FCC Test Report

Test report
On Behalf of
Shenzhen Haimeilan Technology Co., LTD.
For
Smart Phone
Model No.: S25 Ultra, S24 Ultra, S23 Ultra, C25 Ultra, C24 Ultra, C23 Ultra, X23 Ultra, X24 Ultra, X25 Ultra, Z23 Ultra, Z24 Ultra, Z25 Ultra, C10 Plus, C30 Plus, G50 Plus, G60 Plus, C73, C7 Ultra, Polaris7 Pro, C3 Luxury, G37 Ultra, M13 Pro, Polaris7, Rise77 Luxury, Opus33 Luxury, Acro77 Luxury, Sirius40 Ultra, H50 Ultra, G3 Luxury, Rise30 Ultra, G7 Ultra, E-on33 Ultra, Vista16 Ultra, I24 Ultra, I25 Ultra, X24, S01, C25, S10, S11, S08, S25 MAX, I15 Ultra, S24 Pro Max

FCC ID: 2BDI3-S

Prepared For :	**Shenzhen Haimeilan Technology Co., LTD.** **9V777, East 9th Floor, Building 2, SEG Science Park, Huaqiang North Street, Futian District, Shenzhen, 518000 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:	**Dec. 18, 2024 ~ Feb. 17, 2025**
Date of Report:	**Feb. 17, 2025**
Report Number:	**HK2412187831-1E**

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Test Result Certification

Applicant's name ..... :	Shenzhen Haimeilan Technology Co., LTD.
Address ..... :	9V777, East 9th Floor, Building 2, SEG Science Park, Huaqiang North Street, Futian District, Shenzhen, 518000 China
Manufacturer's Name ..... :	Shenzhen Yinma Intelligent Technology Co., Ltd
Address ..... :	2nd Floor, Building 2, Donglongxing Science and Technology Park, Dalang Street, Longhua District, Shenzhen, 518000 China
Product description	
Trade Mark:	N/A
Product name..... :	Smart Phone
Series Models ..... :	S25 Ultra, S24 Ultra, S23 Ultra, C25 Ultra, C24 Ultra, C23 Ultra, X23 Ultra, X24 Ultra, X25 Ultra, Z23 Ultra, Z24 Ultra, Z25 Ultra, C10 Plus, C30 Plus, G50 Plus, G60 Plus, C73, C7 Ultra, Polaris7 Pro, C3 Luxury, G37 Ultra, M13 Pro, Polaris7, Rise77 Luxury, Opus33 Luxury, Acro77 Luxury, Sirius40 Ultra, H50 Ultra, G3 Luxury, Rise30 Ultra, G7 Ultra, E-on33 Ultra, Vista16 Ultra, I24 Ultra, I25 Ultra, X24, S01, C25, S10, S11, S08, S25 MAX, I15 Ultra, S24 Pro Max
Standards ..... :	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013

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Date of Test ..... :	
Date (s) of performance of tests ..... :	**Dec. 18, 2024 ~ Feb. 17, 2025**
Date of Issue..... :	**Feb. 17, 2025**
Test Result..... :	**Pass**

Testing Engineer : Len Liao

(Len Liao)

Technical Manager : Sliver Wan

(Sliver Wan)

Authorized Signatory : Jason Zhou

(Jason Zhou)

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Feb. 17, 2025	Jason Zhou

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Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

1. Test Result Summary

1.1. Test Procedures and Results

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247(b)(4)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247(b)(3)	PASS
6dB Emission Bandwidth	§15.247(a)(2)	PASS
Power Spectral Density	§15.247(e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	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.

1.2. 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

Testing Laboratory Authorization：

A2LA Accreditation Code is 4781.01.
FCC Designation Number is CN1229.
Canada IC CAB identifier is CN0045.
CNAS Registration Number is L9589.

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1.3. 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	±2.71dB
2	RF power, conducted	±0.37dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.90dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

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2. EUT Description

2.1. General Description of EUT

Equipment:	Smart Phone
Model Name:	S25 Ultra
Series Models:	S24 Ultra, S23 Ultra, C25 Ultra, C24 Ultra, C23 Ultra, X23 Ultra, X24 Ultra, X25 Ultra, Z23 Ultra, Z24 Ultra, Z25 Ultra, C10 Plus, C30 Plus, G50 Plus, G60 Plus, C73, C7 Ultra, Polaris7 Pro, C3 Luxury, G37 Ultra, M13 Pro, Polaris7, Rise77 Luxury, Opus33 Luxury, Acro77 Luxury, Sirius40 Ultra, H50 Ultra, G3 Luxury, Rise30 Ultra, G7 Ultra, E-on33 Ultra, Vista16 Ultra, I24 Ultra, I25 Ultra, X24, S01, C25, S10, S11, S08, S25 MAX, I15 Ultra, S24 Pro Max
Model Difference:	All model's the function, software and electric circuit are the same, only with a product appearance, color and model named different. Test sample mode: S25 Ultra.
Trade Mark:	N/A
FCC ID:	2BDI3-S
Antenna Type:	FPC Antenna
Antenna Gain:	0.72dBi
Operation frequency:	802.11b/g/n (HT20):2412~2462 MHz 802.11n (HT40): 2422~2452MHz
Number of Channels:	802.11b/g/n(HT20): 11CH 802.11n (HT40): 7CH
Modulation Type:	DSSS, OFDM
Power Source:	DC 5V From Type-C or DC 3.85V From Battery
Power Rating:	DC 5V From Type-C or DC 3.85V From Battery
Hardware Version:	V1.0
Software Version:	V1.0
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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2.2. Carrier Frequency of Channels

Channel List For 802.11b/802.11g/802.11n (HT20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452	--	--

Channel List For 802.11n (HT40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
--	--	04	2427	07	2442	--	--
--	--	05	2432	08	2447	--	--
03	2422	06	2437	09	2452	--	--

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

2.3. Operation of EUT During Testing

Operating Mode

The mode is used: Transmitting mode for 802.11b/802.11g/802.11n (HT20)

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

The mode is used: Transmitting mode for 802.11n (HT40)

Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

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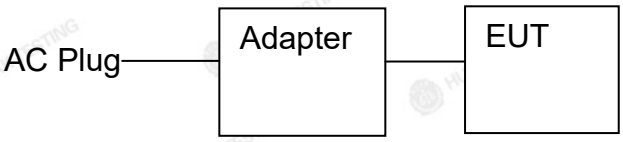
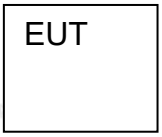
2.4. Description of Test Setup

Operation of EUT during conducted testing and below 1GHz radiation testing:



Operation of EUT during above1GHz radiation 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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2.5. 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	Remark
1	Smart Phone	N/A	S25 Ultra	N/A	EUT
2	USB Cable	N/A	N/A	Length:0.82m	Accessory
3	Adapter	N/A	APD5-2	Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 5V, 2A	Accessory

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. Genera Information

3.1. Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations
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. For the full battery state and The output power to the maximum state.	

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We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	6.5Mbps
802.11n(HT40)	13.5Mbps

Final Test Mode:

Operation mode:	Keep the EUT in continuous transmitting with modulation

1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

2.According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(HT20), 13.5Mbps for 802.11n(HT40).

3. Mode Test Duty Cycle

Mode	Duty Cycle	Duty Cycle Factor (dB)
802.11b	0.99	-0.04
802.11g	0.97	-0.13
802.11n(HT20)	0.97	-0.13
802.11n(HT40)	0.94	-0.27

Test plots as follows:

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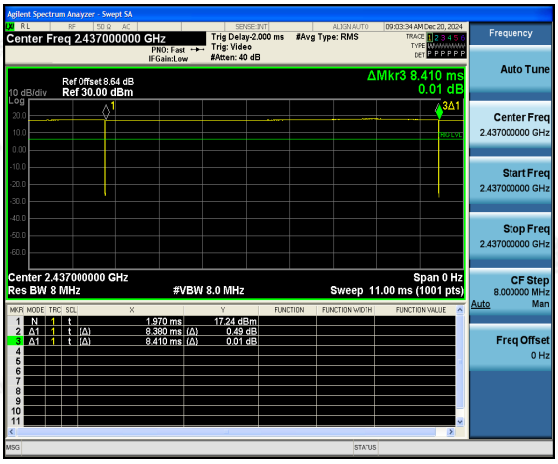
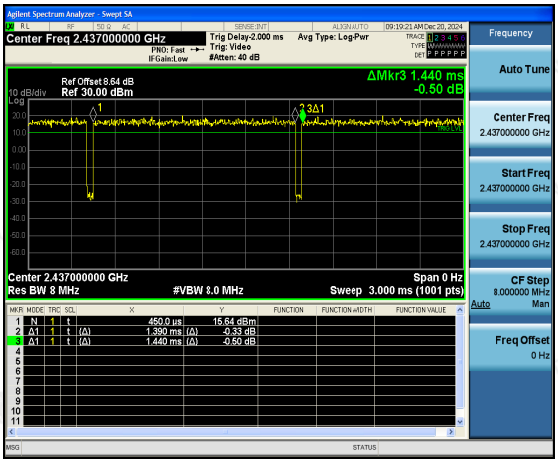
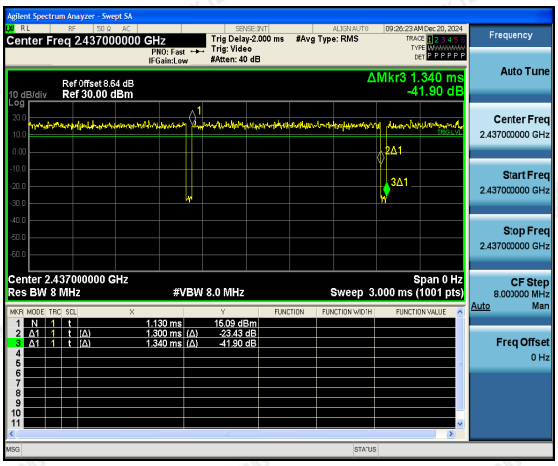
802.11b



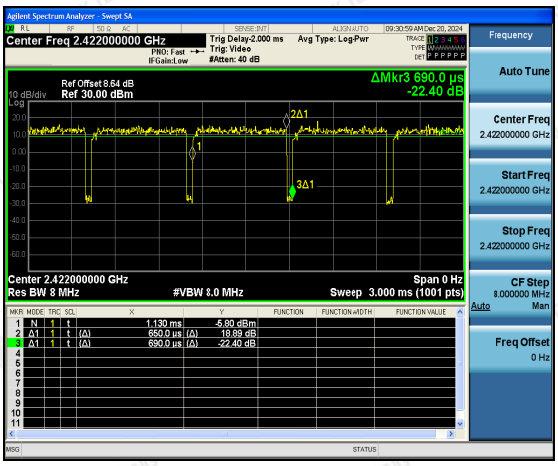
802.11g



802.11n(HT20)



802.11n(HT40)



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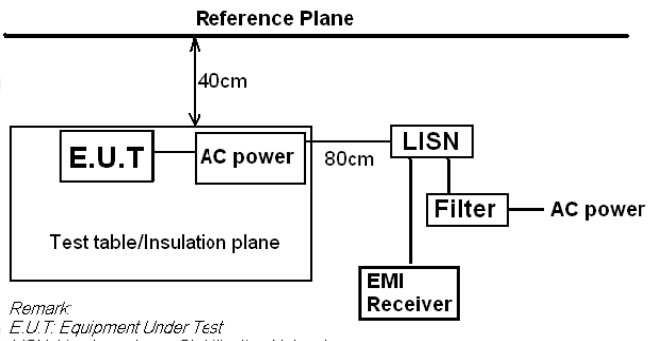
4. Test Results and Measurement Data

4.1. Conducted Emission

Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test Mode:</td><td>transmitting with modulation</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

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Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Receiver	R&S	ESR	HKE-005	Feb. 20, 2024	Feb. 19, 2025
LISN	R&S	ENV216	HKE-002	Feb. 20, 2024	Feb. 19, 2025
LISN	R&S	ENV216	HKE-059	Feb. 20, 2024	Feb. 19, 2025
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 20, 2024	Feb. 19, 2025
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	N/A	N/A
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 20, 2024	Feb. 19, 2025

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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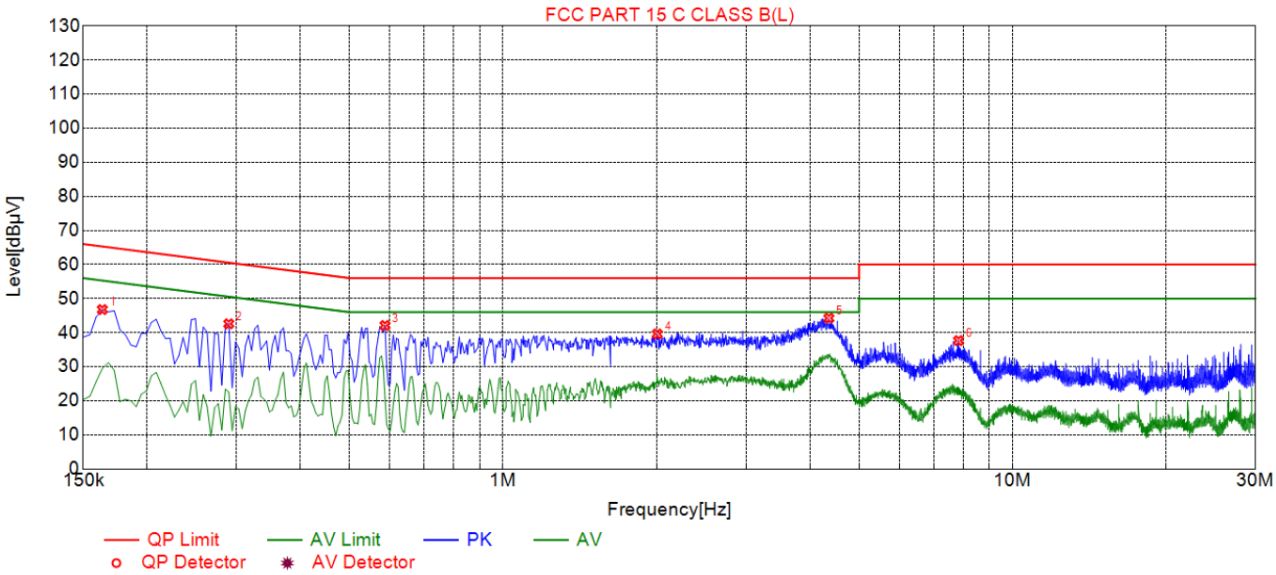
4.2. Test Result

Remark: All the test modes completed for test. only the worst result

Of was reported as below:

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)

Test Model No.: S25 Ultra
Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1635	46.77	19.78	65.28	18.51	26.99	PK	L
2	0.2895	42.60	19.84	60.54	17.94	22.76	PK	L
3	0.5865	42.11	19.86	56.00	13.89	22.25	PK	L
4	2.0085	39.62	19.96	56.00	16.38	19.66	PK	L
5	4.3620	44.24	20.09	56.00	11.76	24.15	PK	L
6	7.8360	37.66	20.04	60.00	22.34	17.62	PK	L

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

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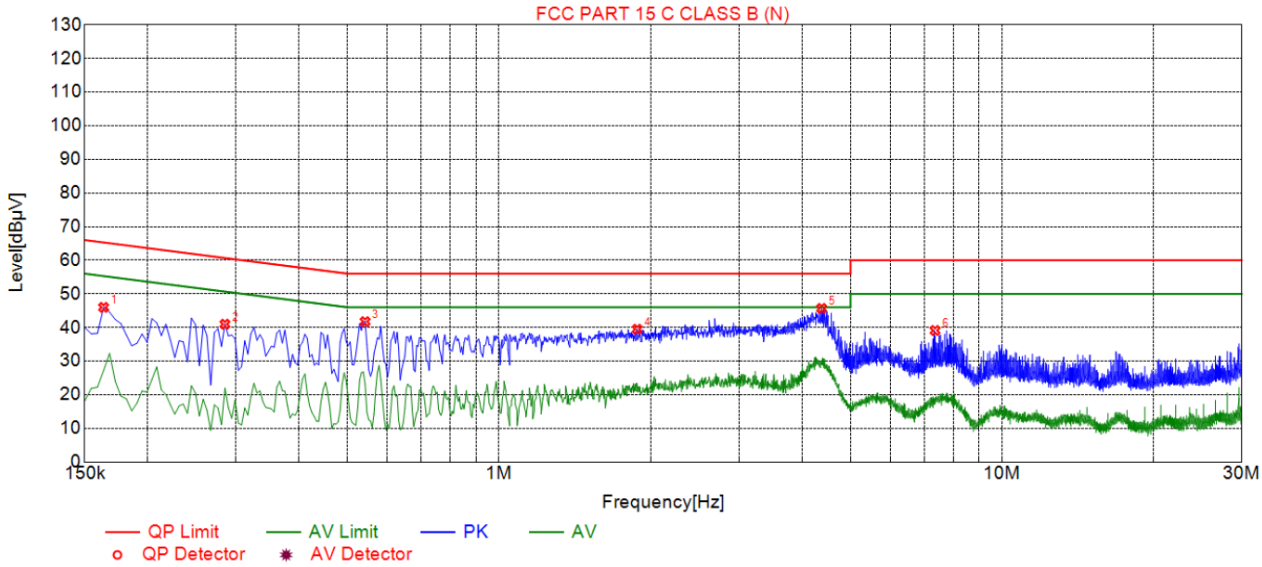
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1635	45.99	19.68	65.28	19.29	26.31	PK	N
2	0.2850	40.98	19.73	60.67	19.69	21.25	PK	N
3	0.5415	41.75	19.74	56.00	14.25	22.01	PK	N
4	1.8825	39.49	19.83	56.00	16.51	19.66	PK	N
5	4.3800	45.70	19.98	56.00	10.30	25.72	PK	N
6	7.3635	39.11	19.95	60.00	20.89	19.16	PK	N

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

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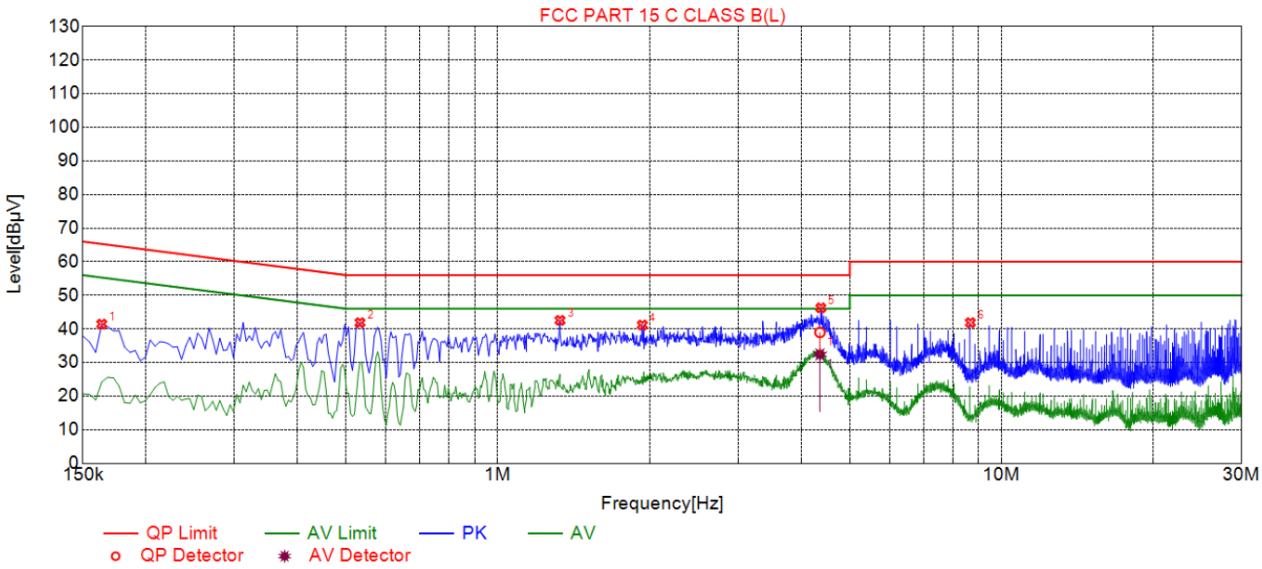
Series Model No.: X24 Ultra
Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1635	41.44	19.78	65.28	23.84	21.66	PK	L
2	0.5325	41.86	19.85	56.00	14.14	22.01	PK	L
3	1.3290	42.56	19.91	56.00	13.44	22.65	PK	L
4	1.9365	41.16	19.96	56.00	14.84	21.20	PK	L
5	4.3800	46.28	20.09	56.00	9.72	26.19	PK	L
6	8.6775	41.87	20.01	60.00	18.13	21.86	PK	L

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	4.3617	20.09	38.97	56.00	17.03	18.88	32.42	46.00	13.58	12.33	L

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

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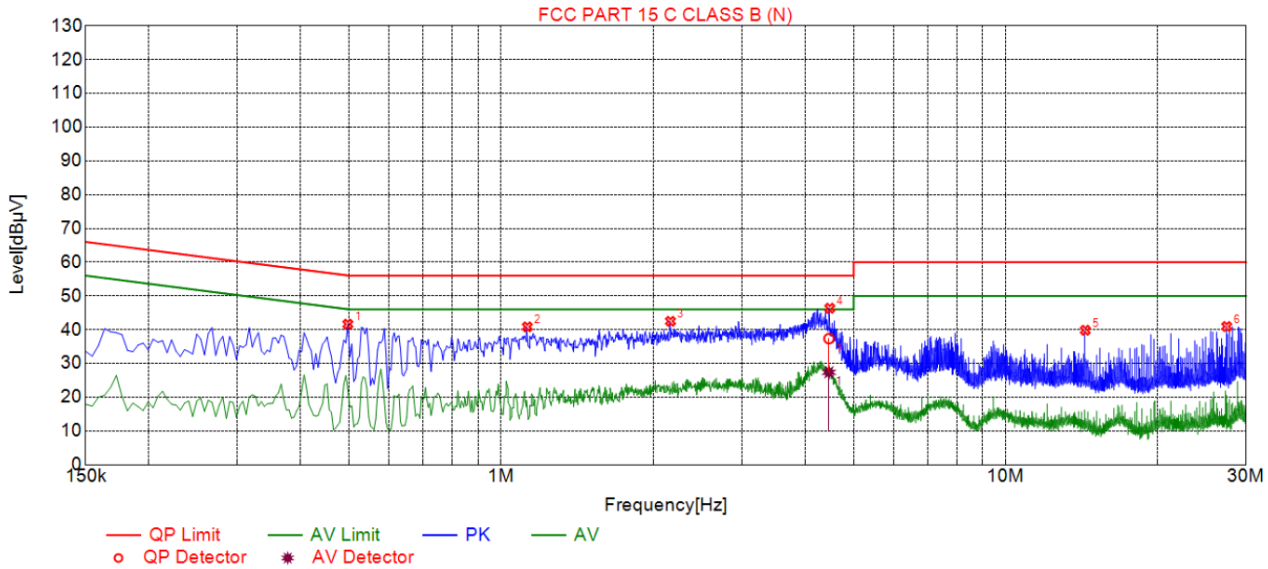
Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.4965	41.64	19.73	56.06	14.42	21.91	PK	N
2	1.1265	40.84	19.76	56.00	15.16	21.08	PK	N
3	2.1660	42.49	19.86	56.00	13.51	22.63	PK	N
4	4.4835	46.37	19.98	56.00	9.63	26.39	PK	N
5	14.3970	39.84	19.79	60.00	20.16	20.05	PK	N
6	27.4605	40.94	20.31	60.00	19.06	20.63	PK	N

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	4.4653	19.98	37.36	56.00	18.64	17.38	27.37	46.00	18.63	7.39	N

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

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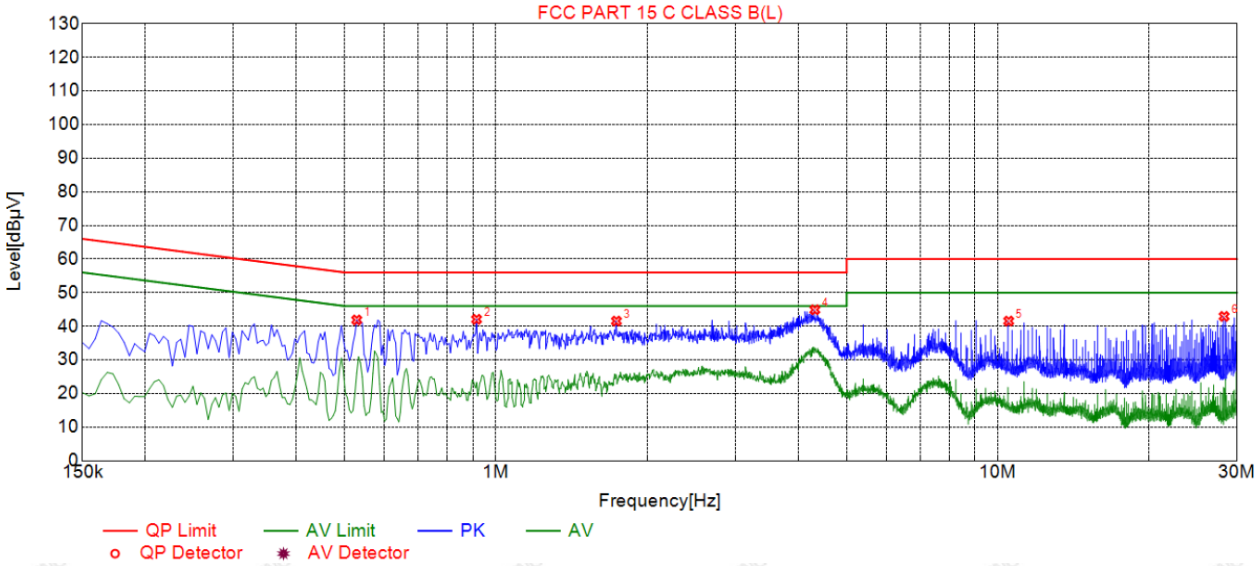
Series Model No.: C24 Ultra
Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.5280	41.87	19.85	56.00	14.13	22.02	PK	L
2	0.9150	42.07	19.87	56.00	13.93	22.20	PK	L
3	1.7385	41.55	19.95	56.00	14.45	21.60	PK	L
4	4.3215	44.91	20.09	56.00	11.09	24.82	PK	L
5	10.5180	41.55	19.93	60.00	18.45	21.62	PK	L
6	28.2615	42.94	20.23	60.00	17.06	22.71	PK	L

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

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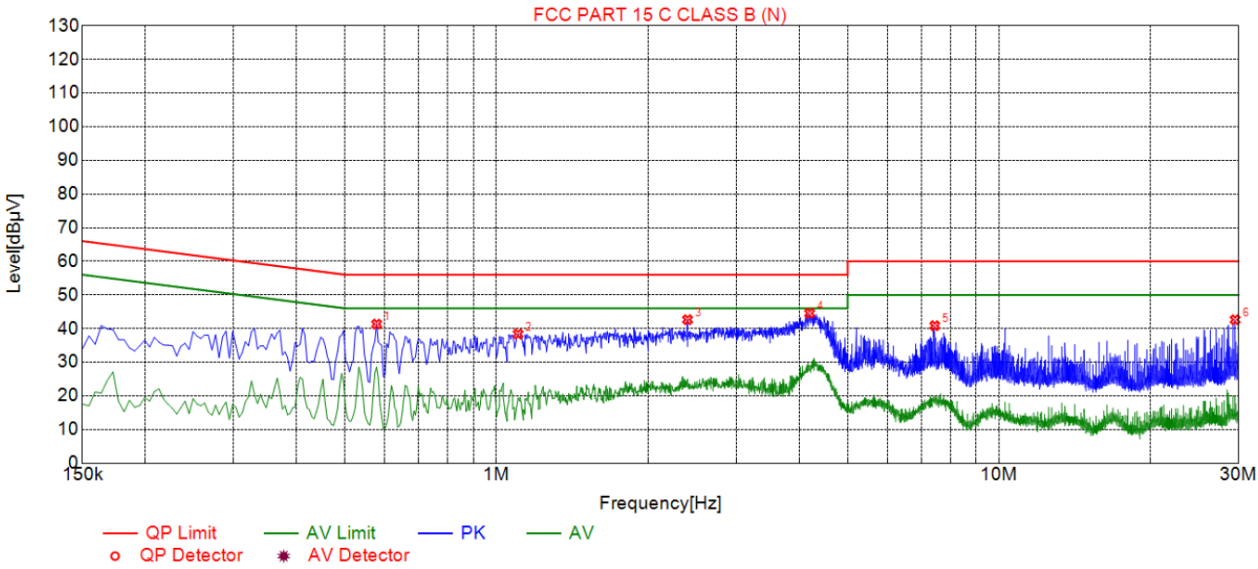
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5775	41.34	19.74	56.00	14.66	21.60	PK	N
2	1.1040	38.38	19.76	56.00	17.62	18.62	PK	N
3	2.4000	42.65	19.88	56.00	13.35	22.77	PK	N
4	4.2000	44.56	19.98	56.00	11.44	24.58	PK	N
5	7.4535	40.86	19.95	60.00	19.14	20.91	PK	N
6	29.5170	42.63	20.36	60.00	17.37	22.27	PK	N

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

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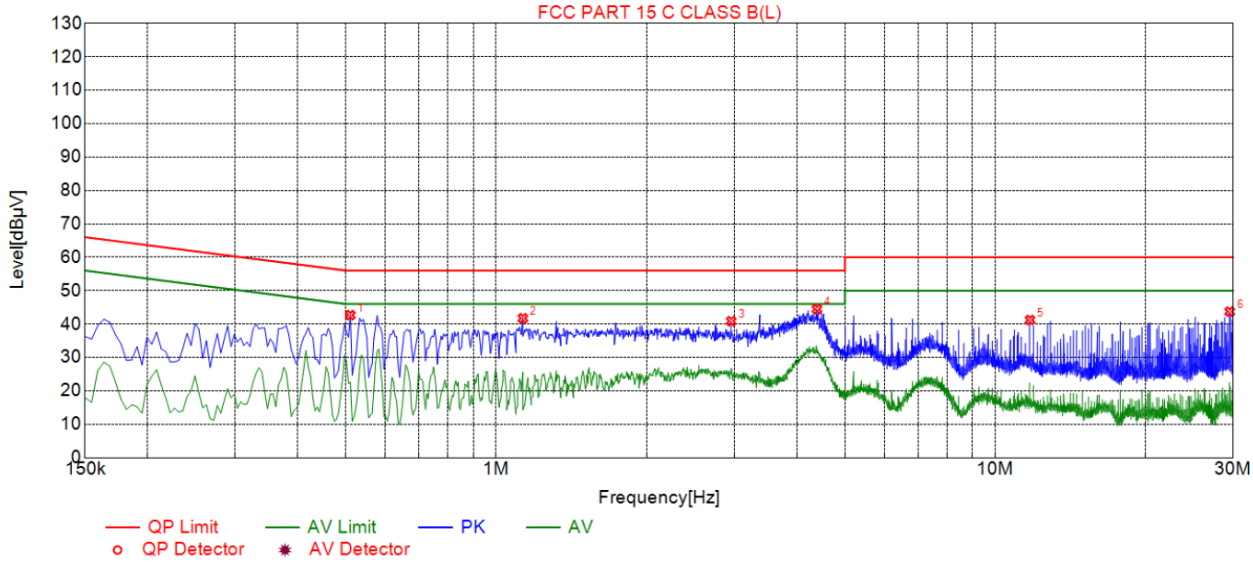
Series Model No.: C25
Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5100	42.68	19.85	56.00	13.32	22.83	PK	L
2	1.1310	41.74	19.90	56.00	14.26	21.84	PK	L
3	2.9580	40.86	20.04	56.00	15.14	20.82	PK	L
4	4.3935	44.49	20.09	56.00	11.51	24.40	PK	L
5	11.7465	41.21	19.88	60.00	18.79	21.33	PK	L
6	29.5260	43.74	20.25	60.00	16.26	23.49	PK	L

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

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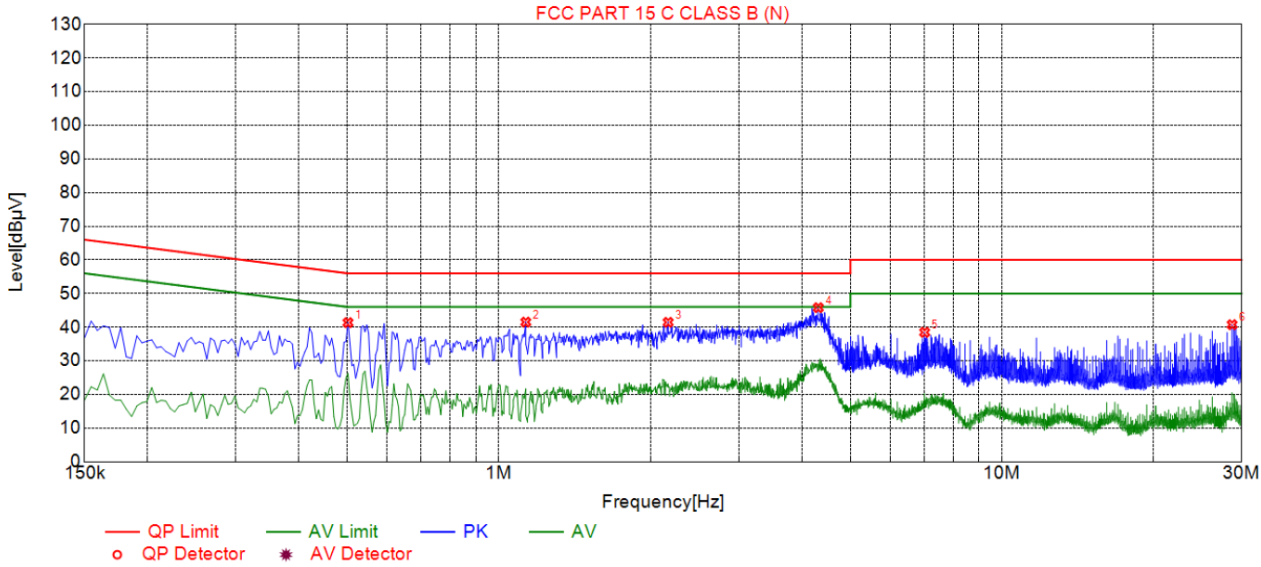
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5010	41.34	19.73	56.00	14.66	21.61	PK	N
2	1.1310	41.50	19.77	56.00	14.50	21.73	PK	N
3	2.1705	41.44	19.86	56.00	14.56	21.58	PK	N
4	4.3170	45.80	19.98	56.00	10.20	25.82	PK	N
5	7.0260	38.46	19.96	60.00	21.54	18.50	PK	N
6	28.7115	40.74	20.34	60.00	19.26	20.40	PK	N

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

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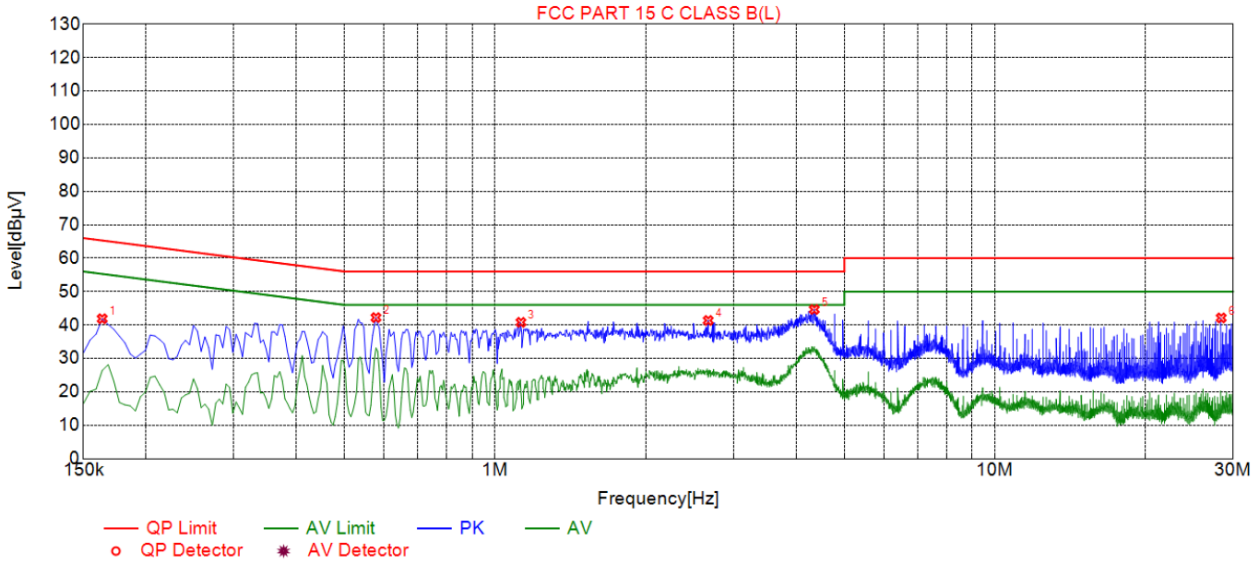
Series Model No.: I15 Ultra
Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1635	41.87	19.78	65.28	23.41	22.09	PK	L
2	0.5775	42.22	19.86	56.00	13.78	22.36	PK	L
3	1.1265	40.79	19.89	56.00	15.21	20.90	PK	L
4	2.6700	41.35	20.04	56.00	14.65	21.31	PK	L
5	4.3530	44.64	20.09	56.00	11.36	24.55	PK	L
6	28.3965	42.12	20.23	60.00	17.88	21.89	PK	L

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

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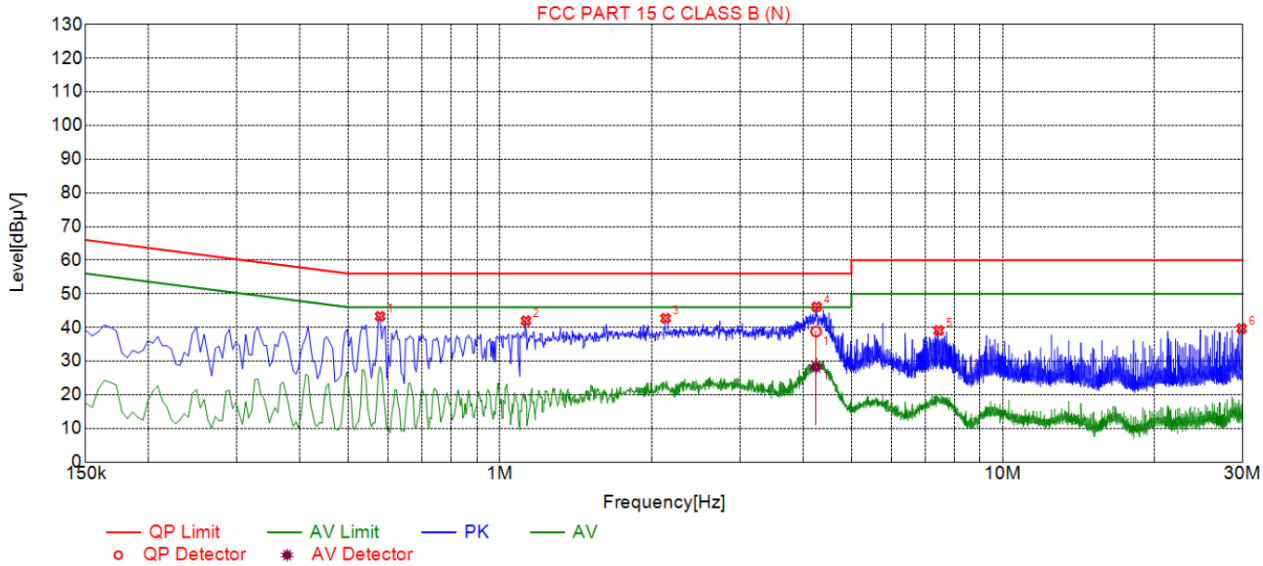
Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5775	43.31	19.74	56.00	12.69	23.57	PK	N
2	1.1265	42.00	19.76	56.00	14.00	22.24	PK	N
3	2.1345	42.74	19.85	56.00	13.26	22.89	PK	N
4	4.2630	46.15	19.98	56.00	9.85	26.17	PK	N
5	7.4535	39.09	19.95	60.00	20.91	19.14	PK	N
6	29.8455	39.67	20.37	60.00	20.33	19.30	PK	N

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	4.2513	19.98	38.79	56.00	17.21	18.81	28.26	46.00	17.74	8.28	N

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

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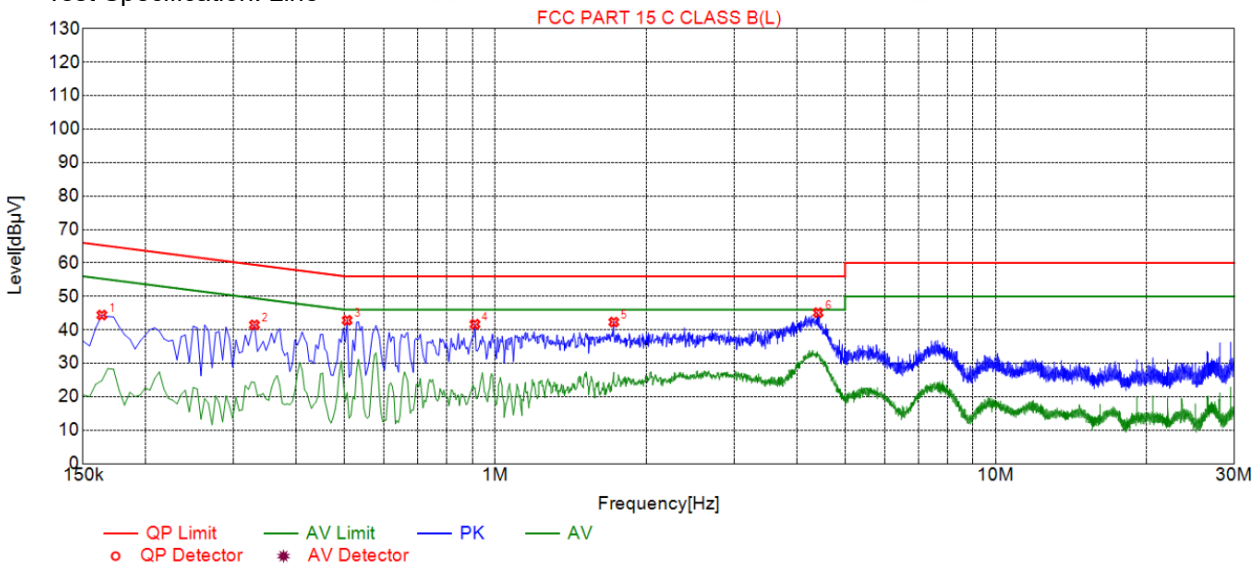
Series Model No.: C7 Ultra
Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1635	44.42	19.78	65.28	20.86	24.64	PK	L
2	0.3300	41.48	19.84	59.45	17.97	21.64	PK	L
3	0.5055	42.86	19.84	56.00	13.14	23.02	PK	L
4	0.9105	41.67	19.87	56.00	14.33	21.80	PK	L
5	1.7250	42.32	19.95	56.00	13.68	22.37	PK	L
6	4.4160	45.12	20.09	56.00	10.88	25.03	PK	L

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

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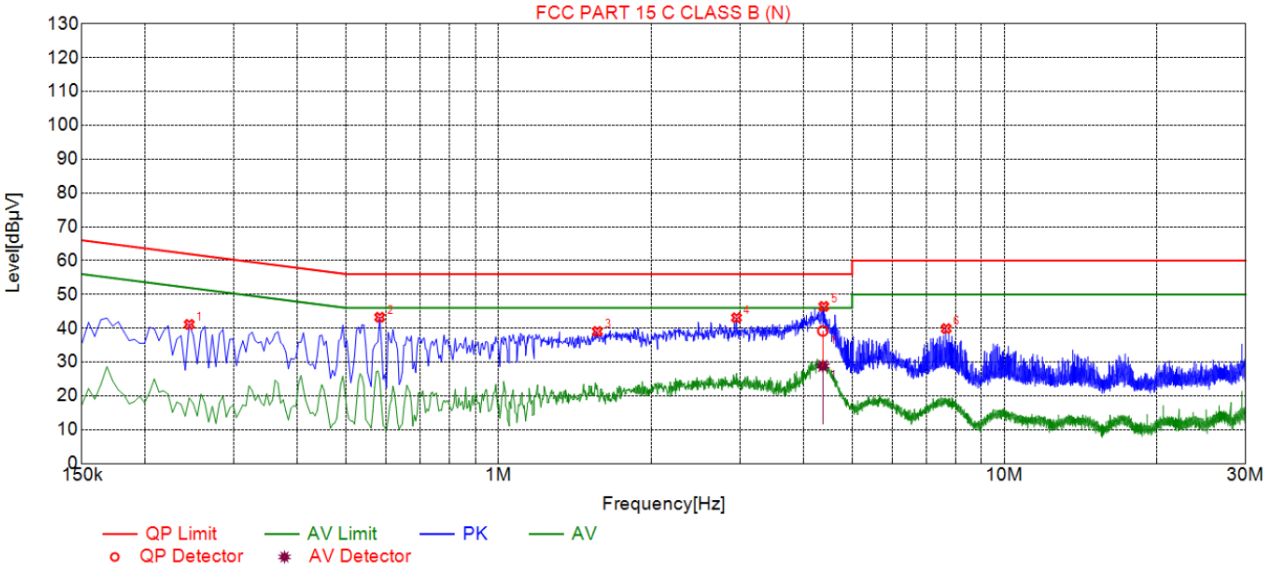
Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.2445	41.13	19.73	61.94	20.81	21.40	PK	N
2	0.5820	43.25	19.74	56.00	12.75	23.51	PK	N
3	1.5675	39.04	19.80	56.00	16.96	19.24	PK	N
4	2.9535	43.10	19.92	56.00	12.90	23.18	PK	N
5	4.3935	46.45	19.98	56.00	9.55	26.47	PK	N
6	7.6740	39.88	19.95	60.00	20.12	19.93	PK	N

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	4.3750	19.98	39.20	56.00	16.80	19.22	28.86	46.00	17.14	8.88	N

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

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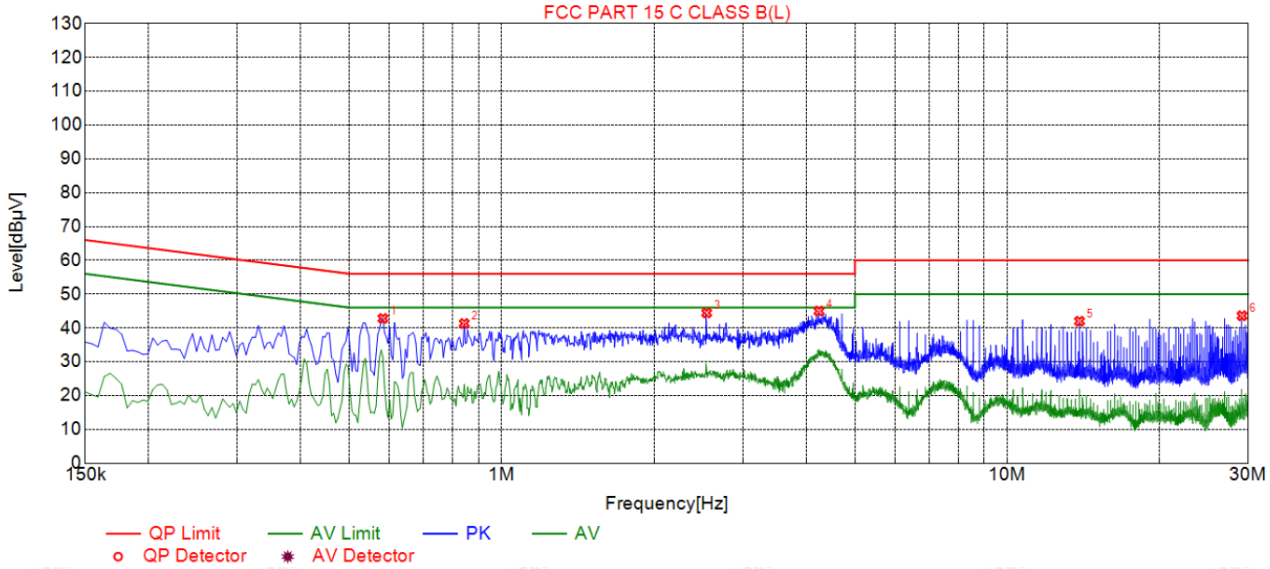
Series Model No.: S24 Ultra
Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.5820	42.81	19.86	56.00	13.19	22.95	PK	L
2	0.8430	41.31	19.87	56.00	14.69	21.44	PK	L
3	2.5440	44.44	20.02	56.00	11.56	24.42	PK	L
4	4.2450	44.99	20.09	56.00	11.01	24.90	PK	L
5	13.9065	41.99	19.82	60.00	18.01	22.17	PK	L
6	29.1570	43.60	20.24	60.00	16.40	23.36	PK	L

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

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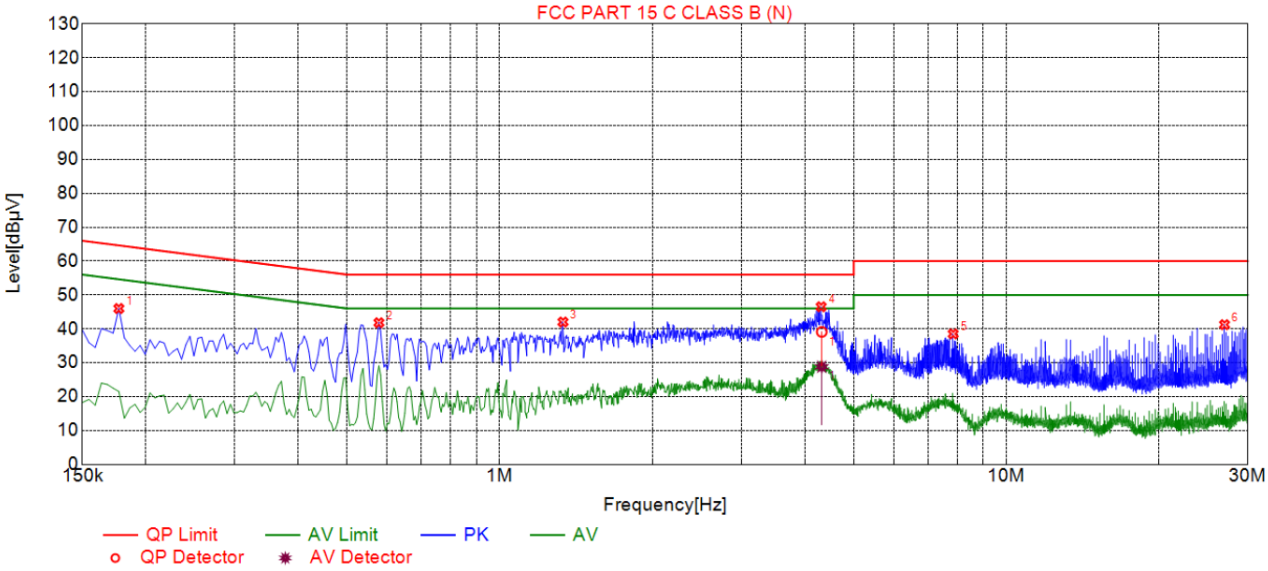
Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1770	46.00	19.75	64.63	18.63	26.25	PK	N
2	0.5775	41.80	19.74	56.00	14.20	22.06	PK	N
3	1.3335	42.01	19.79	56.00	13.99	22.22	PK	N
4	4.3125	46.52	19.98	56.00	9.48	26.54	PK	N
5	7.8585	38.51	19.94	60.00	21.49	18.57	PK	N
6	26.9835	41.23	20.30	60.00	18.77	20.93	PK	N

Final Data List

NO.	Freq. [MHz]	Correction factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	QP Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	AV Reading [dBµV]	Type
1	4.3223	19.98	39.10	56.00	16.90	19.12	28.81	46.00	17.19	8.83	N

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

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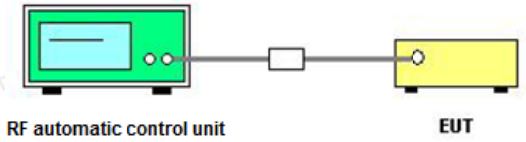
4.3. Maximum Conducted Output Power

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	30dBm
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 15.247 Meas Guidance v05r02. 2. The RF output of EUT was connected to the RF automatic control unit by RF cable and attenuator. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Measure the Peak output power and record the results in the test report.
Test Result:	PASS

Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025
Power meter	Agilent	E4419B	HKE-085	Feb. 20, 2024	Feb. 19, 2025
Power Sensor	Agilent	E9300A	HKE-086	Feb. 20, 2024	Feb. 19, 2025
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	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

Mode	Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
		(MHz)	(dBm)	dBm
802.11b	CH01	2412	12.16	30
802.11b	CH06	2437	13.19	30
802.11b	CH11	2462	13.53	30
802.11g	CH01	2412	11.95	30
802.11g	CH06	2437	12.99	30
802.11g	CH11	2462	12.69	30
802.11n(HT20)	CH01	2412	12.41	30
802.11n(HT20)	CH06	2437	12.28	30
802.11n(HT20)	CH11	2462	12.52	30
802.11n(HT40)	CH03	2422	12.20	30
802.11n(HT40)	CH06	2437	11.72	30
802.11n(HT40)	CH09	2452	11.94	30

Note: 1.The test results including the cable lose.

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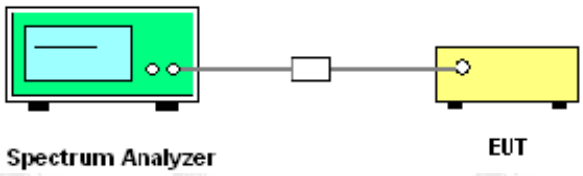
4.4. Emission Bandwidth

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	>500kHz
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	PASS

Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	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

Test channel	6dB Emission Bandwidth (MHz)			
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)
Lowest	8.04	14.08	15.28	35.12
Middle	8.56	15.12	14.84	33.84
Highest	8.08	15.08	15.92	35.04
Limit:	>500kHz			
Test Result:	PASS			

Test plots as follows:

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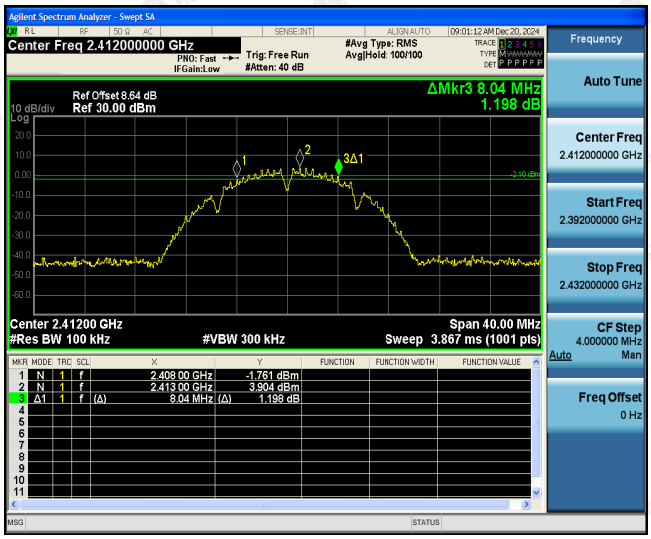
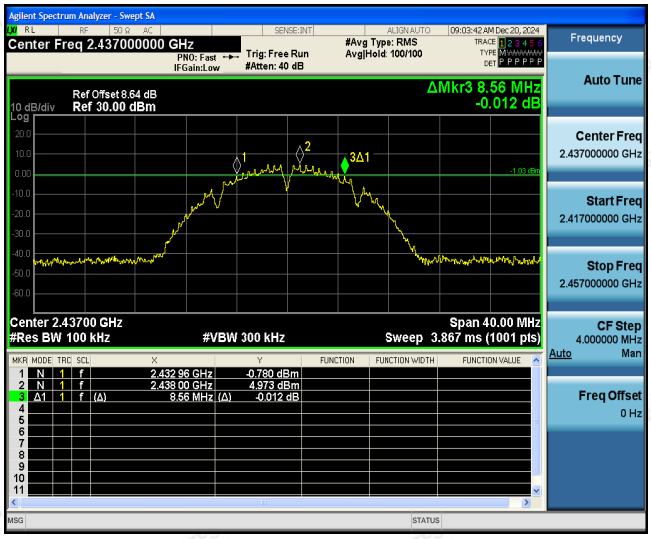
802.11b Modulation

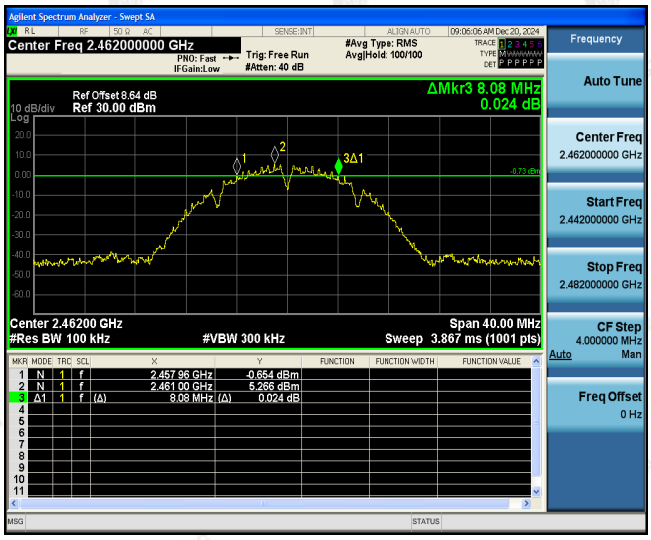
Lowest channel



Middle channel



Highest channel



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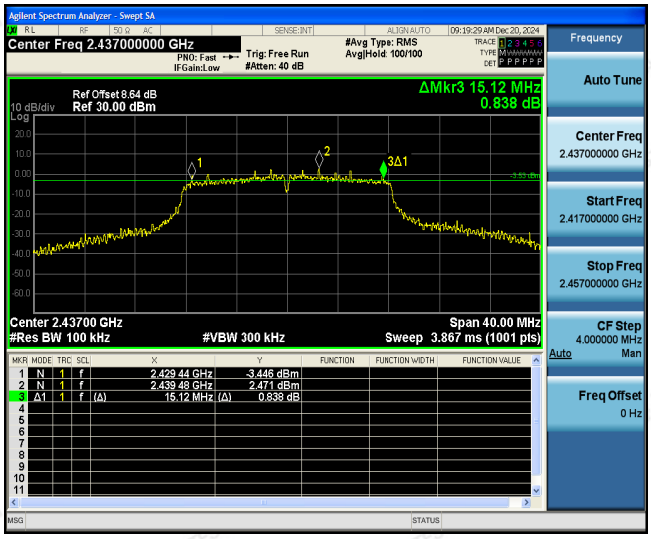
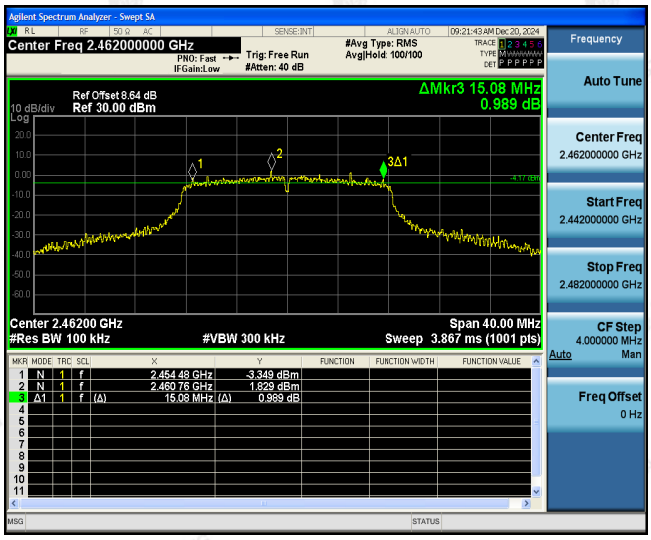
802.11g Modulation

Lowest channel

Middle channel



Highest channel



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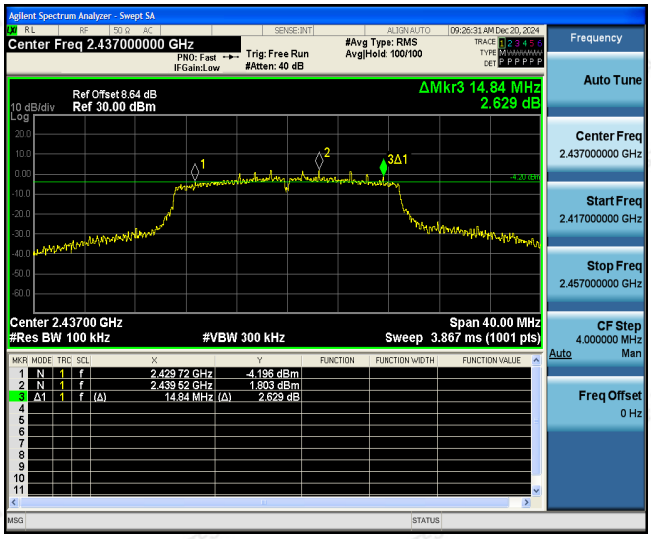
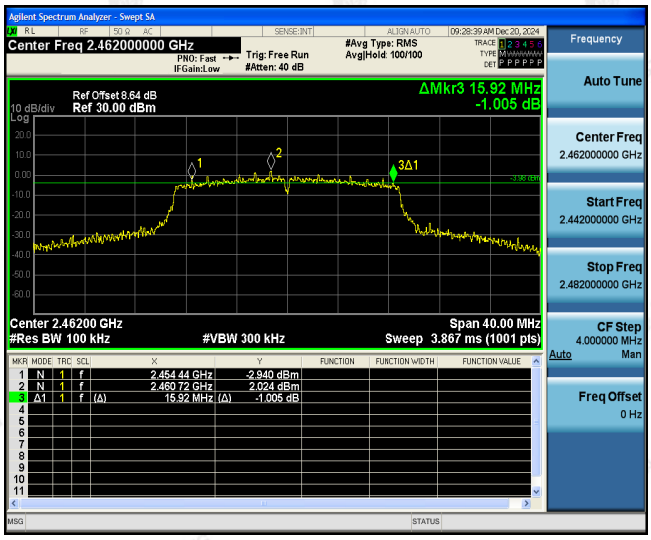
802.11n (HT20) Modulation

Lowest channel

Middle channel



Highest channel



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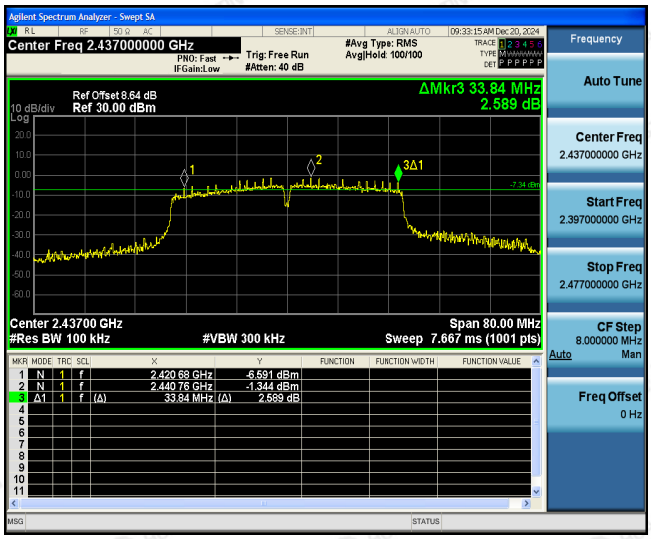
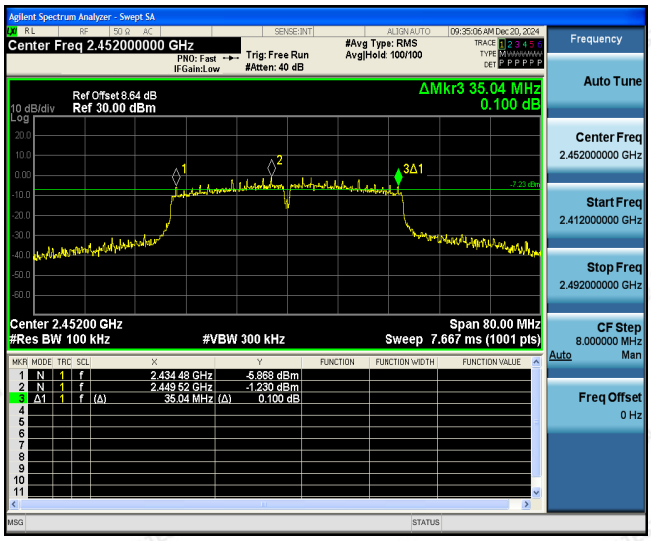
802.11n (HT40) Modulation

Lowest channel

Middle channel



Highest channel



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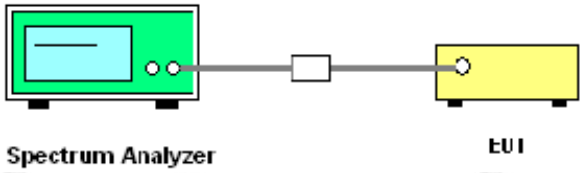
4.5. Power Spectral Density

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication 558074 D01 15.247 Meas Guidance v05r02. 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. Set the span to at least 1.5 times the OBW. 5. Detector = Peak, Sweep time = auto couple. 6. Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. 7. Measure and record the results in the test report.
Test Result:	PASS

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Test Instruments

RF Test Room					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 20, 2024	Feb. 19, 2025
RF cable	Times	1-40G	HKE-034	Feb. 20, 2024	Feb. 19, 2025
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 20, 2024	Feb. 19, 2025
RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	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

EUT Set Mode	Channel	Test Result (dBm/30kHz)	Result (dBm/3kHz)
802.11b	Lowest	0.30	-9.70
	Middle	0.79	-9.21
	Highest	1.82	-8.18
802.11g	Lowest	-3.33	-13.33
	Middle	-1.88	-11.88
	Highest	-2.60	-12.60
802.11n(HT20)	Lowest	-1.83	-11.83
	Middle	-1.82	-11.82
	Highest	-3.02	-13.02
802.11n(HT40)	Lowest	-4.36	-14.36
	Middle	-5.15	-15.15
	Highest	-4.54	-14.54
PSD test result (dBm/3kHz)= PSD test result (dBm/30kHz)-10			
Limit: 8dBm/3kHz			
Test Result:	PASS		

Test plots as follows:

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802.11b Modulation

Lowest channel

Middle channel

Highest channel

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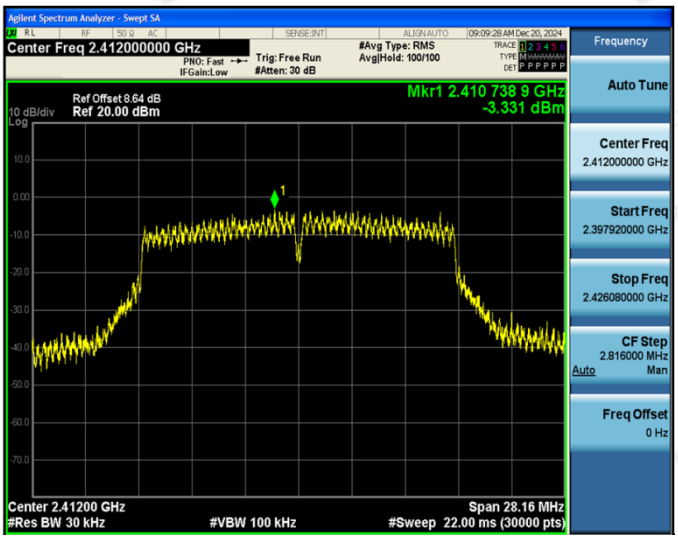
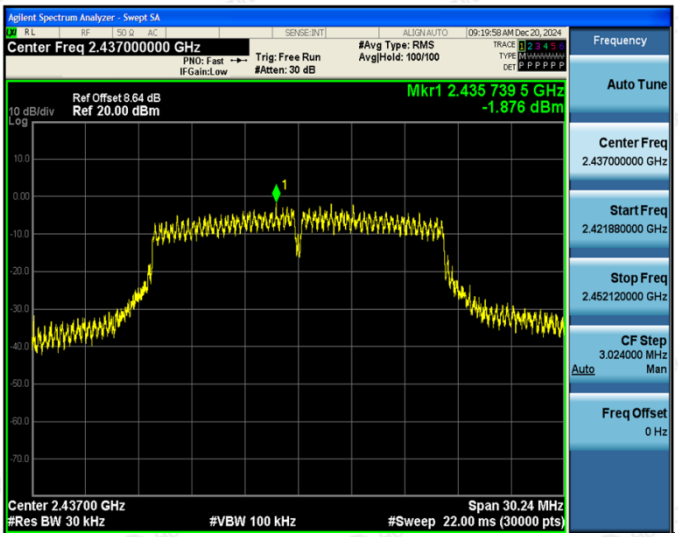
802.11g Modulation

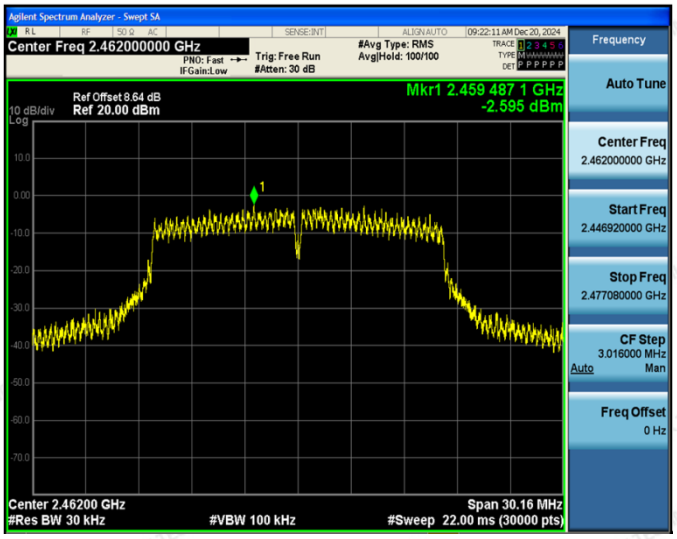
Lowest channel



Middle channel



Highest channel



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