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5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi peak or average method as specified and then reported in a data sheet.

Test Result:

PASS



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Test Instruments

Radiated Emission Test Site (966)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Spectrum analyzer	R&S	FSV3044	HKE-126	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	EMCI	EMC051845S	HKE-006	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	Schwarzbeck	BBV 9743	HKE-016	Feb. 19, 2025	Feb. 18, 2026
Preamplifier	A.H. Systems	SAS-574	HKE-182	Feb. 19, 2025	Feb. 18, 2026
6dB Attenuator	Pasternack	6db	HKE-184	Feb. 19, 2025	Feb. 18, 2026
EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	Feb. 19, 2025	Feb. 18, 2026
Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	Feb. 21, 2024	Feb. 20, 2026
Loop Antenna	COM-POWER	AL-130R	HKE-014	Feb. 21, 2024	Feb. 20, 2026
Horn Antenna	Schwarzbeck	9120D	HKE-013	Feb. 21, 2024	Feb. 20, 2026
EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	N/A	N/A
RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



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Test Data

Operation Mode: 802.11a Mode with 5.8G TX CH Low

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5650	51.04	-2.06	48.98	68.2	19.22	peak
5700	80.55	-1.96	78.59	105.2	26.61	peak
5720	81.12	-2.87	78.25	110.8	32.55	peak
5725	100.7	-2.14	98.56	122.2	23.64	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5650	51.23	-2.06	49.17	68.2	19.03	peak
5700	80.07	-1.96	78.11	105.2	27.09	peak
5720	82.4	-2.87	79.53	110.8	31.27	peak
5725	99.9	-2.14	97.76	122.2	24.44	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.



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Operation Mode: TX CH High with 5.8G

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5850	100.01	-1.97	98.04	122.2	24.16	peak
5855	83.05	-2.13	80.92	110.8	29.88	peak
5875	81.72	-2.65	79.07	105.2	26.13	peak
5925	50.47	-2.28	48.19	68.2	20.01	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5850	97.86	-1.97	95.89	122.2	26.31	peak
5855	83.03	-2.13	80.9	110.8	29.9	peak
5875	81.94	-2.65	79.29	105.2	25.91	peak
5925	50.89	-2.28	48.61	68.2	19.59	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level



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Operation Mode: 802.11n/HT20 Mode with 5.8G TX CH Low

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5650	52.83	-2.06	50.77	68.2	17.43	peak
5700	80.49	-1.96	78.53	105.2	26.67	peak
5720	81.21	-2.87	78.34	110.8	32.46	peak
5725	101.03	-2.14	98.89	122.2	23.31	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5650	50.87	-2.06	48.81	68.2	19.39	peak
5700	79.42	-1.96	77.46	105.2	27.74	peak
5720	81.95	-2.87	79.08	110.8	31.72	peak
5725	100.86	-2.14	98.72	122.2	23.48	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

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Operation Mode: TX CH High with 5.8G

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5850	100.12	-1.97	98.15	122.2	24.05	peak
5855	81.22	-2.13	79.09	110.8	31.71	peak
5875	81.04	-2.65	78.39	105.2	26.81	peak
5925	49.18	-2.28	46.9	68.2	21.3	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5850	100.45	-1.97	98.48	122.2	23.72	peak
5855	83.89	-2.13	81.76	110.8	29.04	peak
5875	81.55	-2.65	78.9	105.2	26.3	peak
5925	49.12	-2.28	46.84	68.2	21.36	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.



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Operation Mode: 802.11n/HT40 Mode with 5.8G TX CH Low

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5650	51.61	-2.06	49.55	68.2	18.65	peak
5700	81.19	-1.96	79.23	105.2	25.97	peak
5720	82.09	-2.87	79.22	110.8	31.58	peak
5725	101.1	-2.14	98.96	122.2	23.24	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
5650	50.95	-2.06	48.89	68.2	19.31	peak
5700	79.41	-1.96	77.45	105.2	27.75	peak
5720	80.89	-2.87	78.02	110.8	32.78	peak
5725	101.51	-2.14	99.37	122.2	22.83	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.



Operation Mode: TX CH High with 5.8G

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5850	98.27	-1.97	96.3	122.2	25.9	peak
5855	83.42	-2.13	81.29	110.8	29.51	peak
5875	81.47	-2.65	78.82	105.2	26.38	peak
5925	50.37	-2.28	48.09	68.2	20.11	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
5850	100.07	-1.97	98.1	122.2	24.1	peak
5855	82.65	-2.13	80.52	110.8	30.28	peak
5875	82.33	-2.65	79.68	105.2	25.52	peak
5925	51.04	-2.28	48.76	68.2	19.44	peak

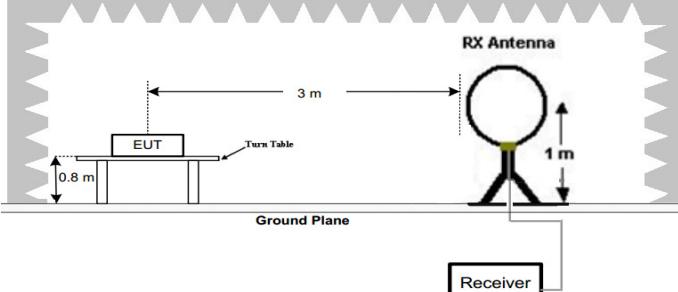
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark:

1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

4.7. Spurious Emission

Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205																													
Test Method:	KDB 789033 D02 v02r01																													
Frequency Range:	9kHz to 40GHz																													
Measurement Distance:	3 m																													
Antenna Polarization:	Horizontal & Vertical																													
Operation Mode:	Transmitting mode with modulation																													
Receiver Setup:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Detector</th> <th>RBW</th> <th>VBW</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>9kHz- 150kHz</td> <td>Quasi-peak</td> <td>200Hz</td> <td>1kHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td>150kHz- 30MHz</td> <td>Quasi-peak</td> <td>9kHz</td> <td>30kHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td>30MHz-1GHz</td> <td>Quasi-peak</td> <td>120KHz</td> <td>300KHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td rowspan="2">Above 1GHz</td><td>Peak</td> <td>1MHz</td> <td>3MHz</td> <td>Peak Value</td> </tr> <tr> <td>Peak</td> <td>1MHz</td> <td>10Hz</td> <td>Average Value</td> </tr> </tbody> </table>	Frequency	Detector	RBW	VBW	Remark	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value
Frequency	Detector	RBW	VBW	Remark																										
9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value																										
150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value																										
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value																										
Above 1GHz	Peak	1MHz	3MHz	Peak Value																										
	Peak	1MHz	10Hz	Average Value																										
Limit:	<p>(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.</p> <p>(4) For transmitters operating in the 5.725-5.85 GHz band:</p> <p>(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p> <p>The limit of frequency below 1GHz and which fall in restricted bands should complies 15.209.</p>																													
Test Setup:	<p>For radiated emissions below 30MHz</p> 																													

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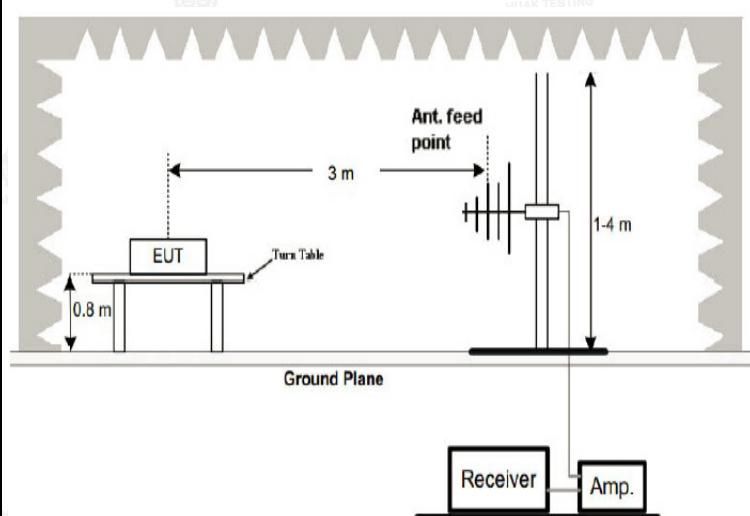
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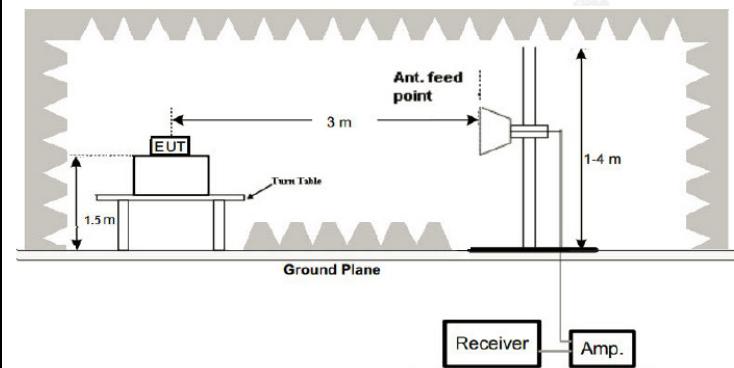
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30MHz to 1GHz



Above 1GHz



Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Results:	PASS



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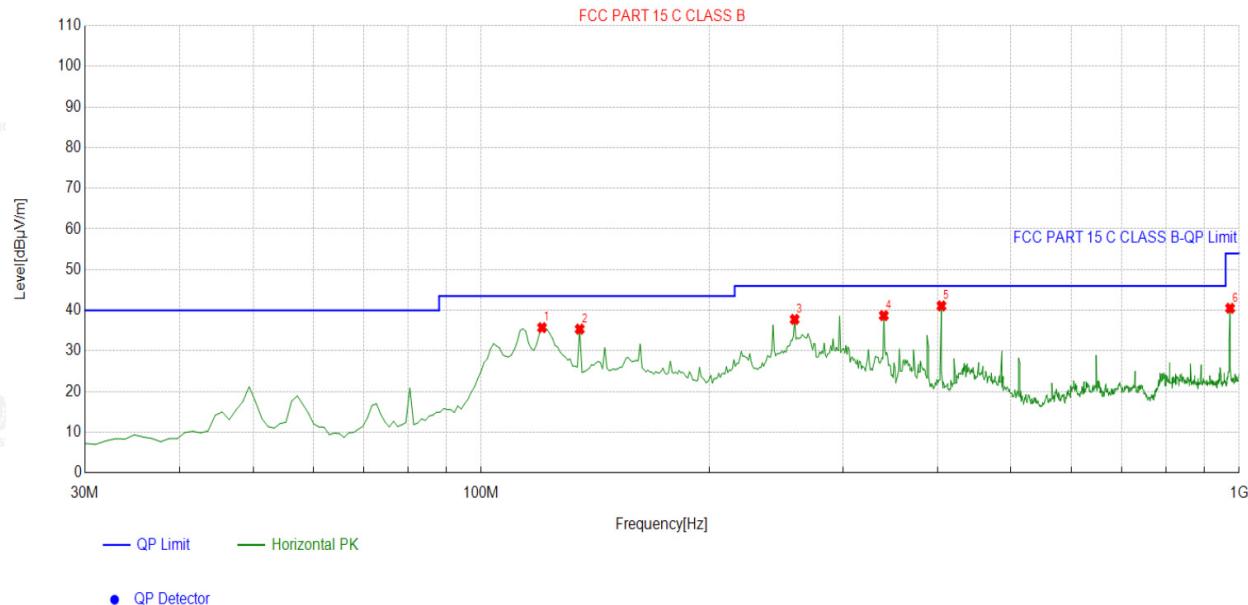
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Test Data

All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.

Below 1GHz

Horizontal:



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	120.3003	-16.19	51.92	35.73	43.50	7.77	100	129	Horizontal
2	134.8649	-17.77	53.14	35.37	43.50	8.13	100	90	Horizontal
3	259.1491	-13.38	51.15	37.77	46.00	8.23	100	101	Horizontal
4	339.7397	-10.34	49.04	38.70	46.00	7.30	100	20	Horizontal
5	404.7948	-9.83	50.91	41.08	46.00	4.92	100	40	Horizontal
6	972.8128	-0.72	41.22	40.50	54.00	13.50	100	250	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

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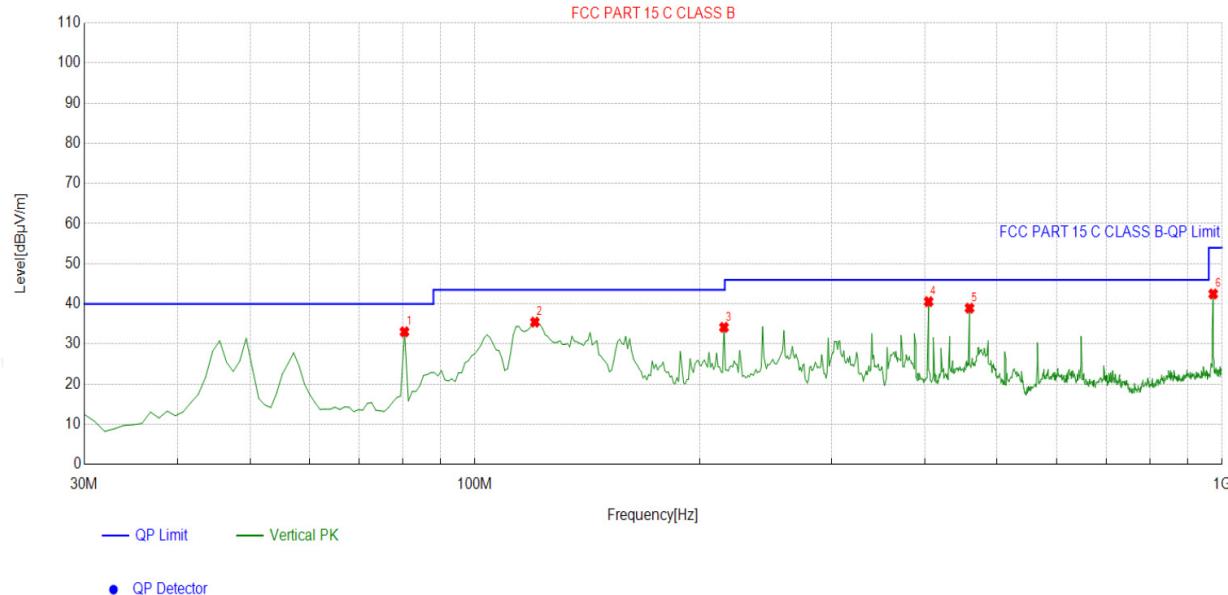
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Vertical:



Suspected List

NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	80.4905	-18.34	51.38	33.04	40.00	6.96	100	79	Vertical
2	120.3003	-16.19	51.65	35.46	43.50	8.04	100	79	Vertical
3	215.4555	-14.72	48.88	34.16	43.50	9.34	100	211	Vertical
4	404.7948	-9.83	50.39	40.56	46.00	5.44	100	107	Vertical
5	459.1692	-8.94	47.88	38.94	46.00	7.06	100	254	Vertical
6	972.8128	-0.72	43.20	42.48	54.00	11.52	100	144	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dB μ V/m)	Limit@3m (dB μ V/m)
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--	--	--
--	--	--
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Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

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Radiated Emission Test

LOW CH 149 (802.11 a Mode with 5.8G)/5745

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
3368	55.93	-4.59	51.34	68.2	16.86	peak
11096	43.31	4.21	47.52	74	26.48	peak
11096	36.44	4.21	40.65	54	13.35	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
3368	54.53	-4.59	49.94	68.2	18.26	peak
11096	45.64	4.21	49.85	74	24.15	peak
11096	35.42	4.21	39.63	54	14.37	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

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MID CH157 (802.11 a Mode with 5.8G)/5785

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type HUAK TESTING
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3172	55.74	-4.59	51.15	68.2	17.05	peak
10523	56.15	4.21	60.36	68.2	7.84	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-L level

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
3172	53.68	-4.59	49.09	68.2	19.11	peak
10523	55.71	4.21	59.92	68.2	8.28	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.



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HIGH CH 165 (802.11a Mode with 5.8G)/5825

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2705	53.5	-4.59	48.91	74	25.09	peak
2705	43.76	-4.59	39.17	54	14.83	AVG
11717	52.44	4.84	57.28	74	16.72	peak
11717	37.68	4.84	42.52	54	11.48	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2705	52.98	-4.59	48.39	74	25.61	peak
2705	43.41	-4.59	38.82	54	15.18	AVG
11717	52.95	4.84	57.79	74	16.21	peak
11717	35.5	4.84	40.34	54	13.66	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.



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5.8G 802.11n/HT20 Mode

LOW CH 149

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3368	54.9	-4.59	50.31	68.2	17.89	peak
11096	52.74	4.21	56.95	74	17.05	peak
11096	36.7	4.21	40.91	54	13.09	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3368	54.47	-4.59	49.88	68.2	18.32	peak
11096	53.13	4.21	57.34	74	16.66	peak
11096	35.9	4.21	40.11	54	13.89	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

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HUAK TESTING

MID CH157

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type HUAN TESTING
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3172	53.42	-4.59	48.83	68.2	19.37	peak
10523	53.24	4.21	57.45	68.2	10.75	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	HUAK TESTING
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	Detector Type
3172	54.56	-4.59	49.97	68.2	18.23	peak
10523	50.93	4.21	55.14	68.2	13.06	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.



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HIGH CH165

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2705	53.73	-4.59	49.14	74	24.86	peak
2705	44.13	-4.59	39.54	54	14.46	AVG
11717	50.46	4.84	55.3	74	18.7	peak
11717	37.79	4.84	42.63	54	11.37	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2705	53.73	-4.59	49.14	74	24.86	peak
2705	44.13	-4.59	39.54	54	14.46	AVG
11717	50.46	4.84	55.3	74	18.7	peak
11717	37.79	4.84	42.63	54	11.37	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.



HUAK TESTING

5.8G 802.11n/HT40 Mode

LOW CH 151

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3368	53.79	-4.59	49.2	68.2	19	peak
11096	51.22	4.21	55.43	74	18.57	peak
11096	38.84	4.21	43.05	54	10.95	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
3368	52.74	-4.59	48.15	68.2	20.05	peak
11096	51.29	4.21	55.5	74	18.5	peak
11096	37.7	4.21	41.91	54	12.09	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = [limit]-level

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MID CH159

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
3172	53.97	-4.59	49.38	68.2	18.82	peak
10523	50.28	4.21	54.49	68.2	13.71	peak

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
3172	52.48	-4.59	47.89	68.2	20.31	peak
10523	50.18	4.21	54.39	68.2	13.81	peak

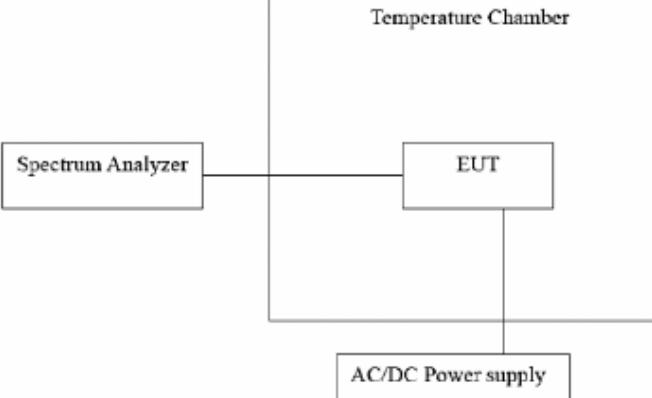
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.

4.8. Frequency Stability Measurement

Test Specification

Test Requirement:	FCC Part15 Section 15.407(g)
Test Method:	ANSI C63.10: 2013
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
Test Setup:	 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] EUT --- ACDC[AC/DC Power supply] ACDC --- EUT EUT --- TC[Temperature Chamber] </pre>
Test Procedure:	<p>The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.</p> <ol style="list-style-type: none"> Turn the EUT on and couple its output to a spectrum analyzer. Turn the EUT off and set the chamber to the highest temperature specified. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test Result:	PASS
Remark:	N/A

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Test Result as follows:

Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
5.8G Band	4.5V	5745.009	9	5825.031	31
	5.0V	5745.008	8	5825.021	21
	5.5V	5744.969	-31	5825.033	33

Mode	Temperature (°C)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
5.8G Band	-30	5744.989	-11	5824.967	-33
	-20	5745.005	5	5825.044	44
	-10	5745.012	12	5824.983	-17
	0	5744.978	-22	5825.030	30
	10	5745.003	3	5824.985	-15
	20	5744.955	-45	5824.962	-38
	30	5744.998	-2	5825.006	6
	40	5745.018	18	5824.960	-40
	50	5745.011	11	5825.043	43

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4.9. Antenna Requirement

Standard Applicable

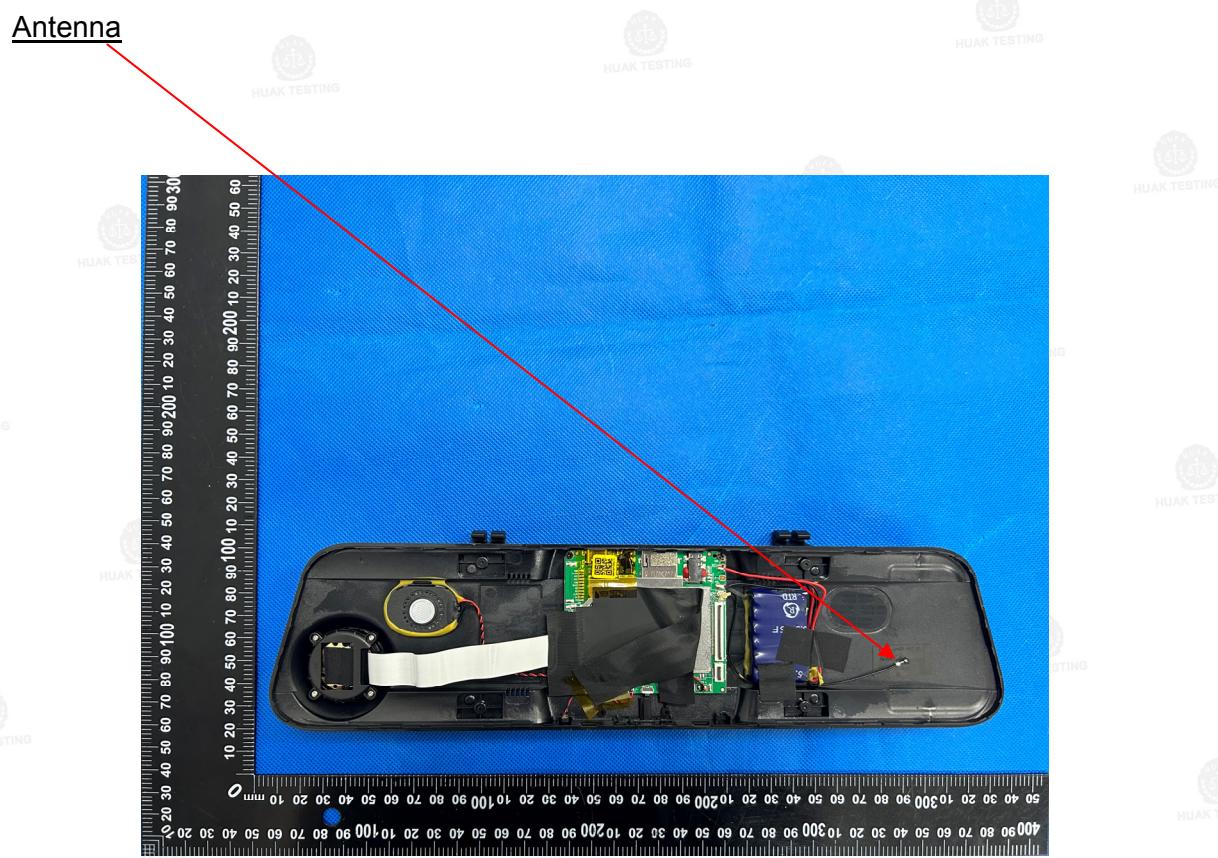
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is an FPC Antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 4.81dBi.



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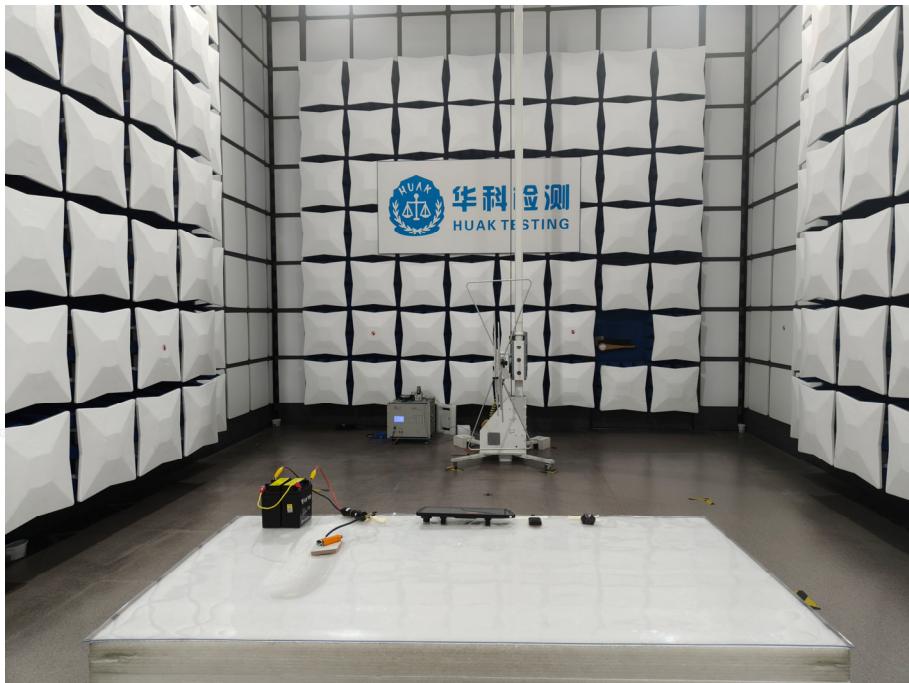


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5. Test Setup Photos of the EUT

Radiated Emission





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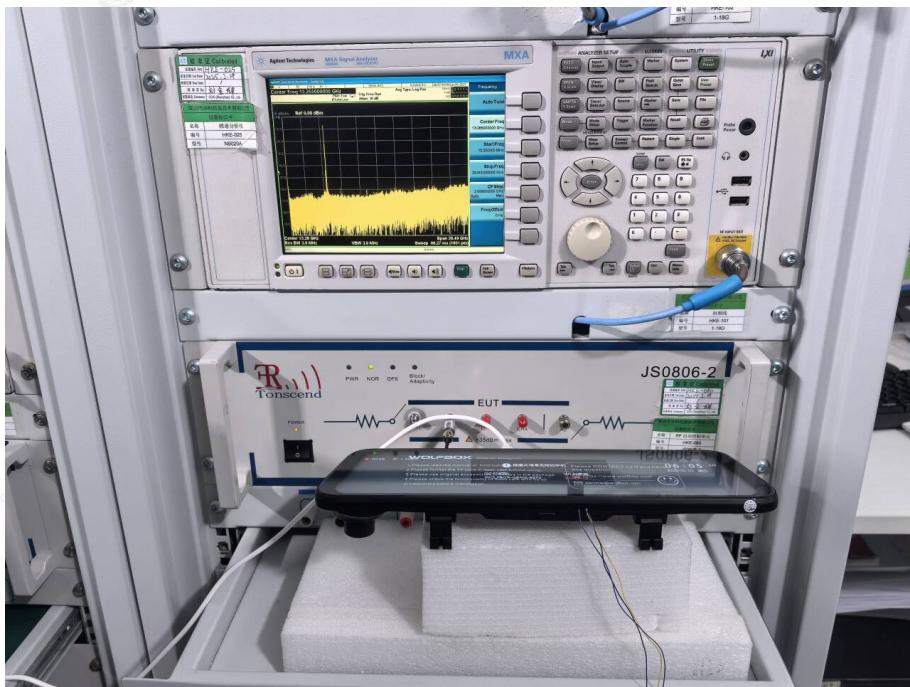
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RF Conducted Emission



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6. Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

-----End of test report-----