TEST REPORT

Reference No.	:	WTX21X07070924W
FCC ID	:	S8UHT-718S
Applicant	:	Sinocastel Co., Ltd.
Address	:	501, Building 11, Shenzhen Software Park (Phase 2), No. 1, Kejizhong 2 Road, Gaoxin Middle District, Nanshan District, Shenzhen, China
Product Name	:	Smart GPS device
Test Model	:	HT-718S
Standards	:	FCC Part 2.1093 ANSI / IEEE C95.1 : 2005+A1:2010 ANSI / IEEE C95.3 : 2002(R2008) IEEE 1528 :2013
Date of Receipt sample	:	Jul.16, 2021
Date of Test	:	Jul.17,2021 to Jul.30, 2021
Date of Issue	:	Jul.30, 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	Lion Cai	Silin Chen
Jack Sun / Project Engineer	Lion Cai / 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 Define Two Imaginary Lines on The Handset 20
7.2 Cheek Position 21
7.3 Tilted Position 21
7.4 Body Position 22
7.5 EUT Antenna Position 22
7.6 EUT Testing Position 23
8. SAR Measurement Procedures 24
8.1 Measurement Procedures 24
8.2 Spatial Peak SAR Evaluation 24
8.3 Area & Zoom Scan Procedures 25
8.4 Volume Scan Procedures 25
8.5 SAR Averaged Methods 25
8.6 Power Drift Monitoring 25
9. SAR Test Result 26
9.1 Conducted RF Output Power 26
9.2 Test Results for Standalone SAR Test 51
9.3 Simultaneous Multi-band Transmission SAR Analysis ..... 错误!未定义书签。
10. Measurement Uncertainty 55
10.1 Uncertainty for EUT SAR Test 55
10.2 Uncertainty for System Performance Check 56
Annex A. Plots of System Performance Check 58
Annex B. Plots of SAR Measurement 68
Annex C. EUT Photos 88
Annex D. Test Setup Photos 90
Annex E. Calibration Certificate 93

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Sinocastel Co., Ltd.
Address of applicant:	501, Building 11, Shenzhen Software Park (Phase 2), No. 1, Kejizhong 2 Road, Gaoxin Middle District, Nanshan District, Shenzhen, China
Manufacturer:	Sinocastel Co., Ltd.
Address of manufacturer:	West Zone, 8th Floor, Building A2, Longmark Technology Industrial City, Shixinshe District, Shiyan Street, Baoan District, Shenzhen, China

General Description of EUT:	
Product Name:	Smart GPS device
Brand Name:	Lite Guardian
Model No.:	HT-718S
Adding Model(s):	HT-708,HT-790S, HT-791, HT-792, HT-793, HT-794, HT-795, HT-796, HT-797, HT-798, HT-799, HT-791S, HT-792S, HT-793S, HT-794S, HT-795S, HT-796S, HT-797S, HT-798S, HT-799S
Rated Voltage:	DC3.8V
Battery:	900mAh
Software Version:	V1.0
Hardware Version:	G4H-MB-V1.0
Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model HT-718S but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT:	
2G	
Support Networks:	GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GPRS/EDGE 850: 824~849MHz GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GPRS/EDGE 850: 869~894MHz GPRS/EDGE 1900: 1930~1990MHz
RF Output Power:	GSM850: 31.83dBm, GSM1900: 29.72dBm EDGE850: 26.68dBm, EDGE1900: 26.41dBm
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -5dBi; GSM1900: 0dBi
GPRS/EDGE 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: 22.69dBm, WCDMA Band 5: 23.06dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 0dBi, WCDMA Band 5: -5dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 5, 7,12, 17
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 5: Tx: 824-849MHz, FDD-LTE Band 7: Tx: 2500-2570MHz, FDD-LTE Band 12: Tx: 699-716MHz, FDD-LTE Band 17: Tx: 704-716MHz
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 5: Rx: 869-894MHz, FDD-LTE Band 7: Rx: 2620-2690MHz, FDD-LTE Band 12: Rx: 729-746MHz, FDD-LTE Band 17: Rx: 734-746MHz
RF Output Power:	FDD-LTE Band 2: 23.50dBm, FDD-LTE Band 4: 24.05dBm,

	FDD-LTE Band 5: 23.75dBm,FDD-LTE Band 7: 23.09dBm, FDD-LTE Band 12: 21.88dBm,FDD-LTE Band 17: 23.82dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: 0.3dBi, FDD-LTE Band 4: 0dBi, FDD-LTE Band 5: -5dBi,FDD-LTE Band 7: 2dBi, FDD-LTE Band 12: -8dBi ,FDD-LTE Band 17: -8dBi

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 1528-2013, 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 (0mm Gap) Maximum SAR_{1g} (W/kg)	SAR_{1g} Limit (W/kg)
GSM	0.276	1.6
WCDMA	0.253	1.6
LTE	**0.305**	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 1528-2013 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 techiques 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:

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

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

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

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

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

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

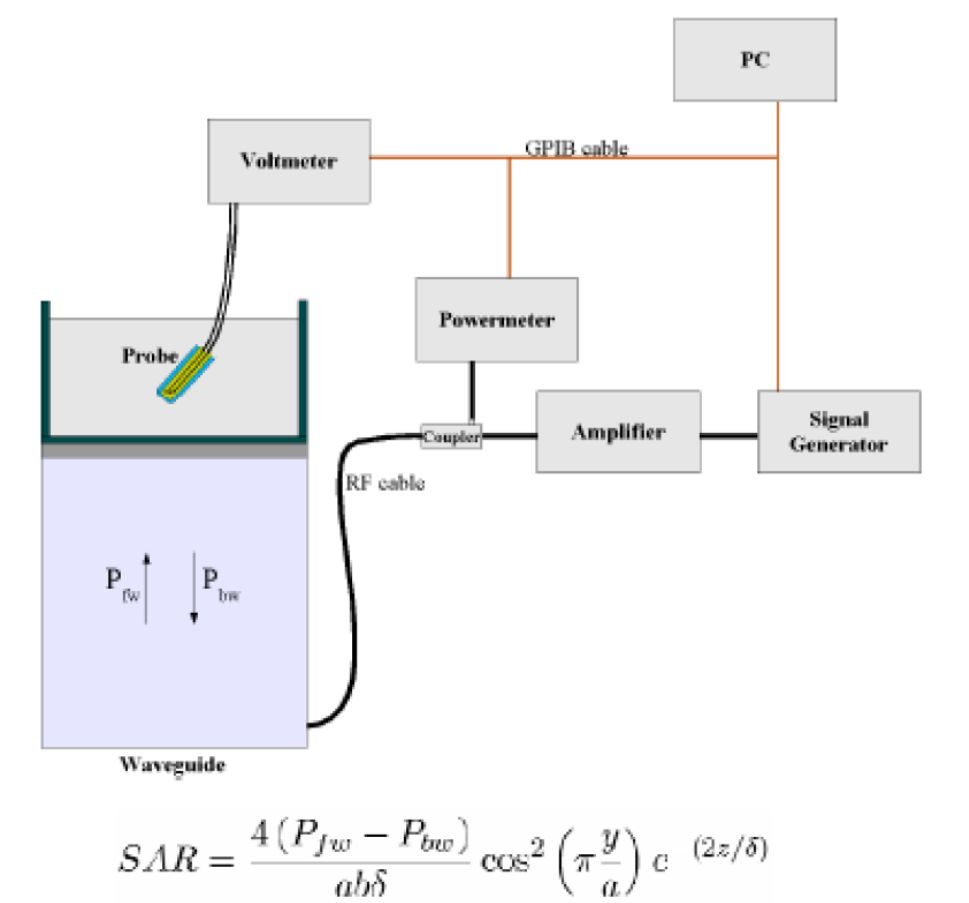
For the measurements the Specific Dosimetric E-Field Probe SSE2 SN 45/15 EPGO280 with following specifications is used

- 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

- 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 suface normal line:1ess 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 :

Pfw = Forward Power

Pbw = Backward Power

a and b =Waveguide dimensions

I = 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:

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

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

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

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.

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

Where:

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,

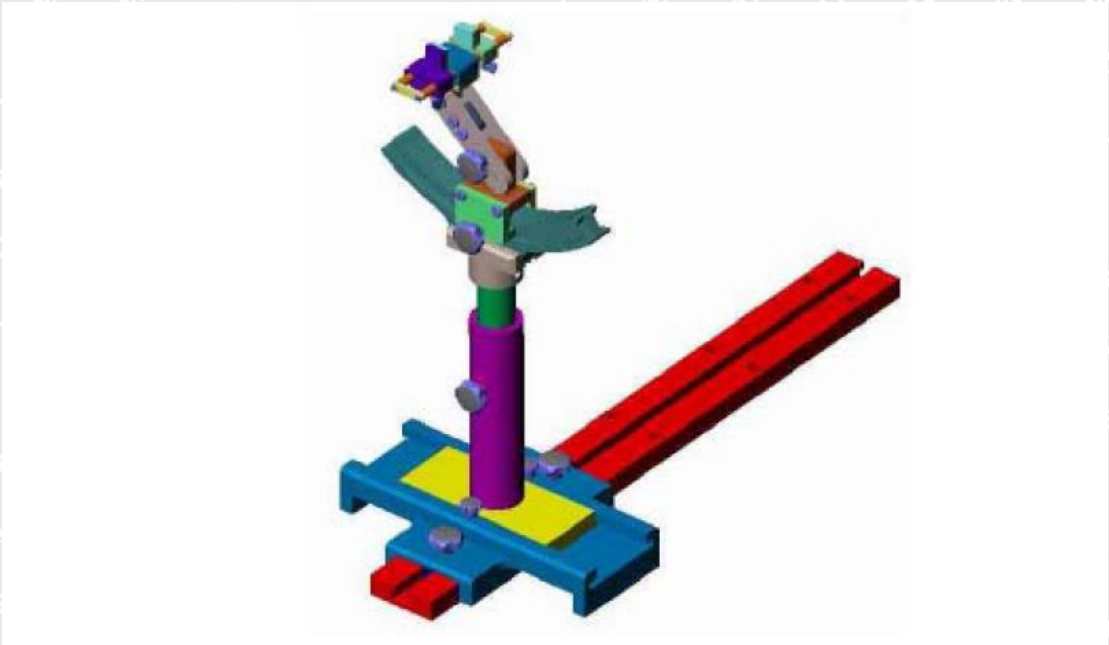
ρ = Tissue density (1.25 g/cm3 for brain tissue)

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

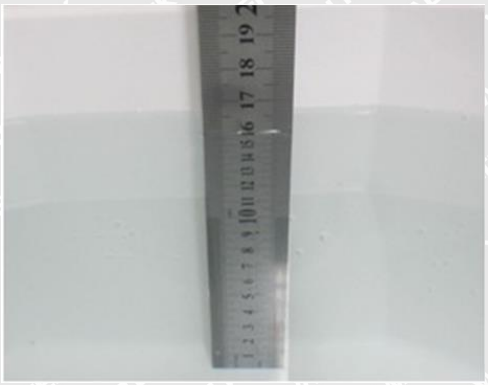
4.6 Test Equipment List

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 45/15 EPGO280	2020-07-03	2022-07-02
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 13/15 DIP 2G600-365	2020-03-11	2022-03-10
5 GHz Waveguide	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	Agilent	11636B	JC-2017-10-002	2021-03-27	2022-03-26
Signal Generator	Rohde & Schwarz	SMR20	100047	2021-03-27	2022-03-26
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	SEMT-1064	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)	Conductivity (σ)	Permittivity (ε_r)
150	0.76	52.3	0.80	61.9
300	0.87	45.3	0.92	58.2
450	0.87	43.5	0.94	56.7
750	**0.89**	**41.9**	**0.96**	**55.5**
835	**0.90**	**41.5**	**0.97**	**55.2**
900	0.97	41.5	1.05	55.0
915	0.98	41.5	1.06	55.0
1450	1.20	40.5	1.30	54.0
1610	1.29	40.3	1.40	53.8
1750	**1.37**	**40.1**	**1.49**	**53.4**
1800-2000	**1.40**	**40.0**	**1.52**	**53.3**
2450	**1.80**	**39.2**	**1.95**	**52.7**
3000	2.40	38.5	2.73	52.0

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 Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
750	22.2	0.86	0.89	-3.37	41.02	41.90	-2.10	±5	2021-07-22
835	22.2	0.88	0.90	-2.22	40.75	41.50	-1.81	±5	2021-07-23
1800	22.2	1.38	1.40	-1.43	39.43	40.00	-1.43	±5	2021-07-24
1900	22.2	1.39	1.40	-0.71	39.06	40.00	-2.35	±5	2021-07-25
2600	22.2	1.97	1.96	0.51	37.93	39.0	-2.74	±5	2021-07-25

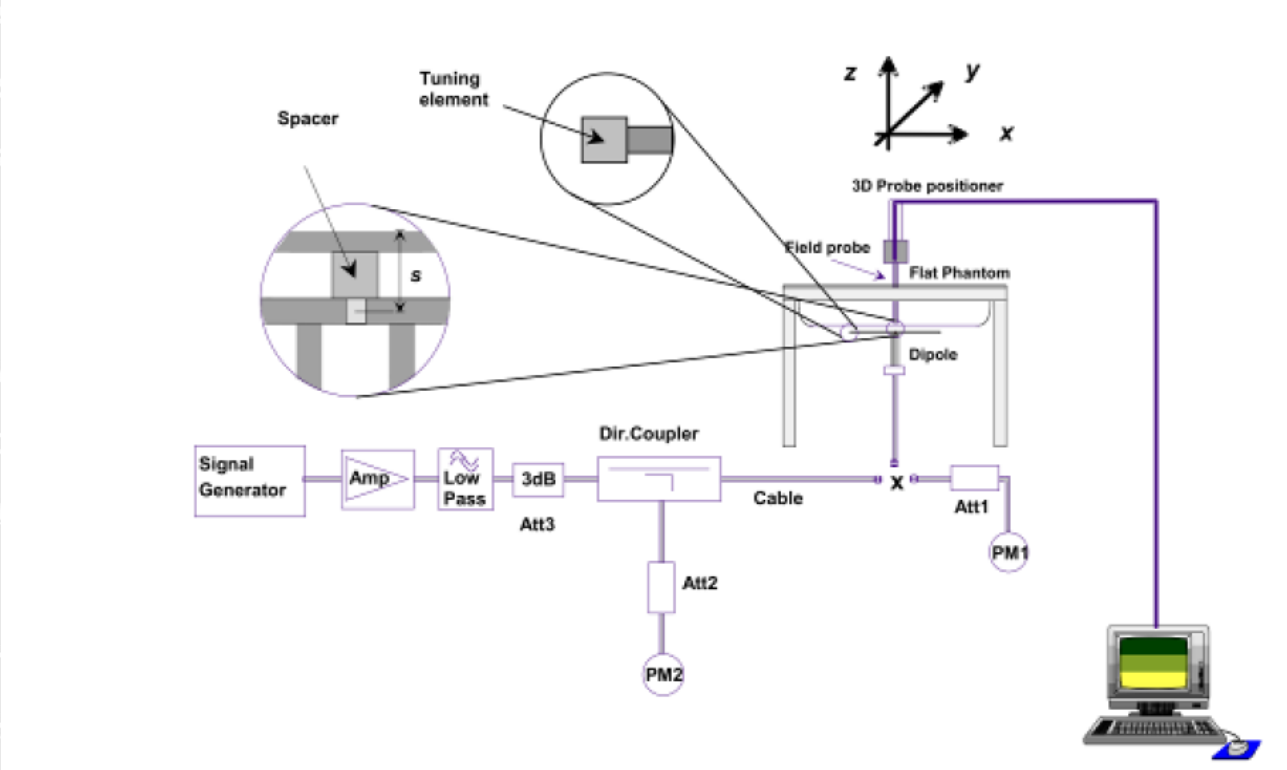
6. SAR Measurement Evaluation

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					
750	8.40	2.18	8.72	3.81	2021-07-22
835	9.65	2.51	10.04	4.04	2021-07-23
1800	38.49	9.46	37.84	-1.69	2021-07-24
1900	39.59	9.91	39.64	0.13	2021-07-25
2600	55.70	13.54	54.16	-1.65	2021-07-25

Remark: Referring to IEEE 1528-2013, Section 8.2, The system check shall be performed at a test frequency that is within ±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 Define Two Imaginary Lines on The Handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

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

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

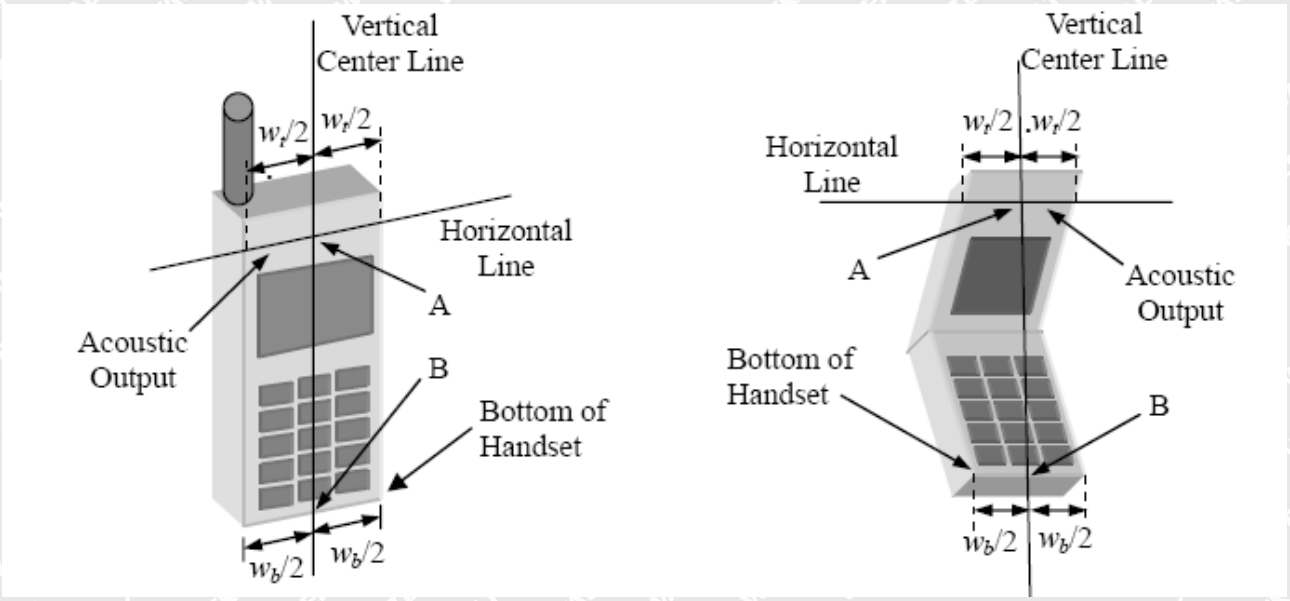


Illustration for Handset Vertical and Horizontal Reference Lines

7.2 Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 7.2).

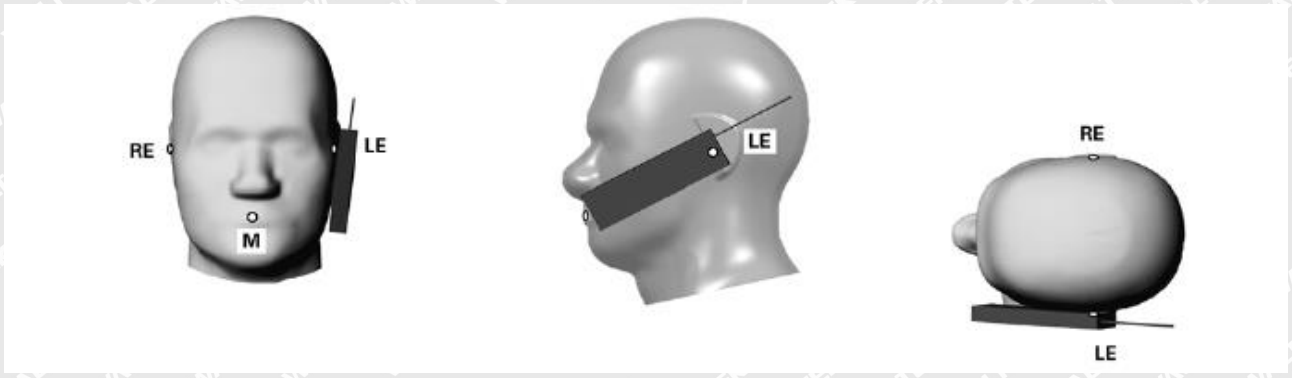


Illustration for Cheek Position

7.3 Tilted Position

(a) To position the device in the “cheek” position described above.
(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 7.3).

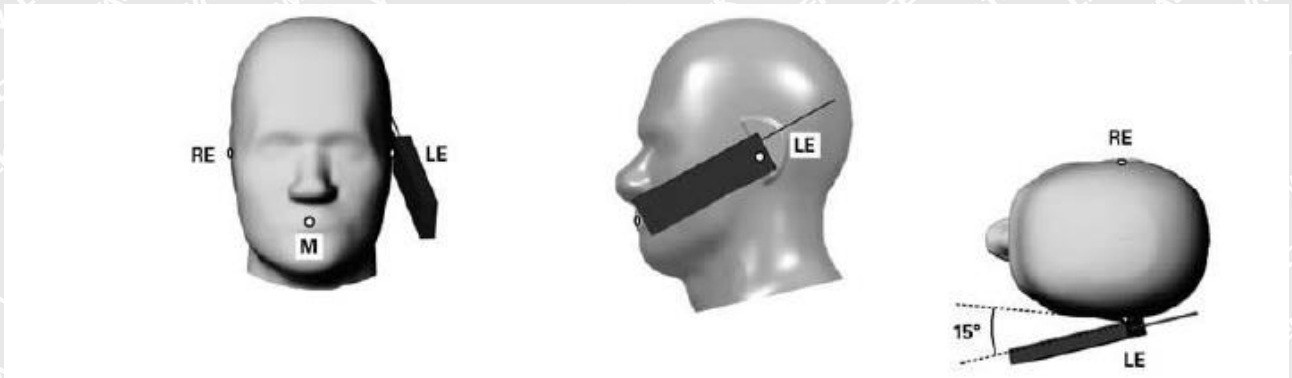


Illustration for Tilted Position

7.4 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.

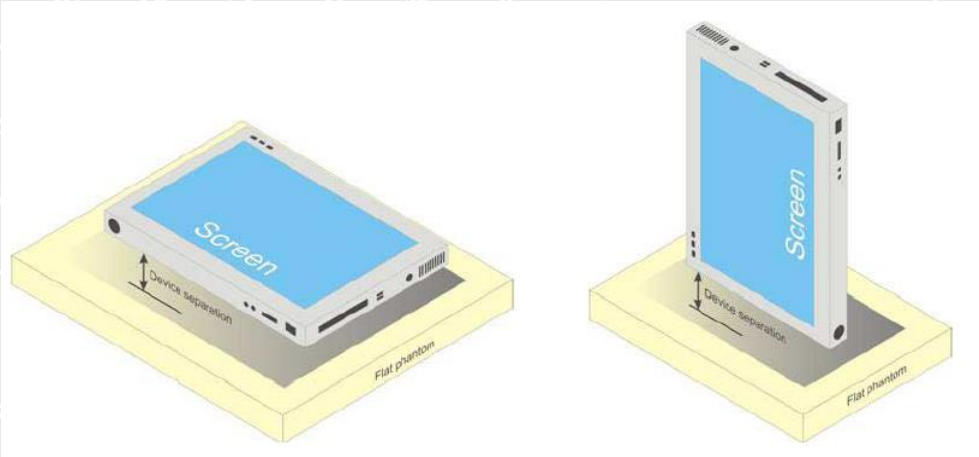
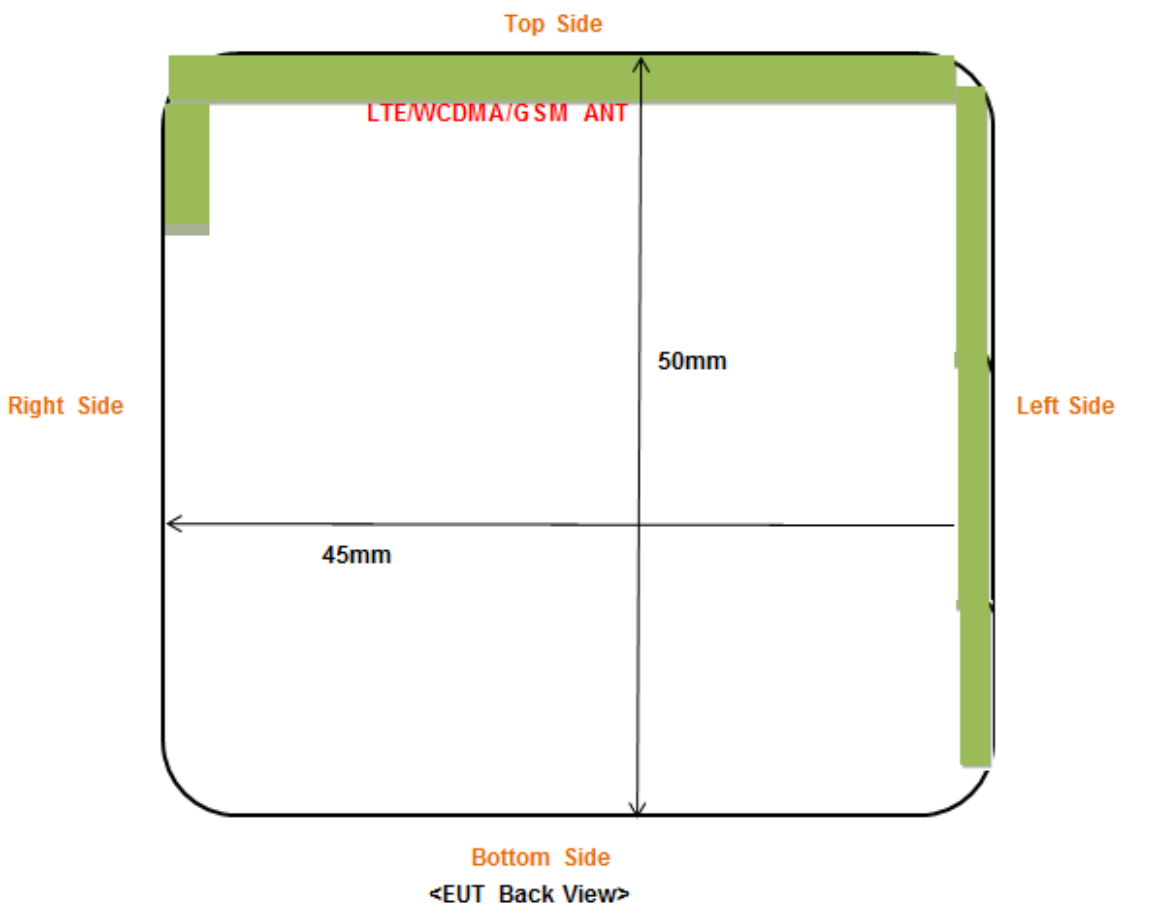


Illustration for Body Position

7.5 EUT Antenna Position



<EUT Back View>

Block Diagram for EUT Antenna Position

Distance of EUT antenna-to-edge/surface(mm), Test distance:0mm						
Antennas	Back side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
WWAN	<25	<25	<25	45	<25	<25

7.6 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: 0mm						
Antennas	**Front**	**Back**	**Right Side**	**Left Side**	**Top Side**	**Bottom Side**
WWAN	Yes	Yes	Yes	Yes	Yes	Yes

Remark:

1. Referring to KDB 941225 D06, when the overall device length and width are >= 9cm*5cm, the test separation distances is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

2. 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 form 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	/	/	/	/	/	/	/	/
GPRS (1 slot)	31.71	31.83	31.71	32.00	29.72	29.52	29.55	30.00
GPRS (2 slots)	30.86	30.92	30.75	31.00	28.89	28.63	28.78	29.00
GPRS (3 slots)	29.95	30.02	29.81	30.50	27.76	27.54	27.65	28.00
GPRS (4 slots)	29.01	**29.11**	29.06	29.50	**26.88**	26.63	26.72	27.00
EDGE (1 slot)	25.83	26.68	26.22	27.00	26.36	26.41	25.79	26.50
EDGE (2 slots)	24.59	25.51	24.52	26.00	25.42	25.62	25.01	26.00
EDGE (3 slots)	23.76	24.51	23.84	25.00	24.65	24.93	24.59	25.00
EDGE (4 slots)	23.01	23.75	23.06	24.00	23.85	23.98	23.62	24.00

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	/	/	/	/	/	/	/	/
GPRS (1 slot)	22.71	22.83	22.71	23.00	20.72	20.52	20.55	21.00
GPRS (2 slots)	24.86	24.92	24.75	22.00	22.89	22.63	22.78	20.00
GPRS (3 slots)	25.70	25.77	25.56	24.50	23.51	23.29	23.40	22.00
GPRS (4 slots)	26.01	26.11	26.06	25.25	23.88	23.63	23.72	22.75
EDGE (1 slot)	16.83	17.68	17.22	24.00	17.36	17.41	16.79	23.50
EDGE (2 slots)	18.59	19.51	18.52	17.00	19.42	19.62	19.01	17.00
EDGE (3 slots)	19.51	20.26	19.59	19.00	20.40	20.68	20.34	19.00
EDGE (4 slots)	20.01	20.75	20.06	19.75	20.85	20.98	20.62	19.75

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	22.69	22.49	22.61	23.00	22.84	22.88	22.96	23.00
HSDPA Subtest-1	21.47	21.35	21.29	21.50	21.98	21.99	23.06	23.50
HSDPA Subtest-2	21.31	21.44	21.22	21.50	21.98	21.87	22.05	22.50
HSDPA Subtest-3	21.27	21.45	21.39	21.50	21.99	21.95	22.03	22.50
HSDPA Subtest-4	21.31	21.29	21.14	21.50	21.87	21.91	22.12	22.50
HSUPA Subtest-1	21.89	22.00	20.72	22.00	21.53	21.65	21.89	22.00
HSUPA Subtest-2	21.03	20.87	21.06	21.50	21.33	21.36	21.74	22.00
HSUPA Subtest-3	20.83	21.12	20.54	21.50	21.44	21.65	21.36	22.00
HSUPA Subtest-4	21.45	21.03	21.48	21.50	21.56	21.65	21.35	22.00
HSUPA Subtest-5	20.71	21.54	20.90	22.00	21.95	21.84	21.45	22.00

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 ≤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 (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	high Limit (dBm)	Verdict
Band12	1.4	23017	1	#0	QPSK	21.75	37	PASS
Band12	1.4	23017	1	#Mid	QPSK	21.88	37	PASS
Band12	1.4	23017	1	#Max	QPSK	21.80	37	PASS
Band12	1.4	23017	3	#0	QPSK	21.56	37	PASS
Band12	1.4	23017	3	#Max	QPSK	21.75	37	PASS
Band12	1.4	23017	6	#0	QPSK	20.56	37	PASS
Band12	1.4	23017	1	#0	QAM16	20.94	37	PASS
Band12	1.4	23017	1	#Mid	QAM16	20.94	37	PASS
Band12	1.4	23017	1	#Max	QAM16	21.02	37	PASS
Band12	1.4	23017	3	#0	QAM16	20.60	37	PASS
Band12	1.4	23017	3	#Max	QAM16	20.64	37	PASS
Band12	1.4	23017	6	#0	QAM16	19.41	37	PASS
Band12	1.4	23095	1	#0	QPSK	21.58	37	PASS
Band12	1.4	23095	1	#Mid	QPSK	21.57	37	PASS
Band12	1.4	23095	1	#Max	QPSK	21.53	37	PASS
Band12	1.4	23095	3	#0	QPSK	21.57	37	PASS
Band12	1.4	23095	3	#Max	QPSK	21.59	37	PASS
Band12	1.4	23095	6	#0	QPSK	20.60	37	PASS
Band12	1.4	23095	1	#0	QAM16	20.67	37	PASS
Band12	1.4	23095	1	#Mid	QAM16	20.73	37	PASS
Band12	1.4	23095	1	#Max	QAM16	20.71	37	PASS
Band12	1.4	23095	3	#0	QAM16	20.55	37	PASS
Band12	1.4	23095	3	#Max	QAM16	20.55	37	PASS
Band12	1.4	23095	6	#0	QAM16	20.08	37	PASS
Band12	1.4	23173	1	#0	QPSK	21.58	37	PASS
Band12	1.4	23173	1	#Mid	QPSK	21.65	37	PASS
Band12	1.4	23173	1	#Max	QPSK	21.70	37	PASS
Band12	1.4	23173	3	#0	QPSK	21.55	37	PASS
Band12	1.4	23173	3	#Max	QPSK	21.72	37	PASS
Band12	1.4	23173	6	#0	QPSK	20.66	37	PASS
Band12	1.4	23173	1	#0	QAM16	19.94	37	PASS
Band12	1.4	23173	1	#Mid	QAM16	20.19	37	PASS
Band12	1.4	23173	1	#Max	QAM16	20.09	37	PASS
Band12	1.4	23173	3	#0	QAM16	20.64	37	PASS
Band12	1.4	23173	3	#Max	QAM16	20.65	37	PASS
Band12	1.4	23173	6	#0	QAM16	19.32	37	PASS
Band12	3	23025	1	#0	QPSK	21.77	37	PASS
Band12	3	23025	1	#Mid	QPSK	21.67	37	PASS
Band12	3	23025	1	#Max	QPSK	21.68	37	PASS
Band12	3	23025	8	#0	QPSK	20.64	37	PASS

Band12	3	23025	8	#Max	QPSK	20.65	37	PASS
Band12	3	23025	15	#0	QPSK	20.67	37	PASS
Band12	3	23025	1	#0	QAM16	20.62	37	PASS
Band12	3	23025	1	#Mid	QAM16	20.60	37	PASS
Band12	3	23025	1	#Max	QAM16	20.61	37	PASS
Band12	3	23025	8	#0	QAM16	19.49	37	PASS
Band12	3	23025	8	#Max	QAM16	19.77	37	PASS
Band12	3	23025	15	#0	QAM16	19.63	37	PASS
Band12	3	23095	1	#0	QPSK	21.62	37	PASS
Band12	3	23095	1	#Mid	QPSK	21.55	37	PASS
Band12	3	23095	1	#Max	QPSK	21.52	37	PASS
Band12	3	23095	8	#0	QPSK	20.60	37	PASS
Band12	3	23095	8	#Max	QPSK	20.64	37	PASS
Band12	3	23095	15	#0	QPSK	20.50	37	PASS
Band12	3	23095	1	#0	QAM16	20.63	37	PASS
Band12	3	23095	1	#Mid	QAM16	20.71	37	PASS
Band12	3	23095	1	#Max	QAM16	20.68	37	PASS
Band12	3	23095	8	#0	QAM16	20.12	37	PASS
Band12	3	23095	8	#Max	QAM16	20.17	37	PASS
Band12	3	23095	15	#0	QAM16	20.08	37	PASS
Band12	3	23165	1	#0	QPSK	21.62	37	PASS
Band12	3	23165	1	#Mid	QPSK	21.66	37	PASS
Band12	3	23165	1	#Max	QPSK	21.74	37	PASS
Band12	3	23165	8	#0	QPSK	20.65	37	PASS
Band12	3	23165	8	#Max	QPSK	20.72	37	PASS
Band12	3	23165	15	#0	QPSK	20.65	37	PASS
Band12	3	23165	1	#0	QAM16	20.01	37	PASS
Band12	3	23165	1	#Mid	QAM16	20.03	37	PASS
Band12	3	23165	1	#Max	QAM16	20.08	37	PASS
Band12	3	23165	8	#0	QAM16	19.77	37	PASS
Band12	3	23165	8	#Max	QAM16	19.46	37	PASS
Band12	3	23165	15	#0	QAM16	19.65	37	PASS
Band12	5	23035	1	#0	QPSK	21.62	37	PASS
Band12	5	23035	1	#Mid	QPSK	21.51	37	PASS
Band12	5	23035	1	#Max	QPSK	21.71	37	PASS
Band12	5	23035	12	#0	QPSK	20.67	37	PASS
Band12	5	23035	12	#Max	QPSK	20.63	37	PASS
Band12	5	23035	25	#0	QPSK	20.69	37	PASS
Band12	5	23035	1	#0	QAM16	18.09	37	PASS
Band12	5	23035	1	#Mid	QAM16	19.16	37	PASS
Band12	5	23035	1	#Max	QAM16	18.64	37	PASS
Band12	5	23035	12	#0	QAM16	17.49	37	PASS
Band12	5	23035	12	#Max	QAM16	17.69	37	PASS

Band12	5	23035	25	#0	QAM16	17.65	37	PASS
Band12	5	23095	1	#0	QPSK	19.67	37	PASS
Band12	5	23095	1	#Mid	QPSK	20.35	37	PASS
Band12	5	23095	1	#Max	QPSK	19.84	37	PASS
Band12	5	23095	12	#0	QPSK	18.98	37	PASS
Band12	5	23095	12	#Max	QPSK	19.06	37	PASS
Band12	5	23095	25	#0	QPSK	19.03	37	PASS
Band12	5	23095	1	#0	QAM16	18.76	37	PASS
Band12	5	23095	1	#Mid	QAM16	19.45	37	PASS
Band12	5	23095	1	#Max	QAM16	18.95	37	PASS
Band12	5	23095	12	#0	QAM16	18.02	37	PASS
Band12	5	23095	12	#Max	QAM16	18.12	37	PASS
Band12	5	23095	25	#0	QAM16	18.09	37	PASS
Band12	5	23155	1	#0	QPSK	19.04	37	PASS
Band12	5	23155	1	#Mid	QPSK	19.40	37	PASS
Band12	5	23155	1	#Max	QPSK	18.43	37	PASS
Band12	5	23155	12	#0	QPSK	18.34	37	PASS
Band12	5	23155	12	#Max	QPSK	17.91	37	PASS
Band12	5	23155	25	#0	QPSK	18.11	37	PASS
Band12	5	23155	1	#0	QAM16	18.20	37	PASS
Band12	5	23155	1	#Mid	QAM16	18.59	37	PASS
Band12	5	23155	1	#Max	QAM16	17.60	37	PASS
Band12	5	23155	12	#0	QAM16	17.45	37	PASS
Band12	5	23155	12	#Max	QAM16	17.07	37	PASS
Band12	5	23155	25	#0	QAM16	17.24	37	PASS
Band12	10	23060	1	#0	QPSK	19.30	37	PASS
Band12	10	23060	1	#Mid	QPSK	19.97	37	PASS
Band12	10	23060	1	#Max	QPSK	20.47	37	PASS
Band12	10	23060	25	#0	QPSK	18.80	37	PASS
Band12	10	23060	25	#Max	QPSK	19.31	37	PASS
Band12	10	23060	50	#0	QPSK	19.07	37	PASS
Band12	10	23060	1	#0	QAM16	18.49	37	PASS
Band12	10	23060	1	#Mid	QAM16	19.22	37	PASS
Band12	10	23060	1	#Max	QAM16	19.68	37	PASS
Band12	10	23060	25	#0	QAM16	17.91	37	PASS
Band12	10	23060	25	#Max	QAM16	18.43	37	PASS
Band12	10	23060	50	#0	QAM16	18.11	37	PASS
Band12	10	23095	1	#0	QPSK	19.72	37	PASS
Band12	10	23095	1	#Mid	QPSK	20.23	37	PASS
Band12	10	23095	1	#Max	QPSK	20.57	37	PASS
Band12	10	23095	25	#0	QPSK	18.99	37	PASS
Band12	10	23095	25	#Max	QPSK	19.44	37	PASS
Band12	10	23095	50	#0	QPSK	19.23	37	PASS

Band12	10	23095	1	#0	QAM16	18.78	37	PASS
Band12	10	23095	1	#Mid	QAM16	19.35	37	PASS
Band12	10	23095	1	#Max	QAM16	19.67	37	PASS
Band12	10	23095	25	#0	QAM16	18.06	37	PASS
Band12	10	23095	25	#Max	QAM16	18.52	37	PASS
Band12	10	23095	50	#0	QAM16	18.25	37	PASS
Band12	10	23130	1	#0	QPSK	19.11	37	PASS
Band12	10	23130	1	#Mid	QPSK	19.52	37	PASS
Band12	10	23130	1	#Max	QPSK	19.11	37	PASS
Band12	10	23130	25	#0	QPSK	18.46	37	PASS
Band12	10	23130	25	#Max	QPSK	18.63	37	PASS
Band12	10	23130	50	#0	QPSK	18.56	37	PASS
Band12	10	23130	1	#0	QAM16	18.06	37	PASS
Band12	10	23130	1	#Mid	QAM16	18.46	37	PASS
Band12	10	23130	1	#Max	QAM16	18.08	37	PASS
Band12	10	23130	25	#0	QAM16	17.53	37	PASS
Band12	10	23130	25	#Max	QAM16	17.73	37	PASS
Band12	10	23130	50	#0	QAM16	17.64	37	PASS
Band17	5	23755	1	#0	QPSK	23.55	37	PASS
Band17	5	23755	1	#Mid	QPSK	23.45	37	PASS
Band17	5	23755	1	#Max	QPSK	23.41	37	PASS
Band17	5	23755	12	#0	QPSK	22.54	37	PASS
Band17	5	23755	12	#Max	QPSK	22.53	37	PASS
Band17	5	23755	25	#0	QPSK	22.44	37	PASS
Band17	5	23755	1	#0	QAM16	22.59	37	PASS
Band17	5	23755	1	#Mid	QAM16	22.42	37	PASS
Band17	5	23755	1	#Max	QAM16	22.44	37	PASS
Band17	5	23755	12	#0	QAM16	21.46	37	PASS
Band17	5	23755	12	#Max	QAM16	21.41	37	PASS
Band17	5	23755	25	#0	QAM16	21.46	37	PASS
Band17	5	23790	1	#0	QPSK	23.42	37	PASS
Band17	5	23790	1	#Mid	QPSK	23.44	37	PASS
Band17	5	23790	1	#Max	QPSK	23.45	37	PASS
Band17	5	23790	12	#0	QPSK	22.54	37	PASS
Band17	5	23790	12	#Max	QPSK	22.74	37	PASS
Band17	5	23790	25	#0	QPSK	22.55	37	PASS
Band17	5	23790	1	#0	QAM16	22.28	37	PASS
Band17	5	23790	1	#Mid	QAM16	22.36	37	PASS
Band17	5	23790	1	#Max	QAM16	22.53	37	PASS
Band17	5	23790	12	#0	QAM16	21.41	37	PASS
Band17	5	23790	12	#Max	QAM16	21.50	37	PASS
Band17	5	23790	25	#0	QAM16	21.39	37	PASS
Band17	5	23825	1	#0	QPSK	23.58	37	PASS

Band17	5	23825	1	#Mid	QPSK	23.44	37	PASS
Band17	5	23825	1	#Max	QPSK	23.46	37	PASS
Band17	5	23825	12	#0	QPSK	22.70	37	PASS
Band17	5	23825	12	#Max	QPSK	22.52	37	PASS
Band17	5	23825	25	#0	QPSK	22.50	37	PASS
Band17	5	23825	1	#0	QAM16	22.32	37	PASS
Band17	5	23825	1	#Mid	QAM16	22.20	37	PASS
Band17	5	23825	1	#Max	QAM16	22.17	37	PASS
Band17	5	23825	12	#0	QAM16	21.53	37	PASS
Band17	5	23825	12	#Max	QAM16	21.48	37	PASS
Band17	5	23825	25	#0	QAM16	21.69	37	PASS
Band17	10	23780	1	#0	QPSK	23.50	37	PASS
Band17	10	23780	1	#Mid	QPSK	23.35	37	PASS
Band17	10	23780	1	#Max	QPSK	23.51	37	PASS
Band17	10	23780	25	#0	QPSK	22.54	37	PASS
Band17	10	23780	25	#Max	QPSK	22.72	37	PASS
Band17	10	23780	50	#0	QPSK	22.43	37	PASS
Band17	10	23780	1	#0	QAM16	22.40	37	PASS
Band17	10	23780	1	#Mid	QAM16	22.26	37	PASS
Band17	10	23780	1	#Max	QAM16	22.33	37	PASS
Band17	10	23780	25	#0	QAM16	21.54	37	PASS
Band17	10	23780	25	#Max	QAM16	21.61	37	PASS
Band17	10	23780	50	#0	QAM16	21.49	37	PASS
Band17	10	23790	1	#0	QPSK	23.50	37	PASS
Band17	10	23790	1	#Mid	QPSK	23.55	37	PASS
Band17	10	23790	1	#Max	QPSK	23.48	37	PASS
Band17	10	23790	25	#0	QPSK	22.57	37	PASS
Band17	10	23790	25	#Max	QPSK	22.74	37	PASS
Band17	10	23790	50	#0	QPSK	22.45	37	PASS
Band17	10	23790	1	#0	QAM16	22.76	37	PASS
Band17	10	23790	1	#Mid	QAM16	22.73	37	PASS
Band17	10	23790	1	#Max	QAM16	22.81	37	PASS
Band17	10	23790	25	#0	QAM16	21.56	37	PASS
Band17	10	23790	25	#Max	QAM16	21.56	37	PASS
Band17	10	23790	50	#0	QAM16	21.56	37	PASS
Band17	10	23800	1	#0	QPSK	23.71	37	PASS
Band17	10	23800	1	#Mid	QPSK	23.79	37	PASS
Band17	10	23800	1	#Max	QPSK	23.82	37	PASS
Band17	10	23800	25	#0	QPSK	22.50	37	PASS
Band17	10	23800	25	#Max	QPSK	22.53	37	PASS
Band17	10	23800	50	#0	QPSK	22.47	37	PASS
Band17	10	23800	1	#0	QAM16	22.00	37	PASS
Band17	10	23800	1	#Mid	QAM16	22.00	37	PASS

Band17	10	23800	1	#Max	QAM16	22.02	37	PASS
Band17	10	23800	25	#0	QAM16	21.47	37	PASS
Band17	10	23800	25	#Max	QAM16	21.61	37	PASS
Band17	10	23800	50	#0	QAM16	21.43	37	PASS
Band2	1.4	18607	1	#0	QPSK	23.49	37	PASS
Band2	1.4	18607	1	#Mid	QPSK	23.47	37	PASS
Band2	1.4	18607	1	#Max	QPSK	23.50	37	PASS
Band2	1.4	18607	3	#0	QPSK	23.44	37	PASS
Band2	1.4	18607	3	#Max	QPSK	23.44	37	PASS
Band2	1.4	18607	6	#0	QPSK	22.33	37	PASS
Band2	1.4	18607	1	#0	QAM16	22.54	37	PASS
Band2	1.4	18607	1	#Mid	QAM16	22.47	37	PASS
Band2	1.4	18607	1	#Max	QAM16	22.57	37	PASS
Band2	1.4	18607	3	#0	QAM16	22.20	37	PASS
Band2	1.4	18607	3	#Max	QAM16	22.25	37	PASS
Band2	1.4	18607	6	#0	QAM16	21.37	37	PASS
Band2	1.4	18900	1	#0	QPSK	23.05	37	PASS
Band2	1.4	18900	1	#Mid	QPSK	23.14	37	PASS
Band2	1.4	18900	1	#Max	QPSK	23.03	37	PASS
Band2	1.4	18900	3	#0	QPSK	23.24	37	PASS
Band2	1.4	18900	3	#Max	QPSK	23.14	37	PASS
Band2	1.4	18900	6	#0	QPSK	22.24	37	PASS
Band2	1.4	18900	1	#0	QAM16	22.69	37	PASS
Band2	1.4	18900	1	#Mid	QAM16	22.76	37	PASS
Band2	1.4	18900	1	#Max	QAM16	22.73	37	PASS
Band2	1.4	18900	3	#0	QAM16	22.23	37	PASS
Band2	1.4	18900	3	#Max	QAM16	22.19	37	PASS
Band2	1.4	18900	6	#0	QAM16	21.23	37	PASS
Band2	1.4	19193	1	#0	QPSK	23.26	37	PASS
Band2	1.4	19193	1	#Mid	QPSK	23.30	37	PASS
Band2	1.4	19193	1	#Max	QPSK	23.27	37	PASS
Band2	1.4	19193	3	#0	QPSK	23.25	37	PASS
Band2	1.4	19193	3	#Max	QPSK	23.21	37	PASS
Band2	1.4	19193	6	#0	QPSK	22.26	37	PASS
Band2	1.4	19193	1	#0	QAM16	21.68	37	PASS
Band2	1.4	19193	1	#Mid	QAM16	21.68	37	PASS
Band2	1.4	19193	1	#Max	QAM16	21.65	37	PASS
Band2	1.4	19193	3	#0	QAM16	22.11	37	PASS
Band2	1.4	19193	3	#Max	QAM16	22.08	37	PASS
Band2	1.4	19193	6	#0	QAM16	21.43	37	PASS
Band2	3	18615	1	#0	QPSK	23.28	37	PASS
Band2	3	18615	1	#Mid	QPSK	23.36	37	PASS
Band2	3	18615	1	#Max	QPSK	23.33	37	PASS

Band2	3	18615	8	#0	QPSK	22.40	37	PASS
Band2	3	18615	8	#Max	QPSK	22.39	37	PASS
Band2	3	18615	15	#0	QPSK	22.40	37	PASS
Band2	3	18615	1	#0	QAM16	22.35	37	PASS
Band2	3	18615	1	#Mid	QAM16	22.30	37	PASS
Band2	3	18615	1	#Max	QAM16	22.35	37	PASS
Band2	3	18615	8	#0	QAM16	21.52	37	PASS
Band2	3	18615	8	#Max	QAM16	21.51	37	PASS
Band2	3	18615	15	#0	QAM16	21.40	37	PASS
Band2	3	18900	1	#0	QPSK	23.13	37	PASS
Band2	3	18900	1	#Mid	QPSK	23.13	37	PASS
Band2	3	18900	1	#Max	QPSK	23.12	37	PASS
Band2	3	18900	8	#0	QPSK	22.28	37	PASS
Band2	3	18900	8	#Max	QPSK	22.30	37	PASS
Band2	3	18900	15	#0	QPSK	22.25	37	PASS
Band2	3	18900	1	#0	QAM16	22.80	37	PASS
Band2	3	18900	1	#Mid	QAM16	22.80	37	PASS
Band2	3	18900	1	#Max	QAM16	22.80	37	PASS
Band2	3	18900	8	#0	QAM16	21.42	37	PASS
Band2	3	18900	8	#Max	QAM16	21.39	37	PASS
Band2	3	18900	15	#0	QAM16	21.29	37	PASS
Band2	3	19185	1	#0	QPSK	23.20	37	PASS
Band2	3	19185	1	#Mid	QPSK	23.25	37	PASS
Band2	3	19185	1	#Max	QPSK	23.34	37	PASS
Band2	3	19185	8	#0	QPSK	22.30	37	PASS
Band2	3	19185	8	#Max	QPSK	22.29	37	PASS
Band2	3	19185	15	#0	QPSK	22.35	37	PASS
Band2	3	19185	1	#0	QAM16	21.99	37	PASS
Band2	3	19185	1	#Mid	QAM16	21.99	37	PASS
Band2	3	19185	1	#Max	QAM16	22.02	37	PASS
Band2	3	19185	8	#0	QAM16	21.53	37	PASS
Band2	3	19185	8	#Max	QAM16	21.51	37	PASS
Band2	3	19185	15	#0	QAM16	21.35	37	PASS
Band2	5	18625	1	#0	QPSK	23.38	37	PASS
Band2	5	18625	1	#Mid	QPSK	23.38	37	PASS
Band2	5	18625	1	#Max	QPSK	23.37	37	PASS
Band2	5	18625	12	#0	QPSK	22.41	37	PASS
Band2	5	18625	12	#Max	QPSK	22.55	37	PASS
Band2	5	18625	25	#0	QPSK	22.42	37	PASS
Band2	5	18625	1	#0	QAM16	22.15	37	PASS
Band2	5	18625	1	#Mid	QAM16	22.18	37	PASS
Band2	5	18625	1	#Max	QAM16	22.21	37	PASS
Band2	5	18625	12	#0	QAM16	21.50	37	PASS

Band2	5	18625	12	#Max	QAM16	21.46	37	PASS
Band2	5	18625	25	#0	QAM16	21.65	37	PASS
Band2	5	18900	1	#0	QPSK	23.26	37	PASS
Band2	5	18900	1	#Mid	QPSK	23.33	37	PASS
Band2	5	18900	1	#Max	QPSK	23.38	37	PASS
Band2	5	18900	12	#0	QPSK	22.19	37	PASS
Band2	5	18900	12	#Max	QPSK	22.25	37	PASS
Band2	5	18900	25	#0	QPSK	22.19	37	PASS
Band2	5	18900	1	#0	QAM16	22.47	37	PASS
Band2	5	18900	1	#Mid	QAM16	22.46	37	PASS
Band2	5	18900	1	#Max	QAM16	22.51	37	PASS
Band2	5	18900	12	#0	QAM16	21.19	37	PASS
Band2	5	18900	12	#Max	QAM16	21.26	37	PASS
Band2	5	18900	25	#0	QAM16	21.28	37	PASS
Band2	5	19175	1	#0	QPSK	23.31	37	PASS
Band2	5	19175	1	#Mid	QPSK	23.25	37	PASS
Band2	5	19175	1	#Max	QPSK	23.27	37	PASS
Band2	5	19175	12	#0	QPSK	22.34	37	PASS
Band2	5	19175	12	#Max	QPSK	22.32	37	PASS
Band2	5	19175	25	#0	QPSK	22.34	37	PASS
Band2	5	19175	1	#0	QAM16	22.35	37	PASS
Band2	5	19175	1	#Mid	QAM16	22.31	37	PASS
Band2	5	19175	1	#Max	QAM16	22.35	37	PASS
Band2	5	19175	12	#0	QAM16	21.39	37	PASS
Band2	5	19175	12	#Max	QAM16	21.37	37	PASS
Band2	5	19175	25	#0	QAM16	21.26	37	PASS
Band2	10	18650	1	#0	QPSK	23.37	37	PASS
Band2	10	18650	1	#Mid	QPSK	23.38	37	PASS
Band2	10	18650	1	#Max	QPSK	23.31	37	PASS
Band2	10	18650	25	#0	QPSK	22.52	37	PASS
Band2	10	18650	25	#Max	QPSK	22.44	37	PASS
Band2	10	18650	50	#0	QPSK	22.41	37	PASS
Band2	10	18650	1	#0	QAM16	22.47	37	PASS
Band2	10	18650	1	#Mid	QAM16	22.47	37	PASS
Band2	10	18650	1	#Max	QAM16	22.38	37	PASS
Band2	10	18650	25	#0	QAM16	21.61	37	PASS
Band2	10	18650	25	#Max	QAM16	21.62	37	PASS
Band2	10	18650	50	#0	QAM16	21.49	37	PASS
Band2	10	18900	1	#0	QPSK	23.28	37	PASS
Band2	10	18900	1	#Mid	QPSK	23.30	37	PASS
Band2	10	18900	1	#Max	QPSK	23.35	37	PASS
Band2	10	18900	25	#0	QPSK	22.26	37	PASS
Band2	10	18900	25	#Max	QPSK	22.29	37	PASS

Band2	10	18900	50	#0	QPSK	22.26	37	PASS
Band2	10	18900	1	#0	QAM16	22.40	37	PASS
Band2	10	18900	1	#Mid	QAM16	22.42	37	PASS
Band2	10	18900	1	#Max	QAM16	22.43	37	PASS
Band2	10	18900	25	#0	QAM16	21.42	37	PASS
Band2	10	18900	25	#Max	QAM16	21.50	37	PASS
Band2	10	18900	50	#0	QAM16	21.40	37	PASS
Band2	10	19150	1	#0	QPSK	23.42	37	PASS
Band2	10	19150	1	#Mid	QPSK	23.41	37	PASS
Band2	10	19150	1	#Max	QPSK	23.39	37	PASS
Band2	10	19150	25	#0	QPSK	22.39	37	PASS
Band2	10	19150	25	#Max	QPSK	22.41	37	PASS
Band2	10	19150	50	#0	QPSK	22.33	37	PASS
Band2	10	19150	1	#0	QAM16	21.77	37	PASS
Band2	10	19150	1	#Mid	QAM16	21.79	37	PASS
Band2	10	19150	1	#Max	QAM16	21.76	37	PASS
Band2	10	19150	25	#0	QAM16	21.54	37	PASS
Band2	10	19150	25	#Max	QAM16	21.50	37	PASS
Band2	10	19150	50	#0	QAM16	21.48	37	PASS
Band2	15	18675	1	#0	QPSK	23.41	37	PASS
Band2	15	18675	1	#Mid	QPSK	23.36	37	PASS
Band2	15	18675	1	#Max	QPSK	23.24	37	PASS
Band2	15	18675	36	#0	QPSK	22.49	37	PASS
Band2	15	18675	36	#Max	QPSK	22.40	37	PASS
Band2	15	18675	75	#0	QPSK	22.41	37	PASS
Band2	15	18675	1	#0	QAM16	22.52	37	PASS
Band2	15	18675	1	#Mid	QAM16	22.47	37	PASS
Band2	15	18675	1	#Max	QAM16	22.35	37	PASS
Band2	15	18675	36	#0	QAM16	21.55	37	PASS
Band2	15	18675	36	#Max	QAM16	21.42	37	PASS
Band2	15	18675	75	#0	QAM16	21.58	37	PASS
Band2	15	18900	1	#0	QPSK	23.27	37	PASS
Band2	15	18900	1	#Mid	QPSK	23.25	37	PASS
Band2	15	18900	1	#Max	QPSK	23.24	37	PASS
Band2	15	18900	36	#0	QPSK	22.35	37	PASS
Band2	15	18900	36	#Max	QPSK	22.39	37	PASS
Band2	15	18900	75	#0	QPSK	22.35	37	PASS
Band2	15	18900	1	#0	QAM16	22.49	37	PASS
Band2	15	18900	1	#Mid	QAM16	22.53	37	PASS
Band2	15	18900	1	#Max	QAM16	22.51	37	PASS
Band2	15	18900	36	#0	QAM16	21.43	37	PASS
Band2	15	18900	36	#Max	QAM16	21.50	37	PASS
Band2	15	18900	75	#0	QAM16	21.47	37	PASS

Band2	15	19125	1	#0	QPSK	21.39	37	PASS
Band2	15	19125	1	#Mid	QPSK	21.39	37	PASS
Band2	15	19125	1	#Max	QPSK	21.32	37	PASS
Band2	15	19125	36	#0	QPSK	20.46	37	PASS
Band2	15	19125	36	#Max	QPSK	20.31	37	PASS
Band2	15	19125	75	#0	QPSK	20.37	37	PASS
Band2	15	19125	1	#0	QAM16	20.37	37	PASS
Band2	15	19125	1	#Mid	QAM16	20.35	37	PASS
Band2	15	19125	1	#Max	QAM16	20.36	37	PASS
Band2	15	19125	36	#0	QAM16	18.56	37	PASS
Band2	15	19125	36	#Max	QAM16	18.02	37	PASS
Band2	15	19125	75	#0	QAM16	18.38	37	PASS
Band2	20	18700	1	#0	QPSK	21.48	37	PASS
Band2	20	18700	1	#Mid	QPSK	21.41	37	PASS
Band2	20	18700	1	#Max	QPSK	21.38	37	PASS
Band2	20	18700	50	#0	QPSK	20.40	37	PASS
Band2	20	18700	50	#Max	QPSK	20.34	37	PASS
Band2	20	18700	100	#0	QPSK	20.37	37	PASS
Band2	20	18700	1	#0	QAM16	20.43	37	PASS
Band2	20	18700	1	#Mid	QAM16	20.26	37	PASS
Band2	20	18700	1	#Max	QAM16	20.16	37	PASS
Band2	20	18700	50	#0	QAM16	18.35	37	PASS
Band2	20	18700	50	#Max	QAM16	18.76	37	PASS
Band2	20	18700	100	#0	QAM16	18.57	37	PASS
Band2	20	18900	1	#0	QPSK	21.39	37	PASS
Band2	20	18900	1	#Mid	QPSK	21.41	37	PASS
Band2	20	18900	1	#Max	QPSK	21.46	37	PASS
Band2	20	18900	50	#0	QPSK	20.30	37	PASS
Band2	20	18900	50	#Max	QPSK	20.36	37	PASS
Band2	20	18900	100	#0	QPSK	20.19	37	PASS
Band2	20	18900	1	#0	QAM16	19.90	37	PASS
Band2	20	18900	1	#Mid	QAM16	19.91	37	PASS
Band2	20	18900	1	#Max	QAM16	19.99	37	PASS
Band2	20	18900	50	#0	QAM16	19.33	37	PASS
Band2	20	18900	50	#Max	QAM16	18.99	37	PASS
Band2	20	18900	100	#0	QAM16	19.22	37	PASS
Band2	20	19100	1	#0	QPSK	21.44	37	PASS
Band2	20	19100	1	#Mid	QPSK	21.52	37	PASS
Band2	20	19100	1	#Max	QPSK	21.44	37	PASS
Band2	20	19100	50	#0	QPSK	20.35	37	PASS
Band2	20	19100	50	#Max	QPSK	20.35	37	PASS
Band2	20	19100	100	#0	QPSK	20.33	37	PASS
Band2	20	19100	1	#0	QAM16	20.34	37	PASS

Band2	20	19100	1	#Mid	QAM16	20.40	37	PASS
Band2	20	19100	1	#Max	QAM16	20.36	37	PASS
Band2	20	19100	50	#0	QAM16	18.47	37	PASS
Band2	20	19100	50	#Max	QAM16	18.55	37	PASS
Band2	20	19100	100	#0	QAM16	18.51	37	PASS
Band4	1.4	19957	1	#0	QPSK	19.67	37	PASS
Band4	1.4	19957	1	#Mid	QPSK	19.96	37	PASS
Band4	1.4	19957	1	#Max	QPSK	19.86	37	PASS
Band4	1.4	19957	3	#0	QPSK	19.71	37	PASS
Band4	1.4	19957	3	#Max	QPSK	19.82	37	PASS
Band4	1.4	19957	6	#0	QPSK	18.88	37	PASS
Band4	1.4	19957	1	#0	QAM16	18.70	37	PASS
Band4	1.4	19957	1	#Mid	QAM16	19.02	37	PASS
Band4	1.4	19957	1	#Max	QAM16	18.91	37	PASS
Band4	1.4	19957	3	#0	QAM16	18.96	37	PASS
Band4	1.4	19957	3	#Max	QAM16	19.10	37	PASS
Band4	1.4	19957	6	#0	QAM16	17.84	37	PASS
Band4	1.4	20175	1	#0	QPSK	23.45	37	PASS
Band4	1.4	20175	1	#Mid	QPSK	23.55	37	PASS
Band4	1.4	20175	1	#Max	QPSK	23.53	37	PASS
Band4	1.4	20175	3	#0	QPSK	23.67	37	PASS
Band4	1.4	20175	3	#Max	QPSK	23.67	37	PASS
Band4	1.4	20175	6	#0	QPSK	22.63	37	PASS
Band4	1.4	20175	1	#0	QAM16	22.33	37	PASS
Band4	1.4	20175	1	#Mid	QAM16	22.28	37	PASS
Band4	1.4	20175	1	#Max	QAM16	22.30	37	PASS
Band4	1.4	20175	3	#0	QAM16	22.68	37	PASS
Band4	1.4	20175	3	#Max	QAM16	22.63	37	PASS
Band4	1.4	20175	6	#0	QAM16	21.84	37	PASS
Band4	1.4	20393	1	#0	QPSK	23.76	37	PASS
Band4	1.4	20393	1	#Mid	QPSK	23.82	37	PASS
Band4	1.4	20393	1	#Max	QPSK	23.79	37	PASS
Band4	1.4	20393	3	#0	QPSK	23.58	37	PASS
Band4	1.4	20393	3	#Max	QPSK	23.63	37	PASS
Band4	1.4	20393	6	#0	QPSK	22.46	37	PASS
Band4	1.4	20393	1	#0	QAM16	23.50	37	PASS
Band4	1.4	20393	1	#Mid	QAM16	23.53	37	PASS
Band4	1.4	20393	1	#Max	QAM16	23.55	37	PASS
Band4	1.4	20393	3	#0	QAM16	22.61	37	PASS
Band4	1.4	20393	3	#Max	QAM16	22.71	37	PASS
Band4	1.4	20393	6	#0	QAM16	21.71	37	PASS
Band4	3	19965	1	#0	QPSK	23.46	37	PASS
Band4	3	19965	1	#Mid	QPSK	23.51	37	PASS

Band4	3	19965	1	#Max	QPSK	23.56	37	PASS
Band4	3	19965	8	#0	QPSK	22.63	37	PASS
Band4	3	19965	8	#Max	QPSK	22.60	37	PASS
Band4	3	19965	15	#0	QPSK	22.69	37	PASS
Band4	3	19965	1	#0	QAM16	22.59	37	PASS
Band4	3	19965	1	#Mid	QAM16	22.55	37	PASS
Band4	3	19965	1	#Max	QAM16	22.53	37	PASS
Band4	3	19965	8	#0	QAM16	21.73	37	PASS
Band4	3	19965	8	#Max	QAM16	21.73	37	PASS
Band4	3	19965	15	#0	QAM16	21.63	37	PASS
Band4	3	20175	1	#0	QPSK	23.53	37	PASS
Band4	3	20175	1	#Mid	QPSK	23.56	37	PASS
Band4	3	20175	1	#Max	QPSK	23.60	37	PASS
Band4	3	20175	8	#0	QPSK	22.66	37	PASS
Band4	3	20175	8	#Max	QPSK	22.62	37	PASS
Band4	3	20175	15	#0	QPSK	22.67	37	PASS
Band4	3	20175	1	#0	QAM16	23.40	37	PASS
Band4	3	20175	1	#Mid	QAM16	23.36	37	PASS
Band4	3	20175	1	#Max	QAM16	23.39	37	PASS
Band4	3	20175	8	#0	QAM16	21.82	37	PASS
Band4	3	20175	8	#Max	QAM16	21.86	37	PASS
Band4	3	20175	15	#0	QAM16	21.81	37	PASS
Band4	3	20385	1	#0	QPSK	23.79	37	PASS
Band4	3	20385	1	#Mid	QPSK	23.85	37	PASS
Band4	3	20385	1	#Max	QPSK	23.90	37	PASS
Band4	3	20385	8	#0	QPSK	22.61	37	PASS
Band4	3	20385	8	#Max	QPSK	22.72	37	PASS
Band4	3	20385	15	#0	QPSK	22.55	37	PASS
Band4	3	20385	1	#0	QAM16	22.66	37	PASS
Band4	3	20385	1	#Mid	QAM16	22.62	37	PASS
Band4	3	20385	1	#Max	QAM16	22.68	37	PASS
Band4	3	20385	8	#0	QAM16	21.89	37	PASS
Band4	3	20385	8	#Max	QAM16	21.96	37	PASS
Band4	3	20385	15	#0	QAM16	21.80	37	PASS
Band4	5	19975	1	#0	QPSK	23.61	37	PASS
Band4	5	19975	1	#Mid	QPSK	23.64	37	PASS
Band4	5	19975	1	#Max	QPSK	23.67	37	PASS
Band4	5	19975	12	#0	QPSK	22.76	37	PASS
Band4	5	19975	12	#Max	QPSK	22.75	37	PASS
Band4	5	19975	25	#0	QPSK	22.62	37	PASS
Band4	5	19975	1	#0	QAM16	22.47	37	PASS
Band4	5	19975	1	#Mid	QAM16	22.43	37	PASS
Band4	5	19975	1	#Max	QAM16	22.46	37	PASS

Band4	5	19975	12	#0	QAM16	21.77	37	PASS
Band4	5	19975	12	#Max	QAM16	21.73	37	PASS
Band4	5	19975	25	#0	QAM16	21.86	37	PASS
Band4	5	20175	1	#0	QPSK	23.75	37	PASS
Band4	5	20175	1	#Mid	QPSK	23.77	37	PASS
Band4	5	20175	1	#Max	QPSK	23.80	37	PASS
Band4	5	20175	12	#0	QPSK	22.77	37	PASS
Band4	5	20175	12	#Max	QPSK	22.72	37	PASS
Band4	5	20175	25	#0	QPSK	22.72	37	PASS
Band4	5	20175	1	#0	QAM16	22.92	37	PASS
Band4	5	20175	1	#Mid	QAM16	22.93	37	PASS
Band4	5	20175	1	#Max	QAM16	22.98	37	PASS
Band4	5	20175	12	#0	QAM16	21.67	37	PASS
Band4	5	20175	12	#Max	QAM16	21.80	37	PASS
Band4	5	20175	25	#0	QAM16	21.81	37	PASS
Band4	5	20375	1	#0	QPSK	23.50	37	PASS
Band4	5	20375	1	#Mid	QPSK	23.57	37	PASS
Band4	5	20375	1	#Max	QPSK	23.54	37	PASS
Band4	5	20375	12	#0	QPSK	22.69	37	PASS
Band4	5	20375	12	#Max	QPSK	22.69	37	PASS
Band4	5	20375	25	#0	QPSK	22.82	37	PASS
Band4	5	20375	1	#0	QAM16	22.62	37	PASS
Band4	5	20375	1	#Mid	QAM16	22.60	37	PASS
Band4	5	20375	1	#Max	QAM16	22.67	37	PASS
Band4	5	20375	12	#0	QAM16	21.76	37	PASS
Band4	5	20375	12	#Max	QAM16	21.72	37	PASS
Band4	5	20375	25	#0	QAM16	21.63	37	PASS
Band4	10	20000	1	#0	QPSK	23.58	37	PASS
Band4	10	20000	1	#Mid	QPSK	23.69	37	PASS
Band4	10	20000	1	#Max	QPSK	23.70	37	PASS
Band4	10	20000	25	#0	QPSK	22.73	37	PASS
Band4	10	20000	25	#Max	QPSK	22.75	37	PASS
Band4	10	20000	50	#0	QPSK	22.83	37	PASS
Band4	10	20000	1	#0	QAM16	22.74	37	PASS
Band4	10	20000	1	#Mid	QAM16	22.72	37	PASS
Band4	10	20000	1	#Max	QAM16	22.66	37	PASS
Band4	10	20000	25	#0	QAM16	21.90	37	PASS
Band4	10	20000	25	#Max	QAM16	21.95	37	PASS
Band4	10	20000	50	#0	QAM16	21.83	37	PASS
Band4	10	20175	1	#0	QPSK	23.73	37	PASS
Band4	10	20175	1	#Mid	QPSK	23.72	37	PASS
Band4	10	20175	1	#Max	QPSK	23.68	37	PASS
Band4	10	20175	25	#0	QPSK	22.68	37	PASS

Band4	10	20175	25	#Max	QPSK	22.73	37	PASS
Band4	10	20175	50	#0	QPSK	22.72	37	PASS
Band4	10	20175	1	#0	QAM16	22.91	37	PASS
Band4	10	20175	1	#Mid	QAM16	22.92	37	PASS
Band4	10	20175	1	#Max	QAM16	22.87	37	PASS
Band4	10	20175	25	#0	QAM16	21.93	37	PASS
Band4	10	20175	25	#Max	QAM16	21.96	37	PASS
Band4	10	20175	50	#0	QAM16	21.94	37	PASS
Band4	10	20350	1	#0	QPSK	23.88	37	PASS
Band4	10	20350	1	#Mid	QPSK	23.95	37	PASS
Band4	10	20350	1	#Max	QPSK	23.93	37	PASS
Band4	10	20350	25	#0	QPSK	22.83	37	PASS
Band4	10	20350	25	#Max	QPSK	22.75	37	PASS
Band4	10	20350	50	#0	QPSK	22.88	37	PASS
Band4	10	20350	1	#0	QAM16	22.28	37	PASS
Band4	10	20350	1	#Mid	QAM16	22.32	37	PASS
Band4	10	20350	1	#Max	QAM16	22.32	37	PASS
Band4	10	20350	25	#0	QAM16	21.91	37	PASS
Band4	10	20350	25	#Max	QAM16	21.88	37	PASS
Band4	10	20350	50	#0	QAM16	21.85	37	PASS
Band4	15	20025	1	#0	QPSK	23.66	37	PASS
Band4	15	20025	1	#Mid	QPSK	23.73	37	PASS
Band4	15	20025	1	#Max	QPSK	23.74	37	PASS
Band4	15	20025	36	#0	QPSK	22.84	37	PASS
Band4	15	20025	36	#Max	QPSK	22.79	37	PASS
Band4	15	20025	75	#0	QPSK	22.72	37	PASS
Band4	15	20025	1	#0	QAM16	22.81	37	PASS
Band4	15	20025	1	#Mid	QAM16	22.83	37	PASS
Band4	15	20025	1	#Max	QAM16	22.80	37	PASS
Band4	15	20025	36	#0	QAM16	21.85	37	PASS
Band4	15	20025	36	#Max	QAM16	21.91	37	PASS
Band4	15	20025	75	#0	QAM16	21.88	37	PASS
Band4	15	20175	1	#0	QPSK	23.83	37	PASS
Band4	15	20175	1	#Mid	QPSK	23.78	37	PASS
Band4	15	20175	1	#Max	QPSK	23.70	37	PASS
Band4	15	20175	36	#0	QPSK	22.77	37	PASS
Band4	15	20175	36	#Max	QPSK	22.69	37	PASS
Band4	15	20175	75	#0	QPSK	22.70	37	PASS
Band4	15	20175	1	#0	QAM16	22.93	37	PASS
Band4	15	20175	1	#Mid	QAM16	22.92	37	PASS
Band4	15	20175	1	#Max	QAM16	22.95	37	PASS
Band4	15	20175	36	#0	QAM16	21.98	37	PASS
Band4	15	20175	36	#Max	QAM16	21.97	37	PASS

Band4	15	20175	75	#0	QAM16	21.93	37	PASS
Band4	15	20325	1	#0	QPSK	23.92	37	PASS
Band4	15	20325	1	#Mid	QPSK	23.98	37	PASS
Band4	15	20325	1	#Max	QPSK	24.05	37	PASS
Band4	15	20325	36	#0	QPSK	22.74	37	PASS
Band4	15	20325	36	#Max	QPSK	22.85	37	PASS
Band4	15	20325	75	#0	QPSK	22.72	37	PASS
Band4	15	20325	1	#0	QAM16	22.89	37	PASS
Band4	15	20325	1	#Mid	QAM16	22.89	37	PASS
Band4	15	20325	1	#Max	QAM16	22.92	37	PASS
Band4	15	20325	36	#0	QAM16	19.21	37	PASS
Band4	15	20325	36	#Max	QAM16	19.57	37	PASS
Band4	15	20325	75	#0	QAM16	19.39	37	PASS
Band4	20	20050	1	#0	QPSK	20.31	37	PASS
Band4	20	20050	1	#Mid	QPSK	19.89	37	PASS
Band4	20	20050	1	#Max	QPSK	20.46	37	PASS
Band4	20	20050	50	#0	QPSK	20.23	37	PASS
Band4	20	20050	50	#Max	QPSK	20.52	37	PASS
Band4	20	20050	100	#0	QPSK	19.96	37	PASS
Band4	20	20050	1	#0	QAM16	20.32	37	PASS
Band4	20	20050	1	#Mid	QAM16	20.16	37	PASS
Band4	20	20050	1	#Max	QAM16	20.52	37	PASS
Band4	20	20050	50	#0	QAM16	19.65	37	PASS
Band4	20	20050	50	#Max	QAM16	19.49	37	PASS
Band4	20	20050	100	#0	QAM16	19.52	37	PASS
Band4	20	20175	1	#0	QPSK	21.85	37	PASS
Band4	20	20175	1	#Mid	QPSK	21.92	37	PASS
Band4	20	20175	1	#Max	QPSK	21.88	37	PASS
Band4	20	20175	50	#0	QPSK	20.66	37	PASS
Band4	20	20175	50	#Max	QPSK	20.71	37	PASS
Band4	20	20175	100	#0	QPSK	20.74	37	PASS
Band4	20	20175	1	#0	QAM16	20.53	37	PASS
Band4	20	20175	1	#Mid	QAM16	20.52	37	PASS
Band4	20	20175	1	#Max	QAM16	20.49	37	PASS
Band4	20	20175	50	#0	QAM16	19.58	37	PASS
Band4	20	20175	50	#Max	QAM16	19.80	37	PASS
Band4	20	20175	100	#0	QAM16	19.73	37	PASS
Band4	20	20300	1	#0	QPSK	17.34	37	PASS
Band4	20	20300	1	#Mid	QPSK	17.78	37	PASS
Band4	20	20300	1	#Max	QPSK	18.80	37	PASS
Band4	20	20300	50	#0	QPSK	16.51	37	PASS
Band4	20	20300	50	#Max	QPSK	17.56	37	PASS
Band4	20	20300	100	#0	QPSK	16.97	37	PASS

Band4	20	20300	1	#0	QAM16	16.19	37	PASS
Band4	20	20300	1	#Mid	QAM16	16.61	37	PASS
Band4	20	20300	1	#Max	QAM16	17.64	37	PASS
Band4	20	20300	50	#0	QAM16	15.60	37	PASS
Band4	20	20300	50	#Max	QAM16	16.70	37	PASS
Band4	20	20300	100	#0	QAM16	16.14	37	PASS
Band5	1.4	20407	1	#0	QPSK	17.9	37	PASS
Band5	1.4	20407	1	#Mid	QPSK	18.63	37	PASS
Band5	1.4	20407	1	#Max	QPSK	18.46	37	PASS
Band5	1.4	20407	3	#0	QPSK	19.23	37	PASS
Band5	1.4	20407	3	#Max	QPSK	19.53	37	PASS
Band5	1.4	20407	6	#0	QPSK	18.92	37	PASS
Band5	1.4	20407	1	#0	QAM16	19.23	37	PASS
Band5	1.4	20407	1	#Mid	QAM16	19.53	37	PASS
Band5	1.4	20407	1	#Max	QAM16	22.11	37	PASS
Band5	1.4	20407	3	#0	QAM16	22.66	37	PASS
Band5	1.4	20407	3	#Max	QAM16	22.73	37	PASS
Band5	1.4	20407	6	#0	QAM16	21.77	37	PASS
Band5	1.4	20525	1	#0	QPSK	23.44	37	PASS
Band5	1.4	20525	1	#Mid	QPSK	23.45	37	PASS
Band5	1.4	20525	1	#Max	QPSK	23.44	37	PASS
Band5	1.4	20525	3	#0	QPSK	23.27	37	PASS
Band5	1.4	20525	3	#Max	QPSK	23.34	37	PASS
Band5	1.4	20525	6	#0	QPSK	22.29	37	PASS
Band5	1.4	20525	1	#0	QAM16	22.79	37	PASS
Band5	1.4	20525	1	#Mid	QAM16	22.84	37	PASS
Band5	1.4	20525	1	#Max	QAM16	22.79	37	PASS
Band5	1.4	20525	3	#0	QAM16	22.31	37	PASS
Band5	1.4	20525	3	#Max	QAM16	22.38	37	PASS
Band5	1.4	20525	6	#0	QAM16	21.59	37	PASS
Band5	1.4	20643	1	#0	QPSK	23.29	37	PASS
Band5	1.4	20643	1	#Mid	QPSK	23.26	37	PASS
Band5	1.4	20643	1	#Max	QPSK	23.26	37	PASS
Band5	1.4	20643	3	#0	QPSK	23.22	37	PASS
Band5	1.4	20643	3	#Max	QPSK	23.32	37	PASS
Band5	1.4	20643	6	#0	QPSK	22.38	37	PASS
Band5	1.4	20643	1	#0	QAM16	22.95	37	PASS
Band5	1.4	20643	1	#Mid	QAM16	22.94	37	PASS
Band5	1.4	20643	1	#Max	QAM16	22.97	37	PASS
Band5	1.4	20643	3	#0	QAM16	22.11	37	PASS
Band5	1.4	20643	3	#Max	QAM16	22.14	37	PASS
Band5	1.4	20643	6	#0	QAM16	21.31	37	PASS
Band5	3	20415	1	#0	QPSK	23.46	37	PASS

Band5	3	20415	1	#Mid	QPSK	23.42	37	PASS
Band5	3	20415	1	#Max	QPSK	23.44	37	PASS
Band5	3	20415	8	#0	QPSK	22.60	37	PASS
Band5	3	20415	8	#Max	QPSK	22.57	37	PASS
Band5	3	20415	15	#0	QPSK	22.55	37	PASS
Band5	3	20415	1	#0	QAM16	22.56	37	PASS
Band5	3	20415	1	#Mid	QAM16	22.52	37	PASS
Band5	3	20415	1	#Max	QAM16	22.56	37	PASS
Band5	3	20415	8	#0	QAM16	21.73	37	PASS
Band5	3	20415	8	#Max	QAM16	21.79	37	PASS
Band5	3	20415	15	#0	QAM16	21.49	37	PASS
Band5	3	20525	1	#0	QPSK	23.37	37	PASS
Band5	3	20525	1	#Mid	QPSK	23.28	37	PASS
Band5	3	20525	1	#Max	QPSK	23.30	37	PASS
Band5	3	20525	8	#0	QPSK	22.49	37	PASS
Band5	3	20525	8	#Max	QPSK	22.45	37	PASS
Band5	3	20525	15	#0	QPSK	22.44	37	PASS
Band5	3	20525	1	#0	QAM16	23.13	37	PASS
Band5	3	20525	1	#Mid	QAM16	23.12	37	PASS
Band5	3	20525	1	#Max	QAM16	23.06	37	PASS
Band5	3	20525	8	#0	QAM16	21.62	37	PASS
Band5	3	20525	8	#Max	QAM16	21.49	37	PASS
Band5	3	20525	15	#0	QAM16	21.50	37	PASS
Band5	3	20635	1	#0	QPSK	23.47	37	PASS
Band5	3	20635	1	#Mid	QPSK	23.54	37	PASS
Band5	3	20635	1	#Max	QPSK	23.65	37	PASS
Band5	3	20635	8	#0	QPSK	22.41	37	PASS
Band5	3	20635	8	#Max	QPSK	22.48	37	PASS
Band5	3	20635	15	#0	QPSK	22.48	37	PASS
Band5	3	20635	1	#0	QAM16	22.07	37	PASS
Band5	3	20635	1	#Mid	QAM16	22.03	37	PASS
Band5	3	20635	1	#Max	QAM16	22.08	37	PASS
Band5	3	20635	8	#0	QAM16	21.51	37	PASS
Band5	3	20635	8	#Max	QAM16	21.55	37	PASS
Band5	3	20635	15	#0	QAM16	21.38	37	PASS
Band5	5	20425	1	#0	QPSK	23.69	37	PASS
Band5	5	20425	1	#Mid	QPSK	23.57	37	PASS
Band5	5	20425	1	#Max	QPSK	23.53	37	PASS
Band5	5	20425	12	#0	QPSK	22.78	37	PASS
Band5	5	20425	12	#Max	QPSK	22.71	37	PASS
Band5	5	20425	25	#0	QPSK	22.71	37	PASS
Band5	5	20425	1	#0	QAM16	22.48	37	PASS
Band5	5	20425	1	#Mid	QAM16	22.38	37	PASS

Band5	5	20425	1	#Max	QAM16	22.36	37	PASS
Band5	5	20425	12	#0	QAM16	21.84	37	PASS
Band5	5	20425	12	#Max	QAM16	21.59	37	PASS
Band5	5	20425	25	#0	QAM16	21.69	37	PASS
Band5	5	20525	1	#0	QPSK	23.63	37	PASS
Band5	5	20525	1	#Mid	QPSK	23.46	37	PASS
Band5	5	20525	1	#Max	QPSK	23.55	37	PASS
Band5	5	20525	12	#0	QPSK	22.56	37	PASS
Band5	5	20525	12	#Max	QPSK	22.54	37	PASS
Band5	5	20525	25	#0	QPSK	22.60	37	PASS
Band5	5	20525	1	#0	QAM16	22.74	37	PASS
Band5	5	20525	1	#Mid	QAM16	22.70	37	PASS
Band5	5	20525	1	#Max	QAM16	22.67	37	PASS
Band5	5	20525	12	#0	QAM16	21.57	37	PASS
Band5	5	20525	12	#Max	QAM16	21.41	37	PASS
Band5	5	20525	25	#0	QAM16	21.48	37	PASS
Band5	5	20625	1	#0	QPSK	23.28	37	PASS
Band5	5	20625	1	#Mid	QPSK	23.25	37	PASS
Band5	5	20625	1	#Max	QPSK	23.38	37	PASS
Band5	5	20625	12	#0	QPSK	22.48	37	PASS
Band5	5	20625	12	#Max	QPSK	22.45	37	PASS
Band5	5	20625	25	#0	QPSK	22.54	37	PASS
Band5	5	20625	1	#0	QAM16	22.57	37	PASS
Band5	5	20625	1	#Mid	QAM16	22.67	37	PASS
Band5	5	20625	1	#Max	QAM16	22.67	37	PASS
Band5	5	20625	12	#0	QAM16	21.56	37	PASS
Band5	5	20625	12	#Max	QAM16	21.58	37	PASS
Band5	5	20625	25	#0	QAM16	21.48	37	PASS
Band5	10	20450	1	#0	QPSK	23.75	37	PASS
Band5	10	20450	1	#Mid	QPSK	23.57	37	PASS
Band5	10	20450	1	#Max	QPSK	23.49	37	PASS
Band5	10	20450	25	#0	QPSK	22.67	37	PASS
Band5	10	20450	25	#Max	QPSK	22.64	37	PASS
Band5	10	20450	50	#0	QPSK	22.71	37	PASS
Band5	10	20450	1	#0	QAM16	22.68	37	PASS
Band5	10	20450	1	#Mid	QAM16	22.62	37	PASS
Band5	10	20450	1	#Max	QAM16	22.38	37	PASS
Band5	10	20450	25	#0	QAM16	21.66	37	PASS
Band5	10	20450	25	#Max	QAM16	21.66	37	PASS
Band5	10	20450	50	#0	QAM16	21.67	37	PASS
Band5	10	20525	1	#0	QPSK	23.60	37	PASS
Band5	10	20525	1	#Mid	QPSK	23.62	37	PASS
Band5	10	20525	1	#Max	QPSK	23.51	37	PASS

Band5	10	20525	25	#0	QPSK	22.65	37	PASS
Band5	10	20525	25	#Max	QPSK	22.58	37	PASS
Band5	10	20525	50	#0	QPSK	22.58	37	PASS
Band5	10	20525	1	#0	QAM16	22.67	37	PASS
Band5	10	20525	1	#Mid	QAM16	22.65	37	PASS
Band5	10	20525	1	#Max	QAM16	22.58	37	PASS
Band5	10	20525	25	#0	QAM16	21.77	37	PASS
Band5	10	20525	25	#Max	QAM16	21.70	37	PASS
Band5	10	20525	50	#0	QAM16	21.50	37	PASS
Band5	10	20600	1	#0	QPSK	23.57	37	PASS
Band5	10	20600	1	#Mid	QPSK	23.53	37	PASS
Band5	10	20600	1	#Max	QPSK	23.58	37	PASS
Band5	10	20600	25	#0	QPSK	22.48	37	PASS
Band5	10	20600	25	#Max	QPSK	22.55	37	PASS
Band5	10	20600	50	#0	QPSK	22.52	37	PASS
Band5	10	20600	1	#0	QAM16	21.99	37	PASS
Band5	10	20600	1	#Mid	QAM16	21.83	37	PASS
Band5	10	20600	1	#Max	QAM16	21.96	37	PASS
Band5	10	20600	25	#0	QAM16	21.63	37	PASS
Band5	10	20600	25	#Max	QAM16	21.48	37	PASS
Band5	10	20600	50	#0	QAM16	21.42	37	PASS
Band7	5	20775	1	#0	QPSK	19.57	37	PASS
Band7	5	20775	1	#Mid	QPSK	19.73	37	PASS
Band7	5	20775	1	#Max	QPSK	19.20	37	PASS
Band7	5	20775	12	#0	QPSK	19.07	37	PASS
Band7	5	20775	12	#Max	QPSK	18.89	37	PASS
Band7	5	20775	25	#0	QPSK	18.96	37	PASS
Band7	5	20775	1	#0	QAM16	18.89	37	PASS
Band7	5	20775	1	#Mid	QAM16	19.12	37	PASS
Band7	5	20775	1	#Max	QAM16	18.57	37	PASS
Band7	5	20775	12	#0	QAM16	18.08	37	PASS
Band7	5	20775	12	#Max	QAM16	17.90	37	PASS
Band7	5	20775	25	#0	QAM16	18.04	37	PASS
Band7	5	21100	1	#0	QPSK	19.62	37	PASS
Band7	5	21100	1	#Mid	QPSK	20.35	37	PASS
Band7	5	21100	1	#Max	QPSK	18.96	37	PASS
Band7	5	21100	12	#0	QPSK	20.12	37	PASS
Band7	5	21100	12	#Max	QPSK	19.33	37	PASS
Band7	5	21100	25	#0	QPSK	18.69	37	PASS
Band7	5	21100	1	#0	QAM16	20.15	37	PASS
Band7	5	21100	1	#Mid	QAM16	19.66	37	PASS
Band7	5	21100	1	#Max	QAM16	20.33	37	PASS
Band7	5	21100	12	#0	QAM16	20.15	37	PASS

Band7	5	21100	12	#Max	QAM16	21.42	37	PASS
Band7	5	21100	25	#0	QAM16	21.46	37	PASS
Band7	5	21425	1	#0	QPSK	22.58	37	PASS
Band7	5	21425	1	#Mid	QPSK	22.88	37	PASS
Band7	5	21425	1	#Max	QPSK	22.77	37	PASS
Band7	5	21425	12	#0	QPSK	22.60	37	PASS
Band7	5	21425	12	#Max	QPSK	22.63	37	PASS
Band7	5	21425	25	#0	QPSK	22.58	37	PASS
Band7	5	21425	1	#0	QAM16	22.47	37	PASS
Band7	5	21425	1	#Mid	QAM16	22.52	37	PASS
Band7	5	21425	1	#Max	QAM16	22.58	37	PASS
Band7	5	21425	12	#0	QAM16	21.67	37	PASS
Band7	5	21425	12	#Max	QAM16	21.62	37	PASS
Band7	5	21425	25	#0	QAM16	21.58	37	PASS
Band7	10	20800	1	#0	QPSK	22.70	37	PASS
Band7	10	20800	1	#Mid	QPSK	22.76	37	PASS
Band7	10	20800	1	#Max	QPSK	22.88	37	PASS
Band7	10	20800	25	#0	QPSK	21.92	37	PASS
Band7	10	20800	25	#Max	QPSK	22.00	37	PASS
Band7	10	20800	50	#0	QPSK	21.99	37	PASS
Band7	10	20800	1	#0	QAM16	21.85	37	PASS
Band7	10	20800	1	#Mid	QAM16	21.96	37	PASS
Band7	10	20800	1	#Max	QAM16	22.05	37	PASS
Band7	10	20800	25	#0	QAM16	21.09	37	PASS
Band7	10	20800	25	#Max	QAM16	21.18	37	PASS
Band7	10	20800	50	#0	QAM16	21.17	37	PASS
Band7	10	21100	1	#0	QPSK	22.86	37	PASS
Band7	10	21100	1	#Mid	QPSK	22.90	37	PASS
Band7	10	21100	1	#Max	QPSK	22.93	37	PASS
Band7	10	21100	25	#0	QPSK	21.87	37	PASS
Band7	10	21100	25	#Max	QPSK	21.93	37	PASS
Band7	10	21100	50	#0	QPSK	21.95	37	PASS
Band7	10	21100	1	#0	QAM16	22.21	37	PASS
Band7	10	21100	1	#Mid	QAM16	22.17	37	PASS
Band7	10	21100	1	#Max	QAM16	22.25	37	PASS
Band7	10	21100	25	#0	QAM16	21.13	37	PASS
Band7	10	21100	25	#Max	QAM16	21.15	37	PASS
Band7	10	21100	50	#0	QAM16	21.06	37	PASS
Band7	10	21400	1	#0	QPSK	22.50	37	PASS
Band7	10	21400	1	#Mid	QPSK	22.51	37	PASS
Band7	10	21400	1	#Max	QPSK	22.92	37	PASS
Band7	10	21400	25	#0	QPSK	22.32	37	PASS
Band7	10	21400	25	#Max	QPSK	22.22	37	PASS

Band7	10	21400	50	#0	QPSK	22.29	37	PASS
Band7	10	21400	1	#0	QAM16	22.00	37	PASS
Band7	10	21400	1	#Mid	QAM16	21.89	37	PASS
Band7	10	21400	1	#Max	QAM16	21.80	37	PASS
Band7	10	21400	25	#0	QAM16	21.48	37	PASS
Band7	10	21400	25	#Max	QAM16	21.43	37	PASS
Band7	10	21400	50	#0	QAM16	21.41	37	PASS
Band7	15	20825	1	#0	QPSK	22.75	37	PASS
Band7	15	20825	1	#Mid	QPSK	22.81	37	PASS
Band7	15	20825	1	#Max	QPSK	22.90	37	PASS
Band7	15	20825	36	#0	QPSK	21.96	37	PASS
Band7	15	20825	36	#Max	QPSK	21.97	37	PASS
Band7	15	20825	75	#0	QPSK	22.01	37	PASS
Band7	15	20825	1	#0	QAM16	21.91	37	PASS
Band7	15	20825	1	#Mid	QAM16	21.97	37	PASS
Band7	15	20825	1	#Max	QAM16	22.06	37	PASS
Band7	15	20825	36	#0	QAM16	21.20	37	PASS
Band7	15	20825	36	#Max	QAM16	21.22	37	PASS
Band7	15	20825	75	#0	QAM16	21.13	37	PASS
Band7	15	21100	1	#0	QPSK	22.87	37	PASS
Band7	15	21100	1	#Mid	QPSK	22.90	37	PASS
Band7	15	21100	1	#Max	QPSK	22.95	37	PASS
Band7	15	21100	36	#0	QPSK	22.05	37	PASS
Band7	15	21100	36	#Max	QPSK	22.03	37	PASS
Band7	15	21100	75	#0	QPSK	21.98	37	PASS
Band7	15	21100	1	#0	QAM16	22.40	37	PASS
Band7	15	21100	1	#Mid	QAM16	22.39	37	PASS
Band7	15	21100	1	#Max	QAM16	22.41	37	PASS
Band7	15	21100	36	#0	QAM16	21.11	37	PASS
Band7	15	21100	36	#Max	QAM16	21.14	37	PASS
Band7	15	21100	75	#0	QAM16	21.17	37	PASS
Band7	15	21375	1	#0	QPSK	22.52	37	PASS
Band7	15	21375	1	#Mid	QPSK	22.02	37	PASS
Band7	15	21375	1	#Max	QPSK	22.46	37	PASS
Band7	15	21375	36	#0	QPSK	22.15	37	PASS
Band7	15	21375	36	#Max	QPSK	22.14	37	PASS
Band7	15	21375	75	#0	QPSK	22.08	37	PASS
Band7	15	21375	1	#0	QAM16	22.06	37	PASS
Band7	15	21375	1	#Mid	QAM16	21.62	37	PASS
Band7	15	21375	1	#Max	QAM16	22.13	37	PASS
Band7	15	21375	36	#0	QAM16	21.39	37	PASS
Band7	15	21375	36	#Max	QAM16	21.35	37	PASS
Band7	15	21375	75	#0	QAM16	21.42	37	PASS

Band7	20	20850	1	#0	QPSK	23.03	37	PASS
Band7	20	20850	1	#Mid	QPSK	22.86	37	PASS
Band7	20	20850	1	#Max	QPSK	23.00	37	PASS
Band7	20	20850	50	#0	QPSK	21.99	37	PASS
Band7	20	20850	50	#Max	QPSK	22.09	37	PASS
Band7	20	20850	100	#0	QPSK	21.98	37	PASS
Band7	20	20850	1	#0	QAM16	21.90	37	PASS
Band7	20	20850	1	#Mid	QAM16	22.06	37	PASS
Band7	20	20850	1	#Max	QAM16	22.12	37	PASS
Band7	20	20850	50	#0	QAM16	21.22	37	PASS
Band7	20	20850	50	#Max	QAM16	21.30	37	PASS
Band7	20	20850	100	#0	QAM16	21.16	37	PASS
Band7	20	21100	1	#0	QPSK	22.98	37	PASS
Band7	20	21100	1	#Mid	QPSK	23.03	37	PASS
Band7	20	21100	1	#Max	QPSK	23.09	37	PASS
Band7	20	21100	50	#0	QPSK	22.04	37	PASS
Band7	20	21100	50	#Max	QPSK	22.03	37	PASS
Band7	20	21100	100	#0	QPSK	21.92	37	PASS
Band7	20	21100	1	#0	QAM16	22.17	37	PASS
Band7	20	21100	1	#Mid	QAM16	22.13	37	PASS
Band7	20	21100	1	#Max	QAM16	22.17	37	PASS
Band7	20	21100	50	#0	QAM16	21.21	37	PASS
Band7	20	21100	50	#Max	QAM16	21.18	37	PASS
Band7	20	21100	100	#0	QAM16	21.11	37	PASS
Band7	20	21350	1	#0	QPSK	22.79	37	PASS
Band7	20	21350	1	#Mid	QPSK	21.73	37	PASS
Band7	20	21350	1	#Max	QPSK	22.69	37	PASS
Band7	20	21350	50	#0	QPSK	22.23	37	PASS
Band7	20	21350	50	#Max	QPSK	22.10	37	PASS
Band7	20	21350	100	#0	QPSK	22.10	37	PASS
Band7	20	21350	1	#0	QAM16	22.06	37	PASS
Band7	20	21350	1	#Mid	QAM16	21.23	37	PASS
Band7	20	21350	1	#Max	QAM16	22.26	37	PASS
Band7	20	21350	50	#0	QAM16	21.46	37	PASS
Band7	20	21350	50	#Max	QAM16	21.37	37	PASS
Band7	20	21350	100	#0	QAM16	21.47	37	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.

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 > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

9.2 Test Results for Standalone SAR Test

Body SAR

GSM850 – Body SAR Test (Gap: 0mm)									
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 Face	190	836.6	29.11	29.50	1.094	0.018	0.020
1.	GPRS_4TX	Front Face	190	836.6	29.11	29.50	1.094	0.049	**0.054**
	GPRS_4TX	Right Side	190	836.6	29.11	29.50	1.094	0.003	0.003
	GPRS_4TX	Left Side	190	836.6	29.11	29.50	1.094	0.026	0.028
	GPRS_4TX	Top Side	190	836.6	29.11	29.50	1.094	0.012	0.013
	GPRS_4TX	Bottom Side	190	836.6	29.11	29.50	1.094	0.032	0.035

GSM1900 – Body SAR Test (Gap: 0mm)									
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 Face	512	1850.2	26.88	27.00	1.028	0.136	0.140
2.	GPRS_4TX	Front Face	512	1850.2	26.88	27.00	1.028	0.268	**0.276**
	GPRS_4TX	Right Side	512	1850.2	26.88	27.00	1.028	0.037	0.038
	GPRS_4TX	Left Side	512	1850.2	26.88	27.00	1.028	0.053	0.054
	GPRS_4TX	Top Side	512	1850.2	26.88	27.00	1.028	0.05	0.051
	GPRS_4TX	Bottom Side	512	1850.2	26.88	27.00	1.028	0.09	0.093

WCDMA Band 2 – Body SAR Test (Gap: 0mm)									
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 Face	9262	1852.4	22.69	23.00	1.074	0.097	0.104
3.	RMC 12.2k	Front Face	9262	1852.4	22.69	23.00	1.074	0.236	**0.253**
	RMC 12.2k	Right Side	9262	1852.4	22.69	23.00	1.074	0.023	0.025
	RMC 12.2k	Left Side	9262	1852.4	22.69	23.00	1.074	0.06	0.064
	RMC 12.2k	Top Side	9262	1852.4	22.69	23.00	1.074	0.007	0.008
	RMC 12.2k	Bottom Side	9262	1852.4	22.69	23.00	1.074	0.004	0.004

WCDMA Band 5 – Body SAR Test (Gap: 0mm)									
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 Face	4233	846.6	23.06	23.50	1.107	0.009	0.010
4.	RMC 12.2k	Front Face	4233	846.6	23.06	23.50	1.107	0.031	**0.034**
	RMC 12.2k	Right Side	4233	846.6	23.06	23.50	1.107	0.003	0.003
	RMC 12.2k	Left Side	4233	846.6	23.06	23.50	1.107	0.007	0.008
	RMC 12.2k	Top Side	4233	846.6	23.06	23.50	1.107	0.006	0.007
	RMC 12.2k	Bottom Side	4233	846.6	23.06	23.50	1.107	0.003	0.003

LTE Band 2–Body SAR Test (Gap: 0mm)								
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 Face	1860	23.5	24.00	1.122	0.094	0.105
5.	QPSK 20MHz 1RB	Front Face	1860	23.5	24.00	1.122	0.155	**0.174**
	QPSK 20MHz 1RB	Right Side	1860	23.5	24.00	1.122	0.021	0.024
	QPSK 20MHz 1RB	Left Side	1860	23.5	24.00	1.122	0.064	0.072
	QPSK 20MHz 1RB	Top Side	1860	23.5	24.00	1.122	0.07	0.079
	QPSK 20MHz 1RB	Bottom Side	1860	23.5	24.00	1.122	0.038	0.043
	QPSK 20MHz 50%RB	Back Face	1860	23.47	24.00	1.130	0.044	0.050
	QPSK 20MHz 50%RB	Front Face	1860	23.47	24.00	1.130	0.142	0.160
	QPSK 20MHz 50%RB	Right Side	1860	23.47	24.00	1.130	0.019	0.021
	QPSK 20MHz 50%RB	Left Side	1860	23.47	24.00	1.130	0.042	0.047
	QPSK 20MHz 50%RB	Top Side	1860	23.47	24.00	1.130	0.052	0.059
	QPSK 20MHz 50%RB	Bottom Side	1860	23.47	24.00	1.130	0.02	0.023

LTE Band 4–Body SAR Test (Gap: 0mm)								
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 Face	1720	23.88	24.00	1.028	0.009	0.009
	QPSK 20MHz 1RB	Front Face	1720	23.88	24.00	1.028	0.043	0.044
	QPSK 20MHz 1RB	Right Side	1720	23.88	24.00	1.028	0.006	0.006
	QPSK 20MHz 1RB	Left Side	1720	23.88	24.00	1.028	0.011	0.011
	QPSK 20MHz 1RB	Top Side	1720	23.88	24.00	1.028	0.009	0.009
	QPSK 20MHz 1RB	Bottom Side	1720	23.88	24.00	1.028	0.007	0.007
	QPSK 20MHz 50%RB	Back Face	1720	23.73	24.00	1.064	0.010	0.011
6.	QPSK 20MHz 50%RB	Front Face	1720	23.73	24.00	1.064	0.054	**0.057**
	QPSK 20MHz 50%RB	Right Side	1720	23.73	24.00	1.064	0.004	0.004

	QPSK 20MHz 50%RB	Left Side	1720	23.73	24.00	1.064	0.015	0.016
	QPSK 20MHz 50%RB	Top Side	1720	23.73	24.00	1.064	0.005	0.005
	QPSK 20MHz 50%RB	Bottom Side	1720	23.73	24.00	1.064	0.006	0.006

LTE Band 5–Body SAR Test (Gap: 0mm)								
Plot No.	**Mode**	**Test Position**	**Frequency**	**Output Power**	**Rated Limit**	**Scaling Factor**	**SAR1g (W/kg)**	**Scaled SAR1g (W/kg)**
	Modulation, Bandwidth, RB	**Body**	**MHz**	**(dBm)**	**(dBm)**			
	QPSK 10MHz 1RB	Back Face	849.0	23.65	24.00	1.084	0.013	0.014
7.	QPSK 10MHz 1RB	Front Face	849.0	23.65	24.00	1.084	0.037	**0.040**
	QPSK 10MHz 1RB	Right Side	849.0	23.65	24.00	1.084	0.002	0.002
	QPSK 10MHz 1RB	Left Side	849.0	23.65	24.00	1.084	0.004	0.004
	QPSK 10MHz 1RB	Top Side	849.0	23.65	24.00	1.084	0.002	0.002
	QPSK 10MHz 1RB	Bottom Side	849.0	23.65	24.00	1.084	0.002	0.002
	QPSK 10MHz 50%RB	Back Face	849.0	23.65	24.00	1.084	0.009	0.010
	QPSK 10MHz 50%RB	Front Face	849.0	23.65	24.00	1.084	0.027	0.029
	QPSK 10MHz 50%RB	Right Side	849.0	23.65	24.00	1.084	0.002	0.002
	QPSK 10MHz 50%RB	Left Side	849.0	23.65	24.00	1.084	0.003	0.003
	QPSK 10MHz 50%RB	Top Side	849.0	23.65	24.00	1.084	0.002	0.002
	QPSK 10MHz 50%RB	Bottom Side	849.0	23.65	24.00	1.084	0.002	0.002

LTE Band 7–Body SAR Test (Gap: 0mm)								
Plot No.	**Mode**	**Test Position**	**Frequency**	**Output Power**	**Rated Limit**	**Scaling Factor**	**SAR1g (W/kg)**	**Scaled SAR1g (W/kg)**
	Modulation, Bandwidth, RB	**Body**	**MHz**	**(dBm)**	**(dBm)**			
	QPSK 20MHz 1RB	Back Face	2510	23.09	24.00	1.233	0.062	0.076
8.	QPSK 20MHz 1RB	Front Face	2510	23.09	24.00	1.233	0.247	**0.305**
	QPSK 20MHz 1RB	Right Side	2510	23.09	24.00	1.233	0.006	0.007
	QPSK 20MHz 1RB	Left Side	2510	23.09	24.00	1.233	0.036	0.044
	QPSK 20MHz 1RB	Top Side	2510	23.09	24.00	1.233	0.014	0.017
	QPSK 20MHz 1RB	Bottom Side	2510	23.09	24.00	1.233	0.006	0.007
	QPSK 20MHz 50%RB	Back Face	2510	23.03	24.00	1.250	0.055	0.069
	QPSK 20MHz 50%RB	Front Face	2510	23.03	24.00	1.250	0.196	0.245
	QPSK 20MHz 50%RB	Right Side	2510	23.03	24.00	1.250	0.007	0.009
	QPSK 20MHz 50%RB	Left Side	2510	23.03	24.00	1.250	0.031	0.039
	QPSK 20MHz 50%RB	Top Side	2510	23.03	24.00	1.250	0.025	0.031
	QPSK 20MHz 50%RB	Bottom Side	2510	23.03	24.00	1.250	0.006	0.008

LTE Band 12–Body SAR Test (Gap: 0mm)								
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	707.5	21.58	22.00	1.102	0.004	0.004
9.	QPSK 10MHz 1RB	Front Face	707.5	21.58	22.00	1.102	0.009	**0.010**
	QPSK 10MHz 1RB	Right Side	707.5	21.58	22.00	1.102	0.002	0.002
	QPSK 10MHz 1RB	Left Side	707.5	21.58	22.00	1.102	0.009	0.010
	QPSK 10MHz 1RB	Top Side	707.5	21.58	22.00	1.102	0.002	0.002
	QPSK 10MHz 1RB	Bottom Side	707.5	21.58	22.00	1.102	0.004	0.004
	QPSK 10MHz 50%RB	Back Face	707.5	21.57	22.00	1.104	0.003	0.003
	QPSK 10MHz 50%RB	Front Face	707.5	21.57	22.00	1.104	0.006	0.007
	QPSK 10MHz 50%RB	Right Side	707.5	21.57	22.00	1.104	0.002	0.002
	QPSK 10MHz 50%RB	Left Side	707.5	21.57	22.00	1.104	0.006	0.007
	QPSK 10MHz 50%RB	Top Side	707.5	21.57	22.00	1.104	0.002	0.002
	QPSK 10MHz 50%RB	Bottom Side	707.5	21.57	22.00	1.104	0.004	0.004

LTE Band 17–Body SAR Test (Gap: 0mm)								
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	710	23.71	24.00	1.069	0.009	0.010
10.	QPSK 10MHz 1RB	Front Face	710	23.71	24.00	1.069	0.020	**0.021**
	QPSK 10MHz 1RB	Right Side	710	23.71	24.00	1.069	0.002	0.002
	QPSK 10MHz 1RB	Left Side	710	23.71	24.00	1.069	0.016	0.017
	QPSK 10MHz 1RB	Top Side	710	23.71	24.00	1.069	0.002	0.002
	QPSK 10MHz 1RB	Bottom Side	710	23.71	24.00	1.069	0.003	0.003
	QPSK 10MHz 50%RB	Back Face	710	23.58	24.00	1.102	0.007	0.008
	QPSK 10MHz 50%RB	Front Face	710	23.58	24.00	1.102	0.016	0.018
	QPSK 10MHz 50%RB	Right Side	710	23.58	24.00	1.102	0.002	0.002
	QPSK 10MHz 50%RB	Left Side	710	23.58	24.00	1.102	0.012	0.013
	QPSK 10MHz 50%RB	Top Side	710	23.58	24.00	1.102	0.002	0.002
	QPSK 10MHz 50%RB	Bottom Side	710	23.58	24.00	1.102	0.002	0.002

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.

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	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∝
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∝
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∝
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∝
System detection limits	E.2.5	1.0	R	√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	√3	1	1	1.73	1.73	∝
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∝
RF ambient Conditions – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
RF ambient Conditions - Reflections	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∝
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∝
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5	5.0	R	√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	√3	1	1	6.94	6.94	∝
SAR scaling	E6.5	0.0	R	√3	1	1	0.0	0.0	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	1.9	R	√3	1	0.84	1.10	0.90	∝

Liquid conductivity - deviation from target value	E.3.2	5.00	R	√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	√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	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∞
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	√3	1	1	0.58	0.58	∞
Modulation response	E.2.5	0	R	√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	√3	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∞
RF ambient Conditions – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	E.6.1	3.0	R	√3	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∞
Extrapolation, interpolation and	E.5.2	5.0	R	√3	1	1	2.89	2.89	∞

integration Algoritms for Max. SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	√3	1	1	0.58	0.58	N–1
Input power and SAR drift measurement	8,6.6.2	12.02	R	√3	1	1	6.94	6.94	∞
Deviation of experimental dipole from numerical dipole	E.6.4	5.5	R	√3	1	1	3.20	3.20	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	2.0	R	√3	1	0.84	1.10	1.10	∞
Liquid conductivity - deviation from target value	E.3.2	5.00	R	√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	√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

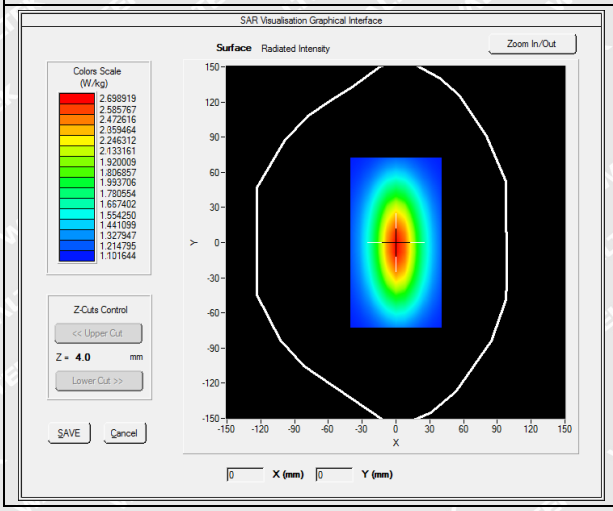
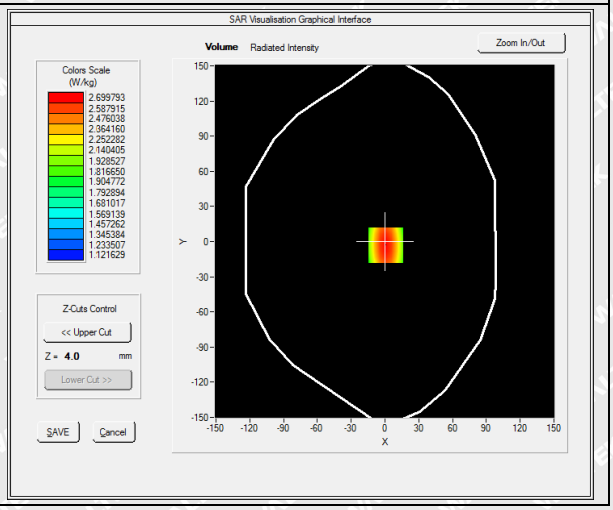
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 7 minutes 21 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	750.000000
Relative Permittivity (real part)	41.020574
Conductivity (S/m)	0.860583
Power Variation (%)	0.038363
Ambient Temperature	22.0
Liquid Temperature	22.2

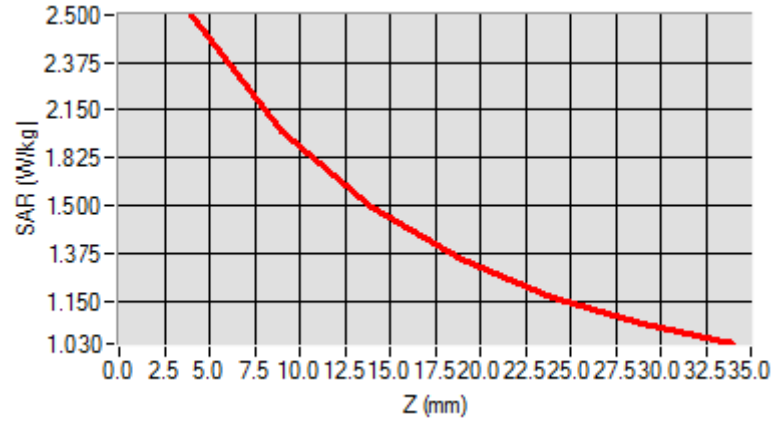
SURFACE SAR	VOLUME SAR
	

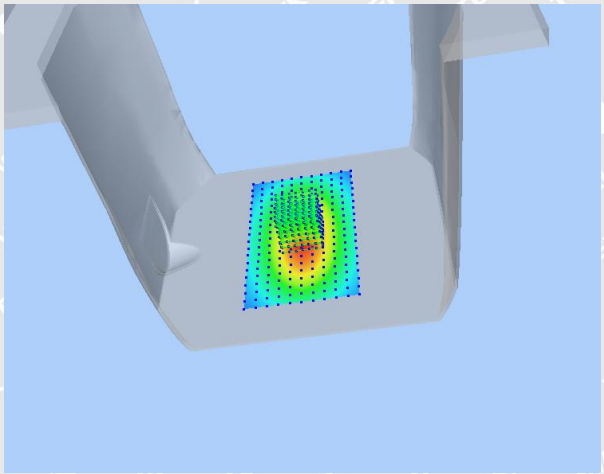
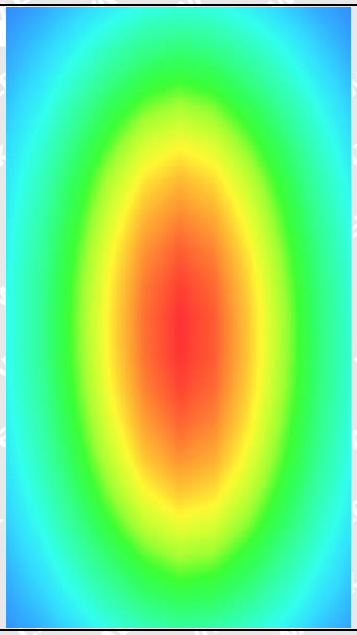
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.042744
SAR 1g (W/Kg)	2.180534

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.3634	1.8023	1.4523	1.2514	1.1005	1.0245



3D screen shot	Hot spot position
	

MEASUREMENT 2

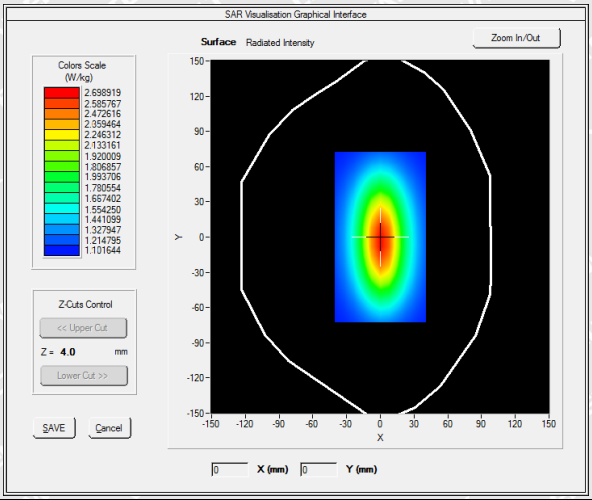
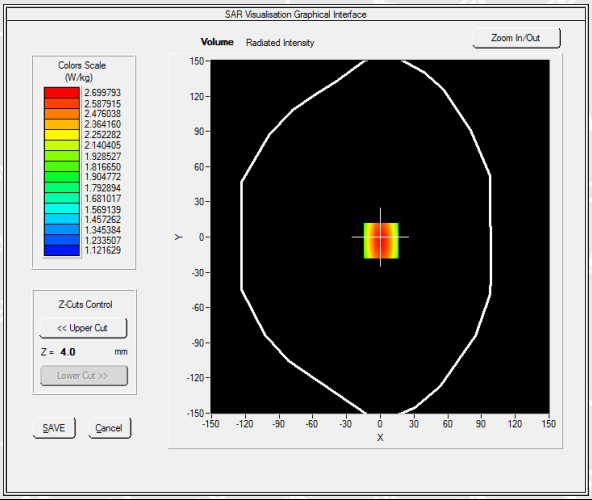
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 7 minutes 21 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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

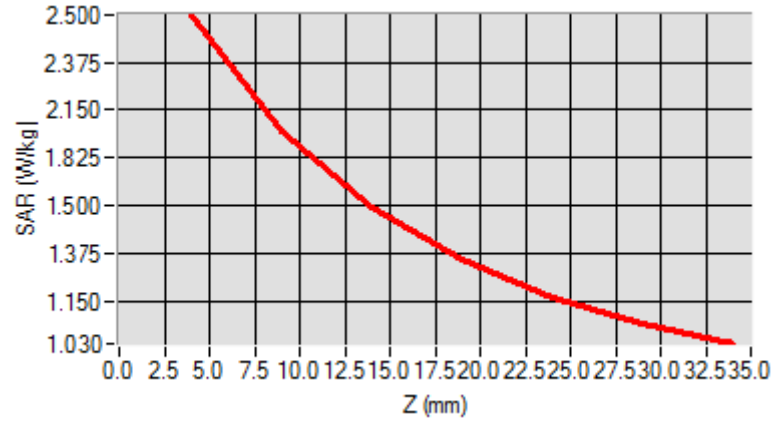
SURFACE SAR	VOLUME SAR
	

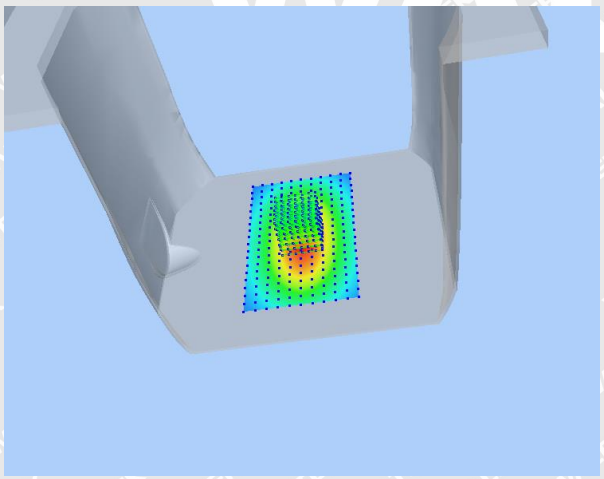
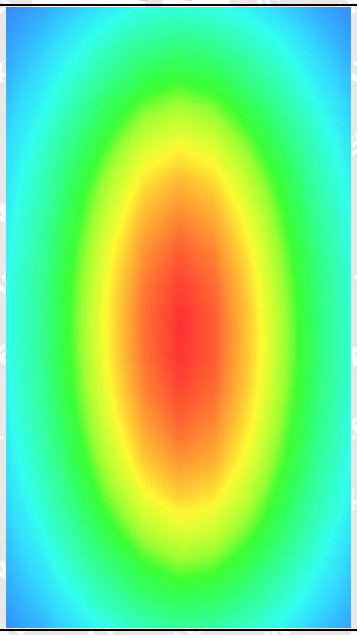
Maximum location: X=0.00, Y=0.00

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 3

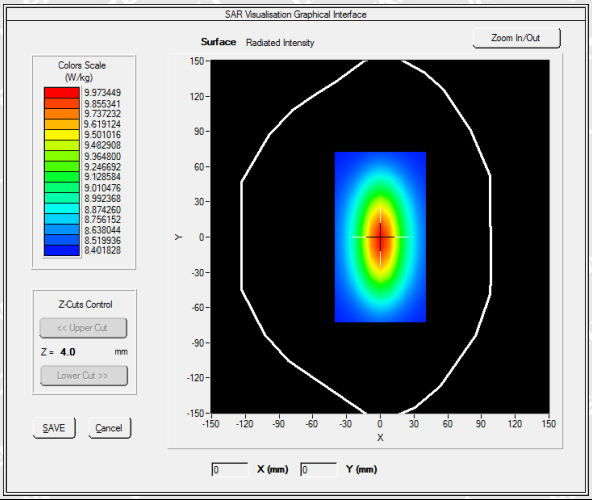
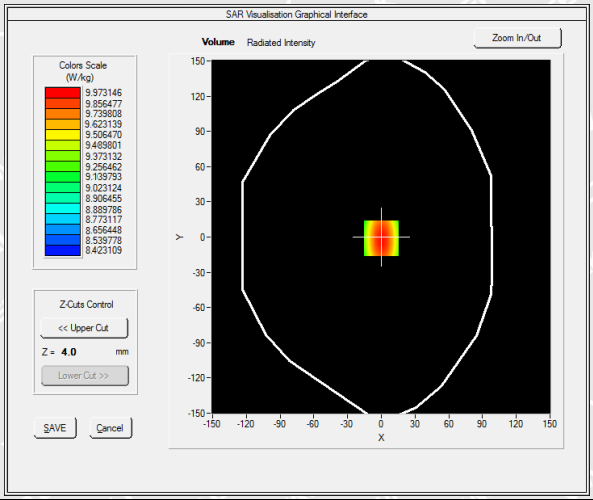
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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

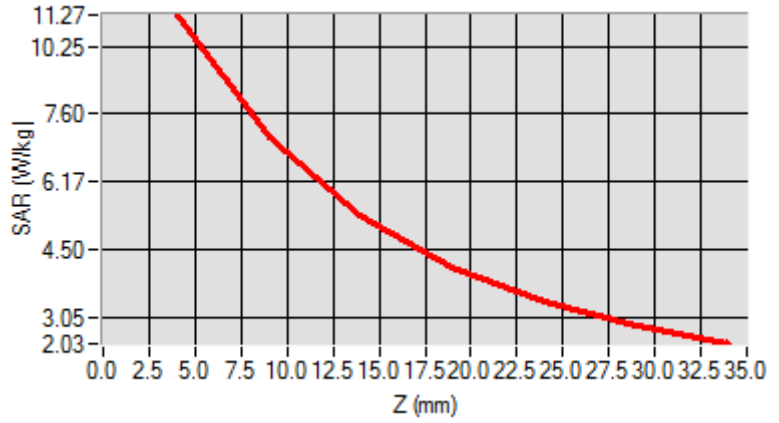
SURFACE SAR	VOLUME SAR
	

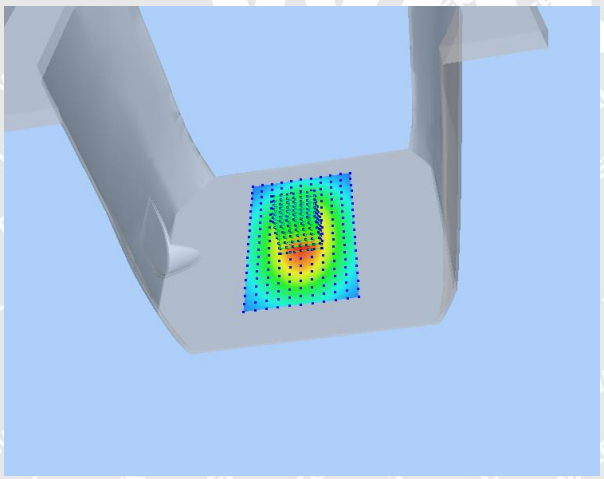
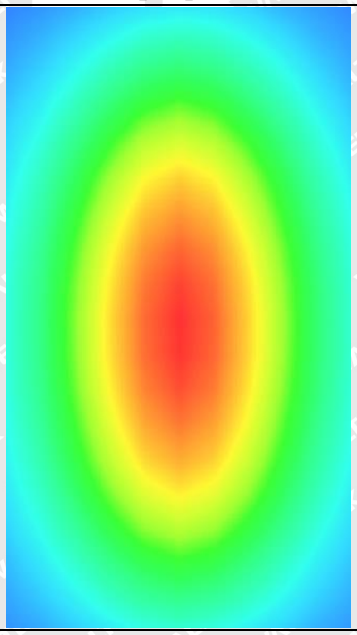
Maximum location: X=0.00, Y=0.00

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 4

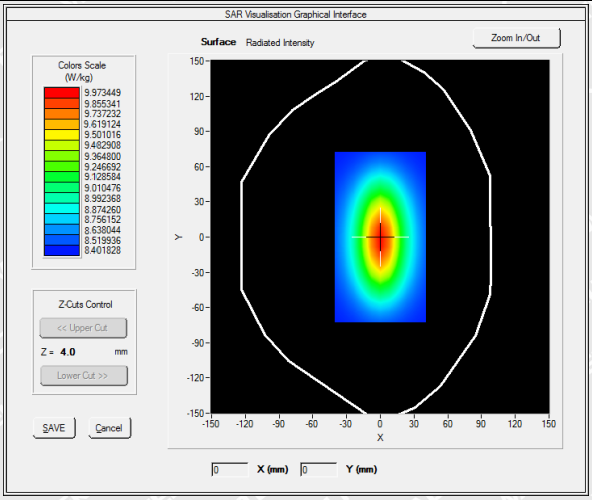
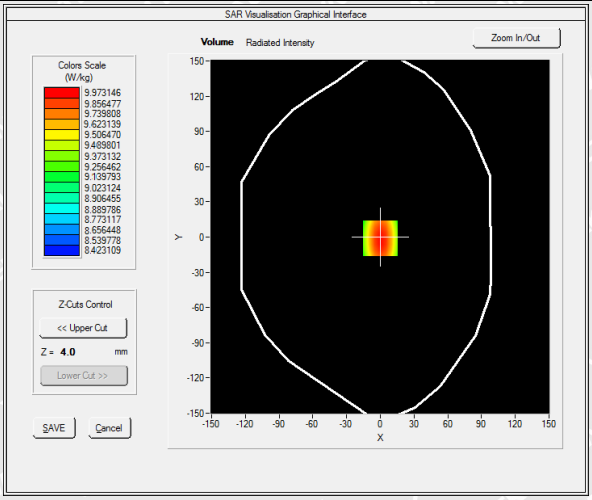
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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

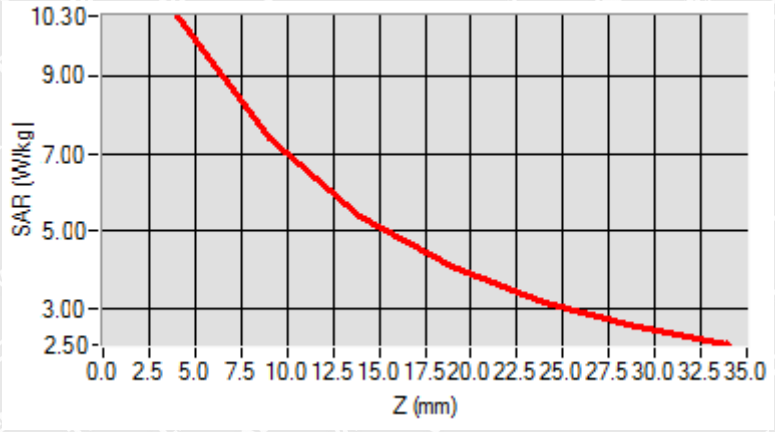
SURFACE SAR	VOLUME SAR
	

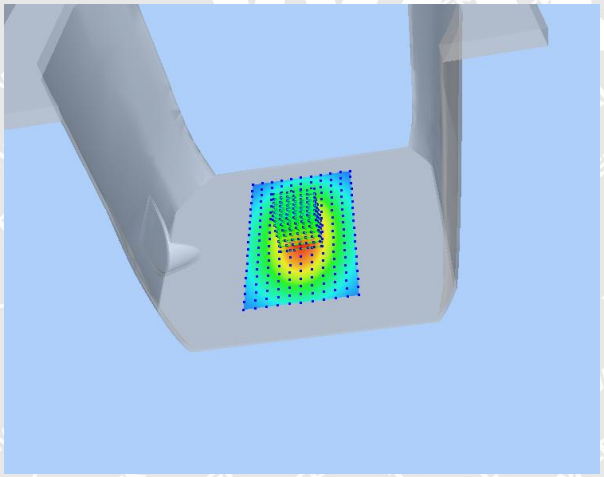
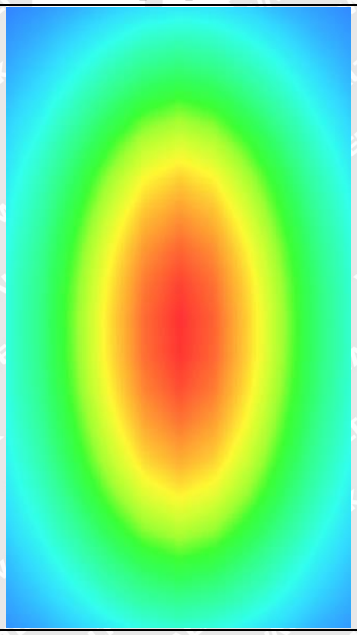
Maximum location: X=0.00, Y=0.00

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
	

MEASUREMENT 5

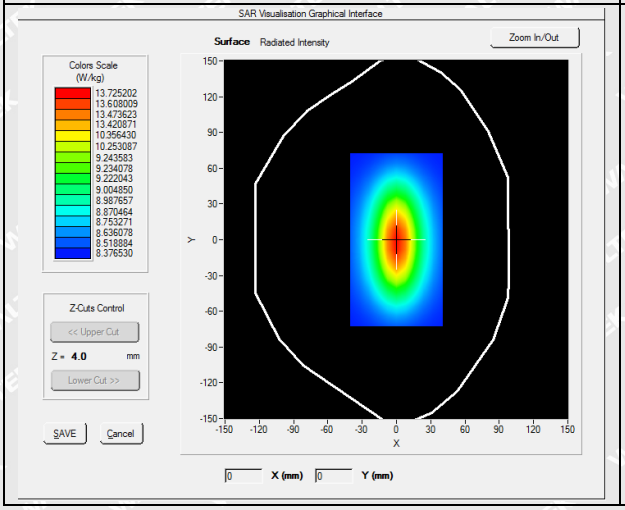
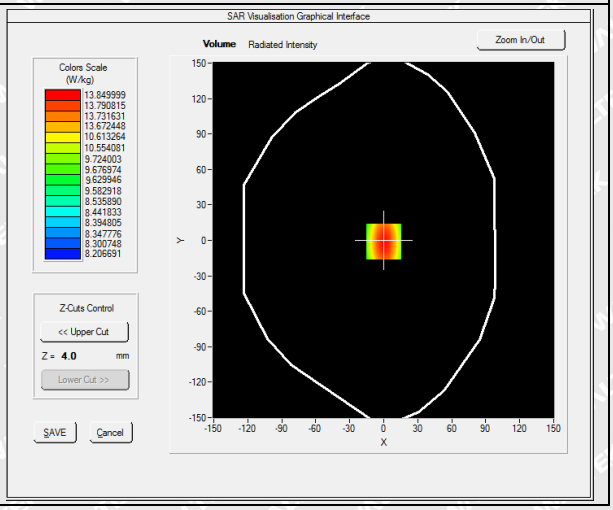
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	37.934092
Conductivity (S/m)	1.973182
Power Variation (%)	0.886021
Ambient Temperature	22.0
Liquid Temperature	22.2

SURFACE SAR	VOLUME SAR
	

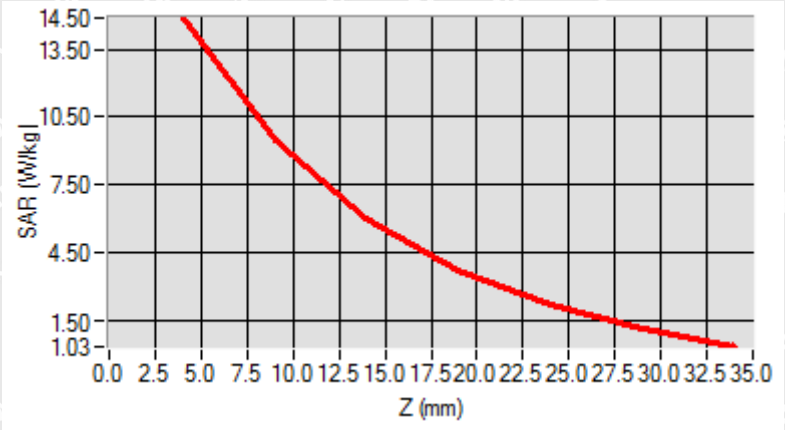
Maximum location: X=0.00, Y=0.00

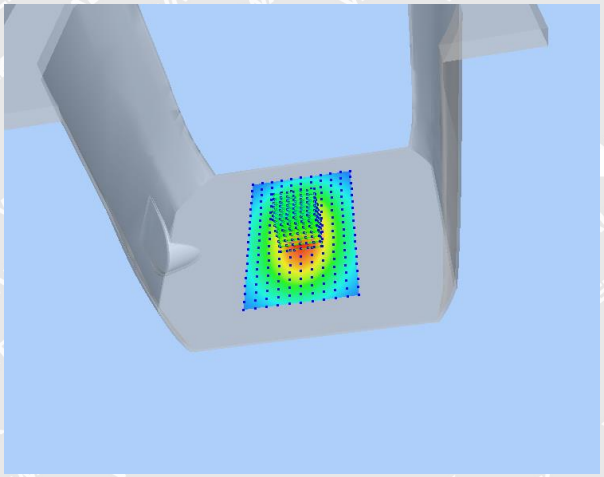
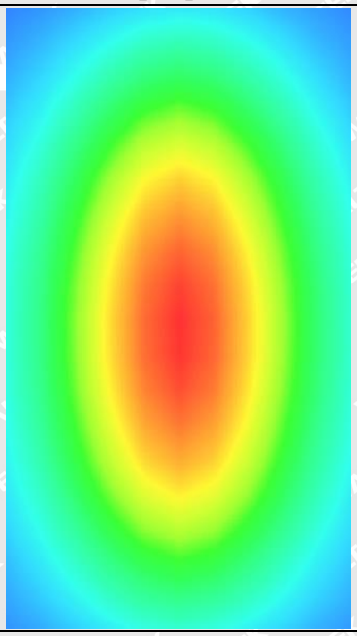
SAR 10g (W/Kg)	**8.230801**

SAR 1g (W/Kg)	13.539282

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	14.0426	12.1354	10.2965	7.4854	5.9354	4.5186



3D screen shot	Hot spot position
	

Annex B. Plots of SAR Measurement

MEASUREMENT 1

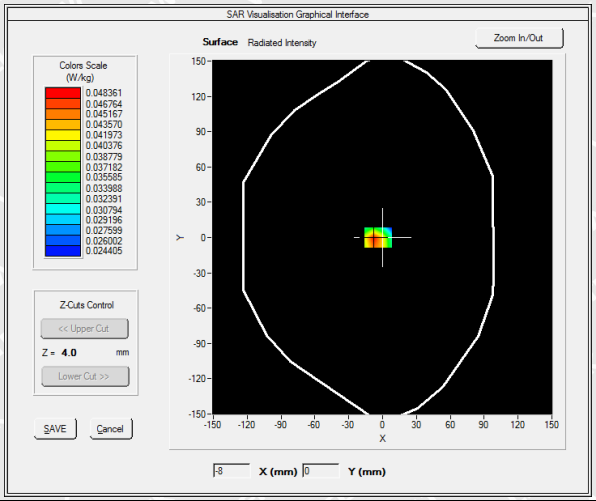
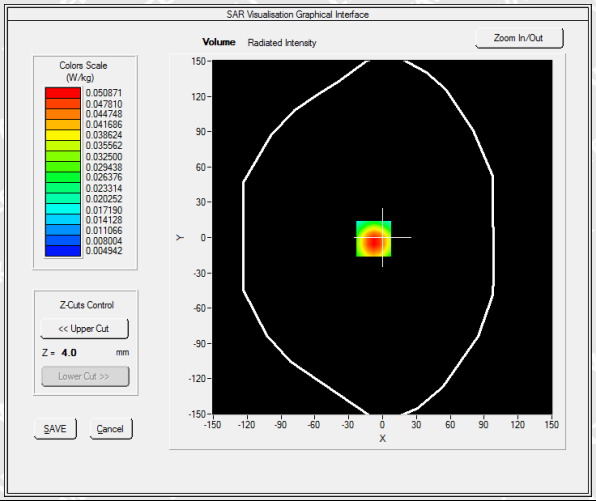
Type: Phone measurement (Complete)
Date of measurement: 2021-07-23
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	GPRS900_4TX
Channels	Middle
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	836.600000
Relative Permittivity (real part)	40.820245
Conductivity (S/m)	0.871245
Power Variation (%)	1.074536
Ambient Temperature	22.0
Liquid Temperature	22.2

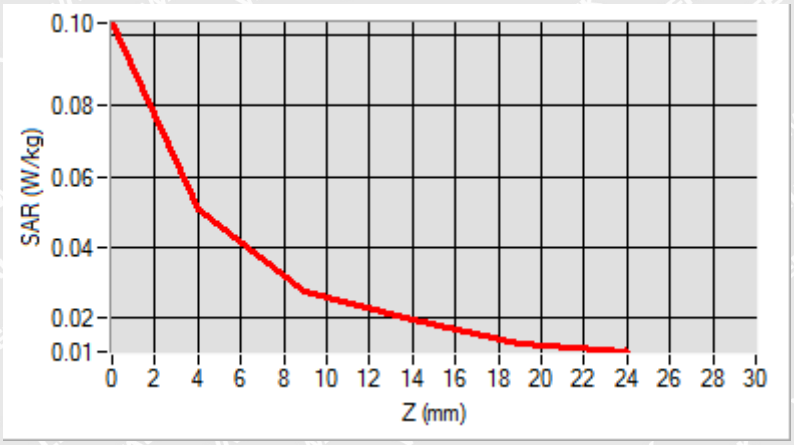
SURFACE SAR	VOLUME SAR
	

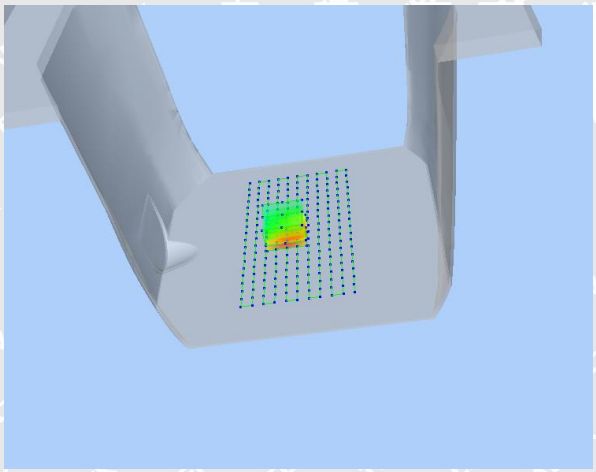
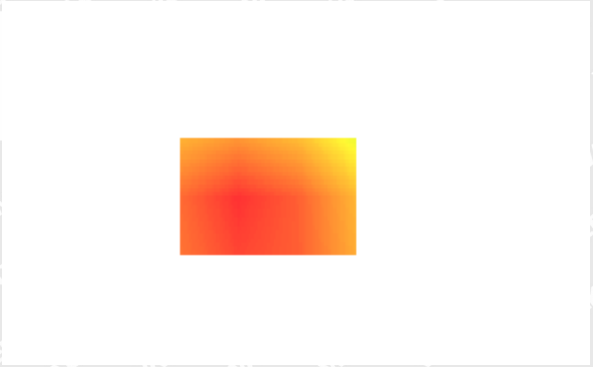
Maximum location: X=-8.00, Y=-1.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.030631
SAR 1g (W/Kg)	0.049267

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1034	0.0509	0.0273	0.0197	0.0128



3D screen shot	Hot spot position
	

MEASUREMENT 2

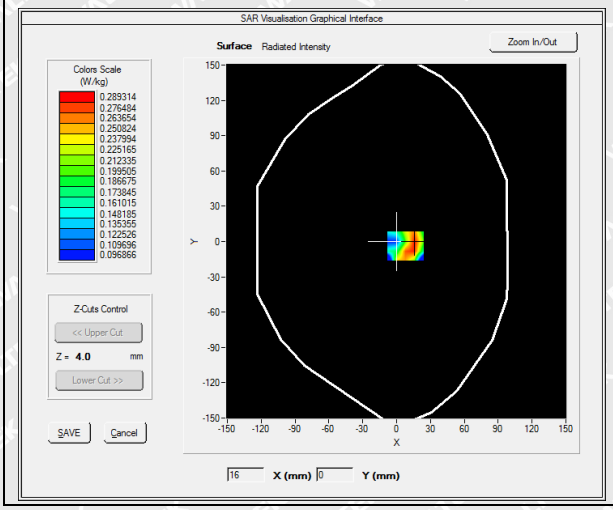
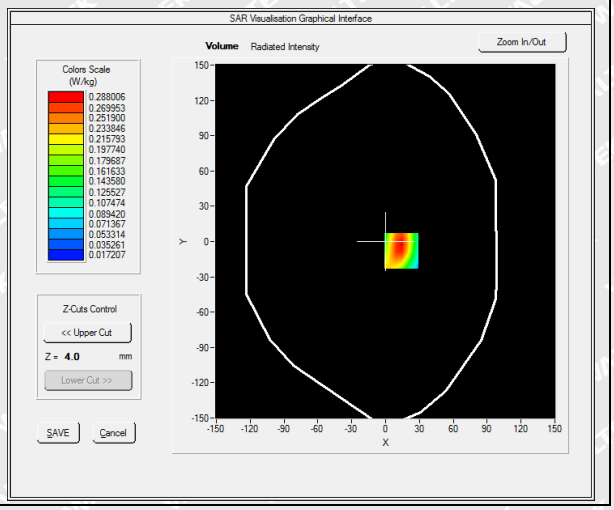
Type: Phone measurement (Complete)
Date of measurement: 2021-07-24
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Flat Plane
Device Position	Front
Band	GPRS1800_4TX
Channels	Low
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	1850.200000
Relative Permittivity (real part)	39.260124
Conductivity (S/m)	1.385369
Power Variation (%)	-0.150000
Ambient Temperature	22.0
Liquid Temperature	22.2

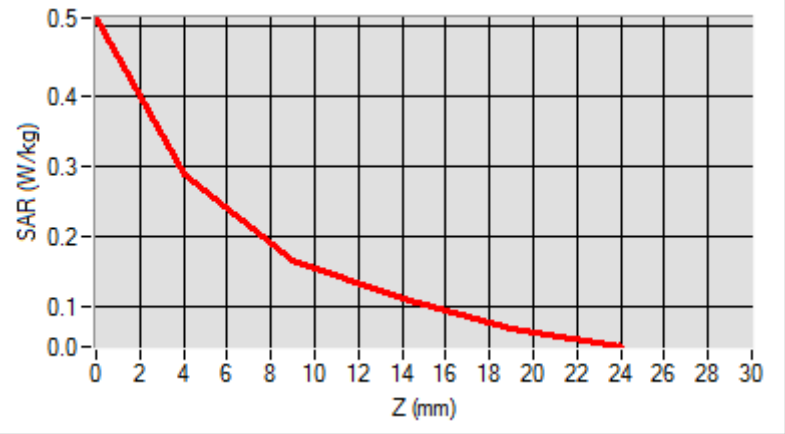
SURFACE SAR	VOLUME SAR
	

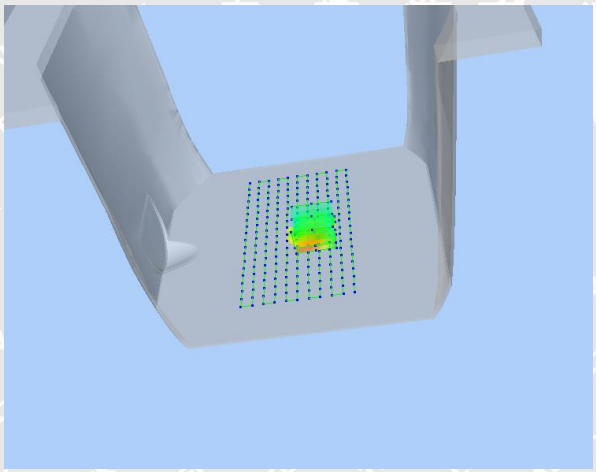
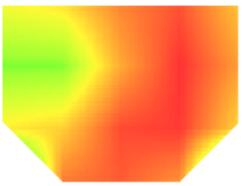
Maximum location: X=14.00, Y=-8.00

SAR Peak: 0.42 W/kg

SAR 10g (W/Kg)	**0.155441**
SAR 1g (W/Kg)	**0.267735**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.5111**	**0.2880**	**0.1646**	**0.1098**	**0.0679**



3D screen shot	**Hot spot position**
	

MEASUREMENT 3

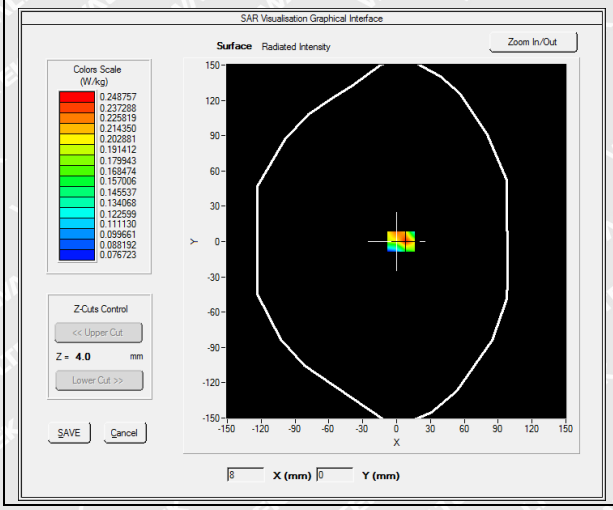
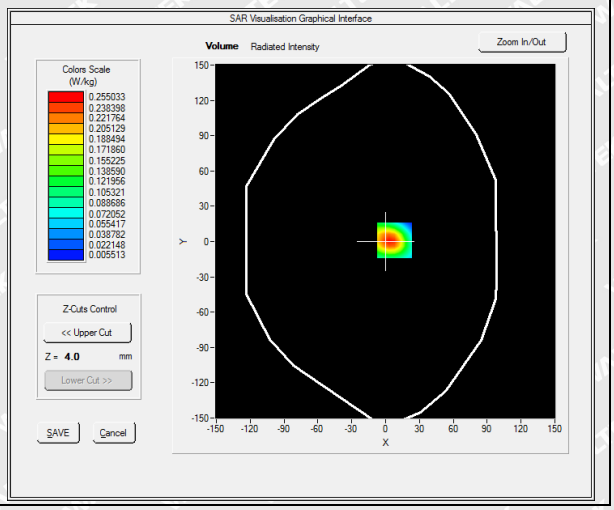
Type: Phone measurement (Complete)
Date of measurement: 2021-07-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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)	39.060124
Conductivity (S/m)	1.393607
Power Variation (%)	0.820000
Ambient Temperature	22.0
Liquid Temperature	22.2

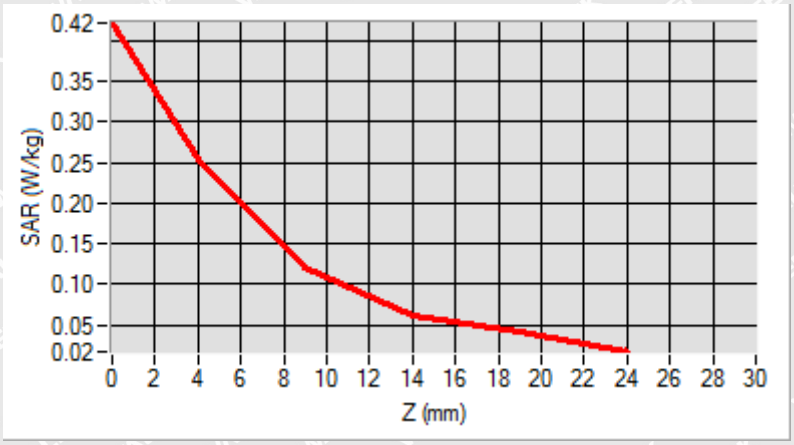
SURFACE SAR	VOLUME SAR
	

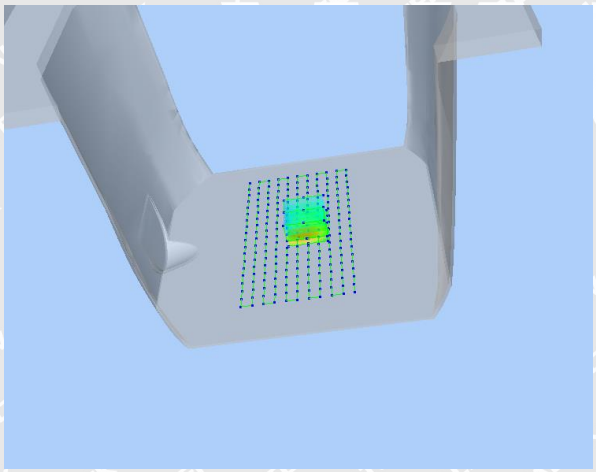
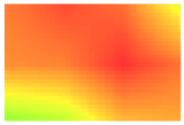
Maximum location: X=8.00, Y=1.00

SAR Peak: 0.44 W/kg

SAR 10g (W/Kg)	0.118912
SAR 1g (W/Kg)	0.235994

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4220	0.2550	0.1212	0.0603	0.0422



3D screen shot	Hot spot position
	

MEASUREMENT 4

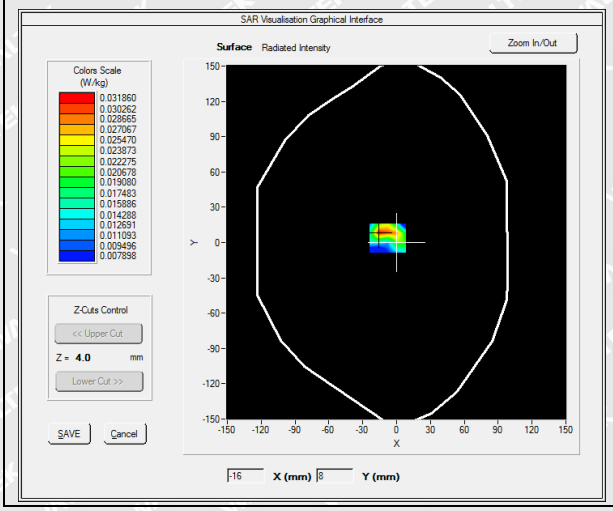
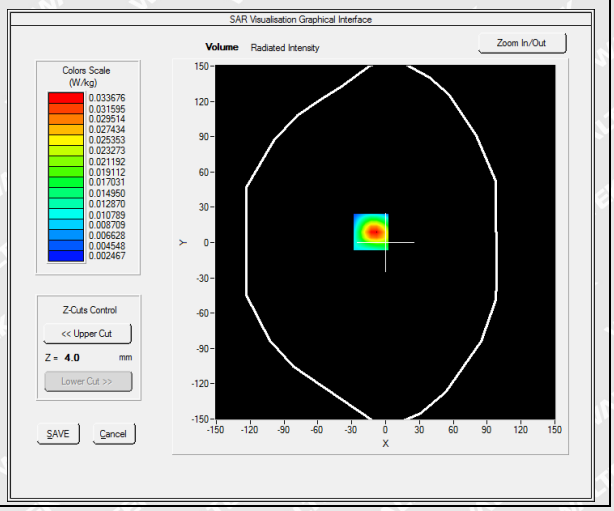
Type: Phone measurement (Complete)
Date of measurement: 2021-07-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	846.600000
Relative Permittivity (real part)	40.132275
Conductivity (S/m)	1.350987
Power Variation (%)	-1.200000
Ambient Temperature	22.0
Liquid Temperature	22.2

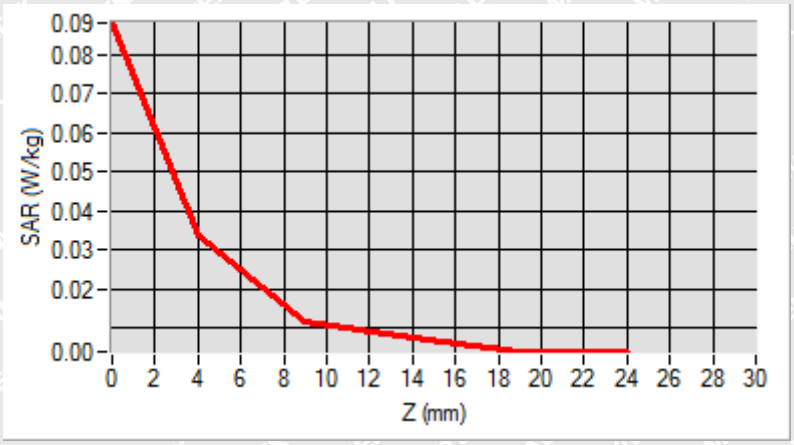
SURFACE SAR	VOLUME SAR
	

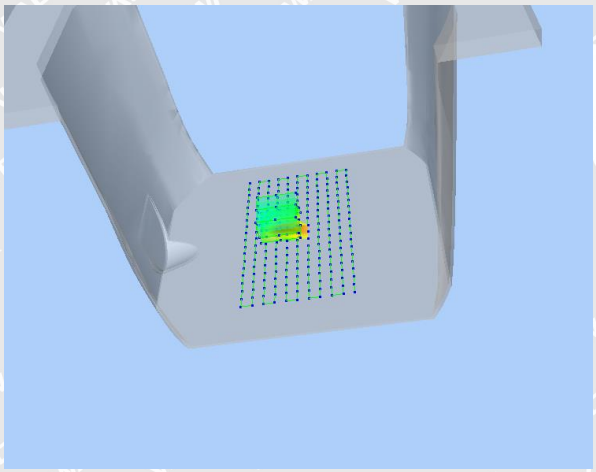
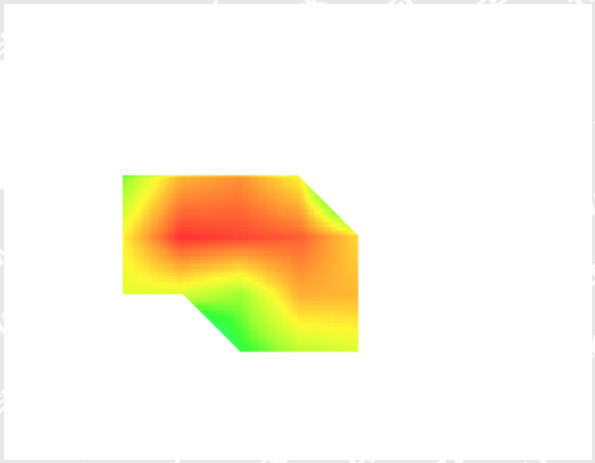
Maximum location: X=-13.00, Y=9.00

SAR Peak: 0.06 W/kg

SAR 10g (W/Kg)	**0.015089**
SAR 1g (W/Kg)	**0.031296**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0881**	**0.0337**	**0.0117**	**0.0075**	**0.0038**



3D screen shot	**Hot spot position**
	

MEASUREMENT 5

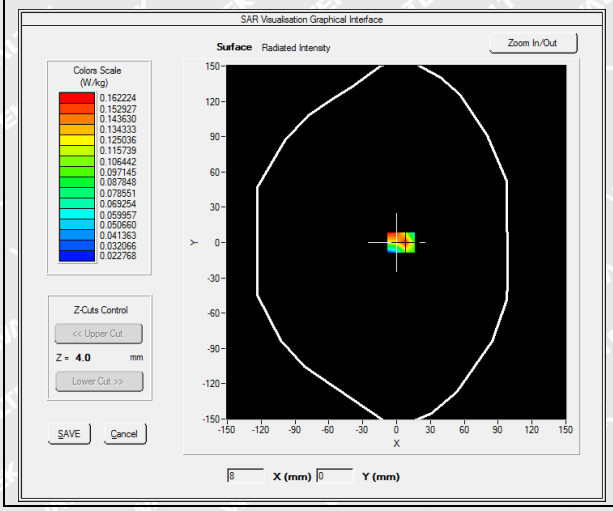
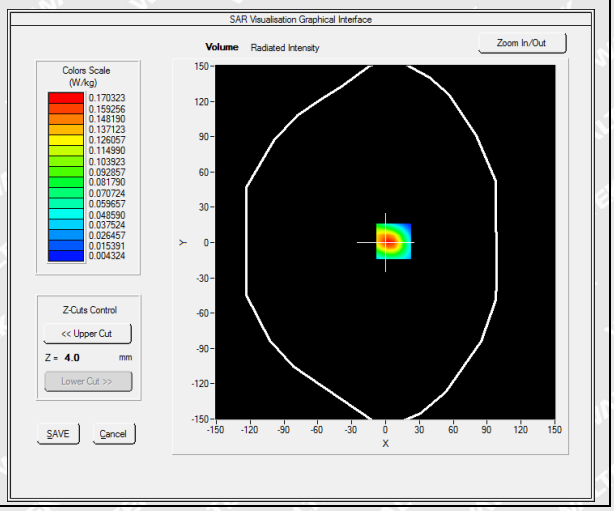
Type: Phone measurement (Complete)
Date of measurement: 2021-07-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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,Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1860.000000
Relative Permittivity (real part)	39.260124
Conductivity (S/m)	1.385369
Power Variation (%)	-1.340000
Ambient Temperature	22.0
Liquid Temperature	22.2

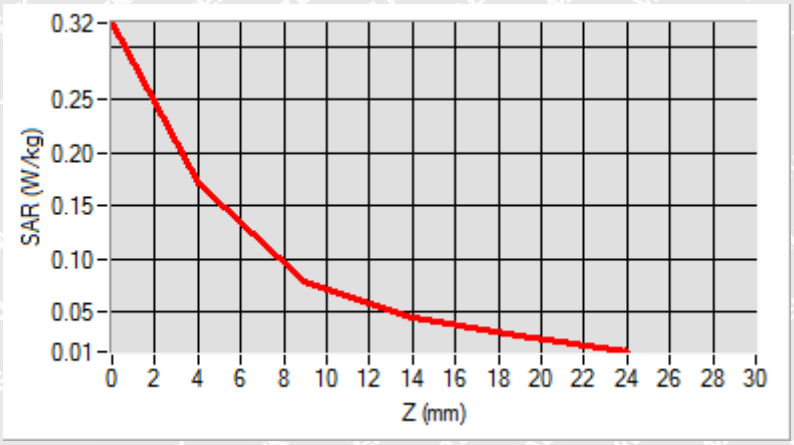
SURFACE SAR	VOLUME SAR
	

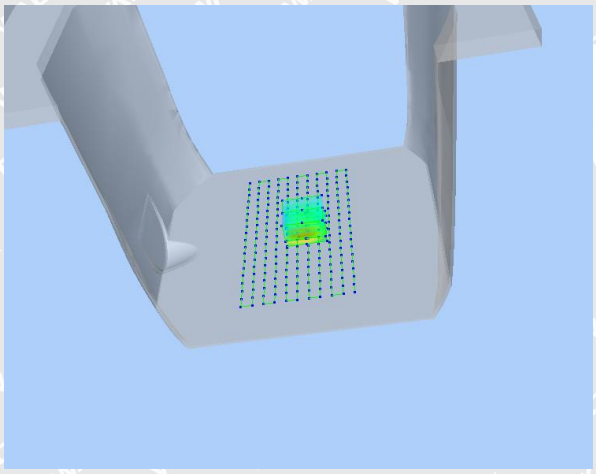
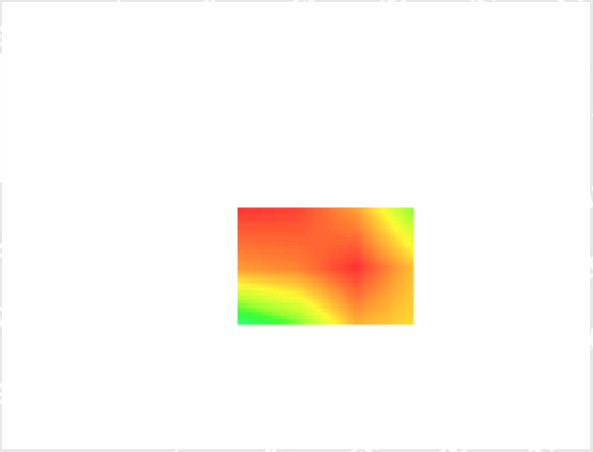
Maximum location: X=7.00, Y=1.00

SAR Peak: 0.29 W/kg

SAR 10g (W/Kg)	**0.076762**
SAR 1g (W/Kg)	**0.155326**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.3223**	**0.1703**	**0.0785**	**0.0436**	**0.0279**



3D screen shot	**Hot spot position**
	

MEASUREMENT 6

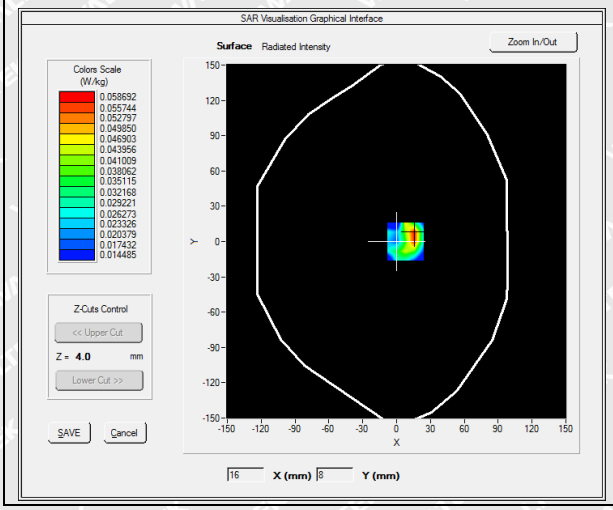
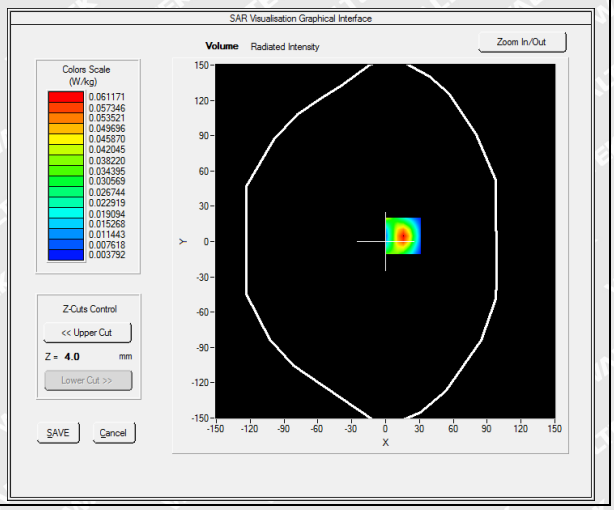
Type: Phone measurement (Complete)
Date of measurement: 2021-07-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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 4
Channels	QPSK 20MHz 50%RB,Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1720.000000
Relative Permittivity (real part)	40.132275
Conductivity (S/m)	1.350987
Power Variation (%)	0.080000
Ambient Temperature	22.0
Liquid Temperature	22.2

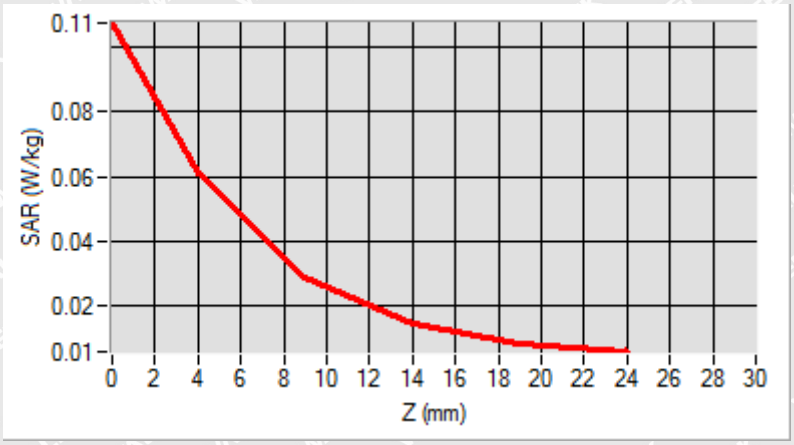
SURFACE SAR	VOLUME SAR
	

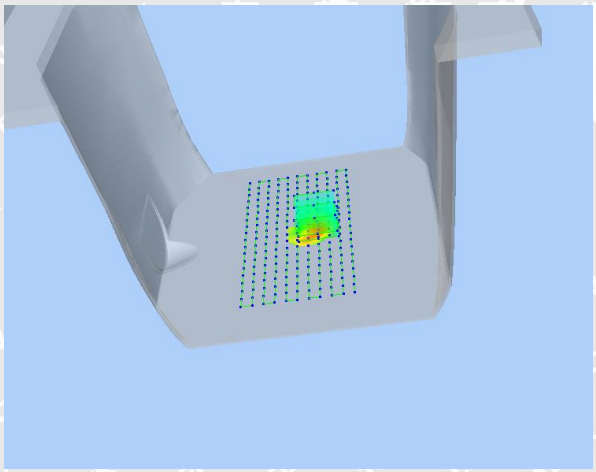
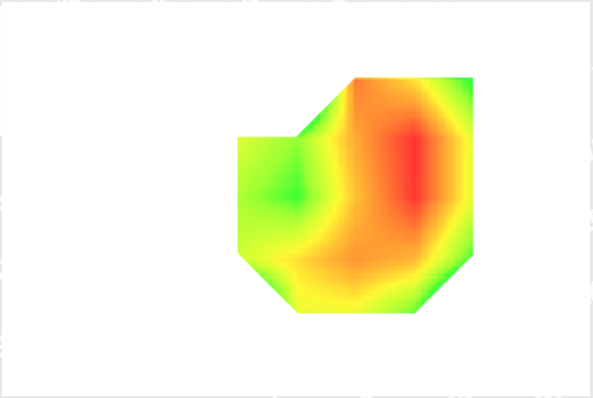
Maximum location: X=16.00, Y=5.00

SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)	0.025344
SAR 1g (W/Kg)	0.053972

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1076	0.0612	0.0289	0.0142	0.0083



3D screen shot	Hot spot position
	

MEASUREMENT 7

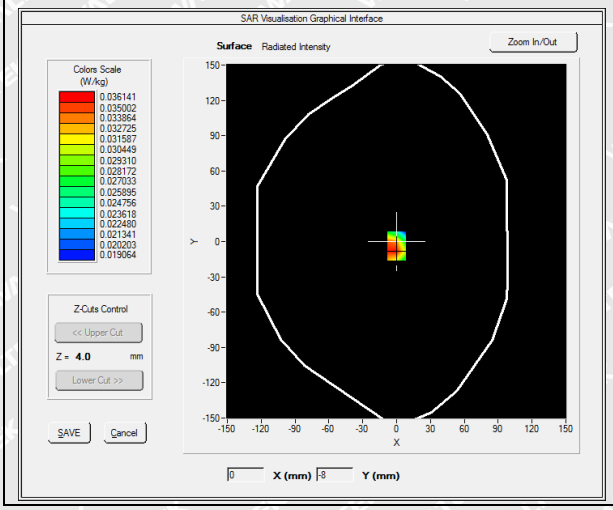
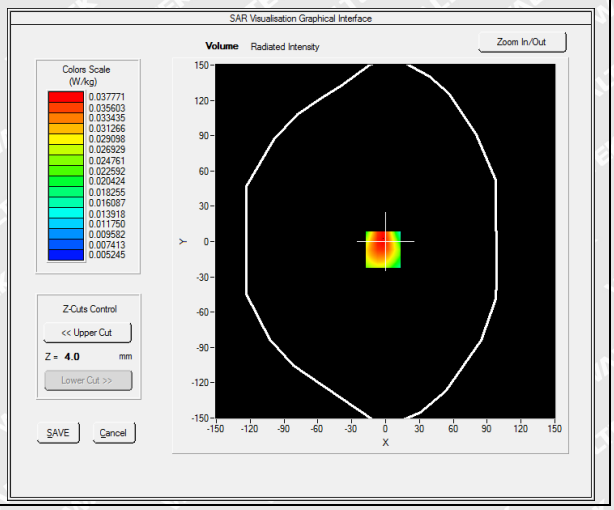
Type: Phone measurement (Complete)
Date of measurement: 2021-07-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	849.000000
Relative Permittivity (real part)	40.750245
Conductivity (S/m)	0.881245
Power Variation (%)	-0.870000
Ambient Temperature	22.0
Liquid Temperature	22.2

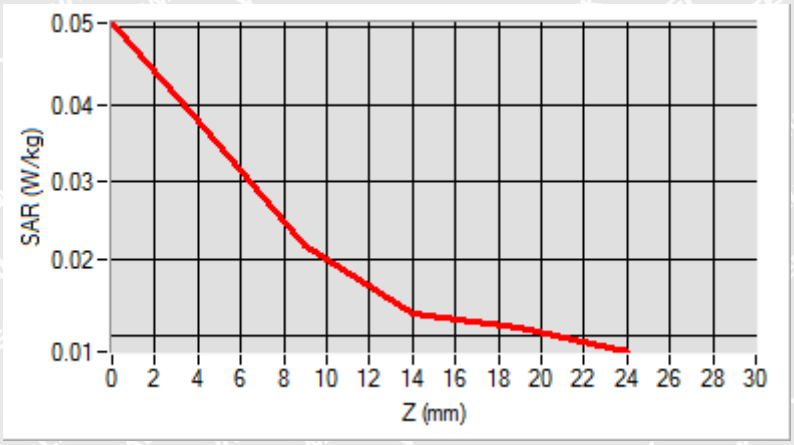
SURFACE SAR	VOLUME SAR
	

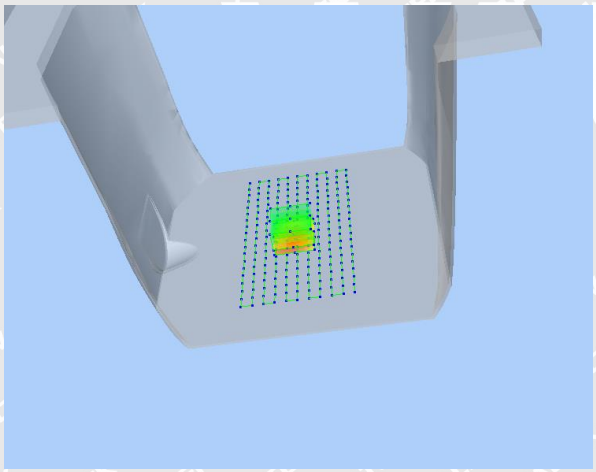
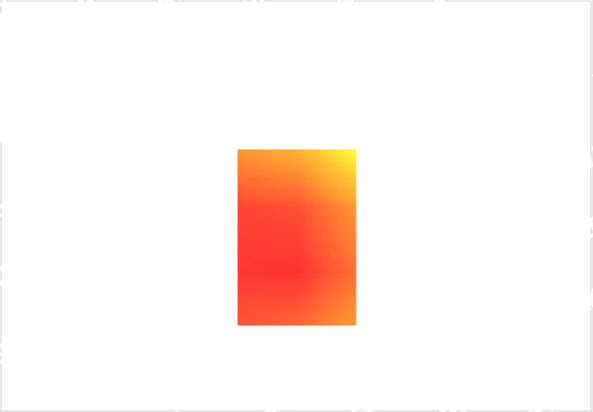
Maximum location: X=-2.00, Y=-7.00

SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	**0.022944**
SAR 1g (W/Kg)	**0.037247**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0506**	**0.0378**	**0.0217**	**0.0129**	**0.0113**



3D screen shot	**Hot spot position**
	

MEASUREMENT 8

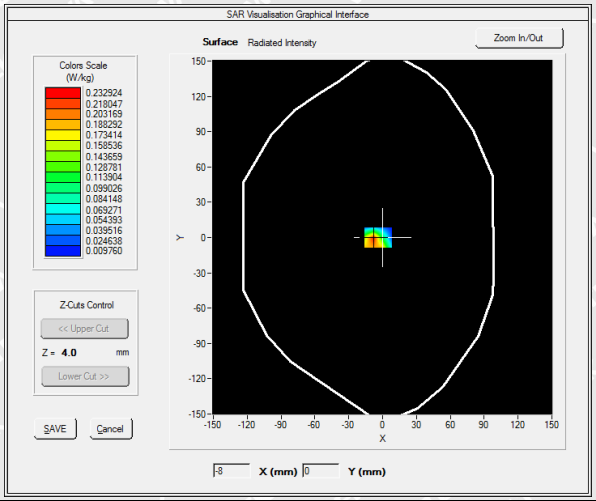
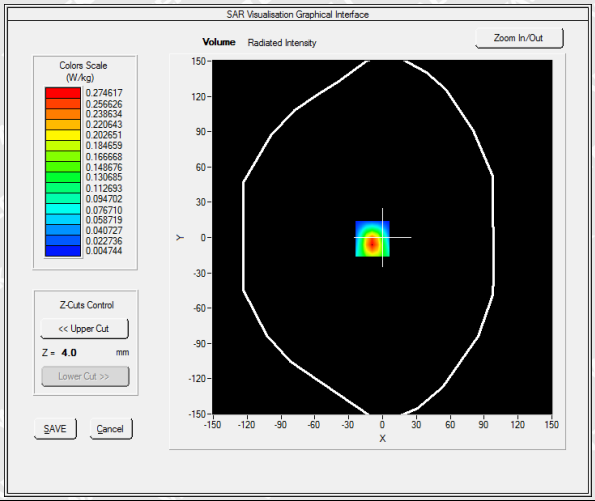
Type: Phone measurement (Complete)
Date of measurement: 2021-07-25
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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 7
Channels	QPSK, 20MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2510.000000
Relative Permittivity (real part)	38.256667
Conductivity (S/m)	1.920182
Power Variation (%)	-0.700000
Ambient Temperature	22.0
Liquid Temperature	22.2

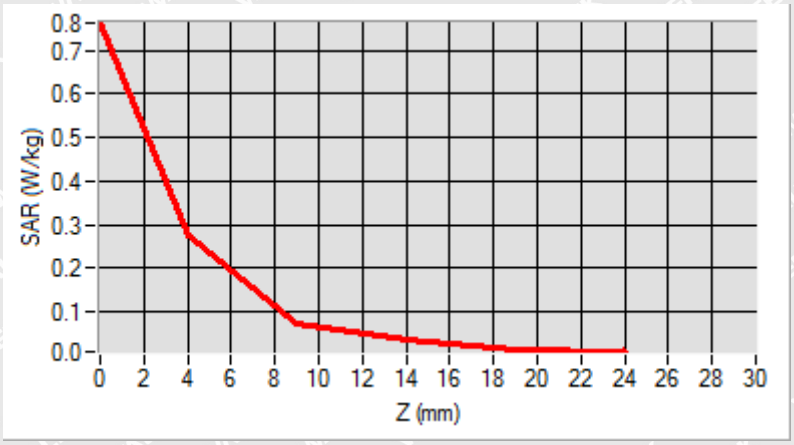
SURFACE SAR	VOLUME SAR
	

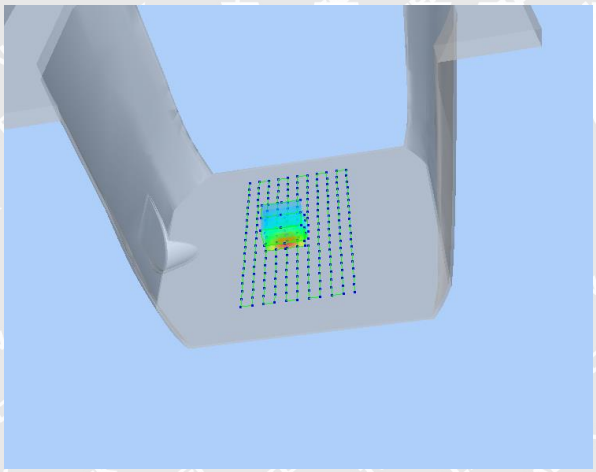
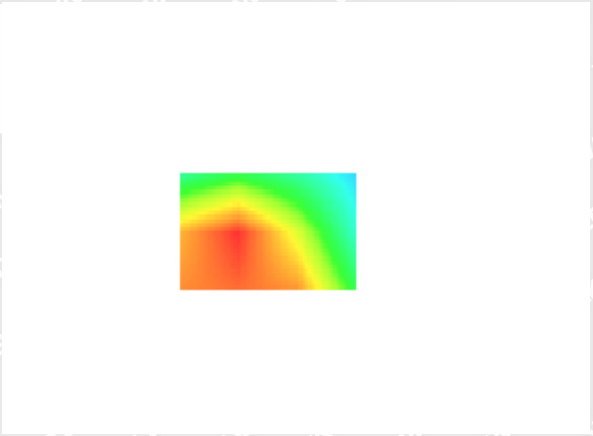
Maximum location: X=-9.00, Y=-1.00

SAR Peak: 0.56 W/kg

SAR 10g (W/Kg)	**0.099176**
SAR 1g (W/Kg)	**0.246911**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.7628**	**0.2746**	**0.0707**	**0.0347**	**0.0126**



3D screen shot	**Hot spot position**
	

MEASUREMENT 9

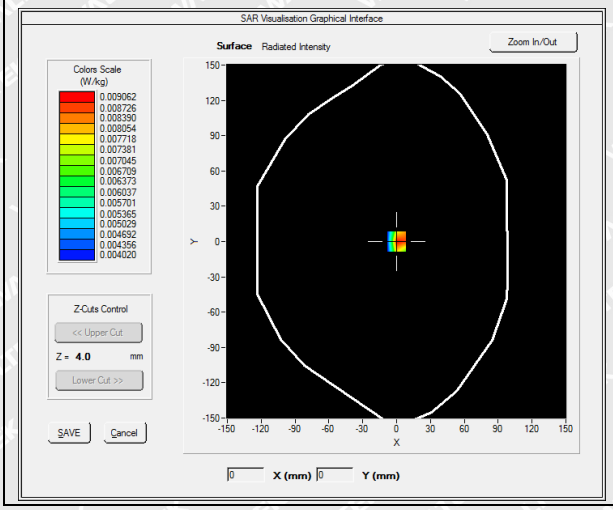
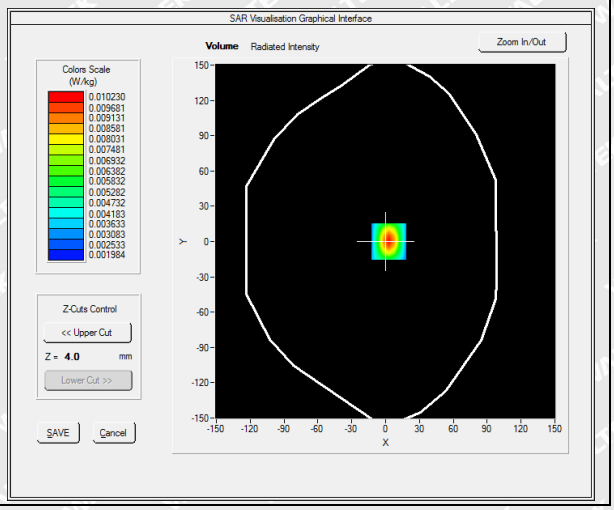
Type: Phone measurement (Complete)
Date of measurement: 2021-07-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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 12
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	707.500000
Relative Permittivity (real part)	41.218668
Conductivity (S/m)	0.853696
Power Variation (%)	-1.050000
Ambient Temperature	22.0
Liquid Temperature	22.2

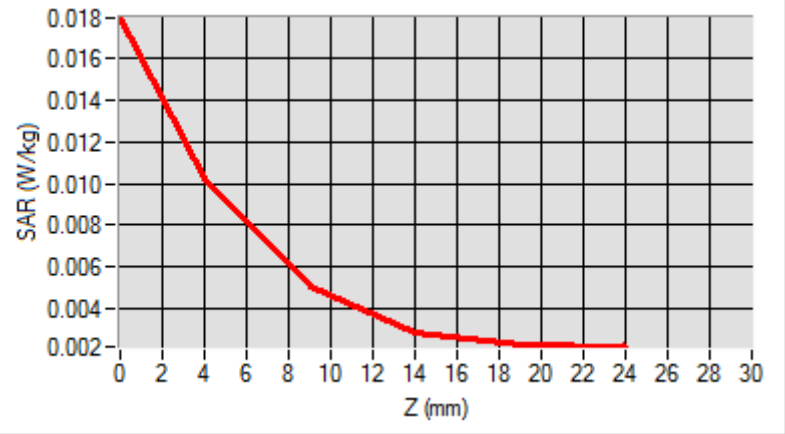
SURFACE SAR	VOLUME SAR
	

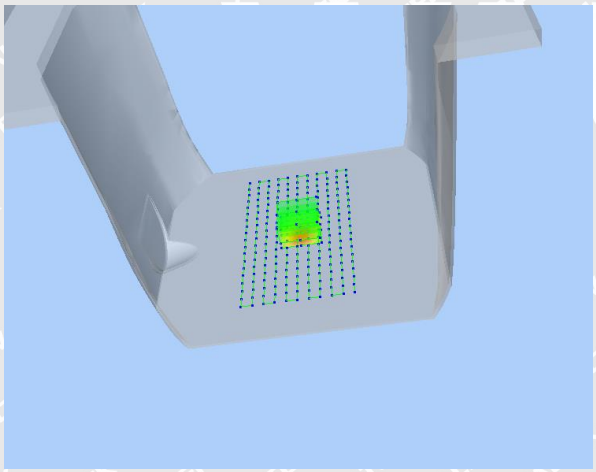
Maximum location: X=3.00, Y=0.00

SAR Peak: 0.02 W/kg

SAR 10g (W/Kg)	0.005050
SAR 1g (W/Kg)	0.009495

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0179	0.0102	0.0050	0.0029	0.0022



3D screen shot	Hot spot position
	

MEASUREMENT 10

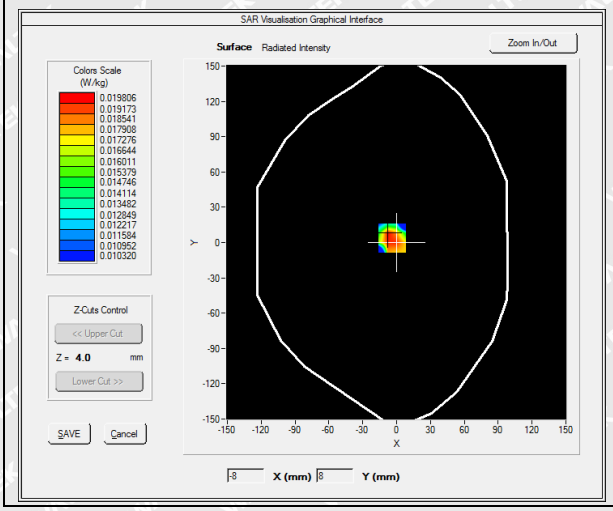
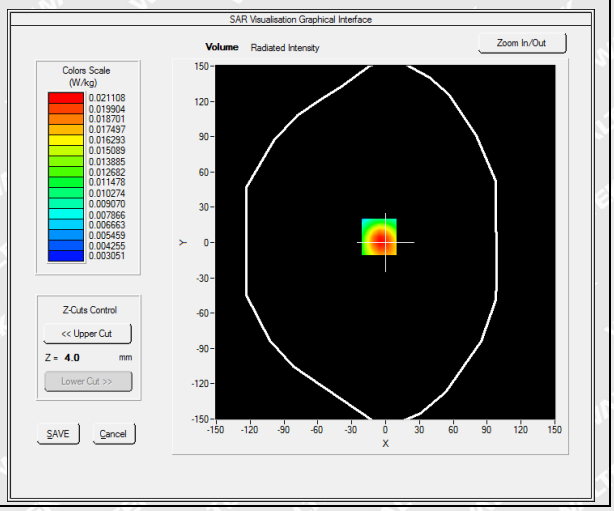
Type: Phone measurement (Complete)
Date of measurement: 2021-07-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: Refer to the Calibration Certificate; Calibrated: 2020-07-03

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 17
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	710.000000
Relative Permittivity (real part)	41.218668
Conductivity (S/m)	0.853696
Power Variation (%)	-1.050000
Ambient Temperature	22.0
Liquid Temperature	22.2

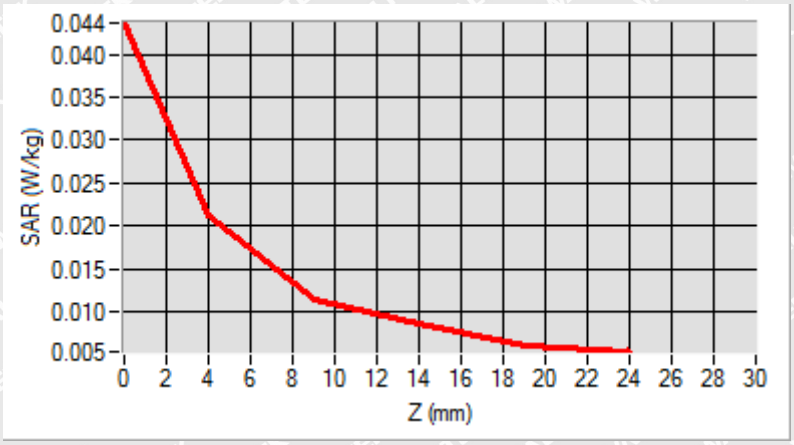
SURFACE SAR	VOLUME SAR
	

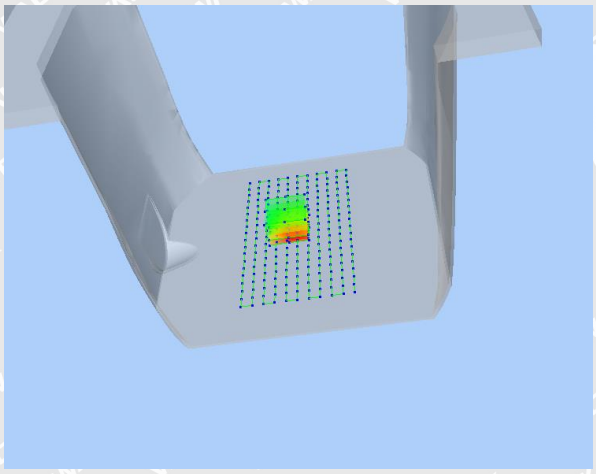
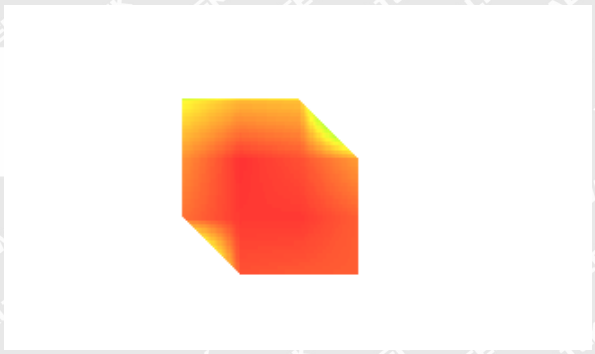
Maximum location: X=-6.00, Y=5.00

SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.012775
SAR 1g (W/Kg)	0.020426

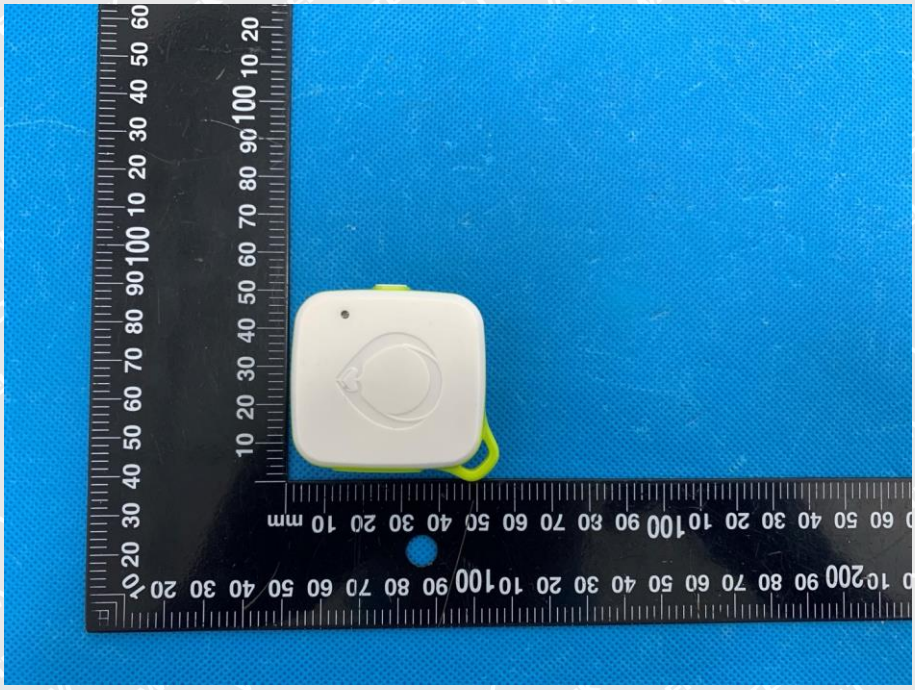
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0437	0.0211	0.0115	0.0087	0.0060



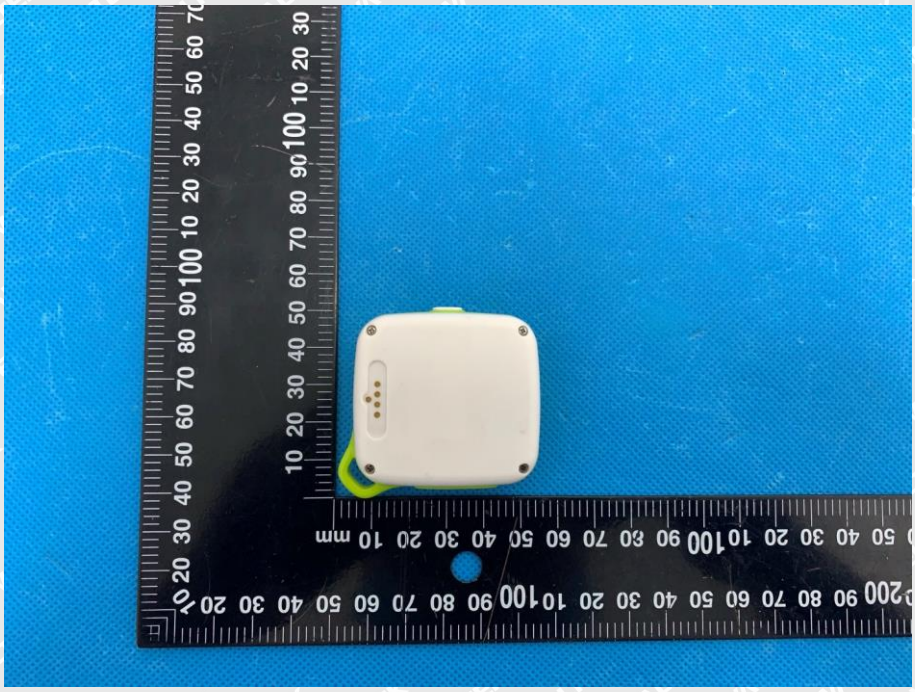
3D screen shot	Hot spot position
	

Annex C. EUT Photos

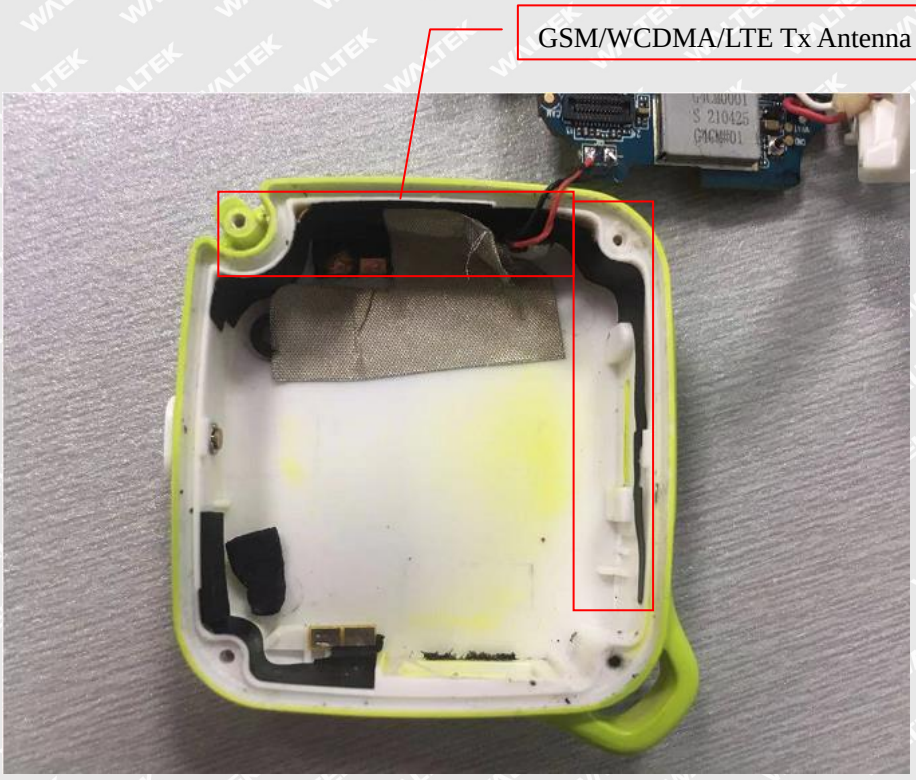
EUT View Front



EUT View Back



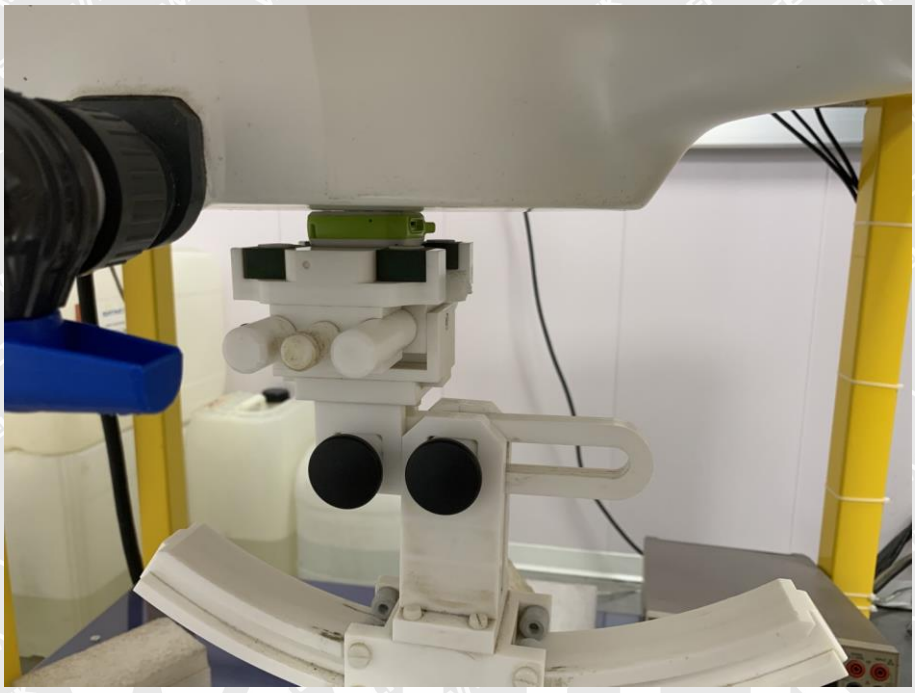
Antenna View



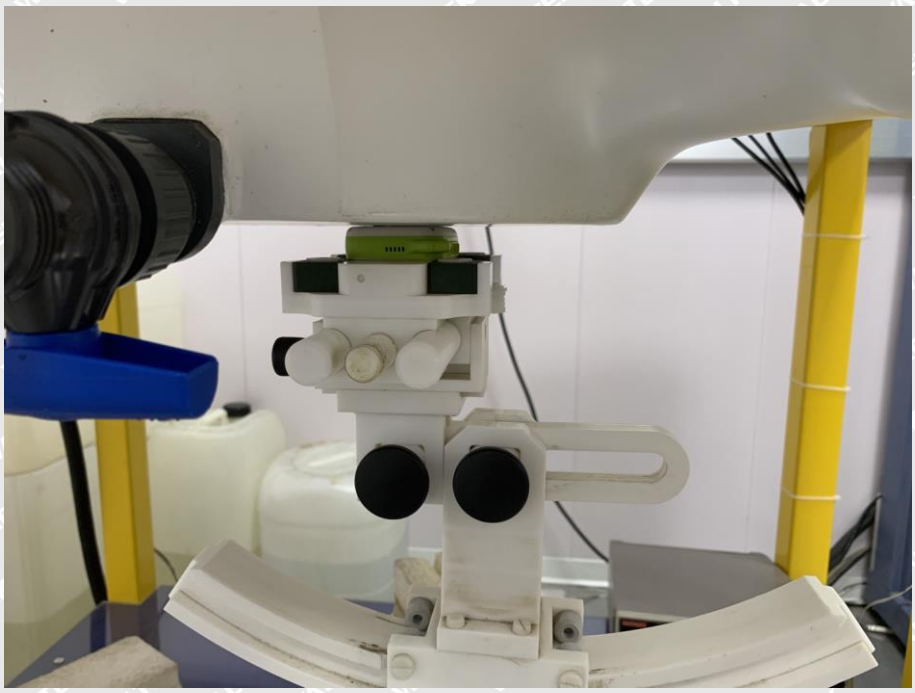
Annex D. Test Setup Photos

Body mode Exposure Conditions
Test distance: 0mm

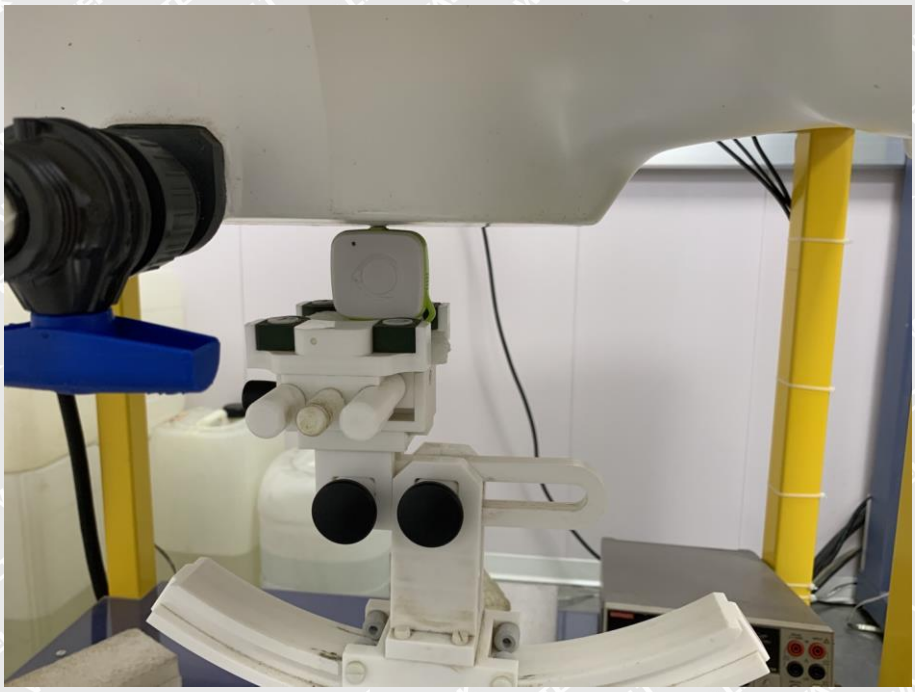
Body Front



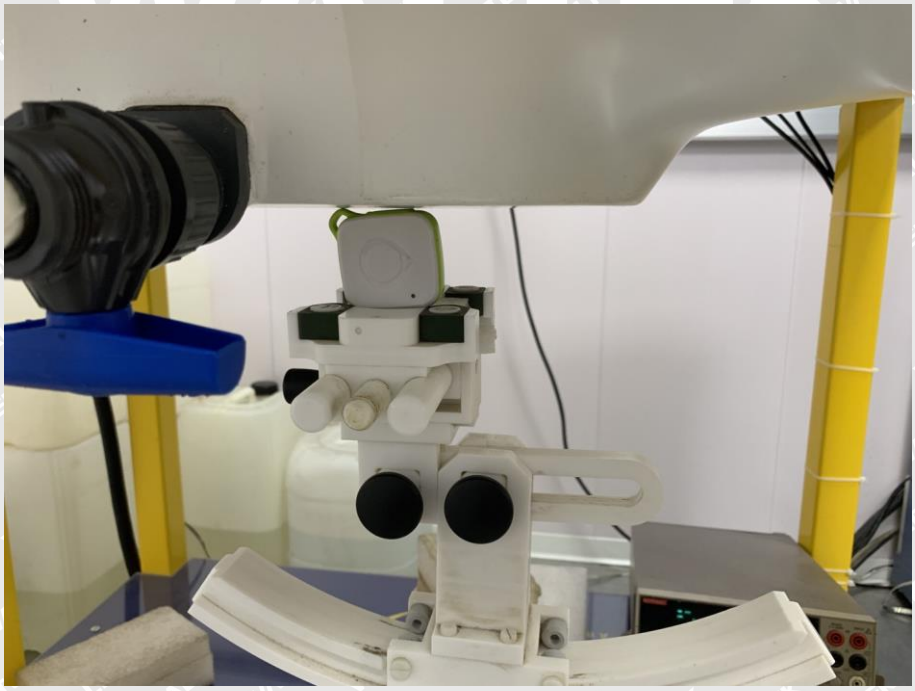
Body Back



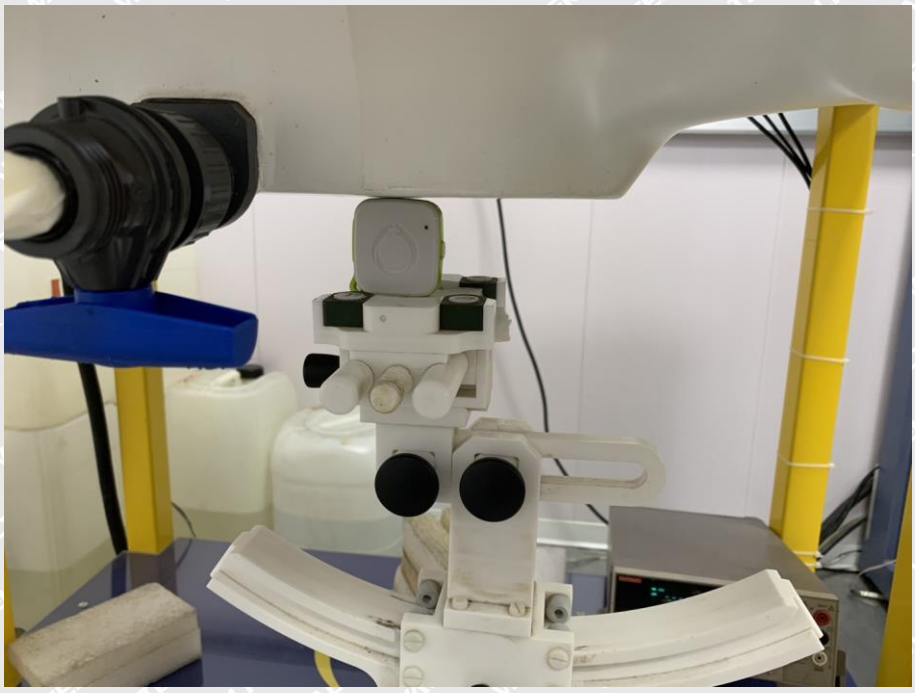
Body Right



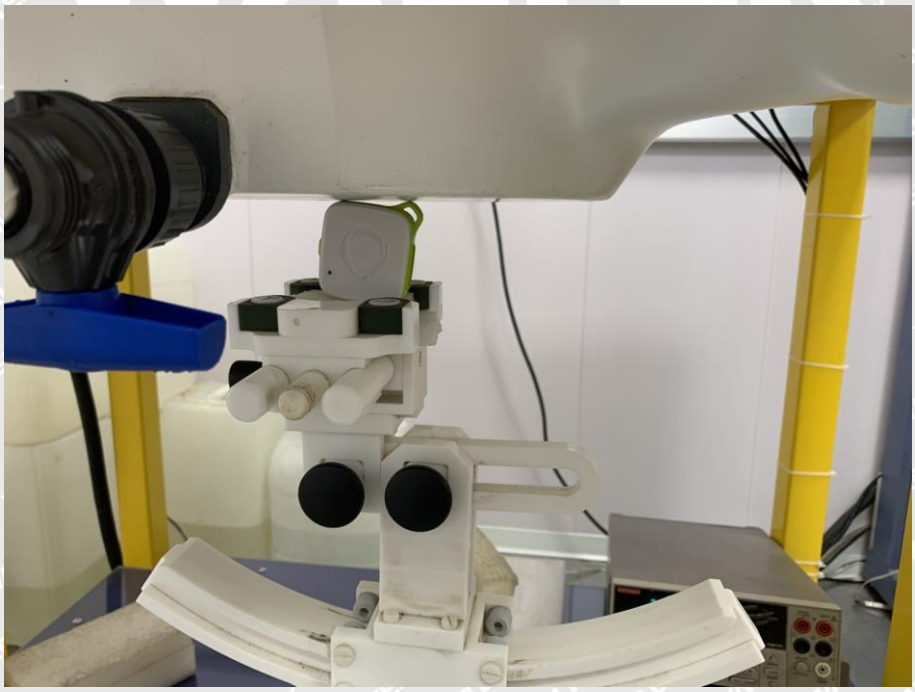
Body Left



Body Top



Body Bottom



Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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