Test Report

Verified code: 942905

Report No.: E202209278552-1

Customer:	Shenzhen Ntmer Technology Co., Ltd.
Address:	2109, Hivac Building, NO.2, Keji South 8th Road, High Tech Zone Community, Yuehai Subdistrict, Nanshan District, Shenzhen, China
Sample Name:	Portable Computer
Sample Model:	TW220
Receive Sample Date:	Oct.10,2022
Test Date:	Oct.10,2022 ~ Oct.20,2022
Reference Document:	IEC/IEEE 62209-1528:2020 47 CFR FCC Part 2.1093 IEEE Std. C95.1:2019
Test Result:	Pass

Prepared by: Lu Wei Reviewed by: Zhao Zetian Approved by: Liao Liang

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-12-01

GUANGZHOU GRG METROLOGY & TEST CO., LTD.
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5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202209278552-1	Original Issue	2022-10-26

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1. GENERAL INFORMATION

Applicant	Shenzhen Ntmer Technology Co., Ltd.
Address	2109, Hivac Building, NO.2, Keji South 8th Road, High Tech Zone Community, Yuehai Subdistrict, Nanshan District, Shenzhen, China
Manufacturer	Shenzhen Ntmer Technology Co., Ltd.
Address	2109, Hivac Building, NO.2, Keji South 8th Road, High Tech Zone Community, Yuehai Subdistrict, Nanshan District, Shenzhen, China
Standard(s)	**IEC/IEEE 62209-1528:2020** Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz) **47 CFR FCC Part 2.1093** Radio frequency radiation exposure evaluation: portable devices **ANSI Std C95.1:2019** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz - 300 GHz. **KDB 447498 D01 v06** General RF Exposure Guidance **KDB 865664 D01 v01r04** SAR measurement 100 MHz to 6 GHz **KDB 865664 D02 v01r02** RF Exposure Reporting **KDB 616217 D04 v01r02** SAR for laptop and tablets **KDB 248227 D01 v02r02** 802 11 Wi-Fi SAR

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2. GENERAL INFORMATION OF EUT

2.1 STATEMENT OF COMPLIANCE

	Frequency Band	Model	Test Position	Ant1 Max SAR(W/kg)	Ant2 Max SAR(W/kg)	SAR Test Limit (W/kg)
Body-worn (Separation 0mm)	Bluetooth (BLE 1M)	GFSK	Back Side	0.208	/	1.6
	Wi-Fi 2.4GHz (DTS)	802.11b	Back Side	1.214	1.190	1.6
	Wi-Fi 5GHz (U-NII-1, U-NII-2A)	802.11a	Back Side	0.959	1.247	1.6
	Wi-Fi 5GHz (U-NII-2C)	802.11a	Back Side	1.258	0.782	1.6
	Wi-Fi 5GHz (U-NII-3)	802.11a	Back Side	1.191	0.465	1.6
	Highest Simultaneous Transmission			1.466		1.6
	Test Result		PASS			

Note:
This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for localized Head, Neck and Trunk 1g SAR, 4.0 W/Kg for localized Limbs 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1:2019, and had been tested in accordance with the measurement methods and procedures specified in IEC/IEEE 62209-1528:2020.

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2.2 GENERAL DESCRIPTION

Equipment	Portable Computer	
Brand Name	Robo&Kala	
Model Name	TW220	
Sample No.	E202209278552-0001	
FCC ID	2A76QTW220	
Device Type	Portable device	
HW Version	V2.0	
SW Version	N1-SW-9800	
Operation Frequency	Wi-Fi 2.4GHz	2412-2462 MHz
	Wi-Fi 5GHz (U-NII-1, U-NII-2A)	5180-5320 MHz
	Wi-Fi 5GHz (U-NII-2C)	5500-5700 MHz
	Wi-Fi 5GHz (U-NII-3)	5745-5825 MHz
	Bluetooth/BLE	2402-2480 MHz
Device class	Class B	
Type of Modulation:	Wi-Fi 2.4GHz	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/ n/ ax: OFDM(BPSK, QPSK, 16QAM, 64QAM)
	Wi-Fi 5GHz	802.11a/ n/ac/ax: OFDM(BPSK, QPSK, 16QAM, 64QAM)
	Bluetooth	BR/EDR:GFSK, π/4-DQPSK, 8DPSK
	BLE	LE 1M/2M:GFSK
Antenna Specification:	PIFA antenna	
Antenna Gain	Wi-Fi 2.4GHz	Antenna 1 with -1.14dBi gain (Max); Antenna 2 with -0.75dBi gain (Max)
	Wi-Fi 5GHz	Antenna 1 with -0.25dBi gain (Max); Antenna 2 with -2.36dBi gain (Max)
	Bluetooth/BLE	-1.14dBi
Test Channels (low-mid-high):	1-6-11 (Wi-Fi 2.4GHz) 36-40-48 (U-NII-1) 52-56-64 (U-NII-2A) 100-116-140 (U-NII-2C) 149-157-165 (U-NII-3)	
Operating Mode:	Maximum continuous output	
Other Information		
Power Supply:	DC Voltage supplied from AC/DC Adapter 7.74Vdc from 5250mAh Li-ion Battery	
Battery Specification:	Model:N13411 Voltage:7.74V Capacity:5250mAh 40.63Wh	
Adapter Specification:	Model 1: KS65C-GaNC1-CU Input: 100-240V~ 50/60Hz 1.5A Max Output: 5Vdc/3A, 9Vdc/3A, 12Vdc/3A, 15Vdc/3A, 20Vdc/3.25A Model 2: PA-1650-67 Input: 100-240V~ 50/60Hz 1.6A Output: 5Vdc/3A, 9Vdc/3A, 12Vdc/3A, 15Vdc/3A, 20Vdc/3.25A	
Sample submitting way:	■Provided by customer □Sampling	
Note:	/	

2.3 LABORATORY ENVIRONMENT

Temperature	Min. = 18 ℃, Max. = 25 ℃
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.	
Add.:	No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China.
P.C.:	518110
Tel :	0755-61180008
Fax:	0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	A2LA(Certificate #2861.01)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	ISED (Company Number: 24897，CAB identifier:CN0069)
USA	FCC (Registration Number: 759402，Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site, http://www.grgtest.com

3.3 MEASUREMENT UNCERTAINTY

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEC/IEEE 62209-1528 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

4. SAR MEASUREMENTS SYSTEM

4.1 DEFINITION OF SPECIFIC ABSORPTION RATE (SAR)

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

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

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

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

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

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

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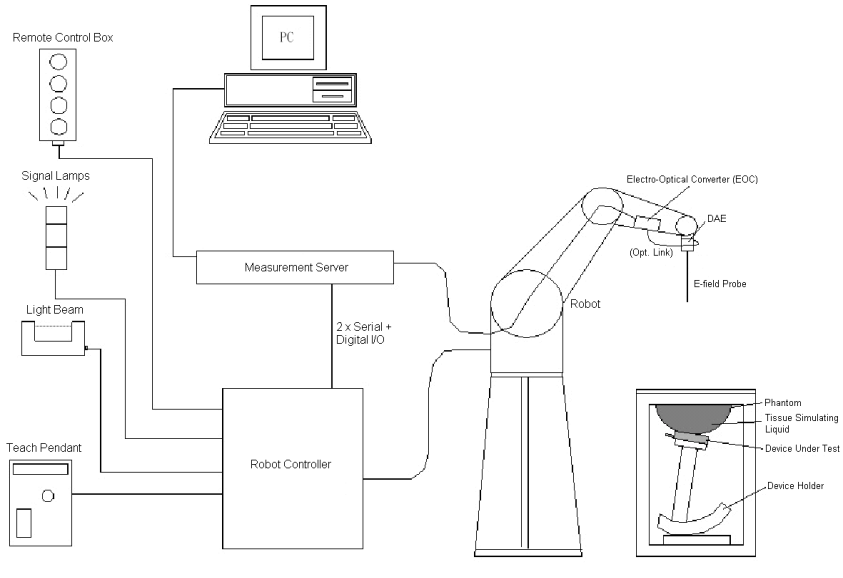
4.2 SAR SYSTEM



DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows 10
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Components are described in details in the following sub-sections.

4.3 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.

➢ **E-Field Probe Specification**
<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	4 MHz - 10 GHz Linearity: ±0.2 dB (30 MHz - 10 GHz)
Directivity	±0.1 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/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

Photo of EX3DV4

➢ **E-Field Probe Calibration**

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

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4.4 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 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.

Photo of DAE

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4.5 ROBOT

The SPEAG DASY system uses the high precision robots (DASY8: TX2-90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY8: C2.038) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.04 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

Photo of DASY8

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4.6 MEASUREMENT SERVER

The measurement server is based on a PC/104 CPU board with CPU (DASY8: 400 MHz, Intel Celeron), chip disk (DASY8: 128 MB), RAM (DASY8: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

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4.7 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

Photo of SAM Phantom

ELI Phantom>

Shell Thickness	2 ±0.2 mm;
Filling Volume	Approx. 30 liters
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Measurement Areas	body-worn

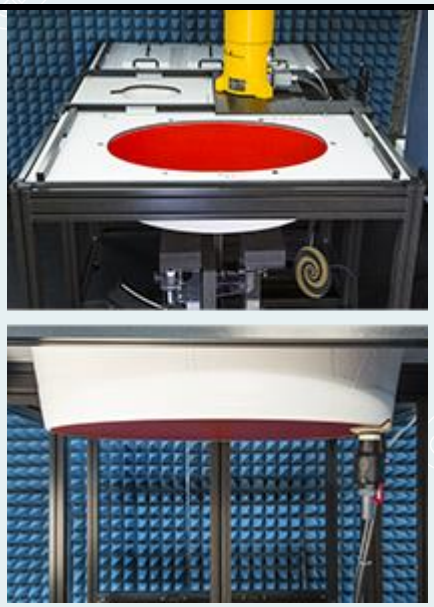

Photo of ELI Phantom

Wrist Phantom>

Shell Thickness	2 ±0.2 mm;
Filling Volume	Approx. 1 liters
Dimensions	Length: 500 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	wrist-worn

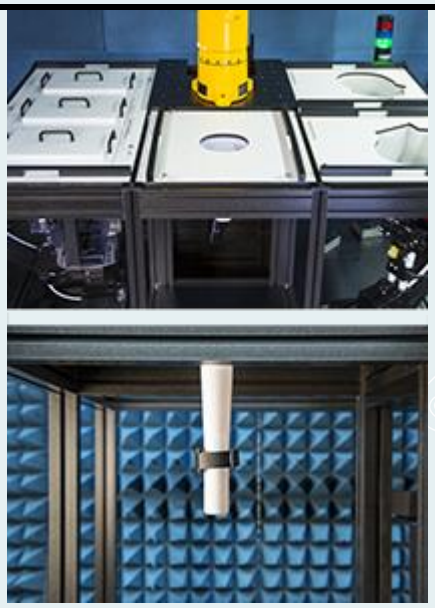

Photo of Wrist Phantom

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.

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4.8 DEVICE HOLDER

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ± 20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (ERP).Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity $\varepsilon = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Device Holder

4.9 DATA STORAGE AND EVALUATION

- **Data Storage**

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

- **Data Evaluation**

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software：

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as：

$$\mathbf{V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}}$$

with V_i= compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated：

E-field Probes： $\mathbf{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$

H-field Probes： $\mathbf{H_i = \sqrt{V_i} \cdot \frac{a_{i0}+a_{i1}f+a_{i2}f^2}{f}}$

with V_i = compensated signal of channel i,(i = x, y, z)

$Norm_i$= sensor sensitivity of channel i, (i = x, y, z), μV/(V/m)^2 for E-field Probes
ConvF= sensitivity enhancement in solution
a_{ij}= sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
E_i= electric field strength of channel i in V/m
H_i= magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g
E_{tot}= total field strength in V/m
σ = conductivity in [mho/m] or [Siemens/m]
ρ = equivalent tissue density in g/cm^3
Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

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5. TEST EQUIPMENT LIST

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
System Validation Dipole	SPEAG	D2450V2	933	2021-04-14	2024-04-13
System Validation Dipole	SPEAG	D5GV2	1182	2021-04-16	2024-04-15
EX3DV4 SAR Probe	SPEAG	EX3DV4	7716	2022-03-29	2023-03-28
Data Acquisition Electronics	SPEAG	DAE4	1718	2022-03-25	2023-03-25
ENA Series Network Analyzer	Keysight	85032F	MY53202809	2022-05-30	2023-05-29
DAK	SPEAG	DAK-3.5	1056	N/A	N/A
SAM -Twin V8.0	SPEAG	QD000P41AA	2092	N/A	N/A
ELI V8.0	SPEAG	QDOVA004AA	2166	N/A	N/A
Wrist Phantom V10	SPEAG	QDARM011CC	1045	N/A	N/A
Power Meter	Anritsu	ML2495A	1204003	2022-03-01	2023-02-28
Power Sensor	Anritsu	MA2411B	1126150	2022-03-02	2023-03-01
Spectrum Analyzer	Keysight	N9010A	MY55370330	2021-11-09	2022-11-08
Signal generator	R&S	SMA100A	100434	2022-08-20	2023-08-19

Remark:

1. “N/A” denotes no model name, serial No. or calibration specified.
2. *Thesetestequipmentshavebeenrecalibratedbetweenthetestperiods.Allthesetestequipments were within the valid period when the tests were performed.
3. Per KDB865664 D01 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

a) There is no physical damage on the dipole;

b) System check with specific dipole is within 10% of calibrated value;

c) The most recent return-loss result , measured at least annually, deviates by no more than 20% from the previous measurement;

d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.

6. SYSTEM VERIFICATION PROCEDURE

6.1 TISSUE VERIFICATION

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown as followed:

Photo of Liquid Height

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
2450	55.0	0	0	0	0	45.0	1.80	39.2

Frequency (MHz)	Water (%)	Triton X-100 (%)	Diethylenglycol monohexylether (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head							
5200	65.52	17.24	17.24	0	0	4.66	36.0
5600	65.52	17.24	17.24	0	0	5.07	35.5
5800	65.52	17.24	17.24	0	0	5.27	35.3

The following table shows the measuring results for simulating liquid.

Tissue Type	Target Value (±5%)		Measured Frequency(MHz)	Measured Value		Tissue temperature (℃)	Measured Date
	εr	σ(S/M)		εr	σ(S/M)		
2450 HSL	39.20 (37.24~41.16)	1.80 (1.71~1.89)	2450	39.30	1.93	22.1	2022-10-12
	39.30 (37.34~41.27)	1.75 (1.66~1.84)	2400	39.40	1.80		
	39.13 (37.17~41.08)	1.85 (1.76~1.94)	2500	39.20	1.88		
5200 HSL	35.93 (34.13~37.73)	4.70 (4.47~4.94)	5250	35.9	4.80	21.3	2022-10-17
	36.05 (34.25~37.85)	4.60 (4.37~4.83)	5150	36.00	4.70		
	35.82 (34.03~37.61)	4.80 (4.56~5.04)	5350	35.80	4.88		
5600HSL	35.50 (33.73~37.28)	5.07 (4.82~5.32)	5600	35.5	5.15	22.4	2022-10-18
	35.65 (33.87~37.43)	4.96 (4.71~5.21)	5500	35.6	5.05		
	35.39 (33.62~37.16)	5.19 (4.93~5.45)	5725	35.4	5.27		
5800HSL	35.36 (33.59~37.12)	5.21 (4.95~5.47)	5750	35.4	5.30	21.6	2022-10-17
	35.42 (33.64~37.19)	5.16 (4.90~5.42)	5700	35.4	5.25		
	35.30 (33.54~37.07)	5.27 (5.01~5.53)	5850	35.3	5.33		

Note:

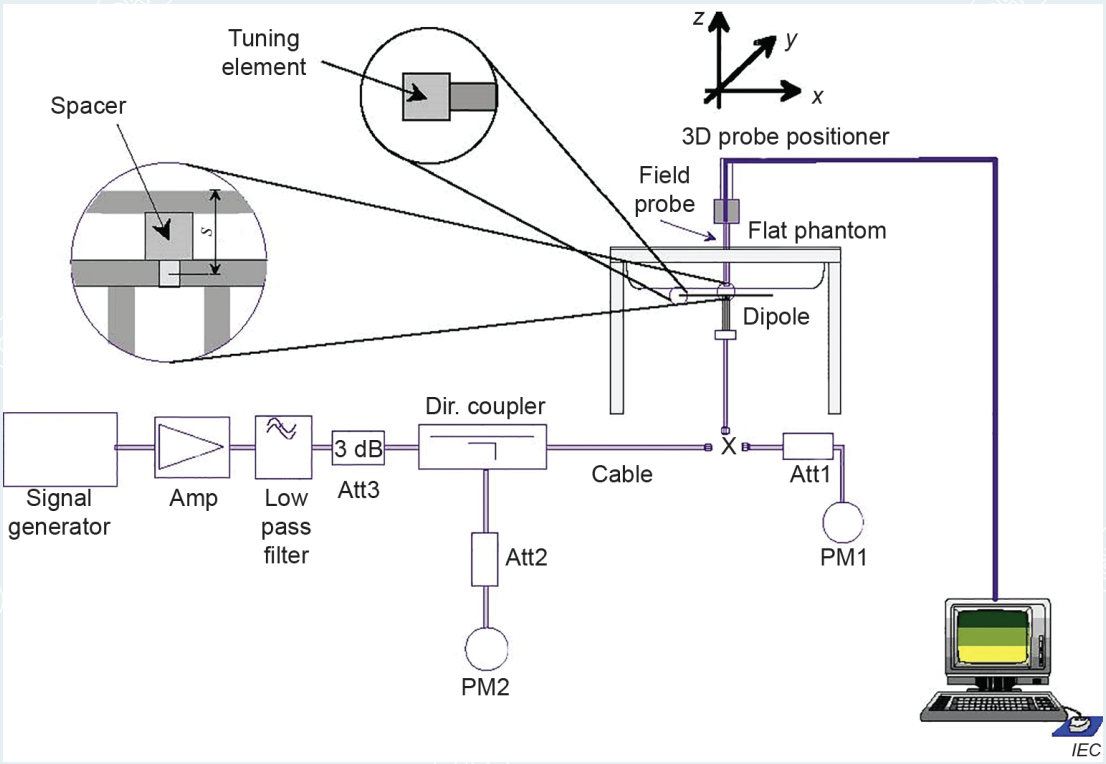
1) The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 ℃ of the conditions expected during the SAR evaluation to satisfy protocol requirements.
2) KDB 865664 was ensured to be applied for probe calibration frequencies greater than or equal to 50MHz of the EUT frequencies.
3) The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies. The SAR test plots may slightly differ from the table above since the DASY rounds to three significant digits.

6.2 SYSTEM CHECK PROCEDURE

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

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

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



System Setup for System Evaluation

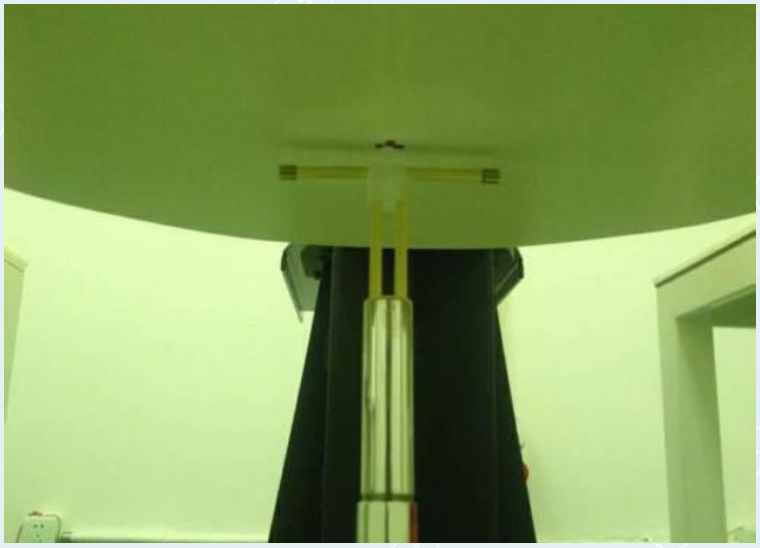


Photo of Dipole Setup

- **Validation Results**

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

Dipole	Tissue Type	Target Value(W/kg) (±10%) (Normalized to 1W)		Measured Value (W/kg) (250mW)		Measured Value (W/kg)(1W)		Tissue temperature (℃)	Measured Date
		1g	1g	1g	10g	1g	10g		
D2450 V2	2450 HSL	52.20 (46.98~57.42)	23.60 (21.24~25.96)	13.1	5.93	52.4	23.72	22.1	2022-10-12

Dipole	Tissue Type	Target Value(W/kg) (±10%) (Normalized to 1W)		Measured Value (W/kg) (100mW)		Measured Value (W/kg)(1W)		Tissue temperature (℃)	Measured Date
		1g	10g	1g	10g	1g	10g		
D5GHz V2	5250 HSL	76.80 (69.12~84.48)	21.80 (19.62~23.98)	7.27	2.08	72.7	20.8	21.3	2022-10-17
D5GHz V2	5600 HSL	81.60 (73.44~89.76)	23.20 (20.88~25.52)	8.47	2.35	84.7	23.5	22.4	2022-10-18
D5GHz V2	5750 HSL	77.00 (69.30~84.70)	21.60 (19.44~23.76)	7.71	2.13	77.1	21.3	21.6	2022-10-17

Target and Measurement SAR after Normalized

7. SAR MEASUREMENT VARIABILITY

7.1 SAR MEASUREMENT VARIABILITY

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is≥ 1.45 W/kg (~ 10% from the 1-g SAR imit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
The detailed repeated measurement results are shown in Chapter 12.

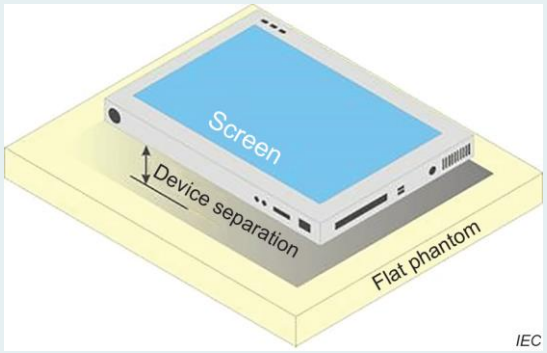
---------- **The following blanks** ----------

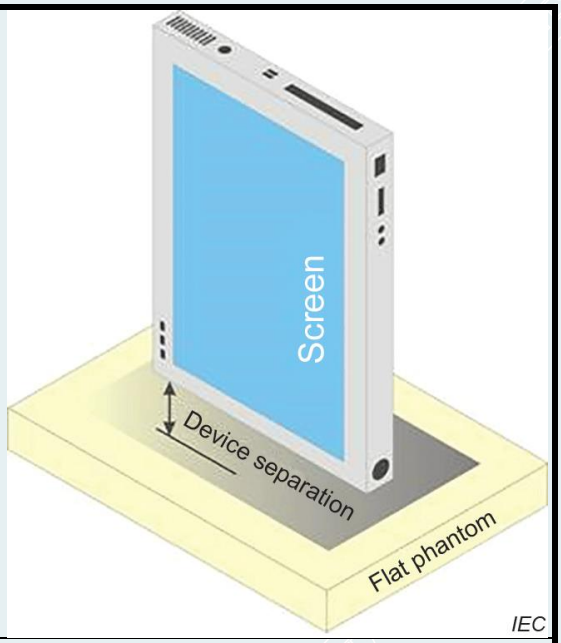
8. EUT TESTING POSITION

8.1 BODY WORN POSITION

A typical example of a device used next to the body is a wireless enabled laptop or a tablet device containing a peripheral plug-in radio transmitter that can be supported on the user's body. Other devices that fall into this category include tablets of equivalent sizes or larger than a netbook computer (> 20 cm diagonal display), credit card transaction authorization terminals, and point-of-sale and/or inventory terminals. The example shows a tablet form factor portable computer for which SAR should be separately assessed with each surface and edge containing an antenna positioned against the flat phantom. Some tablets might limit display orientations so that the edges with antennas are not used next to the user; therefore, such edges might not need testing.

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





Body Worn Position

---------- **The following blanks** ----------

9. MEASUREMENT PROCEDURES

The measurement procedures are as follows:

(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the middle channel.
(b) Keep EUT to radiate maximum output power or 100% duty factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as setup photos demonstrates.
(e) Set scan area, grid size and other setting on the DASY software.
(f) Measure SAR transmitting at the middle channel for all applicable exposure positions.
(g) Identify the exposure position and device configuration resulting the highest SAR
(h) Measure SAR at the lowest and highest channels at the worst exposure position and device configuration if applicable.

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

9.1 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 form 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

9.2 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.

9.3 AREA SCAN PROCEDURES

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEC/IEEE 62209-1528 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 D01 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	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

---------- The following blanks ----------

9.4 ZOOM SCAN PROCEDURES

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10gram 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 D01 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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 *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 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 post-processor can combine and subsequently superpose these measurement data to calculating the multi-band SAR.
.

9.6 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 drift more than ±0.2dB, the SAR will be retested.

---------- **The following blanks** ----------

10. CONDUCTED POWER

< 2.4GHz Wi-Fi Conducted Average Power Ant1 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
2.4GHz Wi-Fi ANT1	802.11b-1Mbps	CH 1	2412	**13.07**	13.50
		CH 6	2437	13.02	
		CH 11	2462	12.92	
	802.11g-6Mbps	CH 1	2412	12.02	12.50
		CH 6	2437	11.86	
		CH 11	2462	11.82	
	802.11n-HT20 MCS0	CH 1	2412	10.99	11.50
		CH 6	2437	10.70	
		CH 11	2462	10.66	
	802.11n-HT40 MCS0	CH 3	2422	11.03	11.50
		CH 6	2437	10.93	
		CH 9	2452	10.92	
	802.11ax-HE20 RU26/0 MCS0	CH 1	2412	10.90	11.00
		CH 6	2437	10.69	
		CH 11	2462	10.35	
	802.11ax-HE20 RU26/4 MCS0	CH 1	2412	10.78	11.00
		CH 6	2437	10.56	
		CH 11	2462	10.53	
	802.11ax-HE20 RU26/8 MCS0	CH 1	2412	10.88	11.00
		CH 6	2437	10.75	
		CH 11	2462	10.53	
	802.11ax-HE20 RU52/37 MCS0	CH 1	2412	10.75	11.00
		CH 6	2437	10.62	
		CH 11	2462	10.34	
	802.11ax-HE20 RU52/38 MCS0	CH 1	2412	10.77	11.00
		CH 6	2437	10.56	
		CH 11	2462	10.55	
	802.11ax-HE20 RU52/40 MCS0	CH 1	2412	10.63	11.00
		CH 6	2437	10.56	
		CH 11	2462	10.53	
	802.11ax-HE20 RU106/53 MCS0	CH 1	2412	10.85	11.00
		CH 6	2437	10.62	
		CH 11	2462	10.58	
	802.11ax-HE20 RU106/54 MCS0	CH 1	2412	10.62	11.00
		CH 6	2437	10.69	
		CH 11	2462	10.56	

	802.11ax-HE20 RU242/61 MCS0	CH 1	2412	10.96	11.00
		CH 6	2437	10.79	
		CH 11	2462	10.66	
	802.11ax-HE40 RU26/0 MCS0	CH 3	2422	10.56	11.00
		CH 6	2437	10.69	
		CH 9	2452	10.62	
	802.11ax-HE40 RU26/8 MCS0	CH 3	2422	10.52	11.00
		CH 6	2437	10.59	
		CH 9	2452	10.59	
	802.11ax-HE40 RU26/17 MCS0	CH 3	2422	10.84	11.00
		CH 6	2437	10.45	
		CH 9	2452	10.69	
	802.11ax-HE40 RU52/37 MCS0	CH 3	2422	10.48	11.00
		CH 6	2437	10.69	
		CH 9	2452	10.59	
	802.11ax-HE40 RU52/40 MCS0	CH 3	2422	10.69	11.00
		CH 6	2437	10.69	
		CH 9	2452	10.58	
	802.11ax-HE40 RU52/44 MCS0	CH 3	2422	10.68	11.00
		CH 6	2437	10.62	
		CH 9	2452	10.66	
	802.11ax-HE40 RU106/53 MCS0	CH 3	2422	10.65	11.00
		CH 6	2437	10.61	
		CH 9	2452	10.65	
	802.11ax-HE40 RU106/54 MCS0	CH 3	2422	10.63	11.00
		CH 6	2437	10.55	
		CH 9	2452	10.51	
	802.11ax-HE40 RU106/56 MCS0	CH 3	2422	10.59	11.00
		CH 6	2437	10.65	
		CH 9	2452	10.66	
	802.11ax-HE40 RU242/61 MCS0	CH 3	2422	10.62	11.00
		CH 6	2437	10.58	
		CH 9	2452	10.63	
	802.11ax-HE40 RU242/62 MCS0	CH 3	2422	10.71	11.00
		CH 6	2437	10.70	
		CH 9	2452	10.59	
	802.11ax-HE40 RU484/65 MCS0	CH 3	2422	10.75	11.00
		CH 6	2437	10.74	
		CH 9	2452	10.70	

< 2.4GHz Wi-Fi Conducted Average Power Ant2 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
2.4GHz Wi-Fi ANT2	802.11b-1Mbps	CH 1	2412	**13.16**	13.50
		CH 6	2437	12.88	
		CH 11	2462	13.04	
	802.11g-6Mbps	CH 1	2412	12.41	13.00
		CH 6	2437	12.59	
		CH 11	2462	12.57	
	802.11n-HT20 MCS0	CH 1	2412	11.92	12.00
		CH 6	2437	11.58	
		CH 11	2462	11.91	
	802.11n-HT40 MCS0	CH 3	2422	11.94	12.50
		CH 6	2437	11.81	
		CH 9	2452	12.03	
	802.11ax-HE20 RU26/0 MCS0	CH 1	2412	11.78	12.00
		CH 6	2437	11.45	
		CH 11	2462	11.42	
	802.11ax-HE20 RU26/4 MCS0	CH 1	2412	11.63	12.00
		CH 6	2437	11.45	
		CH 11	2462	11.69	
	802.11ax-HE20 RU26/8 MCS0	CH 1	2412	11.63	12.00
		CH 6	2437	11.42	
		CH 11	2462	11.64	
	802.11ax-HE20 RU52/37 MCS0	CH 1	2412	11.60	12.00
		CH 6	2437	11.36	
		CH 11	2462	11.59	
	802.11ax-HE20 RU52/38 MCS0	CH 1	2412	11.52	12.00
		CH 6	2437	11.42	
		CH 11	2462	11.54	
	802.11ax-HE20 RU52/40 MCS0	CH 1	2412	11.47	12.00
		CH 6	2437	11.42	
		CH 11	2462	11.69	
	802.11ax-HE20 RU106/53 MCS0	CH 1	2412	11.63	12.00
		CH 6	2437	11.42	
		CH 11	2462	11.63	
	802.11ax-HE20 RU106/54 MCS0	CH 1	2412	11.42	12.00
		CH 6	2437	11.42	
		CH 11	2462	11.63	
	802.11ax-HE20 RU242/61 MCS0	CH 1	2412	11.84	12.00
		CH 6	2437	11.51	
		CH 11	2462	11.74	

	802.11ax-HE40 RU26/0 MCS0	CH 3	2422	11.63	12.00
		CH 6	2437	11.40	
		CH 9	2452	11.54	
	802.11ax-HE40 RU26/8 MCS0	CH 3	2422	11.62	12.00
		CH 6	2437	11.49	
		CH 9	2452	11.47	
	802.11ax-HE40 RU26/17 MCS0	CH 3	2422	11.63	12.00
		CH 6	2437	11.36	
		CH 9	2452	11.57	
	802.11ax-HE40 RU52/37 MCS0	CH 3	2422	11.52	12.00
		CH 6	2437	11.45	
		CH 9	2452	11.63	
	802.11ax-HE40 RU52/40 MCS0	CH 3	2422	11.59	12.00
		CH 6	2437	11.48	
		CH 9	2452	11.62	
	802.11ax-HE40 RU52/44 MCS0	CH 3	2422	11.69	12.00
		CH 6	2437	11.40	
		CH 9	2452	11.59	
	802.11ax-HE40 RU106/53 MCS0	CH 3	2422	11.63	12.00
		CH 6	2437	11.49	
		CH 9	2452	11.61	
	802.11ax-HE40 RU106/54 MCS0	CH 3	2422	11.54	12.00
		CH 6	2437	11.36	
		CH 9	2452	11.63	
	802.11ax-HE40 RU106/56 MCS0	CH 3	2422	11.63	12.00
		CH 6	2437	11.47	
		CH 9	2452	11.62	
	802.11ax-HE40 RU242/61 MCS0	CH 3	2422	11.59	12.00
		CH 6	2437	11.42	
		CH 9	2452	11.65	
	802.11ax-HE40 RU242/62 MCS0	CH 3	2422	11.68	12.00
		CH 6	2437	11.46	
		CH 9	2452	11.67	
	802.11ax-HE40 RU484/65 MCS0	CH 3	2422	11.74	12.00
		CH 6	2437	11.52	
		CH 9	2452	11.72	

< 5GHz Wi-Fi (U-NII-1&U-NII-2A) Conducted Average Power Ant1 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
5GHz Wi-Fi (U-NII-1 & U-NII-2A) ANT1	802.11a-6Mbps	CH 36	5180	11.21	11.50
		CH 40	5200	11.31	
		CH 48	5240	11.33	
		CH 52	5260	**11.20**	11.50
		CH 56	5280	11.14	
		CH 64	5320	11.04	
	802.11n-HT20 MCS0	CH 36	5180	10.39	10.50
		CH 40	5200	10.23	
		CH 48	5240	10.27	
		CH 52	5260	10.12	10.50
		CH 56	5280	10.03	
		CH 64	5320	10.02	
	802.11n-HT40 MCS0	CH 38	5190	10.45	10.50
		CH 46	5230	10.42	
		CH 54	5270	10.49	11.00
		CH 62	5310	10.52	
	802.11ac-VHT20 MCS0	CH 36	5180	10.36	10.50
		CH 40	5200	10.22	
		CH 48	5240	10.31	
		CH 52	5260	10.15	10.50
		CH 56	5280	10.06	
		CH 64	5320	10.06	
	802.11ac-VHT40 MCS0	CH 38	5190	10.60	11.00
		CH 46	5230	10.39	
		CH 54	5270	10.46	10.50
		CH 62	5310	10.45	
	802.11ac-VHT80 MCS0	CH 42	5210	10.46	10.50
		CH 58	5290	10.51	11.00
	802.11ac-VHT160 MCS0	CH 50	5250	10.63	11.00
	802.11ax-HE20 RU26/4 MCS0	CH 36	5180	10.33	10.50
		CH 40	5200	10.15	
		CH 48	5240	10.23	
		CH 52	5260	10.16	10.50
		CH 56	5280	10.03	
		CH 64	5320	10.01	
	802.11ax-HE20 RU52/38 MCS0	CH 36	5180	10.29	10.50
		CH 40	5200	10.16	
		CH 48	5240	10.23	

		CH 52	5260	10.10	10.50
		CH 56	5280	10.03	
		CH 64	5320	10.03	
	802.11ax-HE20 RU106/53 MCS0	CH 36	5180	10.40	10.50
		CH 40	5200	10.42	
		CH 48	5240	10.24	
		CH 52	5260	10.14	10.50
		CH 56	5280	10.03	
		CH 64	5320	10.03	
	802.11ax-HE20 RU242/61 MCS0	CH 36	5180	10.45	10.50
		CH 40	5200	10.29	
		CH 48	5240	10.36	
		CH 52	5260	10.25	10.50
		CH 56	5280	10.16	
		CH 64	5320	10.11	
	802.11ax-HE40 RU26/8 MCS0	CH 38	5190	10.33	10.50
		CH 46	5230	10.15	
		CH 54	5270	10.23	10.50
		CH 62	5310	10.26	
	802.11ax-HE40 RU52/40 MCS0	CH 38	5190	10.24	10.50
		CH 46	5230	10.11	
		CH 54	5270	10.23	10.50
		CH 62	5310	10.24	
	802.11ax-HE40 RU106/54 MCS0	CH 38	5190	10.26	10.50
		CH 46	5230	10.16	
		CH 54	5270	10.26	10.50
		CH 62	5310	10.05	
	802.11ax-HE40 RU242/61 MCS0	CH 38	5190	10.39	10.50
		CH 46	5230	10.28	
		CH 54	5270	10.38	10.50
		CH 62	5310	10.36	
	802.11ax-HE40 RU484/65 MCS0	CH 38	5190	10.39	10.50
		CH 46	5230	10.28	
		CH 54	5270	10.38	10.50
		CH 62	5310	10.36	
	802.11ax-HE80 RU26/19 MCS0	CH 42	5210	10.36	10.50
		CH 58	5290	10.44	10.50
	802.11ax-HE80 RU52/44 MCS0	CH 42	5210	10.26	10.50
		CH 58	5290	10.45	10.50
	802.11ax-HE80 RU106/56 MCS0	CH 42	5210	10.36	10.50
		CH 58	5290	10.41	10.50
	802.11ax-HE80 RU242/62 MCS0	CH 42	5210	10.12	10.50
		CH 58	5290	10.42	10.50

	802.11ax-HE80 RU484/65 MCS0	CH 42	5210	10.40	10.50
		CH 58	5290	10.42	10.50
	802.11ax-HE80 RU996/67 MCS0	CH 42	5210	10.47	10.50
		CH 58	5290	10.58	11.00
	802.11ax-HE160 RU26/36 MCS0	CH 50	5250	10.51	11.00
	802.11ax-HE160 RU52/52 MCS0	CH 50	5250	10.36	10.50
	802.11ax-HE160 RU106/60 MCS0	CH 50	5250	10.47	10.50
	802.11ax-HE160 RU242/64 MCS0	CH 50	5250	10.41	10.50
	802.11ax-HE160 RU484/66 MCS0	CH 50	5250	10.47	10.50
	802.11ax-HE160 RU996/67 MCS0	CH 50	5250	10.47	10.50
	802.11ax-HE160 RU996*2/68 MCS0	CH 50	5250	10.56	11.00

< 5GHz Wi-Fi (U-NII-1&U-NII-2A) Conducted Average Power Ant2 >

	Mode	**Channel**	**Frequency (MHz)**	**Conducted Average Power (dBm)**	**Tune-up Limit (dBm)**
5GHz Wi-Fi (U-NII-1 & U-NII-2A) ANT2	**802.11a-6Mbps**	CH 36	5180	**9.18**	9.50
		CH 40	5200	9.17	
		CH 48	5240	9.15	
		CH 52	5260	8.67	9.00
		CH 56	5280	8.91	
		CH 64	5320	8.76	
	802.11n-HT20 MCS0	CH 36	5180	7.86	8.00
		CH 40	5200	7.68	
		CH 48	5240	7.29	
		CH 52	5260	7.34	8.00
		CH 56	5280	7.5	
		CH 64	5320	7.21	
	802.11n-HT40 MCS0	CH 38	5190	7.9	8.00
		CH 46	5230	7.51	
		CH 54	5270	7.6	8.00
		CH 62	5310	7.42	
	802.11ac-VHT20 MCS0	CH 36	5180	7.87	8.00
		CH 40	5200	7.65	
		CH 48	5240	7.28	
		CH 52	5260	7.36	8.00
		CH 56	5280	7.5	
		CH 64	5320	7.23	

	802.11ac-VHT40 MCS0	CH 38	5190	7.86	8.00
		CH 46	5230	7.57	
		CH 54	5270	7.72	8.00
		CH 62	5310	7.51	
	802.11ac-VHT80 MCS0	CH 42	5210	7.77	8.00
		CH 58	5290	7.88	8.00
	802.11ac-VHT160 MCS0	CH 50	5250	7.73	8.00
	802.11ax-HE20 RU26/4 MCS0	CH 36	5180	7.85	8.00
		CH 40	5200	7.65	
		CH 48	5240	7.26	
		CH 52	5260	7.32	7.50
		CH 56	5280	7.42	
		CH 64	5320	7.15	
	802.11ax-HE20 RU52/38 MCS0	CH 36	5180	7.78	8.00
		CH 40	5200	7.64	
		CH 48	5240	7.28	
		CH 52	5260	7.26	8.00
		CH 56	5280	7.57	
		CH 64	5320	7.28	
	802.11ax-HE20 RU106/53 MCS0	CH 36	5180	7.86	8.00
		CH 40	5200	7.63	
		CH 48	5240	7.23	
		CH 52	5260	7.26	7.50
		CH 56	5280	7.47	
		CH 64	5320	7.21	
	802.11ax-HE20 RU242/61 MCS0	CH 36	5180	7.92	8.00
		CH 40	5200	7.71	
		CH 48	5240	7.34	
		CH 52	5260	7.38	8.00
		CH 56	5280	7.62	
		CH 64	5320	7.30	
	802.11ax-HE40 RU26/8 MCS0	CH 38	5190	7.63	8.00
		CH 46	5230	7.45	
		CH 54	5270	5.68	7.50
		CH 62	5310	7.31	
	802.11ax-HE40 RU52/40 MCS0	CH 38	5190	7.56	8.00
		CH 46	5230	7.45	
		CH 54	5270	5.67	7.50
		CH 62	5310	7.39	
	802.11ax-HE40 RU106/54 MCS0	CH 38	5190	7.54	8.00
		CH 46	5230	7.47	
		CH 54	5270	5.66	7.50

		CH 62	5310	7.34	
	802.11ax-HE40 RU242/61 MCS0	CH 38	5190	7.76	8.00
		CH 46	5230	7.50	
		CH 54	5270	5.72	7.50
		CH 62	5310	7.44	
	802.11ax-HE40 RU484/65 MCS0	CH 38	5190	7.76	8.00
		CH 46	5230	7.50	
		CH 54	5270	5.72	8.00
		CH 62	5310	7.74	
	802.11ax-HE80 RU26/19 MCS0	CH 42	5210	7.77	8.00
		CH 58	5290	7.85	8.00
	802.11ax-HE80 RU52/44 MCS0	CH 42	5210	7.78	8.00
		CH 58	5290	7.88	8.00
	802.11ax-HE80 RU106/56 MCS0	CH 42	5210	7.75	8.00
		CH 58	5290	7.88	8.00
	802.11ax-HE80 RU242/62 MCS0	CH 42	5210	7.75	8.00
		CH 58	5290	7.85	8.00
	802.11ax-HE80 RU484/65 MCS0	CH 42	5210	7.75	8.00
		CH 58	5290	7.77	8.00
	802.11ax-HE80 RU996/67 MCS0	CH 42	5210	7.88	8.00
		CH 58	5290	7.99	8.00
	802.11ax-HE160 RU26/36 MCS0	CH 50	5250	7.63	8.00
	802.11ax-HE160 RU52/52 MCS0	CH 50	5250	7.54	8.00
	802.11ax-HE160 RU106/60 MCS0	CH 50	5250	7.53	8.00
	802.11ax-HE160 RU242/64 MCS0	CH 50	5250	7.52	8.00
	802.11ax-HE160 RU484/66 MCS0	CH 50	5250	7.53	8.00
	802.11ax-HE160 RU996/67 MCS0	CH 50	5250	7.53	8.00
	802.11ax-HE160 RU996*2/68 MCS0	CH 50	5250	7.73	8.00

< 5GHz Wi-Fi (U-NII-2C) Conducted Average Power Ant1 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
5GHz Wi-Fi (U-NII-2C) ANT1	802.11a-6Mbps	CH 100	5500	10.2	10.50
		CH 116	5580	**10.26**	
		CH 140	5700	9.97	
	802.11n-HT20 MCS0	CH 100	5500	9.24	9.50
		CH 116	5580	8.90	
		CH 140	5700	8.74	
	802.11n-HT40 MCS0	CH 102	5510	9.72	10.00
		CH 110	5550	9.67	
		CH 134	5670	8.92	
	802.11ac-VHT20 MCS0	CH 100	5500	9.28	9.50
		CH 116	5580	8.95	
		CH 140	5700	8.77	
	802.11ac-VHT40 MCS0	CH 102	5510	9.72	10.00
		CH 110	5550	9.76	
		CH 134	5670	8.96	
	802.11ac-VHT80 MCS0	CH 106	5530	9.15	10.00
		CH 122	5610	9.58	
	802.11ac-VHT160 MCS0	CH 114	5570	9.46	9.50
	802.11ax-HE20 RU26/4 MCS0	CH 100	5500	9.25	9.50
		CH 116	5580	8.85	
		CH 140	5700	8.79	
	802.11ax-HE20 RU52/38 MCS0	CH 100	5500	9.26	9.50
		CH 116	5580	8.88	
		CH 140	5700	8.72	
	802.11ax-HE20 RU106/53 MCS0	CH 100	5500	9.23	9.50
		CH 116	5580	8.85	
		CH 140	5700	8.74	
	802.11ax-HE20 RU242/61 MCS0	CH 100	5500	9.30	9.50
		CH 116	5580	8.96	
		CH 140	5700	8.82	
	802.11ax-HE40 RU26/8 MCS0	CH 102	5510	9.45	9.50
		CH 110	5550	9.44	
		CH 134	5670	8.74	
	802.11ax-HE40 RU52/40 MCS0	CH 102	5510	9.47	9.50
		CH 110	5550	9.47	
		CH 134	5670	8.74	
	802.11ax-HE40 RU106/54	CH 102	5510	9.42	9.50
		CH 110	5550	9.45	

	MCS0	CH 134	5670	8.75	
	802.11ax-HE40 RU242/61 MCS0	CH 102	5510	9.55	10.00
		CH 110	5550	9.56	
		CH 134	5670	8.82	
	802.11ax-HE40 RU484/65 MCS0	CH 102	5510	7.09	10.00
		CH 110	5550	9.56	
		CH 134	5670	8.82	
	802.11ax-HE80 RU26/19 MCS0	CH 106	5530	10.12	10.50
		CH 122	5610	9.44	
	802.11ax-HE80 RU52/44 MCS0	CH 106	5530	10.12	10.50
		CH 122	5610	9.46	
	802.11ax-HE80 RU106/56 MCS0	CH 106	5530	10.12	10.50
		CH 122	5610	9.45	
	802.11ax-HE80 RU242/62 MCS0	CH 106	5530	10.12	10.50
		CH 122	5610	9.45	
	802.11ax-HE80 RU484/65 MCS0	CH 106	5530	10.02	10.50
		CH 122	5610	9.47	
	802.11ax-HE80 RU996/67 MCS0	CH 106	5530	8.36	10.00
		CH 122	5610	9.59	
	802.11ax-HE160 RU26/36 MCS0	CH 114	5570	9.24	9.50
	802.11ax-HE160 RU52/52 MCS0	CH 114	5570	9.12	9.50
	802.11ax-HE160 RU106/60 MCS0	CH 114	5570	9.20	9.50
	802.11ax-HE160 RU242/64 MCS0	CH 114	5570	9.12	9.50
	802.11ax-HE160 RU484/66 MCS0	CH 114	5570	9.14	9.50
	802.11ax-HE160 RU996/67 MCS0	CH 114	5570	9.12	9.50
	802.11ax-HE160 RU996*2/68 MCS0	CH 114	5570	9.44	9.50

< 5GHz Wi-Fi (U-NII-2C) Conducted Average Power Ant2 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
5GHz Wi-Fi (U-NII-2C) ANT2	802.11a-6Mbps	CH 100	5500	10.2	10.50
		CH 116	5580	**10.26**	
		CH 140	5700	9.97	
	802.11n-HT20 MCS0	CH 100	5500	9.24	9.50
		CH 116	5580	8.90	
		CH 140	5700	8.74	
	802.11n-HT40 MCS0	CH 102	5510	9.72	10.00
		CH 110	5550	9.67	
		CH 134	5670	8.92	
	802.11ac-VHT20 MCS0	CH 100	5500	9.28	9.50
		CH 116	5580	8.95	
		CH 140	5700	8.77	
	802.11ac-VHT40 MCS0	CH 102	5510	9.72	10.00
		CH 110	5550	9.76	
		CH 134	5670	8.96	
	802.11ac-VHT80 MCS0	CH 106	5530	9.15	10.00
		CH 122	5610	9.58	
	802.11ac-VHT160 MCS0	CH 114	5570	9.46	9.50
	802.11ax-HE20 RU26/4 MCS0	CH 100	5500	6.56	9.00
		CH 116	5580	7.75	
		CH 140	5700	8.63	
	802.11ax-HE20 RU52/38 MCS0	CH 100	5500	6.74	9.00
		CH 116	5580	7.74	
		CH 140	5700	8.63	
	802.11ax-HE20 RU106/53 MCS0	CH 100	5500	6.77	9.00
		CH 116	5580	7.79	
		CH 140	5700	8.63	
	802.11ax-HE20 RU242/61 MCS0	CH 100	5500	6.83	9.00
		CH 116	5580	7.91	
		CH 140	5700	8.73	
	802.11ax-HE40 RU26/8 MCS0	CH 102	5510	7.03	8.50
		CH 110	5550	7.68	
		CH 134	5670	8.01	
	802.11ax-HE40 RU52/40 MCS0	CH 102	5510	7.01	8.50
		CH 110	5550	7.78	
		CH 134	5670	8.03	
	802.11ax-HE40 RU106/54	CH 102	5510	6.98	8.50
		CH 110	5550	7.74	

	MCS0	CH 134	5670	8.12	
	802.11ax-HE40 RU242/61 MCS0	CH 102	5510	7.09	8.50
		CH 110	5550	7.80	
		CH 134	5670	8.15	
	802.11ax-HE40 RU484/65 MCS0	CH 102	5510	7.09	8.50
		CH 110	5550	7.80	
		CH 134	5670	8.15	
	802.11ax-HE80 RU26/19 MCS0	CH 106	5530	8.33	9.00
		CH 122	5610	8.75	
	802.11ax-HE80 RU52/44 MCS0	CH 106	5530	8.25	9.00
		CH 122	5610	8.78	
	802.11ax-HE80 RU106/56 MCS0	CH 106	5530	8.23	9.00
		CH 122	5610	8.74	
	802.11ax-HE80 RU242/62 MCS0	CH 106	5530	8.25	9.00
		CH 122	5610	8.78	
	802.11ax-HE80 RU484/65 MCS0	CH 106	5530	8.30	9.00
		CH 122	5610	8.69	
	802.11ax-HE80 RU996/67 MCS0	CH 106	5530	8.36	9.00
		CH 122	5610	8.80	
	802.11ax-HE160 RU26/36 MCS0	CH 114	5570	8.26	8.50
	802.11ax-HE160 RU52/52 MCS0	CH 114	5570	8.13	8.50
	802.11ax-HE160 RU106/60 MCS0	CH 114	5570	8.20	8.50
	802.11ax-HE160 RU242/64 MCS0	CH 114	5570	8.13	8.50
	802.11ax-HE160 RU484/66 MCS0	CH 114	5570	8.15	8.50
	802.11ax-HE160 RU996/67 MCS0	CH 114	5570	8.14	8.50
	802.11ax-HE160 RU996*2/68 MCS0	CH 114	5570	8.38	8.50

< 5GHz Wi-Fi (U-NII-3) Conducted Average Power Ant1 >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
5GHz Wi-Fi (U-NII-3) ANT1	802.11a-6Mbps	CH 149	5745	**8.71**	9.00
		CH 157	5785	7.92	
		CH 165	5825	8.41	
	802.11n-HT20 MCS0	CH 149	5745	7.53	8.00
		CH 157	5785	6.73	
		CH 165	5825	6.14	
	802.11n-HT40 MCS0	CH 151	5755	8.44	8.50
		CH 159	5795	7.99	
	802.11ac-VHT20 MCS0	CH 149	5745	7.56	8.00
		CH 157	5785	6.78	
		CH 165	5825	6.16	
	802.11ac-VHT40 MCS0	CH 151	5755	8.45	8.50
		CH 159	5795	7.99	
	802.11ac-VHT80 MCS0	CH 155	5775	8.16	8.50
	802.11ax-HE20 RU26/4 MCS0	CH 149	5745	7.47	7.50
		CH 157	5785	6.74	
		CH 165	5825	6.16	
	802.11ax-HE20 RU52/38 MCS0	CH 149	5745	7.41	7.50
		CH 157	5785	6.63	
		CH 165	5825	6.15	
	802.11ax-HE20 RU106/53 MCS0	CH 149	5745	7.45	7.50
		CH 157	5785	6.74	
		CH 165	5825	6.02	
	802.11ax-HE20 RU242/61 MCS0	CH 149	5745	7.59	8.00
		CH 157	5785	6.8	
		CH 165	5825	6.21	
	802.11ax-HE40 RU26/8 MCS0	CH 151	5755	8.12	8.50
		CH 159	5795	7.74	
	802.11ax-HE40 RU52/40 MCS0	CH 151	5755	8.24	8.50
		CH 159	5795	7.78	
	802.11ax-HE40 RU106/54 MCS0	CH 151	5755	8.23	8.50
		CH 159	5795	7.77	
	802.11ax-HE40 RU242/61 MCS0	CH 151	5755	8.32	8.50
		CH 159	5795	7.86	
	802.11ax-HE40 RU484/65 MCS0	CH 151	5755	8.32	8.50
		CH 159	5795	7.86	
	802.11ax-HE80 RU26/19 MCS0	CH 155	5775	8.03	8.50

	802.11ax-HE80 RU52/44 MCS0	CH 155	5775	8.03	8.50
	802.11ax-HE80 RU106/56 MCS0	CH 155	5775	8.03	8.50
	802.11ax-HE80 RU242/62 MCS0	CH 155	5775	8.11	8.50
	802.11ax-HE80 RU484/65 MCS0	CH 155	5775	8.11	8.50
	802.11ax-HE80 RU996/67 MCS0	CH 155	5775	8.17	8.50

< 5GHz Wi-Fi (U-NII-3) Conducted Average Power Ant2 >

	Mode	**Channel**	**Frequency (MHz)**	**Conducted Average Power (dBm)**	**Tune-up Limit (dBm)**
5GHz Wi-Fi (U-NII-3) ANT2	**802.11a-6Mbps**	CH 149	5745	**10.11**	10.50
		CH 157	5785	9.89	
		CH 165	5825	10.01	
	802.11n-HT20 MCS0	CH 149	5745	7.33	7.50
		CH 157	5785	7.04	
		CH 165	5825	7.08	
	802.11n-HT40 MCS0	CH 151	5755	8.44	9.00
		CH 159	5795	8.52	
	802.11ac-VHT20 MCS0	CH 149	5745	7.31	7.50
		CH 157	5785	7.01	
		CH 165	5825	7.08	
	802.11ac-VHT40 MCS0	CH 151	5755	8.61	9.00
		CH 159	5795	8.62	
	802.11ac-VHT80 MCS0	CH 155	5775	8.35	8.50
	802.11ax-HE20 RU26/4 MCS0	CH 149	5745	8.42	8.50
		CH 157	5785	7.96	
		CH 165	5825	8.06	
	802.11ax-HE20 RU52/38 MCS0	CH 149	5745	8.40	8.50
		CH 157	5785	7.98	
		CH 165	5825	8.03	
	802.11ax-HE20 RU106/53 MCS0	CH 149	5745	8.42	8.50
		CH 157	5785	7.86	
		CH 165	5825	8.07	
	802.11ax-HE20 RU242/61 MCS0	CH 149	5745	8.58	9.00
		CH 157	5785	8.06	
		CH 165	5825	8.15	
	802.11ax-HE40 RU26/8 MCS0	CH 151	5755	8.23	8.50
		CH 159	5795	8.36	

	802.11ax-HE40 RU52/40 MCS0	CH 151	5755	8.36	8.50
		CH 159	5795	8.45	
	802.11ax-HE40 RU106/54 MCS0	CH 151	5755	8.36	8.50
		CH 159	5795	8.44	
	802.11ax-HE40 RU242/61 MCS0	CH 151	5755	8.46	9.00
		CH 159	5795	8.50	
	802.11ax-HE40 RU484/65 MCS0	CH 151	5755	8.46	9.00
		CH 159	5795	8.50	
	802.11ax-HE80 RU26/19 MCS0	CH 155	5775	8.41	8.50
	802.11ax-HE80 RU52/44 MCS0	CH 155	5775	8.33	8.50
	802.11ax-HE80 RU106/56 MCS0	CH 155	5775	8.23	8.50
	802.11ax-HE80 RU242/62 MCS0	CH 155	5775	8.36	8.50
	802.11ax-HE80 RU484/65 MCS0	CH 155	5775	8.43	8.50
	802.11ax-HE80 RU996/67 MCS0	CH 155	5775	8.45	8.50

---------- The following blanks ----------

<Bluetooth Conducted Average Power>

Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
GFSK	00	2402	5.49	6.50
	39	2441	6.01	
	78	2480	4.75	
π/4DQPSK	00	2402	4.83	5.50
	39	2441	5.37	
	78	2480	4.07	
8DPSK	00	2402	5.27	6.00
	39	2441	5.81	
	78	2480	4.52	
BT-LE 1M	00	2402	9.63	10.50
	19	2440	**10.35**	
	39	2480	9.83	
BT-LE 2M	**00**	2402	9.63	10.50
	19	2440	10.35	
	39	2480	9.84	

---------- The following blanks ----------

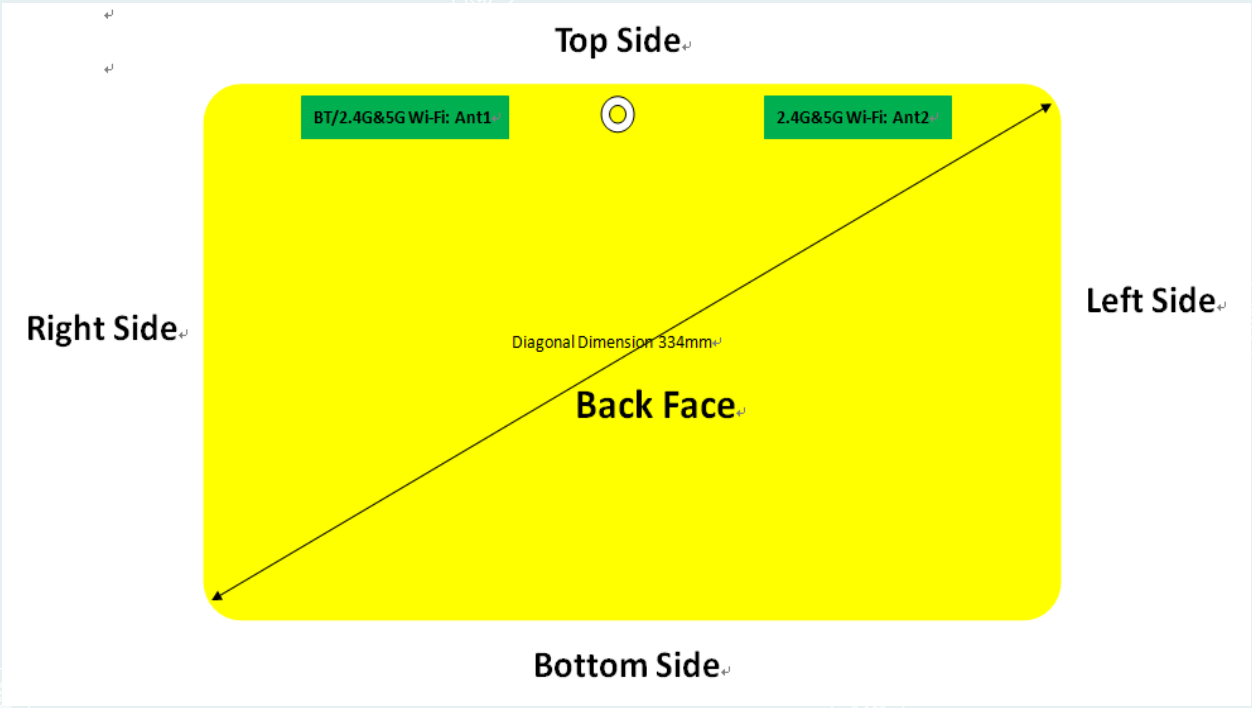
Note:

1. Per KDB 447498 D01Chapter 4.3.1, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] {√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   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

Faction	Max Tune-up Limit (dBm)	Max Tune-up Limit (mW)	Separation Distance (mm)	Frequency (GHz)	Result	exclusion thresholds
2.4G Wi-Fi	13.50	22.39	0	2.472	7.05	3
5GHz Wi-Fi (U-NII-1&U-NII-2A)	11.50	14.13	0	5.320	6.52	3
5GHz Wi-Fi (U-NII-2C)	10.50	11.22	0	5700	5.01	3
5GHz Wi-Fi (U-NII-3)	10.50	11.22	0	5.825	5.07	3
Bluetooth (BR+EDR)	6.50	4.47	0	2.480	1.40	3
Bluetooth (BT-LE)	10.50	11.22	0	2.480	3.31	3

2. Per KDB 447498 D01Chapter 4.3.1, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold which is> 3, so SAR test is required.
3. Per KDB 447498 D01Chapter 4.3.2b), When an antenna qualifies for the standalone SAR test exclusion of 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:
   [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]·[√f(GHz)/x] W/kg, for test separation distances ≤ 50 mm;
   where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.
   0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distance is > 50 mm.

11. EUT ANTENNA LOCATION



EUT Antenna Distance:

Antenna Location	Front Side(mm)	Back Side(mm)	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
Wi-Fi Antenna1	3	3	2	175	163	9
Wi-Fi Antenna2	3	3	2	175	9	163
Bluetooth	3	3	2	175	163	9

Test Required :

Antenna Location	Front Side(mm)	Back Side(mm)	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
Wi-Fi Antenna1	Yes	Yes	Yes	No	No	Yes
Wi-Fi Antenna2	Yes	Yes	Yes	No	Yes	No
Bluetooth	Yes	Yes	Yes	No	No	Yes

Note:

1. That surface or edge with a transmitting antenna located and phantom > 25mm, SAR measurements at the side are not required.

12. SAR TEST RESULTS SUMMARY

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.

   Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.

   Reported SAR(W/kg)= Measured SAR(W/kg) Scaling Factor*
2. Per KDB 447498 D01v06, for each exposure position, if the highest output channel reported SAR≤0.8W/kg, other channels SAR testing are not necessary
3. Per KDB865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg; if the deviation among the repeated measurement is ≤20%,and the measured SAR <1.45W/kg, only one repeated measurement is required.

Bluetooth

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
BT-LE	Front Side	0	2440	10.35	10.50	1.04	0.13	0.077	0.080	/
	Rear Side	0	2440	10.35	10.50	1.04	0.00	0.201	**0.208**	1#
	Top Side	0	2440	10.35	10.50	1.04	0.03	0.147	0.152	/
	Left Side	0	2440	10.35	10.50	1.04	0.12	0.002	0.002	/

2.4G Wi-Fi

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11b	Front Side	0	2412	13.07	13.50	1.10	-0.03	0.53	0.585	/
	Rear Side	0	2412	13.07	13.50	1.10	0.02	1.10	**1.214**	2#
	Rear Side	0	2437	13.02	13.50	1.12	-0.11	0.818	0.914	/
	Rear Side	0	2462	12.92	13.50	1.14	0.07	1.06	1.211	/
	Top Side	0	2412	13.07	13.50	1.10	0.06	0.838	0.925	/
	Top Side	0	2437	13.02	13.50	1.12	0.16	0.594	0.663	/
	Top Side	0	2462	12.92	13.50	1.14	0.05	0.779	0.890	/
	Right Side	0	2412	13.07	13.50	1.10	-0.09	0.028	0.031	/
Ant2										
802.11b	Front Side	0	2412	13.16	13.50	1.08	0.08	0.662	0.716	/
	Rear Side	0	2412	13.16	13.50	1.08	0.13	0.906	0.980	/
	Rear Side	0	2437	12.88	13.50	1.15	0.04	0.897	1.035	/
	Rear Side	0	2462	13.04	13.50	1.11	0.12	1.07	**1.190**	3#
	Top Side	0	2412	13.16	13.50	1.08	-0.01	0.858	0.928	/
	Top Side	0	2437	12.88	13.50	1.15	0.13	0.815	0.940	/
	Top Side	0	2462	13.04	13.50	1.11	0.15	1.05	1.167	/
	Left Side	0	2412	13.16	13.50	1.08	0.12	0.011	0.012	/

5GHz Wi-Fi (U-NII-1&U-NII-2A)

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11a	Front Side	0	5260	11.20	11.50	1.07	0.05	0.618	0.662	/
	Rear Side	0	5260	11.20	11.50	1.07	0.15	0.895	0.959	/
	Rear Side	0	5280	11.14	11.50	1.09	0.07	0.896	**0.973**	4#
	Top Side	0	5260	11.20	11.50	1.07	0.04	0.658	0.705	/
	Right Side	0	5260	11.20	11.50	1.07	-0.04	0.008	0.009	/
Ant2										
802.11a	Front Side	0	5180	9.18	9.50	1.08	-0.05	0.441	0.475	/
	Rear Side	0	5180	9.18	9.50	1.08	-0.03	1.11	1.195	/
	Rear Side	0	5200	9.17	9.50	1.08	-0.07	1.14	1.230	/
	Rear Side	0	5240	9.15	9.50	1.08	0.03	1.15	**1.247**	5#
	Top Side	0	5180	9.18	9.50	1.08	-0.05	0.736	0.792	/
	Left Side	0	5180	9.18	9.50	1.08	-0.03	0.012	0.013	/

5GHz Wi-Fi (U-NII-2C)

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11a	Front Side	0	5580	10.26	10.50	1.06	0.07	0.65	0.687	/
	Rear Side	0	5580	10.26	10.50	1.06	0.15	1.19	**1.258**	6#
	Rear Side	0	5500	10.20	10.50	1.07	0.12	0.967	1.036	/
	Rear Side	0	5700	9.97	10.50	1.13	0.17	1.09	1.231	/
	Top Side	0	5580	10.26	10.50	1.06	-0.08	0.657	0.694	/
	Right Side	0	5580	10.26	10.50	1.06	0.01	0.005	0.005	/
Ant2										
802.11a	Front Side	0	5580	9.01	9.50	1.12	-0.11	0.612	0.685	/
	Rear Side	0	5580	9.01	9.50	1.12	0.08	0.699	**0.782**	7#
	Top Side	0	5580	9.01	9.50	1.12	0.00	0.468	0.524	/
	Left Side	0	5580	9.01	9.50	1.12	0.13	0.003	0.003	/

5GHz Wi-Fi (U-NII-3)

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11a	Front Side	0	5745	8.71	9.00	1.07	0.16	0.471	0.504	/
	Rear Side	0	5745	8.71	9.00	1.07	0.02	1.01	1.080	/
	Rear Side	0	5785	7.92	9.00	1.28	0.06	0.795	1.019	/
	Rear Side	0	5825	8.41	9.00	1.15	0.11	1.04	**1.191**	8#
	Top Side	0	5745	8.71	9.00	1.07	-0.15	0.554	0.592	/
	Right Side	0	5745	8.71	9.00	1.07	-0.06	0.003	0.003	/
Ant2										
802.11a	Front Side	0	5745	10.11	10.50	1.09	-0.17	0.305	0.334	/
	Rear Side	0	5745	10.11	10.50	1.09	0.07	0.425	**0.465**	9#
	Top Side	0	5745	10.11	10.50	1.09	-0.02	0.29	0.317	/
	Left Side	0	5745	10.11	10.50	1.09	0.07	0.002	0.002	/

---------- The following blanks ----------

Repeated Once SAR

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11b	Rear Side	0	2412	13.07	13.50	1.10	0.17	1.08	1.192	/
802.11a	Rear Side	0	5280	11.14	11.50	1.09	-0.19	0.887	0.964	/
802.11a	Rear Side	0	5580	10.26	10.50	1.06	-0.08	1.14	1.205	/
802.11a	Rear Side	0	5825	8.41	9.00	1.15	0.12	1.01	1.157	/
Ant2										
802.11b	Rear Side	0	2462	13.04	13.50	1.11	0.11	0.996	1.107	/
802.11a	Rear Side	0	5240	9.15	9.50	1.08	-0.13	1.09	1.181	/

Repeated Two SAR

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
Ant1										
802.11b	Rear Side	0	2412	13.07	13.50	1.10	-0.02	1.08	1.192	/
802.11a	Rear Side	0	5580	10.26	10.50	1.06	-0.03	1.12	1.184	/
Ant2										
802.11a	Rear Side	0	5240	9.15	9.50	1.08	0.01	1.1	1.192	/

---------- The following blanks ----------

13. SIMULTANEOUS TRANSMISSION ANALYSIS

KDB447498 D01 SAR test exclusion is determined by the SAR to Peak Location Separation Ratio (**SPLSR**). Between pairs of simultaneously transmitting antennas:

$$\mathbf{SPLSP = (SAR_1 + SAR_2)^{1.5}/Ri}$$

SPLSP ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion. When 10-g SAR applies, **SPLSP** ≤ 0.10, rounded to two decimal digits.

$\mathbf{SAR_1}$ and $\mathbf{SAR_2}$ are the highest reported or estimated SAR values for each antenna in the pair
Ri is the separation distance in mm between the peak SAR locations for the antenna pair, When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $\mathbf{[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]}$, where $\mathbf{(x_1, y_1, z_1)}$ and $\mathbf{(x_2, y_2, z_2)}$ are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate

KDB865664 D01 For devices where the peak SAR locations of the simultaneously transmitting antennas are spatially separated and not overlapping, The normally required zoom scan measurement procedure is applied to the peak SAR locations identified in each of these area scans. For each nonnal zoom scan required by the peaks determined in the area scan, the same zoom scan is also performed at the same identical location in the other frequency bands that would have required the enlarged zoom scan. The simultaneous transmission 1-g SAR is determined by the highest SAR computed by the volume scan post-processing procedures among the peak SAR locations identified by the area scans.

No.	Simultaneous Transmission Consideration	Required
1	2.4GHz Wi-Fi MIMO	No
2	5GHz Wi-Fi MIMO	No
3	2.4GHz Wi-Fi SISO Ant1 + Bluetooth Ant1	Yes
4	2.4GHz Wi-Fi SISO Ant2 + Bluetooth Ant1	Yes
5	5GHz Wi-Fi SISO Ant1 + Bluetooth Ant1	Yes
6	5GHz Wi-Fi SISO Ant2 + Bluetooth Ant1	Yes

According to KDB 248227 D01 determine the simultaneous transmission SAR test exclusion for Wi-Fi MIMO, SAR plots shown that not overlap and that the antennas were at least 118 mm apart, so using section 6.1, there is no evaluation of MIMO.

Sum of the SAR for 2.4GHz Wi-Fi & Bluetooth

Position	Standalone SAR(W/kg)			Summed(1+3) SAR(W/kg)	Summed(2+3) SAR(W/kg)
	1	2	3		
	2.4GHz Wi-Fi SISO Ant1	2.4GHz Wi-Fi SISO Ant2	Bluetooth (LE 1M)		
Front Side	0.585	0.716	0.080	0.665	0.796
Rear Side	1.214	1.190	0.208	**1.422**	1.398
Top Side	0.663	1.167	0.152	0.815	1.219
Left Side	/	0.012	/	/	0.012
Right Side	0.031	/	0.002	0.033	0.002

Sum of the SAR for 5GHz Wi-Fi & Bluetooth

Position	Standalone SAR(W/kg)			Summed(1+3) SAR(W/kg)	Summed(2+3) SAR(W/kg)
	1	2	3		
	5GHz Wi-Fi SISO Ant1	5GHz Wi-Fi SISO Ant2	Bluetooth (LE 1M)		
Front Side	0.694	0.685	0.080	0.774	0.765
Rear Side	1.258	1.247	0.208	**1.466**	1.455
Top Side	0.705	0.792	0.152	0.857	0.944
Left Side	/	0.013	/	/	0.013
Right Side	0.009	/	0.002	0.011	0.002

Note:

1. Per KDB 447498D01v06, Simultaneous Transmission SAR Evaluation procedures is as followed:
   Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.
   Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.
   Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.
2. 2.4GHz Wi-Fi & Bluetooth cannot simultaneous transmission.
3. 2.4GHz Wi-Fi & 5GHz Wi-Fi cannot simultaneous transmission.

APPENDIX A. SYSTEM CHECKING SCANS

2450MHz System Check

.

Measurement Report for Device, UID 0 -, Channel 0 (2450.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	, 10		, 0--	2450.0, 0	8.18	1.93	39.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1012, 2022-10-12	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

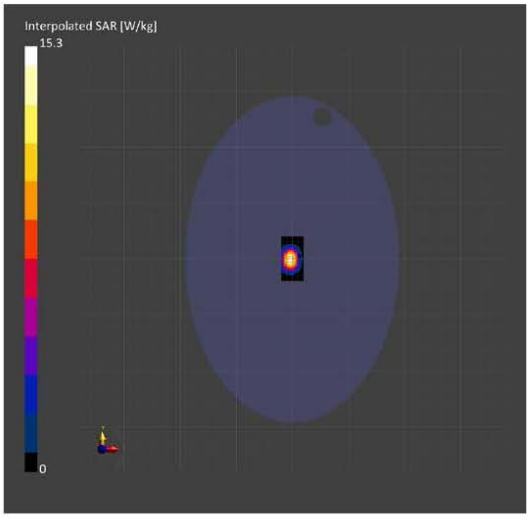
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-12, 8:42	2022-10-12, 8:49
psSAR1g [W/kg]	11.9	13.1
psSAR10g [W/kg]	5.29	5.93
Power Drift [dB]	-0.11	-0.11
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		77.9
Dist 3dB Peak [mm]		9.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



5250MHz System Check

.

Measurement Report for Device, UID 0 -, Channel 0 (5250.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	, 10		, 0--	5250.0, 0	6.04	4.80	35.9

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

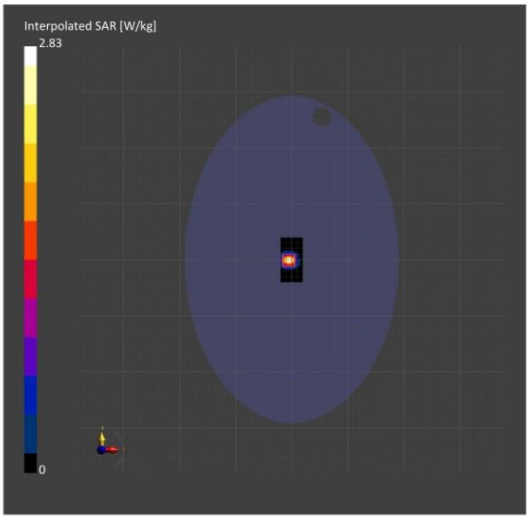
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-17, 10:04	2022-10-17, 10:13
psSAR1g [W/kg]	6.54	7.27
psSAR10g [W/kg]	2.09	2.08
Power Drift [dB]	-0.06	-0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		64.1
Dist 3dB Peak [mm]		7.6

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



5600MHz System Check

Measurement Report for Device, UID 0 -, Channel 0 (5600.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	, 10		, 0--	5600.0, 0	5.37	5.15	35.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1018, 2022-10-18	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

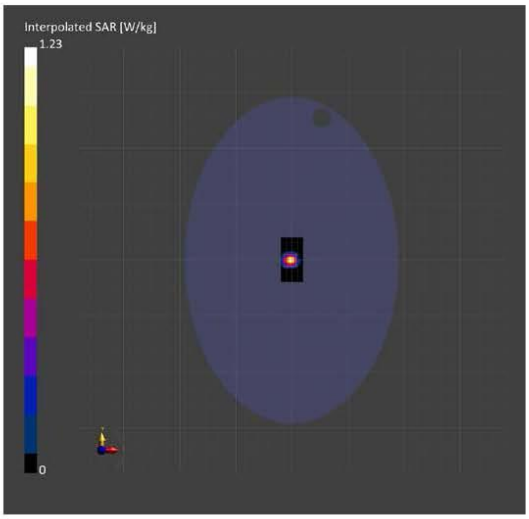
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-18, 8:46	2022-10-18, 8:54
psSAR1g [W/kg]	7.84	8.47
psSAR10g [W/kg]	2.29	2.35
Power Drift [dB]	0.01	-0.00
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		61.6
Dist 3dB Peak [mm]		7.5

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



5750MHz Head System Check

.

Measurement Report for Device, UID 0 -, Channel 0 (5750.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	, 10		, 0--	5750.0, 0	5.43	5.30	35.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

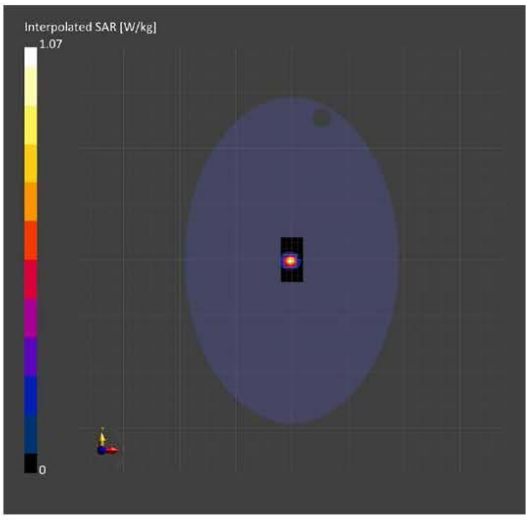
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-17, 11:01	2022-10-17, 11:09
psSAR1g [W/kg]	7.02	7.71
psSAR10g [W/kg]	2.11	2.13
Power Drift [dB]	0.00	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		60.1
Dist 3dB Peak [mm]		7.4

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



APPENDIX B. MEASUREMENT SCANS

. Plot No.1#

.

Measurement Report for Device, BACK, ISM 2.4 GHz Band, UID 10670 AAA, Channel 19 (2440.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10670-AAA	2440.0, 19	8.37	1.83	39.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1012, 2022-10-12	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

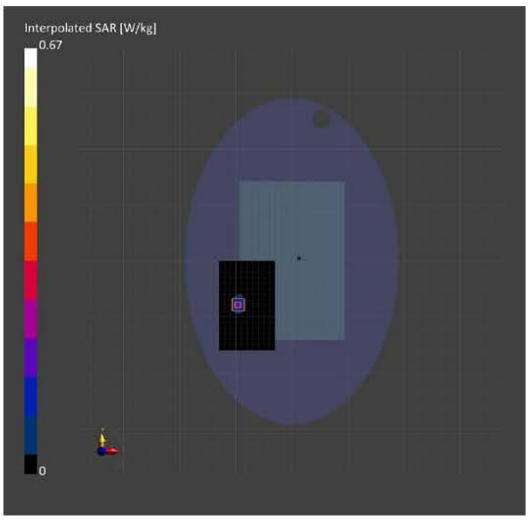
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-12, 10:28	2022-10-12, 10:34
psSAR1g [W/kg]	0.167	0.201
psSAR10g [W/kg]	0.069	0.063
Power Drift [dB]	0.08	-0.00
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		26.1
Dist 3dB Peak [mm]		4.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)	.	
Error(s)		



. **Plot No.2#**

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Measurement Report for Device, BACK, WLAN 2.4GHz, UID 10315 AAB, Channel 1 (2412.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10315-AAB	2412.0, 1	8.37	1.81	39.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1012, 2022-10-12	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

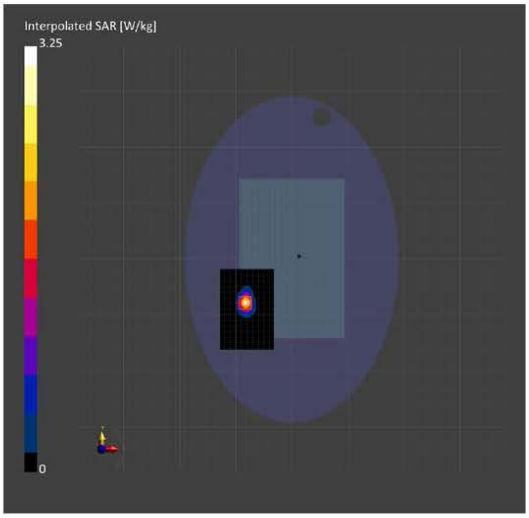
	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-12, 16:48	2022-10-12, 16:53
psSAR1g [W/kg]	0.871	1.10
psSAR10g [W/kg]	0.373	0.372
Power Drift [dB]	-0.01	0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		34.0
Dist 3dB Peak [mm]		5.8

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.3#

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Measurement Report for Device, BACK, WLAN 2.4GHz, UID 10315 AAB, Channel 11 (2462.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10315-AAB	2462.0, 11	8.37	1.85	39.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1012, 2022-10-12	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

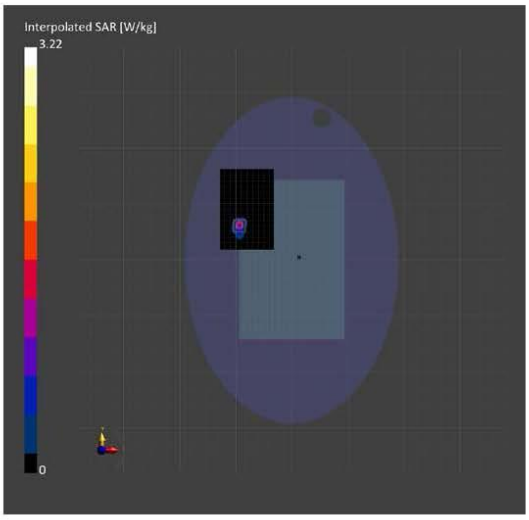
	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-13, 11:18	2022-10-13, 11:24
psSAR1g [W/kg]	0.888	1.07
psSAR10g [W/kg]	0.374	0.362
Power Drift [dB]	-0.10	0.12
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		28.0
Dist 3dB Peak [mm]		5.4

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.4#

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Measurement Report for Device, BACK, U-NII-1, U-NII-2A, UID 10317 AAD, Channel 56 (5280.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-1, U-NII-2A	WLAN, 10317-AAD	5280.0, 56	6.04	4.83	35.9

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

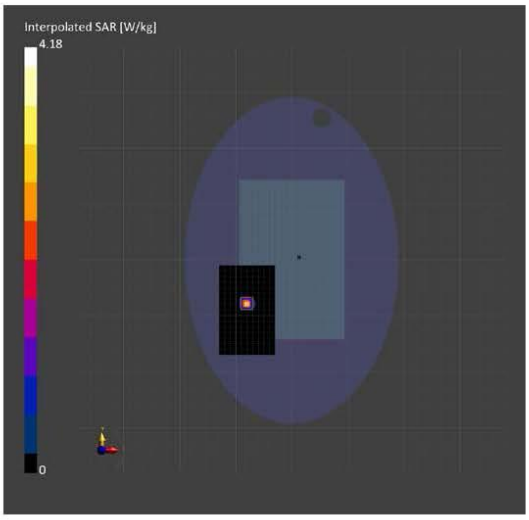
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-18, 15:22	2022-10-18, 15:29
psSAR1g [W/kg]	0.722	0.896
psSAR10g [W/kg]	0.181	0.194
Power Drift [dB]	-0.12	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		47.6
Dist 3dB Peak [mm]		4.9

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.5#

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Measurement Report for Device, BACK, U-NII-1, U-NII-2A, UID 10317 AAD, Channel 48 (5240.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-1, U-NII-2A	WLAN, 10317-AAD	5240.0, 48	6.04	4.79	35.9

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

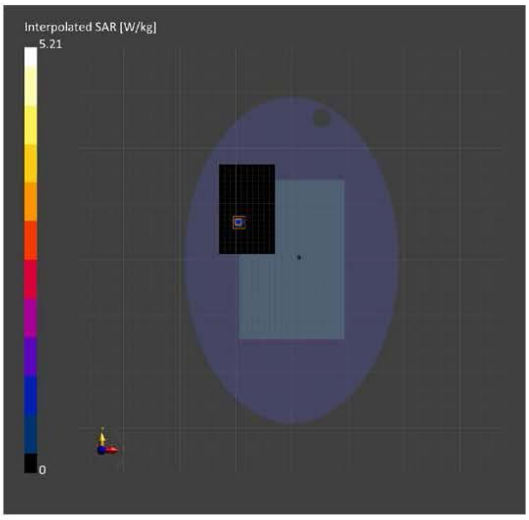
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-17, 13:53	2022-10-17, 14:02
psSAR1g [W/kg]	0.796	1.15
psSAR10g [W/kg]	0.228	0.252
Power Drift [dB]	0.02	0.03
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		50.2
Dist 3dB Peak [mm]		4.8

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.6#

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Measurement Report for Device, BACK, U-NII-2C < 5.65 GHz, UID 10317 AAD, Channel 116 (5580.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-2C < 5.65 GHz	WLAN, 10317-AAD	5580.0, 116	5.37	5.13	35.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1018, 2022-10-18	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

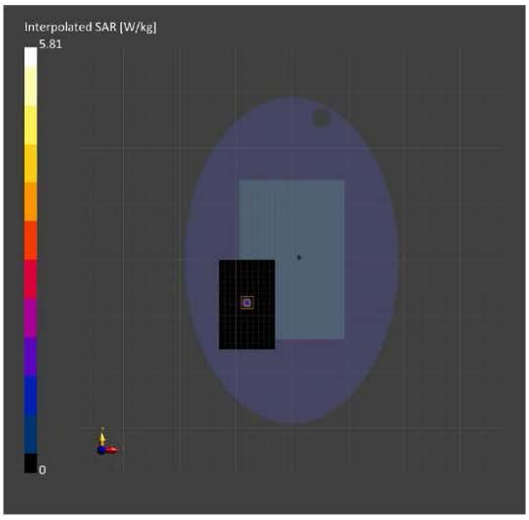
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	24.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-19, 09:54	2022-10-19, 10:02
psSAR1g [W/kg]	1.01	1.19
psSAR10g [W/kg]	0.256	0.261
Power Drift [dB]	-0.02	0.15
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		46.8
Dist 3dB Peak [mm]		4.3

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.7#

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Measurement Report for Device, BACK, U-NII-2C < 5.65 GHz, UID 10317 AAD, Channel 116 (5580.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-2C < 5.65 GHz	WLAN, 10317-AAD	5580.0, 116	5.37	5.13	35.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1018, 2022-10-18	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

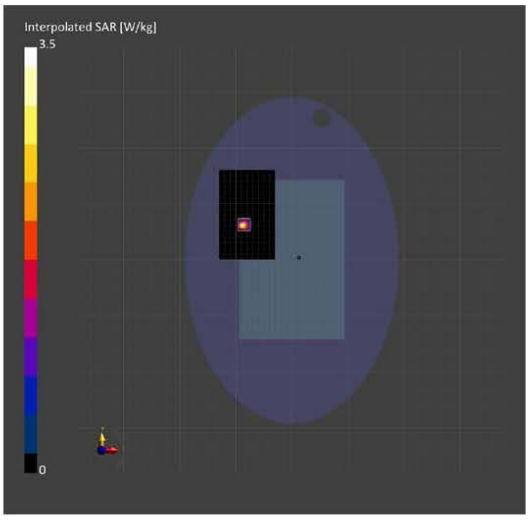
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	24.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-18, 13:41	2022-10-18, 13:49
psSAR1g [W/kg]	0.519	0.699
psSAR10g [W/kg]	0.131	0.144
Power Drift [dB]	0.02	0.08
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		44.3
Dist 3dB Peak [mm]		4.8

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.8#

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Measurement Report for Device, BACK, U-NII-3 Standalone, UID 10317 AAD, Channel 165 (5825.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-3 Standalone	WLAN, 10317-AAD	5825.0, 165	5.43	5.31	35.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

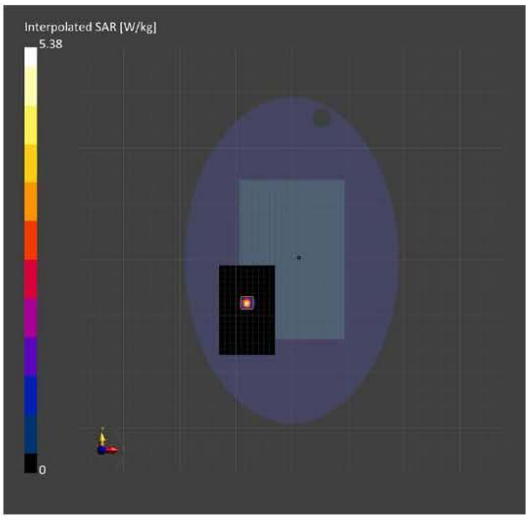
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-18, 13:56	2022-10-18, 14:04
psSAR1g [W/kg]	0.907	1.04
psSAR10g [W/kg]	0.222	0.225
Power Drift [dB]	0.06	0.11
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		43.9
Dist 3dB Peak [mm]		4.7

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.9#

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Measurement Report for Device, BACK, U-NII-3 Standalone, UID 10317 AAD, Channel 149 (5745.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	285.0 x 188.0 x 8.0		Tablet

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	U-NII-3 Standalone	WLAN, 10317-AAD	5745.0, 149	5.43	5.30	35.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2166	HSL600-10000 Charge: 1017, 2022-10-17	EX3DV4 - SN7716, 2022-03-29	DAE4 Sn1718, 2022-03-25

Scan Setup

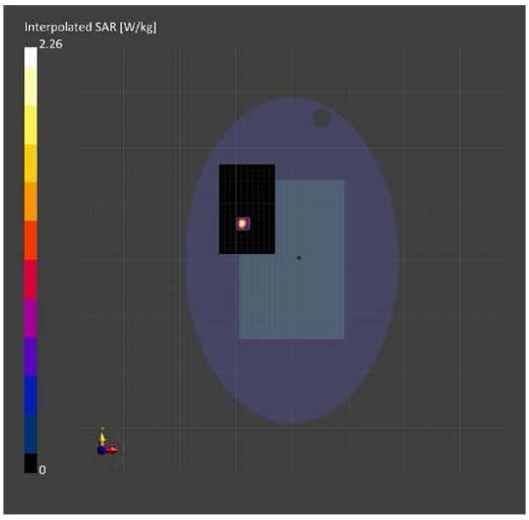
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-17, 15:48	2022-10-17, 15:56
psSAR1g [W/kg]	0.378	0.425
psSAR10g [W/kg]	0.093	0.083
Power Drift [dB]	0.04	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		44.9
Dist 3dB Peak [mm]		4.7

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



APPENDIX C. RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

Please refer to the attached document E202209278552-2 Calibration reports.

APPENDIX D: PHOTOGRAPH OF SET UP

Please refer to the attached document E202209278552-3 Test setup photo.

---------- End of Report ----------