

Power Density Evaluation Report

FCC ID : IHDT56AX5
Equipment : Mobile Cellular Phone
Brand Name : Motorola
Model Name : XT2651V
Applicant : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
Manufacturer : Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA
Standard : FCC 47 CFR Part 2 (2.1093)

The product was received on Jun. 17, 2025 and testing was started from Jun. 30, 2026 and completed on Jul. 04, 2026. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR part2.1093 and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



Sporton International Inc. Wensan Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA660814B	01	Initial issue of report	Aug. 05, 2026



1. Summary

The maximum measured average power density for **Motorola Mobility LLC, Mobile Cellular Phone**, are as follows.

Standalone transmission				Simultaneous transmission with other transmitters
RF Transmitter		Measured PD (mW/cm ²)	Reported PD (mW/cm ²)	
5G FR2	n260	0.70	0.80	
	n261	0.50	0.80	
Result		PASS		

Reviewed by: Jason Wang

Report Producer: Carlie Tsai

2. Guidance Applied

The Power Density testing specification, method, and procedure for this device is in accordance with the following standards, if the KDB standards were not list within TAF approval, because it is included in the KDB 447498.

- FCC 47 CFR Part 2.1091
- FCC 47 CFR Part 2.1093
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- TCBC workshop notes
- IEC/IEEE 63195-1:2022



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
FCC ID	IHDT56AX5
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12: 699 MHz ~ 716 MHz 5G NR n13: 777 MHz ~ 787 MHz 5G NR n14: 788 MHz ~ 798 MHz 5G NR n25: 1850 MHz ~ 1915 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n48: 3550 MHz ~ 3700 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz 5G NR n260: 37 GHz~40 GHz 5G NR n261: 27.5 GHz~28.35 GHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz WLAN 6GHz U-NII 5: 5925 MHz ~ 6425 MHz WLAN 6GHz U-NII 6: 6425 MHz ~ 6525 MHz WLAN 6GHz U-NII 7: 6525 MHz ~ 6875 MHz WLAN 6GHz U-NII 8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz WPT: 110 KHz ~ 145 KHz UWB: 6489.6 MHz & 7987.2 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax/be HE20/HE40/EHT20/EHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160



WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160
WLAN 5GHz 802.11be EHT20/EHT40/EHT80/EHT160
WLAN 6GHz 802.11a/ax HE20/HE40/HE80/HE160
WLAN 6GHz 802.11be EHT20/EHT40/EHT80/EHT160/EHT320
Bluetooth BR/EDR/LE / CS GFSK/ CS ASK
NFC: ASK
WPT: ASK
UWB: BPM-BPSK

4. RF Exposure Limits

4.1 Uncontrolled Environment

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

4.2 Controlled Environment

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

The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure above 6GHz to radio frequency (RF) radiation as specified in §1.1310.

General Population Basic restriction for power density for frequencies between 1.5GHz and 100 GHz is $1.0 \text{ mW/cm}^2 = 10 \text{ W/m}^2$

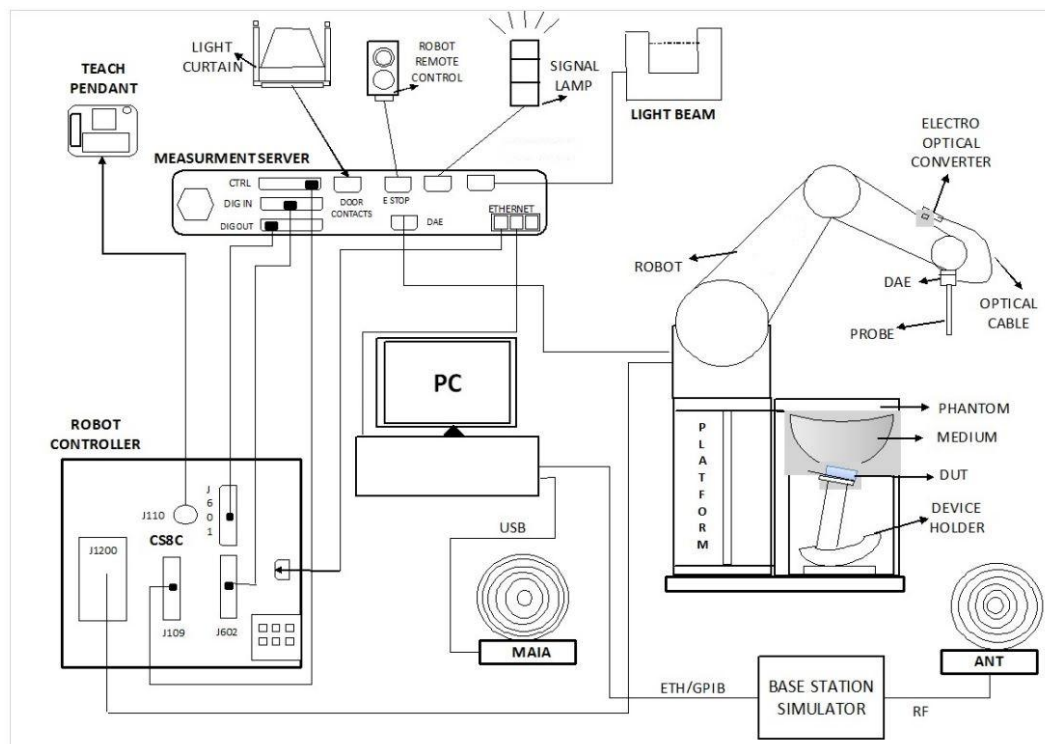
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000	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

Table 1 Limit For Maximum Permissible Exposure

5. System Description and Setup

The system to be used for the near field power density measurement

- SPEAG DASY system
- SPEAG cDASY 5G module software
- EUmWVx probe
- 5G Phantom cover



5.1 Test Site Location

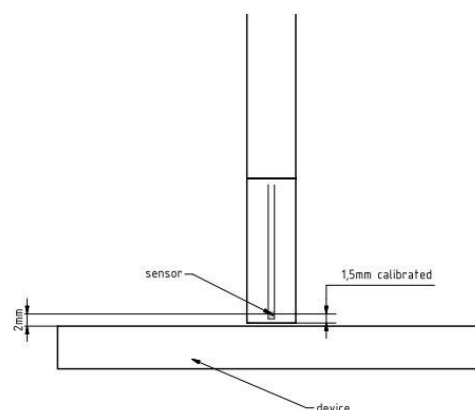
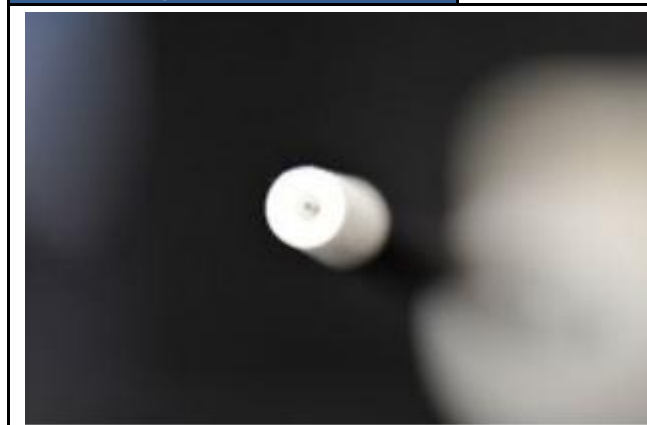
The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3786) and the FCC designation No. TW4086H under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Laboratory	Wensan Laboratory
Test Site Location	CABID: TW3786 Company Number: 4086H No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan
Test Site No.	SAR14-HY

5.2 EUmmWave Probe / E-Field 5G Probe

The probe design allows measurements at distances as small as 2 mm from the sensors to the surface of the device under test (DUT). The typical sensor to probe tip distance is 1.5 mm.

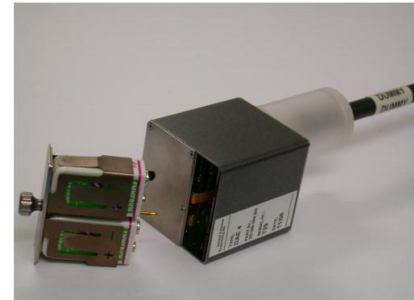
Frequency	750 MHz – 110 GHz
Probe Overall Length	320 mm
Probe Body Diameter	8.0 mm
Tip Length	23.0 mm
Tip Diameter	8.0 mm
Probe's two dipoles length	0.9 mm – Diode loaded
Dynamic Range	< 20 V/m - 10000 V/m with PRE-10 (min < 50 V/m - 3000 V/m)
Position Precision	< 0.2 mm
Distance between diode sensors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



5.3 Data Acquisition Electronics (DAE)

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

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



5.4 Scan configuration

Fine-resolution scans on 2 different planes are performed to reconstruct the E- and H-fields as well as the power density; the z-distance between the 2 planes is set to $\lambda/4$.

The (x, y) grid step is also set $\lambda/4$, the grid extent is set to sufficiently large to identify the field pattern and the peak.

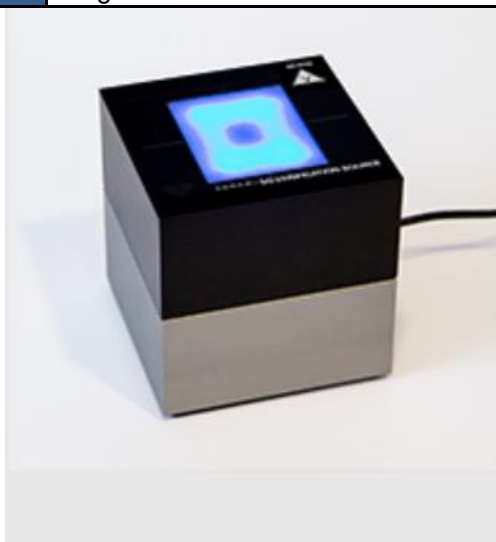
6. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	5G Verification Source	30GHz	1009	May. 12, 2026	May. 11, 2027
SPEAG	EUmmWV Probe Tip Protection	EUmmWV3	9424	Mar. 12, 2026	Mar. 11, 2027
SPEAG	Data Acquisition Electronics	DAE4	699	Feb. 13, 2026	Feb. 12, 2027
TESTO	Hygro meter	608-H1	45196600	Nov. 04, 2025	Nov. 03, 2026
TESTO	Hygro meter	608-H1	45207528	Nov. 04, 2025	Nov. 03, 2026
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Jan. 15, 2026	Jan. 14, 2027
Custom Microwave	Standard Horn antenna	M15RH	V91113-A	NCR	NCR

7. System Verification Source

The System Verification sources at 30 GHz and above comprise horn-antennas and very stable signal generators.

Model	Ka-band horn antenna
Calibrated frequency:	30 GHz at 5.55mm from the case surface
Frequency accuracy	± 100 MHz
E-field polarization	linear
Harmonics	-20 dBc
Total radiated power	14 dBm
Power stability	0.05 dB
Power consumption	5 W
Size	100 x 100 x 100 mm
Weight	1 kg



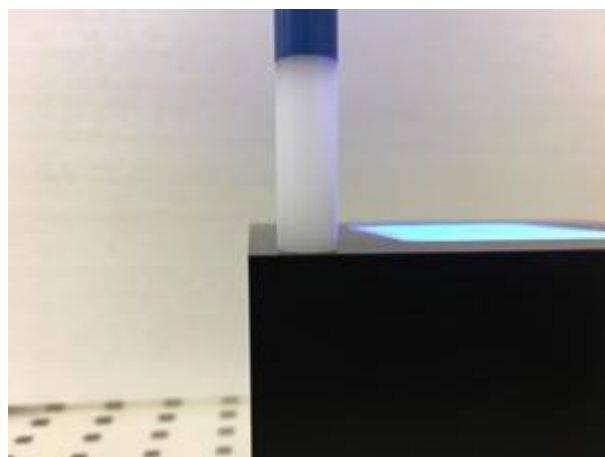
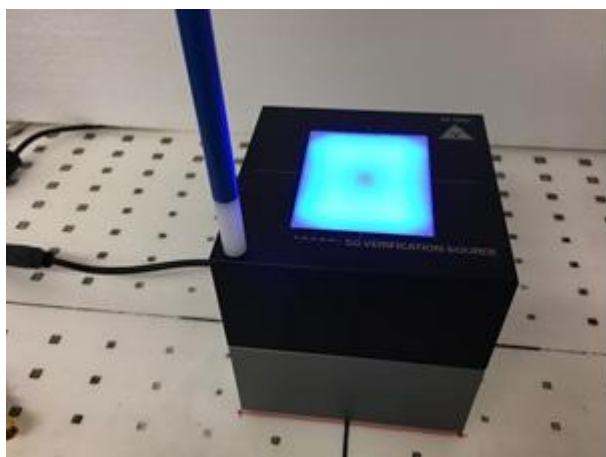
8. Power Density System Verification

The system performance check verifies that the system operates within its specifications.

The EUT is replaced by a calibrated source, the same spatial resolution, measurement region and the test separation used in the calibration was applied to system check. Through visual inspection into the measured power density distribution, both spatially (shape) and numerically (level) have no noticeable difference. The measured results should be within 0.66dB of the calibrated targets.

Frequency [GHz]	Grid step	Grid extent X/Y [mm]	Measurement points
10	$0.25 \left(\frac{\lambda}{4}\right)$	120/120	16×16
30	$0.25 \left(\frac{\lambda}{4}\right)$	60/60	24×24
60	$0.25 \left(\frac{\lambda}{4}\right)$	32.5/32.5	26×26
90	$0.25 \left(\frac{\lambda}{4}\right)$	30/30	36×36

Settings for measurement of verification sources



Verification Setup photo

9. System Verification Results

Frequency (GHz)	5G Verification Source	Probe S/N	DAE S/N	Distance (mm)	Measured psPDtot 4 cm ² (W/m ²)	Targeted psPDtot 4 cm ² (W/m ²)	Deviation (dB)	Test Site	Date
30G	30GHz_1009	9424	699	5.55	35.3	33.4	0.24	SAR14	2026/6/30

9.1 Computation of the Electric Field Polarization Ellipse

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

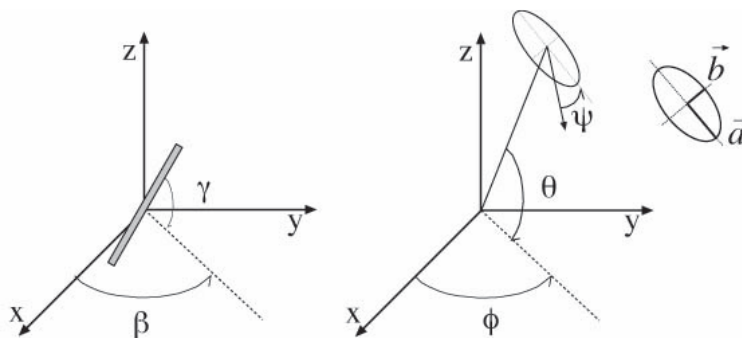


Illustration of the angles used for the numerical description of the sensor and the orientation of an ellipse in 3-D space.

For the reconstruction of the ellipse parameters from measured data, the problem can be reformulated as a nonlinear search problem. The semi-major and semi-minor axes of an elliptical field can be expressed as functions of the three angles (ϕ , θ and ψ). The parameters can be uniquely determined towards minimizing the error based on least-squares for the given set of angles and the measured data. In this way, the number of free parameters is reduced from five to three, which means that at least three sensor readings are necessary to gain sufficient information for the reconstruction of the ellipse parameters. However, to suppress the noise and increase the reconstruction accuracy, it is desirable that the system of equations be over determined. The solution to use a probe consisting of two sensors angled by r_1 and r_2 toward the probe axis and to perform measurements at three angular positions of the probe, i.e., at β_1 , β_2 and β_3 , results in over-determinations by a factor of two. If there is a need for more information or increased accuracy, more rotation angles can be added. The reconstruction of the ellipse parameters can be separated into linear and non-linear parts that are best solved by the Givens algorithm combined with a downhill simplex algorithm. To minimize the mutual coupling, sensor angles are set with a shift of 90 degree ($r_2 = r_1 + 90$ degree), and to simplify, the first rotation angle of the probe (β_1) can be set to 0 degree.

9.2 Total Field and Power Flux Density Reconstruction

Computation of the power density in general requires knowledge of the electric and magnetic field amplitudes and phases in the plane of incidence. Reconstruction of these quantities from pseudo-vector E-field measurements is feasible, as they are constrained by Maxwell's equations. SPEAG have developed a reconstruction approach based on the Gerchberg-Saxton algorithm, which benefits from the availability of the E-field polarization ellipse information obtained with the EummWV2 probe.

The average of the reconstructed power density is evaluated over a circular area in each measurement plane. Two average power density values can be computed, the average total power density and the average incident power density, and the average total power density is used to determine compliance.

- $|Re\{S\}|$ is the total Poynting vector
- $\mathbf{n} \cdot Re\{S\}$ is the normal Poynting vector

The software post-processing reports to values, "S avg tot" and "S avg inc". "S avg tot" represents average total power density (all three xyz components included), and "S avg inc" represents average normal power density. The average total power density "S avg tot" is reported to determine the device compliance.



9.3 Test Positions

Band	Antenna Module	Measurement Plane					
		Front 2mm	Back 2mm	Left Side 2mm	Right Side 2mm	Top Side 2mm	Bottom Side 2mm
5G NR Band 260	0	Yes	Yes	Yes	No	Yes	No
5G NR Band 261	0	Yes	Yes	Yes	No	Yes	No

From the Part 0 and simulation report, beam IDs with highest PD and corresponding input power limit were selected to be tested for each antenna module and for each frequency band.

10. RF Exposure Evaluation Results

1. The PD test was performed of a 2mm and 10 mm separation between sensor and EUT surface (the probe tip is 0.5mm to the EUT surface), 2 mm separation distance PD testing is for Head exposure condition, 10 mm separation distance is for hotspot and body worn exposure conditions.
2. According to TCBC Workshop in October 2018, 4 cm² averaging area are used.
3. This device is enabled with Qualcomm® Smart Transmit feature, smart transmit will manage and ensure LTE and 5G simultaneous transmission is compliant. The validation of the time-averaging algorithm and compliance under the Tx varying transmission scenario for WWAN technologies are reported in Part 2 report.
4. Input power limit parameter for 5G mmW NR radio was calculated in RF Exposure Part 0 test report.
5. The device was configured to transmit CW wave signal for testing, due to Qualcomm® Smart Transmit feature, additional testing was not required for different modulations (CP-OFDM QPSK, CP-OFDM 16QAM, CP-OFDM 64QAM), RB configurations, component carriers, channel configurations (low channel, mid channel, high channel).
6. Power density measurements were performed with DUT transmitting at input.power.limit for one single beam for each polarization (H & V) and one beam-pair, for each antenna type and for each antenna module (0) on the worst-surfaces.
7. The Beam ID with one of the highest initial simulated power density for that surface and distance was selected for Part 1 Power Density measurements.
8. Some Power Density Evaluations were performed at a more conservative power level.
9. It's illustrated in Part 0 report that , for 5G mmW NR since there is total design-related uncertainty arising from TxAGC and device-to-device variation, the worst-case RF exposure should be determined by accounting for this device uncertainty of 1.4 dB, as well as PD design target of 5.8 W/m². Therefore, 5G mmW NR RF exposure for this DUT is evaluated by reported PD calculated as:

$$\text{Reported PD} = \text{PD design target} + 1.4 \text{ dB} = 8.0 \text{ W/m}^2 = 0.80 \text{ mW/cm}^2$$



Test Number	Band	Beam ID 1	Beam ID 2	Frequency (GHz)	EUT State	Exposure Surface	Input power level(dBm)	Test Separation	Modulation	Measured psPDn 4 cm ² (W/m ²)	Measured psPDtot 4 cm ² (W/m ²)	E peak [V/m]	H peak [A/m]
	n260	15		38.5GHz	Fold Closed	Back (S2)	2.52	2mm	CW	4.96	5.33	79.0	0.202
	n260	20		38.5GHz	Fold Closed	Back (S2)	2.97	2mm	CW	3.37	4.78	83.7	0.192
	n260	19		38.5GHz	Fold Closed	Back (S2)	2.69	2mm	CW	5.06	5.26	84.0	0.211
	n260	16		38.5GHz	Fold Closed	Back (S2)	2.59	2mm	CW	3.52	4.39	70.3	0.164
	n260		270	38.5GHz	Fold Closed	Back (S2)	2.59	2mm	CW	3.70	4.35	69.7	0.166
	n260	16	272	38.5GHz	Fold Closed	Back (S2)	-1.88	2mm	CW	2.51	3.14	54.8	0.162
	n260	15		37GHz	Fold Closed	Back (S2)	2.52	2mm	CW	4.84	5.30	81.8	0.204
	n260	16		37GHz	Fold Closed	Back (S2)	2.59	2mm	CW	3.64	4.4	68.5	0.202
	n260	12		37GHz	Fold Closed	Back (S2)	2.60	2mm	CW	1.59	2.37	64.9	0.188
	n260	19		37GHz	Fold Closed	Back (S2)	2.69	2mm	CW	6.51	6.66	90.2	0.232
	n260	15		40GHz	Fold Closed	Back (S2)	2.52	2mm	CW	3.65	4.09	83.8	0.181
	n260	18		38.5GHz	Fold Closed	Front (S1)	4.08	2mm	CW	0.447	0.462	32.2	0.076
	n260	15		38.5GHz	Fold Closed	Left (S3)	2.52	2mm	CW	1.45	1.49	39.4	0.084
	n260	12		38.5GHz	Fold Closed	Top (S5)	2.60	2mm	CW	2.64	2.88	41.7	0.116
	n260	15		38.5GHz	Fold Open	Back (S2)	2.52	2mm	CW	4.32	4.96	81.7	0.199
	n260		270	38.5GHz	Fold Open	Back (S2)	2.59	2mm	CW	4.00	4.60	71.1	0.169
	n260	16	272	38.5GHz	Fold Open	Back (S2)	-1.88	2mm	CW	1.81	2.32	53.6	0.159
	n260	15		37GHz	Fold Open	Back (S2)	2.52	2mm	CW	4.99	5.39	81.6	0.215
	n260	16		37GHz	Fold Open	Back (S2)	2.59	2mm	CW	4.11	4.72	71.2	0.204
	n260	12		37GHz	Fold Open	Back (S2)	2.60	2mm	CW	2.26	3.12	70.9	0.190
01	n260	19		37GHz	Fold Open	Back (S2)	2.69	2mm	CW	6.54	7.02	92.4	0.225
	n260	15		40GHz	Fold Open	Back (S2)	2.52	2mm	CW	3.58	3.78	84.4	14.4
	n260	18		37GHz	Fold Open	Front (S1)	4.08	2mm	CW	0.11	0.199	12.5	0.037
	n260	12		37GHz	Fold Open	Top (S5)	2.60	2mm	CW	1.31	1.52	35.9	0.09
	n261	14		27.925GHz	Fold Closed	Back (S2)	2.49	2mm	CW	2.93	3.90	60.2	0.147
	n261		270	27.925GHz	Fold Closed	Back (S2)	1.36	2mm	CW	3.88	3.94	80.2	0.189
	n261	13	269	27.925GHz	Fold Closed	Back (S2)	-2.26	2mm	CW	1.74	2.26	54.6	0.133
	n261		276	27.5GHz	Fold Closed	Back (S2)	1.36	2mm	CW	2.4	3.74	69.9	0.192
	n261		270	28.35GHz	Fold Closed	Back (S2)	1.36	2mm	CW	3.71	3.92	80.8	0.199
	n261		272	27.925GHz	Fold Closed	Front (S1)	1.52	2mm	CW	3.65	3.66	38.8	0.132
	n261		271	27.925GHz	Fold Closed	Left (S3)	1.51	2mm	CW	0.578	0.603	18.1	0.828
	n261		269	27.925GHz	Fold Closed	Top (S5)	1.46	2mm	CW	1.75	1.93	31.9	0.092
	n261	14		27.925GHz	Fold Open	Back (S2)	2.49	2mm	CW	4.04	4.50	64.4	0.159
	n261		270	27.925GHz	Fold Open	Back (S2)	1.36	2mm	CW	3.81	4.30	79.0	0.191
	n261	13	269	27.925GHz	Fold Open	Back (S2)	-2.26	2mm	CW	3.4	3.73	60.8	0.157
02	n261	14		27.5GHz	Fold Open	Back (S2)	2.49	2mm	CW	3.87	4.96	67.2	0.176
	n261	14		28.35GHz	Fold Open	Back (S2)	2.49	2mm	CW	4.64	4.95	64.7	0.160
	n261	16		28.35GHz	Fold Open	Front (S1)	6.00	2mm	CW	0.154	0.166	10.2	0.033
	n261	16		28.35GHz	Fold Open	Top (S5)	6.00	2mm	CW	1.52	1.74	45.3	0.14

11. Simultaneous-Tx analysis

NO.	Simultaneous Transmission Configurations	Exposure Positions			
		Head	Hotspot	Body-worn	Product specific 10g SAR
1.	WWAN + 2.4GHz WLAN+ n260/n261	Yes	Yes	Yes	Yes
2.	WWAN + 5GHz WLAN+ n260/n261	Yes	Yes	Yes	Yes
3.	WWAN + 6GHz WLAN+ n260/n261	Yes	Yes	Yes	Yes
4.	WWAN + Bluetooth+ n260/n261	Yes	Yes	Yes	Yes
5.	WWAN + 5GHz WLAN + Bluetooth+ n260/n261	Yes	Yes	Yes	Yes
6.	WWAN + 6GHz WLAN + Bluetooth+ n260/n261	Yes	Yes	Yes	Yes
7.	WWAN +5GHz WLAN + 2.4GHz WLAN+ n260/n261	Yes	Yes	Yes	Yes
8.	WWAN +6GHz WLAN + 2.4GHz WLAN+ n260/n261	Yes	Yes	Yes	Yes
9.	WWAN + 2.4GHz WLAN+ n260/n261+NFC				Yes
10.	WWAN + 5GHz WLAN+ n260/n261+NFC				Yes
11.	WWAN + 6GHz WLAN+ n260/n261+NFC				Yes
12.	WWAN + Bluetooth+ n260/n261+NFC				Yes
13.	WWAN + 5GHz WLAN + Bluetooth+ n260/n261+NFC				Yes
14.	WWAN + 6GHz WLAN + Bluetooth+ n260/n261+NFC				Yes
15.	WWAN +5GHz WLAN + 2.4GHz WLAN+ n260/n261+NFC				Yes
16.	WWAN +6GHz WLAN + 2.4GHz WLAN+ n260/n261+NFC				Yes

Note:

- For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR and time-averaged RF exposure from WLAN and time-averaged RF exposure from BT. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR and WLAN and BT to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G NR+WLAN+BT operation is demonstrated in the Part 2 Report during algorithm validation. In Part 1 Report, simultaneous transmission compliance was evaluated individually with other Radios (NFC) using 5G mmW NR.

Qualcomm Smart Transmit Simultaneous Transmission Guidance

The FR2 and WWAN/WLAN/BT share the same antenna group, and the simultaneous transmission analysis follows Qualcomm Smart Transmit guidance. If all radios are selected to be under Smart Transmit control in EFS version 19 (or higher), then RF exposure from radios are managed by Smart Transmit in the same way. No additional TER analysis is needed

Smart Transmit current implementation assumes hotspots from all active radios are collocated. Therefore, for a total of 100% exposure margin, if primary radio uses x%, then the exposure margin left for secondary radio(s) is capped to (100-x)%. Thus, the compliance equation for simultaneous active radios, such as follow,

$$x\% * A + (100-x)\% * B \leq 1.0$$

where, A is normalized time-averaged SAR exposure corresponding to “maximum of {minimum [EFS Plimit + device uncertainty; NV setting Pmax + device uncertainty]; EFS Plimit}” from primary radio, and $A \leq 1.0$; B for secondary radio(s) is

(for legacy radio or sub6 NR): normalized time-averaged SAR exposure corresponding to “maximum of {minimum [EFS Plimit + device uncertainty; NV setting Pmax + device uncertainty]; EFS Plimit } ”

and $B \leq 1.0$. As can be seen, A and B by definition is the exposure corresponding to “maximum of {minimum [EFS Plimit + device uncertainty; NV setting Pmax + device uncertainty]; EFS Plimit}”, and it is NOT defined as reported exposure

The total RF exposure in this simultaneous transmission scenario is controlled and managed within Smart Transmit operation, and the compliance is demonstrated in Part 2 test.



This device supports two sub6 AG: AG0 and AG1, the detailed please refer to the below table:

Antenna Group 0 (AG0)	ANT1 & ANT4 & ANT3 & ANT6 & ANT7 & ANT8 & ANT11 & mmW Antenna
Antenna Group 1 (AG1)	ANT0 & ANT2 & ANT1 & mmW Antenna

Note: ANT1 and mmW Antenna serve as shared antennas (sAnt) between between AG0 and AG1.

PD	NFC 1g SAR	TER
4cm ² (W/m ²)	W/Kg	PD/10+NFC SAR/1.6 Summation
8.0	0.051	0.83

PD	NFC 10g SAR	TER
4cm ² (W/m ²)	W/Kg	PD/10+NFC SAR/4 Summation
8.0	0.018	0.81

Test Engineer : Steven Chang and Tom Jiang

12. Uncertainty Assessment

The budget is valid for evaluation distances $> \lambda/2\pi$. For specific tests and configurations, the Uncertainty could be considerably smaller.

cDASY6 Module mmWave Uncertainty Budget Evaluation Distances to the Antennas $> \lambda/2\pi$					
Error Description	Uncertainty Value ($\pm$ dB)	Probability	Divisor	(Ci)	Standard Uncertainty ($\pm$ dB)
Uncertainty terms dependent on the measurement system					
Probe Calibration	0.49	N	1	1	0.49
Probe correction	0.00	R	1.732	1	0.00
Frequency response ($BW \leq 1$ GHz)	0.20	R	1.732	1	0.12
Sensor cross coupling	0.00	R	1.732	1	0.00
Isotropy	0.50	R	1.732	1	0.29
Linearity	0.20	R	1.732	1	0.12
Probe scattering	0.00	R	1.732	1	0.00
Probe positioning offset	0.30	R	1.732	1	0.17
Probe positioning repeatability	0.04	R	1.732	1	0.02
Sensor mechanical offset	0.00	R	1.732	1	0.00
Probe spatial resolution	0.00	R	1.732	1	0.00
Field impedance dependence	0.00	R	1.732	1	0.00
Amplitude and phase drift	0.00	R	1.732	1	0.00
Amplitude and phase noise	0.04	R	1.732	1	0.02
Measurement area truncation	0.00	R	1.732	1	0.00
Data acquisition	0.03	N	1	1	0.03
Sampling	0.00	R	1.732	1	0.00
Field reconstruction	0.60	R	1.732	1	0.35
Forward transformation	0.00	R	1.732	1	0.00
Power density scaling	0.00	R	1.732	1	0.00
Spatial averaging	0.10	R	1.732	1	0.06
System detection limit	0.04	R	1.732	1	0.02
Uncertainty terms dependent on the DUT and environmental factors					
Probe coupling with DUT	0.00	R	1.732	1	0.0
Modulation response	0.40	R	1.732	1	0.2
Integration time	0.00	R	1.732	1	0.0
Response time	0.00	R	1.732	1	0.0
Device holder influence	0.10	R	1.732	1	0.1
DUT alignment	0.00	R	1.732	1	0.0
RF ambient conditions	0.04	R	1.732	1	0.0
Ambient reflections	0.04	R	1.732	1	0.0
Immunity / secondary reception	0.00	R	1.732	1	0.0
Drift of the DUT		R	1.732	1	
Combined Std. Uncertainty					0.76 dB
Expanded STD Uncertainty (95%)					1.52 dB
Declaration of Conformity: The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.					
Comments and Explanations: The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.					



13. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [3] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.
- [4] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [5] IEC/IEEE 63195-1:2022, Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz)

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