

TEST REPORT

Reference No...... : WTX21X10109356W
FCC ID : 2AYGW-C001
Applicant : Shenzhen Baba Intelligent Technology Co., Ltd.
Address : Bositai 301, Building 22, Tangxi yongli Industrial Zone, Guxing Community,
Xixiang Subdistrict, Baoan District, Shenzhen City, China 518120
Product Name : Smart Pet Locator
Test Model : C001
FCC Part 2.1093
Standards : ANSI / IEEE C95.1 : 2005+A1:2010
ANSI / IEEE C95.3 : 2002(R2008)
IEEE 62209-1528: 2020
Date of Receipt sample : Nov. 01, 2021
Date of Test..... : Nov. 01, 2021to Nov. 19, 2021
Date of Issue : Nov. 19, 2021
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be Reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,
Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308

Fax.: +86-755-33663309

Tested by:

Reviewed By:

Approved & Authorized By:

Jack Sun

Jason Su

Silin Chen

Jack Sun / Project Engineer

Jason Su / RF Manager

Silin Chen / Manager

TABLE OF CONTENTS

1. General Information	3
1.1 Product Description for Equipment Under Test (EUT)	3
1.2 Test Standards	6
1.3 Test Methodology	6
1.4 Test Facility	6
2. Summary of Test Results	7
3. Specific Absorption Rate (SAR)	8
3.1 Introduction	8
3.2 SAR Definition	8
4. SAR Measurement System	9
4.1 The Measurement System	9
4.2 Probe	9
4.3 Probe Calibration Process	11
4.4 Phantom	12
4.5 Device Holder	12
4.6 Test Equipment List	13
5. Tissue Simulating Liquids	14
5.1 Composition of Tissue Simulating Liquid	14
5.2 Tissue Dielectric Parameters for Head and Body Phantoms	15
5.3 Tissue Calibration Result	16
6. SAR Measurement Evaluation	17
6.1 Purpose of System Performance Check	17
6.2 System Setup	17
6.3 Validation Results	19
7. EUT Testing Position	20
7.1 Body Position	20
7.2 EUT Antenna Position	20
7.3 EUT Testing Position	21
8. SAR Measurement Procedures	22
8.1 Measurement Procedures	22
8.2 Spatial Peak SAR Evaluation	22
8.3 Area & Zoom Scan Procedures	23
8.4 Volume Scan Procedures	23
8.5 SAR Averaged Methods	23
8.6 Power Drift Monitoring	23
9. SAR Test Result	24
9.1 Conducted RF Output Power	24
9.2 Test Results for Standalone SAR Test	40
9.3 Simultaneous Multi-band Transmission SAR Analysis	43
10. Measurement Uncertainty	46
10.1 Uncertainty for EUT SAR Test	46
10.2 Uncertainty for System Performance Check	47
Annex A. Plots of System Performance Check	49
Annex B. Plots of SAR Measurement	55
Annex C. EUT Photos	71
Annex D. Test Setup Photos	73
Annex E. Calibration Certificate	76

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen Baba Intelligent Technology Co., Ltd.
Address of applicant: Bositai 301, Building 22, Tangxi yongli Industrial Zone,
Guxing Community, Xixiang Subdistrict, Baoan District,
Shenzhen City, China 518120

Manufacturer: Shenzhen Baba Intelligent Technology Co., Ltd.
Address of manufacturer: Bositai 301, Building 22, Tangxi yongli Industrial Zone,
Guxing Community, Xixiang Subdistrict, Baoan District,
Shenzhen City, China 518120

General Description of EUT:	
Product Name:	Smart Pet Locator
Brand Name:	/
Model No.:	C001
Adding Model(s):	/
Rated Voltage:	DC3.8V
Battery:	750mAh
Software Version:	W01_V0.2
Hardware Version:	W01_V0.2
Note: The test data is gathered from a production sample provided by the manufacturer	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS 850: 869~894MHz GSM/GPRS 1900: 1930~1990MHz
RF Output Power:	GSM850: 31.58dBm, GSM1900: 28.01dBm
Type of Modulation:	GMSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: 0.37dBi; GSM1900: 0.37dBi
GPRS Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.84dBm, WCDMA Band 5: 22.77dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 0.58dBi, WCDMA Band 5: 0.37dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 5
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 5: Tx: 824-849MHz,
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 5: Rx: 869-894MHz,
RF Output Power:	FDD-LTE Band 2: 24.29dBm, FDD-LTE Band 5: 23.58dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: 0.58dBi, FDD-LTE Band 5: 0.37dBi
WIFI(2.4G)	
Support Standards:	802.11b, 802.11g, 802.11n-HT20
Frequency Range:	2412-2462MHz for 11b/g/n(HT20)
RF Output Power:	8.28dBm (Conducted)

Type of Modulation:	DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM
Quantity of Channels:	11 for 802.11b/g/n(HT20)
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	1.1dBi
Bluetooth	
Bluetooth Version:	V4.0(Only BLE)
Frequency Range:	2402-2480MHz
RF Output Power:	2.91dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Quantity of Channels:	79
Channel Separation:	1MHz
Antenna Type:	Integral Antenna
Antenna Gain:	1.1dBi

1.2 Test Standards

The following report is accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, ANSI / IEEE C95.3 :2002, IEEE 62209-1528: 2020, KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 248227 D01 v02r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 , and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

The objective is to determine compliance with FCC Part 2.1093 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02. The public notice KDB 447498 D01 v06 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,Block 70 Bao'an District, Shenzhen, Guangdong, China

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010.Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

2. Summary of Test Results

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

Frequency Band	Body-worn (5mm Gap)	SAR _{1g} Limit (W/kg)
	Maximum SAR _{1g} (W/kg)	
GSM	1.036	1.6
WCDMA	1.011	1.6
LTE	1.108	1.6
Simultaneous Transmission	1.405	1.6

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2.1093 and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedure specified in IEEE 62209-1528: 2020 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

3. Specific Absorption Rate (SAR)

3.1 Introduction

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.

3.2 SAR Definition

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:

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

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$\text{SAR} = C \left(\frac{\delta T}{\delta t} \right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR Measurement System

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

4.2 Probe

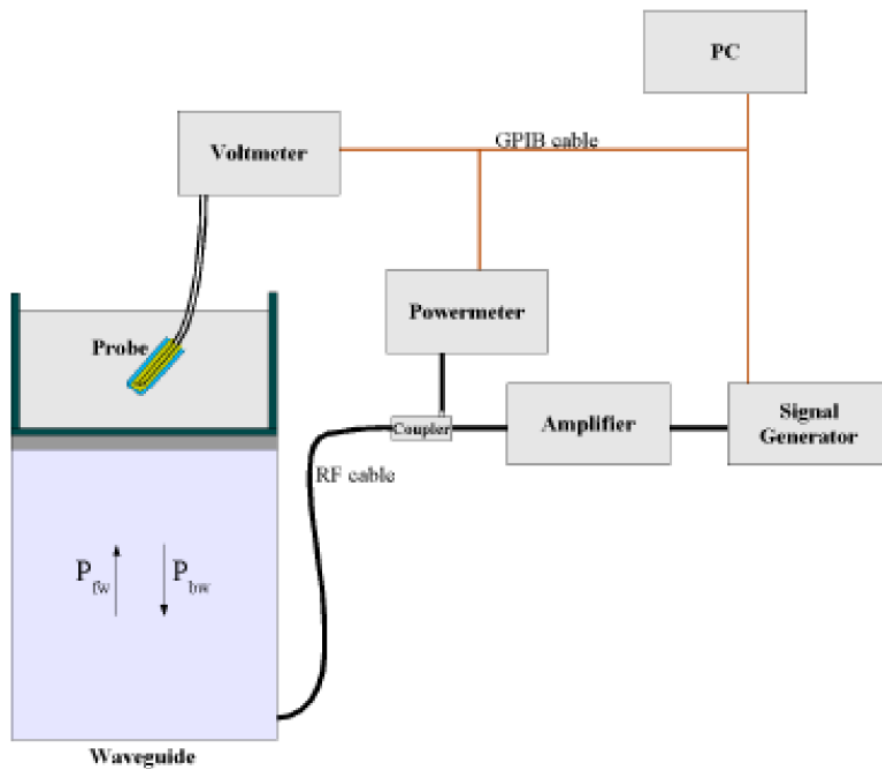
For the measurements the Specific Dosimetric E-Field Probe SSE2 SN 45/15 EPGO280 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Probe Length: 330 mm
- Length of Individual Dipoles: 4.5 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter : 5 mm

Waltek Testing Group (Shenzhen) Co., Ltd.
[Http://www.waltek.com.cn](http://www.waltek.com.cn)

- Distance between dipoles / probe extremity: 2.7mm
 - Probe linearity: <0.25 dB
 - Axial Isotropy: <0.25 dB
 - Spherical Isotropy: <0.50 dB
 - Calibration range: 700 to 3000MHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°

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



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

Where :

P_{fw} = Forward Power

P_{bw} = Backward Power

a and b = Waveguide dimensions

δ = 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.

Waltek Testing Group (Shenzhen) Co., Ltd.

[Http://www.waltek.com.cn](http://www.waltek.com.cn)

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

$$CF(N)=SAR(N)/V_{lin}(N) \quad (N=1,2,3)$$

The linearised output voltage $V_{lin}(N)$ is obtained from the displayed output voltage $V(N)$ using

$$V_{lin}(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm²) using an with CALISAR, Antenna proprietary calibration system.

Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1mW/cm².

Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

Where:

$$SAR = C \frac{\Delta T}{\Delta t}$$

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T / \Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

Where:

σ = simulated tissue conductivity,

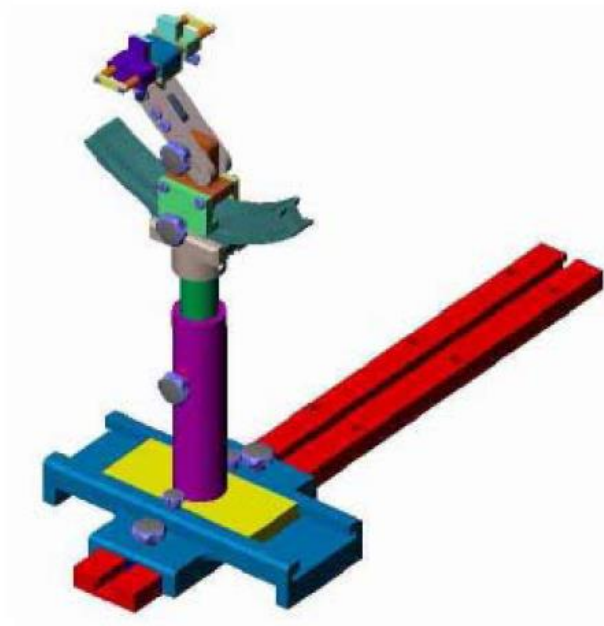
ρ = Tissue density (1.25 g/cm³ for brain tissue)

4.4 Phantom

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.

4.5 Device Holder

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 °.



System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

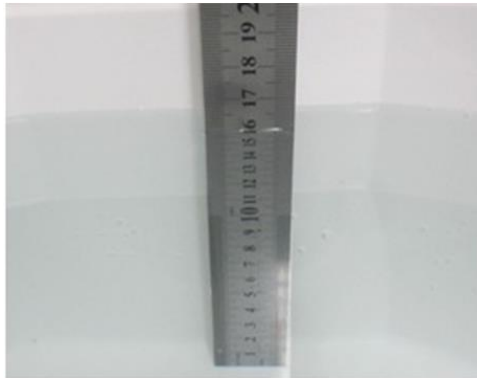
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	MVG	SSE5	SN 09/13 EP168	2020-05-22	2022-05-21
E-Field Probe	MVG	SSE2	SN 18/21 EPGO356	2021-07-16	2022-07-15
835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2020-03-11	2022-03-10
1800MHz Dipole	MVG	SID1800	SN 47/12 DIP 1G800-206	2020-03-11	2022-03-10
1900MHz Dipole	MVG	SID1900	SN 47/12 DIP 1G900-207	2020-03-11	2022-03-10
2450MHz Dipole	MVG	SID2450	SN 13/15 DIP 2G450-364	2020-03-11	2022-03-10
2600MHz Dipole	MVG	SID2600	SN 28/21 DIP 2G600-590	2021-07-16	2024-07-15
3300MHz Dipole	MVG	SID3300	SN 28/21 DIP 3G300-591	2021-07-19	2024-07-18
3500MHz Dipole	MVG	SID3500	SN 28/21 DIP 3G500-592	2021-07-19	2024-07-18
3700MHz Dipole	MVG	SID3700	SN 28/21 DIP 3G700-593	2021-07-19	2024-07-18
3900MHz Dipole	MVG	SID3900	SN 28/21 DIP 3G900-594	2021-07-19	2024-07-18
4200MHz Dipole	MVG	SID4200	SN 28/21 DIP 4G200-595	2021-07-19	2024-07-18
4600MHz Dipole	MVG	SID4600	SN 28/21 DIP 4G600-596	2021-07-19	2024-07-18
4900MHz Dipole	MVG	SID4900	SN 28/21 DIP 4G900-597	2021-07-19	2024-07-18
5 GHz Dipole	MVG	SWG5500	SN 49/16 WGA45	2020-07-03	2022-07-02
Dielectric Probe	SATIMO	SCLMP	SN 47/12 OCPG49	2020-03-11	2022-03-10
SAM Phantom	SATIMO	SAM	SN/ 47/12 SAM95	N/A	N/A
Multi Meter	Keithley	Keithley 2000	4006367	2021-03-27	2022-03-26
Power meter	Keithley	3500	JC-2017-09-001	2021-03-27	2022-03-26
Power meter	Keithley	3500	JC-2017-09-001	2021-03-27	2022-03-26
Power Sensor	HP	11636B	JC-2017-10-002	2021-03-27	2022-03-26
MXG X-Series RF Vector Signal Generato	KEYSIGHT	N5182B	MY57300664	2021-04-14	2022-04-13
Universal Tester	Rohde & Schwarz	CMU200	112315	2021-03-27	2022-03-26
Communications Tester	Rohde & Schwarz	CMW500	148650	2021-03-27	2022-03-26
Network Analyzer	HP	8753C	2901A00831	2021-03-27	2022-03-26
Directional Couplers	Agilent	778D	20160	2021-03-27	2022-03-26

5. Tissue Simulating Liquids

5.1 Composition of Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with SMTIMO, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. 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. Please see the following photos for the liquid height.



Liquid Height for Head/Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head/Body						
750	41.1	1.4	57.0	0.2	0.3	0
835	40.3	1.4	57.9	0.2	0.2	0
1700-1900	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Target Frequency (MHz)	Head/Body	
	Conductivity (σ)	Permittivity (ϵ_r)
150	0.76	52.3
300	0.87	45.3
450	0.87	43.5
750	0.89	41.9
835	0.90	41.5
900	0.97	41.5
915	0.98	41.5
1450	1.20	40.5
1610	1.29	40.3
1750	1.37	40.1
1800-2000	1.40	40.0
2450	1.80	39.2
3000	2.40	38.5

5.3 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using COMOSAR Dielectric Probe Kit and an Agilent Network Analyzer.

Calibration Result for Dielectric Parameters of Tissue Simulating Liquid

Head/Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (°C)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ϵ_r)	Target (ϵ_r)	Delta (%)		
835	22.2	0.88	0.90	-2.22	40.75	41.50	-1.81	± 5	2021-11-18
1800	22.2	1.38	1.40	-1.43	39.43	40.00	-1.43	± 5	2021-11-19
1900	22.2	1.39	1.40	-0.71	39.06	40.00	-2.35	± 5	2021-11-19

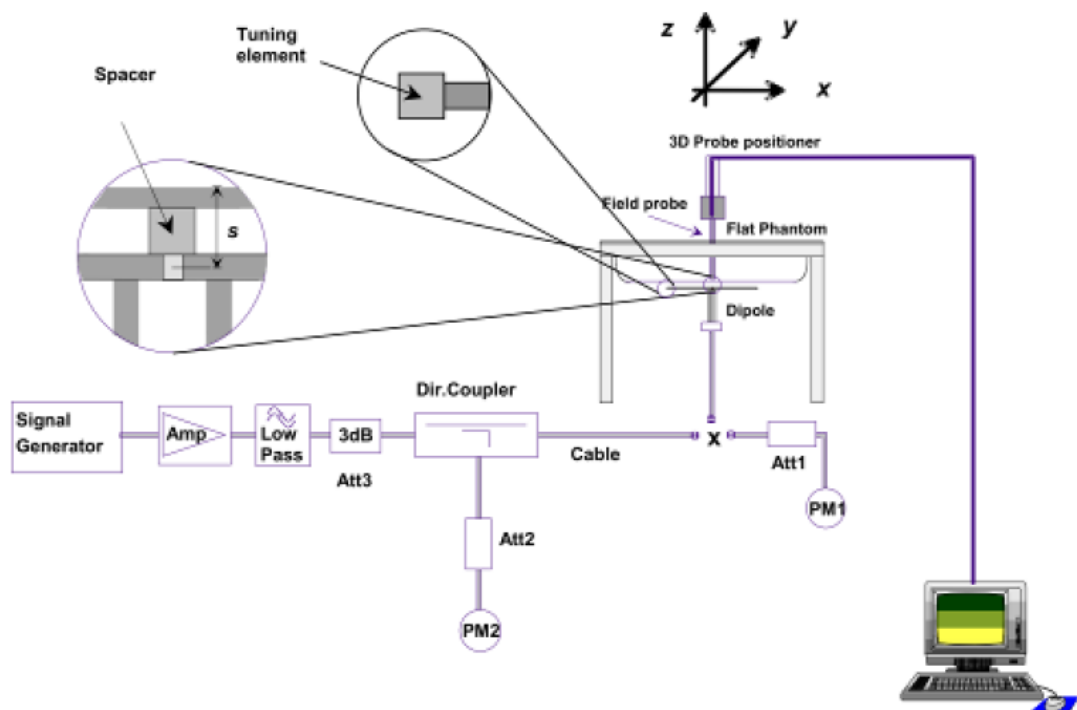
6. SAR Measurement Evaluation

6.1 Purpose of System Performance 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.

6.2 System 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 which comes from a signal generator at frequency 835MHz, 1800MHz, 1900MHz, 2450MHz, 2600MHz, and 5GHz. 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.



System Verification Setup Block Diagram



Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24 dBm(250 mW) before dipole is connected.

The output power on 5 GHz Waveguide must be calibrated to 20 dBm (100mW) before 5 GHz Waveguide is connected.

6.3 Validation Results

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10 %. Table 6.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion.

Frequency	Targeted SAR _{1g}	Measured SAR _{1g}	Normalized SAR _{1g}	Tolerance	Date
MHz	(W/kg)	(W/kg)	(W/kg)	(%)	
Body					
835	9.36	2.51	10.04	7.26	2021-11-18
1800	38.29	9.46	37.84	-1.18	2021-11-19
1900	39.01	9.91	39.64	1.61	2021-11-19

Remark: Referring to IEEE 62209-1528: 2020, Section 8.2, The system check shall be performed at a test frequency that is within $\pm 10\%$ or ± 100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

Targeted and Measurement SAR

Please refer to Annex A for the plots of system performance check.

7. EUT Testing Position

7.1 Body Position

- (a) To position the device parallel to the phantom surface with each side.
- (b) To adjust the device parallel to the flat phantom.
- (c) To adjust the distance between the device surface and the flat phantom to 0mm.

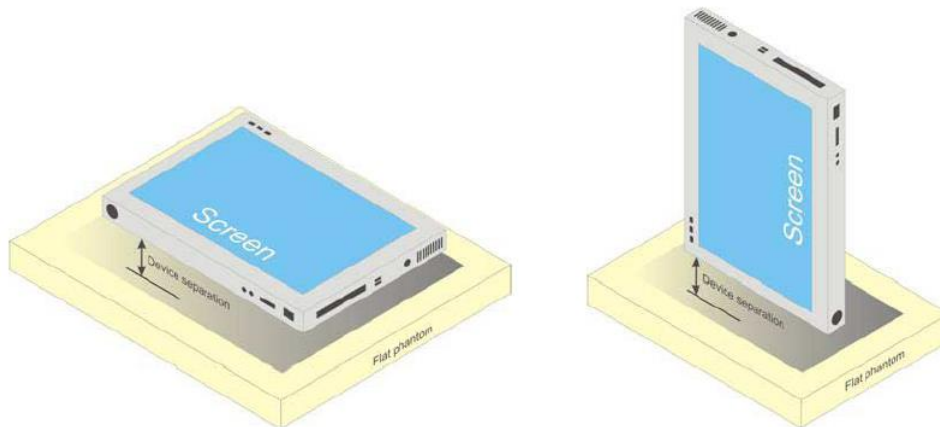
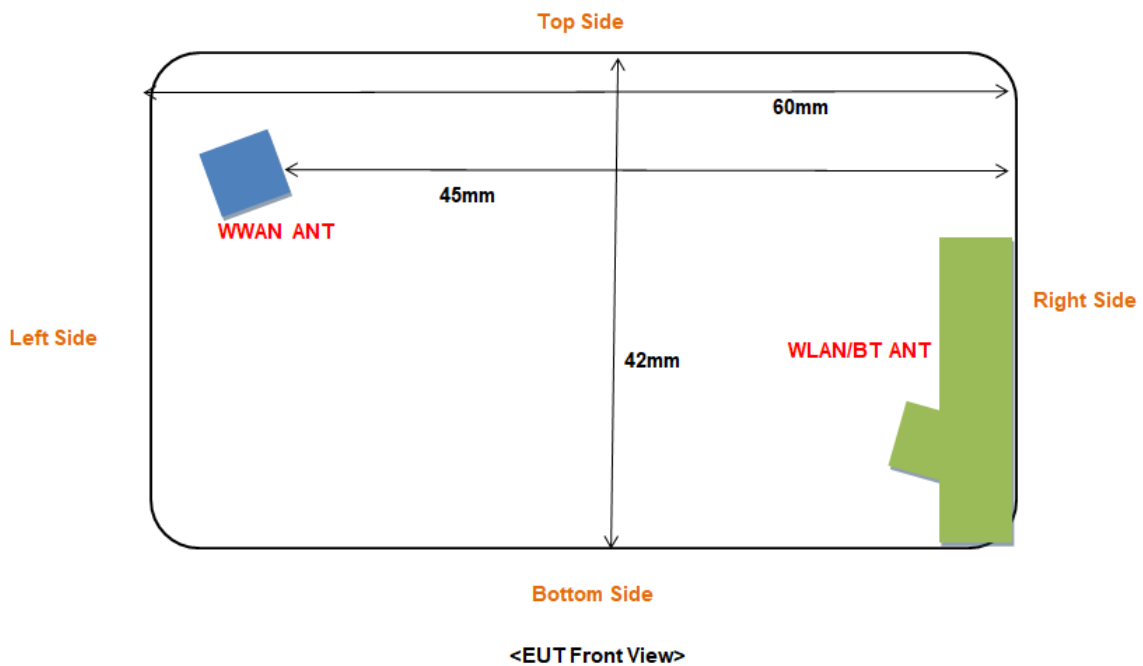


Illustration for Body Position

7.2 EUT Antenna Position



Block Diagram for EUT Antenna Position

Distance of EUT antenna-to-edge/surface(mm), Test distance:5mm						
Antennas	Back side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
WWAN	<25	<25	<25	45	<25	<25

7.3 EUT Testing Position

Body mode SAR assessments are required for this device. This EUT was tested in different positions for different SAR test modes, more information as below:

Body SAR tests, Test distance: 5mm						
Antennas	Front	Back	Right Side	Left Side	Top Side	Bottom Side
WWAN	Yes	Yes	No	Yes	Yes	Yes

Remark:

- Referring to KDB 941225 D06, when the overall device length and width are < 9cm*5cm, the test separation distances is 5mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
- Referring to KDB 648474 D04 Handset SAR v01r03, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg

Please refer to Annex D for the EUT test setup photos.

8. SAR Measurement Procedures

8.1 Measurement Procedures

The measurement procedures are as follows:

- (a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
- (b) Keep EUT to radiate maximum output power or 100% factor (if applicable)
- (c) Measure output power through RF cable and power meter.
- (d) Place the EUT in the positions as Annex D demonstrates.
- (e) Set scan area, grid size and other setting on the SATIMO software.
- (f) Measure SAR results for the highest power channel on each testing position.
- (g) Find out the largest SAR result on these testing positions of each band
- (h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

8.2 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The SATIMO software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine. The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

8.3 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 measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

8.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.5 SAR Averaged Methods

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10g and 1 g requires a very fine resolution in the three dimensional scanned data array.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In SATIMO measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

9. SAR Test Result

9.1 Conducted RF Output Power

GSM - Burst Average Power (dBm)								
Band	GSM850			Tune-up power (dBm)	PCS1900			Tune-up power (dBm)
Channel	128	190	251		512	661	810	
Frequency (MHz)	824.2	836.6	848.8		1850.2	1880	1909.8	
GSM	31.25	31.36	31.58	32.0	27.55	28.01	27.93	28.5
GPRS (1 slot)	30.48	30.15	30.65	31.0	26.99	27.11	27.34	27.5
GPRS (2 slots)	30.35	30.47	30.45	30.5	26.68	26.99	27.25	27.5
GPRS (3 slots)	30.14	30.39	30.48	30.5	26.84	27.01	27.18	27.5
GPRS (4 slots)	30.04	30.22	30.58	31.0	26.35	27.05	27.29	27.5

GSM - Source-Based Time-Average Power (dBm)								
Band	GSM850			Tune-up power (dBm)	PCS1900			Tune-up power (dBm)
Channel	128	190	251		512	661	810	
Frequency (MHz)	824.2	836.6	848.8		1850.2	1880	1909.8	
GSM	22.25	22.36	22.58	23.0	18.55	19.01	18.93	19.5
GPRS (1 slot)	21.48	21.15	21.65	22.0	17.99	18.11	18.34	19.0
GPRS (2 slots)	24.35	24.47	24.45	24.5	20.68	20.99	21.25	21.5
GPRS (3 slots)	25.89	26.14	26.23	26.5	22.59	22.76	22.93	23.0
GPRS (4 slots)	27.04	27.22	27.58	28.0	23.35	24.05	24.29	24.5

Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below:

Source based time-average power = Burst averaged power - Duty cycle factor in dB

Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots

Remark:

1. For Body SAR testing, GPRS should be evaluated; therefore the EUT was set in GPRS (4TX slots) for GSM850 and GPRS (4TX slots) for GSM1900 due to its highest source-based time-average power.
2. Per KDB 447498 D01 v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
3. The DUT do not support DTM function.
4. The DUT do not support Hotspot function.

WCDMA - Average Power (dBm)								
Band	WCDMA Band II				WCDMA Band V			
Channel	9262	9400	9538	Tune-up power (dBm)	4132	4183	4233	Tune-up power (dBm)
Frequency (MHz)	1852.4	1880.0	1907.6		826.4	836.4	846.6	
RMC 12.2k	22.84	22.45	22.81	23.0	22.77	22.48	22.02	23.0
HSDPA Subtest-1	21.4	21.96	21.85	22.0	21.91	21.7	21.05	22.0
HSDPA Subtest-2	21.88	21.84	21.75	22.0	21.84	21.66	22.08	22.0
HSDPA Subtest-3	21.51	21.71	21.65	22.0	21.66	21.48	21.88	22.0
HSDPA Subtest-4	21.68	21.55	21.56	22.0	21.47	21.28	21.86	22.0
HSUPA Subtest-1	21.58	21.36	21.46	22.0	21.47	21.08	21.74	22.0
HSUPA Subtest-2	21.54	21.35	21.36	22.0	21.42	21.06	21.65	22.0
HSUPA Subtest-3	21.38	21.34	21.32	22.0	21.24	20.93	21.63	22.0
HSUPA Subtest-4	21.28	21.33	21.22	22.0	21.14	20.88	21.57	22.0
HSUPA Subtest-5	21.23	21.28	20.93	22.0	21.12	20.72	21.47	22.0

Remark:

1. Per KDB 941225 D01 v03, the 12.2kbps RMC mode was selected for SAR testing (the primary mode).
2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#0	23.58	PASS
Band2	1.4MHz	QPSK	18607	1RB#2	23.66	PASS
Band2	1.4MHz	QPSK	18607	1RB#5	23.61	PASS
Band2	1.4MHz	QPSK	18607	3RB#0	23.71	PASS
Band2	1.4MHz	QPSK	18607	3RB#1	23.71	PASS
Band2	1.4MHz	QPSK	18607	3RB#3	23.65	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	22.59	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	23.59	PASS
Band2	1.4MHz	QPSK	18900	1RB#2	23.59	PASS
Band2	1.4MHz	QPSK	18900	1RB#5	23.70	PASS
Band2	1.4MHz	QPSK	18900	3RB#0	23.77	PASS
Band2	1.4MHz	QPSK	18900	3RB#1	23.83	PASS
Band2	1.4MHz	QPSK	18900	3RB#3	23.87	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	22.72	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	23.94	PASS
Band2	1.4MHz	QPSK	19193	1RB#2	23.92	PASS
Band2	1.4MHz	QPSK	19193	1RB#5	23.87	PASS
Band2	1.4MHz	QPSK	19193	3RB#0	23.98	PASS
Band2	1.4MHz	QPSK	19193	3RB#1	23.98	PASS
Band2	1.4MHz	QPSK	19193	3RB#3	23.95	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	22.91	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	22.45	PASS
Band2	1.4MHz	16QAM	18607	1RB#2	22.44	PASS
Band2	1.4MHz	16QAM	18607	1RB#5	22.53	PASS
Band2	1.4MHz	16QAM	18607	3RB#0	22.60	PASS
Band2	1.4MHz	16QAM	18607	3RB#1	22.50	PASS
Band2	1.4MHz	16QAM	18607	3RB#3	22.60	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	21.80	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	22.70	PASS
Band2	1.4MHz	16QAM	18900	1RB#2	22.75	PASS
Band2	1.4MHz	16QAM	18900	1RB#5	22.70	PASS
Band2	1.4MHz	16QAM	18900	3RB#0	22.99	PASS
Band2	1.4MHz	16QAM	18900	3RB#1	22.98	PASS
Band2	1.4MHz	16QAM	18900	3RB#3	22.92	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	21.86	PASS

Band2	1.4MHz	16QAM	19193	1RB#0	23.44	PASS
Band2	1.4MHz	16QAM	19193	1RB#2	23.47	PASS
Band2	1.4MHz	16QAM	19193	1RB#5	23.39	PASS
Band2	1.4MHz	16QAM	19193	3RB#0	22.81	PASS
Band2	1.4MHz	16QAM	19193	3RB#1	22.83	PASS
Band2	1.4MHz	16QAM	19193	3RB#3	22.77	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	22.23	PASS
Band2	3MHz	QPSK	18615	1RB#0	23.70	PASS
Band2	3MHz	QPSK	18615	1RB#8	23.72	PASS
Band2	3MHz	QPSK	18615	1RB#14	23.67	PASS
Band2	3MHz	QPSK	18615	8RB#0	22.64	PASS
Band2	3MHz	QPSK	18615	8RB#4	22.63	PASS
Band2	3MHz	QPSK	18615	8RB#7	22.62	PASS
Band2	3MHz	QPSK	18615	15RB#0	22.69	PASS
Band2	3MHz	QPSK	18900	1RB#0	23.58	PASS
Band2	3MHz	QPSK	18900	1RB#8	23.67	PASS
Band2	3MHz	QPSK	18900	1RB#14	23.71	PASS
Band2	3MHz	QPSK	18900	8RB#0	22.82	PASS
Band2	3MHz	QPSK	18900	8RB#4	22.70	PASS
Band2	3MHz	QPSK	18900	8RB#7	22.70	PASS
Band2	3MHz	QPSK	18900	15RB#0	22.78	PASS
Band2	3MHz	QPSK	19185	1RB#0	23.98	PASS
Band2	3MHz	QPSK	19185	1RB#8	23.92	PASS
Band2	3MHz	QPSK	19185	1RB#14	23.92	PASS
Band2	3MHz	QPSK	19185	8RB#0	22.92	PASS
Band2	3MHz	QPSK	19185	8RB#4	22.99	PASS
Band2	3MHz	QPSK	19185	8RB#7	23.03	PASS
Band2	3MHz	QPSK	19185	15RB#0	22.90	PASS
Band2	3MHz	16QAM	18615	1RB#0	21.95	PASS
Band2	3MHz	16QAM	18615	1RB#8	21.90	PASS
Band2	3MHz	16QAM	18615	1RB#14	22.02	PASS
Band2	3MHz	16QAM	18615	8RB#0	21.84	PASS
Band2	3MHz	16QAM	18615	8RB#4	21.83	PASS
Band2	3MHz	16QAM	18615	8RB#7	21.90	PASS
Band2	3MHz	16QAM	18615	15RB#0	21.59	PASS
Band2	3MHz	16QAM	18900	1RB#0	22.65	PASS
Band2	3MHz	16QAM	18900	1RB#8	22.64	PASS

Band2	3MHz	16QAM	18900	1RB#14	22.59	PASS
Band2	3MHz	16QAM	18900	8RB#0	21.92	PASS
Band2	3MHz	16QAM	18900	8RB#4	21.91	PASS
Band2	3MHz	16QAM	18900	8RB#7	21.90	PASS
Band2	3MHz	16QAM	18900	15RB#0	21.89	PASS
Band2	3MHz	16QAM	19185	1RB#0	22.93	PASS
Band2	3MHz	16QAM	19185	1RB#8	22.94	PASS
Band2	3MHz	16QAM	19185	1RB#14	22.96	PASS
Band2	3MHz	16QAM	19185	8RB#0	22.20	PASS
Band2	3MHz	16QAM	19185	8RB#4	22.21	PASS
Band2	3MHz	16QAM	19185	8RB#7	22.21	PASS
Band2	3MHz	16QAM	19185	15RB#0	21.99	PASS
Band2	5MHz	QPSK	18625	1RB#0	23.57	PASS
Band2	5MHz	QPSK	18625	1RB#12	23.64	PASS
Band2	5MHz	QPSK	18625	1RB#24	23.64	PASS
Band2	5MHz	QPSK	18625	12RB#0	22.50	PASS
Band2	5MHz	QPSK	18625	12RB#6	22.50	PASS
Band2	5MHz	QPSK	18625	12RB#13	22.72	PASS
Band2	5MHz	QPSK	18625	25RB#0	22.72	PASS
Band2	5MHz	QPSK	18900	1RB#0	23.84	PASS
Band2	5MHz	QPSK	18900	1RB#12	23.74	PASS
Band2	5MHz	QPSK	18900	1RB#24	23.73	PASS
Band2	5MHz	QPSK	18900	12RB#0	22.85	PASS
Band2	5MHz	QPSK	18900	12RB#6	22.86	PASS
Band2	5MHz	QPSK	18900	12RB#13	22.78	PASS
Band2	5MHz	QPSK	18900	25RB#0	22.79	PASS
Band2	5MHz	QPSK	19175	1RB#0	24.06	PASS
Band2	5MHz	QPSK	19175	1RB#12	24.00	PASS
Band2	5MHz	QPSK	19175	1RB#24	23.52	PASS
Band2	5MHz	QPSK	19175	12RB#0	23.11	PASS
Band2	5MHz	QPSK	19175	12RB#6	23.12	PASS
Band2	5MHz	QPSK	19175	12RB#13	23.03	PASS
Band2	5MHz	QPSK	19175	25RB#0	23.07	PASS
Band2	5MHz	16QAM	18625	1RB#0	22.44	PASS
Band2	5MHz	16QAM	18625	1RB#12	22.50	PASS
Band2	5MHz	16QAM	18625	1RB#24	22.50	PASS
Band2	5MHz	16QAM	18625	12RB#0	21.72	PASS

Band2	5MHz	16QAM	18625	12RB#6	21.71	PASS
Band2	5MHz	16QAM	18625	12RB#13	21.72	PASS
Band2	5MHz	16QAM	18625	25RB#0	21.61	PASS
Band2	5MHz	16QAM	18900	1RB#0	22.70	PASS
Band2	5MHz	16QAM	18900	1RB#12	22.76	PASS
Band2	5MHz	16QAM	18900	1RB#24	22.70	PASS
Band2	5MHz	16QAM	18900	12RB#0	21.84	PASS
Band2	5MHz	16QAM	18900	12RB#6	21.85	PASS
Band2	5MHz	16QAM	18900	12RB#13	21.86	PASS
Band2	5MHz	16QAM	18900	25RB#0	21.89	PASS
Band2	5MHz	16QAM	19175	1RB#0	22.54	PASS
Band2	5MHz	16QAM	19175	1RB#12	22.63	PASS
Band2	5MHz	16QAM	19175	1RB#24	22.67	PASS
Band2	5MHz	16QAM	19175	12RB#0	22.13	PASS
Band2	5MHz	16QAM	19175	12RB#6	22.19	PASS
Band2	5MHz	16QAM	19175	12RB#13	22.11	PASS
Band2	5MHz	16QAM	19175	25RB#0	22.24	PASS
Band2	10MHz	QPSK	18650	1RB#0	23.68	PASS
Band2	10MHz	QPSK	18650	1RB#24	23.70	PASS
Band2	10MHz	QPSK	18650	1RB#49	23.78	PASS
Band2	10MHz	QPSK	18650	25RB#0	22.62	PASS
Band2	10MHz	QPSK	18650	25RB#12	22.62	PASS
Band2	10MHz	QPSK	18650	25RB#25	22.75	PASS
Band2	10MHz	QPSK	18650	50RB#0	22.70	PASS
Band2	10MHz	QPSK	18900	1RB#0	23.75	PASS
Band2	10MHz	QPSK	18900	1RB#24	23.64	PASS
Band2	10MHz	QPSK	18900	1RB#49	23.69	PASS
Band2	10MHz	QPSK	18900	25RB#0	22.85	PASS
Band2	10MHz	QPSK	18900	25RB#12	22.84	PASS
Band2	10MHz	QPSK	18900	25RB#25	22.65	PASS
Band2	10MHz	QPSK	18900	50RB#0	22.82	PASS
Band2	10MHz	QPSK	19150	1RB#0	24.06	PASS
Band2	10MHz	QPSK	19150	1RB#24	24.05	PASS
Band2	10MHz	QPSK	19150	1RB#49	23.88	PASS
Band2	10MHz	QPSK	19150	25RB#0	23.11	PASS
Band2	10MHz	QPSK	19150	25RB#12	22.94	PASS
Band2	10MHz	QPSK	19150	25RB#25	22.96	PASS

Band2	10MHz	QPSK	19150	50RB#0	22.85	PASS
Band2	10MHz	16QAM	18650	1RB#0	22.53	PASS
Band2	10MHz	16QAM	18650	1RB#24	22.59	PASS
Band2	10MHz	16QAM	18650	1RB#49	22.66	PASS
Band2	10MHz	16QAM	18650	25RB#0	21.86	PASS
Band2	10MHz	16QAM	18650	25RB#12	21.90	PASS
Band2	10MHz	16QAM	18650	25RB#25	21.88	PASS
Band2	10MHz	16QAM	18650	50RB#0	21.84	PASS
Band2	10MHz	16QAM	18900	1RB#0	22.83	PASS
Band2	10MHz	16QAM	18900	1RB#24	22.78	PASS
Band2	10MHz	16QAM	18900	1RB#49	22.75	PASS
Band2	10MHz	16QAM	18900	25RB#0	21.81	PASS
Band2	10MHz	16QAM	18900	25RB#12	21.87	PASS
Band2	10MHz	16QAM	18900	25RB#25	21.84	PASS
Band2	10MHz	16QAM	18900	50RB#0	21.93	PASS
Band2	10MHz	16QAM	19150	1RB#0	22.34	PASS
Band2	10MHz	16QAM	19150	1RB#24	22.34	PASS
Band2	10MHz	16QAM	19150	1RB#49	22.32	PASS
Band2	10MHz	16QAM	19150	25RB#0	22.18	PASS
Band2	10MHz	16QAM	19150	25RB#12	22.17	PASS
Band2	10MHz	16QAM	19150	25RB#25	22.13	PASS
Band2	10MHz	16QAM	19150	50RB#0	22.09	PASS
Band2	15MHz	QPSK	18675	1RB#0	23.25	PASS
Band2	15MHz	QPSK	18675	1RB#38	23.37	PASS
Band2	15MHz	QPSK	18675	1RB#74	23.39	PASS
Band2	15MHz	QPSK	18675	38RB#0	22.42	PASS
Band2	15MHz	QPSK	18675	38RB#18	22.50	PASS
Band2	15MHz	QPSK	18675	38RB#37	22.65	PASS
Band2	15MHz	QPSK	18675	75RB#0	22.77	PASS
Band2	15MHz	QPSK	18900	1RB#0	23.65	PASS
Band2	15MHz	QPSK	18900	1RB#38	23.66	PASS
Band2	15MHz	QPSK	18900	1RB#74	23.58	PASS
Band2	15MHz	QPSK	18900	38RB#0	22.93	PASS
Band2	15MHz	QPSK	18900	38RB#18	22.95	PASS
Band2	15MHz	QPSK	18900	38RB#37	22.85	PASS
Band2	15MHz	QPSK	18900	75RB#0	22.70	PASS
Band2	15MHz	QPSK	19125	1RB#0	24.07	PASS

Band2	15MHz	QPSK	19125	1RB#38	24.16	PASS
Band2	15MHz	QPSK	19125	1RB#74	23.95	PASS
Band2	15MHz	QPSK	19125	38RB#0	23.21	PASS
Band2	15MHz	QPSK	19125	38RB#18	23.24	PASS
Band2	15MHz	QPSK	19125	38RB#37	23.20	PASS
Band2	15MHz	QPSK	19125	75RB#0	22.87	PASS
Band2	15MHz	16QAM	18675	1RB#0	22.43	PASS
Band2	15MHz	16QAM	18675	1RB#38	22.46	PASS
Band2	15MHz	16QAM	18675	1RB#74	22.62	PASS
Band2	15MHz	16QAM	18675	38RB#0	22.36	PASS
Band2	15MHz	16QAM	18675	38RB#18	22.48	PASS
Band2	15MHz	16QAM	18675	38RB#37	22.59	PASS
Band2	15MHz	16QAM	18675	75RB#0	21.78	PASS
Band2	15MHz	16QAM	18900	1RB#0	22.93	PASS
Band2	15MHz	16QAM	18900	1RB#38	22.88	PASS
Band2	15MHz	16QAM	18900	1RB#74	22.82	PASS
Band2	15MHz	16QAM	18900	38RB#0	22.93	PASS
Band2	15MHz	16QAM	18900	38RB#18	22.93	PASS
Band2	15MHz	16QAM	18900	38RB#37	22.83	PASS
Band2	15MHz	16QAM	18900	75RB#0	21.79	PASS
Band2	15MHz	16QAM	19125	1RB#0	23.12	PASS
Band2	15MHz	16QAM	19125	1RB#38	23.21	PASS
Band2	15MHz	16QAM	19125	1RB#74	23.20	PASS
Band2	15MHz	16QAM	19125	38RB#0	23.12	PASS
Band2	15MHz	16QAM	19125	38RB#18	23.23	PASS
Band2	15MHz	16QAM	19125	38RB#37	23.16	PASS
Band2	15MHz	16QAM	19125	75RB#0	22.20	PASS
Band2	20MHz	QPSK	18700	1RB#0	23.70	PASS
Band2	20MHz	QPSK	18700	1RB#49	23.85	PASS
Band2	20MHz	QPSK	18700	1RB#99	23.97	PASS
Band2	20MHz	QPSK	18700	50RB#0	22.58	PASS
Band2	20MHz	QPSK	18700	50RB#25	22.58	PASS
Band2	20MHz	QPSK	18700	50RB#50	22.92	PASS
Band2	20MHz	QPSK	18700	100RB#0	22.81	PASS
Band2	20MHz	QPSK	18900	1RB#0	23.85	PASS
Band2	20MHz	QPSK	18900	1RB#49	23.70	PASS
Band2	20MHz	QPSK	18900	1RB#99	23.75	PASS

Band2	20MHz	QPSK	18900	50RB#0	22.71	PASS
Band2	20MHz	QPSK	18900	50RB#25	22.71	PASS
Band2	20MHz	QPSK	18900	50RB#50	22.79	PASS
Band2	20MHz	QPSK	18900	100RB#0	22.79	PASS
Band2	20MHz	QPSK	19100	1RB#0	24.03	PASS
Band2	20MHz	QPSK	19100	1RB#49	24.29	PASS
Band2	20MHz	QPSK	19100	1RB#99	23.78	PASS
Band2	20MHz	QPSK	19100	50RB#0	22.98	PASS
Band2	20MHz	QPSK	19100	50RB#25	23.03	PASS
Band2	20MHz	QPSK	19100	50RB#50	22.86	PASS
Band2	20MHz	QPSK	19100	100RB#0	22.88	PASS
Band2	20MHz	16QAM	18700	1RB#0	23.09	PASS
Band2	20MHz	16QAM	18700	1RB#49	23.22	PASS
Band2	20MHz	16QAM	18700	1RB#99	23.38	PASS
Band2	20MHz	16QAM	18700	50RB#0	21.75	PASS
Band2	20MHz	16QAM	18700	50RB#25	21.84	PASS
Band2	20MHz	16QAM	18700	50RB#50	21.96	PASS
Band2	20MHz	16QAM	18700	100RB#0	21.84	PASS
Band2	20MHz	16QAM	18900	1RB#0	22.94	PASS
Band2	20MHz	16QAM	18900	1RB#49	22.85	PASS
Band2	20MHz	16QAM	18900	1RB#99	22.83	PASS
Band2	20MHz	16QAM	18900	50RB#0	22.10	PASS
Band2	20MHz	16QAM	18900	50RB#25	22.00	PASS
Band2	20MHz	16QAM	18900	50RB#50	21.95	PASS
Band2	20MHz	16QAM	18900	100RB#0	21.93	PASS
Band2	20MHz	16QAM	19100	1RB#0	22.95	PASS
Band2	20MHz	16QAM	19100	1RB#49	23.11	PASS
Band2	20MHz	16QAM	19100	1RB#99	23.07	PASS
Band2	20MHz	16QAM	19100	50RB#0	22.20	PASS
Band2	20MHz	16QAM	19100	50RB#25	22.22	PASS
Band2	20MHz	16QAM	19100	50RB#50	22.27	PASS
Band2	20MHz	16QAM	19100	100RB#0	22.12	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band5	1.4MHz	QPSK	20407	1RB#0	23.17	PASS
Band5	1.4MHz	QPSK	20407	1RB#2	23.16	PASS
Band5	1.4MHz	QPSK	20407	1RB#5	23.14	PASS
Band5	1.4MHz	QPSK	20407	3RB#0	23.18	PASS
Band5	1.4MHz	QPSK	20407	3RB#1	23.19	PASS
Band5	1.4MHz	QPSK	20407	3RB#3	23.15	PASS
Band5	1.4MHz	QPSK	20407	6RB#0	22.28	PASS
Band5	1.4MHz	QPSK	20525	1RB#0	23.38	PASS
Band5	1.4MHz	QPSK	20525	1RB#2	23.33	PASS
Band5	1.4MHz	QPSK	20525	1RB#5	23.41	PASS
Band5	1.4MHz	QPSK	20525	3RB#0	23.27	PASS
Band5	1.4MHz	QPSK	20525	3RB#1	23.27	PASS
Band5	1.4MHz	QPSK	20525	3RB#3	23.19	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	22.37	PASS
Band5	1.4MHz	QPSK	20643	1RB#0	23.30	PASS
Band5	1.4MHz	QPSK	20643	1RB#2	23.35	PASS
Band5	1.4MHz	QPSK	20643	1RB#5	23.26	PASS
Band5	1.4MHz	QPSK	20643	3RB#0	23.25	PASS
Band5	1.4MHz	QPSK	20643	3RB#1	23.23	PASS
Band5	1.4MHz	QPSK	20643	3RB#3	23.26	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	22.16	PASS
Band5	1.4MHz	16QAM	20407	1RB#0	22.84	PASS
Band5	1.4MHz	16QAM	20407	1RB#2	22.88	PASS
Band5	1.4MHz	16QAM	20407	1RB#5	22.83	PASS
Band5	1.4MHz	16QAM	20407	3RB#0	22.32	PASS
Band5	1.4MHz	16QAM	20407	3RB#1	22.34	PASS
Band5	1.4MHz	16QAM	20407	3RB#3	22.33	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	21.92	PASS
Band5	1.4MHz	16QAM	20525	1RB#0	22.28	PASS
Band5	1.4MHz	16QAM	20525	1RB#2	22.20	PASS
Band5	1.4MHz	16QAM	20525	1RB#5	22.28	PASS
Band5	1.4MHz	16QAM	20525	3RB#0	22.52	PASS
Band5	1.4MHz	16QAM	20525	3RB#1	22.48	PASS
Band5	1.4MHz	16QAM	20525	3RB#3	22.51	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	21.79	PASS

Band5	1.4MHz	16QAM	20643	1RB#0	22.85	PASS
Band5	1.4MHz	16QAM	20643	1RB#2	22.87	PASS
Band5	1.4MHz	16QAM	20643	1RB#5	22.88	PASS
Band5	1.4MHz	16QAM	20643	3RB#0	22.39	PASS
Band5	1.4MHz	16QAM	20643	3RB#1	22.37	PASS
Band5	1.4MHz	16QAM	20643	3RB#3	22.44	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	22.03	PASS
Band5	3MHz	QPSK	20415	1RB#0	23.28	PASS
Band5	3MHz	QPSK	20415	1RB#8	23.37	PASS
Band5	3MHz	QPSK	20415	1RB#14	23.38	PASS
Band5	3MHz	QPSK	20415	8RB#0	22.20	PASS
Band5	3MHz	QPSK	20415	8RB#4	22.19	PASS
Band5	3MHz	QPSK	20415	8RB#7	22.17	PASS
Band5	3MHz	QPSK	20415	15RB#0	22.19	PASS
Band5	3MHz	QPSK	20525	1RB#0	23.21	PASS
Band5	3MHz	QPSK	20525	1RB#8	23.18	PASS
Band5	3MHz	QPSK	20525	1RB#14	23.15	PASS
Band5	3MHz	QPSK	20525	8RB#0	22.36	PASS
Band5	3MHz	QPSK	20525	8RB#4	22.35	PASS
Band5	3MHz	QPSK	20525	8RB#7	22.24	PASS
Band5	3MHz	QPSK	20525	15RB#0	22.28	PASS
Band5	3MHz	QPSK	20635	1RB#0	23.29	PASS
Band5	3MHz	QPSK	20635	1RB#8	23.28	PASS
Band5	3MHz	QPSK	20635	1RB#14	23.24	PASS
Band5	3MHz	QPSK	20635	8RB#0	22.29	PASS
Band5	3MHz	QPSK	20635	8RB#4	22.30	PASS
Band5	3MHz	QPSK	20635	8RB#7	22.33	PASS
Band5	3MHz	QPSK	20635	15RB#0	22.27	PASS
Band5	3MHz	16QAM	20415	1RB#0	22.53	PASS
Band5	3MHz	16QAM	20415	1RB#8	22.47	PASS
Band5	3MHz	16QAM	20415	1RB#14	22.49	PASS
Band5	3MHz	16QAM	20415	8RB#0	21.99	PASS
Band5	3MHz	16QAM	20415	8RB#4	21.98	PASS
Band5	3MHz	16QAM	20415	8RB#7	21.87	PASS
Band5	3MHz	16QAM	20415	15RB#0	21.71	PASS
Band5	3MHz	16QAM	20525	1RB#0	23.30	PASS
Band5	3MHz	16QAM	20525	1RB#8	23.29	PASS

Band5	3MHz	16QAM	20525	1RB#14	23.27	PASS
Band5	3MHz	16QAM	20525	8RB#0	21.98	PASS
Band5	3MHz	16QAM	20525	8RB#4	22.05	PASS
Band5	3MHz	16QAM	20525	8RB#7	21.83	PASS
Band5	3MHz	16QAM	20525	15RB#0	21.95	PASS
Band5	3MHz	16QAM	20635	1RB#0	22.72	PASS
Band5	3MHz	16QAM	20635	1RB#8	22.66	PASS
Band5	3MHz	16QAM	20635	1RB#14	22.54	PASS
Band5	3MHz	16QAM	20635	8RB#0	21.94	PASS
Band5	3MHz	16QAM	20635	8RB#4	21.97	PASS
Band5	3MHz	16QAM	20635	8RB#7	22.04	PASS
Band5	3MHz	16QAM	20635	15RB#0	21.71	PASS
Band5	5MHz	QPSK	20425	1RB#0	23.35	PASS
Band5	5MHz	QPSK	20425	1RB#12	23.34	PASS
Band5	5MHz	QPSK	20425	1RB#24	23.32	PASS
Band5	5MHz	QPSK	20425	12RB#0	22.21	PASS
Band5	5MHz	QPSK	20425	12RB#6	22.22	PASS
Band5	5MHz	QPSK	20425	12RB#13	22.30	PASS
Band5	5MHz	QPSK	20425	25RB#0	22.24	PASS
Band5	5MHz	QPSK	20525	1RB#0	23.52	PASS
Band5	5MHz	QPSK	20525	1RB#12	23.40	PASS
Band5	5MHz	QPSK	20525	1RB#24	23.43	PASS
Band5	5MHz	QPSK	20525	12RB#0	22.50	PASS
Band5	5MHz	QPSK	20525	12RB#6	22.50	PASS
Band5	5MHz	QPSK	20525	12RB#13	22.31	PASS
Band5	5MHz	QPSK	20525	25RB#0	22.28	PASS
Band5	5MHz	QPSK	20625	1RB#0	23.42	PASS
Band5	5MHz	QPSK	20625	1RB#12	23.43	PASS
Band5	5MHz	QPSK	20625	1RB#24	23.41	PASS
Band5	5MHz	QPSK	20625	12RB#0	22.32	PASS
Band5	5MHz	QPSK	20625	12RB#6	22.34	PASS
Band5	5MHz	QPSK	20625	12RB#13	22.34	PASS
Band5	5MHz	QPSK	20625	25RB#0	22.37	PASS
Band5	5MHz	16QAM	20425	1RB#0	22.43	PASS
Band5	5MHz	16QAM	20425	1RB#12	22.46	PASS
Band5	5MHz	16QAM	20425	1RB#24	22.44	PASS
Band5	5MHz	16QAM	20425	12RB#0	21.80	PASS

Band5	5MHz	16QAM	20425	12RB#6	21.80	PASS
Band5	5MHz	16QAM	20425	12RB#13	21.70	PASS
Band5	5MHz	16QAM	20425	25RB#0	21.75	PASS
Band5	5MHz	16QAM	20525	1RB#0	22.63	PASS
Band5	5MHz	16QAM	20525	1RB#12	22.65	PASS
Band5	5MHz	16QAM	20525	1RB#24	22.62	PASS
Band5	5MHz	16QAM	20525	12RB#0	21.92	PASS
Band5	5MHz	16QAM	20525	12RB#6	21.92	PASS
Band5	5MHz	16QAM	20525	12RB#13	21.86	PASS
Band5	5MHz	16QAM	20525	25RB#0	21.87	PASS
Band5	5MHz	16QAM	20625	1RB#0	22.27	PASS
Band5	5MHz	16QAM	20625	1RB#12	22.33	PASS
Band5	5MHz	16QAM	20625	1RB#24	22.34	PASS
Band5	5MHz	16QAM	20625	12RB#0	21.95	PASS
Band5	5MHz	16QAM	20625	12RB#6	21.95	PASS
Band5	5MHz	16QAM	20625	12RB#13	21.82	PASS
Band5	5MHz	16QAM	20625	25RB#0	21.99	PASS
Band5	10MHz	QPSK	20450	1RB#0	23.20	PASS
Band5	10MHz	QPSK	20450	1RB#24	23.20	PASS
Band5	10MHz	QPSK	20450	1RB#49	23.35	PASS
Band5	10MHz	QPSK	20450	25RB#0	22.14	PASS
Band5	10MHz	QPSK	20450	25RB#12	22.16	PASS
Band5	10MHz	QPSK	20450	25RB#25	22.33	PASS
Band5	10MHz	QPSK	20450	50RB#0	22.33	PASS
Band5	10MHz	QPSK	20525	1RB#0	23.18	PASS
Band5	10MHz	QPSK	20525	1RB#24	23.58	PASS
Band5	10MHz	QPSK	20525	1RB#49	23.31	PASS
Band5	10MHz	QPSK	20525	25RB#0	22.49	PASS
Band5	10MHz	QPSK	20525	25RB#12	22.33	PASS
Band5	10MHz	QPSK	20525	25RB#25	22.29	PASS
Band5	10MHz	QPSK	20525	50RB#0	22.43	PASS
Band5	10MHz	QPSK	20600	1RB#0	23.24	PASS
Band5	10MHz	QPSK	20600	1RB#24	23.27	PASS
Band5	10MHz	QPSK	20600	1RB#49	23.22	PASS
Band5	10MHz	QPSK	20600	25RB#0	22.36	PASS
Band5	10MHz	QPSK	20600	25RB#12	22.35	PASS
Band5	10MHz	QPSK	20600	25RB#25	22.46	PASS

Band5	10MHz	QPSK	20600	50RB#0	22.30	PASS
Band5	10MHz	16QAM	20450	1RB#0	22.09	PASS
Band5	10MHz	16QAM	20450	1RB#24	22.09	PASS
Band5	10MHz	16QAM	20450	1RB#49	22.71	PASS
Band5	10MHz	16QAM	20450	25RB#0	21.71	PASS
Band5	10MHz	16QAM	20450	25RB#12	21.76	PASS
Band5	10MHz	16QAM	20450	25RB#25	21.69	PASS
Band5	10MHz	16QAM	20450	50RB#0	21.69	PASS
Band5	10MHz	16QAM	20525	1RB#0	22.07	PASS
Band5	10MHz	16QAM	20525	1RB#24	22.17	PASS
Band5	10MHz	16QAM	20525	1RB#49	22.08	PASS
Band5	10MHz	16QAM	20525	25RB#0	22.05	PASS
Band5	10MHz	16QAM	20525	25RB#12	22.02	PASS
Band5	10MHz	16QAM	20525	25RB#25	21.86	PASS
Band5	10MHz	16QAM	20525	50RB#0	21.88	PASS
Band5	10MHz	16QAM	20600	1RB#0	22.49	PASS
Band5	10MHz	16QAM	20600	1RB#24	22.49	PASS
Band5	10MHz	16QAM	20600	1RB#49	22.46	PASS
Band5	10MHz	16QAM	20600	25RB#0	21.93	PASS
Band5	10MHz	16QAM	20600	25RB#12	21.91	PASS
Band5	10MHz	16QAM	20600	25RB#25	21.77	PASS
Band5	10MHz	16QAM	20600	50RB#0	21.98	PASS

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. 6 When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

Waltek Testing Group (Shenzhen) Co., Ltd.

[Http://www.waltek.com.cn](http://www.waltek.com.cn)

4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

WLAN(2.4G) - Maximum Average Power					
Test Mode	Data Rate	Channel	Frequency (MHz)	Average Power (dBm)	Tune-up power (dBm)
802.11b	1Mbps	CH 01	2412	8.28	8.5
		CH 06	2437	8.21	8.5
		CH 11	2462	8.06	8.5
802.11g	6Mbps	CH 01	2412	7.15	7.5
		CH 06	2437	7.31	7.5
		CH 11	2462	7.22	7.5
802.11n (20MHz)	MCS0	CH 01	2412	7.29	7.5
		CH 06	2437	7.37	7.5
		CH 11	2462	7.04	7.5

Remark:

1. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.
2. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements, when the reported SAR of the highest measured maximum output power channel (see 3.1) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration. 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; i.e., all channels require testing.
3. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is ≤ 1.2 W/kg.
4. Per KDB 248227 D01 v02r02, When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined by applying the following steps sequentially.
 - 1) The largest channel bandwidth configuration is selected among the multiple configurations in a frequency band with the same specified maximum output power.
 - 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
 - 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
 - 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

Bluetooth - Maximum Average Power					
Test Mode	Data Rate	Channel	Frequency (MHz)	Average Power (dBm)	Tune-up power (dBm)
BLE	1Mbps	CH 00	2402	2.91	3.0
		CH 19	2440	1.39	1.5
		CH 39	2480	0.1	1.0

Remark:

WIFI/Bluetooth maximum output power is 8.28dBm and Maximum Tune-Up output power is 8.5dBm,. Per KDB 447498 D01 V06, 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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,¹⁶ where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
3.0	2.0	5	2.48	0.63	3

WIFI:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
8.5	7.08	5	2.48	2.23	3

The exclusion thresholds is $2.23 < 3$, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Body SAR

GSM850 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	GSM850	Back Side	251	848.8	31.58	32.0	1.102	0.365	0.402
	GSM850	Front Side	251	848.8	31.58	32.0	1.102	0.869	0.957
	GSM850	Left Side	251	848.8	31.58	32.0	1.102	0.426	0.469
	GSM850	Top Side	251	848.8	31.58	32.0	1.102	0.228	0.251
	GSM850	Bottom Side	251	848.8	31.58	32.0	1.102	0.256	0.282
	GSM850	Front Side	128	824.2	31.25	32.0	1.189	0.825	0.981
1.	GSM850	Front Side	190	836.6	31.36	32.0	1.159	0.894	1.036

GSM1900 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	GSM1900	Back Side	661	1880	28.01	28.5	1.119	0.244	0.273
2.	GSM1900	Front Side	661	1880	28.01	28.5	1.119	0.422	0.472
	GSM1900	Left Side	661	1880	28.01	28.5	1.119	0.317	0.355
	GSM1900	Top Side	661	1880	28.01	28.5	1.119	0.393	0.440
	GSM1900	Bottom Side	661	1880	28.01	28.5	1.119	0.390	0.437

GSM850 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	GPRS_4TX	Back Side	251	848.8	30.58	31.0	1.102	0.117	0.129
3.	GPRS_4TX	Front Side	251	848.8	30.58	31.0	1.102	0.657	0.724
	GPRS_4TX	Left Side	251	848.8	30.58	31.0	1.102	0.353	0.389
	GPRS_4TX	Top Side	251	848.8	30.58	31.0	1.102	0.389	0.428
	GPRS_4TX	Bottom Side	251	848.8	30.58	31.0	1.102	0.375	0.413

GSM1900 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	GPRS_4TX	Back Side	810	1909.8	27.29	27.5	1.050	0.268	0.281
4.	GPRS_4TX	Front Side	810	1909.8	27.29	27.5	1.050	0.610	0.640
	GPRS_4TX	Left Side	810	1909.8	27.29	27.5	1.050	0.391	0.410
	GPRS_4TX	Top Side	810	1909.8	27.29	27.5	1.050	0.575	0.603
	GPRS_4TX	Bottom Side	810	1909.8	27.29	27.5	1.050	0.601	0.631

WCDMA Band 2 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	RMC 12.2k	Back Side	9262	1852.4	22.84	23.0	1.038	0.212	0.220
5.	RMC 12.2k	Front Side	9262	1852.4	22.84	23.0	1.038	0.478	0.496
	RMC 12.2k	Left Side	9262	1852.4	22.84	23.0	1.038	0.327	0.339
	RMC 12.2k	Top Side	9262	1852.4	22.84	23.0	1.038	0.254	0.264
	RMC 12.2k	Bottom Side	9262	1852.4	22.84	23.0	1.038	0.277	0.287

WCDMA Band 5 – Body SAR Test (Gap: 5mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	RMC 12.2k	Back Side	4132	826.4	22.77	23.0	1.054	0.402	0.424
6.	RMC 12.2k	Front Side	4132	826.4	22.77	23.0	1.054	0.959	1.011
	RMC 12.2k	Left Side	4132	826.4	22.77	23.0	1.054	0.413	0.435
	RMC 12.2k	Top Side	4132	826.4	22.77	23.0	1.054	0.347	0.366
	RMC 12.2k	Bottom Side	4132	826.4	22.77	23.0	1.054	0.603	0.636
	RMC 12.2k	Front Side	4183	836.4	22.48	22.5	1.005	0.907	0.911
	RMC 12.2k	Front Side	4233	846.6	22.02	22.5	1.117	0.835	0.933

LTE Band 2–Body SAR Test (Gap: 5mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
	QPSK 20MHz 1RB	Back Side	1900	24.29	24.5	1.050	0.442	0.464
7.	QPSK 20MHz 1RB	Front Side	1900	24.29	24.5	1.050	0.777	0.815
	QPSK 20MHz 1RB	Left Side	1900	24.29	24.5	1.050	0.461	0.484
	QPSK 20MHz 1RB	Top Side	1900	24.29	24.5	1.050	0.433	0.454
	QPSK 20MHz 1RB	Bottom Side	1900	24.29	24.5	1.050	0.349	0.366
	QPSK 20MHz 50%RB	Back Side	1900	24.29	24.5	1.050	0.361	0.379
	QPSK 20MHz 50%RB	Front Side	1900	24.29	24.5	1.050	0.610	0.640
	QPSK 20MHz 50%RB	Left Side	1900	24.29	24.5	1.050	0.343	0.360
	QPSK 20MHz 50%RB	Top Side	1900	24.29	24.5	1.050	0.351	0.368
	QPSK 20MHz 50%RB	Bottom Side	1900	24.29	24.5	1.050	0.277	0.291

LTE Band 5–Body SAR Test (Gap: 5mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
	QPSK 10MHz 1RB	Back Face	836.5	23.58	24.0	1.102	0.392	0.432
	QPSK 10MHz 1RB	Front Face	836.5	23.58	24.0	1.102	0.912	1.005
	QPSK 10MHz 1RB	Left Side	836.5	23.58	24.0	1.102	0.430	0.474
	QPSK 10MHz 1RB	Top Side	836.5	23.58	24.0	1.102	0.340	0.375
	QPSK 10MHz 1RB	Bottom Side	836.5	23.58	24.0	1.102	0.571	0.629
8.	QPSK 10MHz 1RB	Front Face	829.0	23.35	24.0	1.161	0.954	1.108
	QPSK 10MHz 1RB	Front Face	844.0	23.27	24.0	1.183	0.883	1.045
	QPSK 10MHz 50%RB	Back Face	836.5	23.58	24.0	1.102	0.322	0.355
	QPSK 10MHz 50%RB	Front Face	836.5	23.58	24.0	1.102	0.731	0.805
	QPSK 10MHz 50%RB	Left Side	836.5	23.58	24.0	1.102	0.369	0.406
	QPSK 10MHz 50%RB	Top Side	836.5	23.58	24.0	1.102	0.272	0.300
	QPSK 10MHz 50%RB	Bottom Side	836.5	23.58	24.0	1.102	0.471	0.519

Remark: Per KDB 447498 D01 v06, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

9.3 Simultaneous Multi-band Transmission SAR Analysis

List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Body SAR
1	GSM(Voice/Data) + WLAN(2.4G)(Data)	Yes
2	WCDMA (Voice/Data)+ (2.4G)(Data)	Yes
	LTE (Voice/Data) + (2.4G)(Data)	Yes
3	GSM(Voice/Data) + Bluetooth(Data)	Yes
4	WCDMA (Voice/Data) + Bluetooth(Data)	Yes
	LTE (Voice/Data) + Bluetooth(Data)	Yes

Remark:

1. GSM ,WCDMA and LTE share the same antenna, and cannot transmit simultaneously.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the KDB 447498 D01 v06, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$ for test separation distances $\leq 50 \text{ mm}$;

where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.

For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01 v06 as below:

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
3.0	2.0	5/10	2.48	7.5	0.084	0.042

WIFI(2.4G):

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
8.5	7.08	5/10	2.48	7.5	0.297	0.149

4. The maximum SAR summation is calculated based on the same configuration and test position.

Body SAR**WWAN and WLAN**

	WWAN		WLAN(2.4G)	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM	0.402	0.297	0.699
Front	GSM	1.036	0.297	1.333
Right side	GSM	--	0.297	0.297
Left side	GSM	0.469	0.297	0.766
Top side	GSM	0.603	0.297	0.900
Bottom side	GSM	0.631	0.297	0.928
Back	WCDMA	0.424	0.297	0.721
Front	WCDMA	1.011	0.297	1.308
Right side	WCDMA	--	0.297	0.297
Left side	WCDMA	0.435	0.297	0.732
Top side	WCDMA	0.366	0.297	0.663
Bottom side	WCDMA	0.636	0.297	0.933
Back	LTE	0.464	0.297	0.761
Front	LTE	1.108	0.297	1.405
Right side	LTE	--	0.297	0.297
Left side	LTE	0.484	0.297	0.781
Top side	LTE	0.454	0.297	0.751
Bottom side	LTE	0.629	0.297	0.926

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM	0.402	0.084	0.486
Front	GSM	1.036	0.084	1.120
Right side	GSM	--	0.084	0.084
Left side	GSM	0.469	0.084	0.553
Top side	GSM	0.603	0.084	0.687
Bottom side	GSM	0.631	0.084	0.715
Back	WCDMA	0.424	0.084	0.508
Front	WCDMA	1.011	0.084	1.095
Right side	WCDMA	--	0.084	0.084
Left side	WCDMA	0.435	0.084	0.519
Top side	WCDMA	0.366	0.084	0.450
Bottom side	WCDMA	0.636	0.084	0.720
Back	LTE	0.464	0.084	0.548
Front	LTE	1.108	0.084	1.192
Right side	LTE	--	0.084	0.084
Left side	LTE	0.484	0.084	0.568
Top side	LTE	0.454	0.084	0.538
Bottom side	LTE	0.629	0.084	0.713

10. Measurement Uncertainty

10.1 Uncertainty for EUT SAR Test

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	$(1_{Cp})^{1/2}$	$(1_{Cp})^{1/2}$	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	$(Cp)^{1/2}$	$(Cp)^{1/2}$	1.63	1.63	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions – Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Test Sample Related									
Test sample positioning	E.4.2	0.03	N	1	1	1	0.03	0.03	N-1
Device Holder Uncertainty	E.4.1	5.00	N	1	1	1	5.00	5.00	
Output power Variation - SAR drift measurement	E.2.9	12.02	R	$\sqrt{3}$	1	1	6.94	6.94	∞
SAR scaling	E6.5	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	1.9	R	$\sqrt{3}$	1	0.84	1.10	0.90	∞

Liquid conductivity - deviation from target value	E.3.2	5.00	R	$\sqrt{3}$	0.64	0.43	1.85	1.24	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	∞
Liquid permittivity - deviation from target value	E.3.2	0.37	R	$\sqrt{3}$	0.6	0.49	0.13	0.10	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	∞
Combined Standard Uncertainty			RSS				12.98	12.53	
Expanded Uncertainty (95% Confidence interval)			K=2				25.32	24.43	

10.2 Uncertainty for System Performance Check

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+ - %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	$(1_Cp)^{1/2}$	$(1_Cp)^{1/2}$	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	$(Cp)^{1/2}$	$(Cp)^{1/2}$	1.63	1.63	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	E.2.5	0	R	$\sqrt{3}$	0	0	0.0	0.0	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions – Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞

integration Algorithms for Max. SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	N-1
Input power and SAR drift measurement	8,6.6.2	12.02	R	$\sqrt{3}$	1	1	6.94	6.94	∞
Deviation of experimental dipole from numerical dipole	E.6.4	5.5	R	$\sqrt{3}$	1	1	3.20	3.20	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	2.0	R	$\sqrt{3}$	1	0.84	1.10	1.10	∞
Liquid conductivity - deviation from target value	E.3.2	5.00	R	$\sqrt{3}$	0.64	0.43	1.85	1.24	
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	
Liquid permittivity - deviation from target value	E.3.2	0.37	R	$\sqrt{3}$	0.6	0.49	0.13	0.10	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				12.00	11.50	
Expanded Uncertainty (95% Confidence interval)			K=2				23.39	22.43	

Annex A. Plots of System Performance Check

MEASUREMENT 1

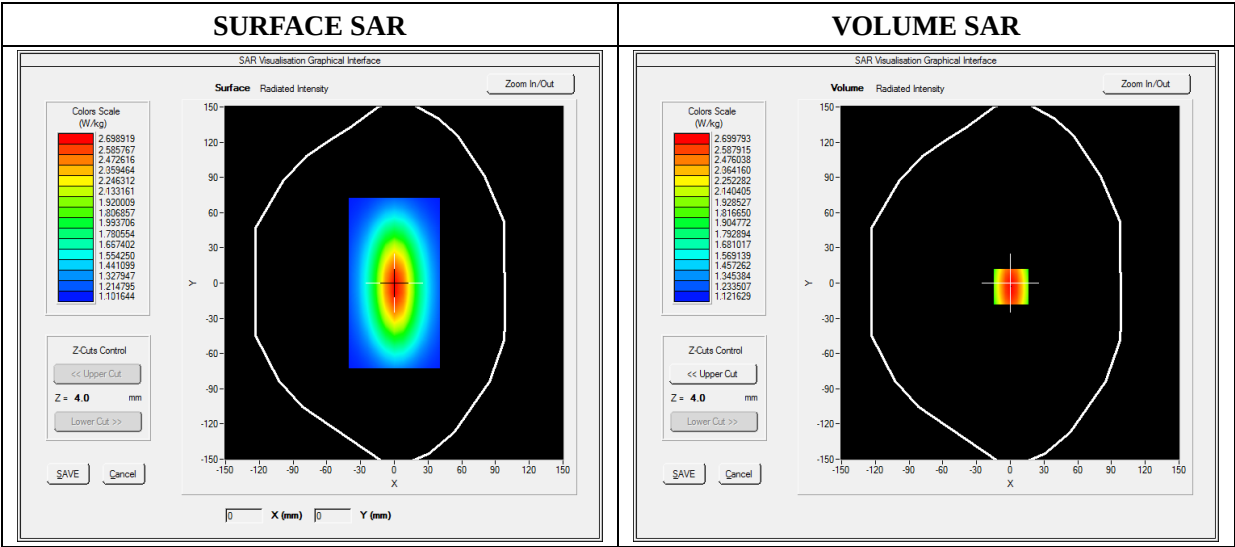
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 7 minutes 21 seconds
E-field Probe: SSE5 - SN 18/21 EPGO356; ConvF: 1.67; Calibrated: 2021-07-16

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	40.750245
Conductivity (S/m)	0.881245
Power Variation (%)	0.428437
Ambient Temperature	22.0
Liquid Temperature	22.2

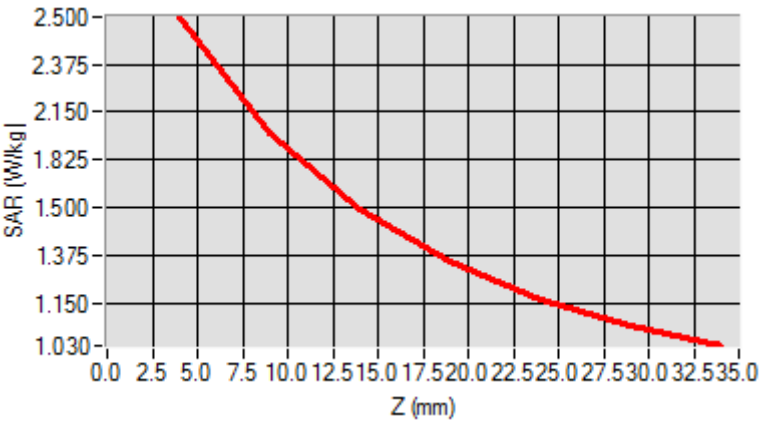


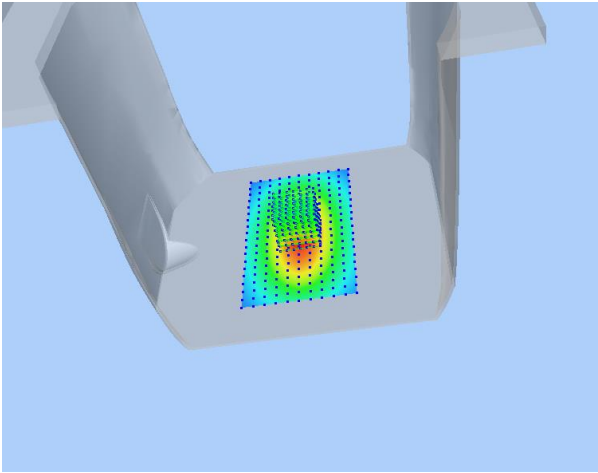
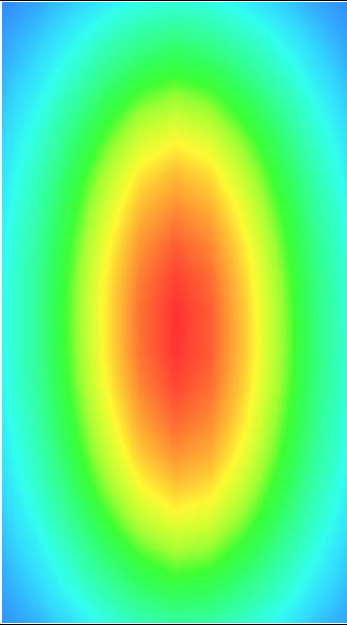
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.519489
SAR 1g (W/Kg)	2.511253

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.4900	1.8942	1.4811	1.3541	1.1123	1.0539



3D screen shot	Hot spot position
	

MEASUREMENT 2

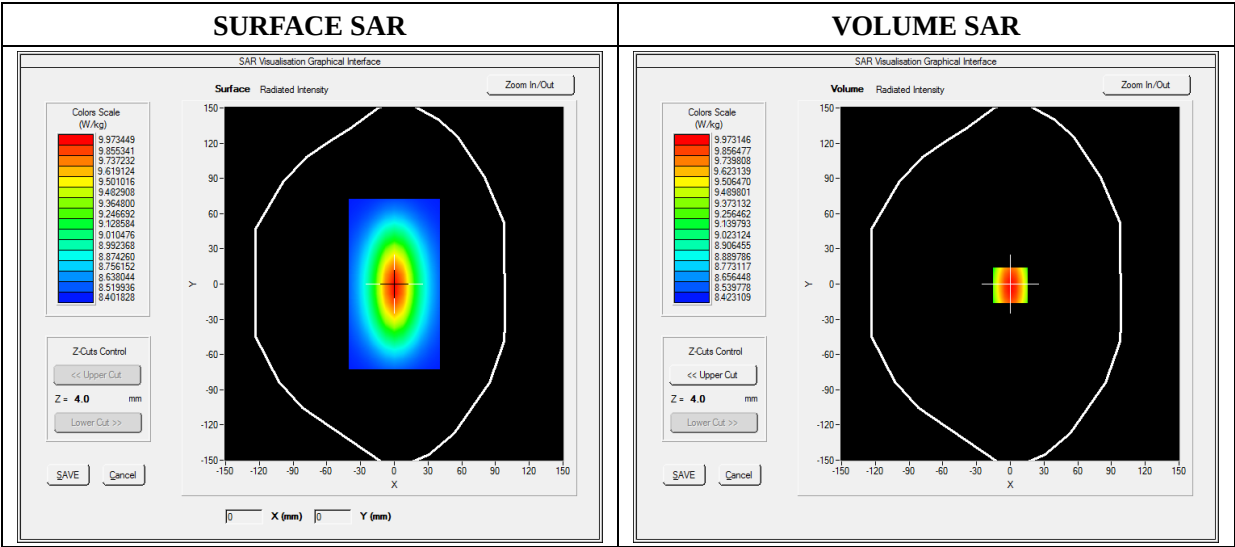
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 18/21 EPGO356; ConvF: 1.67; Calibrated: 2021-07-16

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1800.000000
Relative Permittivity (real part)	39.427090
Conductivity (S/m)	1.382510
Power Variation (%)	1.041232
Ambient Temperature	22.0
Liquid Temperature	22.2

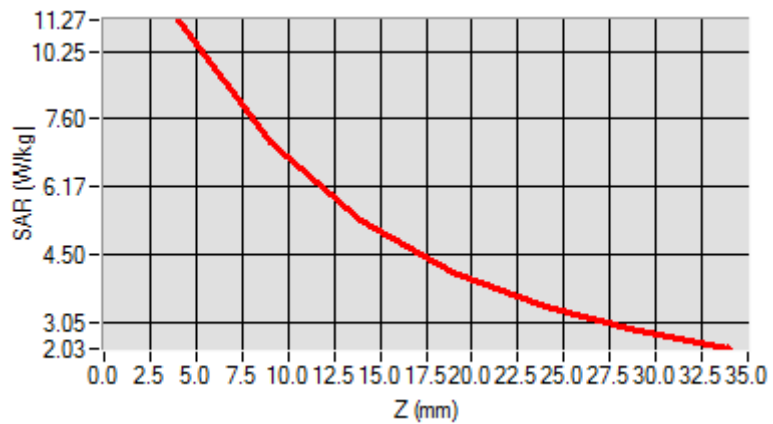


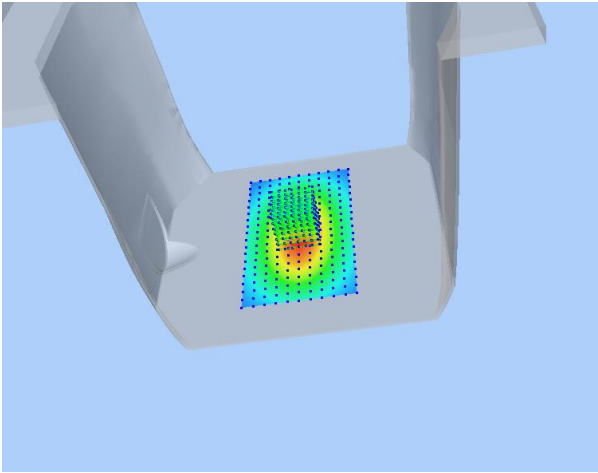
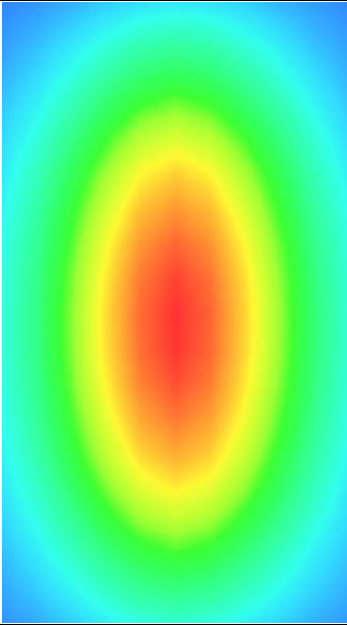
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.081252
SAR 1g (W/Kg)	9.461217

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.3455	7.1125	5.1026	3.425	3.0242	2.1125



3D screen shot	Hot spot position
	

MEASUREMENT 3

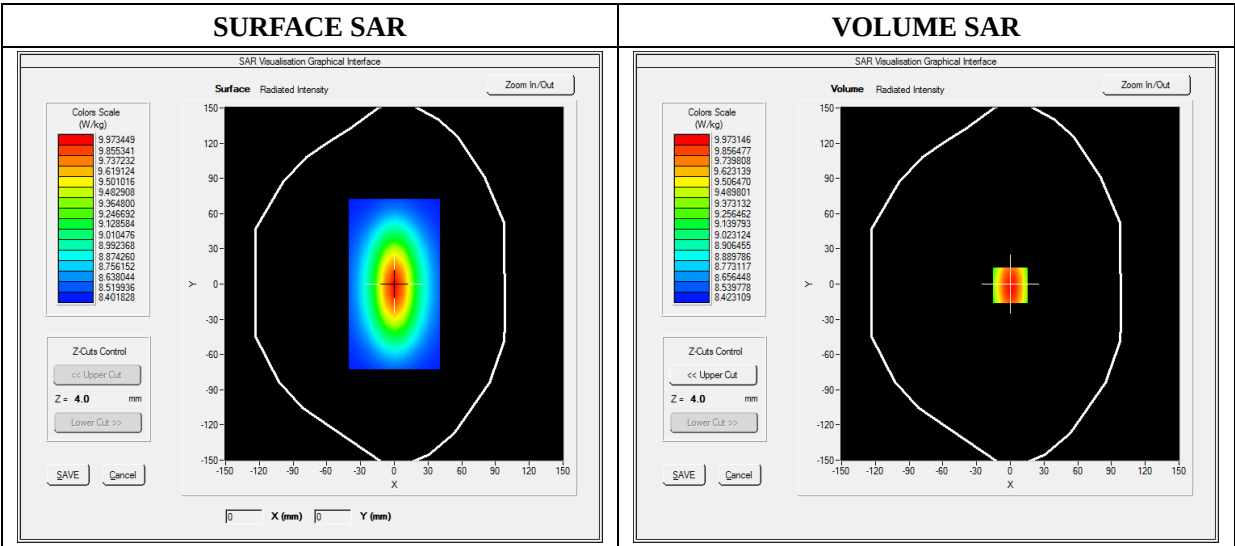
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 18/21 EPGO356; ConvF: 1.67; Calibrated: 2021-07-16

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	39.060124
Conductivity (S/m)	1.393607
Power Variation (%)	1.022540
Ambient Temperature	22.0
Liquid Temperature	22.2

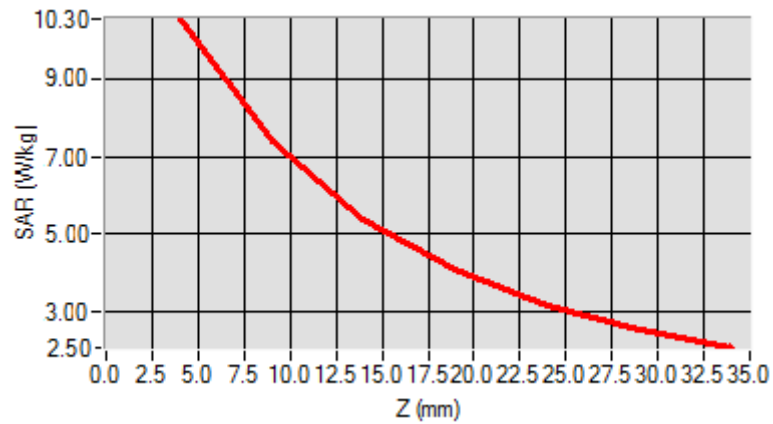


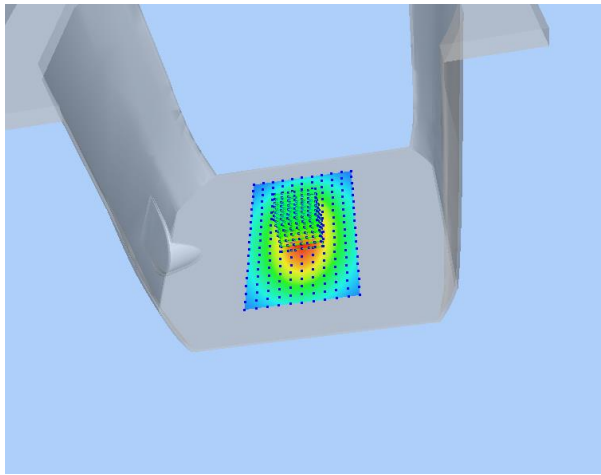
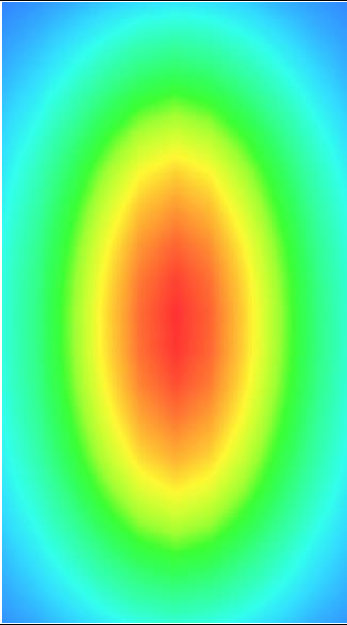
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.174526
SAR 1g (W/Kg)	9.913214

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.2354	6.8400	5.0121	4.1189	3.0522	2.8424



3D screen shot	Hot spot position
	

Annex B. Plots of SAR Measurement

MEASUREMENT 1

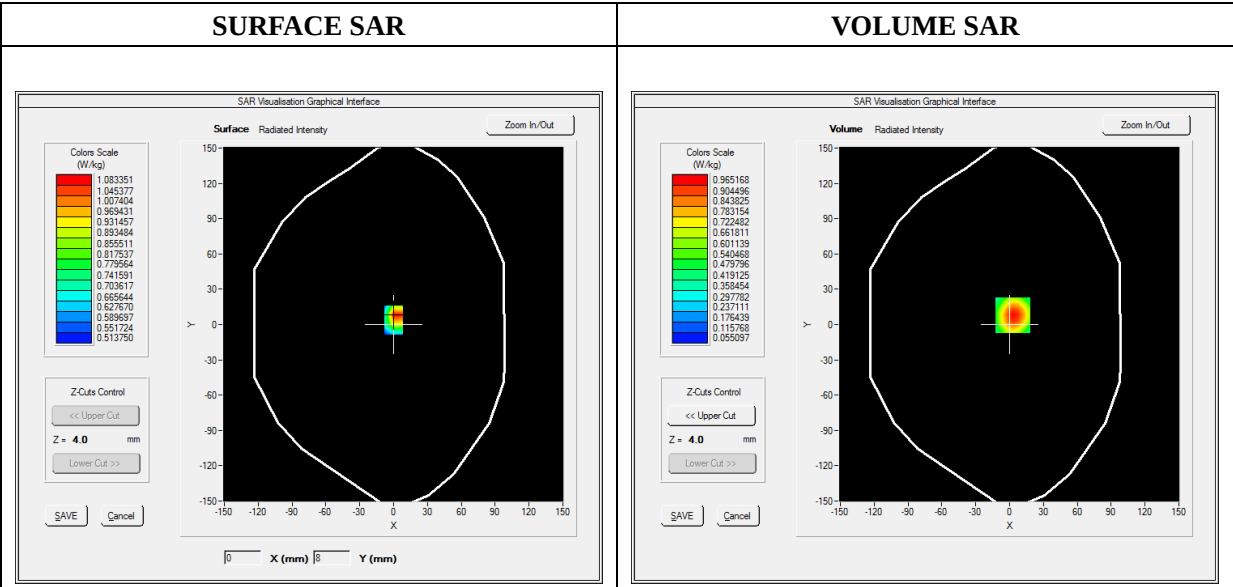
Type: Phone measurement (Complete)
Date of measurement: 2021-11-18
Measurement duration: 12 minutes 3 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat plane
Device Position	Front
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

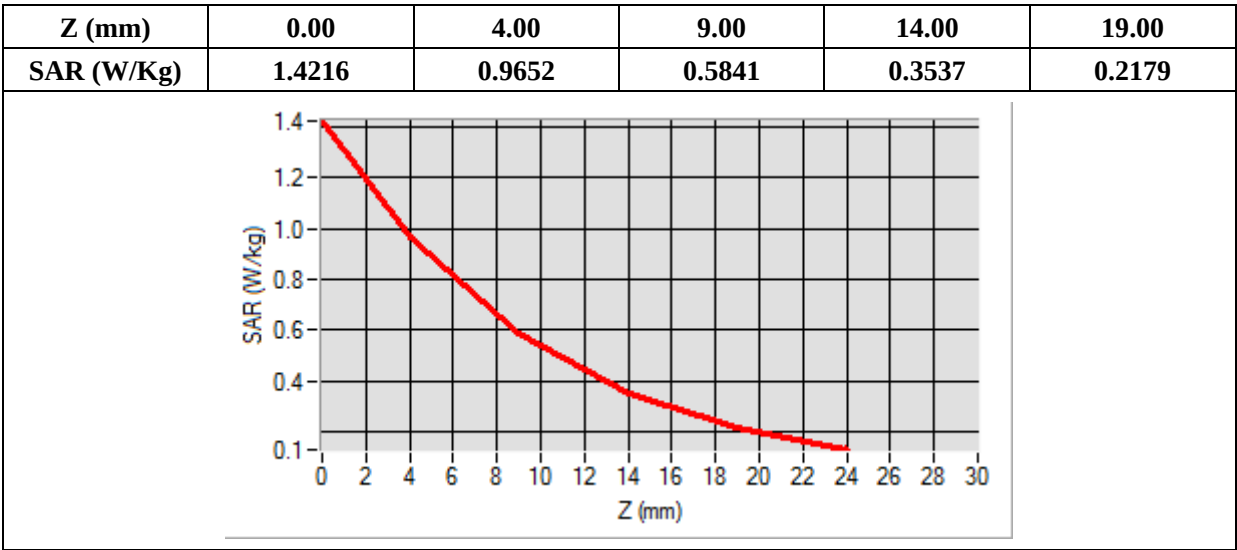
Frequency (MHz)	836.600000
Relative Permittivity (real part)	40.750415
Conductivity (S/m)	0.884808
Power Variation (%)	1.260000
Ambient Temperature	22.8
Liquid Temperature	22.8

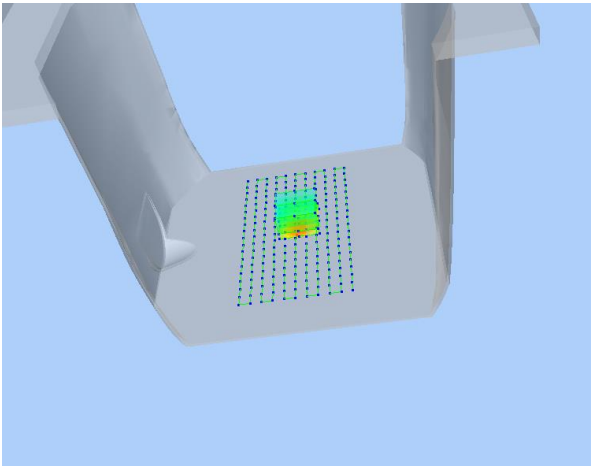


Maximum location: X=3.00, Y=8.00

SAR Peak: 1.42 W/kg

SAR 10g (W/Kg)	0.516237
SAR 1g (W/Kg)	0.894194



3D screen shot	Hot spot position
	

MEASUREMENT 2

Type: Phone measurement (Complete)

Date of measurement: 2021-11-18

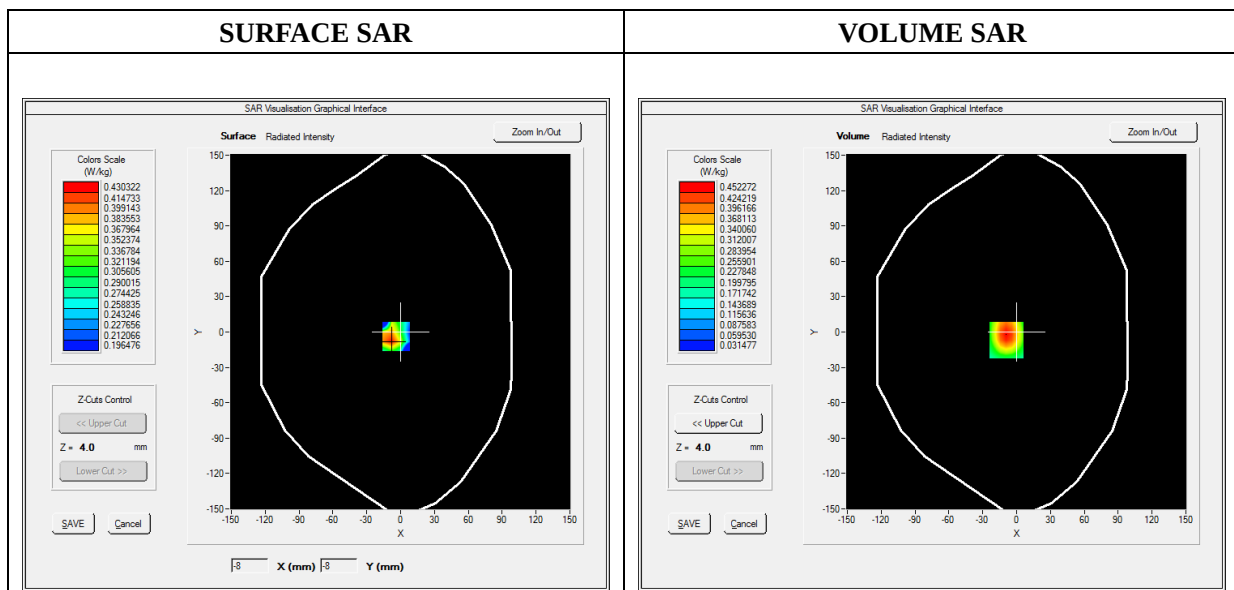
Measurement duration: 12 minutes 21 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat plane
Device Position	Front
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 8.0)

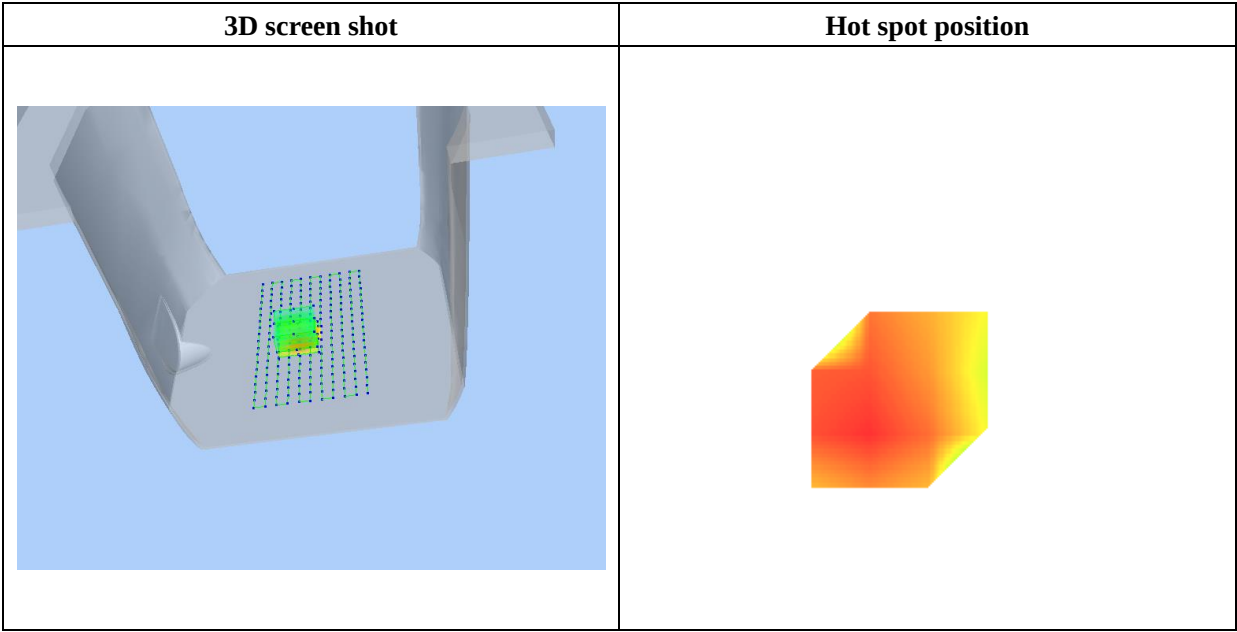
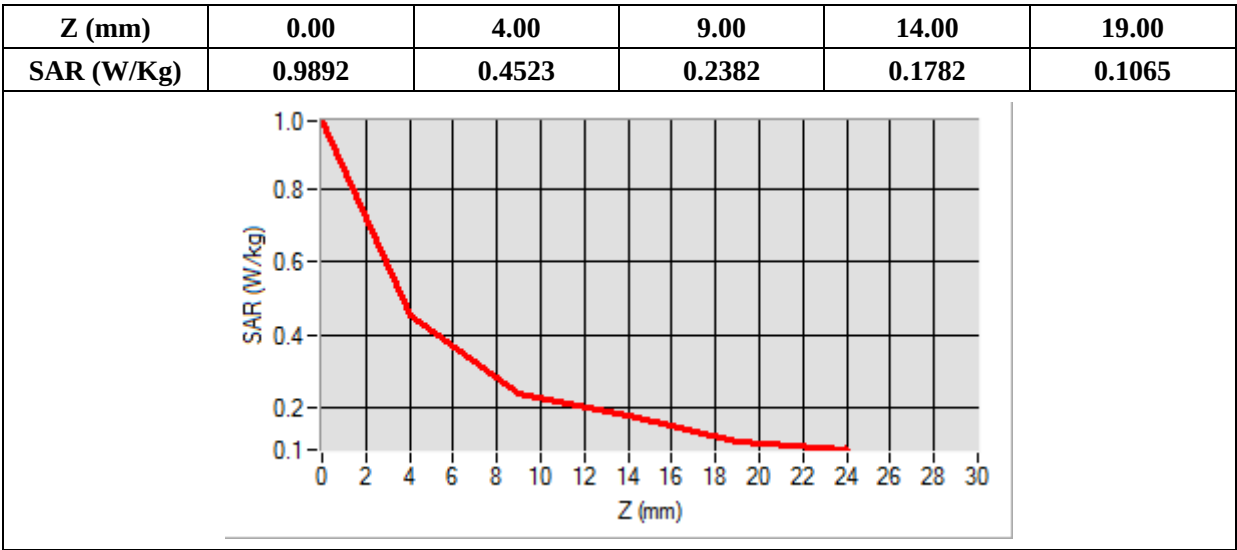
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative Permittivity (real part)	39.061854
Conductivity (S/m)	1.394017
Power Variation (%)	0.430000
Ambient Temperature	22.5
Liquid Temperature	22.5



SAR Peak: 0.66 W/kg

SAR 10g (W/Kg)	0.247726
SAR 1g (W/Kg)	0.421781



MEASUREMENT 3

Type: Phone measurement (Complete)

Date of measurement: 2021-11-18

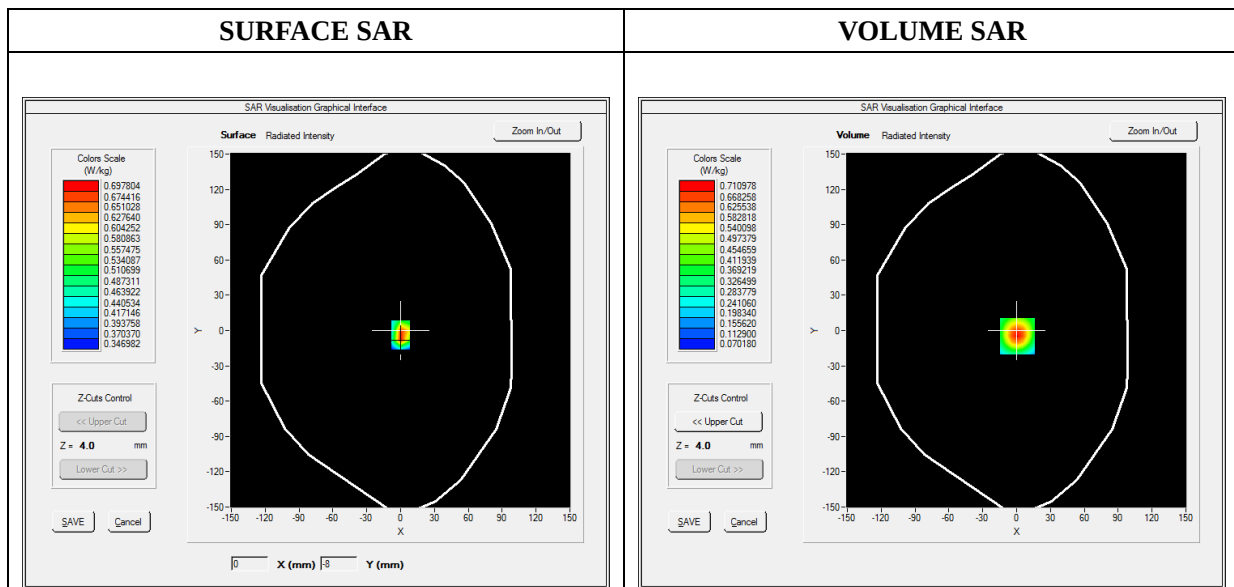
Measurement duration: 11 minutes 48 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	GPRS850_4TX
Channels	High
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

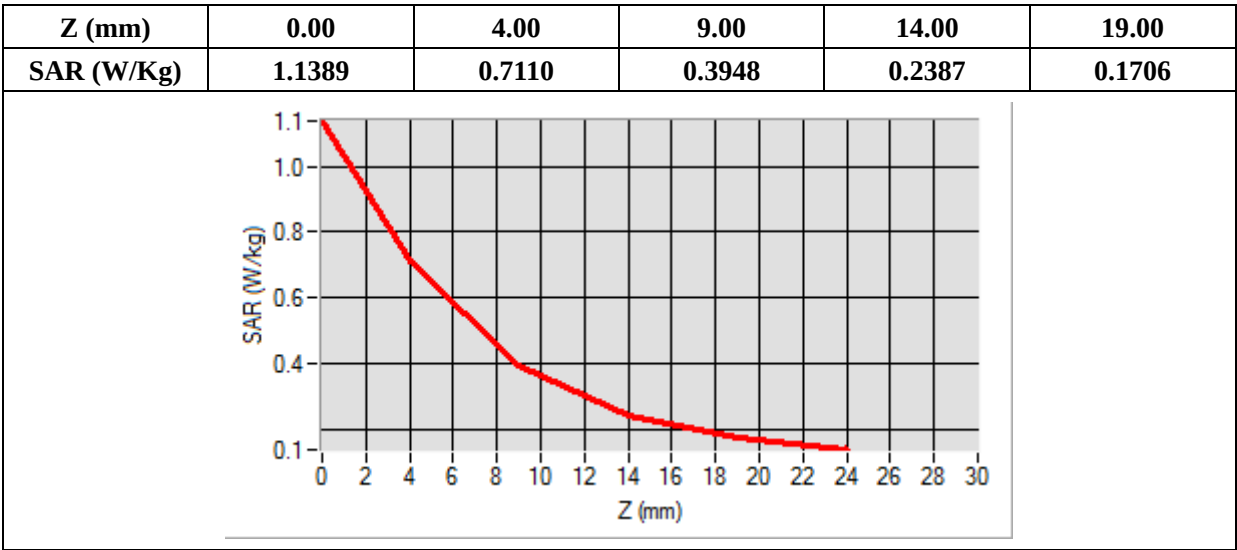
Frequency (MHz)	848.800000
Relative Permittivity (real part)	40.751354
Conductivity (S/m)	0.8810101
Power Variation (%)	1.074536
Ambient Temperature	22.0
Liquid Temperature	22.2

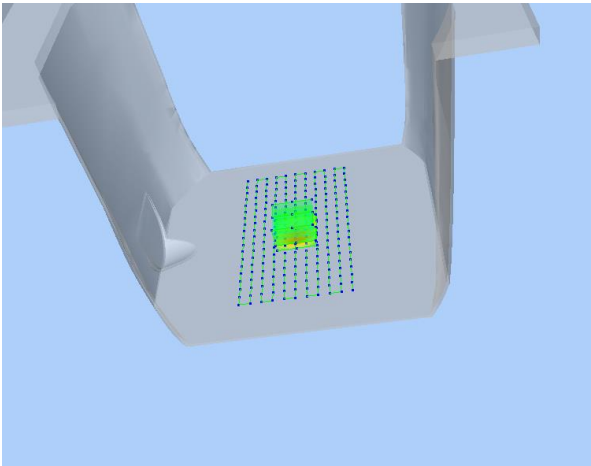


Maximum location: X=1.00, Y=-5.00

SAR Peak: 1.14 W/kg

SAR 10g (W/Kg)	0.371592
SAR 1g (W/Kg)	0.657386



3D screen shot	Hot spot position
	

MEASUREMENT 4

Type: Phone measurement (Complete)

Date of measurement: 2021-11-18

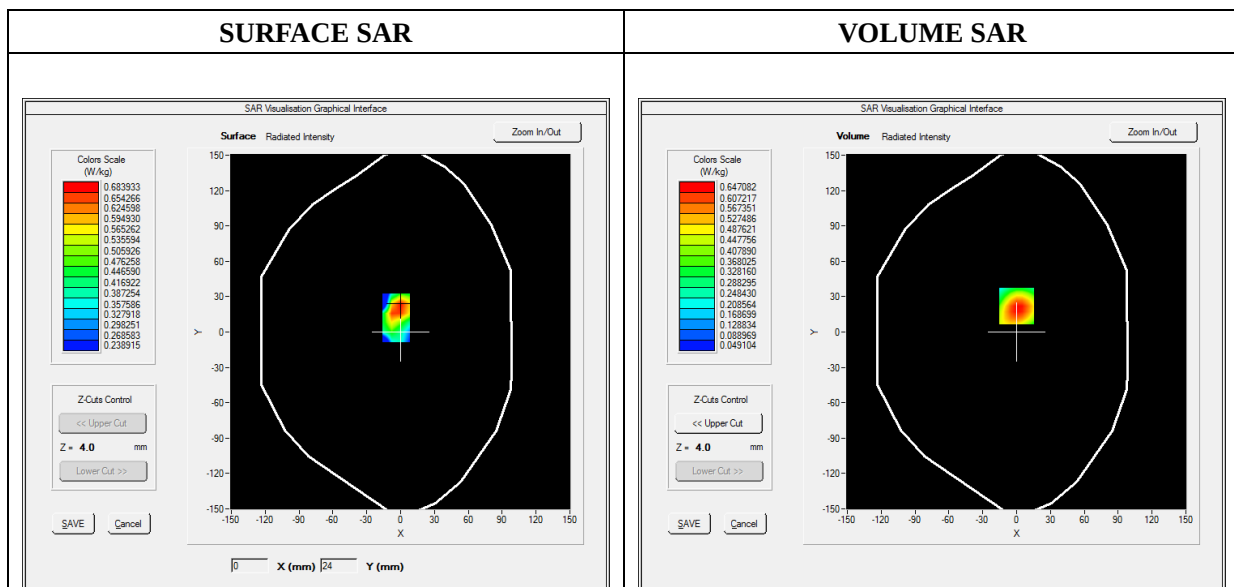
Measurement duration: 11 minutes 48 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	GPRS1900_4TX
Channels	High
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

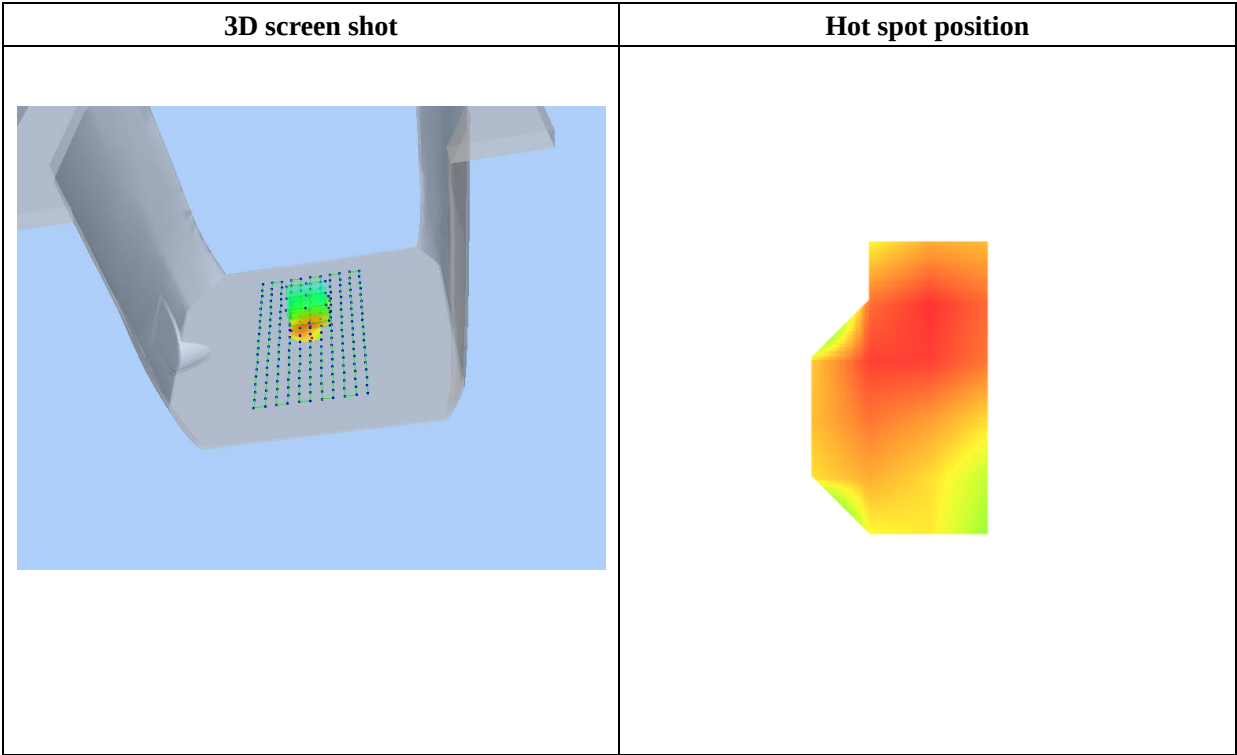
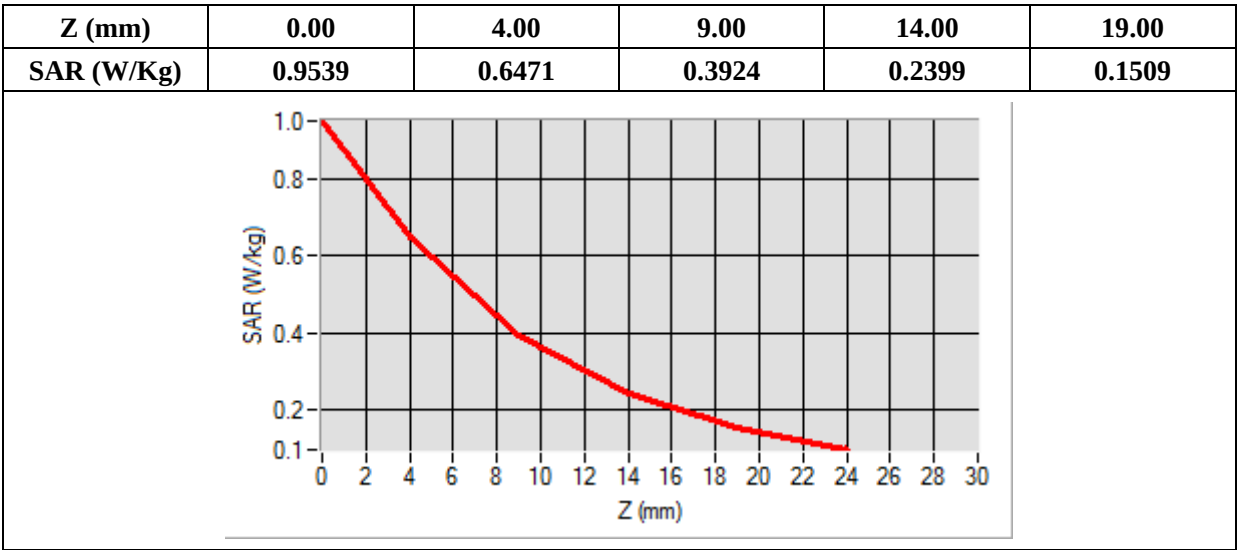
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	39.060124
Conductivity (S/m)	1.385369
Power Variation (%)	-0.150000
Ambient Temperature	22.0
Liquid Temperature	22.2



Maximum location: X=0.00, Y=22.00

SAR Peak: 0.97 W/kg

SAR 10g (W/Kg)	0.356432
SAR 1g (W/Kg)	0.609838



MEASUREMENT 5

Type: Phone measurement (Complete)

Date of measurement: 2021-11-19

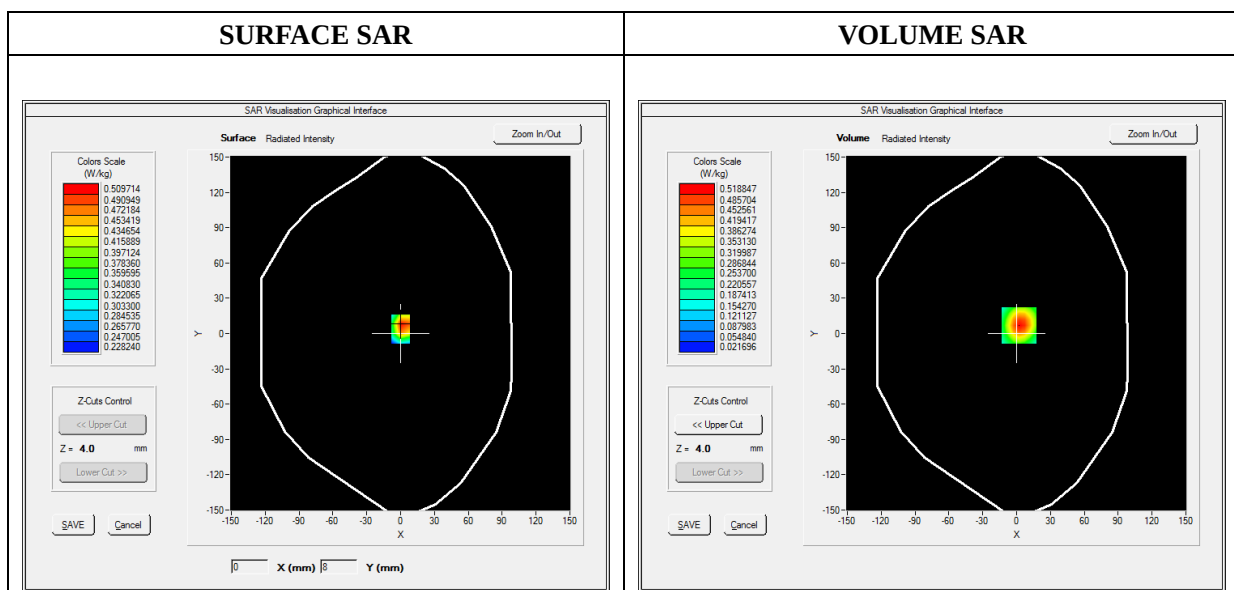
Measurement duration: 12 minutes 3 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	WCDMA1900_RMC
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1852.200000
Relative Permittivity (real part)	39.434924
Conductivity (S/m)	1.384607
Power Variation (%)	0.820000
Ambient Temperature	22.0
Liquid Temperature	22.2



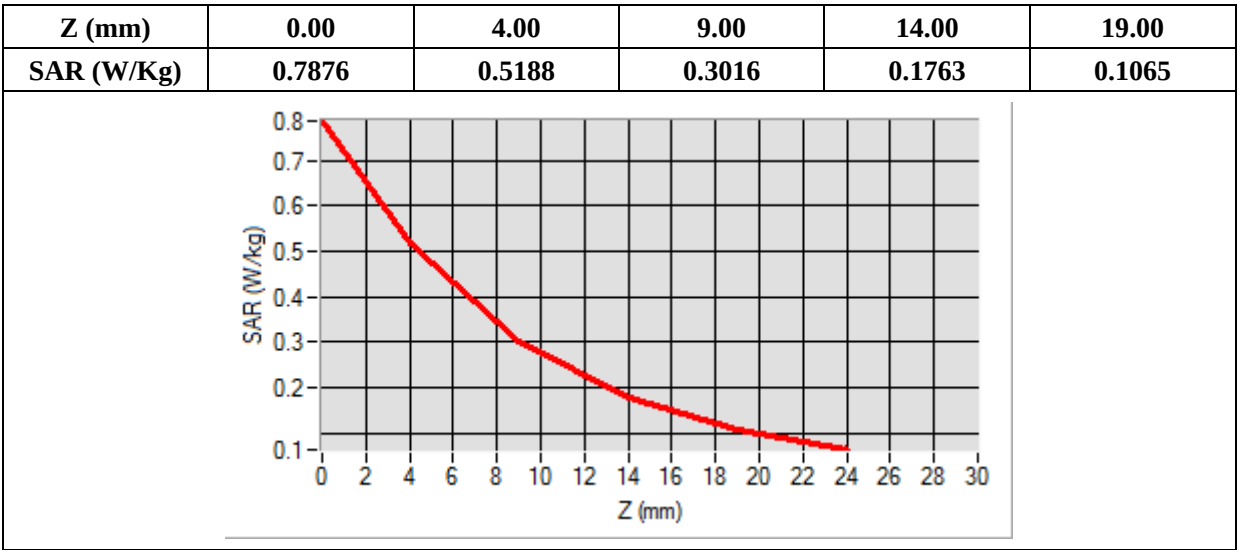
Maximum location: X=2.00, Y=7.00

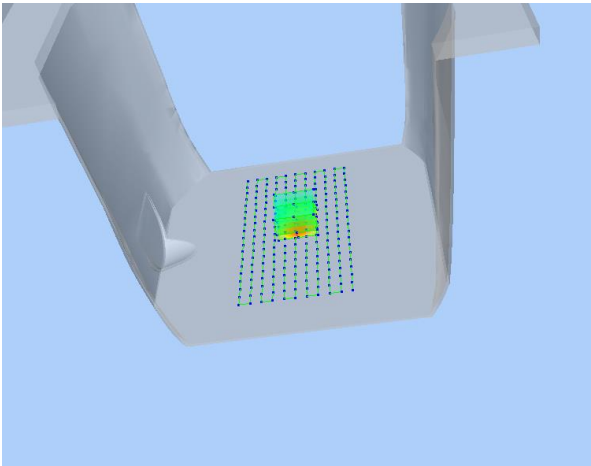
Waltek Testing Group (Shenzhen) Co., Ltd.

[Http://www.waltek.com.cn](http://www.waltek.com.cn)

SAR Peak: 0.79 W/kg

SAR 10g (W/Kg)	0.264239
SAR 1g (W/Kg)	0.478079



3D screen shot	Hot spot position
	

MEASUREMENT 6

Type: Phone measurement (Complete)

Date of measurement: 2021-11-19

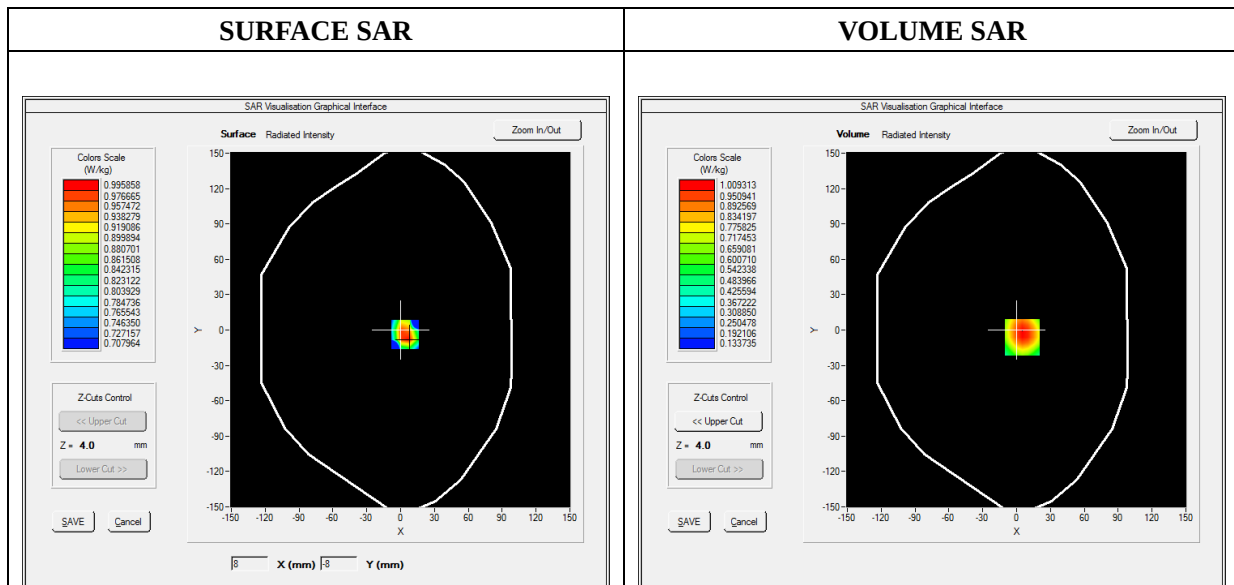
Measurement duration: 12 minutes 3 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	WCDMA850_RMC
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

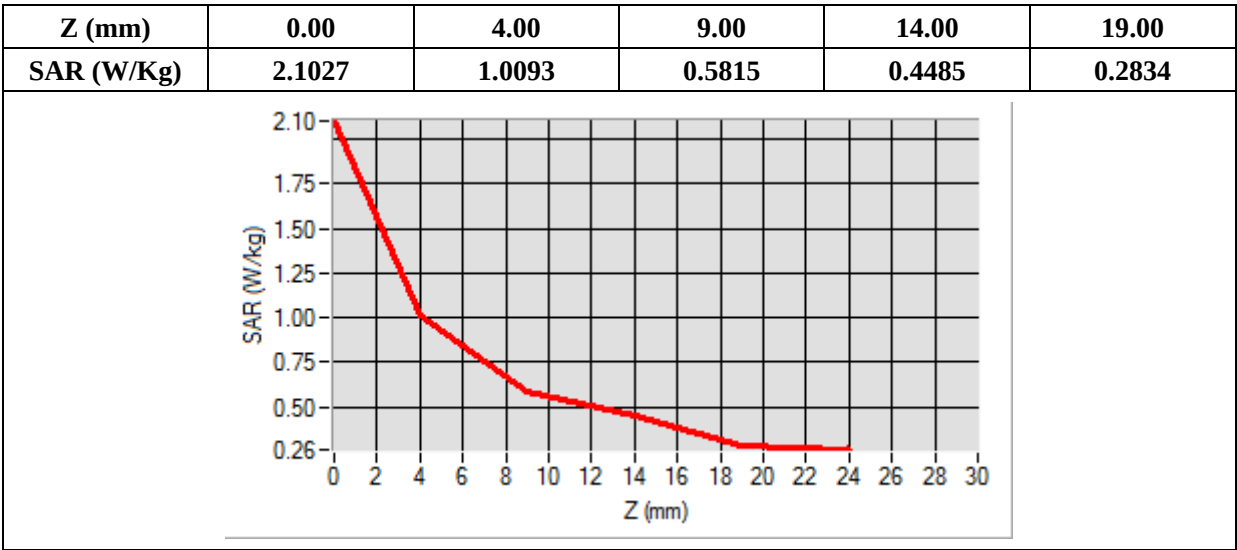
Frequency (MHz)	826.400000
Relative Permittivity (real part)	40.752275
Conductivity (S/m)	0.880987
Power Variation (%)	-1.200000
Ambient Temperature	22.0
Liquid Temperature	22.2

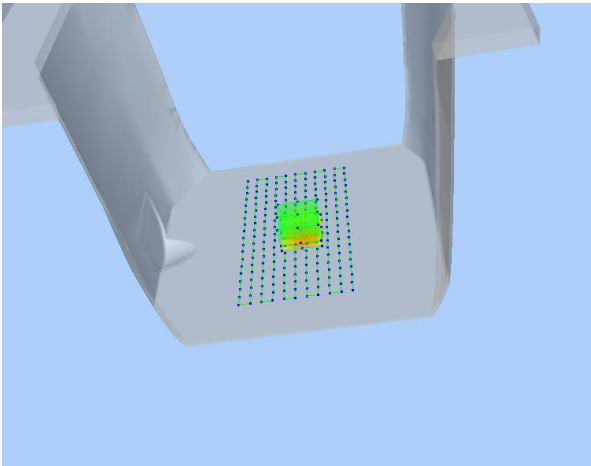


Maximum location: X=5.00, Y=-6.00

SAR Peak: 1.46 W/kg

SAR 10g (W/Kg)	0.615805
SAR 1g (W/Kg)	0.959497



3D screen shot	Hot spot position
	

MEASUREMENT 7

Type: Phone measurement (Complete)

Date of measurement: 2021-11-19

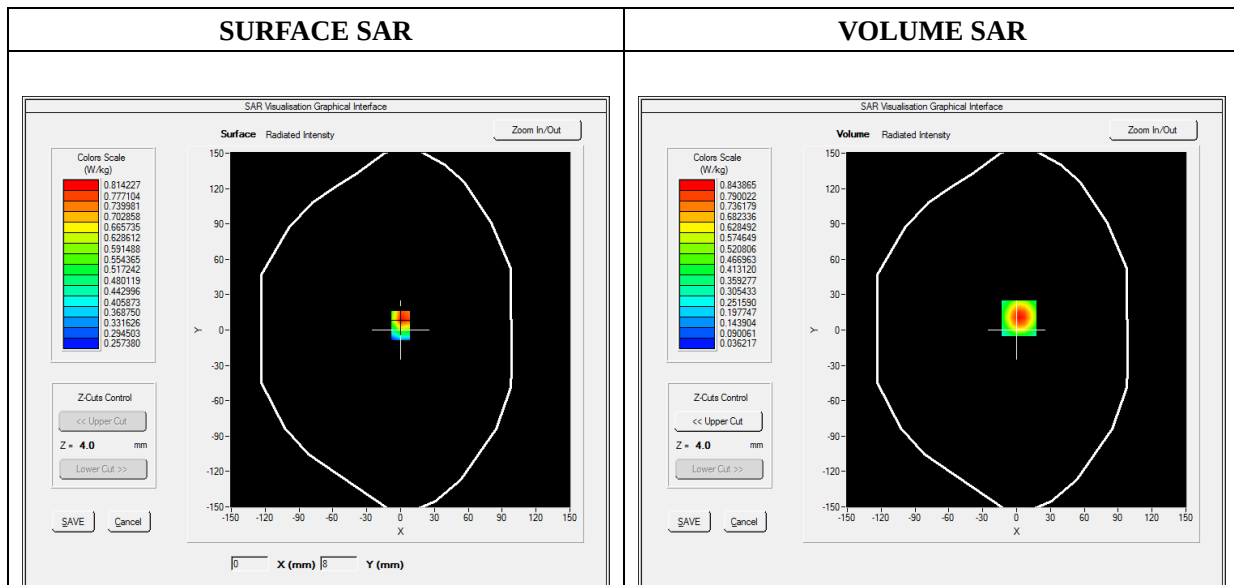
Measurement duration: 12 minutes 3 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	LTE Band 2
Channels	QPSK, 20MHz, 1RB, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

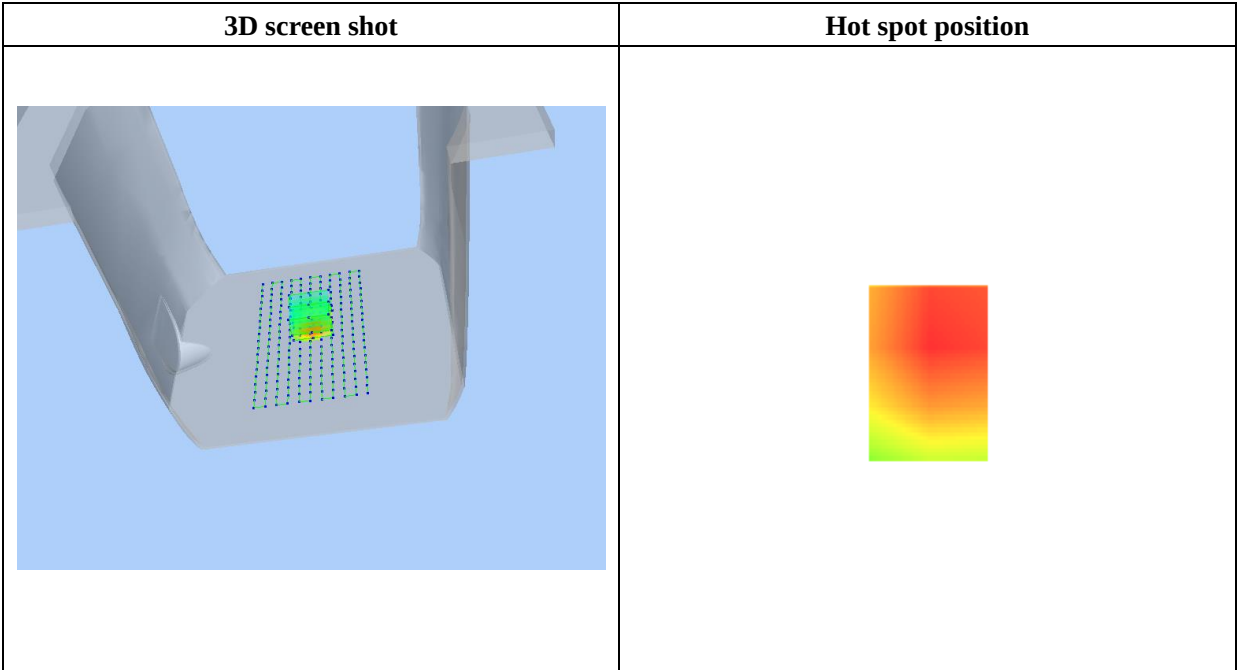
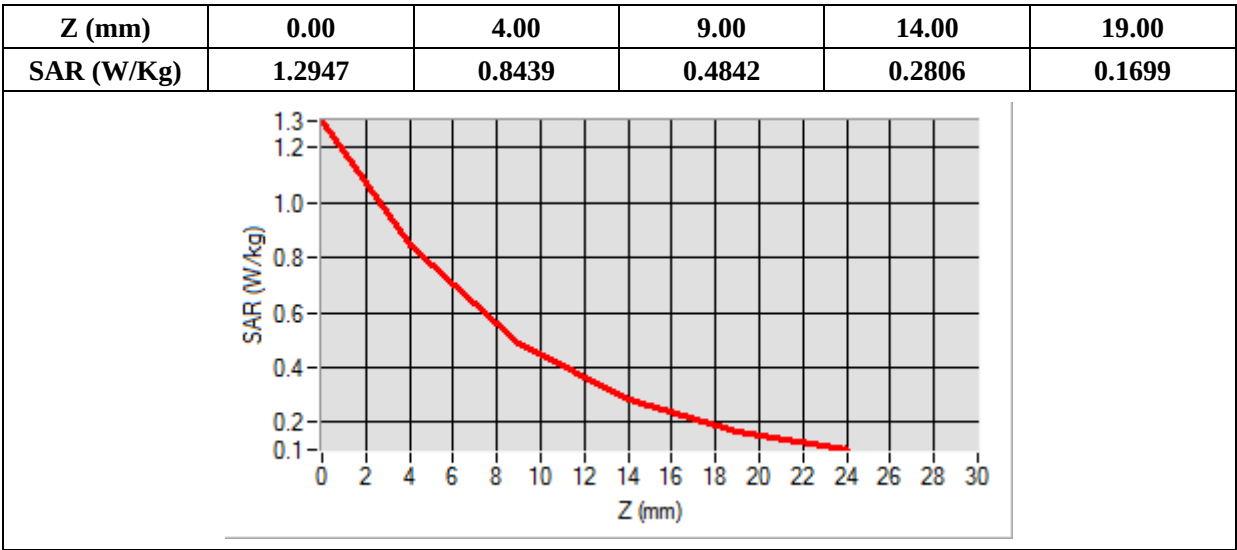
Frequency (MHz)	1900.000000
Relative Permittivity (real part)	39.060124
Conductivity (S/m)	1.390369
Power Variation (%)	-1.340000
Ambient Temperature	22.0
Liquid Temperature	22.2



Maximum location: X=2.00, Y=10.00

SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.426941
SAR 1g (W/Kg)	0.777185



MEASUREMENT 8

Type: Phone measurement (Complete)

Date of measurement: 2021-11-19

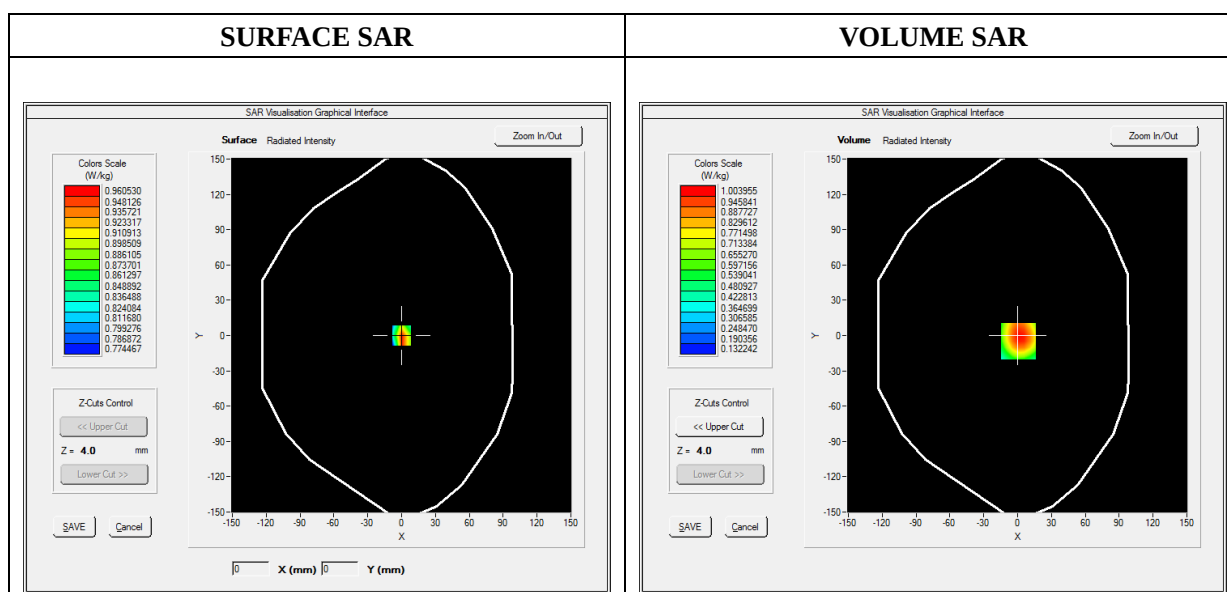
Measurement duration: 12 minutes 3 seconds

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	LTE Band 5
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

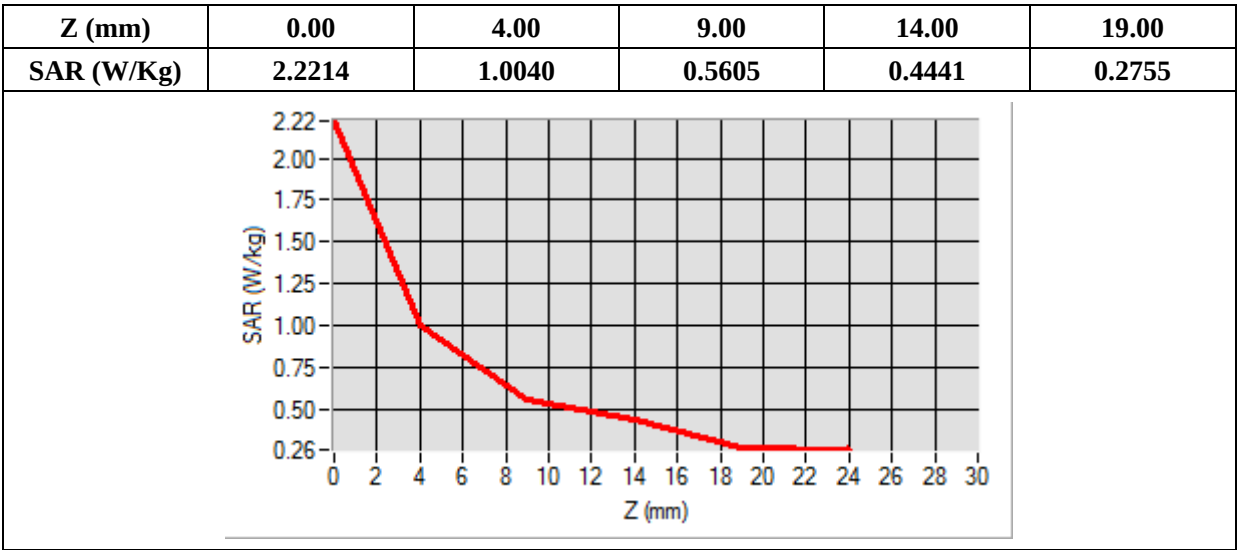
Frequency (MHz)	829.000000
Relative Permittivity (real part)	40.750245
Conductivity (S/m)	0.881344
Power Variation (%)	-0.870000
Ambient Temperature	22.0
Liquid Temperature	22.2

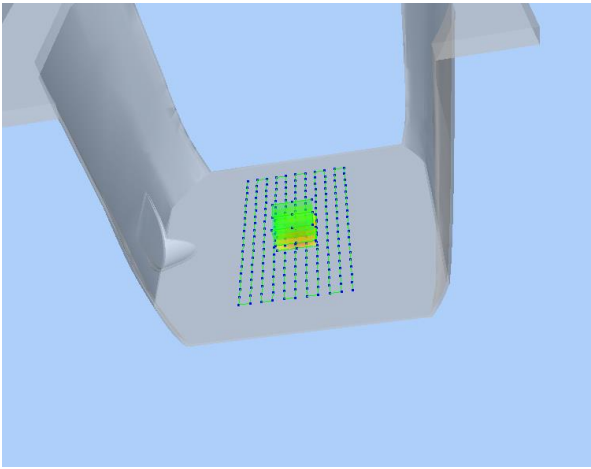


Maximum location: X=1.00, Y=-5.00

SAR Peak: 1.45 W/kg

SAR 10g (W/Kg)	0.610872
SAR 1g (W/Kg)	0.954299



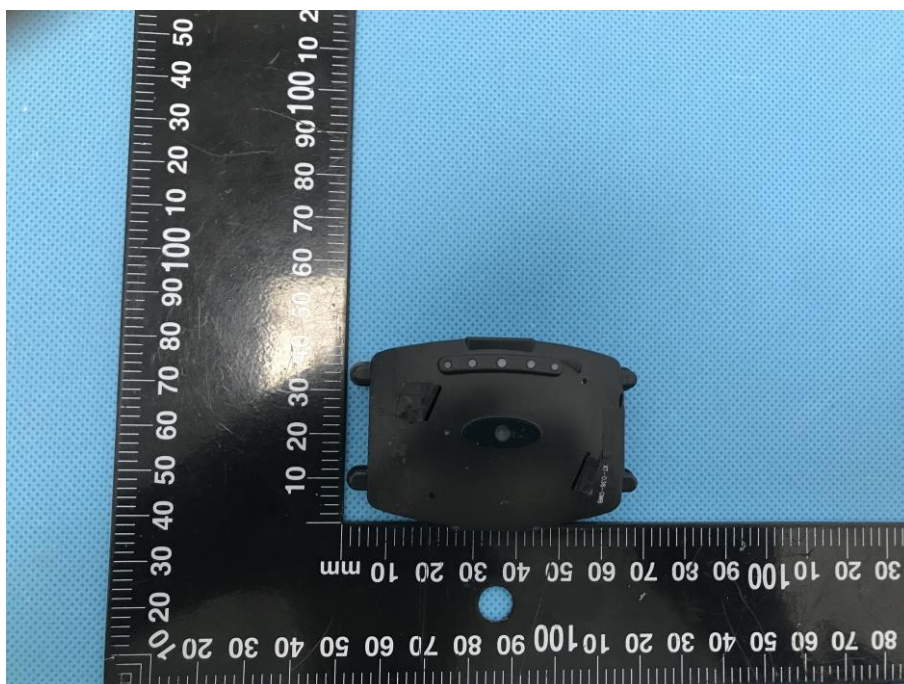
3D screen shot	Hot spot position
	

Annex C. EUT Photos

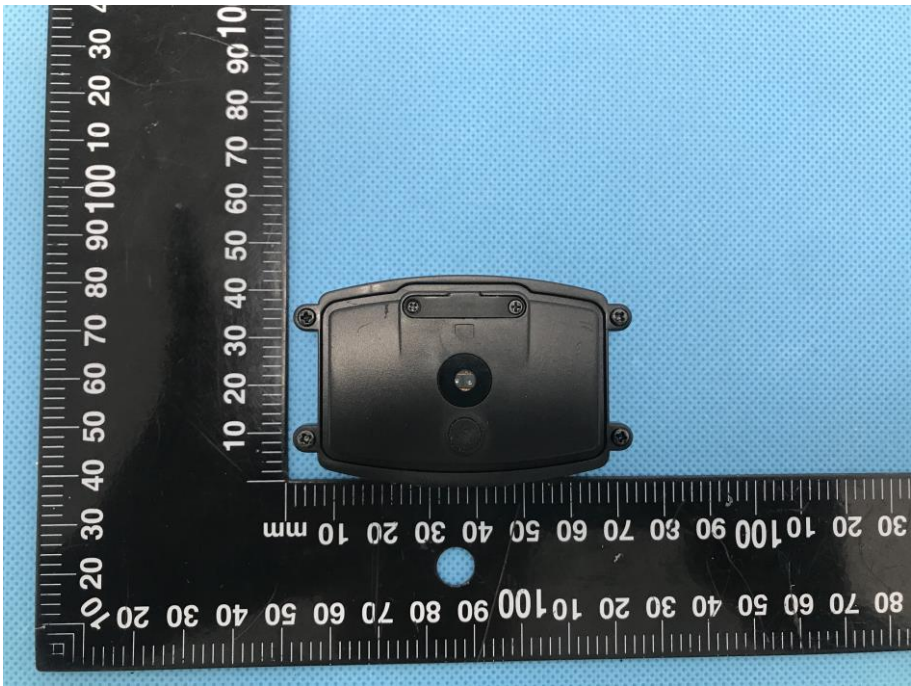
EUT View 1



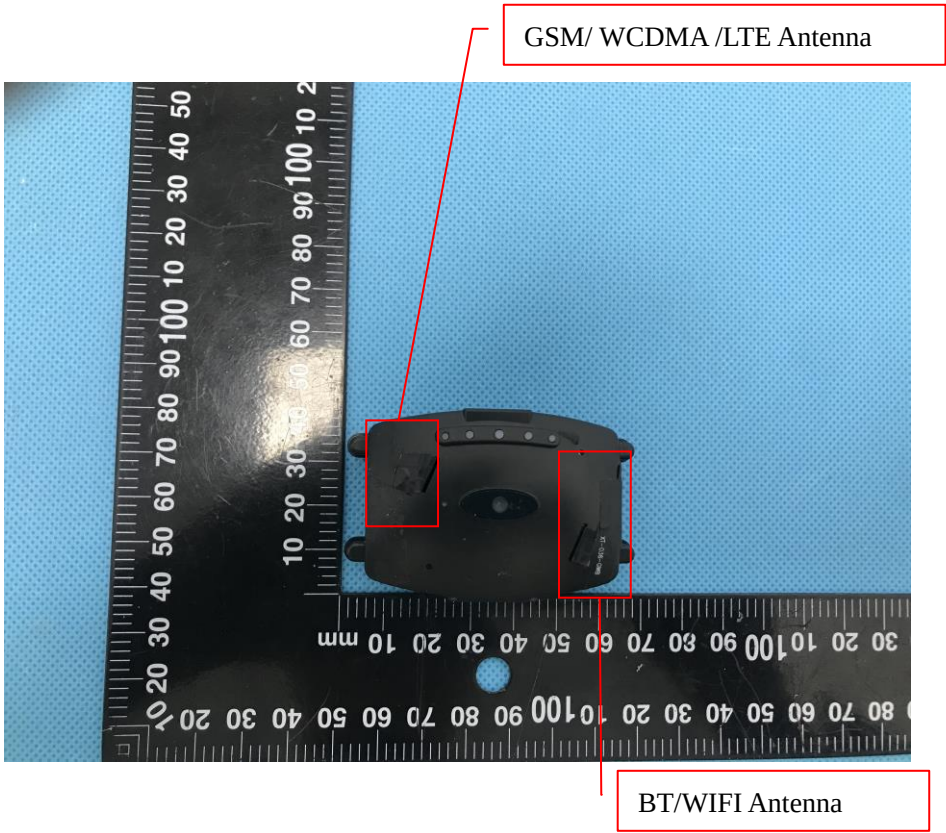
EUT View 2



EUT View 3



Antenna View



Annex D. Test Setup Photos

Body mode Exposure Conditions

Test distance: 5mm

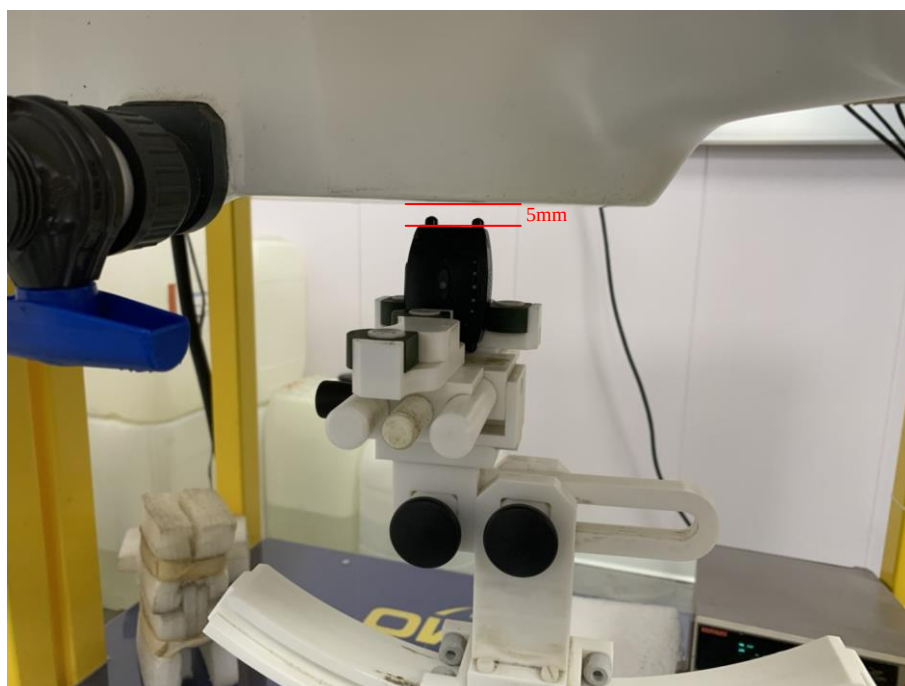
Body Front



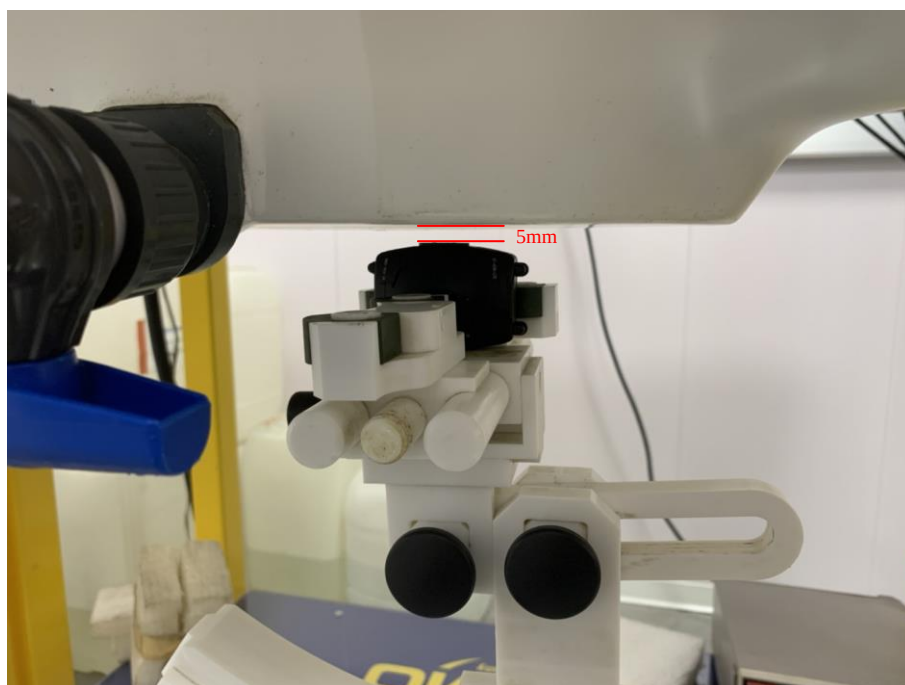
Body Back



Body Left



Body Top



Body Bottom



Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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