



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: Grandstream Networks, Inc.

Address: 126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

FCC ID: YZZGWN7806P

Product Name: Enterprise Layer 2+ Stackable Managed Network Switch

Model Number: GWN7806P

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

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

Report Number: CR230314894-00A

Date Of Issue: 2023/4/20

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
DOCUMENT REVISION HISTORY	4
1. GENERAL INFORMATION.....	5
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
1.2 DESCRIPTION OF TEST CONFIGURATION	6
1.2.2 Support Equipment List and Details	6
1.2.3 Support Cable List and Details	6
1.2.4 Block Diagram of Test Setup.....	7
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

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230314894-00A	Original Report	2023/4/20

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Enterprise Layer 2+ Stackable Managed Network Switch
Trade Name:	GRANDSTREAM
EUT Model:	GWN7806P
Highest Operation Frequency:	1000 MHz
Rated Input Voltage:	AC 100~240V/50-60Hz
Serial Number:	23P0_1
EUT Received Date:	2023/3/31
EUT Received Status:	Good
Note: EUT can configure with two different power modules, power #1 (G1489-0460W) and power #2 (PA-2431-54H1)	

Accessory Information:

Accessory Description	Manufacturer	Model
/	/	/

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 : M1: Operation from power #1 (G1489-0460W) M2: Operation from power #2 (PA-2431-54H1)
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Unknown	POE Load	Unknown	CR234632
Unknown	Cement Load*24	Unknown	/

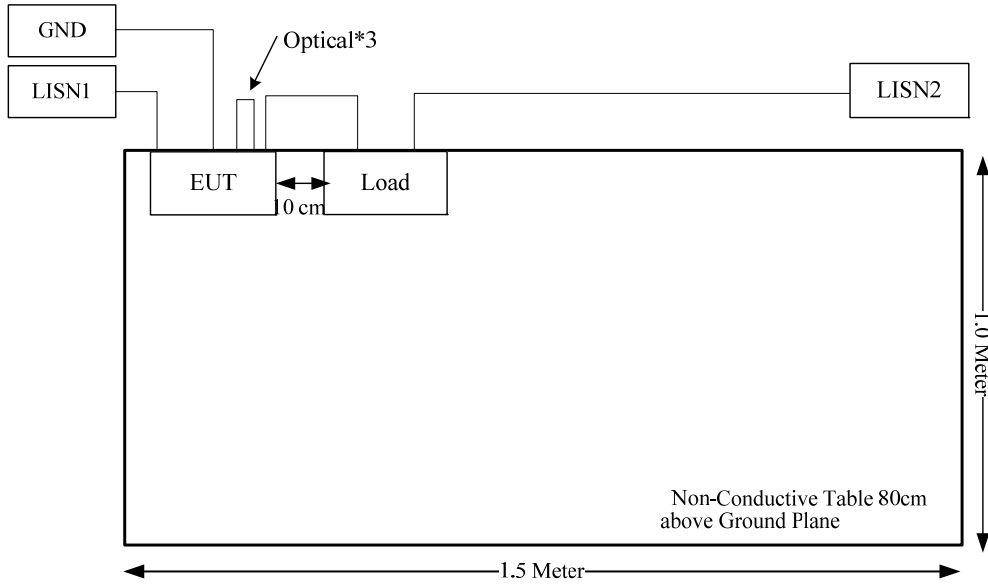
1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable*24	No	No	1.8	EUT	POE Load
Optical*3	No	No	4	EUT	EUT
Earth Line	No	No	1	EUT	GND
Power Cable	No	No	1.5	POE Load	LISN2
Power Cable	No	No	1	EUT	LISN1

1.2.4 Block Diagram of Test Setup

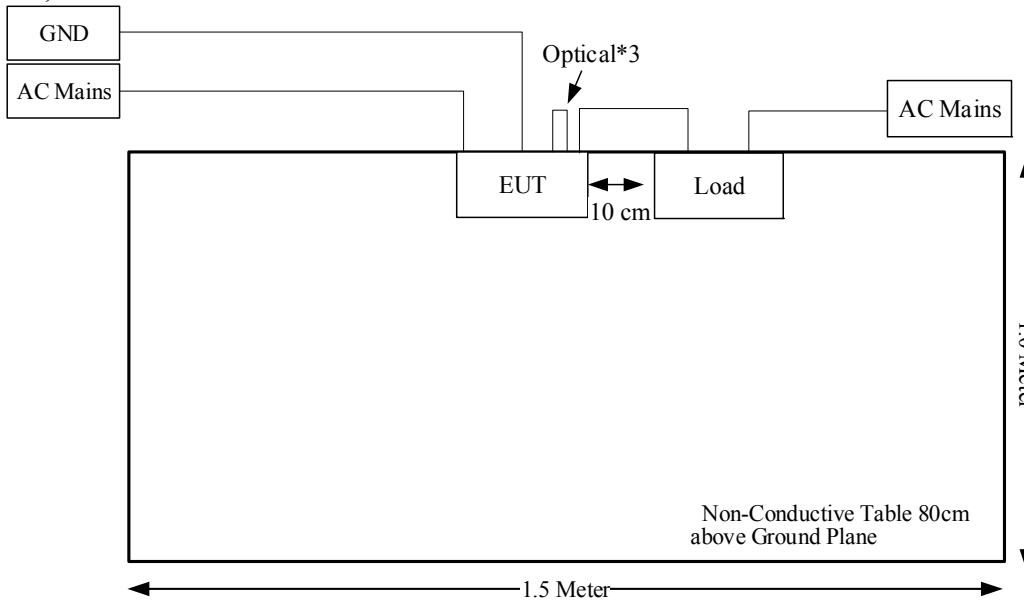
Conducted emissions:

M1, M2:



Radiated emissions:

M1, M2:



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)

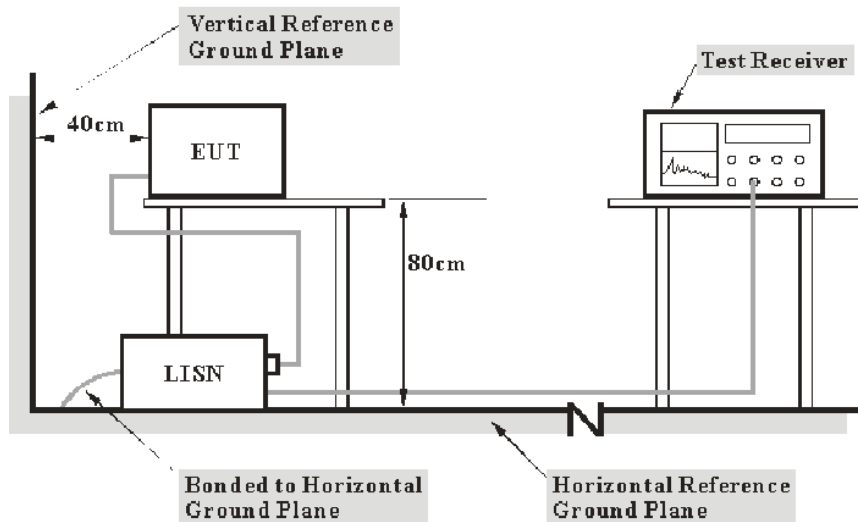
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	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 A 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

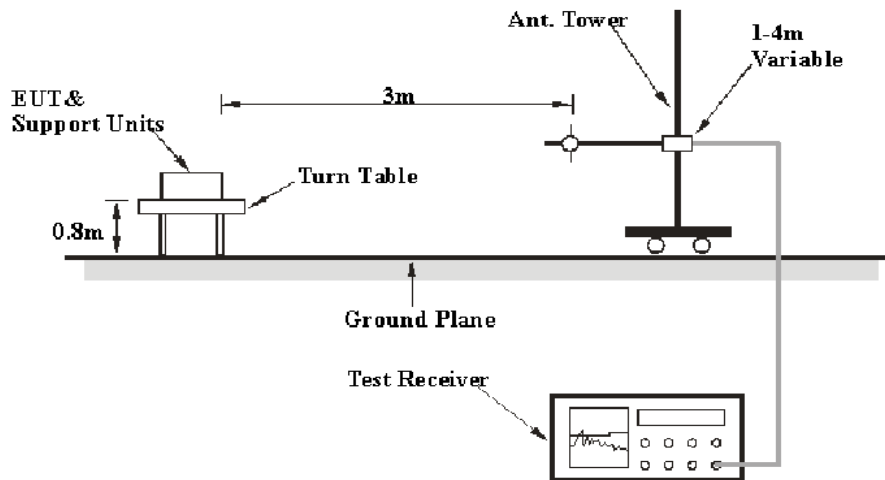
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

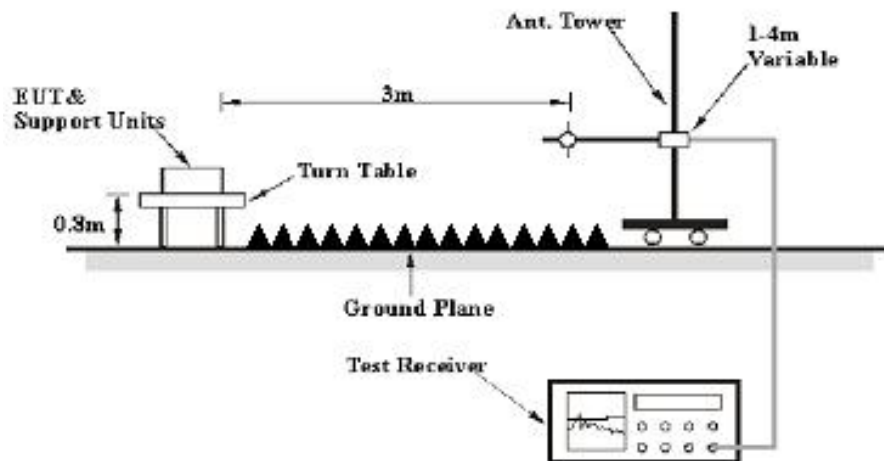
3.2 Radiation Spurious Emissions

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 A limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 5 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.

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:	23P0_1	Test Date:	2023/4/6
Test Site:	CE	Test Mode:	M1, M2
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24	Relative Humidity: (%)	67	ATM Pressure: (kPa)	100.8
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Test Equipment List and Details:

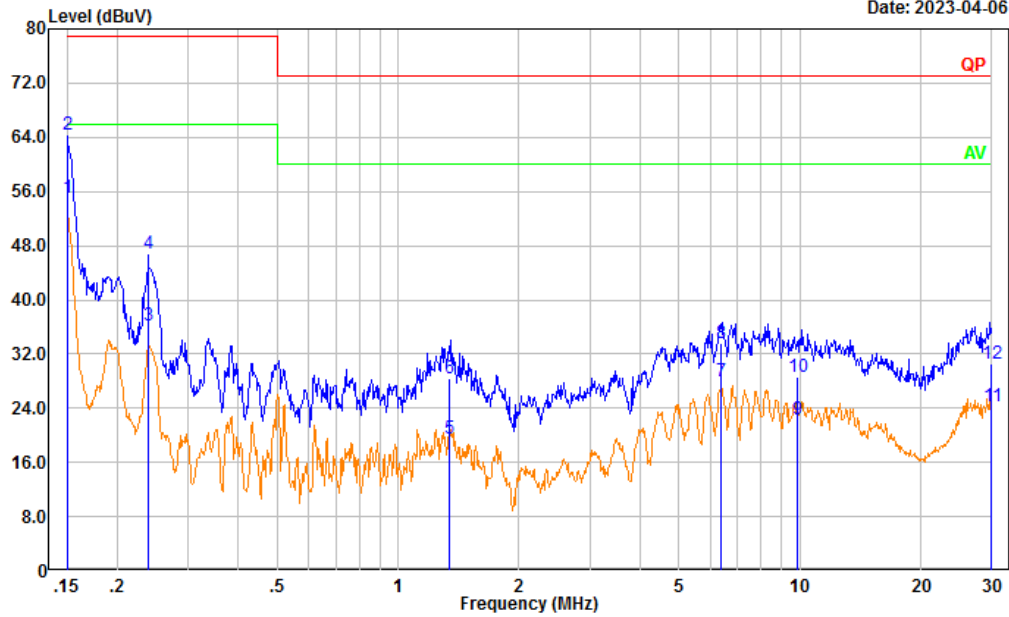
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	LISN	ENV216	101132	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022/08/07	2023/08/06
Audix	Test 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).

M1:

Test Mode: Operation from power #1
 Port: Line
 Note:

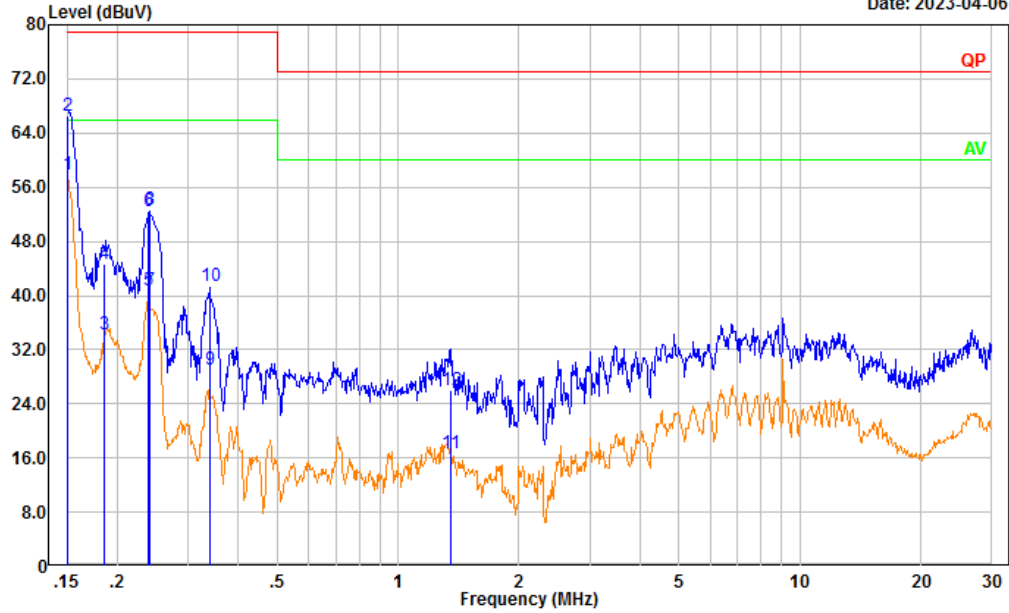
Date: 2023-04-06



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.150	45.38	9.61	54.99	66.00	11.01	Average
2	0.150	54.70	9.61	64.31	79.00	14.69	QP
3	0.240	26.67	9.61	36.28	66.00	29.72	Average
4	0.240	37.30	9.61	46.91	79.00	32.09	QP
5	1.337	9.83	9.62	19.45	60.00	40.55	Average
6	1.337	18.75	9.62	28.37	73.00	44.63	QP
7	6.373	18.32	9.66	27.98	60.00	32.02	Average
8	6.373	23.87	9.66	33.53	73.00	39.47	QP
9	9.861	12.59	9.67	22.26	60.00	37.74	Average
10	9.861	18.89	9.67	28.56	73.00	44.44	QP
11	29.966	14.45	9.82	24.27	60.00	35.73	Average
12	29.966	20.67	9.82	30.49	73.00	42.51	QP

Test Mode: Operation from power #1
 Port: neutral
 Note:

Date: 2023-04-06

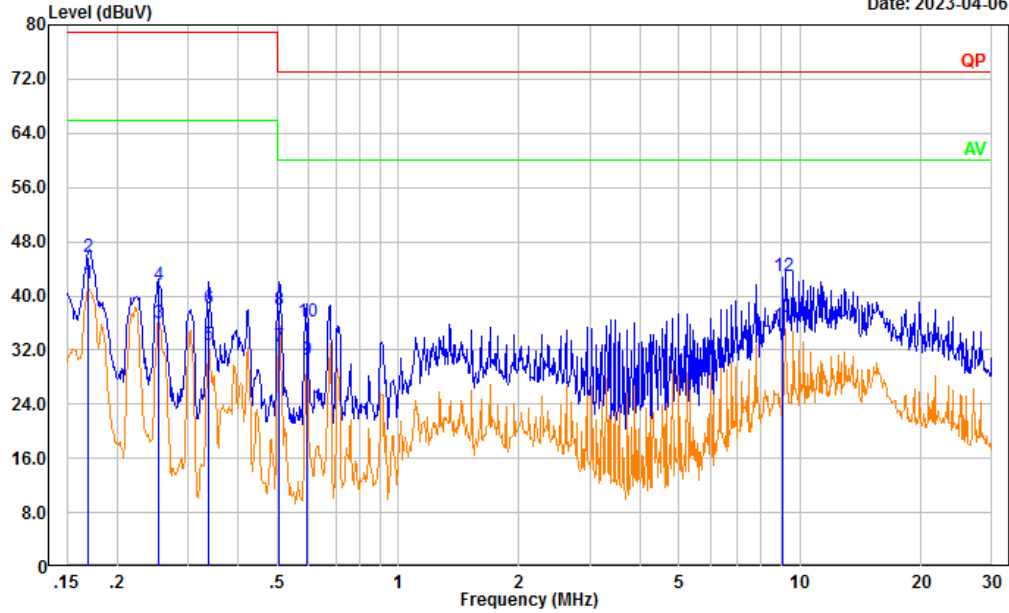


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.150	48.28	9.61	57.89	66.00	8.11	Average
2	0.150	57.00	9.61	66.61	79.00	12.39	QP
3	0.186	24.57	9.61	34.18	66.00	31.82	Average
4	0.186	35.11	9.61	44.72	79.00	34.28	QP
5	0.239	31.24	9.61	40.85	66.00	25.15	Average
6	0.239	42.84	9.61	52.45	79.00	26.55	QP
7	0.241	31.22	9.61	40.83	66.00	25.17	Average
8	0.241	43.12	9.61	52.73	79.00	26.27	QP
9	0.340	19.41	9.61	29.02	66.00	36.98	Average
10	0.340	31.90	9.61	41.51	79.00	37.49	QP
11	1.350	7.09	9.62	16.71	60.00	43.29	Average
12	1.350	16.31	9.62	25.93	73.00	47.07	QP

M2:

Test Mode: Operation from power #2
 Port: Line
 Note:

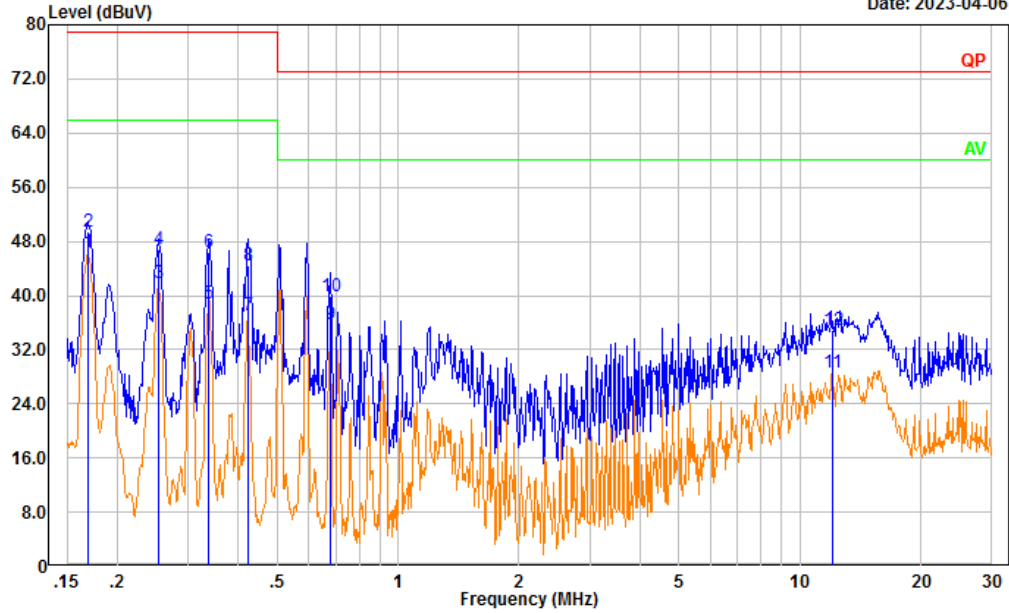
Date: 2023-04-06



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.170	32.16	9.61	41.77	66.00	24.23	Average
2	0.170	36.21	9.61	45.82	79.00	33.18	QP
3	0.253	26.32	9.61	35.93	66.00	30.07	Average
4	0.253	31.95	9.61	41.56	79.00	37.44	QP
5	0.339	23.14	9.61	32.75	66.00	33.25	Average
6	0.339	28.54	9.61	38.15	79.00	40.85	QP
7	0.506	22.98	9.61	32.59	60.00	27.41	Average
8	0.506	28.37	9.61	37.98	73.00	35.02	QP
9	0.593	20.86	9.62	30.48	60.00	29.52	Average
10	0.593	26.49	9.62	36.11	73.00	36.89	QP
11	9.059	25.79	9.67	35.46	60.00	24.54	Average
12	9.059	33.18	9.67	42.85	73.00	30.15	QP

Test Mode: Operation from power #2
 Port: neutral
 Note:

Date: 2023-04-06



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.170	36.79	9.61	46.40	66.00	19.60	Average
2	0.170	39.90	9.61	49.51	79.00	29.49	QP
3	0.254	32.20	9.61	41.81	66.00	24.19	Average
4	0.254	37.25	9.61	46.86	79.00	32.14	QP
5	0.338	29.22	9.61	38.83	66.00	27.17	Average
6	0.338	36.72	9.61	46.33	79.00	32.67	QP
7	0.423	27.50	9.61	37.11	66.00	28.89	Average
8	0.423	34.91	9.61	44.52	79.00	34.48	QP
9	0.677	26.14	9.62	35.76	60.00	24.24	Average
10	0.677	30.20	9.62	39.82	73.00	33.18	QP
11	12.027	19.04	9.67	28.71	60.00	31.29	Average
12	12.027	25.21	9.67	34.88	73.00	38.12	QP

4.2 Radiation Spurious Emissions

Serial Number:	23P0_1	Test Date:	2023/4/12~2023/4/13
Test Site:	966-2,966-1	Test Mode:	M1, M2
Tester:	Vic Du, Mack Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.1~26.7	Relative Humidity: (%)	50~63	ATM Pressure: (kPa)	100.6~100.7
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Test Equipment List and Details:

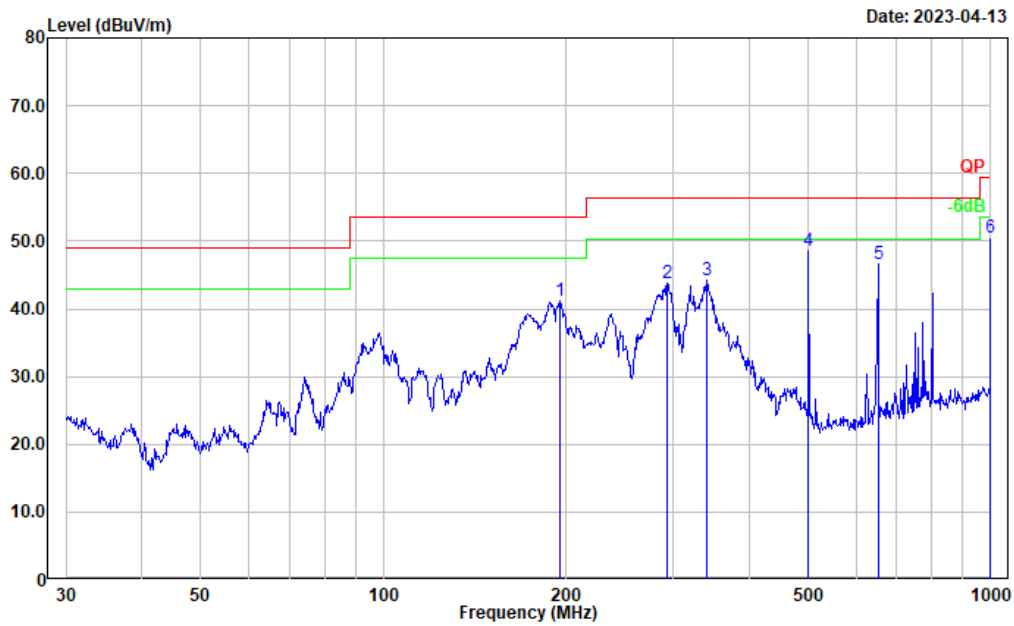
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2022/07/15	2023/07/14
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2022/07/17	2023/07/16
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2022/07/17	2023/07/16
Sonoma	Amplifier	310N	186165	2022/07/17	2023/07/16
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	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022/08/07	2023/08/06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022/08/07	2023/08/06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08

* 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:

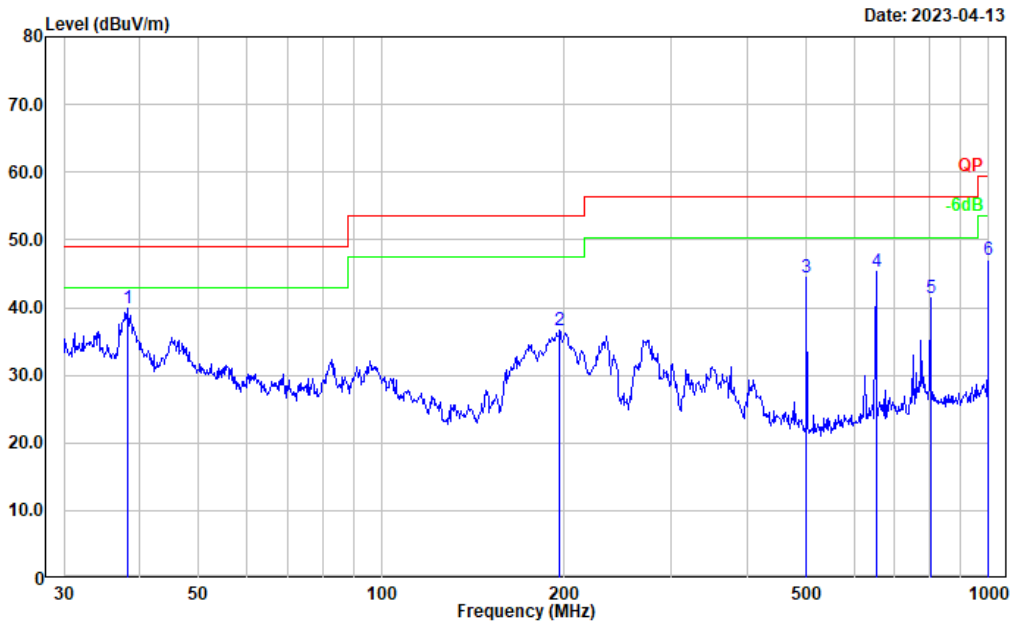
M1:

Test Mode: Operation from power #1
 Polarization: horizontal
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	195.137	53.90	-12.76	41.14	53.50	12.36	Peak
2	293.084	54.76	-10.87	43.89	56.40	12.51	Peak
3	340.782	54.28	-10.05	44.23	56.40	12.17	Peak
4	501.179	54.55	-5.99	48.56	56.40	7.84	Peak
5	651.942	50.82	-4.19	46.63	56.40	9.77	Peak
6	1000.000	49.59	1.03	50.62	59.50	8.88	Peak

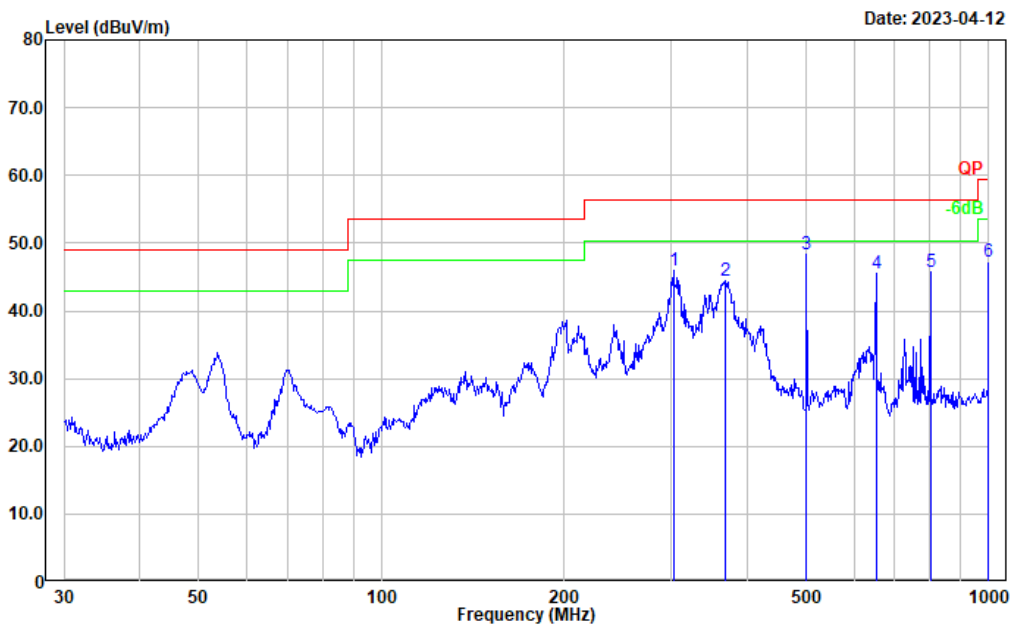
Test Mode: Operation from power #1
 Polarization: vertical
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	38.212	49.77	-9.91	39.86	49.00	9.14	Peak
2	196.510	49.16	-12.60	36.56	53.50	16.94	Peak
3	501.179	50.38	-5.99	44.39	56.40	12.01	Peak
4	651.942	49.47	-4.19	45.28	56.40	11.12	Peak
5	801.786	43.52	-2.14	41.38	56.40	15.02	Peak
6	1000.000	46.10	1.03	47.13	59.50	12.37	Peak

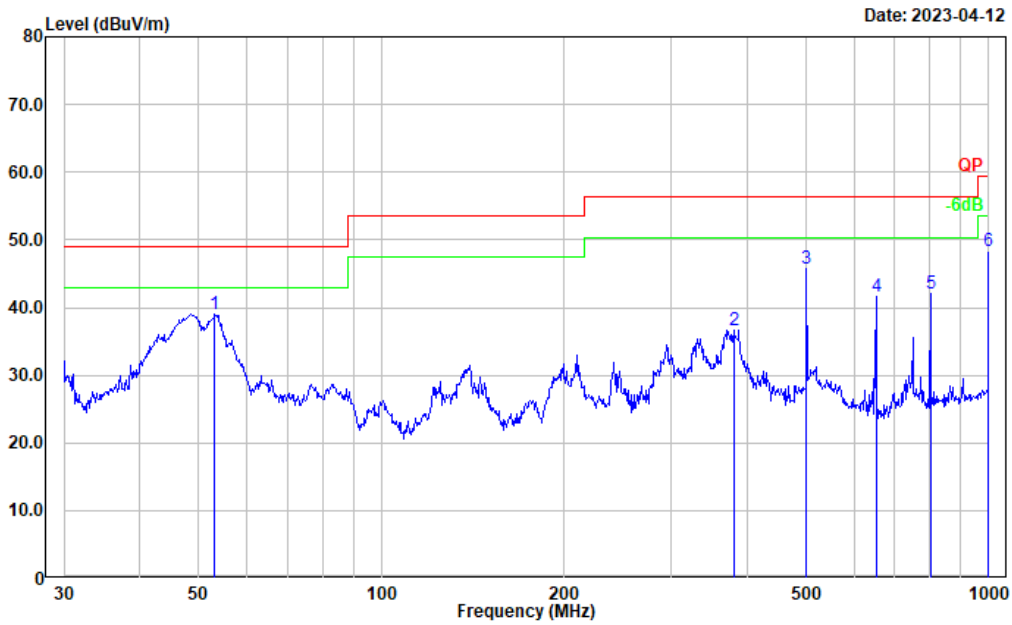
M2:

Test Mode: Operation from power #2
 Polarization: horizontal
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	302.481	56.54	-10.61	45.93	56.40	10.47	Peak
2	368.112	54.00	-9.57	44.43	56.40	11.97	Peak
3	501.179	54.42	-5.99	48.43	56.40	7.97	Peak
4	651.942	49.68	-4.19	45.49	56.40	10.91	Peak
5	801.786	47.80	-2.14	45.66	56.40	10.74	Peak
6	1000.000	46.30	1.03	47.33	59.50	12.17	Peak

Test Mode: Operation from power #2
 Polarization: vertical
 Note:



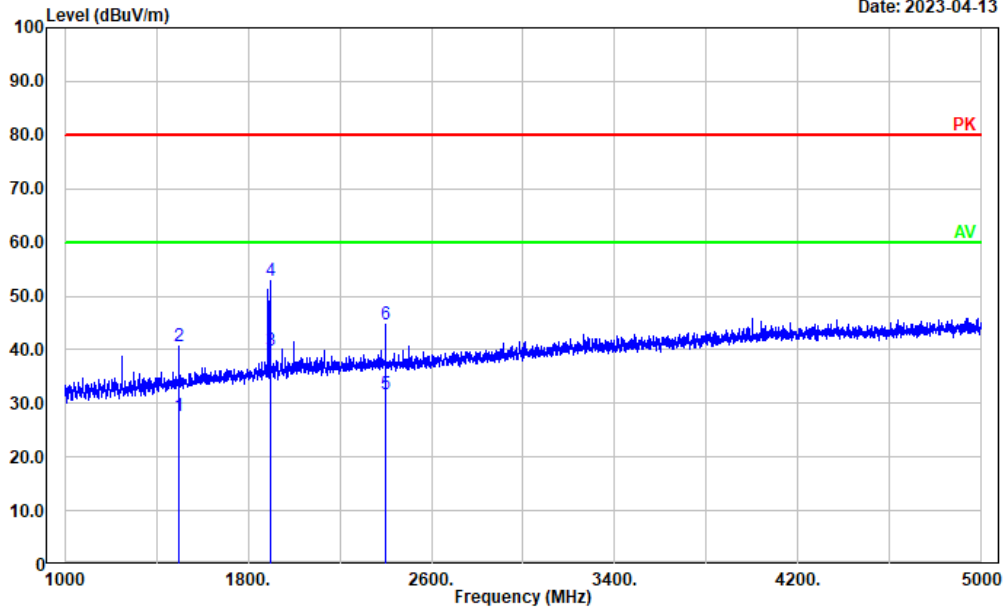
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	53.131	56.18	-17.23	38.95	49.00	10.05	Peak
2	379.914	45.73	-9.10	36.63	56.40	19.77	Peak
3	501.179	51.79	-5.99	45.80	56.40	10.60	Peak
4	651.942	45.80	-4.19	41.61	56.40	14.79	Peak
5	801.786	44.22	-2.14	42.08	56.40	14.32	Peak
6	1000.000	47.35	1.03	48.38	59.50	11.12	Peak

2) 1GHz-5GHz:

M1:

Test Mode: Operation from power #1
 Polarization: horizontal
 Note:

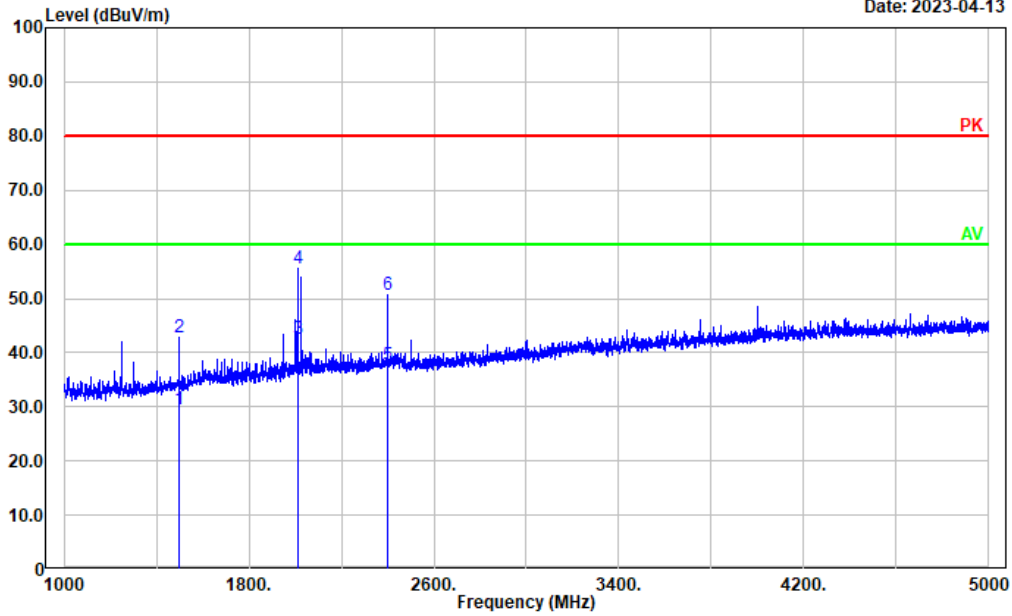
Date: 2023-04-13



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1500.100	28.06	-0.47	27.59	60.00	32.41	Average
2	1500.100	41.12	-0.47	40.65	80.00	39.35	Peak
3	1899.380	38.03	1.88	39.91	60.00	20.09	Average
4	1899.380	51.06	1.88	52.94	80.00	27.06	Peak
5	2399.480	28.09	3.53	31.62	60.00	28.38	Average
6	2399.480	41.19	3.53	44.72	80.00	35.28	Peak

Test Mode: Operation from power #1
 Polarization: vertical
 Note:

Date: 2023-04-13

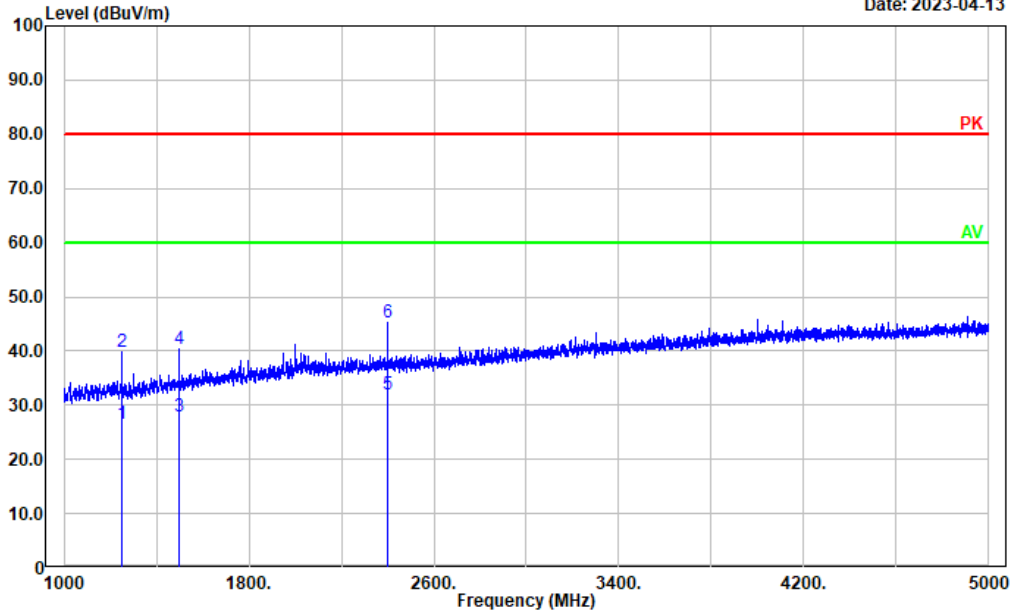


No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	1499.300	30.14	-0.47	29.67	60.00	30.33	Average
2	1499.300	43.28	-0.47	42.81	80.00	37.19	Peak
3	2010.602	40.14	2.36	42.50	60.00	17.50	Average
4	2010.602	53.29	2.36	55.65	80.00	24.35	Peak
5	2400.280	34.02	3.53	37.55	60.00	22.45	Average
6	2400.280	47.04	3.53	50.57	80.00	29.43	Peak

M2:

Test Mode: Operation from power #2
 Polarization: horizontal
 Note:

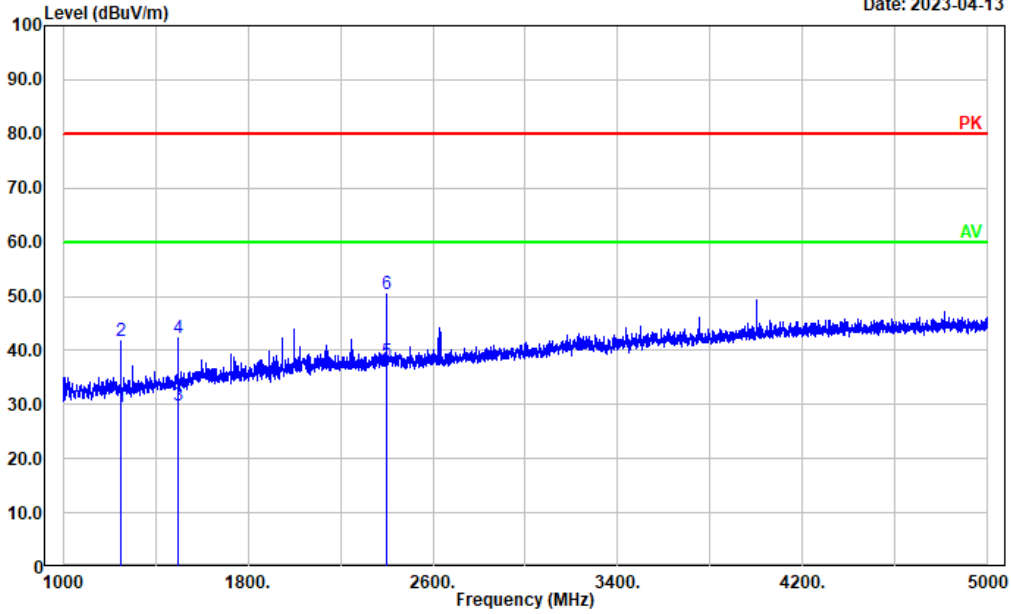
Date: 2023-04-13



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	1249.650	28.24	-1.69	26.55	60.00	33.45	Average
2	1249.650	41.49	-1.69	39.80	80.00	40.20	Peak
3	1499.300	28.42	-0.47	27.95	60.00	32.05	Average
4	1499.300	40.83	-0.47	40.36	80.00	39.64	Peak
5	2400.280	28.39	3.53	31.92	60.00	28.08	Average
6	2400.280	41.77	3.53	45.30	80.00	34.70	Peak

Test Mode: Operation from power #2
 Polarization: vertical
 Note:

Date: 2023-04-13



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1249.650	31.23	-1.69	29.54	60.00	30.46	Average
2	1249.650	43.48	-1.69	41.79	80.00	38.21	Peak
3	1500.100	30.39	-0.47	29.92	60.00	30.08	Average
4	1500.100	42.79	-0.47	42.32	80.00	37.68	Peak
5	2399.480	34.38	3.53	37.91	60.00	22.09	Average
6	2399.480	46.75	3.53	50.28	80.00	29.72	Peak

==== END OF REPORT ====