TEST REPORT

Applicant:	MediaTek Inc.
Address:	No. 1, Dusing 1st Rd., Hsinchu Science Park Hsinchu City 30078 Taiwan
Equipment Type:	2TX 11be (WiFi7) BW320 + BT/BLE Combo Card
Model Name:	MT7927
Brand Name:	N/A
FCC ID:	RAS-MT7927
Test Standard:	FCC 47 CFR Part 2.1093 (refer section 3.1)
Maximum PD:	0.60 W/m^2
Sample Arrival Date:	Apr. 17, 2023
Test Date:	Apr. 28, 2023 - Apr. 29, 2023
Date of Issue:	May 18, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining **Checked by:** Xu Rui **Approved by:** Tolan Tu

(Testing Director)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	May 18, 2023	Initial Issue

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

1.3 Test Environment Condition

Ambient Temperature	18℃ to 25℃
Ambient Relative Humidity	30% to 70%

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	MediaTek Inc.
Address	No. 1, Dusing 1st Rd., Hsinchu Science Park Hsinchu City 30078 Taiwan

2.2 Manufacturer Information

Manufacturer	MediaTek Inc.
Address	No. 1, Dusing 1st Rd., Hsinchu Science Park Hsinchu City 30078 Taiwan

2.3 General Description for Equipment under Test (EUT)

EUT Name	2TX 11be (WiFi7) BW320 + BT/BLE Combo Card
Model Name Under Test	MT7927
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.3.1 Host Information:

Product Name	Notebook Computer
Model Name	Legion 9 16IRX8
Brand Name	Lenovo

2.3.2 Antenna Information:

Antenna Port	Model Name	Antenna Manufacturer	Antenna Type	Antenna Gain (dBi)								
				2.4 GHz	5.15 - 5.25 GHz	5.25 - 5.35 GHz	5.47 - 5.725 GHz	5.725- 5.895 GHz	5.925 - 6.425 GHz	6.425 - 6.525 GHz	6.525 - 6.875 GHz	6.875 - 7.125 GHz
Main Antenna	DC330021K10 (AYF6Y-200006)	AWAN (Mode 1)	PIFA	2.88	3.05	3.05	1.80	1.50	3.73	1.71	2.51	1.95
Auxiliary Antenna	DC330021K10 (AYF6Y-200006)		PIFA	2.90	3.41	3.41	3.25	2.60	3.81	3.81	2.65	1.44
Main Antenna	DC330021K10 (AYF6Y-200006)	AWAN (Mode 2)	PIFA	2.74	1.10	0.93	-0.03	2.42	2.96	2.24	2.81	1.60
Auxiliary Antenna	DC330021K10 (AYF6Y-200006)		PIFA	2.48	0.88	0.18	1.15	3.12	3.49	1.65	1.48	1.56

2.4 Ancillary Equipment

Note: Not application.

2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40), VHT20/40, 802.11ax(HE20/40) and 802.11be(EHT20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80/160), 802.11ax(HE20/40/80/160) and 802.11be(EHT20/40/80), U-NII-1/2A/2C/3 6G WIFI 802.11a, 802.11ax(HE20/40/80/160) and 802.11be(EHT20/40/80/160/320), U-NII-5/6/7/8

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	6G WLAN	
Frequency Range	802.11a	5925 MHz ~ 6425 MHz
		6425 MHz ~ 6525 MHz
		6525 MHz ~ 6875 MHz
		6875 MHz ~ 7125 MHz
	802.11 ax(HE20/HE40/HE80/HE160)	5925 MHz ~ 6425 MHz
		6425 MHz ~ 6525 MHz
		6525 MHz ~ 6875 MHz
		6875 MHz ~ 7125 MHz
	802.11 be(EHT20/40/80/160/320)	5925 MHz ~ 6425 MHz
		6425 MHz ~ 6525 MHz
		6525 MHz ~ 6875 MHz
		6875 MHz ~ 7125 MHz
Antenna Type	WLAN: PIFA Antenna	
Hotspot Function	N/A	
Exposure Category	General Population/Uncontrolled exposure	
EUT Type	Portable Device	
Product Type	☒ Production unit	☐ Identical prototype

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radio frequency radiation exposure evaluation: portable devices
2	47 CFR Part 1.1310	Radiofrequency radiation exposure limits
3	ANSI C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
4	KDB 447498 D04 v01	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
5	KDB 865664 D02 v01r02	RF Exposure Reporting
6	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
7	KDB 616217 D04v01r02	SAR for laptop and tablets
8	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)
9	IEC TR 63170:2018	Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz
10	IEC/IEEE 63195-1:2022	Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz)-Part 1: Measurement procedure

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user.

Limit for General Population/Uncontrolled exposure should be applied for this device, it is power density for frequencies between 1.5GHz and 100 GHz is 1.0 mW/cm^2= 10 W/m^2

Table of Exposure Limits:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW / cm ^{2})	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f^2	6
30-300	61.4	0.163	1.0	6
300-1,500	/	/	f/300	6
1,500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f^2	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30
*f = frequency in MHz * = Plane-wave equivalent power density*				

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. 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.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, 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.

3.3 Test Result Summary

3.3.1 Highest Power Density

Equipment Class	Band	Antenna	Maximum Scaled PD (W/m^2)	Maximum Report PD (W/m^2)
			Body	Body
U-NII-5/6/7/8	6G WLAN	Main	**0.60**	**0.60**
		Aux.	0.51	
Limit (W/m^2)			10	
Verdict			Pass	

3.3.2 Highest Total Exposure Ratio

Smart Ant. Mode	Mode	Simultaneous Tx Combination		Position	Power Density(W/m2)&SAR(W/kg)					Total Exposure Ratio
					WIFI2.4G Main Ant.	WIFI2.4G Aux. Ant.	WIFI6G Main Ant.	WIFI6G Aux. Ant.	Bluetooth Aux. Ant.	
Ant.Main(Mode2) +Ant.Aux.(Mode2)	2.4G·WLAN +6G·WLAN	WIFI2.4G Main Ant. +WIFI2.4G Aux. Ant.	WIFI6G Main Ant. +WIFI6G Aux. Ant.	Bottom Side	0.016	0.024	0.060	0.051	/	**0.151**
Note: The simultaneous transmission detail please refer to section 11.										

3.4 Test Uncertainty

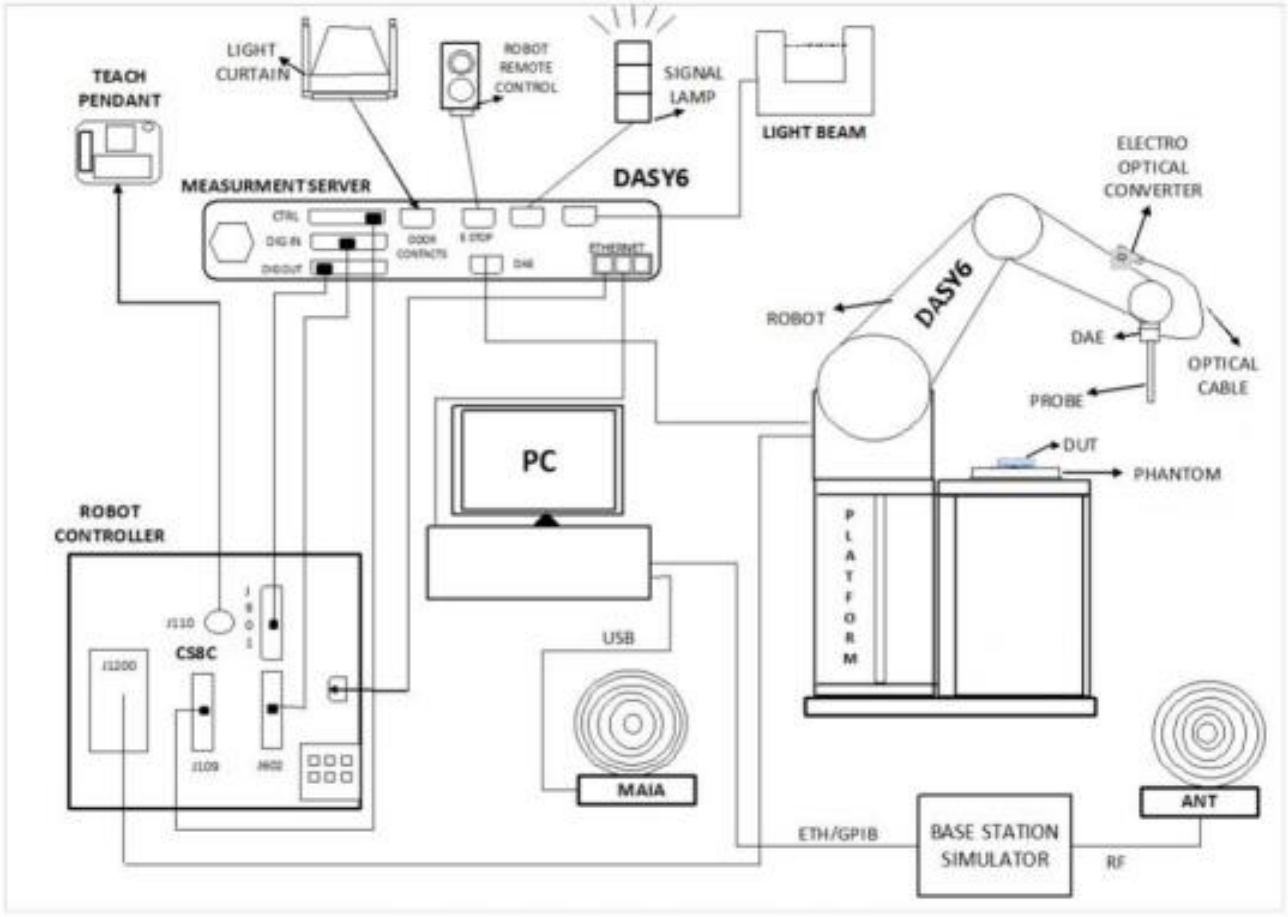
For PTP measurement method: DASY6 uncertainty budget in compliance with IEC/IEEE 63195-1 for the cases indicated in the refrence table.

source of uncertainty	Unc.± dB	Prob. Dist.	Div.	ci	Standard uncertainty ± dB	vi or veff
Uncertainty terms dependent on the measurement system						
Calibration	0.49	N	1	1	0.49	∞
Frequency response	0.2	R	$\sqrt{3}$	1	0.12	∞
Isotropy	0.5	R	$\sqrt{3}$	1	0.29	∞
System linearity error	0.2	R	$\sqrt{3}$	1	0.12	∞
Probe positioning offset	0.3	R	$\sqrt{3}$	1	0.17	∞
Probe positioning repeatability	0.04	N	1	1	0.02	∞
Amplitude and phase noise	0.03	N	1	1	0.03	∞
Data acquisition	0.03	N	1	1	0.02	∞
Field reconstruction	2	R	$\sqrt{3}$	1	1.15	∞
System detection limits	0.04	R	$\sqrt{3}$	1	0.02	∞
Spatial averaging	0.1	R	$\sqrt{3}$	1	0.06	∞
Calibration	0.49	N	1	1	0.49	∞
Frequency response	0.2	R	$\sqrt{3}$	1	0.12	∞
Uncertainty terms dependent on the DUT and environmental factor						
Modulation response	0.4	R	$\sqrt{3}$	1	0.23	∞
Device holder influence	0.1	R	$\sqrt{3}$	1	0.06	∞
DUT alignment	0.04	R	$\sqrt{3}$	1	0.02	∞
RF ambient conditions	0.04	R	$\sqrt{3}$	1	0.02	∞
DUT drift	0.1	R	$\sqrt{3}$	1	0.06	∞
Combined Standard Uncertainty	/	/	RSS		1.33	/
Expanded Uncertainty (95% Confidence interval)	/	k	2		2.66	/

4 MEASUREMENT SYSTEM

4.1 DASY Power Density System

4.1.1 DASY PD System Diagram



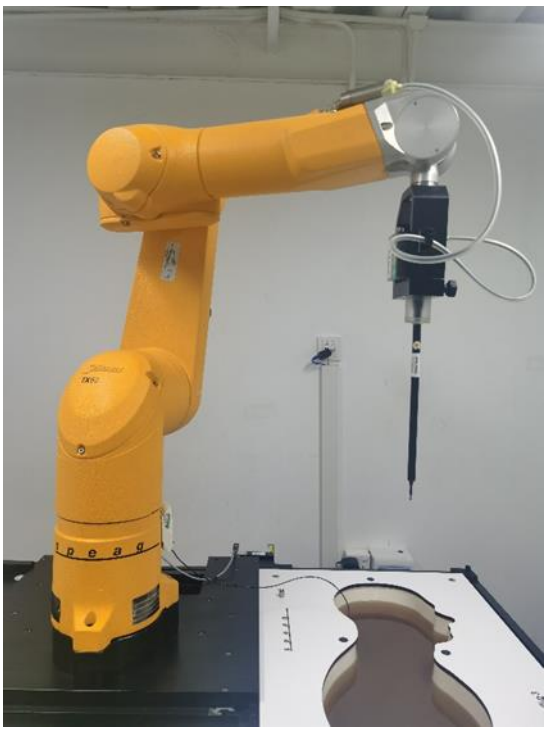
The DASY system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY measurement server.
6. The DASY measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASY software and SEMCAD data evaluation software.

8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.1.2 Robot

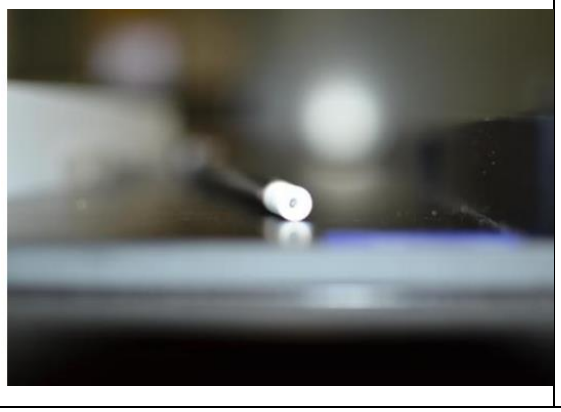
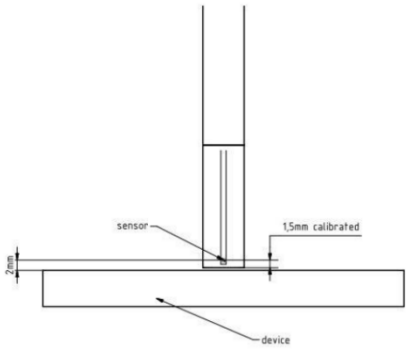
The Dasy SAR system uses the high precision robots. Symmetrical design with triangular core Built-in optical fiber for surface detection system For the 6-axis controller system, Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents). The robot series have many features that are important for our application:



- High precision
  (repeatability ±0.02 mm)
- High reliability
  (industrial design)
- Low maintenance costs
  (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
  (brush less synchron motors; no stepper motors)
- Low ELF interference
  (motor control _elds shielded via the closed metallic construction shields)

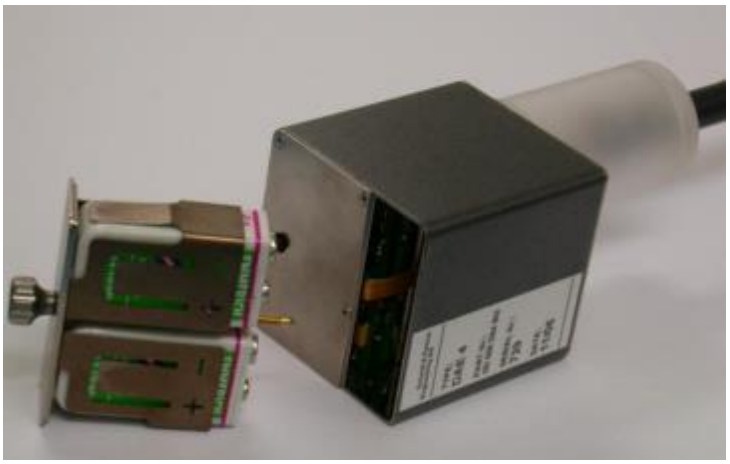
4.1.3 EUmmWave Probe / E-Field 5G Probe

The EUmmWave3 probe design allows measurements at distances as small as 2mm

Frequency	750 MHz – 110 GHz
Probe Overall Length	320 mm
Probe Body Diameter	8.0 mm
Tip Length	23.0 mm
Tip Diameter	8.0 mm
Probe's two dipoles length	0.9 mm – Diode loaded
Dynamic Range	< 20 V/m – 10000 V/m with PRE-10 (min < 50 V/m – 3000 V/m)
Position Precision	< 0.2 mm
Distance between diode sensors and probe's tip	1.5 mm
Minimum Mechanical separation between probe tip and a Surface	0.5 mm
Applications	E-field measurements of 5G devices and other mm-wave transmitters operating above 10GHz in < 2 mm distance from device (free-space) Power density, H-field and far-field analysis using total field reconstruction.
Compatibility	cDASY6 + 5G-Module SW1.0 and higher
	

4.1.4 Data Acquisition Electronics

The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.



- Input Impedance: 200MOhm
- The Inputs: Symmetrical and Floating
- Commom Mode Rejection: Above 80dB

5 SYSTEM VERIFICATION

5.1 Purpose of 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 Power Density 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.

5.2 System Check Setup

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.

6 POWER DENSITY MEASUREMENT PROCEDURE

6.1 Computation of the Electric Field Polarization Ellipse

For the numerical description of an arbitrarily oriented ellipse in three-dimensional space, five parameters are needed: the semi-major axis (a), the semi-minor axis (b), two angles describing the orientation of the normal vector of the ellipse (ϕ , θ), and one angle describing the tilt of the semi-major axis (Ψ). For the two extreme cases, i.e. circular and linear polarizations, three parameters only (a, ϕ and θ) are sufficient for the description of the incident field.

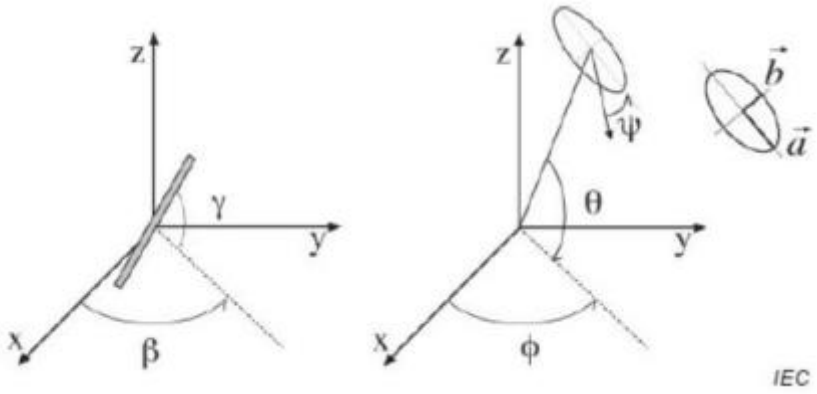


Illustration of the angles used for the numerical description of the sensor and the orientation of an ellipse in 3-D space

For the construction of the ellipse parameters from measured data, the problem can be reformulated as a nonlinear search problem. The semi-major and semi-minor axes of an elliptical field can be express as functions of the three angles (ϕ , θ and Ψ). The parameters can be uniquely determined towards minimizing the error based on least-squares for the given set of angles and the measured data. In this way, the numbers of three parameters is reduced from five to three, which means that least three sensors readings are necessary to gain sufficient information for the reconstruction of ellipse parameters.

However, to suppress the noise and increase the reconstruction accuracy, it is desirable to have an over determined system of equations. The solution to use a probe consisting of two sensors angled by γ 1 and γ 2 toward the probe axis and to perform measurements at three angular positions of the probe, i.e. at β 1, β 2 and β 3, results in over determination of two. If there is a need for more information or increased accuracy, more rotation angles can be added.

The reconstruction of ellipse parameters can be separated into linear and non-linear parts that are best solved by the givens algorithm combined with a downhill simplex algorithm. To minimize the mutual coupling, sensor angles are set with a 90° shift (γ 1= γ 2+90°), and, to simplify, the first rotation angle of the probe (β 1) can be set to 0° .

6.2 Total Field and Power Flux Density Reconstruction

Computation of the power density in general requires knowledge of the electric and magnetic field amplitudes and phases in the plane of incidence. Reconstruction of these quantities from pseudo-vector E-field measurements is feasible, as they are constrained by Maxiwell, sequations. The SPEAG have developed a reconstruction approach based on the Gerchberg-Saxton algorithm, which benefits from the availability of the E-Field polarization ellipse information obtained with the EUmmWV2 probe. This reconstruction algorithm, together with the ability of the probe to measure extremely close to the source without perturbing the field, permits reconstruction of the E-field and H-field, as well as of the power density, on measurement planes located as near as λ /5 away.

6.3 Power Flux Density Averaging

The average of the reconstructed power density is evaluated over a circular area in each measurement plane. The area of the circle is defined by the user; the default is 1cm2. The computed peak average value is displayed in the box at the top right. Note that the average is evaluated only for grid points where the averaging circle is completely filed with values; for points at the edge where the averaging circle is only partly filled with values, the average power density is set to zero. Two average power density values are computed.

6.4 Measurement Workflow: Incident Power Density Measurements with cDASY6 Module mmWave

The incident power density must be measured for the test configuration producing the highest SAR value. The measurement procedure is summarized below:

1. Perform a system performance check at 10 GHz.
2. Determine the optimal grid resolution to be used for subsequent measurements.
3. Assess the incident power for the configuration to be tested.
4. Calculate the additional reconstruction uncertainty at 2mm and compute the total measurement uncertainty.
5. Adjust the incident psPD results by the amount that the measurement uncertainty exceeds 30%

7 CONDUCTED RF OUPUT POWER

7.1 WIFI

7.1.1 6G WIFI (Main Antenna)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11a	1	5955	6.51	7.00	No
		45	6175	6.25	7.00	No
		93	6415	6.35	7.00	No
		97	6435	7.12	7.50	No
		105	6475	7.18	7.50	No
		113	6515	6.93	7.50	No
		117	6535	6.37	7.00	No
		153	6715	6.52	7.00	No
		181	6855	6.67	7.00	No
		185	6875	7.09	7.50	No
		213	7015	6.85	7.50	No
		233	7115	6.88	7.50	No
	802.11ax(HE20)	1	5955	6.98	7.00	No
		45	6175	6.80	7.00	No
		93	6415	6.92	7.00	No
		97	6435	7.17	7.50	No
		105	6475	7.24	7.50	No
		113	6515	6.93	7.50	No
		117	6535	6.92	7.00	No
		153	6715	6.61	7.00	No
		181	6855	6.82	7.00	No
		185	6875	7.26	7.50	No
		213	7015	7.04	7.50	No
		233	7115	7.01	7.50	No
	802.11ax(HE40)	3	5965	9.79	10.00	No
		43	6165	9.81	10.00	No
		91	6405	9.45	10.00	No
		99	6445	9.74	10.00	No
		107	6485	9.74	10.00	No
		115	6525	9.91	10.00	No
		123	6565	9.35	10.00	No
		155	6725	9.49	10.00	No
		179	6845	9.32	10.00	No
		187	6885	10.18	10.50	No
		211	7005	10.22	10.50	No

		227	7085	10.39	10.50	No
	802.11ax(HE80)	7	5985	12.63	13.00	No
		39	6145	12.77	13.00	No
		87	6385	12.39	13.00	No
		103	6465	12.71	13.00	No
		119	6545	12.52	13.00	No
		135	6625	12.47	13.00	No
		151	6705	12.57	13.00	No
		167	6785	12.45	13.00	No
		183	6865	12.72	13.00	No
		199	6945	12.7	13.50	No
		215	7025	12.8	13.50	No
	802.11ax(HE160)	15	6025	15.1	15.50	No
		47	6185	14.8	15.50	No
		79	6345	14.9	15.50	No
		111	6505	14.9	15.50	No
		143	6665	14.8	15.50	No
		175	6825	15.4	15.50	No
		207	6985	15.0	15.50	No
	802.11be(EHT20)	1	5955	6.6	7.00	No
		45	6175	6.7	7.00	No
		93	6415	6.95	7.00	No
		97	6435	7.15	7.50	No
		105	6475	7.18	7.50	No
		113	6515	7.35	7.50	No
		117	6535	6.57	7.00	No
		153	6715	6.56	7.00	No
		181	6855	6.81	7.00	No
		185	6875	7.19	7.50	No
		213	7015	7.46	7.50	No
		233	7115	7.42	7.50	No
	802.11be(EHT40)	3	5965	9.39	10.00	No
		43	6165	9.64	10.00	No
		91	6405	9.91	10.00	No
		99	6445	9.63	10.00	No
		107	6485	9.62	10.00	No
		115	6525	9.80	10.00	No
		123	6565	9.55	10.00	No
		155	6725	9.87	10.00	No
		179	6845	9.85	10.00	No
		187	6885	10.08	10.50	No
		211	7005	10.13	10.50	No
		227	7085	10.26	10.50	No

	802.11be(EHT80)	7	5985	12.60	13.00	No
		39	6145	12.70	13.00	No
		87	6385	12.30	13.00	No
		103	6465	12.83	13.00	No
		119	6545	12.62	13.00	No
		135	6625	12.43	13.00	No
		151	6705	12.97	13.00	No
		167	6785	12.91	13.00	No
		183	6865	12.70	13.00	No
		199	6945	13.48	13.50	No
		215	7025	13.18	13.50	No
	802.11be(EHT160)	15	6025	15.11	15.50	No
		47	6185	14.89	15.50	No
		79	6345	14.83	15.50	No
		111	6505	14.92	15.50	No
		143	6665	14.31	15.50	No
		175	6825	15.02	15.50	No
		207	6985	15.49	15.50	No
	802.11be(EHT320)	31	6105	15.01	16.50	Yes
		63	6265	**15.52**	16.50	Yes
		95	6425	15.03	16.50	Yes
		127	6585	14.82	15.50	Yes
		159	6745	15.16	15.50	Yes
		191	6905	15.45	15.50	Yes
Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially. 1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.						

7.1.2 6G WIFI (Aux. Antenna)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11a	1	5955	6.43	7.00	No
		45	6175	6.31	7.00	No
		93	6415	6.46	7.00	No
		97	6435	7.07	7.50	No
		105	6475	6.71	7.50	No
		113	6515	7.06	7.50	No
		117	6535	6.36	7.00	No
		153	6715	6.40	7.00	No
		181	6855	6.30	7.00	No
		185	6875	6.79	7.50	No
		213	7015	7.20	7.50	No
		233	7115	6.90	7.50	No
	802.11ax(HE20)	1	5955	6.65	7.00	No
		45	6175	6.93	7.00	No
		93	6415	6.56	7.00	No
		97	6435	7.10	7.50	No
		105	6475	6.79	7.50	No
		113	6515	7.31	7.50	No
		117	6535	6.59	7.00	No
		153	6715	6.79	7.00	No
		181	6855	6.89	7.00	No
		185	6875	7.11	7.50	No
		213	7015	7.13	7.50	No
		233	7115	7.29	7.50	No
	802.11ax(HE40)	3	5965	9.32	10.00	No
		43	6165	9.79	10.00	No
		91	6405	9.38	10.00	No
		99	6445	9.95	10.00	No
		107	6485	9.81	10.00	No
		115	6525	9.68	10.00	No
		123	6565	9.72	10.00	No
		155	6725	9.61	10.00	No
		179	6845	9.93	10.00	No
		187	6885	9.89	10.50	No
		211	7005	10.02	10.50	No
		227	7085	10.25	10.50	No
	802.11ax(HE80)	7	5985	12.81	13.00	No
		39	6145	12.58	13.00	No
		87	6385	12.68	13.00	No

		103	6465	12.96	13.00	No
		119	6545	12.57	13.00	No
		135	6625	12.31	13.00	No
		151	6705	12.58	13.00	No
		167	6785	12.53	13.00	No
		183	6865	12.79	13.00	No
		199	6945	12.91	13.50	No
		215	7025	12.98	13.50	No
	802.11ax(HE160)	15	6025	15.21	15.50	No
		47	6185	14.78	15.50	No
		79	6345	14.79	15.50	No
		111	6505	14.87	15.50	No
		143	6665	15.07	15.50	No
		175	6825	14.77	15.50	No
		207	6985	15.09	15.50	No
	802.11be(EHT20)	1	5955	6.69	7.00	No
		45	6175	6.55	7.00	No
		93	6415	6.57	7.00	No
		97	6435	7.12	7.50	No
		105	6475	7.50	7.50	No
		113	6515	7.34	7.50	No
		117	6535	6.61	7.00	No
		153	6715	6.77	7.00	No
		181	6855	6.91	7.00	No
		185	6875	7.23	7.50	No
		213	7015	7.18	7.50	No
		233	7115	7.34	7.50	No
	802.11be(EHT40)	3	5965	9.33	10.00	No
		43	6165	9.85	10.00	No
		91	6405	9.91	10.00	No
		99	6445	9.92	10.00	No
		107	6485	9.80	10.00	No
		115	6525	9.61	10.00	No
		123	6565	9.73	10.00	No
		155	6725	9.65	10.00	No
		179	6845	9.62	10.00	No
		187	6885	10.42	10.50	No
		211	7005	10.10	10.50	No
		227	7085	10.13	10.50	No
	802.11be(EHT80)	7	5985	12.35	13.00	No
		39	6145	12.62	13.00	No
		87	6385	12.65	13.00	No
		103	6465	12.93	13.00	No

		119	6545	12.81	13.00	No
		135	6625	12.74	13.00	No
		151	6705	12.98	13.00	No
		167	6785	12.63	13.00	No
		183	6865	12.83	13.00	No
		199	6945	13.42	13.50	No
		215	7025	13.19	13.50	No
	802.11be(EHT160)	15	6025	14.84	15.50	No
		47	6185	15.04	15.50	No
		79	6345	14.76	15.50	No
		111	6505	14.90	15.50	No
		143	6665	15.16	15.50	No
		175	6825	15.06	15.50	No
		207	6985	15.15	15.50	No
	802.11be(EHT320)	31	6105	**16.07**	16.50	Yes
		63	6265	15.33	16.50	Yes
		95	6425	15.26	16.50	Yes
		127	6585	15.15	15.50	Yes
		159	6745	15.06	15.50	Yes
		191	6905	14.89	15.50	Yes

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

7.1.3 6G WIFI (TOTAL)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11a	1	5955	3.47	4.00	No
		45	6175	3.39	4.00	No
		93	6415	3.50	4.00	No
		97	6435	3.14	4.00	No
		105	6475	3.22	4.00	No
		113	6515	3.46	4.00	No
		117	6535	3.44	4.00	No
		153	6715	3.60	4.00	No
		181	6855	3.51	4.00	No
		185	6875	3.91	4.50	No
		213	7015	3.85	4.50	No
		233	7115	3.91	4.50	No
	802.11ax(HE20)	1	5955	6.49	7.00	No
		45	6175	6.65	7.00	No
		93	6415	6.66	7.00	No
		97	6435	7.21	7.50	No
		105	6475	7.29	7.50	No
		113	6515	7.28	7.50	No
		117	6535	6.60	7.00	No
		153	6715	6.79	7.00	No
		181	6855	6.78	7.00	No
		185	6875	7.06	7.50	No
		213	7015	7.22	7.50	No
		233	7115	7.34	7.50	No
	802.11ax(HE40)	3	5965	8.86	9.50	No
		43	6165	8.91	9.50	No
		91	6405	9.17	9.50	No
		99	6445	9.24	9.50	No
		107	6485	9.30	9.50	No
		115	6525	9.34	9.50	No
		123	6565	8.88	9.50	No
		155	6725	8.96	9.50	No
		179	6845	8.85	9.50	No
		187	6885	9.67	10.00	No
		211	7005	9.65	10.00	No
		227	7085	9.67	10.00	No
	802.11ax(HE80)	7	5985	11.88	12.50	No
		39	6145	12.12	12.50	No
		87	6385	12.18	12.50	No

		103	6465	12.79	13.00	No
		119	6545	12.44	12.50	No
		135	6625	12.43	12.50	No
		151	6705	11.99	12.50	No
		167	6785	12.02	12.50	No
		183	6865	12.15	12.50	No
		199	6945	12.53	13.00	No
		215	7025	12.82	13.00	No
	802.11ax(HE160)	15	6025	15.17	15.50	No
		47	6185	14.88	15.50	No
		79	6345	14.91	15.50	No
		111	6505	15.45	16.00	No
		143	6665	14.97	15.50	No
		175	6825	15.02	15.50	No
		207	6985	15.46	16.00	No
	802.11be(EHT20)	1	5955	6.63	7.00	No
		45	6175	6.75	7.00	No
		93	6415	6.77	7.00	No
		97	6435	5.70	7.50	No
		105	6475	7.21	7.50	No
		113	6515	7.46	7.50	No
		117	6535	6.91	7.00	No
		153	6715	6.71	7.00	No
		181	6855	6.62	7.00	No
		185	6875	7.12	7.50	No
		213	7015	7.14	7.50	No
		233	7115	7.39	7.50	No
	802.11be(EHT40)	3	5965	8.96	9.50	No
		43	6165	9.22	9.50	No
		91	6405	9.21	9.50	No
		99	6445	9.41	9.50	No
		107	6485	9.35	9.50	No
		115	6525	9.28	9.50	No
		123	6565	8.95	9.50	No
		155	6725	8.93	9.50	No
		179	6845	9.06	9.50	No
		187	6885	9.43	10.00	No
		211	7005	9.79	10.00	No
		227	7085	9.84	10.00	No
	802.11be(EHT80)	7	5985	12.19	12.50	No
		39	6145	12.11	12.50	No
		87	6385	12.21	12.50	No
		103	6465	12.71	13.00	No

		119	6545	12.28	12.50	No
		135	6625	12.49	12.50	No
		151	6705	11.99	12.50	No
		167	6785	11.83	12.50	No
		183	6865	12.25	12.50	No
		199	6945	12.84	13.00	No
		215	7025	12.89	13.00	No
	802.11be(EHT160)	15	6025	15.03	15.50	No
		47	6185	14.95	15.50	No
		79	6345	14.98	15.50	No
		111	6505	15.54	16.00	No
		143	6665	14.89	15.50	No
		175	6825	14.87	15.50	No
		207	6985	15.41	16.00	No
	802.11be(EHT320)	31	6105	17.37	18.00	No
		63	6265	17.48	18.00	No
		95	6425	17.56	18.00	No
		127	6585	17.51	18.00	No
		159	6745	17.55	18.00	No
		191	6905	17.65	18.00	No
Note: For WiFi PD testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in TOTAL mode, and for RF exposure assessment of TOTAL mode simultaneous transmission used more conservative “Max. (main ant) + Max. (aux. ant) ” method to determine PD compliance. When the sum of 1-g SISO transmission PD measurement is <1.6 W/kg, TOTAL PD test is not required.						

8 SMART ANTENNA

This product support smart antenna technology, the laptop have main and auxiliary antennas, each antenna has two modes, mode1 or mode2. The modes of the two antennas does not affect each other and the smart antenna will not affect the conducted power of the laptop, only change the radiation pattern of the antenna. The laptop will only be in antenna mode1 or antenna mode2 at any time during use. So the smart antenna design can be considered as passive design component, the PD test of the two modes of each antenna separately.

The two antennas have a total of 4 combined transmission modes as follows:

Mode	Main antenna state	Aux. antenna state
0	Mode1	Mode1
1	Mode2	Mode1
2	Mode1	Mode2
3	Mode2	Mode2

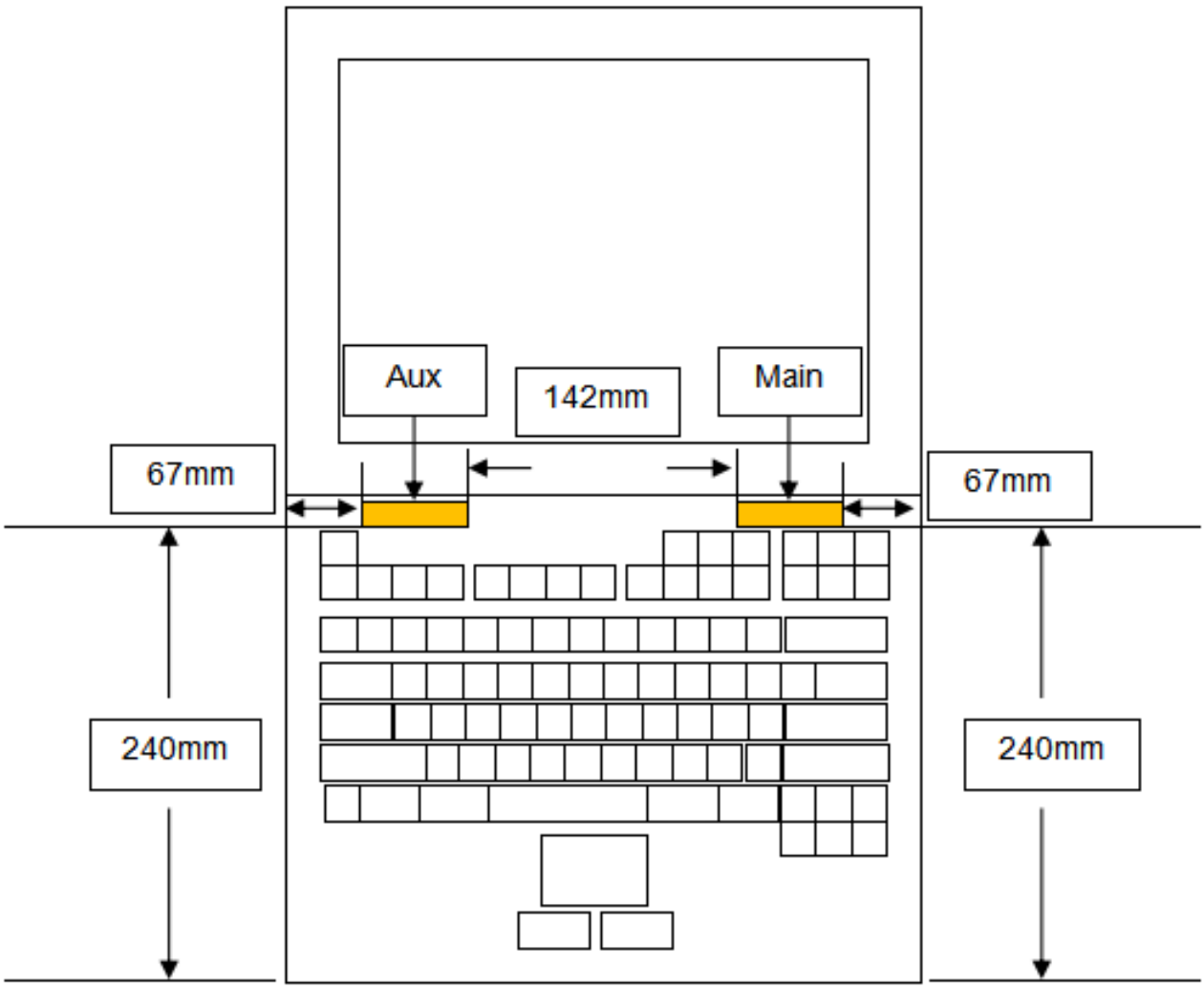
Note 1: Used worse case PD values in mode1 and mode2 for simultaneous transmission Mode considerations.

Note 2: This product supports 802.11be mode, and the bandwidth can support up to 320MHz. According to the guidance of TCB Workshop 2022.10, the test method of 802.11be mode can refer to KDB 248227 v02r02, and 802.11be is a higher order modulation.

Note 3: 6G WLAN power density test according to the guidance of TCB Workshop 2022.10.

9 ANTENNA LOCATION

9.1 Laptop Mode antenna location sketch



Antenna	Support Bands
Antenna Aux.	BT、WLAN 2.4/5G/6G
Antenna Main	WLAN 2.4/5G/6G

10 TEST RESULT OF POWER DENSITY

General Note:

1. The reported PD is the measured Total PD value adjusted for maximum tune-up tolerance and duty cycle factor.
   a. Tune-up scaling Factor = tune-up limit power (Mw) / EUT RF power (Mw), where tune-up limit is the maximum rated power among all production units.
   b. For PD testing of WLAN signal with non-100% duty cycle, the measured PD is scaled-up by the duty cycle scaling factor which is equal to “1/(duty cycle)”.
2. The most conservative test distance of 2mm was applied to PD measurement.
3. The measurement procedure consists of the measuring the PD_{inc} at two different distance: 2mm (compliance distance) and λ/5. The grid extents should be large enough to fully capture the transmitted energy. The grid step should be fine enough to demonstrate that the integrated Power Density iPD_n fulfill the criterion described below. According section 10.1.2 test data, the grid step set to 0.0625λ was sufficient for determining compliance at d=2mm.

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

4. 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.
5. 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 2.66 dB (84.5%) was used to determine the psPD measurement scaling factor.
6. According to TCBC workshop in October 2018 that $4cm^2$ averaging area may now be considered.

10.1.1 WIFI 6GHz Body SAR

Fre. Band	Mode	Antenna Mode	Test State	Antenna	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift(dB)	1 g Meas SAR(W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Measured APD [W/m2]	Scaled APD [W/m2]
Body																		
6G	802.11 be (EHT320)	Mode1	Main-TX1	Laptop	Bottom Side	0	31	6105	-0.16	0.011	15.01	16.50	1.409	80.03	1.250	0.019	0.115	0.203
						0	63	6265	0.03	0.015	15.52	16.50	1.253	80.03	1.250	0.023	0.157	0.246
						0	95	6425	0.14	0.006	15.03	16.50	1.403	80.03	1.250	0.011	0.063	0.110
						0	127	6585	0.08	0.009	14.82	15.50	1.169	80.03	1.250	0.013	0.094	0.137
						0	159	6745	-0.05	0.013	15.16	15.50	1.081	80.03	1.250	0.018	0.136	0.184
						0	191	6905	0.03	0.007	15.45	15.50	1.012	80.03	1.250	0.009	0.073	0.092
		Mode2	Main-TX1	Laptop	Bottom Side	0	31	6105	-0.04	0.024	15.01	16.50	1.409	80.03	1.250	**0.042**	0.254	0.447
						0	63	6265	0.13	0.021	15.52	16.50	1.253	80.03	1.250	0.033	0.220	0.345
						0	95	6425	0.09	0.018	15.03	16.50	1.403	80.03	1.250	0.032	0.189	0.331
						0	127	6585	-0.05	0.023	14.82	15.50	1.169	80.03	1.250	0.034	0.241	0.352
						0	159	6745	0.19	0.016	15.16	15.50	1.081	80.03	1.250	0.022	0.168	0.227
						0	191	6905	-0.01	0.018	15.45	15.50	1.012	80.03	1.250	0.023	0.189	0.239
6G	802.11 be (EHT320)	Mode1	Aux-TX0	Laptop	Bottom Side	0	31	6105	-0.01	0.056	16.07	16.50	1.104	80.03	1.250	0.077	0.515	0.711
						0	63	6265	-0.16	0.051	15.33	16.50	1.309	80.03	1.250	0.083	0.469	0.767
						0	95	6425	0.09	0.044	15.26	16.50	1.330	80.03	1.250	0.073	0.405	0.673
						0	127	6585	-0.17	0.033	15.15	15.50	1.084	80.03	1.250	0.045	0.303	0.411
						0	159	6745	0.01	0.029	15.06	15.50	1.107	80.03	1.250	0.040	0.267	0.369
						0	191	6905	0.09	0.038	14.89	15.50	1.151	80.03	1.250	0.055	0.349	0.502
		Mode2	Aux-TX0	Laptop	Bottom Side	0	31	6105	-0.01	0.070	16.07	16.50	1.104	80.03	1.250	**0.097**	0.645	0.890
						0	63	6265	-0.09	0.058	15.33	16.50	1.309	80.03	1.250	0.095	0.534	0.874
						0	95	6425	0.06	0.055	15.26	16.50	1.330	80.03	1.250	0.091	0.506	0.841
						0	127	6585	0.00	0.048	15.15	15.50	1.084	80.03	1.250	0.065	0.442	0.599
						0	159	6745	0.10	0.043	15.06	15.50	1.107	80.03	1.250	0.060	0.396	0.548
						0	191	6905	-0.14	0.035	14.89	15.50	1.151	80.03	1.250	0.050	0.322	0.463

10.1.2 WIFI 6GHz PD

Fre. Band	Mode	Test State	Antenna	Position	Dist. (mm)	Grid Step(λ)	Ch.	Freq. (MHz)	IPDn	IPD ratio (≥-1)
6G	802.11 be320	Laptop	Main	Bottom Side	2.00	0.0625	31	6105	0.492	2.92
6G	802.11 be320	Laptop	Main	Bottom Side	9.83	0.0625	31	6105	0.251	

Fre. Band	Mode	Antenna State	Antenna	Test State	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	Meas. Uncertainty Scaling Factor	Scaled Total psPD [W/m2]	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	Scaled Total psPD [W/m2]	Meas. No.
Body																		
6G	802.11be (EHT320)	Mode2	Main	Laptop	Bottom Side	2.0	31	6105	0.07	1.545	0.222	15.01	16.50	1.409	80.03	1.250	**0.604**	1#
						2.0	63	6265	0.05	1.545	0.115	15.52	16.50	1.253	80.03	1.250	0.278	/
						2.0	95	6425	0.13	1.545	0.089	15.03	16.50	1.403	80.03	1.250	0.241	/
						2.0	127	6585	0.18	1.545	0.209	14.82	15.50	1.169	80.03	1.250	0.472	/
						2.0	159	6745	-0.11	1.545	0.230	15.16	15.50	1.081	80.03	1.250	0.480	/
						2.0	191	6905	0.19	1.545	0.208	15.45	15.50	1.012	80.03	1.250	0.407	/
		Mode2	Aux.			2.0	31	6105	-0.07	1.545	0.223	16.07	16.50	1.104	80.03	1.250	0.475	/
						2.0	63	6265	-0.18	1.545	0.163	15.33	16.50	1.309	80.03	1.250	0.412	/
						2.0	95	6425	0.15	1.545	0.192	15.26	16.50	1.330	80.03	1.250	0.493	/
						2.0	127	6585	-0.11	1.545	0.244	15.15	15.50	1.084	80.03	1.250	**0.511**	2#
						2.0	159	6745	-0.12	1.545	0.203	15.06	15.50	1.107	80.03	1.250	0.434	/
						2.0	191	6905	0.07	1.545	0.201	14.89	15.50	1.151	80.03	1.250	0.447	/

Note: According to FCC test 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 2.66 dB (84.5%) was used to determine the psPD measurement scaling factor.

11 SIMULTANEOUS TRANSMISSION

The fields generated by the antennas can be correlated or uncorrelated. At different frequencies, fields are always uncorrelated, and the aggregate power density contributions can be summed according to spatially averaged values of corresponding sources at any point in space, r, to determine the total exposure ratio (TER). Assuming I sources, the TER at each point in space is equal to

$$TER^{uncorr}(r) = \sum_{i=1}^{I} ER_i = \sum_{i=1}^{I} \frac{S_{av,i}(r, f_i)}{S_{lim}(f_i)}$$

Where Sav,i is the power density for the source I operating at a frequency fi and Slim is the power density limit as specified by the relevant standard.

Exposure from transmitters operating above and below 6GHz, where 6GHz denotes the transmission frequency where the basic restrictions change from being defined in terms of SAR to being defined in terms of power density, therefore uncorrelated and the TER is determined as

$$TER^{uncorr}(r) = \sum_{i=1}^{I} ER_i = \sum_{i=1}^{I} \frac{S_{av,i}(r, f_i)}{S_{lim}(f_i)}$$

According to the FCC guidance in TCBC workshop and IEC TR 63170, the total exposure ratio calculated by taking ratio of maximum reported SAR divided by SAR limit and adding it to maximum measured power density by its limit. Numerical sum of the ratios should be less or equal to 1. Therefore the simultaneous transmission should be follows:

$$TER = \sum_{n=1}^{N} \frac{SAR_n}{SAR_{n,limit}} + \sum_{n=1}^{N} \frac{S_{m,avg}}{S_{m,limit}} < 1$$

11.1 Simultaneous Transmission Mode Considerations

No.	Simultaneous Tx Combination	Body
1	2.4G WLAN+6G WLAN	Yes
2	Bluetooth+6G WLAN	Yes

Note:
1. The EUT supports the Antenna Auxiliary with TX/RX diversity function for WLAN and Bluetooth, the Antenna Main with TX/RX diversity function for WLAN.
2. The simultaneous transmission combinations of the more antennas contain combinations of less antennas, so only the worst simultaneous transmission combinations is shown in this report.
3. The maximum SAR of Bluetooth and WLAN 2.4G refer to the SAR report BL-SZ2340324-701.

11.2 RF Exposure Simultaneous Transmission Evaluation

11.2.1 Highest Bluetooth and WLAN Body Exposure RaTio Simultaneous Transmission

Mode	Smart Ant. Mode	Mode	Simultaneous Tx Combination		Position	Highest Exposure Ratio(SAR&PD)					Total Exposure Ratio
						WIFI2.4G Main Ant.	WIFI2.4G Aux. Ant.	WIFI6G Main Ant.	WIFI6G Aux. Ant.	Bluetooth Aux. Ant.	
1	Ant.Main(Mode2) +Ant.Aux.(Mode2)	2.4G·WLAN +6G·WLAN	WIFI2.4G Main Ant(Mode2)+WIFI2.4G Aux Ant(Mode2)	WIFI6G Main Ant(Mode2)+WIFI6G Aux Ant(Mode2)	Bottom Side	0.016	0.024	0.060	0.051	/	**0.151**
2		Bluetooth +6G·WLAN	Bluetooth Aux Ant(Mode2)	WIFI6G Main Ant(Mode2)+WIFI6G Aux Ant(Mode2)	Bottom Side	/	/	0.060	0.051	0.012	0.123

Note:
1. The maximum exposure ratio of Bluetooth and WLAN 2.4G refer to the SAR report BL-SZ2340324-701.
2. The highest Total Exposure Ratio is 0.151 ＜ 1.0, so Simultaneous Transmission SAR test is required.

12 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test System	Speag	cDASY6 mmWave	V2.4.2.62	N/A	N/A
Verification Source	Speag	10GHz	SN: 2010	2022/06/28	2023/06/27
EUmmW Probe	Speag	EUmmWV4	SN: 9565	2023/02/21	2024/02/20
Data Acquisition Electronicsr	Speag	DAE4	SN: 878	2022/06/13	2023/06/12
Signal Generator	R&S	SMB100A	177746	2022/05/19	2023/05/18
Power Meter	R&S	NRVD-B2	7250BJ-0112/2011	2022/09/06	2023/09/05
Power Sensor	R&S	NRV-Z4	100381	2022/09/06	2023/09/05
Power Sensor	R&S	NRV-Z2	100211	2022/09/06	2023/09/05
Thermometer	Elitech	RC-4HC	EF7216002985	2022/11/18	2023/11/17
Power Amplifier	mini-circuits	ZVA-183W-S+	505102223	N/A	N/A

ANNEX A SYSTEM CHEEK VERIFICATION RESULT

The system was verified to be within ±0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user manual and calibration facility recommendation.

Date	Freq. (GHz)	Meas. Forward Power (dBm)	Measured PD 4 cm^2 (W/m^2)	Normalized PD 4 cm^2 (W/m^2)	Target Forward PD 4 cm^2 (W/m^2)	Deviation (dB)
2023.04.28	10	21.88	143.0	143.0	150.00	-0.21
2023.04.29	10	21.88	142.0	142.0	150.00	-0.24
Note1: The tolerance limit of System validation ±0.66dB. Note2: According the verification source 10GHz calibration report the target forward power is 21.88dBm. Note3: Normalized PD 4 cm^2= Measured PD 4 cm^2 *10^(0.1*(Target Forward power- Meas. Forward Power))						

System Performance Check Data (10GHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
5G Verification Source 10GHz, SPEAG	100.0 x 100.0 x 100.0	5G Verification Source 10GHz

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	Ambient temperature[℃]
5G Air	Front, 10.00	10000.0Validation band, 10000	1.0	22.2

Hardware Setup

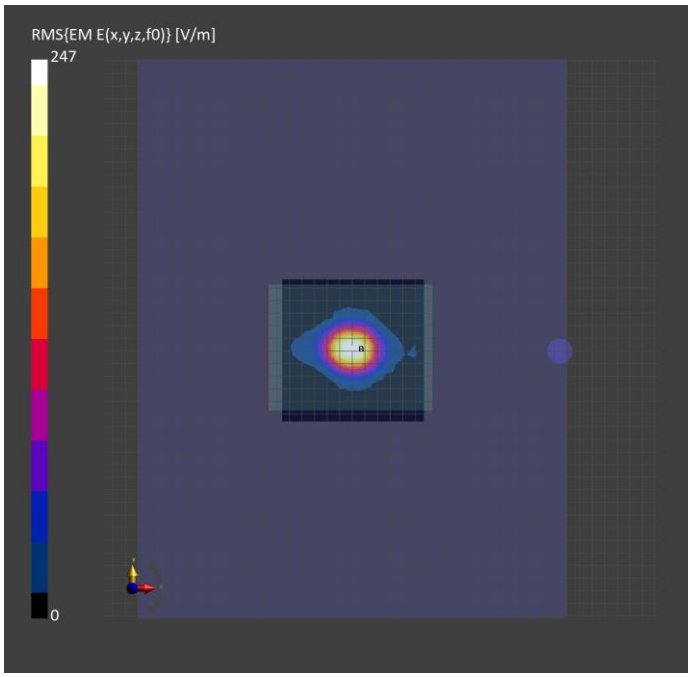
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1083	---Air	EUmmWV4 - SN9565_F1-55GHz, 2023-02-21	DAE4 Sn878, 2022-06-13

Scan Setup

	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

Measurement Results

	5G Scan
Date	2023-04-28
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	142
psPDtot+ [W/m^2]	143
psPDmod+ [W/m^2]	144
E_{max} [V/m]	247
Power Drift [dB]	-0.05


RMS{EM E(x,y,z,f0)} [V/m]
247
0

System Performance Check Data (10GHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
5G Verification Source 10GHz, SPEAG	100.0 x 100.0 x 100.0	5G Verification Source 10GHz

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	Ambient temperature[℃]
5G Air	Front, 10.00	10000.0Validation band, 10000	1.0	22.5

Hardware Setup

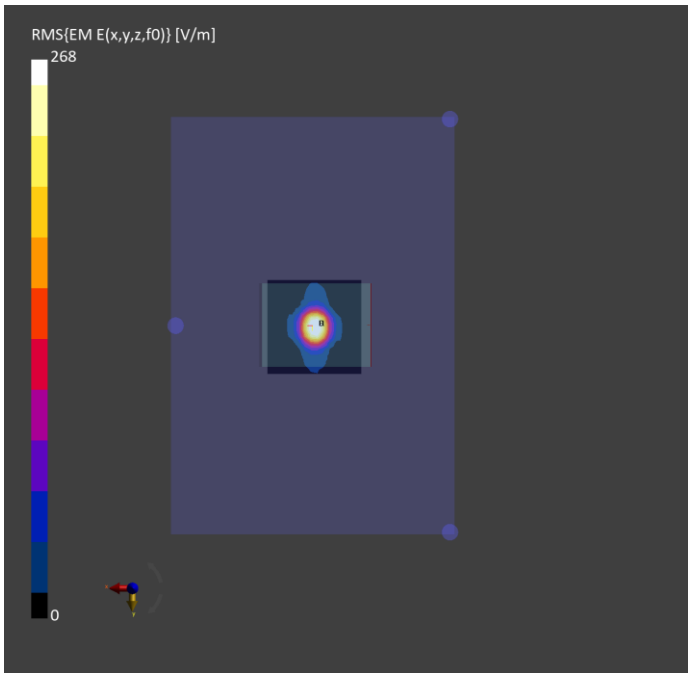
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1083	---Air	EUmmWV4 - SN9565_F1-55GHz, 2023-02-21	DAE4 Sn878, 2022-06-13

Scan Setup

	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

Measurement Results

	5G Scan
Date	2022-04-29
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	141
psPDtot+ [W/m^2]	142
psPDmod+ [W/m^2]	145
E_{max} [V/m]	268
Power Drift [dB]	0.13


RMS{EM E(x,y,z,f0)} [V/m]
268
0

ANNEX B POWER DENDITY TEST DATA

Meas.1 Body Plane with Bottom Side 2mm on 31 Channel in IEEE 802.11EHT320 mode with Antenna Main

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Legion 9 16IRX8	368.0 x 272.0 x 15.0	Laptop

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	Ambient temperature[℃]
5G Air	BACK, 2.00	6105.0U-NII-5, 31	1.0	22.2

Hardware Setup

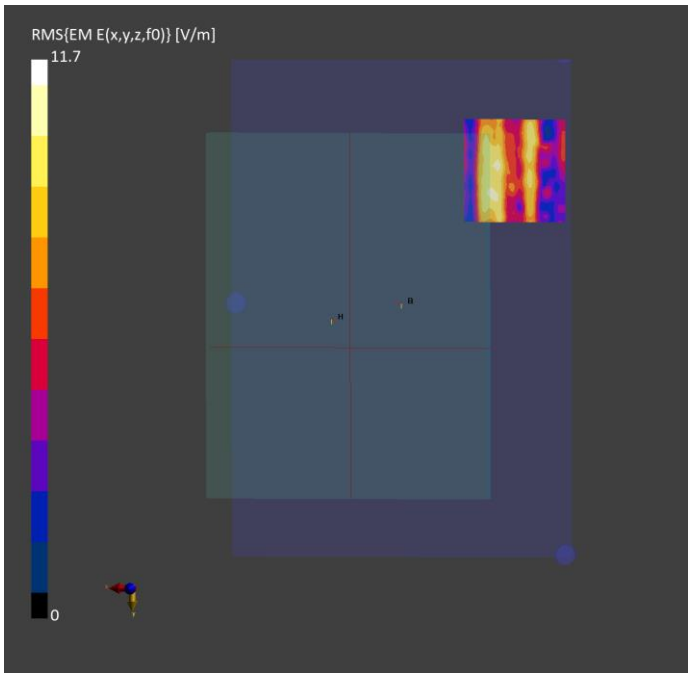
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1083	---Air	EUmmWV4 - SN9565_F1-55GHz, 2023-02-21	DAE4 Sn878, 2022-06-13

Scan Setup

	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2023-04-28
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	0.155
psPDtot+ [W/m^2]	0.222
psPDmod+ [W/m^2]	0.239
E_{max} [V/m]	10.0
Power Drift [dB]	0.07


RMS{EM E(x,y,z,f0)} [V/m]
11.7
0

Meas.2 Body Plane with Bottom Side 2mm on 127 Channel in IEEE 802.11EHT320 mode with Antenna Aux

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Legion 9 16IRX8	368.0 x 272.0 x 15.0	Laptop

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	Ambient temperature[℃]
5G Air	BACK, 2.00	6585.0U-NII-6, 127	1.0	22.5

Hardware Setup

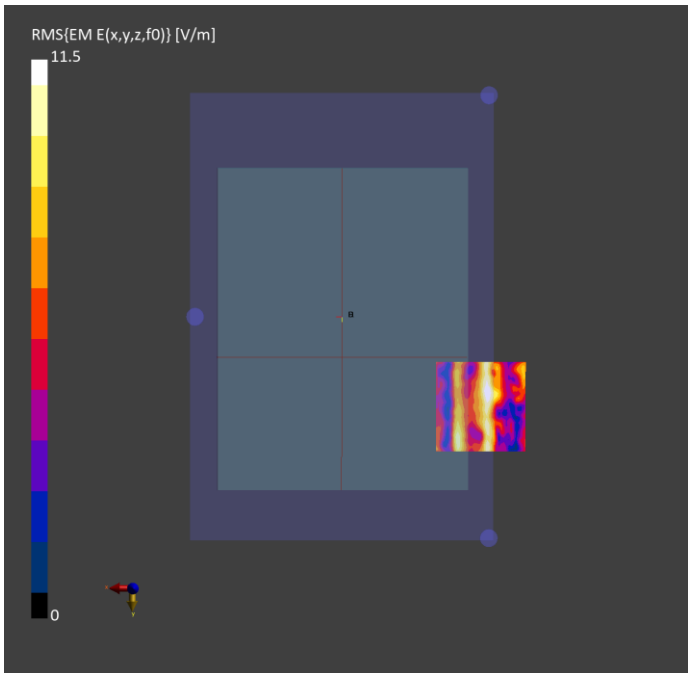
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1083	---Air	EUmmWV4 - SN9565_F1-55GHz, 2023-02-21	DAE4 Sn878, 2022-06-13

Scan Setup

	5G Scan
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2023-04-28
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	0.238
psPDtot+ [W/m^2]	0.244
psPDmod+ [W/m^2]	0.265
E_{max} [V/m]	11.9
Power Drift [dB]	-0.11


RMS{EM E(x,y,z,f0)} [V/m]
11.5
0

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2340324-AW.pdf”.

ANNEX D POWER DENSITY TEST SETUP PHOTOS

Please refer the document “BL-SZ2340324-AS-2.pdf”.

ANNEX E POWER DENSITY CALIBRATION REPORT

Please refer the document “BL-SZ2340324-AC-2.pdf”.

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