



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: CHENGDU JOUAV FUSION TECH CO.,LTD

Address: 3A-11F, Jingrong Innovation Hub, No. 200,5th TianFu St., Hi-tech District, Chengdu City, Sichuan Province, China

FCC ID: 2BDP3-CW15

Product Name: Drone

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

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

Report Number: CR231169609-00A

Date Of Issue: 2023/12/29

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Title: RF Engineer

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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.

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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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR231169609-00A	Original Report	2023/12/29

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Drone
EUT Model:	CW-15
Highest Operation Frequency:	2477.6 MHz
Rated Input Voltage:	DC 24V from Battery
Serial Number:	2E5T-1
EUT Received Date:	2023/11/23
EUT Received Status:	Good

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: Operation(flight + wireless link)
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

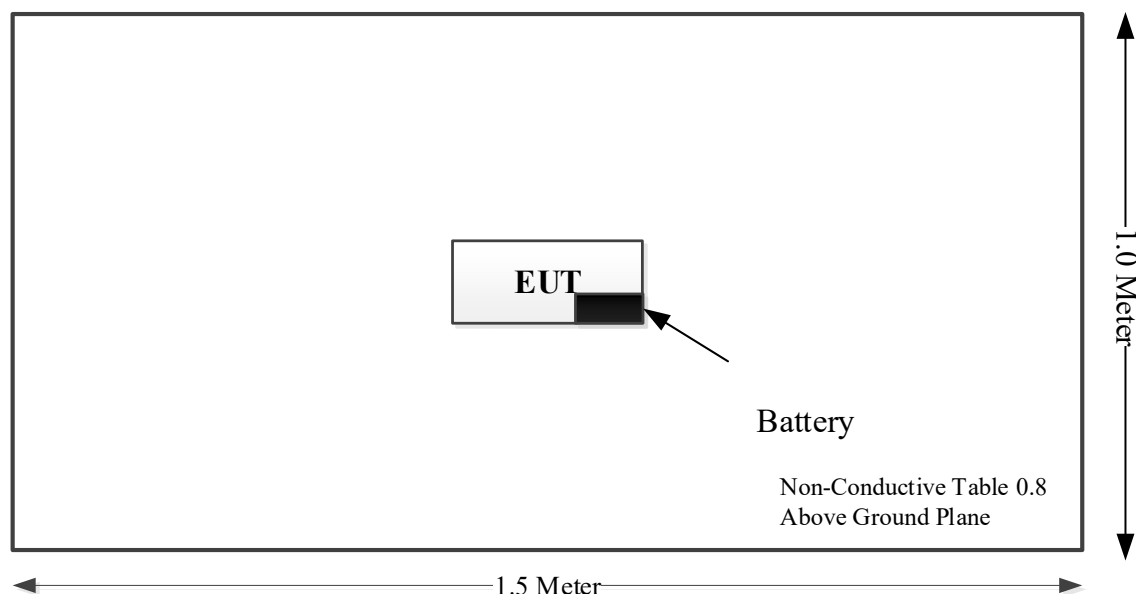
Manufacturer	Description	Model	Serial Number
Unknown	Battery	Unknown	Unknown

1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

1.2.4 Block Diagram of Test Setup

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)

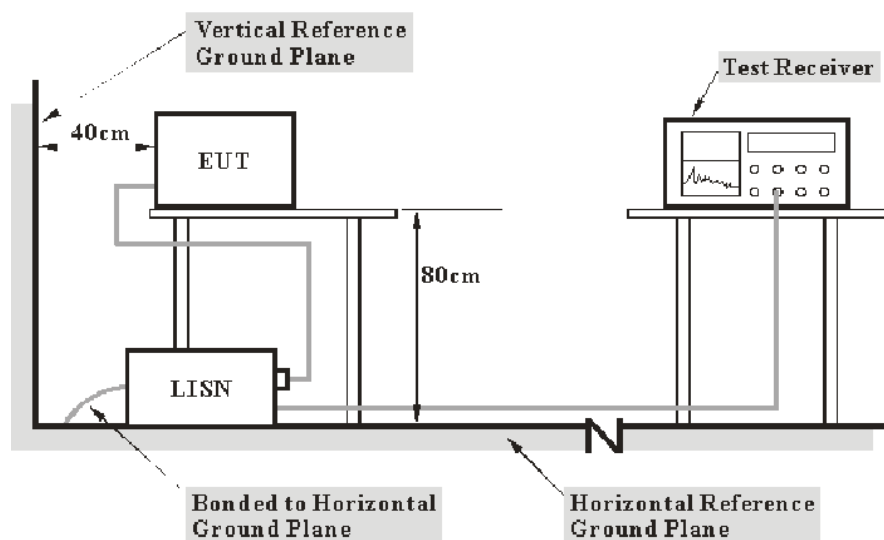
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Not Applicable
§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.

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

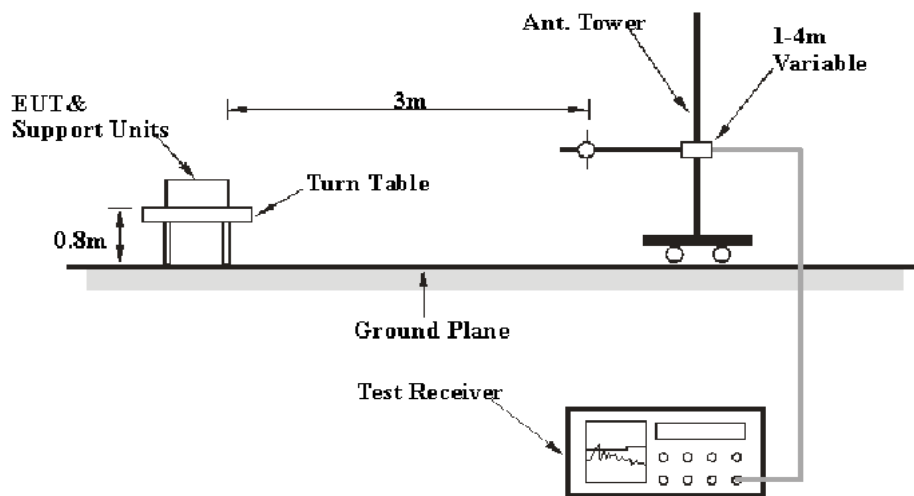
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

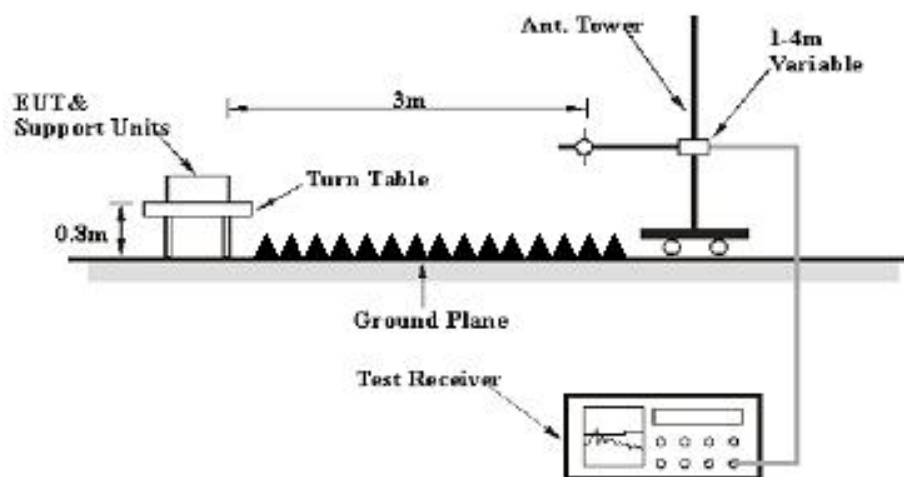
3.2 Radiation Emissions

3.2.1 EUT Setup

30MHz~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.

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

The spacing between the peripherals was 10 cm.

3.2.2 Equipment Setup

The system was investigated from 30 MHz to 13 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
150 kHz – 30 MHz	10 kHz	30 kHz	/	PK
	/	/	9 kHz	QP/AV
30 MHz – 1000 MHz	100 kHz	300 kHz	/	PK
	/	/	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

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

Data was recorded in Quasi-peak detection mode for frequency range of 30MHz-1 GHz, peak and average detection modes for frequencies 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

Not Applicable, the device was powered by battery when operating.

4.2 Radiation Emissions

Serial Number:	2E5T-1	Test Date:	2023/12/21~2023/12/22
Test Site:	966-1, 966-2	Test Mode:	Operation
Tester:	Vic Du, Mack Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.1~26	Relative Humidity: (%)	39~53	ATM Pressure: (kPa)	102.1~102.6
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Test Equipment List and Details:

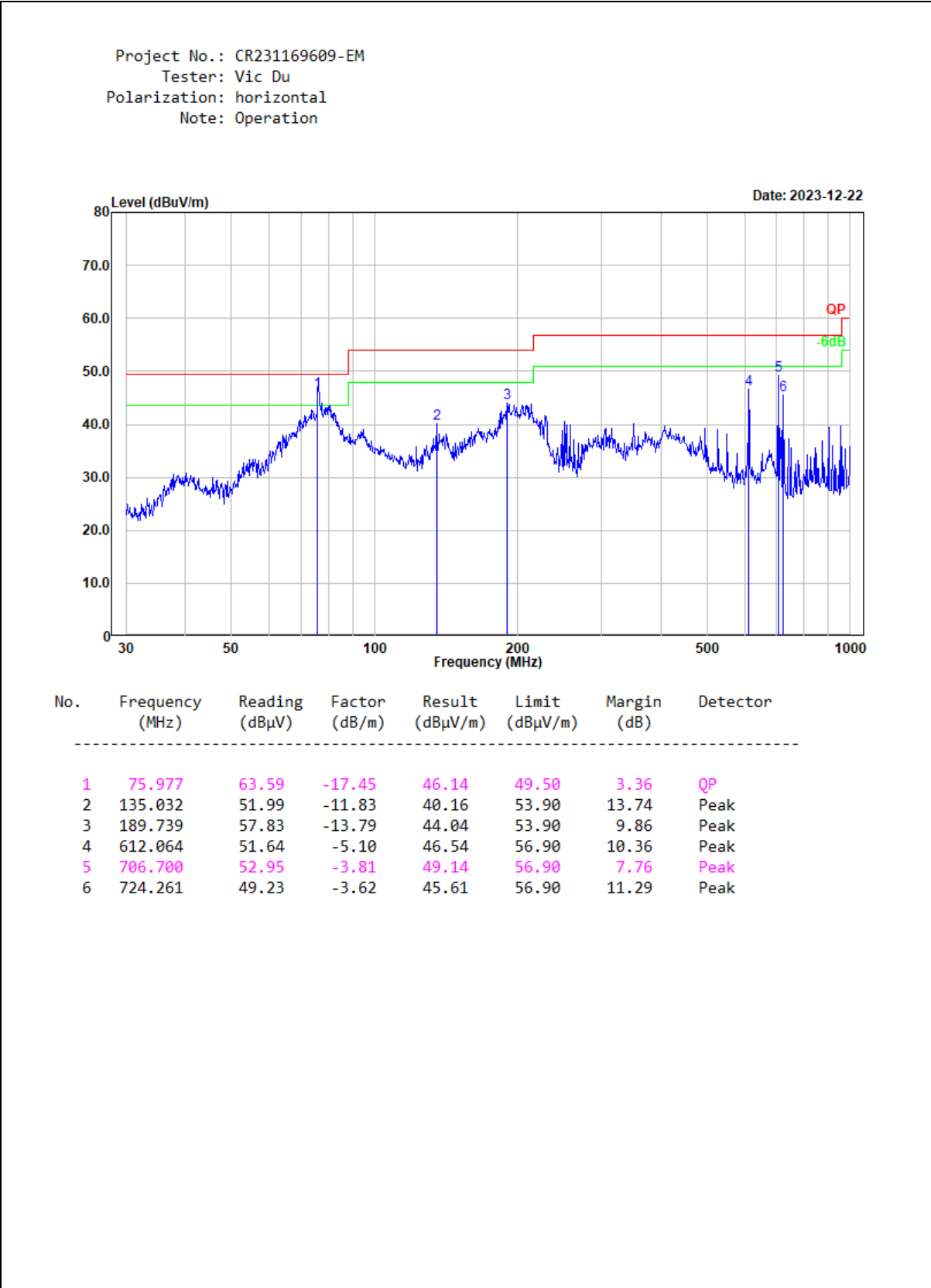
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Below 1GHz					
Sunol Sciences	Antenna	JB6	A082520-6	2023/9/18	2026/9/17
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
Radiated Emissions Above 1GHz					
AH	Double Ridge Guide Horn Antenna	SAS-571	1394	2023/2/22	2026/2/21
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/8/6	2024/8/5
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/8/6	2024/8/5
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2023/11/8	2024/11/7
Audix	Test Software	E3	201021 (V9)	N/A	N/A
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2023/8/6	2024/8/5
Mini Circuits	High Pass Filter	VHF-6010+	31119	2023/8/6	2024/8/5

* 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).

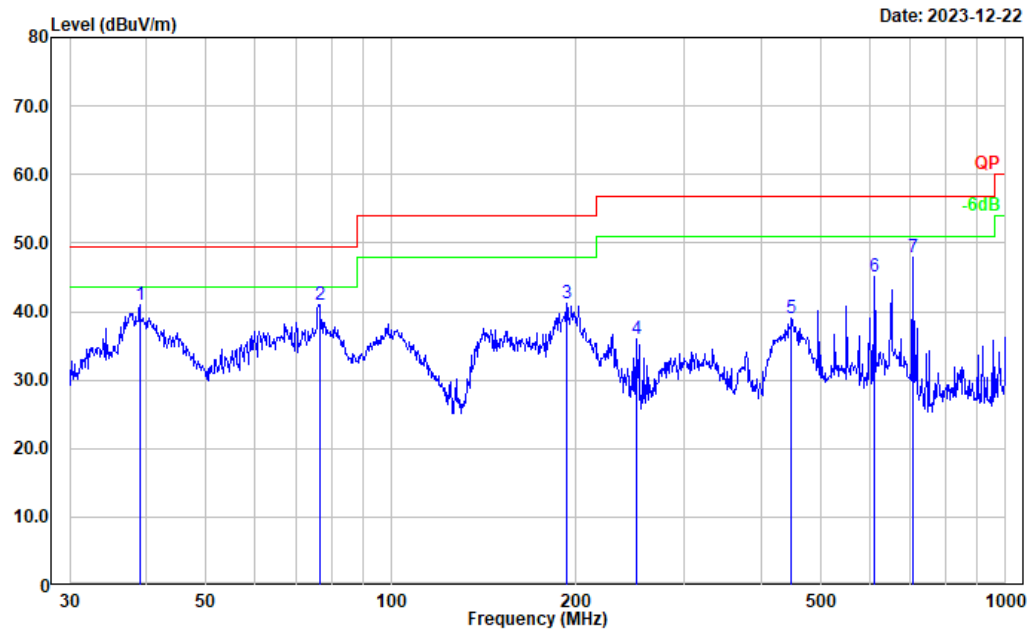
Test Data:

Please refer to the below table and plots.

1) 30MHz-1GHz



Project No.: CR231169609-EM
Tester: Vic Du
Polarization: vertical
Note: Operation

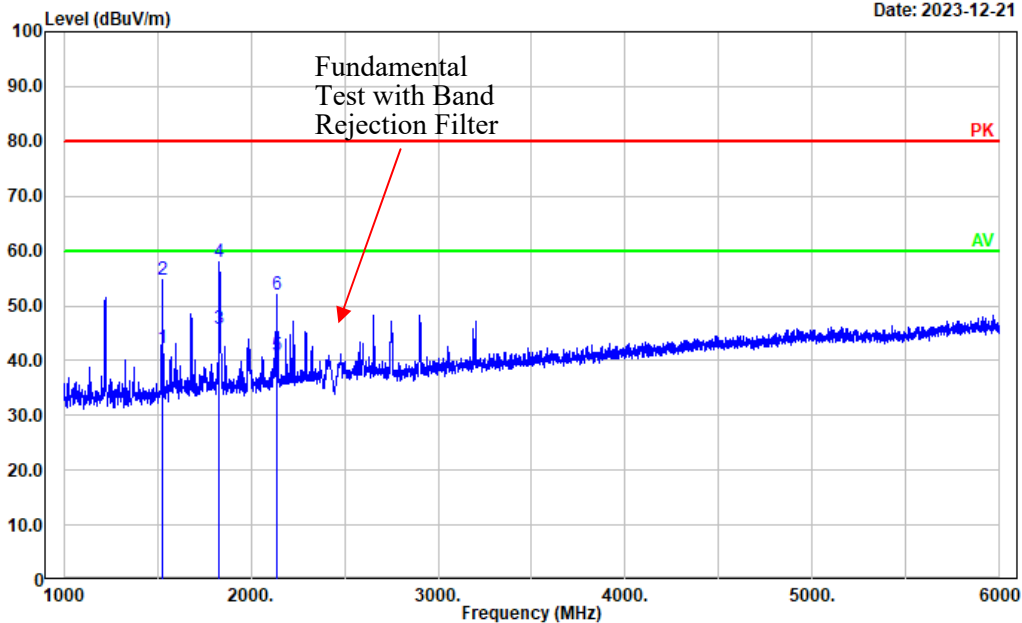


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	39.024	52.00	-10.97	41.03	49.50	8.47	Peak
2	76.512	58.50	-17.49	41.01	49.50	8.49	Peak
3	193.095	54.61	-13.41	41.20	53.90	12.70	Peak
4	250.301	49.64	-13.61	36.03	56.90	20.87	Peak
5	447.982	46.36	-7.33	39.03	56.90	17.87	Peak
6	612.064	50.11	-5.10	45.01	56.90	11.89	Peak
7	706.700	51.80	-3.81	47.99	56.90	8.91	Peak

2) Above 1GHz:

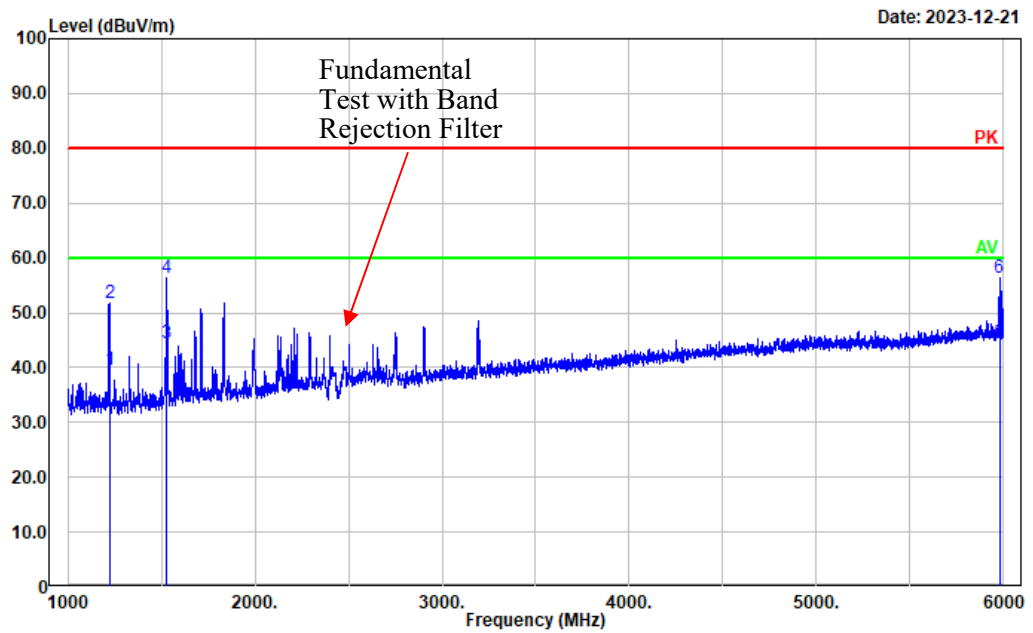
Project No.: CR231169609-EM
Tester: Mack Huang
Polarization: horizontal
Note: Operation

Date: 2023-12-21



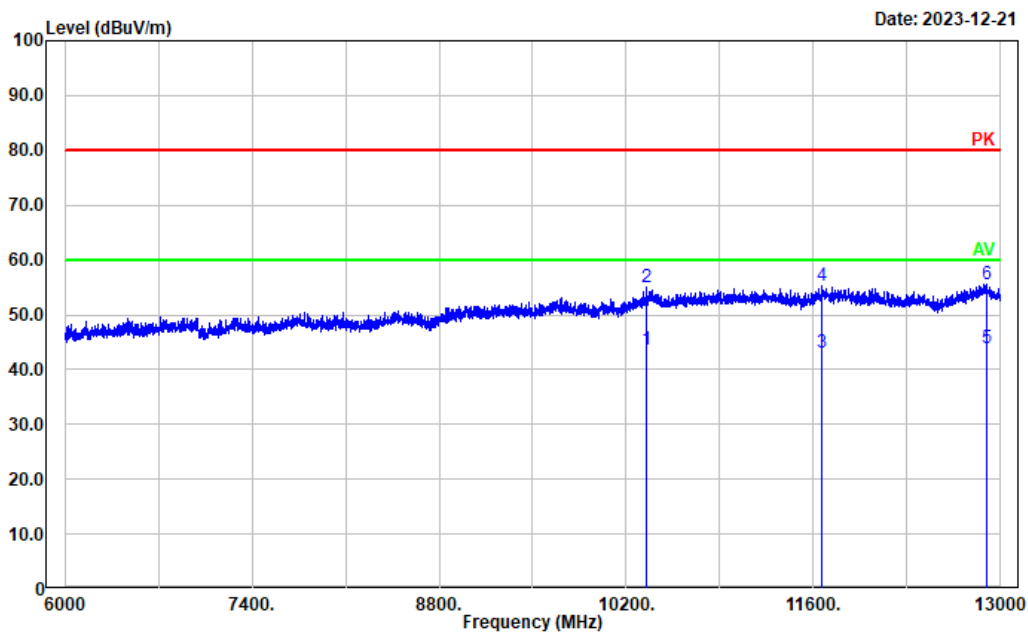
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1529.106	42.94	-0.63	42.31	60.00	17.69	Average
2	1529.106	55.32	-0.63	54.69	80.00	25.31	Peak
3	1832.166	45.00	0.69	45.69	60.00	14.31	Average
4	1832.166	57.21	0.69	57.90	80.00	22.10	Peak
5	2138.228	38.67	2.22	40.89	60.00	19.11	Average
6	2138.228	49.82	2.22	52.04	80.00	27.96	Peak

Project No.: CR231169609-EM
Tester: Mack Huang
Polarization: vertical
Note: Operation



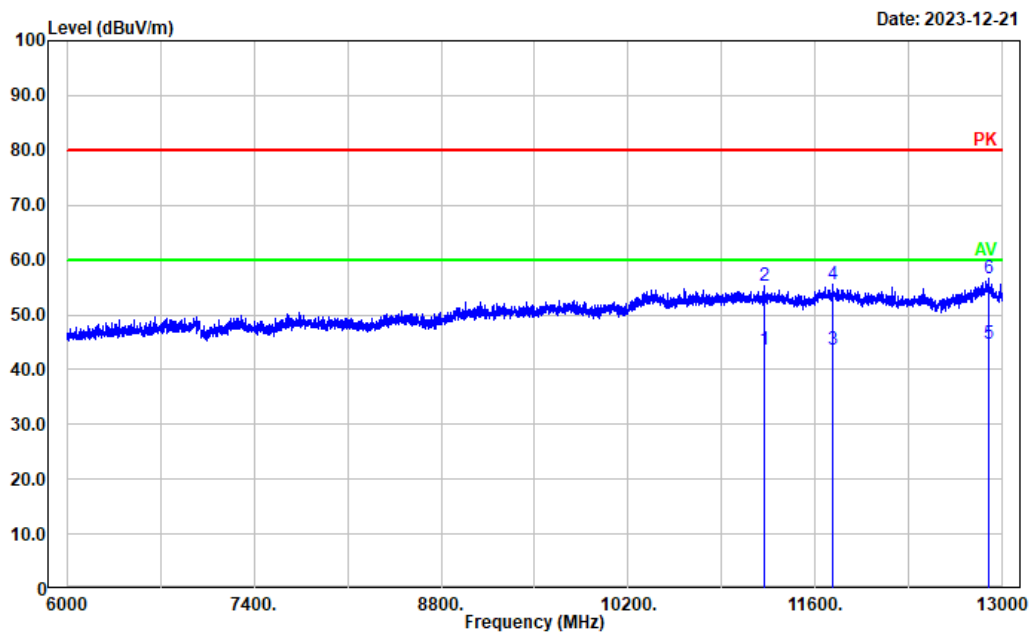
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1222.044	40.95	-1.27	39.68	60.00	20.32	Average
2	1222.044	53.10	-1.27	51.83	80.00	28.17	Peak
3	1528.106	45.08	-0.63	44.45	60.00	15.55	Average
4	1528.106	56.91	-0.63	56.28	80.00	23.72	Peak
5	5976.996	31.18	13.14	44.32	60.00	15.68	Average
6	5976.996	43.15	13.14	56.29	80.00	23.71	Peak

Project No.: CR231169609-EM
Tester: Mack Huang
Polarization: horizontal
Note: Operation



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	10346.470	23.19	20.44	43.63	60.00	16.37	Average
2	10346.470	34.56	20.44	55.00	80.00	25.00	Peak
3	11662.730	21.11	22.10	43.21	60.00	16.79	Average
4	11662.730	33.30	22.10	55.40	80.00	24.60	Peak
5	12894.980	20.57	23.28	43.85	60.00	16.15	Average
6	12894.980	32.26	23.28	55.54	80.00	24.46	Peak

Project No.: CR231169609-EM
Tester: Mack Huang
Polarization: vertical
Note: Operation



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	11220.240	22.21	21.44	43.65	60.00	16.35	Average
2	11220.240	33.74	21.44	55.18	80.00	24.82	Peak
3	11724.340	21.49	22.25	43.74	60.00	16.26	Average
4	11724.340	33.36	22.25	55.61	80.00	24.39	Peak
5	12896.380	21.36	23.29	44.65	60.00	15.35	Average
6	12896.380	33.43	23.29	56.72	80.00	23.28	Peak

5. EUT PHOTOGRAPHS

Please refer to the attachment CR231169609-EXP EUT EXTERNAL PHOTOGRAPHS and CR231169609-
INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR231169609-00A-TSP TEST SETUP PHOTOGRAPHS.

******* END OF REPORT *******