

TEST REPORT

EUT Description	Wireless Module installed in Convertible PC
Brand Name	Intel®
Model Name	BE201D2W
FCC/IC ID	PD9BE201D2; 1000M-BE201D2
Date of Test Start/End	2024-11-19 / 2024-11-29
Date of Issue:	2025-01-03
Features	2x2 Wi-Fi + Bluetooth® (see section 5)
Description	Platform: Yoga 9 2-in-1 14ILL10 + Luxshare / Speed antennas

Applicant	Intel Corporation SAS
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Reference Standards	FCC 47 CFR Part §2.1093 RSS-102, issue 6 (see section 1)						
RF Exposure Environment	Portable devices - General population/uncontrolled exposure						
Exposure Conditions	Body worn						
	<table> <tr> <th>SAR Result</th><th>SAR Limit</th></tr> <tr> <td>Maximum SAR Result & Limit</td><td>1.05 W/kg (1g) 1.6 W/kg (1g)</td></tr> <tr> <td>Min. test separation distance</td><td>0mm to phantom, 0.5 mm to antenna edge</td></tr> </table>	SAR Result	SAR Limit	Maximum SAR Result & Limit	1.05 W/kg (1g) 1.6 W/kg (1g)	Min. test separation distance	0mm to phantom, 0.5 mm to antenna edge
SAR Result	SAR Limit						
Maximum SAR Result & Limit	1.05 W/kg (1g) 1.6 W/kg (1g)						
Min. test separation distance	0mm to phantom, 0.5 mm to antenna edge						

Test Report identification	BL-SZ24A0700-701
Revision Control	Rev. 01 This test report version is first issue (see section 8)

The test results relate only to the samples tested.

Reference to accreditation shall be used only by full reproduction of test report.

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1. Standards, reference documents and applicable test methods

FCC	1. FCC Title 47 CFR Part §2.1093 – Radiofrequency radiation exposure evaluation: portable devices. 2. FCC OET KDB 447498 D04 interim v01 General RF Exposure Guidance v01– RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices. 3. FCC OET KDB 616217 D04 v01r02 – SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers. 4. FCC OET KDB 865664 D01 v01r04 – SAR Measurement Requirements for 100 MHz to 6 GHz. 5. FCC OET KDB 865664 D02 v01r02 – RF Exposure Compliance Reporting and Documentation Considerations. 6. FCC OET KDB 248227 D01 v02r02 – SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters 7. ANSI C95.1-1992 –IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz 8. IEEE Std 1528-2013 – IEEE Recommended Practice Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communication Devices: Measurement Techniques...
ISED	1. ISED RSS 102, Issue 6 – Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands) 2. RSS-102.SAR.MEAS–Measurement Procedure for Assessing Specific Absorption Rate (SAR) Compliance in Accordance with RSS-102 3. ISED Notice 2020-DRS0020 Applicability of IEC/IEEE 62209-1528 and IEC 62209-3 Standard 4. ISED Notice 2016-DRS001 – Applicability of latest FCC RF Exposure KDB Procedures and Other Procedures. 5. ISED Notice 2012-DRS0529 – SAR correction for measured conductivity and relative permittivity based on IEC 62209-2 standard. 6. FCC OET KDB 447498 D01 V06 General RF Exposure Guidance – RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices. 7. FCC OET KDB 616217 D04 v01r02 – SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers. 8. FCC OET KDB 248227 D01 v02r02 – SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters 9. IEC/IEEE 62209-1528:2020 Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)

2. General conditions, competences and guarantees

- ✓ Shenzhen BALUN Technology Co., Ltd. (BALUN Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number CN1196.
- ✓ Shenzhen BALUN Technology Co., Ltd. (BALUN Lab) is a Registered Test Site listed by ISED, with ISED company number 32189 and CAB identifier CN0030.
- ✓ Shenzhen BALUN Technology Co., Ltd. (BALUN Lab) only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Shenzhen BALUN Technology Co., Ltd. (BALUN Lab) guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
- ✓ This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the “inspection and testing dedicated stamp” or test report stamp.
- ✓ The test data and results are only valid for the tested samples provided by the customer.
- ✓ This report shall not be partially reproduced without the written permission of the laboratory.
- ✓ Any objection shall be raised to the laboratory within 30 days after receiving the report.

3. Environmental Conditions

✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	22.1°C ~ 22.6°C
Humidity	51.3% ~ 55.1%
Liquid Temperature	21.3°C ~ 21.5°C

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of receipt	Note
#01	SC-SZ24A0561.S01	Wireless Module installed in Convertible PC	Yoga 9 2-in-1 14ILL10	2031969100029	2024-10-22	Speed antenna
#02	SC-SZ24A0561.S02	Wireless Module installed in Convertible PC	Yoga 9 2-in-1 14ILL10	2031969100013	2024-10-22	Luxshare antenna

The herein information is provided by the customer
BALUN Lab declines any responsibility for the accuracy of the stated customer provided information, especially if it has
any impact on the correctness of test results presented in this report.

*For WiFi 6E band refer to report: BL-SZ24A0700-702 and BL-SZ24A0700-703

Supported Radios

Mode	Duty Cycle	Modulation	Band	UL Freq Range (MHz)	Measured Max. Conducted Power (dBm)
802.11b/g/n/ax/be	100%	BPSK QPSK 16QAM 64QAM 256QAM 1024QAM 4096QAM	2.4GHz	2400-2483.5	16.47
802.11a/n/ac/ax/be	100%	BPSK QPSK 16QAM 64QAM 256QAM 1024QAM 4096QAM	5.2GHz	5150-5250	NM
			5.3GHz	5250-5350	11.87
			5.6GHz	5475-5725	13.13
			5.8GHz	5725-5850	13.81
			5.9GHz	5850-5895	13.73
BDR/EDR	77%	GFSK $\pi/4$ DQPSK 8DPSK	2.4GHz	2400-2483.5	13.97
Bluetooth LE	55%	GFSK	2.4GHz	2400-2483.5	NM

NM: Not Measured

Maximum Output power specification + Tune up tolerance limit, as specified by the client

Equipment Class	Mode	BW (MHz)	Notebook		Tablet	
			Main (dBm)	Aux (dBm)	Main (dBm)	Aux (dBm)
DTS	802.11b	20	16.00	16.50	16.00	16.50
	802.11g	20	16.00	16.50	16.00	16.50
	802.11n20 802.11ax20/be20	20	16.00	16.50	16.00	16.50
		20	16.00	16.50	16.00	16.50
		20	16.00	16.50	16.00	16.50
	802.11n40/ ax40/ be40	40	16.00	16.50	16.00	16.50
		40	16.00	16.50	16.00	16.50
		40	16.00	16.50	16.00	16.50
U-NII-1	802.11a 802.11n20 802.11ac20 /ax20/be20	20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
	802.11n40/ac40 / ax40/be40	40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
	802.11ac80 /ax80/be80	80	10.50	12.00	12.00	11.00
		80	10.50	12.00	12.00	11.00
		80	10.50	12.00	12.00	11.00
	802.11ax160	160	10.50	12.00	12.00	11.00
U-NII-2A	802.11a 802.11n20 802.11ac20 /ax20/be20	20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
		20	10.50	12.00	12.00	11.00
	802.11n40/ac40 / ax40/be40	40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
		40	10.50	12.00	12.00	11.00
	802.11ac80 802.11ax80/be80	80	10.50	12.00	12.00	11.00
		80	10.50	12.00	12.00	11.00
		80	10.50	12.00	12.00	11.00
U-NII-2C	802.11a 802.11n20 802.11ac20 /ax20/be20	20	12.50	14.00	11.00	13.00
		20	12.50	14.00	11.00	13.00
		20	12.50	14.00	11.00	13.00
		20	12.50	14.00	11.00	13.00
		20	12.50	14.00	11.00	13.00
	802.11n40/ac40 / ax40/be40	40	12.50	14.00	11.00	13.00
		40	12.50	14.00	11.00	13.00
		40	12.50	14.00	11.00	13.00
		40	12.50	14.00	11.00	13.00
	802.11ac80 /ax80/be80	80	12.50	14.00	11.00	13.00
		80	12.50	14.00	11.00	13.00
		80	12.50	14.00	11.00	13.00

	802.11ac160/ ax160/be160	160 160 160	12.50	14.00	11.00	13.00
			12.50	14.00	11.00	13.00
			12.50	14.00	11.00	13.00
U-NII-3	802.11a 802.11n20 802.11ac20 /ax20/be20	20 20 20 20 20	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
	802.11n40/ac40 / ax40/be40	40 40 40 40	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
	802.11ac80 802.11ax80/be80	80 80 80	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
U-NII-4	802.11a 802.11n20 802.11ac20 /ax20/be20	20 20 20 20 20	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
	802.11n40/ac40 / ax40/be40	40 40 40 40	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
	802.11ac80 802.11ax80/be80	80 80 80	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
	802.11ac160/ ax160/be160	160	13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50
			13.00	14.00	11.50	12.50

Equipment Class	Mode	BW (MHz)	Main (dBm)	Aux (dBm)
DSS	Bluetooth BDR	1	NA	14.00
	Bluetooth EDR2	1		14.00
	Bluetooth EDR3	1		14.00
	BLE	2	NA	10.00

The SAR measurement was performed at a high-power setting for Notebook mode, which is higher than the actual power setting reported in the technical documentation.

6. Remarks and comments

1. The conducted values are obtained by applying the BIOS SAR power values to the BE201D2W Intel module installed in the Yoga 9 2-in-1 14ILL10 identified in this report, as requested by the customer.
2. Variability and simultaneous transmission results shown in this report are based on the highest SAR value obtained among all antenna manufacturers.
3. Only the plots for the test positions with the highest measured SAR per band/mode are included in Annex C as required per FCC OET KDB 865664 D02, paragraph 2.3.h.
4. On both samples the same conducted power measurements was used as we swapped the module on the second sample during SAR testing.
5. This test report shows only test results for WLAN2.4GHz, 5GHz and BT.
6. Bystander condition is covered at modular level according to RSS-102, SPR-001.

7. Test Verdicts summary

The statement of conformity to applicable standards in the table below are based on the measured values, without taking into account the measurement uncertainties.

Standard	Band	Highest Reported SAR (1g) (W/kg)	Verdict
802.11b/g/n/ax	2.4GHz	1.03	P
802.11a/n/ac/ax/be	5.2GHz	NM	NA
	5.3GHz	0.98	P
	5.6GHz	1.05	P
	5.8GHz	0.97	P
	5.9GHz	0.99	P
Bluetooth	2.4GHz	0.37	P

P: Pass

F: Fail

NM: Not Measured

NA: Not Applicable

According to the FCC OET KDB 690783 D01, this is the summary of the values for the Grant Listing:

Highest Reported SAR (1g) (W/kg)			
Exposure Condition	Equipment Class		
	DTS	DSS	U-NII
Body Worn	1.03	0.37	1.05
Simultaneous Tx	Sum-SAR:1.92 SPLSR: 0.04	Sum-SAR:2.44 SPLSR: 0.04	Sum-SAR: 2.44 SPLSR:0.04

Considering the results of the performed test according to FCC 47CFR Part 2.1093 and ISED RSS 102, Issue 6 the item under test is in compliance with the requested specifications specified in Section1. Standards, reference documents and applicable test methods

8. Document Revision History

Revision #	Modified by	Revision Details
Rev. 00	Xu Rui	First Issue
Rev. 01	Xu Rui	Updated Tune up and SAR for 5.6GHz WIFI

Annex A. Test & System Description

A.1 SAR Definition

Specific Absorption rate is defined as the time derivative of the incremental energy (dW) absorbed by (dissipated in) and incremental mass (dm) contained in a volume element (dV) of a given density (ρ).

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

SAR is expressed in units of watts per kilogram (W/kg). SAR can be related to the electric field at a point by

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

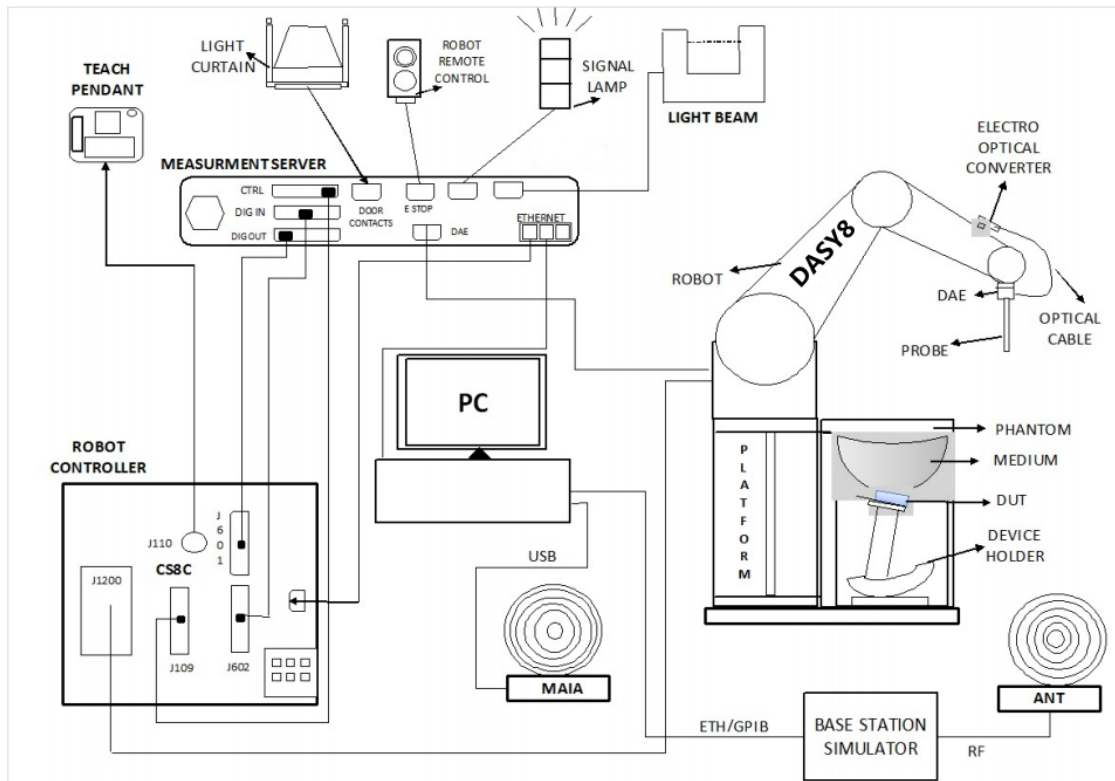
Where:

σ = Conductivity of the tissue (S/m)
 ρ = Mass density of the tissue (kg/m³)
E = RMS electric field strength (V/m)

A.2 SPEAG SAR Measurement System

A.2.1 SAR Measurement Setup

The DASY8 system for performing compliance tests consists of the following items:



- ✓ A standard high precision 6-axis robot (Stäubli TX/RX family) with controller, teach pendant and software. It includes an arm extension for accommodating the data acquisition electronics (DAE)
- ✓ An isotropic field probe optimized and calibrated for the targeted measurements.
- ✓ A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. 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. 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 movements interrupts.
- ✓ The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- ✓ A computer running Windows professional operating system and the DASY8 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.
- ✓ MAIA is a hardware interface (Antenna) used to evaluate the modulation and audio interference characteristics of RF signals.
- ✓ ANT is an ultra-wideband antenna for use with the base station simulators over 698 MHz to 6GHz.
- ✓ The base station simulator is an equipment used for SAR cellular tests in order to emulate the cellular signals characteristics and behavior between a regular base station and the equipment under test.
- ✓ Tissue simulating liquid.
- ✓ System Validation dipoles.
- ✓ Network emulator or RF test tool.

A.2.2 E-Field Measurement Probe

The probe is constructed using three orthogonal dipole sensors arranged on an interlocking, triangular prism core. The probe has built-in shielding against static charges and is contained within a PEEK cylindrical enclosure material at the tip.



The probe's characteristics are:

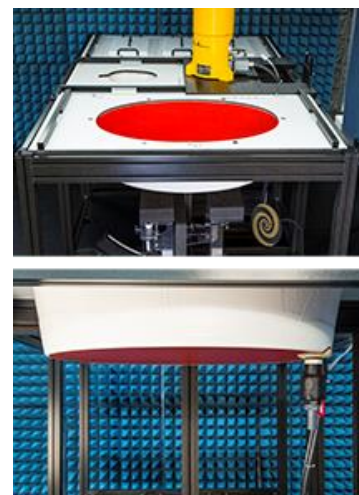
Frequency Range	4MHz – 10GHz
Length	337 mm
Probe tip external diameter	2.5 mm
Typical distance between dipoles and the probe tip	1 mm
Axial Isotropy (in human-equivalent liquids)	± 0.3 dB
Hemispherical Isotropy (in human-equivalent liquids)	± 0.5 dB
Linearity	± 0.2 dB
Maximum operating SAR	100 W/kg
Lower SAR detection threshold	0.001 W/kg

A.2.3 Flat Phantom

Phantom 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.

The phantom's characteristics are:

Material	Vinylester, glass fiber reinforced (VE-GF)
Shell thickness	2 mm $\pm$ 0.2 mm
Filling volume	30 Liters approx.
Dimensions	Major axis: 600mm / Minor axis: 400mm



A.2.4 Device Positioner

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



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

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

A simple but effective and easy-to-use extension for the Mounting Device; facilitates testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.); lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin SAM, ELI and other Flat Phantoms.



A.3 Data Evaluation

- **Power Reference measurement**

The robot measures the E field in a specified reference position that can be either the selected section's grid reference point or a user point in this section at 4mm of the inner surface of the phantom, 2mm for frequencies above 3GHz.

- **Area Scan**

Measurement procedures for evaluating SAR from wireless handsets typically start with a coarse measurement grid to determine the approximate location of the local peak SAR values. This is known as the area-scan procedure. The SAR distribution is scanned along the inside surface of one side of the phantom head, at least for an area larger than the projection of the handset and antenna. The distance between the measured points and phantom surface should be less than 8 mm, and should remain constant (with variation less than ± 1 mm) during the entire scan in order to determine the locations of the local peak SAR with sufficient accuracy. The angle between the probe axis and the surface normal line is recommended but not required to be less than 30° . If this angle is larger than 30° and the closest point on the probe-tip housing to the phantom surface is closer than a probe diameter, the boundary effect may become larger and polarization dependent. This additional uncertainty needs to be analyzed and accounted for. To achieve this, modified test procedures and additional uncertainty analyses not described in this recommended practice may be required. The measurement and interpolation point spacing should be chosen such as to allow identification of the local peak locations to within one-half of the linear dimension of a side of the zoom-scan volume. Because a local peak having specific amplitude and steep gradients may produce a lower peak spatial-average SAR compared to peaks with slightly lower amplitude and less steep gradients, it is necessary to evaluate these other peaks as well. However, since the spatial gradients of local SAR peaks are a function of the wavelength inside the tissue-equivalent liquid and the incident magnetic field strength, it is not necessary to evaluate local peaks that are less than 2 dB or more below the global maximum peak. Two-dimensional spline algorithms (Brishoual et al. 2001; Press et al., 1996) are typically used to determine the peaks and gradients within the scanned area. If a peak is found at a distance from the scan border of less than one-half the edge dimension of the desired 1 g or 10 g cube, the measurement area should be enlarged if possible.

- **Zoom Scan**

To evaluate the peak spatial-average SAR values for 1 g or 10 g cubes, fine resolution volume scans, called zoom scans, are performed at the peak SAR locations identified during the area scan. The minimum zoom scan volume size should extend at least 1.5 times the edge dimension of a 1 g cube in all directions from the center of the scan volume, for both 1 g and 10 g peak spatial-average SAR evaluations. Along the phantom curved surfaces, the front face of the volume facing the tissue/liquid interface conforms to the curved boundary, to ensure that all SAR peaks are captured. The back face should be equally distorted to maintain the correct averaging mass. The flatness and orientation of the four side faces are unchanged from that of a cube whose orientation is within $\pm 30^\circ$ of the line normal to the phantom at the center of the cube face next to the phantom surface. The peak local SAR locations that were determined in the area scan (interpolated values) should be used for the centers of the zoom scans. If a scan volume cannot be centered due to proximity of a phantom shape feature, the probe should be tilted to allow scan volume enlargement. If probe tilt is not feasible, the zoom-scan origin may be shifted, but not by more than half of the 1 g or 10 g cube edge dimension.

After the zoom-scan measurement, extrapolations from the closest measured points to the surface, for example along lines parallel to the zoom-scan centerline, and interpolations to a finer resolution between all measured and extrapolated points are performed. Extrapolation algorithm considerations are described in 6.5.3, and 3-D spline methods (Brishoual et al., 2001; Kreyszig, 1983; Press et al., 1996) can be used for interpolation. The peak spatial-average SAR is finally determined by a numerical averaging of the local SAR values in the interpolation grid, using for example a trapezoidal algorithm for the integration (averaging).

In some areas of the phantom, such as the jaw and upper head regions, the angle of the probe with respect to the line normal to the surface may be relatively large, e.g., greater than $\pm 30^\circ$, which could increase the boundary effect error to a larger level. In these cases, during the zoom scan a change in the orientation of the probe, the phantom, or both is recommended but not required for the duration of the zoom scan, so that the angle between the probe axis and the line normal to the surface is within 30° for all measurement points.

- **Power Drift measurement**

The robot re-measures the E-Field in the same reference location measured at the Power Reference. The drift measurement gives the field difference in dB from the first to the last reference reading. This allows a user to monitor the power drift of the device under test that must remain within a maximum variation of $\pm 5\%$.

- **Post-processing**

The procedure for spatial peak SAR evaluation has been implemented according to the IEEE1528 and IEC 62209-1/2 and IEC/IEEE 62209-1528:2020 standards. It can be conducted for 1g and 10g.

The software allows evaluations that combine measured data and robot positions, such as:

- ✓ Maximum search
- ✓ Extrapolation
- ✓ Boundary correction
- ✓ Peak search for averaged SAR

Interpolation between the measured points is performed when the resolution of the grid is not fine enough to compute the average SAR over a given mass.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation.

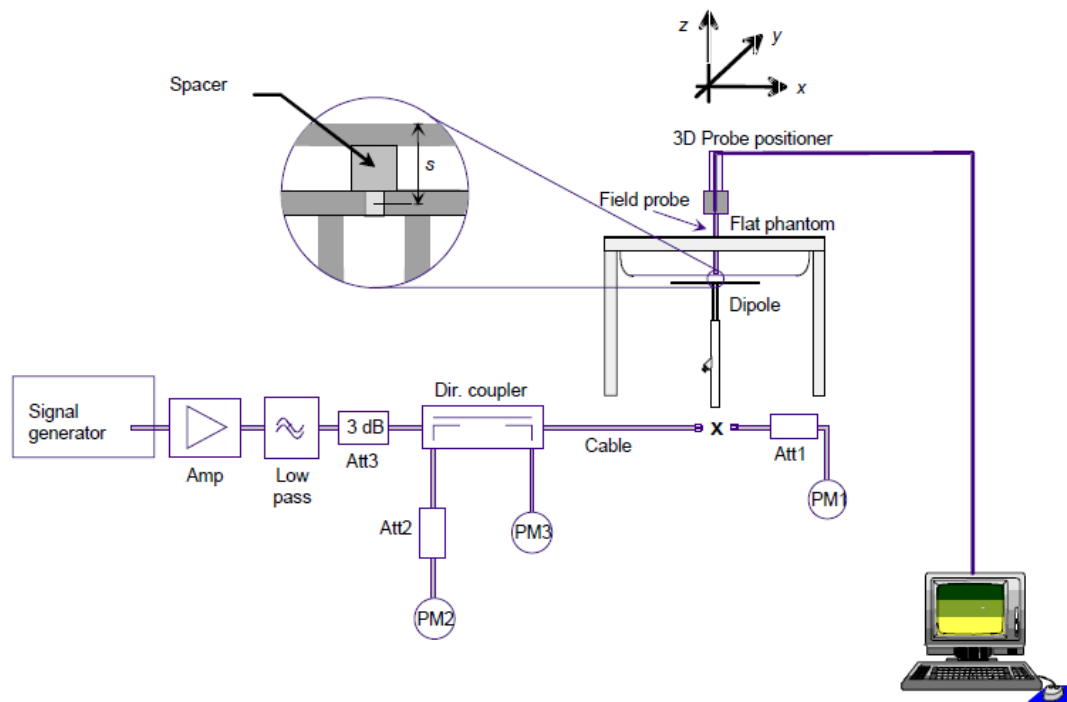
A.4 System and Liquid Check

A.4.1 System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results.

The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

In the simplified setup for system check, the EUT is replaced by a calibrated dipole and the power source is replaced by a controlled continuous wave generated by a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the phantom at the correct distance.



The equipment setup is shown below:

- ✓ Signal Generator
- ✓ Amplifier
- ✓ Directional coupler
- ✓ Power meter
- ✓ Calibrated dipole

First, the power meter PM1 (including attenuator Att1) is connected to the cable to measure the forward power at the location of the connector (x) to the system check source. The signal generator is adjusted for the desired forward power at the connector as read by power meter PM1 after attenuation Att1 and also as coupled through Att2 to PM2. After connecting the cable to the source, the signal generator is readjusted for the same reading at power meter PM2.

SAR results are normalized to a forward power of 1W to compare the values with the calibration reports results as described at IEEE 1528, IEC 62209 and IEC/IEEE 62209-1528:2020 standards

A.4.2 Liquid Check

The dielectric parameters check is done prior to the use of the tissue simulating liquid. The verification is made by comparing the relative permittivity and conductivity to the values recommended by the applicable standards.

The liquid verification was performed using the following test setup:

- ✓ VNA (Vector Network Analyzer)
- ✓ Open-Short-Load calibration kit
- ✓ RF Cable
- ✓ Open-Ended Coaxial probe
- ✓ DAK software tool
- ✓ SAR Liquid
- ✓ De-ionized water
- ✓ Thermometer

These are the target dielectric properties of the tissue-equivalent liquid material as defined in FCC OET KDB 865664 D01.

Frequency (MHz)	Head SAR	
	ϵ_r (F/m)	(S/m)
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800-2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5800	35.3	5.27

(ϵ_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m³)

The measurement system implement a SAR error compensation algorithm as documented in IEEE Std 1528-2013 and IEC/IEEE 62209-1528:2020 (equivalent to draft standard IEEE P1528-2011) to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters (applied to only scale up the measured SAR, and not downward) so, according to FCC OET KDB 865664 D01, the tolerance for ϵ_r and σ may be relaxed to $\pm 10\%$.

A.5 Test Equipment List

SAR system #4

Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
6-Axis Robot	TX290L Speag	F/21/0032513/A/001	STAÜBLI	NA	NA
Robot Controller	CSE9spe-TX2-90	F/21/0032513/C/001	STAÜBLI	NA	NA
Measurement Server	DASY8 MS	NA	SPEAG	NA	NA
Electro Optical Converter	EOC8-90	1025	SPEAG	NA	NA
Light Beam Unit	LB-85	2076	Di-soric	NA	NA
Oval Flat Phantom	ELI V8.0	2162	SPEAG	NA	NA
Measurement Software	DASY8 v16.2	9-1798AA01_D8	SPEAG	NA	NA
Data Acquisition Electronics	DAE	1711	SPEAG	2024/03/18	2025/03/17
Dosimetric E-Field probe	EX3DV4	7893	SPEAG	2024/09/05	2025/09/04
Thermometer	RC-4HC	EF7216002985	Elitech	2024/10/31	2025/10/30
Thermometer	RC-4HC	EF720B004811	Elitech	2024/10/31	2025/10/30

SAR system #5

Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
6-Axis Robot	TX290L Speag	F/21/0032513/A/001	STAÜBLI	NA	NA
Robot Controller	CSE9spe-TX2-90	F/21/0032513/C/001	STAÜBLI	NA	NA
Measurement Server	DASY8 MS	NA	SPEAG	NA	NA
Electro Optical Converter	EOC8-90	1021	SPEAG	NA	NA
Light Beam Unit	LB-85	2043	Di-soric	NA	NA
Oval Flat Phantom	ELI V8.0	2159	SPEAG	NA	NA
Measurement Software	DASY8 v16.2	9-31E3EA2E_D8	SPEAG	NA	NA
Data Acquisition Electronics	DAE	1711	SPEAG	2024/03/18	2025/03/17
Dosimetric E-Field probe	EX3DV4	7893	SPEAG	2024/09/05	2025/09/04
Thermometer	RC-4HC	EF7239002655	Elitech	2024/10/31	2025/10/30
Thermometer	RC-4HC	EF7216002974	Elitech	2024/10/31	2025/10/30

Shared equipment

Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
PC	N/A	N/A	Dell	NA	NA
PC	N/A	N/A	Dell	NA	NA
2450MHz Validation Dipole	D2450V2	SN: 952	Speag	2024/05/07	2027/05/06
5GHz Validation Dipole	D5GHzV2	SN: 1200	Speag	2024/05/09	2027/05/08
Signal Generator	SMB100A	177746	R&S	2024/04/24	2025/04/23
Power Meter	NRVD-B2	835843/014	R&S	2024/08/08	2025/08/07
Power Sensor	NRV-Z4	100381	R&S	2024/08/08	2025/08/07
Power Sensor	NRV-Z2	100211	R&S	2024/08/08	2025/08/07
Network Analyzer	E5071C	MY46103472	Agilent	2024/09/11	2025/09/10
Power Amplifier	932502132	Mini-Circuits	ZVA-183W-S+	NA	NA
Dielectric Probe Kit	SN: 1312	Speag	DAK3.5	NA	NA
Attenuator	1305003187	COM-MW	ZA-S1-31	NA	NA
Directional coupler	000272	AA-MCS	AAMCS-UDC	NA	NA

A.5.1 Tissue Simulant Liquid

TSL	Manufacturer / Model	Freq Range (MHz)	Main Ingredients
Head WideBand	SPEAG HBBL600-6000V6	600-10000	Ethenediol, Sodium petroleum sulfonate, Hexylene Glycol / 2-Methyl-pentane-2.4-diol, Alkoxylated alcohol

A.6 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the table below with a coverage factor of $k = 2$ to indicate a 95% level of confidence:

DASY8 Uncertainty Budget (Frequency band: 300 MHz–3 GHz range)								
Symbol	Error Description	Uncert. value	Prob.Dis t.	Div.	(ci)(1 g)	(ci)(10 g)	Std. Unc. (1 g)	Std. Unc. (10 g)
Measurement System Errors								
CF	Probe Calibration	±12.0%	N	2	1	1	±6.0%	±6.0%
CFdrift	Probe Calibration Drift	±1.7%	R	√3	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	R	√3	1	1	±1.7%	±1.7%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Other Probe+Electronic	±0.7%	N	1	1	1	±0.7%	±0.7%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δsys	Probe Positioning	±0.006 mm	N	1	0.14	0.14	±0.10%	±0.10%
DAT	Data Processing	±1.2%	N	1	1	1	±1.2%	±1.2%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(Tσ)	Conductivity (temp.) ^{BB}	±3.3%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0	0	±0%	±0%
DIS	Distance DUT – TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
Dxyz	Device Positioning	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%
MOD	DUT Modulation ^m	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±1.7%	R	√3	1	1	±1.0%	±1.0%
RFdrift	DUT drift	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc. ^{val}	±0.0%	N	1	1	1	±0%	±0%
RFin	Unc. Input Power ^{val}	±0.0%	N	1	1	1	±0%	±0%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling ^p	±0%	R	√3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty						±10.9%	±10.9%
U	Expanded Uncertainty						±21.9%	±21.8%

DASY8 Uncertainty Budget (Frequency band: 3 GHz–6 GHz range)								
Symbol	Error Description	Uncert. value	Prob.Dis t.	Div.	(ci)(1 g)	(ci)(10 g)	Std. Unc. (1 g)	Std. Unc. (10 g)
Measurement System Errors								
CF	Probe Calibration	±13.1%	N	2	1	1	±6.55%	±6.55%
CF _{drift}	Probe Calibration Drift	±1.7%	R	√3	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±2.6%	R	√3	1	1	±1.5%	±1.5%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Other Probe+Electronic	±1.2%	N	1	1	1	±1.2%	±1.2%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ _{sys}	Probe Positioning	±0.005 mm	N	1	0.29	0.29	±0.15%	±0.15%
DAT	Data Processing	±2.3%	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.) ^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(Tσ)	Conductivity (temp.) ^{BB}	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0.25	0.25	±2.0%	±2.0%
DIS	Distance DUT – TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
D _{xyz}	Device Positioning	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%
MOD	DUT Modulation ^m	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±1.7%	R	√3	1	1	±1.0%	±1.0%
RF _{drift}	DUT drift	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc. ^{val}	±0.0%	N	1	1	1	±0%	±0%
RF _{in}	Unc. Input Power ^{val}	±0.0%	N	1	1	1	±0%	±0%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling ^p	±0%	R	√3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty						±11.6%	±11.5%
U	Expanded Uncertainty						±23.3%	±23.0%

A.7 RF Exposure Limits

SAR assessments have been made in line with the requirements of FCC 47CFR Part 2.1093 and ISED RSS 102 Issue 6 on the limitation of exposure of the general population / uncontrolled exposure for portable devices.

Exposure Type	General Population / Uncontrolled Environment
Peak spatial-average SAR (averaged over any 1 gram of tissue)	1.6 W/kg
Whole body average SAR	0.08 W/kg
Peak spatial-average SAR (extremities) (averaged over any 10 grams of tissue)	4.0 W/kg

Annex B. Test Results

The herein test results were performed by:

Test case measurement	Test Personnel
Conducted measurement	Xiong Lining
SAR measurement	Xiong Lining

B.1 Test Conditions

B.1.1 Test SAR Test positions relative to the phantom

The device under test was an Intel® card inside a Convertible host platform (Yoga 9 2-in-1 14ILL10) using a set of PIFA antennas. The card was operated utilizing proprietary software (DRTU version DRTU.06643.23.60.0) and each channel was measured using a broadband power meter to determine the maximum average power.

According to FCC OET KDB 616217 D04, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Test Exclusion Threshold in FCC OET KDB 447498 can be applied to determine SAR test exclusion for adjacent edge configurations.

The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

Antenna	Aux.	Main
Position	• Keyboard Side • Bottom Side • Bottom Edge	• Keyboard Side • Bottom Side • Bottom Edge

See B.1.3.1 for a more detailed list of the applied reductions.

See **F.2 Test positions** section for more information on the tested positions.

B.1.2 Test signal, Output power and Test Frequencies

For 802.11 transmission modes the device was put into operation by using an own control software to program the test mode required to select the continuous transmission with 100% duty cycle.

The output power of the device was set to transmit at maximum power for all tests.

B.1.3 Evaluation Exclusion and Test Reductions

B.1.3.1 SAR evaluation exclusion

For FCC:

According with FCC KDB 447498 D04, Appendix B, The SAR-based exemption formula applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). The following table shows the power threshold from 5mm to 50mm.

SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance					
Frequency	Exemption Limits (mW)				
(MHz)	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
300	39 mW	65 mW	88 mW	110 mW	129 mW
450	22 mW	44 mW	67 mW	89 mW	112 mW
835	9 mW	25 mW	44 mW	66 mW	90 mW
1900	3 mW	12 mW	26 mW	44 mW	66 mW
2450	3 mW	10 mW	22 mW	38 mW	59 mW
3600	2 mW	8 mW	18 mW	32 mW	49 mW
5800	1 mW	6 mW	14 mW	25 mW	40 mW
Frequency	Exemption Limits (mW)				
(MHz)	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
300	148 mW	166 mW	184 mW	201 mW	217 mW
450	135 mW	158 mW	180 mW	203 mW	226 mW
835	116 mW	145 mW	175 mW	207 mW	240 mW
1900	92 mW	122 mW	157 mW	195 mW	236 mW
2450	83 mW	111 mW	143 mW	179 mW	219 mW
3600	71 mW	96 mW	125 mW	158 mW	195 mW
5800	58 mW	80 mW	106 mW	136 mW	169 mW

For ISED:

According to RSS-102 Issue6, SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table below:

SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance					
Frequency	Exemption Limits (mW)				
(MHz)	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	45 mW	116 mW	139 mW	163 mW	189 mW
450	32 mW	71 mW	87 mW	104 mW	124 mW
835	21 mW	32 mW	41 mW	54 mW	72 mW
1900	6 mW	10 mW	18 mW	33 mW	57 mW
2450	3 mW	7 mW	16 mW	32 mW	56 mW
3500	2 mW	6 mW	15 mW	29 mW	50 mW
5800	1 mW	5 mW	13 mW	23 mW	32 mW
Frequency	Exemption Limits (mW)				
(MHz)	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	216 mW	246 mW	280 mW	319 mW	362 mW
450	147 mW	175 mW	208 mW	248 mW	296 mW
835	96 mW	129 mW	172 mW	228 mW	298 mW
1900	92 mW	138 mW	194 mW	257 mW	323 mW
2450	89 mW	128 mW	170 mW	209 mW	245 mW
3500	72 mW	94 mW	114 mW	134 mW	158 mW
5800	41 mW	54 mW	74 mW	102 mW	128 mW

For Body:

WLAN Antenna	Band Name	Tablet mode Output power		Notebook mode Output power		Bottom Side	Keyboard Side	Left Edge	Right Edge	Top Edge	Bottom Edge	Bottom Side	Keyboard Side	Left Edge	Right Edge	Top Edge	Bottom Edge
		dBm	mW	dBm	mW												
Aux	DTS	16.50	44.67	16.50	44.67	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-1	11.00	12.59	12.00	15.85	<50	<50	>50	>50	>50	<50	R	R	R	R	R	R
	U-NII-2A	11.00	12.59	12.00	15.85	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-2C	13.00	19.95	14.00	25.12	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-3	12.50	17.78	14.00	25.12	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-4	12.50	17.78	14.00	25.12	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	BT	14.00	25.12	14.00	25.12	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
Main	DTS	16.00	39.81	16.00	39.81	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-1	12.00	15.85	10.50	11.22	<50	<50	>50	>50	>50	<50	R	R	R	R	R	R
	U-NII-2A	12.00	15.85	10.50	11.22	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-2C	11.00	12.59	12.50	17.78	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-3	11.50	14.13	13.00	19.95	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T
	U-NII-4	11.50	14.13	13.00	19.95	<50	<50	>50	>50	>50	<50	T	T	R	R	R	T

T: Tested position
R: Reduced

See Annex F for a more detailed explanation of the separation distance related to the platform.

B.1.3.2 General SAR test reduction

According to FCC OET KDB 447498, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

WLAN SAR Test reduction

Transmission Mode	SAR test exclusion/reduction
DSSS	According to FCC OET KDB 248227 D01, SAR is measured for 2.4 GHz 802.11b, SAR test reduction is determined according to the following: ▪ When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration. ▪ When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. According to FCC OET KDB 248227 D01, SAR is not required for 2.4 GHz OFDM conditions when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
OFDM	According to FCC OET KDB 248227 D01, 802.11a/g/n/ac modes have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. According to FCC OET KDB 248227 D01, an <u>initial test configuration</u> is determined for OFDM and DSSS 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. SAR test reduction for subsequent highest output test channels is determined according to reported SAR of the initial test configuration. The <u>initial test configuration</u> for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. According to FCC OET KDB 248227 D01, when the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.

B.2 Conducted Power Measurements

B.2.1 WLAN 2.4GHz- Notebook mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test ?
2.4GHz (DTS)	802.11b	1Mbps	1	2412	15.62	16.00	16.20	16.50	Yes
			6	2437	15.95	16.00	16.47	16.50	Yes
			11	2462	15.52	16.00	16.38	16.50	Yes
	802.11g	6Mbps	1	2412	NR1,2	16.00	NR1,2	16.50	No ²
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11n20	HT0	1	2412		16.00		16.50	
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11ax20	MCS0	1	2412		16.00		16.50	
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11n40	HT0	3	2422		16.00		16.50	
			6	2437		16.00		16.50	
			9	2452		16.00		16.50	
	802.11ax40	MCS0	3	2422		16.00		16.50	
			6	2437		16.00		16.50	
			9	2452		16.00		16.50	

Initial test configuration

1. NR: Not Required
2. As per FCC OET KDB 248227 D01, conducted output power and SAR testing are not required for 802.11g/n/ax channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is $\leq 1.2\text{W/kg}$.
3. When the reported SAR of the initial test configuration is $> 0.8\text{ W/kg}$, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.

B.2.2 WLAN 2.4GHz-Tablet mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test ?
2.4GHz (DTS)	802.11b	1Mbps	1	2412	15.62	16.00	16.20	16.50	Yes
			6	2437	15.95	16.00	16.47	16.50	Yes
			11	2462	15.52	16.00	16.38	16.50	Yes
	802.11g	6Mbps	1	2412	NR1,2	16.00	NR1,2	16.50	No ²
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11n20	HT0	1	2412		16.00		16.50	
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11ax20	MCS0	1	2412		16.00		16.50	
			6	2437		16.00		16.50	
			11	2462		16.00		16.50	
	802.11n40	HT0	3	2422		16.00		16.50	
			6	2437		16.00		16.50	
			9	2452		16.00		16.50	
	802.11ax40	MCS0	3	2422		16.00		16.50	
			6	2437		16.00		16.50	
			9	2452		16.00		16.50	

Initial test configuration

B.2.3 WLAN 5GHz (U-NII)

B.2.3.1 5.2GHz and 5.3GHz (U-NII-1 and U-NII-2A)- Notebook mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test?
U-NII-1	802.11a	6Mbps	36	5180	NR ¹	10.50	NR ¹	12.00	No ²
			40	5200		10.50		12.00	
			48	5240		10.50		12.00	
	802.11n20	HT0	36	5180		10.50		12.00	
			40	5200		10.50		12.00	
			48	5240		10.50		12.00	
	802.11ac20	VHT0	36	5180		10.50		12.00	
			40	5200		10.50		12.00	
			48	5240		10.50		12.00	
	802.11ax20/be 20	MCS0	36	5180		10.50		12.00	
			40	5200		10.50		12.00	
			48	5240		10.50		12.00	
	802.11n40	HT0	38	5190		10.50		12.00	
			46	5230		10.50		12.00	
	802.11ac40	VHT0	38	5190		10.50		12.00	
			46	5230		10.50		12.00	
	802.11ax4/be4 0	MCS0	38	5190		10.50		12.00	
			46	5230		10.50		12.00	
	802.11ac80	VHT0	42	5210		10.50		12.00	
	802.11ax80/be 80	MCS0	42	5210		10.50		12.00	
	802.11ac160	VHT0	50	5250		10.50		12.00	
	802.11ax160/be160	MCS0	50	5250		10.50		12.00	

Initial test configuration

1. NR: Not Required
2. When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band (see SB.5.2 in this document).
3. Additional conducted power measurement is required when reported SAR is > 1.2 W/kg. In case the subsequent test configuration and the channel bandwidth is smaller than the initial test configuration, all channels that overlap with the larger channel bandwidth in the initial configuration should be tested.
4. The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple transmission modes (802.11a/g/n/ac/ax/be) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, lowest order 802.11 mode is selected (i.e. a, g, n, ac, ax then be).
5. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.
6. When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure requirements, is adjusted by the ratio of the subsequent test configuration to the initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
7. SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the reported SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested.

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test?
U-NII-2A	802.11a	6Mbps	52	5260	NR ¹	10.50	NR ¹	12.00	No ^{4,6}
			60	5300		10.50		12.00	No ^{4,6}
			64	5320		10.50		12.00	No ^{4,6}
	802.11n20	HT0	52	5260		10.50		12.00	No ^{4,6}
			60	5300		10.50		12.00	No ^{4,6}
			64	5320		10.50		12.00	No ^{4,6}
	802.11ac20	VHT0	52	5260		10.50		12.00	No ^{4,6}
			60	5300		10.50		12.00	No ^{4,6}
			64	5320		10.50		12.00	No ^{4,6}
	802.11ax20	MCS0	52	5260		10.50		12.00	No ^{4,6}
			60	5300		10.50		12.00	No ^{4,6}
			64	5320		10.50		12.00	No ^{4,6}
	802.11n40	HT0	54	5270		10.50		12.00	No ^{4,6}
			62	5310		10.50		12.00	No ^{4,6}
	802.11ac40	VHT0	54	5270		10.50		12.00	No ^{4,6}
			62	5310		10.50		12.00	No ^{4,6}
	802.11ax40/be	MCS0	54	5270		10.50		12.00	No ^{4,6}
			62	5310		10.50		12.00	No ^{4,6}
	802.11ac80	VHT0	58	5290	10.34	10.50	11.87	12.00	Yes
	802.11ax80/be80	MCS0	58	5290	NR ¹	10.50	NR ¹	12.00	No ^{4,6}

Initial test configuration

B.2.3.2 5.2GHz and 5.3GHz (U-NII-1 and U-NII-2A)- Tablet mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test?
U-NII-1	802.11a	6Mbps	36	5180	NR ¹	11.00	NR ¹	12.00	No ²
			40	5200		11.00		12.00	
			48	5240		11.00		12.00	
	802.11n20	HT0	36	5180		11.00		12.00	
			40	5200		11.00		12.00	
			48	5240		11.00		12.00	
	802.11ac20	VHT0	36	5180		11.00		12.00	
			40	5200		11.00		12.00	
			48	5240		11.00		12.00	
	802.11ax20/be20	MCS0	36	5180		11.00		12.00	
			40	5200		11.00		12.00	
			48	5240		11.00		12.00	
	802.11n40	HT0	38	5190		11.00		12.00	
			46	5230		11.00		12.00	
	802.11ac40	VHT0	38	5190		11.00		12.00	
			46	5230		11.00		12.00	
	802.11ax4/be40	MCS0	38	5190		11.00		12.00	
			46	5230		11.00		12.00	
	802.11ac80	VHT0	42	5210		11.00		12.00	
	802.11ax80/be80	MCS0	42	5210		11.00		12.00	
	802.11ac160	VHT0	50	5250		11.00		12.00	
	802.11ax160/be160	MCS0	50	5250		11.00		12.00	

Initial test configuration

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test?
U-NII-2A	802.11a	6Mbps	52	5260	NR ¹	11.00	NR ¹	12.00	No ^{4,6}
			60	5300		11.00		12.00	No ^{4,6}
			64	5320		11.00		12.00	No ^{4,6}
	802.11n20	HT0	52	5260		11.00		12.00	No ^{4,6}
			60	5300		11.00		12.00	No ^{4,6}
			64	5320		11.00		12.00	No ^{4,6}
	802.11ac20	VHT0	52	5260		11.00		12.00	No ^{4,6}
			60	5300		11.00		12.00	No ^{4,6}
			64	5320		11.00		12.00	No ^{4,6}
	802.11ax20	MCS0	52	5260		11.00		12.00	No ^{4,6}
			60	5300		11.00		12.00	No ^{4,6}
			64	5320		11.00		12.00	No ^{4,6}
	802.11n40	HT0	54	5270		11.00		12.00	No ^{4,6}
			62	5310		11.00		12.00	No ^{4,6}
	802.11ac40	VHT0	54	5270		11.00		12.00	No ^{4,6}
			62	5310		11.00		12.00	No ^{4,6}
	802.11ax40/be	MCS0	54	5270		11.00		12.00	No ^{4,6}
			62	5310		11.00		12.00	No ^{4,6}
	802.11ac80	VHT0	58	5290	11.84	11.00	10.87	12.00	Yes
	802.11ax80/be80	MCS0	58	5290	NR ¹	11.00	NR ¹	12.00	No ^{4,6}

Initial test configuration

B.2.3.3 5.6 (U-NII-2C)- Notebook mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test ?
U-NII-2C	802.11a	6Mbps	100	5500	NR ¹	12.50	NR ¹	14.00	No ^{4,6}
			116	5580		12.50		14.00	No ^{4,6}
			140	5700		12.50		14.00	No ^{4,6}
			144	5720		12.50		14.00	No ^{4,6}
	802.11n 20	HT0	100	5500		12.50		14.00	No ^{4,6}
			116	5580		12.50		14.00	No ^{4,6}
			140	5700		12.50		14.00	No ^{4,6}
			144	5720		12.50		14.00	No ^{4,6}
	802.11a c20	VHT0	100	5500		12.50		14.00	No ^{4,6}
			116	5580		12.50		14.00	No ^{4,6}
			140	5700		12.50		14.00	No ^{4,6}
			144	5720		12.50		14.00	No ^{4,6}
	802.11a x20/be	MCS0	100	5500		12.50		14.00	No ^{4,6}
			116	5580		12.50		14.00	No ^{4,6}
			140	5700		12.50		14.00	No ^{4,6}
			144	5720		12.50		14.00	No ^{4,6}
	802.11n 40	HT0	102	5510		12.50		14.00	No ^{4,6}
			110	5550		12.50		14.00	No ^{4,6}
			134	5670		12.50		14.00	No ^{4,6}
			142	5710		12.50		14.00	No ^{4,6}
	802.11a c40	VHT0	102	5510		12.50		14.00	No ^{4,6}
			110	5550		12.50		14.00	No ^{4,6}
			134	5670		12.50		14.00	No ^{4,6}
			142	5710		12.50		14.00	No ^{4,6}
	802.11a x40/be40	MCS0	102	5510		12.50		14.00	No ^{4,6}
			110	5550		12.50		14.00	No ^{4,6}
			118	5590		12.50		14.00	No ^{4,6}
			126	5630		12.50		14.00	No ^{4,6}
	802.11a c80	VHT0	106	5530	11.60	12.50	13.03	14.00	Yes
			122	5610	NR ¹	12.50	NR ¹	14.00	No ^{4,6}
			138	5690	11.85	12.50	13.02	14.00	Yes
	802.11a x80/be80	MCS0	106	5530	NR ¹	12.50	NR ¹	14.00	Yes
			122	5610		12.50		14.00	No ^{4,6}
			138	5690		12.50		14.00	No ^{4,6}
	802.11a c160	VHT0	114	5570	11.87	12.50	13.13	14.00	No ^{4,6}
	802.11a x160/be160	MCS0	114	5570	NR ¹	12.50	NR ¹	14.00	No ^{4,6}

Initial test configuration

B.2.3.4 5.6 (U-NII-2C)- Tablet mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm) -Main	Tune-up Pwr (dBm)	Average power (dBm) -Aux	Tune-up Pwr (dBm)	SAR Test ?
U-NII-2C	802.11a	6Mbps	100	5500	NR ¹	11.00	NR ¹	13.00	No ^{4,6}
			116	5580		11.00		13.00	No ^{4,6}
			140	5700		11.00		13.00	No ^{4,6}
			144	5720		11.00		13.00	No ^{4,6}
	802.11n 20	HT0	100	5500		11.00		13.00	No ^{4,6}
			116	5580		11.00		13.00	No ^{4,6}
			140	5700		11.00		13.00	No ^{4,6}
			144	5720		11.00		13.00	No ^{4,6}
	802.11a c20	VHT0	100	5500		11.00		13.00	No ^{4,6}
			116	5580		11.00		13.00	No ^{4,6}
			140	5700		11.00		13.00	No ^{4,6}
			144	5720		11.00		13.00	No ^{4,6}
	802.11a x20/be	MCS0	100	5500		11.00		13.00	No ^{4,6}
			116	5580		11.00		13.00	No ^{4,6}
			140	5700		11.00		13.00	No ^{4,6}
			144	5720		11.00		13.00	No ^{4,6}
	802.11n 40	HT0	102	5510		11.00		13.00	No ^{4,6}
			110	5550		11.00		13.00	No ^{4,6}
			134	5670		11.00		13.00	No ^{4,6}
			142	5710		11.00		13.00	No ^{4,6}
	802.11a c40	VHT0	102	5510		11.00		13.00	No ^{4,6}
			110	5550		11.00		13.00	No ^{4,6}
			134	5670		11.00		13.00	No ^{4,6}
			142	5710		11.00		13.00	No ^{4,6}
	802.11a x40/be40	MCS0	102	5510		11.00		13.00	No ^{4,6}
			110	5550		11.00		13.00	No ^{4,6}
			118	5590		11.00		13.00	No ^{4,6}
			126	5630		11.00		13.00	No ^{4,6}
	802.11a c80	VHT0	106	5530	10.35	11.00	12.31	13.00	Yes
			122	5610	NR ¹	11.00	NR ¹	13.00	No ^{4,6}
			138	5690	10.10	11.00	12.03	13.00	Yes
	802.11a x80/be80	MCS0	106	5530	NR ¹	11.00	NR ¹	13.00	Yes
			122	5610		11.00		13.00	No ^{4,6}
			138	5690		11.00		13.00	No ^{4,6}
	802.11a c160	VHT0	114	5570	10.42	11.00	12.13	13.00	No ^{4,6}
	802.11a x160/be160	MCS0	114	5570	NR ¹	11.00	NR ¹	13.00	No ^{4,6}

Initial test configuration

B.2.3.5 5.8GHz (U-NII-3)- Notebook Mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm)	Tune-up Pwr (dBm)	Average power (dBm)	Tune-up Pwr (dBm)	SAR Test?
5U-NII-3	802.11a	6Mbps	149	5745	NR ¹	13.00	NR ¹	14.00	No ^{4,6}
			157	5785		13.00		14.00	No ^{4,6}
			165	5825		13.00		14.00	No ^{4,6}
	802.11n20	HT0	149	5745		13.00		14.00	No ^{4,6}
			157	5785		13.00		14.00	No ^{4,6}
			165	5825		13.00		14.00	No ^{4,6}
	802.11ac20	VHT0	149	5745		13.00		14.00	No ^{4,6}
			157	5785		13.00		14.00	No ^{4,6}
			165	5825		13.00		14.00	No ^{4,6}
	802.11ax20/be	MCS0	149	5745		13.00		14.00	No ^{4,6}
			157	5785		13.00		14.00	No ^{4,6}
			165	5825		13.00		14.00	No ^{4,6}
	802.11n40	HT0	151	5755		13.00		14.00	No ^{4,6}
			159	5795		13.00		14.00	No ^{4,6}
	802.11ac40	VHT0	151	5755		13.00		14.00	No ^{4,6}
			159	5795		13.00		14.00	No ^{4,6}
	802.11ax40/be40	MCS0	151	5755		13.00		14.00	No ^{4,6}
			159	5795		13.00		14.00	No ^{4,6}
	802.11ac80	VHT0	155	5775	12.67	13.00	13.81	14.00	Yes
	802.11ax80/be80	MCS0	155	5775	NR1	13.00	NR1	14.00	No ^{4,6}

Initial test configuration

B.2.3.6 5.8GHz (U-NII-3)- Tablet Mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm)	Tune-up Pwr (dBm)	Average power (dBm)	Tune-up Pwr (dBm)	SAR Test?
U-NII-3	802.11a	6Mbps	149	5745	NR ¹	11.50	NR ¹	12.50	No ^{4,6}
			157	5785		11.50		12.50	No ^{4,6}
			165	5825		11.50		12.50	No ^{4,6}
	802.11n20	HT0	149	5745		11.50		12.50	No ^{4,6}
			157	5785		11.50		12.50	No ^{4,6}
			165	5825		11.50		12.50	No ^{4,6}
	802.11ac20	VHT0	149	5745		11.50		12.50	No ^{4,6}
			157	5785		11.50		12.50	No ^{4,6}
			165	5825		11.50		12.50	No ^{4,6}
	802.11ax20/be	MCS0	149	5745		11.50		12.50	No ^{4,6}
			157	5785		11.50		12.50	No ^{4,6}
			165	5825		11.50		12.50	No ^{4,6}
	802.11n40	HT0	151	5755		11.50		12.50	No ^{4,6}
			159	5795		11.50		12.50	No ^{4,6}
	802.11ac40	VHT0	151	5755		11.50		12.50	No ^{4,6}
			159	5795		11.50		12.50	No ^{4,6}
	802.11ax40/be40	MCS0	151	5755		11.50		12.50	No ^{4,6}
			159	5795		11.50		12.50	No ^{4,6}
	802.11ac80	VHT0	155	5775	11.17	11.50	12.31	12.50	Yes
	802.11ax80/be80	MCS0	155	5775	NR1	11.50	NR1	12.50	No ^{4,6}

Initial test configuration

B.2.3.7 5.9GHz (U-NII-4)- Notebook Mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm)	Tune-up Pwr (dBm)	Average power (dBm)	Tune-up Pwr (dBm)	SAR Test?
U-NII-4	802.11a	6Mbps	169	5845	NR ¹	13.00	NR ¹	14.00	No ^{4,6}
			173	5865		13.00		14.00	No ^{4,6}
			177	5885		13.00		14.00	No ^{4,6}
	802.11n20	HT0	169	5845		13.00		14.00	No ^{4,6}
			173	5865		13.00		14.00	No ^{4,6}
			177	5885		13.00		14.00	No ^{4,6}
	802.11ac20	VHT0	169	5845		13.00		14.00	No ^{4,6}
			173	5865		13.00		14.00	No ^{4,6}
			177	5885		13.00		14.00	No ^{4,6}
	802.11ax20/b e20	MCS0	149	5745		13.00		14.00	No ^{4,6}
			157	5785		13.00		14.00	No ^{4,6}
			165	5825		13.00		14.00	No ^{4,6}
	802.11n40	HT0	167	5835		13.00		14.00	No ^{4,6}
			175	5875		13.00		14.00	No ^{4,6}
	802.11ac40	VHT0	167	5835		13.00		14.00	No ^{4,6}
			175	5875		13.00		14.00	No ^{4,6}
	802.11ax40/b e40	MCS0	167	5835		13.00		14.00	No ^{4,6}
			175	5875		13.00		14.00	No ^{4,6}
	802.11ac80	VHT0	171	5855		13.00		14.00	No ^{4,6}
	802.11ax80/b e80	MCS0	171	5855		13.00		14.00	No ^{4,6}
	802.11ac160	VHT0	163	5815	12.72	13.00	13.73	14.00	Yes
	802.11ax160/be160	MCS0	163	5815	NR1	13.00	NR1	14.00	No ^{4,6}

Initial test configuration

B.2.3.8 5.9GHz (U-NII-4)- Tablet Mode

Band	Mode	Data Rate	Ch #	Freq (MHz)	Average power (dBm)	Tune-up Pwr (dBm)	Average power (dBm)	Tune-up Pwr (dBm)	SAR Test?
U-NII-4	802.11a	6Mbps	169	5845	NR ¹	11.50	NR ¹	12.50	No ^{4,6}
			173	5865		11.50		12.50	No ^{4,6}
			177	5885		11.50		12.50	No ^{4,6}
	802.11n20	HT0	169	5845		11.50		12.50	No ^{4,6}
			173	5865		11.50		12.50	No ^{4,6}
			177	5885		11.50		12.50	No ^{4,6}
	802.11ac20	VHT0	169	5845		11.50		12.50	No ^{4,6}
			173	5865		11.50		12.50	No ^{4,6}
			177	5885		11.50		12.50	No ^{4,6}
	802.11ax20/b e20	MCS0	149	5745		11.50		12.50	No ^{4,6}
			157	5785		11.50		12.50	No ^{4,6}
			165	5825		11.50		12.50	No ^{4,6}
	802.11n40	HT0	167	5835		11.50		12.50	No ^{4,6}
			175	5875		11.50		12.50	No ^{4,6}
	802.11ac40	VHT0	167	5835		11.50		12.50	No ^{4,6}
			175	5875		11.50		12.50	No ^{4,6}
	802.11ax40/b e40	MCS0	167	5835		11.50		12.50	No ^{4,6}
			175	5875		11.50		12.50	No ^{4,6}
	802.11ac80	VHT0	171	5855		11.50		12.50	No ^{4,6}
	802.11ax80/b e80	MCS0	171	5855		11.50		12.50	No ^{4,6}
	802.11ac160	VHT0	163	5815	11.15	11.50	12.23	12.50	Yes

	802.11ax160/ be160	MCS0	163	5815	NR1	11.50	NR1	12.50	No ^{4,6}
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Initial test configuration

B.2.3.9 Bluetooth

						Tablet and Notebook Mode	
Band	Mode	Data Rate	Channel	Frequency (MHz)	Antenna	Avg Pwr (dBm)	Tune-up Pwr (dBm)
2.4GHz (BT)	Bluetooth	Basic rate GFSK	0	2402	Aux	13.57	14.00
			39	2441		13.63	14.00
			78	2480		13.77	14.00
		Basic rate $\pi/4$ DQPSK	0	2402		NR ¹	14.00
			39	2441			14.00
			78	2480			14.00
		Basic rate 8-DPSK	0	2402			14.00
			39	2441			14.00
			78	2480			14.00
		Low energy GFSK 1Mbps	0	2402			10.00
			19	2440			10.00
			39	2480			10.00
		Low energy GFSK 2Mbps	1	2404			10.00
			19	2440			10.00
			38	2478			10.00

Initial test configuration

- NR: Not Required

B.3 Tissue Parameters Measurement

Head TSL

Freq. (MHz)	Target Parameters		Measured TSL Parameters		Deviation (%)		Date
	ϵ' (F/m)	σ (S/m)	ϵ' (F/m)	σ (S/m)	ϵ'	σ	
2402	39.29	1.76	40.90	1.81	4.10	2.84	2024-11-21
2412	39.27	1.77	40.84	1.82	4.00	2.82	2024-11-21
2412	39.27	1.77	40.80	1.82	3.90	2.82	2024-11-26
2412	39.27	1.77	40.80	1.83	3.90	3.39	2024-11-29
2437	39.22	1.79	40.83	1.84	4.11	2.79	2024-11-21
2441	39.22	1.79	40.81	1.84	4.05	2.79	2024-11-21
2450	39.20	1.80	40.77	1.84	4.01	2.22	2024-11-21
2450	39.20	1.80	38.64	1.85	-1.43	2.78	2024-11-26
2450	39.20	1.80	40.72	1.86	3.88	3.33	2024-11-29
2462	39.19	1.81	40.73	1.85	3.93	2.21	2024-11-21
2462	39.19	1.81	40.71	1.87	3.88	3.31	2024-11-29
2480	39.16	1.83	40.72	1.87	3.98	2.19	2024-11-21
5250	35.93	4.71	35.77	4.69	-0.45	-0.42	2024-11-20
5250	35.93	4.71	35.76	4.66	-0.47	-1.06	2024-11-26
5290	35.88	4.75	35.73	4.73	-0.42	-0.42	2024-11-20
5290	35.88	4.75	35.70	4.73	-0.50	-0.42	2024-11-26
5530	35.61	4.99	35.34	4.97	-0.76	-0.40	2024-11-20
5530	35.61	4.99	35.15	4.93	-1.29	-1.20	2024-11-21
5570	35.57	5.03	35.22	5.02	-0.98	-0.20	2024-11-20
5570	35.57	5.03	35.04	4.97	-1.49	-1.19	2024-11-21
5570	35.57	5.03	35.01	4.97	-1.57	-1.19	2024-11-26
5600	35.53	5.07	35.03	5.07	-1.41	0.00	2024-11-20
5600	35.53	5.07	34.89	5.01	-1.80	-1.18	2024-11-21
5600	35.53	5.07	34.51	5.08	-2.87	0.20	2024-11-26
5690	35.42	5.16	34.63	5.17	-2.23	0.19	2024-11-20
5690	35.42	5.16	34.74	5.12	-1.92	-0.78	2024-11-21
5750	35.36	5.22	34.84	5.22	-1.47	0.00	2024-11-19
5750	35.36	5.22	34.67	5.23	-1.95	0.19	2024-11-20
5750	35.36	5.22	35.15	5.08	-0.59	-2.68	2024-11-26
5750	35.36	5.22	34.65	5.20	-2.01	-0.38	2024-11-29
5775	35.33	5.24	34.82	5.25	-1.44	0.19	2024-11-19
5775	35.33	5.24	34.73	5.27	-1.70	0.57	2024-11-20
5775	35.33	5.24	34.81	5.25	-1.47	0.19	2024-11-26
5815	35.28	5.29	34.50	5.28	-2.21	-0.19	2024-11-29

See Annex D for more details.

B.4 System Check Measurements

Frequency (MHz)	Average	Target SAR (W/kg)	Measured SAR normalized to 1W(W/kg)	Deviation to target (%)	Limit (%)	Date
2450	1g	52.60	54.60	3.80	± 10	2024-11-21
2450	1g	52.60	51.00	-3.04		2024-11-20
2450	1g	52.60	52.30	-0.57		2024-11-20
5250	1g	77.70	77.80	0.13		2024-11-21
5250	1g	77.70	76.60	-1.42		2024-11-19
5600	1g	81.30	78.50	-3.44		2024-11-20
5600	1g	81.30	77.50	-4.67		2024-11-26
5600	1g	81.30	78.20	-3.81		2024-11-26
5750	1g	77.60	79.10	1.93		2024-11-26
5750	1g	77.60	74.60	-3.87		2024-11-26
5750	1g	77.60	75.70	-2.45		2024-11-29
5750	1g	77.60	75.40	-2.84		2024-11-29
2450	10g	24.70	25.10	1.62		2024-11-21
2450	10g	24.70	24.10	-2.43		2024-11-20
2450	10g	24.70	24.80	0.40		2024-11-20
5250	10g	22.00	22.50	2.27		2024-11-21
5250	10g	22.00	21.30	-3.18		2024-11-19
5600	10g	23.10	23.20	0.43		2024-11-20
5600	10g	23.10	22.10	-4.33		2024-11-26
5600	10g	23.10	22.60	-2.16		2024-11-26
5750	10g	21.90	22.40	2.28		2024-11-26
5750	10g	21.90	21.50	-1.83		2024-11-26
5750	10g	21.90	21.70	-0.91		2024-11-29
5750	10g	21.90	21.40	-2.28		2024-11-29

See Annex C for more details.

B.5 SAR Test Results

B.5.1 Bluetooth, 802.11b/g/n/ax – 2.4GHz - DTS

Antenna Manufacturer	Mode	Data rate	BW (MHz)	Channel Number	Freq (MHz)	Test position mode	Antenna	Scaling Factor (dB)	Measured SAR 1g (W/kg)	Duty cycle Factor	Reported SAR 1g (W/kg)	Plot #
Speed	802.15	DH5	1	78	2480	Bottom Side	Aux	1.007	0.189	1.304	0.248	/
ICT		DH5	1	78	2480	Bottom Side	Aux	1.007	0.271	1.304	0.356	/
ICT		DH5	1	78	2480	Keyboard Side	Aux	1.007	0.168	1.304	0.221	/
ICT		DH5	1	78	2480	Bottom Edge	Aux	1.007	0.018	1.304	0.024	/
Speed		DH5	1	78	2480	Keyboard Side	Aux	1.007	0.284	1.304	0.373	1
Speed		DH5	1	78	2480	Bottom Edge	Aux	1.007	0.029	1.304	0.038	/
Speed		DH5	1	0	2402	Keyboard Side	Aux	1.012	0.348	1.304	0.337	/
Speed		DH5	1	39	2441	Keyboard Side	Aux	1.016	0.325	1.304	0.306	/
Speed		1Mbps	20	6	2437	Bottom Side	Aux.	1.007	0.410	1.029	0.425	/
ICT	802.11b	1Mbps	20	6	2437	Bottom Side	Aux.	1.007	0.762	1.029	0.790	/
Speed		1Mbps	20	6	2437	Keyboard Side	Aux.	1.007	0.824	1.029	0.854	/
Speed		1Mbps	20	6	2437	Bottom Edge	Aux.	1.007	0.068	1.029	0.070	/
Speed		1Mbps	20	1	2412	Keyboard Side	Aux.	1.072	0.901	1.029	0.994	2
Speed		1Mbps	20	11	2462	Keyboard Side	Aux.	1.028	0.713	1.029	0.754	/
ICT		1Mbps	20	6	2437	Keyboard Side	Aux.	1.007	0.527	1.029	0.546	/
ICT		1Mbps	20	6	2437	Bottom Edge	Aux.	1.007	0.051	1.029	0.053	/
Speed		1Mbps	20	6	2437	Bottom Side	Main	1.012	0.449	1.029	0.468	/
ICT		1Mbps	20	6	2437	Bottom Side	Main	1.012	0.736	1.029	0.766	/
ICT		1Mbps	20	1	2412	Bottom Side	Main	1.091	0.671	1.029	0.753	/
ICT		1Mbps	20	11	2462	Bottom Side	Main	1.117	0.898	1.029	1.032	3
Speed		1Mbps	20	6	2437	Keyboard Side	Main	1.012	0.746	1.029	0.777	/
Speed		1Mbps	20	6	2437	Bottom Edge	Main	1.012	0.064	1.029	0.067	/
Speed		1Mbps	20	1	2412	Keyboard Side	Main	1.091	0.757	1.029	0.850	/
Speed		1Mbps	20	11	2462	Keyboard Side	Main	1.117	0.809	1.029	0.930	/
ICT		1Mbps	20	6	2437	Keyboard Side	Main	1.012	0.566	1.029	0.589	/
ICT		1Mbps	20	6	2437	Bottom Edge	Main	1.012	0.052	1.029	0.054	/

B.5.2 802.11a/n/ac/ax – 5.3 GHz – U-NII-2A

Antenna Manufacturer	Mode	Data rate	BW (MHz)	Channel Number	Freq (MHz)	Test position mode	Antenna	Scaling Factor (dB)	Measured SAR 1g (W/kg)	Duty cycle Factor	Reported SAR 1g (W/kg)	Plot #
Speed	802.11ac	VHT0	80	58	5290	Bottom Side	Aux.	1.030	0.875	1.024	0.923	/
ICT						Bottom Side	Aux.	1.030	0.925	1.024	0.976	/
Speed						Keyboard Side	Aux.	1.030	0.470	1.024	0.496	/
Speed						Bottom Edge	Aux.	1.030	0.073	1.024	0.077	/
ICT						Keyboard Side	Aux.	1.030	0.928	1.024	0.979	4
ICT						Bottom Edge	Aux.	1.030	0.129	1.024	0.136	/
Speed						Bottom Side	Main	1.038	0.625	1.024	0.664	/
ICT						Bottom Side	Main	1.038	0.387	1.024	0.411	/
Speed						Keyboard Side	Main	1.038	0.603	1.024	0.641	/
Speed						Bottom Edge	Main	1.038	0.128	1.024	0.136	/
ICT						Keyboard Side	Main	1.038	0.841	1.024	0.894	5
ICT						Bottom Edge	Main	1.038	0.257	1.024	0.273	/

B.5.3 802.11a/n/ac/ax – 5.6 GHz – U-NII-2C

Antenna Manufacturer	Mode	Data rate	BW (MHz)	Channel Number	Freq (MHz)	Test position mode	Antenna	Scaling Factor (dB)	Measured SAR 1g (W/kg)	Duty cycle Factor	Reported SAR 1g (W/kg)	Plot #
Speed	802.11ac	VHT0	80	106	5530	Bottom Side	Aux.	1.250	0.631	1.024	0.808	/
ICT			80	106	5530	Bottom Side	Aux.	1.250	0.540	1.024	0.691	/
Speed			80	106	5530	Keyboard Side	Aux.	1.172	0.689	1.024	0.827	/
Speed			80	106	5530	Bottom Edge	Aux.	1.172	0.157	1.024	0.188	/
ICT			80	106	5530	Keyboard Side	Aux.	1.172	0.715	1.024	0.858	/
ICT			80	106	5530	Bottom Edge	Aux.	1.172	0.162	1.024	0.194	/
ICT			80	138	5690	Keyboard Side	Aux.	1.250	0.823	1.024	1.053	6
Speed			80	106	5530	Bottom Side	Main	1.230	0.566	1.024	0.713	/
ICT			80	106	5530	Bottom Side	Main	1.230	0.498	1.024	0.627	/
Speed			80	138	5690	Keyboard Side	Main	1.161	0.718	1.024	0.854	/
Speed			80	138	5690	Bottom Edge	Main	1.161	0.205	1.024	0.244	/
ICT			80	138	5690	Keyboard Side	Main	1.161	0.812	1.024	0.965	/
ICT			80	138	5690	Bottom Edge	Main	1.161	0.164	1.024	0.195	/
ICT			80	106	5530	Keyboard Side	Main	1.230	0.781	1.024	0.984	/
Speed			160	114	5570	Bottom Side	Aux.	1.222	0.655	1.045	0.836	/
ICT			160	114	5570	Bottom Side	Aux.	1.222	0.647	1.045	0.826	/
Speed			160	114	5570	Keyboard Side	Aux.	1.222	0.644	1.045	0.822	/

Speed			160	114	5570	Bottom Edge	Aux.	1.222	0.161	1.045	0.206	/
ICT			160	114	5570	Keyboard Side	Aux.	1.222	0.729	1.045	0.931	/
ICT			160	114	5570	Bottom Edge	Aux.	1.222	0.152	1.045	0.194	/
Speed			160	114	5570	Bottom Side	Main	1.156	0.599	1.045	0.724	/
ICT			160	114	5570	Bottom Side	Main	1.156	0.556	1.045	0.672	/
Speed			160	114	5570	Keyboard Side	Main	1.143	0.721	1.045	0.861	/
Speed			160	114	5570	Bottom Edge	Main	1.143	0.201	1.045	0.240	/
ICT			160	114	5570	Keyboard Side	Main	1.143	0.849	1.045	1.014	7
ICT			160	114	5570	Bottom Edge	Main	1.143	0.162	1.045	0.193	/

B.5.4 802.11a/n/ac/ax – 5.8 GHz – U-NII-3

Antenna Manufacturer	Mode	Data rate	BW (MHz)	Channel Number	Freq (MHz)	Test position mode	Antenna	Scaling Factor (dB)	Measured SAR 1g (W/kg)	Duty cycle Factor	Reported SAR 1g (W/kg)	Plot #
Speed	802.11ac	VHT0	80	155	5775	Bottom Side	Aux.	1.045	0.701	1.024	0.750	/
ICT						Bottom Side	Aux.	1.045	0.907	1.024	0.971	8
Speed						Keyboard Side	Aux.	1.045	0.800	1.024	0.856	/
Speed						Bottom Edge	Aux.	1.045	0.181	1.024	0.194	/
ICT						Keyboard Side	Aux.	1.045	0.891	1.024	0.953	/
ICT						Bottom Edge	Aux.	1.045	0.188	1.024	0.201	/
Speed						Bottom Side	Main	1.079	0.425	1.024	0.470	/
ICT						Bottom Side	Main	1.079	0.553	1.024	0.611	/
Speed						Keyboard Side	Main	1.079	0.640	1.024	0.707	/
Speed						Bottom Edge	Main	1.079	0.172	1.024	0.190	/
ICT						Keyboard Side	Main	1.079	0.792	1.024	0.875	9
ICT						Bottom Edge	Main	1.079	0.177	1.024	0.196	/

B.5.5 802.11a/n/ac/ax – 5.9 GHz – U-NII-4

Antenna Manufacturer	Mode	Data rate	BW (MHz)	Channel Number	Freq (MHz)	Test position mode	Antenna	Scaling Factor (dB)	Measured SAR 1g (W/kg)	Duty cycle Factor	Reported SAR 1g (W/kg)	Plot #
Speed	802.11ac	VHT0	160	163	5815	Bottom Side	Aux.	1.064	0.548	1.045	0.609	/
ICT						Bottom Side	Aux.	1.064	0.719	1.045	0.799	/
Speed						Keyboard Side	Aux.	1.064	0.714	1.045	0.794	/
Speed						Bottom Edge	Aux.	1.064	0.188	1.045	0.209	/
ICT						Keyboard Side	Aux.	1.064	0.892	1.045	0.995	10
ICT						Bottom Edge	Aux.	1.064	0.147	1.045	0.163	/

Speed						Bottom Side	Main	1.067	0.327	1.045	0.365	/
ICT						Bottom Side	Main	1.067	0.463	1.045	0.516	/
Speed						Keyboard Side	Main	1.084	0.541	1.045	0.613	/
Speed						Bottom Edge	Main	1.084	0.190	1.045	0.215	/
ICT						Keyboard Side	Main	1.084	0.648	1.045	0.734	11
ICT						Bottom Edge	Main	1.084	0.145	1.045	0.164	/

B.5.6 SAR Measurement Variability

According to FCC OET KDB 865664, SAR Measurement variability is assessed when the maximum initial measured SAR is ≥ 0.8 W/kg for a certain band/mode. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with $< 20\%$ variation, only one repeated measurement is required to confirm that the results are not expected to have substantial variations.

A second repeated measurement is required only if the measured results for the initial repeated measurement are within 10% of the SAR limit or vary by more than 20%.

A third repeated measurement is required only if the original, first or second repeated measurement ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurement is > 1.2 .

Band / Mode	Position	Ch #	Freq. (MHz)	Measured SAR 1g (W/kg)	1st Repeated SAR 1g (W/kg)	Highest Ratio
2.4 GHz / 802.11b - 20 MHz	Keyboard Side	1	2412	0.901	0.898	1.00
5.3 GHz / 802.11ac - 80 MHz	Keyboard Side	58	5290	0.928	0.871	1.07
5.6 GHz / 802.11ac - 160 MHz	Keyboard Side	114	5570	0.849	0.746	1.14
5.8 GHz / 802.11ac - 80 MHz	Bottom Side	155	5775	0.907	0.827	1.10
5.9 GHz / 802.11ac - 160 MHz	Keyboard Side	163	5815	0.895	0.822	1.09

B.5.7 Simultaneous Transmission SAR Evaluation

According to FCC OET KDB 447498, when the sum of 1g SAR for all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.

All the values stated in the table below are the worst case found for standalone measurement with disregard of the transmission mode or channel where the worst case was found.

Antenna	Position	Highest Reported SAR (1g) (W/Kg)		
		WLAN 2.4GHz	WLAN 5GHz	Bluetooth
Main	Bottom Side	1.032	0.724	
Aux		0.790	0.976	0.356
Main	Keyboard Side	0.930	1.014	
Aux		0.994	1.053	0.373
Main	Bottom Edge	0.067	0.273	
Aux		0.070	0.209	0.038

Position	Simultaneous Tx Antenna Combination		Σ SAR 1g (W/Kg)	Limit (W/kg)
	Main Antenna	Aux Antenna		
Bottom Side	WLAN 2.4GHz	Bluetooth	1.388	1.6
	WLAN 2.4GHz	WLAN 2.4GHz	1.822^{1#}	
	WLAN 5 GHz	Bluetooth	1.080	
	WLAN 5 GHz	WLAN 5 GHz	1.700^{2#}	
	WLAN 5GHz	WLAN 5GHz + BT	2.056^{3#}	
Keyboard Side	WLAN 2.4GHz	Bluetooth	1.303	
	WLAN 2.4GHz	WLAN 2.4GHz	1.924^{4#}	
	WLAN 5 GHz	Bluetooth	1.387	
	WLAN 5 GHz	WLAN 5 GHz	2.067^{5#}	
	WLAN 5GHz	WLAN 5GHz + BT	2.440^{6#}	
Bottom Edge	WLAN 2.4GHz	Bluetooth	0.105	
	WLAN 2.4GHz	WLAN 2.4GHz	0.137	
	WLAN 5 GHz	Bluetooth	0.311	
	WLAN 5 GHz	WLAN 5 GHz	0.482	
	WLAN 5GHz	WLAN 5GHz + BT	0.520	

In case the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio:

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
1#	Bottom Side	Main WLAN 2.4GHz	1.032	1.822	(10.0, 50.0, -175.6)	0.03	0.04
		Aux WLAN 2.4GHz	0.790		(8.0, -28.0, -175.5)		

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
2#	Bottom Side	Main WLAN 5GHz	0.724	1.700	(4.0, 50.0, -175.6)	0.02	0.04
		Aux WLAN 5GHz	0.976		(8.0, -40.0, -175.6)		

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
3#	Bottom Side	Main WLAN 5GHz	0.724	2.056	(4.0, 50.0, -175.6)	0.04	0.04
		Aux WLAN 5GHz+BT	1.332		(5.4, -31.8, -175.6)		

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
4#	Keyboard Side	Main WLAN 2.4GHz	0.930	1.924	(1.8, -14.0, 179.7)	0.04	0.04
		Aux WLAN 2.4GHz	0.994		(3.8, 48.0, -175.6)		

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
5#	Keyboard Side	Main WLAN 5GHz	1.014	2.067	(-7.2, -37.2, -177.4)	0.04	0.04
		Aux WLAN 5GHz	1.053		(-10.6, 38.9, -177.3)		

Case No.	Position	Antenna	Reported SAR 1g (W/kg)	Σ SAR 1g (W/Kg)	Peak Location (mm) (x,y,z)	SAR to peak location separation ratio	Limit
6#	Keyboard Side	Main WLAN 5GHz	1.014	2.440	(-7.2, -37.2, -177.4)	0.04	0.04

		Aux WLAN 5GHz+BT	1.426		(-10.6, 48.2, -175.6)		
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Considering the results described above and according to the simultaneous transmission evaluation exclusions described in FCC OET KDB 447498, no enlarged zoom scan measurements are required.

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1. Bluetooth, Aux Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2480.0, 78	6.98	1.87	40.7	22.1	21.3

Hardware Setup

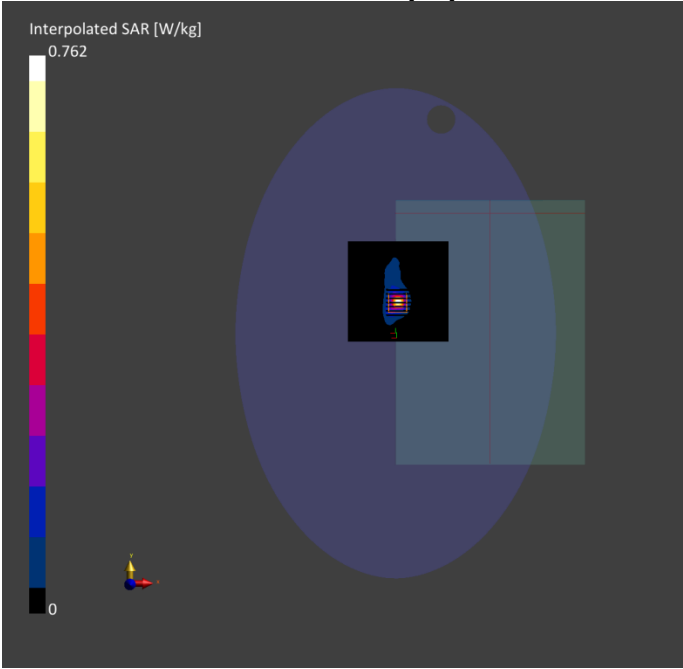
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-21	2024-11-21
psSAR1g [W/kg]	0.296	0.284
psSAR10g [W/kg]	0.108	0.099
Power Drift [dB]	0.03	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		35.5
Dist 3dB Peak [mm]		6.4



2. DTS - 802.11b, CH1, Aux Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10012-CAB	2412.0, 1	6.98	1.82	40.8	22.1	21.3

Hardware Setup

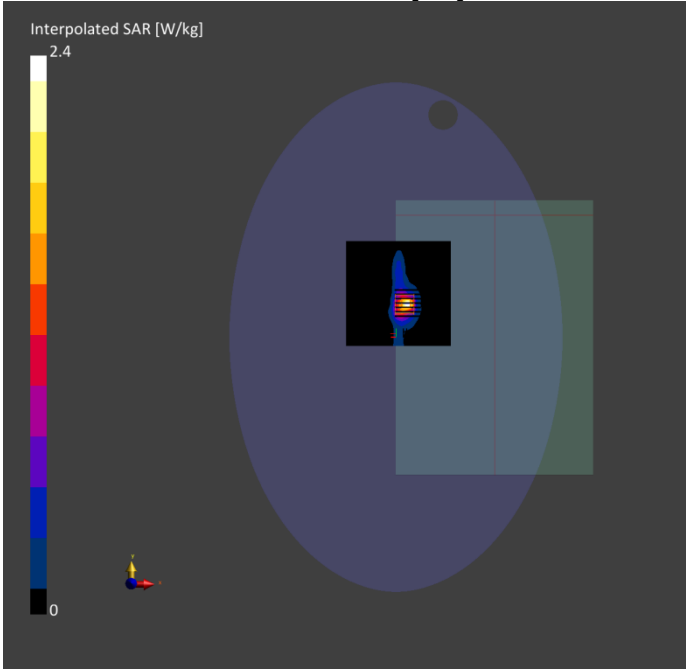
Phantom	TSL, Measured Date		Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000	2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-21	2024-11-21
psSAR1g [W/kg]	0.759	0.901
psSAR10g [W/kg]	0.324	0.316
Power Drift [dB]	0.01	0.03
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		35.9
Dist 3dB Peak [mm]		5.8



3. DTS - 802.11b, CH11, Main Antenna –Bottom Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 5.00	WLAN 2.4GHz	WLAN, 10012-CAB	2462.0, 11	6.98	1.85	40.7	22.1	21.3

Hardware Setup

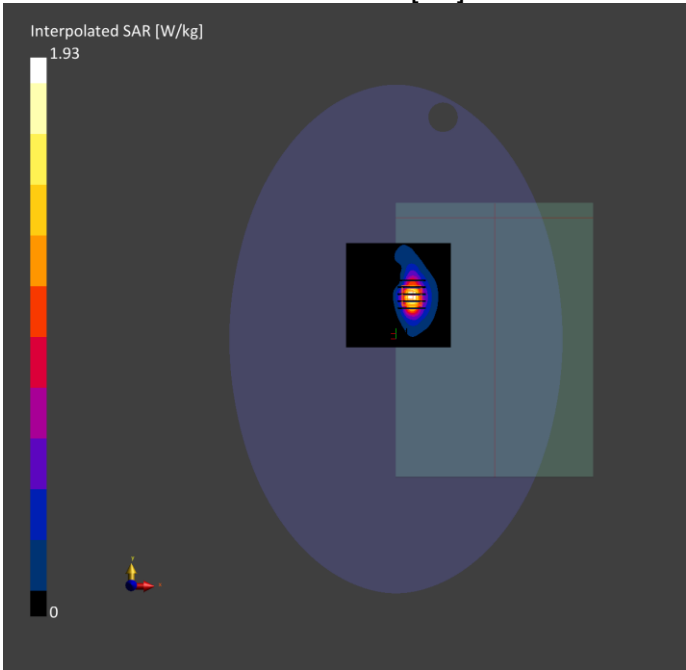
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	32.0 x 32.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	8.0 x 8.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-21	2024-11-21
psSAR1g [W/kg]	0.835	0.898
psSAR10g [W/kg]	0.394	0.428
Power Drift [dB]	-0.00	0.00
Power Scaling	Disabled	Disabled
Scaling Factor		
TSL Correction [dB]	No correction	No correction
M2/M1 [%]		38.3
Dist 3dB Peak [mm]		6.4



4. U-NII-2A - 802.11ac80, CH58, Aux Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5290.0, 58	5.44	4.73	35.7	22.4	21.3

Hardware Setup

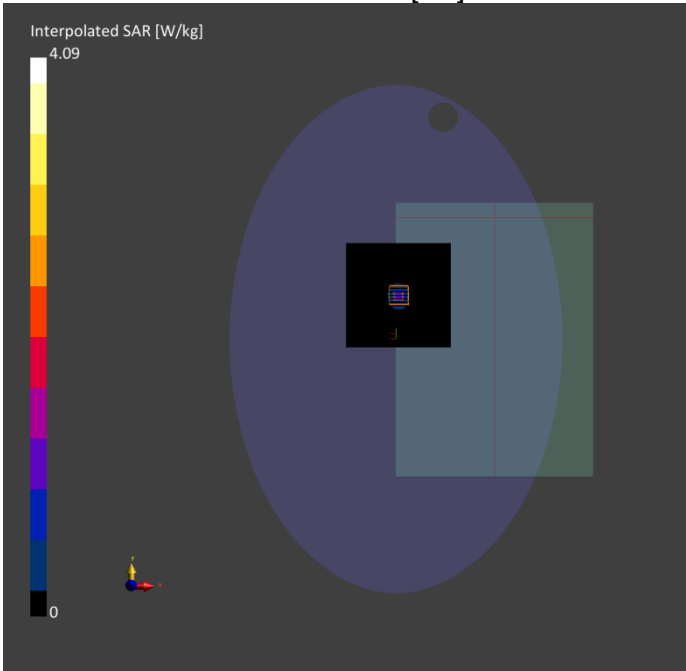
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-20	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-20	2024-11-20
psSAR1g [W/kg]	0.844	0.928
psSAR10g [W/kg]	0.277	0.286
Power Drift [dB]	0.02	-0.04
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		43.6
Dist 3dB Peak [mm]		5.6



5. U-NII-2A - 802.11ac80, CH58, Mian Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5290.0, 58	5.44	4.73	35.7	22.4	21.3

Hardware Setup

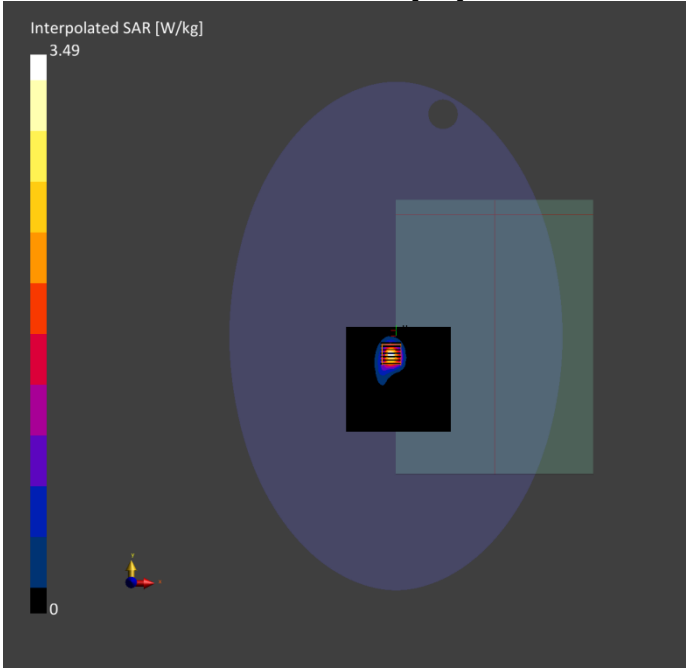
Phantom	TSL, Measured Date		Probe, Calibration Date		DAE, Calibration Date	
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000	2024-11-20	EX3DV4 - SN7893,	2024-09-05	DAE4 Sn1711,	2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-20	2024-11-20
psSAR1g [W/kg]	0.850	0.841
psSAR10g [W/kg]	0.280	0.263
Power Drift [dB]	0.10	0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		49.8
Dist 3dB Peak [mm]		6.4



6. U-NII-2C - 802.11ac80, CH138, Aux Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5690.0, 138	4.98	5.12	34.7	22.1	21.3

Hardware Setup

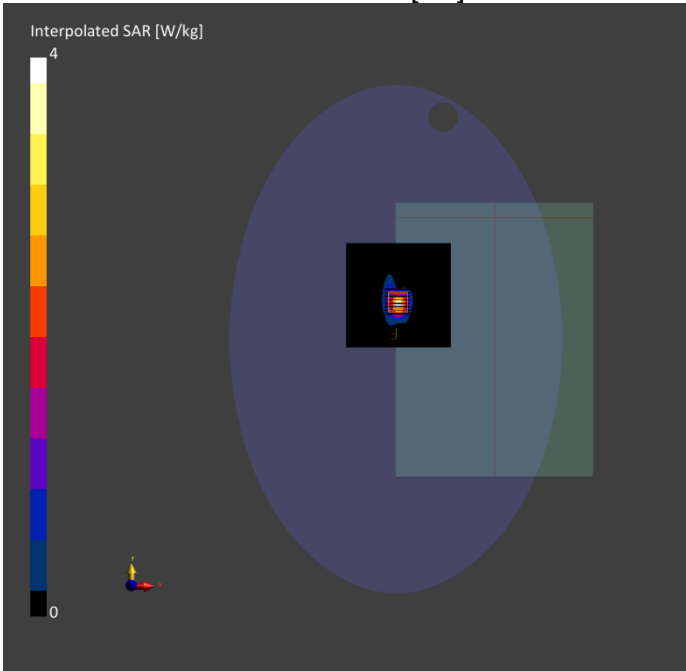
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-21	2024-11-21
psSAR1g [W/kg]	0.698	0.823
psSAR10g [W/kg]	0.227	0.243
Power Drift [dB]	-0.08	-0.03
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		39.0
Dist 3dB Peak [mm]		5.4



7. U-NII-2C - 802.11ac160, CH114, Main Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10554-AAD	5570.0, 114	4.91	4.97	35.0	22.1	21.3

Hardware Setup

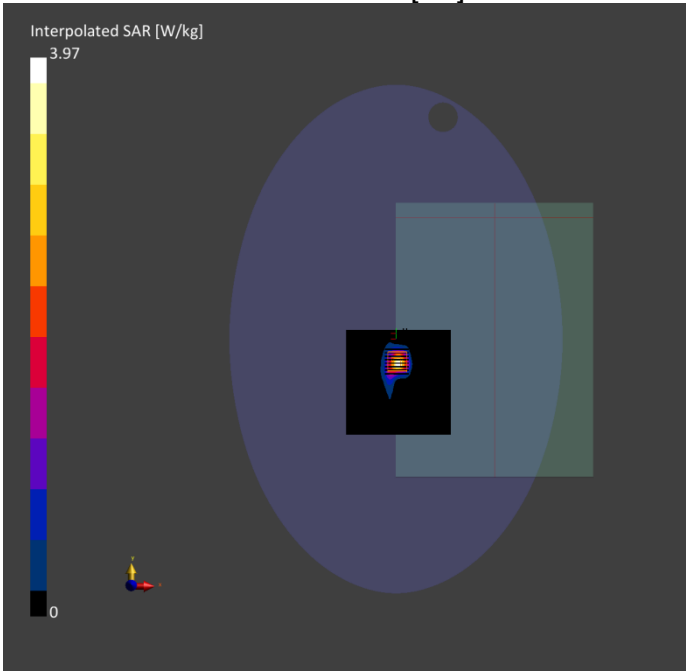
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-21	2024-11-21
psSAR1g [W/kg]	0.703	0.849
psSAR10g [W/kg]	0.235	0.256
Power Drift [dB]	-0.10	-0.01
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		45.9
Dist 3dB Peak [mm]		5.6



8. U-NII-3 - 802.11ac80, CH155, Aux Antenna –Bottom Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	4.98	5.25	34.8	22.6	21.4

Hardware Setup

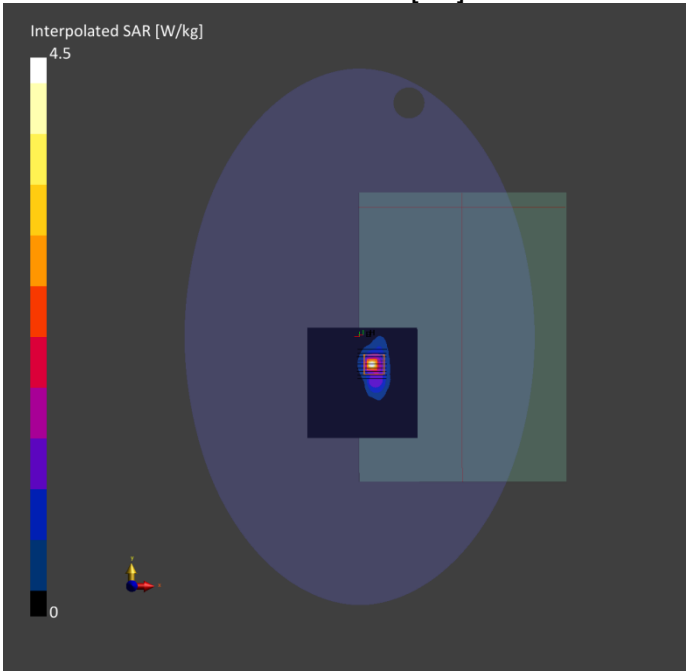
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-19	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-19	2024-11-19
psSAR1g [W/kg]	0.849	0.907
psSAR10g [W/kg]	0.241	0.248
Power Drift [dB]	-0.78	-0.18
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		44.7
Dist 3dB Peak [mm]		5.7



9. U-NII-3 - 802.11ac80, CH155, Main Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	4.98	5.27	34.7	22.4	21.3

Hardware Setup

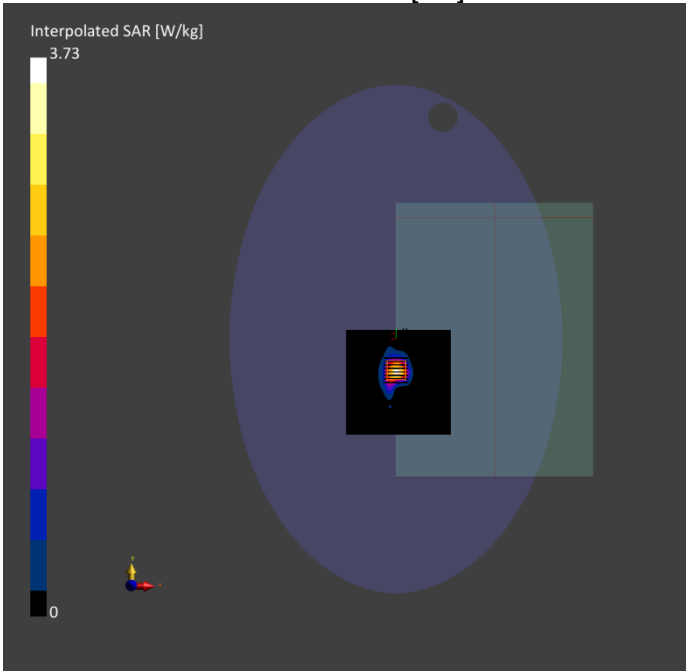
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-20	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-20	2024-11-20
psSAR1g [W/kg]	0.591	0.792
psSAR10g [W/kg]	0.205	0.234
Power Drift [dB]	-0.10	-0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		46.7
Dist 3dB Peak [mm]		5.7



10. U-NII-4 - 802.11ac160, CH163, Main Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	Custom Band	CW, 11026-AAB	5815.0, 163	4.98	5.28	34.5	22.3	21.3

Hardware Setup

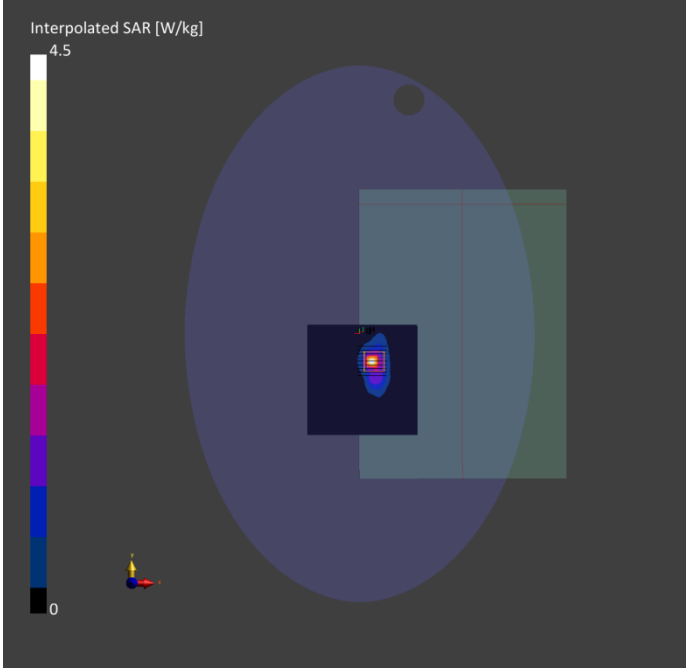
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-29	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-29	2024-11-29
psSAR1g [W/kg]	0.758	0.892
psSAR10g [W/kg]	0.250	0.264
Power Drift [dB]	0.05	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		46.5
Dist 3dB Peak [mm]		6.1



11. U-NII-4 - 802.11ac160, CH163, Main Antenna –Keyboard Side

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 5GHz	Custom Band	5815.0, 163	4.98	5.28	34.5	22.3	21.3

Hardware Setup

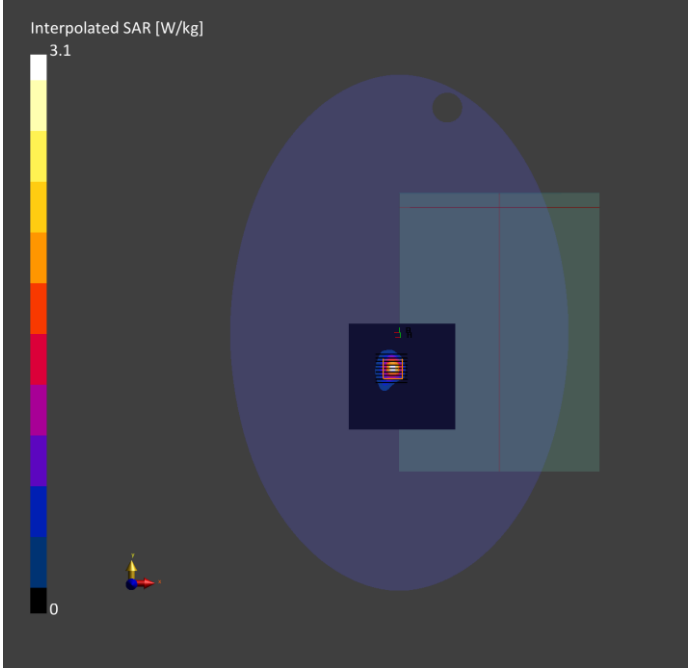
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-29	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-11-29	2024-11-29
psSAR1g [W/kg]	0.593	0.648
psSAR10g [W/kg]	0.182	0.185
Power Drift [dB]	-0.03	-0.15
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		42.0
Dist 3dB Peak [mm]		5.8



12. System Check Head Liquid 2450MHz

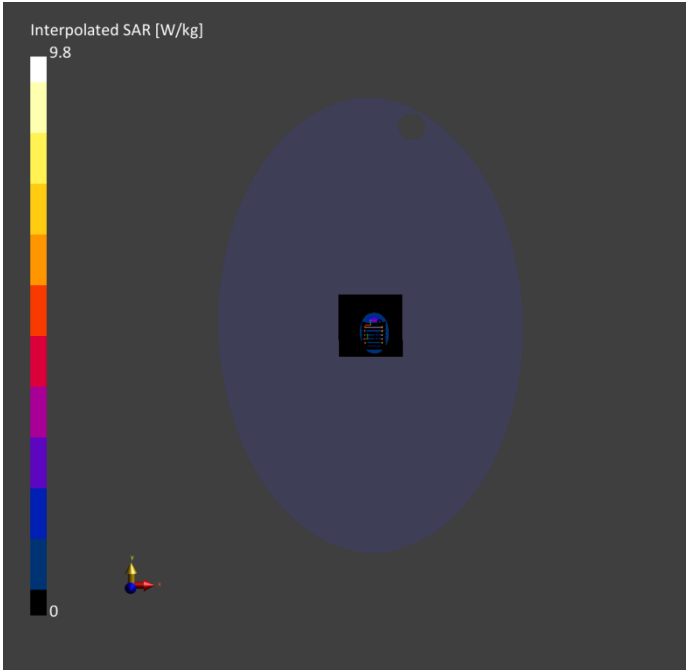
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	2450.0, 2450	6.98	1.84	40.8	22.1	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0	Date	2024-11-21	2024-11-21
Grid Steps [mm]	8.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	5.11	5.46
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.47	2.51
Graded Grid	Yes	Yes	Power Drift [dB]	0.05	0.04
Grading Ratio	1.5	1.5	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		79.7
			Dist 3dB Peak [mm]		9.1



13. System Check Head Liquid 2450MHz

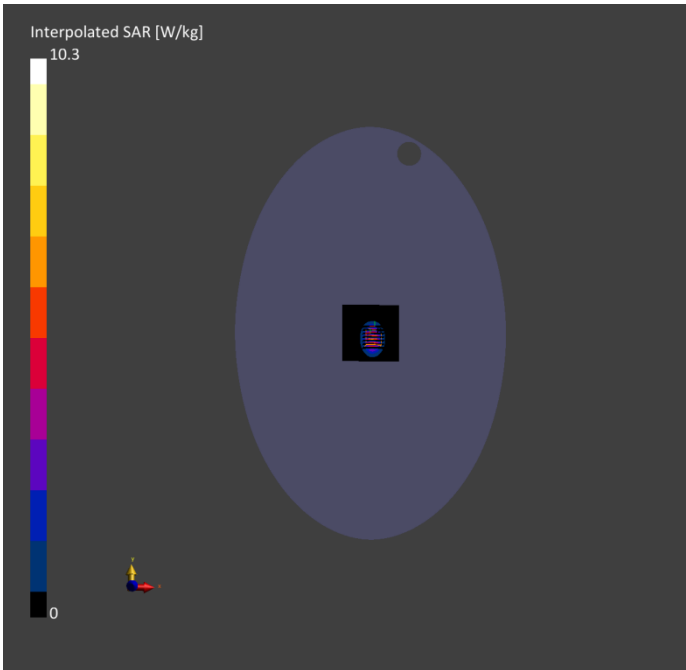
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	2450.0, 2450	6.98	1.85	38.6	22.5	21.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-26	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0	Date	2024-11-26	2024-11-26
Grid Steps [mm]	8.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	5.09	5.10
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.40	2.41
Graded Grid	Yes	Yes	Power Drift [dB]	-0.14	0.01
Grading Ratio	1.5	1.5	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	Dist 3dB Peak [mm]		80.6
Scan Method	Measured	Measured			9.0



14. System Check Head Liquid 2450MHz

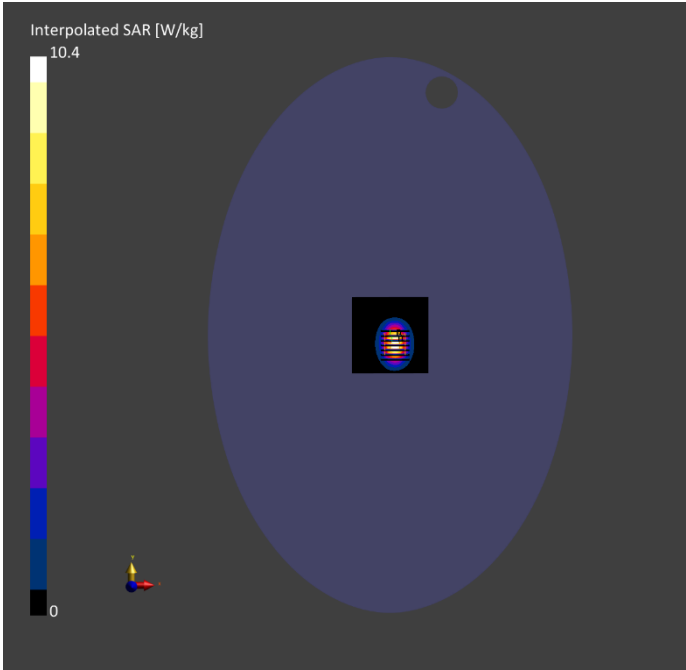
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	2450.0, 2450	6.98	1.84	40.8	22.3	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-29	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0	Date	2024-11-29	2024-11-29
Grid Steps [mm]	8.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	5.03	5.23
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.37	2.48
Graded Grid	Yes	Yes	Power Drift [dB]	0.01	0.02
Grading Ratio	1.5	1.5	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction	No correction	No correction
Scan Method	Measured	Measured			
			M2/M1 [%]		79.9
			Dist 3dB Peak [mm]		9.0



15. System Check Head Liquid 5250MHz

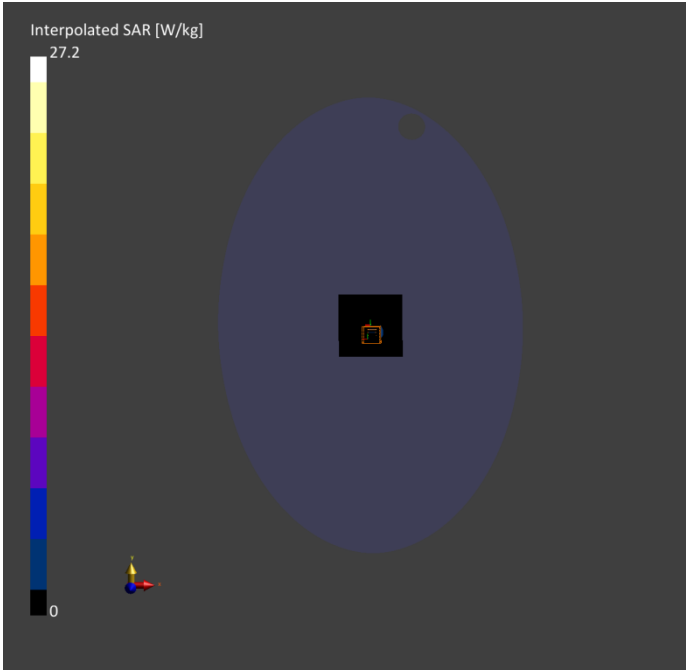
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5250.0, 5250	5.44	4.69	35.8	22.4	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-20	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup	Area Scan	Zoom Scan	Measurement Results	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-20	2024-11-20
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.21	7.78
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.15	2.25
Graded Grid	Yes	Yes	Power Drift [dB]	-0.04	-0.04
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		64.3
					7.2



16. System Check Head Liquid 5250MHz

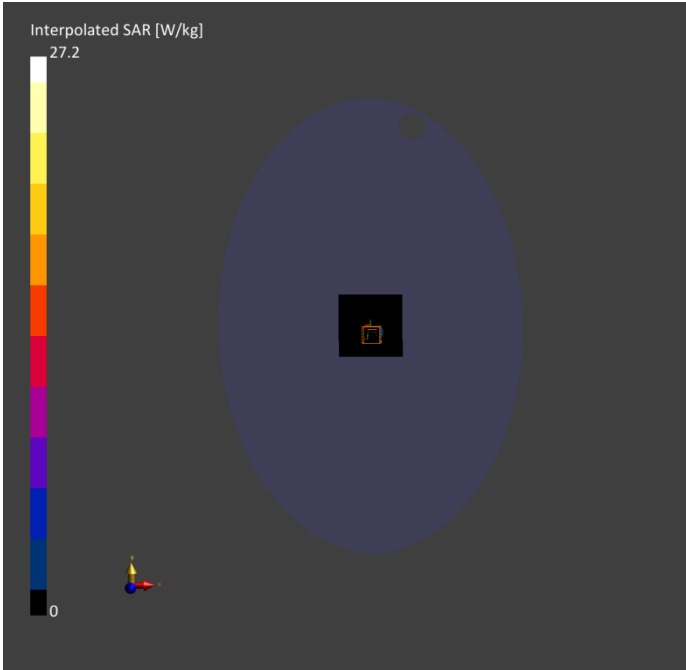
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5250.0, 5250	5.44	4.57	35.8	22.5	21.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-26	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-26	2024-11-26
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.59	7.66
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.01	2.13
Graded Grid	Yes	Yes	Power Drift [dB]	-0.34	0.01
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		65.1
					7.4



17. System Check Head Liquid 5600MHz

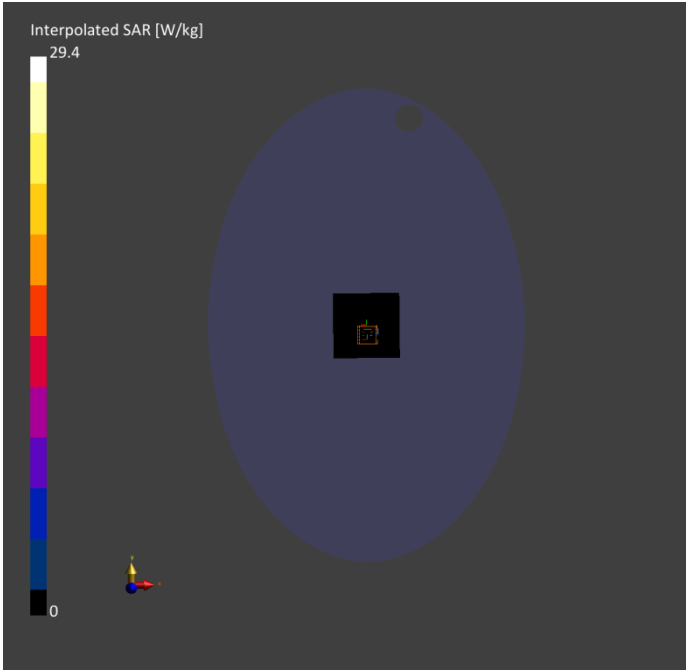
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5600.0, 5600	4.91	5.07	35.0	22.4	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-20	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-20	2024-11-20
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.32	7.85
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.13	2.32
Graded Grid	Yes	Yes	Power Drift [dB]	-0.13	0.04
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		63.8
					7.1



18. System Check Head Liquid 5600MHz

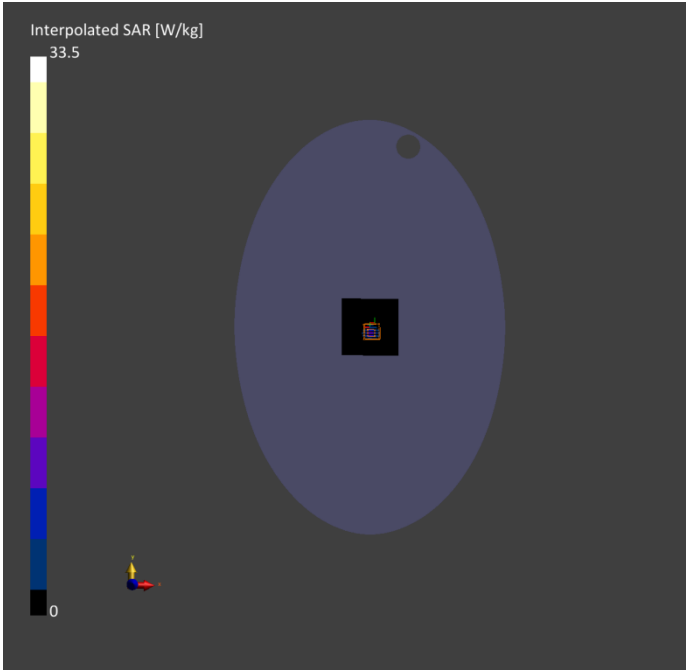
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5600.0, 5600	4.91	5.01	34.9	22.1	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-21	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-21	2024-11-21
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.21	7.75
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.13	2.21
Graded Grid	Yes	Yes	Power Drift [dB]	-0.03	0.02
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		62.5
					7.5



19. System Check Head Liquid 5600MHz

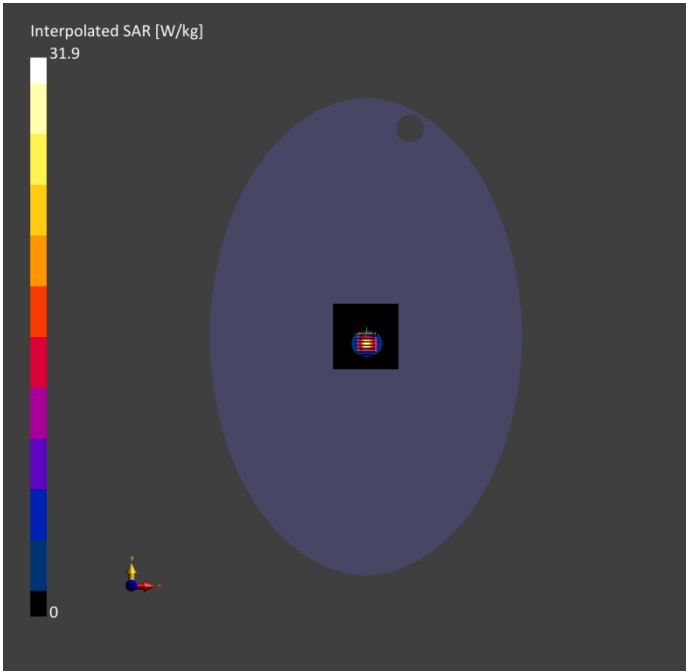
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5600.0, 5600	4.91	5.08	34.5	22.5	21.5

Hardware Setup

Phantom	TSL, Measured Date		Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000	2024-11-26	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-26	2024-11-26
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.15	7.82
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.08	2.26
Graded Grid	Yes	Yes	Power Drift [dB]	-0.07	0.01
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		63.8
			Dist 3dB Peak [mm]		7.1



20. System Check Head Liquid 5750MHz

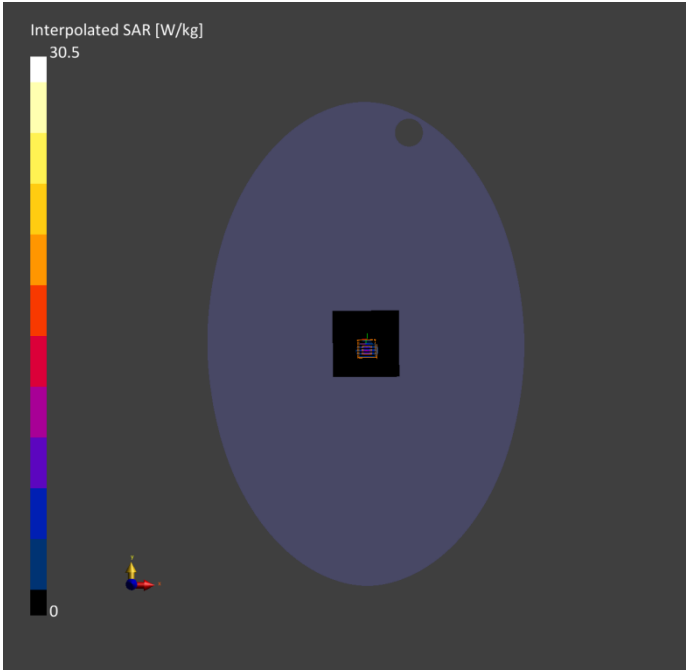
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5750.0, 5750	4.98	5.22	34.8	22.6	21.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-19	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-19	2024-11-19
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	6.88	7.91
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.04	2.24
Graded Grid	Yes	Yes	Power Drift [dB]	-0.01	0.01
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		61.4
					7.9



21. System Check Head Liquid 5750MHz

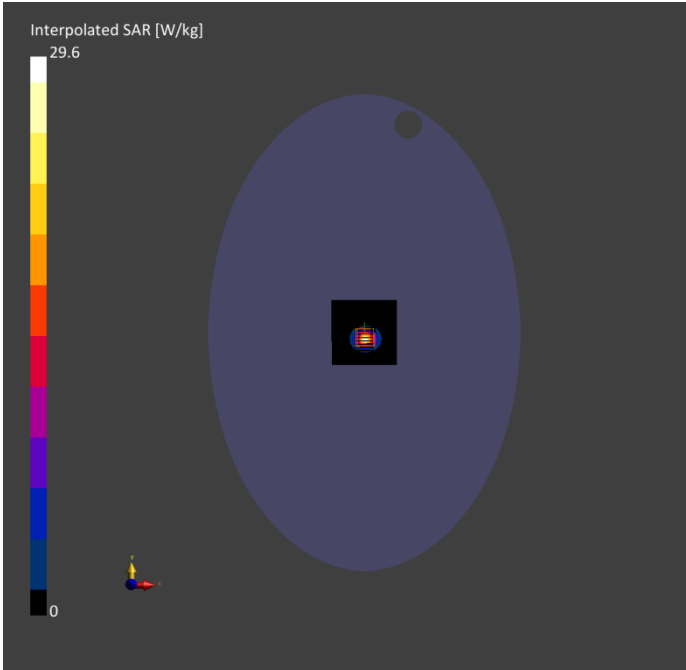
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5750.0, 5750	4.98	5.19	35.4	22.4	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-11-20	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-20	2024-11-20
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.52	7.46
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.02	2.15
Graded Grid	Yes	Yes	Power Drift [dB]	-0.11	0.02
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		61.1
					7.5



22. System Check Head Liquid 5750MHz

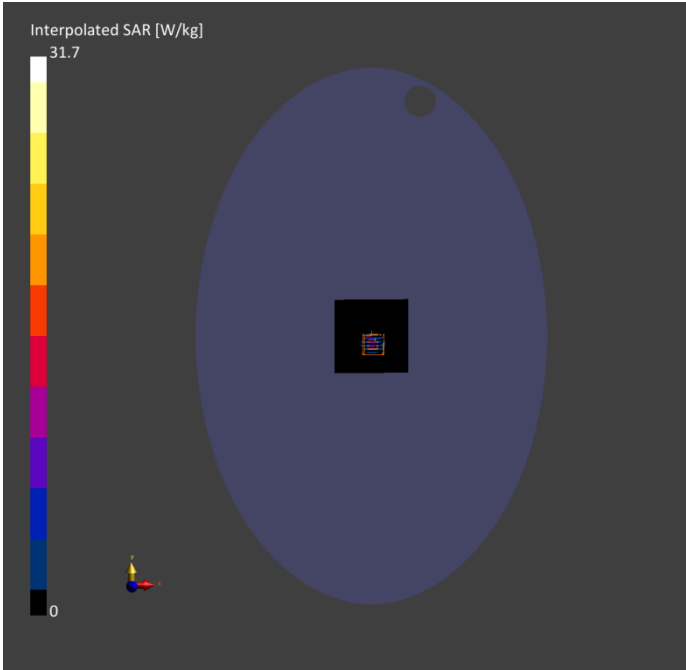
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5750.0, 5750	4.98	5.08	35.1	22.2	21.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-26	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-26	2024-11-26
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	6.84	7.57
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.02	2.17
Graded Grid	Yes	Yes	Power Drift [dB]	-0.07	0.01
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		61.3
					7.6



23. System Check Head Liquid 5750MHz

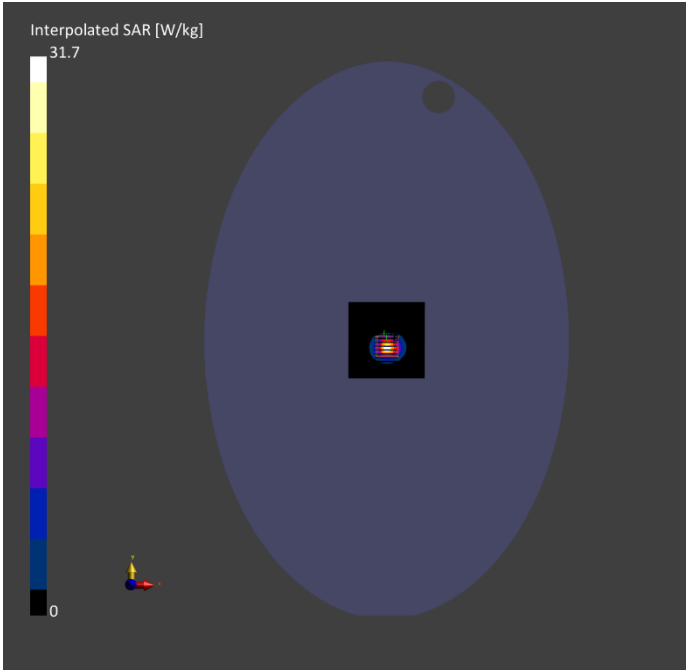
Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	5750.0, 5750	4.98	5.04	35.1	22.3	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2162	HBBL-600-10000 2024-11-29	EX3DV4 - SN7893, 2024-09-05	DAE4 Sn1711, 2024-03-18

Scan Setup			Measurement Results		
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-11-29	2024-11-29
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	6.74	7.54
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.08	2.14
Graded Grid	Yes	Yes	Power Drift [dB]	-0.06	0.04
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface Detection	All points	All points	TSL Correction [dB]		
Scan Method	Measured	Measured	TSL Correction M2/M1 [%]	No correction	No correction
			Dist 3dB Peak [mm]		61.2
					7.5



Annex D. TSL Dielectric Parameters

D.1 Head DTS 2450MHz

Freq.(MHz)	Target		Measured 2024-11-21	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
2400	39.29	1.76	40.86	1.81
2450	39.20	1.80	40.77	1.84
2500	39.14	1.86	40.67	1.88

Freq.(MHz)	Target		Measured 2024-11-26	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
2400	39.29	1.76	40.88	1.82
2450	39.20	1.80	40.79	1.85
2500	39.14	1.86	40.62	1.89

Freq.(MHz)	Target		Measured 2024-11-29	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
2400	39.29	1.76	40.87	1.82
2450	39.20	1.80	40.72	1.86
2500	39.14	1.86	40.64	1.89

D.2 Head 5200MHz-5900MHz

Freq.(MHz)	Target		Measured 2024-11-20	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
5200	35.99	4.66	35.81	4.62
5250	35.93	4.71	35.77	4.69
5300	35.87	4.76	35.70	4.75
5350	35.81	4.81	35.64	4.80

Freq.(MHz)	Target		Measured 2024-11-26	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
5200	35.99	4.66	35.84	4.60
5250	35.93	4.71	35.76	4.66
5300	35.87	4.76	35.71	4.72
5350	35.81	4.81	35.63	4.76

Freq.(MHz)	Target		Measured 2024-11-20	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
5500	35.64	4.96	35.34	4.94
5550	35.59	5.01	35.11	4.99
5600	35.53	5.07	35.03	5.07
5650	35.47	5.12	34.10	5.14
5700	35.41	5.17	34.76	5.18

Freq.(MHz)	Target		Measured 2024-11-21	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
5500	35.64	4.96	35.16	4.90
5550	35.59	5.01	35.04	4.95
5600	35.53	5.07	34.89	5.01
5650	35.47	5.12	34.79	5.06
5700	35.41	5.17	34.67	5.13

Freq.(MHz)	Target		Measured 2024-11-26	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'1(F/m)$	$\sigma1(S/m)$
5500	35.64	4.96	35.62	4.81
5550	35.59	5.01	35.25	4.92
5600	35.53	5.07	34.51	5.08
5650	35.47	5.12	34.23	5.18
5700	35.41	5.17	34.11	5.21

Freq.(MHz)	Target		Measured 2024-11-19	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'(F/m)$	$\sigma1(S/m)$
5700	35.41	5.17	34.89	5.16
5750	35.36	5.22	34.84	5.22
5800	35.30	5.27	34.75	5.28
5850	35.24	5.32	34.64	5.35
5900	35.18	5.37	34.58	5.39

Freq.(MHz)	Target		Measured 2024-11-20	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'(F/m)$	$\sigma1(S/m)$
5700	35.41	5.17	34.76	5.18
5750	35.36	5.22	34.67	5.23
5800	35.30	5.27	34.73	5.30
5850	35.24	5.32	34.62	5.38
5900	35.18	5.37	34.56	5.41

Freq.(MHz)	Target		Measured 2024-11-26	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'(F/m)$	$\sigma1(S/m)$
5700	35.41	5.17	35.33	5.01
5750	35.36	5.22	35.15	5.08
5800	35.30	5.27	34.99	5.14
5850	35.24	5.32	34.81	5.19
5900	35.18	5.37	34.68	5.25

Freq.(MHz)	Target		Measured 2024-11-29	
	$\epsilon'(F/m)$	$\sigma(S/m)$	$\epsilon'(F/m)$	$\sigma1(S/m)$
5700	35.41	5.17	34.67	5.13
5750	35.36	5.22	34.65	5.20
5800	35.30	5.27	34.57	5.27
5850	35.24	5.32	34.44	5.32
5900	35.18	5.37	34.40	5.37