



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: Xinwei Electronic Co., Ltd., Quanzhou

Address: Wan An Tang Xi Industrial Area, Luo Jiang, Quanzhou City, Fujian Province, China

FCC ID: UUPNF-893V

Product Name: Marine radio

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: CR22070011-00A

Date Of Issue: 2022-08-20

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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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Marine radio
EUT Model:	NF-893V
Highest Operation Frequency:	163.5MHz
Rated Input Voltage:	DC 12V from charger base or DC 7.4V from battery
Serial Number:	CR22070011-RF-S1
EUT Received Date:	2022.07.14
EUT Received Status:	GOOD

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	Xiamen Xoioid Tech Co.,Ltd.	XZ1200-1000YU	Input: AC 100-240V~50/60Hz 0.4A Output: DC 12V 1A

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: Charging & RX Operating M2: Charging & Weather Receiving
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

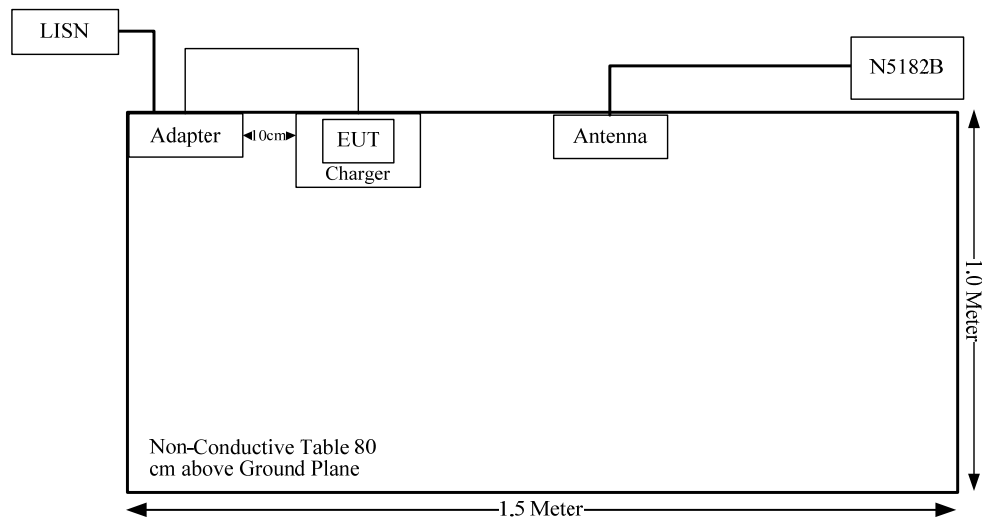
Manufacturer	Description	Model	Serial Number
Agilent	MXG Vector Signal Generator	N5182B	MY51350144
/	Antenna	/	/

1.2.3 Support Cable List and Details

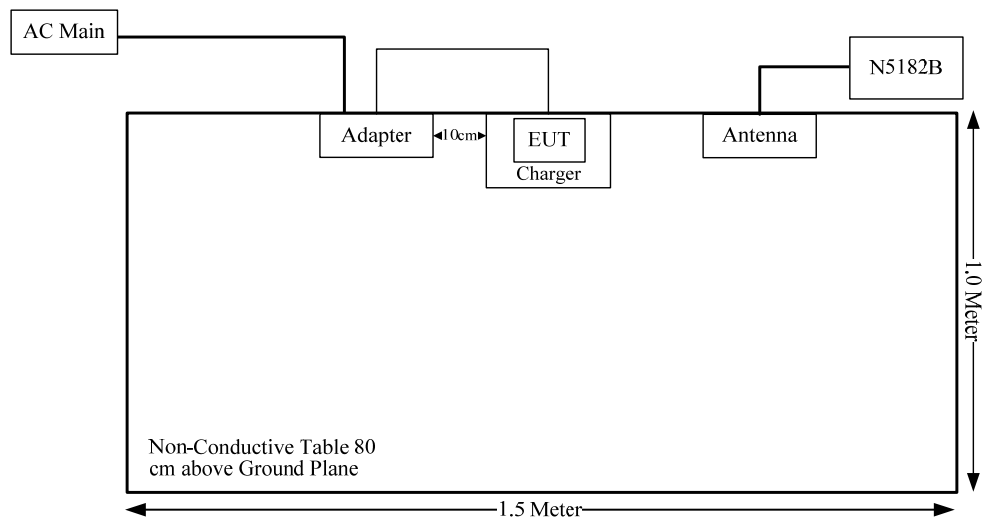
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Coaxial Cable	Yes	No	2	N5182B	Antenna
Adapter Cable	No	No	1.2	Adapter	Charger Base

1.2.4 Block Diagram of Test Setup

Conducted emissions:



Radiated emissions:



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)

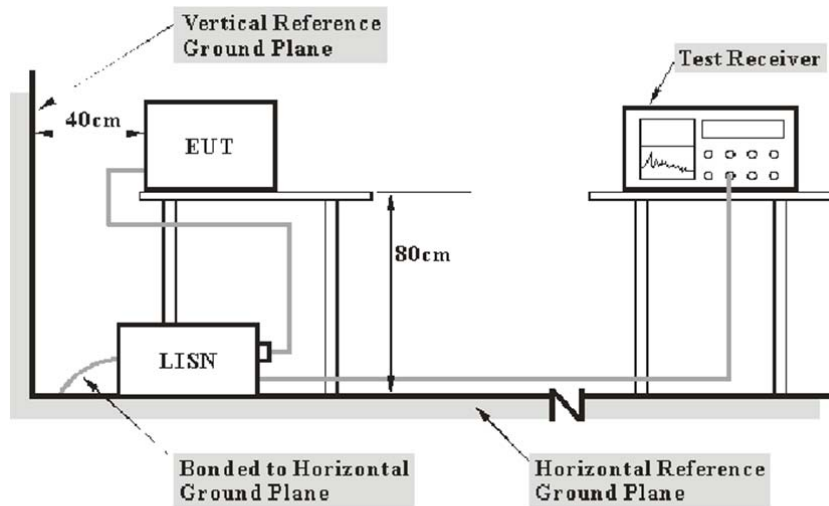
2. SUMMARY OF TEST RESULTS

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 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

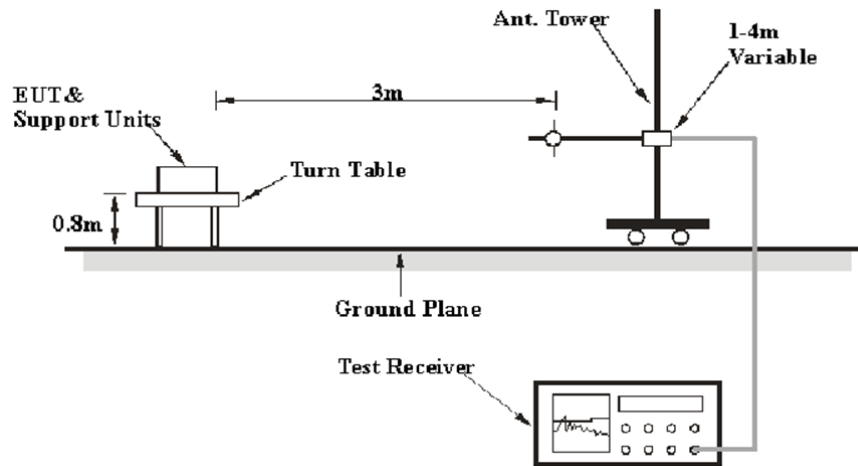
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

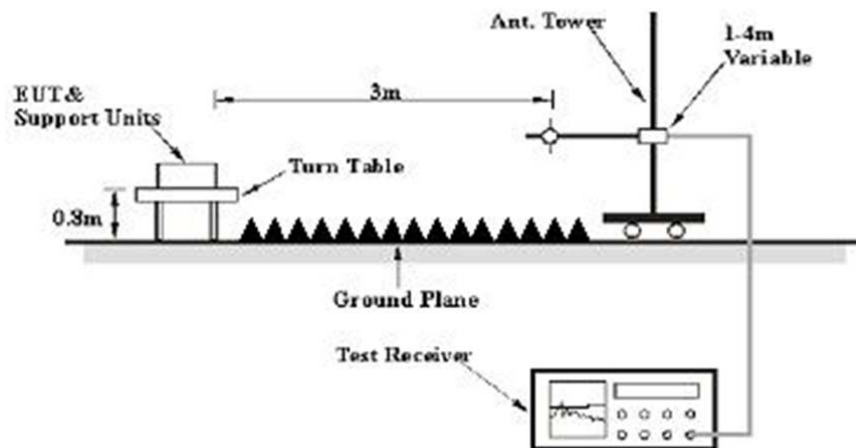
3.2 Radiation Spurious Emissions

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 2 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:	CR22070011-RF-S1	Test Date:	2022-07-23
Test Site:	CE	Test Mode:	M1, M2
Tester:	Vic Du	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	28.4	Relative Humidity: (%)	67	ATM Pressure: (kPa)	100.7
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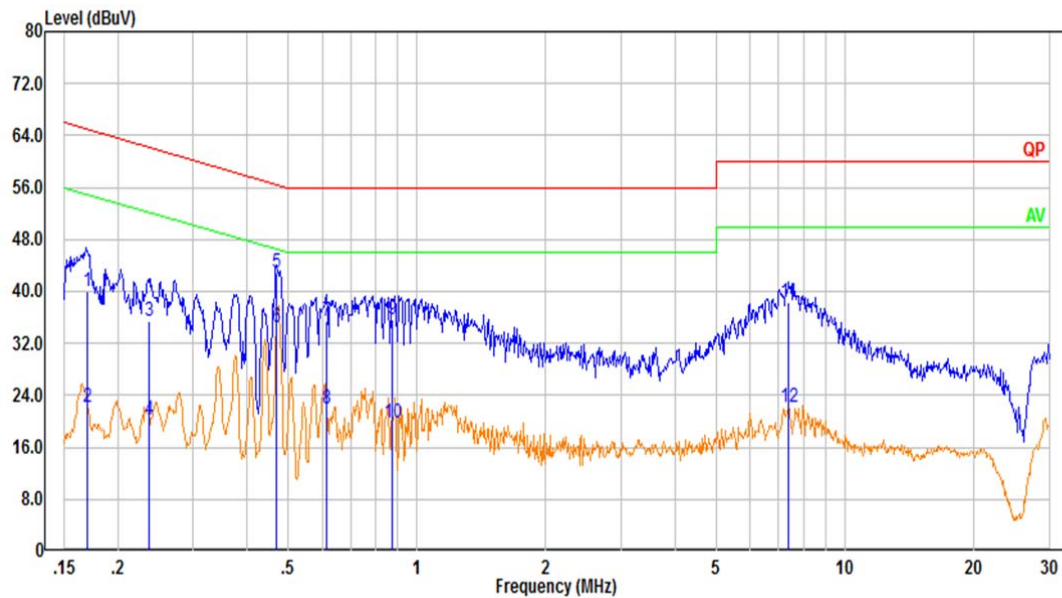
Test Equipment List and Details:

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	2022-07-15	2023-07-14
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).*

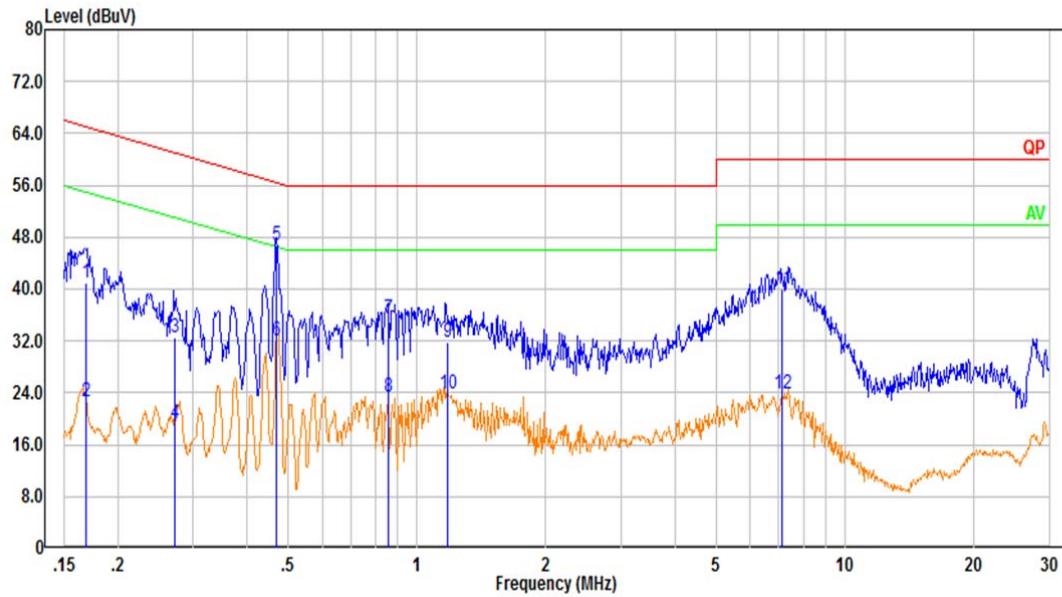
M1:

Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.170	30.45	9.61	40.06	64.96	24.90	QP
2	0.170	12.48	9.61	22.09	54.96	32.87	Average
3	0.236	25.71	9.61	35.32	62.22	26.90	QP
4	0.236	10.69	9.61	20.30	52.22	31.92	Average
5	0.470	33.40	9.61	43.01	56.52	13.51	QP
6	0.470	24.79	9.61	34.40	46.52	12.12	Average
7	0.616	25.71	9.62	35.33	56.00	20.67	QP
8	0.616	12.28	9.62	21.90	46.00	24.10	Average
9	0.873	25.94	9.62	35.56	56.00	20.44	QP
10	0.873	10.22	9.62	19.84	46.00	26.16	Average
11	7.377	28.67	9.66	38.33	60.00	21.67	QP
12	7.377	12.41	9.66	22.07	50.00	27.93	Average

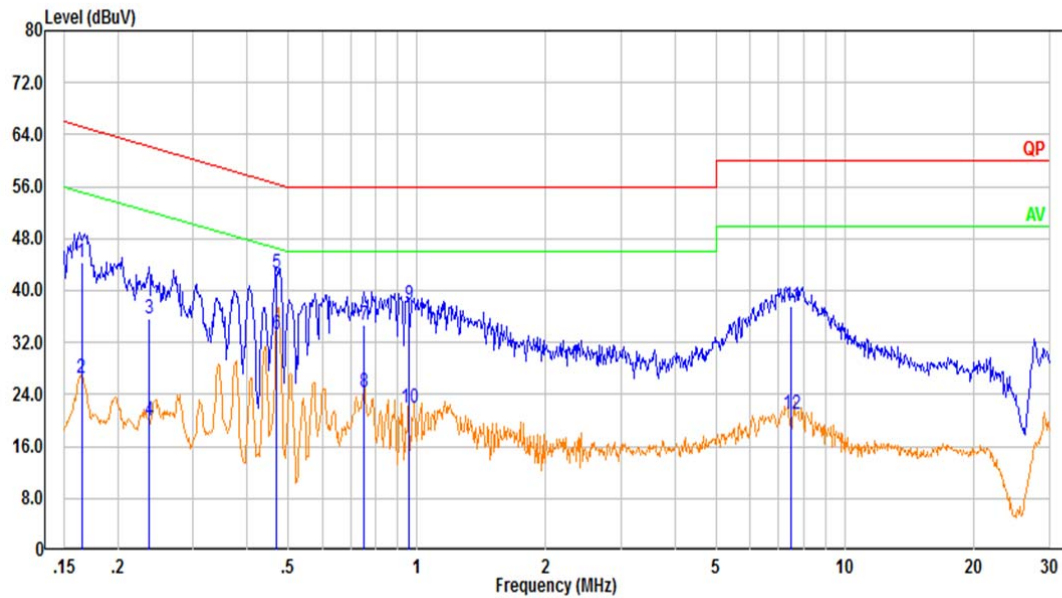
Neutral:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.168	31.40	9.61	41.01	65.04	24.03	QP
2	0.168	13.05	9.61	22.66	55.04	32.38	Average
3	0.271	22.81	9.61	32.42	61.09	28.67	QP
4	0.271	9.61	9.61	19.22	51.09	31.87	Average
5	0.469	37.20	9.61	46.81	56.53	9.72	QP
6	0.469	22.54	9.61	32.15	46.53	14.38	Average
7	0.856	25.80	9.62	35.42	56.00	20.58	QP
8	0.856	13.82	9.62	23.44	46.00	22.56	Average
9	1.180	22.15	9.62	31.77	56.00	24.23	QP
10	1.180	14.21	9.62	23.83	46.00	22.17	Average
11	7.138	30.36	9.66	40.02	60.00	19.98	QP
12	7.138	14.12	9.66	23.78	50.00	26.22	Average

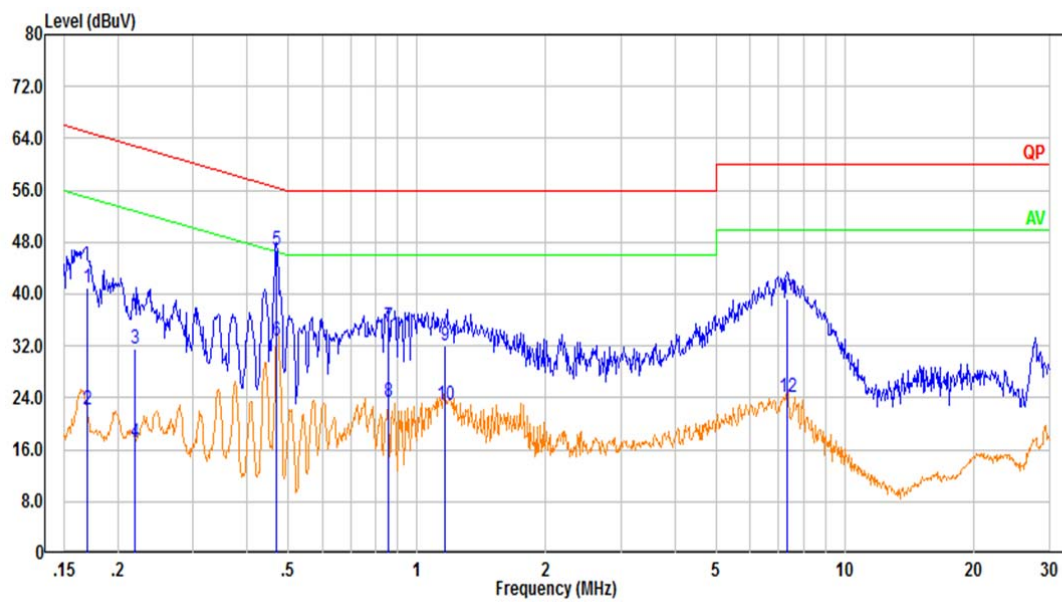
M2:

Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.164	34.78	9.61	44.39	65.24	20.85	QP
2	0.164	16.87	9.61	26.48	55.24	28.76	Average
3	0.237	26.03	9.61	35.64	62.20	26.56	QP
4	0.237	10.30	9.61	19.91	52.20	32.29	Average
5	0.468	33.07	9.61	42.68	56.54	13.86	QP
6	0.468	23.60	9.61	33.21	46.54	13.33	Average
7	0.751	25.16	9.62	34.78	56.00	21.22	QP
8	0.751	14.63	9.62	24.25	46.00	21.75	Average
9	0.957	28.11	9.62	37.73	56.00	18.27	QP
10	0.957	12.21	9.62	21.83	46.00	24.17	Average
11	7.500	28.01	9.67	37.67	60.00	22.33	QP
12	7.500	11.33	9.67	21.00	50.00	29.00	Average

Neutral:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.169	31.30	9.61	40.91	65.00	24.09	QP
2	0.169	12.50	9.61	22.11	55.00	32.89	Average
3	0.219	22.04	9.61	31.65	62.84	31.19	QP
4	0.219	7.62	9.61	17.23	52.84	35.61	Average
5	0.470	37.25	9.61	46.86	56.52	9.66	QP
6	0.470	23.20	9.61	32.81	46.52	13.71	Average
7	0.855	25.37	9.62	34.99	56.00	21.01	QP
8	0.855	13.71	9.62	23.33	46.00	22.67	Average
9	1.163	22.37	9.62	31.99	56.00	24.01	QP
10	1.163	13.39	9.62	23.01	46.00	22.99	Average
11	7.338	29.58	9.66	39.25	60.00	20.75	QP
12	7.338	14.55	9.66	24.21	50.00	25.79	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22070011-RF-S1	Test Date:	2022-08-09~2022-08-10
Test Site:	966-1, 966-2	Test Mode:	M1, M2
Tester:	Gary Ling, Mack Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4~28.1	Relative Humidity: (%)	44~59	ATM Pressure: (kPa)	100.2~100.3
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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	2021-11-10	2022-11-09
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2022-08-07	2023-08-06
Mini Circuits	High Pass Filter	VHF-6010+	31119	2022-08-07	2023-08-06

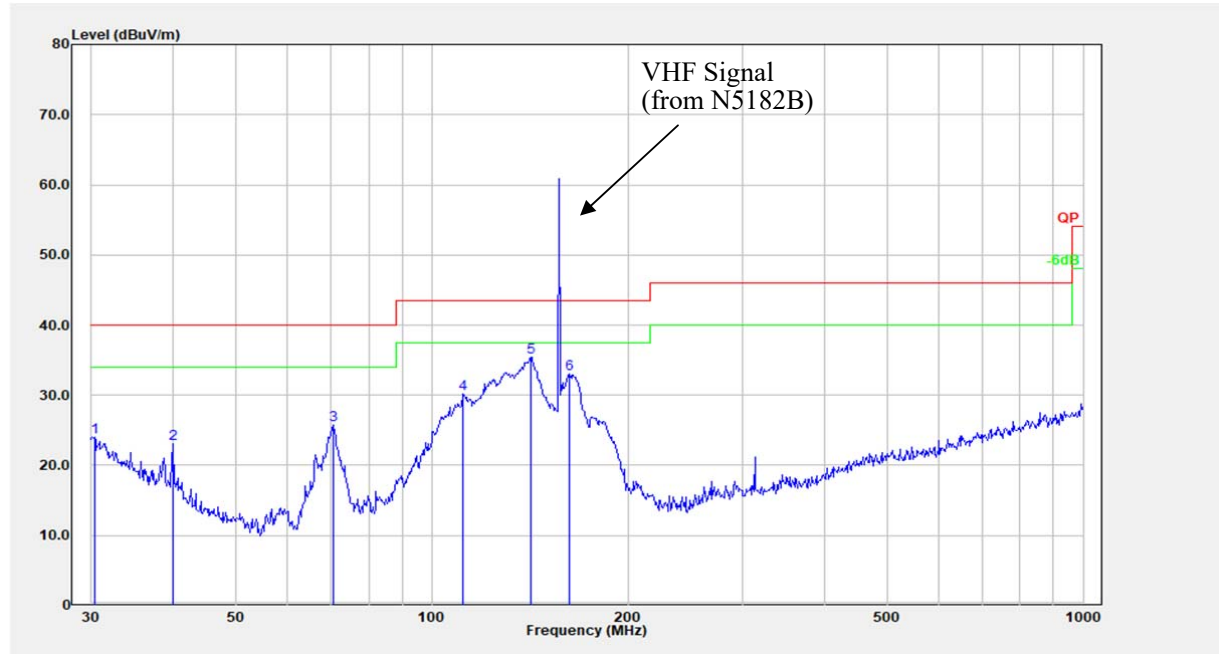
* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

1) 30MHz-1GHz:

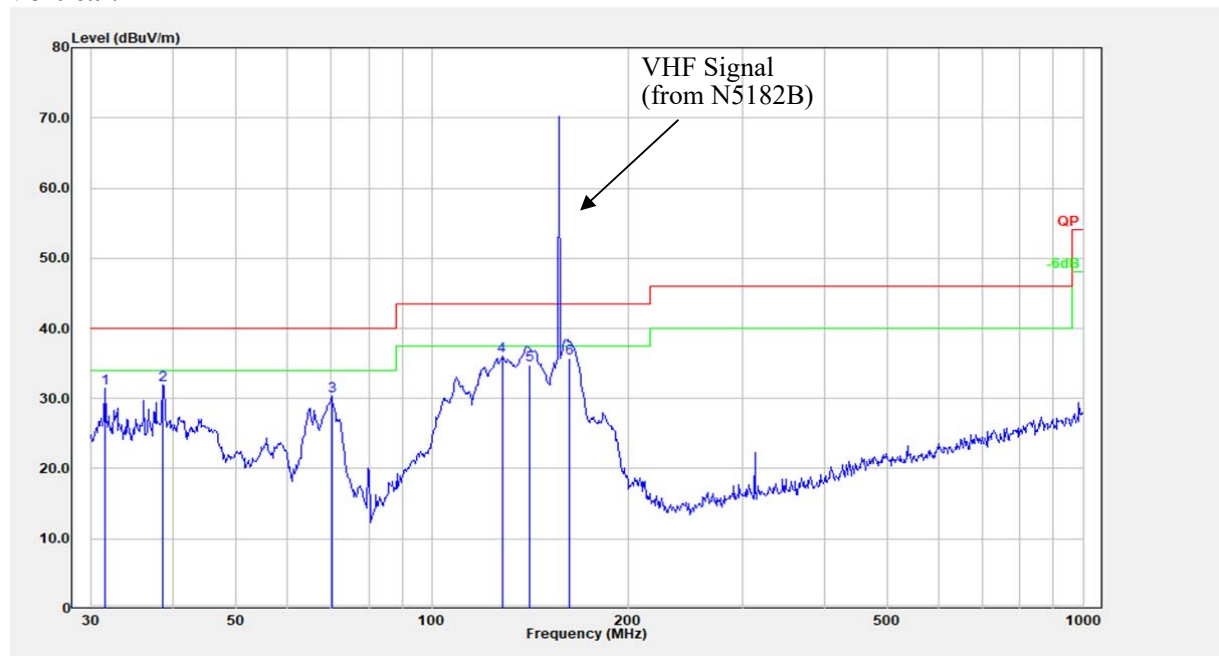
M1:

Note: Pre-scan operating at 156.050MHz & 157.425MHz, worst case is operating at 157.425MHz.

Horizontal:



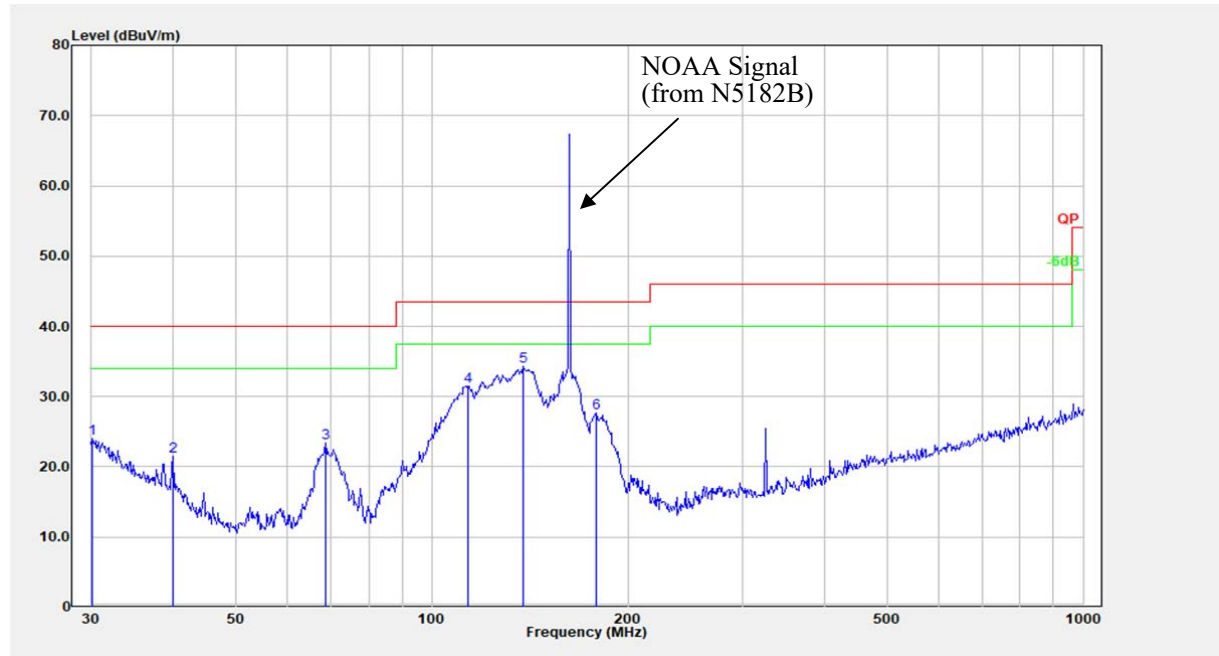
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.317	28.04	-4.03	24.01	40.00	15.99	Peak
2	39.994	34.54	-11.52	23.03	40.00	16.97	Peak
3	70.584	42.59	-16.78	25.81	40.00	14.19	Peak
4	111.347	42.71	-16.48	30.24	43.50	13.26	Peak
5	141.826	47.55	-12.17	35.38	43.50	8.12	Peak
6	162.611	45.60	-12.54	33.05	43.50	10.45	Peak

Vertical:

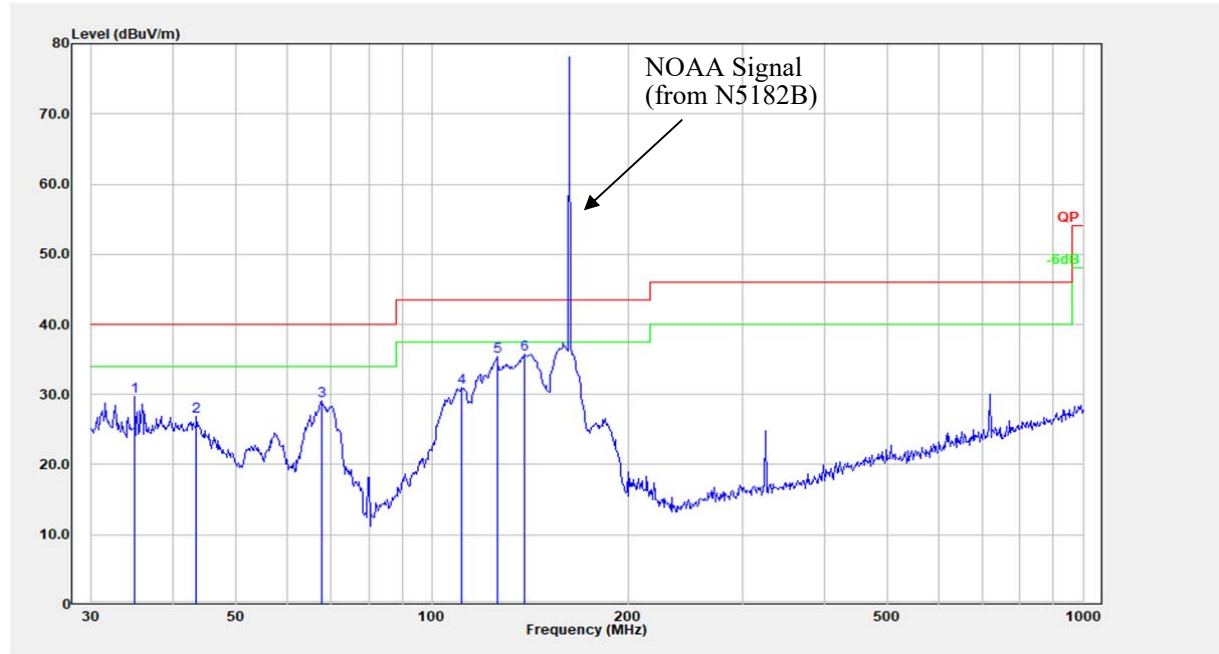
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	31.510	36.39	-4.95	31.44	40.00	8.56	Peak
2	38.616	42.42	-10.41	32.01	40.00	7.99	Peak
3	70.090	47.10	-16.71	30.39	40.00	9.61	Peak
4	128.113	47.64	-11.52	36.12	43.50	7.38	Peak
5	141.131	47.03	-12.19	34.85	43.50	8.65	QP
6	162.687	48.36	-12.55	35.81	43.50	7.69	QP

M2:

Note: Pre-scan operating at 161.650MHz & 163.275MHz, worst case is operating at 163.275MHz.

Horizontal:

No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	30.105	27.92	-3.87	24.05	40.00	15.95	Peak
2	39.994	33.09	-11.52	21.57	40.00	18.43	Peak
3	68.631	40.28	-16.87	23.42	40.00	16.58	Peak
4	113.714	43.79	-12.26	31.53	43.50	11.97	Peak
5	137.903	46.33	-12.05	34.29	43.50	9.21	Peak
6	178.758	41.31	-13.71	27.59	43.50	15.91	Peak

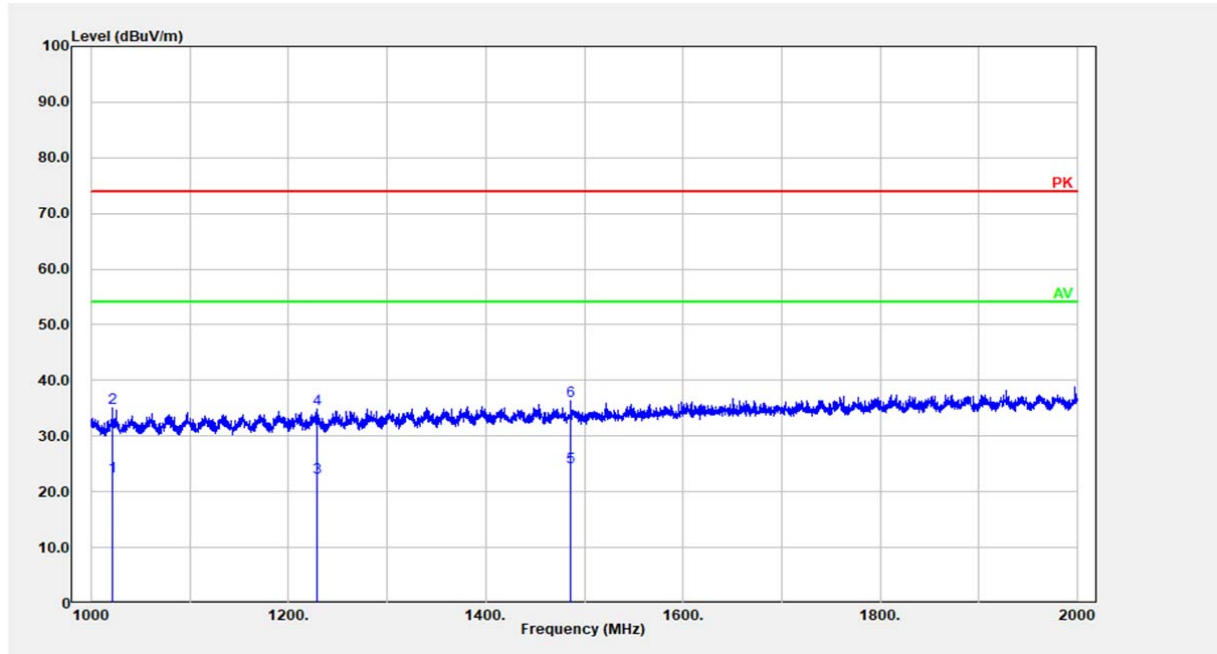
Vertical:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	35.005	37.34	-7.67	29.67	40.00	10.33	Peak
2	43.506	40.56	-13.61	26.95	40.00	13.05	Peak
3	67.675	45.98	-16.94	29.05	40.00	10.95	Peak
4	110.957	43.50	-12.51	30.98	43.50	12.52	Peak
5	125.886	46.92	-11.54	35.38	43.50	8.12	Peak
6	138.874	47.79	-12.07	35.72	43.50	7.78	Peak

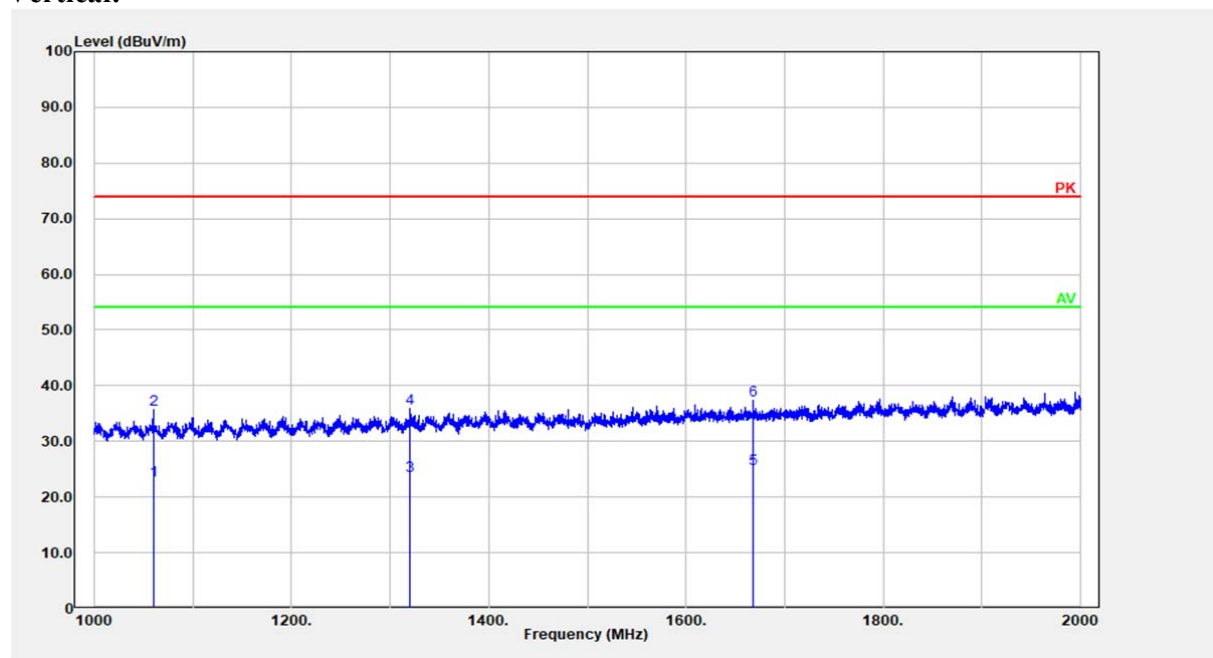
2) Above 1GHz

M1:

Note: Pre-scan operating at 156.050MHz & 157.425MHz, worst case is operating at 157.425MHz.

Horizontal:

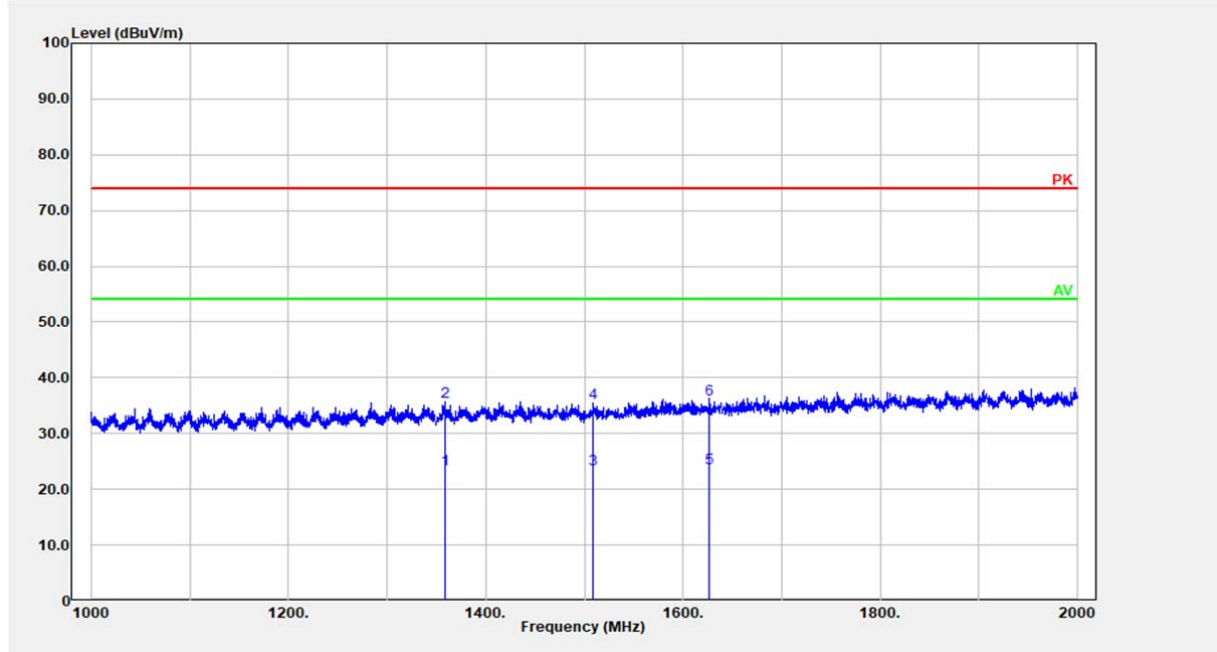
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1021.204	25.25	-2.51	22.74	54.00	31.26	Average
2	1021.204	37.50	-2.51	34.99	74.00	39.01	Peak
3	1229.446	24.32	-1.77	22.55	54.00	31.45	Average
4	1229.446	36.54	-1.77	34.77	74.00	39.23	Peak
5	1485.697	25.02	-0.62	24.40	54.00	29.60	Average
6	1485.697	37.04	-0.62	36.42	74.00	37.58	Peak

Vertical:

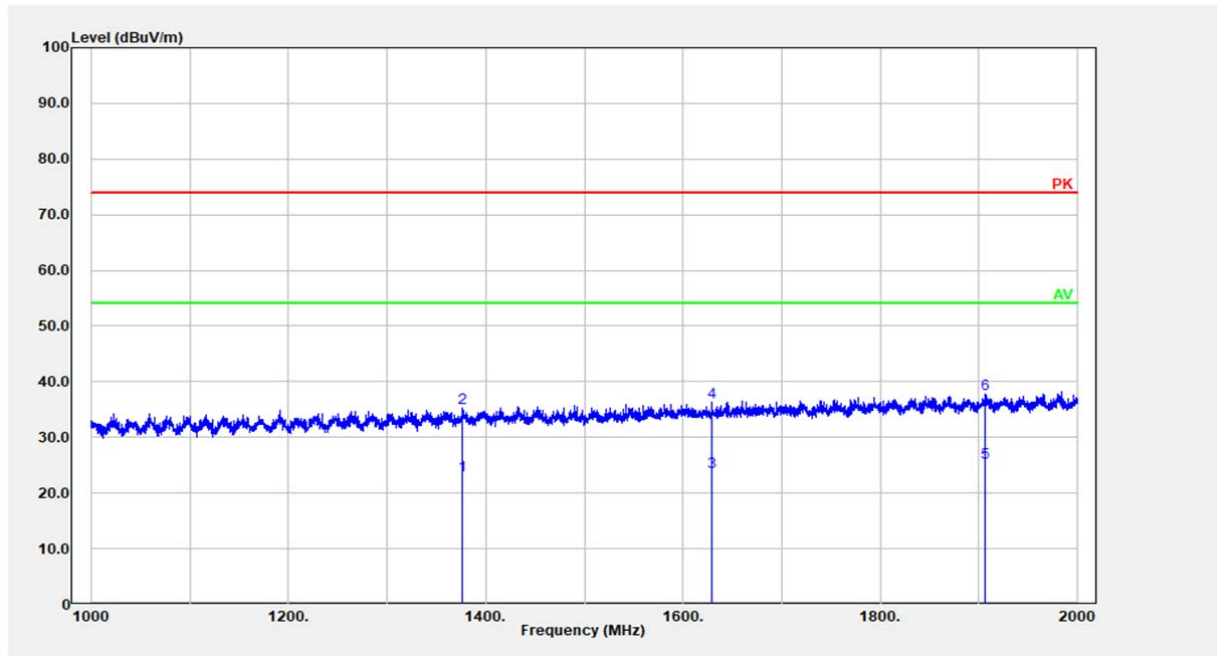
No.	Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
1	1060.412	25.43	-2.37	23.06	54.00	30.94	Average
2	1060.412	37.97	-2.37	35.60	74.00	38.40	Peak
3	1320.264	25.01	-1.21	23.80	54.00	30.20	Average
4	1320.264	37.03	-1.21	35.82	74.00	38.18	Peak
5	1667.734	24.42	0.59	25.01	54.00	28.99	Average
6	1667.734	36.85	0.59	37.44	74.00	36.56	Peak

M2:

Note: Pre-scan operating at 161.650MHz & 163.275MHz, worst case is operating at 163.275MHz.

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	1359.072	24.43	-0.91	23.52	54.00	30.48	Average
2	1359.072	36.69	-0.91	35.78	74.00	38.22	Peak
3	1509.102	24.02	-0.53	23.49	54.00	30.51	Average
4	1509.102	36.05	-0.53	35.52	74.00	38.48	Peak
5	1627.125	23.45	0.43	23.88	54.00	30.12	Average
6	1627.125	35.79	0.43	36.22	74.00	37.78	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	1376.675	24.03	-0.81	23.22	54.00	30.78	Average
2	1376.675	36.07	-0.81	35.26	74.00	38.74	Peak
3	1629.526	23.40	0.44	23.84	54.00	30.16	Average
4	1629.526	35.82	0.44	36.26	74.00	37.74	Peak
5	1906.381	23.43	1.99	25.42	54.00	28.58	Average
6	1906.381	35.87	1.99	37.86	74.00	36.14	Peak

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