

FCC SAR TEST REPORT

FCC ID : UZ7ET60AW
Equipment : Rugged 2 in 1 Android Tablet
Brand Name : Zebra
Model Name : ET60AW
Applicant : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Manufacturer : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Standard : FCC 47 CFR Part 2 (2.1093)

The product was received on Apr. 24, 2023 and testing was started from May 09, 2023 and completed on Jun. 26, 2023. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



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History of this test report

Report No.	Version	Description	Issued Date
FA332310	01	Initial issue of report	Jun. 07, 2023
FA332310	02	Update section 14.2, appendix B and F	Jun. 27, 2023



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for Zebra Technologies Corporation, Rugged 2 in 1 Android Tablet, ET60AW, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary	
			Body	
			1g SAR (W/kg)	
Highest Simultaneous Transmission				
1g SAR (W/kg)				
DTS	WLAN	2.4GHz WLAN	1.17	1.58
NII		5GHz WLAN	1.20	1.58
6XD		6GHz WLAN	1.15	1.57
DSS	2.4GHz Band	Bluetooth	0.04	1.58
DXX	NFC	13.56MHz	< 0.01	1.58
Equipment Class	Frequency Band		Reported APD (mW/cm^2)	Reported PD (mW/cm^2)
6XD	WLAN	6GHz WLAN	0.62	0.75
Date of Testing:			2023/5/9 ~ 2023/6/26	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. 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) specified in FCC 47 CFR part 2 (2.1093), Human Exposure to RF Radiation Limits (1.0 mW/cm^2=10 W/m^2) specified in FCC 47 CFR part 1.1310 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.

Reviewed by: Jason Wang
Report Producer: Paula Chen

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- 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 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- IEC/IEEE 62209-1528:2020
- SPEAG DASY6 System Handbook
- SPEAG DASY6 Application Note (Interim Procedure for Device Operation at 6GHz-10GHz)



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Rugged 2 in 1 Android Tablet
Brand Name	Zebra
Model Name	ET60AW
FCC ID	UZ7ET60AW
Wireless Technology and Frequency Range	WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz~6525 MHz, 6525 MHz~6875 MHz, 6875 MHz~7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK
HW Version	EV2.1
SW Version	A13
FW Version	1.1.2.0.645.4
MFD	27MAR23
EUT Stage	Identical Prototype
Remark:	
1. This device support DPS operation, when 2.4GHz transmit with 5G/6GHz at same time, the WLAN output power will limit different level for Sim-Tx compliance.	
2. When the device DPS mode active, the 5G/6GHz WLAN operation in MIMO mode only.	

Specification of Accessories				
Adapter	Brand Name	Zebra	Model	FSP045-A2BR3
			Part Number	PWR-BGA15V45W-UC2-WW
Battery 1	Brand Name	Zebra	Model	BT-000471
			Part Number	BT-000471-0020
Battery 2	Brand Name	Zebra	Model	BT-000471A
			Part Number	BT-000471-0820

Support Unit				
USB TYPE C to 3.5mm audio connector	Brand Name	Zebra	Part Number	ADP-USBC-35MM1-01
3.5mm Earphone	Brand Name	Zebra	Part Number	HDST-35MM-PTVP-01
USB TYPE C Earphone	Brand Name	Zebra	Part Number	HPST-USBC-PTT1-01
Headset Jumper	Brand Name	Zebra	Part Number	CBL-TC51-HDST35-01

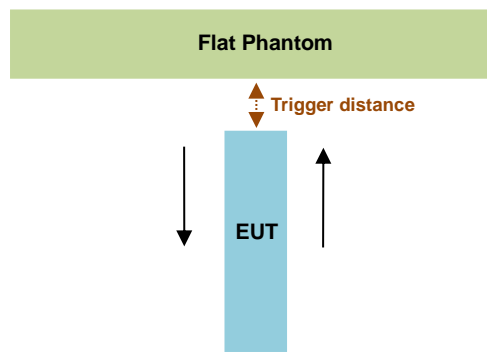
4. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



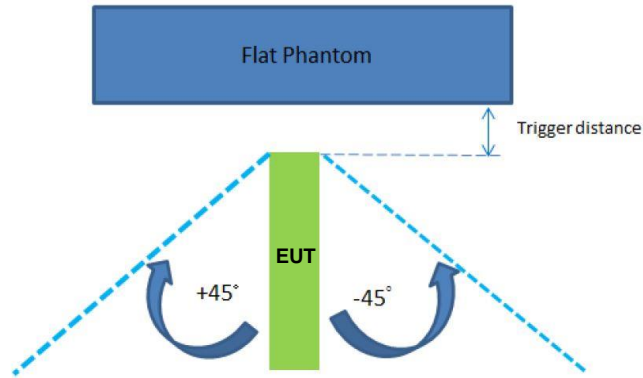
Proximity Sensor Trigger Distance (mm)								
Position	Bottom Face_ Ant 7		Bottom Face_ Ant 8		Edge 1_ Ant 7		Edge 2_ Ant 8	
	moving toward	moving away	moving toward	moving away	moving toward	moving away	moving toward	moving away
Minimum	16	17	15	15	17	15	16	27

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section6.3, these procedures do not apply and are not required for this device. due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at above separation distance. Rotating the tablet around the edge next to the phantom in $\leq 10^\circ$ increments until the tablet is $\pm 45^\circ$ from the vertical position at 0° , and the maximum output power remains in the reduced mode.



The Sensor Trigger Distance (mm)				
Position	Edge 1_ Ant 7		Edge 2_ Ant 8	
	45	-45	45	-45
Minimum	12	12	4	4

Proximity sensor power reduction

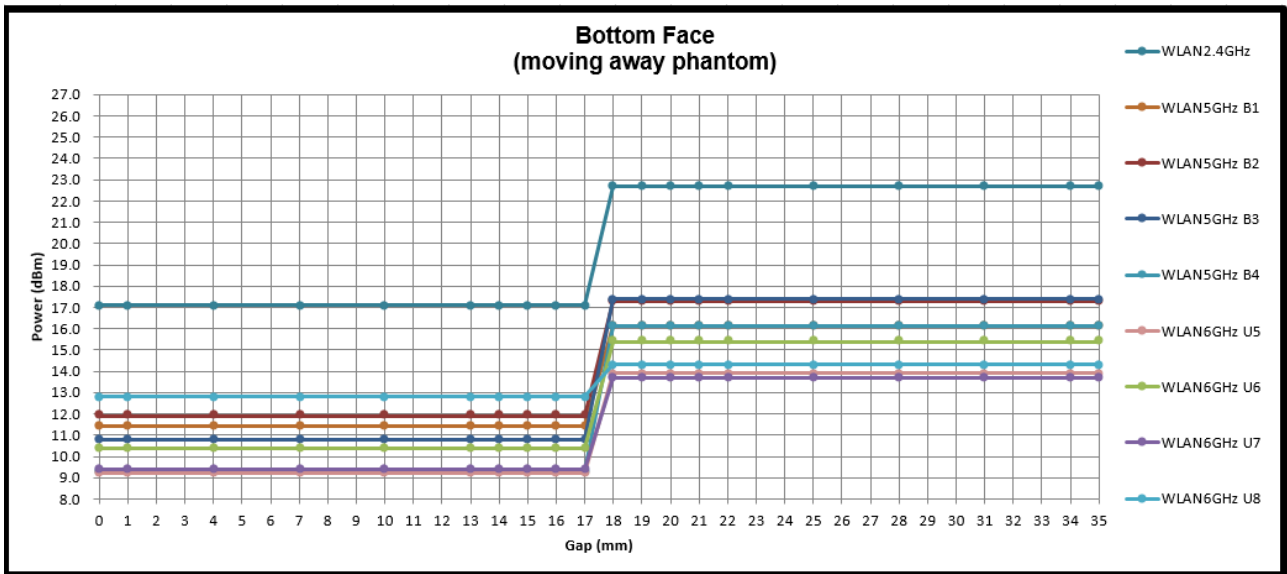
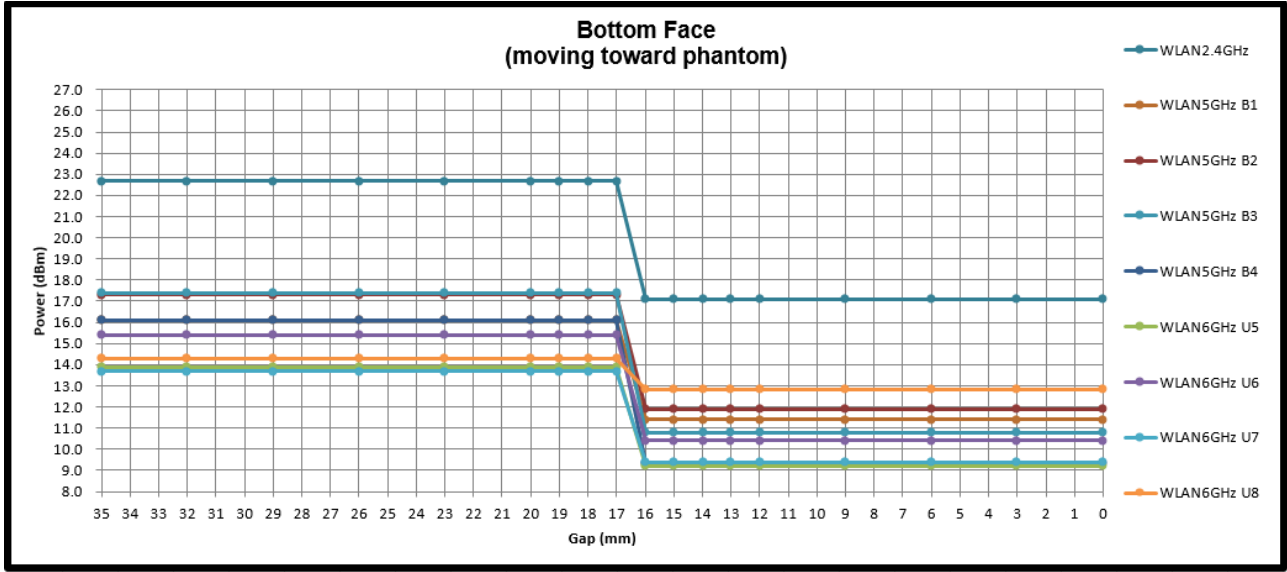
Exposure Position / wireless mode	Ant.	Bottom Face ⁽¹⁾ / Edge 1 ⁽¹⁾ /Edge 2 ⁽¹⁾	
		Non-DBS	DBS
2.4GHz WLAN	Ant 7 / Ant 8 / Ant 7+8	5.5dB	7dB
5.2GHz/5.3GHz WLAN	Ant 7 / Ant 8 / Ant 7+8	5.5dB	7dB
5.5GHz WLAN	Ant 7 / Ant 8 / Ant 7+8	6.5dB	7.5dB
5.8GHz WLAN	Ant 7 / Ant 8 / Ant 7+8	7.5dB	8.5dB
6GHz WLAN	Ant 7 / Ant 8 / Ant 7+8	2.5dB	6dB

Remark:

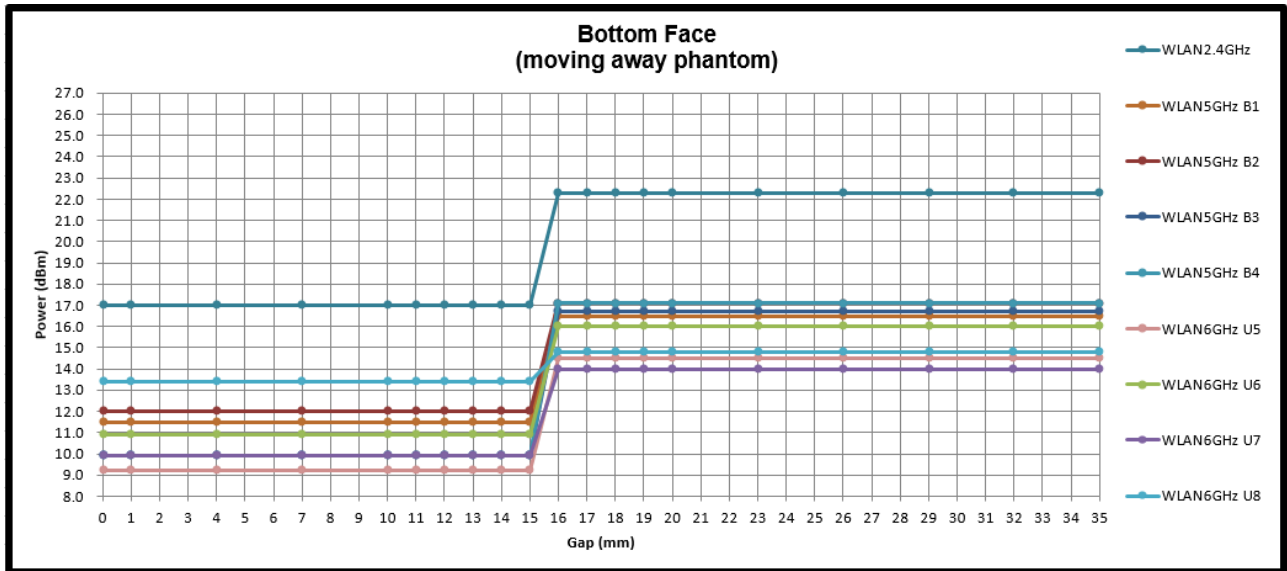
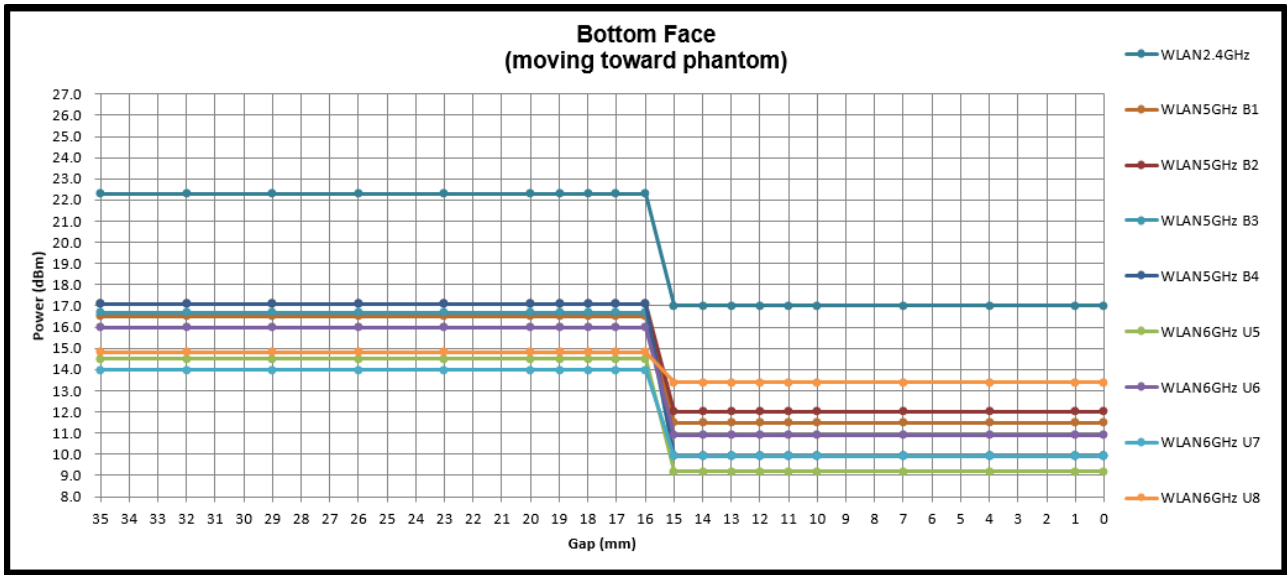
1. ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
2. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown below
3. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
 - Bottom Face: [14 mm](#)
 - Edge1: [11 mm](#)
 - Edge2: [3 mm](#)

Power Measurement during Sensor Trigger distance testing

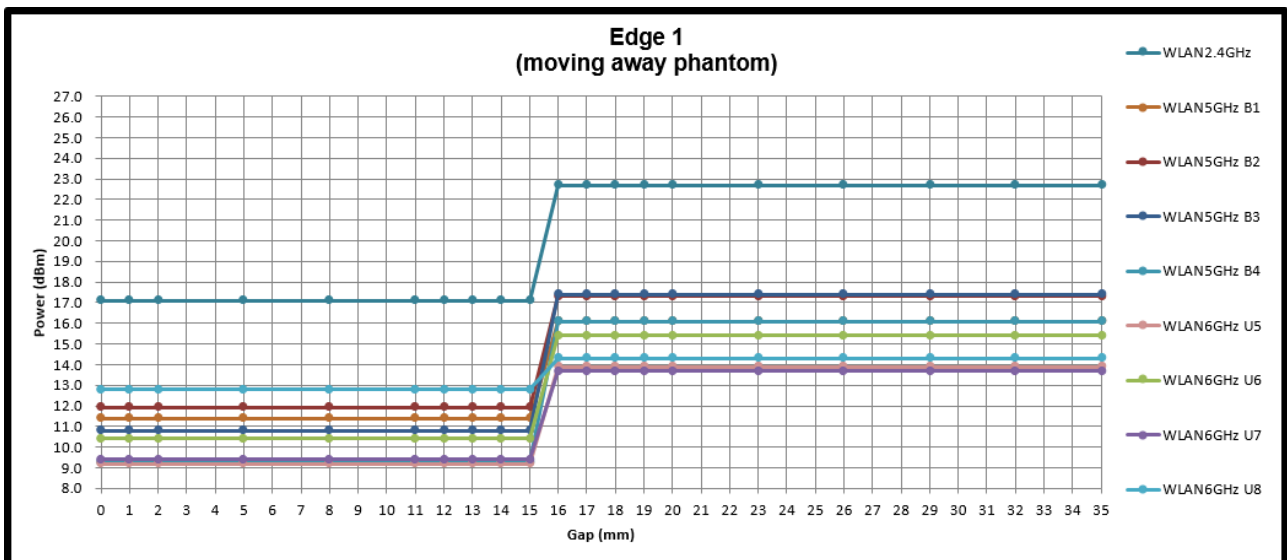
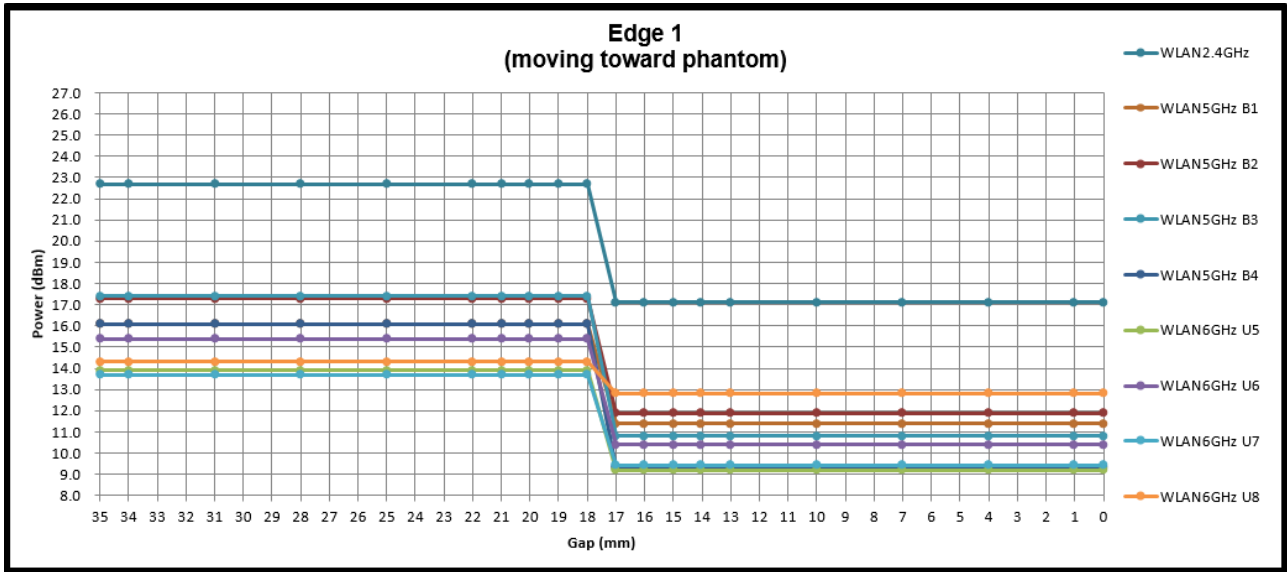
Ant 7



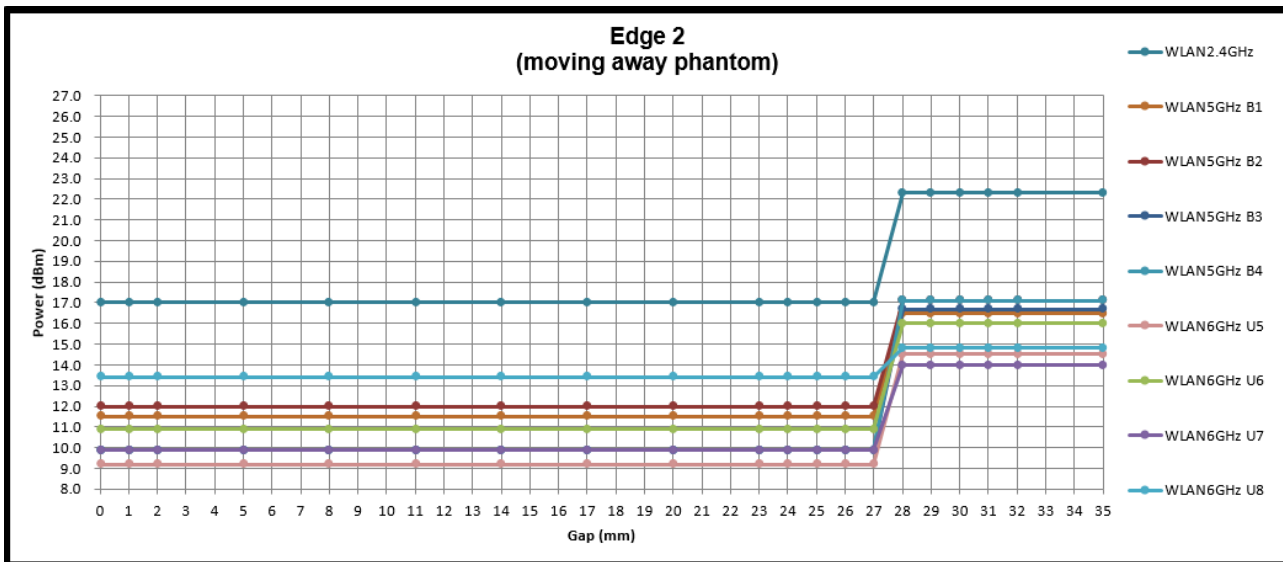
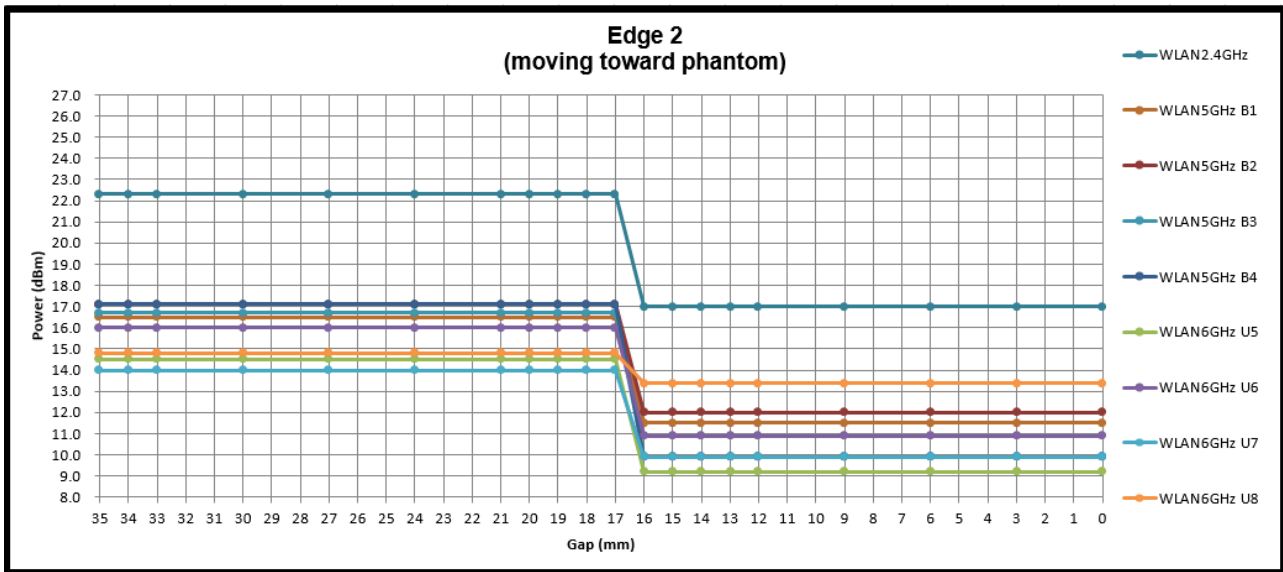
Ant 8



Ant 7



Ant 8





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

1. 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.



5.3 RF Exposure limit for above 6GHz

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

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 (ρ). The equation description is as below:

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

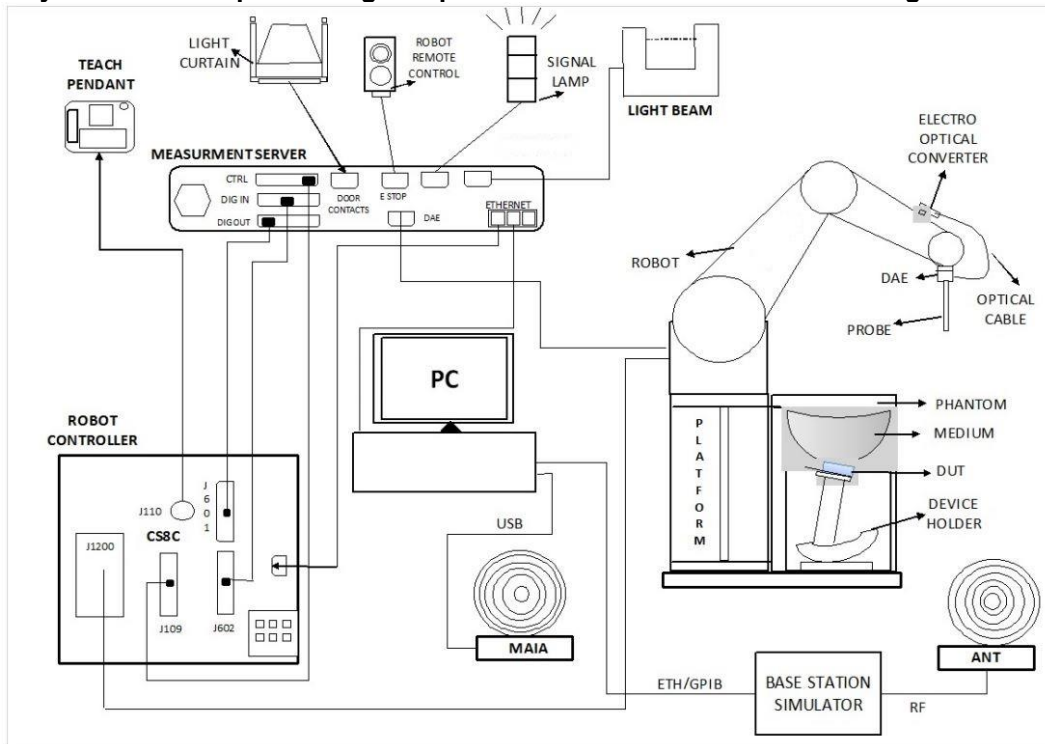
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



- The DASY system in SAR Configuration is shown above
- 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 windows software and the DASY 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 Test Site Location


The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test

Test Site	EMC & Wireless Communications Laboratory		Wensan Laboratory		
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan		
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	SAR16-HY
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	SAR17-HY


7.2 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.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	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	

7.3 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.



Fig 5.1 Photo of DAE

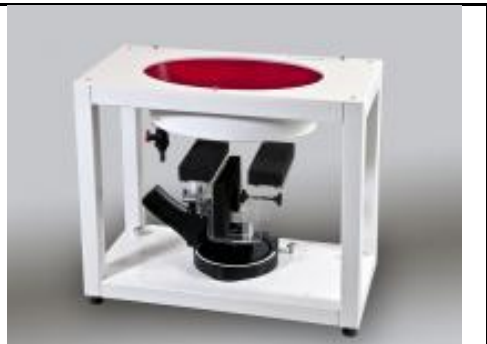
7.4 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	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>

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

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.5 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:

- (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 dB) 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.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 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° ± 1°	20° ± 1°
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used 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 shoes 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: $\Delta x_{Zoom}, \Delta y_{Zoom}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see 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 ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

8.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. 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	13MHz System Validation Kit ⁽²⁾	CLA13	1011	Jul. 08, 2020	Jul. 05, 2023
SPEAG	2450MHz System Validation Kit	D2450V2	929	Nov. 21, 2022	Nov. 20, 2023
SPEAG	5GHz System Validation Kit	D5GHzV2	1128	Nov. 23, 2022	Nov. 22, 2023
SPEAG	6500MHz System Validation Kit	D6.5GHzV2	1003	Mar. 15, 2023	Mar. 14, 2024
SPEAG	5G Verification Source	10GHz	1052	Sep. 02, 2022	Sep. 01, 2023
SPEAG	EUmmWV Probe Tip Protection	EUmmWV4	9441	Nov. 18, 2022	Nov. 17, 2023
SPEAG	Data Acquisition Electronics	DAE4	853	Jul. 20, 2022	Jul. 19, 2023
SPEAG	Data Acquisition Electronics	DAE4	854	Aug. 24, 2022	Aug. 23, 2023
SPEAG	Data Acquisition Electronics	DAE4	1311	Aug. 25, 2022	Aug. 24, 2023
SPEAG	Data Acquisition Electronics	DAE4	1512	Mar. 20, 2023	Mar. 19, 2024
SPEAG	Data Acquisition Electronics	DAE4	1694	Nov. 18, 2022	Nov. 17, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 26, 2023	Apr. 25, 2024
SPEAG	Dosimetric E-Field Probe	EX3DV4	3728	Mar. 22, 2023	Mar. 21, 2024
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Apr. 25, 2023	Apr. 24, 2024
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 28, 2022	Jul. 27, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	7439	Feb. 21, 2023	Feb. 20, 2024
RCPTWN	Thermometer	HTC-1	TM685-1	Jun. 27, 2022	Jun. 26, 2023
RCPTWN	Thermometer	HTC-1	TM560-2	Mar. 21, 2023	Mar. 20, 2024
R&S	BT Base Station	CBT	100815	Mar. 05, 2023	Mar. 04, 2024
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Oct. 12, 2022	Oct. 11, 2023
Keysight	ENA Network Analyzer	E5071C	MY46104758	Sep. 22, 2022	Sep. 21, 2023
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 28, 2022	Sep. 27, 2023
SPEAG	Dielectric Probe Kit	DAK-12	1156	Jul. 28, 2022	Jul. 27, 2023
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3796	Jan. 13, 2023	Jan. 12, 2024
Anritsu	Power Meter	ML2495A	1419002	Aug. 16, 2022	Aug. 15, 2023
Anritsu	Power Meter	ML2495A	1804003	Oct. 17, 2022	Oct. 16, 2023
Anritsu	Power Sensor	MA2411B	1911176	Aug. 16, 2022	Aug. 15, 2023
Anritsu	Power Sensor	MA2411B	1726150	Oct. 17, 2022	Oct. 16, 2023
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 21, 2022	Jul. 20, 2023
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Jan. 10, 2023	Jan. 09, 2024
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 14, 2022	Oct. 13, 2023
Mini-Circuits	Power Amplifier	ZVE-8G+	479102029	Sep. 15, 2022	Sep. 14, 2023
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General 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 source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.



10. System Verification

10.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18°C to 25°C, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.

The liquid tissue depth was at least 15cm in the phantom for all SAR testing.

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
13	22.5	0.757	53.700	0.75	55.00	0.93	-2.36	±5	2023/5/26
2450	22.5	1.807	40.036	1.80	39.20	0.39	2.13	±5	2023/5/9
5250	22.5	4.844	36.486	4.71	35.95	2.85	1.49	±5	2023/5/16
5250	22.5	4.804	36.086	4.71	35.95	2.00	0.38	±5	2023/5/17
5600	22.5	5.108	35.881	5.07	35.50	0.75	1.07	±5	2023/5/16
5600	22.5	5.065	35.481	5.07	35.50	-0.10	-0.05	±5	2023/5/17
5750	22.5	5.331	35.563	5.22	35.35	2.13	0.60	±5	2023/5/16
5750	22.5	5.287	35.163	5.22	35.35	1.28	-0.53	±5	2023/5/17
6500	22.5	6.000	34.400	6.07	34.50	-1.15	-0.29	±5	2023/5/14
6500	22.4	6.150	35.700	6.07	34.50	1.32	3.48	±5	2023/5/21
6500	22.5	6.080	33.900	6.07	34.50	0.16	-1.74	±5	2023/5/23

10.2 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.

Test Site	Date	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 (%)
SAR05	2023/5/26	250	CLA13-1011	EX3DV4 - SN7306	DAE4 Sn1311	0.153	0.555	0.612	9.29
SAR05	2023/5/9	250	D2450V2-929	EX3DV4 - SN3728	DAE4 Sn1512	11.800	52.400	47.2	-9.92
SAR05	2023/5/16	100	D5GHzV2-1128-5250	EX3DV4 - SN3728	DAE4 Sn1512	8.080	77.900	80.8	3.72
SAR05	2023/5/17	50	D5GHzV2-1128-5250	EX3DV4 - SN3728	DAE4 Sn1512	3.730	77.900	74.6	-4.24
SAR05	2023/5/16	100	D5GHzV2-1128-5600	EX3DV4 - SN3728	DAE4 Sn1512	8.390	80.100	83.9	4.74
SAR05	2023/5/17	100	D5GHzV2-1128-5600	EX3DV4 - SN3728	DAE4 Sn1512	8.010	80.100	80.1	0.00
SAR05	2023/5/16	100	D5GHzV2-1128-5750	EX3DV4 - SN3728	DAE4 Sn1512	7.760	79.300	77.6	-2.14
SAR05	2023/5/17	100	D5GHzV2-1128-5750	EX3DV4 - SN3728	DAE4 Sn1512	7.830	79.300	78.3	-1.26
SAR01	2023/5/14	100	D6.5GHzV2-1003	EX3DV4 - SN7439	DAE4 Sn854	30.000	297.000	300	1.01
SAR06	2023/5/21	100	D6.5GHzV2-1003	EX3DV4 - SN3925	DAE4 Sn853	29.900	297.000	299	0.67
SAR10	2023/5/23	100	D6.5GHzV2-1003	EX3DV4 - SN3642	DAE4 Sn1694	30.700	297.000	307	3.37

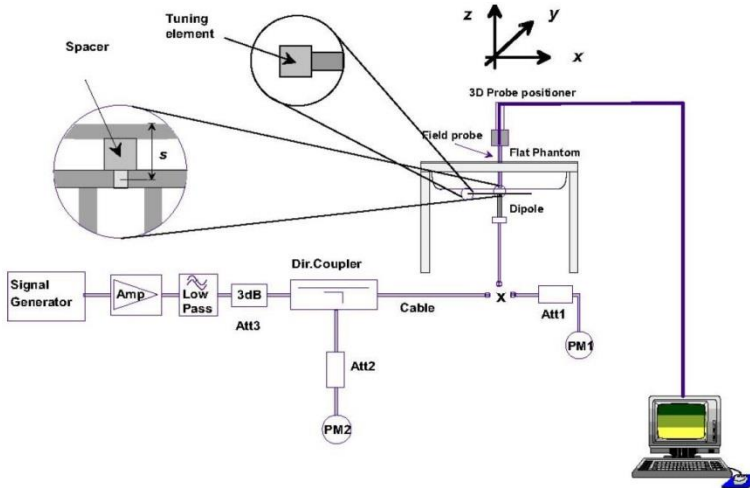


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

10.3 PD System Performance Check Results

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user’s manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG’s mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check. The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes

Test Location	Frequency (GHz)	5G Verification Source	Probe S/N	DAE S/N	Distance (mm)	Measured 4 cm ² (W/m ²)	Targeted 4 cm ² (W/m ²)	Deviation (dB)	Date
SAR06	10G	10GHz_1052	EUmmWV4-9441	DAE4-853	10mm	46.2	50.4	-0.38	2023/5/22
SAR01	10G	10GHz_1052	EUmmWV4-9441	DAE4-854	10mm	49.5	50.4	-0.08	2023/6/26

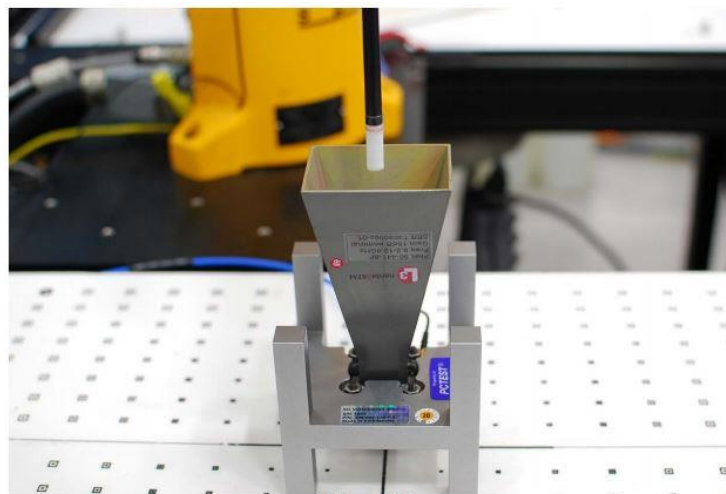


Figure 4-3
System Verification Setup Photo

System Performance Check Setup

11. RF Exposure Positions

11.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.



12. WiFi/Bluetooth Output Power (Unit: dBm)

General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is $< 1.6\text{W/kg}$ and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
3. 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.
4. 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.
5. 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).
6. 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.
7. 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 $\leq 0.4\text{ W/kg}$, 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 $> 0.4\text{ W/kg}$, 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 $\leq 0.8\text{ W/kg}$ or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is $> 0.8\text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.
8. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA), and the SU maximum power also higher than RU (OFDMA)
9. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
10. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
11. When SAR testing for 802.11ax is required
 - a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
 - b. Otherwise, consider the fully allocated channel for SAR testing
 - c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel



P-Sensor Off_Non-DBS / DBS

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8																					
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %																			
2.4GHz WLAN	802.11b 1Mbps	1	2412	22.70	23.00	97.91	22.30	23.00	97.91	22.90	23.00	22.40	23.00	25.67	26.00	97.91																			
		6	2437	20.40	21.00		20.00	21.00		20.80	21.00	20.10	21.00	23.47	24.00																				
		11	2462	20.30	21.00		20.20	21.00		20.60	21.00	20.20	21.00	23.41	24.00																				
	802.11g 6Mbps	1	2412	Not Required	19.50	Not Required	Not Required	19.50	Not Required	Not Required	19.50	Not Required	19.50	Not Required	19.50	Not Required	22.50																		
		6	2437		20.50			20.50			20.50		20.50		23.50																				
		11	2462		19.50			19.50			19.50		19.50		22.50																				
	802.11n-HT20 MCS0	1	2412		18.50			18.50			18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50										
		6	2437		20.50			20.50			20.50		20.50		20.50		20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.50										
		11	2462		18.50			18.50			18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50										
	802.11n-HT40 MCS0	3	2422		18.00			18.00			18.00		18.00		18.00		18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	21.00										
		6	2437		19.50			19.50			19.50		19.50		19.50		19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	22.50										
		9	2452		18.50			18.50			18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50										
	802.11ac-VHT20 MCS0	1	2412		Not Required			19.00			Not Required		Not Required		19.00		Not Required	Not Required	19.00	Not Required	19.00	Not Required	19.00	Not Required	19.00	Not Required	22.00								
		6	2437					20.50							20.50				20.50		20.50		20.50		20.50		20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.50	
		11	2462					18.50							18.50				18.50		18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50	
	802.11ac-VHT40 MCS0	3	2422					18.50							18.50				18.50		18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50
		6	2437					19.50							19.50				19.50		19.50		19.50		19.50		19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	22.50
		9	2452					18.50							18.50				18.50		18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50
	802.11ax-HE20 MCS0	1	2412					19.00							19.00				19.00		19.00		19.00		19.00		19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	22.00
		6	2437					20.50							20.50				20.50		20.50		20.50		20.50		20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.50
		11	2462					18.50							18.50				18.50		18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50
	802.11ax-HE40 MCS0	3	2422					18.50							18.50				18.50		18.50		18.50		18.50		18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	21.50
		6	2437					19.50							19.50				19.50		19.50		19.50		19.50		19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	22.50
		9	2452					19.00							19.00				19.00		19.00		19.00		19.00		19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	22.00



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
		40	5200		17.50			17.50			17.50		20.50			
		44	5220		17.50			17.50			17.50		20.50			
		48	5240		17.50			17.50			17.50		20.50			
	802.11n-HT20 MCS0	36	5180		17.50			17.50			17.50		20.50			
		40	5200		17.50			17.50			17.50		20.50			
		44	5220		17.50			17.50			17.50		20.50			
	802.11n-HT40 MCS0	38	5190		17.50			17.50			17.50		20.50			
		46	5230		17.50			17.50			17.50		20.50			
	802.11ac-VHT20 MCS0	36	5180		17.50			17.50			17.50		20.50			
		40	5200		17.50			17.50			17.50		20.50			
		44	5220		17.50			17.50			17.50		20.50			
	802.11ac-VHT40 MCS0	38	5190		17.50			17.50			17.50		20.50			
		46	5230		17.50			17.50			17.50		20.50			
	802.11ac-VHT80 MCS0	42	5210		17.50			17.50			17.50		20.50			
	802.11ax-HE20 MCS0	36	5180		17.50			17.50			17.50		20.50			
		40	5200		17.50			17.50			17.50		20.50			
		44	5220		17.50			17.50			17.50		20.50			
		48	5240		17.50			17.50			17.50		20.50			
	802.11ax-HE40 MCS0	38	5190		17.50			17.50			17.50		20.50			
		46	5230		17.50			17.50			17.50		20.50			
	802.11ax-HE80 MCS0	42	5210		17.50			17.50			17.50		20.50			



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8			
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %	
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.00	17.50	100.00	16.90	17.50	100.00	16.90	17.50	16.60	17.50	19.76	20.50	100.00	
		56	5280	17.10	17.50		16.80	17.50		17.10	17.50	16.50	17.50	19.82	20.50		
		60	5300	17.30	17.50		16.80	17.50		17.20	17.50	16.60	17.50	19.92	20.50		
		64	5320	16.80	17.50		17.10	17.50		16.70	17.50	16.90	17.50	19.81	20.50		
	802.11n-HT20 MCS0	52	5260	Not Required	16.50	Not Required	Not Required	16.50	Not Required	Not Required	16.50	Not Required	16.50	Not Required	16.50	Not Required	19.50
		56	5280		16.50			16.50			16.50		16.50		19.50		
		60	5300		16.50			16.50			16.50		16.50		19.50		
		64	5320		16.50			16.50			16.50		16.50		19.50		
	802.11n-HT40 MCS0	54	5270		17.00			17.00			20.00						
		62	5310		16.00			16.00			19.00						
	802.11ac-VHT20 MCS0	52	5260		16.50			16.50			19.50						
		56	5280		16.50			16.50			19.50						
		60	5300		16.50			16.50			19.50						
	802.11ac-VHT40 MCS0	54	5270		17.00			17.00			20.00						
		62	5310		16.00			16.00			19.00						
	802.11ac-VHT80 MCS0	58	5290		15.50			15.50			18.50						
	802.11ac-VHT160 MCS0	50	5250		14			14			17.00						
	802.11ax-HE20 MCS0	52	5260		16.50			16.50			19.50						
		56	5280		16.50			16.50			19.50						
		60	5300		16.50			16.50			19.50						
64		5320	16.50		16.50			19.50									
802.11ax-HE40 MCS0	54	5270	17.00		17.00			20.00									
	62	5310	16.00		16.00			19.00									
802.11ax-HE80 MCS0	58	5290	15.50		15.50			18.50									
802.11ax-HE160 MCS0	50	5250	14	14	17.00												



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8													
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %											
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required											
		116	5580		17.50			17.50			17.50		20.50														
		124	5620		17.50			17.50			17.50		20.50														
		132	5660		17.50			17.50			17.50		20.50														
		144	5720		17.50			17.50			17.50		20.50														
	802.11n-HT20 MCS0	100	5500		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50				
		116	5580		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50				
		124	5620		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50				
		132	5660		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50				
		144	5720		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50				
	802.11n-HT40 MCS0	102	5510		16.50			17.50			16.50		17.50		16.50		17.50	16.50	17.50	16.50	17.50	16.50	17.50	19.50			
		110	5550		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		126	5630		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		134	5670		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
	802.11ac-VHT20 MCS0	100	5500		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		116	5580		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		124	5620		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		132	5660		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
	802.11ac-VHT40 MCS0	102	5510		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		110	5550		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		126	5630		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		134	5670		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
	802.11ac-VHT80 MCS0	106	5530		15.70			16.00			100.00		15.90		16.00		100.00	15.40	16.00	15.60	16.00	18.51	19.00	100.00			
		122	5610		17.40			17.50					16.70		17.50			17.20	17.50	16.70	17.50	19.97	20.50				
		138	5690		17.30			17.50					16.60		17.50			17.30	17.50	17.10	17.50	20.21	20.50				
		114	5570		15.00			15.00					15.00		15.00			15.00	15.00	15.00	15.00	18.00					
	802.11ac-VHT160 MCS0	114	5570		15.00			15.00			15.00		15.00		15.00		15.00	15.00	15.00	15.00	15.00	18.00					
	802.11ax-HE20 MCS0	100	5500		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		116	5580		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		124	5620		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		132	5660		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
		144	5720		17.50			17.50			17.50		17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	17.50	20.50			
	802.11ax-HE40 MCS0	102	5510		16.50			17.50			Not Required		16.50		17.50		Not Required	16.50	17.50	Not Required	16.50	17.50	Not Required	19.50			
		110	5550		17.50			17.50					17.50		17.50			17.50	17.50		17.50	17.50		17.50	17.50	17.50	20.50
		126	5630		17.50			17.50					17.50		17.50			17.50	17.50		17.50	17.50		17.50	17.50	17.50	20.50
		134	5670		17.50			17.50					17.50		17.50			17.50	17.50		17.50	17.50		17.50	17.50	17.50	20.50
	802.11ax-HE80 MCS0	106	5530		16.00			16.00			Not Required		16.00		16.00		Not Required	16.00	16.00	Not Required	16.00	16.00	Not Required	19.00			
		122	5610		17.50			17.50					17.50		17.50			17.50	17.50		17.50	17.50		17.50	17.50	17.50	20.50
		138	5690		17.50			17.50					17.50		17.50			17.50	17.50		17.50	17.50		17.50	17.50	17.50	20.50
		114	5570		15.00			15.00					15.00		15.00			15.00	15.00		15.00	15.00		15.00	15.00	18.00	
	802.11ax-HE160 MCS0	114	5570		15.00			15.00			15.00		15.00		15.00		15.00	15.00	15.00	15.00	15.00	18.00					



FCC SAR TEST REPORT

Report No. : FA332310

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
		157	5785		17.50			17.50			17.50		20.50			
		165	5825		17.50			17.50			17.50		20.50			
	802.11n-HT20 MCS0	149	5745	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
		157	5785		17.50			17.50			17.50		20.50			
		165	5825		17.50			17.50			17.50		20.50			
	802.11n-HT40 MCS0	151	5755	16.20	17.50	100.00	16.90	17.50	100.00	16.40	17.50	17.10	17.50	19.77	20.50	100.00
		159	5795	15.80	17.50		16.80	17.50		16.40	17.50	17.10	17.50	19.77	20.50	
	802.11ac-VHT20 MCS0	149	5745	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
		157	5785		17.50			17.50			17.50		20.50			
		165	5825		17.50			17.50			17.50		20.50			
	802.11ac-VHT40 MCS0	151	5755	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
		159	5795		17.50			17.50			17.50		20.50			
	802.11ac-VHT80 MCS0	155	5775	16.10	17.50	100.00	17.10	17.50	100.00	16.30	17.50	17.30	17.50	19.84	20.50	100.00
	802.11ax-HE20 MCS0	149	5745	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required
157		5785	17.50		17.50			17.50			20.50					
165		5825	17.50		17.50			17.50			20.50					
802.11ax-HE40 MCS0	151	5755	Not Required	17.50	Not Required	Not Required	17.50	Not Required	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required	
	159	5795		17.50			17.50			17.50		20.50				
802.11ax-HE80 MCS0	155	5775	17.50	17.50	100.00	17.50	17.50	100.00	17.50	17.50	17.50	17.50	19.84	20.50	100.00	

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WiFi 6E	802.11a 6Mbps	1	5955	Not Required	14.50	Not Required	Not Required	14.50	Not Required	Not Required	14.50	Not Required	14.50	Not Required	17.50	Not Required
		57	6235		14.00			14.00			14.00		17.00			
		113	6515		4.00			4.00			4.00		7.00			
		173	6815		14.00			14.00			14.00		17.00			
		233	7115		3.50			3.50			3.50		6.50			
	802.11ax-HE20 MCS0	1	5955	Not Required	14.50	Not Required	Not Required	14.50	Not Required	Not Required	14.50	Not Required	14.50	Not Required	17.50	Not Required
		57	6235		14.00			14.00			14.00		17.00			
		113	6515		7.50			7.50			7.50		10.50			
		173	6815		14.00			14.00			14.00		17.00			
		233	7115		7.00			7.00			7.00		10.00			
	802.11ax-HE40 MCS0	3	5965	Not Required	14.50	Not Required	Not Required	14.50	Not Required	Not Required	14.50	Not Required	14.50	Not Required	17.50	Not Required
		59	6245		14.50			14.50			14.50		17.50			
		107	6485		10.00			10.00			10.00		13.00			
		171	6805		14.00			14.00			14.00		17.00			
		227	7085		10.50			10.50			10.50		13.50			
	802.11ax-HE80 MCS0	7	5985	Not Required	14.50	Not Required	Not Required	14.50	Not Required	Not Required	14.50	Not Required	14.50	Not Required	17.50	Not Required
		71	6305		14.50			14.50			14.50		17.50			
		119	6545		12.50			12.50			12.50		15.50			
		167	6785		14.00			14.00			14.00		17.00			
		215	7025		12.50			12.50			12.50		15.50			
	802.11ax-HE160 MCS0	15	6025	13.90	14.50	100.00	14.50	14.50	100.00	13.70	14.50	14.50	14.50	17.13	17.50	100.00
		47	6185	13.70	14.00		13.90	14.00		13.70	14.00	13.80	14.00	16.76	17.00	
		111	6505	15.40	16.00		16.00	16.00		15.30	16.00	16.00	16.00	18.67	19.00	
		143	6665	13.70	14.00		14.00	14.00		13.80	14.00	14.00	14.00	16.91	17.00	
		207	6985	14.30	15.00		14.80	15.00		14.40	15.00	14.40	15.00	17.41	18.00	



P-Sensor On_Non-DBS

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8															
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %													
2.4GHz WLAN	802.11b 1Mbps	1	2412	16.60	17.50	97.91	16.90	17.50	97.91	Not Required	17.50	Not Required	17.50	Not Required	20.50	Not Required													
		6	2437	17.10	17.50		16.90	17.50			17.50		20.50																
		11	2462	16.90	17.50		17.00	17.50			17.50		20.50																
	802.11g 6Mbps	1	2412	Not Required	17.50	Not Required	Not Required	17.50	Not Required		17.50		Not Required		17.50		Not Required	17.50	Not Required	20.50	Not Required								
		6	2437		17.50			17.50			17.50				20.50														
		11	2462		17.50			17.50			17.50				20.50														
	802.11n-HT20 MCS0	1	2412		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	20.50	20.50	
		11	2462		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	20.50	20.50	
	802.11n-HT40 MCS0	3	2422		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		9	2452		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
	802.11ac-VHT20 MCS0	1	2412		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		11	2462		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
	802.11ac-VHT40 MCS0	3	2422		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		9	2452		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
	802.11ax-HE20 MCS0	1	2412		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		11	2462		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
	802.11ax-HE40 MCS0	3	2422		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		6	2437		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50
		9	2452		17.50			17.50			17.50				17.50			17.50		17.50		17.50	17.50	17.50	17.50	17.50	17.50	20.50	20.50



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	12.00	Not Required	Not Required	12.00	Not Required	Not Required	12.00	Not Required	12.00	Not Required	15.00	Not Required
		40	5200		12.00			12.00			15.00					
		44	5220		12.00			12.00			15.00					
		48	5240		12.00			12.00			15.00					
	802.11n-HT20 MCS0	36	5180		12.00			12.00			15.00					
		40	5200		12.00			12.00			15.00					
		44	5220		12.00			12.00			15.00					
		48	5240		12.00			12.00			15.00					
	802.11n-HT40 MCS0	38	5190		12.00			12.00			15.00					
		46	5230		12.00			12.00			15.00					
	802.11ac-VHT20 MCS0	36	5180		12.00			12.00			15.00					
		40	5200		12.00			12.00			15.00					
		44	5220		12.00			12.00			15.00					
	802.11ac-VHT40 MCS0	38	5190		12.00			12.00			15.00					
		46	5230		12.00			12.00			15.00					
		48	5240		12.00			12.00			15.00					
	802.11ac-VHT80 MCS0	42	5210		12.00			12.00			15.00					
		44	5220		12.00			12.00			15.00					
	802.11ax-HE20 MCS0	36	5180		12.00			12.00			15.00					
		40	5200		12.00			12.00			15.00					
44		5220	12.00	12.00	15.00											
48		5240	12.00	12.00	15.00											
802.11ax-HE40 MCS0	38	5190	12.00	12.00	15.00											
	46	5230	12.00	12.00	15.00											
802.11ax-HE80 MCS0	42	5210	12.00	12.00	15.00											



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8										
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %								
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	12.00	Not Required	Not Required	12.00	Not Required	Not Required	12.00	Not Required	12.00	Not Required	15.00	Not Required								
		56	5280		12.00			12.00			15.00													
		60	5300		12.00			12.00			15.00													
		64	5320		12.00			12.00			15.00													
	802.11n-HT20 MCS0	52	5260		12.00			12.00			15.00													
		56	5280		12.00			12.00			15.00													
		60	5300		12.00			12.00			15.00													
	802.11n-HT40 MCS0	54	5270		12.00			12.00			15.00													
		62	5310		12.00			12.00			15.00													
	802.11ac-VHT20 MCS0	52	5260		12.00			12.00			15.00													
		56	5280		12.00			12.00			15.00													
		60	5300		12.00			12.00			15.00													
	802.11ac-VHT40 MCS0	54	5270		12.00			12.00			15.00													
		62	5310		12.00			12.00			15.00													
	802.11ac-VHT80 MCS0	58	5290		11.60			12.00			100.00		11.90		12.00		100.00	12.00	12.00	15.00				
	802.11ac-VHT160 MCS0	50	5250		11.90			12.00			99.30		12.00		12.00		99.30	12.00	12.00	15.00				
	802.11ax-HE20 MCS0	52	5260		Not Required			12.00			Not Required		Not Required		12.00		Not Required	Not Required	12.00	Not Required	12.00	Not Required	15.00	Not Required
		56	5280					12.00							12.00				15.00					
		60	5300					12.00							12.00				15.00					
		64	5320					12.00							12.00				15.00					
802.11ax-HE40 MCS0	54	5270	12.00	12.00		15.00																		
	62	5310	12.00	12.00		15.00																		
802.11ax-HE80 MCS0	58	5290	12.00	12.00		15.00																		
802.11ax-HE160 MCS0	50	5250	12.00	12.00		15.00																		



	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8						
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %				
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	11.00	Not Required	Not Required	11.00	Not Required	Not Required	11.00	Not Required	11.00	Not Required	14.00	Not Required				
		116	5580		11.00			11.00			11.00		14.00							
		124	5620		11.00			11.00			11.00		14.00							
		132	5660		11.00			11.00			11.00		14.00							
		144	5720		11.00			11.00			11.00		14.00							
	802.11n-HT20 MCS0	100	5500		11.00			11.00			11.00		14.00							
		116	5580		11.00			11.00			11.00		14.00							
		124	5620		11.00			11.00			11.00		14.00							
		132	5660		11.00			11.00			11.00		14.00							
		144	5720		11.00			11.00			11.00		14.00							
	802.11n-HT40 MCS0	102	5510		11.00			11.00			11.00		14.00							
		110	5550		11.00			11.00			11.00		14.00							
		126	5630		11.00			11.00			11.00		14.00							
		134	5670		11.00			11.00			11.00		14.00							
		142	5710		11.00			11.00			11.00		14.00							
	802.11ac-VHT20 MCS0	100	5500		11.00			11.00			11.00		14.00							
		116	5580		11.00			11.00			11.00		14.00							
		124	5620		11.00			11.00			11.00		14.00							
		132	5660		11.00			11.00			11.00		14.00							
		144	5720		11.00			11.00			11.00		14.00							
	802.11ac-VHT40 MCS0	102	5510		11.00			11.00			11.00		14.00							
		110	5550		11.00			11.00			11.00		14.00							
		126	5630		11.00			11.00			11.00		14.00							
		134	5670		11.00			11.00			11.00		14.00							
		142	5710		11.00			11.00			11.00		14.00							
	802.11ac-VHT80 MCS0	106	5530		10.70			11.00			100.00		9.50		11.00		100.00	11.00	11.00	14.00
		122	5610		10.70			11.00			100.00		9.80		11.00		100.00	11.00	11.00	14.00
		138	5690		10.60			11.00			100.00		9.70		11.00		100.00	11.00	11.00	14.00
	802.11ac-VHT160 MCS0	114	5570		10.80			11.00			99.30		9.90		11.00		99.30	11.00	11.00	14.00
	802.11ax-HE20 MCS0	100	5500		11.00			11.00			11.00		14.00							
		116	5580		11.00			11.00			11.00		14.00							
		124	5620		11.00			11.00			11.00		14.00							
		132	5660		11.00			11.00			11.00		14.00							
		144	5720		11.00			11.00			11.00		14.00							
	802.11ax-HE40 MCS0	102	5510		11.00			11.00			11.00		14.00							
		110	5550		11.00			11.00			11.00		14.00							
		126	5630		11.00			11.00			11.00		14.00							
		134	5670		11.00			11.00			11.00		14.00							
		142	5710		11.00			11.00			11.00		14.00							
	802.11ax-HE80 MCS0	106	5530		11.00			11.00			11.00		14.00							
		122	5610		11.00			11.00			11.00		14.00							
		138	5690		11.00			11.00			11.00		14.00							
	802.11ax-HE160 MCS0	114	5570		11.00			11.00			11.00		14.00							



FCC SAR TEST REPORT

Report No. : FA332310

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		157	5785		10.00			10.00			13.00					
		165	5825		10.00			10.00			13.00					
	802.11n-HT20 MCS0	149	5745	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		157	5785		10.00			10.00			13.00					
		165	5825		10.00			10.00			13.00					
	802.11n-HT40 MCS0	151	5755	8.90	10.00	100.00	9.70	10.00	100.00	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		159	5795		9.00			10.00			9.80		10.00		10.00	
	802.11ac-VHT20 MCS0	149	5745	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		157	5785		10.00			10.00			13.00					
		165	5825		10.00			10.00			13.00					
	802.11ac-VHT40 MCS0	151	5755	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
		159	5795		10.00			10.00			13.00					
	802.11ac-VHT80 MCS0	155	5775	9.30	10.00	100.00	9.90	10.00	100.00	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
	802.11ax-HE20 MCS0	149	5745	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required
157		5785	10.00		10.00			13.00								
165		5825	10.00		10.00			13.00								
802.11ax-HE40 MCS0	151	5755	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required	
	159	5795		10.00			10.00			13.00						
802.11ax-HE80 MCS0	155	5775	Not Required	10.00	Not Required	Not Required	10.00	Not Required	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required	

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WiFi 6E	802.11a 6Mbps	1	5955	Not Required	9.50	Not Required	Not Required	9.50	Not Required	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		57	6235		9.00			9.00			12.00					
		113	6515		4.00			4.00			16.00					
		173	6815		10.00			10.00			14.00					
		233	7115		3.50			3.50			16.50					
	802.11ax-HE20 MCS0	1	5955	Not Required	9.50	Not Required	Not Required	9.50	Not Required	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		57	6235		9.00			9.00			12.00					
		113	6515		7.50			7.50			16.00					
		173	6815		10.00			10.00			14.00					
		233	7115		7.00			7.00			16.50					
	802.11ax-HE40 MCS0	3	5965	Not Required	9.50	Not Required	Not Required	9.50	Not Required	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		59	6245		9.00			9.00			12.00					
		107	6485		10.00			10.00			16.00					
		171	6805		10.00			10.00			14.00					
		227	7085		10.50			10.50			16.50					
	802.11ax-HE80 MCS0	7	5985	Not Required	9.50	Not Required	Not Required	9.50	Not Required	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		71	6305		9.00			9.00			12.00					
		119	6545		11.00			11.00			16.00					
		167	6785		10.00			10.00			14.00					
		215	7025		12.50			12.50			16.50					
	802.11ax-HE160 MCS0	15	6025	9.20	9.50	99.31	9.20	9.50	99.31	Not Required	9.50	Not Required	9.50	Not Required	12.50	Not Required
		47	6185	8.70	9.00		8.70	9.00			9.00		12.00			
		111	6505	10.40	11.00		10.90	11.00			13.00		13.00		16.00	
		143	6665	9.40	10.00		9.90	10.00			11.00		11.00		14.00	
207		6985	12.80	13.50	13.40		13.50	13.50			13.50		16.50			



P-Sensor On_DB5

	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8			Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8			
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %	
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.20	16.00	97.91	14.90	16.00	97.91	15.20	16.00	14.90	16.00	18.06	19.00	97.91	
		6	2437	15.80	16.00		14.90	16.00		15.80	16.00	14.90	16.00	18.38	19.00		
		11	2462	15.50	16.00		15.30	16.00		15.50	16.00	15.30	16.00	18.41	19.00		
	802.11g 6Mbps	1	2412	Not Required	16.00	Not Required	Not Required	16.00	Not Required	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00
		6	2437		16.00			16.00			16.00		19.00				
		11	2462		16.00			16.00			16.00		19.00				
	802.11n-HT20 MCS0	1	2412		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		11	2462		16.00			16.00			16.00		19.00				
	802.11n-HT40 MCS0	3	2422		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		9	2452		16.00			16.00			16.00		19.00				
	802.11ac-VHT20 MCS0	1	2412		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		11	2462		16.00			16.00			16.00		19.00				
	802.11ac-VHT40 MCS0	3	2422		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		9	2452		16.00			16.00			16.00		19.00				
	802.11ax-HE20 MCS0	1	2412		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		11	2462		16.00			16.00			16.00		19.00				
	802.11ax-HE40 MCS0	3	2422		16.00			16.00			16.00		19.00				
		6	2437		16.00			16.00			16.00		19.00				
		9	2452		16.00			16.00			16.00		19.00				



	Mode	Channel	Frequency (MHz)	Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	10.50	Not Required	10.50	Not Required	13.50	Not Required
		40	5200		10.50		13.50			
		44	5220		10.50		13.50			
		48	5240		10.50		13.50			
	802.11n-HT20 MCS0	36	5180		10.50		13.50			
		40	5200		10.50		13.50			
		44	5220		10.50		13.50			
		48	5240		10.50		13.50			
	802.11n-HT40 MCS0	38	5190		10.50		13.50			
		46	5230		10.50		13.50			
	802.11ac-VHT20 MCS0	36	5180		10.50		13.50			
		40	5200		10.50		13.50			
		44	5220		10.50		13.50			
	802.11ac-VHT40 MCS0	38	5190		10.50		13.50			
		46	5230		10.50		13.50			
	802.11ac-VHT80 MCS0	42	5210		10.50		13.50			
	802.11ax-HE20 MCS0	36	5180		10.50		13.50			
		40	5200		10.50		13.50			
		44	5220		10.50		13.50			
		48	5240		10.50		13.50			
802.11ax-HE40 MCS0	38	5190	10.50	13.50						
	46	5230	10.50	13.50						
802.11ax-HE80 MCS0	42	5210	10.50	13.50						



	Mode	Channel	Frequency (MHz)	Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8						
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %				
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	10.50	Not Required	10.50	Not Required	13.50	Not Required				
		56	5280		10.50		10.50		13.50					
		60	5300		10.50		10.50		13.50					
		64	5320		10.50		10.50		13.50					
	802.11n-HT20 MCS0	52	5260		10.50		10.50		13.50					
		56	5280		10.50		10.50		13.50					
		60	5300		10.50		10.50		13.50					
		64	5320		10.50		10.50		13.50					
	802.11n-HT40 MCS0	54	5270		10.50		10.50		13.50					
		62	5310		10.50		10.50		13.50					
	802.11ac-VHT20 MCS0	52	5260		10.50		10.50		13.50					
		56	5280		10.50		10.50		13.50					
		60	5300		10.50		10.50		13.50					
		64	5320		10.50		10.50		13.50					
	802.11ac-VHT40 MCS0	54	5270		10.50		10.50		13.50					
		62	5310		10.50		10.50		13.50					
	802.11ac-VHT80 MCS0	58	5290		10.50		10.50		13.50					
	802.11ac-VHT160 MCS0	50	5250		9.70		10.50		9.80		12.76	13.50	99.30	
	802.11ax-HE20 MCS0	52	5260		Not Required		10.50		Not Required		10.50	Not Required	13.50	Not Required
		56	5280				10.50				10.50		13.50	
60		5300	10.50	10.50		13.50								
64		5320	10.50	10.50		13.50								
802.11ax-HE40 MCS0	54	5270	10.50	10.50		13.50								
	62	5310	10.50	10.50		13.50								
802.11ax-HE80 MCS0	58	5290	10.50	10.50		13.50								
802.11ax-HE160 MCS0	50	5250	10.50	10.50		13.50								



	Mode	Channel	Frequency (MHz)	Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8						
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %				
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	10.00	Not Required	10.00	Not Required	13.00	Not Required				
		116	5580		10.00		13.00							
		124	5620		10.00		13.00							
		132	5660		10.00		13.00							
		144	5720		10.00		13.00							
	802.11n-HT20 MCS0	100	5500		10.00		10.00		13.00					
		116	5580		10.00		10.00		13.00					
		124	5620		10.00		10.00		13.00					
		132	5660		10.00		10.00		13.00					
		144	5720		10.00		10.00		13.00					
	802.11n-HT40 MCS0	102	5510		10.00		10.00		13.00					
		110	5550		10.00		10.00		13.00					
		126	5630		10.00		10.00		13.00					
		134	5670		10.00		10.00		13.00					
	802.11ac-VHT20 MCS0	100	5500		10.00		10.00		13.00					
		116	5580		10.00		10.00		13.00					
		124	5620		10.00		10.00		13.00					
		132	5660		10.00		10.00		13.00					
	802.11ac-VHT40 MCS0	102	5510		10.00		10.00		13.00					
		110	5550		10.00		10.00		13.00					
		126	5630		10.00		10.00		13.00					
		134	5670		10.00		10.00		13.00					
	802.11ac-VHT80 MCS0	106	5530		10.00		10.00		13.00					
		122	5610		10.00		10.00		13.00					
		138	5690		10.00		10.00		13.00					
	802.11ac-VHT160 MCS0	114	5570		9.60		10.00		8.90		10.00	12.27	13.00	99.30
	802.11ax-HE20 MCS0	100	5500		10.00		10.00		10.00		13.00			
		116	5580		10.00		10.00		10.00		13.00			
		124	5620		10.00		10.00		10.00		13.00			
		132	5660		10.00		10.00		10.00		13.00			
		144	5720		10.00		10.00		10.00		13.00			
	802.11ax-HE40 MCS0	102	5510		10.00		10.00		10.00		13.00			
110		5550	10.00	10.00	10.00	13.00								
126		5630	10.00	10.00	10.00	13.00								
134		5670	10.00	10.00	10.00	13.00								
802.11ax-HE80 MCS0	106	5530	10.00	10.00	10.00	13.00								
	122	5610	10.00	10.00	10.00	13.00								
	138	5690	10.00	10.00	10.00	13.00								
802.11ax-HE160 MCS0	114	5570	10.00	10.00	10.00	13.00								



	Mode	Channel	Frequency (MHz)	Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8						
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %				
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	9.00	Not Required	9.00	Not Required	12.00	Not Required				
		157	5785		9.00		12.00							
		165	5825		9.00		12.00							
	802.11n-HT20 MCS0	149	5745		9.00		12.00							
		157	5785		9.00		12.00							
		165	5825		9.00		12.00							
	802.11n-HT40 MCS0	151	5755		9.00		12.00							
		159	5795		9.00		12.00							
	802.11ac-VHT20 MCS0	149	5745		9.00		12.00							
		157	5785		9.00		12.00							
	802.11ac-VHT40 MCS0	151	5755		9.00		12.00							
		159	5795		9.00		12.00							
	802.11ac-VHT80 MCS0	155	5775		7.90		9.00		8.90		9.00	11.44	12.00	100.00
	802.11ax-HE20 MCS0	149	5745		Not Required		9.00		Not Required		9.00	Not Required	12.00	Not Required
		157	5785				9.00				12.00			
		165	5825				9.00				12.00			
802.11ax-HE40 MCS0	151	5755	9.00	12.00										
	159	5795	9.00	12.00										
802.11ax-HE80 MCS0	155	5775	9.00	12.00										

	Mode	Channel	Frequency (MHz)	Ant 7+8 (7)		Ant 7+8 (8)		Ant 7+8		
				Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WiFi 6E	802.11a 6Mbps	1	5955	Not Required	8.00	Not Required	8.00	Not Required	11.00	Not Required
		57	6235		8.00		11.00			
		113	6515		4.00		7.00			
		173	6815		7.50		10.50			
		233	7115		3.50		6.50			
	802.11ax-HE20 MCS0	1	5955		8.00		11.00			
		57	6235		8.00		11.00			
		113	6515		7.50		10.50			
		173	6815		7.50		10.50			
	802.11ax-HE40 MCS0	233	7115		7.00		10.00			
		3	5965		8.00		11.00			
		59	6245		8.00		11.00			
		107	6485		10.00		13.00			
	802.11ax-HE80 MCS0	171	6805		7.50		10.50			
		227	7085		10.00		13.00			
		7	5985		8.00		11.00			
		71	6305		8.00		11.00			
	802.11ax-HE160 MCS0	119	6545		10.00		13.00			
		167	6785		7.50		10.50			
		215	7025		10.00		13.00			
15		6025	7.50	10.00						
802.11ax-HE160 MCS0	47	6185	7.40	10.00						
	111	6505	9.50	10.00						
	143	6665	6.80	7.50						
	207	6985	9.90	10.00						

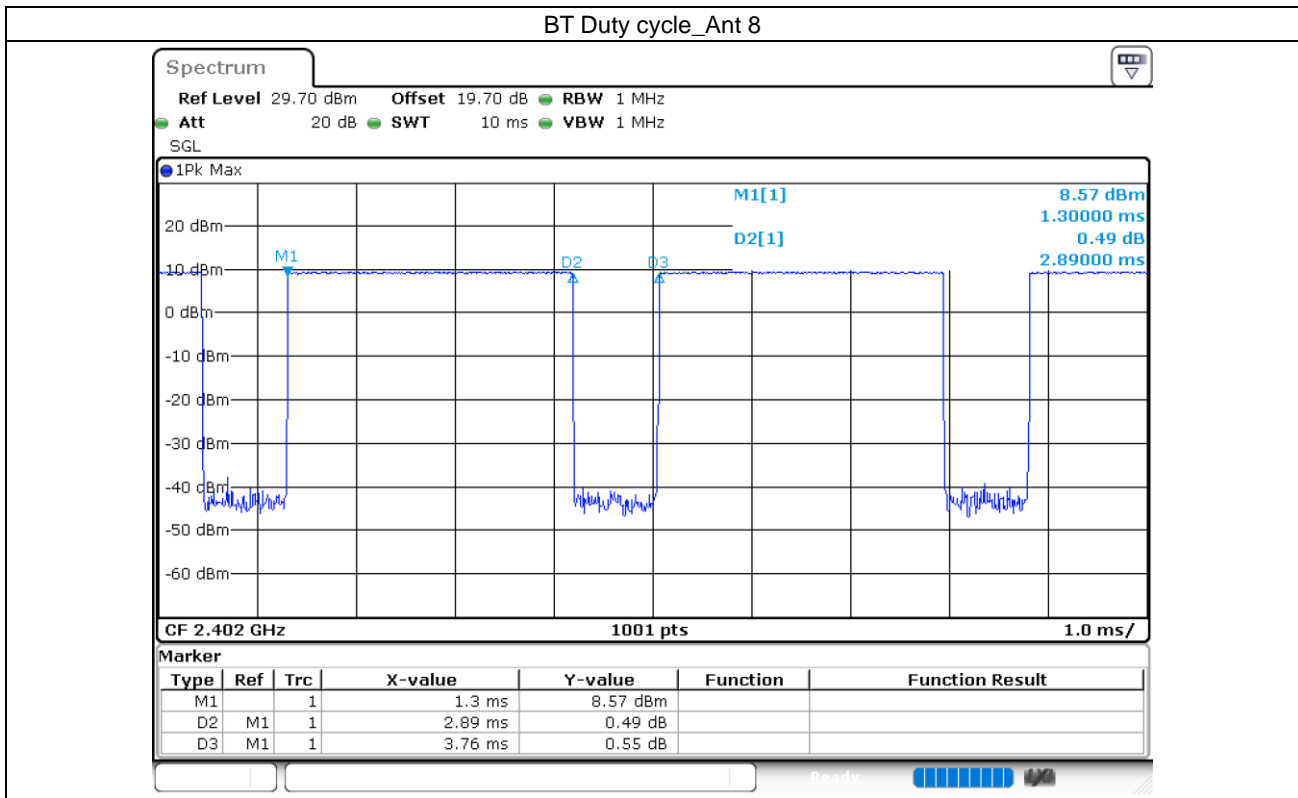
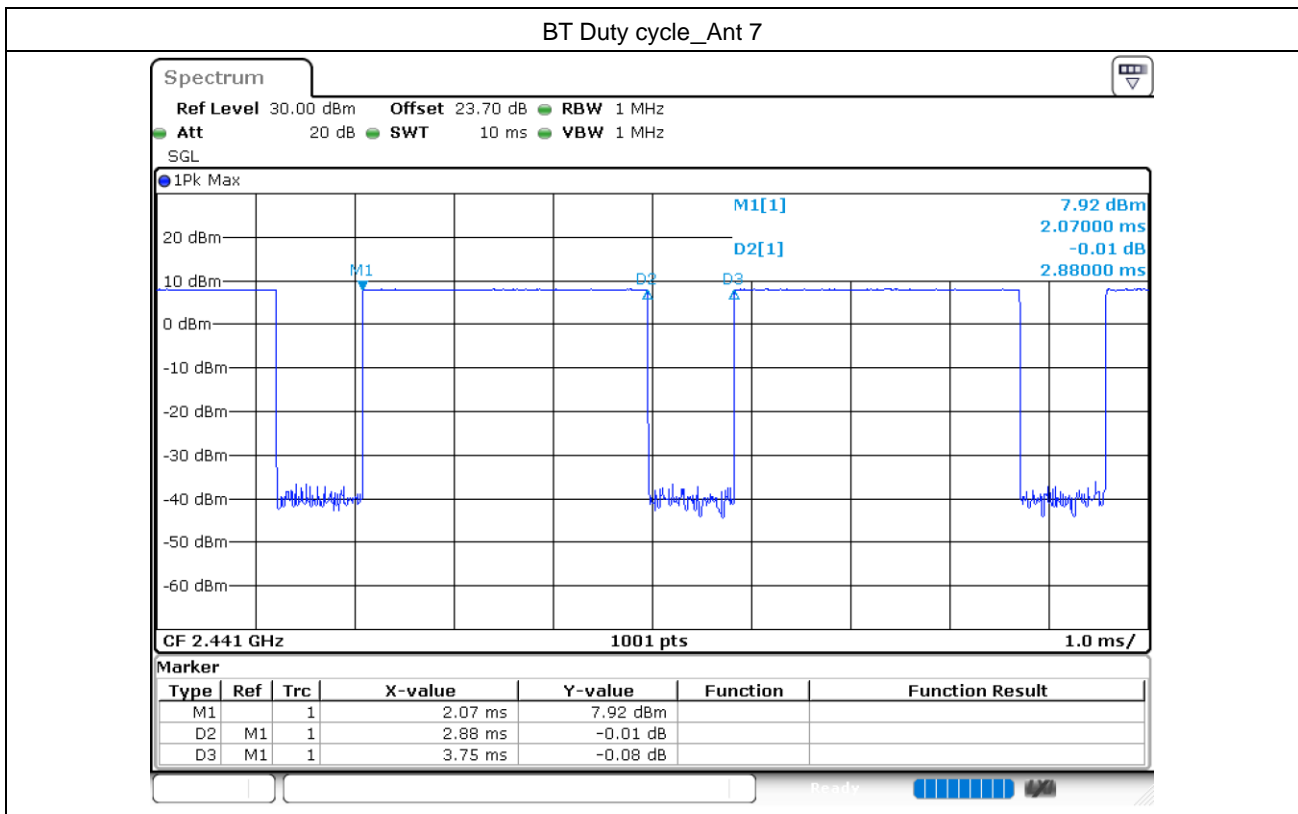


<2.4GHz Bluetooth>

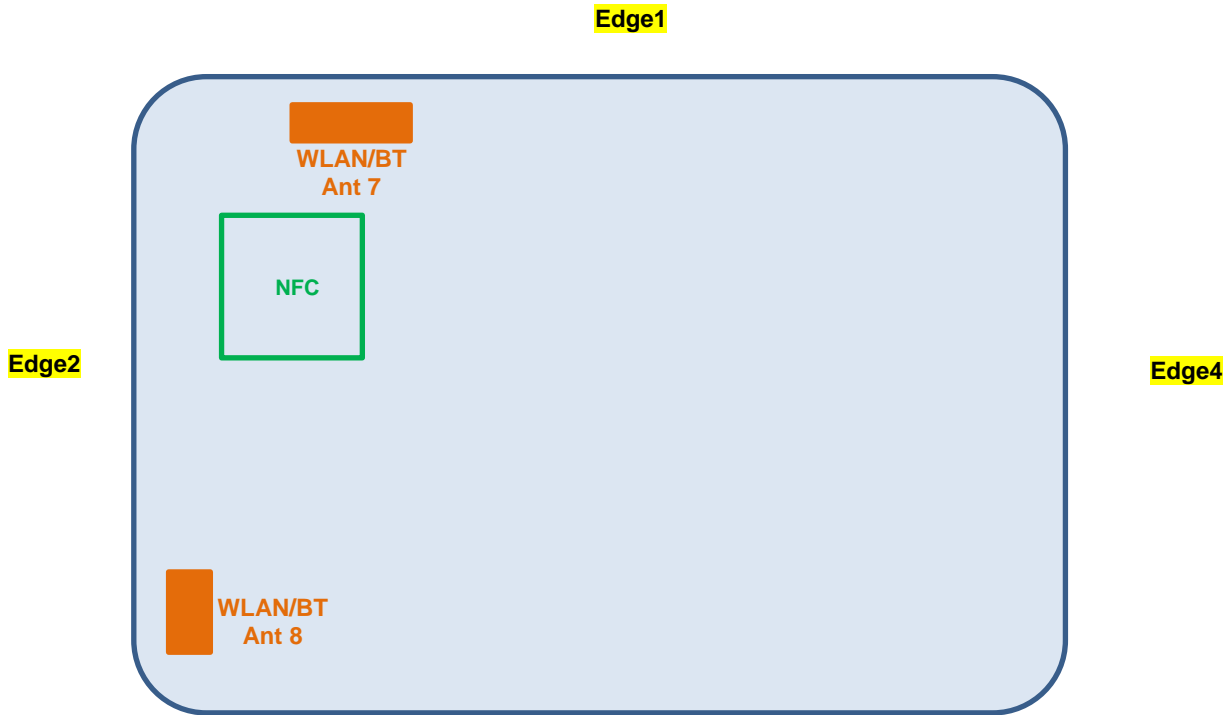
	Mode	Channel	Frequency (MHz)	Ant 7			Ant 8		
				Average power (dBm)	Tune-Up Limit	Duty Cycle %	Average power (dBm)	Tune-Up Limit	Duty Cycle %
Bluetooth	BR / EDR 2.0 1Mbps	0	2402	5.99	6.00	76.80	4.65	5.00	76.86
		39	2441	5.82	6.00		4.52	5.00	
		78	2480	5.14	6.00		4.78	5.00	
	BR / EDR 2.0 2Mbps	0	2402	4.31	5.00	76.80	5.54	6.00	77.07
		39	2441	4.19	5.00		5.39	6.00	
		78	2480	3.60	5.00		5.76	6.00	
	BR / EDR 2.0 3Mbps	0	2402	4.23	5.00	77.07	5.57	6.00	76.86
		39	2441	4.13	5.00		5.40	6.00	
		78	2480	3.47	5.00		5.73	6.00	
	LE 4.0 GFSK	0	2402	4.10	5.00	62.50	3.60	4.00	62.40
		19	2440	4.40	5.00		3.30	4.00	
		39	2480	2.80	5.00		3.70	4.00	
	LE 5.0 2Mbps	0	2402	4.10	5.00	33.10	3.50	4.00	62.40
		19	2440	4.30	5.00		3.30	4.00	
		39	2480	2.80	5.00		3.70	4.00	

General Note:

1. For 2.4GHz Ant 7 Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.8% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.
2. For 2.4GHz Ant 8 Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.86% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.



13. Antenna Location



Edge3

Back View

The separation distance for antenna to edge :

Antenna	To Edge1 (mm)	To Edge2 (mm)	To Edge3 (mm)	To Edge4 (mm)
WLAN/BT Antenna 7	5	33	176.7	190
WLAN/BT Antenna 8	143.3	5	25	250
WLAN/BT Antenna 7+8	5	5	25	190
NFC	< 25 mm	< 25 mm	> 25mm	> 25mm



<SAR test exclusion table> Tablet

General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
 - $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	2.4GHz/BT WLAN ANT 7	2.4GHz /BT WLAN ANT 8	2.4GHz WLAN ANT 7+8	5/6GHz WLAN ANT 7	5/6GHz WLAN ANT 8	5/6GHz WLAN ANT 7+8
	Calculated Frequency (MHz)	2462	2462	2462	5955	5955	5955
Maximum power (dBm)	23.0	23.0	26.0	17.5	17.5	20.5	
Maximum rated power(mW)	199.53	199.53	398.11	56.23	56.23	112.20	
Bottom Face	Separation distance(mm)	5.0	5.0	5.0	5.0	5.0	5.0
	exclusion threshold	62.6	62.6	124.9	27.4	27.4	54.8
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	5.0	143.3	5.0	5.0	143.3	5.0
	exclusion threshold	62.6	1029.0	124.9	27.4	994.0	54.8
	Testing required?	Yes	No	Yes	Yes	No	Yes
Edge 2	Separation distance(mm)	33.0	5.0	5.0	33.0	5.0	5.0
	exclusion threshold	9.5	62.6	124.9	4.2	27.4	54.8
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Edge 3	Separation distance(mm)	176.7	25.0	25.0	176.7	25.0	25.0
	exclusion threshold	1363.0	12.5	25.0	1328.0	5.5	11.0
	Testing required?	No	Yes	Yes	No	Yes	Yes
Edge 4	Separation distance(mm)	190.0	250.0	190.0	190.0	250.0	190.0
	exclusion threshold	1496.0	2096.0	1496.0	1461.0	2061.0	1461.0
	Testing required?	No	No	No	No	No	No



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 WLAN/Bluetooth: 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:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 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
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.

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 ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, WLAN5.2GHz SAR testing is not required when the WLAN5.3GHz band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for WLAN5.2GHz band.
3. 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 ≤ 0.8 W/kg or all required test position are tested.
4. 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 ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6 W/kg and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

**WLAN PD Note:**

1. The WiFi 6E PD was performed according 2020 TCB workshop RF Exposure 5G RFX Policies Interim Procedures.
2. First, evaluate SAR using 6-7 GHz parameters per IEC/IEEE 62209-1528:2020 and using highest SAR test configurations evaluate incident PD using the mmw near-field probe and total-field/power-density reconstruction method (2 mm closest meas. plane).
3. Per Interim Procedures. The power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty > 30%. Total expanded uncertainty of 2.68 dB (85.4%) was used to determine the psPD measurement scaling factor
4. The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.
6. Power density was calculated by repeated E-field measurements on two measurement planes separated by $\lambda/4$.
7. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools.
8. The measurement procedure consists of measuring the PD_{inc} at two different distances: 2 mm (compliance distance) and $\lambda/5$. The grid extents should be large enough to fully capture the transmitted energy. The grid step should be fine enough to demonstrate that the integrated Power Density iPD_n fulfill the criterion described below. Since iPD ratio between the two distances is ≥ -1 dB, the grid step (0.0625) was sufficient for determining compliance at d=2mm.

$$10 \cdot \log_{10} \frac{iPD_n(2mm)}{iPD_n(\lambda/5)} \geq -1$$

NFC Note:

1. NFC 13.56MHz antenna port is not available on the device to support conducted power measurement, therefore the measured results are referred to as reported SAR.
2. NFC SAR test tissue-simulating liquid parameter: refer to IEC/IEEE 62209-1528 2020.
3. NFC SAR testing is by test software with 100% duty cycle.



14.1 Body SAR

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Non-DBS / DBS	Power Reduction	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)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	14mm	Ant 7	Non-DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.01	0.456	0.499
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	11mm	Ant 7	Non-DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.16	0.224	0.245
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	Ant 7	Non-DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.03	0.096	0.105
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	Non-DBS	ON	6	2437	17.10	17.50	1.096	97.91	1.021	0.07	0.890	0.996
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	Non-DBS	ON	1	2412	16.60	17.50	1.230	97.91	1.021	0.08	0.854	1.073
01	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	Non-DBS	ON	11	2462	16.90	17.50	1.148	97.91	1.021	-0.07	0.996	1.168
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	Ant 7	Non-DBS	ON	1	2412	16.60	17.50	1.230	97.91	1.021	0.17	0.241	0.303
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	14mm	Ant 8	Non-DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	-0.09	0.096	0.115
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	0	0.325	0.390
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	11	2462	20.20	20.50	1.072	97.91	1.021	0.07	0.189	0.207
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	6	2437	20.00	20.50	1.122	97.91	1.021	-0.04	0.167	0.191
	WLAN2.4GHz	802.11b 1Mbps	Edge 3	0mm	Ant 8	Non-DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	0.04	0.319	0.383
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 8	Non-DBS	ON	1	2412	16.90	17.50	1.148	97.91	1.021	0.02	0.322	0.377
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	Ant 8	Non-DBS	ON	1	2412	16.90	17.50	1.148	97.91	1.021	0.12	0.146	0.171
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	14mm	Ant 7	DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.01	0.456	0.499
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	11mm	Ant 7	DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.16	0.224	0.245
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	Ant 7	DBS	OFF	1	2412	22.70	23.00	1.072	97.91	1.021	0.03	0.096	0.105
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	DBS	ON	6	2437	15.80	16.00	1.047	97.91	1.021	0.05	0.662	0.708
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	DBS	ON	1	2412	15.20	16.00	1.202	97.91	1.021	0.03	0.569	0.698
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	DBS	ON	11	2462	15.50	16.00	1.122	97.91	1.021	0.01	0.564	0.646
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	Ant 7	DBS	ON	6	2437	15.80	16.00	1.047	97.91	1.021	-0.15	0.172	0.184
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	14mm	Ant 8	DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	-0.09	0.096	0.115
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	0	0.325	0.390
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	DBS	OFF	11	2462	20.20	20.50	1.072	97.91	1.021	0.07	0.189	0.207
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 8	DBS	OFF	6	2437	20.00	20.50	1.122	97.91	1.021	-0.04	0.167	0.191
	WLAN2.4GHz	802.11b 1Mbps	Edge 3	0mm	Ant 8	DBS	OFF	1	2412	22.30	23.00	1.175	97.91	1.021	-0.11	0.096	0.115
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 8	DBS	ON	11	2462	15.30	16.00	1.175	97.91	1.021	-0.12	0.240	0.288
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 8	DBS	ON	1	2412	14.90	16.00	1.288	97.91	1.021	-0.09	0.113	0.149
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 8	DBS	ON	6	2437	14.90	16.00	1.288	97.91	1.021	0.03	0.126	0.166
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	Ant 8	DBS	ON	11	2462	15.30	16.00	1.175	97.91	1.021	-0.11	0.143	0.172
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	14mm	Ant 7+8(8)	DBS	OFF	1	2412	22.40	23.00	1.148	97.91	1.021	0.09	0.305	0.358
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	11mm	Ant 7+8(8)	DBS	OFF	1	2412	22.40	23.00	1.148	97.91	1.021	-0.14	0.261	0.306
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	1	2412	22.40	23.00	1.148	97.91	1.021	-0.09	0.322	0.377
	WLAN2.4GHz	802.11b 1Mbps	Edge 3	0mm	Ant 7+8(8)	DBS	OFF	1	2412	22.40	23.00	1.148	97.91	1.021	0.02	0.277	0.325
	WLAN2.4GHz	802.11b 1Mbps	Edge 4	0mm	Ant 7+8(8)	DBS	OFF	1	2412	22.40	23.00	1.148	97.91	1.021	0.01	0.007	0.008
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7+8(8)	DBS	ON	11	2462	15.30	16.00	1.175	97.91	1.021	-0.03	0.617	0.740
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7+8(8)	DBS	ON	1	2412	14.90	16.00	1.288	97.91	1.021	-0.09	0.516	0.679
	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7+8(8)	DBS	ON	6	2437	14.90	16.00	1.288	97.91	1.021	0.04	0.554	0.729
	WLAN2.4GHz	802.11b 1Mbps	Edge 1	0mm	Ant 7+8(8)	DBS	ON	11	2462	15.30	16.00	1.175	97.91	1.021	0.08	0.119	0.143
	WLAN2.4GHz	802.11b 1Mbps	Edge 2	0mm	Ant 7+8(8)	DBS	ON	11	2462	15.30	16.00	1.175	97.91	1.021	0.02	0.111	0.133



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Non-DBS / DBS	Power Reduction	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)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Bottom Face	14mm	Ant 7	Non-DBS	OFF	60	5300	17.30	17.50	1.047	100	1.000	-0.17	0.310	0.325
	WLAN5GHz	802.11a 6Mbps	Edge 1	11mm	Ant 7	Non-DBS	OFF	60	5300	17.30	17.50	1.047	100	1.000	0.12	0.131	0.137
	WLAN5GHz	802.11a 6Mbps	Edge 2	0mm	Ant 7	Non-DBS	OFF	60	5300	17.30	17.50	1.047	100	1.000	0.11	0.039	0.041
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	50	5250	11.90	12.00	1.023	99.3	1.007	-0.02	0.737	0.759
	WLAN5GHz	802.11ac-VHT160 MCS0	Edge 1	0mm	Ant 7	Non-DBS	ON	50	5250	11.90	12.00	1.023	99.3	1.007	0.08	0.220	0.227
	WLAN5GHz	802.11a 6Mbps	Bottom Face	14mm	Ant 8	Non-DBS	OFF	64	5320	17.10	17.50	1.096	100	1.000	0.03	0.320	0.351
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	64	5320	17.10	17.50	1.096	100	1.000	-0.01	1.030	1.129
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	52	5260	16.90	17.50	1.148	100	1.000	0.09	1.010	1.160
02	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	56	5280	16.80	17.50	1.175	100	1.000	-0.05	1.020	1.198
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 8	Non-DBS	OFF	60	5300	16.80	17.50	1.175	100	1.000	-0.01	0.984	1.156
	WLAN5GHz	802.11a 6Mbps	Edge 3	0mm	Ant 8	Non-DBS	OFF	64	5320	17.10	17.50	1.096	100	1.000	0.01	0.233	0.255
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	50	5250	12.00	12.00	1.000	99.3	1.007	-0.14	1.080	1.088
	WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	58	5290	11.90	12.00	1.023	100	1.000	0.02	1.010	1.034
	WLAN5GHz	802.11ac-VHT160 MCS0	Edge 2	0mm	Ant 8	Non-DBS	ON	50	5250	12.00	12.00	1.000	99.3	1.007	0.08	0.560	0.564
	WLAN5GHz	802.11a 6Mbps	Bottom Face	14mm	Ant 7+8(8)	DBS	OFF	60	5300	16.60	17.50	1.230	100	1.000	0.07	0.306	0.376
	WLAN5GHz	802.11a 6Mbps	Edge 1	11mm	Ant 7+8(8)	DBS	OFF	60	5300	16.60	17.50	1.230	100	1.000	0.03	0.130	0.160
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	60	5300	16.60	17.50	1.230	100	1.000	-0.01	0.760	0.935
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	52	5260	16.60	17.50	1.230	100	1.000	0.02	0.840	1.033
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	56	5280	16.50	17.50	1.259	100	1.000	-0.14	0.814	1.025
	WLAN5GHz	802.11a 6Mbps	Edge 2	3mm	Ant 7+8(7)	DBS	OFF	64	5320	16.70	17.50	1.202	100	1.000	0.06	0.656	0.789
	WLAN5GHz	802.11a 6Mbps	Edge 3	0mm	Ant 7+8(8)	DBS	OFF	60	5300	16.60	17.50	1.230	100	1.000	0.18	0.177	0.218
	WLAN5GHz	802.11a 6Mbps	Edge 4	0mm	Ant 7+8(8)	DBS	OFF	60	5300	16.60	17.50	1.230	100	1.000	0.01	0.002	0.002
	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Face	0mm	Ant 7+8(7)	DBS	ON	50	5250	9.70	10.50	1.202	99.3	1.007	0.02	0.609	0.737
	WLAN5GHz	802.11ac-VHT160 MCS0	Edge 1	0mm	Ant 7+8(7)	DBS	ON	50	5250	9.70	10.50	1.202	99.3	1.007	0.06	0.191	0.231
	WLAN5GHz	802.11ac-VHT160 MCS0	Edge 2	0mm	Ant 7+8(7)	DBS	ON	50	5250	9.70	10.50	1.202	99.3	1.007	-0.11	0.427	0.517



Table with 17 columns: Plot No., Band, Mode, Test Position, Gap (mm), Antenna, Non-DBS / DBS, Power Reduction, 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), Reported 1g SAR (W/kg). Rows include test configurations for WLAN5GHz across various modes and test positions.



FCC SAR TEST REPORT

Report No. : FA332310

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Non-DBS / DBS	Power Reduction	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)	Reported 1g SAR (W/kg)	Measured APD (W/m^2)	Reported APD (W/m^2)
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	Non-DBS	OFF	111	6505	15.40	16.00	1.148	100	1.000	0.06	0.501	0.575	4.120	4.730
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	Non-DBS	OFF	15	6025	13.90	14.50	1.148	100	1.000	0.01	0.513	0.589	4.220	4.845
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	Non-DBS	OFF	47	6185	13.70	14.00	1.072	100	1.000	0.07	0.451	0.483	3.710	3.975
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	Non-DBS	OFF	143	6665	13.70	14.00	1.072	100	1.000	0.09	0.478	0.512	3.930	4.211
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	Non-DBS	OFF	207	6985	14.30	15.00	1.175	100	1.000	0.01	0.400	0.470	3.290	3.865
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	11mm	Ant 7	Non-DBS	OFF	111	6505	15.40	16.00	1.148	100	1.000	0.04	0.252	0.289	2.070	2.377
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	0mm	Ant 7	Non-DBS	OFF	111	6505	15.40	16.00	1.148	100	1.000	0.12	0.035	0.040	0.277	0.318
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	207	6985	12.80	13.50	1.175	99.31	1.007	0.05	0.769	0.910	4.780	5.655
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	15	6025	9.20	9.50	1.072	99.31	1.007	-0.09	0.846	0.913	5.000	5.395
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	47	6185	8.70	9.00	1.072	99.31	1.007	0.06	0.654	0.706	3.820	4.122
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	111	6505	10.40	11.00	1.148	99.31	1.007	0.03	0.591	0.683	3.340	3.862
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7	Non-DBS	ON	143	6665	9.40	10.00	1.148	99.31	1.007	0.06	0.422	0.488	3.490	4.035
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	0mm	Ant 7	Non-DBS	ON	207	6985	12.80	13.50	1.175	99.31	1.007	0.07	0.138	0.163	0.986	1.167
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 8	Non-DBS	OFF	111	6505	16.00	16.00	1.000	100	1.000	0.02	0.176	0.176	1.890	1.890
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	111	6505	16.00	16.00	1.000	100	1.000	-0.06	0.276	0.276	2.960	2.960
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	15	6025	14.50	14.50	1.000	100	1.000	-0.07	0.402	0.402	3.430	3.430
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	47	6185	13.90	14.00	1.023	100	1.000	-0.09	0.365	0.374	3.110	3.182
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	143	6665	14.00	14.00	1.000	100	1.000	0.09	0.350	0.350	2.990	2.990
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	207	6985	14.80	15.00	1.047	100	1.000	0.04	0.179	0.187	2.160	2.262
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 3	0mm	Ant 8	Non-DBS	OFF	111	6505	16.00	16.00	1.000	100	1.000	0.09	0.110	0.110	1.180	1.180
05	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	207	6985	13.40	13.50	1.023	99.31	1.007	0.03	1.120	1.154	5.980	6.162
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	15	6025	9.20	9.50	1.072	99.31	1.007	0.07	0.642	0.693	3.940	4.251
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	47	6185	8.70	9.00	1.072	99.31	1.007	0.01	0.377	0.407	2.580	2.784
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	111	6505	10.90	11.00	1.023	99.31	1.007	-0.03	1.050	1.082	5.710	5.884
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	143	6665	9.90	10.00	1.023	99.31	1.007	0.06	1.090	1.123	5.940	6.121
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	0mm	Ant 8	Non-DBS	ON	207	6985	13.40	13.50	1.023	99.31	1.007	0.04	0.089	0.092	0.960	0.989
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7+8(7)	DBS	OFF	111	6505	15.30	16.00	1.175	100	1.000	0.08	0.474	0.557	4.410	5.181
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7+8(7)	DBS	OFF	15	6025	13.70	14.50	1.202	100	1.000	0.01	0.489	0.588	4.040	4.857
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7+8(7)	DBS	OFF	47	6185	13.70	14.00	1.072	100	1.000	0.01	0.454	0.486	3.760	4.029
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7+8(7)	DBS	OFF	143	6665	13.80	14.00	1.047	100	1.000	-0.01	0.481	0.504	3.980	4.168
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7+8(7)	DBS	OFF	207	6985	14.40	15.00	1.148	100	1.000	-0.08	0.358	0.411	2.960	3.399
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	11mm	Ant 7+8(7)	DBS	OFF	111	6505	15.30	16.00	1.175	100	1.000	0.07	0.239	0.281	1.980	2.326
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 7+8(7)	DBS	OFF	111	6505	15.30	16.00	1.175	100	1.000	0.09	0.360	0.423	2.980	3.501
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 3	0mm	Ant 7+8(7)	DBS	OFF	111	6505	15.30	16.00	1.175	100	1.000	0.13	0.179	0.210	1.380	1.621
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 4	0mm	Ant 7+8(7)	DBS	OFF	111	6505	15.30	16.00	1.175	100	1.000	0.01	0.004	0.005	0.098	0.115
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7+8(7)	DBS	ON	207	6985	9.90	10.00	1.023	99.31	1.007	0.02	0.698	0.719	3.760	3.875
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7+8(7)	DBS	ON	15	6025	7.50	8.00	1.122	99.31	1.007	0.04	0.553	0.625	3.320	3.751
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7+8(8)	DBS	ON	47	6185	7.20	8.00	1.202	99.31	1.007	0.02	0.279	0.338	1.880	2.276
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7+8(7)	DBS	ON	111	6505	9.50	10.00	1.122	99.31	1.007	0.07	0.729	0.824	4.050	4.576
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 7+8(7)	DBS	ON	143	6665	6.80	7.50	1.175	99.31	1.007	-0.02	0.620	0.734	3.330	3.940
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	0mm	Ant 7+8(7)	DBS	ON	207	6985	9.90	10.00	1.023	99.31	1.007	-0.01	0.095	0.207	0.540	0.556
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	0mm	Ant 7+8(7)	DBS	ON	207	6985	9.90	10.00	1.023	99.31	1.007	0.08	0.152	0.299	1.190	1.226

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)	Reported 1g SAR (W/kg)
06	Bluetooth	1Mbps	Bottom Face	0mm	Ant 7	0	2402	5.99	6.00	1.001	76.8	1.085	0.01	0.039	0.042
	Bluetooth	1Mbps	Bottom Face	0mm	Ant 7	39	2441	5.82	6.00	1.041	76.8	1.085	0.05	0.033	0.037
	Bluetooth	1Mbps	Bottom Face	0mm	Ant 7	78	2480	5.14	6.00	1.218	76.8	1.085	-0.09	0.030	0.040
	Bluetooth	1Mbps	Edge 1	0mm	Ant 7	0	2402	5.99	6.00	1.001	76.8	1.085	-0.01	0.011	0.012
	Bluetooth	1Mbps	Edge 2	0mm	Ant 7	0	2402	5.99	6.00	1.001	76.8	1.085	0.03	0.004	0.004
	Bluetooth	2Mbps	Bottom Face	0mm	Ant 8	78	2480	5.76	6.00	1.057	76.86	1.084	-0.13	0.019	0.022
	Bluetooth	2Mbps	Bottom Face	0mm	Ant 8	39	2441	5.39	6.00	1.151	76.86	1.084	0.01	0.014	0.017
	Bluetooth	2Mbps	Bottom Face	0mm	Ant 8	0	2402	5.54	6.00	1.112	76.86	1.084	0.05	0.017	0.020
	Bluetooth	2Mbps	Edge 2	0mm	Ant 8	78	2480	5.76	6.00	1.057	76.86	1.084	0.16	0.007	0.008
	Bluetooth	2Mbps	Edge 3	0mm	Ant 8	78	2480	5.76	6.00	1.057	76.86	1.084	-0.05	0.001	0.001

Note:

Based on WLAN2.4GHz and Bluetooth share the same antenna; therefore, Bluetooth RF exposure evaluation chose the same of WLAN 2.4GHz Antenna to perform Bluetooth SAR test.

<NFC SAR>

Plot No.	Band	Test Position	Gap (mm)	Freq. (MHz)	Power Drift (dB)	Measured 1g SAR (W/kg)
07	NFC	Bottom Face	0mm	13.56	-0.01	0.003
	NFC	Edge 1	0mm	13.56	0	< 0.001
	NFC	Edge 2	0mm	13.56	0	< 0.001



14.2 6GHz PD SAR Result

Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Grid Step (λ)	iPDn	iPD ratio (≥ -1)	Normal psPD (W/m ²)	Total psPD (W/m ²)
WLAN6GHz	802.11ac-VHT160 MCS0	Bottom Face	2mm	Ant 7	ON	15	6025	9.20	0.0625	1.34	-0.98204483	3.410	3.820
WLAN6GHz	802.11ac-VHT160 MCS0	Bottom Face	10mm	Ant 7	ON	15	6025	9.20	0.25	1.68		1.540	1.590
WLAN6GHz	802.11ac-VHT160 MCS0	Bottom Face	2mm	Ant 7	ON	207	6985	12.80	0.0625	3	0.933058887	3.490	3.800
WLAN6GHz	802.11ac-VHT160 MCS0	Bottom Face	8.59mm	Ant 7	ON	207	6985	12.80	0.25	2.42		1.740	1.870

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Grid Step (λ)	Scaling Factor for Measurement Uncertainty	Power Drift (dB)	Normal psPD (W/m ²)	Scaled Normal psPD (W/m ²)	Total psPD (W/m ²)	Scaled Total psPD (W/m ²)
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 7	ON	15	6025	9.20	9.50	1.072	99.08	1.009	0.0625	1.5535	0.06	3.410	5.727	3.820	6.416
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 7	ON	47	6185	8.70	9.00	1.072	99.08	1.009	0.0625	1.5535	0.1	2.590	4.350	2.820	4.736
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 7	ON	111	6505	10.40	11.00	1.148	99.08	1.009	0.0625	1.5535	-0.14	2.270	4.085	2.470	4.445
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 7	ON	143	6665	9.40	10.00	1.148	99.08	1.009	0.0625	1.5535	0.08	2.370	4.265	2.580	4.643
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 7	ON	207	6985	12.80	13.50	1.175	99.08	1.009	0.0625	1.5535	0.09	3.490	6.427	3.800	6.998
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	2mm	Ant 7	ON	207	6985	12.80	13.50	1.175	99.08	1.009	0.0625	1.5535	0.06	1.050	1.934	1.180	2.173
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 8	ON	15	6025	9.20	9.50	1.072	99.08	1.009	0.0625	1.5535	0.06	1.970	3.309	2.120	3.561
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 8	ON	47	6185	8.70	9.00	1.072	99.08	1.009	0.0625	1.5535	0.11	1.290	2.167	1.390	2.335
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 8	ON	111	6505	10.90	11.00	1.023	99.08	1.009	0.0625	1.5535	0.03	2.850	4.571	3.080	4.940
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 8	ON	143	6665	9.90	10.00	1.023	99.08	1.009	0.0625	1.5535	-0.04	2.970	4.764	3.200	5.133
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	2mm	Ant 8	ON	207	6985	13.40	13.50	1.023	99.08	1.009	0.0625	1.5535	-0.09	2.990	4.796	3.250	5.213
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	2mm	Ant 8	ON	207	6985	13.40	13.50	1.023	99.08	1.009	0.0625	1.5535	0.04	1.150	1.845	1.280	2.053
01	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	OFF	15	6025	13.90	14.50	1.148	99.30	1.007	0.0625	1.5535	-0.02	3.870	6.951	4.170	7.490
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	OFF	47	6185	13.70	14.00	1.072	99.30	1.007	0.0625	1.5535	0.13	4.140	6.940	4.340	7.275
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	OFF	111	6505	15.40	16.00	1.148	99.30	1.007	0.0625	1.5535	-0.03	3.430	6.161	3.600	6.466
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	OFF	143	6665	13.70	14.00	1.072	99.30	1.007	0.0625	1.5535	0.07	4.320	7.241	4.450	7.459
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 7	OFF	207	6985	14.30	14.50	1.047	99.30	1.007	0.0625	1.5535	0.08	3.210	5.258	2.400	3.931
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	11mm	Ant 7	OFF	111	6505	15.40	16.00	1.148	99.30	1.007	0.0625	1.5535	0.1	1.540	2.766	1.690	3.035
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	2mm	Ant 7	OFF	111	6505	15.40	16.00	1.148	99.30	1.007	0.0625	1.5535	-0.09	0.461	0.828	0.514	0.923
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	OFF	15	6025	14.50	14.50	1.000	99.08	1.009	0.0625	1.5535	0.09	2.740	4.295	2.880	4.514
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	OFF	47	6185	13.90	14.00	1.023	99.08	1.009	0.0625	1.5535	0.01	2.450	3.930	2.560	4.106
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	OFF	111	6505	16.00	16.00	1.000	99.08	1.009	0.0625	1.5535	0.09	2.540	3.981	2.650	4.154
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	OFF	143	6665	14.00	14.00	1.000	99.08	1.009	0.0625	1.5535	0.13	2.610	4.091	3.410	5.345
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 2	3mm	Ant 8	OFF	207	6985	14.80	15.00	1.047	99.08	1.009	0.0625	1.5535	-0.04	2.580	4.235	2.360	3.874
	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	14mm	Ant 8	OFF	111	6505	16.00	16.00	1.000	99.08	1.009	0.0625	1.5535	0.03	2.240	3.511	2.420	3.793
	WLAN6GHz	802.11ax-HE160 MCS0	Edge 3	2mm	Ant 8	OFF	111	6505	16.00	16.00	1.000	99.08	1.009	0.0625	1.5535	0.12	0.769	1.205	0.843	1.321



14.3 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Non-DBS / DBS	Power Reduction	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	Bottom Face	0mm	Ant 7	Non-DBS	ON	11	2462	16.90	17.50	1.148	97.91	1.021	-0.07	0.996	-	1.168
2nd	WLAN2.4GHz	802.11b 1Mbps	Bottom Face	0mm	Ant 7	Non-DBS	ON	11	2462	16.90	17.50	1.148	97.91	1.021	0.06	0.956	1.042	1.121
1st	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	50	5250	12.00	12.00	1.000	99.3	1.007	-0.14	1.080	-	1.088
2nd	WLAN5GHz	802.11ac-VHT160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	50	5250	12.00	12.00	1.000	99.3	1.007	0.05	1.040	1.039	1.047
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	138	5690	17.10	17.50	1.096	100	1.000	-0.03	1.080	-	1.184
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 2	3mm	Ant 7+8(8)	DBS	OFF	138	5690	17.10	17.50	1.096	100	1.000	0.02	1.040	1.039	1.140
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	155	5775	17.10	17.50	1.096	100	1.000	0	0.988	-	1.083
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Edge 2	3mm	Ant 8	Non-DBS	OFF	155	5775	17.10	17.50	1.096	100	1.000	0.03	0.956	1.033	1.048
1st	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	207	6985	13.40	13.50	1.023	99.31	1.007	0.03	1.120	-	1.154
2nd	WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	0mm	Ant 8	Non-DBS	ON	207	6985	13.40	13.50	1.023	99.31	1.007	0.02	1.050	1.067	1.082

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8W/kg$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45W/kg$, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured* SAR.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.



15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
Non-DBS		
1.	WLAN2.4GHz Ant 7 + WLAN2.4GHz Ant 8 + NFC	Yes
2.	WLAN2.4GHz Ant 8 + Bluetooth Ant 7 + NFC	Yes
3.	WLAN2.4GHz Ant 8 + Bluetooth Ant 8 + NFC	Yes
4.	WLAN5GHz Ant 7+WLAN5GHz Ant 8+Bluetooth Ant 7 + NFC	Yes
5.	WLAN5GHz Ant 7+WLAN5GHz Ant 8+Bluetooth Ant 8 + NFC	Yes
6.	WLAN6GHz Ant 7+WLAN6GHz Ant 8+Bluetooth Ant 7 + NFC	Yes
7.	WLAN6GHz Ant 7+WLAN6GHz Ant 8+Bluetooth Ant 8 + NFC	Yes
DBS		
8.	WLAN2.4GHz Ant 7 +8 + WLAN5GHz Ant 7+8 + NFC	Yes
9.	WLAN2.4GHz Ant 7 +8 + WLAN6GHz Ant 7+8 + NFC	Yes
10.	WLAN2.4GHz Ant 8 + WLAN5GHz Ant 7+8 + Bluetooth Ant 7 + NFC	Yes
11.	WLAN2.4GHz Ant 7 + WLAN5GHz Ant 7+8 + Bluetooth Ant 8 + NFC	Yes
12.	WLAN2.4GHz Ant 8 + WLAN6GHz Ant 7+8 + Bluetooth Ant 7 + NFC	Yes
13.	WLAN2.4GHz Ant 7 + WLAN6GHz Ant 7+8 + Bluetooth Ant 8 + NFC	Yes

General Note:

1. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
2. The Scaled SAR summation is calculated based on the same configuration and test position.
3. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, 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.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - v) The SPLSR calculated results please refer to section 15.2



15.1 Body Exposure Conditions

<Non-DBS>

Exposure Position	1	2	3	4	5	6	7	8	9	1+2+9 Summed 1g SAR (W/kg)	3+4+7+9 Summed 1g SAR (W/kg)	5+6+7+9 Summed 1g SAR (W/kg)	3+4+7+9		5+6+7+9	
	WLAN 2.4GHz Ant 7 1g SAR (W/kg)	WLAN 2.4GHz Ant 8 1g SAR (W/kg)	WLAN 5GHz Ant 7 1g SAR (W/kg)	WLAN 5GHz Ant 8 1g SAR (W/kg)	WLAN 6GHz Ant 7 1g SAR (W/kg)	WLAN 6GHz Ant 8 1g SAR (W/kg)	Bluetooth Ant 7 1g SAR (W/kg)	Bluetooth Ant 8 1g SAR (W/kg)	NFC 1g SAR (W/kg)				SPLSR	Case No	SPLSR	Case No
Bottom Face at 14mm	0.499	0.115	0.900	0.440	0.589	0.176	0.042	0.022	0.003	0.617	1.385	0.810				
Edge 1 at 11mm	0.245		0.315		0.289		0.012		0.001	0.246	0.328	0.302				
Edge 2 at 3mm		0.390		1.198		0.402	0.004	0.008	0.001	0.391	1.203	0.407				
Bottom Face at 0mm	1.168	0.377	1.157	1.088	0.913	1.154	0.042	0.022	0.003	1.548	2.290	2.112	0.02	Case 1	0.02	Case 2
Edge 1 at 0mm	0.303		0.260		0.163		0.012		0.001	0.304	0.273	0.176				
Edge 2 at 0mm	0.105	0.171	0.063	0.564	0.040	0.092	0.004	0.008	0.001	0.277	0.632	0.137				
Edge 3 at 0mm		0.383		0.255		0.110		0.001		0.383	0.255	0.110				

Exposure Position	1	2	3	4	5	6	7	8	9	2+7+9 Summed 1g SAR (W/kg)	3+4+8+9 Summed 1g SAR (W/kg)	5+6+8+9 Summed 1g SAR (W/kg)	1+8+9 Summed 1g SAR (W/kg)	3+4+8+9		5+6+8+9	
	WLAN 2.4GHz Ant 7 1g SAR (W/kg)	WLAN 2.4GHz Ant 8 1g SAR (W/kg)	WLAN 5GHz Ant 7 1g SAR (W/kg)	WLAN 5GHz Ant 8 1g SAR (W/kg)	WLAN 6GHz Ant 7 1g SAR (W/kg)	WLAN 6GHz Ant 8 1g SAR (W/kg)	Bluetooth Ant 7 1g SAR (W/kg)	Bluetooth Ant 8 1g SAR (W/kg)	NFC 1g SAR (W/kg)					SPLSR	Case No	SPLSR	Case No
Bottom Face at 14mm	0.499	0.115	0.900	0.440	0.589	0.176	0.042	0.022	0.003	0.160	1.365	0.790	0.524				
Edge 1 at 11mm	0.245		0.315		0.289		0.012		0.001	0.013	0.316	0.290	0.246				
Edge 2 at 3mm		0.390		1.198		0.402	0.004	0.008	0.001	0.395	1.207	0.411	0.009				
Bottom Face at 0mm	1.168	0.377	1.157	1.088	0.913	1.154	0.042	0.022	0.003	0.422	2.270	2.092	1.193	0.02	Case 3	0.02	Case 4
Edge 1 at 0mm	0.303		0.260		0.163		0.012		0.001	0.013	0.261	0.164	0.304				
Edge 2 at 0mm	0.105	0.171	0.063	0.564	0.040	0.092	0.004	0.008	0.001	0.176	0.636	0.141	0.114				
Edge 3 at 0mm		0.383		0.255		0.110		0.001		0.383	0.256	0.111	0.001				

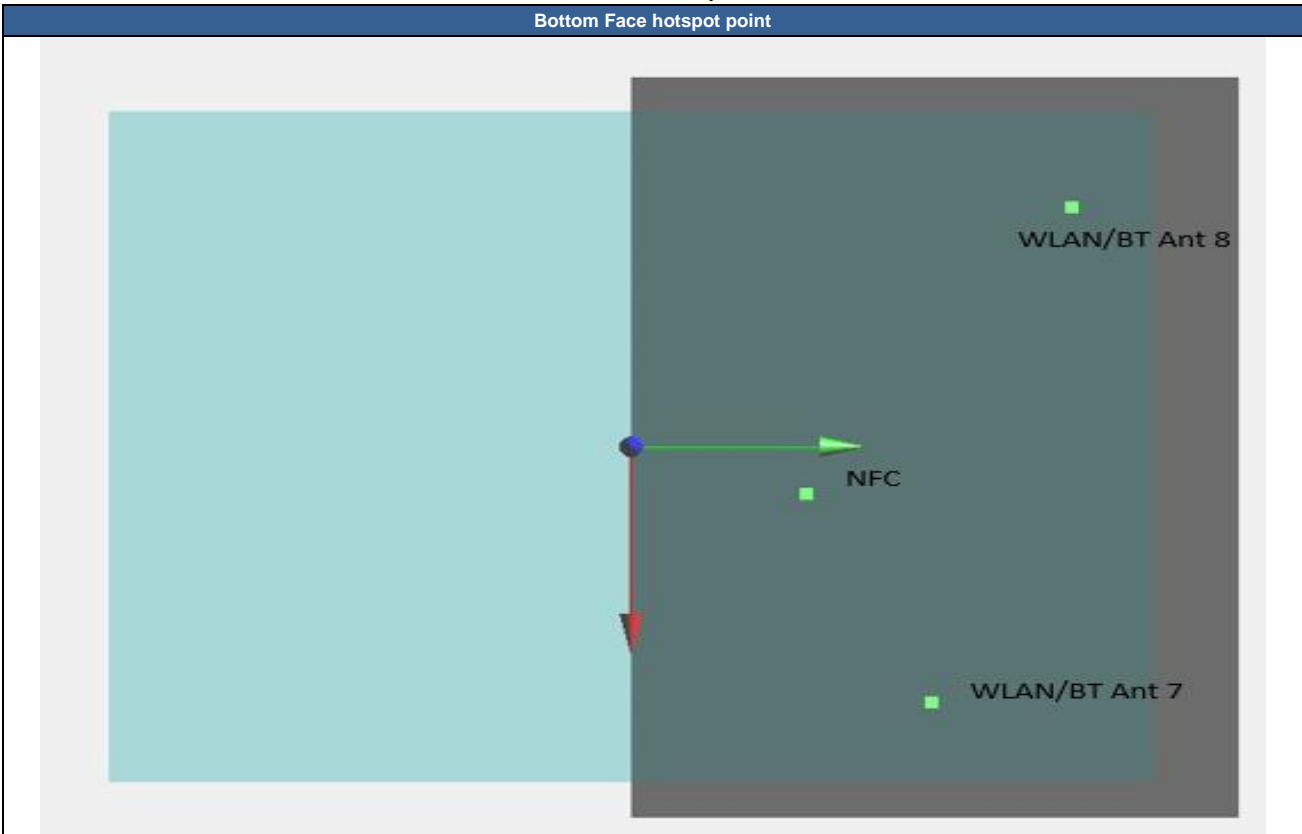
<DBS>

Exposure Position	1	2	3	4	5	6	7	8	2+4+6+8 Summed 1g SAR (W/kg)	2+5+6+8 Summed 1g SAR (W/kg)	3+4+8 Summed 1g SAR (W/kg)	3+5+8 Summed 1g SAR (W/kg)	1+4+7+8 Summed 1g SAR (W/kg)	1+5+7+8 Summed 1g SAR (W/kg)
	WLAN 2.4GHz Ant 7 1g SAR (W/kg)	WLAN 2.4GHz Ant 8 1g SAR (W/kg)	WLAN 2.4GHz Ant 7+8 1g SAR (W/kg)	WLAN 5GHz Ant 7+8 1g SAR (W/kg)	WLAN 6GHz Ant 7+8 1g SAR (W/kg)	Bluetooth Ant 7 1g SAR (W/kg)	Bluetooth Ant 8 1g SAR (W/kg)	NFC 1g SAR (W/kg)						
Bottom Face at 14mm	0.499	0.115	0.358	0.834	0.588	0.042	0.022	0.003	0.994	0.748	1.195	0.949	1.358	1.112
Edge 1 at 11mm	0.245		0.306	0.270	0.281	0.012		0.001	0.283	0.294	0.577	0.588	0.516	0.527
Edge 2 at 3mm		0.390	0.377	1.184	0.423	0.004	0.008	0.001	1.579	0.818	1.562	0.801	1.193	0.432
Bottom Face at 0mm	0.708	0.288	0.740	0.791	0.824	0.042	0.022	0.003	1.124	1.157	1.534	1.567	1.524	1.557
Edge 1 at 0mm	0.184		0.143	0.231	0.207	0.012		0.001	0.244	0.220	0.375	0.351	0.416	0.392
Edge 2 at 0mm	0.105	0.172	0.133	0.517	0.299	0.004	0.008	0.001	0.694	0.476	0.651	0.433	0.631	0.413
Edge 3 at 0mm		0.115	0.325	0.228	0.210		0.001		0.343	0.325	0.553	0.535	0.229	0.211
Edge 4 at 0mm			0.008	0.004	0.005				0.004	0.005	0.012	0.013	0.004	0.005

15.2 SPLSR Evaluation and Analysis

General Note:

1. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
2. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary
3. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					Case 1	WLAN5G_Ant 7+Bluetooth Ant 7	Bottom Face				
	WLAN5G_Ant 8	Bottom Face	1.088	0	-71.75	117.61	2.34	58.1	1.20	0.02	Not required
	WLAN5G_Ant 7+Bluetooth Ant 7	Bottom Face	1.199	0	76.04	78.19	2.13	126.3	1.09	0.01	Not required
	NFC	Bottom Face	0.003	0	30.01	42.8	1.89				
	WLAN5G_Ant 8	Bottom Face	1.088	0	-71.75	117.61	2.34				
	NFC	Bottom Face	0.003	0	30.01	42.8	1.89				
Case 2	WLAN6G_Ant 7+Bluetooth Ant 7	Bottom Face	0.955	0	76.04	78.19	2.13	153.0	2.11	0.02	Not required
	WLAN6G_Ant 8	Bottom Face	1.154	0	-71.75	117.61	2.34	58.1	0.96	0.02	Not required
	WLAN6G_Ant 7+Bluetooth Ant 7	Bottom Face	0.955	0	76.04	78.19	2.13	126.3	1.16	0.01	Not required
	NFC	Bottom Face	0.003	0	30.01	42.8	1.89				
	WLAN6G_Ant 8	Bottom Face	1.154	0	-71.75	117.61	2.34				
	NFC	Bottom Face	0.003	0	30.01	42.8	1.89				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 3	WLAN5G_Ant 7	Bottom Face	1.157	0	76.04	78.19	2.13	153.0	2.27	0.02	Not required
	WLAN5G_Ant 8+Bluetooth Ant 8		1.11	0	-71.75	117.61	2.34				
	WLAN5G_Ant 7	Bottom Face	1.157	0	76.04	78.19	2.13	58.1	1.16	0.02	Not required
	NFC		0.003	0	30.01	42.8	1.89				
	WLAN5G_Ant 8+Bluetooth Ant 8	Bottom Face	0.277	0	-71.75	117.61	2.34	126.3	0.28	0.00	Not required
	NFC		0.003	0	30.01	42.8	1.89				
Case 4	WLAN6G_Ant 7	Bottom Face	0.913	0	76.04	78.19	2.13	153.0	2.09	0.02	Not required
	WLAN6G_Ant 8+Bluetooth Ant 8		1.176	0	-71.75	117.61	2.34				
	WLAN6G_Ant 7	Bottom Face	0.913	0	76.04	78.19	2.13	58.1	0.92	0.02	Not required
	NFC		0.003	0	30.01	42.8	1.89				
	WLAN6G_Ant 8+Bluetooth Ant 8	Bottom Face	1.176	0	-71.75	117.61	2.34	126.3	1.18	0.01	Not required
	NFC		0.003	0	30.01	42.8	1.89				

Test Engineer : Bevis Chang, Lu Chen and Putzie Chen



16. Uncertainty Assessment

Declaration of Conformity:

The test results with all measurement uncertainty excluded is 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.

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture’s specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	1/k ^(b)	1/√3	1/√6	1/√2

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual “root-sum-squares” (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.



Applicable for SAR Measurements:

Uncertainty Budget (4 MHz - 10 GHz range)							
Error Description	Uncertainty Value (±%)	Probability	Divisor	(C1) 1g	(C1) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	18.60	N	2	1	1	9.3	9.3
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Linearity	4.70	R	1.732	1	1	2.7	2.7
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Boundary Effects	2.00	R	1.732	1	1	1.2	1.2
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	6.70	R	1.732	1	1	3.9	3.9
Post-processing	4.00	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Holder	3.60	N	1	1	1	3.6	3.6
Test sample Positioning	3.03	N	1	1	1	3.0	3.0
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Phantom and Setup							
Phantom Uncertainty	7.60	R	1.732	1	1	4.4	4.4
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.77	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.77	2.3	2.2
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.77	1.1	1.1
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.77	1.7	1.6
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						14.5%	14.2%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						29.0%	28.4%



Applicable for Power Density Measurements:

Error Description	Uncertainty Value (±dB)	Probability	Divisor	(Ci)	Standard Uncertainty (±dB)
Probe Calibration	0.49	N	1	1	0.49
Probe correction	0.00	R	1.732	1	0.00
Frequency response (BW ≤ 1 GHz)	0.20	R	1.732	1	0.12
Sensor cross coupling	0.00	R	1.732	1	0.00
Isotropy	0.50	R	1.732	1	0.29
Linearity	0.20	R	1.732	1	0.12
Probe scattering	0.00	R	1.732	1	0.00
Probe positioning offset	0.30	R	1.732	1	0.17
Probe positioning repeatability	0.04	R	1.732	1	0.02
Sensor mechanical offset	0.00	R	1.732	1	0.00
Probe spatial resolution	0.00	R	1.732	1	0.00
Field impedance dependence	0.00	R	1.732	1	0.00
Amplitude and phase drift	0.00	R	1.732	1	0.00
Amplitude and phase noise	0.04	R	1.732	1	0.02
Measurement area truncation	0.00	R	1.732	1	0.00
Data acquisition	0.03	N	1	1	0.03
Sampling	0.00	R	1.732	1	0.00
Field reconstruction	2.00	R	1.732	1	1.15
Forward transformation	0.00	R	1.732	1	0.00
Power density scaling	0.00	R	1.732	1	0.00
Spatial averaging	0.10	R	1.732	1	0.06
System detection limit	0.04	R	1.732	1	0.02
Uncertainty terms dependent on the DUT and environmental factors					
Probe coupling with DUT	0.00	R	1.732	1	0.0
Modulation response	0.40	R	1.732	1	0.2
Integration time	0.00	R	1.732	1	0.0
Response time	0.00	R	1.732	1	0.0
Device holder influence	0.10	R	1.732	1	0.1
DUT alignment	0.00	R	1.732	1	0.0
RF ambient conditions	0.04	R	1.732	1	0.0
Ambient reflections	0.04	R	1.732	1	0.0
Immunity / secondary reception	0.00	R	1.732	1	0.0
Drift of the DUT		R	1.732	1	
Combined Std. Uncertainty					1.34
Expanded STD Uncertainty (95%)					2.68



17. References

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