QPSK	RB1#0	22.08	22.25	22.28
	RB1#25	22.03	22.32	22.47
	RB1#49	22.33	22.32	22.51
	RB25#0	21.78	21.42	21.24
	RB25#25	21.35	21.31	21.35
	RB50#0	21.37	21.36	21.33

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location:



Note: Aux antenna only for RX used.

Ant. To edge dist.(mm)	TOP	Bottom	Left	Right	Front (surface)	Back (surface)
WWAN	> 25mm	≦25mm	≦25mm	≦25mm	≦25mm	≦25mm

Note: If the distance > 25mm edge SAR not required.

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed diametric evaluation.

SAR Test Data

Environmental Conditions

Test Date	2021/06/25	2021/06/26	2021/06/28	2021/06/28
Freq. Band(MHz)	2600	2600	2600	1900
Temperature	23.1℃	22.9℃	23.2℃	23.2℃
Relative Humidity	52 %	55 %	53 %	53 %
Test Engineer	Nike Wu	Nike Wu	Nike Wu	Nike Wu

Test Date	2021/06/29	2021/06/30	2021/07/01	2021/07/02
Freq. Band(MHz)	1900	850	750	750
Temperature	23.3℃	23.1℃	22.8℃	23.1℃
Relative Humidity	56 %	53 %	54 %	51 %
Test Engineer	Nike Wu	Nike Wu	Nike Wu	Nike Wu

Test Date	2021/07/02
Freq. Band(MHz)	1800
Temperature	23.1℃
Relative Humidity	51 %
Test Engineer	Nike Wu

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

GSM850/GPRS850:

Band	Mode Position	Frequency (MHz)	Test Mode	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
GSM850	Head Left Cheek	824.2	GSM	---	---	1.6	
	Head Left Cheek	836.6	GSM	0.065	0.068	1.6	
	Head Left Cheek	848.8	GSM	---	---	1.6	
	Head Left Tilt	824.2	GSM	---	---	1.6	
	Head Left Tilt	836.6	GSM	0.025	0.026	1.6	
	Head Left Tilt	848.8	GSM	---	---	1.6	
	Head Right Cheek	824.2	GSM	---	---	1.6	
	Head Right Cheek	836.6	GSM	0.078	0.082	1.6	#1
	Head Right Cheek	848.8	GSM	---	---	1.6	
	Head Right Tilt	824.2	GSM	---	---	1.6	
	Head Right Tilt	836.6	GSM	0.042	0.044	1.6	
	Head Right Tilt	848.8	GSM	---	---	1.6	
	Body Back(10mm)	824.2	GSM	---	---	1.6	
	Body Back(10mm)	836.6	GSM	0.106	0.111	1.6	
	Body Back(10mm)	848.8	GSM	---	---	1.6	
	Body Front(10mm)	824.2	GSM	---	---	1.6	
	Body Front(10mm)	836.6	GSM	0.079	0.083	1.6	
	Body Front(10mm)	848.8	GSM	---	---	1.6	
	Body Back(10mm)	824.2	GPRS(4 Tx slots)	---	---	1.6	
	Body Back(10mm)	836.6	GPRS(4 Tx slots)	0.184	0.193	1.6	# 2
	Body Back(10mm)	848.8	GPRS(4 Tx slots)	---	---	1.6	
	Body Front(10mm)	824.2	GPRS(4 Tx slots)	---	---	1.6	
	Body Front(10mm)	836.6	GPRS(4 Tx slots)	0.088	0.092	1.6	
	Body Front(10mm)	848.8	GPRS(4 Tx slots)	---	---	1.6	
	Body Left(10mm)	824.2	GPRS(4 Tx slots)	---	---	1.6	
	Body Left(10mm)	836.6	GPRS(4 Tx slots)	0.059	0.062	1.6	
	Body Left(10mm)	848.8	GPRS(4 Tx slots)	---	---	1.6	
	Body Right(10mm)	824.2	GPRS(4 Tx slots)	---	---	1.6	
	Body Right(10mm)	836.6	GPRS(4 Tx slots)	0.068	0.071	1.6	
	Body Right(10mm)	848.8	GPRS(4 Tx slots)	---	---	1.6	
	Body Bottom(10mm)	824.2	GPRS(4 Tx slots)	---	---	1.6	
	Body Bottom(10mm)	836.6	GPRS(4 Tx slots)	0.080	0.084	1.6	
	Body Bottom(10mm)	848.8	GPRS(4 Tx slots)	---	---	1.6	

Note *: For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

DCS1900/GPRS1900:

Band	Mode Position	Frequency (MHz)	Test Mode	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
GSM1900	Head Left Cheek	1850.2	GSM	---	---	1.6	
	Head Left Cheek	1880	GSM	0.017	0.017	1.6	#3
	Head Left Cheek	1909.8	GSM	---	---	1.6	
	Head Left Tilt	1850.2	GSM	---	---	1.6	
	Head Left Tilt	1880	GSM	0.008	0.008	1.6	
	Head Left Tilt	1909.8	GSM	---	---	1.6	
	Head Right Cheek	1850.2	GSM	---	---	1.6	
	Head Right Cheek	1880	GSM	0.016	0.017	1.6	
	Head Right Cheek	1909.8	GSM	---	---	1.6	
	Head Right Tilt	1850.2	GSM	---	---	1.6	
	Head Right Tilt	1880	GSM	0.008	0.008	1.6	
	Head Right Tilt	1909.8	GSM	---	---	1.6	
	Body Back(10mm)	1850.2	GSM	---	---	1.6	
	Body Back(10mm)	1880	GSM	0.055	0.058	1.6	
	Body Back(10mm)	1909.8	GSM	---	---	1.6	
	Body Front(10mm)	1850.2	GSM	---	---	1.6	
	Body Front(10mm)	1880	GSM	0.038	0.039	1.6	
	Body Front(10mm)	1909.8	GSM	---	---	1.6	
	Body Back(10mm)	1850.2	GPRS(2Tx slots)	---	---	1.6	
	Body Back(10mm)	1880	GPRS(2Tx slots)	0.081	0.084	1.6	
	Body Back(10mm)	1909.8	GPRS(2Tx slots)	---	---	1.6	
	Body Front(10mm)	1850.2	GPRS(2Tx slots)	---	---	1.6	
	Body Front(10mm)	1880	GPRS(2Tx slots)	0.052	0.054	1.6	
	Body Front(10mm)	1909.8	GPRS(2Tx slots)	---	---	1.6	
	Body Left(10mm)	1850.2	GPRS(2Tx slots)	---	---	1.6	
	Body Left(10mm)	1880	GPRS(2Tx slots)	0.026	0.028	1.6	
	Body Left(10mm)	1909.8	GPRS(2Tx slots)	---	---	1.6	
	Body Right(10mm)	1850.2	GPRS(2Tx slots)	---	---	1.6	
	Body Right(10mm)	1880	GPRS(2Tx slots)	0.116	0.121	1.6	# 4
	Body Right(10mm)	1909.8	GPRS(2Tx slots)	---	---	1.6	
	Body Bottom(10mm)	1850.2	GPRS(2Tx slots)	---	---	1.6	
	Body Bottom(10mm)	1880	GPRS(2Tx slots)	0.062	0.064	1.6	
	Body Bottom(10mm)	1909.8	GPRS(2Tx slots)	---	---	1.6	

Note *: For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

WCDMA Band 2:

Band	Mode Position	Frequency (MHz)	Test Mode	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
WCDMA Band2	Head Left Cheek	1852.4	RMC	---	---	1.6	
	Head Left Cheek	1880	RMC	0.032	0.034	1.6	
	Head Left Cheek	1907.6	RMC	---	---	1.6	
	Head Left Tilt	1852.4	RMC	---	---	1.6	
	Head Left Tilt	1880	RMC	0.017	0.018	1.6	
	Head Left Tilt	1907.6	RMC	---	---	1.6	
	Head Right Cheek	1852.4	RMC	---	---	1.6	
	Head Right Cheek	1880	RMC	0.036	0.038	1.6	#5
	Head Right Cheek	1907.6	RMC	---	---	1.6	
	Head Right Tilt	1852.4	RMC	---	---	1.6	
	Head Right Tilt	1880	RMC	0.005	0.005	1.6	
	Head Right Tilt	1907.6	RMC	---	---	1.6	
	Body Back(10mm)	1852.4	RMC	---	---	1.6	
	Body Back(10mm)	1880	RMC	0.281	0.294	1.6	#6
	Body Back(10mm)	1907.6	RMC	---	---	1.6	
	Body Front(10mm)	1852.4	RMC	---	---	1.6	
	Body Front(10mm)	1880	RMC	0.151	0.158	1.6	
	Body Front(10mm)	1907.6	RMC	---	---	1.6	
	Body Left(10mm)	1852.4	RMC	---	---	1.6	
	Body Left(10mm)	1880	RMC	0.095	0.100	1.6	
	Body Left(10mm)	1907.6	RMC	---	---	1.6	
	Body Right(10mm)	1852.4	RMC	---	---	1.6	
	Body Right(10mm)	1880	RMC	0.116	0.121	1.6	
	Body Right(10mm)	1907.6	RMC	---	---	1.6	
	Body Bottom(10mm)	1852.4	RMC	---	---	1.6	
	Body Bottom(10mm)	1880	RMC	0.268	0.281	1.6	
	Body Bottom(10mm)	1907.6	RMC	---	---	1.6	

Note *: For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

WCDMA Band 5:

Band	Mode Position	Frequency (MHz)	Test Mode	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
WCDMA Band 5	Head Left Cheek	826.4	RMC	---	---	1.6	
	Head Left Cheek	836.4	RMC	0.036	0.038	1.6	
	Head Left Cheek	846.6	RMC	---	---	1.6	
	Head Left Tilt	826.4	RMC	---	---	1.6	
	Head Left Tilt	836.4	RMC	0.023	0.024	1.6	
	Head Left Tilt	846.6	RMC	---	---	1.6	
	Head Right Cheek	826.4	RMC	---	---	1.6	
	Head Right Cheek	836.4	RMC	0.046	0.048	1.6	# 7
	Head Right Cheek	846.6	RMC	---	---	1.6	
	Head Right Tilt	826.4	RMC	---	---	1.6	
	Head Right Tilt	836.4	RMC	0.030	0.031	1.6	
	Head Right Tilt	846.6	RMC	---	---	1.6	
	Body Back(10mm)	826.4	RMC	---	---	1.6	
	Body Back(10mm)	836.4	RMC	0.094	0.099	1.6	# 8
	Body Back(10mm)	846.6	RMC	---	---	1.6	
	Body Front(10mm)	826.4	RMC	---	---	1.6	
	Body Front(10mm)	836.4	RMC	0.047	0.049	1.6	
	Body Front(10mm)	846.6	RMC	---	---	1.6	
	Body Left(10mm)	826.4	RMC	---	---	1.6	
	Body Left(10mm)	836.4	RMC	0.035	0.037	1.6	
	Body Left(10mm)	846.6	RMC	---	---	1.6	
	Body Right(10mm)	826.4	RMC	---	---	1.6	
	Body Right(10mm)	836.4	RMC	0.068	0.071	1.6	
	Body Right(10mm)	846.6	RMC	---	---	1.6	
	Body Bottom(10mm)	826.4	RMC	---	---	1.6	
	Body Bottom(10mm)	836.4	RMC	0.038	0.040	1.6	
	Body Bottom(10mm)	846.6	RMC	---	---	1.6	

Note *: For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 2 Head：

Band	Mode Position	Frequency (MHz)	Modulation	Bandwidth (MHz)	RB Size	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
LTE FDD Band 2	Head Left Cheek	1860	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	1880	QPSK	20	1RB	0.046	0.048	1.6	
	Head Left Cheek	1900	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	1880	QPSK	20	50%RB	0.032	0.033	1.6	
	Head Left Tilt	1860	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	1880	QPSK	20	1RB	0.028	0.030	1.6	
	Head Left Tilt	1900	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	1880	QPSK	20	50%RB	0.021	0.022	1.6	
	Head Right Cheek	1860	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	1880	QPSK	20	1RB	0.059	0.062	1.6	# 9
	Head Right Cheek	1900	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	1880	QPSK	20	50%RB	0.044	0.046	1.6	
	Head Right Tilt	1860	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	1880	QPSK	20	1RB	0.030	0.031	1.6	
	Head Right Tilt	1900	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	1880	QPSK	20	50%RB	0.025	0.026	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 2 Body：

LTE FDD Band 2	Body Back(10mm)	1860	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	1880	QPSK	20	1RB	0.258	0.270	1.6	#10
	Body Back(10mm)	1900	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	1880	QPSK	20	50%RB	0.194	0.203	1.6	
	Body Front(10mm)	1860	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	1880	QPSK	20	1RB	0.174	0.182	1.6	
	Body Front(10mm)	1900	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	1880	QPSK	20	50%RB	0.130	0.136	1.6	
	Body Left(10mm)	1860	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	1880	QPSK	20	1RB	0.095	0.100	1.6	
	Body Left(10mm)	1900	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	1880	QPSK	20	50%RB	0.071	0.074	1.6	
	Body Right(10mm)	1860	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	1880	QPSK	20	1RB	0.227	0.238	1.6	
	Body Right(10mm)	1900	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	1880	QPSK	20	50%RB	0.176	0.184	1.6	
	Body Bottom(10mm)	1860	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	1880	QPSK	20	1RB	0.234	0.245	1.6	
	Body Bottom(10mm)	1900	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	1880	QPSK	20	50%RB	0.178	0.186	1.6	

Note*：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.

LTE FDD Band 4 Head：

Band	Mode Position	Frequency (MHz)	Modulation	Bandwidth (MHz)	RB Size	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
LTE FDD Band 4	Head Left Cheek	1720	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	1732.5	QPSK	20	1RB	0.031	0.032	1.6	
	Head Left Cheek	1745	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	1732.5	QPSK	20	50%RB	0.024	0.025	1.6	
	Head Left Tilt	1720	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	1732.5	QPSK	20	1RB	0.013	0.014	1.6	
	Head Left Tilt	1745	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	1732.5	QPSK	20	50%RB	0.009	0.010	1.6	
	Head Right Cheek	1720	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	1732.5	QPSK	20	1RB	0.048	0.050	1.6	# 11
	Head Right Cheek	1745	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	1732.5	QPSK	20	50%RB	0.038	0.040	1.6	
	Head Right Tilt	1720	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	1732.5	QPSK	20	1RB	0.019	0.020	1.6	
	Head Right Tilt	1745	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	1732.5	QPSK	20	50%RB	0.014	0.015	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 4 Body：

LTE FDD Band 4	Body Back(10mm)	1720	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	1732.5	QPSK	20	1RB	0.194	0.203	1.6	
	Body Back(10mm)	1745	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	1732.5	QPSK	20	50%RB	0.159	0.166	1.6	
	Body Front(10mm)	1720	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	1732.5	QPSK	20	1RB	0.156	0.163	1.6	
	Body Front(10mm)	1745	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	1732.5	QPSK	20	50%RB	0.130	0.136	1.6	
	Body Left(10mm)	1720	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	1732.5	QPSK	20	1RB	0.053	0.055	1.6	
	Body Left(10mm)	1745	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	1732.5	QPSK	20	50%RB	0.042	0.044	1.6	
	Body Right(10mm)	1720	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	1732.5	QPSK	20	1RB	0.209	0.219	1.6	# 12
	Body Right(10mm)	1745	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	1732.5	QPSK	20	50%RB	0.163	0.171	1.6	
	Body Bottom(10mm)	1720	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	1732.5	QPSK	20	1RB	0.205	0.215	1.6	
	Body Bottom(10mm)	1745	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	1732.5	QPSK	20	50%RB	0.189	0.198	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 7 Head：

Band	Mode Position	Frequency (MHz)	Modulation	Bandwidth (MHz)	RB Size	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
LTE FDD Band 7	Head Left Cheek	2510	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	2535	QPSK	20	1RB	0.328	0.343	1.6	# 13
	Head Left Cheek	2560	QPSK	20	1RB	---	---	1.6	
	Head Left Cheek	2535	QPSK	20	50%RB	0.244	0.255	1.6	
	Head Left Tilt	2510	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	2535	QPSK	20	1RB	0.131	0.137	1.6	
	Head Left Tilt	2560	QPSK	20	1RB	---	---	1.6	
	Head Left Tilt	2535	QPSK	20	50%RB	0.098	0.103	1.6	
	Head Right Cheek	2510	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	2535	QPSK	20	1RB	0.191	0.200	1.6	
	Head Right Cheek	2560	QPSK	20	1RB	---	---	1.6	
	Head Right Cheek	2535	QPSK	20	50%RB	0.136	0.142	1.6	
	Head Right Tilt	2510	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	2535	QPSK	20	1RB	0.193	0.202	1.6	
	Head Right Tilt	2560	QPSK	20	1RB	---	---	1.6	
	Head Right Tilt	2535	QPSK	20	50%RB	0.148	0.155	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 7 Body：

LTE FDD Band 7	Body Back(10mm)	2510	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	2535	QPSK	20	1RB	0.364	0.381	1.6	# 14
	Body Back(10mm)	2560	QPSK	20	1RB	---	---	1.6	
	Body Back(10mm)	2535	QPSK	20	50%RB	0.266	0.279	1.6	
	Body Front(10mm)	2510	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	2535	QPSK	20	1RB	0.298	0.312	1.6	
	Body Front(10mm)	2560	QPSK	20	1RB	---	---	1.6	
	Body Front(10mm)	2535	QPSK	20	50%RB	0.206	0.216	1.6	
	Body Left(10mm)	2510	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	2535	QPSK	20	1RB	0.352	0.369	1.6	
	Body Left(10mm)	2560	QPSK	20	1RB	---	---	1.6	
	Body Left(10mm)	2535	QPSK	20	50%RB	0.255	0.271	1.6	
	Body Right(10mm)	2510	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	2535	QPSK	20	1RB	0.335	0.351	1.6	
	Body Right(10mm)	2560	QPSK	20	1RB	---	---	1.6	
	Body Right(10mm)	2535	QPSK	20	50%RB	0.261	0.273	1.6	
	Body Bottom(10mm)	2510	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	2535	QPSK	20	1RB	0.355	0.372	1.6	
	Body Bottom(10mm)	2560	QPSK	20	1RB	---	---	1.6	
	Body Bottom(10mm)	2535	QPSK	20	50%RB	0.341	0.357	1.6	

Note*：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.

LTE FDD Band 12 Head：

Band	Mode Position	Frequency (MHz)	Modulation	Bandwidth (MHz)	RB Size	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
LTE FDD Band 12	Head Left Cheek	704	QPSK	10	1RB	---	---	1.6	
	Head Left Cheek	707.5	QPSK	10	1RB	0.066	0.069	1.6	
	Head Left Cheek	711	QPSK	10	1RB	---	---	1.6	
	Head Left Cheek	707.5	QPSK	10	50%RB	0.047	0.049	1.6	
	Head Left Tilt	704	QPSK	10	1RB	---	---	1.6	
	Head Left Tilt	707.5	QPSK	10	1RB	0.020	0.021	1.6	
	Head Left Tilt	711	QPSK	10	1RB	---	---	1.6	
	Head Left Tilt	707.5	QPSK	10	50%RB	0.014	0.015	1.6	
	Head Right Cheek	704	QPSK	10	1RB	---	---	1.6	
	Head Right Cheek	707.5	QPSK	10	1RB	0.074	0.077	1.6	# 15
	Head Right Cheek	711	QPSK	10	1RB	---	---	1.6	
	Head Right Cheek	707.5	QPSK	10	50%RB	0.058	0.061	1.6	
	Head Right Tilt	704	QPSK	10	1RB	---	---	1.6	
	Head Right Tilt	707.5	QPSK	10	1RB	0.021	0.022	1.6	
	Head Right Tilt	711	QPSK	10	1RB	---	---	1.6	
	Head Right Tilt	707.5	QPSK	10	50%RB	0.016	0.017	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 12 Body：

LTE FDD Band 12	Body Back(10mm)	704	QPSK	10	1RB	---	---	1.6	
	Body Back(10mm)	707.5	QPSK	10	1RB	0.144	0.151	1.6	# 16
	Body Back(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Back(10mm)	707.5	QPSK	10	50%RB	0.112	0.117	1.6	
	Body Front(10mm)	704	QPSK	10	1RB	---	---	1.6	
	Body Front(10mm)	707.5	QPSK	10	1RB	0.090	0.095	1.6	
	Body Front(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Front(10mm)	707.5	QPSK	10	50%RB	0.068	0.071	1.6	
	Body Left(10mm)	704	QPSK	10	1RB	---	---	1.6	
	Body Left(10mm)	707.5	QPSK	10	1RB	0.074	0.078	1.6	
	Body Left(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Left(10mm)	707.5	QPSK	10	50%RB	0.053	0.055	1.6	
	Body Right(10mm)	704	QPSK	10	1RB	---	---	1.6	
	Body Right(10mm)	707.5	QPSK	10	1RB	0.120	0.126	1.6	
	Body Right(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Right(10mm)	707.5	QPSK	10	50%RB	0.094	0.098	1.6	
	Body Bottom(10mm)	704	QPSK	10	1RB	---	---	1.6	
	Body Bottom(10mm)	707.5	QPSK	10	1RB	0.026	0.027	1.6	
	Body Bottom(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Bottom(10mm)	707.5	QPSK	10	50%RB	0.020	0.021	1.6	

Note*：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.

LTE FDD Band 17 Head：

Band	Mode Position	Frequency (MHz)	Modulation	Bandwidth (MHz)	RB Size	Measurement SAR(W/kg)	Scale SAR (W/kg)	Limit (W/kg)	Plot
LTE FDD Band 17	Head Left Cheek	709	QPSK	10	1RB	---	---	1.6	
	Head Left Cheek	710	QPSK	10	1RB	0.060	0.063	1.6	
	Head Left Cheek	711	QPSK	10	1RB	---	---	1.6	
	Head Left Cheek	710	QPSK	10	50%RB	0.050	0.052	1.6	
	Head Left Tilt	709	QPSK	10	1RB	---	---	1.6	
	Head Left Tilt	710	QPSK	10	1RB	0.033	0.035	1.6	
	Head Left Tilt	711	QPSK	10	1RB	---	---	1.6	
	Head Left Tilt	710	QPSK	10	50%RB	0.018	0.019	1.6	
	Head Right Cheek	709	QPSK	10	1RB	---	---	1.6	
	Head Right Cheek	710	QPSK	10	1RB	0.079	0.083	1.6	# 17
	Head Right Cheek	711	QPSK	10	1RB	---	---	1.6	
	Head Right Cheek	710	QPSK	10	50%RB	0.064	0.067	1.6	
	Head Right Tilt	709	QPSK	10	1RB	---	---	1.6	
	Head Right Tilt	710	QPSK	10	1RB	0.046	0.048	1.6	
	Head Right Tilt	711	QPSK	10	1RB	---	---	1.6	
	Head Right Tilt	710	QPSK	10	50%RB	0.037	0.039	1.6	

Note：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.*

LTE FDD Band 17 Body：

LTE FDD Band 17	Body Back(10mm)	709	QPSK	10	1RB	---	---	1.6	
	Body Back(10mm)	710	QPSK	10	1RB	0.136	0.142	1.6	# 18
	Body Back(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Back(10mm)	710	QPSK	10	50%RB	0.107	0.112	1.6	
	Body Front(10mm)	709	QPSK	10	1RB	---	---	1.6	
	Body Front(10mm)	710	QPSK	10	1RB	0.082	0.086	1.6	
	Body Front(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Front(10mm)	710	QPSK	10	50%RB	0.065	0.068	1.6	
	Body Left(10mm)	709	QPSK	10	1RB	---	---	1.6	
	Body Left(10mm)	710	QPSK	10	1RB	0.065	0.068	1.6	
	Body Left(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Left(10mm)	710	QPSK	10	50%RB	0.052	0.054	1.6	
	Body Right(10mm)	709	QPSK	10	1RB	---	---	1.6	
	Body Right(10mm)	710	QPSK	10	1RB	0.120	0.126	1.6	
	Body Right(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Right(10mm)	710	QPSK	10	1RB	0.094	0.098	1.6	
	Body Bottom(10mm)	709	QPSK	10	50%RB	---	---	1.6	
	Body Bottom(10mm)	710	QPSK	10	1RB	0.032	0.034	1.6	
	Body Bottom(10mm)	711	QPSK	10	1RB	---	---	1.6	
	Body Bottom(10mm)	710	QPSK	10	50%RB	0.026	0.027	1.6	

Note*：*For Body mode, when the 1-g SAR is ≤ 0.8W/Kg, testing for low and high channel is optional.

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

Transmitter Combination	Position	SAR1	SAR2
WWAN+WiFi	Head	WWAN	WiFi
WWAN+BT			BT
WWAN+WiFi	Body-Worm	WWAN	WiFi
WWAN+BT			BT
WWAN+WiFi	Hotspot	WWAN	WiFi

Note: WiFi SAR Exclusion result is 2.9 < 3.0, so WiFi standalone SAR testing not needed.

Bluetooth SAR Exclusion result is 1.07 < 3.0, so Bluetooth standalone SAR testing not needed.

Simultaneous SAR test exclusion considerations:

mode(Band)	Transmitter	Position	SAR1(W/kg)	SAR2(W/kg)	SAR1+SAR2(W/kg)
GSM850	WWAN+WiFi	Head	0.082	0.393	0.475
PCS1900	WWAN+WiFi	Head	0.017	0.393	0.410
WCDMA Band 2	WWAN+WiFi	Head	0.038	0.393	0.431
WCDMA Band 5	WWAN+WiFi	Head	0.048	0.393	0.441
LTE FDD Band 2	WWAN+WiFi	Head	0.062	0.393	0.455
LTE FDD Band 4	WWAN+WiFi	Head	0.05	0.393	0.443
LTE FDD Band 7	WWAN+WiFi	Head	0.343	0.393	**0.736**
LTE FDD Band 12	WWAN+WiFi	Head	0.077	0.393	0.470
LTE FDD Band 17	WWAN+WiFi	Head	0.083	0.393	0.476
GSM850	WWAN+BT	Head	0.082	0.140	0.222
PCS1900	WWAN+BT	Head	0.017	0.140	0.157
WCDMA Band 2	WWAN+BT	Head	0.038	0.140	0.178
WCDMA Band 5	WWAN+BT	Head	0.048	0.140	0.188
LTE FDD Band 2	WWAN+BT	Head	0.062	0.140	0.202
LTE FDD Band 4	WWAN+BT	Head	0.05	0.140	0.190
LTE FDD Band 7	WWAN+BT	Head	0.343	0.140	0.483
LTE FDD Band 12	WWAN+BT	Head	0.077	0.140	0.217
LTE FDD Band 17	WWAN+BT	Head	0.083	0.140	0.223

Note: SAR2 is according KDB447498 D01 4.3.2 b) required calculate SAR value.

mode(Band)	Transmitter	SAR1(W/kg)	SAR2(W/kg)	SAR1+SAR2(W/kg)
GSM850	WWAN+WiFi	0.111	0.393	0.504
GSM850	WWAN+BT	0.111	0.140	0.251
GSM850	WWAN+WiFi (Hoptspot)	0.193	0.393	0.586
PCS1900	WWAN+WiFi	0.058	0.393	0.451
PCS1900	WWAN+BT	0.058	0.140	0.198
PCS1900	WWAN+WiFi (Hoptspot)	0.121	0.393	0.514
WCDMA Band 2	WWAN+BT	0.294	0.140	0.434
WCDMA Band 2	WWAN+WiFi (Hoptspot)	0.294	0.393	0.687
WCDMA Band 5	WWAN+BT	0.059	0.140	0.199
WCDMA Band 5	WWAN+WiFi (Hoptspot)	0.099	0.393	0.492
LTE FDD Band 2	WWAN+BT	0.22	0.140	0.360
LTE FDD Band 2	WWAN+WiFi (Hoptspot)	0.270	0.393	0.663
LTE FDD Band 4	WWAN+BT	0.201	0.140	0.341
LTE FDD Band 4	WWAN+WiFi (Hoptspot)	0.219	0.393	0.612
LTE FDD Band 7	WWAN+BT	0.296	0.140	0.436
LTE FDD Band 7	WWAN+WiFi (Hoptspot)	0.381	0.393	**0.774**
LTE FDD Band 12	WWAN+BT	0.151	0.140	0.291
LTE FDD Band 12	WWAN+WiFi (Hoptspot)	0.151	0.393	0.544
LTE FDD Band 17	WWAN+BT	0.142	0.140	0.282
LTE FDD Band 17	WWAN+WiFi (Hoptspot)	0.142	0.393	0.535

Note: SAR2 is according KDB447498 D01 4.3.2 b) required calculate SAR value.

Conclusion:

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

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 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambientconditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions–reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Post-processing	2.0	R	√3	1	1	1.2	1.2
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√3	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	√3	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.3	23.9

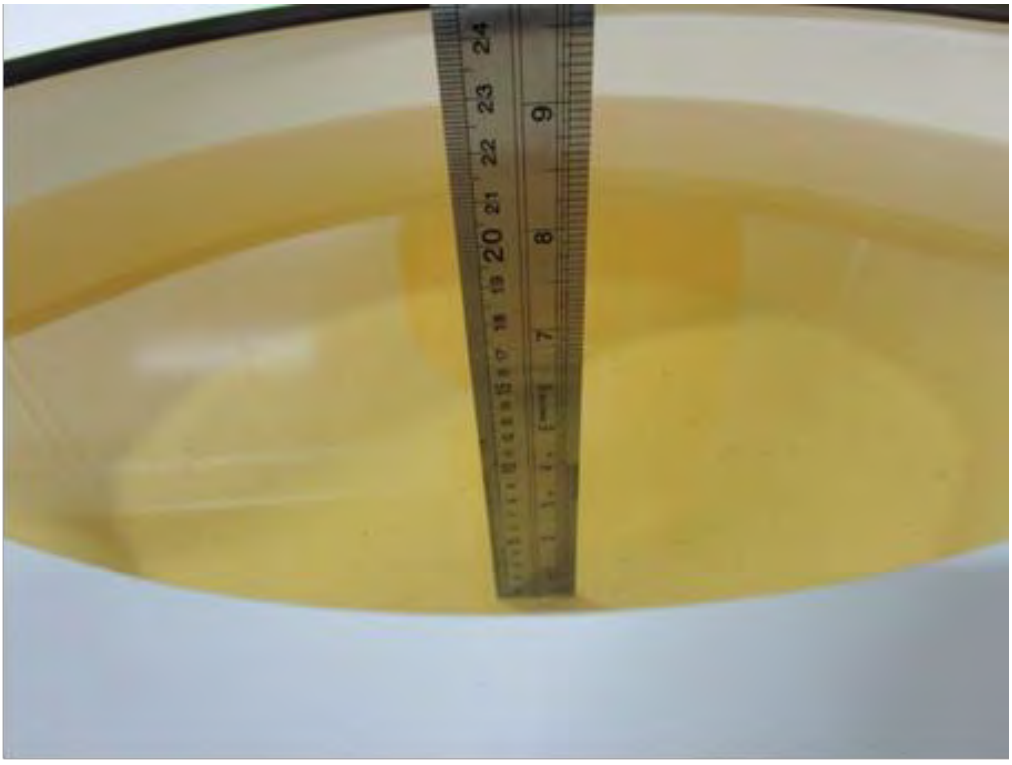
Measurement uncertainty evaluation for IEC62209-2 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Linearity	4.7	R	√3	1	1	2.7	2.7
Modulation Response	0.0	R	√3	1	1	0.0	0.0
Detection limits	1.0	R	√3	1	1	0.6	0.6
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions–reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Test sample related							
Device holder Uncertainty	6.3	N	1	1	1	6.3	6.3
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Power scaling	4.5	R	√3	1	1	2.6	2.6
Drift of output power	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Algorithm for correcting SAR for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.1	0.9
Liquid conductivity (meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity (meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Temp. unc. - Conductivity	1.7	R	√3	0.78	0.71	0.8	0.7
Temp. unc. - Permittivity	0.3	R	√3	0.23	0.26	0.0	0.0
Combined standard uncertainty		RSS				12.2	12.1
Expanded uncertainty 95 % confidence interval)						24.5	24.2

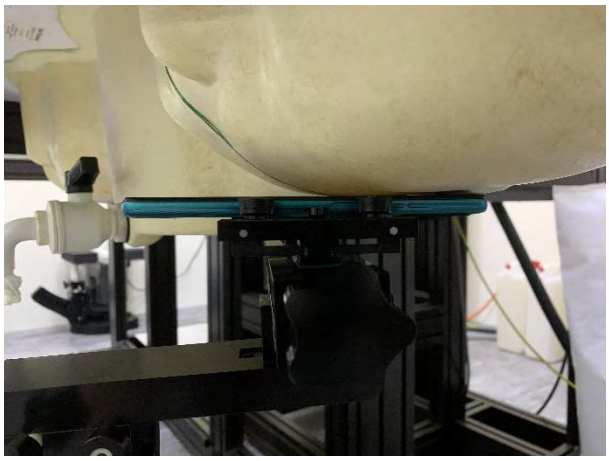
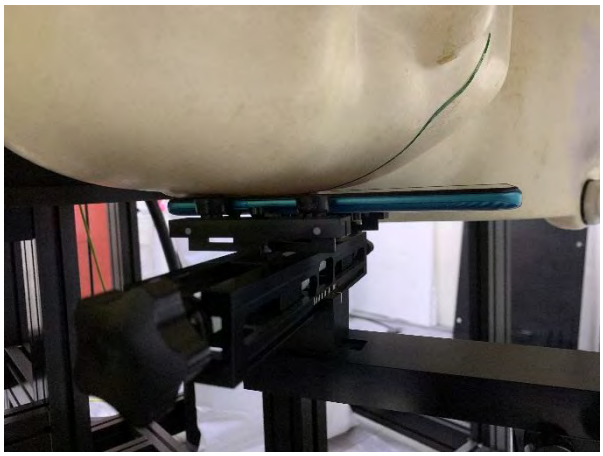
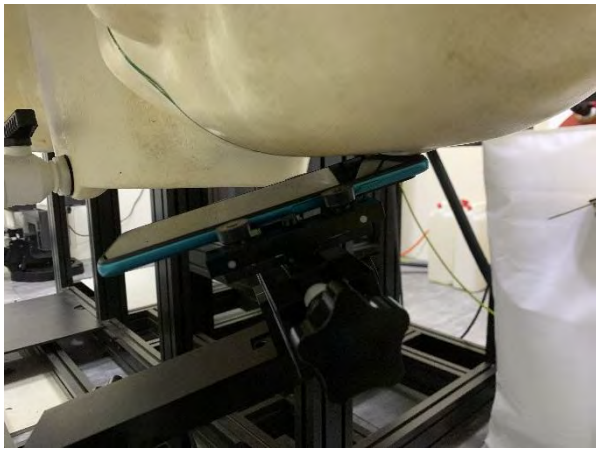
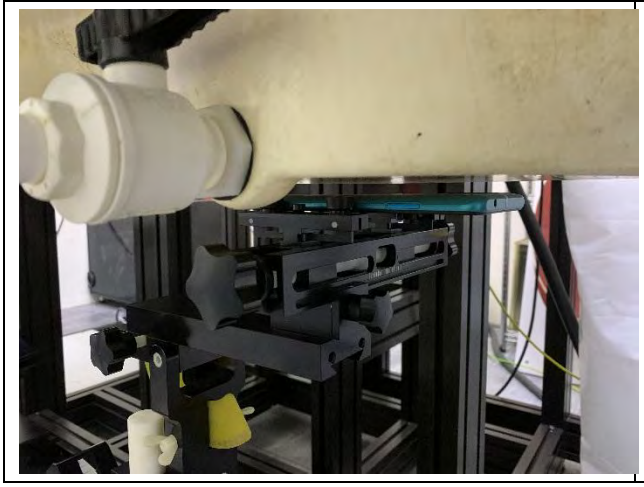
Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

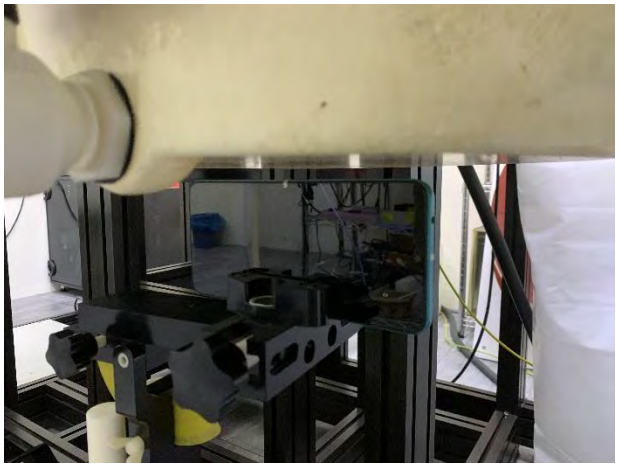
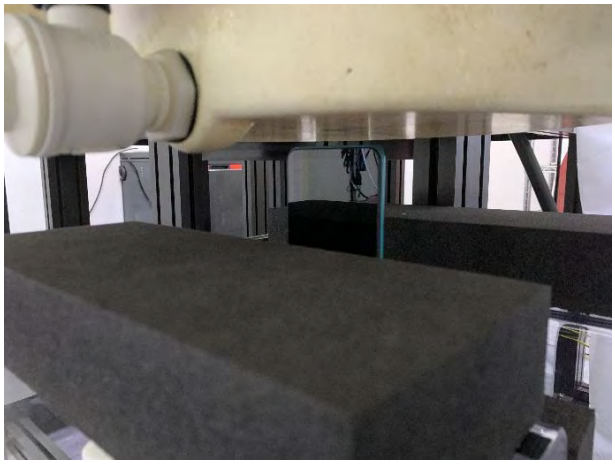
APPENDIX B EUT TEST POSITION PHOTOS

Liquid depth ≥ 15cm

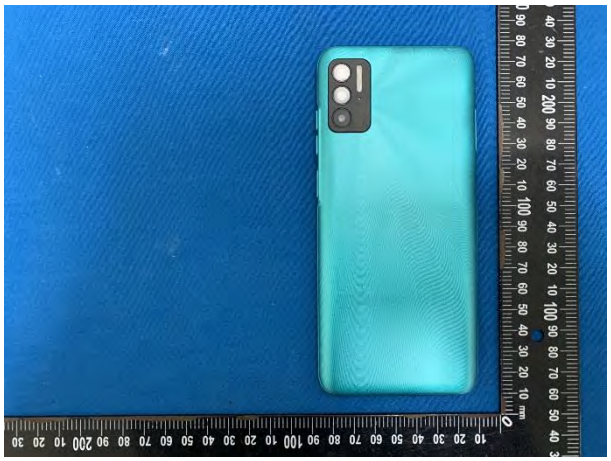


SAR Setup Photo

Head Left Cheek	Head Right Cheek
	
Head Left Tilt	**Head Right Tilt**
	
Body-Back(10mm)	**Body-Front(10mm)**
	

Body-Left(10mm)	Body-Bottom(10mm)
	

SAR EUT Photo

EUT-Front View	EUT-Back View
	

EUT-Inside View

APPENDIX C SAR PLOTS OF SAR MEASUREMENT

Test Laboratory: BACL . SAR Testing Lab

50-2_GSM850_GSM Voice_Head Right Cheek_Ch190

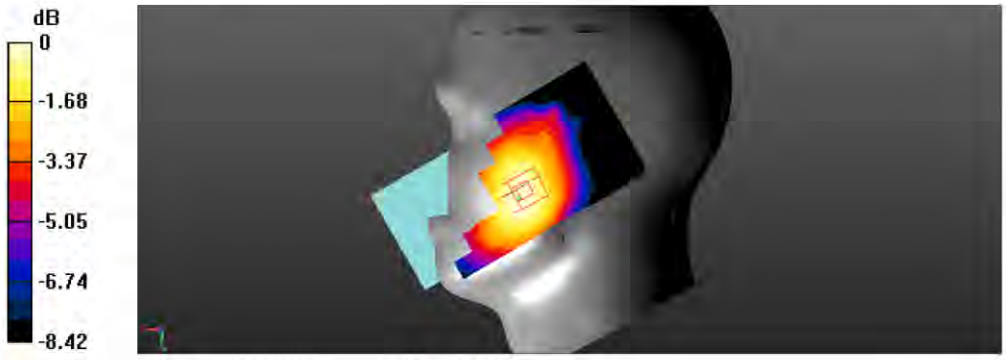
DUT: ART2 PRO

Communication System: UID 0, GSM850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium: HSL835 Medium parameters used: f = 837 MHz; σ = 0.93 S/m; ε_r = 40.593; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.55, 9.55, 9.55) @ 836.6 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch190/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0947 W/kg

Ch190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.35 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.101 W/kg
SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.059 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 77.5%
Maximum value of SAR (measured) = 0.0930 W/kg



0 dB = 0.0930 W/kg = -10.32 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

54-2_GSM850_GPRS(4 Tx slots)_Body Hotspot Back(10mm)_Ch190

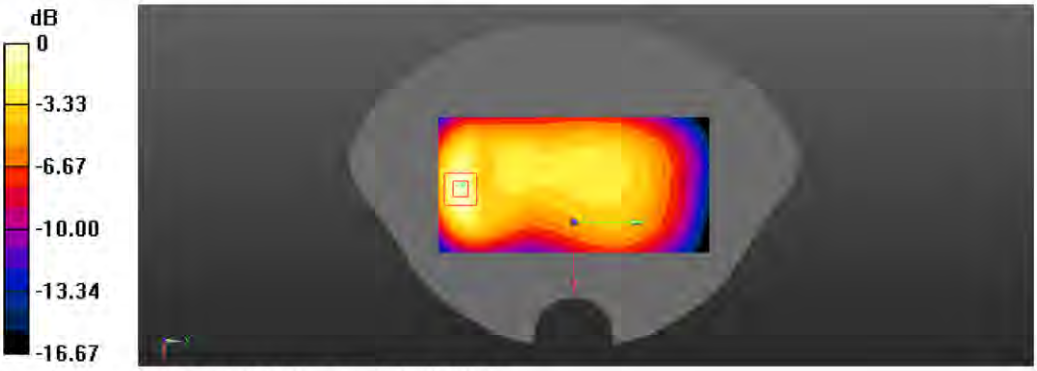
DUT: ART2 PRO

Communication System: UID 0, GSM850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.0797
Medium: HSL835 Medium parameters used: f = 837 MHz; σ = 0.93 S/m; ε_r = 40.593; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.55, 9.55, 9.55) @ 836.6 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch190/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.299 W/kg

Ch190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.29 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.099 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 48.1%
Maximum value of SAR (measured) = 0.283 W/kg



0 dB = 0.283 W/kg = -5.48 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

38-2_PCS 1900_GSM Voice_Head Left Cheek_Ch661

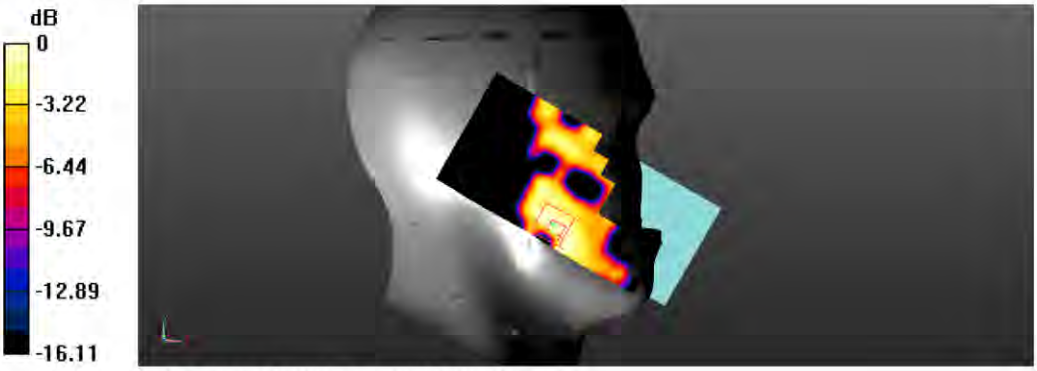
DUT: ART2 PRO

Communication System: UID 0, PCS (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.377 S/m; ε_r = 38.627; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch661/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0359 W/kg

Ch661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.197 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.0330 W/kg
SAR(1 g) = 0.017 W/kg; SAR(10 g) = 0.00902 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 47%
Maximum value of SAR (measured) = 0.0256 W/kg



0 dB = 0.0256 W/kg = -15.92 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

129_PCS 1900_GPRS(2 Tx slots)_Body Hotspot Right(10mm)_Ch661

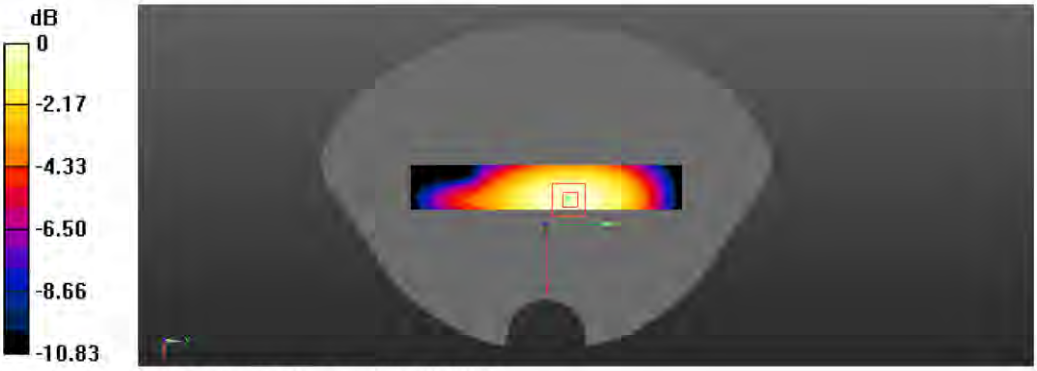
DUT: ART2 PRO

Communication System: UID 0, PCS (0); Frequency: 1880 MHz;Duty Cycle: 1:2.0797
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.377 S/m; ε_r = 38.627; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch661/Area Scan (21x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.161 W/kg

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.22 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.078 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 60.9%
Maximum value of SAR (measured) = 0.160 W/kg



0 dB = 0.160 W/kg = -7.96 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

30-2_WCDMA Band 2_RMC_Head Right Cheek_Ch9400

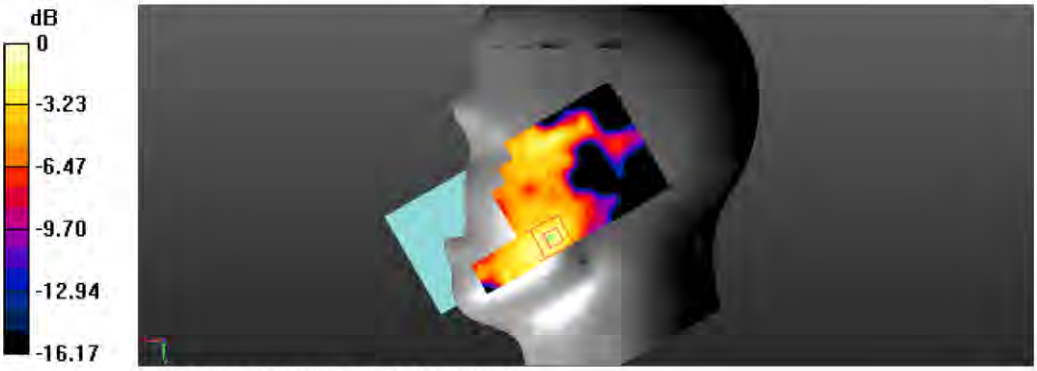
DUT: ART2 PRO

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.377 S/m; ε_r = 38.627; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch9400/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0485 W/kg

Ch9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.822 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.0690 W/kg
SAR(1 g) = 0.036 W/kg; SAR(10 g) = 0.022 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 70.1%
Maximum value of SAR (measured) = 0.0615 W/kg



0 dB = 0.0615 W/kg = -12.11 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

32-2_WCDMA Band 2_RMC_Body Back(15mm)_Ch9400

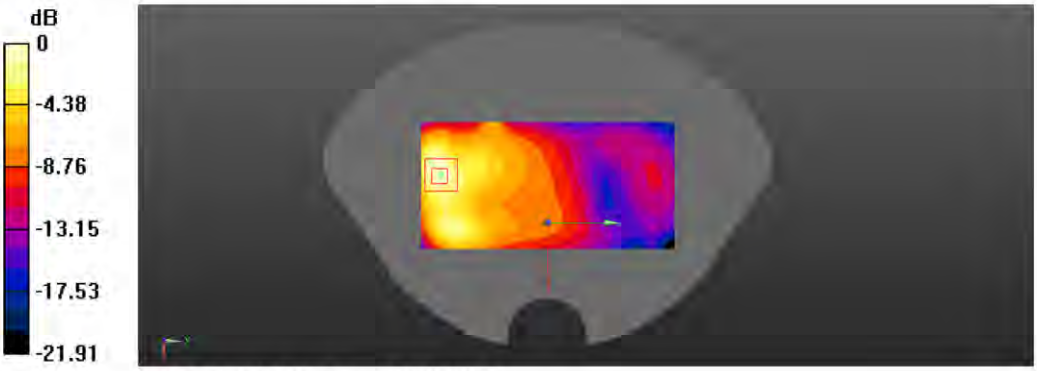
DUT: ART2 PRO

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.377 S/m; ε_r = 38.627; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch9400/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.485 W/kg

Ch9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.55 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.609 W/kg
SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.138 W/kg
Smallest distance from peaks to all points 3 dB below = 9.9 mm
Ratio of SAR at M2 to SAR at M1 = 46%
Maximum value of SAR (measured) = 0.469 W/kg



0 dB = 0.469 W/kg = -3.29 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

60-2_WCDMA Band 5_RMC_Head Right Cheek_Ch4182

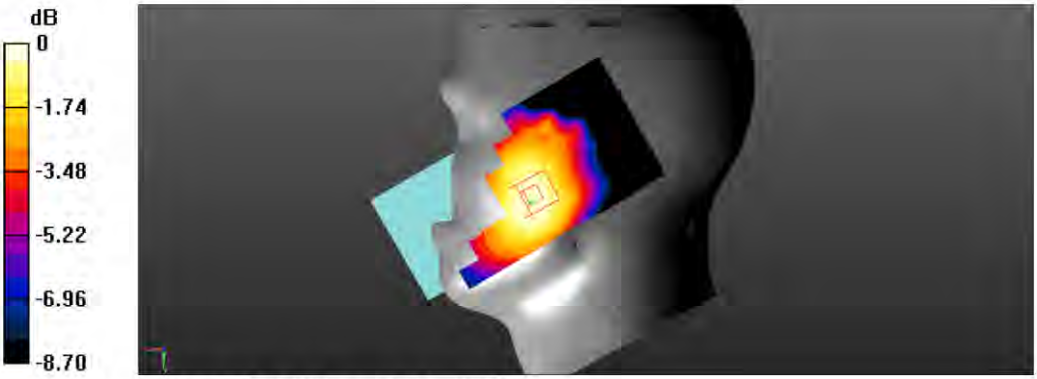
DUT: ART2 PRO

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL835 Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.929 S/m; ε_r = 40.603; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.55, 9.55, 9.55) @ 836.4 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch4182/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0582 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.115 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0610 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.035 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 75%
Maximum value of SAR (measured) = 0.0562 W/kg



0 dB = 0.0562 W/kg = -12.50 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

64-2_WCDMA Band 5_RMC_Body Hotspot Back(10mm)_Ch4182

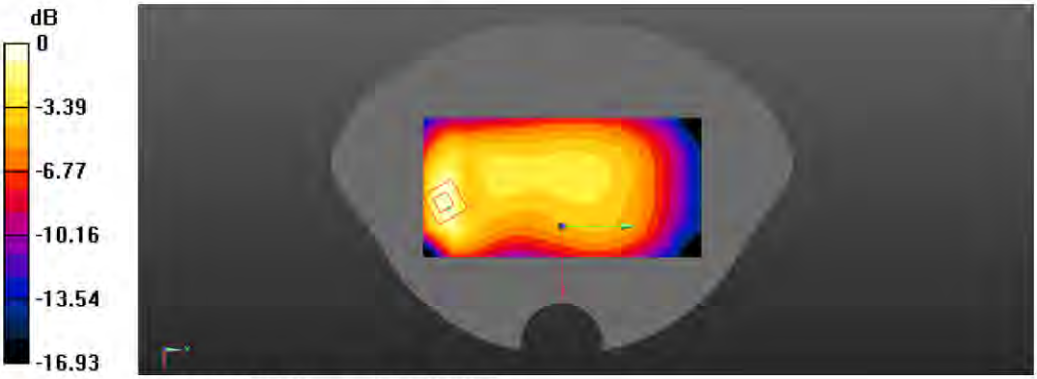
DUT: ART2 PRO

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL835 Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.929 S/m; ε_r = 40.603; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.55, 9.55, 9.55) @ 836.4 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch4182/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.150 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.677 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.094 W/kg; SAR(10 g) = 0.050 W/kg
Smallest distance from peaks to all points 3 dB below = 10.2 mm
Ratio of SAR at M2 to SAR at M1 = 48.4%
Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = -8.01 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

20-2_LTE FDD Band 2_20M_QPSK_1RB_0Offset_Head Right Cheek_Ch18900

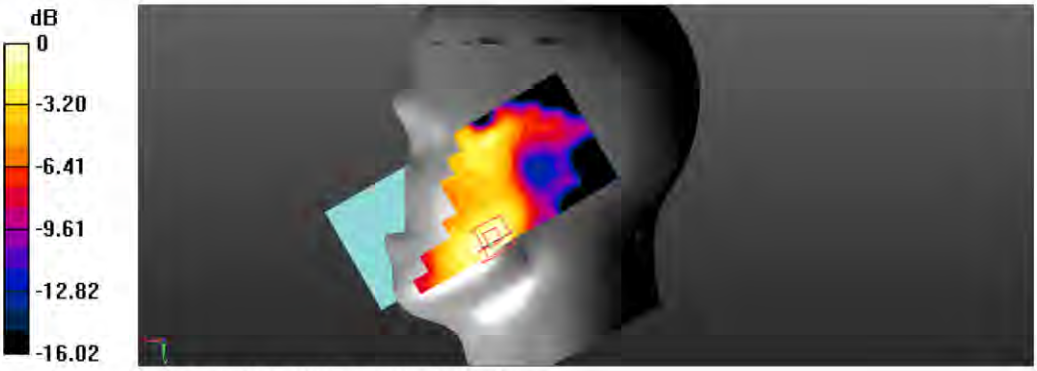
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.369 S/m; ε_r = 38.441; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch18900/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0817 W/kg

Ch18900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.337 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.036 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 62.4%
Maximum value of SAR (measured) = 0.0848 W/kg



0 dB = 0.0848 W/kg = -10.72 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

24-2_LTE FDD Band 2_20M_QPSK_1RB_0Offset_Body Hotspot Back(10mm)_Ch18900

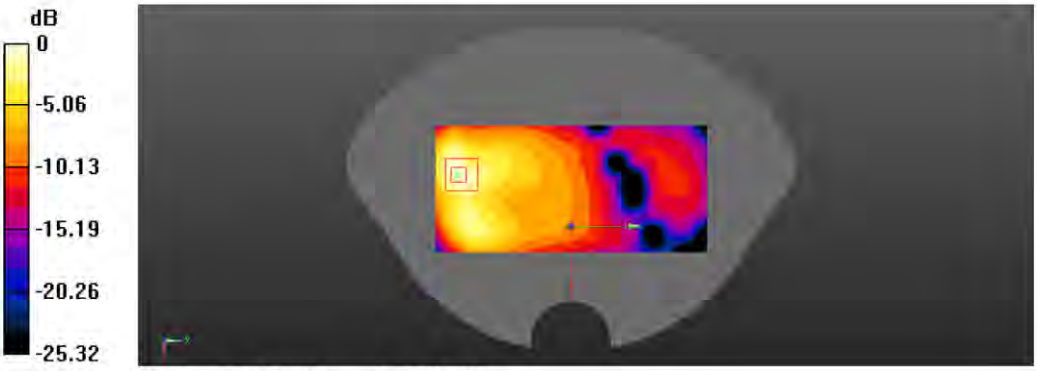
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL2000 Medium parameters used: f = 1880 MHz; σ = 1.377 S/m; ε_r = 38.627; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.35, 8.35, 8.35) @ 1880 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch18900/Area Scan (71x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.424 W/kg

Ch18900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.23 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.551 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.127 W/kg
Smallest distance from peaks to all points 3 dB below = 10.6 mm
Ratio of SAR at M2 to SAR at M1 = 46.8%
Maximum value of SAR (measured) = 0.433 W/kg



0 dB = 0.433 W/kg = -3.64 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

110-2_LTE FDD Band 4_20M_QPSK_1RB_0Offset_Head Right Cheek_Ch20175

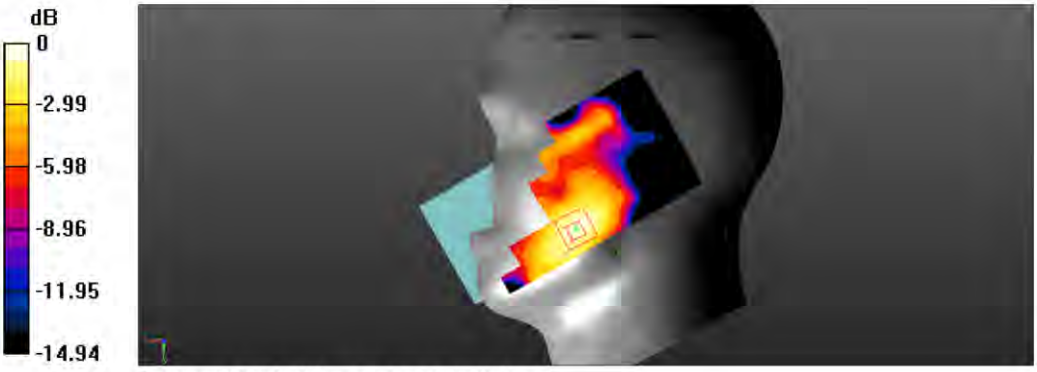
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: HSL1800 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.331 S/m; ε_r = 40.112; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.66, 8.66, 8.66) @ 1732.5 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch20175/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0628 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.346 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0780 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.029 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 63.9%
Maximum value of SAR (measured) = 0.0682 W/kg



0 dB = 0.0682 W/kg = -11.66 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

135_LTE FDD Band 4_20M_QPSK_1RB_0Offset_Body Hotspot Right(10mm)_Ch20175

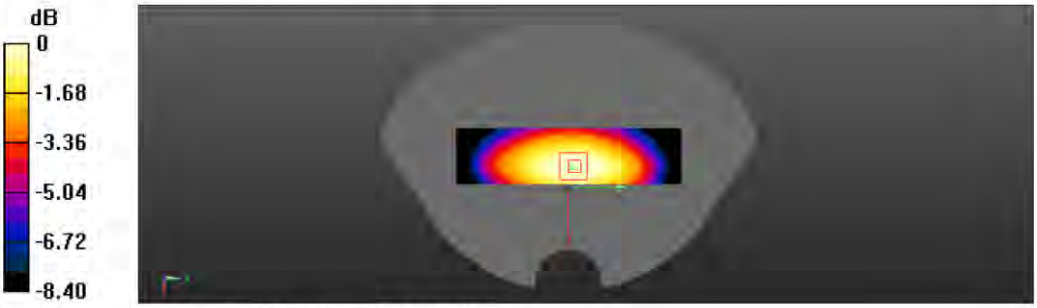
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: HSL1800 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.331 S/m; ε_r = 40.112; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(8.66, 8.66, 8.66) @ 1732.5 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch20175/Area Scan (31x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.272 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.37 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.303 W/kg
SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.150 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 69.6%
Maximum value of SAR (measured) = 0.268 W/kg



0 dB = 0.268 W/kg = -5.72 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

1_LTE FDD Band 7_20M_QPSK_1RB_0Offset_Head Left Cheek_Ch21100

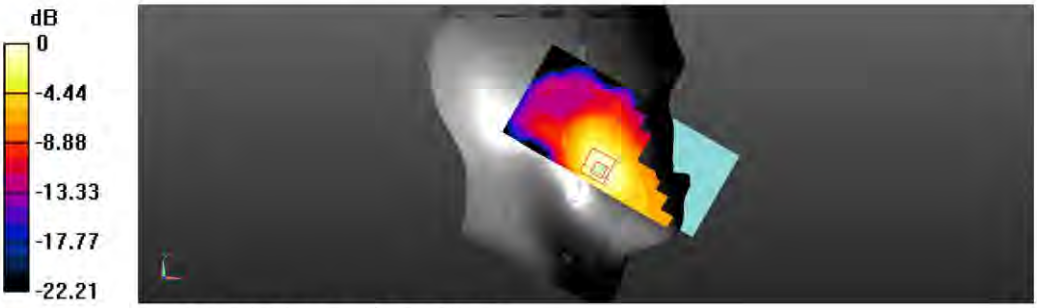
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: HSL2600 Medium parameters used: f = 2535 MHz; σ = 1.865 S/m; ε_r = 38.985; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(7.43, 7.43, 7.43) @ 2535 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch21100/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.520 W/kg

Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.79 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.620 W/kg
SAR(1 g) = 0.328 W/kg; SAR(10 g) = 0.171 W/kg
Smallest distance from peaks to all points 3 dB below = 11.6 mm
Ratio of SAR at M2 to SAR at M1 = 50.8%
Maximum value of SAR (measured) = 0.503 W/kg



0 dB = 0.503 W/kg = -2.98 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

15_LTE FDD Band 7_20M_QPSK_1RB_0Offset_Body Hotspot Back(10mm)_Ch21100

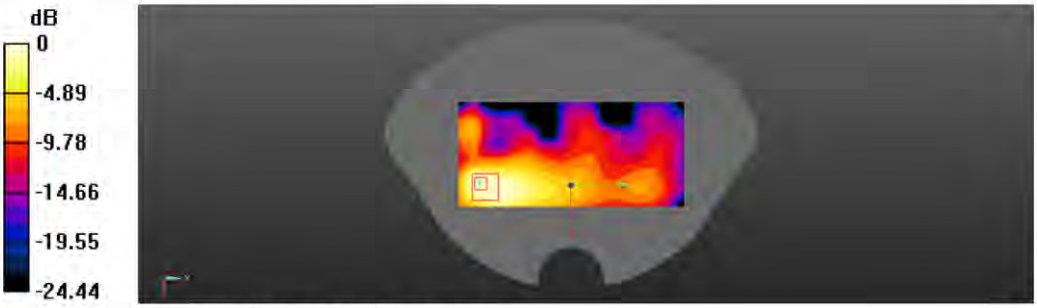
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: HSL2600 Medium parameters used: f = 2535 MHz; σ = 1.864 S/m; ε_r = 38.999; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(7.43, 7.43, 7.43) @ 2535 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch21100/Area Scan (71x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.643 W/kg

Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.07 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.364 W/kg; SAR(10 g) = 0.184 W/kg
Smallest distance from peaks to all points 3 dB below = 10.8 mm
Ratio of SAR at M2 to SAR at M1 = 45.6%
Maximum value of SAR (measured) = 0.621 W/kg



0 dB = 0.621 W/kg = -2.07 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

80-2_LTE FDD Band 12_10M_QPSK_1RB_0Offset_Head Right Cheek_Ch23095

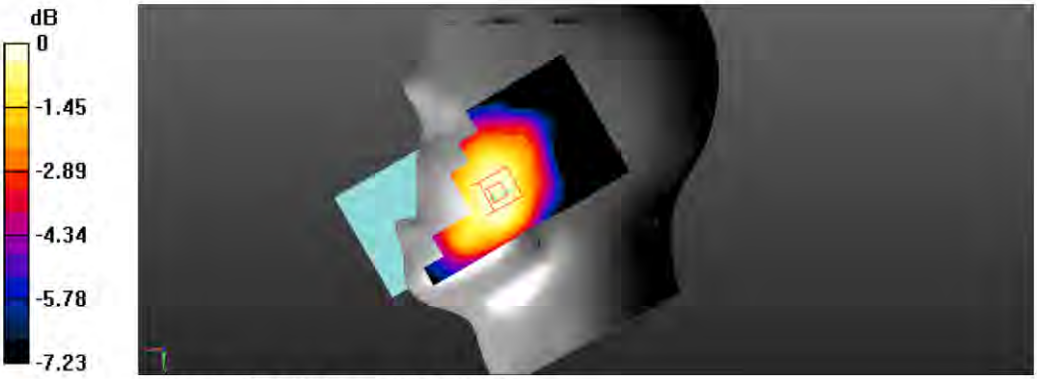
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.885 S/m; ε_r = 40.241; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 707.5 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch23095/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0866 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.45 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.0900 W/kg
SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.060 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 82%
Maximum value of SAR (measured) = 0.0843 W/kg



0 dB = 0.0843 W/kg = -10.74 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

82-2_LTE FDD Band 12_10M_QPSK_1RB_0Offset_Body Back(10mm)_Ch23095

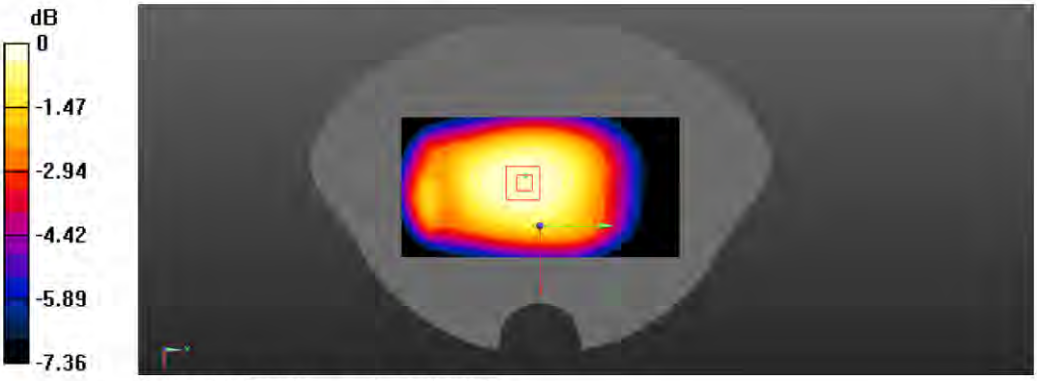
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.885 S/m; ε_r = 40.241; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 707.5 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch23095/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.173 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.37 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.113 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 77.5%
Maximum value of SAR (measured) = 0.172 W/kg



0 dB = 0.172 W/kg = -7.64 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

90_LTE FDD Band 17_10M_QPSK_1RB_0Offset_Head Right Cheek_Ch23790

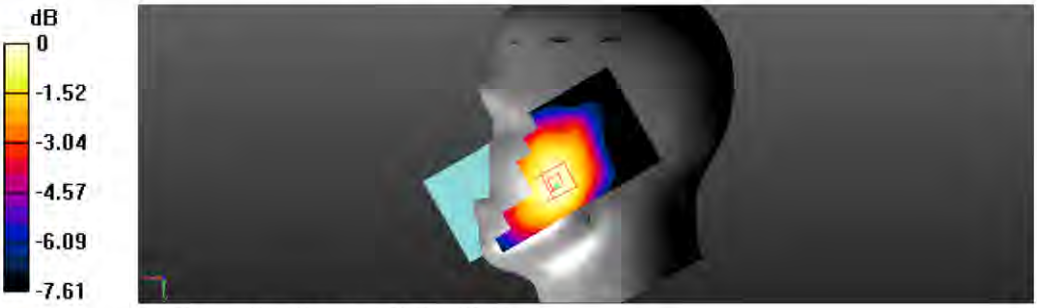
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used: f = 710 MHz; σ = 0.886 S/m; ε_r = 40.239; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 710 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch23790/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0924 W/kg

Ch23790/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.78 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.0970 W/kg
SAR(1 g) = 0.079 W/kg; SAR(10 g) = 0.063 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 81.5%
Maximum value of SAR (measured) = 0.0912 W/kg



0 dB = 0.0912 W/kg = -10.40 dBW/kg

Test Laboratory: BACL . SAR Testing Lab

92_LTE FDD Band 17_10M_QPSK_1RB_0Offset_Body Back(10mm)_Ch23790

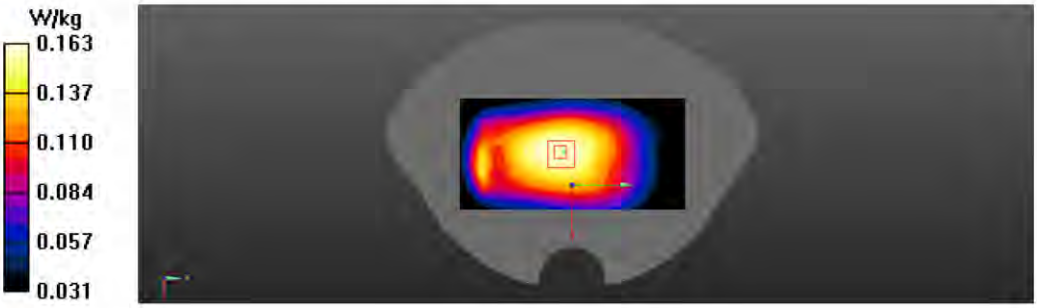
DUT: ART2 PRO

Communication System: UID 0, LTE (0); Frequency: 710 MHz;Duty Cycle: 1:1
Medium: HSL750 Medium parameters used: f = 710 MHz; σ = 0.886 S/m; ε_r = 40.239; ρ = 1000 kg/m^3

DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(9.81, 9.81, 9.81) @ 710 MHz; Calibrated: 11/16/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1561; Calibrated: 11/23/2020
- Phantom: Twin-SAM V8.0 (20deg probe tilt)-Right; Type: QD 000 P40 CB; Serial: 1368
- Measurement SW: DASY52, Version 52.10 (4);SEMCAD X Version 14.6.14 (7483)

Ch23790/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.165 W/kg

Ch23790/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.93 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.179 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.107 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 76.5%
Maximum value of SAR (measured) = 0.163 W/kg



APPENDIX D CALIBRATION CERTIFICATES

Please refer to the file document of
RXZ210607008SA01_Techland_ART2PRO_FCC_APPENDIX D CALIBRATION CERTIFICATES

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