



FCC Test Report

Test report

On Behalf of

Shenzhen Haimeilan Technology Co., LTD.

For

Smart Phone

Model No.: S25 mini, RE6 mini, MT 30 mini, C37 mini, C73 Mini, G37 mini, G73 mini, E55 Mini, H88 mini, C3 mini, C7 mini, G3 mini, G7 mini, Polaris7 mini, Echo8 mini, Sirius9 mini, Alpha10 mini, Zero5 mini, Gear20 mini, Vista16 mini, Viral11 mini, E-on33 mini, Rise77 mini, Opus33 mini, Acro77 mini, RE1 mini, Mt10 mini, C6 mini, C20 mini, G6 mini, C10 mini, C30 mini, Polaris8 mini, Echo9 mini, Sirius40 mini, Alpha1 mini, Zero 60 mini, Gear70 mini, Vista10 mini, Viral20 mini, A16 mini, I15 mini, I16 mini, S24 mini, S26 mini, H50 Mini, T3 Ultra, Reno 12 mini, POP9 mini, P70 Ultra

FCC ID: 2BDI3-F

Prepared For : Shenzhen Haimeilan Technology Co., LTD.
9V777, East 9th Floor, Building 2, SEG Science Park, Huaqiang North Street,
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Prepared By : Shenzhen HUAKE Testing Technology Co., Ltd.
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Date of Test: Feb. 08, 2025 ~ Apr. 11, 2025

Date of Report: Apr. 11, 2025

Report Number: HK2502080448-3E



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 Haimeilan Technology Co., LTD.
Address: 9V777, East 9th Floor, Building 2, SEG Science Park, Huaqiang North Street, Futian District, Shenzhen, 518000 China
Product description
Trade Mark: N/A
Product name.....: Smart Phone
Series Models: S25 mini, RE6 mini, MT 30 mini, C37 mini, C73 Mini, G37 mini, G73 mini, E55 Mini, H88 mini, C3 mini, C7 mini, G3 mini, G7 mini, Polaris7 mini, Echo8 mini, Sirius9 mini, Alpha10 mini, Zero5 mini, Gear20 mini, Vista16 mini, Viral11 mini, E-on33 mini, Rise77 mini, Opus33 mini, Acro77 mini, RE1 mini, Mt10 mini, C6 mini, C20 mini, G6 mini, C10 mini, C30 mini, Polaris8 mini, Echo9 mini, Sirius40 mini, Alpha1 mini, Zero 60 mini, Gear70 mini, Vista10 mini, Viral20 mini, A16 mini, I15 mini, I16 mini, S24 mini, S26 mini, H50 Mini, T3 Ultra, Reno 12 mini, POP9 mini, P70 Ultra
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: **Feb. 08, 2025 ~ Apr. 11, 2025**

Date of Issue.....: **Apr. 11, 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	Apr. 11, 2025	Jason Zhou



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 HUAKE 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.



1.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded 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	$\pm 2.71\text{dB}$
2	RF power, conducted	$\pm 0.37\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.90\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$



2. EUT Description

2.1. General Description of EUT

Equipment:	Smart Phone
Model Name:	S25 mini
Series Models:	RE6 mini, MT 30 mini, C37 mini, C73 Mini, G37 mini, G73 mini, E55 Mini, H88 mini, C3 mini, C7 mini, G3 mini, G7 mini, Polaris7 mini, Echo8 mini, Sirius9 mini, Alpha10 mini, Zero5 mini, Gear20 mini, Vista16 mini, Viral11 mini, E-on33 mini, Rise77 mini, Opus33 mini, Acro77 mini, RE1 mini, Mt10 mini, C6 mini, C20 mini, G6 mini, C10 mini, C30 mini, Polaris8 mini, Echo9 mini, Sirius40 min, Alpha1 mini, Zero 60 mini, Gear70 mini, Vista10 mini, Viral20 mini, A16 mini, I15 mini, I16 mini, S24 mini, S26 mini, H50 Mini, T3 Ultra, Reno 12 mini, POP9 mini, P70 Ultra
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color, appearance and model named different. Test sample model: S25 mini.
Trade Mark:	N/A
FCC ID:	2BDI3-F
Antenna Type:	FPC Antenna
Antenna Gain:	-1.52dBi
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:	DC5V From Type-C or DC3.8V From Battery
Power Rating:	DC5V From Type-C or DC3.8V 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.	



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

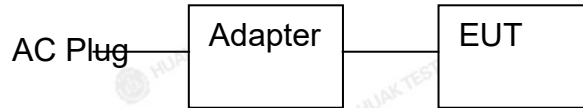
Middle Channel: 2437MHz

High Channel: 2452MHz



2.4. Description of Test Setup

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



Operation of EUT during above 1GHz 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



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 mini	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.



3. General 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.	



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).

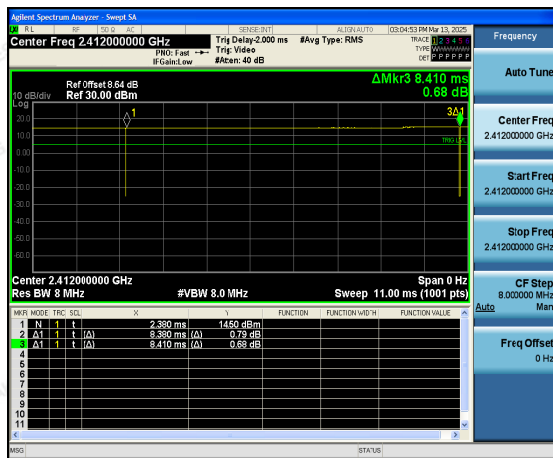
3. Mode Test Duty Cycle

Mode	Duty Cycle
802.11b	0.996
802.11g	0.979
802.11n(HT20)	0.977
802.11n(HT40)	0.956

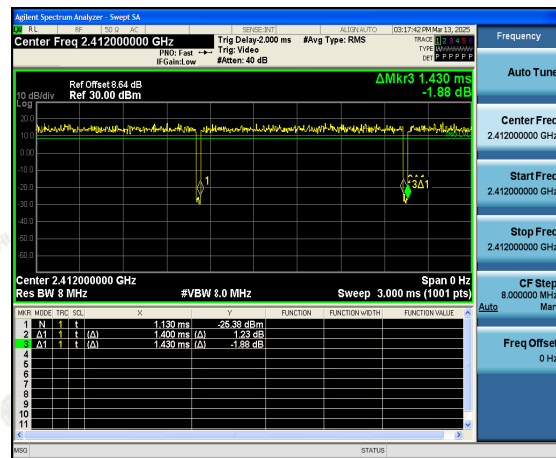
Test plots as follows:



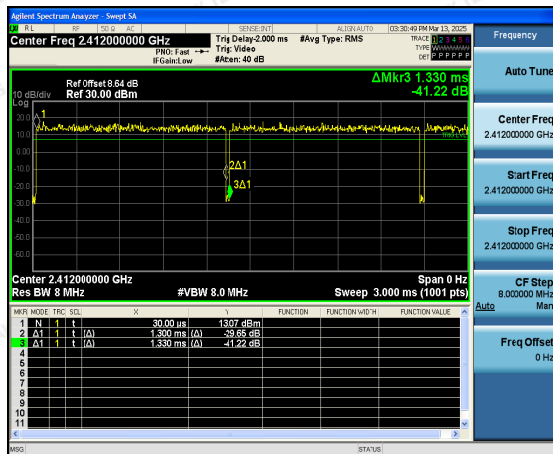
802.11b



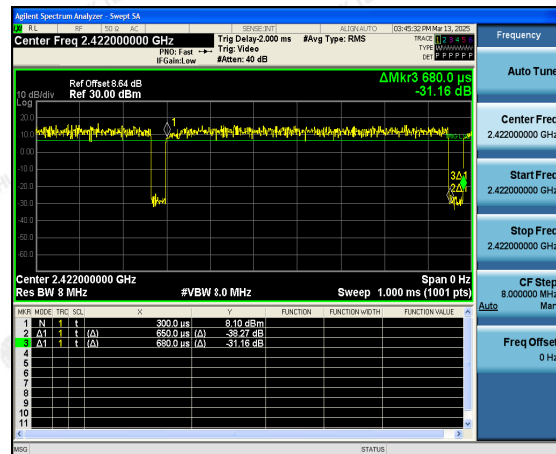
802.11g



802.11n(HT20)



802.11n(HT40)





4. Test Results and Measurement Data

4.1. Conducted Emission

Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></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>	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
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													
Test Setup:	Reference Plane 40cm 80cm E.U.T AC power LISN Filter AC power EMI Receiver Test table/Insulation plane Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	transmitting with modulation														
Test Procedure:	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.														
Test Result:	PASS														



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).

Conducted Emission Shielding Room Test Site (843)					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESR	HKE-005	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-002	Feb. 19, 2025	Feb. 18, 2026
LISN	R&S	ENV216	HKE-059	Feb. 19, 2025	Feb. 18, 2026
Coax cable (9KHz-30MHz)	Times	381806-002	N/A	Feb. 19, 2025	Feb. 18, 2026
EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	N/A	N/A
10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 19, 2025	Feb. 18, 2026

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



4.2. Test Result

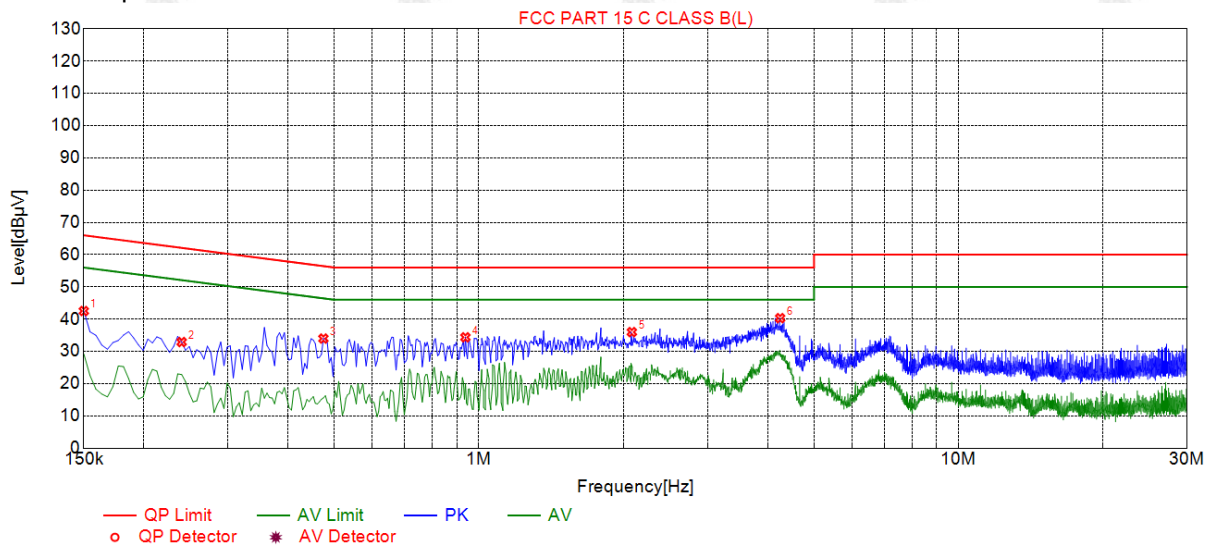
Remark: All the test modes completed for test. only the worst result

Of was reported as below:

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

Test Model No.: S25 mini

Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1500	42.52	19.83	66.00	23.48	23.89	PK	L
2	0.2400	32.90	19.83	62.10	29.20	14.27	PK	L
3	0.4740	33.98	19.84	56.44	22.46	15.34	PK	L
4	0.9375	34.37	19.87	56.00	21.63	15.70	PK	L
5	2.0850	35.99	19.97	56.00	20.01	17.22	PK	L
6	4.2495	40.31	20.09	56.00	15.69	21.42	PK	L

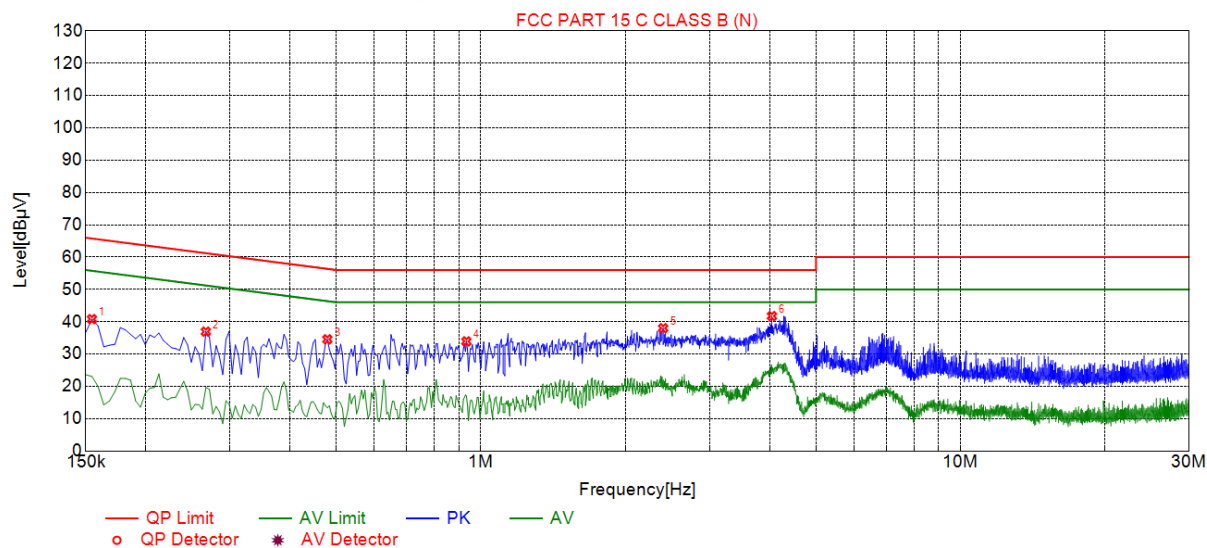
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1545	40.81	19.73	65.75	24.94	21.08	PK	N
2	0.2670	38.93	19.73	61.21	24.28	17.20	PK	N
3	0.4785	34.55	19.73	56.37	21.82	14.82	PK	N
4	0.9330	33.91	19.74	56.00	22.09	14.17	PK	N
5	2.4000	37.99	19.88	56.00	18.01	18.11	PK	N
6	4.0470	41.75	19.97	56.00	14.25	21.78	PK	N

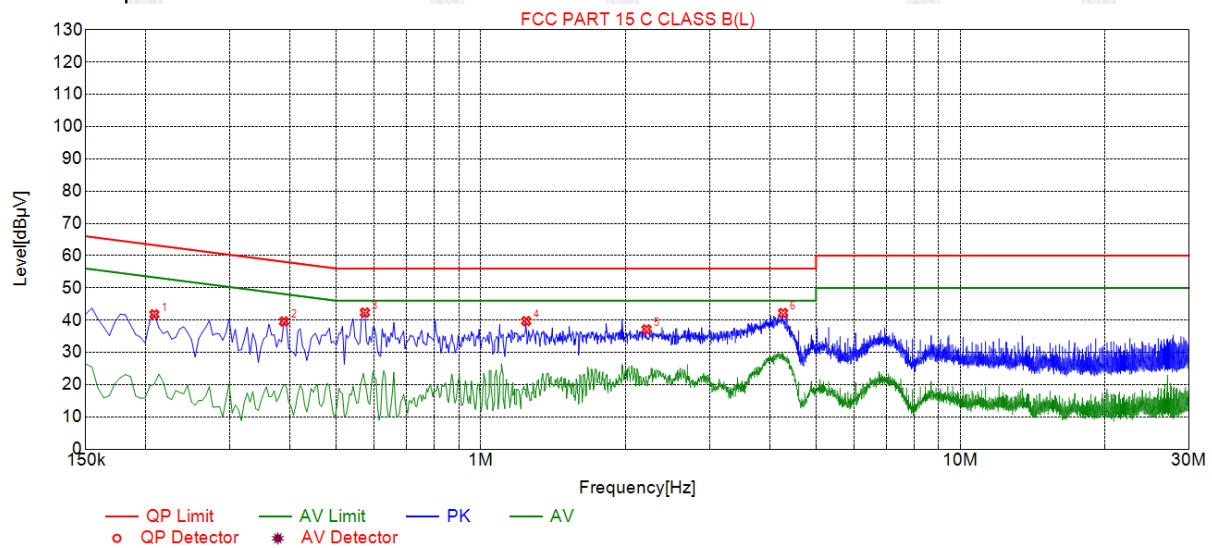
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Series Model No.: I16 mini
Test Specification: Line



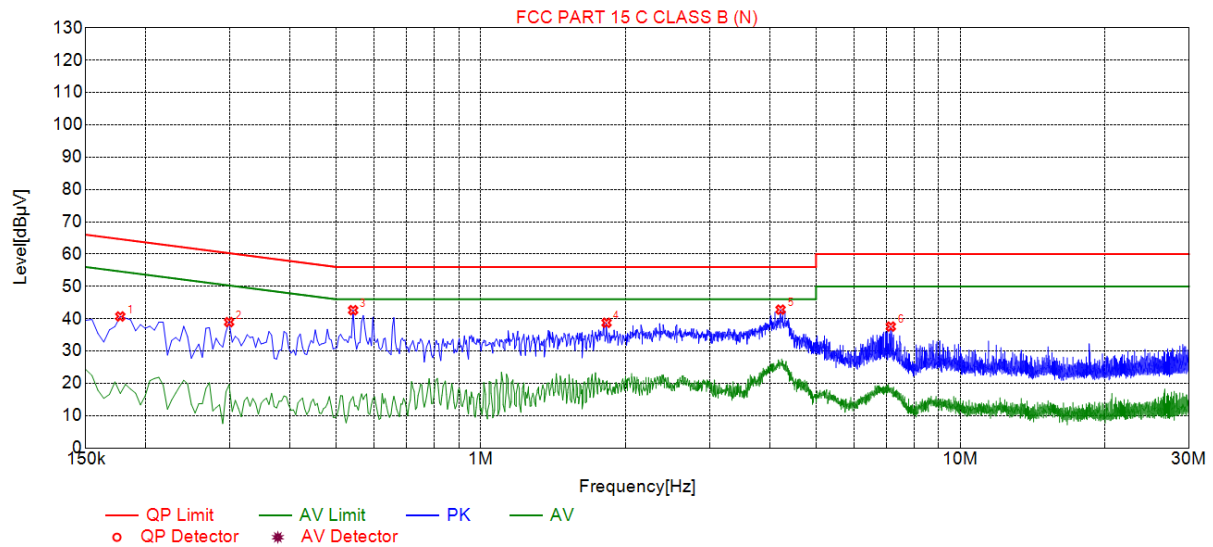
Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.2085	41.80	19.84	63.26	21.46	21.96	PK	L
2	0.3885	39.58	19.85	58.10	18.52	19.73	PK	L
3	0.5730	42.35	19.86	56.00	13.65	22.49	PK	L
4	1.2435	39.71	19.90	56.00	16.29	19.81	PK	L
5	2.2155	37.13	19.99	56.00	18.87	17.14	PK	L
6	4.2675	42.22	20.09	56.00	13.78	22.13	PK	L

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



Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1770	40.70	19.75	64.63	23.93	20.95	PK	N
2	0.2985	38.96	19.73	60.28	21.32	19.23	PK	N
3	0.5415	42.64	19.74	56.00	13.36	22.90	PK	N
4	1.8285	38.74	19.83	56.00	17.26	18.91	PK	N
5	4.2180	42.80	19.98	56.00	13.20	22.82	PK	N
6	7.1610	37.57	19.96	60.00	22.43	17.61	PK	N

Remark: $\text{Margin} = \text{Limit} - \text{Level}$

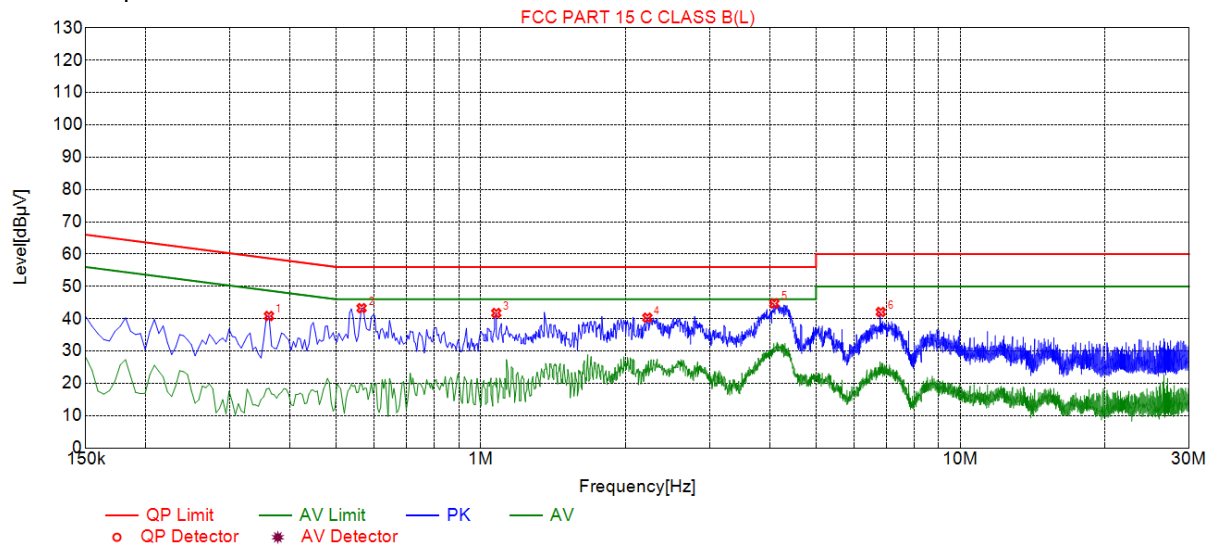
$\text{Correction factor} = \text{Cable lose} + \text{LISN insertion loss}$

$\text{Level} = \text{Test receiver reading} + \text{correction factor}$



Series Model No.: H50 mini

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.3815	40.83	19.84	58.69	17.86	20.99	PK	L
2	0.5840	43.27	19.86	56.00	12.73	23.41	PK	L
3	1.0770	41.76	19.88	56.00	14.24	21.88	PK	L
4	2.2245	40.32	19.99	56.00	15.68	20.33	PK	L
5	4.0920	44.72	20.09	56.00	11.28	24.63	PK	L
6	6.8235	42.07	20.07	60.00	17.93	22.00	PK	L

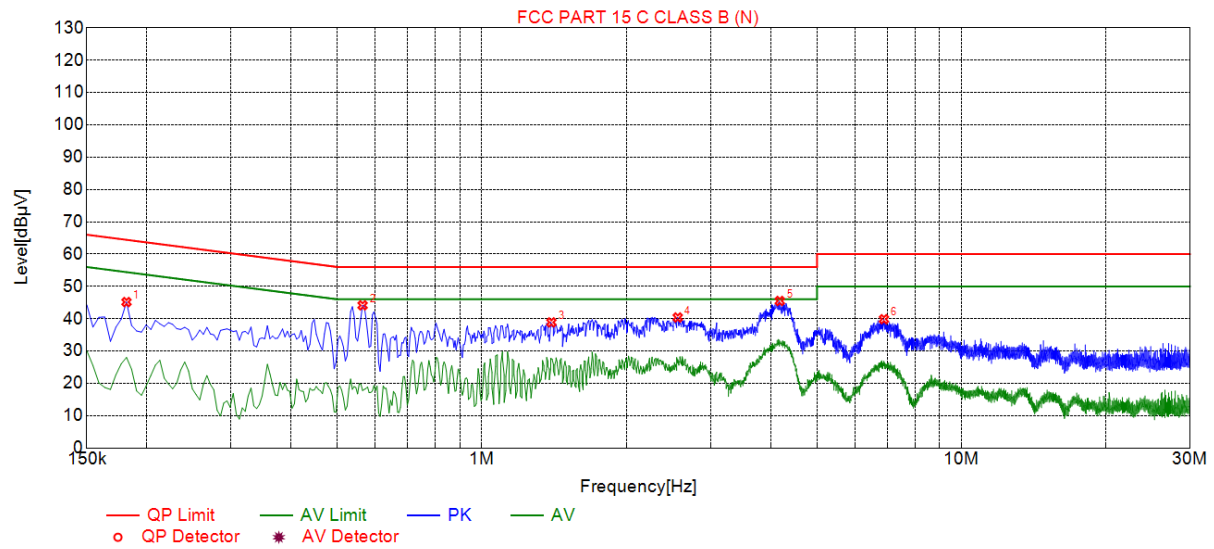
Remark: Margin = Limit – Level

Correction factor = Cable loss + LISN insertion loss

Level=Test receiver reading + correction factor



Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1815	45.16	19.75	64.42	19.26	25.41	PK	N
2	0.5640	44.14	19.75	56.00	11.86	24.39	PK	N
3	1.3965	38.87	19.80	56.00	17.13	19.07	PK	N
4	2.5620	40.39	19.90	56.00	15.61	20.49	PK	N
5	4.1820	45.49	19.98	56.00	10.51	25.51	PK	N
6	6.8955	39.85	19.97	60.00	20.15	19.88	PK	N

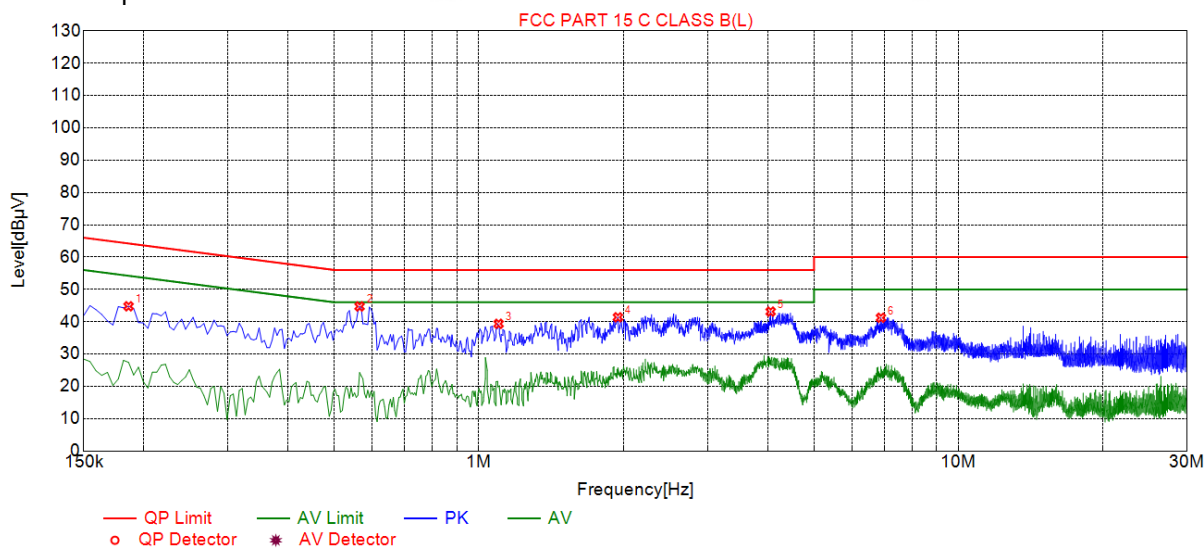
Remark: Margin = Limit – Level

Correction factor = Cable loss + LISN insertion loss

Level = Test receiver reading + correction factor



Series Model No.: P70 Ultra
Test Specification: Line



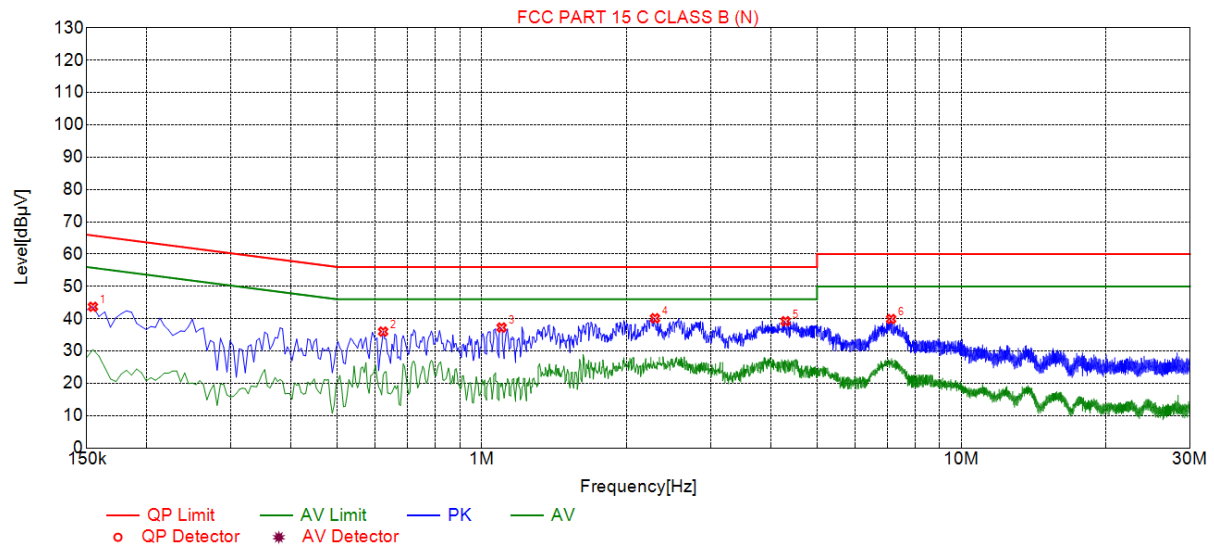
Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1880	44.77	19.85	64.21	19.44	24.92	PK	L
2	0.5640	44.72	19.86	56.00	11.28	24.86	PK	L
3	1.0995	39.35	19.88	56.00	16.65	19.47	PK	L
4	1.9500	41.38	19.96	56.00	14.62	21.42	PK	L
5	4.0805	43.12	20.09	56.00	12.88	23.03	PK	L
6	6.8955	41.22	20.07	60.00	18.78	21.15	PK	L

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



Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1545	43.69	19.73	65.75	22.08	23.98	PK	N
2	0.6225	36.01	19.74	56.00	19.99	16.27	PK	N
3	1.0995	37.27	19.75	56.00	18.73	17.52	PK	N
4	2.2965	40.15	19.88	56.00	15.85	20.27	PK	N
5	4.2990	39.22	19.98	56.00	16.78	19.24	PK	N
6	7.1385	39.89	19.96	60.00	20.11	19.93	PK	N

Remark: Margin = Limit – Level

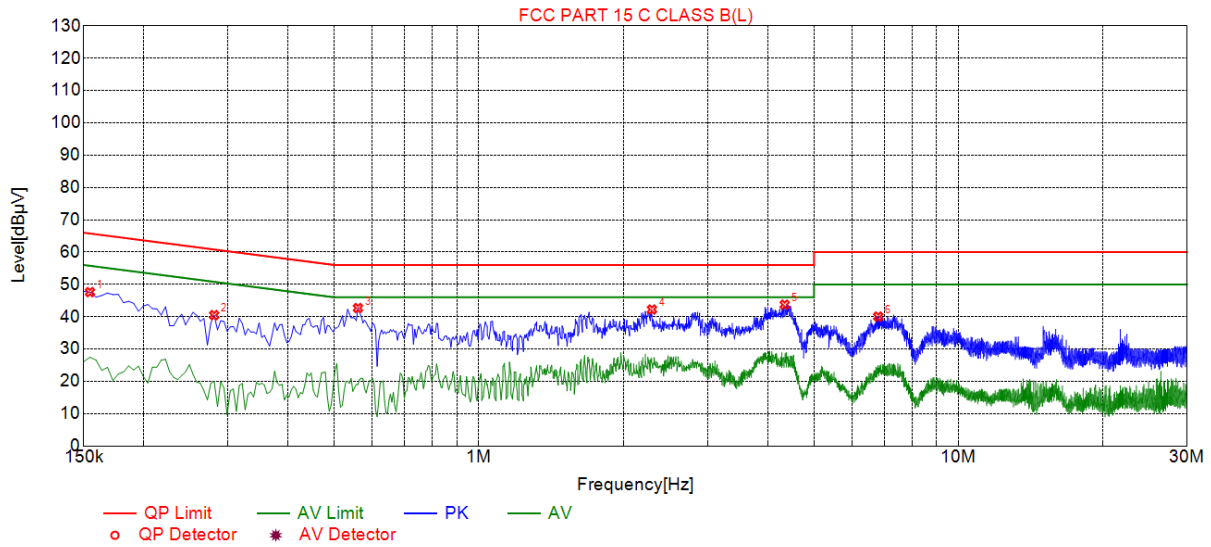
Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Series Model No.: Reno 12 mini

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1545	47.61	19.83	65.75	18.14	26.78	PK	L
2	0.2805	40.49	19.84	60.80	20.31	19.65	PK	L
3	0.5595	42.68	19.86	56.00	13.32	21.82	PK	L
4	2.2985	42.22	20.00	56.00	13.78	21.22	PK	L
5	4.3440	43.73	20.09	56.00	12.27	22.64	PK	L
6	6.8055	40.04	20.07	60.00	19.96	18.97	PK	L

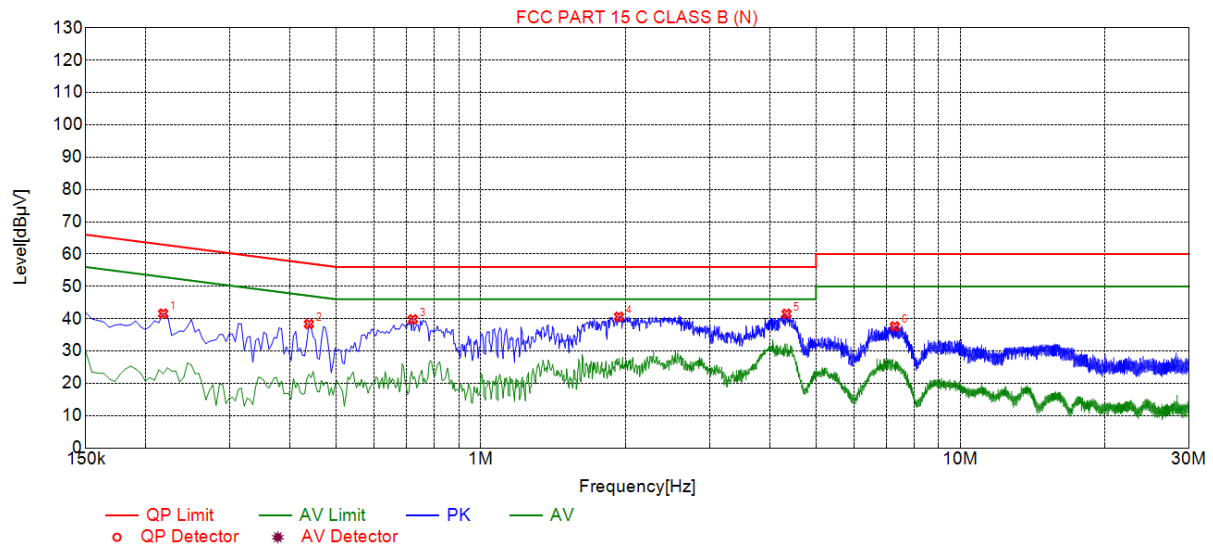
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.2175	41.58	19.75	62.91	21.33	21.83	PK	N
2	0.4380	38.35	19.74	57.10	18.75	18.61	PK	N
3	0.7215	39.81	19.74	56.00	16.19	20.07	PK	N
4	1.9410	40.62	19.83	56.00	15.38	20.79	PK	N
5	4.3395	41.53	19.98	56.00	14.47	21.55	PK	N
6	7.3005	37.62	19.95	60.00	22.38	17.67	PK	N

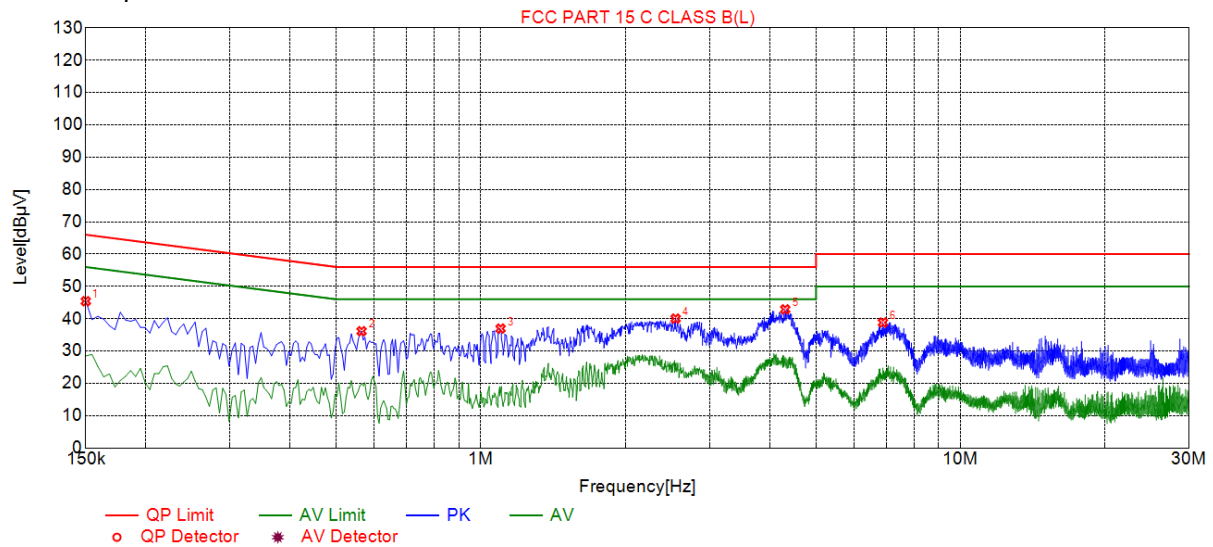
Remark: Margin = Limit – Level

Correction factor = Cable loss + LISN insertion loss

Level = Test receiver reading + correction factor



Series Model No.: T3 Ultra
Test Specification: Line



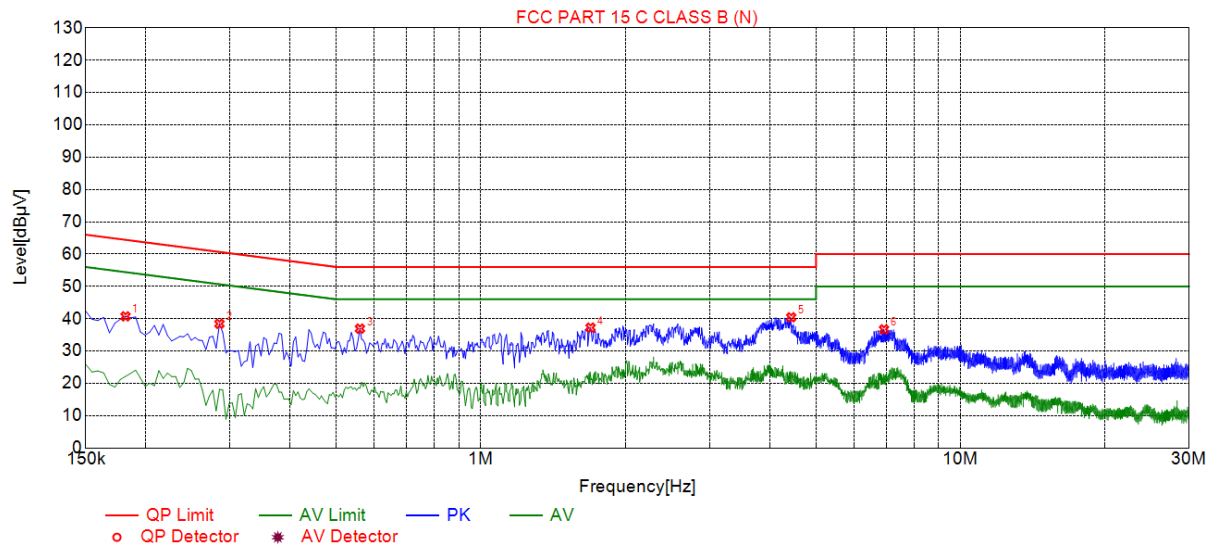
Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1500	45.42	19.83	66.00	20.58	25.59	PK	L
2	0.5640	36.13	19.86	56.00	19.87	16.27	PK	L
3	1.0995	36.95	19.88	56.00	19.05	17.07	PK	L
4	2.5485	40.04	20.02	56.00	15.96	20.02	PK	L
5	4.3125	42.90	20.09	56.00	13.10	22.81	PK	L
6	6.8955	38.82	20.07	60.00	21.18	18.75	PK	L

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



Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1815	40.73	19.75	64.42	23.69	20.98	PK	N
2	0.2850	38.44	19.73	60.67	22.23	18.71	PK	N
3	0.5595	38.93	19.75	56.00	19.07	17.18	PK	N
4	1.6935	37.24	19.82	56.00	18.76	17.42	PK	N
5	4.4385	40.44	19.98	56.00	15.56	20.46	PK	N
6	6.9315	36.69	19.97	60.00	23.31	16.72	PK	N

Remark: Margin = Limit – Level

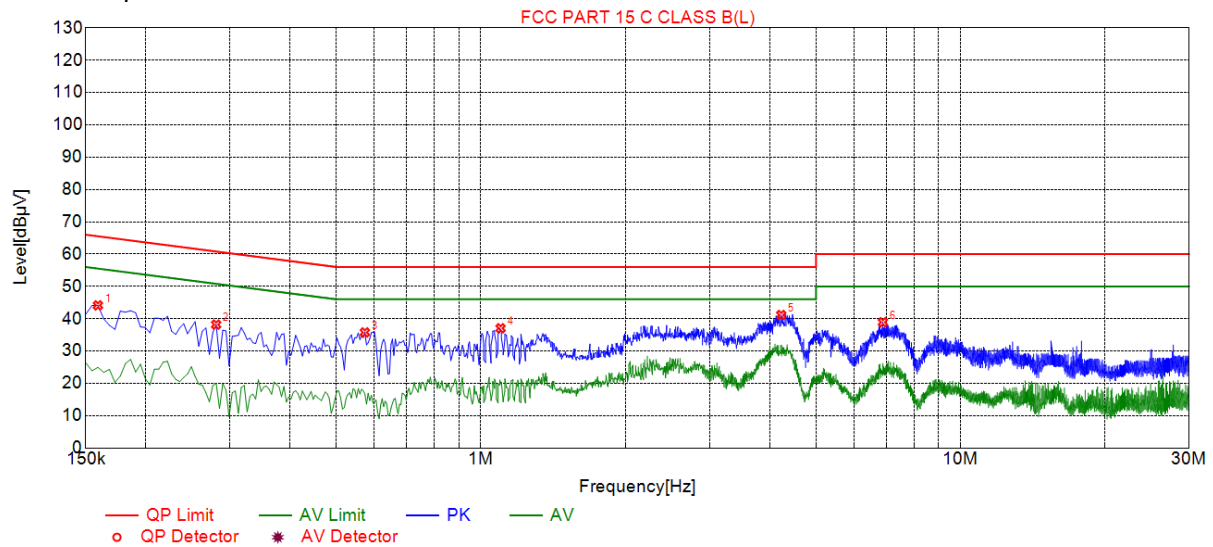
Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Series Model No.: POP9 mini

Test Specification: Line



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1590	44.13	19.81	65.52	21.39	24.32	PK	L
2	0.2805	38.19	19.84	60.80	22.61	18.35	PK	L
3	0.5730	35.77	19.86	56.00	20.23	15.91	PK	L
4	1.0995	37.05	19.88	56.00	18.95	17.17	PK	L
5	4.2315	41.16	20.09	56.00	14.84	21.07	PK	L
6	6.8955	38.92	20.07	60.00	21.08	18.85	PK	L

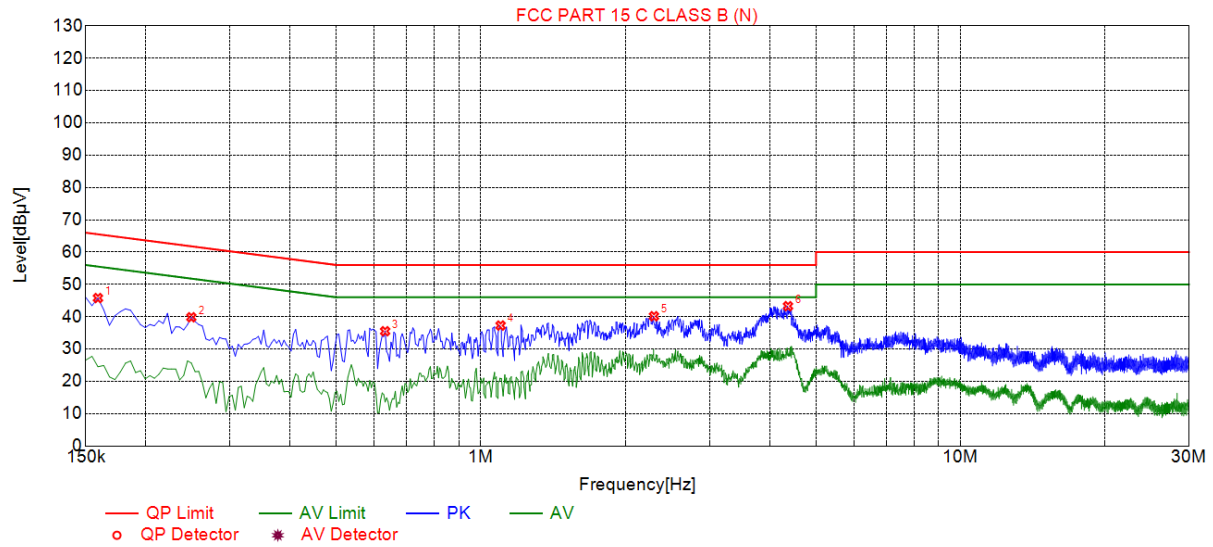
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1590	45.78	19.70	65.52	19.74	26.08	PK	N
2	0.2490	39.83	19.73	61.79	21.96	20.10	PK	N
3	0.6315	35.51	19.74	56.00	20.49	15.77	PK	N
4	1.0995	37.27	19.75	56.00	18.73	17.52	PK	N
5	2.2965	40.15	19.88	56.00	15.85	20.27	PK	N
6	4.3710	43.27	19.98	56.00	12.73	23.29	PK	N

Remark: Margin = Limit – Level

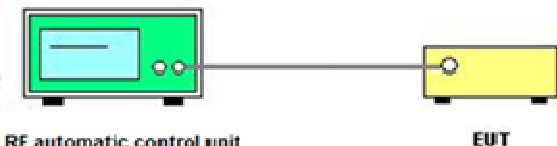
Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



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:	 RF automatic control unit EUT
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. 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).



RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
Power meter	Agilent	E4419B	HKE-085	Feb. 19, 2025	Feb. 18, 2026
Power Sensor	Agilent	E9300A	HKE-086	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
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).

Test Data

Mode	Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
		(MHz)	(dBm)	dBm
802.11b	CH01	2412	11.56	30
802.11b	CH06	2437	12.76	30
802.11b	CH11	2462	12.75	30
802.11g	CH01	2412	10.56	30
802.11g	CH06	2437	13.20	30
802.11g	CH11	2462	13.38	30
802.11n(HT20)	CH01	2412	10.83	30
802.11n(HT20)	CH06	2437	13.17	30
802.11n(HT20)	CH11	2462	12.96	30
802.11n(HT40)	CH03	2422	13.24	30
802.11n(HT40)	CH06	2437	13.20	30
802.11n(HT40)	CH09	2452	13.21	30

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



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:	 Spectrum Analyzer EUT
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).



RF Test Room

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
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).

Test data

Test channel	6dB Emission Bandwidth (MHz)			
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)
Lowest	9.520	15.880	15.120	33.840
Middle	9.120	12.800	16.280	35.360
Highest	9.560	12.560	15.360	35.120
Limit:	>500kHz			
Test Result:	PASS			

Test plots as follows:



802.11b Modulation

Lowest channel



Middle channel



Highest channel





802.11g Modulation

Lowest channel



Middle channel



Highest channel



802.11n (HT20) Modulation

Lowest channel



Middle channel



Highest channel



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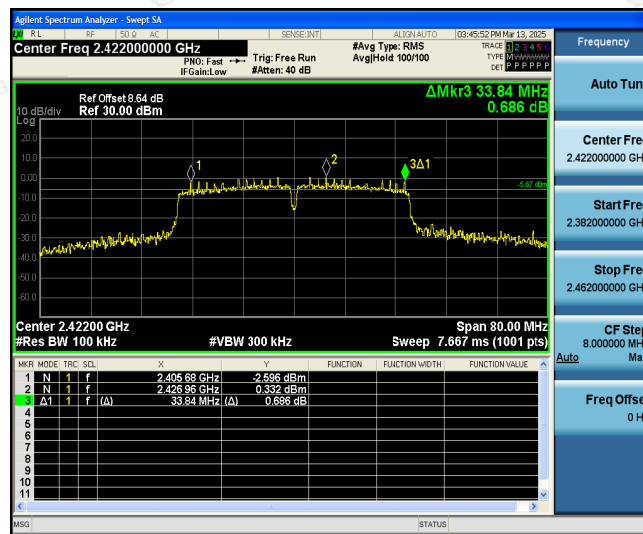
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Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

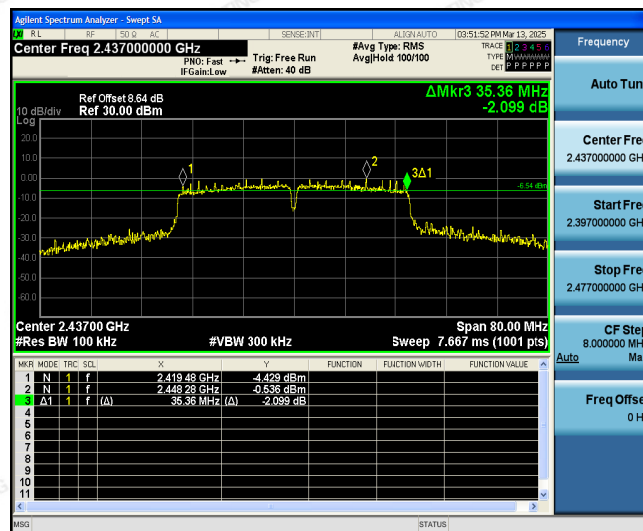


802.11n (HT40) Modulation

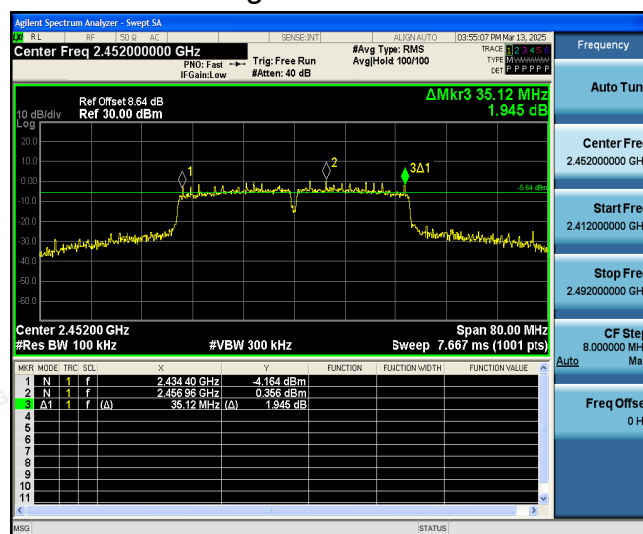
Lowest channel



Middle channel



Highest channel





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:	 The diagram illustrates the test setup. On the left is a green rectangular box labeled 'Spectrum Analyzer'. A black line representing an RF cable connects the output of the Spectrum Analyzer to a yellow rectangular box on the right labeled 'EUT'.
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. 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): $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$. Video bandwidth VBW $\geq 3 \times \text{RBW}$. 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



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).

RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
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).

**Test data**

EUT Set Mode	Channel	Test Result (dBm/30kHz)	Result (dBm/3kHz)
802.11b	Lowest	-1.50	-11.50
	Middle	-0.47	-10.47
	Highest	-0.54	-10.54
802.11g	Lowest	-4.43	-14.43
	Middle	-1.90	-11.90
	Highest	-1.35	-11.35
802.11n(HT20)	Lowest	-3.22	-13.22
	Middle	-0.74	-10.74
	Highest	-1.15	-11.15
802.11n(HT40)	Lowest	-4.02	-14.02
	Middle	-3.82	-13.82
	Highest	-4.16	-14.16
PSD test result (dBm/3kHz)= PSD test result (dBm/30kHz)-10			
Limit: 8dBm/3kHz			
Test Result:	PASS		

Test plots as follows:



802.11b Modulation

Lowest channel



Middle channel



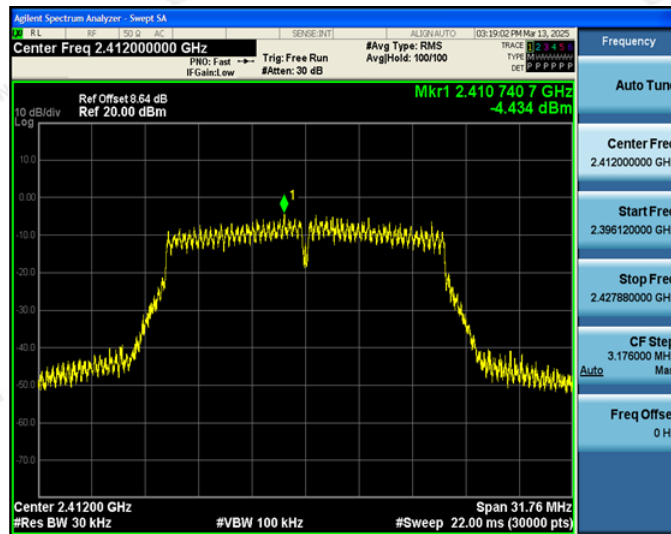
Highest channel



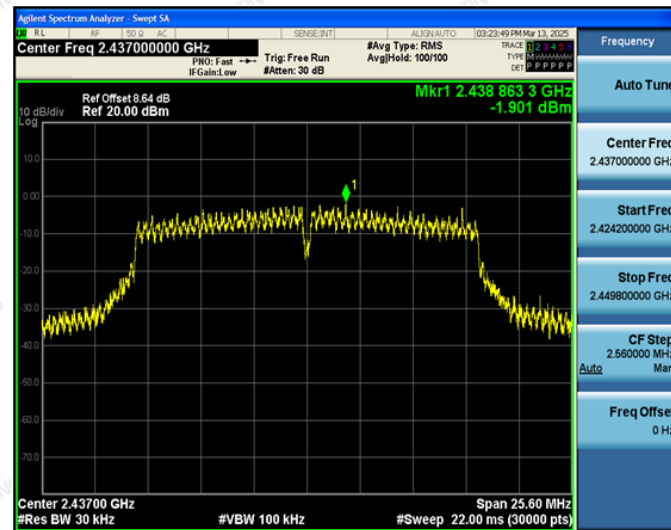


802.11g Modulation

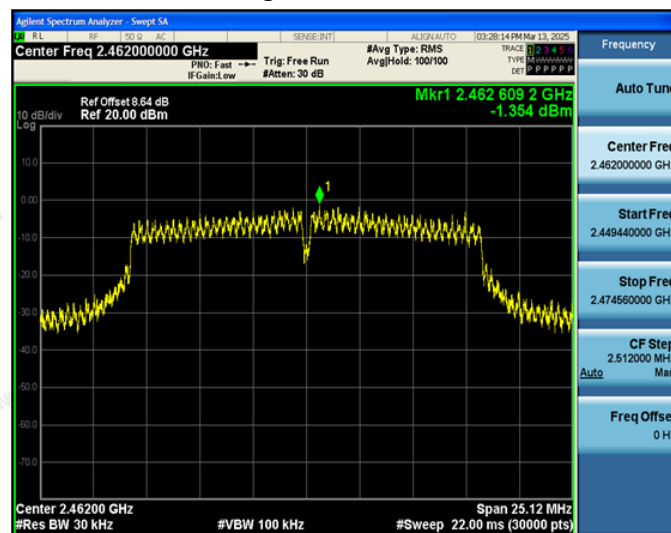
Lowest channel



Middle channel



Highest channel



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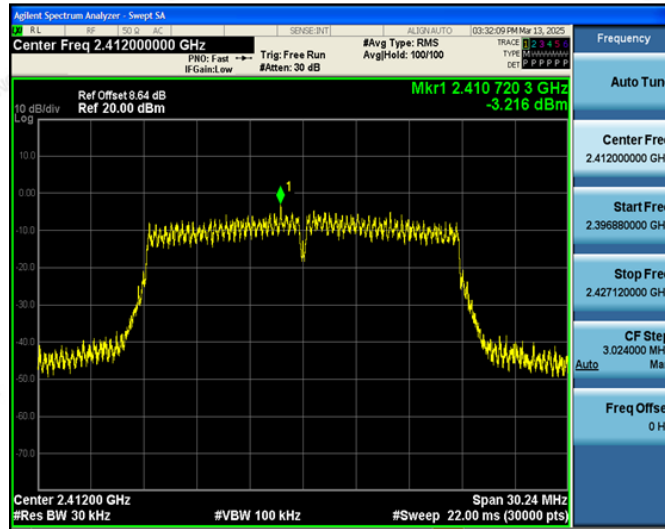
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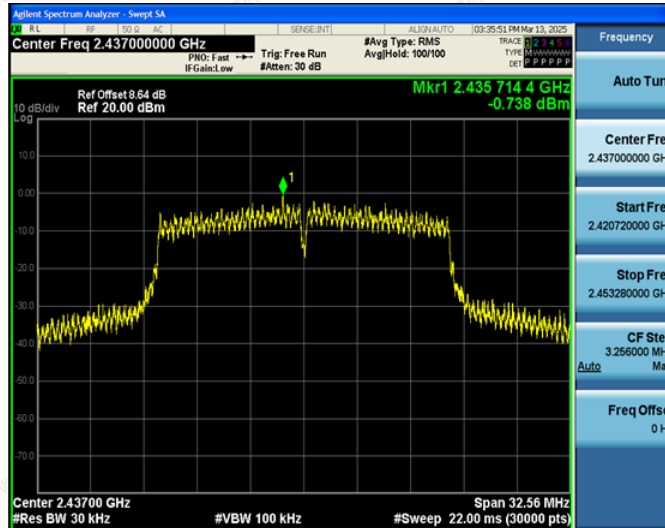


802.11n (HT20) Modulation

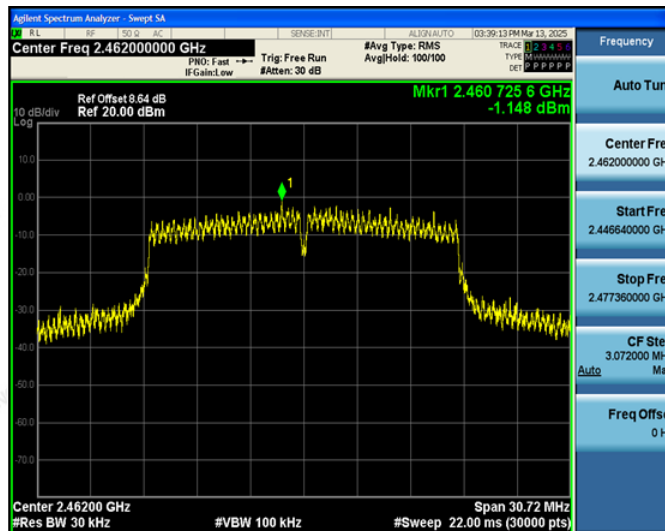
Lowest channel



Middle channel



Highest channel



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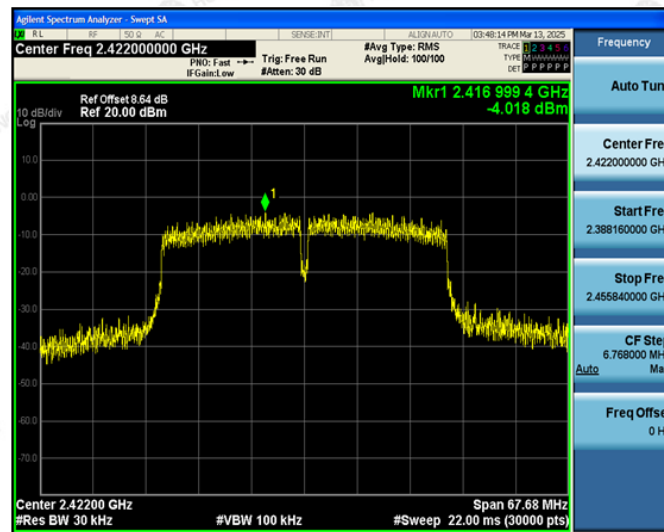
TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

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

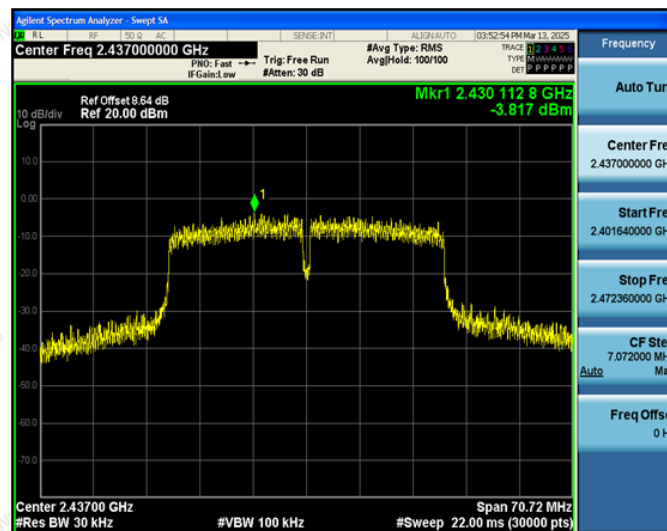


802.11n (HT40) Modulation

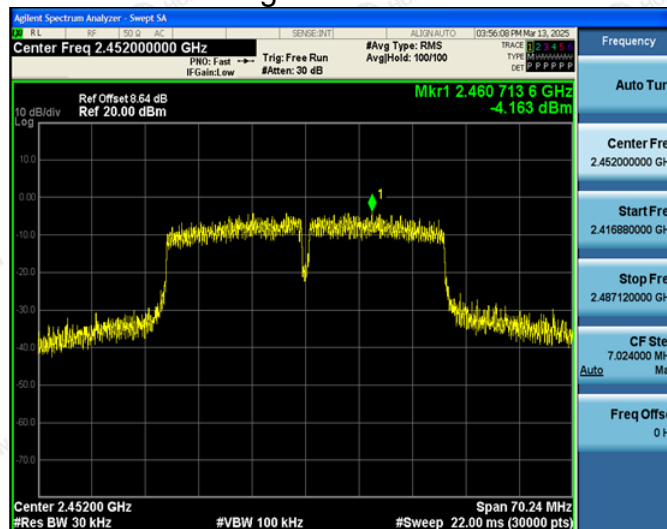
Lowest channel



Middle channel



Highest channel





4.6. Conducted Band Edge and Spurious Emission Measurement

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 D01 15.247 Meas Guidance v05r02
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows 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. 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. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). 5. Measure and record the results in the test report. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
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).

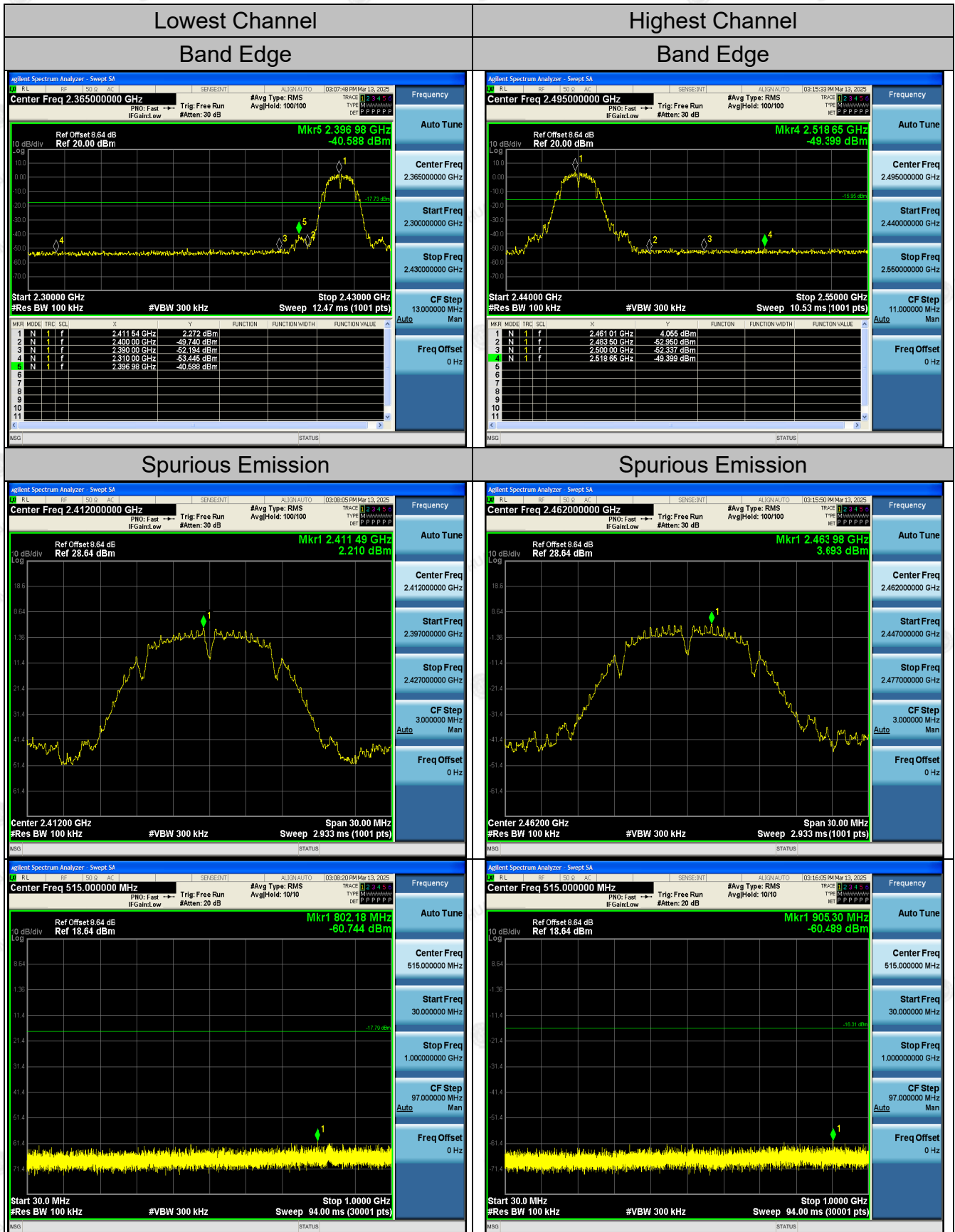
RF Test Room					
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-025	Feb. 19, 2025	Feb. 18, 2026
RF cable	Times	1-40G	HKE-034	Feb. 19, 2025	Feb. 18, 2026
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 19, 2025	Feb. 18, 2026
RF 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).



Test Data

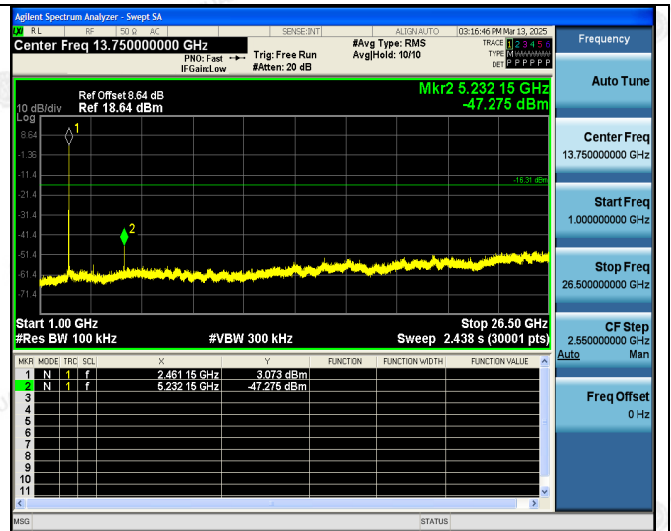
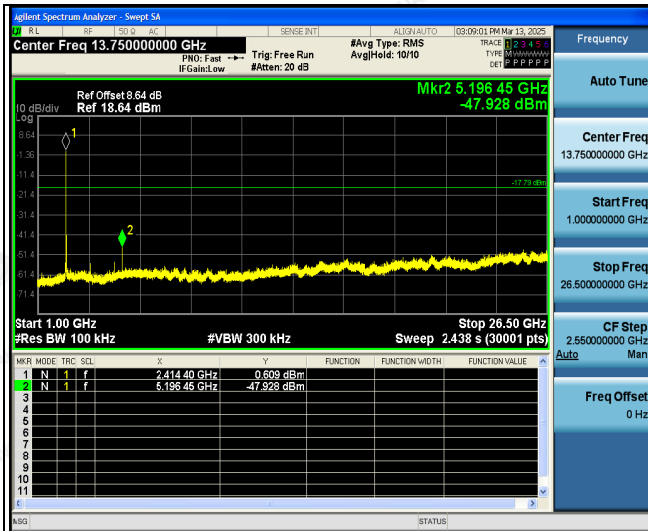
802.11b Modulation



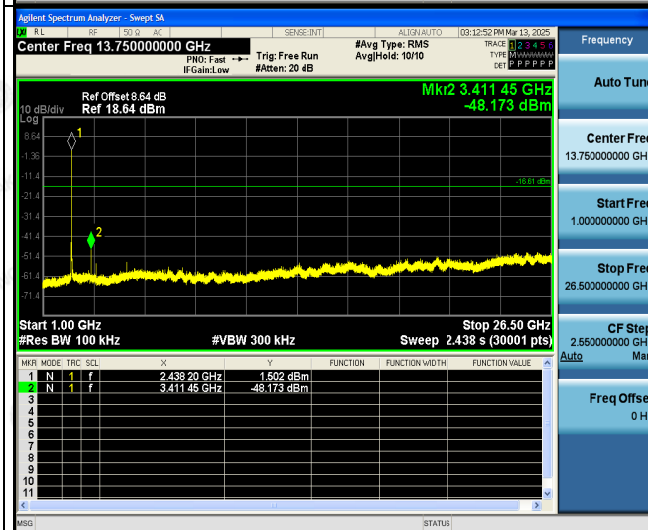
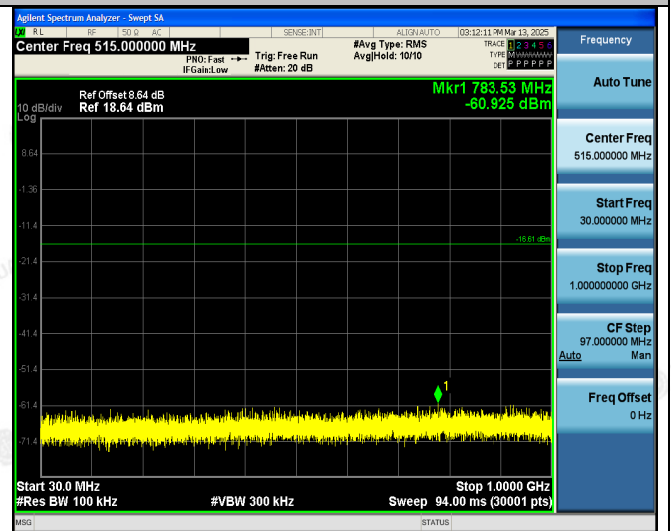
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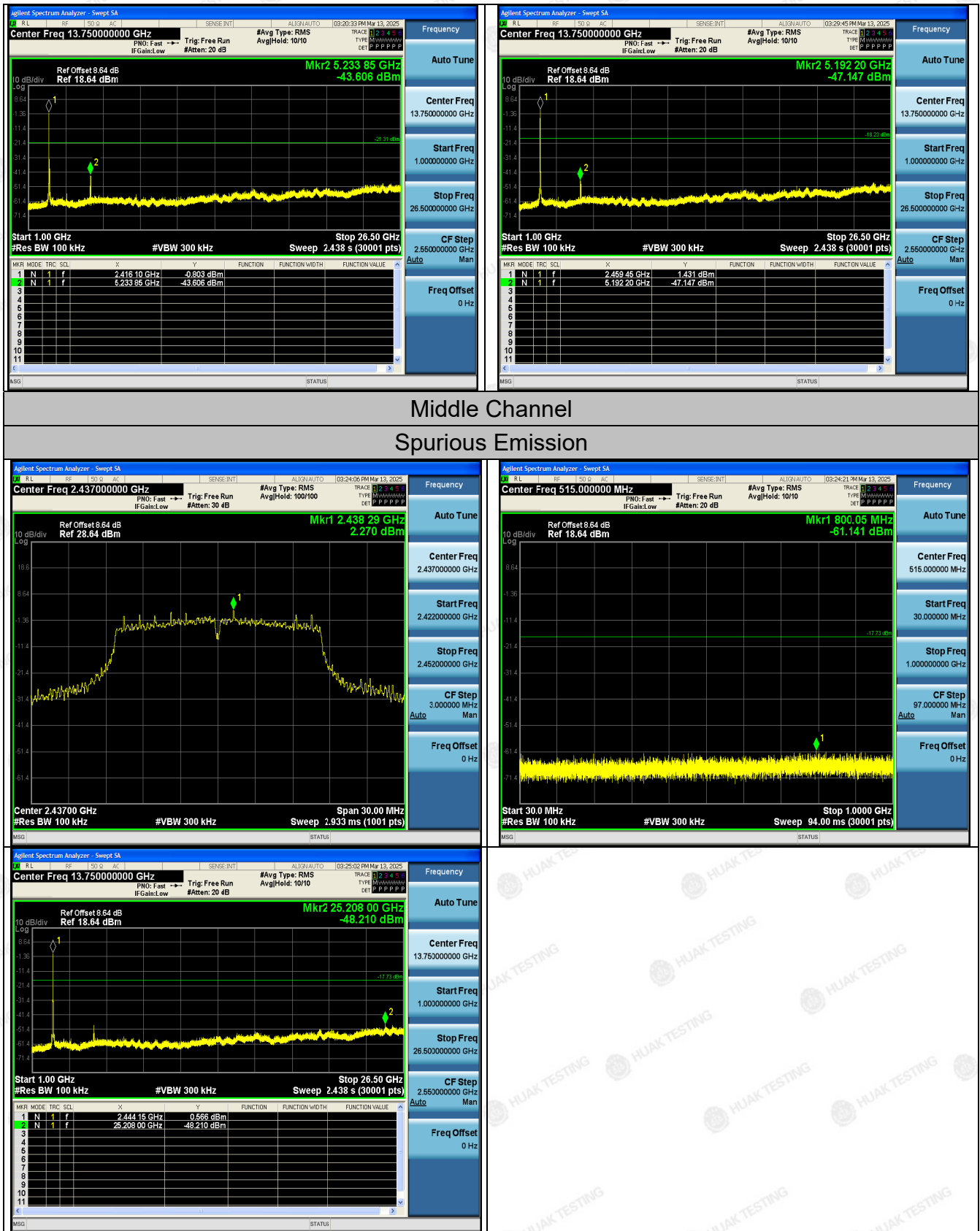
Middle Channel Spurious Emission





802.11g Modulation





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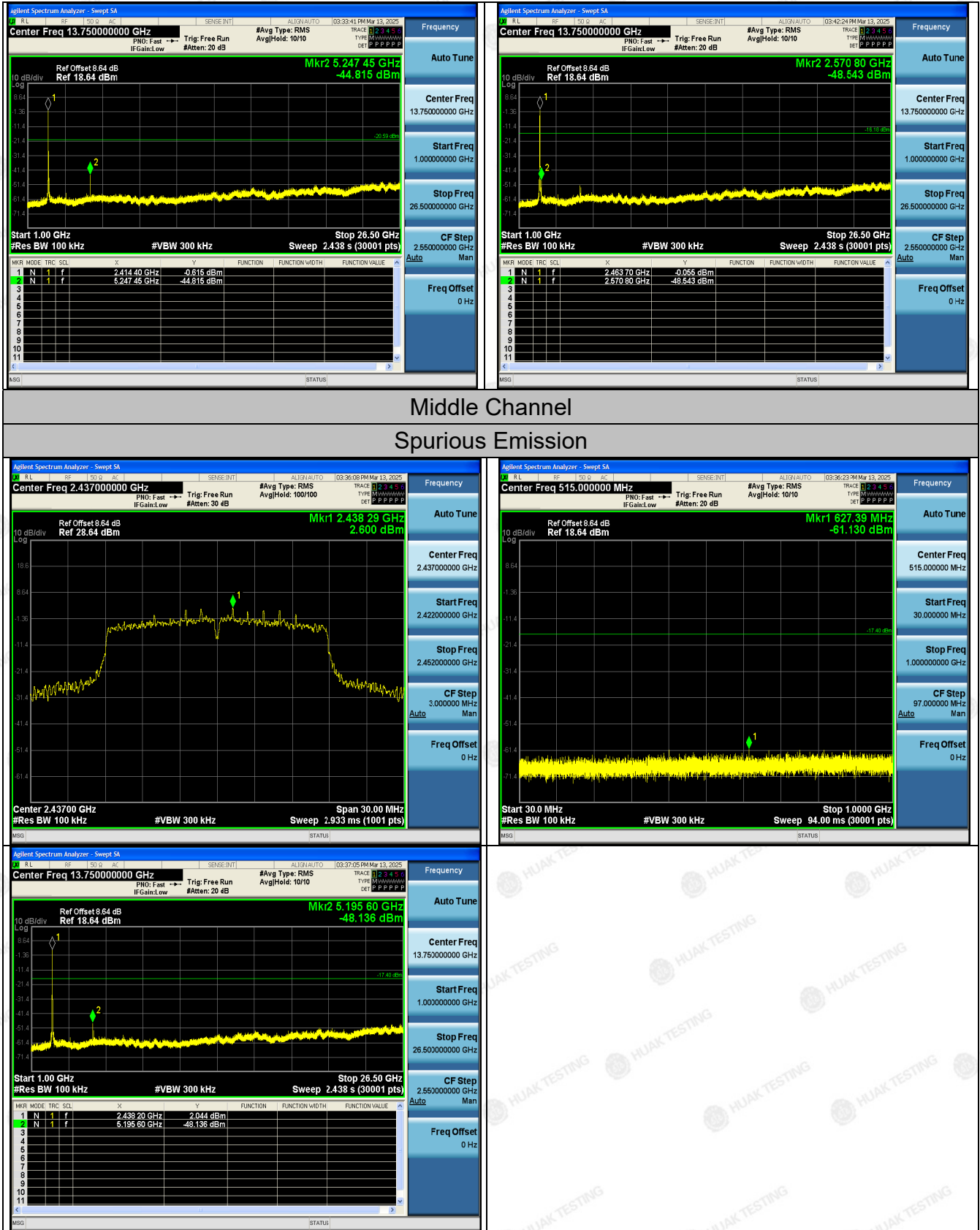
802.11n (HT20) Modulation



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802.11n (HT40) Modulation



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