FCC Test Report

Test Report

On Behalf of

Shenzhen Renyi Tian Technology Co. , Ltd.

For

K02 Magnetic Assist

Model No.: K02

FCC ID: 2BK4R-K02

Prepared For:	**Shenzhen Renyi Tian Technology Co. , Ltd.** **Floor 3, building A, 3 Tengfeng San Road, Fenghuang Community, Fuyong Street, Bao'an District, Shenzhen City, China**
Prepared By:	**Shenzhen HUAK Testing Technology Co., Ltd.** **1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China**
Date of Test:	**Nov. 28, 2025 ~ Dec. 22, 2025**
Date of Report:	**Dec. 22, 2025**
Report Number:	**HK2511286364-E**

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Test Result Certification

Applicant's Name ..... :	Shenzhen Renyi Tian Technology Co., Ltd.
Address ..... :	Floor 3, building A, 3 Tengfeng San Road, Fenghuang Community, Fuyong Street, Bao'an District, Shenzhen City, China
Manufacturer's Name ..... :	Shenzhen Renyi Tian Technology Co. , Ltd.
Address ..... :	Floor 3, building A, 3 Tengfeng San Road, Fenghuang Community, Fuyong Street, Bao'an District, Shenzhen City, China
Product Description	
Trade Mark ..... :	N/A
Product Name ..... :	K02 Magnetic Assist
Model and/or Type Reference .. :	K02
Standards ..... :	**47 CFR FCC Part 15 Subpart C 15.247** **KDB 558074 D01 15.247 Meas Guidance v05r02** **ANSI C63.10: 2020**

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Date of Test ..... :	
Date (s) of Performance of Tests ..... :	**Nov. 28, 2025 ~ Dec. 22, 2025**
Date of Issue ..... :	**Dec. 22, 2025**
Test Result ..... :	**Pass**

Testing Engineer Len Liao

Len Liao

Technical Manager Sliver Wan

Sliver Wan

Authorized Signatory Jason Zhou

Jason Zhou

REPORT CERTIFICATION HUAK TESTING HUAK TESTING APPROVAL

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** Issued History **

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Dec. 22, 2025	Jason Zhou

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1 Summary

1.1 Test Procedures and Results

Test Item	Test Requirement	Result
Antenna Requirement	§15.203/§15.247(b)(4)	PASS
AC Conducted Emission	FCC Part 15.207	PASS
Radiated Emissions	FCC Part 15.205/15.209	PASS
Maximum Peak Output Power	FCC Part 15.247(b)	PASS
Power Spectral Density	FCC Part 15.247(e)	PASS
6dB Bandwidth & 99% Bandwidth	FCC Part 15.247(a)(2)	PASS
Spurious RF Conducted Emission	FCC Part 15.247(d)	PASS
Band Edge	FCC Part 15.247(d)	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

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1.2 Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission 0.15~30MHz	±2.71dB
2	All Emissions, Radiated(<1G)	±3.90dB
3	All Emissions, Radiated(>1G)	±4.28dB
4	Transmitter Power Conducted	±0.37dB
5	Conducted Spurious Emission	±2.20dB
6	Occupied Bandwidth	±1.5%
7	Temperature	±0.1°C
8	Humidity	±1.0%

1.3 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

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2 General Information

2.1 General Description of EUT

EUT Name:	K02 Magnetic Assist
Model No:	K02
Series Model(s):	N/A
Model Difference:	N/A
Trade Mark:	N/A
Operation Frequency:	2402 MHz to 2480 MHz
Channel Separation:	2MHz
Number of Channel:	40
Modulation Technology:	GFSK
Hardware Version:	V1.0
Software Version:	V1.0
Antenna Type:	PCB Antenna
Antenna Gain:	-0.58dBi
Power Supply:	DC5V from Type-C or DC3.7V from Battery

Note:
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Antenna gain Refer to the antenna specifications.
3. The cable loss data is obtained from the supplier.
4. The test results in the report only apply to the tested sample.

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Description of Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

The EUT has been operated in modulations: GFSK independently.

No.	Test Mode Description
1	Low channel TX
2	Middle channel TX
3	High channel TX

Note:
1. All the test modes can be supply by serial port, only the result of the worst case was recorded in the report if no any records.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

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2.2 Description of Test Conditions

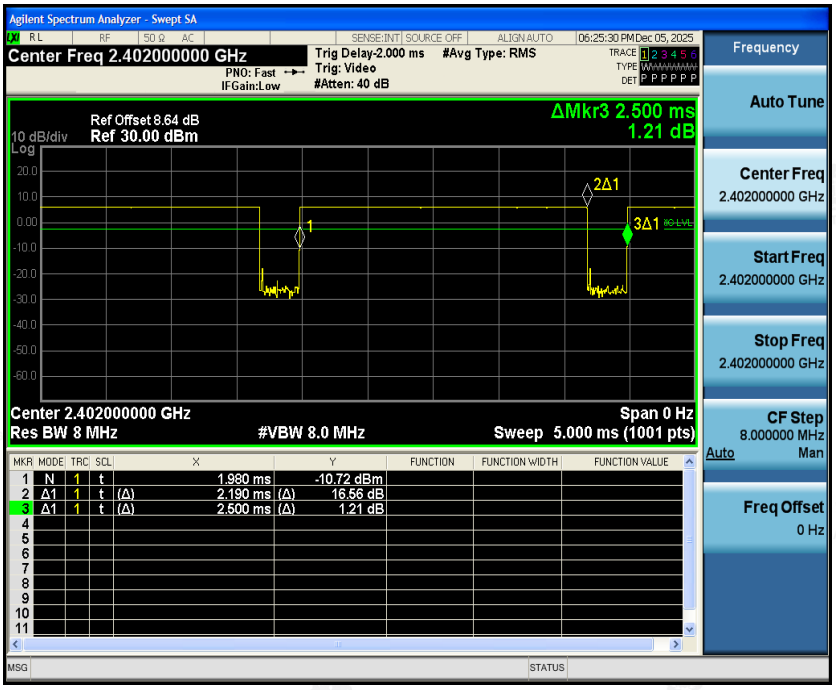
(1) E.U.T. test conditions:
For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

(2) Frequency range of radiated measurements:
The test range will be up to the tenth harmonic of the highest fundamental frequency.

(3) Pre-test the EUT in all transmitting mode at the lowest (2402 MHz), middle (2440 MHz) and highest (2480 MHz) channel with different data packet and conducted to determine the worst-case mode, only the worst-case results are recorded in this report.

(4) Mode Test Duty Cycle

Mode	Duty Cycle
BT-LE(1Mbps)	0.8760



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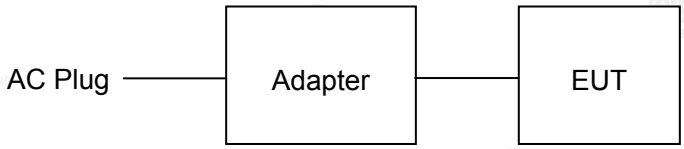
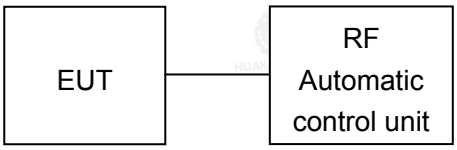
2.3 Description of Test Setup

Operation of EUT during AC Conducted and Radiation below 1GHz testing:



Operation of EUT during Radiation above 1GHz testing:

Operation of EUT during RF Conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position.

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2.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Note
1	K02 Magnetic Assist	N/A	K02	N/A	EUT
2	Adapter	N/A	ICP12-050-2000B	Input: AC100-240V, 50/60Hz, 0.3A Output: DC5V, 2.0A	
3	Adapter	N/A	N/A	Input: AC100-240V, 50/60Hz, 0.75A Output: DC5V/2A, 9V/2A, 10V/2.25A MAX	
4	Adapter	N/A	MDY-10-EH	Input: AC100-240V, 50/60Hz, 0.7A Output: DC5V/3A, 9V/3A, 12V/2.25A, 20V/1.35A	

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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3 Equipments List for All Test Items

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N.	R&S	ENV216	HKE-002	2025/02/19	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2025/02/19	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2025/02/19	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2025/02/19	1 Year
5	Spectrum analyzer	Agilent	N9020A	HKE-117	2025/02/19	1 Year
6	Spectrum analyzer	R&S	FSV3044	HKE-126	2025/02/19	1 Year
7	Preamplifier	EMCI	EMC051845S	HKE-006	2025/02/19	1 Year
8	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2025/02/19	1 Year
9	Preamplifier	A.H. Systems	SAS-574	HKE-182	2025/02/19	1 Year
10	6dB Attenuator	Pasternack	6db	HKE-184	2025/02/19	1 Year
11	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2025/02/19	1 Year
12	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
13	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2 Year
14	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
15	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
16	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
17	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2025/02/19	1 Year
18	High pass filter unit	Tonscend	JS0806-F	HKE-055	2025/02/19	1 Year
19	Wireless Communication Test Set	R&S	CMU200	HKE-026	2025/02/19	1 Year
20	Wireless Communication Test Set	R&S	CMW500	HKE-027	2025/02/19	1 Year
21	High-low temperature chamber	Guangke	HT-80L	HKE-118	2025/06/09	1 Year
22	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2025/06/09	1 Year
23	RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/
24	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2025/02/19	1 Year
25	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

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4 Test Result

4.1 Antenna Requirement

4.1.1 Standard 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 15.247, 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.

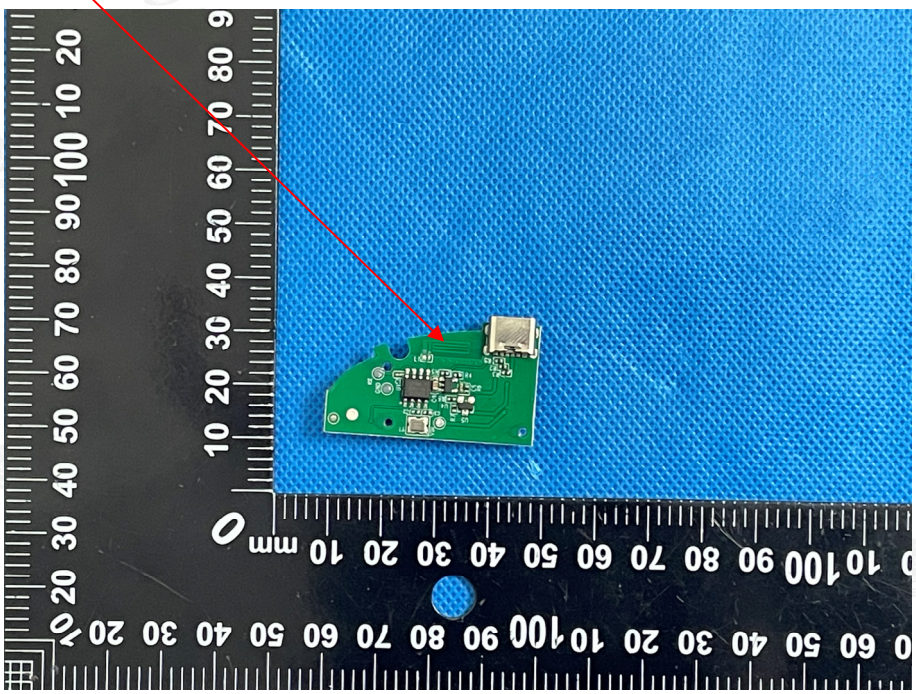
Refer to statement below for compliance.

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 a PCB Antenna, is a permanently attached antenna on the PCB. It conforms to the standard requirements. The directional gains of antenna used for transmitting is -0.58dBi.

4.1.2 EUT Antenna



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4.2 AC Conduction Emissions Measurement

4.2.1 Applied Procedures / Limit

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207, AC Power Line Conducted Emissions Limits for Licence-Exempt Radio Apparatus as below:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

4.2.2 Test Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

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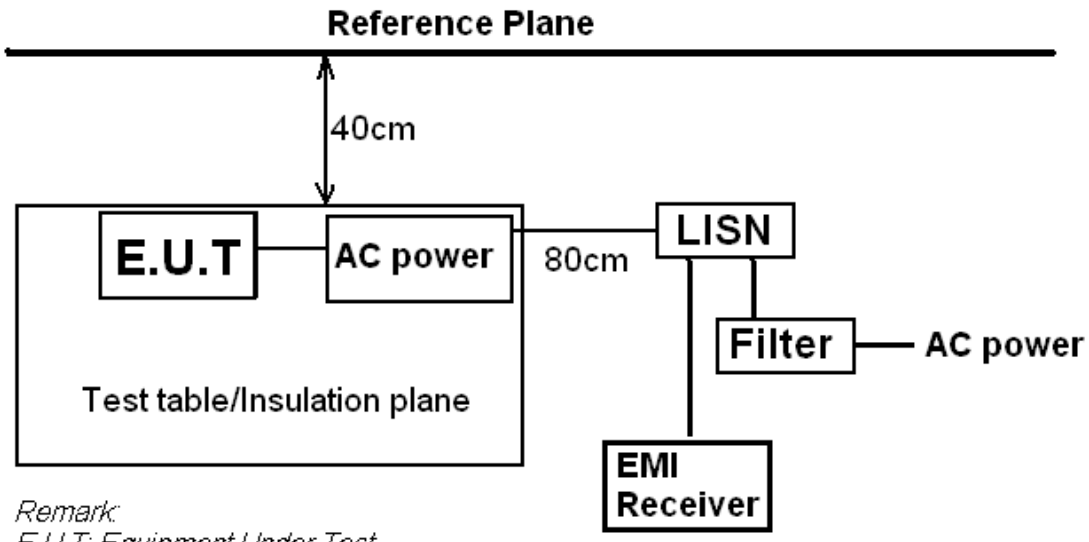
4.2.3 Test Setup



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

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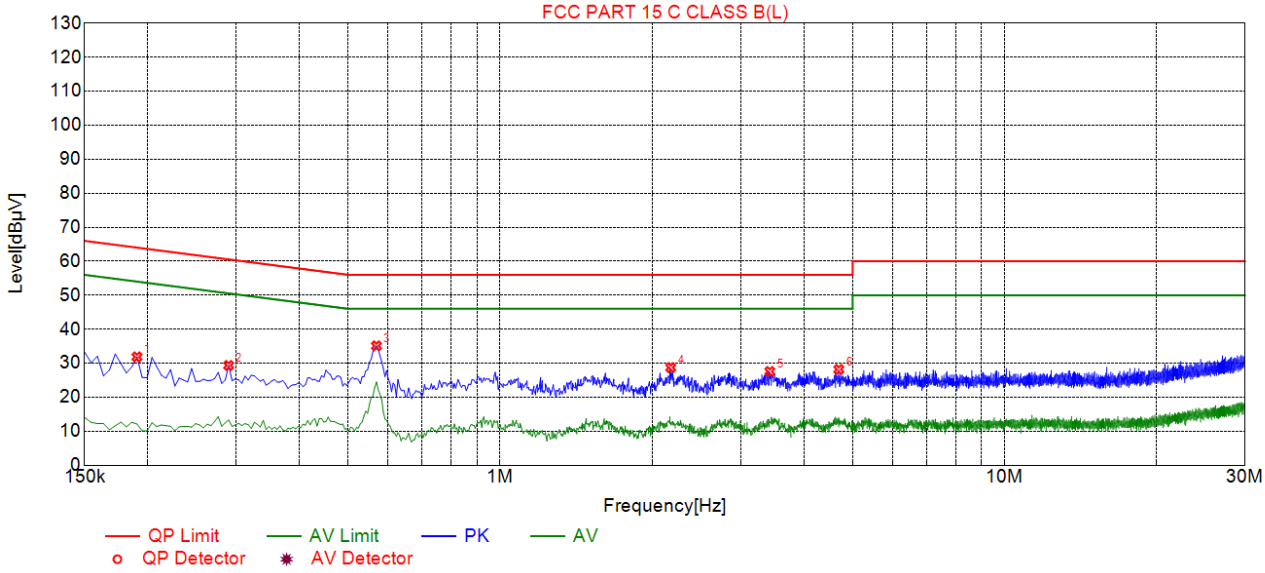
4.2.4 Test Results

All the test modes completed for test. Only the worst result was reported as below:

Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1905	31.86	19.78	64.01	32.15	12.08	PK	L
2	0.2895	29.35	19.83	60.54	31.19	9.52	PK	L
3	0.5685	35.11	19.79	56.00	20.89	15.32	PK	L
4	2.1795	28.72	20.17	56.00	27.28	8.55	PK	L
5	3.4260	27.57	20.32	56.00	28.43	7.25	PK	L
6	4.6950	28.17	20.38	56.00	27.83	7.79	PK	L

Remark: Margin = Limit – Level
Correction factor = Cable lose + LISN insertion loss
Level=Test receiver reading + correction factor

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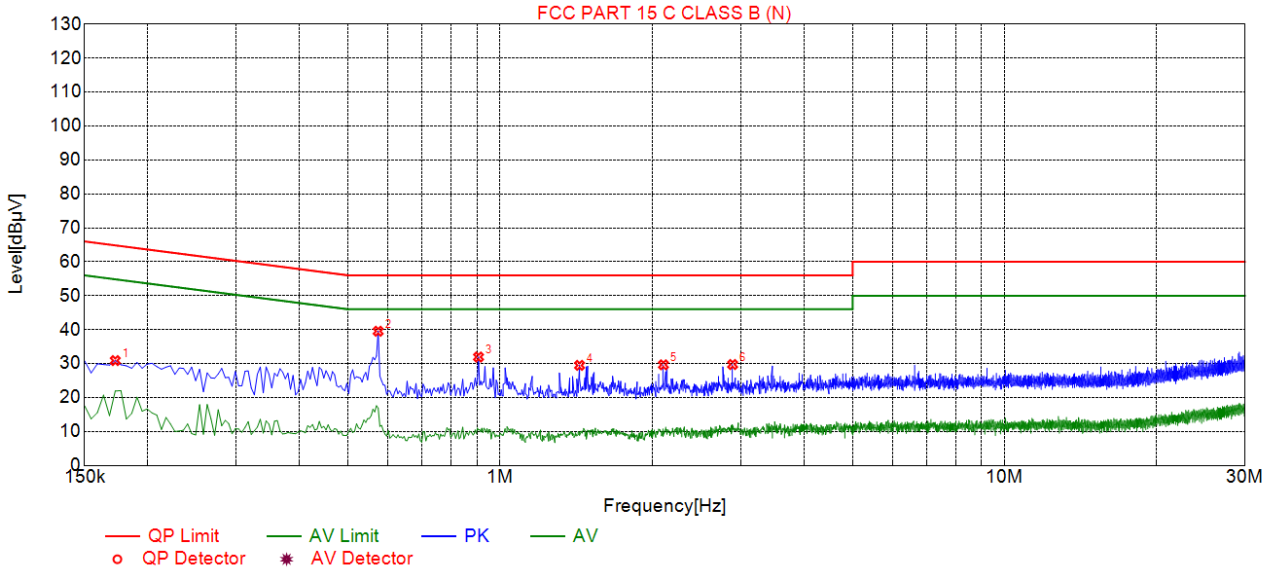
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1725	30.89	19.64	64.84	33.95	11.25	PK	N
2	0.5730	39.54	19.75	56.00	16.46	19.79	PK	N
3	0.9060	31.94	19.76	56.00	24.06	12.18	PK	N
4	1.4370	29.48	19.85	56.00	26.52	9.63	PK	N
5	2.1075	29.65	19.96	56.00	26.35	9.69	PK	N
6	2.8905	29.73	20.05	56.00	26.27	9.68	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

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4.3 Radiated Emissions Measurement

4.3.1 Applied Procedures / Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Except when the requirements applicable to a given device state otherwise, emissions from license-exempt transmitters shall comply with the field strength limits shown in table below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

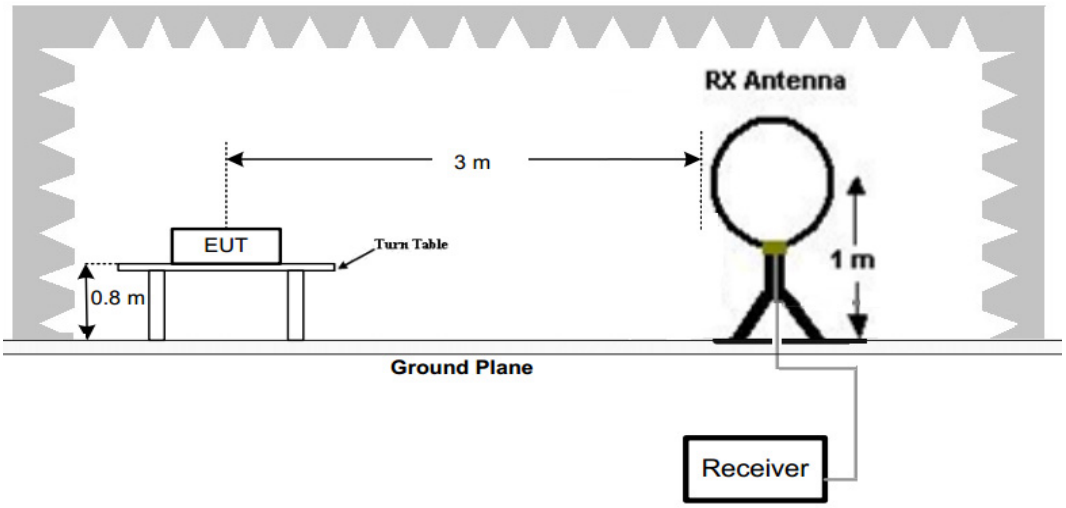
Radiated Emission Limits

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

4.3.2 Test Setup

Test Configuration:

1) 9 kHz to 30 MHz emissions:



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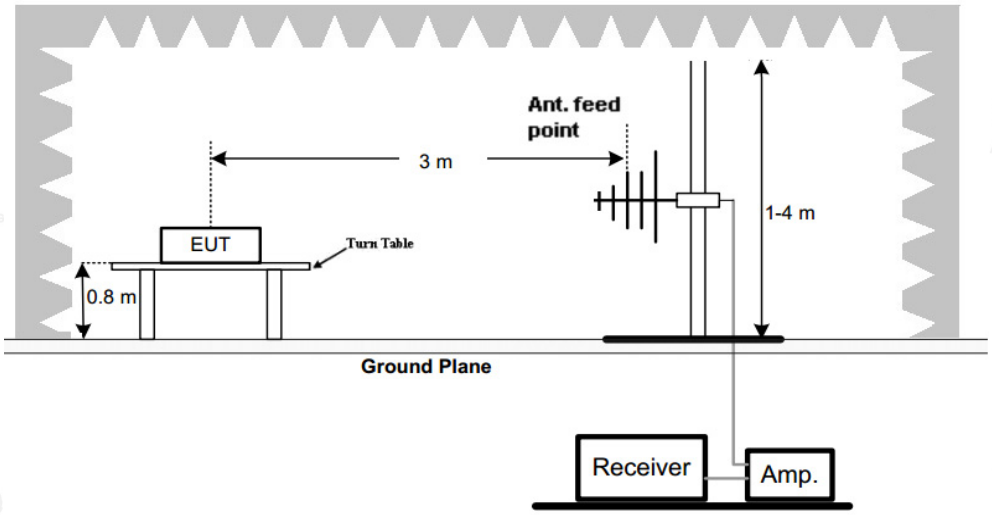
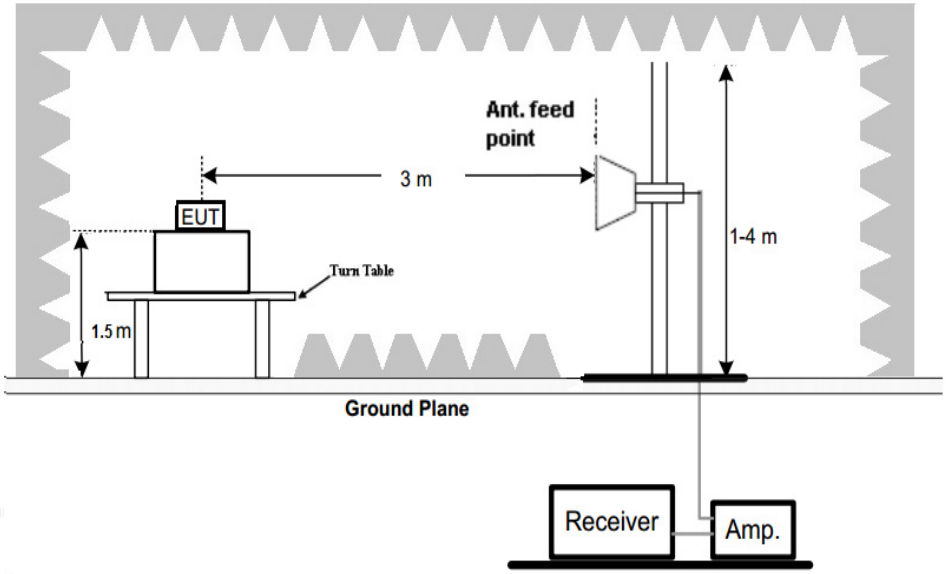
2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 26 GHz emissions:



Test Procedure

1. The EUT was placed on turn table which is 0.8m above ground plane for below 1GHz test, and on a low permittivity and low loss tangent turn table which is 1.5m above ground plane for above 1GHz test.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0 degrees to 360 degrees to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

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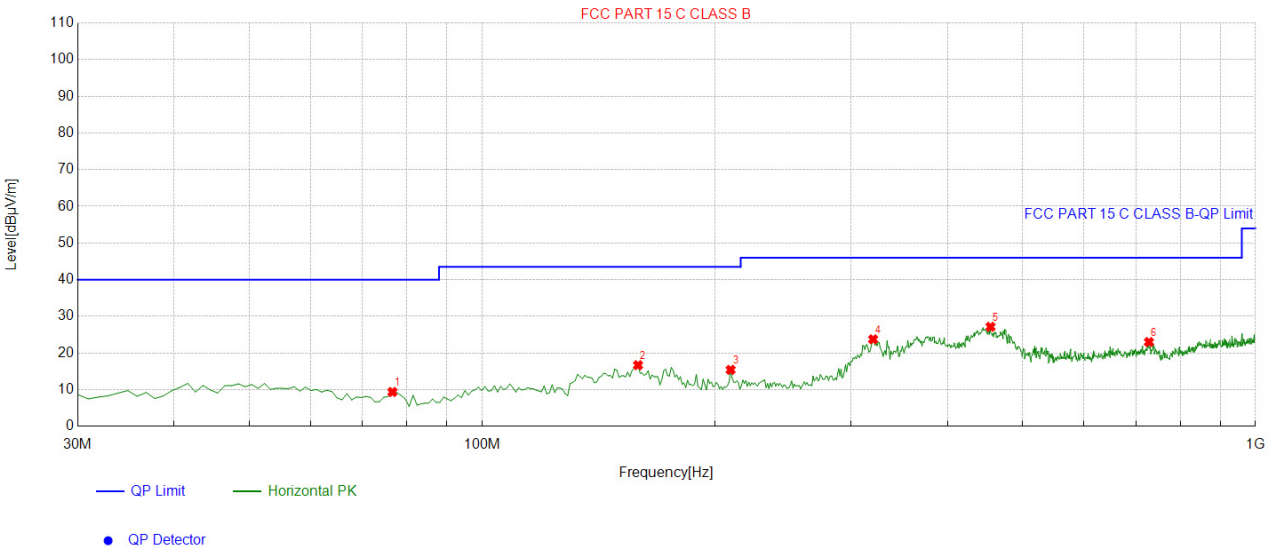
4.3.3 Test Result

Below 1GHz Test Results

All modes have been tested, only the worst mode of GFSK Low channel TX is reflected.

Antenna polarity: Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	76.6066	-17.96	27.33	9.37	40.00	30.63	100	132	Horizontal
2	159.1391	-17.79	34.48	16.69	43.50	26.81	100	175	Horizontal
3	209.6296	-14.93	30.35	15.42	43.50	28.08	100	61	Horizontal
4	320.3203	-11.20	34.94	23.74	46.00	22.26	100	61	Horizontal
5	454.3143	-8.83	35.98	27.15	46.00	18.85	100	128	Horizontal
6	728.1281	-3.69	26.68	22.99	46.00	23.01	100	311	Horizontal

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

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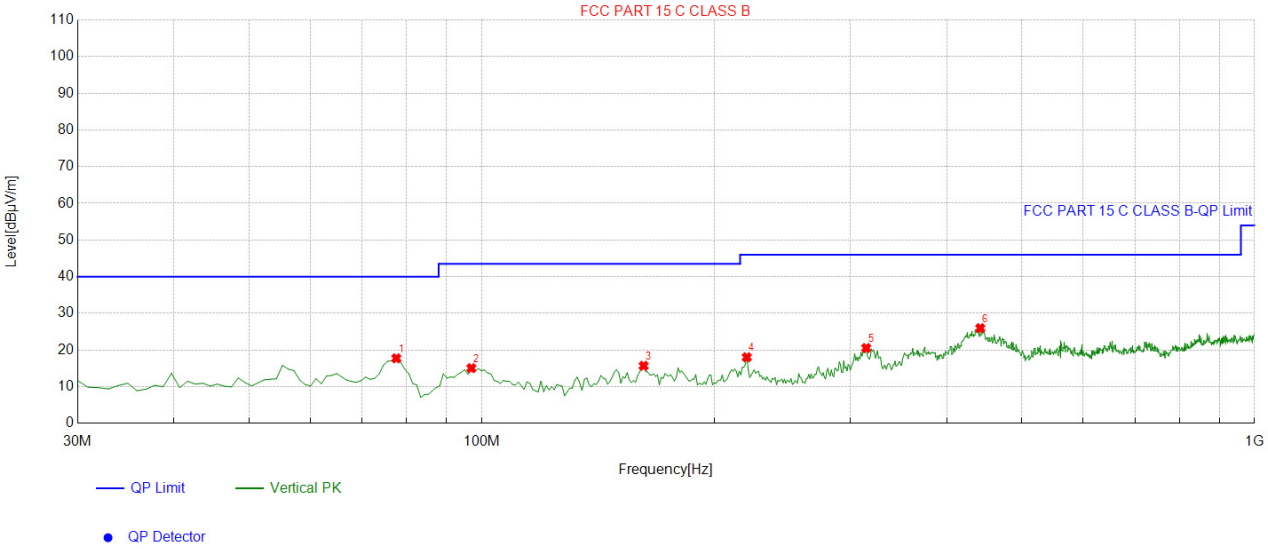
Antenna polarity: Vertical



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	77.5776	-18.02	35.76	17.74	40.00	22.26	100	218	Vertical
2	96.9970	-14.95	30.00	15.05	43.50	28.45	100	56	Vertical
3	162.0521	-17.59	33.29	15.70	43.50	27.80	100	82	Vertical
4	220.3103	-14.54	32.57	18.03	46.00	27.97	100	75	Vertical
5	314.4945	-11.46	32.00	20.54	46.00	25.46	100	139	Vertical
6	441.6917	-8.67	34.63	25.96	46.00	20.04	100	305	Vertical

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

Harmonics and Spurious Emissions

Frequency Range (9kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

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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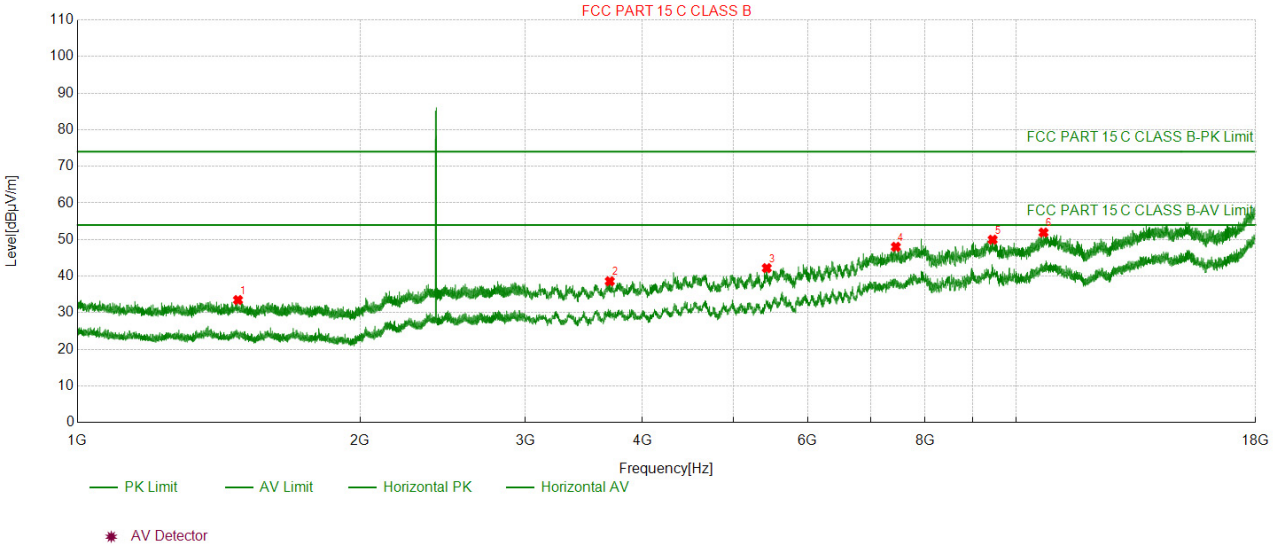
Above 1GHz Test Results

All the test modes completed for test. Only the worst result was reported as below:

For 1GHz to 18GHz

Antenna polarity: Horizontal



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1482.648	52.39	33.49	-18.90	74.00	40.51	150	160	Horizontal
2	3691.569	50.95	38.61	-12.34	74.00	35.39	150	20	Horizontal
3	5425.742	51.39	42.20	-9.19	74.00	31.80	150	80	Horizontal
4	7447.944	51.65	48.01	-3.64	74.00	25.99	150	90	Horizontal
5	9443.144	50.18	49.96	-0.22	74.00	24.04	150	170	Horizontal
6	10698.76	50.07	51.92	1.85	74.00	22.08	150	280	Horizontal

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

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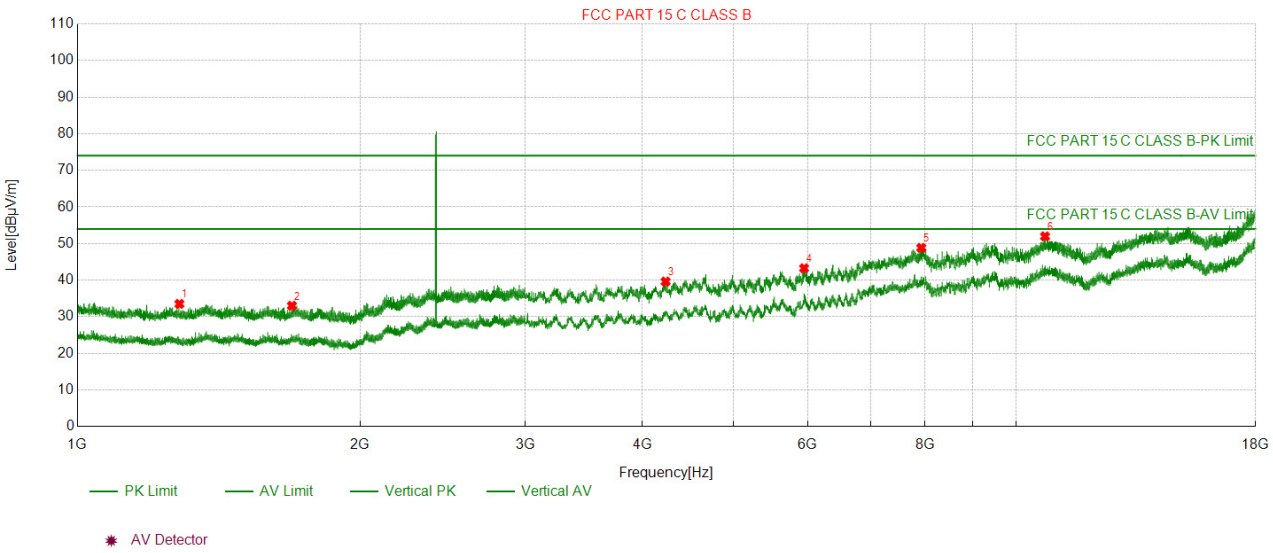
Antenna polarity: Vertical



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1284.228	52.76	33.51	-19.25	74.00	40.49	150	210	Vertical
2	1692.469	51.55	33.01	-18.54	74.00	40.99	150	240	Vertical
3	4233.123	50.73	39.62	-11.11	74.00	34.38	150	230	Vertical
4	5946.294	51.16	43.25	-7.91	74.00	30.75	150	320	Vertical
5	7926.492	51.17	48.83	-2.34	74.00	25.17	150	40	Vertical
6	10739.27	50.16	51.96	1.80	74.00	22.04	150	230	Vertical

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

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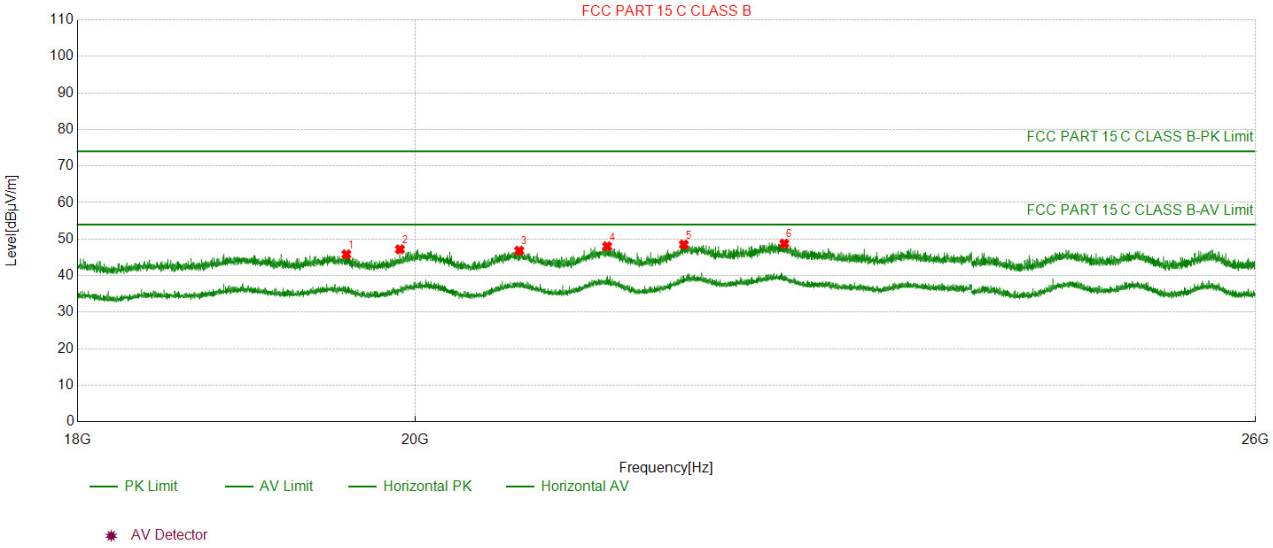
For 18GHz to 26GHz

Antenna polarity: Horizontal



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19576.15	39.74	45.84	6.10	74.00	28.16	150	330	Horizontal
2	19905.79	41.03	47.20	6.17	74.00	26.80	150	290	Horizontal
3	20661.06	41.02	46.83	5.81	74.00	27.17	150	220	Horizontal
4	21236.32	42.75	48.03	5.28	74.00	25.97	150	20	Horizontal
5	21750.77	42.98	48.50	5.52	74.00	25.50	150	200	Horizontal
6	22443.64	43.11	48.77	5.66	74.00	25.23	150	150	Horizontal

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

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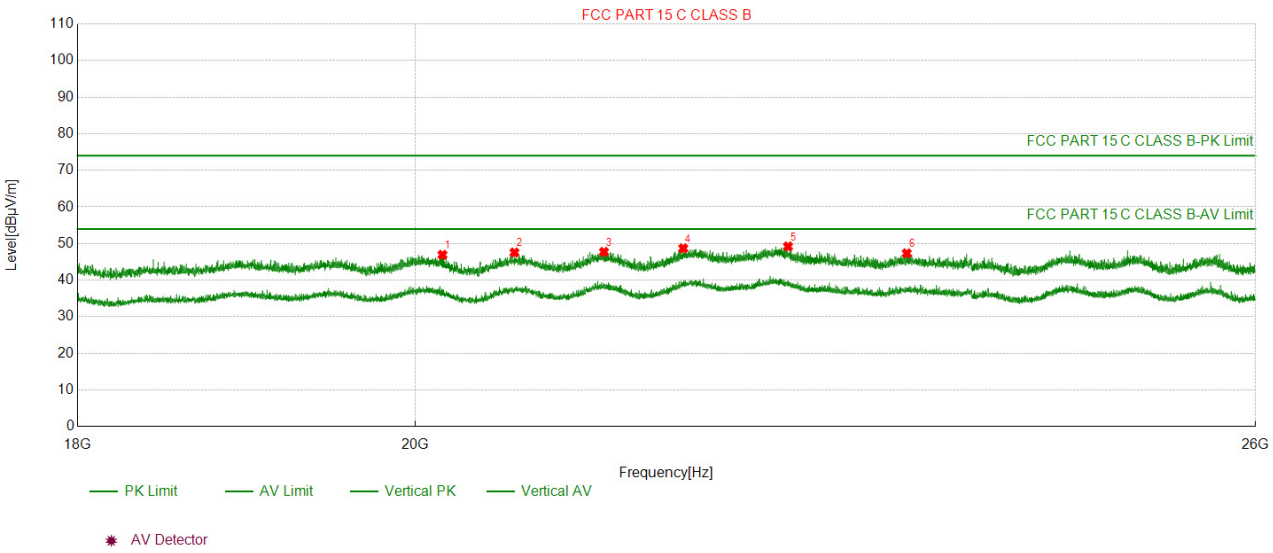
Antenna polarity: Vertical



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	20172.21	40.83	46.93	6.10	74.00	27.07	150	150	Vertical
2	20630.66	41.71	47.55	5.84	74.00	26.45	150	130	Vertical
3	21214.72	42.44	47.72	5.28	74.00	26.28	150	350	Vertical
4	21746.77	43.17	48.69	5.52	74.00	25.31	150	270	Vertical
5	22469.24	43.56	49.21	5.65	74.00	24.79	150	160	Vertical
6	23318.13	41.67	47.34	5.67	74.00	26.66	150	220	Vertical

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

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4.4 Maximum Peak Output Power Measurement

4.4.1 Limit

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 Test Procedure

The maximum peak conducted output power may be measured using a broadband peak RF automatic control unit. The RF automatic control unit shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

The maximum Average conducted output power may be measured using a wideband RF automatic control unit with a thermocouple detector or equivalent. The RF automatic control unit shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

4.4.3 Deviation from Standard

No deviation.

4.4.4 Test Setup

4.4.5 Test Results

Channel	Channel Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)	Limit (dBm)	Result
CH00	2402	0.32	30.00	Pass
CH19	2440	1.10		Pass
CH39	2480	1.58		Pass

Note: The test results including the cable loss.

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4.5 Power Spectral Density

4.5.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

4.5.2 Test Procedure

Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.

Set the RBW =10 kHz.
Set the VBW =30 KHz.
Set the span to 1.5 times the DTS channel bandwidth.
Detector = peak.
Sweep time = auto couple.
Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum power level.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
The resulting peak PSD level must be 8dBm.

4.5.3 Deviation from Standard

No deviation.

4.5.4 Test Setup

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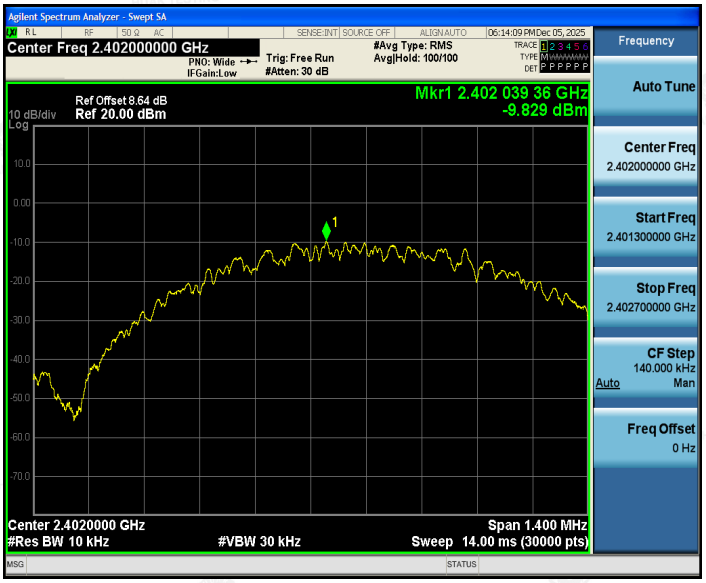
4.5.5 Test Results

Channel	Channel Frequency (MHz)	Result (dBm/10kHz)	10log(3/10)	Test Result (dBm/3kHz)
CH00	2402	-9.83	-5.23	-15.06
CH19	2440	-9.03	-5.23	-14.26
CH39	2480	-8.56	-5.23	-13.79
Limit : 8dBm/3KHz Test Result (dBm/3kHz)= Result (dBm/10kHz)+10log (3/10)				
Test Result	PASS			

CH00



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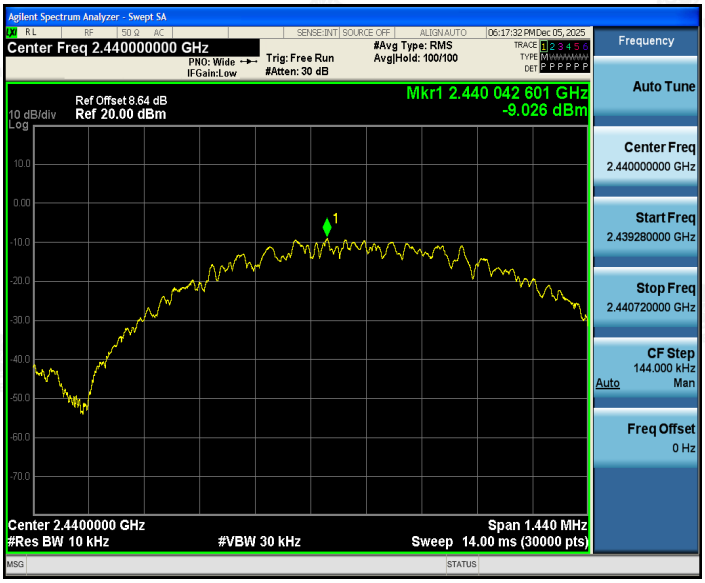
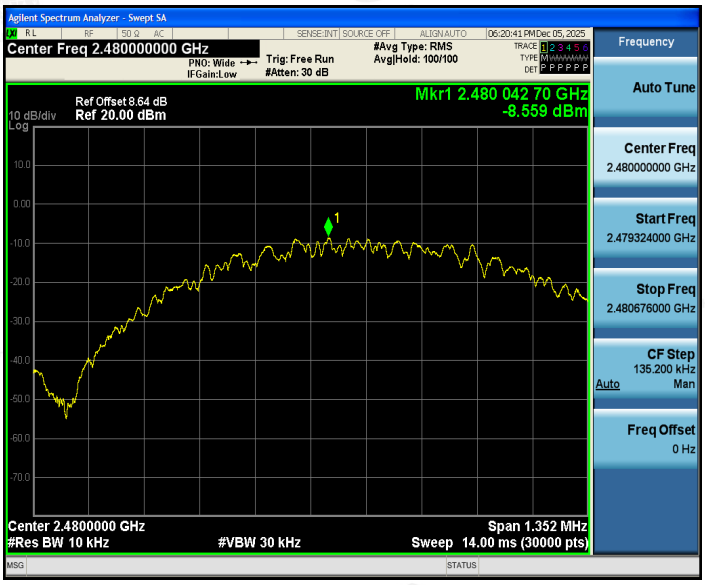
CH19



CH39



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4.6 6dB Bandwidth

4.6.1 Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

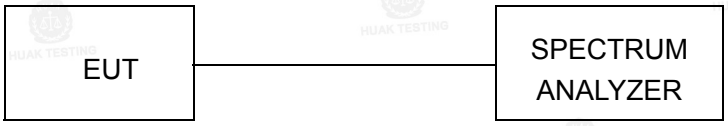
4.6.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW=100 KHz and VBW=300 KHz.
The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.6.3 Deviation from Standard

No deviation.

4.6.4 Test Setup



4.6.5 Test Result

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (KHz)	Result
CH00	2402	0.700	≥500	Pass
CH19	2440	0.720		Pass
CH39	2480	0.676		Pass

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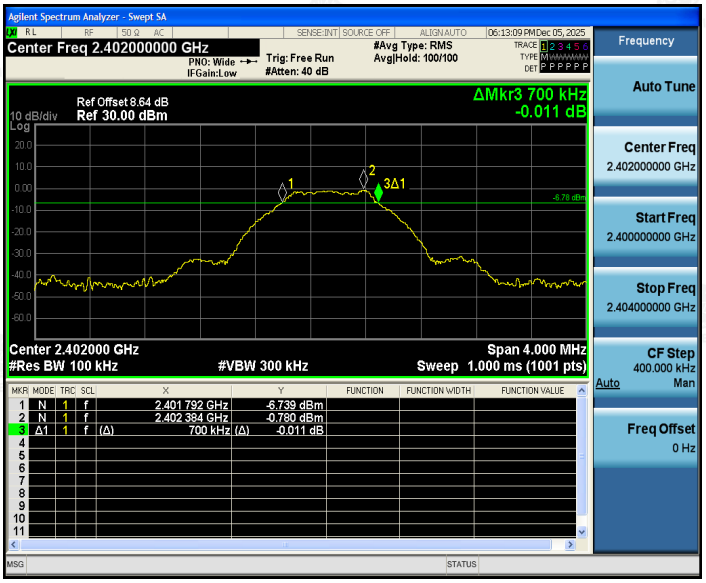
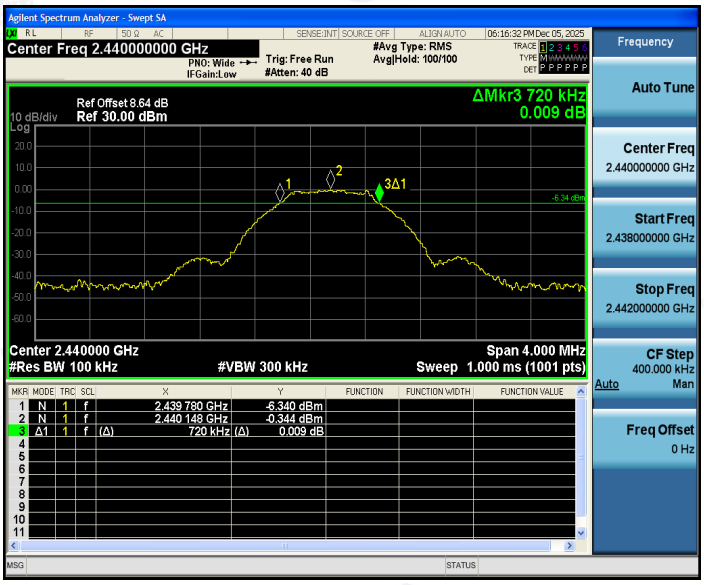
CH00



CH19



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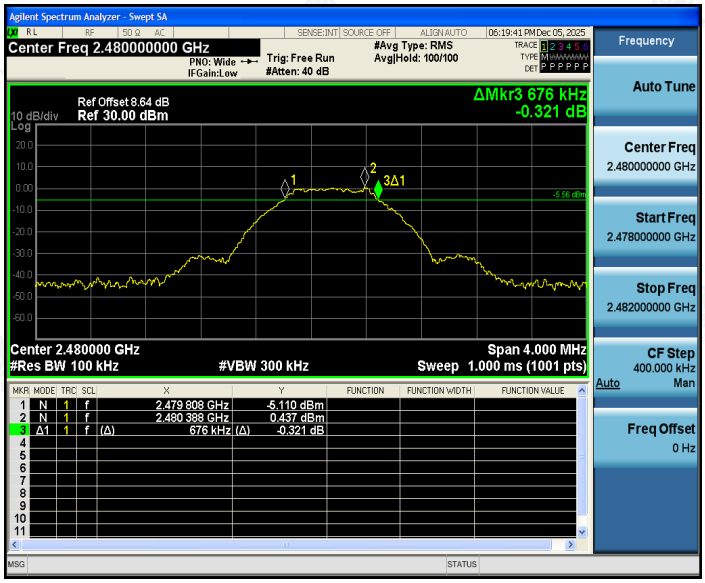
CH39



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4.7 Occupied Bandwidth

4.7.1 Test Procedure

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

RBW=1% to 5% of the OBW

VBW=approximately 3 X RBW

Detector=Peak

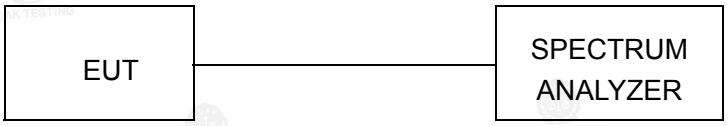
Trace Mode: Max Hold

Use the 99% power bandwidth function of the instrument to measure the Occupied Bandwidth and recorded.

4.7.2 Deviation from Standard

No deviation.

4.7.3 Test Setup



4.7.4 Test Result

N/A

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4.8 Band Edge

4.8.1 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under FCC rules in section 5.8.1, the attenuation required shall be 30 dB instead of 20 dB.

4.8.2 Test Procedure

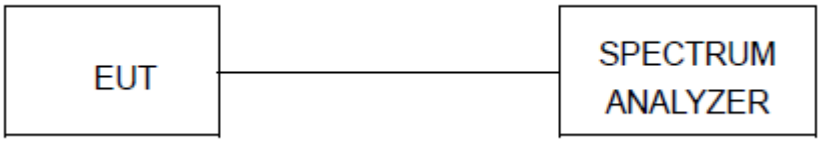
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation, RBW ≥ 1% of the span, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold.

4.8.3 Deviation from Standard

No deviation.

4.8.4 Test Setup



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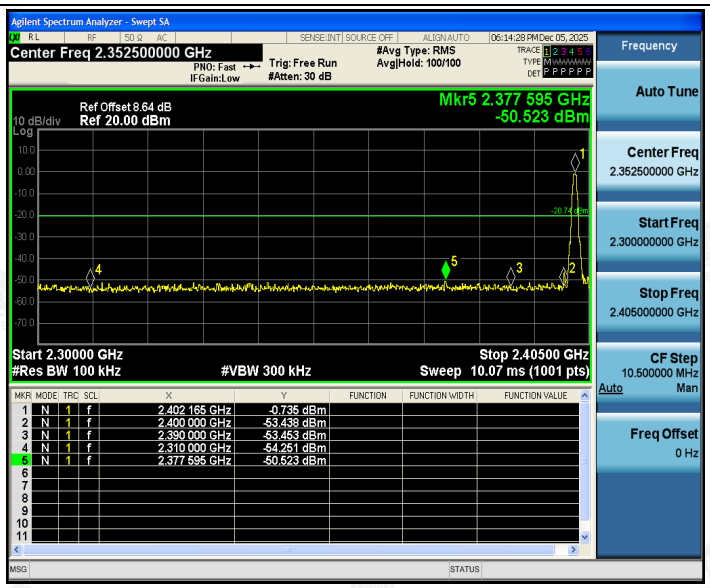
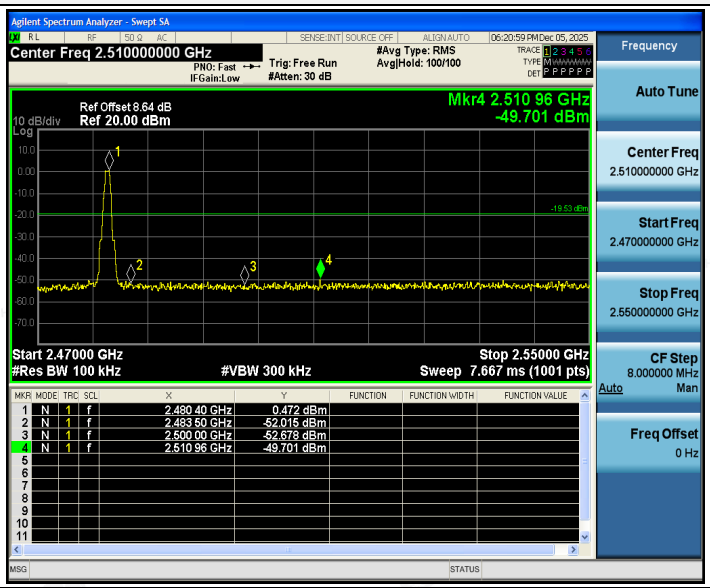
4.8.5 Test Results

PASS



CH00



CH39

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4.9 Conducted Spurious Emissions

4.9.1 Applied Procedures / Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
For below 30MHz, For 9KHz-150kHz,150K-10MHz, We use the RBW 1KHz,10KHz, So the limit need to calculated by “10lg(BW1/BW2)“. For example For 9KHz-150kHz, RBW 1KHz, The Limit = the highest emission level-20-10log(100/1) = the highest emission level-40.

4.9.2 Test Procedure

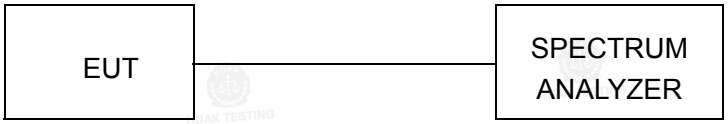
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation, RBW ≥ 1% of the span, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold.

4.9.3 Deviation from Standard

No deviation.

4.9.4 Test Setup



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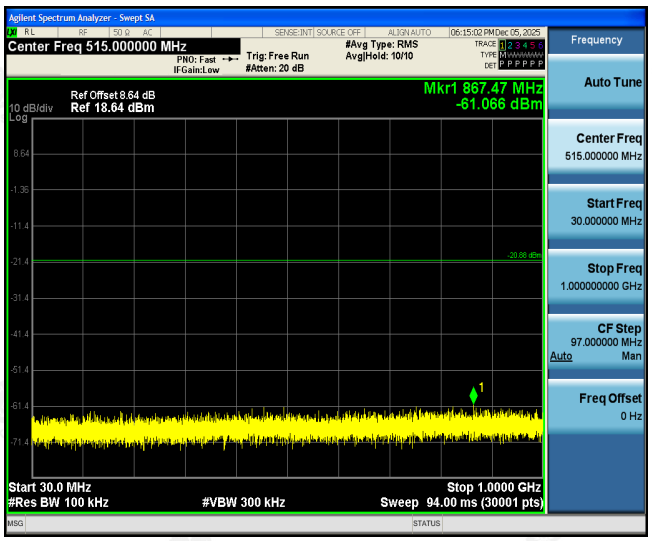
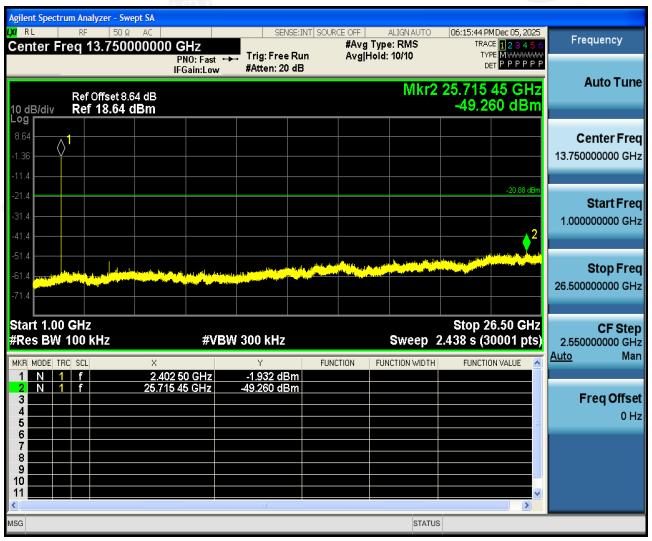
4.9.5 Test Results

CH00





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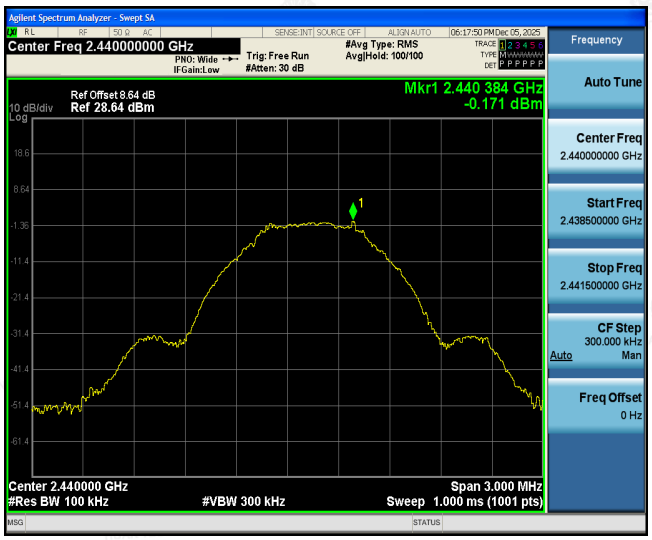
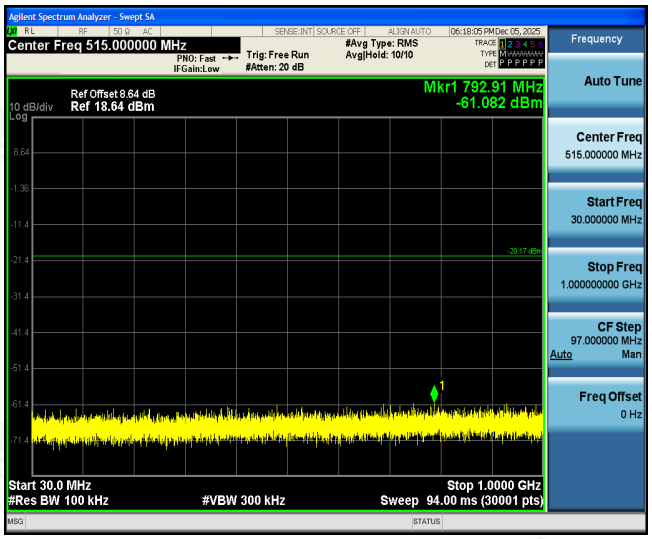
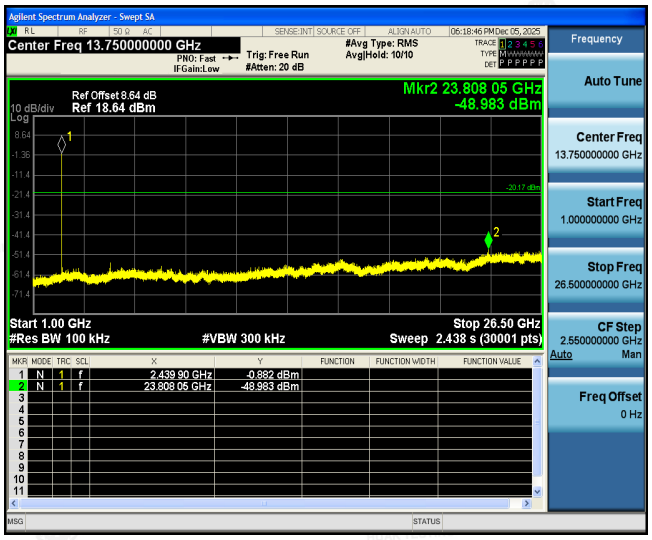
CH19







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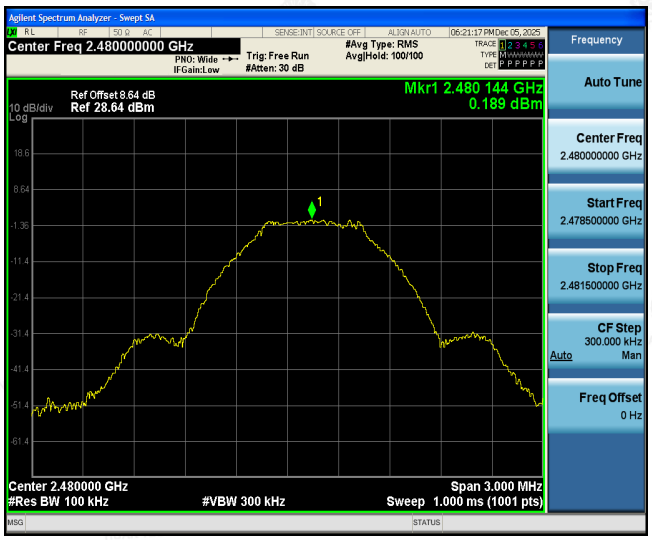
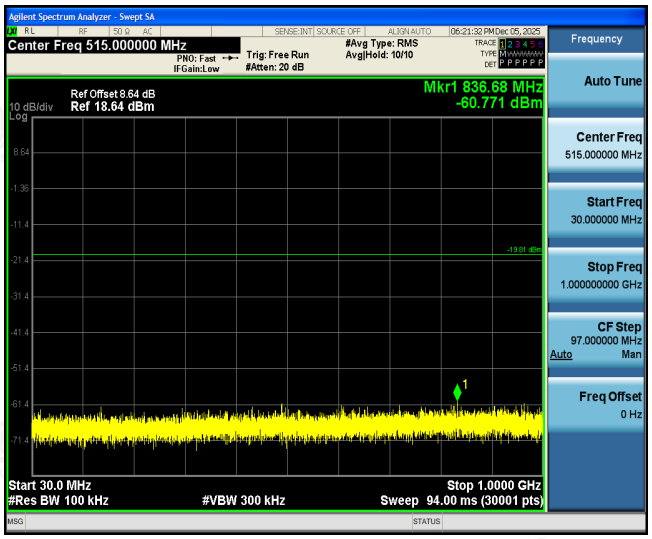
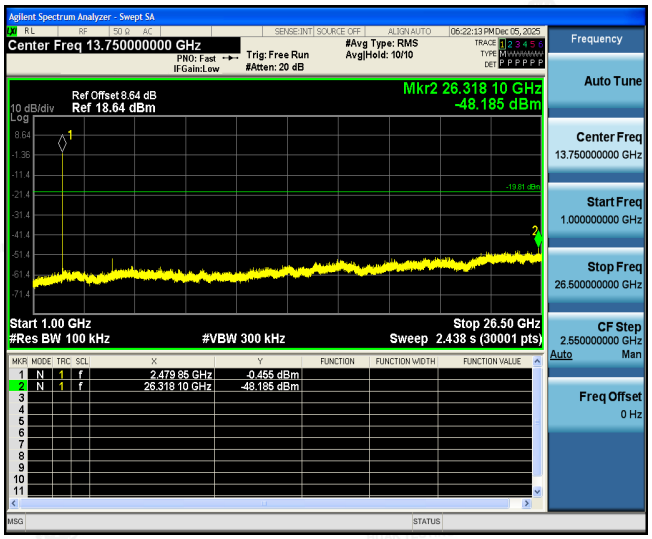
CH39







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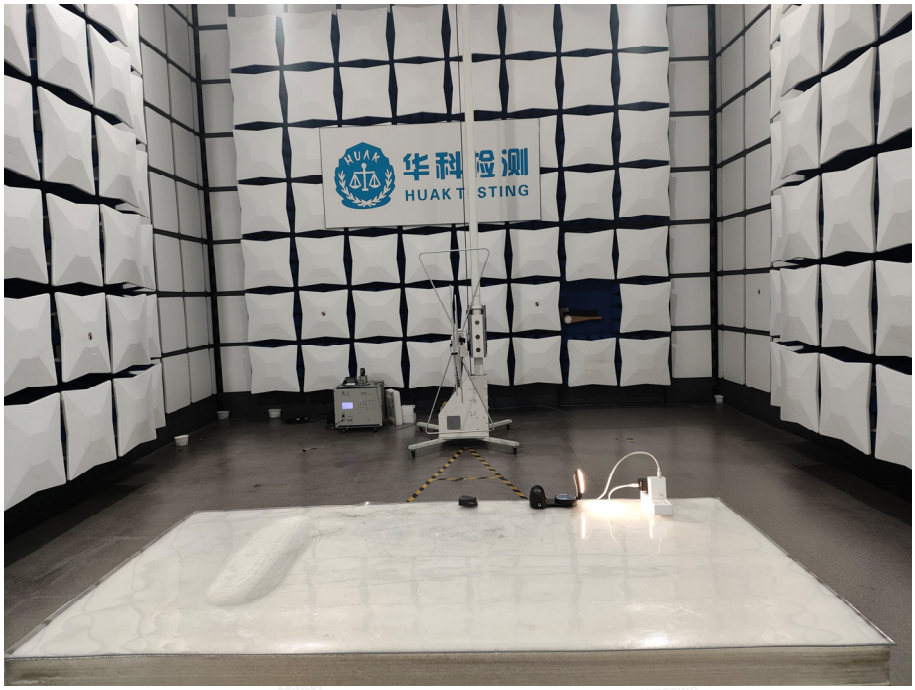
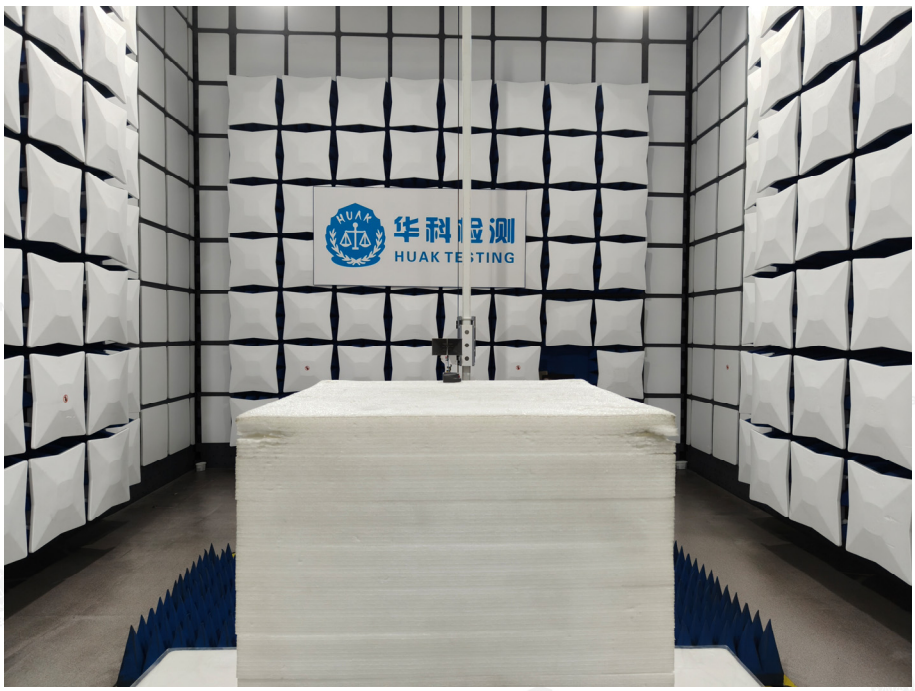
5 Test Setup Photos of the EUT

Radiated Emission





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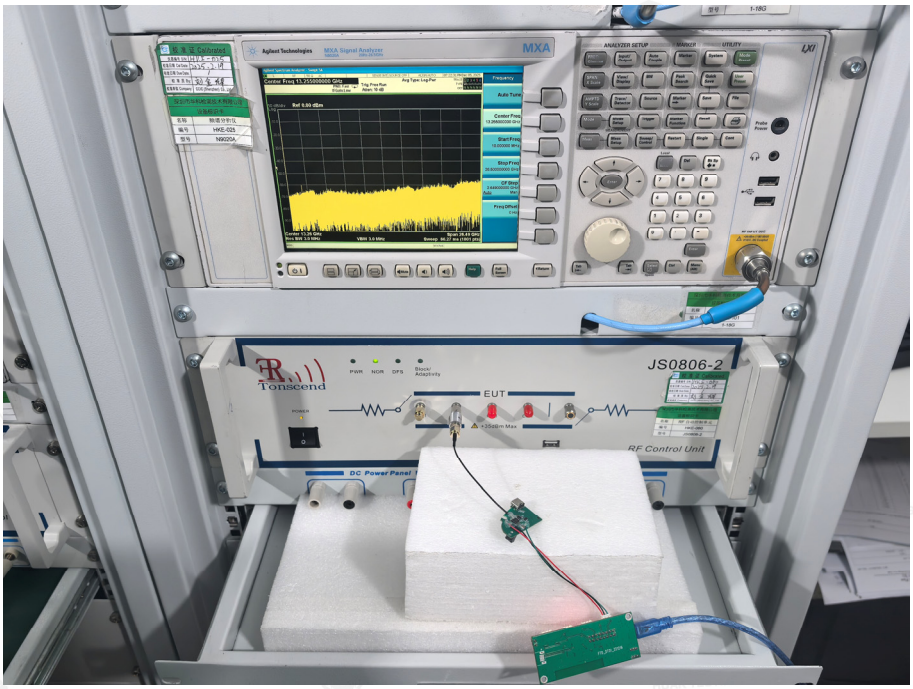
AC Conducted Emission

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---------

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