中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Quanzhou Juhui Electronics Co.,Ltd.**

Address: No.288 Changxing Road,Huoju Industrial District,Licheng Area,Quanzhou,Fujian,China

FCC ID: **2ALGNJH-DOOR511**

Product Name: **remote control**

Standard(s): **47 CFR Part 15, Subpart C (15.231)**
ANSI C63.10-2013

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

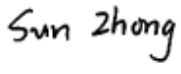
Report Number: **CR230955840-00**

Date Of Issue: **2024/3/26**

Reviewed By: **Calvin Chen**

Title: RF Engineer

Approved By: **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.

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

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230955840-00	Original Report	2024/3/25

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	remote control
EUT Model:	JH-TX511
Operation Frequency:	310MHz, 315 MHz, 390MHz
Modulation Type:	OOK
Rated Input Voltage:	DC3.3V from battery
Serial Number:	2BLK-1
EUT Received Date:	2023/9/23
EUT Received Status:	Good

Antenna Information Detail▲:

Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
PCB	50	300~400 MHz	1.3 dBi

The Method of §15.203 Compliance:

☒Antenna was permanently attached to the unit.

☐Antenna use a unique type of connector to attach to the EUT.

☐Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.
Equipment Modifications:	No
EUT Exercise Software:	No
Engineering Mode was provided by manufacturer▲. The maximum power was configured default setting.	

1.2.2 Support Equipment List and Details

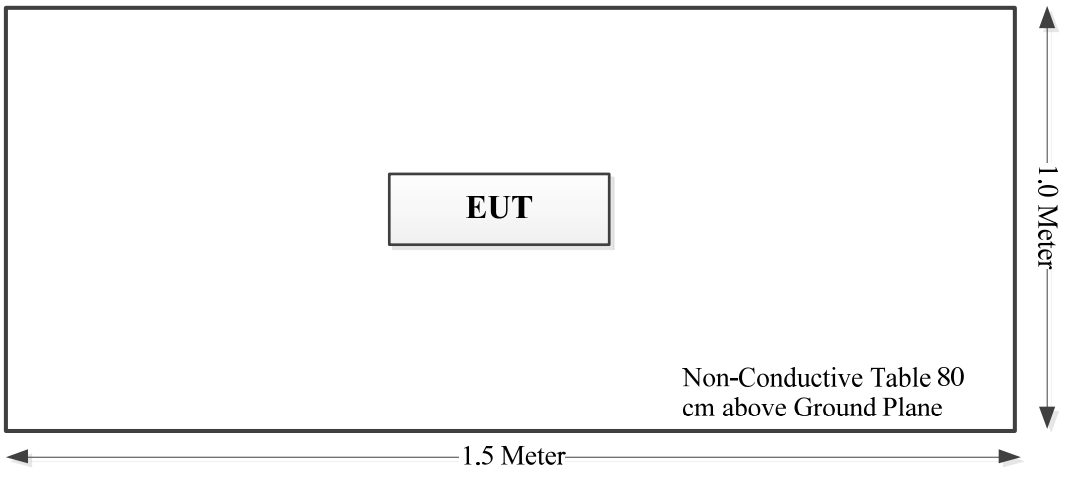
Manufacturer	Description	Model	Serial Number
/	/	/	/

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
Occupied Channel Bandwidth	±5 %
Unwanted Emissions, radiated	9kHz~30MHz: 4.12 dB, 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
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207 (a)	Conducted Emissions	Not Applicable
§15.205, §15.209, §15.231 (b)	Radiated Emissions	Compliant
§15.231 (c)	20dB Bandwidth	Compliant
§15.231 (a)	Deactivation Testing	Compliant
§15.203	Antenna Requirement	Compliant
§ 1.1307	RF Exposure Evaluation	Compliant

Note:
Not Applicable: The device was powered by button battery.

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBμV)	
Frequency of emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

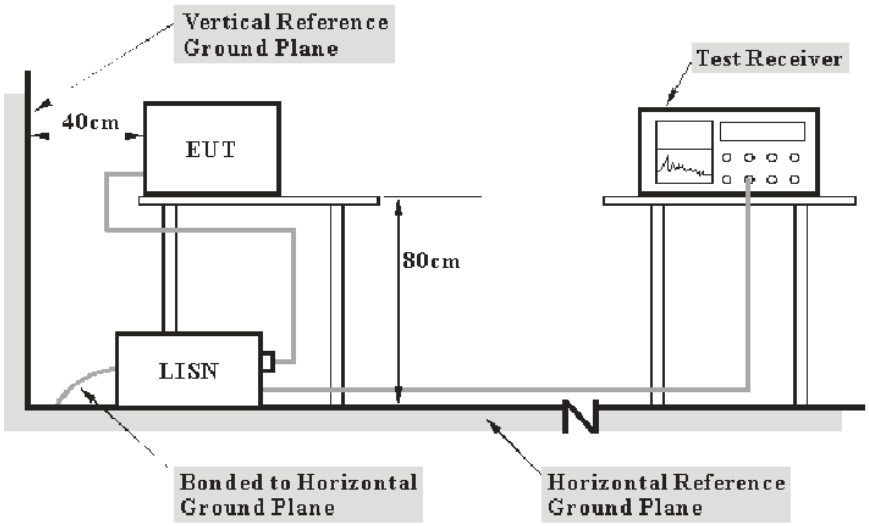
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μV within the frequency band 535-1705 kHz, as measured using a 50 μH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtainig their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 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 C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.3 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

3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

3.1.5 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 Applicable Standard

FCC §15.231 (b);

In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

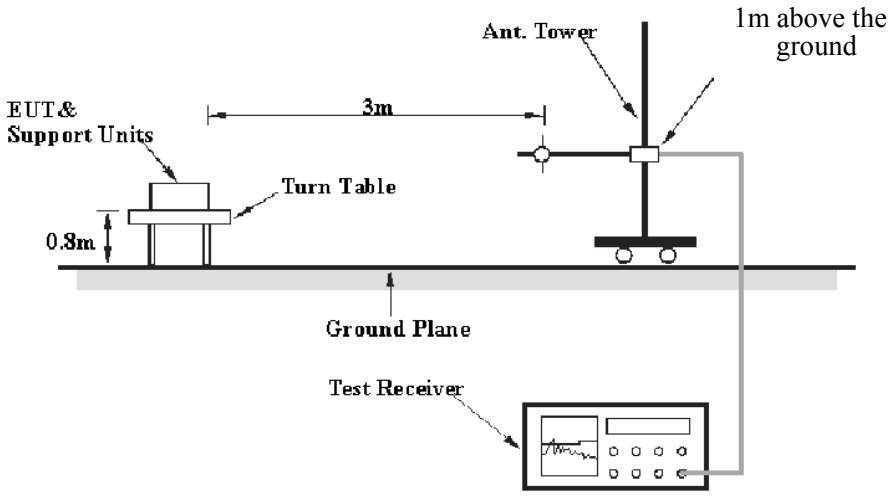
Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	[1]1,250 to 3,750	[1]125 to 375
174-260	3,750	375
260-470	[1]3,750 to 12,500	[1]375 to 1,250
Above 470	12,500	1,250

1Linear interpolations.

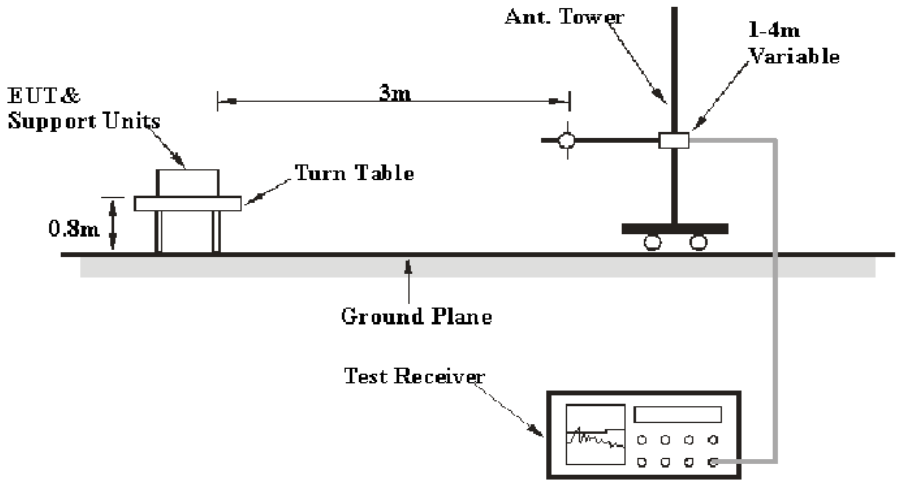
(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.
(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.
(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

3.2.2 EUT Setup

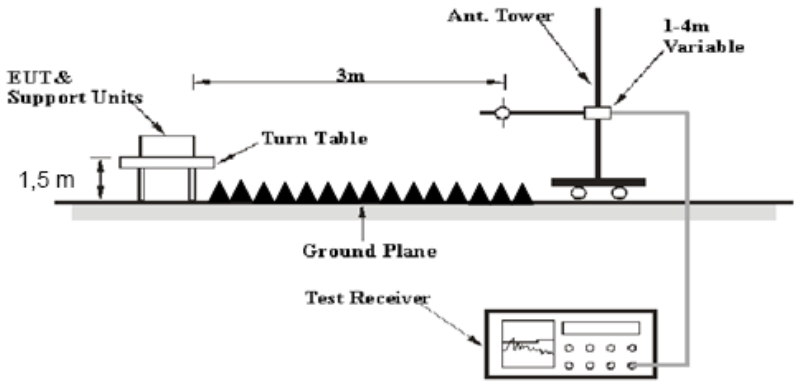
9kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emissions were performed in the 3 meters distance, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.205, 15.209, and FCC 15.231 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.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
9 kHz – 150 kHz	300 Hz	1 kHz	/	PK
	/	/	300 Hz	QP/AV
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	/	PK

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.4 Test Procedure

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

According to §15.231, Intentional radiators operating under the provisions of this Section shall demonstrate compliance with the limits on the field strength of emissions, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz-1 GHz except 9–90 kHz, 110–490 kHz, employing an average detector, peak detection modes for frequencies above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.5 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

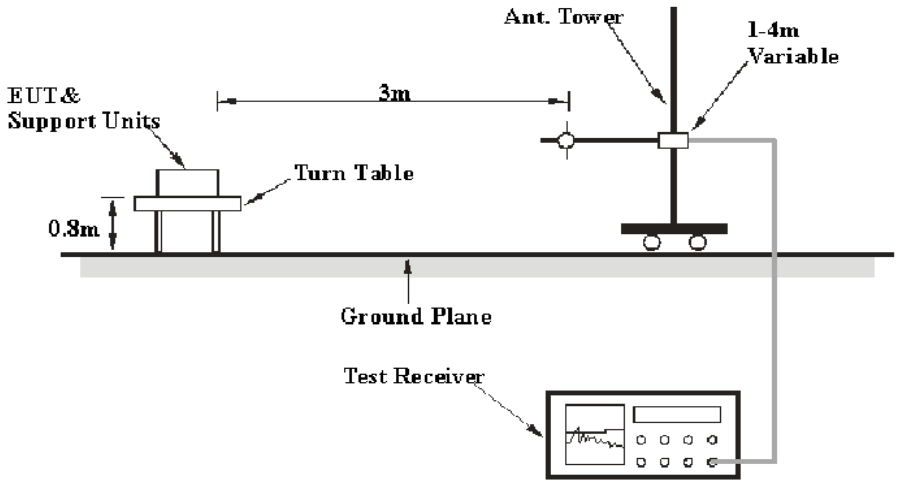
3.3 20 dB Emission Bandwidth:

3.3.1 Applicable Standard

FCC §15.231(c)

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

3.3.2 EUT Setup



3.3.3 Test Procedure

According to ANSI C63.10-2013 Section 6.9.2

a) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, unless otherwise specified by the applicable requirement.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

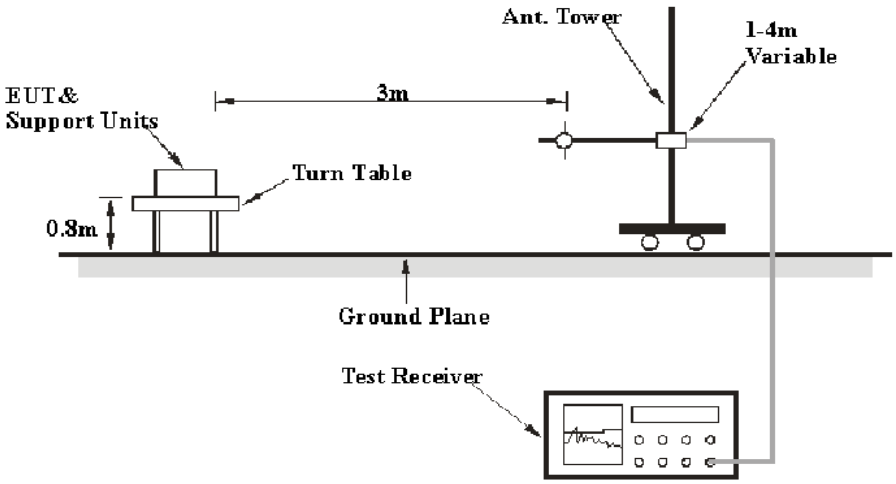
3.4 DEACTIVATION TESTING

3.4.1 Applicable Standard

FCC §15.231 (a)(1)

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

3.4.2 EUT Setup



3.4.3 Test Procedure

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.

3.5 Antenna Requirement

3.5.1 Applicable Standard

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

3.5.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

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

4.2 Radiation Spurious Emissions

Serial Number:	2BLK-1	Test Date:	2024/3/12-2024/3/20
Test Site:	966-2，966-1	Test Mode:	Transmitting
Tester:	Jeff Luo, Tao Zhu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.2-24.4	Relative Humidity: (%)	50-55	ATM Pressure: (kPa)	100.9-101.7

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation Spurious Emissions Below 1GHz					
Sunol Sciences	Antenna	JB6	A082520-5	2023/12/1	2026/11/30
BACL	Loop Antenna	1313-1A	3110611	2023/12/4	2026/12/3
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0300-01	2024/1/11	2025/1/10
Daruikang	Coaxial Cable	BNC-JJ-RG58	C-0500-01	2024/1/11	2025/1/10
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
Radiation Spurious Emissions Above 1GHz					
ETS-Lindgren	Horn Antenna	3115	9912-5985	2023/12/6	2026/12/5
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2024/1/15	2025/1/14
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2024/1/15	2025/1/14
A.H	Preamplifier	PAM-0118P	628	2024/1/15	2025/1/14
Audix	Test Software	E3	191218 (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).*

Test Data:

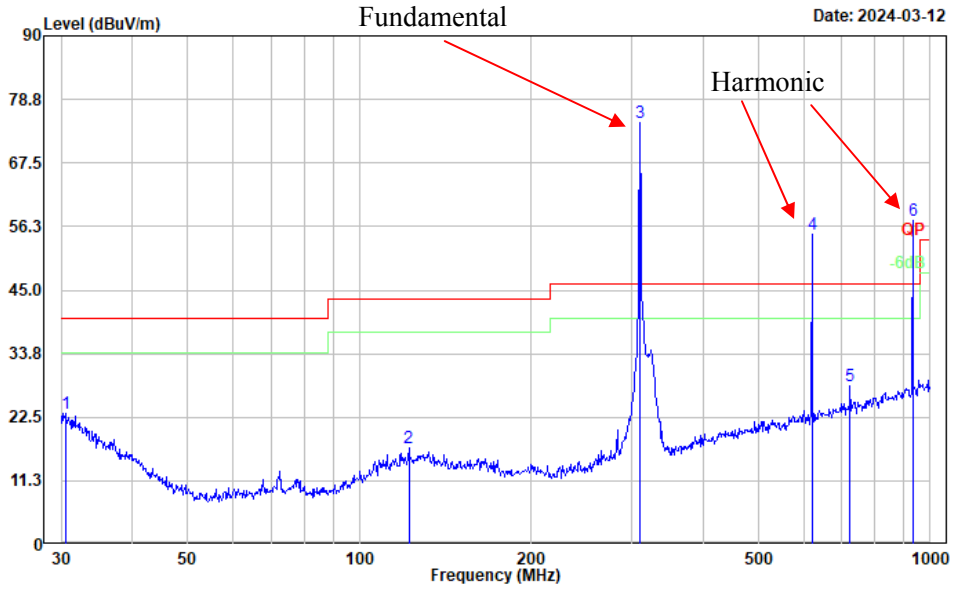
Please refer to the below table and plots.
After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

For 9kHz-30MHz, The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

Peak Strength:

310MHz_Horizontal

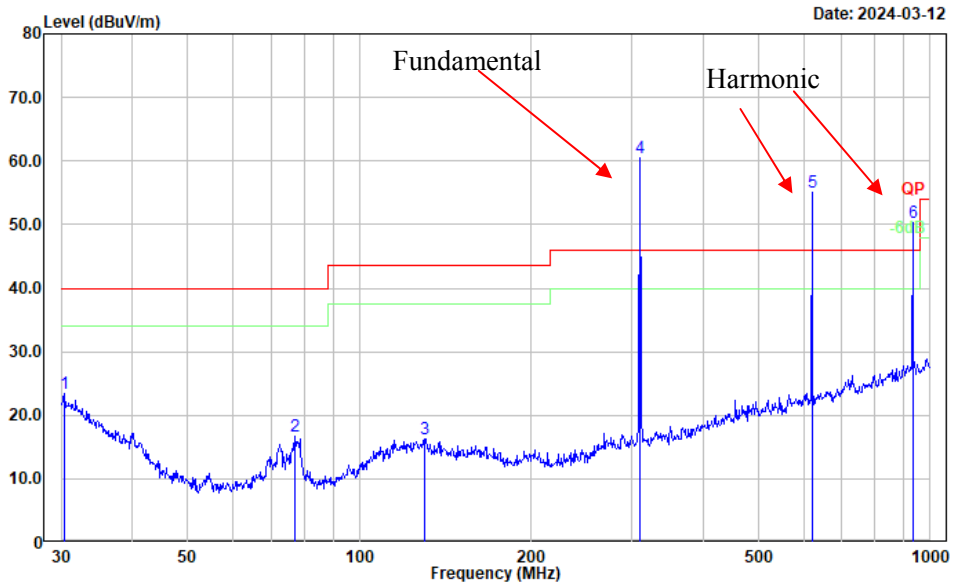
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: horizontal
Note: Transmiting(310MHz)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.531	27.32	-4.18	23.14	40.00	16.86	Peak
2	121.976	27.88	-10.90	16.98	43.50	26.52	Peak
3	309.998	84.85	-10.20	74.65	95.32	20.67	Peak
4	620.710	59.57	-4.61	54.96	75.32	20.36	Peak
5	724.261	30.86	-2.75	28.11	46.00	17.89	Peak
6	932.272	56.64	0.61	57.25	75.32	18.07	Peak

310MHz_Vertical

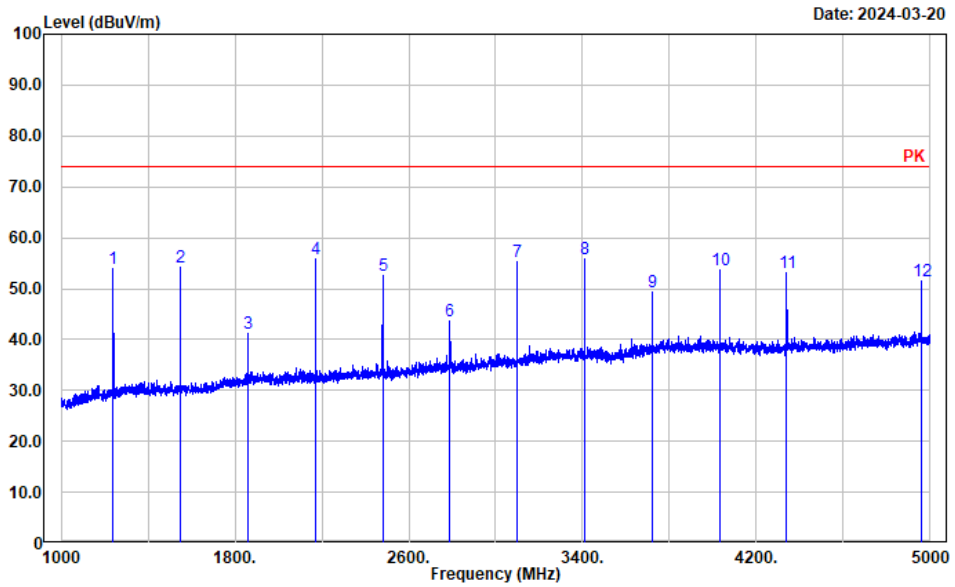
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: vertical
Note: Transmiting(310MHz)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.424	27.56	-4.12	23.44	40.00	16.56	Peak
2	77.051	33.82	-17.08	16.74	40.00	23.26	Peak
3	130.379	27.58	-11.30	16.28	43.50	27.22	Peak
4	309.998	70.70	-10.20	60.50	95.32	34.82	Peak
5	620.710	59.78	-4.61	55.17	75.32	20.15	Peak
6	932.272	49.68	0.61	50.29	75.32	25.03	Peak

310MHz_Horizontal

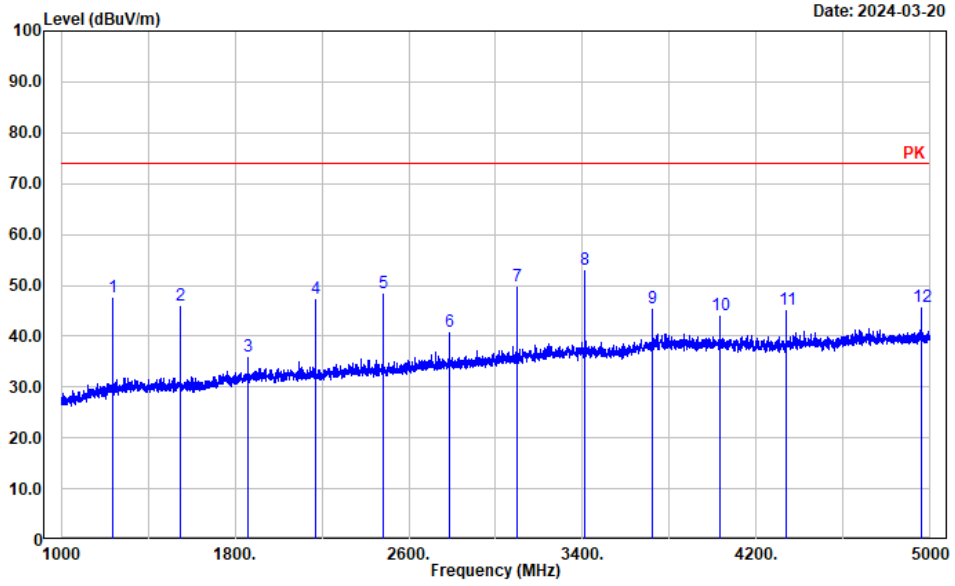
Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: horizontal
Note: Transmitting 310MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1240.000	69.98	-16.02	53.96	74.00	20.04	Peak
2	1550.000	69.64	-15.36	54.28	74.00	19.72	Peak
3	1860.000	54.78	-13.55	41.23	74.00	32.77	Peak
4	2170.000	68.65	-12.92	55.73	74.00	18.27	Peak
5	2480.000	64.47	-11.99	52.48	74.00	21.52	Peak
6	2790.000	54.68	-10.92	43.76	74.00	30.24	Peak
7	3100.000	64.60	-9.25	55.35	74.00	18.65	Peak
8	3410.000	64.10	-8.26	55.84	74.00	18.16	Peak
9	3720.000	56.33	-6.96	49.37	74.00	24.63	Peak
10	4030.000	60.10	-6.41	53.69	74.00	20.31	Peak
11	4340.000	59.87	-6.86	53.01	74.00	20.99	Peak
12	4960.000	56.68	-5.11	51.57	74.00	22.43	Peak

310MHz_Vertical

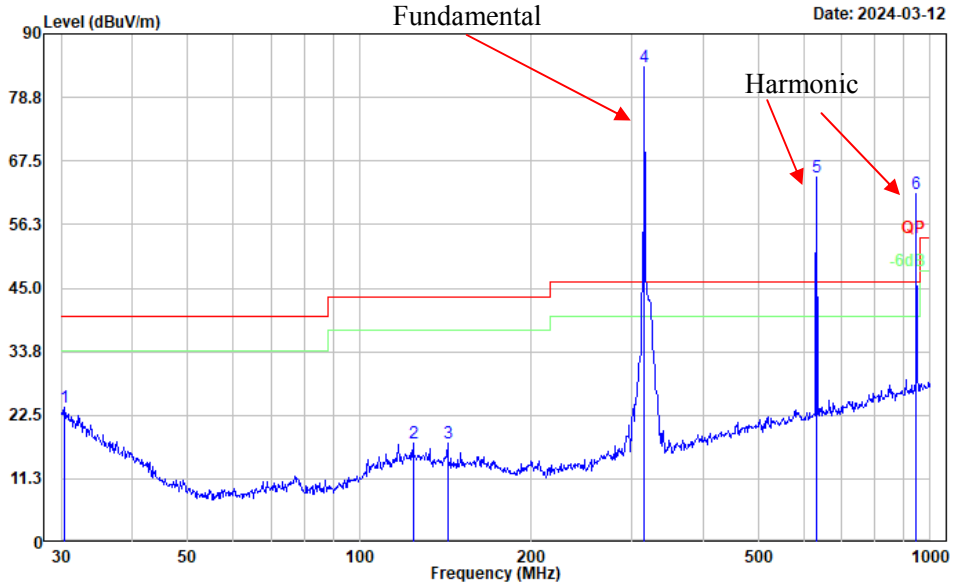
Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: vertical
Note: Transmitting 310MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1240.000	63.62	-16.02	47.60	74.00	26.40	Peak
2	1550.000	61.54	-15.36	46.18	74.00	27.82	Peak
3	1860.000	49.51	-13.55	35.96	74.00	38.04	Peak
4	2170.000	60.28	-12.92	47.36	74.00	26.64	Peak
5	2480.000	60.40	-11.99	48.41	74.00	25.59	Peak
6	2790.000	51.78	-10.92	40.86	74.00	33.14	Peak
7	3100.000	59.07	-9.25	49.82	74.00	24.18	Peak
8	3410.000	61.26	-8.26	53.00	74.00	21.00	Peak
9	3720.000	52.40	-6.96	45.44	74.00	28.56	Peak
10	4030.000	50.68	-6.41	44.27	74.00	29.73	Peak
11	4340.000	52.19	-6.86	45.33	74.00	28.67	Peak
12	4960.000	50.94	-5.11	45.83	74.00	28.17	Peak

315MHz_Horizontal

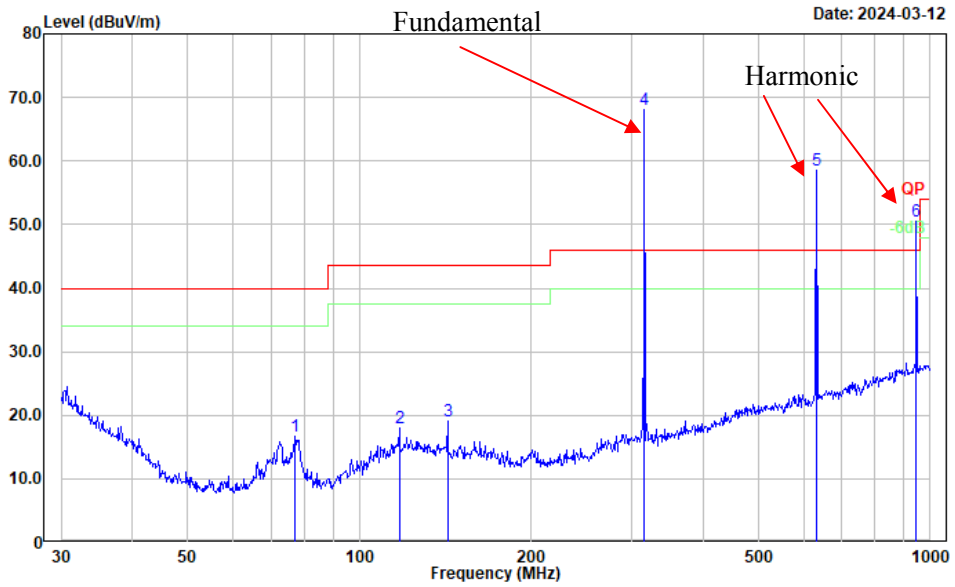
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: horizontal
Note: Transmiting(315MHz)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.424	28.02	-4.12	23.90	40.00	16.10	Peak
2	124.133	28.36	-10.90	17.46	43.50	26.04	Peak
3	142.824	29.57	-12.01	17.56	43.50	25.94	Peak
4	315.481	94.21	-10.09	84.12	95.32	11.20	Peak
5	631.688	68.72	-4.01	64.71	75.32	10.61	Peak
6	945.440	60.86	0.77	61.63	75.32	13.69	Peak

315MHz_Vertical

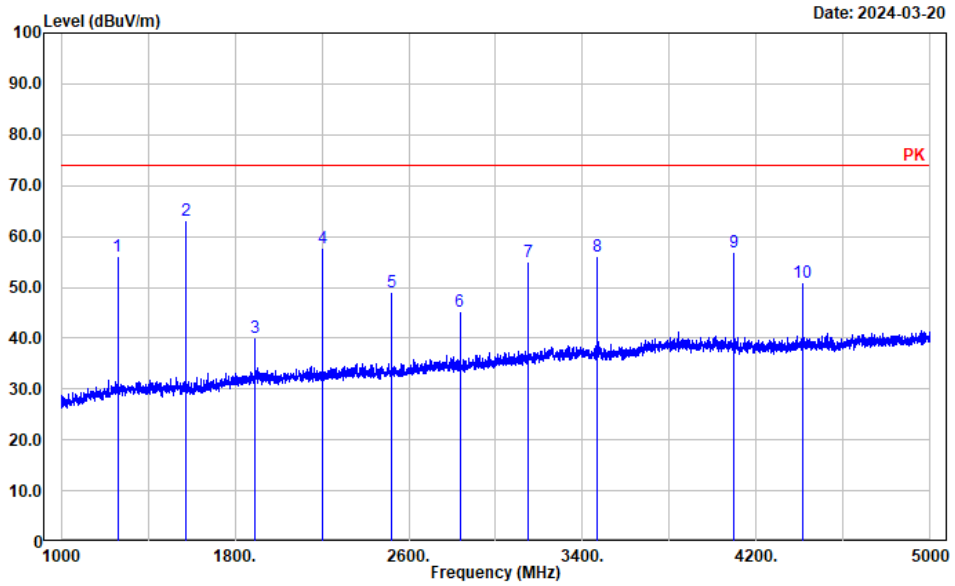
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: vertical
Note: Transmiting(315MHz)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	77.051	33.70	-17.08	16.62	40.00	23.38	Peak
2	117.360	29.49	-11.52	17.97	43.50	25.53	Peak
3	142.824	31.10	-12.01	19.09	43.50	24.41	Peak
4	315.481	78.18	-10.09	68.09	95.32	27.23	Peak
5	631.688	62.57	-4.01	58.56	75.32	16.76	Peak
6	945.440	49.80	0.77	50.57	75.32	24.75	Peak

315MHz_Horizontal

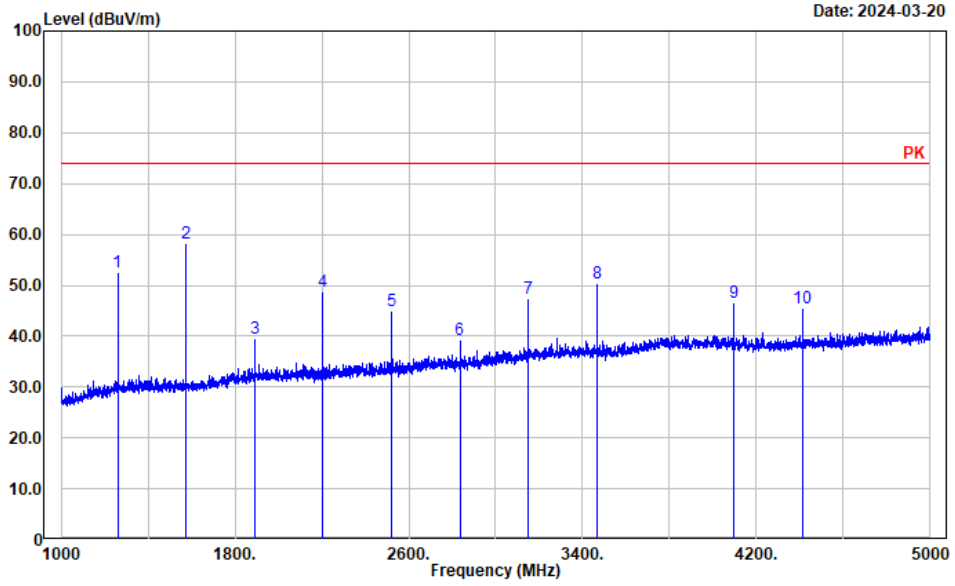
Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: horizontal
Note: Transmitting 315MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1260.000	71.85	-15.84	56.01	74.00	17.99	Peak
2	1575.000	78.63	-15.39	63.24	74.00	10.76	Peak
3	1890.000	53.50	-13.32	40.18	74.00	33.82	Peak
4	2205.000	70.65	-12.94	57.71	74.00	16.29	Peak
5	2520.000	61.08	-11.93	49.15	74.00	24.85	Peak
6	2835.000	56.08	-10.92	45.16	74.00	28.84	Peak
7	3150.000	63.62	-8.72	54.90	74.00	19.10	Peak
8	3465.000	64.39	-8.38	56.01	74.00	17.99	Peak
9	4095.000	63.33	-6.55	56.78	74.00	17.22	Peak
10	4410.000	57.66	-6.60	51.06	74.00	22.94	Peak

315MHz_Vertical

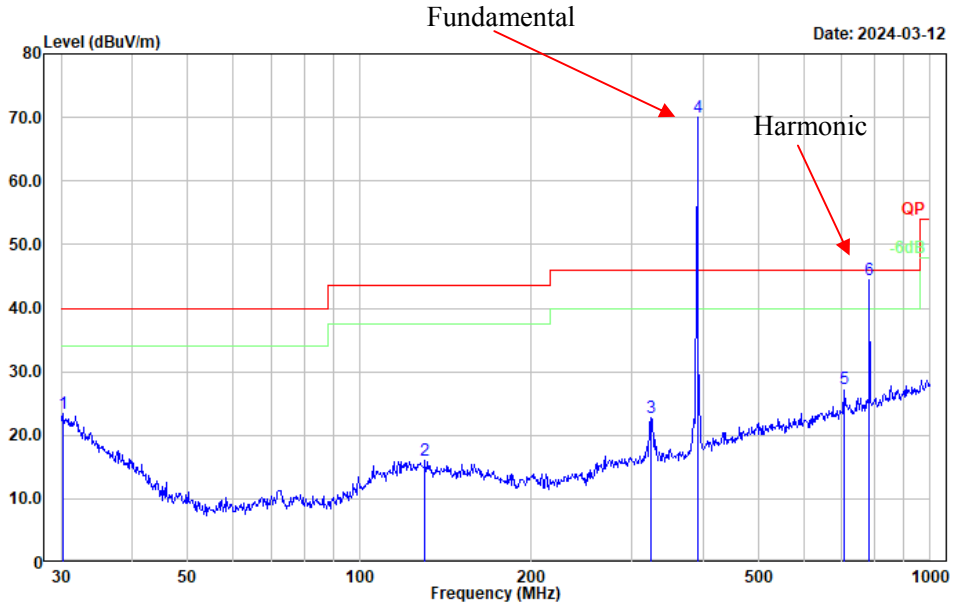
Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: vertical
Note: Transmitting 315MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1260.000	68.33	-15.84	52.49	74.00	21.51	Peak
2	1575.000	73.60	-15.39	58.21	74.00	15.79	Peak
3	1890.000	52.77	-13.32	39.45	74.00	34.55	Peak
4	2205.000	61.79	-12.94	48.85	74.00	25.15	Peak
5	2520.000	56.87	-11.93	44.94	74.00	29.06	Peak
6	2835.000	50.17	-10.92	39.25	74.00	34.75	Peak
7	3150.000	56.07	-8.72	47.35	74.00	26.65	Peak
8	3465.000	58.75	-8.38	50.37	74.00	23.63	Peak
9	4095.200	53.10	-6.55	46.55	74.00	27.45	Peak
10	4410.000	52.23	-6.60	45.63	74.00	28.37	Peak

390MHz_Horizontal

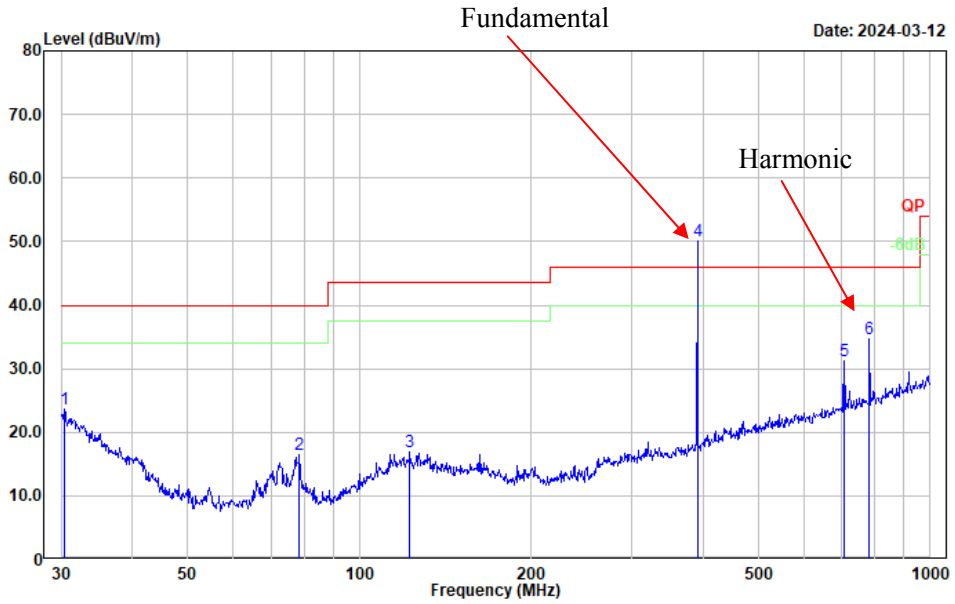
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: horizontal
Note: Transmiting(390MHz)



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.211	27.36	-4.00	23.36	40.00	16.64	Peak
2	130.379	27.35	-11.30	16.05	43.50	27.45	Peak
3	323.320	32.82	-9.98	22.84	46.00	23.16	Peak
4	390.723	78.39	-8.43	69.96	95.32	25.36	Peak
5	706.700	30.08	-2.87	27.21	46.00	18.79	Peak
6	782.345	46.32	-1.78	44.54	75.32	30.78	Peak

390MHz_Vertical

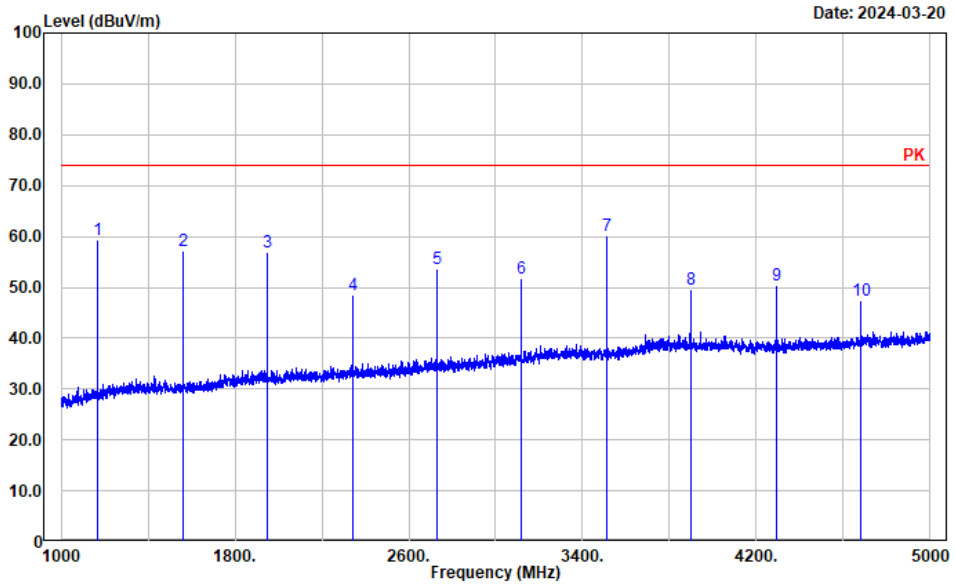
Project No.: CR230955840-RF
Tester: Jeff Luo
Polarization: vertical
Note: Transmiting(390MHz)



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.424	27.82	-4.12	23.70	40.00	16.30	Peak
2	78.413	33.56	-17.17	16.39	40.00	23.61	Peak
3	122.404	27.74	-10.90	16.84	43.50	26.66	Peak
4	390.723	58.55	-8.43	50.12	95.32	45.20	Peak
5	706.700	34.16	-2.87	31.29	46.00	14.71	Peak
6	782.345	36.43	-1.78	34.65	75.32	40.67	Peak

390MHz_Horizontal

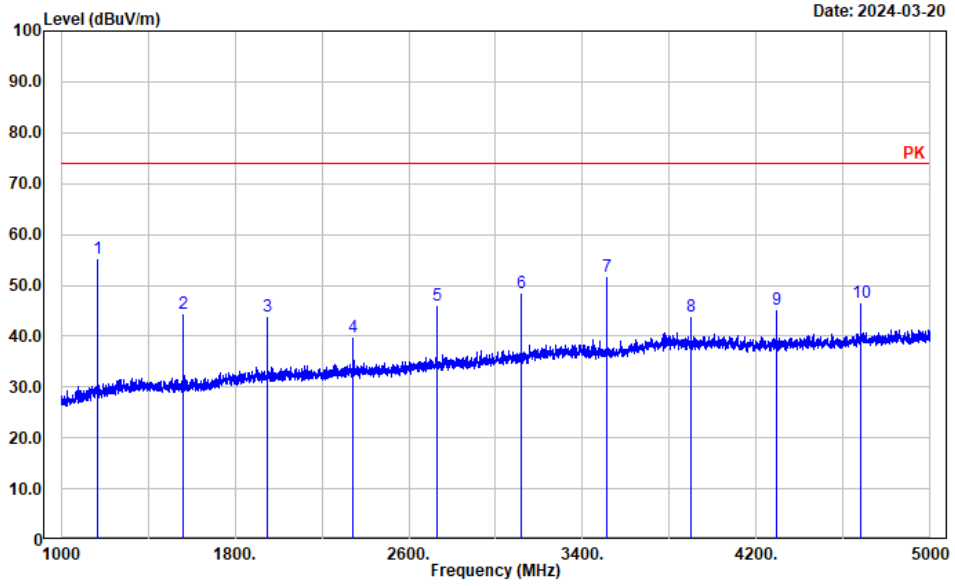
Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: horizontal
Note: Transmitting 390MHz



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1169.600	75.85	-16.61	59.24	74.00	14.76	Peak
2	1560.000	72.65	-15.38	57.27	74.00	16.73	Peak
3	1950.000	69.97	-13.12	56.85	74.00	17.15	Peak
4	2340.000	60.55	-12.02	48.53	74.00	25.47	Peak
5	2730.000	64.73	-11.08	53.65	74.00	20.35	Peak
6	3120.000	60.68	-9.04	51.64	74.00	22.36	Peak
7	3510.000	68.63	-8.45	60.18	74.00	13.82	Peak
8	3900.000	56.26	-6.64	49.62	74.00	24.38	Peak
9	4290.000	57.50	-6.96	50.54	74.00	23.46	Peak
10	4680.000	53.38	-5.86	47.52	74.00	26.48	Peak

390MHz_Vertical

Project No.: CR230955840-RF
Tester: Tao Zhu
Polarization: vertical
Note: Transmitting 390MHz



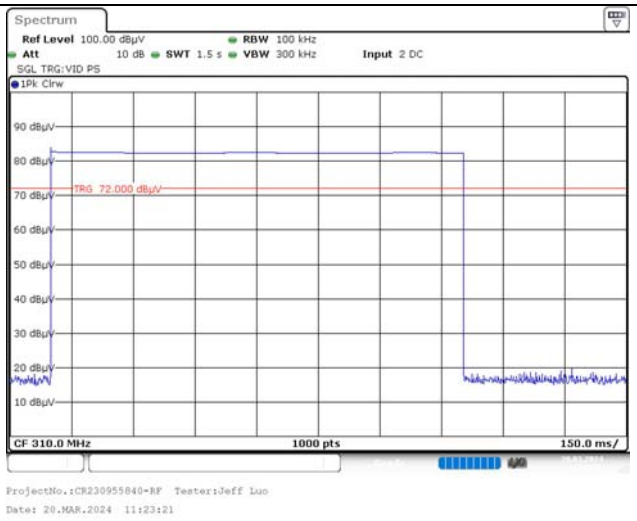
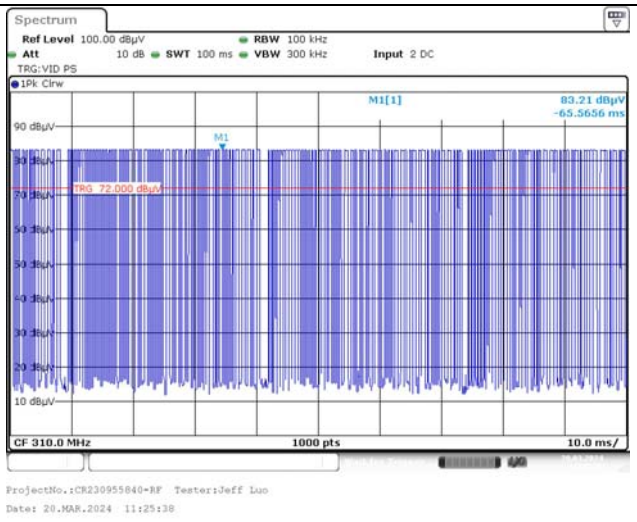
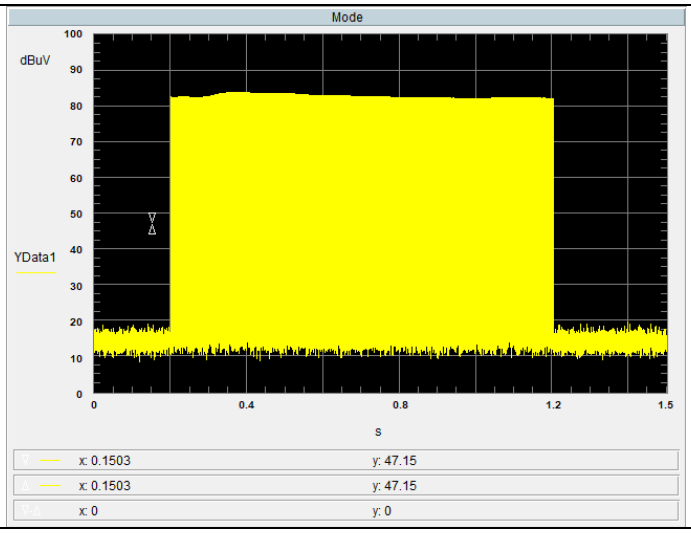
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1169.600	71.93	-16.61	55.32	74.00	18.68	Peak
2	1560.000	59.85	-15.38	44.47	74.00	29.53	Peak
3	1950.000	57.08	-13.12	43.96	74.00	30.04	Peak
4	2340.000	51.89	-12.02	39.87	74.00	34.13	Peak
5	2730.000	57.26	-11.08	46.18	74.00	27.82	Peak
6	3120.000	57.43	-9.04	48.39	74.00	25.61	Peak
7	3510.000	60.10	-8.45	51.65	74.00	22.35	Peak
8	3900.000	50.55	-6.64	43.91	74.00	30.09	Peak
9	4290.000	52.33	-6.96	45.37	74.00	28.63	Peak
10	4680.000	52.40	-5.86	46.54	74.00	27.46	Peak

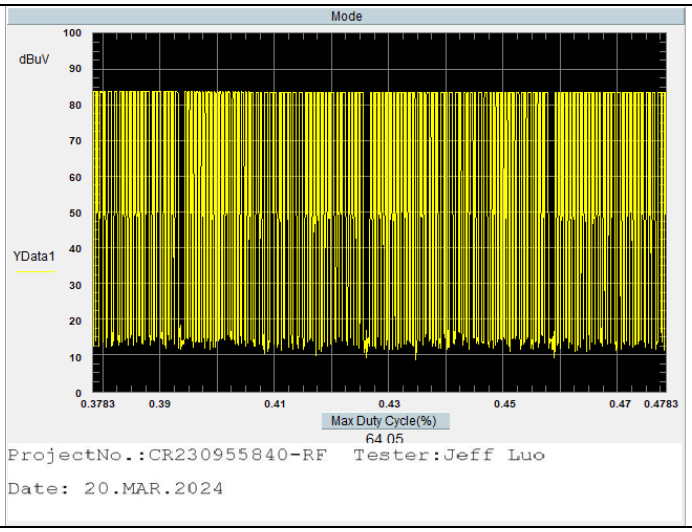
Average Strength

Frequency (MHz)	Peak (dBμV/m)	Polar (H/V)	Duty Cycle Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
310 MHz						
310.00	74.65	H	-3.87	70.78	75.32	4.54
310.00	60.50	V	-3.87	56.63	75.32	18.69
620.00	54.96	H	-3.87	51.09	55.32	4.23
620.00	55.17	V	-3.87	51.30	55.32	4.02
930.00	57.25	H	-3.87	53.38	55.32	1.94
930.00	50.29	V	-3.87	46.42	55.32	8.90
310.00	74.65	H	-3.87	70.78	75.32	4.54
1240.000	53.96	H	-3.87	50.09	54.00	3.91
1240.000	47.60	V	-3.87	43.73	54.00	10.27
1550.000	54.28	H	-3.87	50.41	54.00	3.59
1550.000	46.18	V	-3.87	42.31	54.00	11.69
1860.000	41.23	H	-3.87	37.36	55.32	17.96
1860.000	35.96	V	-3.87	32.09	55.32	23.23
2170.000	55.73	H	-3.87	51.86	55.32	3.46
2170.000	47.36	V	-3.87	43.49	55.32	11.83
2480.000	52.48	H	-3.87	48.61	55.32	6.71
2480.000	48.41	V	-3.87	44.54	55.32	10.78
2790.000	43.76	H	-3.87	39.89	54.00	14.11
2790.000	40.86	V	-3.87	36.99	54.00	17.01
3100.000	55.35	H	-3.87	51.48	55.32	3.84
3100.000	49.82	V	-3.87	45.95	55.32	9.37
3410.000	55.84	H	-3.87	51.97	55.32	3.35
3410.000	53.00	V	-3.87	49.13	55.32	6.19
3720.000	49.37	H	-3.87	45.50	54.00	8.50
3720.000	45.44	V	-3.87	41.57	54.00	12.43
4030.000	53.69	H	-3.87	49.82	54.00	4.18
4030.000	44.27	V	-3.87	40.40	54.00	13.60
4340.000	53.01	H	-3.87	49.14	54.00	4.86
4340.000	45.33	V	-3.87	41.46	54.00	12.54
4960.000	51.57	H	-3.87	47.70	54.00	6.30

Note:

Duty cycle =64.05%
Duty Cycle Factor= 20*log(Duty cycle)= -3.87 dB
Average Strength=Peak+duty cycle Factor

Duty Cycle_310MHz	
Duty Cycle	
Duty Cycle	
Duty Cycle	

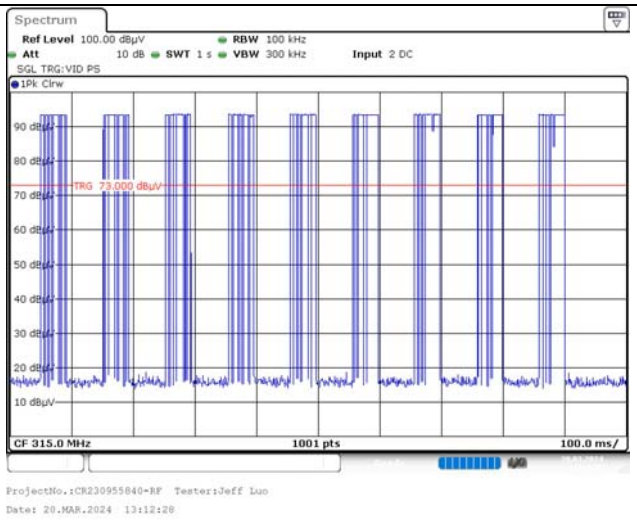
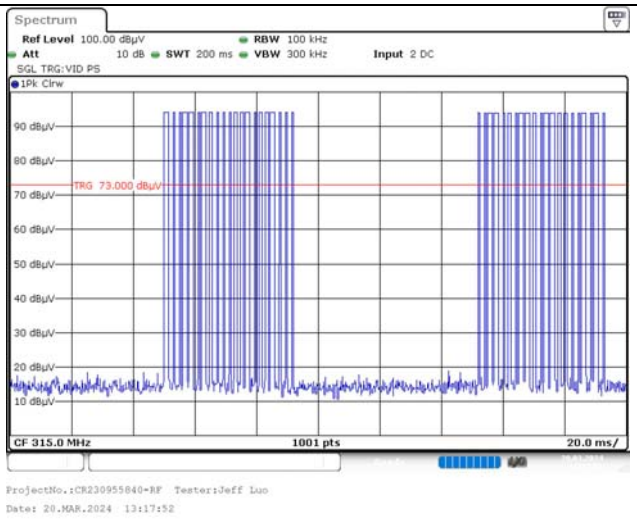
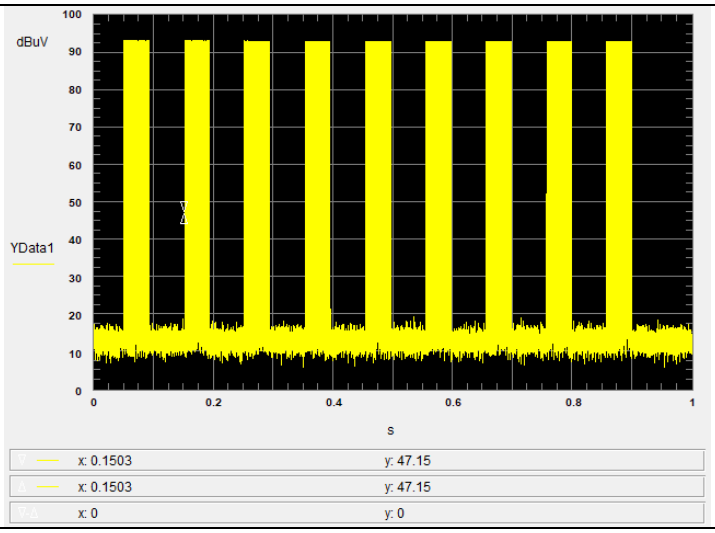
Duty Cycle	 Mode dBuV 100 90 80 70 60 50 40 30 20 10 0 YData1 0.3783 0.39 0.41 0.43 0.45 0.47 0.4783 Max Duty Cycle(%) 64.05 ProjectNo.:CR230955840-RF Tester:Jeff Luo Date: 20.MAR.2024

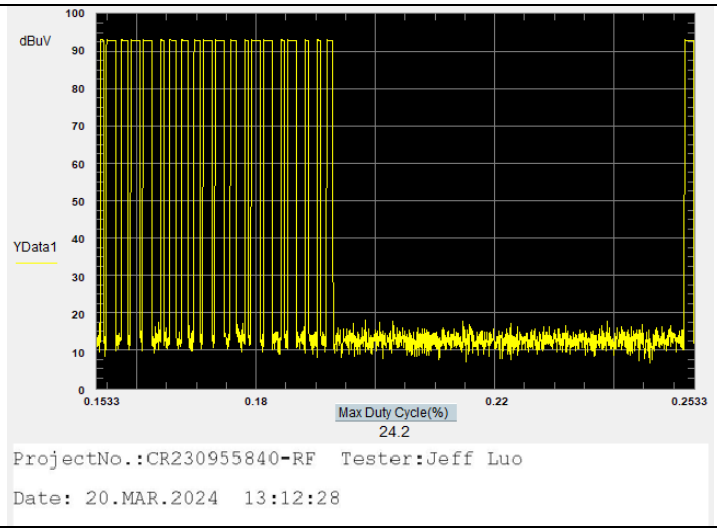
Average Strength

Frequency (MHz)	Peak (dBμV/m)	Polar (H/V)	Duty Cycle Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
315 MHz						
315.00	84.12	H	-12.32	71.80	75.62	3.82
315.00	68.09	V	-12.32	55.77	75.62	19.85
630.00	64.71	H	-12.32	52.39	55.62	3.23
630.00	58.56	V	-12.32	46.24	55.62	9.38
945.00	61.63	H	-12.32	49.31	55.62	6.31
945.00	50.57	V	-12.32	38.25	55.62	17.37
1260.000	56.01	H	-12.32	43.69	55.62	11.93
1260.000	52.49	V	-12.32	40.17	55.62	15.45
1575.000	63.24	H	-12.32	50.92	54.00	3.08
1575.000	58.21	V	-12.32	45.89	54.00	8.11
1890.000	40.18	H	-12.32	27.86	55.62	27.76
1890.000	39.45	V	-12.32	27.13	55.62	28.49
2205.000	57.71	H	-12.32	45.39	54.00	8.61
2205.000	48.85	V	-12.32	36.53	54.00	17.47
2520.000	49.15	H	-12.32	36.83	55.62	18.79
2520.000	44.94	V	-12.32	32.62	55.62	23.00
2835.000	45.16	H	-12.32	32.84	54.00	21.16
2835.000	39.25	V	-12.32	26.93	54.00	27.07
3150.000	54.90	H	-12.32	42.58	55.62	13.04
3150.000	47.35	V	-12.32	35.03	55.62	20.59
3465.000	56.01	H	-12.32	43.69	55.62	11.93
3465.000	50.37	V	-12.32	38.05	55.62	17.57
4095.000	56.78	H	-12.32	44.46	54.00	9.54
4095.000	46.55	V	-12.32	34.23	54.00	19.77
4410.000	51.06	H	-12.32	38.74	55.62	16.88
4410.000	45.63	V	-12.32	33.31	55.62	22.31

Note:

Duty cycle =24.2%
Duty Cycle Factor= 20*log(Duty cycle)= -12.32 dB
Average Strength=Peak+duty cycle Factor

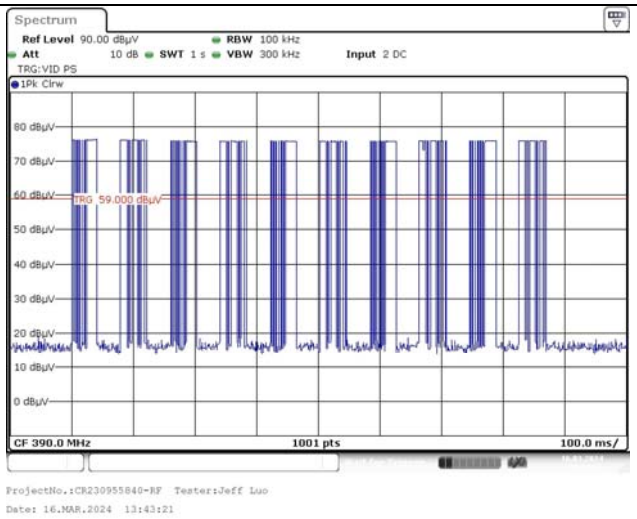
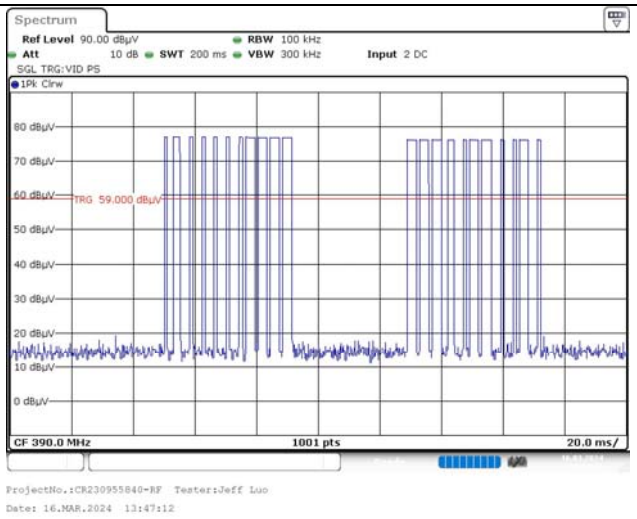
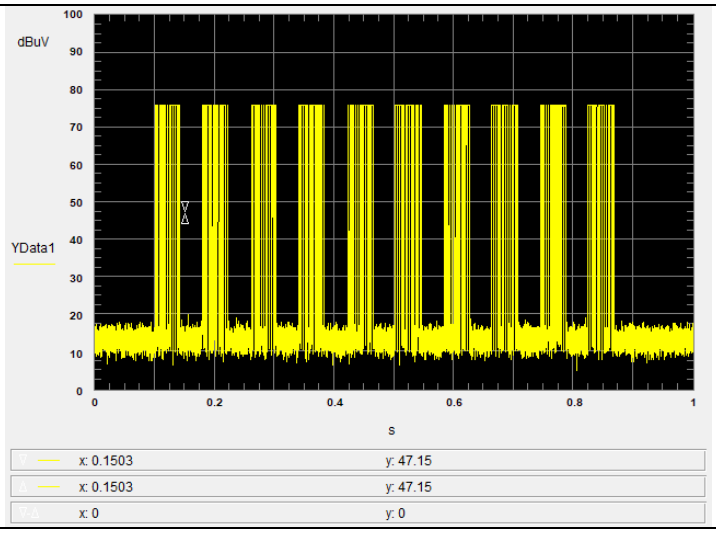
Duty Cycle_315MHz	
Duty Cycle	
Duty Cycle	
Duty Cycle	

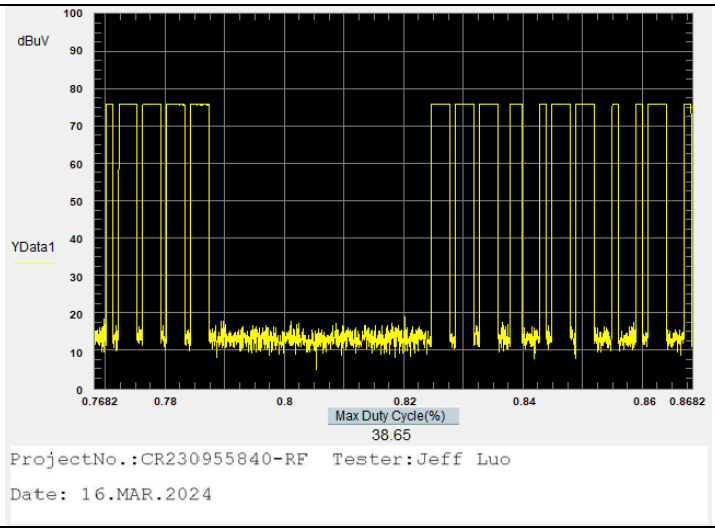
Duty Cycle	 dBuV 100 90 80 70 60 50 40 30 20 10 0 YData1 0.1533 0.18 0.22 0.2533 Max Duty Cycle(%) 24.2 ProjectNo.:CR230955840-RF Tester:Jeff Luo Date: 20.MAR.2024 13:12:28

Frequency (MHz)	Peak (dBμV/m)	Polar (H/V)	Duty Cycle Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
390 MHz						
390.00	69.96	H	-8.26	61.70	79.24	17.54
390.00	50.12	V	-8.26	41.86	79.24	37.38
780.00	44.54	H	-8.26	36.28	59.24	22.96
780.00	34.65	V	-8.26	26.39	59.24	32.85
1170.000	59.24	H	-8.26	50.98	54.00	3.02
1170.000	55.32	V	-8.26	47.06	54.00	6.94
1560.000	57.27	H	-8.26	49.01	54.00	4.99
1560.000	44.47	V	-8.26	36.21	54.00	17.79
1950.000	56.85	H	-8.26	48.59	59.24	10.65
1950.000	43.96	V	-8.26	35.70	59.24	23.54
2340.000	48.53	H	-8.26	40.27	54.00	13.73
2340.000	39.87	V	-8.26	31.61	54.00	22.39
2730.000	53.65	H	-8.26	45.39	54.00	8.61
2730.000	46.18	V	-8.26	37.92	54.00	16.08
3120.000	51.64	H	-8.26	43.38	59.24	15.86
3120.000	48.39	V	-8.26	40.13	59.24	19.11
3510.000	60.18	H	-8.26	51.92	59.24	7.32
3510.000	51.65	V	-8.26	43.39	59.24	15.85
3900.000	49.62	H	-8.26	41.36	54.00	12.64
3900.000	43.91	V	-8.26	35.65	54.00	18.35
4290.000	50.54	H	-8.26	42.28	54.00	11.72
4290.000	45.37	V	-8.26	37.11	54.00	16.89
4680.000	47.52	H	-8.26	39.26	54.00	14.74
4680.000	46.54	V	-8.26	38.28	54.00	15.72

Note:

Duty cycle =38.65%
Duty Cycle Factor= 20*log(Duty cycle)= -8.26 dB
Average Strength=Peak+duty cycle Factor

Duty Cycle_390MHz	
Duty Cycle	
Duty Cycle	
Duty Cycle	

Duty Cycle	 dBuV 100 90 80 70 60 50 40 30 20 10 0 YData1 0.7682 0.78 0.8 0.82 0.84 0.86 0.8682 Max Duty Cycle(%) 38.65 ProjectNo.:CR230955840-RF Tester:Jeff Luo Date: 16.MAR.2024

4.3 20 dB Emission Bandwidth

Serial Number:	2BLK-1	Test Date:	2024/3/18-2024/3/20
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Jeff Luo	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.2-24.4	Relative Humidity: (%)	50-55	ATM Pressure: (kPa)	100.9-101.7

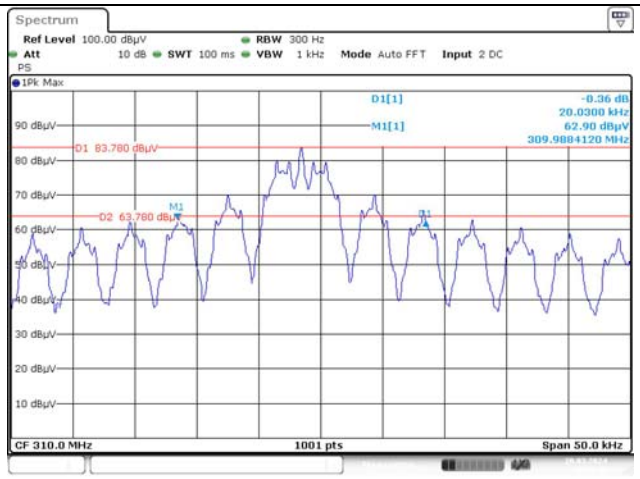
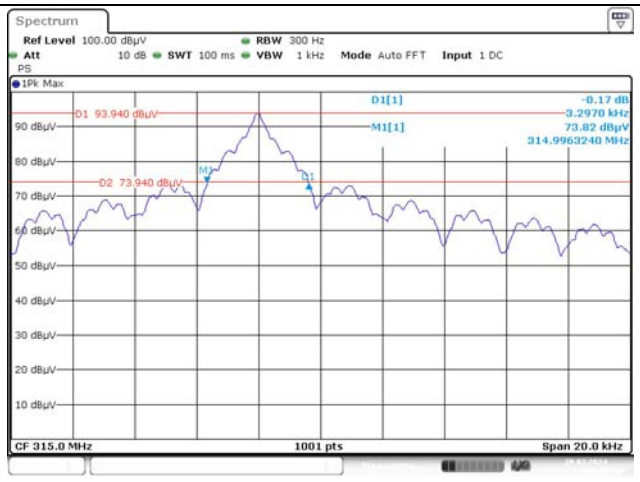
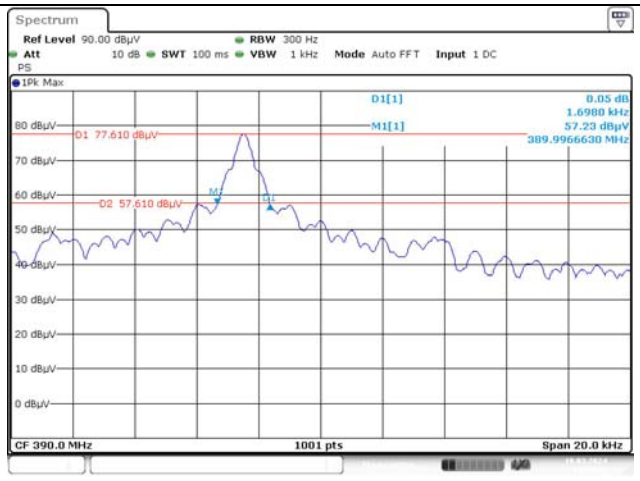
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
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

**** 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:

Test Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)
310	20.030	775.000
315	3.297	787.500
390	1.698	975.000

	20dB Emission Bandwidth
310 MHz	
315 MHz	
390 MHz	

4.4 DEACTIVATION TESTING:

Serial Number:	2BLK-1	Test Date:	2024/3/14-2024/3/20
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Jeff Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (℃)	24.2-24.4	Relative Humidity: (%)	50-55	ATM Pressure: (kPa)	100.9-101.7

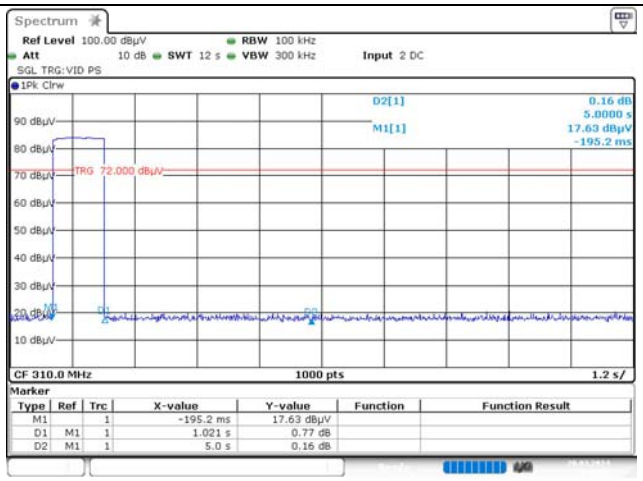
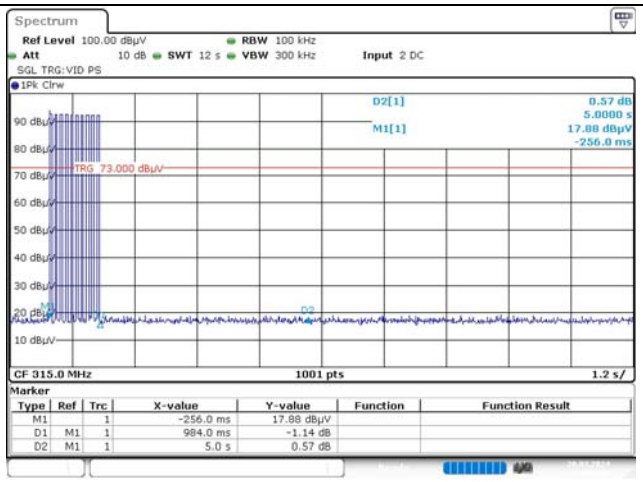
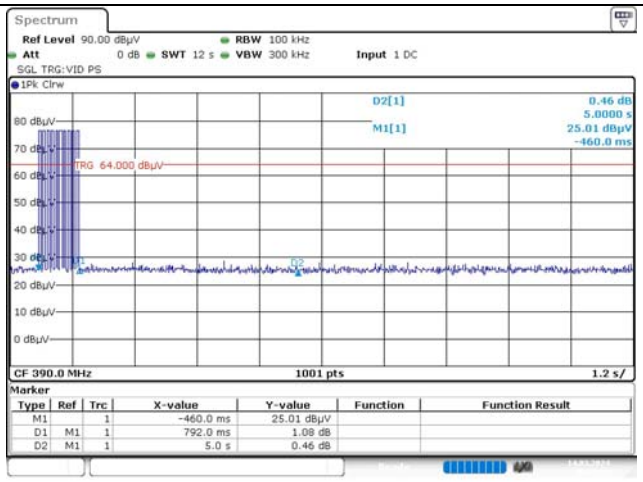
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
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

** 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:

Test Frequency (MHz)	Maximum Deactivate Time (s)	Limit (s)
310	1.021	<5
315	0.984	<5
390	0.792	<5

DEACTIVATION TESTING	
310 MHz	
315 MHz	
390 MHz	

5. RF EXPOSURE EVALUATION

5.1 Applicable Standard

§1.1307(b)(3)(i) For single RF sources (*i.e.,* any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

5.2 Measurement Result

Frequency (MHz)	Maximum EIRP (dBm)	Antenna Gain (dBi)	Maximum Conducted Output Power		1-mW Test Exemption
			dBm	mW	
315	-13.23	1.3	-12.38	0.06	Compliant

Note:
1. Chose the maximum power to do RF Exposure Evaluation.
2. This device maximum E-Field level is 84.12 dBμV/m at 3m, so the EIRP power is -11.08 dBm.
3. Pout EIRP (dBm)=Field Strength of Fundamental(dBuV/m)-95.2
4. Conducted Output Power = EIRP - Antenna Gain

Result: Compliant. RF Exposure is exemption**.**

6. EUT PHOTOGRAPHS

Please refer to the attachment CR230955840-EXP EUT EXTERNAL PHOTOGRAPHS and CR230955840-INP EUT INTERNAL PHOTOGRAPHS

7. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230955840-00-TSP TEST SETUP PHOTOGRAPHS.

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