FCC SAR TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Kids SmartWatch

ISSUED TO
XPLORA Technologies AS

XPLORA Technologies AS Tangerudvegen 13 2008 Fjerdingby Norway

Tested by: Zong Liyao
Date: Jul. 14, 2020

Approved by: Wei Yanquan (Chief Engineer)
Date: Jul. 14, 2020

Report No.:	BL-EC2010017-701
EUT Name:	Kids SmartWatch
Model Name:	X5 Play (refer section 2.4)
Brand Name:	XPLORA
FCC ID:	2AVMJX5PE
Test Standard:	FCC 47 CFR Part 2.1093
	ANSI C95.1: 1999
	IEEE 1528: 2013
Maximum SAR:	Front of Face (1 g): 1.249 W/kg
	Limbs (10 g): 1.077 W/kg
Test Conclusion:	Pass
Test Date:	Jul. 08, 2020 ~ Jul. 11, 2020
Date of Issue:	Jul. 14, 2020

Block B, 1st FL,Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055
TEL: +86-755-66850100, FAX: +86-755-61824271
Email: qc@baluntek.com
www.baluntek.com

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jul. 14, 2020	Initial Issue

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1 ADMINSTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation (A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	20℃ to 23℃
Ambient Relative Humidity	35% to 49%
Ambient Pressure	100 to 102KPa

1.4 Announce

(1) The test report reference to the report template version v2.3.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	XPLORA Technologies AS
Address	XPLORA Technologies AS Tangerudvegen 13 2008 Fjerdingby Norway

2.2 Manufacturer Information

Manufacturer	XPLORA Technologies AS
Address	XPLORA Technologies AS Tangerudvegen 13 2008 Fjerdingby Norway

2.3 Factory Information

Factory	Hefei BOE Vision-electronic Technology Co., Ltd
Address	NO.2177 Dongfang RD, Xinzhan General Pilot Zone, HeFei, Anhui, 230012, P.R. China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Kids SmartWatch
Model Name Under Test	X5 Play
Series Model Name	X5 Play eSIM
Description of Model name differentiation	X5 Play is SIM card, X5 Play eSIM is eSIM card.
Hardware Version	V0
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	ZHONGWANGDE
	Model No.	ZWD632832H
	Serial No.	N/A
	Capacitance	780 mAh
	Rated Voltage	3.85 V
	Limit Charge Voltage	4.4 V

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12 Bluetooth 4.0 (BR+EDR+BLE) WIFI 802.11b, 802.11g, 802.11n GPS, GLONASS

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GSM, WCDMA, FDD-LTE, 2.4G WLAN, Bluetooth		
Frequency Range	GSM 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	802.11b/g/n(HT20)	2400 ~ 2483.5 MHz	
	Bluetooth	2400 ~ 2483.5 MHz	
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	☒ Production unit	☐ Identical prototype	

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
6	FCC KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices
7	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
8	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
9	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Table of Exposure Limits:

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ Controlled Exposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Test Result Summary

3.3.1 Highest SAR

Band	Maximum Scaled SAR (W/kg) 1 g	Maximum Report SAR (W/kg) 10 g
	Front of Face	Limbs
GSM 850	0.466	0.912
GSM 1900	0.962	0.558
WCDMA Band 2	1.102	0.765
WCDMA Band 4	0.855	0.864
WCDMA Band 5	0.128	0.227
LTE Band 2	0.982	0.722
LTE Band 4	1.123	1.016
LTE Band 5	0.185	0.349
LTE Band 7	**1.249**	**1.077**
LTE Band 12	0.067	0.081
2.4G WLAN	0.108	0.058
Bluetooth	0.028	0.026
Limit (W/kg)	1.6	4.0
Verdict	Pass	

3.3.2 Highest Simultaneous SAR

Position	Simultaneous Configuration	Simultaneous SAR (W/kg)	Limit (W/kg)	Verdict
Front of Face	LTE + 2.4G WLAN	1.357	1.6	Pass
Limbs	LTE + 2.4G WLAN	1.135	4.0	Pass

3.4 Test Uncertainty

3.4.1 Measurement uncertainly evaluation for SAR test

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEEE 1528 This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10 g)	1g Ui (+-%)	10 g Ui (+-%)	Vi v_{eff}
Measurement System								
Probe calibration	5.8	N	1	1	1	5.80	5.80	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	0.7	0.7	1.41	1.41	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	0.7	0.7	2.38	2.38	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF ambient Conditions - Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to Phantom Shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related								
Test sample positioning	2.6	N	1	1	1	2.60	2.60	N-1
Device Holder Uncertainty	3.0	N	1	1	1	3.00	3.00	N-1
Output power Variation - SAR drift measurement	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
SAR correction for deviation(in permittivity and conductivity)	2.0	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.03	∞
Liquid conductivity - measurement uncertainty	5.0	N	1	0.78	0.71	3.90	3.55	M
Liquid permittivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity - measurement uncertainty	5.0	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty	-	RSS	-			10.72	10.56	-
Expanded Uncertainty (95% Confidence interval)	-	k	-			21.45	21.11	-

3.4.2 Measurement uncertainly evaluation for system check

This measurement uncertainty budget is suggested by IEEE 1528. The break down of the individual uncertainties is as follows:

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System								
Probe calibration	5.8	N	1	1	1	5.80	5.30	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	1	1	2.02	2.02	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.56	∞
Probe Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient Conditions - Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to Phantom Shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Dipole								
Deviation of experimental dipole	5.5	N	1	1	1	5.00	5.00	∞
Dipole axis to liquid distance	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Power drift	0.5	R	$\sqrt{3}$	1	1	0.29	0.29	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
SAR correction for deviation(in permittivity and conductivity)	2.0	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity - measurement uncertainty	5.0	N	1	0.78	0.71	3.90	3.55	M
Liquid permittivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity - measurement uncertainty	5.0	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty	-	RSS	-			10.43	10.25	–
Expanded Uncertainty (95% Confidence interval)	-	k	-			20.86	20.51	–

4 SAR MEASUREMENT SYSTEM

4.1 Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an 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 general population/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 a given density (ρ). The equation description is as below:

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

SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

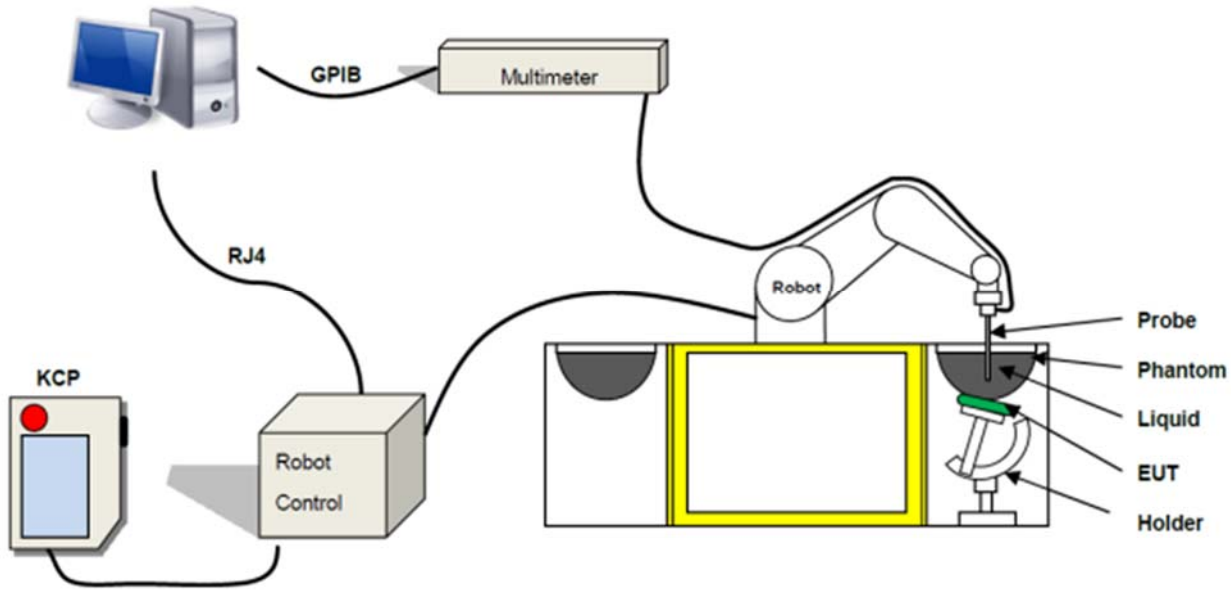
$$\mathbf{SAR} = \frac{\sigma E^2}{\rho}$$

Where: σ is the conductivity of the tissue,

ρ is the mass density of the tissue and E is the RMS electrical field strength.

4.2 SATIMO SAR System

4.2.1 SATIMO SAR System Diagram



These measurements were performed with the automated near-field scanning system OPENSAR from SATIMO.

The system is based on a high precision robot (working range: 850 mm), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit.

The SAR measurements were conducted with dosimetric probe (manufactured by SATIMO), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in SAR standard with accuracy of better than ±10%. The spherical isotropy was evaluated with the procedure described in SAR standard and found to be better than ±0.25 dB. The phantom used was the SAM Phantom as described in FCC supplement C, IEEE P1528.

4.2.2 Robot

The SATIMO SAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA) from KUKA is used. The KUKA robot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

4.2.3 E-Field Probe

For the measurements the Specific Dosimetric E-Field Probe SN 31 /17 EPGO 321 with following specifications is used

-- Dynamic range: 0.01-100 W/kg

- Tip Diameter : 2.5 mm
- Lower detection limit : 10 mW/kg

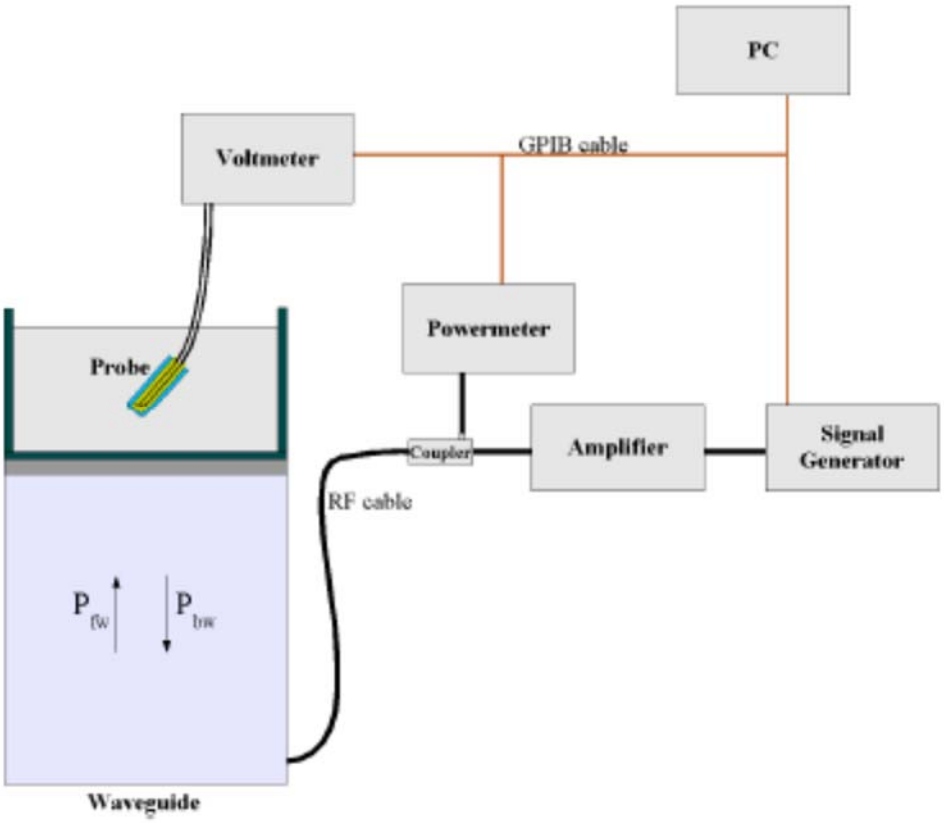
(repeatability better than +/- 1mm)

- Probe linearity: +/- 0.07 dB
- Calibration range: 300 MHz to 6000 MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and surface normal line: less than 30°

E-Field Probe Calibration Process

Probe calibration is realized, in compliance with CENELEC EN 62209-1/-2 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the IEC62209-1/2 annexe technique using reference guide at the five frequencies.



$$SAR = \frac{4(P_{fw} - P_{bw})}{ab\sigma} \cos^2\left(\pi \frac{y}{a}\right) c^{(2\pi/\sigma)}$$

Where :

Pfw	=	Forward Power
Pbw	=	Backward Power
a and b	=	Waveguide Dimensions
ı	=	Skin Depth

Keithley configuration

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

CF(N)=SAR(N)/Vlin(N) (N=1,2,3)

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

Vlin(N)=V(N)*(1+V(N)/DCP(N)) (N=1,2,3)

Where the DCP is the diode compression point in mV.

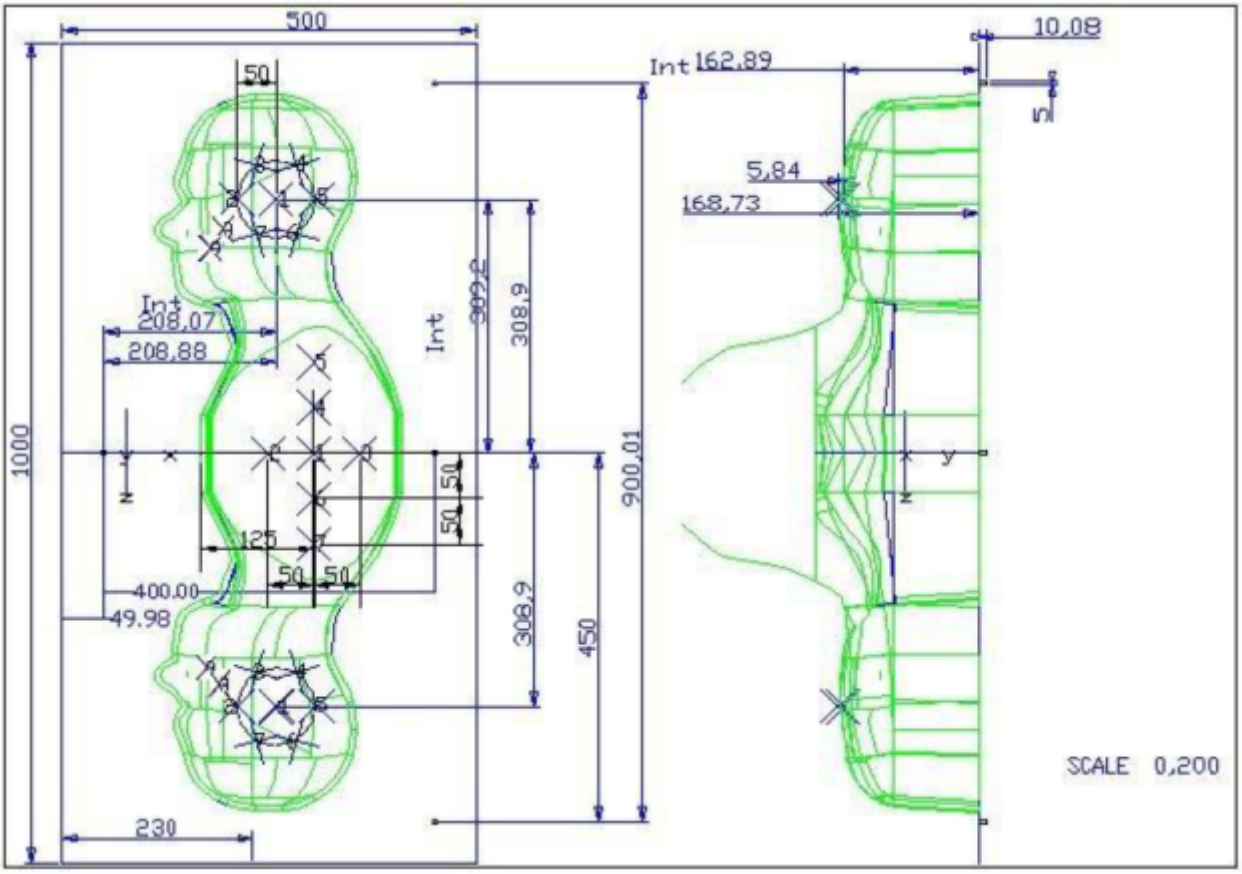
4.2.4 Phantoms

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

Photo of Phantom SN 30/13 SAM103

Photo of Phantom SN 30/13 SAM104

Serial Number	Positionner Material	Permittivity	Loss Tangent
SN 30/13 SAM103	Gelcoat with fiberglass	3.4	0.02
SN 30/13 SAM104	Gelcoat with fiberglass	3.4	0.02



Serial Number	Left Head		Right Head		Flat Part	
SN 30/13 SAM103	2	2.00	2	2.03	1	2.09
	3	2.02	3	2.05	2	2.10
	4	2.04	4	2.04	3	2.09
	5	2.04	5	2.07	4	2.11
	6	2.02	6	2.07	5	2.11
	7	2.01	7	2.09	6	2.09
	8	2.04	8	2.10	7	2.11
	9	2.02	9	2.09	-	-
SN 30/13 SAM104	2	2.05	2	2.06	1	2.03
	3	2.08	3	2.03	2	2.03
	4	2.05	4	2.03	3	2.01
	5	2.06	5	2.02	4	2.03
	6	2.08	6	2.02	5	2.03
	7	2.06	7	2.04	6	2.00
	8	2.07	8	2.04	7	1.98
	9	2.07	9	2.05	-	-

4.2.5 Device Holder

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

Serial Number	Holder Material	Permittivity	Loss Tangent
SN 25/13 MSH87	Deirin	3.7	0.005
SN 25/13 MSH88	Deirin	3.7	0.005

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.

4.2.6 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 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5%.

Head Liquid Depth	Body Liquid Depth
	

The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency(MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ε
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5

Frequency(MHz)	Water	DGBE (%)	Salt (%)	Conductivity σ (S/m)	Permittivity ε
5200	78.60	21.40	/	5.54	47.86
5800	78.50	21.40	0.1	6.0	48.20

5 SYSTEM VERIFICATION

5.1 Antenna Port Test Requirement

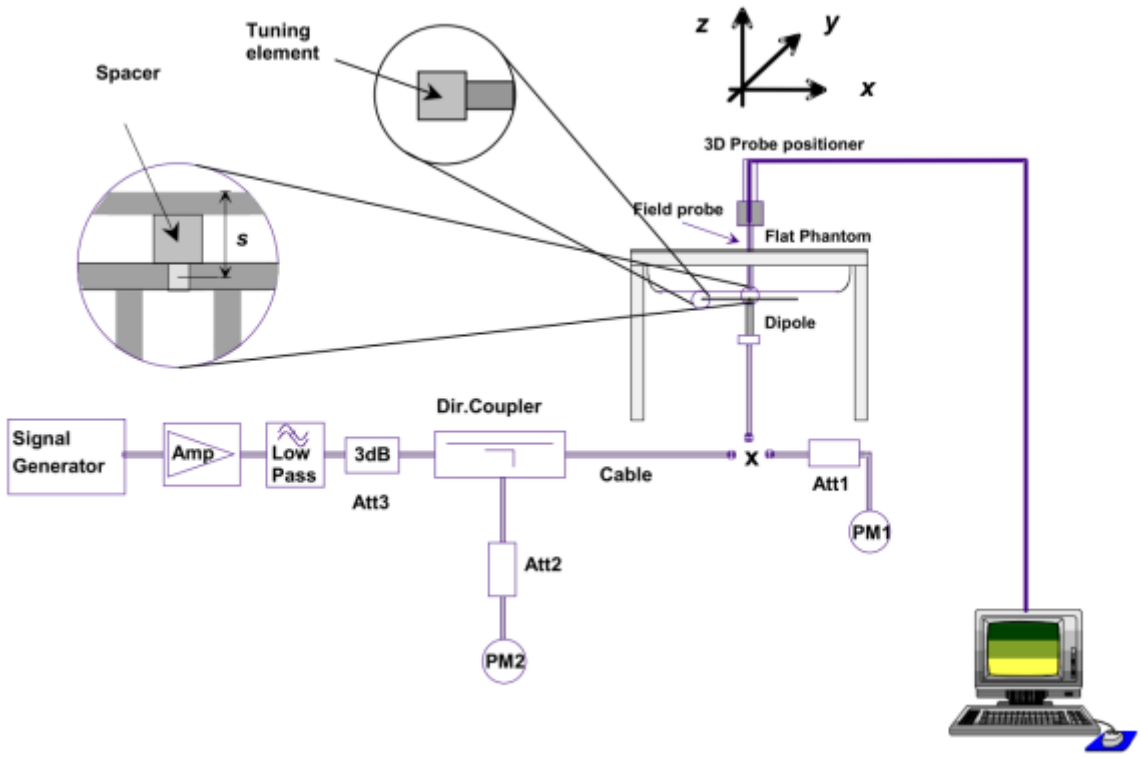
The SATIMO SAR system is equipped with one or more system validation kits. These units together with the predefined measurement procedures within the SATIMO software enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

5.2 Purpose of System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

5.3 System Check Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



6 EUT TEST POSITION CONFIGURATUONS

6.1 Front-of-face device

In these cases the device under test shall be positioned at the distance to the phantom surface that corresponds to the intended use as specified by the manufacturer in the user instructions. If the intended use is not specified, a separation distance of 10 mm between the phantom surface and the device shall be used.

6.2 Hotspot Mode Exposure Position Conditions

A limb-worn device is a unit whose intended use includes being strapped to the arm or leg of the user while transmitting (except in idle mode). It is similar to a body-worn device. Therefore, the test positions of 6.1.4.4 also apply. The strap shall be opened so that it is divided into two parts as shown in Figure 10. The device shall be positioned directly against the phantom surface with the strap straightened as much as possible and the back of the device towards the phantom.

If the strap cannot normally be opened to allow placing in direct contact with the phantom surface, it may be necessary to break the strap of the device but ensuring to not damage the antenna.

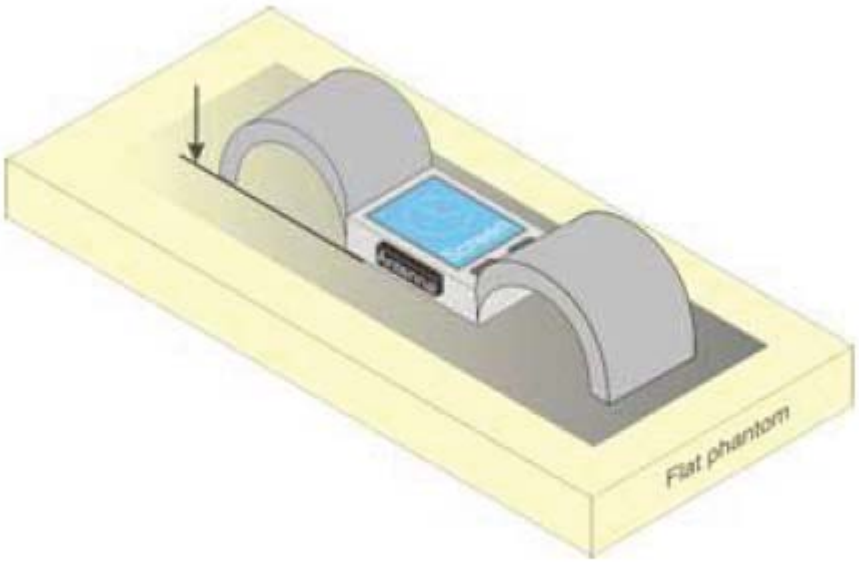
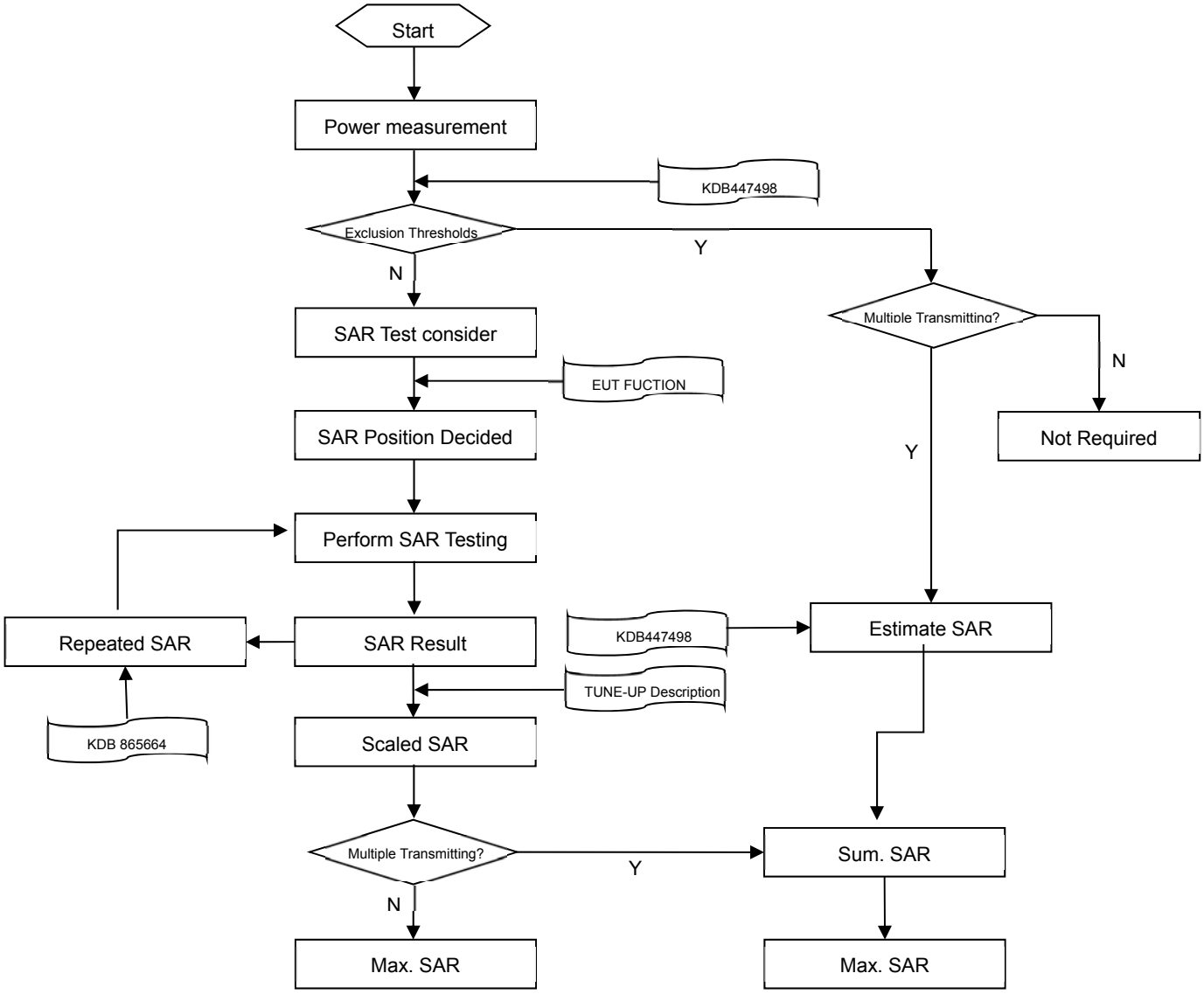


Figure 10 – Test position for limb-worn devices

7 SAR MEASUREMENT PROCEDURES

7.1 SAR Measurement Process Diagram



7.2 SAR Scan General Requirements

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013.

<table>
<tr><th colspan="3"></th><th>≤3GHz</th><th>>3GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>½·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx Area , Δy Area</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3–4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">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.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom</td><td>≤ 2 GHz: ≤ 8 mm
2 –3 GHz: ≤ 5 mm*</td><td>3–4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="5">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2" rowspan="3">uniform grid: Δz Zoom (n)</td><td rowspan="3">≤ 5 mm</td><td>3–4 GHz: ≤ 4 mm</td></tr>
<tr><td>4–5 GHz: ≤ 3 mm</td></tr>
<tr><td>5–6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>Δz Zoom (1): between 1st two points closest to phantom surface</td><td rowspan="2">≤ 4 mm</td><td>3–4 GHz: ≤ 3 mm
4–5 GHz: ≤ 2.5 mm
5–6 GHz: ≤ 2 mm</td></tr>
<tr><td>Δz Zoom (n>1): between subsequent points</td><td colspan="2">≤ 1.5·Δz Zoom (n-1)</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥30 mm</td><td>3–4 GHz: ≥ 28 mm
4–5 GHz: ≥ 25 mm
5–6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note:
1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * 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 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

7.3 SAR Measurement Procedure

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

7.4 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below.

When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

8 CONDUCTED RF OUPUT POWER

8.1 GSM

GSM 850								
GSM850 Band	Burst Average Power(dBm)			Tune-up Limit (dBm)	Frame-Averaged power (dBm)			Tune-up Limit (dBm)
Channel	128	190	251		128	190	251	
GSM (GMSK, 1-Slot)	31.10	31.19	31.26	31.50	21.91	22.00	22.07	22.31
GPRS (GMSK, 1-Slot)	30.88	30.90	30.99	31.50	21.69	21.71	21.80	22.31
GPRS (GMSK, 2-Slots)	29.97	30.00	30.29	30.50	23.84	23.87	24.16	24.37
GPRS (GMSK, 3-Slots)	29.20	29.19	29.41	29.50	24.78	24.77	24.99	25.08
GPRS (GMSK, 4-Slots)	28.24	28.33	28.43	28.50	25.06	25.15	**25.25**	25.32
EGPRS (8PSK, 1-Slot)	29.32	29.32	29.25	29.50	20.13	20.13	20.06	20.31
EGPRS (8PSK, 2-Slots)	29.25	29.14	29.28	29.50	23.12	23.01	23.15	23.37
EGPRS (8PSK, 3-Slots)	28.74	28.72	28.73	29.00	24.32	24.30	24.31	24.58
EGPRS (8PSK, 4-Slots)	26.58	26.47	26.58	27.00	23.40	23.29	23.40	23.82
GSM 1900								
GSM1800 Band	Burst Average Power(dBm)			Tune-up Limit (dBm)	Frame-Averaged power(dBm)			Tune-up Limit (dBm)
Channel	512	661	810		512	661	810	
GSM (GMSK, 1-Slot)	29.51	29.28	29.98	30.00	20.32	20.09	20.79	20.81
GPRS (GMSK, 1-Slot)	29.24	28.96	29.65	30.00	20.05	19.77	20.46	20.81
GPRS (GMSK, 2-Slots)	28.01	28.28	28.72	29.00	21.88	22.15	22.59	22.87
GPRS (GMSK, 3-Slots)	26.85	27.24	27.77	28.00	22.43	22.82	23.35	23.58
GPRS (GMSK, 4-Slots)	26.49	26.44	26.98	27.00	23.31	23.26	**23.80**	23.82
EGPRS (8PSK, 1-Slot)	27.25	27.27	27.90	28.00	18.06	18.08	18.71	18.81
EGPRS (8PSK, 2-Slots)	26.20	26.20	26.81	27.00	20.07	20.07	20.68	20.87
EGPRS (8PSK, 3-Slots)	25.74	25.75	26.20	26.50	21.32	21.33	21.78	22.08
EGPRS (8PSK, 4-Slots)	25.60	25.55	26.23	26.50	22.42	22.37	23.05	23.32

Note [1]: SAR testing was performed on the maximum frame-averaged power mode.

Note [2]: The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = Burst averaged power (1 Tx Slot) – 9.19 dB

Frame-averaged power = Burst averaged power (2 Tx Slots) – 6.13 dB

Frame-averaged power = Burst averaged power (3 Tx Slots) - 4.42dB

Frame-averaged power = Burst averaged power (4 Tx Slots) – 3.18 dB

8.2 WCDMA

WCDMA	Band 2				Band 4			
Channel	9262	9400	9538	Tune-up Limit (dBm)	1312	1412	1513	Tune-up Limit (dBm)
RMC 12.2Kbps	22.17	**22.38**	22.27	22.50	21.58	21.79	**21.87**	22.00
HSDPA Subtest-1	21.13	21.40	21.31	22.00	20.57	20.86	20.97	21.50
HSDPA Subtest-2	21.14	21.34	21.25	22.00	20.68	20.79	20.96	21.50
HSDPA Subtest-3	20.70	20.85	20.86	21.50	20.14	20.30	20.44	21.00
HSDPA Subtest-4	20.69	20.82	20.83	21.50	20.12	20.28	20.44	21.00
HSUPA Subtest-1	20.42	20.14	20.21	21.50	19.60	20.62	20.20	21.00
HSUPA Subtest-2	19.38	19.47	19.45	21.00	18.89	18.75	19.13	20.50
HSUPA Subtest-3	19.90	19.69	19.68	20.50	19.09	19.50	19.68	20.00
HSUPA Subtest-4	19.55	19.56	19.46	21.00	18.75	19.12	19.45	20.50
HSUPA Subtest-5	20.85	21.05	20.93	21.50	20.34	20.66	20.70	21.00
WCDMA	Band 5				-			
Channel	4132	4182	4233	Tune-up Limit (dBm)	-	-	-	-
RMC 12.2Kbps	20.83	**20.91**	20.92	22.50	-	-	-	-
HSDPA Subtest-1	19.63	19.69	19.75	18.50	-	-	-	-
HSDPA Subtest-2	19.64	19.65	19.71	19.00	-	-	-	-
HSDPA Subtest-3	19.14	19.25	19.23	18.00	-	-	-	-
HSDPA Subtest-4	19.12	19.24	19.32	18.00	-	-	-	-
HSUPA Subtest-1	19.05	19.33	19.42	21.50	-	-	-	-
HSUPA Subtest-2	17.52	17.80	17.88	20.50	-	-	-	-
HSUPA Subtest-3	18.32	18.37	18.64	20.50	-	-	-	-
HSUPA Subtest-4	18.32	18.07	17.97	21.00	-	-	-	-
HSUPA Subtest-5	19.62	19.58	19.75	22.00	-	-	-	-

8.3 LTE

FDD LTE Band 2									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18700	18900	19100		18700	18900	19100	
20 MHz	1 (RB_Pos:0)	22.05	22.56	22.57	23.00	21.33	21.50	21.05	22.00
	1 (RB_Pos:50)	22.53	22.51	22.40	23.00	21.34	21.09	21.41	22.00
	1 (RB_Pos:99)	22.03	**22.63**	22.31	23.00	21.31	20.92	20.93	22.00
	50 (RB_Pos:0)	21.21	21.49	21.33	22.00	-	-	-	-
	50 (RB_Pos:25)	21.32	21.37	21.44	22.00	-	-	-	-
	50 (RB_Pos:50)	21.31	21.33	21.37	22.00	-	-	-	-
	100 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18675	18900	19125		18675	18900	19125	
15 MHz	1 (RB_Pos:0)	22.22	22.56	22.38	23.00	21.33	20.99	22.45	22.00
	1 (RB_Pos:38)	22.36	22.23	22.35	23.00	21.41	20.75	22.51	22.00
	1 (RB_Pos:74)	22.55	22.28	22.24	23.00	21.38	20.67	21.88	22.00
	36 (RB_Pos:0)	21.21	21.36	21.47	22.00	-	-	-	-
	36 (RB_Pos:20)	21.26	21.31	21.46	22.00	-	-	-	-
	36 (RB_Pos:39)	21.29	21.30	21.34	22.00	-	-	-	-
	75 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18650	18900	19150		18650	18900	19150	
10 MHz	1 (RB_Pos:0)	22.29	22.55	22.46	23.00	21.36	21.07	21.49	22.00
	1 (RB_Pos:25)	22.34	22.24	22.48	23.00	21.46	21.19	21.31	22.00
	1 (RB_Pos:49)	22.48	22.23	22.27	23.00	21.44	20.97	21.27	22.00
	25 (RB_Pos:0)	21.23	21.44	21.44	22.00	20.42	20.68	20.82	21.00
	25 (RB_Pos:12)	21.23	21.34	21.38	22.00	20.37	20.68	20.73	21.00
	25 (RB_Pos:25)	21.24	21.34	21.37	22.00	20.26	20.58	20.80	21.00
	50 (RB_Pos:0)	21.25	21.34	21.47	22.00	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18625	18900	19175		18625	18900	19175	
5 MHz	1 (RB_Pos:0)	22.06	22.26	22.24	23.00	20.74	20.96	21.02	22.00
	1 (RB_Pos:13)	22.20	22.21	22.46	23.00	20.64	20.95	20.97	22.00
	1 (RB_Pos:24)	22.06	22.23	22.45	23.00	20.70	20.88	20.95	22.00
	12 (RB_Pos:0)	21.25	21.41	21.52	22.00	20.35	20.29	20.61	21.00
	12 (RB_Pos:6)	21.26	21.40	21.38	22.00	20.27	20.40	20.57	21.00

	12 (RB_Pos:13)	21.32	21.41	21.47	22.00	20.43	20.38	20.54	21.00
	25 (RB_Pos:0)	21.28	21.41	21.45	22.00	20.43	20.41	20.46	21.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18615	18900	19185		18615	18900	19185	
3.0 MHz	1 (RB_Pos:0)	22.47	22.56	22.76	23.00	21.28	21.86	21.57	22.00
	1 (RB_Pos:8)	22.25	22.39	22.34	23.00	21.08	21.55	21.39	22.00
	1 (RB_Pos:14)	22.48	22.36	22.53	23.00	21.25	21.03	21.63	22.00
	8 (RB_Pos:0)	21.41	21.49	21.37	22.00	20.16	20.52	20.48	21.00
	8 (RB_Pos:3)	21.34	21.46	21.31	22.00	20.10	20.60	20.31	21.00
	8 (RB_Pos:7)	21.31	21.41	21.28	22.00	20.18	20.52	20.28	21.00
	15 (RB_Pos:0)	21.43	21.46	21.41	22.00	20.32	20.57	20.51	21.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18607	18900	19193		18607	18900	19193	
1.4 MHz	1 (RB_Pos:0)	22.58	22.45	22.43	23.00	21.37	21.13	21.59	22.00
	1 (RB_Pos:3)	22.61	22.53	22.38	23.00	21.63	21.23	21.57	22.00
	1 (RB_Pos:5)	22.47	22.40	22.48	23.00	21.38	21.10	21.43	22.00
	3 (RB_Pos:0)	22.52	22.52	22.54	23.00	21.24	21.02	21.61	22.00
	3 (RB_Pos:1)	22.57	22.64	22.52	23.00	21.49	21.04	21.60	22.00
	3 (RB_Pos:3)	22.53	22.59	22.63	23.00	21.50	20.98	21.72	22.00
	6 (RB_Pos:0)	21.67	21.60	21.50	22.00	20.52	20.51	20.81	21.00

FDD LTE Band 4									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20050	20175	20300		20050	20175	20300	
20 MHz	1 (RB_Pos:0)	21.89	22.53	22.17	23.00	20.46	21.20	21.64	22.00
	1 (RB_Pos:50)	22.28	**22.63**	22.42	23.00	20.76	21.34	21.95	22.00
	1 (RB_Pos:99)	22.06	22.51	22.36	23.00	20.58	21.11	21.90	22.00
	50 (RB_Pos:0)	21.00	21.24	21.34	22.00	-	-	-	-
	50 (RB_Pos:25)	21.20	21.26	21.33	22.00	-	-	-	-
	50 (RB_Pos:50)	21.02	21.09	21.34	22.00	-	-	-	-
	100 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20025	20175	20325		20025	20175	20325	
15 MHz	1 (RB_Pos:0)	21.94	22.12	22.21	23.00	21.17	21.08	21.75	22.00
	1 (RB_Pos:38)	22.40	22.11	22.29	23.00	21.13	21.06	21.86	22.00
	1 (RB_Pos:74)	22.35	21.89	22.23	23.00	21.14	20.89	21.96	22.00

	36 (RB_Pos:0)	21.02	21.17	21.29	22.00	-	-	-	-
	36 (RB_Pos:20)	21.11	21.12	21.31	22.00	-	-	-	-
	36 (RB_Pos:39)	21.11	21.03	21.32	22.00	-	-	-	-
	75 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20000	20175	20350		20000	20175	20350	
10 MHz	1 (RB_Pos:0)	22.02	22.18	22.42	23.00	21.08	21.55	21.25	22.00
	1 (RB_Pos:25)	22.09	22.15	22.61	23.00	21.23	21.15	21.39	22.00
	1 (RB_Pos:49)	22.02	21.95	22.59	23.00	21.28	20.97	21.47	22.00
	25 (RB_Pos:0)	20.99	21.11	21.50	22.00	20.01	20.23	20.45	21.00
	25 (RB_Pos:12)	21.06	21.23	21.50	22.00	19.99	20.36	20.44	21.00
	25 (RB_Pos:25)	21.06	21.15	21.52	22.00	20.00	20.28	20.36	21.00
	50 (RB_Pos:0)	21.09	21.12	21.31	22.00	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	19975	20175	20375		19975	20175	20375	
5 MHz	1 (RB_Pos:0)	21.93	22.01	22.32	23.00	20.37	20.75	21.03	22.00
	1 (RB_Pos:13)	21.91	22.01	22.35	23.00	20.41	20.73	20.97	22.00
	1 (RB_Pos:24)	21.85	22.02	22.54	23.00	20.49	20.66	21.11	22.00
	12 (RB_Pos:0)	20.95	21.25	21.41	22.00	20.00	20.06	20.29	21.00
	12 (RB_Pos:6)	21.06	21.30	21.45	22.00	19.76	20.10	20.36	21.00
	12 (RB_Pos:13)	21.12	21.22	21.53	22.00	20.04	20.04	20.45	21.00
	25 (RB_Pos:0)	21.02	21.28	21.45	22.00	20.23	20.19	20.37	21.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	19965	20175	20385		19965	20175	20385	
3.0 MHz	1 (RB_Pos:0)	21.91	22.16	22.15	23.00	20.62	21.44	21.40	22.00
	1 (RB_Pos:8)	21.94	22.01	22.08	23.00	20.43	21.31	21.43	22.00
	1 (RB_Pos:14)	22.02	22.12	22.24	23.00	20.59	21.39	21.49	22.00
	8 (RB_Pos:0)	20.93	21.12	21.20	22.00	19.90	20.17	20.30	21.00
	8 (RB_Pos:3)	20.99	21.13	21.22	22.00	20.19	20.06	20.16	21.00
	8 (RB_Pos:7)	21.00	21.21	21.26	22.00	20.09	20.12	20.11	21.00
	15 (RB_Pos:0)	20.94	21.29	21.27	22.00	20.01	19.97	20.26	21.00

FDD LTE Band 5									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20450	20525	20600		20450	20525	20600	
10 MHz	1 (RB_Pos:0)	22.25	22.09	22.23	23.00	21.38	20.61	21.12	22.00
	1 (RB_Pos:25)	**22.62**	22.24	22.31	23.00	21.32	20.65	21.41	22.00
	1 (RB_Pos:49)	22.31	22.23	22.01	23.00	20.76	20.77	21.05	22.00
	25 (RB_Pos:0)	21.39	21.08	21.10	22.00	20.33	20.09	20.25	21.00
	25 (RB_Pos:12)	21.33	21.07	21.07	22.00	20.25	20.16	20.21	21.00
	25 (RB_Pos:25)	21.18	21.23	21.21	22.00	20.26	20.31	20.35	21.00
	50 (RB_Pos:0)	21.29	21.15	21.12	22.00	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20425	20525	20625		20425	20525	20625	
5MHz	1 (RB_Pos:0)	22.26	21.98	22.10	23.00	20.91	21.11	20.89	22.00
	1 (RB_Pos:13)	22.38	22.07	22.22	23.00	20.99	21.25	20.93	22.00
	1 (RB_Pos:24)	22.32	22.18	22.17	23.00	20.94	20.76	20.98	22.00
	12 (RB_Pos:0)	21.31	21.20	21.19	22.00	20.37	20.06	20.13	21.00
	12 (RB_Pos:6)	21.32	21.19	21.12	22.00	20.39	20.13	20.10	21.00
	12 (RB_Pos:13)	21.37	21.29	21.08	22.00	20.43	20.30	20.05	21.00
	25 (RB_Pos:0)	21.24	21.19	21.01	22.00	20.55	20.33	20.07	21.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20415	20525	20635		20415	20525	20635	
3.0 MHz	1 (RB_Pos:0)	22.36	22.16	22.11	23.00	21.48	21.54	21.32	22.00
	1 (RB_Pos:8)	22.30	22.10	22.04	23.00	21.50	21.33	21.08	22.00
	1 (RB_Pos:14)	22.30	22.31	21.91	23.00	21.60	21.46	21.27	22.00
	8 (RB_Pos:0)	21.26	21.16	21.13	22.00	20.65	20.02	20.24	21.00
	8 (RB_Pos:3)	21.41	21.30	21.14	22.00	20.74	20.05	20.44	21.00
	8 (RB_Pos:7)	21.39	21.28	21.17	22.00	20.73	20.00	20.38	21.00
	15 (RB_Pos:0)	21.37	21.27	21.13	22.00	20.47	20.26	20.34	21.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20407	20525	20643		20407	20525	20643	
1.4MHz	1 (RB_Pos:0)	22.30	22.08	22.11	23.00	21.37	21.56	21.24	22.00
	1 (RB_Pos:3)	22.46	22.18	22.16	23.00	21.30	21.07	21.22	22.00
	1 (RB_Pos:5)	22.51	22.14	22.53	23.00	21.29	21.31	21.11	22.00
	3 (RB_Pos:0)	22.28	22.11	22.29	23.00	20.80	21.14	21.32	22.00
	3 (RB_Pos:1)	22.28	22.24	22.28	23.00	21.35	21.16	21.32	22.00
	3 (RB_Pos:3)	22.26	22.19	22.22	23.00	21.34	21.09	21.24	22.00
	6 (RB_Pos:0)	21.19	21.04	21.12	22.00	20.60	19.95	20.23	21.00

FDD LTE Band 7									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20850	21100	21350		20850	21100	21350	
20MHz	1 (RB_Pos:0)	22.14	**22.52**	22.10	23.00	21.29	21.39	20.98	22.00
	1 (RB_Pos:50)	22.07	22.45	22.42	23.00	21.27	21.05	21.05	22.00
	1 (RB_Pos:99)	21.95	22.52	22.20	23.00	20.61	20.98	20.99	22.00
	50 (RB_Pos:0)	21.26	21.18	21.07	22.00	-	-	-	-
	50 (RB_Pos:25)	21.25	21.21	21.30	22.00	-	-	-	-
	50 (RB_Pos:50)	21.20	21.13	21.24	22.00	-	-	-	-
	100 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20825	21100	21375		20825	21100	21375	
15MHz	1 (RB_Pos:0)	22.41	22.46	22.13	23.00	21.47	20.94	21.17	22.00
	1 (RB_Pos:38)	22.14	22.20	22.21	23.00	21.24	20.70	21.20	22.00
	1 (RB_Pos:74)	22.43	22.21	22.31	23.00	21.25	20.60	21.59	22.00
	36 (RB_Pos:0)	21.23	21.19	21.12	22.00	-	-	-	-
	36 (RB_Pos:20)	21.12	21.10	21.28	22.00	-	-	-	-
	36 (RB_Pos:39)	21.19	21.17	21.21	22.00	-	-	-	-
	75 (RB_Pos:0)	-	-	-	-	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20800	21100	21400		20800	21100	21400	
10MHz	1 (RB_Pos:0)	22.70	22.24	22.23	23.00	21.54	21.49	21.30	22.00
	1 (RB_Pos:25)	22.50	22.23	22.35	23.00	21.51	21.45	21.35	22.00
	1 (RB_Pos:49)	22.42	22.36	22.34	23.00	21.14	21.45	21.18	22.00
	25 (RB_Pos:0)	21.41	21.09	21.09	22.00	20.42	20.29	20.21	21.00
	25 (RB_Pos:12)	21.30	21.08	21.23	22.00	20.43	20.15	20.44	21.00
	25 (RB_Pos:25)	21.18	21.11	21.19	22.00	20.31	20.17	20.31	21.00
	50 (RB_Pos:0)	21.20	21.14	21.09	22.00	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20775	21100	21425		20775	21100	21425	
5MHz	1 (RB_Pos:0)	22.12	22.01	22.13	23.00	20.67	20.64	20.62	22.00
	1 (RB_Pos:13)	22.36	22.06	22.25	23.00	20.59	20.54	20.60	22.00
	1 (RB_Pos:24)	22.27	21.95	22.00	23.00	20.63	20.53	20.57	22.00
	12 (RB_Pos:0)	21.37	21.08	21.16	22.00	20.26	20.10	20.08	21.00
	12 (RB_Pos:6)	21.30	21.06	21.10	22.00	20.19	20.17	20.10	21.00
	12 (RB_Pos:13)	21.32	21.02	21.09	22.00	20.12	20.11	20.10	21.00
	25 (RB_Pos:0)	21.23	21.01	21.11	22.00	20.38	20.14	20.14	21.00

FDD LTE Band 12									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23060	23095	23130		23060	23095	23130	
10 MHz	1 (RB_Pos:0)	22.65	22.38	22.57	23.00	21.79	21.50	22.02	22.50
	1 (RB_Pos:25)	22.77	22.75	22.80	23.00	21.60	21.82	22.09	22.50
	1 (RB_Pos:49)	**22.96**	22.74	22.26	23.00	22.42	22.23	21.94	22.50
	25 (RB_Pos:0)	21.72	21.60	21.70	22.00	20.77	20.59	20.59	21.50
	25 (RB_Pos:12)	21.79	21.76	21.77	22.00	20.84	20.82	20.77	21.50
	25 (RB_Pos:25)	21.79	21.74	21.58	22.00	20.79	20.83	20.53	21.50
	50 (RB_Pos:0)	21.82	21.65	21.66	22.00	-	-	-	-
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23035	23095	23155		23035	23095	23155	
5 MHz	1 (RB_Pos:0)	22.63	22.49	22.58	23.00	21.24	21.21	21.58	22.50
	1 (RB_Pos:13)	22.54	22.72	22.49	23.00	21.09	21.32	21.11	22.50
	1 (RB_Pos:24)	22.59	22.80	22.47	23.00	21.23	21.33	21.53	22.50
	12 (RB_Pos:0)	21.75	21.65	21.87	22.00	20.78	20.53	20.80	21.50
	12 (RB_Pos:6)	21.74	21.95	21.74	22.00	20.71	20.85	20.60	21.50
	12 (RB_Pos:13)	21.72	21.85	21.63	22.00	20.71	20.85	20.51	21.50
	25 (RB_Pos:0)	21.82	21.77	21.76	22.00	20.86	20.78	20.82	21.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23025	23095	23165		23025	23095	23165	
3.0 MHz	1 (RB_Pos:0)	22.73	22.61	22.77	23.00	21.92	21.88	21.95	22.50
	1 (RB_Pos:8)	22.58	22.88	22.72	23.00	21.75	22.17	21.65	22.50
	1 (RB_Pos:14)	22.72	22.93	22.53	23.00	21.51	22.24	21.66	22.50
	8 (RB_Pos:0)	21.73	21.75	21.73	22.00	21.09	20.73	20.72	21.50
	8 (RB_Pos:3)	21.79	21.85	21.64	22.00	20.73	20.95	20.49	21.50
	8 (RB_Pos:7)	21.67	21.90	21.67	22.00	20.66	20.89	20.62	21.50
	15 (RB_Pos:0)	21.76	21.81	21.87	22.00	20.72	20.69	20.77	21.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23017	23095	23173		23017	23095	23173	
1.4 MHz	1 (RB_Pos:0)	22.76	22.43	22.56	23.00	21.55	22.23	21.75	22.50
	1 (RB_Pos:3)	22.60	22.92	22.57	23.00	21.51	22.27	21.55	22.50
	1 (RB_Pos:5)	22.62	22.91	22.48	23.00	21.79	22.13	21.58	22.50
	3 (RB_Pos:0)	22.71	22.70	22.77	23.00	21.76	21.64	22.33	22.50
	3 (RB_Pos:1)	22.65	22.99	22.63	23.00	21.69	21.98	22.11	22.50
	3 (RB_Pos:3)	22.62	22.91	22.52	23.00	21.62	21.84	21.92	22.50
	6 (RB_Pos:0)	21.73	21.89	21.68	22.00	20.82	20.54	21.05	21.50

8.4 WIFI

8.4.1 2.4GWIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Peak Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	**15.80**	16.00	Yes
		6	2437	12.72	13.00	Yes
		11	2462	14.90	16.00	Yes
	802.11g	1	2412	14.19	15.00	No
		6	2437	11.51	12.00	No
		11	2462	14.12	15.00	No
	802.11n(HT20)	1	2412	12.14	13.00	No
		6	2437	9.54	10.00	No
		11	2462	11.79	13.00	No

8.5 Bluetooth

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Peak Power (dBm)	7.36	5.74	5.55	8.35	6.71	6.46
Tune-up Limit (dBm)	9.00	6.00	6.00	9.00	7.00	7.00
Mode	8-DPSK			BLE		
Channel	0	39	78	0	19	39
Frequency (MHz)	2402	2441	2480	2402	2440	2480
Peak Power (dBm)	**8.90**	6.90	6.65	2.89	0.87	0.88
Tune-up Limit (dBm)	9.00	7.00	7.00	3.00	1.00	1.00

9 EUT ANTENNA LOCATION SKETCH

WWAN Antenna

WLAN Antenna

9.1 SAR Test Exclusion Consider Table

According with FCC KDB 447498 D01, Appendix A, <SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm> Table, this Device SAR test configurations consider as following :

Band	Mode	Max. Peak Power		Test Position Configurations	
		dBm	mW	Front of face	Limbs
GSM	Distance to User			10mm	<5mm
	GSM 850	31.50	1412.54	Yes	Yes
	GSM1900	30.00	1000	Yes	Yes
WCDMA	WCDMA Band2	22.50	177.83	Yes	Yes
	WCDMA Band4	22.00	158.49	Yes	Yes
	WCDMA Band5	22.50	177.83	Yes	Yes
LTE	LTE Band2	23.00	199.53	Yes	Yes
	LTE Band4	23.00	199.53	Yes	Yes
	LTE Band5	23.00	199.53	Yes	Yes
	LTE Band7	23.00	199.53	Yes	Yes
	LTE Band12	23.00	199.53	Yes	Yes
WLAN	802.11b	16.00	39.81	Yes	Yes
	802.11g	15.00	31.62	No	No
	802.11n(HT20)	13.00	19.95	No	No
BT	Bluetooth BR/EDR	9.00	7.94	Yes	Yes
	Bluetooth BLE	3.00	2.00	No	No

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. Per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D01, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g Limbs SAR
   a. f(GHz) is the RF channel transmit frequency in GHz
   b. Power and distance are rounded to the nearest mW and mm before calculation
   c. The result is rounded to one decimal place for comparison
   d. For < 50 mm distance, we just calculate mW of the exclusion threshold value (3.0) to do compare.
   This formula is [3.0] / [√f(GHz)] ·[(min. test separation distance, mm)] = exclusion threshold of mW.
5. Per KDB 447498 D01, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
   a. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
6. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
   a. When the reported SAR of the highest measured maximum output power channel for the

exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

b. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel.

7. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.

a. When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM configuration.

b. 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 ≤ 1.2 W/kg.

9.2 10g Limbs Exposure Consider

According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;
The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leqslant$ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g Limbs SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g Limbs SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

10 TEST RESULTS

10.1 GSM 850

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face											
Voice	Front Side	10	251	848.8	-2.95	0.189	31.26	31.50	1.057	0.200	/
GPRS (4slots)	Front Side	10	251	848.8	-0.03	0.459	28.43	28.50	1.016	**0.466**	1#
		10	128	824.2	-3.32	0.423	28.24	28.50	1.062	0.449	/
		10	190	836.6	-2.91	0.411	28.33	28.50	1.040	0.427	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs											
Voice	Back Side	0	251	848.8	-3.86	0.199	31.26	31.50	1.057	0.210	/
GPRS (4slots)	Back Side	0	251	848.8	-3.06	0.897	28.43	28.50	1.016	**0.912**	2#
		0	128	824.2	-1.92	0.732	28.24	28.50	1.062	0.777	/
		0	190	836.6	-2.60	0.822	28.33	28.50	1.040	0.855	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.2 GSM 1900

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face											
Voice	Front Side	10	810	1909.8	-0.24	0.385	29.98	30.00	1.005	0.387	/
GPRS (4slots)	Front Side	10	810	1909.8	-1.02	0.958	26.98	27.00	1.005	**0.962**	3#
		10	512	1850.2	4.58	0.712	26.49	27.00	1.125	0.801	/
		10	661	1880.0	4.43	0.833	26.44	27.00	1.138	0.948	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs											
Voice	Back Side	0	810	1909.8	3.63	0.195	29.98	30.00	1.005	0.196	/
GPRS (4slots)	Back Side	0	810	1909.8	-1.97	0.433	26.98	27.00	1.005	0.435	/
		0	512	1850.2	4.47	0.496	26.49	27.00	1.125	**0.558**	4#
		0	661	1880.0	3.34	0.447	26.44	27.00	1.138	0.509	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.3WCDMA Band 2

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face											
RMC	Front Side	10	9400	1880.0	0.03	0.912	22.38	22.50	1.028	0.938	/
		10	9262	1852.4	1.93	0.954	22.17	22.50	1.079	1.029	/
		10	9538	1907.6	-4.90	1.045	22.27	22.50	1.054	**1.102**	5#
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs											
RMC	Back Side	0	9400	1880.0	-0.19	0.642	22.38	22.50	1.028	0.660	/
		0	9262	1852.4	-1.28	0.709	22.17	22.50	1.079	**0.765**	6#
		0	9538	1907.6	3.31	0.604	22.27	22.50	1.054	0.637	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.4WCDMA Band 4

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face											
RMC	Front Side	10	1513	1752.6	1.35	0.830	21.87	22.00	1.030	**0.855**	7#
		10	1312	1712.4	-3.13	0.711	21.58	22.00	1.102	0.783	/
		10	1412	1732.4	-2.24	0.736	21.79	22.00	1.050	0.772	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs											
RMC	Back Side	0	1513	1752.6	-1.47	0.839	21.87	22.00	1.030	**0.864**	8#
		0	1312	1712.4	-4.61	0.778	21.58	22.00	1.102	0.857	/
		0	1412	1732.4	1.34	0.792	21.79	22.00	1.050	0.831	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.5 WCDMA Band 5

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face											
RMC	Front Side	10	4233	846.6	-1.37	0.089	20.92	22.50	1.439	**0.128**	9#
		10	4132	826.4	4.41	0.077	20.83	22.50	1.469	0.113	/
		10	4182	836.4	-3.21	0.076	20.91	22.50	1.442	0.110	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs											
RMC	Back Side	0	4233	846.6	0.88	0.158	20.92	22.50	1.439	**0.227**	10#
		0	4132	826.4	-3.33	0.125	20.83	22.50	1.469	0.184	/
		0	4182	836.4	-4.26	0.118	20.91	22.50	1.442	0.170	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.6 LTE Band 2 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
QPSK	Front Side	10	18900	1880	1	HIGH	2.98	0.902	22.63	23.00	1.089	**0.982**	11#
		10	18700	1860	1	MID	3.28	0.877	22.53	23.00	1.114	0.977	/
		10	19100	1900	1	LOW	-1.00	0.793	22.57	23.00	1.104	0.876	/
		10	18900	1880	50	LOW	-3.10	0.754	21.49	22.00	1.125	0.848	/
		10	18700	1860	50	MID	-2.11	0.708	21.32	22.00	1.169	0.828	/
		10	19100	1900	50	MID	-0.85	0.711	21.44	22.00	1.138	0.809	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
QPSK	Back Side	0	18900	1880	1	HIGH	-0.19	0.663	22.63	23.00	1.089	**0.722**	12#
		0	18700	1860	1	MID	-3.64	0.622	22.53	23.00	1.114	0.693	/
		0	19100	1900	1	LOW	4.13	0.545	22.57	23.00	1.104	0.602	/
		0	18900	1880	50	LOW	-3.23	0.484	21.49	22.00	1.125	0.544	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.7 LTE Band 4 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
QPSK	Front Side	10	20175	1732.5	1	MID	1.96	1.031	22.63	23.00	1.089	**1.123**	13#
		10	20050	1720	1	MID	2.78	0.933	22.28	23.00	1.180	1.101	/
		10	20300	1745	1	MID	-3.58	0.946	22.42	23.00	1.143	1.081	/
		10	20300	1745	50	LOW	4.85	0.847	21.34	22.00	1.164	0.986	/
		10	20050	1720	50	MID	0.25	0.812	21.20	22.00	1.202	0.976	/
		10	20175	1732.5	50	MID	-2.31	0.798	21.26	22.00	1.186	0.946	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
QPSK	Back Side	0	20175	1732.5	1	MID	-0.30	0.845	22.63	23.00	1.089	0.920	/
		0	20050	1720	1	MID	0.34	0.799	22.28	23.00	1.180	0.943	/
		0	20300	1745	1	MID	-0.32	0.889	22.42	23.00	1.143	**1.016**	14#
		0	20300	1745	50	LOW	1.07	0.686	21.34	22.00	1.164	0.799	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.8 LTE Band 5 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
QPSK	Front Side	10	20450	829	1	MID	-2.71	0.116	22.62	23.00	1.091	0.127	/
		10	20525	836.5	1	MID	-3.53	0.136	22.24	23.00	1.191	0.162	/
		10	20600	844	1	MID	-0.62	0.158	22.31	23.00	1.172	**0.185**	15#
		10	20450	829	50	LOW	0.25	0.104	21.39	22.00	1.151	0.120	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
QPSK	Back Side	0	20450	829	1	MID	-1.34	0.205	22.62	23.00	1.091	0.224	/
		0	20525	836.5	1	MID	3.27	0.264	22.24	23.00	1.191	0.314	/
		0	20600	844	1	MID	4.38	0.298	22.31	23.00	1.172	**0.349**	16#
		0	20450	829	50	LOW	0.14	0.212	21.39	22.00	1.151	0.244	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.9 LTE Band 7 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
QPSK	Front Side	10	21100	2535.0	1	LOW	2.07	1.118	22.52	23.00	1.117	**1.249**	17#
		10	20850	2510.0	1	LOW	0.62	1.023	22.14	23.00	1.219	1.247	/
		10	21350	2560.0	1	MID	-3.47	0.632	22.42	23.00	1.143	0.722	/
		10	21350	2560.0	50	MID	1.35	0.933	21.30	22.00	1.175	1.096	/
		10	20850	2510.0	50	LOW	0.35	0.853	21.26	22.00	1.186	1.011	/
		10	21100	2535.0	50	MID	-1.12	0.847	21.21	22.00	1.199	1.016	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
QPSK	Back Side	0	21100	2535.0	1	LOW	-4.04	0.964	22.52	23.00	1.117	**1.077**	18#
		0	20850	2510.0	1	LOW	-4.65	0.867	22.14	23.00	1.219	1.057	/
		0	21350	2560.0	1	MID	-4.66	0.648	22.42	23.00	1.143	0.741	/
		0	21350	2560.0	50	MID	2.80	0.853	21.30	22.00	1.175	1.002	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.10 LTE Band 12 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
QPSK	Front Side	10	23060	704.0	1	HIGH	1.21	0.052	22.96	23.00	1.009	0.052	/
		10	23095	707.5	1	MID	0.45	0.056	22.75	23.00	1.059	0.059	/
		10	23130	711.0	1	MID	1.34	0.064	22.80	23.00	1.047	**0.067**	19#
		10	23060	704.0	50	MID	-2.56	0.047	21.79	22.00	1.050	0.049	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
QPSK	Back Side	0	23060	704.0	1	HIGH	1.91	0.055	22.96	23.00	1.009	0.056	/
		0	23095	707.5	1	MID	-1.31	0.068	22.75	23.00	1.059	0.072	/
		0	23130	711.0	1	MID	-4.52	0.077	22.80	23.00	1.047	**0.081**	20#
		0	23060	704.0	50	MID	-1.74	0.052	21.79	22.00	1.050	0.055	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.11 WIFI 2.4GHz

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
802.11 b	Front Side	10	1	2412	-1.86	0.090	15.80	16.00	1.047	97.00	1.031	0.097	/
		10	6	2437	-0.81	0.091	12.72	13.00	1.067	97.00	1.031	0.100	/
		10	11	2462	0.16	0.102	14.90	15.00	1.023	97.00	1.031	**0.108**	21#
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
802.11 b	Back Side	0	1	2412	3.22	0.048	15.80	16.00	1.047	97.00	1.031	0.052	/
		0	6	2437	2.70	0.053	12.72	13.00	1.067	97.00	1.031	**0.058**	22#
		0	11	2462	-0.14	0.043	14.90	15.00	1.023	97.00	1.031	0.045	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.12 Bluetooth

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Front of Face													
DH5	Front Side	10	0	2402	-1.20	0.015	7.36	9.00	1.459	77.3	1.294	**0.028**	23#
		10	39	2441	-3.32	0.010	5.74	6.00	1.062	77.3	1.294	0.014	/
		10	78	2480	-2.91	0.008	5.55	6.00	1.109	77.3	1.294	0.011	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	10g Scaled SAR (W/kg)	Meas. No.
Limbs													
DH5	Back Side	0	0	2402	-0.51	0.014	7.36	9.00	1.459	77.3	1.294	**0.026**	24#
		0	39	2441	0.72	0.008	5.74	6.00	1.062	77.3	1.294	0.011	/
		0	78	2480	3.39	0.009	5.55	6.00	1.109	77.3	1.294	0.013	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

11 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Note: The highest measured 10g SAR is 1.077 < 2.0 W/kg, which is lower than 2.0W/Kg, so the repeated SAR for Limbs exposure conduction is not required.

Frequency Band (MHz)	Wireless Band	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Largest to Smallest SAR Radio
1909.8	GSM 1900	Front of Face	Front Side	0.958	Yes	0.864	1.11
1907.6	WCDMA Band2	Front of Face	Front Side	1.045	Yes	0.956	1.09
1752.6	WCDMA Band4	Front of Face	Front Side	0.830	Yes	0.786	1.06
1880	LTE Band2	Front of Face	Front Side	0.902	Yes	0.861	1.05
1732.5	LTE Band4	Front of Face	Front Side	1.031	Yes	0.954	1.08
2535.0	LTE Band7	Front of Face	Front Side	1.118	Yes	1.048	1.07
Note1: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20, the second repeated measurement is not required. Note2: The highest 10g Limbs SAR is < 1.077, which is lower than 2.0W/Kg, so the repeated measurement is not required.							

12 SIMULTANEOUS TRANSMISSION

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. When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR 1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR 1g 1.6 W/kg), SAR test exclusion is determined by the SAR to Peak Location Ratio (SPLSR).

12.1 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Front of Face	° °
1	GSM + Bluetooth	Yes	Yes
2	GSM + 2.4G WLAN	Yes	Yes
3	UMTS + Bluetooth	Yes	Yes
4	UMTS + 2.4G WLAN	Yes	Yes
5	LTE + Bluetooth	Yes	Yes
6	LTE + 2.4G WLAN	Yes	Yes

Note:

1. 2G&3G&4G share the same antenna and can't transmit simultaneously.
2. The Bluetooth and 2.4G WLAN share the same antenna, can't transmitting together.
3. The maximum SAR summation is calculated based on the same configuration and test position.

12.2 Sum SAR of Simultaneous Transmission

12.2.1 Front of Face SAR of Simultaneous Transmission

Simultaneous Mode	Mode	Max. 1g SAR (W/kg)	1g Sum SAR (W/kg)	SPLSR (Yes/No)
GSM+ Bluetooth	GSM	0.962	0.990	No
	Bluetooth	0.028		
GSM+ 2.4G WLAN	GSM	0.962	1.070	No
	2.4G WLAN	0.108		
WCDMA RMC + Bluetooth	WCDMA RMC	1.102	1.130	No
	Bluetooth	0.028		
WCDMA RMC + 2.4G WLAN	WCDMA RMC	1.102	1.210	No
	2.4G WLAN	0.108		
LTE QPSK + Bluetooth	LTE QPSK	1.249	1.277	No
	Bluetooth	0.028		
LTE QPSK + 2.4G WLAN	LTE QPSK	1.249	**1.357**	No
	2.4G WLAN	0.108		

12.2.2 Limbs SAR of Simultaneous Transmission

Simultaneous Mode	Mode	Max. 10g SAR (W/kg)	10g Sum SAR (W/kg)	SPLSR (Yes/No)
GSM+ Bluetooth	GSM	0.912	0.938	No
	Bluetooth	0.026		
GSM+ 2.4G WLAN	GSM	0.912	0.970	No
	2.4G WLAN	0.058		
WCDMA RMC + Bluetooth	WCDMA RMC	0.864	0.890	No
	Bluetooth	0.026		
WCDMA RMC + 2.4G WLAN	WCDMA RMC	0.864	0.922	No
	2.4G WLAN	0.058		
LTE QPSK + Bluetooth	LTE QPSK	1.077	1.103	No
	Bluetooth	0.026		
LTE QPSK + 2.4G WLAN	LTE QPSK	1.077	**1.135**	No
	2.4G WLAN	0.058		

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
Test Software	SATIMO	OpenSAR	V4_02_31	N/A	N/A
750MHz Dipole	SATIMO	SID 750	S/N 11/17 DIP 0G750-446	2019/03/20	2021/03/19
835MHz Dipole	SATIMO	SID 835	S/N 11/17 DIP 0G750-447	2019/03/20	2021/03/19
1800MHz Dipole	SATIMO	SID 1800	S/N 11/17 DIP 1G800-449	2019/03/20	2021/03/19
1900MHz Dipole	SATIMO	SID 1900	S/N 11/17 DIP 1G900-450	2019/03/20	2021/03/19
2450MHz Dipole	SATIMO	SID 2450	S/N 11/17 DIP 2G450-452	2019/03/20	2021/03/19
2600MHz Dipole	SATIMO	SID 2600	S/N 11/17 DIP 2G600-453	2019/03/20	2021/03/19
E-Field Probe	MVG	SSE2	S/N 31/17 EPGO 321	2020/01/13	2021/01/12
MultiMeter	Keithley	MultiMeter 2000	4024022	2020/06/11	2021/06/10
Signal Generator	R&S	SMB100A	177746	2020/06/08	2021/06/07
Power Meter	R&S	NRVD-B2	7250BJ-0112/2011	2019/10/30	2020/10/29
Power Sensor	R&S	NRV-Z4	100381	2019/10/30	2020/10/29
Power Sensor	R&S	NRV-Z2	100211	2019/10/30	2020/10/29
Wireless Communication Test Set	R&S	CMW 500	151885	2020/06/08	2021/06/07
Network Analyzer	R&S	ZVL-6	101380	2020/06/22	2021/06/21
Thermometer	Elitech	RC-4HC	N/A	2019/11/02	2020/11/01
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 25/13 OCPG56	N/A	N/A
Antenna	SATIMO	ANTA3	SN 17/13 ZNTA45	N/A	N/A
Phantom1	SATIMO	SAM	SN 11/17 SAM133	N/A	N/A
Phantom2	SATIMO	ELLI	SN 11/17 ELLI42	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

Note: Per KDB 865664 Dipole SAR Validation Verification, BALUN 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 in within 20% of calibrated measurement.
4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an SCLMP Dielectric Probe Kit.

Date	Liquid Type	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity (σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2020.07.08	Head	750	21.3	0.90	41.82	0.89	41.90	1.12	-0.19
2020.07.08	Head	835	21.3	0.89	41.73	0.90	41.50	-1.11	0.55
2020.07.11	Head	1800	21.3	1.41	39.78	1.40	40.00	0.71	-0.55
2020.07.10	Head	1900	20.8	1.40	40.03	1.40	40.00	0.00	0.08
2020.07.09	Head	2450	21.1	1.79	39.10	1.80	39.20	-0.56	-0.26
2020.07.09	Head	2600	21.4	1.96	38.70	1.96	39.01	0.00	-0.79
Note: The tolerance limit of Conductivity and Permittivity is± 5%.									

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10%(for 1 g).

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)	Targeted SAR(W/kg)	Tolerance (%)
2020.07.08	Head	750	100	0.811	8.11	8.78	-7.63	8.49	-4.48
2020.07.08	Head	835	100	0.899	8.99	9.58	-6.16	9.56	-5.96
2020.07.11	Head	1800	100	4.142	41.42	38.76	6.86	38.40	7.86
2020.07.10	Head	1900	100	3.820	38.20	39.49	-3.27	39.70	-3.78
2020.07.09	Head	2450	100	5.313	53.13	54.31	-2.17	52.40	1.39
2020.07.09	Head	2600	100	5.402	54.02	56.32	-4.08	55.30	-2.31
Note: The tolerance limit of System validation ±10%.									

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10%(for 10 g).

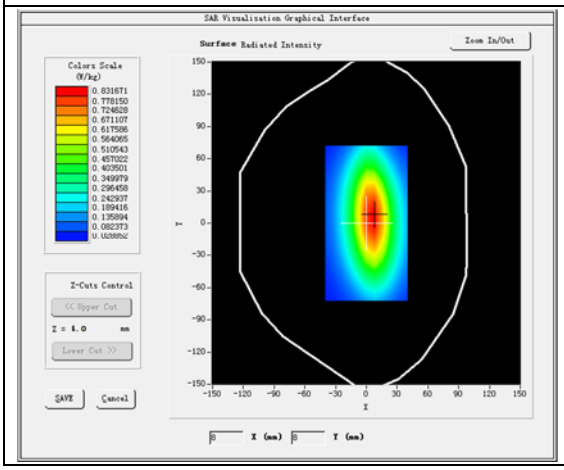
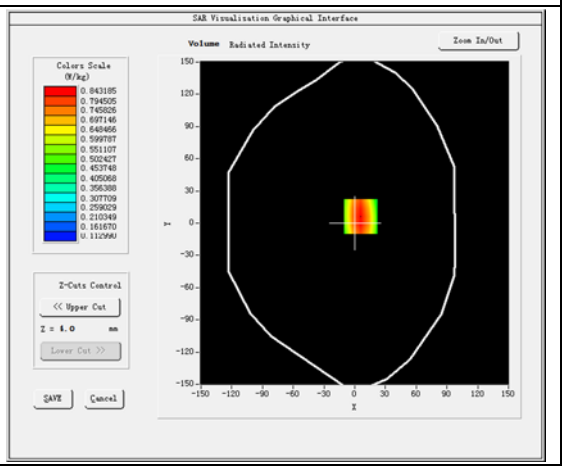
Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)	Targeted SAR(W/kg)	Tolerance (%)
2020.07.08	Head	750	100	0.548	5.48	5.72	-4.20	5.55	-1.26
2020.07.08	Head	835	100	0.577	5.77	6.10	-5.41	6.22	-7.23
2020.07.11	Head	1800	100	2.151	21.51	20.29	6.01	20.10	7.01
2020.07.10	Head	1900	100	1.913	19.13	20.25	-5.53	20.50	-6.68
2020.07.09	Head	2450	100	2.486	24.86	24.20	2.73	24.00	3.58
2020.07.09	Head	2600	100	2.351	23.51	24.55	-4.24	24.60	-4.43
Note: The tolerance limit of System validation ±10%.									

System Performance Check Data(750 MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020.07.08
Measurement duration: 14 minutes 29 seconds

Experimental conditions.

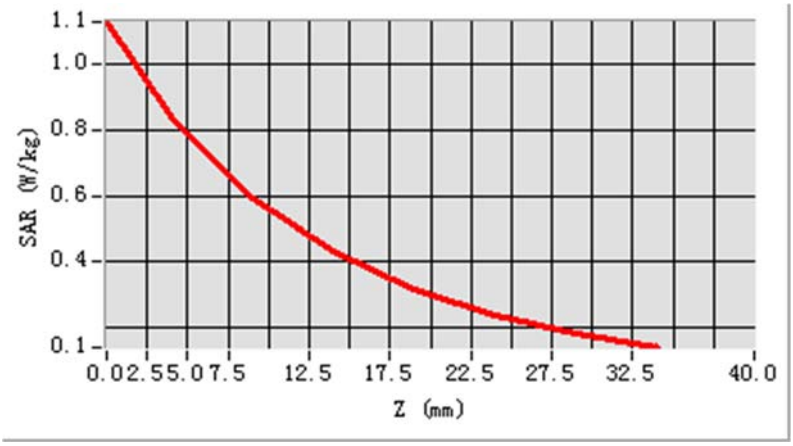
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	750MHz
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity (real part)	41.822037
Conductivity (S/m)	0.897821
Power drift (%)	0.290000
Ambient Temperature:	22.4°C
Liquid Temperature:	21.3°C
ConvF:	1.60
Crest factor:	1:1

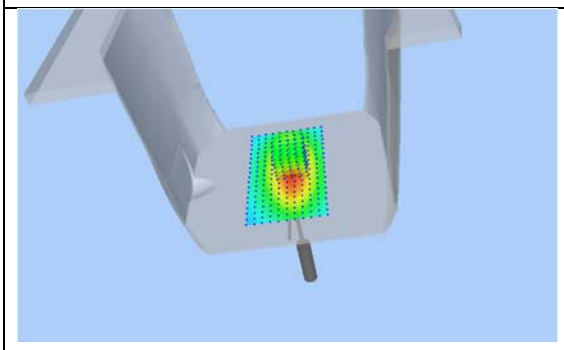
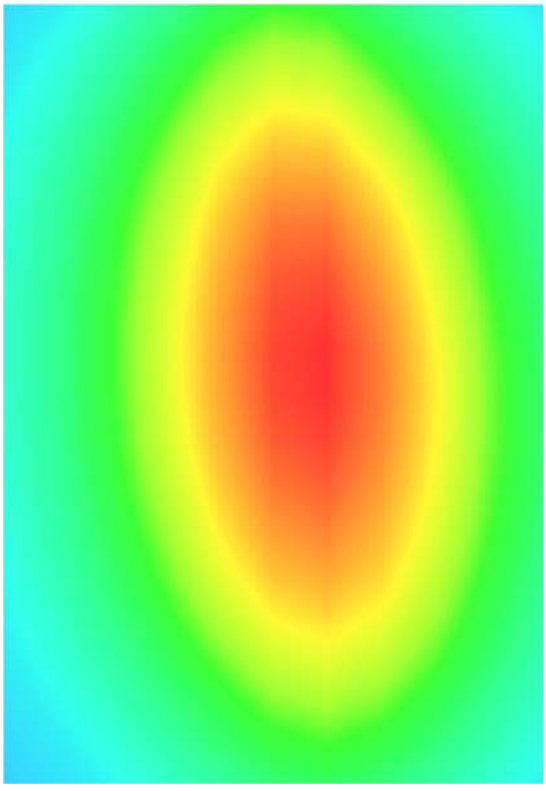
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=6.00
SAR Peak: 1.12 W/kg

SAR 10g (W/Kg)	0.547815
SAR 1g (W/Kg)	0.810852

Z Axis Scan



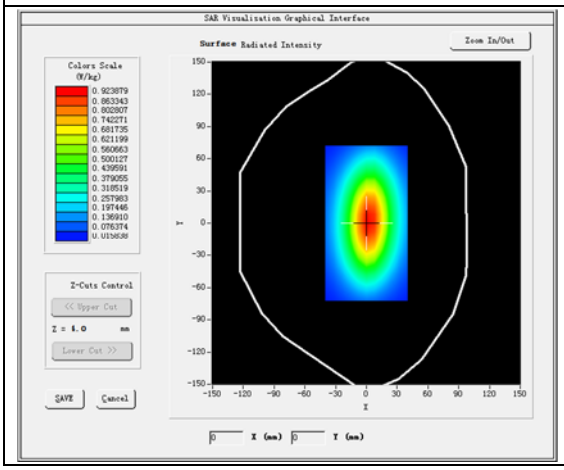
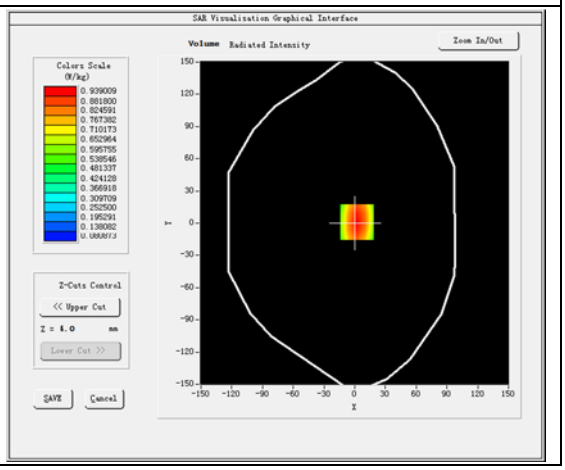
3D screen shot	Hot spot position
	

System Performance Check Data(835 MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020.07.08
Measurement duration: 13 minutes 27 seconds

Experimental conditions.

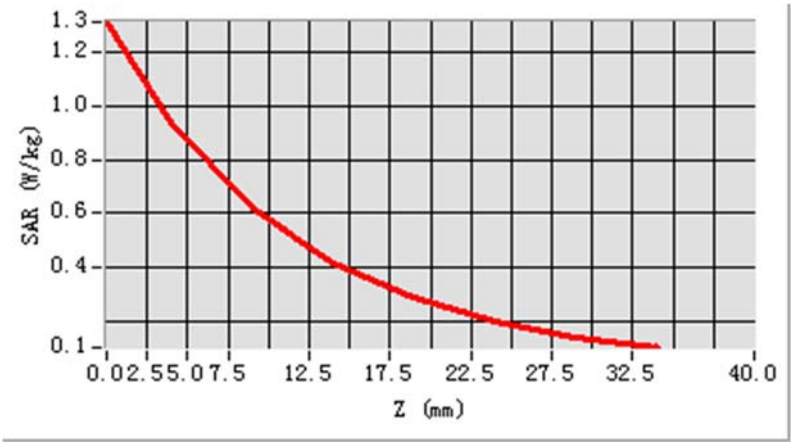
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	835MHz
Signal	CW
Frequency (MHz)	835.000000
Relative permittivity (real part)	41.732803
Conductivity (S/m)	0.892148
Power drift (%)	-0.010000
Ambient Temperature:	22.4°C
Liquid Temperature:	21.3°C
ConvF:	1.71
Crest factor:	1:1

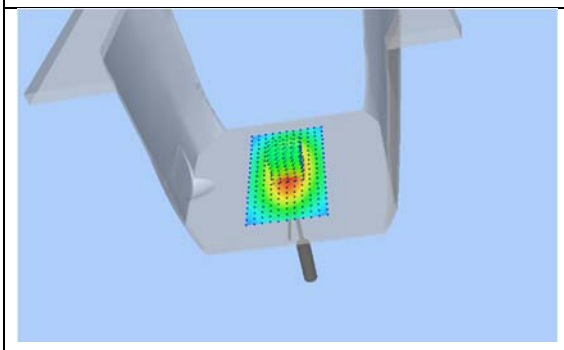
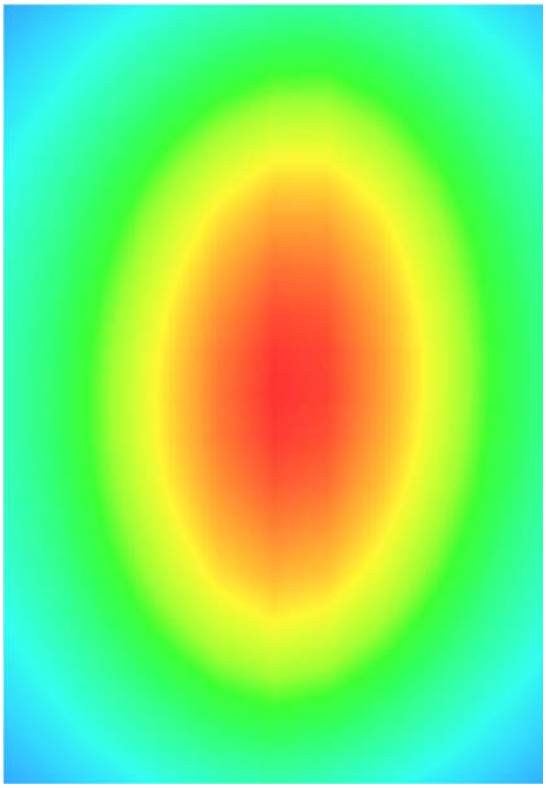
SURFACE SAR	VOLUME SAR
	

Maximum location: X=2.00, Y=1.00
SAR Peak: 1.31 W/kg

SAR 10 g (W/Kg)	0.577475
SAR 1g (W/Kg)	0.899412

Z Axis Scan



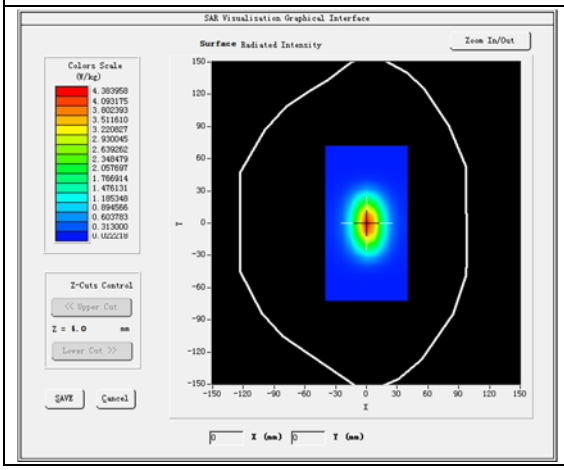
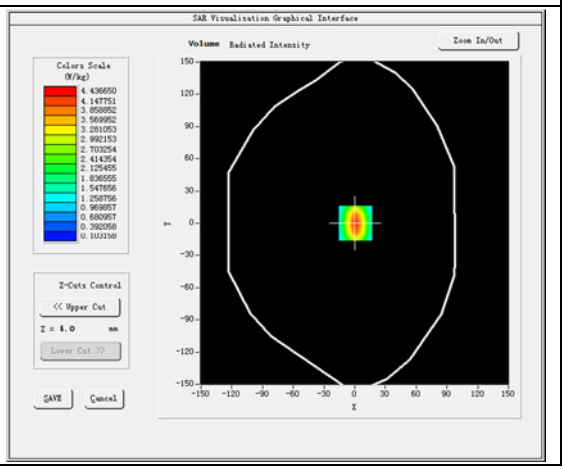
3D screen shot	Hot spot position
	

System Performance Check Data(1800MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020.07.11
Measurement duration: 13 minutes 48 seconds

Experimental conditions.

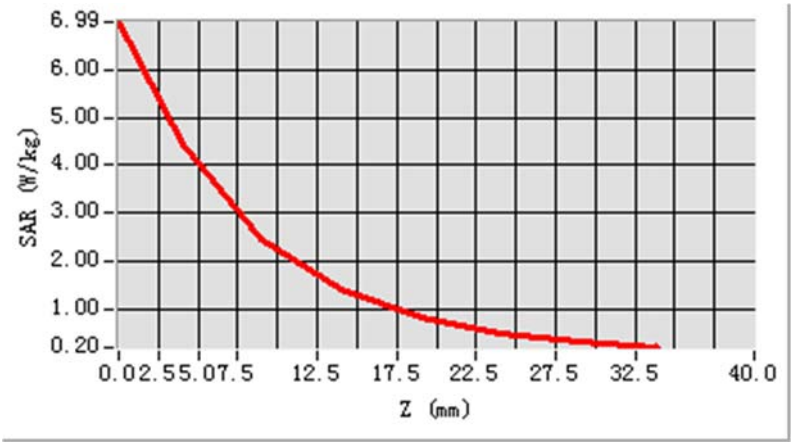
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	1800MHz
Signal	CW
Frequency (MHz)	1800.000000
Relative permittivity (real part)	39.784123
Conductivity (S/m)	1.412881
Power drift (%)	0.760000
Ambient Temperature:	22.5°C
Liquid Temperature:	21.3°C
ConvF:	1.86
Crest factor:	1:1

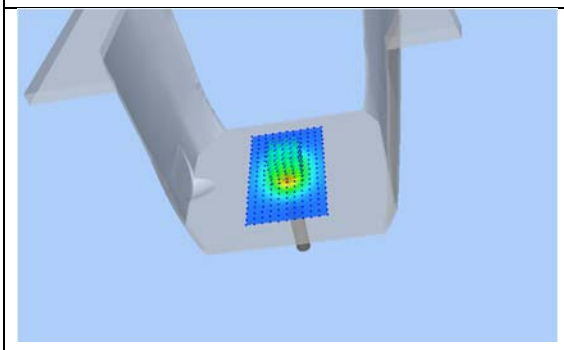
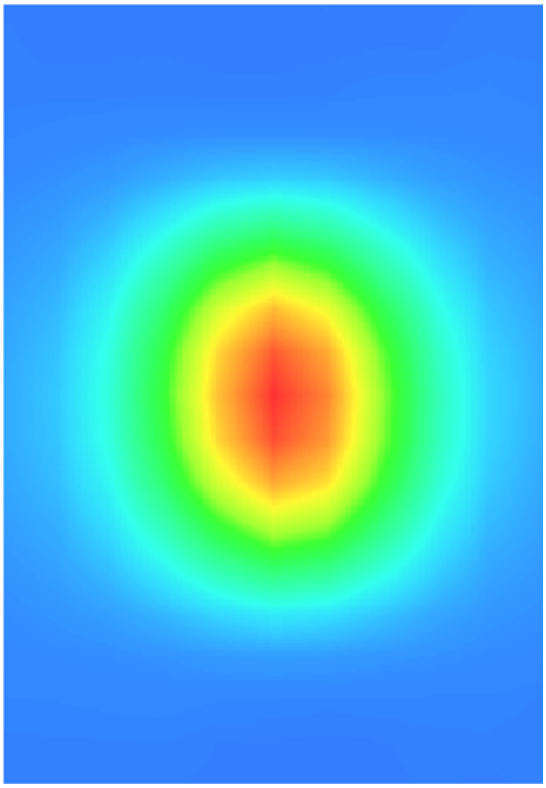
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00
SAR Peak: 6.93 W/kg

SAR 10 g (W/Kg)	2.151007
SAR 1g (W/Kg)	4.141611

Z Axis Scan



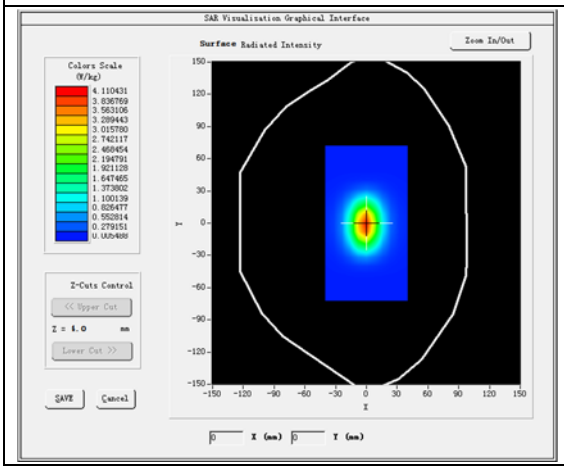
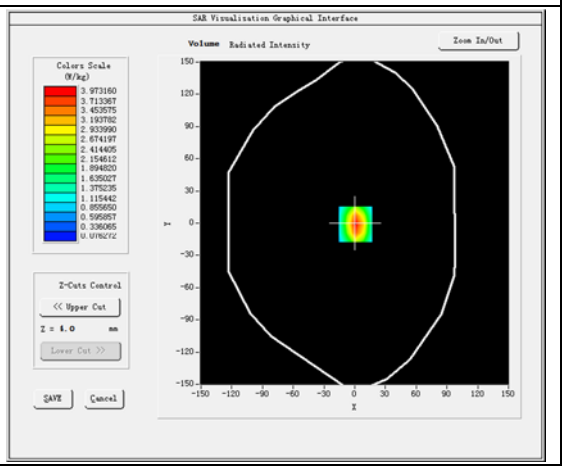
3D screen shot	Hot spot position
	

System Performance Check Data(1900MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020.07.10
Measurement duration: 13 minutes 54 seconds

Experimental conditions.

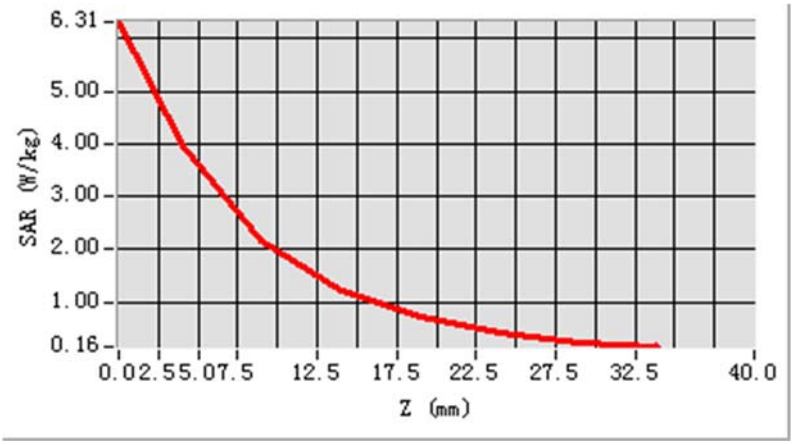
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	1900MHz
Signal	CW
Frequency (MHz)	1900.000000
Relative permittivity (real part)	40.031697
Conductivity (S/m)	1.400722
Power drift (%)	0.110000
Ambient Temperature:	22.1°C
Liquid Temperature:	20.8°C
ConvF:	2.17
Crest factor:	1:1

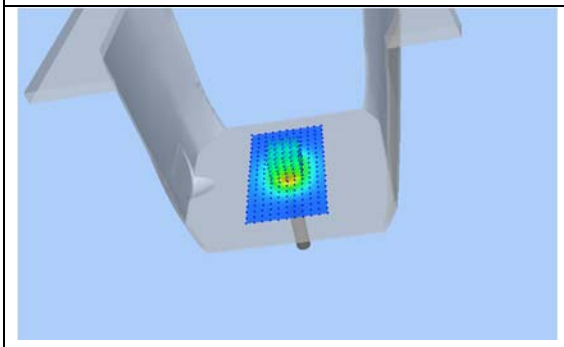
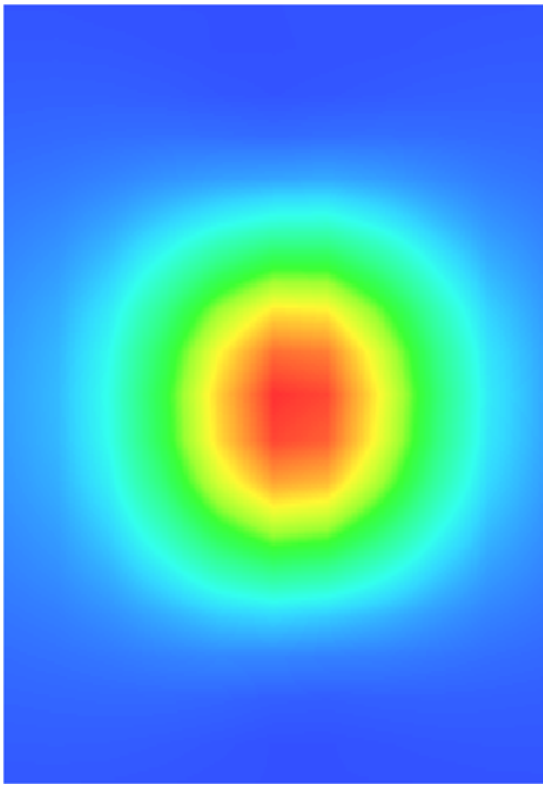
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-1.00
SAR Peak: 6.29W/kg

SAR 10g (W/Kg)	1.913324
SAR 1g (W/Kg)	3.819634

Z Axis Scan



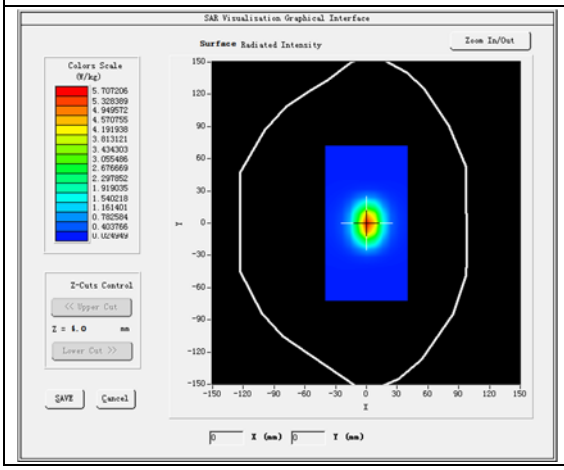
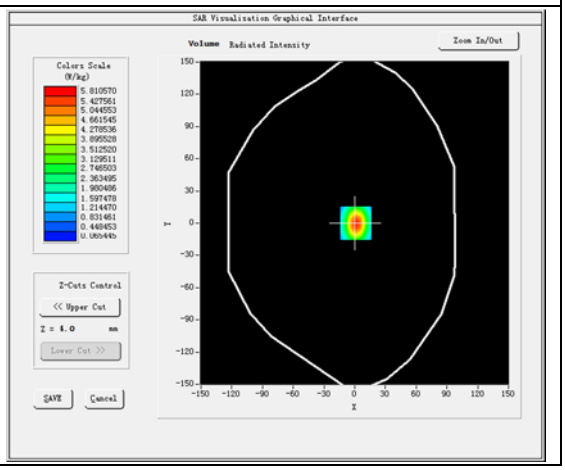
3D screen shot	Hot spot position
	

System Performance Check Data(2450MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2020.07.09
Measurement duration: 18 minutes 42 seconds

Experimental conditions.

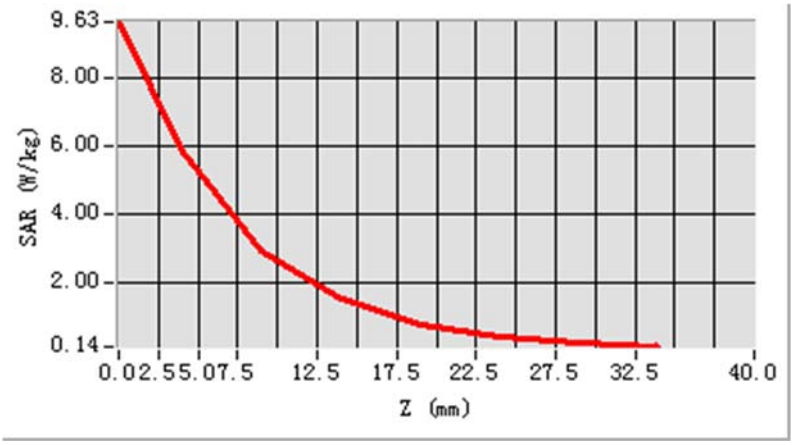
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	2450MHz
Signal	CW
Frequency (MHz)	2450.000000
Relative permittivity (real part)	39.102874
Conductivity (S/m)	1.785790
Power drift (%)	-0.310000
Ambient Temperature:	22.5°C
Liquid Temperature:	21.1°C
ConvF:	2.33
Crest factor:	1:1

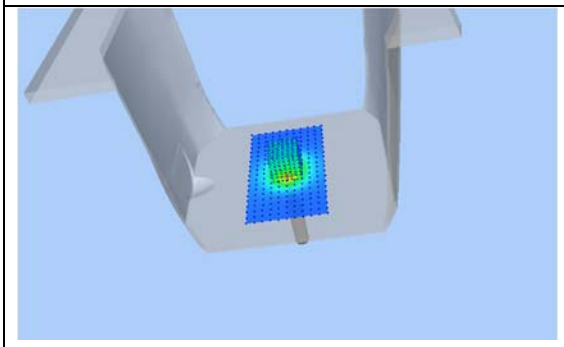
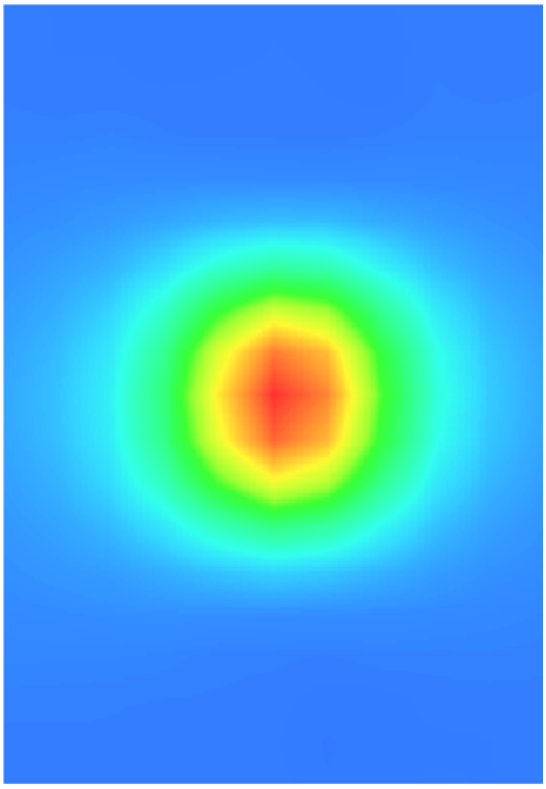
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00
SAR Peak: 9.55 W/kg

SAR 10g (W/Kg)	2.486297
SAR 1g (W/Kg)	5.312619

Z Axis Scan



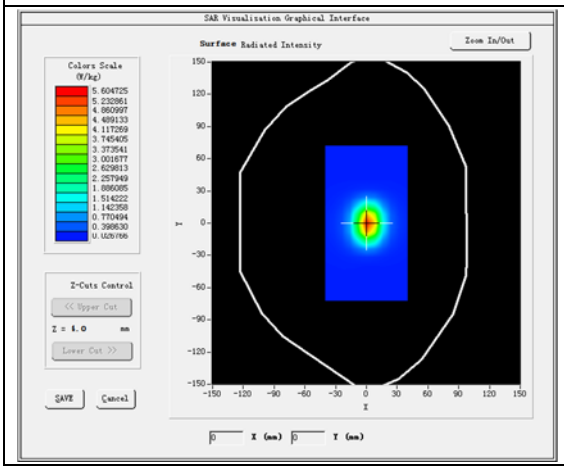
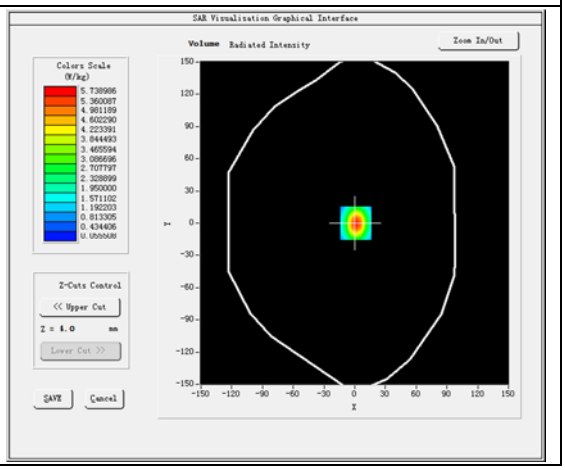
3D screen shot	Hot spot position
	

System Performance Check Data(2600MHz)

Type: Phone measurement (Complete)
E-Field Probe: SN 31/17 EPGO321
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2020.07.09
Measurement duration: 19 minutes 8 seconds

Experimental conditions.

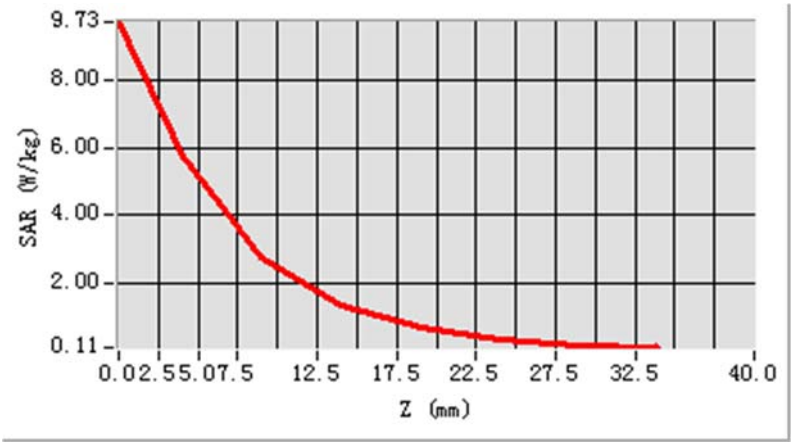
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Band	2600MHz
Signal	CW
Frequency (MHz)	2600.000000
Relative permittivity (real part)	38.702541
Conductivity (S/m)	1.960141
Power drift (%)	-0.040000
Ambient Temperature:	22.5°C
Liquid Temperature:	21.4°C
ConvF:	2.29
Crest factor:	1:1

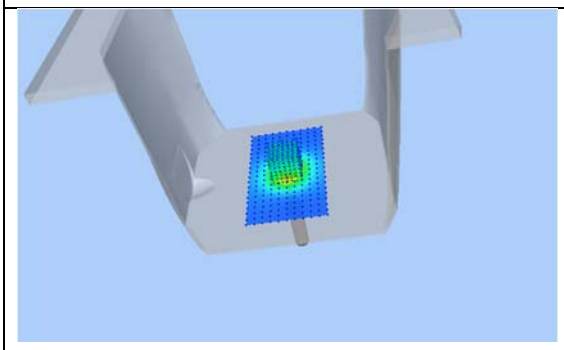
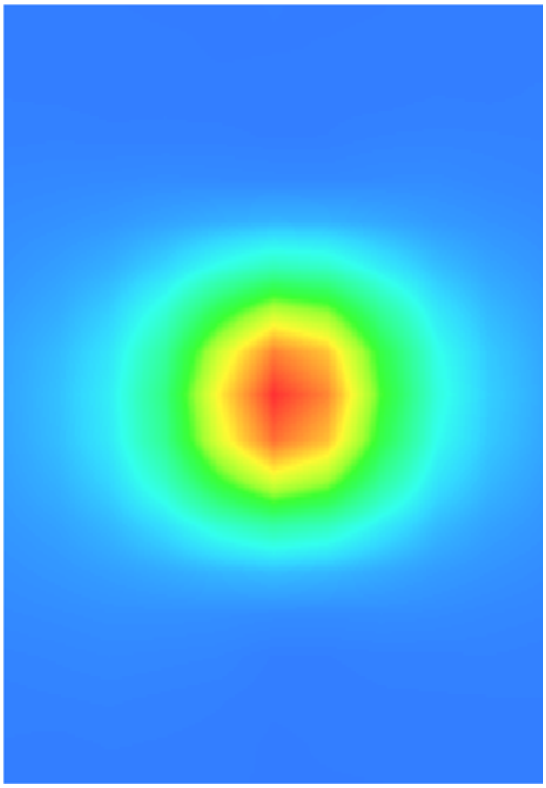
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00
SAR Peak:9.65W/kg

SAR 10g (W/Kg)	2.351218
SAR 1g (W/Kg)	5.402347

Z Axis Scan



3D screen shot	Hot spot position
	

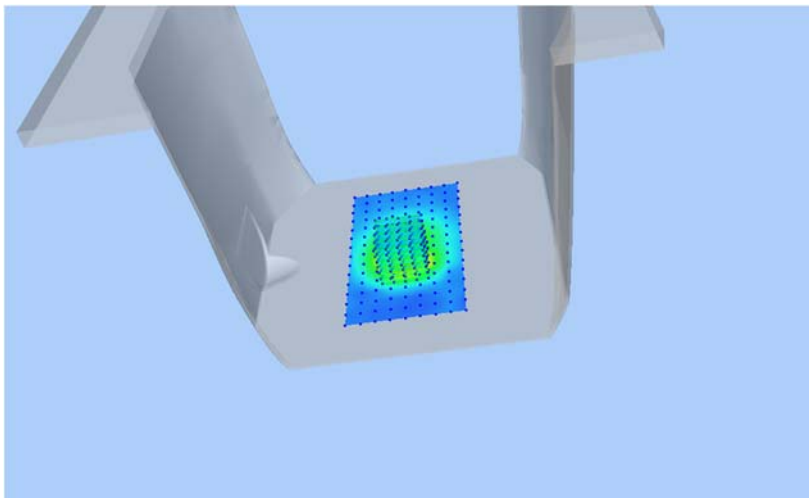
ANNEX C TEST DATA

MEAS. 1 Body Plane with Front Side 10 mm on High Channel in GPRS 850

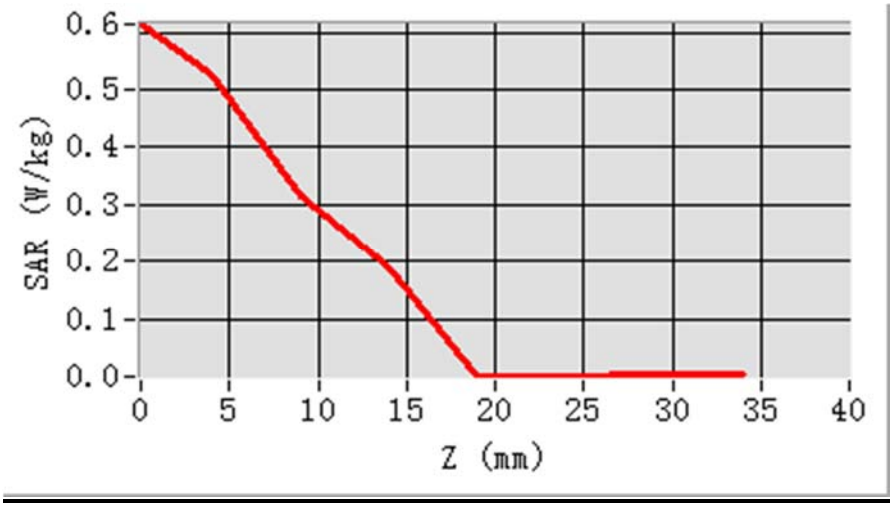
4slots mode

Test Date:	8/7/2020
Measurement duration:	13 minutes 45 seconds
Signal:	GSM, f=848.8 MHz, Duty Cycle: 1:2.0
Liquid Parameters:	Permittivity: 41.57; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=-10.000000, Y=-12.000000
SAR 10g (W/Kg):	0.257107
SAR 1g (W/Kg):	0.458527
Power drift (%):	-0.03

3D screen shot



Z Axis Scan

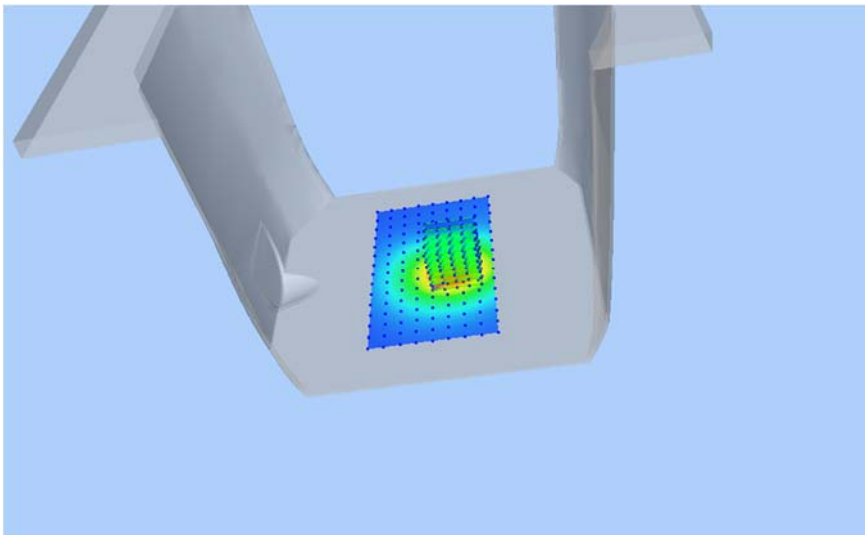


MEAS. 2 Body Plane with Back Side 0 mm on High Channel in GPRS 850

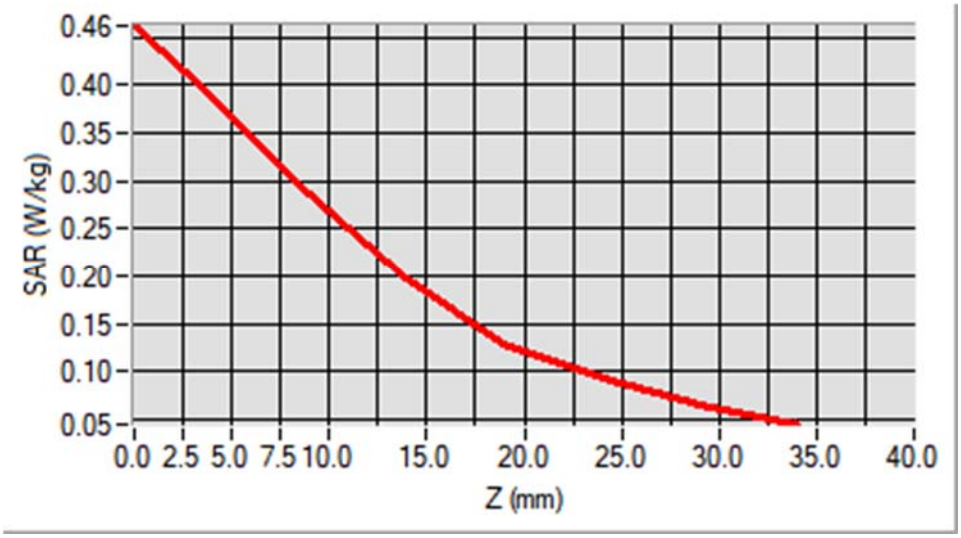
4slots mode

Test Date:	8/7/2020
Measurement duration:	13 minutes 53 seconds
Signal:	GSM, f=848.8 MHz, Duty Cycle: 1:2.0
Liquid Parameters:	Permittivity: 41.57; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=20.000000, Y=-12.000000
SAR 10g (W/Kg):	0.230638
SAR 1g (W/Kg):	0.377044
Power drift (%):	-3.06

3D screen shot



Z Axis Scan

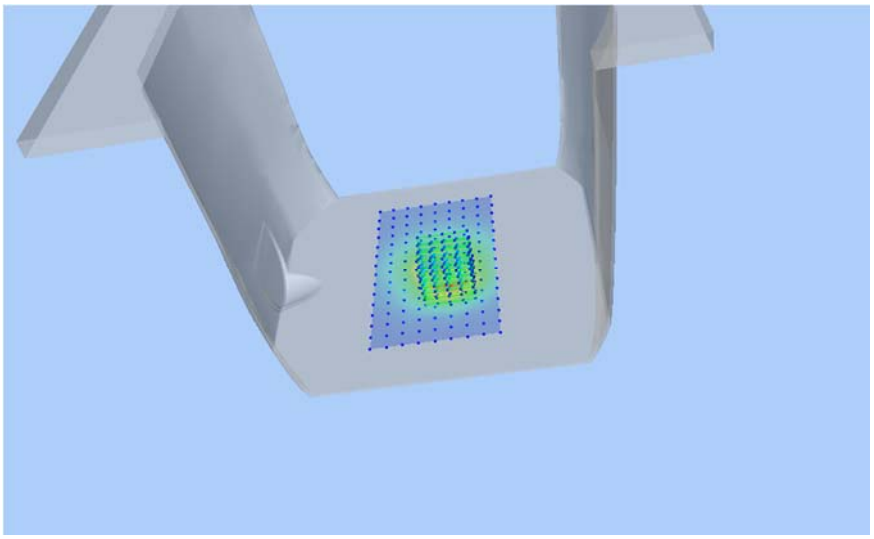


MEAS. 3 Body Plane with Front Side 10 mm on High Channel in GPRS 1900

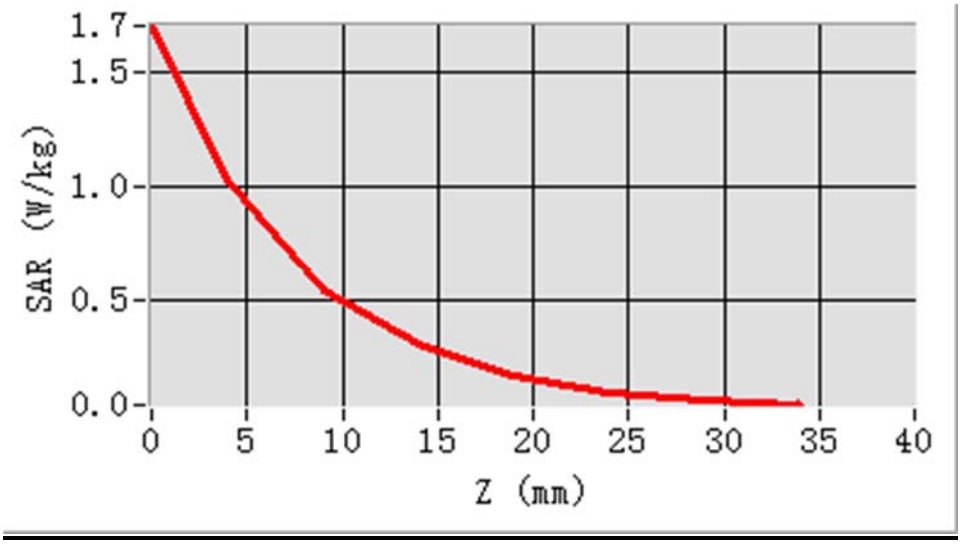
4slots mode

Test Date:	10/7/2020
Measurement duration:	12 minutes 49 seconds
Signal:	GSM, f=1909.8 MHz, Duty Cycle: 1:2.0
Liquid Parameters:	Permittivity: 39.92; Conductivity: 1.40 S/m
Test condition:	Ambient Temperature: 22.1°C, Liquid Temperature: 20.8°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-22.000000
SAR 10g (W/Kg):	0.476247
SAR 1g (W/Kg):	0.957907
Power drift (%):	-1.02

3D screen shot



Z Axis Scan

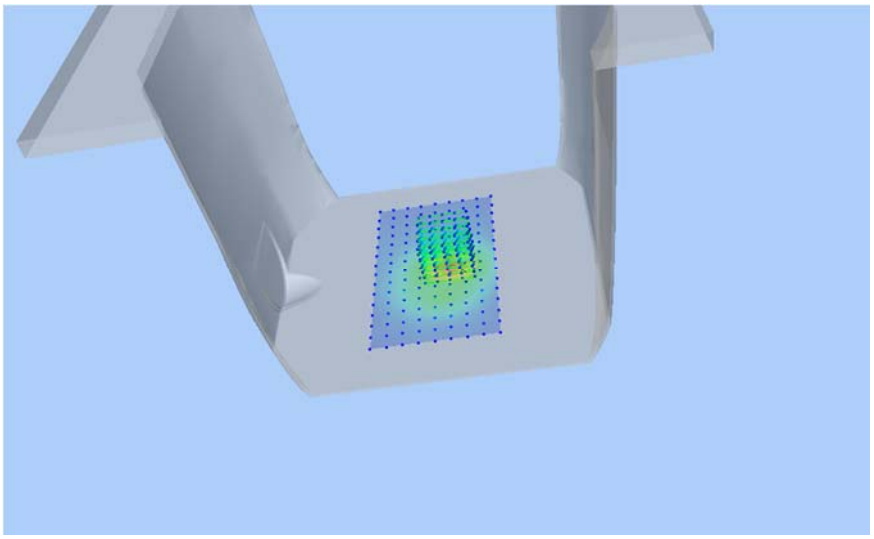


MEAS. 4 Body Plane with Back Side 0 mm on Low Channel in GPRS 1900

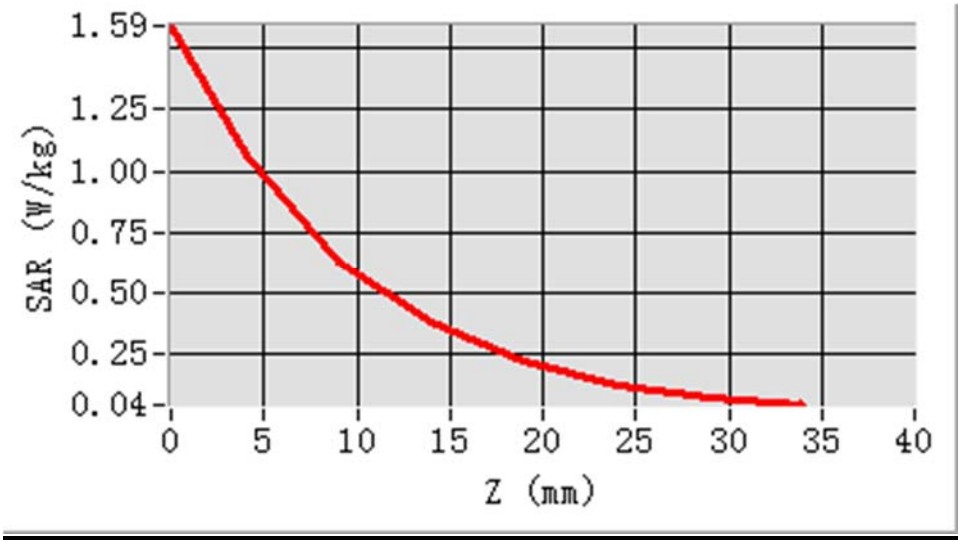
4slots mode

Test Date:	1/3/2020
Measurement duration:	11 minutes 57 seconds
Signal:	GSM, f=1850.2 MHz, Duty Cycle: 1:2.0
Liquid Parameters:	Permittivity: 40.59; Conductivity: 1.38 S/m
Test condition:	Ambient Temperature: 22.1°C, Liquid Temperature: 20.8°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-2.000000
SAR 10g (W/Kg):	0.495507
SAR 1g (W/Kg):	0.976540
Power drift (%):	4.47

3D screen shot



Z Axis Scan

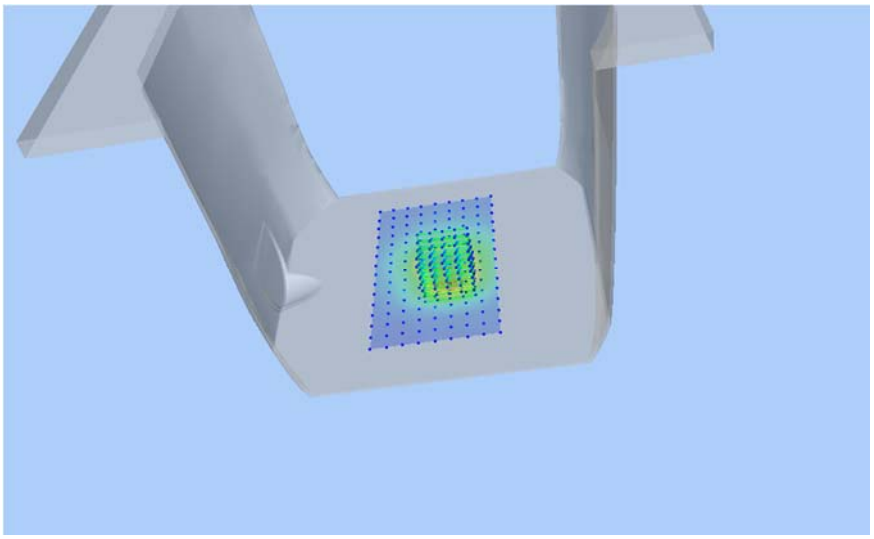


MEAS. 5 Body Plane with Front Side 10 mm on High Channel in WCDMA Band

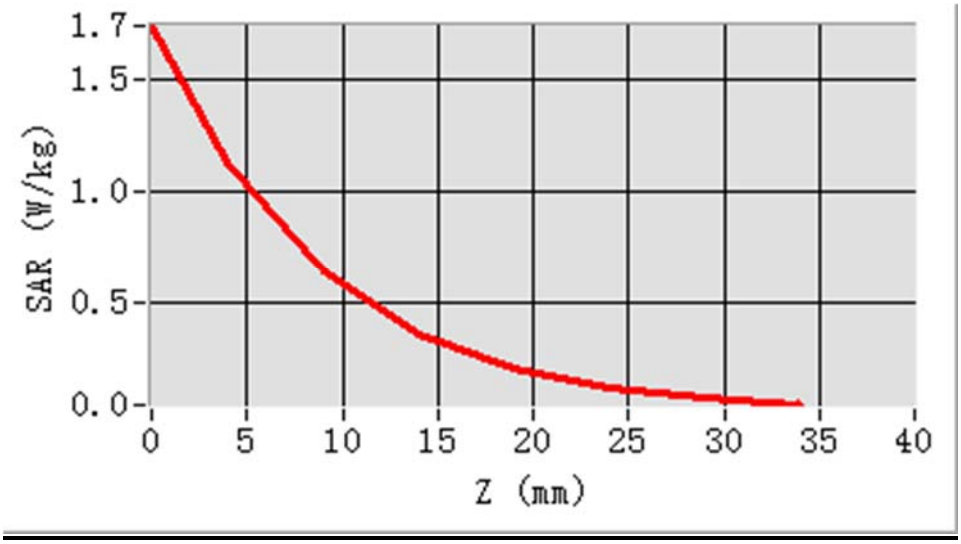
2 mode

Test Date:	10/7/2020
Measurement duration:	12 minutes 34 seconds
Signal:	WCDMA, f=1907.6 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 39.95; Conductivity: 1.40 S/m
Test condition:	Ambient Temperature: 22.1°C, Liquid Temperature: 20.8°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-22.000000
SAR 10g (W/Kg):	0.535689
SAR 1g (W/Kg):	1.044567
Power drift (%):	-4.90

3D screen shot



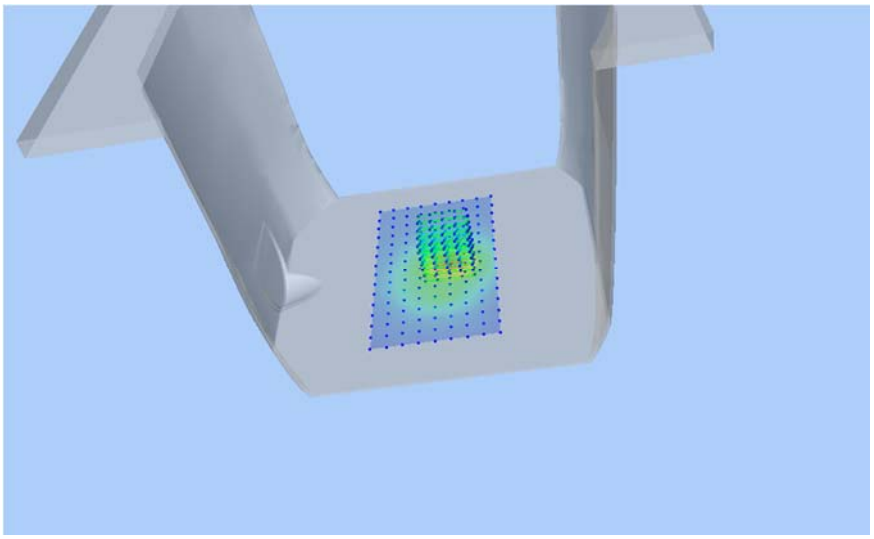
Z Axis Scan



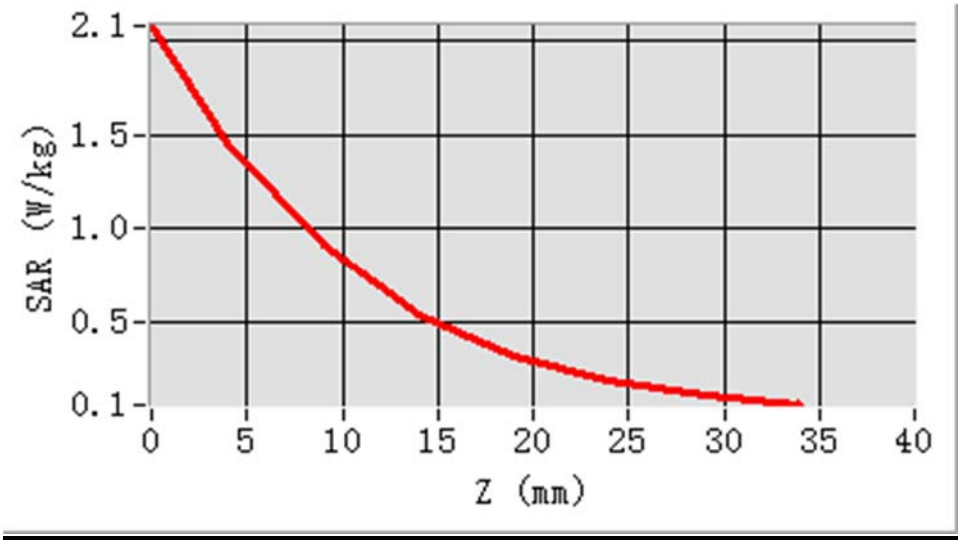
MEAS. 6 Body Plane with Back Side 0 mm on Low Channel in WCDMA Band 2 mode

Test Date:	10/7/2020
Measurement duration:	13 minutes 19 seconds
Signal:	WCDMA, f=1852.4 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.56; Conductivity: 1.38 S/m
Test condition:	Ambient Temperature: 22.1°C, Liquid Temperature: 20.8°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-2.000000
SAR 10g (W/Kg):	0.708541
SAR 1g (W/Kg):	1.343986
Power drift (%):	-1.28

3D screen shot



Z Axis Scan

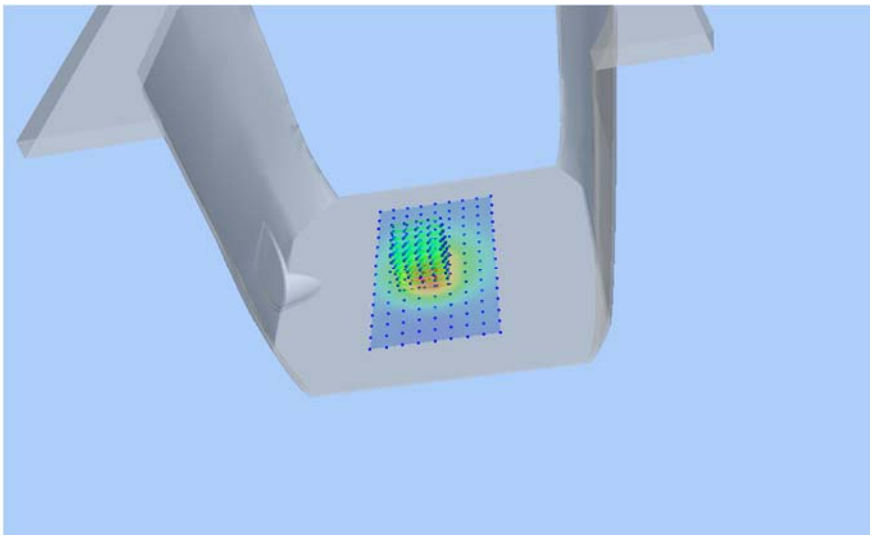


MEAS. 7 Body Plane with Front Side 10 mm on High Channel in WCDMA Band

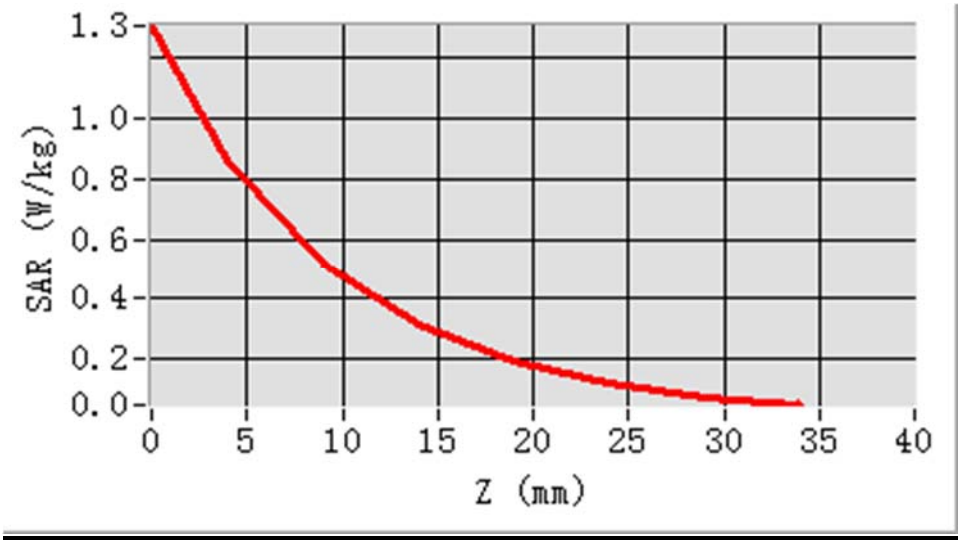
4 mode

Test Date:	11/7/2020
Measurement duration:	12 minutes 54 seconds
Signal:	WCDMA, f=1752.6 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.12; Conductivity: 1.38 S/m
Test condition:	Ambient Temperature: 22.5°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.86
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=-10.000000, Y=-2.000000
SAR 10g (W/Kg):	0.473361
SAR 1g (W/Kg):	0.830374
Power drift (%):	1.35

3D screen shot



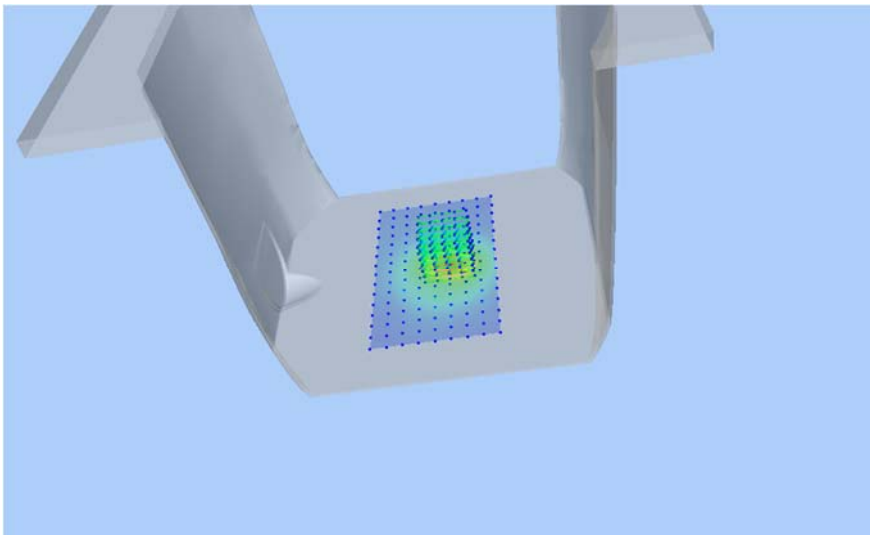
Z Axis Scan



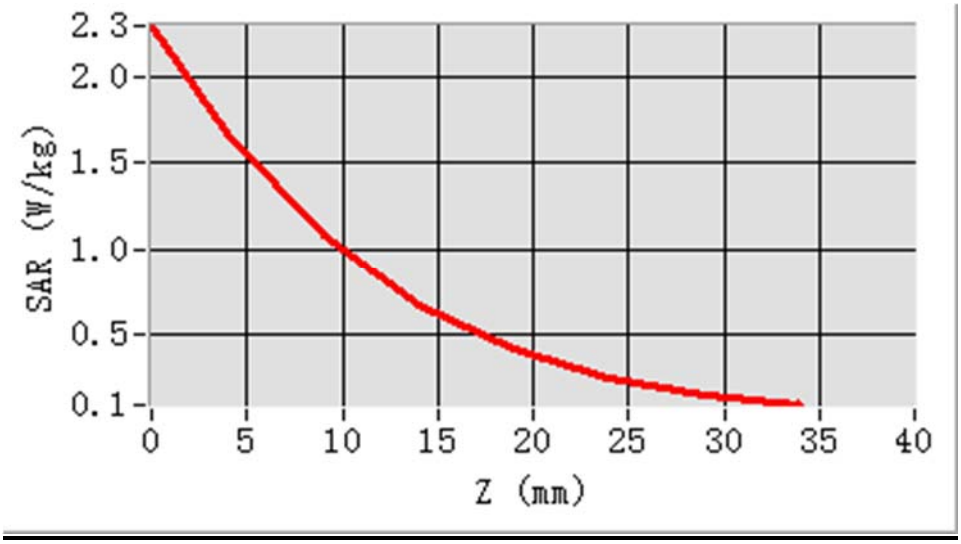
MEAS. 8 Body Plane with Back Side 0 mm on High Channel in WCDMA Band 4 mode

Test Date:	28/2/2020
Measurement duration:	12 minutes 53 seconds
Signal:	WCDMA, f=1752.6 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.12; Conductivity: 1.38 S/m
Test condition:	Ambient Temperature: 22.5°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.86
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=--2.000000
SAR 10g (W/Kg):	0.839196
SAR 1g (W/Kg):	1.544262
Power drift (%):	-1.47

3D screen shot



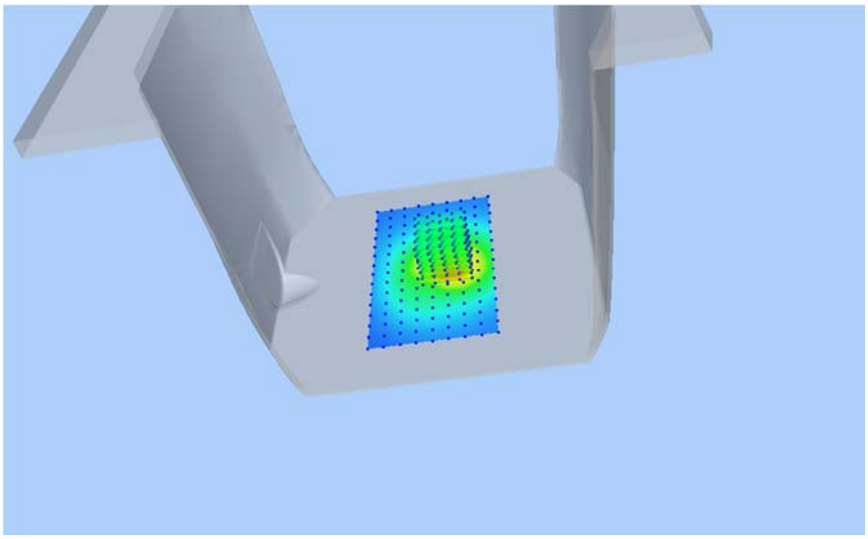
Z Axis Scan



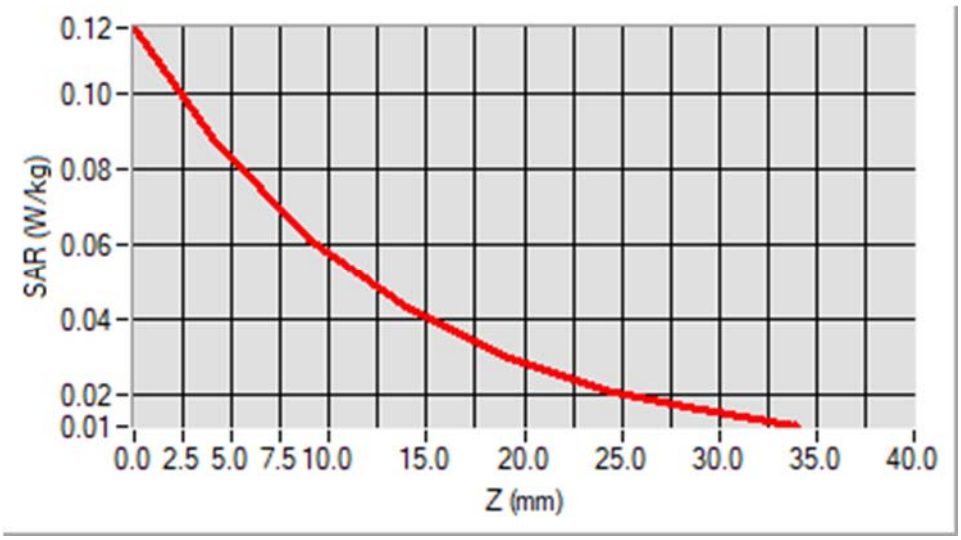
MEAS. 9 Body Plane with Front Side 10 mm on High Channel in WCDMA Band 5 mode

Test Date:	8/7/2020
Measurement duration:	13 minutes 53 seconds
Signal:	WCDMA, f=846.6 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 41.60; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.6°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-2.000000
SAR 10g (W/Kg):	0.055217
SAR 1g (W/Kg):	0.089254
Power drift (%):	-1.37

3D screen shot



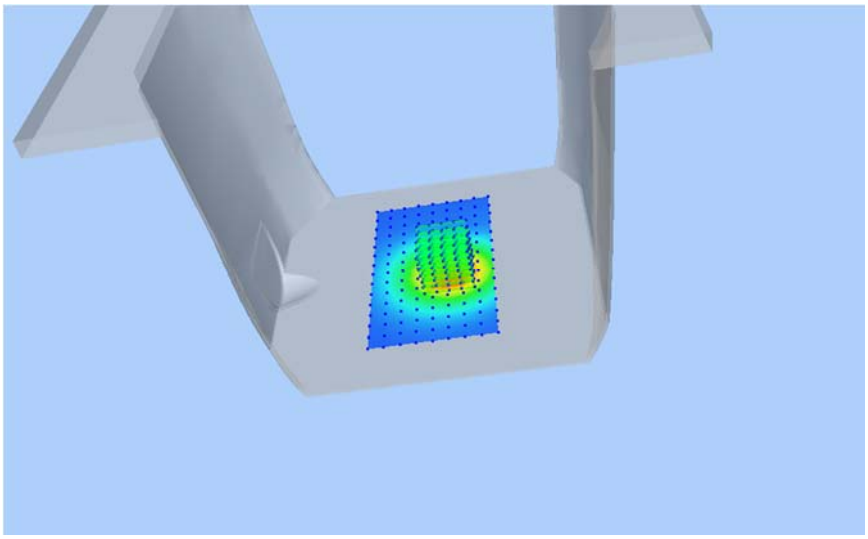
Z Axis Scan



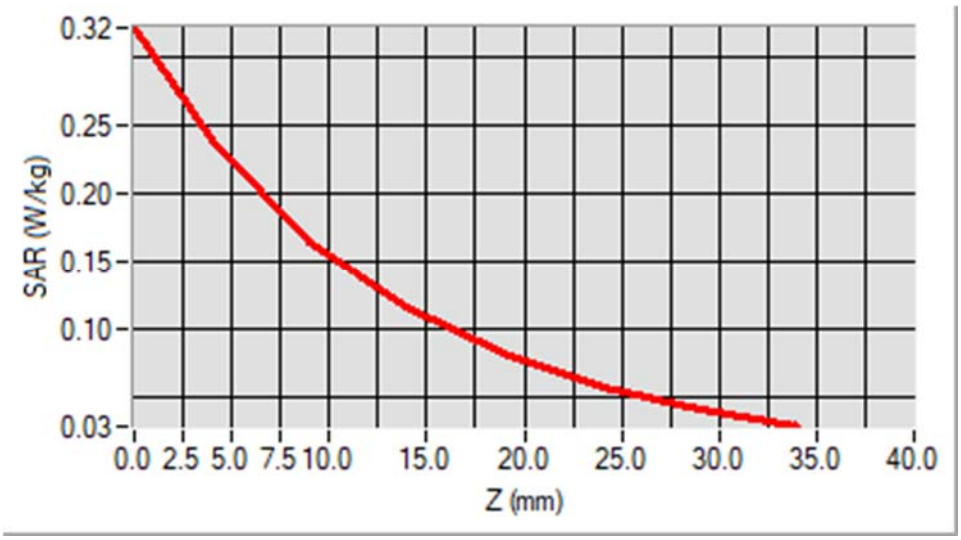
MEAS. 10 Body Plane with Back Side 0 mm on High Channel in WCDMA Band 5 mode

Test Date:	24/2/2020
Measurement duration:	13 minutes 54 seconds
Signal:	WCDMA, f=846.6 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 41.60; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.6°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-12.000000
SAR 10g (W/Kg):	0.158157
SAR 1g (W/Kg):	0.286131
Power drift (%):	0.88

3D screen shot



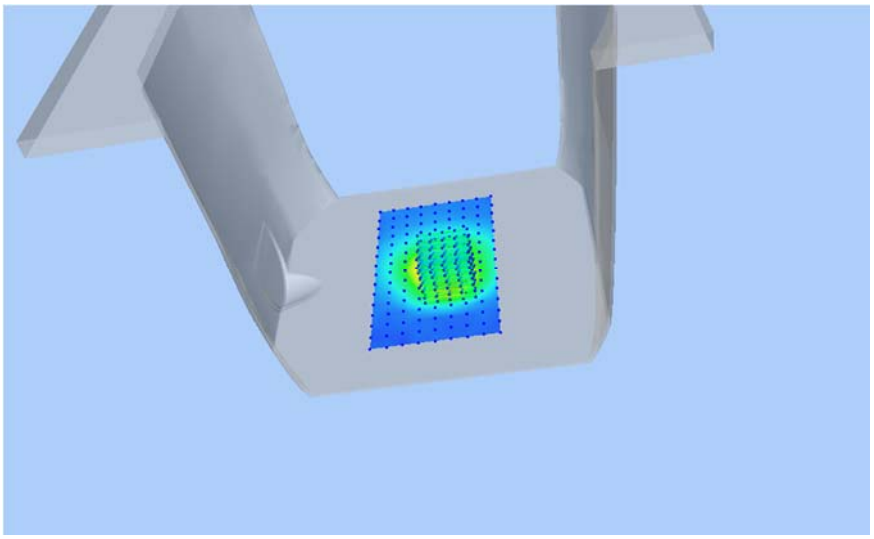
Z Axis Scan



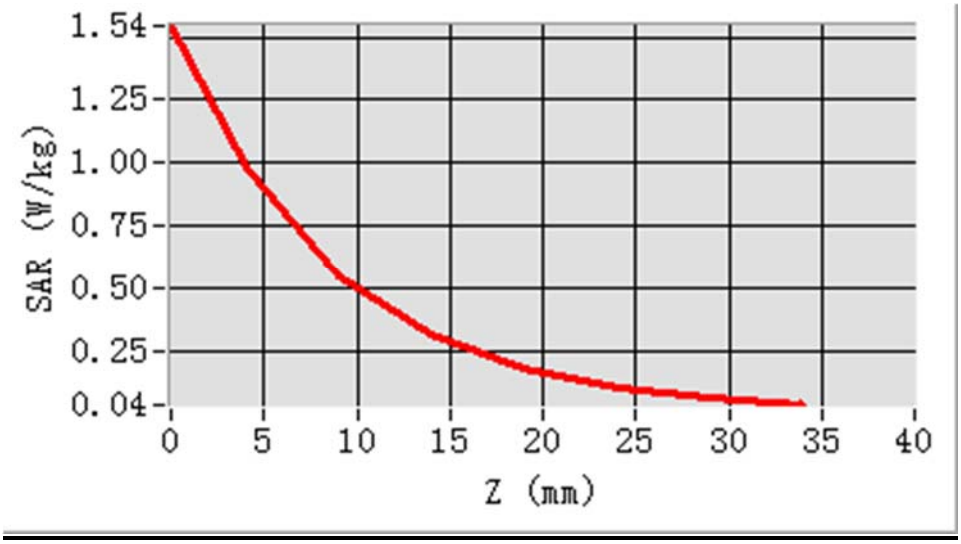
MEAS. 11 Body Plane with Front Side 10 mm on Middle Channel in LTE Band 2 mode with 1RB

Test Date:	10/7/2020
Measurement duration:	11 minutes 34 seconds
Signal:	LTE, f=1880.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.25; Conductivity: 1.39 S/m
Test condition:	Ambient Temperature: 22.5°C, Liquid Temperature: 21.4°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=-10.000000, Y=-22.000000
SAR 10g (W/Kg):	0.461841
SAR 1g (W/Kg):	0.902475
Power drift (%):	2.98

3D screen shot



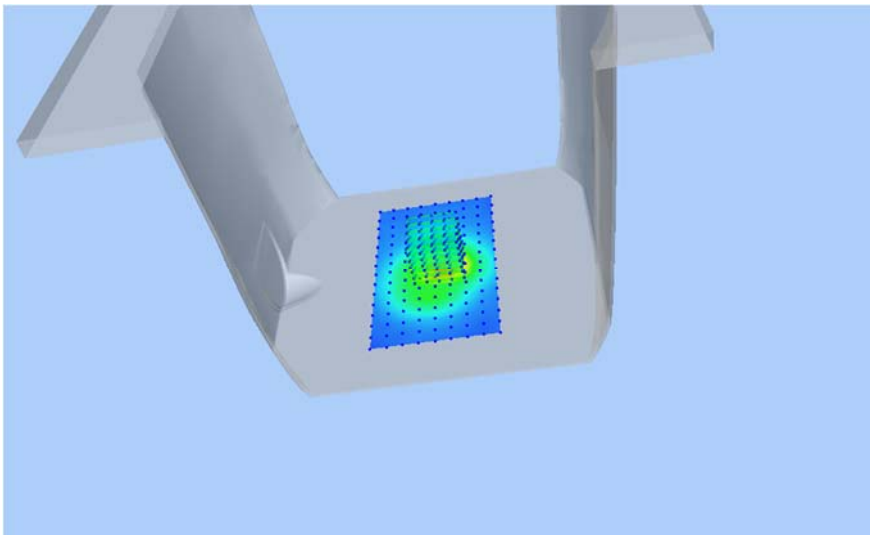
Z Axis Scan



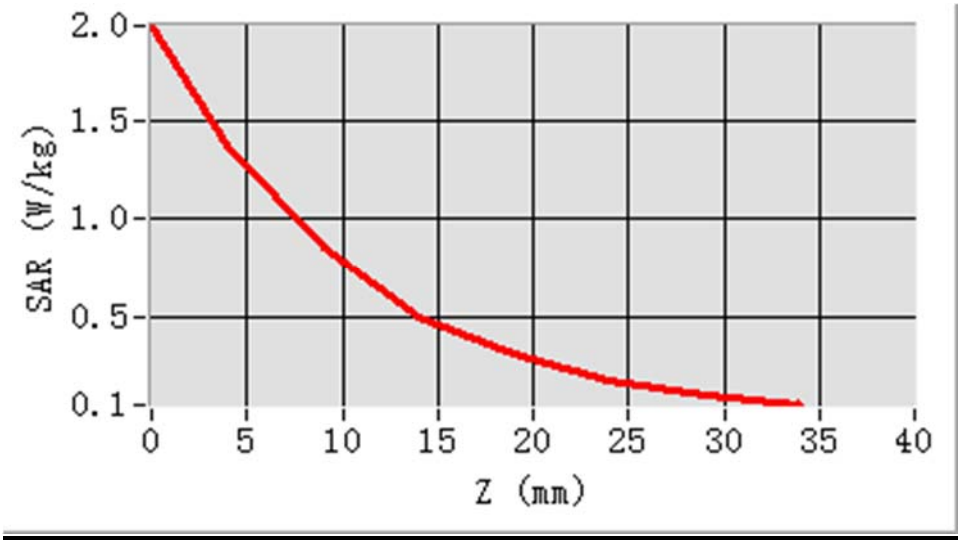
MEAS. 12 Body Plane with Back Side 0 mm on Middle Channel in LTE Band 2 mode with 1RB

Test Date:	10/7/2020
Measurement duration:	13 minutes 2 seconds
Signal:	LTE, f=1880.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.25; Conductivity: 1.39 S/m
Test condition:	Ambient Temperature: 22.5°C, Liquid Temperature: 21.4°C
Probe:	SN 31/17 EPGO321, ConvF: 2.17
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-2.000000
SAR 10g (W/Kg):	0.662536
SAR 1g (W/Kg):	1.268511
Power drift (%):	-0.19

3D screen shot



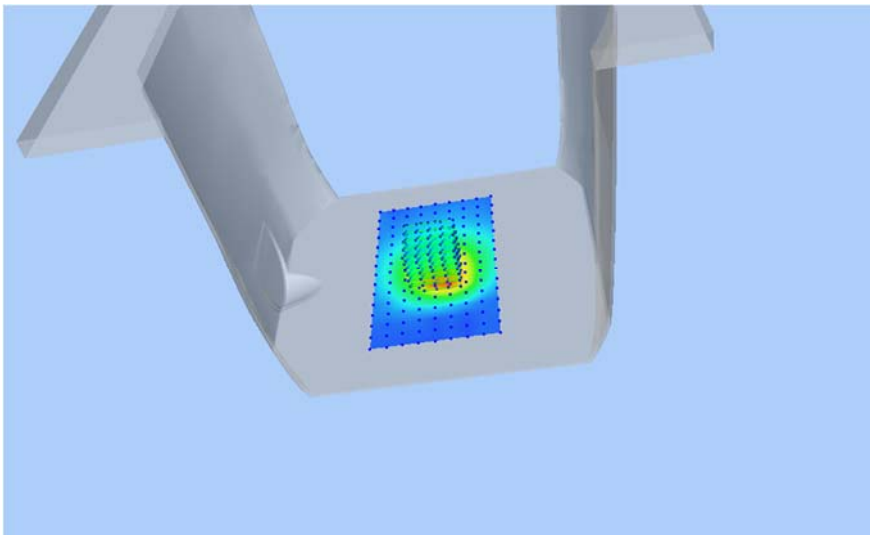
Z Axis Scan



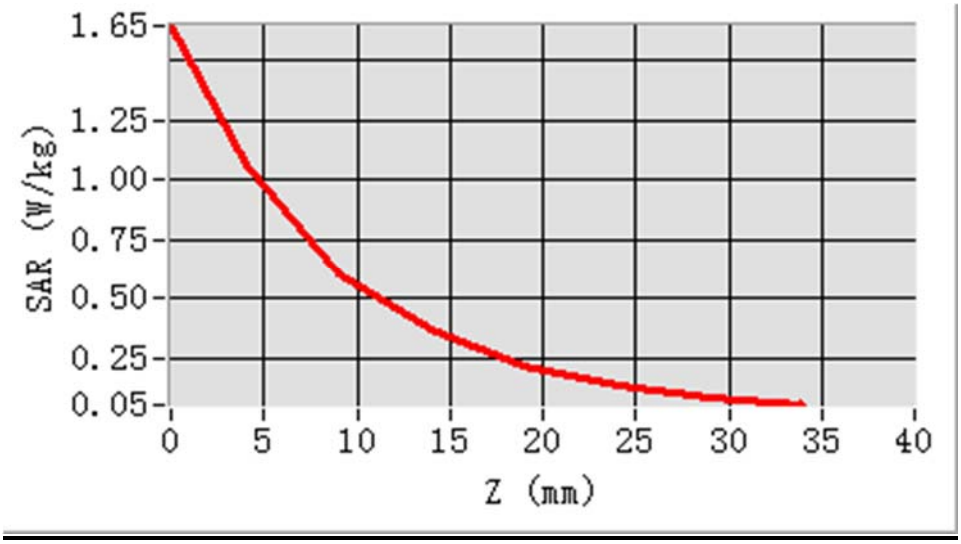
MEAS. 13 Body Plane with Front Side 10 mm on Middle Channel in LTE Band 4 mode with 1RB

Test Date:	11/7/2020
Measurement duration:	12 minutes 28 seconds
Signal:	LTE, f=1732.5 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.33; Conductivity: 1.36 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.86
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-12.000000
SAR 10g (W/Kg):	0.566628
SAR 1g (W/Kg):	1.031442
Power drift (%):	1.96

3D screen shot



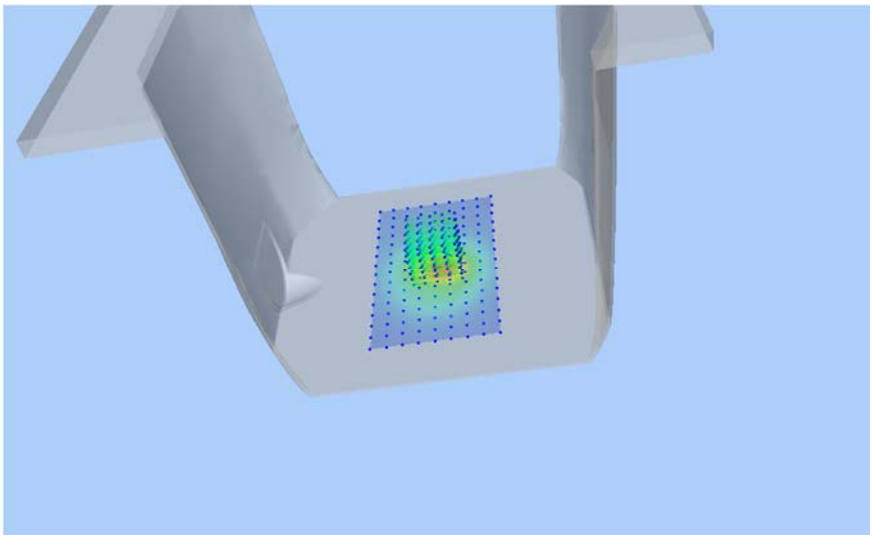
Z Axis Scan



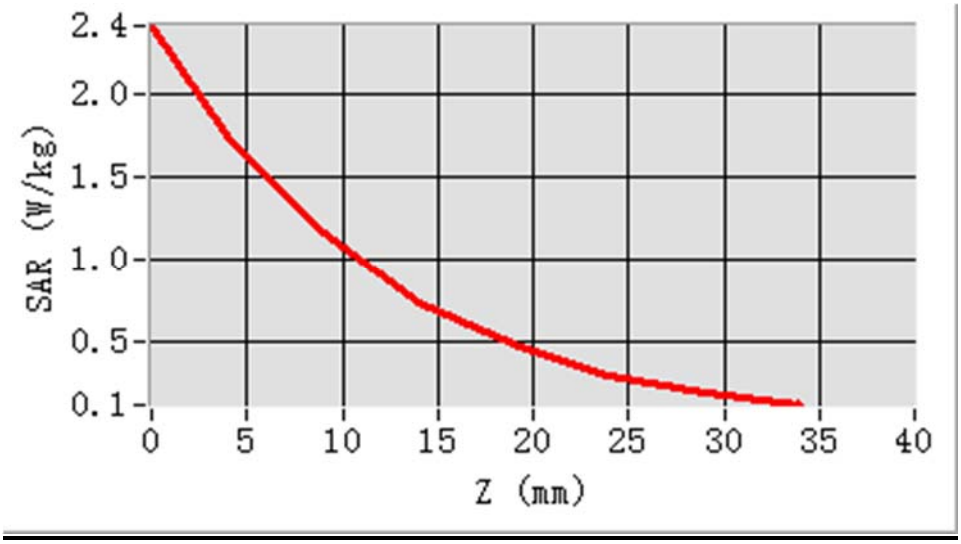
MEAS. 14 Body Plane with Back Side 0 mm on Middle Channel in LTE Band 4 mode with 1RB

Test Date:	29/2/2020
Measurement duration:	12 minutes 46 seconds
Signal:	LTE, f=1745.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 40.20; Conductivity: 1.37 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.86
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-2.000000
SAR 10g (W/Kg):	0.889019
SAR 1g (W/Kg):	1.648714
Power drift (%):	-0.32

3D screen shot



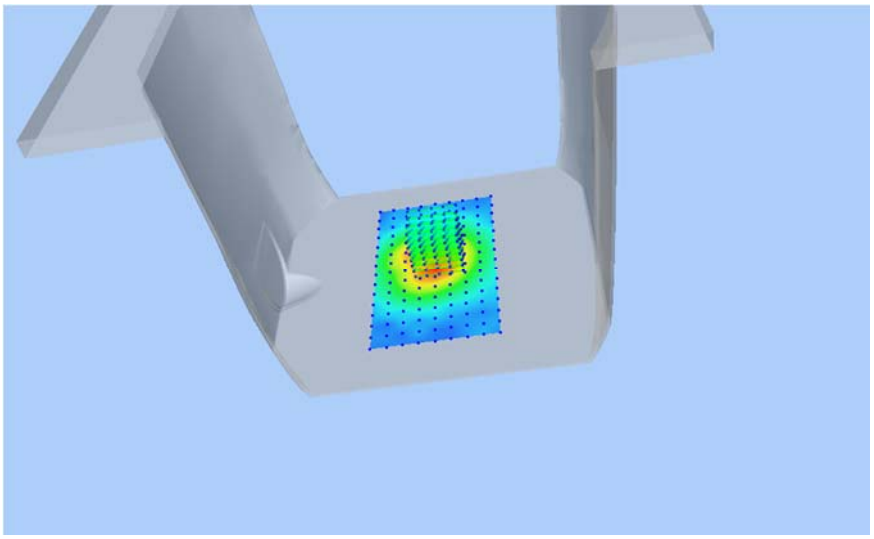
Z Axis Scan



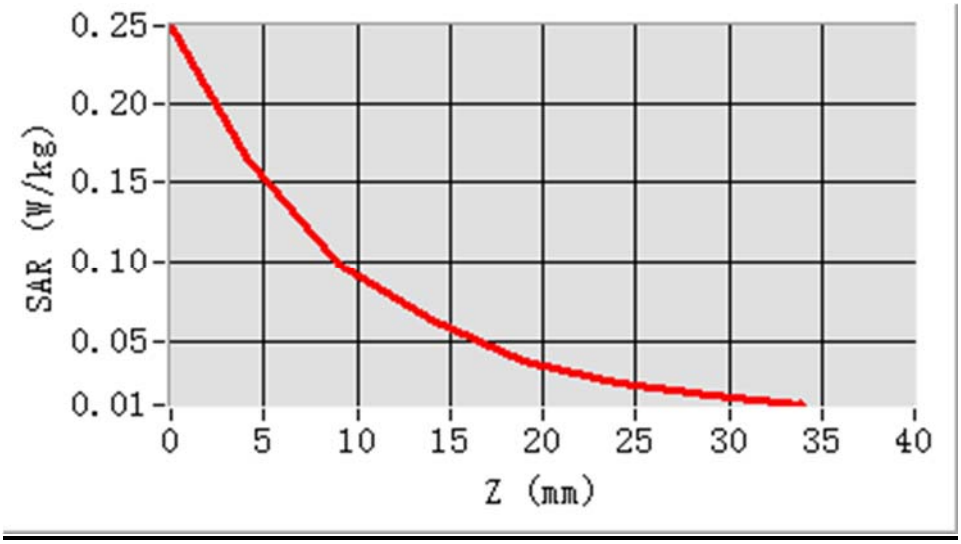
MEAS. 15 Body Plane with Front Side 10 mm on High Channel in LTE Band 5 mode with 1RB

Test Date:	8/7/2020
Measurement duration:	12 minutes 20 seconds
Signal:	LTE, f=844.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 41.62; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.6°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-8.000000
SAR 10g (W/Kg):	0.091750
SAR 1g (W/Kg):	0.157886
Power drift (%):	-0.62

3D screen shot



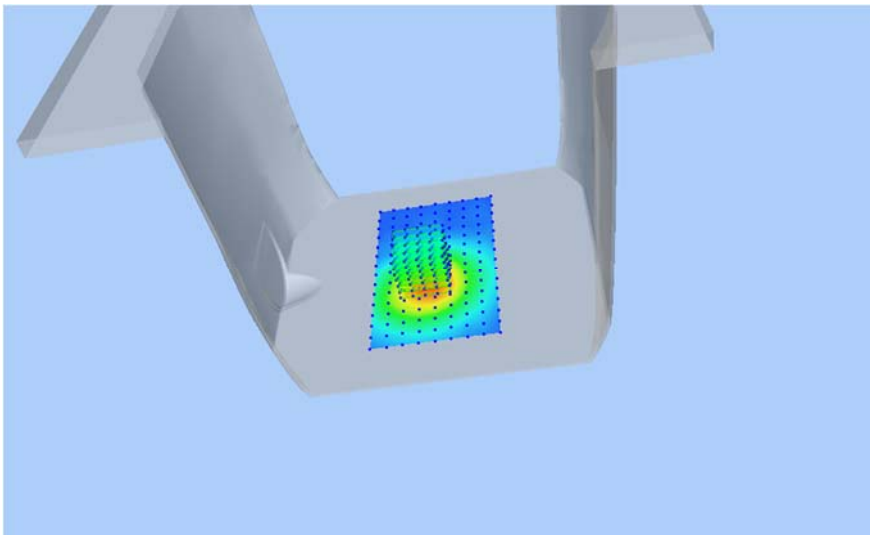
Z Axis Scan



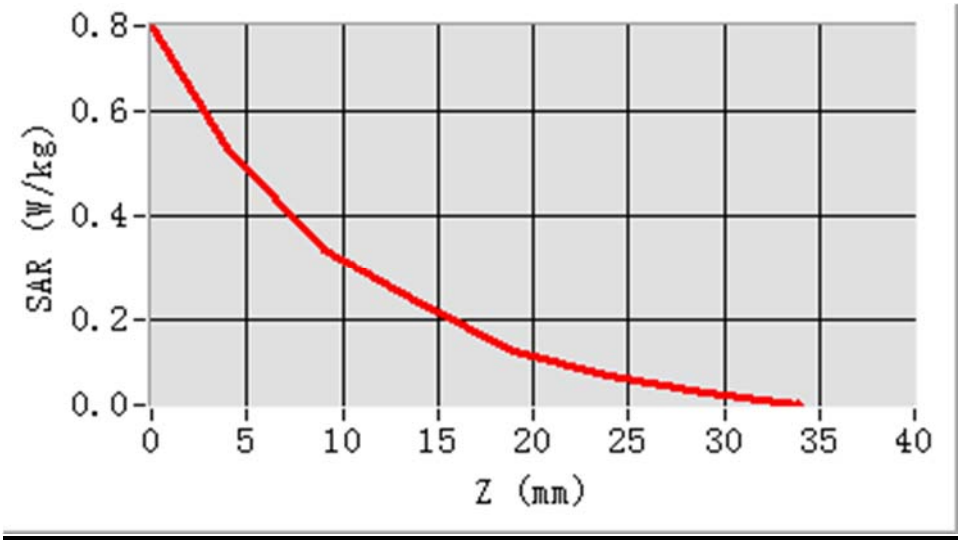
MEAS. 16 Body Plane with Back Side 0 mm on High Channel in LTE Band 5 mode with 1RB

Test Date:	8/7/2020
Measurement duration:	12 minutes 37 seconds
Signal:	LTE, f=844.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 41.62; Conductivity: 0.90 S/m
Test condition:	Ambient Temperature: 22.7°C, Liquid Temperature: 21.6°C
Probe:	SN 31/17 EPGO321, ConvF: 1.71
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=-10.000000, Y=-12.000000
SAR 10g (W/Kg):	0.297797
SAR 1g (W/Kg):	0.506804
Power drift (%):	4.38

3D screen shot



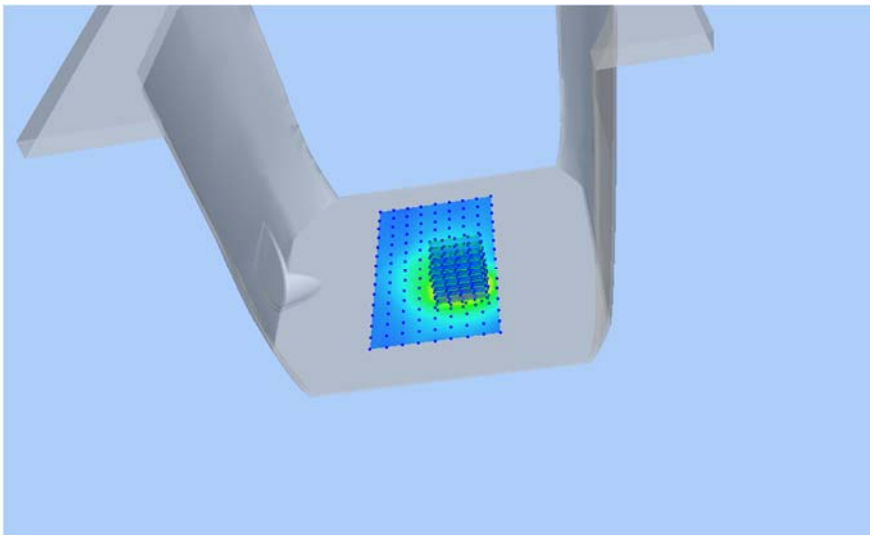
Z Axis Scan



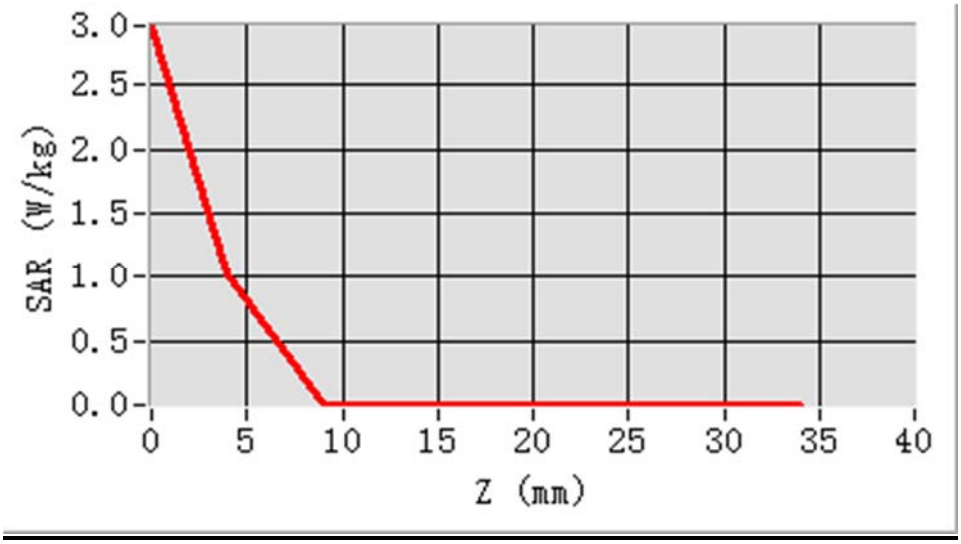
MEAS. 17 Body Plane with Front Side 10 mm on Middle Channel in LTE Band 7 mode with 1RB

Test Date:	9/7/2020
Measurement duration:	18 minutes 29 seconds
Signal:	LTE, f=2535.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 39.41; Conductivity: 1.88 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.5°C
Probe:	SN 31/17 EPGO321, ConvF: 2.38
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=20.000000, Y=-32.000000
SAR 10g (W/Kg):	0.378725
SAR 1g (W/Kg):	1.118389
Power drift (%):	2.07

3D screen shot



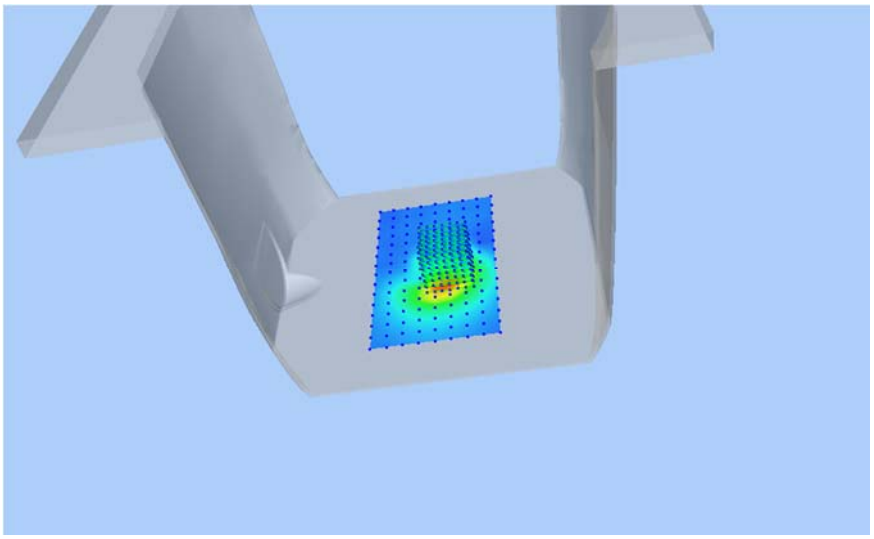
Z Axis Scan



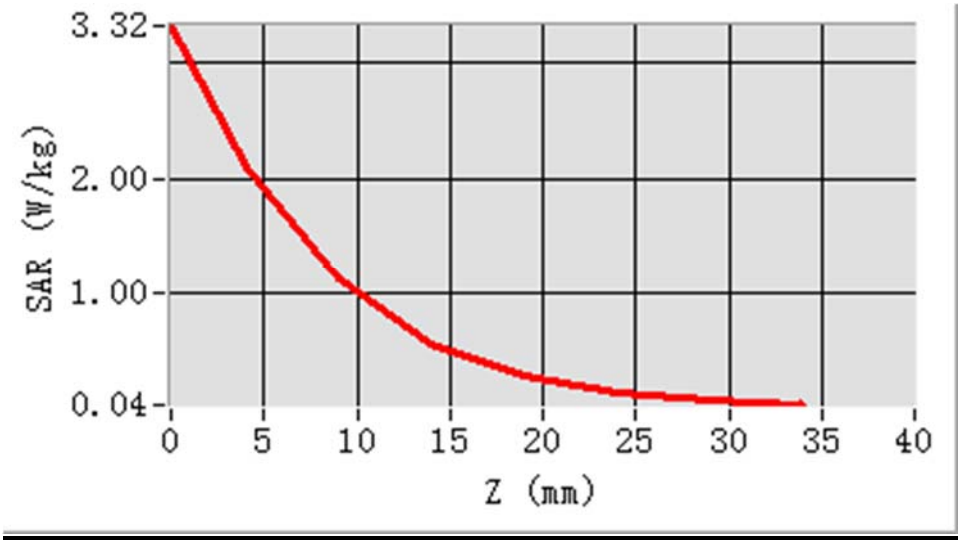
MEAS. 18 Body Plane with Back Side 0 mm on Middle Channel in LTE Band 7 mode with 1RB

Test Date:	9/7/2020
Measurement duration:	15 minutes 1 seconds
Signal:	LTE, f=2535.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 39.41; Conductivity: 1.88 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.5°C
Probe:	SN 31/17 EPGO321, ConvF: 2.38
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-12.000000
SAR 10g (W/Kg):	0.963710
SAR 1g (W/Kg):	1.948944
Power drift (%):	-4.04

3D screen shot



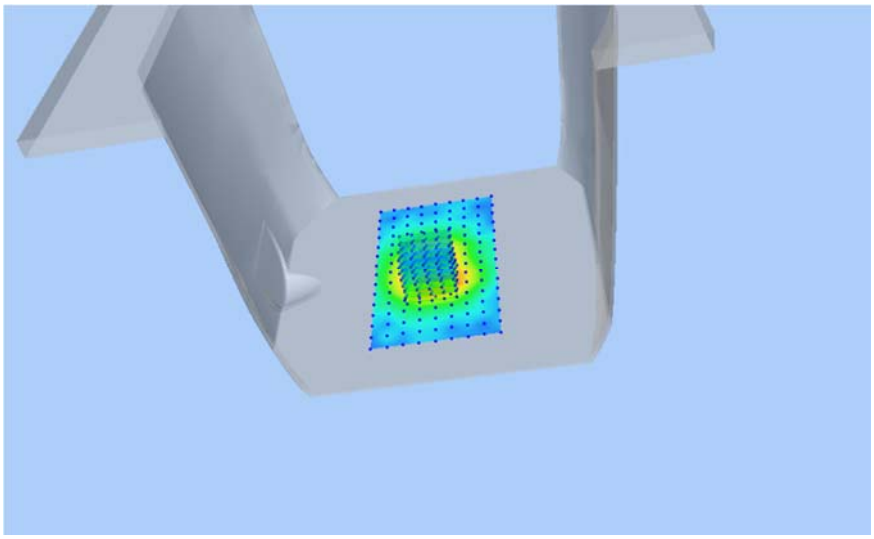
Z Axis Scan



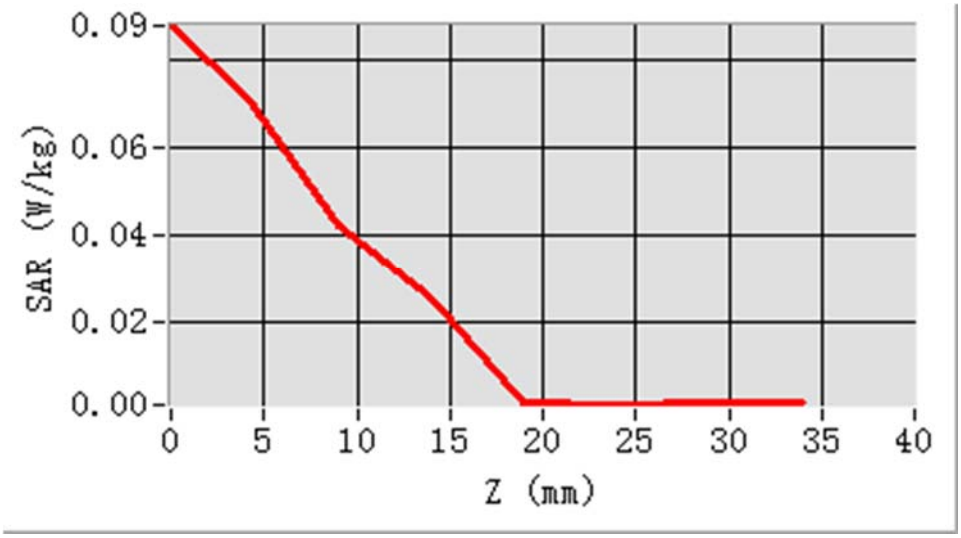
MEAS. 19 Body Plane with Front Side 10mm on High Channel in LTE Band 12 mode with 1RB

Test Date:	8/7/2020
Measurement duration:	12 minutes 30 seconds
Signal:	LTE, f=711.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 42.25; Conductivity: 0.88 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.60
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-22.000000
SAR 10g (W/Kg):	0.033748
SAR 1g (W/Kg):	0.064306
Power drift (%):	1.34

3D screen shot



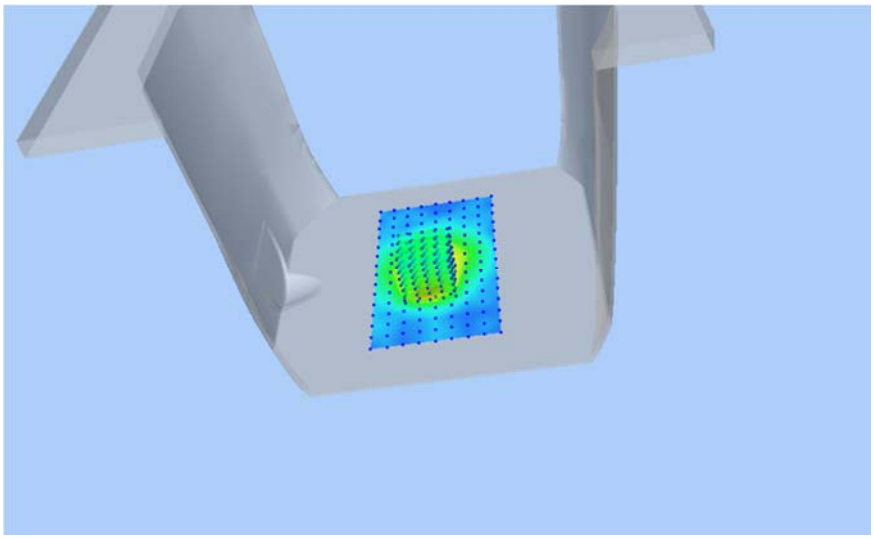
Z Axis Scan



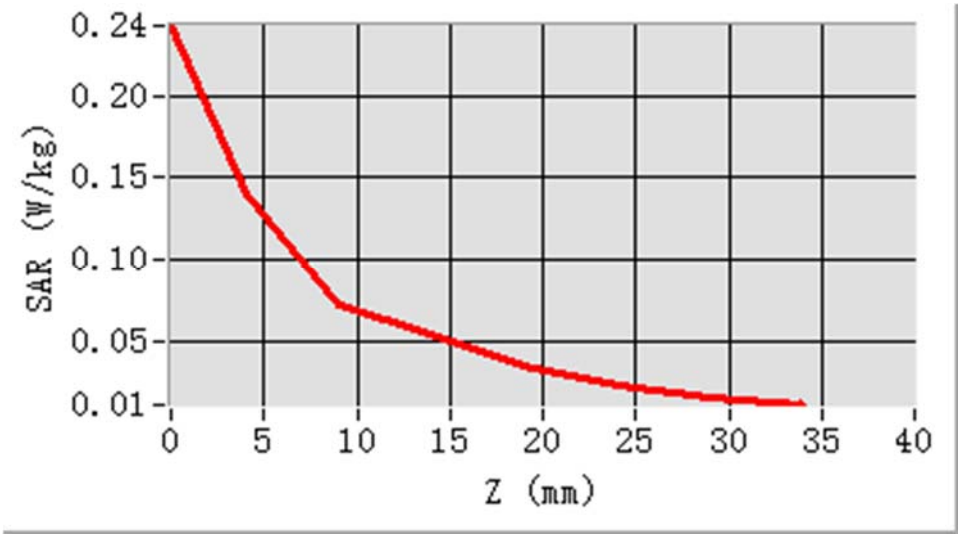
MEAS. 20 Body Plane with Back Side 0mm on High Channel in LTE Band 12 mode with 1RB

Test Date:	8/7/2020
Measurement duration:	12 minutes 20 seconds
Signal:	LTE , f=711.0 MHz, Duty Cycle: 1:1.0
Liquid Parameters:	Permittivity: 42.25; Conductivity: 0.88 S/m
Test condition:	Ambient Temperature: 22.4°C, Liquid Temperature: 21.3°C
Probe:	SN 31/17 EPGO321, ConvF: 1.60
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	5x5x7,dx=8mm, dy=8mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-12.000000
SAR 10g (W/Kg):	0.077071
SAR 1g (W/Kg):	0.140553
Power drift (%):	-4.52

3D screen shot



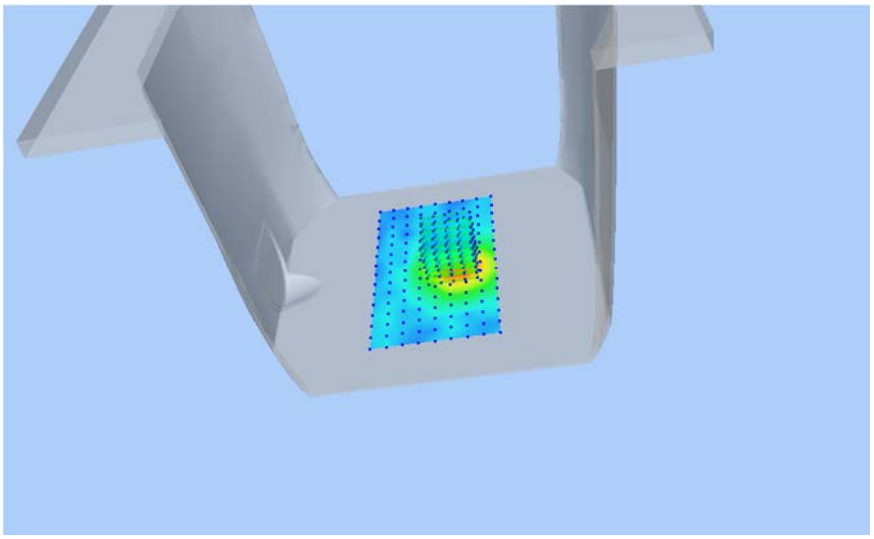
Z Axis Scan



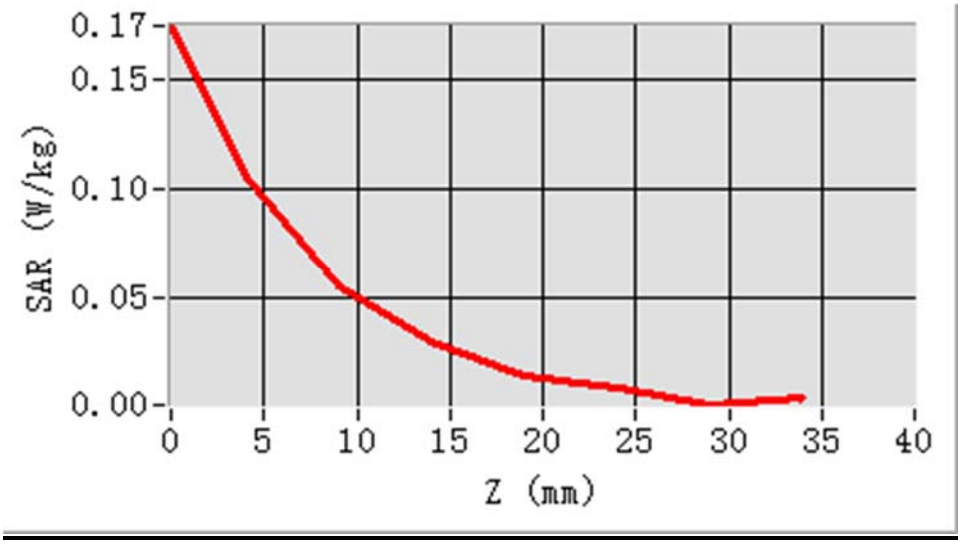
MEAS. 21 Body Plane with Front Side 10mm on High Channel in IEEE 802b mode

Test Date:	9/7/2020
Measurement duration:	18 minutes 25 seconds
Signal:	WLAN, f=2462.0 MHz, Duty Cycle: 1:1.031
Liquid Parameters:	Permittivity: 38.97; Conductivity: 1.80 S/m
Test condition:	Ambient Temperature: 22.6°C, Liquid Temperature: 21.2°C
Probe:	SN 31/17 EPGO321, ConvF: 2.33
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-2.000000
SAR 10g (W/Kg):	0.051077
SAR 1g (W/Kg):	0.102407
Power drift (%):	0.16

3D screen shot



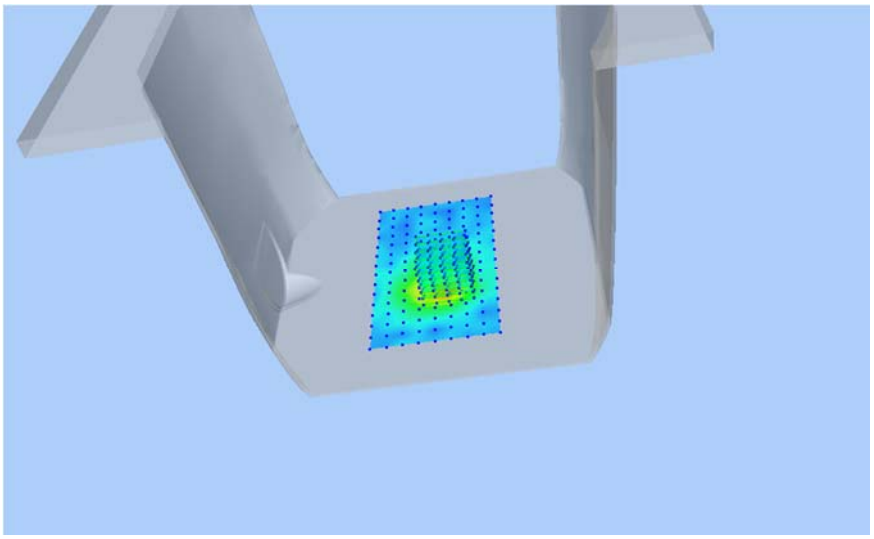
Z Axis Scan



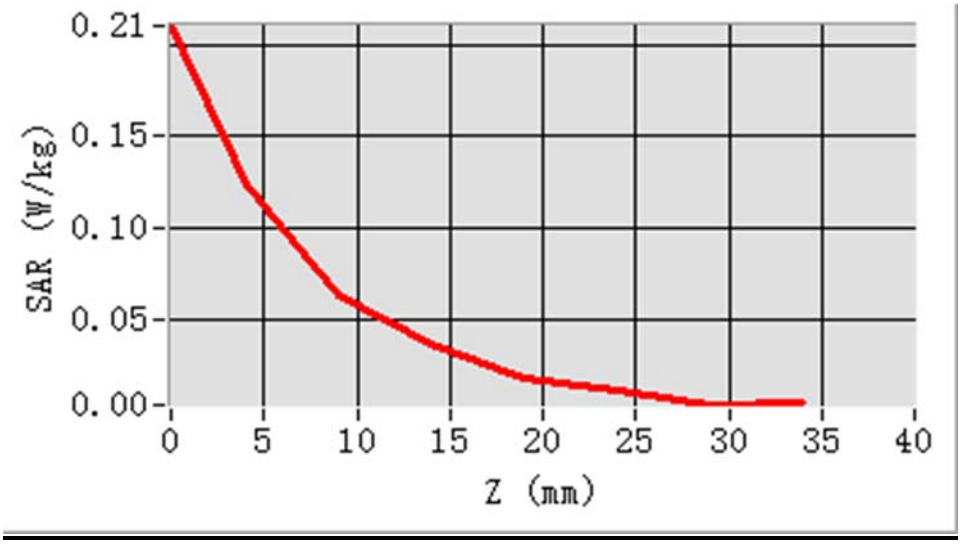
MEAS. 22 Body Plane with Back Side 0mm on Middle Channel in IEEE 802b mode

Test Date:	9/7/2020
Measurement duration:	18 minutes 38 seconds
Signal:	WLAN, f=2437.0 MHz, Duty Cycle: 1:1.031
Liquid Parameters:	Permittivity: 39.25; Conductivity: 1.78 S/m
Test condition:	Ambient Temperature: 22.6°C, Liquid Temperature: 21.2°C
Probe:	SN 31/17 EPGO321, ConvF: 2.33
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=10.000000, Y=-22.000000
SAR 10g (W/Kg):	0.052667
SAR 1g (W/Kg):	0.116153
Power drift (%):	-2.48

3D screen shot



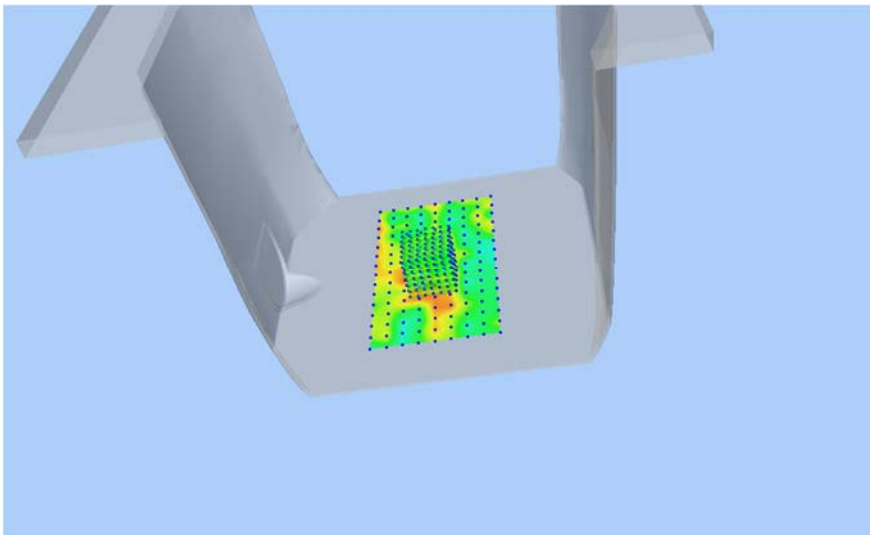
Z Axis Scan



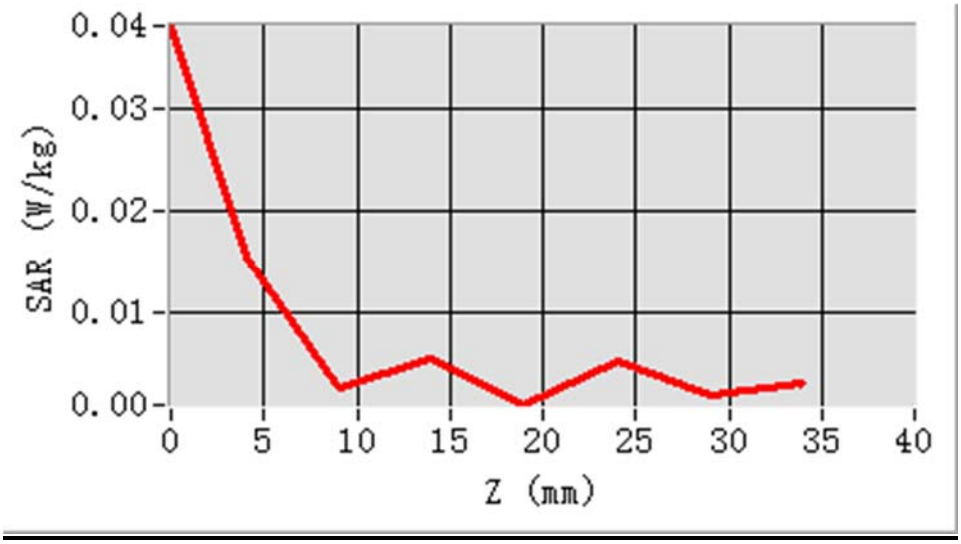
MEAS. 23 Body Plane with Front Side 10mm on Low Channel in Bluetooth mode

Test Date:	9/7/2020
Measurement duration:	18 minutes 15 seconds
Signal:	WLAN, f=2402.0 MHz, Duty Cycle: 1:1.294
Liquid Parameters:	Permittivity: 39.65; Conductivity: 1.75 S/m
Test condition:	Ambient Temperature: 22.6°C, Liquid Temperature: 21.2°C
Probe:	SN 31/17 EPGO321, ConvF: 2.33
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-12.000000
SAR 10g (W/Kg):	0.007560
SAR 1g (W/Kg):	0.015135
Power drift (%):	-1.20

3D screen shot



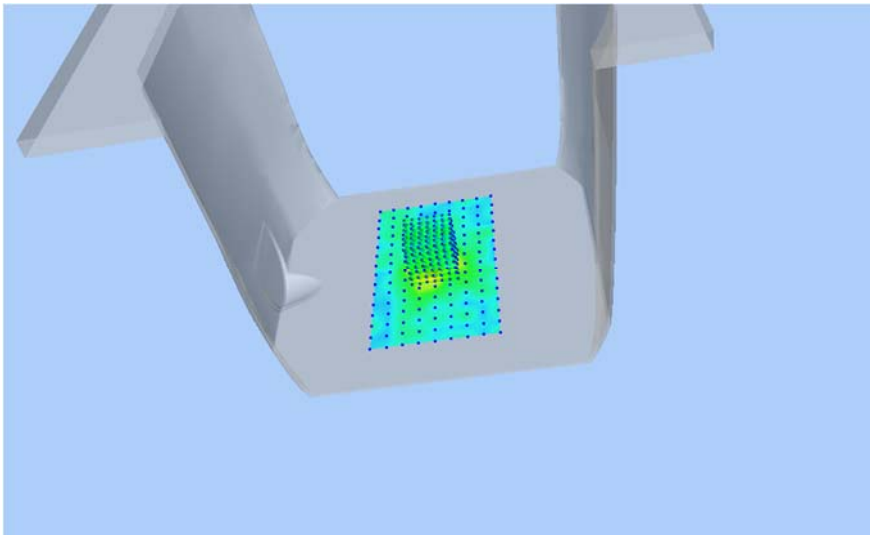
Z Axis Scan



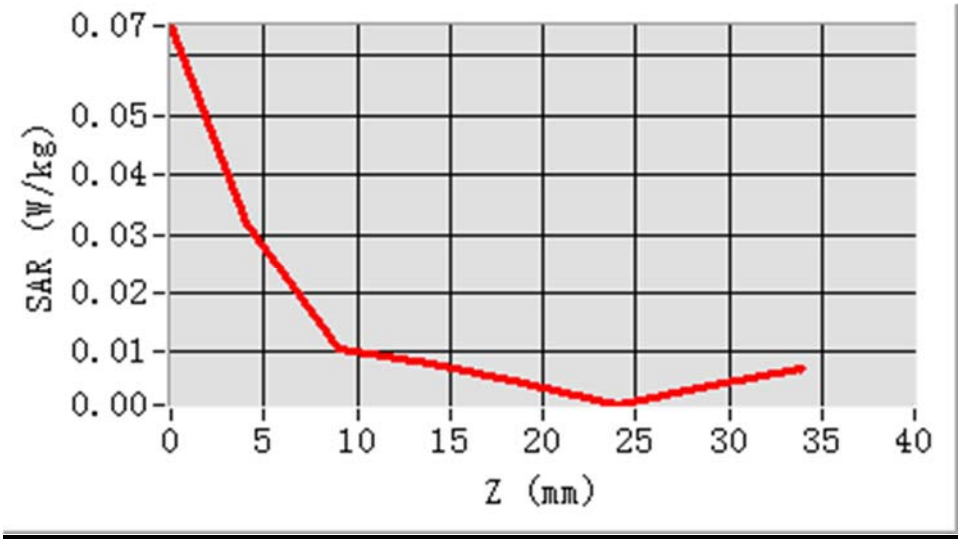
MEAS. 24 Body Plane with Back Side 0mm on Low Channel in Bluetooth mode

Test Date:	9/7/2020
Measurement duration:	18 minutes 33 seconds
Signal:	WLAN, f=2402.0 MHz, Duty Cycle: 1:1.294
Liquid Parameters:	Permittivity: 39.65; Conductivity: 1.75 S/m
Test condition:	Ambient Temperature: 22.6°C, Liquid Temperature: 21.2°C
Probe:	SN 31/17 EPGO321, ConvF: 2.33
Area Scan:	sam_direct_droit2_surf10mm.txt, h= 5.00 mm
Zoom Scan:	7x7x7,dx=5mm, dy=5mm, dz=5mm,Complete
Maximum location:	X=0.000000, Y=-2.000000
SAR 10g (W/Kg):	0.013917
SAR 1g (W/Kg):	0.031265
Power drift (%):	-0.51

3D screen shot



Z Axis Scan



ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-EC2010017-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-EC2010017-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “CALIBRATION REPORT.pdf”.

--END OF REPORT--