SAR TEST REPORT

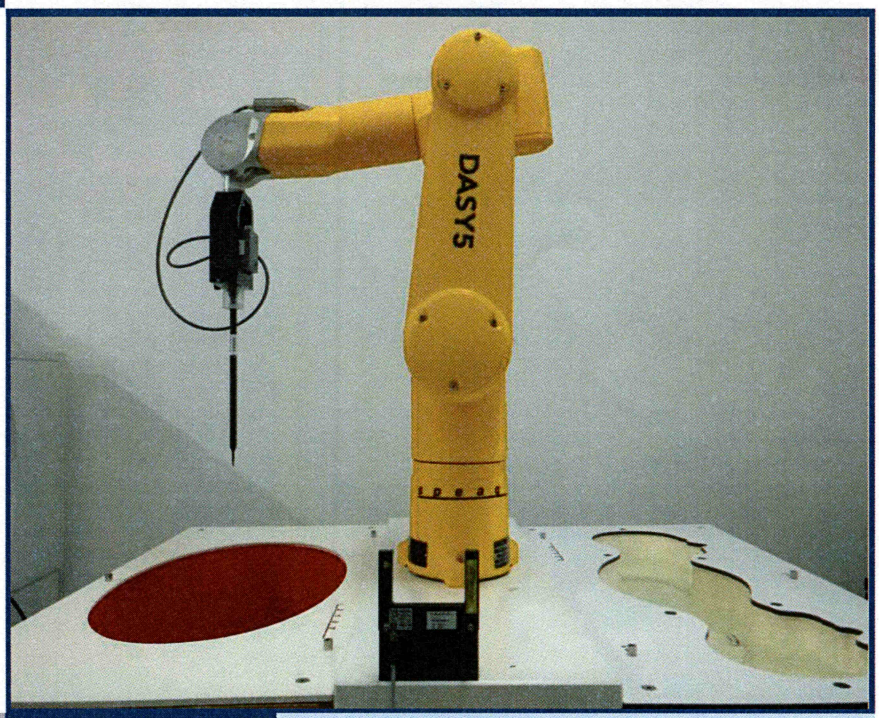
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

GWTC116-3BK

ISSUED TO
E&S International Enterprises, Inc.

7801 Hayvenhurst Avenue,Van Nuys, California 91406 USA



Report No.:	BL-SZ2140379-701
EUT Name:	GWTC116-3BK
Model Name	GWTC116-3BK
Brand Name:	GATEWAY
FCC ID:	2AYPE-GWTC116-3
Test Standard:	FCC 47 CFR Part 2.1093 ANSI C95.1-1992, IEEE Std. 1528-2013 (refer section 3.1)
Maximum SAR:	Body (1 g): 1.188 W/kg
Test Conclusion:	Pass
Test Date:	Jun. 13, 2021 ~ Jun. 24, 2021
Date of Issue:	Jul. 06, 2021

Tested by: Zhang Jiwei
Zhang Jiwei
Date: Jul. 06, 2021

Approved by:
Liao Jianming
(Technical Director)
Date: Jul. 06, 2021

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jul. 06, 2021	Initial Issue

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province,P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province,P. R. China
Accreditation Certificate	The laboratory is a testing organizatin accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	20℃ to 23℃
Ambient Relative Humidity	37% to 49%
Ambient Pressure	100KPa to 102KPa

1.4 Announce

(1) The test report reference to the report template version v2.2.

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

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

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

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

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

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

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	E&S International Enterprises, Inc.
Address	7801 Hayvenhurst Avenue, Van Nuys, California 91406 USA

2.2 Manufacturer Information

Manufacturer	E&S International Enterprises, Inc.
Address	7801 Hayvenhurst Avenue, Van Nuys, California 91406 USA

2.3 Factory Information

Factory	GOLDEN ELITE TECHNOLOGY (SHENZHEN) LTD.
Address	NO.1, NAN-HUAN RD., SHAJING, BAOAN, SHENZHEN, CHINA

2.4 General Description for Equipment under Test (EUT)

EUT Name	GWTC116-3BK
Model Name Under Test	GWTC116-3BK
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	1.0
Software Version	R6000 image
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	BMS
	Model No.	SF20GM-2S4000-B1G1
	Serial No.	N/A
	Capacity	4000 mAh
	Rated Voltage	7.6 V
	Limit Charge Voltage	8.7 V

2.6 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA Band 2/5 4G Network FDD LTE Band 2/4/5/12/30/66 Bluetooth (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac U-NII-1/3

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

Operating Mode	WCDMA; LTE; WLAN; Bluetooth		
Frequency Range	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 30	TX: 2305 ~ 2315 MHz	RX: 2350 ~ 2360 MHz
	LTE Band 66	TX: 2110 ~ 2180 MHz	RX: 2110 ~ 2200 MHz
	802.11b/g	2412 ~ 2472 MHz	
	802.11n(HT20/HT40)	2412 ~ 2472 MHz	
	802.11 ac(VHT20/VHT40)	2412 ~ 2472 MHz	
	802.11a	5150 ~ 5250 MHz	
		5725 ~ 5850 MHz	
	802.11n(HT20/HT40)	5150 ~ 5250 MHz	
		5725 ~ 5850 MHz	
	802.11 ac(VHT20/VHT40/ VHT80)	5150 ~ 5250 MHz	
		5725 ~ 5850 MHz	
	Bluetooth	2402 ~ 2480 MHz	
Antenna Type	WWAN	PIFA Antenna	
	WLAN	PIFA Antenna	
	Bluetooth	PIFA Antenna	
Hotspot Function	N/A		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	☒ Production unit	☐ Identical prototype	

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
7	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
8	KDB 616217 D04v01r02	SAR for laptop and tablets
9	FCC KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
10	FCC KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user.

Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Table of Exposure Limits:

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

NOTE:

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

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

3.3 Test Result Summary

3.3.1 Highest SAR (1 g Value)

Frequency Band		Maximum Report SAR (W/kg) 1 g
		Body SAR (Separation 0 mm)
WCDMA	Band 2	0.863
	Band 5	0.694
LTE	Band 2	0.902
	Band 4	0.842
	Band 5	0.544
	Band 12	0.292
	Band 30	1.081
	Band 66	1.109
WIFI	2.4 G Aux. Antenna	0.554
	2.4 G Main Antenna	0.453
	5.2 G Aux. Antenna	0.866
	5.2 G Main Antenna	1.050
	5.8 G Aux. Antenna	1.034
	5.8 G Main Antenna	**1.188**
Bluetooth	DH5 Aux. Antenna	0.085
Limits (W/kg)		1.6
Test Verdict		Pass
Note 1: The highest Reported Body 1g SAR value is 1.188 W/kg. Note 2: The simultaneous transmission possibilities please refer to section 12.		

3.4 Test Uncertainty

According to KDB 865664 D01, when the highest measured 1 g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis is not required in SAR reports submitted for equipment approval.

The maximum 1 g SAR for the EUT in this report is 1.188 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

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

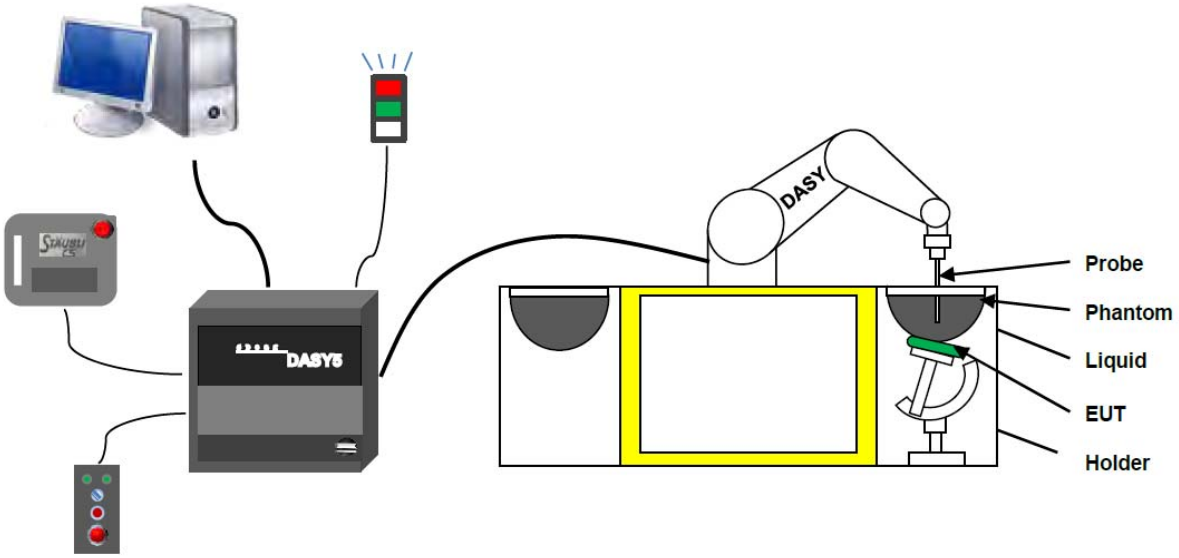
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

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

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



The DASY5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.2.2 Robot

The Dasy SAR system uses the high precision robots. Symmetrical design with triangular core Built-in optical fiber for surface detection system For the 6-axis controller system, Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents). The robot series have many features that are important for our application:

- High precision
  (repeatability ±0.02 mm)
- High reliability
  (industrial design)
- Low maintenance costs
  (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
  (brush less synchron motors; no stepper motors)
- Low ELF interference
  (motor control _elds shielded via the closed metallic construction shields)

4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4-SN:7510 with following specifications is used.

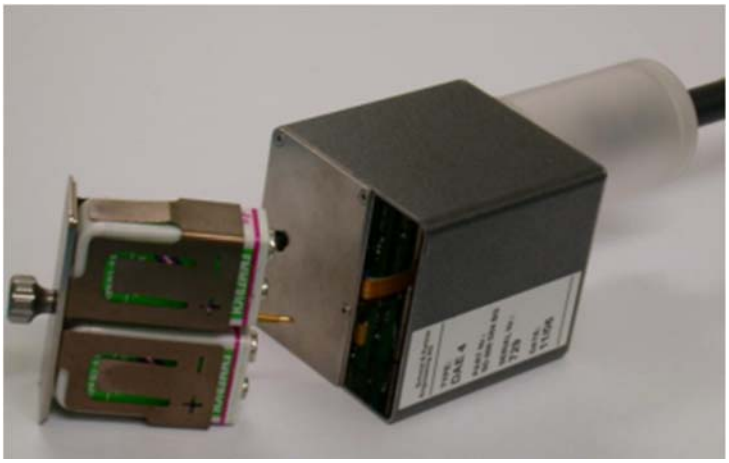
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ; ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (EX3DV4)

E-Field Probe Calibration Process

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

4.2.4 Data Acquisition Electronics

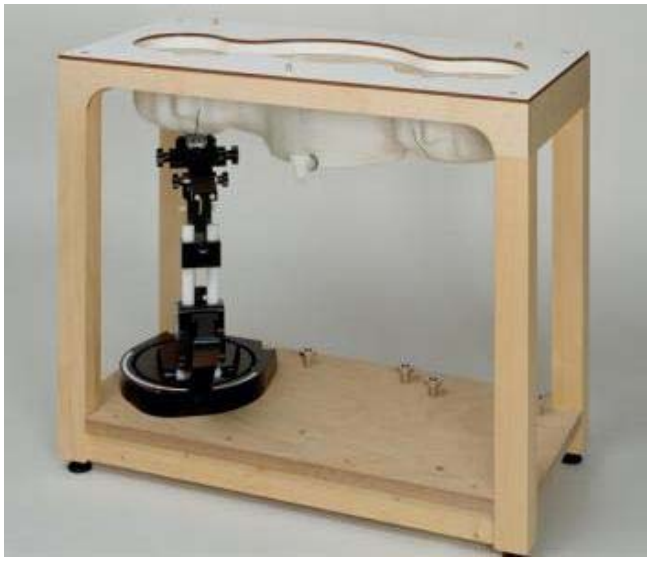
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.



- Input Impedance: 200MOhm
- The Inputs: Symmetrical and Floating
- Commom Mode Rejection: Above 80dB

4.2.5 Phantoms

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



- Left hand
- Right hand
- Flat phantom

Photo of Phantom SN1857

Serial Number	Material	Length	Height
SN 1857 SAM	Vinylester, glass fiber reinforced	1000	500

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.

·Flat phantom

Photo of Phantom SN1012

Serial Number	Shell Thickness (mm)	Major ellipse axis (mm)	Minor axis (mm)
SN 1012 ELI4	2.0 ± 0.2	600	500

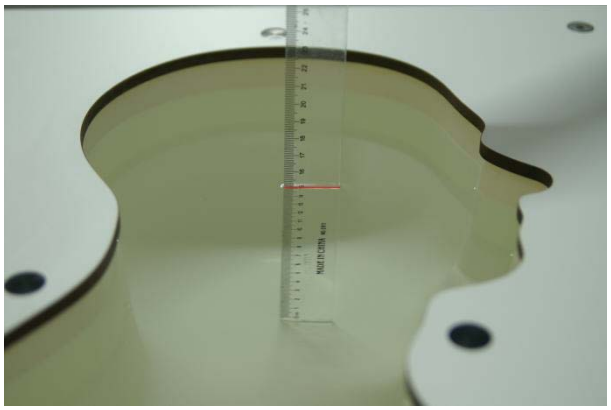
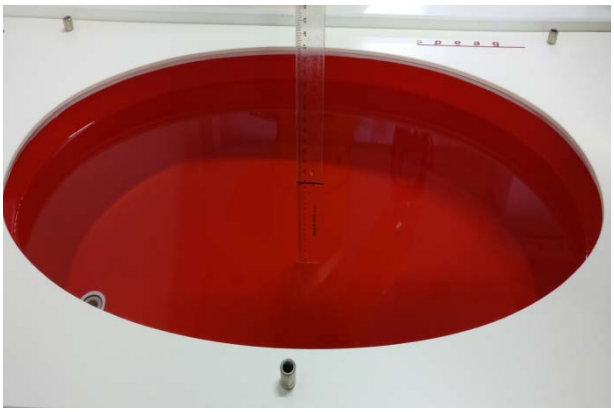
4.2.6 Device Holder

The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA‟s only. If necessary an additional support of polystyrene material is used. Larger DUT‟s (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values. Therefore those devices are normally only tested at the flat part of the SAM.

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

4.2.7 Simulating Liquid

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

Head Liquid Depth	Body Liquid Depth
	

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

Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ε
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE (%)			Salt (%)		Conductivity σ (S/m)	Permittivity ε
5200	78.60	21.40			/		5.54	47.86
5800	78.50	21.40			0.1		6.0	48.20

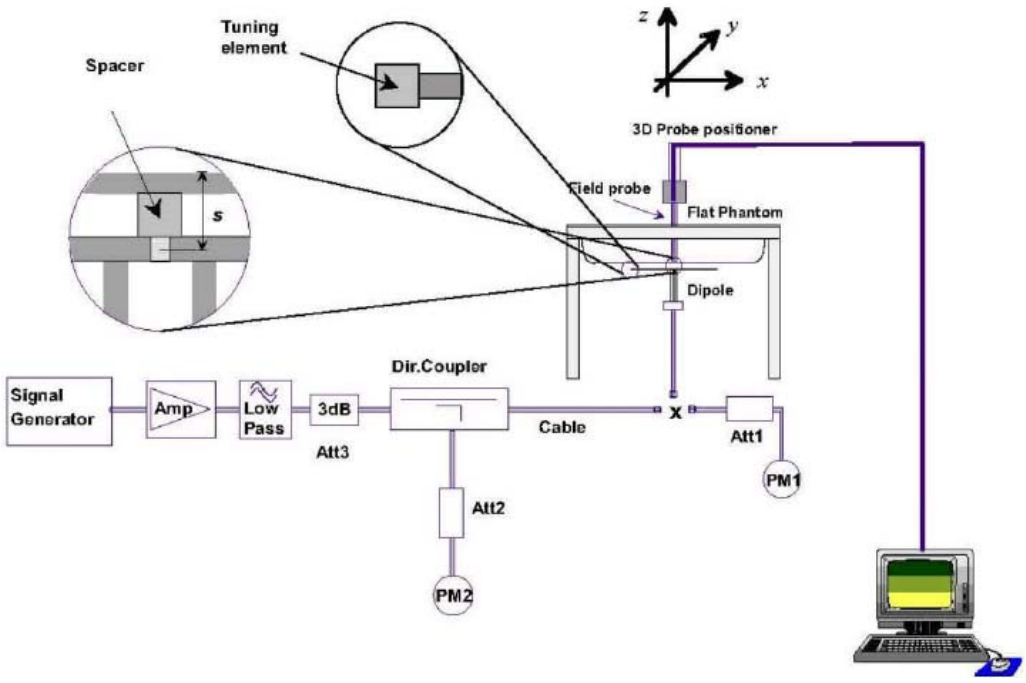
5 SYSTEM VERIFICATION

5.1 Purpose of System Check

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

5.2 System Check Setup

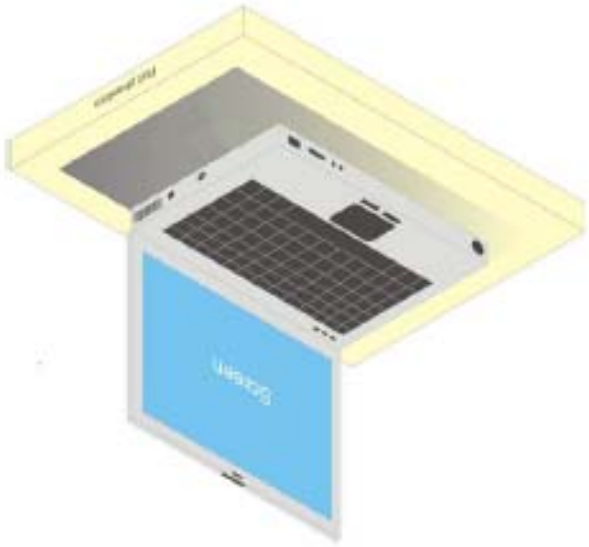
In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder.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



6 TEST POSITION CONFIGURATIONS

6.1 Laptop Exposure Condition

This DUT should consider one position which is bottom of laptop touching with phantom 0 mm air gap and the screen portion of the device shall be an open position at a 90° angle.



6.2 Tablet Exposure Condition

This DUT was tested in four different positions. They are back side, left edge, right edge and top edge in these positions, the surface of DUT is touching with phantom 0mm.

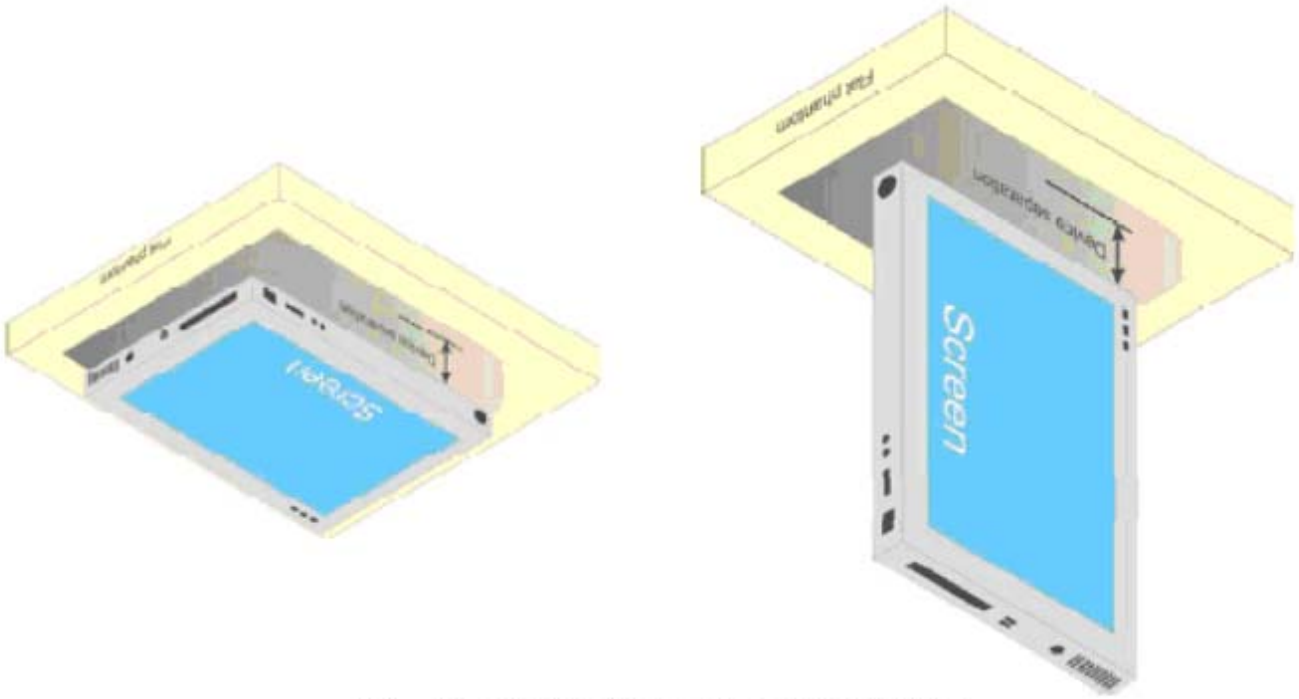
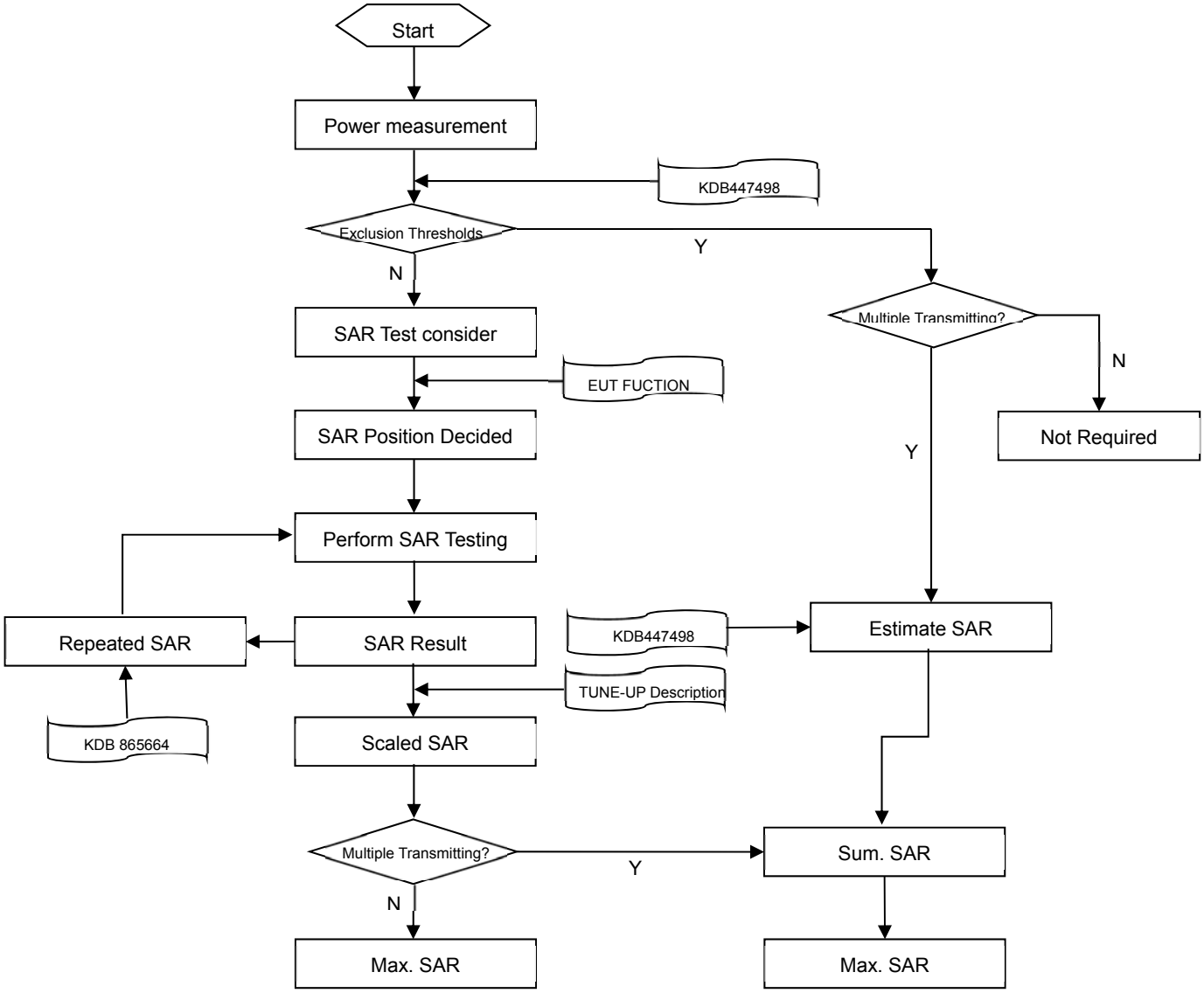


Fig Illustration for Lap-touching Position

7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

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

<table>
<tr><th colspan="3"></th><th>≤3GHz</th><th>>3GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>½·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx Area , Δy Area</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3–4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom</td><td>≤ 2 GHz: ≤ 8 mm
2 –3 GHz: ≤ 5 mm*</td><td>3–4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="6">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2" rowspan="3">uniform grid: Δz Zoom (n)</td><td rowspan="3">≤ 5 mm</td><td>3–4 GHz: ≤ 4 mm</td></tr>
<tr><td>4–5 GHz: ≤ 3 mm</td></tr>
<tr><td>5–6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="3">graded grid</td><td rowspan="2">Δz Zoom (1): between 1st two points closest to phantom surface</td><td rowspan="3">≤ 4 mm</td><td>3–4 GHz: ≤ 3 mm</td></tr>
<tr><td>4–5 GHz: ≤ 2.5 mm</td></tr>
<tr><td>Δz Zoom (n>1): between subsequent points</td><td>5–6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="3">Minimum zoom scan volume</td><td colspan="2" rowspan="3">x, y, z</td><td rowspan="3">≥30 mm</td><td>3–4 GHz: ≥ 28 mm</td></tr>
<tr><td>4–5 GHz: ≥ 25 mm</td></tr>
<tr><td>5–6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note:
1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

7.3 Measurement Procedure

The following steps are used for each test position

a. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface

b. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.

c. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.

d. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 *32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

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

8 CONDUCTED RF OUPUT POWER

8.1 WCDMA

WCDMA	Band 2				Band 5			
Channel	9262	9400	9538	Tune-up Limit (dBm)	4132	4182	4233	Tune-up Limit (dBm)
RMC 12.2Kbps	20.97	20.98	**21.32**	22.00	24.34	24.41	**24.52**	25.00
HSDPA Subtest-1	19.98	19.93	20.31	21.00	23.31	23.36	23.49	24.00
HSDPA Subtest-2	19.98	19.95	20.33	21.00	23.37	23.40	23.52	24.00
HSDPA Subtest-3	19.52	19.46	19.85	20.50	22.88	22.91	23.04	23.50
HSDPA Subtest-4	19.47	19.45	19.83	20.50	22.87	22.91	23.00	23.50
HSUPA Subtest-1	19.98	19.99	20.38	21.00	23.27	23.35	23.56	24.00
HSUPA Subtest-2	17.92	17.92	18.24	19.00	21.33	21.45	21.52	22.00
HSUPA Subtest-3	18.98	18.92	19.35	20.00	22.37	22.45	22.59	23.00
HSUPA Subtest-4	17.95	17.98	18.31	19.00	21.38	21.36	21.50	22.00
HSUPA Subtest-5	19.97	19.91	20.38	21.00	23.33	23.45	23.51	24.00

8.2 LTE

FDD LTE Band 2									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18700	18900	19100		18700	18900	19100	
20 MHz	1 (RB_Pos:0)	23.64	23.63	23.72	24.00	23.19	22.98	23.07	23.50
	1 (RB_Pos:50)	23.60	23.61	23.85	24.00	23.17	22.93	23.15	23.50
	1 (RB_Pos:99)	23.60	23.71	**23.89**	24.00	23.06	23.08	23.25	23.50
	50 (RB_Pos:0)	22.69	22.64	22.65	23.00	21.74	21.68	21.70	22.50
	50 (RB_Pos:25)	22.68	22.62	22.77	23.00	21.76	21.66	21.82	22.50
	50 (RB_Pos:50)	22.61	22.55	22.86	23.00	21.74	21.60	21.89	22.50
	100 (RB_Pos:0)	22.62	22.54	22.73	23.00	21.71	21.63	21.82	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18675	18900	19125		18675	18900	19125	
15 MHz	1 (RB_Pos:0)	23.69	23.59	23.82	24.00	22.57	22.94	23.13	23.50
	1 (RB_Pos:38)	23.62	23.51	23.89	24.00	22.58	22.89	23.13	23.50
	1 (RB_Pos:74)	23.62	23.59	23.90	24.00	22.49	22.92	23.18	23.50
	36 (RB_Pos:0)	22.72	22.61	22.75	23.00	21.77	21.73	21.80	22.50
	36 (RB_Pos:20)	22.69	22.62	22.88	23.00	21.79	21.76	21.94	22.50
	36 (RB_Pos:39)	22.66	22.57	22.81	23.00	21.74	21.68	21.89	22.50
	75 (RB_Pos:0)	22.66	22.61	22.84	23.00	21.77	21.71	21.91	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18650	18900	19150		18650	18900	19150	
10 MHz	1 (RB_Pos:0)	23.70	23.59	23.90	24.00	22.56	22.91	22.79	23.50
	1 (RB_Pos:25)	23.63	23.53	23.90	24.00	22.57	22.91	22.86	23.50
	1 (RB_Pos:49)	23.65	23.64	23.95	24.00	22.53	22.96	22.82	23.50
	25 (RB_Pos:0)	22.67	22.61	22.85	23.00	21.78	21.66	22.00	22.50
	25 (RB_Pos:12)	22.71	22.62	22.84	23.00	21.81	21.74	22.01	22.50
	25 (RB_Pos:25)	22.68	22.61	22.88	23.00	21.74	21.67	22.03	22.50
	50 (RB_Pos:0)	22.69	22.57	22.80	23.00	21.74	21.64	21.90	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18625	18900	19175		18625	18900	19175	
5 MHz	1 (RB_Pos:0)	23.68	23.57	23.86	24.00	22.82	23.04	22.92	23.50
	1 (RB_Pos:13)	23.73	23.64	23.92	24.00	22.91	23.08	23.01	23.50
	1 (RB_Pos:24)	23.65	23.53	23.84	24.00	22.81	23.07	22.91	23.50
	12 (RB_Pos:0)	22.68	22.60	22.94	23.00	21.85	21.80	22.02	22.50
	12 (RB_Pos:6)	22.74	22.60	22.94	23.00	21.84	21.81	22.03	22.50
	12 (RB_Pos:13)	22.67	22.56	22.93	23.00	21.81	21.78	21.97	22.50

	25 (RB_Pos:0)	22.68	22.55	22.89	23.00	21.77	21.71	21.90	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18615	18900	19185		18615	18900	19185	
3.0 MHz	1 (RB_Pos:0)	23.67	23.56	23.89	24.00	22.53	22.89	22.82	23.50
	1 (RB_Pos:8)	23.67	23.52	23.89	24.00	22.54	22.89	22.79	23.50
	1 (RB_Pos:14)	23.62	23.48	23.86	24.00	22.51	22.87	22.78	23.50
	8 (RB_Pos:0)	22.71	22.61	22.84	23.00	21.87	21.71	21.94	22.50
	8 (RB_Pos:3)	22.75	22.64	22.91	23.00	21.91	21.74	22.00	22.50
	8 (RB_Pos:7)	22.73	22.59	22.85	23.00	21.83	21.69	21.96	22.50
	15 (RB_Pos:0)	22.69	22.57	22.90	23.00	21.75	21.65	21.88	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	18607	18900	19193		18607	18900	19193	
1.4 MHz	1 (RB_Pos:0)	23.58	23.48	23.80	24.00	22.68	22.84	22.75	23.50
	1 (RB_Pos:3)	23.67	23.56	23.87	24.00	22.73	22.84	22.82	23.50
	1 (RB_Pos:5)	23.56	23.45	23.79	24.00	22.67	22.80	22.79	23.50
	3 (RB_Pos:0)	23.55	23.43	23.72	24.00	22.64	22.66	22.91	23.50
	3 (RB_Pos:1)	23.56	23.48	23.78	24.00	22.70	22.72	22.96	23.50
	3 (RB_Pos:3)	23.57	23.46	23.72	24.00	22.64	22.66	22.87	23.50
	6 (RB_Pos:0)	22.56	22.48	22.80	23.00	21.77	21.42	22.03	22.50

FDD LTE Band 4									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20050	20175	20300		20050	20175	20300	
20 MHz	1 (RB_Pos:0)	23.06	**23.69**	23.57	24.00	23.01	23.49	23.32	24.00
	1 (RB_Pos:50)	23.05	23.68	23.51	24.00	22.96	23.38	23.25	24.00
	1 (RB_Pos:99)	23.05	23.53	23.34	24.00	22.99	23.21	23.15	24.00
	50 (RB_Pos:0)	23.07	22.99	22.95	23.50	22.98	22.14	21.97	23.00
	50 (RB_Pos:25)	23.08	23.03	22.92	23.50	22.96	22.09	22.00	23.00
	50 (RB_Pos:50)	23.06	22.91	22.85	23.50	22.95	22.02	21.89	23.00
	100 (RB_Pos:0)	23.04	22.95	22.89	23.50	22.94	22.03	21.96	23.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20025	20175	20325		20025	20175	20325	
15 MHz	1 (RB_Pos:0)	23.50	23.65	23.56	24.00	22.82	23.43	23.28	24.00
	1 (RB_Pos:38)	23.58	23.61	23.52	24.00	22.87	23.34	23.20	24.00
	1 (RB_Pos:74)	23.56	23.46	23.36	24.00	22.85	23.15	23.11	24.00
	36 (RB_Pos:0)	22.96	22.99	22.89	23.50	21.96	22.16	21.95	23.00

	36 (RB_Pos:20)	23.12	23.00	22.88	23.50	22.14	22.13	21.92	23.00
	36 (RB_Pos:39)	23.06	22.98	22.79	23.50	22.10	22.06	21.85	23.00
	75 (RB_Pos:0)	23.02	22.95	22.84	23.50	22.05	22.12	21.92	23.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20000	20175	20350		20000	20175	20350	
10 MHz	1 (RB_Pos:0)	23.58	23.71	23.54	24.00	22.79	23.43	22.88	24.00
	1 (RB_Pos:25)	23.55	23.65	23.45	24.00	22.79	23.34	22.84	24.00
	1 (RB_Pos:49)	23.48	23.57	23.39	24.00	22.78	23.22	22.72	24.00
	25 (RB_Pos:0)	22.89	23.04	22.82	23.50	21.98	22.12	22.04	23.00
	25 (RB_Pos:12)	22.88	23.01	22.83	23.50	22.02	22.10	21.97	23.00
	25 (RB_Pos:25)	22.87	22.94	22.76	23.50	21.98	22.05	21.94	23.00
	50 (RB_Pos:0)	22.90	22.98	22.83	23.50	21.96	22.10	21.94	23.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	19975	20175	20375		19975	20175	20375	
5 MHz	1 (RB_Pos:0)	23.48	23.68	23.48	24.00	22.98	23.50	22.94	24.00
	1 (RB_Pos:13)	23.59	23.71	23.56	24.00	23.04	23.55	22.99	24.00
	1 (RB_Pos:24)	23.47	23.58	23.39	24.00	22.99	23.45	22.92	24.00
	12 (RB_Pos:0)	22.86	23.02	22.91	23.50	21.97	22.23	21.97	23.00
	12 (RB_Pos:6)	22.89	23.01	22.84	23.50	22.03	22.22	22.01	23.00
	12 (RB_Pos:13)	22.87	22.97	22.78	23.50	22.00	22.19	21.94	23.00
	25 (RB_Pos:0)	22.84	22.97	22.79	23.50	21.94	22.09	21.81	23.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	19965	20175	20385		19965	20175	20385	
3.0 MHz	1 (RB_Pos:0)	23.49	23.66	23.43	24.00	22.68	23.35	22.95	24.00
	1 (RB_Pos:8)	23.47	23.62	23.47	24.00	22.72	23.34	22.94	24.00
	1 (RB_Pos:14)	23.45	23.59	23.40	24.00	22.67	23.29	22.87	24.00
	8 (RB_Pos:0)	22.84	22.99	22.76	23.50	21.98	22.08	22.00	23.00
	8 (RB_Pos:3)	22.88	23.04	22.77	23.50	21.99	22.14	22.02	23.00
	8 (RB_Pos:7)	22.84	22.99	22.84	23.50	21.97	22.08	21.94	23.00
	15 (RB_Pos:0)	22.82	22.97	22.85	23.50	21.91	22.07	21.88	23.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	19957	20175	20393		19957	20175	20393	
1.4 MHz	1 (RB_Pos:0)	23.49	23.59	23.38	24.00	23.05	23.38	22.77	24.00
	1 (RB_Pos:3)	23.52	23.68	23.42	24.00	23.10	23.42	22.82	24.00
	1 (RB_Pos:5)	23.49	23.57	23.33	24.00	22.97	23.41	22.74	24.00
	3 (RB_Pos:0)	23.45	23.64	23.47	24.00	22.94	23.26	22.97	24.00
	3 (RB_Pos:1)	23.53	23.67	23.50	24.00	23.02	23.33	23.04	24.00

	3 (RB_Pos:3)	23.49	23.64	23.42	24.00	22.96	23.23	22.96	24.00
	6 (RB_Pos:0)	22.95	23.01	22.64	23.50	22.06	22.00	21.93	23.00

FDD LTE Band 5									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20450	20525	20600		20450	20525	20600	
10 MHz	1 (RB_Pos:0)	23.85	23.72	23.88	24.00	22.73	23.09	22.82	23.50
	1 (RB_Pos:25)	23.84	23.75	23.76	24.00	22.78	23.15	22.77	23.50
	1 (RB_Pos:49)	23.90	23.84	**23.93**	24.00	22.83	23.16	22.73	23.50
	25 (RB_Pos:0)	22.88	22.85	22.82	23.00	21.98	21.94	21.98	22.50
	25 (RB_Pos:12)	22.91	22.86	22.84	23.00	22.00	21.95	21.97	22.50
	25 (RB_Pos:25)	22.97	22.82	22.75	23.00	22.03	21.84	21.92	22.50
	50 (RB_Pos:0)	22.83	22.77	22.79	23.00	21.98	21.86	21.91	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20425	20525	20625		20425	20525	20625	
5 MHz	1 (RB_Pos:0)	23.80	23.81	23.76	24.00	23.02	23.37	22.89	23.50
	1 (RB_Pos:13)	23.82	23.85	23.90	24.00	23.01	23.38	22.97	23.50
	1 (RB_Pos:24)	23.80	23.83	23.87	24.00	23.03	23.38	22.83	23.50
	12 (RB_Pos:0)	22.81	22.77	22.79	23.00	21.98	22.01	21.90	22.50
	12 (RB_Pos:6)	22.94	22.85	22.88	23.00	22.04	22.02	21.98	22.50
	12 (RB_Pos:13)	22.88	22.77	22.88	23.00	22.03	21.97	21.95	22.50
	25 (RB_Pos:0)	22.90	22.76	22.76	23.00	22.03	21.91	21.79	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20415	20525	20635		20415	20525	20635	
3.0 MHz	1 (RB_Pos:0)	23.87	23.80	23.88	24.00	22.70	23.18	22.88	23.50
	1 (RB_Pos:8)	23.77	23.76	23.86	24.00	22.66	23.17	22.79	23.50
	1 (RB_Pos:14)	23.76	23.76	23.95	24.00	22.67	23.16	22.69	23.50
	8 (RB_Pos:0)	22.86	22.81	22.82	23.00	22.00	21.89	21.91	22.50
	8 (RB_Pos:3)	22.88	22.83	22.88	23.00	22.01	21.94	21.92	22.50
	8 (RB_Pos:7)	22.84	22.81	22.81	23.00	21.94	21.89	21.88	22.50
	15 (RB_Pos:0)	22.83	22.79	22.87	23.00	21.93	21.91	21.84	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	20407	20525	20643		20407	20525	20643	
1.4 MHz	1 (RB_Pos:0)	23.76	23.72	23.79	24.00	22.77	22.87	23.07	23.50
	1 (RB_Pos:3)	23.84	23.78	23.82	24.00	22.83	22.90	23.07	23.50
	1 (RB_Pos:5)	23.76	23.70	23.79	24.00	22.80	22.83	22.99	23.50

	3 (RB_Pos:0)	23.79	23.73	23.67	24.00	22.95	22.81	22.96	23.50
	3 (RB_Pos:1)	23.87	23.76	23.75	24.00	23.03	22.86	22.97	23.50
	3 (RB_Pos:3)	23.74	23.72	23.66	24.00	22.95	22.83	22.87	23.50
	6 (RB_Pos:0)	22.74	22.67	22.76	23.00	21.96	21.89	21.69	22.50

FDD LTE Band 12									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23060	23095	23130		23060	23095	23130	
10 MHz	1 (RB_Pos:0)	23.17	23.20	23.36	24.00	22.15	22.60	22.31	23.00
	1 (RB_Pos:25)	23.18	23.30	23.31	24.00	22.16	22.69	22.39	23.00
	1 (RB_Pos:49)	23.36	23.28	**23.54**	24.00	22.22	22.75	22.46	23.00
	25 (RB_Pos:0)	22.31	22.37	22.28	23.00	21.42	21.42	21.47	22.00
	25 (RB_Pos:12)	22.41	22.38	22.39	23.00	21.50	21.43	21.58	22.00
	25 (RB_Pos:25)	22.36	22.37	22.44	23.00	21.44	21.43	21.63	22.00
	50 (RB_Pos:0)	22.41	22.35	22.36	23.00	21.44	21.41	21.48	22.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23035	23095	23155		23035	23095	23155	
5 MHz	1 (RB_Pos:0)	23.18	23.25	23.33	24.00	22.43	22.74	22.49	23.00
	1 (RB_Pos:13)	23.33	23.39	23.48	24.00	22.57	22.88	22.59	23.00
	1 (RB_Pos:24)	23.24	23.36	23.49	24.00	22.50	22.91	22.58	23.00
	12 (RB_Pos:0)	22.34	22.35	22.37	23.00	21.49	21.50	21.53	22.00
	12 (RB_Pos:6)	22.35	22.38	22.46	23.00	21.53	21.56	21.62	22.00
	12 (RB_Pos:13)	22.30	22.34	22.44	23.00	21.49	21.56	21.57	22.00
	25 (RB_Pos:0)	22.30	22.31	22.41	23.00	21.45	21.46	21.49	22.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23025	23095	23165		23025	23095	23165	
3.0 MHz	1 (RB_Pos:0)	23.23	23.36	23.46	24.00	22.15	22.65	22.49	23.00
	1 (RB_Pos:8)	23.19	23.30	23.53	24.00	22.14	22.66	22.52	23.00
	1 (RB_Pos:14)	23.23	23.32	23.49	24.00	22.22	22.66	22.47	23.00
	8 (RB_Pos:0)	22.22	22.34	22.42	23.00	21.44	21.42	21.54	22.00
	8 (RB_Pos:3)	22.26	22.34	22.43	23.00	21.47	21.46	21.59	22.00
	8 (RB_Pos:7)	22.28	22.32	22.39	23.00	21.49	21.43	21.53	22.00
	15 (RB_Pos:0)	22.30	22.36	22.42	23.00	21.47	21.42	21.45	22.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	23017	23095	23173		23017	23095	23173	
1.4 MHz	1 (RB_Pos:0)	23.10	23.25	23.44	24.00	22.28	22.60	22.41	23.00

	1 (RB_Pos:3)	23.19	23.29	23.49	24.00	22.39	22.62	22.45	23.00
	1 (RB_Pos:5)	23.10	23.24	23.38	24.00	22.32	22.57	22.40	23.00
	3 (RB_Pos:0)	23.15	23.20	23.44	24.00	22.31	22.45	22.63	23.00
	3 (RB_Pos:1)	23.24	23.25	23.50	24.00	22.39	22.51	22.70	23.00
	3 (RB_Pos:3)	23.15	23.23	23.45	24.00	22.34	22.45	22.65	23.00
	6 (RB_Pos:0)	22.05	22.24	22.35	23.00	21.35	21.16	21.63	22.00

FDD LTE Band 30									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	/	27710	/		/	27710	/	
10 MHz	1 (RB_Pos:0)	/	20.65	/	22.00	/	19.61	/	21.00
	1 (RB_Pos:25)	/	**20.70**	/	22.00	/	19.66	/	21.00
	1 (RB_Pos:49)	/	20.64	/	22.00	/	19.58	/	21.00
	25 (RB_Pos:0)	/	19.70	/	21.00	/	18.75	/	20.00
	25 (RB_Pos:12)	/	19.75	/	21.00	/	18.77	/	20.00
	25 (RB_Pos:25)	/	19.71	/	21.00	/	18.80	/	20.00
	50 (RB_Pos:0)	/	19.71	/	21.00	/	18.76	/	20.00
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	27685	27710	27735		27685	27710	27735	
5 MHz	1 (RB_Pos:0)	20.57	20.63	20.62	22.00	19.82	20.23	19.85	21.00
	1 (RB_Pos:13)	20.67	20.72	20.60	22.00	19.89	20.30	19.79	21.00
	1 (RB_Pos:24)	20.63	20.60	20.59	22.00	19.85	20.18	19.77	21.00
	12 (RB_Pos:0)	19.66	19.67	19.70	21.00	18.78	18.92	18.82	20.00
	12 (RB_Pos:6)	19.72	19.71	19.73	21.00	18.82	18.93	18.85	20.00
	12 (RB_Pos:13)	19.69	19.69	19.62	21.00	18.83	18.90	18.73	20.00
	25 (RB_Pos:0)	19.65	19.65	19.67	21.00	18.71	18.81	18.70	20.00

FDD LTE Band 66									
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	132072	132322	132572		132072	132322	132572	
20 MHz	1 (RB_Pos:0)	23.77	**23.78**	23.60	24.00	23.27	23.17	23.10	23.50
	1 (RB_Pos:50)	23.74	23.68	23.66	24.00	23.34	23.09	23.03	23.50
	1 (RB_Pos:99)	23.64	23.64	23.68	24.00	23.25	23.09	23.09	23.50
	50 (RB_Pos:0)	22.83	22.75	22.70	23.00	21.91	21.84	21.75	22.50
	50 (RB_Pos:25)	22.81	22.70	22.73	23.00	21.94	21.87	21.77	22.50
	50 (RB_Pos:50)	22.77	22.60	22.65	23.00	21.89	21.75	21.75	22.50
	100 (RB_Pos:0)	22.74	22.70	22.72	23.00	21.91	21.79	21.80	22.50

Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	132047	132322	132597		132047	132322	132597	
15 MHz	1 (RB_Pos:0)	23.74	23.73	23.70	24.00	22.67	23.12	23.06	23.50
	1 (RB_Pos:38)	23.72	23.67	23.77	24.00	22.74	23.06	23.17	23.50
	1 (RB_Pos:74)	23.66	23.62	23.66	24.00	22.66	23.08	23.12	23.50
	36 (RB_Pos:0)	22.81	22.73	22.72	23.00	21.89	21.86	21.78	22.50
	36 (RB_Pos:20)	22.79	22.73	22.74	23.00	21.92	21.87	21.81	22.50
	36 (RB_Pos:39)	22.74	22.63	22.77	23.00	21.86	21.77	21.85	22.50
	75 (RB_Pos:0)	22.76	22.68	22.65	23.00	21.85	21.83	21.81	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	132022	132322	132622		132022	132322	132622	
10 MHz	1 (RB_Pos:0)	23.80	23.75	23.71	24.00	22.66	23.12	22.73	23.50
	1 (RB_Pos:25)	23.75	23.69	23.79	24.00	22.68	23.10	22.81	23.50
	1 (RB_Pos:49)	23.69	23.57	23.68	24.00	22.64	23.00	22.72	23.50
	25 (RB_Pos:0)	22.79	22.75	22.74	23.00	21.90	21.88	21.88	22.50
	25 (RB_Pos:12)	22.81	22.75	22.81	23.00	21.87	21.85	21.98	22.50
	25 (RB_Pos:25)	22.76	22.69	22.73	23.00	21.86	21.84	21.95	22.50
	50 (RB_Pos:0)	22.76	22.69	22.72	23.00	21.86	21.84	21.84	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	131997	132322	132647		131997	132322	132647	
5 MHz	1 (RB_Pos:0)	23.71	23.70	23.69	24.00	22.87	23.24	22.85	23.50
	1 (RB_Pos:13)	23.82	23.77	23.79	24.00	22.99	23.31	22.92	23.50
	1 (RB_Pos:24)	23.63	23.61	23.66	24.00	22.87	23.22	22.85	23.50
	12 (RB_Pos:0)	22.75	22.72	22.76	23.00	21.91	21.92	21.95	22.50
	12 (RB_Pos:6)	22.78	22.74	22.79	23.00	21.93	22.02	21.92	22.50
	12 (RB_Pos:13)	22.74	22.70	22.75	23.00	21.94	21.95	21.90	22.50
	25 (RB_Pos:0)	22.73	22.69	22.75	23.00	21.89	21.87	21.78	22.50
Bandwidth (MHz)	RB Set	Power (dBm)							
		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	131987	132322	132657		131987	132322	132657	
3.0 MHz	1 (RB_Pos:0)	23.72	23.71	23.74	24.00	22.56	23.13	22.78	23.50
	1 (RB_Pos:8)	23.70	23.67	23.71	24.00	22.61	23.10	22.77	23.50
	1 (RB_Pos:14)	23.67	23.66	23.69	24.00	22.58	23.08	22.75	23.50
	8 (RB_Pos:0)	22.73	22.75	22.75	23.00	21.92	21.87	21.88	22.50
	8 (RB_Pos:3)	22.80	22.73	22.78	23.00	21.94	21.92	21.93	22.50
	8 (RB_Pos:7)	22.76	22.73	22.72	23.00	21.90	21.84	21.87	22.50
	15 (RB_Pos:0)	22.78	22.70	22.76	23.00	21.86	21.86	21.77	22.50
Bandwidth	RB Set	Power (dBm)							

(MHz)		QPSK			Tune up limit (dBm)	16QAM			Tune up limit (dBm)
	Channel	131979	132322	132665		131979	132322	132665	
1.4 MHz	1 (RB_Pos:0)	23.53	23.51	23.62	24.00	22.67	23.07	22.70	23.50
	1 (RB_Pos:3)	23.62	23.61	23.71	24.00	22.73	23.10	22.79	23.50
	1 (RB_Pos:5)	23.56	23.50	23.62	24.00	22.62	23.03	22.73	23.50
	3 (RB_Pos:0)	23.53	23.56	23.66	24.00	22.67	22.91	22.89	23.50
	3 (RB_Pos:1)	23.62	23.64	23.75	24.00	22.73	23.00	22.94	23.50
	3 (RB_Pos:3)	23.54	23.65	23.68	24.00	22.66	22.93	22.89	23.50
	6 (RB_Pos:0)	22.51	22.68	22.58	23.00	21.75	21.62	21.91	22.50

8.3 WIFI

8.3.1 2.4G WIFI (Main Antenna)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	12.95	14.50	No
		2	2417	12.59	14.50	No
		6	2437	14.44	16.00	No
		10	2457	13.11	14.50	No
		11	2462	**14.87**	16.00	Yes
		12	2467	14.33	16.00	No
		13	2472	12.32	14.00	No
	802.11g	1	2412	15.44	17.00	No
		2	2417	14.84	16.00	No
		6	2437	17.85	18.50	No
		10	2457	15.43	17.00	No
		11	2462	15.18	17.00	No
		12	2467	13.86	15.00	No
		13	2472	2.52	3.50	No
	802.11n(HT20)	1	2412	12.40	14.00	No
		2	2417	13.13	15.00	No
		6	2437	17.76	18.50	No
		10	2457	15.33	17.00	No
		11	2462	14.98	16.00	No
		12	2467	12.51	13.00	No
		13	2472	0.61	2.00	No
	802.11n(HT40)	3	2422	11.45	13.00	No
		4	2427	11.99	13.00	No
		6	2437	16.51	17.00	No
		8	2447	14.33	15.00	No
		9	2452	13.27	14.00	No
		10	2457	7.71	8.50	No
		11	2462	-0.10	0.50	No
	802.11ac(VHT20)	1	2412	12.38	14.00	No
		2	2417	13.17	15.00	No
		6	2437	17.42	18.00	No
		10	2457	15.30	17.00	No
		11	2462	15.05	16.00	No
		12	2467	12.76	13.00	No
		13	2472	0.65	2.00	No
	802.11ac(VHT40)	3	2422	11.33	13.00	No
		4	2427	11.96	13.00	No
		6	2437	16.54	17.00	No
		8	2447	14.33	15.00	No
		9	2452	13.28	14.00	No

		10	2457	6.55	7.50	No
		11	2462	-0.91	-0.50	No
Note：According KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. Adjusted SAR = Report SAR * (max power (OFDM)/ max power (DSSS)) = 0.453 * (70.79 mw)/(39.81 mw) =0.806 W/kg, so the 2.4GHz OFDM SAR test is not required.						

8.3.2 2.4G WIFI (Aux. Antenna)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	17.97	18.50	No
		2	2417	17.74	18.50	No
		6	2437	**18.22**	18.50	Yes
		10	2457	18.11	18.50	No
		11	2462	16.31	17.00	No
		12	2467	16.13	17.00	No
		13	2472	14.73	15.50	No
	802.11g	1	2412	15.73	17.00	No
		2	2417	17.56	18.50	No
		6	2437	18.19	18.50	No
		10	2457	16.91	18.00	No
		11	2462	14.63	16.00	No
		12	2467	13.45	15.00	No
		13	2472	2.22	3.50	No
	802.11n(HT20)	1	2412	14.55	16.00	No
		2	2417	17.42	18.50	No
		6	2437	17.69	18.50	No
		10	2457	16.75	18.00	No
		11	2462	14.49	16.00	No
		12	2467	11.97	13.00	No
		13	2472	3.52	4.50	No
	802.11n(HT40)	3	2422	13.93	14.50	No
		4	2427	13.23	15.00	No
		6	2437	16.25	17.00	No
		8	2447	13.93	15.00	No
		9	2452	13.16	14.00	No
		10	2457	7.58	8.50	No
		11	2462	-0.10	0.50	No
	802.11ac(VHT20)	1	2412	14.56	16.00	No
		2	2417	16.45	17.00	No
		6	2437	17.23	18.00	No
		10	2457	16.77	17.00	No
		11	2462	14.42	16.00	No

		12	2467	11.91	13.00	No
		13	2472	2.94	4.50	No
	802.11ac(VHT40)	3	2422	13.82	14.50	No
		4	2427	14.12	16.00	No
		6	2437	16.21	17.00	No
		8	2447	13.84	15.00	No
		9	2452	13.08	14.00	No
		10	2457	6.63	7.50	No
		11	2462	-0.97	-0.50	No

Note：According KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Adjusted SAR = Report SAR * (max power (OFDM)/ max power (DSSS)) = 0.554 * (70.79 mw)/(70.79 mw) =0.554 W/kg, so the 2.4GHz OFDM SAR test is not required.

8.3.3 5G WIFI (Main Antenna)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	14.54	15.00	No
		44	5220	14.42	15.00	No
		48	5240	14.37	15.00	No
	802.11n(HT20)	36	5180	14.82	15.00	No
		44	5220	14.46	15.00	No
		48	5240	14.49	15.00	No
	802.11n(HT40)	38	5190	14.44	15.00	Yes
		46	5230	**14.46**	15.00	Yes
	802.11ac(VHT20)	36	5180	14.86	15.00	No
		44	5220	14.55	15.00	No
		48	5240	14.53	15.00	No
	802.11ac(VHT40)	38	5190	14.65	15.00	No
		46	5230	14.46	15.00	No
	802.11ac(VHT80)	42	5210	12.57	13.00	No
5.8 (5.725~5.850)	802.11a	149	5745	12.51	13.00	No
		157	5785	12.83	13.00	No
		165	5825	12.54	13.00	No
	802.11n(HT20)	149	5745	12.83	13.00	No
		157	5785	12.84	13.00	No
		165	5825	12.81	13.00	No
	802.11n(HT40)	151	5755	12.58	13.00	No
		159	5795	12.51	13.00	No
	802.11ac(VHT20)	149	5745	12.74	13.00	No
		157	5785	12.77	13.00	No
		165	5825	12.79	13.00	No
	802.11ac(VHT40)	151	5755	12.41	13.00	No
		159	5795	12.51	13.00	No
	802.11ac(VHT80)	155	5775	**12.48**	13.00	Yes

8.3.4 5G WIFI (Aux. Antenna)

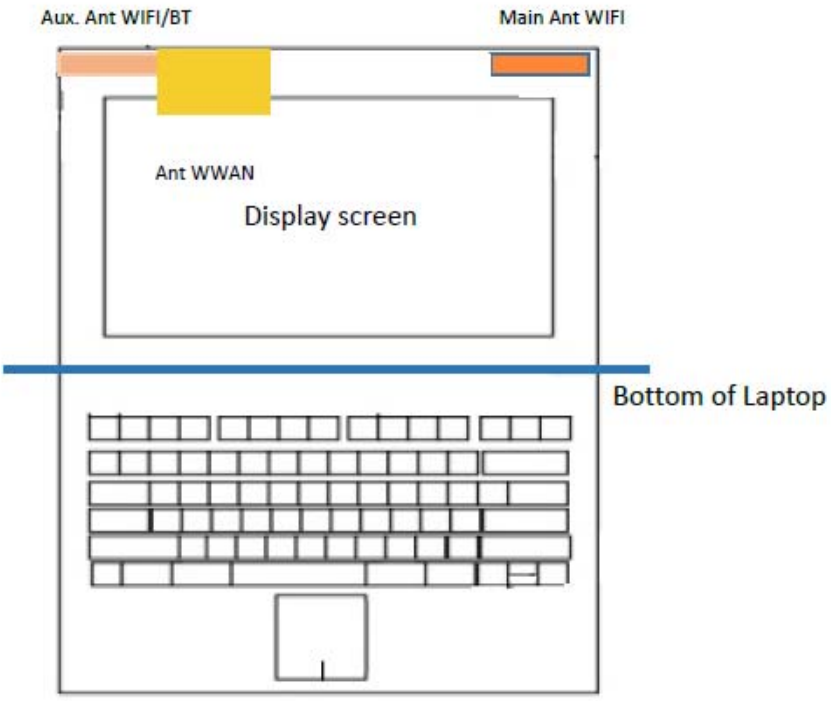
Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	16.68	17.00	No
		44	5220	16.85	17.00	No
		48	5240	16.82	17.00	No
	802.11n(HT20)	36	5180	16.85	17.00	No
		44	5220	16.87	17.00	No
		48	5240	16.41	17.00	No
	802.11n(HT40)	38	5190	14.43	15.00	Yes
		46	5230	**16.63**	17.00	Yes
	802.11ac(VHT20)	36	5180	16.62	17.00	No
		44	5220	16.53	17.00	No
		48	5240	16.87	17.00	No
	802.11ac(VHT40)	38	5190	14.61	15.00	No
		46	5230	16.53	17.00	No
	802.11ac(VHT80)	42	5210	12.52	13.00	No
5.8 (5.725~5.850)	802.11a	149	5745	15.43	16.00	No
		157	5785	15.69	16.00	No
		165	5825	15.54	16.00	No
	802.11n(HT20)	149	5745	15.54	16.00	No
		157	5785	15.43	16.00	No
		165	5825	15.74	16.00	No
	802.11n(HT40)	151	5755	15.48	16.00	No
		159	5795	15.51	16.00	No
	802.11ac(VHT20)	149	5745	15.58	16.00	No
		157	5785	15.46	16.00	No
		165	5825	15.74	16.00	No
	802.11ac(VHT40)	151	5755	15.44	16.00	No
		159	5795	15.46	16.00	No
	802.11ac(VHT80)	155	5775	**15.41**	16.00	Yes

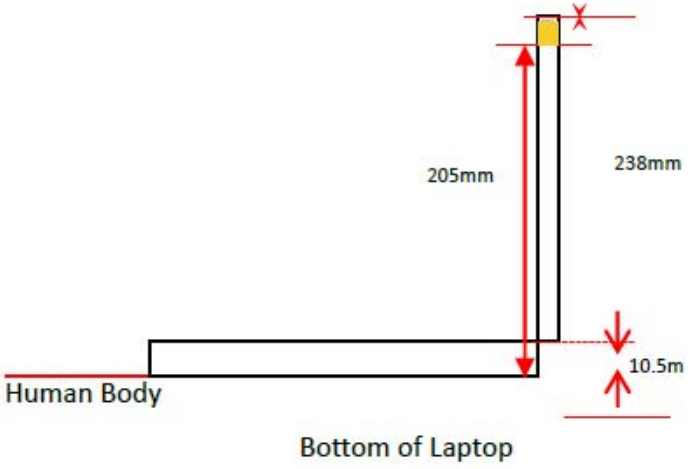
8.4 Bluetooth (Aux. Antenna)

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Average Power (dBm)	8.11	8.27	**8.66**	6.74	6.54	7.21
Tune-Up Limit (dBm)	10.00			8.00		
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Average Power (dBm)	6.73	6.57	7.17	/	/	/
Tune-Up Limit (dBm)	8.00			/		
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
Average Power (dBm)	-0.36	-0.31	0.42	-3.21	-3.04	-2.35
Tune-Up Limit (dBm)	1.00			-1.00		

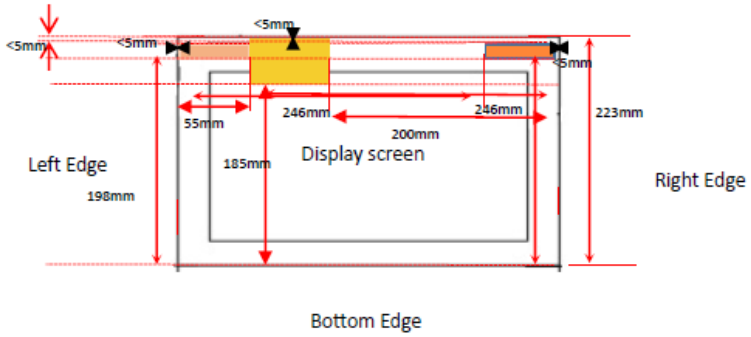
9 TEST EXCLUSION CONSIDERATION

9.1 Laptop Mode antenna location sketch





9.2 Tablet Mode antenna location sketch



Ant. Main

Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	21.0	246.0	<5.0	<5.0	198.0

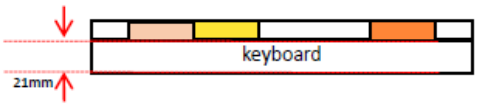
Ant. Aux

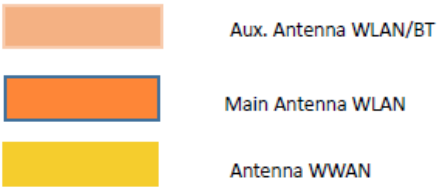
Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	21.0	<5.0	246.0	<5.0	198.0

Ant. WWAN

Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	21.0	55.0	200.0	<5.0	185.0

EUT Side View





9.3 SAR Test Consideration Table

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

Main Antenna

Test Position Configurations	Mode	WLAN 2.4GHz	WLAN 5.2GHz	WLAN 5.8GHz
Bottom of Laptop	Distance to User (mm)	205		
	Max. Peak Power (dBm)	18.5	15	13
	Max. Peak Power (mW)	70.8	31.6	20
	Exclusion Threshold (mW)	1646	1612	1612
	SAR Test Required	No	No	No

Aux. Antenna

Test Position Configurations	Mode	Bluetooth	WLAN 2.4GHz	WLAN 5.2GHz	WLAN 5.8GHz
Bottom of Laptop	Distance to User (mm)	205			
	Max. Peak Power (dBm)	13	18.5	17	16
	Max. Peak Power (mW)	3.16	70.8	50.1	39.8
	Exclusion Threshold (mW)	1645	1646	1612	1612
	SAR Test Required	No	No	No	No

Main Antenna

Band	Mode	Max. Peak Power		Test Position Configurations				
		dBm	mW	Back Side (with keyboard)	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance to User (mm)				21	246	＜5	5	198
WLAN 2.4 G	SAR Test Required							
	Exclusion Threshold			5.3	2056	22.2	22.2	1576
	802.11b	16.0	39.8	Yes	No	Yes	Yes	No
	802.11g	18.5	70.8	No	No	No	No	No
	802.11n(HT20)	18.5	70.8	No	No	No	No	No
	802.11n(HT40)	17.0	50.1	No	No	No	No	No
	802.11ac(VHT20)	18.0	63.1	No	No	No	No	No
	802.11ac(VHT40)	17.0	50.1	No	No	No	No	No
WLAN 5.2 G	Exclusion Threshold			3.6	2022	15.3	15.3	1542
	802.11a	15.0	31.6	No	No	No	No	No
	802.11n(HT20)	15.0	31.6	No	No	No	No	No
	802.11n(HT40)	15.0	31.6	Yes	No	Yes	Yes	No
	802.11ac(VHT20)	15.0	31.6	No	No	No	No	No
	802.11ac(VHT40)	15.0	31.6	No	No	No	No	No
	802.11ac(VHT80)	13.0	20.0	No	No	No	No	No
WLAN 5.8 G	Exclusion Threshold			2.3	2022	9.7	9.7	1542
	802.11a	13.0	20.0	No	No	No	No	No
	802.11n(HT20)	13.0	20.0	No	No	No	No	No
	802.11n(HT40)	13.0	20.0	No	No	No	No	No
	802.11ac(VHT20)	13.0	20.0	No	No	No	No	No
	802.11ac(VHT40)	13.0	20.0	No	No	No	No	No
	802.11ac(VHT80)	13.0	20.0	Yes	No	Yes	Yes	No

Aux Antenna

Band	Mode	Max. Peak Power		Test Position Configurations				
		dBm	mW	Back Side (with keyboard)	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance to User (mm)				21	＜5	246	5	198
WLAN 2.4 G	SAR Test Required							
	Exclusion Threshold			5.3	22.2	2056	22.2	1576
	802.11b	18.5	70.8	Yes	Yes	No	Yes	No
	802.11g	18.5	70.8	No	No	No	No	No
	802.11n(HT20)	18.5	70.8	No	No	No	No	No
	802.11n(HT40)	17.0	50.1	No	No	No	No	No
	802.11ac(VHT20)	18.0	63.1	No	No	No	No	No
	802.11ac(VHT20)	17.0	50.1	No	No	No	No	No
WLAN 5.2 G	Exclusion Threshold			5.8	24.2	2022	24.2	1542
	802.11a	17.0	50.1	No	No	No	No	No
	802.11n(HT20)	17.0	50.1	No	No	No	No	No
	802.11n(HT40)	17.0	50.1	Yes	Yes	No	Yes	No
	802.11ac(VHT20)	17.0	50.1	No	No	No	No	No
	802.11ac(VHT40)	17.0	50.1	No	No	No	No	No
	802.11ac(VHT80)	13.0	20.0	No	No	No	No	No
WLAN 5.8 G	Exclusion Threshold			4.6	19.2	2022	19.2	1542
	802.11a	16.0	39.8	No	No	No	No	No
	802.11n(HT20)	16.0	39.8	No	No	No	No	No
	802.11n(HT40)	16.0	39.8	No	No	No	No	No
	802.11ac(VHT20)	16.0	39.8	No	No	No	No	No
	802.11ac(VHT40)	16.0	39.8	No	No	No	No	No
	802.11ac(VHT80)	16.0	39.8	Yes	Yes	No	Yes	No
Bluetooth	Exclusion Threshold			1.5	6.3	2055	6.3	1575
	BR/EDR	10.0	10.0	Yes	Yes	No	Yes	No
	BLE	1.0	1.3	No	No	No	No	No

WWAN Antenna

Band	Mode	Max. Peak Power		Test Position Configurations				
		dBm	mW	Back Side (with keyboard)	Left Edge	Right Edge	Top Edge	Bottom Edge
WCDMA Band 2	Distance to User			21	55mm	200mm	<5mm	185mm
	RMC	22	158.49	Yes	Yes	No	Yes	No
WCDMA Band 5	Distance to User			21	55mm	200mm	<5mm	185mm
	RMC	25	316.23	Yes	Yes	No	Yes	No
LTE Band 2	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	24	251.19	Yes	Yes	No	Yes	No
LTE Band 4	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	24	251.19	Yes	Yes	No	Yes	No
LTE Band 5	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	24	251.19	Yes	Yes	No	Yes	No
LTE Band 12	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	24	251.19	Yes	Yes	No	Yes	No
LTE Band 30	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	22	158.49	Yes	Yes	No	Yes	No
LTE Band 66	Distance to User			21	55mm	200mm	<5mm	185mm
	QPSK	24	251.19	Yes	Yes	No	Yes	No

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
2. Per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D01, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   a. f(GHz) is the RF channel transmit frequency in GHz
   b. Power and distance are rounded to the nearest mW and mm before calculation
   c. The result is rounded to one decimal place for comparison
   d. For < 50 mm distance, we just calculate mW of the exclusion threshold value (3.0) to do compare.
5. Per KDB 447498 D01, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following
   a. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
6. Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA /HSUPA /DC-HSDPA output power is < 0.25dB higher than RMC12.2Kbps, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
7. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion.8. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum

average output power for each of these configurations is less than 1/4dB higher than those measured at the lowest data rate

8. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
   a. When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM configuration.
   b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
9. Per KDB 248227 D01 SAR is not required for the following U-NII-1 and U-NII-2A bands conditions.
   a. When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.
   b. When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, each band is tested independently for SAR.

10 TEST RESULT

10.1 WCDMA Band 2 SAR

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body												
RMC	Tablet	Back Side (with Keyboard)	0	9538	1907.6	-0.05	0.142	21.32	22.00	1.169	0.166	/
		Left Edge	0	9538	1907.6	0.00	0.068	21.32	22.00	1.169	0.080	/
		Top Edge	0	9538	1907.6	-0.02	0.738	21.32	22.00	1.169	**0.863**	1#
			0	9262	1852.4	0.19	0.511	20.97	22.00	1.268	0.648	/
			0	9400	1880	0.16	0.532	20.98	22.00	1.265	0.673	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.												

10.2 WCDMA Band 5 SAR

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body												
RMC	Tablet	Back Side (with Keyboard)	0	4233	846.6	0.08	0.212	24.52	25.00	1.117	0.237	/
		Left Edge	0	4233	846.6	0.01	0.048	24.52	25.00	1.117	0.054	/
		Top Edge	0	4233	846.6	0.05	0.621	24.52	25.00	1.117	**0.694**	2#
Note: Refer to ANNEX C for the detailed test data for each test configuration.												

10.3 LTE Band 2 (20MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	19100	1890	1	High	0.09	0.218	23.89	24.00	1.026	0.224	/
			0	19100	1890	50	High	0.15	0.172	22.86	23.00	1.033	0.178	/
		Left Edge	0	19100	1890	1	High	0.18	0.089	23.89	24.00	1.026	0.091	/
			0	18900	1880	50	High	-0.02	0.059	22.86	23.00	1.033	0.061	/
		Top Edge	0	19100	1890	1	High	0.18	0.841	23.89	24.00	1.026	0.863	/
			0	18700	1860	1	Low	-0.14	0.712	23.64	24.00	1.086	0.774	/
			0	18900	1880	1	High	0.08	0.844	23.71	24.00	1.069	**0.902**	3#
			0	18900	1880	50	High	-0.08	0.629	22.86	23.00	1.033	0.650	/
			0	19100	1890	100	Low	-0.17	0.749	22.73	23.00	1.064	0.797	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.4LTE Band 4 (20MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	20175	1732.5	1	Low	-0.15	0.175	23.69	24.00	1.074	0.188	/
			0	20050	1720	50	Mid	-0.14	0.153	23.08	23.50	1.102	0.169	/
		Left Edge	0	20175	1732.5	1	Low	-0.13	0.041	23.69	24.00	1.074	0.044	/
			0	20050	1720	50	Mid	-0.19	0.035	23.08	23.50	1.102	0.039	/
		Top Edge	0	20175	1732.5	1	Low	0.10	0.750	23.69	24.00	1.074	0.805	/
			0	20050	1720	1	Low	-0.07	0.678	23.06	24.00	1.242	**0.842**	4#
			0	20300	1745	1	Low	-0.18	0.757	23.57	24.00	1.104	0.836	/
			0	20050	1720	50	Mid	-0.19	0.575	23.08	23.50	1.102	0.633	/
			0	20050	1720	100	Low	0.00	0.592	23.04	23.50	1.112	0.658	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.5LTE Band 5 (10MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	20600	844	1	Low	0.15	0.184	23.93	24.00	1.016	0.187	/
			0	20450	829	25	Mid	-0.14	0.124	22.97	23.00	1.007	0.125	/
		Left Edge	0	20600	844	1	Low	-0.09	0.031	23.93	24.00	1.016	0.032	/
			0	20450	829	25	Mid	-0.02	0.028	22.97	23.00	1.007	0.028	/
		Top Edge	0	20600	844	1	Low	0.08	0.535	23.93	24.00	1.016	**0.544**	5#
			0	20450	829	25	Mid	0.11	0.353	22.97	23.00	1.007	0.355	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.6LTE Band 12 (10MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	23130	711	1	High	0.03	0.131	23.54	24.00	1.112	0.146	/
			0	23130	711	25	High	0.19	0.110	22.44	23.00	1.138	0.125	/
		Left Edge	0	23130	711	1	High	-0.04	0.021	23.54	24.00	1.112	0.023	/
			0	23130	711	25	High	0.04	0.018	22.44	23.00	1.138	0.020	/
		Top Edge	0	23130	711	1	High	-0.05	0.263	23.54	24.00	1.112	**0.292**	6#
			0	23130	711	25	High	0.03	0.221	22.44	23.00	1.138	0.251	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.7LTE Band 30 (10MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	27710	2310	1	Mid	-0.10	0.245	20.70	22.00	1.349	0.330	/
			0	27710	2310	25	Mid	-0.10	0.203	19.75	21.00	1.334	0.271	/
		Left Edge	0	27710	2310	1	Mid	0.01	0.033	20.70	22.00	1.349	0.045	/
			0	27710	2310	25	Mid	0.17	0.027	19.75	21.00	1.334	0.036	/
		Top Edge	0	27710	2310	1	Mid	0.12	0.801	20.70	22.00	1.349	**1.081**	7#
			0	27710	2310	25	Mid	0.10	0.682	19.75	21.00	1.334	0.909	/
			0	27710	2310	50	Low	0.07	0.686	19.71	21.00	1.346	0.923	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.8LTE Band 66 (20MHz Bandwidth)

Mode	Test Position	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
QPSK	Tablet	Back Side (with Keyboard)	0	132322	1745	1	Low	0.13	0.187	23.78	24.00	1.052	0.197	/
			0	132072	1720	50	Low	-0.12	0.169	22.83	23.00	1.040	0.176	/
		Left Edge	0	132322	1745	1	Low	-0.10	0.045	23.78	24.00	1.052	0.047	/
			0	132072	1720	50	Low	-0.19	0.037	22.83	23.00	1.040	0.038	/
		Top Edge	0	132322	1745	1	Low	-0.11	0.873	23.78	24.00	1.052	0.918	/
			0	132072	1720	1	Low	0.15	0.774	23.77	24.00	1.054	0.816	/
			0	132572	1770	1	High	-0.10	1.030	23.68	24.00	1.076	**1.109**	8#
			0	132072	1720	50	Low	0.17	0.674	22.83	23.00	1.040	0.701	/
			0	132072	1720	100	Low	-0.12	0.687	22.74	23.00	1.062	0.729	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.9WIFI 2.4GHz

Mode	Test Position	Antenna	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
802.11b	Tablet	Aux	Back Side (with Keyboard)	0	6	2437	0.10	0.266	18.22	18.50	1.067	99.02	1.010	0.287	/
			Left Edge	0	6	2437	-0.12	0.514	18.22	18.50	1.067	99.02	1.010	**0.554**	9#
			Top Edge	0	6	2437	-0.06	0.204	18.22	18.50	1.067	99.02	1.010	0.220	/
		Main	Back Side (with Keyboard)	0	11	2462	0.06	0.074	14.87	16.00	1.297	99.02	1.010	0.097	/
			Right Edge	0	11	2462	-0.10	0.346	14.87	16.00	1.297	99.02	1.010	**0.453**	10#
			Top Edge	0	11	2462	0.15	0.156	14.87	16.00	1.297	99.02	1.010	0.205	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

10.10 WIFI 5GHz

Fre. Band	Mode	Test Position	Antenna	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
5.2G	802.11 n40	Tablet	Aux	Back Side (with Keyboard)	0	46	5230	0.00	0.412	16.63	17.00	1.089	96.41	1.037	0.465	/
				Left Edge	0	46	5230	0.18	0.767	16.63	17.00	1.089	96.41	1.037	**0.866**	11#
					0	38	5190	-0.09	0.467	14.43	15.00	1.140	96.41	1.037	0.552	/
				Top Edge	0	46	5230	0.14	0.260	16.63	17.00	1.089	96.41	1.037	0.294	/
			Main	Back Side (with Keyboard)	0	38	5190	-0.02	0.226	14.46	15.00	1.132	96.41	1.037	0.265	/
				Right Edge	0	38	5190	-0.12	0.682	14.46	15.00	1.132	96.41	1.037	0.801	/
					0	46	5230	0.14	0.890	14.44	15.00	1.138	96.41	1.037	**1.050**	12#
				Top Edge	0	38	5190	-0.09	0.146	14.46	15.00	1.132	96.41	1.037	0.171	/
5.8G	802.11 ac80	Tablet	Aux	Back Side (with Keyboard)	0	155	5775	-0.11	0.839	15.41	16.00	1.146	92.99	1.075	**1.034**	13#
				Left Edge	0	155	5775	-0.03	0.253	15.41	16.00	1.146	92.99	1.075	0.312	/
				Top Edge	0	155	5775	-0.08	0.238	15.41	16.00	1.146	92.99	1.075	0.293	/
			Main	Back Side (with Keyboard)	0	155	5775	0.09	0.162	12.48	13.00	1.127	92.99	1.075	0.196	/
				Right Edge	0	155	5775	0.05	0.980	12.48	13.00	1.127	92.99	1.075	**1.188**	14#
				Top Edge	0	155	5775	0.13	0.082	12.48	13.00	1.127	92.99	1.075	0.099	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.																

10.11 Bluetooth

Mode	Test Position	Antenna	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
DH5	Tablet	Aux	Back Side (with Keyboard)	0	78	2480	-0.18	0.020	8.66	10.00	1.361	76.88	1.301	0.036	/
			Left Edge	0	78	2480	0.04	0.048	8.66	10.00	1.361	76.88	1.301	**0.085**	15#
			Top Edge	0	78	2480	0.04	0.013	8.66	10.00	1.361	76.88	1.301	0.023	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

11 SAR Measurement Variability

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

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20, or when the original or repeated measurement is >= 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Frequency Band (MHz)	Wireless Band	Antenna	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Largest to Smallest SAR Radio
1880	LTE Band 2	/	Body	Top Edge	0.844	Yes	0.830	1.02
2310	LTE Band 30	/	Body	Top Edge	0.801	Yes	0.790	1.01
1770	LTE Band 66	/	Body	Top Edge	1.03	Yes	0.98	1.05
5230	WIFI 5GHz	Main	Body	Right Edge	0.890	Yes	0.874	1.02
5775	WIFI 5GHz	Aux	Body	Back Side (with Keyboard)	0.839	Yes	0.815	1.03
5775	WIFI 5GHz	Main	Body	Right Edge	0.980	Yes	0.948	1.03
Note: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20, the second repeated measurement is not required.								

12 SIMULTANEOUS TRANSMISSION

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

According KDB 447498 D01v06, simultaneous transmission:

a) SPLSR = (SAR1 + SAR2)^1.5 / R_i (min. separation distance, mm), and the peak separation distance is determined from the square root of [$(x1-x2)^2$ + $(y1-y2)^2$ + $(z1-z2)^2$], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   SAR1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.
   SAR2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition as the first.

b) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

c) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

12.1 Simultaneous Transmission Mode Considerations

No.	Simultaneous Tx Combination	Body
1	2.4 G WLAN (Main Antenna)+2.4 G WLAN (Auxiliary Antenna)	Yes
2	2.4 G WLAN (Main Antenna)+ Bluetooth (Auxiliary Antenna)	Yes
3	5 G WLAN (Main Antenna)+5 G WLAN (Auxiliary Antenna)	Yes
4	5 G WLAN (Main Antenna)+Bluetooth (Auxiliary Antenna)	Yes
5	5G WLAN(Auxiliary Antenna)+Bluetooth (Auxiliary Antenna)	Yes
6	5 G WLAN (Main Antenna)+5 G WLAN (Auxiliary Antenna)+Bluetooth (Auxiliary Antenna)	Yes
7	WWAN+2.4 G WLAN (Main Antenna)+2.4 G WLAN (Auxiliary Antenna)	Yes
8	WWAN+2.4 G WLAN (Main Antenna)+ Bluetooth (Auxiliary Antenna)	Yes
9	WWAN+5 G WLAN (Main Antenna)+5 G WLAN (Auxiliary Antenna)	Yes
10	WWAN+5 G WLAN (Main Antenna)+Bluetooth (Auxiliary Antenna)	Yes
11	WWAN+5G WLAN(Auxiliary Antenna)+Bluetooth (Auxiliary Antenna)	Yes
12	WWAN+5 G WLAN (Main Antenna)+5 G WLAN (Auxiliary Antenna)+Bluetooth (Auxiliary Antenna)	Yes

Note:

1. WWAN antennas can switch automatically, but up and down antenna can't transmit simultaneously.
2. WiFi 2.4G and Bluetooth share the same antenna, and can't transmit simultaneously.
3. The maximum SAR summation is calculated based on the same configuration and test position.
4. The simultaneous transmission combinations of the three antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations is shown in this report.
5. If 1g-SAR scalar summation < 1.6W/kg, simultaneous SAR measurement is not necessary.

12.2Sum SAR of Simultaneous Transmission

12.2.1 Body Simultaneous Transmission SAR Evaluation for WWAN and WLAN

Band	Position	Stand alone SAR								SUM SAR			
		1	2	3	4	5	6	7	8				
		WWAN	2.4G WIFI Antenna Aux.	2.4G WIFI Antenna Main	5.2G WIFI Antenna Aux.	5.2G WIFI Antenna Main	5.8G WIFI Antenna Aux.	5.8G WIFI Antenna Main	Blueto oth	Sum SAR (1+2+3)	Sum SAR (1+3+8)	Sum SAR (1+4+5 +8)	Sum SAR (1+6+7 +8)
WCDMA B2	Back Side (with Keyboard)	0.166	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.549	0.298	0.932	1.432
	Left Edge	0.080	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.863	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.287	1.091	1.351	1.279
WCDMA B5	Back Side (with Keyboard)	0.237	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.620	0.369	1.003	1.502
	Left Edge	0.054	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.694	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.118	0.921	1.182	1.109
LTE B2	Back Side (with Keyboard)	0.224	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.607	0.356	0.990	1.489
	Left Edge	0.091	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.902	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.327	1.130	1.390	1.318
LTE B4	Back Side (with Keyboard)	0.188	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.571	0.320	0.954	1.453
	Left Edge	0.044	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.842	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.266	1.069	1.330	1.257
LTE B5	Back Side (with Keyboard)	0.187	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.570	0.319	0.953	1.452
	Left Edge	0.032	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.544	0.220	0.205	0.294	0.171	0.293	0.099	0.023	0.968	0.771	1.032	0.959
LTE B12	Back Side (with Keyboard)	0.146	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.529	0.278	0.912	1.411
	Left Edge	0.023	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	0.292	0.220	0.205	0.294	0.171	0.293	0.099	0.023	0.717	0.520	0.781	0.708
LTE B30	Back Side (with Keyboard)	0.330	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.714	0.463	1.097	1.596
	Left Edge	0.045	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	1.081	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.505	1.308	1.569	1.496
LTE B66	Back Side (with Keyboard)	0.197	0.287	0.097	0.465	0.265	1.034	0.196	0.036	0.580	0.329	0.963	1.462
	Left Edge	0.047	0.554	/	0.866	/	0.312	/	0.085	/	/	/	/
	Top Edge	1.109	0.220	0.205	0.294	0.171	0.293	0.099	0.023	1.533	1.336	**1.597**	1.524

Note:

1: The simultaneous transmission combinations of the three antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 1g SAR is 1.597 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.8.8.1222	N/A	N/A
750MHz Validation Dipole	Speag	D750V3	SN: 1201	2020/11/11	2023/11/10
835MHz Validation Dipole	Speag	D835V2	SN: 4d187	2021/05/17	2024/05/16
1750MHz Validation Dipole	Speag	D1750V2	SN: 1130	2021/05/17	2024/05/16
1900MHz Validation Dipole	Speag	D1900V2	SN: 5d193	2021/05/20	2024/05/19
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2021/05/19	2024/05/18
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1200	2021/05/18	2024/05/17
E-Field Probe	Speag	EX3DV4	SN: 7510	2020/11/30	2021/11/29
Data Acquisition Electronics	Speag	DAE4	SN: 1454	2020/11/06	2021/11/05
Signal Generator	R&S	SMB100A	182396	2020/12/21	2021/12/20
Power Meter	R&S	NRVD-B2	7250BJ-0112/2011	2020/09/25	2021/09/24
Power Sensor	R&S	NRV-Z4	100381	2020/09/25	2021/09/24
Power Sensor	R&S	NRV-Z2	100211	2020/09/25	2021/09/24
Network Analyzer	Agilent	E5071B	MY42404001	2021/04/01	2022/03/31
Thermometer	Elitech	RC-4HC	EF720B004820	2020/12/24	2021/12/23
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 25/13 OCPG56	N/A	N/A
Phantom1	Speag	SAM	SN: 1859	N/A	N/A
Phantom2	Speag	ELI4	SN: 1012	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

Note: For dipole antennas, BALUN has adopted 3 years as calibration intervals, and on annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss in within 20% of calibrated measurement.
4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

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

Head Liquid

Date	Liquid Type	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity (σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2021.06.13	Head	750	21.8	0.91	41.32	0.89	41.94	2.25	-1.48
2021.06.13	Head	835	21.8	0.89	42.26	0.90	41.50	-1.11	1.83
2021.06.13	Head	1750	21.8	1.36	40.90	1.37	40.08	-0.73	2.05
2021.06.22	Head	1900	21.4	1.43	39.12	1.40	40.00	2.14	-2.20
2021.06.23	Head	2450	21.5	1.84	38.41	1.80	39.20	2.22	-2.02
2021.06.24	Head	5250	21.9	4.75	35.48	4.71	35.93	0.85	-1.25
2021.06.24	Head	5750	21.9	5.24	35.48	5.22	35.36	0.38	0.34
Note: The tolerance limit of Conductivity and Permittivity is± 5%.									

ANNEX B SYSTEM CHECK RESULT

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

Head liquid 1g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2021.06.13	Head	750	100	0.854	8.54	8.290	3.02
2021.06.13	Head	835	100	0.904	9.04	9.760	-7.38
2021.06.13	Head	1750	100	3.710	37.10	36.70	1.09
2021.06.22	Head	1900	100	3.950	39.50	40.30	-1.99
2021.06.23	Head	2450	100	5.540	55.40	53.00	4.53
2021.06.24	Head	5250	100	7.350	73.50	77.80	-5.53
2021.06.24	Head	5750	100	7.530	75.30	77.20	-2.46
Note: The tolerance limit of System validation ±10%.							

System Performance Check Data (750MHz)

Date: 2021.06.13

Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used (extrapolated): f = 750 MHz; σ = 0.912 S/m; ε_r = 41.321; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.31, 10.31, 10.31); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 750/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.906 W/kg

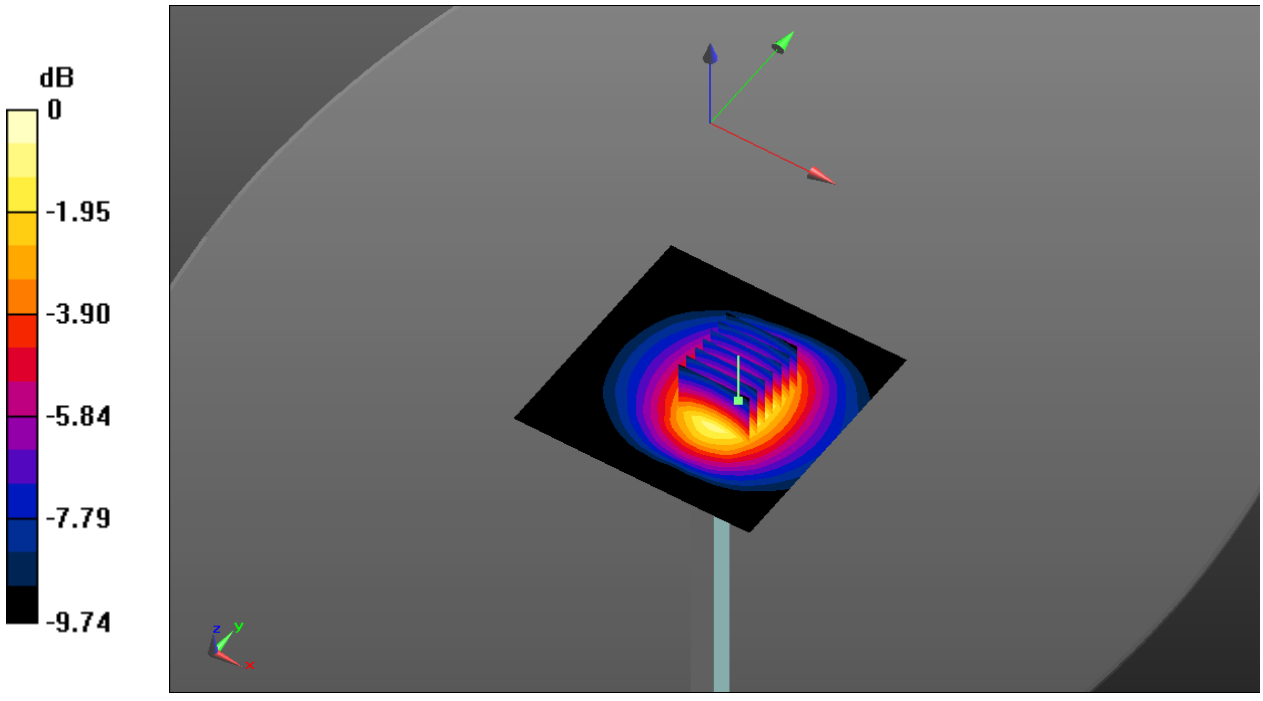
CW 750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.08 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.854 W/kg; SAR(10 g) = 0.572 W/kg

Maximum value of SAR (measured) = 0.916 W/kg



0 dB = 0.916 W/kg

System Performance Check Data (835MHz)

Date: 2021.06.13

Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.887 S/m; ε_r = 42.256; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.94, 9.94, 9.94); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 835/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.973 W/kg

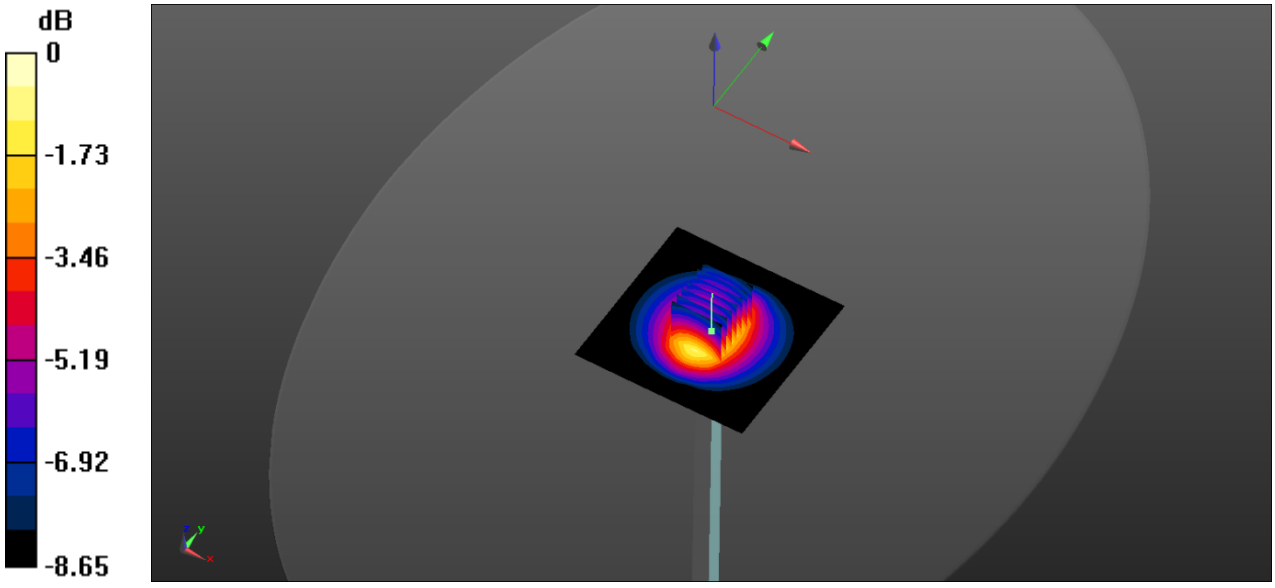
CW 835/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.7 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.904 W/kg; SAR(10 g) = 0.624 W/kg

Maximum value of SAR (measured) = 0.974 W/kg



0 dB = 0.974 W/kg

System Performance Check Data (1750MHz)

Date: 2021.06.13

Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1750 MHz; σ = 1.364 S/m; ε_r = 40.896; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.6, 8.6, 8.6); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 1750/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.19 W/kg

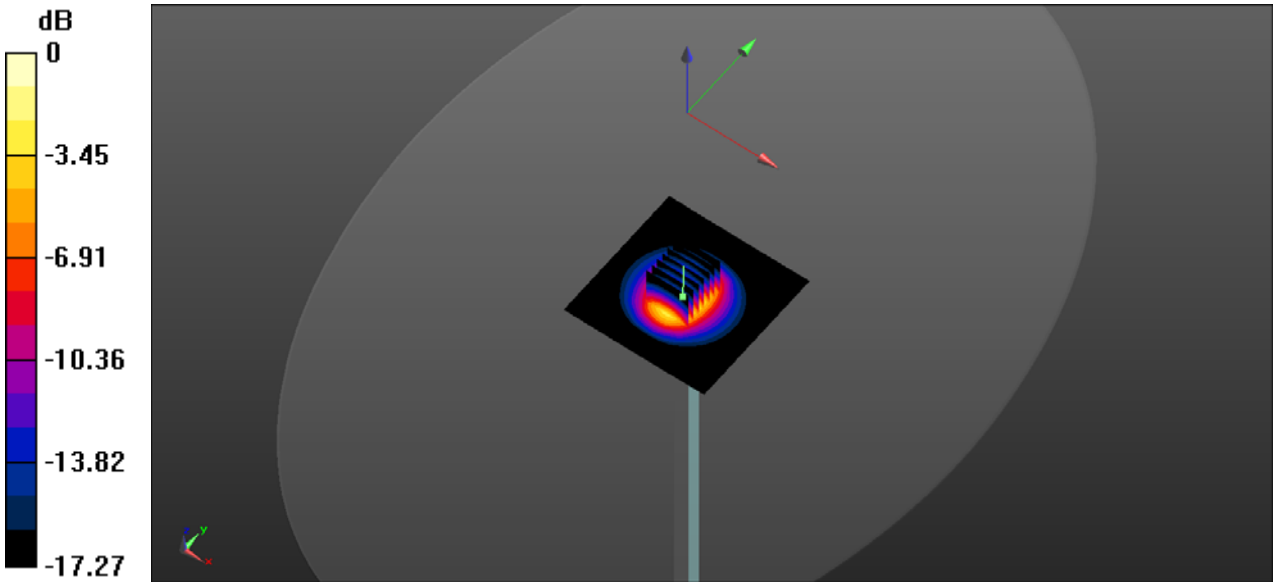
CW 1750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.03 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 6.95 W/kg

SAR(1 g) = 3.71 W/kg; SAR(10 g) = 1.98 W/kg

Maximum value of SAR (measured) = 4.21 W/kg



0 dB = 4.21 W/kg

System Performance Check Data (1900MHz)

Date: 2021.06.22

Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.433 S/m; ε_r = 39.123; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.1 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.3, 8.3, 8.3); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 1900 /Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.43 W/kg

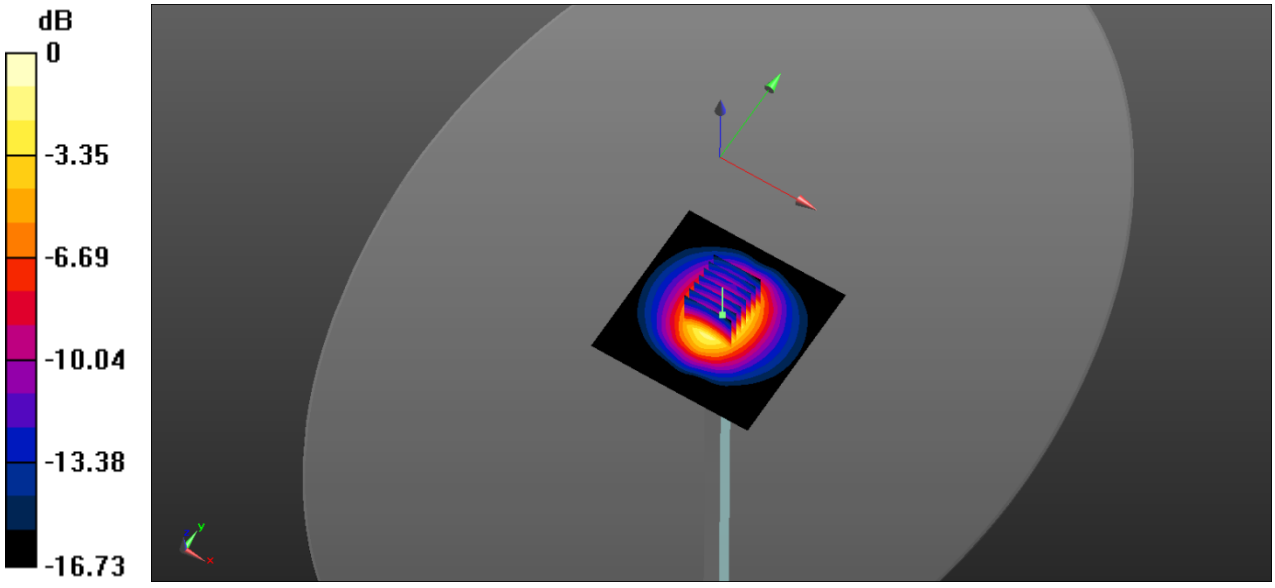
CW 1900 /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.95 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 7.09 W/kg

SAR(1 g) = 3.95 W/kg; SAR(10 g) = 2.09 W/kg

Maximum value of SAR (measured) = 4.43 W/kg



0 dB = 4.43 W/kg

System Performance Check Data (2450MHz)

Date: 2021.06.23

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.841 S/m; ε_r = 38.411; ρ = 1000 kg/m^3

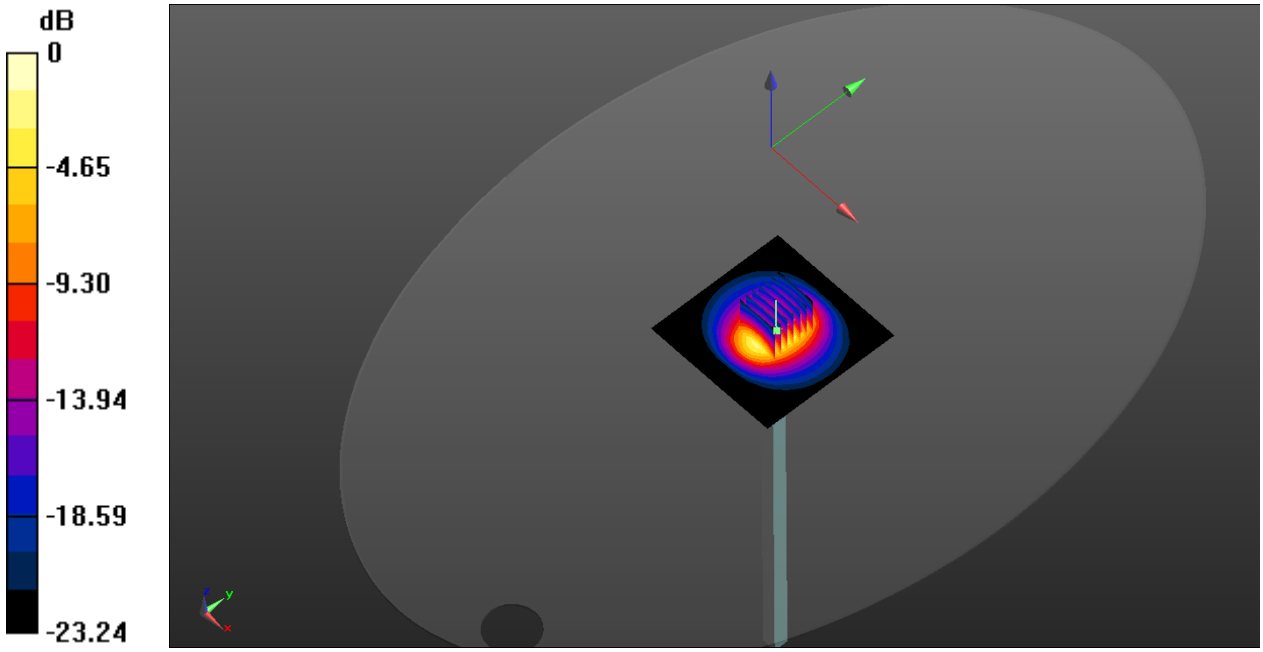
Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 2450/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.25 W/kg
CW 2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.19 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 5.54 W/kg; SAR(10 g) = 2.47 W/kg
Maximum value of SAR (measured) = 6.28 W/kg



0 dB = 6.28 W/kg

System Performance Check Data (5250MHz)

Date: 2021.06.24

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5250 MHz; σ = 4.754 S/m; ε_r = 35.476; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.46, 5.46, 5.46); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 5250/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 7.93 W/kg

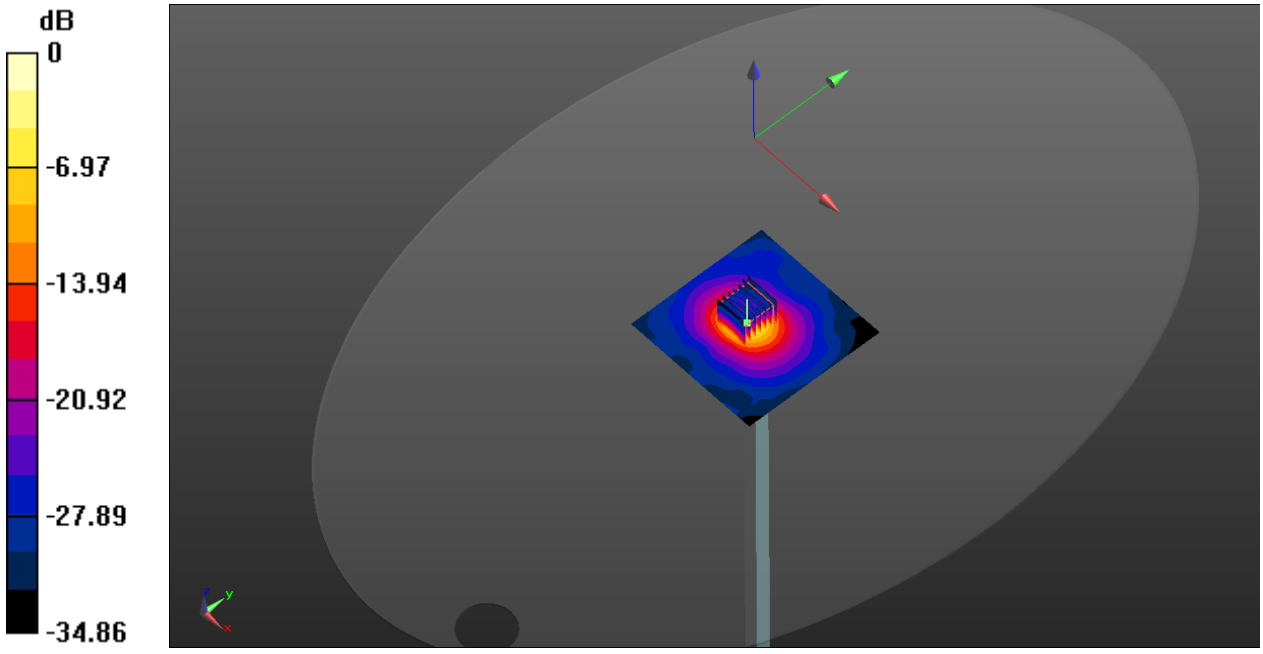
CW 5250/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 32.86 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 30.7 W/kg

SAR(1 g) = 7.35 W/kg; SAR(10 g) = 2.04 W/kg

Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg

System Performance Check Data (5750MHz)

Date: 2021.06.24

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5750 MHz; σ = 5.235 S/m; ε_r = 35.478; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(4.96, 4.96, 4.96); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 5750/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.31 W/kg

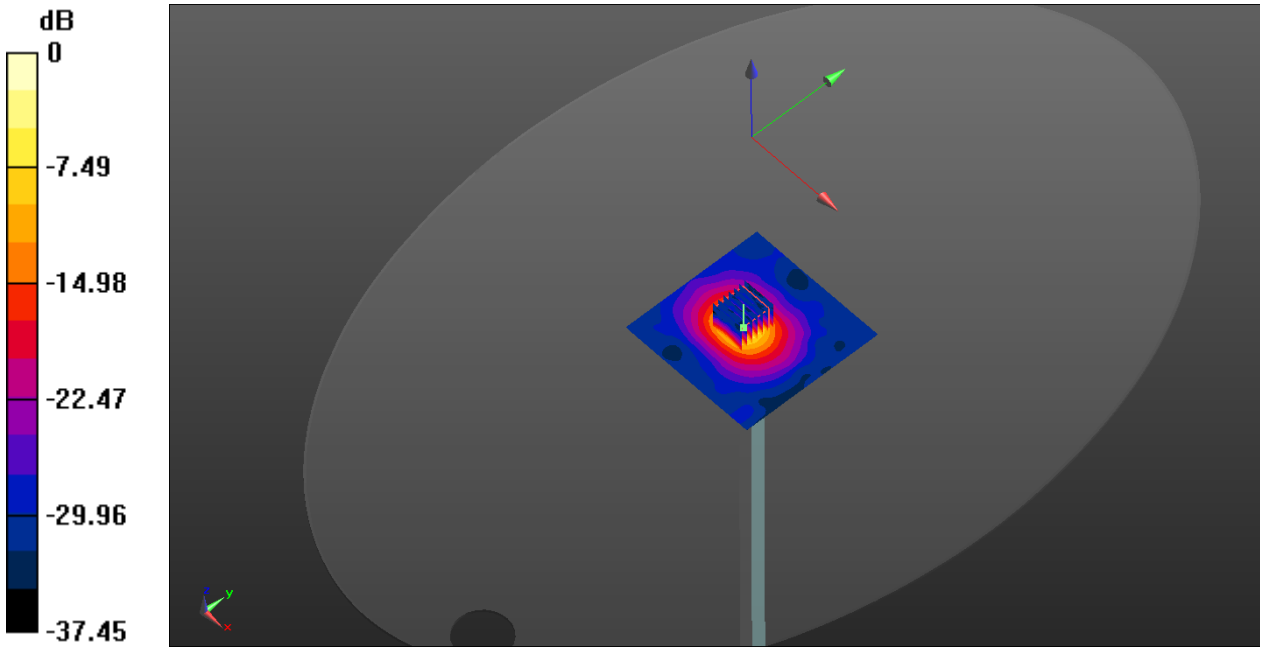
CW 5750/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 35.37 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 32.0 W/kg

SAR(1 g) = 7.53 W/kg; SAR(10 g) = 2.12 W/kg

Maximum value of SAR (measured) = 16.3 W/kg



0 dB = 16.3 W/kg

ANNEX C TEST DATA

1-Body Plane with Top Edge 0mm on High Channel in WCDMA Band2 Mode

Date: 2021.06.22

Communication System Band: Ⅱ; Frequency: 1907.6 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.445 S/m; ε_r = 39.011; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.1 Liquid Temperature:21.4

DASY5 Configuration:

Probe: EX3DV4 - SN7510; ConvF(8.3, 8.3, 8.3); Calibrated: 2020.11.30;

- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9538/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.23 W/kg

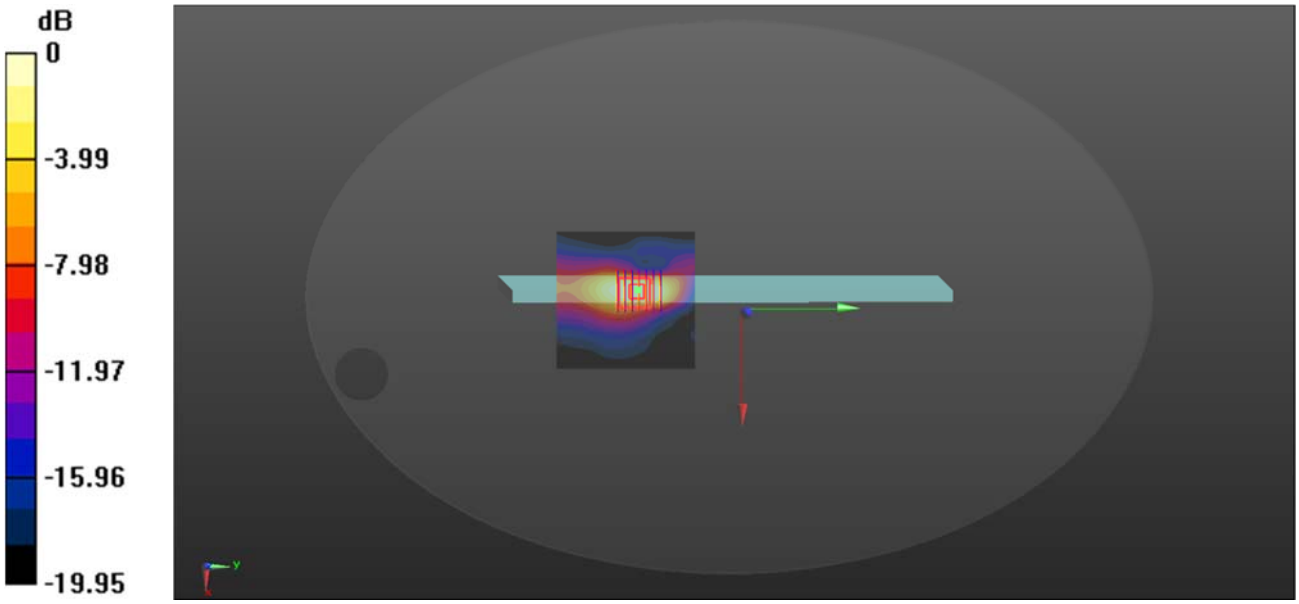
Ch9538/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.443 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.738 W/kg; SAR(10 g) = 0.379 W/kg

Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.21 W/kg

2-Body Plane with Top Edge 0mm on High Channel in WCDMA Band5 Mode

Date: 2021.06.13

Communication System Band: V ; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.908 S/m; ε_r = 42.065; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.94, 9.94, 9.94); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4233/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.668 W/kg

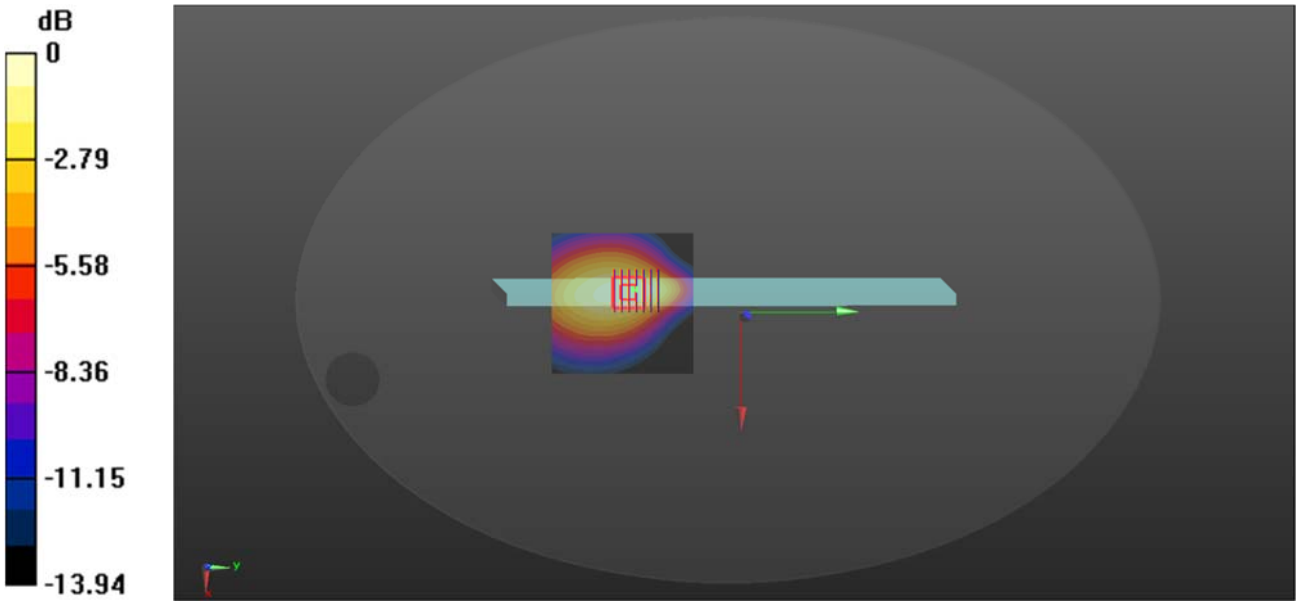
Ch4233/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.859 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.621 W/kg; SAR(10 g) = 0.385 W/kg

Maximum value of SAR (measured) = 0.674 W/kg



0 dB = 0.674 W/kg

3-Body Plane with Top Edge 0mm on Middle Channel in LTE Band2 Mode

Date: 2021.06.22

Communication System Band: Band 2, E-UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.398 S/m; ε_r = 39.615; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.1 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.3, 8.3, 8.3); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.11 W/kg

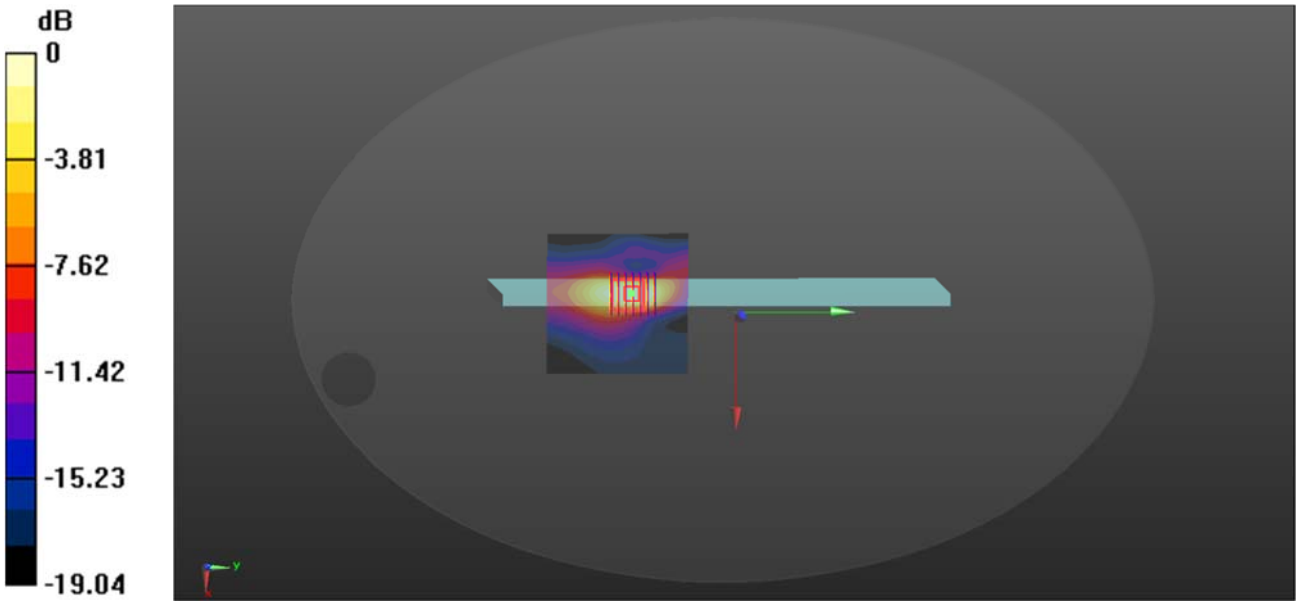
Ch18900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.531 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.61 W/kg

SAR(1 g) = 0.844 W/kg; SAR(10 g) = 0.415 W/kg

Maximum value of SAR (measured) = 0.977 W/kg



0 dB = 0.977 W/kg

4-Body Plane with Top Edge 0mm on Low Channel in LTE Band4 Mode

Date: 2021.06.13

Communication System Band: Band 4, E-UTRA/FDD (1710.0 - 1755.0 MHz); Frequency: 1720 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1720 MHz; σ = 1.328 S/m; ε_r = 41.523; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.6, 8.6, 8.6); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20050/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.829 W/kg

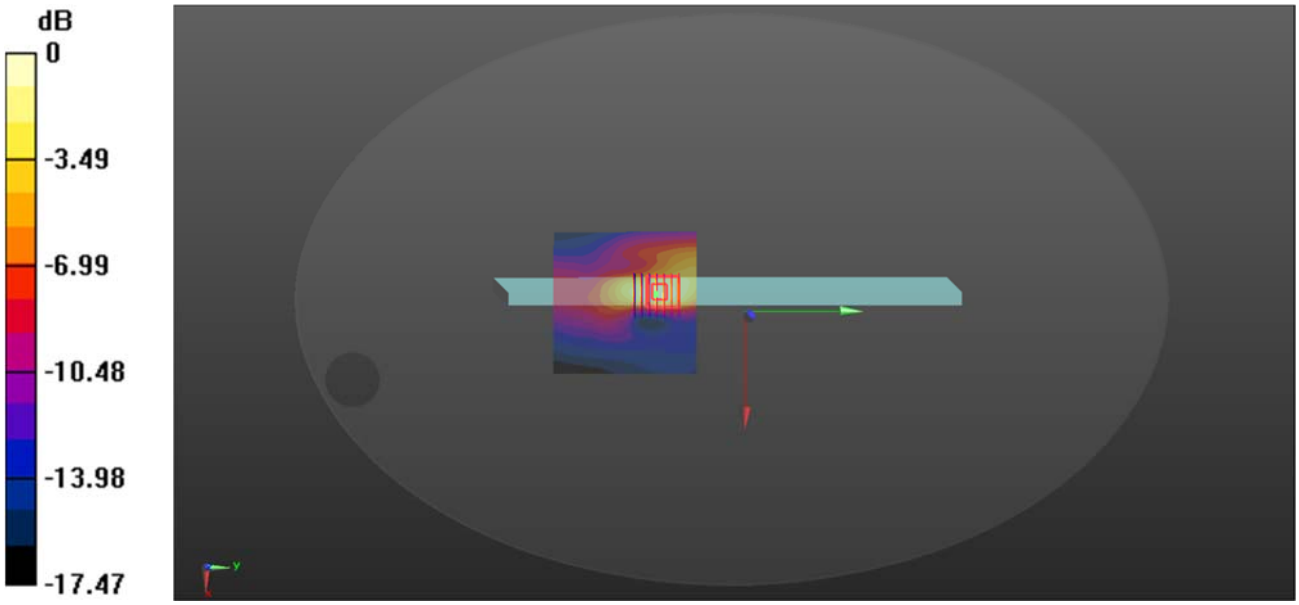
Ch20050/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.133 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.678 W/kg; SAR(10 g) = 0.362 W/kg

Maximum value of SAR (measured) = 0.772 W/kg



0 dB = 0.772 W/kg

5-Body Plane with Top Edge 0mm on High Channel in LTE Band5 Mode

Date: 2021.06.13

Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 844 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 844 MHz; σ = 0.904 S/m; ε_r = 42.114; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.94, 9.94, 9.94); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20600/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.567 W/kg

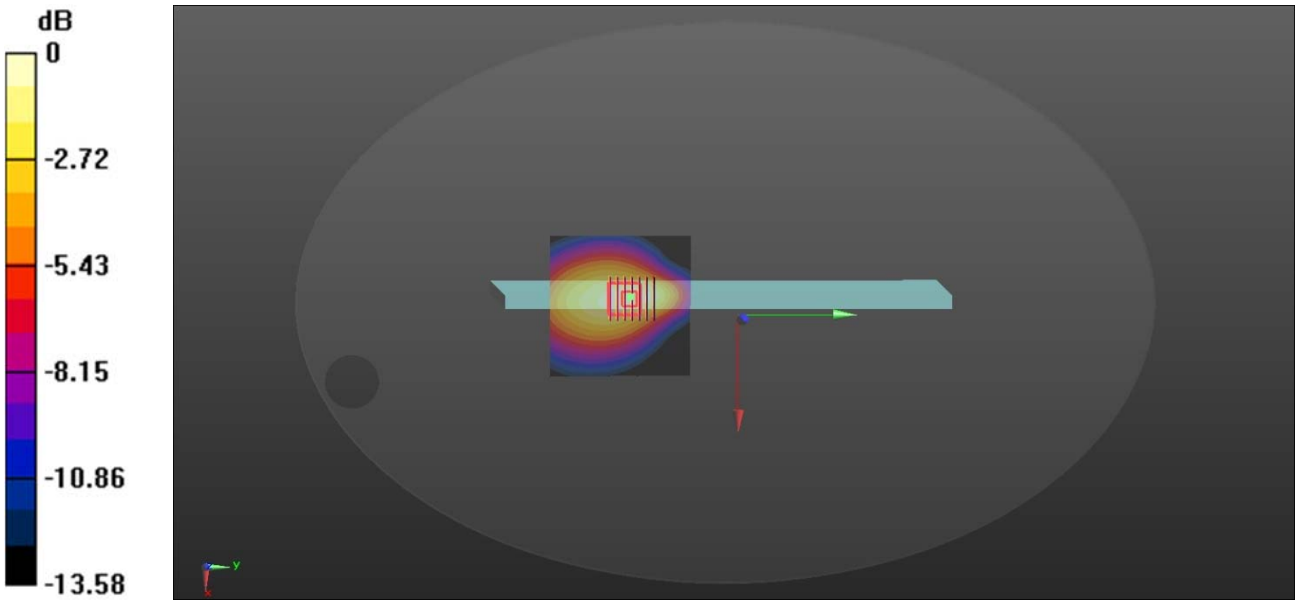
Ch20600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.579 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.917 W/kg

SAR(1 g) = 0.535 W/kg; SAR(10 g) = 0.332 W/kg

Maximum value of SAR (measured) = 0.590 W/kg



0 dB = 0.590 W/kg

6-Body Plane with Top Edge 0mm on High Channel in LTE Band12 Mode

Date: 2021.06.13

Communication System Band: Band 12, E-UTRA/FDD (699.0 - 716.0 MHz); Frequency: 711 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 711 MHz; σ = 0.891 S/m; ε_r = 41.745; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.31, 10.31, 10.31); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23130/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.282 W/kg

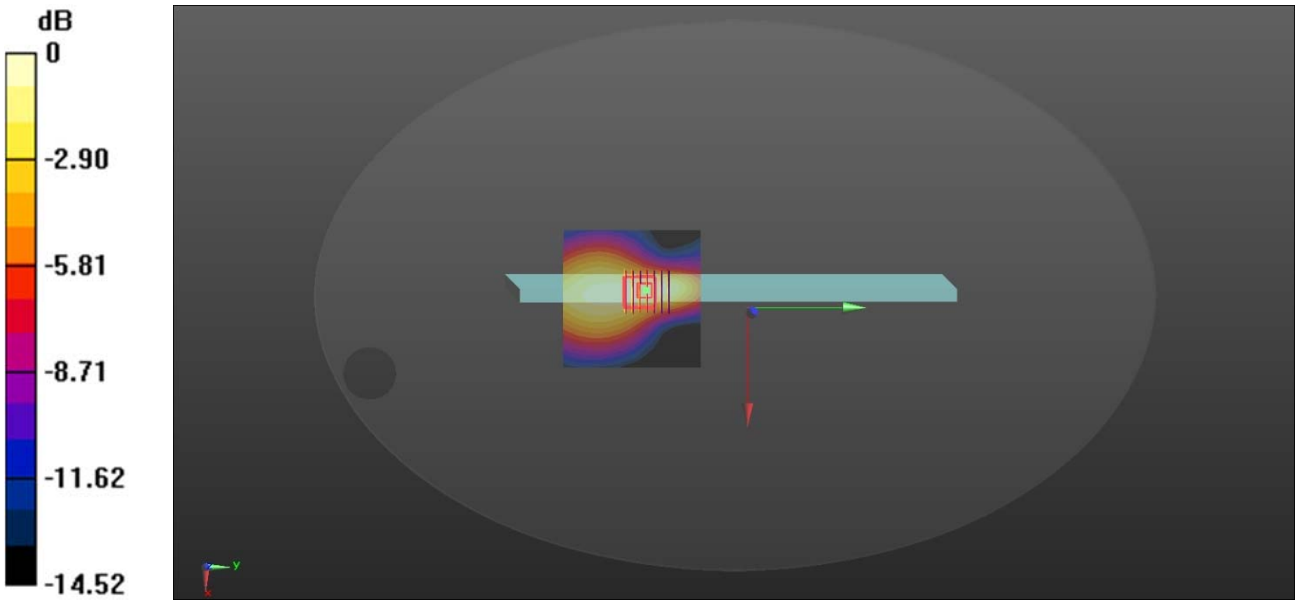
Ch23130/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.167 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.492 W/kg

SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.157 W/kg

Maximum value of SAR (measured) = 0.296 W/kg



0 dB = 0.296 W/kg

7-Body Plane with Top Edge 0mm on Middle Channel in LTE Band30 Mode

Date: 2021.06.23

Communication System Band: Band 30, E-UTRA/FDD (2305.0 - 2314.9 MHz); Frequency: 2310 MHz;Duty Cycle: 1:1

Medium parameters used (extrapolated): f = 2310 MHz; σ = 1.641 S/m; ε_r = 40.562; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.94, 7.94, 7.94); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch27710/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

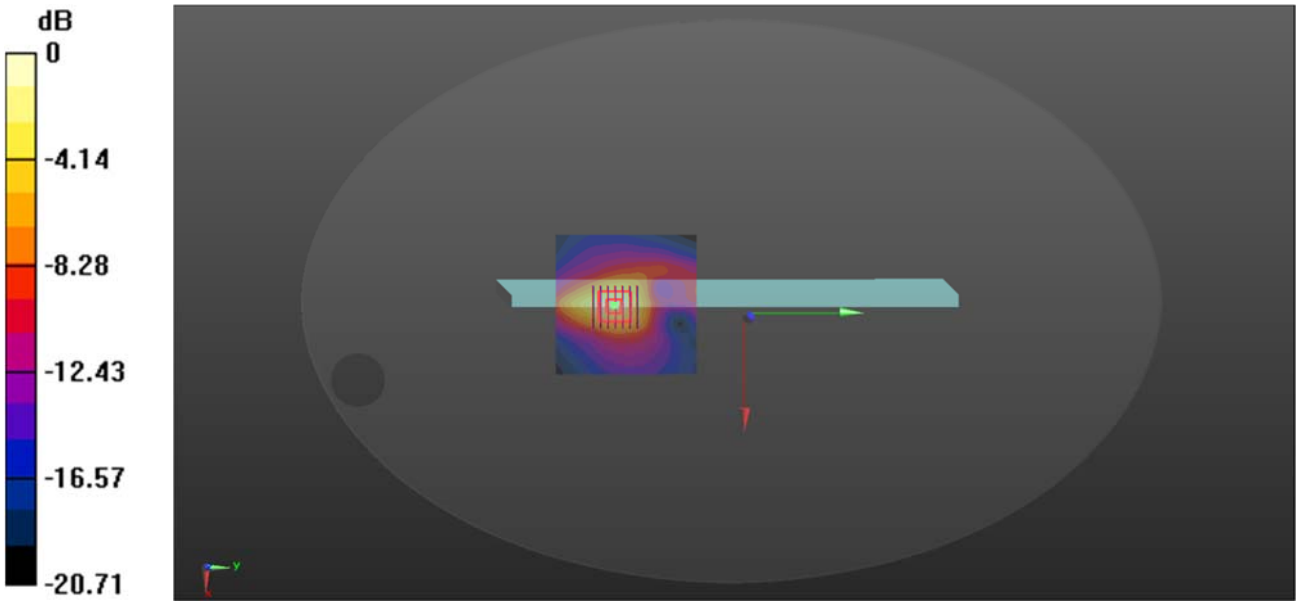
Ch27710/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.572 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.34 W/kg

SAR(1 g) = 0.801 W/kg; SAR(10 g) = 0.398 W/kg

Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.09 W/kg

8-Body Plane with Top Edge 0mm on High Channel in LTE Band66 Mode

Date: 2021.06.13

Communication System Band: Band 66, E-UTRA/FDD (1710.0 - 1780.0 MHz); Frequency: 1770 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1770 MHz; σ = 1.384 S/m; ε_r = 40.648; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.8

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.6, 8.6, 8.6); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch132572/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.24 W/kg

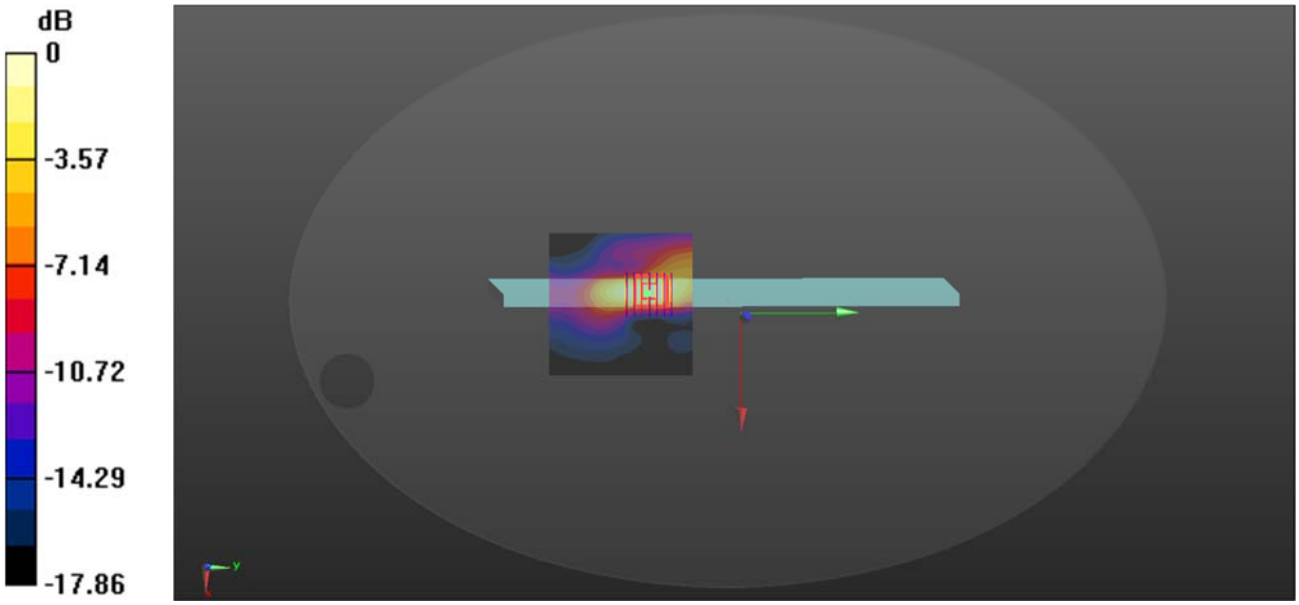
Ch132572/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.784 V/m; Power Drift = -0.10dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.522 W/kg

Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.17 W/kg

9-Body Plane with Left Edge 0mm on 6 Channel in IEEE802.11b Modewith Antenna Auxiliary

Date: 2021.06.23

Communication System Band:WLAN(b); Frequency: 2437 MHz;Duty Cycle: 1:1.01

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.778 S/m; ε_r = 39.389; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch6/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.612 W/kg

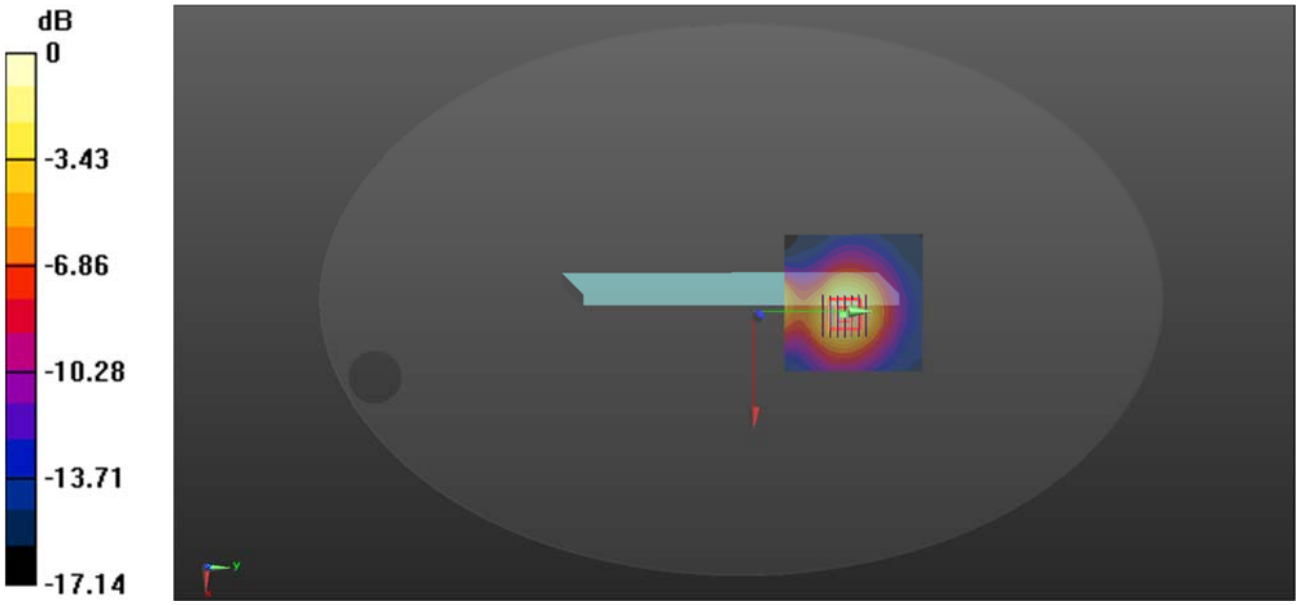
Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.163 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.926 W/kg

SAR(1 g) = 0.514 W/kg; SAR(10 g) = 0.272 W/kg

Maximum value of SAR (measured) = 0.564 W/kg



0 dB = 0.564 W/kg

10-Body Plane with Right Edge 0mm on 10 Channel in IEEE802.11b Modewith Antenna Main

Date: 2021.06.23

Communication System Band: WLAN(b); Frequency: 2457 MHz;Duty Cycle: 1:1.01

Medium parameters used (interpolated): f = 2457 MHz; σ = 1.854 S/m; ε_r = 38.316; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch10/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.325 W/kg

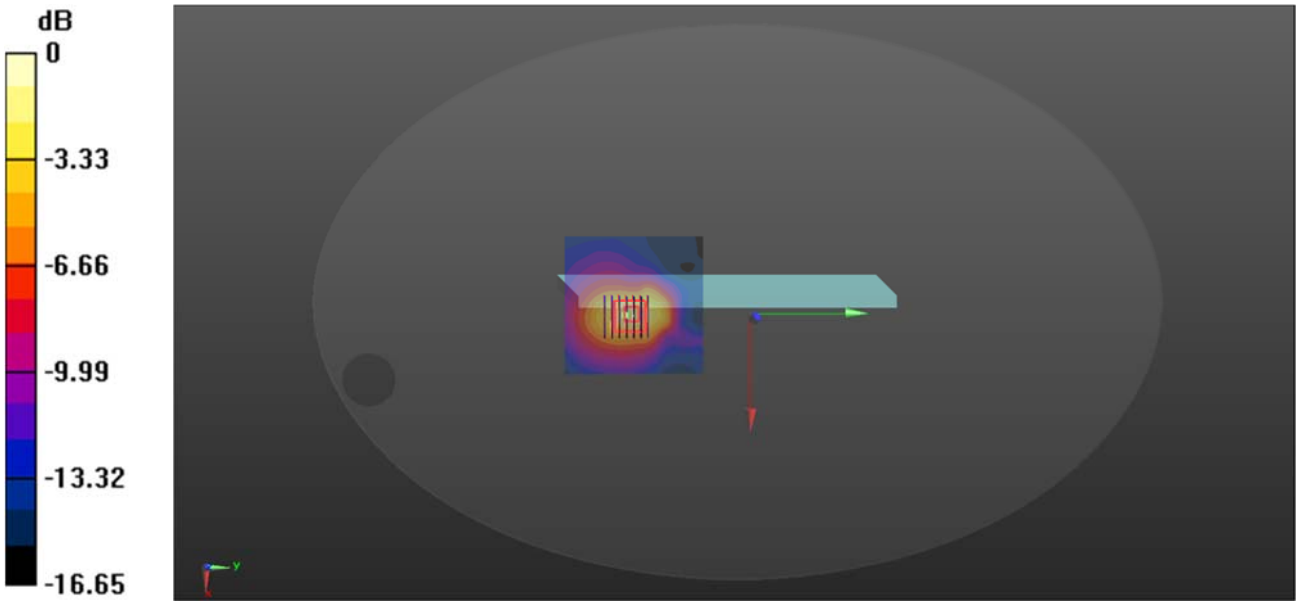
Ch10/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.139 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.829 W/kg

SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.152 W/kg

Maximum value of SAR (measured) = 0.422 W/kg



0 dB = 0.422 W/kg

11-Body Plane with Left Edge 0mm on 46 Channel in IEEE802.11n40 Modewith Antenna Auxiliary

Date: 2021.06.24

Communication System Band:WLAN(n40); Frequency: 5230 MHz;Duty Cycle: 1:1.037

Medium parameters used: f = 5230 MHz; σ = 4.698 S/m; ε_r = 35.643; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.46, 5.46, 5.46); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch46/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.814 W/kg

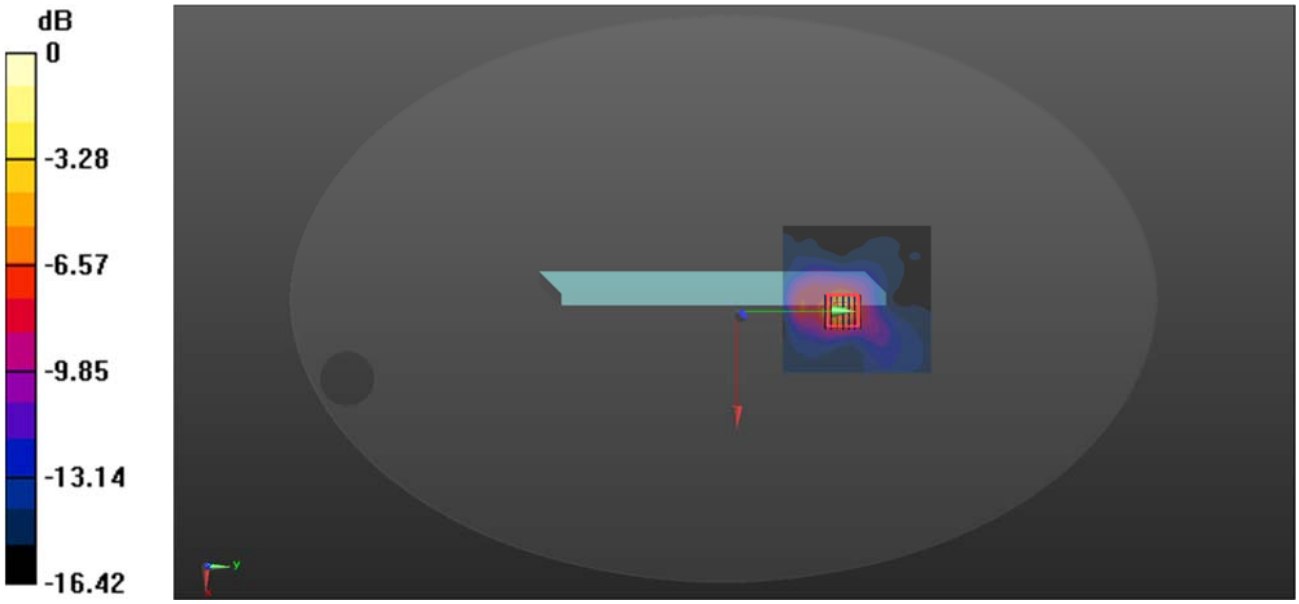
Ch46/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.499 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 2.83 W/kg

SAR(1 g) = 0.767 W/kg; SAR(10 g) = 0.270 W/kg

Maximum value of SAR (measured) = 1.54 W/kg



0 dB = 1.54 W/kg

12-Body Plane with Right Edge 0mm on 46 Channel in IEEE802.11n40 Modewith Antenna Main

Date: 2021.06.24

Communication System Band: WLAN(n40); Frequency: 5230 MHz;Duty Cycle: 1:1.037

Medium parameters used: f = 5230 MHz; σ = 4.698 S/m; ε_r = 35.643; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.46, 5.46, 5.46); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch46/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.06 W/kg

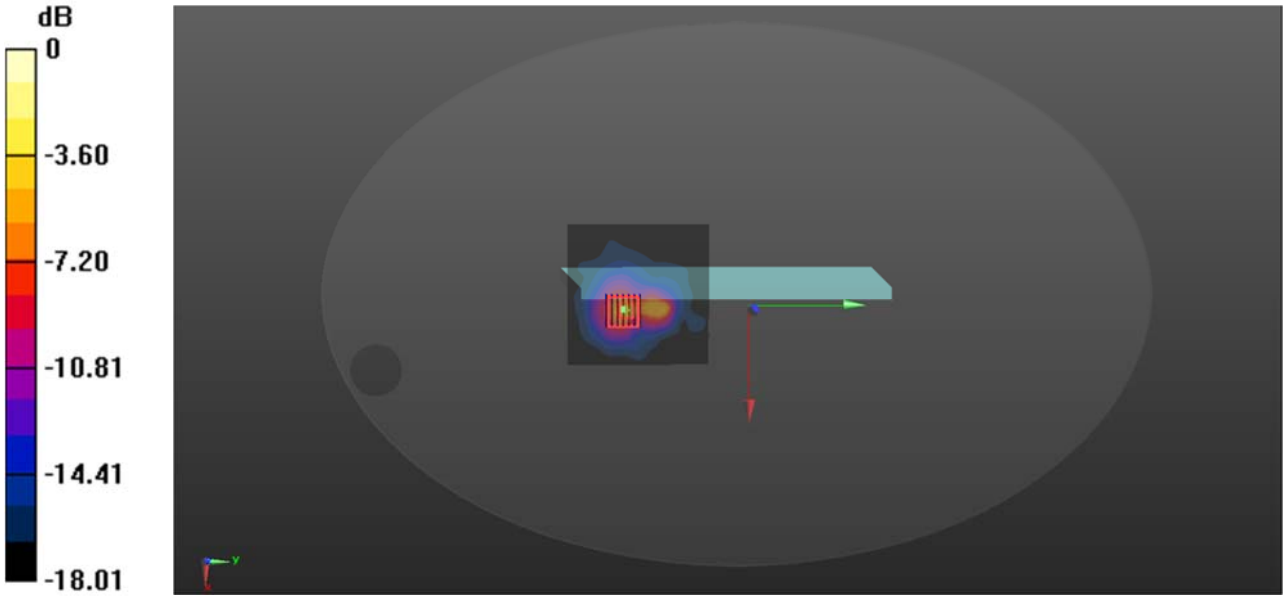
Ch46/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.801 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 3.85 W/kg

SAR(1 g) = 0.890 W/kg; SAR(10 g) = 0.279 W/kg

Maximum value of SAR (measured) = 1.83 W/kg



0 dB = 1.83 W/kg

13-Body Plane with Back of Key 0mm on 155 Channel in IEEE802.11ac80 Modewith Antenna Auxiliary

Date: 2021.06.24

Communication System Band: WLAN(ac80); Frequency: 5775 MHz;Duty Cycle: 1:1.075

Medium parameters used (interpolated): f = 5775 MHz; σ = 5.268 S/m; ε_r = 35.211; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(4.96, 4.96, 4.96); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch155/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.95 W/kg

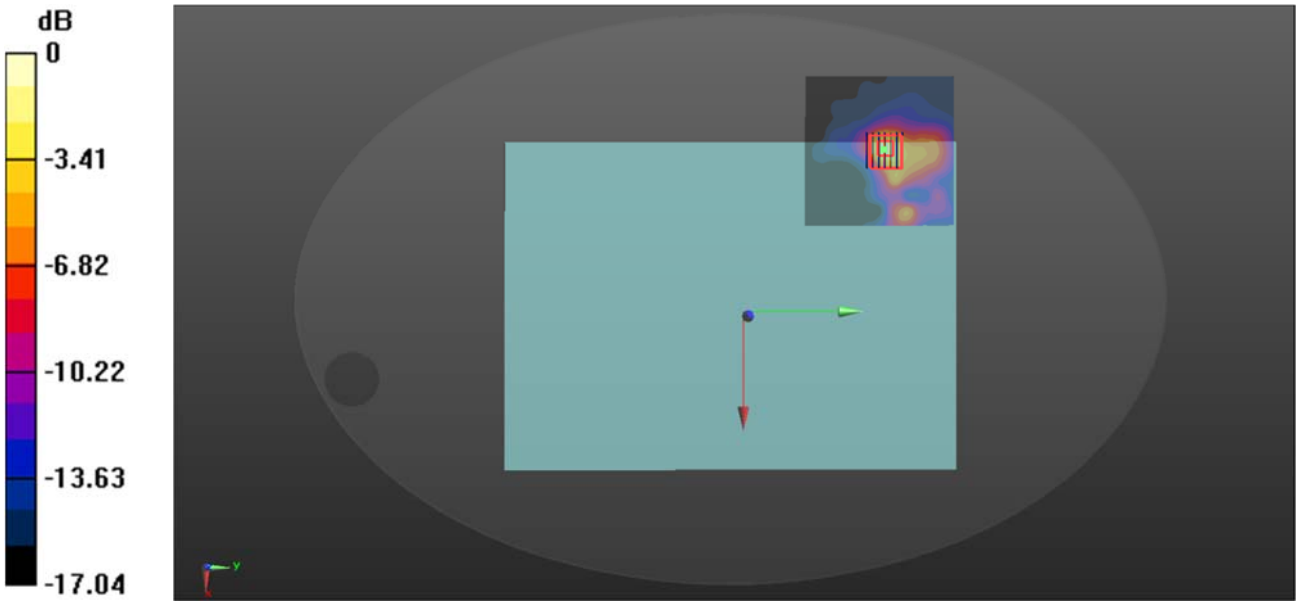
Ch155/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.785 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 4.13 W/kg

SAR(1 g) = 0.839 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 1.99 W/kg



0 dB = 1.99 W/kg

14-Body Plane with Right Edge 0mm on 155 Channel in IEEE802.11ac80 Modewith Antenna Main

Date: 2021.06.24

Communication System Band: WLAN(ac80); Frequency: 5775 MHz;Duty Cycle: 1:1.075

Medium parameters used (interpolated): f = 5775 MHz; σ = 5.268 S/m; ε_r = 35.211; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.9

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(4.96, 4.96, 4.96); Calibrated: 2020.11.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch155/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.72 W/kg

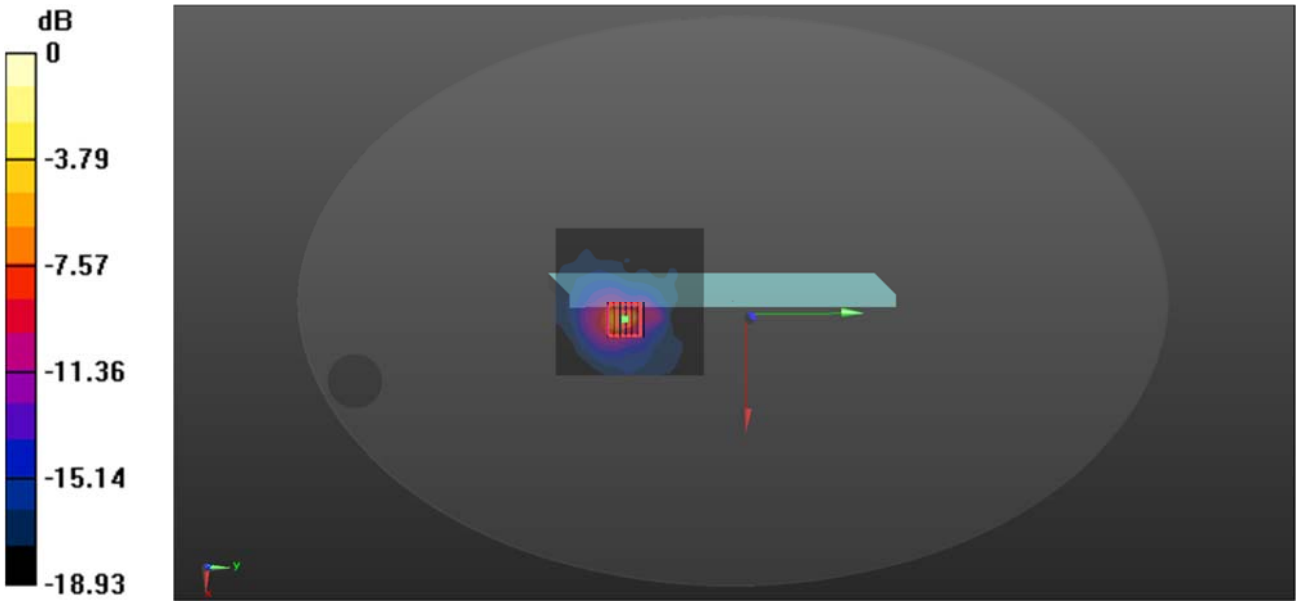
Ch155/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.801 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 5.3 W/kg

SAR(1 g) = 0.980 W/kg; SAR(10 g) = 0.293 W/kg

Maximum value of SAR (measured) = 1.71 W/kg



0 dB = 1.71 W/kg

15-Body Plane with Left Edge 0mm on 78 Channel in Bluetooth Modewith Antenna Auxiliary

Date: 2021.06.23

Communication System Band: Bluetooth; Frequency: 2480MHz;Duty Cycle: 1:301

Medium parameters used: f = 2480 MHz; σ = 1.886 S/m; ε_r = 38.101; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch78/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.055 W/kg

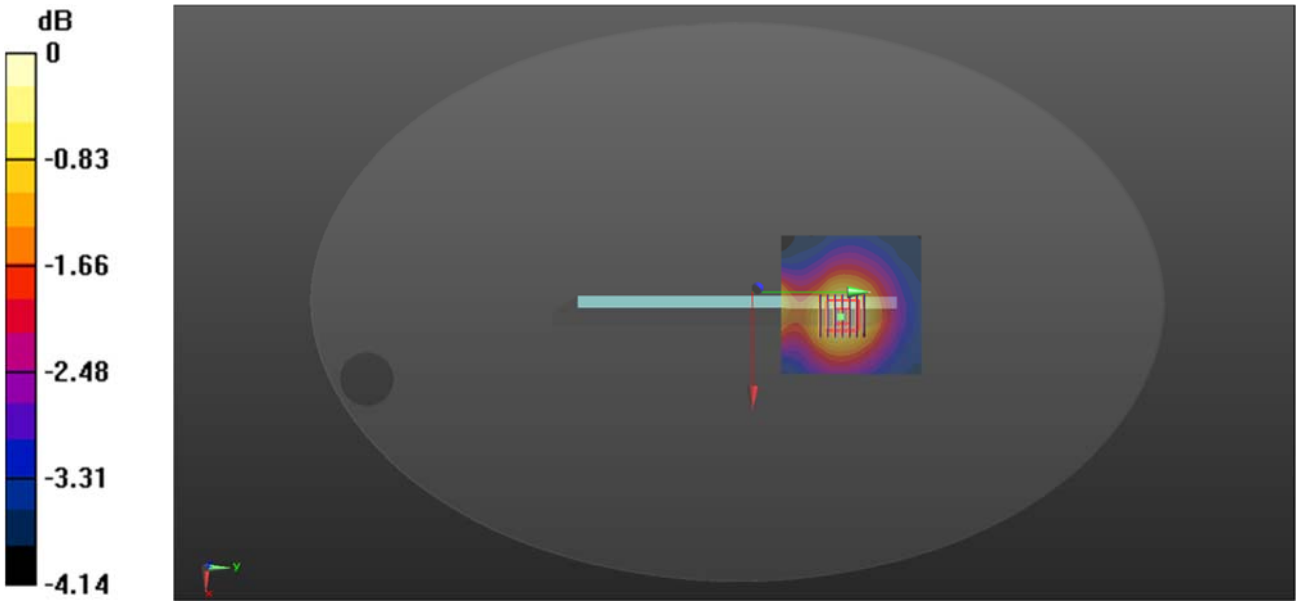
Ch78/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.298 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.0630 W/kg

SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.025 W/kg

Maximum value of SAR (measured) = 0.051 W/kg



0 dB = 0.051 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2140379-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2140379-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “CALIBRATION REPORT.pdf”.

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