中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

SAR TEST REPORT

Applicant: **SEUIC Technologies Co., Ltd.**

Address: NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone Nanjing, 210061 China

FCC ID: **2AC68AUTOIDQ9**

Product Name: **Portable Data Collection Terminal**

Model Number: **AUTOID Q9**

Standard(s): **47 CFR Part 2(2.1093)**

The above equipment has been tested and found compliance with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR21100112-20A**

Date Of Issue: **2021-12-23**

Reviewed By: **Sun Zhong** Sun Zhong

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

SAR TEST RESULTS SUMMARY

Operation Frequency Bands	Highest Reported 1g SAR (W/kg)			Limits (W/kg)
	Head	Body-Worn (Gap 0mm)	Hotspot (Gap 10mm)	
GSM 850	0.02	0.33	/	**1.6**
PCS 1900	0.03	1.18	/	
WCDMA Band 2	0.03	0.96	/	
WCDMA Band 5	0.02	0.23	/	
LTE Band 5	**0.31**	0.42	/	
LTE Band 7	0.20	0.62	/	
LTE Band 41&38	0.14	0.24	/	
WLAN 2.4G	0.08	0.43	/	
WLAN 5.2G	0.17	**1.42**	/	
WLAN 5.3G	0.14	1.26	/	
WLAN 5.8G	0.16	0.70	/	
Maximum Simultaneous Transmission SAR				
Items	**Head**	**Body-Worn**	**Hotspot**	**Limits**
Sum SAR(W/kg)	**0.64**	**1.52**	**1.50**	1.6
SPLSR	N/A	N/A	N/A	0.04
EUT Received Date:	2021/10/25			
Date Tested	2021/12/19 ~ 2021/12/20			
Test Results	Pass			

***Note**: The test data of 5G Wi-Fi please refer to report: CR21100112-20B, which issued by Shenzhen Accurate Technology Co., Ltd. on 2021-11-30.*

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

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

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CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Device Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Operation modes:	GSM,GPRS/EDGE Data, WCDMA(Rel99,HSDPA/HSUPA/DC-HSDPA/HSPA+),FDD-LTE, TDD-LTE,WLAN and Bluetooth
Frequency Band:	GSM 850: 824-849 MHz(TX); 869-894 MHz(RX) PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 7: 2500-2570 MHz(TX); 2620-2690 MHz(RX) LTE Band 38: 2570-2620 MHz(TX); 2570-2620MHz(RX) LTE Band 41: 2555-2655 MHz(TX); 2555-2655 MHz(RX) WLAN 2.4G: 2412 -2462 MHz/2422 -2452 MHz Wi-Fi 5.2G: 5150-5250 MHz Wi-Fi 5.3G: 5250-5350 MHz Wi-Fi 5.8G: 5725-5850 MHz Bluetooth: 2402 -2480 MHz
Conducted RF Power:	GSM 850:32.26 dBm; PCS 1900:30.29 dBm WCDMA Band 2: 23.26 dBm;WCDMA Band 5: 24.02 dBm; LTE Band 5: 23.23 dBm; LTE Band 7: 22.55 dBm LTE Band 38: 22.88 dBm; LTE Band 41: 22.93 dBm Wi-Fi 2.4G: 13.97 dBm Bluetooth(BDR/EDR): 8.97 dBm BLE: -1.56 dBm
Rated Input Voltage:	DC 3.85V from Rechargeable Battery
Serial Number:	CR21100112-SA-S1
Normal Operation:	Head and Body Worn

***Note**: The power data of 5G Wi-Fi please refer to report: CR21100112-20B, which issued by Shenzhen Accurate Technology Co., Ltd. on 2021-11-30.*

1.2.2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528-2013, the following FCC Published RF exposure KDB procedures:

KDB 447498 D01 General RF Exposure Guidance v06
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 941225 D01 3G SAR Procedures v03r01
KDB 941225 D05 SAR for LTE Devices v02r05
KDB 248227 D01 802 11 Wi-Fi SAR v02r02

TCB Workshop April 2019: RF Exposure Procedures

1.2.3 SAR Limts

FCC Limit

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

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

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

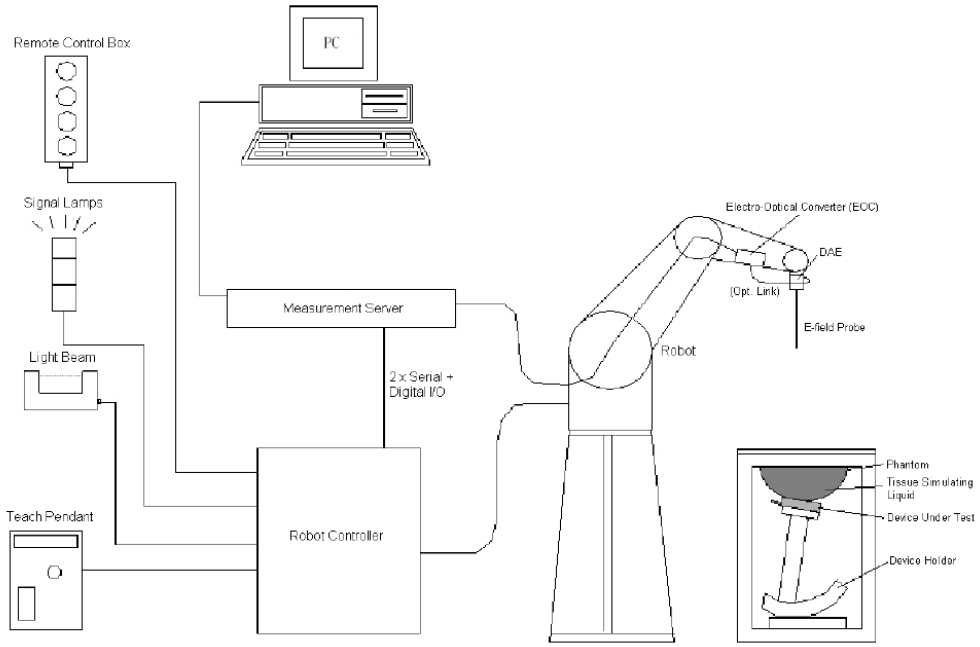
General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg for 1g SAR applied to the EUT.

3. SAR MEASUREMENT SYSTEM

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:

DASY5 System Description

The DASY5 system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot 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.

DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz Intel ULV Celeron, 128MB chip-disk and 128MB 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 DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. 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 point out, and therefore only devices provided by SPEAG can be connected. 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

Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7522 Calibrated: 2021/4/19

Calibration Frequency Point(MHz)	Frequency Range(MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	850	9.93	9.93	9.93
750 Body	650	850	9.87	9.87	9.87
900 Head	850	1000	9.39	9.39	9.39
900 Body	850	1000	9.31	9.31	9.31
1750 Head	1650	1850	8.16	8.16	8.16
1750 Body	1650	1850	7.83	7.83	7.83
1900 Head	1850	2000	7.94	7.94	7.94
1900 Body	1850	2000	7.66	7.66	7.66
2300 Head	2200	2400	7.61	7.61	7.61
2300 Body	2200	2400	7.45	7.45	7.45
2450 Head	2400	2550	7.25	7.25	7.25
2450 Body	2400	2550	7.29	7.29	7.29
2600 Head	2550	2700	7.05	7.05	7.05
2600 Body	2550	2700	7.01	7.01	7.01

SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6 mm). The phantom has three measurement areas:
_ Left Head
_ Right Head
_ Flat phantom

The phantom table for the DASY systems based on the robots have the size of 100 x 50 x 85 cm (L x W x H).
For easy dislocation these tables have fork lift cut outs at the bottom.
The bottom plate contains three pairs of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. Only one device holder is necessary if two phantoms are used (e.g., for different liquids)

A white cover is provided to cover the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on top of this phantom cover are possible. Three reference marks are provided on the phantom counter. These reference marks are used to teach the absolute phantom position relative to the robot.

Robots

The DASY5 system uses the high precision industrial robot. The robot offers the same features important for our application:

- 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 above mentioned robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is contained on the CDs delivered along with the robot. Paper manuals are available upon request direct from Staubli.

SAR Scan Pricedures

Step 1: Power Reference Measurement

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

Step 2: Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 15mm 2 step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm,with the side length of the 10g cube is 21.5mm.

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

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

Step 4: Power Drift Measurement

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

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

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

Tissue Dielectric Parameters for Head and Body Phantoms

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

Recommended Tissue Dielectric Parameters for Head liquid

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

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

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

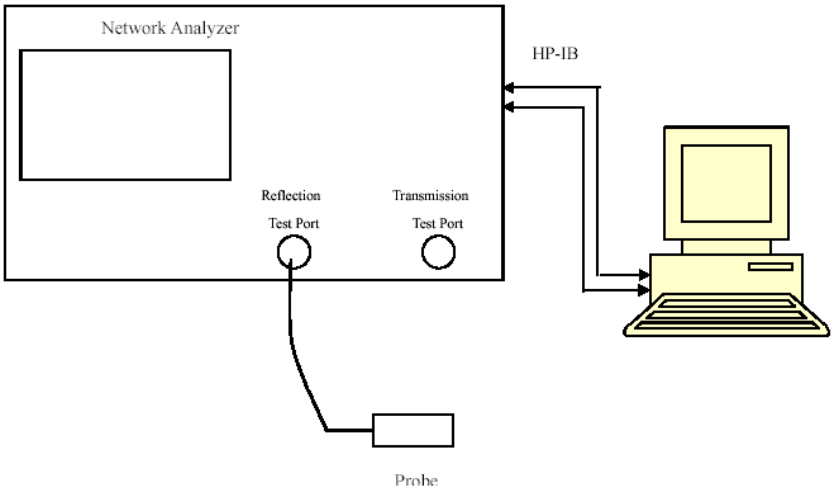
EQUIPMENT LIST AND CALIBRATION

Equipments List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52.10	N/A	NCR	NCR
DASY5 Measurement Server	DASY5 4.5.12	1567	NCR	NCR
Data Acquisition Electronics	DAE4	1354	2021/9/1	2022/8/31
E-Field Probe	EX3DV4	7522	2021/4/19	2022/4/18
Mounting Device	MD4HHTV5	BJPCTC0152	NCR	NCR
Twin SAM	Twin SAM V5.0	1412	NCR	NCR
Dipole, 750 MHz	D750V3	1167	2019/11/20	2022/11/19
Dipole, 1900 MHz	D1900V2	543	2019/10/15	2022/10/14
Dipole, 2450 MHz	D2450V2	971	2021/6/28	2024/6/27
Dipole, 2600 MHz	D2600V2	1132	2019/11/19	2022/11/18
Simulated Tissue 750 MHz	TS-750	2009075001	Each Time	/
Simulated Tissue 1900 MHz	TS-1900	2003190001	Each Time	/
Simulated Tissue 2450 MHz	TS-2450	2003245001	Each Time	/
Simulated Tissue 2600 MHz	TS-2600	2009260001	Each Time	/
Network Analyzer	8753C	3033A02857	2021/10/26	2022/10/25
Dielectric assessment kit	1253	SM DAK 040 CA	NCR	NCR
synthesized signal generator	8665B	3438a00584	2021/10/26	2022/10/25
EPM Series Power Meter	E4419B	MY45103907	2021/10/26	2022/10/25
Power Amplifier	ZVA-183-S+	5969001149	NCR	NCR
Directional Coupler	441493	520Z	NCR	NCR
Attenuator	20dB, 100W	LN749	NCR	NCR
Attenuator	6dB, 150W	2754	NCR	NCR
R&S, universal Radio Communication Tester	CMU200	110 825	2021/7/22	2022/7/21
Wideband Radio Communication Tester	CMW500	149218	2021/7/22	2022/7/21

SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$ (S/m)	
750	Simulated Tissue 750 MHz	41.714	0.865	41.9	0.89	-0.44	-2.81	±10
824.2	Simulated Tissue 750 MHz	41.656	0.877	41.55	0.9	0.26	-2.56	±10
826.4	Simulated Tissue 750 MHz	41.642	0.882	41.54	0.9	0.25	-2	±10
829	Simulated Tissue 750 MHz	41.625	0.897	41.53	0.9	0.23	-0.33	±10
836.5	Simulated Tissue 750 MHz	41.609	0.904	41.5	0.9	0.26	0.44	±10
836.6	Simulated Tissue 750 MHz	41.602	0.913	41.5	0.9	0.25	1.44	±10
844	Simulated Tissue 750 MHz	41.539	0.917	41.5	0.91	0.09	0.77	±10
846.6	Simulated Tissue 750 MHz	41.379	0.922	41.5	0.91	-0.29	1.32	±10
848.8	Simulated Tissue 750 MHz	41.373	0.926	41.5	0.91	-0.31	1.76	±10

**Liquid Verification above was performed on 2021/12/19.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$ (S/m)	
1850.2	Simulated Tissue 1900 MHz	40.183	1.364	40	1.4	0.46	-2.57	±10
1852.4	Simulated Tissue 1900 MHz	40.143	1.369	40	1.4	0.36	-2.21	±10
1880	Simulated Tissue 1900 MHz	40.06	1.399	40	1.4	0.15	-0.07	±10
1900	Simulated Tissue 1900 MHz	40.023	1.417	40	1.4	0.06	1.21	±10
1907.6	Simulated Tissue 1900 MHz	39.933	1.429	40	1.4	-0.17	2.07	±10
1909.8	Simulated Tissue 1900 MHz	39.895	1.434	40	1.4	-0.26	2.43	±10

**Liquid Verification above was performed on 2021/12/20.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$ (S/m)	
2412	Simulated Tissue 2450 MHz	39.412	1.742	39.28	1.77	0.34	-1.58	±10
2437	Simulated Tissue 2450 MHz	39.364	1.791	39.23	1.79	0.34	0.06	±10
2450	Simulated Tissue 2450 MHz	39.22	1.805	39.2	1.8	0.05	0.28	±10
2462	Simulated Tissue 2450 MHz	39.15	1.852	39.12	1.86	0.08	-0.43	±10
2510	Simulated Tissue 2450 MHz	39.098	1.893	39.09	1.89	0.02	0.16	±10
2535	Simulated Tissue 2450 MHz	39.094	1.936	39.05	1.92	0.11	0.83	±10

**Liquid Verification above was performed on 2021/12/20.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	$\Delta\sigma$ (S/m)	
2560	Simulated Tissue 2600 MHz	39.083	1.944	39.05	1.92	0.08	1.25	±10
2565	Simulated Tissue 2600 MHz	39.071	1.967	39	1.96	0.18	0.36	±10
2600	Simulated Tissue 2600 MHz	39.069	1.986	38.99	1.97	0.19	0.86	±10
2605	Simulated Tissue 2600 MHz	39.067	1.995	38.99	1.97	0.2	1.27	±10
2645	Simulated Tissue 2600 MHz	38.955	2.005	38.94	2.01	0.04	-0.25	±10

**Liquid Verification above was performed on 2021/12/19.*

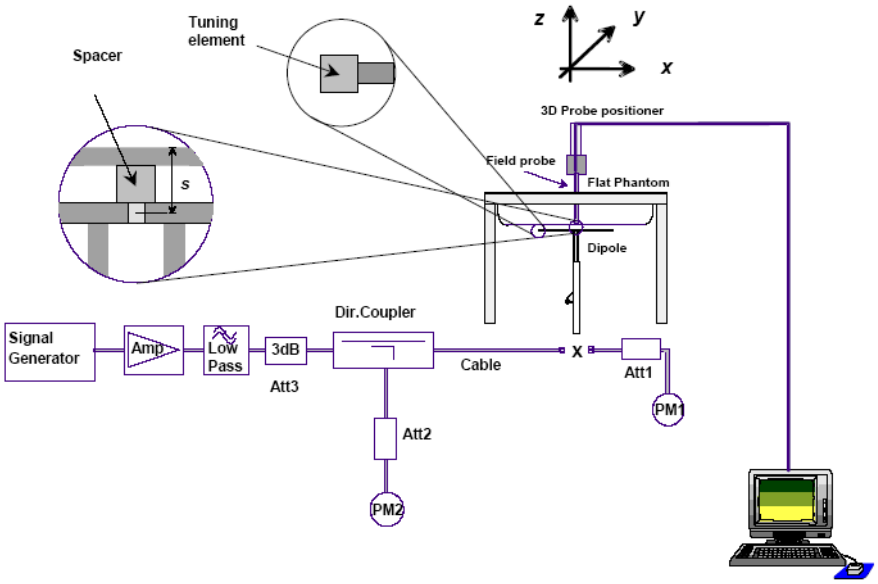
System Accuracy Verification

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

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

a) s = 15 mm ± 0,2 mm for 300 MHz ≤ f ≤ 1 000 MHz;
b) s = 10 mm ± 0,2 mm for 1 000 MHz < f ≤ 3 000 MHz;
c) s = 10 mm ± 0,2 mm for 3 000 MHz < f ≤ 6 000 MHz.

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/kg)	Delta (%)	Tolerance (%)
2021/12/19	750 MHz	Simulated Tissue 750 MHz	100	1g	0.852	8.52	8.38	1.67	±10
2021/12/20	1900 MHz	Simulated Tissue 1900 MHz	100	1g	3.92	39.2	40.2	-2.49	±10
2021/12/20	2450 MHz	Simulated Tissue 2450 MHz	100	1g	5.09	50.9	53.5	-4.86	±10
2021/12/19	2600 MHz	Simulated Tissue 2600 MHz	100	1g	5.82	58.2	55.5	4.86	±10

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

SAR SYSTEM VALIDATION DATA

System Performance 750 MHz

DUT: D750V3; Type: 750 MHz; Serial: 1167

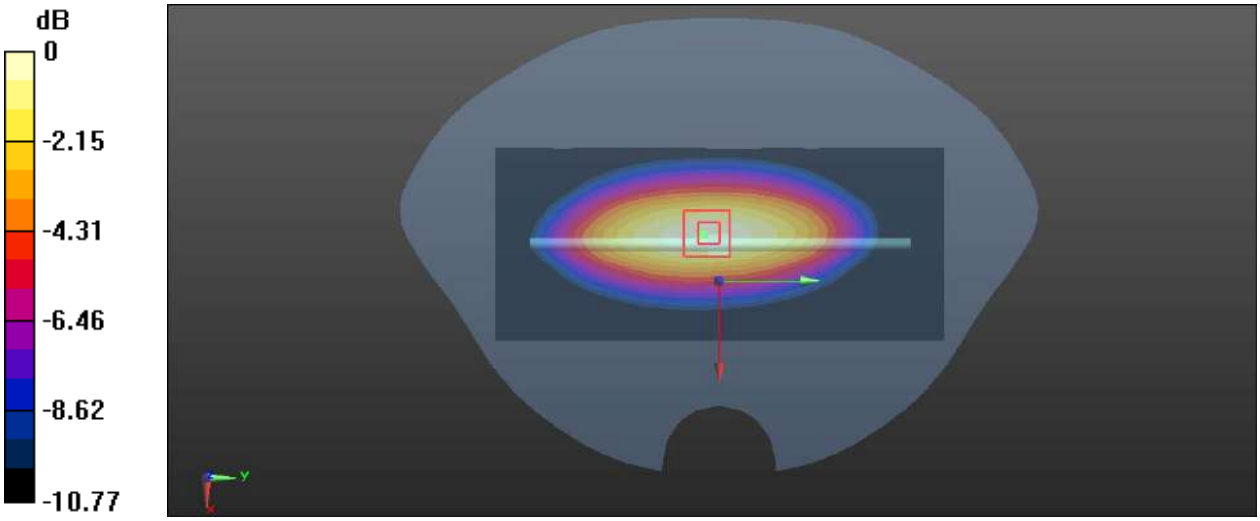
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.865 S/m; ε_r = 41.714; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 750 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.16 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.556 W/kg
Maximum value of SAR (measured) = 1.19 W/kg



0 dB = 1.19 W/kg = 0.76 dBW/kg

System Performance 1900MHz

DUT: D1900V2; Type: 1900 MHz; Serial: 543

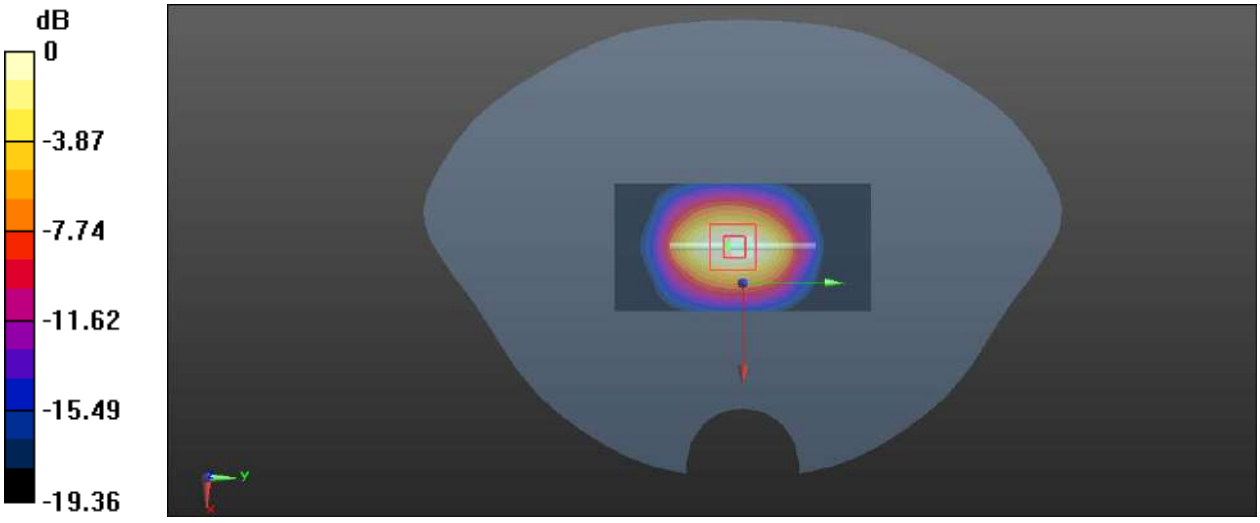
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.417 S/m; ε_r = 40.023; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1900 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.92 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.25 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 6.98 W/kg
SAR(1 g) = 3.92 W/kg; SAR(10 g) = 2.11 W/kg
Maximum value of SAR (measured) = 4.31 W/kg



0 dB = 4.31 W/kg = 6.34 dBW/kg

System Performance 2450 MHz

DUT: D2450V2; Type: 2450 MHz; Serial: 971

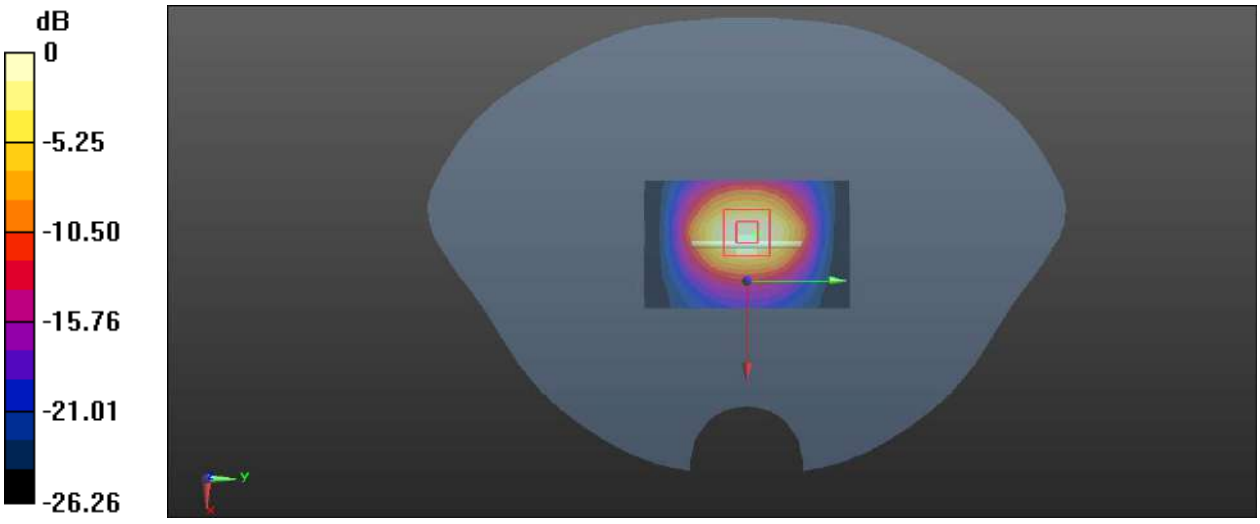
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.805 S/m; ε_r = 39.22; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2450 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 8.55 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.82 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 10.4 W/kg
SAR(1 g) = 5.09 W/kg; SAR(10 g) = 2.38 W/kg
Maximum value of SAR (measured) = 8.05 W/kg



0 dB = 8.05 W/kg = 9.06 dBW/kg

System Performance 2600MHz

DUT: D2600V2; Type: 2600 MHz; Serial: 1132

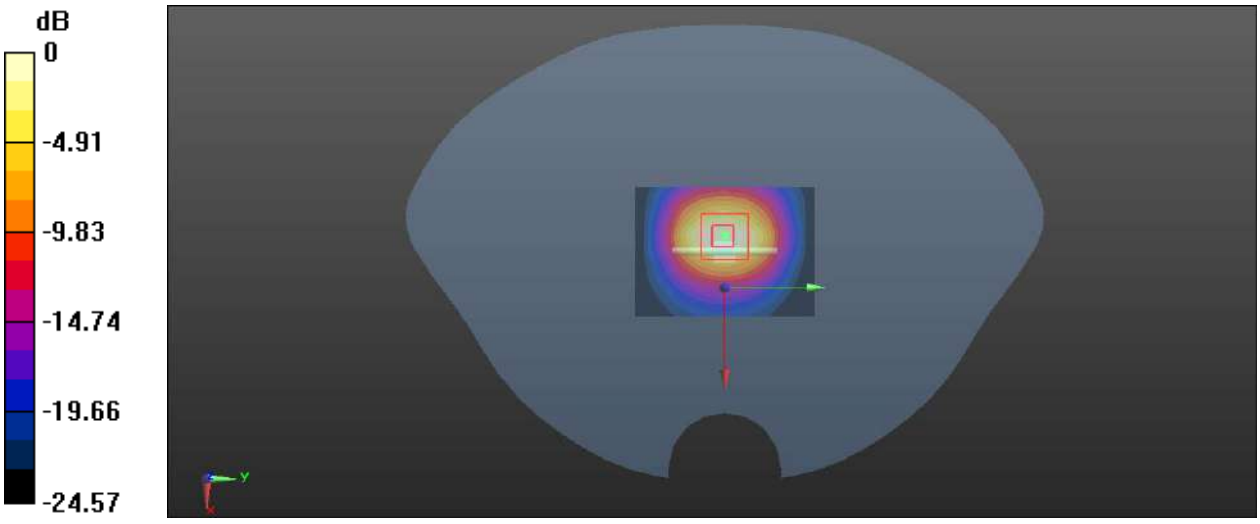
Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.986 S/m; ε_r = 39.069; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2600 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 11.4 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.56 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 13.1 W/kg
SAR(1 g) = 5.82 W/kg; SAR(10 g) = 2.54 W/kg
Maximum value of SAR (measured) = 10.4 W/kg



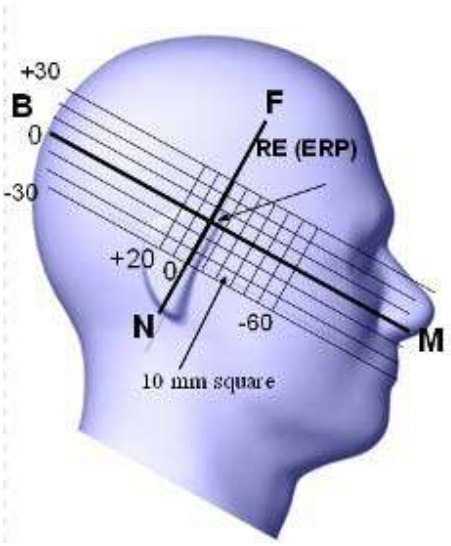
0 dB = 10.4 W/kg = 10.17 dBW/kg

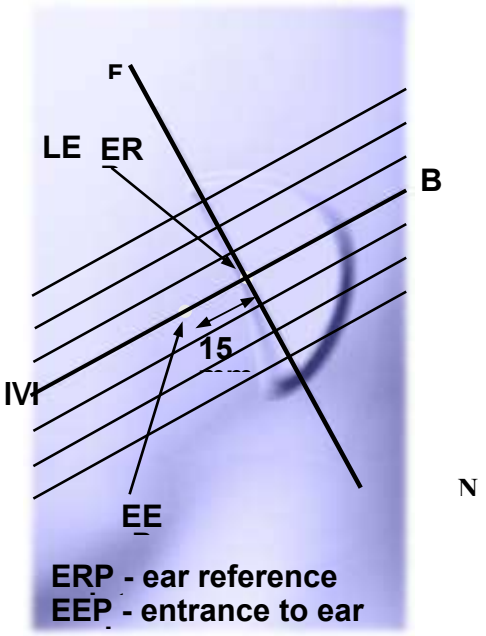
EUT TEST STRATEGY AND METHODOLOGY

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

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

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





Cheek/Touch Position

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

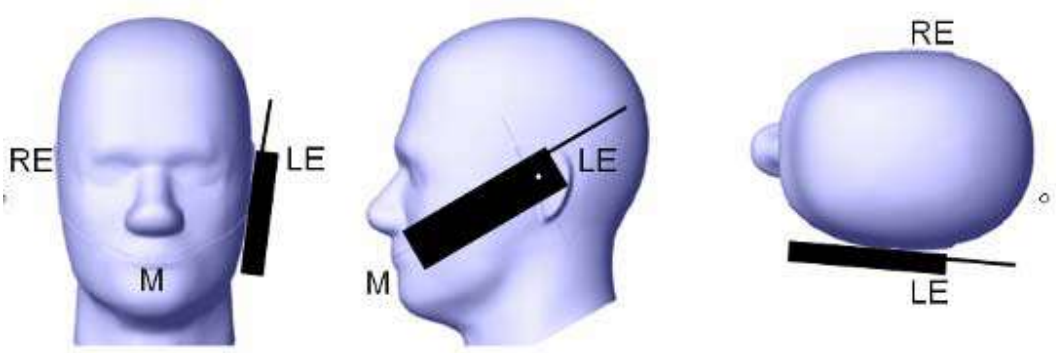
This test position is established:

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

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

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

Cheek /Touch Position



Ear/Tilt Position

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

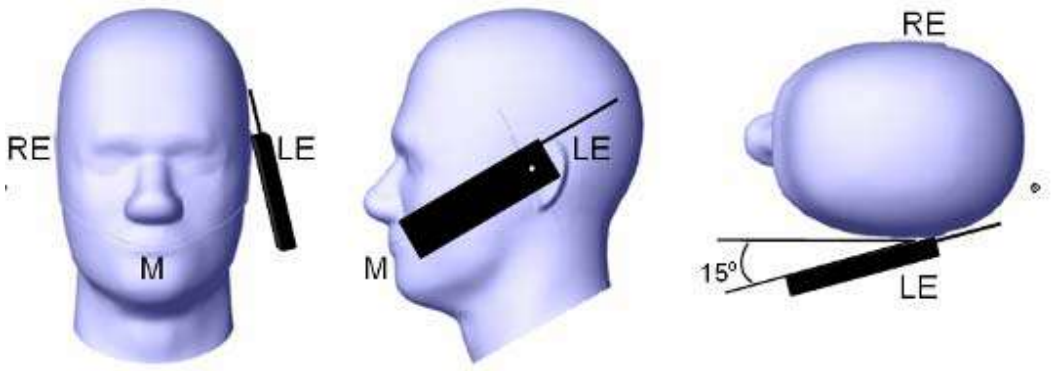
1) If the earpiece of the handset is not in full contact with the phantom’s ear spacer (in the “Cheek/Touch position”) and the peak SAR location for the “Cheek/Touch” position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the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

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

If a device is also designed to transmit with its keypad cover closed for operating in the head position, such positions should also be considered in the SAR evaluation. The device should be tested on the left and

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

Ear /Tilt 15° Position



Test positions for body-worn and other configurations

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

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

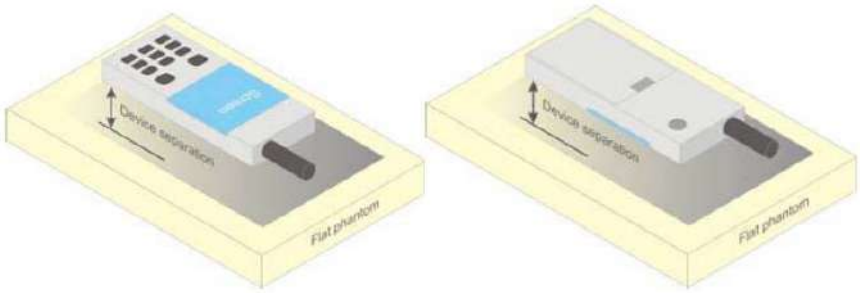


Figure 5 – Test positions for body-worn devices

Test Distance for SAR Evaluation

In this case the DUT(Device Under Test) is set directly against the phantom, the test distance is 0mm.

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.

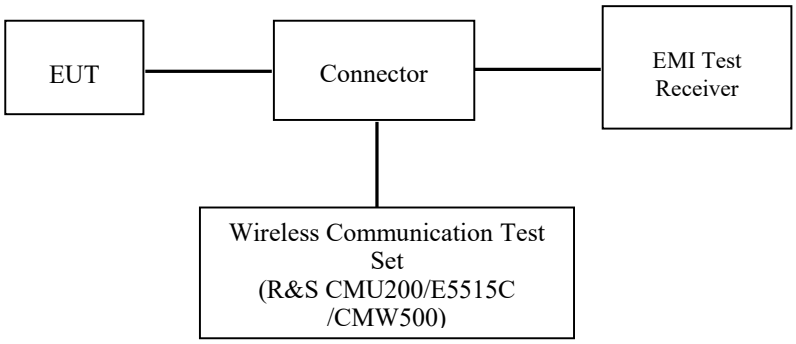
CONDUCTED OUTPUT POWER MEASUREMENT

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 Connector.



GSM/WCDMA/LTE

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

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

The maximum power was configured per 3GPP Standard for each operation modes as below setting:

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900
Press Connection control to choose the different menus
Press RESET > choose all the reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM + GPRS or GSM + EGSM
Main Service > Packet Data
Service selection > Test Mode A – Auto Slot Config. off
MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting
> Slot configuration > Uplink/Gamma
> 33 dBm for GPRS 850
> 30 dBm for GPRS 1900
> 27 dBm for EGPRS 850
> 26 dBm for EGPRS 1900
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off
P0 > 4 dB
Slot Config > Unchanged (if already set under MS signal)
TCH > choose desired test channel
Hopping > Off
Main Timeslot > 3
Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

Bit Stream > 2E9-1 PSR Bit Stream
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection Press Signal on to turn on the signal and change settings

WCDMA-Release 99

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

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

WCDMA HSDPA

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

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General 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	1 /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			

WCDMA HSUPA

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

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	**1**	**2**		**4**	**5**
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	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 k ps	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+

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

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

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

DC-HSDPA

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

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK

Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

LTE (FDD):

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

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

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

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

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

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

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

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

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

TDD-LTE

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

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

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

Table 4.2-2: Uplink-downlink configurations.

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

Calculated Duty Cycle

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

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 2048) seconds

Maximum Target Output Power

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
GSM 850	32.4	32.4	32.4
GPRS 1 TX Slot	32.4	32.4	32.4
GPRS 2 TX Slot	30.4	30.4	30.4
GPRS 3 TX Slot	28.2	28.2	28.2
GPRS 4 TX Slot	26.6	26.6	26.6
EDGE 1 TX Slot	27.1	27.1	27.1
EDGE 2 TX Slot	25.2	25.2	25.2
EDGE 3 TX Slot	23.3	23.3	23.3
EDGE 4 TX Slot	21.3	21.3	21.3
GSM 1900	30.4	30.4	30.4
GPRS 1 TX Slot	29.9	29.9	29.9
GPRS 2 TX Slot	27.8	27.8	27.8
GPRS 3 TX Slot	26.1	26.1	26.1
GPRS 4 TX Slot	24	24	24
EDGE 1 TX Slot	26.3	26.3	26.3
EDGE 2 TX Slot	24.2	24.2	24.2
EDGE 3 TX Slot	22.2	22.2	22.2
EDGE 4 TX Slot	20.5	20.5	20.5
WCDMA Band 2	23.4	23.4	23.4
HSDPA	23.4	23.4	23.4
HSUPA	23.3	23.3	23.3
DC-HSDPA	21.9	21.9	21.9
HSPA+	21.1	21.1	21.1
WCDMA Band 5	24.1	24.1	24.1
HSDPA	23.8	23.8	23.8
HSUPA	24.1	24.1	24.1
DC-HSDPA	23.1	23.1	23.1
HSPA+	21.9	21.9	21.9
LTE Band 5	23.3	23.3	23.3
LTE Band 7	22.7	22.7	22.7
LTE Band 38	23	23	23
LTE Band 41	23	23	23
WLAN 2.4G(802.11b)	14.1	14.1	14.1
WLAN2.4G (802.11g)	14	14	14
WLAN2.4G (802.11n HT20)	14	14	14
WLAN2.4G (802.11n HT40)	14	14	14
Bluetooth BDR/EDR	9	9	9
Bluetooth LE	-1	-1	-1

Test Results:

GSM:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)
GSM 850	128	824.2	32.02
	190	836.6	32.05
	251	848.8	32.01
PCS 1900	512	1850.2	29.65
	661	1880	29.88
	810	1909.8	**30.29**

GPRS

Mode	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM850	128	824.2	32.10	30.05	28.11	26.45
	190	836.6	**32.26**	30.27	28.12	26.29
	251	848.8	32.01	30.18	28.09	26.13
PCS1900	512	1850.2	29.76	27.66	25.85	23.90
	661	1880	29.45	27.64	25.67	23.43
	810	1909.8	29.26	27.60	25.52	23.35

EDGE:

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM 850	128	824.2	27.00	24.95	23.17	21.18
	190	836.6	26.84	24.75	23.00	20.96
	251	848.8	26.97	25.09	23.06	21.03
PCS 1900	512	1850.2	25.95	23.94	22.00	19.94
	661	1880	26.04	24.08	22.07	20.12
	810	1909.8	26.24	24.11	22.08	20.38

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

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

The time based average power for GPRS

Band	Channel No.	Frequency (MHz)	Time based average Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM850	128	824.2	23.1	24.05	23.86	23.45
	190	836.6	23.26	**24.27**	23.87	23.29
	251	848.8	23.01	24.18	23.84	23.13
PCS1900	512	1850.2	20.76	**21.66**	21.6	20.9
	661	1880	20.45	21.64	21.42	20.43
	810	1909.8	20.26	21.6	21.27	20.35

The time based average power for EDGE

Band	Channel No.	Frequency (MHz)	Time based average Power (dBm)			
			1 slot	2 slots	3 slots	4 slots
GSM850	128	824.2	18	18.95	18.92	18.18
	190	836.6	17.84	18.75	18.75	17.96
	251	848.8	17.97	19.09	18.81	18.03
PCS1900	512	1850.2	16.95	17.94	17.75	16.94
	661	1880	17.04	18.08	17.82	17.12
	810	1909.8	17.24	18.11	17.83	17.38

Note:

1. Rohde & Schwarz Radio Communication Tester (CMU200) was used for the measurement of GSM peak and average output power for active timeslots.
2 .For GPRS, 1, 2, 3 and 4 timeslots has been activated separately with power level 3(850 MHz band) and 3(1900 MHz band).

WCDMA:
Results (12.2kbps RMC)

Band	Frequency (MHz)	RF Output Power (dBm)
WCDMA Band 2	1852.4	23.23
	1880	**23.26**
	1907.6	23.20
WCDMA Band 5	826.4	23.74
	836.6	23.88
	846.6	**24.02**

Results (HSDPA)

Band	Frequency (MHz)	RF Output Power (dBm)			
		Subset 1	Subset 2	Subset 3	Subset 4
WCDMA Band 2	1852.4	22.93	23.18	23.01	22.78
	1880	22.93	22.87	23.23	22.87
	1907.6	22.91	22.61	23.04	23.05
WCDMA Band 5	826.4	23.61	23.51	23.39	22.99
	836.6	23.68	23.69	23.24	22.49
	846.6	23.55	23.50	23.42	23.17

Results (HSUPA)

Band	Frequency (MHz)	RF Output Power (dBm)				
		Subset 1	Subset 2	Subset 3	Subset 4	Subset 5
WCDMA Band 2	1852.4	23.22	22.78	22.42	22.35	22.78
	1880	22.89	22.69	22.39	23.01	22.50
	1907.6	23.00	22.50	22.75	22.39	22.69
WCDMA Band 5	826.4	23.97	23.90	23.78	23.34	23.04
	836.6	23.61	23.58	23.18	23.48	22.89
	846.6	23.26	22.74	23.15	23.31	22.98

Results (DC-HSDPA)

Band	Frequency (MHz)	RF Output Power (dBm)			
		Subset 1	Subset 2	Subset 3	Subset 4
WCDMA Band 2	1852.4	21.84	21.81	21.59	21.32
	1880	21.76	21.62	21.36	21.47
	1907.6	21.53	21.82	21.22	21.31
WCDMA Band 5	826.4	22.18	22.21	22.54	22.44
	836.6	22.52	22.48	22.41	22.99
	846.6	22.54	22.29	22.61	22.54

Results (HSPA+)

Band	Frequency (MHz)	RF Output Power (dBm)
WCDMA Band 2	1852.4	20.95
	1880	20.76
	1907.6	20.66
WCDMA Band 5	826.4	21.60
	836.6	21.34
	846.6	21.78

Note:

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

LTE Band 5:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	22.92	23.04	22.94
		RB1#3	0	0	23.15	23.22	23.15
		RB1#5	0	0	22.94	23.01	23.00
		RB3#0	1	1	23.14	23.03	22.94
		RB3#3	1	1	23.09	23.13	22.99
		RB6#0	1	1	22.10	22.11	22.10
	16-QAM	RB1#0	1	1	21.99	21.96	22.01
		RB1#3	1	1	22.07	22.16	22.05
		RB1#5	2	2	21.86	22.07	21.93
		RB3#0	2	2	22.22	21.87	22.02
		RB3#3	2	2	22.16	22.07	22.13
		RB6#0	2	2	20.97	20.98	20.92
3M	QPSK	RB1#0	0	0	23.11	23.00	23.00
		RB1#8	0	0	22.95	22.95	23.12
		RB1#14	1	1	23.07	22.94	22.97
		RB6#0	1	1	22.04	22.01	21.89
		RB6#9	1	1	21.98	22.07	22.04
		RB15#0	1	1	21.98	22.07	22.01
	16-QAM	RB1#0	1	1	22.57	22.08	21.99
		RB1#8	1	1	22.64	22.15	22.04
		RB1#14	2	2	22.47	22.08	22.02
		RB6#0	2	2	21.17	20.94	21.00
		RB6#9	2	2	21.06	21.06	20.90
		RB15#0	2	2	21.02	21.05	21.03
5M	QPSK	RB1#0	0	0	22.96	23.06	22.84
		RB1#13	0	0	23.16	22.99	23.01
		RB1#24	0	0	22.97	22.85	22.93
		RB15#0	1	1	22.1	21.97	21.99
		RB15#10	1	1	22.07	22.03	21.99
		RB25#0	1	1	22.06	22.07	22.05
	16-QAM	RB1#0	1	1	21.77	22.23	21.92
		RB1#13	1	1	21.9	22.23	22.08
		RB1#24	1	1	21.97	22.29	22.13
		RB15#0	2	2	21.04	21	21.1
		RB15#10	2	2	20.99	20.98	21.11
		RB25#0	2	2	21.08	21	21.01

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	22.88	22.94	23.07
		RB1#25	0	0	**23.23**	23.03	23.22
		RB1#49	1	1	23.03	23.02	23.12
		RB25#0	1	1	22.08	21.94	22.15
		RB25#25	1	1	22.11	21.96	22.16
		RB50#0	1	1	22.04	21.92	22.12
	16-QAM	RB1#0	1	1	22.44	22.09	21.91
		RB1#25	1	1	22.78	22.27	22.23
		RB1#49	2	2	22.63	22.09	21.96
		RB25#0	2	2	21.17	21.11	21.16
		RB25#25	2	2	21.08	21.01	21.21
		RB50#0	2	2	21.04	20.98	21.19

LTE Band 7:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	21.49	21.93	22.25
		RB1#13	0	0	21.65	22.16	22.34
		RB1#24	0	0	21.37	22.09	22.36
		RB15#0	1	1	20.63	21.05	21.41
		RB15#10	1	1	20.6	21.17	21.39
		RB25#0	1	1	20.48	21.04	21.33
	16-QAM	RB1#0	1	1	20.3	21.22	21.38
		RB1#13	1	1	20.48	21.39	21.51
		RB1#24	2	2	20.3	21.27	21.44
		RB15#0	2	2	19.7	19.92	20.4
		RB15#10	2	2	19.68	20.15	20.49
		RB25#0	2	2	19.75	20.17	20.37
10M	QPSK	RB1#0	0	0	21.52	21.99	22.41
		RB1#25	0	0	21.76	22.13	**22.55**
		RB1#49	1	1	21.78	22	22.48
		RB25#0	1	1	20.67	20.97	21.48
		RB25#25	1	1	20.6	21.11	21.48
		RB50#0	1	1	20.58	21.06	21.36
	16-QAM	RB1#0	1	1	21.13	21.14	21.37
		RB1#25	1	1	21.25	21.25	21.59
		RB1#49	1	1	21.16	21.19	21.41
		RB25#0	2	2	19.71	20.06	20.42
		RB25#25	2	2	19.81	20.19	20.53
		RB50#0	2	2	19.53	20.17	20.56
15M	QPSK	RB1#0	0	0	21.55	21.96	22.31
		RB1#38	0	0	21.76	22.03	22.38
		RB1#74	0	0	21.78	22.08	21.97
		RB36#0	1	1	20.65	21.02	20.92
		RB36#39	1	1	20.78	21.14	21.19
		RB75#0	1	1	20.66	21.18	21
	16-QAM	RB1#0	1	1	20.96	20.98	21.06
		RB1#38	1	1	21.21	21.18	21.36
		RB1#74	1	1	21.11	21.21	21.18
		RB36#0	2	2	19.78	20.08	19.99
		RB36#39	2	2	19.85	20.29	20.16
		RB75#0	2	2	19.69	20.07	20.07

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	0	0	21.31	21.72	21.98
		RB1#50	0	0	21.97	22.25	22.22
		RB1#99	1	1	21.33	21.73	21.72
		RB50#0	1	1	20.59	20.99	20.92
		RB50#50	1	1	20.75	21.07	21.1
		RB100#0	1	1	20.6	20.92	21
	16-QAM	RB1#0	1	1	20.5	20.86	21.07
		RB1#50	1	1	21.14	21.28	21.77
		RB1#99	2	2	20.85	21	21.3
		RB50#0	2	2	19.62	19.99	19.87
		RB50#50	2	2	19.82	20.18	19.94
		RB100#0	2	2	19.75	20.11	19.91

LTE Band 38:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	22.47	22.4	22.41
		RB1#13	0	0	22.51	22.55	22.61
		RB1#24	0	0	22.22	22.41	22.4
		RB15#0	1	1	21.62	21.53	21.45
		RB15#10	1	1	21.59	21.48	21.45
		RB25#0	1	1	21.64	21.59	21.44
	16-QAM	RB1#0	1	1	21.5	21.65	21.36
		RB1#13	1	1	21.57	21.9	21.6
		RB1#24	2	2	21.41	21.73	21.46
		RB15#0	2	2	20.62	20.68	20.47
		RB15#10	2	2	20.6	20.71	20.31
		RB25#0	2	2	20.6	20.51	20.56
10M	QPSK	RB1#0	0	0	22.51	22.56	22.57
		RB1#25	0	0	22.7	**22.88**	22.77
		RB1#49	1	1	22.45	22.5	22.58
		RB25#0	1	1	21.46	21.68	21.44
		RB25#25	1	1	21.55	21.71	21.47
		RB50#0	1	1	21.58	21.58	21.61
	16-QAM	RB1#0	1	1	21.68	21.37	21.66
		RB1#25	1	1	21.92	21.78	21.83
		RB1#49	2	2	21.59	21.53	21.55
		RB25#0	2	2	20.48	20.53	20.48
		RB25#25	2	2	20.55	20.58	20.5
		RB50#0	2	2	20.55	20.74	20.48
15M	QPSK	RB1#0	0	0	22.38	22.51	22.49
		RB1#38	0	0	22.3	22.51	22.54
		RB1#74	0	0	22.37	22.5	22.26
		RB36#0	1	1	21.46	21.47	21.52
		RB36#39	1	1	21.57	21.7	21.53
		RB75#0	1	1	21.51	21.51	21.48
	16-QAM	RB1#0	1	1	21.52	21.31	21.74
		RB1#38	1	1	21.65	21.6	21.74
		RB1#74	1	1	21.46	21.44	21.59
		RB36#0	2	2	20.46	20.58	20.58
		RB36#39	2	2	20.49	20.52	20.51
		RB75#0	2	2	20.55	20.61	20.56

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	0	0	22.33	22.29	22.29
		RB1#50	0	0	22.82	22.7	22.72
		RB1#99	1	1	22.12	22.25	22.26
		RB50#0	1	1	21.54	21.42	21.5
		RB50#50	1	1	21.61	21.54	21.5
		RB100#0	1	1	21.47	21.61	21.55
	16-QAM	RB1#0	1	1	21.39	21.24	21.56
		RB1#50	1	1	21.75	21.81	21.93
		RB1#99	2	2	21.26	21.19	21.5
		RB50#0	2	2	20.55	20.55	20.54
		RB50#50	2	2	20.56	20.63	20.44
		RB100#0	2	2	20.56	20.49	20.52

LTE Band 41:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	22.27	22.49	22.30
		RB1#13	0	0	22.36	22.58	22.45
		RB1#24	0	0	22.33	22.35	22.21
		RB15#0	1	1	21.38	21.48	21.35
		RB15#10	1	1	21.39	21.61	21.32
		RB25#0	1	1	21.44	21.45	21.26
	16-QAM	RB1#0	1	1	21.23	21.51	21.47
		RB1#13	1	1	21.35	21.57	21.56
		RB1#24	2	2	21.31	21.54	21.57
		RB15#0	2	2	20.35	20.42	20.30
		RB15#10	2	2	20.30	20.59	20.24
		RB25#0	2	2	20.44	20.57	20.20
10M	QPSK	RB1#0	0	0	22.46	22.52	22.37
		RB1#25	0	0	22.6	**22.93**	22.7
		RB1#49	1	1	22.35	22.47	22.36
		RB25#0	1	1	21.49	21.59	21.46
		RB25#25	1	1	21.5	21.51	21.23
		RB50#0	1	1	21.43	21.61	21.26
	16-QAM	RB1#0	1	1	21.45	21.5	21.46
		RB1#25	1	1	21.94	21.83	21.74
		RB1#49	2	2	21.59	21.43	21.49
		RB25#0	2	2	20.33	20.65	20.42
		RB25#25	2	2	20.49	20.61	20.26
		RB50#0	2	2	20.42	20.5	20.38
15M	QPSK	RB1#0	0	0	22.4	22.48	22.38
		RB1#38	0	0	22.39	22.63	22.34
		RB1#74	0	0	22.46	22.46	22.35
		RB36#0	1	1	21.31	21.66	21.49
		RB36#39	1	1	21.56	21.55	21.31
		RB75#0	1	1	21.51	21.51	21.44
	16-QAM	RB1#0	1	1	21.42	21.4	21.46
		RB1#38	1	1	21.61	21.54	21.58
		RB1#74	1	1	21.72	21.49	21.46
		RB36#0	2	2	20.54	20.44	20.49
		RB36#39	2	2	20.54	20.57	20.32
		RB75#0	2	2	20.55	20.67	20.44

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	0	0	22.05	22.3	22.18
		RB1#50	0	0	22.55	22.72	22.68
		RB1#99	1	1	22.36	22.28	22.12
		RB50#0	1	1	21.37	21.43	21.48
		RB50#50	1	1	21.78	21.89	21.73
		RB100#0	1	1	21.43	21.59	21.29
	16-QAM	RB1#0	1	1	21.15	21.4	21.44
		RB1#50	1	1	21.68	21.73	22.03
		RB1#99	2	2	21.29	21.42	21.31
		RB50#0	2	2	20.42	20.53	20.56
		RB50#50	2	2	20.62	20.7	20.29
		RB100#0	2	2	20.53	20.65	20.37

Note:

1. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
2. The CMW500 Wideband Radio Communication tester is used for LTE output power measurements and SAR testing. Closed loop power control is used to keep the radio transmitters the max output power during the test.
3. KDB941225D05v02- SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

Wi-Fi 2.4G:

Mode	Channel frequency (MHz) (MHz)	Data Rate	Max Average Output Power(dBm)
802.11b	2412	1Mbps	**13.97**
	2437		13.93
	2462		13.87
802.11g	2412	6Mbps	13.64
	2437		13.67
	2462		13.61
802.11n HT20	2412	MCS0	13.43
	2437		13.58
	2462		13.6
802.11n HT40	2422	MCS0	13.66
	2437		13.67
	2452		13.54

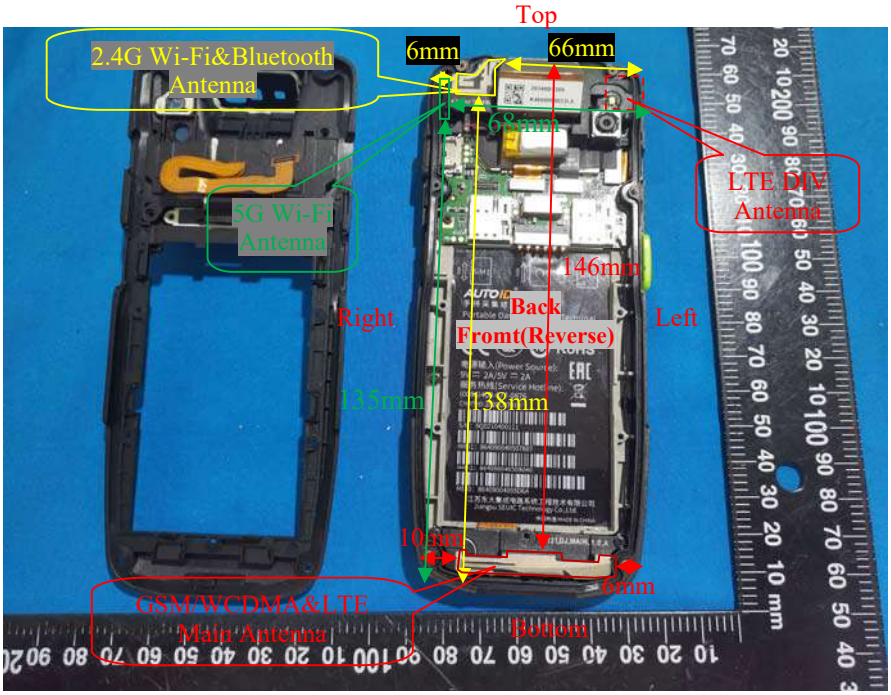
Bluetooth:

Mode	Channel frequency (MHz)	RF Output Power (dBm)
BDR(GFSK)	2402	8.27
	2441	8.86
	2480	8.50
EDR(π/4-DQPSK)	2402	8.18
	2441	8.85
	2480	8.93
EDR(8DPSK)	2402	8.89
	2441	8.38
	2480	**8.97**
BLE 1M	2402	-1.90
	2440	-1.80
	2480	-1.72
BLE 2M	2402	-1.87
	2440	-1.56
	2480	-1.72

***Note**: The test data of 5G Wi-Fi please refer to report: CR21100112-20B, which issued by Shenzhen Accurate Technology Co., Ltd. on 2021-11-30.*

Standalone SAR test exclusion considerations

Antennas Location:



Note: The LTE DIV antenna can not transmit, and is receiving only.

Antenna Distance To Edge

Antenna Distance To Edge(mm)					
Antenna	**Back**	**Left**	**Right**	**Top**	**Bottom**
WWAN(GPRS/WCDMA/LTE)	< 5	6	10	146	< 5
2.4G Wi-Fi&Bluetooth Antenna	< 5	66	6	< 5	138
5G Wi-Fi Antenna	< 5	68	< 5	< 5	135

Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Pavg (dBm)	Pavg (mW)	Distance (mm)	Calculated value(mW)	Threshold (1-g)	SAR Test Exclusion
Bluetooth	2480	9	7.94	0	2.5	3.0	**Yes**
Wi-Fi 2.4G	2462	14.1	25.7	0	8.1	3.0	No

Note: *The bluetooth based peak power for calculation, and Wi-Fi based average power for calculation.*

NOTE:
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·
[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.

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

Standalone SAR estimation:

Mode	Frequency (MHz)	Pavg (dBm)	Pavg (mW)	Distance (mm)	Estimated 1-g (W/kg)
Bluetooth Head	2480	9	7.94	0	0.33
Bluetooth Body	2480	9	7.94	0	0.33

Note: *The bluetooth based Peak power for calculation.*

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:
[(max. power of channel, including tune-up tolerance , mW)/(min. test separation distance,mm)] · [√f(GHz)/x]
W/kg for test separation distances ≤50 mm;
where x = 7.5 for 1-g SAR. 18.75 for 10-g extremity SAR.
When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion

Standalone SAR test exclusion considerations:

Mode	Frequency (MHz)	Pavg (dBm)	Pavg (mW)	Test Exclusion Distance (mm)
GSM 850	848.8	24.4	275.4	70
PCS 1900	1909.8	21.8	151.4	54.3
WCDMA Band 2	1907.6	23.4	218.8	61.1
WCDMA Band 5	846.6	24.1	257	66.7
LTE Band 5	844	23.3	213.8	59
LTE Band 7	2560	22.7	186.2	59.3
LTE Band 38	2610	23	199.5	60.7
LTE Band 41	2645	23	199.5	60.8
WLAN 2.4G	2462	14.1	25.7	13.5

SAR test exclusion for the EUT edge considerations Result

Mode	Back	Left	Right	Top	Bottom
GSM 850	**Required**	**Required**	**Required**	Exclusion	**Required**
PCS 1900	**Required**	**Required**	**Required**	Exclusion	**Required**
WCDMA Band 2	**Required**	**Required**	**Required**	Exclusion	**Required**
WCDMA Band 4	**Required**	**Required**	**Required**	Exclusion	**Required**
WCDMA Band 5	**Required**	**Required**	**Required**	Exclusion	**Required**
LTE Band 5	**Required**	**Required**	**Required**	Exclusion	**Required**
LTE Band 7	**Required**	**Required**	**Required**	Exclusion	**Required**
LTE Band 38	**Required**	**Required**	**Required**	Exclusion	**Required**
LTE Band 48	**Required**	**Required**	**Required**	Exclusion	**Required**
WLAN 2.4G	**Required**	Exclusion	**Required**	**Required**	Exclusion

Note:
Required:The distance is less than **Test Exclusion Distance**, the SAR test is required.
Exclusion: The distance is large than **Test Exclusion Distance**, SAR test is not required.

SAR test exclusion for the EUT edge considerations detail:

Distance< 50mm(To Edges)

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.
5. The Time based average Power is used for calculation

Distance> 50mm(To Edges)

At 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following:

a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz.

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

SAR Test Data

Environmental Conditions

Temperature:	21.7-22.2 ℃	21.5-22.4 ℃
Relative Humidity:	47 %	45 %
ATM Pressure:	101.8 kPa	101.3 kPa
Test Date:	2021/12/19	2021/12/20

Testing was performed by Karl Gong, Ken Zong, Way Li.

GSM 850:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.05	32.4	1.084	0.015	0.02	1#
	848.8	GSM	/	/	/	/	/	/
Head Left Tilt	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.05	32.4	1.084	0.011	0.01	2#
	848.8	GSM	/	/	/	/	/	/
Head Right Cheek	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.05	32.4	1.084	0.021	0.02	3#
	848.8	GSM	/	/	/	/	/	/
Head Right Tilt	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.05	32.4	1.084	0.013	0.01	4#
	848.8	GSM	/	/	/	/	/	/
Body Worn Back (0mm)	824.2	GSM	/	/	/	/	/	/
	836.6	GSM	32.05	32.4	1.084	0.253	0.27	5#
	848.8	GSM	/	/	/	/	/	/
Body Back (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.27	30.4	1.03	0.316	0.33	6#
	848.8	GPRS	/	/	/	/	/	/
Body Left (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.27	30.4	1.03	0.035	0.04	7#
	848.8	GPRS	/	/	/	/	/	/
Body Right (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.27	30.4	1.03	0.033	0.03	8#
	848.8	GPRS	/	/	/	/	/	/
Body Bottom (0mm)	824.2	GPRS	/	/	/	/	/	/
	836.6	GPRS	30.27	30.4	1.03	0.129	0.13	9#
	848.8	GPRS	/	/	/	/	/	/

Note:
1. When the 10-g SAR is less than half of the limit, testing for low and high channel is optional.
2. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 3DL+2UL is the worst case.
3. The EUT transmit and receive through the same GSM antenna while testing SAR.

PCS 1900:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.88	30.4	1.127	0.028	0.03	**10#**
	1909.8	GSM	/	/	/	/	/	/
Head Left Tilt	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.88	30.4	1.127	0.018	0.02	11#
	1909.8	GSM	/	/	/	/	/	/
Head Right Cheek	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.88	30.4	1.127	0.018	0.02	12#
	1909.8	GSM	/	/	/	/	/	/
Head Right Tilt	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.88	30.4	1.127	0.015	0.02	13#
	1909.8	GSM	/	/	/	/	/	/
Body Worn Back (0mm)	1850.2	GSM	/	/	/	/	/	/
	1880	GSM	29.88	30.4	1.127	0.562	0.63	14#
	1909.8	GSM	/	/	/	/	/	/
Body Back (0mm)	1850.2	GPRS	27.66	27.8	1.033	1.14	1.18	15#
	1880	GPRS	27.64	27.8	1.038	1.13	1.17	16#
	1909.8	GPRS	27.6	27.8	1.047	1.01	1.06	17#
Body Left (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	27.56	27.8	1.057	0.266	0.28	18#
	1909.8	GPRS	/	/	/	/	/	/
Body Right (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	27.56	27.8	1.057	0.033	0.03	19#
	1909.8	GPRS	/	/	/	/	/	/
Body Bottom (0mm)	1850.2	GPRS	/	/	/	/	/	/
	1880	GPRS	27.56	27.8	1.057	0.129	0.14	20#
	1909.8	GPRS	/	/	/	/	/	/

Note:
1. When the 10-g SAR is less than half of the limit, testing for low and high channel is optional.
2. The Multi-slot Classes of EUT is Class 12 which has maximum 4 Downlink slots and 4 Uplink slots, the maximum active slots is 5, when perform the multiple slots scan, 3DL+2UL is the worst case.
3. The EUT transmit and receive through the same GSM antenna while testing SAR.

WCDMA Band 2:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.033	0.03	21#
	1907.6	RMC	/	/	/	/	/	/
Head Left Tilt	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.021	0.02	22#
	1907.6	RMC	/	/	/	/	/	/
Head Right Cheek	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.022	0.02	23#
	1907.6	RMC	/	/	/	/	/	/
Head Right Tilt	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.021	0.02	24#
	1907.6	RMC	/	/	/	/	/	/
Body Back (0mm)	1852.4	RMC	23.23	23.4	1.04	0.927	0.96	25#
	1880	RMC	23.26	23.4	1.033	0.923	0.95	26#
	1907.6	RMC	23.2	23.4	1.047	0.847	0.89	27#
Body Left (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.165	0.17	28#
	1907.6	RMC	/	/	/	/	/	/
Body Right (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.02	0.02	29#
	1907.6	RMC	/	/	/	/	/	/
Body Bottom (0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	23.26	23.4	1.033	0.097	0.1	30#
	1907.6	RMC	/	/	/	/	/	/

WCDMA Band 5:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.02	0.02	31#
	846.6	RMC	/	/	/	/	/	/
Head Left Tilt	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.014	0.01	32#
	846.6	RMC	/	/	/	/	/	/
Head Right Cheek	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.016	0.02	33#
	846.6	RMC	/	/	/	/	/	/
Head Right Tilt	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.012	0.01	34#
	846.6	RMC	/	/	/	/	/	/
Body Back (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.215	0.23	35#
	846.6	RMC	/	/	/	/	/	/
Body Left (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.018	0.02	36#
	846.6	RMC	/	/	/	/	/	/
Body Right (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.025	0.03	37#
	846.6	RMC	/	/	/	/	/	/
Body Bottom (0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	23.88	24.1	1.052	0.075	0.08	38#
	846.6	RMC	/	/	/	/	/	/

Note:

1. When the SAR value is less than half of the limit, testing for other channels are optional.
2. The EUT transmit and receive through the same antenna while testing SAR.
3. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model.
4. KDB 941225 D01-Body SAR is not required for HSUPA/HSDPA/DC-HSDPA/HSPA+ when the maximum average output of each RF channel is less than ¼ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is < 75% of SAR limit.
5. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

LTE Band 5:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.03	23.3	1.064	0.289	0.31	39#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	21.96	23.3	1.361	0.224	0.3	40#
Body Back (0mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.03	23.3	1.064	0.391	0.42	41#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	21.96	23.3	1.361	0.308	0.42	42#
Body Left (0mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.03	23.3	1.064	0.169	0.18	43#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	21.96	23.3	1.361	0.133	0.18	44#
Body Right (0mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.03	23.3	1.064	0.088	0.09	45#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	21.96	23.3	1.361	0.016	0.02	46#
Body Bottom (0mm)	829	20	1RB	/	/	/	/	/	/
	836.5	20	1RB	23.03	23.3	1.064	0.036	0.04	47#
	844	20	1RB	/	/	/	/	/	/
	836.5	20	50%RB	21.96	23.3	1.361	0.032	0.04	48#

LTE Band 7:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.25	22.7	1.109	0.184	0.2	49#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	21.07	22.7	1.455	0.114	0.17	50#
Body Back (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.25	22.7	1.109	0.562	0.62	51#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	21.07	22.7	1.455	0.178	0.26	52#
Body Left (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.25	22.7	1.109	0.063	0.07	53#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	21.07	22.7	1.455	0.062	0.09	54#
Body Right (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.25	22.7	1.109	<0.01	0.01	/
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	21.07	22.7	1.455	<0.01	0.01	/
Body Bottom (0mm)	2510	20	1RB	/	/	/	/	/	/
	2535	20	1RB	22.25	22.7	1.109	0.184	0.2	55#
	2560	20	1RB	/	/	/	/	/	/
	2535	20	50%RB	21.07	22.7	1.455	0.154	0.22	56#

LTE Band 41&38:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Flat	2565	20	1RB	/	/	/	/	/	/
	2585	20	1RB	/	/	/	/	/	/
	2605	20	1RB	22.72	23	1.067	0.108	0.12	57#
	2645	20	1RB	/	/	/	/	/	/
	2605	20	50%RB	21.89	23	1.291	0.106	0.14	58#
Body Back (0mm)	2565	20	1RB	/	/	/	/	/	/
	2585	20	1RB	/	/	/	/	/	/
	2605	20	1RB	22.72	23	1.067	0.199	0.21	59#
	2645	20	1RB	/	/	/	/	/	/
	2605	20	50%RB	21.89	23	1.291	0.188	0.24	60#
Body Left (0mm)	2565	20	1RB	/	/	/	/	/	/
	2585	20	1RB	/	/	/	/	/	/
	2605	20	1RB	22.72	23	1.067	0.044	0.05	61#
	2645	20	1RB	/	/	/	/	/	/
	2605	20	50%RB	21.89	23	1.291	0.045	0.06	62#
Body Right (0mm)	2565	20	1RB	/	/	/	/	/	/
	2585	20	1RB	/	/	/	/	/	/
	2605	20	1RB	22.72	23	1.067	0.017	0.02	63#
	2645	20	1RB	/	/	/	/	/	/
	2605	20	50%RB	21.89	23	1.291	<0.01	0.01	/
Body Bottom (0mm)	2565	20	1RB	/	/	/	/	/	/
	2585	20	1RB	/	/	/	/	/	/
	2605	20	1RB	22.72	23	1.067	0.136	0.15	64#
	2645	20	1RB	/	/	/	/	/	/
	2605	20	50%RB	21.89	23	1.291	0.129	0.17	65#

Note: The E-UTRA Operating Band 38 is a subset of band 41, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement.

Note:*
1.The frequency range of LTE Band 41 is 2555 ~ 2655MHz. Per KDB 447498 D01, according to the following formula Calculate Nc is 4.

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

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

where

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

1. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
2. KDB941225D05- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offset the upper edge, middle and lower edge of each required test channel.
3. When the SAR value is less than half of the limit, testing for other channels are optional.
4. Worst case SAR for 50% RB allocation is selected to be tested.
5. KDB941225D05- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
6. KDB941225D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is <1.45 W/kg, tests for the remaining required test channels are optional.
7. KDB941225D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.
8. KDB941225D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
9. For modes that peak SAR is too low to evaluate, a SAR value 0.01W/kg is considered as their Scaled SAR.

Wi-Fi 2.4G:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Head Left Cheek	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.076	0.08	66#
	2462	802.11b	/	/	/	/	/	/
Head Left Tilt	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.071	0.07	67#
	2462	802.11b	/	/	/	/	/	/
Head Right Cheek	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.054	0.06	68#
	2462	802.11b	/	/	/	/	/	/
Head Right Tilt	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.052	0.05	69#
	2462	802.11b	/	/	/	/	/	/
Body Back (0mm)	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.308	0.32	70#
	2462	802.11b	/	/	/	/	/	/
Body Right (0mm)	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.234	0.24	71#
	2462	802.11b	/	/	/	/	/	/
Body Top (0mm)	2412	802.11b	/	/	/	/	/	/
	2437	802.11b	13.93	14.1	1.04	0.418	0.43	72#
	2462	802.11b	/	/	/	/	/	/

Note:

1.When the SAR value is less than half of the limit, testing for other channels are optional.

2.When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

3. KDB 248227 D01-SAR measurement is not required for 2.4 GHz OFDM(801.11g/n) when the highest reported SAR for DSSS(802.11b) is ≤ 1.2 W/kg, and the output power for DSSS is not less than that for OFDM.

SAR Measurement Variability

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

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

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

The Highest Measured SAR Configuration in Each Frequency Band

Head SAR

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

Body SAR

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
1900MHz (1850-2000MHz)	PCS 1900	1850.2	Body Back	1.14	1.11	1.03

Note:

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

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

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

Note:

KDB616217 D04- The standalone and simultaneous transmission SAR tests required for tablets are more conservative than the hotspot mode use configurations; therefore, additional testing for hotspot SAR is not required.

Simultaneous SAR test exclusion considerations:

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
GSM 850+Bluetooth	Head Left Cheek	0.02	0.33	0.35
	Head Left Tilt	0.01	0.33	0.34
	Head Right Cheek	0.02	0.33	0.35
	Head Right Tilt	0.01	0.33	0.34
	Body Worn Back	0.27	0.33	0.60
	Body Back	0.33	0.33	0.66
PCS 1900+ Bluetooth	Head Left Cheek	0.03	0.33	0.36
	Head Left Tilt	0.02	0.33	0.35
	Head Right Cheek	0.02	0.33	0.35
	Head Right Tilt	0.02	0.33	0.35
	Body Worn Back	0.63	0.33	0.96
	Body Back	1.18	0.33	**1.51**
WCDMA Band 2+ Bluetooth	Head Left Cheek	0.03	0.33	0.36
	Head Left Tilt	0.02	0.33	0.35
	Head Right Cheek	0.02	0.33	0.35
	Head Right Tilt	0.02	0.33	0.35
	Body Back	0.96	0.33	1.29
WCDMA Band 5 Bluetooth	Head Left Cheek	0.02	0.33	0.35
	Head Left Tilt	0.01	0.33	0.34
	Head Right Cheek	0.02	0.33	0.35
	Head Right Tilt	0.01	0.33	0.34
	Body Back	0.23	0.33	0.56

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
LTE Band 5+ Bluetooth	Head Left Cheek	0.31	0.33	0.64
	Head Left Tilt	0.31	0.33	0.64
	Head Right Cheek	0.31	0.33	0.64
	Head Right Tilt	0.31	0.33	0.64
	Body Back	0.42	0.33	0.75
LTE Band 7+ Bluetooth	Head Left Cheek	0.2	0.33	0.53
	Head Left Tilt	0.2	0.33	0.53
	Head Right Cheek	0.2	0.33	0.53
	Head Right Tilt	0.2	0.33	0.53
	Body Back	0.62	0.33	0.95
LTE Band 41&38+ Bluetooth	Head Left Cheek	0.14	0.33	0.47
	Head Left Tilt	0.14	0.33	0.47
	Head Right Cheek	0.14	0.33	0.47
	Head Right Tilt	0.14	0.33	0.47
	Body Back	0.24	0.33	0.57

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
GSM 850+ Wi-Fi 2.4G	Head Left Cheek	0.02	0.08	0.1
	Head Left Tilt	0.01	0.07	0.08
	Head Right Cheek	0.02	0.06	0.08
	Head Right Tilt	0.01	0.05	0.06
	Body Worn Back	0.27	NA	NA
	Body Back	0.33	0.32	0.65
	Body Left	0.04	NA	NA
	Body Right	0.03	0.24	0.27
	Body Bottom	0.13	NA	NA
	Body Top	NA	0.43	NA
PCS 1900+ Wi-Fi 2.4G	Head Left Cheek	0.03	0.08	0.11
	Head Left Tilt	0.02	0.07	0.09
	Head Right Cheek	0.02	0.06	0.08
	Head Right Tilt	0.02	0.05	0.07
	Body Worn Back	0.63	NA	NA
	Body Back	1.18	0.32	**1.5**
	Body Left	0.28	NA	NA
	Body Right	0.03	0.24	0.27
	Body Bottom	0.14	NA	NA
	Body Top	NA	0.43	NA
WCDMA Band 2+ Wi-Fi 2.4G	Head Left Cheek	0.03	0.08	0.11
	Head Left Tilt	0.02	0.07	0.09
	Head Right Cheek	0.02	0.06	0.08
	Head Right Tilt	0.02	0.05	0.07
	Body Back	0.96	0.32	1.28
	Body Left	0.17	NA	NA
	Body Right	0.02	0.24	0.11
	Body Bottom	0.1	NA	NA
	Body Top	NA	0.43	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
WCDMA Band 5+ Wi-Fi 2.4G	Head Left Cheek	0.02	0.08	0.1
	Head Left Tilt	0.01	0.07	0.08
	Head Right Cheek	0.02	0.06	0.08
	Head Right Tilt	0.01	0.05	0.06
	Body Back	0.23	0.32	0.55
	Body Left	0.02	0.12	0.14
	Body Right	0.03	0.24	0.27
	Body Bottom	0.08	NA	NA
	Body Top	NA	0.43	NA
LTE Band 5+ Wi-Fi 2.4G	Head Left Cheek	0.31	0.08	0.39
	Head Left Tilt	0.31	0.07	0.38
	Head Right Cheek	0.31	0.06	0.37
	Head Right Tilt	0.31	0.05	0.36
	Body Back	0.42	0.32	0.74
	Body Left	0.18	NA	NA
	Body Right	0.09	0.24	0.33
	Body Bottom	0.04	NA	NA
	Body Top	NA	0.43	NA
LTE Band 7+ Wi-Fi 2.4G	Head Left Cheek	0.2	0.08	0.28
	Head Left Tilt	0.2	0.07	0.27
	Head Right Cheek	0.2	0.06	0.26
	Head Right Tilt	0.2	0.05	0.25
	Body Back	0.62	0.32	0.94
	Body Left	0.09	NA	NA
	Body Right	0.01	0.24	0.25
	Body Bottom	0.22	NA	NA
	Body Top	NA	0.43	NA
LTE Band 41&38+ Wi-Fi 2.4G	Head Left Cheek	0.14	0.08	0.22
	Head Left Tilt	0.14	0.07	0.21
	Head Right Cheek	0.14	0.06	0.2
	Head Right Tilt	0.14	0.05	0.19
	Body Back	0.24	0.32	0.56
	Body Left	0.06	NA	NA
	Body Right	0.02	0.24	0.26
	Body Bottom	0.17	NA	NA
	Body Top	NA	0.43	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
GSM 850+ Wi-Fi 5.2G	Head Left Cheek	0.02	0.17	0.19
	Head Left Tilt	0.01	0.12	0.13
	Head Right Cheek	0.02	0.17	0.19
	Head Right Tilt	0.01	0.08	0.09
	Body Worn Back	0.27	NA	NA
	Body Back	0.33	0.34	0.67
	Body Left	0.04	NA	NA
	Body Right	0.03	1.42	1.45
	Body Bottom	0.13	NA	NA
	Body Top	NA	0.19	NA
PCS 1900+ Wi-Fi 5.2G	Head Left Cheek	0.03	0.17	0.2
	Head Left Tilt	0.02	0.12	0.14
	Head Right Cheek	0.02	0.17	0.19
	Head Right Tilt	0.02	0.08	0.1
	Body Worn Back	0.63	NA	NA
	Body Back	1.18	0.34	**1.52**
	Body Left	0.28	NA	NA
	Body Right	0.03	1.42	1.45
	Body Bottom	0.14	NA	NA
	Body Top	NA	0.19	NA
WCDMA Band 2+ Wi-Fi 5.2G	Head Left Cheek	0.03	0.17	0.2
	Head Left Tilt	0.02	0.12	0.14
	Head Right Cheek	0.02	0.17	0.19
	Head Right Tilt	0.02	0.08	0.1
	Body Back	0.96	0.34	1.3
	Body Left	0.17	NA	NA
	Body Right	0.02	1.42	1.44
	Body Bottom	0.1	NA	NA
	Body Top	NA	0.19	NA
WCDMA Band 5+ Wi-Fi 5.2G	Head Left Cheek	0.02	0.17	0.19
	Head Left Tilt	0.01	0.12	0.13
	Head Right Cheek	0.02	0.17	0.19
	Head Right Tilt	0.01	0.08	0.09
	Body Back	0.23	0.34	0.57
	Body Left	0.02	NA	NA
	Body Right	0.03	1.42	1.45
	Body Bottom	0.08	NA	NA
	Body Top	NA	0.19	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
LTE Band 5+ Wi-Fi 5.2G	Head Left Cheek	0.31	0.17	**0.48**
	Head Left Tilt	0.31	0.12	0.43
	Head Right Cheek	0.31	0.17	0.48
	Head Right Tilt	0.31	0.08	0.39
	Body Back	0.42	0.34	0.76
	Body Left	0.18	NA	NA
	Body Right	0.09	1.42	1.51
	Body Bottom	0.04	NA	NA
	Body Top	NA	0.19	NA
LTE Band 7+ Wi-Fi 5.2G	Head Left Cheek	0.2	0.17	0.37
	Head Left Tilt	0.2	0.12	0.32
	Head Right Cheek	0.2	0.17	0.37
	Head Right Tilt	0.2	0.08	0.28
	Body Back	0.62	0.34	0.96
	Body Left	0.09	NA	NA
	Body Right	0.01	1.42	1.43
	Body Bottom	0.22	NA	NA
	Body Top	NA	0.19	NA
LTE Band 41&38+ Wi-Fi 5.2G	Head Left Cheek	0.14	0.17	0.31
	Head Left Tilt	0.14	0.12	0.26
	Head Right Cheek	0.14	0.17	0.31
	Head Right Tilt	0.14	0.08	0.22
	Body Back	0.24	0.34	0.58
	Body Left	0.06	NA	NA
	Body Right	0.02	1.42	1.44
	Body Bottom	0.17	NA	NA
	Body Top	NA	0.19	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
GSM 850+ Wi-Fi 5.3G	Head Left Cheek	0.02	0.14	0.16
	Head Left Tilt	0.01	0.1	0.11
	Head Right Cheek	0.02	0.12	0.14
	Head Right Tilt	0.01	0.1	0.11
	Body Worn Back	0.27	NA	NA
	Body Back	0.33	0.21	0.54
	Body Left	0.04	NA	NA
	Body Right	0.03	1.26	1.29
	Body Bottom	0.13	NA	NA
	Body Top	NA	0.13	NA
PCS 1900+ Wi-Fi 5.3G	Head Left Cheek	0.03	0.14	0.17
	Head Left Tilt	0.02	0.1	0.12
	Head Right Cheek	0.02	0.12	0.14
	Head Right Tilt	0.02	0.1	0.12
	Body Worn Back	0.63	NA	NA
	Body Back	1.18	0.21	**1.39**
	Body Left	0.28	NA	NA
	Body Right	0.03	1.26	1.29
	Body Bottom	0.14	NA	NA
	Body Top	NA	0.13	NA
WCDMA Band 2+ Wi-Fi 5.3G	Head Left Cheek	0.03	0.14	0.17
	Head Left Tilt	0.02	0.1	0.12
	Head Right Cheek	0.02	0.12	0.14
	Head Right Tilt	0.02	0.1	0.12
	Body Back	0.96	0.21	1.17
	Body Left	0.17	NA	NA
	Body Right	0.02	1.26	1.28
	Body Bottom	0.1	NA	NA
	Body Top	NA	0.13	NA
WCDMA Band 5+ Wi-Fi 5.3G	Head Left Cheek	0.02	0.14	0.16
	Head Left Tilt	0.01	0.1	0.11
	Head Right Cheek	0.02	0.12	0.14
	Head Right Tilt	0.01	0.1	0.11
	Body Back	0.23	0.21	0.44
	Body Left	0.02	NA	NA
	Body Right	0.03	1.26	1.29
	Body Bottom	0.08	NA	NA
	Body Top	NA	0.13	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
LTE Band 5+ Wi-Fi 5.3G	Head Left Cheek	0.31	0.14	0.45
	Head Left Tilt	0.31	0.1	0.41
	Head Right Cheek	0.31	0.12	0.43
	Head Right Tilt	0.31	0.1	0.41
	Body Back	0.42	0.21	0.63
	Body Left	0.18	NA	NA
	Body Right	0.09	1.26	1.35
	Body Bottom	0.04	NA	NA
	Body Top	NA	0.13	NA
LTE Band 7+ Wi-Fi 5.3G	Head Left Cheek	0.2	0.14	0.34
	Head Left Tilt	0.2	0.1	0.3
	Head Right Cheek	0.2	0.12	0.32
	Head Right Tilt	0.2	0.1	0.3
	Body Back	0.62	0.21	0.83
	Body Left	0.09	NA	NA
	Body Right	0.01	1.26	1.27
	Body Bottom	0.22	NA	NA
	Body Top	NA	0.13	NA
LTE Band 41&38+ Wi-Fi 5.3G	Head Left Cheek	0.14	0.14	0.28
	Head Left Tilt	0.14	0.1	0.24
	Head Right Cheek	0.14	0.12	0.26
	Head Right Tilt	0.14	0.1	0.24
	Body Back	0.24	0.21	0.45
	Body Left	0.06	NA	NA
	Body Right	0.02	1.26	1.28
	Body Bottom	0.17	NA	NA
	Body Top	NA	0.13	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
GSM 850+ Wi-Fi 5.8G	Head Left Cheek	0.02	0.14	0.16
	Head Left Tilt	0.01	0.16	0.17
	Head Right Cheek	0.02	0.14	0.16
	Head Right Tilt	0.01	0.15	0.16
	Body Worn Back	0.27	NA	NA
	Body Back	0.33	0.2	0.53
	Body Left	0.04	NA	NA
	Body Right	0.03	0.7	0.73
	Body Bottom	0.13	NA	NA
	Body Top	NA	0.29	NA
PCS 1900+ Wi-Fi 5.8G	Head Left Cheek	0.03	0.14	0.17
	Head Left Tilt	0.02	0.16	0.18
	Head Right Cheek	0.02	0.14	0.16
	Head Right Tilt	0.02	0.15	0.17
	Body Worn Back	0.63	NA	NA
	Body Back	1.18	0.2	**1.38**
	Body Left	0.28	NA	NA
	Body Right	0.03	0.7	0.73
	Body Bottom	0.14	NA	NA
	Body Top	NA	0.29	NA
WCDMA Band 2+ Wi-Fi 5.8G	Head Left Cheek	0.03	0.14	0.17
	Head Left Tilt	0.02	0.16	0.18
	Head Right Cheek	0.02	0.14	0.16
	Head Right Tilt	0.02	0.15	0.17
	Body Back	0.96	0.2	1.16
	Body Left	0.17	NA	NA
	Body Right	0.02	0.7	0.72
	Body Bottom	0.1	NA	NA
	Body Top	NA	0.29	NA
WCDMA Band 5+ Wi-Fi 5.8G	Head Left Cheek	0.02	0.14	0.16
	Head Left Tilt	0.01	0.16	0.17
	Head Right Cheek	0.02	0.14	0.16
	Head Right Tilt	0.01	0.15	0.16
	Body Back	0.23	0.2	0.43
	Body Left	0.02	NA	NA
	Body Right	0.03	0.7	0.73
	Body Bottom	0.08	NA	NA
	Body Top	NA	0.29	NA

Mode(SAR1+SAR2)	Position	Reported SAR(W/kg)		ΣSAR < 1.6W/kg
		SAR1	SAR2	
LTE Band 5+ Wi-Fi 5.8G	Head Left Cheek	0.31	0.14	0.45
	Head Left Tilt	0.31	0.16	0.47
	Head Right Cheek	0.31	0.14	0.45
	Head Right Tilt	0.31	0.15	0.46
	Body Back	0.42	0.2	0.62
	Body Left	0.18	NA	NA
	Body Right	0.09	0.7	0.79
	Body Bottom	0.04	NA	NA
	Body Top	NA	0.29	NA
LTE Band 7+ Wi-Fi 5.8G	Head Left Cheek	0.2	0.14	0.34
	Head Left Tilt	0.2	0.16	0.36
	Head Right Cheek	0.2	0.14	0.34
	Head Right Tilt	0.2	0.15	0.35
	Body Back	0.62	0.2	0.82
	Body Left	0.09	NA	NA
	Body Right	0.01	0.7	0.71
	Body Bottom	0.22	NA	NA
	Body Top	NA	0.29	NA
LTE Band 41&38+ Wi-Fi 5.8G	Head Left Cheek	0.14	0.14	0.28
	Head Left Tilt	0.14	0.16	0.3
	Head Right Cheek	0.14	0.14	0.28
	Head Right Tilt	0.14	0.15	0.29
	Body Back	0.24	0.2	0.44
	Body Left	0.06	NA	NA
	Body Right	0.02	0.7	0.72
	Body Bottom	0.17	NA	NA
	Body Top	NA	0.29	NA

***Note**: The test data of 5G Wi-Fi please refer to report: CR21100112-20B, which issued by Shenzhen Accurate Technology Co., Ltd. on 2021-11-30.*

Note:

1.Hotspot Mode is not feasible during voice calls.
2.The EUT is only a client device. so the WLAN 5G can not support hotspot mode.

Conclusion:

Sum of SAR:**ΣSAR ≤ 1.6 W/kg** for 1g Extremity SAR,therefore simultaneous transmission SAR with Volume Scans is **not required**.

SAR Plots

Please Refer to the Attachment.

APPENDIX A MEASUREMENT UNCERTAINTY

KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg. The expanded SAR measurement uncertainty must be ⩽ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg uncertainty table is not required in this report

APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX C CALIBRATION CERTIFICATES

Please Refer to the Attachment.

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

Plot 1#: GSM 850_Mid_Head Left Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

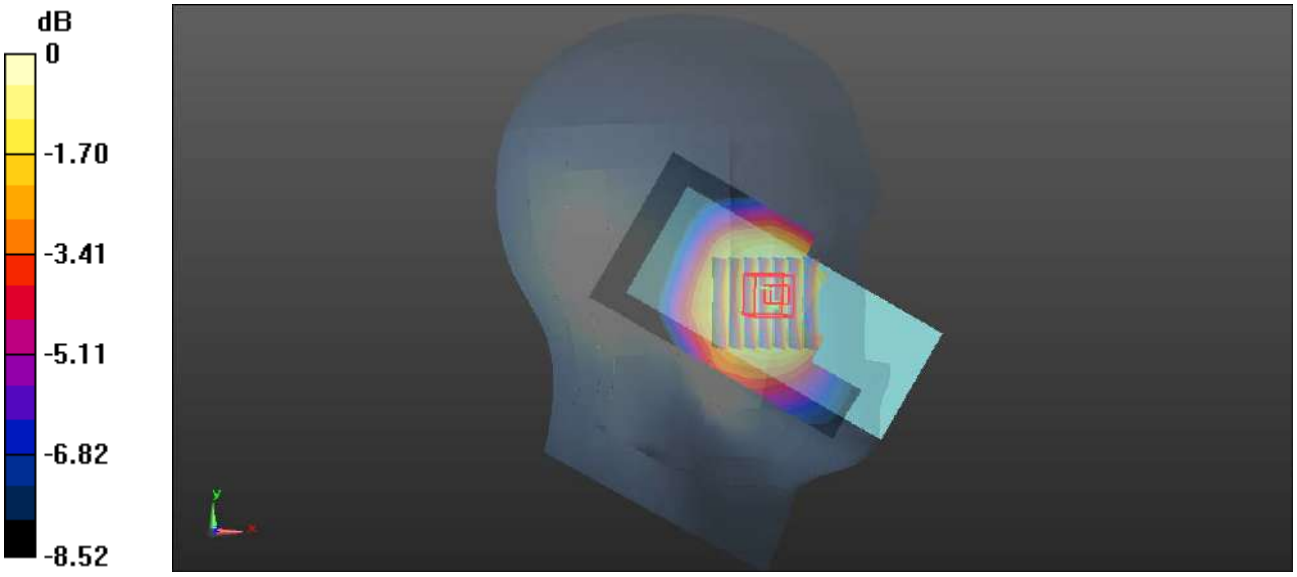
Communication System: Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0154 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.216 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.0190 W/kg
SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.012 W/kg
Maximum value of SAR (measured) = 0.0156 W/kg



0 dB = 0.0156 W/kg = -18.07 dBW/kg

Plot 2#: GSM 850_Mid_Head Left Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

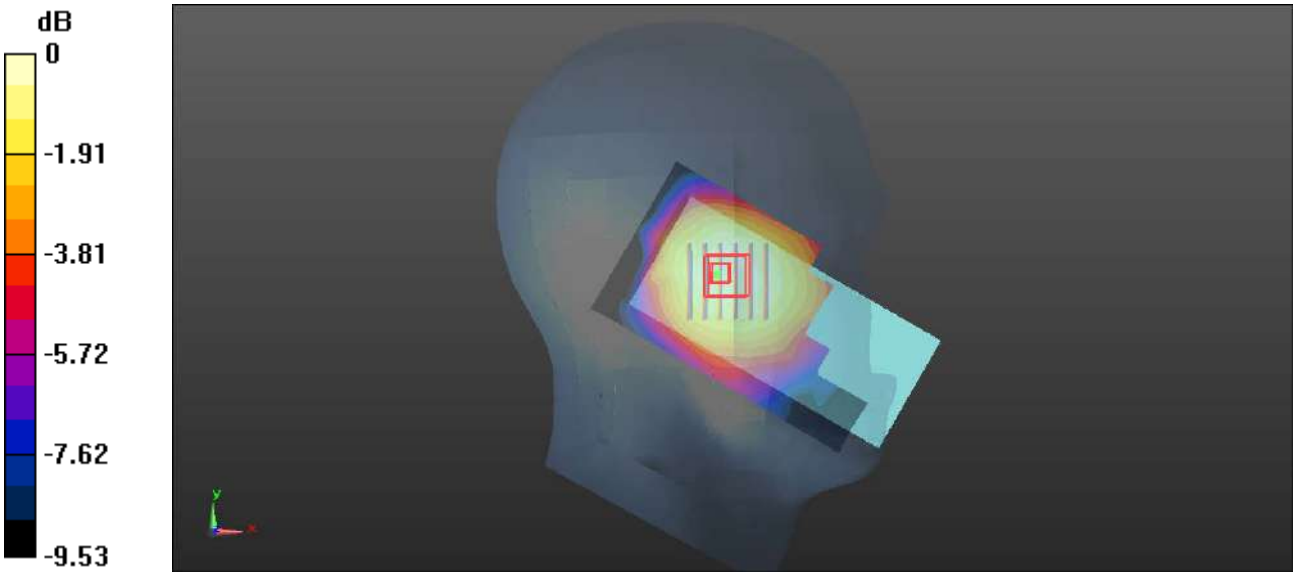
Communication System: Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0114 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.568 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0140 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00815 W/kg
Maximum value of SAR (measured) = 0.0114 W/kg



0 dB = 0.0114 W/kg = -19.43 dBW/kg

Plot 3#: GSM 850_Mid_Head Right Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

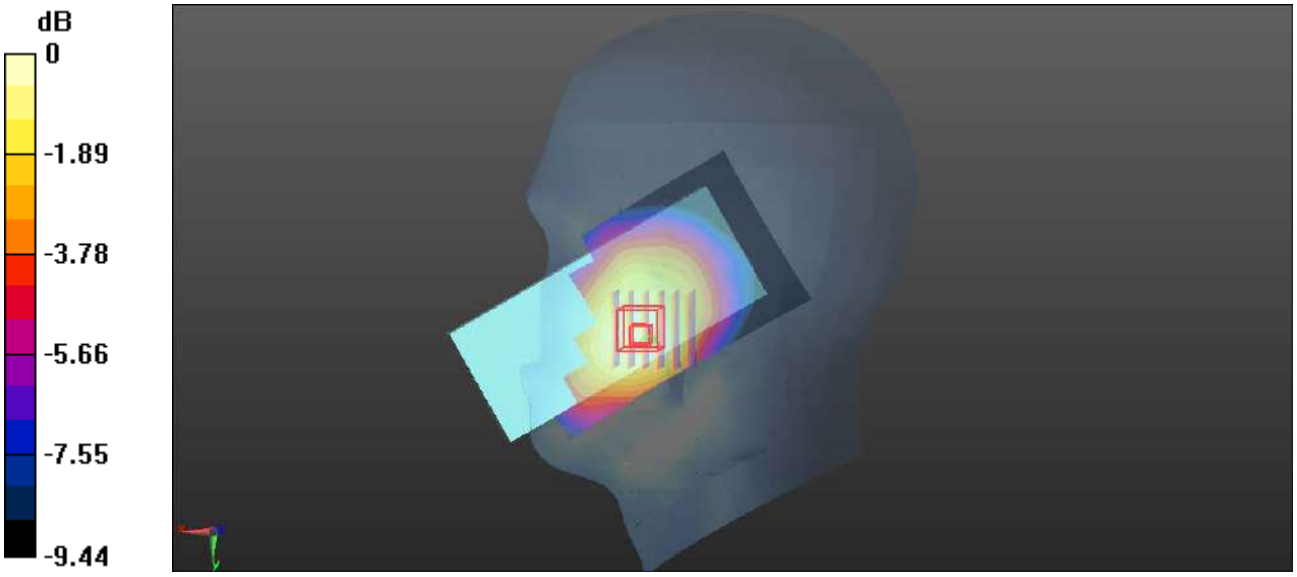
Communication System: Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0228 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.872 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.0300 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.015 W/kg
Maximum value of SAR (measured) = 0.0216 W/kg



0 dB = 0.0216 W/kg = -16.66 dBW/kg

Plot 4#: GSM 850_Mid_Head Right Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

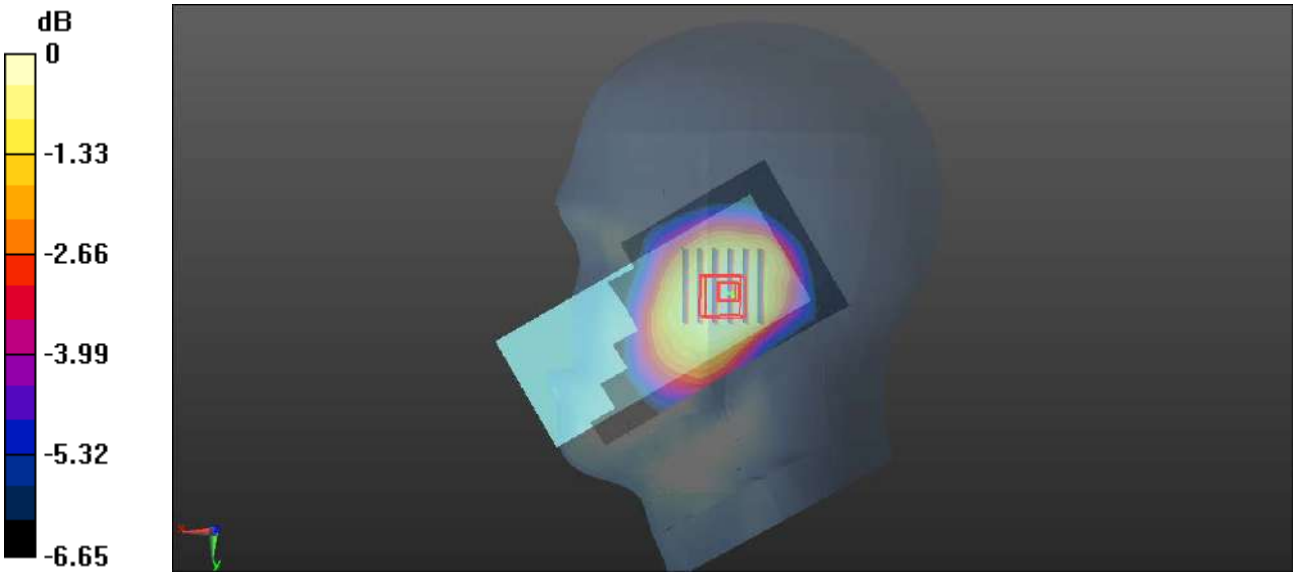
Communication System: Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0131 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.901 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00966 W/kg
Maximum value of SAR (measured) = 0.0130 W/kg



0 dB = 0.0130 W/kg = -18.86 dBW/kg

Plot 5#: GSM 850_Mid_Body Worn Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

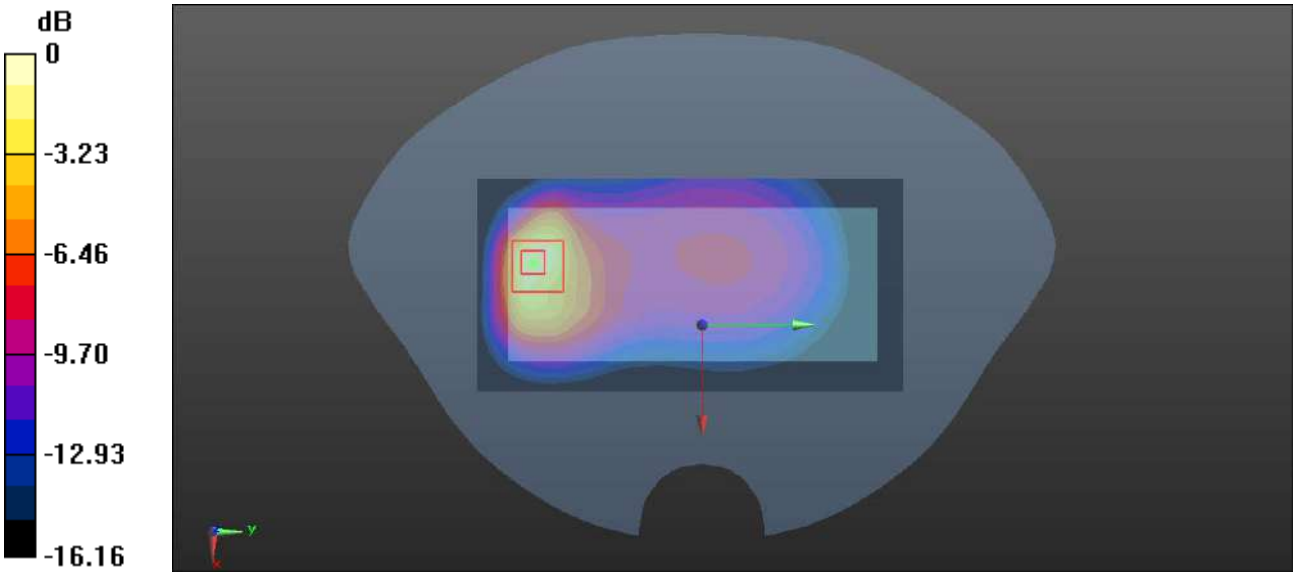
Communication System: Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.229 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.829 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.772 W/kg
SAR(1 g) = 0.253 W/kg; SAR(10 g) = 0.109 W/kg
Maximum value of SAR (measured) = 0.291 W/kg



0 dB = 0.291 W/kg = -5.36 dBW/kg

Plot 6#: GSM 850_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

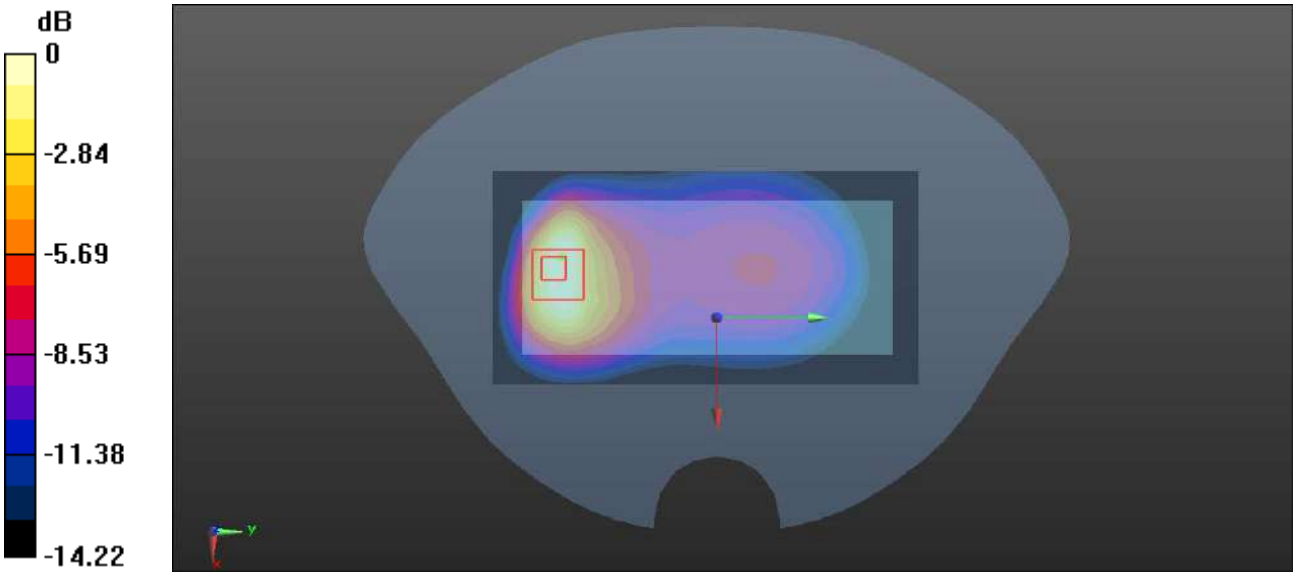
Communication System: Generic GPRS-2 slots; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.326 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.816 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.836 W/kg
SAR(1 g) = 0.316 W/kg; SAR(10 g) = 0.150 W/kg
Maximum value of SAR (measured) = 0.314 W/kg



0 dB = 0.314 W/kg = -5.03 dBW/kg

Plot 7#: GSM 850_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

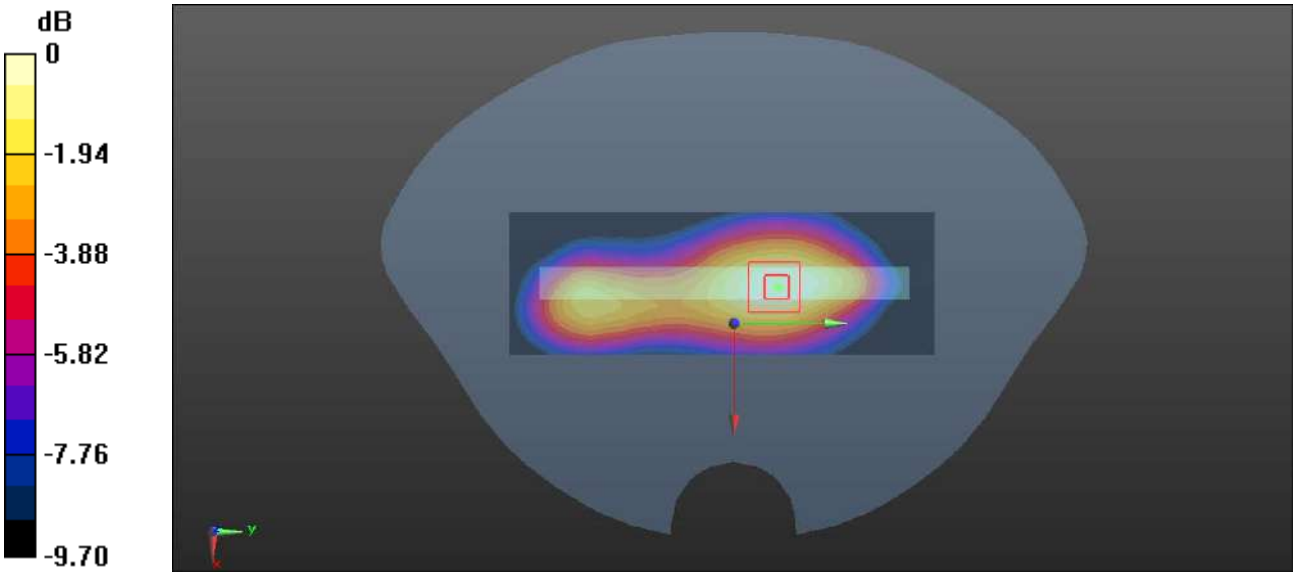
Communication System: Generic GPRS-2 slots; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0387 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.964 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0560 W/kg
SAR(1 g) = 0.035 W/kg; SAR(10 g) = 0.022 W/kg
Maximum value of SAR (measured) = 0.0378 W/kg



0 dB = 0.0378 W/kg = -14.23 dBW/kg

Plot 8#: GSM 850_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

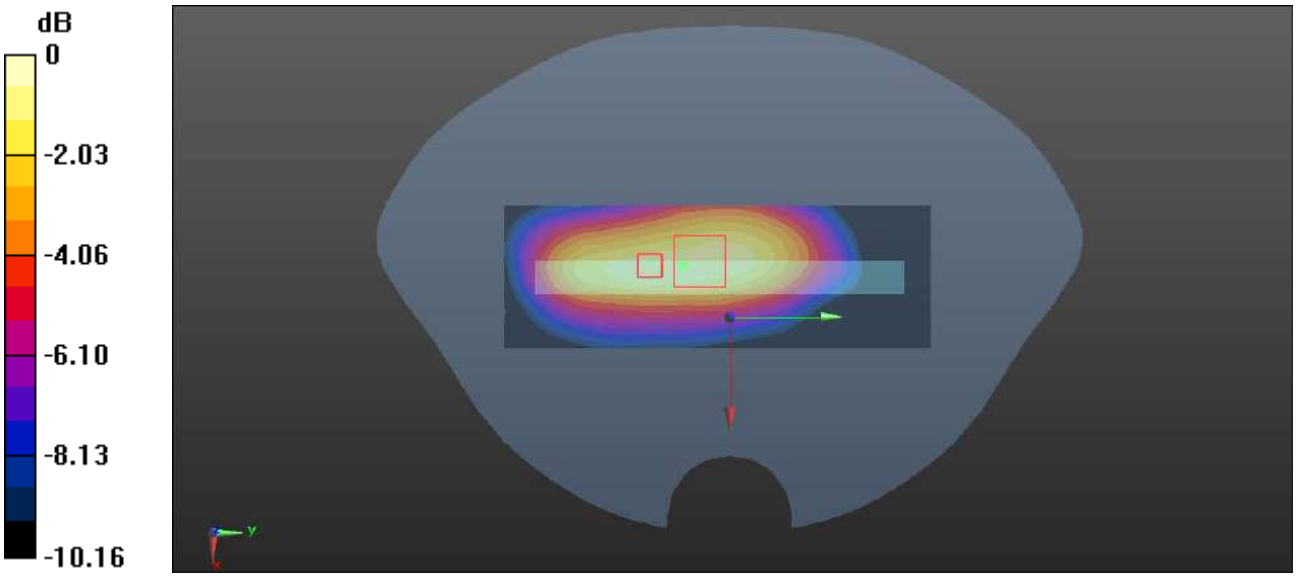
Communication System: Generic GPRS-2 slots; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0328 W/kg

Zoom Scan (6x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.703 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.0620 W/kg
SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0382 W/kg



0 dB = 0.0382 W/kg = -14.18 dBW/kg

Plot 9#: GSM 850_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

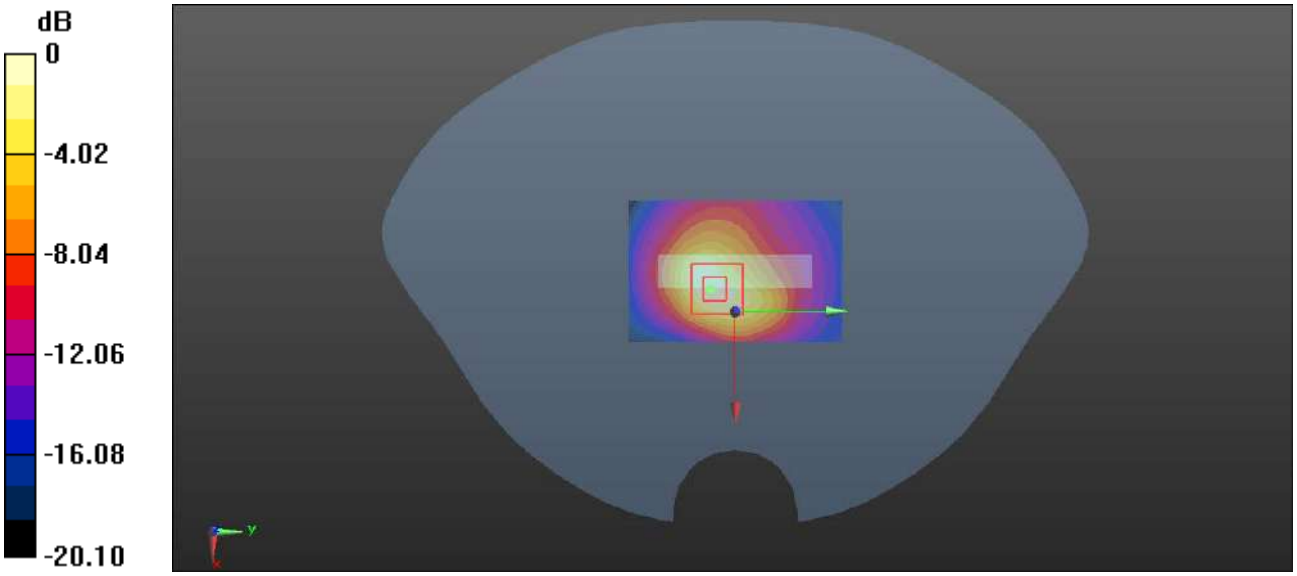
Communication System: Generic GPRS-2 slots; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.130 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.924 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.414 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.131 W/kg



0 dB = 0.131 W/kg = -8.83 dBW/kg

Plot 10#: PCS 1900_Mid_Head Left Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

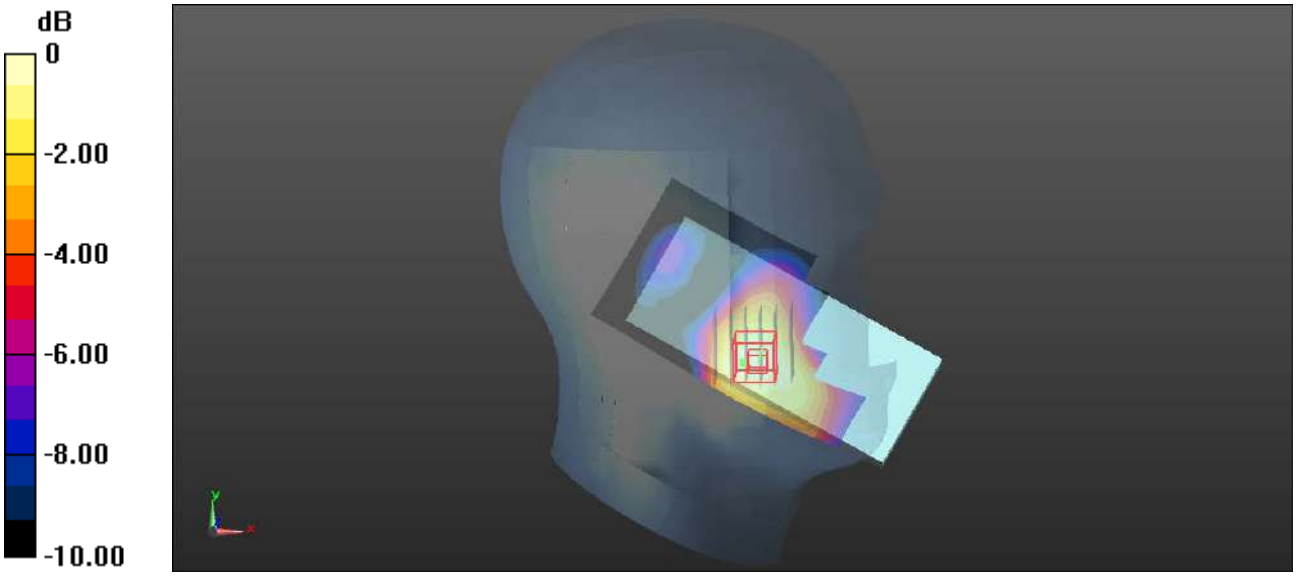
Communication System: Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0299 W/kg

Zoom Scan (6x6x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.119 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.0480 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0301 W/kg



0 dB = 0.0301 W/kg = -15.21 dBW/kg

Plot 11#: PCS 1900_Mid_Head Left Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

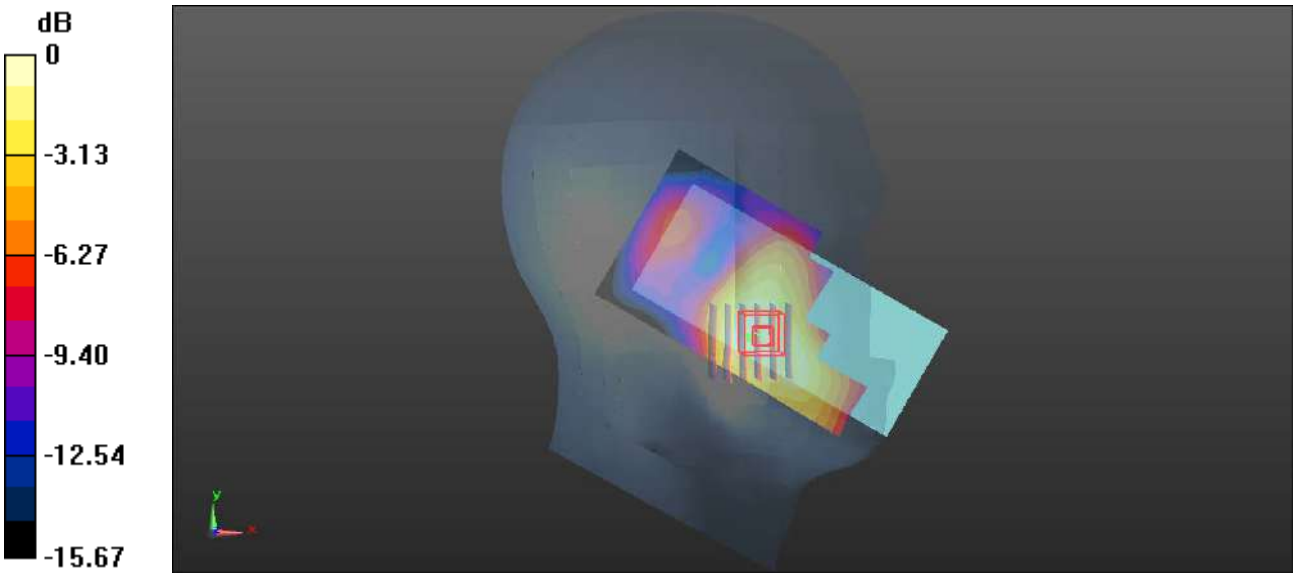
Communication System: Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0302 W/kg

oom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.176 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.0480 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0313 W/kg



0 dB = 0.0313 W/kg = -15.04 dBW/kg

Plot 12#: PCS 1900_Mid_Head Right Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

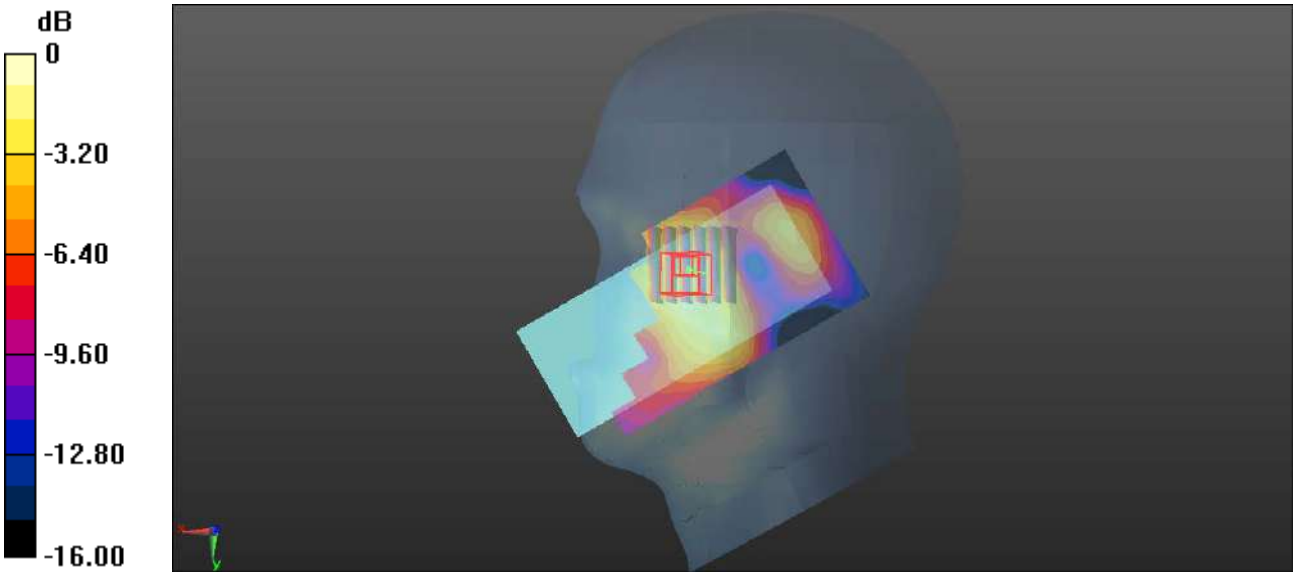
Communication System: Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0200 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.408 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0320 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.010 W/kg
Maximum value of SAR (measured) = 0.0195 W/kg



0 dB = 0.0195 W/kg = -17.10 dBW/kg

Plot 13#: PCS 1900_Mid_Head Right Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

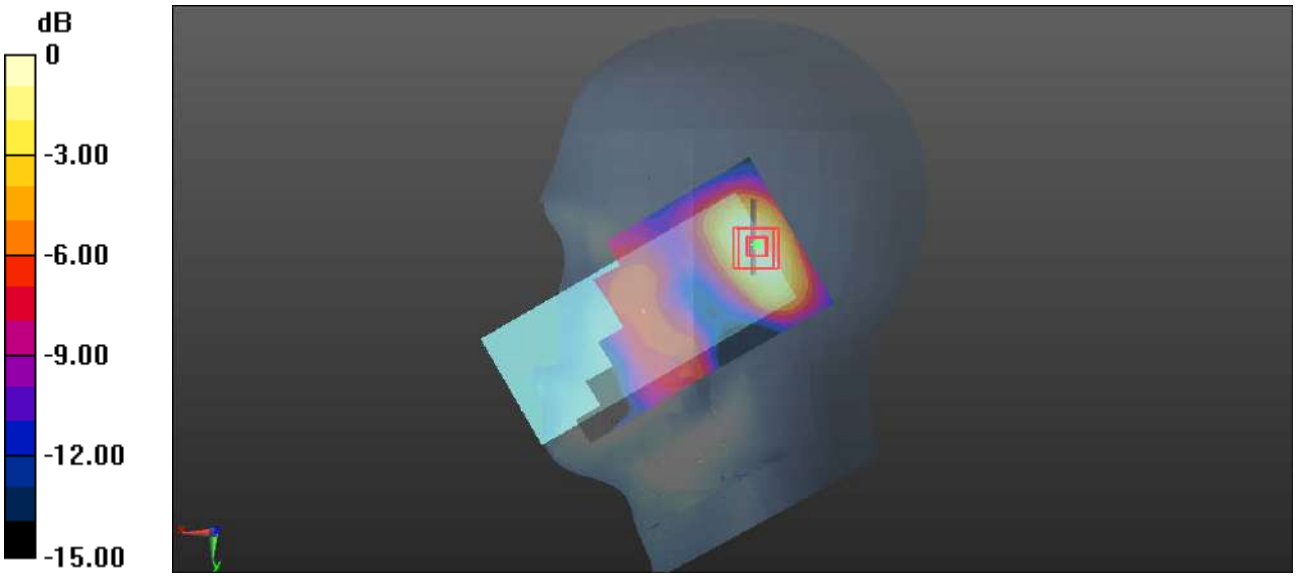
Communication System: Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0186 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.710 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.0260 W/kg
SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.00826 W/kg
Maximum value of SAR (measured) = 0.0173 W/kg



0 dB = 0.0173 W/kg = -17.62 dBW/kg

Plot 14#: PCS 1900_Mid_Body Worn Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

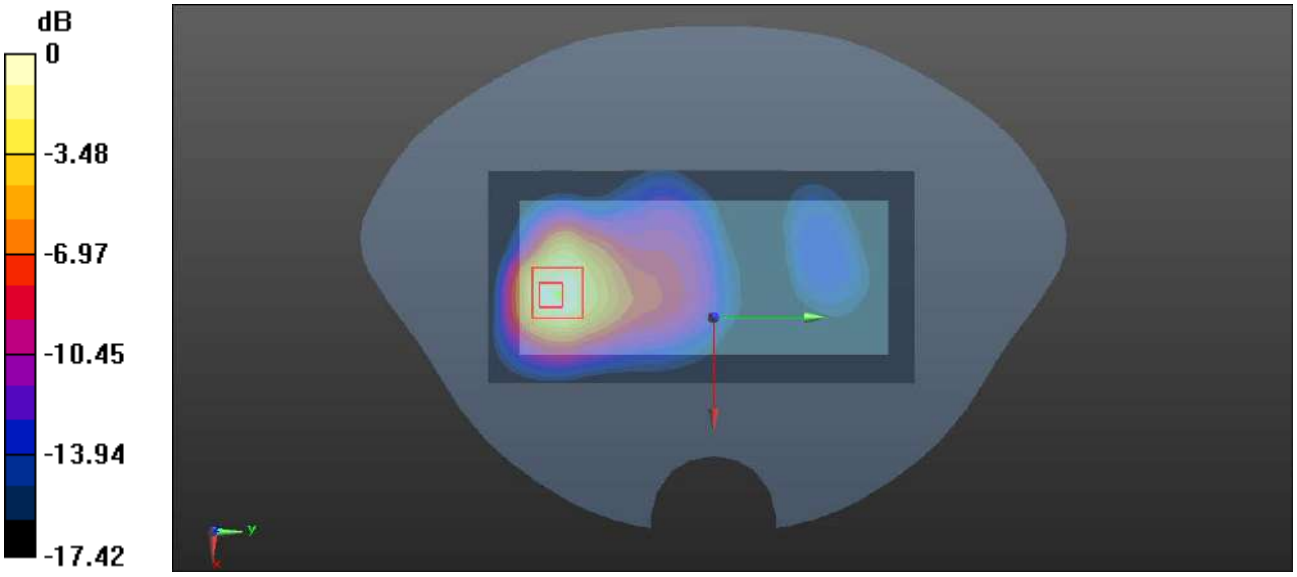
Communication System: Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.598 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.297 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.562 W/kg; SAR(10 g) = 0.254 W/kg
Maximum value of SAR (measured) = 0.582 W/kg



0 dB = 0.582 W/kg = -2.35 dBW/kg

Plot 15#: PCS 1900_Low_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

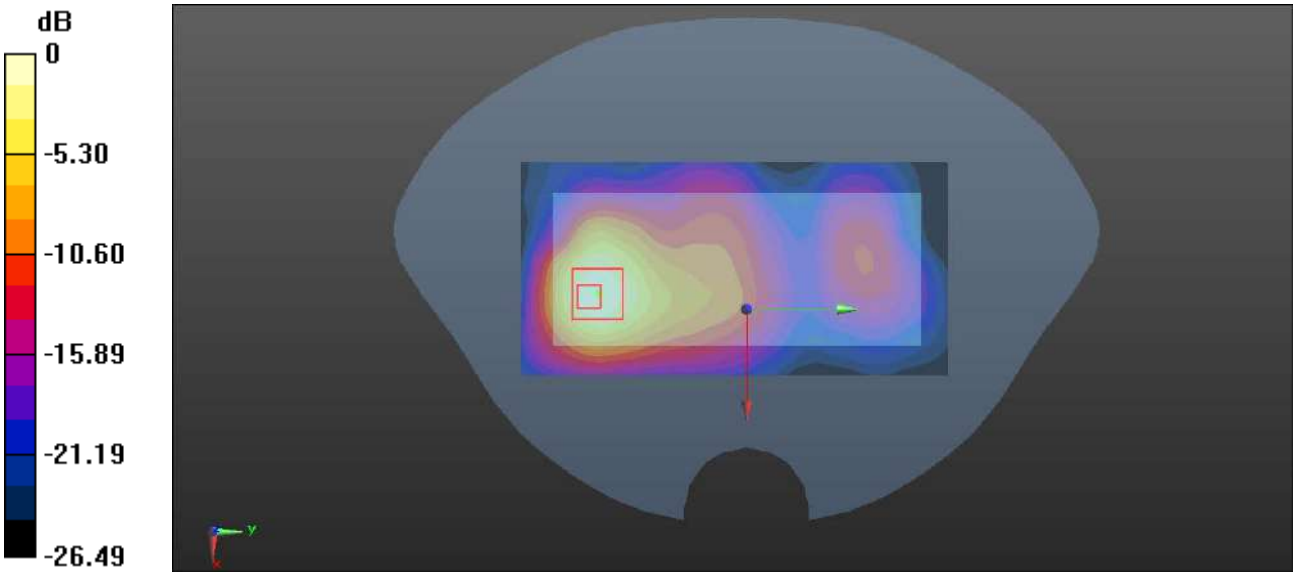
Communication System: Generic GPRS-2 slots; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1850.2 MHz; σ = 1.364 S/m; ε_r = 40.183; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1850.2 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.53 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.689 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.93 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.561 W/kg
Maximum value of SAR (measured) = 1.31 W/kg



0 dB = 1.31 W/kg = 1.17 dBW/kg

Plot 16#: PCS 1900_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

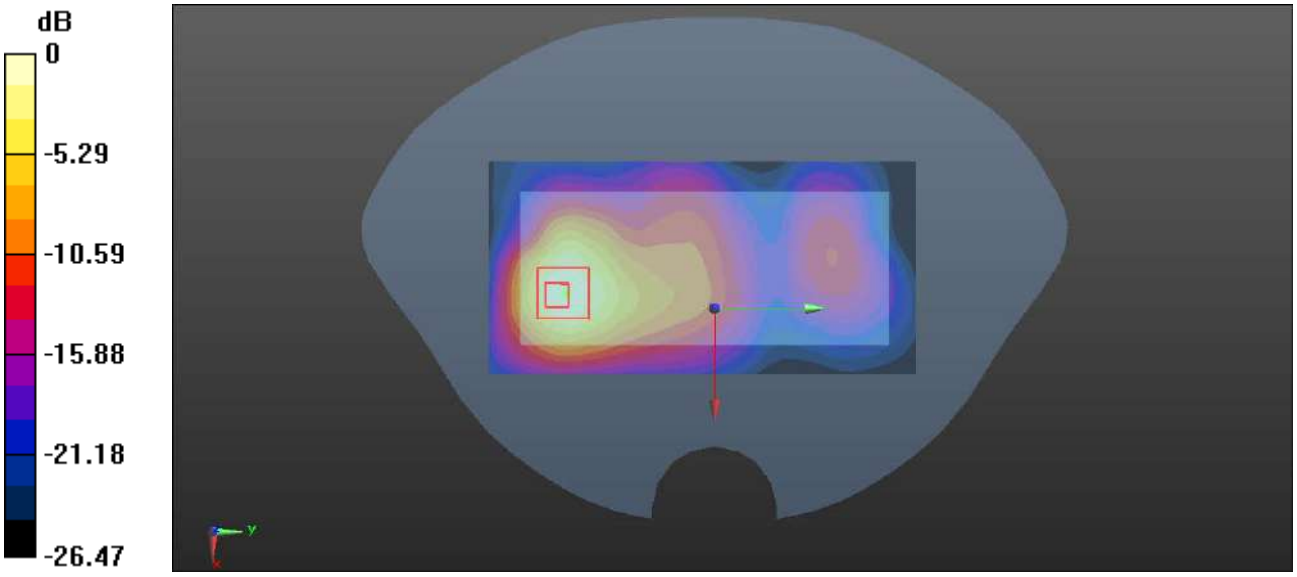
Communication System: Generic GPRS-2 slots; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.41 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.567 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.63 W/kg
SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.515 W/kg
Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.21 W/kg = 0.83 dBW/kg

Plot 17#: PCS 1900_High_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

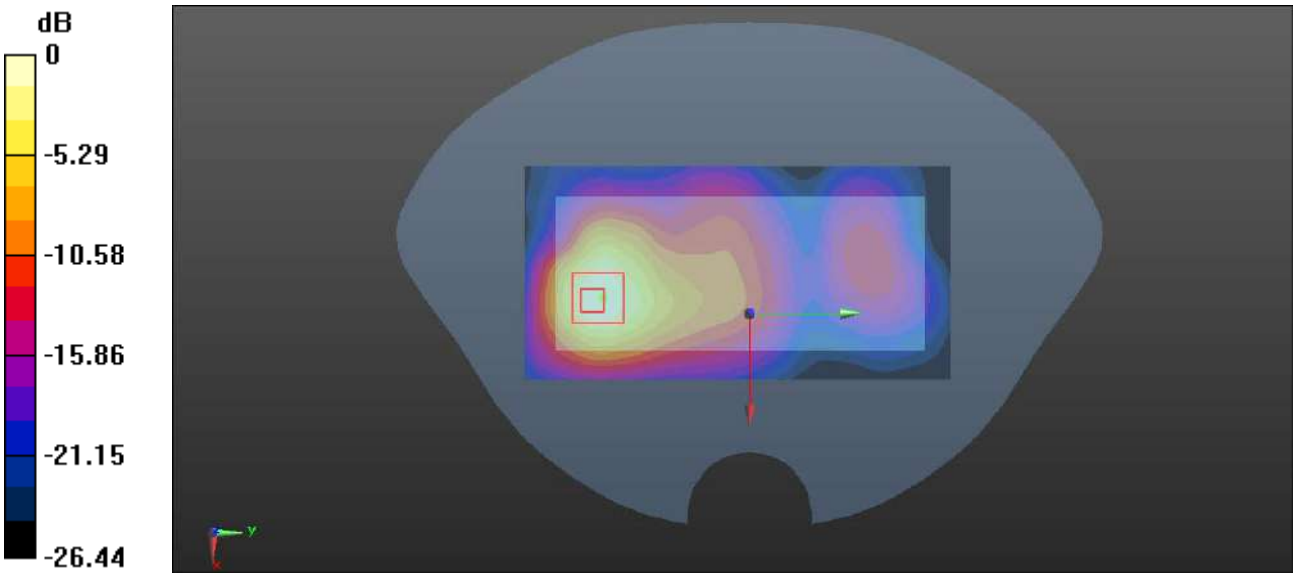
Communication System: Generic GPRS-2 slots; Frequency: 1909.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1909.8 MHz; σ = 1.434 S/m; ε_r = 39.895; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1909.8 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.25 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.042 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.39 W/kg
SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.459 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Plot 18#: PCS 1900_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

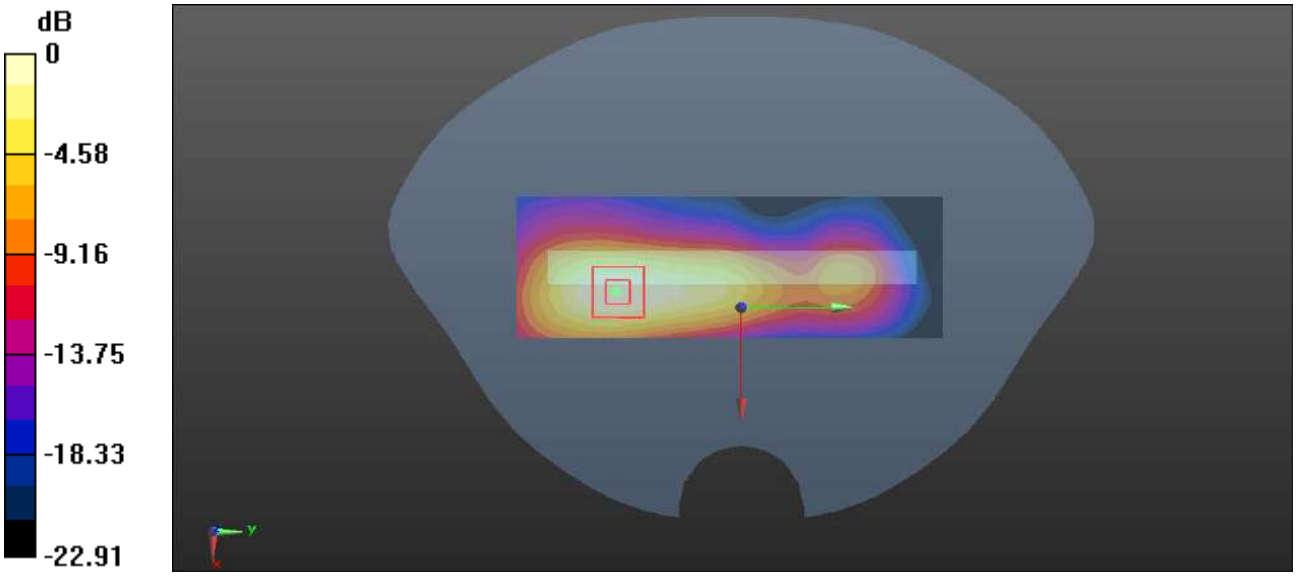
Communication System: Generic GPRS-2 slots; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.305 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.960 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.532 W/kg
SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.298 W/kg



0 dB = 0.298 W/kg = -5.26 dBW/kg

Plot 19#: PCS 1900_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

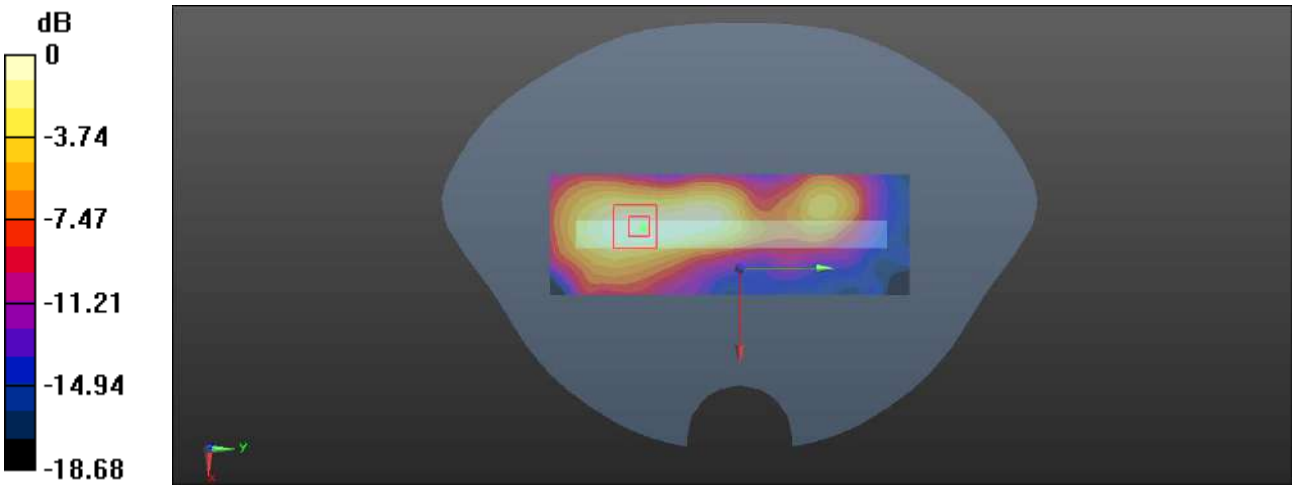
Communication System: Generic GPRS-2 slots; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0352 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.304 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.0710 W/kg
SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0364 W/kg



0 dB = 0.0364 W/kg = -14.39 dBW/kg

Plot 20#: PCS 1900_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

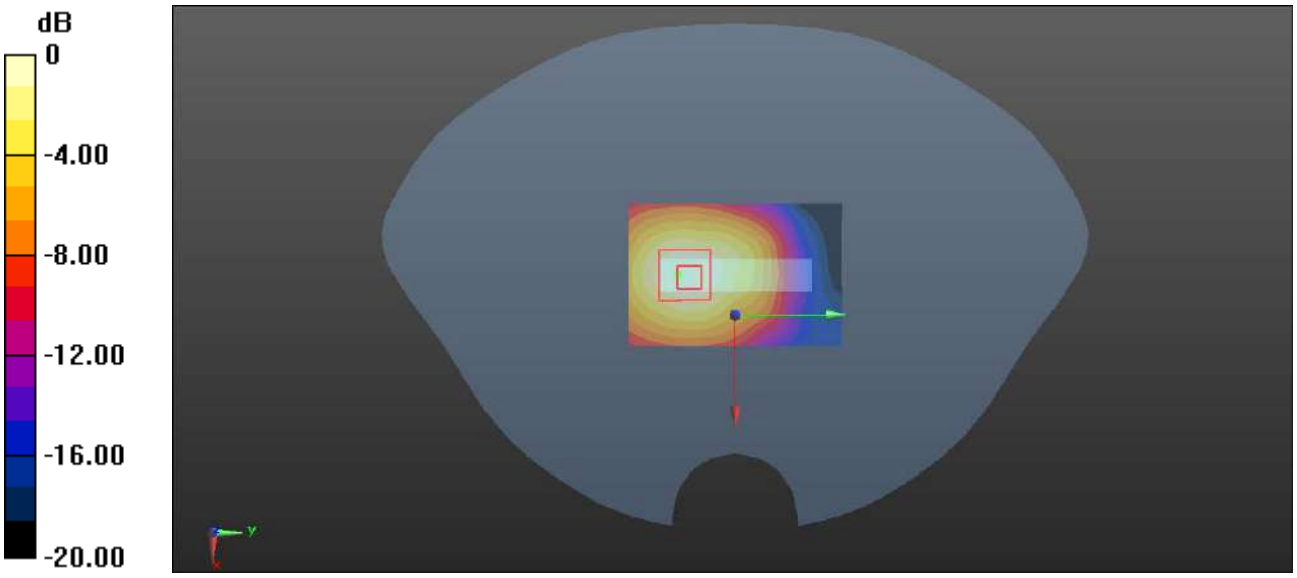
Communication System: Generic GPRS-2 slots; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.137 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.705 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.064 W/kg
Maximum value of SAR (measured) = 0.132 W/kg



0 dB = 0.132 W/kg = -8.79 dBW/kg

Plot 21#: WCDMA Band 2_Mid_Head Left Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

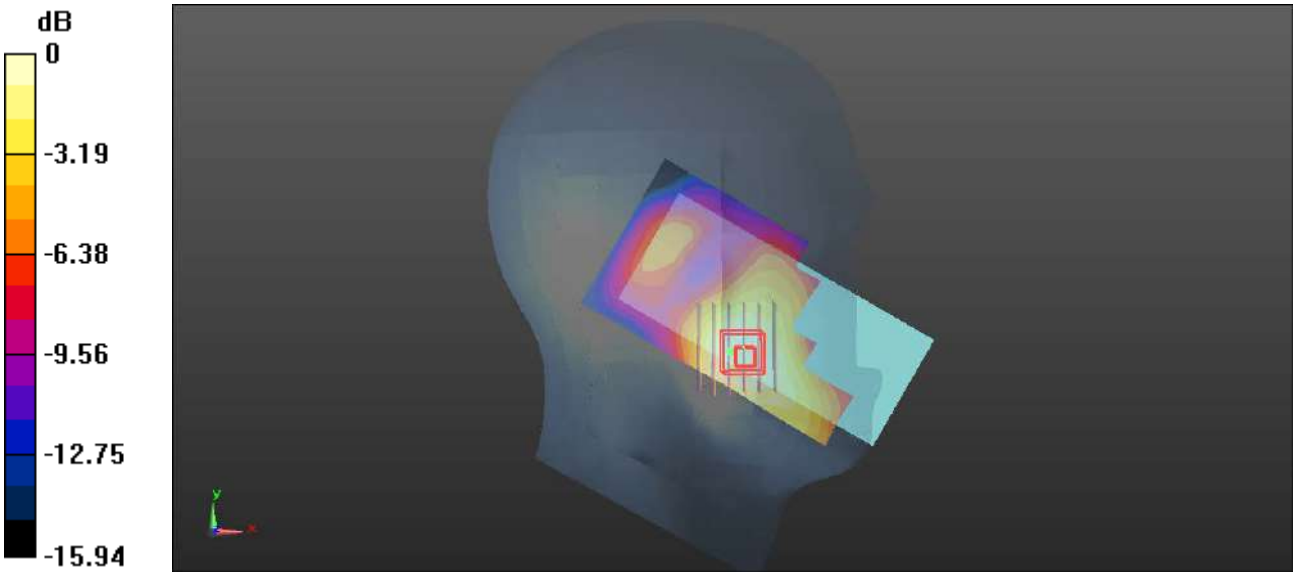
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0363 W/kg

Zoom Scan (6x7x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.767 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.0550 W/kg
SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0348 W/kg



0 dB = 0.0348 W/kg = -14.58 dBW/kg

Plot 22#: WCDMA Band 2_Mid_Head Left Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

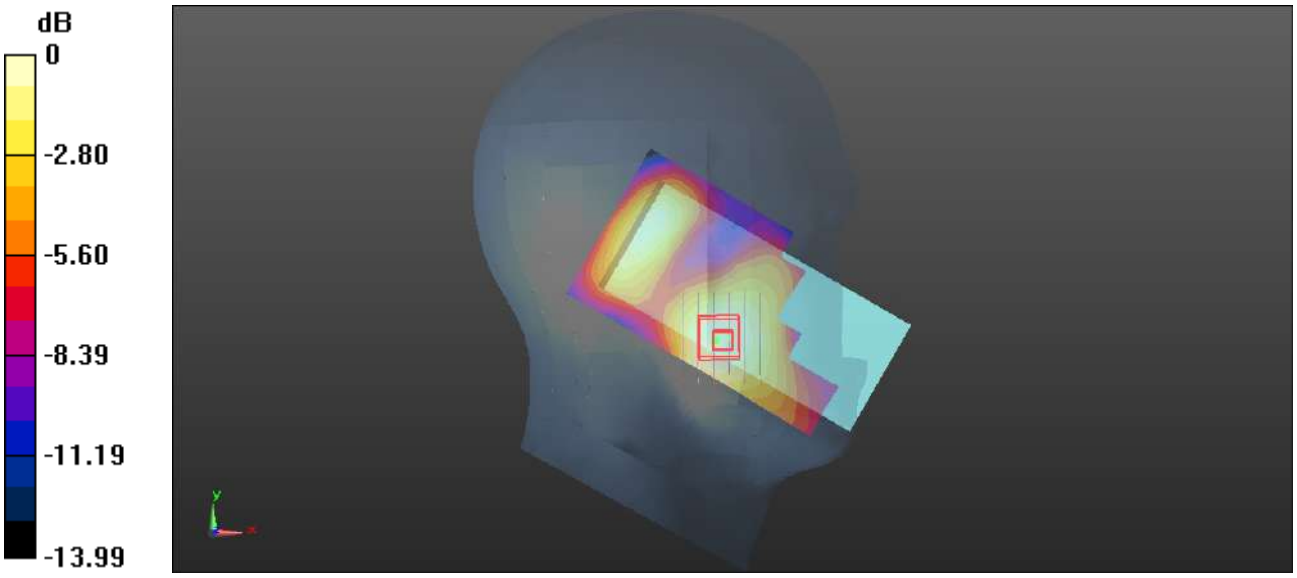
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0245 W/kg

Zoom Scan (6x7x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.902 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.0340 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.0221 W/kg



0 dB = 0.0221 W/kg = -16.56 dBW/kg

Plot 23#: WCDMA_Mid_2_Mid_Head Right Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

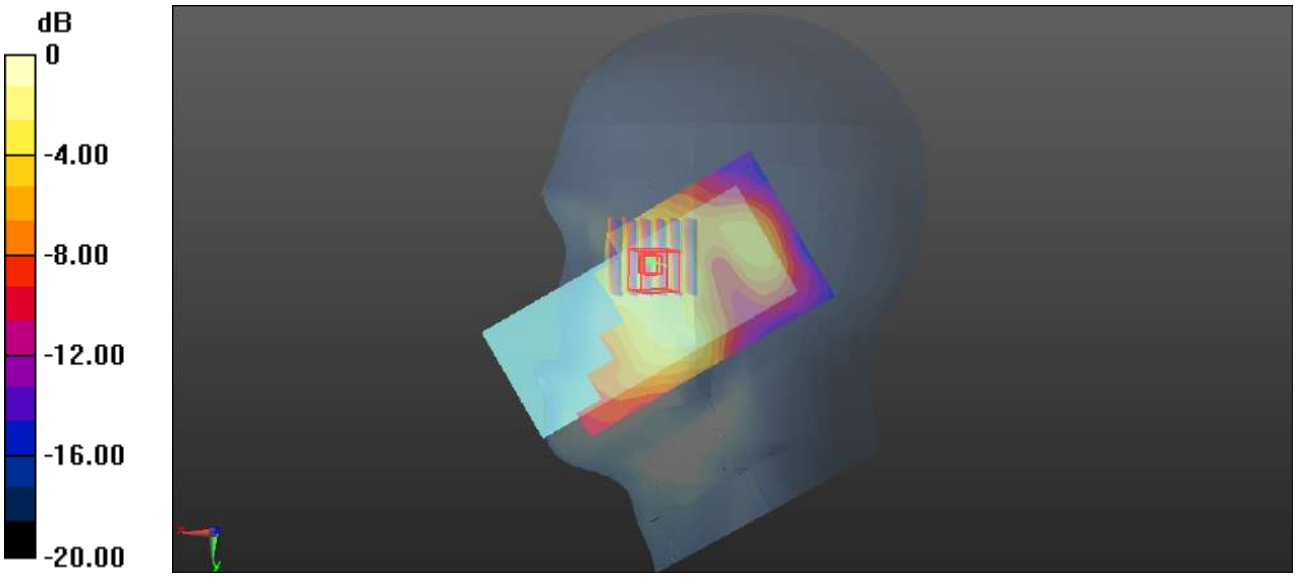
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0233 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.634 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.0380 W/kg
SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.012 W/kg
Maximum value of SAR (measured) = 0.0243 W/kg



0 dB = 0.0243 W/kg = -16.14 dBW/kg

Plot 24#: WCDMA_Mid_2_Mid_Head Right Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

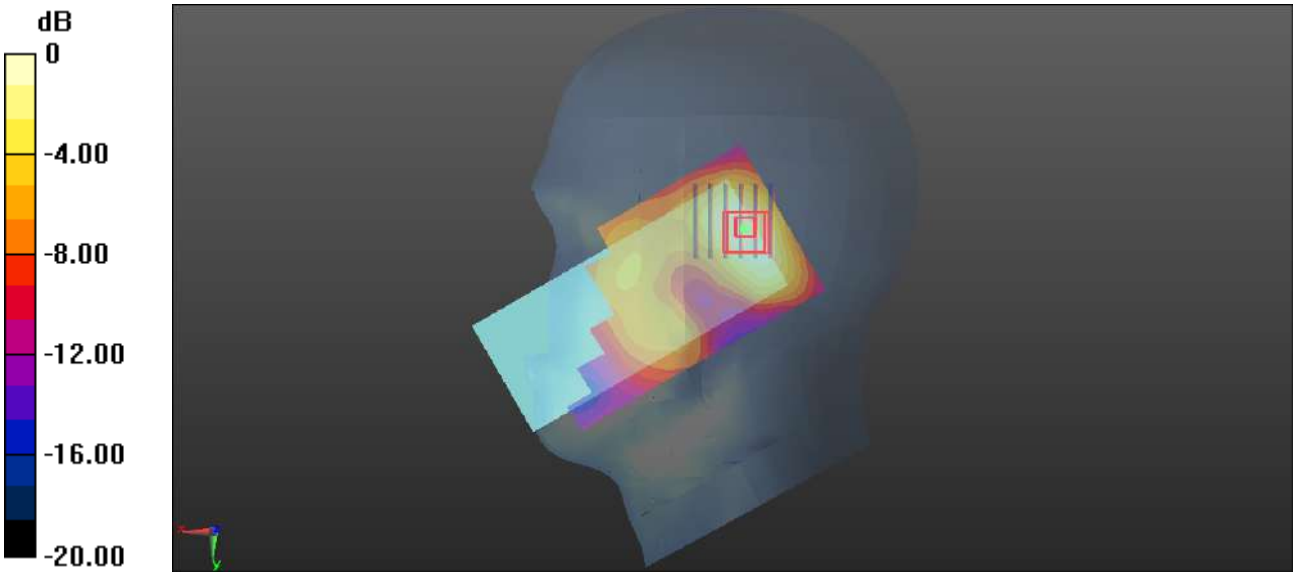
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0252 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.264 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.0360 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0225 W/kg



0 dB = 0.0225 W/kg = -16.48 dBW/kg

Plot 25#: WCDMA Band 2_Low_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

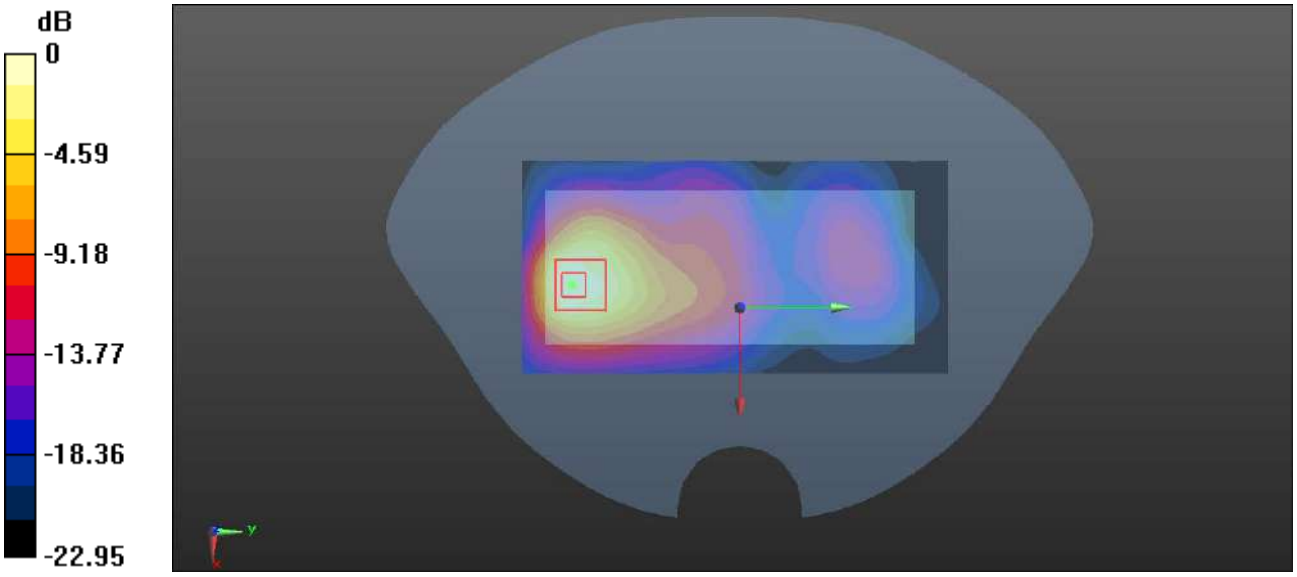
Communication System: Generic WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1852.4 MHz; σ = 1.369 S/m; ε_r = 40.143; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1852.4 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.24 W/kg

Zoom Scan (5x5x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.033 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 0.927 W/kg; SAR(10 g) = 0.425 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

Plot 26#: WCDMA Band 2_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

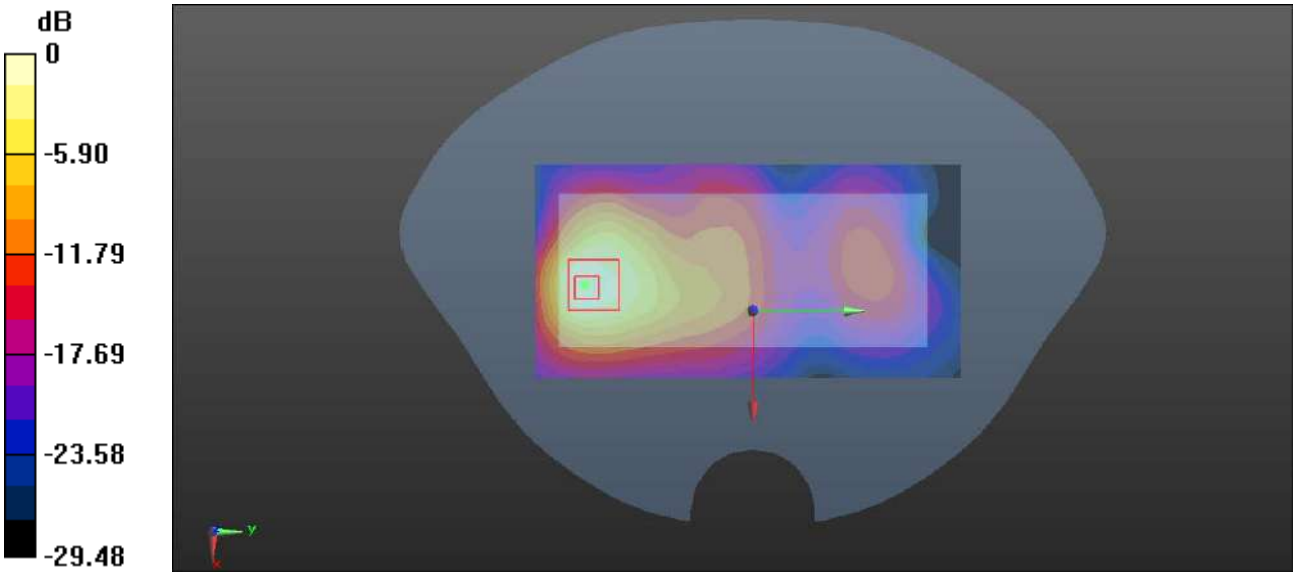
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.19 W/kg

Zoom Scan (5x5x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.041 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 0.923 W/kg; SAR(10 g) = 0.420 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

Plot 27#: WCDMA Band 2_High_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

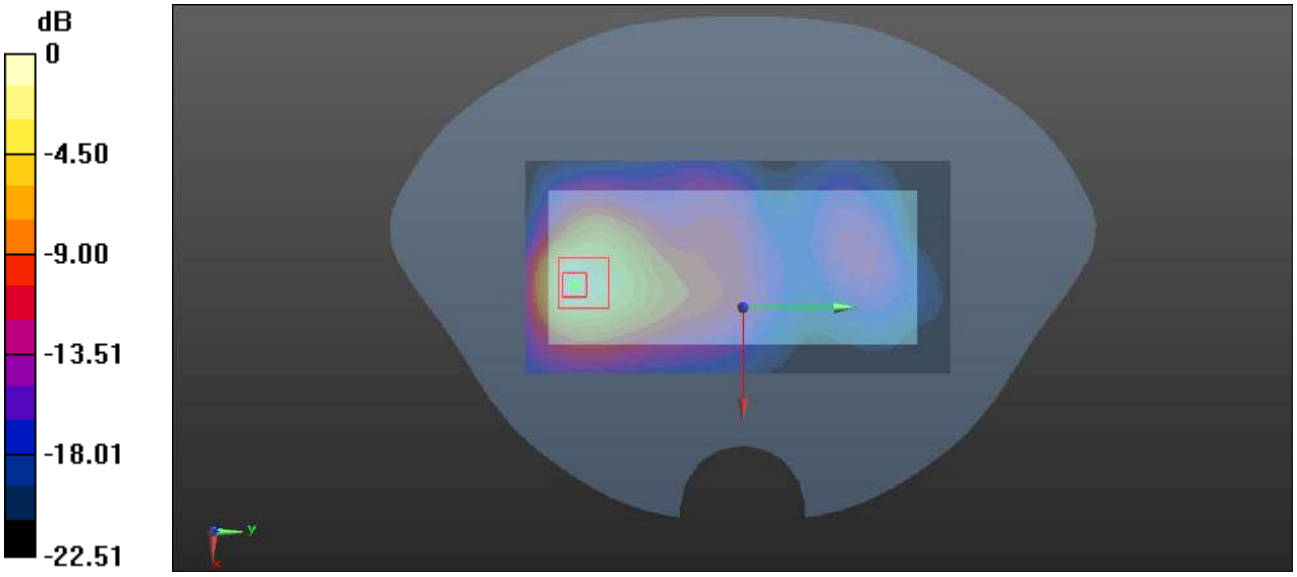
Communication System: Generic WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1907.6 MHz; σ = 1.429 S/m; ε_r = 39.933; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1907.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.07 W/kg

Zoom Scan (5x5x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.135 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.00 W/kg
SAR(1 g) = 0.847 W/kg; SAR(10 g) = 0.382 W/kg
Maximum value of SAR (measured) = 0.948 W/kg



0 dB = 0.948 W/kg = -0.23 dBW/kg

Plot 28#: WCDMA Band 2_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

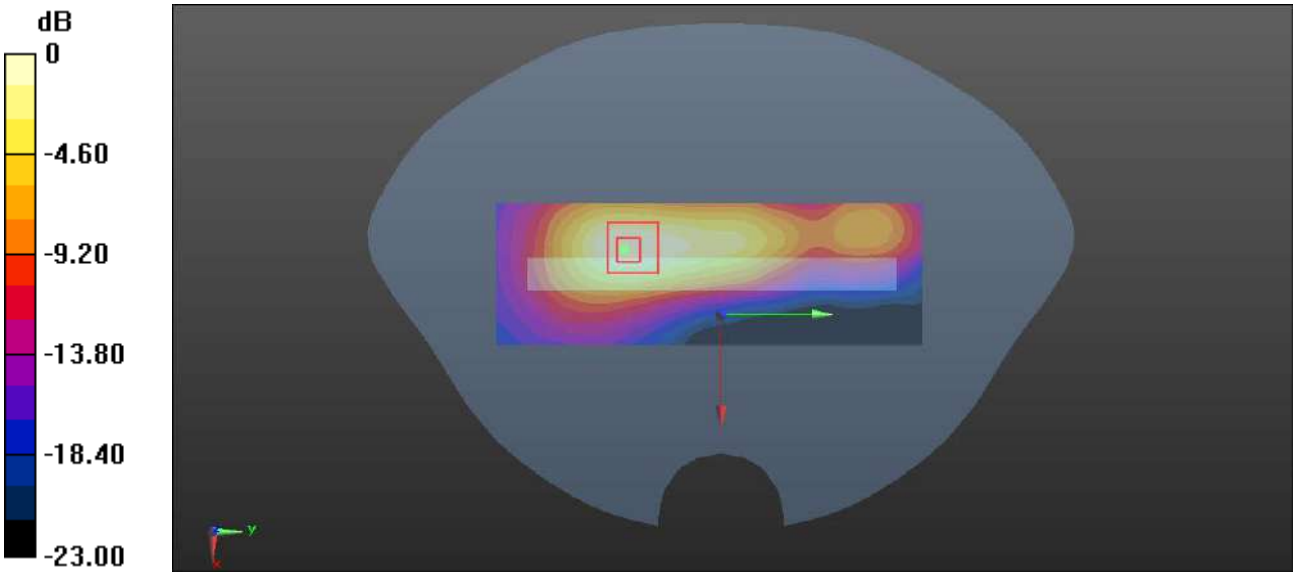
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.184 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.027 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.341 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.081 W/kg
Maximum value of SAR (measured) = 0.181 W/kg



0 dB = 0.181 W/kg = -7.42 dBW/kg

Plot 29#: WCDMA Band 2_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

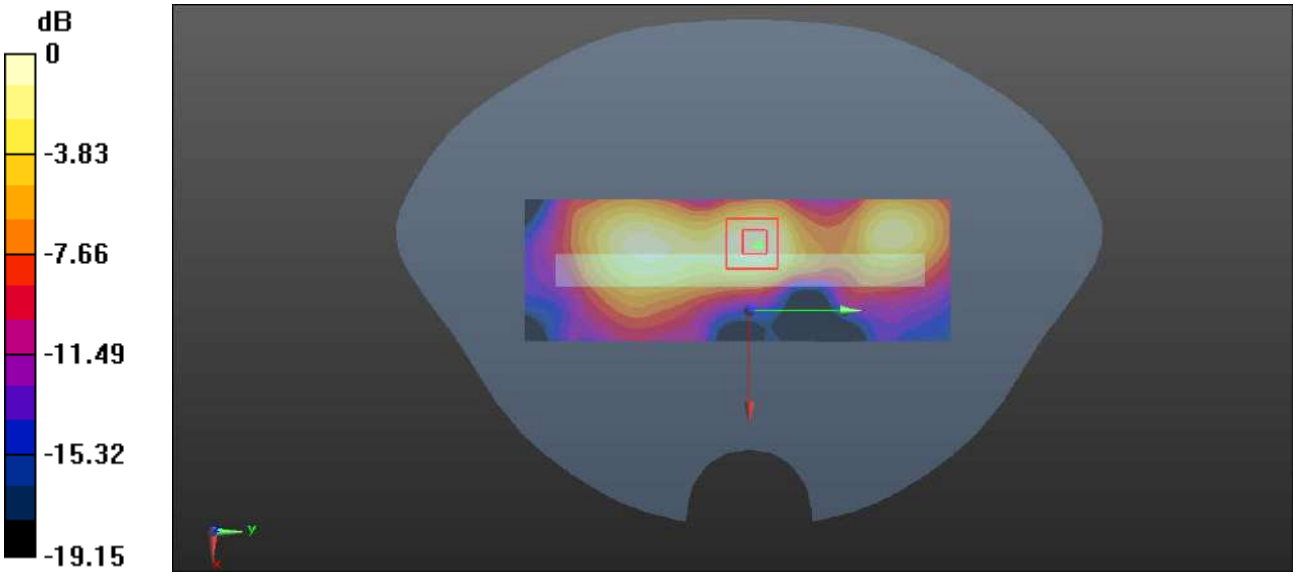
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0233 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.959 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0390 W/kg
SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.00935 W/kg
Maximum value of SAR (measured) = 0.0219 W/kg



0 dB = 0.0219 W/kg = -16.60 dBW/kg

Plot 30#: WCDMA Band 2_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

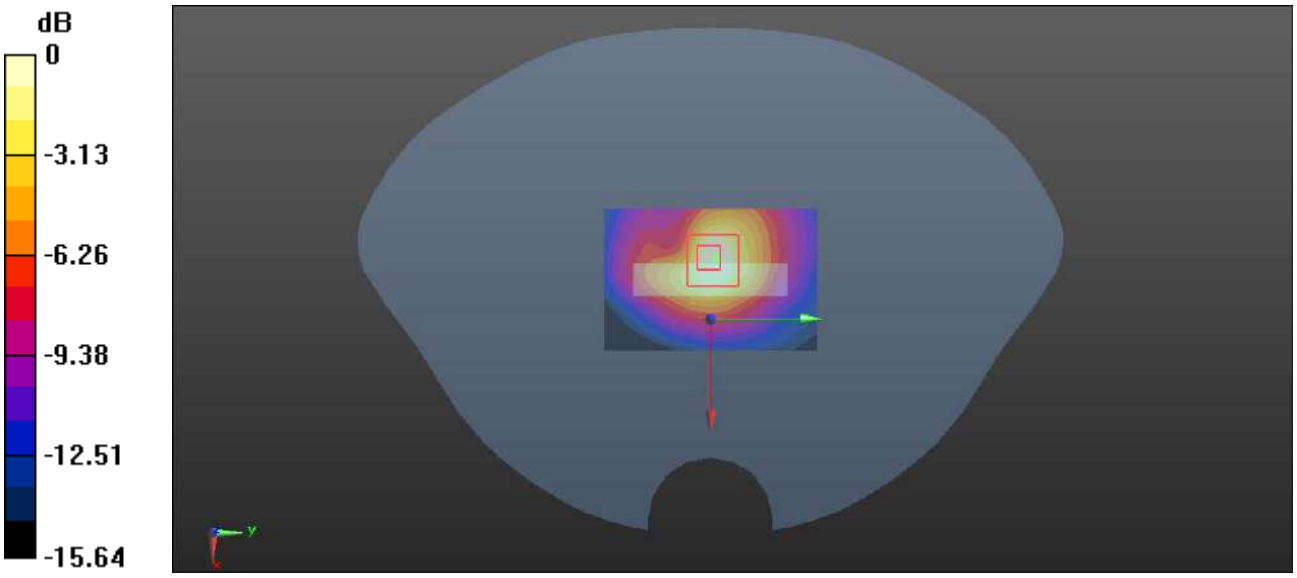
Communication System: Generic WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.94, 7.94, 7.94) @ 1880 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.104 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.972 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.044 W/kg
Maximum value of SAR (measured) = 0.0999 W/kg



0 dB = 0.0999 W/kg = -10.00 dBW/kg

Plot 31#: WCDMA Band 5_Mid_Head Left Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

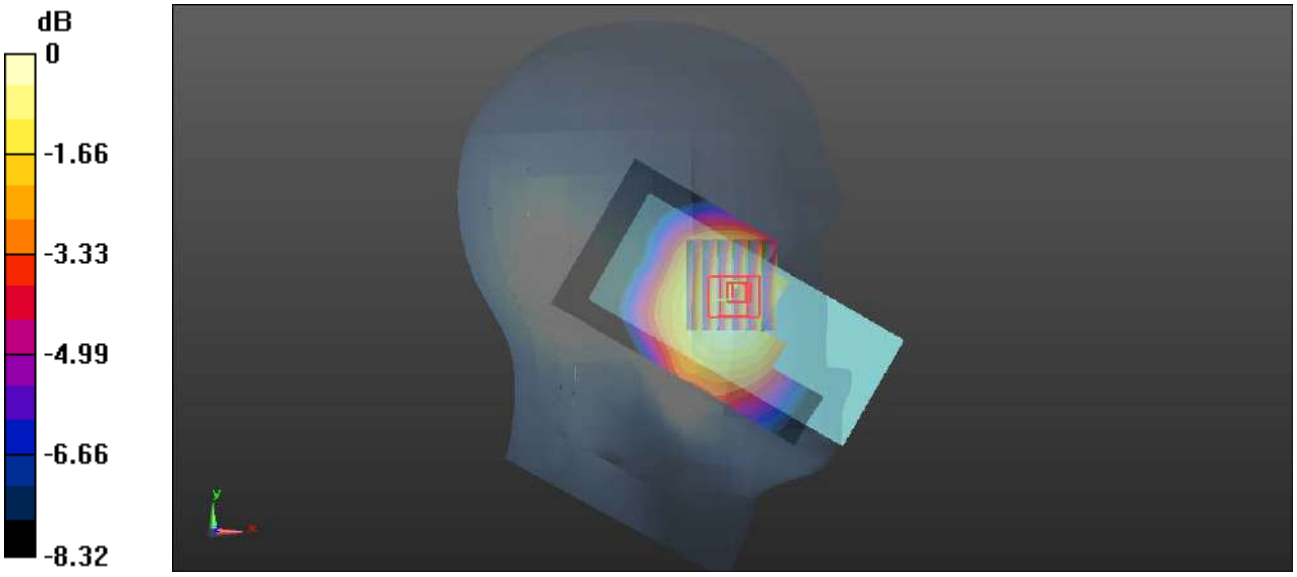
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0110 W/kg

Zoom Scan (6x7x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.281 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.0140 W/kg
SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0107 W/kg



0 dB = 0.0107 W/kg = -19.71 dBW/kg

Plot 32#: WCDMA Band 5_Mid_Head Left Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

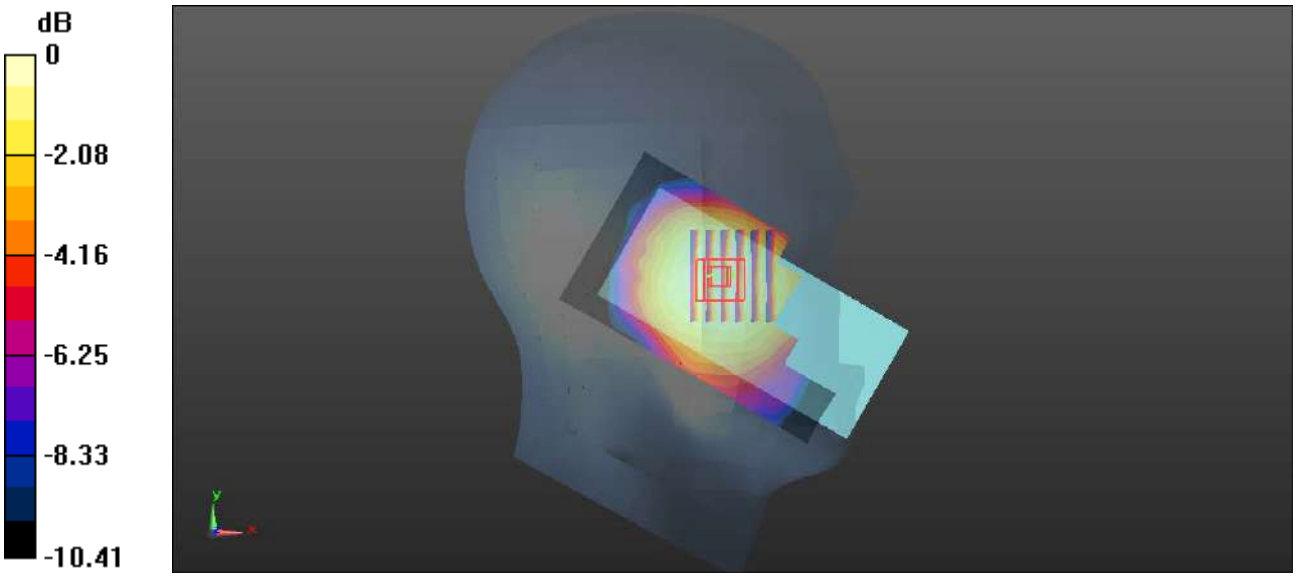
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.00984 W/kg

Zoom Scan (6x7x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.688 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.0120 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.00983 W/kg



0 dB = 0.00983 W/kg = -20.07 dBW/kg

Plot 33#: WCDMA Band 5_Mid_Head Right Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

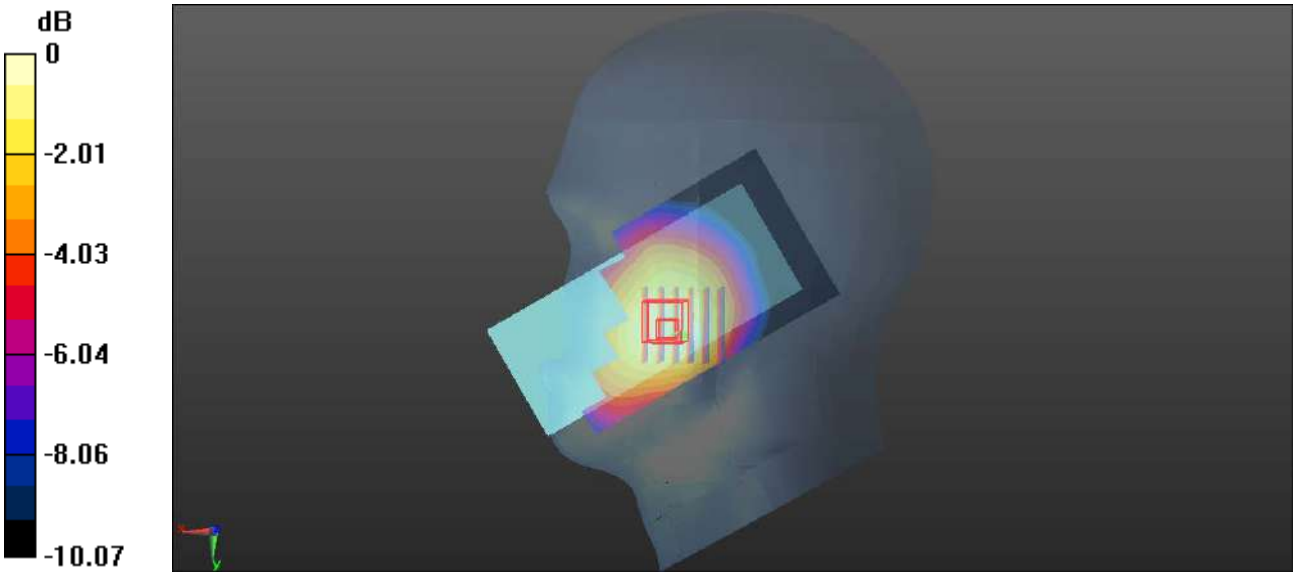
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0163 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.9550 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.0230 W/kg
SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0164 W/kg



0 dB = 0.0164 W/kg = -17.85 dBW/kg

Plot 34#: WCDMA Band 5_Mid_Head Right Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

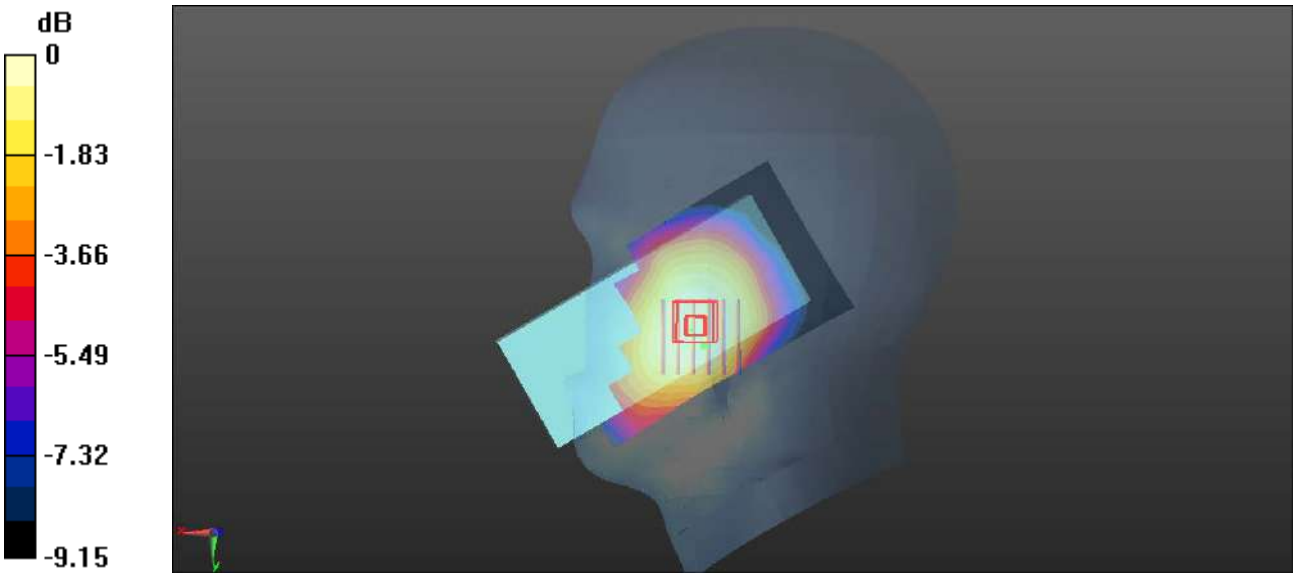
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0131 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.625 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00946 W/kg
Maximum value of SAR (measured) = 0.0125 W/kg



0 dB = 0.0125 W/kg = -19.03 dBW/kg

Plot 35#: WCDMA Band 5_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

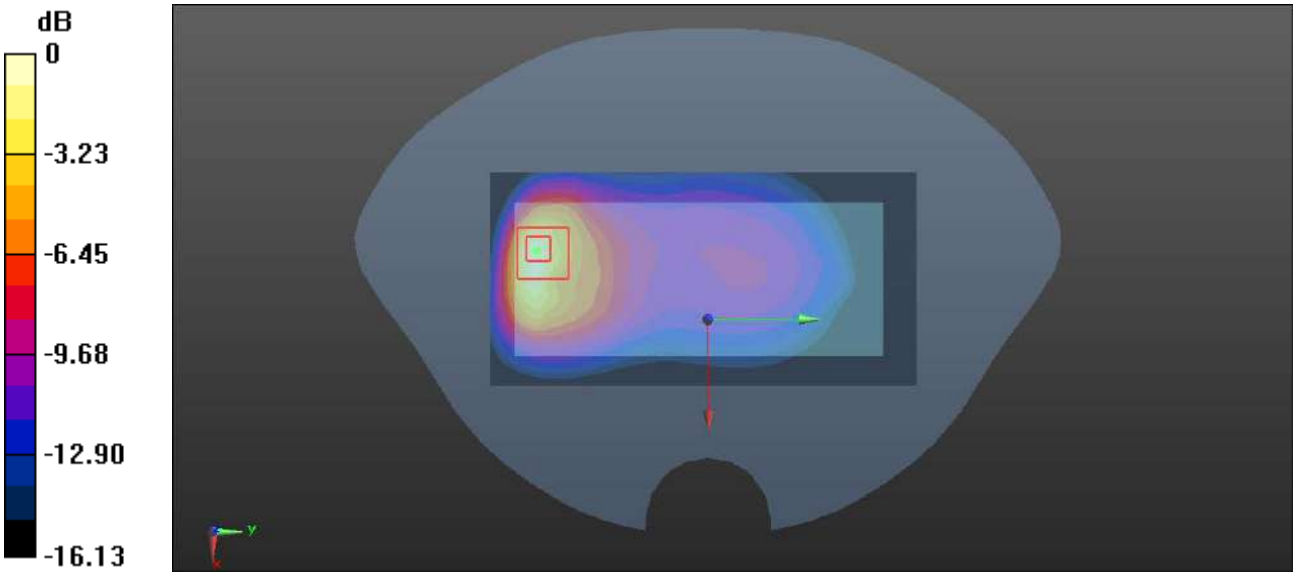
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.228 W/kg

Zoom Scan (5x5x4)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.671 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.648 W/kg
SAR(1 g) = 0.215 W/kg; SAR(10 g) = 0.095 W/kg
Maximum value of SAR (measured) = 0.252 W/kg



0 dB = 0.252 W/kg = -5.99 dBW/kg

Plot 36#: WCDMA Band 5_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

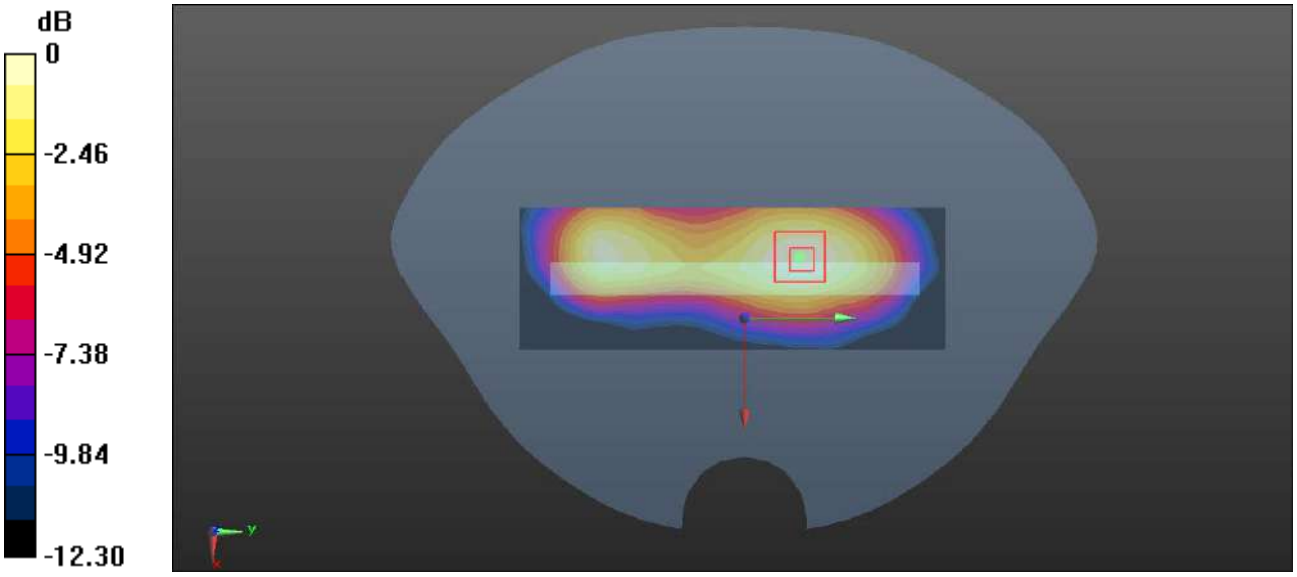
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0188 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.947 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.0280 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0192 W/kg



0 dB = 0.0192 W/kg = -17.17 dBW/kg

Plot 37#: WCDMA Band 5_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

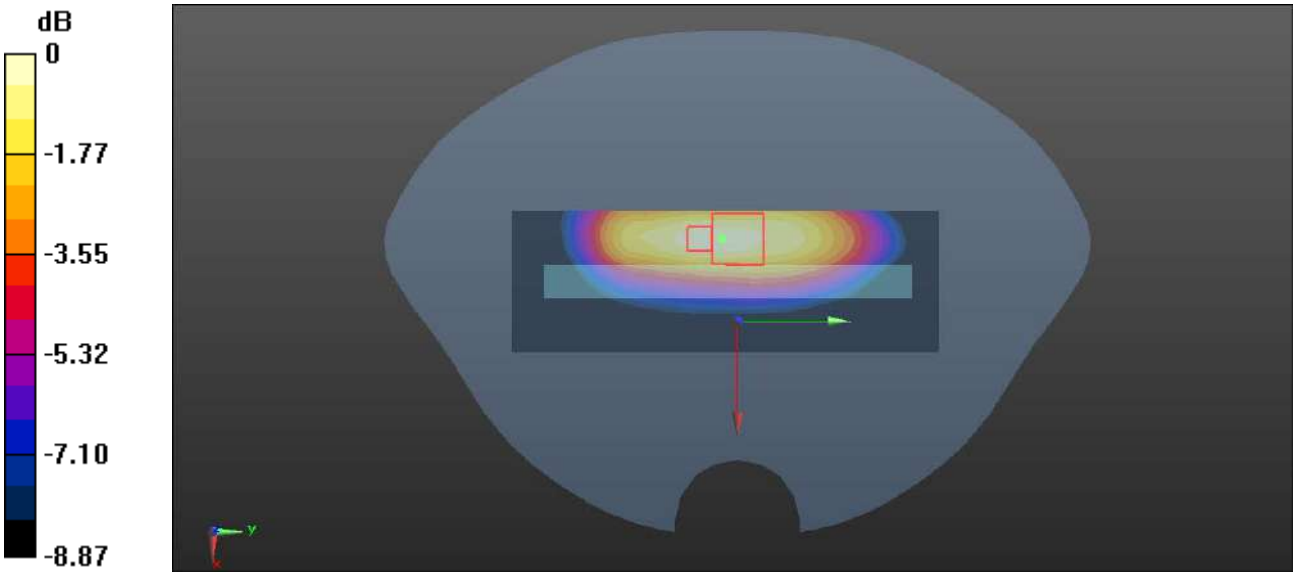
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0284 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.724 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0470 W/kg
SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.015 W/kg
Maximum value of SAR (measured) = 0.0294 W/kg



0 dB = 0.0294 W/kg = -15.32 dBW/kg

Plot 38#: WCDMA Band 5_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

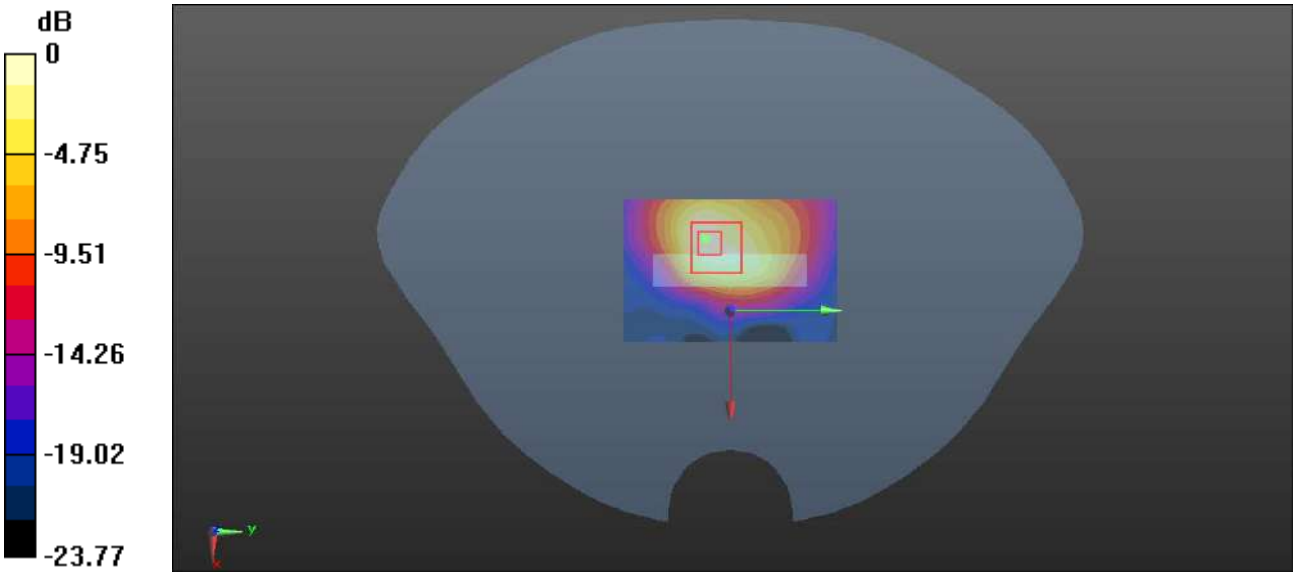
Communication System: Generic WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.6 MHz; σ = 0.913 S/m; ε_r = 41.602; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.6 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0761 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.837 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.249 W/kg
SAR(1 g) = 0.075 W/kg; SAR(10 g) = 0.032 W/kg
Maximum value of SAR (measured) = 0.0756 W/kg



0 dB = 0.0756 W/kg = -11.21 dBW/kg

Plot 39#: LTE Band 5_1RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

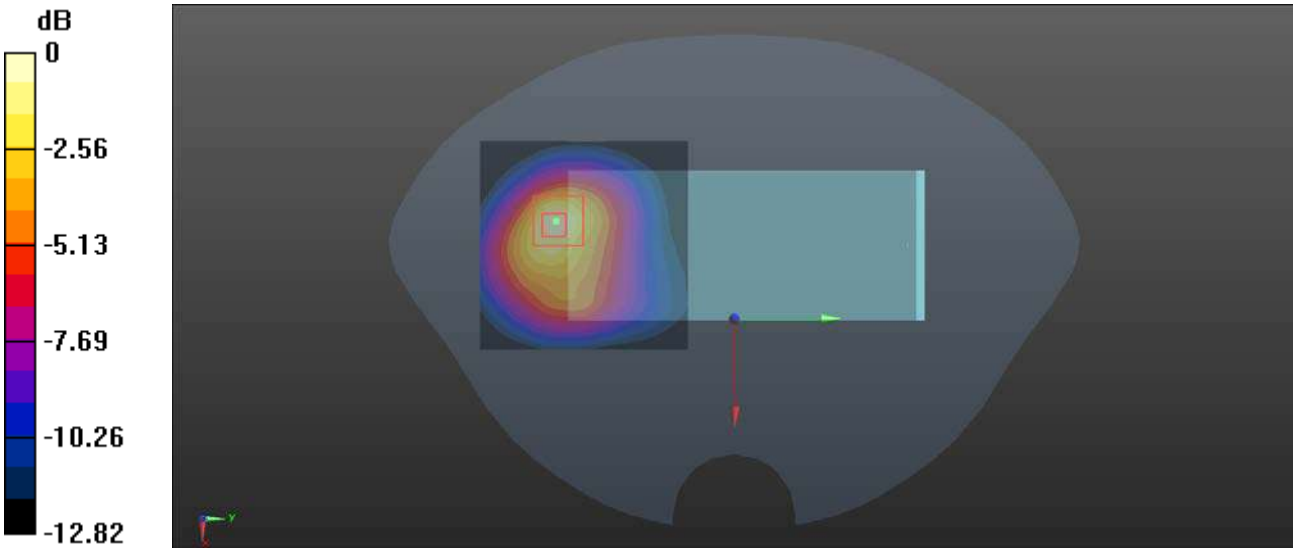
Communication System:, Generic FDD-LTE ; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.436 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.441 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.626 W/kg
SAR(1 g) = 0.289 W/kg; SAR(10 g) = 0.155 W/kg
Maximum value of SAR (measured) = 0.460 W/kg



0 dB = 0.460 W/kg = -3.37 dBW/kg

Plot 40#: LTE Band 5_50%RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

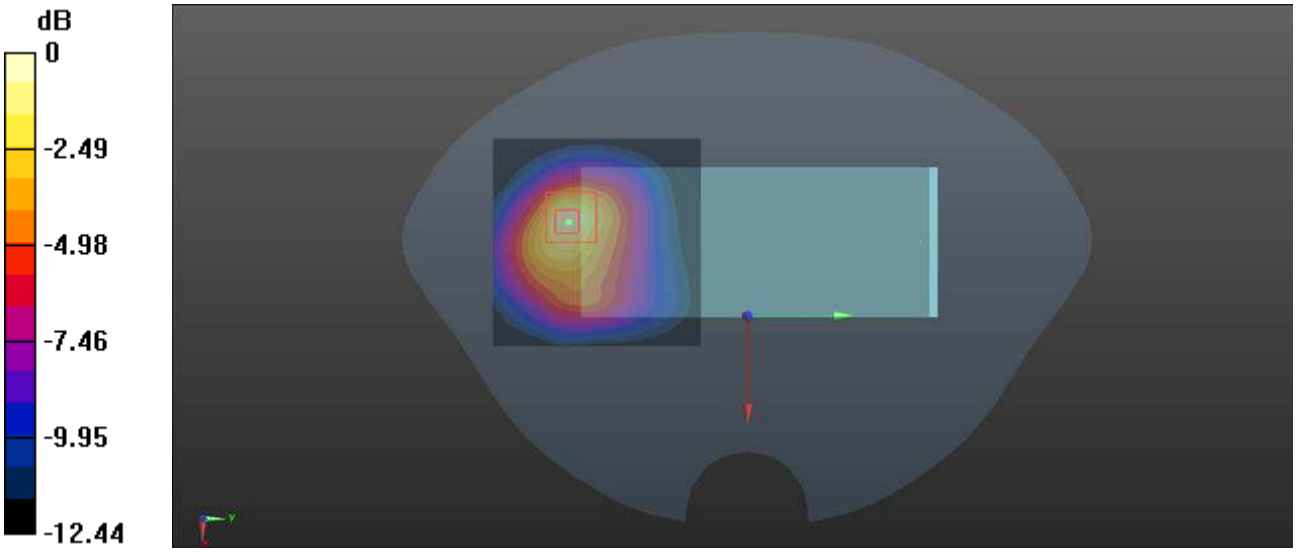
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.342 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.264 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.480 W/kg
SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.371 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

Plot 41#: LTE Band 5_1RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

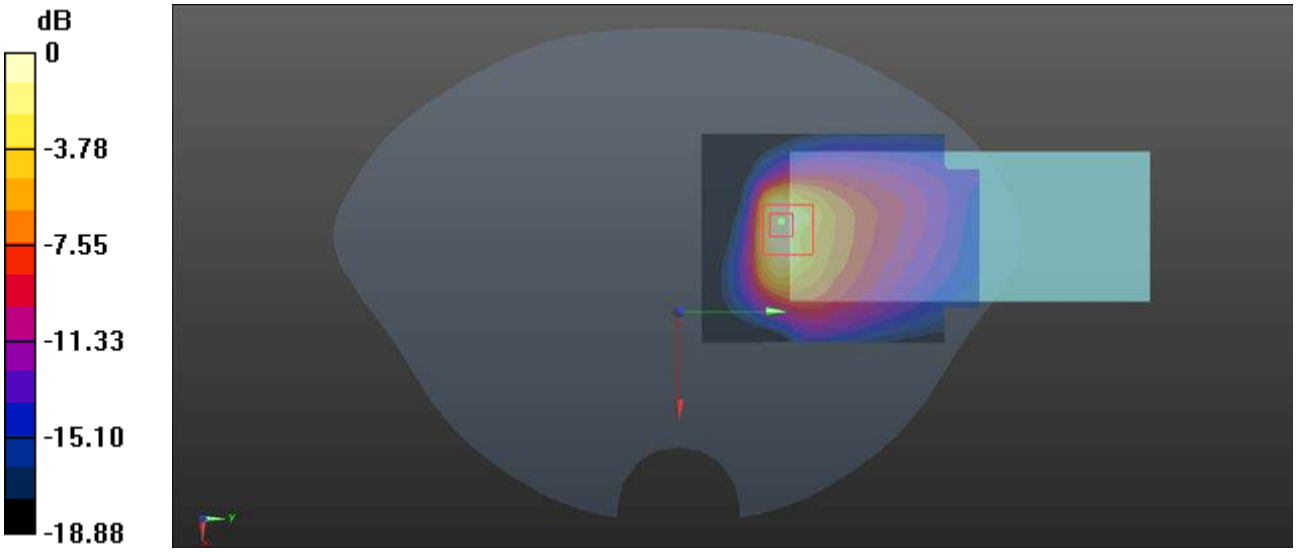
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.674 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.391 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.865 W/kg
SAR(1 g) = 0.391 W/kg; SAR(10 g) = 0.164 W/kg
Maximum value of SAR (measured) = 0.592 W/kg



0 dB = 0.592 W/kg = -2.28 dBW/kg

Plot 42#: LTE Band 5_50%RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

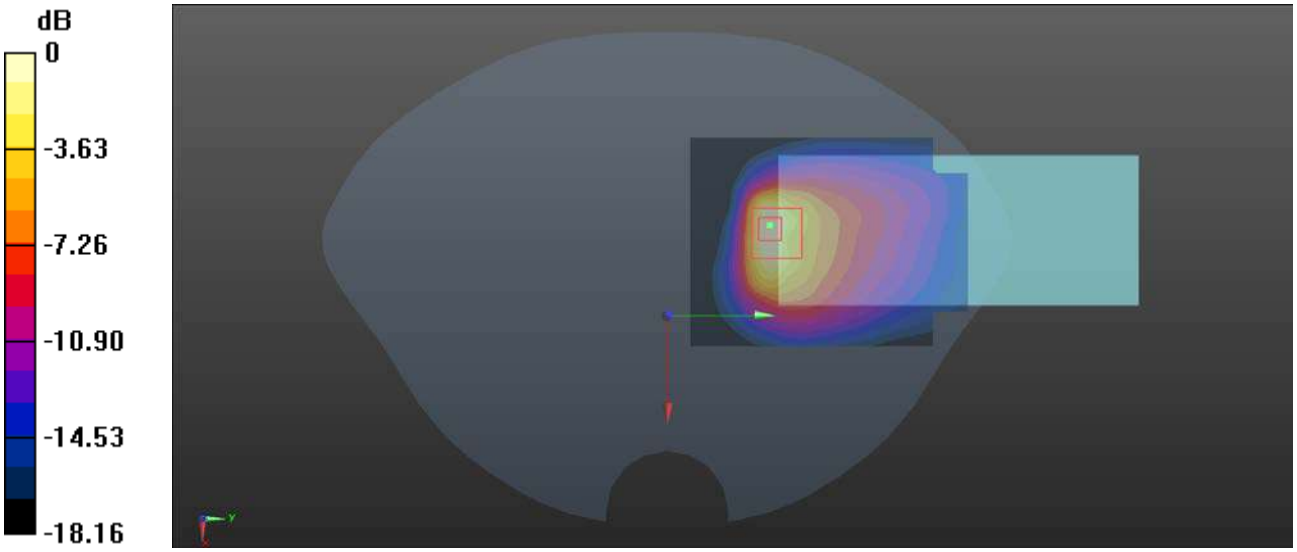
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.525 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.089 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.677 W/kg
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.145 W/kg
Maximum value of SAR (measured) = 0.464 W/kg



0 dB = 0.464 W/kg = -3.33 dBW/kg

Plot 43#: LTE Band 5_1RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

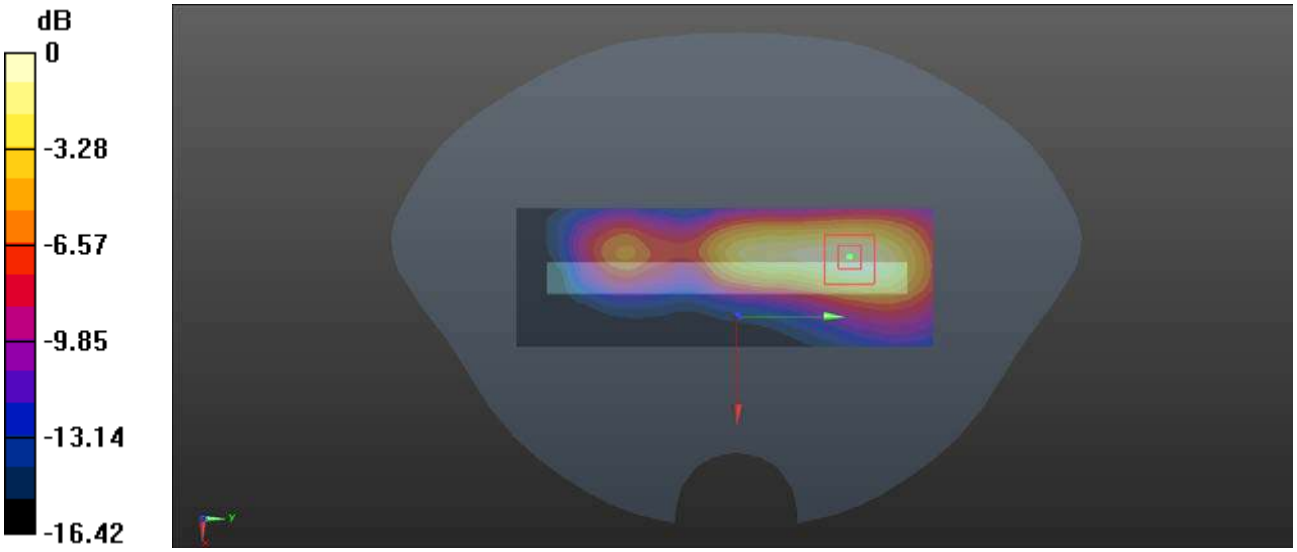
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.188 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.888 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.082 W/kg
Maximum value of SAR (measured) = 0.187 W/kg



0 dB = 0.187 W/kg = -7.28 dBW/kg

Plot 44#: LTE Band 5_50%RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

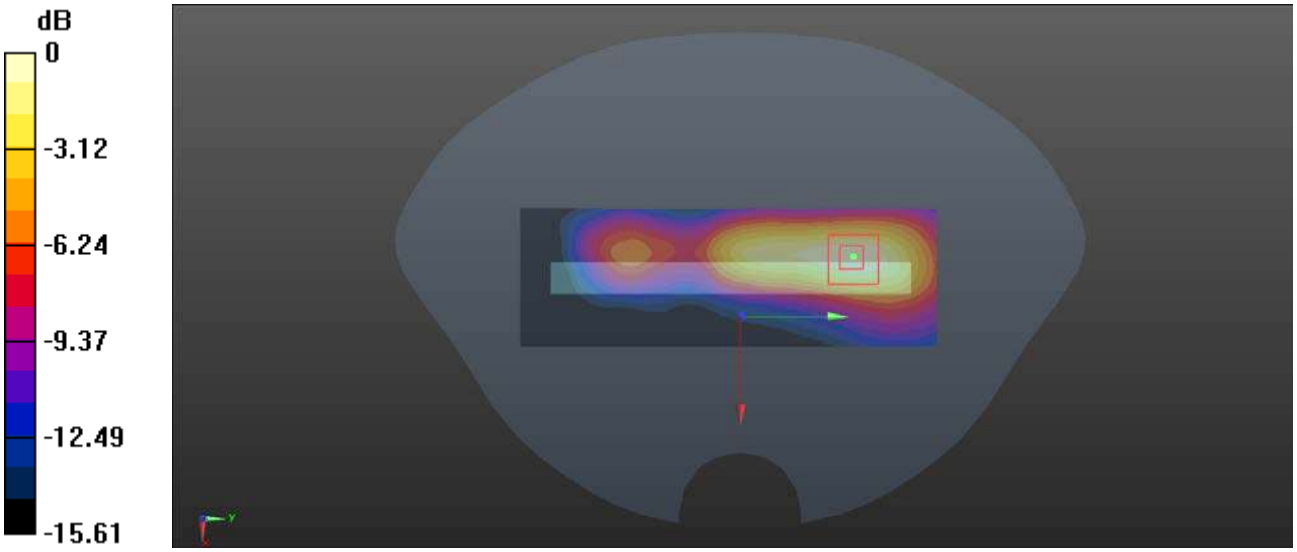
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.150 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.078 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.295 W/kg
SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.065 W/kg
Maximum value of SAR (measured) = 0.147 W/kg



0 dB = 0.147 W/kg = -8.33 dBW/kg

Plot 45#: LTE Band 5_1RB_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

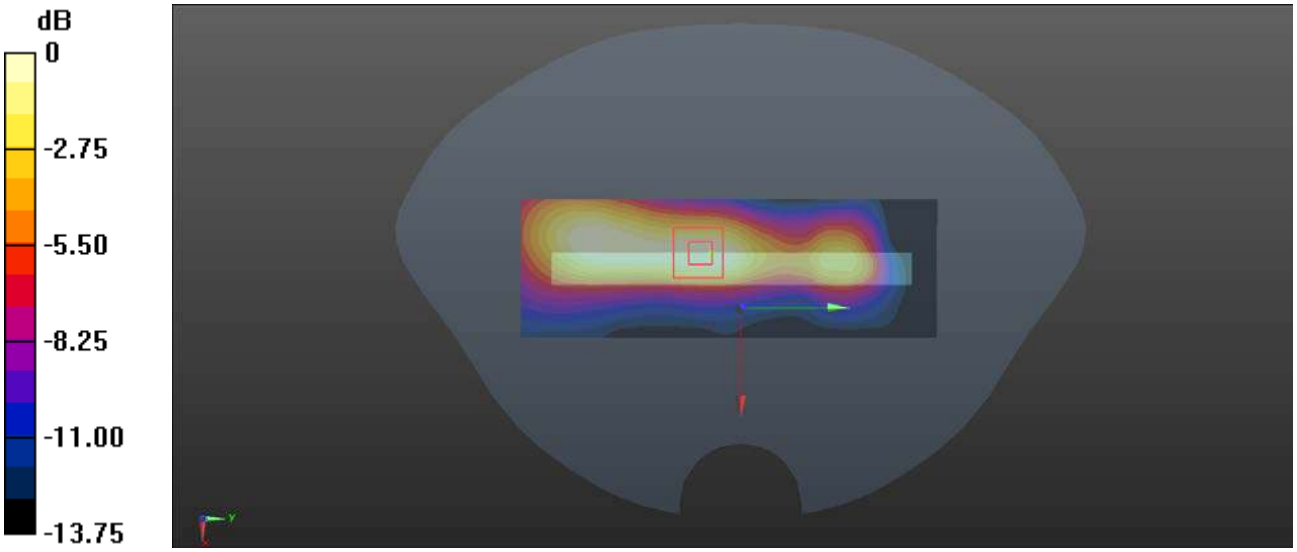
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.101 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.027 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.088 W/kg; SAR(10 g) = 0.044 W/kg
Maximum value of SAR (measured) = 0.0954 W/kg



0 dB = 0.0954 W/kg = -10.20 dBW/kg

Plot 46#: LTE Band 5_50%RB_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

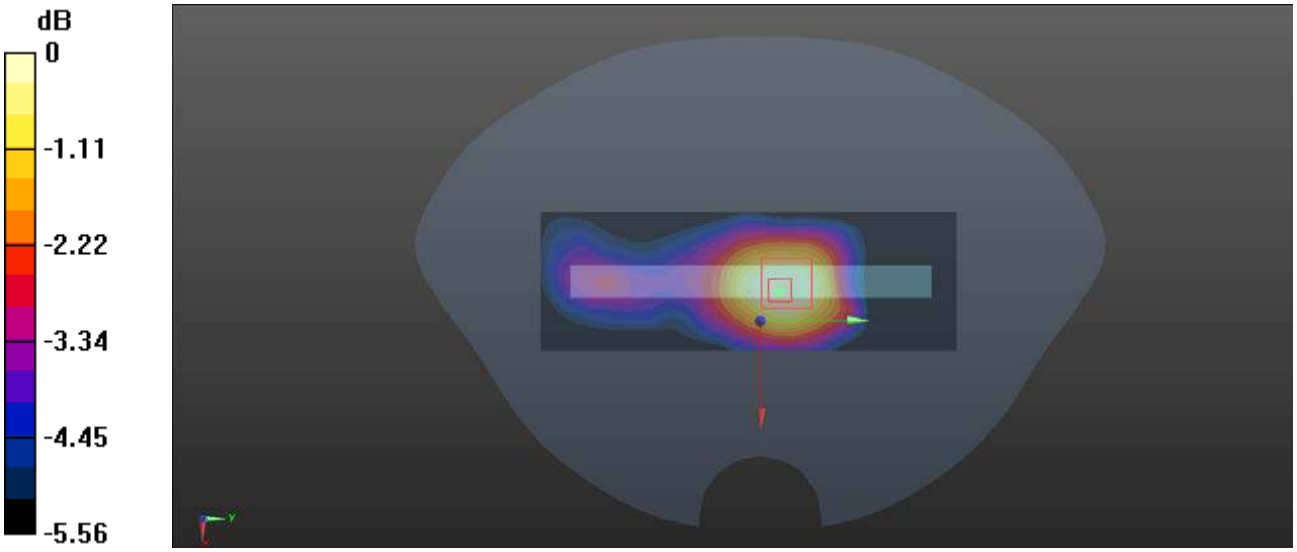
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0178 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.271 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.0280 W/kg
SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.012 W/kg
Maximum value of SAR (measured) = 0.0174 W/kg



0 dB = 0.0174 W/kg = -17.59 dBW/kg

Plot 47#: LTE Band 5_1RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

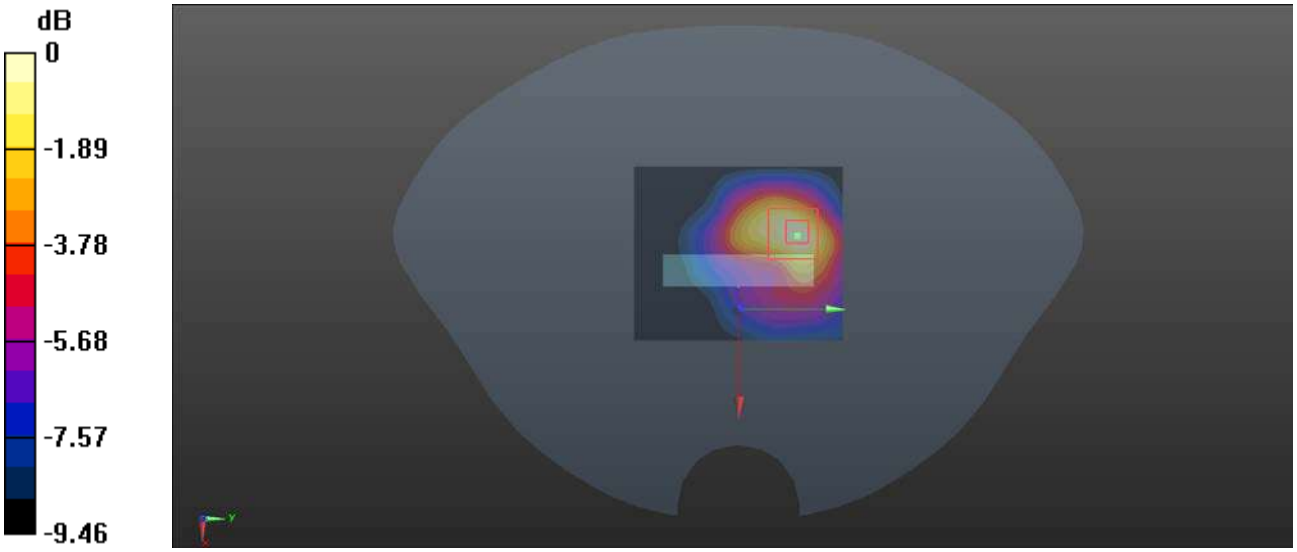
Communication System:Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0395 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.449 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.0950 W/kg
SAR(1 g) = 0.036 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0375 W/kg



0 dB = 0.0375 W/kg = -14.26 dBW/kg

Plot 48#: LTE Band 5_50%RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

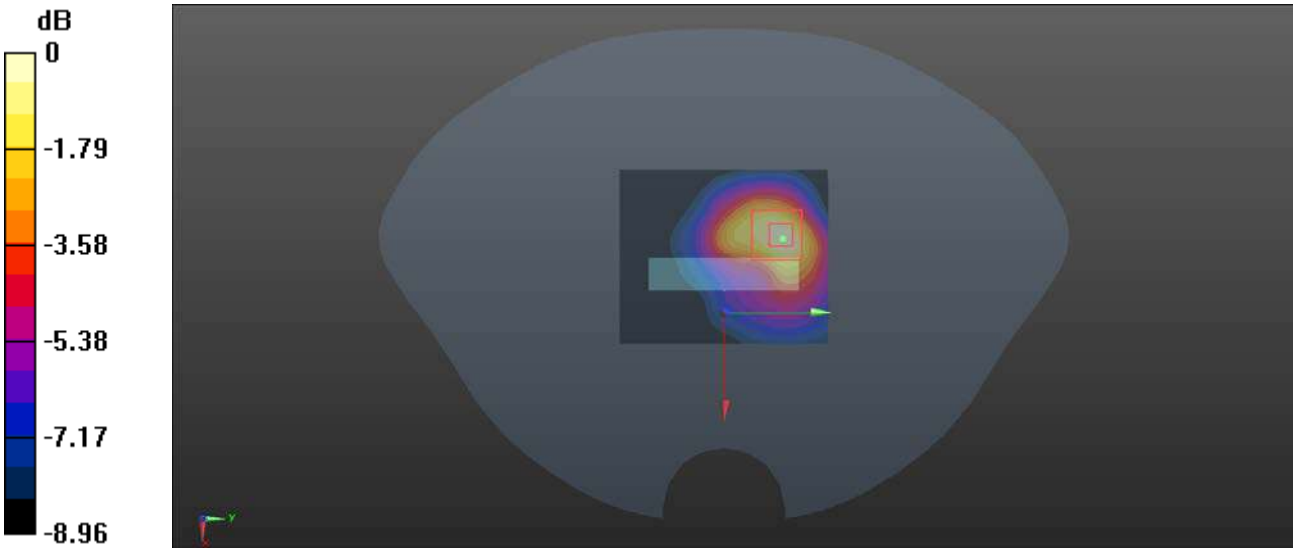
Communication System: Generic FDD-LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.904 S/m; ε_r = 41.609; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(9.93, 9.93, 9.93) @ 836.5 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0356 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.176 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.0820 W/kg
SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.017 W/kg
Maximum value of SAR (measured) = 0.0338 W/kg



0 dB = 0.0338 W/kg = -14.71 dBW/kg

Plot 49#: LTE Band 7_1RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

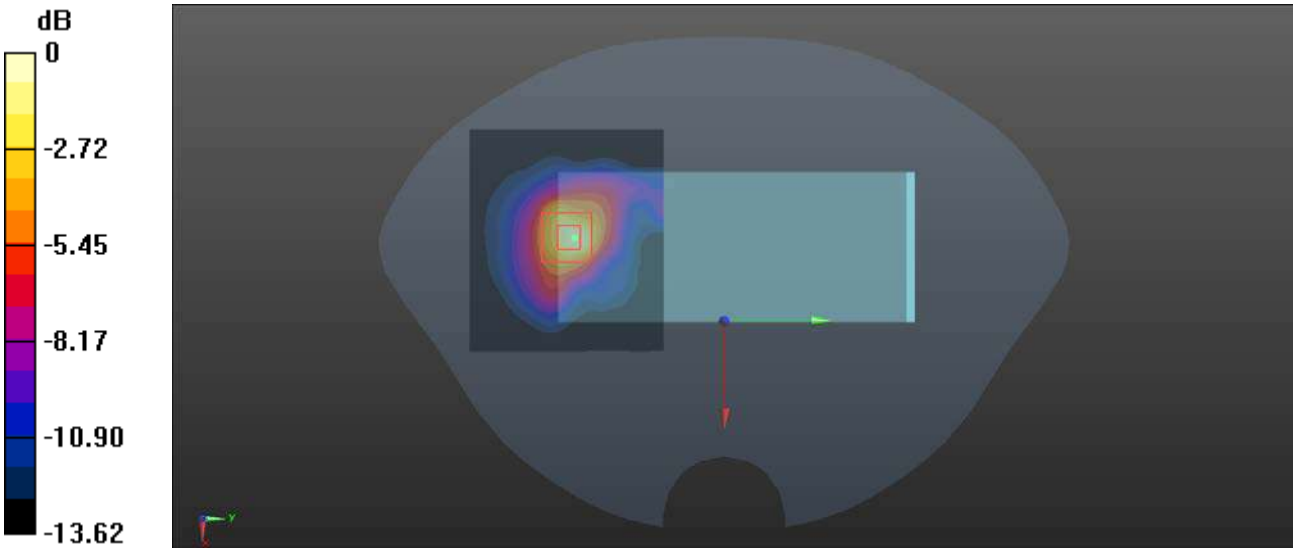
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.344 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.530 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.526 W/kg
SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.080 W/kg
Maximum value of SAR (measured) = 0.371 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

Plot 50#: LTE Band 7_50%RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

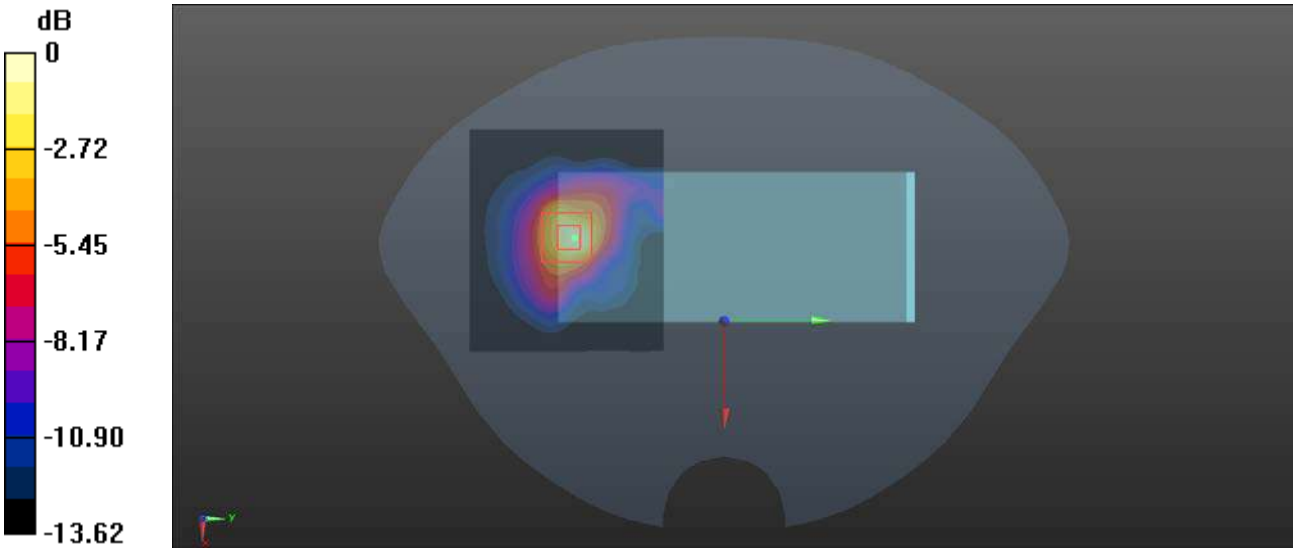
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.344 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.530 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.526 W/kg
SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.311 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

Plot 51#: LTE Band 7_1RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

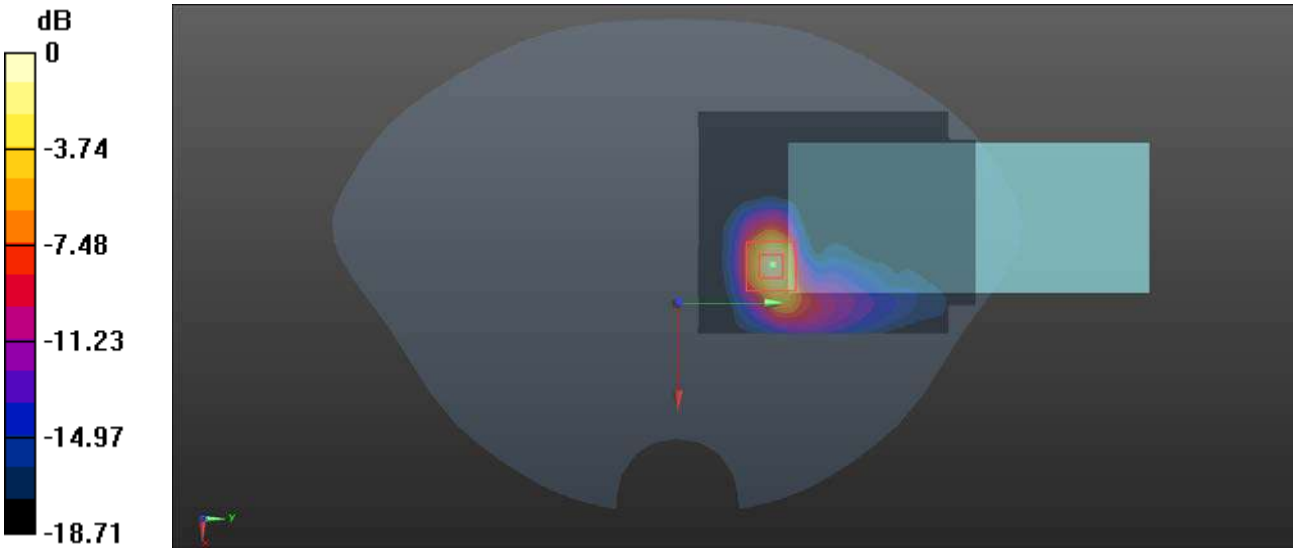
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.04 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.813 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.562 W/kg; SAR(10 g) = 0.209 W/kg
Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.09 W/kg = 0.37 dBW/kg

Plot 52#: LTE Band 7_50%RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

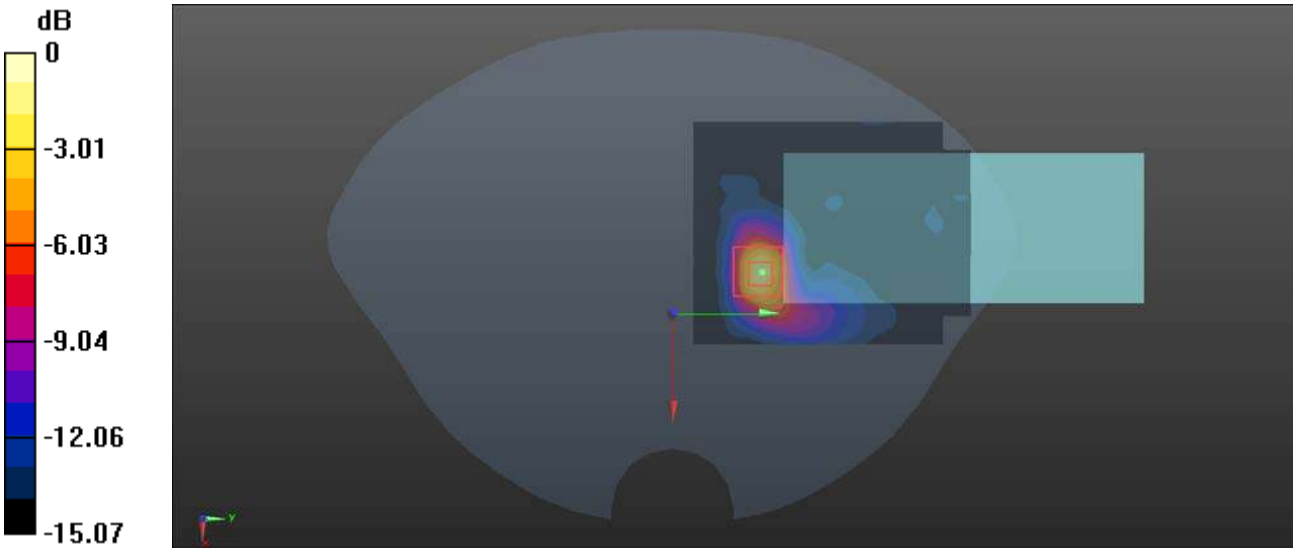
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.282 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.863 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.447 W/kg
SAR(1 g) = 0.178 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.352 W/kg



0 dB = 0.352 W/kg = -4.53 dBW/kg

Plot 53#: LTE Band 7_1RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

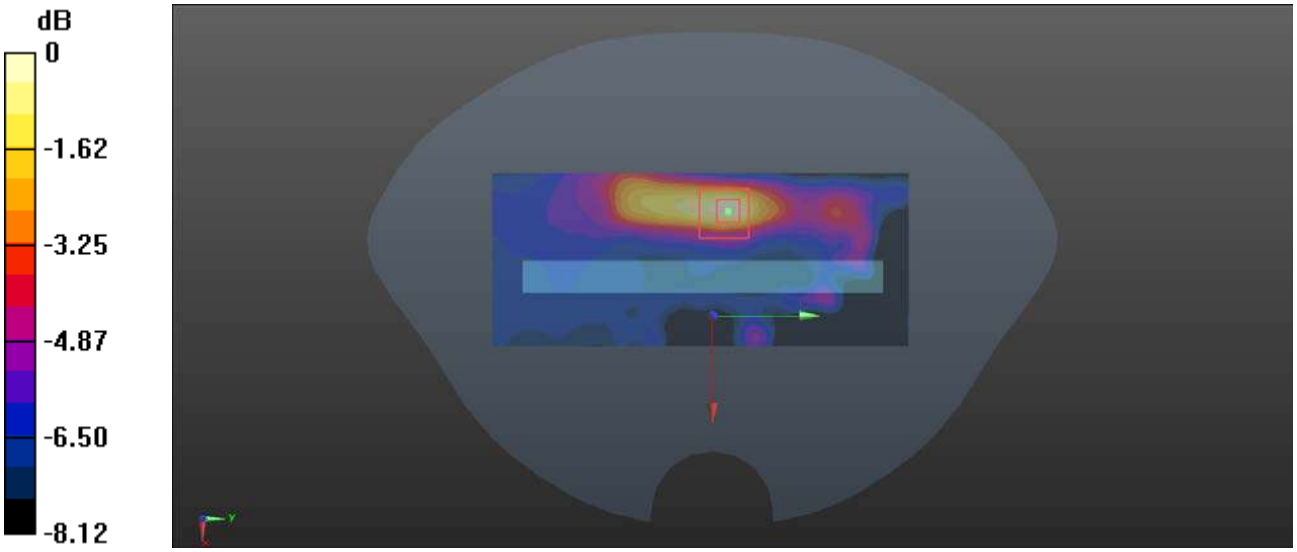
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.100 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.272 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.101 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

Plot 54#: LTE Band 7_50%RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

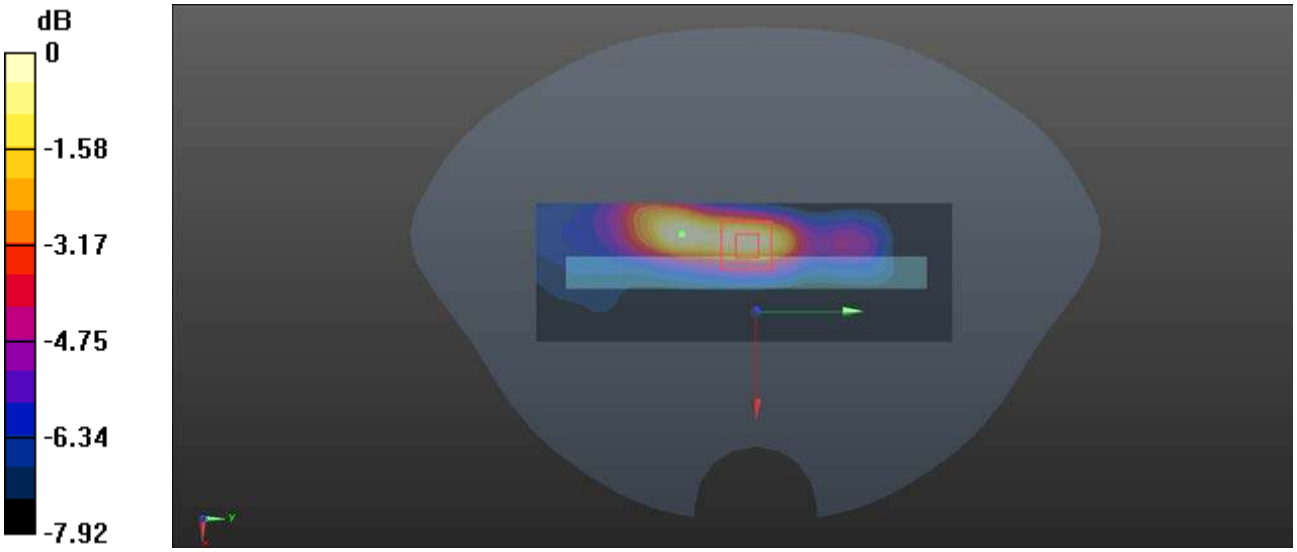
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0952 W/kg

Zoom Scan (6x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.950 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.035 W/kg
Maximum value of SAR (measured) = 0.0917 W/kg



0 dB = 0.0917 W/kg = -10.38 dBW/kg

Plot 55#: LTE Band 7_1RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

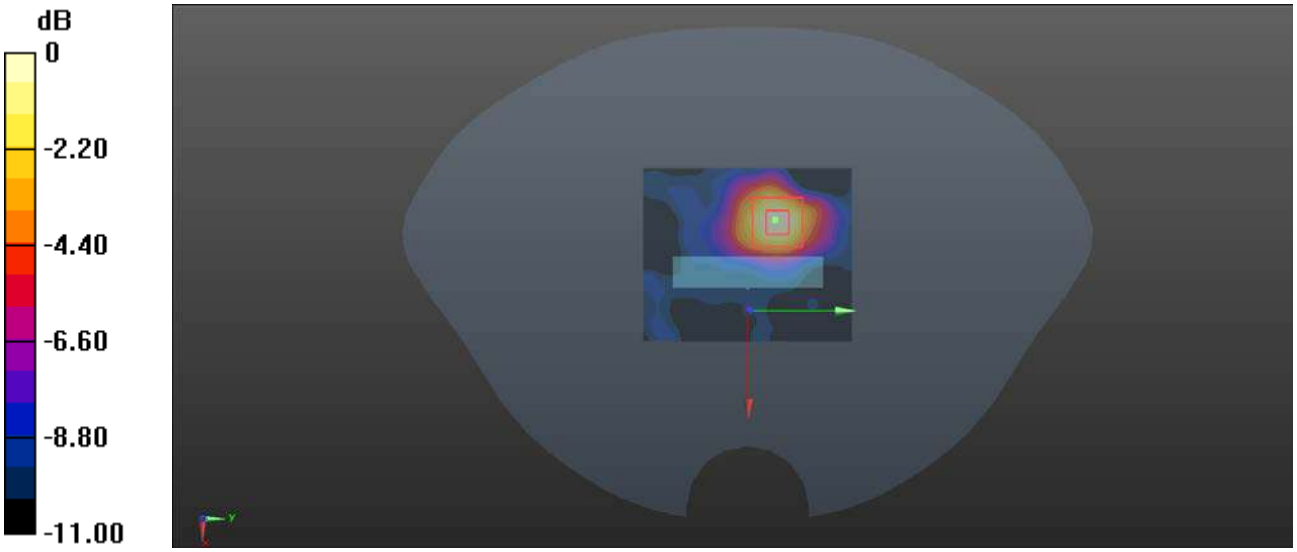
Communication System:, Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.219 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.076 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.398 W/kg
SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.088 W/kg
Maximum value of SAR (measured) = 0.206 W/kg



0 dB = 0.206 W/kg = -6.86 dBW/kg

Plot 56#: LTE Band 7_50%RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

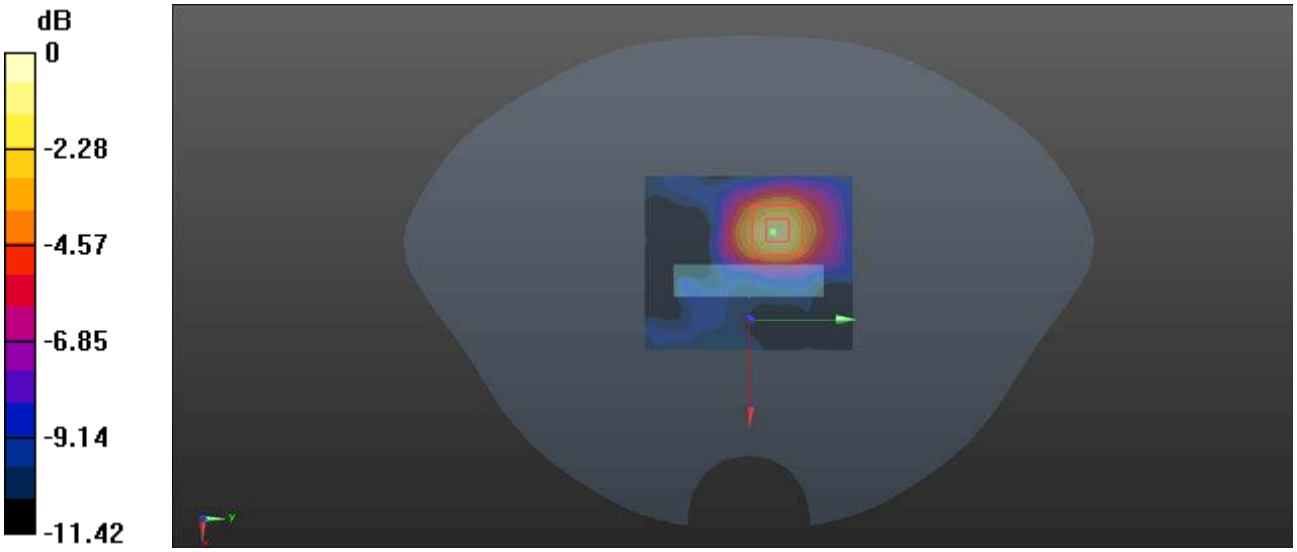
Communication System: Generic FDD-LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.936 S/m; ε_r = 39.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2535 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.147 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.039 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.154 W/kg; SAR(10 g) = 0.075 W/kg
Maximum value of SAR (measured) = 0.171 W/kg



0 dB = 0.171 W/kg = -7.67 dBW/kg

Plot 57#: LTE Band 41_1RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

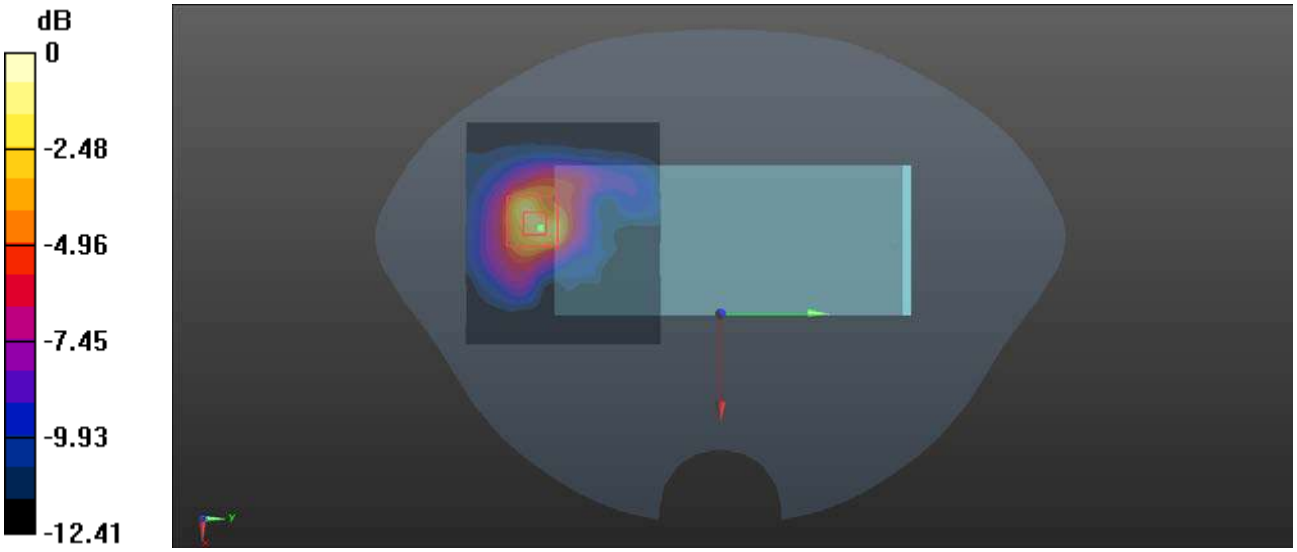
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.167 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.513 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.048 W/kg
Maximum value of SAR (measured) = 0.210 W/kg



0 dB = 0.210 W/kg = -6.78 dBW/kg

Plot 58#: LTE Band 41_50%RB_Mid_Head Flat

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

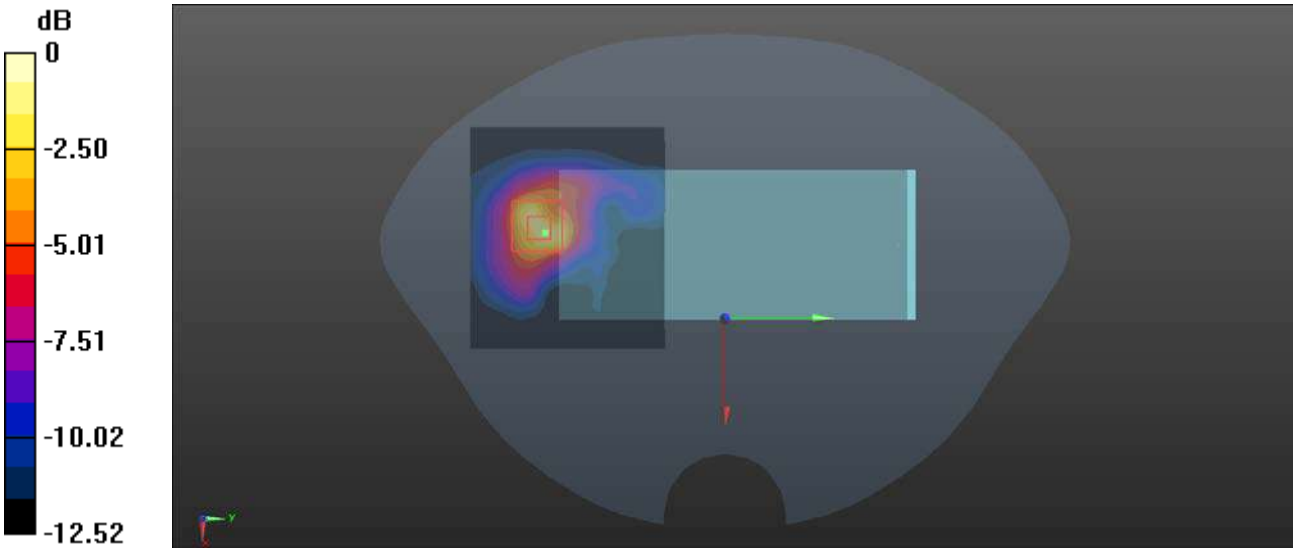
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.167 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.464 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.048 W/kg
Maximum value of SAR (measured) = 0.209 W/kg



0 dB = 0.209 W/kg = -6.80 dBW/kg

Plot 59#: LTE Band 41_1RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

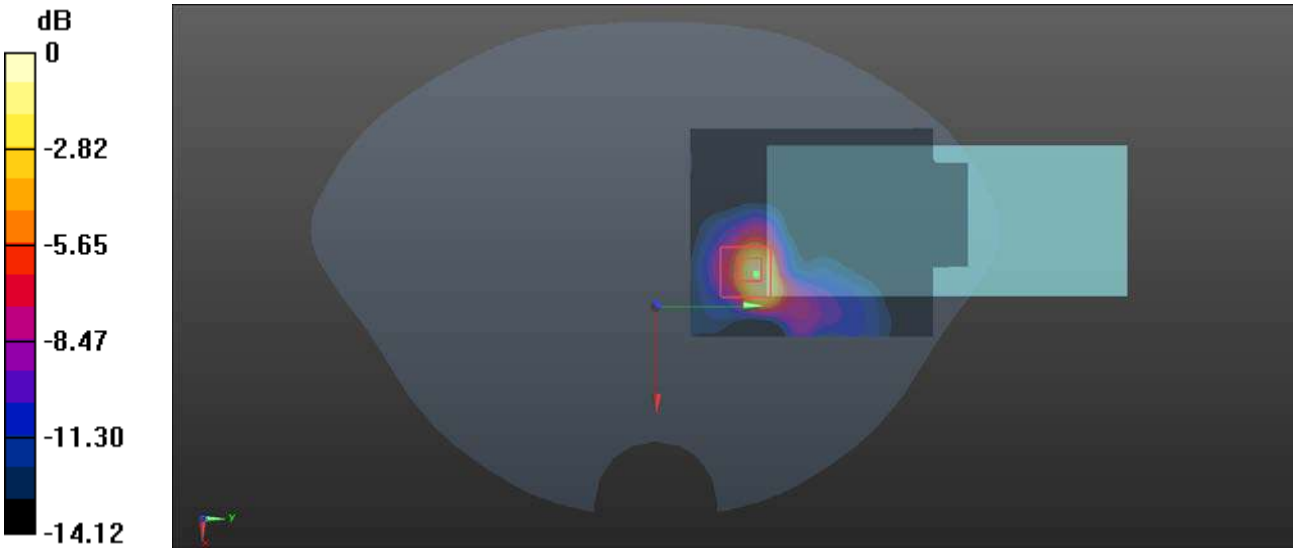
Communication System:, Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.302 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.134 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.079 W/kg
Maximum value of SAR (measured) = 0.354 W/kg



0 dB = 0.354 W/kg = -4.51 dBW/kg

Plot 60#: LTE Band 41_50%RB_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

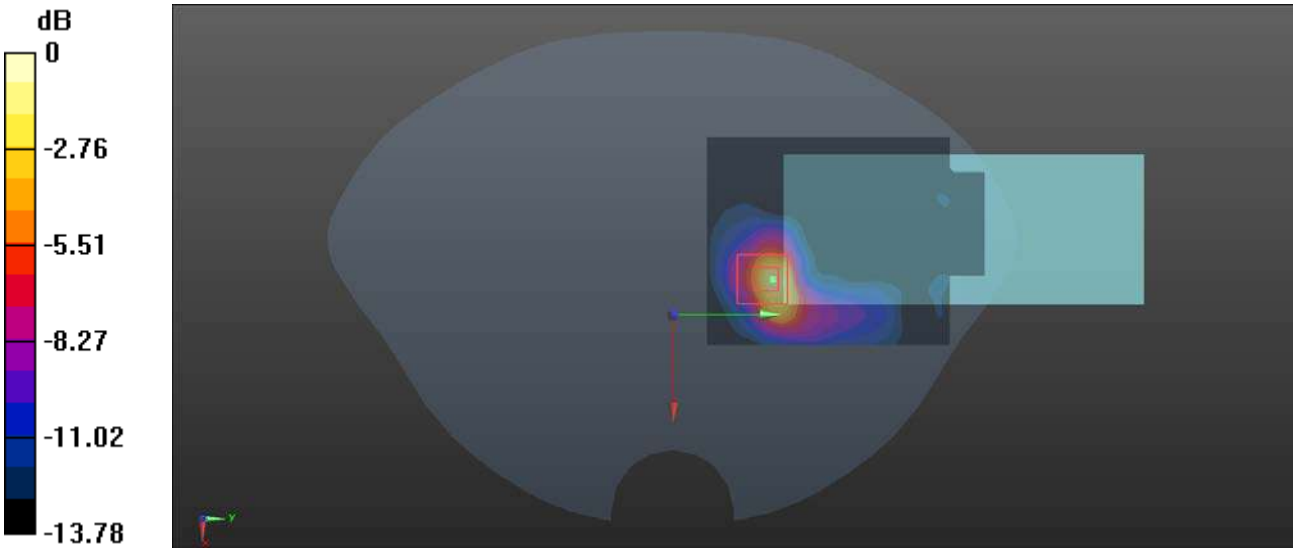
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.284 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.093 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.466 W/kg
SAR(1 g) = 0.188 W/kg; SAR(10 g) = 0.077 W/kg
Maximum value of SAR (measured) = 0.338 W/kg



0 dB = 0.338 W/kg = -4.71 dBW/kg

Plot 61#: LTE Band 41_1RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

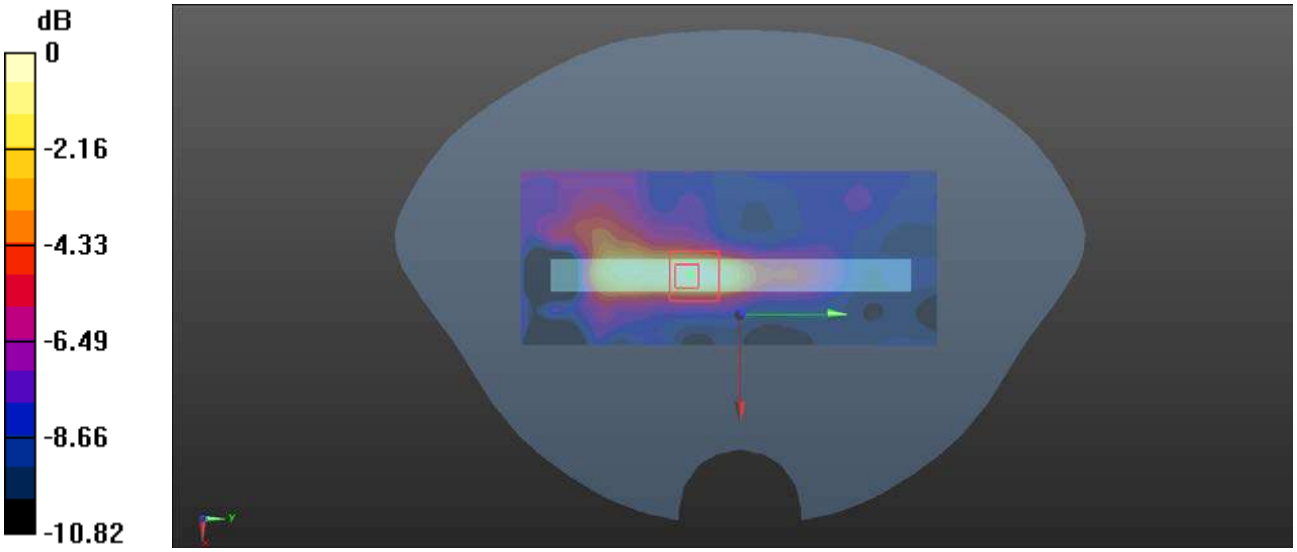
Communication System: Generic TDD-LTE ; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0783 W/kg

Zoom Scan (6x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.174 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.044 W/kg; SAR(10 g) = 0.025 W/kg
Maximum value of SAR (measured) = 0.0742 W/kg



0 dB = 0.0742 W/kg = -11.30 dBW/kg

Plot 62#: LTE Band 41_50%RB_Mid_Body Left

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

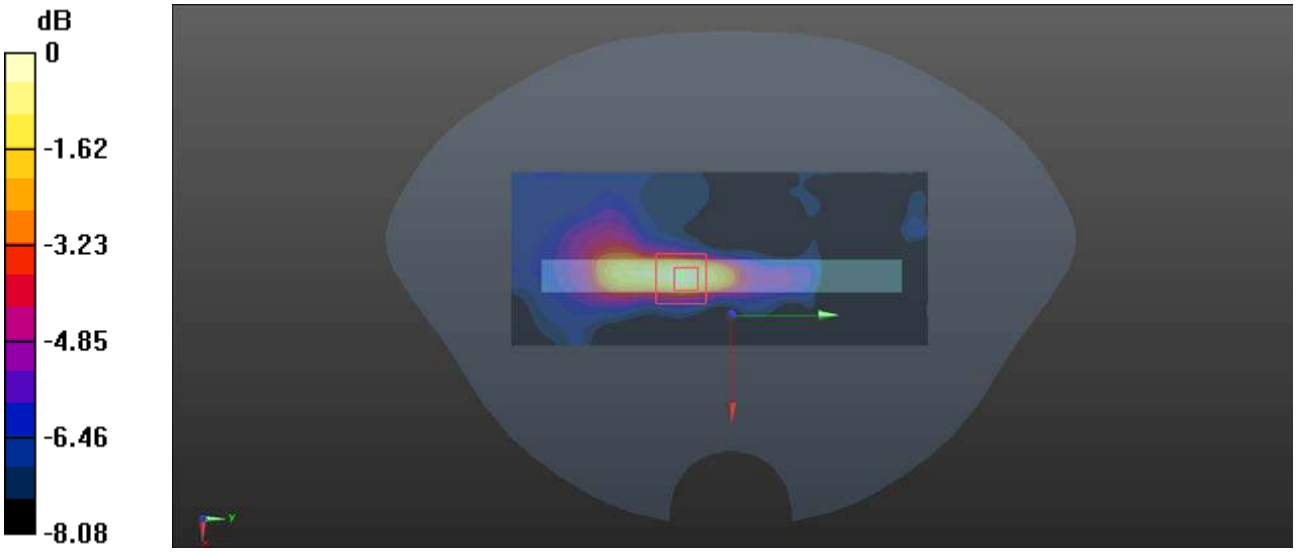
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0729 W/kg

Zoom Scan (6x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.290 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.0900 W/kg
SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.0753 W/kg



0 dB = 0.0753 W/kg = -11.23 dBW/kg

Plot 63#: LTE Band 41_1RB_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

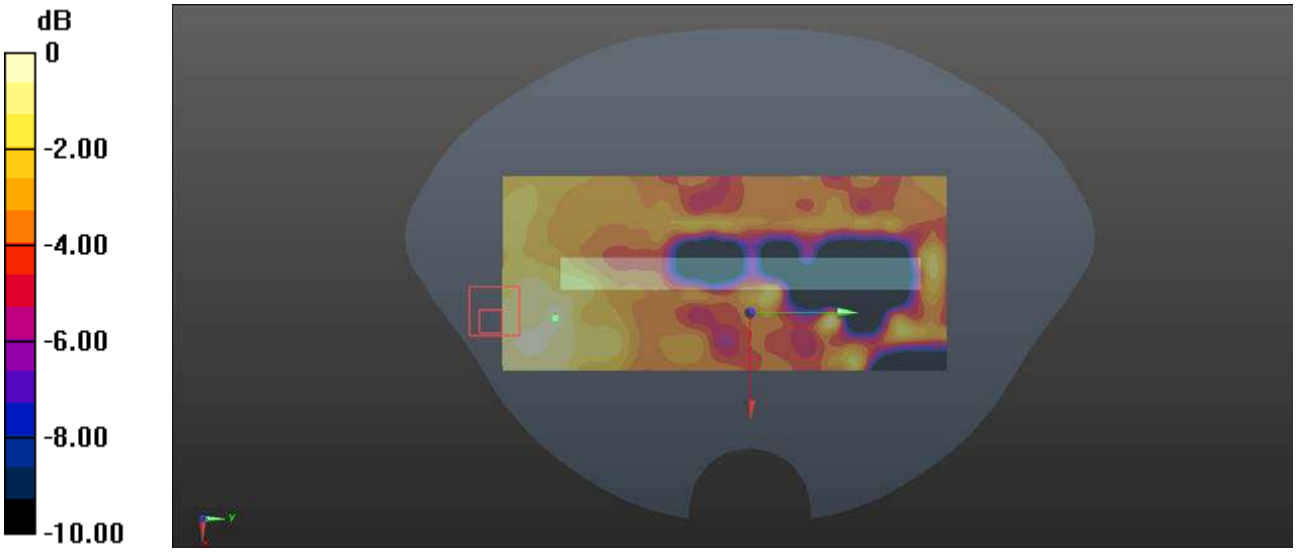
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (71x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0174 W/kg

Zoom Scan (6x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.010 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0190 W/kg
SAR(1 g) = 0.017 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0188 W/kg



0 dB = 0.0188 W/kg = -17.26 dBW/kg

Plot 64#: LTE Band 41_1RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

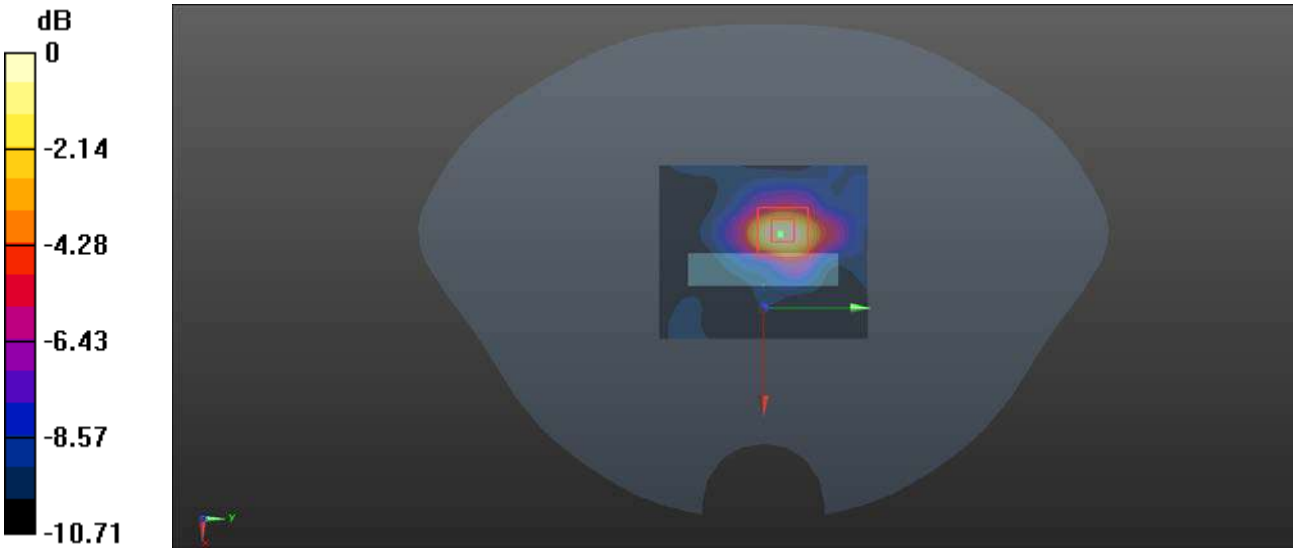
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.161 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.277 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.144 W/kg



0 dB = 0.144 W/kg = -8.42 dBW/kg

Plot 65#: LTE Band 41_50%RB_Mid_Body Bottom

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

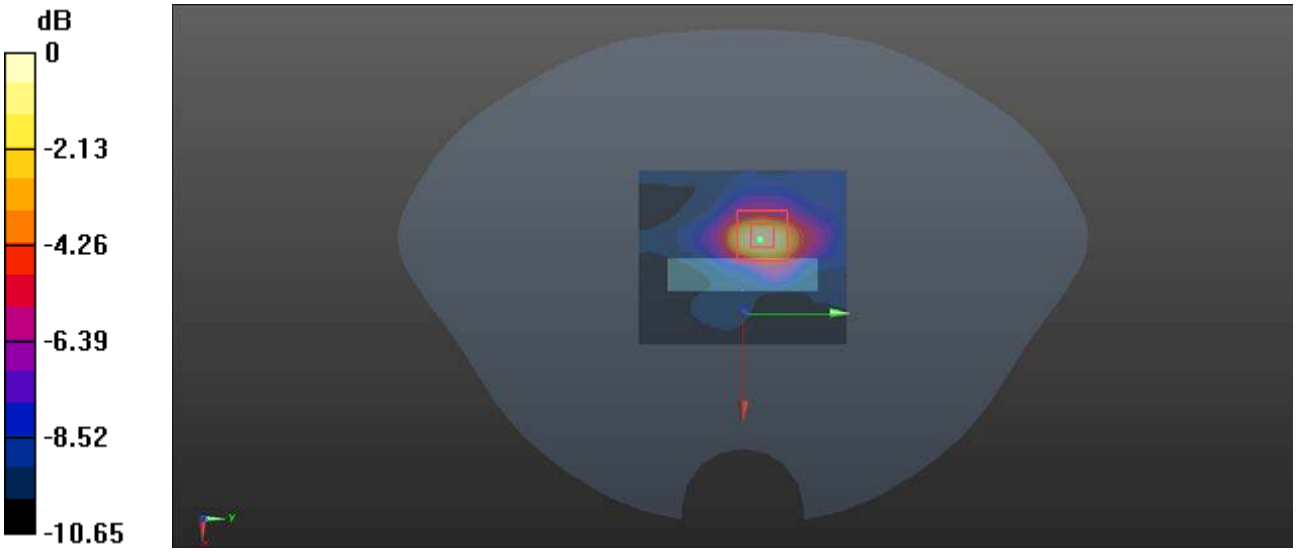
Communication System: Generic TDD-LTE; Frequency: 2605 MHz;Duty Cycle: 1:1.58
Medium parameters used: f = 2605 MHz; σ = 1.995 S/m; ε_r = 39.067; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.05, 7.05, 7.05) @ 2605 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.156 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.029 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.291 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.145 W/kg



0 dB = 0.145 W/kg = -8.39 dBW/kg

Plot 66#: 2.4G Wi-Fi_Mode B_Mid_Head Left Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

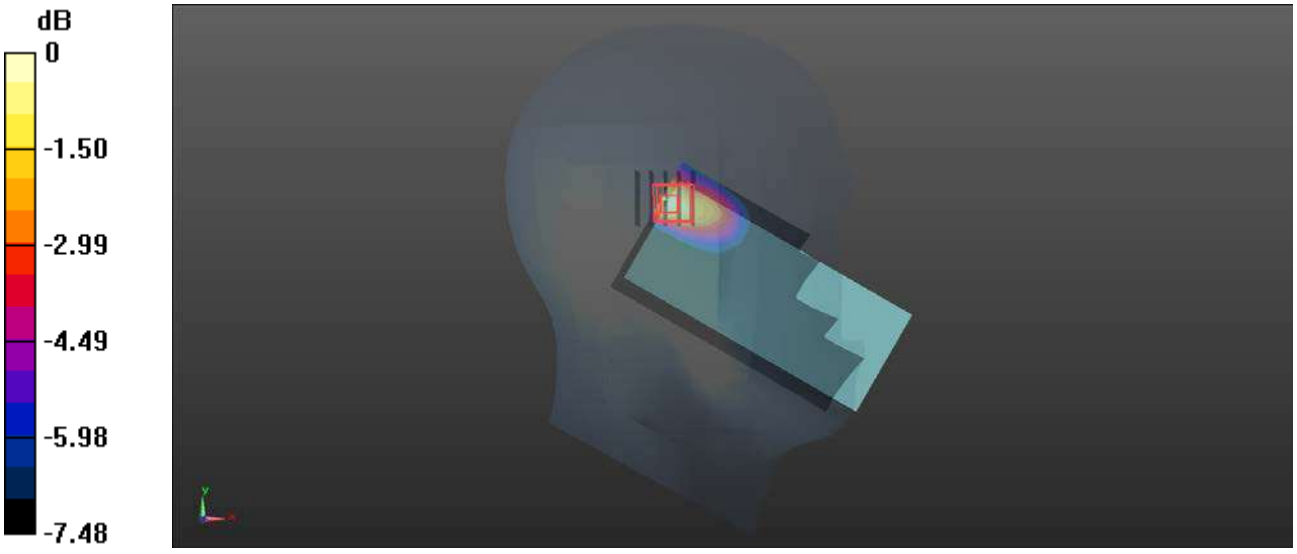
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.124 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.393 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.040 W/kg
Maximum value of SAR (measured) = 0.125 W/kg



0 dB = 0.125 W/kg = -9.03 dBW/kg

Plot 67#: 2.4G Wi-Fi_Mode B_Mid_Head Left Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

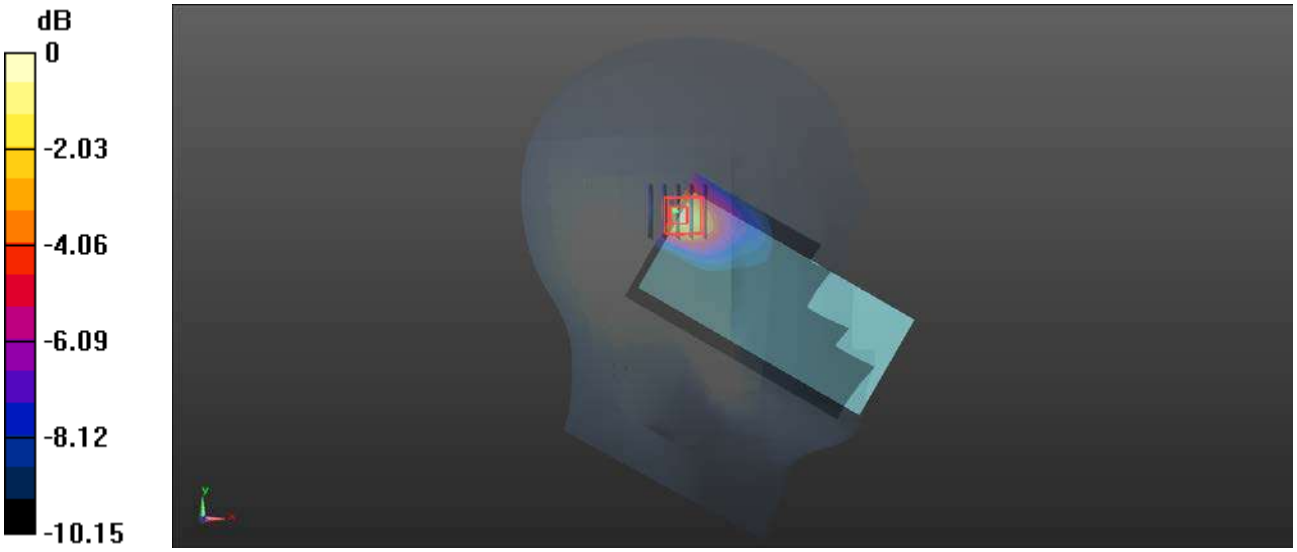
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.122 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.478 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.168 W/kg
SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.119 W/kg



0 dB = 0.119 W/kg = -9.24 dBW/kg

Plot 68#: 2.4G Wi-Fi_Mode B_Mid_Head Right Cheek

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

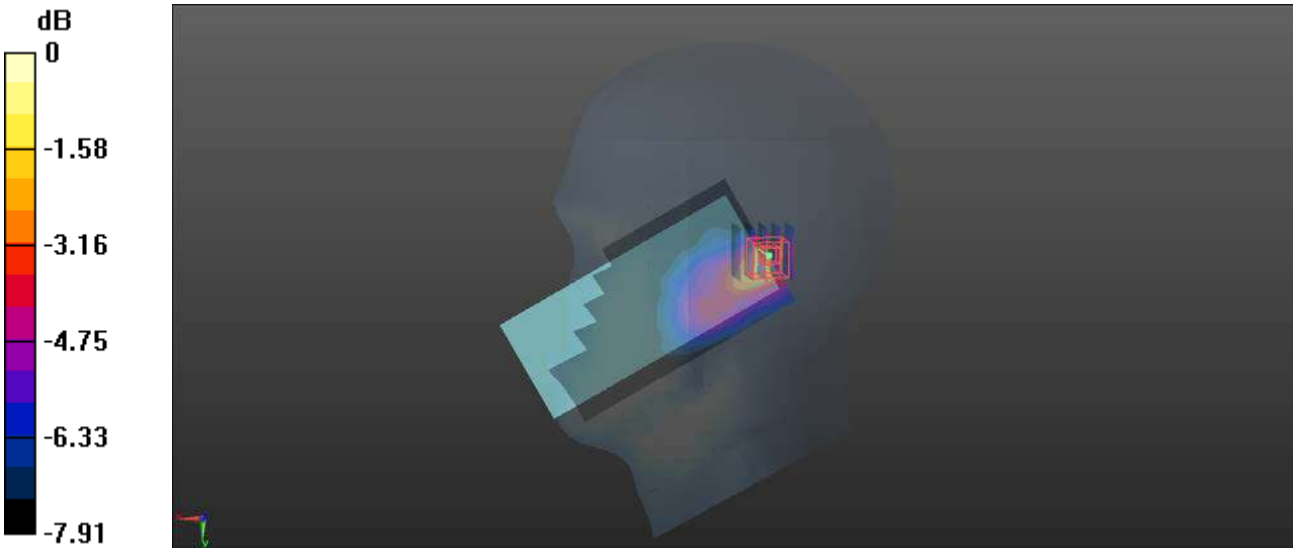
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0947 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.015 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.114 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.032 W/kg
Maximum value of SAR (measured) = 0.0869 W/kg



0 dB = 0.0869 W/kg = -10.61 dBW/kg

Plot 69#: 2.4G Wi-Fi_Mode B_Mid_Head Right Tilt

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

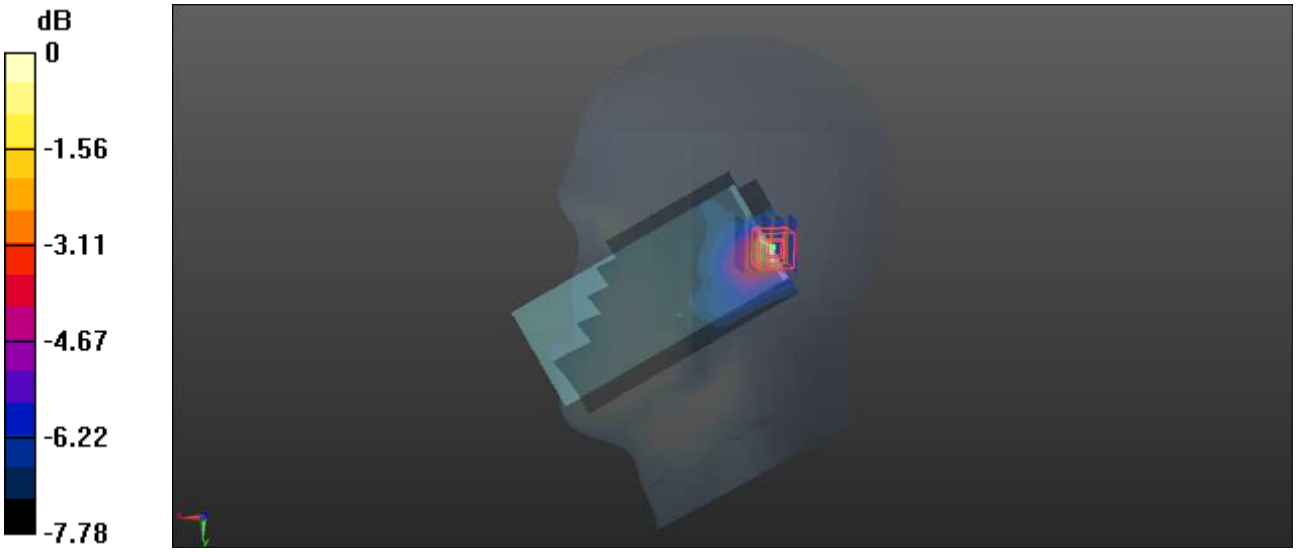
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0776 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.917 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.106 W/kg
SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0796 W/kg



0 dB = 0.0796 W/kg = -10.99 dBW/kg

Plot 70#: 2.4G Wi-Fi_Mode B_Mid_Body Back

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

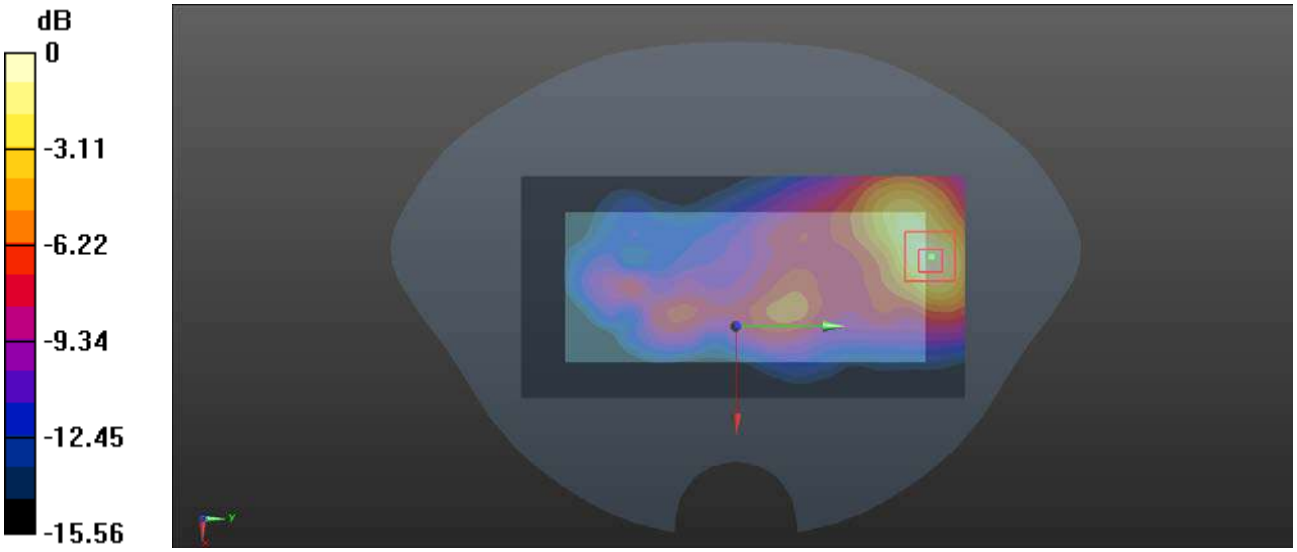
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (81x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.922 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.313 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.146 W/kg
Maximum value of SAR (measured) = 0.958 W/kg



0 dB = 0.958 W/kg = -0.19 dBW/kg

Plot 71#: 2.4G Wi-Fi_Mode B_Mid_Body Right

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

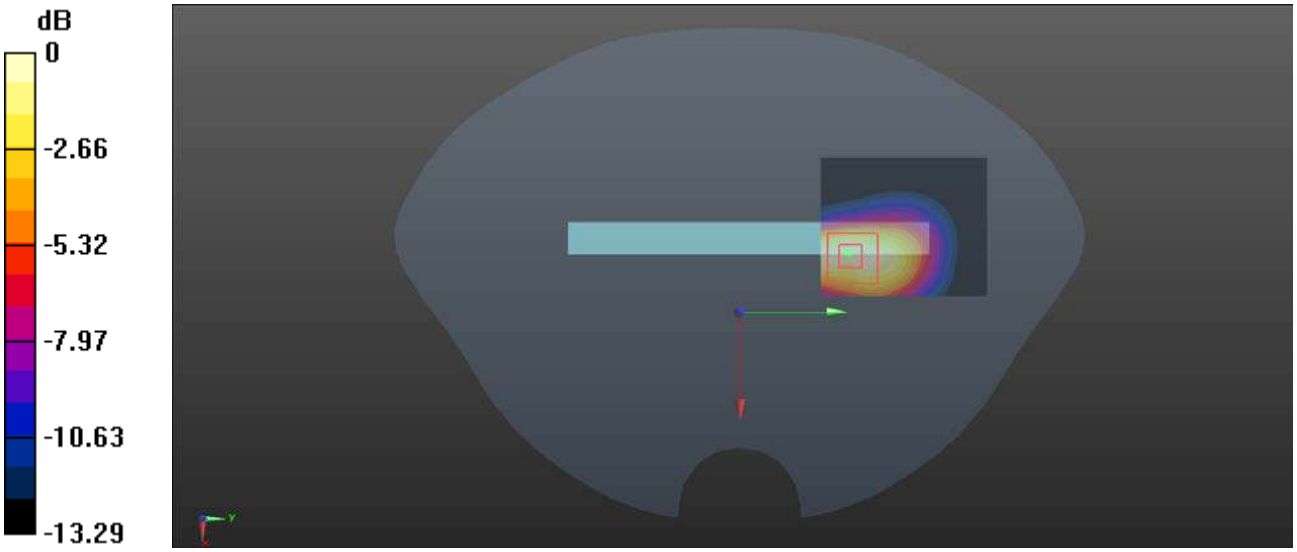
Communication System: CW; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (51x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.392 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.224 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.523 W/kg
SAR(1 g) = 0.234 W/kg; SAR(10 g) = 0.115 W/kg
Maximum value of SAR (measured) = 0.405 W/kg



0 dB = 0.405 W/kg = -3.93 dBW/kg

Plot 72#: 2.4G Wi-Fi_Mode B_Mid_Body Top

DUT: Portable Data Collection Terminal; Type: AUTOID Q9; Serial: CR21100112-SA-S1

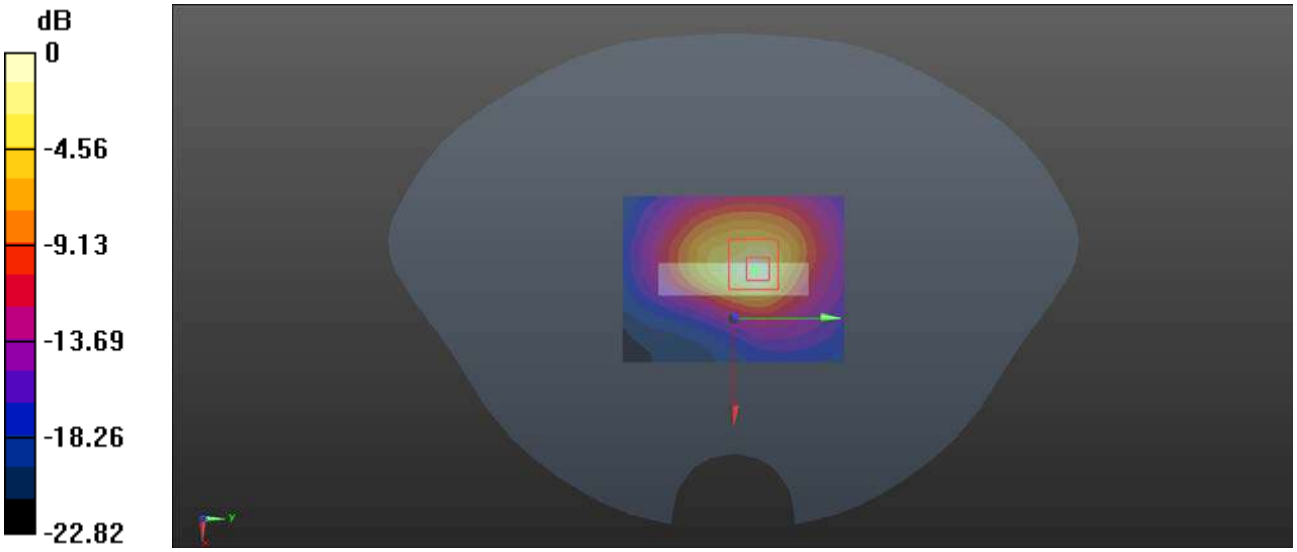
Communication System: CW ; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.791 S/m; ε_r = 39.364; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7522; ConvF(7.25, 7.25, 7.25) @ 2437 MHz; Calibrated: 2021/4/19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1354; Calibrated: 2021/9/1
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (41x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.06 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.173 W/kg
Maximum value of SAR (measured) = 0.851 W/kg

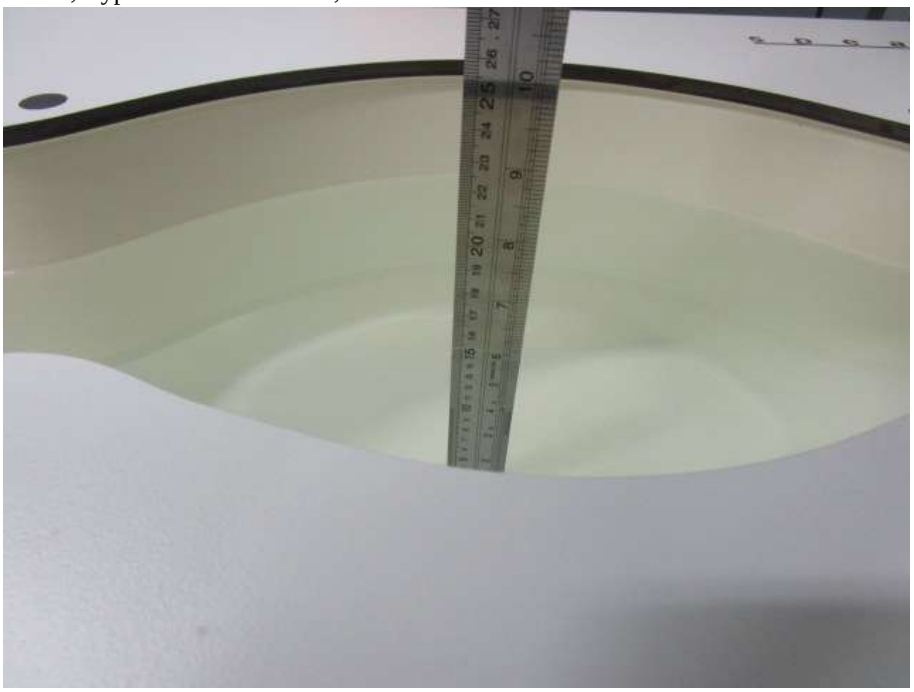


0 dB = 0.851 W/kg = -0.70 dBW/kg

APPENDIX B EUT TEST POSITION PHOTOS

Liquid depth ≥ 15cm

Phantom Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412



Head Left Cheek Setup Photo

Head Left Tilt Setup Photo

Head Right Cheek Setup Photo

Head Right Tilt Setup Photo

Body (Worn)Back Setup Photo (0mm)

Body Left Setup Photo (0mm)

Body Right Setup Photo (0mm)

Body Top Setup Photo (0mm)

Body Bottom Setup Photo (0mm)

APPENDIX C PROBE CALIBRATION CERTIFICATES

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中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client BACL Certificate No: Z21-60079

CALIBRATION CERTIFICATE

Object EX3DV4 - SN : 7522

Calibration Procedure(s) FF-Z11-004-02
Calibration Procedures for Dosimetric E-field Probes

Calibration date: April 19, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101547	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101548	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 7307	29-May-20(SPEAG, No.EX3-7307_May20)	May-21
DAE4	SN 1555	25-Aug-20(SPEAG, No.DAE4-1555_Aug20)	Aug-21
Reference Probe EX3DV4	SN 3617	27-Jan-21(SPEAG,No.EX3-3617_Jan21)	Jan-22
DAE4	SN 1556	15-Jan-21(SPEAG, No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
SignalGenerator MG3700A	6201052605	23-Jun-20(CTTL, No.J20X04343)	Jun-21
Network Analyzer E5071C	MY46110673	21-Jan-21(CTTL, No.J20X00515)	Jan-22

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: April 21, 2021

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:*A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7522

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	0.43	0.44	0.53	±10.0%
DCP(mV)[B]	98.6	99.2	99.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	167.8	±2.5%
		Y	0.0	0.0	1.0		170.2	
		Z	0.0	0.0	1.0		187.9	

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor *k*=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 4 and Page 5).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7522

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	41.9	0.89	9.93	9.93	9.93	0.40	0.75	±12.1%
900	41.5	0.97	9.39	9.39	9.39	0.12	1.95	±12.1%
1750	40.1	1.37	8.16	8.16	8.16	0.21	1.20	±12.1%
1900	40.0	1.40	7.94	7.94	7.94	0.25	1.10	±12.1%
2300	39.5	1.67	7.61	7.61	7.61	0.53	0.72	±12.1%
2450	39.2	1.80	7.25	7.25	7.25	0.34	1.00	±12.1%
2600	39.0	1.96	7.05	7.05	7.05	0.37	0.94	±12.1%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7522

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	55.5	0.96	9.87	9.87	9.87	0.40	0.78	±12.1%
900	55.0	1.05	9.31	9.31	9.31	0.16	1.65	±12.1%
1750	53.4	1.49	7.83	7.83	7.83	0.26	1.14	±12.1%
1900	53.3	1.52	7.66	7.66	7.66	0.19	1.29	±12.1%
2300	52.9	1.81	7.45	7.45	7.45	0.70	0.72	±12.1%
2450	52.7	1.95	7.29	7.29	7.29	0.70	0.71	±12.1%
2600	52.5	2.16	7.01	7.01	7.01	0.65	0.72	±12.1%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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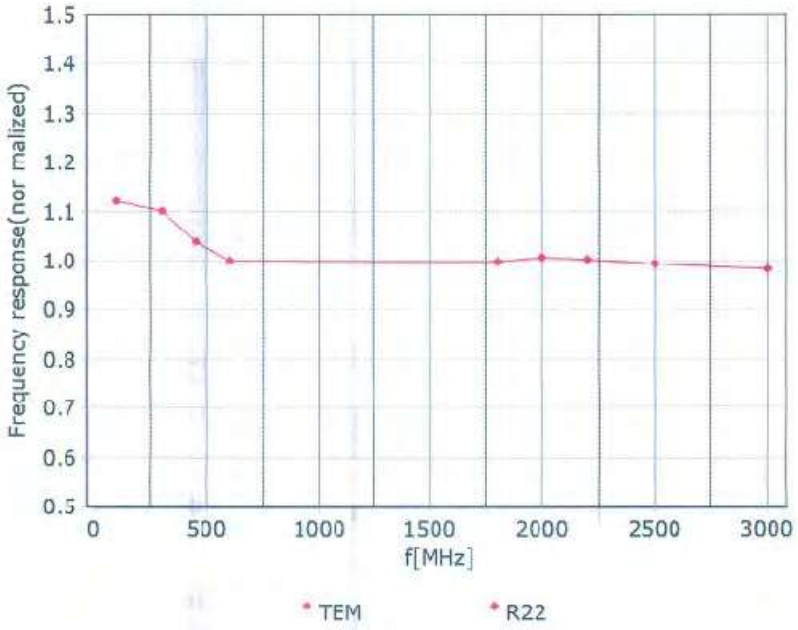
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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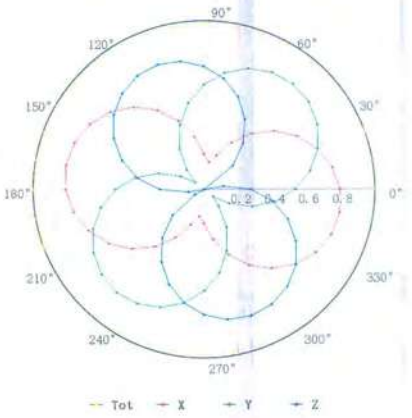
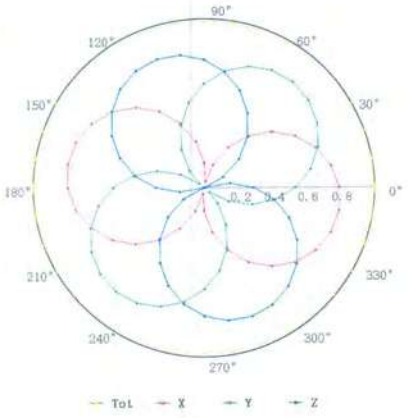
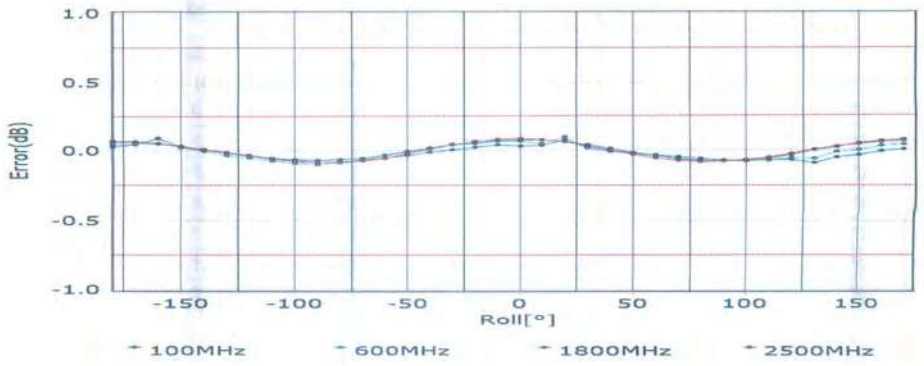
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

ブ Dynamic Range f(SAR_{head})

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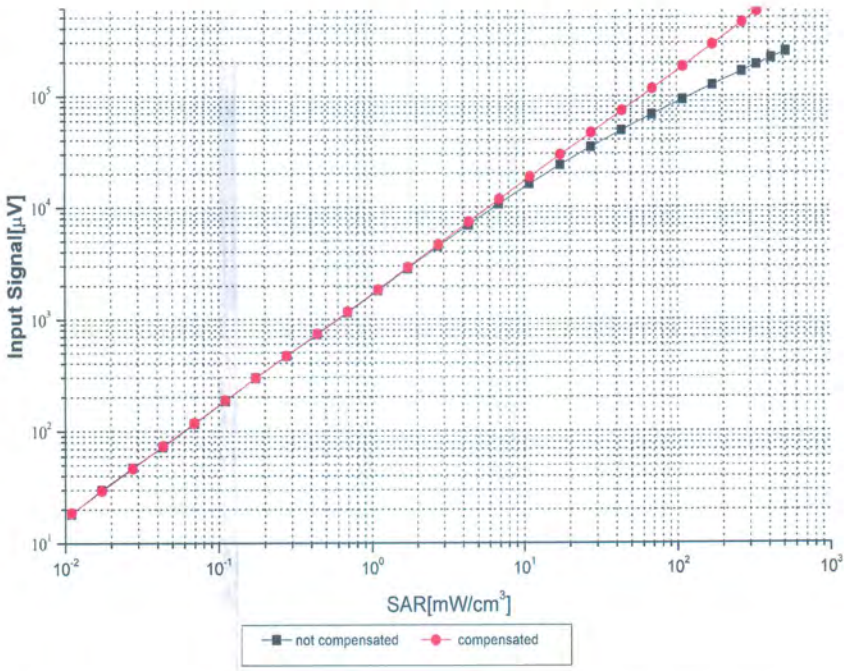
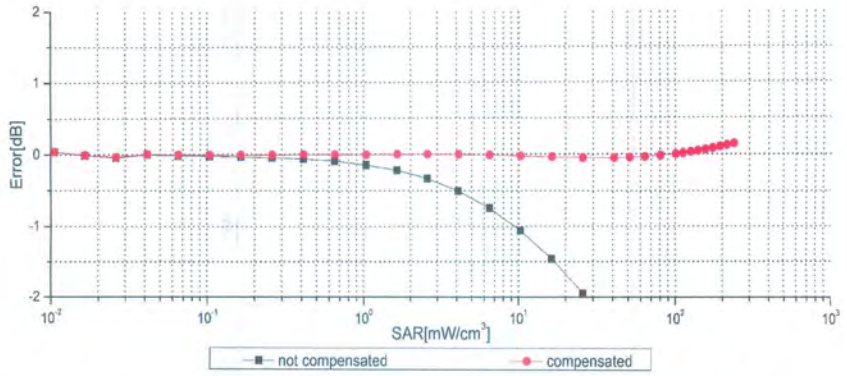
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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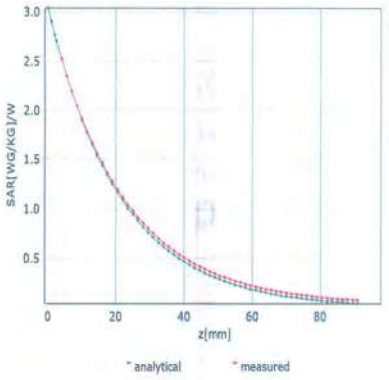
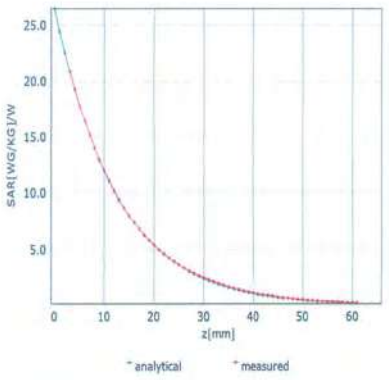
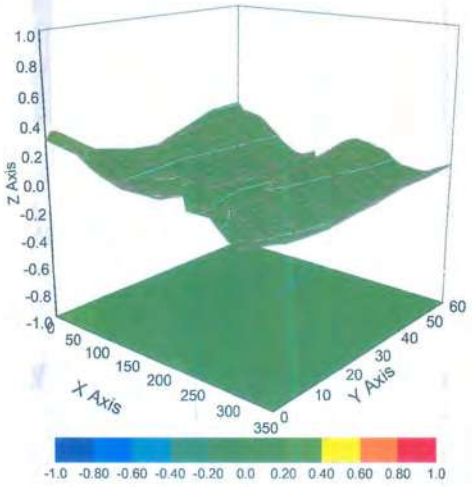
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF) **f=1750 MHz,WGLS R22(H_convF)**





Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7522

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	32.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

DIPOLE CALIBRATION CERTIFICATES

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CNAS L0570

Client BACL Certificate No: Z19-60432

CALIBRATION CERTIFICATE

Object	D750V3 - SN: 1167
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	November 20, 2019

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Yu Zongying	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 23, 2019

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.3
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.5 ± 6 %	0.87 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.38 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.61 W/kg ± 18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7Ω- 3.91jΩ
Return Loss	- 25.7dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.898 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 11.20.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1167

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

Medium parameters used: f = 750 MHz; σ = 0.874 S/m; ε_r = 41.5; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(10.03, 10.03, 10.03) @ 750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.29 V/m; Power Drift = -0.06 dB

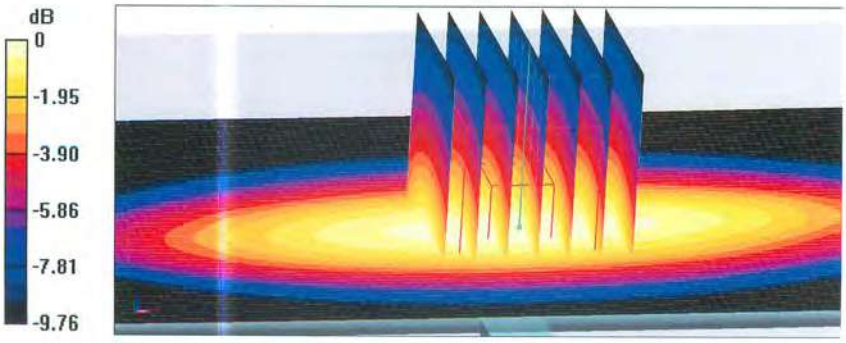
Peak SAR (extrapolated) = 2.97 W/kg

SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.39 W/kg

Smallest distance from peaks to all points 3 dB below = 20.5 mm

Ratio of SAR at M2 to SAR at M1 = 69.6%

Maximum value of SAR (measured) = 2.70 W/kg



0 dB = 2.70 W/kg = 4.31 dBW/kg

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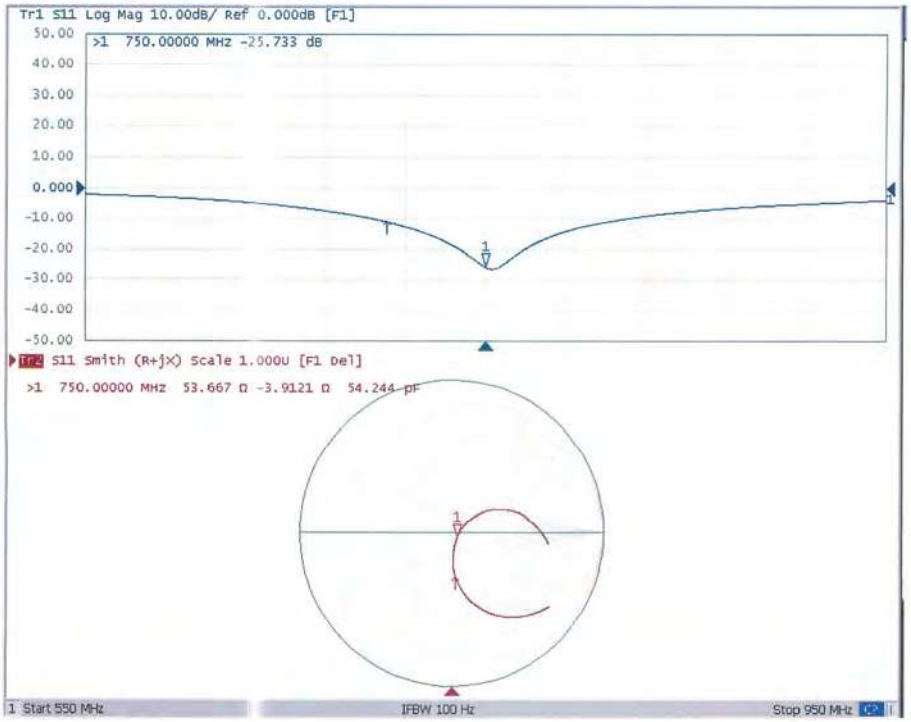
Impedance Measurement Plot for Head TSL



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CNAS L0570

Client BACL Certificate No: Z19-60335

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 543
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	October 15, 2019

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: October 19, 2019

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lossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.8 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.95 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.2 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.6 W/kg ± 18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.8Ω+ 4.08jΩ
Return Loss	- 27.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.062 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 10.15.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 543

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

Medium parameters used: f = 1900 MHz; σ = 1.376 S/m; ε_r = 39.82; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.14, 8.14, 8.14) @ 1900 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

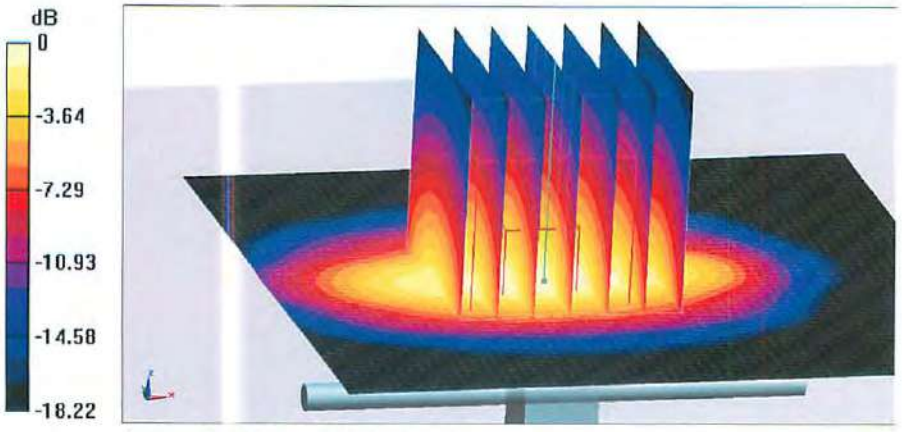
System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 102.2 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 9.95 W/kg; SAR(10 g) = 5.13 W/kg

Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.99 dBW/kg

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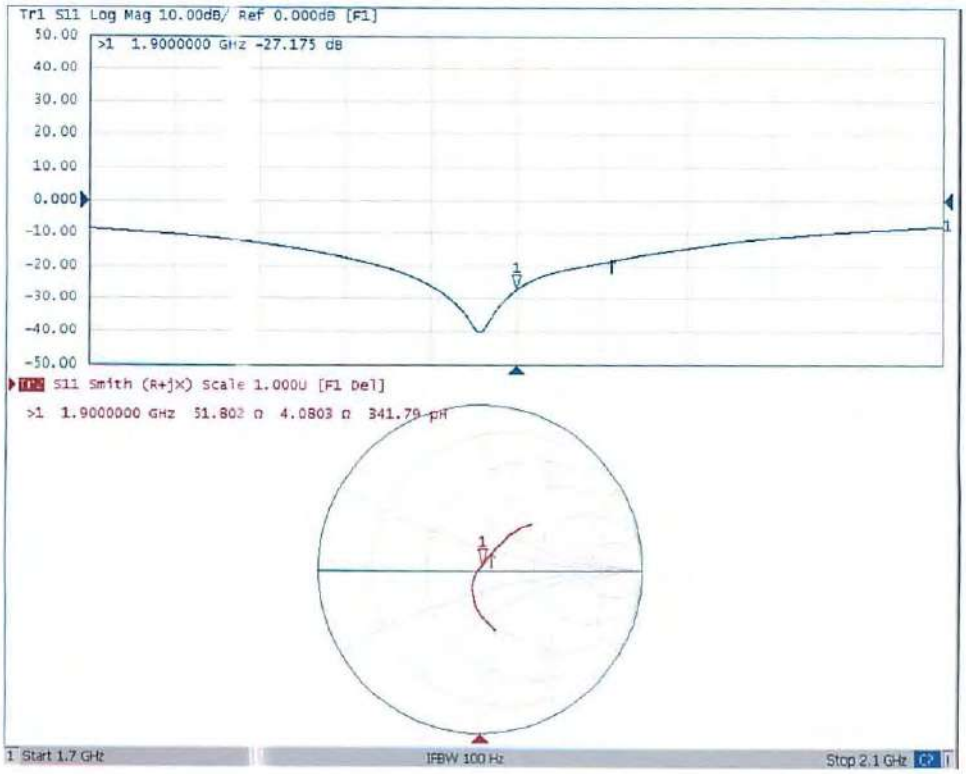
Impedance Measurement Plot for Head TSL



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CNAS L0570

Client BACL Certificate No: Z21-60260

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 971
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	June 28, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 3846	26-Apr-21(CTTL-SPEAG,No.Z21-60084)	Apr-22
DAE4	SN 549	08-Jan-21(CTTL-SPEAG,No.Z21-60002)	Jan-22
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: July 2, 2021

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.78 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.5 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.7Ω+ 4.06jΩ
Return Loss	- 23.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.071 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL Date: 06.28.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 971

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

Medium parameters used: f = 2450 MHz; σ = 1.779 S/m; ε_r = 39.12; ρ = 1000 kg/m^3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3846; ConvF(7.45, 7.45, 7.45) @ 2450 MHz; Calibrated: 2021-04-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2021-01-08
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.9 V/m; Power Drift = 0.02 dB

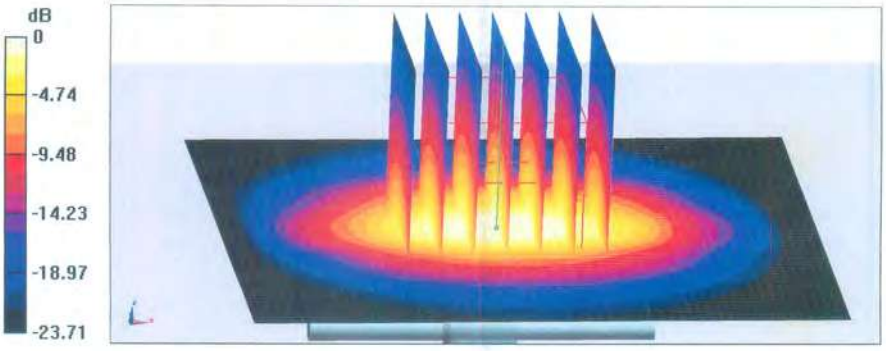
Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.04 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 45.6%

Maximum value of SAR (measured) = 22.8 W/kg



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

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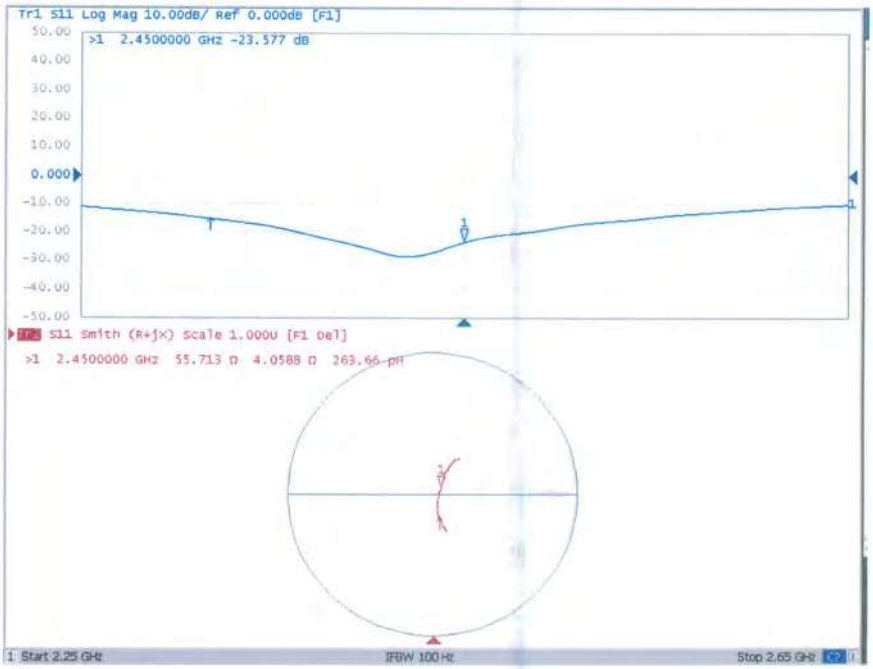
Impedance Measurement Plot for Head TSL



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CALIBRATION
CNAS L0570

Client **BACL** **Certificate No: Z19-60433**

CALIBRATION CERTIFICATE

Object	D2600V2 - SN: 1132
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	November 19, 2019

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
Network Analyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Yu Zongying	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 22, 2019

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.3
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.3 ± 6 %	1.95 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.9 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**55.5 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.4 W/kg ± 18.7 % (k=2)**

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Appendix(Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.0Ω- 7.12jΩ
Return Loss	- 22.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.018 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL Date: 11.19.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1132

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

Medium parameters used: f = 2600 MHz; σ = 1.951 S/m; ε_r = 38.27; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.19, 7.19, 7.19) @ 2600 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.37 V/m; Power Drift = -0.03 dB

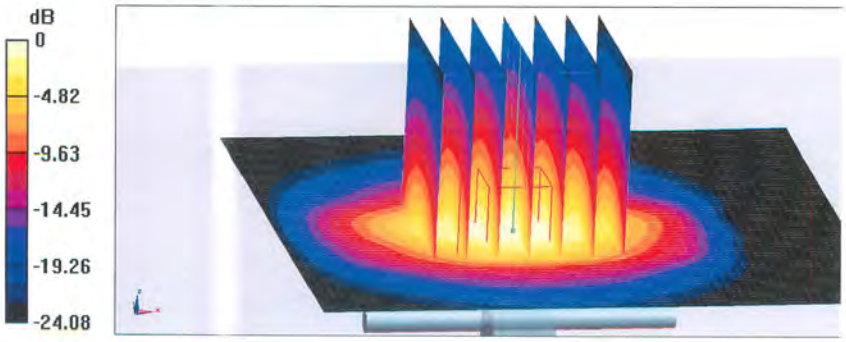
Peak SAR (extrapolated) = 30.5 W/kg

SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.12 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 45.6%

Maximum value of SAR (measured) = 24.2 W/kg



0 dB = 24.2 W/kg = 13.84 dBW/kg

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Impedance Measurement Plot for Head TSL