

# FCC SAR Test Report

APPLICANT : Zebra Technologies Corporation  
EQUIPMENT : Touch Computer  
BRAND NAME : Zebra  
MODEL NAME : WLMT0  
FCC ID : UZ7WLMT0  
STANDARD : FCC 47 CFR PART 2 (2.1093)

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang

**Sporton International Inc. (Kunshan)**

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People's Republic of China



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## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Zebra Technologies Corporation, Touch Computer, WLMT0**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
DTS	WLAN	2.4GHz WLAN	<b>1.34</b>	1.00	1.09	1.59
NII		5GHz WLAN	0.97	<b>1.35</b>	<b>1.29</b>	1.59
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	0.12	<0.10	1.55

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
DTS	WLAN	2.4GHz WLAN	1.61	3.94
NII		5GHz WLAN	<b>3.09</b>	3.94
Date of Testing:			2023/2/8 ~ 2023/2/14	

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.



### 2. Administration Data

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR04-KS	CN1257	314309

Applicant	
Company Name	Zebra Technologies Corporation
Address	1 Zebra Plaza, Holtsville, NY 11742

Manufacturer	
Company Name	Zebra Technologies Corporation
Address	1 Zebra Plaza, Holtsville, NY 11742

### 3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



## 4. Equipment Under Test (EUT) Information

### 4.1 General Information

Product Feature & Specification	
Equipment Name	Touch Computer
Brand Name	Zebra
Model Name	WLMT0
FCC ID	UZ7WLMT0
Sample 1	Scanner(SE4710)
Sample 2	Scanner(SE5500)
SN	Sample 1: 230025247E2024 Sample 2: 230115247E0901
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz WLAN 6GHz U-NII-5: 5925 MHz ~ 6425 MHz WLAN 6GHz U-NII-6: 6425 MHz ~ 6525 MHz WLAN 6GHz U-NII-7: 6525 MHz ~ 6875 MHz WLAN 6GHz U-NII-8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac/ax VHT20/VHT40/HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac/ax VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 WLAN 6GHz 802.11a WLAN 6GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK
HW Version	DV
SW Version	13-08-06.00-TG-UOO-PRD-ATH-04
FW Version	FUSION_QA_4_1.0.0.010_T
MFD	06FEB23
EUT Stage	Identical Prototype
Remark:	<ol style="list-style-type: none"> <li>The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO and MIMO mode.</li> <li>The device supports 1S2T (CDD &amp; Tx Beamforming) mode.</li> <li>The device implements receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, hotspot, body-worn, and extremity). This device uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for WLAN/BT antennas accordingly.</li> <li>The device support DBS (Dual Band Simultaneous) function, when the device WLAN 2.4GHz and WLAN 5GHz or WLAN 6GHz transmit at the same time the module will limit different output power for simultaneous transmission compliance.</li> <li>This device has three batteries, for battery1 and battery2 is same capacity, but battery 2 has BLE Beacon function, and for battery1/2 and battery 3 capacity is different and When they matched holster with device, the thickness is different. According to the difference, we only chose battery 1 to perform full SAR testing, and battery 2/3 spot check worse of battery 1.</li> <li>Bluetooth LE is meant to ensure beacons are sent when the battery 2 is out of power and cannot be transmitted simultaneously with other wireless modes.</li> <li>This device has two headsets, only audio interface is different. According to the difference, we chose headset 1/2 to perform full SAR testing.</li> <li>This device has one soft holster and one Hand Strap, the Hand Strap has no effect on RF exposure, and so soft holster spot check worst case to ensure the RF exposure is compliance at different exposure conditions.</li> </ol>



- 9. SAR Power density test report for WLAN6GHz U-NII-5/6/7/8 will be separately submitted. About co-located SAR with WLAN/Bluetooth, always chose higher SAR of WLAN5G U-NII-1/2A/2C/3 and WLAN6G U-NII-5/6/7/8.
- 10. This device has NFC function and the NFC SAR report will be separately submitted.

Specification of Accessory				
<b>Battery1</b> Standard Battery (3800mAh)	<b>Brand Name</b>	Zebra	<b>Model Number</b>	BT-000473

Supported Unit Used in Test Configuration and System				
<b>Battery2</b> Standard BLE Beacon Battery (3800mAh)	<b>Brand Name</b>	Zebra	<b>Model Number</b>	BT-000473B
<b>Battery3</b> Extended Battery (5200mAh)	<b>Brand Name</b>	Zebra	<b>Model Number</b>	BT-000473E
<b>AC Adapter</b>	<b>Brand Name</b>	Zebra	<b>Part Number</b>	PWR-WUA5V12W0US
<b>Earphone 1</b>	<b>Brand Name</b>	Zebra	<b>Part Number</b>	HDST-35MM-PTT1-01
<b>Earphone 2</b>	<b>Brand Name</b>	Zebra	<b>Part Number</b>	HDST-USBC-PTT1-01
<b>USB Cable</b> (Type C to Type A)	<b>Brand Name</b>	Zebra	<b>Part Number</b>	CBL-TC5X-USBC2A-01
<b>Type C-Audio Cable</b> (Type C to 3.5mm)	<b>Brand Name</b>	Zebra	<b>Part Number</b>	ADP-USBC-35MM1-01
<b>Hand Strap</b>	<b>Brand Name</b>	Zebra	<b>Part Number</b>	SG-TC2L-HSTRP1-01
<b>Soft Holster</b>	<b>Brand Name</b>	Zebra	<b>Part Number</b>	SG-TC2L-HLSTR1-01

## **5. RF Exposure Limits**

### **5.1 Uncontrolled Environment**

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

### **5.2 Controlled Environment**

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

**Limits for Occupational/Controlled Exposure (W/kg)**

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

**Limits for General Population/Uncontrolled Exposure (W/kg)**

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.



## 6. Specific Absorption Rate (SAR)

### 6.1 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.

### 6.2 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 ( $\rho$ ). The equation description is as below:

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

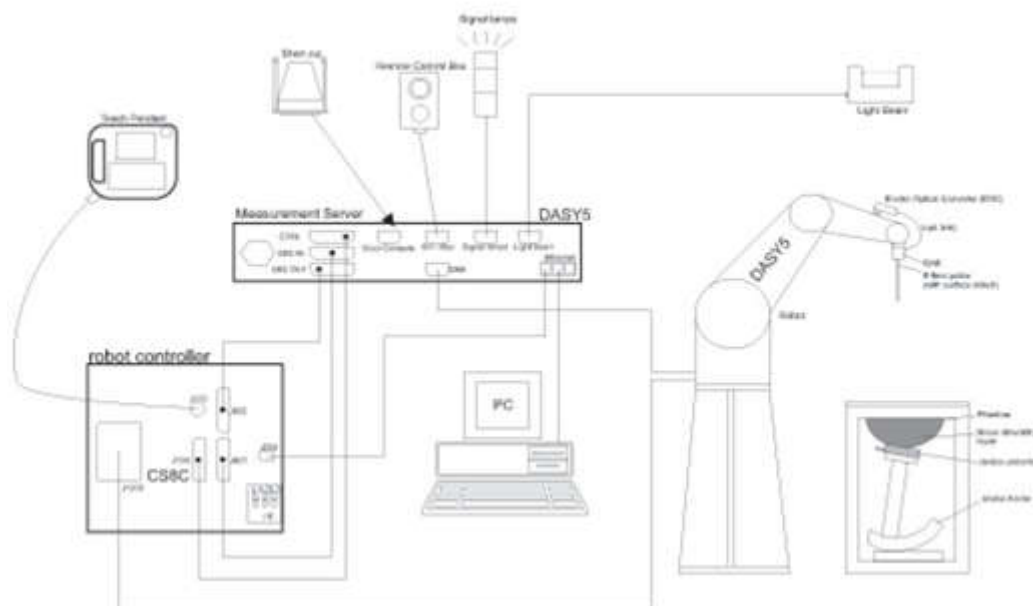
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

## **7. System Description and Setup**

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




- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A 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.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted 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.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

**7.1 E-Field Probe**

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

**<EX3DV4 Probe>**

<b>Construction</b>	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
<b>Directivity</b>	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
<b>Dimensions</b>	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

**7.2 Data Acquisition Electronics (DAE)**

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


The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



**Photo of DAE**


**7.3 Phantom**

**<SAM Twin Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
<b>Filling Volume</b>	Approx. 25 liters	
<b>Dimensions</b>	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
<b>Measurement Areas</b>	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

**<ELI Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm (sagging: <1%)	
<b>Filling Volume</b>	Approx. 30 liters	
<b>Dimensions</b>	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

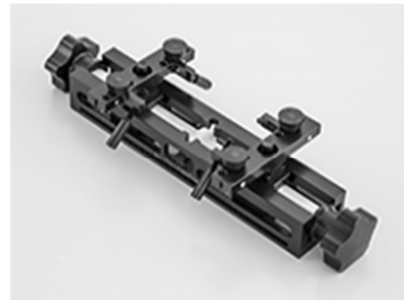
## 7.4 Device Holder

### <Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

### <Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

## 8. Measurement Procedures

The measurement procedures are as follows:

### <Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

### <SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

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

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

### 8.1 Spatial Peak SAR Evaluation

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

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

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

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

### 8.2 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. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

### 8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	$\leq 3$ GHz	$> 3$ GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1$ mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$	$\leq 2$ GHz: $\leq 15$ mm $2 - 3$ GHz: $\leq 12$ mm	$3 - 4$ GHz: $\leq 12$ mm $4 - 6$ GHz: $\leq 10$ 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 $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

### 8.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$ , $\Delta y_{Zoom}$		$\leq 2$ GHz: $\leq 8$ mm 2 – 3 GHz: $\leq 5$ mm*	3 – 4 GHz: $\leq 5$ mm* 4 – 6 GHz: $\leq 4$ mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	$\leq 5$ mm	3 – 4 GHz: $\leq 4$ mm 4 – 5 GHz: $\leq 3$ mm 5 – 6 GHz: $\leq 2$ mm	
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface	$\leq 4$ mm	3 – 4 GHz: $\leq 3$ mm 4 – 5 GHz: $\leq 2.5$ mm 5 – 6 GHz: $\leq 2$ mm
		$\Delta z_{Zoom}(n>1)$ : between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	$\geq 30$ mm	3 – 4 GHz: $\geq 28$ mm 4 – 5 GHz: $\geq 25$ mm 5 – 6 GHz: $\geq 22$ mm	
Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ 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.				

### 8.5 Volume Scan Procedures

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

### 8.6 Power Drift Monitoring

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





### 9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	2450MHz System Validation Kit	D2450V2	1040	2020/5/6	2023/5/4
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2022/9/23	2023/9/22
SPEAG	Data Acquisition Electronics	DAE4	690	2022/6/15	2023/6/14
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2022/12/14	2023/12/13
SPEAG	SAM Twin Phantom	SAM Twin	TP-1644	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Agilent	ENA Series Network Analyzer	E5071C	MY46104587	2022/5/24	2023/5/23
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2022/8/15	2023/8/14
Anritsu	Vector Signal Generator	MG3710A	6201682672	2023/1/5	2024/1/4
ceyear	Signal Generator	AV1465F	ZJK00092	2022/5/24	2023/5/23
Rohde & Schwarz	Power Meter	NRVD	102081	2022/7/14	2023/7/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2022/7/14	2023/7/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2022/7/14	2023/7/13
R&S	BLUETOOTH TESTER	CBT	101246	2022/5/24	2023/5/23
Rohde & Schwarz	Spectrum Analyzer	FSV7	101631	2022/10/12	2023/10/11
TES	DIGITAC THERMOMETER	1310	200505600	2022/7/12	2023/7/11
Testo	Thermo-Hygrometer	608-H1	1241332126	2022/7/20	2023/7/19
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	

**Note:**

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

## 10. System Verification

### 10.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 12.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 12.2.

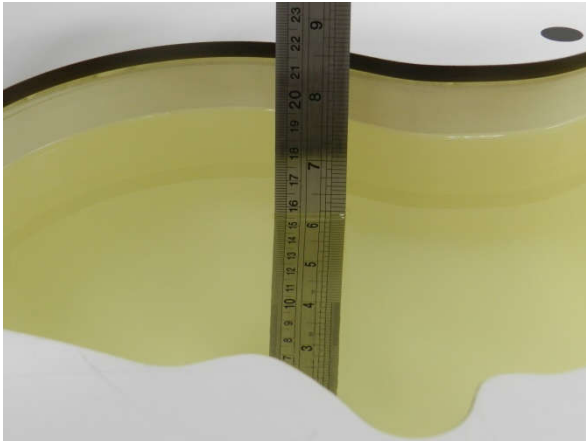


Fig 12.1 Photo of Liquid Height for Head SAR

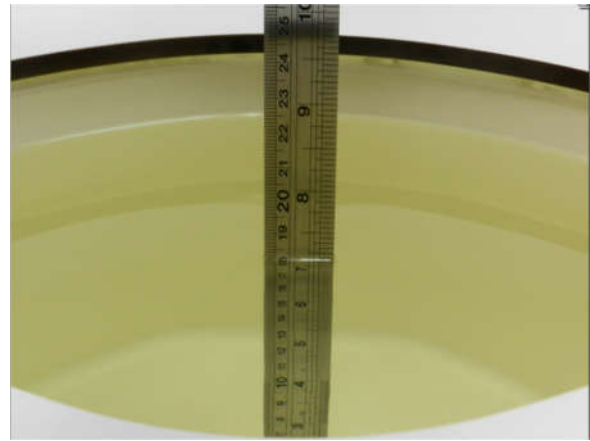


Fig 12.2 Photo of Liquid Height for Body SAR

**10.2 Tissue Verification**

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.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )
For Head								
2450	55.0	0	0	0	0	45.0	1.80	39.2

**Simulating Liquid for 5GHz, Manufactured by SPEAG**

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

**<Tissue Dielectric Parameter Check Results>**

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )	Conductivity Target (σ)	Permittivity Target (ε <sub>r</sub> )	Delta (σ) (%)	Delta (ε <sub>r</sub> ) (%)	Limit (%)	Date
2450	Head	22.6	1.805	38.575	1.80	39.20	0.28	-1.59	±5	2023/2/8
5250	Head	22.8	4.579	36.302	4.71	35.90	-2.78	1.12	±5	2023/2/10
5600	Head	22.7	4.947	35.742	5.07	35.50	-2.43	0.68	±5	2023/2/12
5750	Head	22.6	5.128	35.554	5.22	35.40	-1.76	0.44	±5	2023/2/14

### 10.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2023/2/8	2450	Head	50	1040	3857	690	2.680	51.80	53.6	3.47
2023/2/10	5250	Head	50	1113	3857	690	4.010	81.50	80.2	-1.60
2023/2/12	5600	Head	50	1113	3857	690	4.320	82.60	86.4	4.60
2023/2/14	5750	Head	50	1113	3857	690	4.050	80.80	81	0.25

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2023/2/8	2450	Head	50	1040	3857	690	1.270	24.00	25.4	5.83
2023/2/10	5250	Head	50	1113	3857	690	1.150	23.30	23	-1.29
2023/2/12	5600	Head	50	1113	3857	690	1.220	23.70	24.4	2.95
2023/2/14	5750	Head	50	1113	3857	690	1.140	23.00	22.8	-0.87

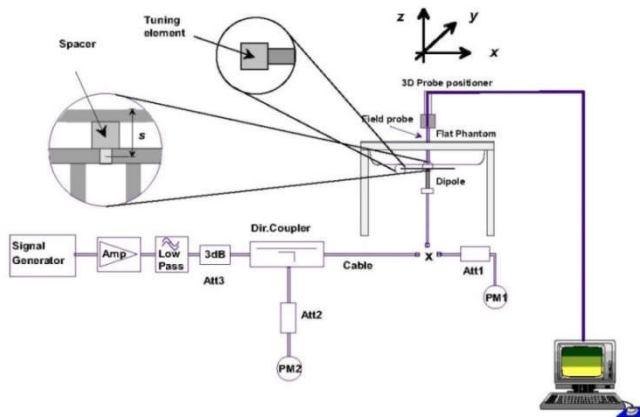


Fig 12.3.1 System Performance Check Setup



Fig 12.3.2 Setup Photo

## 11. RF Exposure Positions

### 11.1 Ear and handset reference point

Figure 12.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 12.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 12.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

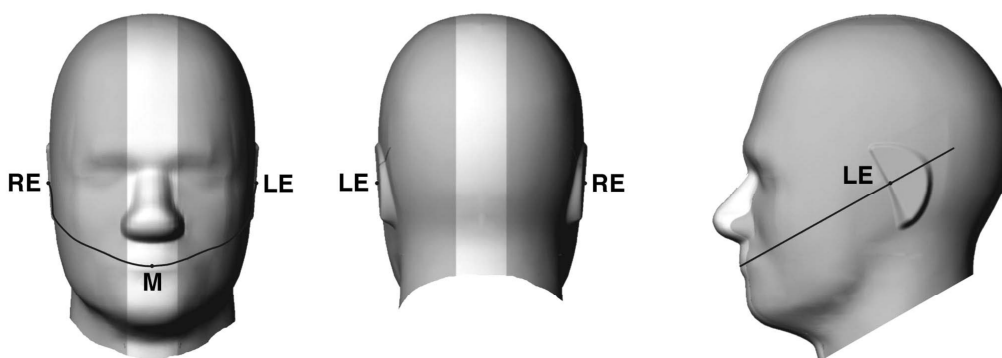


Fig 12.1.1 Front, back, and side views of SAM twin phantom

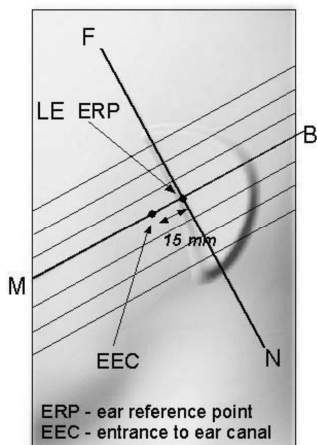


Fig 12.1.2 Close-up side view of phantom showing the ear region.

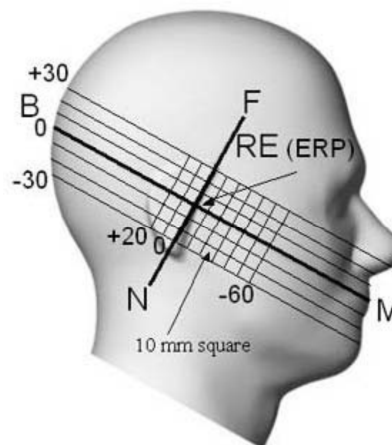


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

### 11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width  $w_t$  of the handset at the level of the acoustic output (point A in Figure 12.2.1 and Figure 12.2.2), and the midpoint of the width  $w_b$  of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

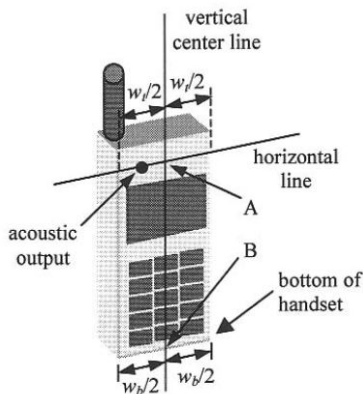


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

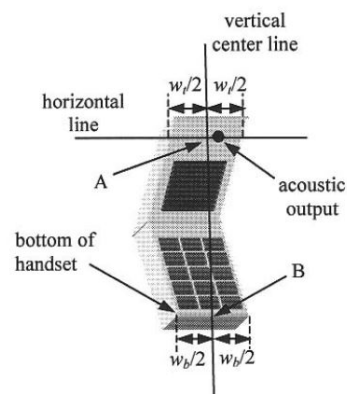


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

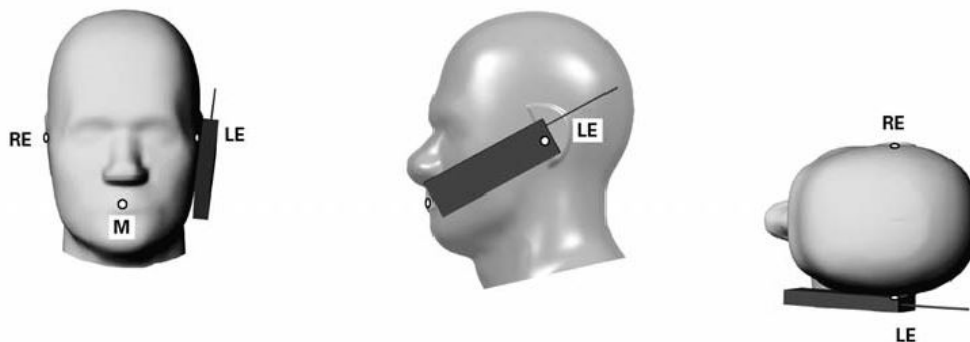


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

### 11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 12.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

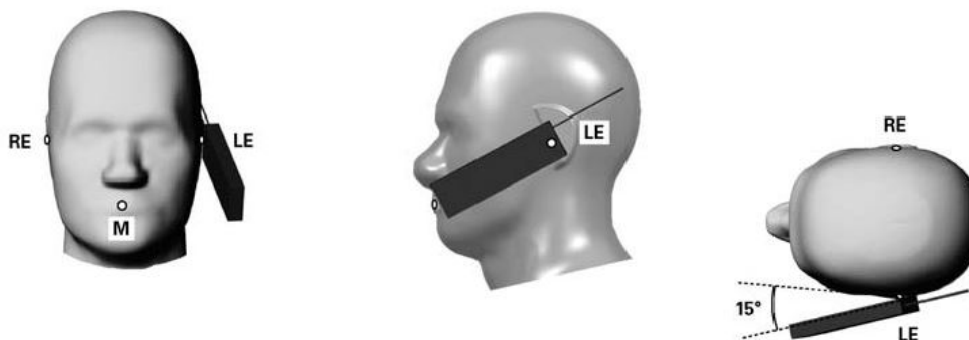


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

## 11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is  $> 1.2 \text{ W/kg}$ , the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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 test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

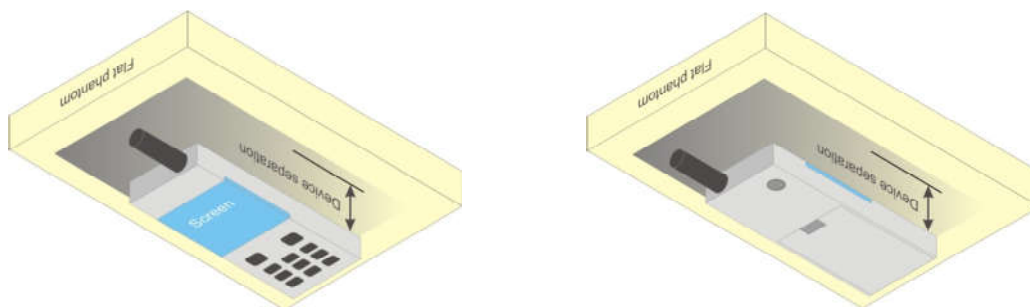


Fig 12.4 Body Worn Position



### 11.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

### 11.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ( $L \times W \geq 9$  cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm 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 WIFI 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 WIFI 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. Conducted RF Output Power (Unit: dBm)**

### **<WLAN Conducted Power>**

#### **General Note:**

1. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration. Additional output power measurements were not necessary.
2. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
3. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
4. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
5. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
  - a. When the reported SAR of the initial test position is  $\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
  - b. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
6. For all positions/configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
7. For full RU and partial tone size output power measurement, after verification for the partial tone size mode power level will not higher than full tone size power level, so chose full tone power to be measured in this report.
8. The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO and MIMO mode.
9. For WLAN SISO & MIMO(CDD) &TX Beamforming mode of 802.11ax, and WLAN SISO & TX Beamforming mode is not greater than WLAN MIMO(CDD) mode, so conducted power of WLAN SISO &Tx Beamforming mode is not required.



<2.4GHz WLAN>

2.4GHz WLAN				Default Full Power_MIMO Body-worn&Extremity non DBS_MIMO						Default Full_SISO Ant1 Body-worn&Extremity non DBS_SISI Ant1		
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	SISO_Ant 1		Duty Cycle %
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		Average power (dBm)	Tune-Up Limit	
802.11b 1Mbps	1	2412	20.70	21.00	20.70	21.00	23.71	24.00	98.29	20.70	21.00	98.29
	6	2437	20.60	21.00	20.60	21.00	23.61	24.00		20.60	21.00	
	11	2462	20.60	21.00	20.60	21.00	23.61	24.00		20.60	21.00	
802.11g 6Mbps	1	2412	19.30	20.00	19.70	20.00	22.51	23.00	100.00	19.70	20.00	100.00
	6	2437	19.40	20.00	19.90	20.00	22.67	23.00		19.90	20.00	
	11	2462	18.50	19.00	18.40	19.00	21.46	22.00		18.40	19.00	
802.11n-HT20 MCS0	1	2412	19.10	20.00	19.60	20.00	22.37	23.00	100.00	19.60	20.00	100.00
	6	2437	19.40	20.00	20.00	20.00	22.72	23.00		20.00	20.00	
	11	2462	18.80	19.00	18.80	19.00	21.81	22.00		18.80	19.00	
802.11n-HT40 MCS0	3	2422	18.40	19.00	18.80	19.00	21.61	22.00	100.00	18.80	19.00	100.00
	6	2437	18.60	19.00	18.70	19.00	21.66	22.00		18.70	19.00	
	9	2452	16.60	17.50	17.00	17.50	19.81	20.50		17.00	17.50	
802.11ac-VHT20 MCS0	1	2412	19.10	20.00	19.50	20.00	22.31	23.00	100.00	19.50	20.00	100.00
	6	2437	19.50	20.00	19.90	20.00	22.71	23.00		19.90	20.00	
	11	2462	18.70	19.00	18.80	19.00	21.76	22.00		18.80	19.00	
802.11ac-VHT40 MCS0	3	2422	18.30	19.00	18.80	19.00	21.57	22.00	100.00	18.80	19.00	100.00
	6	2437	18.60	19.00	18.70	19.00	21.66	22.00		18.70	19.00	
	9	2452	16.60	17.00	16.90	17.00	19.76	20.00		16.90	17.00	
802.11ax-HE20 MCS0	1	2412	19.20	20.00	19.60	20.00	22.41	23.00	100.00	19.60	20.00	100.00
	6	2437	19.50	20.00	20.00	20.00	22.77	23.00		20.00	20.00	
	11	2462	18.80	19.00	18.90	19.00	21.86	22.00		18.90	19.00	
802.11ax-HE40 MCS0	3	2422	18.70	19.00	19.00	19.00	21.86	22.00	100.00	19.00	19.00	100.00
	6	2437	18.70	19.00	18.70	19.00	21.71	22.00		18.70	19.00	
	9	2452	16.70	17.50	17.00	17.50	19.86	20.50		17.00	17.50	



2.4GHz WLAN				Head non DBS Power_MIMO						Head non DBS_SISO Ant1		
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	SISO_Ant 1		Duty Cycle %
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		Average power (dBm)	Tune-Up Limit	
802.11b 1Mbps	1	2412	16.90	17.00	16.60	17.00	19.71	20.00	98.29	16.60	18.50	98.29
	6	2437	16.70	16.80	16.40	16.50	19.56	20.00		16.40	18.00	
	11	2462	16.80	16.90	16.40	16.50	19.70	20.00		16.40	18.00	
802.11g 6Mbps	1	2412	16.30	16.50	16.40	16.50	19.36	19.50	100.00	16.40	18.00	100.00
	6	2437	16.20	16.50	16.30	16.50	19.26	19.50		16.30	18.00	
	11	2462	16.40	16.50	16.40	16.50	19.41	19.50		16.40	18.00	
802.11n-HT20 MCS0	1	2412	16.10	16.50	16.30	16.50	19.21	19.50	100.00	16.30	18.00	100.00
	6	2437	16.10	16.50	16.30	16.50	19.21	19.50		16.30	18.00	
	11	2462	16.20	16.50	16.20	16.50	19.21	19.50		16.20	18.00	
802.11n-HT40 MCS0	3	2422	15.80	16.50	16.00	16.50	18.91	19.50	100.00	16.00	18.00	100.00
	6	2437	16.10	16.50	16.00	16.50	19.06	19.50		16.00	18.00	
	9	2452	15.70	16.50	16.00	16.50	18.86	19.50		16.00	18.00	
802.11ac-VHT20 MCS0	1	2412	16.10	16.50	16.30	16.50	19.21	19.50	100.00	16.30	18.00	100.00
	6	2437	16.10	16.50	16.30	16.50	19.21	19.50		16.30	18.00	
	11	2462	16.20	16.50	16.20	16.50	19.21	19.50		16.20	18.00	
802.11ac-VHT40 MCS0	3	2422	15.80	16.50	16.00	16.50	18.91	19.50	100.00	16.00	18.00	100.00
	6	2437	16.10	16.50	16.00	16.50	19.06	19.50		16.00	18.00	
	9	2452	15.70	16.50	16.00	16.50	18.86	19.50		16.00	18.00	
802.11ax-HE20 MCS0	1	2412	16.20	16.50	16.30	16.50	19.26	19.50	100.00	16.30	18.00	100.00
	6	2437	16.20	16.50	16.30	16.50	19.26	19.50		16.30	18.00	
	11	2462	16.30	16.50	16.20	16.50	19.26	19.50		16.20	18.00	
802.11ax-HE40 MCS0	3	2422	15.90	16.50	16.00	16.50	18.96	19.50	100.00	16.00	18.00	100.00
	6	2437	16.20	16.50	16.00	16.50	19.11	19.50		16.00	18.00	
	9	2452	15.80	16.50	16.00	16.50	18.91	19.50		16.00	18.00	



2.4GHz WLAN				Hotspot non DBS Power_MIMO						Hotspot non DBS_SISO Ant1		
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	SISO_Ant 1		Duty Cycle %
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		Average power (dBm)	Tune-Up Limit	
802.11b 1Mbps	1	2412	18.70	19.00	18.70	19.00	21.71	22.00	98.29	18.70	20.50	98.29
	6	2437	18.70	19.00	18.50	19.00	21.56	22.00		18.50	20.50	
	11	2462	18.90	19.00	18.63	19.00	21.67	22.00		18.63	20.50	
802.11g 6Mbps	1	2412	18.60	19.00	18.10	19.00	21.31	22.00	100.00	18.10	20.00	100.00
	6	2437	18.50	19.00	18.20	19.00	21.36	22.00		18.20	20.00	
	11	2462	18.50	19.00	18.20	19.00	21.41	22.00		18.20	20.00	
802.11n-HT20 MCS0	1	2412	18.20	19.00	18.10	19.00	21.31	22.00	100.00	18.10	20.00	100.00
	6	2437	18.30	19.00	18.20	19.00	21.26	22.00		18.20	20.00	
	11	2462	18.30	19.00	18.20	19.00	21.31	22.00		18.20	20.00	
802.11n-HT40 MCS0	3	2422	18.40	19.00	18.10	19.00	21.36	22.00	100.00	18.10	20.00	100.00
	6	2437	18.50	19.00	18.20	19.00	21.61	22.00		18.20	20.00	
	9	2452	16.60	17.50	17.00	17.50	19.81	20.50		17.00	19.00	
802.11ac-VHT20 MCS0	1	2412	18.60	19.00	18.10	19.00	21.26	22.00	100.00	18.10	20.00	100.00
	6	2437	18.60	19.00	18.10	19.00	21.21	22.00		18.10	20.00	
	11	2462	18.50	19.00	18.10	19.00	21.26	22.00		18.10	20.00	
802.11ac-VHT40 MCS0	3	2422	18.30	19.00	18.20	19.00	21.31	22.00	100.00	18.20	20.00	100.00
	6	2437	18.60	19.00	18.10	19.00	21.56	22.00		18.10	20.00	
	9	2452	16.60	17.00	16.90	17.00	19.76	20.00		16.90	18.50	
802.11ax-HE20 MCS0	1	2412	18.50	19.00	18.20	19.00	21.36	22.00	100.00	18.20	20.00	100.00
	6	2437	18.50	19.00	18.30	19.00	21.31	22.00		18.30	20.00	
	11	2462	18.40	19.00	18.10	19.00	21.36	22.00		18.10	20.00	
802.11ax-HE40 MCS0	3	2422	18.50	19.00	18.10	19.00	21.41	22.00	100.00	18.10	20.00	100.00
	6	2437	18.60	19.00	18.00	19.00	21.66	22.00		18.00	20.00	
	9	2452	16.70	17.50	17.00	17.50	19.86	20.50		17.00	19.00	



2.4GHz WLAN				Head DBS Simultaneous_MIMO									
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %				
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit					
802.11b 1Mbps	1	2412	13.80	14.50	13.70	14.00	16.88	17.50	98.29				
	6	2437	14.00	14.50	13.80	14.00	16.91	17.50					
	11	2462	13.50	14.50	13.50	14.00	16.82	17.50					
802.11g 6Mbps	1	2412	Not Required	14.50	Not Required	14.00	Not Required	17.50	100.00				
	6	2437		14.50		14.00		17.50					
	11	2462		14.50		14.00		17.50					
802.11n-HT20 MCS0	1	2412		14.50		14.00		17.50					
	6	2437		14.50		14.00		17.50					
	11	2462		14.50		14.00		17.50					
802.11n-HT40 MCS0	3	2422		14.50		14.00		17.50					
	6	2437		14.50		14.00		17.50					
	9	2452		14.50		14.00		17.50					
802.11ac-VHT20 MCS0	1	2412	Not Required	14.50	Not Required	14.00	Not Required	17.50	100.00				
	6	2437		14.50		14.00		17.50					
	11	2462		14.50		14.00		17.50					
802.11ac-VHT40 MCS0	3	2422		14.50		14.00		17.50					
	6	2437		14.50		14.00		17.50					
	9	2452		14.50		14.00		17.50					
802.11ax-HE20 MCS0	1	2412		Not Required		14.50		Not Required		14.00	Not Required	17.50	100.00
	6	2437				14.50				14.00		17.50	
	11	2462				14.50				14.00		17.50	
802.11ax-HE40 MCS0	3	2422	14.50		14.00	17.50							
	6	2437	14.50		14.00	17.50							
	9	2452	14.50		14.00	17.50							



2.4GHz WLAN				Hotspot DBS Simultaneous_MIMO						
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
802.11b 1Mbps	1	2412	18.00	18.50	18.00	18.50	21.01	21.50	98.29	
	6	2437	17.90	18.50	17.70	18.50	20.81	21.50		
	11	2462	18.10	18.50	17.80	18.50	20.96	21.50		
802.11g 6Mbps	1	2412	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	6	2437		18.50		18.50		21.50		
	11	2462		18.50		18.50		21.50		
802.11n-HT20 MCS0	1	2412		18.50		18.50		21.50	100.00	
	6	2437		18.50		18.50		21.50		
	11	2462		18.50		18.50		21.50		
802.11n-HT40 MCS0	3	2422		18.50		18.50		21.50	100.00	
	6	2437		18.50		18.50		21.50		
	9	2452		17.50		17.50		20.50		
802.11ac-VHT20 MCS0	1	2412		18.50		18.50		21.50	100.00	
	6	2437	Not Required	18.50	Not Required	21.50				
	11	2462	18.50	18.50	21.50					
802.11ac-VHT40 MCS0	3	2422	18.50	18.50	21.50	100.00				
	6	2437	18.50	18.50	21.50					
	9	2452	17.00	17.00	20.00					
802.11ax-HE20 MCS0	1	2412	18.50	18.50	21.50	100.00				
	6	2437	18.50	18.50	21.50					
	11	2462	18.50	18.50	21.50					
802.11ax-HE40 MCS0	3	2422	18.50	18.50	21.50	100.00				
	6	2437	18.50	18.50	21.50					
	9	2452	17.50	17.50	20.50					



2.4GHz WLAN				Body-worn&Extremity DBS Simultaneous_MIMO						
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
802.11b 1Mbps	1	2412	19.00	19.50	19.00	19.50	22.01	22.50	98.29	
	6	2437	19.10	19.50	18.80	19.50	21.96	22.50		
	11	2462	19.30	19.50	18.80	19.50	22.07	22.50		
802.11g 6Mbps	1	2412	Not Required	19.50	Not Required	19.50	Not Required	22.50	100.00	
	6	2437		19.50		22.50				
	11	2462		19.00		22.00				
802.11n-HT20 MCS0	1	2412	Not Required	19.50	Not Required	19.50	Not Required	22.50	100.00	
	6	2437		19.50		22.50				
	11	2462		19.00		22.00				
802.11n-HT40 MCS0	3	2422	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00	
	6	2437		19.00		22.00				
	9	2452		17.50		20.50				
802.11ac-VHT20 MCS0	1	2412	Not Required	19.50	Not Required	19.50	Not Required	22.50	100.00	
	6	2437		19.00		22.00				
	11	2462		19.00		22.00				
802.11ac-VHT40 MCS0	3	2422	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00	
	6	2437		19.00		22.00				
	9	2452		17.00		20.00				
802.11ax-HE20 MCS0	1	2412	Not Required	19.50	Not Required	19.50	Not Required	22.50	100.00	
	6	2437		19.50		22.50				
	11	2462		19.00		22.00				
802.11ax-HE40 MCS0	3	2422	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00	
	6	2437		19.00		22.00				
	9	2452		17.50		20.50				





<5.2GHz WLAN>

5.2GHz WLAN				Default Full Power_MIMO Head non DBS_MIMO Body-worn&Extremity non DBS_MIMO						Duty Cycle %
				MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
802.11a 6Mbps	36	5180	18.80	20.00	18.30	20.00	21.57	23.00	100.00	
	40	5200	19.80	20.00	19.20	20.00	22.52	23.00		
	44	5220	19.50	20.00	19.00	20.00	22.27	23.00		
	48	5240	19.50	20.00	19.10	19.50	22.31	22.80		
802.11n-HT20 MCS0	36	5180	18.20	18.50	17.80	18.50	21.01	21.50	100.00	
	40	5200	19.60	20.00	19.10	20.00	22.37	23.00		
	44	5220	19.60	20.00	19.20	20.00	22.41	23.00		
	48	5240	19.50	20.00	19.20	20.00	22.36	23.00		
802.11n-HT40 MCS0	38	5190	17.70	18.00	17.10	18.00	20.42	21.00	100.00	
	46	5230	18.90	19.00	18.30	19.00	21.62	22.00		
802.11ac-VHT20 MCS0	36	5180	18.20	18.50	17.80	18.50	21.01	21.50	100.00	
	40	5200	19.60	20.00	19.10	20.00	22.37	23.00		
	44	5220	19.50	20.00	19.40	20.00	22.46	23.00		
	48	5240	19.40	20.00	19.30	20.00	22.36	23.00		
802.11ac-VHT40 MCS0	38	5190	17.70	18.00	17.10	18.00	20.42	21.00	100.00	
	46	5230	18.90	19.00	18.30	19.00	21.62	22.00		
802.11ac-VHT80 MCS0	42	5210	17.50	17.50	17.00	17.50	20.27	20.50	100.00	
802.11ax-HE20 MCS0	36	5180	18.30	18.50	17.80	18.50	21.07	21.50	100.00	
	40	5200	19.70	20.00	19.20	20.00	22.47	23.00		
	44	5220	19.80	20.00	19.40	20.00	22.61	23.00		
	48	5240	19.70	20.00	19.40	20.00	22.56	23.00		
802.11ax-HE40 MCS0	38	5190	17.80	18.00	17.10	18.00	20.47	21.00	100.00	
	46	5230	19.00	19.00	18.30	19.00	21.67	22.00		
802.11ax-HE80 MCS0	42	5210	17.60	18.00	17.00	17.50	20.32	20.50	100.00	



5.2GHz WLAN				Hotspot non DBS Power_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1			
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.90	18.00	17.10	17.50	20.61	21.00	100.00
		40	5200	17.80	18.00	17.00	17.50	20.65	21.00	
		44	5220	17.70	18.00	17.00	17.50	20.32	21.00	
		48	5240	17.60	18.00	17.00	17.50	20.33	21.00	
	802.11n-HT20 MCS0	36	5180	17.80	18.00	17.20	17.50	20.43	21.00	100.00
		40	5200	17.90	18.00	17.20	17.50	20.32	21.00	
		44	5220	17.80	18.00	17.10	17.50	20.17	21.00	
	802.11n-HT40 MCS0	38	5190	17.70	18.00	17.10	17.50	20.42	21.00	100.00
		46	5230	18.00	18.00	17.30	17.50	20.67	21.00	
	802.11ac-VHT20 MCS0	36	5180	17.90	18.00	17.00	17.50	20.58	21.00	100.00
		40	5200	17.80	18.00	17.10	17.50	20.12	21.00	
		44	5220	17.70	18.00	17.20	17.50	20.11	21.00	
802.11ac-VHT40 MCS0	38	5190	17.70	18.00	17.10	17.50	20.42	21.00	100.00	
	46	5230	17.80	18.00	17.20	17.50	20.11	21.00		
802.11ac-VHT80 MCS0	42	5210	17.50	17.50	17.00	17.50	20.27	20.50	100.00	
802.11ax-HE20 MCS0	36	5180	17.90	18.00	17.20	17.50	20.63	21.00	100.00	
	40	5200	17.90	18.00	17.10	17.50	20.53	21.00		
	44	5220	17.80	18.00	17.10	17.50	20.17	21.00		
	48	5240	17.70	18.00	17.00	17.50	20.31	21.00		
802.11ax-HE40 MCS0	38	5190	17.80	18.00	17.10	17.50	20.47	21.00	100.00	
	46	5230	17.80	18.00	17.48	17.50	20.17	21.00		
802.11ax-HE80 MCS0	42	5210	17.60	18.00	17.00	17.50	20.32	20.50	100.00	



5.2GHz WLAN				Head DBS Simultaneous_MIMO						
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
802.11a 6Mbps	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	40	5200		18.50		18.50				
	44	5220		18.50		18.50				
	48	5240		18.50		18.50				
802.11n-HT20 MCS0	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	40	5200		18.50		18.50				
	44	5220		18.50		18.50				
	48	5240		18.50		18.50				
802.11n-HT40 MCS0	38	5190	17.70	18.00	17.10	18.00	20.42	21.00	100.00	
	46	5230	18.40	18.50	17.70	18.50	21.02	21.50		
802.11ac-VHT20 MCS0	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	40	5200		18.50		18.50				
	44	5220		18.50		18.50				
	48	5240		18.50		18.50				
802.11ac-VHT40 MCS0	38	5190	Not Required	18.00	Not Required	18.00	Not Required	21.00	100.00	
	46	5230		18.50		18.50				
802.11ac-VHT80 MCS0	42	5210	Not Required	17.50	Not Required	17.50	Not Required	20.50	100.00	
802.11ax-HE20 MCS0	36	5180		18.50		18.50		18.50	21.50	100.00
	40	5200		18.50		18.50		18.50	21.50	
	44	5220		18.50		18.50		18.50	21.50	
	48	5240	18.50	18.50	18.50	21.50				
802.11ax-HE40 MCS0	38	5190	Not Required	18.00	Not Required	18.00	Not Required	21.00	100.00	
	46	5230		18.50		18.50				
802.11ax-HE80 MCS0	42	5210	Not Required	18.00	Not Required	17.50	Not Required	20.50	100.00	



5.2GHz WLAN				Hotspot DBS Simultaneous_MIMO									
				MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %			
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit					
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	16.50	Not Required	16.00	Not Required	19.50	100.00			
		40	5200		16.50		16.00		19.50				
		44	5220		16.50		16.00		19.50				
		48	5240		16.50		16.00		19.50				
	802.11n-HT20 MCS0	36	5180		16.50		16.00		19.50	100.00			
		40	5200		16.50		16.00		19.50				
		44	5220		16.50		16.00		19.50				
		48	5240		16.50		16.00		19.50				
	802.11n-HT40 MCS0	38	5190		16.50		16.00		19.50	100.00			
		46	5230		16.50		16.00		19.50				
	802.11ac-VHT20 MCS0	36	5180		16.50		16.00		19.50	100.00			
		40	5200		16.50		16.00		19.50				
		44	5220		16.50		16.00		19.50				
		48	5240		16.50		16.00		19.50				
	802.11ac-VHT40 MCS0	38	5190		16.50		16.00		19.50	100.00			
		46	5230		16.50		16.00		19.50				
	802.11ac-VHT80 MCS0	42	5210		16.10		16.50		15.50	16.00	18.82	19.50	100.00
	802.11ax-HE20 MCS0	36	5180		16.50		16.00		19.50	100.00			
		40	5200		16.50		16.00		19.50				
		44	5220		16.50		16.00		19.50				
48		5240	16.50	16.00	19.50								
802.11ax-HE40 MCS0	38	5190	16.50	16.00	19.50	100.00							
	46	5230	16.50	16.00	19.50								
802.11ax-HE80 MCS0	42	5210	16.50	16.00	19.50	100.00							



5.2GHz WLAN				Body-worn&Extremity DBS Simultaneous_MIMO						
				MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Note
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
Mode	Channel	Frequency (MHz)								
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	19.00	Not Required	18.50	Not Required	21.50	100.00
		40	5200		19.00		18.50		21.50	
		44	5220		19.00		18.50		21.50	
		48	5240		19.00		18.50		21.50	
	802.11n-HT20 MCS0	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00
		40	5200		19.00		18.50		21.50	
		44	5220		19.00		18.50		21.50	
	802.11n-HT40 MCS0	38	5190	17.70	18.00	17.10	18.00	20.42	21.00	100.00
		46	5230	18.50	19.00	17.80	18.50	21.17	21.50	
	802.11ac-VHT20 MCS0	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00
		40	5200		19.00		18.50		21.50	
		44	5220		19.00		18.50		21.50	
		48	5240		19.00		18.50		21.50	
	802.11ac-VHT40 MCS0	38	5190	Not Required	18.00	Not Required	18.00	Not Required	21.00	100.00
		46	5230		19.00		18.50		21.50	
	802.11ac-VHT80 MCS0	42	5210	Not Required	17.50	Not Required	17.50	Not Required	20.50	100.00
	802.11ax-HE20 MCS0	36	5180	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00
		40	5200		19.00		18.50		21.50	
		44	5220		19.00		18.50		21.50	
		48	5240		19.00		18.50		21.50	
802.11ax-HE40 MCS0	38	5190	Not Required	18.00	Not Required	18.00	Not Required	21.00	100.00	
	46	5230		19.00		18.50		21.50		
802.11ax-HE80 MCS0	42	5210	Not Required	18.00	Not Required	17.50	Not Required	20.50	100.00	



<5.3GHz WLAN>

5.3GHz WLAN				Default Full Power_MIMO Head non DBS_MIMO Body-worn&Extremity non DBS_MIMO						Duty Cycle %
				MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %	
802.11a 6Mbps	52	5260	19.60	20.00	19.20	19.50	22.41	23.00	100.00	
	56	5280	19.70	20.00	19.20	19.50	22.47	23.00		
	60	5300	19.20	19.50	19.10	19.50	22.16	22.50		
	64	5320	17.80	18.00	17.50	18.00	20.66	21.00		
802.11n-HT20 MCS0	52	5260	19.70	20.00	19.50	20.00	22.61	23.00	100.00	
	56	5280	19.50	20.00	19.10	20.00	22.31	23.00		
	60	5300	19.70	20.00	19.70	20.00	22.71	23.00		
802.11n-HT40 MCS0	54	5270	18.80	19.00	18.60	19.00	21.71	22.00	100.00	
	62	5310	16.40	16.50	16.30	16.50	19.36	19.50		
802.11ac-VHT20 MCS0	52	5260	19.70	20.00	19.50	20.00	22.61	23.00	100.00	
	56	5280	19.50	20.00	19.10	20.00	22.31	23.00		
	60	5300	19.70	20.00	19.70	20.00	22.71	23.00		
802.11ac-VHT40 MCS0	54	5270	18.80	19.00	18.60	19.00	21.71	22.00	100.00	
	62	5310	16.40	16.50	16.30	16.50	19.36	19.50		
802.11ac-VHT80 MCS0	58	5290	15.50	15.50	15.00	15.50	18.27	18.50	100.00	
802.11ac-VHT160 MCS0	50	5250	14.30	14.50	14.00	14.50	17.16	17.50	100.00	
802.11ax-HE20 MCS0	52	5260	19.70	20.00	19.60	20.00	22.66	23.00	100.00	
	56	5280	19.60	20.00	19.20	20.00	22.41	23.00		
	60	5300	19.70	20.00	19.80	20.00	22.76	23.00		
802.11ax-HE40 MCS0	54	5270	18.90	19.00	18.60	19.00	21.76	22.00	100.00	
	62	5310	16.50	16.50	16.30	16.50	19.41	19.50		
802.11ax-HE80 MCS0	58	5290	15.60	16.00	14.90	15.00	18.27	18.50	100.00	
802.11ax-HE160 MCS0	50	5250	14.30	14.50	14.10	14.50	17.21	17.50	100.00	



5.3GHz WLAN				Head DBS Simultaneous_MIMO					
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	
802.11a 6Mbps	52	5260	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	56	5280		19.00		19.00		22.00	
	60	5300		19.00		19.00		22.00	
	64	5320		18.00		18.00		21.00	
802.11n-HT20 MCS0	52	5260	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	56	5280		19.00		19.00		22.00	
	60	5300		19.00		19.00		22.00	
	64	5320		18.00		18.00		21.00	
802.11n-HT40 MCS0	54	5270	18.80	19.00	18.60	19.00	21.71	22.00	100.00
	62	5310	16.40	16.50	16.30	16.50	19.36	19.50	
802.11ac-VHT20 MCS0	52	5260	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	56	5280		19.00		19.00		22.00	
	60	5300		19.00		19.00		22.00	
	64	5320		18.00		18.00		21.00	
802.11ac-VHT40 MCS0	54	5270	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	62	5310		16.50		16.50		19.50	
802.11ac-VHT80 MCS0	58	5290	Not Required	15.50	Not Required	15.50	Not Required	18.50	100.00
802.11ac-VHT160 MCS0	50	5250		14.50		14.50		17.50	100.00
802.11ax-HE20 MCS0	52	5260	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	56	5280		19.00		19.00		22.00	
	60	5300		19.00		19.00		22.00	
	64	5320		18.00		18.00		21.00	
802.11ax-HE40 MCS0	54	5270	Not Required	19.00	Not Required	19.00	Not Required	22.00	100.00
	62	5310		16.50		16.50		19.50	
802.11ax-HE80 MCS0	58	5290	Not Required	16.00	Not Required	15.00	Not Required	18.50	100.00
802.11ax-HE160 MCS0	50	5250		14.50		14.50		17.50	100.00



5.3GHz WLAN				Body-worn&Extremity DBS Simultaneous_MIMO						
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
802.11a 6Mbps	52	5260	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	56	5280		18.50		18.50				
	60	5300		18.50		18.50				
	64	5320		18.00		18.00				
802.11n-HT20 MCS0	52	5260	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	56	5280		18.50		18.50				
	60	5300		18.50		18.50				
	64	5320		18.00		18.00				
802.11n-HT40 MCS0	54	5270	18.30	18.50	18.00	18.50	21.16	21.50	100.00	
	62	5310	16.40	16.50	16.30	16.50	19.36	19.50		
802.11ac-VHT20 MCS0	52	5260	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	56	5280		18.50		18.50				
	60	5300		18.50		18.50				
	64	5320		18.00		18.00				
802.11ac-VHT40 MCS0	54	5270	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	62	5310		18.50		16.50		19.50		
802.11ac-VHT80 MCS0	58	5290	Not Required	15.50	Not Required	15.50	Not Required	18.50	100.00	
802.11ac-VHT160 MCS0	50	5250	Not Required	14.50	Not Required	14.50	Not Required	17.50	100.00	
802.11ax-HE20 MCS0	52	5260	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	56	5280		18.50		18.50				
	60	5300		18.50		18.50				
	64	5320		18.00		18.00				
802.11ax-HE40 MCS0	54	5270	Not Required	18.50	Not Required	18.50	Not Required	21.50	100.00	
	62	5310		16.50		16.50		19.50		
802.11ax-HE80 MCS0	58	5290	Not Required	16.00	Not Required	15.00	Not Required	18.50	100.00	
802.11ax-HE160 MCS0	50	5250	Not Required	14.50	Not Required	14.50	Not Required	17.50	100.00	





<5.5GHz WLAN>

5.5GHz WLAN				Default Full Power_MIMO Head non DBS&DBS Simultaneous_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.70	18.00	17.40	18.00	20.56	21.00	100.00
		116	5580	19.40	20.00	18.80	19.50	22.12	23.00	
		124	5620	19.70	20.00	19.00	19.50	22.37	23.00	
		132	5660	19.80	20.00	19.00	19.50	22.43	23.00	
		140	5700	17.50	18.00	17.20	18.00	20.36	21.00	
		144	5720	19.20	20.00	18.90	20.00	22.06	23.00	
	802.11n-HT20 MCS0	100	5500	16.10	16.50	15.90	16.50	19.01	19.50	100.00
		116	5580	19.70	20.00	19.20	20.00	22.47	23.00	
		124	5620	19.50	20.00	18.80	20.00	22.17	23.00	
		132	5660	19.50	20.00	18.90	20.00	22.22	23.00	
		140	5700	16.70	17.00	16.30	16.50	19.51	20.00	
		144	5720	19.50	20.00	19.50	20.00	22.51	23.00	
	802.11n-HT40 MCS0	102	5510	16.50	17.00	16.30	16.50	19.41	20.00	100.00
		110	5550	18.80	19.00	18.40	19.00	21.61	22.00	
		126	5630	18.80	19.00	18.10	19.00	21.47	22.00	
		134	5670	17.40	17.50	16.90	17.00	20.17	20.50	
		142	5710	18.60	19.00	18.80	19.00	21.71	22.00	
	802.11ac-VHT20 MCS0	100	5500	16.10	16.50	15.90	16.50	19.01	19.50	100.00
		116	5580	19.70	20.00	19.20	20.00	22.47	23.00	
		124	5620	19.50	20.00	18.80	20.00	22.17	23.00	
		132	5660	19.50	20.00	18.90	20.00	22.22	23.00	
140		5700	16.70	17.00	16.30	16.50	19.51	20.00		
144		5720	19.50	20.00	19.50	20.00	22.51	23.00		
802.11ac-VHT40 MCS0	102	5510	16.50	17.00	16.30	16.50	19.41	20.00	100.00	
	110	5550	18.80	19.00	18.40	19.00	21.61	22.00		
	126	5630	18.80	19.00	18.10	19.00	21.47	22.00		
	134	5670	17.40	17.50	16.90	17.00	20.17	20.50		
	142	5710	18.60	19.00	18.80	19.00	21.71	22.00		
802.11ac-VHT80 MCS0	106	5530	15.70	16.00	15.60	16.00	18.66	19.00	100.00	
	122	5610	19.00	19.00	18.60	19.00	21.81	22.00		
	138	5690	18.60	19.00	18.70	19.00	21.66	22.00		
802.11ac-VHT160 MCS0	114	5570	14.50	14.50	13.90	14.50	17.22	17.50	100.00	
802.11ax-HE20 MCS0	100	5500	16.20	16.50	15.90	16.50	19.06	19.50	100.00	
	116	5580	19.80	20.00	19.20	20.00	22.52	23.00		
	124	5620	19.60	20.00	18.90	20.00	22.27	23.00		
	132	5660	19.60	20.00	19.00	20.00	22.32	23.00		
	140	5700	16.80	17.00	16.30	16.50	19.57	20.00		
	144	5720	19.60	20.00	19.50	20.00	22.56	23.00		
802.11ax-HE40 MCS0	102	5510	16.60	17.00	16.30	16.50	19.46	20.00	100.00	
	110	5550	18.90	19.00	18.40	19.00	21.67	22.00		
	126	5630	18.90	19.00	18.20	19.00	21.57	22.00		
	134	5670	17.50	18.00	16.90	18.00	20.22	21.00		
	142	5710	18.70	19.00	18.80	19.00	21.76	22.00		
802.11ax-HE80 MCS0	106	5530	15.80	16.00	15.60	16.00	18.71	19.00	100.00	
	122	5610	19.20	19.50	18.60	19.00	21.92	22.00		
	138	5690	18.70	19.00	18.70	19.00	21.71	22.00		
802.11ax-HE160 MCS0	114	5570	14.50	14.50	14.00	14.50	17.27	17.50	100.00	



5.5GHz WLAN				Body-worn&Extremity non DBS Power_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.70	18.00	17.40	17.50	20.56	21.00	100.00
		116	5580	18.00	18.00	17.60	17.70	20.61	21.00	
		124	5620	18.00	18.00	17.20	17.50	20.73	21.00	
		132	5660	18.00	18.00	17.50	17.50	20.77	21.00	
		140	5700	17.50	18.00	17.20	17.50	20.36	21.00	
	802.11n-HT20 MCS0	100	5500	16.10	16.50	15.80	16.00	18.96	19.50	100.00
		116	5580	17.90	18.00	17.50	18.00	20.71	21.00	
		124	5620	17.80	18.00	17.10	17.50	20.53	21.00	
		132	5660	17.90	18.00	17.50	18.00	20.71	21.00	
		140	5700	16.70	17.00	16.30	16.50	19.51	20.00	
	802.11n-HT40 MCS0	102	5510	16.50	17.00	16.30	16.50	19.41	20.00	100.00
		110	5550	17.90	18.00	17.20	17.30	20.47	21.00	
		126	5630	17.70	18.00	17.00	17.50	20.37	21.00	
		134	5670	17.40	17.50	16.90	17.00	20.17	20.50	
	802.11ac-VHT20 MCS0	100	5500	16.10	16.50	15.80	16.00	18.96	19.50	100.00
		116	5580	18.00	18.00	17.50	18.00	20.76	21.00	
		124	5620	17.90	18.00	17.10	17.50	20.58	21.00	
		132	5660	18.00	18.00	17.50	18.00	20.76	21.00	
		140	5700	16.70	17.00	16.30	16.50	19.51	20.00	
	802.11ac-VHT40 MCS0	102	5510	16.50	17.00	16.30	16.50	19.41	20.00	100.00
110		5550	18.00	18.00	17.20	17.50	20.62	21.00		
126		5630	17.80	18.00	17.00	17.50	20.42	21.00		
134		5670	17.40	17.50	16.90	17.00	20.17	20.50		
802.11ac-VHT80 MCS0	106	5530	15.70	16.00	15.60	16.00	18.66	19.00	100.00	
	122	5610	17.80	17.90	17.30	17.40	20.98	21.00		
802.11ac-VHT160 MCS0	138	5690	17.80	18.00	17.30	17.50	20.47	21.00	100.00	
802.11ax-HE20 MCS0	114	5570	14.50	14.50	13.90	14.50	17.22	17.50	100.00	
	100	5500	16.20	16.50	15.90	16.50	19.06	19.50	100.00	
	116	5580	18.00	18.00	17.60	18.00	20.81	21.00		
	124	5620	17.90	18.00	17.20	17.50	20.63	21.00		
	132	5660	18.00	18.00	17.60	18.00	20.81	21.00		
140	5700	16.80	17.00	16.30	16.50	19.57	20.00			
802.11ax-HE40 MCS0	144	5720	17.60	18.00	17.40	17.50	20.51	21.00	100.00	
	102	5510	16.60	17.00	16.30	16.50	19.46	20.00		
	110	5550	18.00	18.00	17.30	17.50	20.67	21.00		
	126	5630	17.80	18.00	17.10	17.50	20.47	21.00		
802.11ax-HE80 MCS0	134	5670	17.50	18.00	16.90	17.00	20.22	21.00	100.00	
	142	5710	17.50	18.00	17.30	17.50	20.41	21.00		
	106	5530	15.80	16.00	15.60	16.00	18.71	19.00		
802.11ax-HE160 MCS0	122	5610	17.90	18.00	17.20	18.00	20.57	21.00	100.00	
	138	5690	17.90	18.00	17.20	17.50	20.57	21.00		
802.11ax-HE160 MCS0	114	5570	14.50	14.50	14.00	14.50	17.27	17.50	100.00	



5.5GHz WLAN				Body-worn&Extremity DBS Simultaneous_MIMO					
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	
802.11a 6Mbps	100	5500	Not Required	17.00	Not Required	16.50	Not Required	20.00	100.00
	116	5580		17.00		16.50		20.00	
	124	5620		17.00		16.50		20.00	
	132	5660		17.00		16.50		20.00	
	140	5700		17.00		16.50		20.00	
	144	5720		17.00		16.50		20.00	
802.11n-HT20 MCS0	100	5500	Not Required	16.50	Not Required	16.50	Not Required	19.50	100.00
	116	5580		17.00		16.50		20.00	
	124	5620		17.00		16.50		20.00	
	132	5660		17.00		16.50		20.00	
	140	5700		17.00		16.50		20.00	
	144	5720		17.00		16.50		20.00	
802.11n-HT40 MCS0	102	5510	Not Required	17.00	Not Required	16.50	Not Required	20.00	100.00
	110	5550		17.00		16.50		20.00	
	126	5630		17.00		16.50		20.00	
	134	5670		17.00		16.50		20.00	
802.11ac-VHT20 MCS0	100	5500	Not Required	16.50	Not Required	16.50	Not Required	19.50	100.00
	116	5580		17.00		16.50		20.00	
	124	5620		17.00		16.50		20.00	
	132	5660		17.00		16.50		20.00	
	140	5700		17.00		16.50		20.00	
802.11ac-VHT40 MCS0	102	5510	Not Required	17.00	Not Required	16.50	Not Required	20.00	100.00
	110	5550		17.00		16.50		20.00	
	126	5630		17.00		16.50		20.00	
	134	5670		17.00		16.50		20.00	
802.11ac-VHT80 MCS0	106	5530	Not Required	15.70	Not Required	15.60	Not Required	18.66	100.00
	122	5610		16.50		16.00		19.04	
	138	5690		16.50		16.20		19.36	
802.11ac-VHT160 MCS0	114	5570	Not Required	14.50	Not Required	14.50	Not Required	17.50	100.00
802.11ax-HE20 MCS0	100	5500		16.50		16.50		19.50	
	116	5580		17.00		16.50		20.00	
	124	5620		17.00		16.50		20.00	
	132	5660		17.00		16.50		20.00	
	140	5700		17.00		16.50		20.00	
	144	5720		17.00		16.50		20.00	
802.11ax-HE40 MCS0	102	5510		17.00		16.50		20.00	
	110	5550		17.00		16.50		20.00	
	126	5630		17.00		16.50		20.00	
	134	5670		17.00		16.50		20.00	
802.11ax-HE80 MCS0	106	5530		16.00		16.00		19.00	
	122	5610	17.00	16.50	20.00				
	138	5690	17.00	16.50	20.00				
802.11ax-HE160 MCS0	114	5570	14.50	14.50	17.50				



<5.8GHz WLAN>

5.8GHz WLAN				Default Full Power_MIMO Head non DBS&DBS Simultaneous_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.8GHz WLAN	802.11a 6Mbps	149	5745	20.00	20.00	19.60	20.00	22.81	23.00	100.00
		157	5785	19.70	20.00	19.60	20.00	22.66	23.00	
		165	5825	19.80	20.00	19.80	20.00	22.81	23.00	
	802.11n-HT20 MCS0	149	5745	19.70	20.00	19.40	20.00	22.56	23.00	100.00
		157	5785	19.50	20.00	19.50	20.00	22.51	23.00	
		165	5825	19.70	20.00	19.70	20.00	22.71	23.00	
	802.11n-HT40 MCS0	151	5755	18.60	19.00	18.50	19.00	21.56	22.00	100.00
		159	5795	18.60	19.00	18.60	19.00	21.61	22.00	
	802.11ac-VHT20 MCS0	149	5745	19.90	20.00	19.60	20.00	22.76	23.00	100.00
		157	5785	19.50	20.00	19.50	20.00	22.51	23.00	
		165	5825	19.70	20.00	19.70	20.00	22.71	23.00	
	802.11ac-VHT40 MCS0	151	5755	18.70	19.00	18.60	19.00	21.66	22.00	100.00
159		5795	18.60	19.00	18.70	19.00	21.66	22.00		
802.11ac-VHT80 MCS0	155	5775	18.70	19.00	18.70	19.00	21.71	22.00	100.00	
802.11ax-HE20 MCS0	149	5745	19.90	20.00	19.60	20.00	22.76	23.00	100.00	
	157	5785	19.40	20.00	20.00	20.00	22.72	23.00		
	165	5825	19.70	20.00	19.80	20.00	22.76	23.00		
802.11ax-HE40 MCS0	151	5755	18.80	19.00	18.60	19.00	21.71	22.00	100.00	
	159	5795	19.00	19.00	18.90	19.00	21.96	22.00		
802.11ax-HE80 MCS0	155	5775	18.90	19.00	18.90	19.00	21.91	22.00	100.00	

5.8GHz WLAN				Hotspot non DBS Power_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.8GHz WLAN	802.11a 6Mbps	149	5745	17.40	17.50	17.30	17.50	20.16	20.50	100.00
		157	5785	17.30	17.50	17.30	17.50	20.36	20.50	
		165	5825	17.40	17.50	17.30	17.50	20.41	20.50	
	802.11n-HT20 MCS0	149	5745	17.40	17.50	17.20	17.50	20.21	20.50	100.00
		157	5785	17.30	17.50	17.10	17.50	20.06	20.50	
		165	5825	17.40	17.50	17.10	17.50	20.36	20.50	
	802.11n-HT40 MCS0	151	5755	17.30	17.50	17.20	17.50	20.16	20.50	100.00
		159	5795	17.30	17.50	17.10	17.50	20.36	20.50	
	802.11ac-VHT20 MCS0	149	5745	17.20	17.50	17.20	17.50	20.26	20.50	100.00
		157	5785	17.30	17.50	17.10	17.50	20.11	20.50	
		165	5825	17.30	17.50	17.00	17.50	20.41	20.50	
	802.11ac-VHT40 MCS0	151	5755	17.40	17.50	17.20	17.50	20.06	20.50	100.00
159		5795	17.30	17.50	17.30	17.50	20.36	20.50		
802.11ac-VHT80 MCS0	155	5775	17.50	17.50	17.40	17.50	20.46	20.50	100.00	
802.11ax-HE20 MCS0	149	5745	17.40	17.50	17.10	17.50	20.31	20.50	100.00	
	157	5785	17.30	17.50	17.20	17.50	20.26	20.50		
	165	5825	17.40	17.50	17.30	17.50	20.36	20.50		
802.11ax-HE40 MCS0	151	5755	17.40	17.50	17.20	17.50	20.06	20.50	100.00	
	159	5795	17.40	17.50	17.10	17.50	20.21	20.50		
802.11ax-HE80 MCS0	155	5775	17.30	17.50	17.10	17.50	20.11	20.50	100.00	



5.8GHz WLAN				Body-worn&Extremity non DBS Power_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1			
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.8GHz WLAN	802.11a 6Mbps	149	5745	18.80	18.80	18.50	18.60	21.86	22.00	100.00
		157	5785	18.70	19.00	18.70	19.00	21.66	22.00	
		165	5825	18.90	19.00	19.00	19.00	21.86	22.00	
	802.11n-HT20 MCS0	149	5745	18.60	19.00	18.30	19.00	21.46	22.00	100.00
		157	5785	18.40	19.00	18.40	19.00	21.41	22.00	
		165	5825	18.80	19.00	18.80	19.00	21.81	22.00	
	802.11n-HT40 MCS0	151	5755	18.60	19.00	18.50	19.00	21.56	22.00	100.00
		159	5795	18.60	19.00	18.60	19.00	21.61	22.00	
	802.11ac-VHT20 MCS0	149	5745	18.60	19.00	18.40	19.00	21.51	22.00	100.00
		157	5785	18.40	19.00	18.50	19.00	21.46	22.00	
		165	5825	18.80	19.00	18.90	19.00	21.86	22.00	
	802.11ac-VHT40 MCS0	151	5755	18.70	19.00	18.60	19.00	21.66	22.00	100.00
159		5795	18.60	19.00	18.70	19.00	21.66	22.00		
802.11ac-VHT80 MCS0	155	5775	18.70	18.80	18.70	18.90	21.71	22.00	100.00	
802.11ax-HE20 MCS0	149	5745	18.70	19.00	18.40	19.00	21.56	22.00	100.00	
	157	5785	18.50	19.00	18.50	19.00	21.51	22.00		
	165	5825	18.90	19.00	18.90	19.00	21.91	22.00		
802.11ax-HE40 MCS0	151	5755	18.70	19.00	18.60	19.00	21.66	22.00	100.00	
	159	5795	18.70	19.00	18.70	19.00	21.71	22.00		
802.11ax-HE80 MCS0	155	5775	18.90	19.00	18.90	19.00	21.91	22.00	100.00	

5.8GHz WLAN				Hotspot DBS Simultaneous_MIMO						Duty Cycle %
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1			
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	17.00	Not Required	17.00	Not Required	20.00	100.00
		157	5785		17.00		17.00		20.00	
		165	5825		17.00		17.00		20.00	
	802.11n-HT20 MCS0	149	5745		17.00		17.00		20.00	100.00
		157	5785		17.00		17.00		20.00	
		165	5825		17.00		17.00		20.00	
	802.11n-HT40 MCS0	151	5755		17.00		17.00		20.00	100.00
		159	5795		17.00		17.00		20.00	
	802.11ac-VHT20 MCS0	149	5745		17.00		17.00		20.00	100.00
		157	5785		17.00		17.00		20.00	
		165	5825		17.00		17.00		20.00	
	802.11ac-VHT40 MCS0	151	5755		17.00		17.00		20.00	100.00
159		5795	17.00	17.00	20.00					
802.11ac-VHT80 MCS0	155	5775	16.60	17.00	16.50	17.00	19.56	20.00	100.00	
802.11ax-HE20 MCS0	149	5745	Not Required	17.00	Not Required	17.00	Not Required	20.00	100.00	
	157	5785		17.00		17.00		20.00		
	165	5825		17.00		17.00		20.00		
802.11ax-HE40 MCS0	151	5755		17.00		17.00		20.00	100.00	
	159	5795		17.00		17.00		20.00		
802.11ax-HE80 MCS0	155	5775		17.00		17.00		20.00	100.00	

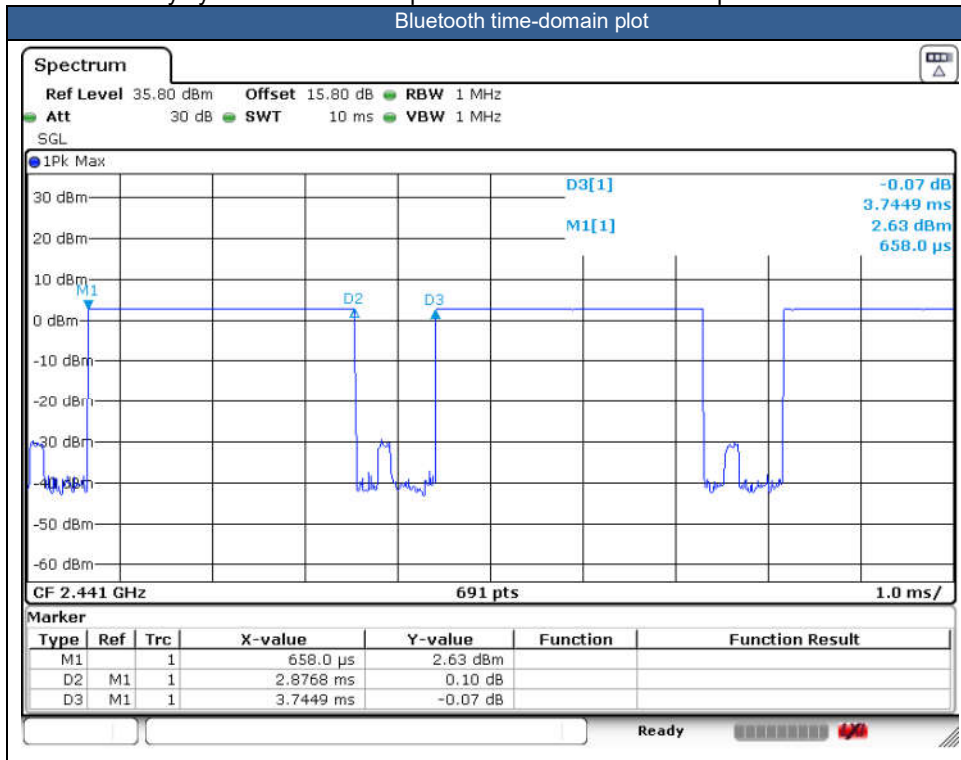


5.8GHz WLAN				Body-worn&Extremity DBS Simultaneous_MIMO						
Mode	Channel	Frequency (MHz)	MIMO_Ant 0		MIMO_Ant 1		MIMO_Ant 0+1		Duty Cycle %	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit		
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	17.40	Not Required	17.40	Not Required	20.40	100.00
		157	5785		17.40		17.40		20.40	
		165	5825		17.40		17.40		20.40	
	802.11n-HT20 MCS0	149	5745		17.40		17.40		20.40	100.00
		157	5785		17.40		17.40		20.40	
		165	5825		17.40		17.40		20.40	
	802.11n-HT40 MCS0	151	5755		17.40		17.40		20.40	100.00
		159	5795		17.40		17.40		20.40	
	802.11ac-VHT20 MCS0	149	5745		17.40		17.40		20.40	100.00
		157	5785		17.40		17.40		20.40	
		165	5825		17.40		17.40		20.40	
	802.11ac-VHT40 MCS0	151	5755		17.40		17.40		20.40	100.00
159		5795	17.40	17.40	20.40					
802.11ac-VHT80 MCS0	155	5775	17.00	17.40	16.90	17.40	19.96	20.40	100.00	
802.11ax-HE20 MCS0	149	5745	Not Required	17.40	Not Required	17.40	Not Required	20.40	100.00	
	157	5785		17.40		17.40		20.40		
	165	5825		17.40		17.40		20.40		
802.11ax-HE40 MCS0	151	5755		17.40		17.40		20.40	100.00	
	159	5795		17.40		17.40		20.40		
802.11ax-HE80 MCS0	155	5775		17.40		17.40		17.40	20.40	100.00

**<2.4GHz Bluetooth>**

**General Note:**

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.82%, Bluetooth SAR scaling need further consideration and the duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the value of Bluetooth reported SAR calculation.



Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	2.74	1.56	1.42
	CH 39	2441	2.87	1.67	1.64
	CH 78	2480	3.05	1.94	1.96
Tune-up Limit			4.00	2.00	2.00

Mode	Channel	Frequency (MHz)	Average power (dBm)
LE_1M	CH 00	2402	3.30
	CH 19	2440	3.10
	CH 39	2480	3.30
Tune-up Limit			3.50

Mode	Channel	Frequency (MHz)	Average power (dBm)
LE_2M	CH 00	2402	3.20
	CH 19	2440	3.00
	CH 39	2480	3.20
Tune-up Limit			3.50



### **13. Antenna Location**

The detailed antenna location information can refer to SAR Test Setup Photos.



## 14. SAR Test Results

### General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For SAR testing of BT signal with 83.3% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)\*83.3%"
  - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is  $\geq 0.8$ W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The device implements receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, hotspot, body-worn, and extremity). This device uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for WLAN/BT antennas accordingly.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm, the more conservative normal tablet SAR results can be used to support phablet mode 10-g extremity SAR.
  - a. For this device SAR for WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of WLAN 2.4GHz /WLAN 5.2/5.8GHz therefore product specific 10g SAR is necessary.
  - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
6. For WLAN SISO & MIMO(CDD) &TX Beamforming mode of 802.11ax, and WLAN SISO & TX Beamforming mode is not greater than WLAN MIMO(CDD) mode, so WLAN MIMO(CDD) mode SAR covers WLAN SISO &Tx Beamforming mode SAR.
7. For determination of the scaling factor for report SAR of MIMO mode, if the hot spots are separated the scaling factors are individually determined from each transmit chain. Further simplification chose the worse SAR value and the worst scaling factor from each transmit chain perform reported SAR calculation conservatively. If the hot spots are not spatially separated, the scaling factor is determined from the worst number of each transmit chain.



**WLAN Note:**

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
2. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
3. For all positions / configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
4. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
5. For full RU and partial tone size output power measurement, after verification for the partial tone size mode power level will not higher than full tone size power level, so chose full tone power to be measured in this report.
6. The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO and MIMO mode.
7. SISO and MIMO all supported by WLAN2.4GHz/WLAN5GHz, for SISO mode power is less than per chain power of MIMO mode. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power, so only chose MIMO power to perform SAR testing. However, in order to do SISO simultaneous transmission, we tested the WLAN 2.4G SISO antenna 1.
8. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of SISO antennas respectively to calculate sum of the power for MIMO mode.



14.1 Head SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Battery	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	-0.03	0.207	0.326
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	0.01	0.187	0.295
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	-0.09	0.431	0.679
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	2	16.60	18.50	1.549	98.29	1.017	0.11	0.418	0.658
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	6	2437	1	16.40	18.00	1.445	98.29	1.017	0.03	0.401	0.589
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	11	2462	1	16.40	18.00	1.445	98.29	1.017	0.06	0.408	0.600
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	0.01	0.273	0.430
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	BLE Beacon (3800mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	0.03	0.377	0.594
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Non DBS	Extended (5200mAh)	1	2412	1	16.60	18.50	1.549	98.29	1.017	0.04	0.386	0.608
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	17.00	1.096	98.29	1.017	0.18	0.970	1.082
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	11	2462	1	16.40	16.50	1.023	98.29	1.017	0.03	0.992	1.032
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	17.00	1.096	98.29	1.017	0.08	0.840	0.937
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	11	2462	1	16.40	16.50	1.023	98.29	1.017	0.01	0.854	0.889
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	17.00	1.096	98.29	1.017	0.06	1.120	1.249
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	11	2462	1	16.40	16.50	1.023	98.29	1.017	0.06	1.220	1.270
01	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	1	16.40	16.50	1.023	98.29	1.017	-0.16	1.290	1.342
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	2	16.40	16.50	1.023	98.29	1.017	-0.16	1.150	1.197
	WLAN2.4GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	1	16.00	16.50	1.122	98.29	1.017	0.01	0.700	0.799
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	16.60	17.00	1.096	98.29	1.017	0.15	0.949	1.058
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	11	2462	1	16.40	16.50	1.023	98.29	1.017	0.01	1.000	1.041
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	BLE Beacon (3800mAh)	6	2437	1	16.40	16.50	1.023	98.29	1.017	0.06	0.536	0.558
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Extended (5200mAh)	6	2437	1	16.40	16.50	1.023	98.29	1.017	0.01	1.130	1.176
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(0)	DBS Only	Simultaneous Battery (3800mAh)	6	2437	1	14.00	14.50	1.122	98.29	1.017	0.01	0.602	0.687
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.02	0.001	0.001
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.01	0.001	0.001
02	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	-0.05	0.008	0.011
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	2	3.05	4.00	1.243	76.82	1.084	-0.05	0.005	0.007
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	0	2402	1	2.74	4.00	1.335	76.82	1.084	0.01	0.003	0.004
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	39	2441	1	2.87	4.00	1.296	76.82	1.084	-0.03	0.006	0.008
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.03	0.001	0.001
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	BLE Beacon (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.06	0.001	0.001
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	Non DBS	Extended (5200mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.02	0.001	0.001
03	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	0.15	0.905	0.970
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	56	5280	2	19.20	19.50	1.072	100	1.000	-0.07	0.864	0.926
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	52	5260	1	19.60	20.00	1.096	100	1.000	0.06	0.825	0.905
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	64	5320	1	17.50	18.00	1.122	100	1.000	0.15	0.525	0.589
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	0.06	0.734	0.786
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	-0.17	0.824	0.883
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	52	5260	1	19.60	20.00	1.096	100	1.000	-0.16	0.742	0.814
	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	0.16	0.662	0.709
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	BLE Beacon (3800mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	0.06	0.819	0.878
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Extended (5200mAh)	56	5280	1	19.20	19.50	1.072	100	1.000	0.01	0.855	0.916
	WLAN5.3GHz	802.11n-HT40	Right Cheek	0mm	Ant 0+1(1)	DBS	Simultaneous	54	5270	1	18.60	19.00	1.096	100	1.000	-0.09	0.758	0.831



**FCC SAR Test Report**

**Report No. : FA2D2902**

		MCS0				Only	Battery (3800mAh)											
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0+1(1)	DBS Only	Simultaneous Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	0.06	0.512	0.536
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	0.01	0.512	0.574
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	0.1	0.450	0.505
04	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	0.06	0.633	0.710
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	132	5660	2	19.00	19.50	1.122	100	1.000	0.06	0.631	0.708
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	100	5500	1	17.40	18.00	1.148	100	1.000	0.15	0.397	0.456
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	144	5720	1	18.90	20.00	1.288	100	1.000	0.15	0.550	0.709
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	-0.05	0.450	0.505
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	BLE Beacon (3800mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	0.06	0.527	0.591
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Extended (5200mAh)	132	5660	1	19.00	19.50	1.122	100	1.000	0.01	0.548	0.615
05	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.01	0.814	0.893
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	149	5745	2	19.60	20.00	1.096	100	1.000	0.03	0.723	0.793
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	165	5825	1	19.80	20.00	1.047	100	1.000	0.07	0.801	0.839
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	157	5785	1	19.60	20.00	1.096	100	1.000	-0.16	0.783	0.859
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.06	0.672	0.737
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.06	0.782	0.857
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	165	5825	1	19.80	20.00	1.047	100	1.000	0.03	0.761	0.797
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.17	0.762	0.836
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	165	5825	1	19.80	20.00	1.047	100	1.000	0.03	0.759	0.795
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	BLE Beacon (3800mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.06	0.606	0.664
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 0+1(1)	Non DBS	Extended (5200mAh)	149	5745	1	19.60	20.00	1.096	100	1.000	0.01	0.668	0.732



14.2 Hotspot SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Battery	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	0.02	0.198	0.305
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	0.07	0.292	0.449
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	2	18.70	20.50	1.514	98.29	1.017	0.07	0.282	0.434
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	6	2437	1	18.50	20.50	1.585	98.29	1.017	0.08	0.273	0.440
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	11	2462	1	18.63	20.50	1.538	98.29	1.017	-0.06	0.286	0.447
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	-0.08	0.052	0.080
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	0.05	0.250	0.385
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	0.02	0.150	0.231
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	BLE Beacon (3800mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	0.08	0.249	0.383
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Non DBS	Extended (5200mAh)	1	2412	1	18.70	20.50	1.514	98.29	1.017	-0.06	0.260	0.400
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.08	0.573	0.624
06	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.01	0.917	0.999
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	2	18.70	19.00	1.072	98.29	1.017	0.01	0.914	0.996
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	11	2462	1	18.63	19.00	1.089	98.29	1.017	-0.19	0.894	0.990
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	1	18.50	19.00	1.122	98.29	1.017	-0.08	0.865	0.987
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.01	0.276	0.301
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.06	0.382	0.416
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.1	0.528	0.575
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	BLE Beacon (3800mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	0.08	0.236	0.257
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Extended (5200mAh)	1	2412	1	18.70	19.00	1.072	98.29	1.017	-0.06	0.847	0.923
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0+1(1)	DBS Only	Simultaneous Battery (3800mAh)	1	2412	1	18.00	18.50	1.122	98.29	1.017	-0.01	0.680	0.776
	Bluetooth	1Mbps	Front	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.02	0.057	0.077
07	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	-0.04	0.087	0.117
	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	2	3.05	4.00	1.243	76.82	1.084	-0.04	0.072	0.097
	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	0	2402	1	2.74	4.00	1.335	76.82	1.084	0.05	0.062	0.090
	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	39	2441	1	2.87	4.00	1.296	76.82	1.084	0.01	0.075	0.105
	Bluetooth	1Mbps	Right Side	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.05	0.069	0.093
	Bluetooth	1Mbps	Top Side	10mm	Ant 0	Non DBS	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.03	0.043	0.058
	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	BLE Beacon (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.08	0.068	0.092
	Bluetooth	1Mbps	Back	10mm	Ant 0	Non DBS	Extended (5200mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	-0.06	0.075	0.101
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	46	5230	1	17.30	17.50	1.047	100	1.000	0.05	0.231	0.242
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	46	5230	1	17.30	17.50	1.047	100	1.000	-0.09	1.150	1.204
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	38	5190	1	17.10	17.50	1.096	100	1.000	0.03	0.870	0.954
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	40	5200	1	17.00	17.50	1.122	100	1.000	0.05	1.120	1.257
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	36	5180	1	17.10	17.50	1.096	100	1.000	0.01	1.000	1.096
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	48	5240	1	17.00	17.50	1.122	100	1.000	0.01	0.919	1.031
08	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	44	5220	1	17.00	17.50	1.122	100	1.000	0.06	1.200	1.346
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	44	5220	2	17.00	17.50	1.122	100	1.000	0.01	0.999	1.121
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	42	5210	1	17.00	17.50	1.122	100	1.000	0.05	1.020	1.144
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	46	5230	1	17.30	17.50	1.047	100	1.000	0.07	0.440	0.461
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	46	5230	1	17.30	17.50	1.047	100	1.000	0.01	0.902	0.945
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	46	5230	1	17.30	17.50	1.047	100	1.000	0.02	0.362	0.379
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	BLE Beacon	44	5220	1	17.00	17.50	1.122	100	1.000	0.08	0.934	1.048



									(380mAh)											
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS			Extended (520mAh)	44	5220	1	17.00	17.50	1.122	100	1.000	-0.06	0.954	1.070
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(1)	DBS Only			Simultaneous Battery (380mAh)	42	5210	1	15.50	16.00	1.122	100	1.000	-0.09	0.678	0.761
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	1	17.40	18.90	1.413	100	1.000	-0.16	0.136	0.192
09	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	-0.11	1.010	1.034
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	2	17.40	17.50	1.023	100	1.000	0.06	0.879	0.899
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	0.05	0.557	0.570
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	0.08	0.677	0.693
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 0+1(0)	Non DBS			Standard Battery (380mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	0.03	0.183	0.187
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(0)	Non DBS			BLE Beacon (380mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	0.08	0.996	1.019
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(0)	Non DBS			Extended (520mAh)	155	5775	1	17.40	17.50	1.023	100	1.000	-0.06	1.000	1.023
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0+1(0)	DBS Only			Simultaneous BLE Beacon(380mAh)	155	5775	1	16.50	17.00	1.122	100	1.000	0.08	0.726	0.815

14.3 Body Worn Accessory SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Accessory	Battery	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 1	-	Non DBS		Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	-0.03	0.189	0.206
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.01	0.319	0.348
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.03	0.364	0.406
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		Standard Battery (380mAh)	6	2437	2	20.60	21.00	1.096	98.29	1.017	0.03	0.323	0.360
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		Standard Battery (380mAh)	11	2462	1	20.60	21.00	1.096	98.29	1.017	-0.01	0.311	0.347
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	-	Non DBS	Soft Holster	Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.1	0.054	0.060
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	-	Non DBS	Soft Holster	Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.02	0.064	0.071
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		BLE Beacon (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.02	0.331	0.369
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	-	Non DBS		Extended (520mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.05	0.314	0.350
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	Headset	Non DBS	3.5mm PTT	Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.02	0.302	0.337
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	Headset	Non DBS	Type C Audio	Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.01	0.308	0.343
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	-0.03	0.567	0.618
10	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	-0.03	1.000	1.090
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (380mAh)	1	2412	2	20.70	21.00	1.072	98.29	1.017	0.06	0.976	1.064
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (380mAh)	11	2462	1	20.60	21.00	1.096	98.29	1.017	0.05	0.958	1.068
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (380mAh)	6	2437	1	20.60	21.00	1.096	98.29	1.017	0.07	0.967	1.078
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 0+1(1)	-	Non DBS	Soft Holster	Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.06	0.230	0.251
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 0+1(1)	-	Non DBS	Soft Holster	Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.06	0.389	0.424
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		BLE Beacon (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.01	0.972	1.059
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Extended (520mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.05	0.956	1.042
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	Headset	Non DBS	3.5mm PTT	Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.03	0.815	0.888
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	Headset	Non DBS	Type C Audio	Standard Battery (380mAh)	1	2412	1	20.70	21.00	1.072	98.29	1.017	0.02	0.934	1.018
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0+1(1)	-	DBS Only		Simultaneous Battery (380mAh)	1	2412	1	19.00	19.50	1.122	98.29	1.017	-0.03	0.611	0.697
	Bluetooth	1Mbps	Front	15mm	Ant 0	-	Non DBS		Standard Battery (380mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.01	0.001	0.001
11	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		Standard Battery (380mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.02	0.010	0.013
	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		Standard Battery (380mAh)	78	2480	2	3.05	4.00	1.243	76.82	1.084	0.02	0.007	0.009
	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		Standard Battery (380mAh)	0	2402	1	2.74	4.00	1.335	76.82	1.084	0.01	0.003	0.004
	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		Standard Battery (380mAh)	39	2441	1	2.87	4.00	1.296	76.82	1.084	0.03	0.008	0.011
	Bluetooth	1Mbps	Front	0mm	Ant 0	-	Non DBS	Soft Holster	Standard Battery (380mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.05	0.001	0.001
	Bluetooth	1Mbps	Back	0mm	Ant 0	-	Non DBS	Soft Holster	Standard Battery (380mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.03	0.001	0.001



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	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		BLE Beacon (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.08	0.001	0.001
	Bluetooth	1Mbps	Back	15mm	Ant 0	-	Non DBS		Extended (5200mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	-0.06	0.001	0.001
	Bluetooth	1Mbps	Back	15mm	Ant 0	Headset	Non DBS	3.5mm PTT	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.1	0.001	0.001
	Bluetooth	1Mbps	Back	15mm	Ant 0	Headset	Non DBS	Type C Audio	Standard Battery (3800mAh)	78	2480	1	3.05	4.00	1.243	76.82	1.084	0.02	0.001	0.001
20	WLAN5.2GHz	802.11a 6Mbps	Front	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.01	0.261	0.314
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	-0.09	0.907	1.090
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	48	5240	1	19.10	19.50	1.096	100	1.000	0.02	0.660	0.724
	WLAN5.2GHz	802.11a 6Mbps	Front	0mm	Ant 0+1(1)	-	Non DBS	Soft Holster	Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	-0.06	0.221	0.266
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	-	Non DBS	Soft Holster	Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.01	0.852	1.024
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		BLE Beacon (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.07	0.820	0.986
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Extended (5200mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.05	0.800	0.962
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	Headset	Non DBS	3.5mm PTT	Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.02	0.752	0.904
	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	Headset	Non DBS	Type C Audio	Standard Battery (3800mAh)	40	5200	1	19.20	20.00	1.202	100	1.000	0.02	0.851	1.023
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	DBS Only		Standard Battery (3800mAh)	46	5230	1	17.80	18.50	1.175	100	1.000	-0.04	0.603	0.708
12	WLAN5.3GHz	802.11a 6Mbps	Front	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.01	0.279	0.299
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	-0.09	1.200	1.286
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	56	5280	2	19.70	20.00	1.072	100	1.000	-0.05	1.010	1.082
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	52	5260	1	19.60	20.00	1.096	100	1.000	-0.06	1.130	1.239
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	60	5300	1	19.10	19.50	1.096	100	1.000	0.03	1.050	1.151
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	64	5320	1	17.50	18.00	1.122	100	1.000	0.02	0.955	1.072
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	54	5270	1	18.60	19.00	1.096	100	1.000	0.03	1.050	1.151
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	0.08	0.641	0.671
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 0+1(0)	-	Non DBS	Soft Holster	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	-0.06	0.239	0.256
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(0)	-	Non DBS	Soft Holster	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.01	0.644	0.690
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		BLE Beacon (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.07	1.110	1.189
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Extended (5200mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.05	1.060	1.136
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	Headset	Non DBS	3.5mm PTT	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.02	1.010	1.082
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	Headset	Non DBS	Type C Audio	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.02	1.150	1.232
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(0)	-	DBS Only		Simultaneous Battery (3800mAh)	54	5270	1	18.00	18.50	1.122	100	1.000	-0.06	0.789	0.885
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	DBS Only		Simultaneous Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	-0.02	0.542	0.568
13	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	0.02	0.163	0.167
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	-0.05	1.240	1.269
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	122	5610	2	17.80	17.90	1.023	100	1.000	-0.05	1.230	1.259
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	138	5690	1	17.80	17.90	1.023	100	1.000	0.06	1.030	1.054
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	106	5530	1	15.60	16.00	1.096	100	1.000	0.02	0.685	0.751
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	142	5710	1	17.20	17.50	1.072	100	1.000	0.01	1.030	1.104
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	110	5550	1	17.20	17.30	1.023	100	1.000	0.02	1.180	1.207
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	126	5630	1	17.00	17.50	1.122	100	1.000	0.06	1.060	1.189
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	134	5670	1	16.90	17.00	1.023	100	1.000	-0.02	1.000	1.023
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	102	5510	1	16.50	17.00	1.122	100	1.000	0.02	0.722	0.810
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	132	5660	1	17.50	17.50	1.000	100	1.000	0.01	1.170	1.170
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	124	5620	1	17.20	17.50	1.072	100	1.000	0.06	1.050	1.125
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	116	5580	1	17.60	17.70	1.023	100	1.000	0.04	1.140	1.167
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(1)	-	Non DBS		Standard Battery (3800mAh)	144	5720	1	17.50	18.00	1.122	100	1.000	0.01	0.965	1.083
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	100	5500	1	17.70	18.00	1.072	100	1.000	0.08	0.957	1.025
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 0+1(0)	-	Non DBS		Standard Battery (3800mAh)	140	5700	1	17.50	18.00	1.122	100	1.000	0.05	0.809	0.908







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	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	64	5320	1	17.50	18.00	1.122	100	1.000	0.04	1.680	1.885
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	54	5270	1	18.60	19.00	1.096	100	1.000	0.05	2.770	3.037
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	0.03	1.740	1.822
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	58	5290	1	15.00	15.50	1.122	100	1.000	0.01	1.610	1.806
	WLAN5.3GHz	802.11a 6Mbps	Left Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	-0.13	1.030	1.104
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	0.03	2.580	2.765
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	52	5260	1	19.60	20.00	1.096	100	1.000	-0.08	2.770	3.037
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	60	5300	1	19.10	19.50	1.096	100	1.000	0.06	2.660	2.917
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	64	5320	1	17.50	18.00	1.122	100	1.000	-0.07	1.870	2.098
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	54	5270	1	18.60	19.00	1.096	100	1.000	0.08	2.740	3.004
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	0.06	1.420	1.487
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	58	5290	1	15.00	15.50	1.122	100	1.000	0.09	1.410	1.582
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	56	5280	1	19.70	20.00	1.072	100	1.000	-0.11	0.576	0.617
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	Non DBS	BLE Beacon(3800mAh)	60	5300	1	19.10	20.00	1.230	100	1.000	0.08	2.430	2.990
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	Non DBS	Extended(5200mAh)	60	5300	1	19.10	20.00	1.230	100	1.000	-0.06	2.440	3.002
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0+1(1)	DBS Only	Simultaneous Battery (3800mAh)	54	5270	1	18.00	18.50	1.122	100	1.000	0.05	2.010	2.255
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0+1(1)	DBS Only	Simultaneous Battery (3800mAh)	62	5310	1	16.30	16.50	1.047	100	1.000	0.06	1.870	1.958
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	-0.03	0.309	0.316
18	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	-0.09	2.790	<b>2.855</b>
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	2	17.80	17.90	1.023	100	1.000	0.06	2.340	2.395
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	138	5690	1	17.30	17.50	1.047	100	1.000	0.01	2.610	2.733
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	106	5530	1	15.60	16.00	1.096	100	1.000	0.01	1.530	1.678
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	-0.02	1.130	1.156
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	0.09	2.200	2.251
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	138	5690	1	17.30	17.50	1.047	100	1.000	-0.01	2.060	2.157
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	0.03	0.352	0.360
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	BLE Beacon(3800mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	0.08	2.420	2.476
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	Extended(5200mAh)	122	5610	1	17.80	17.90	1.023	100	1.000	-0.06	2.480	2.538
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	DBS Only	Simultaneous Battery (3800mAh)	122	5610	1	16.50	16.90	1.096	100	1.000	-0.09	1.970	2.160
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	DBS Only	Simultaneous Battery (3800mAh)	138	5690	1	16.50	17.00	1.122	100	1.000	0.06	1.790	2.008
19	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	1	18.70	18.90	1.047	100	1.000	-0.09	2.510	<b>2.628</b>
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	2	18.70	18.90	1.047	100	1.000	0.06	2.170	2.272
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	BLE Beacon(3800mAh)	155	5775	1	18.70	18.90	1.047	100	1.000	0.08	2.220	2.325
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Extended(5200mAh)	155	5775	1	18.70	18.90	1.047	100	1.000	-0.06	2.230	2.335
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	DBS Only	Simultaneous Battery (3800mAh)	155	5775	1	16.90	17.40	1.122	100	1.000	0.02	1.770	1.986



14.5 Repeated SAR Measurement

<1g>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	16.40	16.50	1.023	98.29	1.017	-0.16	1.290	1	1.342
2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	6	2437	16.40	16.50	1.023	98.29	1.017	0.03	1.190	1.084	1.238
1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	17.80	17.90	1.023	100	1.000	-0.05	1.240	1	1.269
2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	17.80	17.90	1.023	100	1.000	-0.1	1.170	1.060	1.197
1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	18.70	18.90	1.047	100	1.000	-0.08	1.180	1	1.236
2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	18.70	18.90	1.047	100	1.000	-0.05	1.070	1.103	1.120
1st	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	44	5220	17.00	17.50	1.122	100	1.000	0.06	1.200	1	1.346
2nd	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	44	5220	17.00	17.50	1.122	100	1.000	0.03	1.150	1.043	1.290

<10g>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	60	5300	19.10	19.50	1.096	100	1.000	0.02	2.82	1	3.092
2nd	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	60	5300	19.10	19.50	1.096	100	1.000	0.06	2.76	1.022	3.026
1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	17.80	17.90	1.023	100	1.000	-0.09	2.79	1	2.855
2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(0)	Non DBS	Standard Battery (3800mAh)	122	5610	17.80	17.90	1.023	100	1.000	-0.02	2.71	1.030	2.773
1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	18.70	18.90	1.047	100	1.000	-0.09	2.51	1	2.628
2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 0+1(1)	Non DBS	Standard Battery (3800mAh)	155	5775	18.70	18.90	1.047	100	1.000	-0.03	2.46	1.020	2.576

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8W/kg$ .
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45W/kg$ , only one repeated measurement is required.
- Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
- The ratio is the difference in percentage between original and repeated *measured SAR*.
- All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

### 15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Touch Computer			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
2.	WLAN2.4GHz + WLAN6GHz	Yes	Yes		Yes
3.	WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
4.	WLAN6GHz+ Bluetooth	Yes	Yes		Yes
5.	WLAN2.4GHz + Bluetooth	Yes	Yes	Yes	Yes
6.	WLAN5GHz+ NFC				Yes
7.	WLAN6GHz+ NFC				Yes
8.	WLAN2.4GHz + NFC				Yes
9.	WLAN2.4GHz + WLAN5GHz + Bluetooth	Yes	Yes	Yes	Yes
10.	WLAN2.4GHz + WLAN6GHz + Bluetooth	Yes	Yes		Yes
11.	WLAN2.4GHz + WLAN5GHz + NFC				Yes
12.	WLAN2.4GHz + WLAN6GHz+ NFC				Yes

**General Note:**

- The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO and MIMO mode.
- According to the EUT characteristic, WLAN 5GHz/6GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 6GHz cannot transmit simultaneously.
- According to the EUT characteristic, WLAN 2.4GHz Ant1 and Bluetooth Ant0 can transmit simultaneously.
- WLAN 2.4GHz and Bluetooth share the same antenna, and they cannot transmit simultaneously each other.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- The reported SAR summation is calculated based on the same configuration and test position.
- For Headset SAR and non-Headset SAR always chose higher SAR to do co-located analysis.
- SAR Power density test report for WLAN6GHz U-NII-5/6/7/8 will be separately submitted. About co-located SAR with WLAN/Bluetooth always chose higher SAR of WLAN5G U-NII-1/2A/2C/3 and WLAN6G U-NII-5/6/7/8.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
  - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - If  $SPLSR \leq 0.04$  for 1g SAR and  $SPLSR \leq 0.10$  for 10g SAR, simultaneously transmission SAR measurement is not necessary.
  - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
- The WLAN6GHz Sim-Tx analysis guidance with other transmitters was based on SAR test results. The simultaneous transmission and test exemption analysis per KDB 447498 D01, and the device does not support FR2 or another MPE field measurement, therefore SAR report in section 15 has include TER analysis requirement according to KDB 987594.

**15.1 Head Exposure Conditions**

Exposure Position	1	2	6	3	4	5	7	2+3	2+5	1+3+4	1+4+5	4+6	4+7
	WLAN2.4GHz Ant 1 non DBS&DBS	WLAN2.4GHz Ant 0+1 DBS	WLAN5GHz Ant 0+1 non DBS	WLAN5GHz Ant 0+1 DBS	Bluetooth Ant 0	WLAN6E Ant 0+1 DBS	WLAN6E Ant 0+1 non DBS	Summed	Summed	Summed	Summed	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	0.326	0.687	0.970	0.893	0.001	0.862	1.098	1.58	1.55	1.22	1.19	0.97	1.10
Right Tilted	0.295	0.687	0.786	0.831	0.001	0.862	0.918	1.52	1.55	1.13	1.16	0.79	0.92
Left Cheek	0.679	0.687	0.883	0.857	0.011	0.862	0.747	1.54	1.55	1.55	1.55	0.89	0.76
Left Tilted	0.430	0.687	0.836	0.836	0.001	0.862	0.719	1.52	1.55	1.27	1.29	0.84	0.72

**15.2 Hotspot Exposure Conditions**

Exposure Position	1	2	6	3	4	2+3	1+3+4	1+4	4+6
	WLAN2.4GHz Ant 1 non DBS&DBS	WLAN2.4GHz Ant 0+1 DBS	WLAN5GHz Ant 0+1 non DBS	WLAN5GHz Ant 0+1 DBS	Bluetooth Ant 0	Summed	Summed	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.305	0.776	0.242	0.815	0.077	1.59	1.20	0.38	0.32
Back	0.449	0.776	1.346	0.815	0.117	1.59	1.38	0.57	1.46
Left side	0.080	0.776	0.570	0.815		1.59	0.90	0.08	0.57
Right side	0.385	0.776	0.945	0.815	0.093	1.59	1.29	0.48	1.04
Top side	0.231	0.776	0.379	0.815	0.058	1.59	1.10	0.29	0.44

**15.3 Body-Worn Accessory Exposure Conditions**

Exposure Position	1	2	6	3	4	5	7	2+3	2+5	1+3+4	1+4+5	4+6	4+7
	WLAN2.4GHz Ant 1 non DBS&DBS	WLAN2.4GHz Ant 0+1 DBS	WLAN5GHz Ant 0+1 non DBS	WLAN5GHz Ant 0+1 DBS	Bluetooth Ant 0	WLAN6E Ant 0+1 DBS	WLAN6E Ant 0+1 non DBS	Summed	Summed	Summed	Summed	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.206	0.697	0.299	0.885	0.001	0.103	0.103	1.58	0.80	1.09	0.31	0.30	0.10
Back	0.406	0.697	1.286	0.885	0.013	0.409	0.409	1.58	1.11	1.30	0.83	1.30	0.42

**15.4 Product Specific 10g SAR Exposure Conditions**

Exposure Position	1	2	3	4	1+2+4	1+3+4	1+2	1+3
	WLAN2.4GHz Ant 0+1	WLAN5GHz Ant 0+1	WLAN6E Ant 0+1	NFC	Summed	Summed	Summed	Summed
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
Front		2.255	0.440	0.008	2.26	0.45	2.26	0.44
Back	1.613	2.255	0.440	0.070	3.94	2.12	3.87	2.05
Left side		2.255	0.440	0.005	2.26	0.45	2.26	0.44
Right side		2.255	0.440	0.001	2.26	0.44	2.26	0.44
Top side		2.255	0.440	0.001	2.26	0.44	2.26	0.44

Note: For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

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## **16. Uncertainty Assessment**

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be  $\leq 30\%$ , for a confidence interval of  $k = 2$ . If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.



## **17. References**

- [1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.
- [7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015
- [8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.
- [9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.
- [10] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

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