



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-E18CV1

Product Name: Door Phone

Model Number: E18C

**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: CR22030053-00D

Date Of Issue: 2022-05-30

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

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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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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Door Phone
EUT Model:	E18C
Highest Operation Frequency:	2480 MHz
Rated Input Voltage:	Dc 12V from Adapter or DC 48V from POE
Serial Number:	CR22030053-RF-S1
EUT Received Date:	2022.4.20
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
Huntkey	Adapter	HKA01105021-XE	0D1805002143
TP-link	Adapter(POE)	TL-SF1005P	1167604001685
DELL	Laptop	E6410	GMLGPM1
TOTOLINK	Wireless Router	LR1200	LR1200155P00167
AKUVOX	Card Reader	N5632	MN52P0024
Unknown	Load	Unknown	Load1

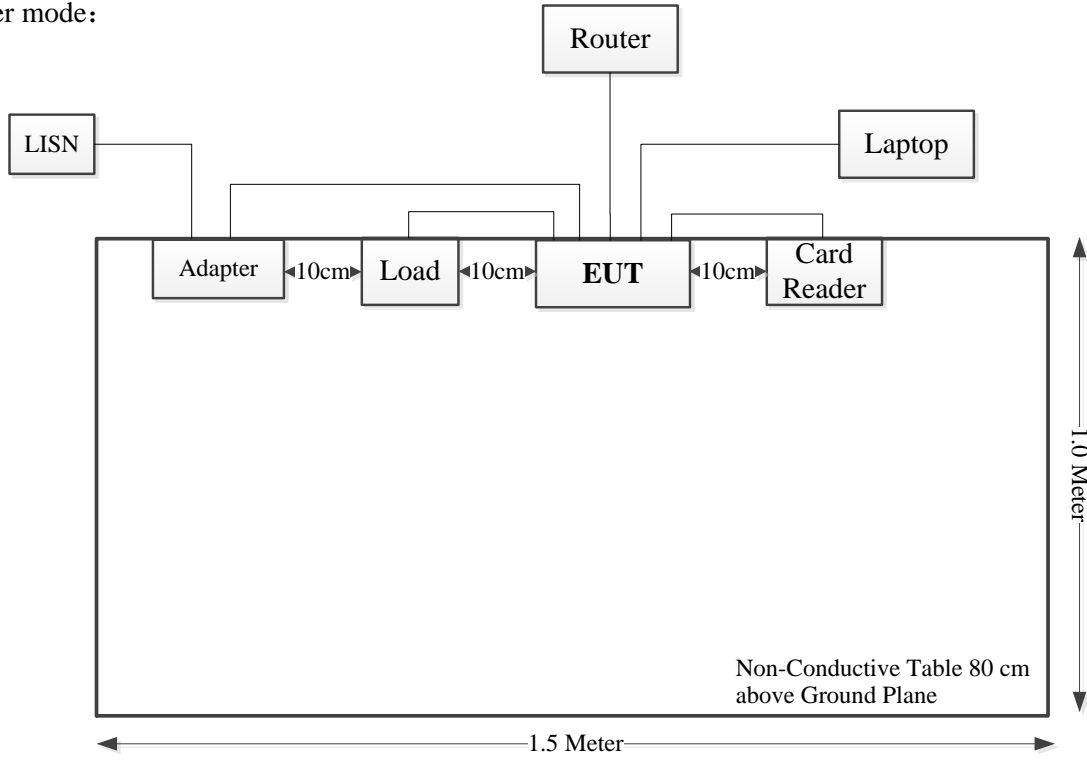
1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	No	Yes	3	EUT	Router
RJ45 Cable	No	Yes	3	POE	Router
Power Cable	No	No	1.2	EUT	Adapter
RJ45 Cable	No	No	1	EUT	POE
Serial Cable	No	No	3	EUT	Laptop
Cable	No	No	0.3	EUT	Load
Cable	No	No	0.3	EUT	Card Reader

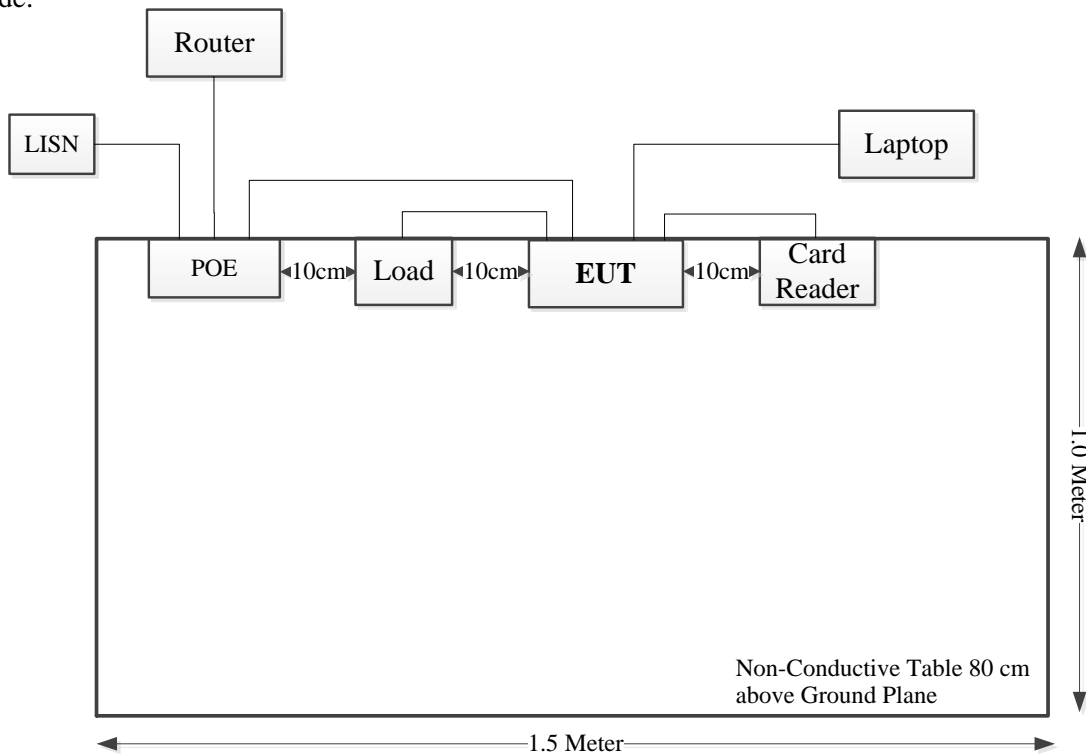
1.2.4 Block Diagram of Test Setup

Conducted Emissions:

Adapter mode:

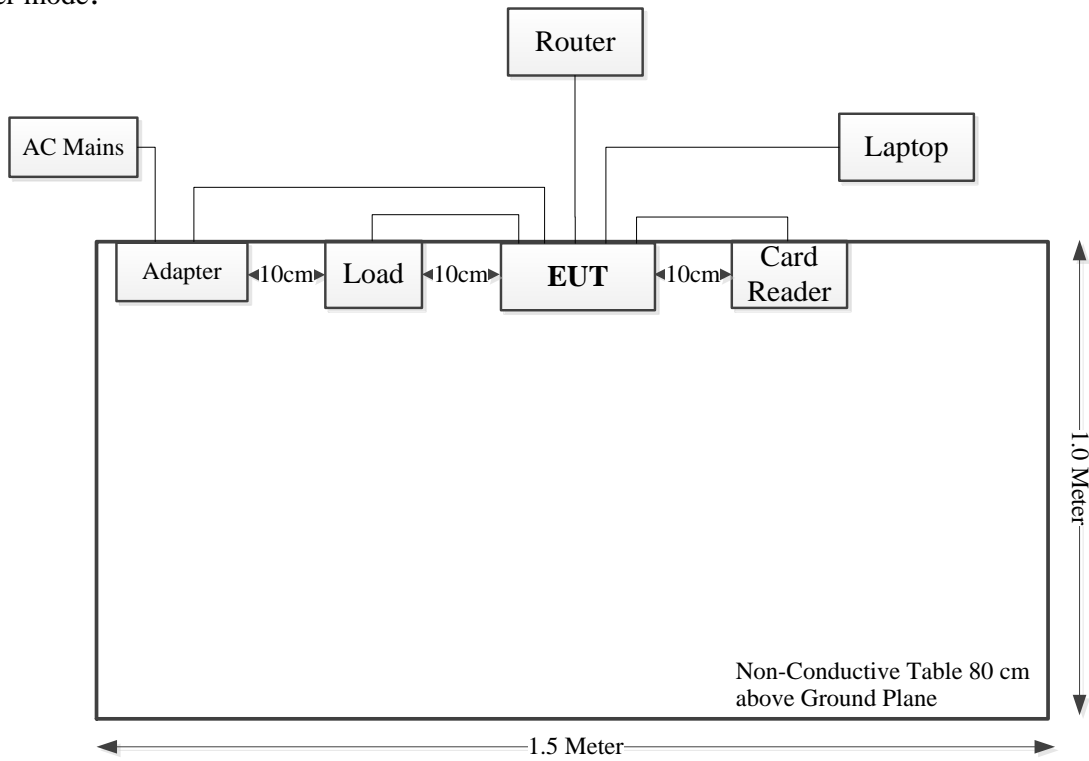


POE mode:

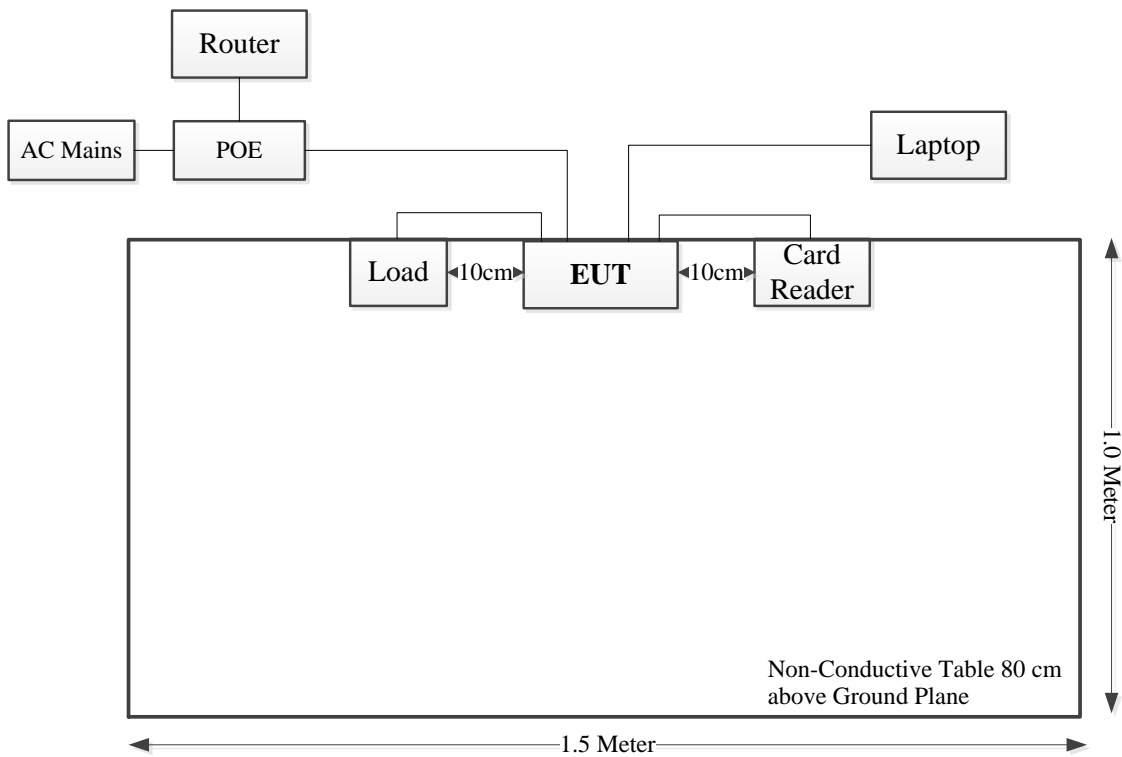


Radiated Emission :

Adapter mode:



POE mode:



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	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

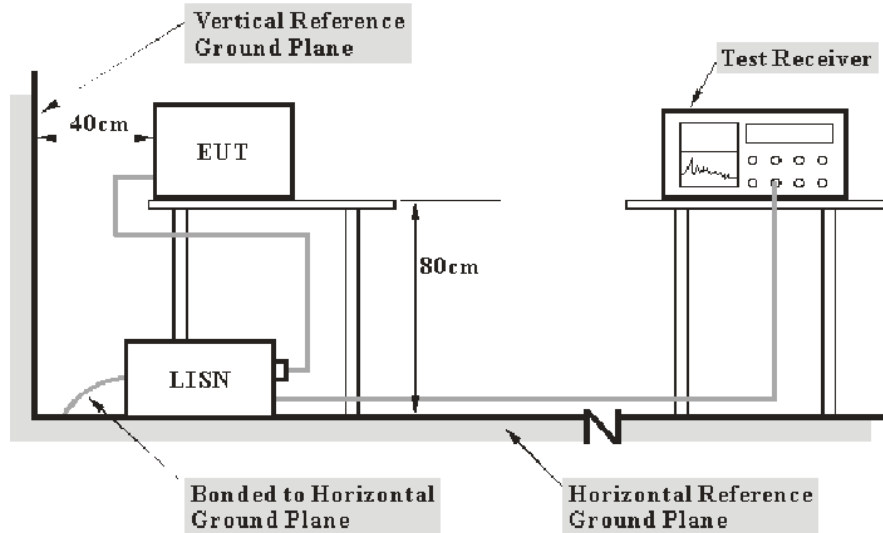
2. SUMMARY OF TEST RESULTS

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

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 or EUT 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

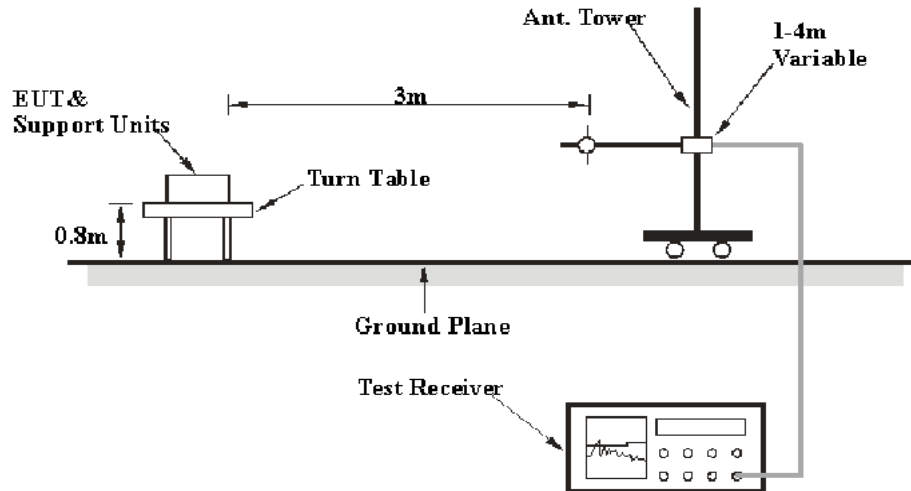
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

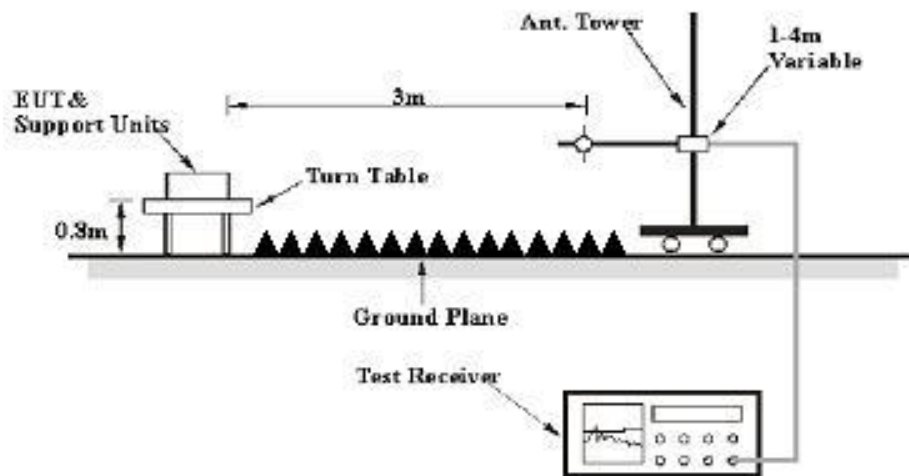
3.2 Radiation Spurious Emissions

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	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	3 MHz	/	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:	CR22030053-RF-S1	Test Date:	2022-05-12~2022-05-13
Test Site:	CE	Test Mode:	Operating
Tester:	Nick Tang	Test Result:	Pass

Environmental Conditions:

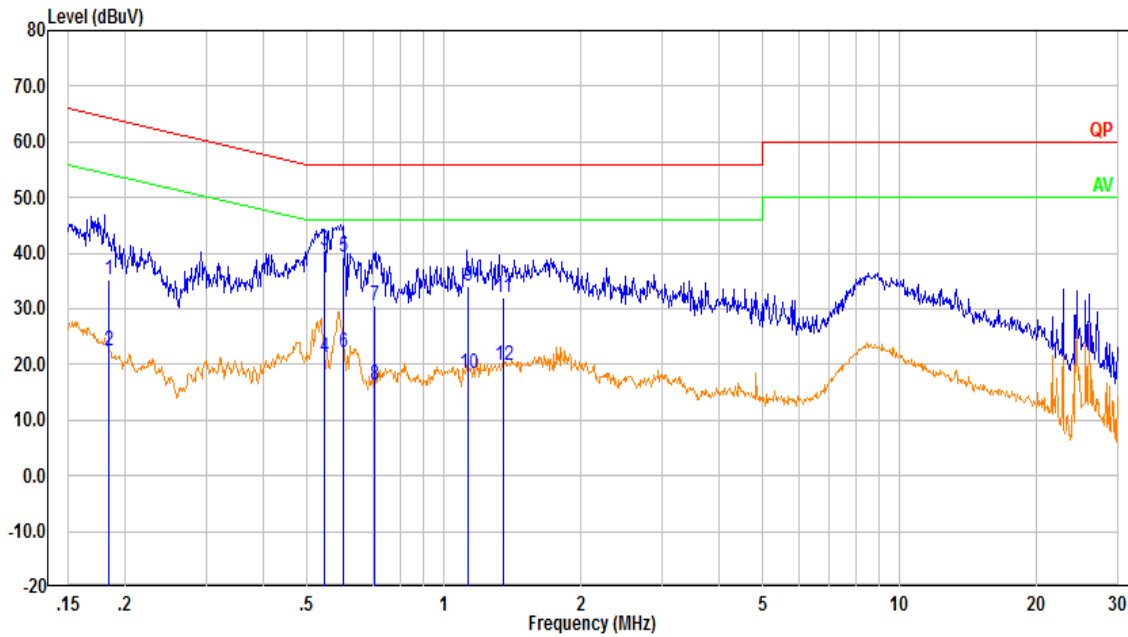
Temperature: (°C)	24~25.8	Relative Humidity: (%)	68~71	ATM Pressure: (kPa)	100.5~100.9
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2022-04-01	2023-03-31
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

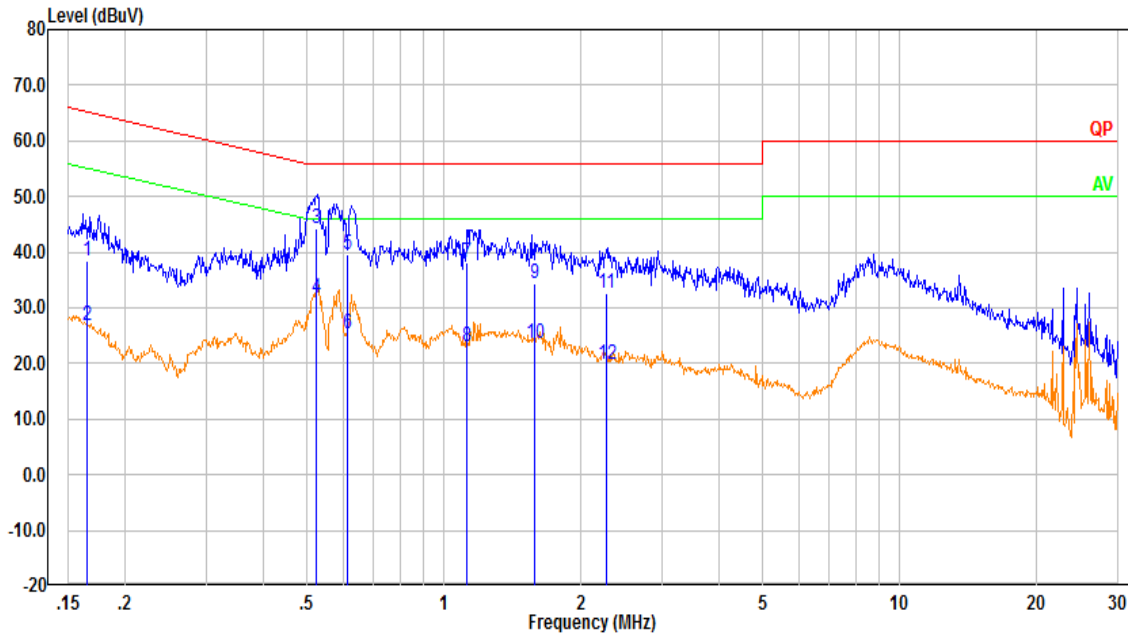
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Adapter mode:
Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.184	25.76	9.61	35.37	64.31	28.94	QP
2	0.184	12.81	9.61	22.42	54.31	31.89	Average
3	0.546	30.97	9.61	40.59	56.00	15.41	QP
4	0.546	11.71	9.61	21.32	46.00	24.68	Average
5	0.602	29.72	9.62	39.34	56.00	16.66	QP
6	0.602	12.47	9.62	22.09	46.00	23.91	Average
7	0.706	20.94	9.62	30.56	56.00	25.44	QP
8	0.706	6.76	9.62	16.38	46.00	29.62	Average
9	1.131	24.44	9.62	34.06	56.00	21.94	QP
10	1.131	8.74	9.62	18.36	46.00	27.64	Average
11	1.349	22.32	9.62	31.94	56.00	24.06	QP
12	1.349	10.34	9.62	19.97	46.00	26.03	Average

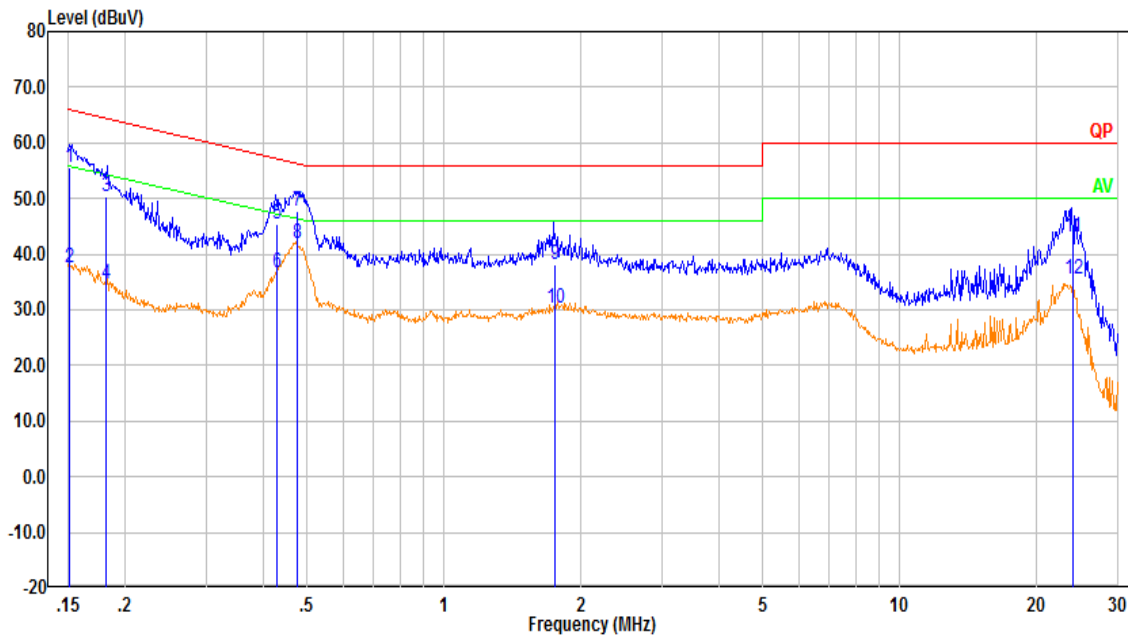
Neutral:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.165	28.93	9.61	38.54	65.22	26.68	QP
2	0.165	17.15	9.61	26.76	55.22	28.46	Average
3	0.523	34.74	9.61	44.36	56.00	11.64	QP
4	0.523	21.99	9.61	31.60	46.00	14.40	Average
5	0.615	30.01	9.62	39.63	56.00	16.37	QP
6	0.615	15.70	9.62	25.32	46.00	20.68	Average
7	1.124	28.56	9.62	38.18	56.00	17.82	QP
8	1.124	13.38	9.62	23.00	46.00	23.00	Average
9	1.581	24.81	9.63	34.43	56.00	21.57	QP
10	1.581	13.95	9.63	23.58	46.00	22.42	Average
11	2.269	23.12	9.64	32.76	56.00	23.24	QP
12	2.269	10.19	9.64	19.83	46.00	26.17	Average

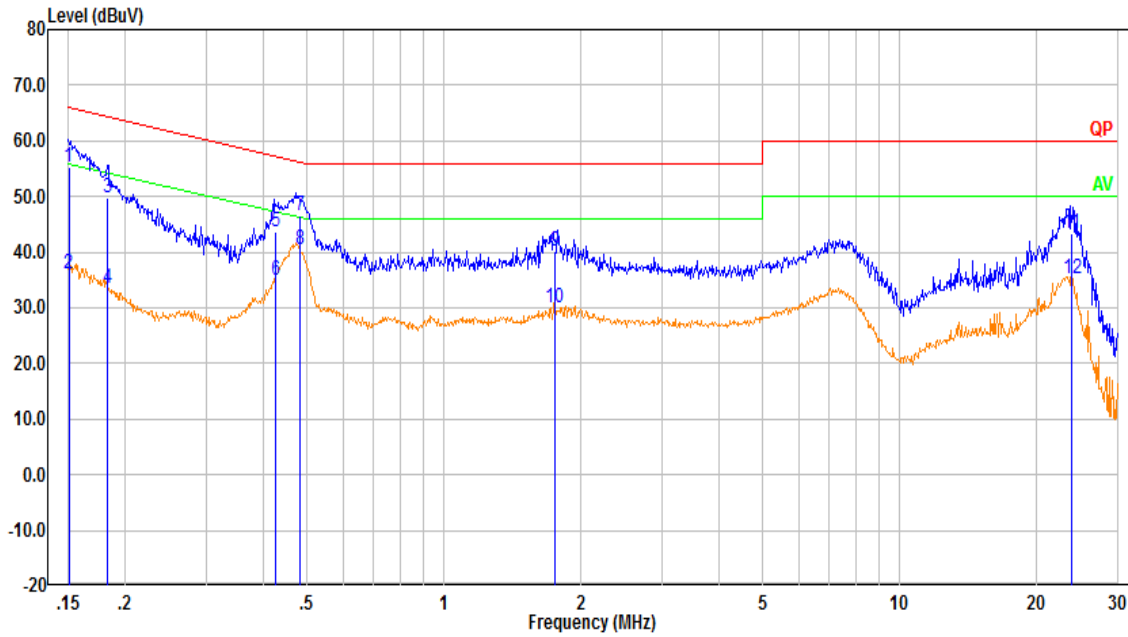
POE mode:

Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.151	45.96	9.61	55.57	65.97	10.40	QP
2	0.151	27.84	9.61	37.45	55.97	18.52	Average
3	0.181	40.78	9.61	50.39	64.45	14.06	QP
4	0.181	25.16	9.61	34.77	54.45	19.68	Average
5	0.430	35.73	9.61	45.34	57.25	11.91	QP
6	0.430	27.06	9.61	36.67	47.25	10.58	Average
7	0.477	38.23	9.61	47.84	56.39	8.55	QP
8	0.477	32.24	9.61	41.85	46.39	4.54	Average
9	1.746	28.46	9.63	38.09	56.00	17.91	QP
10	1.746	20.72	9.63	30.35	46.00	15.65	Average
11	23.963	33.39	9.81	43.20	60.00	16.80	QP
12	23.963	25.62	9.81	35.43	50.00	14.57	Average

Neutral:



No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	0.150	45.60	9.61	55.21	66.00	10.79	QP
2	0.150	26.59	9.61	36.20	56.00	19.80	Average
3	0.182	40.28	9.61	49.89	64.38	14.49	QP
4	0.182	23.88	9.61	33.49	54.38	20.89	Average
5	0.427	34.16	9.61	43.77	57.31	13.54	QP
6	0.427	25.42	9.61	35.03	47.31	12.28	Average
7	0.482	37.03	9.61	46.64	56.30	9.66	QP
8	0.482	30.87	9.61	40.48	46.30	5.82	Average
9	1.746	30.45	9.63	40.07	56.00	15.93	QP
10	1.746	20.50	9.63	30.12	46.00	15.88	Average
11	23.860	33.60	9.75	43.35	60.00	16.65	QP
12	23.860	25.56	9.75	35.31	50.00	14.69	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22030053-RF-S1	Test Date:	2022-05-18
Test Site:	966-2, 966-1	Test Mode:	Operating
Tester:	Gary Ling, Tommy Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	22.5~24.5	Relative Humidity: (%)	60~68	ATM Pressure: (kPa)	100.9~101.0
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Test Equipment List and Details:

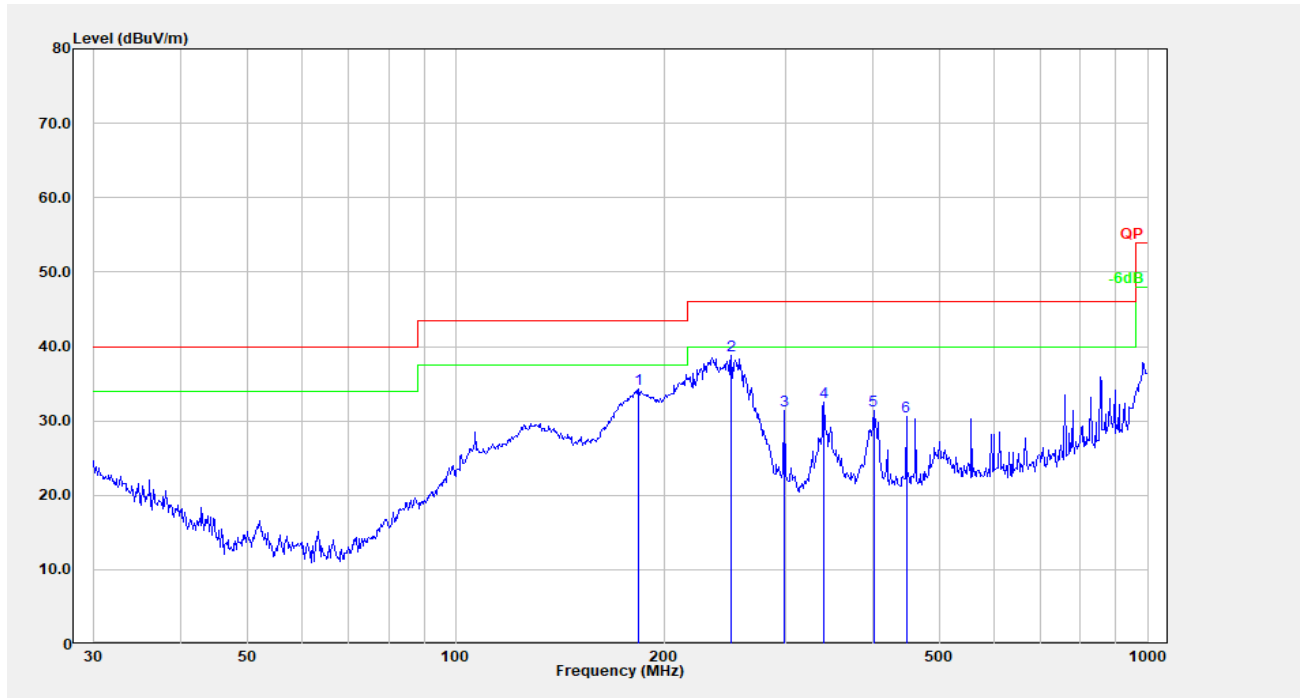
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
Audix	Test Software	E3	201021 (V9)	N/A	N/A
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
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2021-08-08	2022-08-07

* 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:

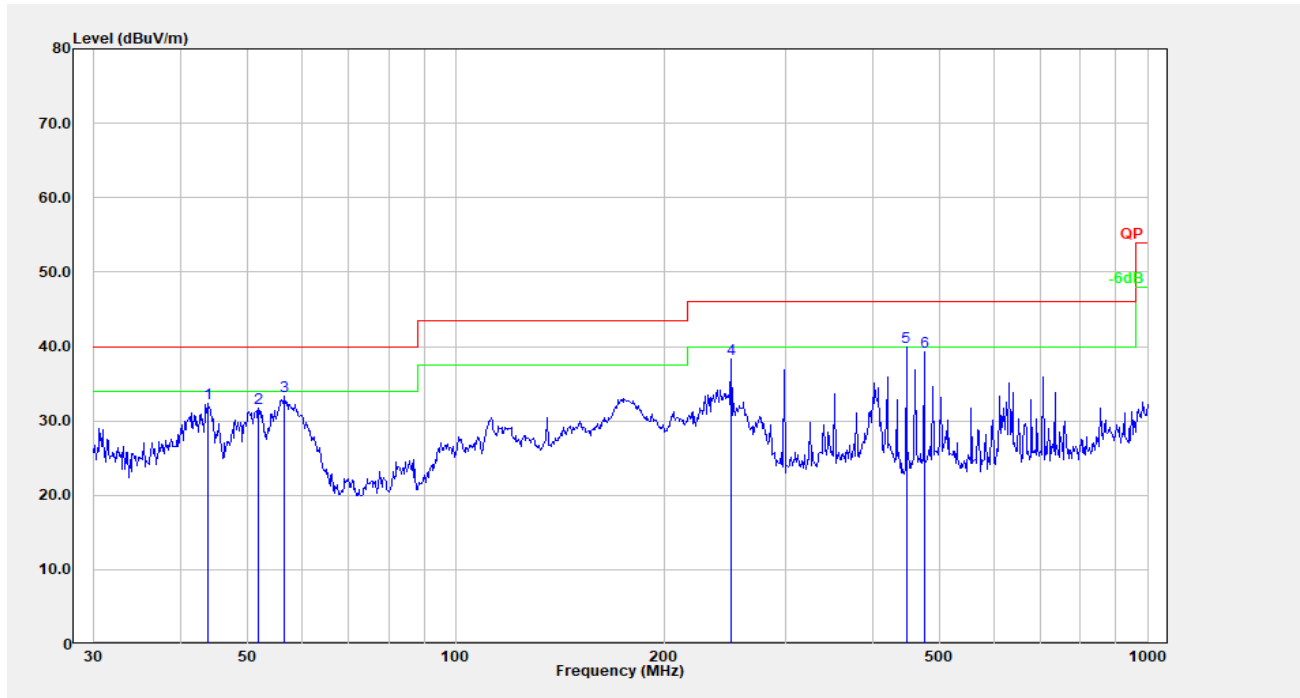
Adapter mode:

Horizontal:



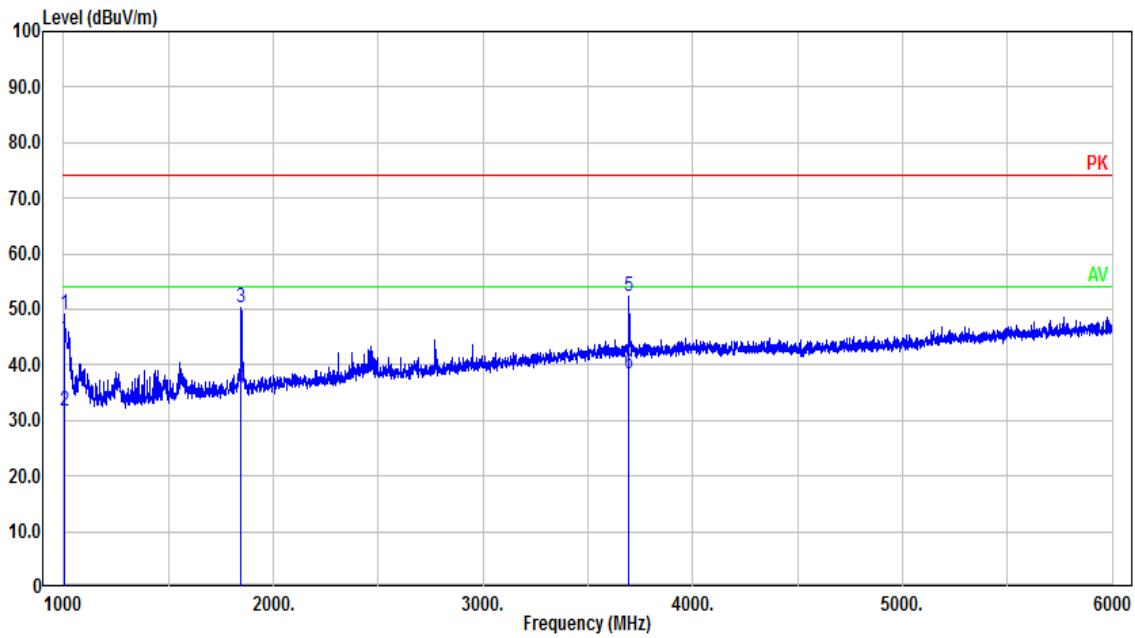
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	183.844	48.01	-13.72	34.29	43.50	9.21	Peak
2	250.301	52.02	-13.25	38.77	46.00	7.23	Peak
3	298.268	42.17	-10.86	31.31	46.00	14.69	Peak
4	340.782	42.70	-10.23	32.47	46.00	13.53	Peak
5	401.839	40.36	-8.96	31.40	46.00	14.60	Peak
6	447.982	37.84	-7.24	30.60	46.00	15.40	Peak

Vertical:

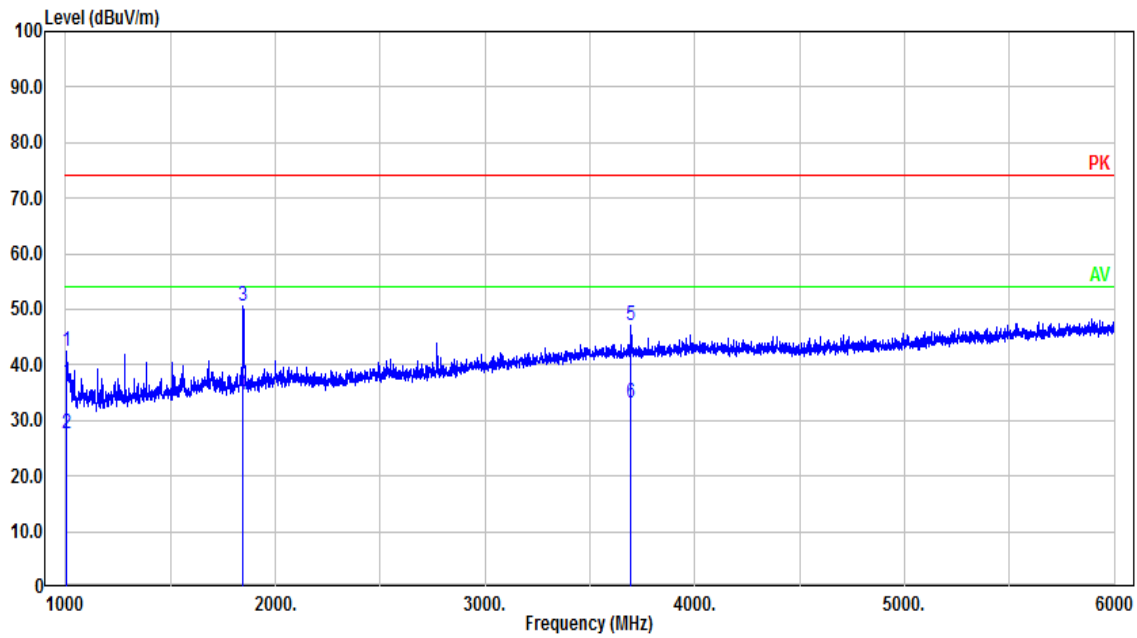


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	43.812	46.17	-13.80	32.38	40.00	7.62	Peak
2	51.843	49.21	-17.43	31.78	40.00	8.22	Peak
3	56.593	50.85	-17.53	33.32	40.00	6.68	Peak
4	250.301	51.55	-13.25	38.30	46.00	7.70	Peak
5	447.982	47.09	-7.24	39.84	46.00	6.16	Peak
6	475.499	45.74	-6.53	39.21	46.00	6.79	Peak

Horizontal:

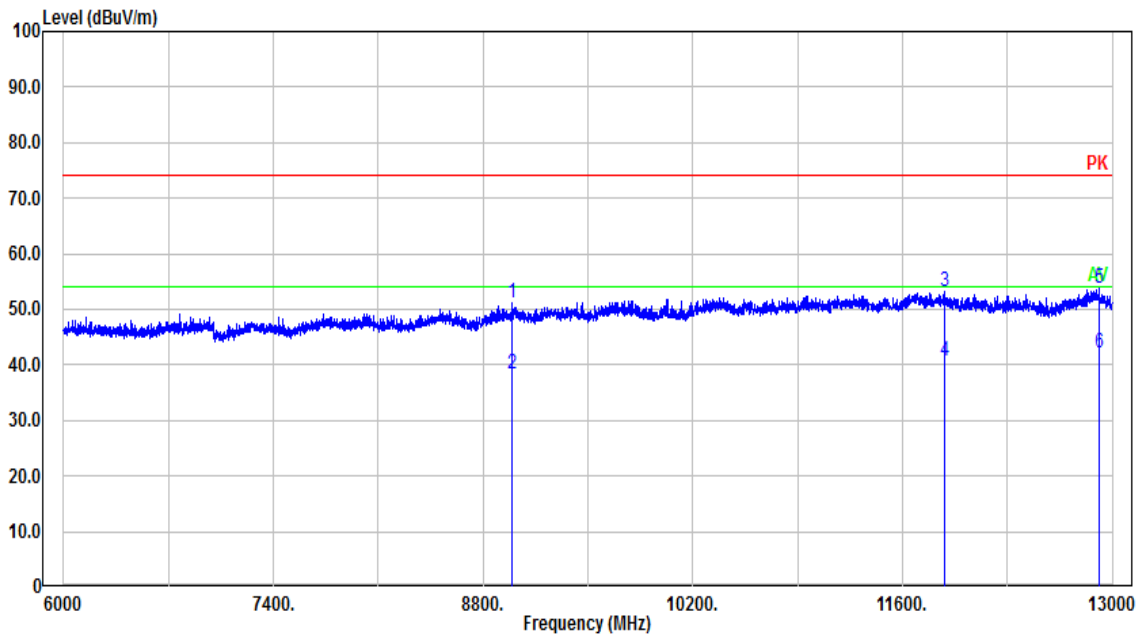


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	1002.000	51.82	-2.58	49.24	74.00	24.76	Peak
2	1002.000	34.21	-2.58	31.63	54.00	22.37	Average
3	1847.169	48.63	1.69	50.32	74.00	23.68	Peak
4	1847.169	34.16	1.69	35.85	54.00	18.15	Average
5	3695.539	43.11	9.17	52.28	74.00	21.72	Peak
6	3695.539	29.16	9.17	38.33	54.00	15.67	Average

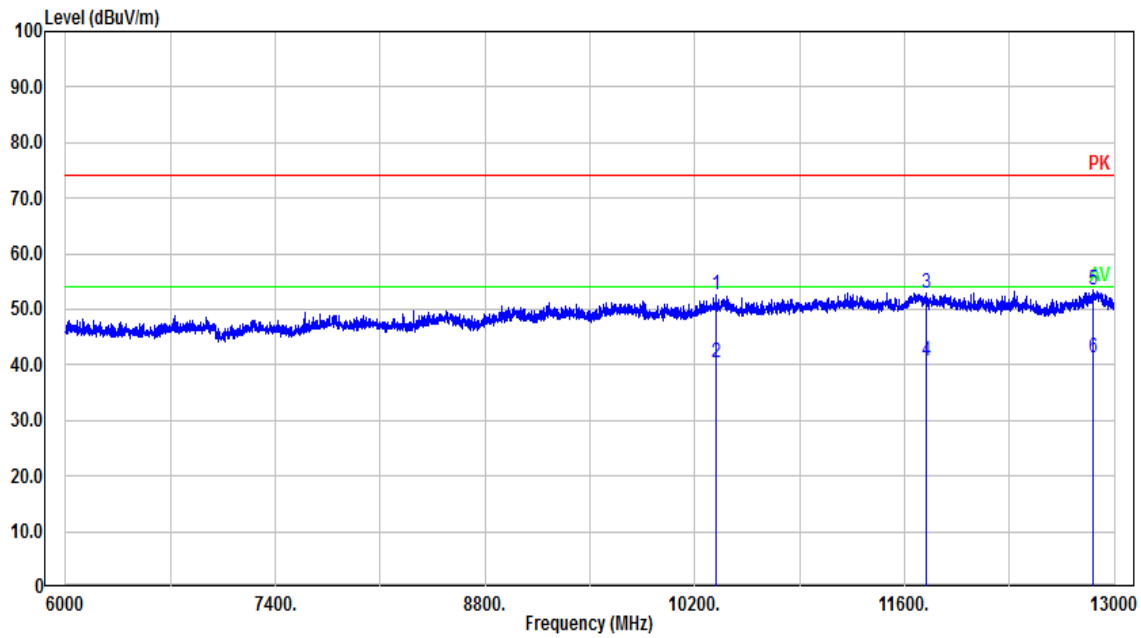
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	1002.000	44.95	-2.58	42.37	74.00	31.63	Peak
2	1002.000	30.24	-2.58	27.66	54.00	26.34	Average
3	1847.169	48.86	1.69	50.55	74.00	23.45	Peak
4	1847.169	32.86	1.69	34.55	54.00	19.45	Average
5	3695.539	38.02	9.17	47.19	74.00	26.81	Peak
6	3695.539	23.85	9.17	33.02	54.00	20.98	Average

Horizontal:

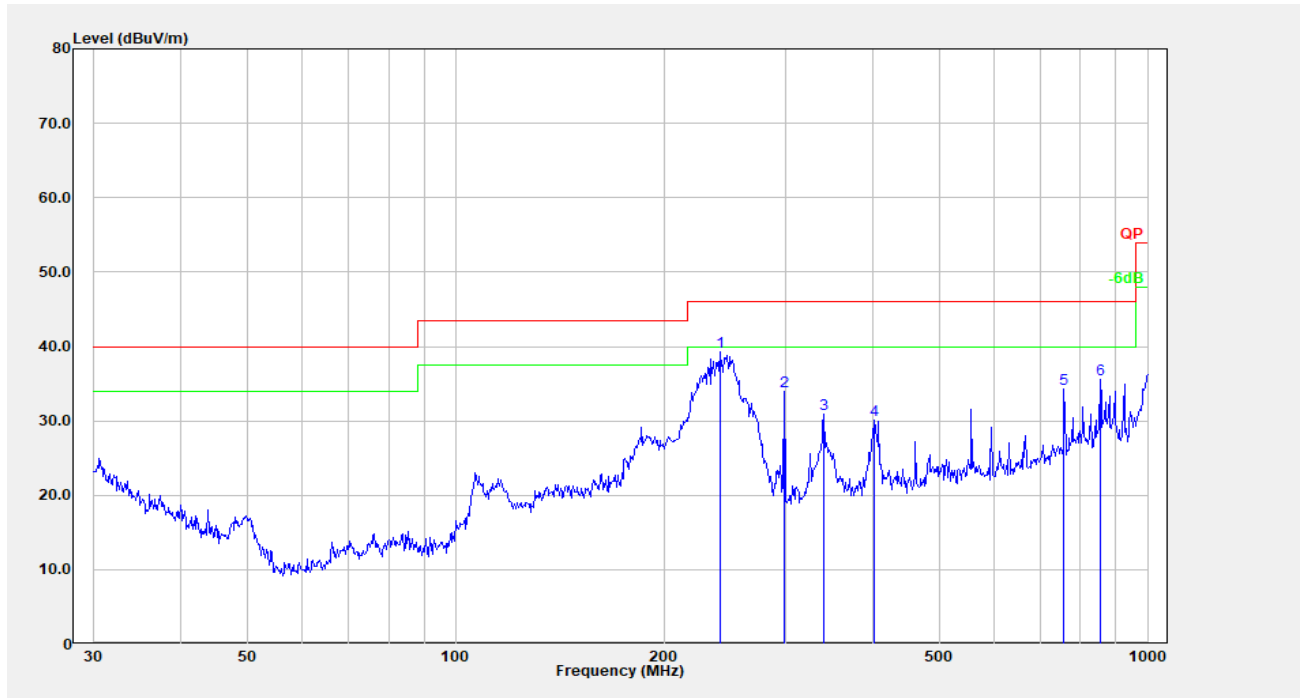


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	8990.998	33.99	17.13	51.12	74.00	22.88	Peak
2	8990.998	21.17	17.13	38.30	54.00	15.70	Average
3	11885.380	32.71	20.56	53.27	74.00	20.73	Peak
4	11885.380	20.16	20.56	40.72	54.00	13.28	Average
5	12910.380	32.26	21.52	53.78	74.00	20.22	Peak
6	12910.380	20.53	21.52	42.05	54.00	11.95	Average

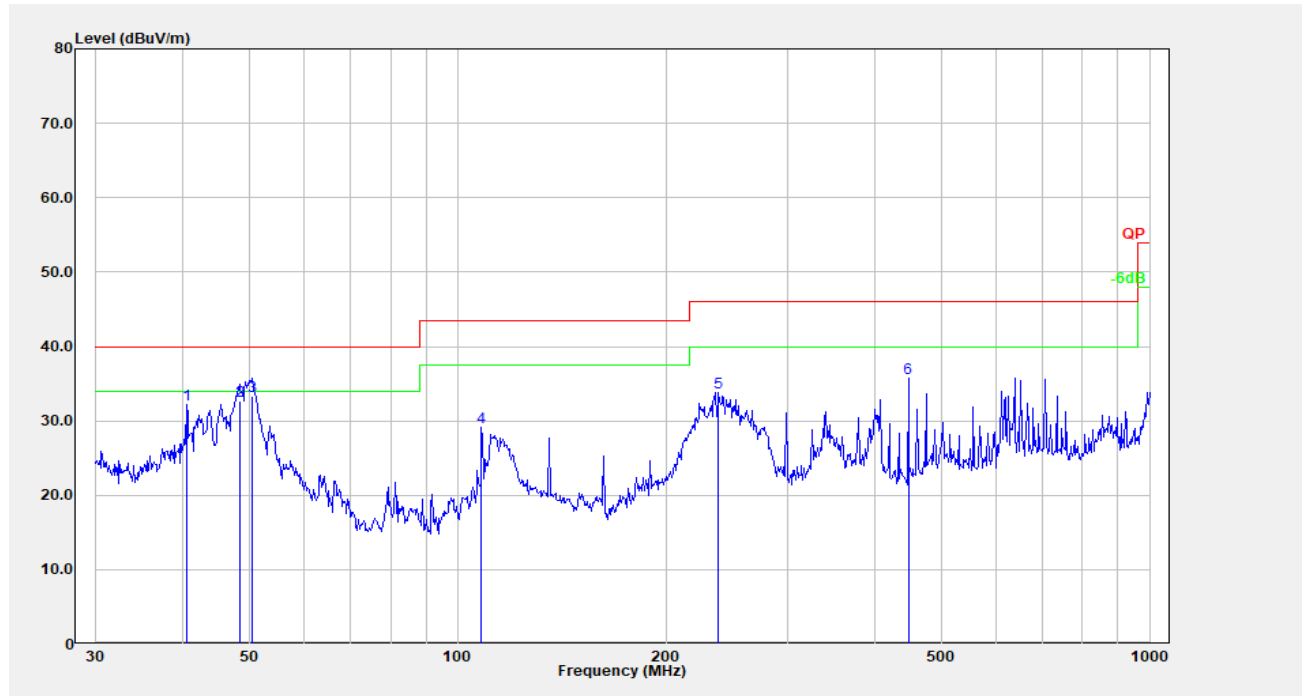
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	10343.670	34.25	18.41	52.66	74.00	21.34	Peak
2	10343.670	22.05	18.41	40.46	54.00	13.54	Average
3	11746.750	32.73	20.25	52.98	74.00	21.02	Peak
4	11746.750	20.36	20.25	40.61	54.00	13.39	Average
5	12855.770	32.35	21.21	53.56	74.00	20.44	Peak
6	12855.770	20.17	21.21	41.38	54.00	12.62	Average

POE mode:
Horizontal:

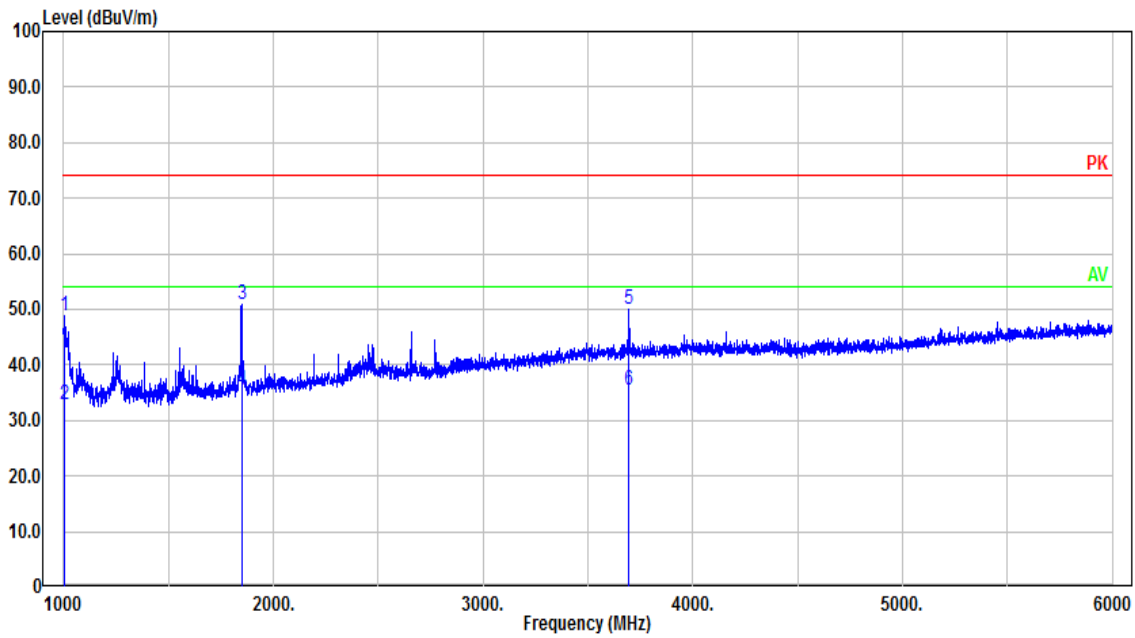


No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	240.830	52.47	-13.16	39.31	46.00	6.69	Peak
2	298.268	44.76	-10.86	33.90	46.00	12.10	Peak
3	340.782	41.10	-10.23	30.87	46.00	15.13	Peak
4	403.250	38.97	-8.92	30.05	46.00	15.95	Peak
5	758.041	37.47	-3.16	34.31	46.00	11.69	Peak
6	854.025	37.17	-1.65	35.53	46.00	10.47	Peak

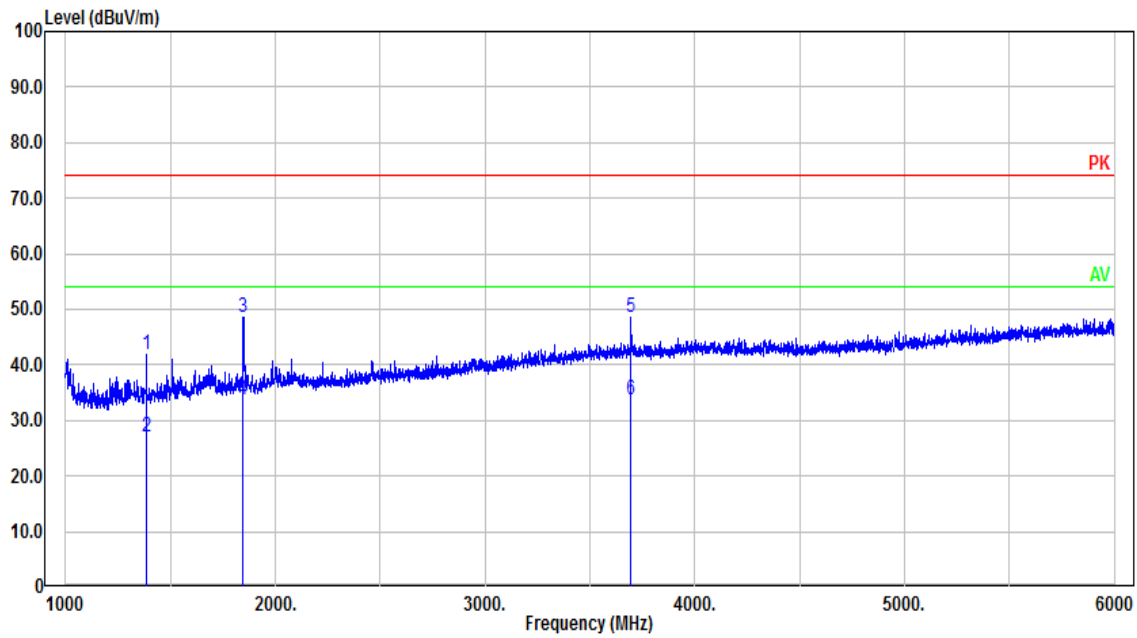
Vertical:

No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	40.559	44.10	-11.86	32.24	40.00	7.76	Peak
2	48.492	49.21	-16.52	32.69	40.00	7.31	QP
3	50.429	50.73	-17.40	33.32	40.00	6.68	QP
4	108.267	42.11	-12.91	29.20	43.50	14.30	Peak
5	238.310	46.99	-13.20	33.79	46.00	12.21	Peak
6	447.982	42.98	-7.24	35.74	46.00	10.26	Peak

Horizontal:

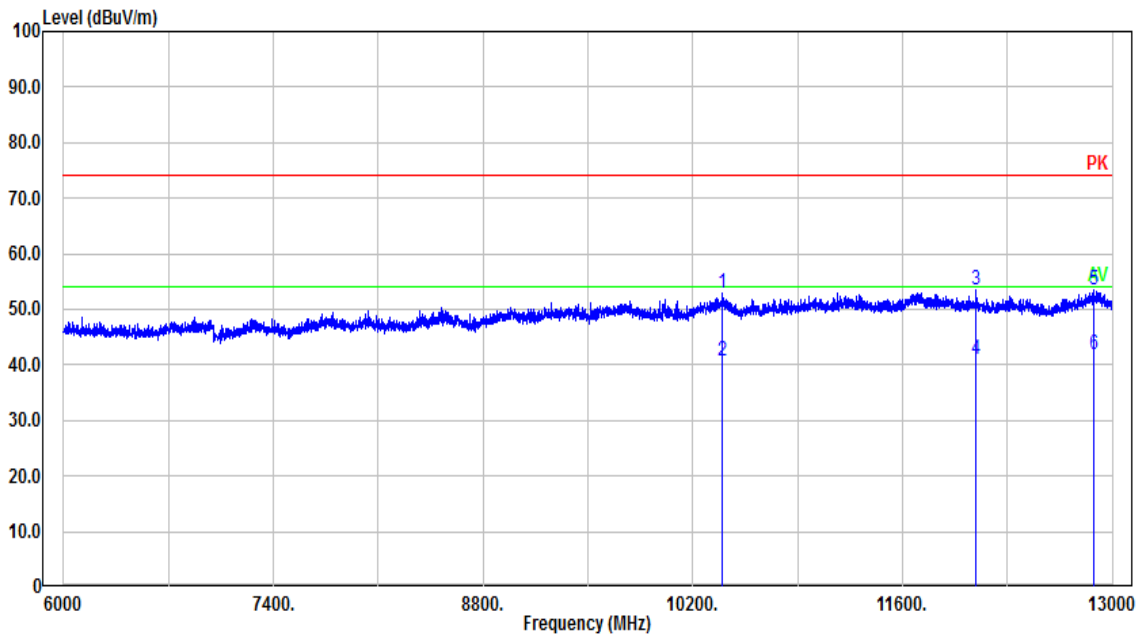


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	1003.001	51.29	-2.58	48.71	74.00	25.29	Peak
2	1003.001	35.48	-2.58	32.90	54.00	21.10	Average
3	1848.170	49.12	1.69	50.81	74.00	23.19	Peak
4	1848.170	33.63	1.69	35.32	54.00	18.68	Average
5	3695.539	40.77	9.17	49.94	74.00	24.06	Peak
6	3695.539	26.43	9.17	35.60	54.00	18.40	Average

Vertical:

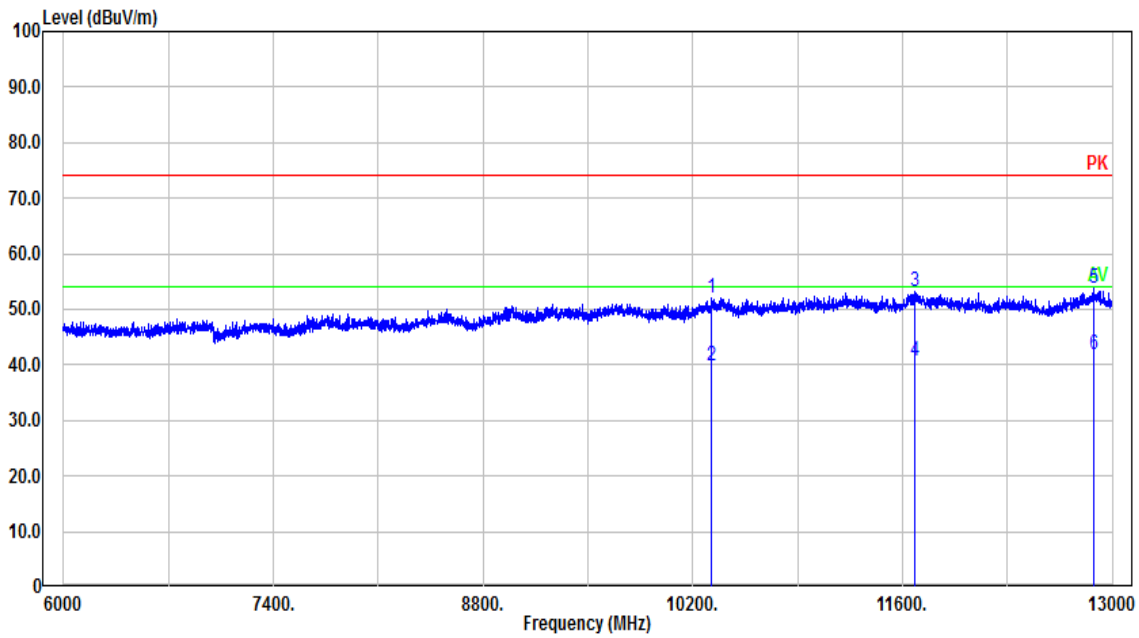
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector
1	1386.077	42.56	-0.76	41.80	74.00	32.20	Peak
2	1386.077	27.66	-0.76	26.90	54.00	27.10	Average
3	1847.169	46.82	1.69	48.51	74.00	25.49	Peak
4	1847.169	32.11	1.69	33.80	54.00	20.20	Average
5	3695.539	39.47	9.17	48.64	74.00	25.36	Peak
6	3695.539	24.69	9.17	33.86	54.00	20.14	Average

Horizontal:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	10394.080	34.59	18.46	53.05	74.00	20.95	Peak
2	10394.080	22.16	18.46	40.62	54.00	13.38	Average
3	12091.220	32.77	20.66	53.43	74.00	20.57	Peak
4	12091.220	20.30	20.66	40.96	54.00	13.04	Average
5	12873.970	32.24	21.37	53.61	74.00	20.39	Peak
6	12873.970	20.45	21.37	41.82	54.00	12.18	Average

Vertical:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	10328.270	33.74	18.39	52.13	74.00	21.87	Peak
2	10328.270	21.35	18.39	39.74	54.00	14.26	Average
3	11680.940	32.83	20.38	53.21	74.00	20.79	Peak
4	11680.940	20.46	20.38	40.84	54.00	13.16	Average
5	12879.580	32.48	21.42	53.90	74.00	20.10	Peak
6	12879.580	20.47	21.42	41.89	54.00	12.11	Average

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