FCC Test Report

Test Report

On Behalf of

Shenzhen Haimeilan Technology Co., LTD.

For

Smart Phone

Model No.: S25 Ultra, F5 Pro, M13, F50 Pro, M5S Pro, F5, Note12 Pro, X40 Pro, X40 Edge, Mate 14, Mate 16, Mate 17, Mate 18, Mate 19, Mate 20, Mate 21, Mate 22, Mate 23, Mate 24, Mate 25, Mate 26, Mate 27, Mate28, D14, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, R12 pro, P5 pro, E50 Ultra, I16 pro max, P6 pro, Sp20 Pro, OP12 pro, T3 Pro, P8 Pro

FCC ID: 2BDI3-K

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. 10, 2025**
Date of Report:	**Apr. 10, 2025**
Report Number:	**HK2502080452-4E**

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
Model and/or Type Reference	:	S25 Ultra, F5 Pro, M13, F50 Pro, M5S Pro, F5, Note12 Pro, X40 Pro, X40 Edge, Mate 14, Mate 16, Mate 17, Mate 18, Mate 19, Mate 20, Mate 21, Mate 22, Mate 23, Mate 24, Mate 25, Mate 26, Mate 27, Mate28, D14, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, R12 pro, P5 pro, E50 Ultra, I16 pro max, P6 pro, Sp20 Pro, OP12 pro, T3 Pro, P8 Pro
Standards	:	**47 CFR FCC Part 15 Subpart C 15.247**

Date of Test	:	
Date (s) of performance of tests	:	**Feb. 08, 2025 ~ Apr. 10, 2025**
Date of Issue	:	**Apr. 10, 2025**
Test Result	:	**Pass**

Testing Engineer : Len Liao

(Len Liao)

Technical Manager : Sliver Wan

(Sliver Wan)

Authorized Signatory : Jason Zhou

(Jason Zhou)

Contents **Page**

** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Apr. 10, 2025	Jason Zhou

1 Test Summary

1.1 Test Description

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

1.2 Measurement Uncertainty

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

No.	Item	Uncertainty
1	Conducted Emission Test	±2.71dB
2	All emissions, radiated(<1G)	±3.90dB
3	All emissions, radiated(>1G)	±4.28dB

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.

2 General Information

2.1 General Description of EUT

EUT Name:	Smart Phone
Model Name	S25 Ultra
Series Model(s):	F5 Pro, M13, F50 Pro, M5S Pro, F5, Note12 Pro, X40 Pro, X40 Edge, Mate 14, Mate 16, Mate 17, Mate 18, Mate 19, Mate 20, Mate 21, Mate 22, Mate 23, Mate 24, Mate 25, Mate 26, Mate 27, Mate28, D14, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, R12 pro, P5 pro, E50 Ultra, I16 pro max, P6 pro, Sp20 Pro, OP12 pro, T3 Pro, P8 Pro
Model Difference:	All model's the function, software and electric circuit are the same, only with appearance, product color and model named different. Test sample model: S25 Ultra.
Trade Mark:	N/A
Operation Frequency:	2402 MHz to 2480 MHz
Channel Separation:	2MHz
Number of Channel:	40
Modulation Technology:	GFSK
Hardware Version:	V2.0
Software Version:	V2.0
Antenna Type:	FPC Antenna
Antenna Gain:	-0.75dBi
Power Supply:	DC5V from Type-C or DC3.85V from battery
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	

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

The EUT has been operated in modulations: GFSK independently.

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

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

2.2 Description of Test Conditions

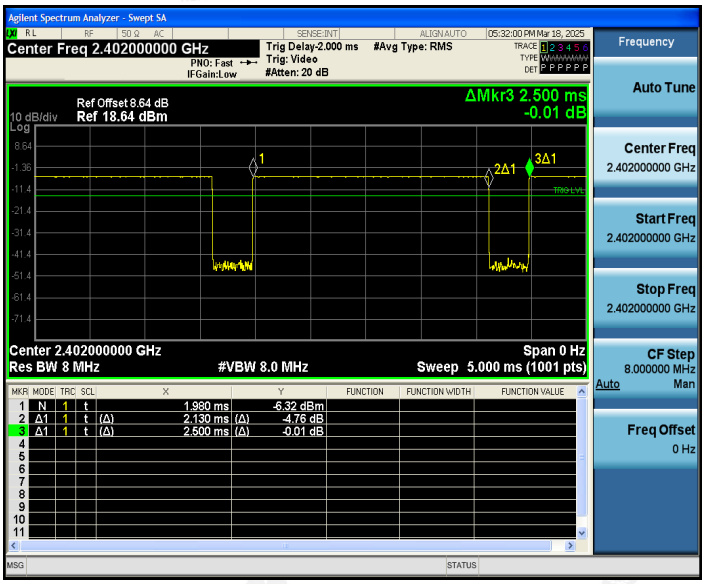
(1) E.U.T. test conditions:
For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply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

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

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

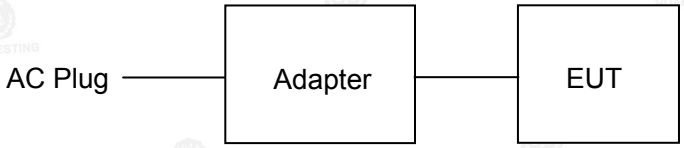
(4) Mode Test Duty Cycle

Mode	Duty Cycle
BT-LE(1Mbps)	0.852



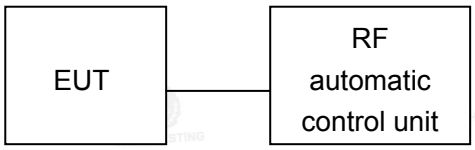
2.3 Description of Test Setup

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



Operation of EUT during Radiation above 1GHz testing:

Operation of EUT during RF Conducted testing:



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

2.4 Description of Support Units

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

Item	Equipment	Trade Mark	Model/Type No.	Specification	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.

3 Equipments List for All Test Items

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	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-048	2024/02/20	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2024/02/20	1 Year
6	Preamplifier	EMCI	EMC051845S	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-096	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-048	2025/02/19	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2025/02/19	1 Year
6	Preamplifier	EMCI	EMC051845S	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-096	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
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23	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2025/02/19	1 Year
24	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

4 Test Result

4.1 Antenna Requirement

4.1.1 Standard Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

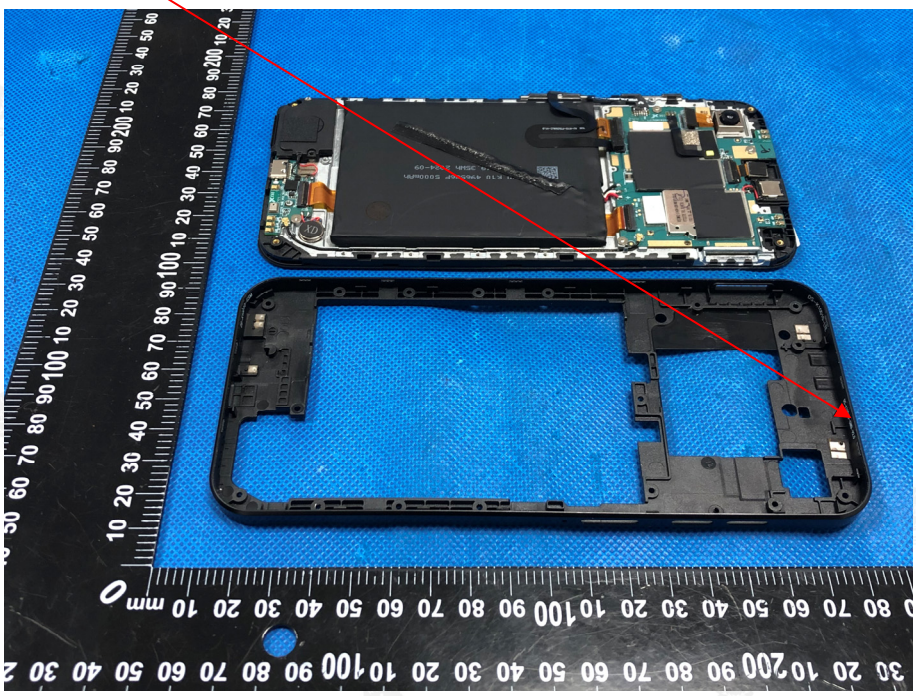
Refer to statement below for compliance.

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

Antenna Connected Construction

The antenna used in this product is a FPC Antenna, need professional installation, not easy to remove. It conforms to the standard requirements. The directional gains of antenna used for transmitting is -0.75dBi.

4.1.2 EUT Antenna



4.2 AC Conduction Emissions Measurement

4.2.1 Applied Procedures / Limit

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

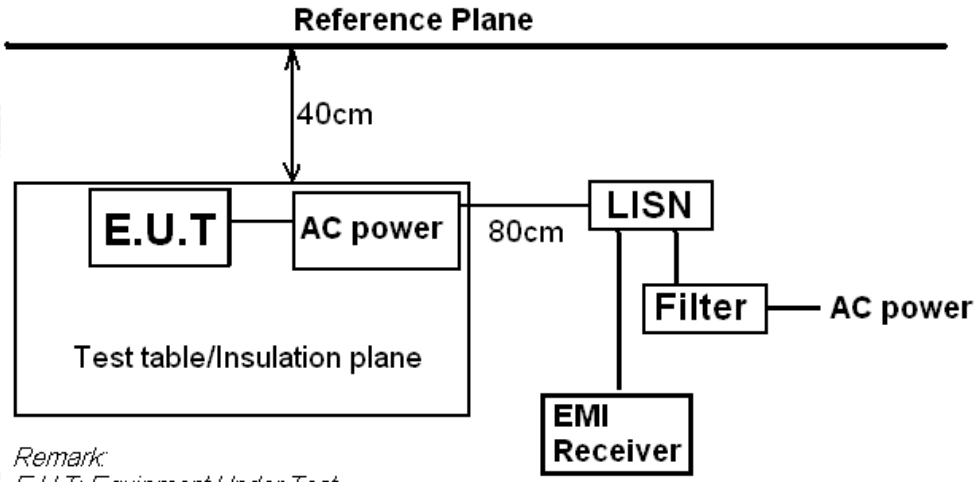
Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

4.2.2 Test Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
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.

4.2.3 Test Setup



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

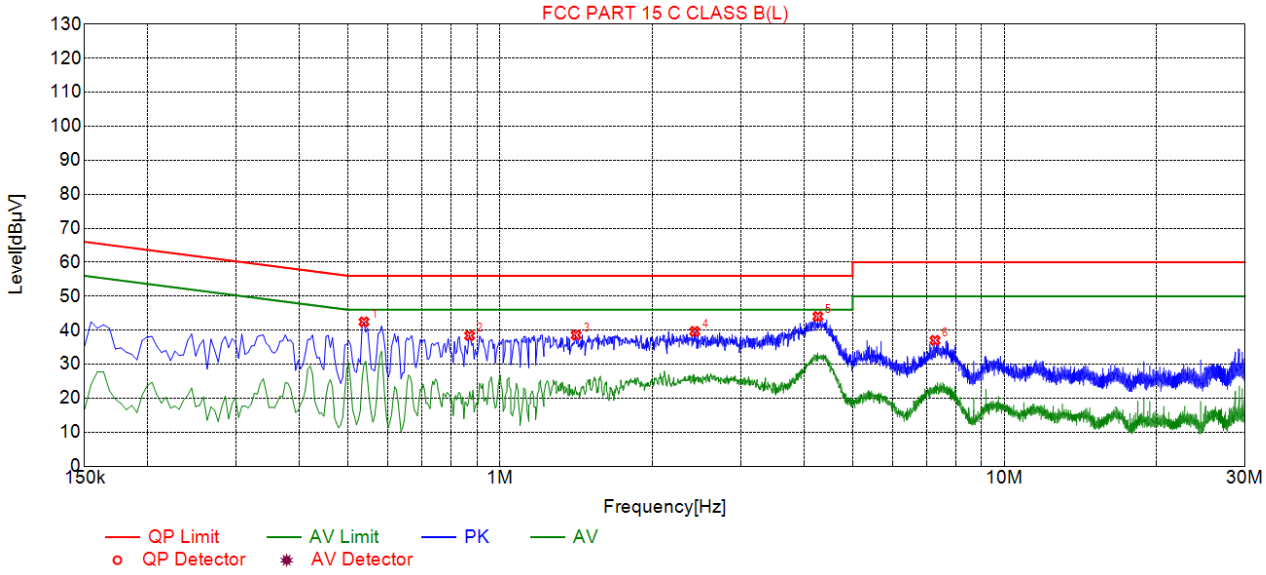
4.2.4 Test Results

PASS

Only the worst result of GFSK Low channel TX was reported as below:

Test Model No.: S25 Ultra

Test Specification: Line



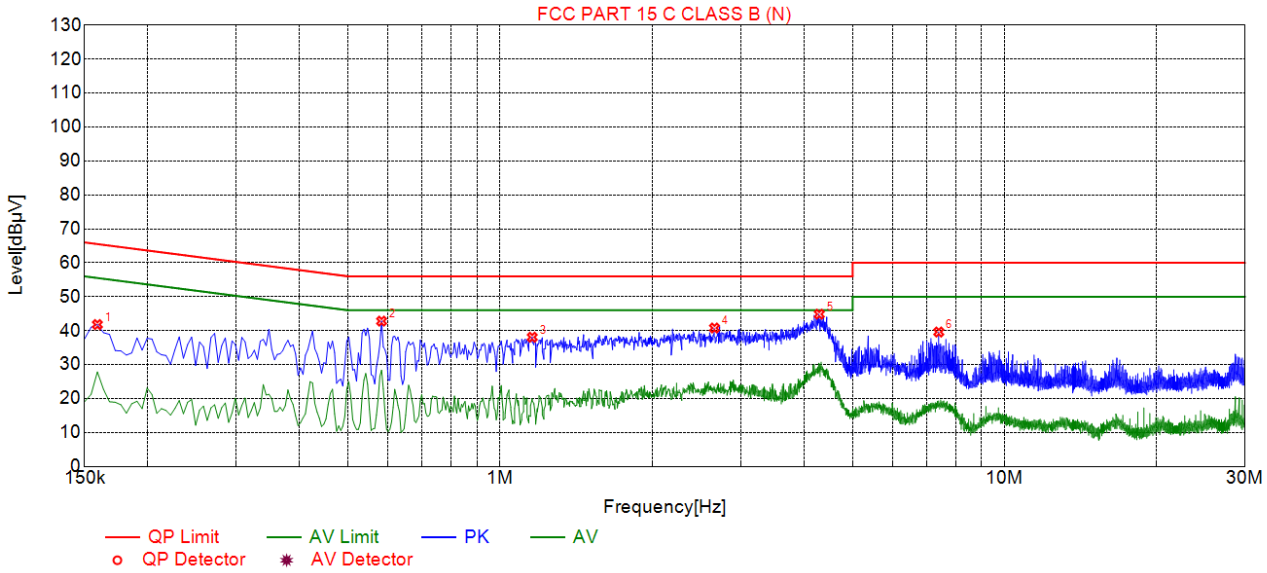
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5370	42.45	19.85	56.00	13.55	22.60	PK	L
2	0.8700	38.42	19.87	56.00	17.58	18.55	PK	L
3	1.4145	38.58	19.92	56.00	17.42	18.66	PK	L
4	2.4315	39.65	20.01	56.00	16.35	19.64	PK	L
5	4.2675	44.05	20.09	56.00	11.95	23.96	PK	L
6	7.2825	37.02	20.06	60.00	22.98	16.96	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	41.80	19.70	65.52	23.72	22.10	PK	N
2	0.5820	42.81	19.74	56.00	13.19	23.07	PK	N
3	1.1580	38.07	19.77	56.00	17.93	18.30	PK	N
4	2.6610	40.78	19.91	56.00	15.22	20.87	PK	N
5	4.2945	44.85	19.98	56.00	11.15	24.87	PK	N
6	7.4085	39.60	19.95	60.00	20.40	19.65	PK	N

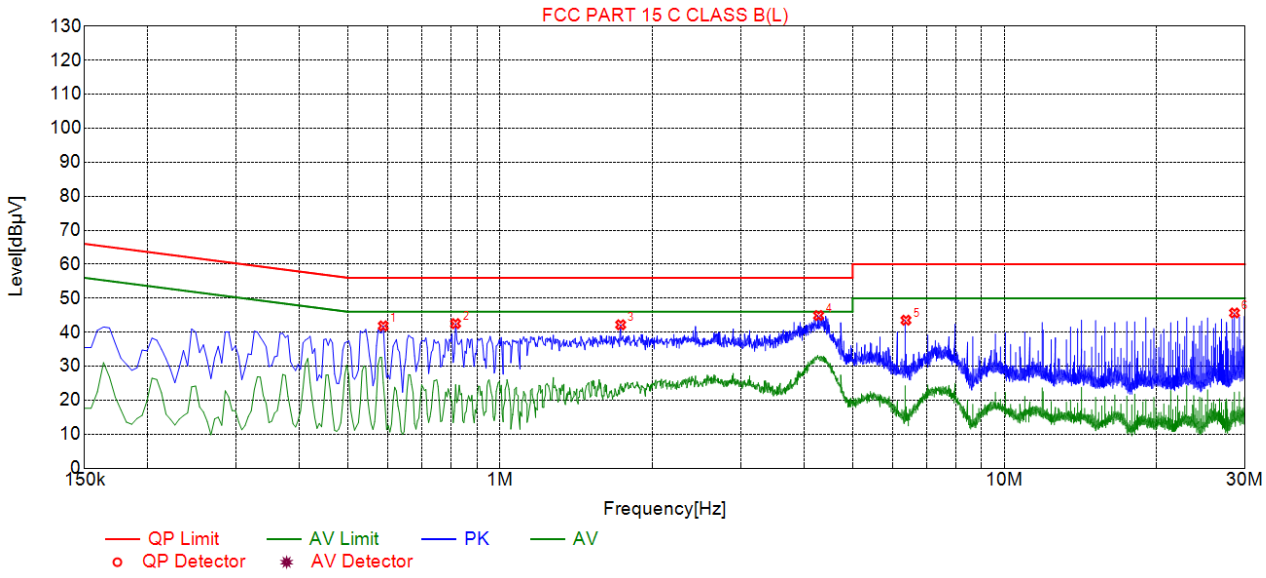
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: R12 pro

Test Specification: Line



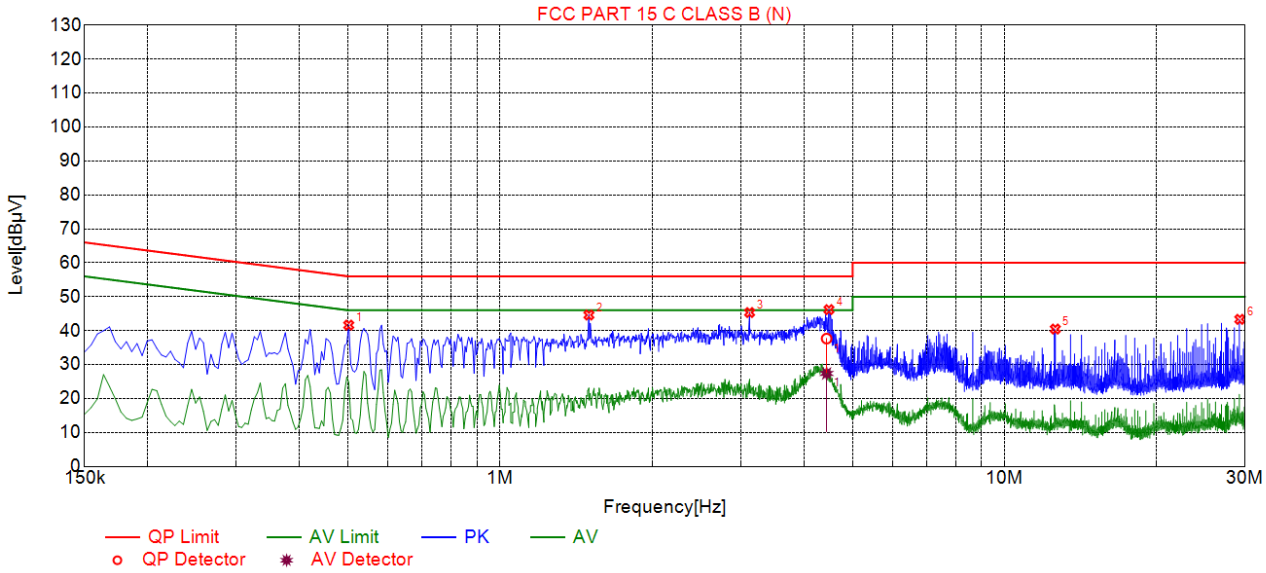
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5865	41.87	19.86	56.00	14.13	22.01	PK	L
2	0.8160	42.53	19.87	56.00	13.47	22.66	PK	L
3	1.7340	42.19	19.95	56.00	13.81	22.24	PK	L
4	4.2810	44.92	20.09	56.00	11.08	24.83	PK	L
5	6.3780	43.54	20.08	60.00	16.46	23.46	PK	L
6	28.5900	45.68	20.23	60.00	14.32	25.45	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	0.5010	41.64	19.73	56.00	14.36	21.91	PK	N
2	1.5000	44.61	19.79	56.00	11.39	24.82	PK	N
3	3.1245	45.34	19.94	56.00	10.66	25.40	PK	N
4	4.4880	46.21	19.98	56.00	9.79	26.23	PK	N
5	12.6150	40.48	19.81	60.00	19.52	20.67	PK	N
6	29.2965	43.34	20.35	60.00	16.66	22.99	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	4.4401	19.98	37.66	56.00	18.34	17.68	27.39	46.00	18.61	7.41	N

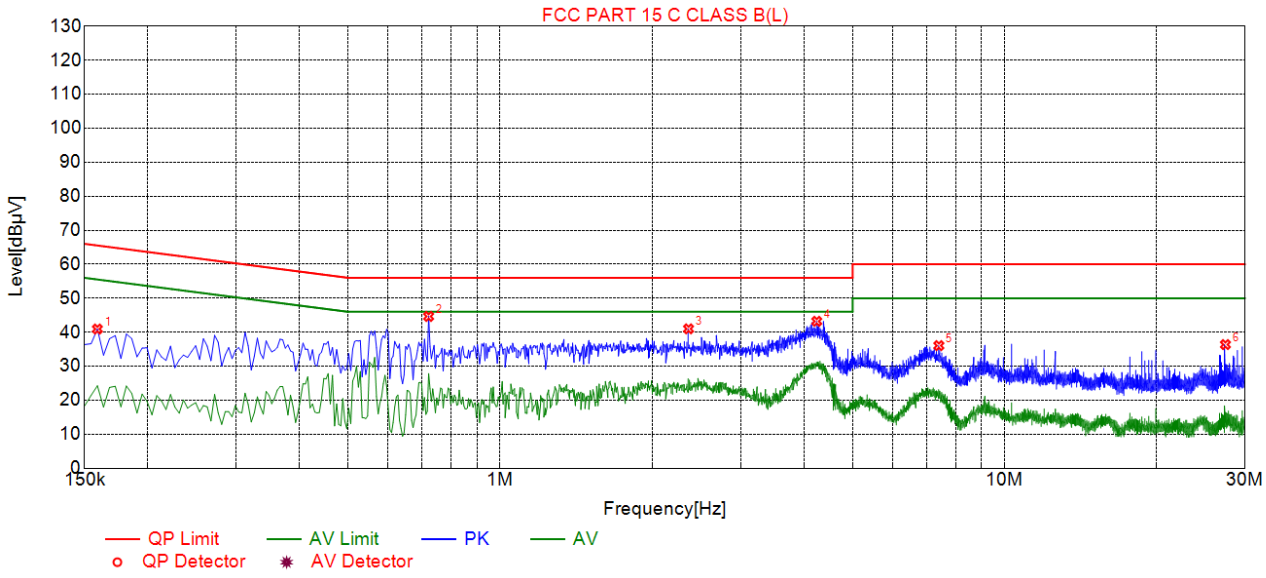
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: P5 pro

Test Specification: Line



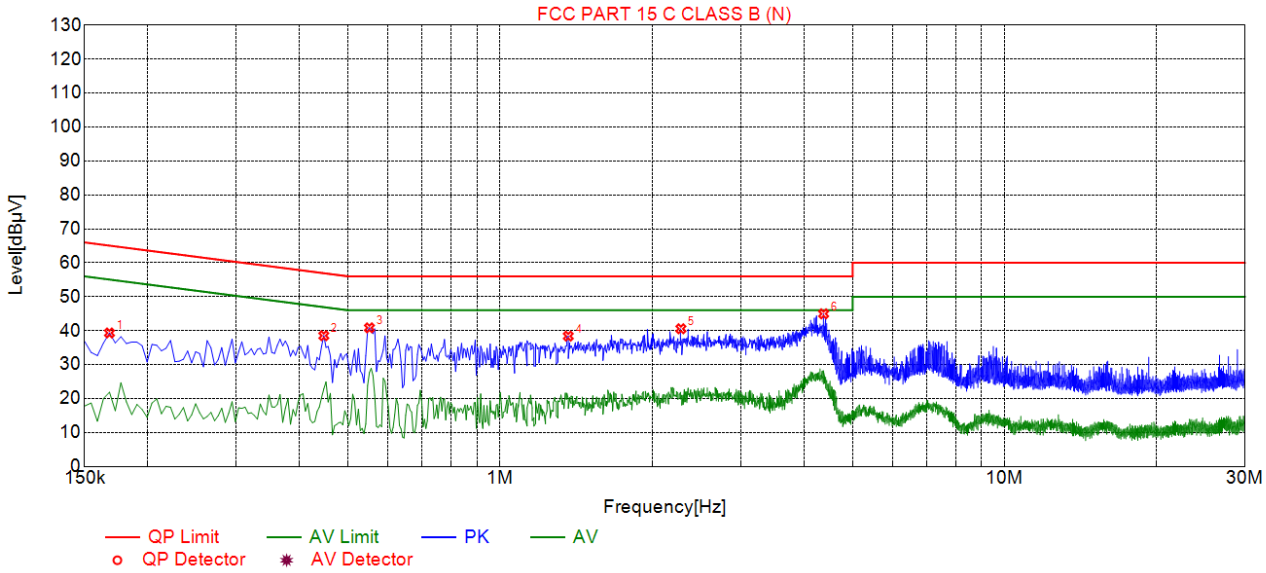
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1590	40.94	19.81	65.52	24.58	21.13	PK	L
2	0.7215	44.65	19.86	56.00	11.35	24.79	PK	L
3	2.3640	41.00	20.00	56.00	15.00	21.00	PK	L
4	4.2450	43.22	20.09	56.00	12.78	23.13	PK	L
5	7.4130	36.06	20.05	60.00	23.94	16.01	PK	L
6	27.4290	36.37	20.21	60.00	23.63	16.16	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	39.33	19.71	65.06	25.73	19.62	PK	N
2	0.4470	38.52	19.74	56.93	18.41	18.78	PK	N
3	0.5505	40.83	19.75	56.00	15.17	21.08	PK	N
4	1.3650	38.39	19.79	56.00	17.61	18.60	PK	N
5	2.2830	40.56	19.88	56.00	15.44	20.68	PK	N
6	4.3800	44.97	19.98	56.00	11.03	24.99	PK	N

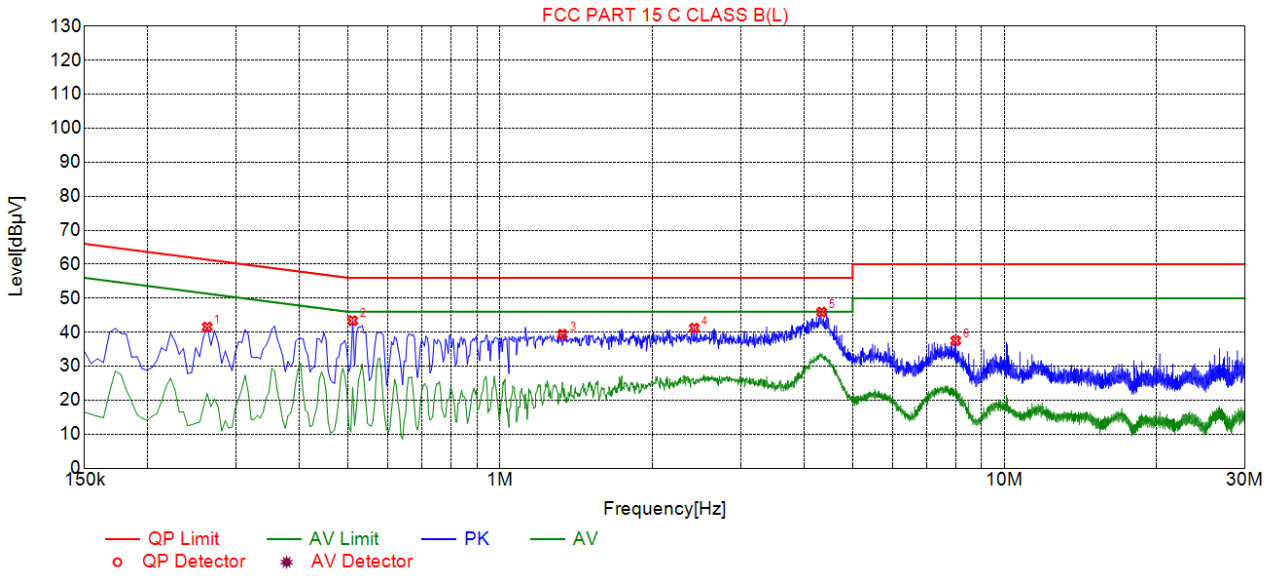
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: E50 Ultra

Test Specification: Line



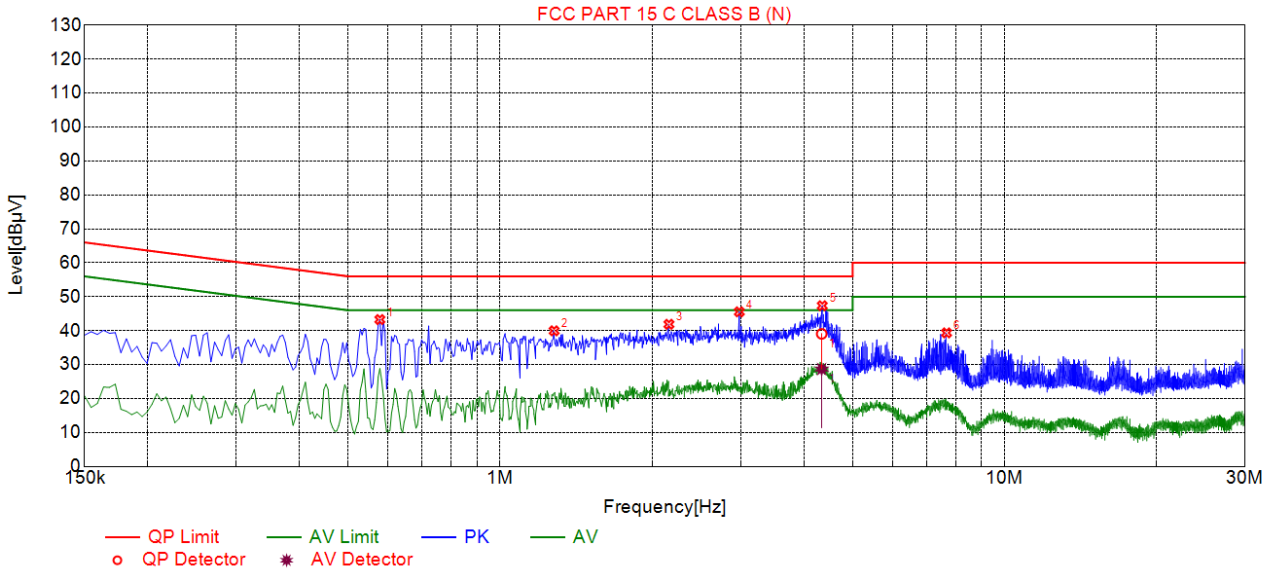
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.2625	41.54	19.83	61.35	19.81	21.71	PK	L
2	0.5100	43.41	19.85	56.00	12.59	23.56	PK	L
3	1.3290	39.40	19.91	56.00	16.60	19.49	PK	L
4	2.4270	41.23	20.01	56.00	14.77	21.22	PK	L
5	4.3395	45.93	20.09	56.00	10.07	25.84	PK	L
6	8.0070	37.54	20.03	60.00	22.46	17.51	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	0.5775	43.27	19.74	56.00	12.73	23.53	PK	N
2	1.2795	39.95	19.78	56.00	16.05	20.17	PK	N
3	2.1615	41.88	19.86	56.00	14.12	22.02	PK	N
4	2.9805	45.54	19.92	56.00	10.46	25.62	PK	N
5	4.3530	47.35	19.98	56.00	8.65	27.37	PK	N
6	7.6785	39.35	19.95	60.00	20.65	19.40	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	4.3406	19.98	39.06	56.00	16.94	19.08	28.68	46.00	17.32	8.70	N

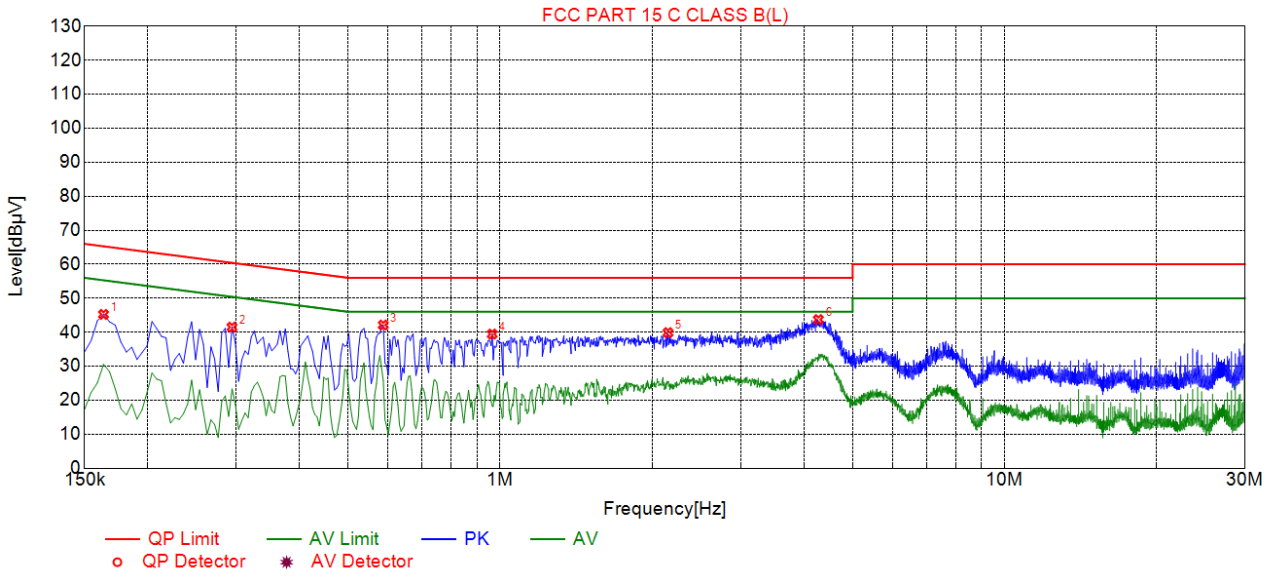
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: I16 pro max

Test Specification: Line



Suspected List

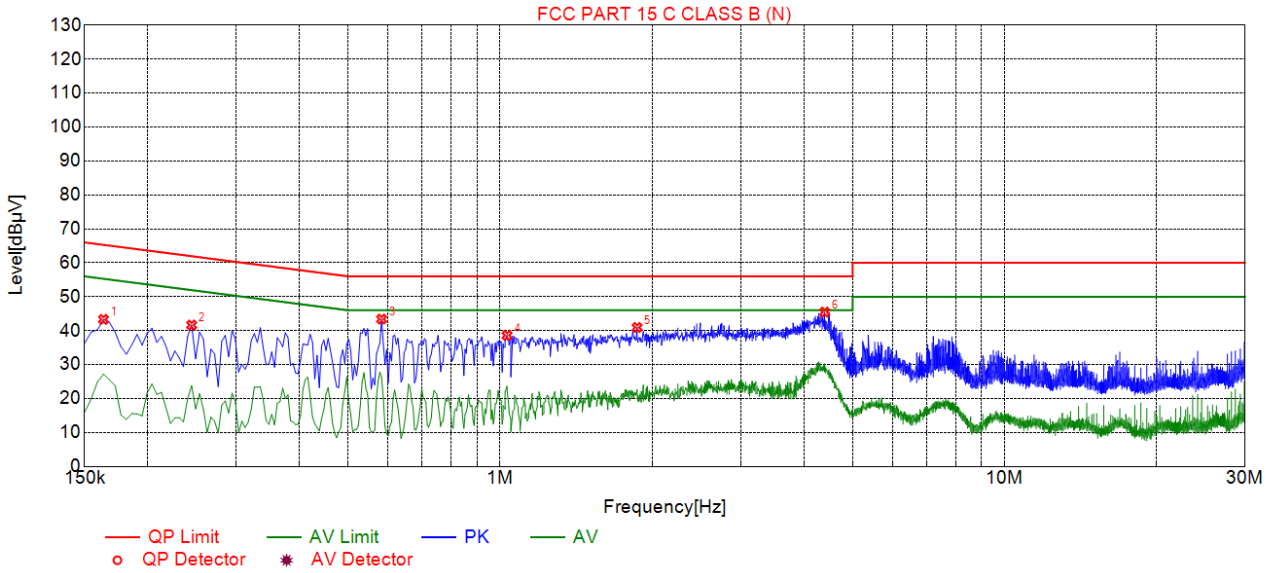
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1635	45.25	19.78	65.28	20.03	25.47	PK	L
2	0.2940	41.49	19.83	60.41	18.92	21.66	PK	L
3	0.5865	42.12	19.86	56.00	13.88	22.26	PK	L
4	0.9645	39.46	19.87	56.00	16.54	19.59	PK	L
5	2.1525	39.88	19.98	56.00	16.12	19.90	PK	L
6	4.2765	43.72	20.09	56.00	12.28	23.63	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	43.32	19.68	65.28	21.96	23.64	PK	N
2	0.2445	41.66	19.73	61.94	20.28	21.93	PK	N
3	0.5820	43.42	19.74	56.00	12.58	23.68	PK	N
4	1.0320	38.61	19.75	56.00	17.39	18.86	PK	N
5	1.8690	40.94	19.83	56.00	15.06	21.11	PK	N
6	4.4025	45.48	19.98	56.00	10.52	25.50	PK	N

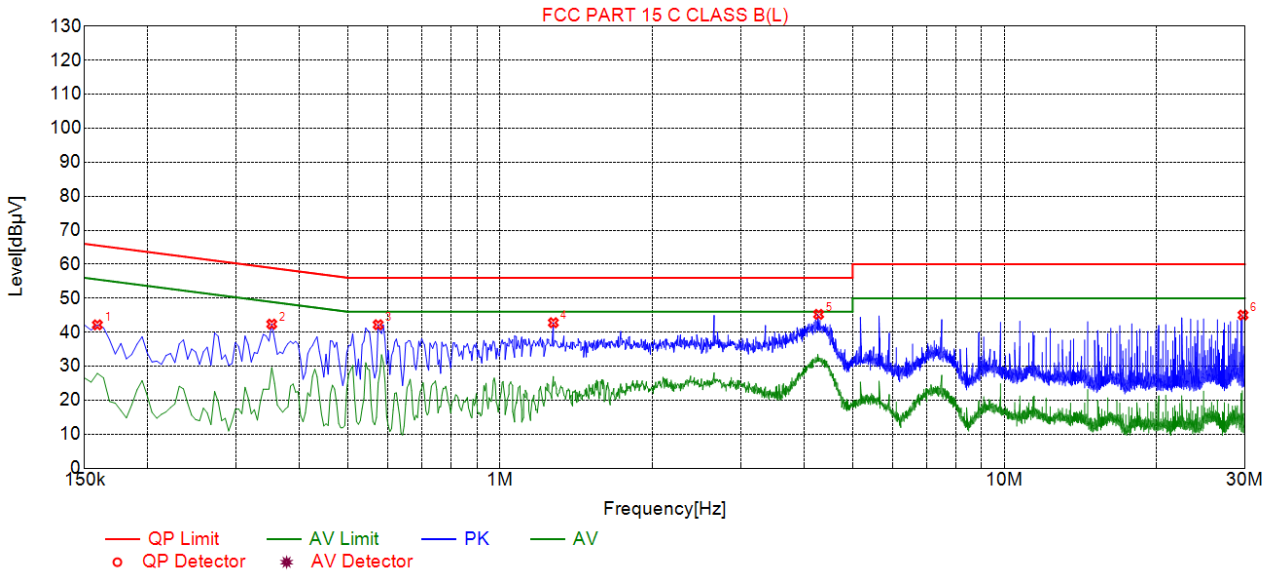
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: P6 pro

Test Specification: Line



Suspected List

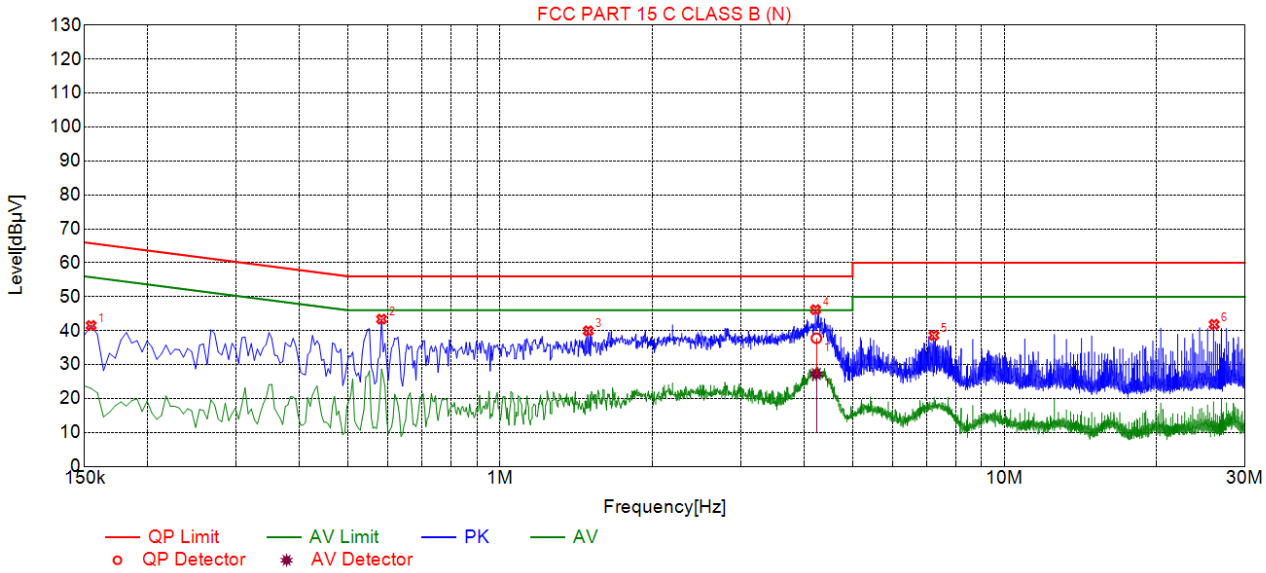
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1590	42.17	19.81	65.52	23.35	22.36	PK	L
2	0.3525	42.39	19.83	58.90	16.51	22.56	PK	L
3	0.5730	42.21	19.86	56.00	13.79	22.35	PK	L
4	1.2750	42.80	19.90	56.00	13.20	22.90	PK	L
5	4.2810	45.26	20.09	56.00	10.74	25.17	PK	L
6	29.7240	45.05	20.25	60.00	14.95	24.80	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	41.53	19.73	65.75	24.22	21.80	PK	N
2	0.5820	43.40	19.74	56.00	12.60	23.66	PK	N
3	1.4955	39.95	19.79	56.00	16.05	20.16	PK	N
4	4.2225	46.19	19.98	56.00	9.81	26.21	PK	N
5	7.2465	38.61	19.95	60.00	21.39	18.66	PK	N
6	26.0565	41.85	20.28	60.00	18.15	21.57	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	4.2371	19.98	37.77	56.00	18.23	17.79	27.22	46.00	18.78	7.24	N

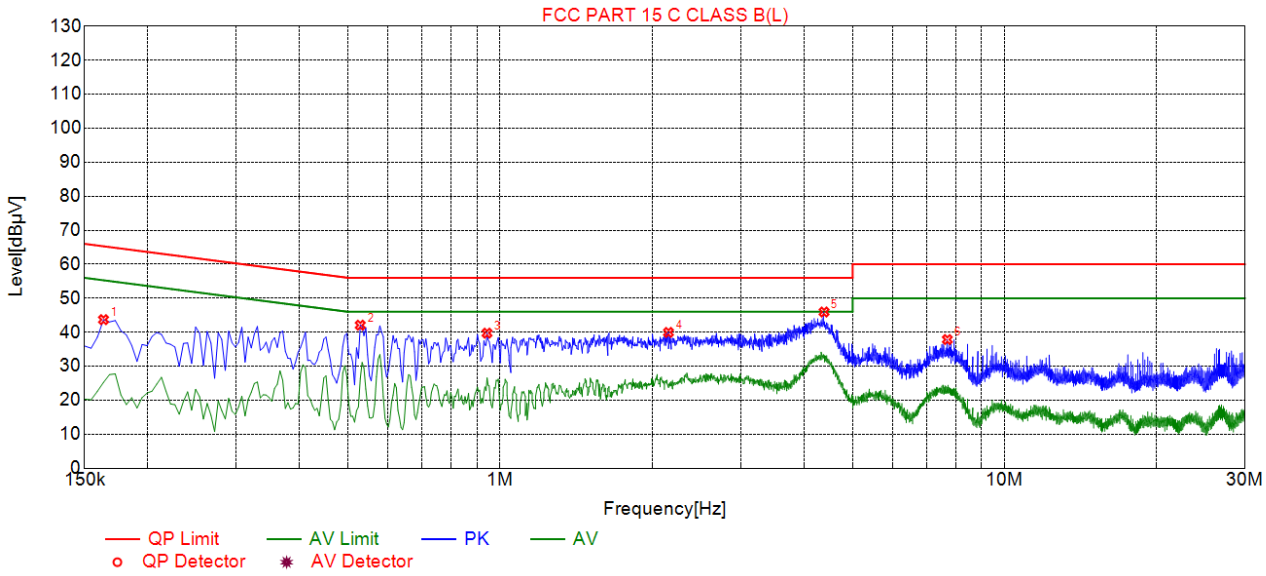
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: Sp20 Pro

Test Specification: Line



Suspected List

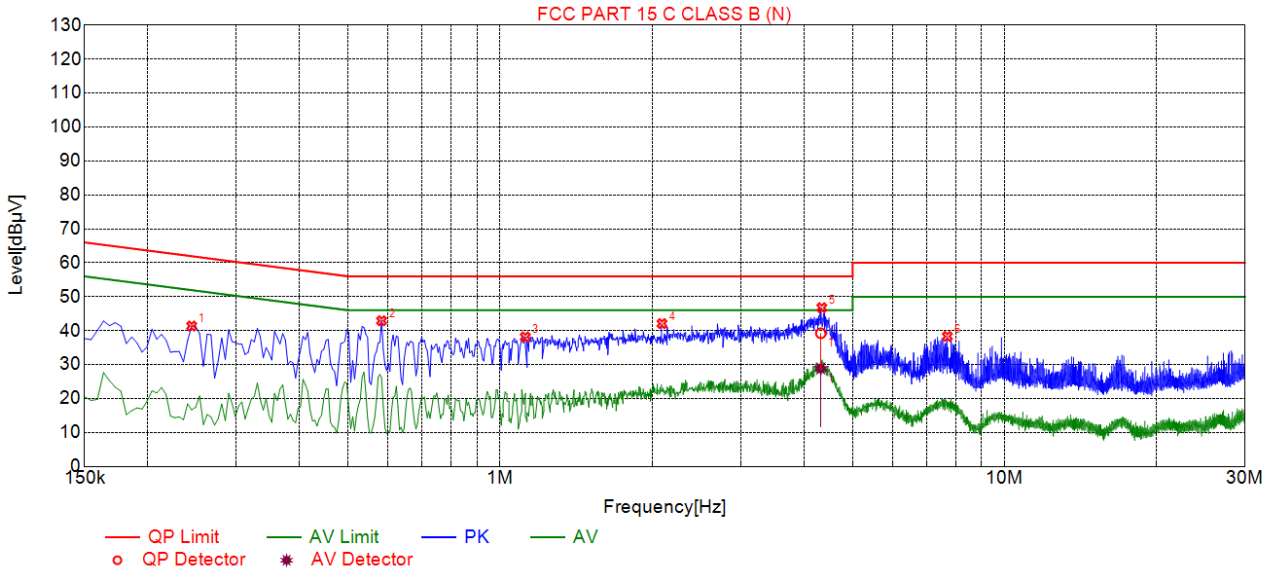
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1635	43.70	19.78	65.28	21.58	23.92	PK	L
2	0.5280	42.08	19.85	56.00	13.92	22.23	PK	L
3	0.9420	39.73	19.87	56.00	16.27	19.86	PK	L
4	2.1570	39.95	19.98	56.00	16.05	19.97	PK	L
5	4.3890	45.95	20.09	56.00	10.05	25.86	PK	L
6	7.7055	37.85	20.05	60.00	22.15	17.80	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	41.37	19.73	61.94	20.57	21.64	PK	N
2	0.5820	42.92	19.74	56.00	13.08	23.18	PK	N
3	1.1220	38.16	19.76	56.00	17.84	18.40	PK	N
4	2.0940	42.09	19.85	56.00	13.91	22.24	PK	N
5	4.3440	46.77	19.98	56.00	9.23	26.79	PK	N
6	7.7055	38.32	19.95	60.00	21.68	18.37	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	4.3240	19.98	39.25	56.00	16.75	19.27	28.84	46.00	17.16	8.86	N

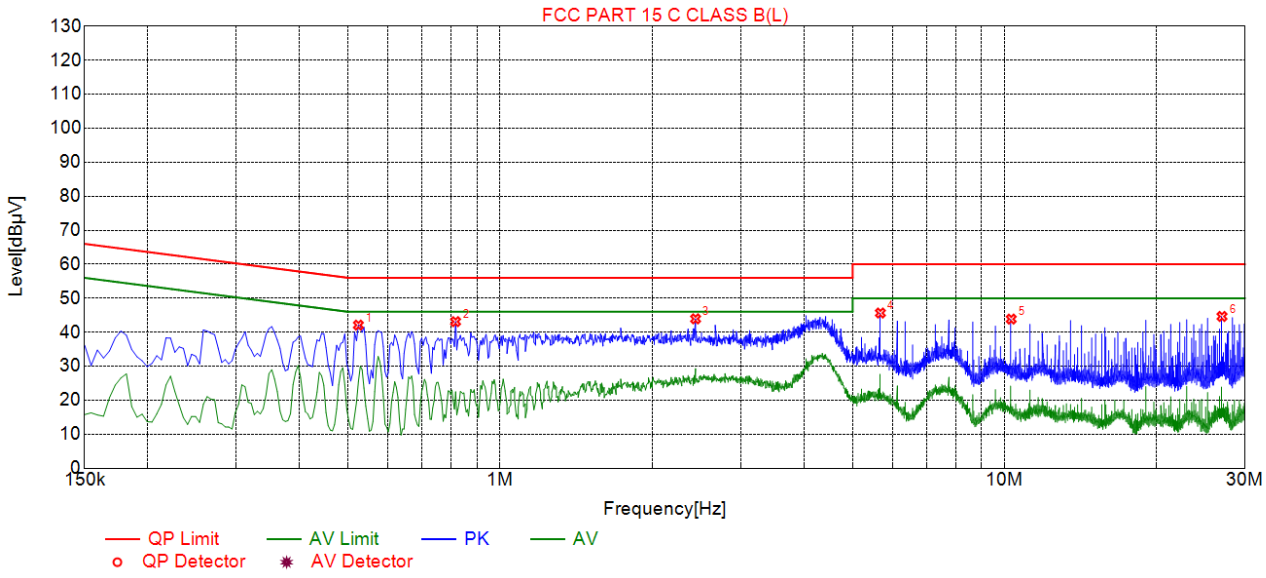
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: OP12 pro

Test Specification: Line



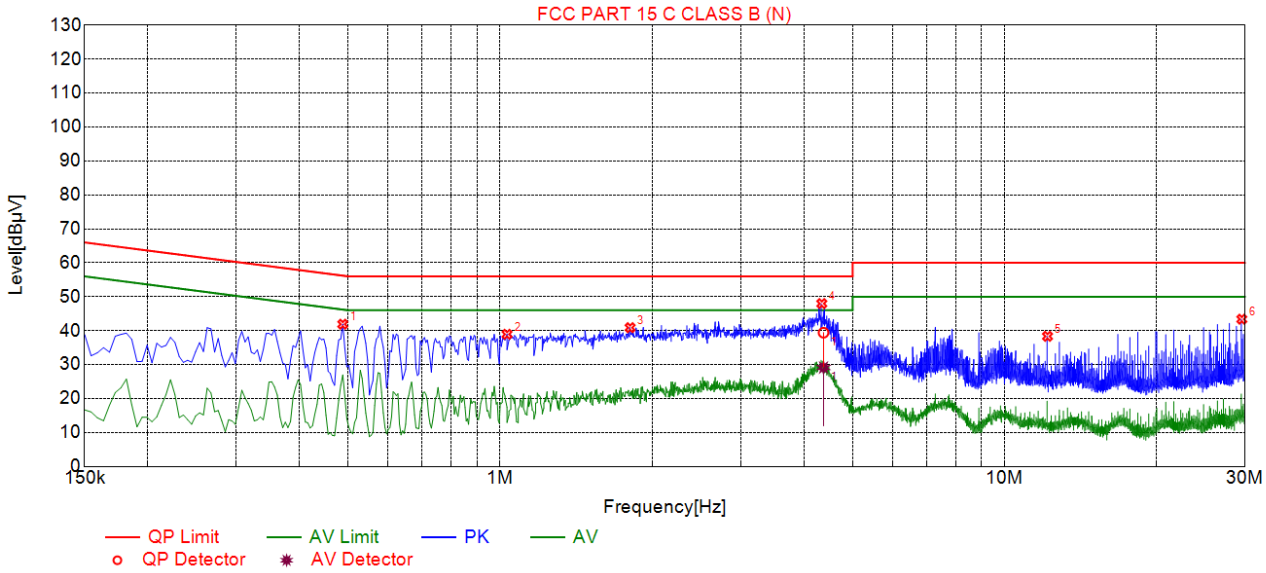
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5235	42.10	19.85	56.00	13.90	22.25	PK	L
2	0.8160	43.12	19.87	56.00	12.88	23.25	PK	L
3	2.4405	43.94	20.01	56.00	12.06	23.93	PK	L
4	5.6760	45.65	20.10	60.00	14.35	25.55	PK	L
5	10.3155	43.87	19.95	60.00	16.13	23.92	PK	L
6	27.0060	44.65	20.20	60.00	15.35	24.45	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	0.4875	41.91	19.73	56.21	14.30	22.18	PK	N
2	1.0320	38.94	19.75	56.00	17.06	19.19	PK	N
3	1.8105	40.88	19.83	56.00	15.12	21.05	PK	N
4	4.3440	47.98	19.98	56.00	8.02	28.00	PK	N
5	12.1740	38.34	19.81	60.00	21.66	18.53	PK	N
6	29.5665	43.38	20.36	60.00	16.62	23.02	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	4.3774	19.98	39.40	56.00	16.60	19.42	29.12	46.00	16.88	9.14	N

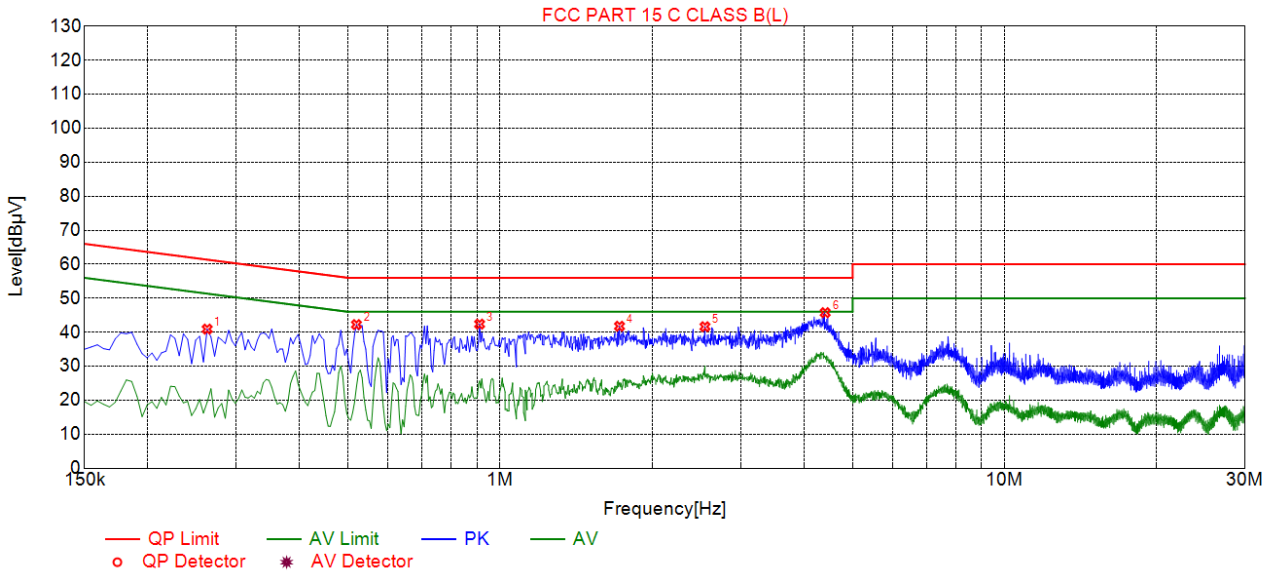
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: T3 Pro

Test Specification: Line



Suspected List

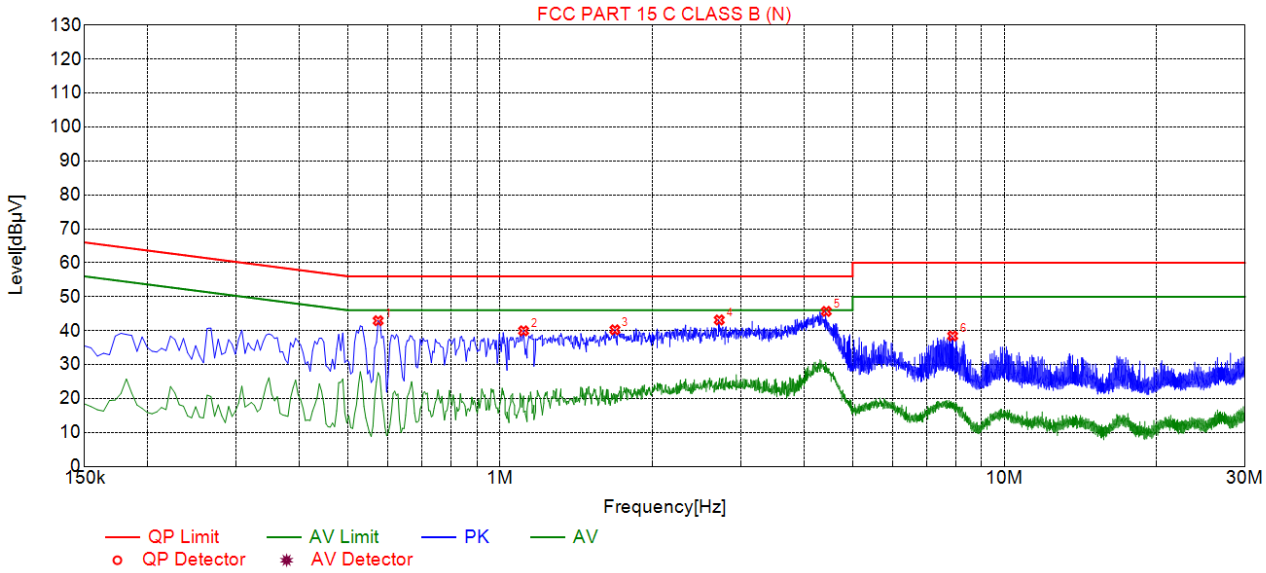
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.2625	40.92	19.83	61.35	20.43	21.09	PK	L
2	0.5190	42.25	19.85	56.00	13.75	22.40	PK	L
3	0.9105	42.40	19.87	56.00	13.60	22.53	PK	L
4	1.7250	41.77	19.95	56.00	14.23	21.82	PK	L
5	2.5485	41.63	20.02	56.00	14.37	21.61	PK	L
6	4.4115	45.77	20.09	56.00	10.23	25.68	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	0.5730	42.93	19.74	56.00	13.07	23.19	PK	N
2	1.1130	39.95	19.76	56.00	16.05	20.19	PK	N
3	1.6890	40.26	19.82	56.00	15.74	20.44	PK	N
4	2.7195	43.15	19.91	56.00	12.85	23.24	PK	N
5	4.4340	45.68	19.98	56.00	10.32	25.70	PK	N
6	7.8945	38.44	19.93	60.00	21.56	18.51	PK	N

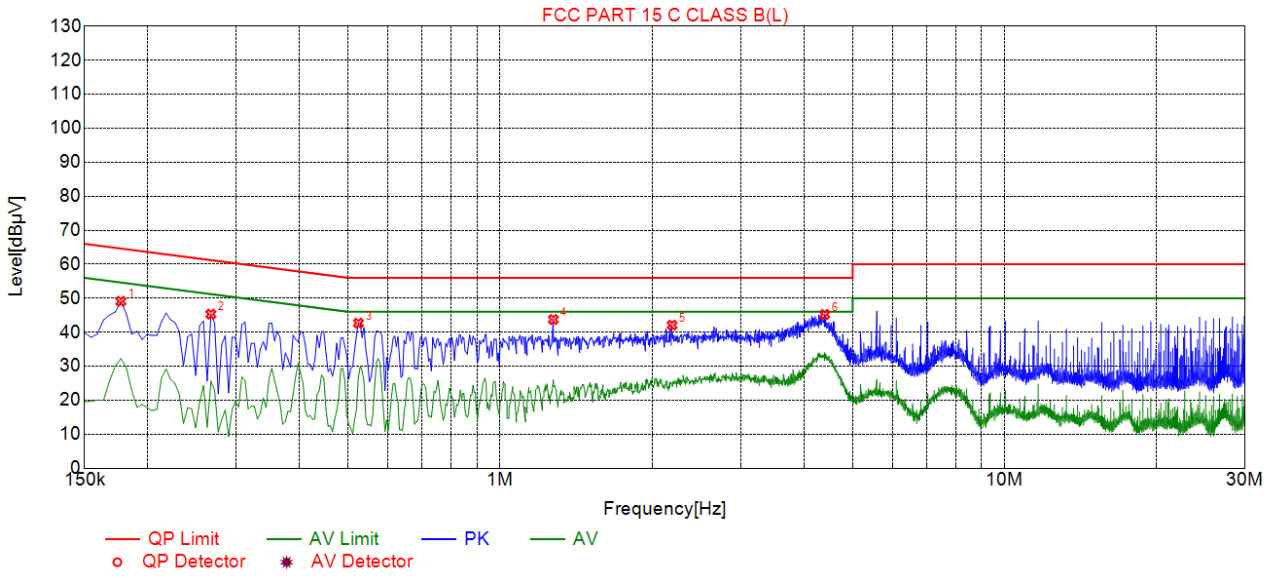
Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

Series Model No.: P8 Pro

Test Specification: Line



Suspected List

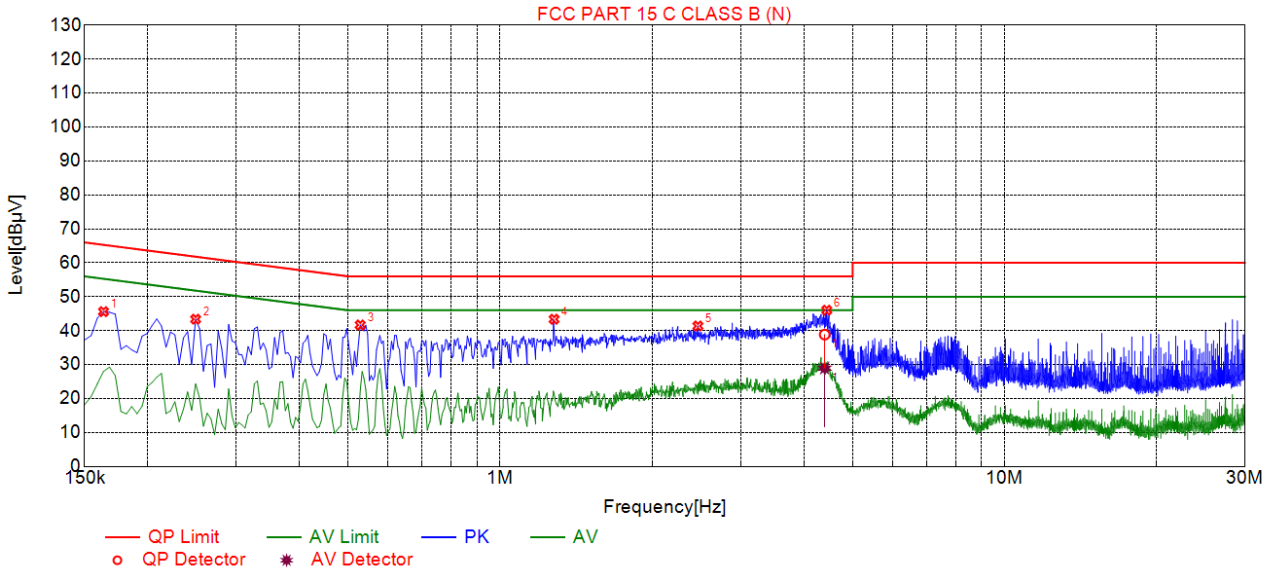
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.1770	49.10	19.85	64.63	15.53	29.25	PK	L
2	0.2670	45.31	19.83	61.21	15.90	25.48	PK	L
3	0.5235	42.67	19.85	56.00	13.33	22.82	PK	L
4	1.2750	43.75	19.90	56.00	12.25	23.85	PK	L
5	2.1930	42.09	19.99	56.00	13.91	22.10	PK	L
6	4.4025	45.21	20.09	56.00	10.79	25.12	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN 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	45.61	19.68	65.28	19.67	25.93	PK	N
2	0.2490	43.38	19.73	61.79	18.41	23.65	PK	N
3	0.5280	41.67	19.73	56.00	14.33	21.94	PK	N
4	1.2795	43.37	19.78	56.00	12.63	23.59	PK	N
5	2.4675	41.37	19.89	56.00	14.63	21.48	PK	N
6	4.4430	46.04	19.98	56.00	9.96	26.06	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	4.3999	19.98	38.85	56.00	17.15	18.87	28.94	46.00	17.06	8.96	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + ISN insertion loss

Level=Test receiver reading + correction factor

4.3 Radiated Emissions Measurement

4.3.1 Applied Procedures / Limit

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

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

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

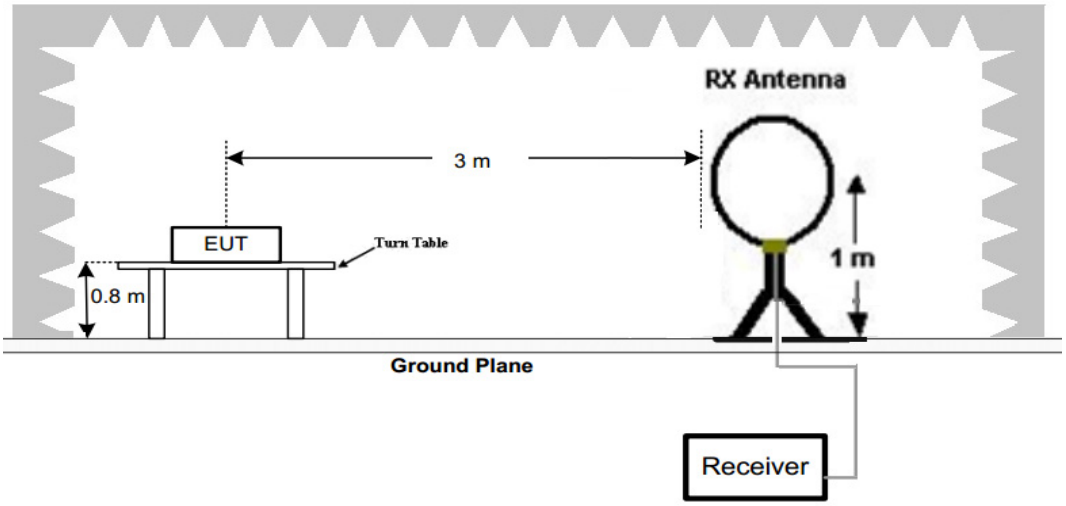
Radiated emission limits

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

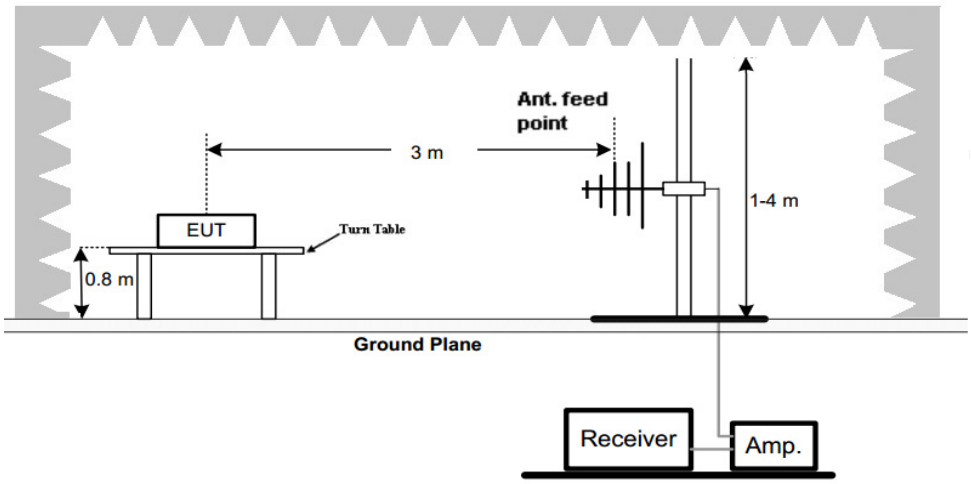
4.3.2 Test Setup

Test Configuration:

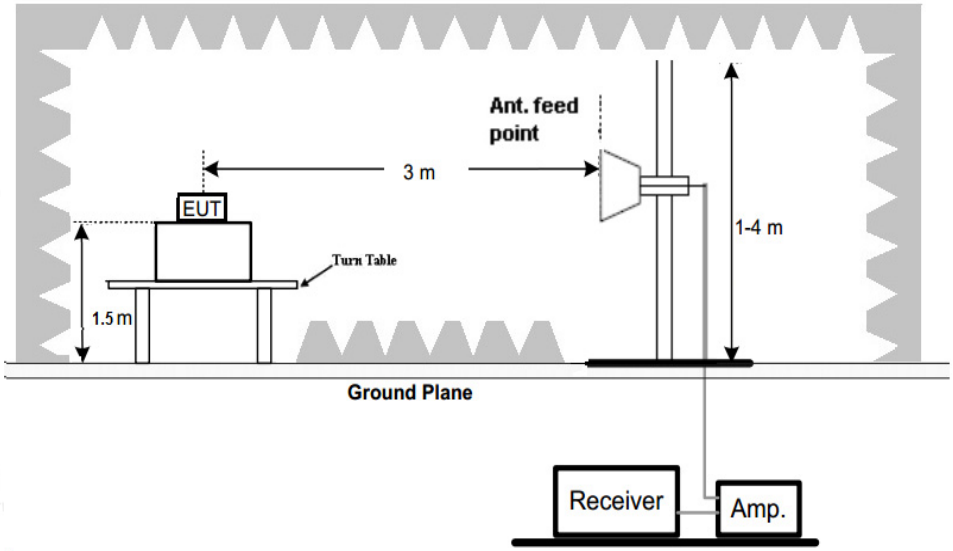
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 25 GHz emissions:



Test Procedure

1. The EUT was placed on turn table which is 0.8m above ground plane for below 1GHz test, and on a low permittivity and low loss tangent turn table which is 1.5m above ground plane for above 1GHz test.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° 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.

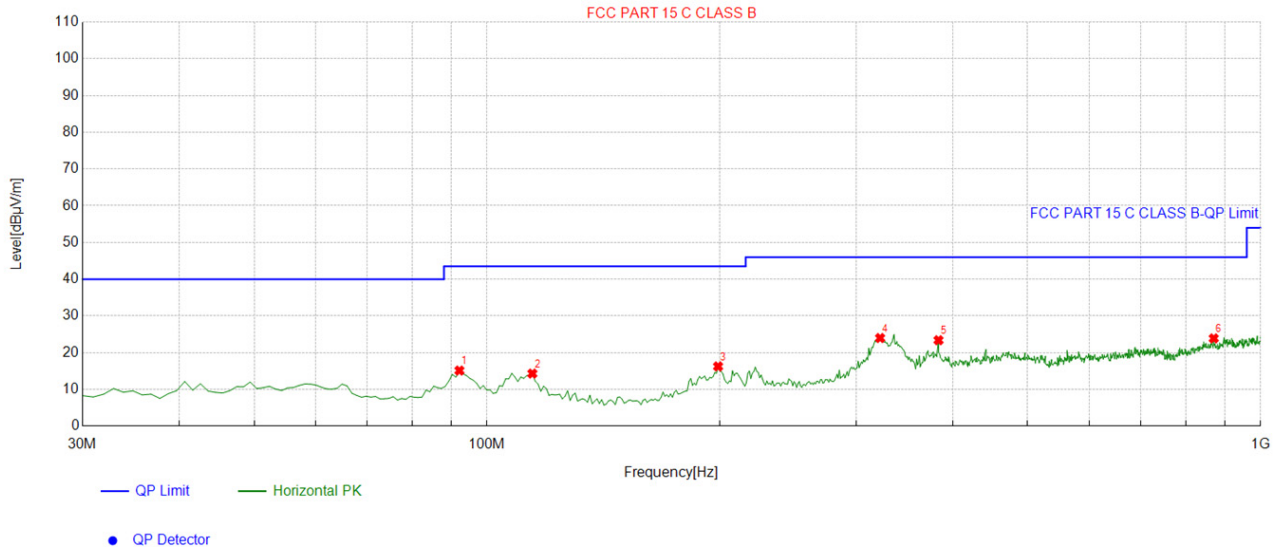
4.3.3 Test Result

Below 1GHz Test Results:

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

Test Model No.: S25 Ultra

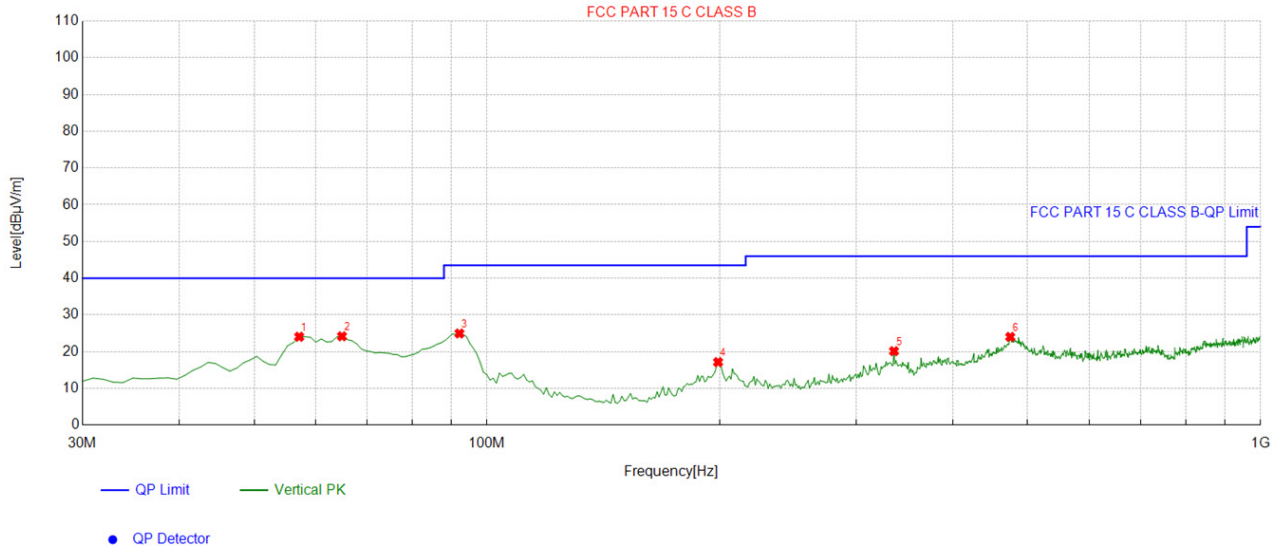
Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	92.142142	-16.47	31.60	15.13	43.50	28.37	100	18	Horizontal
2	114.47447	-15.28	29.59	14.31	43.50	29.19	100	226	Horizontal
3	198.94894	-14.75	31.00	16.25	43.50	27.25	100	74	Horizontal
4	322.26226	-11.12	35.10	23.98	46.00	22.02	100	94	Horizontal
5	383.43343	-9.11	32.50	23.39	46.00	22.61	100	68	Horizontal
6	869.88989	-1.72	25.60	23.88	46.00	22.12	100	70	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	57.187187	-13.76	37.81	24.05	40.00	15.95	100	102	Vertical
2	64.954955	-15.33	39.51	24.18	40.00	15.82	100	62	Vertical
3	92.142142	-16.47	41.41	24.94	43.50	18.56	100	136	Vertical
4	198.94894	-14.75	31.90	17.15	43.50	26.35	100	359	Vertical
5	335.85585	-10.57	30.71	20.14	46.00	25.86	100	33	Vertical
6	474.70470	-8.23	32.24	24.01	46.00	21.99	100	156	Vertical

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

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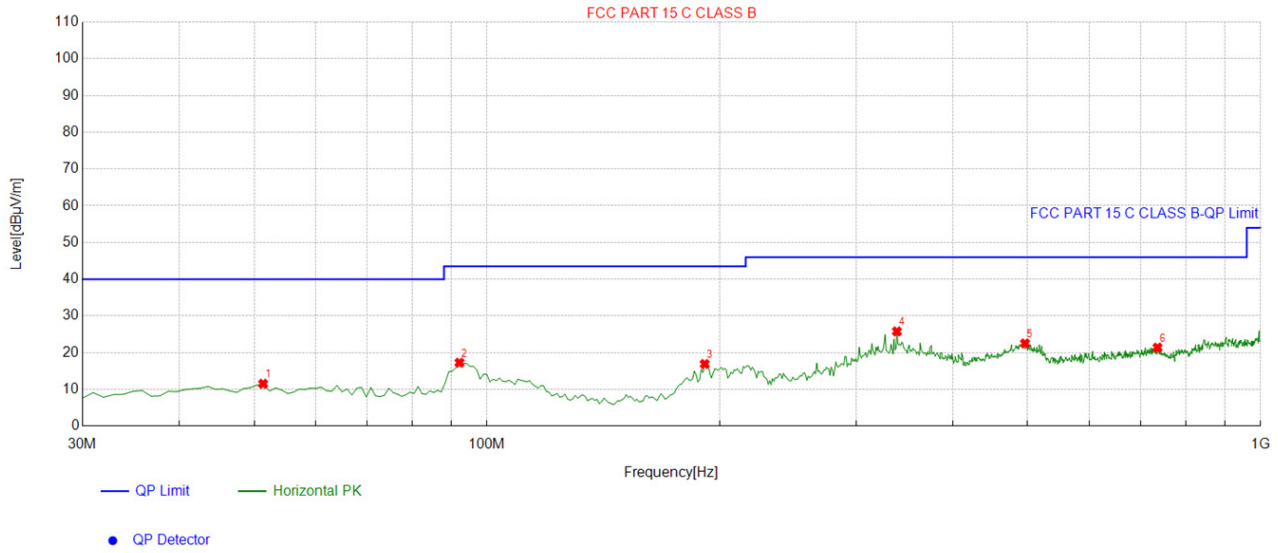
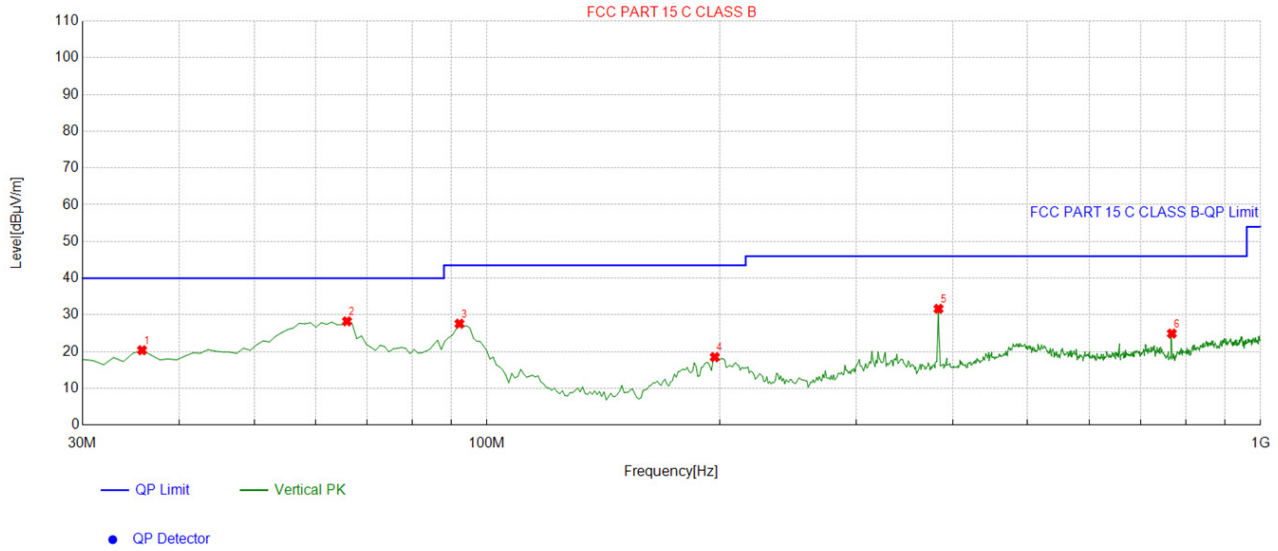
Horizontal



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	51.361361	-13.25	24.77	11.52	40.00	28.48	100	102	Horizontal
2	92.142142	-16.47	33.74	17.27	43.50	26.23	100	332	Horizontal
3	191.18118	-15.86	32.77	16.91	43.50	26.59	100	76	Horizontal
4	338.76876	-10.40	36.19	25.79	46.00	20.21	100	79	Horizontal
5	496.06606	-7.90	30.42	22.52	46.00	23.48	100	110	Horizontal
6	735.89589	-3.50	24.87	21.37	46.00	24.63	100	73	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	34.93	20.39	40.00	19.61	100	70	Vertical
2	65.925926	-15.95	44.20	28.25	40.00	11.75	100	222	Vertical
3	92.142142	-16.47	44.08	27.61	43.50	15.89	100	237	Vertical
4	197.00700	-14.97	33.49	18.52	43.50	24.98	100	359	Vertical
5	383.43343	-9.11	40.77	31.66	46.00	14.34	100	29	Vertical
6	767.93793	-4.54	29.46	24.92	46.00	21.08	100	8	Vertical

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