

RF Exposure report



The following samples were submitted and identified on behalf of the client as:

Product Name Rugged Tablet
Brand Name RuggON
Model No. LUNA 3XXXXXXXXX
(X can be any alphanumeric or blank for different marketing)
Applicant RuggON Corporation
4F, No. 298, Yangguang St., Neihu District Taipei City, 11491, Taiwan
Standards IEEE/ANSI C95.1-1992, IEEE 1528-2013
FCC ID 2ABTU-AX210D2
Date of EUT Receipt Jun. 02, 2022
Date of Test(s) Jun. 20, 2022 ~ Jun. 25, 2022
Date of Issue Aug. 10, 2022

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

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Signed on behalf of SGS

Clerk / Kimmy Chiou	PM / Jasper Wang	Approved By / John Yeh

Date: Aug. 10, 2022

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2206000138EN	00	Initial creation of document	Jul. 11, 2022	Kimmy Chiou	*
TESA2206000138EN	01	Modify comment	Jul. 25, 2022	Kimmy Chiou	*
TESA2206000138EN	02	Modify Model No.	Jul. 27, 2022	Kimmy Chiou	*
TESA2206000138EN	03	Add antenna Gain	Aug. 10, 2022	Ruby Ou	

Note:

1. The mark " * " is the revised version of the report due to comments submitted by the certification.

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1 GENERAL INFORMATION

1.1 Test Methodology

The SAR testing method and procedure for this device is in accordance with the following standards:

IEEE/ANSI C95.1-1992

IEEE 1528-2013

KDB447498D01v06

KDB865664D01v01r04

KDB865664D02v01r02

KDB616217D04v01r02

KDB248227D01v02r01

IEC/IEEE 62209-1528:2020

SPEAG DASY6 System Handbook

SPEAG DASY6 Application Note (Interim Procedure for Device Operation at 6GHz-10GHz)

IEC TR 63170:2018

IEC 62479:2010

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1.2 Description of EUT

Product Name	Rugged Tablet	
Brand Name	RuggON	
Model No.	LUNA 3XXXXXXXXX (X can be any alphanumeric or blank for different marketing)	
FCC ID	2ABTU-AX210D2	
Integrated WLAN Module	Brand Name: Intel® Wi-Fi 6E AX210 Model Name: AX210D2W	
Mode	WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE	
Duty Cycle	WLAN802.11	Refer to page 48~50
	Bluetooth	76.4%
Supported Radios	802.11 b/g/n/ax	2.4GHz (2400.0 – 2483.5 MHz)
	802.11a/n/ac/ax	5.2GHz (5150.0 – 5250.0 MHz)
		5.3GHz (5250.0 – 5350.0 MHz)
		5.6GHz (5470.0 – 5725.0 MHz)
		5.8GHz (5725.0 – 5850.0 MHz)
	Bluetooth 5.2	2.4GHz (2400.0 – 2483.5 MHz)
	802.11a/n/ac/ax	6.0GHz (5925.0-7125.0MHz)

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1.3 Maximum value

Summary of Maximum SAR and Power Density Value			
Mode	Highest SAR 1g Body (W/kg)	Highest APD (W/m ²)	Highest PD (W/m ²)
Bluetooth(GFSK)	0.04	N/A	N/A
2.4G WLAN	0.14	N/A	N/A
5G WLAN	1.14	N/A	N/A
6G WLAN	0.15	0.88	1.68

1.4 Antenna Information

Tablet mode_WLAN

Vendor	Anjie								
Antenna	Main (PIFA)								
Part Number	AJDQ1J-B0035								
Frequency(MHz)	2400~2500	5150~5250	5250~5350	5470~5725	5725~5850	5925~6425	6425~6525	6525~6875	6875~7125
Gain (dBi)	0.50	1.40	1.40	1.60	2.30	2.80	2.00	2.20	1.40

Vendor	Unictron								
Antenna	Aux (PIFA)								
Part Number	H2M1J616124300								
Frequency(MHz)	2400~2500	5150~5250	5250~5350	5470~5725	5725~5850	5925~6425	6425~6525	6525~6875	6875~7125
Gain (dBi)	1.5	2.20	2.2	2.2	2.2	2.50	2.50	2.50	2.50

Note: Antenna information is provided by the applicant.

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2 MEASUREMENT SYSTEM

2.1 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road, Neihu District, Taipei City, 11493, Taiwan.	SAR 2	TW0029	TW3702
		SAR 6		
	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan	SAR 1	TW0028	
		SAR 4		
	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan	SAR 3	TW0027	
		SAR 7		

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

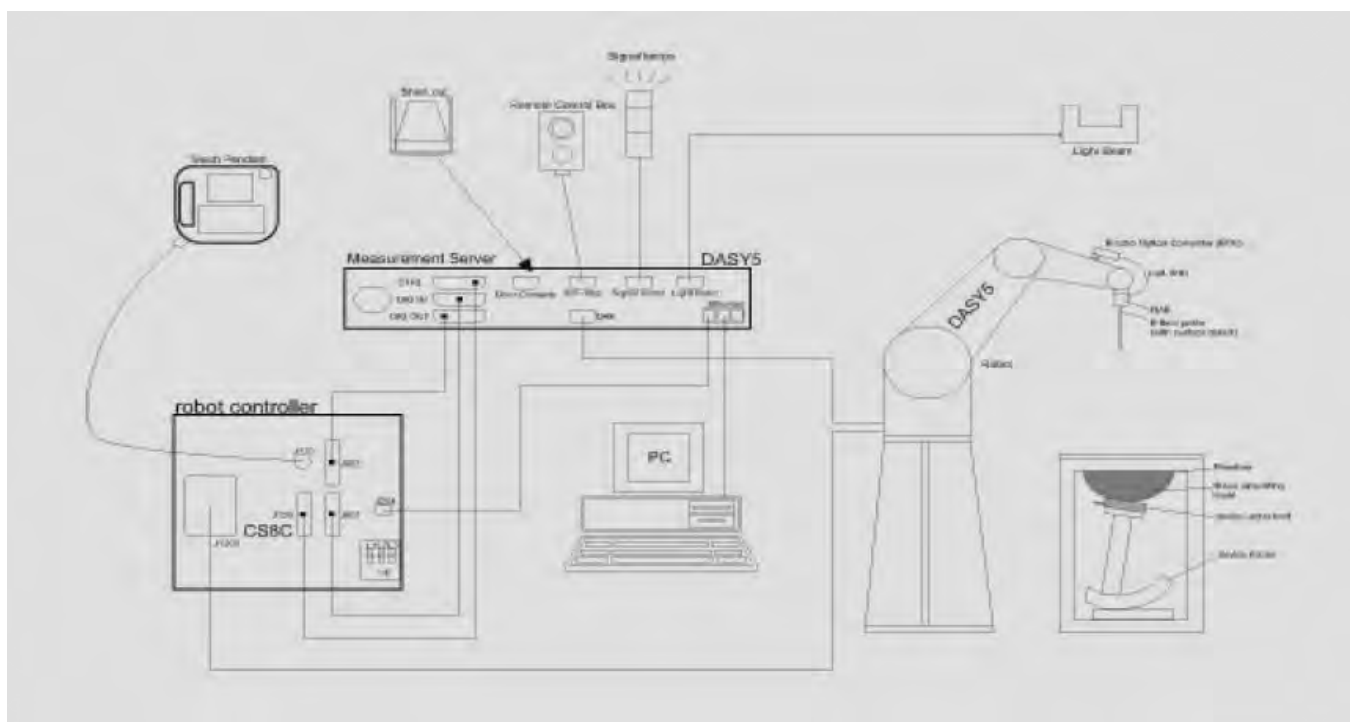
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2.2 SAR System

Block Diagram (DASY5)

A block diagram of the SAR measurement System is given in below. This SAR measurement system uses a computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). The model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E_i|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.



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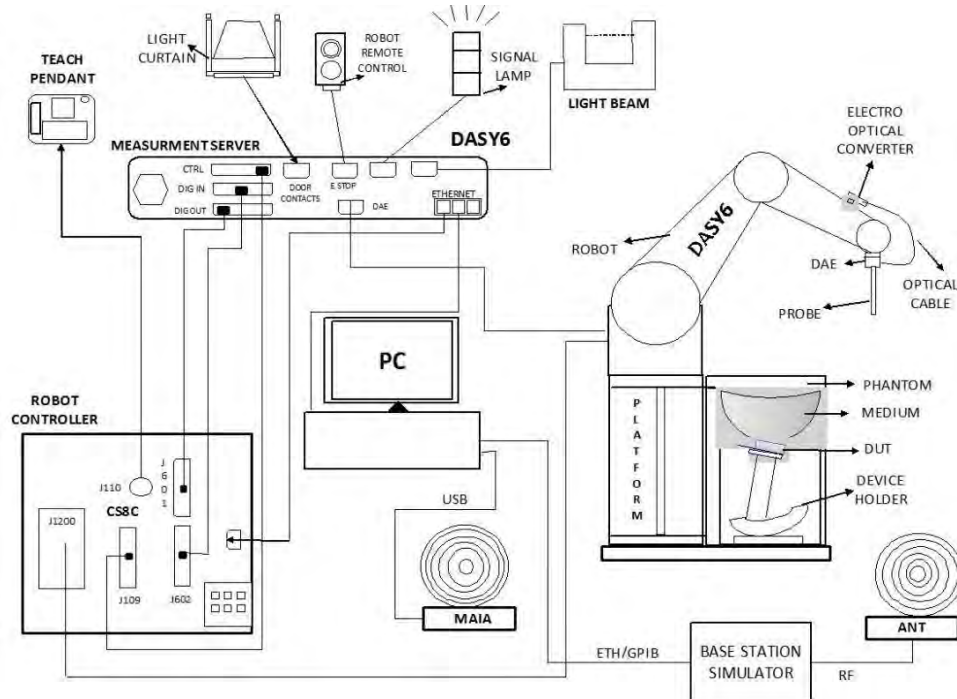
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Block Diagram (DASY6)

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Windows 10 and the DASY6 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.

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EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)		
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 2450/5250/5600/5750/6500/7000 MHz Additional CF for other liquids and frequencies upon request		
Frequency	10 MHz to > 6 GHz		
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)		
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)		
Dimensions	Tip diameter: 2.5 mm		
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.		

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PHANTOM (ELI)

Model	ELI	
Construction	The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 30 liters	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	

DEVICE HOLDER (ELI)

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	
		Device Holder

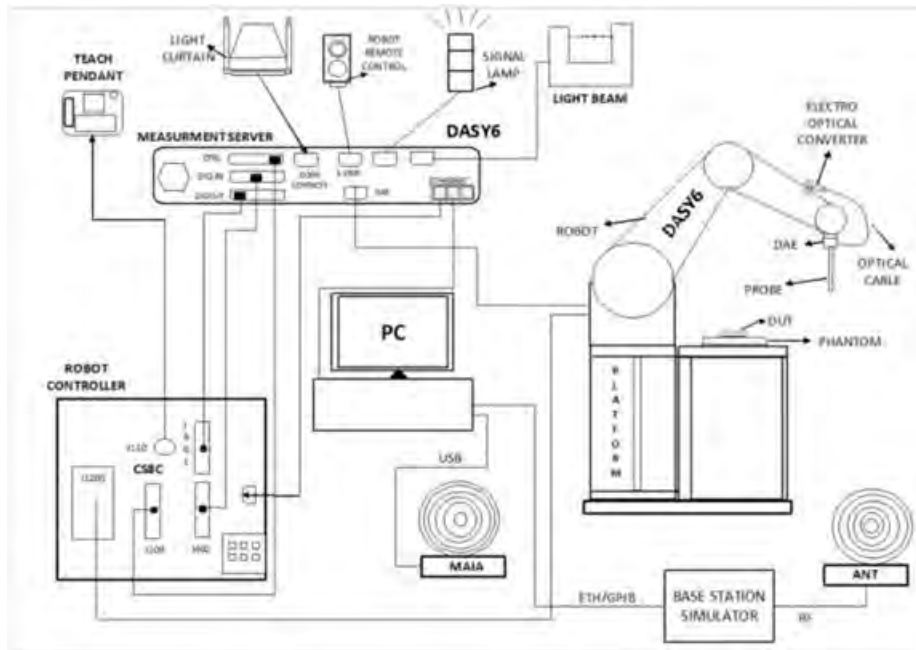
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2.3 PD system

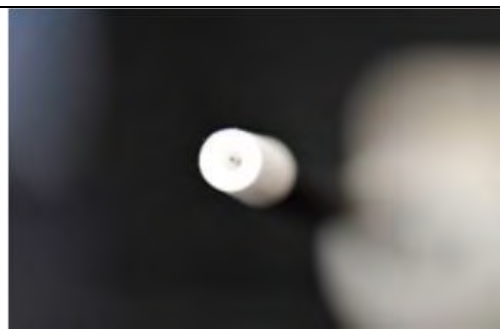
Block Diagram (DASY6)

Power density measurements for mmWave frequencies were performed using SPEAG DASY6 with cDASY6 5G module. The DASY6 included a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the 5G phantom cover.



EUmmWVx probe

The EUmmWVx probe is based on the pseudo-vector probe design, which not only measures the field magnitude but also derives its polarization ellipse. The design entails two small 0.8mm dipole sensors mechanically protected by high-density foam, printed on both sides of a 0.9mm wide and 0.12mm thick glass substrate. The body of the probe is specifically constructed to minimize distortion by the scattered fields. The probe consist of two sensors with different angles (1 and 2) arranged in the same plane in the probe axis. Three or more measurements of the two sensors are taken for different probe rotational angles to derive the amplitude and polarization information. The probe design allows measurements at distances as small as 2mm from the sensors to the surface of the device under test (DUT). The typical sensor to probe tip distance is 1.5 mm. The exact distance is calibrated.



Two dipoles optimally arranged to obtain pseudo-vector information. Minimum 3 measurements/ point, 120° rotated around probe axis. Sensors (0.8mm length) printed on glass substrate protected by high density foam. Low perturbation of the measured field. Requires positioner which can do accurate probe rotation.

Frequency Range

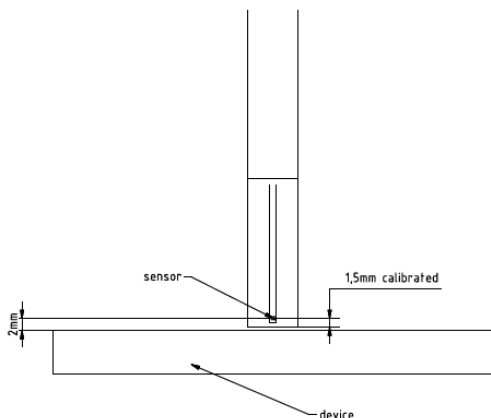
750 MHz – 110 GHz

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Dynamic Range	< 20 V/m – 10,000 V/m with PRE-10 (min < 50 V/m - 3000 V/m)
Position Precision	< 0.2 mm (DASY6)
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: encapsulation 8 mm (internal sensor < 1mm) Distance from probe tip to dipole centers: < 2 mm. Sensor displacement to probe's calibration point: < 0.3 mm
Applications	E-field measurements of 5G devices and other mm-wave transmitters operating above 10GHz in < 2 mm distance from device (free-space).Power density, H-field and far-field analysis using total field reconstruction (cDASY6 5G module required)
Compatibility	cDASY6 + 5G-Module SW1.0 and higher



mmWave Phantom

The mmWave Phantom approximates free-space conditions, allowing for the evaluation of the antenna side of the device and the front (screen) side or any opposite-radiating side of wireless devices operating above 10 GHz without distorting the RF field. It consists of a 40mm thick Rohacell plate used as a test bed, which has a loss tangent ($\tan \delta$) ≤ 0.05 and a relative permittivity (ϵ_r) ≤ 1.2 . High-performance RF absorbers are placed below the foam.

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3 SAR SYSTEM VERIFICATION

3.1 Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with homogeneous 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 15cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm.

3.2 Tissue Simulant Liquid measurement

The dielectric properties for this Head-simulant fluid were measured by using the SPEAG Dielectric Assessment Kit (DAKS-3.5)

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within $\pm 5\%$ of the target values.

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3.3 Measurement results of Tissue Simulant Liquid

Measured Frequency (MHz)	Liquid Temp. (°C)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Limit	Measurement Date
2402	22.1	39.282	1.757	37.779	1.803	-3.83%	2.60%	± 5%	Jun. 20, 2022
2412	22.1	39.265	1.766	37.758	1.812	-3.84%	2.60%	± 5%	Jun. 20, 2022
2437	22.1	39.222	1.788	37.721	1.832	-3.83%	2.44%	± 5%	Jun. 20, 2022
2441	22.1	39.215	1.792	37.716	1.835	-3.82%	2.41%	± 5%	Jun. 20, 2022
2450	22.1	39.200	1.800	37.709	1.842	-3.80%	2.36%	± 5%	Jun. 20, 2022
2462	22.1	39.184	1.813	37.690	1.852	-3.81%	2.17%	± 5%	Jun. 20, 2022
2480	22.1	39.160	1.832	37.677	1.867	-3.79%	1.90%	± 5%	Jun. 20, 2022
5190	21.8	36.010	4.650	37.148	4.562	3.16%	-1.87%	± 5%	Jun. 21, 2022
5230	21.8	35.970	4.690	36.930	4.635	2.67%	-1.17%	± 5%	Jun. 21, 2022
5250	21.8	35.950	4.710	36.897	4.666	2.63%	-0.94%	± 5%	Jun. 21, 2022
5270	21.8	35.930	4.730	36.876	4.696	2.63%	-0.73%	± 5%	Jun. 21, 2022
5310	21.8	35.890	4.770	36.690	4.754	2.23%	-0.34%	± 5%	Jun. 21, 2022
5530	22.0	35.605	4.997	36.043	5.036	1.23%	0.78%	± 5%	Jun. 22, 2022
5600	22.0	35.500	5.070	35.917	5.119	1.18%	0.97%	± 5%	Jun. 22, 2022
5610	22.0	35.490	5.080	35.871	5.133	1.07%	1.05%	± 5%	Jun. 22, 2022
5690	22.0	35.410	5.160	35.632	5.234	0.63%	1.43%	± 5%	Jun. 22, 2022
5750	22.3	35.350	5.220	36.357	5.391	2.85%	3.27%	± 5%	Jun. 23, 2022
5755	22.3	35.345	5.225	36.356	5.396	2.86%	3.26%	± 5%	Jun. 23, 2022
5795	22.3	35.305	5.265	35.313	5.438	0.02%	3.29%	± 5%	Jun. 23, 2022
6025	22.4	35.070	5.510	36.162	5.703	3.11%	3.52%	± 5%	Jun. 24, 2022
6185	22.4	34.878	5.698	35.970	5.875	3.13%	3.10%	± 5%	Jun. 24, 2022
6345	22.4	34.686	5.887	35.778	6.048	3.15%	2.73%	± 5%	Jun. 24, 2022
6500	22.4	34.500	6.070	35.592	6.216	3.17%	2.41%	± 5%	Jun. 24, 2022
6505	22.4	34.494	6.076	35.586	6.221	3.17%	2.40%	± 5%	Jun. 24, 2022
6665	22.4	34.302	6.261	35.394	6.396	3.18%	2.16%	± 5%	Jun. 24, 2022
6825	22.4	34.110	6.447	35.202	6.572	3.20%	1.94%	± 5%	Jun. 24, 2022
6985	22.2	33.918	6.633	35.010	6.749	3.22%	1.76%	± 5%	Jun. 24, 2022
7000	22.2	33.900	6.650	34.992	6.766	3.22%	1.74%	± 5%	Jun. 24, 2022

3.4 The composition of the tissue simulating liquid:

Simulating Liquids for 600 MHz -10 GHz, Manufactured by SPEAG:

Broad-band head tissue simulating liquids	SPEAG Product	Frequency range (MHz)	Main Ingredients
	HBBL600-10000V6	600 - 10000	Water, Oil

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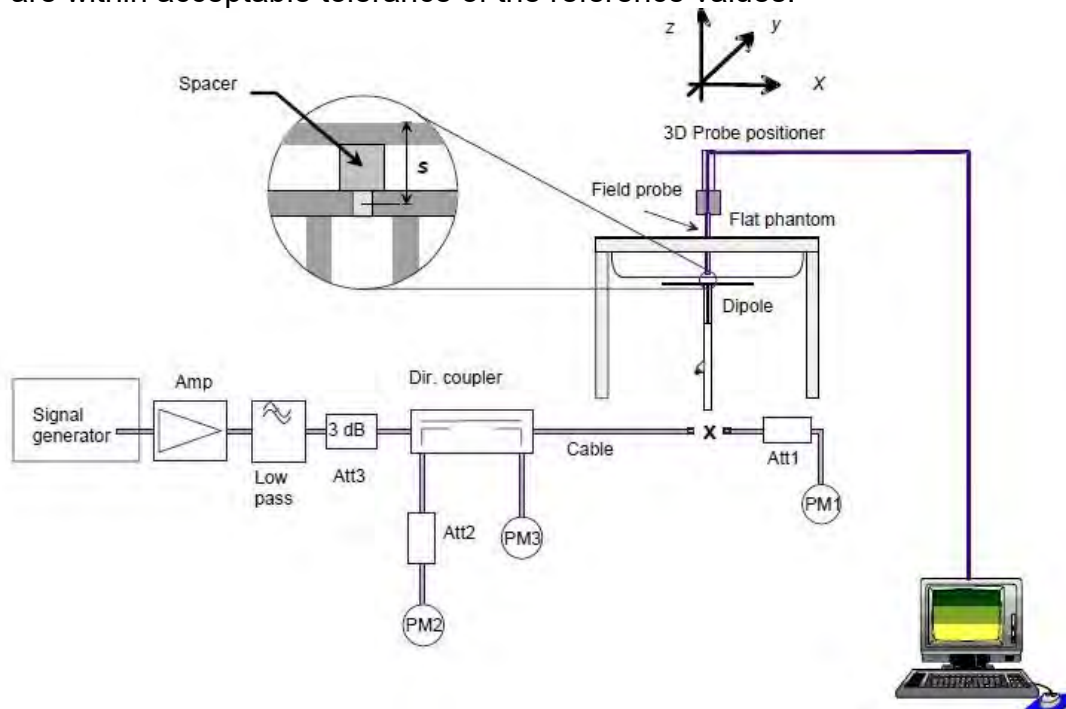
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3.5 System check

The microwave circuit arrangement for system check is sketched in below. The daily system accuracy verification occurs within the flat section of the SAM phantom and ELI phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values.

The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed with SAR values normalized to 1W forward power delivered to the dipole.

During the tests, the liquid depth from the center of the flat phantom to the liquid top surface was 15 cm above in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



The block diagram of system check

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3.6 System check results

Validation Kit	S/N	Frequency (MHz)	1W Target 1g-SAR (W/kg)	pin=250mW Measured 1g-SAR (W/kg)	Normalized to 1W 1g-SAR (W/kg)	Deviation (%)	Limit	Measurement Date
D2450V2	727	2450	52.8	13	52	-1.52	± 10%	Jun.20,2022
Validation Kit	S/N	Frequency (MHz)	1W Target 1g-SAR (W/kg)	pin=100mW Measured 1g-SAR (W/kg)	Normalized to 1W 1g-SAR (W/kg)	Deviation (%)	Limit	Measurement Date
D5GHzV2	1023	5250	81	7.79	77.9	-3.83	± 10%	Jun.21,2022
D5GHzV2	1023	5600	84.4	8.03	80.3	-4.86	± 10%	Jun.22,2022
D5GHzV2	1023	5750	81	7.81	78.1	-3.58	± 10%	Jun.23,2022
Validation Kit	S/N	Frequency (MHz)	1W Target 1g-SAR (W/kg)	pin=100mW Measured 1g-SAR (W/kg)	Normalized to 1W 1g-SAR (W/kg)	Deviation (%)	Limit	Measurement Date
D6.5GHzV2	1006	6500	291	29.5	295	1.37	± 10%	Jun.24,2022
D7GHzV2	1007	7000	275	26.7	267	-2.91	± 10%	Jun.24,2022

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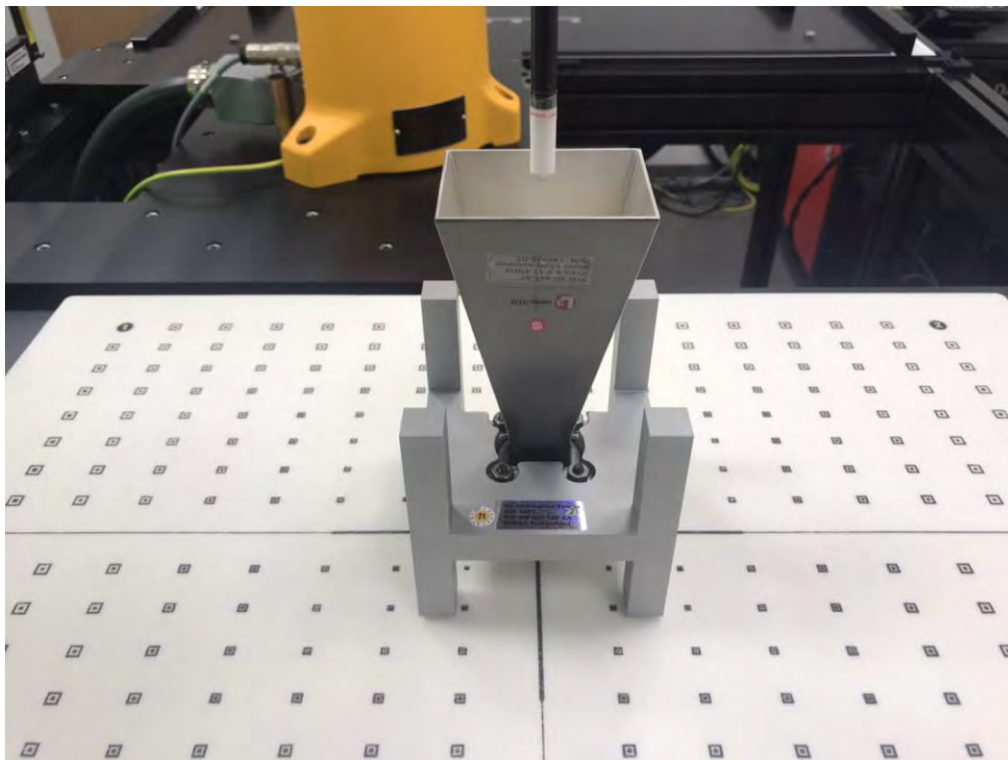
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4 PD SYSTEM VERIFICATION

4.1 System check

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.



System Verification Setup Photo

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4.2 System check result

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.

Frequency (MHz)	PD Verification Source (MHz)	Probe S/N	DAE S/N	Distance (mm)	Prad (mW)	Measured 4cm ² (W/m ²)	Target 4cm ² (W/m ²)	Deviation (dB)	Date
10000	10000	9579	558	10	86.1	54.2	51.7	0.21	Jun.25,2022

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5 TEST CONFIGURATIONS

5.1 Test Environment

Ambient Temperature: $22\pm 2^{\circ}\text{C}$

Tissue Simulating Liquid: $22\pm 2^{\circ}\text{C}$

5.2 Test Note

- **General:** Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).
- **General:** The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
- **General:** During the SAR testing, the DASY system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
- **General:** According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is $\leq 0.8\text{ W/kg}$, when the transmission band is $\leq 100\text{ MHz}$. According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is $\geq 0.8\text{ W/kg}$, repeated that measurement once. 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 $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).
- **WLAN 2.4GHz:** 802.11b DSSS SAR Test Requirements: SAR is measured for 2.4 GHz 802.11b DSSS mode using the highest measured maximum output power channel, when the reported SAR of the highest measured maximum output power channel for the exposure configuration is $\leq 0.8\text{ W/kg}$, no further SAR testing is required for 802.11b DSSS in that exposure configuration. When the reported SAR is $> 0.8\text{ W/kg}$, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is $> 1.2\text{ W/kg}$, SAR is required for the third channel; i.e., all channels require testing.
- **WLAN 2.4GHz:** 802.11g/n OFDM SAR Test Exclusion Requirements: SAR is not required for 802.11g/n since the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$.
- **WLAN 5GHz:** Initial Test Configuration: An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is $> 0.8\text{ W/kg}$, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested. Since the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration

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specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for subsequent test configuration.

- **WLAN 5GHz:** Based on FCC guidance, general principles of KDB248227D01 can be applied to 802.11ax to determine initial test configuration with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency band.

- **WLAN 6GHz:** Per October 2020 & April 2021 TCB Workshop Interim procedures and FCC guidance, start instead with a minimum of 5 test channels across the full band, then adapt and apply conducted power and SAR test reduction procedures of KDB Pub. 248227 v02r02. WIFI 6E SAR is measured by using 6-7GHz parameters per IEC/IEEE62209- 1528:2020 and report also estimated absorbed PD (for reference purposes only, not specifically for compliance). For the highest SAR test configurations also measure incident PD (total) using mmW near-field probe and total-field/power-density reconstruction method.

- **WLAN 6GHz:** Per equipment manufacturer guidance, power density was measured at $d=2\text{mm}$ with the grid step (0.0625λ) for determining compliance at $d=2\text{mm}$.

- **WLAN 6GHz:** According to October 2020 TCB Workshop Interim procedures, power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty $> 30\%$. Total expanded uncertainty of 2.67 dB (85%) was used to determine the psPD measurement scaling factor.

- **WLAN 6GHz:** Per FCC guidance, for simultaneous transmission evaluation, using SAR sum and SPLSR for simultaneous transmit exclusion analyses and evaluations.

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5.3 Test position

Tablet mode SAR test position (0mm)

For full-size tablet, according to KDB 616217 D04, SAR evaluation is required for back surface and edges of the devices. The back surface and edges of the tablet are tested with the tablet touching the phantom. Exposures from antennas through the front surface of the display section of a tablet are generally limited to the user's hands. Exposures to hands for typical consumer transmitters used in tablets are not expected to exceed the extremity SAR limit; therefore, SAR evaluation for the front surface of tablet display screens are generally not necessary. When voice mode is supported on a tablet and it is limited to speaker mode or headset operations only, additional SAR testing for this type of voice use is not required.

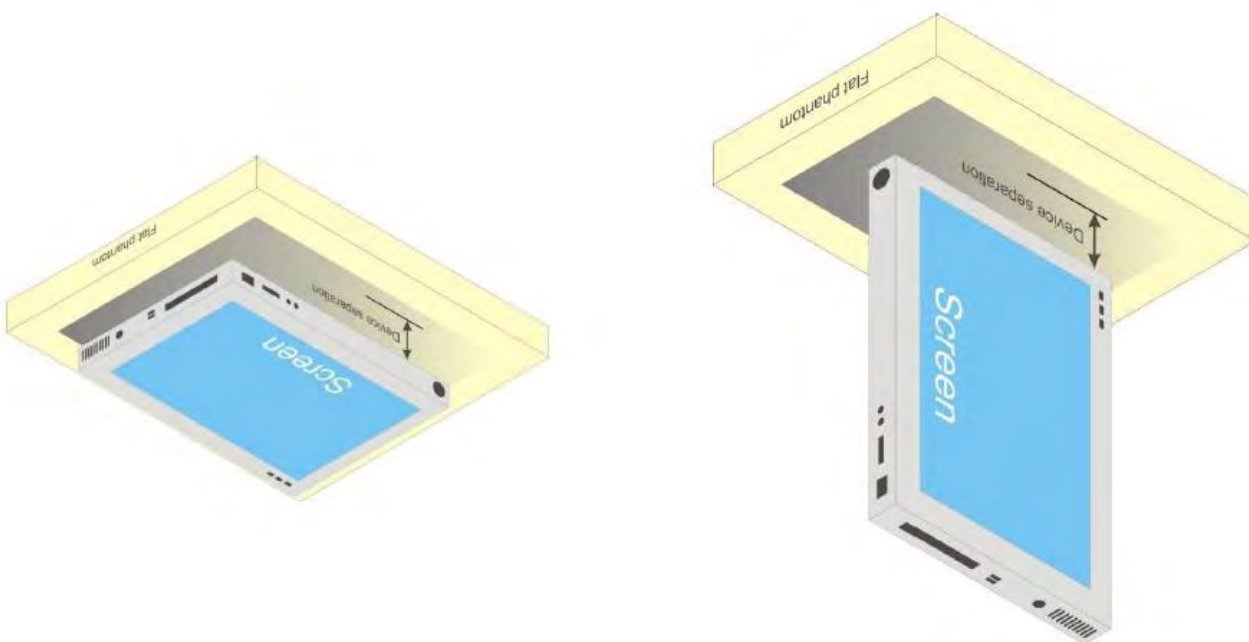


Illustration for Tablet Setup

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5.4 Test limit

§ 2.1093(d)(1)

Applications for equipment authorization of portable RF sources subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in § 1.1310 as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request. The SAR limits specified in § 1.1310(a) through (c) of this chapter shall be used for evaluation of portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to § 1.1310(e)(1). A minimum separation distance applicable to the operating configurations and exposure conditions of the device shall be used for the evaluation. In general, maximum time-averaged power levels must be used for evaluation. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

Radiofrequency radiation exposure limits.

§ 1.1310(a)

Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) within the frequency range of 100 kHz to 6 GHz (inclusive).

§ 1.1310(b)

The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled exposure is 20 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 6 minutes to determine compliance with occupational/controlled SAR limits.

§ 1.1310(c)

The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

Note to paragraphs (a) through (c):

SAR is a measure of the rate of energy absorption due to exposure to RF electromagnetic energy. These SAR limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized SAR in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those

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recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” NCRP Report No. 86, [Section 17.4.5](#), copyright 1986 by NCRP, Bethesda, Maryland 20814. Limits for whole body SAR and peak spatial-average SAR are based on recommendations made in both of these documents. The MPE limits in Table 1 are based generally on criteria published by the NCRP in “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3, copyright 1986 by NCRP, Bethesda, Maryland 20814. In the frequency range from 100 MHz to 1500 MHz, these MPE exposure limits for field strength and power density are also generally based on criteria recommended by the ANSI in [Section 4.1](#) of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to [§ 1.1310\(e\)\(1\)](#).

According to ANSI/IEEE C95.1-1992, the criteria listed in the following Table 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

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Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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(i) Limits for Occupational/Controlled Exposure

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
300-1,500			f/300	<6
1,500-100,000			5	<6

(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Table 1 to § 1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

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6 MAXIMUM OUTPUT POWER

6.1 WLAN

Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2.45GHz	802.11b	1	2412	1Mbps	21.00	20.96
		6	2437		21.00	20.98
		11	2462		21.00	20.97
	802.11g	1	2412	6Mbps	19.00	18.94
		6	2437		21.00	20.87
		11	2462		18.50	18.28
	802.11n20-HT0	1	2412	MCS0	19.00	18.89
		6	2437		21.00	20.79
		11	2462		18.50	18.39
	802.11ax20-HE0	1	2412	MCS0	19.00	18.90
		6	2437		21.00	20.86
		11	2462		18.50	18.41
	802.11n40-HT0	3	2422	MCS0	18.25	18.00
		6	2437		17.50	17.31
		9	2452		12.00	11.95
	802.11ax40-HE0	3	2422	MCS0	18.25	18.16
		6	2437		17.50	17.46
		9	2452		12.00	11.78

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	19.25	19.22
		40	5200		21.00	20.80
		44	5220		21.00	20.78
		48	5240		21.00	20.85
	802.11n20-HT0	36	5180	MCS0	19.25	19.09
		40	5200		21.00	20.71
		44	5220		21.00	20.89
		48	5240		21.00	20.85
	802.11ax20-HE0	36	5180	MCS0	19.25	19.15
		40	5200		21.00	20.89
		44	5220		21.00	20.77
		48	5240		21.00	20.82
	802.11n40-HT0	38	5190	MCS0	18.25	18.17
		46	5230		21.00	20.98
	802.11ax40-HE0	38	5190	MCS0	18.25	18.20
		46	5230		21.00	20.88
	802.11ac80-VHT0	42	5210	MCS0	18.00	17.88
	802.11ax80-HE0	42	5210	MCS0	18.00	17.79
	802.11ac160-VHT0	50	5250	MCS0	14.50	14.28
	802.11ax160-HE0	50	5250	MCS0	14.50	14.33

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	21.00	20.82
		56	5280		21.00	20.89
		60	5300		21.00	20.85
		64	5320		19.75	19.61
	802.11n20-HT0	52	5260	MCS0	21.00	20.79
		56	5280		21.00	20.87
		60	5300		21.00	20.88
		64	5320		19.75	19.46
	802.11ax20-HE0	52	5260	MCS0	21.00	20.76
		56	5280		21.00	20.79
		60	5300		21.00	20.80
		64	5320		19.75	19.67
	802.11n40-HT0	54	5270	MCS0	21.00	20.98
		62	5310		16.50	16.49
	802.11ax40-HE0	54	5270	MCS0	21.00	20.84
		62	5310		16.50	16.29
	802.11ac80-VHT0	58	5290	MCS0	17.00	16.93
	802.11ax80-HE0	58	5290	MCS0	17.00	16.88

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.6GHz	802.11a	100	5500	6Mbps	20.25	20.00
		120	5600		21.00	20.80
		140	5700		20.50	20.29
	802.11n20-HT0	100	5500	MCS0	20.25	20.14
		120	5600		21.00	20.94
		140	5700		20.50	20.40
	802.11ax20-HE0	100	5500	MCS0	20.25	20.14
		120	5600		21.00	20.79
		140	5700		20.50	20.31
	802.11n40-HT0	102	5510	MCS0	19.50	19.33
		118	5590		21.00	20.84
		134	5670		20.75	20.53
		142	5710		21.00	20.97
	802.11ax40-HE0	102	5510	MCS0	19.50	19.26
		118	5590		21.00	20.86
		134	5670		20.75	20.49
		142	5710		21.00	20.72
	802.11ac80-VHT0	106	5530	MCS0	19.25	19.14
		122	5610		21.00	20.93
		138	5690		21.00	20.99
	802.11ax80-HE0	106	5530	MCS0	19.25	19.17
		122	5610		21.00	20.78
		138	5690		21.00	20.80
	802.11ac160-VHT0	114	5570	MCS0	17.25	17.14
	802.11ax160-HE0	114	5570	MCS0	17.25	17.05

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Main						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.8GHz	802.11a	149	5745	6Mbps	21.00	20.71
		157	5785		21.00	20.84
		165	5825		21.00	20.92
	802.11n20-HT0	149	5745	MCS0	21.00	20.82
		157	5785		21.00	20.90
		165	5825		21.00	20.88
	802.11ax20-HE0	149	5745	MCS0	21.00	20.74
		157	5785		21.00	20.91
		165	5825		21.00	20.79
	802.11n40-HT0	151	5755	MCS0	21.00	20.98
		159	5795		21.00	20.92
	802.11ax40-HE0	151	5755	MCS0	21.00	20.86
		159	5795		21.00	20.88
	802.11ac80-VHT0	155	5775	MCS0	20.25	20.11
	802.11ax80-HE0	155	5775	MCS0	20.25	20.15

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2.45GHz	802.11b	1	2412	1Mbps	21.00	20.97
		6	2437		21.00	20.99
		11	2462		21.00	20.98
	802.11g	1	2412	6Mbps	19.75	19.53
		6	2437		21.00	20.90
		11	2462		18.75	18.68
	802.11n20-HT0	1	2412	MCS0	19.75	19.55
		6	2437		21.00	20.80
		11	2462		18.75	18.62
	802.11ax20-HE0	1	2412	MCS0	19.75	19.50
		6	2437		21.00	20.89
		11	2462		18.75	18.58
	802.11n40-HT0	3	2422	MCS0	18.25	18.01
		6	2437		18.00	17.88
		9	2452		12.50	12.43
	802.11ax40-HE0	3	2422	MCS0	18.25	18.22
		6	2437		18.00	17.94
		9	2452		12.50	12.38

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	19.00	18.82
		40	5200		21.00	20.83
		44	5220		21.00	20.73
		48	5240		21.00	20.90
	802.11n20-HT0	36	5180	MCS0	19.00	18.85
		40	5200		21.00	20.79
		44	5220		21.00	20.91
		48	5240		21.00	20.96
	802.11ax20-HE0	36	5180	MCS0	19.00	18.74
		40	5200		21.00	20.95
		44	5220		21.00	20.83
		48	5240		21.00	20.86
	802.11n40-HT0	38	5190	MCS0	18.50	18.46
		46	5230		21.00	20.97
	802.11ax40-HE0	38	5190	MCS0	18.50	18.35
		46	5230		21.00	20.84
	802.11ac80-VHT0	42	5210	MCS0	18.75	18.57
	802.11ax80-HE0	42	5210	MCS0	18.75	18.62
	802.11ac160-VHT0	50	5250	MCS0	15.00	14.83
	802.11ax160-HE0	50	5250	MCS0	15.00	14.78

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	21.00	20.76
		56	5280		21.00	20.76
		60	5300		21.00	20.82
		64	5320		19.25	19.12
	802.11n20-HT0	52	5260	MCS0	21.00	20.93
		56	5280		21.00	20.89
		60	5300		21.00	20.82
		64	5320		19.25	19.19
	802.11ax20-HE0	52	5260	MCS0	21.00	20.74
		56	5280		21.00	20.90
		60	5300		21.00	20.85
		64	5320		19.25	19.14
	802.11n40-HT0	54	5270	MCS0	21.00	20.98
		62	5310		16.75	16.73
	802.11ax40-HE0	54	5270	MCS0	21.00	20.75
		62	5310		16.75	16.53
	802.11ac80-VHT0	58	5290	MCS0	17.50	17.38
	802.11ax80-HE0	58	5290	MCS0	17.50	17.38

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.6GHz	802.11a	100	5500	6Mbps	20.00	19.86
		120	5600		21.00	20.90
		140	5700		20.50	20.37
	802.11n20-HT0	100	5500	MCS0	20.00	19.80
		120	5600		21.00	20.93
		140	5700		20.50	20.40
	802.11ax20-HE0	100	5500	MCS0	20.00	19.81
		120	5600		21.00	20.86
		140	5700		20.50	20.40
	802.11n40-HT0	102	5510	MCS0	19.75	19.59
		118	5590		21.00	20.77
		134	5670		20.50	20.23
		142	5710		21.00	20.89
	802.11ax40-HE0	102	5510	MCS0	19.75	19.60
		118	5590		21.00	20.85
		134	5670		20.50	20.31
		142	5710		21.00	20.87
	802.11ac80-VHT0	106	5530	MCS0	19.00	18.96
		122	5610		21.00	20.94
		138	5690		21.00	20.96
	802.11ax80-HE0	106	5530	MCS0	19.00	18.92
		122	5610		21.00	20.84
		138	5690		21.00	20.78
	802.11ac160-VHT0	114	5570	MCS0	17.00	16.86
	802.11ax160-HE0	114	5570	MCS0	17.00	16.86

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Aux						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.8GHz	802.11a	149	5745	6Mbps	21.00	20.83
		157	5785		21.00	20.97
		165	5825		21.00	20.86
	802.11n20-HT0	149	5745	MCS0	21.00	20.75
		157	5785		21.00	20.86
		165	5825		21.00	20.85
	802.11ax20-HE0	149	5745	MCS0	21.00	20.79
		157	5785		21.00	20.82
		165	5825		21.00	20.86
	802.11n40-HT0	151	5755	MCS0	21.00	20.96
		159	5795		21.00	20.98
	802.11ax40-HE0	151	5755	MCS0	21.00	20.82
		159	5795		21.00	20.87
	802.11ac80-VHT0	155	5775	MCS0	20.25	20.20
	802.11ax80-HE0	155	5775	MCS0	20.25	20.08

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-5 6.2GHz	802.11a	1	5955	6Mbps	5.00	4.90
		45	6175		5.00	4.78
		93	6415		5.00	4.89
	802.11n20-HT0	1	5955	MCS0	5.00	4.97
		45	6175		5.00	4.76
		93	6415		5.00	4.75
	802.11ax20-HE0	1	5955	MCS0	5.00	4.89
		45	6175		5.00	4.85
		93	6415		5.00	4.87
	802.11n40-HT0	3	5965	MCS0	8.00	7.77
		43	6165		8.00	7.89
		91	6405		8.00	7.86
	802.11ax40-HE0	3	5965	MCS0	8.00	7.84
		43	6165		8.00	7.86
		91	6405		8.00	7.92
	802.11ac80-VHT0	7	5985	MCS0	11.00	10.77
		39	6145		11.00	10.76
		87	6385		11.00	10.86
	802.11ax80-HE0	7	5985	MCS0	11.00	10.82
		39	6145		11.00	10.85
		87	6385		11.00	10.81
	802.11ac160-VHT0	15	6025	MCS0	13.50	13.48
		47	6185		13.50	13.45
		79	6345		13.50	13.47
	802.11ax160-HE0	15	6025	MCS0	13.50	13.31
		47	6185		13.50	13.34
		79	6345		13.50	13.36

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-6 6.5GHz	802.11a	97	6435	6Mbps	5.00	4.73
		105	6475		5.00	4.75
		113	6515		5.00	4.81
	802.11n20-HT0	97	6435	MCS0	5.00	4.84
		105	6475		5.00	4.91
		113	6515		5.00	4.87
	802.11ax20-HE0	97	6435	MCS0	5.50	5.39
		105	6475		5.50	5.38
		113	6515		5.50	5.33
	802.11n40-HT0	99	6445	MCS0	8.50	8.42
		107	6485		8.50	8.45
	802.11ax40-HE0	99	6445	MCS0	8.50	8.42
		107	6485		8.50	8.43
	802.11ac80-VHT0	103	6465	MCS0	10.50	10.35
		119	6545		10.50	10.29
	802.11ax80-HE0	103	6465	MCS0	11.00	10.78
		119	6545		11.00	10.93
	802.11ac160-VHT0	111	6505	MCS0	13.50	13.46
	802.11ax160-HE0	111	6505	MCS0	13.50	13.34

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Main						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-7 6.7GHz	802.11a	117	6535	6Mbps	5.00	4.79
		149	6695		5.00	4.98
		181	6855		5.00	4.89
	802.11n20-HT0	117	6535	MCS0	5.00	4.88
		149	6695		5.00	4.79
		181	6855		5.00	4.81
	802.11ax20-HE0	117	6535	MCS0	5.50	5.31
		149	6695		5.50	5.36
		181	6855		5.50	5.46
	802.11n40-HT0	115	6525	MCS0	8.50	8.41
		147	6685		8.50	8.23
		179	6845		8.50	8.28
	802.11ax40-HE0	115	6525	MCS0	8.50	8.31
		147	6685		8.50	8.32
		179	6845		8.50	8.36
	802.11ac80-VHT0	135	6625	MCS0	11.00	10.87
		151	6705		11.00	10.81
		167	6785		11.00	10.74
	802.11ax80-HE0	135	6625	MCS0	11.00	10.75
		151	6705		11.00	10.80
		167	6785		11.00	10.82
	802.11ac160-VHT0	143	6665	MCS0	13.50	13.49
		175	6825		13.50	13.43
	802.11ax160-HE0	143	6665	MCS0	13.50	13.42
		175	6825		13.50	13.27

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Main						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-8 7.0GHz	802.11a	185	6875	6Mbps	5.00	4.86
		209	6995		5.00	4.82
		233	7115		5.00	4.92
	802.11n20-HT0	185	6875	MCS0	5.00	4.82
		209	6995		5.00	4.92
		233	7115		5.00	4.80
	802.11ax20-HE0	185	6875	MCS0	5.50	5.39
		209	6995		5.50	5.36
		233	7115		5.50	5.38
	802.11n40-HT0	187	6885	MCS0	8.50	8.40
		227	7085		8.50	8.44
	802.11ax40-HE0	187	6885	MCS0	8.50	8.39
		227	7085		8.50	8.25
	802.11ac80-VHT0	183	6865	MCS0	10.50	10.40
		199	6945		10.50	10.44
		215	7025		10.50	10.39
	802.11ax80-HE0	183	6865	MCS0	11.00	10.77
		199	6945		11.00	10.85
		215	7025		11.00	10.81
	802.11ac160-VHT0	207	6985	MCS0	13.50	13.49
	802.11ax160-HE0	207	6985	MCS0	13.50	13.33

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-5 6.2GHz	802.11a	1	5955	6Mbps	5.00	4.91
		45	6175		5.00	4.92
		93	6415		5.00	4.84
	802.11n20-HT0	1	5955	MCS0	5.00	4.71
		45	6175		5.00	4.76
		93	6415		5.00	4.80
	802.11ax20-HE0	1	5955	MCS0	5.00	4.82
		45	6175		5.00	4.76
		93	6415		5.00	4.87
	802.11n40-HT0	3	5965	MCS0	8.00	7.84
		43	6165		8.00	7.78
		91	6405		8.00	7.98
	802.11ax40-HE0	3	5965	MCS0	8.00	7.86
		43	6165		8.00	7.86
		91	6405		8.00	7.80
	802.11ac80-VHT0	7	5985	MCS0	11.00	10.74
		39	6145		11.00	10.84
		87	6385		11.00	10.82
	802.11ax80-HE0	7	5985	MCS0	11.00	10.77
		39	6145		11.00	10.93
		87	6385		11.00	10.74
	802.11ac160-VHT0	15	6025	MCS0	13.50	13.49
		47	6185		13.50	13.47
		79	6345		13.50	13.41
	802.11ax160-HE0	15	6025	MCS0	13.50	13.32
		47	6185		13.50	13.30
		79	6345		13.50	13.22

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-6 6.5GHz	802.11a	97	6435	6Mbps	5.00	4.84
		105	6475		5.00	4.91
		113	6515		5.00	4.83
	802.11n20-HT0	97	6435	MCS0	5.00	4.78
		105	6475		5.00	4.80
		113	6515		5.00	4.91
	802.11ax20-HE0	97	6435	MCS0	5.50	5.41
		105	6475		5.50	5.44
		113	6515		5.50	5.40
	802.11n40-HT0	99	6445	MCS0	8.50	8.39
		107	6485		8.50	8.30
	802.11ax40-HE0	99	6445	MCS0	8.50	8.37
		107	6485		8.50	8.28
	802.11ac80-VHT0	103	6465	MCS0	10.50	10.42
		119	6545		10.50	10.39
	802.11ax80-HE0	103	6465	MCS0	11.00	10.81
		119	6545		11.00	10.84
	802.11ac160-VHT0	111	6505	MCS0	13.50	13.48
	802.11ax160-HE0	111	6505	MCS0	13.50	13.41

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Aux						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-7 6.7GHz	802.11a	117	6535	6Mbps	5.00	4.80
		149	6695		5.00	4.86
		181	6855		5.00	4.83
	802.11n20-HT0	117	6535	MCS0	5.00	4.90
		149	6695		5.00	4.77
		181	6855		5.00	4.90
	802.11ax20-HE0	117	6535	MCS0	5.50	5.21
		149	6695		5.50	5.41
		181	6855		5.50	5.22
	802.11n40-HT0	115	6525	MCS0	8.50	8.43
		147	6685		8.50	8.28
		179	6845		8.50	8.35
	802.11ax40-HE0	115	6525	MCS0	8.50	8.35
		147	6685		8.50	8.43
		179	6845		8.50	8.40
	802.11ac80-VHT0	135	6625	MCS0	11.00	10.84
		151	6705		11.00	10.90
		167	6785		11.00	10.87
	802.11ax80-HE0	135	6625	MCS0	11.00	10.89
		151	6705		11.00	10.82
		167	6785		11.00	10.90
	802.11ac160-VHT0	143	6665	MCS0	13.50	13.42
		175	6825		13.50	13.46
	802.11ax160-HE0	143	6665	MCS0	13.50	13.36
		175	6825		13.50	13.39

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Aux						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
U-NII-8 7.0GHz	802.11a	185	6875	6Mbps	5.00	4.78
		209	6995		5.00	4.83
		233	7115		5.00	4.90
	802.11n20-HT0	185	6875	MCS0	5.00	4.98
		209	6995		5.00	4.87
		233	7115		5.00	4.80
	802.11ax20-HE0	185	6875	MCS0	5.50	5.27
		209	6995		5.50	5.34
		233	7115		5.50	5.41
	802.11n40-HT0	187	6885	MCS0	8.50	8.44
		227	7085		8.50	8.25
	802.11ax40-HE0	187	6885	MCS0	8.50	8.38
		227	7085		8.50	8.33
	802.11ac80-VHT0	183	6865	MCS0	10.50	10.28
		199	6945		10.50	10.36
		215	7025		10.50	10.26
	802.11ax80-HE0	183	6865	MCS0	11.00	10.85
		199	6945		11.00	10.85
		215	7025		11.00	10.91
	802.11ac160-VHT0	207	6985	MCS0	13.50	13.48
	802.11ax160-HE0	207	6985	MCS0	13.50	13.32

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6.3 Bluetooth

Mode	Channel	Frequency (MHz)	1Mbps		2Mbps		3Mbps	
			Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
BR/EDR	CH 00	2402	11.50	10.14	11.00	9.63	11.00	9.57
	CH 39	2441		10.37		9.76		9.66
	CH 78	2480		10.43		9.88		9.72

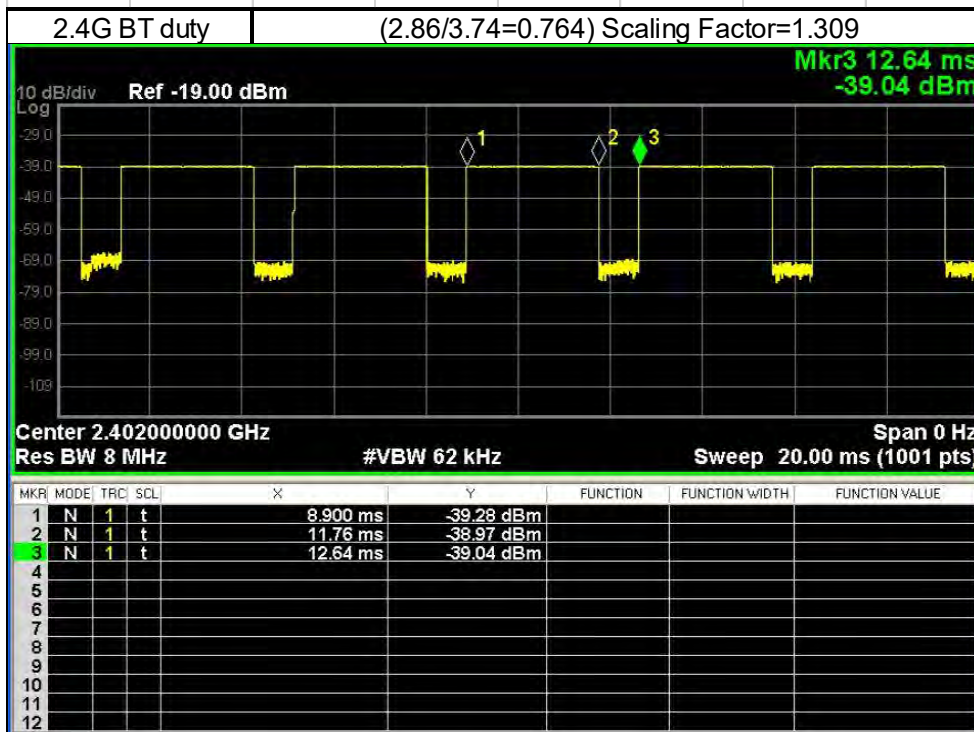
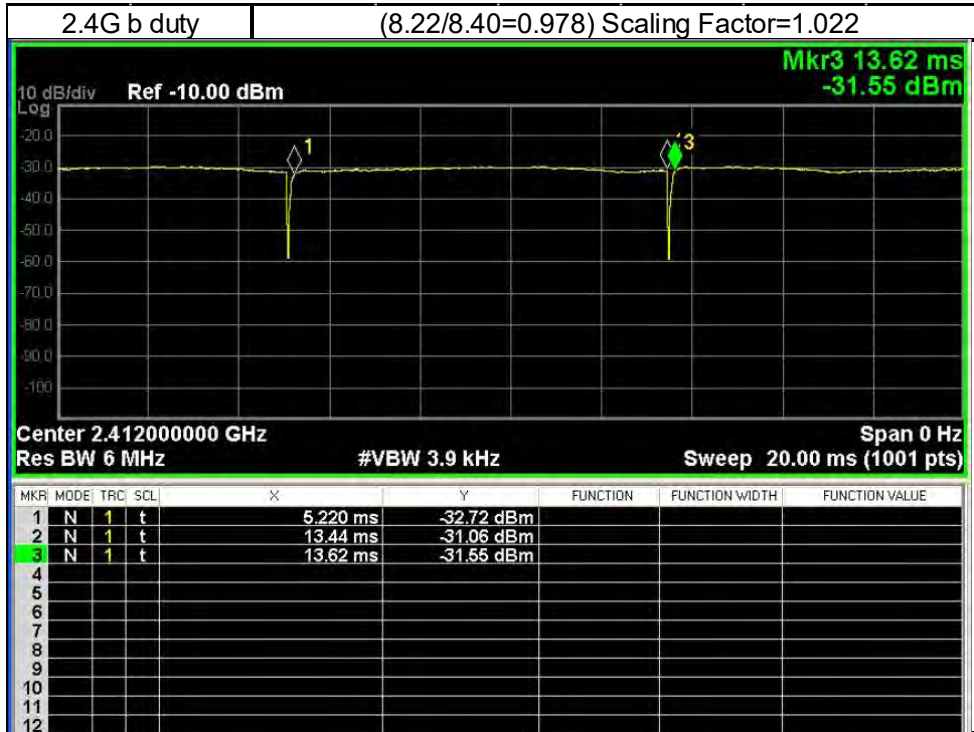
6.4 BLE

Mode	Channel	Frequency (MHz)	GFSK	
			Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Output Power (dBm)
BLE_1M	CH 00	2402	10	8.76
	CH 19	2440		9.02
	CH 39	2480		9.07
Mode	Channel	Frequency (MHz)	GFSK	
			Max. Rated Avg. Power + Max. Tolerance (dBm)	Average Output Power (dBm)
BLE_2M	CH 00	2402	10	8.16
	CH 19	2440		8.22
	CH 39	2480		8.37

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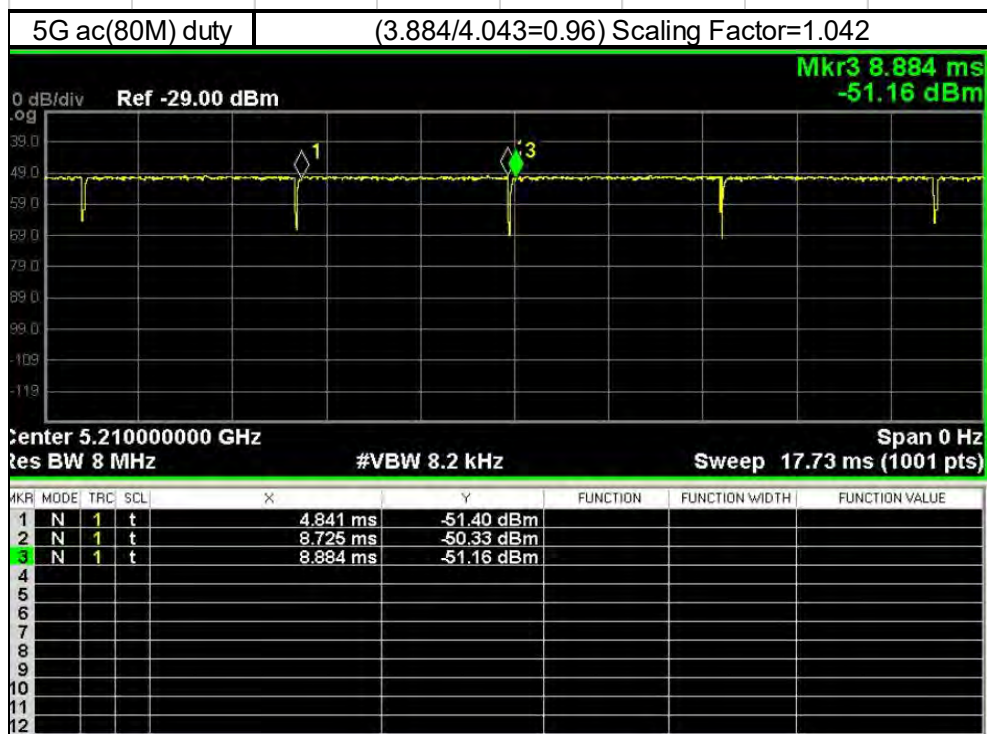
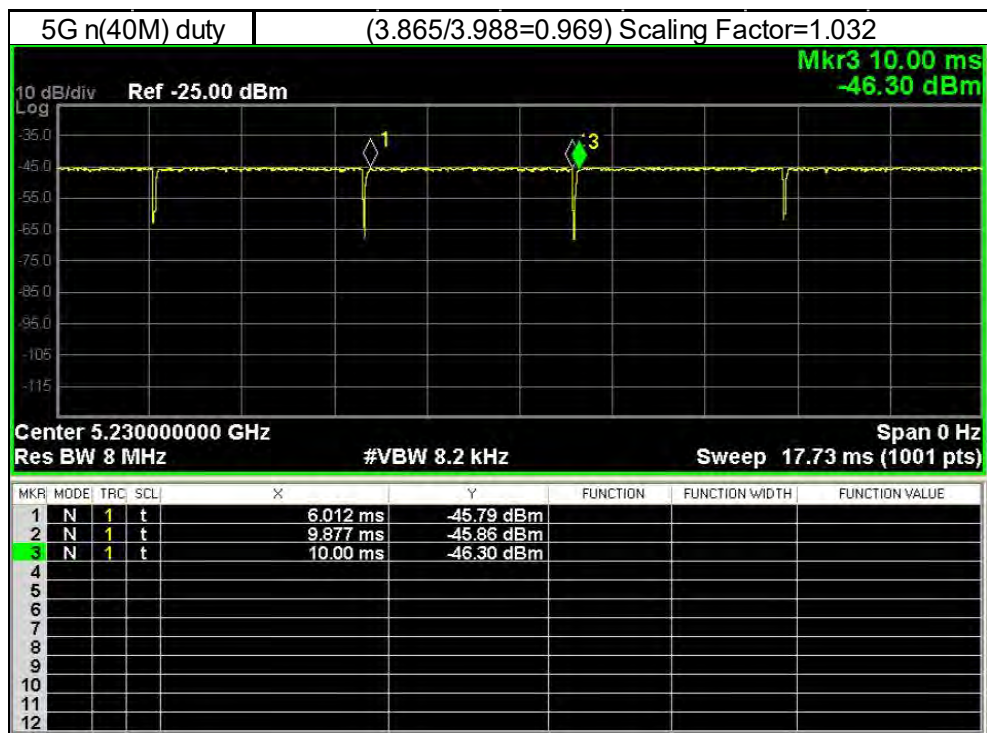
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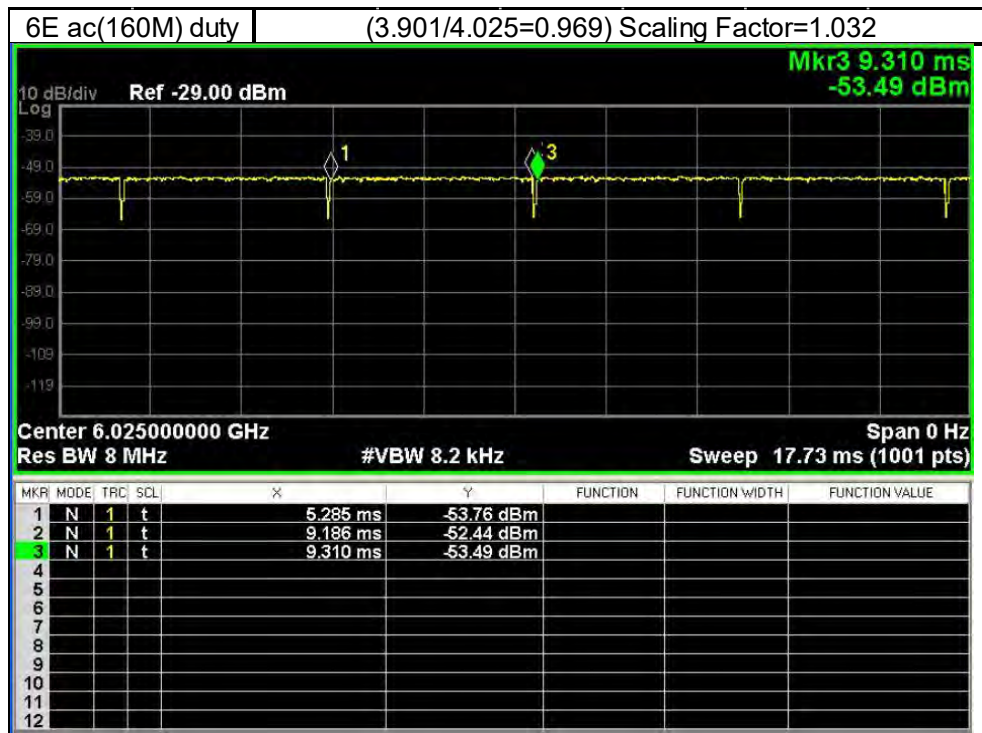
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7 SUMMARY OF RESULTS

7.1 Decision rules

Reported measurement data comply with Test Methodology in section 1.1.

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

7.2 Summary of SAR Results

Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11b	Main	Back Surface	0	6	2437	21.00	20.98	1.022	100.46%	0.016	0.016	-
WLAN 802.11b	Main	Top Edge	0	6	2437	21.00	20.98	1.022	100.46%	0.004	0.004	-
WLAN 802.11b	Main	Bottom Edge	0	6	2437	21.00	20.98	1.022	100.46%	0.001	0.001	-
WLAN 802.11b	Main	Right Edge	0	1	2412	21.00	20.96	1.022	100.93%	0.061	0.063	-
WLAN 802.11b	Main	Right Edge	0	6	2437	21.00	20.98	1.022	100.46%	0.062	0.063	001
WLAN 802.11b	Main	Right Edge	0	11	2462	21.00	20.97	1.022	100.69%	0.057	0.058	-
WLAN 802.11b	Main	Left Edge	0	6	2437	21.00	20.98	1.022	100.46%	0.001	0.001	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.2G	Main	Back Surface	0	46	5230	21.00	20.98	1.032	100.46%	0.332	0.344	-
WLAN 802.11n(40M) 5.2G	Main	Top Edge	0	46	5230	21.00	20.98	1.032	100.46%	0.042	0.043	-
WLAN 802.11n(40M) 5.2G	Main	Bottom Edge	0	46	5230	21.00	20.98	1.032	100.46%	0.015	0.016	-
WLAN 802.11n(40M) 5.2G	Main	Right Edge	0	38	5190	18.25	18.17	1.032	101.88%	0.523	0.550	-
WLAN 802.11n(40M) 5.2G	Main	Right Edge	0	46	5230	21.00	20.98	1.032	100.46%	1.100	1.140	002
WLAN 802.11n(40M) 5.2G	Main	Right Edge*	0	46	5230	21.00	20.98	1.032	100.46%	1.080	1.120	-
WLAN 802.11n(40M) 5.2G	Main	Left Edge	0	46	5230	21.00	20.98	1.032	100.46%	0.011	0.011	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.3G	Main	Back Surface	0	54	5270	21.00	20.98	1.032	100.46%	0.364	0.377	-
WLAN 802.11n(40M) 5.3G	Main	Top Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.048	0.050	-
WLAN 802.11n(40M) 5.3G	Main	Bottom Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.012	0.013	-
WLAN 802.11n(40M) 5.3G	Main	Right Edge	0	54	5270	21.00	20.98	1.032	100.46%	1.030	1.068	003
WLAN 802.11n(40M) 5.3G	Main	Right Edge	0	62	5310	16.50	16.49	1.032	100.23%	0.336	0.348	-
WLAN 802.11n(40M) 5.3G	Main	Right Edge*	0	54	5270	21.00	20.98	1.032	100.46%	1.010	1.047	-
WLAN 802.11n(40M) 5.3G	Main	Left Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.002	0.002	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11ac(80M) 5.6G	Main	Back Surface	0	138	5690	21.00	20.99	1.042	100.23%	0.325	0.339	-
WLAN 802.11ac(80M) 5.6G	Main	Top Edge	0	138	5690	21.00	20.99	1.042	100.23%	0.053	0.055	-
WLAN 802.11ac(80M) 5.6G	Main	Bottom Edge	0	138	5690	21.00	20.99	1.042	100.23%	0.009	0.010	-
WLAN 802.11ac(80M) 5.6G	Main	Right Edge	0	138	5690	21.00	20.99	1.042	100.23%	0.641	0.669	004
WLAN 802.11ac(80M) 5.6G	Main	Left Edge	0	138	5690	21.00	20.99	1.042	100.23%	0.001	0.001	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.8G	Main	Back Surface	0	151	5755	21.00	20.98	1.032	100.46%	0.267	0.277	-
WLAN 802.11n(40M) 5.8G	Main	Top Edge	0	151	5755	21.00	20.98	1.032	100.46%	0.039	0.040	-
WLAN 802.11n(40M) 5.8G	Main	Bottom Edge	0	151	5755	21.00	20.98	1.032	100.46%	0.008	0.008	-
WLAN 802.11n(40M) 5.8G	Main	Right Edge	0	151	5755	21.00	20.98	1.032	100.46%	0.487	0.505	005
WLAN 802.11n(40M) 5.8G	Main	Left Edge	0	151	5755	21.00	20.98	1.032	100.46%	0.005	0.005	-

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Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11b	Aux	Back Surface	0	6	2437	21.00	20.99	1.022	100.23%	0.015	0.015	-
WLAN 802.11b	Aux	Top Edge	0	1	2412	21.00	20.97	1.022	100.69%	0.133	0.137	006
WLAN 802.11b	Aux	Top Edge	0	6	2437	21.00	20.99	1.022	100.23%	0.114	0.117	-
WLAN 802.11b	Aux	Top Edge	0	11	2462	21.00	20.98	1.022	100.46%	0.103	0.106	-
WLAN 802.11b	Aux	Bottom Edge	0	6	2437	21.00	20.99	1.022	100.23%	0.003	0.003	-
WLAN 802.11b	Aux	Right Edge	0	6	2437	21.00	20.99	1.022	100.23%	0.001	0.001	-
WLAN 802.11b	Aux	Left Edge	0	6	2437	21.00	20.99	1.022	100.23%	0.002	0.002	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
Bluetooth(GFSK)	Aux	Back Surface	0	78	2480	11.50	10.43	1.309	127.94%	0.005	0.008	-
Bluetooth(GFSK)	Aux	Top Edge	0	78	2480	11.50	10.43	1.309	127.94%	0.022	0.037	007
Bluetooth(GFSK)	Aux	Bottom Edge	0	78	2480	11.50	10.43	1.309	127.94%	0.000	0.000	-
Bluetooth(GFSK)	Aux	Right Edge	0	78	2480	11.50	10.43	1.309	127.94%	0.000	0.000	-
Bluetooth(GFSK)	Aux	Left Edge	0	78	2480	11.50	10.43	1.309	127.94%	0.001	0.002	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.2G	Aux	Back Surface	0	46	5230	21.00	20.97	1.032	100.69%	0.058	0.060	-
WLAN 802.11n(40M) 5.2G	Aux	Top Edge	0	46	5230	21.00	20.97	1.032	100.69%	0.271	0.282	008
WLAN 802.11n(40M) 5.2G	Aux	Bottom Edge	0	46	5230	21.00	20.97	1.032	100.69%	0.004	0.004	-
WLAN 802.11n(40M) 5.2G	Aux	Right Edge	0	46	5230	21.00	20.97	1.032	100.69%	0.008	0.008	-
WLAN 802.11n(40M) 5.2G	Aux	Left Edge	0	46	5230	21.00	20.97	1.032	100.69%	0.001	0.001	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.3G	Aux	Back Surface	0	54	5270	21.00	20.98	1.032	100.46%	0.053	0.055	-
WLAN 802.11n(40M) 5.3G	Aux	Top Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.242	0.251	009
WLAN 802.11n(40M) 5.3G	Aux	Bottom Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.007	0.008	-
WLAN 802.11n(40M) 5.3G	Aux	Right Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.011	0.011	-
WLAN 802.11n(40M) 5.3G	Aux	Left Edge	0	54	5270	21.00	20.98	1.032	100.46%	0.002	0.002	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11ac(80M) 5.6G	Aux	Back Surface	0	138	5690	21.00	20.96	1.042	100.93%	0.099	0.105	-
WLAN 802.11ac(80M) 5.6G	Aux	Top Edge	0	122	5610	21.00	20.94	1.042	101.39%	0.807	0.853	-
WLAN 802.11ac(80M) 5.6G	Aux	Top Edge	0	138	5690	21.00	20.96	1.042	100.93%	0.866	0.911	010
WLAN 802.11ac(80M) 5.6G	Aux	Top Edge*	0	138	5690	21.00	20.96	1.042	100.93%	0.842	0.885	-
WLAN 802.11ac(80M) 5.6G	Aux	Bottom Edge	0	138	5690	21.00	20.96	1.042	100.93%	0.012	0.013	-
WLAN 802.11ac(80M) 5.6G	Aux	Right Edge	0	138	5690	21.00	20.96	1.042	100.93%	0.012	0.013	-
WLAN 802.11ac(80M) 5.6G	Aux	Left Edge	0	138	5690	21.00	20.96	1.042	100.93%	0.003	0.003	-
Mode	Antenna	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
WLAN 802.11n(40M) 5.8G	Aux	Back Surface	0	159	5795	21.00	20.98	1.032	100.46%	0.089	0.092	-
WLAN 802.11n(40M) 5.8G	Aux	Top Edge	0	159	5795	21.00	20.98	1.032	100.46%	0.421	0.436	011
WLAN 802.11n(40M) 5.8G	Aux	Bottom Edge	0	159	5795	21.00	20.98	1.032	100.46%	0.044	0.045	-
WLAN 802.11n(40M) 5.8G	Aux	Right Edge	0	159	5795	21.00	20.98	1.032	100.46%	0.062	0.064	-
WLAN 802.11n(40M) 5.8G	Aux	Left Edge	0	159	5795	21.00	20.98	1.032	100.46%	0.007	0.008	-

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Main													
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-5 6.2GHz802.11ac(160M)	Back Surface	0	15	6025	13.50	13.48	1.032	100.46%	0.020	0.021	0.16	0.166	-
U-NII-5 6.2GHz802.11ac(160M)	Top Edge	0	15	6025	13.50	13.48	1.032	100.46%	0.002	0.002	0.025	0.026	-
U-NII-5 6.2GHz802.11ac(160M)	Bottom Edge	0	15	6025	13.50	13.48	1.032	100.46%	0.001	0.001	0.013	0.013	-
U-NII-5 6.2GHz802.11ac(160M)	Right Edge	0	15	6025	13.50	13.48	1.032	100.46%	0.042	0.044	0.232	0.241	-
U-NII-5 6.2GHz802.11ac(160M)	Left Edge	0	79	6345	13.50	13.47	1.032	100.69%	0.043	0.045	0.278	0.289	012
U-NII-5 6.2GHz802.11ac(160M)	Left Edge	0	15	6025	13.50	13.48	1.032	100.46%	0.002	0.002	0.018	0.019	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-6 6.5GHz802.11ac(160M)	Back Surface	0	111	6505	13.50	13.46	1.032	100.93%	0.030	0.031	0.201	0.209	-
U-NII-6 6.5GHz802.11ac(160M)	Top Edge	0	111	6505	13.50	13.46	1.032	100.93%	0.006	0.006	0.065	0.068	-
U-NII-6 6.5GHz802.11ac(160M)	Bottom Edge	0	111	6505	13.50	13.46	1.032	100.93%	0.003	0.003	0.034	0.035	-
U-NII-6 6.5GHz802.11ac(160M)	Right Edge	0	111	6505	13.50	13.46	1.032	100.93%	0.060	0.062	0.336	0.350	013
U-NII-6 6.5GHz802.11ac(160M)	Left Edge	0	111	6505	13.50	13.46	1.032	100.93%	0.002	0.002	0.023	0.024	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-7 6.7GHz802.11ac(160M)	Back Surface	0	143	6665	13.50	13.49	1.032	100.23%	0.033	0.034	0.237	0.245	-
U-NII-7 6.7GHz802.11ac(160M)	Top Edge	0	143	6665	13.50	13.49	1.032	100.23%	0.004	0.004	0.043	0.044	-
U-NII-7 6.7GHz802.11ac(160M)	Bottom Edge	0	143	6665	13.50	13.49	1.032	100.23%	0.001	0.001	0.014	0.014	-
U-NII-7 6.7GHz802.11ac(160M)	Right Edge	0	143	6665	13.50	13.49	1.032	100.23%	0.069	0.071	0.385	0.398	014
U-NII-7 6.7GHz802.11ac(160M)	Left Edge	0	143	6665	13.50	13.49	1.032	100.23%	0.001	0.001	0.011	0.011	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-8 7.0GHz802.11ac(160M)	Back Surface	0	207	6985	13.50	13.49	1.032	100.23%	0.030	0.031	0.213	0.220	-
U-NII-8 7.0GHz802.11ac(160M)	Top Edge	0	207	6985	13.50	13.49	1.032	100.23%	0.004	0.004	0.038	0.039	-
U-NII-8 7.0GHz802.11ac(160M)	Bottom Edge	0	207	6985	13.50	13.49	1.032	100.23%	0.002	0.002	0.026	0.027	-
U-NII-8 7.0GHz802.11ac(160M)	Right Edge	0	207	6985	13.50	13.49	1.032	100.23%	0.087	0.090	0.513	0.531	015
U-NII-8 7.0GHz802.11ac(160M)	Left Edge	0	207	6985	13.50	13.49	1.032	100.23%	0.002	0.002	0.024	0.025	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-5 6.2GHz802.11ac(160M)	Back Surface	0	15	6025	13.50	13.49	1.032	100.23%	0.016	0.017	0.101	0.104	-
U-NII-5 6.2GHz802.11ac(160M)	Top Edge	0	15	6025	13.50	13.49	1.032	100.23%	0.074	0.077	0.456	0.472	-
U-NII-5 6.2GHz802.11ac(160M)	Bottom Edge	0	47	6185	13.50	13.47	1.032	100.69%	0.141	0.147	0.843	0.876	016
U-NII-5 6.2GHz802.11ac(160M)	Right Edge	0	15	6025	13.50	13.49	1.032	100.23%	0.005	0.005	0.038	0.039	-
U-NII-5 6.2GHz802.11ac(160M)	Left Edge	0	15	6025	13.50	13.49	1.032	100.23%	0.003	0.003	0.026	0.027	-
U-NII-5 6.2GHz802.11ac(160M)	Left Edge	0	15	6025	13.50	13.49	1.032	100.23%	0.006	0.006	0.049	0.051	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-6 6.5GHz802.11ac(160M)	Back Surface	0	111	6505	13.50	13.48	1.032	100.46%	0.045	0.047	0.268	0.278	-
U-NII-6 6.5GHz802.11ac(160M)	Top Edge	0	111	6505	13.50	13.48	1.032	100.46%	0.111	0.115	0.65	0.674	017
U-NII-6 6.5GHz802.11ac(160M)	Bottom Edge	0	111	6505	13.50	13.48	1.032	100.46%	0.006	0.006	0.042	0.044	-
U-NII-6 6.5GHz802.11ac(160M)	Right Edge	0	111	6505	13.50	13.48	1.032	100.46%	0.004	0.004	0.031	0.032	-
U-NII-6 6.5GHz802.11ac(160M)	Left Edge	0	111	6505	13.50	13.48	1.032	100.46%	0.006	0.006	0.069	0.072	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-7 6.7GHz802.11ac(160M)	Back Surface	0	175	6825	13.50	13.46	1.032	100.93%	0.032	0.033	0.238	0.248	-
U-NII-7 6.7GHz802.11ac(160M)	Top Edge	0	175	6825	13.50	13.46	1.032	100.93%	0.078	0.081	0.381	0.397	018
U-NII-7 6.7GHz802.11ac(160M)	Bottom Edge	0	175	6825	13.50	13.46	1.032	100.93%	0.003	0.003	0.034	0.035	-
U-NII-7 6.7GHz802.11ac(160M)	Right Edge	0	175	6825	13.50	13.46	1.032	100.93%	0.001	0.001	0.013	0.014	-
U-NII-7 6.7GHz802.11ac(160M)	Left Edge	0	175	6825	13.50	13.46	1.032	100.93%	0.009	0.009	0.105	0.109	-
Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		Measured Estimated APD W/m ² (4cm ²)	Reported Estimated APD W/m ² (4cm ²)	ID
									Measured	Reported			
U-NII-8 7.0GHz802.11ac(160M)	Back Surface	0	207	6985	13.50	13.48	1.032	100.46%	0.030	0.031	0.202	0.209	-
U-NII-8 7.0GHz802.11ac(160M)	Top Edge	0	207	6985	13.50	13.48	1.032	100.46%	0.128	0.133	0.669	0.694	019
U-NII-8 7.0GHz802.11ac(160M)	Bottom Edge	0	207	6985	13.50	13.48	1.032	100.46%	0.002	0.002	0.024	0.025	-
U-NII-8 7.0GHz802.11ac(160M)	Right Edge	0	207	6985	13.50	13.48	1.032	100.46%	0.002	0.002	0.022	0.023	-
U-NII-8 7.0GHz802.11ac(160M)	Left Edge	0	207	6985	13.50	13.48	1.032	100.46%	0.008	0.008	0.086	0.089	-

Note:

Reported SAR = measured SAR * Power scaling * Duty cycle scaling

Reported APD = measured APD * Power scaling * Duty cycle scaling

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7.3 Summary of PD Results

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Tune-up Scaling	Duty cycle scaling	Measurement uncertainty	PD result(4cm)				ID
										Measured Total psPD (W/m ²)	Reported Total psPD (W/m ²)	Measured Normal psPD (W/m ²)	Reported Normal psPD (W/m ²)	
WLAN 6E 802.11ax(160M) U-NII-5	Right Edge	2	15	6025	13.50	13.48	100.46%	1.00	1.55	0.846	1.317	0.831	1.294	020
	Right Edge	2	79	6345	13.50	13.47	100.69%	1.00	1.55	0.796	1.242	0.785	1.225	021
WLAN 6E 802.11ax(160M) U-NII-6	Right Edge	2	111	6505	13.50	13.46	100.93%	1.00	1.55	0.619	0.968	0.598	0.935	022
WLAN 6E 802.11ax(160M) U-NII-7	Right Edge	2	143	6665	13.50	13.49	100.23%	1.00	1.55	0.763	1.185	0.732	1.137	023
WLAN 6E 802.11ax(160M) U-NII-8	Right Edge	2	207	6985	13.50	13.49	100.23%	1.00	1.55	0.742	1.153	0.728	1.131	024

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Tune-up Scaling	Duty cycle scaling	Measurement uncertainty	PD result(4cm)				ID
										Measured Total psPD (W/m ²)	Reported Total psPD (W/m ²)	Measured Normal psPD (W/m ²)	Reported Normal psPD (W/m ²)	
WLAN 6E 802.11ax(160M) U-NII-5	Top Edge	2	15	6025	13.50	13.49	100.23%	1.00	1.55	0.775	1.204	0.767	1.192	025
	Top Edge	2	47	6185	13.50	13.47	100.69%	1.00	1.55	0.911	1.422	0.802	1.252	026
WLAN 6E 802.11ax(160M) U-NII-6	Top Edge	2	111	6505	13.50	13.48	100.46%	1.00	1.55	1.080	1.682	1.060	1.651	027
WLAN 6E 802.11ax(160M) U-NII-7	Top Edge	2	175	6825	13.50	13.46	100.93%	1.00	1.55	0.861	1.347	0.853	1.334	028
WLAN 6E 802.11ax(160M) U-NII-8	Top Edge	2	207	6985	13.50	13.48	100.46%	1.00	1.55	0.787	1.225	0.701	1.092	029

Note:

Reported PD = measured PD * Power scaling * Duty cycle scaling * Uncertainty scaling

7.4 Reporting statements of conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

7.5 Conclusion

The device is compliant because all the standalone results are less than their corresponding criteria.

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8 SIMULTANEOUS TRANSMISSION ANALYSIS

8.1 Simultaneous Transmission Scenarios:

Simultaneous Transmit Configurations	Body
WLAN 2.4GHz Main + BT Aux	Yes
WLAN 2.4GHz Main + WLAN 2.4GHz Aux	Yes
WLAN 5GHz Main + BT Aux	Yes
WLAN 5GHz Main + WLAN 5GHz Aux	Yes
WLAN 5GHz Main + WLAN 5GHz Aux + BT Aux	Yes
WLAN 6GHz Main + BT Aux	Yes
WLAN 6GHz Main + WLAN 6GHz Aux	Yes
WLAN 6GHz Main + WLAN 6GHz Aux + BT Aux	Yes

Note:

1. Bluetooth and WLAN Aux share the same antenna path, and BT can transmit with WLAN Main simultaneously.
2. For 2.4/5GHz WLAN Main and Aux antennas, the maximum output power of each antenna during simultaneous transmission is the same with or less than that used in standalone transmission, and we used the sum of 1-g SAR provision in KDB447498D01 to exclude the simultaneous transmitted SAR measurement.

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8.2 Estimated SAR calculation

According to KDB447498 D01v06 – When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$$\text{Estimated SAR} = \frac{\text{Max. tune up power (mW)}}{\text{Min. test separation distance (mm)}} \times \frac{\sqrt{f(\text{GHz})}}{7.5}$$

If the minimum test separation distance is < 5mm, a distance of 5mm is used for estimated SAR calculation. When the test separation distance is >50mm, the 0.4W/kg is used for SAR-1g.

8.3 SPLSR evaluation and analysis

Per KDB447498D01, when the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR sum to peak location separation ratio(SPLSR).

The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion.

The ratio is determined by $(\text{SAR1} + \text{SAR2})^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

SAR1 and SAR2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna.

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Simultaneous Transmission Combination

Exposure Position		Reported SAR							Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
		2	3	4	5	7	8	9	2+3	4+5	2+7	4+7	4+5+7	7+8	8+9	7+8+9
		2.4GHz WLAN Main	2.4GHz WLAN Aux	5GHz WLAN Main	5GHz WLAN Aux	Bluetooth Aux	5GHz WLAN Main	5GHz WLAN Aux	Summed	Summed	Summed	Summed	Summed	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Back Surface	0	0.016	0.015	0.377	0.105	0.006	0.034	0.047	0.031	0.482	0.024	0.385	0.490	0.042	0.081	0.089
Top Edge	0	0.004	0.137	0.055	0.911	0.037	0.006	0.147	0.141	0.966	0.041	0.092	1.003	0.043	0.153	0.190
Bottom Edge	0	0.001	0.003	0.016	0.045	0.000	0.003	0.006	0.004	0.061	0.001	0.016	0.061	0.003	0.009	0.009
Left Edge	0	0.001	0.002	0.011	0.008	0.002	0.002	0.009	0.003	0.019	0.003	0.013	0.021	0.004	0.011	0.013
Right Edge	0	0.063	0.001	1.140	0.064	0.000	0.090	0.004	0.064	1.204	0.063	1.140	1.204	0.090	0.094	0.094

8.4 Conclusion

The simultaneous transmission is compliant because both SAR sum and/or SPLSR are less than their corresponding criteria.

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9 INSTRUMENTS LIST

SAR Test Site: SAR_2					
Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	3770	May/02/2022	May/01/2023
SPEAG	Data acquisition Electronics	DAE4	856	Apr/21/2022	Apr/20/2023
SPEAG	System Validation Dipole	D2450V2	727	Apr/25/2022	Apr/24/2023
SPEAG	System Validation Dipole	D5GHzV2	1023	Jan/27/2022	Jan/26/2023
SPEAG	Software	DASY 52 V52.10.4.15 27	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
SPEAG	Dielectric Assessment Kit	DAKS-3.5	1053	Feb/28/2022	Feb/27/2023
Agilent	Dual-directional coupler	778D	MY48220468	Aug/16/2021	Aug/15/2022
Agilent	Dual-directional coupler	772D	MY46151242	Aug/16/2021	Aug/15/2022
R&S	MXG Analog Signal Generator	SMB100A03	182012	Jun/13/2022	Jun/12/2023
EMCI	Amplifier	EMC 2830P	980156	Calibration not required	Calibration not required
R&S	Power Meter	NRX	102034	Dec/28/2021	Dec/27/2022
R&S	Power Sensor	NRP18S	101974	Oct/12/2021	Oct/11/2022
R&S	Power Sensor	NRP18S	109066	Oct/12/2021	Oct/11/2022
TECPEL	Digital thermometer	DTM-303A	TP190085	Jan/14/2022	Jan/13/2023

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SAR Test Site: SAR_6					
Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	7466	Jan/26/2022	Jan/25/2023
SPEAG	E-field Probe for Near Field Application	EUmmWV4	9579	Oct/06/2021	Oct/05/2022
SPEAG	Data acquisition Electronics	DAE4	558	Nov/23/2021	Nov/22/2022
SPEAG	System Validation Dipole	D6.5GHzV2	1006	Aug/26/2021	Aug/25/2022
SPEAG	System Validation Dipole	D7GHzV2	1007	Aug/26/2021	Aug/25/2022
SPEAG	5G Verification Source 10GHz	5G-Veri10	1021	Jan/24/2022	Jan/23/2023
SPEAG	Software	DASY 6 V16.0.2.136	N/A	Calibration not required	Calibration not required
SPEAG	Software	DASY 6 mmWave V2.4.2.62	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	ELI	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	mmWave Phantom	N/A	Calibration not required	Calibration not required
SPEAG	Dielectric Assessment Kit	DAKS-3.5	1053	Feb/28/2022	Feb/27/2023
Agilent	Dual-directional coupler	778D	MY48220468	Aug/16/2021	Aug/15/2022
Agilent	Dual-directional coupler	772D	MY46151242	Aug/16/2021	Aug/15/2022
R&S	MXG Analog Signal Generator	SMB100A03	182012	Jun/13/2022	Jun/12/2023
EMCI	Amplifier	EMC 2830P	980156	Calibration not required	Calibration not required
R&S	Power Meter	NRX	102034	Dec/28/2021	Dec/27/2022
R&S	Power Sensor	NRP18S	101974	Oct/12/2021	Oct/11/2022
R&S	Power Sensor	NRP18S	109066	Oct/12/2021	Oct/11/2022
TECPEL	Digital thermometer	DTM-303A	TP130074	May/13/2022	May/12/2023

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10 UNCERTAINTY BUDGET

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distributio	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
<i>Isotropy , Axial</i>	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.16%	N	1	1	0.64	0.43	2.02%	1.36%	M
Liquid Conductivity (mea.)	3.29%	N	1	1	0.6	0.49	1.97%	1.61%	M
Combined standard uncertainty		RSS					12.05%	11.90%	
Expan uncertainty (95% confidence interval), K=2							24.10%	23.79%	

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Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distributio	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
<i>Isotropy , Axial</i>	3.50%	R	$\sqrt{3}$	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	$\sqrt{3}$	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	$\sqrt{3}$	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	$\sqrt{3}$	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	$\sqrt{3}$	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	$\sqrt{3}$	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	$\sqrt{3}$	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.84%	N	1	1	0.64	0.43	2.46%	1.65%	M
Liquid Conductivity (mea.)	2.60%	N	1	1	0.6	0.49	1.56%	1.27%	M
Combined standard uncertainty		RSS					11.78%	11.60%	
Expant uncertainty (95% confidence interval), K=2							23.57%	23.19%	

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DASY6 Uncertainty Budget
According to IEC/IEEE 62209-1528
(Frequency band: 6GHz - 10GHz range)

a	b	c	d		e	e	f=b * e / d	f=b * e / d
Source of Uncertainty	Uncertainty Value (±%)	Probability Distribution	Div.	Div. Value	(ci) 1g	(ci) 10g	Std. uncertainty (1g) (±%)	Std. uncertainty (10g) (±%)
Measurement system errors								
Probe calibration	18.6	N	2	2	1	1	9.3	9.3
Probe Calibration Drift	1.7	R	√3	1.732	1	1	1.0	1.0
Probe Linearity	4.7	R	√3	1.732	1	1	2.7	2.7
Broadband Signal	2.8	R	√3	1.732	1	1	1.6	1.6
Probe Isotropy	7.6	R	√3	1.732	1	1	4.4	4.4
Data Acquisition	0.3	N	1	1	1	1	0.3	0.3
RF Ambient	1.8	N	1	1	1	1	1.8	1.8
Probe positioning	0.2	N	1	1	0.67	0.67	0.1	0.1
Data Processing	3.5	N	1	1	1	1	3.5	3.5
Phantom and device errors								
Conductivity (meas.)DAK	2.5	N	1	1	0.78	0.71	2.0	1.8
Conductivity (temp.)BB	2.4	R	√3	1.732	0.78	0.71	1.1	1.0
Phantom Permittivity	14.0	R	√3	1.732	0.5	0.5	4.0	4.0
Distance DUT - TSL	2.0	N	1	1	2	2	4.0	4.0
Device Positioning (±0.5mm)	1.0	N	1	1	1	1	1.0	1.0
Device Holder	3.6	N	1	1	1	1	3.6	3.6
DUT Modulationm	2.4	R	√3	1.732	1	1	1.4	1.4
Time-average SAR	0.0	R	√3	1.732	1	1	0.0	0.0
DUT drift	2.5	N	1	1	1	1	2.5	2.5
Val Antenna Unc.	0.0	N	1	1	1	1	0.0	0.0
Unc. Input Power	0.0	N	1	1	1	1	0.0	0.0
Correction to the SAR results								
Deviation to Target	1.90	N	1	1	1	0.84	1.9	1.6
SAR scaling	0.147	R	√3	1.732	1	1	0.1	0.1
Combined Std. uncertainty							14.0	13.9
Expanded Std. uncertainty (95% confidence interval), K=2							28.0	27.8

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cDASY6 Module mmWave Uncertainty Budget for PD Evaluation Distances to the Antennas $\geq \lambda/5$ In Compliance with IEC/IEEE 63195

a	b	c	d		e	f=b * e / d	g
Source of Uncertainty	Uncertainty Value (+/-dB)	Probability Distribution	Div.	Div. Value	ci	Std. uncertainty (+/-dB)	(vi) Veff
Uncertainty terms dependent on the measurement system							
Probe calibration	0.49	N	1	1	1	0.49	∞
Probe correction	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Frequency response (BW ≤ 1 GHz)	0.20	R	$\sqrt{3}$	1.732	1	0.12	∞
Sensor cross coupling	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Isotropy	0.50	R	$\sqrt{3}$	1.732	1	0.29	∞
Linearity	0.20	R	$\sqrt{3}$	1.732	1	0.12	∞
Probe scattering	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Probe positioning offset	0.30	R	$\sqrt{3}$	1.732	1	0.17	∞
Probe positioning repeatability	0.04	R	$\sqrt{3}$	1.732	1	0.02	∞
Sensor mechanical offset	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Probe spatial resolution	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Field impedance dependence	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Amplitude and phase drift	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Amplitude and phase noise	0.04	R	$\sqrt{3}$	1.732	1	0.02	∞
Measurement area truncation	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Data acquisition	0.03	N	1	1	1	0.03	∞
Sampling	0.00	R	$\sqrt{3}$	1	1	0.00	∞
Field reconstruction	2.00	R	$\sqrt{3}$	1.732	1	1.15	∞
Forward transformation	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Power density scaling	-	R	$\sqrt{3}$	1.732	1	-	∞
Spatial averaging	0.10	R	$\sqrt{3}$	1.732	1	0.06	∞
System detection limit	0.04	R	$\sqrt{3}$	1.732	1	0.02	∞
Uncertainty terms dependent on the DUT and environmental factors							
Probe coupling with DUT	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Modulation response	0.40	R	$\sqrt{3}$	1.732	1	0.23	∞
Integration time	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Response time	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Device holder influence	0.10	R	$\sqrt{3}$	1.732	1	0.06	∞
DUT alignment	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
RF ambient conditions	0.04	R	$\sqrt{3}$	1.732	1	0.02	∞
Ambient reflections	0.04	R	$\sqrt{3}$	1.732	1	0.02	∞
Immunity / secondary reception	0.00	R	$\sqrt{3}$	1.732	1	0.00	∞
Drift of the DUT	-	R	$\sqrt{3}$	1.732	1	-	∞
Combined Std. uncertainty						1.33	
Expanded Std. uncertainty (95% confidence interval), K=2						2.67	

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11 SAR MEASUREMENT RESULTS

Date: 2022/6/20

ID: 001

Report No. :TESA2206000138EN

WLAN 802.11b_Body_Right Edge_CH 6_0mm_Main

Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty cycle= 1:1.022

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.832 \text{ S/m}$; $\epsilon_r = 37.721$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 22.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.2, 8.2, 8.2) @ 2437 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (81x101x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) = 0.127 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.558 V/m; Power Drift = 0.14 dB

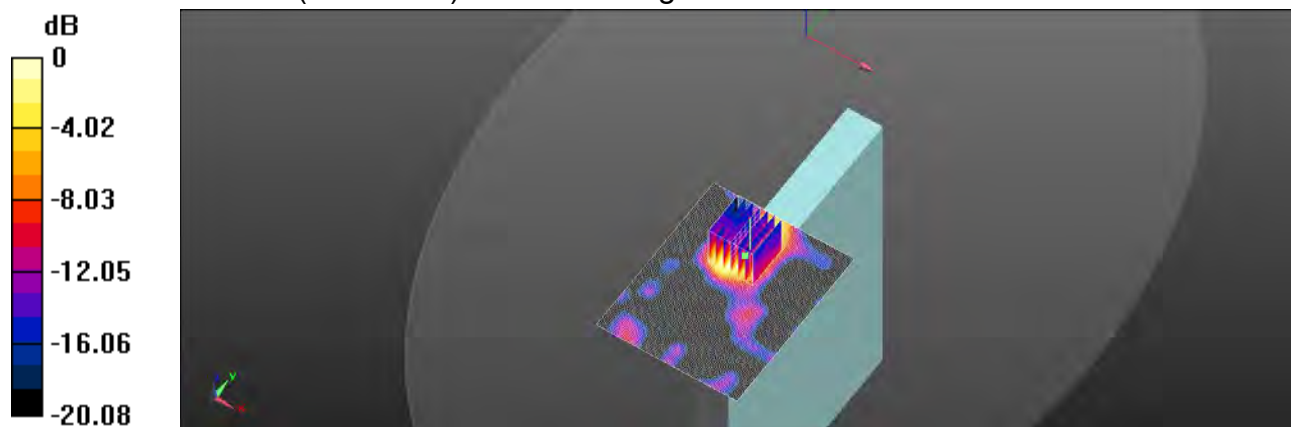
Peak SAR (extrapolated) = 0.156 W/kg

SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.026 W/kg

Smallest distance from peaks to all points 3 dB below = 6 mm

Ratio of SAR at M2 to SAR at M1 = 50%

Maximum value of SAR (measured) = 0.0978 W/kg



0 dB = 0.0978 W/kg = -10.10 dBW/kg

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Date: 2022/6/21

ID: 002

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.2G_Body_Right Edge_CH 46_0mm_Main

Communication System: WLAN 5G; Frequency: 5230 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 4.635 \text{ S/m}$; $\epsilon_r = 36.93$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.6, 5.6, 5.6) @ 5230 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x111x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 2.06 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 4.225 V/m; Power Drift = -0.16 dB

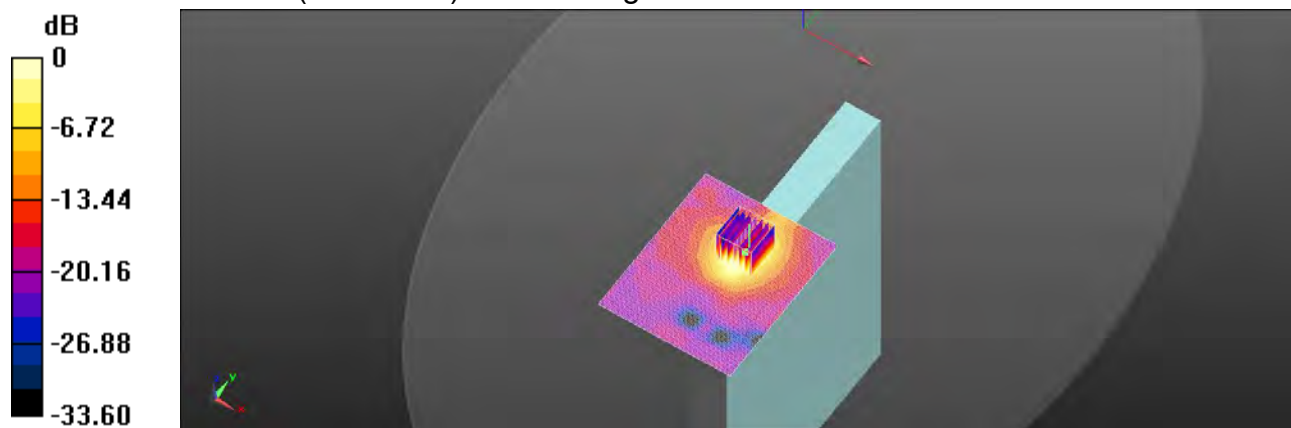
Peak SAR (extrapolated) = 3.75 W/kg

SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.364 W/kg

Smallest distance from peaks to all points 3 dB below = 5.8 mm

Ratio of SAR at M2 to SAR at M1 = 61.6%

Maximum value of SAR (measured) = 2.09 W/kg



0 dB = 2.09 W/kg = 3.20 dBW/kg

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Date: 2022/6/21

ID: 003

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.3G_Body_Right Edge_CH 54_0mm_Main

Communication System: WLAN 5G; Frequency: 5270 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5270 \text{ MHz}$; $\sigma = 4.696 \text{ S/m}$; $\epsilon_r = 36.876$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.49, 5.49, 5.49) @ 5270 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x111x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 2.10 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 3.485 V/m; Power Drift = 0.13 dB

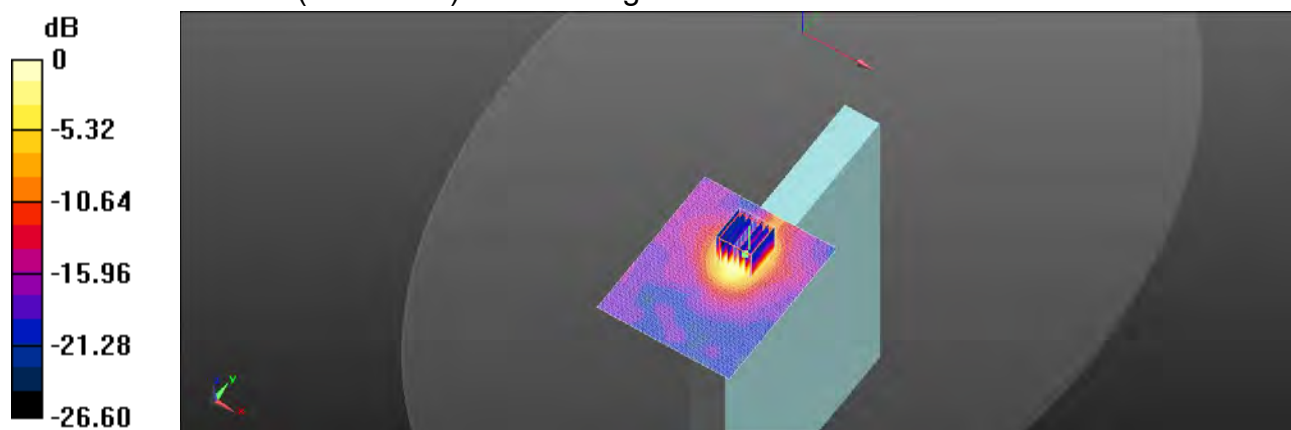
Peak SAR (extrapolated) = 3.55 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.343 W/kg

Smallest distance from peaks to all points 3 dB below = 6.4 mm

Ratio of SAR at M2 to SAR at M1 = 61.3%

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



0 dB = 1.99 W/kg = 2.99 dBW/kg

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Date: 2022/6/22

ID: 004

Report No. :TESA2206000138EN

WLAN 802.11ac(80M) 5.6G_Body_Right Edge_CH 138_0mm_Main

Communication System: WLAN 5G; Frequency: 5690 MHz; Duty cycle= 1:1.042

Medium parameters used: $f = 5690 \text{ MHz}$; $\sigma = 5.234 \text{ S/m}$; $\epsilon_r = 35.632$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5, 5, 5) @ 5690 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x111x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.28 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.089 V/m; Power Drift = 0.15 dB

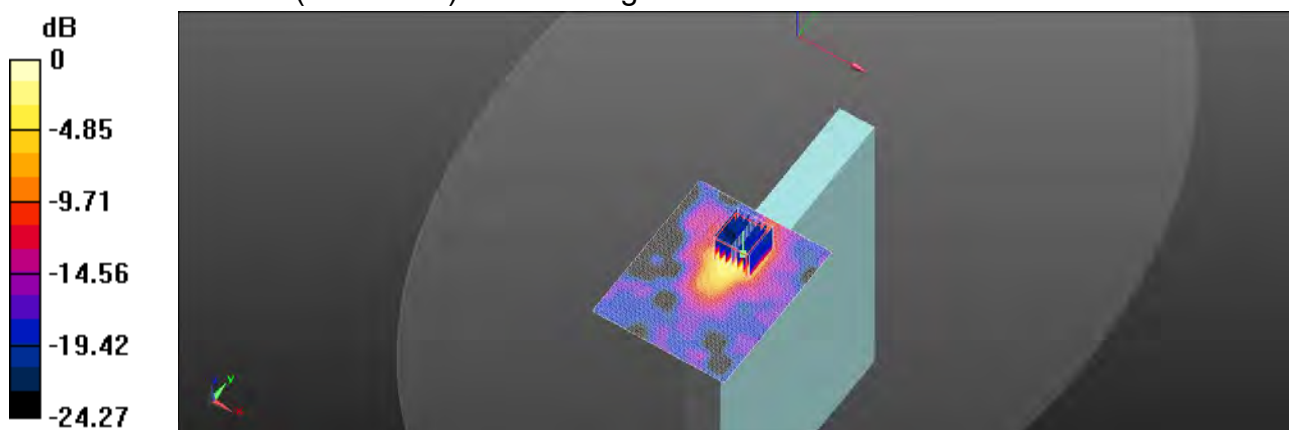
Peak SAR (extrapolated) = 2.96 W/kg

SAR(1 g) = 0.641 W/kg; SAR(10 g) = 0.167 W/kg

Smallest distance from peaks to all points 3 dB below = 5.1 mm

Ratio of SAR at M2 to SAR at M1 = 55.4%

Maximum value of SAR (measured) = 1.30 W/kg



0 dB = 1.30 W/kg = 1.14 dBW/kg

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Date: 2022/6/23

ID: 005

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.8G_Body_Right Edge_CH 151_0mm_Main

Communication System: WLAN 5G; Frequency: 5755 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5755 \text{ MHz}$; $\sigma = 5.396 \text{ S/m}$; $\epsilon_r = 36.356$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 21.9°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.05, 5.05, 5.05) @ 5755 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (91x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

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

Reference Value = 4.005 V/m; Power Drift = -0.16 dB

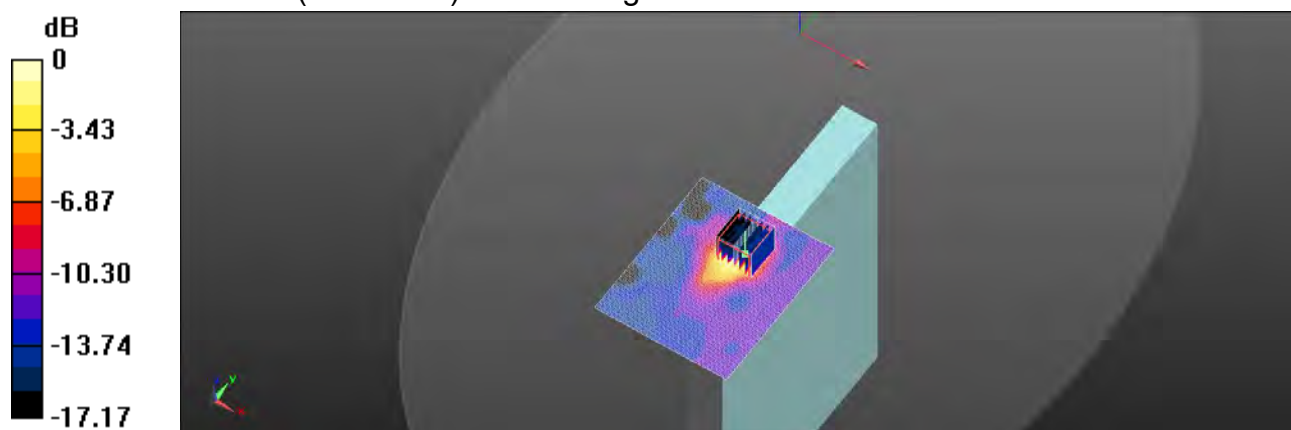
Peak SAR (extrapolated) = 2.44 W/kg

SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.142 W/kg

Smallest distance from peaks to all points 3 dB below = 4.3 mm

Ratio of SAR at M2 to SAR at M1 = 53.9%

Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg

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Date: 2022/6/20

ID: 006

Report No. :TESA2206000138EN

WLAN 802.11b_Body_Top Edge_CH 1_0mm_Aux

Communication System: WLAN 2.45G; Frequency: 2412 MHz; Duty cycle= 1:1.022

Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.812 \text{ S/m}$; $\epsilon_r = 37.758$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 22.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.2, 8.2, 8.2) @ 2412 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x121x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) = 0.224 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.028 V/m; Power Drift = 0.13 dB

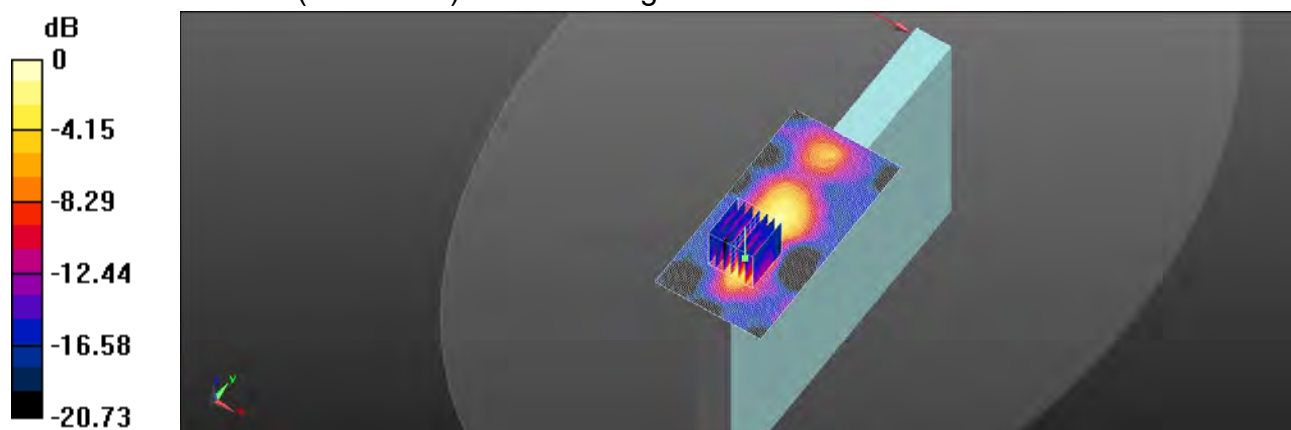
Peak SAR (extrapolated) = 0.329 W/kg

SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.053 W/kg

Smallest distance from peaks to all points 3 dB below = 5.8 mm

Ratio of SAR at M2 to SAR at M1 = 45.8%

Maximum value of SAR (measured) = 0.231 W/kg



0 dB = 0.231 W/kg = -6.36 dBW/kg

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Date: 2022/6/20

ID: 007

Report No. :TESA2206000138EN

Bluetooth(GFSK)_Body_Top Edge_CH 78_0mm_Aux

Communication System: Bluetooth; Frequency: 2480 MHz; Duty cycle= 1:1.309

Medium parameters used: $f = 2480 \text{ MHz}$; $\sigma = 1.867 \text{ S/m}$; $\epsilon_r = 37.677$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 22.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.2, 8.2, 8.2) @ 2480 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x121x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0600 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.532 V/m; Power Drift = 0.13 dB

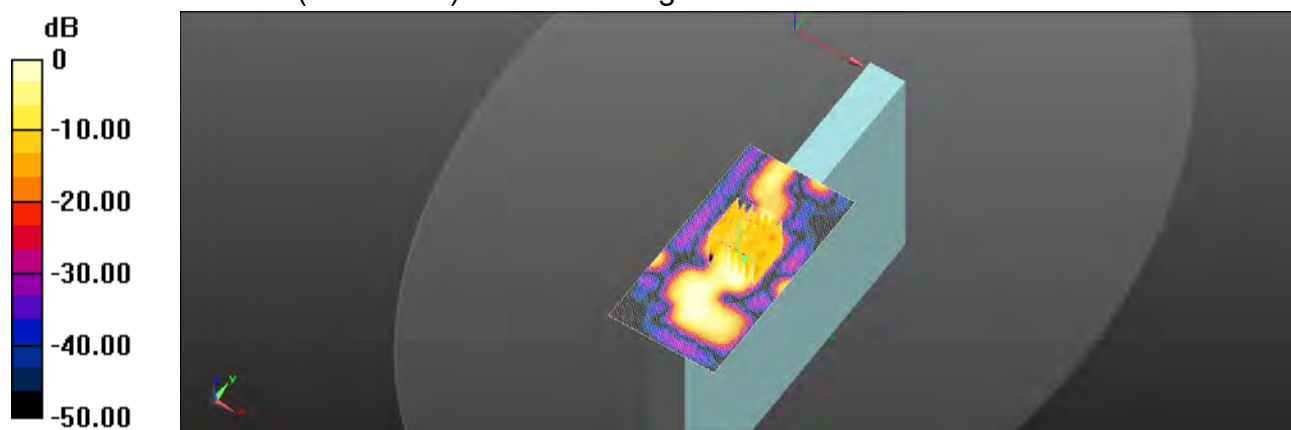
Peak SAR (extrapolated) = 0.0560 W/kg

SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.010 W/kg

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 49.7%

Maximum value of SAR (measured) = 0.0342 W/kg



0 dB = 0.0342 W/kg = -14.66 dBW/kg

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Date: 2022/6/21

ID: 008

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.2G_Body_Top Edge_CH 46_0mm_Aux

Communication System: WLAN 5G; Frequency: 5230 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 4.635 \text{ S/m}$; $\epsilon_r = 36.93$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.6, 5.6, 5.6) @ 5230 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x121x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.656 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.742 V/m; Power Drift = 0.16 dB

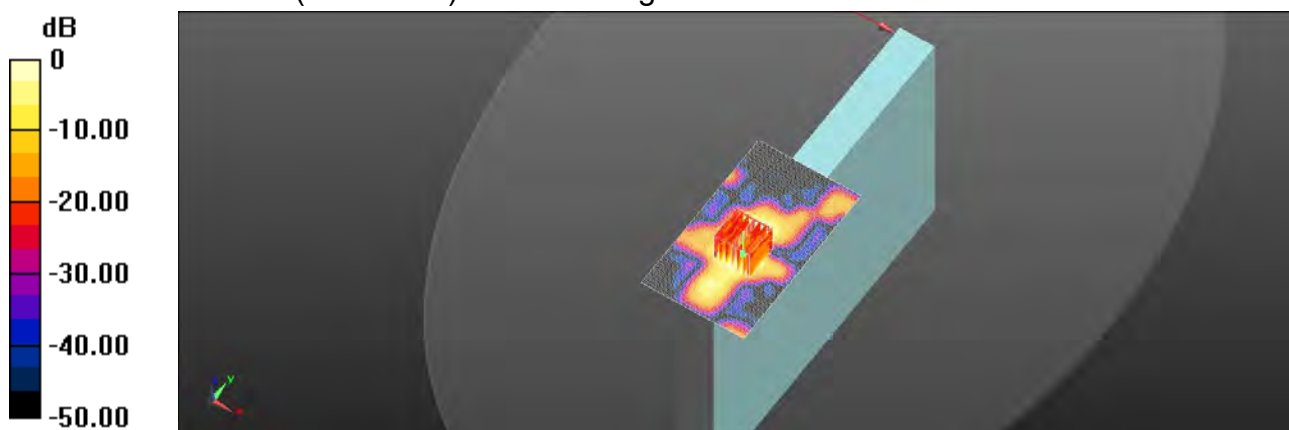
Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.271 W/kg; SAR(10 g) = 0.066 W/kg

Smallest distance from peaks to all points 3 dB below = 5.4 mm

Ratio of SAR at M2 to SAR at M1 = 55.8%

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



0 dB = 0.612 W/kg = -2.13 dBW/kg

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Date: 2022/6/21

ID: 009

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.3G_Body_Top Edge_CH 54_0mm_Aux

Communication System: WLAN 5G; Frequency: 5270 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5270 \text{ MHz}$; $\sigma = 4.696 \text{ S/m}$; $\epsilon_r = 36.876$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.49, 5.49, 5.49) @ 5270 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x121x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 0.633 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.962 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.242 W/kg; SAR(10 g) = 0.058 W/kg

Smallest distance from peaks to all points 3 dB below = 5.7 mm

Ratio of SAR at M2 to SAR at M1 = 57.5%

Maximum value of SAR (measured) = 0.517 W/kg

Zoom Scan (7x7x12)/Cube 1: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.962 V/m; Power Drift = 0.12 dB

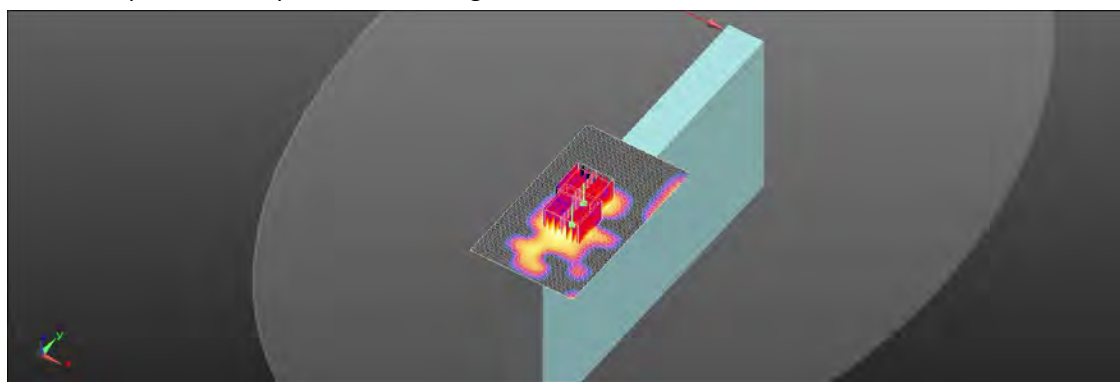
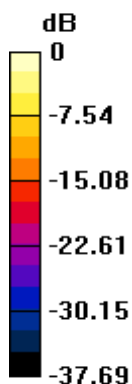
Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.240 W/kg; SAR(10 g) = 0.062 W/kg

Smallest distance from peaks to all points 3 dB below = 5.4 mm

Ratio of SAR at M2 to SAR at M1 = 55.1%

Maximum value of SAR (measured) = 0.524 W/kg



0 dB = 0.524 W/kg = -2.81 dBW/kg

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Date: 2022/6/22

ID: 010

Report No. :TESA2206000138EN

WLAN 802.11ac(80M) 5.6G_Body_Top Edge_CH 138_0mm_Aux

Communication System: WLAN 5G; Frequency: 5690 MHz; Duty cycle= 1:1.042

Medium parameters used: $f = 5690 \text{ MHz}$; $\sigma = 5.234 \text{ S/m}$; $\epsilon_r = 35.632$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5, 5, 5) @ 5690 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x121x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 1.84 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.872 V/m; Power Drift = -0.19 dB

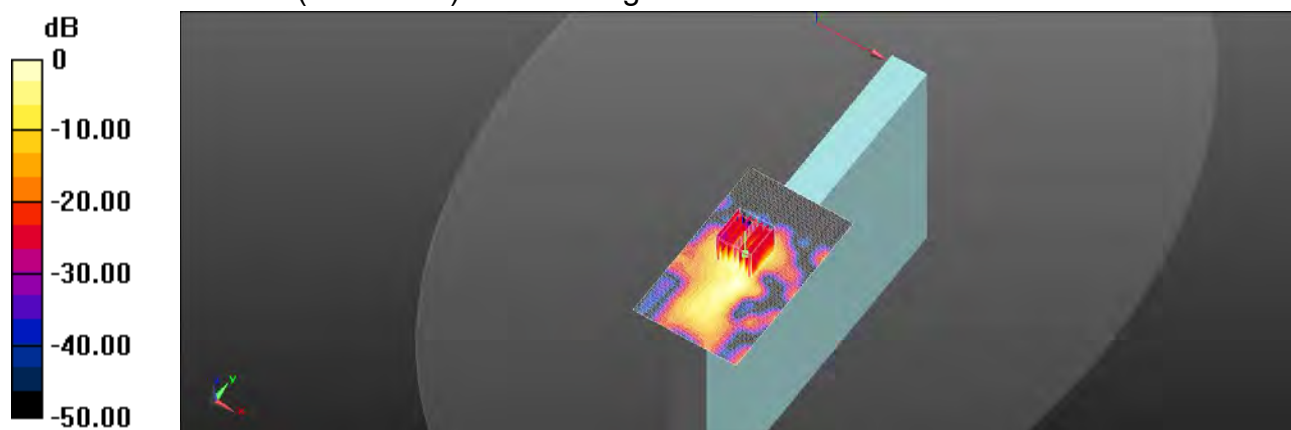
Peak SAR (extrapolated) = 3.93 W/kg

SAR(1 g) = 0.866 W/kg; SAR(10 g) = 0.206 W/kg

Smallest distance from peaks to all points 3 dB below = 5.1 mm

Ratio of SAR at M2 to SAR at M1 = 56.9%

Maximum value of SAR (measured) = 1.91 W/kg



0 dB = 1.91 W/kg = 2.81 dBW/kg

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Date: 2022/6/23

ID: 011

Report No. :TESA2206000138EN

WLAN 802.11n(40M) 5.8G_Body_Top Edge_CH 159_0mm_Aux

Communication System: WLAN 5G; Frequency: 5795 MHz; Duty cycle= 1:1.032

Medium parameters used: $f = 5795 \text{ MHz}$; $\sigma = 5.438 \text{ S/m}$; $\epsilon_r = 35.313$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 21.9°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.05, 5.05, 5.05) @ 5795 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (71x121x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

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

Reference Value = 3.114 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.097 W/kg

Smallest distance from peaks to all points 3 dB below = 4.9 mm

Ratio of SAR at M2 to SAR at M1 = 54.8%

Maximum value of SAR (measured) = 0.901 W/kg

Zoom Scan (7x7x12)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.114 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 2.21 W/kg

SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.092 W/kg

Smallest distance from peaks to all points 3 dB below = 4.5 mm

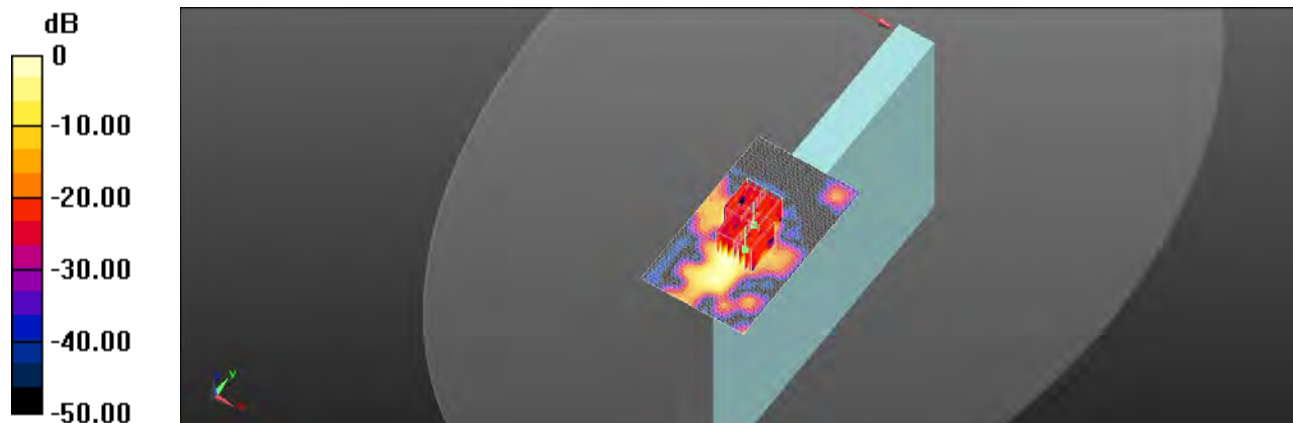
Ratio of SAR at M2 to SAR at M1 = 52.7%

Maximum value of SAR (measured) = 1.08 W/kg

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0 dB = 1.08 W/kg = 0.33 dBW/kg

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ID: 012

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-5,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 79 (6345.0 MHz)_Main

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Right Edge, 0.00	5.65	6.048	35.778

Hardware Setup

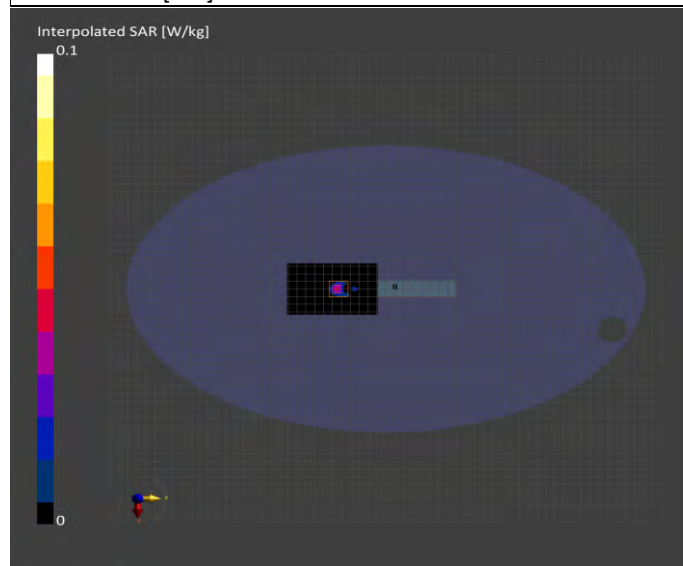
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.031	0.043
psSAR8g [W/kg]	0.008	0.014
psSAR10g [W/kg]	0.007	0.012
psPDab (4.0cm2, sq) [W/m2]		0.278
Power Drift [dB]	-0.09	0.12
M2/M1 [%]		33.3
Dist 3dB Peak [mm]		4.0



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ID: 013

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-6,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 111 (6505.0 MHz)_Main

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Right Edge, 0.00	5.65	6.221	35.586

Hardware Setup

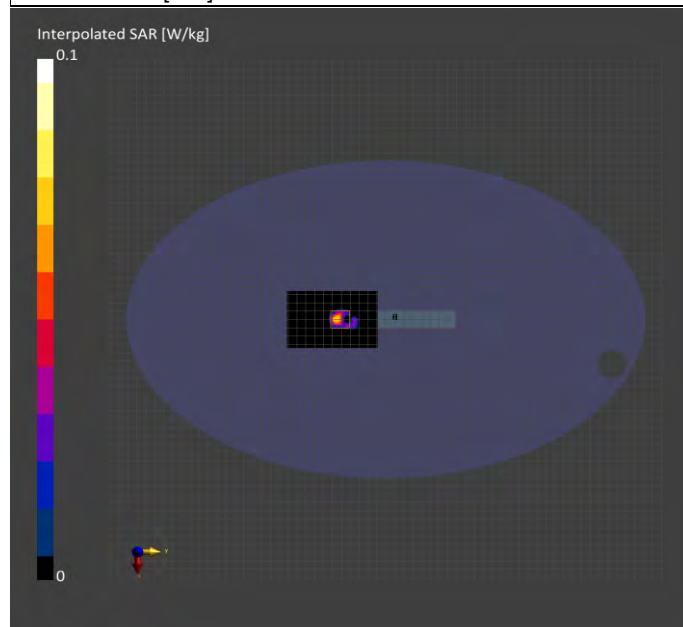
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.2
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.054	0.060
psSAR8g [W/kg]	0.015	0.017
psSAR10g [W/kg]	0.013	0.014
psPDab (4.0cm2, sq) [W/m2]		0.336
Power Drift [dB]	0.04	0.05
M2/M1 [%]		58.5
Dist 3dB Peak [mm]		4.1



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ID: 014

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-7,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 143 (6665.0 MHz)_Main

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Right Edge, 0.00	5.65	6.396	35.394

Hardware Setup

Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

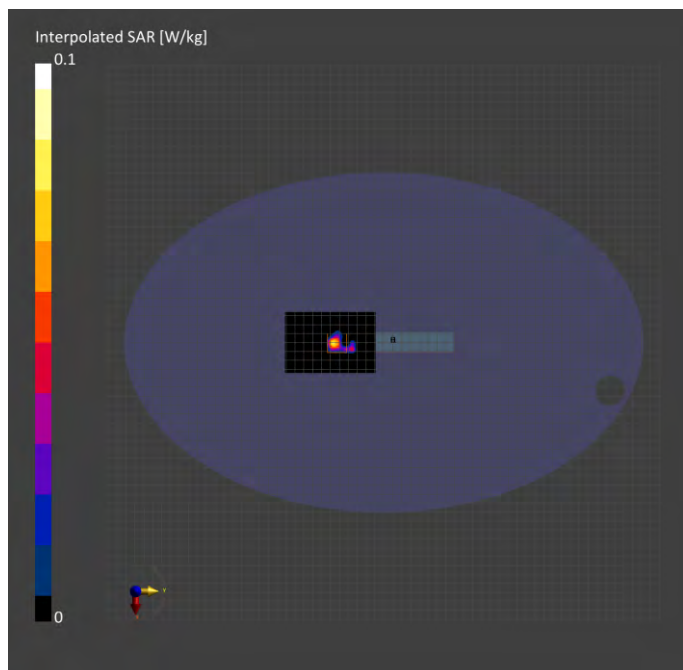
Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.070	0.069
psSAR8g [W/kg]	0.018	0.019
psSAR10g [W/kg]	0.015	0.016
psPDab (4.0cm2, sq) [W/m2]		0.385
Power Drift [dB]	0.08	-0.12
M2/M1 [%]		50.6
Dist 3dB Peak [mm]		4.0

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ID: 015

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-8,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 207 (6985.0 MHz)_Main

Ambient temperature: 22.5°C; Liquid temperature: 22.2°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Right Edge, 0.00	5.85	6.749	35.01

Hardware Setup

Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

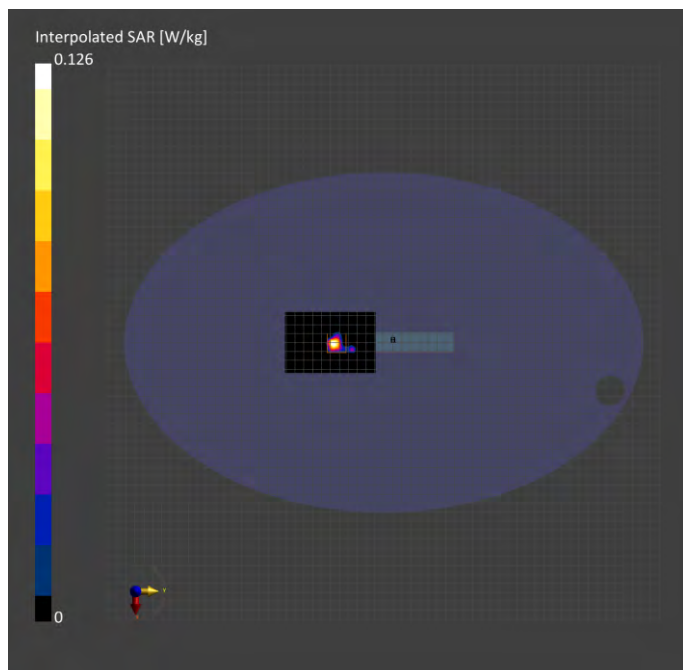
Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.094	0.087
psSAR8g [W/kg]	0.023	0.026
psSAR10g [W/kg]	0.019	0.022
psPDab (4.0cm2, sq) [W/m2]		0.513
Power Drift [dB]	-0.04	-0.02
M2/M1 [%]		59.3
Dist 3dB Peak [mm]		4.8

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ID: 016

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-5,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 47 (6185.0 MHz)_Aux

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Top Edge, 0.00	5.65	5.875	35.97

Hardware Setup

Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

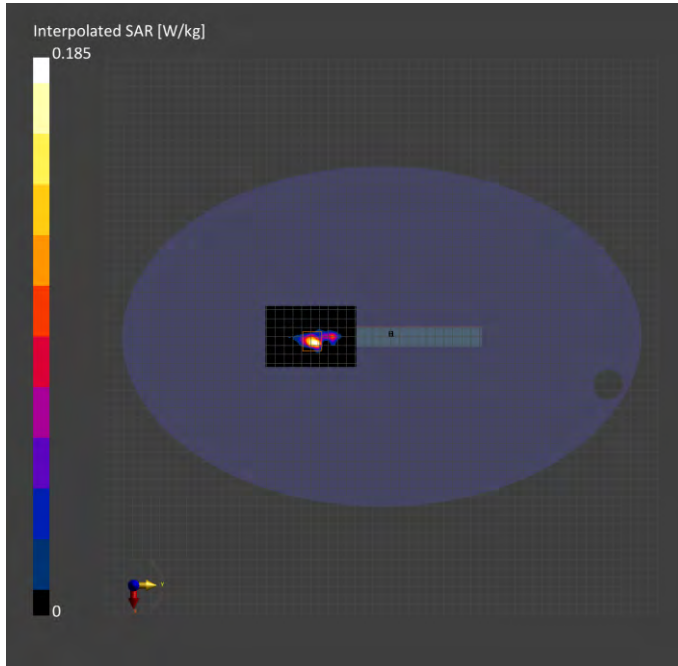
Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.122	0.141
psSAR8g [W/kg]	0.035	0.042
psSAR10g [W/kg]	0.030	0.036
psPDab (4.0cm2, sq) [W/m2]		0.843
Power Drift [dB]	0.13	-0.18
M2/M1 [%]		52.7
Dist 3dB Peak [mm]		5.2

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ID: 017

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-6,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 111 (6505.0 MHz)_Aux

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Top Edge, 0.00	5.65	6.221	35.586

Hardware Setup

Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.2
Sensor Surface [mm]	3.0	1.4

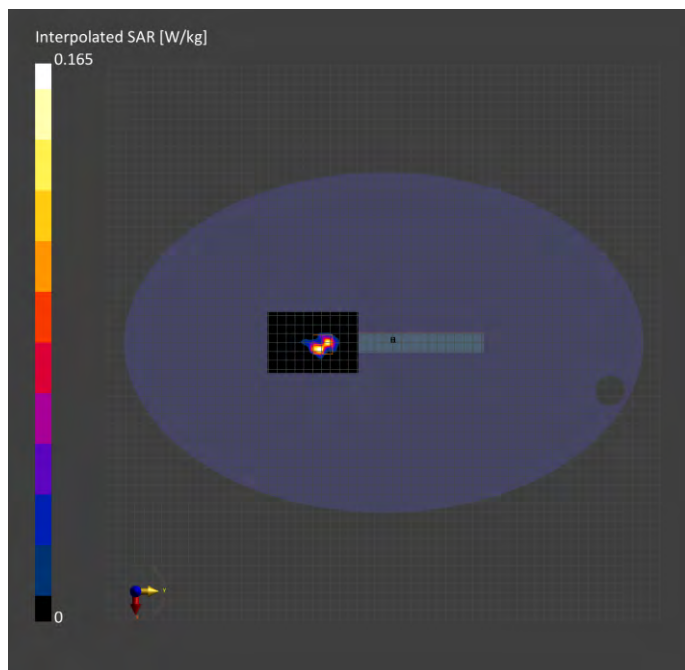
Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.099	0.111
psSAR8g [W/kg]	0.032	0.033
psSAR10g [W/kg]	0.028	0.029
psPDab (4.0cm2, sq) [W/m2]		0.650
Power Drift [dB]	0.19	-0.17
M2/M1 [%]		61.4
Dist 3dB Peak [mm]		4.1

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ID: 018

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-7,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 175 (6825.0 MHz)_Aux

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Top Edge, 0.00	5.65	6.572	35.202

Hardware Setup

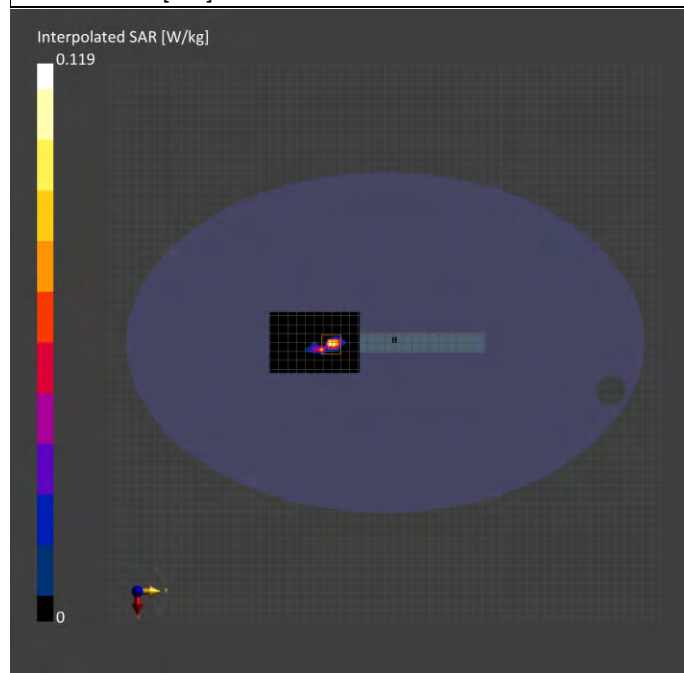
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.072	0.078
psSAR8g [W/kg]	0.017	0.019
psSAR10g [W/kg]	0.014	0.016
psPDab (4.0cm2, sq) [W/m2]		0.381
Power Drift [dB]	0.06	-0.03
M2/M1 [%]		61.9
Dist 3dB Peak [mm]		4.1



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ID: 019

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-8,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 207 (6985.0 MHz)_Aux

Ambient temperature: 22.5°C; Liquid temperature: 22.2°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Top Edge, 0.00	5.85	6.749	35.01

Hardware Setup

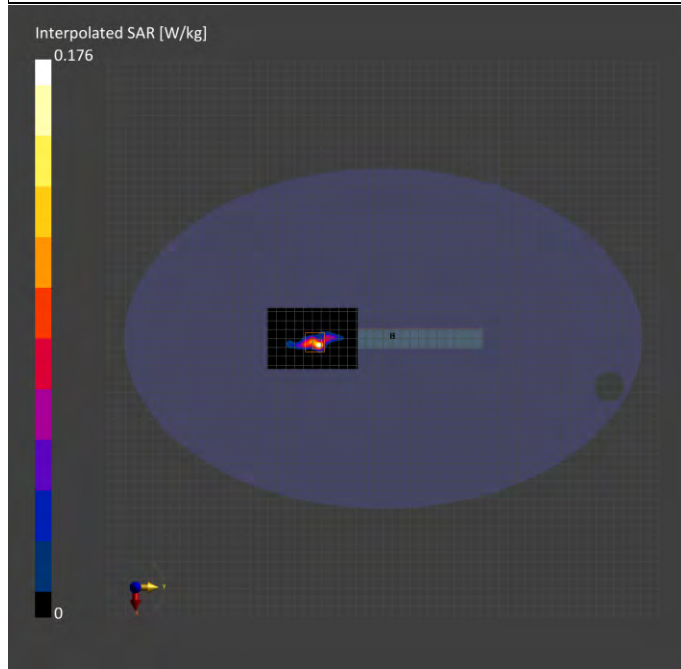
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	0.103	0.128
psSAR8g [W/kg]	0.031	0.033
psSAR10g [W/kg]	0.026	0.028
psPDab (4.0cm2, sq) [W/m2]		0.669
Power Drift [dB]	0.08	-0.09
M2/M1 [%]		44.4
Dist 3dB Peak [mm]		5.3



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12 PD MEASUREMENT RESULT

ID: 020

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-5,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 15 (6025.0 MHz)_Main

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Right Edge, 2.00	1.0

Hardware Setup

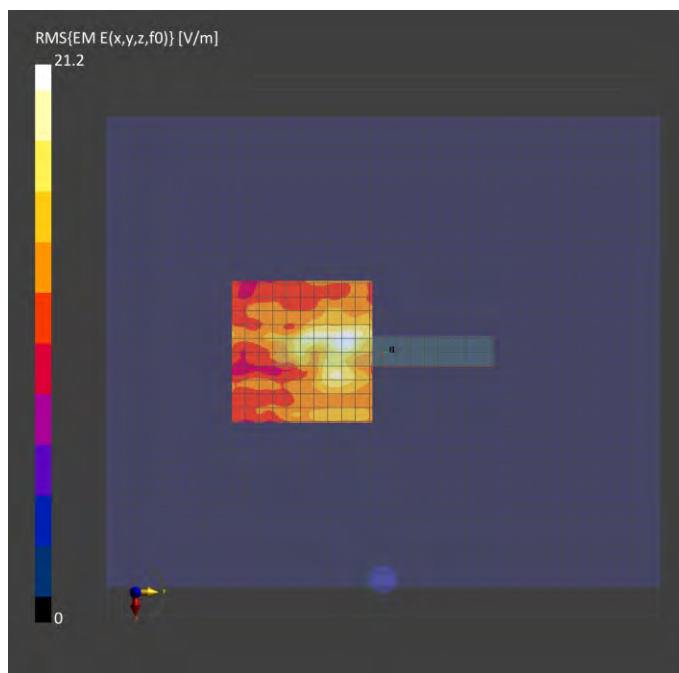
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.831
psPDtot+ [W/m ²]	0.846
psPDmod+ [W/m ²]	0.878
E _{max} [V/m]	21.2
Power Drift [dB]	0.07



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ID: 021

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-5,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 79 (6345.0 MHz)_Main

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Right Edge, 2.00	1.0

Hardware Setup

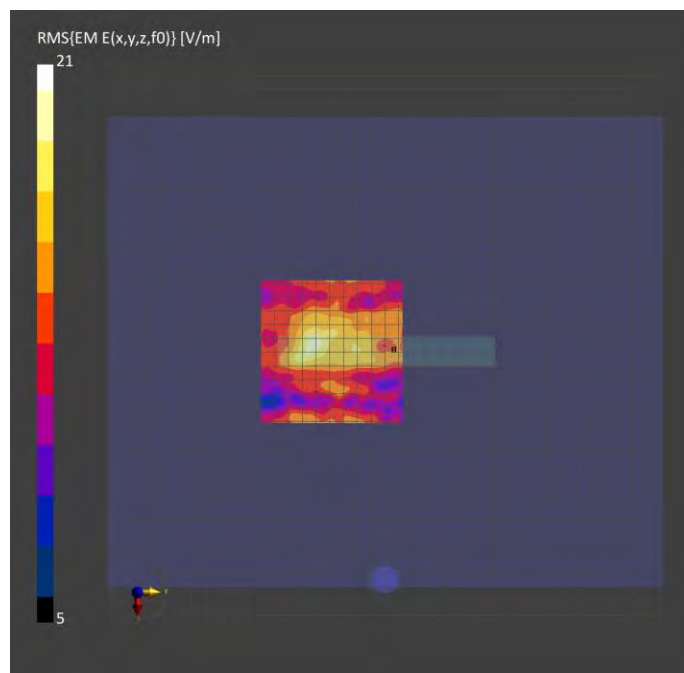
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.785
psPDtot+ [W/m ²]	0.796
psPDmod+ [W/m ²]	0.820
E _{max} [V/m]	19.0
Power Drift [dB]	0.05



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ID: 022

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-6,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 111 (6505.0 MHz)_Main

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Right Edge, 2.00	1.0

Hardware Setup

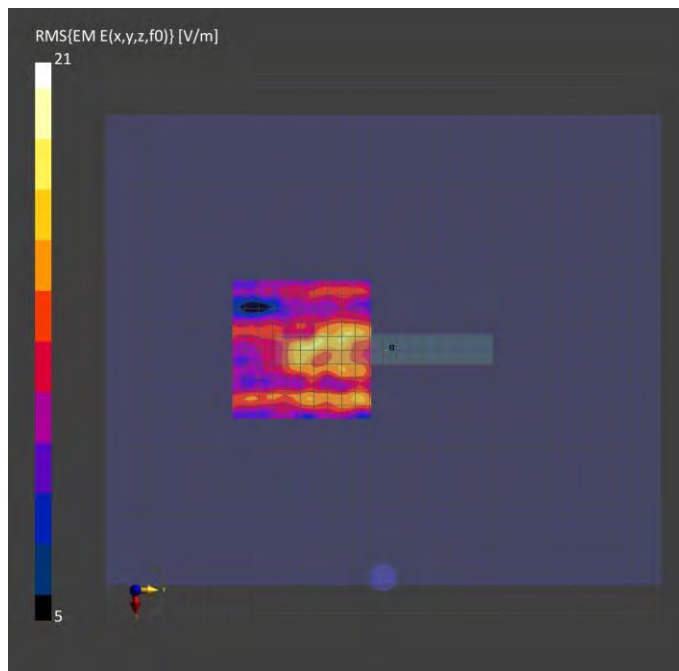
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.598
psPDtot+ [W/m ²]	0.619
psPDmod+ [W/m ²]	0.637
E _{max} [V/m]	17.4
Power Drift [dB]	-0.03



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ID: 023

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-7,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 143 (6665.0 MHz)_Main

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Right Edge, 2.00	1.0

Hardware Setup

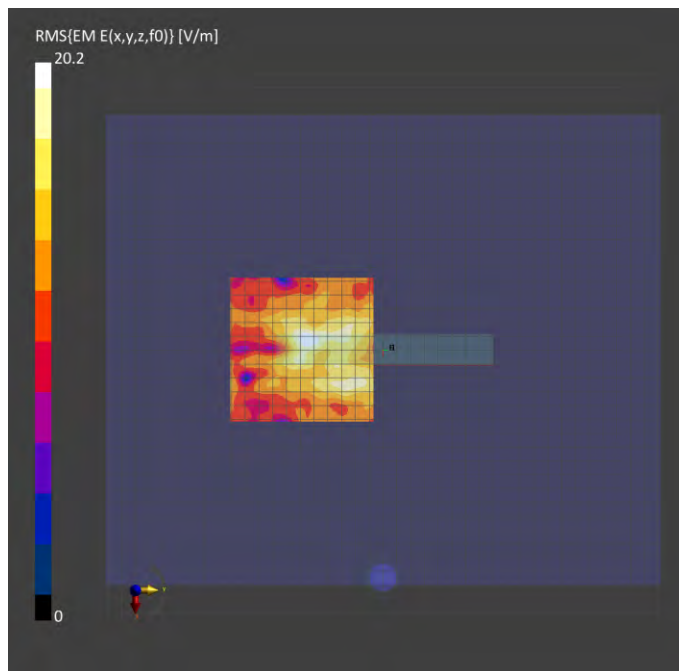
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.732
psPDtot+ [W/m ²]	0.763
psPDmod+ [W/m ²]	0.792
E _{max} [V/m]	20.2
Power Drift [dB]	0.08



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ID: 024

Report No. :TESA2206000138EN

Measurement Report for Luna, Right Edge, U-NII-8,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 207 (6985.0 MHz)_Main

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Right Edge, 2.00	1.0

Hardware Setup

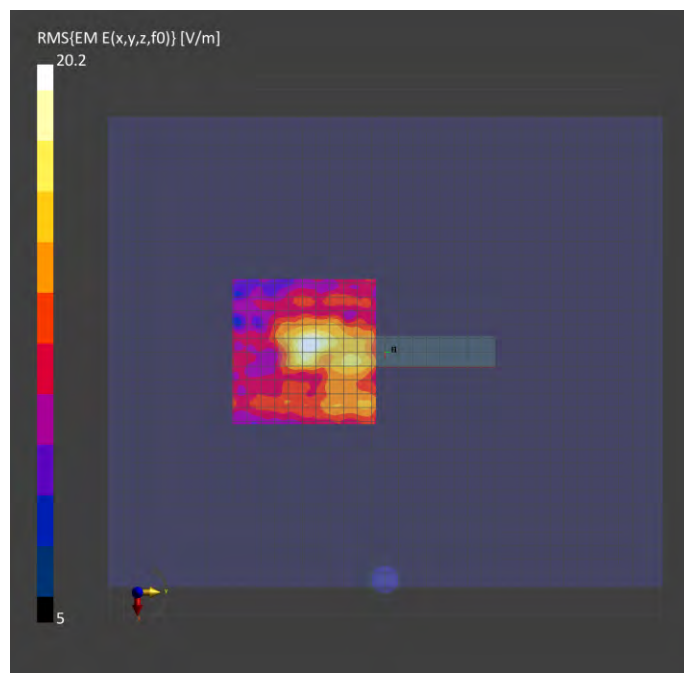
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.728
psPDtot+ [W/m ²]	0.742
psPDmod+ [W/m ²]	0.757
E _{max} [V/m]	20.2
Power Drift [dB]	0.04



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ID: 025

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-5,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 15 (6025.0 MHz)_Aux

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Top Edge, 2.00	1.0

Hardware Setup

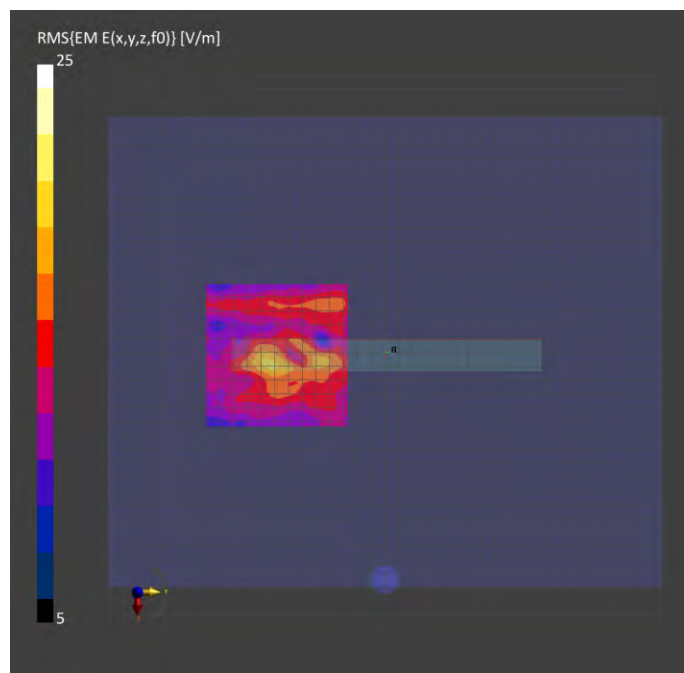
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.767
psPDtot+ [W/m ²]	0.775
psPDmod+ [W/m ²]	0.786
E _{max} [V/m]	19.4
Power Drift [dB]	0.13



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ID: 026

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-5,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 47 (6185.0 MHz)_Aux

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Top Edge, 2.00	1.0

Hardware Setup

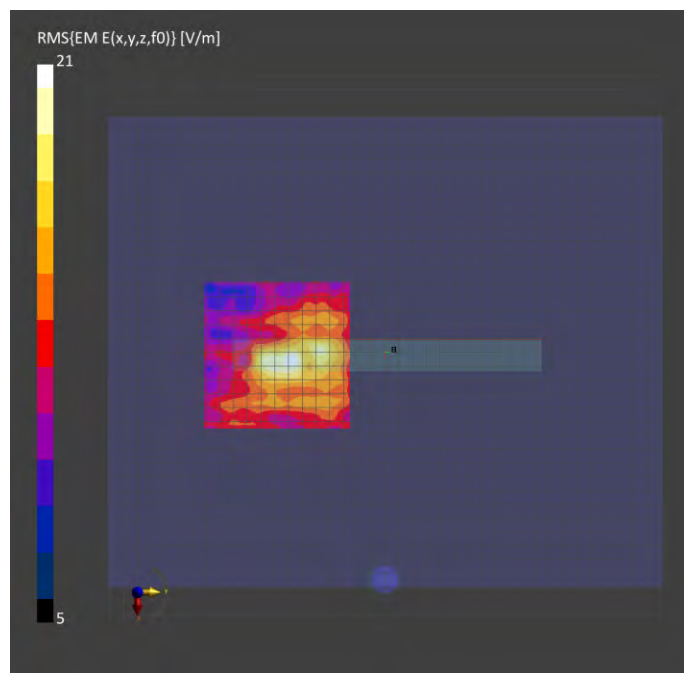
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.802
psPDtot+ [W/m ²]	0.911
psPDmod+ [W/m ²]	0.996
E _{max} [V/m]	21.0
Power Drift [dB]	0.04



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ID: 027

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-6,

IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 111 (6505.0 MHz)_Aux

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Top Edge, 2.00	1.0

Hardware Setup

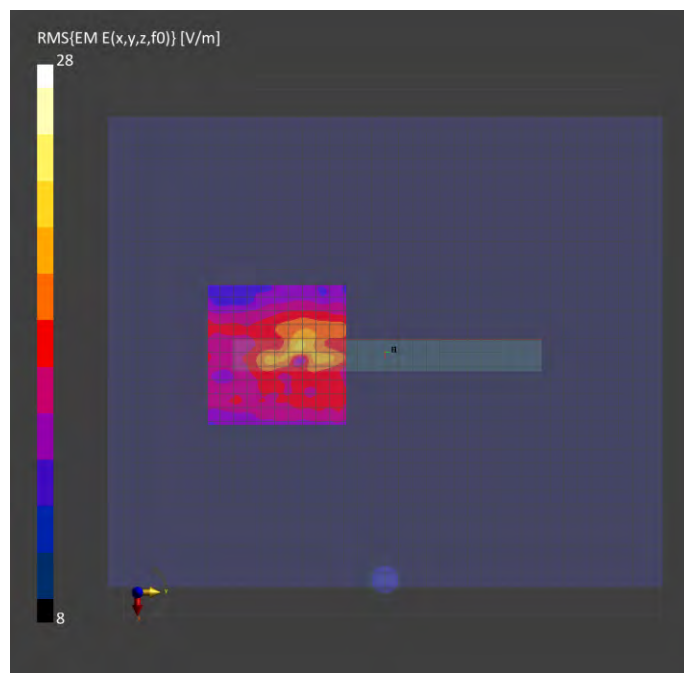
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	1.06
psPDtot+ [W/m ²]	1.08
psPDmod+ [W/m ²]	1.11
E _{max} [V/m]	22.3
Power Drift [dB]	0.11



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ID: 028

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-7,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 175 (6825.0 MHz)_Aux

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Top Edge, 2.00	1.0

Hardware Setup

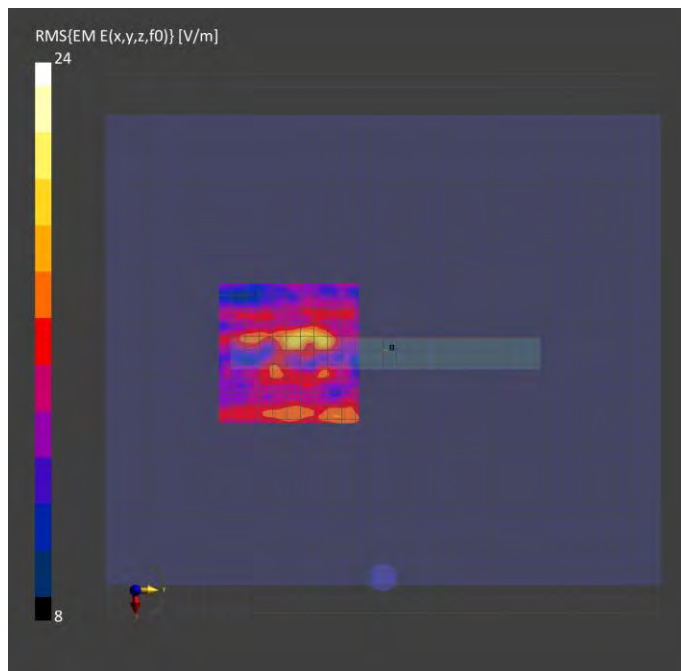
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.853
psPDtot+ [W/m ²]	0.861
psPDmod+ [W/m ²]	0.886
E _{max} [V/m]	20.3
Power Drift [dB]	0.09



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ID: 029

Report No. :TESA2206000138EN

Measurement Report for Luna, Top Edge, U-NII-8,
IEEE 802.11ac (160MHz, MCS0, 90pc duty cycle), Channel 207 (6985.0 MHz)_Aux

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	Top Edge, 2.00"	1.0

Hardware Setup

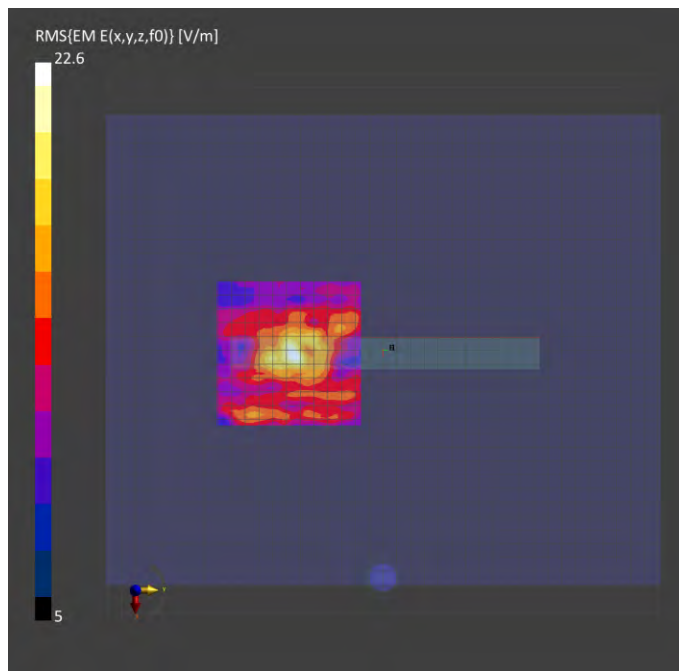
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave - 1076	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0

Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	0.701
psPDtot+ [W/m ²]	0.787
psPDmod+ [W/m ²]	0.924
E _{max} [V/m]	22.6
Power Drift [dB]	-0.07



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13 SAR SYSTEM CHECK RESULTS

Date: 2022/6/20

Report No. :TESA2206000138EN

Dipole 2450 MHz_SN:727

Communication System: CW; Frequency: 2450 MHz; Duty cycle= 1:1

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.842 \text{ S/m}$; $\epsilon_r = 37.709$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.4°C; Liquid temperature: 22.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.2, 8.2, 8.2) @ 2450 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (51x61x1): Interpolated grid: $dx=12 \text{ mm}$, $dy=12 \text{ mm}$

Maximum value of SAR (interpolated) = 18.1 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 99.69 V/m; Power Drift = 0.04 dB

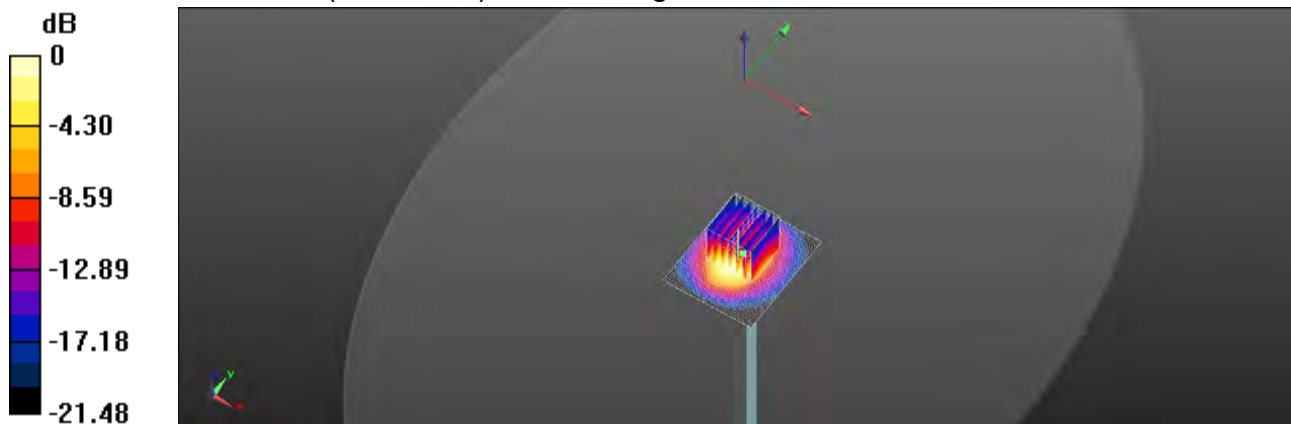
Peak SAR (extrapolated) = 25.9 W/kg

SAR(1 g) = 13 W/kg; SAR(10 g) = 6.25 W/kg

Smallest distance from peaks to all points 3 dB below = 9.8 mm

Ratio of SAR at M2 to SAR at M1 = 51.1%

Maximum value of SAR (measured) = 16.7 W/kg



0 dB = 16.7 W/kg = 12.23 dBW/kg

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Report No. :TESA2206000138EN**Dipole 5250 MHz_SN:1023**

Communication System: CW; Frequency: 5250 MHz; Duty cycle= 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.666$ S/m; $\epsilon_r = 36.897$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.6, 5.6, 5.6) @ 5250 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x61x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.2 W/kg

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

Reference Value = 61.79 V/m; Power Drift = 0.12 dB

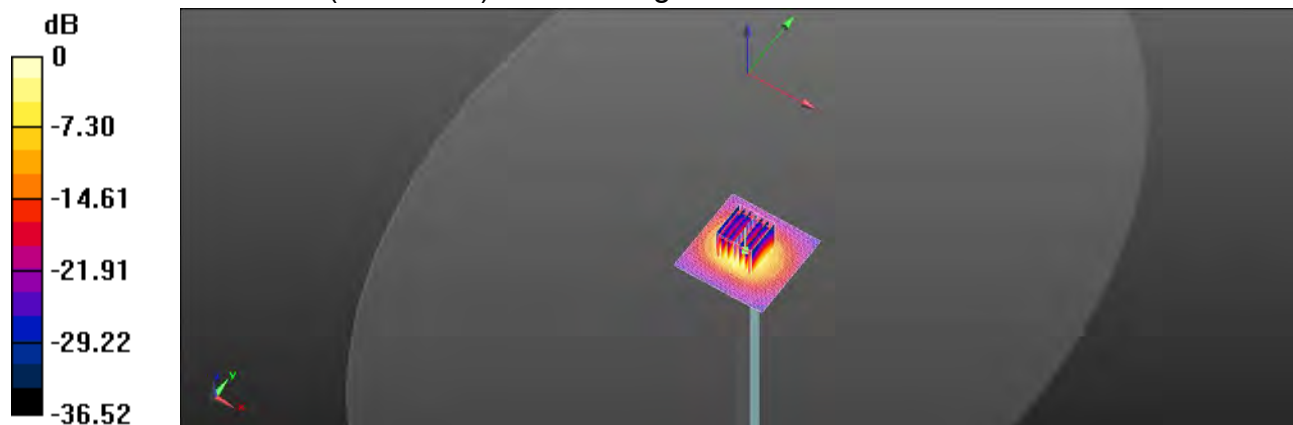
Peak SAR (extrapolated) = 28.5 W/kg

SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.3 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 58%

Maximum value of SAR (measured) = 15.6 W/kg



0 dB = 15.6 W/kg = 11.93 dBW/kg

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Report No. :TESA2206000138EN

Dipole 5600 MHz_SN:1023

Communication System: CW; Frequency: 5600 MHz; Duty cycle= 1:1

Medium parameters used: $f = 5600 \text{ MHz}$; $\sigma = 5.119 \text{ S/m}$; $\epsilon_r = 35.917$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient temperature: 22.3°C; Liquid temperature: 22.0°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5, 5, 5) @ 5600 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x61x1): Interpolated grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (interpolated) = 15.4 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 61.81 V/m; Power Drift = 0.06 dB

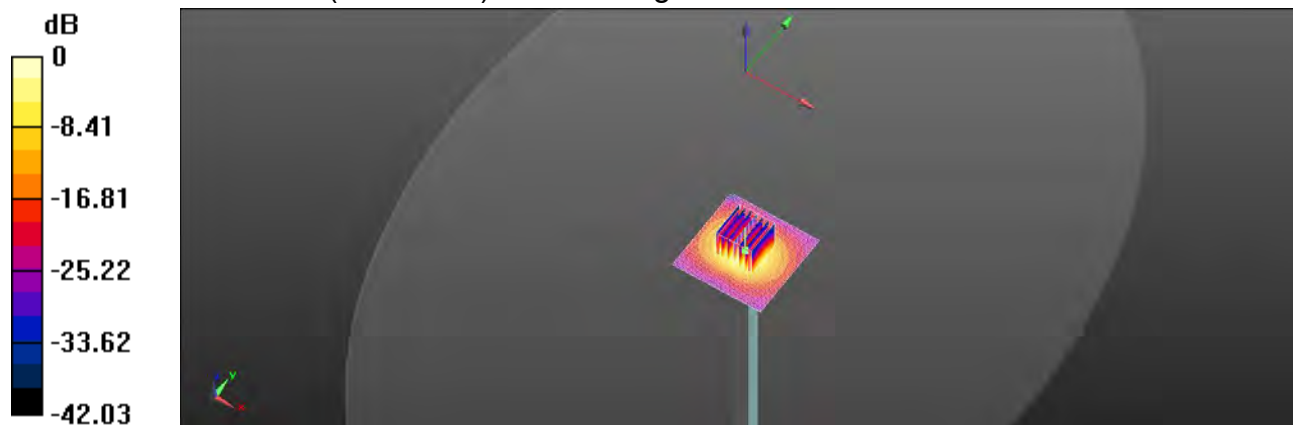
Peak SAR (extrapolated) = 30.9 W/kg

SAR(1 g) = 8.03 W/kg; SAR(10 g) = 2.37 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 55.2%

Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg

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Report No. :TESA2206000138EN

Dipole 5750 MHz_SN:1023

Communication System: CW; Frequency: 5750 MHz; Duty cycle= 1:1

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.391$ S/m; $\epsilon_r = 36.357$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient temperature: 21.9°C; Liquid temperature: 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(5.05, 5.05, 5.05) @ 5750 MHz; Calibrated: 2022/5/2
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2022/4/21
- Phantom: ELI
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Area Scan (61x61x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 15.9 W/kg

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

Reference Value = 58.14 V/m; Power Drift = 0.06 dB

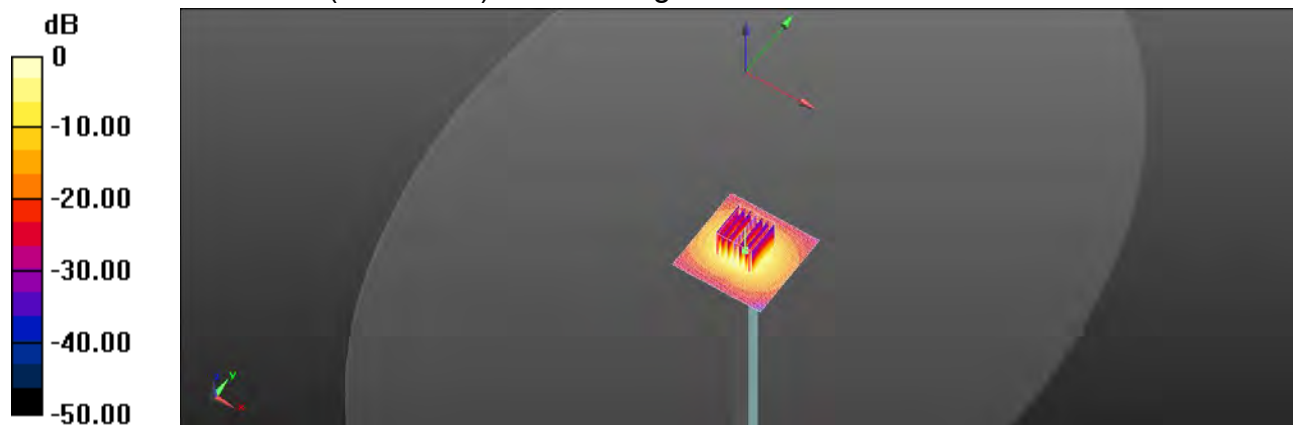
Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.25 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 54%

Maximum value of SAR (measured) = 16.2 W/kg



0 dB = 16.2 W/kg = 12.10 dBW/kg

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Report No. :TESA2206000138EN

Measurement Report for Device, FRONT, Validation band,
CW, Channel 6500 (6500.0 MHz), SN:1006

Ambient temperature: 22.6°C; Liquid temperature: 22.4°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	FRONT, 5.00	5.65	6.216	35.592

Hardware Setup

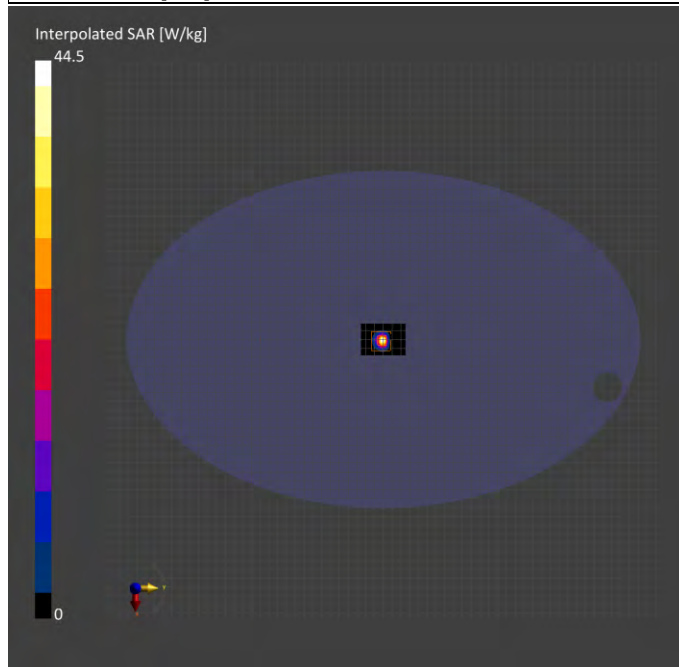
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	36.0 x 51.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	6.0 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	25.0	29.5
psSAR8g [W/kg]	6.19	6.80
psSAR10g [W/kg]	5.13	5.59
psPDab (4.0cm2, sq) [W/m2]		136
Power Drift [dB]	-0.02	0.02
M2/M1 [%]		51.6
Dist 3dB Peak [mm]		4.9



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Report No. :TESA2206000138EN

Measurement Report for Device, FRONT, Validation band,
CW, Channel 7000 (7000.0 MHz), SN:1007

Ambient temperature: 22.5°C; Liquid temperature: 22.2°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	FRONT, 5.00	5.85	6.766	34.992

Hardware Setup

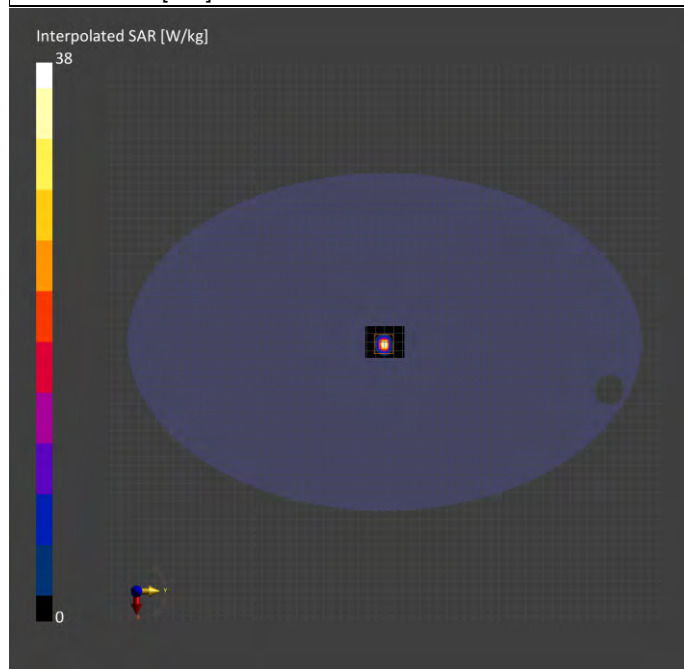
Phantom	Probe, Calibration Date	DAE, Calibration Date
ELI	EX3DV4 - SN7466, 2022-01-26	DAE4 Sn558, 2021-11-23

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	36.0 x 45.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	6.0 x 7.5	3.0 x 3.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-06-24	2022-06-24
psSAR1g [W/kg]	23.9	26.7
psSAR8g [W/kg]	5.75	5.98
psSAR10g [W/kg]	4.77	4.90
psPDab (4.0cm2, sq) [W/m2]		120
Power Drift [dB]	-0.05	-0.09
M2/M1 [%]		51.7
Dist 3dB Peak [mm]		4.8



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14 PD SYSTEM CHECK RESULT

Report No. :TESA2206000138EN

Measurement Report for 5G Verification Source 10GHz, FRONT, Validation band,
CW, Channel 10000 (10000.0 MHz), SN:1021

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Conversion Factor
5G	FRONT, 10.00	1.0

Hardware Setup

Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air -	EUmmWV4 - SN9579_F1-55GHz, 2021-10-06	DAE4 Sn558, 2021-11-23

Scans Setup

Scan Type	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

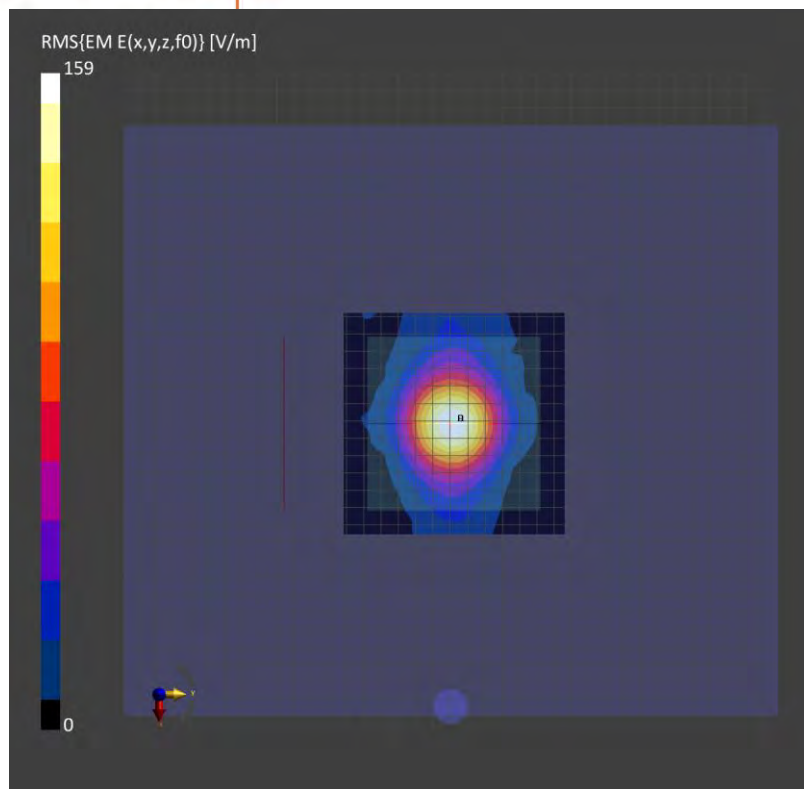
Measurement Results

Scan Type	5G Scan
Date	2022-06-25
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	54.0
psPDtot+ [W/m ²]	54.2
psPDmod+ [W/m ²]	54.3
E _{max} [V/m]	158
Power Drift [dB]	0.09

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15 APPENDIXES

Refer to separated files for the following appendixes.

- 15.1 TESA2206000138EN SAR_Appendix A Photographs
- 15.2 TESA2206000138EN SAR_Appendix B DAE & Probe Cal. Certificate
- 15.3 TESA2206000138EN SAR_Appendix C Phantom Description & Dipole Cal. Certificate

- End of report -

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