






TEST REPORT

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<p>1. Client</p> <ul style="list-style-type: none"> ◦ Name : Intel Corporation SAS ◦ Address : 425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE ◦ Date of Receipt : 2024-09-12 <p>2. Use of Report : Class II Permissive Change</p> <p>3. Name of Product and Model : WLAN and BT, 2X2 PCIe M.2 1216 adapter card</p> <ul style="list-style-type: none"> ◦ Model Number : BE201D2W ◦ Manufacturer and Country of Origin : Intel Corporation SAS / FRANCE <p>4. Host Product Name : Notebook PC</p> <ul style="list-style-type: none"> ◦ Host Model Name : NP940XHA ◦ Manufacturer : Samsung Electronics Co., Ltd. <p>5. FCC ID : PD9BE201D2</p> <p>6. Date of Test : 2024-10-01 ~ 2024-10-04</p> <p>7. Location of Test : <input checked="" type="checkbox"/> Permanent Testing Lab <input type="checkbox"/> On Site Testing (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)</p> <p>8. Test Standards : IEEE 1528-2013, ANSI/IEEE C95.1, KDB Publication</p> <p>9. Test Results : Refer to the test result in the test report</p>		
Affirmation	<p>Tested by</p> <p>Name : Mungi Jeong (Signature)</p> 	<p>Technical Manager</p> <p>Name : Jongwon Ma (Signature)</p> 
2024-10-16		
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REPORT REVISION HISTORY

Date	Revision	Page No
2024-10-16	Originally issued	-

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Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:


Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

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1. General information

Client : Intel Corporation SAS
Address : 425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE
Manufacturer : Intel Corporation SAS
Address : 425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE
Host Client : Samsung Electronics Co., Ltd.
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Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132
VCCI Registration No. : R-3327, G-198, C-3706, T-1849
CAB Identifier: KR0040, ISED Number: 8035A
KOLAS No.: KT231

1.1 Report Overview

This report details the results of testing carried out on the samples listed in section 2, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this test report is used in any configuration other than that detailed in the test report, the manufacturer must ensure the new configuration complies with all relevant standards and certification requirements. Any mention of Eurofins KCTL Co.,Ltd. Wireless lab or testing done by Eurofins KCTL Co.,Ltd. Wireless lab made in connection with the distribution or use of the tested product must be approved in writing by Eurofins KCTL Co.,Ltd. Wireless lab.

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2. Device information

2.1 Basic description

Product	Name	WLAN and BT, 2X2 PCIe M.2 1216 adapter card
	Model Number	BE201D2W
	Manufacturer	Intel Corporation SAS
Host	Product Name	Notebook PC
	Model Name	NP940XHA
	Derivative Model	NP940XHZ, NP944XHA
	Manufacturer	Samsung Electronics Co., Ltd.
Host Product Serial Number	Radiation	71QB9FMX900015R, 71QB9FMX900030J
	Conduction	71QB9FMX900009N
Mode of Operation		WLAN 802.11ax/be
Device Overview		U-NII-5: 5 955.0 MHz ~ 6 415.0 MHz U-NII-6: 6 435.0 MHz ~ 6 515.0 MHz U-NII-7: 6 535.0 MHz ~ 6 855.0 MHz U-NII-8: 6 875.0 MHz ~ 7 115.0 MHz

2.1.1 Differences from Derivative Models

The difference between Main model and Derivative model is as below.

Main model	NP940XHA
Derivative model	NP940XHZ, NP944XHA
Differences	Marketing and logistic difference

2.2 Summary of SAR Test Results

Band	Equipment Class	Highest Reported	
		1g SAR (W/kg)	PD 4cm ² (W/m ²)
U-NII-5	6CD	0.54	2.69
U-NII-6	6CD	0.55	2.11
U-NII-7	6CD	0.63	2.00
U-NII-8	6CD	0.68	2.30

2.3 #Antenna information



Antenna Type		PIFA antenna			
Band		UNII-5	UNII-6	UNII-7	UNII-8
Peak gain (dBi)	Main	1.73	2.66	-0.45	-0.08
	Aux	1.88	1.99	1.44	1.60

2.4 #Maximum Tune-up power

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D04v01.

2.4.1 #Maximum WLAN Output Power

Band	Ant.	Mode	Channel	Output Power(dBm)	
				Target	Max. Allowed
[LPI] U-NII-5, U-NII-6, U-NII-7, U-NII-8	SISO (Main, Aux)	802.11ax/be SU (20 MHz)	Except Ch.	5.00	6.00
			233	-3.00	-2.00
		802.11ax/be SU (40 MHz)	ALL	8.00	9.00
		802.11ax/be SU (80 MHz)	ALL	9.50	10.50
		802.11ax/be SU (160 MHz)	ALL	9.50	10.50
	MIMO (Main, Aux)	802.11be SU (320 MHz)	ALL	9.50	10.50
			Except Ch.	2.00	3.00
		233	-6.00	-5.00	
		802.11ax/be SU (40 MHz)	ALL	5.00	6.00
		802.11ax/be SU (80 MHz)	ALL	7.00	8.00
[SP] U-NII-5, U-NII-7	SISO (Main, Aux)	802.11ax/be SU (20 MHz)	ALL	9.50	10.50
			ALL	9.50	10.50
		802.11ax/be SU (40 MHz)	ALL	9.50	10.50
		802.11ax/be SU (80 MHz)	ALL	9.50	10.50
		802.11ax/be SU (160 MHz)	ALL	9.50	10.50
	MIMO (Main, Aux)	802.11be SU (320 MHz)	ALL	9.50	10.50
			ALL	7.00	8.00
		802.11ax/be SU (20 MHz)	ALL	7.00	8.00
		802.11ax/be SU (40 MHz)	ALL	7.00	8.00
		802.11ax/be SU (80 MHz)	ALL	7.00	8.00
802.11ax/be SU (160 MHz)	ALL	7.00	8.00		
802.11be SU (320 MHz)	ALL	7.00	8.00		

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2.5 SAR Test Configurations

2.5.1 #DUT Antenna Locations

A diagram showing the location of the device antennas can be found in Appendix B.

2.6 SAR Test Methods and Procedures

The tests documented in this report were performed in accordance with IEEE 1528-2013 and the following published KDB procedures:

- IEEE 1528-2013
- IEC/IEEE 62209-1528:2020
- IEC 62479:2010
- IEC TR 63170:2018
- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D04 General RF Exposure Guidance v01
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 616217 D04 SAR for laptop and tablets v01r02
- April 2019 TCB Workshop Notes (Tissue Simulating Liquids)
- SPEAG DASY6 System Handbook (June 2020)
- SPEAG DASY6 Application Note (Interim Procedures for Devices Operating at 6-10 GHz)
- April, 2021 TCB Workshop Notes(U-NII 6-7 GHz Interim Procedures)
- Oct 2022 TCB Workshop Notes(IPD and SAR evaluation of f-above-6 GHz portable devices)

2.6.1 6-7 GHz Tested Conditions

The Device was operated utilizing proprietary software and each channel was measured using a broadband power meter to determine the maximum average power.

As per the Interim Procedures for 6-7GHz RF Exposure, explained in RF Exposure Policies and Procedures: TCB Workshop – October 2020, the testing has been performed on SAR following IEC/IEEE 62209-1528:2020 and then on Power Density for the highest SAR test configurations.

The testing has been in both chains and four considered bands U-NII-5, U-NII-6, U-NII-7 and U-NII-8 in SAR mode.

3. Specific Absorption Rate

3.1 Introduction

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

3.2 SAR Definition

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

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

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



SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c \left(\frac{\delta T}{\delta t} \right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength. However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

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3.3 Peak Spatially Averaged Power Density Assessment Based on E-field Measurements

Within a short distance from the transmitting source, power density was determined based on both electric and magnetic fields. Generally, the magnitude and phase of two components of either the E-field or H-field were needed on a sufficiently large surface to fully characterize the total E-field and H-field distributions. Nevertheless, solutions based on direct measurement of E-field and H-field can be used to compute power density. The general measurement approach used for this device was:

- a) The local E field on the measurement surface was measured at a reference location where the field is well above the noise level. This reference level was used at the end of this procedure to assess output power drift of the DUT during the measurement.
- b) The electric field on the measurement surface was scanned. Measurements are conducted according to the instructions provided by the measurement system manufacturer. Measurement spatial resolution can depend on the measured field characteristic and measurement methodology used by the system. The planar scan step size was configured at $\lambda/4$.
- c) For cDASY6, H-field was calculated from the measured E-field using a reconstruction algorithm. As the power density calculation requires knowledge of both amplitude and phase, reconstruction algorithms can also be used to obtain field information from the measured E-field data (e.g. the phase from the amplitude if only the amplitude is measured). H-field and phase data was reconstructed from repeated measurements (three per measurement point) on two measurement planes separated by $\lambda/4$.
- d) The total Peak spatially averaged power density (psPD) distribution on the evaluation surface is determined per the below equation. The spatial averaging area, A, is specified by the applicable exposure limits or regulatory requirements.

$$psPD = \frac{1}{2A_{av}} \iint_{A_{av}} || Re\{E \times H^*\} || dA$$

- e) The maximum spatial-average on the evaluation surface is the final quantity to determine compliance against applicable limits.
- f) The local E field reference value, at the same location as step 2, was re-measured after the scan was complete to calculate the power drift. If the drift deviated by more than 5%, the power density test and drift measurements were repeated.

4. SAR Measurement Configurations

4.1 Body-supported device

A typical example of a body supported device is a wireless enabled laptop device that among other orientations may be supported on the thighs of a sitting user. To represent this orientation, the device shall be positioned with its base against the flat phantom. Other orientations may be specified by the manufacturer in the user instructions. If the intended use is not specified, the device shall be tested directly against the flat phantom in all usable orientations.

The screen portion of the device shall be in an open position at a 90° angle as seen in Figure 1 (left side), or at an operating angle specified for intended use by the manufacturer in the operating instructions. Where a body supported device has an integral screen required for normal operation, then the screen-side will not need to be tested if the antenna(s) integrated in it ordinarily remain(s) 200 mm from the body. Where a screen mounted antenna is present, the measurement shall be performed with the screen against the flat phantom as shown in Figure 1 (right side), if operating the screen against the body is consistent with the intended use.

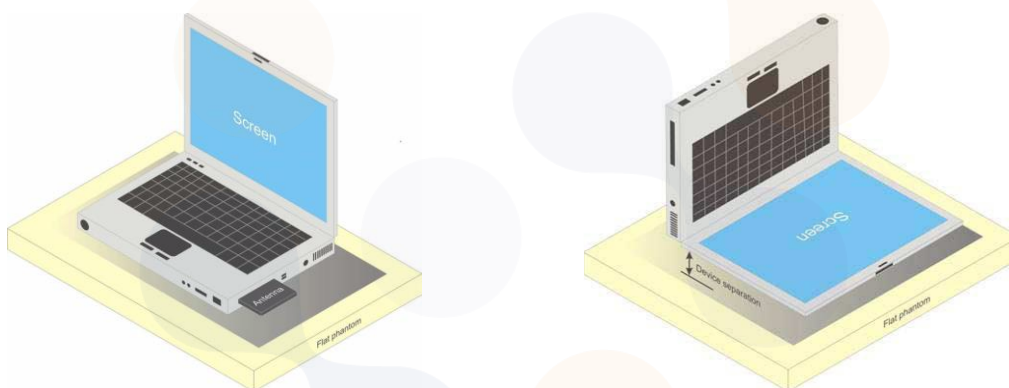


Figure 1. Notebook

5. RF Exposure Limits

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

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

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Partial Peak SAR ¹⁾ (Partial)	1.60 mW/g	8.00 mW/g
Partial Average SAR ²⁾ (Whole Body)	0.08 mW/g	0.40 mW/g
Partial Peak SAR ³⁾ (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

- 1) The spatial Peak value of the SAR averaged over any 1g gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
- 2) The spatial Average value of the SAR averaged over the whole body.
- 3) The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

5.1 RF Exposure Limits for Frequencies Above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of mW/cm².

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

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Power Density	1.0 mW/cm ²	5.0 mW/cm ²

6. RF Average Conducted Output Power

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported.

Power Measurement Setup



6.1 WLAN Average Conducted Output Power

Band	Mode	Freq. [MHz]	Channel	Conducted Powers (dBm)	
				Main Ant.	Aux Ant.
U-NII-5	802.11be (320-SU)	6 105.0	31	9.89	9.78
		6 265.0	63	9.67	9.69
		6 425.0	95	9.88	9.54
U-NII-6	802.11ax (160-SU)	6 505.0	111	10.07	9.53
U-NII-7	802.11be (320-SU)	6 585.0	127	10.17	9.68
		6 745.0	159	10.19	9.74
U-NII-8		6 905.0	191	9.79	9.56

7. System Verification

7.1 Measurement date and environment

Shield room	Date	Environment	
		Temperature (°C)	Humidity (%)
8F - 7	2024-10-02	22.0 ~ 22.3	58.3 ~ 59.0
8F - 4	2024-10-03	22.5 ~ 22.6	56.4 ~ 56.6
	2024-10-04	22.7 ~ 22.9	56.2 ~ 57.0

7.2 Tissue Verification

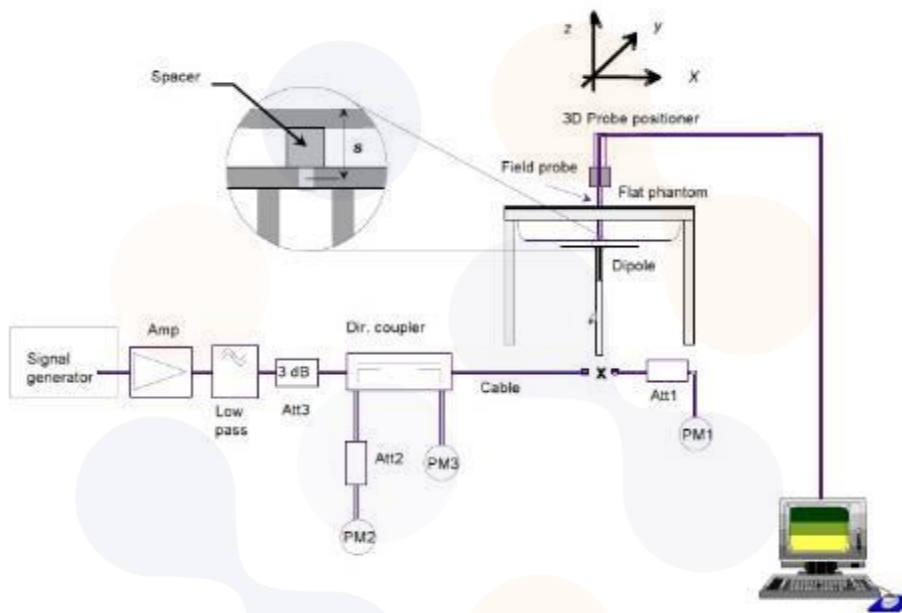
The dielectric properties for this Tissue Simulant Liquids were measured by using the SPEAG Model DAK3.5 Dielectric Probe in conjunction with Agilent E5071B Network Analyzer (300 kHz – 8 500 MHz). The Conductivity (σ) and Permittivity (ϵ_r) are listed in Table 1. For the SAR measurement given in this report. The temperature variation of the Tissue Simulant Liquids was (22 ± 2) °C.

Freq. (MHz)	Date	Recommended Limit / Measured		Temp. (°C)
		Permittivity (ϵ_r)	Conductivity (σ)	
6 500.0	2024-10-02	34.50 ± 5 % (32.78~36.23)	6.07 ± 5 % (5.77~6.37)	22 ± 2
		33.30	6.14	
6 105.0		34.97 ± 5 % (33.22~36.72)	5.60 ± 5 % (5.32~5.88)	
		34.20	5.61	
6 265.0		34.78 ± 5 % (33.04~36.52)	5.79 ± 5 % (5.50~6.08)	
		33.80	5.85	
6 425.0		34.59 ± 5 % (32.86~36.32)	5.98 ± 5 % (5.68~6.28)	
		33.40	6.03	
6 505.0		34.49 ± 5 % (32.77~36.21)	6.08 ± 5 % (5.78~6.38)	
		33.30	6.15	
6 585.0		34.40 ± 5 % (32.68~36.12)	6.17 ± 5 % (5.86~6.48)	
		33.10	6.26	
6 745.0		34.21 ± 5 % (32.50~35.92)	6.35 ± 5 % (6.03~6.67)	
		32.80	6.50	
6 905.0		34.01 ± 5 % (32.31~35.71)	6.54 ± 5 % (6.21~6.87)	
		32.60	6.73	

<Table 1. Measurement result of Tissue electric parameters>

7.3 Test System Verification

The microwave circuit arrangement for system verification is sketched below picture. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 10\%$ from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the Table 2. During the tests, the ambient temperature of the laboratory was in the range $(22 \pm 2) ^\circ\text{C}$, the relative humidity was in the range $(50 \pm 20)\%$ and the liquid depth Above the ear/grid reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



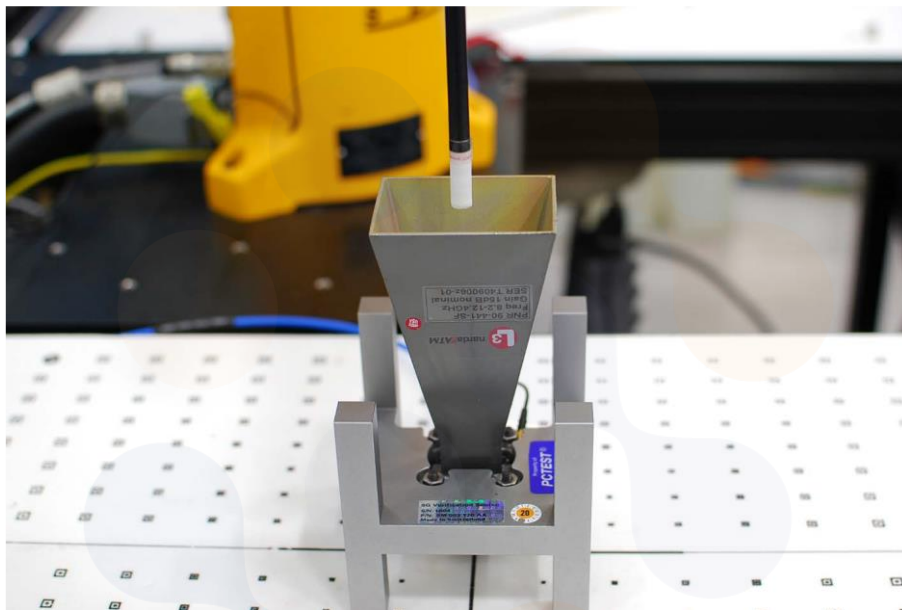
Frequency (MHz)	Date	Tissue Type	Verification Kit	Probe S/N	Input Power (mW)	Limit/Measured (Normalized to 1 W)
						Recommended Limit 1g (Normalized)
6 500.0	2024-10-02	HSL	D6.5GHzV2 SN: 1005	EX3DV4 SN: 7840	100	291.0 \pm 10 % (261.90~320.10)
						289.00

<Table 2. System Verification Result>

7.4 Power Density Test System Verification

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.



[Figure 3. System Verification Setup Photo]

Source (S/N)	Probe (S/N)	Frequency (GHz)	Date	Prad (mW)	Total 4 cm ² psPD (W/m ²)		Deviation (dB)	Limit (dB)
					Target	Measured		
1023	9489	10	2024-10-03	93.3	54.6	55.9	0.10	± 0.66
			2024-10-04	93.3	54.6	54.1	-0.04	

Notes

- 1) 10 mm distance spacing was used from the reference horn antenna aperture to the probe element.
- 2) According to IEC TR 63170, the power density measurement results should be normalized to the delivered input power to an input power level of 0 dBm and compared to the appropriate target values of the calibrated reference sources.

8. SAR Test Results



8.1 Standalone Body SAR and Absorbed Power Density Test Results

U-NII-5												
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Duty Cycle Compensate Factor	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Estimated APD (W/m ²)	Plot No.
											4cm ²	
802.11be (320-SU)	Main	Rear	0	6 105.0	9.89	10.50	1.151	1.015	0.331	0.387	1.86	1
			0	6 425.0	9.88	10.50	1.153	1.015	0.361	0.422	2.08	
	Aux	Rear	0	6 105.0	9.78	10.50	1.180	1.015	0.352	0.422	1.98	2
			0	6 265.0	9.69	10.50	1.205	1.015	0.438	0.536	2.53	

U-NII-6												
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Duty Cycle Compensate Factor	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Estimated APD (W/m ²)	Plot No.
											4cm ²	
802.11ax (160-SU)	Main	Rear	0	6 505.0	10.07	10.50	1.104	1.015	0.306	0.343	1.87	3
	Aux	Rear	0	6 505.0	9.53	10.50	1.250	1.015	0.435	0.552	2.40	4

U-NII-7												
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Duty Cycle Compensate Factor	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Estimated APD (W/m ²)	Plot No.
											4cm ²	
802.11be (320-SU)	Main	Rear	0	6 745.0	10.19	10.50	1.074	1.015	0.414	0.451	2.49	5
	Aux	Rear	0	6 745.0	9.74	10.50	1.191	1.015	0.518	0.626	2.94	6

U-NII-8												
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Duty Cycle Compensate Factor	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Estimated APD (W/m ²)	Plot No.
											4cm ²	
802.11be (320-SU)	Main	Rear	0	6 905.0	9.79	10.50	1.178	1.015	0.532	0.636	3.08	7
	Aux	Rear	0	6 905.0	9.56	10.50	1.242	1.015	0.539	0.679	3.05	8

<p>Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr</p>	<p>Report No.: KR24-SPF0024 Page (18) of (98)</p>	<p> </p>
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General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D04v01.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
5. Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factors. Per October 2020 TCB Workshop notes, 5 channels were tested. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.
6. All modes of operation were investigated, and worst-case results are reported.
7. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.

WLAN Notes:

1. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
2. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance.
3. 6-7GHz transmission was verified using a spectrum analyzer.

9. Power Density Test Results



9.1 Standalone Body Power Density Test Results

U-NII-5											
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Max. Tune-up Power (dBm)	iPD	Grid Step (λ)	Measurement Uncertainty	Measured Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot No.
									4cm ²	4cm ²	
802.11be (320-SU)	Aux	Rear	2	6 265.0	10.50	1.150	0.0625	1.462	1.84	2.69	9
			9.58	6 265.0	10.50	1.050	0.0625	1.462	0.69	1.01	
			2	6 105.0	10.50	-	0.0625	1.462	1.60	2.34	

U-NII-6											
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Max. Tune-up Power (dBm)	iPD	Grid Step (λ)	Measurement Uncertainty	Measured Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot No.
									4cm ²	4cm ²	
802.11ax (160-SU)	Aux	Rear	2	6 505.0	10.50	-	0.0625	1.462	1.44	2.11	10

U-NII-7											
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Max. Tune-up Power (dBm)	iPD	Grid Step (λ)	Measurement Uncertainty	Measured Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot No.
									4cm ²	4cm ²	
802.11be (320-SU)	Aux	Rear	2	6 745.0	10.50	-	0.0625	1.462	1.37	2.00	11

U-NII-8											
Mode	Ant.	EUT Position	Distance (mm)	Frequency (MHz)	Max. Tune-up Power (dBm)	iPD	Grid Step (λ)	Measurement Uncertainty	Measured Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot No.
									4cm ²	4cm ²	
802.11be (320-SU)	Aux	Rear	2	6 905.0	10.50	-	0.0625	1.462	1.57	2.30	12

<p>Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr</p>	<p>Report No.: KR24-SPF0024 Page (20) of (98)</p>	<p> </p>
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Power Density General Notes:

1. Batteries are fully charged at the beginning of the measurements.
2. Power density was calculated by repeated E-field measurements on two measurement planes separated by $\lambda/4$.
3. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools.
4. Per FCC guidance and equipment manufacturer guidance, power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty > 30%. Total expanded uncertainty of 2.46 dB (76.198%) was used to determine the psPD measurement scaling factor.
5. Per equipment manufacturer guidance, power density was measured at $d=2\text{mm}$ and $d=\lambda/5\text{mm}$ using the same grid size and grid step size for some frequencies and surfaces. The integrated Power Density (iPD) was calculated based on these measurements. Since iPD ratio between the two distances is < 1dB, the grid step was sufficient for determining compliance at $d=2\text{mm}$.



10. Simultaneous Transmission

Refer to the "KR24-SPF0023" report for simultaneous transfer values.



11. Measurement Uncertainty

11.1 SAR Measurement Uncertainty

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



11.2 Power Density Measurement Uncertainty

Source f uncertainty	Uncertainty Value (± dB)	Probability distribution	Div.	c _i	Standard Uncertainty (± dB)	v _i
Measurement system						
Calibration	0.49	N	1.00	1.00	0.49	∞
Probe correction	0.00	R	1.73	1.00	0.00	∞
Frequency response (BW ≤ 1 GHz)	0.20	R	1.73	1.00	0.12	∞
Sensor cross coupling	0.00	R	1.73	1.00	0.00	∞
Isotropy	0.50	R	1.73	1.00	0.29	∞
Linearity	0.20	R	1.73	1.00	0.12	∞
Probe scattering	0.00	R	1.73	1.00	0.00	∞
Probe positioning offset	0.30	R	1.73	1.00	0.17	∞
Probe positioning repeatability	0.04	R	1.73	1.00	0.02	∞
Sensor mechanical offset	0.00	R	1.73	1.00	0.00	∞
Probe spatial resolution	0.00	R	1.73	1.00	0.00	∞
Field impedance dependence	0.00	R	1.73	1.00	0.00	∞
Amplitude and phase drift	0.00	R	1.73	1.00	0.00	∞
Amplitude and phase noise	0.04	R	1.73	1.00	0.02	∞
Measurement area truncation	0.00	R	1.73	1.00	0.00	∞
Data acquisition	0.03	N	1.00	1.00	0.03	∞
Sampling	0.00	R	1.73	1.00	0.00	∞
Field reconstruction	1.77	R	1.73	1.00	1.02	∞
Forward transformation	0.00	R	1.73	1.00	0.00	∞
Power density scaling	-	R	1.73	1.00	-	∞
Spatial averaging	0.10	R	1.73	1.00	0.06	∞
System detection limit	0.04	R	1.73	1.00	0.02	∞
DUT and environmental factors						
Probe coupling with DUT	0.00	R	1.73	1.00	0.00	∞
Modulation response	0.40	R	1.73	1.00	0.23	∞
Integration time	0.00	R	1.73	1.00	0.00	∞
Response time	0.00	R	1.73	1.00	0.00	∞
Device holder influence	0.10	R	1.73	1.00	0.06	∞
DUT alignment	0.00	R	1.73	1.00	0.00	∞
RF ambient conditions	0.04	R	1.73	1.00	0.02	∞
Ambient reflections	0.04	R	1.73	1.00	0.02	∞
Immunity / secondary reception	0.00	R	1.73	1.00	0.00	∞
Drift of the DUT	0.22	R	1.73	1.00	0.13	∞
Combined standard uncertainty	RSS				1.23	
Expanded uncertainty (95 % confidence interval)	k = 2				2.46	

12. Test Equipment Information

Test Platform	SPEAG DASY6/8 System			
Version	DASY6: 16.0.2.136 / DASY6 mmWave: 3.0.0.841 , DASY8: 16.4.0.5005			
Location	Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea			
Manufacture	SPEAG			
Hardware Reference				
Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Shield Room	-	8F - 4	-	-
	-	8F - 7	-	-
DASY6 Robot	TX60 Lspeag	F/19/0007289/A/001	-	-
DASY8 Robot	TX2-60L	F/22/0040787/A/001	-	-
Phantom	mmWave Phantom	1062	-	-
	2mm Oval Phantom ELI5	1173	-	-
Mounting Device	Laptop Holder	-	-	-
mmWave Device Holder	mmWave Device Holder	1116	-	-
DAE	DAE4	1342	2024-02-16	2025-02-16
	DAE4	1758	2024-08-15	2025-08-15
Probe	EX3DV4	7840	2024-08-20	2025-08-20
Isotropic E-Field Probe	EUmmWV4	9489	2024-05-15	2025-05-15
MICROWAVE GENERATOR	SMP02	100295	2023-12-18	2024-12-18
Dual Power Meter	E4419B	GB43312301	2024-02-13	2025-02-13
Power Sensor	8481H	3318A19379	2024-02-13	2025-02-13
	8481H	3318A19377	2024-02-13	2025-02-13
Attenuator	PE7005-10	2228-7	2023-12-11	2024-12-11
	PE7005-10	2228-8	2023-12-11	2024-12-11
	PE7005-10	2228-9	2023-12-11	2024-12-11
Directional Coupler	772D	MY46151145	2023-11-01	2024-11-01
Dual Directional Coupler	772D	2839A160504	2024-04-26	2025-04-26
Power Amplifier	AMP2027ADB	10005	2024-04-26	2025-04-26
Low Pass Filter	PE87FL1017	2134	2024-01-09	2025-01-09
	PE87FL1016	2213	2023-12-11	2024-12-11
System Verification Device	5G Verification Source 10 GHz	1023	2024-01-17	2025-01-17
Dipole Validation Kits	D6.5GHzV2	1005	2023-09-21	2025-09-21
ENA Series Network Analyzer	E5071B	MY42403524	2024-02-13	2025-02-13
Humidity/Temp	MHB-382SD	46301	2024-02-16	2025-02-16
	PC-5400TRH	PC-5400TRH-3	2023-11-06	2024-11-06
Dielectric Assessment Kit	DAK-3.5	1078	2024-06-10	2025-06-10
Digital Thermometer	DTM3000	3939	2024-02-15	2025-02-15
MXA SIGNAL ANALYZER	N9020A	MY520900024	2023-11-01	2024-11-01

13. Test System Verification Results

13.1 SAR Test System Verification Results

Eurofins KCTL Co.,Ltd.

Measurement Report for D6.5GHzV2 - SN1005, FRONT, D6.5GHz, UID 0 -, (6500.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
D6.5GHzV2 - SN1005, Speag	10.0 x 10.0 x 296.0	1005	Validation Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	FRONT, 5.00	D6.5GHz	CW, 0--	6500.000	5.15	6.14	33.3

Hardware Setup

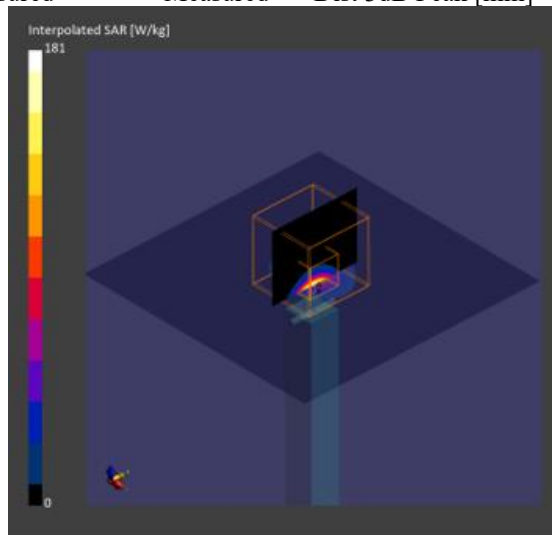
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000 , 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 85.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface	VMS + 6p	VMS + 6p
Detection		
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	26.1	28.9
psSAR8g [W/kg]	6.29	6.78
psSAR10g [W/kg]	5.23	5.63
psAPD (1.0cm2, sq) [W/m2]		289
psAPD (4.0cm2, sq) [W/m2]		136
Power Drift [dB]		0.10
Peak SAR [W/kg]		181
M2/M1 [%]		51.7
Dist 3dB Peak [mm]		5.0



13.2 PD Test System Verification

Eurofins KCTL Co.,Ltd.

Measurement Report for 10 GHz Verification Source, FRONT, Validation band, UID 0 -, Channel 10000 (10000.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
10 GHz Verification Source, Speag	100.0 x 172.0 x 100.0	1023	Validation Dipole

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	FRONT, 10.00	10000.0, 10000	1.0

Hardware Setup

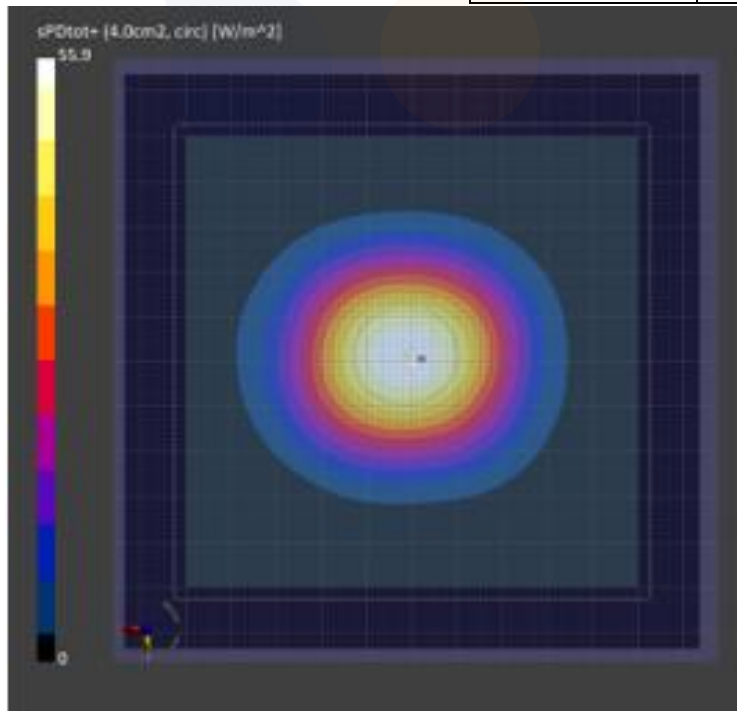
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

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

Scan Type	5G Scan
Date	2024-10-03
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	55.7
psPDtot+ [W/m ²]	55.9
E _{max} [V/m]	156
Power Drift [dB]	0.05



Eurofins KCTL Co.,Ltd.
Measurement Report for 10 GHz Verification Source, FRONT, Validation band, UID 0 -, Channel 10000 (10000.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
10 GHz Verification Source, Speag	100.0 x 172.0 x 100.0	1023	Validation Dipole

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	FRONT, 10.00	10000.0, 10000	1.0

Hardware Setup

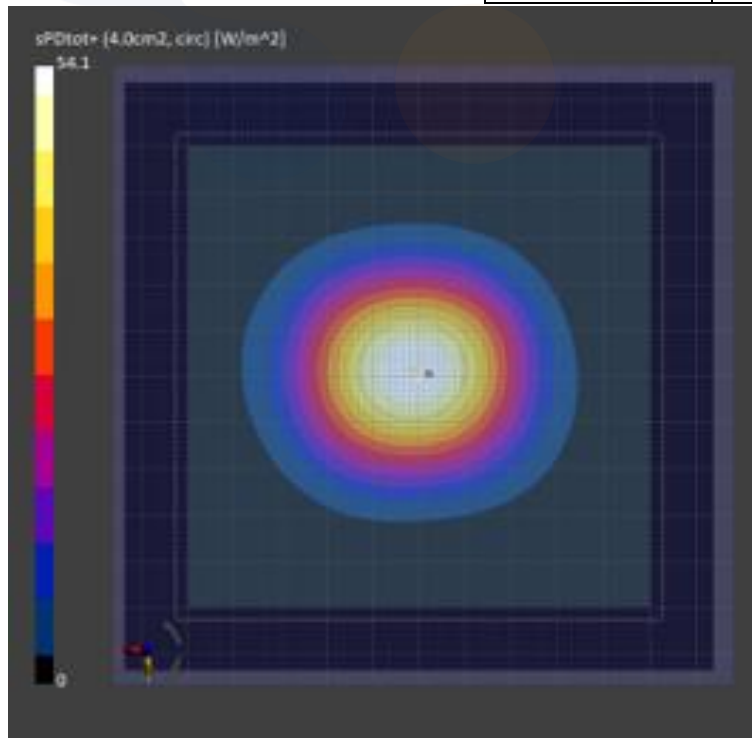
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

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

Scan Type	5G Scan
Date	2024-10-04
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	53.9
psPDtot+ [W/m ²]	54.1
E _{max} [V/m]	153
Power Drift [dB]	0.13



14. Test Results

14.1 SAR Test Results

1)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 95 (6425.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Main Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6425.000, 95	5.15	6.03	33.4

Hardware Setup

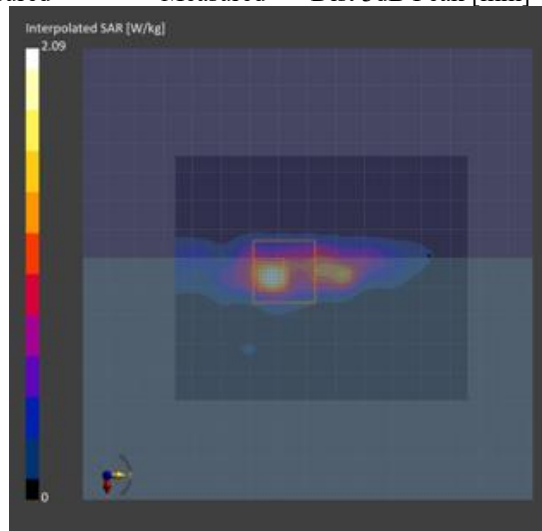
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000 , 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface	VMS + 6p	VMS + 6p
Detection	Measured	Measured
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.333	0.361
psSAR8g [W/kg]	0.110	0.104
psSAR10g [W/kg]	0.097	0.091
psAPD (1.0cm2, sq) [W/m2]		3.61
psAPD (4.0cm2, sq) [W/m2]		2.08
Power Drift [dB]		-0.02
Peak SAR [W/kg]		2.09
M2/M1 [%]		53.1
Dist 3dB Peak [mm]		4.6



2)
Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 63 (6265.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Aux Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6265.000, 63	5.15	5.85	33.8

Hardware Setup

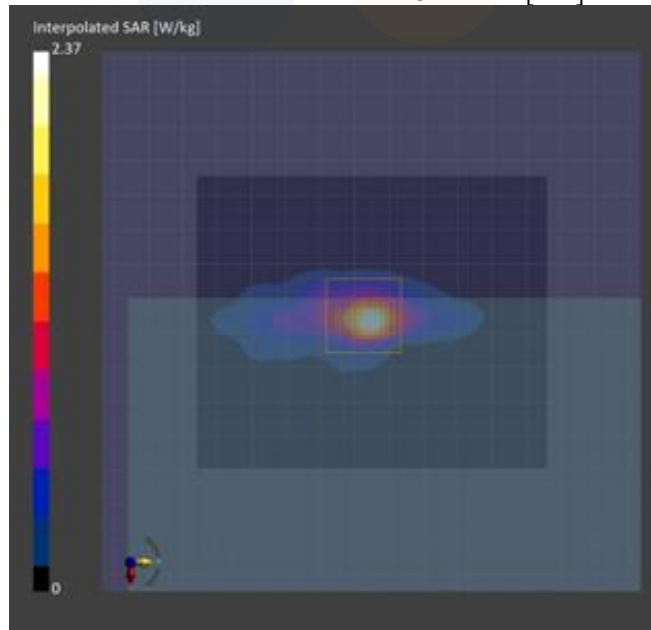
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000, 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.416	0.438
psSAR8g [W/kg]	0.130	0.127
psSAR10g [W/kg]	0.113	0.109
psAPD (1.0cm2, sq) [W/m2]		4.38
psAPD (4.0cm2, sq) [W/m2]		2.53
Power Drift [dB]		-0.08
Peak SAR [W/kg]		2.37
M2/M1 [%]		52.3
Dist 3dB Peak [mm]		5.2



3)
Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 111 (6505.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Main Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6505.000, 111	5.15	6.15	33.3

Hardware Setup

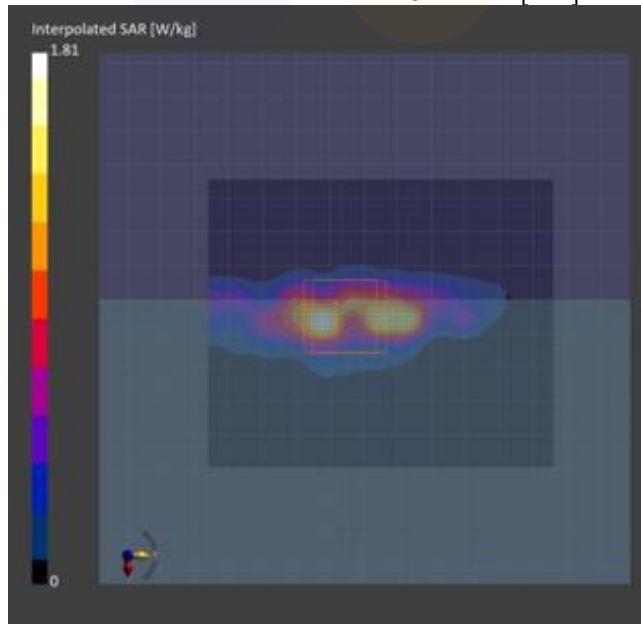
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000, 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 102.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.283	0.306
psSAR8g [W/kg]	0.10	0.093
psSAR10g [W/kg]	0.089	0.083
psAPD (1.0cm ² , sq) [W/m ²]		3.06
psAPD (4.0cm ² , sq) [W/m ²]		1.87
Power Drift [dB]		-0.13
Peak SAR [W/kg]		1.81
M2/M1 [%]		55.0
Dist 3dB Peak [mm]		4.4



4)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 111 (6505.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Aux Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6505.000, 111	5.15	6.15	33.3

Hardware Setup

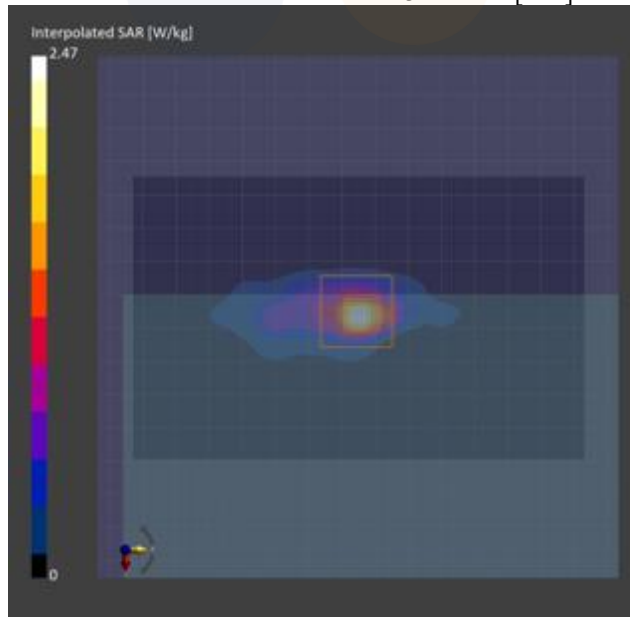
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000, 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.393	0.435
psSAR8g [W/kg]	0.121	0.120
psSAR10g [W/kg]	0.104	0.102
psAPD (1.0cm ² , sq) [W/m ²]		4.35
psAPD (4.0cm ² , sq) [W/m ²]		2.40
Power Drift [dB]		0.08
Peak SAR [W/kg]		2.47
M2/M1 [%]		50.9
Dist 3dB Peak [mm]		5.5



5)
Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 159 (6745.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Main Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6745.000, 159	5.15	6.50	32.8

Hardware Setup

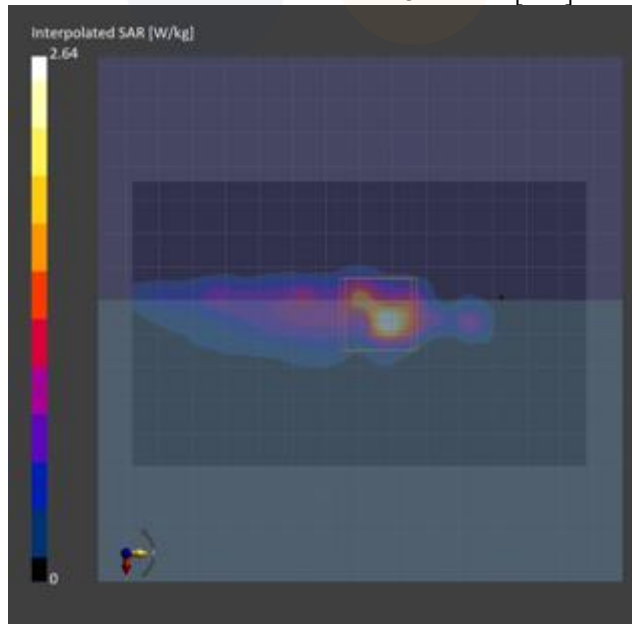
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000, 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.406	0.414
psSAR8g [W/kg]	0.135	0.124
psSAR10g [W/kg]	0.117	0.108
psAPD (1.0cm ² , sq) [W/m ²]		4.14
psAPD (4.0cm ² , sq) [W/m ²]		2.49
Power Drift [dB]		0.06
Peak SAR [W/kg]		2.64
M2/M1 [%]		50.5
Dist 3dB Peak [mm]		4.6



6)
Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 159 (6745.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Aux Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6745.000, 159	5.15	6.50	32.8

Hardware Setup

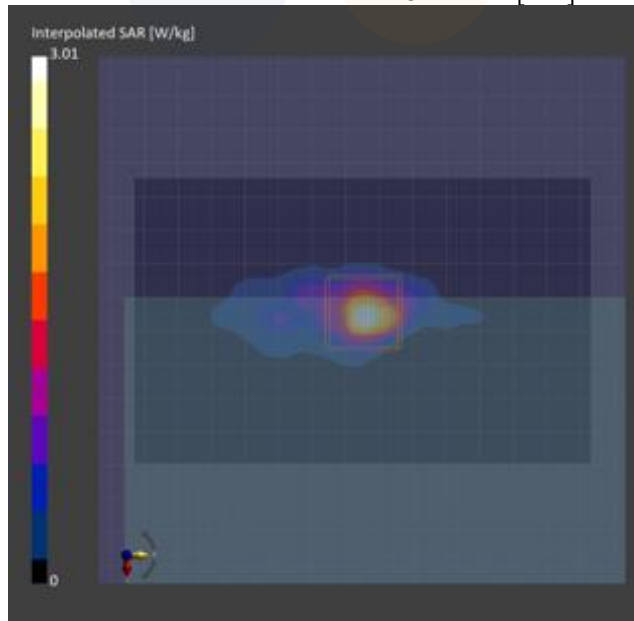
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000 , 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.464	0.518
psSAR8g [W/kg]	0.149	0.147
psSAR10g [W/kg]	0.128	0.126
psAPD (1.0cm2, sq) [W/m2]		5.18
psAPD (4.0cm2, sq) [W/m2]		2.94
Power Drift [dB]		-0.09
Peak SAR [W/kg]		3.01
M2/M1 [%]		48.9
Dist 3dB Peak [mm]		5.5



7)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 191 (6905.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Main Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6905.000, 191	5.15	6.73	32.6

Hardware Setup

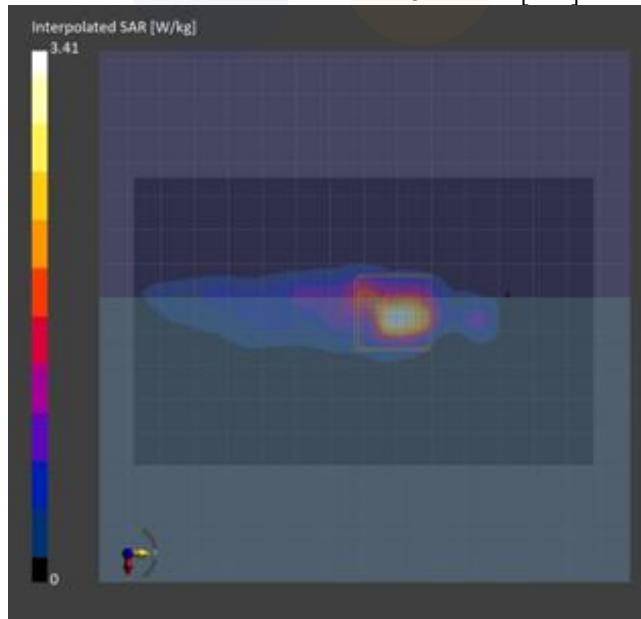
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000 , 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.508	0.532
psSAR8g [W/kg]	0.165	0.154
psSAR10g [W/kg]	0.142	0.133
psAPD (1.0cm ² , sq) [W/m ²]		5.32
psAPD (4.0cm ² , sq) [W/m ²]		3.08
Power Drift [dB]		0.10
Peak SAR [W/kg]		3.41
M2/M1 [%]		50.6
Dist 3dB Peak [mm]		4.6



8)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band, UID 0 -, Channel 191 (6905.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	312.0 x 224.0 x 10.0	71QB9FMX900015R	Laptop + Aux Antenna

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	BACK, 0.00	Custom Band	CW, 0--	6905.000, 191	5.15	6.73	32.6

Hardware Setup

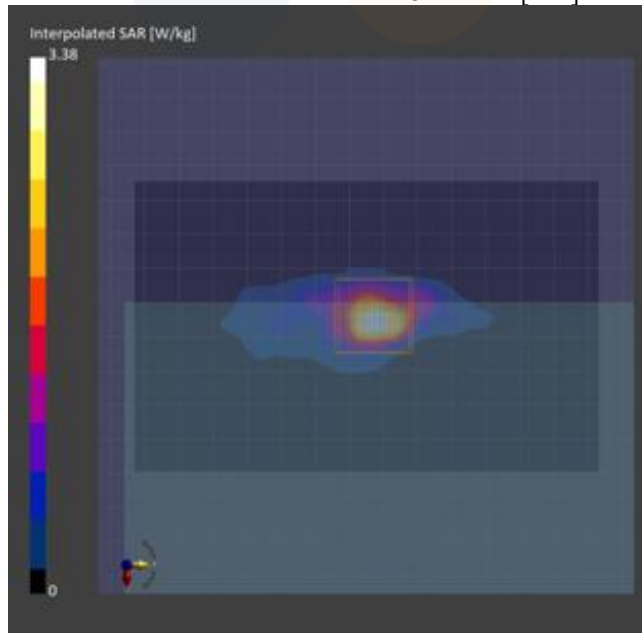
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 - 1173	HBBL-600-10000 , 2024-10-02	EX3DV4 - SN7840, 2024-08-20	DAE4 Sn1758, 2024-08-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-10-02	2024-10-02
psSAR1g [W/kg]	0.484	0.539
psSAR8g [W/kg]	0.159	0.152
psSAR10g [W/kg]	0.136	0.130
psAPD (1.0cm ² , sq) [W/m ²]		5.39
psAPD (4.0cm ² , sq) [W/m ²]		3.05
Power Drift [dB]		-0.06
Peak SAR [W/kg]		3.37
M2/M1 [%]		48.0
Dist 3dB Peak [mm]		5.2



14.2 PD Test Results

9)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band 802.11be, UID 0 -, Channel 63 (6265.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	224.0 x 10.0 x 312.0	71QB9FMX900030J	Laptop + Aux Antenna

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	BACK, 2.00	6265.0, 63	1.0

Hardware Setup

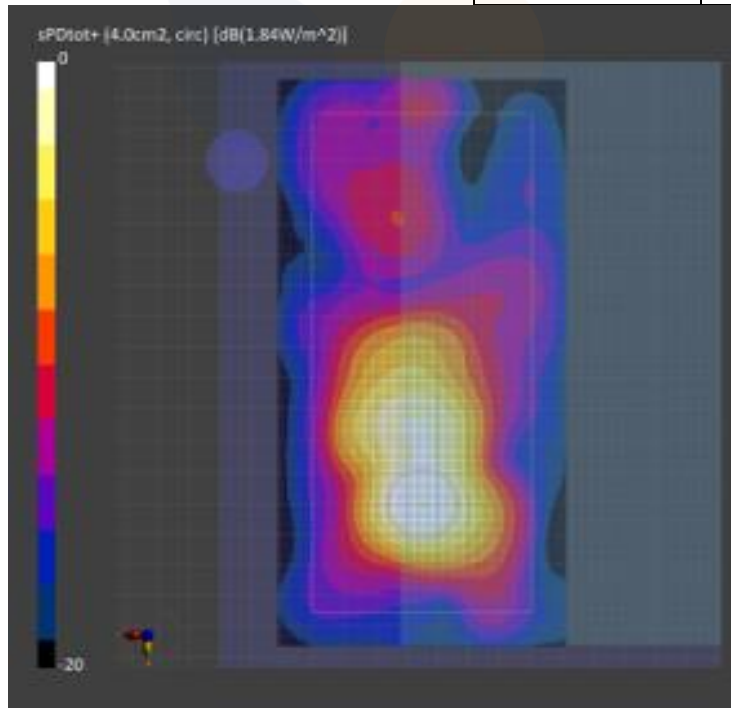
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

Scan Type	5G Scan
Grid Extents [mm]	90.0 x 180.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Scan Type	5G Scan
Date	2024-10-03
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	1.42
psPDtot+ [W/m ²]	1.84
E _{max} [V/m]	52.9
Power Drift [dB]	0.03



10)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band 802.11ax, UID 0 -, Channel 111 (6505.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	224.0 x 10.0 x 312.0	71QB9FMX900030J	Laptop + Aux Antenna

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	BACK, 2.00	6505.0, 111	1.0

Hardware Setup

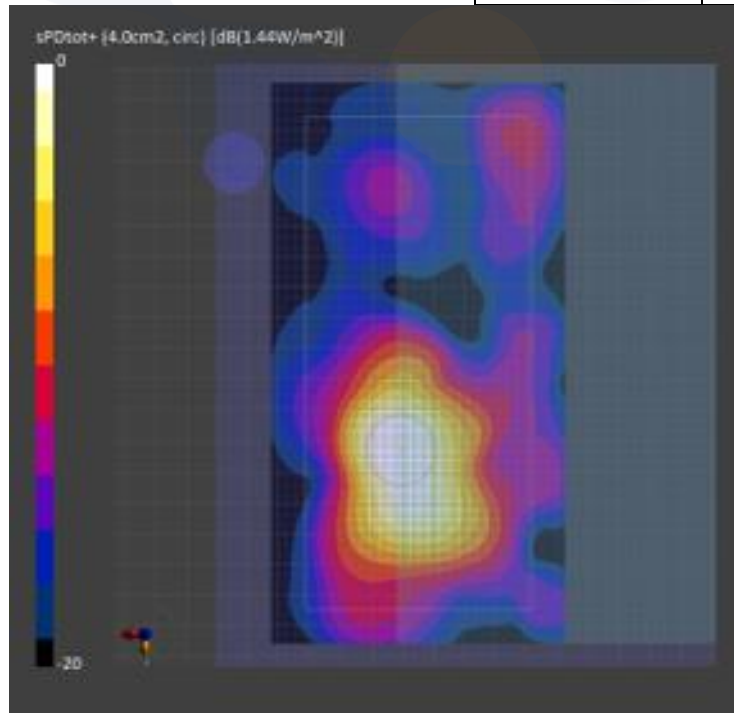
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

Scan Type	5G Scan
Grid Extents [mm]	90.0 x 180.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Scan Type	5G Scan
Date	2024-10-04
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	1.24
psPDtot+ [W/m ²]	1.44
E _{max} [V/m]	48.0
Power Drift [dB]	-0.01



11)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band 802.11be, UID 0 -, Channel 159 (6745.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	224.0 x 10.0 x 312.0	71QB9FMX900030J	Laptop + Aux Antenna

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	BACK, 2.00	6745.0, 159	1.0

Hardware Setup

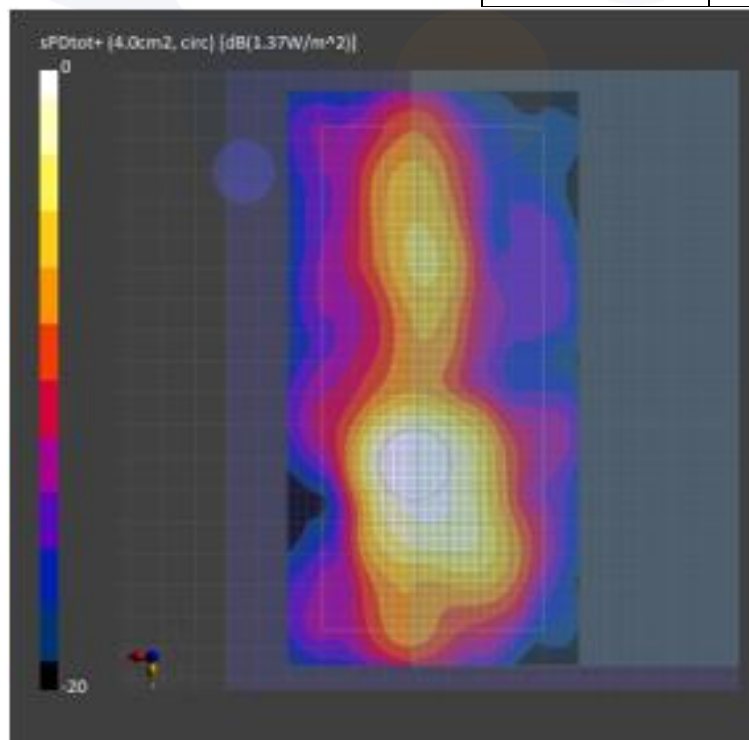
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

Scan Type	5G Scan
Grid Extents [mm]	90.0 x 180.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Scan Type	5G Scan
Date	2024-10-03
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	1.20
psPDtot+ [W/m ²]	1.37
E _{max} [V/m]	48.0
Power Drift [dB]	-0.05



12)

Eurofins KCTL Co.,Ltd.

Measurement Report for NP940XHA, BACK, Custom Band 802.11be, UID 0 -, Channel 191 (6905.0MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	Serial Number	DUT Type
NP940XHA, SAMSUNG	224.0 x 10.0 x 312.0	71QB9FMX900030J	Laptop + Aux Antenna

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor
5G	BACK, 2.00	6905.0, 191	1.0

Hardware Setup

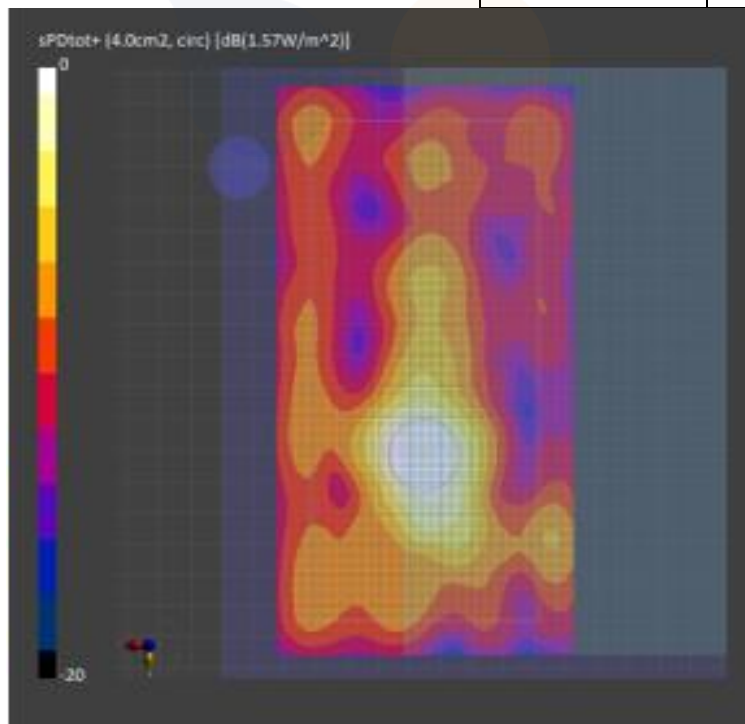
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9489_F1-55GHz, 2024-05-15	DAE4 Sn1342, 2024-02-16

Scans Setup

Measurement Results

Scan Type	5G Scan
Grid Extents [mm]	90.0 x 180.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Scan Type	5G Scan
Date	2024-10-03
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	1.28
psPDtot+ [W/m ²]	1.57
E _{max} [V/m]	44.0
Power Drift [dB]	-0.07



Appendixes List

Appendix A	A.1 Probe Calibration certificate (EX3DV4_7840) A.2 Probe Calibration certificate (EUmmWV4_9489) A.3 System Calibration certificate (5G Verification Source 10 GHz_1023) A.4 Dipole Calibration certificate (D6.5GHzV2_1005) A.5 Justification for Extended SAR Dipole Calibrations
Appendix B	#Antenna Location & Distance
Appendix C	EUT Photo
Appendix D	Test Setup Photo

