SAR Test Report

Report No.: AGC00915200501FH01

FCC ID	:	2ALP3X2
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Smart phone
BRAND NAME	:	kodak
MODEL NAME	:	X2
APPLICANT	:	INDUSTRIA FUEGUINA DE RELOJERIA ELECTRONICA SA
DATE OF ISSUE	:	Jul. 15,2020
STANDARD(S)	:	IEEE Std. 1528:2013 FCC 47 CFR Part 2§2.1093:2013 IEEE Std C95.1 ™-2005 IEC 62209-1: 2016
REPORT VERSION	:	V1.0

*A*ttestation of Global Compliance(Shenzhen) Co., Ltd.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 15,2020	Valid	Initial Release

Test Report	
Applicant Name	INDUSTRIA FUEGUINA DE RELOJERIA ELECTRONICA SA
Applicant Address	SARMIENTO 2920,9420, RIO GRANDE, Argentina
Manufacturer Name	Luzhou Maisui Smart Technology Co., Ltd
Manufacturer Address	No.19, Section 5, Jiugu Avenue, Luzhou high-tech Zone, Sichuan Province,China
Factory Name	Industria Fuegina de Relojeria Electronica S.A.
Factory Address	Sarmiento 2920, CP 9420), Rio Grande, Tierra del Fuego, Argentina
Product Designation	Smart phone
Brand Name	kodak
Model Name	X2
EUT Voltage	DC3.8V by battery
Applicable Standard	IEEE Std. 1528:2013 FCC 47 CFR Part 2§2.1093:2013 IEEE Std C95.1 ™-2005 IEC 62209-1: 2016
Test Date	Jun. 09,2020 to Jun. 29,2020
Report Template	AGCRT-US-4G/SAR (2018-01-01)

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

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Approved By

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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)
	Head	Body-worn	
GSM 850	0.070	0.321	1.6
PCS 1900	0.073	0.437	
UMTS Band II	0.144	0.435	
UMTS Band V	0.112	0.174	
LTE Band 2	0.106	0.360	
LTE Band 4	0.084	0.276	
LTE Band 5	0.205	0.790	
LTE Band 7	0.690	0.715	
LTE Band 17	0.119	0.290	
WIFI 2.4G	0.145	0.208	
WIFI 5.2G	0.078	0.046	
Simultaneous Reported SAR	0.998		
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
- KDB 941225 D05 SAR for LTE Devices v02r05

2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	Smart phone
Test Model	X2
Hardware Version	E957_MAIN_PCB_V1.0
Software Version	TE9572_KODAK_62_Q0_V0.1.6.1_S200507
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
GSM and GPRS& EGPRS	
Support Band	☒GSM 850 ☒PCS 1900 (U.S. Bands) ☒GSM 900 ☒DCS 1800 (Non-U.S. Bands)
GPRS & EGPRS Type	Class B
GPRS & EGPRS 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 GSM/GPRS; GMSK & 8-PSK for EGPRS
Antenna Gain	GSM850:-0.36dBi; PCS1900: 0.44dBi
Max. Average Power	GSM850: 32.06dBm ;PCS1900: 29.82dBm
WCDMA	
Support Band	☒UMTS FDD Band II ☒UMTS FDD Band V ☐UMTS FDD Band I ☐UMTS FDD Band VIII
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	WCDMA850: -0.30dBi; WCDMA1900:0.16dBi
Max. Average Power	Band II: 22.36dBm; Band V: 22.35dBm

EUT Description(Continue)

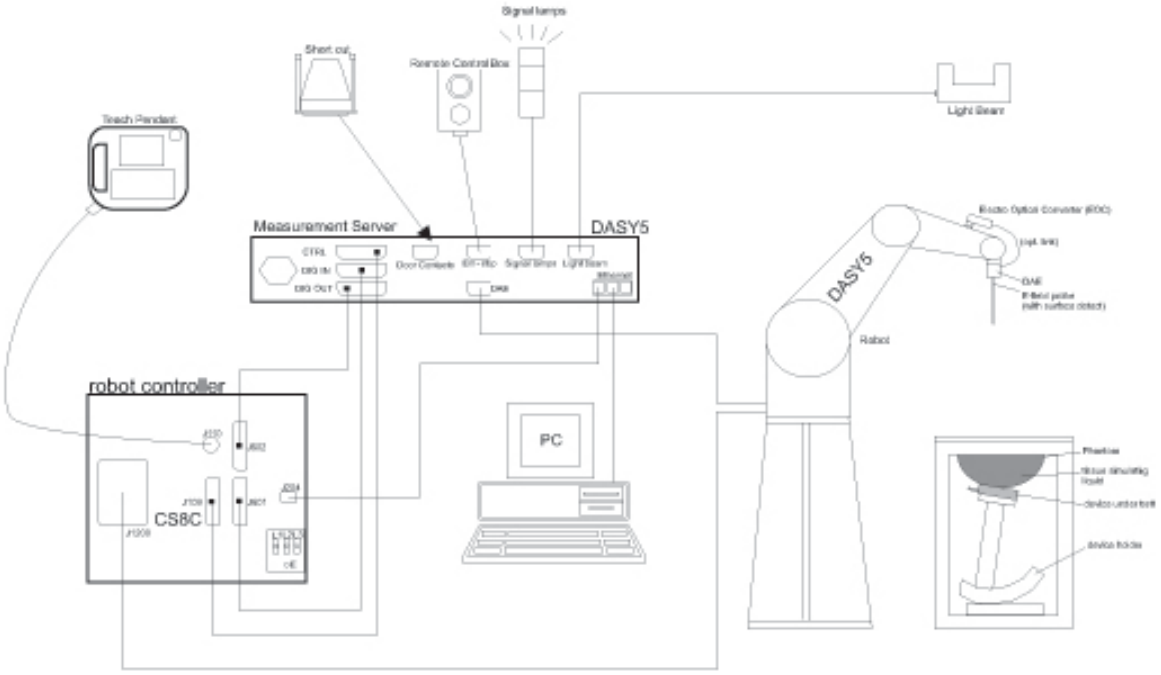
LTE	
Support Band	☒FDD Band 2 ☒FDD Band 4 ☒FDD Band 5 ☒FDD Band 7 ☐FDD Band 12 ☒FDD Band 17 ☐FDD Band 25 ☐FDD Band 26 ☐TDD Band 41 (U.S. Bands) ☐FDD Band 1 ☐FDD Band 3 ☐FDD Band 7 ☐FDD Band 8 ☐FDD Band 20 ☒TDD Band 28 ☐TDD Band 38 ☐FDD Band 40 ☐FDD Band 42 ☐FDD Band 43 (Non-U.S. Bands)
TX Frequency Range	Band 2:1850-1910MHz; Band 4:1710-1755MHz;Band 5:824-849MHz; Band 7:2500-2570MHz; Band 17: 704-716MHz;
RX Frequency Range	Band 2:1930-1990MHz; Band 4:2110-2155MHz; Band 5:869-894MHz; Band 7:2620-2690MHz; Band 17: 734-746 MHz;
Release Version	Rel-8
Type of modulation	QPSK, 16QAM
Antenna gain:	Band 2: 0.55dBi; Band 4: 0.42dBi; Band 5:-0.30dBi; Band 7: 0.57dBi; Band 17:-0.06dBi
Max. Average Power	Band 2: 23.38dBm; Band 4: 23.08dBm; Band 5: 23.51dBm; Band 7:23.03dBm; Band 17: 23.51dBm;
Bluetooth	
Operation Frequency	2402~2480MHz
Antenna Gain	1.10dBi
Bluetooth Version	V 5.0
Type of modulation	**BR/EDR**: GFSK, Π/4-DQPSK, 8-DPSK; **BLE:** GFSK
EIRP	**BR/EDR**: 7.497dBm; **BLE:** -3.105dBm
2.4GHz WIFI	
WIFI Specification	☐802.11a ☒802.11b ☒802.11g ☒802.11n(20) ☒802.11n(40)
Operation Frequency	2412~2462MHz
Avg. Burst Power	11b:13.76dBm,11g:13.50dBm,11n(20):13.39dBm,11n(40):12.45dBm
Antenna Gain	1.10dBi
5.2GHz WIFI	
WIFI Specification	☒802.11a ☒802.11n20 ☒802.11ac20 ☒802.11n40 ☒802.11ac40 ☒802.11ac80
Operation Frequency	5150 MHz～5250MHz
Type of modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM,OFDM
EIRP	802.11a20:10.26dBm,802.11n(20):10.09dBm;802.11n(40):9.78dBm 802.11ac(20):9.28dBm,802.11ac(40):9.23dBm,802.11ac(80):8.79dBm
Antenna Gain	0.70dBi
Accessories	
Battery	Brand name: kodak Model No. : L63464 Voltage and Capacitance: 3.8 V & 3900mAh
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.
3. The test sample has no any deviation to the test method of standard mentioned in page 1.

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.

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-SN:3953	
Manufacture	SPEAG	
frequency	0.7GHz-6GHz Linearity:±0.9%(k=2)	
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 6 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	

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

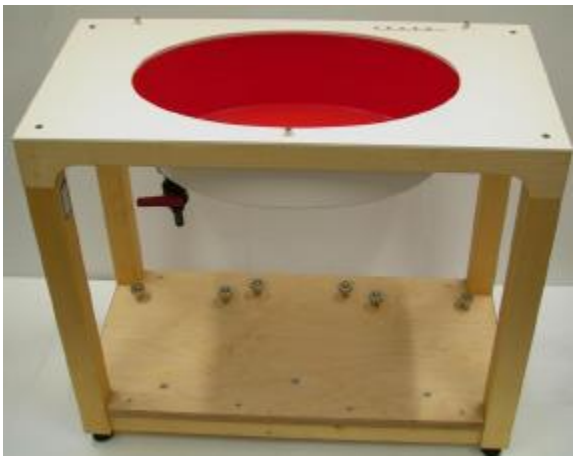
The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chip-disk (DASY5: 128MB), RAM (DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface 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:

$$\mathrm{SAR} = \frac{\mathrm{d}}{\mathrm{d}t}\left(\frac{\mathrm{d}W}{\mathrm{d}m}\right) = \frac{\mathrm{d}}{\mathrm{d}t}\left(\frac{\mathrm{d}W}{\rho \mathrm{d}V}\right)$$

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

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

$$\mathrm{SAR} = c_h \left.\frac{\mathrm{d}T}{\mathrm{d}t}\right|_{t=0}$$

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;
$\frac{\mathrm{dT}}{\mathrm{dt}} \mid \mathrm{t} = 0$	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.

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

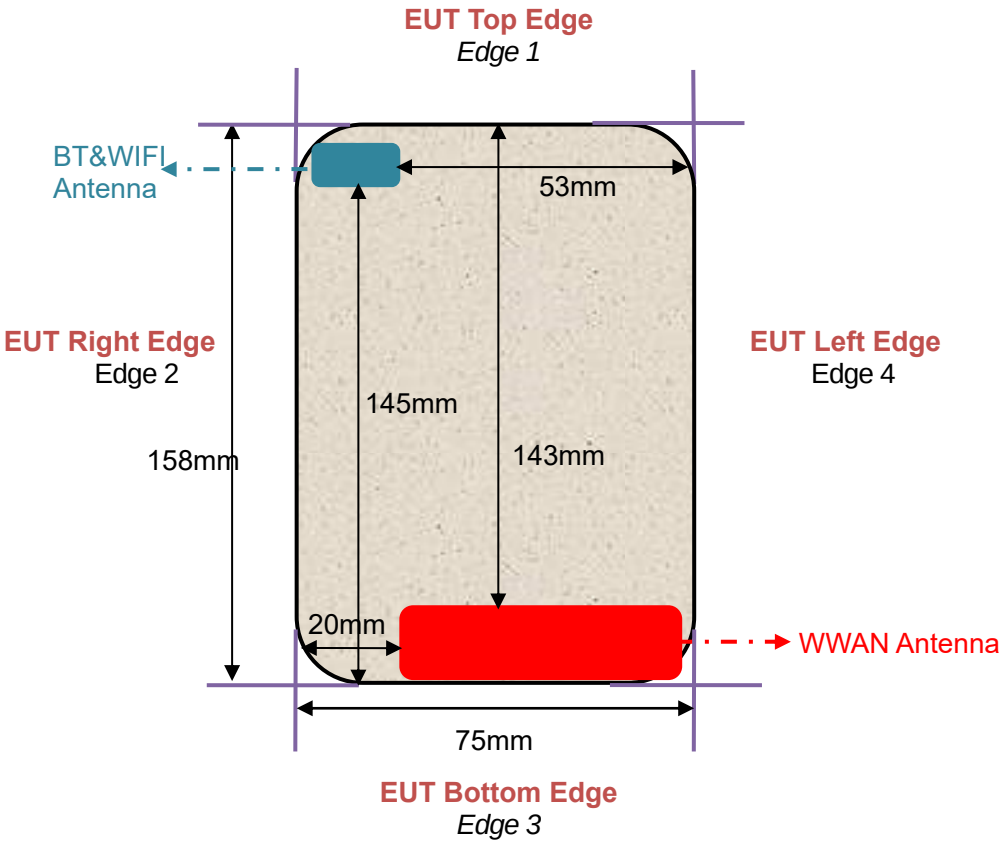
Test Configuration and setting:

The EUT is a model of GSM/WCDMA Portable Mobile Station (MS). It supports GSM/GPRS/EGPRS, 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.

Antenna Location: (the back view)



For WWAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Head			
Left Touch		Yes	--
Left Tilt		Yes	--
Right Touch		Yes	--
Right Tilt		Yes	--
Body			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Hotspot			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Edge 1 (Top)	143mm	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)	20mm	Yes	--
Edge 3 (Bottom)	1mm	Yes	--
Edge 4 (Left)	1mm	Yes	--

For WLAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Head			
Left Touch		Yes	--
Left Tilt		Yes	--
Right Touch		Yes	--
Right Tilt		Yes	--
Body			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Hotspot			
Back	<25mm	Yes	--
Front	<25mm	Yes	--
Edge 1 (Top)	1mm	Yes	--
Edge 2 (Right)	1mm	Yes	--
Edge 3 (Bottom)	145mm	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)	53mm	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225 D06 Hotspot SAR

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 10% are listed in 6.2

5.1. The composition of the tissue simulating liquid

Ingredient (% Weight) / Frequency (MHz)	Water	Nacl	Polysorbate 20	DGBE	1,2 Propanediol	Triton X-100
750 Head	35	2	0.0	0.0	63	0.0
835 Head	50.36	1.25	48.39	0.0	0.0	0.0
1750 Head	52.64	0.36	0.0	47	0.0	0.0
1900 Head	54.9	0.18	0.0	44.92	0.0	0.0
2450 Head	71.88	0.16	0.0	7.99	0.0	19.97
2600 Head	55.242	0.306	0	44.452	0	0
5000 Head	65.52	0.0	0.0	0.0	0.0	17.24

5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEC 62209-1 have been incorporated in the following table. The body tissue dielectric parameters recommended by the IEC 62209-2 have been incorporated in the following table.

Target Frequency (MHz)	head		body	
	εr	σ (S/m)	εr	σ (S/m)
300	45.3	0.87	45.3	0.87
450	43.5	0.87	43.5	0.87
750	**41.9**	**0.89**	41.9	0.89
835	**41.5**	**0.90**	41.5	0.90
900	41.5	0.97	41.5	0.97
915	41.5	1.01	41.5	1.01
1450	40.5	1.20	40.5	1.20
1610	40.3	1.29	40.3	1.29
1750	**40.1**	**1.37**	40.1	1.37
1800 – 2000	**40.0**	**1.40**	40.0	1.40
2450	**39.2**	**1.80**	39.2	1.80
2600	**39.0**	**1.96**	39.0	1.96
3000	38.5	2.40	38.5	2.40
5200	**36.0**	**4.66**	36.0	4.66

(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 750MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr 41.9 (37.71-46.09)	δ[s/m] 0.89(0.801-0.979)		
	710	42.06	0.89	21.1	Jun. 09,2020
	750	41.51	0.91		

Tissue Stimulant Measurement for 835MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr 41.5 (37.35-45.65)	δ[s/m] 0.90(0.81-0.99)		
	835	40.07	0.89	20.6	Jun. 18,2020
	836.6	39.68	0.92		

Tissue Stimulant Measurement for 835MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr 41.5 (37.35-45.65)	δ[s/m] 0.90(0.81-0.99)		
	835	40.51	0.92	21.1	Jun. 17,2020
	836.5	39.72	0.93		

Tissue Stimulant Measurement for 1750MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr 40.1 (36.09-44.11)	δ[s/m]1.37(1.233-1.507)		
	1732.5	40.87	1.32	21.6	Jun. 29,2020
	1750	39.54	1.34		

Tissue Stimulant Measurement for 1900MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr40.00(36.00-44.00)	δ[s/m]1.40(1.26-1.54)		
	1880	41.06	1.41	21.1	Jun. 28,2020
	1900	39.36	1.42		

Tissue Stimulant Measurement for 1900MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr40.00(36.00-44.00)	δ[s/m]1.40(1.26-1.54)		
	1880	40.25	1.36	20.9	Jun. 19,2020
	1900	39.54	1.38		

Tissue Stimulant Measurement for 2450MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr39.2(35.28-43.12)	δ[s/m]1.80(1.62-1.98)		
	2437	41.39	1.73	21.6	Jun. 16,2020
	2450	40.61	1.75		

Tissue Stimulant Measurement for 2600MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr39(35.1-42.9)	δ[s/m]1.96(1.764-2.156)		
	2535	39.76	1.90	21.1	Jun. 22,2020
	2600	38.69	1.92		

Tissue Stimulant Measurement for 5200MHz					
Head	Fr. (MHz)	Dielectric Parameters (±10%)		Tissue Temp [°C]	Test time
		εr 36(32.4-39.6)	δ[s/m] 4.66(4.194-5.126)		
	5200	35.67	4.59	20.6	Jun. 24,2020

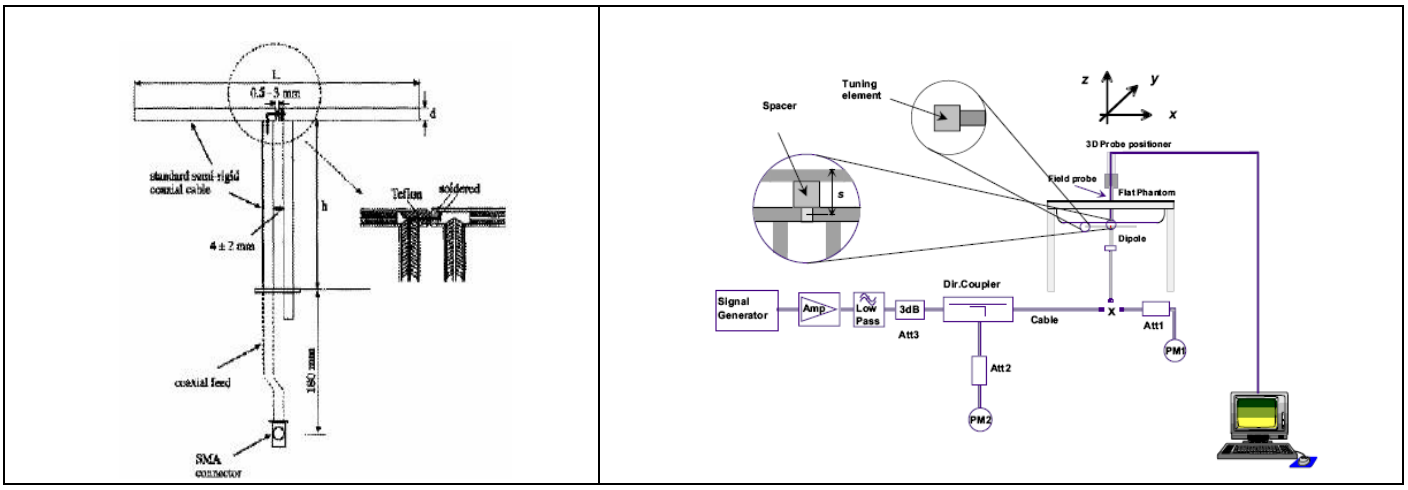
6. SAR SYSTEM CHECK PROCEDURE

6.1. SAR System Check Procedures

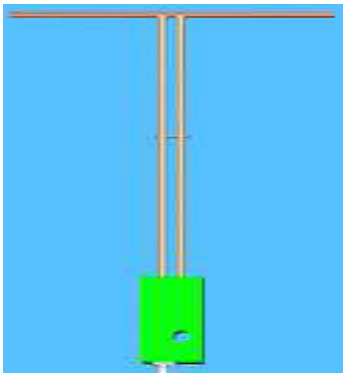
SAR system check is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid 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.
	The wave guide used is 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 wave guide.

Frequency	L (mm)	h (mm)	d (mm)
750MHz	176	100	6.35
835MHz	161.0	89.8	3.6
1800MHz	71.6	41.7	3.6
1900MHz	68	39.5	3.6
2450MHz	51.5	30.4	3.6
2600MHz	48.5	28.8	3.6

Frequency	L (mm)	W (mm)	L_f (mm)	W_f (mm)
5000MHz	40.39	20.19	81.03	61.98

6.2.2. System Check Result

System Performance Check at 750MHz & 835MHz &1800MHz &1900MHz & 2450MHz & 2600MHz & 5000-6000MHz								
Validation Kit: SN47/14 DIP 0G750-340& SN29/15 DIP 0G835-383& SN46/11 DIP 1G800-186& SN 46/11 DIP 1G900-187& D2450V2-SN:968& SN 47/14 DIP 2G600-342&SN 15/15 WGA36								
Frequency [MHz]	Target Value(W/Kg)		Reference Result (± 10%)		Tested Value(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
750	8.31	5.45	7.479-9.141	4.905-5.995	8.81	5.72	21.1	Jun. 09,2020
835	9.85	6.27	8.865-10.835	5.643 -6.897	9.78	6.26	20.6	Jun. 18,2020
835	9.85	6.27	8.865-10.835	5.643-6.897	9.75	6.47	21.1	Jun. 17,2020
1800	39.07	20.29	35.163-42.977	18.261-22.319	36.14	19.18	21.6	Jun. 29,2020
1900	40.25	20.50	36.225-44.275	18.45-22.55	38.20	19.49	21.1	Jun. 28,2020
1900	40.25	20.50	36.225-44.275	18.45-22.55	39.46	19.81	20.9	Jun. 19,2020
2450	53.6	25.0	48.24-58.96	22.50-27.50	51.51	24.09	21.6	Jun. 16,2020
2600	56.86	24.84	51.174-62.546	22.356-27.324	56.11	23.93	21.1	Jun. 22,2020
5200	161.18	55.04	145.062-177.298	49.536-60.544	164.75	53.13	20.6	Jun. 24,2020

Note:
(1) We use a CW signal of 18dBm(750-2600MHz) and 15dBm(5000-6000MHz) 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

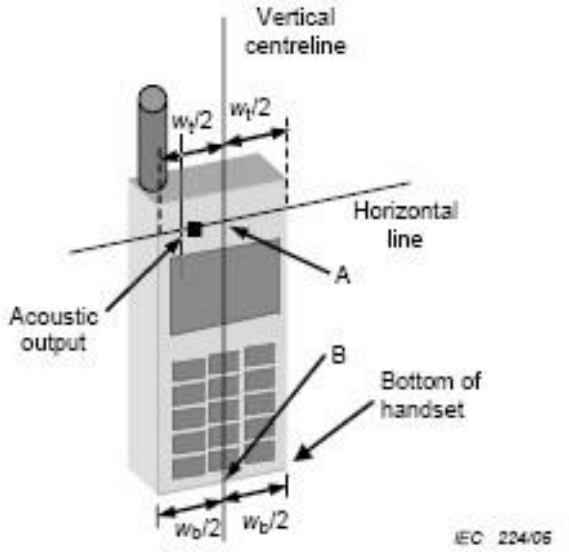
This EUT was tested in **Right Cheek, Right Tilted, Left Cheek, Left Tilted, Body back, Body front and 4 edges.**

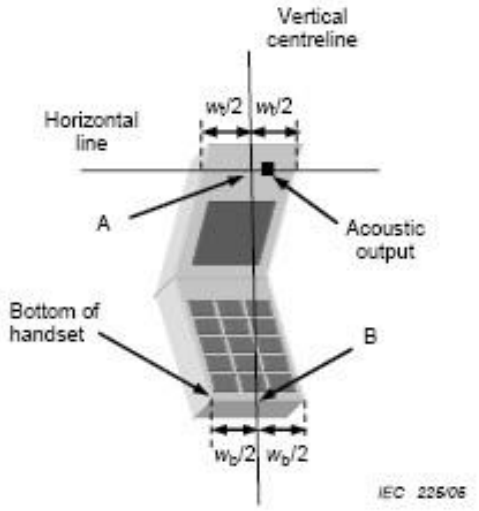
7.1. Define Two Imaginary Lines on the Handset

(1)The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.

(2)The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(3)The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.





7.2. Cheek Position

(1) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center picec in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(2) To move the device towards the phantom with the ear piece aligned with the the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost

7.3. Tilt Position

(1) To position the device in the “cheek” position described above.

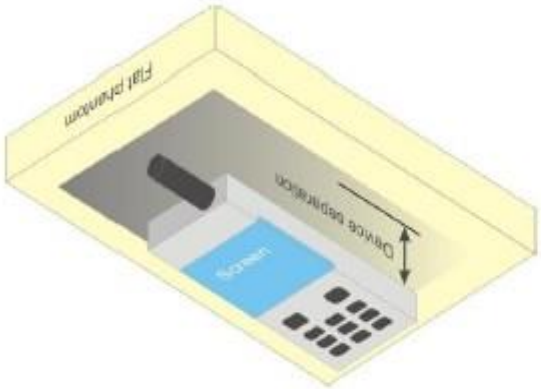
(2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.

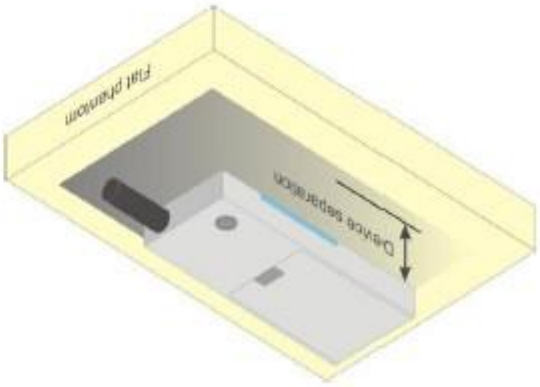
7.4. Body Worn Position

(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 **10mm.**





8. SAR EXPOSURE LIMITS

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit (W/kg)
Spatial Peak SAR (1g cube tissue for brain or body)	1.60
Spatial Average SAR (Whole body)	0.08
Spatial Peak SAR (Limbs)	4.0

9. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

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	Sep. 27,2019	Sep. 26,2020
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	Apr. 23,2020	Apr. 22,2021
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. 17,2020	Mar. 16,2021
Dipole	SATIMO SID750	SN47/14 DIP 0G750-340	Apr. 26,2019	Apr. 25,2022
Dipole	SATIMO SID835	SN 29/15 DIP 0G850-383	Apr. 26,2019	Apr. 25,2022
Dipole	SATIMO SID1800	SN46/11 DIP 1G800-186	Apr. 26,2019	Apr. 25,2022
Dipole	SATIMO SID1900	SN 46/11 DIP 1G900-187	Apr. 26,2019	Apr. 25,2022
Dipole	D2450V2	SN968	July 31,2018	July 30,2021
Dipole	SATIMO SID2600	SN 47/14 DIP 2G600-342	Apr. 26,2019	Apr. 25,2022
Wave guide	SWG5500	SN 15/15 WGA 36	Apr. 26,2019	Apr. 25,2022
Signal Generator	Agilent-E4438C	US41461365	Oct. 08,2019	Oct. 07,2020
Vector Analyzer	Agilent / E4440A	US41421290	Sep. 09,2019	Sep. 08,2020
Network Analyzer	Rhode & Schwarz ZVL6	SN101443	Oct. 08,2019	Oct. 07,2020
Attenuator	Warison /WATT-6SR1211	S/N:WRJ34AYM2F1	June 10,2020	June 09,2021
Attenuator	Mini-circuits / VAT-10+	31405	June 10,2020	June 09,2021
Amplifier	AS0104-55_55	1004793	June 11,2020	June 10,2021
Directional Couple	Werlatone/ C5571-10	SN99463	May 15,2020	May 14,2022
Directional Couple	Werlatone/ C6026-10	SN99482	May 15,2020	May 14,2022
Power Sensor	NRP-Z21	1137.6000.02	Sep. 09,2019	Sep. 08,2020
Power Sensor	NRP-Z23	US38261498	Feb. 18,2020	Feb. 17,2021
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.

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	6.65	N	1	1	1	6.65	6.65	∞
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	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				11.80	11.635	
Expanded Uncertainty (95% Confidence interval)			K=2				23.60	23.27	

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	

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	6.65	N	1	1	1	6.65	6.65	∞
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				11.451	11.281	
Expanded Uncertainty (95% Confidence interval)			K=2				22.901	22.561	

12. CONDUCTED POWER MEASUREMENT

GSM BAND

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
GSM 850	824.2	**32.06**	-9	23.06
	836.6	31.98	-9	22.98
	848.8	31.92	-9	22.92
GPRS 850 （1 Slot）	824.2	32.02	-9	23.02
	836.6	31.94	-9	22.94
	848.8	31.90	-9	22.90
GPRS 850 （2 Slot）	824.2	28.76	-6	22.76
	836.6	28.89	-6	22.89
	848.8	28.91	-6	**22.91**
GPRS 850 （3 Slot）	824.2	26.74	-4.26	22.48
	836.6	26.90	-4.26	22.64
	848.8	26.88	-4.26	22.62
GPRS 850 （4 Slot）	824.2	25.91	-3	22.91
	836.6	25.88	-3	22.88
	848.8	25.76	-3	22.76
EGPRS 850 （1 Slot）	824.2	25.25	-9	16.25
	836.6	25.26	-9	16.26
	848.8	25.24	-9	16.24
EGPRS 850 （2 Slot）	824.2	24.33	-6	18.33
	836.6	24.28	-6	18.28
	848.8	24.47	-6	18.47
EGPRS 850 （3 Slot）	824.2	21.69	-4.26	17.43
	836.6	21.74	-4.26	17.48
	848.8	21.56	-4.26	17.30
EGPRS 850 （4 Slot）	824.2	19.74	-3	16.74
	836.6	19.36	-3	16.36
	848.8	19.85	-3	16.85

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <2>				
GSM 850	824.2	31.41	-9	22.41
	836.6	31.38	-9	22.38
	848.8	31.32	-9	22.32
GPRS 850 （1 Slot）	824.2	31.12	-9	22.12
	836.6	31.25	-9	22.25
	848.8	31.22	-9	22.22
GPRS 850 （2 Slot）	824.2	28.72	-6	22.72
	836.6	28.83	-6	22.83
	848.8	28.85	-6	22.85
GPRS 850 （3 Slot）	824.2	26.70	-4.26	22.44
	836.6	26.85	-4.26	22.59
	848.8	26.83	-4.26	22.57
GPRS 850 （4 Slot）	824.2	25.88	-3	22.88
	836.6	25.82	-3	22.82
	848.8	25.71	-3	22.71

GSM BAND CONTINUE

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
PCS1900	1850.2	29.59	-9	20.59
	1880	29.73	-9	20.73
	1909.8	**29.82**	-9	20.82
GPRS1900 （1 Slot）	1850.2	29.57	-9	20.57
	1880	29.71	-9	20.71
	1909.8	29.79	-9	20.79
GPRS1900 （2 Slot）	1850.2	26.85	-6	20.85
	1880	26.96	-6	20.96
	1909.8	26.75	-6	20.75
GPRS1900 （3 Slot）	1850.2	25.14	-4.26	20.88
	1880	25.36	-4.26	**21.10**
	1909.8	25.24	-4.26	20.98
GPRS1900 （4 Slot）	1850.2	23.33	-3	20.33
	1880	23.27	-3	20.27
	1909.8	23.17	-3	20.17
EGPRS1900 （1 Slot）	1850.2	27.51	-9	18.51
	1880	27.54	-9	18.54
	1909.8	27.36	-9	18.36
EGPRS1900 （2 Slot）	1850.2	25.45	-6	19.45
	1880	25.61	-6	19.61
	1909.8	25.78	-6	19.78
EGPRS1900 （3 Slot）	1850.2	23.28	-4.26	19.02
	1880	23.17	-4.26	18.91
	1909.8	23.34	-4.26	19.08
EGPRS1900 （4 Slot）	1850.2	21.25	-3	18.25
	1880	21.31	-3	18.31
	1909.8	21.18	-3	18.18

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <2>				
PCS1900	1850.2	28.62	-9	19.62
	1880	28.70	-9	19.70
	1909.8	28.87	-9	19.87
GPRS1900 （1 Slot）	1850.2	28.52	-9	19.52
	1880	28.63	-9	19.63
	1909.8	28.71	-9	19.71
GPRS1900 （2 Slot）	1850.2	26.80	-6	20.80
	1880	26.92	-6	20.92
	1909.8	26.71	-6	20.71
GPRS1900 （3 Slot）	1850.2	25.10	-4.26	20.84
	1880	25.33	-4.26	21.07
	1909.8	25.19	-4.26	20.93
GPRS1900 （4 Slot）	1850.2	23.30	-3	20.30
	1880	23.22	-3	20.22
	1909.8	23.13	-3	20.13

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.

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	21.00
	1880	20.74
	1907.6	**22.36**
WCDMA 1900 AMR	1852.4	21.11
	1880	21.56
	1907.6	21.27
HSDPA Subtest 1	1852.4	21.60
	1880	21.49
	1907.6	21.44
HSDPA Subtest 2	1852.4	20.93
	1880	20.77
	1907.6	20.73
HSDPA Subtest 3	1852.4	20.94
	1880	20.81
	1907.6	20.80
HSDPA Subtest 4	1852.4	20.88
	1880	20.69
	1907.6	20.67
HSUPA Subtest 1	1852.4	19.39
	1880	19.27
	1907.6	19.16
HSUPA Subtest 2	1852.4	19.47
	1880	19.31
	1907.6	19.25
HSUPA Subtest 3	1852.4	20.40
	1880	20.28
	1907.6	20.16
HSUPA Subtest 4	1852.4	19.05
	1880	18.92
	1907.6	18.86
HSUPA Subtest 5	1852.4	20.36
	1880	18.63
	1907.6	18.36

UMTS BAND V

Mode	Frequency (MHz)	Avg. Burst Power (dBm)
WCDMA 850 RMC	826.4	22.17
	836.6	22.31
	846.6	**22.35**
WCDMA 850 AMR	826.4	22.20
	836.6	22.19
	846.6	22.17
HSDPA Subtest 1	826.4	21.23
	836.6	21.34
	846.6	21.40
HSDPA Subtest 2	826.4	20.58
	836.6	20.58
	846.6	20.58
HSDPA Subtest 3	826.4	20.46
	836.6	20.62
	846.6	20.54
HSDPA Subtest 4	826.4	20.44
	836.6	20.65
	846.6	20.49
HSUPA Subtest 1	826.4	19.01
	836.6	19.14
	846.6	19.17
HSUPA Subtest 2	826.4	19.12
	836.6	19.21
	846.6	19.27
HSUPA Subtest 3	826.4	20.01
	836.6	20.11
	846.6	20.23
HSUPA Subtest 4	826.4	18.71
	836.6	18.74
	846.6	18.79
HSUPA Subtest 5	826.4	18.29
	836.6	19.97
	846.6	18.56

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.

LTE Band

Conducted Power of LTE Band 2(dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					18607	**18900**	**19193**
1.4MHz	QPSK	1	0	0	23.07	23.08	22.86
			2	0	23.19	23.24	22.97
			5	0	23.12	23.05	22.84
		3	0	0	23.18	23.14	22.92
			1	0	23.15	23.13	22.91
			2	0	23.23	23.19	22.94
		6	0	1	22.15	22.06	21.84
	16QAM	1	0	1	22.22	22.22	21.74
			2	1	22.40	22.35	21.90
			5	1	22.25	22.20	21.73
		3	0	1	22.14	22.06	21.72
			1	1	22.14	22.06	21.75
			2	1	22.11	22.05	21.70
		6	0	2	21.18	20.96	20.82
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					18615	**18900**	**19185**
3MHz	QPSK	1	0	0	23.01	23.05	23.00
			8	0	22.93	23.02	22.99
			14	0	23.01	23.04	22.95
		8	0	1	22.02	22.03	21.96
			4	1	22.02	22.03	21.97
			8	1	22.03	22.03	21.97
		15	0	1	22.00	22.03	21.93
	16QAM	1	0	1	22.14	22.25	21.84
			8	1	22.15	22.22	21.88
			14	1	22.16	22.19	21.88
		8	0	2	21.08	21.09	20.98
			4	2	21.08	21.09	20.99
			8	2	21.08	21.08	20.99
		15	0	2	21.01	20.96	20.87

Conducted Power of LTE Band 2(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18625	18900	19175
5MHz	QPSK	1	0	0	22.99	23.03	23.02
			12	0	23.12	23.13	23.08
			24	0	23.00	23.03	22.94
		12	0	1	22.04	22.04	21.98
			6	1	22.03	22.04	21.99
			13	1	22.02	22.08	22.01
		25	0	1	22.05	22.08	21.99
	16QAM	1	0	1	22.05	22.27	22.01
			12	1	22.16	22.33	22.07
			24	1	22.06	22.21	21.92
		12	0	2	21.01	21.07	21.02
			6	2	21.00	21.09	21.01
			13	2	21.03	21.11	21.00
		25	0	2	21.10	21.10	21.06
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18650	18900	19150
10MHz	QPSK	1	0	0	23.02	23.09	22.99
			24	0	23.15	23.20	23.12
			49	0	23.05	23.02	22.96
		25	0	1	22.10	22.05	22.13
			12	1	22.08	22.01	22.14
			25	1	22.16	22.15	22.14
		50	0	1	22.16	22.11	22.12
	16QAM	1	0	1	22.23	22.24	21.91
			24	1	22.35	22.37	22.02
			49	1	22.29	22.20	21.87
		25	0	2	21.10	21.16	21.15
			12	2	21.06	21.16	21.18
			25	2	21.10	21.18	21.20
		50	0	2	21.12	21.16	21.11

Conducted Power of LTE Band 2(dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					18675	**18900**	**19125**
15MHz	QPSK	1	0	0	22.97	22.97	23.00
			38	0	23.09	23.03	23.07
			74	0	23.05	22.94	22.89
		36	0	1	22.13	22.10	22.09
			18	1	22.15	22.12	22.09
			37	1	22.14	22.11	22.11
		75	0	1	22.16	22.11	22.09
	16QAM	1	0	1	22.14	22.34	21.87
			38	1	22.32	22.38	21.97
			74	1	22.22	22.24	21.75
		36	0	2	22.15	22.13	22.12
			18	2	22.19	22.10	22.08
			37	2	22.16	22.10	22.07
		75	0	2	21.14	21.11	21.11
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					18700	**18900**	**19100**
20MHz	QPSK	1	0	0	22.90	22.89	22.72
			49	0	**23.38**	23.27	23.00
			99	0	22.98	22.85	22.61
		50	0	1	22.21	22.09	22.19
			25	1	22.22	22.06	22.18
			49	1	22.12	22.17	22.12
		100	0	1	22.13	22.11	22.15
	16QAM	1	0	1	21.91	22.09	21.89
			49	1	22.36	22.41	22.10
			99	1	21.98	22.06	21.73
		50	0	2	21.23	21.11	21.25
			25	2	21.20	21.13	21.27
			49	2	21.15	21.23	21.18
		100	0	2	21.20	21.12	21.18

Conducted Power of LTE Band 4(dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					19957	**20175**	**20393**
1.4MHz	QPSK	1	0	0	22.96	22.78	22.66
			2	0	23.05	22.82	22.78
			5	0	22.98	22.77	22.62
		3	0	0	23.04	22.85	22.74
			1	0	23.03	22.84	22.72
			2	0	**23.08**	22.88	22.72
		6	0	1	22.01	21.81	21.70
	16QAM	1	0	1	22.08	21.65	21.80
			2	1	22.23	21.82	21.97
			5	1	22.07	21.66	21.77
		3	0	1	21.95	21.66	21.63
			1	1	21.91	21.67	21.60
			2	1	21.96	21.64	21.59
		6	0	2	20.90	20.82	20.75
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					19965	**20175**	**20385**
3MHz	QPSK	1	0	0	22.95	22.80	22.76
			7	0	22.93	22.81	22.77
			14	0	22.92	22.79	22.76
		8	0	1	21.97	21.80	21.76
			4	1	21.99	21.82	21.73
			7	1	21.98	21.82	21.70
		15	0	1	21.96	21.78	21.67
	16QAM	1	0	1	22.20	21.95	21.64
			7	1	22.06	21.90	21.64
			14	1	22.10	21.93	21.65
		8	0	2	21.01	20.83	20.73
			4	2	21.05	20.82	20.75
			7	2	21.06	20.84	20.72
		15	0	2	20.99	20.72	20.62

Conducted Power of LTE Band 4(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19975	20175	20375
5MHz	QPSK	1	0	0	22.94	22.76	22.78
			12	0	23.07	22.91	22.86
			24	0	22.92	22.78	22.72
		12	0	1	21.96	21.81	21.76
			6	1	21.95	21.85	21.73
			11	1	21.97	21.78	21.72
		25	0	1	22.01	21.83	21.74
	16QAM	1	0	1	21.97	21.98	21.74
			12	1	22.04	22.10	21.84
			24	1	21.92	21.96	21.71
		12	0	2	20.93	20.86	20.76
			6	2	20.94	20.84	20.75
			11	2	20.96	20.86	20.70
		25	0	2	21.03	20.84	20.76
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20000	20175	20350
10MHz	QPSK	1	0	0	22.96	22.76	22.78
			24	0	23.03	22.90	22.87
			49	0	22.86	22.75	22.71
		25	0	1	22.00	21.93	21.87
			12	1	22.02	21.93	21.86
			25	1	22.04	21.85	21.73
		50	0	1	22.00	21.87	21.75
	16QAM	1	0	1	22.14	21.96	21.65
			24	1	22.17	22.08	21.79
			49	1	22.05	21.97	21.61
		25	0	2	20.97	20.97	20.88
			12	2	21.03	20.96	20.87
			25	2	21.02	20.88	20.78
		50	0	2	21.00	20.90	20.77

Conducted Power of LTE Band 4(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20025	20175	20325
15MHz	QPSK	1	0	0	22.87	22.70	22.58
			37	0	22.88	22.78	22.69
			74	0	22.70	22.66	22.57
		36	0	1	21.96	21.71	21.70
			16	1	21.96	21.74	21.68
			35	1	21.96	21.75	21.68
		75	0	1	21.94	21.75	21.68
	16QAM	1	0	1	22.05	21.93	21.46
			37	1	22.06	21.95	21.58
			74	1	21.92	21.81	21.43
		36	0	2	21.94	21.74	21.69
			16	2	21.97	21.77	21.69
			35	2	21.94	21.70	21.69
		75	0	2	20.87	20.74	20.67
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20050	20175	20300
20MHz	QPSK	1	0	0	22.65	22.49	22.32
			49	0	22.94	22.81	22.63
			99	0	22.52	22.43	22.32
		50	0	1	21.75	21.75	21.78
			25	1	21.75	21.76	21.75
			50	1	21.73	21.61	21.56
		100	0	1	21.74	21.68	21.64
	16QAM	1	0	1	21.67	21.67	21.42
			50	1	21.94	22.03	21.72
			99	1	21.56	21.63	21.39
		50	0	2	20.75	20.81	20.79
			25	2	20.75	20.81	20.79
			50	2	20.74	20.63	20.58
		100	0	2	20.73	20.67	20.62

Conducted Power of LTE Band 5(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20407	20525	20643
1.4MHz	QPSK	1	0	0	22.99	23.00	23.04
			2	0	23.06	23.15	23.14
			5	0	22.95	22.98	23.03
		3	0	0	23.12	23.11	23.06
			1	0	23.08	23.14	23.09
			2	0	23.10	23.13	23.13
		6	0	1	21.99	22.05	22.04
	16QAM	1	0	1	22.14	22.24	21.96
			2	1	22.27	22.38	22.09
			5	1	22.16	22.18	21.88
		3	0	1	22.00	22.09	21.95
			1	1	22.01	22.07	21.95
			2	1	21.99	22.10	21.93
		6	0	2	21.08	21.00	21.05
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20415	20525	20635
3MHz	QPSK	1	0	0	22.92	23.06	23.11
			7	0	23.01	23.08	23.10
			14	0	23.01	23.04	23.06
		8	0	1	21.97	22.01	22.07
			4	1	22.00	22.02	22.08
			7	1	22.00	22.05	22.04
		15	0	1	21.99	22.06	22.03
	16QAM	1	0	1	22.21	22.28	22.01
			7	1	22.17	22.24	22.02
			14	1	22.22	22.23	21.97
		8	0	2	21.10	21.07	21.11
			4	2	21.10	21.07	21.14
			7	2	21.09	21.13	21.09
		15	0	2	21.02	21.03	21.04

Conducted Power of LTE Band 5(dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20425	**20525**	**20625**
5MHz	QPSK	1	0	0	23.32	23.38	23.33
			12	0	23.50	23.45	**23.51**
			24	0	23.39	23.25	23.32
		12	0	1	22.30	22.33	22.46
			6	1	22.32	22.34	22.47
			11	1	22.36	22.40	22.35
		25	0	1	22.37	22.43	22.45
	16QAM	1	0	1	22.33	22.56	22.40
			12	1	22.52	22.73	22.55
			24	1	22.37	22.53	22.36
		12	0	2	21.33	21.42	21.48
			6	2	21.33	21.41	21.48
			11	2	21.40	21.44	21.35
		25	0	2	21.43	21.44	21.48
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20450	**20525**	**20600**
10MHz	QPSK	1	0	0	21.50	22.10	22.82
			24	0	22.61	22.37	22.38
			49	0	21.85	23.09	21.58
		25	0	1	21.70	20.58	21.00
			12	1	20.85	21.71	20.95
			25	1	20.68	21.25	21.09
		50	0	1	20.54	21.15	21.09
	16QAM	1	0	1	21.11	22.21	21.84
			24	1	20.82	22.62	21.72
			49	1	22.20	22.83	21.35
		25	0	2	20.08	22.39	20.35
			12	2	20.60	22.03	20.38
			25	2	20.23	22.33	19.59
		50	0	2	20.63	22.45	20.98

Conducted Power of LTE Band 7 (dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20775	**21100**	**21425**
5MHz	QPSK	1	0	0	22.78	22.79	22.89
			12	0	22.84	22.94	**23.03**
			24	0	22.79	22.78	22.89
		12	0	1	21.84	21.77	21.93
			6	1	21.76	21.83	21.93
			13	1	21.86	21.85	21.93
		25	0	1	21.86	21.85	21.94
	16QAM	1	0	1	21.79	22.00	21.88
			12	1	21.94	22.13	22.08
			24	1	21.82	22.01	21.89
		12	0	2	20.80	20.90	20.92
			6	2	20.75	20.87	20.94
			13	2	20.83	20.91	20.94
		25	0	2	20.86	20.85	21.01
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20800	**21100**	**21400**
10MHz	QPSK	1	0	0	22.81	22.77	22.90
			24	0	22.83	22.95	22.96
			49	0	22.79	22.79	22.93
		25	0	1	21.79	21.81	21.94
			12	1	21.80	21.81	21.93
			25	1	21.84	21.92	21.95
		50	0	1	21.81	21.84	21.94
	16QAM	1	0	1	21.98	21.96	21.83
			24	1	22.08	22.09	21.97
			49	1	22.00	22.02	21.80
		25	0	2	20.82	20.83	21.01
			12	2	20.83	20.84	21.00
			25	2	20.86	20.98	21.05
		50	0	2	20.80	20.88	20.97

Conducted Power of LTE Band 7 (dBm)							
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20825	**21100**	**21375**
15MHz	QPSK	1	0	0	22.71	22.70	22.82
			37	0	22.79	22.77	22.95
			74	0	22.71	22.71	22.82
		37	0	1	21.77	21.80	21.97
			16	1	21.76	21.82	21.95
			35	1	21.79	21.79	21.94
		75	0	1	21.81	21.77	21.97
	16QAM	1	0	1	21.89	22.00	21.72
			37	1	21.95	22.06	21.83
			74	1	21.92	22.01	21.67
		37	0	2	21.78	21.80	21.95
			16	2	21.78	21.78	21.98
			35	2	21.77	21.77	21.93
		75	0	2	20.76	20.79	20.94
Bandwidth	**Modulation**	**RB size**	**RB offset**	**Target MPR**	**Channel**	**Channel**	**Channel**
					20850	**21100**	**21350**
20MHz	QPSK	1	0	0	22.62	22.60	22.55
			49	0	22.98	22.91	22.90
			99	0	22.67	22.61	22.58
		50	0	1	21.76	21.65	21.88
			25	1	21.79	21.79	21.90
			49	1	21.77	21.84	21.95
		100	0	1	21.79	21.74	21.97
	16QAM	1	0	1	21.66	21.78	21.64
			49	1	21.96	22.08	22.07
			99	1	21.69	21.88	21.69
		50	0	2	20.76	20.73	20.93
			25	2	20.76	20.76	20.94
			49	2	20.82	20.87	21.06
		100	0	2	20.77	20.81	20.96

Conducted Power of LTE Band 17(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel 23755	Channel 23790	Channel 23825
5MHz	QPSK	1	0	0	23.32	23.31	23.34
			12	0	23.47	23.42	23.45
			24	0	23.34	23.29	23.39
		12	0	1	22.26	22.30	22.41
			6	1	22.33	22.29	22.43
			13	1	22.49	22.30	22.27
		25	0	1	22.40	22.32	22.38
	16QAM	1	0	1	22.31	22.52	22.33
			12	1	22.52	22.62	22.50
			24	1	22.35	22.48	22.44
		12	0	2	21.29	21.27	21.40
			6	2	21.29	21.29	21.39
			13	2	21.42	21.33	21.27
		25	0	2	21.40	21.26	21.41
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel 23780	Channel 23790	Channel 23800
10MHz	QPSK	1	0	0	22.60	22.53	22.44
			24	0	**23.51**	23.37	22.20
			49	0	22.66	23.31	22.16
		25	0	1	21.16	20.90	21.63
			12	1	21.85	21.13	21.72
			25	1	21.31	21.35	21.29
		50	0	1	21.22	22.30	21.45
	16QAM	1	0	1	22.22	21.74	21.20
			24	1	22.12	22.58	22.47
			49	1	21.42	22.86	20.94
		25	0	2	20.74	22.44	20.18
			12	2	20.19	22.56	20.55
			25	2	20.66	22.19	20.25
		50	0	2	21.02	21.72	21.17

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 6.2.3.3-1 of the 3GPP TS36.101.

Table 6.2.3.3-1 Maximum Power Reduction (MPR) for Power class3

Modulation	Maximum Power Reduction (MPR) for Power[RB]						MPR(dB)
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
QPSK	＞5	＞4	＞8	＞12	＞16	＞18	≤1
16QAM	≤5	≤4	≤8	≤12	≤16	≤18	≤1
16QAM	＞5	＞4	＞8	＞12	＞16	＞18	≤2

The allowed A-MPR values specified below in Table 6.2.4.3-1 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”.3

Table 6.2.4.3-1: Additional Maximum Power Reduction (A-MPR) / Spectrum Emission requirements

Network Signaling 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 5.2-1	1.4,3,5,10,15,20	Table 5.4.2-1	N/A
NS_03	6.6.2.2.3.1	2,4,10, 23, 25,35,36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.3.2	41	5	>6	≤1
			10, 15, 20	Table 6.2.4.3-4	
NS_05	6.6.3.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.4.2-1	N/A
NS_07	6.6.2.2.3.3 6.6.3.3.3.2	13	10	Table 6.2.4.3-2	Table 6.2.4.3-2
NS_08	6.6.3.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4.3-3	Table 6.2.4.3-3
NS_11	6.6.2.2.1 6.6.3.3.13	231	1.4, 3, 5, 10,15,20	Table 6.2.4.3-5	Table 6.2.4.3-5
NS_12	6.6.3.3.5	26	1.4, 3, 5	Table 6.2.4.3-6	Table 6.2.4.3-6
NS_13	6.6.3.3.6	26	5	Table 6.2.4.3-7	Table 6.2.4.3-7
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4.3-8	Table 6.2.4.3-8
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4.3-9 Table 6.2.4.3-10	Table 6.2.4.3-9, Table 6.2.4.3-10
NS_16	6.6.3.3.9	27	3, 5, 10	Table 6.2.4.3-11, Table 6.2.4.3-12, Table 6.2.4.3-13	
NS_17	6.6.3.3.10	28	5, 10	Table 5.4.2-1	N/A
	6.6.3.3.11	28	5	≥ 2	≤ 1
NS_18			10, 15, 20	≥ 1	≤ 4
NS_19			10, 15, 20	Table 6.2.4.3-15	Table 6.2.4.3-15
NS_20			5, 10, 15, 20	Table 6.2.4.3-14	Table 6.2.4.3-14
…					
NS_20	-	-	-	-	-

2.4G WIFI

Mode	Data Rate (Mbps)	Channel	Frequency(MHz)	Avg. Burst Power(dBm)
802.11b	1	01	2412	13.04
		06	2437	**13.76**
		11	2462	13.39
802.11g	6	01	2412	13.14
		06	2437	13.50
		11	2462	13.38
802.11n(20)	6.5	01	2412	12.99
		06	2437	13.39
		11	2462	12.33
802.11n(40)	13.5	03	2422	12.15
		06	2437	12.45
		09	2452	11.51

5G WIFI

Mode	channel	Frequency	Power(dBm)							
			Data Rate(bps)							
			6M	9M	12M	18M	24M	36M	48M	54M
802.11a	36	5180	9.95	9.81	9.73	9.64	9.49	9.41	9.28	9.19
	40	5200	**10.26**	10.13	10.06	9.94	9.83	9.74	9.57	9.53
	48	5240	9.72	9.62	9.44	9.37	9.29	9.15	9.04	8.97
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (20)	36	5180	10.09	9.99	9.81	9.74	9.67	9.52	9.41	9.34
	40	5200	10.09	9.97	9.82	9.75	9.65	9.56	9.46	9.32
	48	5240	9.77	9.68	9.54	9.41	9.33	9.22	9.16	9.05
			MCS0	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0
802.11n (40)	38	5190	9.28	9.19	9.05	8.92	8.84	8.73	8.61	8.56
	46	5230	8.99	8.89	8.77	8.62	8.53	8.47	8.31	8.25
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (20)	36	5180	9.75	9.66	9.52	9.39	9.31	9.22	9.08	9.03
	40	5200	9.78	9.68	9.56	9.41	9.32	9.26	9.13	9.04
	48	5240	8.87	8.71	8.63	8.54	8.42	8.28	8.22	8.11
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (40)	38	5190	9.23	9.14	9.02	8.87	8.79	8.68	8.56	8.51
	46	5230	9.03	8.93	8.81	8.66	8.57	8.51	8.35	8.29
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (80)	42	5210	8.79	8.69	8.57	8.42	8.33	8.27	8.11	8.05

Bluetooth_V4.0(BR/EDR)

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK	0	2402	7.319
	39	2441	**7.497**
	78	2480	7.220
π /4-DQPSK	0	2402	7.464
	39	2441	7.271
	78	2480	6.445
8-DPSK	0	2402	7.444
	39	2441	7.291
	78	2480	6.435

Bluetooth_V4.0(BLE)

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK(1M)	0	2402	-4.380
	19	2440	**-3.105**
	39	2480	-4.648
GFSK(2M)	0	2.402	-4.436
	19	2.440	-3.246
	39	2.480	-4.747

13. TEST RESULTS

13.1. SAR Test Results Summary

13.1.1. Test position and configuration

Head SAR was performed with the device configured in the positions according to IEEE 1528-2013, Body-worn and 4 Edges SAR was performed with the device 10mm from the 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. Body-worn exposure conditions are intended to voice call operations, therefore GSM voice call mode is selected to be test.
4. 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.
5. 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.
6. Per KDB 248227 D01 v02r02 Chapter 5.3.4, SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, the procedures in 5.3.2 are applied to determine the test configuration. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.
   (1) When SAR test exclusion provisions of KDB Publication 447498 D01 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
   (2) When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

(3) When the specified maximum output power is same for both UNII 1 and UNII 2A,begin SAR measuremengs in UNII 2A with the channel with the highest measured output power.If the report SAR for UNII 2A is <1.2W/Kg,SAR is nor required for UNII 1;otherwise treat the remaining bands separately and test them independently for SAR.

(4) When the specified maximum output power different between UNII 1 and UNII 2A,begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤1.2W/Kg,testing for the band with the lower specicied output power is not required;otherwise test is remaining separately for SAR;

7. Per KDB 941225 D06 V02r01, When the same wireless mode transmission configurations for voice and data are required for SAR measurements, the more conservative configuration with a smaller separation distance should be tested for the overlapping SAR configurations.
8. 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)]
9. Proximity sensor, just for avoiding the wrong operation in the phone screen when call, and has no influence on output power or SAR result
10. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1RB allocation using the RB offset and required test channel combination with highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
11. Per KDB 941125 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
12. Per KDB 941125 D05v02r03. 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 1RB allocation and the highest reported SAR is >1.45 W/Kg, the remaining required test channels must also be tested.
13. Per KDB 941125 D05v02r03. 16QAM output power for each RB allocation configuration is not 1/2 dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤1.45W/Kg, Per KDB 941225 D05v02r02, 16QAM SAR testing is not required.
14. Per KDB 941125 D05v02r03. Smaller bandwidth output power for each RB allocation configuration is >not 1/2 dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤1.45W/Kg. Per KDB 941125 D05v02r03, smaller bandwidth SAR testing is not required.

13.1.3. Test Result

SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 49.1					
Product: Smart phone									
Test Mode: GSM850 with GMSK modulation									
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)**
SIM 1 Card									
Left Cheek	voice	190	836.6	-0.15	0.064	32.10	31.98	0.066	1.6
Left Tilt	voice	190	836.6	-0.02	0.041	32.10	31.98	0.042	1.6
Right Cheek	voice	190	836.6	0.14	**0.068**	32.10	31.98	**0.070**	1.6
Right Tilt	voice	190	836.6	-0.13	0.035	32.10	31.98	0.036	1.6
Body back	voice	190	836.6	-0.09	**0.082**	32.10	31.98	**0.084**	1.6
Body front	voice	190	836.6	0.08	0.056	32.10	31.98	0.058	1.6
Body back	GPRS-2 slot	190	836.6	0.04	**0.313**	29.00	28.89	**0.321**	1.6
Body front	GPRS-2 slot	190	836.6	-0.00	0.217	29.00	28.89	0.223	1.6
Edge 2(Right)	GPRS-2 slot	190	836.6	-0.14	0.244	29.00	28.89	0.250	1.6
Edge 3(Bottom)	GPRS-2 slot	190	836.6	-0.09	0.078	29.00	28.89	0.080	1.6
Edge 4(Left)	GPRS-2 slot	190	836.6	-0.11	0.161	29.00	28.89	0.165	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 52.7					
Product: Smart phone									
Test Mode: PCS1900 with GMSK modulation									
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)**
SIM 1 Card									
Left Cheek	voice	661	1880.0	0.14	**0.070**	29.90	29.73	**0.073**	1.6
Left Tilt	voice	661	1880.0	-0.19	0.036	29.90	29.73	0.037	1.6
Right Cheek	voice	661	1880.0	0.19	0.040	29.90	29.73	0.042	1.6
Right Tilt	voice	661	1880.0	0.12	0.033	29.90	29.73	0.034	1.6
Body back	voice	661	1880.0	0.06	**0.262**	29.90	29.73	**0.272**	1.6
Body front	voice	661	1880.0	-0.14	0.100	29.90	29.73	0.104	1.6
Body back	GPRS-3 slot	661	1880.0	-0.00	0.369	25.40	25.36	0.372	1.6
Body front	GPRS-3 slot	661	1880.0	-0.02	0.266	25.40	25.36	0.268	1.6
Edge 2(Right)	GPRS-3 slot	661	1880.0	0.18	0.075	25.40	25.36	0.076	1.6
Edge 3(Bottom)	GPRS-3 slot	661	1880.0	-0.19	**0.433**	25.40	25.36	**0.437**	1.6
Edge 4(Left)	GPRS-3 slot	661	1880.0	-0.14	0.252	25.40	25.36	0.254	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 52.7					
Product: Smart phone									
Test Mode: WCDMA Band II with QPSK modulation									
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)**
Left Cheek	RMC 12.2kbps	9400	1880	0.17	**0.098**	22.40	20.74	**0.144**	1.6
Left Tilt	RMC 12.2kbps	9400	1880	0.17	0.044	22.40	20.74	0.064	1.6
Right Cheek	RMC 12.2kbps	9400	1880	0.14	0.079	22.40	20.74	0.116	1.6
Right Tilt	RMC 12.2kbps	9400	1880	0.19	0.031	22.40	20.74	0.045	1.6
Body back	RMC 12.2kbps	9400	1880	-0.04	0.239	22.40	20.74	0.350	1.6
Body front	RMC 12.2kbps	9400	1880	0.04	0.138	22.40	20.74	0.202	1.6
Edge 2(Right)	RMC 12.2kbps	9400	1880	0.19	0.043	22.40	20.74	0.063	1.6
Edge 3(Bottom)	RMC 12.2kbps	9400	1880	0.11	**0.297**	22.40	20.74	**0.435**	1.6
Edge 4(Left)	RMC 12.2kbps	9400	1880	-0.11	0.120	22.40	20.74	0.176	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 49.1					
Product: Smart phone									
Test Mode: WCDMA Band V with QPSK modulation									
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)**
Left Cheek	RMC 12.2kbps	4183	836.6	0.17	0.102	22.40	22.31	0.104	1.6
Left Tilt	RMC 12.2kbps	4183	836.6	-0.00	0.021	22.40	22.31	0.021	1.6
Right Cheek	RMC 12.2kbps	4183	836.6	0.11	**0.110**	22.40	22.31	**0.112**	1.6
Right Tilt	RMC 12.2kbps	4183	836.6	-0.07	0.035	22.40	22.31	0.036	1.6
Body back	RMC 12.2kbps	4183	836.6	-0.05	**0.170**	22.40	22.31	**0.174**	1.6
Body front	RMC 12.2kbps	4183	836.6	0.02	0.108	22.40	22.31	0.110	1.6
Edge 2(Right)	RMC 12.2kbps	4183	836.6	-0.14	0.127	22.40	22.31	0.130	1.6
Edge 3(Bottom)	RMC 12.2kbps	4183	836.6	-0.06	0.133	22.40	22.31	0.136	1.6
Edge 4(Left)	RMC 12.2kbps	4183	836.6	-0.02	0.014	22.40	22.31	0.014	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT												
Depth of Liquid (cm):>15					Relative Humidity (%): 48.3							
Product: Smart phone												
Test Mode: LTE Band 2												
BM MHz	**MOD**	**Position**	**Test Mode**		**Ch.**	**Freq. (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)**
			UL RB Allocation	**UL RB START**								
20	**QPSK**	Left Cheek	1	0	18900	1880	0.17	**0.094**	23.40	22.89	**0.106**	1.6
		Left Tilt	1	0	18900	1880	0.18	0.039	23.40	22.89	0.044	1.6
		Right Cheek	1	0	18900	1880	-0.13	0.050	23.40	22.89	0.056	1.6
		Right Tilt	1	0	18900	1880	0.17	0.044	23.40	22.89	0.049	1.6
		Body back	1	0	18900	1880	-0.02	0.285	23.40	22.89	0.321	1.6
		Body front	1	0	18900	1880	-0.07	0.183	23.40	22.89	0.206	1.6
		Edge 2(Right)	1	0	18900	1880	0.19	0.051	23.40	22.89	0.057	1.6
		Edge 3(Bottom)	1	0	18900	1880	0.16	**0.320**	23.40	22.89	**0.360**	1.6
		Edge 4(Left)	1	0	18900	1880	0.14	0.138	23.40	22.89	0.155	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT												
Depth of Liquid (cm):>15					Relative Humidity (%): 54.3							
Product: Smart phone												
Test Mode: LTE Band 4												
BM MHz	**MOD**	**Position**	**Test Mode**		**Ch.**	**Freq. (MHz)**	**Power Drift (<±0.2 dB)**	**SAR (1g) (W/kg)**	**Max. Tuneup Power (dBm)**	**Meas. output Power (dBm)**	**Scaled SAR (W/Kg)**	**Limit (W/kg)**
			UL RB Allocation	**UL RB START**								
20	**QPSK**	Left Cheek	1	0	20175	1732.5	0.12	**0.073**	23.10	22.49	**0.084**	1.6
		Left Tilt	1	0	20175	1732.5	0.19	0.039	23.10	22.49	0.045	1.6
		Right Cheek	1	0	20175	1732.5	0.03	0.048	23.10	22.49	0.055	1.6
		Right Tilt	1	0	20175	1732.5	0.07	0.041	23.10	22.49	0.047	1.6
		Body back	1	0	20175	1732.5	0.14	**0.240**	23.10	22.49	**0.276**	1.6
		Body front	1	0	20175	1732.5	-0.14	0.143	23.10	22.49	0.165	1.6
		Edge 2(Right)	1	0	20175	1732.5	0.19	0.036	23.10	22.49	0.041	1.6
		Edge 3(Bottom)	1	0	20175	1732.5	0.11	0.161	23.10	22.49	0.185	1.6
		Edge 4(Left)	1	0	20175	1732.5	0.13	0.133	23.10	22.49	0.153	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT											
Depth of Liquid (cm):>15				Relative Humidity (%): 46.9							
Product: Smart phone											
Test Mode: LTE Band 5											
BM MHz	**MOD**	**Position**	**Test Mode**		**Ch.**	**Freq. (MHz)**	**Power Drift (<±0.2 dB)**	**SAR (1g) (W/kg)**	**Max. Tuneup Power (dBm)**	**Meas. output Power (dBm)**	**Scaled SAR (W/Kg)**	**Limit (W/kg)**
			UL RB Allocation	**UL RB START**								
10	**QPSK**	Left Cheek	1	0	20525	836.5	0.11	**0.148**	23.51	22.10	**0.205**	1.6
		Left Tilt	1	0	20525	836.5	-0.16	0.087	23.51	22.10	0.120	1.6
		Right Cheek	1	0	20525	836.5	-0.15	0.147	23.51	22.10	0.203	1.6
		Right Tilt	1	0	20525	836.5	0.13	0.078	23.51	22.10	0.108	1.6
		Body back	1	0	20525	836.5	0.02	**0.571**	23.51	22.10	**0.790**	1.6
		Body front	1	0	20525	836.5	0.07	0.304	23.51	22.10	0.421	1.6
		Edge 2(Right)	1	0	20525	836.5	-0.12	0.212	23.51	22.10	0.293	1.6
		Edge 3(Bottom)	1	0	20525	836.5	0.03	0.096	23.51	22.10	0.133	1.6
		Edge 4(Left)	1	0	20525	836.5	-0.14	0.150	23.51	22.10	0.208	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT												
Depth of Liquid (cm):>15					Relative Humidity (%): 54.6							
Product: Smart phone												
Test Mode: LTE Band 7												
BM MHz	**MOD**	**Position**	**Test Mode**		**Ch.**	**Freq. (MHz)**	**Power Drift (<±0.2 dB)**	**SAR (1g) (W/kg)**	**Max. Tuneup Power (dBm)**	**Meas. output Power (dBm)**	**Scaled SAR (W/Kg)**	**Limit (W/kg)**
			UL RB Allocation	**UL RB START**								
20	**QPSK**	Left Cheek	1	0	21100	2535	-0.16	0.364	23.10	22.60	0.408	1.6
		Left Tilt	1	0	21100	2535	0.01	0.440	23.10	22.60	0.494	1.6
		Right Cheek	1	0	21100	2535	0.12	**0.615**	23.10	22.60	**0.690**	1.6
		Right Tilt	1	0	21100	2535	0.15	0.500	23.10	22.60	0.561	1.6
		Body back	1	0	21100	2535	0.12	**0.637**	23.10	22.60	**0.715**	1.6
		Body front	1	0	21100	2535	-0.11	0.205	23.10	22.60	0.230	1.6
		Edge 2(Right)	1	0	21100	2535	0.06	0.031	23.10	22.60	0.035	1.6
		Edge 3(Bottom)	1	0	21100	2535	-0.12	0.189	23.10	22.60	0.212	1.6
		Edge 4(Left)	1	0	21100	2535	-0.08	0.244	23.10	22.60	0.274	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT												
Depth of Liquid (cm):>15					Relative Humidity (%): 56.1							
Product: Smart phone												
Test Mode: LTE Band 17												
BM MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift (<±0.2 dB)	SAR (1g) (W/kg)	Max. Tuneup Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
10	QPSK	Left Cheek	1	0	23790	710	0.01	**0.093**	23.60	22.53	**0.119**	1.6
		Left Tilt	1	0	23790	710	0.05	0.058	23.60	22.53	0.074	1.6
		Right Cheek	1	0	23790	710	0.08	0.086	23.60	22.53	0.110	1.6
		Right Tilt	1	0	23790	710	0.15	0.050	23.60	22.53	0.064	1.6
		Body back	1	0	23790	710	-0.12	**0.227**	23.60	22.53	**0.290**	1.6
		Body front	1	0	23790	710	-0.05	0.128	23.60	22.53	0.164	1.6
		Edge 2(Right)	1	0	23790	710	-0.14	0.145	23.60	22.53	0.186	1.6
		Edge 3(Bottom)	1	0	23790	710	-0.10	0.024	23.60	22.53	0.031	1.6
		Edge 4(Left)	1	0	23790	710	-0.12	0.173	23.60	22.53	0.221	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 separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15				Relative Humidity (%): 56.3					
Product: Smart phone									
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)**
Left Cheek	DTS	6	2437	-0.08	**0.144**	13.80	13.76	**0.145**	1.6
Left Tilt	DTS	6	2437	-0.16	0.083	13.80	13.76	0.084	1.6
Right Cheek	DTS	6	2437	0.11	0.055	13.80	13.76	0.056	1.6
Right Tilt	DTS	6	2437	0.15	0.036	13.80	13.76	0.036	1.6
Body back	DTS	6	2437	-0.15	**0.206**	13.80	13.76	**0.208**	1.6
Body front	DTS	6	2437	0.15	0.020	13.80	13.76	0.020	1.6
Edge 1 (Top)	DTS	6	2437	0.16	0.00233	13.80	13.76	0.002	1.6
Edge 2(Right)	DTS	6	2437	-0.19	0.017	13.80	13.76	0.017	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.
・According to KDB248227, SAR is not required for 802.11n HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a/b channels.
・All of above “DTS” means data transmitters.
・The test separation for body back, body front and 4 Edges is 10mm of all above table.

SAR MEASUREMENT								
Depth of Liquid (cm):>15			Relative Humidity (%): 46.5					
Product: LTE smartphone								
Test Mode: 5.2GHz 802.11a								
Position	**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)**
Left Cheek	40	5200	0.14	**0.077**	10.30	10.26	**0.078**	1.6
Left Tilt	40	5200	-0.01	0.058	10.30	10.26	0.059	1.6
Right Cheek	40	5200	0.18	0.032	10.30	10.26	0.032	1.6
Right Tilt	40	5200	-0.10	0.052	10.30	10.26	0.052	1.6
Body back	40	5200	-0.12	0.032	10.30	10.26	0.032	1.6
Body front	40	5200	0.05	0.023	10.30	10.26	0.023	1.6
Edge 1 (Top)	40	5200	-0.03	**0.046**	10.30	10.26	**0.046**	1.6
Edge 2(Right)	40	5200	0.19	0.019	10.30	10.26	0.019	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 separation for body back, body front and 4 Edges is 10mm of all above table.
·Due the antenna location and antenna performance results much lower SAR result ,and lower than the lowest system limit, then we show “<0.001W/Kg” in the report;

Simultaneous Multi-band Transmission Evaluation:

Application Simultaneous Transmission information:

NO	Simultaneous state	Portable Handset		
		Head	Body-worn	Hotspot
1	GSM(voice)+ WLAN 2.4GHz (data)	Yes	Yes	-
2	GSM(voice)+ Bluetooth(data)	-	Yes	-
3	GSM (Data) + WLAN 2.4GHz (data)	-	Yes	Yes
4	GSM (Data) + Bluetooth(data)	-	Yes	Yes
5	WCDMA+ WLAN 2.4GHz (data)	Yes	Yes	Yes
6	WCDMA+ Bluetooth(data)	-	Yes	Yes
7	LTE + WLAN 2.4GHz (data)	Yes	Yes	Yes
8	LTE + Bluetooth(data)	--	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 0mm for head SAR and 10mm 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.

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	Head	8	6.310	0	0.263
	Body	8	6.310	10	0.131

Sum of the SAR for GSM 850 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 850	2.4G WI-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.066	0.145		0.211	No
	Left Tilt	0.042	0.084		0.126	No
	Right Touch	0.070	0.056		0.126	No
	Right Tilt	0.036	0.036		0.072	No
Body-worn (voice)	Rear	0.084	0.208		0.292	No
		0.084		0.131	0.215	No
	Front	0.058	0.020		0.078	No
		0.058		0.131	0.189	No
Body-worn (Data)	Rear	0.321		0.131	0.452	No
		0.321	0.208		0.529	No
	Front	0.223		0.131	0.354	No
		0.223	0.020		0.243	No
Body-worn (Hotspot)	Edge 2	0.250	0.017		0.267	No
	Edge 2	0.250		0.131	0.381	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 850	5.2G WI-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.066	0.078		0.144	No
	Left Tilt	0.042	0.059		0.101	No
	Right Touch	0.070	0.032		0.102	No
	Right Tilt	0.036	0.052		0.088	No
Body-worn (voice)	Rear	0.084	0.032		0.116	No
		0.084		0.131	0.215	No
	Front	0.058	0.023		0.081	No
		0.058		0.131	0.189	No
Body-worn (Data)	Rear	0.321		0.131	0.452	No
		0.321	0.032		0.353	No
	Front	0.223		0.131	0.354	No
		0.223	0.023		0.246	No
Body-worn (Hotspot)	Edge 2	0.250	0.019		0.269	No
	Edge 2	0.250		0.131	0.381	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 “

Sum of the SAR for GSM 1900 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 1900	2.4G WI-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.073	0.145		0.218	No
	Left Tilt	0.037	0.084		0.121	No
	Right Touch	0.042	0.056		0.098	No
	Right Tilt	0.034	0.036		0.070	No
Body-worn (voice)	Rear	0.272	0.208		0.480	No
		0.272		0.131	0.403	No
	Front	0.104	0.020		0.124	No
		0.104		0.131	0.235	No
Body-worn (Data)	Rear	0.372		0.131	0.503	No
		0.372	0.208		0.580	No
	Front	0.268		0.131	0.399	No
		0.268	0.020		0.288	No
Body-worn (Hotspot)	Edge 2	0.076	0.017		0.093	No
	Edge 2	0.076		0.131	0.207	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 1900	5.2G WI-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.073	0.078		0.151	No
	Left Tilt	0.037	0.059		0.096	No
	Right Touch	0.042	0.032		0.074	No
	Right Tilt	0.034	0.052		0.086	No
Body-worn (voice)	Rear	0.272	0.032		0.304	No
		0.272		0.131	0.403	No
	Front	0.104	0.023		0.127	No
		0.104		0.131	0.235	No
Body-worn (Data)	Rear	0.372		0.131	0.503	No
		0.372	0.032		0.404	No
	Front	0.268		0.131	0.399	No
		0.268	0.023		0.291	No
Body-worn (Hotspot)	Edge 2	0.076	0.019		0.095	No
	Edge 2	0.076		0.131	0.207	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 “

Sum of the SAR for WCDMA Band II &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band II	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.144	0.145		0.289	No
	Left Tilt	0.064	0.084		0.148	No
	Right Touch	0.116	0.056		0.172	No
	Right Tilt	0.045	0.036		0.081	No
Hotspot	Rear	0.350	0.208		0.558	No
	Front	0.202	0.020		0.222	No
	Edge 2	0.063	0.017		0.080	No
	Rear	0.350		0.131	0.481	No
	Front	0.202		0.131	0.333	No
	Edge 2	0.063		0.131	0.194	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band II	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.144	0.078		0.222	No
	Left Tilt	0.064	0.059		0.123	No
	Right Touch	0.116	0.032		0.148	No
	Right Tilt	0.045	0.052		0.097	No
Hotspot	Rear	0.350	0.032		0.382	No
	Front	0.202	0.023		0.225	No
	Edge 2	0.063	0.019		0.082	No
	Rear	0.350		0.131	0.481	No
	Front	0.202		0.131	0.333	No
	Edge 2	0.063		0.131	0.194	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 “

Sum of the SAR for WCDMA Band V &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band V	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.104	0.145		0.249	No
	Left Tilt	0.021	0.084		0.105	No
	Right Touch	0.112	0.056		0.168	No
	Right Tilt	0.036	0.036		0.072	No
Hotspot	Rear	0.174	0.208		0.382	No
	Front	0.110	0.020		0.130	No
	Edge 2	0.130	0.017		0.147	No
	Rear	0.174		0.131	0.305	No
	Front	0.110		0.131	0.241	No
	Edge 2	0.130		0.131	0.261	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band V	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.104	0.078		0.182	No
	Left Tilt	0.021	0.059		0.080	No
	Right Touch	0.112	0.032		0.144	No
	Right Tilt	0.036	0.052		0.088	No
Hotspot	Rear	0.174	0.032		0.206	No
	Front	0.110	0.023		0.133	No
	Edge 2	0.130	0.019		0.149	No
	Rear	0.174		0.131	0.305	No
	Front	0.110		0.131	0.241	No
	Edge 2	0.130		0.131	0.261	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 “

Sum of the SAR for LTE Band 2 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 2	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.106	0.145		0.251	No
	Left Tilt	0.044	0.084		0.128	No
	Right Touch	0.056	0.056		0.112	No
	Right Tilt	0.049	0.036		0.085	No
Body-worn	Rear	0.321	0.208		0.529	No
	Front	0.206	0.020		0.226	No
	Edge 2	0.057	0.017		0.074	No
	Rear	0.321		0.131	0.452	No
	Front	0.206		0.131	0.337	No
	Edge 2	0.057		0.131	0.188	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 2	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.106	0.078		0.184	No
	Left Tilt	0.044	0.059		0.103	No
	Right Touch	0.056	0.032		0.088	No
	Right Tilt	0.049	0.052		0.101	No
Body-worn	Rear	0.321	0.032		0.353	No
	Front	0.206	0.023		0.229	No
	Edge 2	0.057	0.019		0.076	No
	Rear	0.321		0.131	0.452	No
	Front	0.206		0.131	0.337	No
	Edge 2	0.057		0.131	0.188	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 “

Sum of the SAR for LTE Band 4 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 4	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.084	0.145		0.229	No
	Left Tilt	0.045	0.084		0.129	No
	Right Touch	0.055	0.056		0.111	No
	Right Tilt	0.047	0.036		0.083	No
Body-worn	Rear	0.276	0.208		0.484	No
	Front	0.165	0.020		0.185	No
	Edge 2	0.041	0.017		0.058	No
	Rear	0.276		0.131	0.407	No
	Front	0.165		0.131	0.296	No
	Edge 2	0.041		0.131	0.172	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 4	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.084	0.078		0.162	No
	Left Tilt	0.045	0.059		0.104	No
	Right Touch	0.055	0.032		0.087	No
	Right Tilt	0.047	0.052		0.099	No
Body-worn	Rear	0.276	0.032		0.308	No
	Front	0.165	0.023		0.188	No
	Edge 2	0.041	0.019		0.060	No
	Rear	0.276		0.131	0.407	No
	Front	0.165		0.131	0.296	No
	Edge 2	0.041		0.131	0.172	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 “

Sum of the SAR for LTE Band 5 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 5	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.205	0.145		0.350	No
	Left Tilt	0.120	0.084		0.204	No
	Right Touch	0.203	0.056		0.259	No
	Right Tilt	0.108	0.036		0.144	No
Body-worn	Rear	0.790	0.208		**0.998**	No
	Front	0.421	0.020		0.441	No
	Edge 2	0.293	0.017		0.310	No
	Rear	0.790		0.131	0.921	No
	Front	0.421		0.131	0.552	No
	Edge 2	0.293		0.131	0.424	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 5	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.205	0.078		0.283	No
	Left Tilt	0.120	0.059		0.179	No
	Right Touch	0.203	0.032		0.235	No
	Right Tilt	0.108	0.052		0.160	No
Body-worn	Rear	0.790	0.032		0.822	No
	Front	0.421	0.023		0.444	No
	Edge 2	0.293	0.019		0.312	No
	Rear	0.790		0.131	0.921	No
	Front	0.421		0.131	0.552	No
	Edge 2	0.293		0.131	0.424	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 “

Sum of the SAR for LTE Band 7 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 7	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.408	0.145		0.553	No
	Left Tilt	0.494	0.084		0.578	No
	Right Touch	0.690	0.056		0.746	No
	Right Tilt	0.561	0.036		0.597	No
Body-worn	Rear	0.715	0.208		0.923	No
	Front	0.230	0.020		0.250	No
	Edge 2	0.035	0.017		0.052	No
	Rear	0.715		0.131	0.846	No
	Front	0.230		0.131	0.361	No
	Edge 2	0.035		0.131	0.166	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 7	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.408	0.078		0.486	No
	Left Tilt	0.494	0.059		0.553	No
	Right Touch	0.690	0.032		0.722	No
	Right Tilt	0.561	0.052		0.613	No
Body-worn	Rear	0.715	0.032		0.747	No
	Front	0.230	0.023		0.253	No
	Edge 2	0.035	0.019		0.054	No
	Rear	0.715		0.131	0.846	No
	Front	0.230		0.131	0.361	No
	Edge 2	0.035		0.131	0.166	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 “

Sum of the SAR for LTE Band 17 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 17	2.4G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.119	0.145		0.264	No
	Left Tilt	0.074	0.084		0.158	No
	Right Touch	0.110	0.056		0.166	No
	Right Tilt	0.064	0.036		0.100	No
Body-worn	Rear	0.290	0.208		0.498	No
	Front	0.164	0.020		0.184	No
	Edge 2	0.186	0.017		0.203	No
	Rear	0.290		0.131	0.421	No
	Front	0.164		0.131	0.295	No
	Edge 2	0.186		0.131	0.317	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 “

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 17	5.2G Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.119	0.078		0.197	No
	Left Tilt	0.074	0.059		0.133	No
	Right Touch	0.110	0.032		0.142	No
	Right Tilt	0.064	0.052		0.116	No
Body-worn	Rear	0.290	0.032		0.322	No
	Front	0.164	0.023		0.187	No
	Edge 2	0.186	0.019		0.205	No
	Rear	0.290		0.131	0.421	No
	Front	0.164		0.131	0.295	No
	Edge 2	0.186		0.131	0.317	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 “

APPENDIX A. SAR SYSTEM CHECK DATA

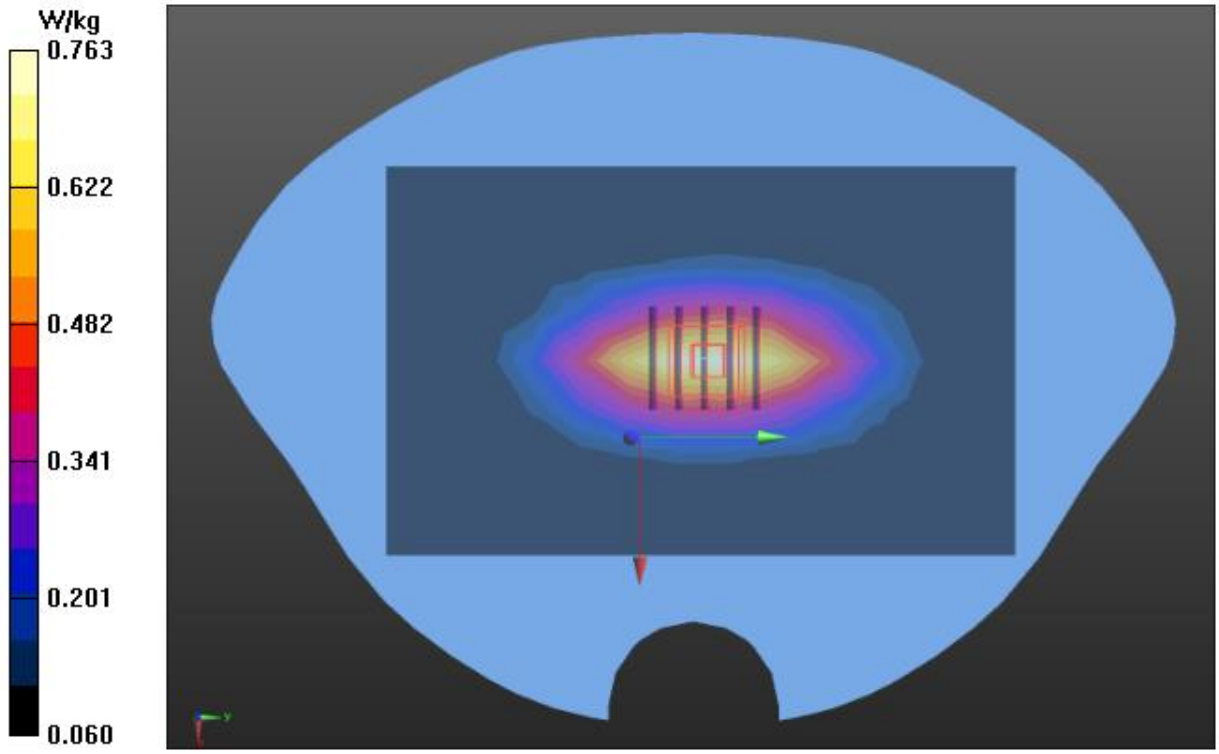
Test Laboratory: AGC Lab **Date: Jun. 09,2020**
System Check Head 750MHz
DUT: Dipole 750 MHz Type: SID 750

Communication System: CW; Communication System Band: D750 (750.0 MHz); Duty Cycle: 1:1;
Frequency: 750 MHz; Medium parameters used: f = 750MHz; σ =0.91 mho/m; εr =41.51; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.40, 10.40, 10.40); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 750MHz/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.758 W/kg

Configuration/System Check Head 750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.578 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.962 W/kg
SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.361 W/kg
Maximum value of SAR (measured) = 0.763 W/kg



Test Laboratory: AGC Lab **Date: Jun. 18,2020**
System Check Head 835 MHz
DUT: Dipole 835 MHz Type: SID 835

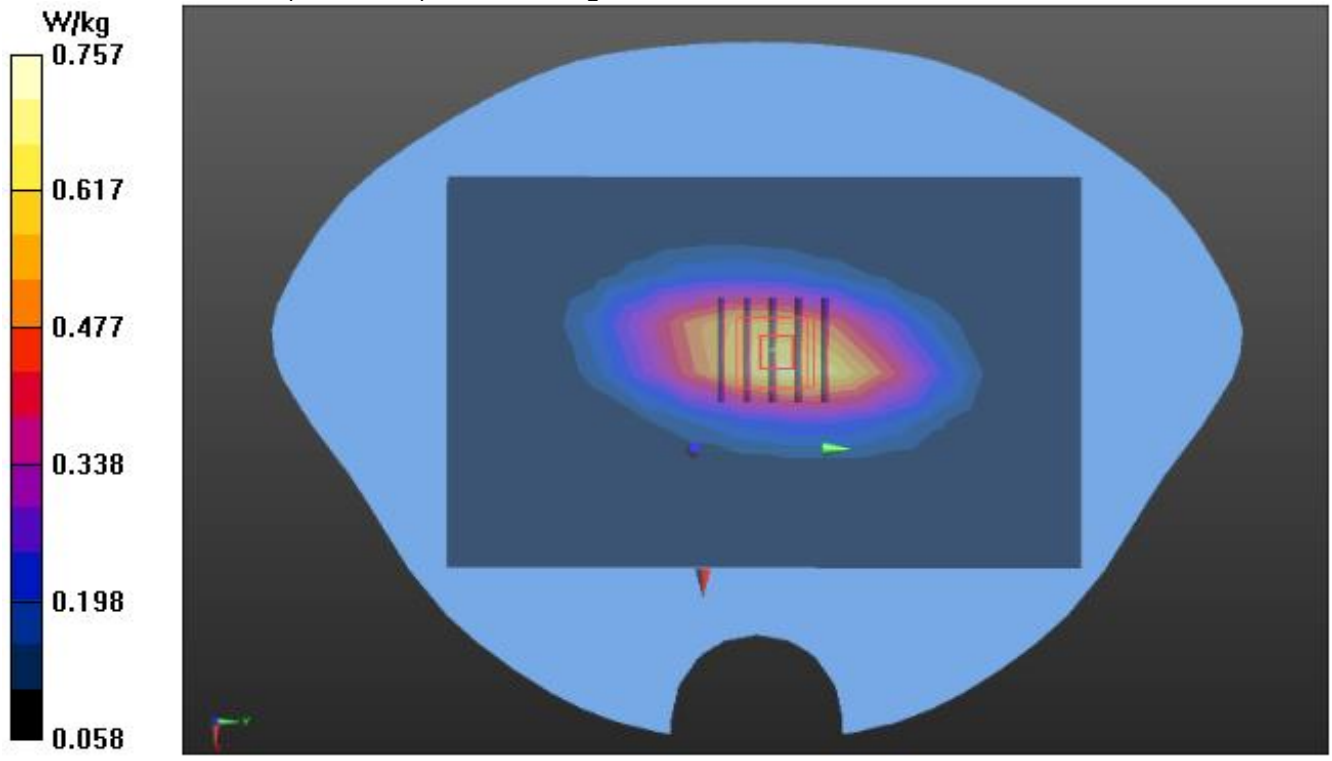
Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ=0.89 mho/m; εr =40.07; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.09, 10.09, 10.09); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 835MHz/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.685 W/kg

Configuration/System Check Head 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.171 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.998 W/kg
SAR(1 g) = 0.617 W/kg; SAR(10 g) = 0.395 W/kg
Maximum value of SAR (measured) = 0.757 W/kg



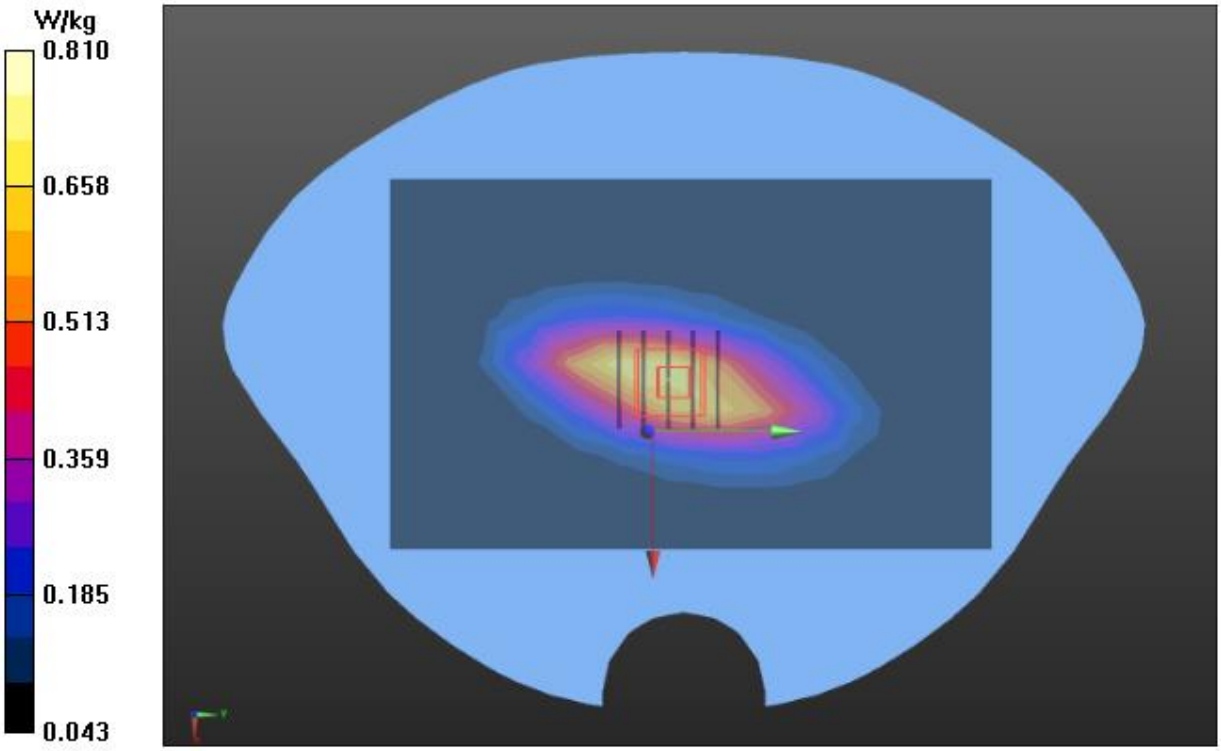
Test Laboratory: AGC Lab **Date: Jun. 17,2020**
System Check Head 835 MHz
DUT: Dipole 835 MHz Type: SID 835

Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ =0.92 mho/m; εr =40.51; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.09, 10.09, 10.09); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 835MHz/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.813 W/kg

Configuration/System Check Head 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.341 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.615 W/kg; SAR(10 g) = 0.408 W/kg
Maximum value of SAR (measured) = 0.81 W/kg



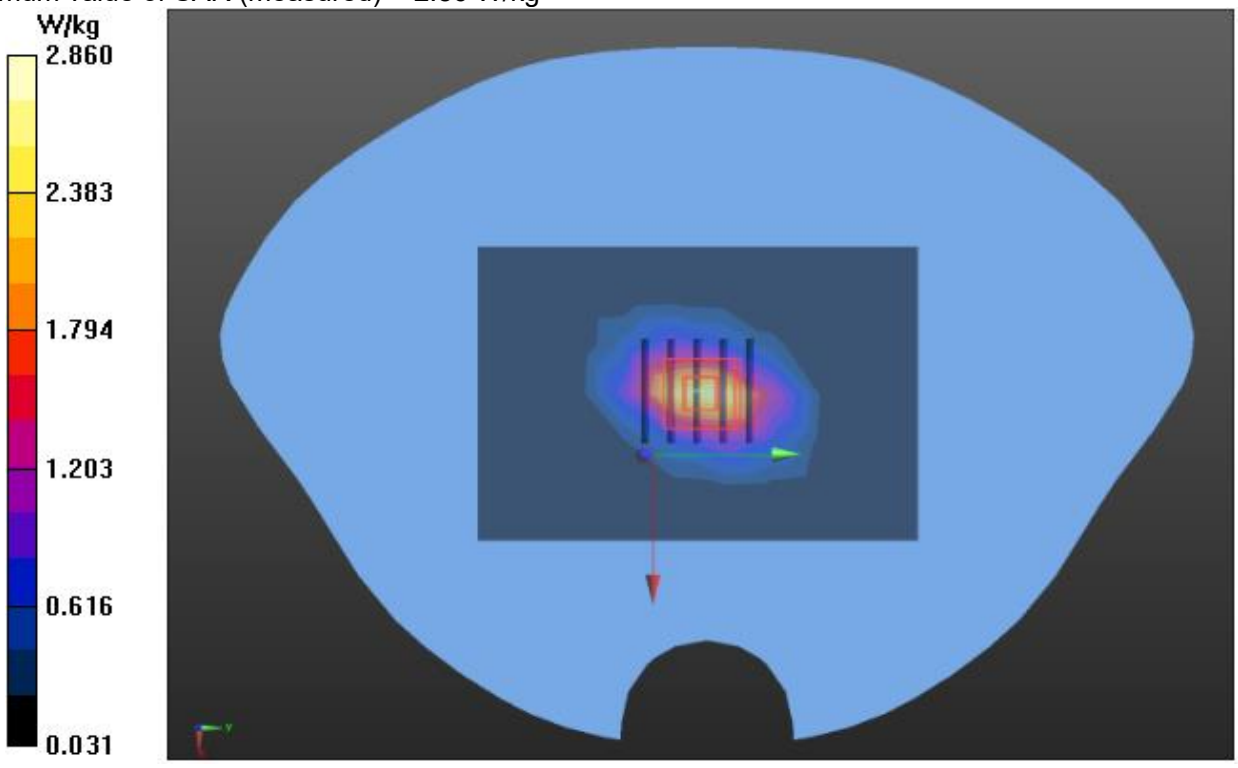
Test Laboratory: AGC Lab **Date: Jun. 29,2020**
System Check Head 1750MHz
DUT: Dipole 1800 MHz; Type: SID 1800

Communication System: CW; Communication System Band: D1700 (1750.0 MHz); Duty Cycle: 1:1;
Frequency: 1750 MHz; Medium parameters used: f = 1750 MHz; σ =1.34 mho/m; ε_r =39.54; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.61, 8.61, 8.61); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 1750MHz/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.59 W/kg

Configuration/System Check Head 1750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.149 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 4.25 W/kg
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.21 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



Test Laboratory: AGC Lab **Date: Jun. 28,2020**
System Check Head 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

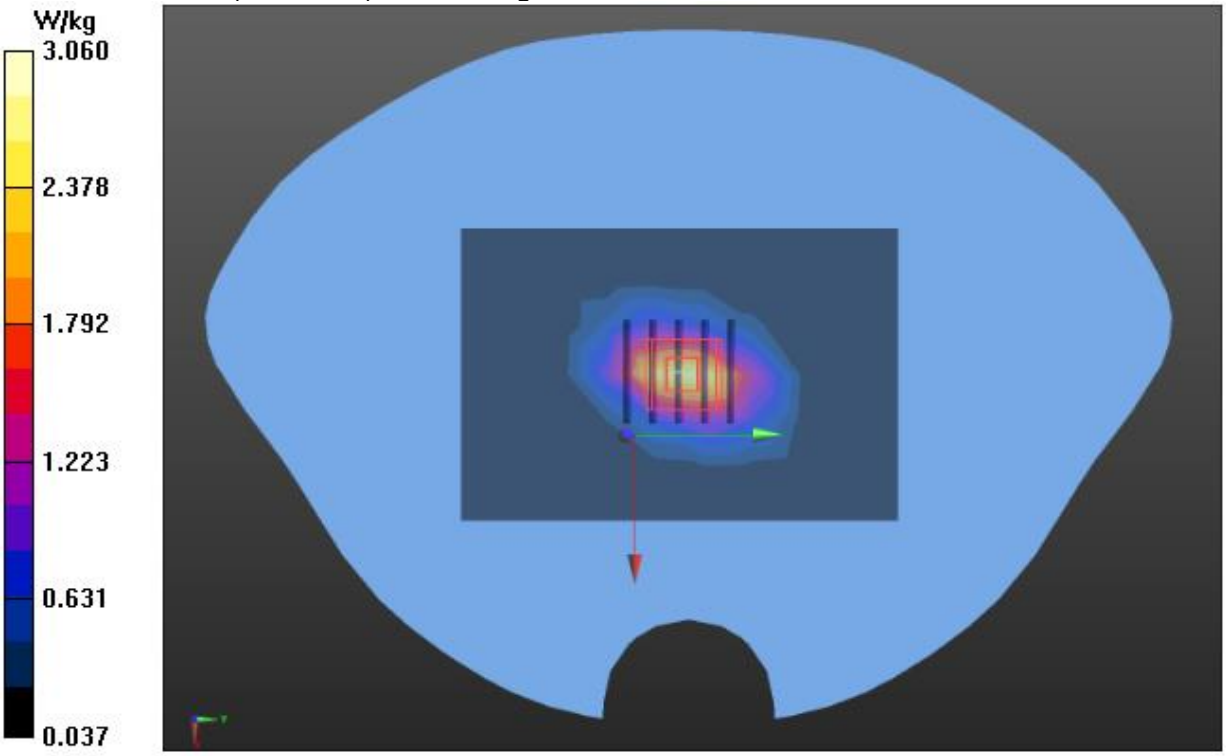
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1;
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ=1.42 mho/m; εr =39.36; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.36, 8.36, 8.36); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 1900MH/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.95 W/kg

Configuration/System Check Head 1900MH/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.589 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 4.49 W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.23 W/kg
Maximum value of SAR (measured) = 3.06 W/kg



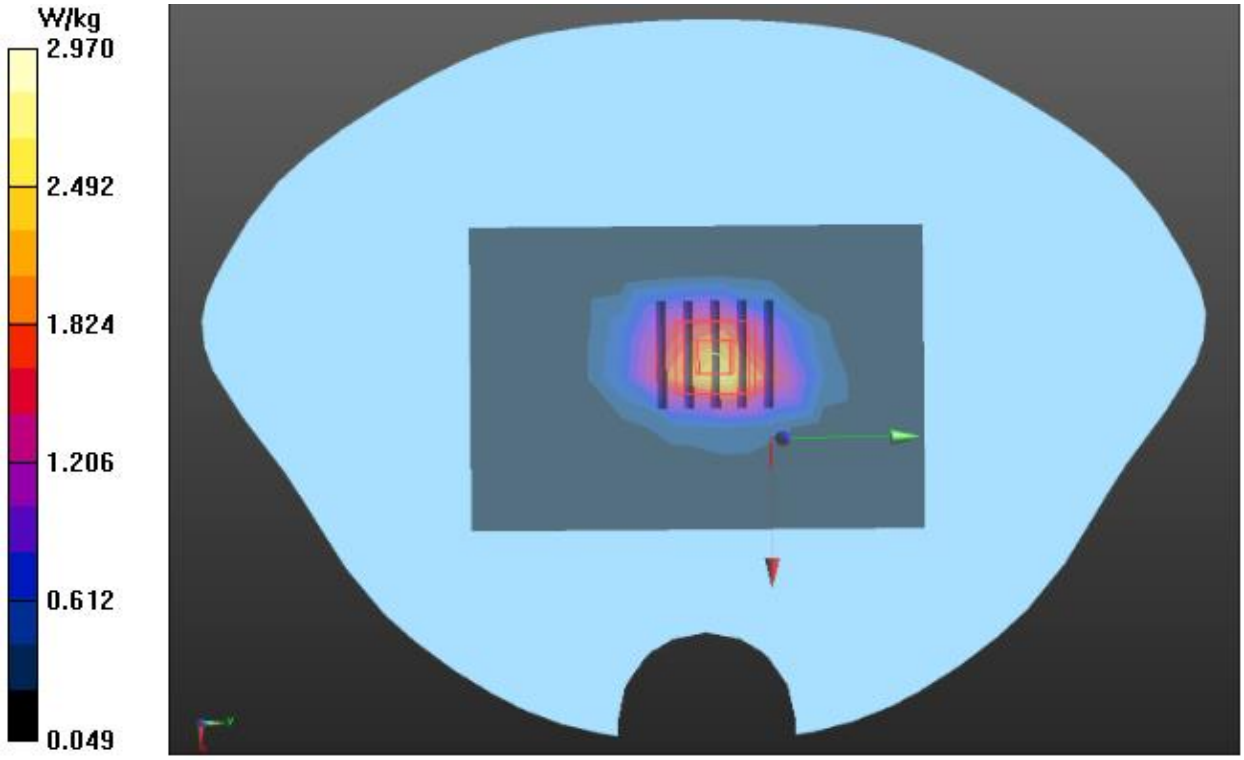
Test Laboratory: AGC Lab **Date: Jun. 19,2020**
System Check Head 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1;
Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ =1.38 mho/m; ε_r =39.54;; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.2, Liquid temperature (℃): 20.9

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.36, 8.36, 8.36); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 1900MHz/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.86 W/kg

Configuration/System Check Head 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.838 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.10 W/kg
SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.25 W/kg
Maximum value of SAR (measured) = 2.97 W/kg



Test Laboratory: AGC Lab **Date: Jun. 16,2020**
System Check Head 2450 MHz
DUT: Dipole 2450 MHz Type: D2450V2

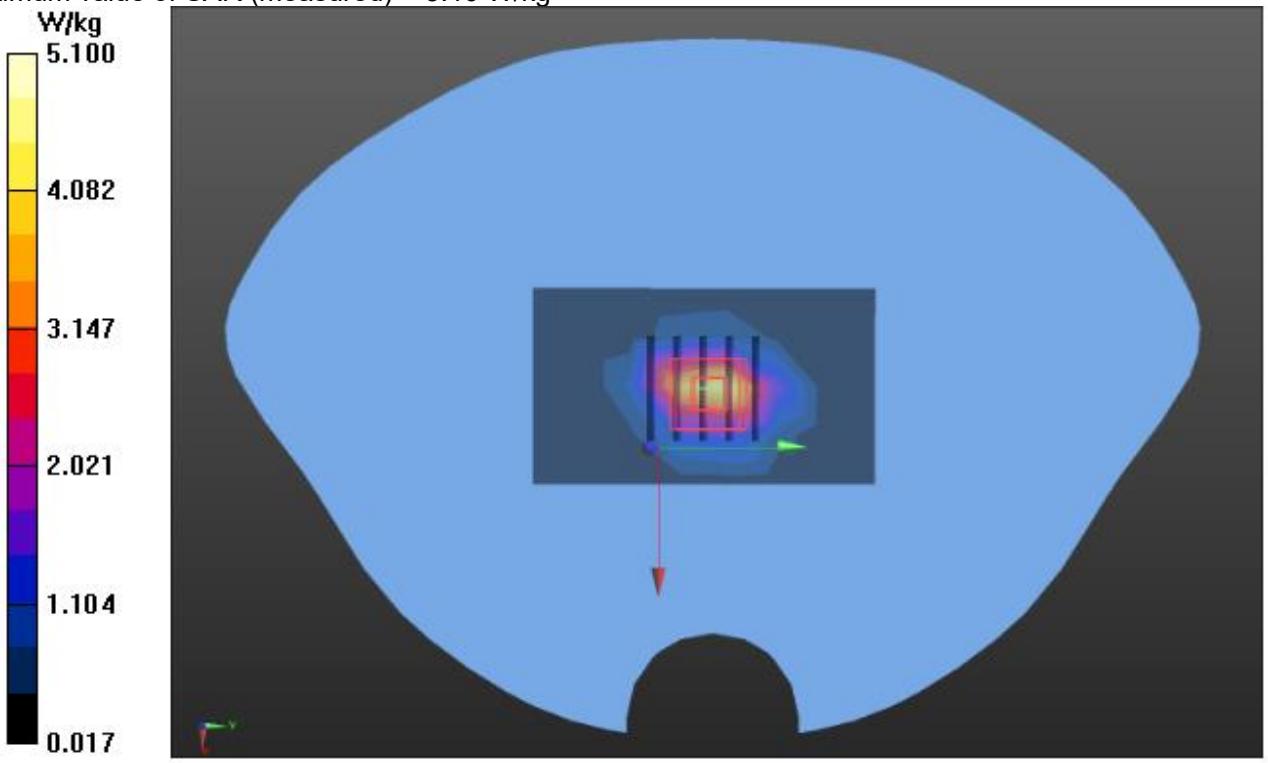
Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ=1.75 mho/m; εr =40.61; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (℃): 21.9, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.75, 7.75, 7.75); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 2450Hz/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.15 W/kg

Configuration/System Check Head 2450Hz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.265 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 6.84 W/kg
SAR(1 g) = 3.25 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 5.10 W/kg



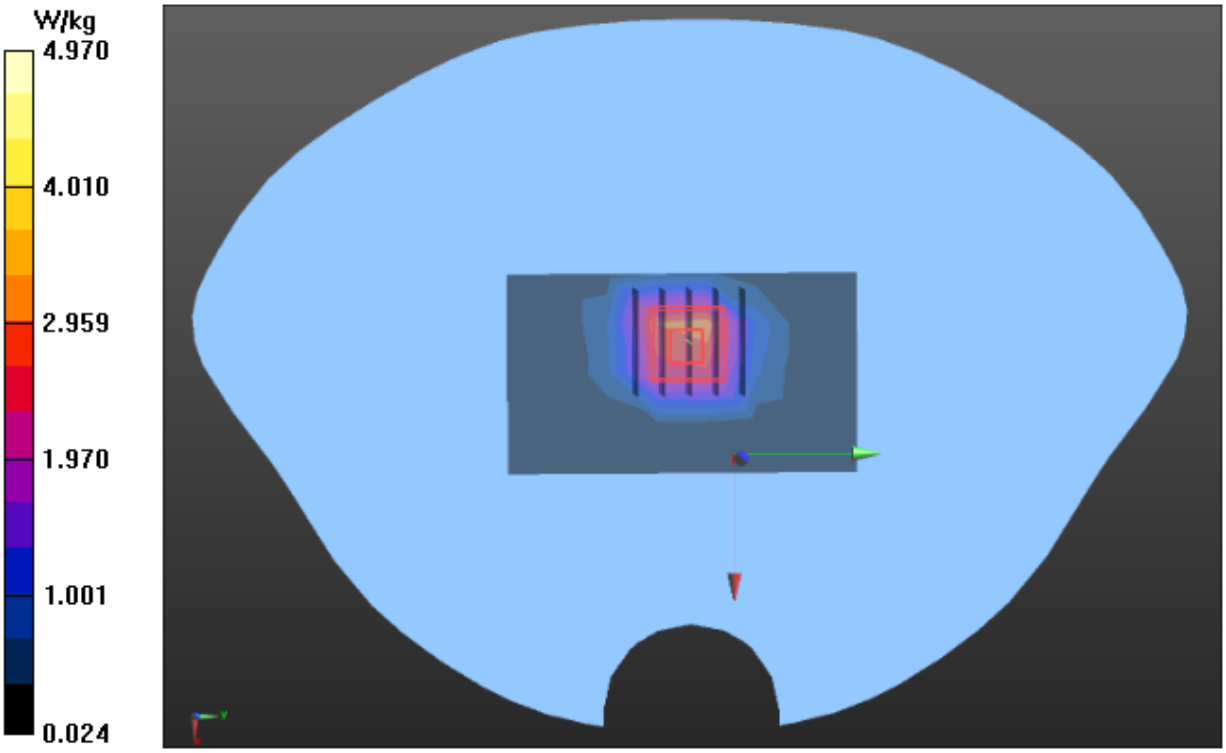
Test Laboratory: AGC Lab **Date: Jun. 22,2020**
System Check Head 2600 MHz
DUT: Dipole 2600 MHz; Type: SID 2600

Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Duty Cycle: 1:1;
Frequency: 2600 MHz; Medium parameters used: f = 2600 MHz; σ =1.92 mho/m; ε_r =38.69; ρ= 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.50, 7.50, 7.50); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 2600Hz/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.85 W/kg

Configuration/System Check Head 2600Hz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.517 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 6.92 W/kg
SAR(1 g) = 3.54 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 4.97 W/kg



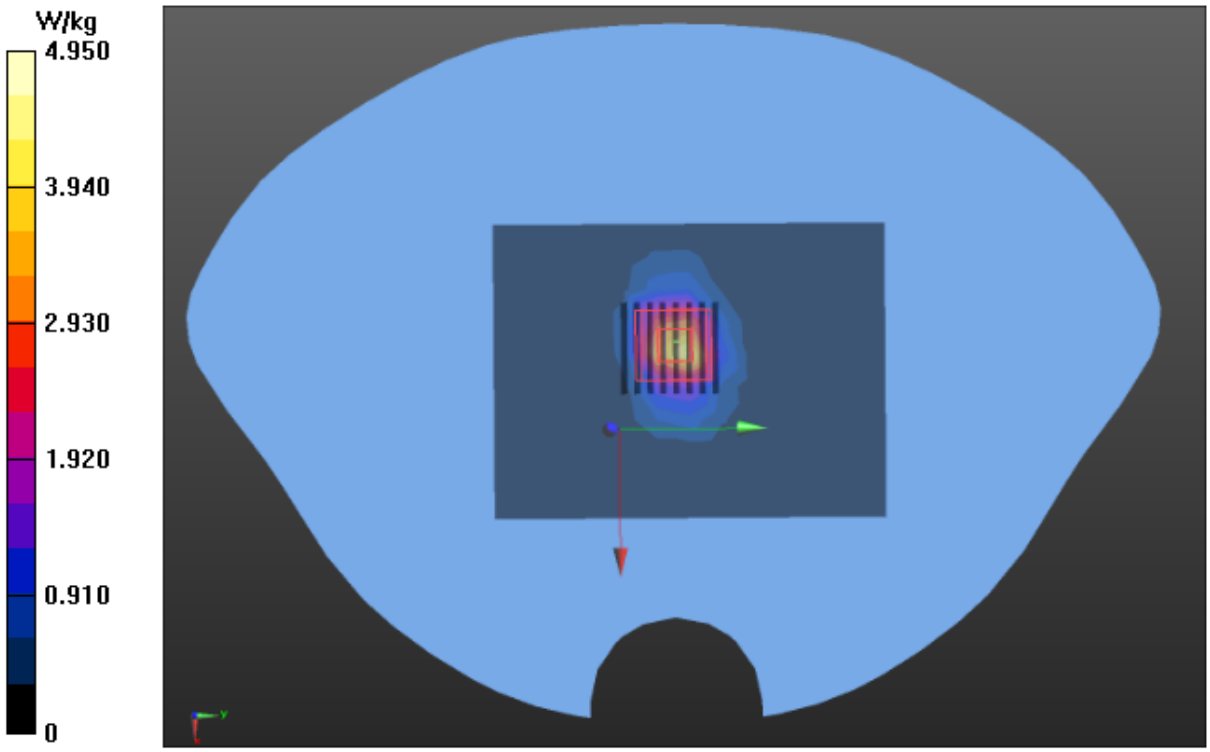
Test Laboratory: AGC Lab **Date: Jun. 24,2020**
System Check Head 5200 MHz
DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1;
Frequency: 5200 MHz; Medium parameters used: f = 5200 MHz; σ =4.59 mho/m; εr =35.67; ρ= 1000 kg/m^3 ;
Phantom section: Flat Section; Input Power=15dBm
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(5.64, 5.64, 5.64); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 5200MHz Head/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.85 W/kg

Configuration/System Check 5200MHz Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.064 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 5.21 W/kg; SAR(10 g) = 1.68 W/kg
Maximum value of SAR (measured) = 4.95 W/kg



APPENDIX B. SAR MEASUREMENT DATA

Test Laboratory: AGC Lab **Date: Jun. 18,2020**
GSM 850 Mid-Touch-Right <SIM 1>
DUT: Smart phone; Type: X2

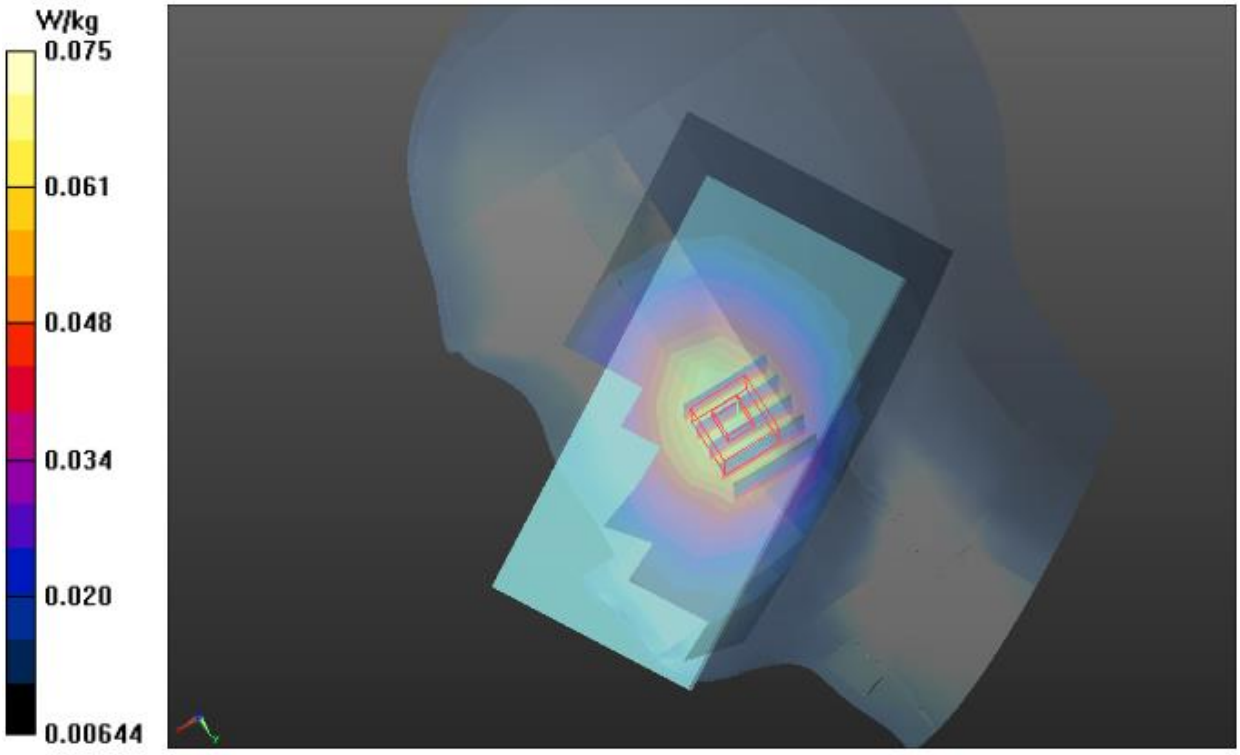
Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.92 mho/m; εr =39.68; ρ= 1000 kg/m³ ; Phantom section: Right Section

Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.09, 10.09, 10.09); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

RIGHT HEAD/R-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0722 W/kg

RIGHT HEAD/R-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.729 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0850 W/kg
SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.0751 W/kg



Test Laboratory: AGC Lab **Date: Jun. 18,2020**
GSM 850 Mid- Body- Back(MS)<SIM 1>
DUT: Smart phone; Type: X2

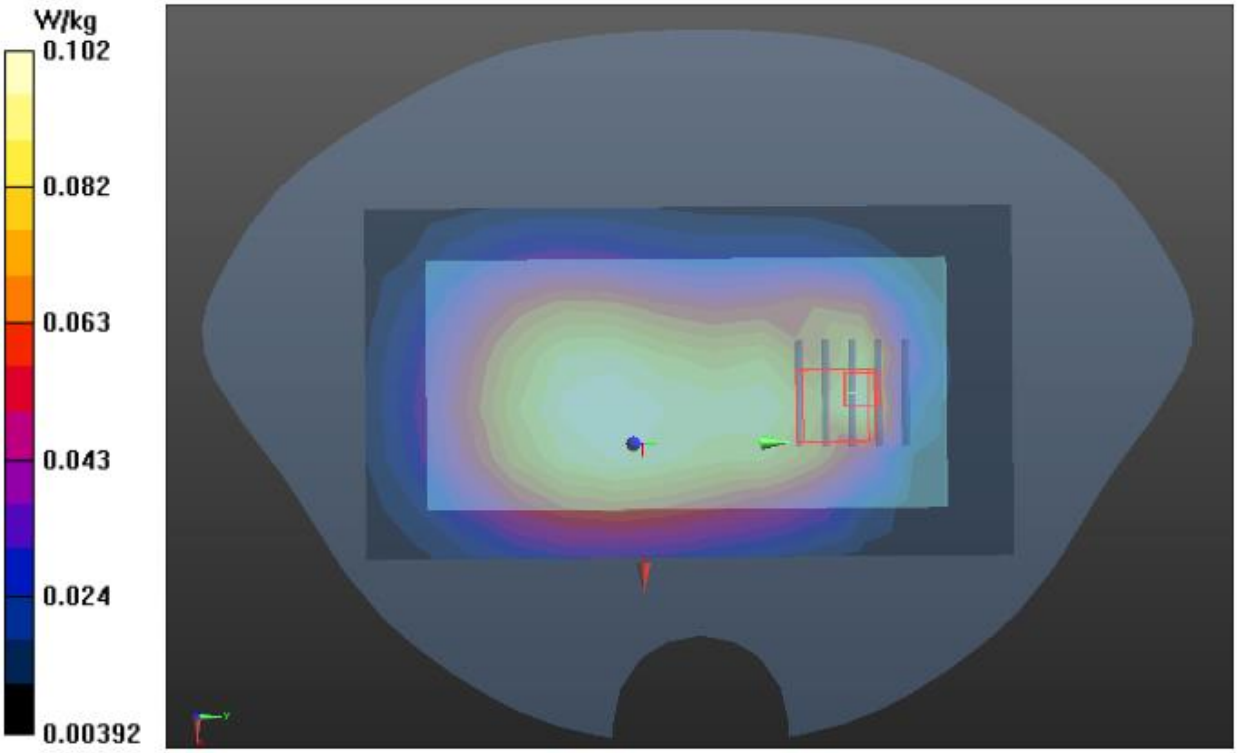
Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.92 mho/m; εr =39.68; ρ= 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.14, 10.14, 10.14); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QDOVA002AA;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/BACK/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.102 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.348 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.143 W/kg
SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.048 W/kg
Maximum value of SAR (measured) = 0.102 W/kg



Test Laboratory: AGC Lab **Date: Jun. 18,2020**
GPRS 850 Mid- Body- Back (2up) < SIM 1>
DUT: Smart phone; Type: X2

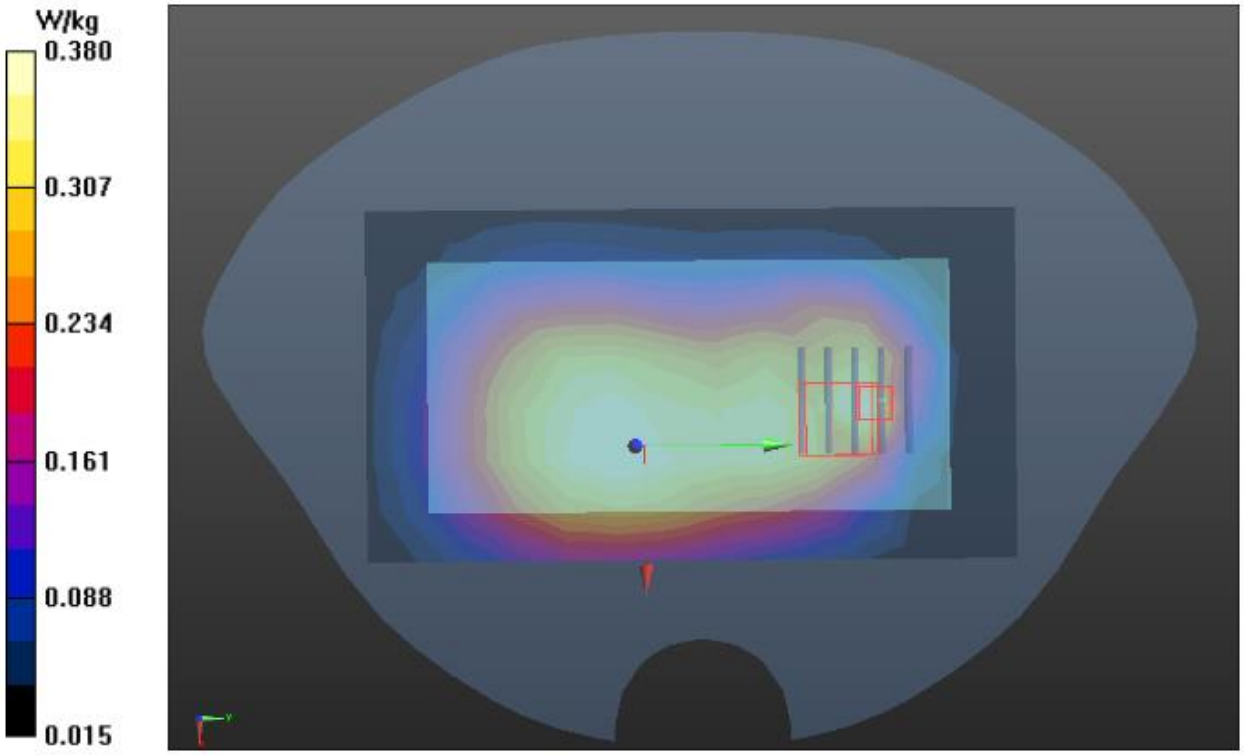
Communication System: GPRS-2 Slot; Communication System Band: GSM 850; Duty Cycle: 1:4.2; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ= 0.92 mho/m; εr = 39.68; ρ= 1000 kg/m³ ; Phantom section: Flat Section

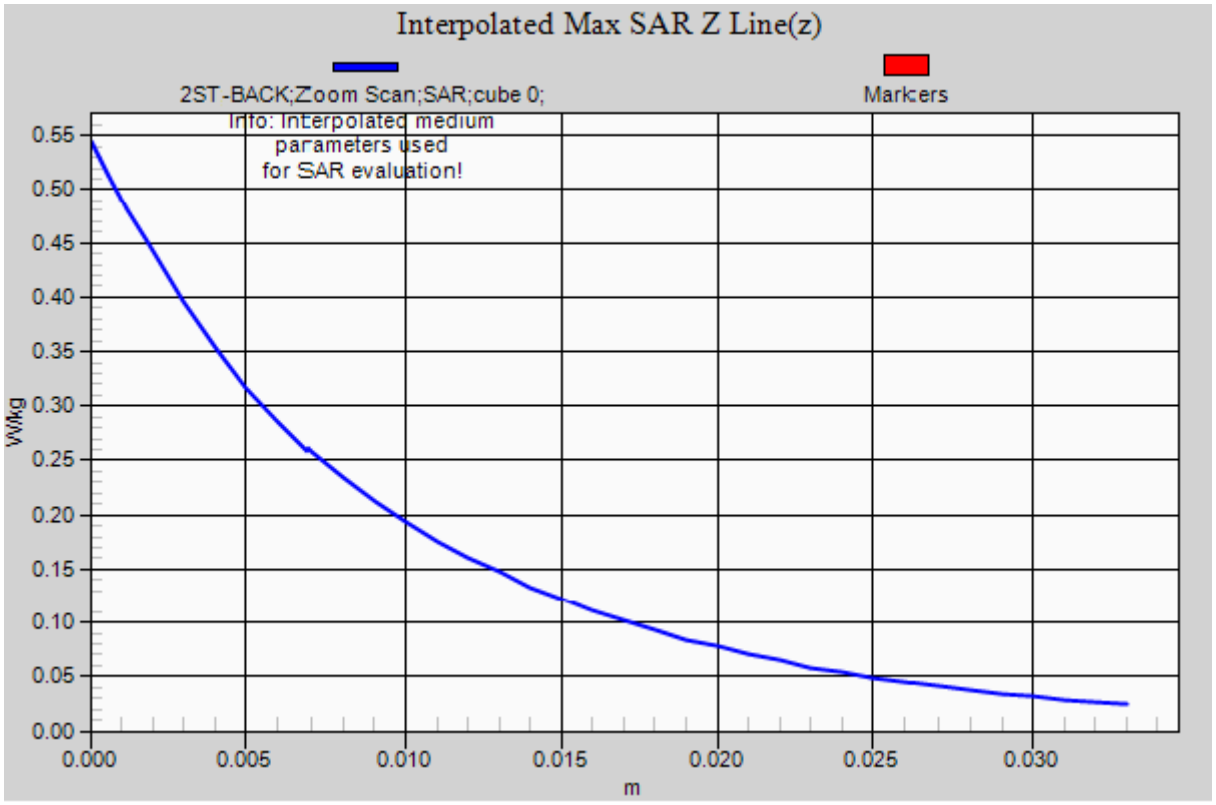
Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.14, 10.14, 10.14); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QDOVA002AA;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/2ST-BACK/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.388 W/kg

BODY/2ST-BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.250 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.544 W/kg
SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.185 W/kg
Maximum value of SAR (measured) = 0.380 W/kg




Interpolated Max SAR Z Line(z)
2ST-BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
W/kg
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Test Laboratory: AGC Lab **Date: Jun. 28,2020**
PCS 1900 Mid-Touch-Left <SIM 1>
DUT: Smart phone; Type: X2

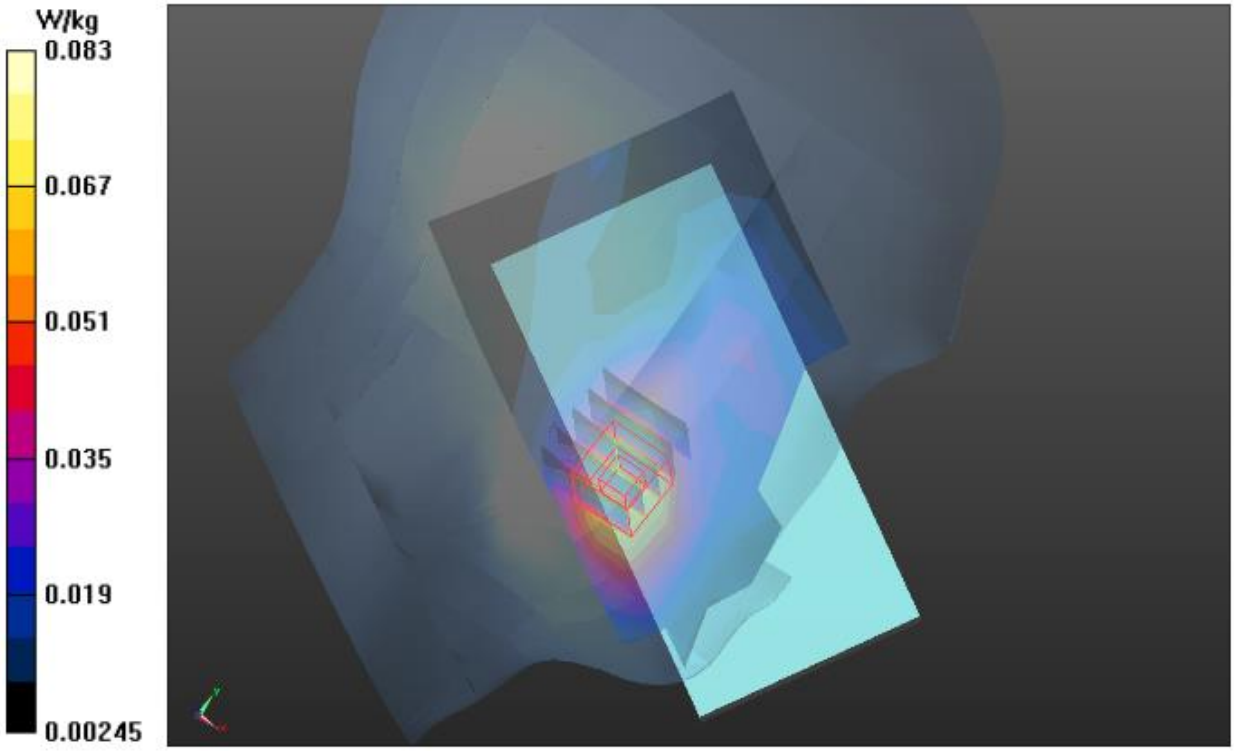
Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.41 mho/m; εr =41.06; ρ= 1000 kg/m^3 ; Phantom section: Left Section

Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.36, 8.36, 8.36); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0744 W/kg

LEFT HEAD/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.503 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.114 W/kg
SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.0835 W/kg



Test Laboratory: AGC Lab **Date: Jun. 28,2020**
PCS 1900 Mid-Body- Back(MS)<SIM 1>
DUT: Smart phone; Type: X2

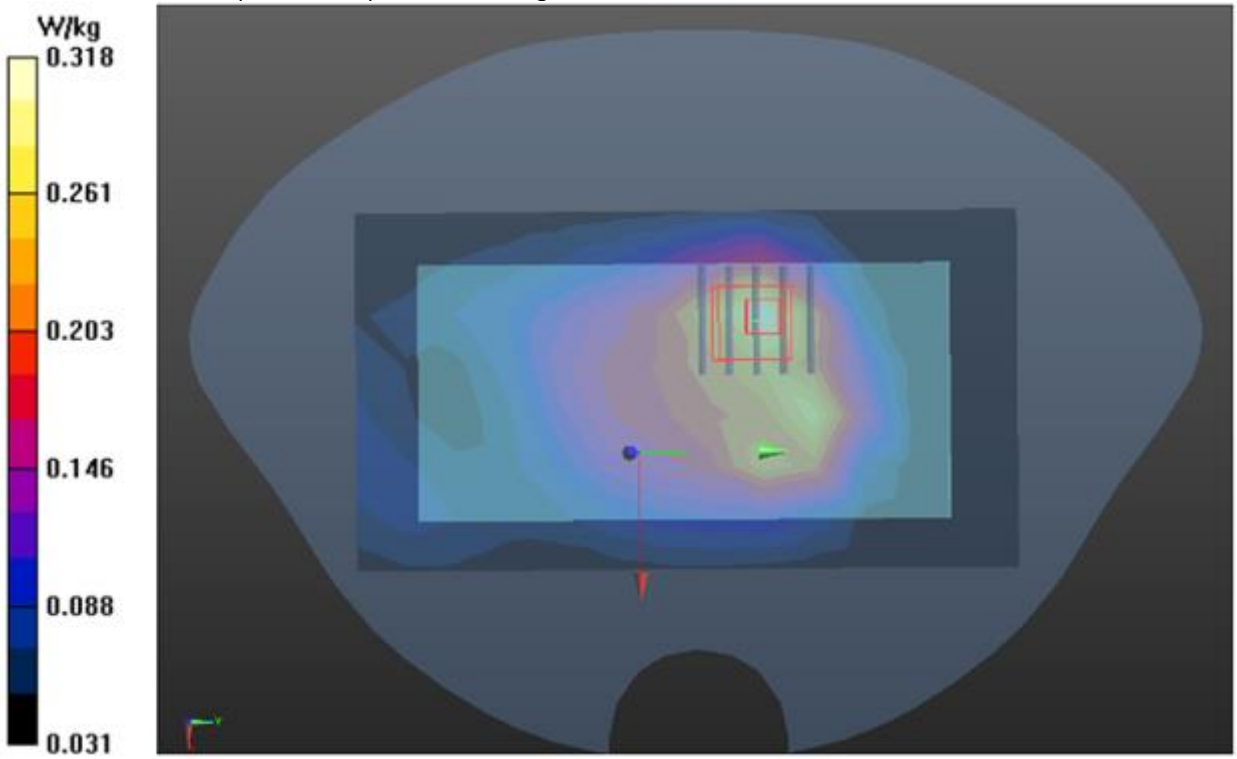
Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.41 mho/m; εr =41.06; ρ= 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.00, 8.00, 8.00); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.278 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.500 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.543 W/kg
SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.136 W/kg
Maximum value of SAR (measured) = 0.318 W/kg



Test Laboratory: AGC Lab **Date: Jun. 28,2020**
GPRS 1900 Mid-Edge 3 (4up) < SIM 1>
DUT: Smart phone; Type: X2

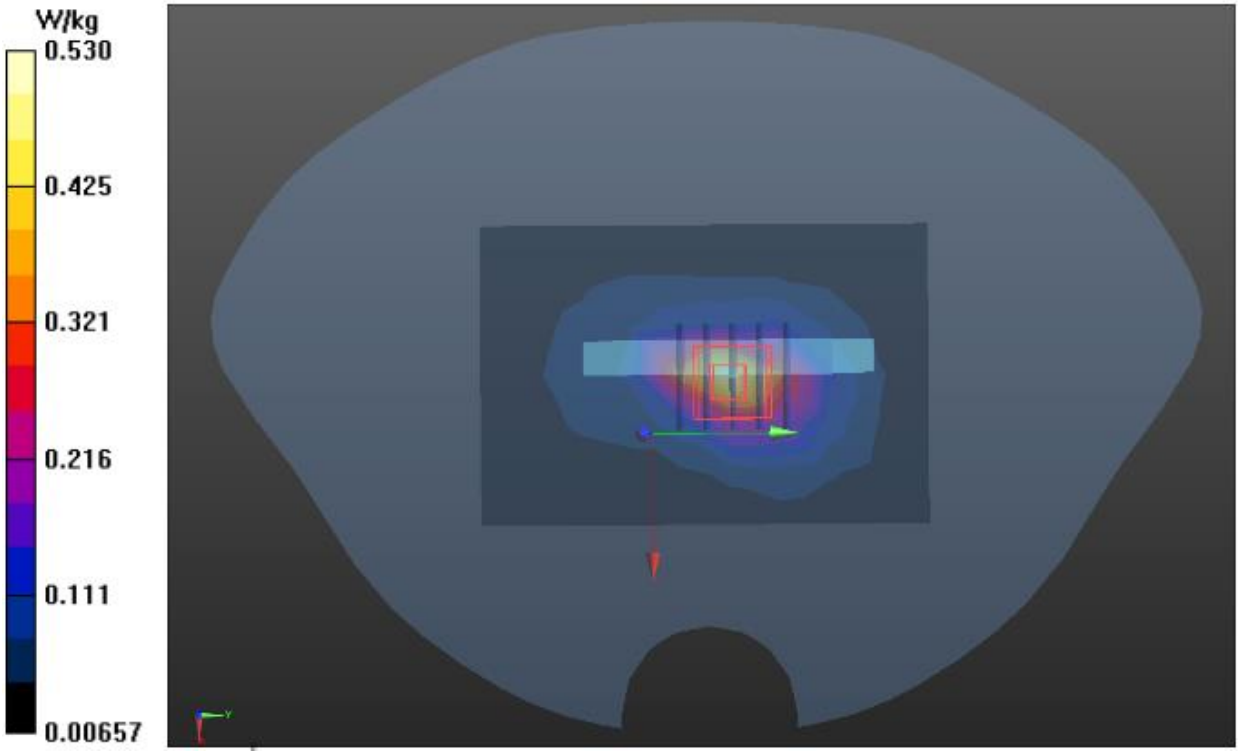
Communication System: GPRS-3 Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.7;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.41 mho/m; εr =41.06; ρ= 1000 kg/m^3 ;
Phantom section: Flat Section

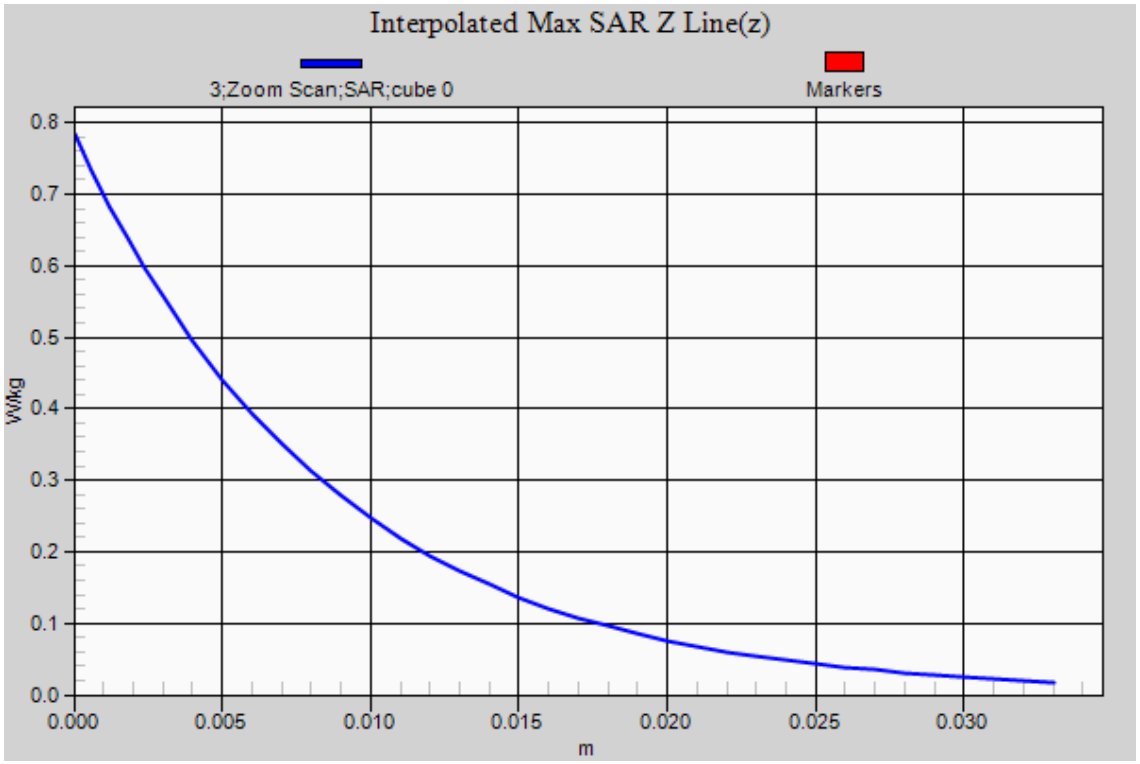
Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.00, 8.00, 8.00); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/Edge3/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.537 W/kg

BODY/Edge3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.791 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.784 W/kg
SAR(1 g) = 0.433 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.530 W/kg




Interpolated Max SAR Z Line(z)
3;Zoom Scan;SAR;cube 0
Markers
W/kg
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: Jun. 28,2020**
WCDMA Band II Mid-Touch-Left
DUT: Smart phone; Type: X2

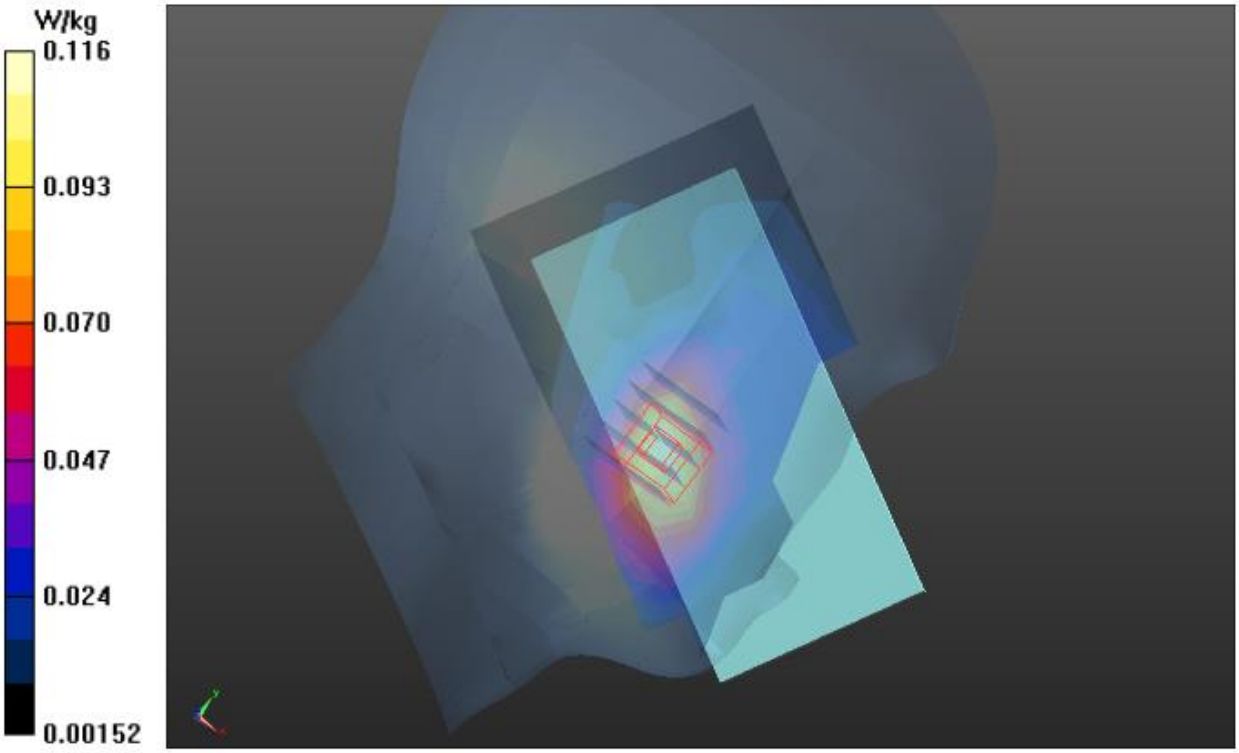
Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ= 1.41 mho/m; εr =41.06; ρ= 1000 kg/m³ ;
Phantom section: Left Section

Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.36, 8.36, 8.36); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEADE/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.117 W/kg

LEFT HEADE/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.819 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.163 W/kg
SAR(1 g) = 0.098 W/kg; SAR(10 g) = 0.058 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



Test Laboratory: AGC Lab **Date: Jun. 28,2020**
WCDMA Band II Mid-Edge 3
DUT: Smart phone; Type: X2

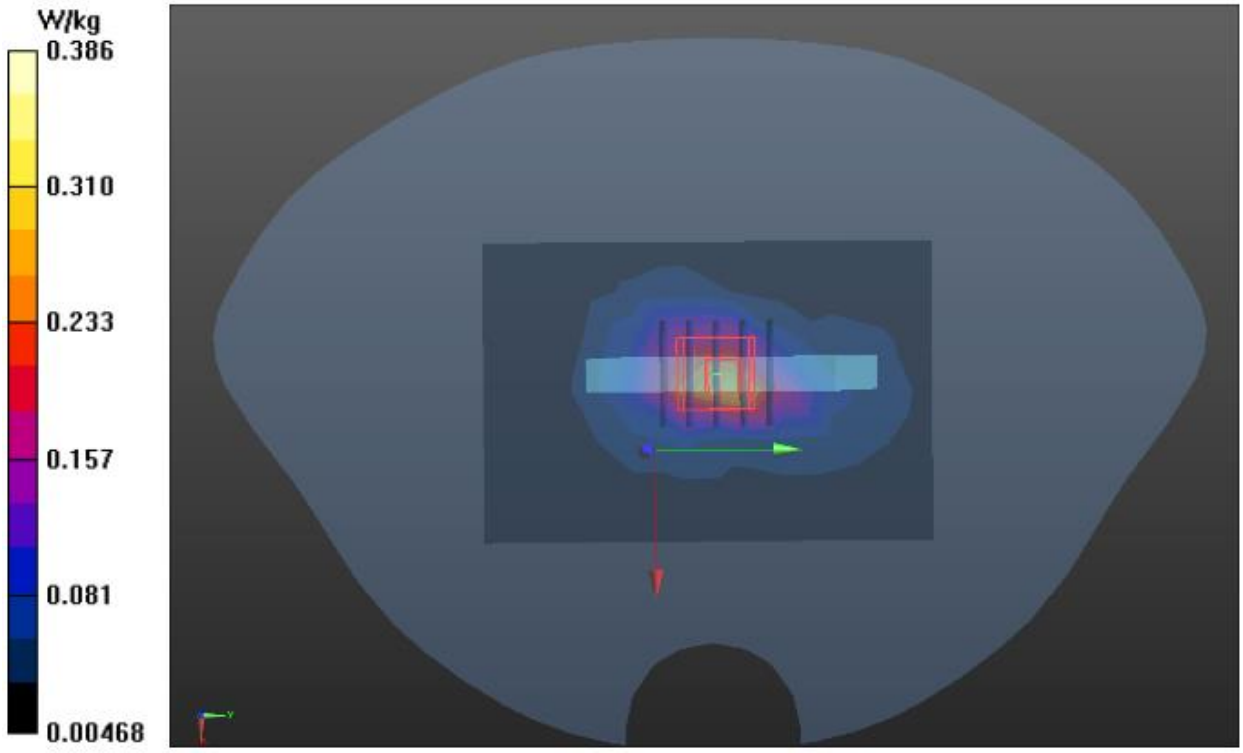
Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ=1.41 mho/m; εr =41.06; ρ= 1000 kg/m^3 ;
Phantom section: Flat Section

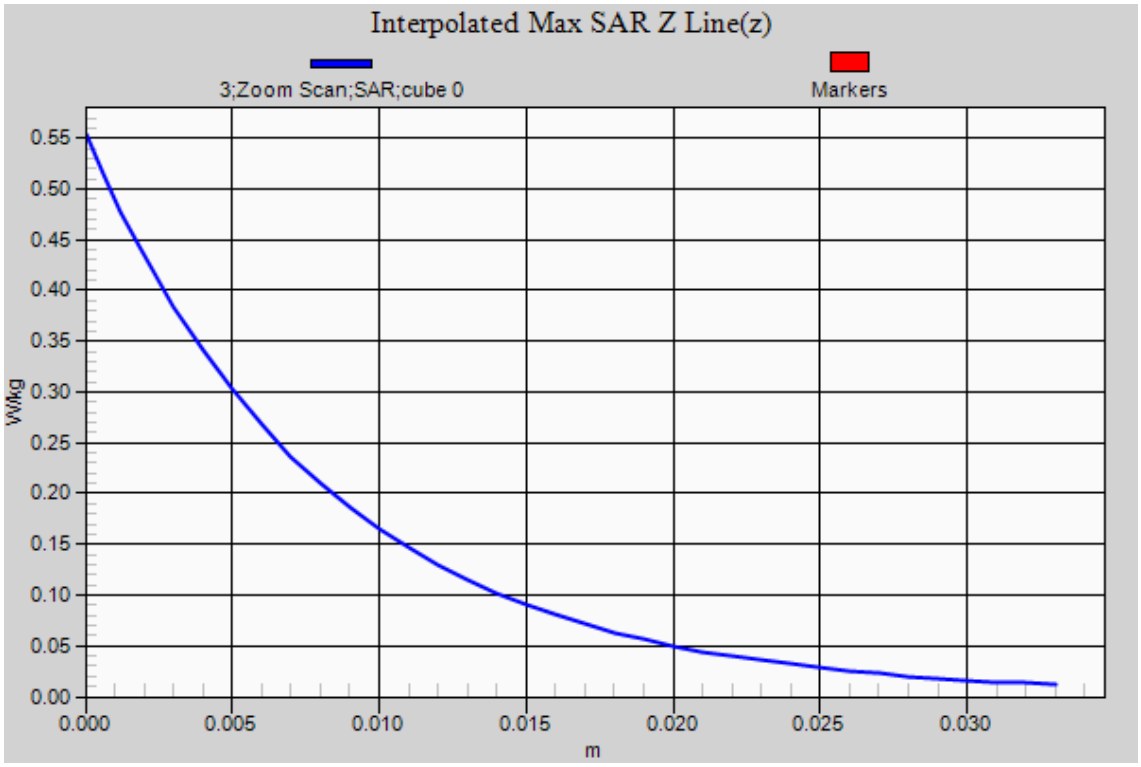
Ambient temperature (℃):21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.00, 8.00, 8.00); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/Edge3/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.314 W/kg

BODY/ Edge3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.657 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.554 W/kg
SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.147 W/kg
Maximum value of SAR (measured) = 0.386 W/kg




Interpolated Max SAR Z Line(z)
3;Zoom Scan;SAR;cube 0
Markers
W/kg
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Test Laboratory: AGC Lab **Date: Jun. 18,2020**
WCDMA Band V Mid- Touch-Right
DUT: Smart phone; Type: X2

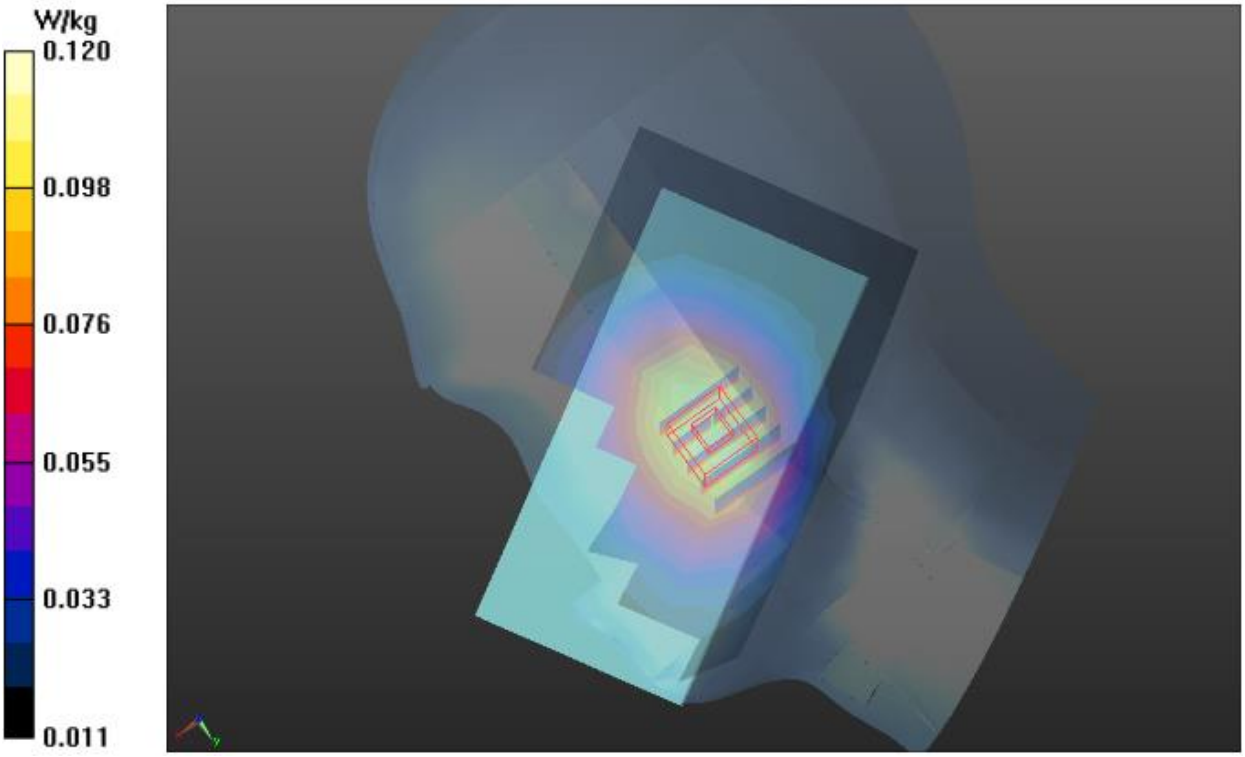
Communication System: UMTS; Communication System Band: BAND V UTRA/FDD;Duty Cycle:1:1;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ=0.92 mho/m; εr =39.68; ρ= 1000 kg/m³ ;
Phantom section: Right Section

Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.09, 10.09, 10.09); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

RIGHT HEAD/R-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.114 W/kg

RIGHT HEAD/R-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.077 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.110 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.120 W/kg



Test Laboratory: AGC Lab **Date: Jun. 18,2020**
WCDMA Band V Mid-Body-Towards Grounds
DUT: Smart phone; Type: X2

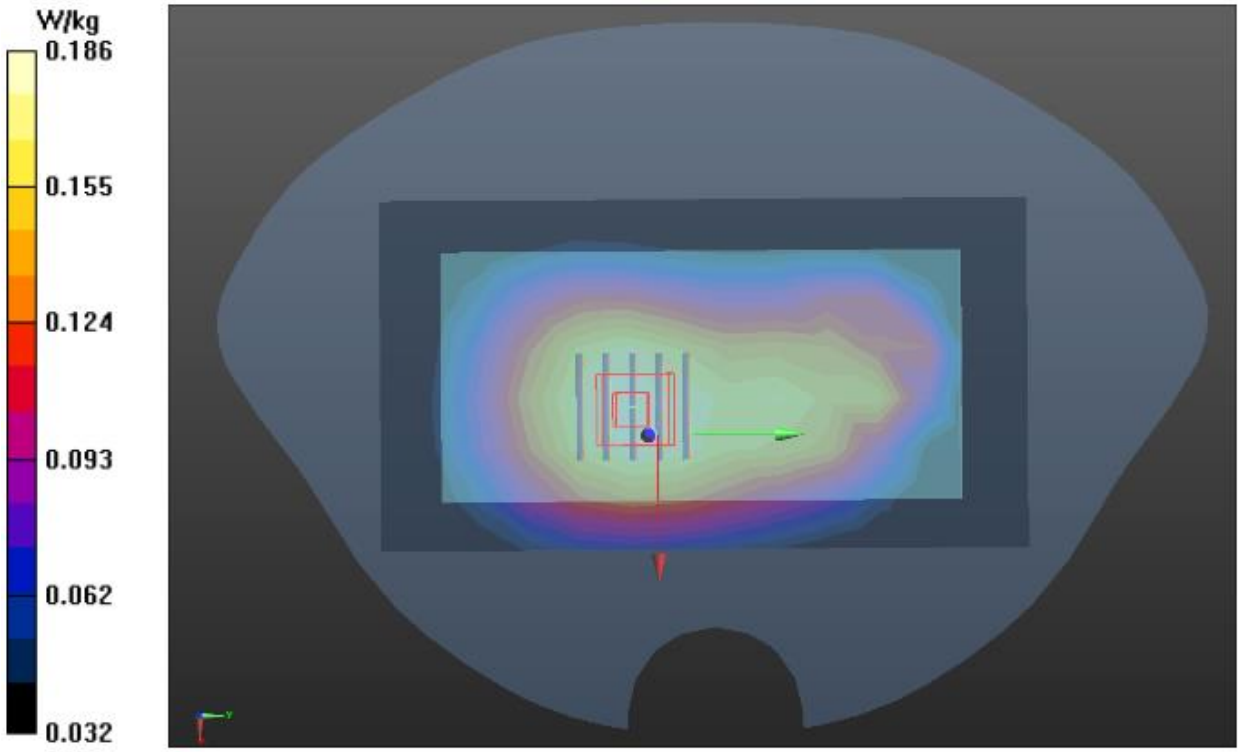
Communication System: UMTS; Communication System Band: BAND V UTRA/FDD;Duty Cycle:1:1;
Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz;σ=0.92 mho/m; εr =39.68; ρ= 1000 kg/m³ ;
Phantom section: Flat Section

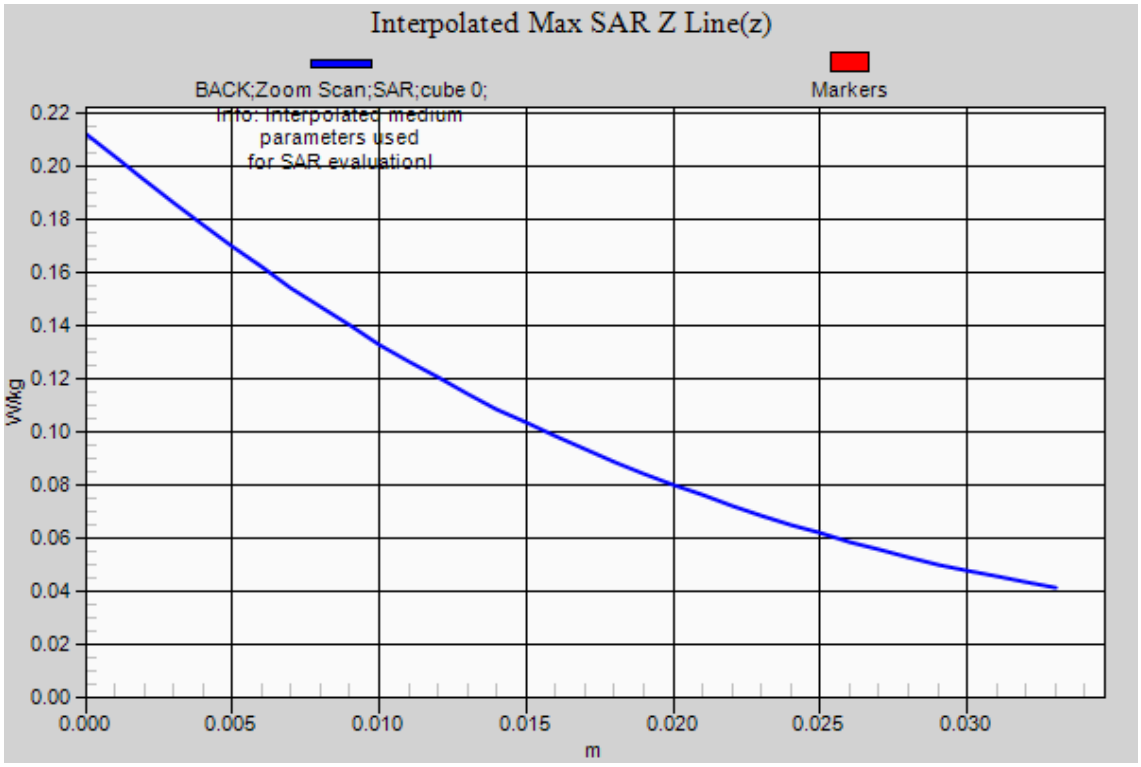
Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.14, 10.14, 10.14); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.186 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.832 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.212 W/kg
SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.130 W/kg
Maximum value of SAR (measured) = 0.186 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
W/kg
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

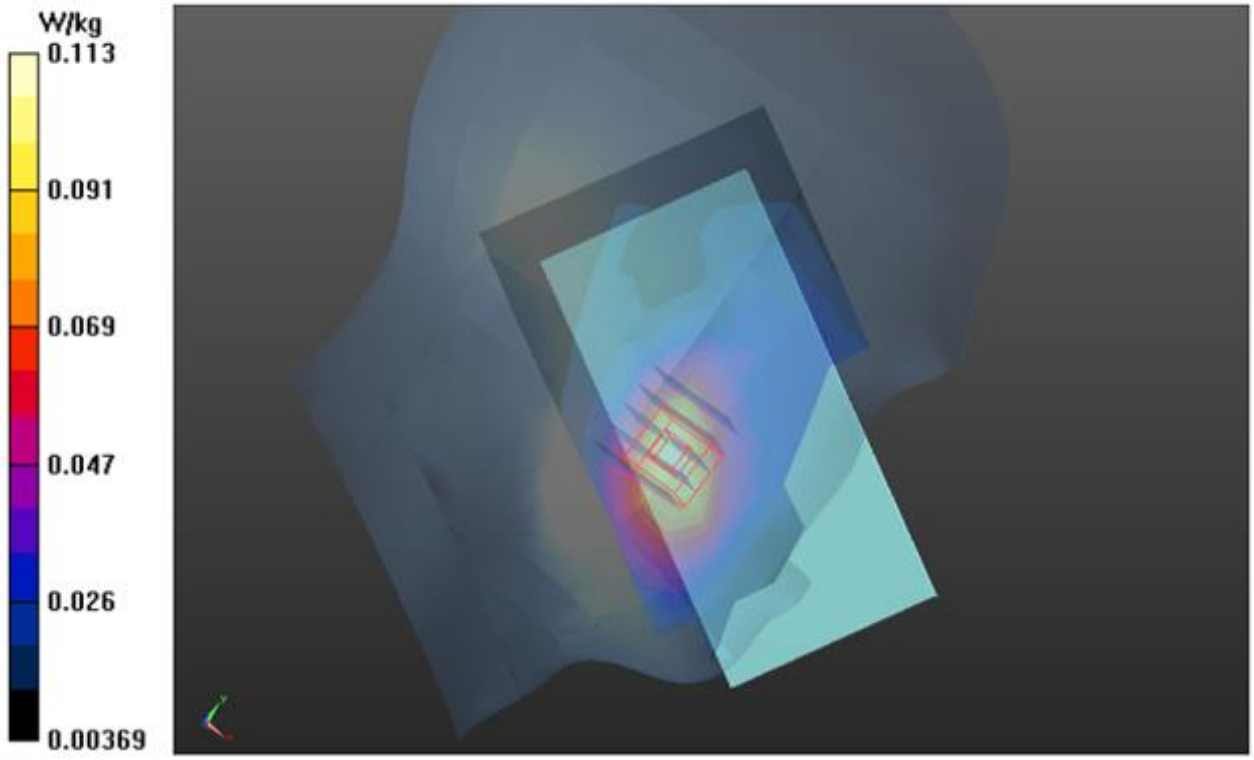
Test Laboratory: AGC Lab **Date: Jun. 19,2020**
LTE Band 2 Mid-Touch-Left <SIM 1>
DUT: Smart phone; Type: X2

Communication System: LTE; Communication System Band: LTE Band 2; Duty Cycle: 1:1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ = 1.36 mho/m; ε_r =40.25; ρ= 1000 kg/m³ ;
Phantom section: Left Section
Ambient temperature (℃): 21.2, Liquid temperature (℃): 20.9

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.36, 8.36, 8.36); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.106 W/kg

LEFT HEAD/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.916 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.094 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.113 W/kg



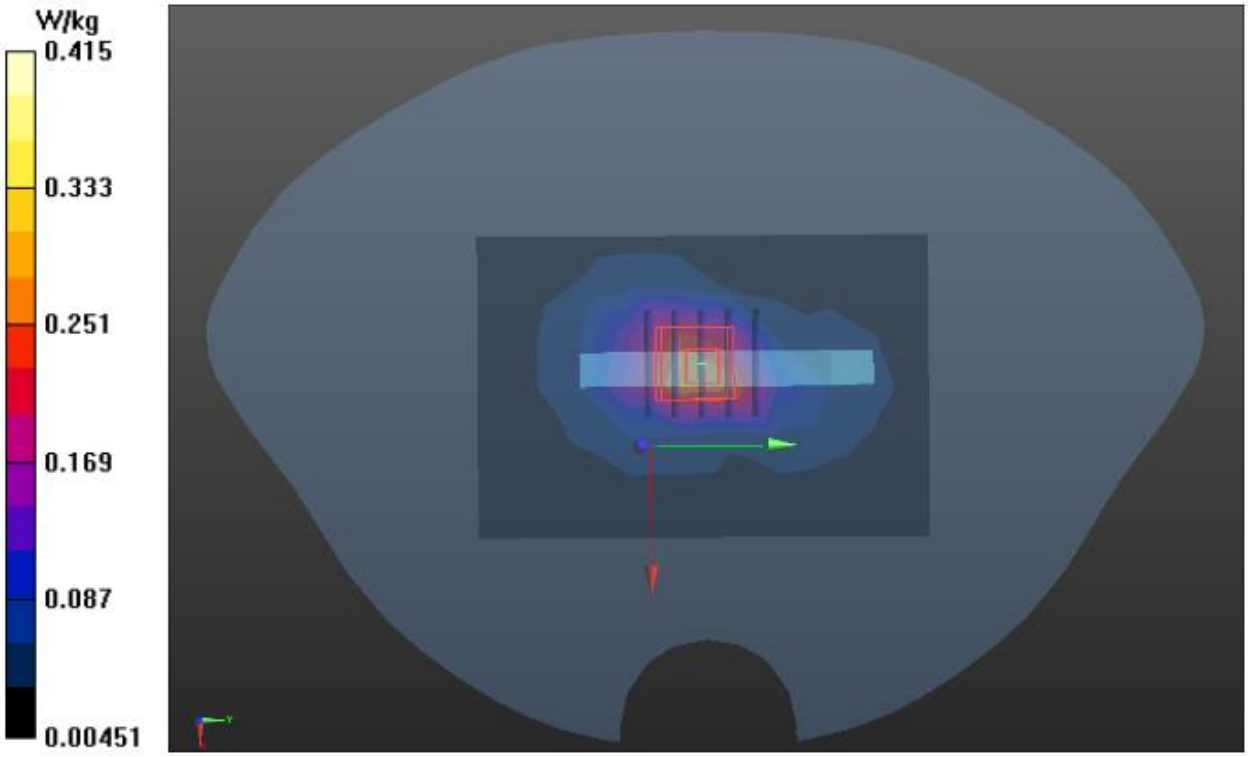
Test Laboratory: AGC Lab **Date: Jun. 19,2020**
LTE Band 2 Mid-Edge3 (MS)<SIM 1>
DUT: Smart phone; Type: X2

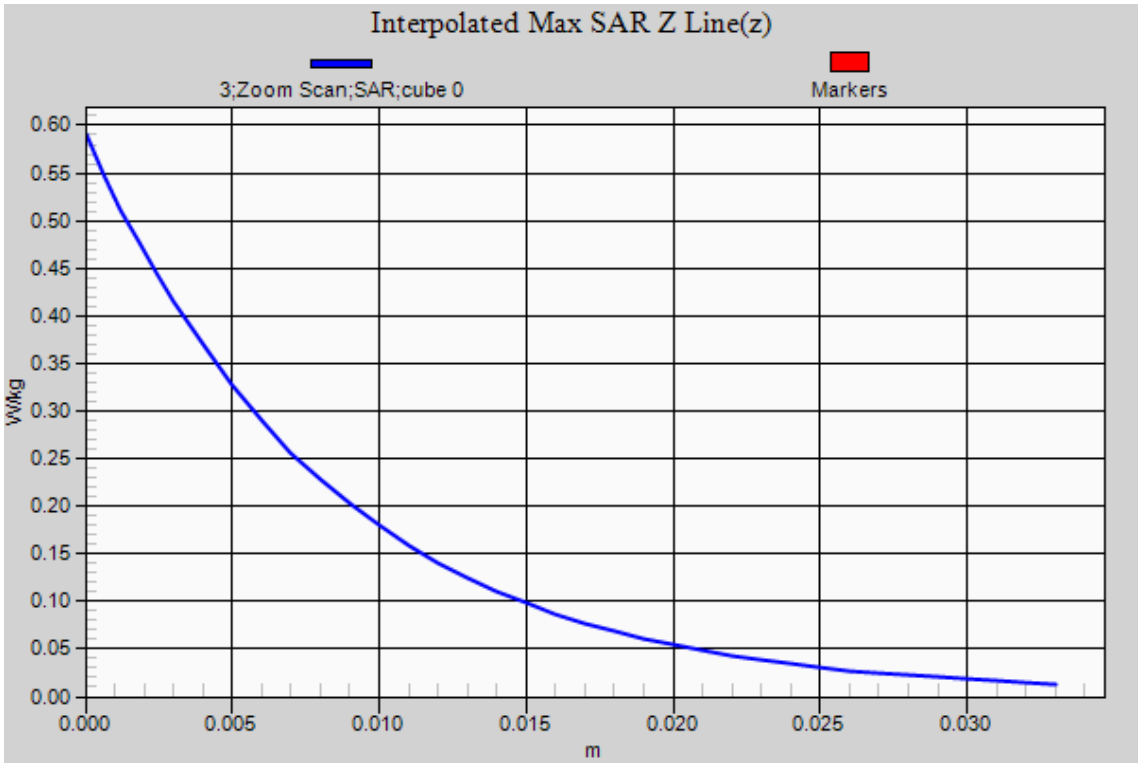
Communication System: LTE; Communication System Band: LTE Band 2; Duty Cycle: 1:1;
Frequency: 1880 MHz; Medium parameters used: f = 1900 MHz; σ = 1.36 mho/m; εr =40.25; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.2, Liquid temperature (℃): 20.9

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.00, 8.00, 8.00); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

BODY/Edge 3/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.283 W/kg

BODY/Edge 3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.318 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.320 W/kg; SAR(10 g) = 0.160 W/kg
Maximum value of SAR (measured) = 0.415 W/kg




Interpolated Max SAR Z Line(z)
3;Zoom Scan;SAR;cube 0
Markers
W/kg
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

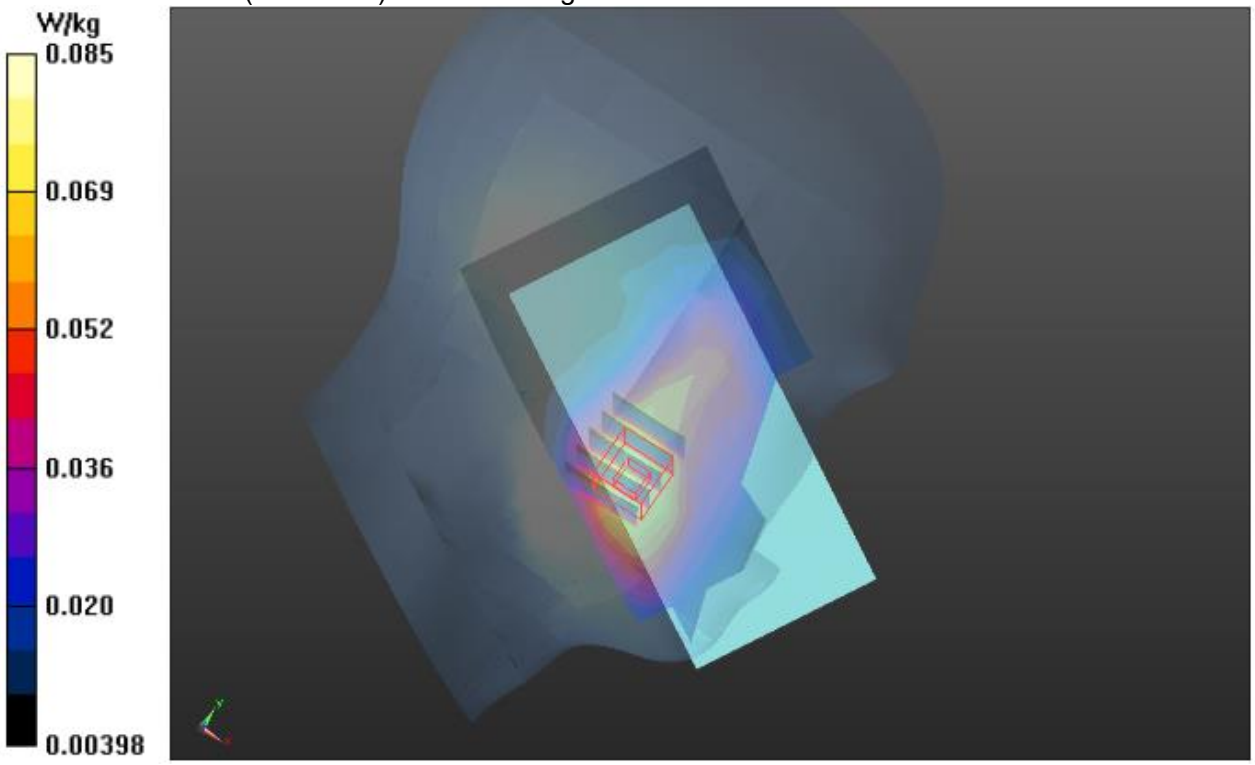
Test Laboratory: AGC Lab **Date: Jun. 29,2020**
LTE Band 4 Mid-Touch-Left (1 RB#0)
DUT: Smart phone; Type: X2

Communication System: LTE; Communication System Band: LTE Band 4; Duty Cycle:1:1;
Frequency:1732.5 MHz; Medium parameters used: f =1750 MHz; σ = 1.32 mho/m; ε_r =40.87; ρ = 1000 kg/m^3 ;
Phantom section: Left Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.61, 8.61, 8.61); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0772 W/kg

LEFT HEAD/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.630 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.110 W/kg
SAR(1 g) = 0.073 W/kg; SAR(10 g) = 0.048 W/kg
Maximum value of SAR (measured) = 0.0847 W/kg



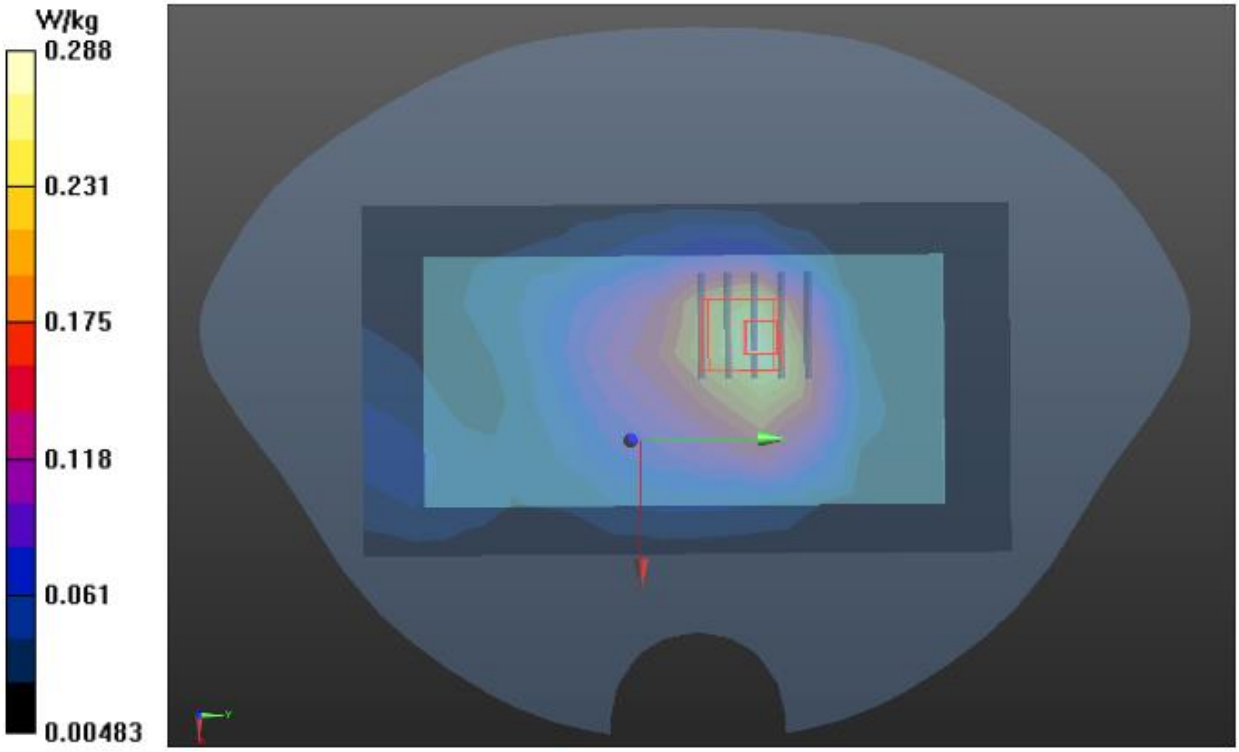
Test Laboratory: AGC Lab **Date: Jun. 29,2020**
LTE Band 4 Mid-Body-Back (1 RB#0)
DUT: Smart phone; Type: X2

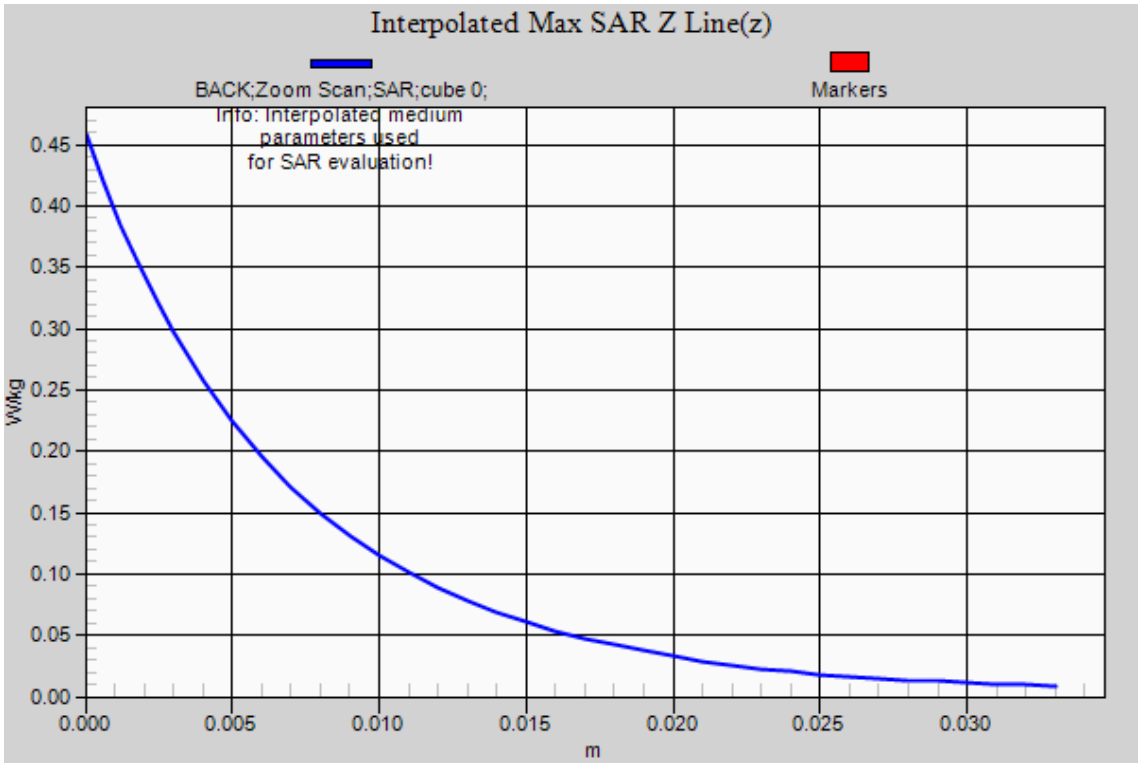
Communication System: LTE; Communication System Band: LTE Band 4; Duty Cycle:1:1;
Frequency:1732.5 MHz; Medium parameters used: f = 1750 MHz; σ = 1.32 mho/m; ε r =40.87; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(8.30, 8.30, 8.30); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.286 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.486 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.458 W/kg
SAR(1 g) = 0.240 W/kg; SAR(10 g) = 0.138 W/kg
Maximum value of SAR (measured) = 0.288 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
W/kg
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

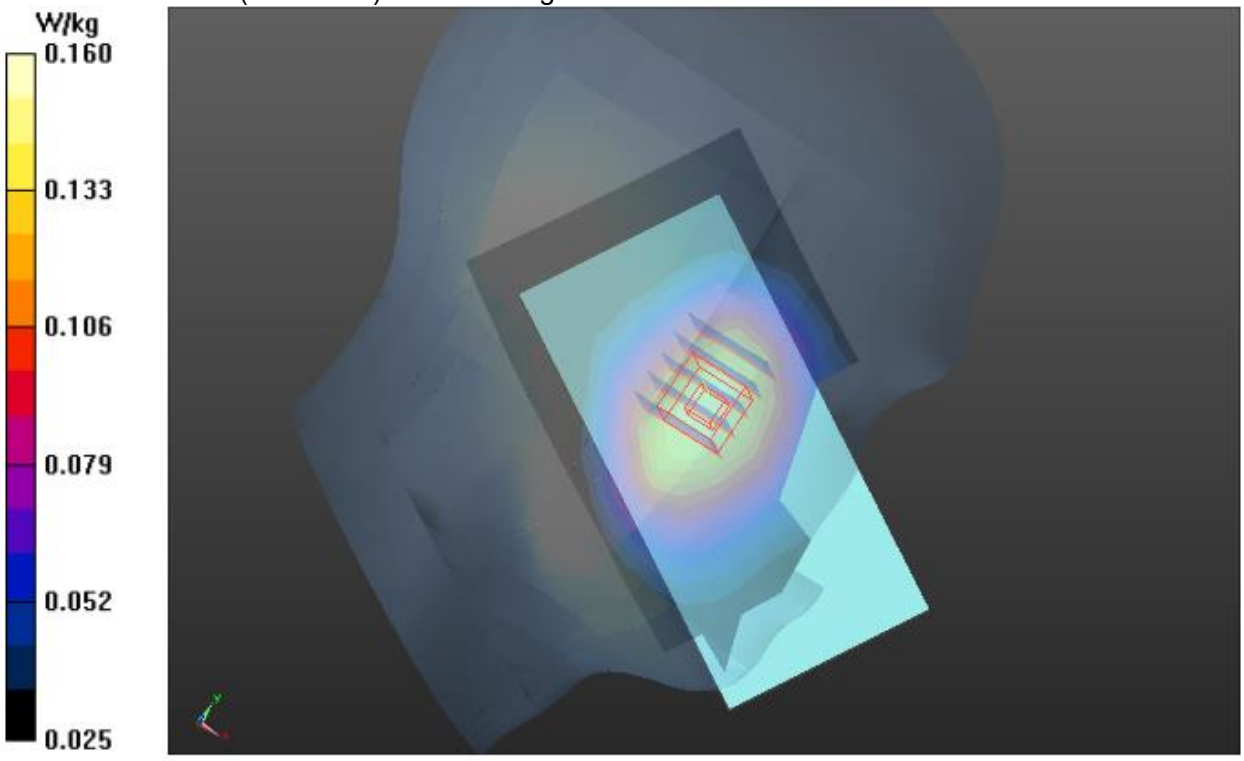
Test Laboratory: AGC Lab **Date: Jun. 17,2020**
LTE Band 5 Mid-Touch-Left (1 RB#0)
DUT: Smart phone; Type: X2

Communication System: LTE; Communication System Band: LTE Band 5; Duty Cycle:1:1;
Frequency: 836.5 MHz; Medium parameters used: f = 835 MHz; σ=0.93 mho/m; εr =39.72; ρ= 1000 kg/m³ ;
Phantom section: Left Section
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.09, 10.09, 10.09); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.153 W/kg

LEFT HEAD/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.537 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.176 W/kg
SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 0.160 W/kg



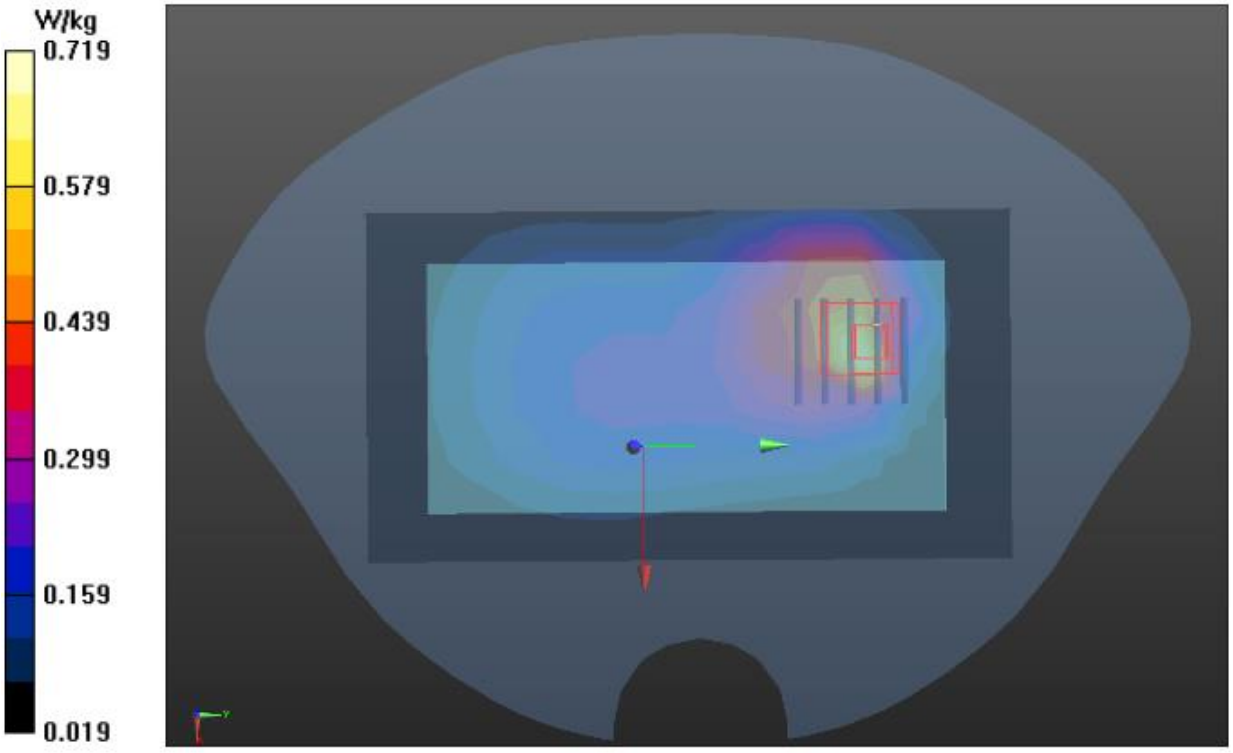
Test Laboratory: AGC Lab **Date: Jun. 17,2020**
LTE Band 5 Mid-Body-Back (1 RB#0)
DUT: Smart phone; Type: X2

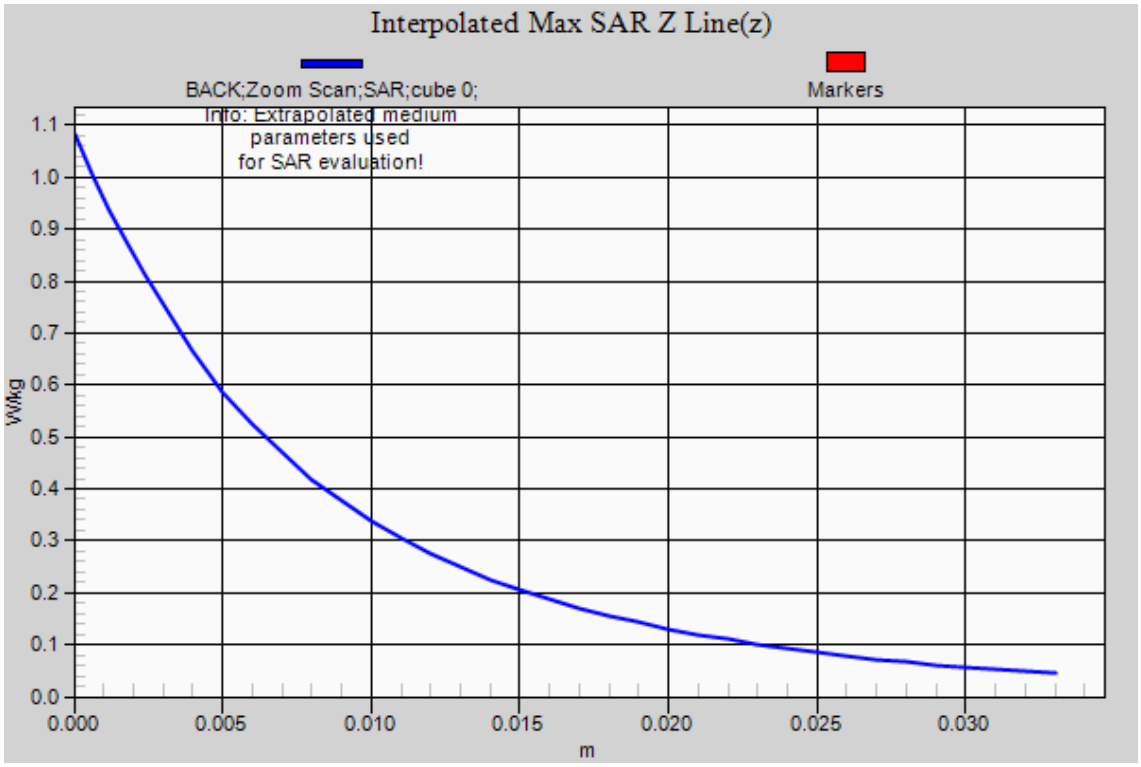
Communication System: LTE; Communication System Band: LTE Band 5; Duty Cycle:1:1;
Frequency:836.5 MHz; Medium parameters used: f = 835 MHz; σ=0.93mho/m; εr =39.72; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.14, 10.14, 10.14); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.685 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.689 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.571 W/kg; SAR(10 g) = 0.310 W/kg
Maximum value of SAR (measured) = 0.719 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Extrapolated medium
parameters used
for SAR evaluation!
Markers
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

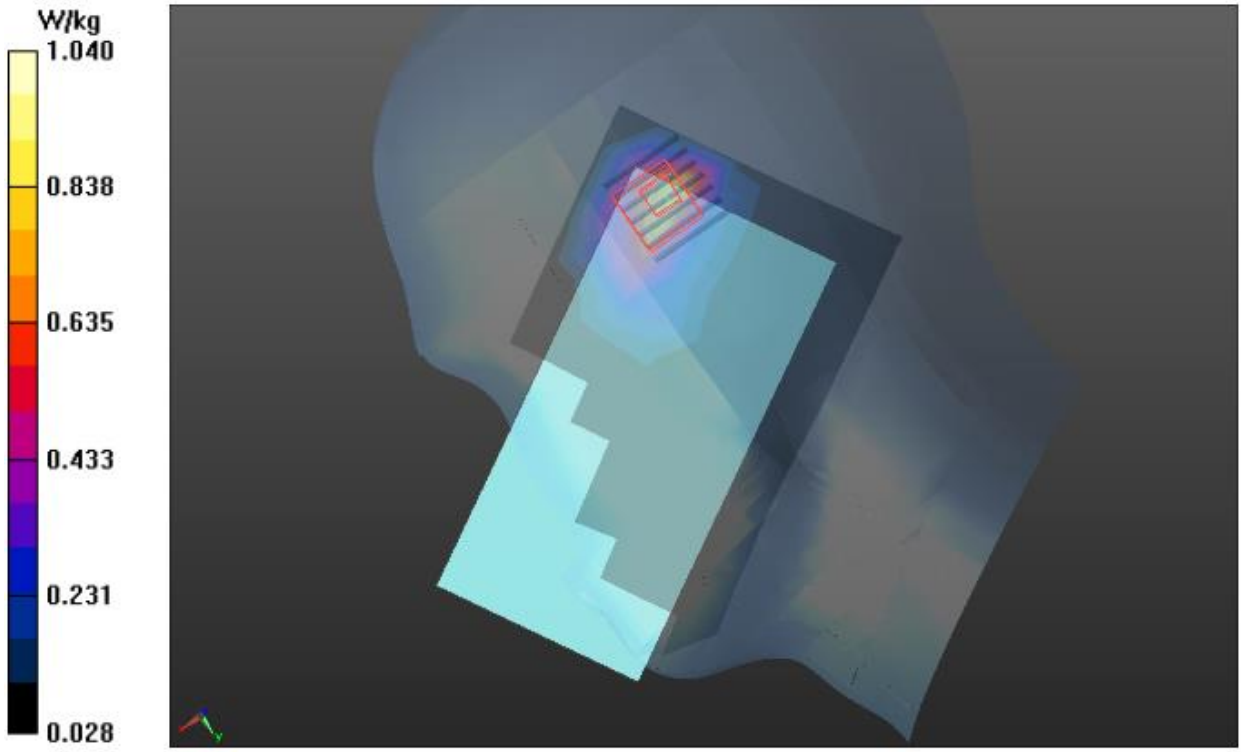
Test Laboratory: AGC Lab **Date: Jun. 22,2020**
LTE Band 7 Mid-Touch-Right (1RB#0)
DUT: Smart phone; Type: X2

Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1;
Frequency: 2535MHz; Medium parameters used: f =2600 MHz; σ=1.90 mho/m; εr =39.76; ρ= 1000 kg/m³ ;
Phantom section: Right Section
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.50, 7.50, 7.50); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

RIGHT HEAD/R-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.841 W/kg

RIGHT HEAD/R-C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.699 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 0.615 W/kg; SAR(10 g) = 0.384 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



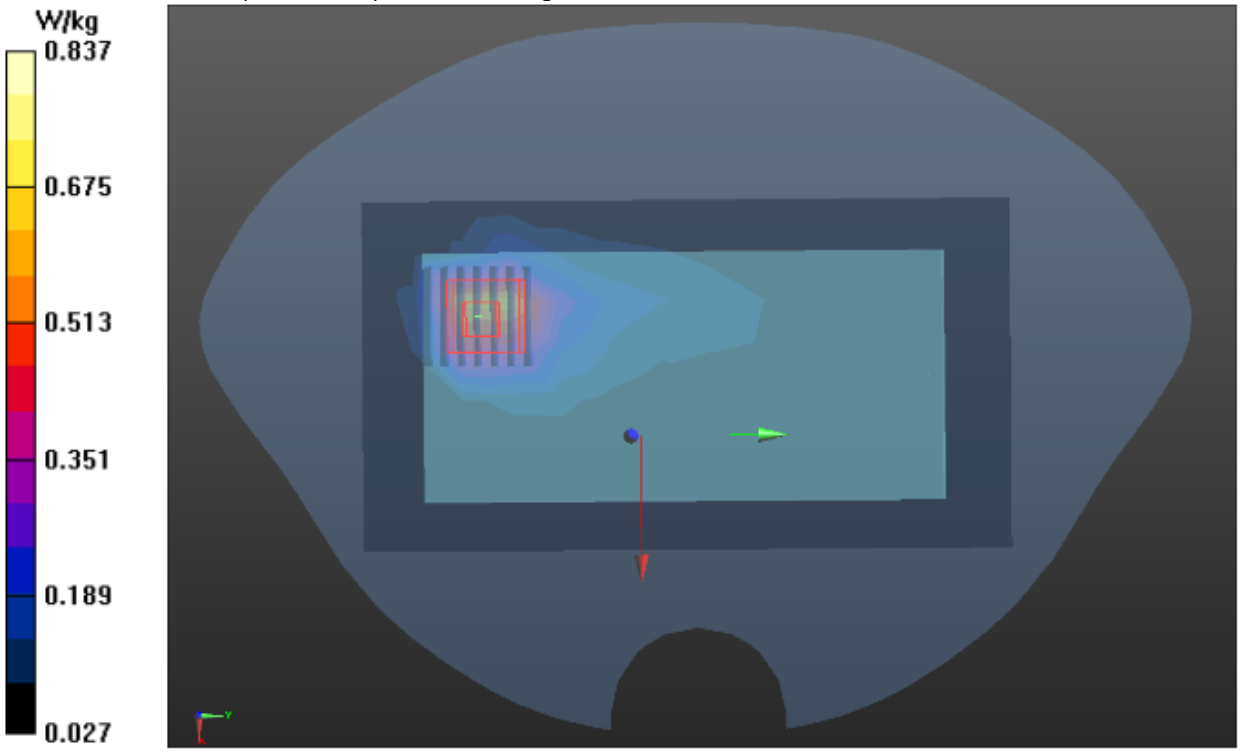
Test Laboratory: AGC Lab **Date: Jun. 22,2020**
LTE Band 7 Mid-Body-Back (1RB#0)
DUT: Smart phone; Type: X2

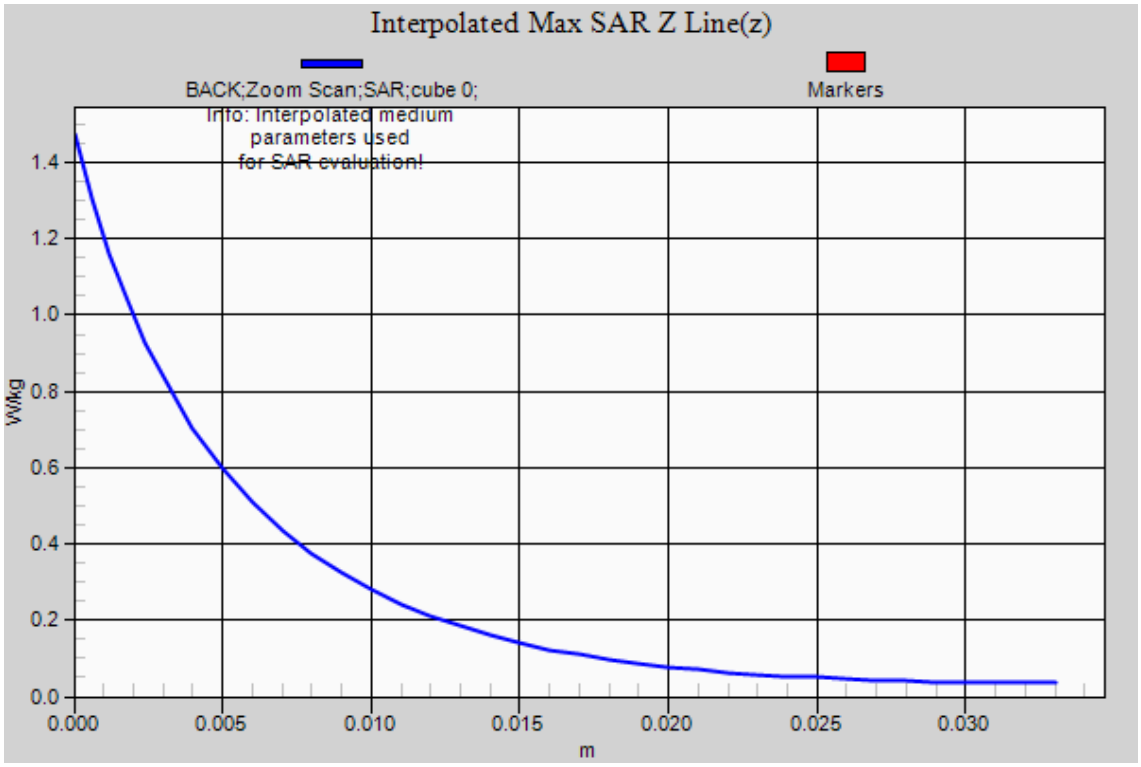
Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1;
Frequency: 2535MHz; Medium parameters used: f =2600 MHz; σ=1.90 mho/m; εr =39.76; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.3, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.49, 7.49, 7.49); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.611 W/kg

BODY/BACK/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.796 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.637 W/kg; SAR(10 g) = 0.296 W/kg
Maximum value of SAR (measured) = 0.837 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

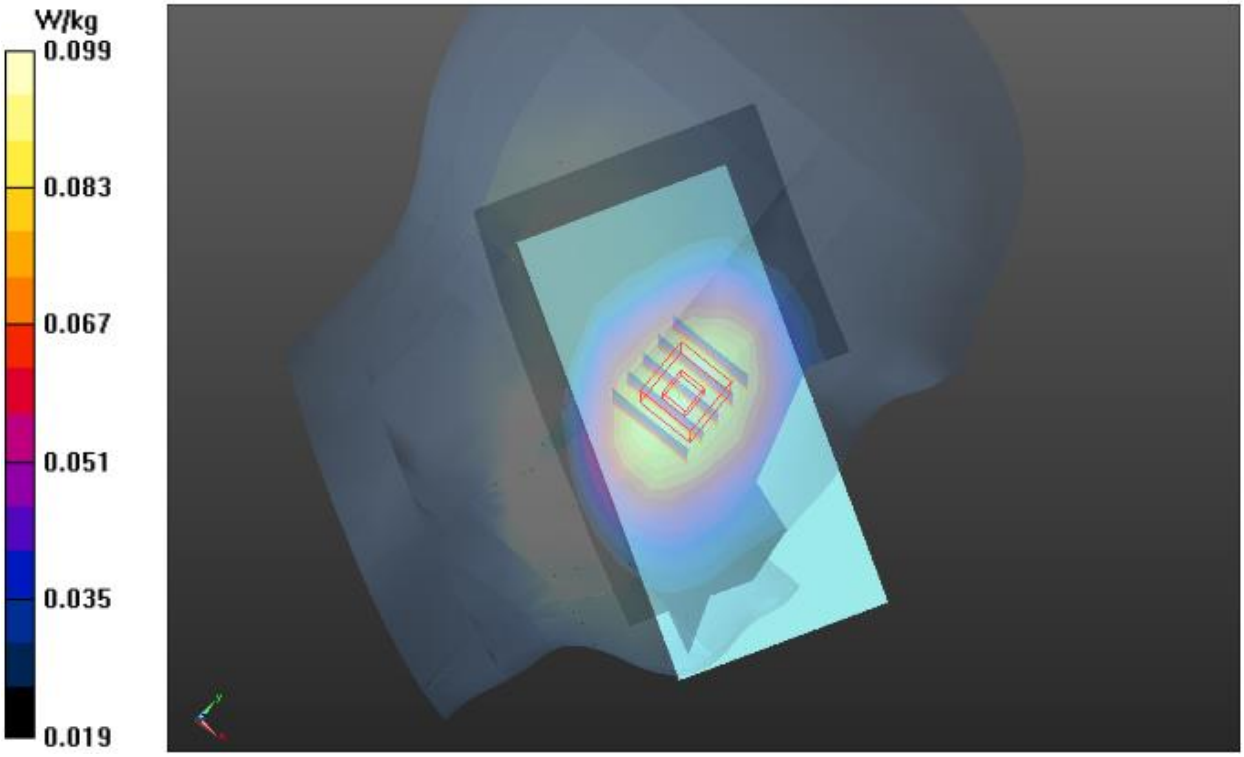
Test Laboratory: AGC Lab **Date: Jun. 09,2020**
LTE Band 17 Mid-Touch-Left (1 RB#0)
DUT: Smart phone; Type: X2

Communication System: LTE; Communication System Band: LTE Band 17; Duty Cycle:1:1;
Frequency: 710 MHz; Medium parameters used: f = 750 MHz; σ=0.89 mho/m; εr =42.06; ρ= 1000 kg/m³ ;
Phantom section: Left Section
Ambient temperature (℃): 21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.40, 10.40, 10.40); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0968 W/kg

LEFT HEAD/L-C/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.174 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.107 W/kg
SAR(1 g) = 0.093 W/kg; SAR(10 g) = 0.076 W/kg
Maximum value of SAR (measured) = 0.0988 W/kg



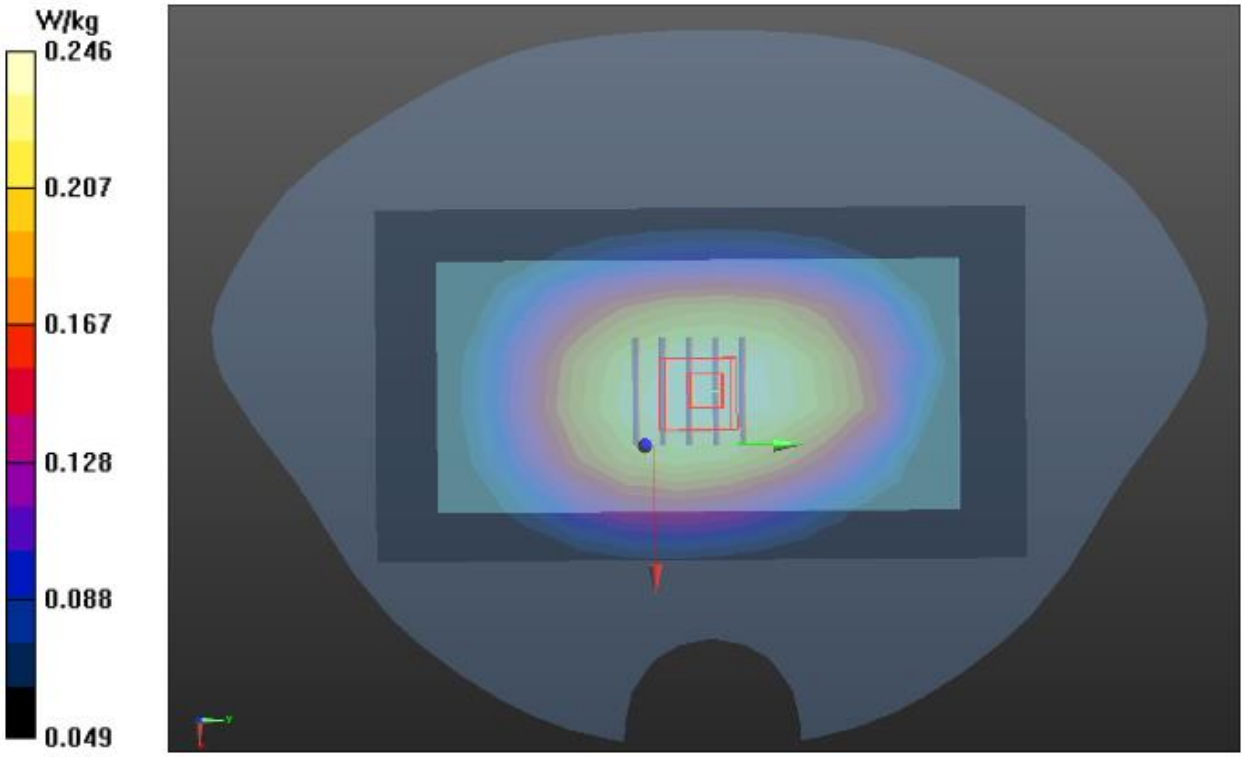
Test Laboratory: AGC Lab **Date: Jun. 09,2020**
LTE Band 17 Mid-Body-Back (1 RB#0)
DUT: Smart phone; Type: X2

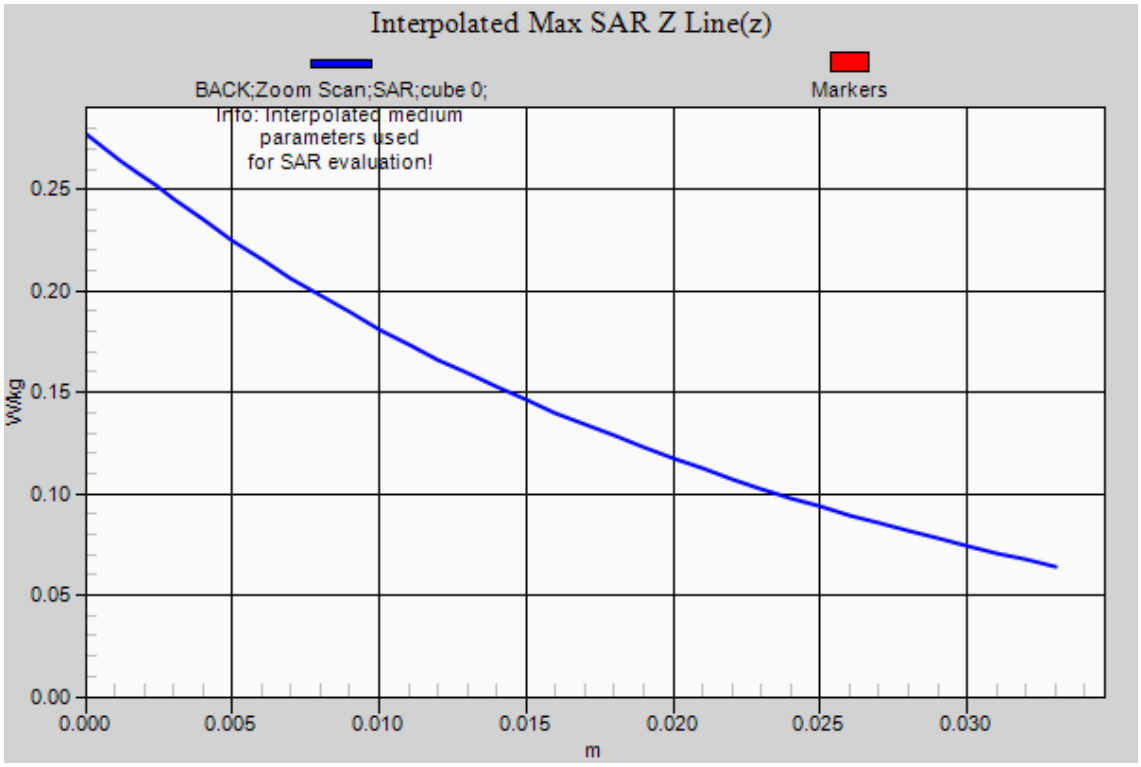
Communication System: LTE; Communication System Band: LTE Band 17; Duty Cycle:1:1;
Frequency: 710 MHz; Medium parameters used: f = 750 MHz; σ=0.89 mho/m; εr =42.06; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.4, Liquid temperature (℃): 21.1

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(10.56, 10.56, 10.56); Calibrated: Sep. 27,2019;
• Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.246 W/kg

BODY/BACK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.191 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.180 W/kg
Maximum value of SAR (measured) = 0.246 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
W/kg
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

2.4G WIFI MODE

Test Laboratory: AGC Lab **Date: Jun. 16,2020**
802.11b Mid-Touch-Left
DUT: Smart phone; Type: X2

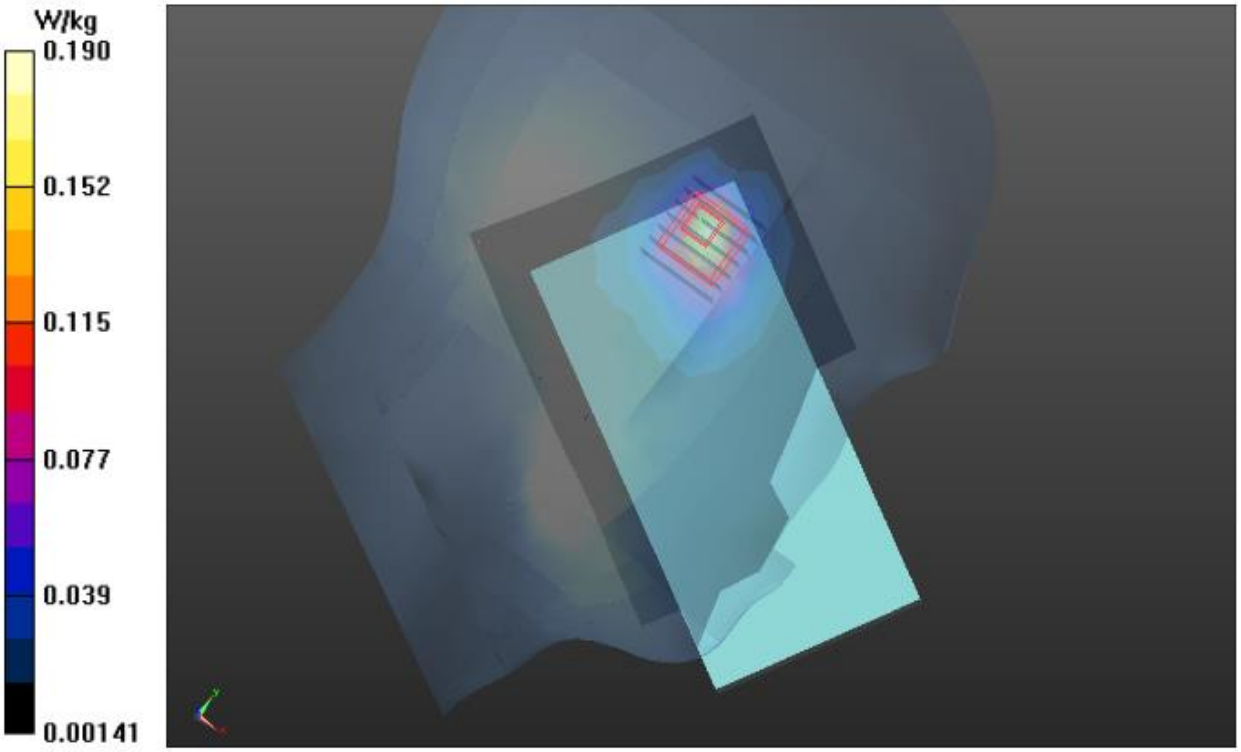
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; σ=1.73 mho/m; εr =41.39;ρ= 1000 kg/m³ ;
Phantom section: Left Section

Ambient temperature (℃): 21.9, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.75, 7.75, 7.75); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.183 W/kg

LEFT HEAD/L-C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.530 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.065 W/kg
Maximum value of SAR (measured) = 0.190 W/kg



Test Laboratory: AGC Lab **Date: Jun. 16,2020**
802.11b Mid- Body- Back (DTS)
DUT: Smart phone; Type: X2

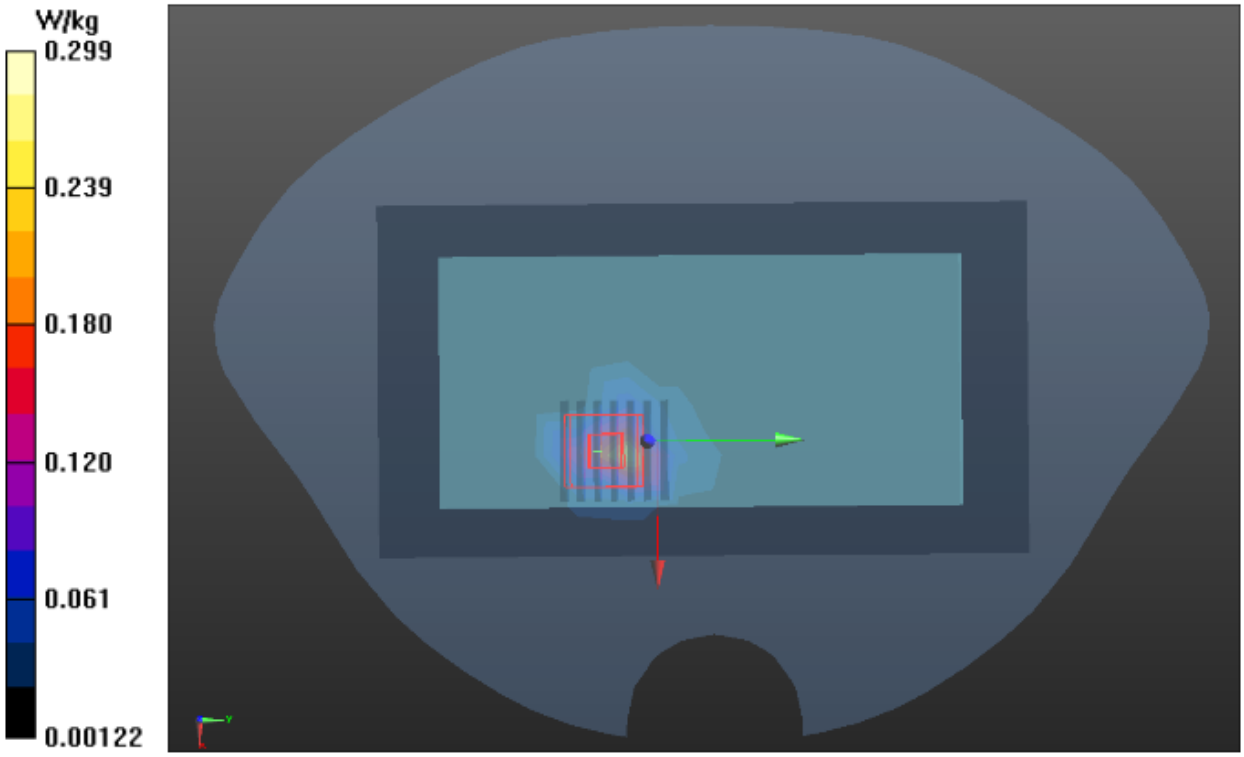
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; σ=1.73 mho/m; εr =41.39;; ρ= 1000 kg/m³ ;
Phantom section: Flat Section

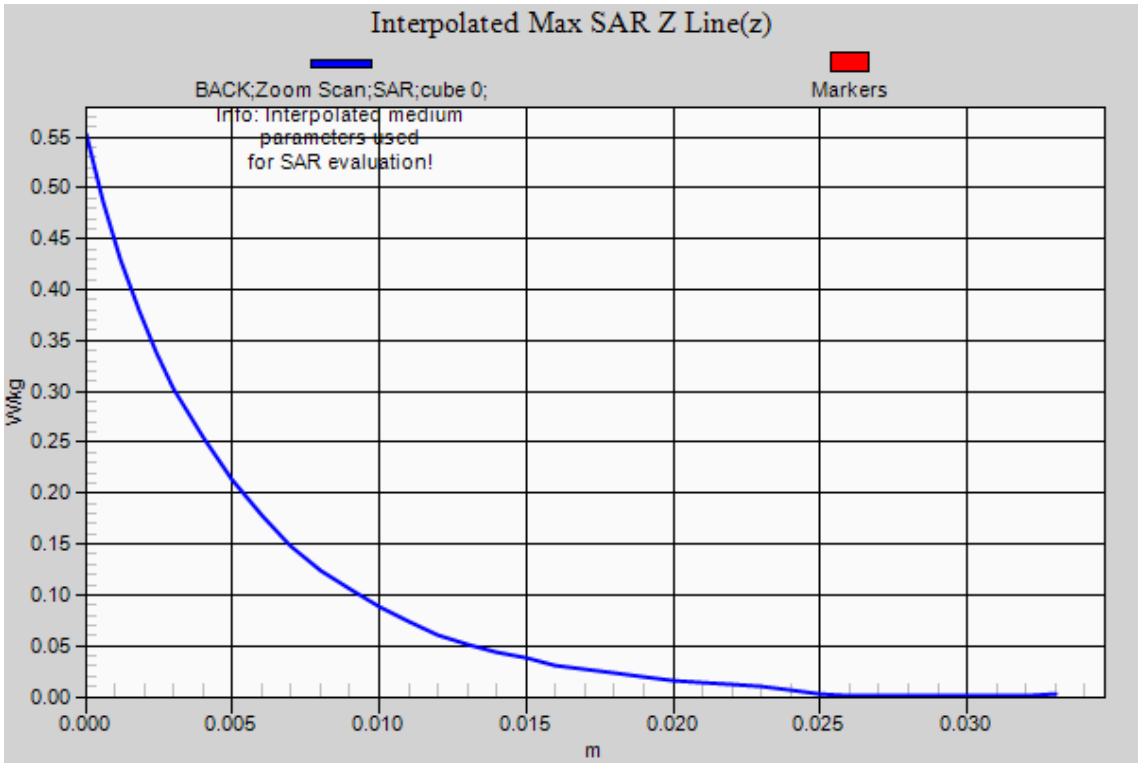
Ambient temperature (℃): 21.9, Liquid temperature (℃): 21.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(7.79, 7.79, 7.79); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• 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 (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.226 W/kg

BODY/BACK/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.211 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.552 W/kg
SAR(1 g) = 0.206 W/kg; SAR(10 g) = 0.072 W/kg
Maximum value of SAR (measured) = 0.299 W/kg




Interpolated Max SAR Z Line(z)
BACK;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
W/kg
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

5.2G WIFI MODE

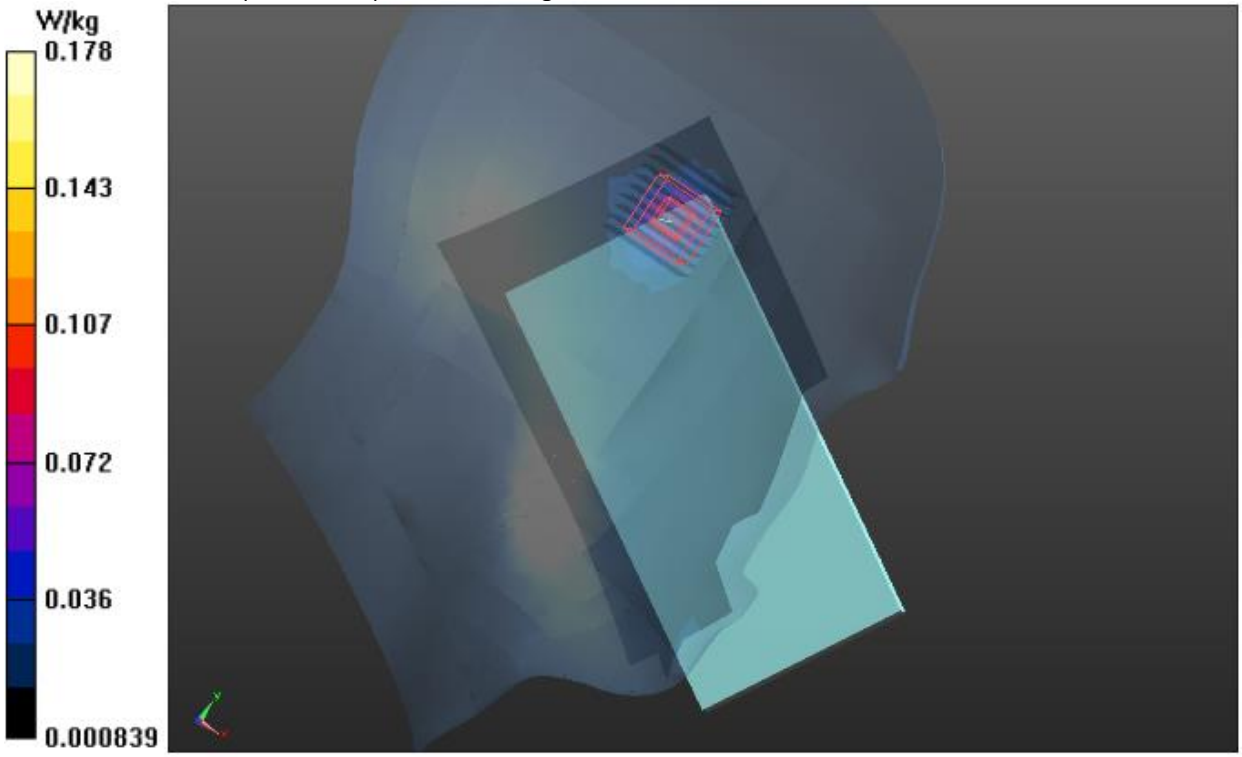
Test Laboratory: AGC Lab **Date: Jun. 24,2020**
802.11a CH40-Touch-Left
DUT: Smart phone; Type: X2

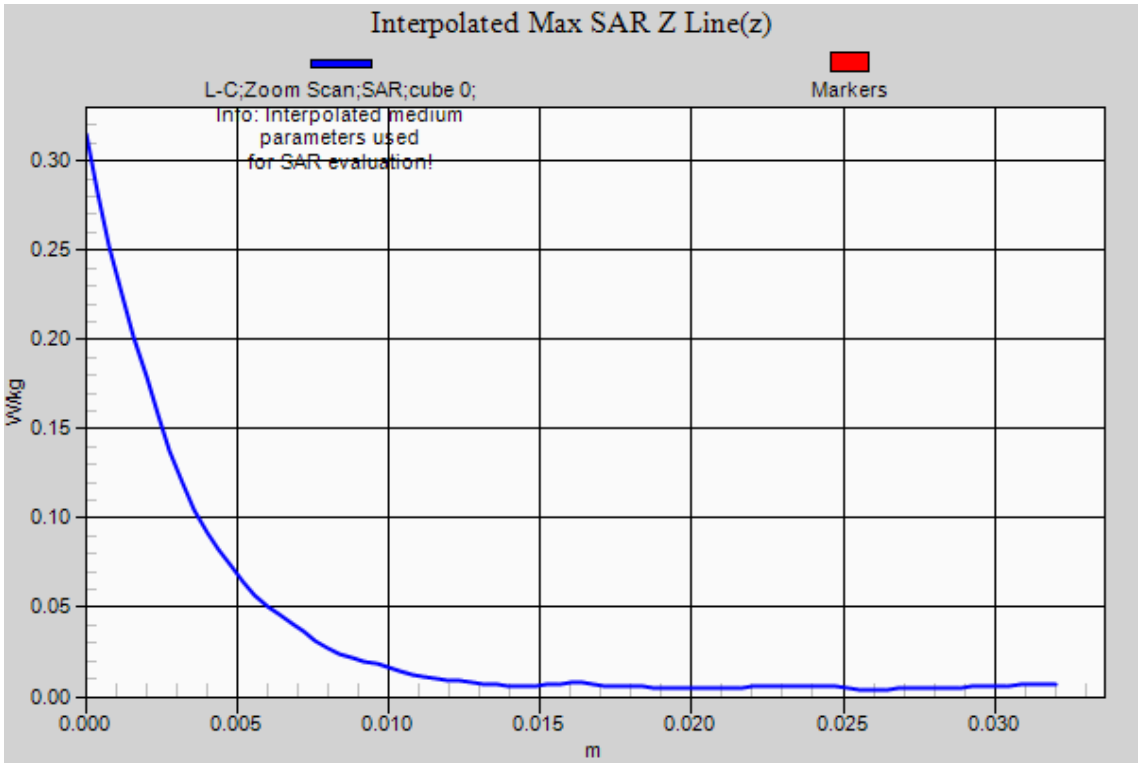
Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1;
Frequency: 5200 MHz; Medium parameters used: f = 5200 MHz; σ= 4.59mho/m; εr =35.67;ρ= 1000 kg/m³ ;
Phantom section: Left Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

DASY Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(5.64, 5.64, 5.64); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

LEFT HEAD/L-C/Area Scan (11x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0859 W/kg

LEFT HEAD/L-C/Zoom Scan (9x9x16)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.284 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.315 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.022 W/kg
Maximum value of SAR (measured) = 0.178 W/kg




Interpolated Max SAR Z Line(z)
L-C;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
0.30
0.25
0.20
0.15
0.10
0.05
0.00
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

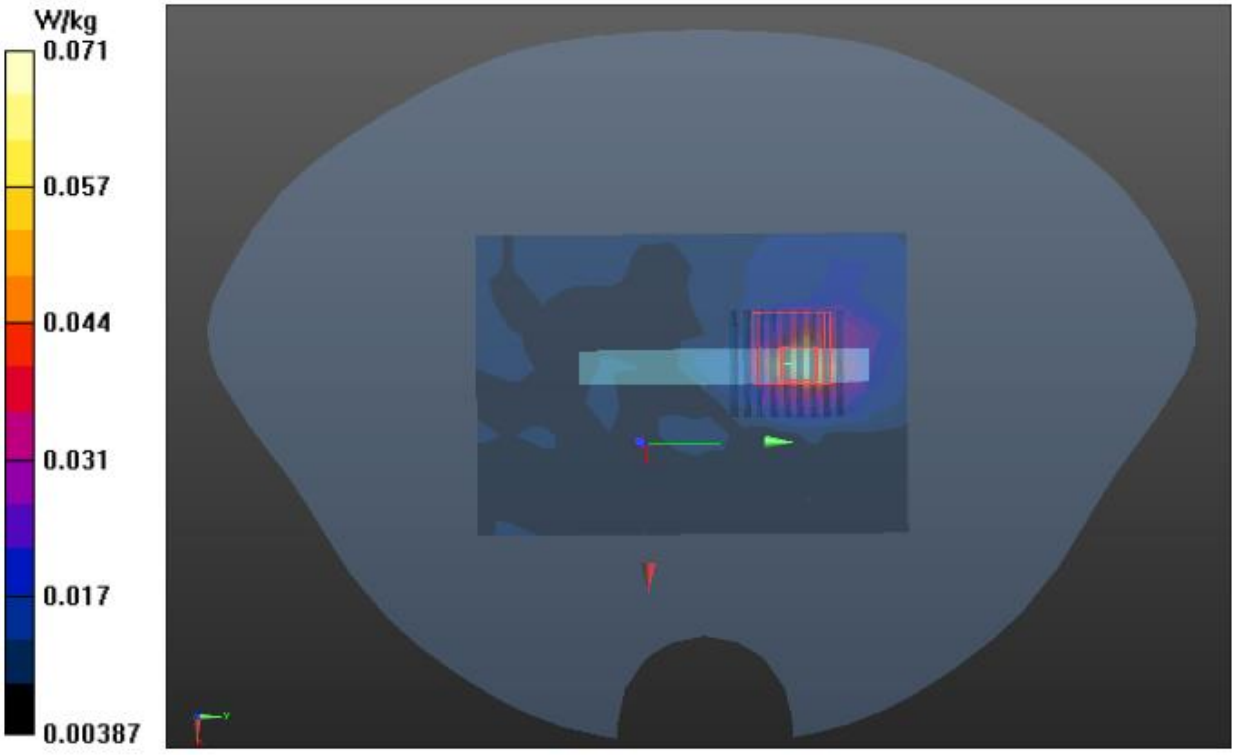
Test Laboratory: AGC Lab **Date: Jun. 24,2020**
802.11a CH40-Edge1
DUT: Smart phone; Type: X2

Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1;
Frequency: 5200MHz; Medium parameters used: f = 5200 MHz; σ= 4.59mho/m; εr =35.67; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:
• Probe: EX3DV4 – SN:3953; ConvF(5.64, 5.64, 5.64); Calibrated: Sep. 27,2019;
• Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
• Electronics: DAE4 SN1398; Calibrated: Apr. 23,2020
• Phantom: SAM (20deg probe tilt) with CRP v5.0; Type: QD000P40CD;
• DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

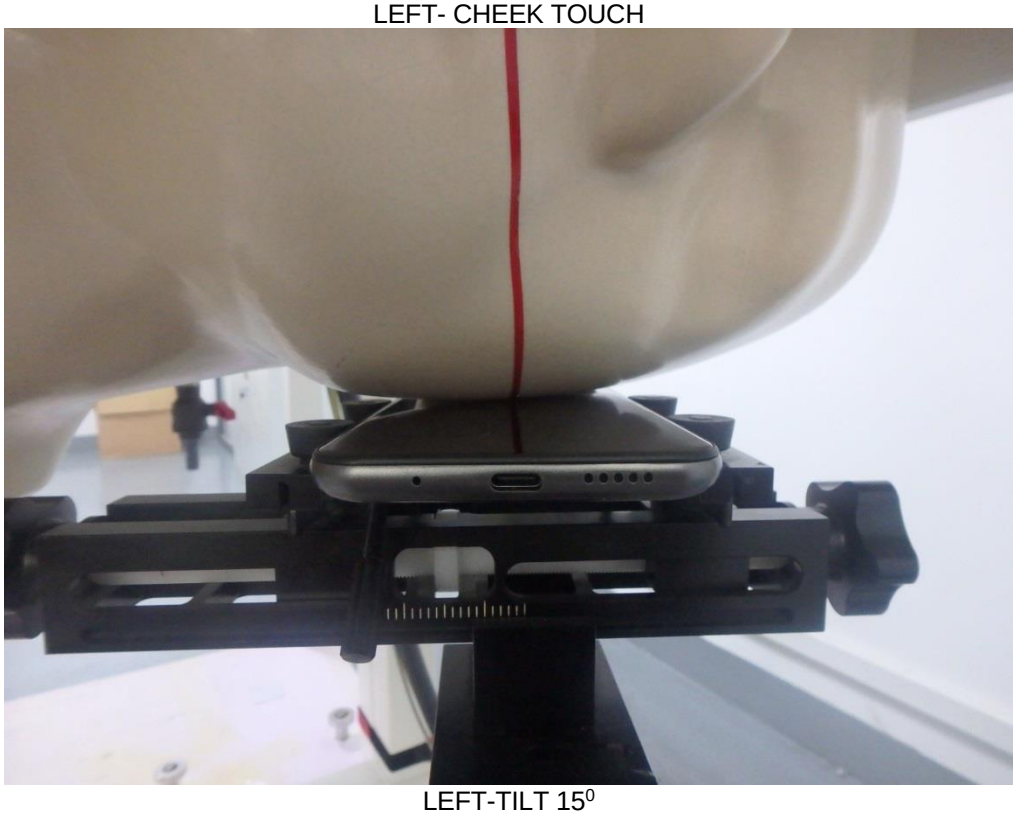
BODY/Edge 1/Area Scan (10x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0698 W/kg

BODY/Edge 1/Zoom Scan (9x9x16)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.695 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.0708 W/kg

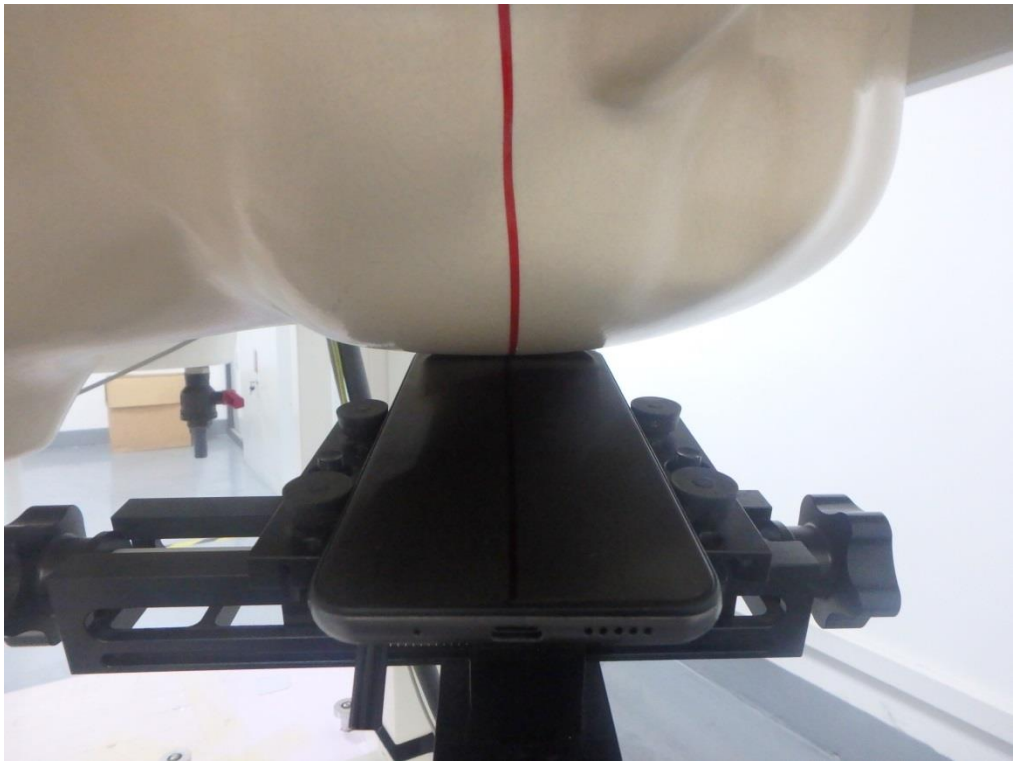


APPENDIX C. TEST SETUP PHOTOGRAPHS

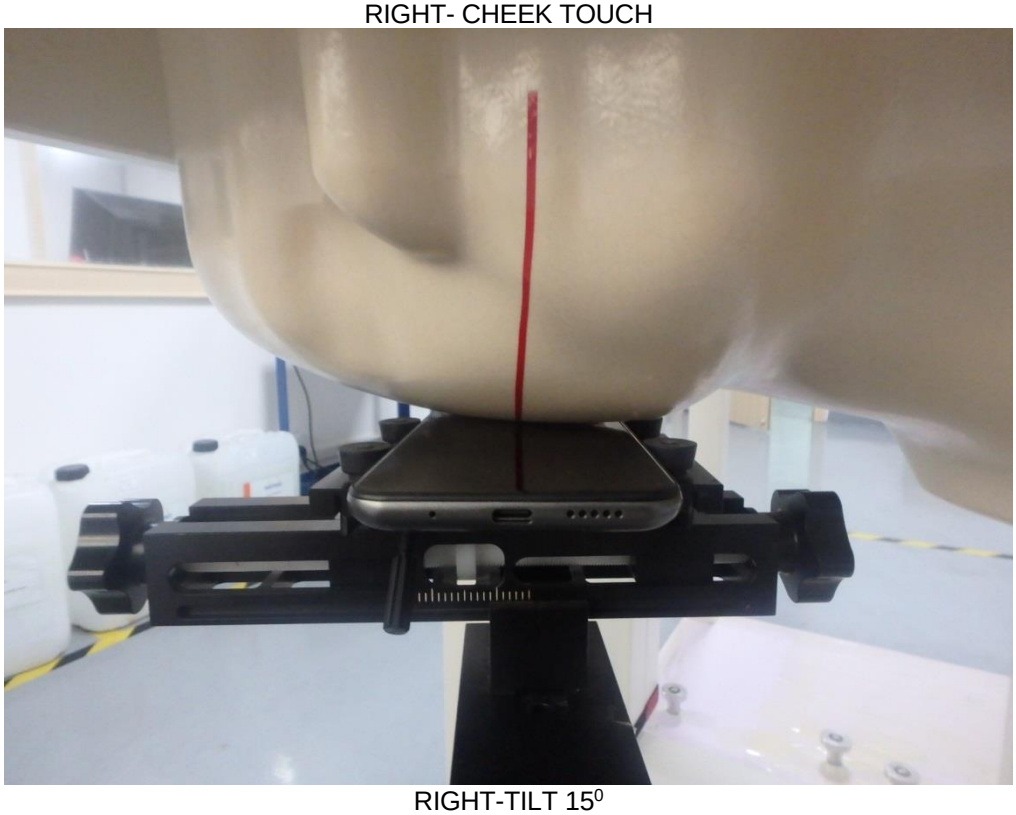
LEFT- CHEEK TOUCH



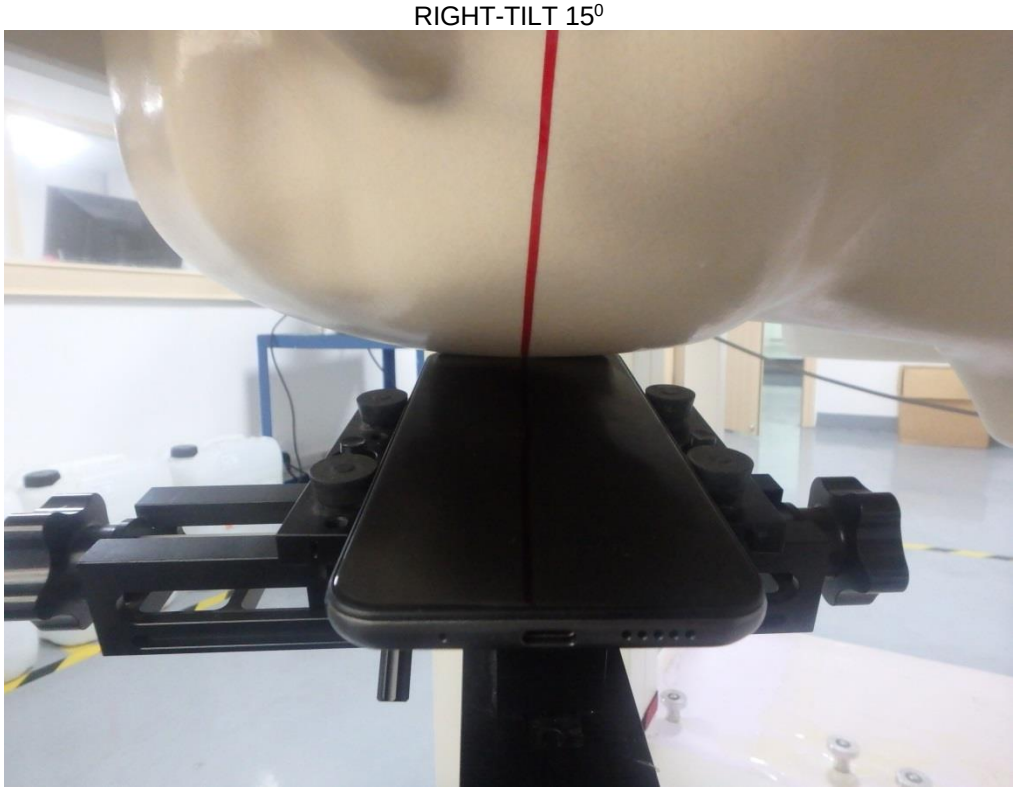
LEFT-TILT 15^0



RIGHT- CHEEK TOUCH

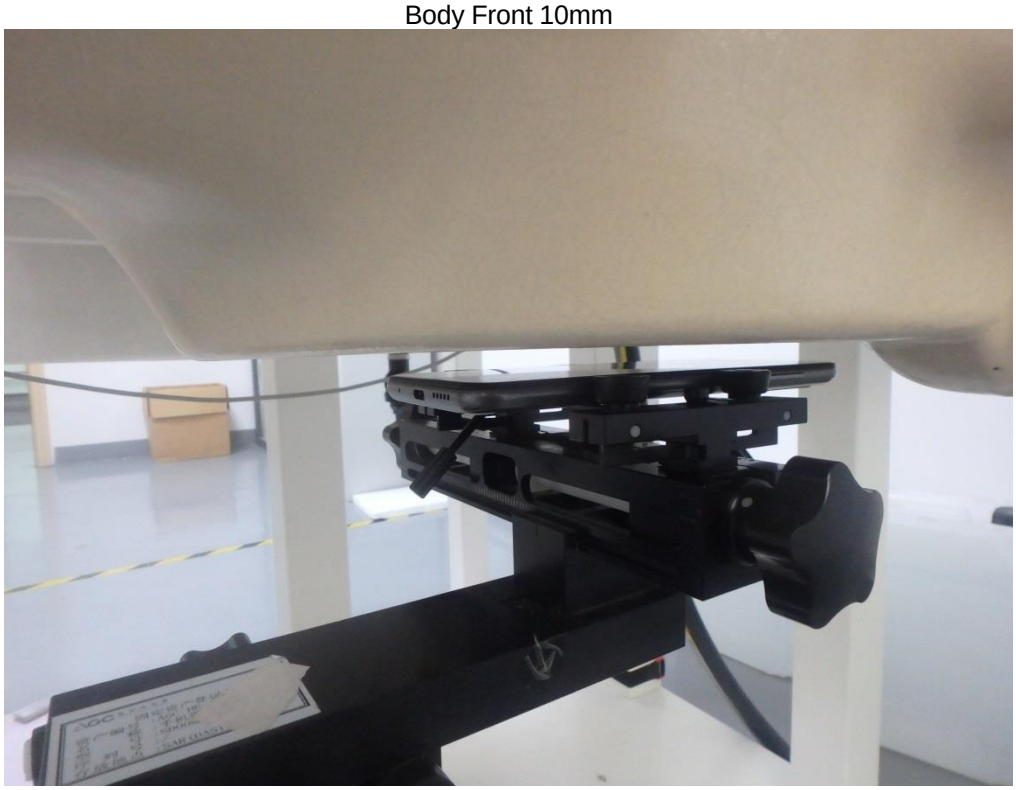


RIGHT-TILT 15^0

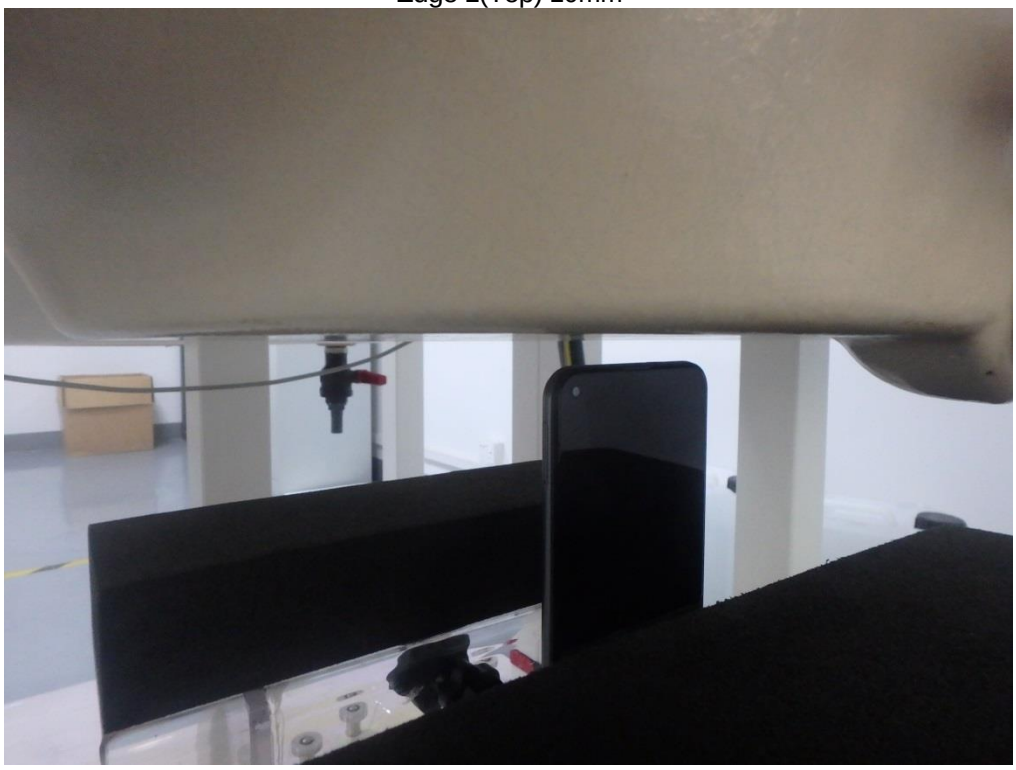


Body Back 10mm

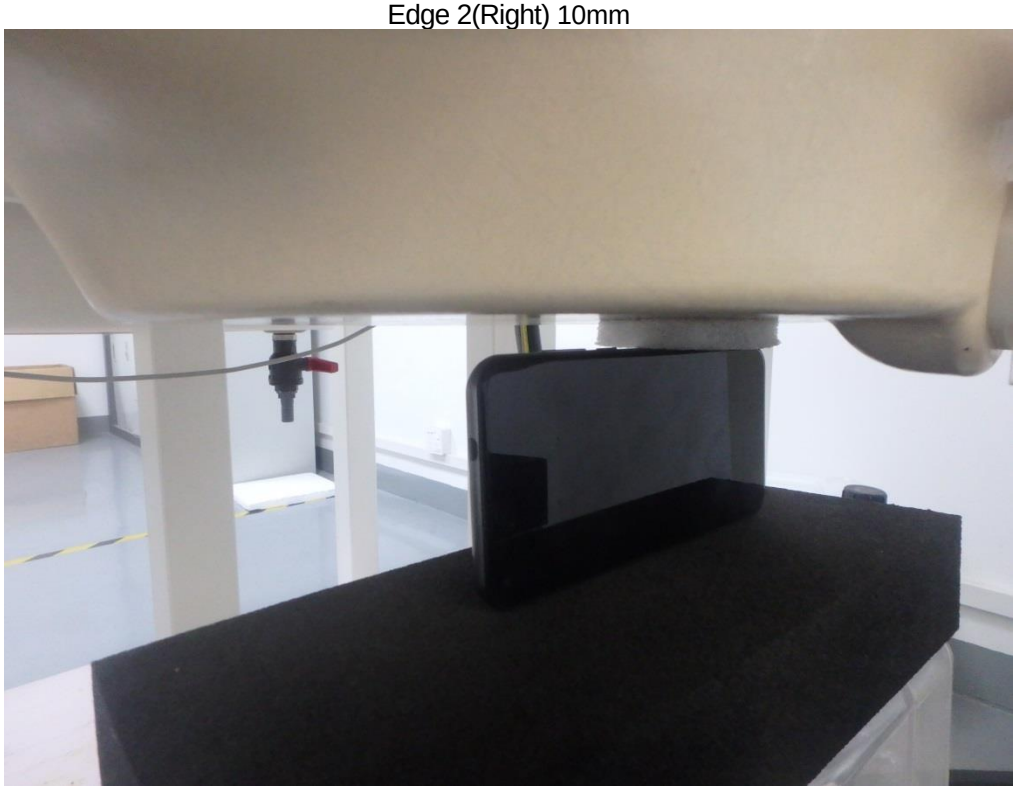
Body Front 10mm



Edge 1(Top) 10mm



Edge 2(Right) 10mm

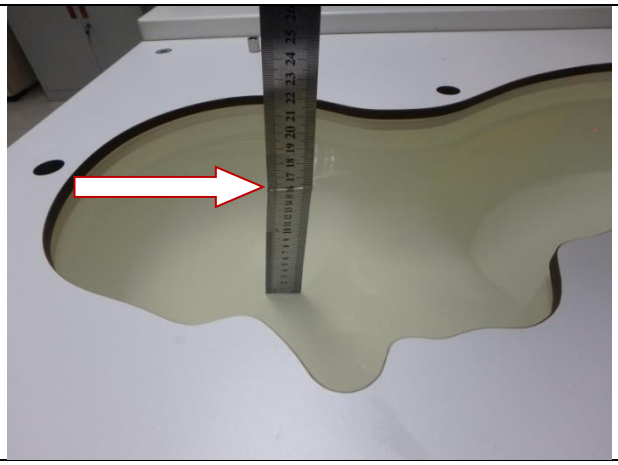
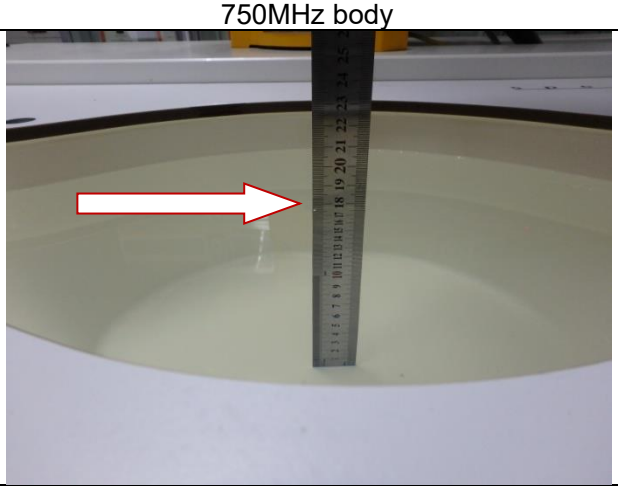
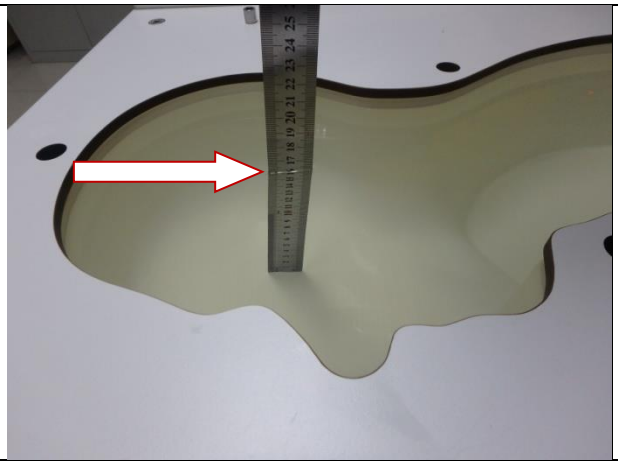
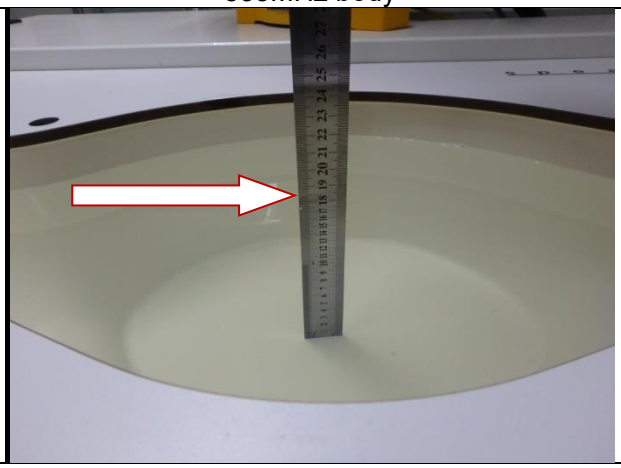
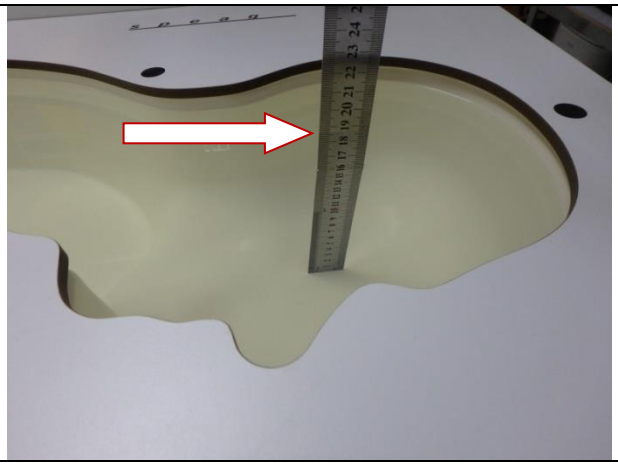
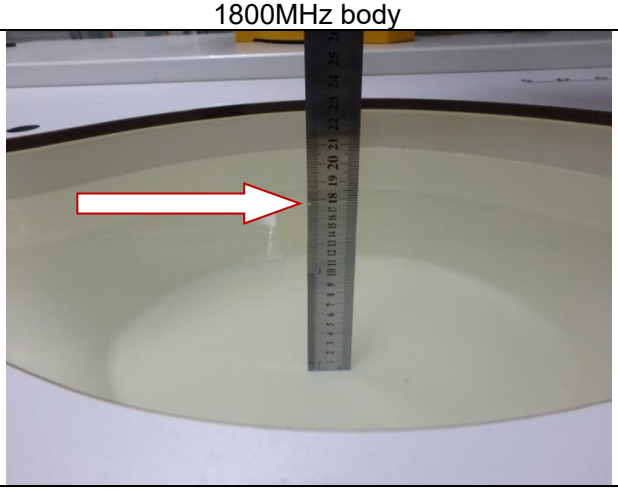


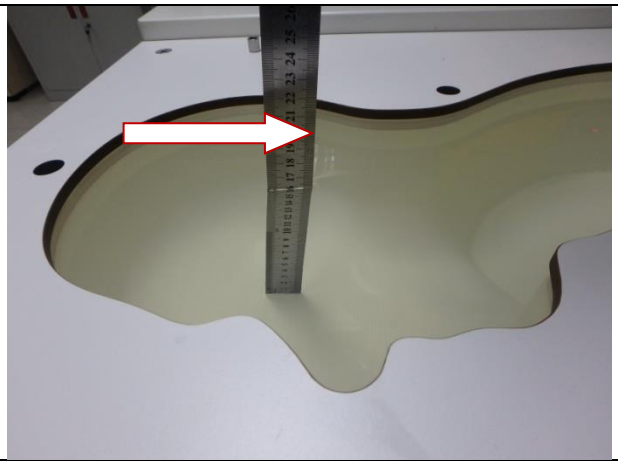
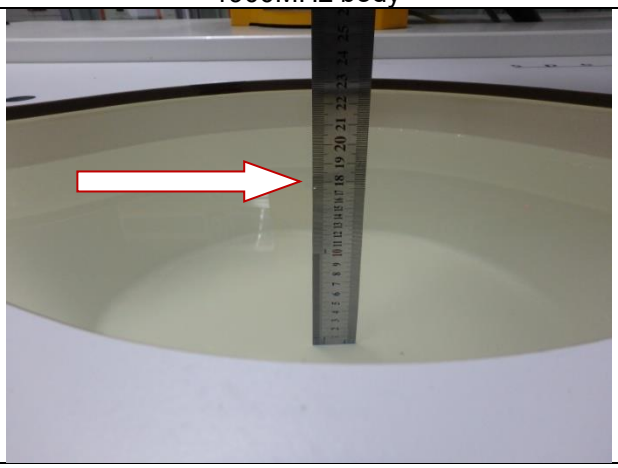
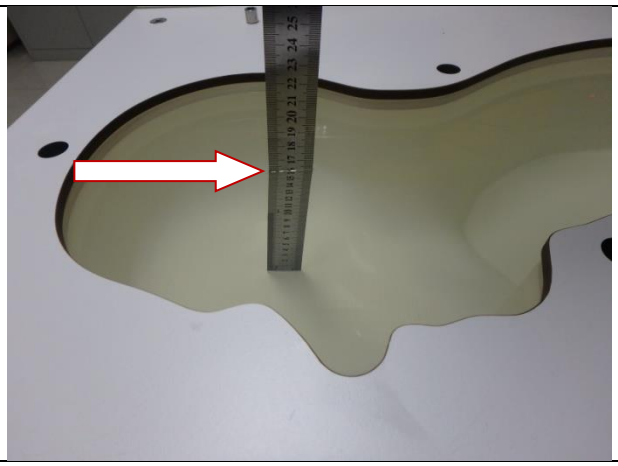
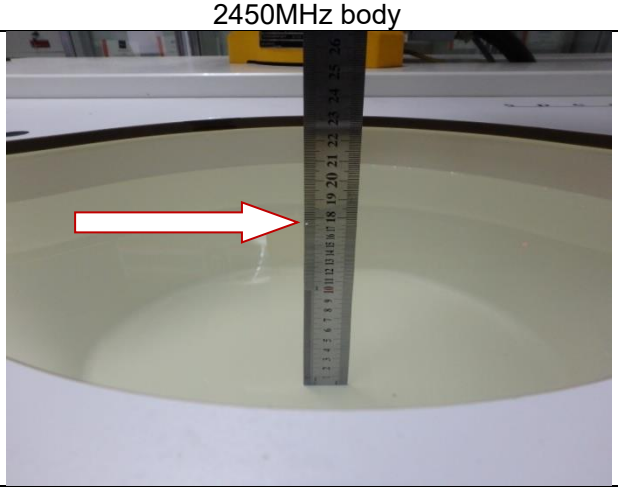
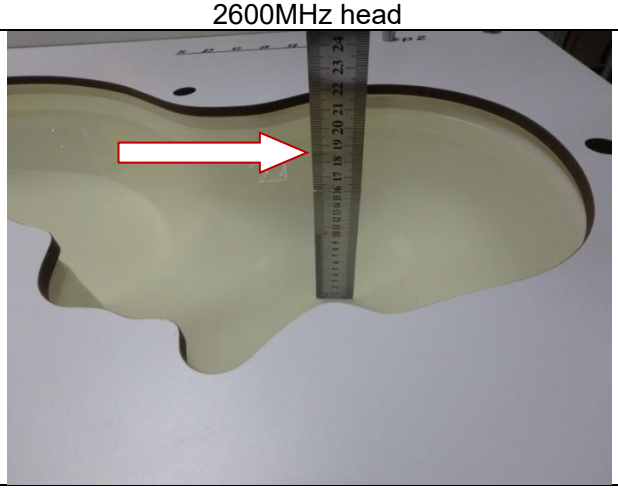
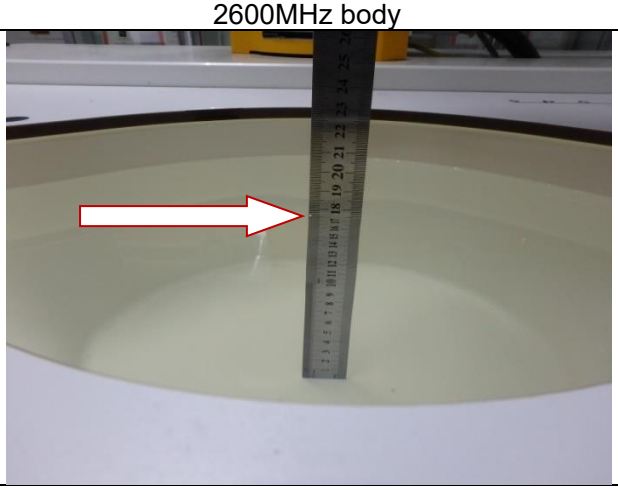
Edge 3(Bottom) 10mm

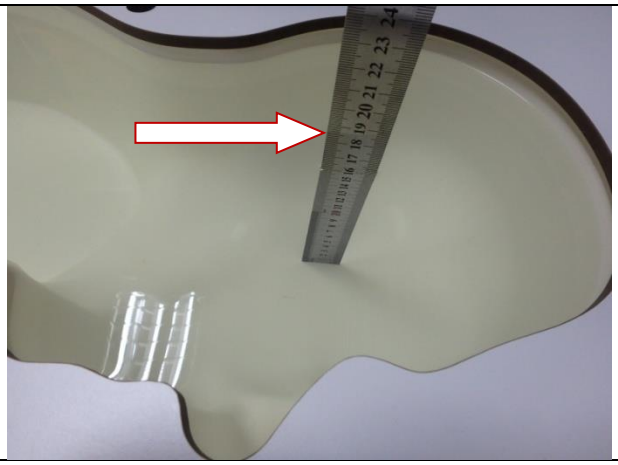
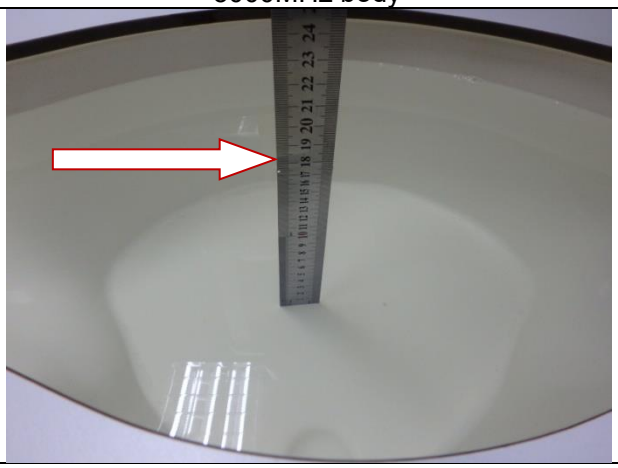
Edge 4(Left) 10mm

DEPTH OF THE LIQUID IN THE PHANTOM—ZOOM IN

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

750MHz head	750MHz body
	
835MHz head	835MHz body
	
1800MHz head	1800MHz body
	

1900MHz head	1900MHz body
	
2450MHz head	2450MHz body
	
2600MHz head	2600MHz body
	

5000MHz head	5000MHz body
	

APPENDIX D. CALIBRATION DATA

Refer to Attached files.