FCC 47 CFR § 2.1093
IEC/IEEE Std 62209-1528 : 2020
IEC TR 63170 : 2018

RF EVALUATION REPORT (UNII 6e(above 6GHz))

FOR

DTS/UNII a/b/g/n/ac/ax Tablet + BT/BLE and WPT

MODEL NUMBER: SM-X900

FCC ID: A3LSMX900

REPORT NUMBER: 4790101669-S2V2

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TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	12/1/2021	Initial Issue	--
V2	12/7/2021	Revised target power in Section.6.3. Added note.3 in Section 7. Added note.1 in Section 10.1.	Sunghoon.kim

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UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released By:	Prepared By:
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Seungyeon Kim Laboratory Technician UL Korea, Ltd. Suwon Laboratory

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEC/IEEE Std 62209-1528 : 2020, IEC TR 63170-2018, IEC 62479:2010 the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 616217 D04 SAR for laptop and tablets v01r02
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04

In addition to the above, the following information was used:

- TCB workshop October, 2020; 5G RFX Policies (U-NII 6-7 GHz RF Exposure)
- SPEAG, 5G Module V1.2 Application Note: 5G Compliance Testing, August 2018
- SPEAG DASY6 Application Note : Interim Procedures for Devices Operating at 6 – 10 GHz)

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

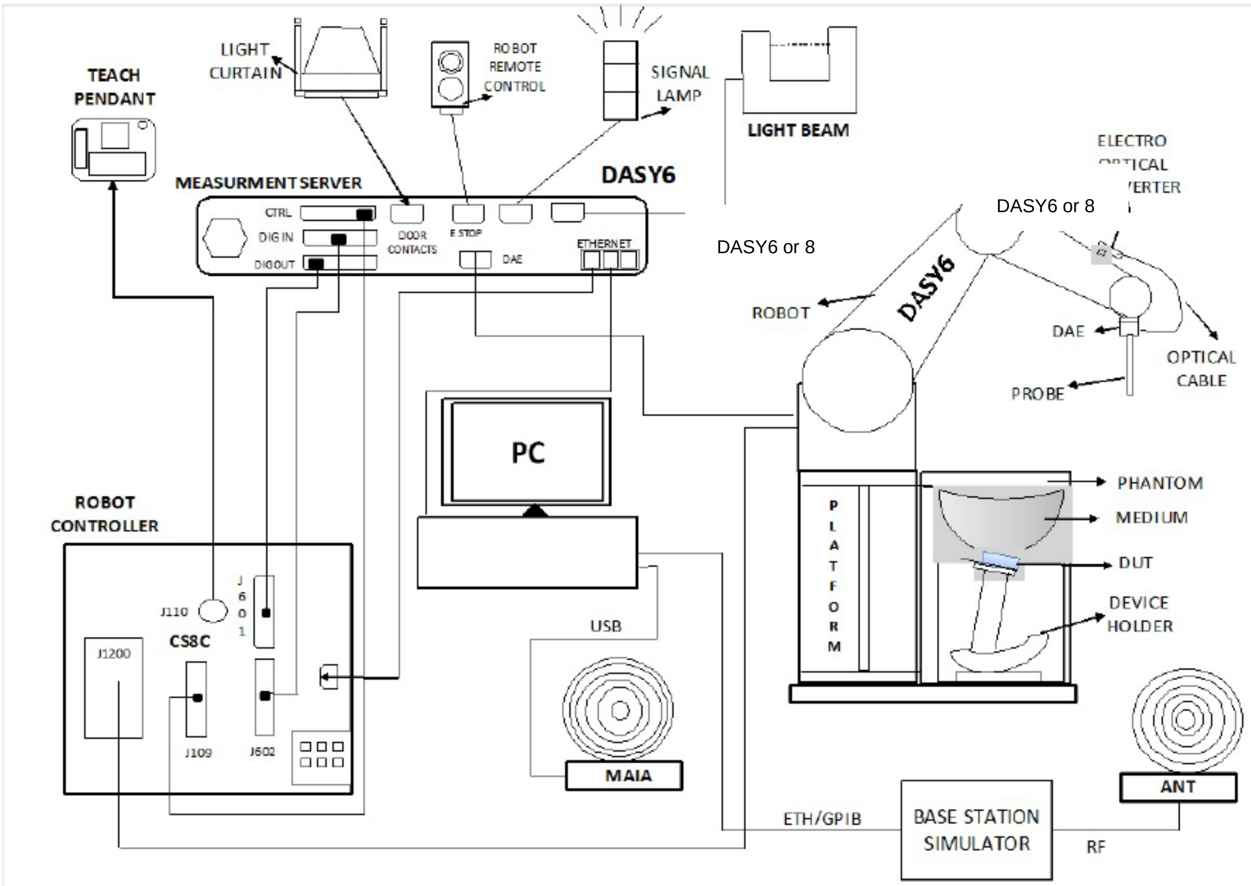
Suwon
SAR 7 Room
SAR 8 Room

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

4. SAR and Power Density Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY6 & 8 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win10 and the DASY6 or 8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.1.1. SAR Scan Procedures

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEC/IEEE Standard 62209-1528, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from IEC/IEEE Standard 62209-1528.

Parameter	DUT transmit frequency being tested	
	$f \leq 3$ GHz	**3 GHz < $f \leq 10$ GHz**
Maximum distance between the measured points (geometric centre of the sensors) and the inner phantom surface (z_{M1} in Figure 20 in mm)	5 ± 1	δ ln(2)/2 ± 0,5 [a]
Maximum spacing between adjacent measured points in mm (see O.8.3.1)[b]	20, or half of the corresponding zoom scan length, whichever is smaller	60 / f, or half of the corresponding zoom scan length, whichever is smaller
Maximum angle between the probe axis and the phantom surface normal (α in Figure 20)[c]	5° (flat phantom only) 30° (other phantoms)	5° (flat phantom only) 20° (other phantoms)
Tolerance in the probe angle	1°	1°

[a] δ is the penetration depth for a plane-wave incident normally on a planar half-space.

[b] See Clause O.8 on how Δx and Δy may be selected for individual area scan requirements.

[c] The probe angle relative to the phantom surface normal is restricted due to the degradation in the measurement accuracy in fields with steep spatial gradients. The measurement accuracy decreases with increasing probe angle and increasing frequency. This is the reason for the tighter probe angle restriction at frequencies above 3 GHz.

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from IEC/IEEE Standard 62209-1528.

Parameter	DUT transmit frequency being tested	
	$f \le 3$ GHz	3 GHz $< f \le 10$ GHz
Maximum distance between the closest measured points and the phantom surface (z_{M1} in Figure 20 and Table 3, in mm)	5	$\delta \ln(2)/2$ [a]
Maximum angle between the probe axis and the phantom surface normal (α in Figure 20)	5° (flat phantom only) 30° (other phantoms)	5° (flat phantom only) 20° (other phantoms)
Maximum spacing between measured points in the x- and y-directions (Δx and Δy, in mm)	8	$24 / f$ [b]
For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell (Δz_1 in Figure 20, in mm)	5	$10 / (f - 1)$
For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell (Δz_1 in Figure 20, in mm)	4	$12 / f$
For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2 / \Delta z_1$ in Figure 20)	1,5	1,5
Minimum edge length of the zoom scan volume in the x- and y-directions (L_z in O.8.3.2, in mm)	30	22
Minimum edge length of the zoom scan volume in the direction normal to the phantom shell (L_h in O.8.3.2 in mm)	30	22
Tolerance in the probe angle	1°	1°

[a] δ is the penetration depth for a plane-wave incident normally on a planar half-space.

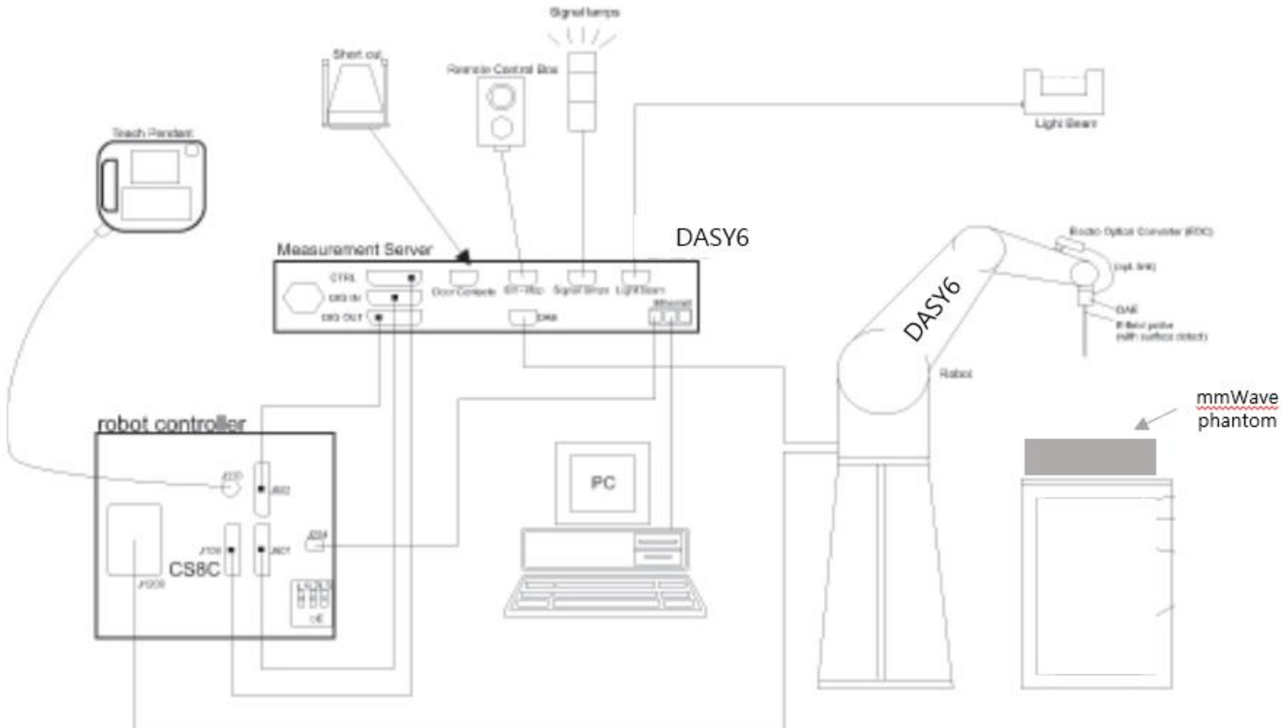
[b] This is the maximum spacing allowed, which might not work for all circumstances.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

4.2. Incident Power Density Measurement System

The DASY6 & 8 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- The EUmmWVx probe is based on the pseudo-vector probe design, which not only measures the field magnitude but also derives its polarization ellipse.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win10 and the DASY6 or 8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom which is specialized for 5G other accessories according to the targeted measurement.

4.2.1. Power Density Scan Procedures

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to devise under test.

Step 2: 5G Scan
The steps in the X, Y, and Z directions are specified in terms of fractions of the signal wavelength ,lambda.
Area Scan Parameters extracted from SPEAG, 5G Module V1.2 Application Note.

Recommended settings for measurement of verification sources

Frequency [GHz]	Grid step	Grid extent X/Y [mm]	Measurement points
10	$0.25\ (\frac{\lambda}{4})$	120/120	16×16
30	$0.25\ (\frac{\lambda}{4})$	60/60	24×24
60	$0.25\ (\frac{\lambda}{4})$	31/31	26×26
90	$0.25\ (\frac{\lambda}{4})$	29/29	35×35

The minimum distance of probe sensors to verification source surface, horn antenna, is 10 mm.

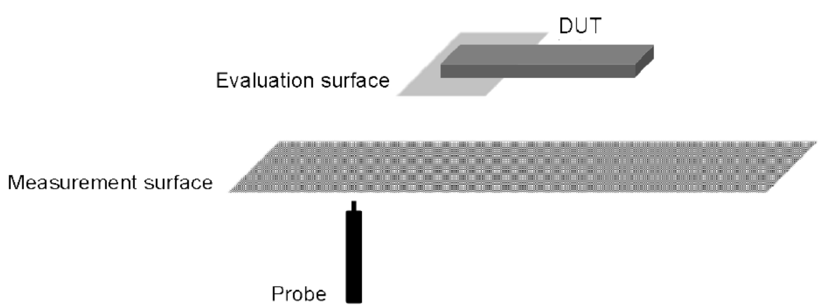
Per equipment manufacturer guidance for 6 – 10GHz, Power density was measured at d=2mm and d=λ/5mm using same grid size and grid step size for some frequencies and surfaces. The integrated power Density (iPD) was calculated based on these measurements. Since iPD ratio between the two distances is < 1dB, the grid step was sufficient for determining compliance at d=2mm.

Step 3: Power drift measurement
The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1. When the drift is larger than ± 5 %, test is repeated from step1.

4.2.2. Total Field and Power Flux Density Reconstruction (measurement distance)

Reconstruction algorithms are used to project or transform the measured fields from the measurement surface to the evaluation surface (below fig) in order to determine power density or to compute spatial-average and/or local power density with known uncertainty.

Manufacture has 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 EUmmWVx 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- and H-fields, as well as of the power density, on measurement planes.



4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

4.3.1. SAR Test Equipment

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8/6/2022
Network Analyzer	Agilent	ZNB 20	102256	8/6/2022
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7/21/2022
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8/4/2022

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5173B	MY59101083	8/4/2022
Power Sensor	Agilent	U2000A	MY61010010	8/4/2022
Power Sensor	Agilent	U2000A	MY54260010	8/4/2022
Power Amplifier	EXODUS	AMP2027ADB	10002	8/4/2022
Power Amplifier	MINI-CIRCUITS	ZVE-3W-183+	311602009	8/4/2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8/3/2022
Low Pass Filter	MINI-CIRCUITS	WLKX10-11000-13640-21000-60TS	1	8/3/2022
Attenuator	Agilent	8491B/003	MY39272276	8/17/2022
Attenuator	Agilent	8491B/003	VE2017A0283	8/4/2022
Attenuator	Agilent	8491B/010	MY39272011	8/4/2022
Attenuator	Agilent	8491B/020	MY39271973	8/4/2022
E-Field Probe	SPEAG	EX3DV4	7545	8/26/2022
Data Acquisition Electronics	SPEAG	DAE4	1670	5/6/2022
System Validation Dipole	SPEAG	D6.5GHzV2	1010	8/21/2022
Thermometer	LUTRON	MHB-382SD	AK.18789	8/3/2022

Note(s):

1. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.

4.3.2 Incident Power Density Test Equipment

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5173B	MY59101083	8-4-2022
Power Sensor	Agilent	U2000A	MY61010010	8-4-2022
Power Sensor	Agilent	U2000A	MY54260010	8-4-2022
Power Amplifier	EXODUS	AMP2027ADB	10002	8-4-2022
Power Amplifier	MINI-CIRCUITS	ZVE-3W-183+	311602009	8-4-2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8-3-2022
Low Pass Filter	MINI-CIRCUITS	WLKX10-11000-13640-21000-60TS	1	8-3-2022
Attenuator	Agilent	8491B/003	MY39272276	8-17-2022
Attenuator	Agilent	8491B/003	VE2017A0283	8-4-2022
Attenuator	Agilent	8491B/010	MY39272011	8-4-2022
Attenuator	Agilent	8491B/020	MY39271973	8-4-2022
5G probe	SPEAG	EummWV4	9536	4-24-2022
5G probe	SPEAG	EummWV4	9559	4-1-2022
Data Acquisition Electronics	SPEAG	DAE4	1671	5-6-2022
Data Acquisition Electronics	SPEAG	DAE4	1667	4-8-2022
5G Verification Source (10GHz)	SPEAG	5G verification source_10GHz	1022	1-18-2022
Thermometer	LUTRON	MHB-382SD	AK.12102	8-3-2022

5. Measurement Uncertainty

5.1. SAR Measurement Uncertainty

Measurement uncertainty for 6 GHz to 10 GHz
(According to IEEE 62209-1528)

a	b	c		d	e f(d,k)	f	g	h = c×f/e	I = c×g/e	k
Uncertainty component	Reference	Tol. 1 g (±%)	Tol. 10 g (±%)	Prob. Dist.	Div.	ci (1 g)	ci (10 g)	1 g ui (± %)	10 g ui (± %)	vi
Measurement System Errors										
Probe Calibration	8.4.1.1	18.6		Normal	2	1	1	9.3	9.3	∞
Probe Calibration Drift	8.4.1.2	1.7		Rectangular	1.732	1	1	1.0	1.0	∞
Probe Linearity	8.4.1.3	4.7		Rectangular	1.732	1	1	2.7	2.7	∞
Broadband Signal	8.4.1.4	2.8		Rectangular	1.732	1	1	1.6	1.6	∞
Probe Isotropy	8.4.1.5	7.6		Rectangular	1.732	1	1	4.4	4.4	∞
Data Acquisition	8.4.1.6	0.3		Normal	1	1	1	0.3	0.3	∞
RF Ambient	8.4.1.7	1.8		Normal	1	1	1	1.8	1.8	∞
Probe Positioning	8.4.1.8	0.005		Normal	1	0.50	0.50	0.25	0.25	∞
Data Processing	8.4.1.9	3.5		Normal	1	1	1	3.5	3.5	∞
Phantom and Device Errors										
Conductivity (meas.)DAK	8.4.2.1	2.5		Normal	1	0.78	0.71	2.0	1.8	∞
Conductivity (temp.)BB	8.4.2.2	2.4		Rectangular	1.732	0.78	0.71	1.1	1.0	∞
Phantom Permittivity	8.4.2.3	14.0		Rectangular	1.732	0	0	0.0	0.0	∞
Distance DUT -TSL	8.4.2.4	2.0		Normal	1	2	2	4.0	4.0	∞
Device Positioning	8.4.2.5	2.4	1.6	Normal	1	1	1	2.4	1.6	40
Device Holder	8.4.2.6	3.6		Normal	1	1	1	3.6	3.6	∞
DUT Modulation	8.4.2.7	2.4		Rectangular	1.732	1	1	1.4	1.4	∞
Time-average SAR	8.4.2.8	1.7		Rectangular	1.732	1	1	1.0	1.0	∞
DUT drift	8.4.2.9	5.0		Normal	1	1	1	5.0	5.0	∞
Correction to the SAR results										
Deviation to Target	8.4.3.1	1.9		Normal	1	1	0.84	1.9	1.6	∞
Combined Standard Uncertainty Uc(y) =				RSS				14.26	14.09	
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =								**28.53**	**28.18**	

5.1.1. Decision rule

Decision rule for statement(s) of conformity is based on Procedures 1, Clause 4.4.2 in IEC Guide 115:2007.

5.2. Incident Power Density Measurement Uncertainty

Measurement Uncertainty for cDASY6 Module mmWave

Error Description	Uncertainty value (±dB)	Probe Dist.	Divisor	(Ci)	Std. Unc. (±dB)	(Vi)
Uncertainty terms dependent on the measurement system						
Calibration	**0.49**	Normal	1	1	0.49	Infinity
Probe correction	**0.00**	Rectangular	1.73	1	0.00	Infinity
Frequency response (BW =< 1 GHz)	**0.20**	Rectangular	1.73	1	0.12	Infinity
Sensor cross coupling	**0.00**	Rectangular	1.73	1	0.00	Infinity
Isotropy	**0.50**	Rectangular	1.73	1	0.29	Infinity
Linearity	**0.20**	Rectangular	1.73	1	0.12	Infinity
Probe scattering	**0.00**	Rectangular	1.73	1	0.00	Infinity
Probe positioning offset	**0.30**	Rectangular	1.73	1	0.17	Infinity
Probe positioning repeatability	**0.04**	Rectangular	1.73	1	0.02	Infinity
Sensor mechanical offset	**0.00**	Rectangular	1.73	1	0.00	Infinity
Probe spatial resolution	**0.00**	Rectangular	1.73	1	0.00	Infinity
Field impedance dependance	**0.00**	Rectangular	1.73	1	0.00	Infinity
Amplitude and phase drift	**0.00**	Rectangular	1.73	1	0.00	Infinity
Amplitude and phase noise	**0.04**	Rectangular	1.73	1	0.02	Infinity
Measurement area truncation	**0.10**	Rectangular	1.73	1	0.06	Infinity
Data acquisition	**0.03**	Normal	1.00	1	0.03	Infinity
Sampling	**0.00**	Rectangular	1.73	1	0.00	Infinity
Field reconstruction	**1.97**	Rectangular	1.73	1	1.14	Infinity
Forward transformation	**0.00**	Rectangular	1.73	1	0.00	Infinity
Power density scaling	**-**	Rectangular	1.73	1	-	Infinity
Spatial averaging	**0.10**	Rectangular	1.73	1	0.06	Infinity
System detection limit	**0.04**	Rectangular	1.73	1	0.02	Infinity
Uncertainty terms dependent on the DUT and environmental factors						
Probe coupling with DUT	**0.00**	Rectangular	1.73	1	0.00	Infinity
Modulation response	**0.40**	Rectangular	1.73	1	0.23	Infinity
Integration time	**0.00**	Rectangular	1.73	1	0.00	Infinity
Response time	**0.00**	Rectangular	1.73	1	0.00	Infinity
Device holder influence	**0.10**	Rectangular	1.73	1	0.06	Infinity
DUT alignment	**0.00**	Rectangular	1.73	1	0.00	Infinity
RF ambient conditions	**0.04**	Rectangular	1.73	1	0.02	Infinity
Ambient reflections	**0.04**	Rectangular	1.73	1	0.02	Infinity
Immunity / secondary reception	**0.00**	Rectangular	1.73	1	0.00	Infinity
Drift of the DUT	**0.22**	Rectangular	1.73	1	0.13	Infinity
Combined Std. Uncertainty					1.33	
Expanded Standard Uncertainty (95%)					**2.65**	

5.2.1. Decision rule

Decision rule for statement(s) of conformity is based on Procedures 2, Clause 4.4.3 in IEC Guide 115:2007.

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.
Back Cover	☒ The Back Cover is not removable.
Battery Options	☒ The rechargeable battery is not user accessible
Test Sample Information	**No.** / **S/N** / **Notes** 1 / R32RB00B3VY / Conducted 2 / R32RB00B3LX / Conducted 1 / R32RA006V7J / Radiated 2 / R32RA006VCE / Radiated 3 / R32RB00B40E / Radiated 4 / R32RB00B3WH / Radiated

6.2. Wireless Technologies of UNII 6e

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR & PD testing
Wi-Fi_UNII 6e (Above 6GHz)	UNII Band 5 (5.925-6.425 GHz) UNII Band 6 (6.425-6.525 GHz) UNII Band 7 (6.525-6.885 GHz) UNII Band 8 (6.885-7.125 GHz)	802.11a 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80) 802.11ax (HE160)	99.5% (802.11ax (HE20)) 99.6% (802.11ax (HE160))

Notes:
Duty cycle for Wi-Fi is referenced from the UNII report.

6.3. Nominal and Maximum Output Power

Normal WLAN - Maximum Power

RF Air interface	Mode	Max. RF Output Power (dBm)		
		WLAN Ant.1	WLAN Ant.2	MIMO (WLAN Ant.1 + Ant.2)
WiFi 6 GHz (UNII Band 5 - 8)	802.11a	7.0	7.0	10.0
	802.11ax HE20	7.0	7.0	10.0
	802.11ax HE40	10.0	10.0	13.0
	802.11ax HE80	10.0	10.0	13.0
	802.11ax HE160	10.0	10.0	13.0

Normal WLAN - Reduced Power (Proximity Sensor)

RF Air interface	Mode	Reduced. RF Output Power (dBm)		
		WLAN Ant.1	WLAN Ant.2	MIMO (WLAN Ant.1 + Ant.2)
WiFi 6 GHz (UNII Band 5 - 8)	802.11a	7.0	7.0	10.0
	802.11ax HE20	7.0	7.0	10.0
	802.11ax HE40	6.5	6.5	9.5
	802.11ax HE80	6.5	6.5	9.5
	802.11ax HE160	6.0	6.0	9.0

Note(s):.
Only MIMO mode is supported for UNII 6e Bands.

7. RF Exposure Conditions (Test Configurations)

Refer to Appendix A for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

SAR test positions

Antenna	Tx Interface	Pwr Back-off	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Corner A	Corner B
				(Right Edge)	(Bottom Edge)	(Left Edge)	(Top Edge)	Note 3	
WiFi 6e MIMO (Ant.1 + Ant.2)	UNII 5/6/7/8	OFF	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		ON	Yes	Yes	Yes	Yes	Yes	No	No

Incident Power density test positions

Antenna	Tx Interface	Pwr Back-off	Rear	Front	Edge 1	Edge 2	Edge 3	Edge 4
					(Right Edge)	(Bottom Edge)	(Left Edge)	(Top Edge)
WiFi 6e MIMO (Ant.1 + Ant.2)	UNII 5/6/7/8	OFF	Yes	Yes	Yes	No	Yes	Yes

Notes:

1. Yes = Testing is required. No = Testing is not required.
2. Corner SAR additionally evaluated using max power with triggering distance. (Corner A = between Edge.1 and Edge.4 / Corner B = between Edge 3 and Edge 4).
3. For SAR test positions, Edge.2 additionally evaluated for satisfy to simultaneous transmission analysis.

8. SAR System Check with Dielectric Property Measurements

8.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after 1 days of use; for example, when the parameters are marginal at the beginning of the measurement series. Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

Refer to Table 2 within the IEC/IEEE Std 62209-1528 : 2020

Target Frequency (MHz)	Tissue parameters	
	ε_r	σ (S/m)
5800	35.3	5.27
6000	35.1	5.48
6500	34.5	6.07
7000	33.9	6.65
7500	33.3	7.24

Dielectric Property Measurements Results:

SAR 7 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
11/23/2021	Head 6000	e'	34.2500	Relative Permittivity (ε_r):	34.25	35.10	-2.42	5
		e''	16.8600	Conductivity (σ):	5.62	5.48	2.64	5
	Head 6200	e'	33.8500	Relative Permittivity (ε_r):	33.85	34.86	-2.90	5
		e''	17.0100	Conductivity (σ):	5.86	5.72	2.59	5
	Head 6500	e'	33.2800	Relative Permittivity (ε_r):	33.28	34.50	-3.54	5
		e''	17.1800	Conductivity (σ):	6.21	6.07	2.29	5
	Head 6600	e'	33.0800	Relative Permittivity (ε_r):	33.08	34.38	-3.78	5
		e''	17.2500	Conductivity (σ):	6.33	6.19	2.33	5
	Head 6800	e'	32.7100	Relative Permittivity (ε_r):	32.71	34.14	-4.19	5
		e''	17.3600	Conductivity (σ):	6.56	6.42	2.27	5
	Head 7000	e'	32.3900	Relative Permittivity (ε_r):	32.39	33.90	-4.45	5
		e''	17.4100	Conductivity (σ):	6.78	6.65	1.90	5
11/24/2021	Head 6000	e'	35.1800	Relative Permittivity (ε_r):	35.18	35.10	0.23	5
		e''	17.0700	Conductivity (σ):	5.69	5.48	3.92	5
	Head 6200	e'	34.9100	Relative Permittivity (ε_r):	34.91	34.86	0.14	5
		e''	17.2500	Conductivity (σ):	5.95	5.72	4.04	5
	Head 6500	e'	34.3200	Relative Permittivity (ε_r):	34.32	34.50	-0.52	5
		e''	17.4100	Conductivity (σ):	6.29	6.07	3.66	5
	Head 6600	e'	34.1200	Relative Permittivity (ε_r):	34.12	34.38	-0.76	5
		e''	17.4500	Conductivity (σ):	6.40	6.19	3.52	5
	Head 6800	e'	33.6600	Relative Permittivity (ε_r):	33.66	34.14	-1.41	5
		e''	17.5800	Conductivity (σ):	6.65	6.42	3.57	5
	Head 7000	e'	33.3100	Relative Permittivity (ε_r):	33.31	33.90	-1.74	5
		e''	17.6300	Conductivity (σ):	6.86	6.65	3.19	5
11/25/2021	Head 6000	e'	35.9100	Relative Permittivity (ε_r):	35.91	35.10	2.31	5
		e''	16.2200	Conductivity (σ):	5.41	5.48	-1.25	5
	Head 6200	e'	35.5800	Relative Permittivity (ε_r):	35.58	34.86	2.07	5
		e''	16.4500	Conductivity (σ):	5.67	5.72	-0.79	5
	Head 6500	e'	35.3800	Relative Permittivity (ε_r):	35.38	34.50	2.55	5
		e''	16.5400	Conductivity (σ):	5.98	6.07	-1.52	5
	Head 6600	e'	35.1600	Relative Permittivity (ε_r):	35.16	34.38	2.27	5
		e''	16.5800	Conductivity (σ):	6.08	6.19	-1.64	5
	Head 6800	e'	34.8200	Relative Permittivity (ε_r):	34.82	34.14	1.99	5
		e''	16.6300	Conductivity (σ):	6.29	6.42	-2.03	5
	Head 7000	e'	34.3100	Relative Permittivity (ε_r):	34.31	33.90	1.21	5
		e''	16.8100	Conductivity (σ):	6.54	6.65	-1.61	5

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every days.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 10.0 cm for measurements > 6 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 5 mm (above 6GHz) from dipole center to the simulating liquid surface.
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

Reference Target SAR Values

The reference SAR values can be obtained from the calibration certificate of system validation dipoles.

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D6.5GHzV2	1010	8/21/2020	6500	1g	291.00
				10g	53.10

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

SAR 7 Room

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
2021/11/23	D6.5G V2	1010	Head	1g	29.90	299.0	291.00	2.75	
				10g	5.57	55.7	53.10	4.90	
2021/11/24	D6.5G V2	1010	Head	1g	29.10	291.0	291.00	0.00	
				10g	5.37	53.7	53.10	1.13	
2021/11/25	D6.5G V2	1010	Head	1g	28.20	282.0	291.00	-3.09	1
				10g	5.16	51.6	53.10	-2.82	

9. IPD(Incident Power Density) System with Dielectric Property

9.1. Dielectric Property

Media is air so Relative Permittivity (ϵr) and Conductivity (σ) is 1.

9.2. System Check

Per Nov 2017,TCB Workshop

System validation is required before a system is deployed for measurement
System check is also required before each series of continuous measurement and, as applicable, repeated at least weekly
Peak and spatially averaged power density at the peak location(s) must be compared to calibrated results according to the defined test conditions

– the same spatial resolution and measurement region used in the waveguide calibration should be applied to system validation and system check
– 4 cm^2 spatial averaging have been used according to FCC requirement.
– power density distribution should also be verified, both spatially (shape) and numerically (level) through visual inspection for noticeable differences
– The Horn antenna input power (forward power) was 100 mW.
– The measured results should be within 10% of the calibrated targets

Reference Target PD Values

Per the manufacturer’s guide, the target value of the calibration report was converted to a value of 100mW input power.

5G verification Source	Serial No.	Cal. Date	Freq. (MHz)	Averaging area	Prad (mW)	Input power (mW)	Target PD Values (W/m^2)		Note
							1 cm^2	4 cm^2	
10GHz	1022	1/18/2021	100000	Circular	74	[redacted]	45.10	42.20	Cal.report target
10GHz	1022	1/18/2021	100000	Circular	[redacted]	100	60.95	57.03	Convert target from Cal.report

SAR 8 Room

Date	Sorce SN	Sorce Cal. Due Data	Input Power (mW)	Measured Results for 1cm^2 (W/m^2)	**Target (Ref. Value)** (W/m^2)	**Delta ±10 %**	Measured Total psPD for 4cm^2 (W/m^2)	**Target (Ref. Value)** (W/m^2)	**Delta (±10 %)**	Visual Inspection	Plot No.
11/17/2021	1022	2/18/2022	100	57.40	60.95	-5.82	53.40	57.03	-6.37	confirmed	
11/18/2021	1022	2/18/2022	100	60.40	60.95	-0.90	55.30	57.03	-3.03	confirmed	
11/19/2021	1022	2/18/2022	100	60.60	60.95	-0.57	55.80	57.03	-2.16	confirmed	2
11/20/2021	1022	2/18/2022	100	57.80	60.95	-5.17	53.90	57.03	-5.49	confirmed	
11/21/2021	1022	2/18/2022	100	59.40	60.95	-2.54	55.10	57.03	-3.38	confirmed	
11/25/2021	1022	2/18/2022	100	58.40	60.95	-4.18	53.90	57.03	-5.49	confirmed	
11/30/2021	1022	2/18/2022	100	56.20	60.95	-7.79	52.40	57.03	-8.12	confirmed	3

Note(s):
psPD value used the pS_{tot} avg value of test result plot.

9.3. Wi-Fi 6 GHz (U-NII Bands)

Normal WLAN – Maximum Power

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Max. Average Power			
					WLAN MIMO Ant.1		WLAN MIMO Ant.2	
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)
UNII 5 (5.925 - 6.425 GHz)	802.11a	6 Mbps	1	5955	Not Required	7.0	Not Required	7.0
			45	6175				
			93	6415				
	802.11ax (HE20)	7.3 Mbps	1	5955		7.0		7.0
			45	6175				
			93	6415				
	802.11ax (HE40)	14.6 Mbps	3	5965	9.5	10.0	8.9	10.0
			43	6165	8.9		8.5	
			91	6405	10.0		8.1	
	802.11ax (HE80)	36.0 Mbps	7	5985	9.48	10.0	8.8	10.0
			39	6145	8.8		8.5	
			87	6385	10.0		8.0	
	802.11ax (HE160)	72.0 Mbps	15	6025	8.7	10.0	9.0	10.0
			47	6185	9.3		8.9	
			79	6345	9.2		8.1	
UNII 6 (6.425 - 6.525 GHz)	802.11a	6 Mbps	97	6435	Not Required	7.0	Not Required	7.0
			105	6475				
			113	6515				
	802.11ax (HE20)	7.3 Mbps	97	6435		7.0		7.0
			105	6475				
			113	6515				
	802.11ax (HE40)	14.6 Mbps	99	6445	9.7	10.0	8.5	10.0
			115	6525	9.7		9.2	
	802.11ax (HE80)	36.0 Mbps	103	6465	9.6	10.0	8.3	10.0
	802.11ax (HE160)	72.0 Mbps	111	6505	8.1	10.0	9.1	10.0
UNII 7 (6.525 - 6.885 GHz)	802.11a	6 Mbps	117	6535	Not Required	7.0	Not Required	7.0
			149	6695				
			185	6875				
	802.11ax (HE20)	7.3 Mbps	117	6535		7.0		7.0
			149	6695				
			185	6875				
	802.11ax (HE40)	14.6 Mbps	123	6565	8.7	10.0	9.5	10.0
			147	6685	8.3		10.0	
			179	6845	8.9		9.0	
	802.11ax (HE80)	36.0 Mbps	119	6545	9.6	10.0	9.1	10.0
			151	6705	8.1		9.9	
			183	6865	8.3		8.7	
	802.11ax (HE160)	72.0 Mbps	143	6665	8.1	10.0	9.9	10.0
			175	6825	8.8		9.0	
UNII 8 (6.885 - 7.125 GHz)	802.11a	6 Mbps	189	6895	Not Required	7.0	Not Required	7.0
			209	6995				
			233	7115				
	802.11ax (HE20)	7.3 Mbps	189	6895		7.0		7.0
			209	6995				
			233	7115				
	802.11ax (HE40)	14.6 Mbps	187	6885	8.9	10.0	9.1	10.0
			203	6965	8.8		10.0	
			227	7085	9.8		8.8	
	802.11ax (HE80)	36.0 Mbps	199	6945	8.3	10.0	9.7	10.0
			215	7025	9.7		8.1	
	802.11ax (HE160)	72.0 Mbps	207	6985	8.6	10.0	8.9	10.0

Note(s):

Per TCB workshop Oct.2020's guide, Channel power verification was performed for UNII 6e (5925MHz-7125MHz), And 5 test channels of 802.11ax (HE160) were determined for SAR & PD test. Refer to blue box in table.

Normal WLAN – Reduced Power (Proximity Sensor)

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Reduced. Average Power: WLAN MIMO Ant.1 Avg Pwr (dBm)	WLAN MIMO Ant.1 Max. Tune-up Limit (dBm)	WLAN MIMO Ant.2 Avg Pwr (dBm)	WLAN MIMO Ant.2 Max. Tune-up Limit (dBm)
UNII 5 (5.925 - 6.425 GHz)	802.11a	6 Mbps	1	5955	6.0	7.0	6.0	7.0
			45	6175	6.0		6.0	
			93	6415	6.9		5.1	
	802.11ax (HE20)	7.3 Mbps	1	5955	6.1	7.0	6.1	7.0
			45	6175	6.1		6.5	
			93	6415	7.0		5.2	
	802.11ax (HE40)	14.6 Mbps	3	5965		6.5		6.5
			43	6165				
			91	6405				
	802.11ax (HE80)	36.0 Mbps	7	5985		6.5		6.5
			39	6145				
			87	6385				
	802.11ax (HE160)	72.0 Mbps	15	6025		6.0		6.0
			47	6185				
			79	6345				
UNII 6 (6.425 - 6.525 GHz)	802.11a	6 Mbps	97	6435	6.4	7.0	5.7	7.0
			105	6475	6.4		5.6	
			113	6515	6.3		6.5	
	802.11ax (HE20)	7.3 Mbps	97	6435	6.5	7.0	5.8	7.0
			105	6475	6.5		5.7	
			113	6515	6.4		6.5	
	802.11ax (HE40)	14.6 Mbps	99	6445		6.5		6.5
			115	6525				
	802.11ax (HE80)	36.0 Mbps	103	6465		6.5		6.5
	802.11ax (HE160)	72.0 Mbps	111	6505		6.5		6.5
UNII 7 (6.525 - 6.885 GHz)	802.11a	6 Mbps	117	6535	6.3	7.0	6.5	7.0
			149	6695	5.1		7.0	
			185	6875	5.7		6.5	
	802.11ax (HE20)	7.3 Mbps	117	6535	6.5	7.0	6.5	7.0
			149	6695	5.2		7.0	
			185	6875	5.8		6.6	
	802.11ax (HE40)	14.6 Mbps	123	6565		6.5		6.5
			147	6685				
			179	6845				
	802.11ax (HE80)	36.0 Mbps	119	6545		6.5		6.5
			151	6705				
			183	6865				
	802.11ax (HE160)	72.0 Mbps	143	6665		6.0		6.0
			175	6825				
UNII 8 (6.885 - 7.125 GHz)	802.11a	6 Mbps	189	6895	5.6	7.0	6.4	7.0
			209	6995	7.0		6.4	
			233	7115	6.9		5.7	
	802.11ax (HE20)	7.3 Mbps	189	6895	5.8	7.0	6.5	7.0
			209	6995	6.7		6.0	
			233	7115	6.5		5.3	
	802.11ax (HE40)	14.6 Mbps	187	6885		6.5		6.5
			203	6965				
			227	7085				
	802.11ax (HE80)	36.0 Mbps	199	6945		6.5		6.5
			215	7025				
	802.11ax (HE160)	72.0 Mbps	207	6985		6.0		6.0

Note(s):

Per TCB workshop Oct.2020's guide, Channel power verification was performed for UNII 6e (5925MHz-7125MHz), And 5 test channels of 802.11ax (HE160) were determined for SAR & PD test. Refer to blue box in table.

10. SAR and APD(Absorbed Power Density) Results

SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for Wi-Fi = Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

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

10.1. WiFi (UNII Bands-Above 6GHz)

SAR test results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	
WLAN MIMO Ant.1	Standalone	802.11ax HE160 72.0 Mbps	Off	14	Rear	15	6025.0	99.6%	10.0	8.7	0.004	0.005	
						79	6345.0	99.6%	10.0	9.2	0.017	0.021	
						111	6505.0	99.6%	10.0	8.1	0.008	0.012	
						143	6665.0	99.6%	10.0	8.1	<0.001	<0.001	
						207	6985.0	99.6%	10.0	8.6	<0.001	<0.001	
				7	Edge 1	111	6505.0	99.6%	10.0	8.1	<0.001	<0.001	
				0	Edge 2	111	6505.0	99.6%	10.0	8.1	0.004	0.006	
				9	Edge 3	111	6505.0	99.6%	10.0	8.1			
				17	Edge 4	111	6505.0	99.6%	10.0	8.1			
				9	Corner A	111	6505.0	99.6%	10.0	8.1	0.009	0.014	
				11	Corner B	111	6505.0	99.6%	10.0	8.1			
WLAN MIMO Ant.2	Standalone	802.11ax HE160 72.0 Mbps	Off	14	Rear	15	6025.0	99.6%	10.0	9.0			
						79	6345.0	99.6%	10.0	8.1			
						111	6505.0	99.6%	10.0	9.1			
						143	6665.0	99.6%	10.0	9.9			
						207	6985.0	99.6%	10.0	8.9			
				7	Edge 1	111	6505.0	99.6%	10.0	9.1			
				0	Edge 2	111	6505.0	99.6%	10.0	9.1			
				9	Edge 3	111	6505.0	99.6%	10.0	9.1	0.017	0.021	
				17	Edge 4	111	6505.0	99.6%	10.0	9.1	<0.001	<0.001	
				9	Corner A	111	6505.0	99.6%	10.0	9.1			
				11	Corner B	111	6505.0	99.6%	10.0	9.1	0.002	0.002	
WLAN MIMO Ant.1	Standalone	802.11ax HE20 7.3 Mbps	On	0	Rear	45	6175.0	99.5%	7.0	6.1			
						93	6415.0	99.5%	7.0	7.0			
						117	6535.0	99.5%	7.0	6.5	0.104	0.119	
						149	6695.0	99.5%	7.0	5.2	0.288	0.443	1
						209	6995.0	99.5%	7.0	6.7			
					Edge 1	117	6535.0	99.5%	7.0	6.5	0.016	0.018	
					Edge 3	117	6535.0	99.5%	7.0	6.5			
					Edge 4	117	6535.0	99.5%	7.0	6.5	0.005	0.006	
WLAN MIMO Ant.2	Standalone	802.11ax HE20 7.3 Mbps	On	0	Rear	45	6175.0	99.5%	7.0	6.5	0.393	0.442	
						93	6415.0	99.5%	7.0	5.2	0.204	0.308	
						117	6535.0	99.5%	7.0	6.5	0.182	0.204	
						149	6695.0	99.5%	7.0	7.0			
						209	6995.0	99.5%	7.0	6.0	0.172	0.217	
					Edge 1	117	6535.0	99.5%	7.0	6.5			
					Edge 3	117	6535.0	99.5%	7.0	6.5	0.091	0.102	
					Edge 4	117	6535.0	99.5%	7.0	6.5			

Note(s):

1. For MIMO SAR test distance of Rear & Edge.4 side in Power back-off mode “Off” condition, It tested using Max power at the shorter distance among the triggering distance of each antennas.

APD (Absorbed Power Density) results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm) Tune-up limit	Power (dBm) Meas.	Measured APD (mW/cm^2 over 4cm^2	Plot No.
WLAN MIMO Ant.1	Standalone	802.11ax HE160 72.0 Mbps	Off	14	Rear	15	6025.0	99.6%	10.0	8.7	<0.0001	
						79	6345.0	99.6%	10.0	9.2	0.0076	
						111	6505.0	99.6%	10.0	8.1	0.0033	
						143	6665.0	99.6%	10.0	8.1	<0.0001	
						207	6985.0	99.6%	10.0	8.6	<0.0001	
				7	Edge 1	111	6505.0	99.6%	10.0	8.1	<0.0001	
				0	Edge 2	111	6505.0	99.6%	10.0	8.1	0.0004	
				9	Edge 3	111	6505.0	99.6%	10.0	8.1		
				17	Edge 4	111	6505.0	99.6%	10.0	8.1		
				9	Corner A	111	6505.0	99.6%	10.0	8.1	0.0053	
				11	Corner B	111	6505.0	99.6%	10.0	8.1		
WLAN MIMO Ant.2	Standalone	802.11ax HE160 72.0 Mbps	Off	14	Rear	15	6025.0	99.6%	10.0	9.0		
						79	6345.0	99.6%	10.0	8.1		
						111	6505.0	99.6%	10.0	9.1		
						143	6665.0	99.6%	10.0	9.9		
						207	6985.0	99.6%	10.0	8.9		
				7	Edge 1	111	6505.0	99.6%	10.0	9.1		
				0	Edge 2	111	6505.0	99.6%	10.0	9.1		
				9	Edge 3	111	6505.0	99.6%	10.0	9.1	0.0122	
				17	Edge 4	111	6505.0	99.6%	10.0	9.1	<0.0001	
				9	Corner A	111	6505.0	99.6%	10.0	9.1		
				11	Corner B	111	6505.0	99.6%	10.0	9.1	0.0027	
WLAN MIMO Ant.1	Standalone	802.11ax HE20 7.3Mbps	On	0	Rear	45	6175.0	99.5%	7.0	6.1		
						93	6415.0	99.5%	7.0	7.0		
						117	6535.0	99.5%	7.0	6.5	0.0851	
						149	6695.0	99.5%	7.0	5.2	0.1330	
						209	6995.0	99.5%	7.0	6.7		
					Edge 1	117	6535.0	99.5%	7.0	6.5	0.0042	
					Edge 3	117	6535.0	99.5%	7.0	6.5		
					Edge 4	117	6535.0	99.5%	7.0	6.5	<0.0001	
WLAN MIMO Ant.2	Standalone	802.11ax HE20 7.3Mbps	On	0	Rear	45	6175.0	99.5%	7.0	6.5	0.2030	2
						93	6415.0	99.5%	7.0	5.2	0.1010	
						117	6535.0	99.5%	7.0	6.5	0.0851	
						149	6695.0	99.5%	7.0	7.0		
						209	6995.0	99.5%	7.0	6.0	0.0855	
					Edge 1	117	6535.0	99.5%	7.0	6.5		
					Edge 3	117	6535.0	99.5%	7.0	6.5	0.0435	
					Edge 4	117	6535.0	99.5%	7.0	6.5		

Note(s):

1. APD (Absorbed Power Density) over 4cm^2 averaging area is reported based on SAR measurements.
2. 10 W/m^2 = 1.0 mW/cm^2

11. IPD(Incident Power density) Results

Antenna	Mode	Test Position	Dist. (mm)	Ch.	Freq. (MHz)	Duty Cycle	Grid Step (Lamda)	iPD Note.1 (mW/cm^2)	Meas. Normal psPD mW/cm^2	Meas. Total psPD mW/cm^2	Scailing factor for Measurement Uncertainty per IEC 62479 Note.2	Scaled Normal psPD mW/cm2	Scaled Total psPD mW/cm2	Note.	Plot No.
WLAN MIMO Ant.1	802.11ax HE 160 72.0 Mbps	Rear	2.00	15	6025.0	99.6%	0.05	N/A	0.0265	0.0315	1.541	0.0408	0.0485		
				79	6345.0	99.6%	0.05	N/A							
				111	6505.0	99.6%	0.05	N/A							
				143	6665.0	99.6%	0.05	N/A							
				207	6985.0	99.6%	0.05	N/A							
		Front		111	6505.0	99.6%	0.05	N/A	0.0445	0.0454	1.541	0.0686	0.0700		
		Edge 1		111	6505.0	99.6%	0.05	N/A	0.0323	0.0348	1.541	0.0498	0.0536		
		Edge 3		111	6505.0	99.6%	0.05	N/A							
		Edge 4		111	6505.0	99.6%	0.05	N/A	0.0259	0.0297	1.541	0.0399	0.0458		
WLAN MIMO Ant.2	802.11ax HE 160 72.0 Mbps	Rear	2.00	15	6025.0	99.6%	0.05	0.0887	0.0651	0.0903	1.541	0.1003	**0.1392**	1	3
				79	6345.0	99.6%	0.05	N/A	0.0570	0.0669	1.541	0.0878	0.1031		
				111	6505.0	99.6%	0.05	N/A	0.0542	0.0596	1.541	0.0835	0.0918		
				143	6665.0	99.6%	0.05	N/A	0.0355	0.0410	1.541	0.0547	0.0632		
				207	6985.0	99.6%	0.05	N/A	0.0166	0.0215	1.541	0.0256	0.0331		
		Front		111	6505.0	99.6%	0.05	N/A	0.0146	0.0176	1.541	0.0225	0.0271		
		Edge 1		111	6505.0	99.6%	0.05	N/A							
		Edge 3		111	6505.0	99.6%	0.05	N/A	0.0238	0.0302	1.541	0.0367	0.0465		
		Edge 4		111	6505.0	99.6%	0.05	N/A	0.0111	0.0125	1.541	0.0171	0.0193		
		Rear	9.96	15	6025.0	99.6%	0.05	0.0835	0.0196	0.0203	1.541	0.0302	0.0313	1	

Note(s):

1. Per manufacturer guide, Incident power density was measured at d=2mm and d=Lamda/5mm using the same grid size and grid step size for some frequencies and surfaces. iPD(integrated Power Density) was calculated based on these measurements. Since iPD ratio between the two distance is < 1dB, the grid step was sufficient for determining compliance at d=2mm.
2. Per TCBC workshop guide, Incident power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty > 30%. Total expanded uncertainty of 2.65 dB (84.1%) was used to determine the psPD measurement scailing factor.
3. 10 W/m^2 = 1.0 mW/cm^2

12. Simultaneous Transmission Analysis

Please refer to section.12 in FCC SAR report S1.

Appendixes

Refer to separated files for the following appendixes.

4790101669-S2 FCC Report WiFi 6GHz_App A_PD Photos & Ant. Locations

4790101669-S2 FCC Report WiFi 6GHz _App B_Highest SAR and PD Test Plots

4790101669-S2 FCC Report WiFi 6GHz _App C_System Check Plots

4790101669-S2 FCC Report WiFi 6GHz _App D_SAR Tissue Ingredients

4790101669-S2 FCC Report WiFi 6GHz _App E_Probe Cal. Certificates

4790101669-S2 FCC Report WiFi 6GHz _App F_Dipole and Horn antenna Cal. Certificates

END OF REPORT