

TEST REPORT

Applicant: RADIOSHACK WORLDWIDE CORP.

Address: Building AFRA, Ave. Samuel Lewis and street 54, Panama City,
Panama 5, Republic of Panama

Product Name: mouse combo

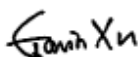
FCC ID: 2BDUR-2604811M

Standard(s): 47 CFR Part 15, Subpart C(15.249)
ANSI C63.10-2013

Report Number: DG1231220-77068E-RF-00

Report Date: 2024/3/1

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).



Reviewed By: Gavin Xu

Title: RF Engineer



Approved By: Ivan Cao

Title: EMC Manager

Bay Area Compliance Laboratories Corp. (Dongguan)
No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China

Tel: +86-769-86858888

Fax: +86-769-86858891

www.baclcorp.com.cn

Note: The information marked ▲ is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. 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 ★. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

CONTENTS

DOCUMENT REVISION HISTORY	4
1. GENERAL INFORMATION	5
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
1.2 ACCESSORY INFORMATION.....	5
1.3 ANTENNA INFORMATION DETAIL▲:	5
1.4 EQUIPMENT MODIFICATIONS	5
2. DESCRIPTION OF TEST CONFIGURATION	6
2.1 OPERATION FREQUENCY DETAIL.....	6
2.2 EUT OPERATION CONDITION.....	6
2.3 EUT EXERCISE SOFTWARE.....	6
2.4 SUPPORT EQUIPMENT LIST AND DETAILS	6
2.5 SUPPORT CABLE LIST AND DETAILS	6
2.6 BLOCK DIAGRAM OF TEST SETUP	7
2.7 TEST FACILITY.....	8
2.8 MEASUREMENT UNCERTAINTY	8
3. SUMMARY OF TEST RESULTS	9
4. REQUIREMENTS AND TEST PROCEDURES	10
4.1 AC LINE CONDUCTED EMISSIONS.....	10
4.1.1 Applicable Standard.....	10
4.1.2 EUT Setup.....	11
4.1.3 EMI Test Receiver Setup	11
4.1.4 Test Procedure	12
4.1.5 Corrected Amplitude & Margin Calculation.....	12
4.1.6 Test Result	12
4.2 RADIATED EMISSIONS	13
4.2.1 Applicable Standard.....	13
4.2.2 EUT Setup.....	13
4.2.3 EMI Test Receiver & Spectrum Analyzer Setup	15
4.2.4 Test Procedure	15
4.2.5 Corrected Amplitude & Margin Calculation.....	15
4.2.6 Test Result	15
4.3 20 dB EMISSION BANDWIDTH	16
4.3.1 Applicable Standard.....	16
4.3.2 EUT Setup.....	16
4.3.3 Test Procedure	16
4.3.4 Test Result	17
4.4 ANTENNA REQUIREMENT.....	18
4.4.1 Applicable Standard.....	18
4.4.2 Judgment.....	18

5. Test DATA AND RESULTS.....	19
5.1 AC LINE CONDUCTED EMISSIONS.....	19
5.2 RADIATION SPURIOUS EMISSIONS.....	20
5.3 20 dB EMISSION BANDWIDTH:.....	31
APPENDIX A - EUT PHOTOGRAPHS	33
APPENDIX B - TEST SETUP PHOTOGRAPHS.....	34
APPENDIX C - RF EXPOSURE EVALUATION	35
APPLICABLE STANDARD.....	35
MEASUREMENT RESULT	35

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	DG1231220-77068E-RF-00	Original Report	2024/3/1

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	mouse combo
EUT Model:	2604811
Operation Frequency:	2402-2480 MHz
Modulation Type:	GFSK
Rated Input Voltage:	DC 1.5V from battery
Serial Number:	2FK1-1
EUT Received Date:	2023/12/20
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

1.3 Antenna Information Detail▲:

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Shenzh Boychuang Technology Co.,LTD	PCB	50	2.4~2.5GHz	-4.62 dBi
The design of compliance with §15.203:				
☒ Unit uses a permanently attached antenna.				
☐ Unit uses a unique coupling to the intentional radiator.				
☐ Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.				

1.4 Equipment Modifications

No modifications are made to the EUT during all test items.

2. DESCRIPTION OF TEST CONFIGURATION

2.1 Operation Frequency Detail

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2402	21	2442
2	2404	22	2444
...	...	...	...
19	2438	39	2478
20	2440	40	2480

2.2 EUT Operation Condition

The system was configured for testing in Engineering Mode, which was provided by the manufacturer. The test modes and channel can be switched by keys in this Engineering Mode sample. The following summary table is showing all test modes to demonstrate in compliance with the standard:

Test Items	Test Modes
Radiated Emission	Mode 1: Transmitting
AC Line Conducted Emission	Not Applicable, the device was powered by battery.
Note: Mode 1 was tested with the frequencies in bold in section 2.1.	

2.3 EUT Exercise Software

No.

2.4 Support Equipment List and Details

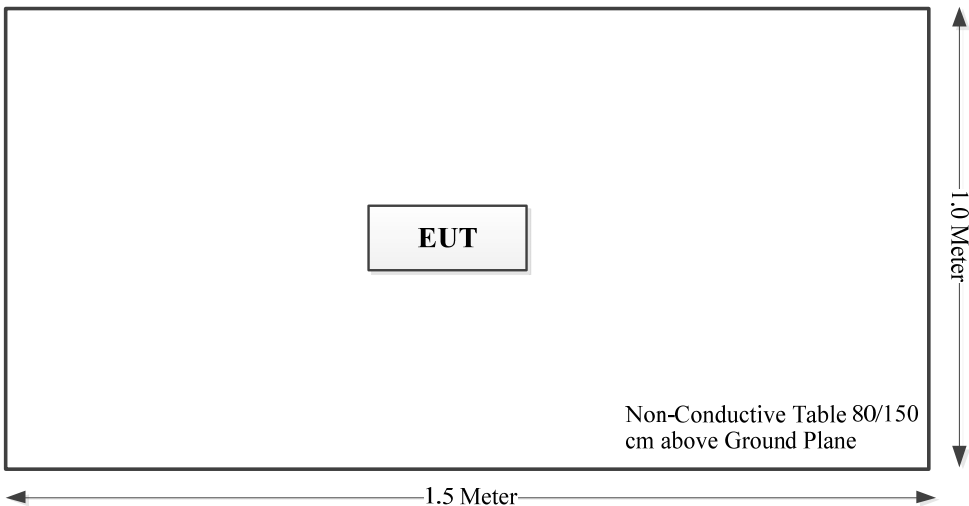
Manufacturer	Description	Model	Serial Number
/	/	/	/

2.5 Support Cable List and Details

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

2.6 Block Diagram of Test Setup

Radiated Spurious Emissions:



2.7 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia 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. : 829273, the FCC Designation No. : CN5044.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

2.8 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	$\pm 5\%$
Unwanted Emissions, radiated	9kHz~30MHz: 3.3dB, 30MHz~200MHz: 4.55 dB, 200MHz~1GHz: 5.92 dB, 1GHz~6GHz: 4.98 dB, 6GHz~18GHz: 5.89 dB, 18GHz~26.5GHz: 5.47 dB, 26.5GHz~40GHz: 5.63 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 0.4\%$
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

3. SUMMARY OF TEST RESULTS

Standard(s)/Rule(s)	Description of Test	Result
§ 15.203	Antenna Requirement	Compliant
§ 15.207(a)	Conduction Emissions	Not Applicable
15.205, § 15.209, § 15.249	Radiated Emissions	Compliant
§ 15.215 (c)	20 dB Bandwidth	Compliant

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

4.1.1 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 μ H/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.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	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:

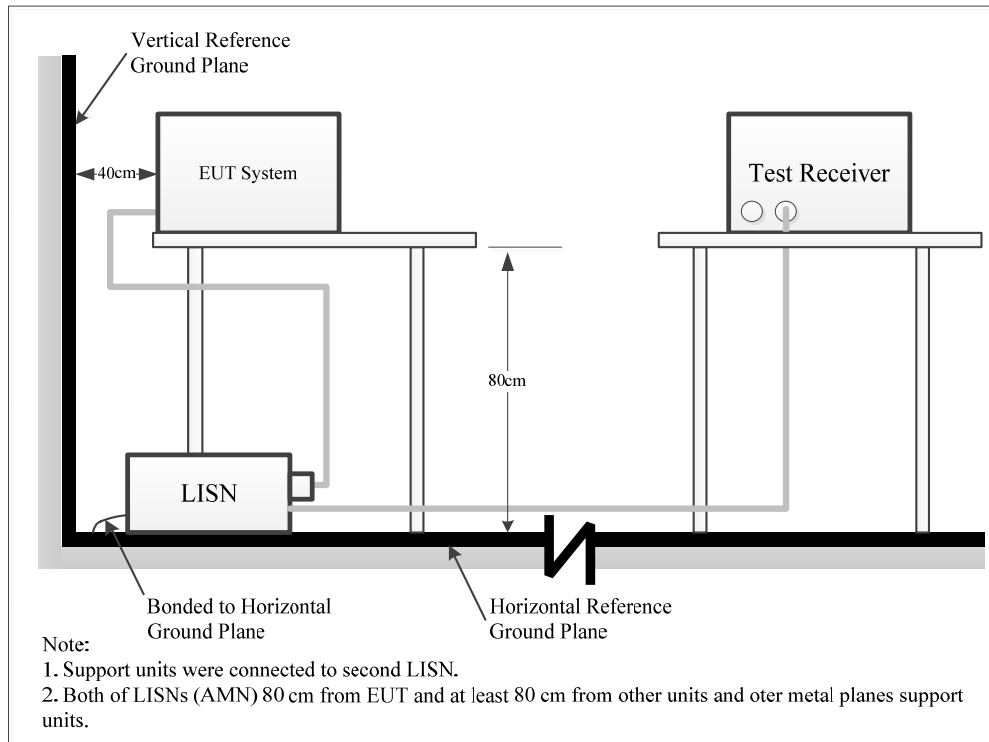
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μ V within the frequency band 535-1705 kHz, as measured using a 50 μ H/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, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

4.1.2 EUT Setup



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.

4.1.3 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

4.1.4 Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the first LISN.

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.

4.1.5 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

4.1.6 Test Result

Please refer to section 5.1.

4.2 Radiated Emissions

4.2.1 Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

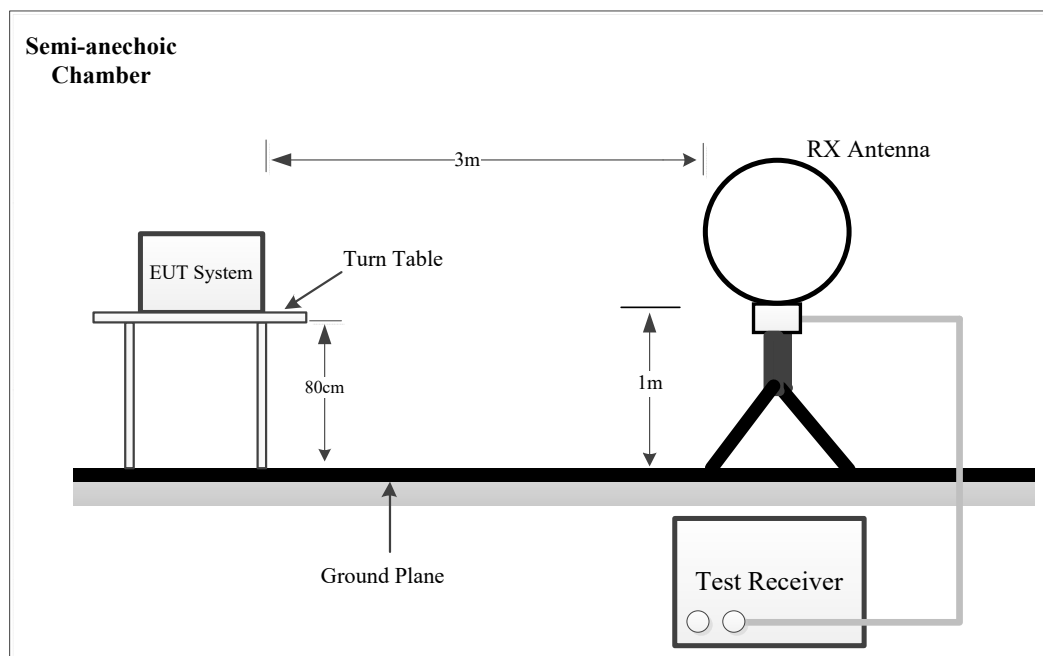
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

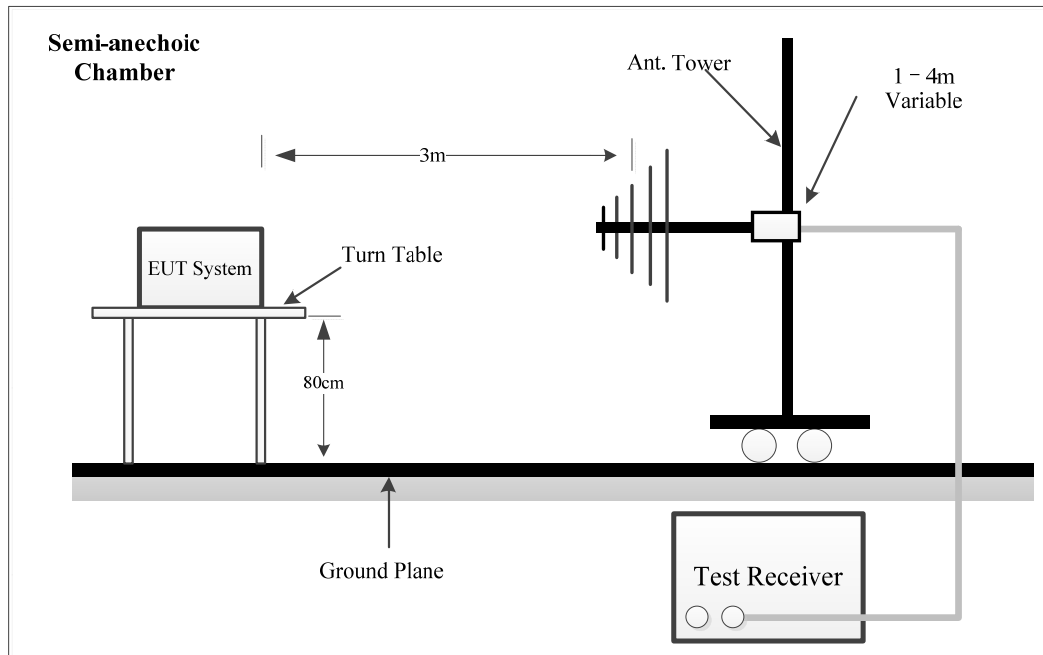
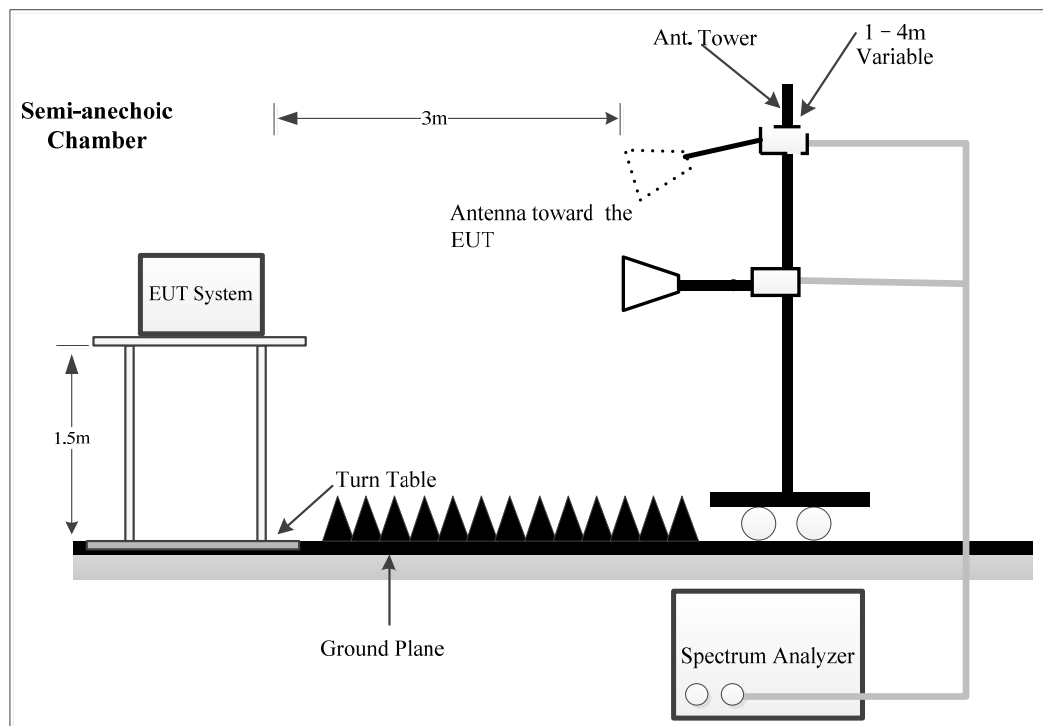
As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

4.2.2 EUT Setup

9kHz~30MHz:



Below 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 15.209, and FCC 15.249 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.

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz-1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W
9 kHz – 150 kHz	QP/AV	200 Hz	1 kHz	200 Hz
150 kHz – 30 MHz	QP/AV	9 kHz	30 kHz	9 kHz
30 MHz – 1000 MHz	PK	100 kHz	300 kHz	/
	QP	/	/	120 kHz
Above 1 GHz	PK	1MHz	3 MHz	/
	AV	1MHz	10 Hz	/

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

4.2.4 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 9 kHz -1 GHz, except 9-90 kHz, 110-490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

4.2.5 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

4.2.6 Test Result

Please refer to section 5.2.

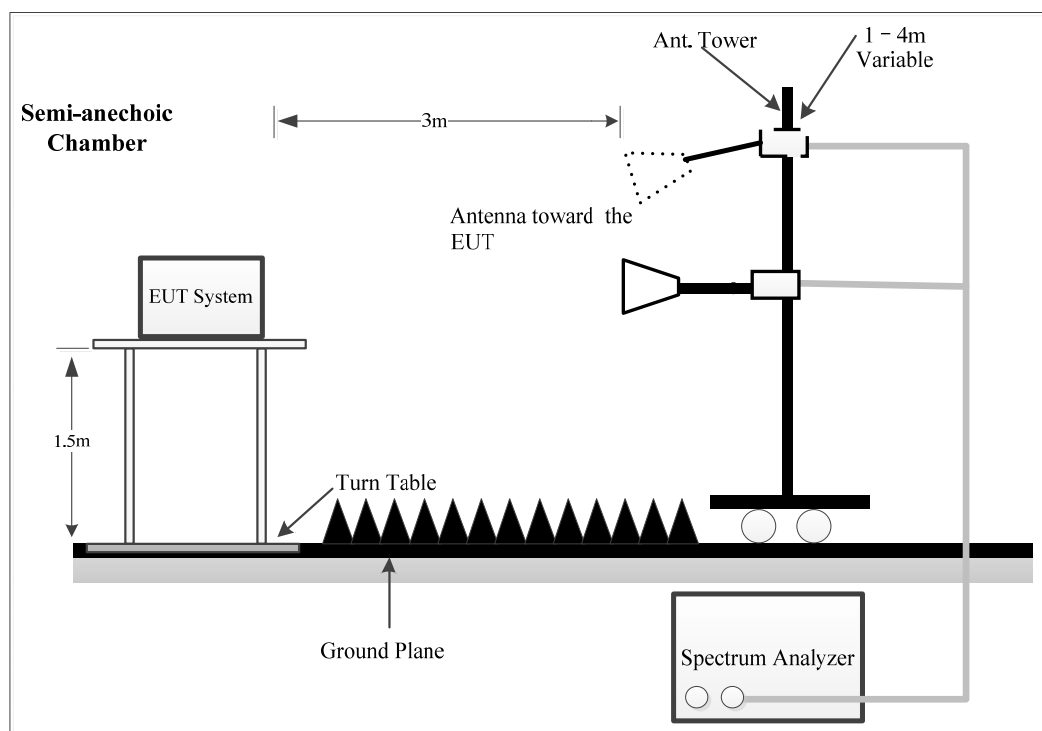
4.3 20 dB Emission Bandwidth

4.3.1 Applicable Standard

FCC §15.215

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3.2 EUT Setup



4.3.3 Test Procedure

According to ANSI C63.10-2013 Section 6.9.2

- 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.
- Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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.

4.3.4 Test Result

Please refer to section 5.3.

4.4 Antenna Requirement

4.4.1 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.

4.4.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.3.

5. Test DATA AND RESULTS

5.1 AC Line Conducted Emissions

Not Applicable. The device was powered by battery.

5.2 Radiation Spurious Emissions

Serial Number:	2FK1-1	Test Date:	Below 1GHz: 2024/1/11 Above 1GHz: 2024/1/25~2024/2/1
Test Site:	Chamber A	Test Mode:	Transmitting
Tester:	Joe Li, Leo Xiao, Alan Xie	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	18.5~23	Relative Humidity: (%)	35~46	ATM Pressure: (kPa)	101.3~101.5
----------------------	---------	---------------------------	-------	---------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
9kHz~1000MHz					
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/21	2024/10/20
Sunol Sciences	Hybrid Antenna	JB3	A060611-3	2021/1/12	2024/1/11
Wilson	Attenuator	859936	F-08-EM014	2023/7/1	2024/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2023/7/1	2024/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2023/7/1	2024/6/30
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2023/7/1	2024/6/30
Sonoma	Amplifier	310N	372193	2023/7/1	2024/6/30
R&S	EMI Test Receiver	ESR3	102453	2023/8/18	2024/8/17
Audix	Test Software	E3	191218 (V9)	N/A	N/A
Above 1GHz					
AH	Horn Antenna	SAS-571	1394	2023/2/22	2024/2/22
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2023/2/22	2026/2/21
HUBER+SUHNER	Coaxial Cable	SUCOFLEX 126EA	MY369/26/26EA	2023/9/6	2024/9/5
AH	Preamplifier	PAM-0118P	530	2023/9/1	2024/8/31
AH	Preamplifier	PAM-1840VH	191	2023/9/7	2024/9/6
R&S	Spectrum Analyzer	FSP 38	100478	2023/10/18	2024/10/17
E-Microwave	Band Rejection Filter	OBSF-2400-2483.5-S	OE01601525	2023/6/16	2024/6/15
Mini Circuits	High Pass Filter	VHF-6010+	OE48747	2023/6/16	2024/6/15
Audix	Test Software	E3	191218 (V9)	N/A	N/A

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (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:

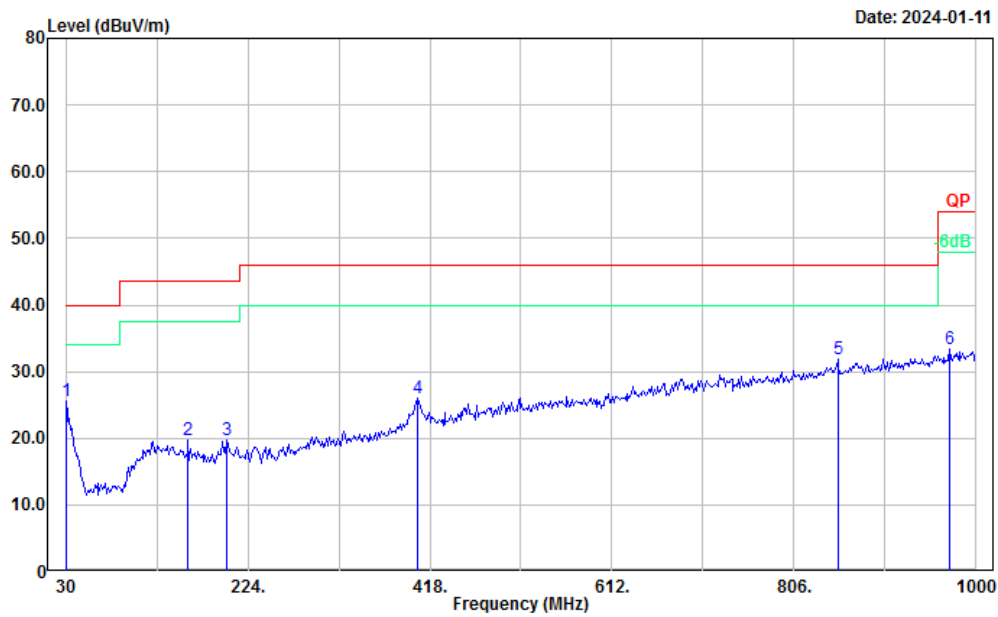
1) 9kHz~30MHz

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

2) 30MHz-1GHz (maximum output power Channel(Middle Channel) was tested)

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_middle channel

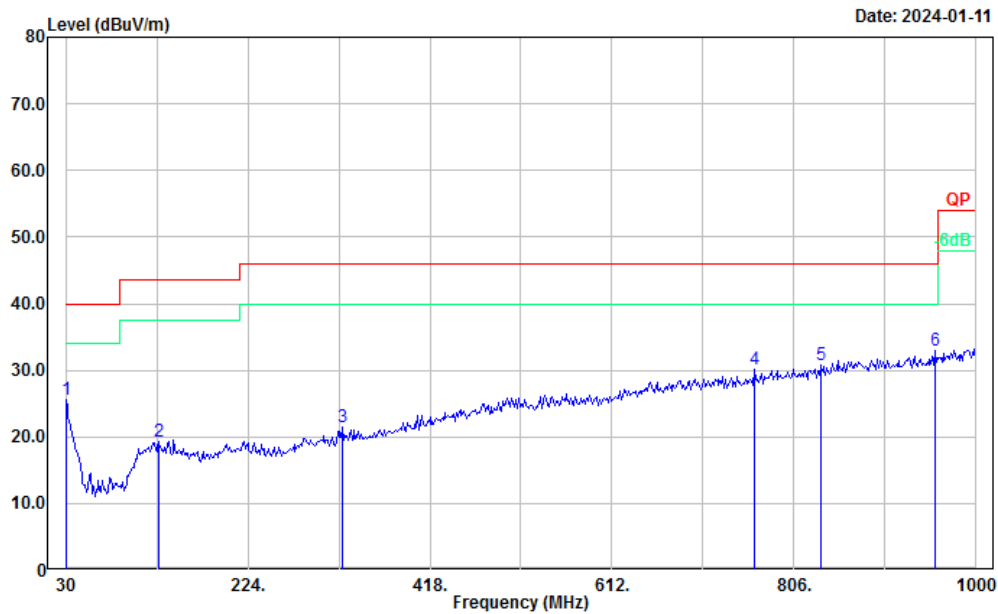
Serial No.: 2FK1-1
Tester: Joe Li



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.000	28.511	-2.990	25.521	40.000	14.479	Peak
2	160.739	30.924	-11.124	19.800	43.500	23.700	Peak
3	201.507	30.473	-10.763	19.710	43.500	23.790	Peak
4	405.348	32.471	-6.401	26.070	46.000	19.930	Peak
5	852.391	29.423	2.387	31.810	46.000	14.190	Peak
6	971.884	28.484	4.846	33.330	54.000	20.670	Peak

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_middle channel

Serial No.: 2FK1-1
Tester: Joe Li



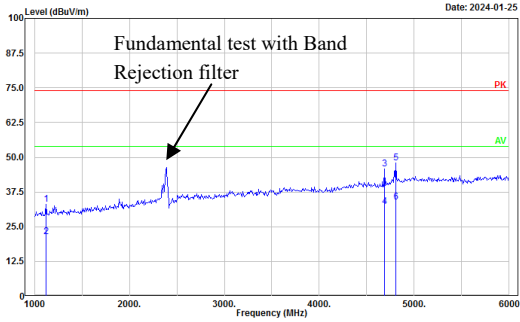
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	30.000	28.628	-2.990	25.638	40.000	14.362	Peak
2	129.812	29.078	-9.749	19.329	43.500	24.171	Peak
3	325.217	29.811	-8.272	21.539	46.000	24.461	Peak
4	763.826	29.541	0.647	30.188	46.000	15.812	Peak
5	834.116	28.715	1.985	30.700	46.000	15.300	Peak
6	956.420	28.627	4.314	32.941	46.000	13.059	Peak

3) 1-18GHz:

Low Channel, Horizontal

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

Serial No.: 2FK1-1
Tester: Leo Xiao

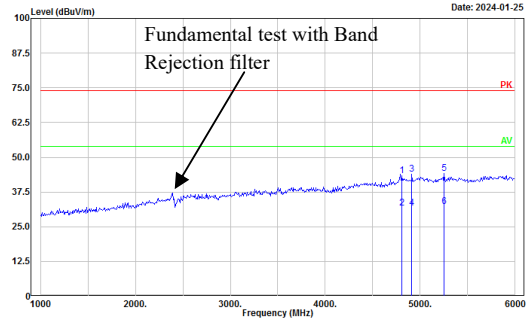


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1123.188	52.304	-19.186	33.118	74.000	40.882	Peak
2	1123.188	40.510	-19.186	21.324	54.000	32.676	Average
3	4688.406	55.025	-9.338	45.687	74.000	28.313	Peak
4	4688.406	41.620	-9.338	32.282	54.000	21.718	Average
5	4804.000	56.468	-8.595	47.873	74.000	26.127	Peak
6	4804.000	42.350	-8.595	33.755	54.000	20.245	Average

Low Channel, Vertical

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

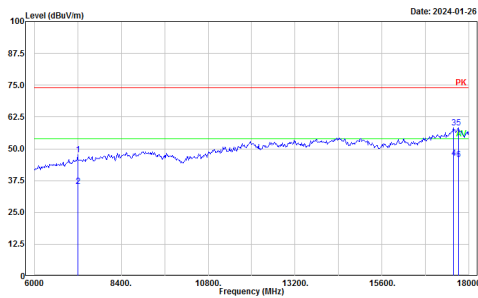
Serial No.: 2FK1-1
Tester: Leo Xiao



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4804.000	52.065	-8.595	43.470	74.000	30.530	Peak
2	4804.000	40.200	-8.595	31.605	54.000	22.395	Average
3	4913.043	52.572	-8.615	43.957	74.000	30.043	Peak
4	4913.043	40.269	-8.615	31.654	54.000	22.346	Average
5	5253.623	52.456	-8.395	44.061	74.000	29.939	Peak
6	5253.623	40.570	-8.395	32.175	54.000	21.825	Average

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

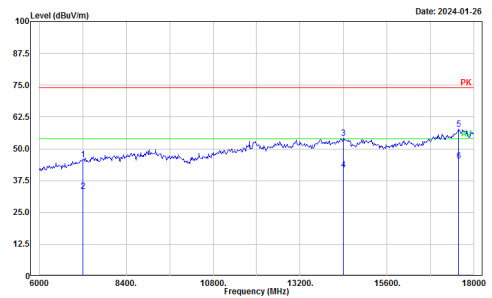
Serial No.: 2FK1-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7206.000	52.790	-5.063	47.727	74.000	26.273	Peak
2	7206.000	40.231	-5.063	35.168	54.000	18.832	Average
3	17565.220	51.254	6.913	58.167	74.000	15.833	Peak
4	17565.220	39.530	6.913	46.443	54.000	7.557	Average
5	17704.350	50.971	7.421	58.392	74.000	15.608	Peak
6	17704.350	38.339	7.421	45.760	54.000	8.240	Average

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

Serial No.: 2FK1-1
Tester: Alan Xie

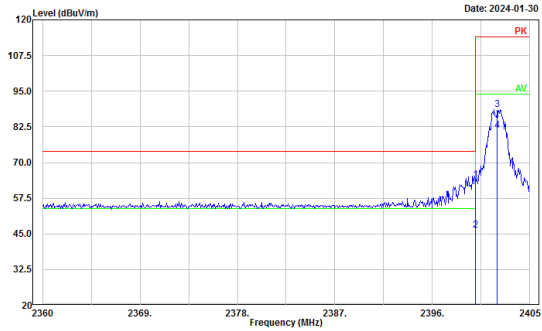


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7206.000	50.903	-5.063	45.840	74.000	28.160	Peak
2	7206.000	38.281	-5.063	33.218	54.000	20.782	Average
3	14400.000	49.889	4.350	54.239	74.000	19.761	Peak
4	14400.000	37.440	4.350	41.790	54.000	12.210	Average
5	17565.220	50.758	6.913	57.671	74.000	16.329	Peak
6	17565.220	38.390	6.913	45.303	54.000	8.697	Average

Low Channel, Fundamental And Bandedge,
Horizontal

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

Serial No.: 2FK1-1
Tester: Leo Xiao

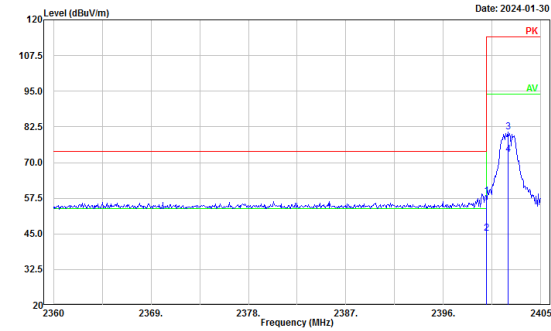


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2400.000	32.732	31.070	63.802	74.000	10.198	Peak
2	2400.000	15.320	31.070	46.390	54.000	7.610	Average
3	2402.000	57.442	31.082	88.524	114.000	25.476	Peak
4	2402.000	50.111	31.082	81.193	94.000	12.807	Average

Low Channel, Fundamental And Bandedge,
Vertical

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_low channel 2402MHz

Serial No.: 2FK1-1
Tester: Leo Xiao

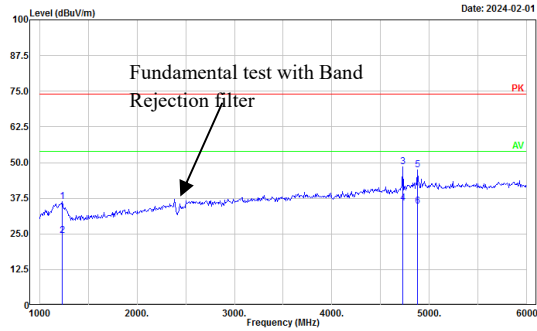


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2400.000	27.227	31.070	58.297	74.000	15.703	Peak
2	2400.000	14.110	31.070	45.180	54.000	8.820	Average
3	2402.000	49.533	31.082	80.615	114.000	33.385	Peak
4	2402.000	41.831	31.082	72.913	94.000	21.087	Average

Middle Channel, Horizontal

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz

Serial No.: 2FK1-1
Tester: Alan Xie

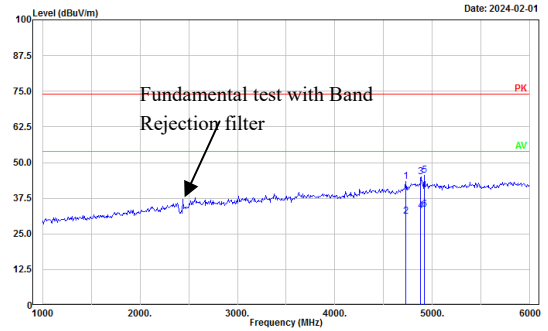


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1231.884	55.232	-18.948	36.284	74.000	37.716	Peak
2	1231.884	43.460	-18.948	24.512	54.000	29.488	Average
3	4724.638	57.675	-9.255	48.420	74.000	25.580	Peak
4	4724.638	45.125	-9.255	35.870	54.000	18.130	Average
5	4880.000	55.968	-8.648	47.320	74.000	26.680	Peak
6	4880.000	43.368	-8.648	34.720	54.000	19.280	Average

Middle Channel, Vertical

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz

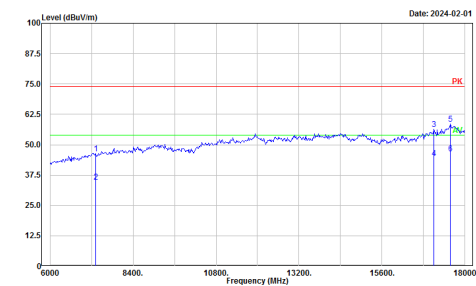
Serial No.: 2FK1-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4724.638	52.609	-9.255	43.354	74.000	30.646	Peak
2	4724.638	40.420	-9.255	31.165	54.000	22.835	Average
3	4880.000	53.736	-8.648	45.088	74.000	28.912	Peak
4	4880.000	41.615	-8.648	32.967	54.000	21.033	Average
5	4920.290	54.187	-8.557	45.630	74.000	28.370	Peak
6	4920.290	42.269	-8.557	33.712	54.000	20.288	Average

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz

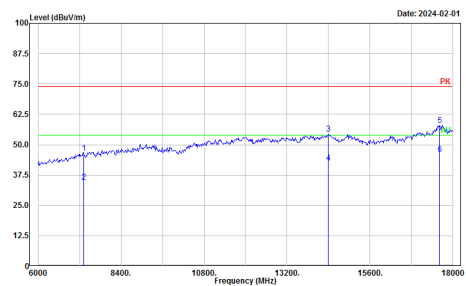
Serial No.: 2FK1-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7320.000	51.228	-4.836	46.392	74.000	27.608	Peak
2	7320.000	39.620	-4.836	34.784	54.000	19.216	Average
3	17095.650	50.597	5.763	56.360	74.000	17.640	Peak
4	17095.650	38.617	5.763	44.380	54.000	9.620	Average
5	17565.220	51.607	6.913	58.520	74.000	15.480	Peak
6	17565.220	39.457	6.913	46.370	54.000	7.630	Average

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz

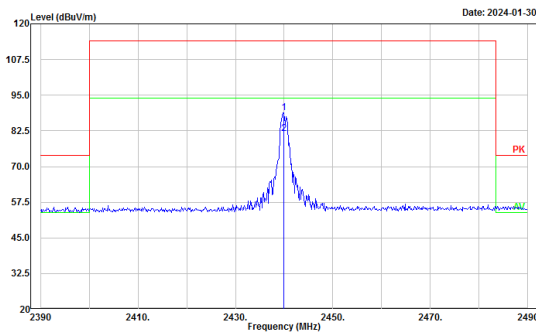
Serial No.: 2FK1-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7320.000	51.492	-4.836	46.656	74.000	27.344	Peak
2	7320.000	39.640	-4.836	34.804	54.000	19.196	Average
3	14400.000	50.080	4.350	54.430	74.000	19.570	Peak
4	14400.000	38.190	4.350	42.540	54.000	11.460	Average
5	17617.390	50.744	7.136	57.880	74.000	16.120	Peak
6	17617.390	38.824	7.136	45.960	54.000	8.040	Average

Middle Channel, Fundamental And Bandedge,
Horizontal

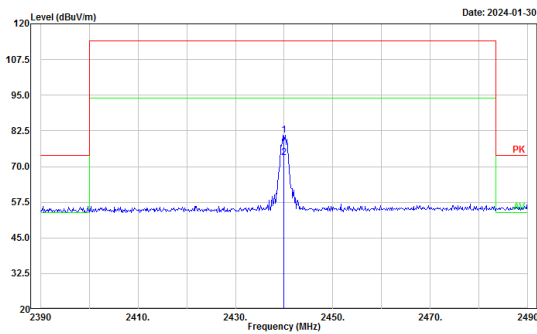
Project No.: DG1231220-77068E -RF Serial No.: 2FK1-1
Polarization: Horizontal Tester: Leo Xiao
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2440.000	57.584	31.326	88.910	114.000	25.090	Peak
2	2440.000	50.060	31.326	81.386	94.000	12.614	Average

Middle Channel, Fundamental And Bandedge,
Vertical

Project No.: DG1231220-77068E -RF Serial No.: 2FK1-1
Polarization: Vertical Tester: Leo Xiao
Test Mode: Transmitting
Note: TX mode_middle channel 2440MHz

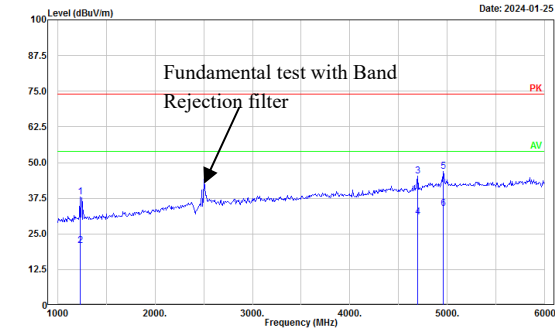


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2440.000	49.700	31.326	81.026	114.000	32.974	Peak
2	2440.000	41.820	31.326	73.146	94.000	20.854	Average

High Channel, Horizontal

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

Serial No.: 2FK1-1
Tester: Leo Xiao

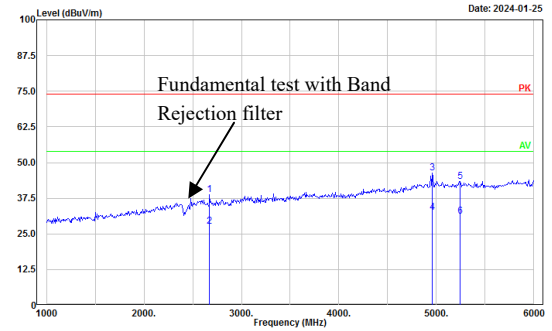


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1231.884	57.002	-18.948	38.054	74.000	35.946	Peak
2	1231.884	39.810	-18.948	20.862	54.000	33.138	Average
3	4695.652	54.589	-9.283	45.306	74.000	28.694	Peak
4	4695.652	40.260	-9.283	30.977	54.000	23.023	Average
5	4960.000	55.092	-8.258	46.834	74.000	27.166	Peak
6	4960.000	42.230	-8.258	33.972	54.000	20.028	Average

High Channel, Vertical

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

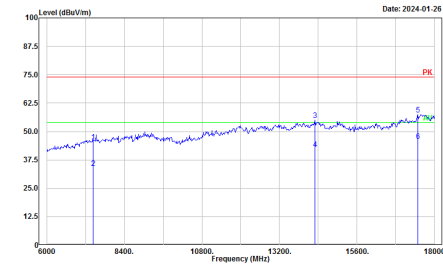
Serial No.: 2FK1-1
Tester: Leo Xiao



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2673.913	52.096	-13.285	38.811	74.000	35.189	Peak
2	2673.913	40.850	-13.285	27.565	54.000	26.435	Average
3	4960.000	54.574	-8.258	46.316	74.000	27.684	Peak
4	4960.000	40.810	-8.258	32.552	54.000	21.448	Average
5	5239.130	51.641	-8.361	43.280	74.000	30.720	Peak
6	5239.130	39.410	-8.361	31.049	54.000	22.951	Average

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

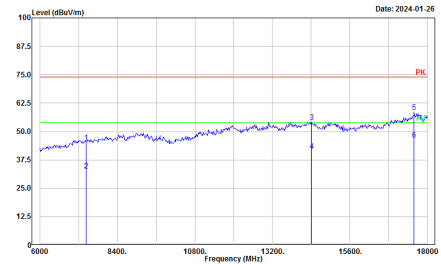
Serial No.: 2FK1-1
Tester: Alan Xie



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7440.000	50.082	-4.612	45.470	74.000	28.530	Peak
2	7440.000	38.522	-4.612	33.910	54.000	20.090	Average
3	14295.650	50.858	4.182	55.040	74.000	18.960	Peak
4	14295.650	38.148	4.182	42.330	54.000	11.670	Average
5	17478.260	51.031	6.549	57.580	74.000	16.420	Peak
6	17478.260	39.271	6.549	45.820	54.000	8.180	Average

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

Serial No.: 2FK1-1
Tester: Alan Xie

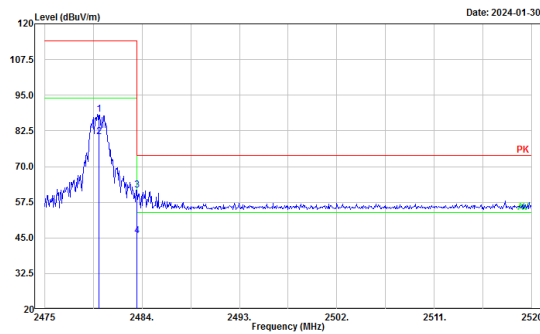


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	7440.000	49.822	-4.612	45.210	74.000	28.790	Peak
2	7440.000	37.422	-4.612	32.810	54.000	21.190	Average
3	14417.390	49.834	4.286	54.120	74.000	19.880	Peak
4	14417.390	37.274	4.286	41.560	54.000	12.440	Average
5	17582.610	51.543	6.997	58.540	74.000	15.460	Peak
6	17582.610	39.333	6.997	46.330	54.000	7.670	Average

High Channel, Fundamental And Bandedge,
Horizontal

Project No.: DG1231220-77068E -RF
Polarization: Horizontal
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

Serial No.: 2FK1-1
Tester: Leo Xiao

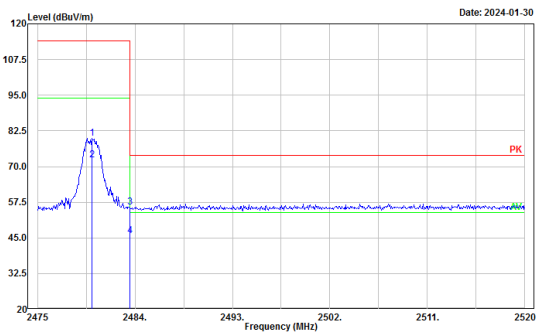


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2480.000	56.809	31.546	88.355	114.000	25.645	Peak
2	2480.000	48.920	31.546	80.466	94.000	13.534	Average
3	2483.500	30.165	31.564	61.729	74.000	12.271	Peak
4	2483.500	14.250	31.564	45.814	54.000	8.186	Average

High Channel, Fundamental And Bandedge, Vertical

Project No.: DG1231220-77068E -RF
Polarization: Vertical
Test Mode: Transmitting
Note: TX mode_high channel 2480MHz

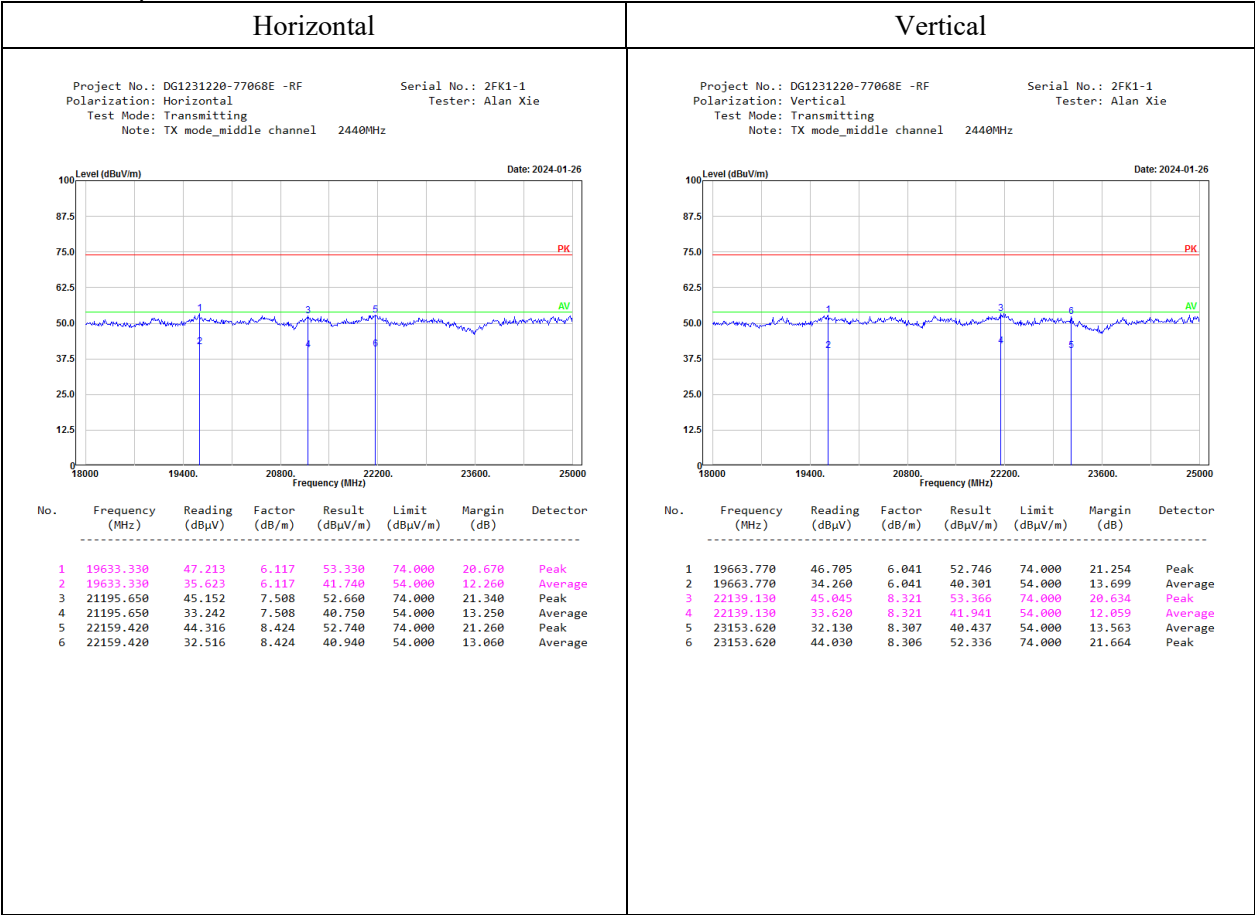
Serial No.: 2FK1-1
Tester: Leo Xiao



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2480.000	48.249	31.546	79.795	114.000	34.205	Peak
2	2480.000	40.670	31.546	72.216	94.000	21.784	Average
3	2483.500	24.222	31.564	55.786	74.000	18.214	Peak
4	2483.500	14.180	31.564	45.744	54.000	8.256	Average

18-25GHz:

No Emission was detected in the range 18-25GHz, test was performed on channel which with the maximum power.



5.3 20 dB Emission Bandwidth:

Serial No.:	2FK1-1	Test Date:	2024/2/29
Test Site:	Chamber A	Test Mode:	Transmitting
Tester:	Alan Xie	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.8	Relative Humidity: (%)	52	ATM Pressure: (kPa)	101.1
----------------------	------	------------------------------	----	---------------------------	-------

Test Equipment List and Details:

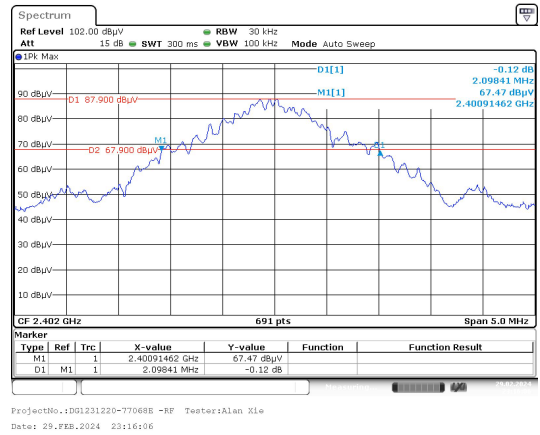
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2024/9/6
HUBER+SUHNER	Coaxial Cable	SUCOFLEX 126EA	MY369/26/26EA	2023/9/6	2024/9/5
AH	Preamplifier	PAM-0118P	530	2023/9/1	2024/8/31
R&S	Spectrum Analyzer	FSV40	101944	2023/10/18	2024/10/17

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

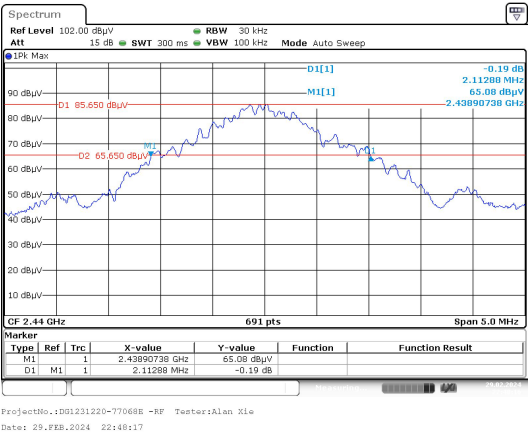
Test Data:

Test Channel	Value (MHz)	F _L (MHz)	F _L Limit (MHz)	F _H (MHz)	F _H Limit (MHz)
Low	2.09841	2400.91462	2400	2403.01303	2483.5
Mid	2.11288	2438.90738	2400	2441.02026	2483.5
High	2.11288	2478.90015	2400	2481.01303	2483.5

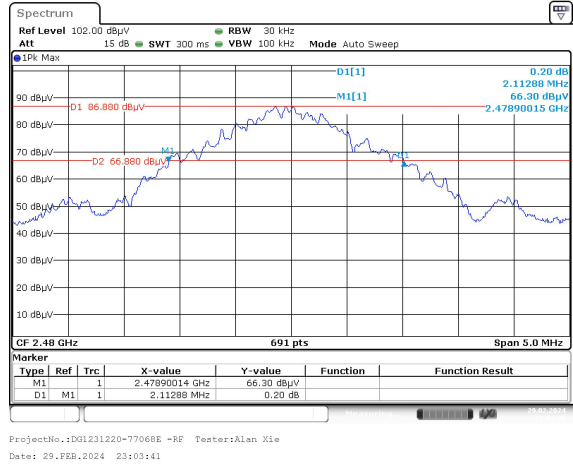
Low



Mid



High



APPENDIX A - EUT PHOTOGRAPHS

Please refer to the attachment DG1231220-77068E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and DG1231220-77068E-RF-INP EUT INTERNAL PHOTOGRAPHS

APPENDIX B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment DG1231220-77068E-RF-00-TSP TEST SETUP PHOTOGRAPHS.

APPENDIX C - RF EXPOSURE EVALUATION

Applicable Standard

According to §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

The max conducted power including tune-up tolerance is -1.0 dBm (0.79 mW).

$[(\text{max. power of channel, mW})/(\text{min. test separation distance, mm})][\sqrt{f(\text{GHz})}]$
 $= 0.79/5 \cdot (\sqrt{2.480}) = 0.3 < 3.0$

Note:

1. This device maximum E-Field level is 88.91 dB μ V/m at 3m, so the EIRP power is -6.29 dBm,
Antenna Gain is -4.62 dBi
Maximum Conduct Power is -1.67 dBm

Note:

EIRP(dBm)=Field Strength of Fundamental(dBuV/m)-95.2 (dB),
Maximum Conduct Power (dBm)= EIRP(dBm)- Antenna Gain(dBi)

Maximum Power declared by manufacturer.

Result: Compliant. The stand-alone SAR evaluation is not necessary.

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