



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: AKUVOX (XIAMEN) NETWORKS CO., LTD.

Address: 10/F, No.56, Software Park II , Xiamen, China

FCC ID: 2AHCR-X933W

Product Name: Indoor Monitor

Model Number: X933W

Standard(s): 47 CFR Part 15 Subpart B
ANSI C63.4-2014

The above equipment has been tested and found compliance with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR21100089-00C

Date Of Issue: 2021-12-29

Reviewed By: Sun Zhong *Sun Zhong*

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

No. 113, Pingkang Road, Dalang Town, Dongguan,

Guangdong, China

Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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CONTENTS

TEST FACILITY	2
DECLARATIONS.....	2
1. GENERAL INFORMATION.....	4
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
1.2 DESCRIPTION OF TEST CONFIGURATION	5
1.2.2 Support Equipment List and Details	5
1.2.3 Support Cable List and Details	5
1.2.4 Block Diagram of Test Setup.....	6
1.3 MEASUREMENT UNCERTAINTY	8
2. SUMMARY OF TEST RESULTS	9
3. REQUIREMENTS AND TEST PROCEDURES	10
3.1 AC LINE CONDUCTED EMISSIONS	10
3.1.1 EUT Setup.....	10
3.1.2 EMI Test Receiver Setup	10
3.1.3 Test Procedure	11
3.1.4 Corrected Amplitude & Margin Calculation.....	11
3.2 RADIATION SPURIOUS EMISSIONS	12
3.2.1 EUT Setup.....	12
3.2.2 EMI Test Receiver Setup	13
3.2.3 Test Procedure	13
3.2.4 Corrected Amplitude & Margin Calculation.....	13
4. TEST DATA AND RESULTS.....	14
4.1 AC LINE CONDUCTED EMISSIONS	14
4.2 RADIATION SPURIOUS EMISSIONS	19

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Indoor Monitor
EUT Model:	X933W
Highest Operation Frequency:	2480 MHz
Rated Input Voltage:	DC 12V from adapter or 48V from POE
Serial Number:	CR21100089-S1
EUT Received Date:	2021.10.20
EUT Received Status:	GOOD

Accessory Information:

No.

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode: Operating
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

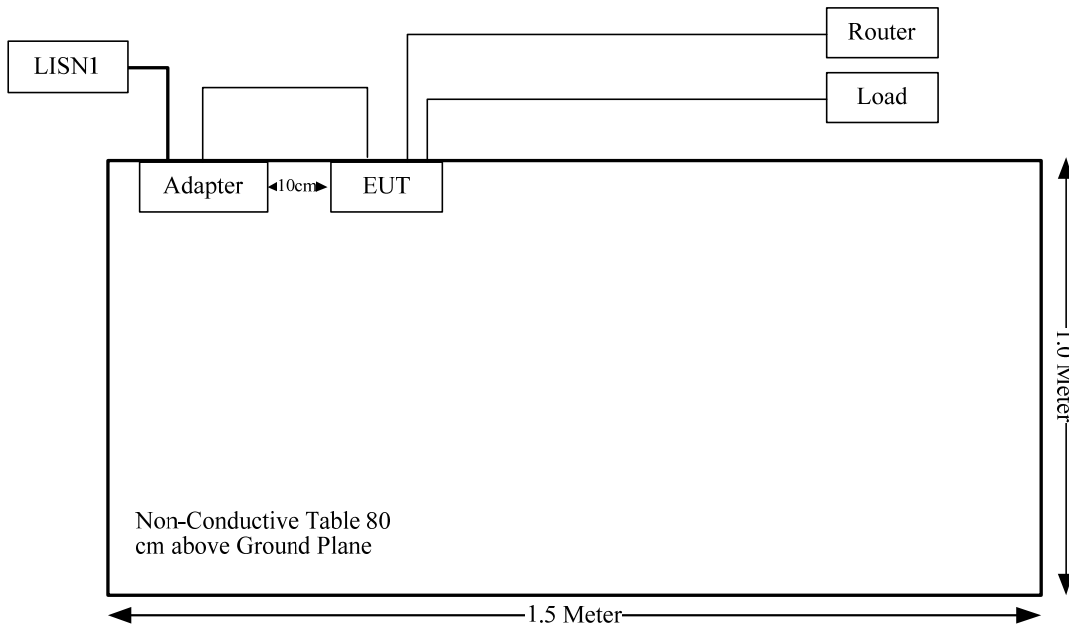
Manufacturer	Description	Model	Serial Number
TOTOLINK	Router	LR1200	LR1200155P00167
GOSPELL DIGITAL TECHNOLOGY CO.,LTD	POE	G0720-480-050	2014-0002925
ORIENTAL HERO ELE.FTY	Adapter	OH-1015A1201000U3-UL	96DG E230964
AKUVOX (XIAMEN) NETWORKS CO., LTD.	Load	Unknown	CR21110002-S3

1.2.3 Support Cable List and Details

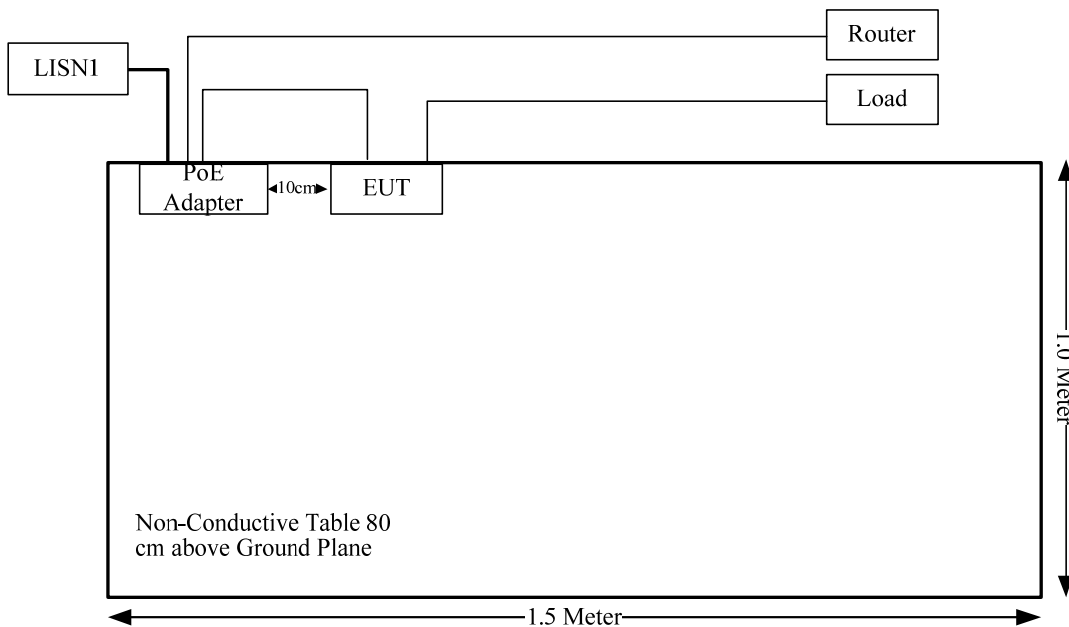
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	No	Yes	10	EUT/PoE	Router
RJ45 Cable	No	Yes	1.0	PoE	EUT
Signal Cable	No	No	10	EUT	Load
DC Power Cable	No	Yes	1.2	Adapter	EUT

1.2.4 Block Diagram of Test Setup

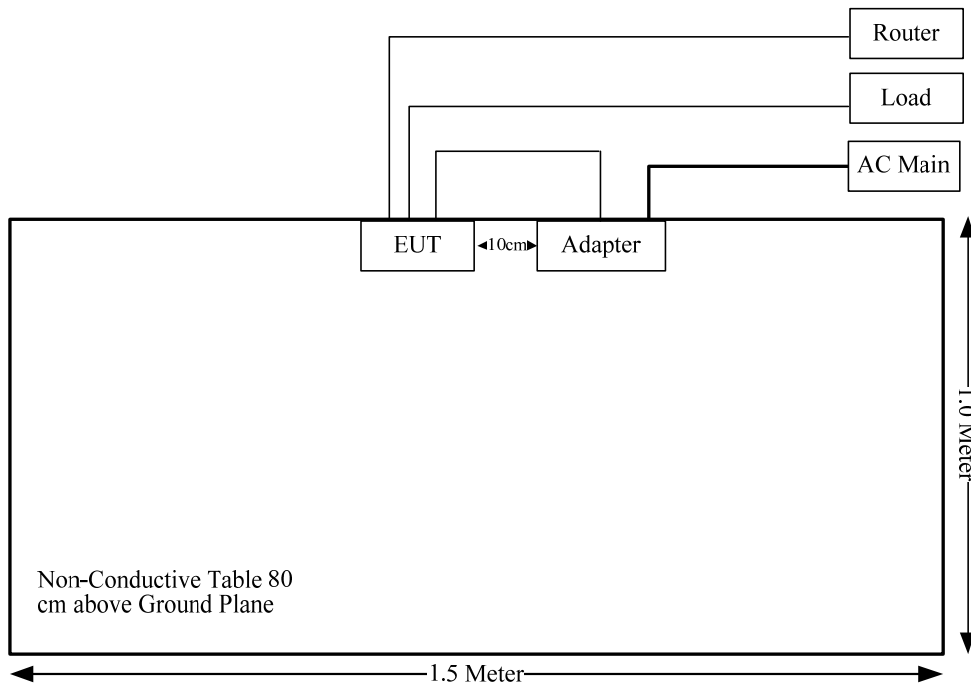
AC line conducted emissions:
AC/DC Adapter Mode:



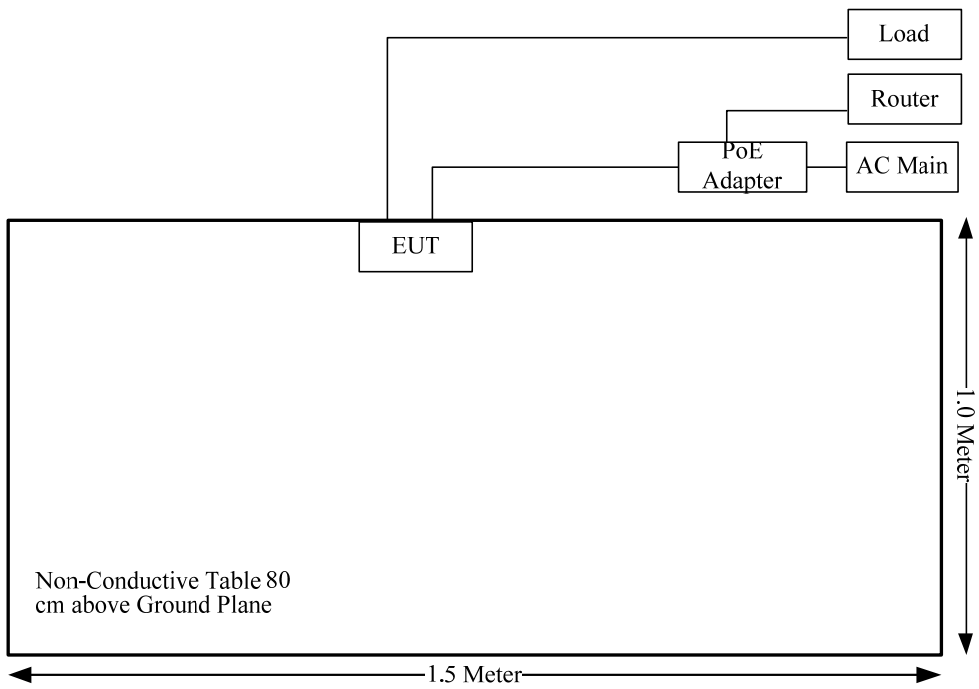
PoE Adapter Mode:



Radiated emissions:
AC/DC Adapter Mode:



PoE Adapter:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB, 200M~1GHz: 5.61 dB, 1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	±1°C
Humidity	±5%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

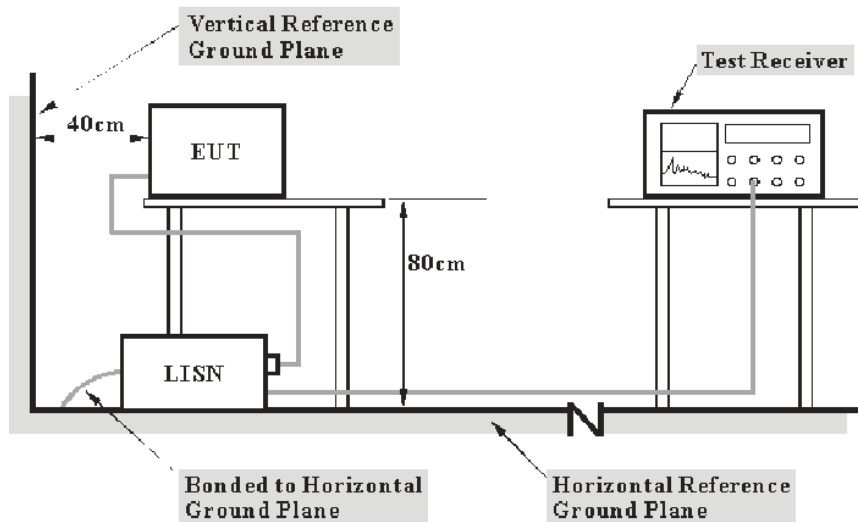
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Compliance
§15.109	Radiated emissions	Compliance

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

All data was recorded in the Quasi-peak and average detection mode.

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

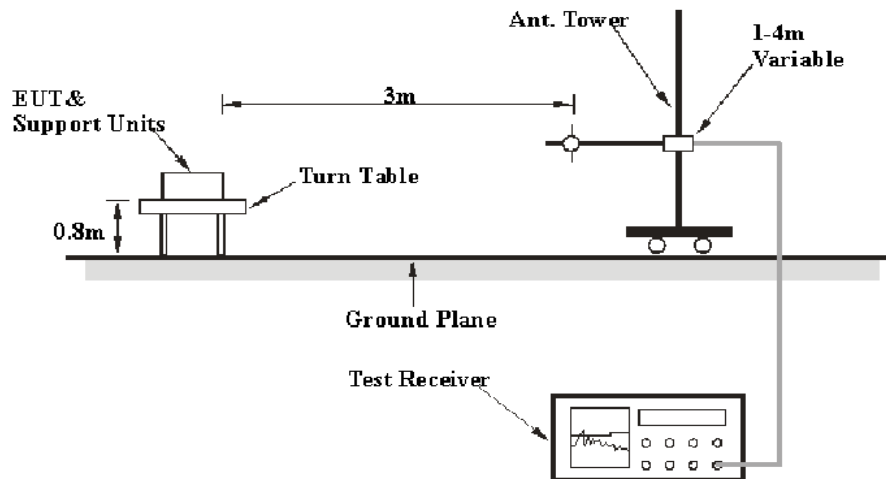
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

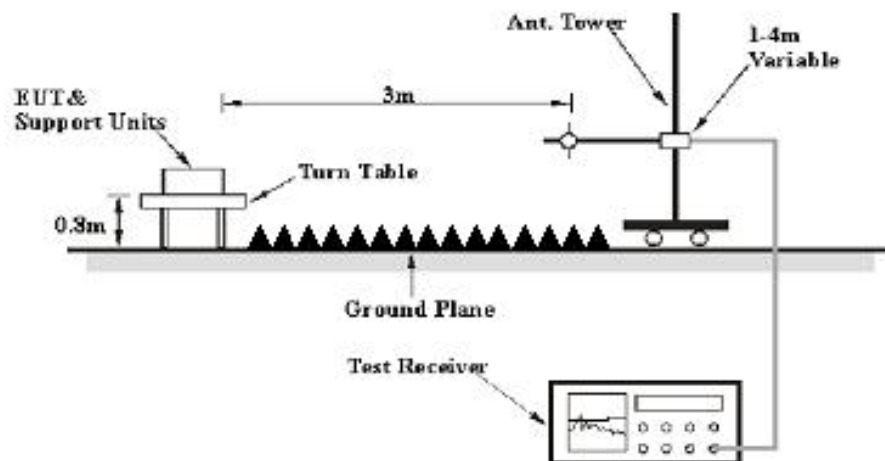
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 13 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	CR21100089-S1	Test Date:	2021-12-15
Test Site:	CE	Test Mode:	Operating
Tester:	Nick Tang	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	22.2	Relative Humidity: (%)	70	ATM Pressure: (kPa)	101.2

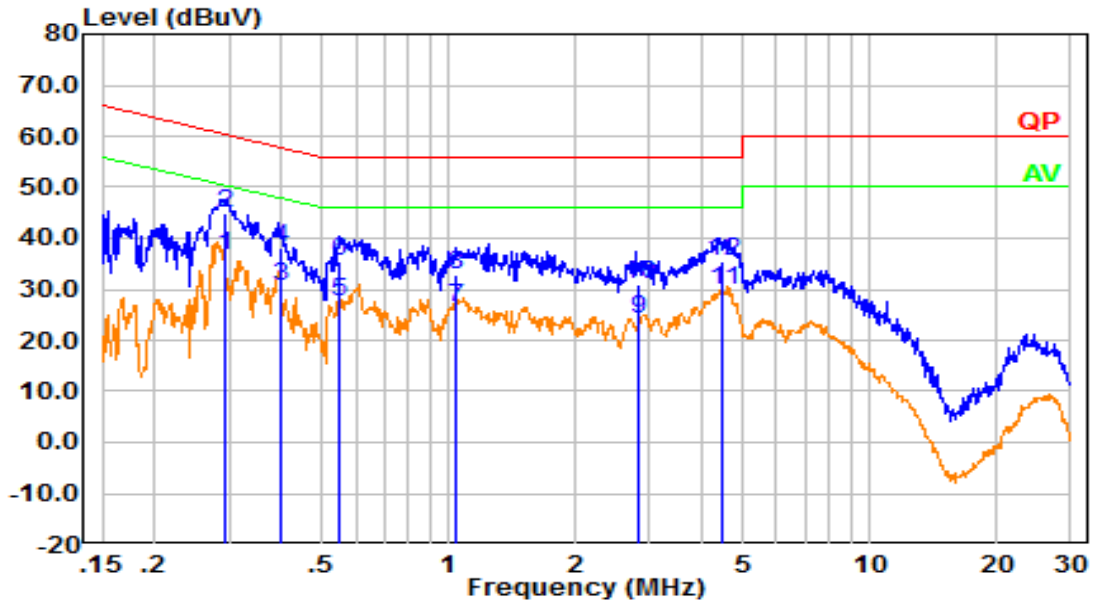
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2021-04-25	2022-04-24
R&S	EMI Test Receiver	ESR3	102726	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2021-08-08	2022-08-07
Audix	Test Software	E3	190306 (V9)	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

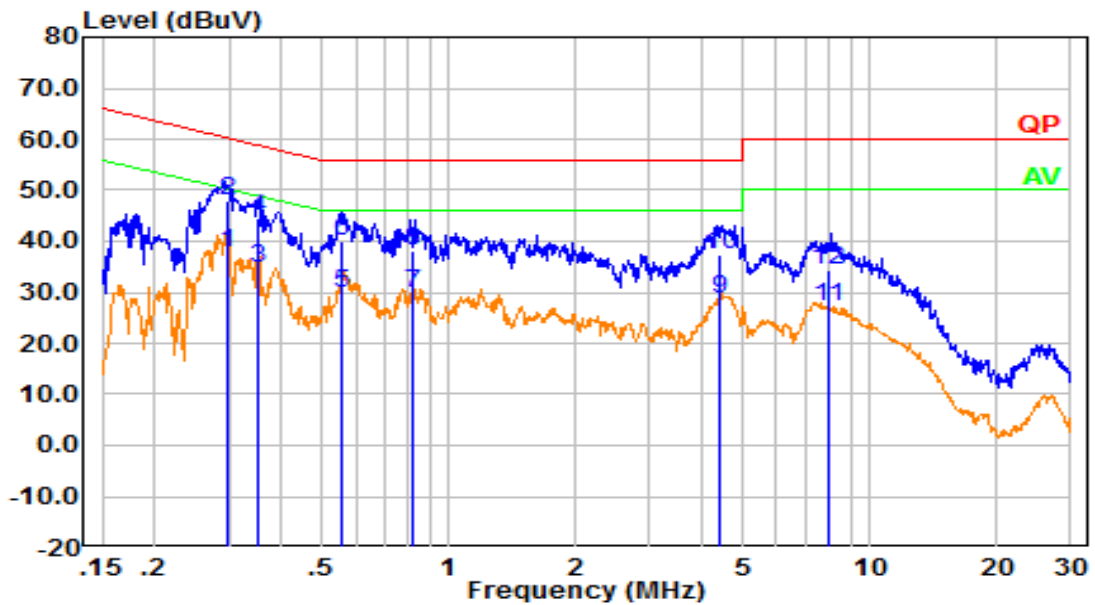
AC/DC Adapter Mode:

Line:



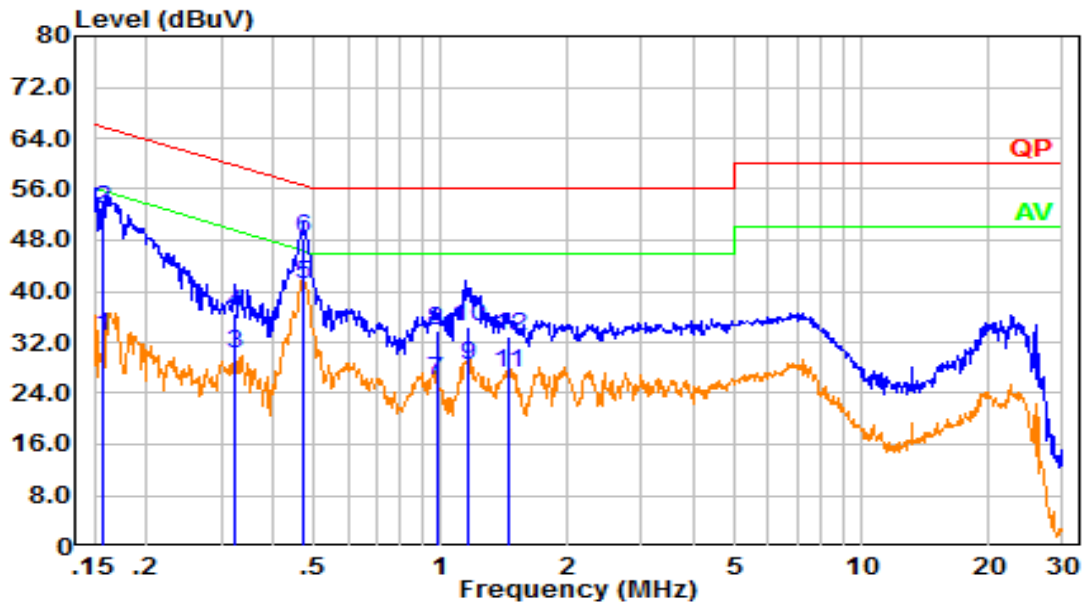
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	0.292	27.04	9.61	36.65	50.47	13.82	Average
2	0.292	35.21	9.61	44.82	60.47	15.65	QP
3	0.397	21.07	9.61	30.68	47.92	17.24	Average
4	0.397	28.67	9.61	38.28	57.92	19.64	QP
5	0.550	17.88	9.61	27.50	46.00	18.50	Average
6	0.550	25.80	9.61	35.41	56.00	20.59	QP
7	1.039	16.98	9.62	26.60	46.00	19.40	Average
8	1.039	23.14	9.62	32.76	56.00	23.24	QP
9	2.823	14.48	9.65	24.13	46.00	21.87	Average
10	2.823	21.47	9.65	31.12	56.00	24.88	QP
11	4.475	20.00	9.65	29.66	46.00	16.34	Average
12	4.475	26.01	9.65	35.66	56.00	20.34	QP

Neutral:



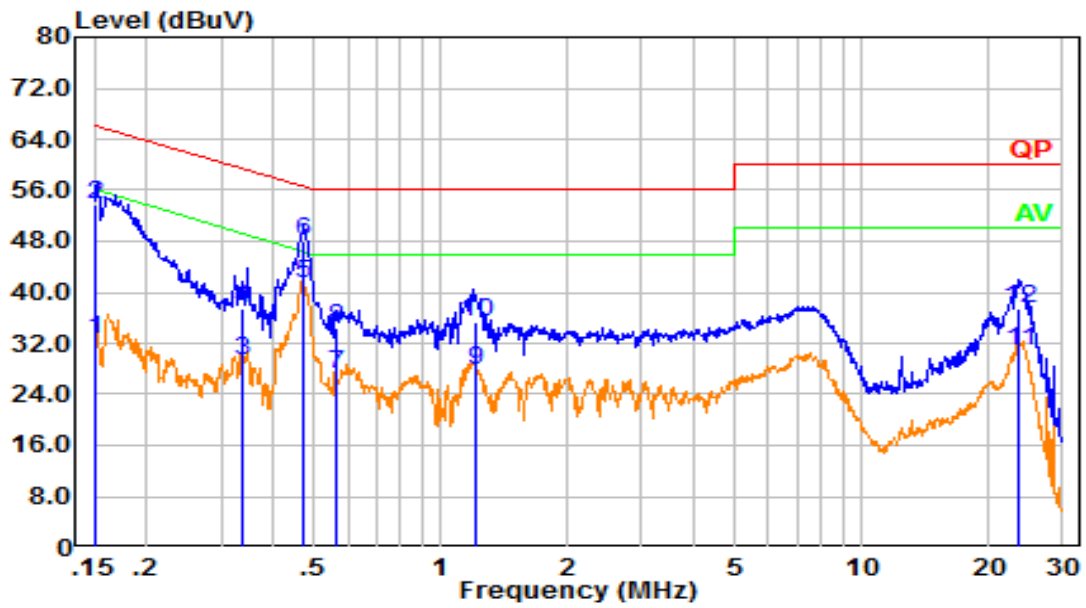
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	0.297	27.97	9.61	37.58	50.32	12.74	Average
2	0.297	38.41	9.61	48.02	60.32	12.30	QP
3	0.351	24.97	9.61	34.58	48.94	14.36	Average
4	0.351	34.81	9.61	44.42	58.94	14.52	QP
5	0.556	20.24	9.62	29.86	46.00	16.14	Average
6	0.556	30.35	9.62	39.97	56.00	16.03	QP
7	0.821	20.14	9.62	29.76	46.00	16.24	Average
8	0.821	28.61	9.62	38.23	56.00	17.77	QP
9	4.393	18.85	9.65	28.51	46.00	17.49	Average
10	4.393	27.70	9.65	37.36	56.00	18.64	QP
11	7.932	17.37	9.67	27.04	50.00	22.96	Average
12	7.932	24.71	9.67	34.38	60.00	25.62	QP

POE Adapter Mode:
Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.158	23.41	9.61	33.02	55.57	22.55	Average
2	0.158	43.25	9.61	52.86	65.57	12.70	QP
3	0.322	20.55	9.61	30.16	49.64	19.49	Average
4	0.322	26.90	9.61	36.51	59.64	23.13	QP
5	0.473	31.56	9.61	41.17	46.46	5.29	Average
6	0.473	38.74	9.61	48.35	56.46	8.11	QP
7	0.975	16.37	9.62	25.99	46.00	20.01	Average
8	0.975	24.04	9.62	33.66	56.00	22.34	QP
9	1.160	18.62	9.62	28.24	46.00	17.76	Average
10	1.160	24.73	9.62	34.35	56.00	21.65	QP
11	1.446	17.57	9.62	27.20	46.00	18.80	Average
12	1.446	23.15	9.62	32.78	56.00	23.22	QP

Neutral:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.151	23.10	9.61	32.71	55.94	23.23	Average
2	0.151	44.06	9.61	53.67	65.94	12.27	QP
3	0.338	19.67	9.61	29.28	49.25	19.97	Average
4	0.338	27.93	9.61	37.54	59.25	21.72	QP
5	0.471	31.84	9.61	41.45	46.50	5.05	Average
6	0.471	38.30	9.61	47.91	56.50	8.59	QP
7	0.566	17.49	9.62	27.11	46.00	18.89	Average
8	0.566	24.92	9.62	34.54	56.00	21.46	QP
9	1.205	18.13	9.62	27.75	46.00	18.25	Average
10	1.205	25.80	9.62	35.42	56.00	20.58	QP
11	23.656	21.05	9.75	30.80	50.00	19.20	Average
12	23.656	27.83	9.75	37.57	60.00	22.43	QP

4.2 Radiation Spurious Emissions

Serial Number:	CR21100089-S1	Test Date:	2021-12-16~2021-12-17
Test Site:	966-1, 966-2	Test Mode:	Operating
Tester:	Tommy Luo, Carl Liang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.5~24.1	Relative Humidity: (%)	53~56	ATM Pressure: (kPa)	101.1~101.2
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Test Equipment List and Details:

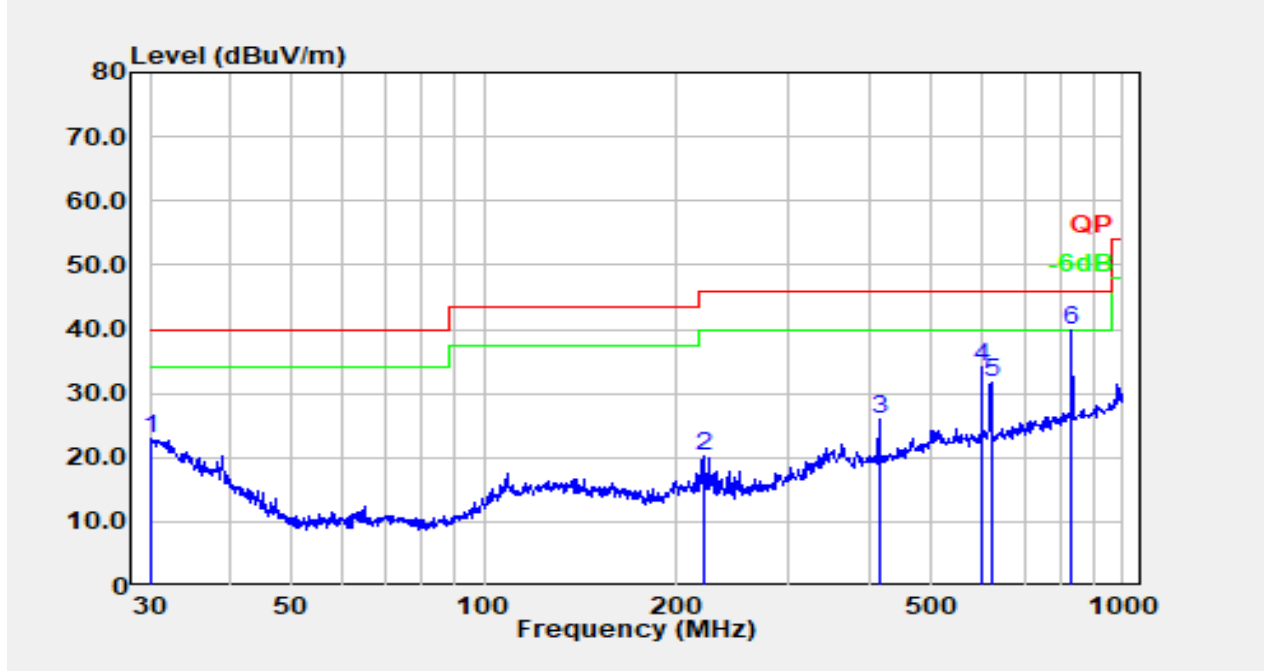
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020-10-13	2023-10-12
R&S	Spectrum Analyzer	FSV40	101591	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2021-08-08	2022-08-07
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2021-08-08	2022-08-07
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-11-10	2022-11-09
Audix	Test Software	E3	201021 (V9)	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

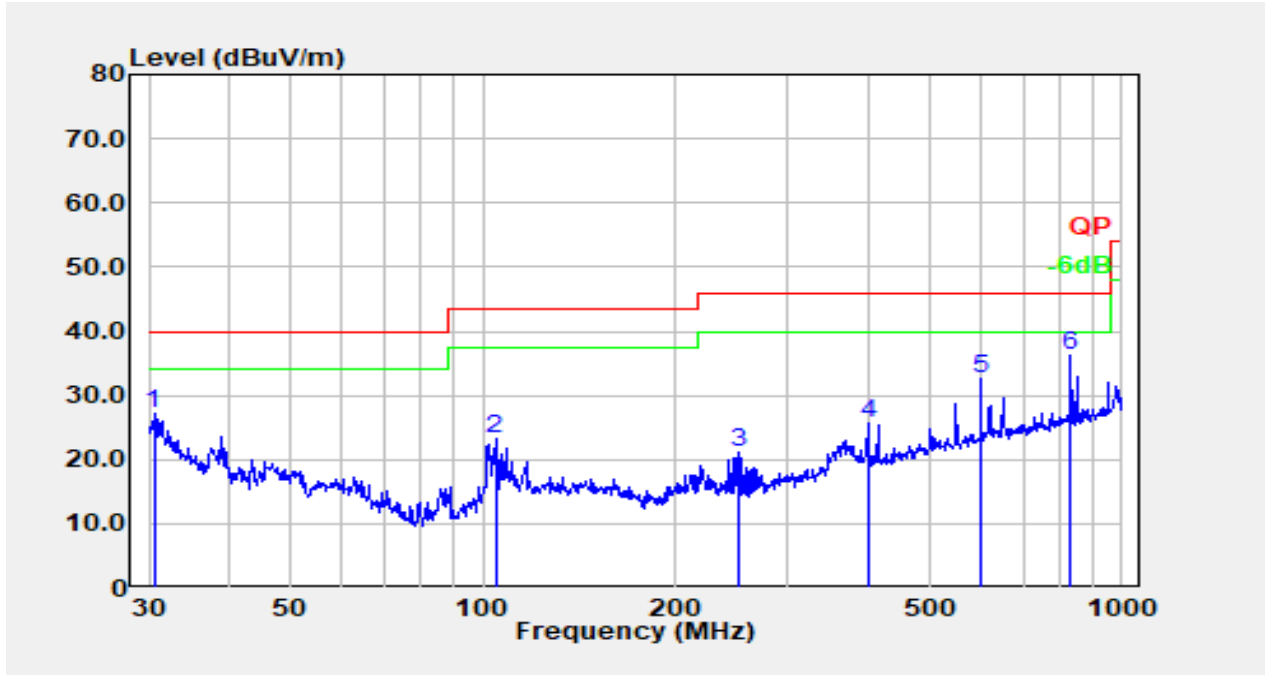
1) 30MHz-1GHz:

AC/DC Adapter Mode:

Horizontal:

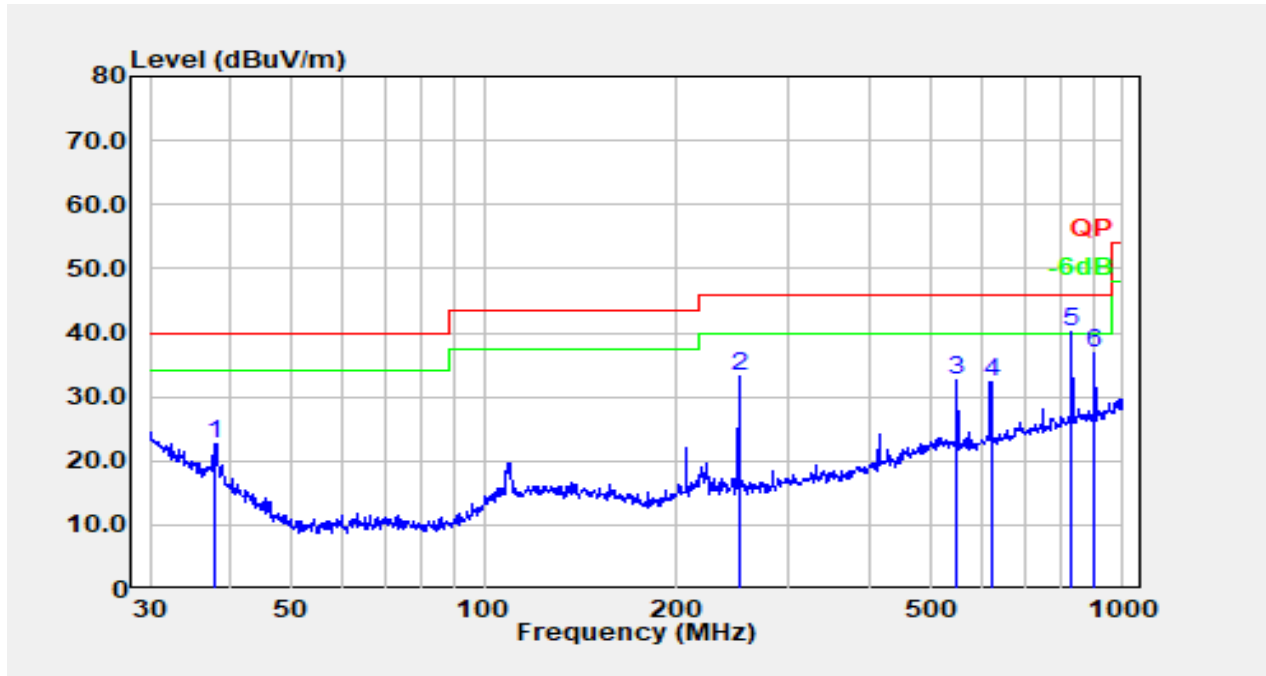


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	30.105	26.94	-3.87	23.07	40.00	16.93	Peak
2	221.392	33.10	-12.98	20.12	46.00	25.88	Peak
3	414.722	34.25	-8.40	25.85	46.00	20.15	Peak
4	601.427	39.36	-5.27	34.09	46.00	11.91	Peak
5	622.890	36.57	-4.89	31.68	46.00	14.32	Peak
6	830.400	41.66	-1.85	39.81	46.00	6.19	QP

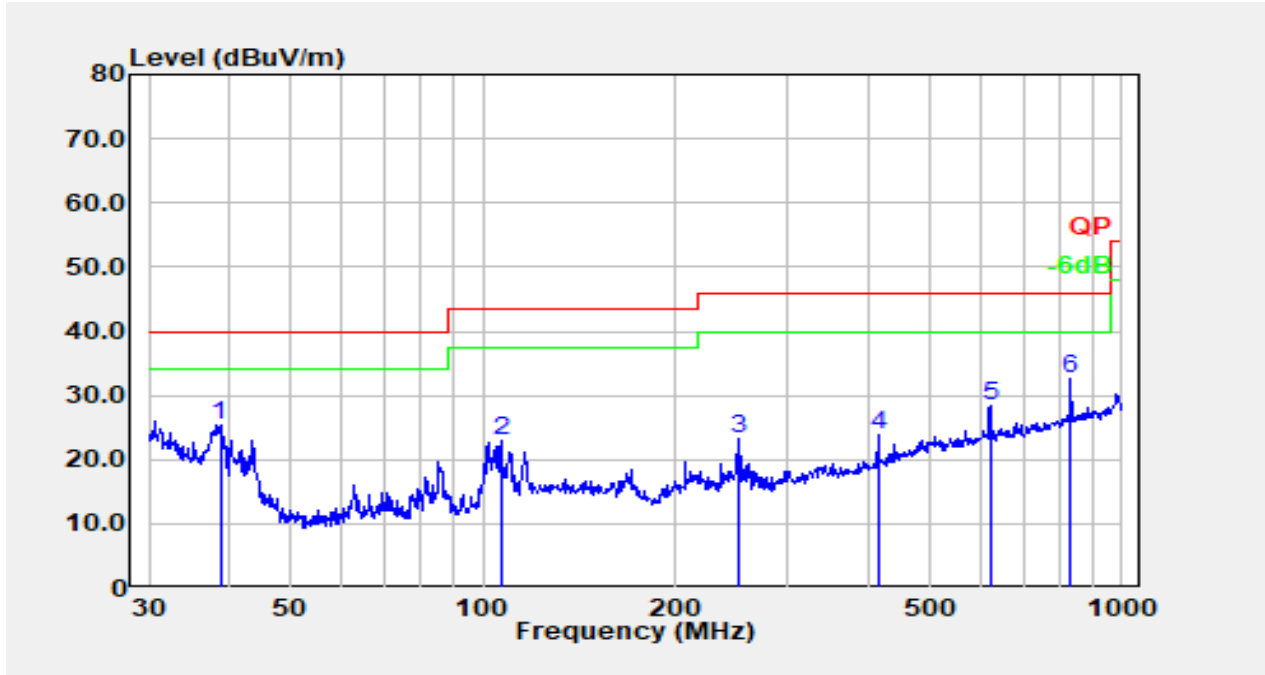
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	30.531	31.36	-4.20	27.16	40.00	12.84	Peak
2	104.536	36.90	-13.69	23.21	43.50	20.29	Peak
3	252.063	34.31	-13.15	21.16	46.00	24.84	Peak
4	400.432	34.71	-9.00	25.71	46.00	20.29	Peak
5	601.427	37.94	-5.27	32.67	46.00	13.33	Peak
6	830.400	38.11	-1.85	36.26	46.00	9.74	Peak

POE Adapter Mode:

Horizontal:

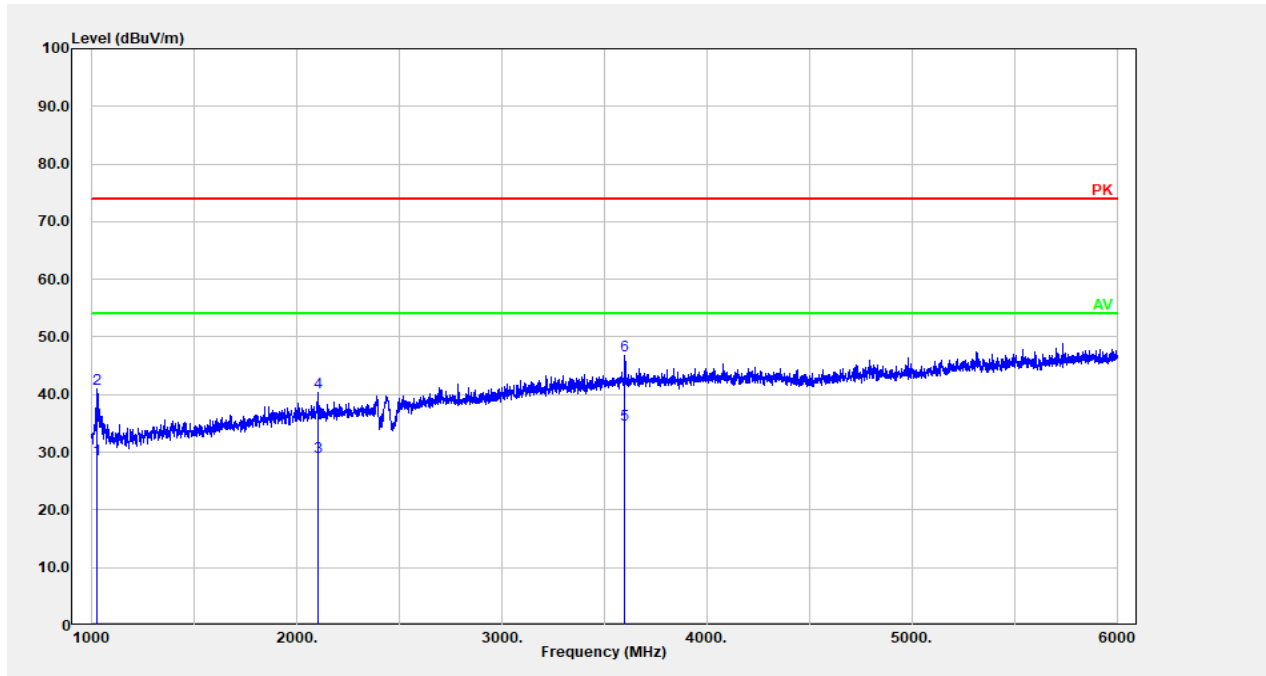
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	37.945	32.45	-9.87	22.58	40.00	17.42	Peak
2	250.301	46.51	-13.25	33.26	46.00	12.74	Peak
3	550.948	38.58	-5.98	32.60	46.00	13.40	Peak
4	622.890	37.33	-4.89	32.44	46.00	13.56	Peak
5	830.400	41.90	-1.85	40.05	46.00	5.95	QP
6	903.309	38.03	-1.16	36.87	46.00	9.13	Peak

Vertical:

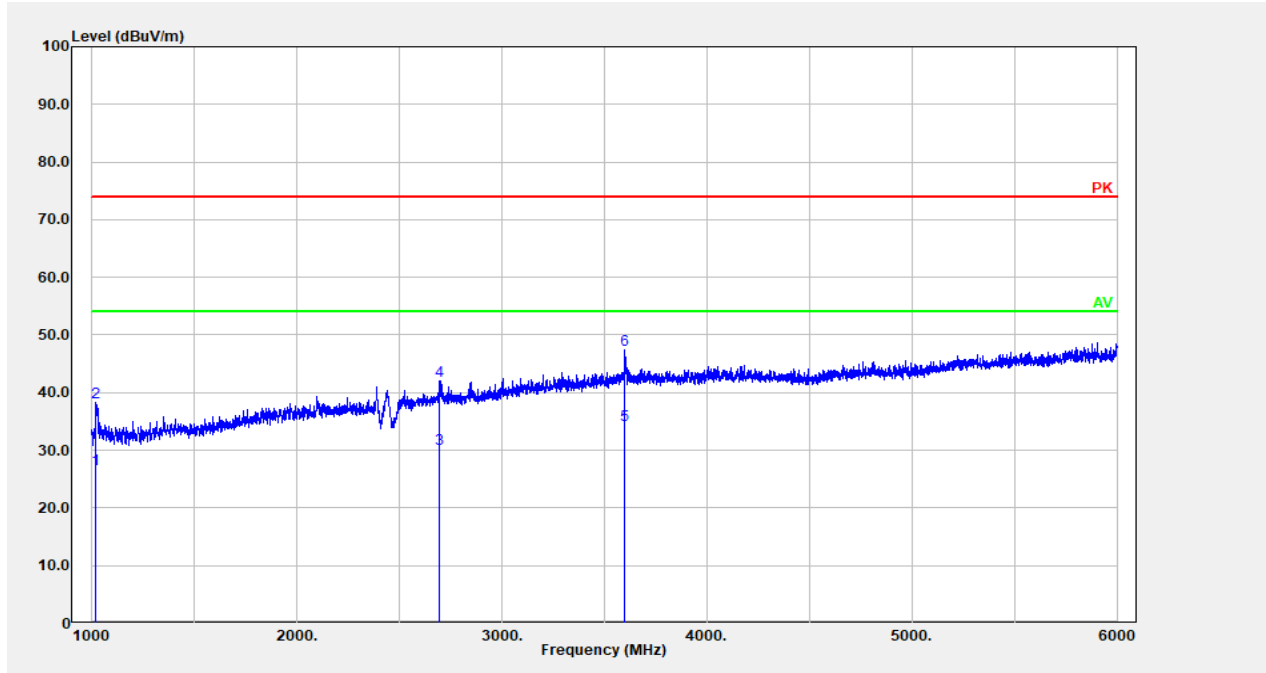
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	38.752	35.98	-10.52	25.47	40.00	14.53	Peak
2	106.759	36.16	-13.22	22.94	43.50	20.56	Peak
3	250.301	36.64	-13.25	23.38	46.00	22.62	Peak
4	414.722	32.13	-8.40	23.73	46.00	22.27	Peak
5	622.890	33.21	-4.89	28.32	46.00	17.68	Peak
6	830.400	34.57	-1.85	32.72	46.00	13.28	Peak

2) Above 1GHz
AC/DC Adapter Mode:

Horizontal:

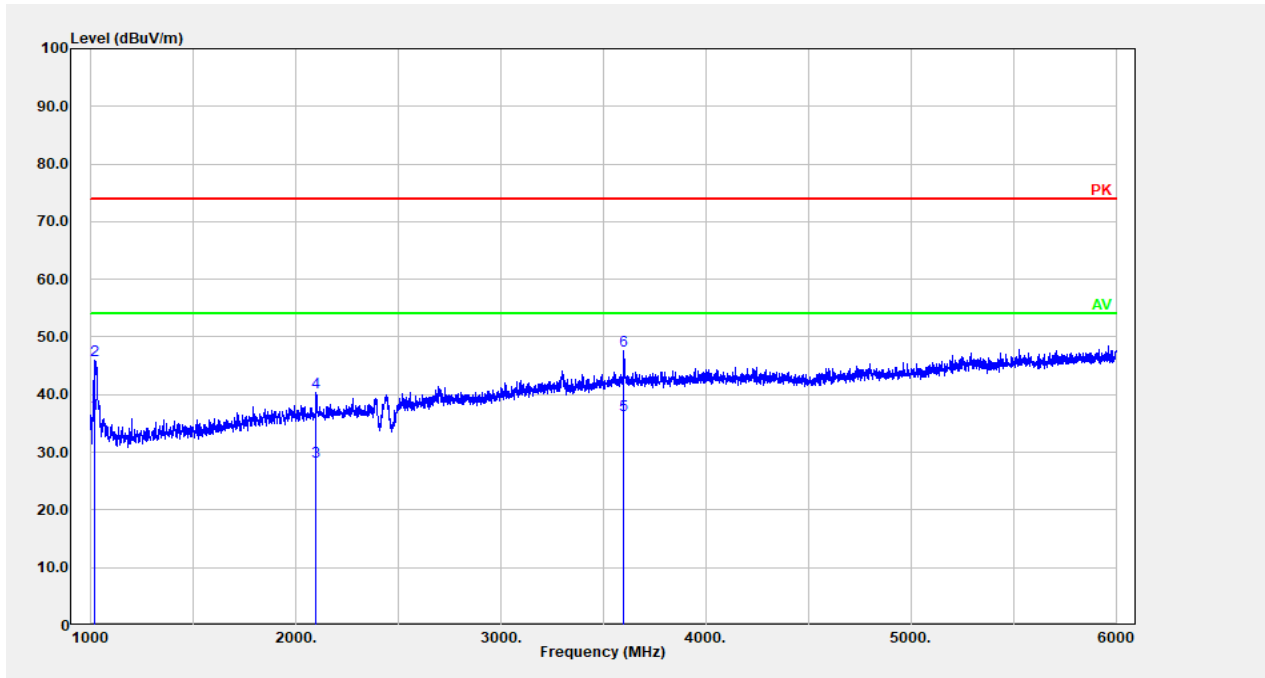


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	1026.005	31.27	-2.50	28.77	54.00	25.23	Average
2	1026.005	43.58	-2.50	41.08	74.00	32.92	Peak
3	2101.220	26.43	2.70	29.13	54.00	24.87	Average
4	2101.220	37.67	2.70	40.37	74.00	33.63	Peak
5	3599.520	25.75	9.05	34.80	54.00	19.20	Average
6	3599.520	37.77	9.05	46.82	74.00	27.18	Peak

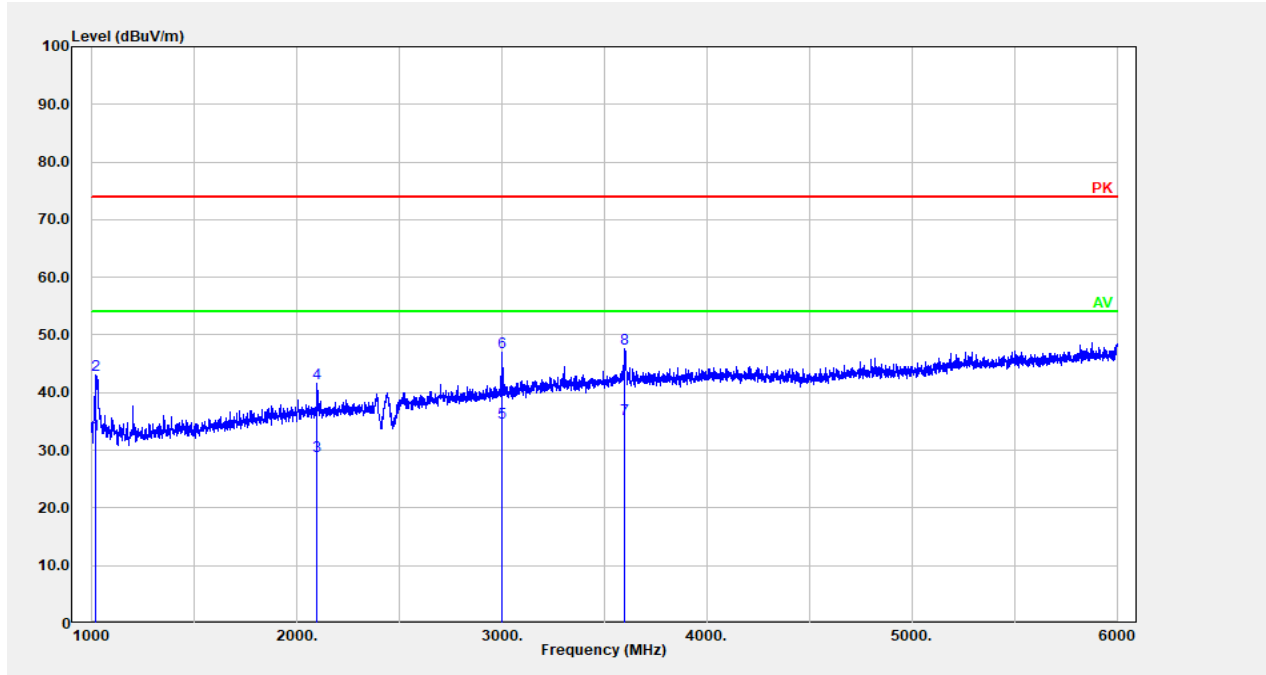
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	1020.004	29.31	-2.52	26.79	54.00	27.21	Average
2	1020.004	40.88	-2.52	38.36	74.00	35.64	Peak
3	2695.339	25.42	4.73	30.15	54.00	23.85	Average
4	2695.339	37.39	4.73	42.12	74.00	31.88	Peak
5	3599.520	25.37	9.05	34.42	54.00	19.58	Average
6	3599.520	38.33	9.05	47.38	74.00	26.62	Peak

POE Adapter Mode:

Horizontal:

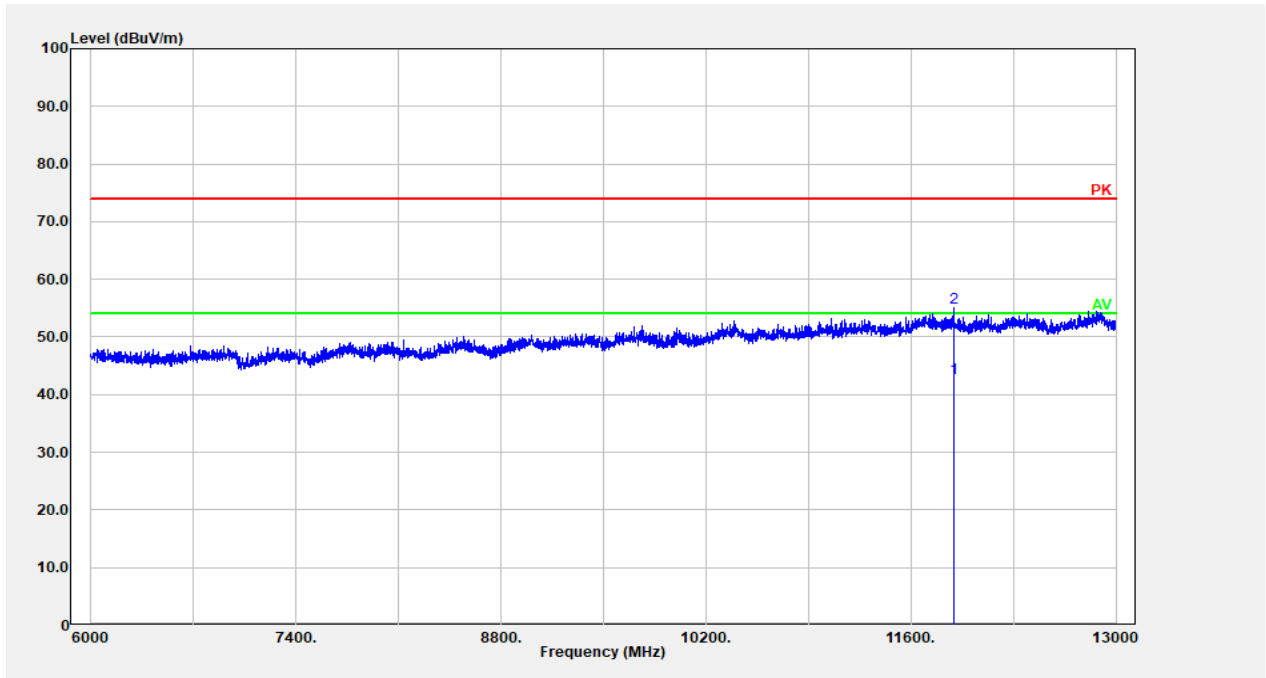
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	1020.004	39.10	-2.52	36.58	54.00	17.42	Average
2	1020.004	48.50	-2.52	45.98	74.00	28.02	Peak
3	2098.220	25.63	2.69	28.32	54.00	25.68	Average
4	2098.220	37.63	2.69	40.32	74.00	33.68	Peak
5	3600.520	27.45	9.05	36.50	54.00	17.50	Average
6	3600.520	38.55	9.05	47.60	74.00	26.40	Peak

Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	1020.004	35.17	-2.52	32.65	54.00	21.35	Average
2	1020.004	45.68	-2.52	43.16	74.00	30.84	Peak
3	2096.219	26.31	2.69	29.00	54.00	25.00	Average
4	2096.219	38.86	2.69	41.55	74.00	32.45	Peak
5	2998.400	28.46	6.25	34.71	54.00	19.29	Average
6	2998.400	40.72	6.25	46.97	74.00	27.03	Peak
7	3600.520	26.35	9.05	35.40	54.00	18.60	Average
8	3600.520	38.61	9.05	47.66	74.00	26.34	Peak

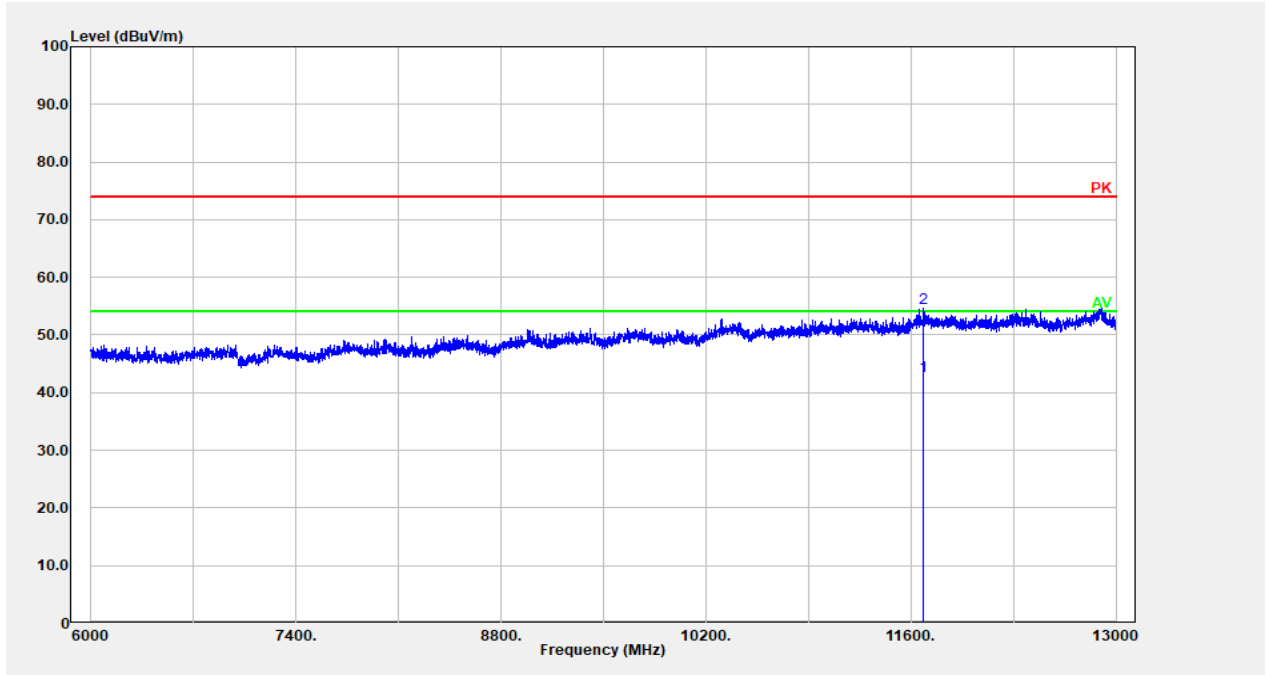
AC/DC Adapter Mode:

Horizontal:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	11895.180	22.27	20.64	42.91	54.00	11.09	Average
2	11895.180	34.41	20.64	55.05	74.00	18.95	Peak

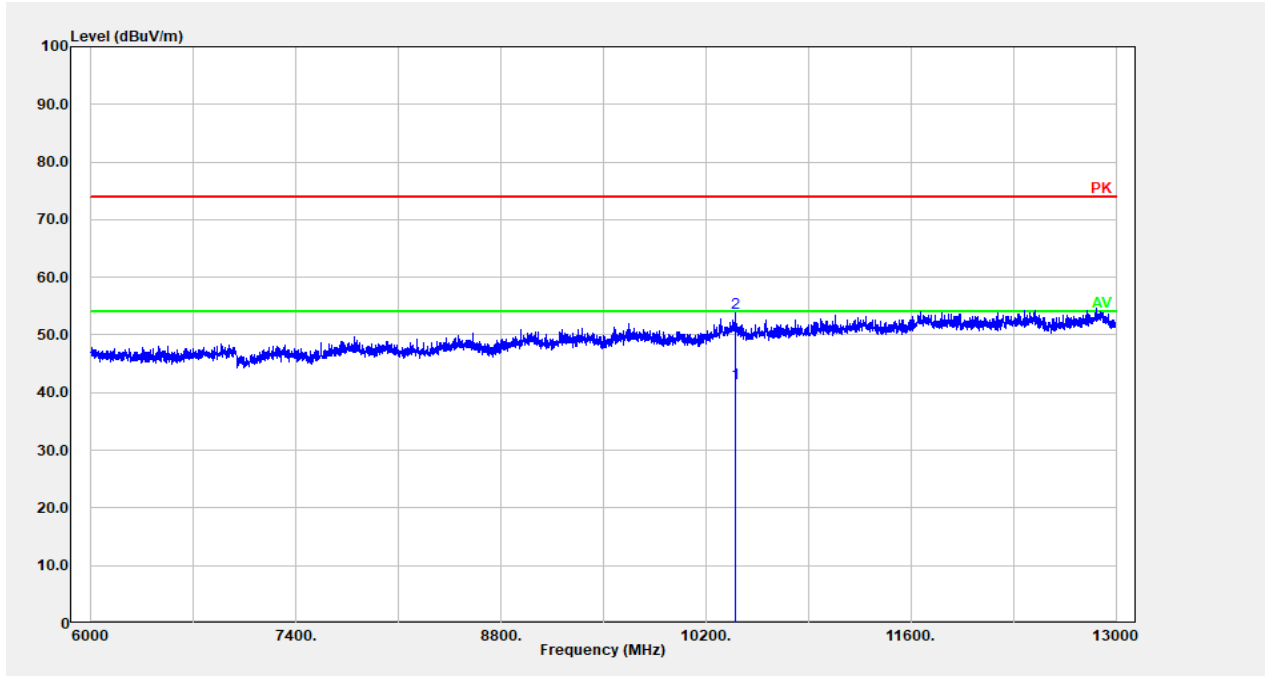
Vertical:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	11685.140	22.52	20.42	42.94	54.00	11.06	Average
2	11685.140	34.30	20.42	54.72	74.00	19.28	Peak

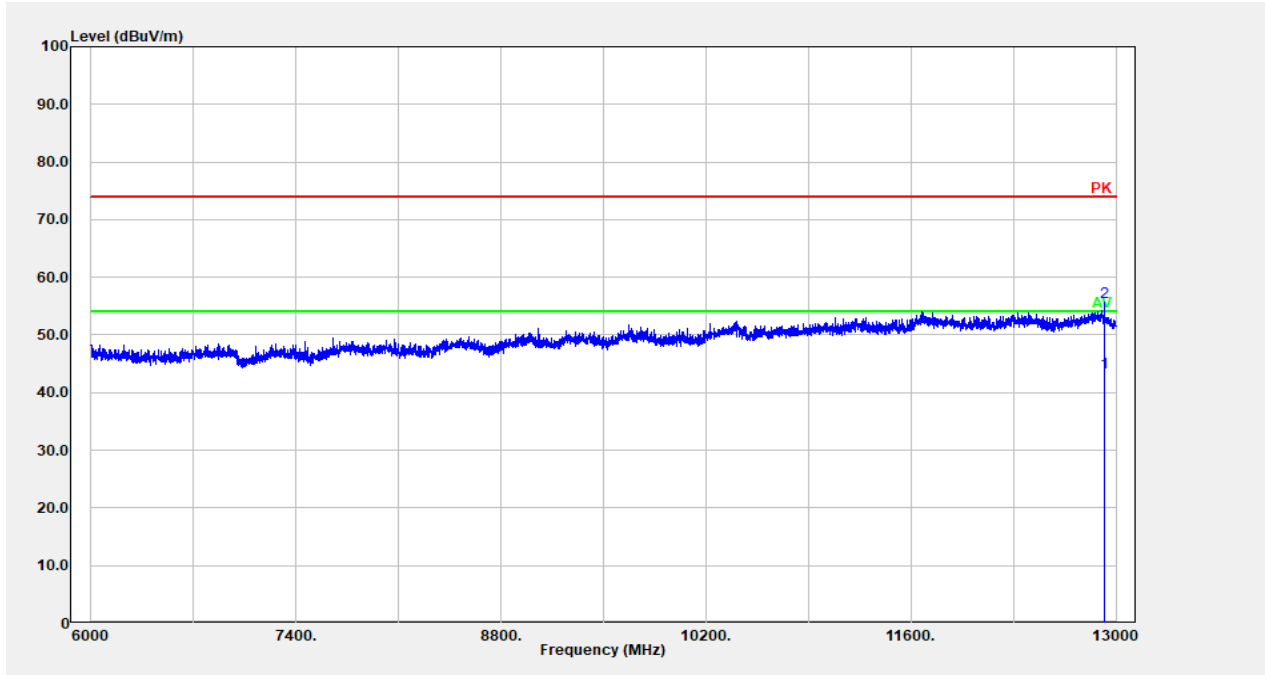
POE Adapter:

Horizontal:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	10403.880	23.21	18.46	41.67	54.00	12.33	Average
2	10403.880	35.30	18.46	53.76	74.00	20.24	Peak

Vertical:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	12918.780	22.06	21.45	43.51	54.00	10.49	Average
2	12918.780	34.21	21.45	55.66	74.00	18.34	Peak

===== END OF REPORT =====