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FCC SAR TEST REPORT

Test File No : F690501/RF-SAR002774-A1

Equipment Under Test	Mobile Hotspot
Model Name	T9
Applicant	Franklin Technology Inc.
Address of Applicant	906(Gasan-Dong, JEI Platz), 186, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea(08502)
FCC ID	XHG-R717
Exposure Category	General Population/Uncontrolled Exposure
Standards	FCC 47 CFR Part 2 (2.1093) IEEE 1528, 2013 ANSI/IEEE C95.1, C95.3
Date of Test(s)	2019-05-24 ~2019-06-13
Date of Issue	2019-07-22

In the configuration tested, the EUT complied with the standards specified above.

This test report does not assure KOLAS accreditation.

Remarks:

1) The results of this test report are effective only to the items tested.
2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.

Report prepared by /
James Kim
Test Engineer

Approved by /
Minhyuk Han
Technical Manager

Revision history

Revision	Date of issue	Revisions	Revised By
-	July 15, 2019	Initial issue	-
A1	July 22, 2019	Report Updated - Added KDB865664v01r02 in the page 7. - Revised word from 'Reduced Power' to 'Power' in Conducted Power Table.	James Kim

Contents

1 Testing Laboratory

Company Name	SGS Korea Co., Ltd. (Gunpo Laboratory)
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2 Details of Manufacturer

Applicant	Franklin Technology Inc.
Address	906(Gasan-Dong, JEI Platz), 186, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea(08502)
Email	lisapark@franklintech.co.kr
Phone No.	+82-10-4933-6633

3 Description of EUT(s)

EUT Type	Mobile Hotspot
Model Name	T9
Serial Number	355827100000030
Mode of Operation	WCDMA II / WCDMA IV / WCDMA V / LTE Band 5 / LTE Band 12 / LTE Band 25 / LTE Band 26 / LTE Band 41 / LTE Band 66 / LTE Band 71 / WLAN
Tx Frequency Range	WCDMA V : 826.4 ~ 846.6 MHz WCDMA IV : 1712.4 ~ 1752.6 MHz WCDMA II : 1852.4 ~ 1907.6 MHz LTE Band 71 : 666.5 ~ 695.5 MHz LTE Band 12 : 699.7 ~ 715.3 MHz LTE Band 26 (Cell) : 814.7 ~ 848.3 MHz LTE Band 5 (Cell) : 824.7 ~ 848.3 MHz LTE Band 66 (AWS) : 1710.7 ~ 1779.3 MHz LTE Band 4 (AWS) : 1710.7 ~ 1754.3 MHz LTE Band 25 (PCS) : 1850.7 ~ 1914.3 MHz LTE Band 2 (PCS) : 1850.7 ~ 1909.3 MHz LTE Band 41 : 2498.5 ~ 2687.5 MHz WLAN 2.4 GHz : 2412 ~ 2462 MHz WLAN 5.2 GHz : 5180 ~ 5240 MHz WLAN 5.8 GHz : 5745 ~ 5825 MHz

4 The Highest Reported SAR Values

Equipment Class	Band	Highest Reported SAR Hotspot 1g (W/kg)
PCE	WCDMA V	0.18
PCE	WCDMA IV	1.34
PCE	WCDMA II	1.23
PCE	LTE Band 71	1.11
PCE	LTE Band 12	1.13
PCE	LTE Band 26 (Cell)	0.53
PCE	LTE Band 5 (Cell)	0.53
PCE	LTE Band 66 (AWS)	1.30
PCE	LTE Band 4 (AWS)	N/A
PCE	LTE Band 25 (PCS)	1.21
PCE	LTE Band 2 (PCS)	N/A
PCE	LTE Band 41	0.61
DTS	WLAN 2.4 GHz	0.49
NII	WLAN 5.2 GHz	0.45
NII	WLAN 5.8 GHz	0.24
Simultaneous SAR per KDB 690783 D01v01r03		1.58

5 Test Methodology

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

Test tests documented in this report were performed in accordance with IEEE Standard 1528-2013 and the following published KDB procedures.

In additions;

☒	**KDB 865664 D01v01r04**	**SAR Measurement Requirements for 100 MHz to 6 GHz**
☒	**KDB 865664 D02v01r02**	**RF Exposure Compliance Reporting and Documentation Considerations**
☒	**KDB 447498 D01v06**	**Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies**
☐	KDB 447498 D02v02r01	SAR Measurement Procedures for USB Dongle Transmitters
☒	**KDB 248227 D01v02r02**	**SAR Guidance For IEEE 802.11 (Wi-Fi) Transmitters**
☐	KDB 615223 D01v01r01	802.16e/WiMax SAR Measurement Guidance
☐	KDB 616217 D04v01r02	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☐	KDB 643646 D01v01r03	SAR Test Reduction Considerations for Occupational PTT Radios
☐	KDB 648474 D03v01r04	Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers
☒	**KDB 648474 D04v01r03**	**SAR Evaluation Considerations for Wireless Handsets**
☐	KDB 680106 D01v02	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications
☒	**KDB 941225 D01v03r01**	**3G SAR Measurement Procedures**
☒	**KDB 941225 D05v02r05**	**SAR Evaluation Considerations for LTE Devices**
☒	**KDB 941225 D06v02r01**	**SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities**
☐	KDB 941225 D07v01r02	SAR Evaluation Procedures for UMPC Mini-Tablet Devices

6 Testing Environment

Ambient temperature	: 18°C ~ 25°C
Relative humidity	: 30% ~ 70%
Liquid temperature of during the test	: <± 2°C
Ambient noise & Reflection	: < 0.012 W/kg

7 Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

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

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

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

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

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

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

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

7.3 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 ㎑ to 300 ㎓," ANSI/IEEE C95.3–2003, Copyright 2003 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting

source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube). Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Partial Peak SAR (Partial)	1.60 m W/g	8.00 m W/g
Partial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Partial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

1. The spatial Peak value of the SAR averaged over any 1g gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

8 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. 1. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ ($|Ei|^2$)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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

- A standard high precision 6-axis robot (Staubli TX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimeter 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.
- Data acquisition electronics (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.

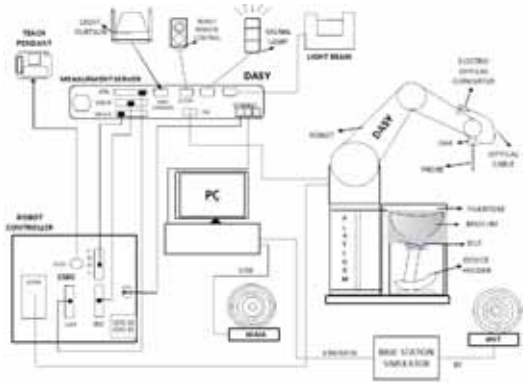


Fig a. The microwave circuit arrangement used for SAR system verification

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Verification dipole kits allowing to validate the proper functioning of the system.

9 System Components

9.1 Probe

Construction : Symmetrical design with triangular core.
Built-in shielding against static charges.
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)

Calibration : Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 835 and HSL1900.
Additional CF-Calibration for other liquids and frequencies upon request.

Frequency : 10 ㎒ to 6 ㎓; Linearity: ± 0.2 ㏈ (30 ㎒ to 6 ㎓)

Directivity : ± 0.3 ㏈ in HSL (rotation around probe axis)

± 0.5 ㏈ in tissue material (rotation normal to probe axis)

Dynamic Range : 10μW/g to > 100 m W/g;
Linearity: ± 0.2 ㏈(noise: typically < 1 μW/g)

Dimensions : Overall length: 337 ㎜ (Tip length: 20 ㎜)

Tip diameter: 2.5 ㎜ (Body diameter: 12 ㎜)

Distance from probe tip to dipole centers: 1 ㎜

Application : High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 ㎓ with precision of better 30%


EX3DV4 E-Field Probe

NOTE:

1. The Probe parameters have been calibrated by the SPEAG. Please reference “APPENDIX C” for the Calibration Certification Report.

9.2 SAM Phantom

Construction : The SAM Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90 % of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure


SAM Phantom

Shell Thickness : 2.0 ㎜ ± 0.1 ㎜

Filling Volume : Approx. 25 liters

9.3 Device Holder

Construction: : In combination with the Twin SAM PhantomV4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Device Holder

10 SAR Measurement Procedures

10.1 Normal SAR Measurement Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 ㎜. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2 and 3: Area Scan & Zoom Scan Procedures

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

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1 g and 10 g.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

< Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04 >

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

11 Definition of Reference

11.1 Body-Worn Accessory Configurations

Body-worn operation configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. A device with a headset output is tested with a headset connected to the device.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are supplied with the device, the device is tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied of available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration where a separation distances between the back of the device and the flat phantom is used. Test position spacing was documented.

11.2 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WLAN simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W $\geq$ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WLAN transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WLAN transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. 1. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 750 / 835 / 1750 /1900 / 2450 / 2600 / 5200 / 5800 ㎒. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 18 ~ 25° C, the relative humidity was in the range 30 ~ 70 % R.H and the liquid depth above the ear reference points was ≥ 15 cm ± 5 mm (frequency ≤ 3 GHz) or ≥ 10 cm ± 5 mm (frequency > 3 G Hz)in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

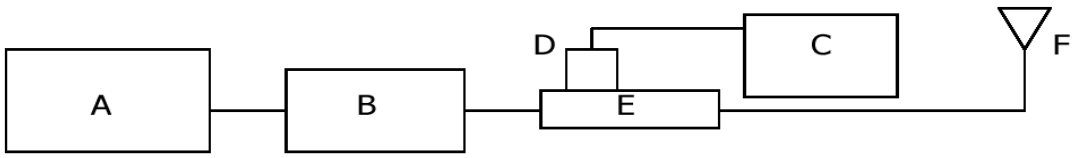


Fig 1. The microwave circuit arrangement used for SAR system verification

A. Agilent Model E8247C Signal Generator
B. MECA Model AMP2027 Power Amplifier
EMPOWER Model 2002-BBS2C4AEL Power Amplifier
BONN ELEKTRONIK Model BLMA1060-10 RF Amplifier
C. Agilent Model E4419B / E4416A Power Meter
D. Agilent Model E9300H / E9327A Power Sensor
E. Agilent Model 772D / 778D Dual Directional Coupler
F. Reference dipole Antenna

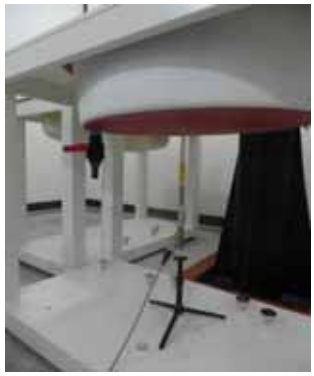


Photo of the dipole Antenna

Body SAR System Verification

Verification Kit	Probe S/N	Tissue	Target SAR 1 g from Calibration Certificate (1 W)	Target SAR 10 g from Standard (1 W)	Measured SAR 1 g (0.1 W)	Measured SAR 10 g (0.1 W)	Normalized SAR 1 g (1 W)	Normalized SAR 10 g (1 W)	1g Deviation (%)	10g Deviation (%)	Date	Liquid Temp. (°C)
D750V3 SN:1085	3986	750 Body	8.47	5.59	0.838	0.560	8.38	5.60	-1.06	0.18	2019-05-29	22.2
D835V2 SN:490	3862	835 Body	9.63	6.31	0.975	0.638	9.75	6.38	1.25	1.11	2019-05-28	21.7
D835V2 SN:490	3862	835 Body	9.63	6.31	0.988	0.647	9.88	6.47	2.60	2.54	2019-06-01	22.2
D1750V2 SN:1070	3986	1750 Body	36.10	19.30	3.60	1.88	36.00	18.80	-0.28	-2.59	2019-05-30	22.3
D1900V2 SN:5d033	3862	1900 Body	40.50	21.50	4.26	2.24	42.60	22.40	5.19	4.19	2019-05-24	21.9
D1900V2 SN:5d033	3862	1900 Body	40.50	21.50	3.81	1.99	38.10	19.90	-5.93	-7.44	2019-06-01	22.1
D2450V2 SN:734	7352	2450 Body	49.40	23.30	5.15	2.49	51.50	24.90	4.25	6.87	2019-06-13	22.1
D2600V2 SN:1124	3862	2600 Body	54.50	24.50	5.58	2.59	55.80	25.90	2.39	5.71	2019-06-03	22.0
D5 GHz V2 SN:1106	7352	5200 Body	73.90	20.70	7.64	2.15	76.40	21.50	3.38	3.86	2019-06-12	22.2
D5 GHz V2 SN:1106	7352	5800 Body	75.80	21.00	7.67	2.12	76.70	21.20	1.19	0.95	2019-06-12	22.2

Table1. Results system verification

13 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this simulant fluid were measured by using the Speag Model DAKS-3.5 Dielectric Probe in conjunction with SPEAG Vector Network Analyzer (85 ㎒- 14 ㎓) by using a procedure detailed in Section V.

f (㎒)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(℃)
750.0	Body	Measured, 2019-05-29	54.13	1.00	22.2
		Target Tissue Body	*55.50*	*0.96*	
		Deviation (%)	**-2.47**	**4.17**	
673.0		Measured, 2019-05-29	54.92	0.93	
		Deviation (%)	**-1.05**	**-3.12**	
704.0		Measured, 2019-05-29	54.59	0.96	
		Deviation (%)	**-1.64**	**0.00**	
711.0		Measured, 2019-05-29	54.52	0.97	
		Deviation (%)	**-1.77**	**1.04**	
835.0	Body	Measured, 2019-05-28	55.46	0.96	21.7
		Target Tissue Body	*55.20*	*0.97*	
		Deviation (%)	**0.47**	**-1.03**	
829.0		Measured, 2019-05-28	55.51	0.95	
		Deviation (%)	**0.56**	**-2.06**	
831.5		Measured, 2019-05-28	55.49	0.96	
		Deviation (%)	**0.53**	**-1.03**	
835.0	Body	Measured, 2019-06-01	54.68	0.95	22.2
		Target Tissue Body	*55.20*	*0.97*	
		Deviation (%)	**-0.94**	**-2.06**	
826.4		Measured, 2019-06-01	54.75	0.94	
		Deviation (%)	**-0.82**	**-3.09**	
1750.0	Body	Measured, 2019-05-30	51.95	1.48	22.3
		Target Tissue Body	*53.40*	*1.49*	
		Deviation (%)	**-2.72**	**-0.67**	
1712.4		Measured, 2019-05-30	52.13	1.45	
		Deviation (%)	**-2.38**	**-2.68**	
1745.0		Measured, 2019-05-30	51.97	1.48	
		Deviation (%)	**-2.68**	**-0.67**	
1770.0		Measured, 2019-05-30	51.89	1.50	
		Deviation (%)	**-2.83**	**0.67**	
1900.0	Body	Measured, 2019-05-24	54.93	1.51	21.9
		Target Tissue Body	*53.30*	*1.52*	
		Deviation (%)	**3.06**	**-0.66**	
1860.0		Measured, 2019-05-24	55.07	1.47	
		Deviation (%)	**3.32**	**-3.29**	
1882.5		Measured, 2019-05-24	54.99	1.49	
		Deviation (%)	**3.17**	**-1.97**	
1905.0		Measured, 2019-05-24	54.92	1.52	
		Deviation (%)	**3.04**	**0.00**	

f (㎒)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(℃)
1900.0	Body	Measured, 2019-06-01	52.70	1.51	22.1
		Target Tissue Body	*53.30*	*1.52*	
		Deviation (%)	**-1.13**	**-0.66**	
1852.4		Measured, 2019-06-01	52.88	1.46	
		Deviation (%)	**-0.79**	**-3.95**	
1907.6		Measured, 2019-06-01	52.67	1.52	
		Deviation (%)	**-1.18**	**0.00**	
2450.0	Body	Measured, 2019-06-13	50.46	1.99	22.1
		Target Tissue Body	*52.70*	*1.95*	
		Deviation (%)	**-4.25**	**2.05**	
2412.0		Measured, 2019-06-13	50.61	1.95	
		Deviation (%)	**-3.97**	**0.00**	
2600.0	Body	Measured, 2019-06-03	50.70	2.17	22.0
		Target Tissue Body	*52.50*	*2.16*	
		Deviation (%)	**-3.43**	**0.46**	
2506.0		Measured, 2019-06-03	50.91	2.07	
		Deviation (%)	**-3.03**	**-4.17**	
2680.0		Measured, 2019-06-03	50.51	2.26	
		Deviation (%)	**-3.79**	**4.63**	
5200.0	Body	Measured, 2019-06-12	48.32	5.31	22.2
		Target Tissue Body	*49.00*	*5.30*	
		Deviation (%)	**-1.39**	**0.19**	
5190.0		Measured, 2019-06-12	48.30	5.31	
		Deviation (%)	**-1.43**	**0.00**	
5800.0	Body	Measured, 2019-06-12	46.38	6.13	22.2
		Target Tissue Body	*48.20*	*6.00*	
		Deviation (%)	**-3.78**	**2.17**	
5775.0		Measured, 2019-06-12	46.41	6.09	
		Deviation (%)	**-3.73**	**1.50**	

The composition of the brain & muscle tissue simulating liquid

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (㎒)									
	450		835		900		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.91	46.21	40.29	50.75	40.29	50.75	55.24	70.17	55.00	68.64
Salt (NaCl)	3.79	2.34	1.38	0.94	1.38	0.94	0.31	0.39	-	-
Sugar	56.93	51.17	57.90	-	57.90	-	-	-	-	-
HEC	0.25	0.15	0.24	0.10	0.24	0.10	-	-	-	-
Bactericide	0.12	0.08	0.18	-	0.18	-	-	-	-	-
Triton X-100	-	-	-	-	-	-	-	-	-	-
DGBE	-	-	-	-	-	-	44.45	70.17	45.00	31.37
Dielectric Constant	43.5	56.7	41.5	55.2	41.5	55.0	40.0	53.3	39.2	52.7
Conductivity (S/m)	0.87	0.94	0.90	0.97	0.97	1.05	1.40	1.52	1.80	1.95

Salt: 99 $^{+}$% Pure Sodium Chloride Sugar: 98 $^{+}$% Pure Sucrose

Water: De-ionized, 16 MΩ^{+} resistivity HEC: Hydroxyethyl Cellulose

DGBE: 99 $^{+}$% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

Simulating Liquids for 5 ㎓, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral Oil	11
Emulsifiers	9
Additives and Salt	2

14 Instruments List

Test Platform	SPEAG DASY System				
Manufacture	SPEAG				
Description	SAR Test System (Frequency range 300 MHz – 6 GHz)				
Software Reference	DASY52: 52.10.0(1495) SEMCAD X: 14.6.10(7463)				
Equipment	**Type**	**Serial Number**	**Cal Date**	**Cal Interval**	**Cal Due**
Robot	TX90 XL	F13/5S7KC1/A/01	N/A	N/A	N/A
Phantom	SAM Phantom	TP-1821	N/A	N/A	N/A
Phantom	SAM Phantom	TP-1843	N/A	N/A	N/A
Verification Dipole	D750V3	1085	2019-03-21	Biennial	2021-03-21
Verification Dipole	D835V2	490	2018-06-01	Biennial	2020-06-01
Verification Dipole	D1750V2	1070	2018-07-20	Biennial	2020-07-20
Verification Dipole	D1900V2	5d033	2018-05-28	Biennial	2020-05-28
Verification Dipole	D2450V2	734	2018-05-30	Biennial	2020-05-30
Verification Dipole	D2600V2	1124	2018-07-26	Biennial	2020-07-26
Verification Dipole	D5GHzV2	1106	2019-02-04	Biennial	2021-02-04
DAE	DAE4	1430	2019-03-21	Annual	2020-03-21
E-Field Probe	EX3DV4	3986	2019-03-27	Annual	2020-03-27
E-Field Probe	EX3DV4	3862	2018-10-24	Annual	2019-10-24
E-Field Probe	EX3DV4	7352	2018-11-27	Annual	2019-11-27
Dielectric Assessment Kit	DAKS-3.5	1068	2019-02-20	Annual	2020-02-20
Network Analyzer	DAKS_VNA R140	160115	2019-03-15	Annual	2020-03-15
Power Meter	E4419B	GB43311125	2019-03-14	Annual	2020-03-14
Power Meter	E4416A	GB41292123	2018-12-05	Annual	2019-12-05
Power Sensor	E9300H	MY41495314	2019-03-14	Annual	2020-03-14
Power Sensor	E9327A	US40441371	2018-12-05	Annual	2019-12-05
Vector Signal Generator	E8247C	MY43321024	2018-06-14	Annual	2019-06-14
Vector Signal Generator	E8247C	MY43321024	2019-06-10	Annual	2020-06-10
Power Amplifier	2002-BBS2C4AEL	1029 D/C 0341	2018-12-03	Annual	2019-12-03
Power Amplifier	BLMA1060-10	1711221	2018-06-15	Annual	2019-06-15
Power Amplifier	AMP2027	10008	2019-03-15	Annual	2020-03-15
Dual Directional Coupler	778D	MY52180497	2019-03-13	Annual	2020-03-13
Dual Directional Coupler	772D	MY52180226	2019-03-13	Annual	2020-03-13
LP Filter	LA-15N	LF02	2019-03-13	Annual	2020-03-13
LP Filter	LA-30N	LF03	2019-03-13	Annual	2020-03-13
LP Filter	LA-60N	LF04	2019-03-13	Annual	2020-03-13
Attenuator	05AS102-K03	A1	2018-12-05	Annual	2019-12-05
Attenuator	05AS102-K20	A3	2018-12-05	Annual	2019-12-05
Attenuator	05AS102-K20	A4	2018-12-05	Annual	2019-12-05
Digital Thermometer	SDT25	17041500018	2018-06-19	Annual	2019-06-19
Digital Hygro-Thermomenter	98585	130188	2018-06-18	Annual	2019-06-18
Digital Hygro-Thermomenter	98585	130205	2019-03-13	Annual	2020-03-13
Spectrum Analyzer	FSV30	100007	2018-12-05	Annual	2019-12-05
Wideband Radio Communication Tester	CMW500	144031	2019-02-18	Annual	2020-02-18
Radio Communication Analyzer	MT8820C	6201074216	2018-12-13	Annual	2019-12-13

15 FCC Power Measurement Procedures

The SAR measurement Software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5 % occurred, the tests were repeated.

16 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as reported SAR. Test highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

17 Maximum Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06

WCDMA Power - Hotspot Mode Activated

Mode	Maximum/Normal	Maximum Output Power (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
WCDMA V	**Maximum**	**22.50**	**22.50**	**22.50**
	Normal	22.00	22.00	22.00
WCDMA IV	**Maximum**	**22.50**	**22.50**	**22.50**
	Normal	22.00	22.00	22.00
WCDMA II	**Maximum**	**22.50**	**22.50**	**22.50**
	Normal	22.00	22.00	22.00

LTE Power - Hotspot Mode Activated

Mode / Band		Modulated Average
LTE Band 71	**Maximum**	**23.5**
	Nominal	23.0
LTE Band 12	**Maximum**	**23.8**
	Nominal	23.3
LTE Band 26	**Maximum**	**23.3**
	Nominal	22.8
LTE Band 5	**Maximum**	**23.5**
	Nominal	23.0
LTE Band 66	**Maximum**	**23.0**
	Nominal	22.5
LTE Band 25	**Maximum**	**23.2**
	Nominal	22.7
LTE Band 41(PC2)	**Maximum**	**25.3**
	Nominal	24.8

WLAN Power

Mode / Band		Modulated Average
IEEE 802.11b(2.4 GHz) SISO	**Maximum**	**19.0**
	Nominal	18.0
IEEE 802.11g,n(MCS0~MCS4) (2.4 GHz) SISO	**Maximum**	**17.0**
	Nominal	16.0
IEEE 802.11n(MCS5~MCS6) (2.4 GHz) SISO	**Maximum**	**15.5**
	Nominal	14.5
IEEE 802.11n(MCS7) (2.4 GHz) SISO	**Maximum**	**14.0**
	Nominal	13.0
IEEE 802.11n,ac(MCS0~MCS4) (5.2, 5.8 GHz) SISO	**Maximum**	**18.0**
	Nominal	17.0
IEEE 802.11n,ac(MCS5~MCS6) (5.2, 5.8 GHz) SISO	**Maximum**	**15.5**
	Nominal	14.5
IEEE 802.11n,ac(MCS7) (5.2, 5.8 GHz) SISO	**Maximum**	**14.0**
	Nominal	13.0
IEEE 802.11ac(MCS8) (5.8 GHz) SISO	**Maximum**	**13.5**
	Nominal	12.5
IEEE 802.11ac(MCS9) (5.8 GHz) SISO	**Maximum**	**12.5**
	Nominal	11.5

18 RF Conducted Power Measurement

The device in WCDMA and LTE was controlled by using a Communication tester (CMW500, MT8820C). The EUT was set to maximum power level during all tests. The DASY system measures power drift during SAR testing by comparing e-field in the same location at the beginning and at the end of measurement.

18.1 WCDMA

18.1.1 Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1s".

18.1.2 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s".

18.1.3 Procedures Used to Establish RF Signal for SAR HSDPA Data Devices

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise, SAR is Measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

Sub-Test 1 Setup for Release 5 HSDPA

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM (dB) (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

18.1.4 SAR Measurements for Conditions for HSUPA Data Devices

Body SAR is not required for handsets with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than ¼ dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.1 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurement should be used to test for head exposure.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}[1]	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM[2] (dB)	MPR (dB)	AG[4] Index	E-TFCI
1	11/15[3]	15/15[3]	64	11/15[3]	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15[4]	15/15[4]	64	15/15[4]	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

18.2 LTE

18.2.1 SAR measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02r05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR. The R&S CMW500, Anritz MT8820C was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

18.2.2 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

18.2.3 MPR

MPR is permanently implemented for this device by the manufacture. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3.-1

18.2.4 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

18.2.5 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05V02r05

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.

c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.

d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Section 5.2.1, through 5.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/kg.

19 WLAN

19.1 General Device Setup

The normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 – 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

19.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg.

19.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements.

When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification.

Unless band gap channels are permanently disabled, SAR must be considered for these channels.

When band gap channels are disabled, each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency point requirements.

19.4 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following.

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel; i.e., all channels require testing.

2.4 GHz 802.11g/n OFDM are additionally evaluated for SAR if highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

19.5 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz and 5 GHz band, when the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM congigurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwith, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When thereare multiple channels with the same maximum output power, SAR is measured using the higher number channel.

19.6 Initial Test Configuration Procedure

For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, and lowest data rate. If the average RF output powers of the highest identical transmission modes are within 0.25 dB of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, the channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements

19.7 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required.

WCDMA Conducted power - Hotspot Mode Activated

Mode	3GPP 34.121	Normal Power (dBm)		
Channel	Subtest	4132	4183	4233
WCDMA V	12.2 Kbps RMC	**22.06**	**22.03**	**21.99**
WCDMA V(HSDPA)	Subtest 1	21.16	21.12	21.11
	Subtest 2	21.12	21.03	21.00
	Subtest 3	20.67	20.65	20.54
	Subtest 4	20.66	20.64	20.53
WCDMA V(HSUPA)	Subtest 1	20.55	20.53	20.50
	Subtest 2	20.01	20.04	19.88
	Subtest 3	19.60	19.69	19.53
	Subtest 4	20.50	20.45	20.47
	Subtest 5	20.66	20.65	20.50
WCDMA V(HSPA+)		20.91	20.79	20.88
Mode	**3GPP 34.121**	**Normal Power (dBm)**		
Channel	**Subtest**	**1312**	**1412**	**1513**
WCDMA IV	12.2 Kbps RMC	**22.12**	**22.11**	**22.06**
WCDMA IV(HSDPA)	Subtest 1	21.15	21.11	21.05
	Subtest 2	21.12	20.89	21.06
	Subtest 3	20.65	20.70	20.59
	Subtest 4	20.63	20.69	20.58
WCDMA IV(HSUPA)	Subtest 1	21.23	20.50	20.52
	Subtest 2	20.07	20.14	20.04
	Subtest 3	19.58	19.65	19.65
	Subtest 4	20.48	20.50	20.44
	Subtest 5	20.69	20.63	20.71
WCDMA IV(HSPA+)		21.19	21.23	21.26
Mode	**3GPP 34.121**	**Normal Power (dBm)**		
Channel	**Subtest**	**9262**	**9400**	**9538**
WCDMA II	12.2 Kbps RMC	**22.12**	**22.02**	**21.98**
WCDMA II(HSDPA)	Subtest 1	20.96	21.10	20.91
	Subtest 2	21.12	21.07	20.93
	Subtest 3	20.59	20.59	20.52
	Subtest 4	20.61	20.57	20.50
WCDMA II(HSUPA)	Subtest 1	21.08	20.53	20.96
	Subtest 2	19.74	20.00	19.83
	Subtest 3	20.08	19.67	19.50
	Subtest 4	20.50	20.48	20.39
	Subtest 5	20.50	20.60	20.51
WCDMA II(HSPA+)		21.30	20.98	21.07

Note

1. WCDMA SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB Publication 941225 D02v01. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg

LTE Conducted power - Hotspot Mode Activated

LTE Band 71 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.18	22.71	22.50	0
	1	12	23.50	22.78	23.03	
	1	24	22.89	22.55	23.21	
	12	0	22.25	22.05	22.20	0-1
	12	6	22.18	22.11	22.13	
	12	13	22.07	21.98	22.12	
	25	0	22.20	22.12	22.16	
16QAM	1	0	21.84	22.05	22.24	0-1
	1	12	22.34	21.98	22.16	
	1	24	21.78	21.85	22.21	
	12	0	21.25	21.14	21.08	0-2
	12	6	21.30	21.15	21.24	
	12	13	21.22	21.03	20.99	
	25	0	21.26	21.15	21.17	

LTE Band 71 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.91	23.33	22.91	0
	1	25	23.05	23.34	23.13	
	1	49	22.89	23.01	22.76	
	25	0	21.97	22.27	22.00	0-1
	25	12	22.00	22.23	21.98	
	25	25	21.76	22.14	21.83	
	50	0	21.90	22.10	21.89	
16QAM	1	0	21.80	21.97	21.83	0-1
	1	25	21.97	22.13	22.00	
	1	49	21.85	22.30	21.67	
	25	0	21.06	21.22	20.96	0-2
	25	12	20.86	21.29	20.92	
	25	25	20.92	21.13	20.77	
	50	0	20.92	21.22	20.85	

LTE Band 71 15MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			133197 (670.5 MHz)	133297 (680.5 MHz)	133397 (690.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.34	23.26	23.20	0
	1	36	23.39	23.25	23.31	
	1	74	23.27	23.11	23.10	
	36	0	22.33	22.11	22.25	0-1
	36	18	22.35	22.24	22.19	
	36	37	22.35	22.13	22.13	
	75	0	22.42	22.33	22.05	
16QAM	1	0	22.16	22.20	22.13	0-1
	1	36	21.95	22.27	21.84	
	1	74	21.84	22.03	22.13	
	36	0	21.26	21.50	21.17	0-2
	36	18	21.40	21.26	21.11	
	36	37	21.29	21.20	21.07	
	75	0	21.36	21.20	21.07	

LTE Band 71 20MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			133222 (673 MHz)	133322 (683.0 MHz)	133372 (688.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.25	23.21	23.15	0
	1	50	23.35	**23.50**	23.47	
	1	99	23.07	23.07	23.04	
	50	0	22.33	22.28	22.11	0-1
	50	25	22.38	22.20	22.12	
	50	50	22.12	22.02	22.19	
	100	0	22.25	22.04	22.12	
16QAM	1	0	22.15	21.90	21.76	0-1
	1	50	22.31	22.20	22.04	
	1	99	22.05	21.97	21.62	
	50	0	21.34	21.24	21.11	0-2
	50	25	21.41	21.17	21.20	
	50	50	21.29	21.19	21.12	
	100	0	21.35	21.13	21.08	

LTE Band 12 1.4MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.32	23.38	23.40	0
	1	2	23.44	23.49	23.50	
	1	5	23.39	23.43	23.49	
	3	0	23.37	23.44	23.35	
	3	2	23.35	23.43	23.47	
	3	3	23.38	23.46	23.40	
	6	0	22.39	22.46	22.41	0-1
16QAM	1	0	22.43	22.36	22.44	0-1
	1	2	22.39	22.41	22.39	
	1	5	22.45	22.26	22.27	
	3	0	22.38	22.40	22.43	
	3	2	22.37	22.49	22.49	
	3	3	22.38	22.50	22.50	
	6	0	21.14	21.49	21.50	0-2

LTE Band 12 3MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23155 (714.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.31	23.41	23.40	0
	1	7	23.46	23.50	23.45	
	1	14	23.40	23.42	23.37	
	8	0	22.38	22.49	22.39	0-1
	8	4	22.42	22.41	22.46	
	8	7	22.36	22.44	22.42	
	15	0	22.45	22.42	22.40	
16QAM	1	0	22.21	22.36	22.22	0-1
	1	7	22.18	22.41	22.47	
	1	14	22.01	22.42	22.40	
	8	0	21.27	21.28	21.50	0-2
	8	4	21.42	21.42	21.66	
	8	7	21.26	21.56	21.80	
	15	0	21.30	21.59	21.56	

LTE Band 12 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			23035 (701.5 MHz)	23095 (707.5 MHz)	23155 (713.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.36	23.37	23.45	0
	1	12	23.41	23.47	23.50	
	1	24	23.41	23.33	23.46	
	12	0	22.42	22.42	22.46	0-1
	12	6	22.42	22.50	22.43	
	12	13	22.23	22.41	22.40	
	25	0	22.34	22.38	22.36	
16QAM	1	0	22.33	22.32	22.27	0-1
	1	12	22.28	22.46	22.16	
	1	24	22.27	22.21	22.37	
	12	0	21.41	21.36	21.26	0-2
	12	6	21.32	21.47	21.58	
	12	13	21.14	21.47	21.44	
	25	0	21.46	21.50	21.68	

LTE Band 12 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			23060 (704.0 MHz)	23095 (707.5 MHz)	23130 (711.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.09	23.11	23.18	0
	1	25	23.29	**23.50**	23.49	
	1	49	23.21	23.35	22.93	
	25	0	22.23	22.45	22.25	0-1
	25	12	22.30	22.47	22.36	
	25	25	22.26	22.32	22.39	
	50	0	22.27	22.38	22.27	
16QAM	1	0	22.53	22.14	22.75	0-1
	1	25	22.80	22.61	22.78	
	1	49	22.42	22.32	22.58	
	25	0	21.20	21.34	21.45	0-2
	25	12	21.35	21.56	21.51	
	25	25	21.29	21.56	21.42	
	50	0	21.23	21.24	21.37	

LTE Band 26 1.4MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.00	23.03	23.10	0
	1	2	23.24	23.11	23.10	
	1	5	23.22	23.05	23.11	
	3	0	23.12	22.89	23.03	
	3	2	23.00	22.93	22.98	
	3	3	23.05	22.97	22.98	
	6	0	21.92	21.93	22.02	0-1
16QAM	1	0	21.87	21.89	21.94	0-1
	1	2	21.97	21.92	21.90	
	1	5	21.96	21.89	22.06	
	3	0	21.84	21.83	21.97	
	3	2	21.71	21.95	21.99	
	3	3	21.99	21.91	22.02	
	6	0	21.02	20.56	21.04	0-2

LTE Band 26 3MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.06	23.02	23.13	0
	1	7	23.08	22.96	23.30	
	1	14	23.07	22.85	22.94	
	8	0	22.03	21.93	22.06	0-1
	8	4	22.06	21.98	21.92	
	8	7	21.99	21.81	21.93	
	15	0	21.97	21.92	21.90	
16QAM	1	0	21.78	21.84	21.69	0-1
	1	7	21.98	21.83	21.66	
	1	14	21.88	21.80	21.57	
	8	0	20.95	20.64	20.96	0-2
	8	4	21.20	20.90	20.88	
	8	7	21.16	20.95	21.08	
	15	0	20.98	21.02	20.98	

LTE Band 26 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.91	22.95	23.02	0
	1	12	23.20	23.30	23.16	
	1	24	22.89	23.04	23.05	
	12	0	21.96	21.98	22.01	0-1
	12	6	22.00	21.98	21.89	
	12	13	21.99	21.80	22.01	
	25	0	21.97	21.91	22.06	
16QAM	1	0	21.80	21.55	21.88	0-1
	1	12	21.99	21.87	21.66	
	1	24	21.84	21.72	21.88	
	12	0	20.86	20.73	20.96	0-2
	12	6	20.88	20.79	20.94	
	12	13	20.88	20.72	20.97	
	25	0	20.97	20.73	20.91	

LTE Band 26 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.91	23.01	22.92	0
	1	25	22.57	23.08	23.30	
	1	49	22.93	22.98	23.19	
	25	0	21.97	22.03	21.89	0-1
	25	12	21.96	21.99	21.87	
	25	25	21.83	21.71	21.86	
	50	0	21.88	21.92	21.94	
16QAM	1	0	21.55	21.68	21.70	0-1
	1	25	22.02	22.01	22.05	
	1	49	21.30	21.31	21.85	
	25	0	20.91	20.95	20.85	0-2
	25	12	20.96	20.94	21.00	
	25	25	20.82	20.71	21.02	
	50	0	20.97	20.84	20.93	

LTE Band 26 15MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26765 (821.5 MHz)	26865 (831.5 MHz)	26965 (841.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.99	23.09	22.97	0
	1	36	22.99	**23.15**	23.01	
	1	74	22.84	23.10	22.98	
	36	0	22.13	21.88	22.06	0-1
	36	18	22.21	21.99	22.13	
	36	37	22.09	21.86	21.97	
	75	0	22.12	21.84	21.86	
16QAM	1	0	21.76	21.77	22.13	0-1
	1	36	22.23	21.80	22.45	
	1	74	22.11	21.40	22.38	
	36	0	21.02	20.85	20.91	0-2
	36	18	21.15	20.88	21.06	
	36	37	21.05	20.83	20.86	
	75	0	21.09	20.99	20.87	

LTE Band 5 1.4MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.02	23.15	23.20	0
	1	2	23.29	23.29	23.22	
	1	5	23.12	23.19	23.13	
	3	0	23.20	23.10	23.21	
	3	2	23.17	23.18	23.01	
	3	3	23.19	23.12	23.19	
	6	0	22.18	22.19	22.19	0-1
16QAM	1	0	22.22	22.16	22.27	0-1
	1	2	22.11	22.11	22.09	
	1	5	22.17	22.01	21.98	
	3	0	22.10	22.14	22.22	
	3	2	22.21	22.15	22.25	
	3	3	22.50	22.08	22.20	
	6	0	21.10	21.12	20.70	0-2

LTE Band 5 3MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.13	23.18	23.16	0
	1	7	23.40	23.14	23.39	
	1	14	23.12	23.15	23.17	
	8	0	22.18	22.20	22.17	0-1
	8	4	22.20	22.20	22.21	
	8	7	22.16	22.12	22.16	
	15	0	22.16	22.16	22.13	
16QAM	1	0	21.92	22.08	22.12	0-1
	1	7	21.98	22.19	22.09	
	1	14	22.02	22.05	22.13	
	8	0	20.93	21.19	21.04	0-2
	8	4	21.27	21.23	21.14	
	8	7	21.06	21.30	21.03	
	15	0	21.20	21.14	21.21	

LTE Band 5 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			20425 (826.5 MHz)	20525 (836.5 MHz)	20625 (846.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.10	22.96	23.02	0
	1	12	22.84	23.50	23.45	
	1	24	22.96	23.21	23.45	
	12	0	22.07	22.16	22.15	0-1
	12	6	22.12	22.20	22.15	
	12	13	22.09	22.11	22.13	
	25	0	22.13	22.09	22.08	
16QAM	1	0	22.07	21.89	21.89	0-1
	1	12	21.90	22.13	22.10	
	1	24	21.97	21.98	22.04	
	12	0	21.14	21.19	20.92	0-2
	12	6	21.08	21.15	21.20	
	12	13	20.94	21.14	21.15	
	25	0	21.23	21.11	21.15	

LTE Band 5 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			20450 (829.0 MHz)	20525 (836.5 MHz)	20600 (844.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	23.27	23.24	23.16	0
	1	25	**23.39**	23.34	23.12	
	1	49	23.08	23.16	22.99	
	25	0	22.28	22.19	22.21	0-1
	25	12	22.36	22.12	22.17	
	25	25	22.34	22.35	22.15	
	50	0	22.30	22.16	22.17	
16QAM	1	0	22.43	22.02	22.42	0-1
	1	25	22.50	22.16	22.36	
	1	49	22.41	22.11	22.10	
	25	0	21.17	21.16	21.07	0-2
	25	12	21.15	21.12	21.14	
	25	25	21.22	21.04	21.13	
	50	0	21.10	21.07	21.16	

LTE Band 66 1.4MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.74	22.70	22.78	0
	1	2	22.85	22.75	22.88	
	1	5	22.74	22.71	22.78	
	3	0	22.75	22.62	22.74	
	3	2	22.72	22.72	22.80	
	3	3	22.72	22.70	22.73	
	6	0	21.60	21.52	21.68	0-1
16QAM	1	0	21.79	21.45	21.71	0-1
	1	2	21.87	21.44	21.69	
	1	5	21.80	21.46	21.58	
	3	0	21.54	21.36	21.52	
	3	2	21.94	21.40	21.48	
	3	3	21.50	21.77	21.60	
	6	0	20.49	20.61	20.64	0-2

LTE Band 66 3MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.75	22.71	22.95	0
	1	7	22.98	22.84	22.99	
	1	14	22.80	22.85	22.77	
	8	0	21.57	21.56	21.71	0-1
	8	4	21.67	21.57	21.66	
	8	7	21.75	21.53	21.54	
	15	0	21.62	21.43	21.73	
16QAM	1	0	21.58	21.64	21.50	0-1
	1	7	21.67	21.55	21.59	
	1	14	21.61	21.44	21.48	
	8	0	20.69	20.37	20.61	0-2
	8	4	20.62	20.61	20.75	
	8	7	20.88	20.75	20.86	
	15	0	20.60	20.63	20.83	

LTE Band 66 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.72	22.73	22.77	0
	1	12	22.89	22.84	22.89	
	1	24	22.80	22.77	22.67	
	12	0	21.50	21.58	21.63	0-1
	12	6	21.67	21.57	21.61	
	12	13	21.64	21.25	21.56	
	25	0	21.53	21.35	21.69	
16QAM	1	0	21.41	21.15	21.48	0-1
	1	12	21.65	21.19	21.44	
	1	24	21.48	21.00	21.48	
	12	0	20.39	20.32	20.65	0-2
	12	6	20.58	20.25	20.48	
	12	13	20.59	20.34	20.73	
	25	0	20.52	20.09	20.69	

LTE Band 66 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.88	22.93	22.92	0
	1	25	22.92	22.96	22.94	
	1	49	22.77	22.77	22.74	
	25	0	21.60	21.76	21.73	0-1
	25	12	21.65	21.62	21.74	
	25	25	21.54	21.47	21.53	
	50	0	21.55	21.49	21.66	
16QAM	1	0	21.51	21.74	21.53	0-1
	1	25	21.89	21.65	21.71	
	1	49	21.43	21.44	21.46	
	25	0	20.67	20.61	20.72	0-2
	25	12	20.70	20.63	20.70	
	25	25	20.58	20.56	20.67	
	50	0	20.64	20.59	20.78	

LTE Band 66 15MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.84	22.99	22.76	0
	1	36	22.90	22.82	22.96	
	1	74	22.61	22.62	22.75	
	36	0	21.72	21.75	21.61	0-1
	36	18	21.58	21.59	21.70	
	36	37	21.66	21.49	21.67	
	75	0	21.50	21.55	21.61	
16QAM	1	0	21.55	21.41	21.40	0-1
	1	36	21.52	21.40	21.56	
	1	74	21.08	21.23	21.19	
	36	0	20.61	20.68	20.68	0-2
	36	18	20.75	20.70	20.68	
	36	37	20.65	20.48	20.81	
	75	0	20.68	20.56	20.64	

LTE Band 66 20MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.79	22.86	22.74	0
	1	50	22.96	22.82	**23.00**	
	1	99	22.72	22.58	22.51	
	50	0	21.59	21.78	21.52	0-1
	50	25	21.69	21.54	21.62	
	50	50	21.47	21.31	21.70	
	100	0	21.51	21.40	21.57	
16QAM	1	0	21.50	21.36	21.50	0-1
	1	50	21.75	21.58	21.58	
	1	99	21.54	21.24	21.09	
	50	0	20.73	20.71	20.60	0-2
	50	25	20.79	20.63	20.73	
	50	50	20.49	20.40	20.68	
	100	0	20.53	20.56	20.70	

LTE Band 25 1.4MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.69	22.52	22.74	0
	1	2	22.64	22.52	22.52	
	1	5	22.84	22.62	22.69	
	3	0	22.59	22.50	22.55	
	3	2	22.65	22.58	22.62	
	3	3	22.62	22.61	22.70	
	6	0	21.59	21.53	21.58	0-1
16QAM	1	0	21.53	21.37	21.51	0-1
	1	2	21.60	21.63	21.43	
	1	5	21.83	21.68	21.67	
	3	0	21.60	21.69	21.55	
	3	2	21.97	21.49	21.55	
	3	3	21.85	21.55	21.30	
	6	0	20.74	20.48	20.50	0-2

LTE Band 25 3MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.75	22.59	22.79	0
	1	7	22.95	22.77	22.81	
	1	14	22.81	22.59	22.73	
	8	0	21.76	21.71	21.80	0-1
	8	4	21.61	21.59	21.71	
	8	7	21.62	21.51	21.62	
	15	0	21.58	21.51	21.67	
16QAM	1	0	21.82	21.51	21.48	0-1
	1	7	21.82	21.54	21.63	
	1	14	21.81	21.47	21.46	
	8	0	20.62	20.59	20.83	0-2
	8	4	20.81	20.49	20.90	
	8	7	20.99	20.78	20.83	
	15	0	20.74	20.50	20.68	

LTE Band 25 5MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.70	22.55	22.80	0
	1	12	22.87	22.79	23.10	
	1	24	22.69	22.64	22.74	
	12	0	21.60	21.53	21.77	0-1
	12	6	21.62	21.56	21.69	
	12	13	21.57	21.59	21.66	
	25	0	21.63	21.51	21.71	
16QAM	1	0	21.66	21.42	21.61	0-1
	1	12	21.76	21.55	21.71	
	1	24	21.69	21.50	21.54	
	12	0	20.63	20.47	20.68	0-2
	12	6	20.66	20.49	20.77	
	12	13	20.64	20.54	20.76	
	25	0	20.94	20.47	20.74	

LTE Band 25 10MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.85	22.75	22.86	0
	1	25	23.20	22.87	22.97	
	1	49	22.64	22.71	22.97	
	25	0	21.71	21.52	21.71	0-1
	25	12	21.65	21.54	21.73	
	25	25	21.68	21.59	21.71	
	50	0	21.78	21.50	21.84	
16QAM	1	0	21.85	21.40	21.64	0-1
	1	25	22.20	21.71	21.80	
	1	49	21.44	21.35	21.64	
	25	0	20.72	20.59	20.73	0-2
	25	12	20.90	20.58	20.88	
	25	25	20.65	20.57	20.88	
	50	0	20.61	20.60	20.91	

LTE Band 25 15MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.86	22.64	22.85	0
	1	36	22.73	22.52	22.82	
	1	74	22.57	22.54	22.87	
	36	0	21.82	21.54	21.72	0-1
	36	18	21.75	21.55	21.63	
	36	37	21.52	21.50	21.71	
	75	0	21.74	21.56	21.65	
16QAM	1	0	21.63	21.20	21.62	0-1
	1	36	21.57	21.30	21.70	
	1	74	21.51	21.20	21.38	
	36	0	20.71	20.62	20.67	0-2
	36	18	20.77	20.57	20.61	
	36	37	20.60	20.36	20.86	
	75	0	20.85	20.56	20.75	

LTE Band 25 20MHz Bandwidth						
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP[dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)	
			Conducted Power [dBm]			
QPSK	1	0	22.70	22.58	22.78	0
	1	50	22.77	22.79	**23.18**	
	1	99	22.75	22.61	22.81	
	50	0	21.77	21.55	21.61	0-1
	50	25	21.68	21.51	21.68	
	50	50	21.56	21.56	21.69	
	100	0	21.66	21.51	21.61	
16QAM	1	0	21.68	21.57	21.51	0-1
	1	50	21.71	22.07	21.47	
	1	99	21.31	21.35	21.50	
	50	0	20.89	20.62	20.71	0-2
	50	25	20.72	20.51	20.69	
	50	50	20.50	20.39	20.60	
	100	0	20.77	20.65	20.58	

LTE Band 41 5MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed Per 3GPP[dB]
			39750 (2506.0 Mhz)	40185 (2549.5 Mhz)	40620 (2593.0 Mhz)	41055 (2636.5 Mhz)	41490 (2680.0 Mhz)	
			Conducted Power [dBm]					
QPSK	1	0	24.80	25.09	24.51	24.51	24.65	0
	1	12	25.30	24.94	24.71	25.04	24.99	
	1	24	25.13	24.82	24.67	24.50	24.79	
	12	0	24.01	23.73	23.61	23.86	23.88	0-1
	12	6	23.91	23.69	23.70	23.68	23.83	
	12	13	23.83	23.65	23.62	23.68	23.78	
	25	0	23.90	23.71	23.71	23.70	23.85	
16QAM	1	0	23.30	23.34	23.42	23.30	23.56	0-1
	1	12	23.71	23.55	23.51	23.48	23.50	
	1	24	23.66	23.31	23.46	23.30	23.49	
	12	0	22.96	22.62	22.74	22.48	22.83	0-2
	12	6	23.07	22.78	22.67	22.81	22.88	
	12	13	23.00	22.77	22.66	22.72	22.73	
	25	0	22.93	22.62	22.68	22.87	22.89	

LTE Band 41 10MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed Per 3GPP[dB]
			39750 (2506.0 Mhz)	40185 (2549.5 Mhz)	40620 (2593.0 Mhz)	41055 (2636.5 Mhz)	41490 (2680.0 Mhz)	
			Conducted Power [dBm]					
QPSK	1	0	25.03	24.84	24.61	24.78	25.09	0
	1	25	25.22	24.88	24.76	24.78	24.81	
	1	49	25.19	24.83	24.89	24.67	24.86	
	25	0	23.83	23.85	23.77	23.80	23.89	0-1
	25	12	24.04	23.88	23.80	23.73	23.84	
	25	25	24.01	23.74	23.66	23.59	23.83	
	50	0	23.96	23.81	23.68	23.72	23.74	
16QAM	1	0	23.75	23.47	23.33	23.56	23.52	0-1
	1	25	23.98	23.73	23.53	23.61	23.84	
	1	49	23.87	23.50	23.50	23.30	23.54	
	25	0	23.17	22.72	22.92	22.70	22.91	0-2
	25	12	22.97	23.09	22.96	22.66	23.05	
	25	25	23.05	22.73	22.82	22.55	22.82	
	50	0	23.28	22.81	22.65	22.58	22.82	

LTE Band 41 15MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed Per 3GPP[dB]
			39750 (2506.0 Mhz)	40185 (2549.5 Mhz)	40620 (2593.0 Mhz)	41055 (2636.5 Mhz)	41490 (2680.0 Mhz)	
			Conducted Power [dBm]					
QPSK	1	0	24.55	24.66	24.62	24.63	24.73	0
	1	36	24.66	24.63	24.75	24.78	24.80	
	1	74	24.89	24.64	24.75	24.58	24.92	
	36	0	23.62	23.72	23.53	23.70	23.78	0-1
	36	18	23.70	23.77	23.65	23.58	23.74	
	36	37	23.87	23.67	23.65	23.59	23.66	
	75	0	23.72	23.63	23.62	23.59	23.66	
16QAM	1	0	23.52	23.38	23.36	23.30	23.46	0-1
	1	36	23.54	23.56	23.31	23.42	23.38	
	1	74	23.65	23.50	23.38	23.32	23.39	
	36	0	22.63	22.78	22.60	22.77	22.74	0-2
	36	18	22.73	22.92	22.55	22.78	22.88	
	36	37	23.02	22.67	22.82	22.67	22.83	
	75	0	22.81	22.75	22.65	22.78	22.77	

LTE Band 41 20MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed Per 3GPP[dB]
			39750 (2506.0 Mhz)	40185 (2549.5 Mhz)	40620 (2593.0 Mhz)	41055 (2636.5 Mhz)	41490 (2680.0 Mhz)	
			Conducted Power [dBm]					
QPSK	1	0	24.73	24.71	24.62	24.58	24.61	0
	1	50	24.92	24.91	24.77	24.92	24.80	
	1	99	**24.93**	24.79	24.71	24.68	24.67	
	50	0	23.96	23.86	23.62	23.72	23.84	0-1
	50	25	23.93	23.80	23.68	23.69	23.80	
	50	50	24.08	23.73	23.86	23.56	23.73	
	100	0	23.98	23.82	23.64	23.62	23.70	
16QAM	1	0	23.74	23.37	23.31	23.40	23.42	0-1
	1	50	24.02	23.68	23.49	23.60	23.78	
	1	99	23.64	23.31	23.33	23.38	23.35	
	50	0	22.89	22.67	22.65	22.76	22.69	0-2
	50	25	23.10	22.80	22.73	22.63	22.84	
	50	50	23.15	22.71	22.88	22.61	22.76	
	100	0	22.97	22.80	22.66	22.58	22.82	

2.45GHz WLAN Maximum Conducted power

Mode	Freq. (MHz)	Ch. #	Rate	Conducted Power (dBm)
802.11b	2412	1	1	18.64
	2437	6	1	18.01
	2462	11	1	17.73
802.11g	2412	1	6	Not Measured
	2437	6	6	
	2462	11	6	
802.11n HT20	2412	1	MCS0	
	2437	6	MCS0	
	2462	11	MCS0	

5GHz WLAN Maximum Conducted power

Mode	Freq. (MHz)	Ch. #	Rate	Conducted Power (dBm)
802.11n HT20	5180	36	MCS0	Not Measured
	5220	44	MCS0	
	5240	48	MCS0	
802.11n HT40	5190	38	MCS0	17.29
	5230	42	MCS0	16.94
802.11ac VHT20	5745	149	MCS0	Not Measured
	5785	157	MCS0	
	5825	165	MCS0	
802.11ac VHT40	5755	151	MCS0	
	5795	159	MCS0	
802.11ac VHT80	5775	155	MCS0	17.09

Note. Justification for test configurations for WLAN per KDB Publication 248227 D01 Wi-Fi SAR v02r02:

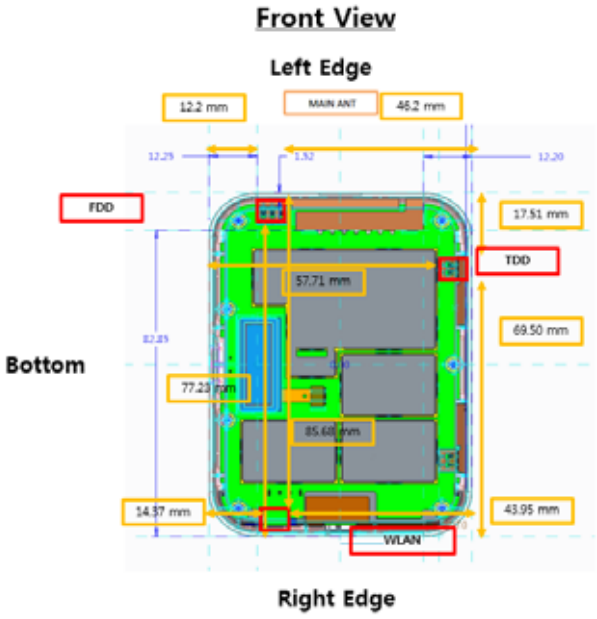
1. Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.

2. For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.

3. For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.

4. For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For channels were measured.

20 DUT Antenna Locations



FDD	WCDMA B2,4,5 LTE B5, 12, 25, 26, 66, 71
TDD	LTE B41(HPUE)
WLAN	2.45GHz 5.2GHz 5.8GHz

<The Distance information of Antenna to Edges of Wireless Router>

21 SAR Test Exclusions Applied

Based on the maximum tune-up tolerance limit of FDD, TDD, and WLAN, and the antenna to use separation distance, Table "EXEMPT" SAR was not required and Table "Measure" SAR was required.

Frequency (MHz)	Output power		Separation distances (mm)						SAR Exemption					
	dBm	mW	Rear	Right Edg	Left Edge	Top	Bottom	Front	Rear	Right Edge	Left Edge	Top	Bottom	Front
FDD Antenna														
715.3	23.80	240	5	77.23	5	46.2	12.2	5	40.60 Measure	EXEMPT	40.60 Measure	4.41 Measure	16.92 Measure	40.60 Measure
848.3	23.50	224	5	77.23	5	46.2	12.2	5	41.26 Measure	EXEMPT	41.26 Measure	4.49 Measure	17.19 Measure	41.26 Measure
1779.3	23.00	200	5	77.23	5	46.2	12.2	5	53.36 Measure	EXEMPT	53.36 Measure	5.80 Measure	22.23 Measure	53.36 Measure
1914.3	23.20	209	5	77.23	5	46.2	12.2	5	57.83 Measure	EXEMPT	57.83 Measure	6.29 Measure	24.10 Measure	57.83 Measure
TDD Antenna														
2680.0	26.00	398	5	69.5	17.51	5	57.71	5	130.31 Measure	Measure	36.20 Measure	130.31 Measure	Measure	130.31 Measure
WLAN Antenna														
2462.0	19.00	79	5	5	85.68	43.95	14.37	5	24.79 Measure	24.79 Measure	EXEMPT	EXEMPT	8.85 Measure	24.79 Measure
5260.0	18.00	63	5	5	85.68	43.95	14.37	5	28.90 Measure	28.90 Measure	EXEMPT	3.28 Measure	10.32 Measure	28.90 Measure
5825.0	18.00	63	5	5	85.68	43.95	14.37	5	30.41 Measure	30.41 Measure	EXEMPT	3.46 Measure	10.86 Measure	30.41 Measure

Note

1. Maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. For distances < 5mm, a distance of 5mm is used to determine SAR exclusion and estimated SAR value.
3. Output power is the maximum rated power (including tune-up or manufacturing tolerances).
4. If the antenna separation distance is > 50mm then the value listed is the output power threshold, above which SAR measurement is required. For separation ≤ 50mm the value is the KDB 447498 D01v06 calculated value and must be less than 3 for SAR exemption.
5. Formulas round separation distance to nearest mm and power to nearest mW before calculating thresholds or exemption values.
6. Particular DUT edges were not required to be evaluated for Wireless Router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC Publication 941225 D06v02r01 guidance, page 2. The antenna document shows the distances between the transmit antennas and the edges of the device.

22 SAR Data Summary

22.1 Hotspot SAR data

WCDMA V Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1 g SAR (W/kg)	Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					
Front	RMC	Standard	826.4	4132	10	22.06	22.50	1.107	-	0.162	**0.179**	**A9**
Rear		Standard	826.4	4132	10	22.06	22.50	1.107	-	0.095	0.105	-
Left Edge		Standard	826.4	4132	10	22.06	22.50	1.107	-	0.082	0.091	-
Top		Standard	826.4	4132	10	22.06	22.50	1.107	-	0.081	0.090	-
Bottom		Standard	826.4	4132	10	22.06	22.50	1.107	-	0.051	0.056	-

WCDMA IV Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1 g SAR (W/kg)	Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					
Front	RMC	Standard	1712.4	1312	10	22.12	22.50	1.091	-	1.140	1.244	-
Front		Standard	1732.4	1412	10	22.11	22.50	1.094	-	1.160	1.270	-
Front		Standard	1752.6	1513	10	22.06	22.50	1.107	-	1.210	**1.339**	**A10**
Rear		Standard	1712.4	1312	10	22.12	22.50	1.091	-	0.907	0.990	-
Rear		Standard	1732.4	1412	10	22.11	22.50	1.094	-	0.801	0.876	-
Rear		Standard	1752.6	1513	10	22.06	22.50	1.107	-	0.708	0.784	-
Left Edge		Standard	1712.4	1312	10	22.12	22.50	1.091	-	0.893	0.974	-
Left Edge		Standard	1732.4	1412	10	22.11	22.50	1.094	-	0.802	0.877	-
Left Edge		Standard	1752.6	1513	10	22.06	22.50	1.107	-	0.752	0.832	-
Top		Standard	1712.4	1312	10	22.12	22.50	1.091	-	0.203	0.221	-
Bottom		Standard	1712.4	1312	10	22.12	22.50	1.091		0.615	0.671	-
Additional Repeat Test												
Front	RMC	Standard	1752.6	1513	10	22.06	22.50	1.107	-	1.140	1.262	-

WCDMA II Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1 g SAR (W/kg)	Scaled SAR (W/kg)	Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					
Front	RMC	Standard	1852.4	9262	10	22.12	22.50	1.091	0	0.960	1.047	-
									1	0.812	0.886	-
Front		Standard	1880.0	9400	10	22.02	22.50	1.117	-	1.040	1.162	-
Front		Standard	1907.6	9538	10	21.98	22.50	1.127	-	1.080	1.217	-
Rear		Standard	1852.4	9262	10	22.12	22.50	1.091	0	0.717	0.782	-
									1	0.516	0.563	-
Left Edge		Standard	1852.4	9262	10	22.12	22.50	1.091	-	0.412	0.458	-
Top		Standard	1852.4	9262	10	22.12	22.50	1.091	-	0.097	0.106	-
Bottom		Standard	1852.4	9262	10	22.12	22.50	1.091	0	0.516	0.563	-
									1	0.457	0.499	-
Additional Repeat Test												
Front	RMC	Standard	1907.6	9538	10	21.98	22.50	1.127	-	1.090	**1.228**	**A11**

LTE Band 71 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	673.0	133222	1	50	10	23.35	23.50	1.035	-	1.060	1.097	-
	QPSK	Standard	683.0	133322	1	50	10	23.50	23.50	1.000	-	0.991	0.991	-
	QPSK	Standard	688.0	133322	1	50	10	23.47	23.50	1.007	0	0.920	0.926	-
											1	0.810	0.810	-
	QPSK	Standard	673.0	133222	50	25	10	22.38	22.50	1.028	-	0.859	0.883	-
	QPSK	Standard	683.0	133322	50	25	10	22.20	22.50	1.072	-	0.801	0.858	-
	QPSK	Standard	688.0	133372	50	25	10	22.12	22.50	1.091	-	0.749	0.817	-
	QPSK	Standard	673.0	133222	100	0	10	22.25	22.50	1.059	0	0.576	0.610	-
											1	0.567	0.600	-
Rear	QPSK	Standard	683.0	133322	1	50	10	23.50	23.50	1.000	-	0.629	0.629	-
	QPSK	Standard	673.0	133222	50	25	10	22.38	22.50	1.028	-	0.509	0.523	-
Left Edge	QPSK	Standard	683.0	133322	1	50	10	23.50	23.50	1.000	-	0.253	0.253	-
	QPSK	Standard	673.0	133222	50	25	10	22.38	22.50	1.028	-	0.222	0.228	-
Top	QPSK	Standard	683.0	133322	1	50	10	23.50	23.50	1.000	-	0.310	0.310	-
	QPSK	Standard	673.0	133222	50	25	10	22.38	22.50	1.028	-	0.241	0.248	-
Bottom	QPSK	Standard	683.0	133322	1	50	10	23.50	23.50	1.000	-	0.251	0.251	-
	QPSK	Standard	673.0	133222	50	25	10	22.38	22.50	1.028	-	0.289	0.297	-
Additional Repeat Test														
Front	QPSK	Standard	673.0	133222	1	50	10	23.35	23.50	1.035	-	1.070	**1.108**	**A12**

LTE Band 12 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	704.0	23060	1	25	10	23.29	23.80	1.125	-	1.000	**1.125**	**A13**
											-	0.944	0.944	-
	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	1.010	1.082	-
	QPSK	Standard	711.0	23130	1	25	10	23.49	23.80	1.074	-	0.952	1.022	-
											-	0.883	0.883	-
	QPSK	Standard	704.0	23060	25	12	10	22.30	22.80	1.122	-	0.827	0.928	-
											-	0.760	0.760	-
	QPSK	Standard	707.5	23095	25	12	10	22.47	22.80	1.079	-	0.836	0.902	-
	QPSK	Standard	711.0	23130	25	12	10	22.36	22.80	1.107	-	0.792	0.876	-
											-	0.731	0.731	-
	QPSK	Standard	707.5	23095	50	0	10	22.38	22.80	1.102	0	0.596	0.657	-
											1	0.590	0.650	-
Rear	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	0.686	0.735	-
	QPSK	Standard	707.5	23095	25	12	10	22.47	22.80	1.079	-	0.531	0.573	-
Left Edge	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	0.270	0.289	-
	QPSK	Standard	707.5	23095	25	12	10	22.47	22.80	1.079	-	0.204	0.220	-
Top	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	0.315	0.338	-
	QPSK	Standard	707.5	23095	25	12	10	22.47	22.80	1.079	-	0.263	0.284	-
Bottom	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	0.375	0.402	-
	QPSK	Standard	707.5	23095	25	12	10	22.47	22.80	1.079	-	0.278	0.300	-
Additional Repeat Test														
Front	QPSK	Standard	707.5	23095	1	25	10	23.50	23.80	1.072	-	0.990	1.061	-

LTE Band 26 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	831.5	26865	1	36	10	23.15	23.30	1.035	0	0.509	**0.527**	**A14**
											1	0.488	0.488	-
	QPSK	Standard	821.5	26765	36	18	10	22.21	22.30	1.021	-	0.466	0.476	-
Rear	QPSK	Standard	831.5	26865	1	36	10	23.15	23.30	1.035	-	0.298	0.308	-
	QPSK	Standard	821.5	26765	36	18	10	22.21	22.30	1.021	-	0.323	0.330	-
Left Edge	QPSK	Standard	831.5	26865	1	36	10	23.15	23.30	1.035	-	0.141	0.146	-
	QPSK	Standard	821.5	26765	36	18	10	22.21	22.30	1.021	-	0.090	0.092	-
Top	QPSK	Standard	831.5	26865	1	36	10	23.15	23.30	1.035	-	0.136	0.141	-
	QPSK	Standard	821.5	26765	36	18	10	22.21	22.30	1.021	-	0.090	0.092	-
Bottom	QPSK	Standard	831.5	26865	1	36	10	23.15	23.30	1.035	-	0.162	0.168	-
	QPSK	Standard	821.5	26765	36	18	10	22.21	22.30	1.021	-	0.115	0.117	-

LTE Band 5 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	829.0	20450	1	25	10	23.39	23.50	1.026	-	0.521	**0.534**	**A15**
	QPSK	Standard	829.0	20450	25	12	10	22.36	22.50	1.033	-	0.429	0.443	-
Rear	QPSK	Standard	829.0	20450	1	25	10	23.39	23.50	1.026	-	0.325	0.333	-
	QPSK	Standard	829.0	20450	25	12	10	22.36	22.50	1.033	-	0.256	0.264	-
Left Edge	QPSK	Standard	829.0	20450	1	25	10	23.39	23.50	1.026	-	0.116	0.119	-
	QPSK	Standard	829.0	20450	25	12	10	22.36	22.50	1.033	-	0.119	0.123	-
Top	QPSK	Standard	829.0	20450	1	25	10	23.39	23.50	1.026	-	0.175	0.179	-
	QPSK	Standard	829.0	20450	25	12	10	22.36	22.50	1.033	-	0.137	0.141	-
Bottom	QPSK	Standard	829.0	20450	1	25	10	23.39	23.50	1.026	-	0.162	0.166	-
	QPSK	Standard	829.0	20450	25	12	10	22.36	22.50	1.033	-	0.126	0.130	-

LTE Band 66 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	1720.0	132072	1	50	10	22.96	23.00	1.009	-	1.210	1.221	-
	QPSK	Standard	1745.0	132322	1	50	10	22.82	23.00	1.042	-	1.250	**1.303**	**A16**
	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	-	1.280	1.280	-
	QPSK	Standard	1720.0	132072	50	0	10	21.59	22.00	1.099	-	0.896	0.985	-
	QPSK	Standard	1745.0	132322	50	0	10	21.78	22.00	1.052	-	0.926	0.974	-
	QPSK	Standard	1770.0	132572	50	0	10	21.52	22.00	1.117	-	0.992	1.108	-
	QPSK	Standard	1770.0	132572	100	0	10	21.57	22.00	1.104	-	0.853	0.942	-
Rear	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	0	0.768	0.768	-
											1	0.663	0.663	-
											2	0.605	0.605	-
	QPSK	Standard	1745.0	132322	50	0	10	21.78	22.00	1.052	0	0.582	0.612	-
											1	0.561	0.590	-
											2	0.521	0.548	-
Left Edge	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	-	0.749	0.749	-
	QPSK	Standard	1745.0	132322	50	0	10	21.78	22.00	1.052	-	0.679	0.714	-
Top	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	-	0.229	0.229	-
	QPSK	Standard	1745.0	132322	50	0	10	21.78	22.00	1.052	-	0.168	0.177	-
Bottom	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	-	0.622	0.622	-
	QPSK	Standard	1745.0	132322	50	0	10	21.78	22.00	1.052	-	0.472	0.497	-
Additional Repeat Test														
Front	QPSK	Standard	1770.0	132572	1	50	10	23.00	23.00	1.000	-	1.200	1.200	-

LTE Band 25 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	1860.0	26140	1	50	10	22.77	23.20	1.104	-	1.070	1.181	-
	QPSK	Standard	1882.5	26365	1	50	10	22.79	23.20	1.099	-	1.160	1.275	-
	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	1.170	1.175	-
	QPSK	Standard	1860.0	26140	50	0	10	21.77	22.20	1.104	-	0.857	0.946	-
	QPSK	Standard	1882.5	26365	50	0	10	21.55	22.20	1.161	-	0.906	1.052	-
	QPSK	Standard	1905.0	26590	50	0	10	21.61	22.20	1.146	-	0.935	1.071	-
	QPSK	Standard	1860.0	26140	100	0	10	21.66	22.20	1.132	-	0.830	0.940	-
Rear	QPSK	Standard	1860.0	26140	1	50	10	22.77	23.20	1.104	-	0.687	0.759	-
	QPSK	Standard	1882.5	26365	1	50	10	22.79	23.20	1.099	-	0.894	0.983	-
	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	0.896	0.900	-
	QPSK	Standard	1860.0	26140	50	0	10	21.77	22.20	1.104	-	0.637	0.703	-
Left Edge	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	0.552	0.555	-
	QPSK	Standard	1860.0	26140	50	0	10	21.77	22.20	1.104	-	0.402	0.444	-
Top	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	0.135	0.136	-
	QPSK	Standard	1860.0	26140	50	0	10	21.77	22.20	1.104	-	0.101	0.112	-
Bottom	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	0.600	0.603	-
	QPSK	Standard	1860.0	26140	50	0	10	21.77	22.20	1.104	-	0.420	0.464	-
											-	0.399	0.399	-
Additional Repeat Test														
Front	QPSK	Standard	1905.0	26590	1	50	10	23.18	23.20	1.005	-	1.200	**1.206**	**A17**

LTE Band 41 Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		RB Size	RB Offset	Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel				Measured Power	Tune-Up Limit			Measured SAR	Scaled SAR	
Front	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	0	0.556	**0.605**	**A18**
											1	0.456	0.513	-
	QPSK	Standard	2549.5	40185	1	99	10	24.79	25.30	1.125	0	0.491	0.552	-
											1	0.417	0.469	-
	QPSK	Standard	2593.0	40620	1	99	10	24.71	25.30	1.146	0	0.482	0.552	-
											1	0.395	0.453	-
	QPSK	Standard	2636.5	41055	1	99	10	24.68	25.30	1.153	0	0.510	0.588	-
											1	0.395	0.455	-
	QPSK	Standard	2680.0	41490	1	99	10	24.67	25.30	1.156	-	0.308	0.356	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	0	0.441	0.464	-
											1	0.324	0.341	-
Rear	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	-	0.360	0.392	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	-	0.299	0.315	-
Right Edge	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	-	0.029	0.032	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	-	0.023	0.024	-
Left Edge	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	-	0.190	0.207	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	-	0.150	0.158	-
Top	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	-	0.342	0.372	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	-	0.267	0.281	-
Bottom	QPSK	Standard	2506.0	39750	1	99	10	24.93	25.30	1.089	-	0.071	0.077	-
	QPSK	Standard	2506.0	39750	50	50	10	24.08	24.30	1.052	-	0.062	0.065	-

WLAN 2.45GHz Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Scaling Factor (Duty cycle)	Peak SAR of Area Scan(W/kg)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					Measured SAR	Scaled SAR	
Front	802.11b	Standard	2412.0	1	10	18.64	19.00	1.086	1.011	0.628	-	0.411	0.451	-
Rear	802.11b	Standard	2412.0	1	10	18.64	19.00	1.086	1.011	0.528	-	0.375	0.412	-
Right Edge	802.11b	Standard	2412.0	1	10	18.64	19.00	1.086	1.011	0.353	-	0.244	0.268	-
Bottom	802.11b	Standard	2412.0	1	10	18.64	19.00	1.086	1.011	0.648	-	0.447	**0.491**	**A19**

WLAN 5.2GHz Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Scaling Factor (Duty cycle)	Peak SAR of Area Scan(W/kg)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					Measured SAR	Scaled SAR	
Front	802.11n HT40	Standard	5190.0	38	10	17.29	18.00	1.178	1.144	0.211	-	0.089	0.120	-
Rear	802.11n HT40	Standard	5190.0	38	10	17.29	18.00	1.178	1.144	0.725	-	0.332	**0.447**	**A19**
Right Edge	802.11n HT40	Standard	5190.0	38	10	17.29	18.00	1.178	1.144	0.575	-	0.251	0.338	-
Top	802.11n HT40	Standard	5190.0	38	10	17.29	18.00	1.178	1.144	0.028	-	0.008	0.011	-
Bottom	802.11n HT40	Standard	5190.0	38	10	17.29	18.00	1.178	1.144	0.164	-	0.070	0.094	-

WLAN 5.8GHz Hotspot SAR

EUT Position	Mode	Battery	Traffic Channel		Separation Distance (mm)	Power(dBm)		Scaling Factor (Power)	Scaling Factor (Duty cycle)	Peak SAR of Area Scan(W/kg)	Cube	1g SAR(W/Kg)		Plot No.
			Frequency (MHz)	Channel		Measured Power	Tune-Up Limit					Measured SAR	Scaled SAR	
Front	802.11ac VHT80	Standard	5775.0	155	10	17.09	18.00	1.233	1.357	0.168	-	0.052	0.087	-
Rear	802.11ac VHT80	Standard	5775.0	155	10	17.09	18.00	1.233	1.357	0.229	-	0.091	0.152	-
Right Edge	802.11ac VHT80	Standard	5775.0	155	10	17.09	18.00	1.233	1.357	0.358	-	0.144	**0.241**	**A20**
Top	802.11ac VHT80	Standard	5775.0	155	10	17.09	18.00	1.233	1.357	0.006	-	0.001	0.002	-
Bottom	802.11ac VHT80	Standard	5775.0	155	10	17.09	18.00	1.233	1.357	0.116	-	0.032	0.054	-

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 447498 D01v06.
2. Liquid tissue depth was at least 15 cm for all frequencies.
3. All modes of operation were investigated, and worst-case results are reported.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2 dB below the highest peak.
5. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
6. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
7. Batteries are fully charged at the beginning of the SAR measurements.
8. Per FCC KDB 865664 D01V01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 23 for variability analysis.

WCDMA Notes:

1. WCDMA mode in Body SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB Publication 941225 D01v03r01. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is **>** $^{1}/_{2}$ dB, instead of the middle channel, the highest output power channel must be used

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r05. The general test procedures used for testing can be found in Section 8.4.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3-6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 measured at the highest output power channel in a given a test configuration was > 0.6W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3% using UL-DL configuration 1. Per FCC Guidance, all SAR tests

were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions.

6. This device supports LTE capabilities with overlapping transmission frequency rages. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with larger transmission frequency range.

WLAN Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4GHz WIFI operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2W/kg.
3. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg or all test channels were measured.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance.
5. WLAN transmission was verified using a spectrum analyzer.
6. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel in the lower order/sequence 802.11 mode (i.e. a,g, n then ac) is selected.
7. When the specified maximum output power is the same for both UNII Band1 and UNII Band 2A, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is ≤ 1.2W/kg, SAR is not required for UNII band1 > 1.2W/kg, both bands should be tested independently for SAR. When different maximum output powers is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg.
8. The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than

the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

23 SAR Measurement Variability

23.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

1. When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

2. A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

3. A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

4. Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

EUT Position	Mode	Traffic Channel		Separation Distance (mm)	Measured 1g SAR (W/kg)	1st Repeated 1g SAR(W/kg)	Ratio
		Frequency (MHz)	Channel				
Front	WCDMA II	1907.6	9538	10	1.080	1.090	1.01
Front	WCDMA IV	1752.6	1513	10	1.210	1.140	1.06
Front	LTE Band 12	707.5	23095	10	1.010	0.990	1.02
Front	LTE Band 25	1905.0	26590	10	1.170	1.200	1.03
Front	LTE Band 66	1770.0	132572	10	1.280	1.200	1.07
Front	LTE Band 71	673.0	133222	10	1.060	1.070	1.01

23.2 Measurement Uncertainty

The measured SAR was < 1.5 W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

24 Simultaneous Multi-band Transmission Evaluation

24.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to handsets with built-in unlicensed transmitters such as Bluetooth devices which may simultaneously transmit with the licensed transmitter.

24.2 The Simultaneous Transmission possibilities are listed as below

No	Capable TX Configuration	Operation
1	Main + 2.45GHz WLAN	Yes
2	Main + 5GHz WLAN	Yes

Note:

- The simultaneous transmission possibilities are listed as below.
- WLAN Aux Ant and Bluetooth Aux Ant share the same antenna and cannot transmit simultaneously.

Simultaneous Transmission Scenario for Hotspot SAR

Exposure Condition	Mode	3G/4G SAR (W/kg)	2.45 GHz WLAN SAR (W/kg)	∑ SAR (W/kg)
		1	2	1+2
Hotspot	WCDMA V	0.179	0.451	0.630
	WCDMA IV	1.339	0.451	**1.790**
	WCDMA II	1.228	0.451	**1.679**
	LTE Band 71	1.108	0.451	1.559
	LTE Band 12	1.125	0.451	1.576
	LTE Band 26 (Cell)	0.527	0.451	0.978
	LTE Band 5 (Cell)	0.534	0.451	0.985
	LTE Band 66 (AWS)	1.303	0.451	**1.754**
	LTE Band 25 (PCS)	1.286	0.451	**1.737**
	LTE Band 41	0.605	0.451	1.056

Exposure Condition	Mode	3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	∑ SAR (W/kg)
		1	2	1+2
Hotspot	WCDMA V	0.179	0.120	0.299
	WCDMA IV	1.339	0.120	1.459
	WCDMA II	1.228	0.120	1.348
	LTE Band 71	1.108	0.120	1.228
	LTE Band 12	1.125	0.120	1.245
	LTE Band 26 (Cell)	0.527	0.120	0.647
	LTE Band 5 (Cell)	0.534	0.120	0.654
	LTE Band 66 (AWS)	1.303	0.120	1.423
	LTE Band 25 (PCS)	1.286	0.120	1.406
	LTE Band 41	0.605	0.120	0.725

24.3 SPLSR Evaluation and Analysis

FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio for each pair of antennas is ≤ 0.04, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formal.

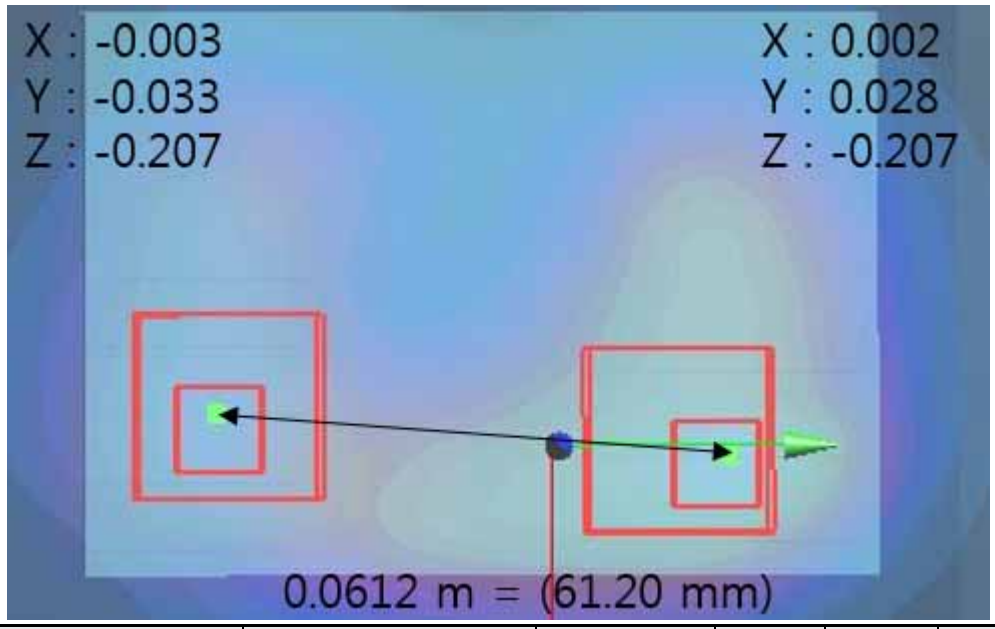
$$\text{Distance} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

Notebook Body SAR Peak Location Separation Ratio (SPLSR)

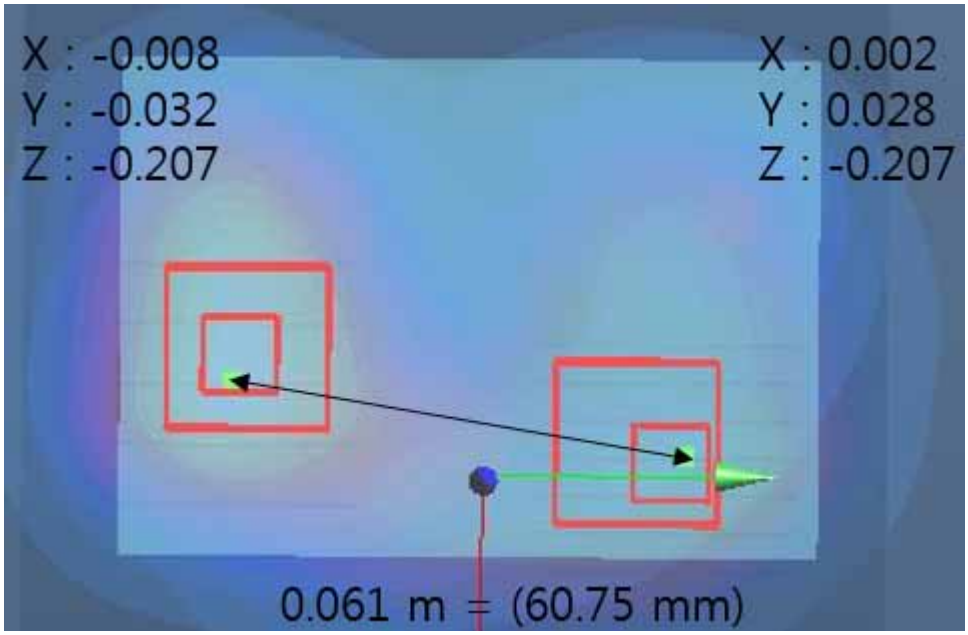
Simultaneous Tx	Position	Main Ant	WLAN 2.45GHz Ant	∑SAR (W/kg)	Calculated Distance (mm)	SPLSR (≤0.04)	Volume Scan	Page No
WCDMA IV	Front	1.339	0.451	1.790	61.20	0.039	No	62
WCDMA II	Front	1.228	0.451	1.679	60.74	0.036	No	62
LTE Band 66 (AWS)	Front	1.303	0.451	1.754	59.25	0.039	No	63
LTE Band 25 (PCS)	Front	1.286	0.451	1.737	63.29	0.036	No	63

WCDMA IV (Main Ant + WLAN 2.45GHz Ant)



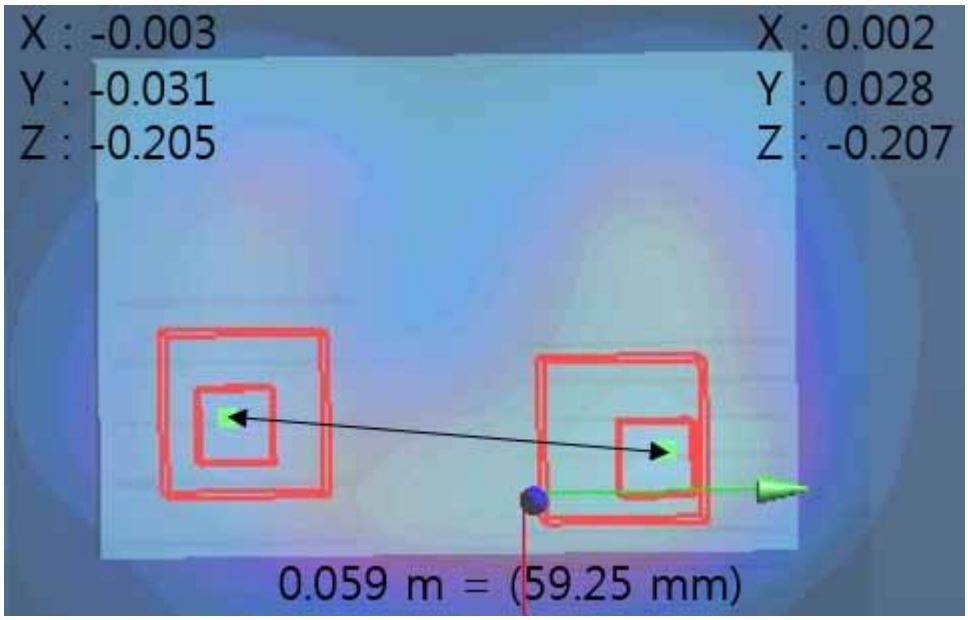
Main Ant			WLAN 2.45GHz Ant			R_i		∑SAR (W/kg)	SPLSR (≤0.04)	Volume Scan SAR [W/kg]	Plot No
X, m	Y, m	Z, m	X, m	Y, m	Z, m	m	mm				
-0.003	-0.033	-0.207	0.002	0.028	-0.207	0.061	61.20	1.790	0.039	-	-

WCDMA II (Main Ant + WLAN 2.45GHz Ant)



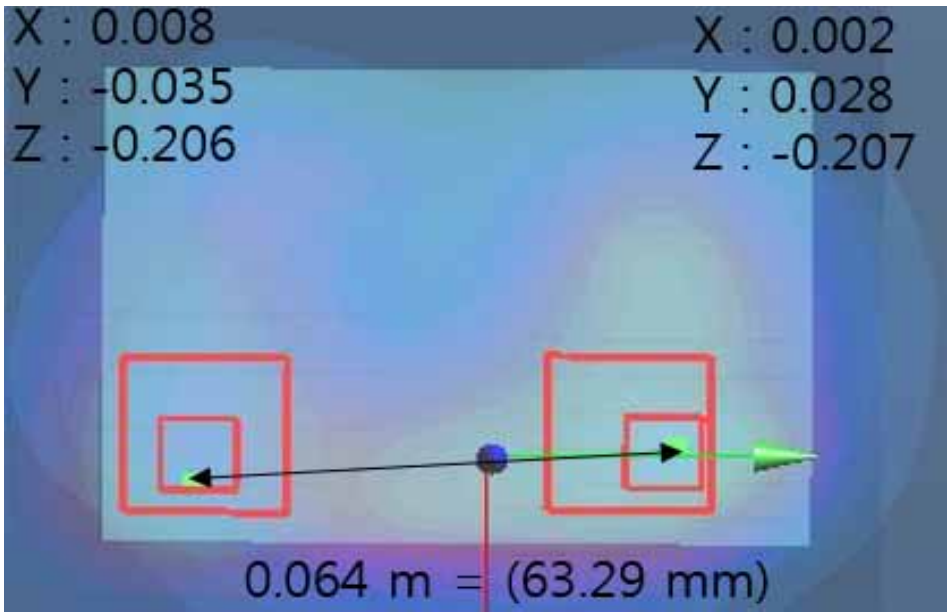
WLAN Main Ant			WLAN Aux Ant			R_i		∑SAR (W/kg)	SPLSR (≤0.04)	Volume Scan SAR [W/kg]	Plot No
X, m	Y, m	Z, m	X, m	Y, m	Z, m	m	mm				
-0.008	-0.032	-0.207	0.002	0.028	-0.207	0.061	60.75	1.679	0.036	-	-

LTE Band 66 (Main Ant + WLAN 2.45GHz Ant)



WLAN Main Ant			WLAN Aux Ant			R_i		∑SAR (W/kg)	SPLSR (≤0.04)	Volume Scan SAR [W/kg]	Plot No
X, m	Y, m	Z, m	X, m	Y, m	Z, m	m	mm				
-0.003	-0.031	-0.205	0.002	0.028	-0.207	0.059	59.25	1.754	0.039	-	-

LTE Band 25 (Main Ant + WLAN 2.45GHz Ant)



WLAN Main Ant			WLAN Aux Ant			R_i		∑SAR (W/kg)	SPLSR (≤0.04)	Volume Scan SAR [W/kg]	Plot No
X, m	Y, m	Z, m	X, m	Y, m	Z, m	m	mm				
0.008	-0.035	-0.206	0.002	0.028	-0.207	0.064	63.29	1.737	0.036	-	-

Appendixes List

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Appendix B	B.1 Calibration certificate for Probe
	B.2 Calibration certificate for DAE
	B.3 Calibration certificate for Dipole

Appendix A.1 Verification Test Plots for 750MHz

Date: 2019-05-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 750MHz Verification Body 2019_05_29.da53:0

Input Power : 100 mW

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

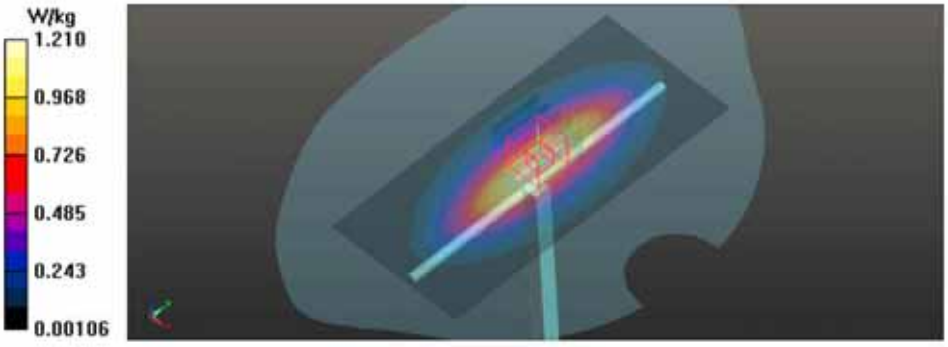
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1085

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 1.002 S/m; ε_r = 54.133; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(10.96, 10.96, 10.96) @ 750 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/750MHz Verification/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.21 W/kg

Verification/750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.83 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.838 W/kg; SAR(10 g) = 0.560 W/kg
Maximum value of SAR (measured) = 1.11 W/kg



Appendix A.2 Verification Test Plots for 835MHz

Date: 2019-05-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 835MHz Verification Body 2019_05_28.da53:0

Input Power : 100 mW

Ambient Temp : 22.7 ℃ Tissue Temp : 21.7 ℃

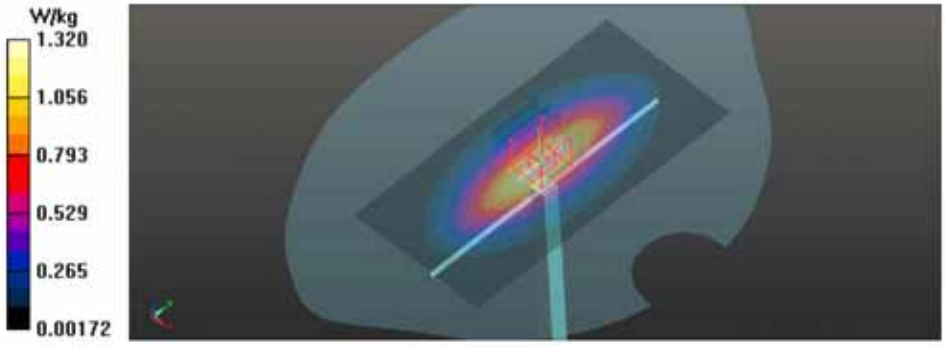
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:490

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.958 S/m; ε_r = 55.464; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(9.71, 9.71, 9.71) @ 835 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/835MHz Verification/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.32 W/kg

Verification/835MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.49 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.975 W/kg; SAR(10 g) = 0.638 W/kg
Maximum value of SAR (measured) = 1.31 W/kg



Date: 2019-06-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 835MHz Verification Body 2019_06_01.da53:0

Input Power : 100 mW

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

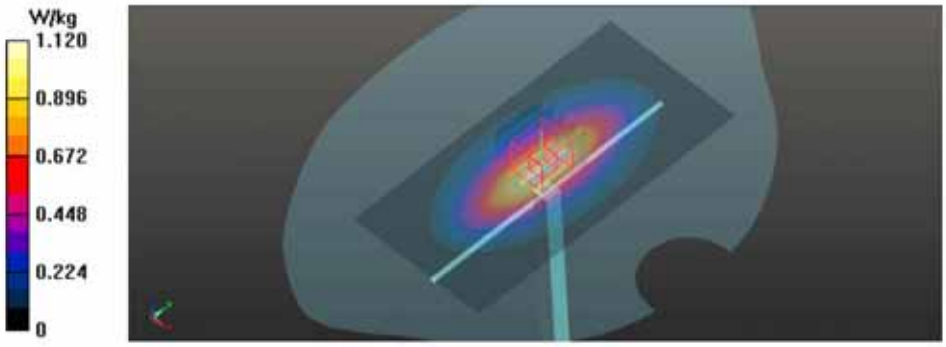
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:490

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.951 S/m; ε_r = 54.676; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(9.71, 9.71, 9.71) @ 835 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/835MHz Verification/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Verification/835MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.73 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.988 W/kg; SAR(10 g) = 0.647 W/kg
Maximum value of SAR (measured) = 1.32 W/kg



Appendix A.3 Verification Test Plots for 1750MHz

Date: 2019-05-30

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 1750MHz Verification Body 2019_05_30.da53:0

Input Power : 100 mW

Ambient Temp : 23.3 ℃ Tissue Temp : 22.3 ℃

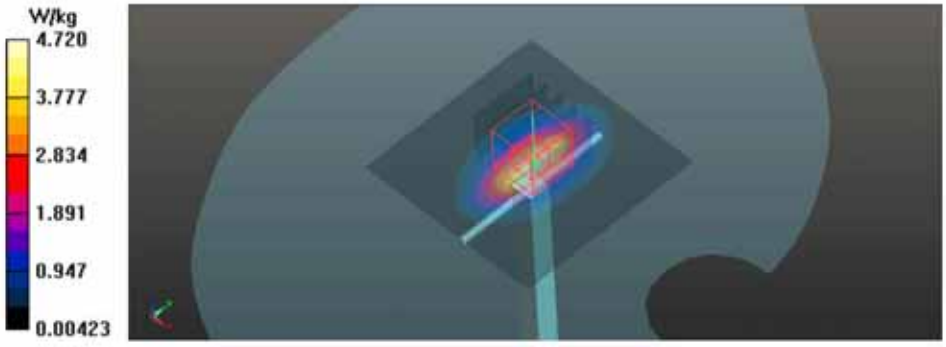
DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1070

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.483 S/m; ε_r = 51.952; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(8.7, 8.7, 8.7) @ 1750 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/1750MHz Verification/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.72 W/kg

Verification/1750MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 66.08 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 6.64 W/kg
SAR(1 g) = 3.6 W/kg; SAR(10 g) = 1.88 W/kg
Maximum value of SAR (measured) = 5.62 W/kg



Appendix A.4 Verification Test Plots for 1900MHz

Date: 2019-05-24

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 1900MHz Verification Body 2019_05_24.da53:0

Input Power : 100 mW

Ambient Temp : 22.9 ℃ Tissue Temp : 21.9 ℃

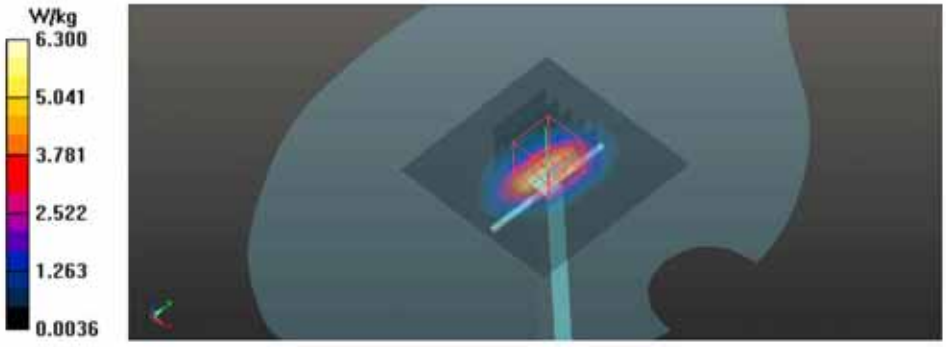
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d033

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.511 S/m; ε_r = 54.934; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.7, 7.7, 7.7) @ 1900 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/1900MHz Verification/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 6.30 W/kg

Verification/1900MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 65.41 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 7.60 W/kg
SAR(1 g) = 4.26 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 6.46 W/kg



Date: 2019-06-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 1900MHz Verification Body 2019_06_01.da53:0

Input Power : 100 mW

Ambient Temp : 23.1 ℃ Tissue Temp : 22.1 ℃

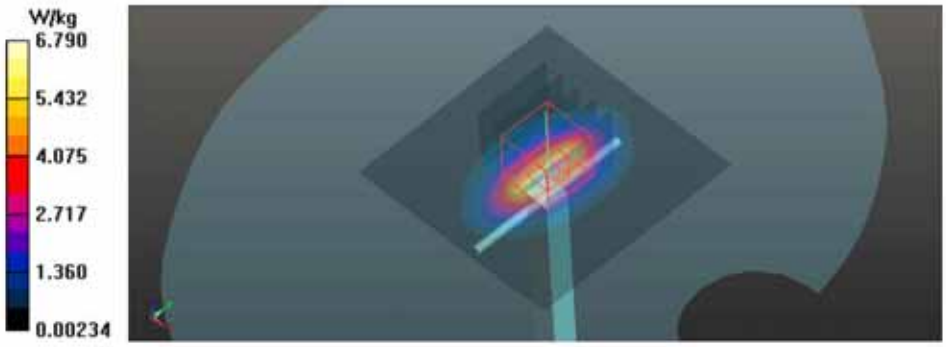
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d033

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.514 S/m; ε_r = 52.703; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.7, 7.7, 7.7) @ 1900 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/1900MHz Verification/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 6.79 W/kg

Verification/1900MHz Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 63.33 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 6.91 W/kg
SAR(1 g) = 3.81 W/kg; SAR(10 g) = 1.99 W/kg
Maximum value of SAR (measured) = 5.72 W/kg



Appendix A.5 Verification Test Plots for 2450MHz

Date: 2019-06-13

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 2450MHz Verification Body 2019_06_13.da53:0

Input Power : 100 mW

Ambient Temp : 23.1 ℃ Tissue Temp : 22.1 ℃

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:734

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.993 S/m; ε_r = 50.464; ρ = 1000 kg/m^3
Phantom section: Flat Section

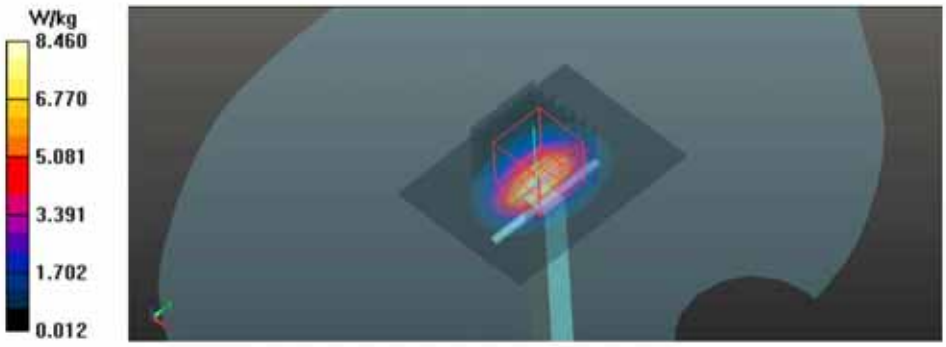
DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(7.89, 7.89, 7.89) @ 2450 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/2450MHz Verification/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 8.46 W/kg

Verification/2450MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 67.13 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 9.94 W/kg
SAR(1 g) = 5.15 W/kg; SAR(10 g) = 2.49 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 8.18 W/kg



Appendix A.6 Verification Test Plots for 2600MHz

Date: 2019-06-03

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 2600MHz Verification Body 2019_06_03.da53:0

Input Power : 100 mW

Ambient Temp : 23.0 ℃ Tissue Temp : 22.0 ℃

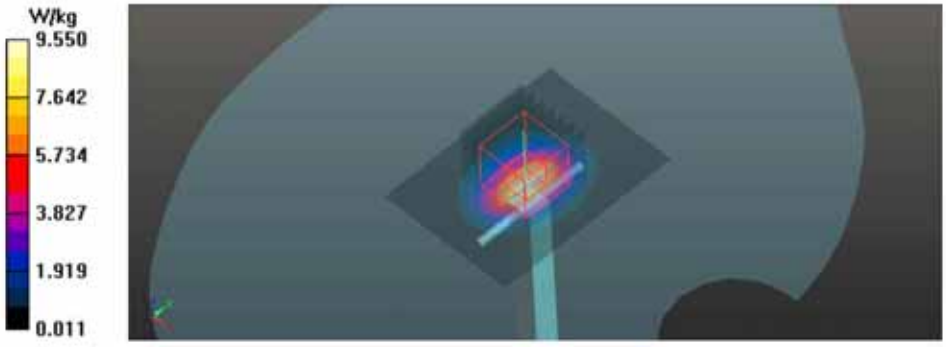
DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1124

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.168 S/m; ε_r = 50.701; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.38, 7.38, 7.38) @ 2600 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/2600MHz Verification/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.55 W/kg

Verification/2600MHz Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 65.98 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 5.58 W/kg; SAR(10 g) = 2.59 W/kg
Maximum value of SAR (measured) = 9.28 W/kg



Appendix A.7 Verification Test Plots for 5200MHz

Date: 2019-06-12

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 5200MHz Verification Body_2019_06_12.da53:0

Input Power : 100 mW

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

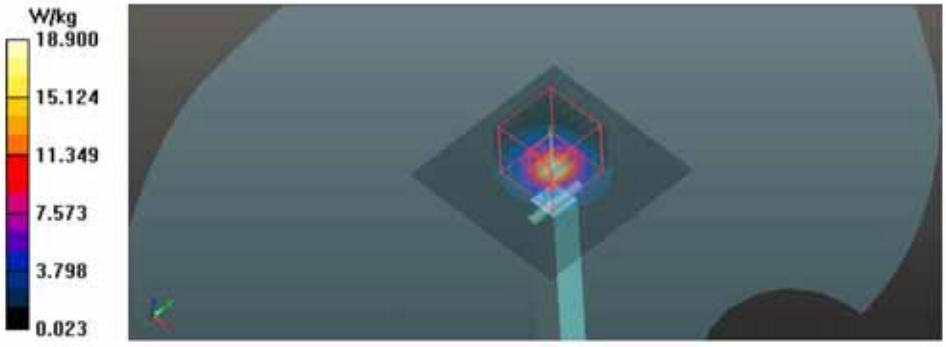
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.314 S/m; ε_r = 48.318; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(5.15, 5.15, 5.15) @ 5200 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/5200MHz Body Verification/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 18.9 W/kg

Verification/5200MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.78 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 7.64 W/kg; SAR(10 g) = 2.15 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



Appendix A.8 Verification Test Plots for 5800MHz

Date: 2019-06-12

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: 5800MHz Verification Body 2019_06_12.da53:0

Input Power : 100 mW

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

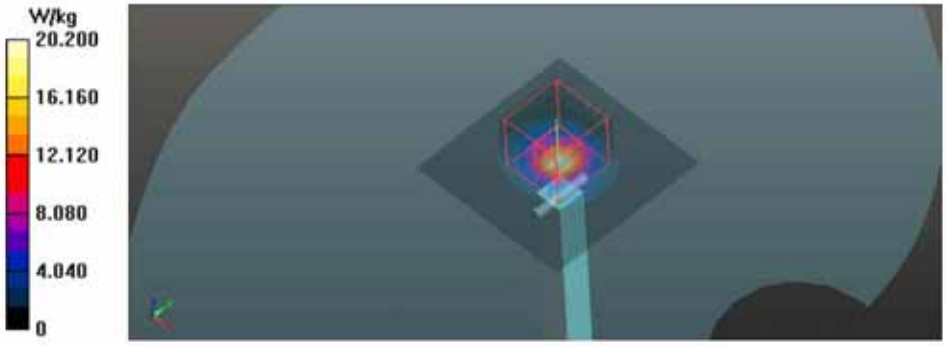
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1106

Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.132 S/m; ε_r = 46.379; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(4.52, 4.52, 4.52) @ 5800 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Verification/5800MHz Body Verification/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 20.2 W/kg

Verification/5800MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.55 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 36.2 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.12 W/kg
Maximum value of SAR (measured) = 20.6 W/kg



Appendix A.9 SAR Test Plots for WCDMA V Hotspot

Date: 2019-06-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WCDMA FDD V_Front_CH4132.da53:0

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, WCDMA5 (0); Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.943 S/m; ε_r = 54.745; ρ = 1000 kg/m^3
Phantom section: Flat Section

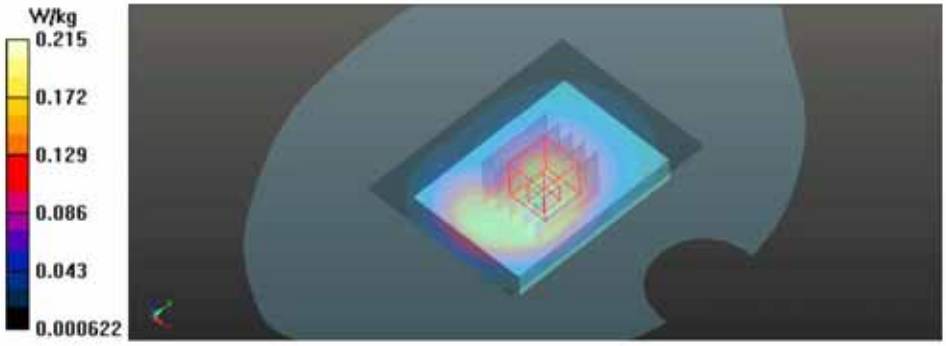
DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(9.71, 9.71, 9.71) @ 826.4 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WCDMA FDD V_Front_CH4132/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.215 W/kg

Body/WCDMA FDD V_Front_CH4132/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.61 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.248 W/kg
SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.110 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.211 W/kg



Appendix A.10 SAR Test Plots for WCDMA IV Hotspot

Date: 2019-05-30

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WCDMA FDD IV_Front_CH1513.da53:0

Ambient Temp : 23.3 ℃ Tissue Temp : 22.3 ℃

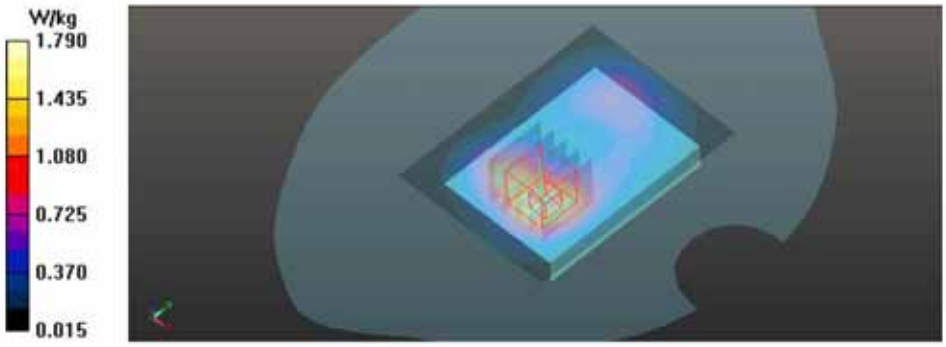
DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, WCDMA 4 (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1753 MHz; σ = 1.486 S/m; ε_r = 51.938; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(8.7, 8.7, 8.7) @ 1752.6 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WCDMA FDD IV_Front_CH1513/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.79 W/kg

Body/WCDMA FDD IV_Front_CH1513/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.64 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.98 W/kg
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.732 W/kg
Maximum value of SAR (measured) = 1.67 W/kg



Appendix A.11 SAR Test Plots for WCDMA II Hotspot

Date: 2019-06-01

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WCDMA FDD II_Front_CH9538_Repeat Test.da53:0

Ambient Temp : 23.1 ℃ Tissue Temp : 22.1 ℃

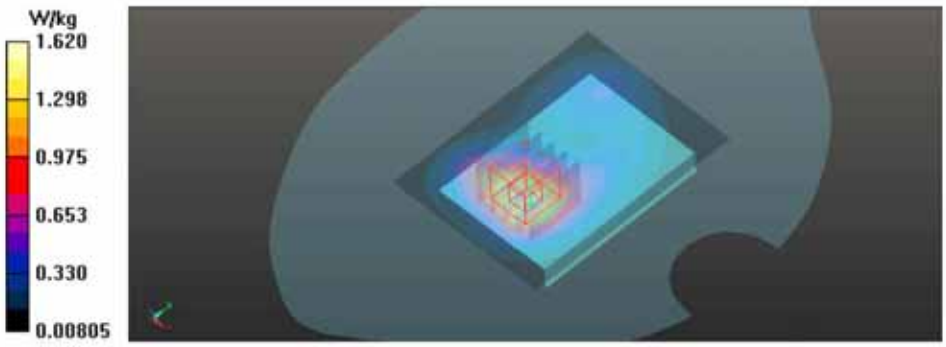
DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, WCDMA2 (0); Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1908 MHz; σ = 1.523 S/m; ε_r = 52.674; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.7, 7.7, 7.7) @ 1907.6 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WCDMA FDD II_Front_CH9538_Repeat Test/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.62 W/kg

Body/WCDMA FDD II_Front_CH9538_Repeat Test/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.26 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.681 W/kg
Maximum value of SAR (measured) = 1.50 W/kg



Appendix A.12 SAR Test Plots for LTE Band 71 Hotspot

Date: 2019-05-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 71_20MHz_1RB_50 Offset_QPSK_Front_CH133222_Repeat Test.da53:0

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

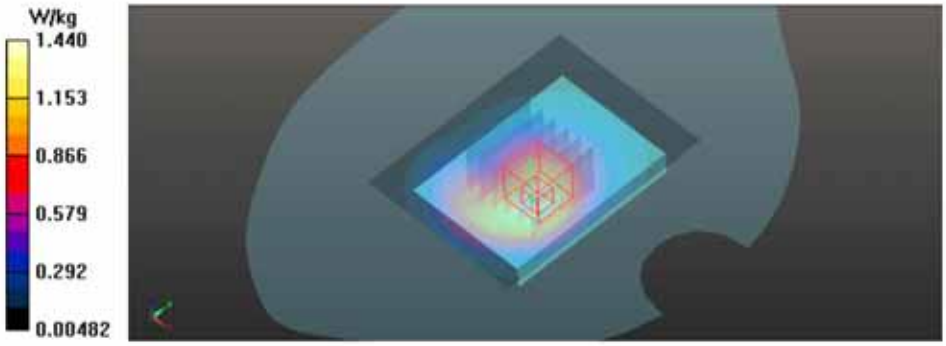
DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, LTE Band 71 (0); Frequency: 673 MHz;Duty Cycle: 1:1
Medium parameters used: f = 673 MHz; σ = 0.928 S/m; ε_r = 54.92; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(10.96, 10.96, 10.96) @ 673 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Front_CH133222_Repeat Test/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.44 W/kg

Body/LTE Band 71_20MHz_1RB_50 Offset_QPSK_Front_CH133222_Repeat Test/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.58 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.719 W/kg
Maximum value of SAR (measured) = 1.43 W/kg



Appendix A.13 SAR Test Plots for LTE Band 12 Hotspot

Date: 2019-05-29

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 12_10MHz_1RB_25 Offset_QPSK_Front_CH23060.da53:0

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

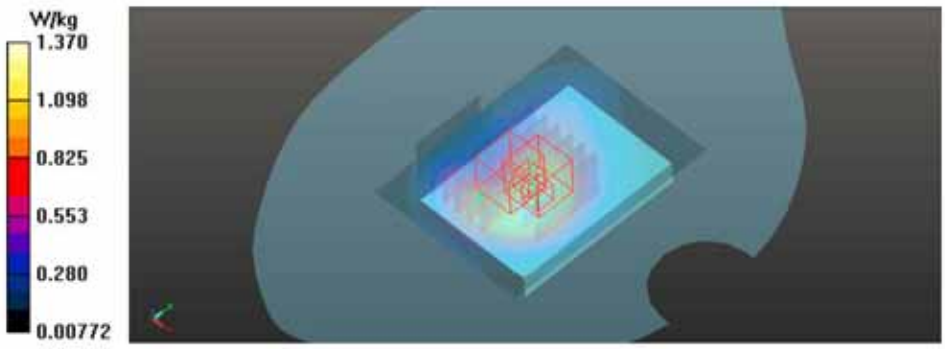
Communication System: UID 0, LTE Band 12 (0); Frequency: 704 MHz;Duty Cycle: 1:1
Medium parameters used: f = 704 MHz; σ = 0.958 S/m; ε_r = 54.591; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(10.96, 10.96, 10.96) @ 704 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Front_CH23060/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.37 W/kg

Body/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Front_CH23060/Zoom Scan (6x6x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.90 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 1 W/kg; SAR(10 g) = 0.685 W/kg
Maximum value of SAR (measured) = 1.34 W/kg

Body/LTE Band 12_10MHz_1RB_25 Offset_QPSK_Front_CH23060/Zoom Scan (6x6x7)/Cube 1:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.90 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.944 W/kg; SAR(10 g) = 0.582 W/kg
Maximum value of SAR (measured) = 1.34 W/kg



Appendix A.14 SAR Test Plots for LTE Band 26 Hotspot

Date: 2019-05-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 26_15MHz_1RB_36 Offset_QPSK_Front_CH26865.da53:0

Ambient Temp : 22.7 ℃ Tissue Temp : 21.7 ℃

DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, LTE Band 26 (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.955 S/m; ε_r = 55.493; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(9.71, 9.71, 9.71) @ 831.5 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/LTE Band 26_15MHz_1RB_36 Offset_QPSK_Front_CH26865/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

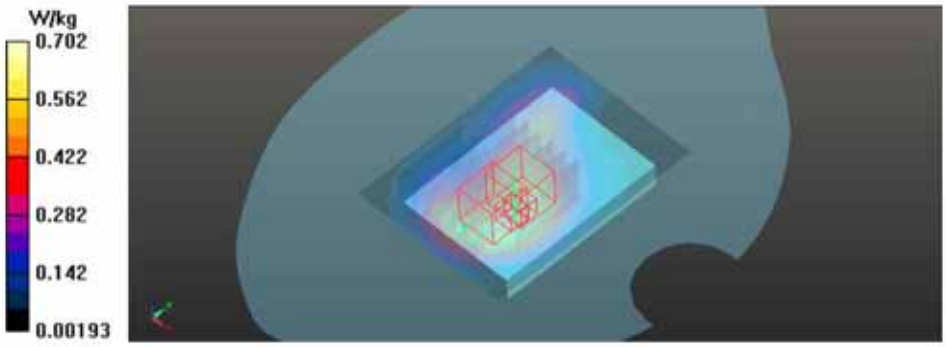
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.702 W/kg

Body/LTE Band 26_15MHz_1RB_36 Offset_QPSK_Front_CH26865/Zoom Scan (6x6x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.78 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.833 W/kg
SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.334 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.697 W/kg

Body/LTE Band 26_15MHz_1RB_36 Offset_QPSK_Front_CH26865/Zoom Scan (6x6x7)/Cube 1:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.78 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.831 W/kg
SAR(1 g) = 0.488 W/kg; SAR(10 g) = 0.294 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.702 W/kg



Appendix A.15 SAR Test Plots for LTE Band 5 Hotspot

Date: 2019-05-28

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 5_10MHz_1RB_25 Offset_QPSK_Front_CH20450.da53:0

Ambient Temp : 22.7 ℃ Tissue Temp : 21.7 ℃

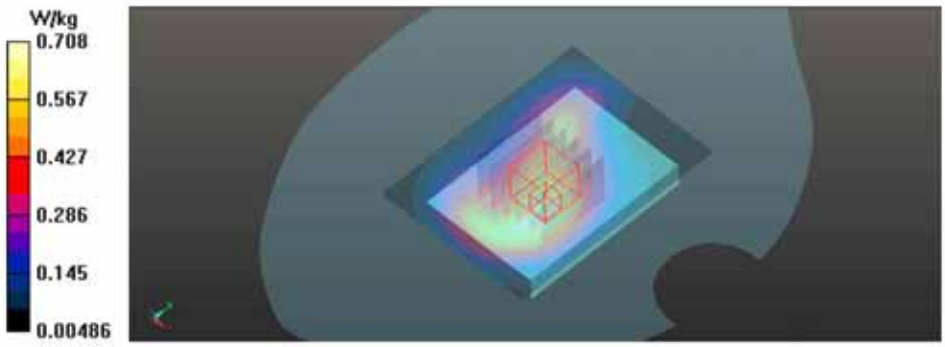
DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, LTE Band 5 (0); Frequency: 829 MHz;Duty Cycle: 1:1
Medium parameters used: f = 829 MHz; σ = 0.952 S/m; ε_r = 55.514; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(9.71, 9.71, 9.71) @ 829 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/LTE Band 5_10MHz_1RB_25 Offset_QPSK_Front_CH20450/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.708 W/kg

Body/LTE Band 5_10MHz_1RB_25 Offset_QPSK_Front_CH20450/Zoom Scan (6x6x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.34 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.829 W/kg
SAR(1 g) = 0.521 W/kg; SAR(10 g) = 0.345 W/kg
Maximum value of SAR (measured) = 0.718 W/kg



Appendix A.16 SAR Test Plots for LTE Band 66 Hotspot

Date: 2019-05-30

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 66_20MHz_1RB_50 Offset_QPSK_Front_CH132322.da53:0

Ambient Temp : 23.3 ℃ Tissue Temp : 22.3 ℃

DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, LTE Band 66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.479 S/m; ε_r = 51.973; ρ = 1000 kg/m^3
Phantom section: Flat Section

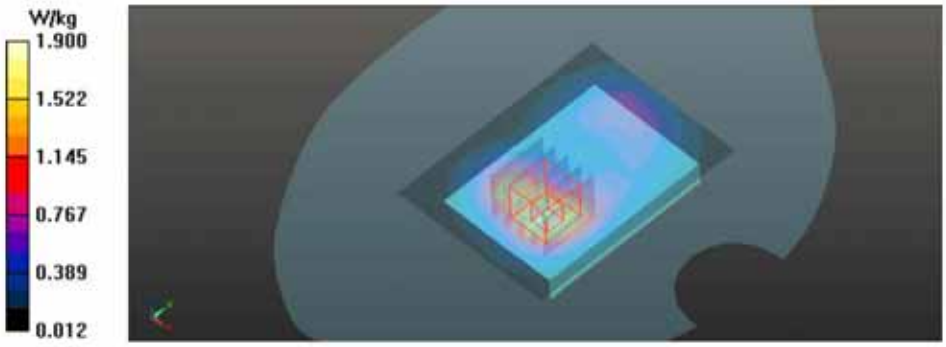
DASY52 Configuration:
- Probe: EX3DV4 - SN3986; ConvF(8.7, 8.7, 8.7) @ 1745 MHz; Calibrated: 2019-03-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/LTE Band 66_20MHz_1RB_50 Offset_QPSK_Front_CH132322/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.90 W/kg

Body/LTE Band 66_20MHz_1RB_50 Offset_QPSK_Front_CH132322/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.51 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 2.06 W/kg
SAR(1 g) = 1.25 W/kg; SAR(10 g) = 0.753 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.74 W/kg



Appendix A.17 SAR Test Plots for LTE Band 25 Hotspot

Date: 2019-05-24

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 25_20MHz_1RB_50 Offset_QPSK_Front_CH26590_Repeat Test.da53.0

Ambient Temp : 22.9 ℃ Tissue Temp : 21.9 ℃

DUT: T9; Type: SAMSUNG Mobile Phone; Serial: 355827100000030

Communication System: UID 0, LTE Band 25 (0); Frequency: 1905 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1905 MHz; σ = 1.517 S/m; ε_r = 54.92; ρ = 1000 kg/m^3
Phantom section: Flat Section

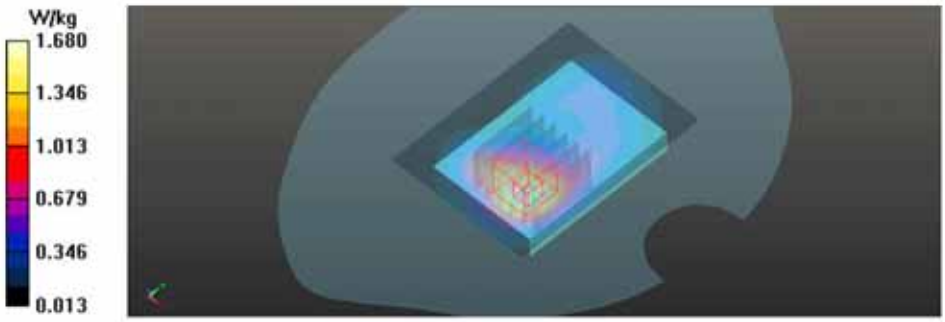
DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.7, 7.7, 7.7) @ 1905 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7463)

Body/LTE Band 25_20MHz_1RB_50 Offset_QPSK_Front_CH26590_Repeat Test/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.68 W/kg

Body/LTE Band 25_20MHz_1RB_50 Offset_QPSK_Front_CH26590_Repeat Test/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.96 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.98 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.730 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.67 W/kg



Appendix A.18 SAR Test Plots for LTE Band 41 Hotspot

Date: 2019-06-03

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: LTE Band 41_20MHz_1RB_99 Offset_QPSK_Front_CH39750.da53:0

Ambient Temp : 23.0 ℃ Tissue Temp : 22.0 ℃

DUT: T9; Type: SAMSUNG Mobile Phone; Serial: 355827100000030

Communication System: UID 0, LTE Band 41 (0); Frequency: 2506 MHz;Duty Cycle: 1:1.58
Medium parameters used (interpolated): f = 2506 MHz; σ = 2.069 S/m; ε_r = 50.912; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN3862; ConvF(7.38, 7.38, 7.38) @ 2506 MHz; Calibrated: 2018-10-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7463)

Body/LTE Band 41_20MHz_1RB_99 Offset_QPSK_Front_CH39750/Area Scan (101x121x1):
Interpolated grid: dx=1.000 mm, dy=1.000 mm

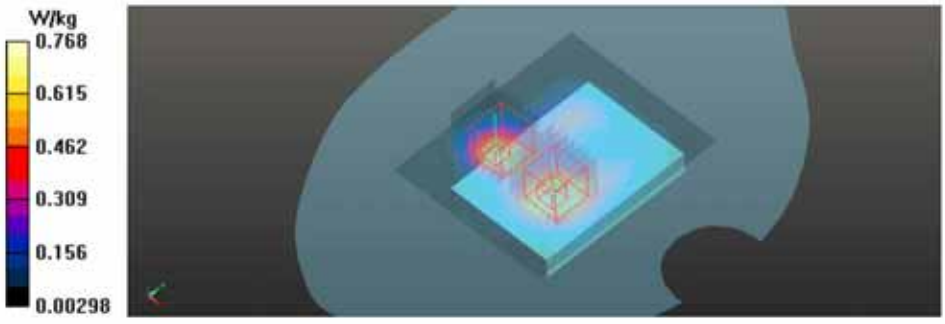
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.768 W/kg

Body/LTE Band 41_20MHz_1RB_99 Offset_QPSK_Front_CH39750/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.95 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.917 W/kg
SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.329 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.783 W/kg

Body/LTE Band 41_20MHz_1RB_99 Offset_QPSK_Front_CH39750/Zoom Scan (7x7x7)/Cube 1:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.95 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.890 W/kg
SAR(1 g) = 0.456 W/kg; SAR(10 g) = 0.235 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.720 W/kg



Appendix A.19 SAR Test Plots for LTE Band WLAN 2.45GHz Hotspot

Date: 2019-06-13

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WLAN_802.11b_Bottom_CH1.da53:0

Ambient Temp : 23.1 ℃ Tissue Temp : 22.1 ℃

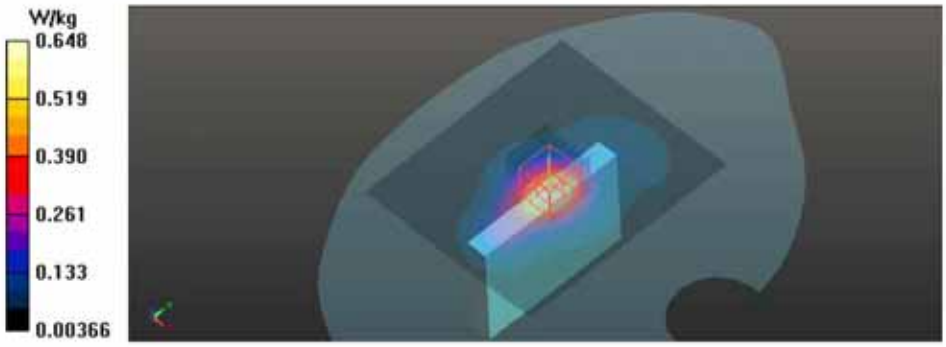
DUT: T9; Type: Mobile Hotspot; Serial: 355827100000030

Communication System: UID 0, WLAN 2.45GHz (0); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.949 S/m; ε_r = 50.614; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(7.89, 7.89, 7.89) @ 2412 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1843 (20deg probe tilt); Type: QD000P40CD; Serial: TP1843
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WLAN_802.11b_Bottom_CH1/Area Scan (121x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.648 W/kg

Body/WLAN_802.11b_Bottom_CH1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.72 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.447 W/kg; SAR(10 g) = 0.257 W/kg
Maximum value of SAR (measured) = 0.642 W/kg



Appendix A.20 SAR Test Plots for LTE Band WLAN 5.2GHz Hotspot

Date: 2019-06-12

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WLAN_802.11n_HT40_Rear_CH38.da53:0

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

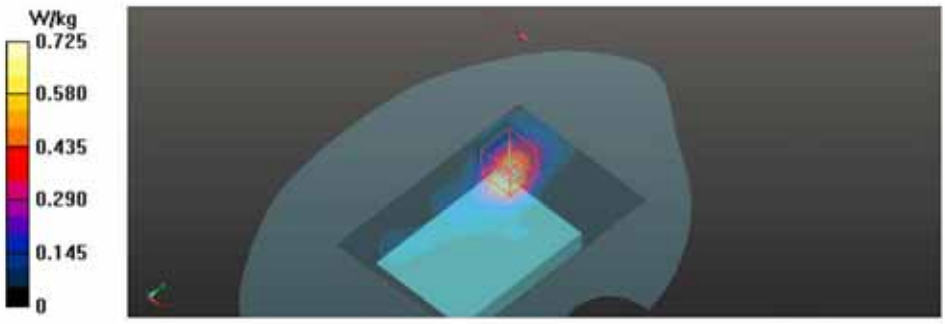
DUT: T9; Type: SAMSUNG Mobile Phone; Serial: 355827100000030

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5190 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5190 MHz; σ = 5.312 S/m; ε_r = 48.302; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(5.15, 5.15, 5.15) @ 5190 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WLAN_802.11n_HT40_Rear_CH38/Area Scan (101x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.725 W/kg

Body/WLAN_802.11n_HT40_Rear_CH38/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.47 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.332 W/kg; SAR(10 g) = 0.129 W/kg
Maximum value of SAR (measured) = 0.715 W/kg



Appendix A.21 SAR Test Plots for LTE Band WLAN 5.8GHz Hotspot

Date: 2019-06-12

Test Laboratory : SGS Korea (Gunpo Laboratory)
File Name: WLAN_802.11ac_VHT80_Right Edge_CH155.da53:0

Ambient Temp : 23.2 ℃ Tissue Temp : 22.2 ℃

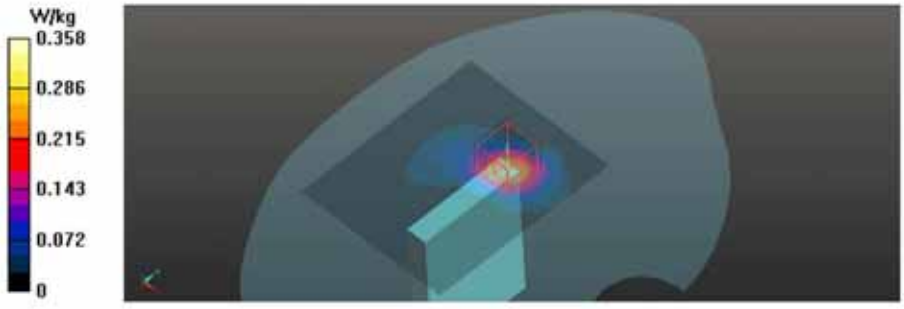
DUT: T9; Type: SAMSUNG Mobile Phone; Serial: 355827100000030

Communication System: UID 0, 5GHz WLAN (0); Frequency: 5775 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5775 MHz; σ = 6.089 S/m; ε_r = 46.412; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY52 Configuration:
- Probe: EX3DV4 - SN7352; ConvF(4.52, 4.52, 4.52) @ 5775 MHz; Calibrated: 2018-11-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1430; Calibrated: 2019-03-21
- Phantom: SAM 1821 (20deg probe tilt); Type: QD000P40CD; Serial: TP:1821
- DASY52 52.10.2(1495)SEMCAD X 14.6.12(7450)

Body/WLAN_802.11ac_VHT80_Right Edge_CH155/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.358 W/kg

Body/WLAN_802.11ac_VHT80_Right Edge_CH155/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.144 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.597 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.046 W/kg
Maximum value of SAR (measured) = 0.364 W/kg



-THE END-