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 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

FCC ID: 2BDI3-F

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:	**Feb. 08, 2025 ~ Apr. 11, 2025**
Date of Report:	**Apr. 11, 2025**
Report Number:	**HK2502080448-1E**

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 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
Standards..... :	**47 CFR FCC Part 15 Subpart C 15.247**

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. Summary

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.215	20dB Bandwidth & 99% Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Peak Output Power	PASS
FCC Part 15.247(a)(1)	Pseudorandom Frequency Hopping Sequence	PASS
FCC Part 15.247(a)(1)(iii)	Number of hopping frequency & Time of Occupancy	PASS
FCC Part 15.247(a)(1)	Frequency Separation	PASS
FCC Part 15.205/15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge Compliance of RF Emission	PASS

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

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.

1.4. Statement of the 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 %.

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.37dB	(1)
Transmitter power Radiated	±3.35dB	(1)
Conducted spurious emission 9KHz-40 GHz	±2.20dB	(1)
Occupied Bandwidth	±3.68%	(1)
Radiated Emission 30~1000MHz	±3.90dB	(1)
Radiated Emission Above 1GHz	±4.28dB	(1)
Conducted Disturbance0.15~30MHz	±2.71dB	(1)

2. General Information

2.1. Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	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
Power supply:	DC5V From Type-C or DC3.8V From Battery
Version:	Supported EDR
Modulation:	GFSK, π/4DQPSK, 8DPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79CH
Channel separation:	1MHz
Antenna type:	FPC Antenna
Antenna gain:	-1.52dBi
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.	

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.
There are 79 channels provided to the EUT and Channel 00/39/78 was selected for testing.

Operation Frequency：

Channel	Frequency (MHz)
00	2402
01	2403
⋮	⋮
38	2440
39	2441
40	2442
⋮	⋮
77	2479
78	2480

Note: The line display in grey were the channel selected for testing.

Preliminary tests were performed in each mode and packet length of BT, and found worst case as bellow, finally test were conducted at those mode and recorded in this report.

Test Items	Worst case
Conducted Emissions	Working mode while charging
Radiated Emissions and Band Edge	DH5 Low channel
Maximum Conducted Output Power	DH5/2DH5/3DH5
20dB Bandwidth & 99% Bandwidth	DH5/2DH5/3DH5
Frequency Separation	DH5/2DH5/3DH5 Middle channel
Number of hopping frequency	DH5/2DH5/3DH5
Time of Occupancy (Dwell Time)	DH1/DH3/DH5 Middle channel 2DH1/2DH3/2DH5 Middle channel 3DH1/3DH3/3DH5 Middle channel
Out-of-band Emissions	DH5/2DH5/3DH5

2.4. Equipments Used During the Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2024/02/20	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2024/02/20	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2024/02/20	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2024/02/20	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2024/02/20	1 Year
6	Preamplifier	EMCI	EMC051845 S	HKE-006	2024/02/20	1 Year
7	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2024/02/20	1 Year
8	Preamplifier	A.H. Systems	SAS-574	HKE-182	2024/02/20	1 Year
9	6d Attenuator	Pasternack	6db	HKE-184	2024/02/20	1 Year
10	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2024/02/20	1 Year
11	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
12	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2 Year
13	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
14	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
15	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
16	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2024/02/20	1 Year
17	High pass filter unit	Tonscend	JS0806-F	HKE-055	2024/02/20	1 Year
18	Wireless Communication Test Set	R&S	CMU200	HKE-026	2024/02/20	1 Year
19	Wireless Communication Test Set	R&S	CMW500	HKE-027	2024/02/20	1 Year
20	High-low temperature chamber	Guangke	HT-80L	HKE-118	2024/06/10	1 Year
21	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2024/06/10	1 Year
22	RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/
23	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2024/02/20	1 Year
24	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

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	R&S	FSV3044	HKE-126	2025/02/19	1 Year
6	Preamplifier	EMCI	EMC051845 S	HKE-006	2025/02/19	1 Year
7	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2025/02/19	1 Year
8	Preamplifier	A.H. Systems	SAS-574	HKE-182	2025/02/19	1 Year
9	6d Attenuator	Pasternack	6db	HKE-184	2025/02/19	1 Year
10	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2025/02/19	1 Year
11	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
12	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2 Year
13	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
14	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
15	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
16	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2025/02/19	1 Year
17	High pass filter unit	Tonscend	JS0806-F	HKE-055	2025/02/19	1 Year
18	Wireless Communication Test Set	R&S	CMU200	HKE-026	2025/02/19	1 Year
19	Wireless Communication Test Set	R&S	CMW500	HKE-027	2025/02/19	1 Year
20	High-low temperature chamber	Guangke	HT-80L	HKE-118	2024/06/10	1 Year
21	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2024/06/10	1 Year
22	RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/
23	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2025/02/19	1 Year
24	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

2.5. Related Submittal(S) / Grant (S)

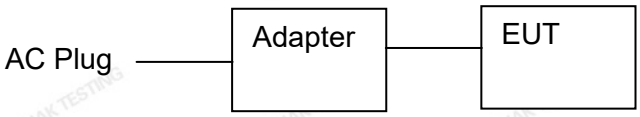
This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

2.7. 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.

2.8. 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, 20db Bandwidth, Frequency Separation, Number of Hopping Frequency, Time of Occupancy (Dwell Time), Out-of-Band 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. Test Conditions and Results

3.1. Conducted Emissions Test

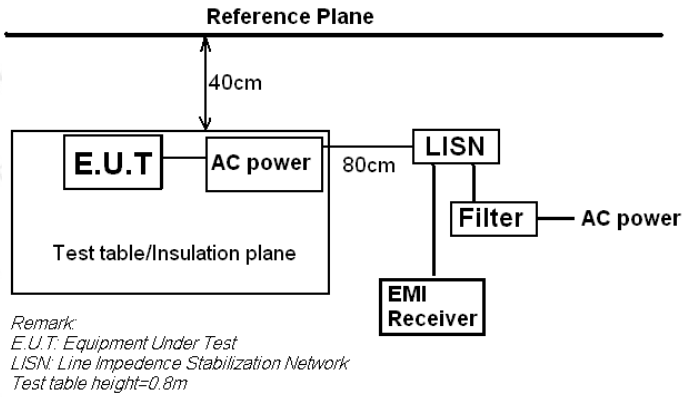
LIMIT

According to FCC CFR Title 47 Part 15 Subpart C Section 15.207 and RSS Gen 8.8, AC Power Line Conducted Emissions Limits for License-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.

TEST CONFIGURATION



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

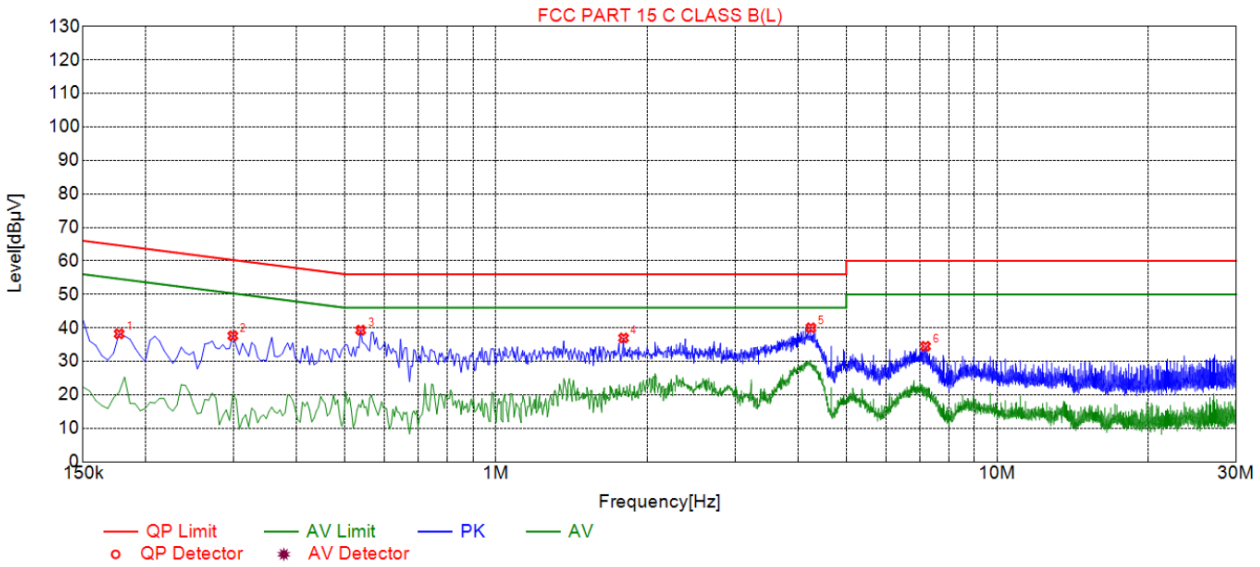
TEST PROCEDURE

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 C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
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.

TEST RESULTS

Remark: All modes are tested; only the worst result of was reported as below:

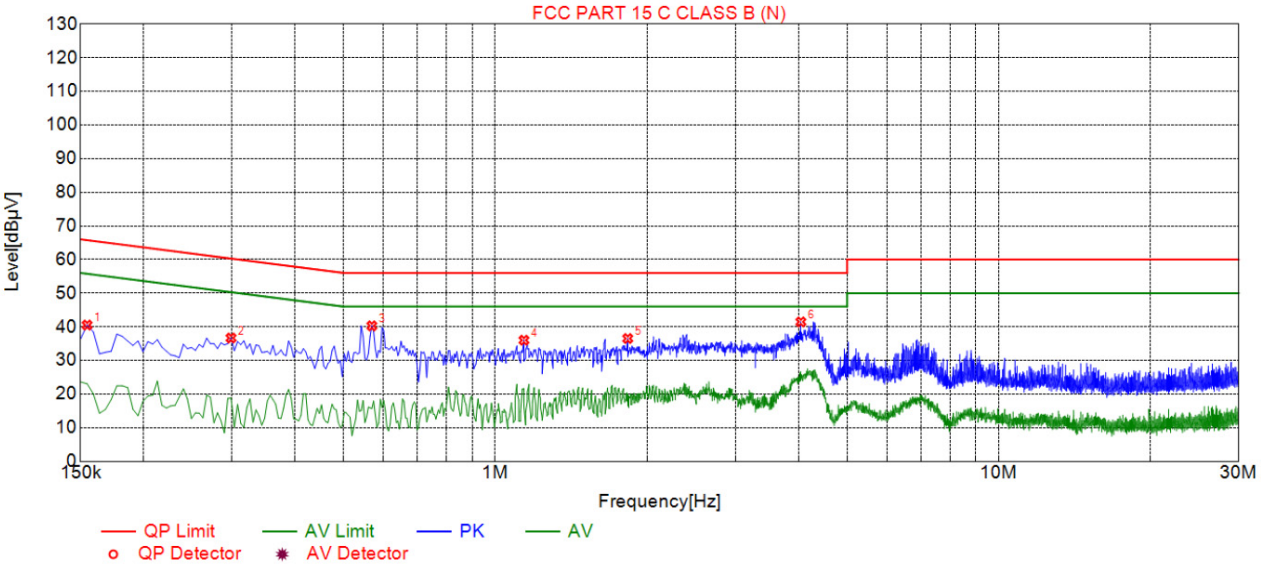
Test Model No.: S25 mini
Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1770	38.22	19.85	64.63	26.41	18.37	PK	L
2	0.2985	37.63	19.84	60.28	22.65	17.79	PK	L
3	0.5370	39.30	19.85	56.00	16.70	19.45	PK	L
4	1.7970	36.98	19.96	56.00	19.02	17.02	PK	L
5	4.2495	40.01	20.09	56.00	15.99	19.92	PK	L
6	7.1970	34.49	20.06	60.00	25.51	14.43	PK	L

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

Test Specification: Neutral

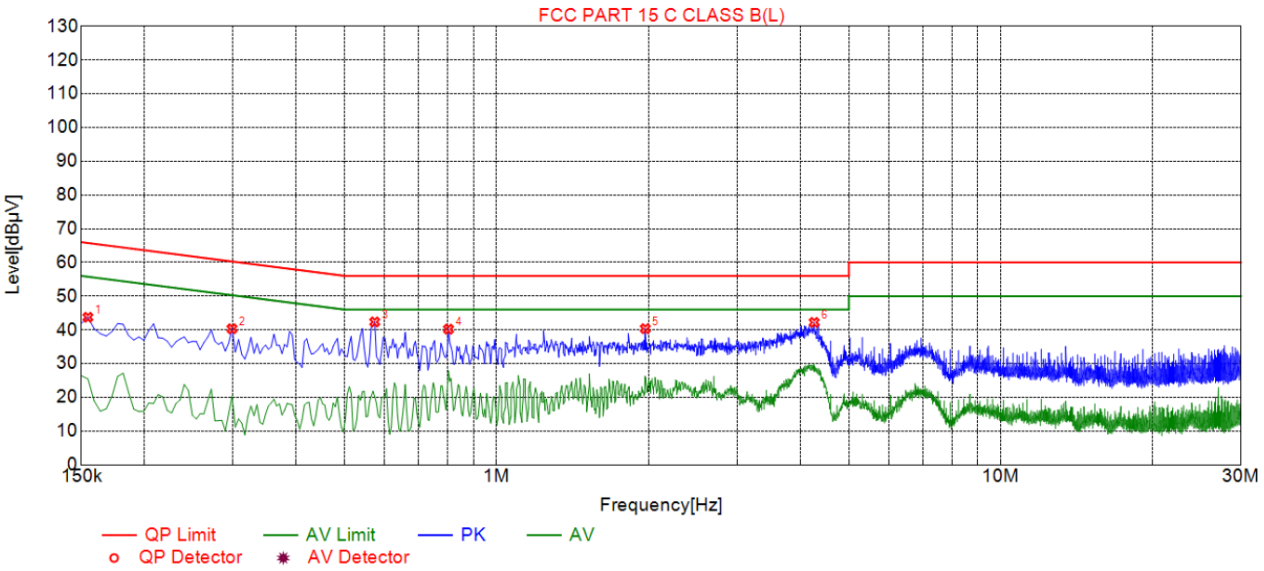


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1545	40.51	19.73	65.75	25.24	20.78	PK	N
2	0.2985	36.67	19.73	60.28	23.61	16.94	PK	N
3	0.5685	40.28	19.74	56.00	15.72	20.54	PK	N
4	1.1400	36.01	19.77	56.00	19.99	16.24	PK	N
5	1.8330	36.52	19.83	56.00	19.48	16.69	PK	N
6	4.0470	41.45	19.97	56.00	14.55	21.48	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

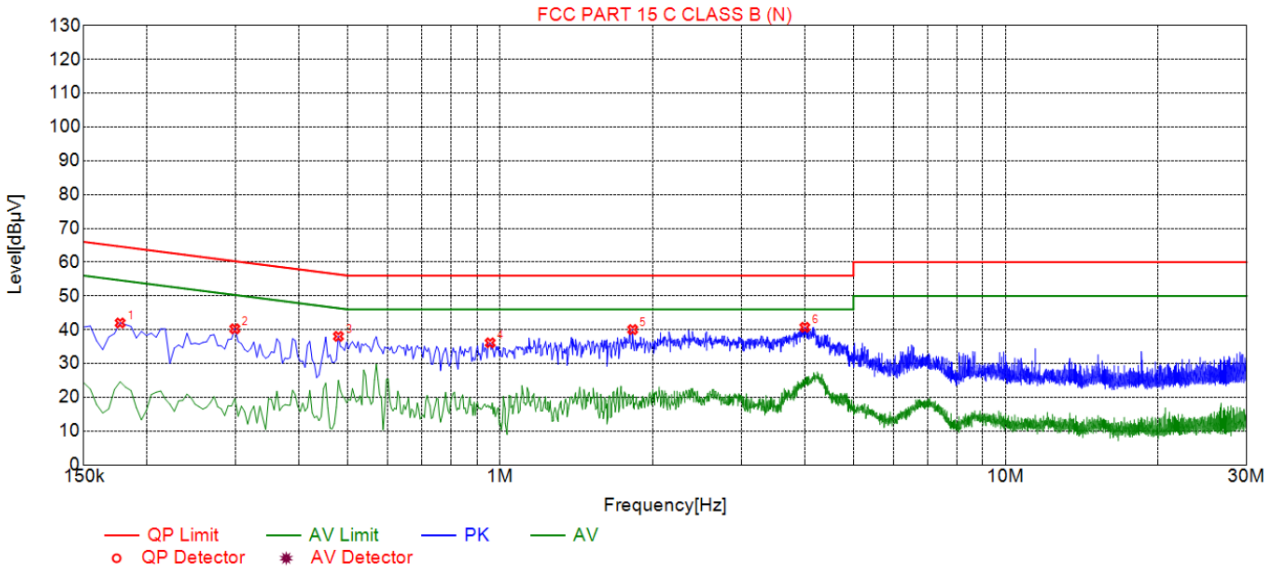


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1545	43.74	19.83	65.75	22.01	23.91	PK	L
2	0.2985	40.33	19.84	60.28	19.95	20.49	PK	L
3	0.5730	42.35	19.86	56.00	13.65	22.49	PK	L
4	0.8025	40.21	19.86	56.00	15.79	20.35	PK	L
5	1.9725	40.36	19.96	56.00	15.64	20.40	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

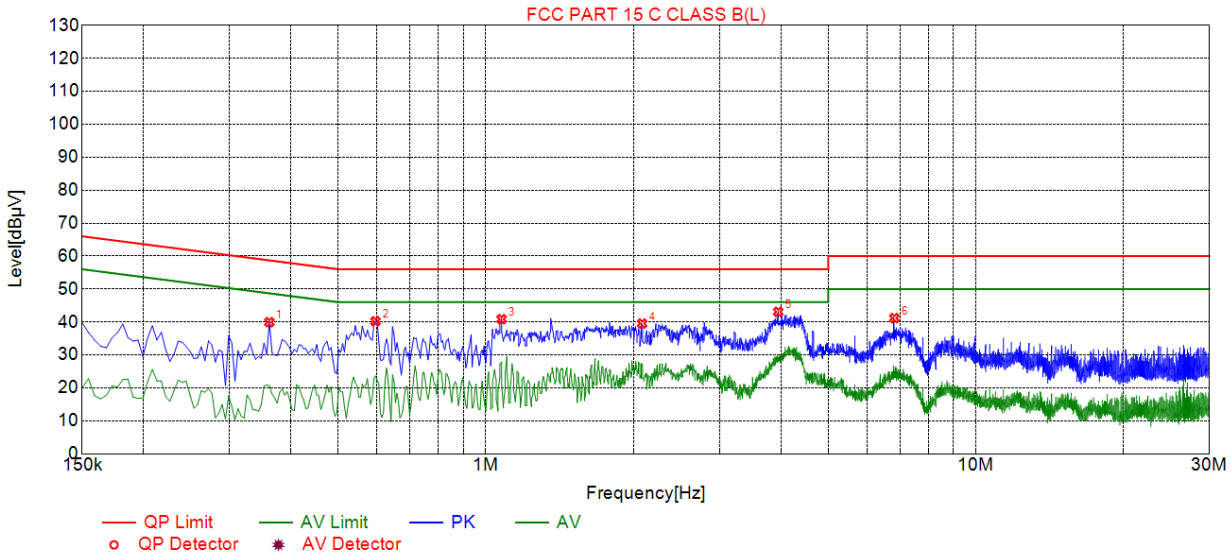
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1770	42.00	19.75	64.63	22.63	22.25	PK	N
2	0.2985	40.26	19.73	60.28	20.02	20.53	PK	N
3	0.4785	38.03	19.73	56.37	18.34	18.30	PK	N
4	0.9555	36.12	19.74	56.00	19.88	16.38	PK	N
5	1.8285	40.04	19.83	56.00	15.96	20.21	PK	N
6	4.0065	40.71	19.97	56.00	15.29	20.74	PK	N

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

Series Model No.: H50 mini
Test Specification: Line

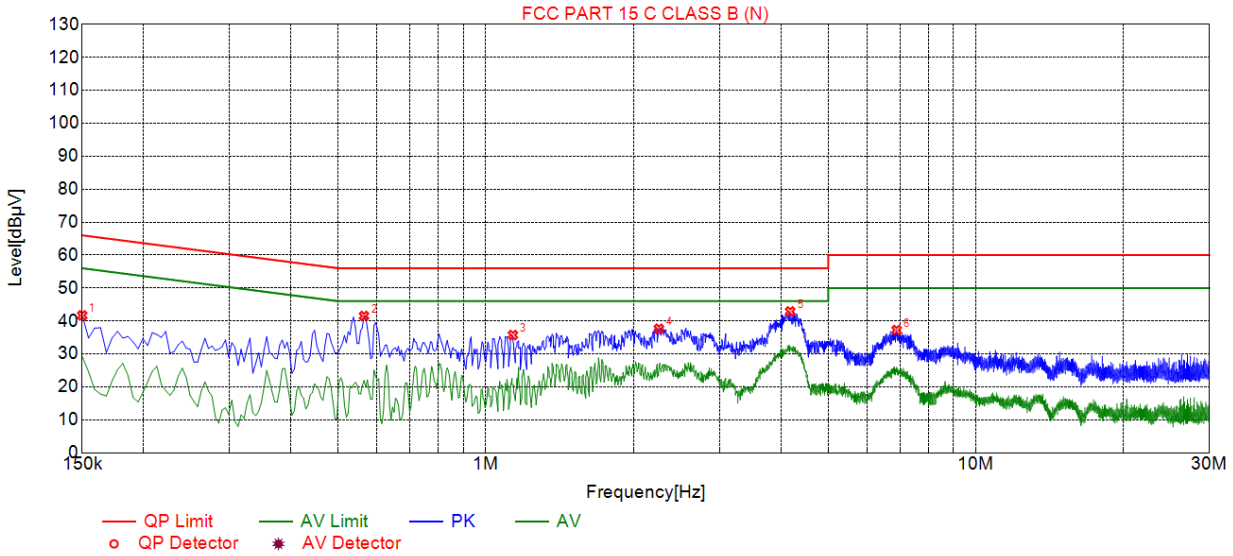


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.3615	39.93	19.84	58.69	18.76	20.09	PK	L
2	0.5955	40.21	19.86	56.00	15.79	20.35	PK	L
3	1.0770	40.86	19.88	56.00	15.14	20.98	PK	L
4	2.0850	39.53	19.97	56.00	16.47	19.56	PK	L
5	3.9525	43.09	20.09	56.00	12.91	23.00	PK	L
6	6.8235	41.17	20.07	60.00	18.83	21.10	PK	L

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

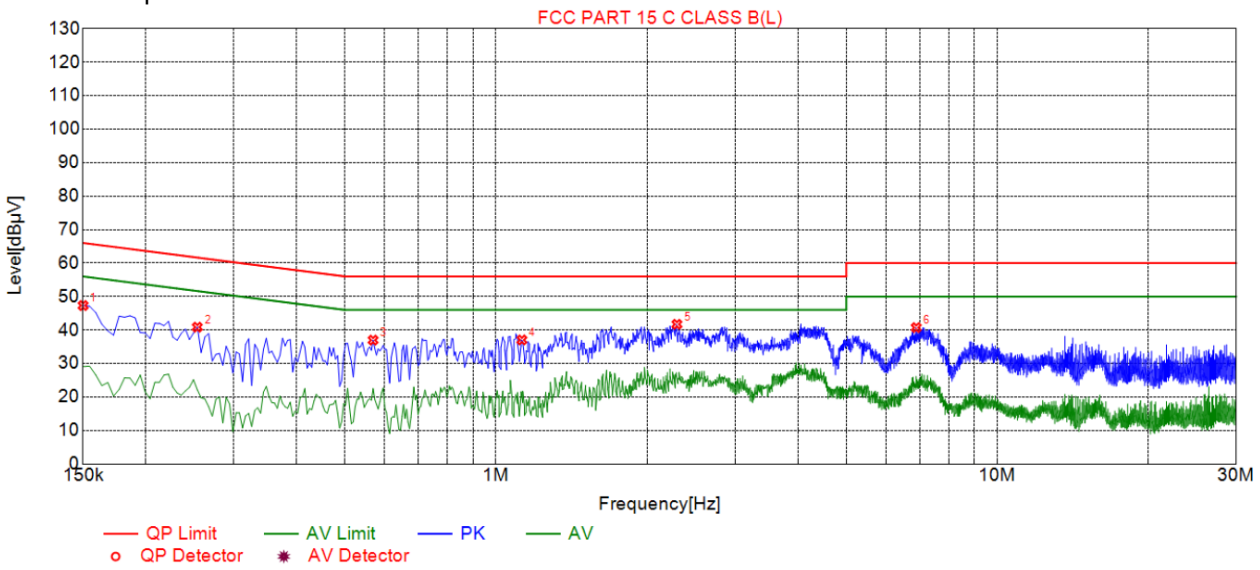
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1500	41.68	19.73	66.00	24.32	21.95	PK	N
2	0.5640	41.54	19.75	56.00	14.46	21.79	PK	N
3	1.1355	35.74	19.77	56.00	20.26	15.97	PK	N
4	2.2560	37.64	19.88	56.00	18.36	17.76	PK	N
5	4.1820	42.89	19.98	56.00	13.11	22.91	PK	N
6	6.8955	37.25	19.97	60.00	22.75	17.28	PK	N

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

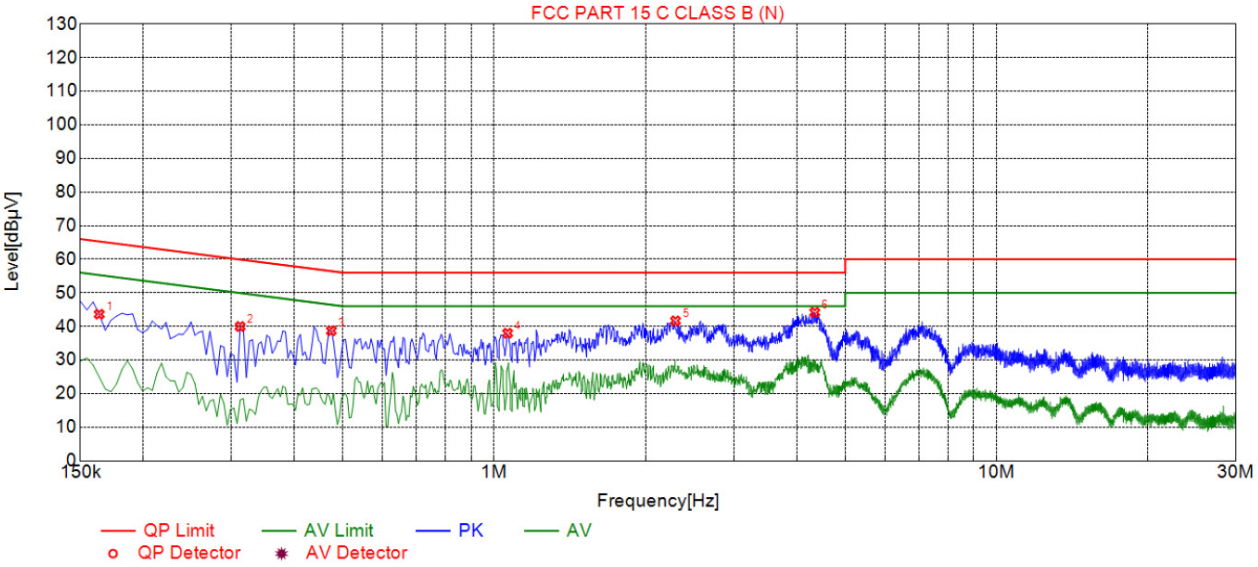
Series Model No.: P70 Ultra
Test Specification: Line



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1500	47.32	19.83	66.00	18.68	27.49	PK	L
2	0.2535	40.86	19.84	61.64	20.78	21.02	PK	L
3	0.5685	36.99	19.86	56.00	19.01	17.13	PK	L
4	1.1265	37.05	19.89	56.00	18.95	17.16	PK	L
5	2.2965	41.72	20.00	56.00	14.28	21.72	PK	L
6	6.8955	40.72	20.07	60.00	19.28	20.65	PK	L

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

Test Specification: Neutral

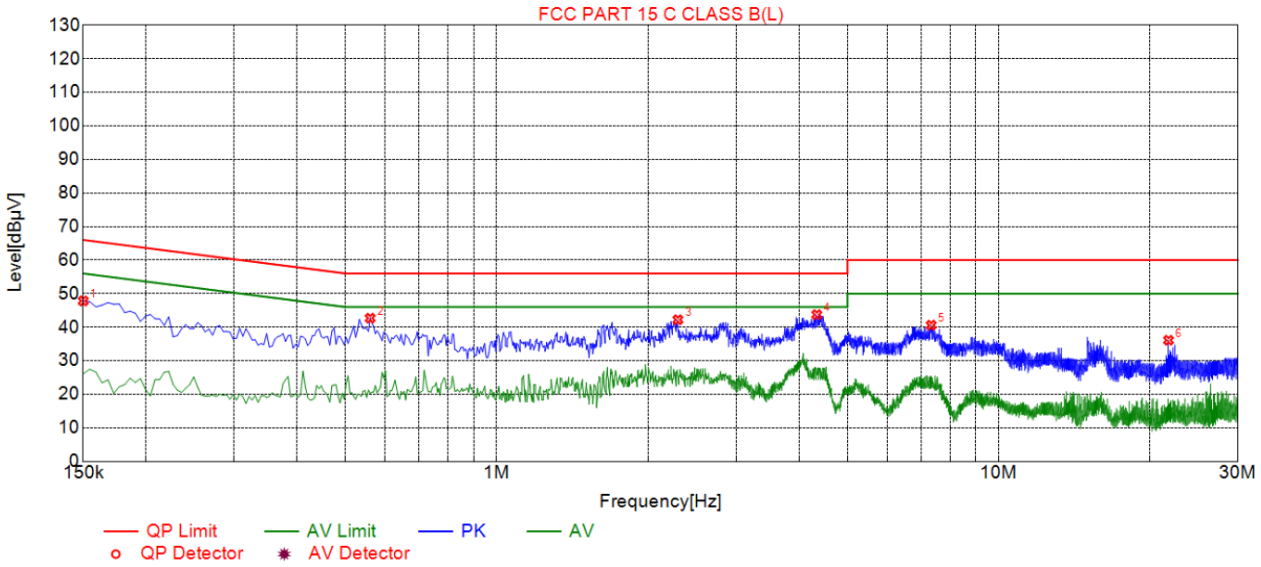


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1635	43.63	19.68	65.28	21.65	23.95	PK	N
2	0.3120	39.97	19.75	59.92	19.95	20.22	PK	N
3	0.4740	38.70	19.73	56.44	17.74	18.97	PK	N
4	1.0635	37.98	19.75	56.00	18.02	18.23	PK	N
5	2.2965	41.65	19.88	56.00	14.35	21.77	PK	N
6	4.3485	44.18	19.98	56.00	11.82	24.20	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

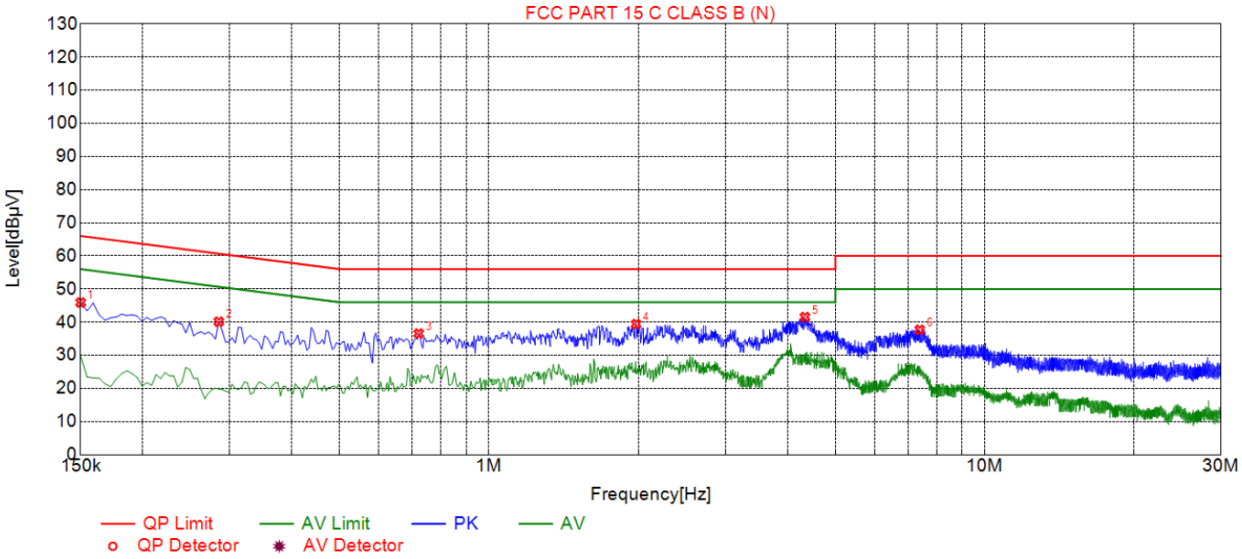


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1500	47.82	19.83	66.00	18.18	27.99	PK	L
2	0.5595	42.68	19.86	56.00	13.32	22.82	PK	L
3	2.2965	42.22	20.00	56.00	13.78	22.22	PK	L
4	4.3440	43.73	20.09	56.00	12.27	23.64	PK	L
5	7.3410	40.59	20.05	60.00	19.41	20.54	PK	L
6	21.8130	36.11	19.99	60.00	23.89	16.12	PK	L

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

Test Specification: Neutral

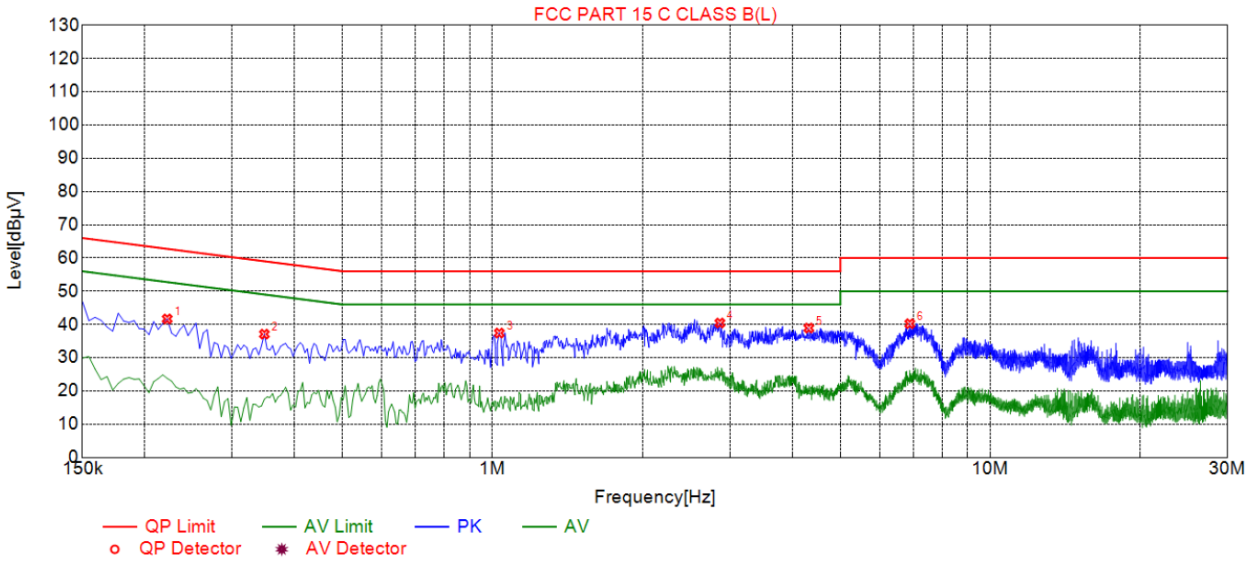


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1500	45.92	19.73	66.00	20.08	26.19	PK	N
2	0.2850	40.14	19.73	60.67	20.53	20.41	PK	N
3	0.7215	36.57	19.74	56.00	19.43	16.83	PK	N
4	1.9815	39.42	19.84	56.00	16.58	19.58	PK	N
5	4.3395	41.53	19.98	56.00	14.47	21.55	PK	N
6	7.3995	37.70	19.95	60.00	22.30	17.75	PK	N

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

Series Model No.: T3 Ultra
Test Specification: Line

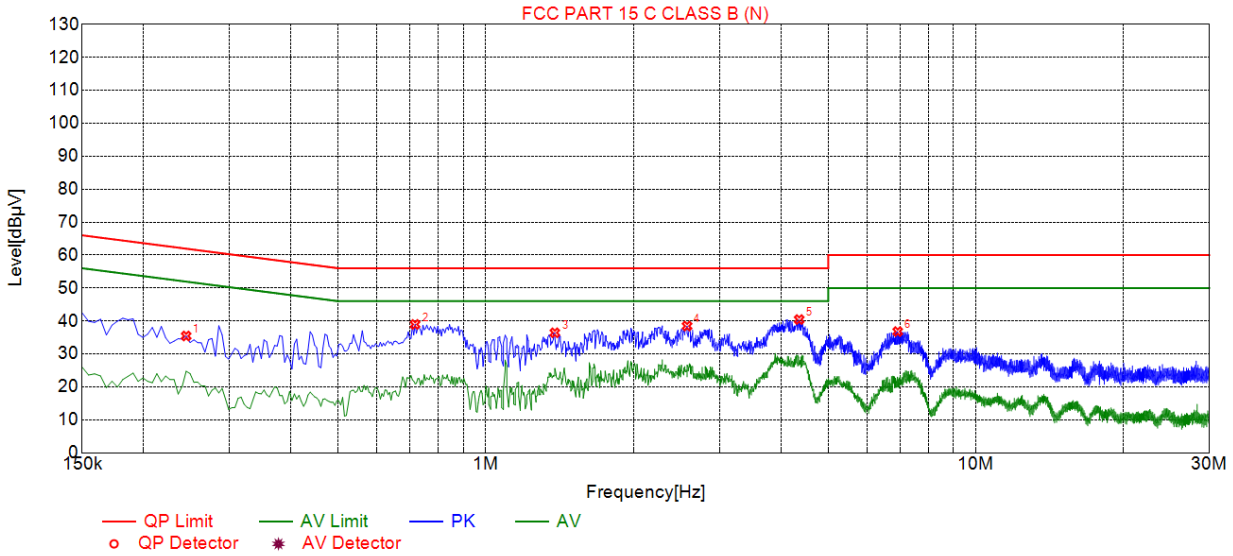


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.2220	41.67	19.84	62.74	21.07	21.83	PK	L
2	0.3480	37.10	19.83	59.01	21.91	17.27	PK	L
3	1.0320	37.43	19.88	56.00	18.57	17.55	PK	L
4	2.8635	40.43	20.04	56.00	15.57	20.39	PK	L
5	4.3215	38.93	20.09	56.00	17.07	18.84	PK	L
6	6.8955	40.22	20.07	60.00	19.78	20.15	PK	L

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

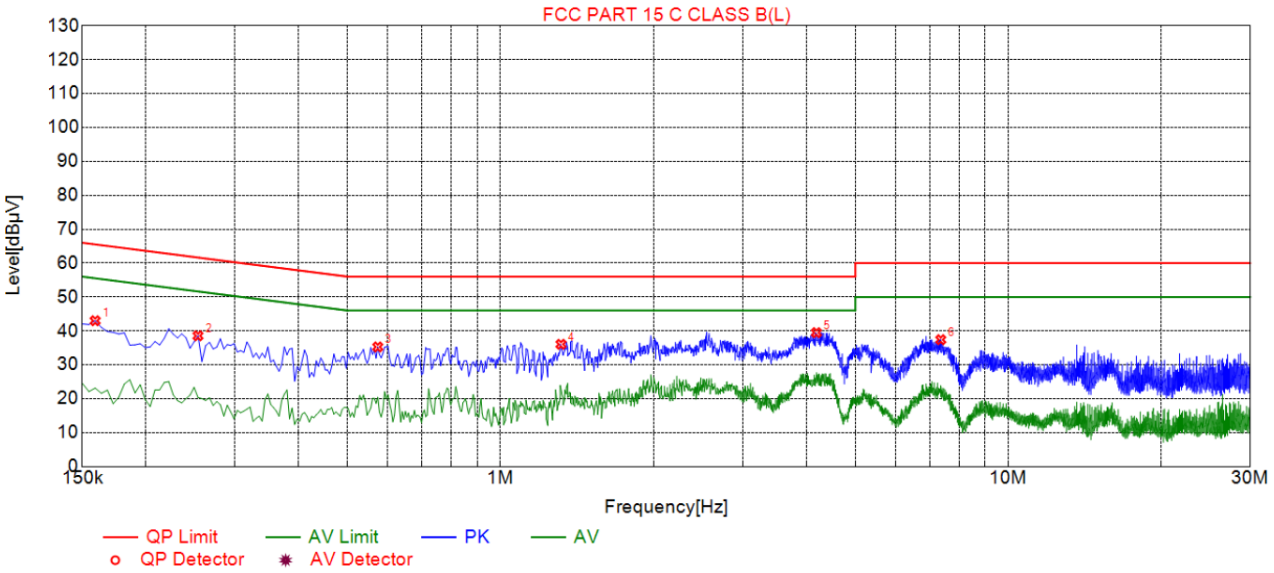
Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.2445	35.45	19.73	61.94	26.49	15.72	PK	N
2	0.7170	38.96	19.74	56.00	17.04	19.22	PK	N
3	1.3830	36.42	19.79	56.00	19.58	16.63	PK	N
4	2.5755	38.46	19.90	56.00	17.54	18.56	PK	N
5	4.3620	40.44	19.98	56.00	15.56	20.46	PK	N
6	6.9315	36.79	19.97	60.00	23.21	16.82	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

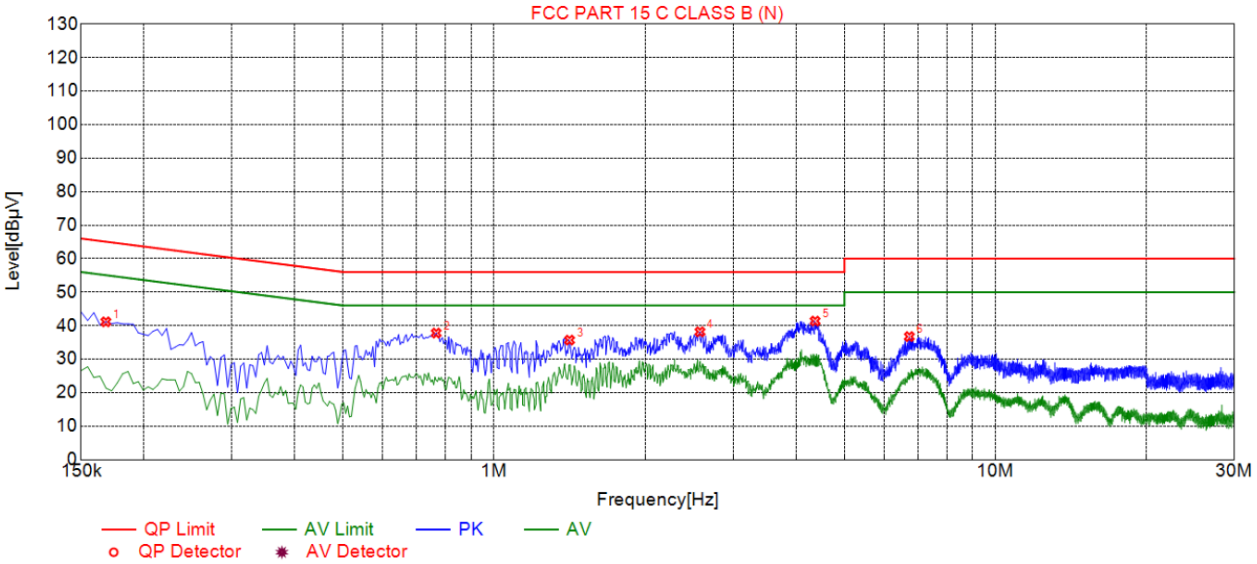


Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1590	43.00	19.81	65.52	22.52	23.19	PK	L
2	0.2535	38.56	19.84	61.64	23.08	18.72	PK	L
3	0.5730	35.27	19.86	56.00	20.73	15.41	PK	L
4	1.3155	36.06	19.91	56.00	19.94	16.15	PK	L
5	4.1910	39.48	20.09	56.00	16.52	19.39	PK	L
6	7.3680	37.41	20.05	60.00	22.59	17.36	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	0.1680	41.14	19.71	65.06	23.92	21.43	PK	N
2	0.7665	37.79	19.74	56.00	18.21	18.05	PK	N
3	1.4145	35.69	19.79	56.00	20.31	15.90	PK	N
4	2.5755	38.16	19.90	56.00	17.84	18.26	PK	N
5	4.3710	41.37	19.98	56.00	14.63	21.39	PK	N
6	6.7380	36.74	19.97	60.00	23.26	16.77	PK	N

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

3.2. Radiated Emissions and Band Edge

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).

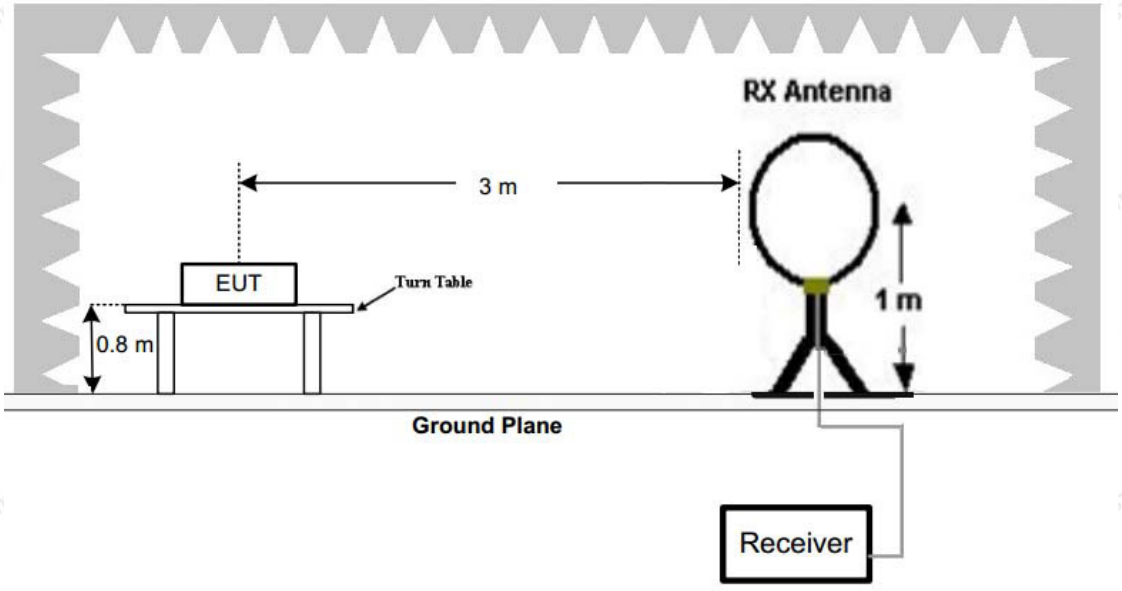
Except when the requirements applicable to a given device state otherwise, emissions from license-exempt transmitters shall comply with the field strength limits shown in table below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

Radiated emission limits

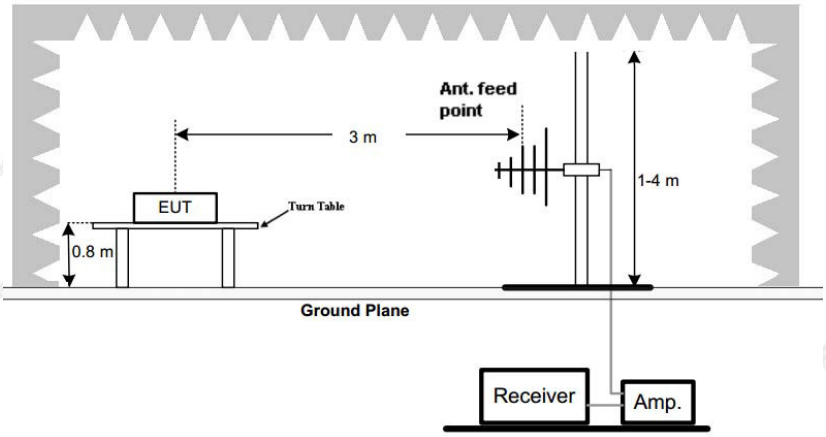
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

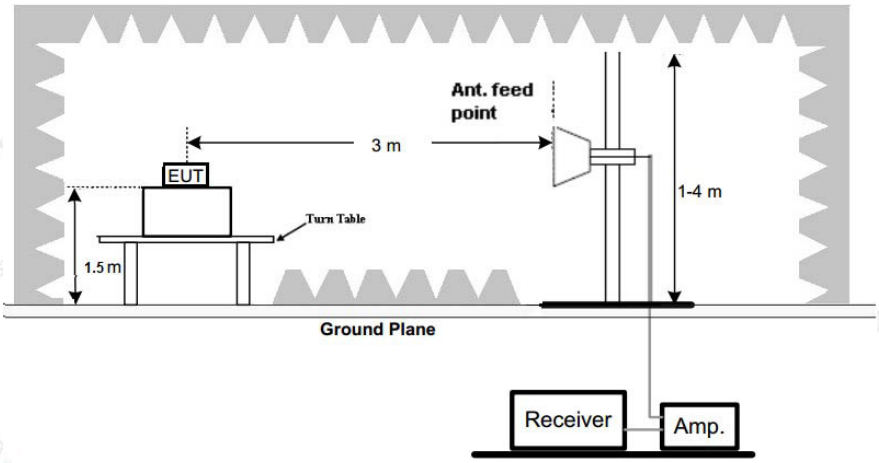
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz.



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz.



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° to 360° 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.

TEST RESULTS

Remark:
1. Radiated Emission measured at GFSK, π/4 DQPSK and 8DPSK mode from 9 KHz to 10th harmonic of fundamental and recorded worst case at GFSK DH5 mode.
2. There is no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.
3. For below 1GHz testing recorded worst at GFSK DH5 low channel.

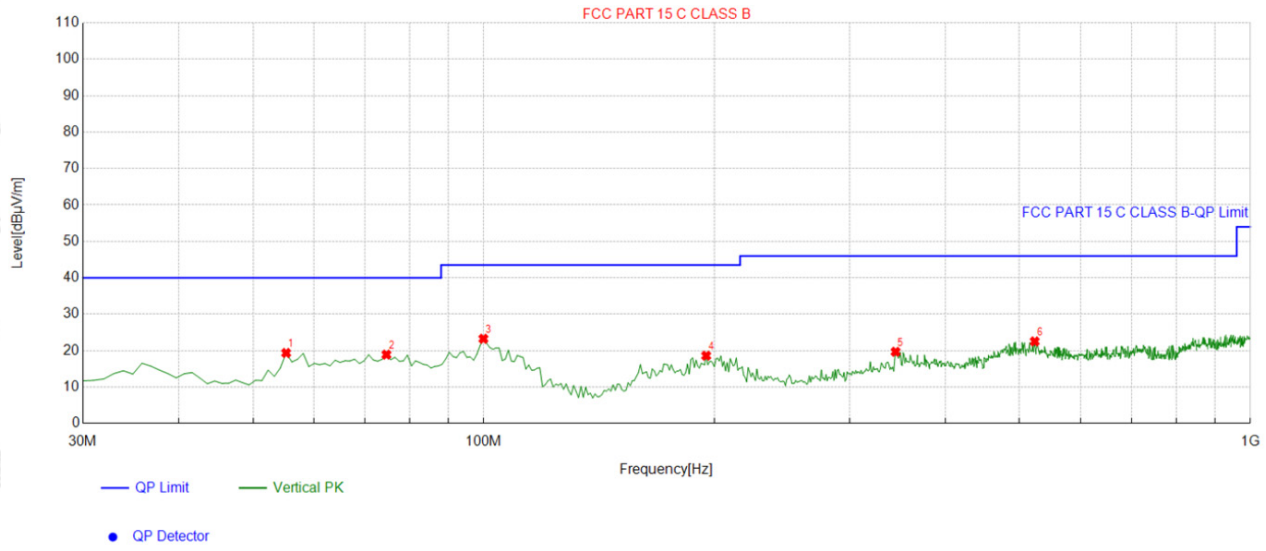
Below 1GHz Test Results:

Test Model No.: S25 mini
Horizontal

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.983984	-14.38	25.56	11.18	40.00	28.82	100	291	Horizontal
2	99.90991	-14.70	31.99	17.29	43.50	26.21	100	334	Horizontal
3	196.03603	-14.99	32.48	17.49	43.50	26.01	100	104	Horizontal
4	364.01401	-9.62	31.71	22.09	46.00	23.91	100	294	Horizontal
5	505.77577	-8.23	30.74	22.51	46.00	23.49	100	95	Horizontal
6	719.38938	-4.26	26.05	21.79	46.00	24.21	100	60	Horizontal

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

Vertical

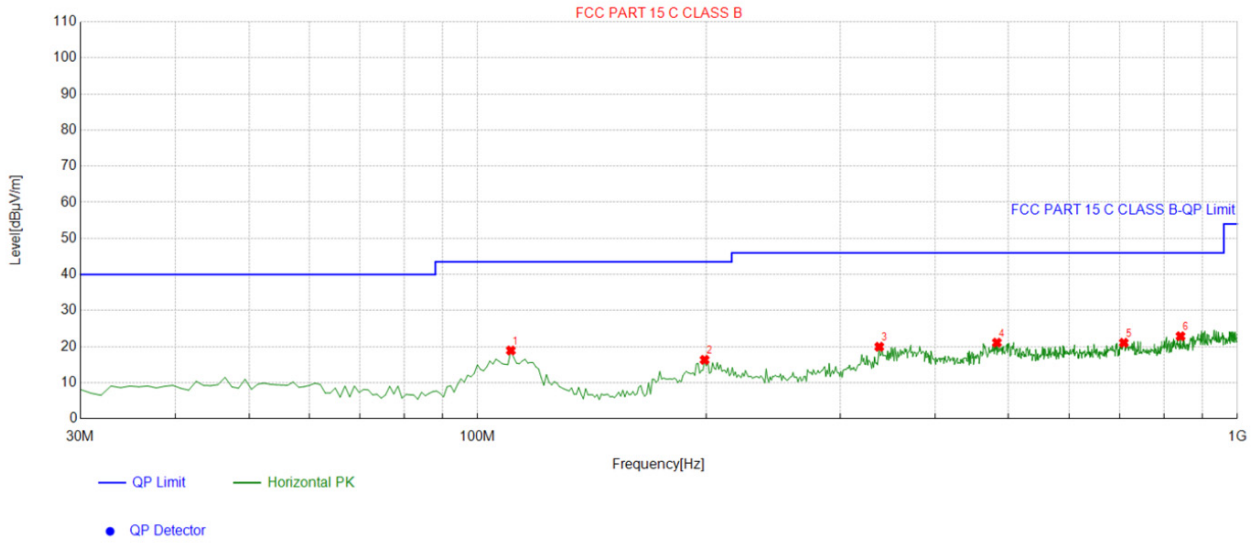


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	55.245245	-14.00	33.36	19.36	40.00	20.64	100	127	Vertical
2	74.664665	-17.94	36.85	18.91	40.00	21.09	100	286	Vertical
3	99.90991	-14.70	37.95	23.25	43.50	20.25	100	189	Vertical
4	195.06506	-15.20	33.81	18.61	43.50	24.89	100	0	Vertical
5	344.59459	-10.15	29.84	19.69	46.00	26.31	100	34	Vertical
6	523.25325	-7.11	29.64	22.53	46.00	23.47	100	282	Vertical

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

Series Model No.: I16 mini

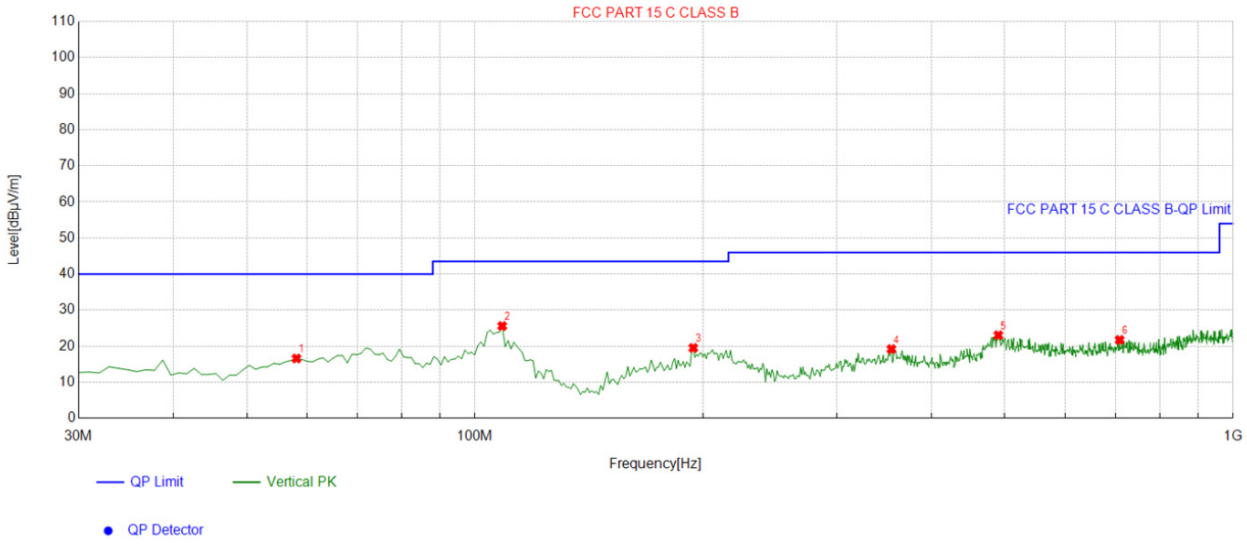
Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	110.59059	-14.50	33.44	18.94	43.50	24.56	100	360	Horizontal
2	198.94894	-14.75	31.09	16.34	43.50	27.16	100	106	Horizontal
3	337.79779	-10.46	30.43	19.97	46.00	26.03	100	77	Horizontal
4	482.47247	-8.11	29.22	21.11	46.00	24.89	100	145	Horizontal
5	708.70870	-4.06	25.12	21.06	46.00	24.94	100	100	Horizontal
6	841.73173	-1.92	24.81	22.89	46.00	23.11	100	270	Horizontal

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

Vertical

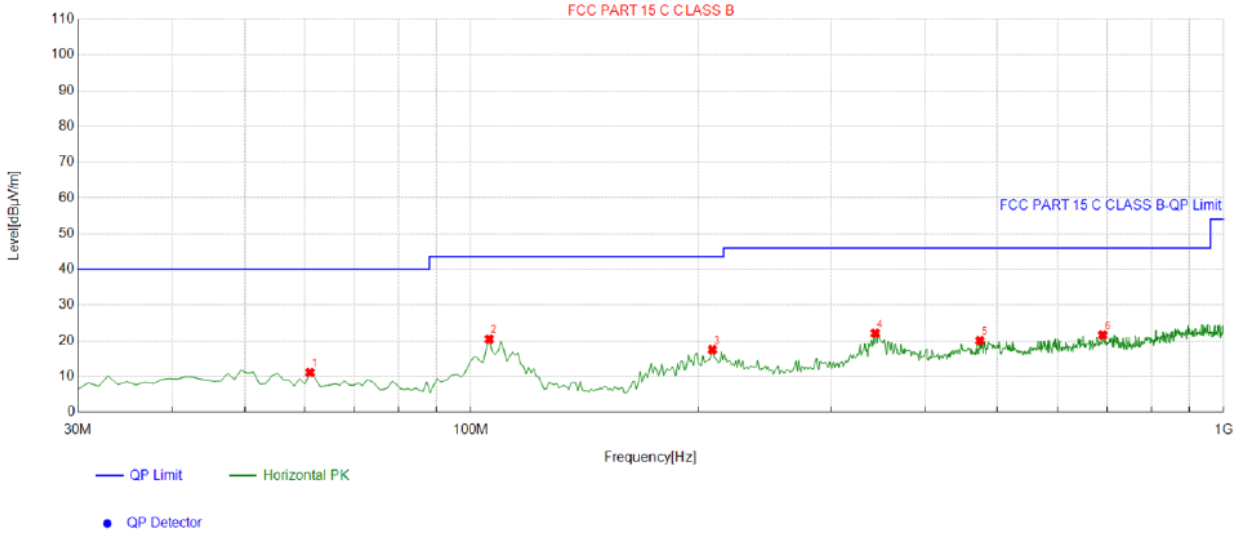


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	58.158158	-14.00	30.60	16.60	40.00	23.40	100	79	Vertical
2	108.64864	-14.02	39.61	25.59	43.50	17.91	100	277	Vertical
3	194.09409	-15.23	34.74	19.51	43.50	23.99	100	21	Vertical
4	354.30430	-10.22	29.42	19.20	46.00	26.80	100	15	Vertical
5	490.24024	-7.89	30.92	23.03	46.00	22.97	100	216	Vertical
6	708.70870	-4.06	25.80	21.74	46.00	24.26	100	230	Vertical

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

Series Model No.: H50 mini

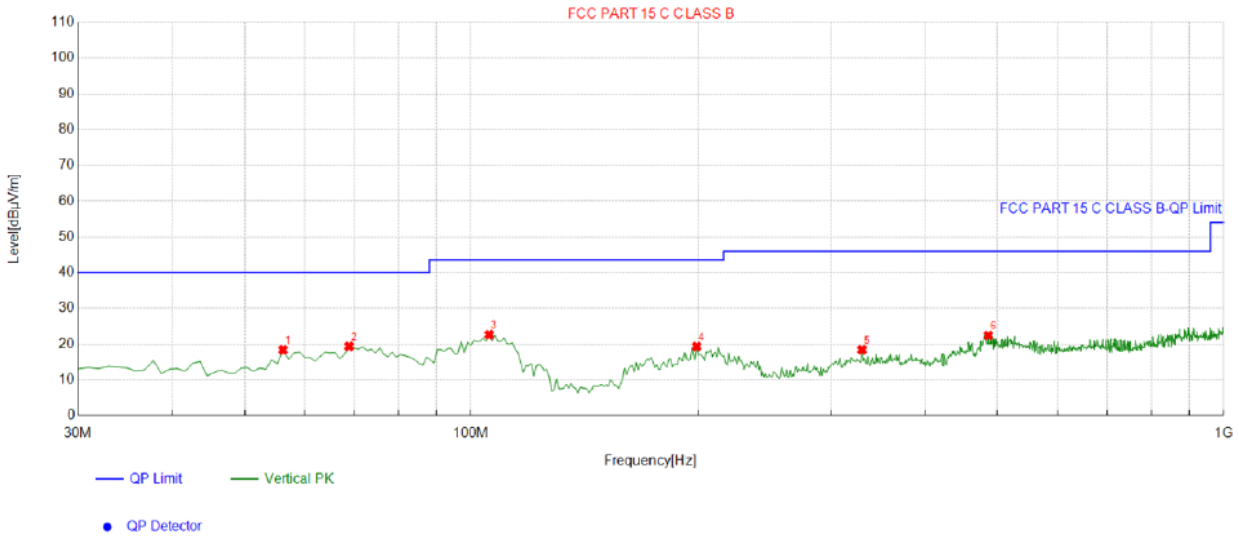
Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	61.071071	-13.82	24.91	11.09	40.00	28.91	100	353	Horizontal
2	105.73573	-14.49	34.94	20.45	43.50	23.05	100	336	Horizontal
3	208.65865	-15.01	32.51	17.50	43.50	26.00	100	60	Horizontal
4	343.62362	-10.19	32.31	22.12	46.00	23.88	100	80	Horizontal
5	473.73373	-8.30	28.31	20.01	46.00	25.99	100	141	Horizontal
6	690.26026	-4.05	25.64	21.59	46.00	24.41	100	196	Horizontal

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

Vertical



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	56.216216	-13.94	32.31	18.37	40.00	21.63	100	154	Vertical
2	68.838839	-16.41	35.78	19.37	40.00	20.63	100	131	Vertical
3	105.73573	-14.49	37.13	22.64	43.50	20.86	100	270	Vertical
4	198.94894	-14.75	34.08	19.33	43.50	24.17	100	14	Vertical
5	330.03003	-10.89	29.29	18.40	46.00	27.60	100	1	Vertical
6	486.35635	-7.92	30.36	22.44	46.00	23.56	100	267	Vertical

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

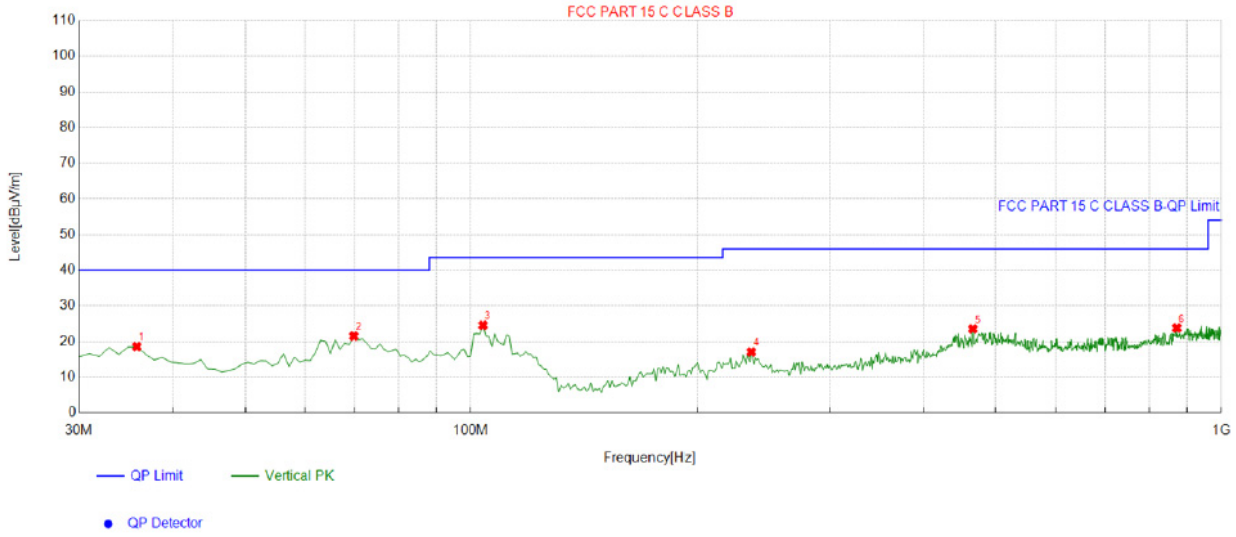
Series Model No.: P70 Ultra

Horizontal

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	50.39039	-13.15	24.49	11.34	40.00	28.66	100	8	Horizontal
2	67.867868	-16.02	26.45	10.43	40.00	29.57	100	212	Horizontal
3	110.59059	-14.50	33.26	18.76	43.50	24.74	100	345	Horizontal
4	236.81681	-13.80	30.74	16.94	46.00	29.06	100	75	Horizontal
5	367.89789	-9.77	31.28	21.51	46.00	24.49	100	84	Horizontal
6	664.04404	-4.75	25.05	20.30	46.00	25.70	100	134	Horizontal

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

Vertical



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.825826	-14.54	33.09	18.55	40.00	21.45	100	334	Vertical
2	69.80981	-16.89	38.43	21.54	40.00	18.46	100	236	Vertical
3	103.79379	-14.69	39.25	24.56	43.50	18.94	100	77	Vertical
4	235.84584	-13.83	30.89	17.06	46.00	28.94	100	139	Vertical
5	465.96596	-8.67	32.19	23.52	46.00	22.48	100	258	Vertical
6	871.83183	-1.72	25.51	23.79	46.00	22.21	100	216	Vertical

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

Series Model No.: Reno 12 mini

Horizontal

Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	106.70670	-14.49	36.04	21.55	43.50	21.95	100	12	Horizontal
2	196.03603	-14.99	32.91	17.92	43.50	25.58	100	68	Horizontal
3	370.81081	-9.93	31.15	21.22	46.00	24.78	100	76	Horizontal
4	497.03703	-7.97	29.40	21.43	46.00	24.57	100	131	Horizontal
5	722.30230	-4.17	25.67	21.50	46.00	24.50	100	299	Horizontal
6	896.10610	-1.09	25.43	24.34	46.00	21.66	100	129	Horizontal

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