FCC 47 CFR § 2.1093
IEC/IEEE Std 62209-1528 : 2020
IEC/IEEE Std 63195-1 :2022

RF EVALUATION REPORT (Above 6GHz)

FOR

GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT

MODEL NUMBER: SC-51E, SCG25

FCC ID: A3LSMS921JPN

REPORT NUMBER: 4790976580-S2V1

ISSUE DATE: 1/22/2024

Prepared for
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Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	1/22/2024	Initial Issue	--

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMS921JPN			
Model Number		SC-51E, SCG25			
Applicable Standards		FCC 47 CFR § 2.1093 IEC/IEEE Std 62209-1528 : 2020 IEC/IEEE Std 63195-1:2022 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)		Power Density Limits (mW/cm^2 over $4cm^2$)	
		Peak spatial average (1g of tissue)	Product Specific 10g (10g of tissue)	APD (Absorbed Power Density)	IPD (Incident Power Density)
General population / Uncontrolled exposure		1.6	4.0	N/A	1.0
RF Exposure Conditions		Equipment Class			
		6CD			
		The Highest Reported SAR (W/kg)	APD (mW/cm^2)	The Highest Reported IPD (mW/cm^2)	
Head		0.37	0.15	0.99	
Body-worn		0.12	0.06		
Product Specific 10g		0.66	1.13		
Simultaneous TX	Head	1.57			
	Body-worn	1.58			
	Product Specific 10g	3.12			
Date Tested		12/4/2023 to 1/18/2024			
Test Results		Pass			

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	Jeongyeon Won Laboratory Engineer 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-62209-1528-2020, IEC 62479:2010, IEC/IEEE 63195-1:2022 the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 941225 D07 UMPC Mini Tablet v01r02

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

- TCB workshop November, 2017; RF Exposure (System Check / Spatial Averaging Requirements / Poynting Vector Considerations)
- TCB workshop April, 2021; RF Exposure Policies (U-NII 6-7 GHz Interim Procedures)
- TCB workshop Oct, 2022; Mobile and Portable Device RF Exposure Policies and Procedures (IPD and SAR evaluation of f-above-6 GHz portable devices)
- SPEAG, 5G Module Application Note : 5G Compliance Testing
- SPEAG, DASY8 Module mmWave Manual, April 2023
- SPEAG DASY6 Application Note : Interim Procedures (Version 9.0) 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 9 Room

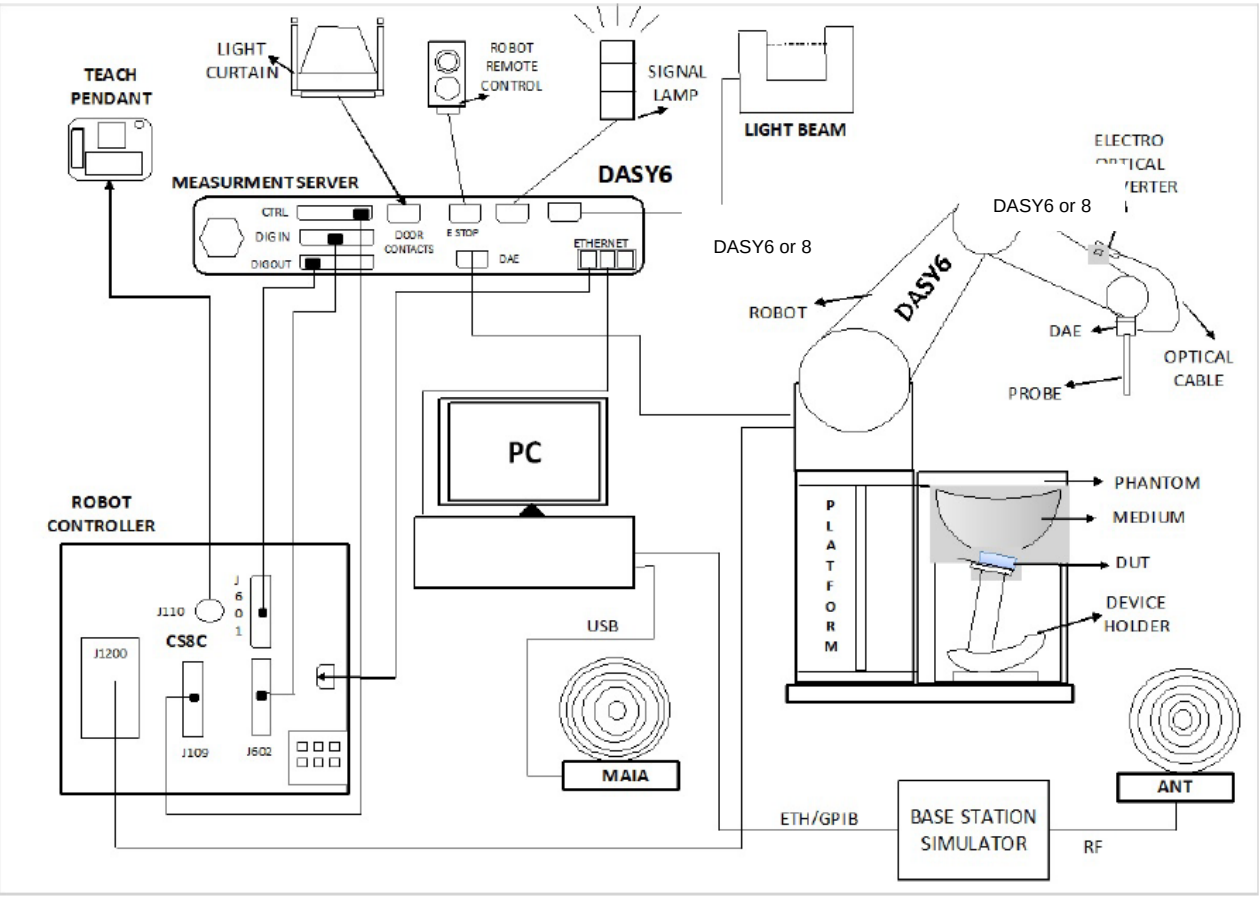
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.
The full scope of accreditation can be viewed at

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	$\delta \ln(2)/2 \pm 0{,}5$ [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	
	$f \leq 3$ GHz	3 GHz $< f \leq 10$ 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.

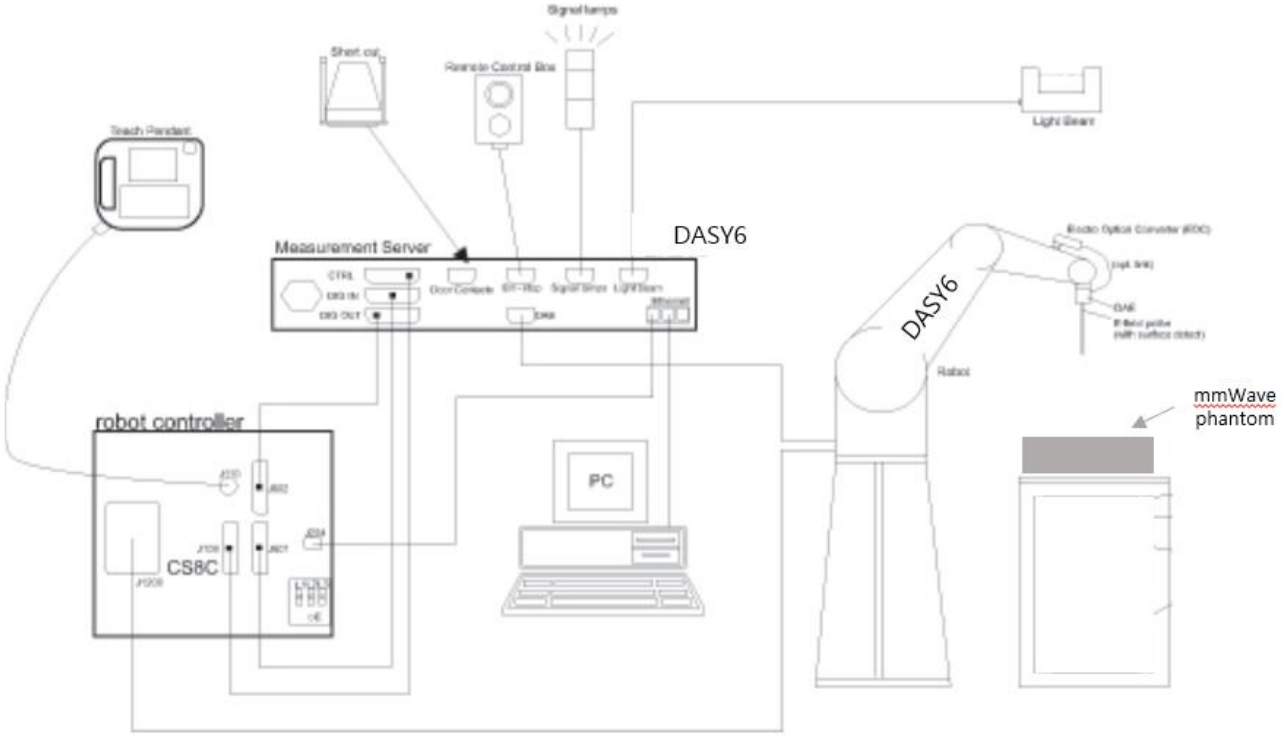
[b] This is the maximum spacing allowed, which might not work for all circumstances.

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. IPD(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 DASY8 Module mmWave Manual.

Recommended settings for measurement of verification sources

Frequency [GHz]	Grid step	Grid extent X/Y [mm]	Measurement points
10	0.125 ($\frac{\lambda}{8}$)	60/60	18 × 18
30	0.25 ($\frac{\lambda}{4}$)	60/60	26 × 26
45	0.25 ($\frac{\lambda}{4}$)	42/42	28 × 28
60	0.25 ($\frac{\lambda}{4}$)	32.5/32.5	28 × 28
90	0.25 ($\frac{\lambda}{4}$)	30/30	38 × 38

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

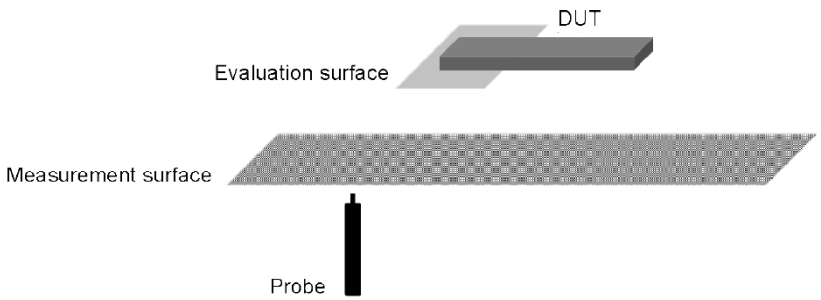
Per equipment manufacturer guidance for 6 – 10GHz, Power density was measured at d=2mm.

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/APD(Absorbed Power Density) Test Equipment

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	7-24-2024
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7-17-2024
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	7-25-2024
Thermometer	LKM	DTM3000	3862	7-25-2024

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	7-26-2024
Power Sensor	KEYSIGHT	U2000A	MY60180020	7-26-2024
Power Sensor	KEYSIGHT	U2000A	MY60490008	7-25-2024
Power Amplifier	EXODUS	AMP2027ADB	10002	**1-6-2024**
				1-5-2025
Directional Coupler	KRYTAR	100318010	215541	**1-5-2024**
				1-4-2025
Directional Coupler	KRYTAR	100318010	215542	**1-5-2024**
Low Pass Filter	Wainwright Instruments	WLKX10-11000-13640-21000-60TS	1	7-25-2024
Attenuator	KEYSIGHT	8491B/010	MY39272011	7-25-2024
Attenuator	KEYSIGHT	8491B/020	MY39271973	7-25-2024
Attenuator	MINI-CIRCUITS	BW-S3W10+	N/A	**1-6-2024**
E-Field Probe	SPEAG	EX3DV4	7646	9-20-2024
Data Acquisition Electronics	SPEAG	DAE4	1447	3-22-2024
System Validation Dipole	SPEAG	D6.5GHz	1010	5-27-2024
Thermometer	Lutron	MHB-382SD	AK.18789	7-27-2024

Note(s):

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations (for blue box item).
3. All equipments were used until Cal.Due date.

4.3.2. IPD(Incident Power Density) Test Equipment

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	7-26-2024
Power Sensor	KEYSIGHT	U2000A	MY60180020	7-27-2024
Power Sensor	KEYSIGHT	U2000A	MY54260007	7-26-2024
Power Amplifier	EXODUS	AMP2027ADB	10002	**1-6-2024**
				1-5-2025
Directional Coupler	KRYTAR	100318010	215541	**1-5-2024**
				1-4-2025
Low Pass Filter	Wainwright Instruments	WLKX10-11000-13640-21000-60TS	1	7-25-2024
Attenuator	KEYSIGHT	8491B/010	MY39272011	7-25-2024
Attenuator	KEYSIGHT	8491B/020	MY39271973	7-25-2024
Attenuator	MINI-CIRCUITS	BW-S3W10+	N/A	**1-6-2024**
				1-4-2025
5G probe	SPEAG	EummWV4	9559	2-16-2024
Data Acquisition Electronics	SPEAG	DAE4	1670	5-24-2024
Verification kit	SPEAG	5G verification source_10GHz	1022	2-20-2024
Thermometer	Lutron	MHB-382SD	AK.12102	7-26-2024

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*	l = *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	3.1	4.2	Normal	1	1	1	3.1	4.2	50
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				14.39	14.61	
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =								**28.79**	**29.23**	

5.2. APD(Absorbed Power Density) Measurement Uncertainty

Measurement Uncertainty for cDASY8

Error Description	Uncertainty value (±%)	Probe Dist.	Divisor	(Ci) (1g) / (1cm^2)	(Ci) (8g/10g) / (4cm^2)	Std. Unc.(±%) (1g) / (1cm^2)	Std. Unc.(±%) (8g/10g) / (4cm^2)
Module SAR V16.2	**14.2 / 13.9**	Normal	1	1	1	14.2	13.9
Power Density Conversion	**13.50**	Rectangular	1.73	1	1	7.8	7.8
Combined Std. Uncertainty						16.2	15.9
Expanded Standard Uncertainty (95%)						**32.4**	**31.9**

5.3. IPD(Incident Power Density) Measurement Uncertainty

Measurement Uncertainty for cDASY8 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
Measurement drift	**0.05**	Rectangular	1.73	1	0.03	Infinity
Amplitude and phase noise	**0.04**	Rectangular	1.73	1	0.02	Infinity
Measurement area truncation	**0.00**	Rectangular	1.73	1	0.00	Infinity
Data acquisition	**0.03**	Normal	1.00	1	0.03	Infinity
Sampling	**0.00**	Rectangular	1.73	1	0.00	Infinity
Field reconstruction	**0.60**	Rectangular	1.73	1	0.35	Infinity
Signal-to-Noise Ratio	**0.00**	Rectangular	1.73	1	0.00	Infinity
FTE/MEO	**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
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
Laboratory Temperature	**0.05**	Rectangular	1.73	1	0.03	Infinity
Laboratory 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	**-**	Rectangular	1.73	1	0.00	Infinity
Combined Std. Uncertainty					0.75	Infinity
Expanded Standard Uncertainty (95%)					**1.51**	

5.4. Decision rule of Measurement Uncertainty

Measurement Uncertainty is not applied when providing statements of conformity in accordance with IEC Guide 115:2023, 4.3.3.

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	R3CWB0FGWAL	Conducted
	2	R3CWB0FGWFP	Conducted
	3	R3CWB0FGXTF	Radiated
	4	R3CWB0FGWEW	Radiated
	5	R3CWB0FGWGM	Radiated

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for testing
Wi-Fi_UNII 6e (Above 6GHz)	UNII Band 5 (5925-6425 MHz) UNII Band 6 (6425-6525 MHz) UNII Band 7 (6525-6885 MHz) UNII Band 8 (6885-7125 MHz)	802.11a 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80) 802.11ax (HE160)	99.63%(802.11ax (HE160))

Notes:

Duty cycle for Wi-Fi is referenced from Section.9.3 in this report.

6.3. Maximum Allowed Output power

Maximum allowed output power means that Pmax or PLimit + 1dB device uncertainty for each DSI.

RF Air interface	Mode	Indoor AP					
		Pmax			Plimit (DSI=0,1)		
		WLAN Ant.1	WLAN Ant.2	MIMO (Ant.1 + Ant.2)	WLAN Ant.1	WLAN Ant.2	MIMO (Ant.1 + Ant.2)
WiFi 6 GHz (UNII - 5)	802.11a	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE20	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE40	12.0	12.0	15.0	10.0	10.0	13.0
	802.11ax HE80	14.0	14.0	17.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0
WiFi 6 GHz (UNII - 6)	802.11a	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE20	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE40	12.0	12.0	15.0	10.0	10.0	13.0
	802.11ax HE80	14.0	14.0	17.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0
WiFi 6 GHz (UNII - 7)	802.11a	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE20	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE40	12.0	12.0	15.0	10.0	10.0	13.0
	802.11ax HE80	14.0	14.0	17.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0
WiFi 6 GHz (UNII - 8)	802.11a	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE20	10.0	10.0	13.0	10.0	10.0	13.0
	802.11ax HE40	12.0	12.0	15.0	10.0	10.0	13.0
	802.11ax HE80	14.0	14.0	17.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0

RF Air interface	Mode	Standard AP					
		Pmax			Plimit (DSI=0,1)		
		WLAN Ant.1	WLAN Ant.2	MIMO (Ant.1 + Ant.2)	WLAN Ant.1	WLAN Ant.2	MIMO (Ant.1 + Ant.2)
WiFi 6 GHz (UNII - 5)	802.11a	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE20	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE40	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE80	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0
WiFi 6 GHz (UNII - 7)	802.11a	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE20	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE40	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE80	16.0	16.0	19.0	10.0	10.0	13.0
	802.11ax HE160	14.0	14.0	17.0	10.0	10.0	13.0

Notes:

1. This device has support Dual Client (6CD) in UNII 6-7GHz. So Indoor AP support to UNII 5-8, and Standard AP supports to UNII 5, 7.

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/APD test configurations

Wireless technologies	RF Exposure Conditions	Antena	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
UNII 6e	Head	WiFi 6G SISO Ant 1	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body-worn		10 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Product Specific 10-g		0 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Top	< 25 mm	Yes	
				Left	> 25 mm	No	1
				Bottom	> 25 mm	No	1
				Right	< 25 mm	Yes	
	Head	WiFi 6G SISO Ant 2	0 mm	Left Touch	N/A	Yes	
				Left Tilt (15°)	N/A	Yes	
				Right Touch	N/A	Yes	
				Right Tilt (15°)	N/A	Yes	
	Body-worn		10 mm	Rear	N/A	Yes	
				Front	N/A	Yes	
	Product Specific 10-g		0 mm	Rear	< 25 mm	Yes	
				Front	< 25 mm	Yes	
				Top	< 25 mm	Yes	
				Left	< 25 mm	Yes	
				Bottom	> 25 mm	No	1
				Right	> 25 mm	No	1

IPD test configurations

Wireless technologies	Antena	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	IPD Required	Note
UNII 6e	WiFi 6G SISO Ant 1	2 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Top	< 25 mm	Yes	
			Left	> 25 mm	No	1
			Bottom	> 25 mm	No	1
			Right	< 25 mm	Yes	
UNII 6e	WiFi 6G SISO Ant 1	2 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Top	< 25 mm	Yes	
			Left	> 25 mm	No	1
			Bottom	> 25 mm	No	1
			Right	< 25 mm	Yes	

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. For Phablet devices: When hotspot mode is not supported, Product specific 10-g SAR is required for all surfaces and edges with an antenna located at ≤ 25mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.

8. System Check with Dielectric Property Measurements

8.1. SAR System Check

8.1.1 SAR 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

Dielectric Property Measurements Results:

SAR 7 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-01-04	Head 6000	e'	34.7200	Relative Permittivity (ϵ_r):	34.72	35.10	-1.08	5
		e''	16.4600	Conductivity (σ):	5.49	5.48	0.21	5
	Head 6200	e'	34.5500	Relative Permittivity (ϵ_r):	34.55	34.86	-0.89	5
		e''	16.7000	Conductivity (σ):	5.76	5.72	0.72	5
	Head 6500	e'	34.0200	Relative Permittivity (ϵ_r):	34.02	34.50	-1.39	5
		e''	17.1300	Conductivity (σ):	6.19	6.07	2.00	5
	Head 6600	e'	33.6100	Relative Permittivity (ϵ_r):	33.61	34.38	-2.24	5
		e''	17.1000	Conductivity (σ):	6.28	6.19	1.44	5
	Head 6800	e'	33.3500	Relative Permittivity (ϵ_r):	33.35	34.14	-2.31	5
		e''	17.4200	Conductivity (σ):	6.59	6.42	2.63	5
	Head 7000	e'	32.7900	Relative Permittivity (ϵ_r):	32.79	33.90	-3.27	5
		e''	17.1400	Conductivity (σ):	6.67	6.65	0.32	5
2024-01-11	Head 6000	e'	35.3400	Relative Permittivity (ϵ_r):	35.34	35.10	0.68	5
		e''	16.2100	Conductivity (σ):	5.41	5.48	-1.31	5
	Head 6200	e'	35.5400	Relative Permittivity (ϵ_r):	35.54	34.86	1.95	5
		e''	16.6200	Conductivity (σ):	5.73	5.72	0.24	5
	Head 6500	e'	34.4900	Relative Permittivity (ϵ_r):	34.49	34.50	-0.03	5
		e''	17.1800	Conductivity (σ):	6.21	6.07	2.29	5
	Head 6600	e'	34.3300	Relative Permittivity (ϵ_r):	34.33	34.38	-0.15	5
		e''	16.9800	Conductivity (σ):	6.23	6.19	0.73	5
	Head 6800	e'	33.8200	Relative Permittivity (ϵ_r):	33.82	34.14	-0.94	5
		e''	17.3700	Conductivity (σ):	6.57	6.42	2.33	5
	Head 7000	e'	33.5400	Relative Permittivity (ϵ_r):	33.54	33.90	-1.06	5
		e''	17.4000	Conductivity (σ):	6.77	6.65	1.84	5
2024-01-12	Head 6000	e'	35.4300	Relative Permittivity (ϵ_r):	35.43	35.10	0.94	5
		e''	16.1300	Conductivity (σ):	5.38	5.48	-1.80	5
	Head 6200	e'	35.9600	Relative Permittivity (ϵ_r):	35.96	34.86	3.16	5
		e''	16.6100	Conductivity (σ):	5.73	5.72	0.18	5
	Head 6500	e'	34.4700	Relative Permittivity (ϵ_r):	34.47	34.50	-0.09	5
		e''	17.2100	Conductivity (σ):	6.22	6.07	2.47	5
	Head 6600	e'	34.5000	Relative Permittivity (ϵ_r):	34.50	34.38	0.35	5
		e''	16.9900	Conductivity (σ):	6.24	6.19	0.79	5
	Head 6800	e'	33.5600	Relative Permittivity (ϵ_r):	33.56	34.14	-1.70	5
		e''	17.3600	Conductivity (σ):	6.56	6.42	2.27	5
	Head 7000	e'	33.7700	Relative Permittivity (ϵ_r):	33.77	33.90	-0.38	5
		e''	17.4800	Conductivity (σ):	6.80	6.65	2.31	5

SAR 7 Room

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
2024-01-15	Head 6000	e'	34.8500	Relative Permittivity (ϵ_r):	34.85	35.10	-0.71	5
		e"	16.3400	Conductivity (σ):	5.45	5.48	-0.52	5
	Head 6200	e'	34.8700	Relative Permittivity (ϵ_r):	34.87	34.86	0.03	5
		e"	16.7000	Conductivity (σ):	5.76	5.72	0.72	5
	Head 6500	e'	33.9200	Relative Permittivity (ϵ_r):	33.92	34.50	-1.68	5
		e"	17.1100	Conductivity (σ):	6.18	6.07	1.88	5
	Head 6600	e'	33.7900	Relative Permittivity (ϵ_r):	33.79	34.38	-1.72	5
		e"	17.0100	Conductivity (σ):	6.24	6.19	0.91	5
	Head 6800	e'	33.1900	Relative Permittivity (ϵ_r):	33.19	34.14	-2.78	5
		e"	17.3700	Conductivity (σ):	6.57	6.42	2.33	5
	Head 7000	e'	33.0000	Relative Permittivity (ϵ_r):	33.00	33.90	-2.65	5
		e"	17.3500	Conductivity (σ):	6.75	6.65	1.55	5
2024-01-16	Head 6000	e'	36.0700	Relative Permittivity (ϵ_r):	36.07	35.10	2.76	5
		e"	16.2600	Conductivity (σ):	5.42	5.48	-1.01	5
	Head 6200	e'	36.1800	Relative Permittivity (ϵ_r):	36.18	34.86	3.79	5
		e"	16.5200	Conductivity (σ):	5.70	5.72	-0.37	5
	Head 6500	e'	35.4200	Relative Permittivity (ϵ_r):	35.42	34.50	2.67	5
		e"	16.9100	Conductivity (σ):	6.11	6.07	0.69	5
	Head 6600	e'	35.0500	Relative Permittivity (ϵ_r):	35.05	34.38	1.95	5
		e"	16.7500	Conductivity (σ):	6.15	6.19	-0.63	5
	Head 6800	e'	34.5300	Relative Permittivity (ϵ_r):	34.53	34.14	1.14	5
		e"	16.9900	Conductivity (σ):	6.42	6.42	0.09	5
	Head 7000	e'	34.0800	Relative Permittivity (ϵ_r):	34.08	33.90	0.53	5
		e"	16.9300	Conductivity (σ):	6.59	6.65	-0.91	5
2024-01-17	Head 6000	e'	35.1900	Relative Permittivity (ϵ_r):	35.19	35.10	0.26	5
		e"	16.5000	Conductivity (σ):	5.50	5.48	0.45	5
	Head 6200	e'	34.9900	Relative Permittivity (ϵ_r):	34.99	34.86	0.37	5
		e"	16.6300	Conductivity (σ):	5.73	5.72	0.30	5
	Head 6500	e'	34.5000	Relative Permittivity (ϵ_r):	34.50	34.50	0.00	5
		e"	17.1300	Conductivity (σ):	6.19	6.07	2.00	5
	Head 6600	e'	34.0000	Relative Permittivity (ϵ_r):	34.00	34.38	-1.11	5
		e"	17.0300	Conductivity (σ):	6.25	6.19	1.03	5
	Head 6800	e'	33.7200	Relative Permittivity (ϵ_r):	33.72	34.14	-1.23	5
		e"	17.2700	Conductivity (σ):	6.53	6.42	1.74	5
	Head 7000	e'	33.3200	Relative Permittivity (ϵ_r):	33.32	33.90	-1.71	5
		e"	17.1500	Conductivity (σ):	6.68	6.65	0.38	5
2024-01-18	Head 6000	e'	35.2400	Relative Permittivity (ϵ_r):	35.24	35.10	0.40	5
		e"	15.6900	Conductivity (σ):	5.23	5.48	-4.48	5
	Head 6200	e'	35.2600	Relative Permittivity (ϵ_r):	35.26	34.86	1.15	5
		e"	15.9400	Conductivity (σ):	5.50	5.72	-3.86	5
	Head 6500	e'	34.6300	Relative Permittivity (ϵ_r):	34.63	34.50	0.38	5
		e"	16.5100	Conductivity (σ):	5.97	6.07	-1.70	5
	Head 6600	e'	34.3600	Relative Permittivity (ϵ_r):	34.36	34.38	-0.06	5
		e"	16.3700	Conductivity (σ):	6.01	6.19	-2.89	5
	Head 6800	e'	33.9800	Relative Permittivity (ϵ_r):	33.98	34.14	-0.47	5
		e"	16.7400	Conductivity (σ):	6.33	6.42	-1.38	5
	Head 7000	e'	33.6900	Relative Permittivity (ϵ_r):	33.69	33.90	-0.62	5
		e"	16.7700	Conductivity (σ):	6.53	6.65	-1.85	5

8.1.2 SAR System Check Results

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	2022-05-27	6500	1g	285.00
				10g	52.90
				APD(4cm^2)	1300.00

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			
1-4-2024	D6.5GHzV2	1010	Head	1g	30.60	306.0	285.0	7.37	1
				10g	5.73	57.3	52.9	8.32	
				APD(4cm^2)	140.00	1400.0	1300.0	7.69	
1-11-2024	D6.5GHzV2	1010	Head	1g	27.80	278.0	285.0	-2.46	
				10g	5.23	52.3	52.9	-1.13	
				APD(4cm^2)	127.00	1270.0	1300.0	-2.31	
1-12-2024	D6.5GHzV2	1010	Head	1g	29.00	290.0	285.0	1.75	
				10g	5.52	55.2	52.9	4.35	
				APD(4cm^2)	134.00	1340.0	1300.0	3.08	
1-15-2024	D6.5GHzV2	1010	Head	1g	27.30	273.0	285.0	-4.21	
				10g	5.13	51.3	52.9	-3.02	
				APD(4cm^2)	125.00	1250.0	1300.0	-3.85	
1-16-2024	D6.5GHzV2	1010	Head	1g	27.20	272.0	285.0	-4.56	
				10g	5.11	51.1	52.9	-3.40	
				APD(4cm^2)	124.00	1240.0	1300.0	-4.62	
1-17-2024	D6.5GHzV2	1010	Head	1g	28.20	282.0	285.0	-1.05	
				10g	5.42	54.2	52.9	2.46	
				APD(4cm^2)	132.00	1320.0	1300.0	1.54	
1-18-2024	D6.5GHzV2	1010	Head	1g	28.50	285.0	285.0	0.00	
				10g	5.41	54.1	52.9	2.27	
				APD(4cm^2)	132.00	1320.0	1300.0	1.54	

8.2. IPD(Incident Power Density) System Check

8.2.1 IPD Dielectric Property

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

8.2.2 IPD System Check Results

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 100mW.
- The measured psPDn+, psPDtot+, and psPDmod+ values over 1 cm2 or 4 cm2 for the desired averaging geometry are compared to the calibrated value and expected to be below ±10%

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	2-20-2023	100000	Circular	89.1		58.60	53.90	Cal.report target
10GHz	1022	2-20-2023	100000	Circular		100	65.77	60.49	Convert target from Cal.report

SAR 9 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.
1-11-2024	1022	2-20-2024	100.0	64.0	65.77	-2.69	58.2	60.49	-3.79	confirmed	
1-12-2024	1022	2-20-2024	100.0	66.7	65.77	1.41	61.1	60.49	1.01	confirmed	
1-15-2024	1022	2-20-2024	100.0	62.2	65.77	-5.43	57.6	60.49	-4.78	confirmed	2
1-16-2024	1022	2-20-2024	100.0	63.2	65.77	-3.91	58.0	60.49	-4.12	confirmed	

Note(s):

psPD value used the ps_{tot} avg value of test result plot.

9. Conducted Output Power Measurements

9.1. Wi-Fi 6 GHz (U-NII 6e Bands)

WLAN SISO Ant 1, 2

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Plimit (DSI=0,1) Average Power				SAR Test (Yes/No)
					WLAN SISO Ant.1		WLAN SISO 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	10.00	Not Required	10.00	No
			45	6175					
			93	6415					
	802.11ax (HE20)	7.3 Mbps	1	5935	Not Required	10.00	Not Required	10.00	No
			45	6175					
			93	6415					
	802.11ax (HE40)	14.6 Mbps	3	5965	Not Required	10.00	Not Required	10.00	No
			43	6165					
			91	6405					
	802.11ax (HE80)	36.0 Mbps	7	5985	Not Required	10.00	Not Required	10.00	No
			39	6145					
			87	6385					
	802.11ax (HE160)	72.0 Mbps	15	6025	8.53	10.00	9.43	10.00	Yes
			47	6185	8.48		9.36		
			79	6345	8.89		9.37		
UNII 6 (6.425 - 6.525 GHz)	802.11a	6 Mbps	97	6435	Not Required	10.00	Not Required	10.00	No
			105	6475					
			113	6515					
	802.11ax (HE20)	7.3 Mbps	97	6435	Not Required	10.00	Not Required	10.00	No
			105	6475					
			113	6515					
	802.11ax (HE40)	14.6 Mbps	99	6445	Not Required	10.00	Not Required	10.00	No
			115	6525					
	802.11ax (HE80)	36.0 Mbps	103	6465	Not Required	10.00	Not Required	10.00	No
	802.11ax (HE160)	72.0 Mbps	111	6505	9.46	10.00	8.19	10.00	Yes
UNII 7 (6.525 - 6.885 GHz)	802.11a	6 Mbps	117	6535	Not Required	10.00	Not Required	10.00	No
			149	6695					
			185	6875					
	802.11ax (HE20)	7.3 Mbps	117	6535	Not Required	10.00	Not Required	10.00	No
			149	6695					
			185	6875					
	802.11ax (HE40)	14.6 Mbps	123	6565	Not Required	10.00	Not Required	10.00	No
			147	6685					
			179	6845					
	802.11ax (HE80)	36.0 Mbps	119	6545	Not Required	10.00	Not Required	10.00	No
			151	6705					
			183	6865					
	802.11ax (HE160)	72.0 Mbps	143	6665	8.93	10.00	8.66	10.00	Yes
			175	6825	9.60		9.02		
UNII 8 (6.885 - 7.125 GHz)	802.11a	6 Mbps	189	5955	Not Required	10.00	Not Required	10.00	No
			209	6175					
			233	6415					
	802.11ax (HE20)	7.3 Mbps	189	5955	Not Required	10.00	Not Required	10.00	No
			209	6175					
			233	6415					
	802.11ax (HE40)	14.6 Mbps	187	6885	Not Required	10.00	Not Required	10.00	No
			203	6965					
			227	7085					
	802.11ax (HE80)	36.0 Mbps	199	6945	Not Required	10.00	Not Required	10.00	No
			215	7025					
	802.11ax (HE160)	72.0 Mbps	207	6985	9.28	10.00	9.18	10.00	Yes

Note(s):

1. Indoor AP for Plimit(DSI=0,1) target power is equal to Standard AP related all RF exposure conditions.
2. Per TCB workshop April.2021's guide, Channel power verification was performed for UNII 6e (5925MHz-7125MHz). So, 5 test channels of 802.11ax (HE160) were determined for SAR test. Refer to blue box in table.

WLAN MIMO Ant

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Pmax (=Plimit) Average Power				SAR Test (Yes/No)
					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	10.00	Not Required	10.00	No
			45	6175					
			93	6415					
	802.11ax (HE20)	7.3 Mbps	1	5935	Not Required	10.00	Not Required	10.00	No
			45	6175					
			93	6415					
	802.11ax (HE40)	14.6 Mbps	3	5965	Not Required	10.00	Not Required	10.00	No
			43	6165					
			91	6405					
	802.11ax (HE80)	36.0 Mbps	7	5985	Not Required	10.00	Not Required	10.00	No
			39	6145					
			87	6385					
	802.11ax (HE160)	72.0 Mbps	15	6025	8.36	10.00	9.38	10.00	Yes
			47	6185	8.23		9.74		
			79	6345	8.88		9.30		
UNII 6 (6.425 - 6.525 GHz)	802.11a	6 Mbps	97	6435	Not Required	10.00	Not Required	10.00	No
			105	6475					
			113	6515					
	802.11ax (HE20)	7.3 Mbps	97	6435	Not Required	10.00	Not Required	10.00	No
			105	6475					
			113	6515					
	802.11ax (HE40)	14.6 Mbps	99	6445	Not Required	10.00	Not Required	10.00	No
			115	6525					
	802.11ax (HE80)	36.0 Mbps	103	6465	Not Required	10.00	Not Required	10.00	No
	802.11ax (HE160)	72.0 Mbps	111	6505	9.64	10.00	8.21	10.00	Yes
UNII 7 (6.525 - 6.885 GHz)	802.11a	6 Mbps	117	6535	Not Required	10.00	Not Required	10.00	No
			149	6695					
			185	6875					
	802.11ax (HE20)	7.3 Mbps	117	6535	Not Required	10.00	Not Required	10.00	No
			149	6695					
			185	6875					
	802.11ax (HE40)	14.6 Mbps	123	6565	Not Required	10.00	Not Required	10.00	No
			147	6685					
			179	6845					
	802.11ax (HE80)	36.0 Mbps	119	6545	Not Required	10.00	Not Required	10.00	No
			151	6705					
			183	6865					
	802.11ax (HE160)	72.0 Mbps	143	6665	8.43	10.00	8.60	10.00	Yes
			175	6825	9.73		8.38		
UNII 8 (6.885 - 7.125 GHz)	802.11a	6 Mbps	189	5955	Not Required	10.00	Not Required	10.00	No
			209	6175					
			233	6415					
	802.11ax (HE20)	7.3 Mbps	189	5955	Not Required	10.00	Not Required	10.00	No
			209	6175					
			233	6415					
	802.11ax (HE40)	14.6 Mbps	187	6885	Not Required	10.00	Not Required	10.00	No
			203	6965					
			227	7085					
	802.11ax (HE80)	36.0 Mbps	199	6945	Not Required	10.00	Not Required	10.00	No
			215	7025					
	802.11ax (HE160)	72.0 Mbps	207	6985	9.47	10.00	9.17	10.00	Yes

Note(s):

1. Indoor AP for Plimit(DSI=0,1) target power is equal to Standard AP related all RF exposure conditions.
2. Per TCB workshop April.2021's guide, Channel power verification was performed for UNII 6e (5925MHz-7125MHz). So, 5 test channels of 802.11ax (HE160) were determined for SAR 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) = 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

KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.
When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25mm From that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, Including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Additional 1-g SAR testing at 5 mm is not required when hotspot mode 10-g extremity SAR is not required for the surfaces and edges; since all 1-g reported SAR < 1.2 W/kg.

KDB 248227 D01 SAR meas for 802.11:

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
    - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
    - When it is unclear, all equivalent conditions must be tested.

- For all positions/configurations tested using the ***initial test position*** and subsequent test positions, when the ***reported*** SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the ***reported*** SAR is ≤ 1.2 W/kg or all required test channels are considered.
  - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the ***initial test position***, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the ***initial test position***.

10.1. WiFi (UNII 6e Bands)

SISO Ant 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)		10-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
WLAN SISO Ant.1	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	207	6985.0	99.6%	10.00	9.11	<0.001	<0.001			
					Left Tilt	207	6985.0	99.6%	10.00	9.11	<0.001	<0.001			
					Right Touch	15	6025.0	99.6%	10.00	8.53	0.173	0.244			
						79	6345.0	99.6%	10.00	8.45	0.194	0.278			1
						111	6505.0	99.6%	10.00	8.97	0.129	0.164			
						143	6665.0	99.6%	10.00	8.93	0.016	0.021			
						207	6985.0	99.6%	10.00	9.11	0.021	0.026			
					Right Tilt	207	6985.0	99.6%	10.00	9.11	<0.001	<0.001			
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	8.53	0.085	0.120			2
						79	6345.0	99.6%	10.00	8.45	0.049	0.070			
						111	6505.0	99.6%	10.00	8.97	0.040	0.051			
						143	6665.0	99.6%	10.00	8.93	0.040	0.051			
						207	6985.0	99.6%	10.00	9.11	0.006	0.007			
					Front	207	6985.0	99.6%	10.00	9.11	0.006	0.007			
	Product Specific 10-g		N/A	0	Rear	207	6985.0	99.6%	10.00	9.11			0.032	0.039	
					Front	207	6985.0	99.6%	10.00	9.11			0.014	0.017	
					Top	207	6985.0	99.6%	10.00	9.11			<0.001	<0.001	
					Left	15	6025.0	99.6%	10.00	8.53			0.469	0.660	3
						79	6345.0	99.6%	10.00	8.45			0.316	0.453	
						111	6505.0	99.6%	10.00	8.97			0.273	0.347	
						143	6665.0	99.6%	10.00	8.93			0.152	0.195	
						207	6985.0	99.6%	10.00	9.11			0.066	0.081	
WLAN SISO Ant.2	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	15	6025.0	99.6%	10.00	9.43	0.018	0.021			4
						79	6345.0	99.6%	10.00	9.06	0.008	0.010			
						111	6505.0	99.6%	10.00	9.05	0.002	0.002			
						143	6665.0	99.6%	10.00	8.93	<0.001	<0.001			
						207	6985.0	99.6%	10.00	9.04	<0.001	<0.001			
					Left Tilt	15	6025.0	99.6%	10.00	9.43	<0.001	<0.001			
					Right Touch	15	6025.0	99.6%	10.00	9.43	<0.001	<0.001			
					Right Tilt	15	6025.0	99.6%	10.00	9.43	<0.001	<0.001			
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	9.43	0.033	0.038			5
						79	6345.0	99.6%	10.00	9.06	0.006	0.007			
						111	6505.0	99.6%	10.00	9.05	<0.001	<0.001			
						143	6665.0	99.6%	10.00	8.93	0.001	0.001			
						207	6985.0	99.6%	10.00	9.04	0.007	0.009			
					Front	15	6025.0	99.6%	10.00	9.43	<0.001	<0.001			
	Product Specific 10-g		N/A	0	Rear	15	6025.0	99.6%	10.00	9.43			0.090	0.103	6
						79	6345.0	99.6%	10.00	9.06			0.036	0.045	
						111	6505.0	99.6%	10.00	9.05			0.020	0.025	
						143	6665.0	99.6%	10.00	8.93			0.009	0.012	
						207	6985.0	99.6%	10.00	9.04			0.018	0.023	
					Front	15	6025.0	99.6%	10.00	9.43			0.009	0.010	
					Top	15	6025.0	99.6%	10.00	9.43			0.006	0.007	
					Right	15	6025.0	99.6%	10.00	9.43			0.017	0.019	

MIMO Ant 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)		10-g SAR (W/kg)		Plot No.
									Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
WLAN MIMO Ant.1	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	111	6505.0	99.6%	10.00	9.23	0.009	0.011			
					Left Tilt	111	6505.0	99.6%	10.00	9.23	0.020	0.024			
					Right Touch	15	6025.0	99.6%	10.00	8.36	0.184	0.269			
						79	6345.0	99.6%	10.00	8.88	0.282	0.366			7
						111	6505.0	99.6%	10.00	9.23	0.150	0.180			
						143	6665.0	99.6%	10.00	8.43	0.061	0.088			
						207	6985.0	99.6%	10.00	9.22	<0.001	<0.001			
					Right Tilt	111	6505.0	99.6%	10.00	9.23	0.042	0.050			
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	8.36	0.059	0.086			8
						79	6345.0	99.6%	10.00	8.88	0.032	0.042			
						111	6505.0	99.6%	10.00	9.23	0.016	0.019			
						143	6665.0	99.6%	10.00	8.43	<0.001	<0.001			
						207	6985.0	99.6%	10.00	9.22	<0.001	<0.001			
					Front	111	6505.0	99.6%	10.00	9.23	<0.001	<0.001			
	Product Specific 10-g		N/A	0	Rear	111	6505.0	99.6%	10.00	9.23			0.095	0.114	
					Front	111	6505.0	99.6%	10.00	9.23			0.076	0.091	
					Top	111	6505.0	99.6%	10.00	9.23			0.015	0.018	
					Left	15	6025.0	99.6%	10.00	8.36			0.346	0.507	9
						79	6345.0	99.6%	10.00	8.88			0.351	0.456	
						111	6505.0	99.6%	10.00	9.23			0.207	0.248	
						143	6665.0	99.6%	10.00	8.43			0.102	0.147	
						207	6985.0	99.6%	10.00	9.22			0.054	0.065	
					Right	111	6505.0	99.6%	10.00	9.23					
WLAN MIMO Ant.2	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	111	6505.0	99.6%	10.00	9.10					
					Left Tilt	111	6505.0	99.6%	10.00	9.10					
					Right Touch	15	6025.0	99.6%	10.00	9.38					
						79	6345.0	99.6%	10.00	9.30					
						111	6505.0	99.6%	10.00	9.10					
						143	6665.0	99.6%	10.00	8.60					
						207	6985.0	99.6%	10.00	8.77					
					Right Tilt	111	6505.0	99.6%	10.00	9.10					
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	9.38					
						79	6345.0	99.6%	10.00	9.30					
						111	6505.0	99.6%	10.00	9.10					
						143	6665.0	99.6%	10.00	8.60					
						207	6985.0	99.6%	10.00	8.77					
					Front	111	6505.0	99.6%	10.00	9.10					
	Product Specific 10-g		N/A	0	Rear	111	6505.0	99.6%	10.00	9.10					
					Front	111	6505.0	99.6%	10.00	9.10					
					Top	111	6505.0	99.6%	10.00	9.10					
					Left	15	6025.0	99.6%	10.00	9.38					
						79	6345.0	99.6%	10.00	9.30					
						111	6505.0	99.6%	10.00	9.10					
						143	6665.0	99.6%	10.00	8.60					
						207	6985.0	99.6%	10.00	8.77					
					Right	111	6505.0	99.6%	10.00	9.10			<0.001	<0.001	

APD (Absorbed Power Density) results

SISO Ant SAR test results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		Measured APD (mW/cm^2 over 4cm^2)	Plot No.
									Tune-up limit	Meas.		
WLAN SISO Ant.1	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	207	6985.0	99.6%	10.00	9.11	0.0005	
					Left Tilt	207	6985.0	99.6%	10.00	9.11	0.0002	
					Right Touch	15	6025.0	99.6%	10.00	8.53	0.0911	
						79	6345.0	99.6%	10.00	8.45	0.1020	1
						111	6505.0	99.6%	10.00	8.97	0.0684	
						143	6665.0	99.6%	10.00	8.93	0.0090	
						207	6985.0	99.6%	10.00	9.11	0.0062	
					Right Tilt	207	6985.0	99.6%	10.00	9.11	0.0002	
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	8.53	0.0629	2
						79	6345.0	99.6%	10.00	8.45	0.0335	
						111	6505.0	99.6%	10.00	8.97	0.0226	
						143	6665.0	99.6%	10.00	8.93	0.0264	
						207	6985.0	99.6%	10.00	9.11	0.0037	
					Front	207	6985.0	99.6%	10.00	9.11	0.0040	
	Product Specific 10-g		N/A	0	Rear	207	6985.0	99.6%	10.00	9.11	0.0800	
					Front	207	6985.0	99.6%	10.00	9.11	0.0338	
					Top	207	6985.0	99.6%	10.00	9.11	0.0003	
					Left	15	6025.0	99.6%	10.00	8.53	1.1300	3
						79	6345.0	99.6%	10.00	8.45	0.7640	
						111	6505.0	99.6%	10.00	8.97	0.6650	
						143	6665.0	99.6%	10.00	8.93	0.3680	
						207	6985.0	99.6%	10.00	9.11	0.1600	
WLAN SISO Ant.2	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	15	6025.0	99.6%	10.00	9.43	0.0067	4
						79	6345.0	99.6%	10.00	9.06	0.0006	
						111	6505.0	99.6%	10.00	9.05	0.0002	
						143	6665.0	99.6%	10.00	8.93	0.0000	
						207	6985.0	99.6%	10.00	9.04	0.0000	
					Left Tilt	15	6025.0	99.6%	10.00	9.43	0.0001	
					Right Touch	15	6025.0	99.6%	10.00	9.43	0.0003	
					Right Tilt	15	6025.0	99.6%	10.00	9.43	0.0010	
	Body-worn		N/A	10	Rear	15	6025.0	99.6%	10.00	9.43	0.0189	5
						79	6345.0	99.6%	10.00	9.06	0.0014	
						111	6505.0	99.6%	10.00	9.05	0.0002	
						143	6665.0	99.6%	10.00	8.93	0.0029	
						207	6985.0	99.6%	10.00	9.04	0.0040	
					Front	15	6025.0	99.6%	10.00	9.43	0.0015	
	Product Specific 10-g		N/A	0	Rear	15	6025.0	99.6%	10.00	9.43	0.1120	6
						79	6345.0	99.6%	10.00	9.06	0.0823	
						111	6505.0	99.6%	10.00	9.05	0.0474	
						143	6665.0	99.6%	10.00	8.93	0.0217	
						207	6985.0	99.6%	10.00	9.04	0.0429	
					Front	15	6025.0	99.6%	10.00	9.43	0.0221	
					Top	15	6025.0	99.6%	10.00	9.43	0.0139	
					Right	15	6025.0	99.6%	10.00	9.43	0.0415	

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

MIMO Ant SAR test results

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		Measured APD (mW/cm^2 over 4cm^2)	Plot No.
									Tune-up limit	Meas.		
WLAN MIMO Ant.1	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	111	6505.0	99.63%	10.00	9.23	0.0038	
					Left Tilt	111	6505.0	99.63%	10.00	9.23	0.0128	
					Right Touch	15	6025.0	99.63%	10.00	8.36	0.0962	
						79	6345.0	99.63%	10.00	8.88	0.1500	7
						111	6505.0	99.63%	10.00	9.23	0.0751	
						143	6665.0	99.63%	10.00	8.43	0.0325	
						207	6985.0	99.63%	10.00	9.22	0.0008	
					Right Tilt	111	6505.0	99.63%	10.00	9.23	0.0181	
	Body-worn & Hotspot		N/A	10	Rear	15	6025.0	99.63%	10.00	8.36	0.0409	8
						79	6345.0	99.63%	10.00	8.88	0.0175	
						111	6505.0	99.63%	10.00	9.23	0.0072	
						143	6665.0	99.63%	10.00	8.43	0.0009	
						207	6985.0	99.63%	10.00	9.22	0.0000	
					Front	111	6505.0	99.63%	10.00	9.23	0.0000	
	Product Specific 10-g		N/A	0	Rear	111	6505.0	99.63%	10.00	9.23	0.2290	
					Front	111	6505.0	99.63%	10.00	9.23	0.1850	
					Top	111	6505.0	99.63%	10.00	9.23	0.0376	
					Left	15	6025.0	99.63%	10.00	8.36	0.8360	9
						79	6345.0	99.63%	10.00	8.88	0.8450	
						111	6505.0	99.63%	10.00	9.23	0.5080	
						143	6665.0	99.63%	10.00	8.43	0.2480	
						207	6985.0	99.63%	10.00	9.22	0.1310	
					Right	111	6505.0	99.63%	10.00	9.23		
WLAN MIMO Ant.2	Head	802.11ax HE160 72.0 Mbps	N/A	0	Left Touch	111	6505.0	99.63%	10.00	9.10		
					Left Tilt	111	6505.0	99.63%	10.00	9.10		
					Right Touch	15	6025.0	99.63%	10.00	9.38		
						79	6345.0	99.63%	10.00	9.30		
						111	6505.0	99.63%	10.00	9.10		
						143	6665.0	99.63%	10.00	8.60		
						207	6985.0	99.63%	10.00	8.77		
					Right Tilt	111	6505.0	99.63%	10.00	9.10		
	Body-worn		N/A	10	Rear	15	6025.0	99.63%	10.00	9.38		
						79	6345.0	99.63%	10.00	9.30		
						111	6505.0	99.63%	10.00	9.10		
						143	6665.0	99.63%	10.00	8.60		
						207	6985.0	99.63%	10.00	8.77		
					Front	111	6505.0	99.63%	10.00	9.10		
	Product Specific 10-g		N/A	0	Rear	111	6505.0	99.63%	10.00	9.10		
					Front	111	6505.0	99.63%	10.00	9.10		
					Top	111	6505.0	99.63%	10.00	9.10		
					Left	15	6025.0	99.63%	10.00	9.38		
						79	6345.0	99.63%	10.00	9.30		
						111	6505.0	99.63%	10.00	9.10		
						143	6665.0	99.63%	10.00	8.60		
						207	6985.0	99.63%	10.00	8.77		
					Right	111	6505.0	99.63%	10.00	9.10	0.0002	

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

11.1. WiFi (UNII 6e Bands)

SISO Ant SAR test results

Antenna	Mode	Test Position	Dist. (mm)	Ch.	Freq. (MHz)	Duty Cycle	Grid Step (Lamda)	Power (dBm)		PsPD (mW/cm^2)				Scaled factor Note2	Reported * Scaled PsPD (mW/cm^2)		Plot No.
								Tune-up limit	Meas.	Measured. Normal PsPD	Measured. Total PsPD	Reported. Normal PsPD Note3	Reported. Total PsPD Note3		Normal PsPD	Total PsPD	
WLAN SISO Ant.1	802.11ax HE 160	Left	2.00	79	6345.0	99.6%	0.050	10.00	8.45	0.3180	0.6220	0.4540	0.8890	1.116	0.5067	0.9921	10
WLAN SISO Ant.2	802.11ax HE 160	Rear	2.00	15	6025.0	99.6%	0.050	10.00	9.43	0.1090	0.2160	0.1240	0.2470	1.116	0.1384	0.2757	11

MIMO Ant SAR test results

Antenna	Mode	Test Position	Dist. (mm)	Ch.	Freq. (MHz)	Duty Cycle	Grid Step (Lamda)	Power (dBm)		PsPD (mW/cm^2)				Scaled factor Note2	Reported * Scaled PsPD (mW/cm^2)		Plot No.
								Tune-up limit	Meas.	Measured. Normal PsPD	Measured. Total PsPD	Reported. Normal PsPD Note3	Reported. Total PsPD Note3		Normal PsPD	Total PsPD	
WLAN MIMO Ant.1	802.11ax HE 160	Rear	2.00	79	6345.0	99.6%	0.050	10.00	8.88	0.1100	0.2570	0.1430	0.3330	1.116	0.1596	0.3716	
		Front		79	6345.0	99.6%	0.050	10.00	8.88	0.0964	0.2150	0.1250	0.2780	1.116	0.1395	0.3102	
		Top		79	6345.0	99.6%	0.050	10.00	8.88	0.0365	0.0743	0.0472	0.0961	1.116	0.0527	0.1072	
		Left		79	6345.0	99.6%	0.050	10.00	8.88	0.3540	0.6690	0.4580	0.8660	1.116	0.5111	0.9665	12
		Right		79	6345.0	99.6%	0.050							1.116			
WLAN MIMO Ant.1	802.11ax HE 160	Rear	2.00	79	6345.0	99.6%	0.050							1.116			
		Front		79	6345.0	99.6%	0.050							1.116			
		Top		79	6345.0	99.6%	0.050							1.116			
		Left		79	6345.0	99.6%	0.050							1.116			
		Right		79	6345.0	99.6%	0.050	10.00	9.30	0.0267	0.0676	0.0313	0.0794	1.116	0.0349	0.0886	

Note(s):

1. 10 W/m^2 = 1.0 mW/cm^2
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 1.51 dB (41.6%) was used to determine the psPD measurement scaled factor.
3. Power density test data were scaled to tune-up limit using measurement system tool.
4. Per manufacturer guide, Grid Step setting were using the automatic grid step function of measurement system tool.
5. Per manufacturer guide, Incident power density was measured at d=2mm.
6. ESR(Equivalent Source Reconstruction) Algorithm was used during psPD measurement and calculations.
7. SISO Ant mode was evaluated in the worst case configuration of SAR test results.
8. MIMO Ant mode was evaluated for the entire measurement position in the worst case configuration of SAR test results.

12. Simultaneous Transmission Analysis

Please refer to section.12 in FCC SAR Part1 report S1.

Appendixes

Refer to separated files for the following appendixes.

4790976580-S2 FCC Report Above 6GHz_App A_PD Photos & Ant. Locations

4790976580-S2 FCC Report Above 6GHz _App B_Highest SAR and PD Test Plots

4790976580-S2 FCC Report Above 6GHz _App C_System Check Plots

4790976580-S2 FCC Report Above 6GHz _App D_SAR Tissue Ingredients

4790976580-S2 FCC Report Above 6GHz _App E_Probe Cal. Certificates

4790976580-S2 FCC Report Above 6GHz _App F_Dipole and Horn antenna Cal. Certificates

END OF REPORT