ACCREDITED
Certificate #4312.01

TEST REPORT

Product Name:	8-port Unmanaged Gigabit Switch
Trade Mark:	GRANDSTREAM
Model No. / HVIN:	GWN7701
Add. Model No. / HVIN:	N/A
Report Number:	2302234151EMC-1
Test Standards:	FCC 47 CFR Part 15 Subpart B ICES-003 Issue 7
FCC ID:	YZZGWN7701
Test Result:	PASS
Date of Issue:	March 8, 2023

Prepared for:

Grandstream Networks, Inc.
126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China
TEL: +86-755-2823 0888
FAX: +86-755-2823 0886

Prepared by:	Dylan Zhang Senior Project Engineer	Reviewed by:	Henry Lu Team Leader
Approved by:	Kevin Liang Assistant Manager	Date:	March 8, 2023

UnionTrust Laboratories UnionTrust Certified

Version

Version No.	Date	Description
V1.0	March 8, 2023	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Grandstream Networks, Inc.
Address of Applicant:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
Manufacturer:	Grandstream Networks, Inc.
Address of Manufacturer:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	8-port Unmanaged Gigabit Switch
Model No. / HVIN:	GWN7701
Add. Model No. / HVIN:	N/A
Trade Mark:	GRANDSTREAM
DUT Stage:	Identical Prototype
Rated Voltage:	5.0 V ⎓ 0.6 A
Classification of digital devices:	Class B
Highest Internal Frequency:	25 MHz
Sample Received Date:	February 23, 2023
Sample Tested Date:	March 1, 2023 to March 3, 2023

Remark: The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.

1.2.2 Description of Accessories

Adapter(1)	
Model No.:	GQ06-050060-ZU
Input:	100-240 V~50/60 Hz 0.3 A Max
Output:	5.0 V ⎓ 0.6 A
DC Cable:	1.85 Meter, Unshielded without ferrite

Adapter(2)	
Model No.:	NBS05B050060VU
Input:	100-240 V~50/60 Hz 0.2 A Max
Output:	5.0 V ⎓ 0.6 A
DC Cable:	1.85 Meter, Unshielded without ferrite

Adapter(3)	
Model No.:	F06US0500060A
Input:	100-240 V~50/60 Hz 0.2 A Max
Output:	5.0 V ⎓ 0.6 A
DC Cable:	1.85 Meter, Unshielded without ferrite

1.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Notebook Computer	Lenovo	E450	SL10G10780	UnionTrust
Network Analyst	Xtramus	nustreams-600	0JNS600C0013	UnionTrust
USB Mouse	Founder	20-1AN03Y105	MA0KZA39	UnionTrust

2).Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Ethernet Cable*8	RJ45	1.0 Unshielded without ferrite	UnionTrust
2	Ethernet Cable*1	RJ45	2.0 Unshielded without ferrite	UnionTrust

1.4 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

1.5 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01
Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories
CAB identifier: CN0032

FCC Accredited Lab.
Designation Number: CN1194
Test Firm Registration Number: 259480

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.9 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	Conducted emission 9kHz-150kHz	±3.2 dB
2	Conducted emission 150kHz-30MHz	±2.7 dB
3	Radiated emission 9kHz-30MHz	± 4.7 dB
4	Radiated emission 30MHz-1GHz	± 4.6 dB
5	Radiated emission 1GHz-18GHz	± 4.4 dB
6	Radiated emission 18GHz-26GHz	± 4.6 dB
7	Radiated emission 26GHz-40GHz	± 4.6 dB

2. TEST SUMMARY

FCC 47 CFR Part 15 Subpart B Test Cases			
Test Item	**Test Requirement**	**Test Method**	**Result**
Conducted Emission	FCC 47 CFR Part 15.107 ICES-003 Issue 7 Section 3.2.1	ANSI C63.4-2014	PASS
Radiated Emission	FCC 47 CFR Part 15.109 ICES-003 Issue 7 Section 3.2.2	ANSI C63.4-2014	PASS

3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	3m SAC	ETS-LINDGREN	3m	Euroshiedpn-CT001270-1317	Jan. 22, 2021	Jan. 21, 2024
☒	Receiver	R&S	ESIB26	100114	Nov. 3, 2022	Nov. 2, 2023
☒	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Nov.11, 2021	Nov.10, 2023
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	Nov. 3, 2022	Nov. 2, 2023
☒	Preamplifier	HP	8447F	2805A02960	Nov. 1, 2022	Oct. 31, 2023
☒	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160323		

Conducted Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	Receiver	R&S	ESR7	1316.3003K07-101181-K3	Nov. 1, 2022	Oct. 31, 2023
☒	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	Nov. 1, 2022	Oct. 31, 2023
☒	LISN	R&S	ESH2-Z5	860014/024	Nov. 1, 2022	Oct. 31, 2023
☒	LISN	ETS-Lindgren	3816/2SH	00201088	Nov. 1, 2022	Oct. 31, 2023
☒	Test Software	Audix	e3	Software Version: 9.20151119i		

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

4.1.1 Normal or Extreme Test Conditions

Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage (V)	Relative Humidity (%)
NV/NT	+15 to +35	1: AC 120V/60Hz 2: AC 240V/50Hz	20 to 75
Remark: 1) NV: Normal Voltage; NT: Normal Temperature			

4.1.2 Record of Normal Environment and Test sample

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (kPa)	Sample No.	Tested by
Conducted Emission	25.2	45.4	100.7	S202302231126-ZJA02/2	Andy Lin
Radiated Emission	26.0	50.2	100.8		Lucas Ouyang

4.2 TEST MODES

Test Item	EMI Test Modes
Radiated Emission	**Test Mode 1: AC240V/50Hz (Adaptor1) + LAN Port Loop transmission** Test Mode 2: AC120V/60Hz (Adaptor1) + LAN Port Loop transmission Test Mode 3: Worse from mode 1~2(Adaptor2) Test Mode 4: Worse from mode 1~2(Adaptor3)
Conducted Emission	**Test Mode 1: AC240V/50Hz (Adaptor1) + LAN Port Loop transmission** Test Mode 2: AC120V/60Hz (Adaptor1) + LAN Port Loop transmission Test Mode 3: Worse from mode 1~2(Adaptor2) Test Mode 4: Worse from mode 1~2(Adaptor3)
Remark: The above test modes in boldface were the worst cases.	

4.3 TEST SETUP

4.3.1 For Radiated Emissions test setup

Figure 1. 30MHz to 1GHz

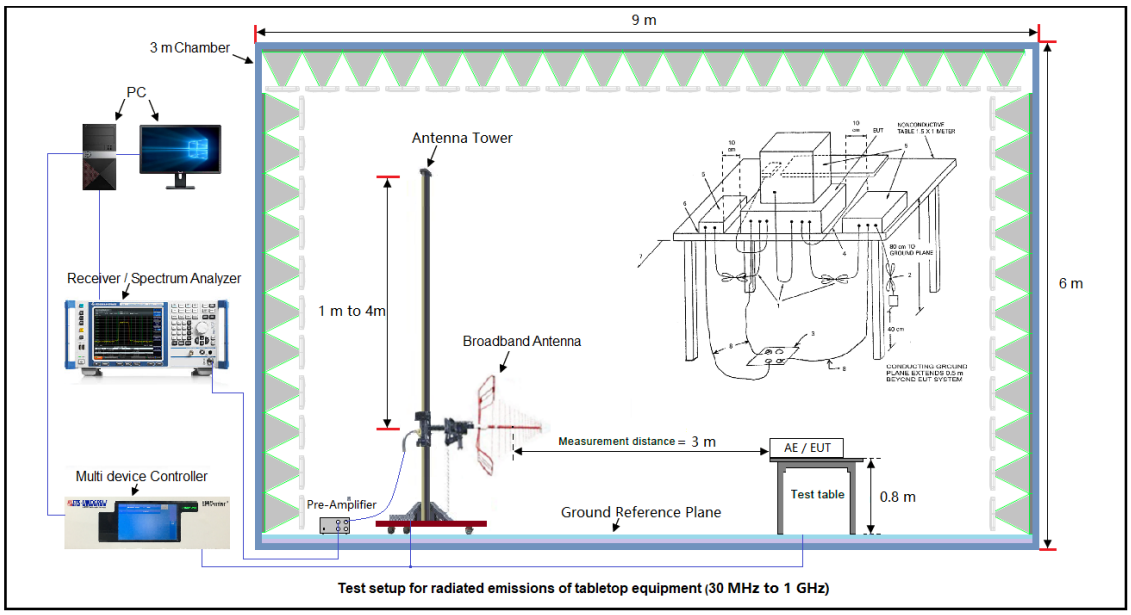
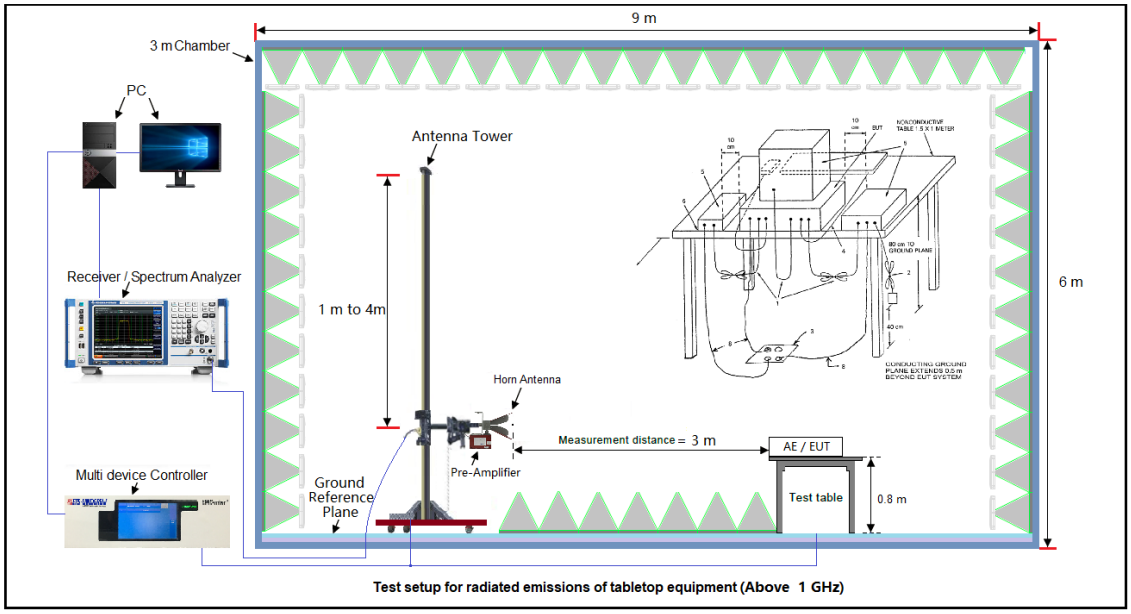
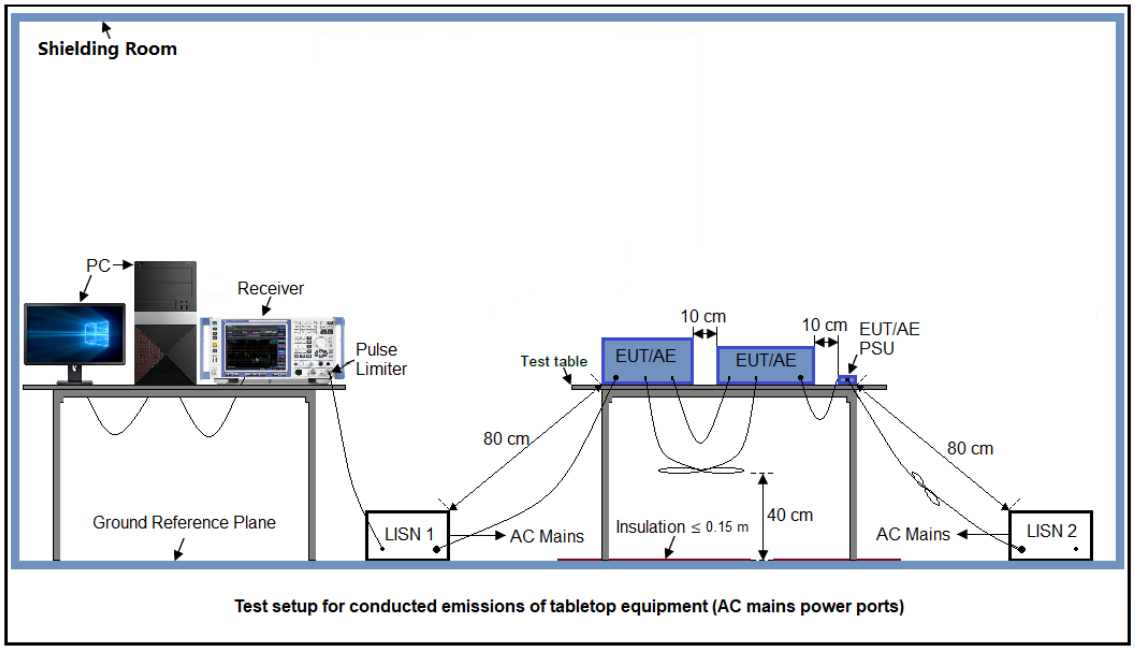


Figure 2. Above 1GHz



4.3.2 For Conducted Emissions test setup

Figure 3. Conducted Emissions setup



4.4 SYSTEM TEST CONFIGURATION

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic (according to KDB 896810 D02 SDoC FAQ v01r01) of the highest fundamental frequency or to 40 GHz, whichever is lower.

5. REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part15 Subpart B	Unintentional Radiators
2	ICES-003 Issue 7	Information Technology Equipment (Including Digital Apparatus)
3	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
4	KDB 174176 D01 Line Conducted FAQ v01r01	AC power-line conducted emission frequency asked questions
5	KDB 896810 D02 SDoC FAQ v01r02	Supplier's Declaration of Conformity frequency asked questions

6. EMC REQUIREMENTS SPECIFICATION

6.1 RADIATED EMISSION

Test Requirement: FCC 47 CFR Part 15.109
ICES-003 Issue 7 Clause 3.2.2

Test Method: ANSI C63.4-2014

Receiver Setup:

Frequency: (f) (MHz)	Detector type	Measurement receiver bandwidth	
		RBW	VBW
30 ≤ f ≤ 1 000	Quasi Peak	120 kHz	300 kHz
f ≥1000	Peak	1 MHz	3 MHz
	Average	1 MHz	3 MHz

Measured frequency range

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Limits:

Limits for Class B devices

FCC 47 CFR Part 15 Subpart B

Frequency (MHz)	limits at 3m (dBμV/m)		
	QP Detector	PK Detector	AV Detector
30 – 88	40.0	--	--
88 – 216	43.5	--	--
216 – 960	46.0		
960 – 1000	54.0	--	--
Above 1000	--	74.0	54.0

ICES-003 Issue 7

Frequency (MHz)	limits at 3m (dBμV/m)		
	QP Detector	PK Detector	AV Detector
30 – 88	40.0	--	--
88 – 216	43.5	--	--
216 – 230	46.0		

230 – 960	47.0	--	--
960 – 1000	54.0	--	--
Above 1000	--	74.0	54.0

Remark:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Test Setup: Refer to section 4.3.1 for details.

Test Procedures:

1. From 30 MHz to 1GHz test procedure as below:

1) The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
2) Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
3) For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

2. Above 1GHz test procedure as below:

1) The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
2) Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
3) For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

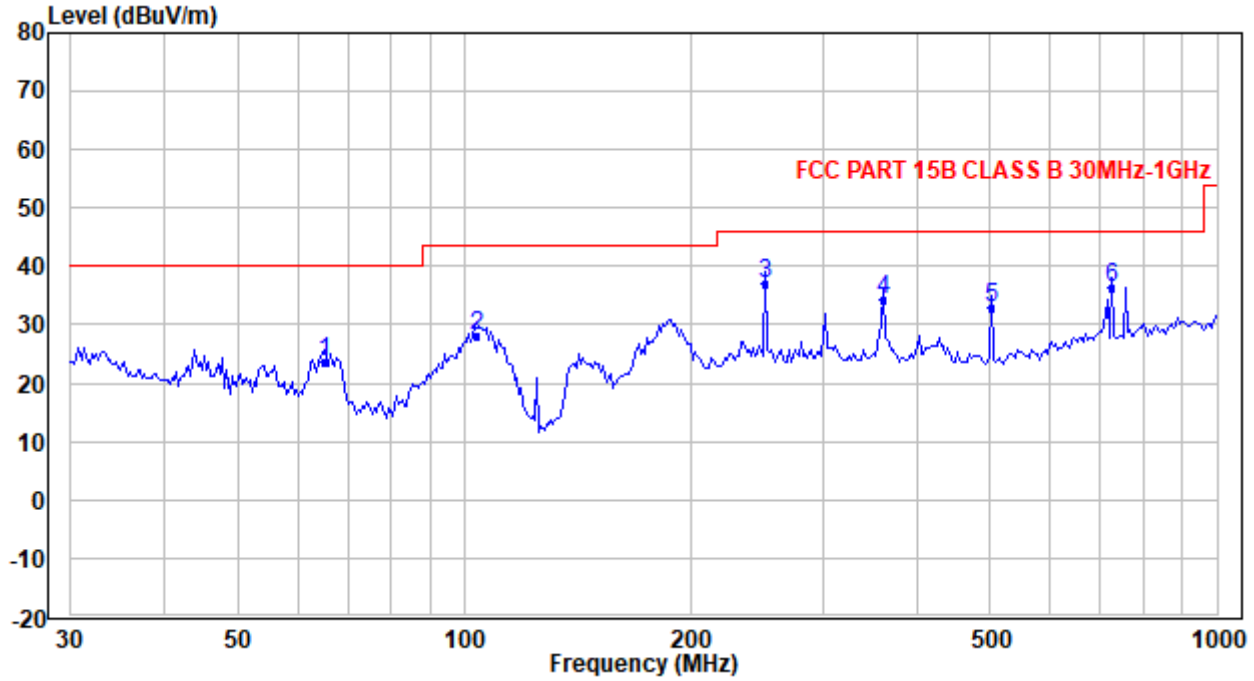
Equipment Used: Refer to section 3 for details.

Test Result: Pass

The measurement data as follows:

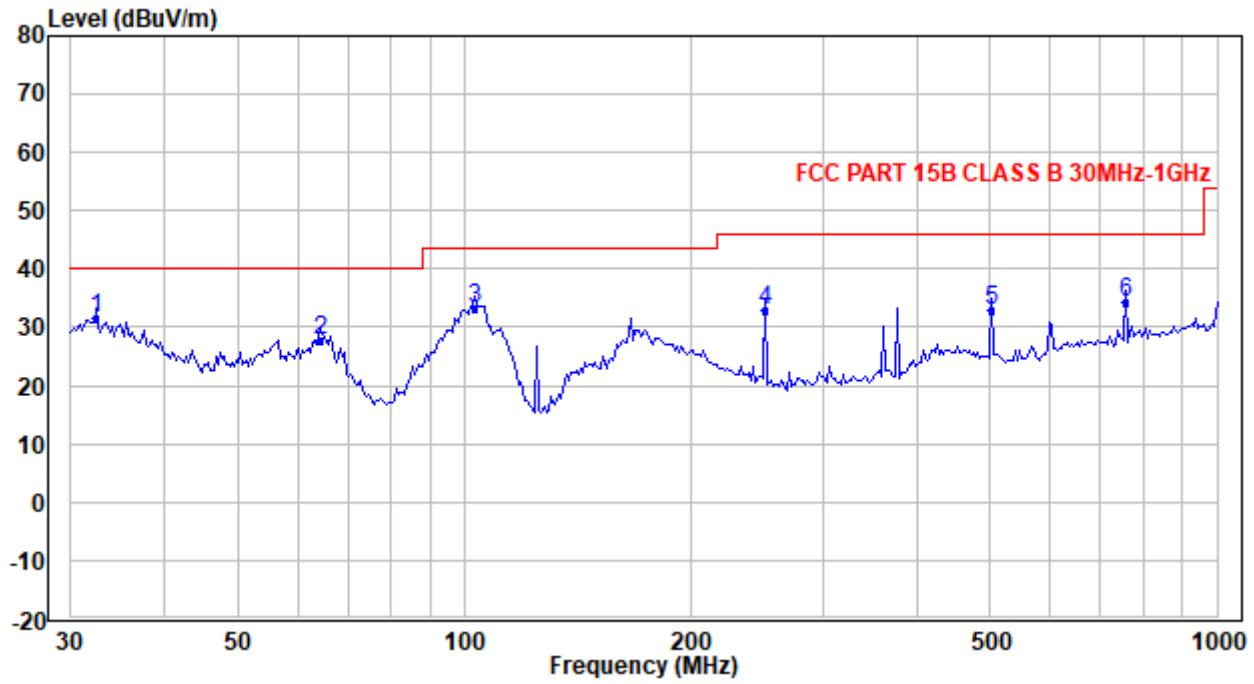
The measurement data for FCC 47 CFR Part 15 Subpart B as follows:

Below 1GHz(Quasi Peak):
Test Mode1
Adapter 1
Horizontal



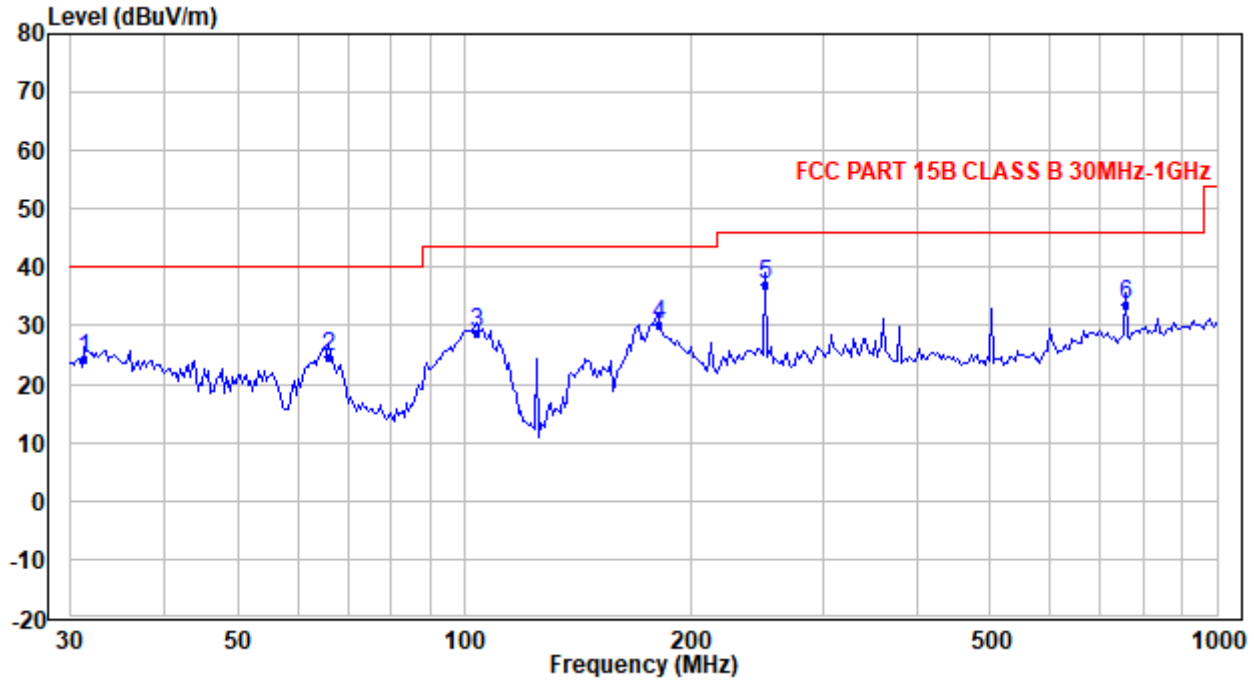
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	64.987	41.05	-17.37	23.68	40.00	-16.32	QP
2	104.064	43.51	-15.48	28.03	43.50	-15.47	QP
3	250.486	45.94	-8.82	37.12	46.00	-8.88	QP
4	360.977	39.30	-5.12	34.18	46.00	-11.82	QP
5	502.247	35.34	-2.35	32.99	46.00	-13.01	QP
6	723.793	34.77	1.44	36.21	46.00	-9.79	QP

Vertical



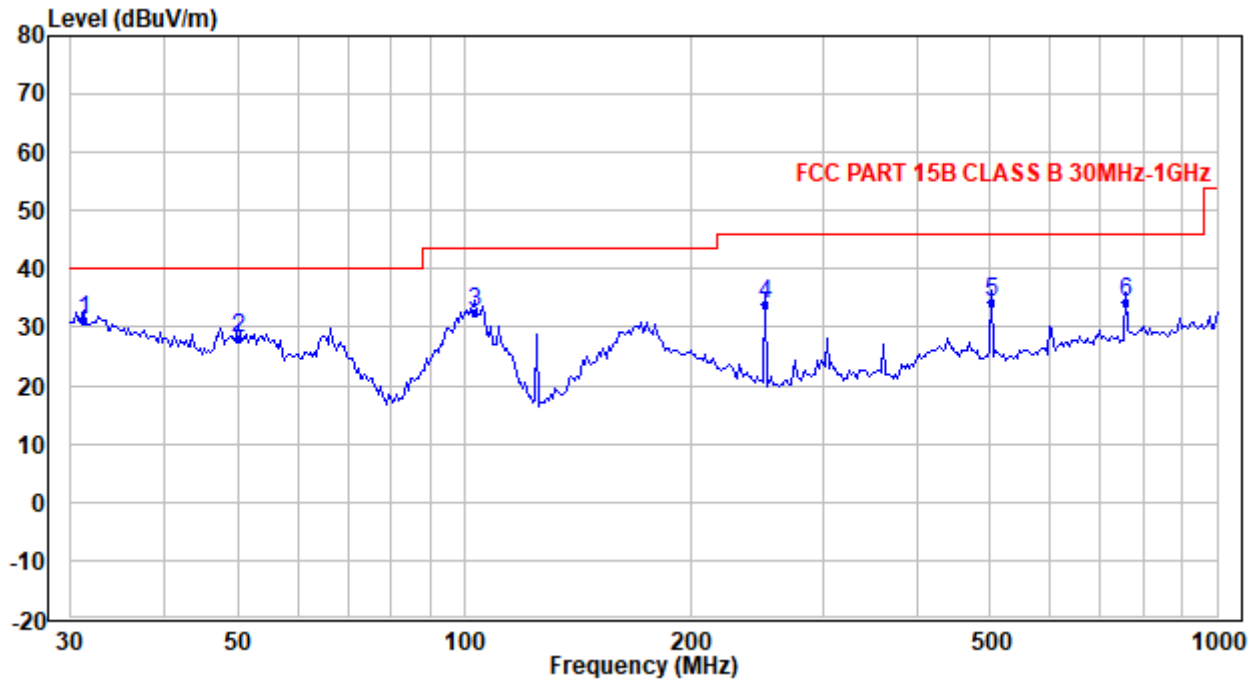
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	32.411	36.63	-5.21	31.42	40.00	-8.58	QP
2	64.532	45.06	-17.29	27.77	40.00	-12.23	QP
3	103.335	48.82	-15.56	33.26	43.50	-10.24	QP
4	250.486	41.88	-8.82	33.06	46.00	-12.94	QP
5	502.247	35.17	-2.35	32.82	46.00	-13.18	QP
6	754.963	32.27	2.01	34.28	46.00	-11.72	QP

Below 1GHz(Quasi Peak):
Test Mode3
Adapter 2
Horizontal



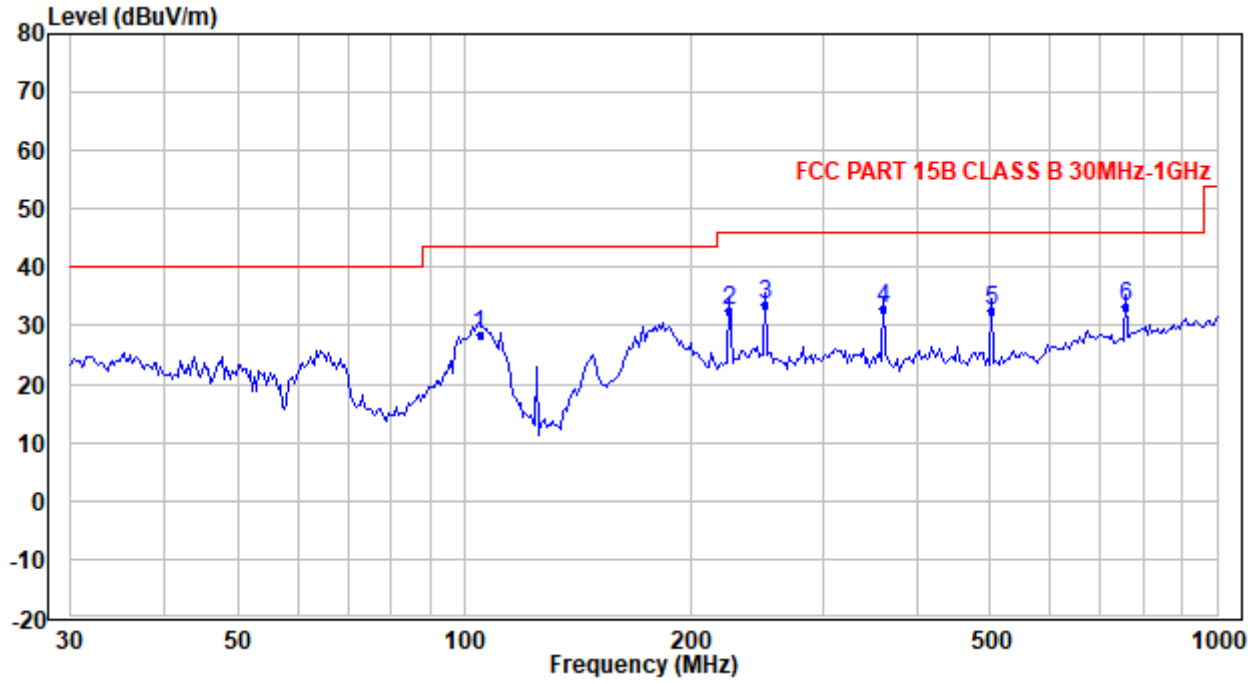
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	31.292	29.56	-5.09	24.47	40.00	-15.53	QP
2	65.907	42.24	-17.46	24.78	40.00	-15.22	QP
3	104.064	44.14	-15.48	28.66	43.50	-14.84	QP
4	181.300	40.19	-10.11	30.08	43.50	-13.42	QP
5	250.486	45.99	-8.82	37.17	46.00	-8.83	QP
6	754.963	31.52	2.01	33.53	46.00	-12.47	QP

Vertical



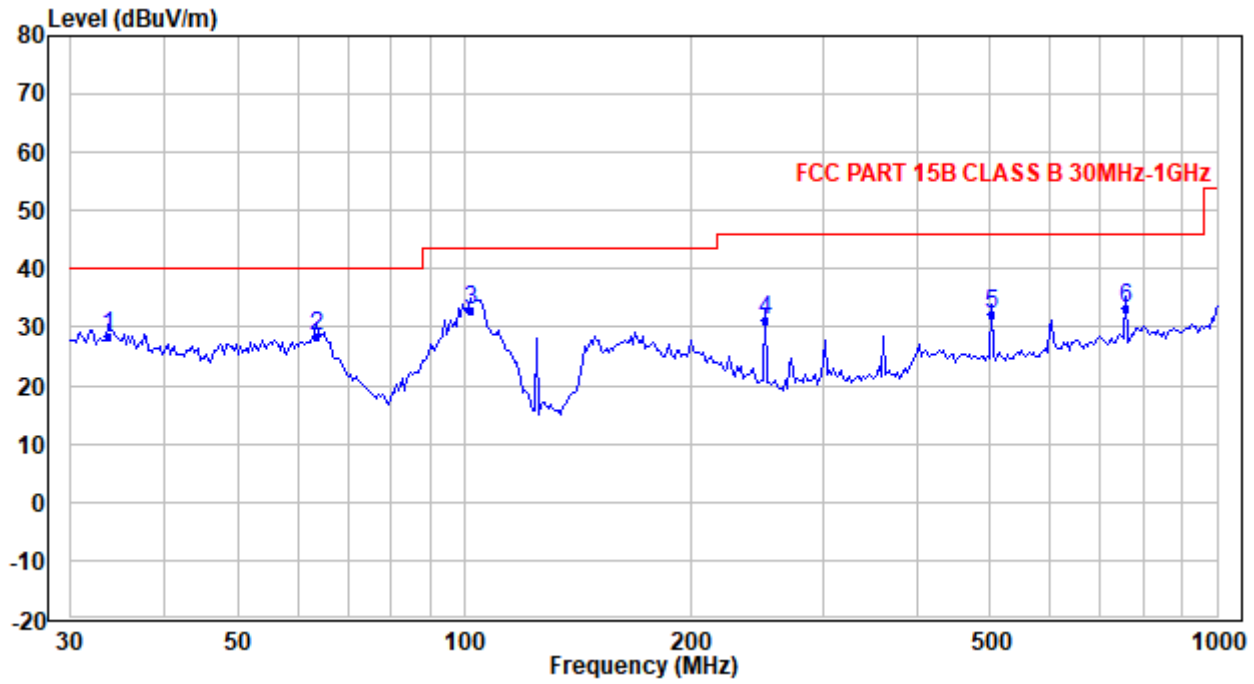
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	31.292	36.15	-5.09	31.06	40.00	-8.94	QP
2	50.108	42.95	-14.89	28.06	40.00	-11.94	QP
3	103.335	48.07	-15.56	32.51	43.50	-10.99	QP
4	250.486	42.65	-8.82	33.83	46.00	-12.17	QP
5	502.247	36.62	-2.35	34.27	46.00	-11.73	QP
6	754.963	32.14	2.01	34.15	46.00	-11.85	QP

Below 1GHz(Quasi Peak):
Test Mode4
Adapter 3
Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	104.798	44.05	-15.63	28.42	43.50	-15.08	QP
2	225.427	43.55	-11.01	32.54	46.00	-13.46	QP
3	250.486	42.45	-8.82	33.63	46.00	-12.37	QP
4	360.977	37.99	-5.12	32.87	46.00	-13.13	QP
5	502.247	34.92	-2.35	32.57	46.00	-13.43	QP
6	754.963	31.38	2.01	33.39	46.00	-12.61	QP

Vertical



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	33.570	33.76	-5.36	28.40	40.00	-11.60	QP
2	63.631	45.88	-17.30	28.58	40.00	-11.42	QP
3	101.893	48.65	-15.70	32.95	43.50	-10.55	QP
4	250.486	39.94	-8.82	31.12	46.00	-14.88	QP
5	502.247	34.46	-2.35	32.11	46.00	-13.89	QP
6	754.963	31.30	2.01	33.31	46.00	-12.69	QP

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit
4. All possible modes of operation were investigated, and testing at two nominal voltages of 240V/50Hz and 120V/60Hz, only the worst case emissions reported.
5. The limit of ICES-003 in the 230MHz to 960MHz band is higher than that of FCC Part 15B, so the radiation emission test data conform to the limit of ICES-003.

6.2 CONDUCTED EMISSION

Test Requirement: FCC 47 CFR Part 15.107
ICES-003 Issue 7 Section 3.2.1

Test Method: ANSI C63.4-2014

Limits:

Limits for Class B devices

Frequency range (MHz)	Limits (dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Remark:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

Test Setup: Refer to section 4.3.2 for details.

Test Procedures:

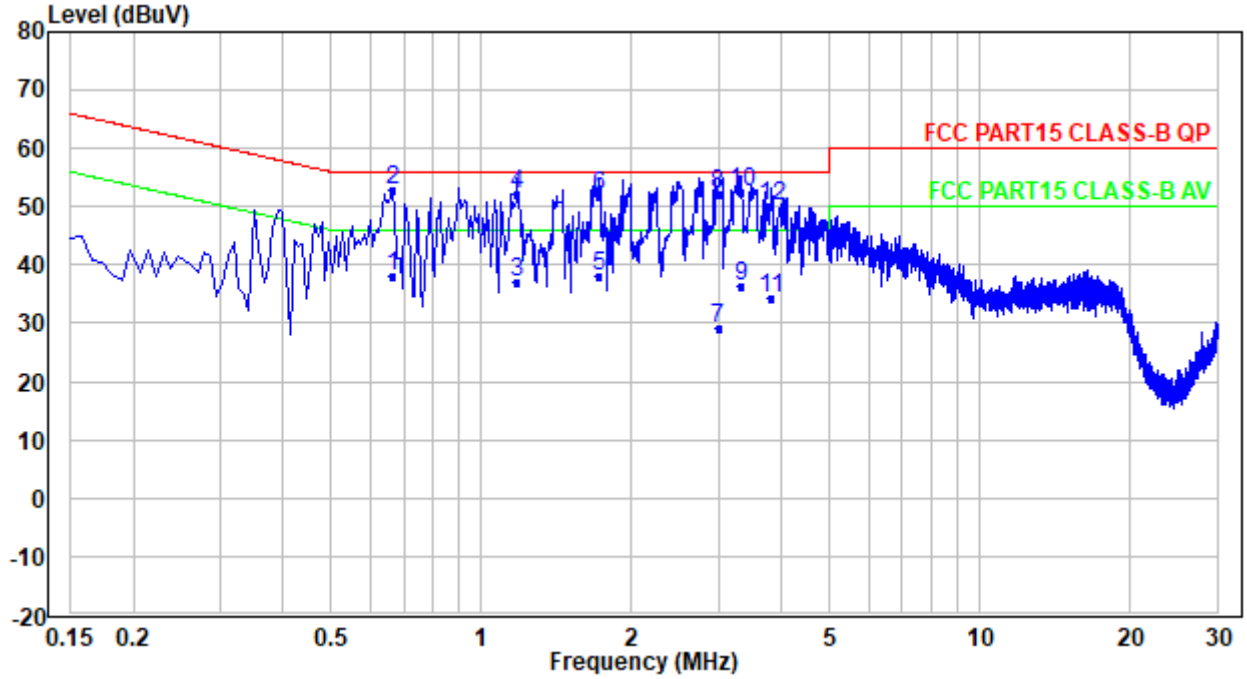
1) The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
2) The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
3) For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

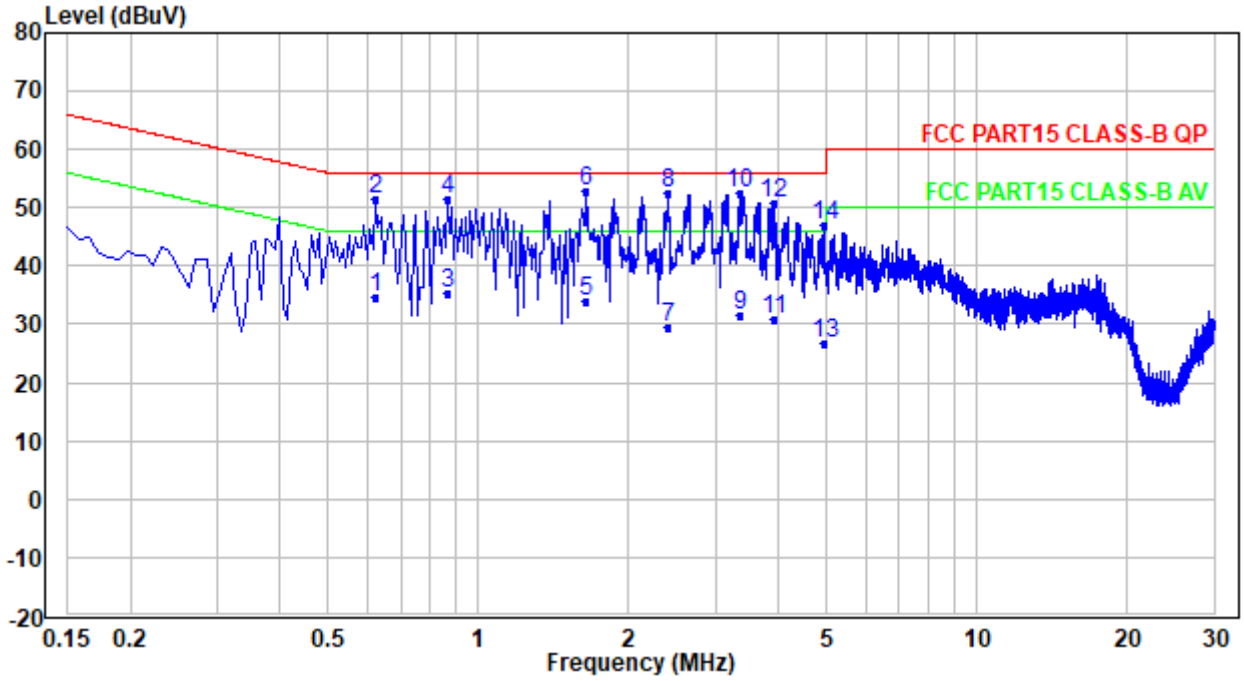
The measurement data as follows:
Quasi Peak and Average:
Adapter 1
Test Mode1

Live Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.662	27.93	10.05	37.98	46.00	-8.02	Average
2	0.662	42.93	10.05	52.98	56.00	-3.02	QP
3	1.182	27.01	10.07	37.08	46.00	-8.92	Average
4	1.182	42.01	10.07	52.08	56.00	-3.92	QP
5	1.726	27.86	10.11	37.97	46.00	-8.03	Average
6	1.726	41.86	10.11	51.97	56.00	-4.03	QP
7	2.989	18.81	10.19	29.00	46.00	-17.00	Average
8	2.989	41.81	10.19	52.00	56.00	-4.00	QP
9	3.333	26.13	10.22	36.35	46.00	-9.65	Average
10	3.333	42.13	10.22	52.35	56.00	-3.65	QP
11	3.813	23.89	10.26	34.15	46.00	-11.85	Average
12	3.813	39.89	10.26	50.15	56.00	-5.85	QP

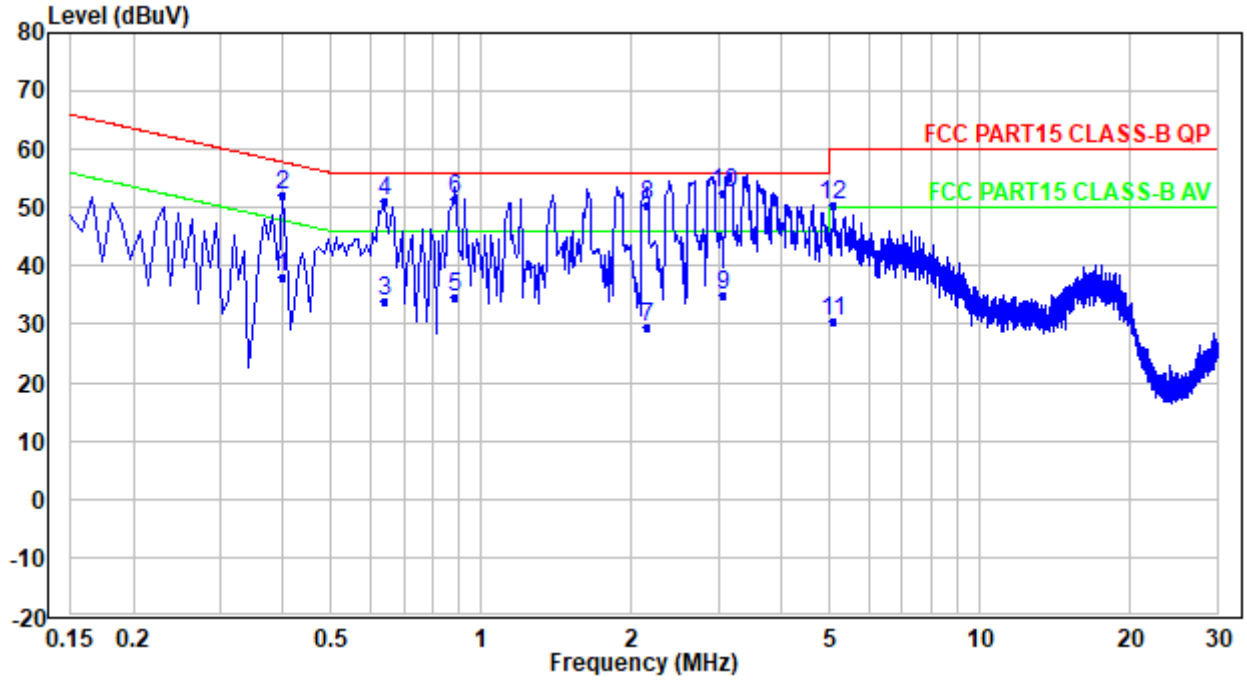
Neutral Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.622	24.44	10.04	34.48	46.00	-11.52	Average
2	0.622	41.44	10.04	51.48	56.00	-4.52	QP
3	0.870	25.28	10.05	35.33	46.00	-10.67	Average
4	0.870	41.28	10.05	51.33	56.00	-4.67	QP
5	1.646	23.88	10.08	33.96	46.00	-12.04	Average
6	1.646	42.88	10.08	52.96	56.00	-3.04	QP
7	2.406	19.37	10.14	29.51	46.00	-16.49	Average
8	2.406	42.37	10.14	52.51	56.00	-3.49	QP
9	3.341	21.38	10.20	31.58	46.00	-14.42	Average
10	3.341	42.38	10.20	52.58	56.00	-3.42	QP
11	3.909	20.59	10.26	30.85	46.00	-15.15	Average
12	3.909	40.59	10.26	50.85	56.00	-5.15	QP

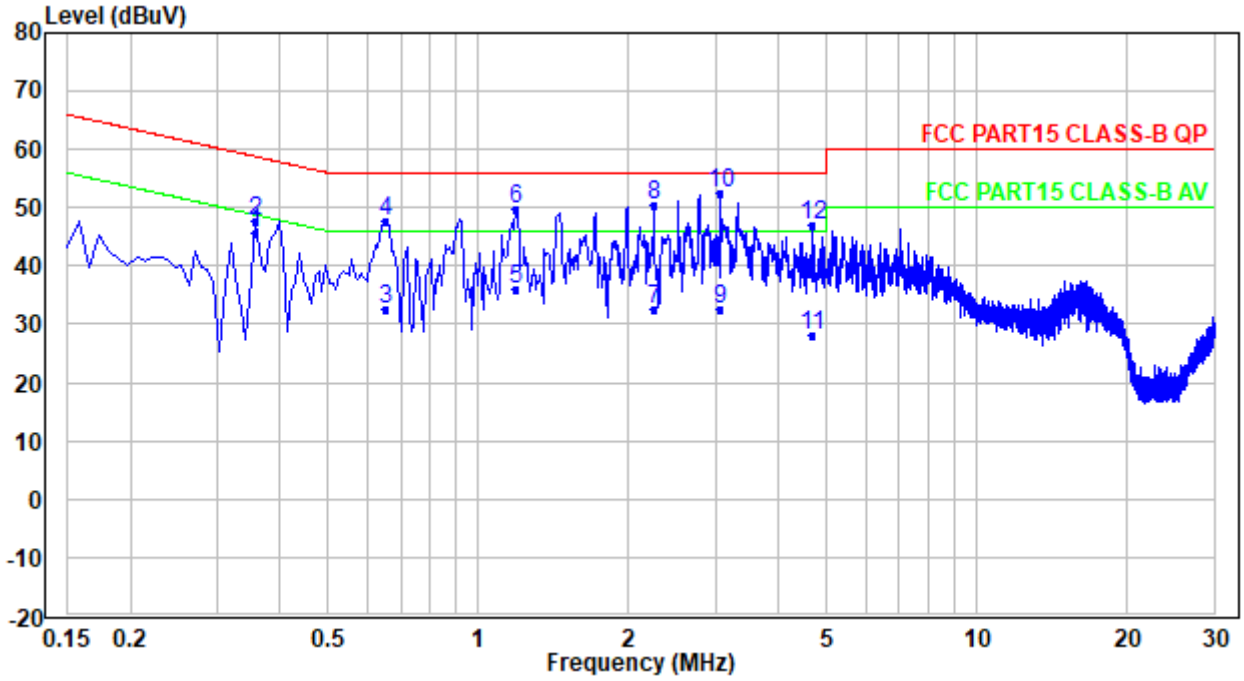
Quasi Peak and Average:
Adapter 2
Test Mode3

Live Line



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.398	28.00	10.04	38.04	47.90	-9.86	Average
2	0.398	42.00	10.04	52.04	57.90	-5.86	QP
3	0.638	23.99	10.05	34.04	46.00	-11.96	Average
4	0.638	40.99	10.05	51.04	56.00	-4.96	QP
5	0.886	24.57	10.06	34.63	46.00	-11.37	Average
6	0.886	41.57	10.06	51.63	56.00	-4.37	QP
7	2.158	19.47	10.14	29.61	46.00	-16.39	Average
8	2.158	40.47	10.14	50.61	56.00	-5.39	QP
9	3.064	24.90	10.21	35.11	46.00	-10.89	Average
10	3.064	42.30	10.21	52.51	56.00	-3.49	QP
11	5.069	20.05	10.32	30.37	50.00	-19.63	Average
12	5.069	40.05	10.32	50.37	60.00	-9.63	QP

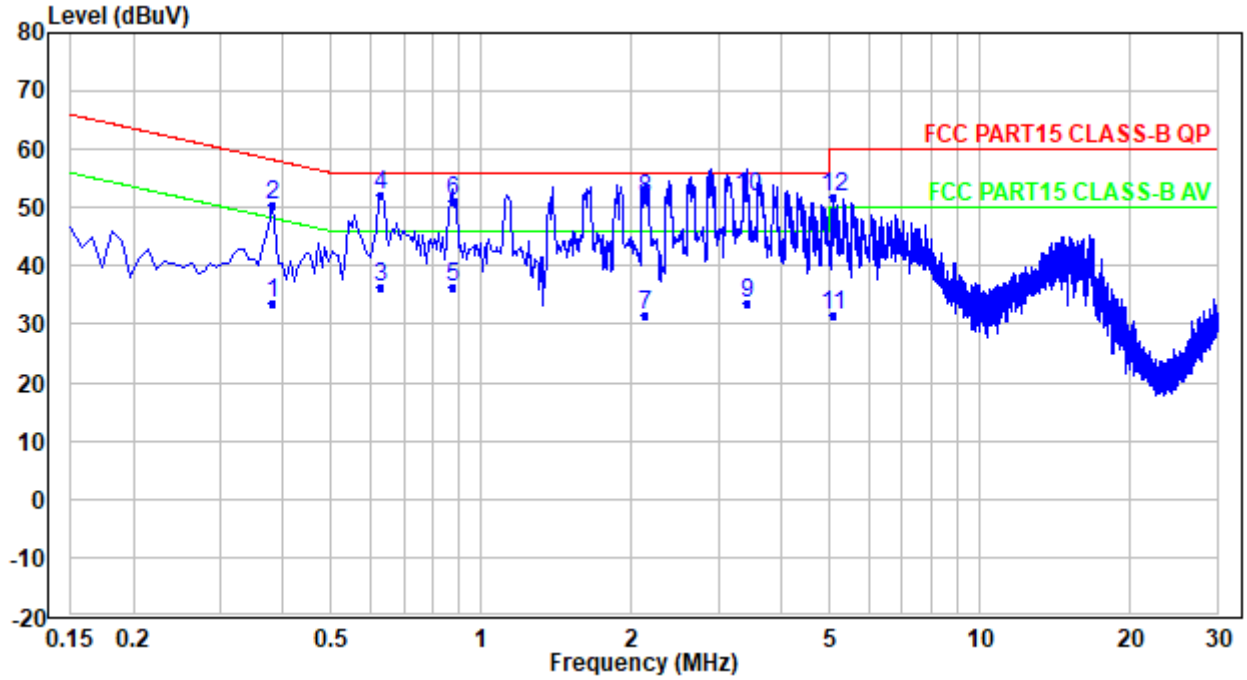
Neutral Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.358	35.67	10.02	45.69	48.78	-3.09	Average
2	0.358	37.67	10.02	47.69	58.78	-11.09	QP
3	0.654	22.61	10.04	32.65	46.00	-13.35	Average
4	0.654	37.61	10.04	47.65	56.00	-8.35	QP
5	1.190	25.85	10.07	35.92	46.00	-10.08	Average
6	1.190	39.85	10.07	49.92	56.00	-6.08	QP
7	2.254	22.46	10.12	32.58	46.00	-13.42	Average
8	2.254	40.46	10.12	50.58	56.00	-5.42	QP
9	3.053	22.39	10.19	32.58	46.00	-13.42	Average
10	3.053	42.39	10.19	52.58	56.00	-3.42	QP
11	4.685	17.81	10.30	28.11	46.00	-17.89	Average
12	4.685	36.81	10.30	47.11	56.00	-8.89	QP

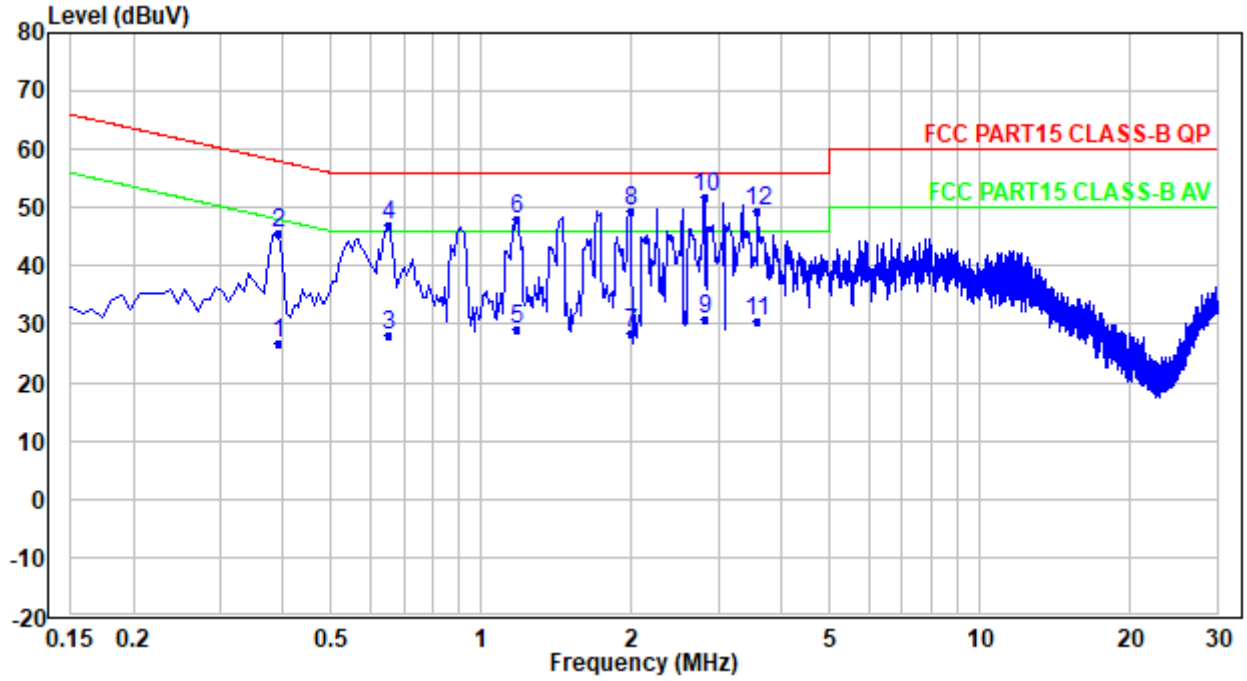
Quasi Peak and Average:
Adapter 3
Test Mode4

Live Line



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.382	23.47	10.04	33.51	48.24	-14.73	Average
2	0.382	40.47	10.04	50.51	58.24	-7.73	QP
3	0.630	26.19	10.05	36.24	46.00	-9.76	Average
4	0.630	42.19	10.05	52.24	56.00	-3.76	QP
5	0.878	26.14	10.06	36.20	46.00	-9.80	Average
6	0.878	41.14	10.06	51.20	56.00	-4.80	QP
7	2.126	21.25	10.14	31.39	46.00	-14.61	Average
8	2.126	41.25	10.14	51.39	56.00	-4.61	QP
9	3.413	23.54	10.23	33.77	46.00	-12.23	Average
10	3.413	41.54	10.23	51.77	56.00	-4.23	QP
11	5.085	21.35	10.33	31.68	50.00	-18.32	Average
12	5.085	41.35	10.33	51.68	60.00	-8.32	QP

Neutral Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.390	16.69	10.02	26.71	48.06	-21.35	Average
2	0.390	35.69	10.02	45.71	58.06	-12.35	QP
3	0.654	18.14	10.04	28.18	46.00	-17.82	Average
4	0.654	37.14	10.04	47.18	56.00	-8.82	QP
5	1.182	19.11	10.05	29.16	46.00	-16.84	Average
6	1.182	38.11	10.05	48.16	56.00	-7.84	QP
7	1.990	18.24	10.10	28.34	46.00	-17.66	Average
8	1.990	39.24	10.10	49.34	56.00	-6.66	QP
9	2.805	20.53	10.17	30.70	46.00	-15.30	Average
10	2.805	41.53	10.17	51.70	56.00	-4.30	QP
11	3.581	20.27	10.23	30.50	46.00	-15.50	Average
12	3.581	39.27	10.23	49.50	56.00	-6.50	QP

Remark:

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result - Limit
4. An initial pre-scan was performed on the Phase and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.
5. All possible modes of operation were investigated, and testing at two nominal voltages of 240V/50Hz and 120V/60Hz, only the worst case emissions reported.

APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

********** End of Report **********

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