SAR Test Report

Report No.: AGC00607171204FH01

FCC ID	:	Q5EW25
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	POC Trunked Two-way Radio
BRAND NAME	:	KIRISUN
MODEL NAME	:	W25, iTALK150
CLIENT	:	Shenzhen Kirisun Communications Co., Ltd.
DATE OF ISSUE	:	July 11,2018
STANDARD(S)	:	IEEE Std. 1528:2013 FCC 47CFR § 2.1093 IEEE/ANSI C95.1:2005
REPORT VERSION	:	V1.2

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 18,2018	Invalid	Initial Release
V1.1	1st	June 28,2018	Invalid	Added test data of hot pot mode.
V1.2	2nd	July 11,2018	Valid	Modify the description of Chapter 13.1.2. Point 5

Test Report Certification

Applicant Name	Shenzhen Kirisun Communications Co., Ltd.
Applicant Address	3rd Floor, Building A, Tongfang Information Harbour, No.11 Langshan Road, Nanshan District, Shenzhen 518057, P.R.China
Manufacturer Name	Shenzhen Kirisun Communications Co., Ltd.
Manufacturer Address	3rd Floor, Building A, Tongfang Information Harbour, No.11 Langshan Road, Nanshan District, Shenzhen 518057, P.R.China
Product Designation	POC Trunked Two-way Radio
Brand Name	KIRISUN
Model Name	W25, iTALK150
Different Description	All the same, only different in model names. The test model is W25.
EUT Voltage	DC3.7V by battery
Applicable Standard	IEEE Std. 1528:2013 FCC 47CFR § 2.1093 IEEE/ANSI C95.1:2005
Test Date	May 14,2018 to June 26,2018
Report Template	AGCRT-US-3G3/SAR (2018-01-01)

Note: The results of testing in this report apply to the product/system which was tested only.

Tested By: Eric Zhou(Zhou Yongkang) June 26,2018

Checked By: Angela Li(Li Jiao) July 11,2018

Authorized By: Forrest Lei(Lei Yonggang) July 11,2018
Authorized Officer

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1. SUMMARY OF MAXIMUM SAR VALUE

The maximum results of Specific Absorption Rate (SAR) found during testing for EUT are as follows:

Frequency Band	Highest Reported 1g-SAR(W/Kg)		SAR Test Limit (W/Kg)
	Body BackTouch (with 0mm separation)	In Front of Face (with 25mm separation)	
GSM 850	1.020	0.570	1.6
PCS 1900	0.539	0.202	
UMTS Band II	0.510	0.201	
UMTS Band V	0.568	0.259	
WIFI 2.4G	0.022	0.011	
Simultaneous Reported SAR	1.227		
SAR Test Result	PASS		

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/Kg) specified in IEEE Std. 1528:2013; FCC 47CFR § 2.1093; IEEE/ANSI C95.1:2005 and the following specific FCC Test Procedures:

- KDB 447498 D01 General RF Exposure Guidance v06
- KDB 648474 D04 Handset SAR v01r03
- KDB 865664 D01 SAR Measurement 100MHz to 6GHz v01r04
- KDB 941225 D01 3G SAR Procedures v03r01
- KDB 941225 D06 Hotspot Mode v02r01
- KDB 248227 D01 802 11 Wi-Fi SAR v02r02

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2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	POC Trunked Two-way Radio
Test Model	W25
Hardware Version	V1.0
Software Version	V1.0
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	PIFA
GPRS	
Support Band	☒GSM 850 ☒PCS 1900 (U.S. Bands) ☒GSM 900 ☒DCS 1800 (Non-U.S. Bands)
GPRS Type	Class B
GPRS Class	Class 12(1Tx+4Rx, 2Tx+3Rx, 3Tx+2Rx, 4Tx+1Rx)
TX Frequency Range	GSM 850 : 820-850MHz;; PCS 1900: 1850-1910MHz;
RX Frequency Range	GSM 850 : 869~894MHz; PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GPRS;
Antenna Gain	GSM850: -1.26dBi; PCS1900: -1.85dBi;
Max. Average Power	GSM850: 31.95dBm ;PCS1900: 28.82dBm
WCDMA	
Support Band	☒UMTS FDD Band II ☒UMTS FDD Band V (U.S. Bands) ☒UMTS FDD Band I ☒UMTS FDD Band VIII (Non-U.S. Bands)
HS Type	HSPA(HSUPA/HSDPA)
TX Frequency Range	WCDMA FDD Band II: 1850-1910MHz; WCDMA FDD Band V: 820-850MHz
RX Frequency Range	WCDMA FDD Band II: 1930-1990MHz; WCDMA FDD Band V: 869-894MHz
Release Version	Rel-6
Type of modulation	HSDPA:QPSK/16QAM; HSUPA:BPSK; WCDMA:QPSK
Antenna Gain	Band II:-1.96dBi; Band V: -1.05dBi;
Max. Average Power	Band II: 21.72dBm; Band V: 21.62dBm

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EUT Description(Continue)

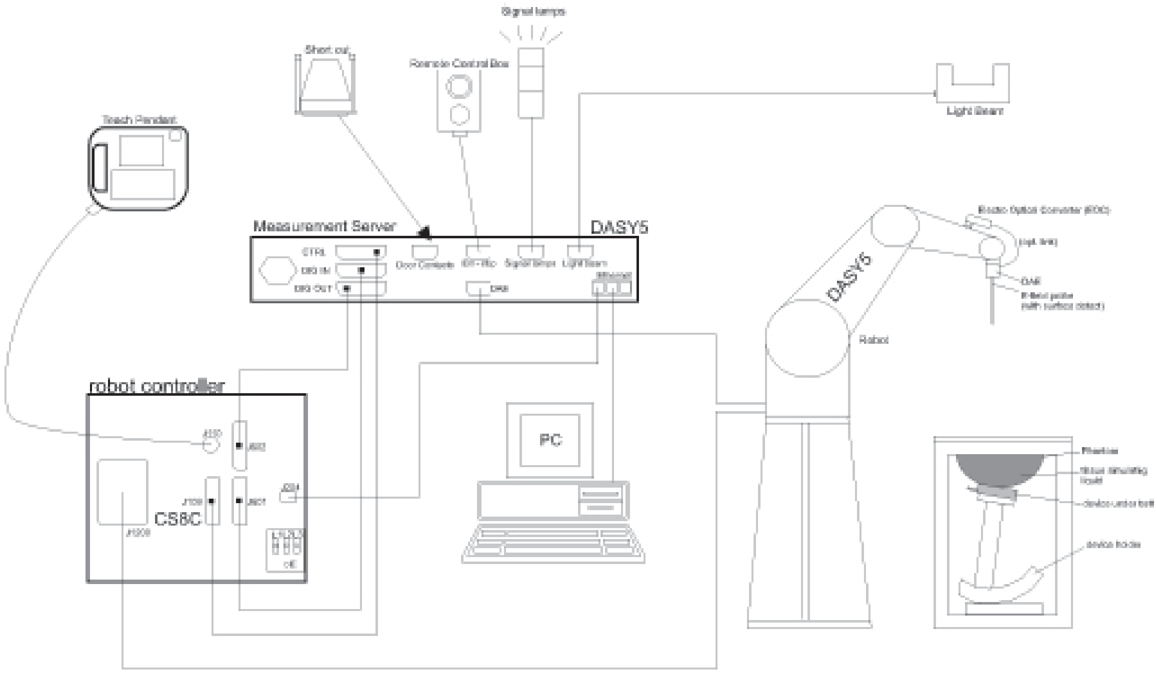
Bluetooth	
Bluetooth Version	☐V2.0 ☐V2.1 ☐V2.1+EDR ☐V3.0 ☐V3.0+HS ☒V4.0 ☐V4.1
Operation Frequency	2402~2480MHz
Type of modulation	☒GFSK ☒π/4-DQPSK ☒8-DPSK
Peak Power	6.062dBm
Antenna Gain	1.16dBi
WIFI	
WIFI Specification	☐802.11a ☒802.11b ☒802.11g ☒802.11n(20) ☒802.11n(40)
Operation Frequency	2412~2462MHz
Average Power	11b:17.36dBm,11g:14.49dBm,11n(20):14.17dBm,11n(40):12.44dBm
Antenna Gain	1.16dBi
Accessories	
Battery	Brand name: KIRISUN Model No. : KB-W25 Voltage and Capacitance: 3.7 V & 4000mAh
Earphone	Brand name: N/A Model No. : N/A

Note:1.CMU200 can measure the average power and Peak power at the same time
2.The sample used for testing is end product.

Product	Type	
	☒ Production unit	☐ Identical Prototype

3. SAR MEASUREMENT SYSTEM

3.1. The DASY5 system used for performing compliance tests consists of following items



- A standard high precision 6-axis robot with controller, teach pendant and software.
- Data acquisition electronics (DAE) which attached to the robot arm extension. The DAE 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
- A dosimetric probe equipped with an optical surface detector system.
- 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.
- A Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- Phantoms, device holders and other accessories according to the targeted measurement.

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3.2. DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. SPEAG conducts the probe calibration in compliance with international and national standards (e.g.IEEE 1528 etc.)Under ISO17025.The calibration data are in Appendix D.

Isotropic E-Field Probe Specification

Model	EX3DV4
Manufacture	SPEAG
frequency	0.45GHz-3 GHz Linearity:±0.9%(k=2)(450MHz-3 GHz)
Dynamic Range	0.01W/Kg-100W/Kg Linearity:±0.9%(k=2)
Dimensions	Overall length:337mm Tip diameter:2.5mm Typical distance from probe tip to dipole centers:1mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 3 GHz with precision of better 30%.

3.3. Data Acquisition Electronics description

The data acquisition electronics (DAE) consist if a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement sever is accomplished through an optical downlink fir 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.

DAE4

Input Impedance	200MOhm
The Inputs	Symmetrical and floating
Common mode rejection	above 80 dB

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3.4. Robot

The DASY system uses the high precision robots (DASY5:TX60) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

3.5. Light Beam Unit

The light beam switch allows automatic “tooling” of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned prob.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position. e, the same position will be reached with another aligned probe within 0

3.6. Device Holder

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles. The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.	

3.7. Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chip-disk (DASY5: 128MB), RAM (DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DAYS I/O board, which is directly connected to the PC/104 bus of the CPU board. The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.	

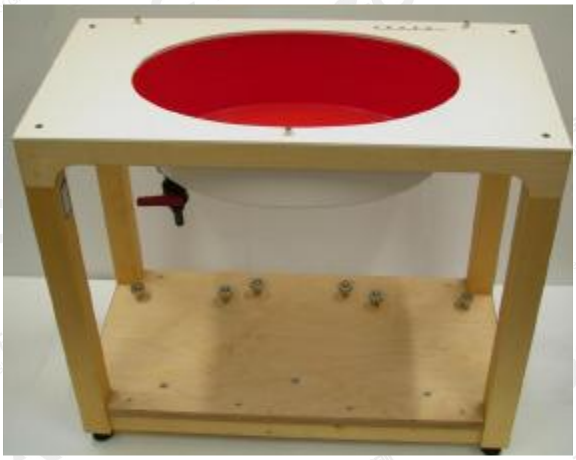
3.8. PHANTOM

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 6mm). It has three measurement areas: □ Left head □ Right head □ Flat phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

ELI4 Phantom

□ Flat phantom a fiberglass shell flat phantom with 2mm+/- 0.2 mm shell thickness. It has only one measurement area for Flat phantom	

4. SAR MEASUREMENT PROCEDURE

4.1. Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and occupational/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element(dv) of given mass density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dV}\right)$$

SAR is expressed in units of Watts per kilogram (W/Kg)
SAR can be obtained using either of the following equations:

$$SAR = \frac{\sigma E^2}{\rho}$$

$$SAR = c_h \left.\frac{dT}{dt}\right|_{t=0}$$

Where

SAR	is the specific absorption rate in watts per kilogram;
E	is the r.m.s. value of the electric field strength in the tissue in volts per meter;
σ	is the conductivity of the tissue in siemens per metre;
ρ	is the density of the tissue in kilograms per cubic metre;
c_h	is the heat capacity of the tissue in joules per kilogram and Kelvin;
$\frac{dT}{dt} \mid t = 0$	is the initial time derivative of temperature in the tissue in kelvins per second

4.2. SAR Measurement Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface is 2.7mm This distance cannot be smaller than the distance os sensor calibration points to probe tip as `defined in the probe properties,

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in db) is specified in the standards for compliance testing. For example, a 2db range is required in IEEE Standard 1528, whereby 3db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan) If one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximum are detected, the number of Zoom Scan has to be increased accordingly.

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 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

Zoom Scan are used to assess the peak spatial SAR value within a cubic average volume containing 1g abd 10g of simulated tissue. The Zoom Scan measures points(refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1g and 10g and displays these values next to the job's label.

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Zoom Scan Parameters extracted from KDB865664 d01 SAR Measurement 100MHz to 6GHz

Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 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.				

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 same settings. 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.

4.3. RF Exposure Conditions

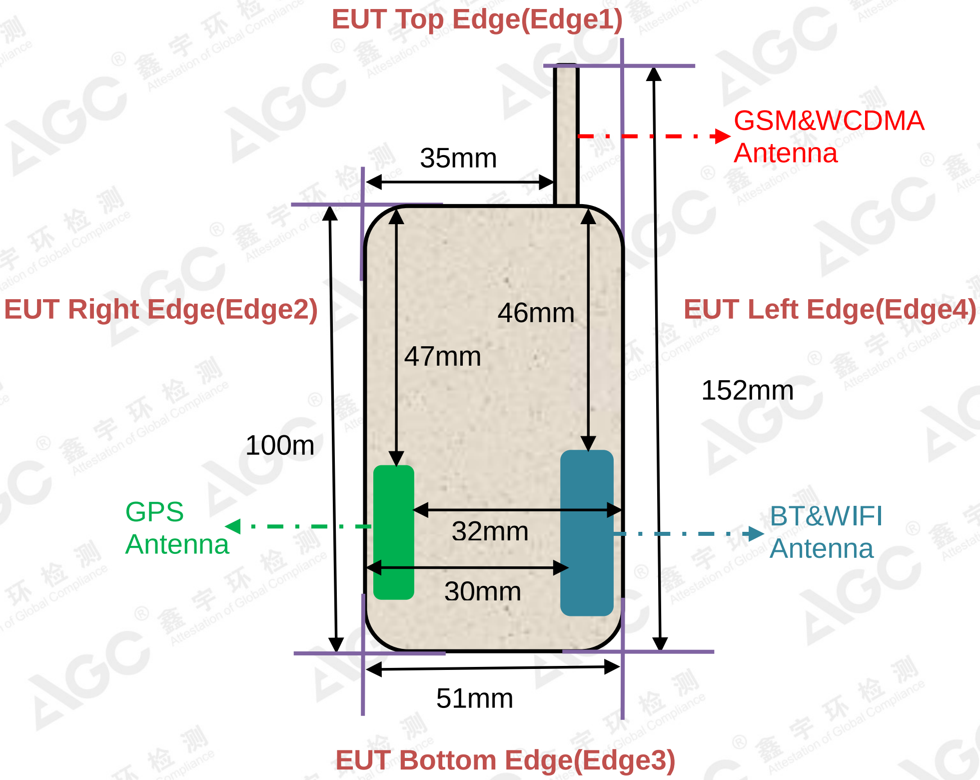
Test Configuration and setting:

The EUT is a model of Public network interphone. It supports GPRS, WCDMA/HSPA, BT, WIFI and support hot spot mode.

For WWAN SAR testing, the device was controlled by using a base station emulator. Communication between the device and the emulator were established by air link. The distance between the EUT and the antenna is larger than 50cm, and the output power radiated from the emulator antenna is at least 30db smaller than the output power of EUT.

For WLAN testing, the EUT is configured with the WLAN continuous TX tool through engineering command.

12.1.3. Antenna Location: (back view)



For WWAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Body			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Hotspot			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Edge 1 (Top)	1mm	Yes	--
Edge 2 (Right)	35mm	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR
Edge 3 (Bottom)	100mm	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR
Edge 4 (Left)	5mm	Yes	--

For WLAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Body			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Hotspot			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Edge 1 (Top)	46mm	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR
Edge 2 (Right)	30mm	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR
Edge 3 (Bottom)	7mm	Yes	--
Edge 4 (Left)	3mm	Yes	--

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5. TISSUE SIMULATING LIQUID

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15cm. For head SAR testing the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15cm For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm.The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in 5.2

5.1. The composition of the tissue simulating liquid

Ingredient (% Weight) / Frequency (MHz)	Water	Nacl	Polysorbate 20	DGBE	1,2 Propanediol	Triton X-100
835 Head	50.36	1.25	48.39	0.0	0.0	0.0
835 Body	54.00	1	0.0	15	0.0	30
1900 Head	54.9	0.18	0.0	44.92	0.0	0.0
1900 Body	70	1	0.0	9	0.0	20
2450 Head	71.88	0.16	0.0	7.99	0.0	19.97
2450 Body	70	1	0.0	9	0.0	20

5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in IEEE 1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in IEEE 1528.

Target Frequency (MHz)	head		body	
	εr	σ (S/m)	εr	σ (S/m)
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	**41.5**	**0.90**	**55.2**	**0.97**
900	41.5	0.97	55.0	1.05
915	41.5	1.01	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	**40.0**	**1.40**	**53.3**	**1.52**
2450	**39.2**	**1.80**	**52.7**	**1.95**
3000	38.5	2.40	52.0	2.73

(εr = relative permittivity, σ = conductivity and ρ = 1000 kg/m3)

5.3. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY 5 Dielectric Probe Kit and R&S Network Analyzer ZVL6.

Tissue Stimulant Measurement for 835MHz					
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 41.5 (39.425-43.575)	δ[s/m] 0.90(0.855-0.945)		
Head	824.2	42.57	0.89	21.8	May 14,2018
	826.4	41.79	0.90		
	835	41.22	0.91		
	836.6	40.52	0.92		
	846.6	40.03	0.93		
	848.8	39.67	0.94		
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [oC]	Test time
		εr 55.20(52.44-57-96)	δ[s/m]0.97(0.9215-1.0185)		
Body	824.2	56.85	0.94	21.8	May 14,2018
	826.4	56.31	0.95		
	835	55.73	0.96		
	836.6	55.27	0.97		
	846.6	54.64	0.98		
	848.8	54.06	0.99		

Tissue Stimulant Measurement for 1900MHz					
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr40.00(38.00-42.00)	δ[s/m]1.40(1.33-1.47)		
Head	1850.2	41.06	1.35	21.3	May 15,2018
	1852.4	40.59	1.37		
	1880	40.17	1.39		
	1900	39.84	1.40		
	1907.6	39.22	1.41		
	1909.8	38.95	1.43		
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [oC]	Test time
		εr53.30(50.635-55.965)	δ[s/m]1.52(1.444-1.596)		
Body	1850.2	55.21	1.46	21.5	May 15,2018
	1852.4	54.83	1.48		
	1880	54.18	1.49		
	1900	53.69	1.50		
	1907.6	52.97	1.51		
	1909.8	52.26	1.53		

Tissue Stimulant Measurement for 2450MHz					
Head	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr39.2(37.24-41.16)	δ[s/m]1.80(1.71-1.89)		
	2412	40.56	1.75	21.3	May 16,2018
	2437	40.11	1.77		
	2450	39.67	1.79		
	2462	39.25	1.80		
Body	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr52.7(50.065-55.335)	δ[s/m]1.95(1.8525-2.0475)		
	2412	54.81	1.88	21.5	May 16,2018
	2437	54.26	1.90		
	2450	53.69	1.92		
	2462	53.04	1.93		

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Tissue Stimulant Measurement for 835MHz					
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [oC]	Test time
		εr 55.20(52.44-57-96)	δ[s/m]0.97(0.9215-1.0185)		
Body	824.2	55.31	0.93	21.3	June 21,2018
	826.4	54.95	0.94		
	835	54.42	0.95		
	836.6	53.74	0.96		
	846.6	53.16	0.97		
	848.8	52.65	0.98		

Tissue Stimulant Measurement for 1900MHz					
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [oC]	Test time
		εr53.30(50.635-55.965)	δ[s/m]1.52(1.444-1.596)		
Body	1850.2	54.95	1.47	21.5	June 26,2018
	1852.4	54.41	1.49		
	1880	53.77	1.50		
	1900	53.20	1.52		
	1907.6	52.64	1.53		
	1909.8	52.02	1.55		

Tissue Stimulant Measurement for 2450MHz					
	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [^{o}C]	Test time
		εr52.7(50.065-55.335)	δ[s/m]1.95(1.8525-2.0475)		
Body	2412	54.26	1.87	21.5	June 14,2018
	2437	53.71	1.89		
	2450	53.07	1.90		
	2462	52.44	1.95		

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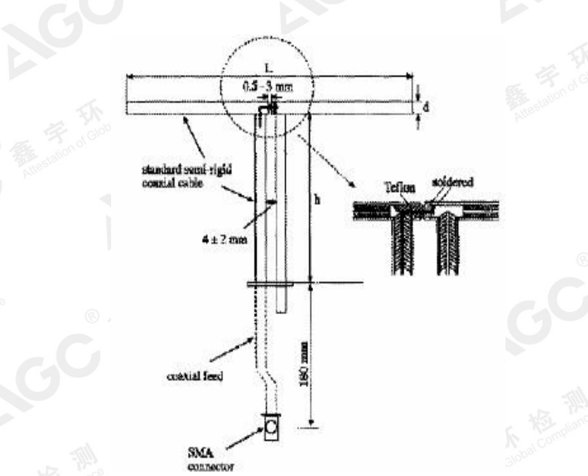
6. SAR SYSTEM CHECK PROCEDURE

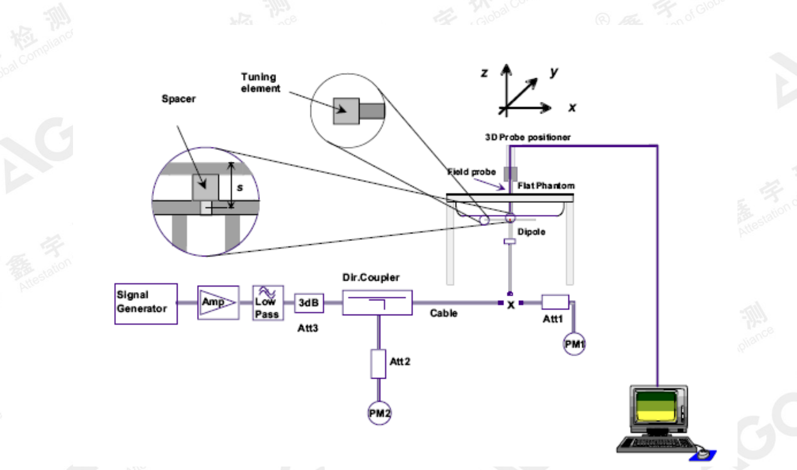
6.1. SAR System Check Procedures

SAR system check is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

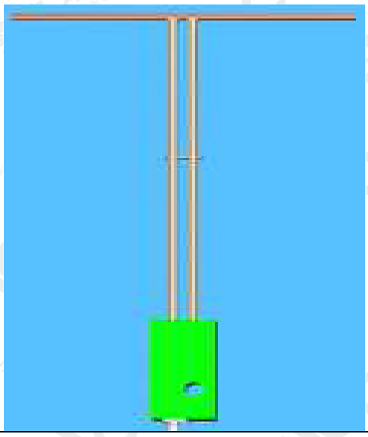
Each DASY system is equipped with one or more system check kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system check and system validation. System kit includes a dipole, and dipole device holder.

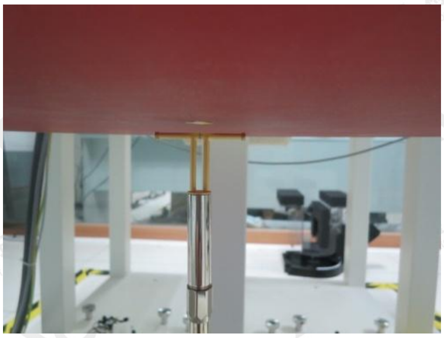
The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.





6.2. SAR System Check
6.2.1. Dipoles

	The dipoles used are based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of IEEE. the table below provides details for the mechanical and electrical specifications for the dipoles.

	The dipoles used are based on the IEEE-1528 standard, the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
835MHz	161.0	89.8	3.6
1900MHz	68	39.5	3.6
2450MHz	51.5	30.4	3.6

6.2.2. System Check Result

System Performance Check at 835MHz&1900MHz &2450MHz for Head								
Validation Kit: SN29/15 DIP 0G835-383&SN 29/15 DIP 1G900-389& D2450V2-SN:968								
Frequency [MHz]	Target Value(W/Kg)		Reference Result (± 10%)		Tested Value(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
835	10.04	6.43	9.036-11.044	5.787 -7.073	9.26	5.85	21.8	May 14,2018
1900	41.44	21.33	37.296-45.584	19.197-23.463	39.78	20.92	21.3	May 15,2018
2450	53.8	25.4	48.42-59.18	22.86-27.94	53.41	24.41	21.3	May 16,2018
System Performance Check at 835 MHz &1900MHz & 2450MHz for Body								
Frequency [MHz]	Target Value(W/Kg)		Reference Result (± 10%)		Tested Value(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
835	9.85	6.45	8.865-10.835	5.805-7.095	9.19	5.82	21.8	May 14,2018
1900	39.38	20.86	35.442-43.318	18.774-22.946	36.93	19.49	21.5	May 15,2018
2450	51.7	24.3	46.53-56.87	21.87-26.73	48.81	23.30	21.5	May 16,2018
835	9.85	6.45	8.865-10.835	5.805-7.095	9.49	5.93	21.3	June 21,2018
1900	39.38	20.86	35.442-43.318	18.774-22.946	36.14	19.02	21.5	June 26,2018
2450	51.7	24.3	46.53-56.87	21.87-26.73	54.52	25.36	21.5	June 14,2018

Note:
(1) We use a CW signal of 18dBm for system check, and then all SAR values are normalized to 1W forward power. The result must be within ±10% of target value.

7. EUT TEST POSITION

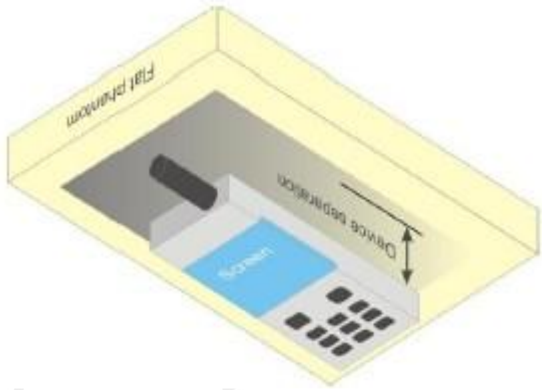
This EUT was tested in **Body back and Face Up and 4 edges.**

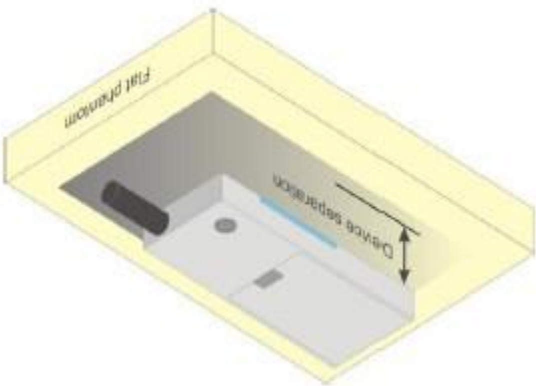
7.1. Body Worn Position

(1) To position the EUT parallel to the phantom surface.

(2) To adjust the EUT parallel to the flat phantom.

(3) To adjust the distance between the EUT surface and the flat phantom to **0mm for body back touch and face up with 25mm.**





8. SAR EXPOSURE LIMITS

SAR assessments have been made in line with the requirements of IEEE-1528, and comply with ANSI/IEEE C95.1-2005 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General population/Uncontrolled exposure Environment

Type Exposure Limits	general population/uncontrolled exposure limits (W/Kg)
Spatial Average SAR (whole body)	1.6

9. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Shenzhen 518012
NVLAP Lab Code	600153-0
Designation Number	CN5028
Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

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10. TEST EQUIPMENT LIST

Equipment description	Manufacturer/ Model	Identification No.	Current calibration date	Next calibration date
Stäubli Robot	Stäubli-TX60	F13/5Q2UD1/A/01	N/A	N/A
Robot Controller	Stäubli-CS8	139522	N/A	N/A
E-Field Probe	Speag- EX3DV4	SN:3953	Aug. 31,2017	Aug. 30,2018
SAM Twin Phantom	Speag-SAM	1790	N/A	N/A
Device Holder	Speag-SD 000 H01 KA	SD 000 H01 KA	N/A	N/A
DAE4	Speag-SD 000 D04 BM	1398	Feb. 08,2018	Feb. 07,2019
SAR Software	Speag-DASY5	DASY52.8	N/A	N/A
Liquid	SATIMO	-	N/A	N/A
Radio Communication Tester	R&S-CMU200	069Y7-158-13-712	Mar. 01,2018	Feb. 28,2019
Dipole	SATIMO SID835	SN29/15 DIP 0G835-383	July 05,2016	July 04,2019
Dipole	SATIMO SID1900	SN 29/15 DIP 1G900-389	July 05,2016	July 04,2019
Dipole	D2450V2	SN:968	Jun. 12,2015	Jun. 11,2018
Dipole	SATIMO SID2450	SN29/15 DIP 2G450-393	Jul. 05,2016	Jul. 04,2019
Comm Tester	Agilent-8960	GB46310822	Mar. 01,2018	Feb. 28,2019
Multimeter	Keithley 2000	1188656	Mar. 01,2018	Feb. 28,2019
Signal Generator	Agilent-E4438C	US41461365	Mar. 01,2018	Feb. 28,2019
Vector Analyzer	Agilent / E4440A	US41421290	Mar. 01,2018	Feb. 28,2019
Network Analyzer	Rhode & Schwarz ZVL6	SN100132	Mar. 01,2018	Feb. 28,2019
Attenuator	Warison /WATT-6SR1211	N/A	N/A	N/A
Attenuator	Mini-circuits / VAT-10+	N/A	N/A	N/A
Amplifier	EM30180	SN060552	Mar. 01,2018	Feb. 28,2019
Directional Couple	Werlatone/ C5571-10	SN99463	June 20,2017	June 19,2018
Directional Couple	Werlatone/ C6026-10	SN99482	June 20,2017	June 19,2018
Directional Couple	Werlatone/ C5571-10	SN99463	June 12,2018	June 11,2019
Directional Couple	Werlatone/ C6026-10	SN99482	June 12,2018	June 11,2019
Power Sensor	NRP-Z21	1137.6000.02	Oct. 12,2017	Oct. 11,2018
Power Sensor	NRP-Z23	US38261498	Mar. 01,2018	Feb. 28,2019
Power Viewer	R&S	V2.3.1.0	N/A	N/A

Note: Per KDB 865664 Dipole SAR Validation, AGC Lab has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:
1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement;
4. Impedance is within 5Ω of calibrated measurement.

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11. MEASUREMENT UNCERTAINTY

DASY Uncertainty- EX3DV4 Measurement uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	e f(d,k)	f	g	h c×f/e	i c×g/e	k
Uncertainty Component	Sec.	Tol (± %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration	E.2.1	6.05	N	1	1	1	6.05	6.05	∞
Axial Isotropy	E.2.2	0.6	R	$\sqrt{3}$	√0.5	√0.5	0.24	0.24	∞
Hemispherical Isotropy	E.2.2	1.6	R	$\sqrt{3}$	√0.5	√0.5	0.65	0.65	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	0.45	R	$\sqrt{3}$	1	1	0.26	0.26	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response 调制响应	E2.5	3.3	R	$\sqrt{3}$	1	1	1.91	1.91	∞
Readout Electronics	E.2.6	0.15	N	1	1	1	0.15	0.15	∞
Response Time	E.2.7	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	E.2.8	1.7	R	$\sqrt{3}$	1	1	0.98	0.98	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	0.4	R	$\sqrt{3}$	1	1	0.37	0.37	∞
Probe positioning with respect to phantom shell	E.6.3	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Test sample Related									
Test sample positioning	E.4.2	2.9	N	1	1	1	2.90	2.90	∞
Device holder uncertainty	E.4.1	3.6	N	1	1	1	3.60	3.60	∞
Output power variation—SAR drift measurement	E.2.9	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	E.6.5	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	6.6	R	$\sqrt{3}$	1	1	3.81	3.81	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				11.473	11.303	
Expanded Uncertainty (95% Confidence interval)			K=2				22.946	22.606	

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DASY Uncertainty- EX3DV4 System Check uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	e f(d,k)	f	g	h c×f/e	i c×g/e	k
Uncertainty Component	Sec.	Tol (± %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration drift	E.2.1	0.5	N	1	1	1	0.5	0.5	∞
Axial Isotropy	E.2.2	0.6	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Hemispherical Isotropy	E.2.2	1.6	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Linearity	E.2.4	0.45	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Modulation response	E2.5	3.3	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	E.2.6	0.15	N	1	0	0	0.00	0.00	∞
Response Time	E.2.7	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	E.2.8	1.7	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Probe positioner mechanical tolerance	E.6.2	0.4	R	$\sqrt{3}$	1	1	0.37	0.37	∞
Probe positioning with respect to phantom shell	E.6.3	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System check source (dipole)									
Deviation of experimental dipoles	E.6.4	2.0	N	1	1	1	2.00	2.00	∞
Input power and SAR drift measurement	8,6.6.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance	8,E.6.6	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	6.6	R	$\sqrt{3}$	1	1	3.81	3.81	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				7.344	7.076	
Expanded Uncertainty (95% Confidence interval)			K=2				14.689	14.153	

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DASY Uncertainty- EX3DV4 System Validation uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	e f(d,k)	f	g	h c×f/e	i c×g/e	k
Uncertainty Component	Sec.	Tol (±%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration	E.2.1	6.05	N	1	1	1	6.05	6.05	∞
Axial Isotropy	E.2.2	0.6	R	$\sqrt{3}$	1	1	0.35	0.35	∞
Hemispherical Isotropy	E.2.2	1.6	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	0.45	R	$\sqrt{3}$	1	1	0.26	0.26	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	E2.5	3.3	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	E.2.6	0.15	N	1	1	1	0.15	0.15	∞
Response Time	E.2.7	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	E.2.8	1.7	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	0.4	R	$\sqrt{3}$	1	1	0.37	0.37	∞
Probe positioning with respect to phantom shell	E.6.3	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
System check source (dipole)									
Deviation of experimental dipole from numerical dipole	E.6.4	5.0	N	1	1	1	5.00	5.00	∞
Input power and SAR drift measurement	8,6.6.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance	8,E.6.6	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	6.6	R	$\sqrt{3}$	1	1	3.81	3.81	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				11.113	10.938	
Expanded Uncertainty (95% Confidence interval)			K=2				22.226	21.876	

12. CONDUCTED POWER MEASUREMENT

GSM 850:

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
GPRS 850 (1 Slot)	824.2	31.63	-9	22.63
	836.6	**31.95**	-9	22.95
	848.8	31.45	-9	22.45
GPRS 850 (2 Slot)	824.2	28.24	-6	22.24
	836.6	28.90	-6	22.90
	848.8	28.37	-6	22.37
GPRS 850 (3 Slot)	824.2	26.75	-4.26	22.49
	836.6	26.55	-4.26	22.29
	848.8	27.27	-4.26	**23.01**
GPRS 850 (4 Slot)	824.2	25.87	-3	22.87
	836.6	25.70	-3	22.70
	848.8	25.53	-3	22.53

PCS 1900:

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
GPRS1900 (1 Slot)	1850.2	28.69	-9	19.69
	1880	28.55	-9	19.55
	1909.8	**28.82**	-9	19.82
GPRS1900 (2 Slot)	1850.2	25.75	-6	19.75
	1880	25.61	-6	19.61
	1909.8	25.39	-6	19.39
GPRS1900 (3 Slot)	1850.2	24.12	-4.26	19.86
	1880	24.08	-4.26	19.82
	1909.8	23.52	-4.26	19.26
GPRS1900 (4 Slot)	1850.2	22.92	-3	19.92
	1880	23.06	-3	**20.06**
	1909.8	22.76	-3	19.76

Note 1:
The Frame Power (Source-based time-averaged Power) is scaled the maximum burst average power based on time slots. The calculated methods are show as following:
Frame Power = Max burst power (1 Up Slot) – 9 dB
Frame Power = Max burst power (2 Up Slot) – 6 dB
Frame Power = Max burst power (3 Up Slot) – 4.26 dB
Frame Power = Max burst power (4 Up Slot) – 3 dB

UMTS BAND
HSDPA Setup Configuration:

·The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

·The RF path losses were compensated into the measurements.

·A call was established between EUT and Based Station with following setting:

(1) Set Gain Factors(βc and βd) parameters set according to each

(2) Set RMC 12.2Kbps+HSDPA mode.

(3) Set Cell Power=-86dBm

(4) Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)

(5) Select HSDPA Uplink Parameters

(6) Set Delta ACK, Delta NACK and Delta CQI=8

(7) Set Ack - Nack Repetition Factor to 3

(8) Set CQI Feedback Cycle (k) to 4ms

(9) Set CQI Repetition Factor to 2

(10) Power Ctrl Mode=All Up bits

·The transmitted maximum output power was recorded.

Table C.10.2.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	βc (Note5)	βd	βd (SF)	βc/βd	βHS (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15(Note 4)	15/15(Note 4)	64	12/15(Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: ΔACK, ΔNACK and ΔCQI = 30/15 with β_{hs} = 30/15 * β_c .
Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, ΔACK and ΔNACK = 30/15 with β_{hs} = 30/15 * β_c , and ΔCQI = 24/15 with β_{hs} = 24/15 * β_c .
Note 3: CM = 1 for βc/βd =12/15, hs/ c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
Note 4: For subtest 2 the c/ d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to c = 11/15 and d = 15/15.

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HSUPA Setup Configuration:

· The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

· The RF path losses were compensated into the measurements.

· A call was established between EUT and Base Station with following setting * :

(1) Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK

(2) Set the Gain Factors (βc and βd) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121

(3) Set Cell Power = -86 dBm

(4) Set Channel Type = 12.2k + HSPA

(5) Set UE Target Power

(6) Power Ctrl Mode= Alternating bits

(7) Set and observe the E-TFCI

(8) Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI

· The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	βc	βd	βd (SF)	βc/βd	βHS (Note 1)	βec	βed (Note 4) (Note 5)	βed (SF)	βed (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	βed1: 47/15 βed2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, ΔACK, ΔNACK and ΔCQI = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, ΔACK, ΔNACK and ΔCQI = 5/15 with β_{hs} = 5/15 * β_c.
Note 2: CM = 1 for βc/βd =12/15, hs/ c=24/15. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the c/ d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to c = 10/15 and d = 15/15.
Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 5: βed cannot be set directly; it is set by Absolute Grant Value.
Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

UMTS BAND II

Mode	Frequency (MHz)	Avg. Burst Power (dBm)
WCDMA 1900 RMC	1852.4	21.30
	1880	**21.72**
	1907.6	21.62
WCDMA 1900 AMR	1852.4	21.12
	1880	21.69
	1907.6	21.42
HSDPA Subtest 1	1852.4	21.23
	1880	21.14
	1907.6	20.34
HSDPA Subtest 2	1852.4	20.24
	1880	21.07
	1907.6	20.61
HSDPA Subtest 3	1852.4	21.01
	1880	20.34
	1907.6	20.93
HSDPA Subtest 4	1852.4	21.31
	1880	20.50
	1907.6	20.86
HSUPA Subtest 1	1852.4	21.19
	1880	21.05
	1907.6	20.76
HSUPA Subtest 2	1852.4	20.54
	1880	21.12
	1907.6	20.94
HSUPA Subtest 3	1852.4	21.13
	1880	20.49
	1907.6	20.95
HSUPA Subtest 4	1852.4	21.20
	1880	20.73
	1907.6	21.09
HSUPA Subtest 5	1852.4	20.64
	1880	21.16
	1907.6	20.21

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UMTS BAND V

Mode	Frequency (MHz)	Avg. Burst Power (dBm)
WCDMA 850 RMC	826.4	21.28
	836.6	21.36
	846.6	**21.62**
WCDMA 850 AMR	826.4	21.21
	836.6	21.02
	846.6	21.52
HSDPA Subtest 1	826.4	21.12
	836.6	20.82
	846.6	20.37
HSDPA Subtest 2	826.4	21.02
	836.6	21.00
	846.6	20.52
HSDPA Subtest 3	826.4	20.78
	836.6	20.45
	846.6	20.44
HSDPA Subtest 4	826.4	20.69
	836.6	20.40
	846.6	20.92
HSUPA Subtest 1	826.4	20.91
	836.6	21.17
	846.6	21.04
HSUPA Subtest 2	826.4	20.48
	836.6	21.14
	846.6	20.53
HSUPA Subtest 3	826.4	20.79
	836.6	20.73
	846.6	20.68
HSUPA Subtest 4	826.4	20.94
	836.6	21.01
	846.6	20.86
HSUPA Subtest 5	826.4	20.68
	836.6	21.14
	846.6	21.00

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According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	0≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for β_c/β_d=12/15, β_{hs}/β_c=24/15.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

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WIFI

Mode	Data Rate (Mbps)	Channel	Frequency(MHz)	Average Power (dBm)
802.11b	1	01	2412	17.05
		06	2437	**17.36**
		11	2462	17.13
802.11g	6	01	2412	12.83
		06	2437	14.49
		11	2462	12.87
802.11n(20)	6.5	01	2412	12.93
		06	2437	14.17
		11	2462	12.86
802.11n(40)	13.5	03	2422	10.44
		06	2437	12.44
		09	2452	10.24

Bluetooth_V4.0(EDR)

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK	0	2402	**6.062**
	39	2441	6.028
	78	2480	5.415
π /4-DQPSK	0	2402	5.340
	39	2441	5.421
	78	2480	4.754
8-DPSK	0	2402	5.357
	39	2441	5.381
	78	2480	4.659

Bluetooth_V4.0(BLE)

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK	0	2402	-1.519
	19	2440	-1.381
	39	2480	-2.332

13. TEST RESULTS

13.1. SAR Test Results Summary

13.1.1. Test position and configuration

Face up SAR was performed with the device configured in the positions according to KDB 643646 and Body SAR was performed with the device configurated with all accessories close to the Flat Phantom.

13.1.2. Operation Mode

1. Per KDB 447498 D01 v06 ,for each exposure position, if the highest 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional.
2. Per KDB 865664 D01 v01r04,for each frequency band, if the measured SAR is ≥0.8W/Kg, testing for repeated SAR measurement is required , that the highest measured SAR is only to be tested. When the SAR results are near the limit, the following procedures are required for each device to verify these types of SAR measurement related variation concerns by repeating the highest measured SAR configuration in each frequency band.
   (1) When the original highest measured SAR is ≥0.8W/Kg, repeat that measurement once.
   (2) 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.
   (3) Perform a third repeated measurement only if the original, first and second repeated measurement is ≥1.5 W/Kg and ratio of largest to smallest SAR for the original, first and second measurement is ≥ 1.20.
3. Per KDB 648474 D04 v01r03,when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤1.2W/Kg, SAR testing with a headset connected is not required.
4. Per KDB 248227 D01v02r02,for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤1.2W/kg.
5. Per KDB 941225 D06 V02r01, The SAR test separation distance for hotspot mode is determined according to device form factor. When the overall length and width of a device is > 9 cm x 5 cm (~3.5” x 2”), a test separation distance of 10 mm is required for hotspot mode SAR measurements. A test separation distance of 5 mm or less is required for smaller devices.
6. Maximum Scaling SAR in order to calculate the Maximum SAR values to test under the standard Peak Power, Calculation method is as follows:
   Maximum Scaling SAR =tested SAR (Max.) ×[maximum turn-up power (mw)/ maximum measurement output power(mw)]

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13.1.3. Test Result

SAR MEASUREMENT									
Depth of Liquid (cm):>15									
Product: POC Trunked Two-way Radio									
Position	**Mode**	**Ch.**	**Fr. (MHz)**	**Power Drift (<±0.2 dB)**	**SAR (1g) (W/kg)**	**Max. Tune-up Power (dBm)**	**Meas. output Power (dBm)**	**Scaled SAR (W/Kg)**	**Limit (W/kg)**
Test Mode: GSM850									
Back back	GPRS-3 slot	128	824.2	-0.01	0.853	27.27	26.75	0.961	1.6
Back back	GPRS-3 slot	190	836.6	0.01	**0.864**	27.27	26.55	**1.020**	1.6
Back back	GPRS-3 slot	251	848.8	0.01	0.855	27.27	27.27	0.855	1.6
Face Up	GPRS-3 slot	190	836.6	-0.09	**0.483**	27.27	26.55	**0.570**	1.6
Edge1(Top)	GPRS-3 slot	190	836.6	-0.01	0.023	27.27	26.55	0.027	1.6
Edge2(Right)	GPRS-3 slot	190	836.6	0.02	0.578	27.27	26.55	0.682	1.6
Edge4(Left)	GPRS-3 slot	190	836.6	-0.01	0.728	27.27	26.55	0.859	1.6
Test Mode: PCS1900									
Back back	GPRS-4 slot	661	1880.0	0.10	**0.534**	23.10	23.06	**0.539**	1.6
Face Up	GPRS-4 slot	661	1880.0	0.15	**0.200**	23.10	23.06	**0.202**	1.6
Edge1(Top)	GPRS-4 slot	661	1880.0	-0.09	0.065	23.10	23.06	0.066	1.6
Edge2(Right)	GPRS-4 slot	661	1880.0	0.10	0.152	23.10	23.06	0.153	1.6
Edge4(Left)	GPRS-4 slot	661	1880.0	0.04	0.287	23.10	23.06	0.290	1.6
Test Mode: WCDMA Band II									
Back back	RMC 12.2kbps	9400	1880	0.13	**0.501**	21.80	21.72	**0.510**	1.6
Face Up	RMC 12.2kbps	9400	1880	0.10	**0.197**	21.80	21.72	**0.201**	1.6
Edge1(Top)	RMC 12.2kbps	9400	1880	-0.08	0.072	21.80	21.72	0.073	1.6
Edge2(Right)	RMC 12.2kbps	9400	1880	0.16	0.172	21.80	21.72	0.175	1.6
Edge4(Left)	RMC 12.2kbps	9400	1880	0.11	0.289	21.80	21.72	0.294	1.6
Test Mode: WCDMA Band V									
Back back	RMC 12.2kbps	4183	836.6	0.10	0.408	21.62	21.36	0.433	1.6
Face Up	RMC 12.2kbps	4183	836.6	0.07	**0.244**	21.62	21.36	**0.259**	1.6
Edge1(Top)	RMC 12.2kbps	4183	836.6	0.12	0.016	21.62	21.36	0.017	1.6
Edge2(Right)	RMC 12.2kbps	4183	836.6	0.01	0.325	21.62	21.36	0.345	1.6
Edge4(Left)	RMC 12.2kbps	4183	836.6	-0.02	**0.535**	21.62	21.36	**0.568**	1.6

Note:
· When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
·The test distance of the face up is 25mm and the test distance of the body touch with belt clip is 0mm.
·The test separation for 4 Edges is 10mm of all above table.

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SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 50.5					
Product: POC Trunked Two-way Radio									
Test Mode:802.11b									
Position	**Mode**	**Ch.**	**Fr. (MHz)**	**Power Drift (<±0.2 dB)**	**SAR (1g) (W/kg)**	**Max. Tune-up Power (dBm)**	**Meas. output Power (dBm)**	**Scaled SAR (W/Kg)**	**Limit (W/kg)**
Body back	DTS	6	2437	0.05	**0.022**	17.40	17.36	**0.022**	1.6
Face Up	DTS	6	2437	0.10	**0.011**	17.40	17.36	**0.011**	1.6
Edge3(Bottom)	DTS	6	2437	0.05	0.00425	17.40	17.36	0.004	1.6
Edge4(Left)	DTS	6	2437	0.15	0.00405	17.40	17.36	0.004	1.6

Note:

- According to KDB248227, when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≦1.2W/kg.
- All of above “DTS” means data transmitter
- The test distance of the face up is 25mm and the test distance of the body touch with belt clip is 0mm.
- The test separation for 4 Edges is 10mm of all above table.

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Repeated SAR										
Product: POC Trunked Two-way Radio										
Test Mode: GSM850										
Position	**Mode**	**Ch.**	**Fr. (MHz)**	**Power Drift (<±0.2 dB)**	**Once SAR (1g) (W/kg)**	**Power Drift (<±0.2 dB)**	**Twice SAR (1g) (W/kg)**	**Power Drift (<±0.2 dB)**	**Third SAR (1g) (W/kg)**	**Limit (W/kg)**
Back back	GPRS-3 slot	190	836.6	-0.03	0.862	--	--	--	--	1.6
--	--	--	--	--	--	--	--	--	--	1.6

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Simultaneous Multi-band Transmission Evaluation:

NO	Simultaneous state	Portable Handset		
		Face up	Body-worn	Hotspot
1	GSM (Data) + Bluetooth(data)	Yes	Yes	-
2	GSM (Data) + WLAN 2.4GHz (data)	Yes	Yes	-
3	WCDMA (Data) + Bluetooth(data)	Yes	Yes	Yes
4	WCDMA (Data) + WLAN 2.4GHz (data)	Yes	Yes	Yes

NOTE:

1. WIFI and BT share the same antenna, and cannot transmit simultaneously.
2. Simultaneous with every transmitter must be the same test position.
3. KDB 447498 D01, BT SAR is excluded as below table.
4. KDB 447498 D01, for handsets the test separation distance is determined by the smallest distance between the outer surface of the device and the user; which is 25mm for body-worn SAR.
5. According to KDB 447498 D01 4.3.1, Standalone SAR test exclusion is as follow:
   For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
   [(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[30], where
   • f(GHz) is the RF channel transmit frequency in GHz
   • Power and distance are rounded to the nearest mW and mm before calculation[31]
   • The result is rounded to one decimal place for comparison
   • The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below
   The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.
6. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
7. According to KDB 447498 D01 4.3.2, simultaneous transmission SAR test exclusion is as follow:
   (1) Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.
   (2) Any transmitters and antennas should be considered when calculating simultaneous mode.
   (3) For mobile phone and PC, it's the sum of all transmitters and antennas at the same mode with same position in each applicable exposure condition
   (4)When the standalone SAR test exclusion of section 4.3.2 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to det
   (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, and x = 18.75 for 10-g SAR.

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8. When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by (SAR1 + SAR2)1.5/Ri, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

Estimated SAR		Max Power including Tune-up Tolerance		Separation Distance (mm)	Estimated SAR (W/kg)
		dBm	mW		
BT	Face up	7	5.01	25	0.041
	Body	7	5.01	0	0.207
				10	0.104

Simultaneous Multi-band Transmission SAR:

Frequency	RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
			GSM/WCDMA	WI-Fi DTS Band	Bluetooth		
GSM850	**Body-part (data/hot spot)**	Body Touch	1.020		0.207	**1.227**	**No**
		Face Up	0.570		0.041	0.611	**No**
		Body Touch	1.020	0.022		1.042	**No**
		Face Up	0.570	0.011		0.581	**No**
		Edge4	0.859		0.104	0.963	**No**
		Edge4	0.859	0.004		0.863	**No**
PCS1900	**Body-part (data/hot spot)**	Body Touch	0.539		0.207	0.746	**No**
		Face Up	0.202		0.041	0.243	**No**
		Body Touch	0.539	0.022		0.561	**No**
		Face Up	0.202	0.011		0.213	**No**
		Edge4	0.290		0.104	0.394	**No**
		Edge4	0.290	0.004		0.294	**No**
WCDMA Band II	**Body-part (data/hot spot)**	Body Touch	0.510		0.207	0.717	**No**
		Face Up	0.201		0.041	0.242	**No**
		Body Touch	0.510	0.022		0.532	**No**
		Face Up	0.201	0.011		0.212	**No**
		Edge4	0.294		0.104	0.398	**No**
		Edge4	0.294	0.004		0.298	**No**
WCDMA Band V	**Body-part (data/hot spot)**	Body Touch	0.433		0.207	0.640	**No**
		Face Up	0.259		0.041	0.300	**No**
		Body Touch	0.433	0.022		0.455	**No**
		Face Up	0.259	0.011		0.270	**No**
		Edge4	0.568		0.104	0.672	**No**
		Edge4	0.568	0.004		0.572	**No**

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.

·SPLSR mean is "The SAR to Peak Location Separation Ratio "

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APPENDIX A. SAR SYSTEM CHECK DATA

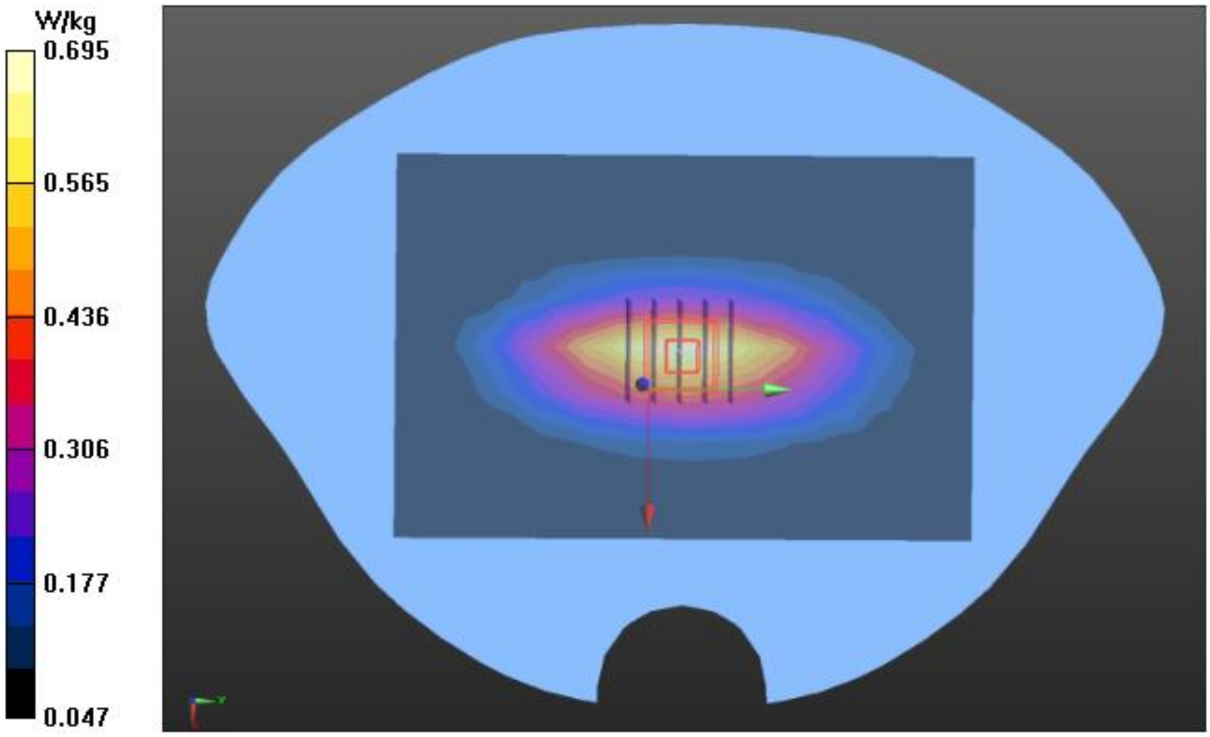
Test Laboratory: AGC Lab **Date: May 14,2018**
System Check Head 835 MHz
DUT: Dipole 835 MHz Type: SID 835

Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ=0.91 mho/m; εr =41.22; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8, Relative Humidity (%): 47.7

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.01, 10.01, 10.01); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 835MHz Head/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.685 W/kg

Configuration/System Check 835MHz Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.017 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.929 W/kg
SAR(1 g) = 0.584 W/kg; SAR(10 g) = 0.369 W/kg
Maximum value of SAR (measured) = 0.695 W/kg



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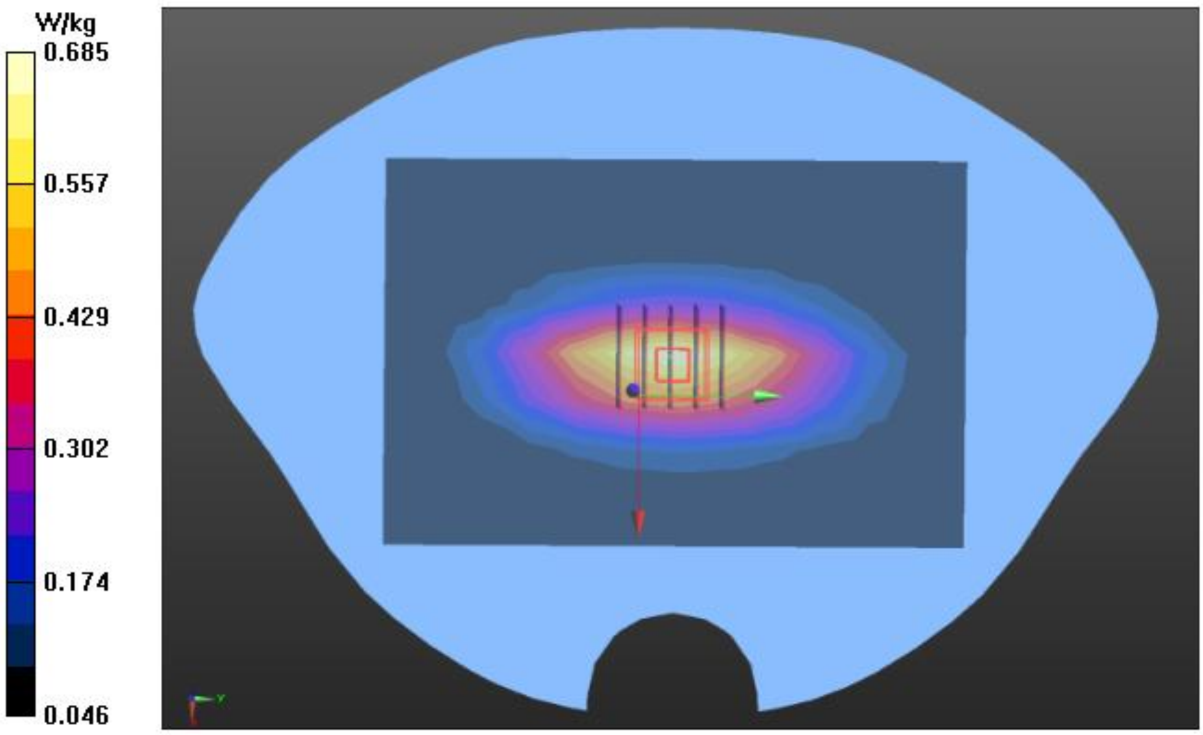
Test Laboratory: AGC Lab **Date: May 14,2018**
System Check Body 835 MHz
DUT: Dipole 835 MHz Type: SID 835

Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ=0.96 mho/m; εr =55.73; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8, Relative Humidity (%): 47.7

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 835MHz Body/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.656 W/kg

Configuration/System Check 835MHz Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.074 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.917 W/kg
SAR(1 g) = 0.580 W/kg; SAR(10 g) = 0.367 W/kg
Maximum value of SAR (measured) = 0.685 W/kg



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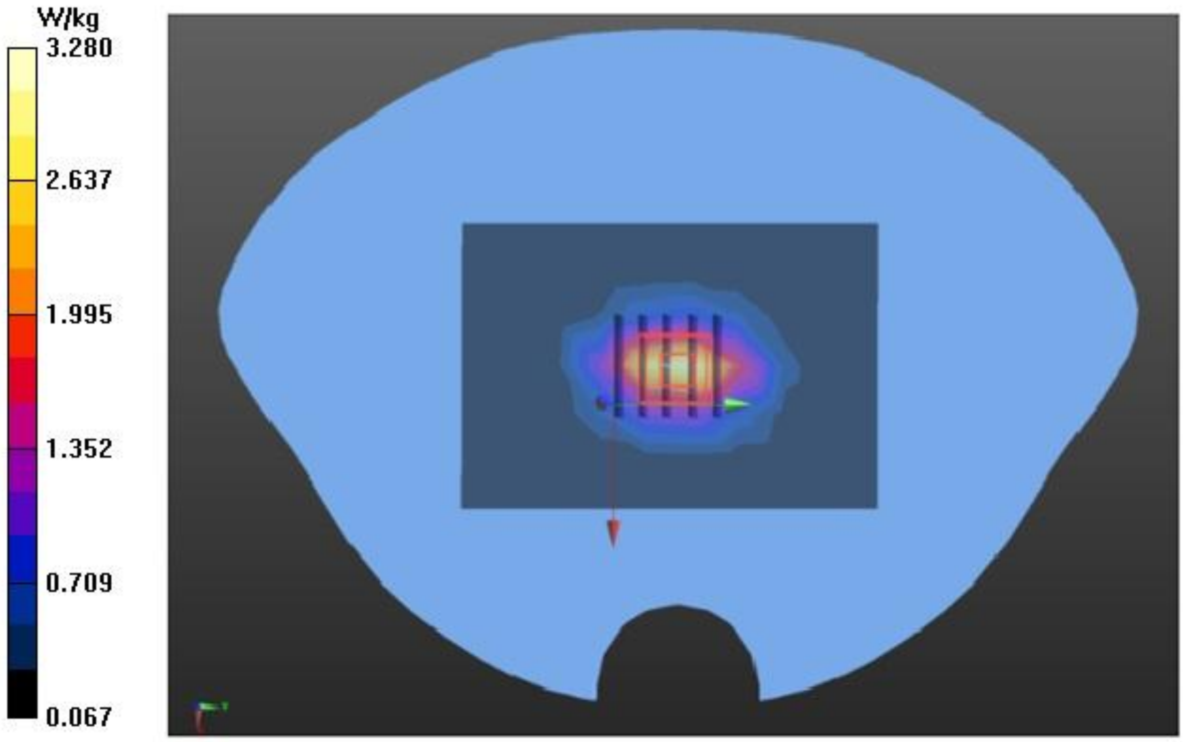
Test Laboratory: AGC Lab **Date: May 15,2018**
System Check Head 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1;
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ=1.40 mho/m; εr =39.84; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.3, Relative Humidity (%): 48.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.08, 8.08, 8.08); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 1900MHz Head/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.15 W/kg

Configuration/System Check 1900MHz Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.195 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 4.69 W/kg
SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.32 W/kg
Maximum value of SAR (measured) = 3.28 W/kg



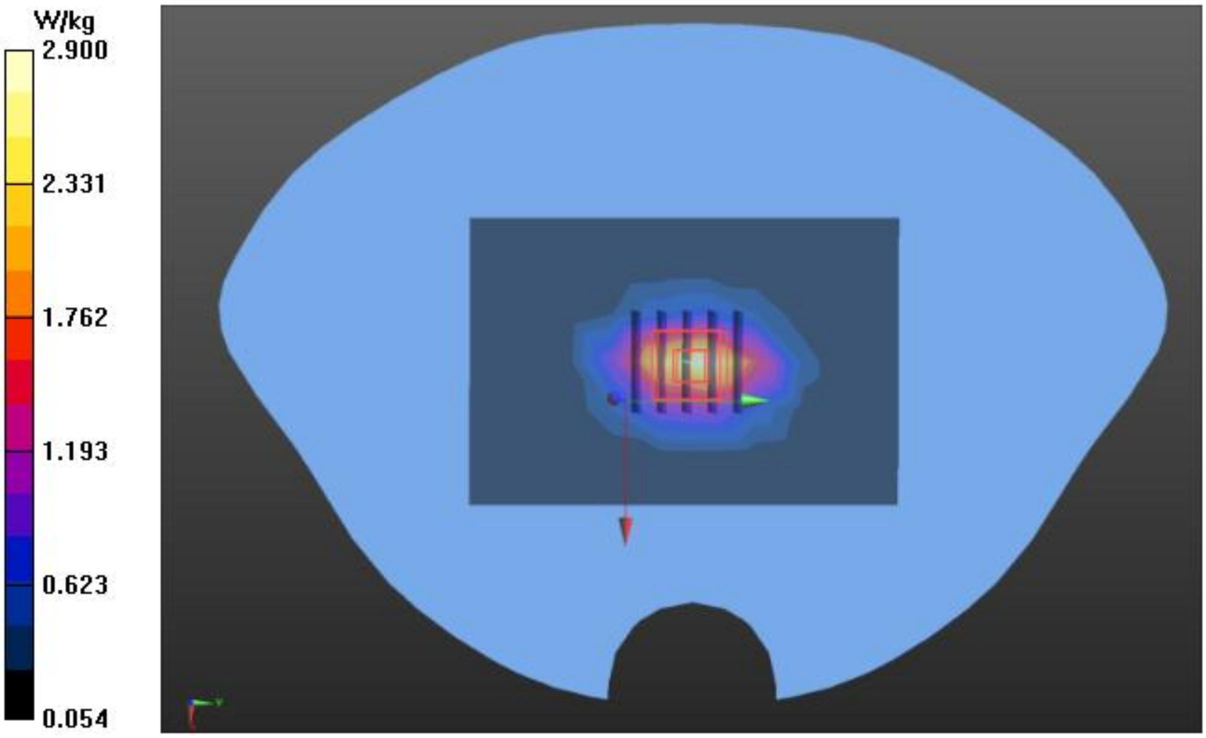
Test Laboratory: AGC Lab **Date: May 15,2018**
System Check Body 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1;
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ=1.50 mho/m; εr =53.69; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.5, Relative Humidity (%): 48.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 1900MHz Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.90 W/kg

Configuration/System Check 1900MHz Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.777 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 4.30 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.23 W/kg



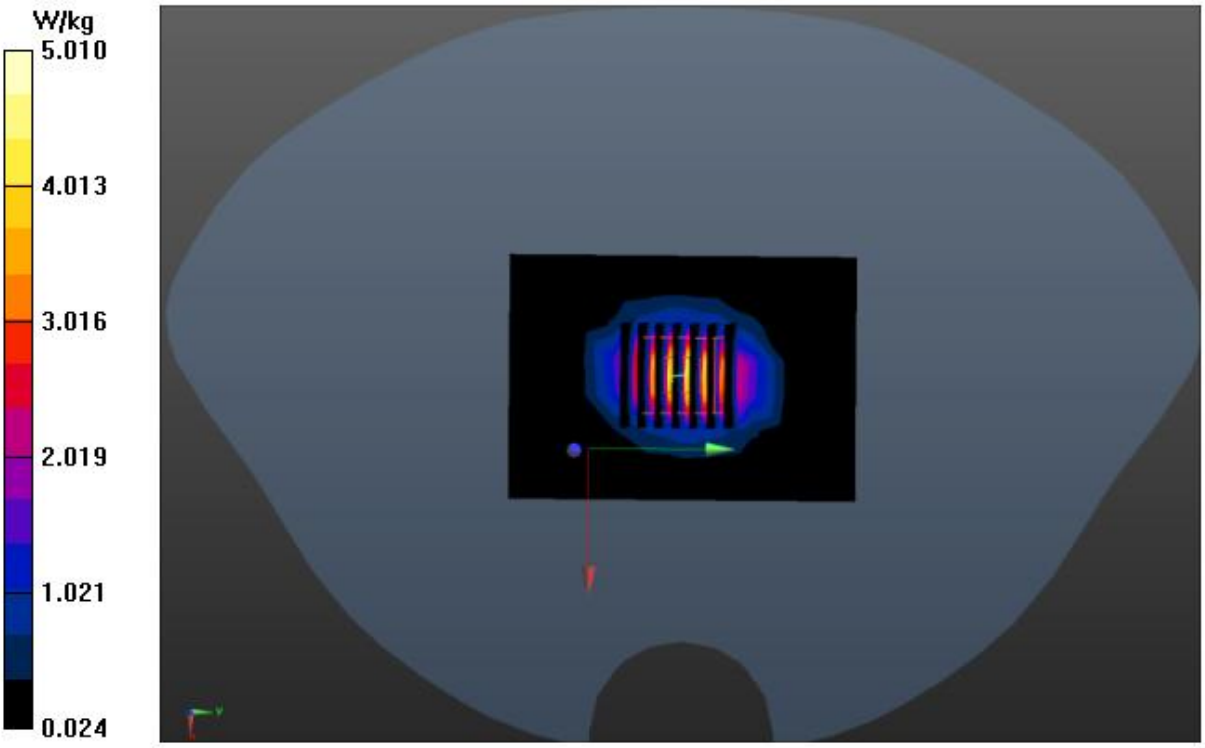
Test Laboratory: AGC Lab **Date: May 16,2018**
System Check Head 2450 MHz
DUT: Dipole 2450 MHz Type: SID 2450

Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ=1.79 mho/m; εr =39.67; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.0, Liquid temperature (℃): 21.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(7.61, 7.61, 7.61); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check Head 2450MHz /Area Scan (7x12x1): Measurement grid: dx=10mm, dy=10mmMaximum value of SAR (measured) = 4.63 W/kg

Configuration/System Check Head 2450MHz /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.153 V/m; Power Drift = -0.07dB
Peak SAR (extrapolated) = 6.88 W/kg
SAR(1 g) = 3.37 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 5.01 W/kg



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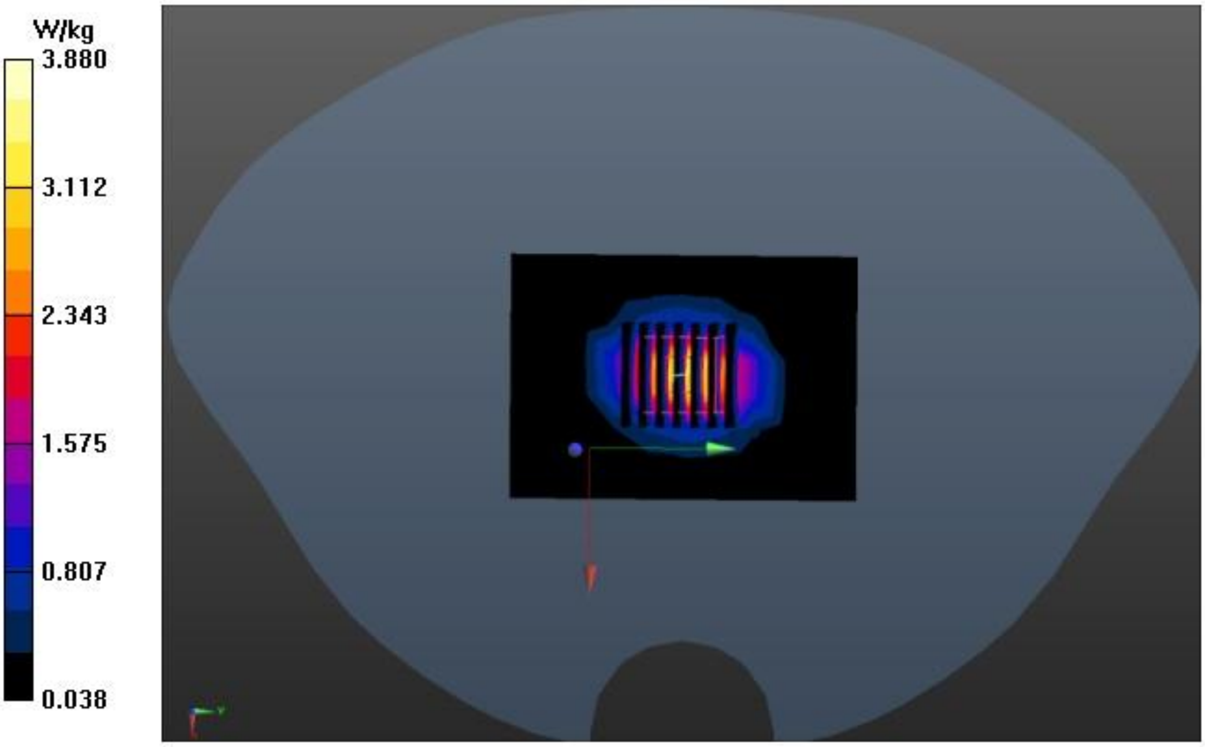
Test Laboratory: AGC Lab **Date: May 16,2018**
System Check Body 2450 MHz
DUT: Dipole 2450 MHz Type: SID 2450

Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ=1.92 mho/m; εr =53.69 ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.0, Liquid temperature (℃): 21.5

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(7.73, 7.73, 7.73); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check Body 2450MHz /Area Scan (7x12x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 3.71 W/kg

Configuration/System Check Body 2450MHz /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37.099 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 6.15 W/kg
SAR(1 g) = 3.08 W/kg; SAR(10 g) = 1.47 W/kg
Maximum value of SAR (measured) = 3.88 W/kg



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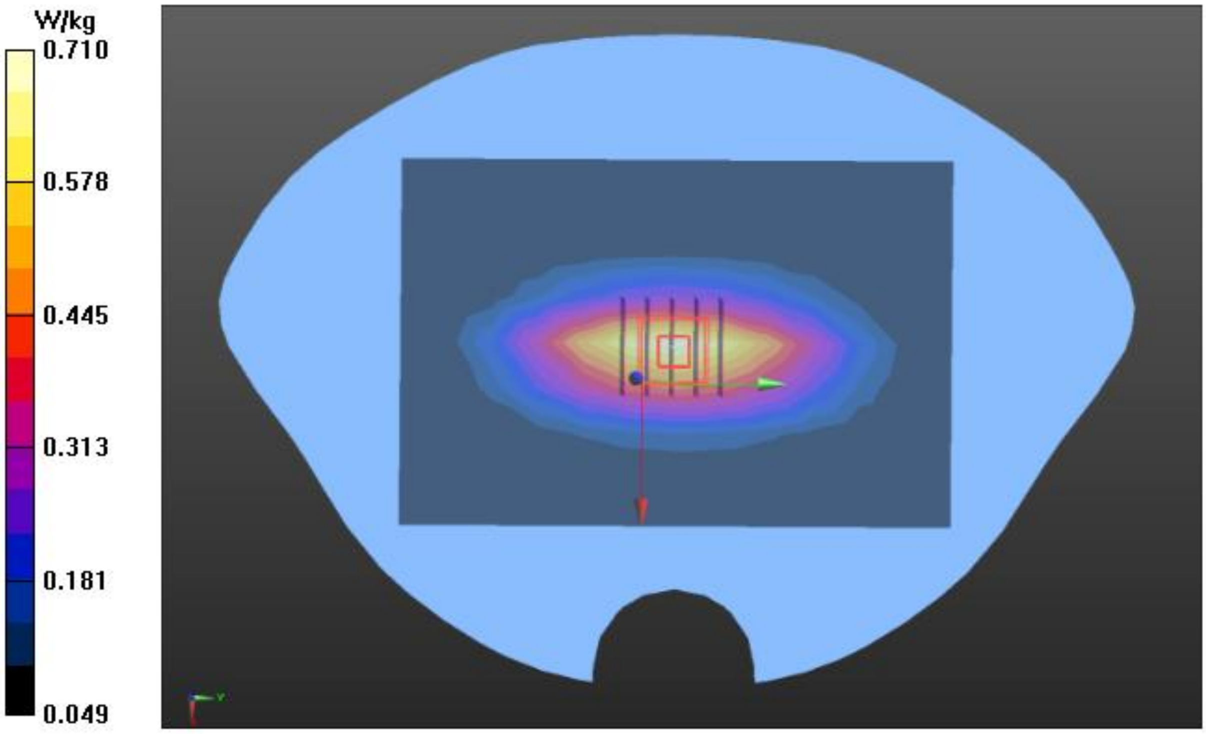
Test Laboratory: AGC Lab **Date: June 21,2018**
System Check Body 835 MHz
DUT: Dipole 835 MHz Type: SID 835

Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ=0.95 mho/m; εr =54.42; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.5, Liquid temperature (℃): 21.3, Relative Humidity (%): 50.7

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 835MHz Body/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.696 W/kg

Configuration/System Check 835MHz Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.342 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.953 W/kg
SAR(1 g) = 0.599 W/kg; SAR(10 g) = 0.374 W/kg
Maximum value of SAR (measured) = 0.710 W/kg



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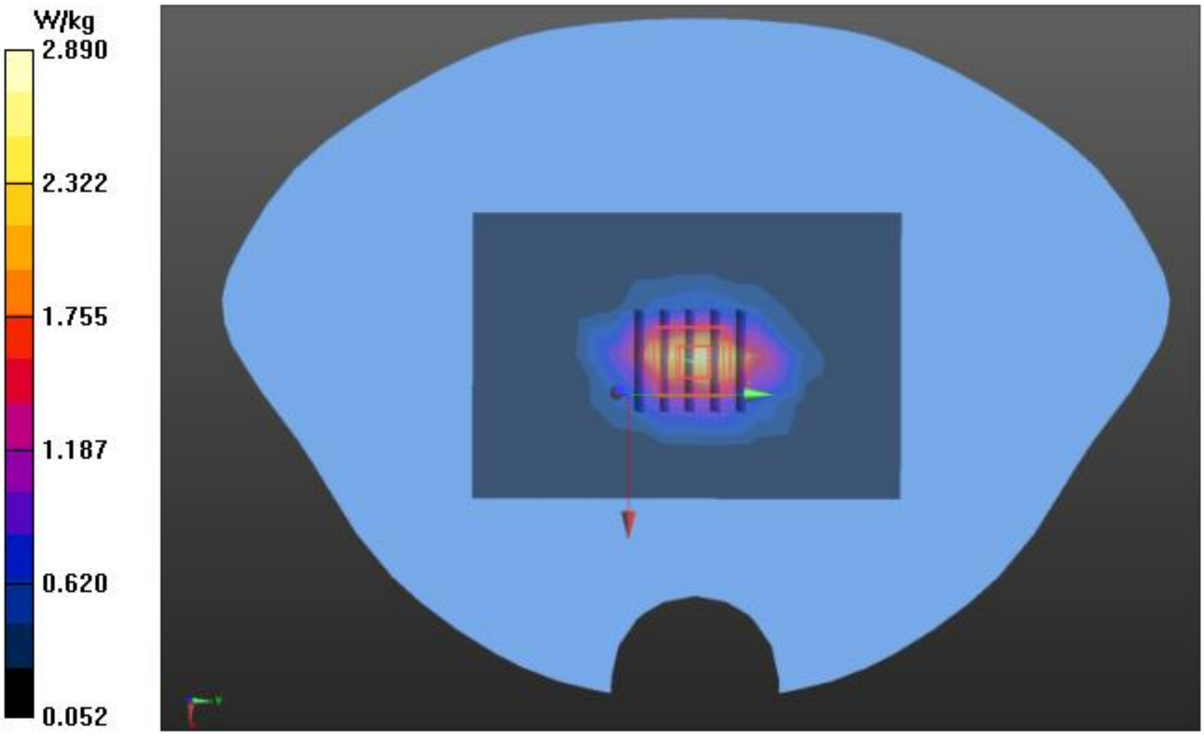
Test Laboratory: AGC Lab **Date: June 26,2018**
System Check Body 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1;
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ=1.52 mho/m; εr =53.20; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.5, Relative Humidity (%): 53.8

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check 1900MHz Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.80 W/kg

Configuration/System Check 1900MHz Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.633 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 4.15 W/kg
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.20 W/kg
Maximum value of SAR (measured) = 2.89 W/kg



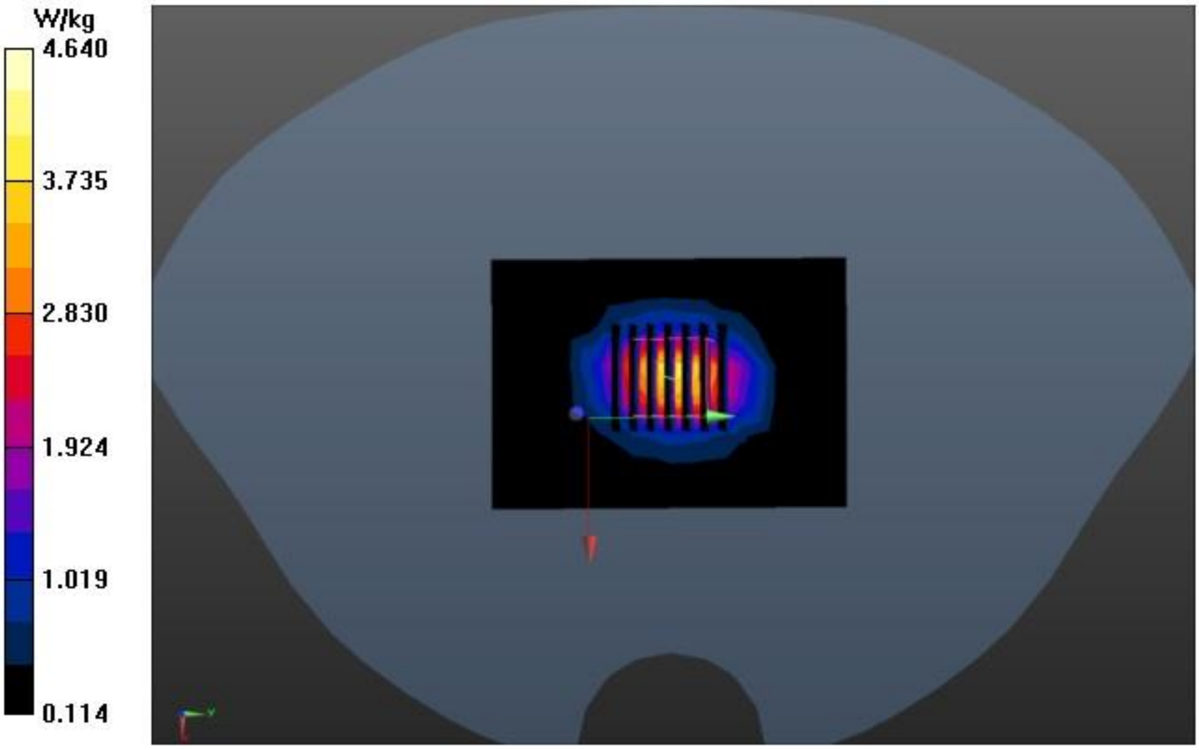
Test Laboratory: AGC Lab **Date: June 14,2018**
System Check Body 2450 MHz
DUT: Dipole 2450 MHz Type: SID 2450

Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ=1.90 mho/m; εr =53.07 ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.0, Liquid temperature (℃): 21.5

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(7.73, 7.73, 7.73); Calibrated:Aug. 31,2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Configuration/System Check Body 2450MHz /Area Scan (7x12x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 4.41 W/kg

Configuration/System Check Body 2450MHz /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37.702 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 7.12 W/kg
SAR(1 g) = 3.44 W/kg; SAR(10 g) = 1.60 W/kg
Maximum value of SAR (measured) = 4.64 W/kg



APPENDIX B. SAR MEASUREMENT DATA

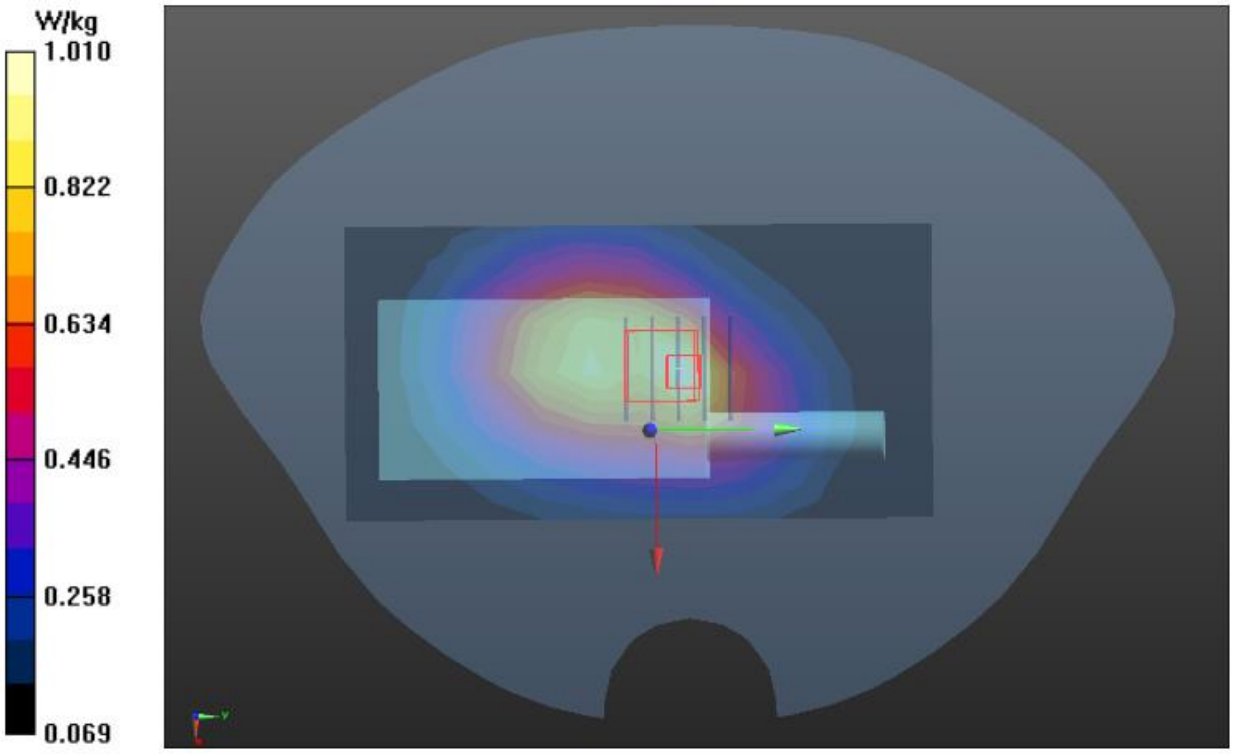
Test Laboratory: AGC Lab **Date: May 14,2018**
GPRS 850 Mid- Body- Back (3up) < SIM 1>
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: GPRS-3 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.8;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.97 mho/m; εr =55.27; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QDOVA002AA;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY BACK/3ST/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.03 W/kg

BODY BACK/3ST/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.822 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.864 W/kg; SAR(10 g) = 0.598 W/kg
Maximum value of SAR (measured) = 1.01 W/kg



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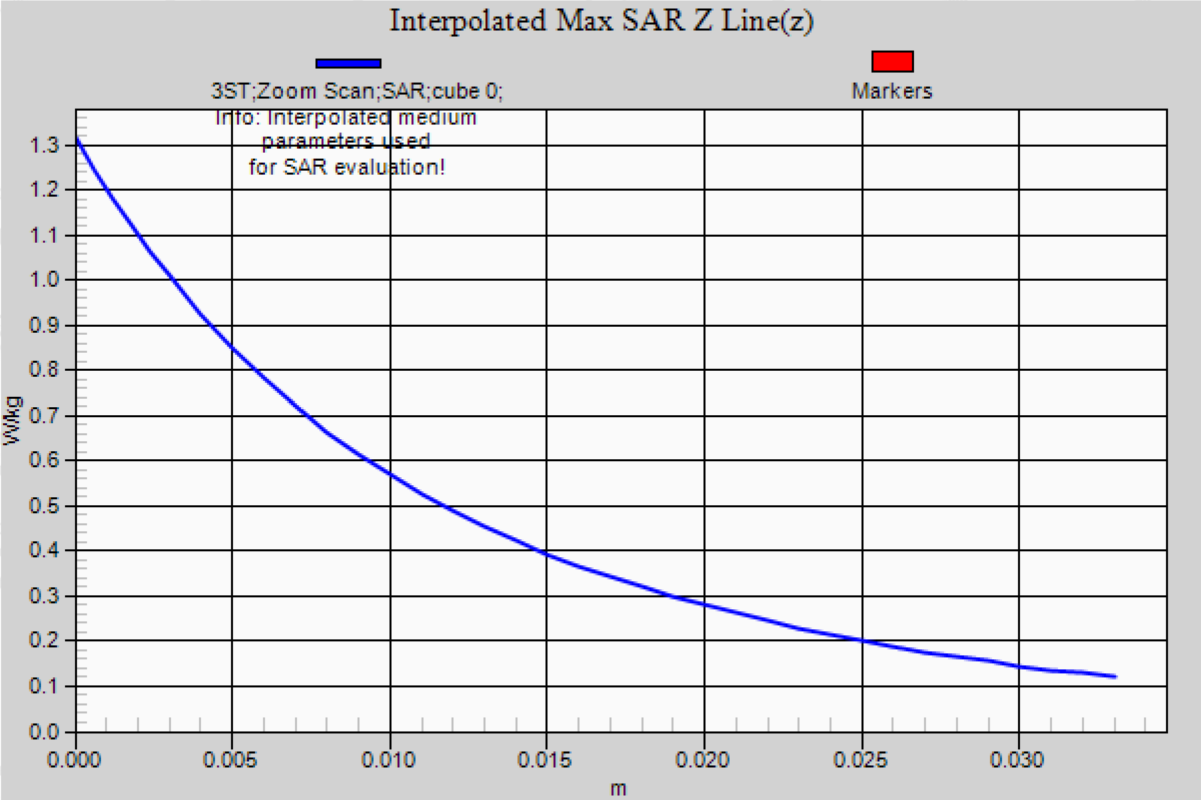

Interpolated Max SAR Z Line(z)
3ST;Zoom Scan;SAR;cube 0;
Info: Interpolated medium parameters used for SAR evaluation!
Markers
W/kg
m

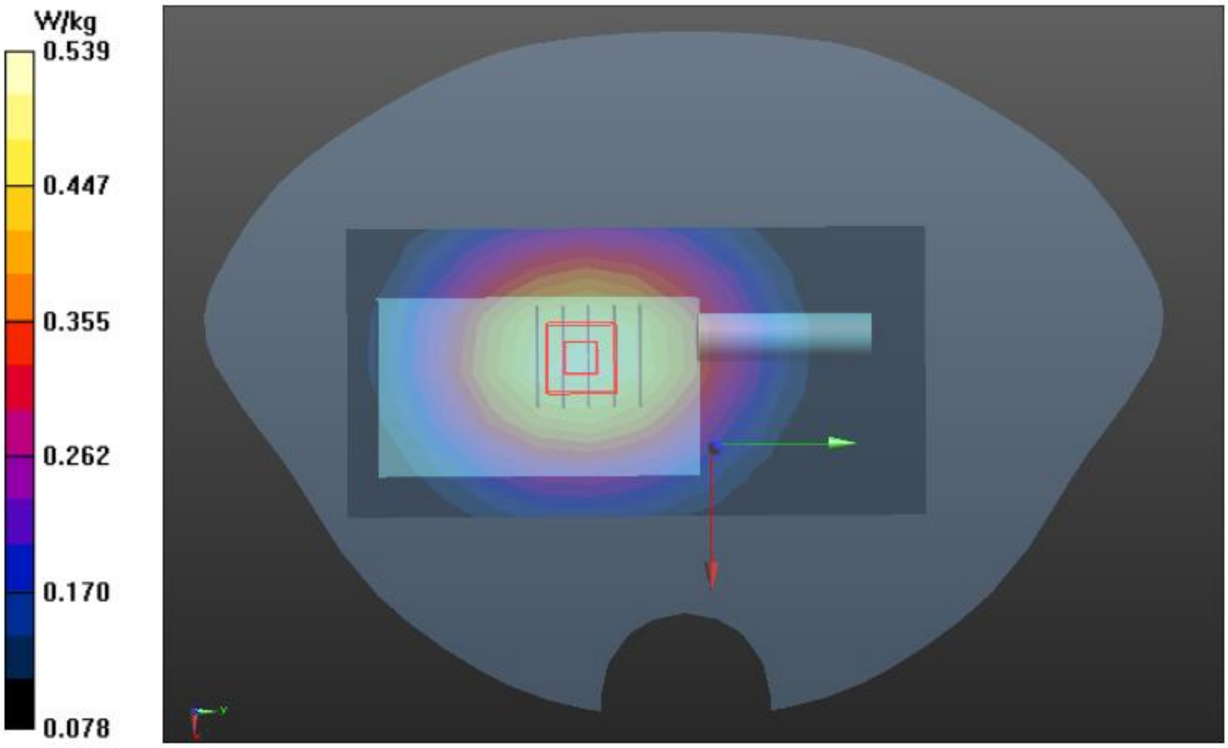
Test Laboratory: AGC Lab **Date: May 14,2018**
GPRS 850 Mid- Face up 3up) < SIM 1>
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: GPRS-3 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.8;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.92 mho/m; εr =40.52; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QDOVA002AA;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

FACE UP/3ST/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.528 W/kg

FACE UP/3ST/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.822 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.630 W/kg
SAR(1 g) = 0.483 W/kg; SAR(10 g) = 0.355 W/kg
Maximum value of SAR (measured) = 0.539 W/kg



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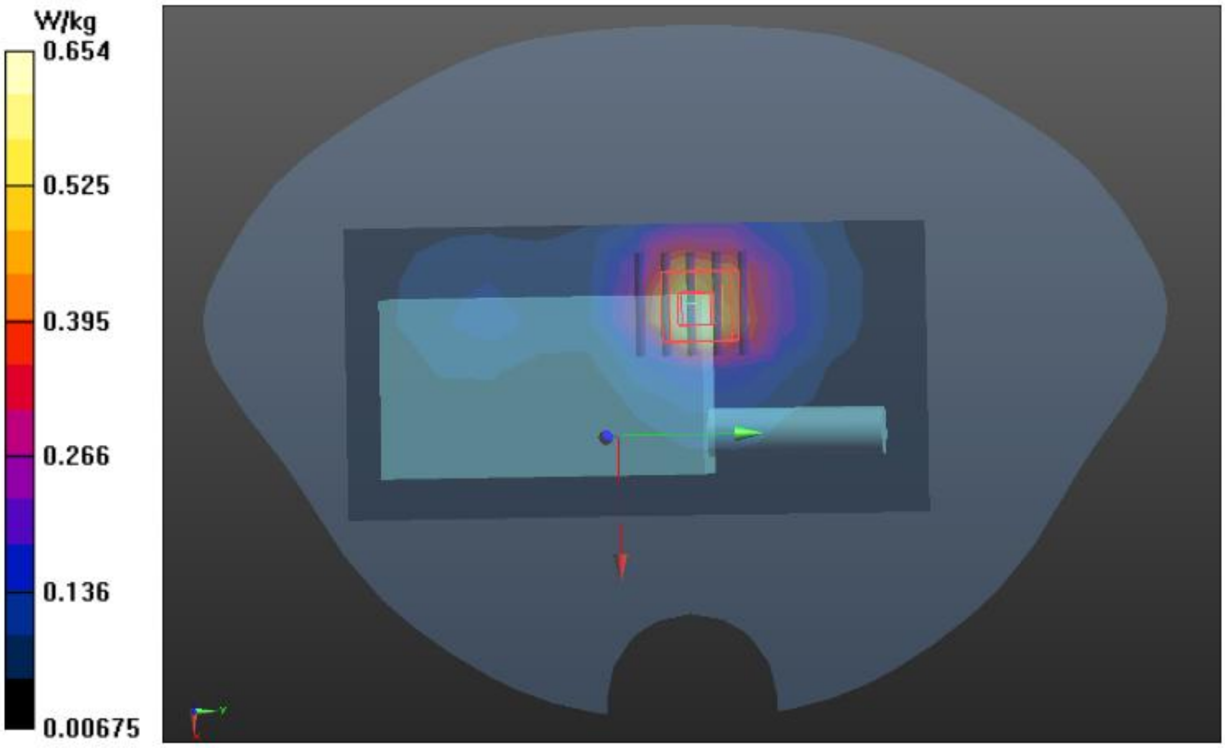
Test Laboratory: AGC Lab **Date: May 15,2018**
GPRS 1900 Mid-Body- Back (4up) < SIM 1>
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: GPRS-4 Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ=1.49 mho/m; εr =54.18; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.5

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY BACK/4ST/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.677 W/kg

BODY BACK/4ST/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.385 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.940 W/kg
SAR(1 g) = 0.534 W/kg; SAR(10 g) = 0.293 W/kg
Maximum value of SAR (measured) = 0.654 W/kg



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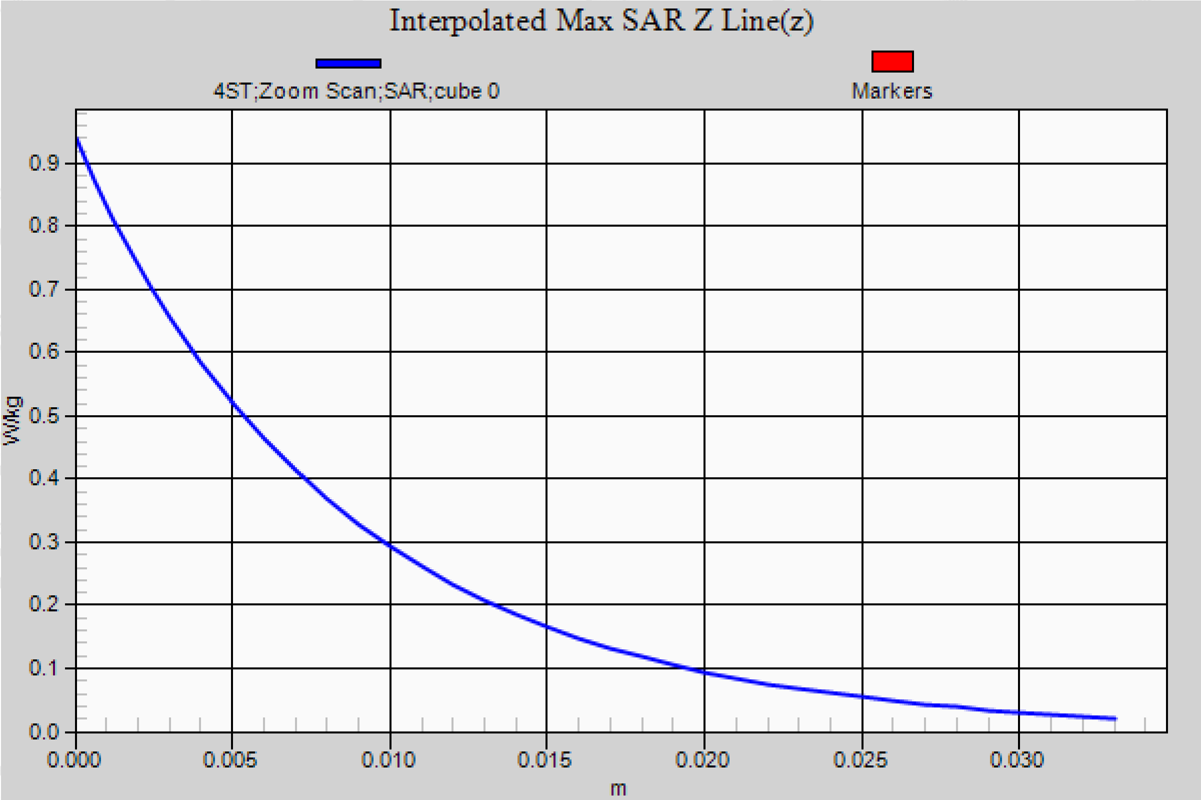

Interpolated Max SAR Z Line(z)
4ST;Zoom Scan;SAR;cube 0
Markers
W/kg
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

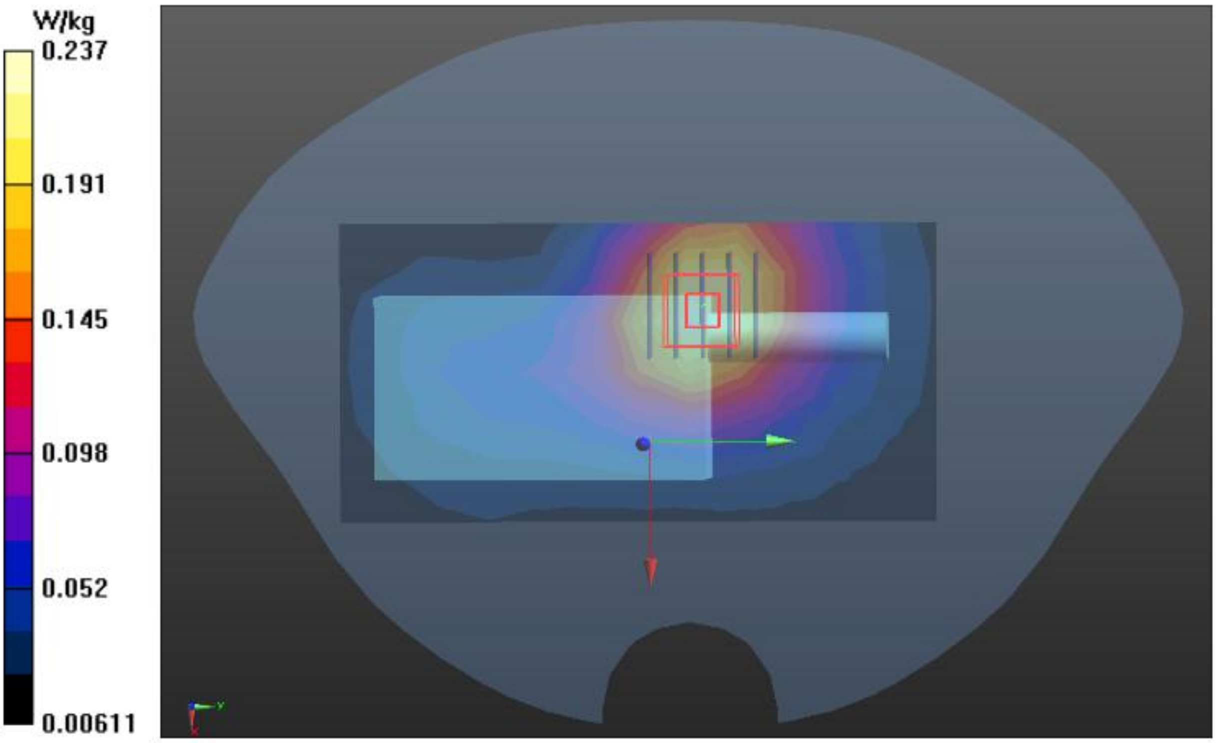
Test Laboratory: AGC Lab **Date: May 15,2018**
GPRS 1900 Mid-Face up (4up) < SIM 1>
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: GPRS-4 Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ=1.39 mho/m; εr =40.17; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

FACE UP/4ST/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.233 W/kg

FACE UP/4ST/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.964 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.321 W/kg
SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.124 W/kg
Maximum value of SAR (measured) = 0.237 W/kg



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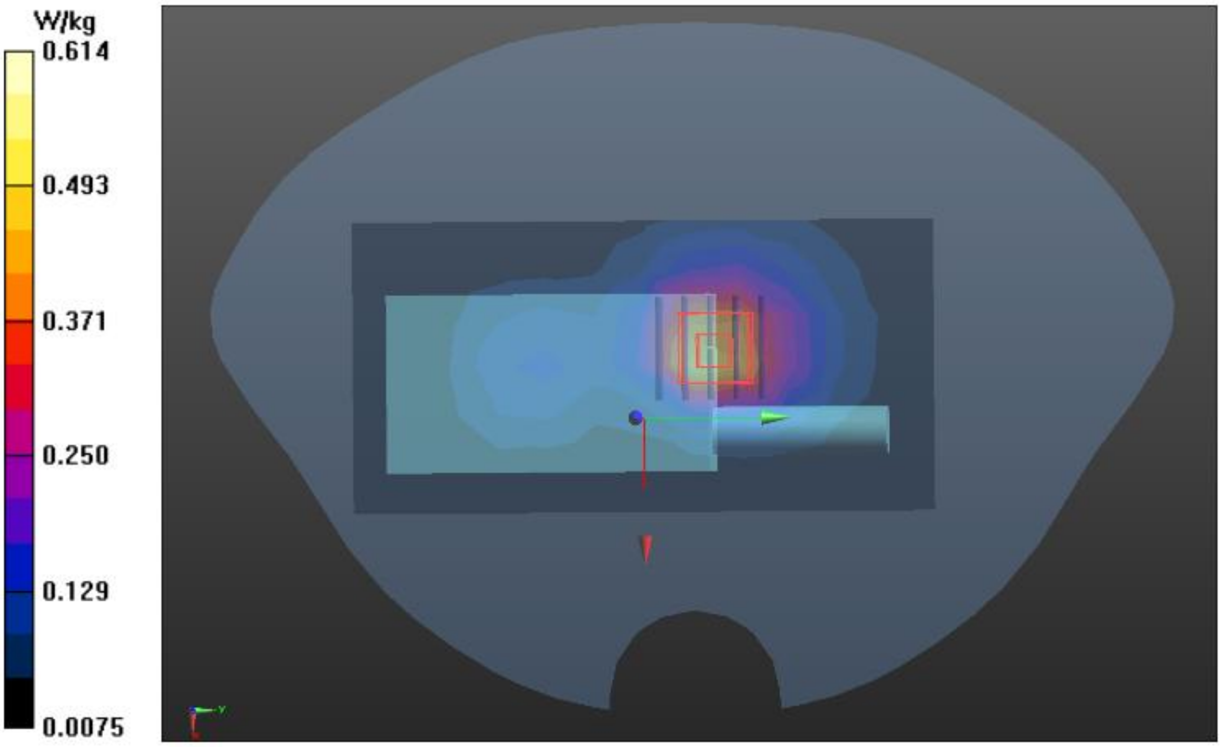
Test Laboratory: AGC Lab **Date: May 15,2018**
WCDMA Band Ⅱ Mid -Body-Towards Grounds
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: UMTS; Communication System Band: Band Ⅱ UTRA/FDD ;Duty Cycle:1:1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ=1.49 mho/m; εr =54.18; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.5

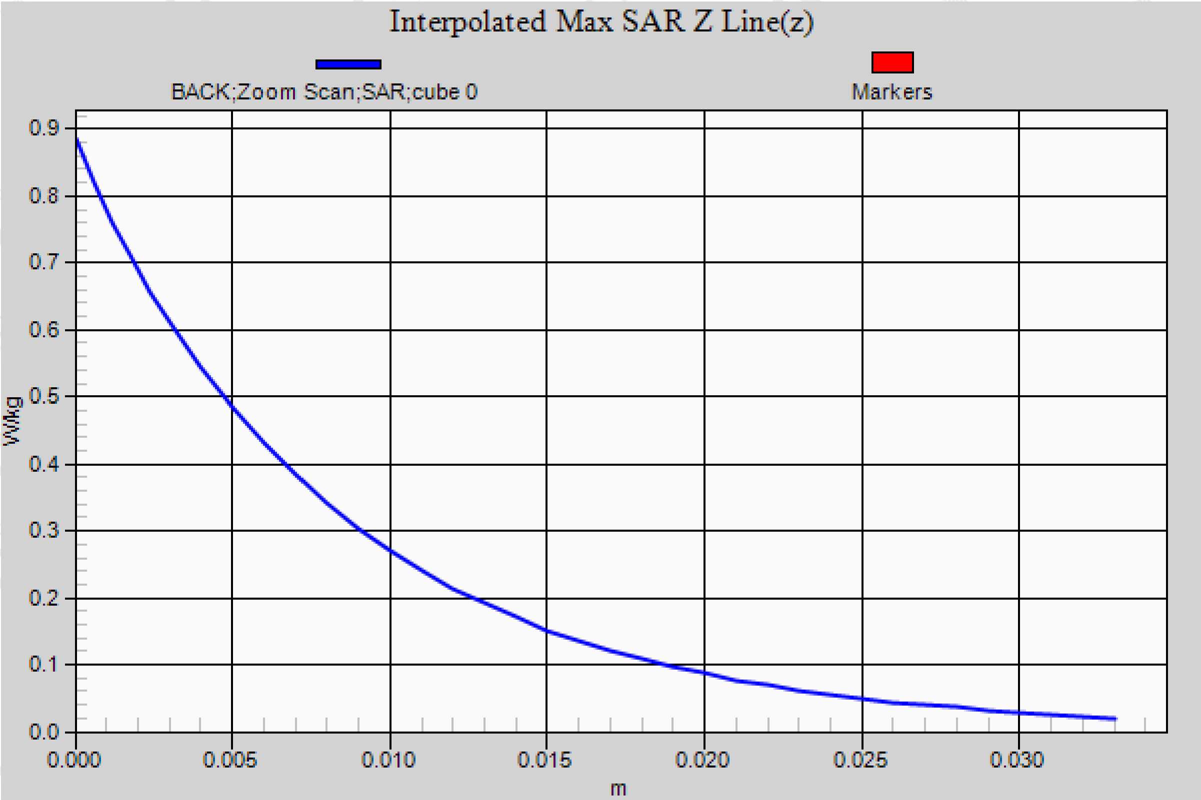
DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/BACK/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.519 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.497 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.885 W/kg
SAR(1 g) = 0.501 W/kg; SAR(10 g) = 0.277 W/kg
Maximum value of SAR (measured) = 0.614 W/kg



Tel: +86-755 2908 1955 Fax: +86-755 2600 8484 E-mail: agc@agc-cert.com 400 089 2118
Add: 2/F. , Building 2, No.1-4,Chaxi Sanwei Technical Industrial Park,Gushu, Xixiang, Baoan District, Shenzhen, Guangdong China


Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0
Markers
W/kg
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

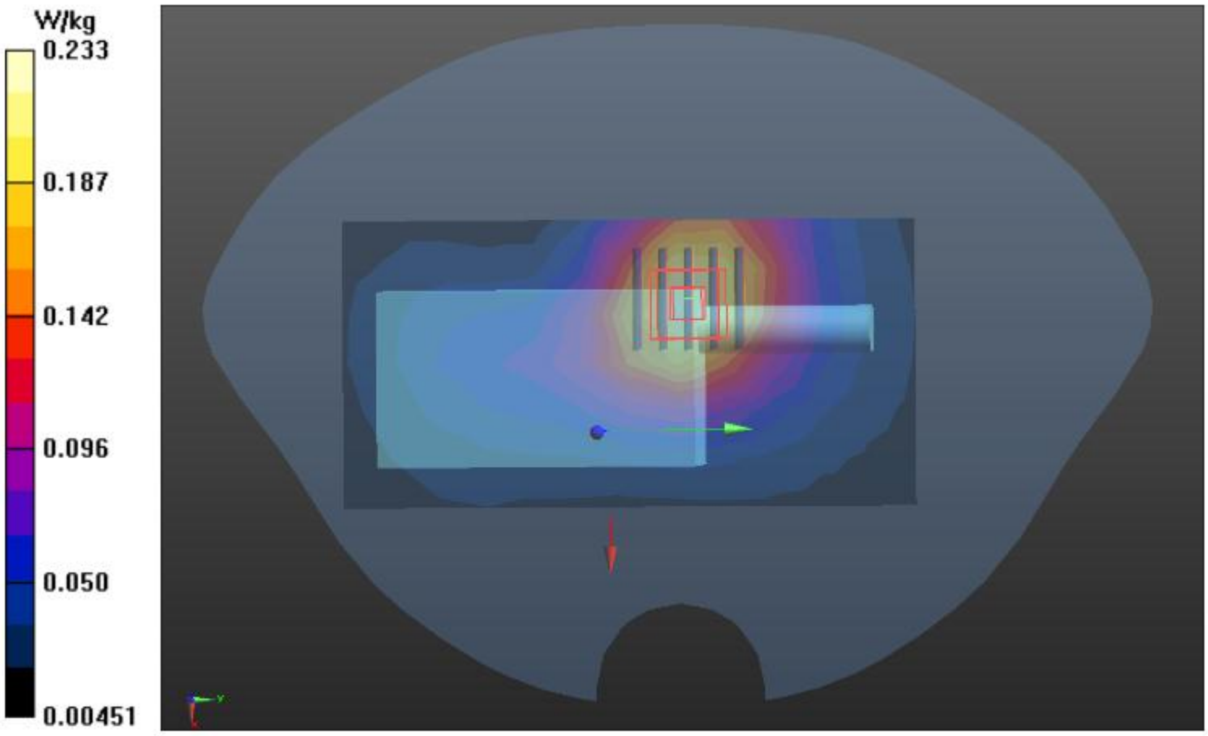
Test Laboratory: AGC Lab **Date: May 15,2018**
WCDMA Band Ⅱ Mid-Face up
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: UMTS; Communication System Band: Band Ⅱ UTRA/FDD ;Duty Cycle:1:1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ=1.39 mho/m; εr =40.17; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):21.9, Liquid temperature (℃): 21.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(8.02, 8.02, 8.02); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/FACE UP/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.229 W/kg

BODY/FACE UP/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.497 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.197 W/kg; SAR(10 g) = 0.122 W/kg
Maximum value of SAR (measured) = 0.233 W/kg



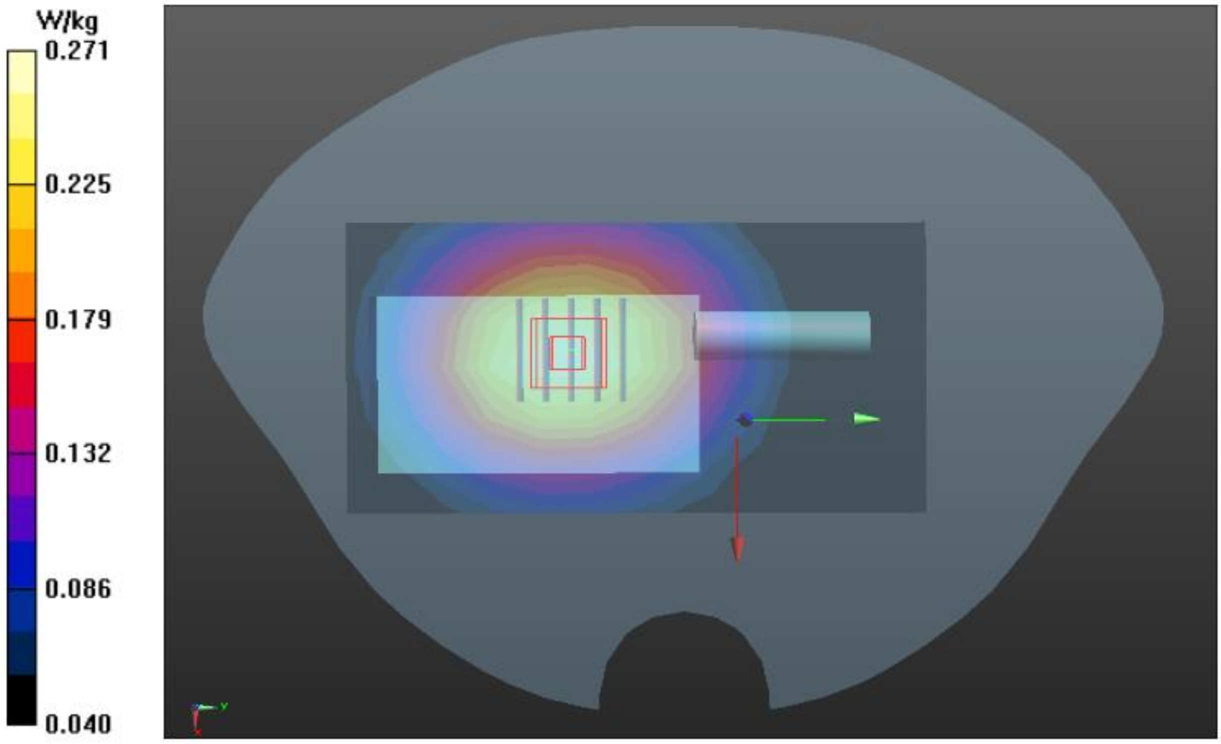
Test Laboratory: AGC Lab **Date: May 14,2018**
WCDMA Band V Mid- Face up
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: UMTS; Communication System Band: BAND V UTRA/FDD;Duty Cycle:1:1;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.92 mho/m; εr =40.52;ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8

DASY Configuration:
• EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/FACE UP/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.265 W/kg

BODY/FACE UP/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.485 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.317 W/kg
SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.180 W/kg
Maximum value of SAR (measured) = 0.271 W/kg



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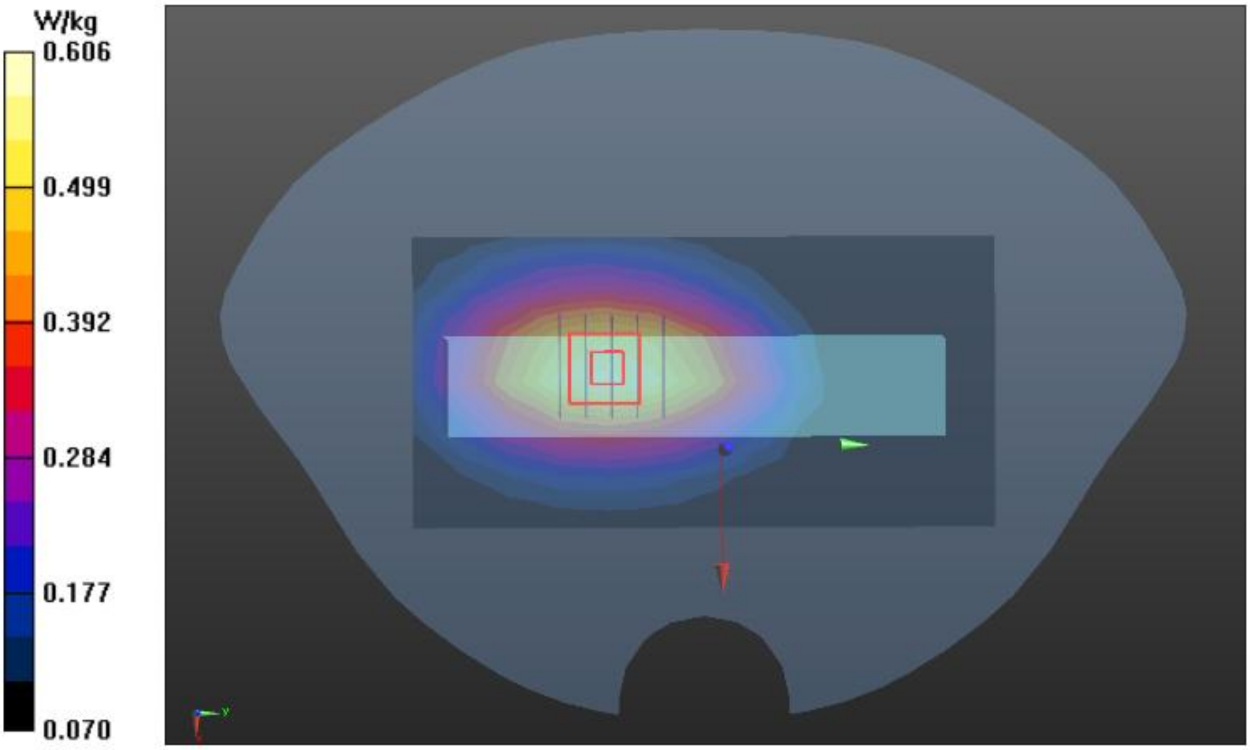
Test Laboratory: AGC Lab **Date: June 21,2018**
WCDMA Band V Mid-Edge4
DUT: POC Trunked Two-way Radio; Type: W25

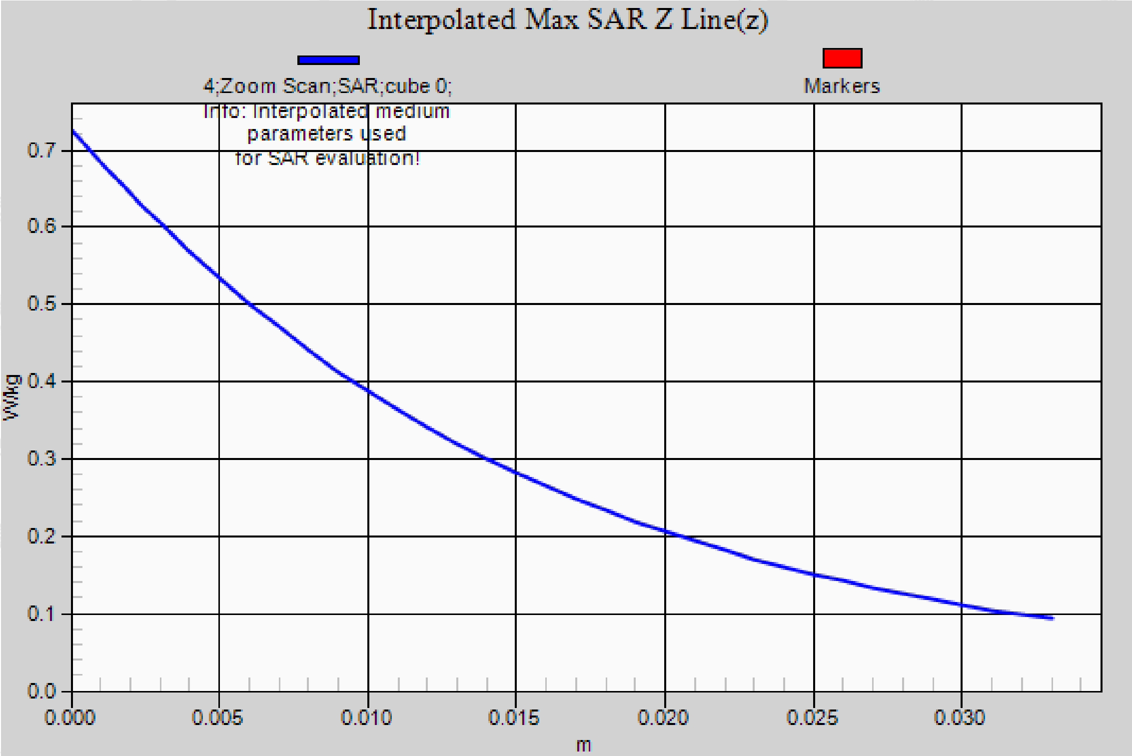
Communication System: UMTS; Communication System Band: BAND V UTRA/FDD;Duty Cycle:1:1;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz;σ=0.96 mho/m; εr =53.74; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):22.5, Liquid temperature (℃): 21.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/Edge4/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.589 W/kg

BODY/Edge4/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.881 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.725 W/kg
SAR(1 g) = 0.535 W/kg; SAR(10 g) = 0.377 W/kg
Maximum value of SAR (measured) = 0.606 W/kg




Interpolated Max SAR Z Line(z)
4;Zoom Scan;SAR;cube 0;
Info: Interpolated medium parameters used for SAR evaluation!
Markers
W/kg
m
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.000
0.005
0.010
0.015
0.020
0.025
0.030

WIFI MODE

Test Laboratory: AGC Lab **Date: May 16,2018**

802.11b Mid- Body- Back (DTS)

DUT: POC Trunked Two-way Radio; Type: W25

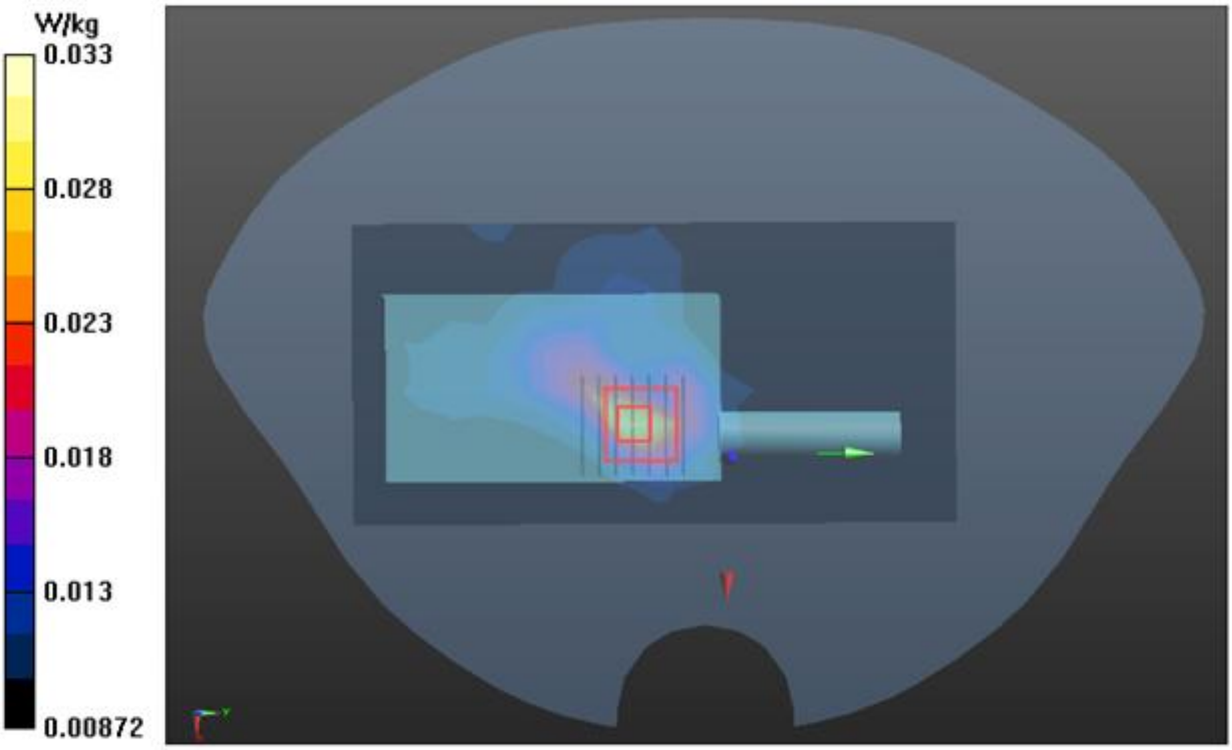
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; σ=1.90 mho/m; εr =54.26;; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.0, Liquid temperature (℃): 21.5

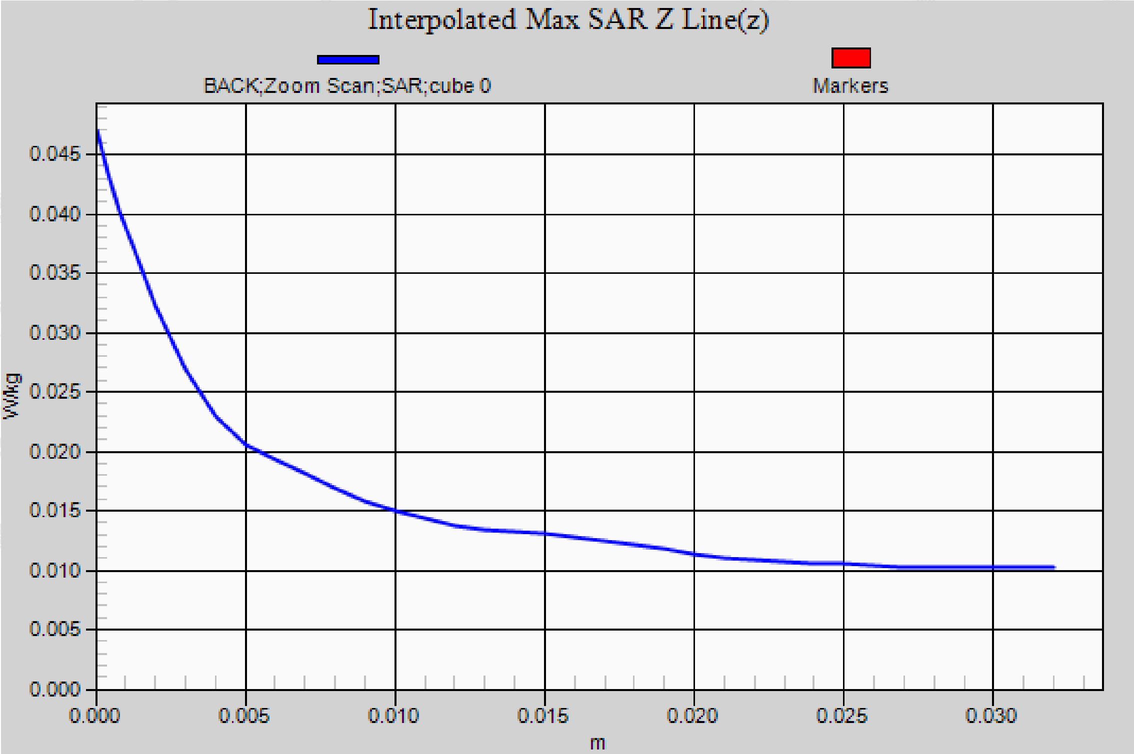
DASY Configuration:

- EX3DV4 – SN:3953; ConvF(7.73, 7.73, 7.73); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY /BACK /Area Scan (10x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0398 W/kg

BODY /BACK /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.291 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.0470 W/kg
SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0326 W/kg





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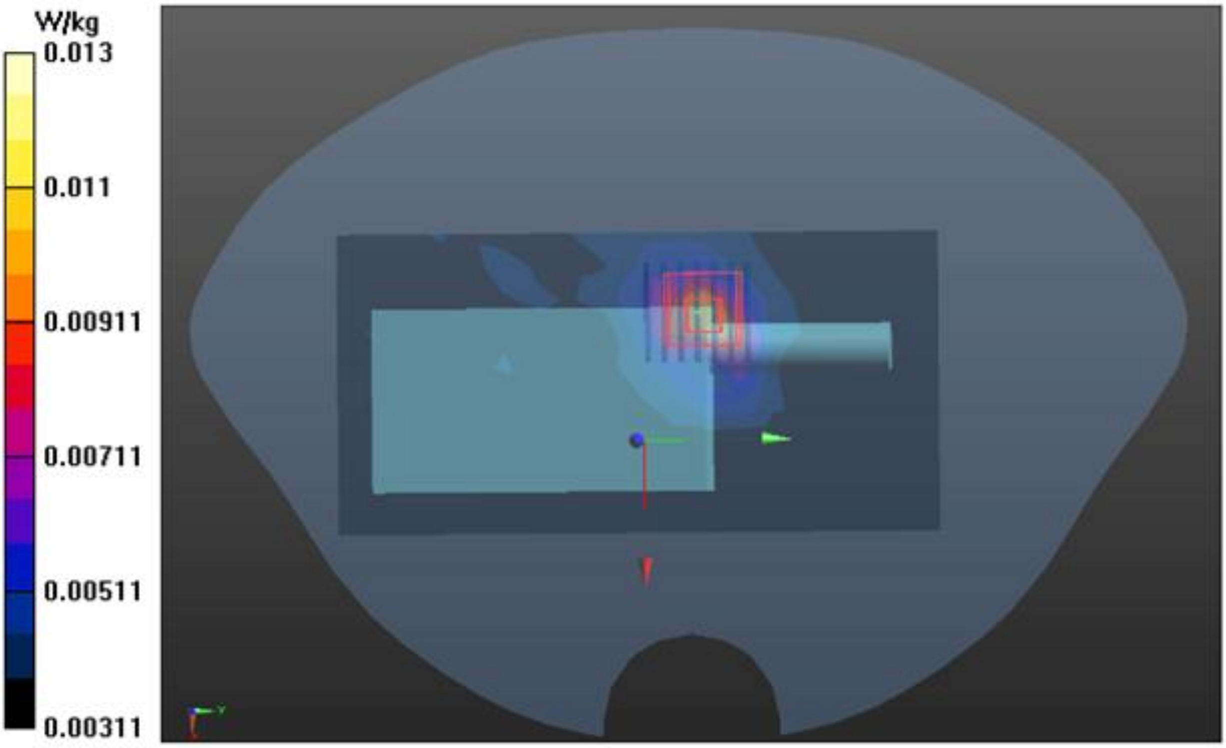
Test Laboratory: AGC Lab **Date: May 16,2018**
802.11b Mid- Face up (DTS)
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; σ=1.77 mho/m; εr =40.11;; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.0, Liquid temperature (℃): 21.3

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(7.73, 7.73, 7.73); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/FACE UP/Area Scan (10x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0142 W/kg

BODY/FACE UP/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.832 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0140 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00861 W/kg
Maximum value of SAR (measured) = 0.0131 W/kg



Repeated SAR

Test Laboratory: AGC Lab **Date: May 14,2018**

GPRS 850 Mid- Body- Back (3up) < SIM 1>

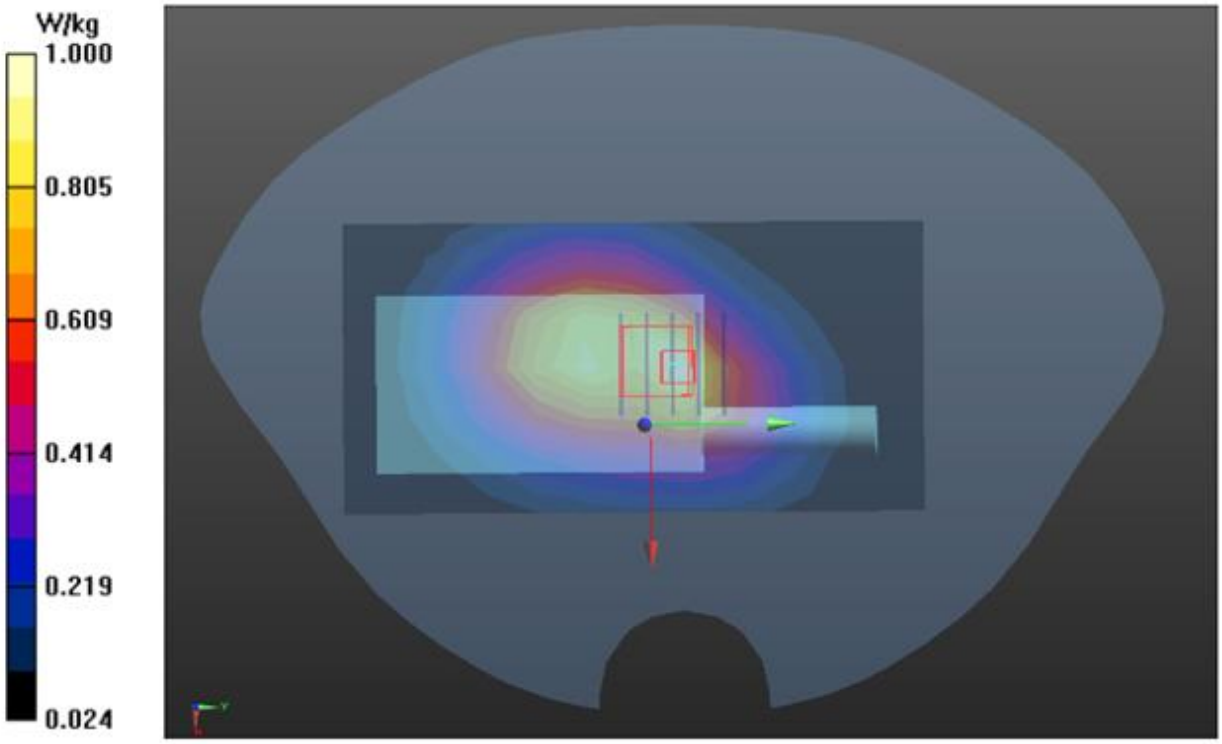
DUT: POC Trunked Two-way Radio; Type: W25

Communication System: GPRS-3 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.8;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ= 0.97 mho/m; εr = 55.27; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):22.2, Liquid temperature (℃): 21.8

DASY Configuration:
- EX3DV4 – SN:3953; ConvF(10.00, 10.00, 10.00); Calibrated:Aug. 31,2017;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 SN1398; Calibrated: Feb. 08,2018
- Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QDOVA002AA;
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

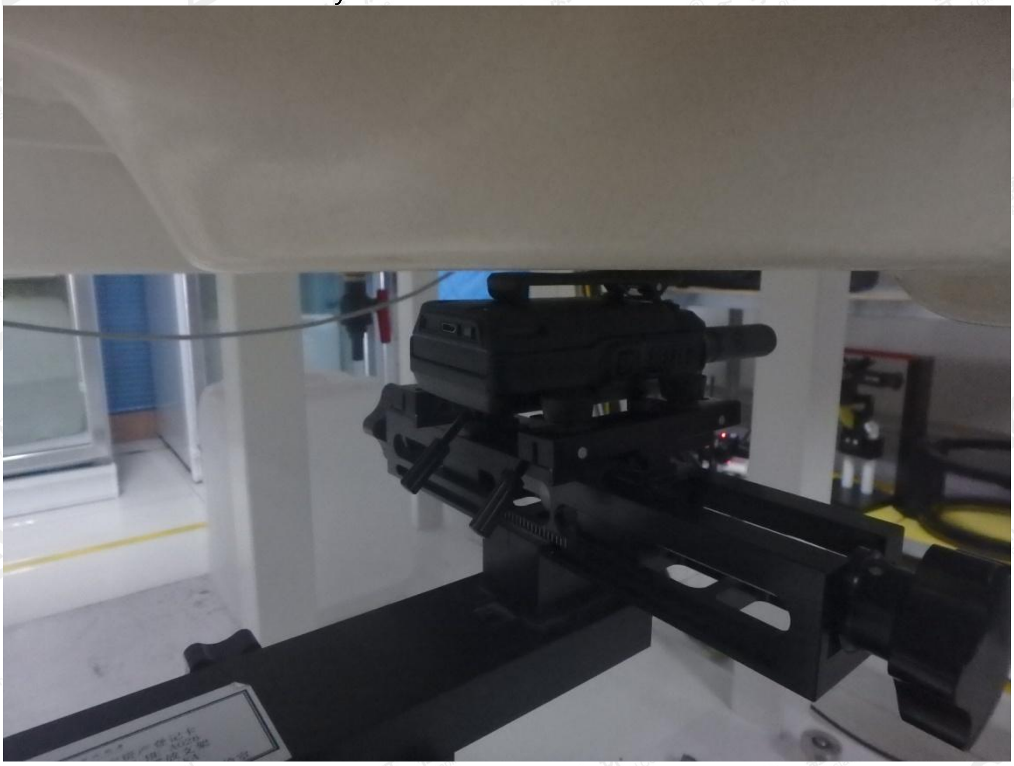
BODY BACK-REPEATED/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.03 W/kg

BODY BACK-REPEATED/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.824 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.862 W/kg; SAR(10 g) = 0.592 W/kg
Maximum value of SAR (measured) = 1.00 W/kg



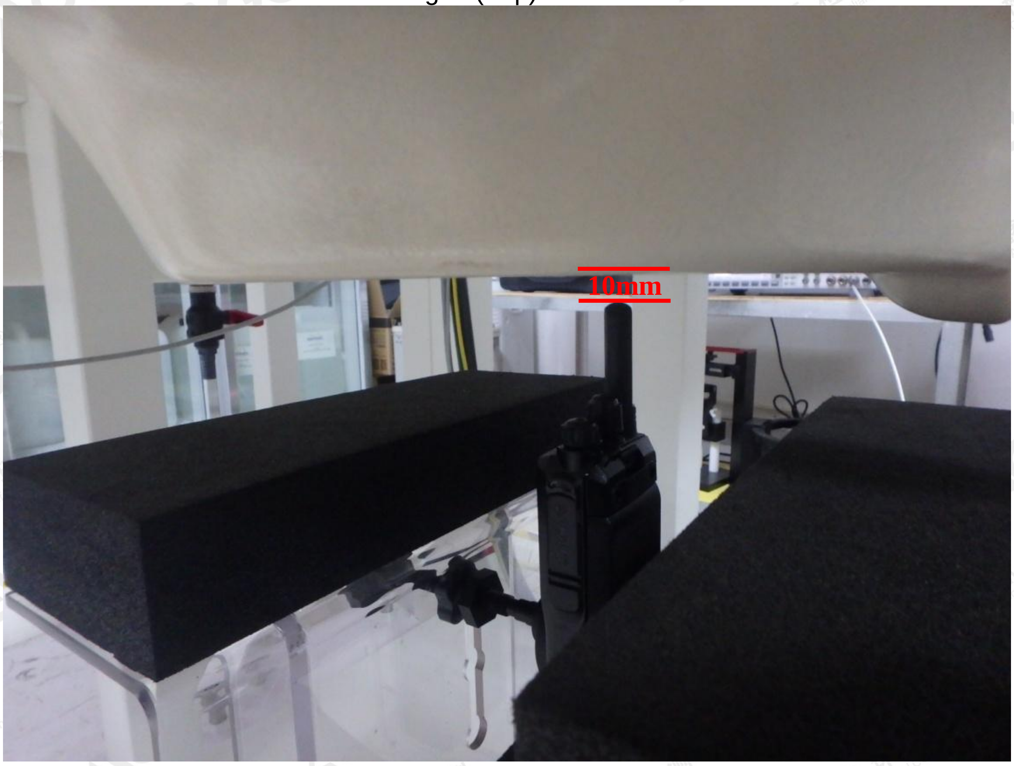
APPENDIX C. TEST SETUP PHOTOGRAPHS

Body Back Touch with all accessories

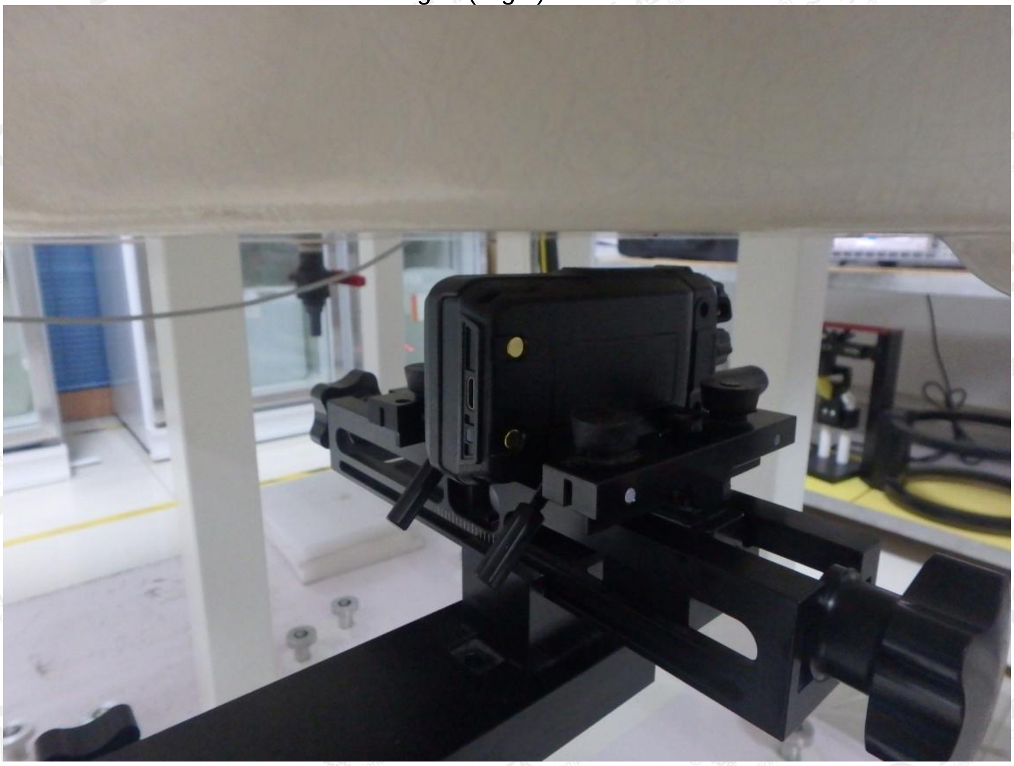


Face Up with 2.5 cm Separation Distance.

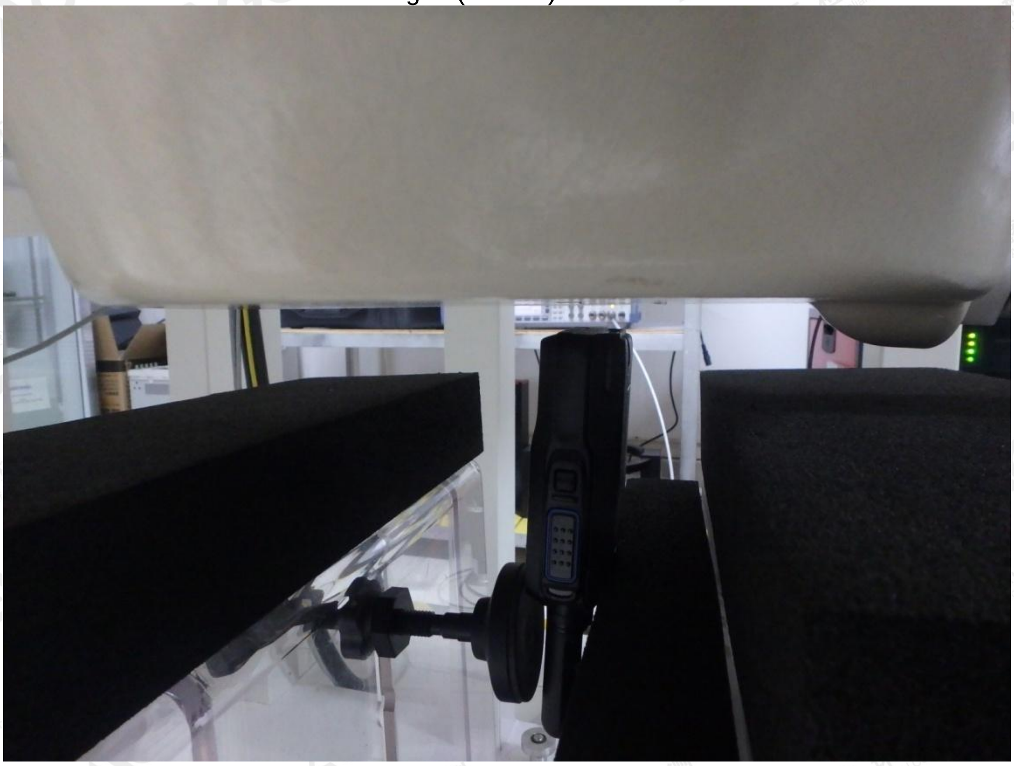
Edge 1(Top) 10mm



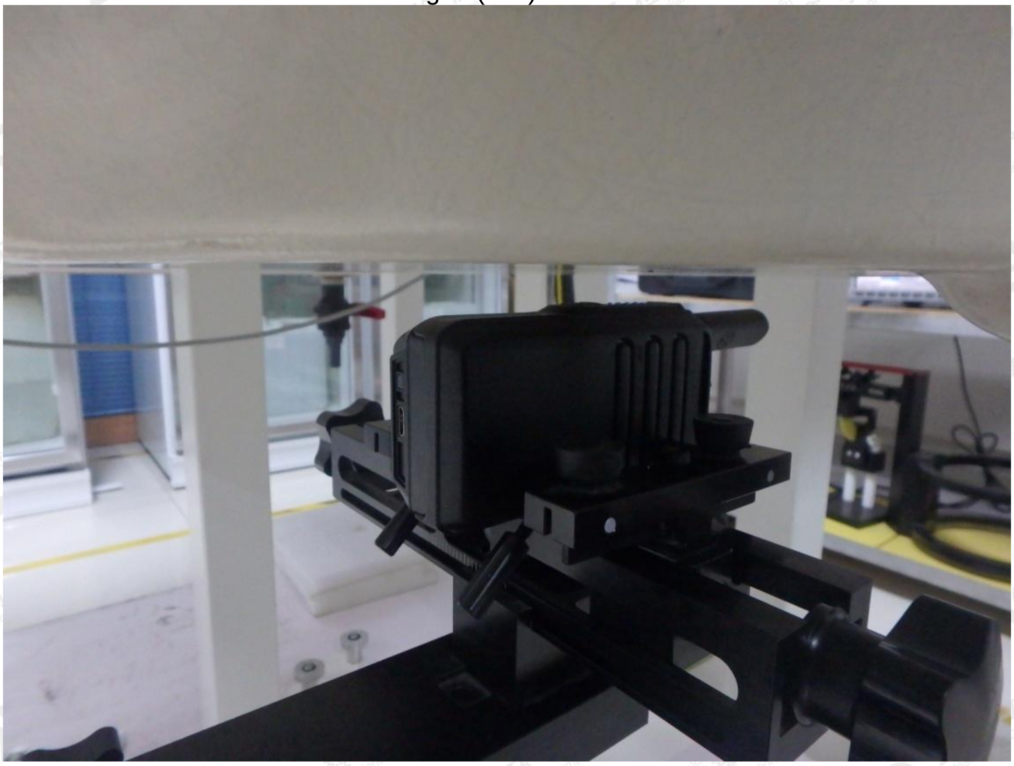
Edge 2(Right) 10mm



Edge 3(Bottom) 10mm

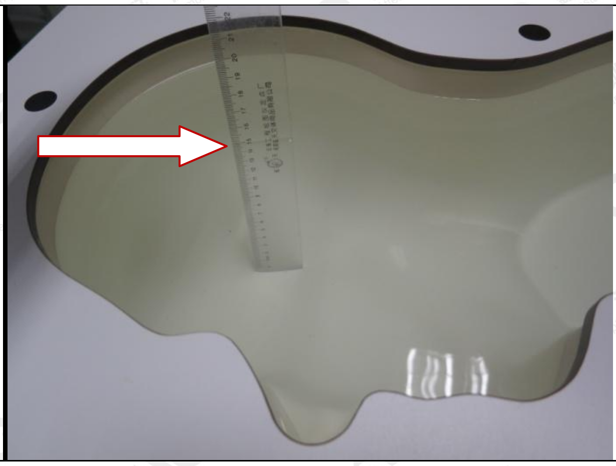
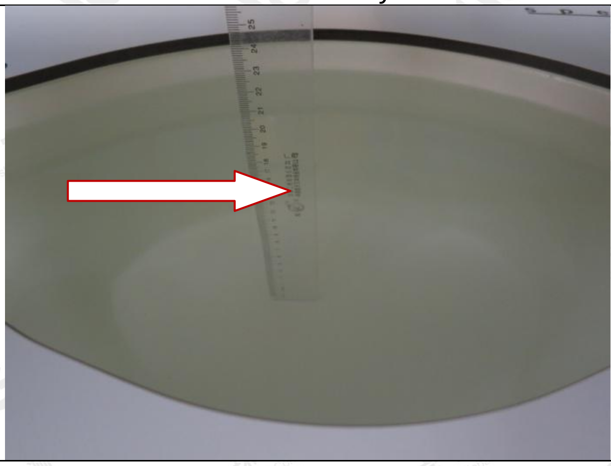
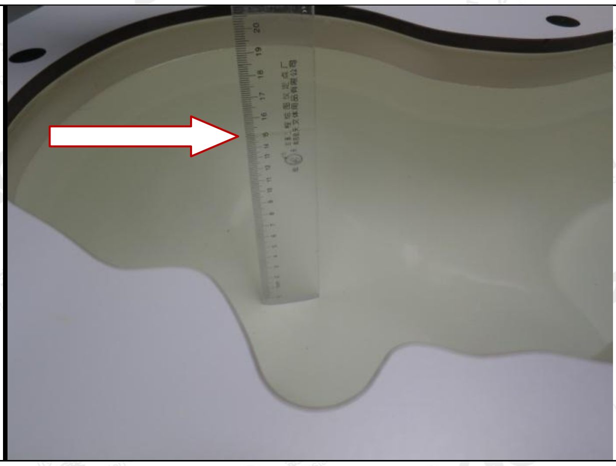
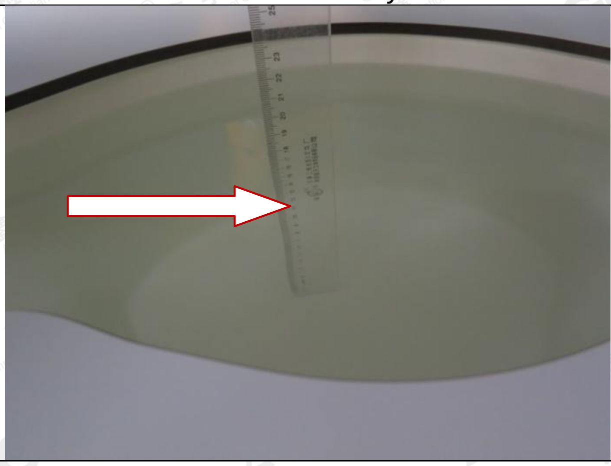
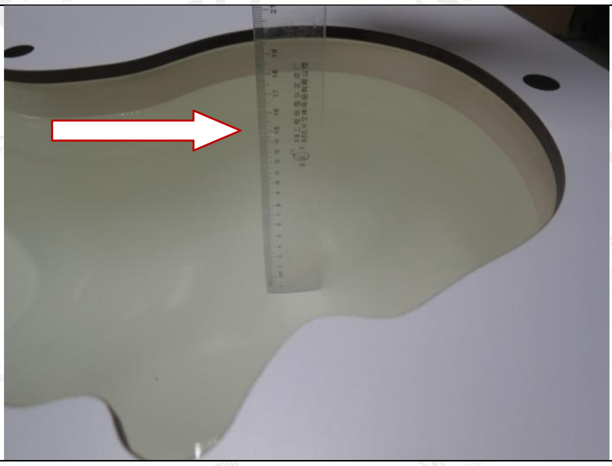
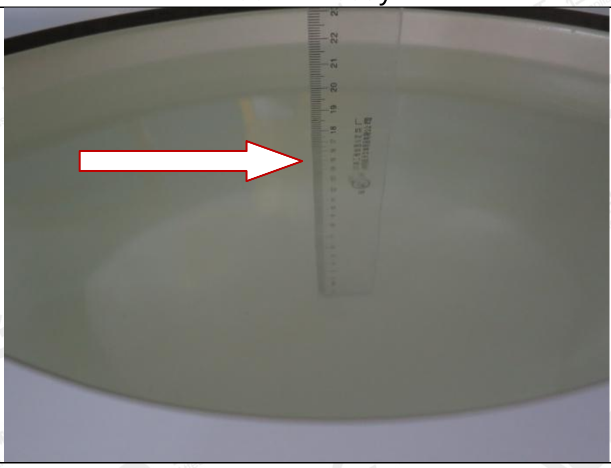


Edge 4(Left) 10mm



DEPTH OF THE LIQUID IN THE PHANTOM—ZOOM IN

Note：The position used in the measurement were according to IEEE 1528-2013

835MHz head	835MHz body
	
1900MHz head	1900MHz body
	
2450MHz head	2450MHz body
	

APPENDIX D. CALIBRATION DATA

Refer to Attached files.