

TEST REPORT

Applicant: Yapalong Inc.

Address: 7895 Tranmere Drive, Unit 13, MISSISSAUGA, ON ,L5S 1V9 Canada

FCC ID: UJW-6000

Product Name: Yapalong

Model Number: Yapalong6000

Standard(s): 47 CFR Part 15 Subpart B
ICES-003, ISSUE 7, OCTOBER 2020
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: CR22070055-00A

Date Of Issue: 2022-10-09

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.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk “★”.

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.....	5
1.3 MEASUREMENT UNCERTAINTY	7
2. SUMMARY OF TEST RESULTS	8
3. REQUIREMENTS AND TEST PROCEDURES	9
3.1 AC LINE CONDUCTED EMISSIONS	9
3.1.1 EUT Setup.....	9
3.1.2 EMI Test Receiver Setup	9
3.1.3 Test Procedure	10
3.1.4 Corrected Amplitude & Margin Calculation.....	10
3.2 RADIATION SPURIOUS EMISSIONS	11
3.2.1 EUT Setup.....	11
3.2.2 EMI Test Receiver Setup	12
3.2.3 Test Procedure	12
3.2.4 Corrected Amplitude & Margin Calculation.....	12
4. TEST DATA AND RESULTS.....	13
4.1 AC LINE CONDUCTED EMISSIONS	13
4.2 RADIATION SPURIOUS EMISSIONS	16

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Yapalong
EUT Model:	Yapalong6000
Highest Operation Frequency:	2480 MHz
Rated Input Voltage:	DC 3.7V from battery or DC 5V from USB
Serial Number:	CR22070055-RF-S1
EUT Received Date:	2022.7.28
EUT Received Status:	Good

Accessory Information:

Accessory Description	Manufacturer	Model
Adapter	KYT	KYT050200UU-01

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-the EUT was charged and transmitting with another Yapalong6000.
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

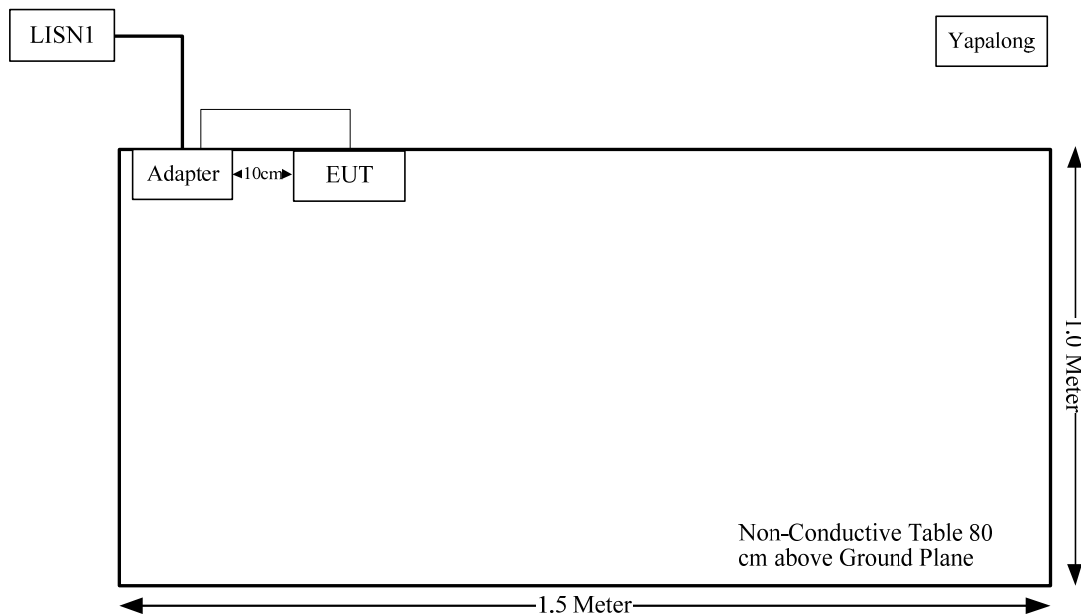
Manufacturer	Description	Model	Serial Number
Yapalong Inc.	Yapalong	Yapalong6000	CR22070055-RF-S2

1.2.3 Support Cable List and Details

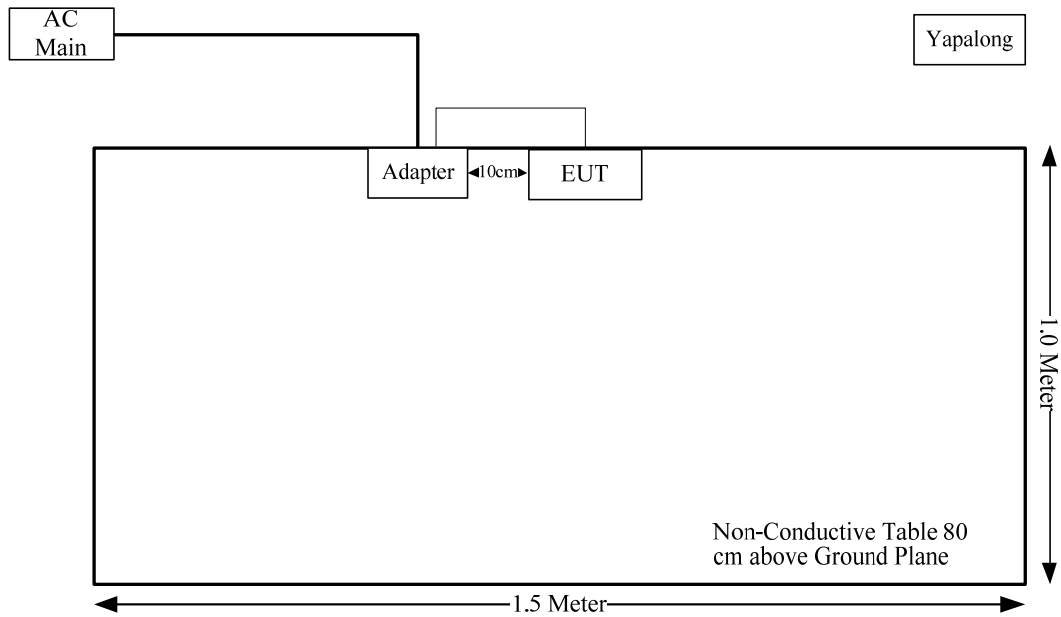
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	1.0	Adapter	EUT

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



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

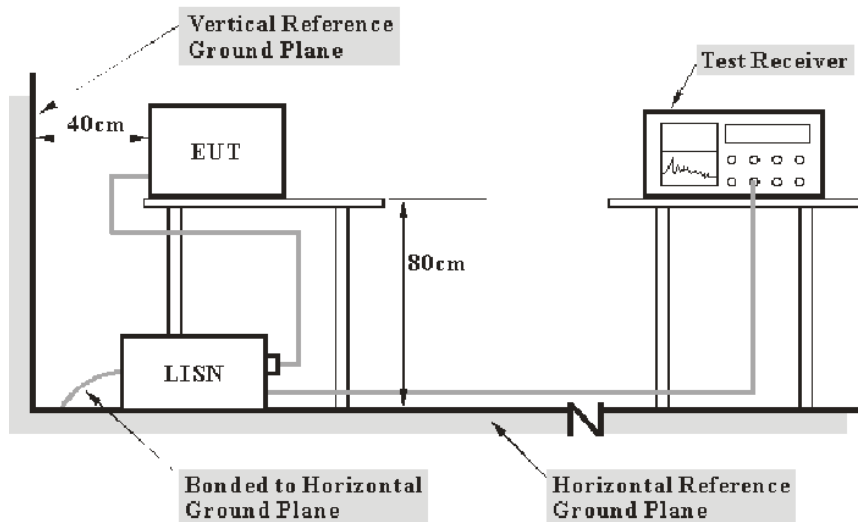
2. SUMMARY OF TEST RESULTS

Standard Clause	Description of Test	Test Result
FCC§15.107 ICES-003§3.2.1	Conducted emissions	Compliance
FCC§15.109 ICES-003§3.2.2	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 and Innovation, Science and Economic Development Canada ICES-003 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

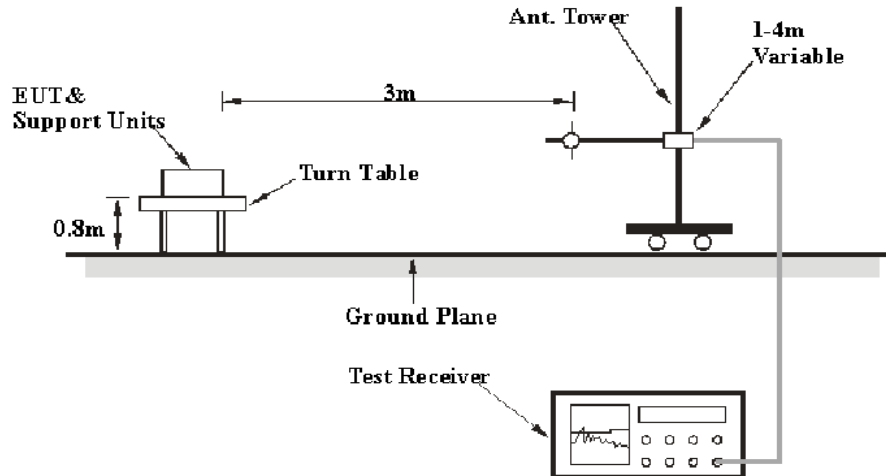
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

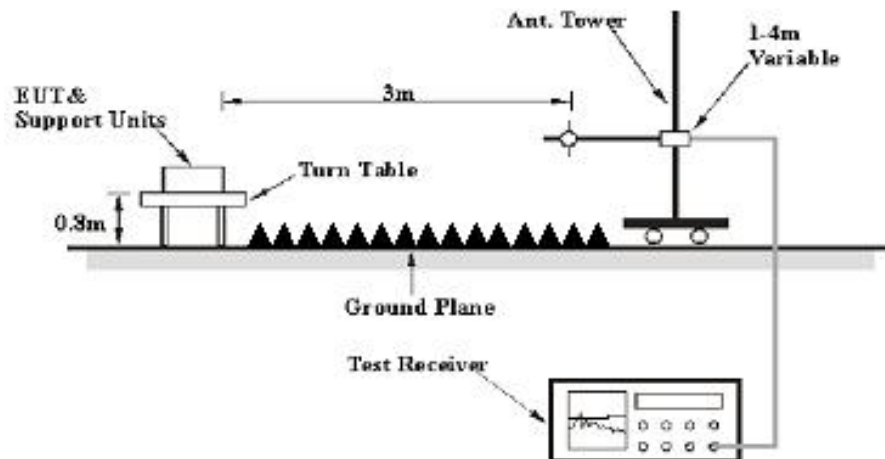
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 and ICES-003 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:	CR22070055-RF-S1	Test Date:	2022-08-04
Test Site:	CE	Test Mode:	operating
Tester:	Vic Du	Test Result:	Pass

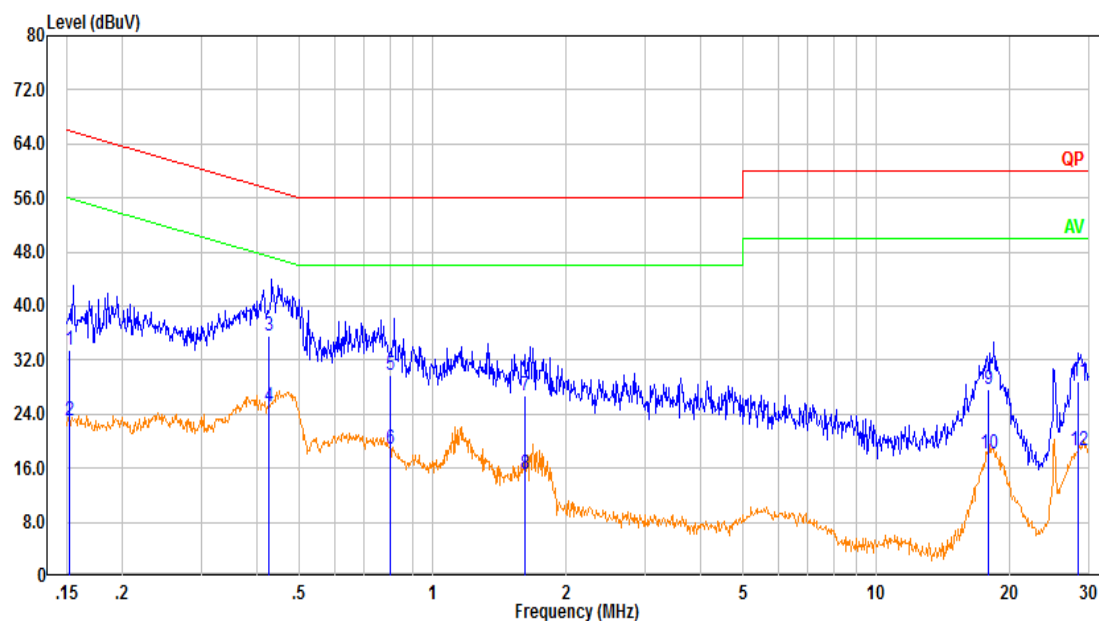
Environmental Conditions:

Temperature: (°C)	27.3	Relative Humidity: (%)	59	ATM Pressure: (kPa)	100.1
----------------------	------	------------------------------	----	------------------------	-------

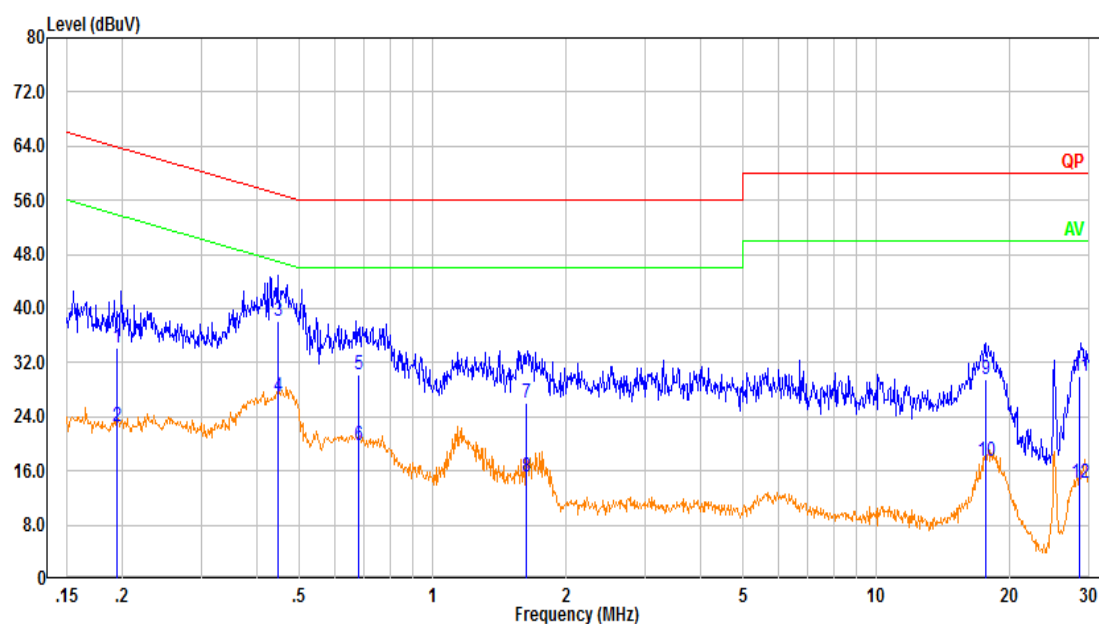
Test Equipment List and Details:

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).

Line:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.152	23.79	9.61	33.40	65.89	32.49	QP
2	0.152	13.31	9.61	22.92	55.89	32.97	Average
3	0.427	26.06	9.61	35.67	57.32	21.65	QP
4	0.427	15.55	9.61	25.16	47.32	22.16	Average
5	0.803	20.15	9.62	29.77	56.00	26.23	QP
6	0.803	9.22	9.62	18.84	46.00	27.16	Average
7	1.608	17.14	9.63	26.77	56.00	29.23	QP
8	1.608	5.50	9.63	15.12	46.00	30.88	Average
9	17.930	17.96	9.75	27.70	60.00	32.30	QP
10	17.930	8.37	9.75	18.12	50.00	31.88	Average
11	28.570	18.94	9.82	28.77	60.00	31.23	QP
12	28.570	8.78	9.82	18.60	50.00	31.40	Average

Neutral:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.194	24.51	9.61	34.12	63.85	29.73	QP
2	0.194	12.91	9.61	22.52	53.85	31.33	Average
3	0.447	28.64	9.61	38.25	56.94	18.69	QP
4	0.447	17.33	9.61	26.94	46.94	20.00	Average
5	0.678	20.72	9.62	30.34	56.00	25.66	QP
6	0.678	10.15	9.62	19.77	46.00	26.23	Average
7	1.620	16.43	9.63	26.06	56.00	29.94	QP
8	1.620	5.42	9.63	15.05	46.00	30.95	Average
9	17.642	19.82	9.69	29.51	60.00	30.49	QP
10	17.642	7.67	9.69	17.36	50.00	32.64	Average
11	28.780	20.10	9.81	29.91	60.00	30.09	QP
12	28.780	4.30	9.81	14.11	50.00	35.89	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22070055-RF-S1	Test Date:	2022-08-09~2022-09-22
Test Site:	966-1, 966-2	Test Mode:	Operating
Tester:	coco Tian, Gary Ling	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.5~28.3	Relative Humidity: (%)	54~66	ATM Pressure: (kPa)	100.2~100.4
----------------------	-----------	------------------------------	-------	------------------------	-------------

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

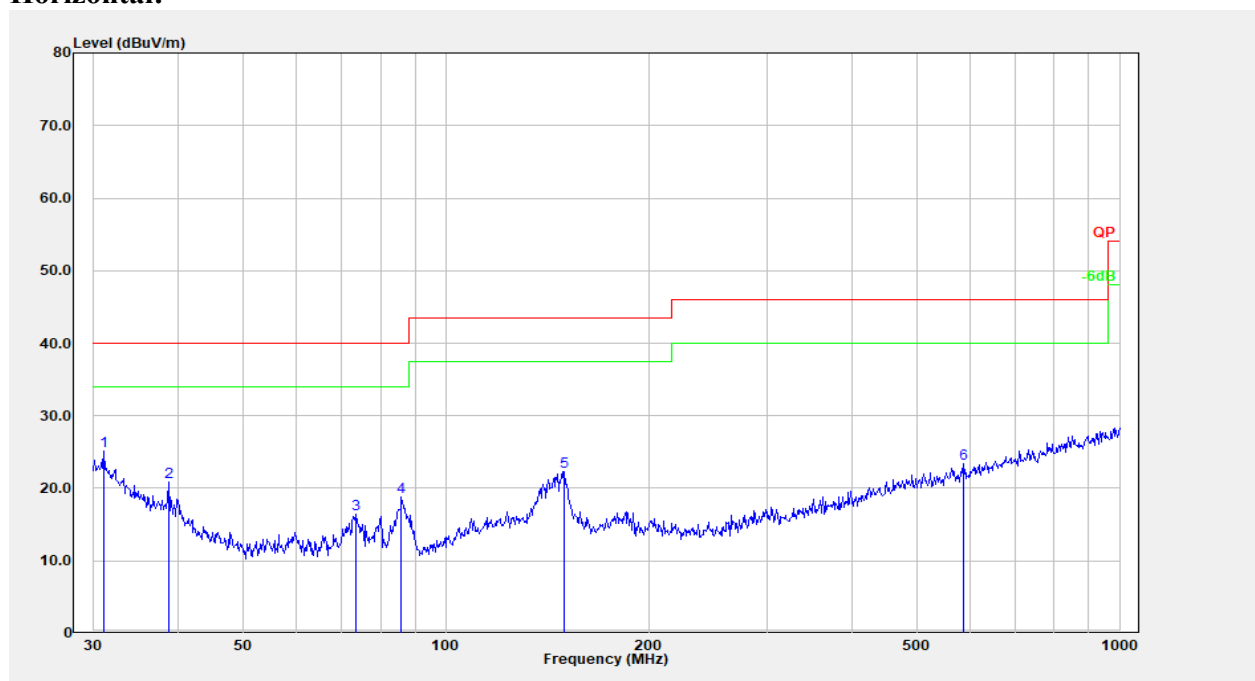
* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

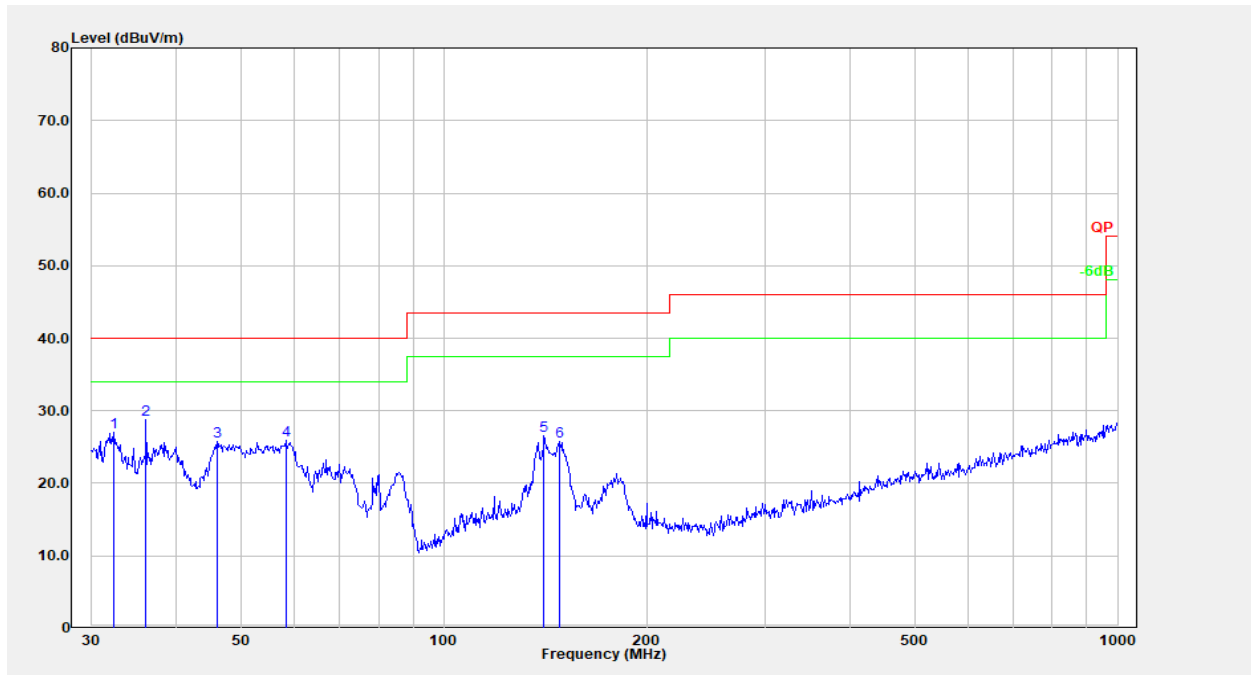
Please refer to the below table and plots.

Note: The device can be mounted in multiple orientations, test was performed for all positions that are consistent with that of the normal operation of the EUT., the worst orientation was photographed and it's data was recorded.

1) 30MHz-1GHz:

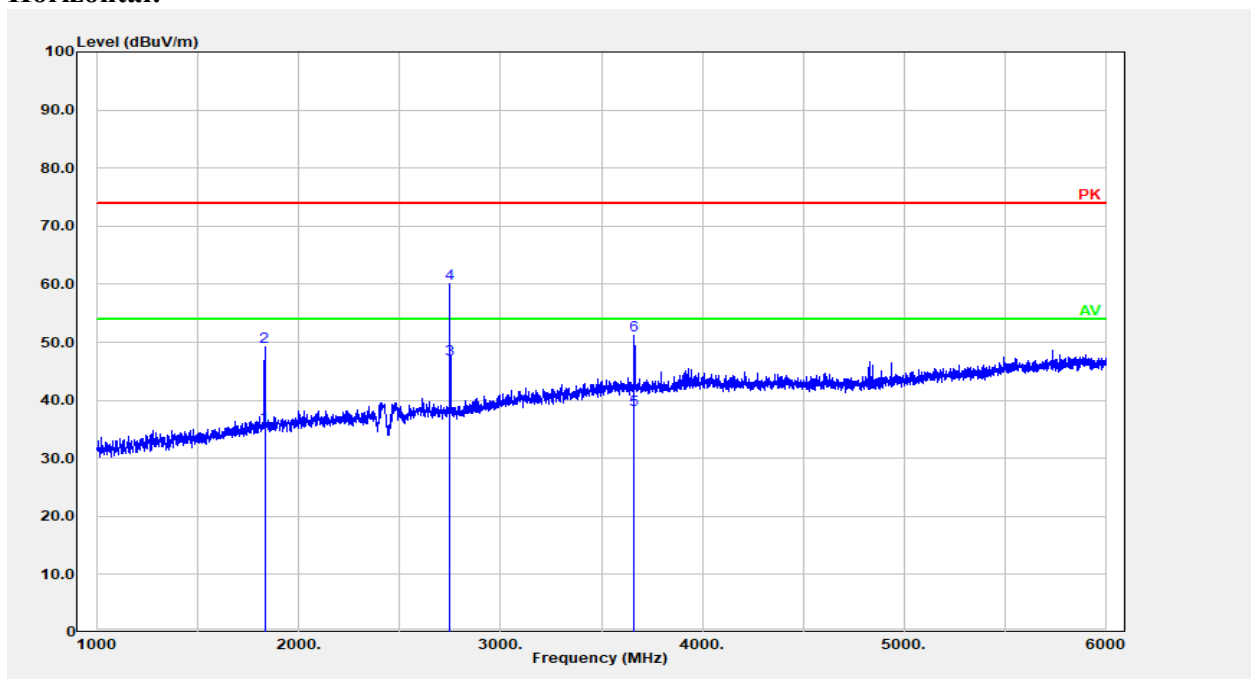
Horizontal:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	31.071	29.80	-4.61	25.19	40.00	14.81	Peak
2	38.752	31.36	-10.52	20.84	40.00	19.16	Peak
3	73.359	33.42	-17.03	16.39	40.00	23.61	Peak
4	85.898	36.25	-17.39	18.86	40.00	21.14	Peak
5	150.011	34.51	-12.26	22.25	43.50	21.25	Peak
6	586.844	29.03	-5.67	23.36	46.00	22.64	Peak

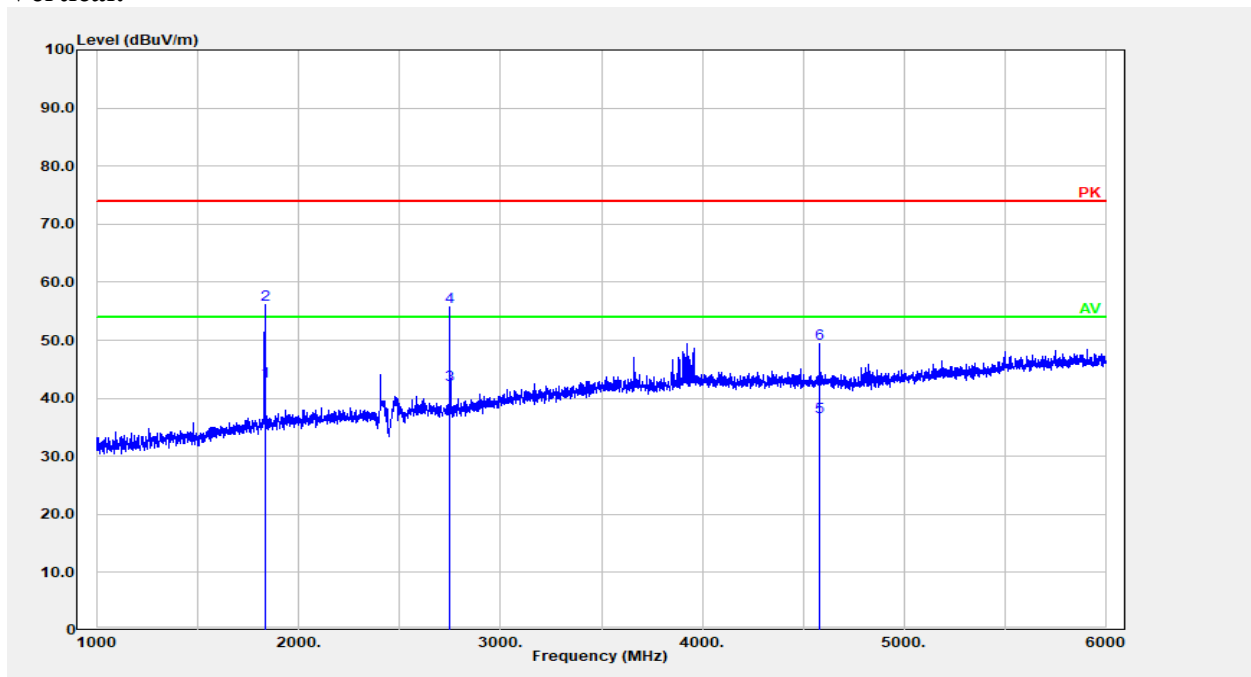
Vertical:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	32.406	32.72	-5.64	27.08	40.00	12.92	Peak
2	36.127	37.28	-8.52	28.76	40.00	11.24	Peak
3	46.016	40.82	-15.08	25.75	40.00	14.25	Peak
4	58.203	43.49	-17.58	25.91	40.00	14.09	Peak
5	140.835	38.73	-12.18	26.55	43.50	16.95	Peak
6	148.441	37.97	-12.25	25.72	43.50	17.78	Peak

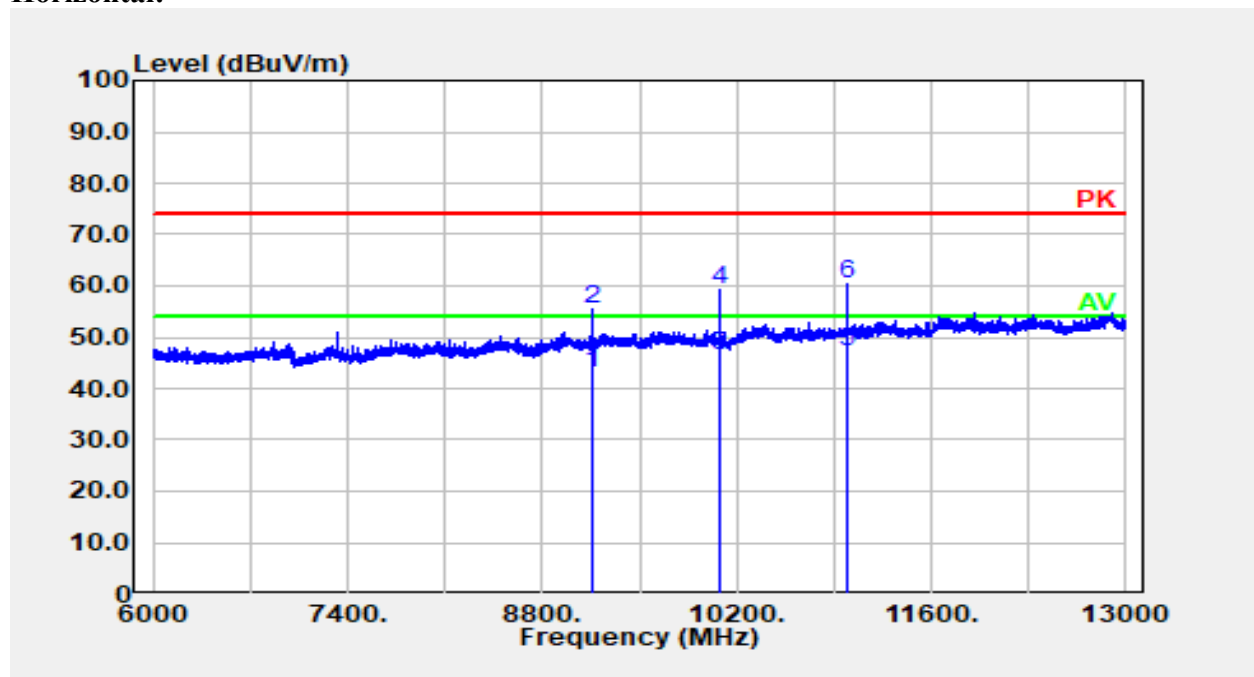
2) 1GHz-13GHz:

Horizontal:

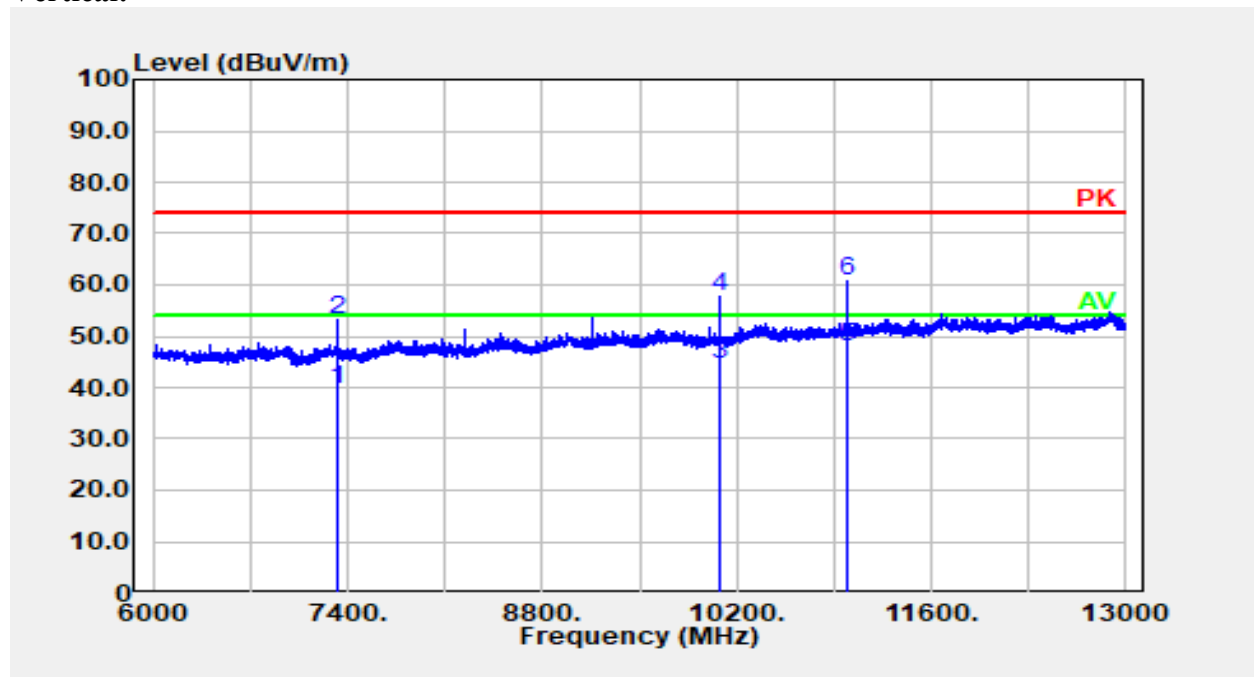
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1831.166	34.02	1.64	35.66	54.00	18.34	Average
2	1831.166	47.59	1.64	49.23	74.00	24.77	Peak
3	2748.350	42.13	4.98	47.11	54.00	6.89	Average
4	2748.350	55.09	4.98	60.07	74.00	13.93	Peak
5	3663.533	29.31	9.06	38.37	54.00	15.63	Average
6	3663.533	42.14	9.06	51.20	74.00	22.80	Peak

Vertical:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1832.166	41.23	1.64	42.87	54.00	11.13	Average
2	1832.166	54.56	1.64	56.20	74.00	17.80	Peak
3	2747.349	37.25	4.97	42.22	54.00	11.78	Average
4	2747.349	50.67	4.97	55.64	74.00	18.36	Peak
5	4582.716	26.64	10.07	36.71	54.00	17.29	Average
6	4582.716	39.27	10.07	49.34	74.00	24.66	Peak

Horizontal:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	9164.633	25.76	17.12	42.88	54.00	11.12	Average
2	9164.633	38.32	17.12	55.44	74.00	18.56	Peak
3	10081.820	28.43	18.13	46.56	54.00	7.44	Average
4	10081.820	41.08	18.13	59.21	74.00	14.79	Peak
5	10997.600	27.93	19.37	47.30	54.00	6.70	Average
6	10997.600	40.89	19.37	60.26	74.00	13.74	Peak

Vertical:

No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	7328.866	25.37	14.32	39.69	54.00	14.31	Average
2	7328.866	38.83	14.32	53.15	74.00	20.85	Peak
3	10081.820	26.34	18.13	44.47	54.00	9.53	Average
4	10081.820	39.45	18.13	57.58	74.00	16.42	Peak
5	10999.000	28.54	19.38	47.92	54.00	6.08	Average
6	10999.000	41.45	19.38	60.83	74.00	13.17	Peak

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