CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 Issue 3

TEST REPORT

For

wegear WL500 Rechargeable Silent Mouse Dongle

MODEL NUMBER: DG394

REPORT NUMBER: 4791636337-6--RF-1

ISSUE DATE: March 4, 2025

FCC ID: 2BK5ZDG394A
IC: 32844-DG394A

Prepared for

HONGKONG JIURU TECHNOLOGY CO ., LIMITED
UNIT 21 OF WORKSHOP A ON 10/F MANNING INDUSTRIAL BLDG NOS. 116-118 HOW MING ST KWUN TONG KL HONGKONG

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	March 4, 2025	Initial Issue	

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
Antenna Requirement	N/A	FCC 15.203 RSS-GEN Clause 6.8	Pass
AC Power Line Conducted Emission	ANSI C63.10-2013 Clause 6.2	FCC Part 15.207	Pass
Conducted Output Power	ANSI C63.10-2013 Clause 7.8.5	FCC 15.247 (b) (1) RSS-247 Clause 5.1 (b)	Pass
20 dB Bandwidth and 99% Occupied Bandwidth	ANSI C63.10-2013 Clause 6.9.2	FCC 15.247 (a) (1) RSS-247 Clause 5.1 (a) RSS-Gen Clause 6.7	Pass
Carrier Hopping Channel Separation	ANSI C63.10-2013 Clause 7.8.2	FCC 15.247 (a) (1) RSS-247 Clause 5.1 (b)	Pass
Number of Hopping Frequency	ANSI C63.10-2013 Clause 7.8.3	15.247 (a) (1) III RSS-247 Clause 5.1 (d)	Pass
Time of Occupancy (Dwell Time)	ANSI C63.10-2013 Clause 7.8.4	15.247 (a) (1) III RSS-247 Clause 5.1 (d)	Pass
Conducted Bandedge and Spurious Emission	ANSI C63.10-2013 Clause 6.10.4 & Clause 7.8.8	FCC 15.247 (d) RSS-247 Clause 5.5	Pass
Duty Cycle	ANSI C63.10-2013, Clause 11.6	None; for reporting purposes only.	Pass
Radiated Band edge and Spurious Emission	ANSI C63.10-2013 Clause 6.3 & 6.5 & 6.6	FCC 15.247 (d) FCC 15.209 FCC 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	Pass

Note:
1. N/A: In this whole report not applicable.

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 Issue 3> when <Simple Acceptance> decision rule is applied.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

CONTENTS

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	HONGKONG JIURU TECHNOLOGY CO ., LIMITED
Address:	UNIT 21 OF WORKSHOP A ON 10/F MANNING INDUSTRIAL BLDG NOS. 116-118 HOW MING ST KWUN TONG KL HONGKONG

Manufacturer Information

Company Name:	HONGKONG JIURU TECHNOLOGY CO ., LIMITED
Address:	UNIT 21 OF WORKSHOP A ON 10/F MANNING INDUSTRIAL BLDG NOS. 116-118 HOW MING ST KWUN TONG KL HONGKONG

EUT Information

EUT Name:	wegear WL500 Rechargeable Silent Mouse Dongle
Model:	DG394
Brand:	wegear
Sample Received Date:	January 13, 2025
Sample Status:	Normal
Sample ID:	8025015
Date of Tested:	January 13, 2025 to March 4, 2025

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C **ISED RSS-247 Issue 3**	**Pass**

Prepared By:

Johnson Liu

Laboratory Engineer

Checked By:

Kebo Zhang

Senior Project Engineer

Approved By:

Stephen Guo

Operations Manager

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART C ISED RSS-247 Issue 3, KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2,ANSI C63.10-2013 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.

Note 1:
All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

Note 2:
The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd.
Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3:
For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Duty Cycle	±0.028%
20dB Emission Bandwidth and 99% Occupied Bandwidth	±0.0196%
Carrier Frequency Separation	±1.9%
Maximum Conducted Output Power	±0.743 dB
Number of Hopping Channel	±1.9%
Time of Occupancy	±0.028%
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz)
	±1.328dB (1 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	wegear WL500 Rechargeable Silent Mouse Dongle
Model	DG394

Frequency Range:	2402 MHz to 2480 MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Type of Modulation:	GFSK
Normal Test Voltage:	DC 5V via Adapter or DC 3.7V via Battery

Note: We have pre-test the two ways of power supply, only the worst data were recorded in the report.

5.2. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	11	2424	22	2446	33	2468
1	2404	12	2426	23	2448	34	2470
2	2406	13	2428	24	2450	35	2472
3	2408	14	2430	25	2452	36	2474
4	2410	15	2432	26	2454	37	2476
5	2412	16	2434	27	2456	38	2478
6	2414	17	2436	28	2458	39	2480
7	2416	18	2438	29	2460	/	/
8	2418	19	2440	30	2462	/	/
9	2420	20	2442	31	2464	/	/
10	2422	21	2444	32	2466	/	/

5.3. MAXIMUM POWER

Test Mode	Frequency (MHz)	Channel Number	Maximum Peak Output Power (dBm)
SRD 2.4G	2402 ~ 2480	0-39[40]	1.75

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
SRD 2.4G	CH 0(Low Channel), CH 19(MID Channel), CH 39(High Channel)	2402 MHz, 2440 MHz, 2480 MHz
SRD 2.4G	Hopping	

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		SE67T_Test_v161		
Modulation Type	Transmit Antenna Number	Test Software setting value		
		CH 0	CH 19	CH 39
SRD 2.4G	1	8	8	8

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2402-2480	PCB Antenna	1.71

Test Mode	Transmit and Receive Mode	Description
SRD 2.4G	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

5.7. SUPPORT UNITS FOR SYSTEM TEST

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remark
1	PC	Lenovo	E14	/
2	AC Adaptor	Lenovo	ADLX65YCC3D	Input: AC 100-240V, 1.8A, 50-60Hz Output: DC 20V, 3.25A,65.0W Max

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	1.0	/

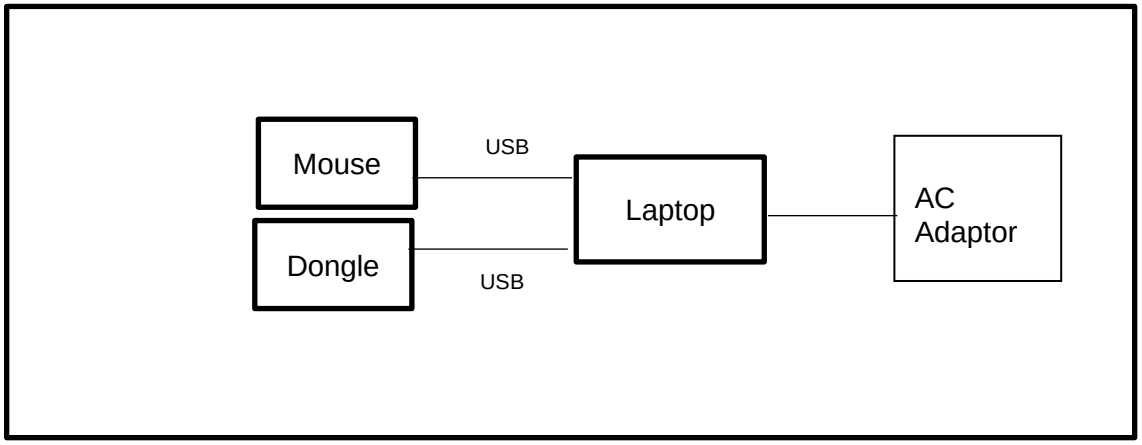
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	Mouse	wegear	wegear WL500 Rechargeable Silent Mouse	/

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS FOR AC Conducted Power Line



Note: For AC conducted power line, The dongle and mouse have been tested in both separate working mode and together working mode, only the worst data was recorded in the report.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

6. MEASURING EQUIPMENT AND SOFTWARE USED

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Mar.25,2024	Mar.24,2025
Vector Signal Generator	R&S	SMBV100A	261637	Sep.28, 2024	Sep.27, 2025
Signal Generator	R&S	SMB100A	178553	Sep.28, 2024	Sep.27, 2025
Signal Analyzer	R&S	FSV40	101118	Sep.28, 2024	Sep.27, 2025
Software					
Description	Manufacturer	Name	Version		
For R&S TS 8997 Test System	Rohde & Schwarz	EMC 32	10.60.10		
Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.13, 2024	Sep.12, 2025
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Sep.28, 2024	Sep.27, 2025
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Sep.28, 2024	Sep.27, 2025
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Sep.28, 2024	Sep.27, 2025
DC power supply	Keysight	E3642A	MY55159130	Sep.28, 2024	Sep.27, 2025
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Sep.28, 2024	Sep.27, 2025
Attenuator	Aglient	8495B	2814a12853	Sep.28, 2024	Sep.27, 2025
RF Control Unit	Tonscend	JS0806-2	23B80620666	Mar.25,2024	Mar.24,2025
Software					
Description	Manufacturer	Name	Version		
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System	V3.2.22		

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Sep.28, 2024	Sep.27, 2025
Two-Line V-Network	R&S	ENV216	101983	Sep.28, 2024	Sep.27, 2025
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Sep.28, 2024	Sep.27, 2025
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Sep.28, 2024	Sep.27, 2025
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	June 28, 2024	June.27 2027
Preamplifier	HP	8447D	2944A09099	Sep.28, 2024	Sep.27, 2025
EMI Measurement Receiver	R&S	ESR26	101377	Sep.28, 2024	Sep.27, 2025
Horn Antenna	TDK	HRN-0118	130939	Apr.29, 2022	Apr.28, 2025
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Sep.28, 2024	Sep.27, 2025
Horn Antenna	Schwarzbeck	BBHA9170	697	Jun 30, 2024	Jun 29, 2027
Preamplifier	TDK	PA-02-2	TRS-307-00003	Sep.28, 2024	Sep.27, 2025
Preamplifier	TDK	PA-02-3	TRS-308-00002	Sep.28, 2024	Sep.27, 2025
Loop antenna	Schwarzbeck	1519B	00008	Dec.09, 2024	Dec.08, 2027
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Sep.28, 2024	Sep.27, 2025
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Sep.28, 2024	Sep.27, 2025
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Other Instrument					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Temperature humidity probe	OMEGA	ITHX-SD-5	18470007	Oct.8, 2024	Oct.7, 2025
Barometer	Yiyi	Baro	N/A	Oct.10, 2024	Oct.9, 2025
Attenuator	Agilent	8495B	2814a12853	Sep.28, 2024	Sep.27, 2025

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7. ANTENNA PORT TEST RESULTS

7.1. CONDUCTED OUTPUT POWER

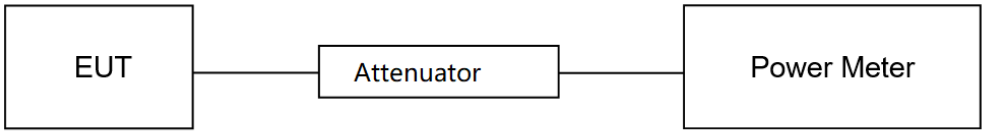
LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247 (b) (1) ISED RSS-247 Clause 5.4 (b)	Peak Conducted Output Power	Hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel: 1 watt or 30 dBm; Hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel: 125 mW or 21 dBm	2400-2483.5

TEST PROCEDURE

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).
Measure peak emission level, the indicated level is the peak output power, after any corrections for external attenuators and cables.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" - Appendix C

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.2. 20 DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247 (a) (1) RSS-247 Clause 5.1 (a)	20 dB Bandwidth	None; for reporting purposes only.	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	None; for reporting purposes only.	2400-2483.5

TEST PROCEDURE

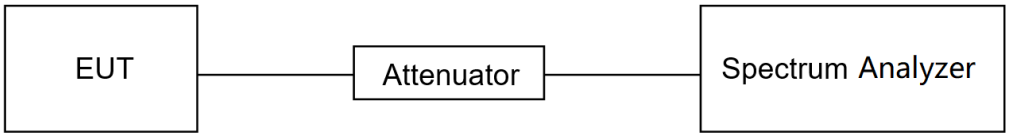
Refer to ANSI C63.10-2013 clause 6.9.2.

Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 20 dB Bandwidth: 1 % to 5 % of the 20 dB bandwidth For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth
VBW	For 20 dB Bandwidth: approximately 3×RBW For 99 % Occupied Bandwidth: ≥ 3×RBW
Span	Approximately 2 to 3 times the 20dB bandwidth
Trace	Max hold
Sweep	Auto couple

a) Use the occupied bandwidth function of the instrument, allow the trace to stabilize and report the measured 99 % occupied bandwidth and 20 dB Bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" – Appendix A&B

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.3. CARRIER HOPPING CHANNEL SEPARATION

LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247 (a) (1) ISED RSS-247 Clause 5.1 (b)	Carrier Frequency Separation	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.	2400-2483.5

TEST PROCEDURE

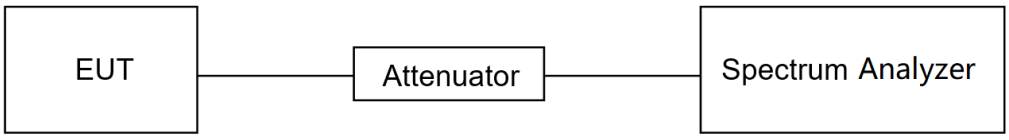
Refer to ANSI C63.10-2013 clause 7.8.2.

Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Span	wide enough to capture the peaks of two adjacent channels
Detector	Peak
RBW	Start with the RBW set to approximately 30 % of the channel spacing; adjust as necessary to best identify the center of each individual channel.
VBW	≥RBW
Trace	Max hold
Sweep time	Auto couple

Allow the trace to stabilize and use the marker-delta function to determine the separation between the peaks of the adjacent channels.
Compliance of an EUT with the appropriate regulatory limit shall be determined.

TEST SETUP



This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" - Appendix D

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.4. NUMBER OF HOPPING FREQUENCY

LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 3		
Section	Test Item	Limit
CFR 47 15.247 (a) (1) III ISED RSS-247 Clause 5.1 (d)	Number of Hopping Frequency	at least 15 hopping channels

TEST PROCEDURE

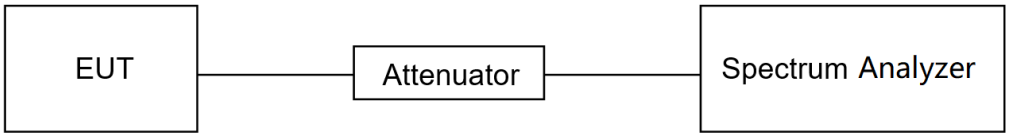
Refer to ANSI C63.10-2013 clause 7.8.3.

Connect the EUT to the spectrum Analyzer and use the following settings:

Detector	Peak
RBW	To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
VBW	≥RBW
Span	The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
Trace	Max hold
Sweep time	Auto couple

Set EUT to transmit maximum output power and switch on frequency hopping function. then set enough count time (larger than 5000 times) to get all the hopping frequency channel displayed on the screen of spectrum analyzer, count the quantity of peaks to get the number of hopping channels.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" - Appendix F

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.5. TIME OF OCCUPANCY (DWELL TIME)

LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 3		
Section	Test Item	Limit
CFR 47 15.247 (a) (1) III ISED RSS-247 Clause 5.1 (d)	Time of Occupancy (Dwell Time)	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds, multiplied by the number of hopping channels employed.

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 7.8.4.

Connect the EUT to the spectrum Analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1 MHz
VBW	≥RBW
Span	Zero span, centered on a hopping channel
Trace	Max hold
Sweep time	As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel

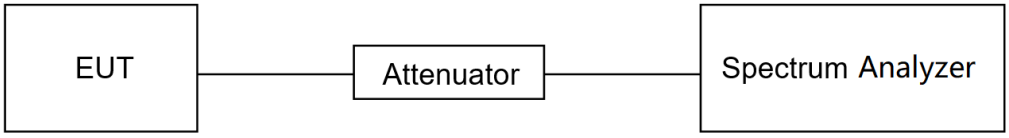
Use the marker-delta function to determine the transmit time per hop (Burst Width). If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

For FHSS Mode (79 Channel):
DH1/3DH1 Dwell Time: Burst Width * (1600/2) * 31.6 / (channel number)
DH3/3DH3 Dwell Time: Burst Width * (1600/4) * 31.6 / (channel number)
DH5/3DH5 Dwell Time: Burst Width * (1600/6) * 31.6 / (channel number)

For AFHSS Mode (20 Channel):
DH1/3DH1 Dwell Time: Burst Width * (800/2) * 8 / (channel number)
DH3/3DH3 Dwell Time: Burst Width * (800/4) * 8 / (channel number)
DH5/3DH5 Dwell Time: Burst Width * (800/6) * 8 / (channel number)

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" - Appendix E

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSION

LIMITS

CFR 47 FCC Part15 (15.247), Subpart C ISED RSS-247 ISSUE 3		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Spurious Emission	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 7.8.6 and 7.8.8.

Connect the EUT to the spectrum analyzer and use the following settings for reference level measurement:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

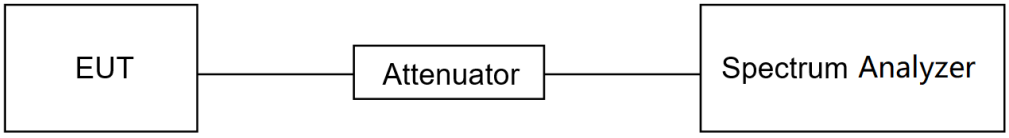
Change the settings for emission level measurement:

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	≥3 × RBW
measurement points	≥span/RBW
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	57.5%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

TEST DATE / ENGINEER

Test Date	February 7, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" - Appendix G&H

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

7.7. DUTY CYCLE

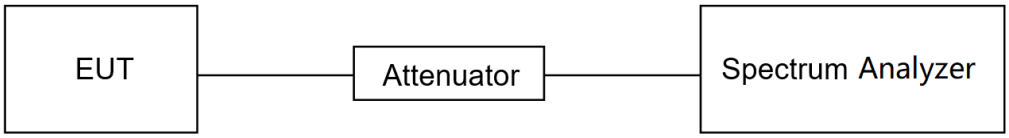
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Refer to ANSI C63.10-2013 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.2℃	Relative Humidity	60.1%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.7V

TEST DATE / ENGINEER

Test Date	March 4, 2025	Test By	Walker Yuan

TEST RESULTS

Please refer to section "Test Data" – Appendix I

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISED RSS-GEN Clause 8.9 and Clause 8.10.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz-1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)
9 - 490 kHz[Note 1]	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands[Note 1]

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 – 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 – 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 – 8500	
108 – 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Above 1 GHz

The setting of the spectrum analyzer

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

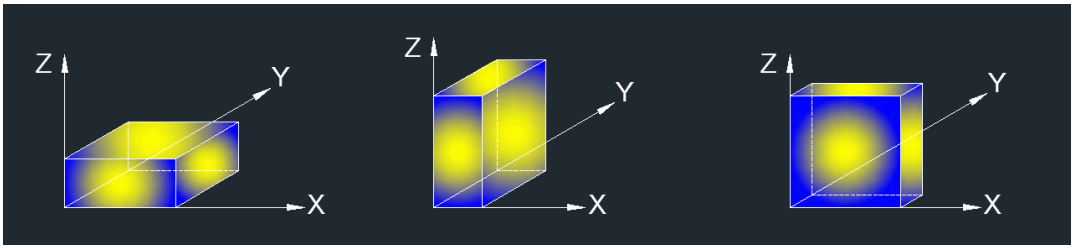
3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.7. ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

For Restricted Bandedge:
Note:
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. PK=Peak: Peak detector.
4. AV=Average: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.7.
6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
7. Both horizontal and vertical have been tested, only the worst data was recorded in the report.
8. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious emission (9 kHz ~ 30 MHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. All modes have been tested, but only the worst data was recorded in the report.
5. dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5

For Radiate Spurious Emission (30 MHz ~ 1 GHz):
Note:
1. Result Level = Read Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All modes have been tested, but only the worst data was recorded in the report.

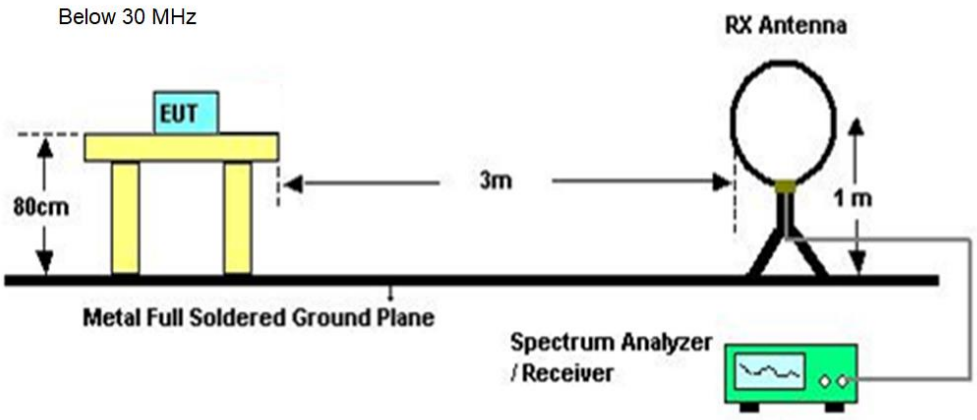
For Radiate Spurious Emission (1 GHz ~ 3 GHz):
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.7.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes have been tested, but only the worst data was recorded in the report.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

For Radiate Spurious Emission (3 GHz ~ 18 GHz):
Note:
1. Peak Result = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.7.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes have been tested, but only the worst data was recorded in the report.

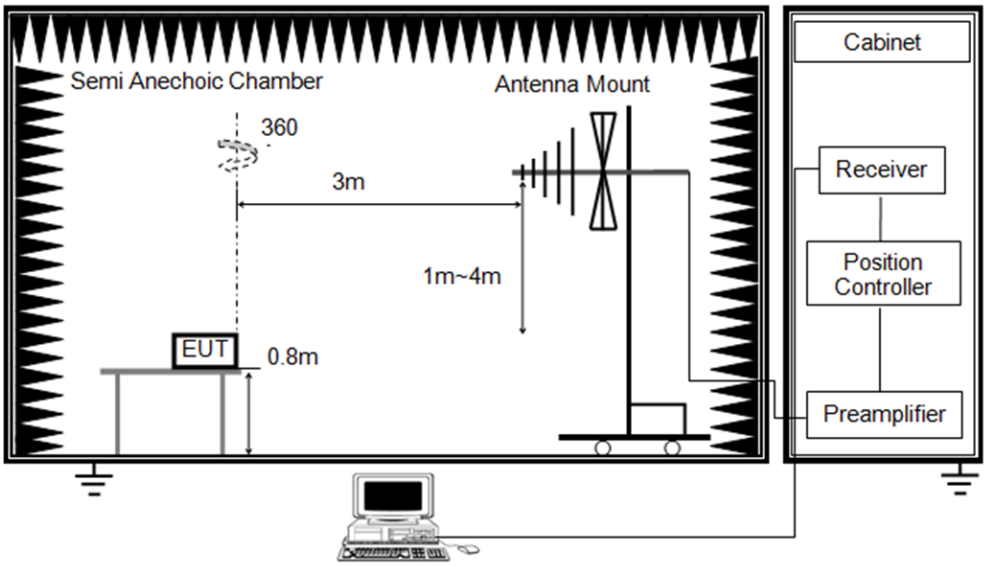
For Radiate Spurious emission (18 GHz ~ 26 GHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. All modes have been tested, but only the worst data was recorded in the report.

TEST SETUP

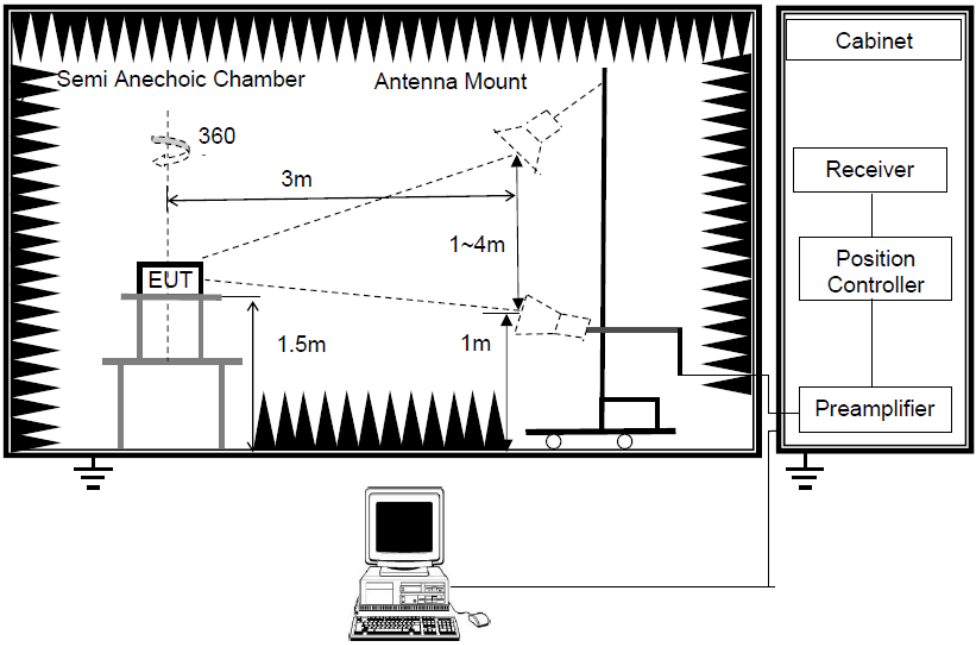


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Below 1 GHz and above 30 MHz



Above 1GHz



TEST ENVIRONMENT

Temperature	21.6℃	Relative Humidity	59.4%
Atmosphere Pressure	101kPa	Test Voltage	

TEST DATE / ENGINEER

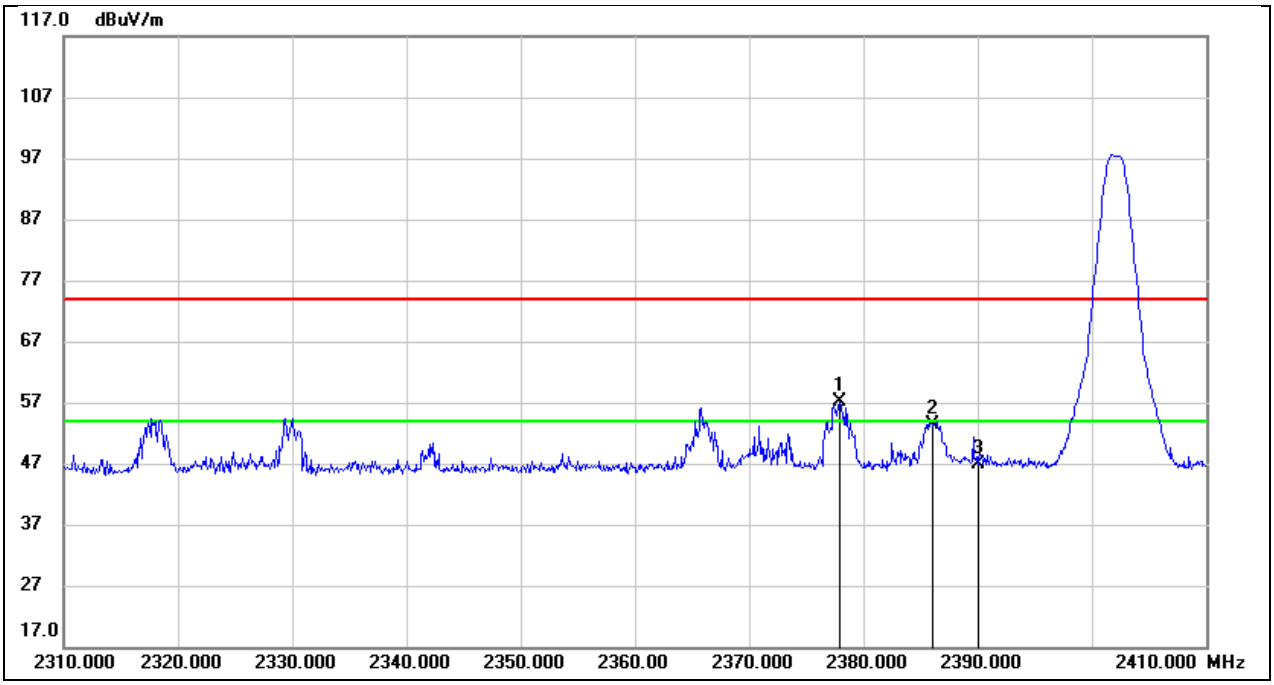
Test Date	March 3, 2025	Test By	Mason Wang

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST RESULTS

8.1. RESTRICTED BANDEDGE

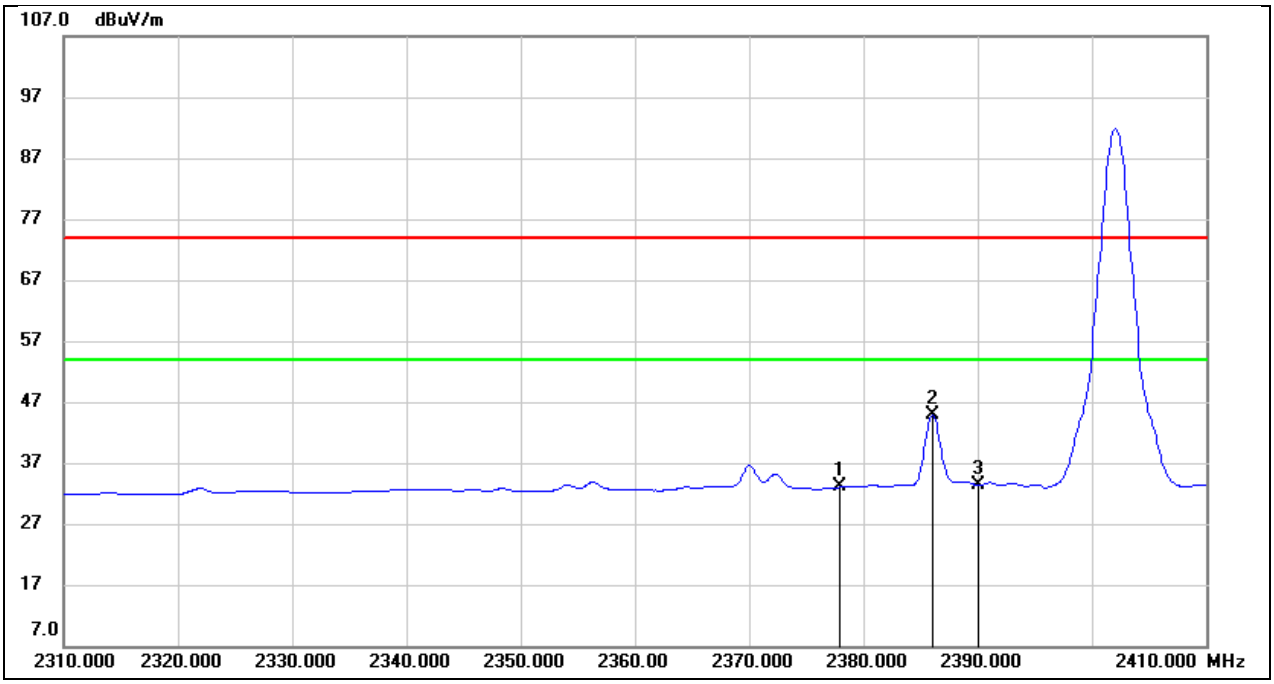
Test Mode:	SDR 2.4G PK	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2377.900	25.53	31.69	57.22	74.00	-16.78	peak
2	2386.000	21.59	31.71	53.30	74.00	-20.70	peak
3	2390.000	15.15	31.73	46.88	74.00	-27.12	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

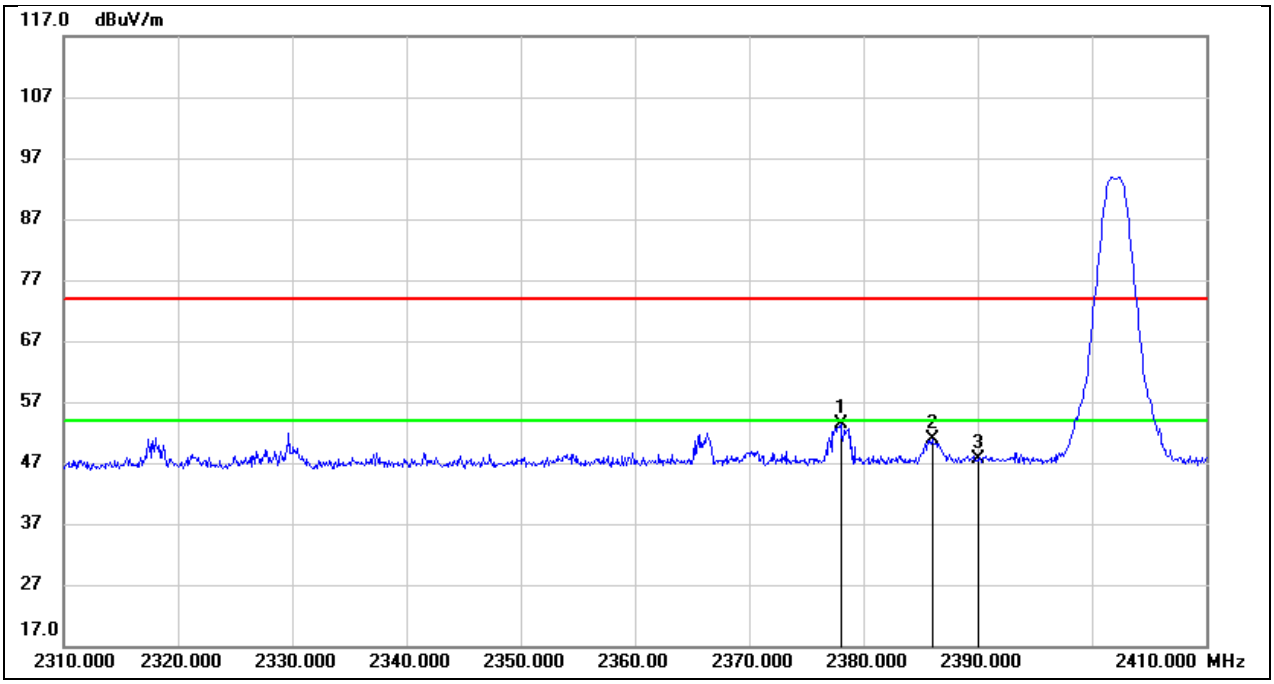
Test Mode:	SDR 2.4G AV	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2377.900	1.32	31.69	33.01	54.00	-20.99	AVG
2	2386.000	13.10	31.71	44.81	54.00	-9.19	AVG
3	2390.000	1.56	31.73	33.29	54.00	-20.71	AVG

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

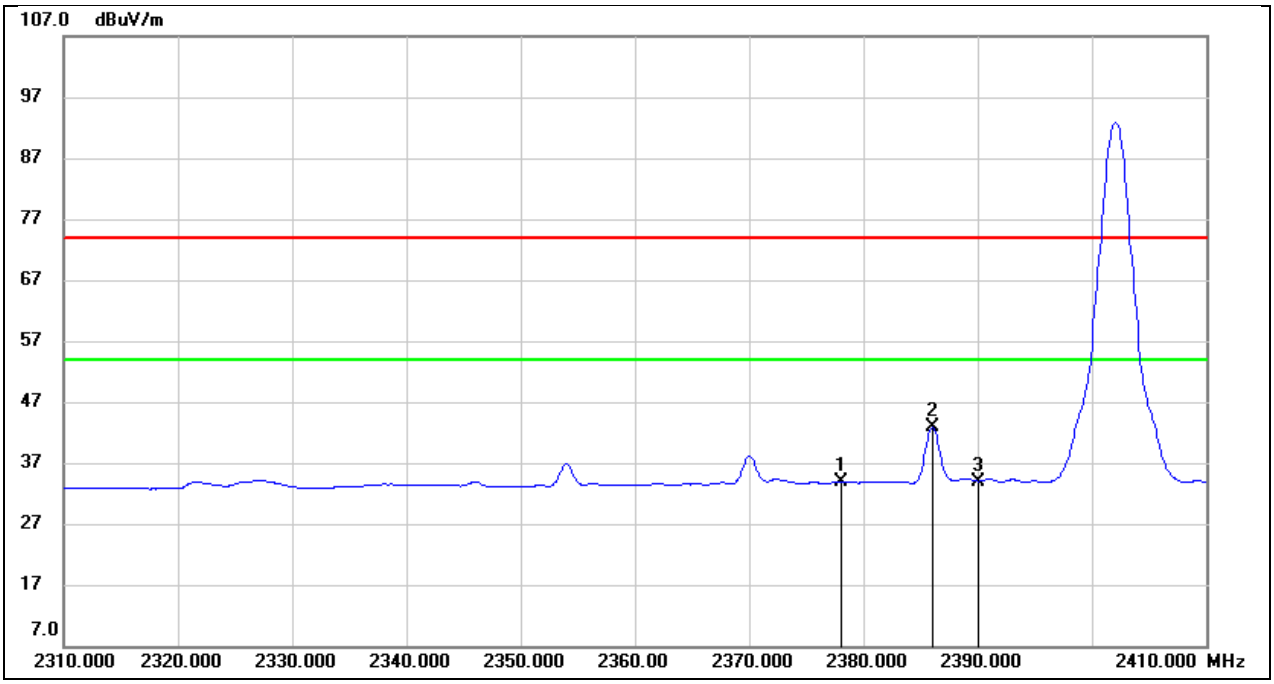
Test Mode:	SDR 2.4G PK	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2378.000	20.82	32.51	53.33	74.00	-20.67	peak
2	2386.000	18.47	32.53	51.00	74.00	-23.00	peak
3	2390.000	14.97	32.55	47.52	74.00	-26.48	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

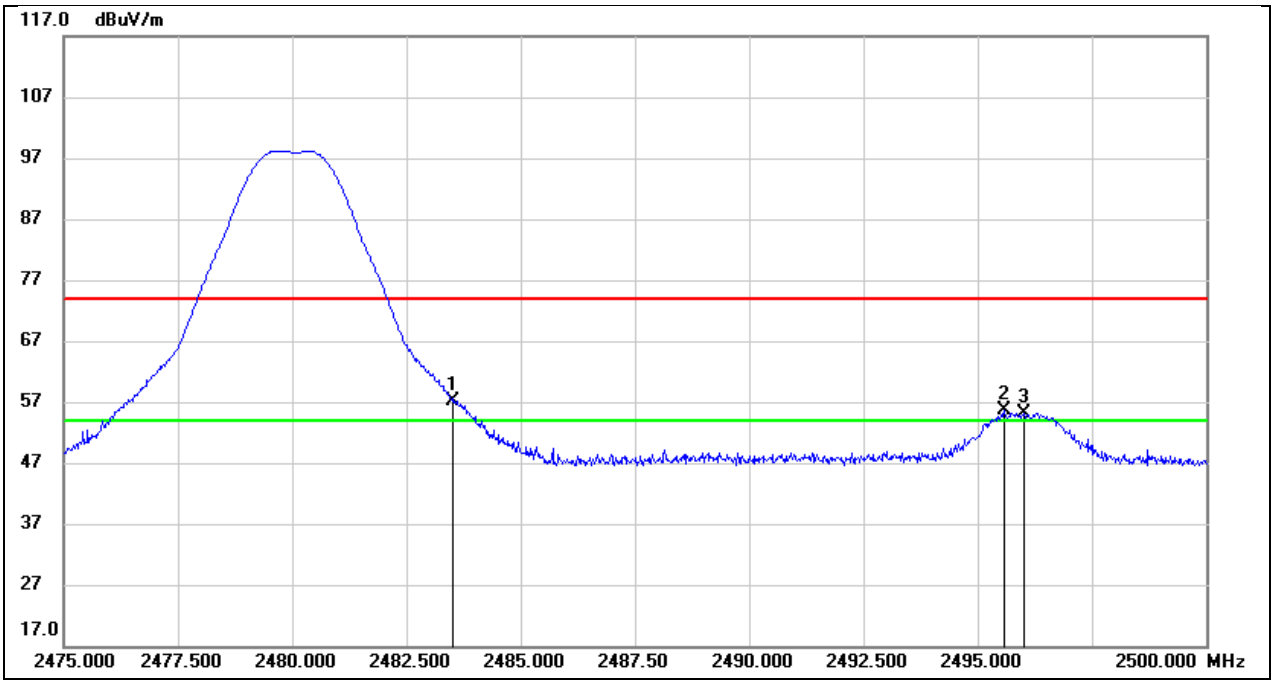
Test Mode:	SDR 2.4G AV	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2378.000	1.45	32.51	33.96	54.00	-20.04	AVG
2	2386.000	10.36	32.53	42.89	54.00	-11.11	AVG
3	2390.000	1.42	32.55	33.97	54.00	-20.03	AVG

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

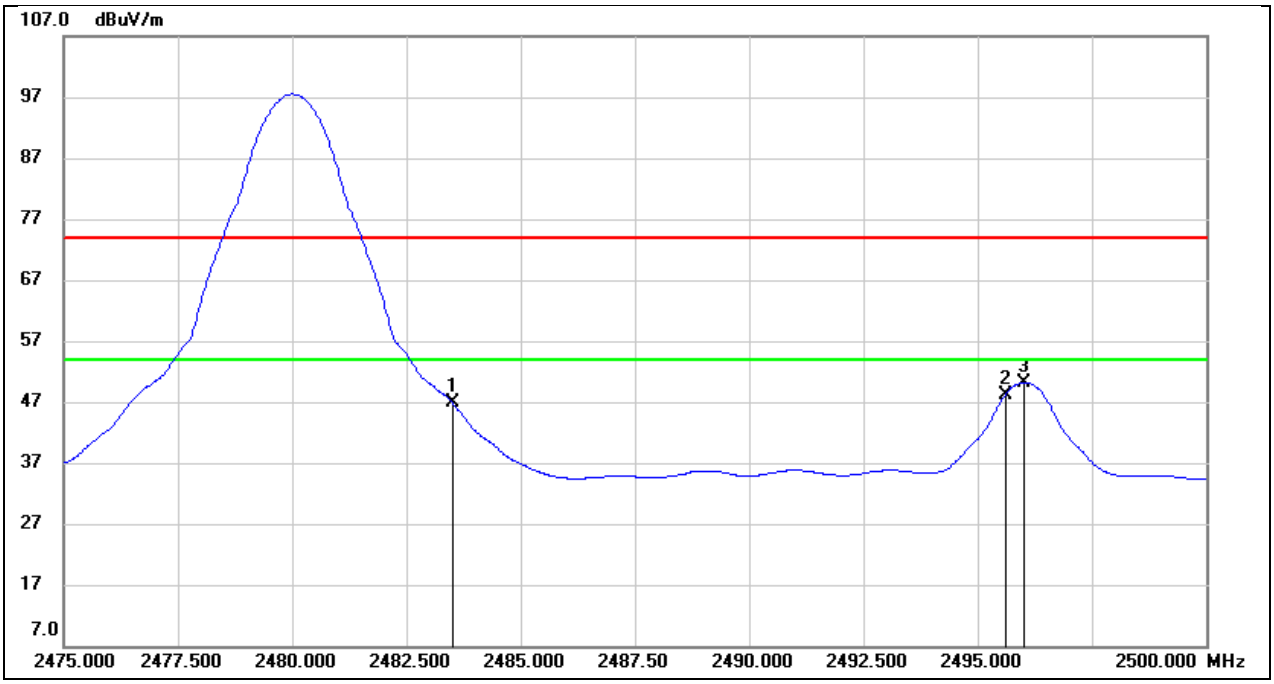
Test Mode:	SDR 2.4G PK	Frequency(MHz):	2480
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	25.22	32.00	57.22	74.00	-16.78	peak
2	2495.575	23.56	32.03	55.59	74.00	-18.41	peak
3	2496.025	23.02	32.03	55.05	74.00	-18.95	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G AV	Frequency(MHz):	2480
Polarity:	Horizontal	Test Voltage:	DC 3.7V

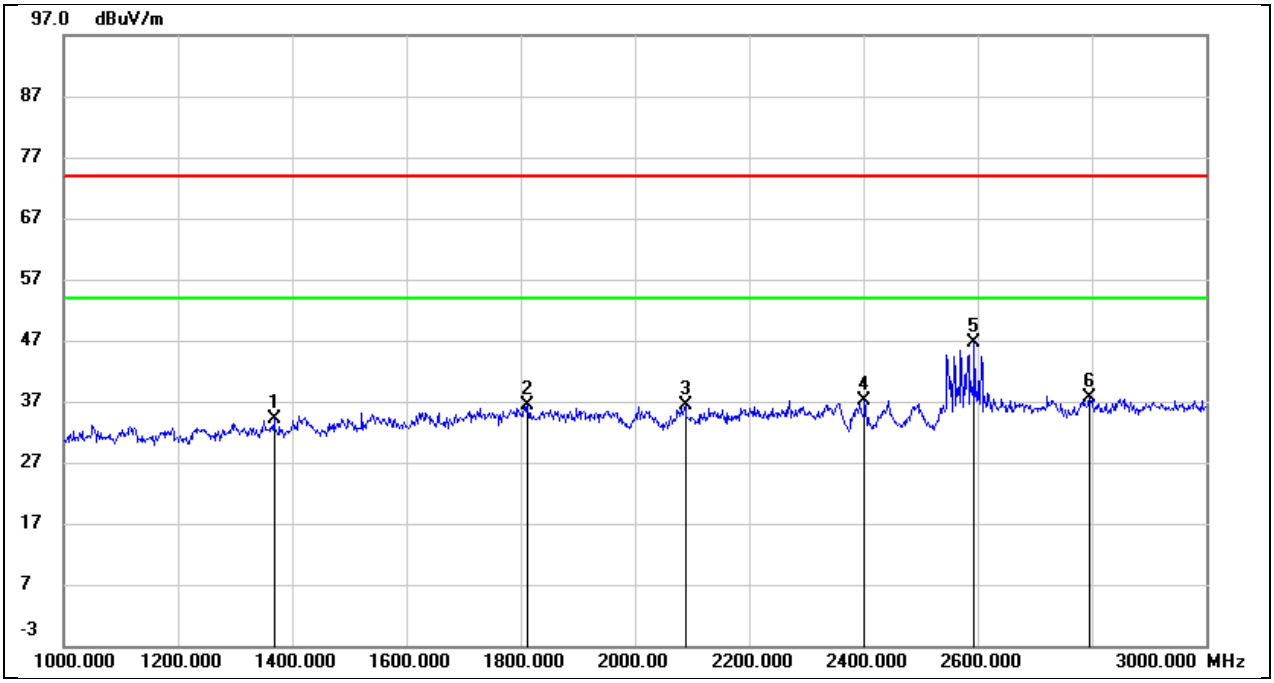


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	14.84	32.00	46.84	54.00	-7.16	AVG
2	2495.575	16.18	32.03	48.21	54.00	-5.79	AVG
3	2496.025	18.17	32.03	50.20	54.00	-3.80	AVG

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.2. SPURIOUS EMISSIONS(1 GHZ~3 GHZ)

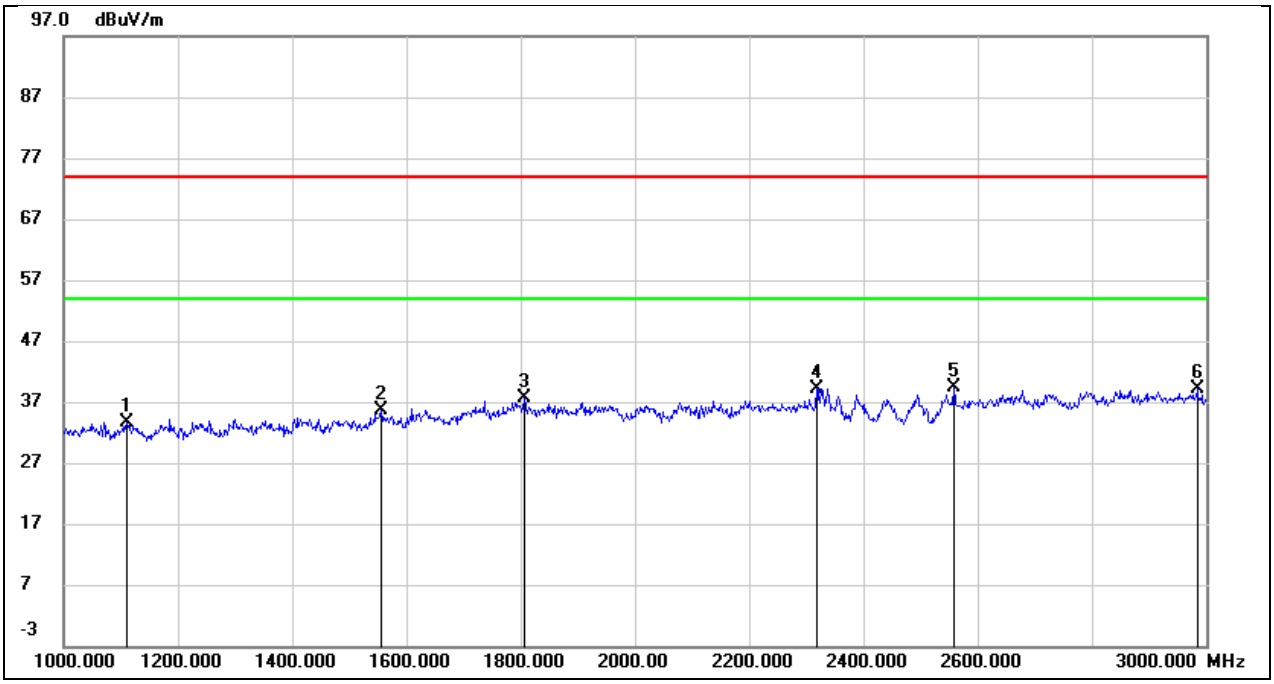
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1368.000	46.67	-12.63	34.04	74.00	-39.96	peak
2	1812.000	46.33	-9.97	36.36	74.00	-37.64	peak
3	2088.000	46.10	-9.76	36.34	74.00	-37.66	peak
4	2402.000	45.68	-8.59	37.09	/	/	Fundamental
5	2594.000	54.31	-7.79	46.52	74.00	-27.48	peak
6	2796.000	44.60	-6.93	37.67	74.00	-36.33	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

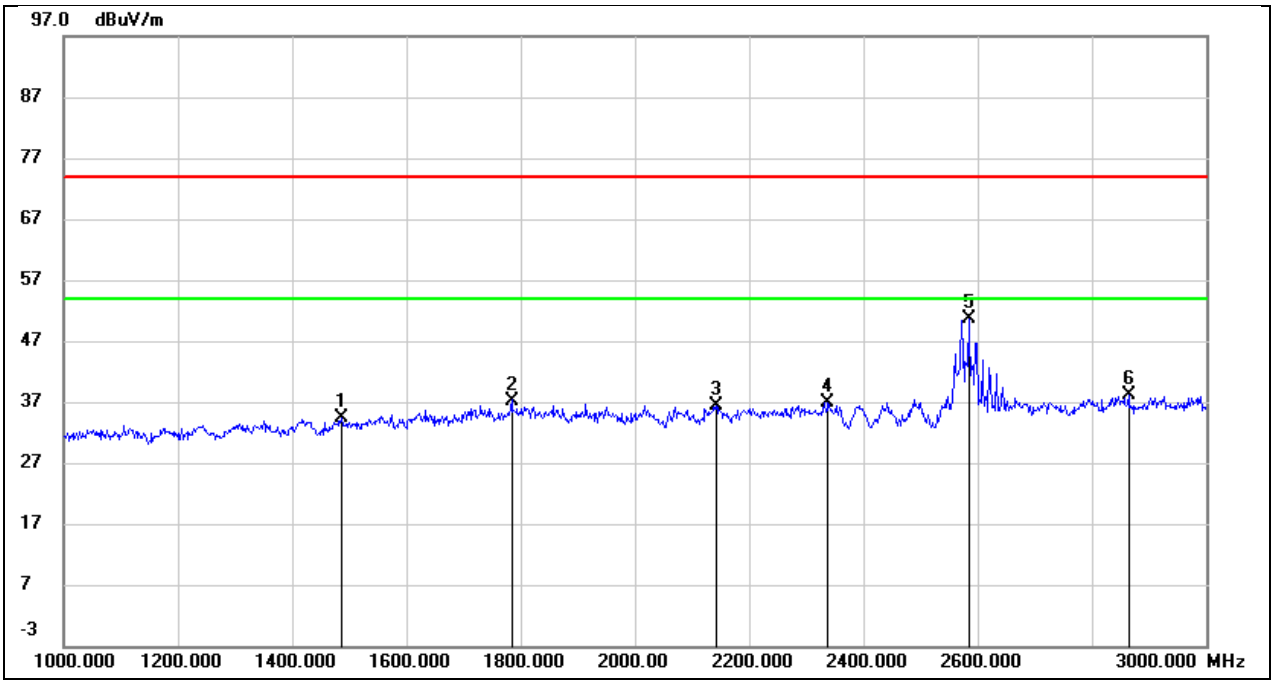
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1110.000	46.91	-13.34	33.57	74.00	-40.43	peak
2	1556.000	47.07	-11.41	35.66	74.00	-38.34	peak
3	1806.000	47.12	-9.38	37.74	74.00	-36.26	peak
4	2318.000	47.31	-8.06	39.25	74.00	-34.75	peak
5	2558.000	46.49	-7.09	39.40	74.00	-34.60	peak
6	2984.000	44.05	-4.80	39.25	74.00	-34.75	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

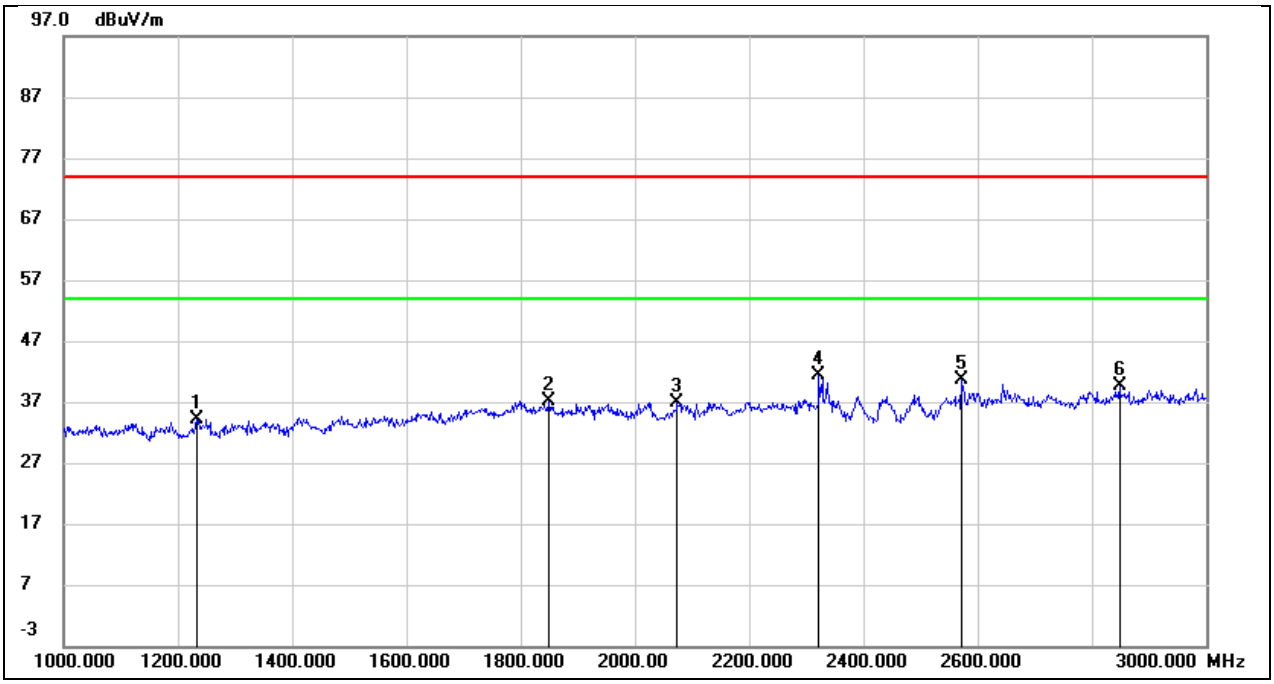
Test Mode:	SDR 2.4G	Frequency(MHz):	2440
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1486.000	46.26	-11.96	34.30	74.00	-39.70	peak
2	1784.000	47.33	-10.08	37.25	74.00	-36.75	peak
3	2142.000	45.82	-9.56	36.26	74.00	-37.74	peak
4	2338.000	45.76	-8.82	36.94	74.00	-37.06	peak
5	2584.000	58.48	-7.83	50.65	74.00	-23.35	peak
6	2864.000	44.72	-6.62	38.10	74.00	-35.90	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

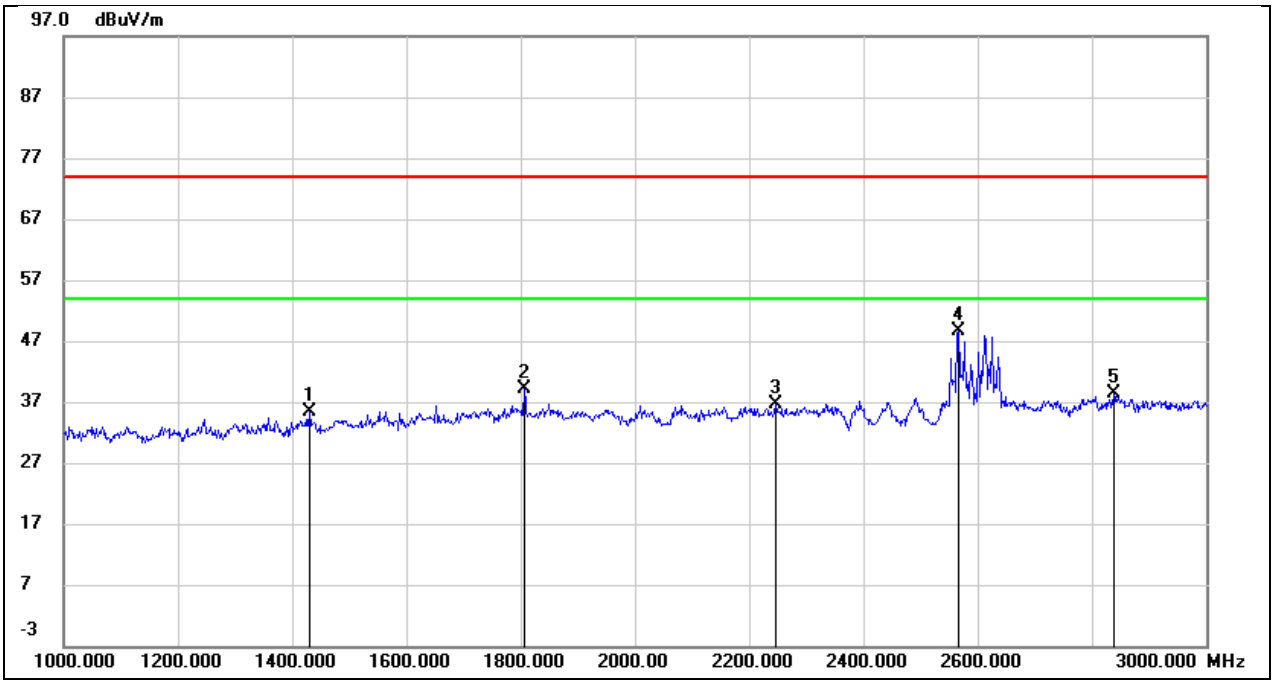
Test Mode:	SDR 2.4G	Frequency(MHz):	2440
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1232.000	46.97	-12.88	34.09	74.00	-39.91	peak
2	1850.000	46.44	-9.34	37.10	74.00	-36.90	peak
3	2074.000	45.92	-8.94	36.98	74.00	-37.02	peak
4	2322.000	49.42	-8.05	41.37	74.00	-32.63	peak
5	2572.000	47.62	-7.02	40.60	74.00	-33.40	peak
6	2848.000	45.20	-5.56	39.64	74.00	-34.36	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

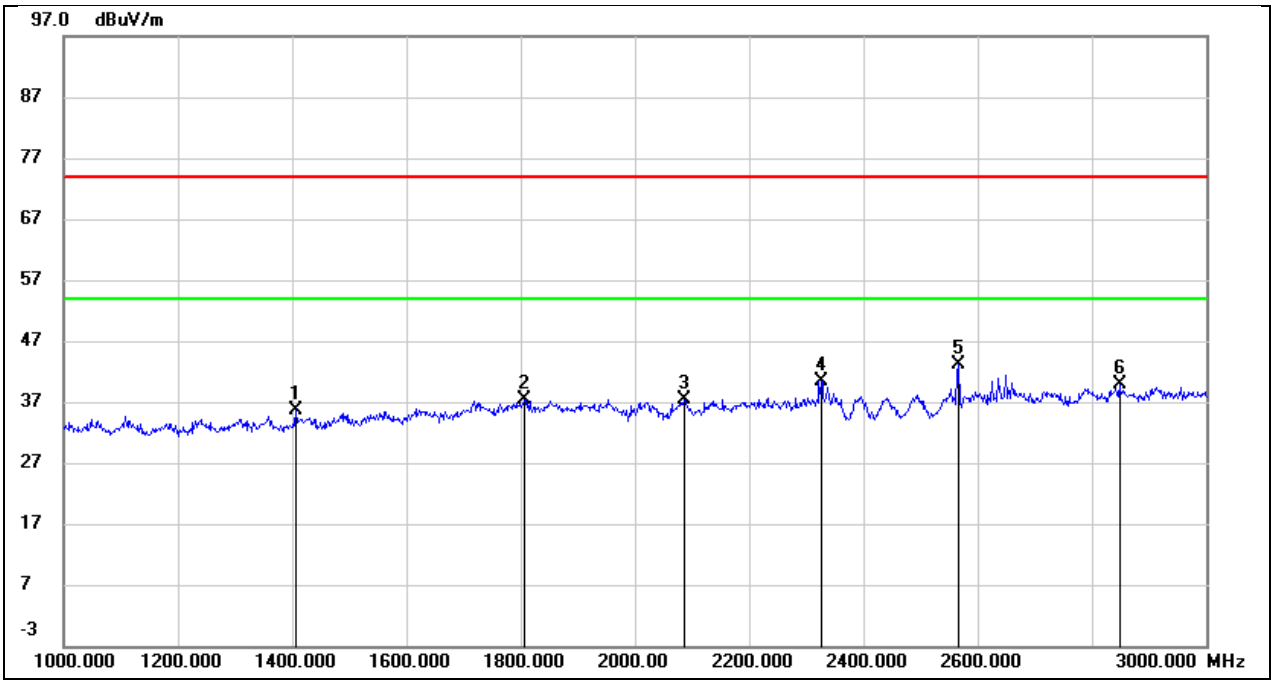
Test Mode:	SDR 2.4G	Frequency(MHz):	2480
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1430.000	47.74	-12.28	35.46	74.00	-38.54	peak
2	1806.000	49.00	-9.97	39.03	74.00	-34.97	peak
3	2246.000	45.69	-9.17	36.52	74.00	-37.48	peak
4	2566.000	56.50	-7.91	48.59	74.00	-25.41	peak
5	2838.000	45.13	-6.75	38.38	74.00	-35.62	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G	Frequency(MHz):	2480
Polarity:	Vertical	Test Voltage:	DC 3.7V

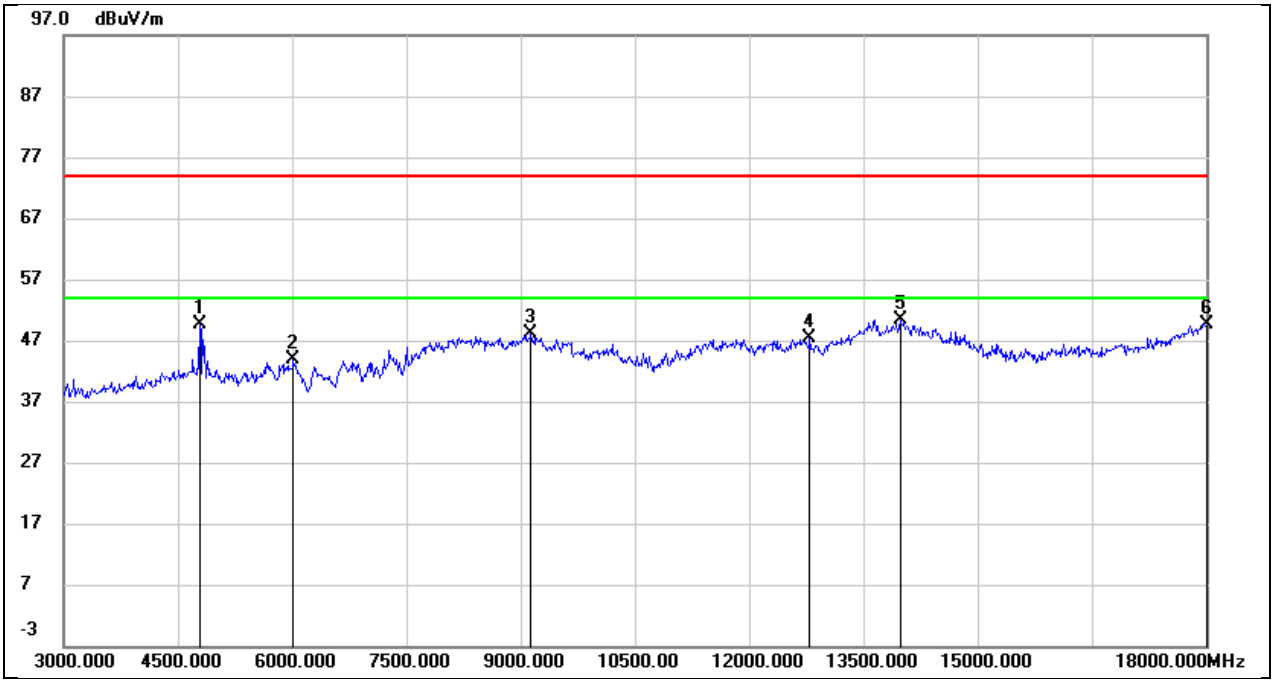


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1406.000	47.82	-12.21	35.61	74.00	-38.39	peak
2	1806.000	46.82	-9.38	37.44	74.00	-36.56	peak
3	2086.000	46.25	-8.90	37.35	74.00	-36.65	peak
4	2326.000	48.51	-8.03	40.48	74.00	-33.52	peak
5	2566.000	50.16	-7.04	43.12	74.00	-30.88	peak
6	2848.000	45.32	-5.56	39.76	74.00	-34.24	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.3. SPURIOUS EMISSIONS(3 GHZ~18 GHZ)

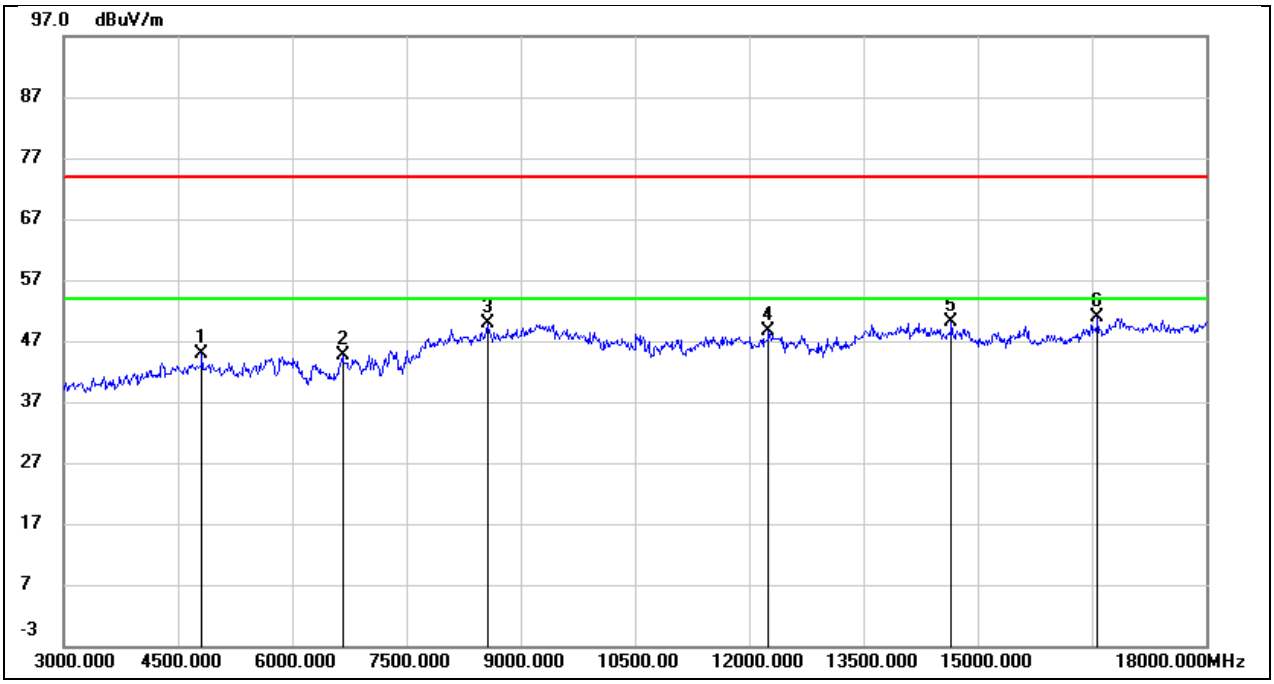
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4785.000	49.22	0.43	49.65	74.00	-24.35	peak
2	6015.000	40.63	3.20	43.83	74.00	-30.17	peak
3	9135.000	37.21	10.80	48.01	74.00	-25.99	peak
4	12795.000	27.90	19.48	47.38	74.00	-26.62	peak
5	13980.000	26.67	23.71	50.38	74.00	-23.62	peak
6	18000.000	20.06	29.64	49.70	74.00	-24.30	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

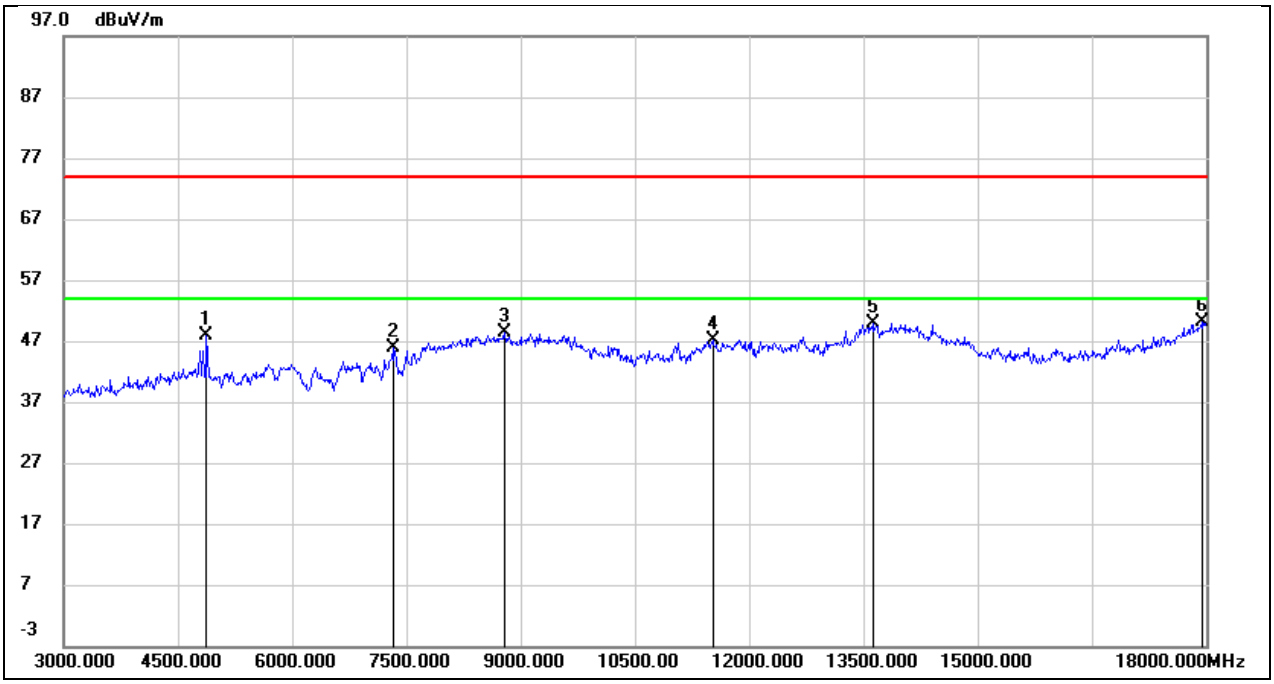
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	43.30	1.59	44.89	74.00	-29.11	peak
2	6660.000	38.48	6.14	44.62	74.00	-29.38	peak
3	8565.000	40.01	9.78	49.79	74.00	-24.21	peak
4	12255.000	30.73	17.80	48.53	74.00	-25.47	peak
5	14655.000	28.98	21.26	50.24	74.00	-23.76	peak
6	16575.000	26.54	24.28	50.82	74.00	-23.18	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

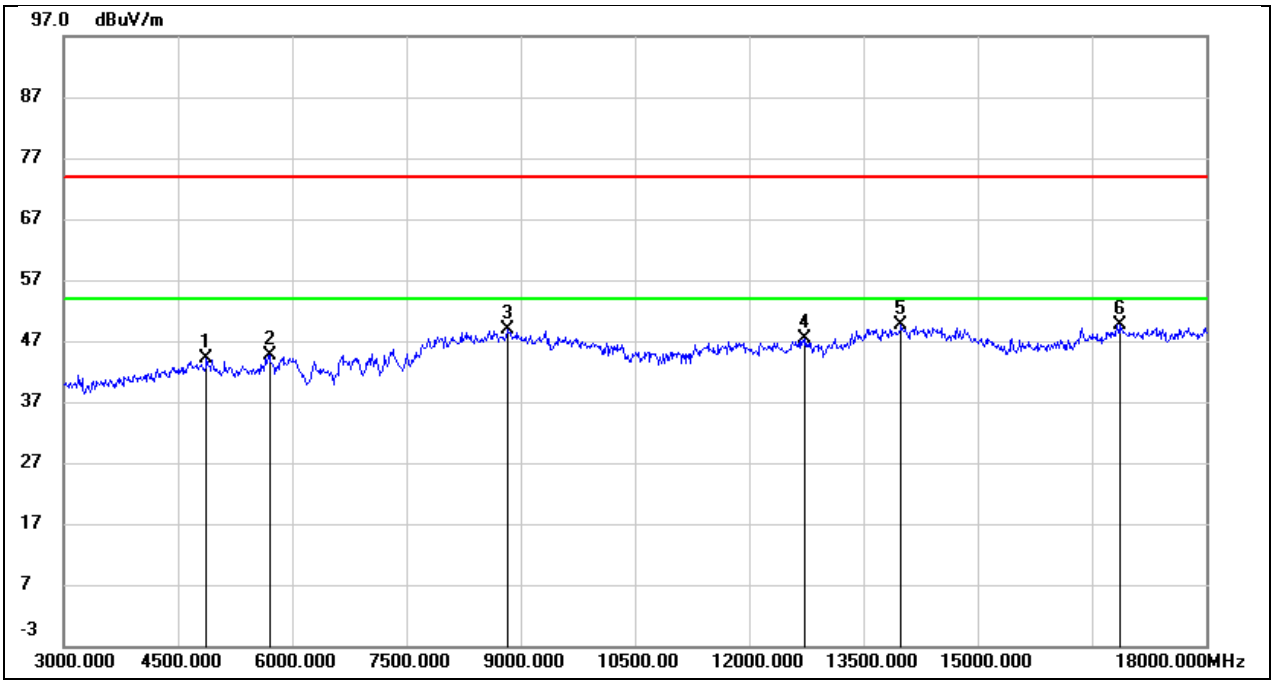
Test Mode:	SDR 2.4G	Frequency(MHz):	2440
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	47.16	0.65	47.81	74.00	-26.19	peak
2	7320.000	38.83	7.05	45.88	74.00	-28.12	peak
3	8790.000	38.86	9.55	48.41	74.00	-25.59	peak
4	11520.000	29.05	18.01	47.06	74.00	-26.94	peak
5	13620.000	27.32	22.65	49.97	74.00	-24.03	peak
6	17940.000	21.12	29.03	50.15	74.00	-23.85	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

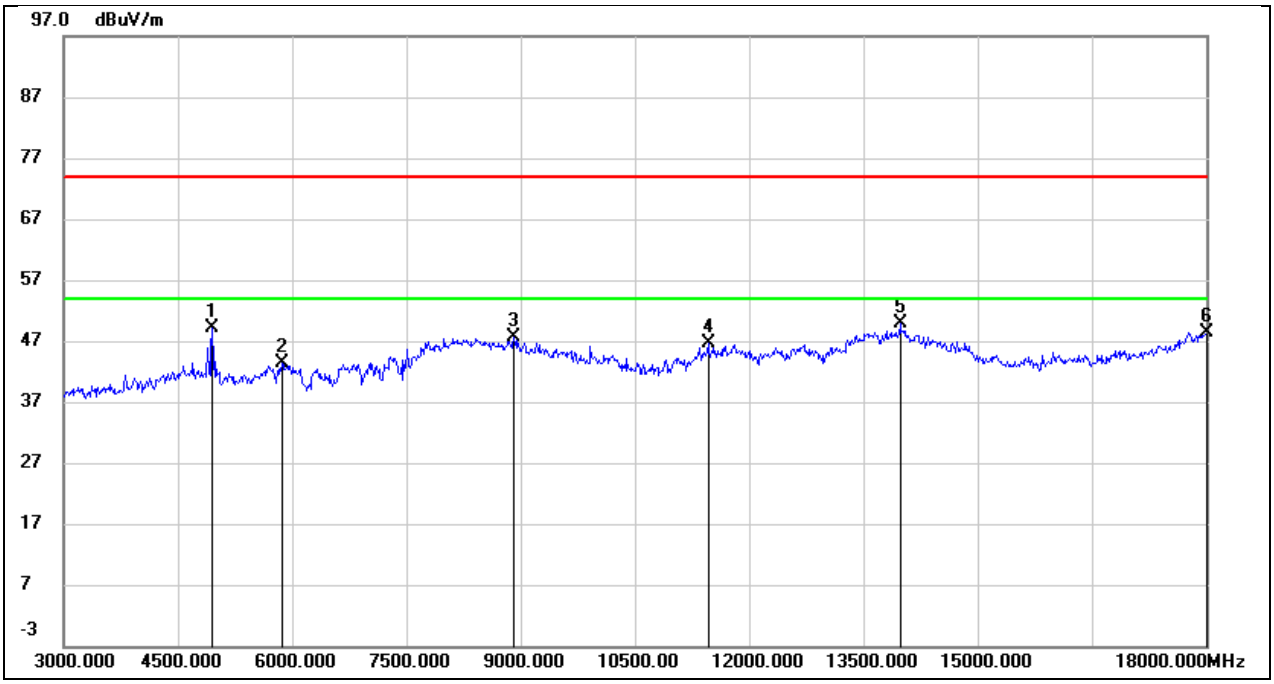
Test Mode:	SDR 2.4G	Frequency(MHz):	2440
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	42.37	1.78	44.15	74.00	-29.85	peak
2	5700.000	40.93	3.65	44.58	74.00	-29.42	peak
3	8820.000	38.70	10.10	48.80	74.00	-25.20	peak
4	12735.000	29.15	18.29	47.44	74.00	-26.56	peak
5	13995.000	27.42	22.18	49.60	74.00	-24.40	peak
6	16860.000	24.73	25.00	49.73	74.00	-24.27	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

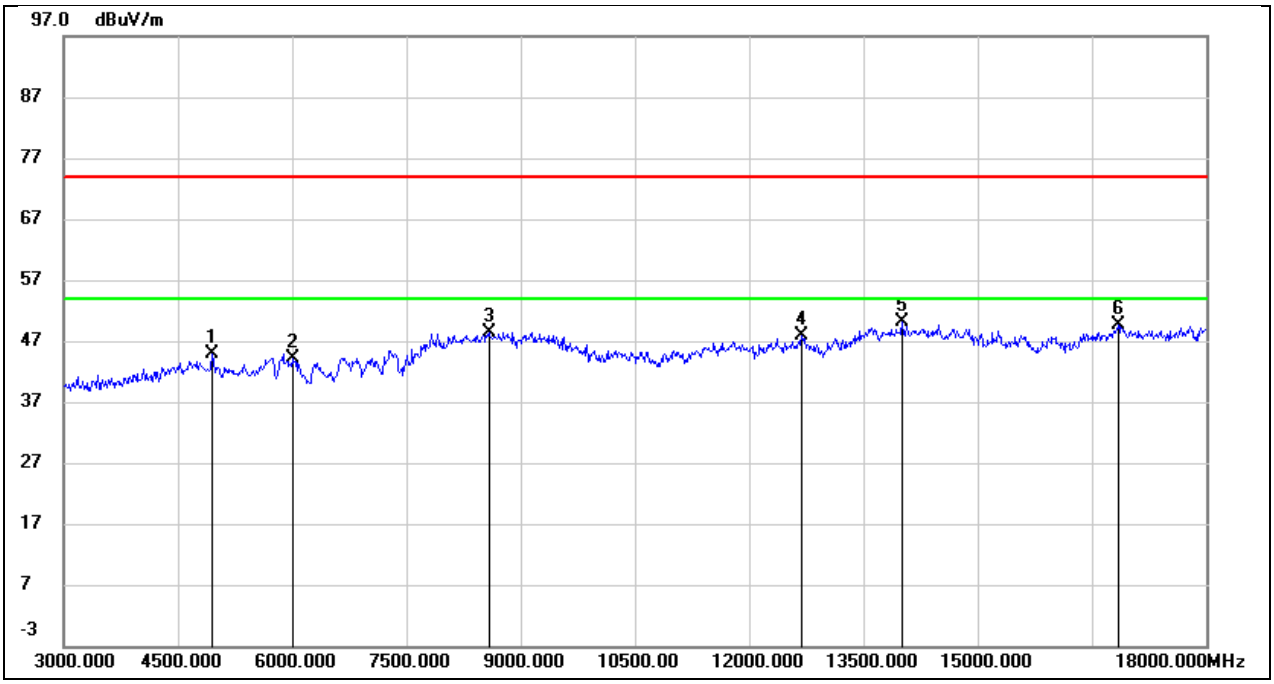
Test Mode:	SDR 2.4G	Frequency(MHz):	2480
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	48.18	0.83	49.01	74.00	-24.99	peak
2	5865.000	40.40	2.86	43.26	74.00	-30.74	peak
3	8910.000	37.78	9.89	47.67	74.00	-26.33	peak
4	11460.000	28.68	17.83	46.51	74.00	-27.49	peak
5	13980.000	26.20	23.71	49.91	74.00	-24.09	peak
6	18000.000	18.84	29.64	48.48	74.00	-25.52	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G	Frequency(MHz):	2480
Polarity:	Vertical	Test Voltage:	DC 3.7V

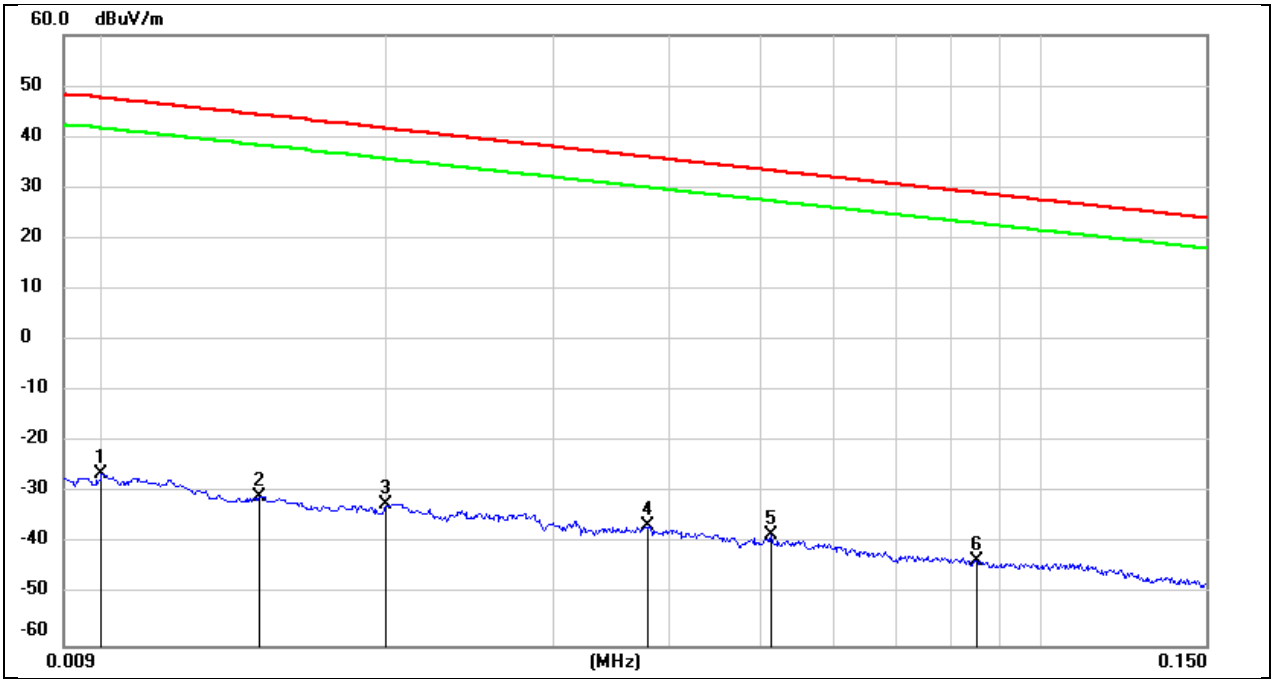


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	42.97	2.00	44.97	74.00	-29.03	peak
2	6000.000	39.88	4.13	44.01	74.00	-29.99	peak
3	8580.000	38.66	9.82	48.48	74.00	-25.52	peak
4	12690.000	29.58	18.19	47.77	74.00	-26.23	peak
5	14010.000	27.81	22.20	50.01	74.00	-23.99	peak
6	16845.000	24.52	24.99	49.51	74.00	-24.49	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.4. SPURIOUS EMISSIONS(9 KHZ~30 MHZ)

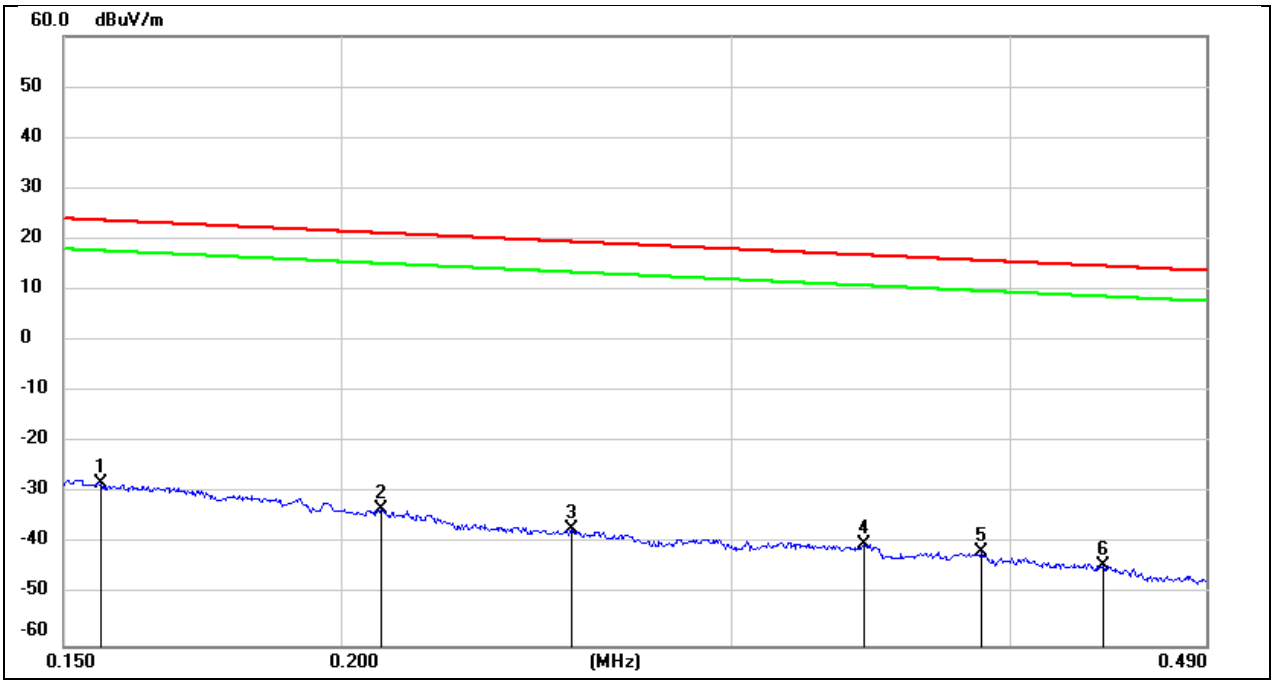
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.0100	75.22	-101.40	-26.18	47.60	-77.68	-3.90	-73.78	peak
2	0.0146	70.64	-101.37	-30.73	44.31	-82.23	-7.19	-75.04	peak
3	0.0200	69.23	-101.34	-32.11	41.58	-83.61	-9.92	-73.69	peak
4	0.0379	65.07	-101.42	-36.35	36.03	-87.85	-15.47	-72.38	peak
5	0.0514	63.18	-101.48	-38.30	33.38	-89.80	-18.12	-71.68	peak
6	0.0854	58.35	-101.68	-43.33	28.97	-94.83	-22.53	-72.30	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

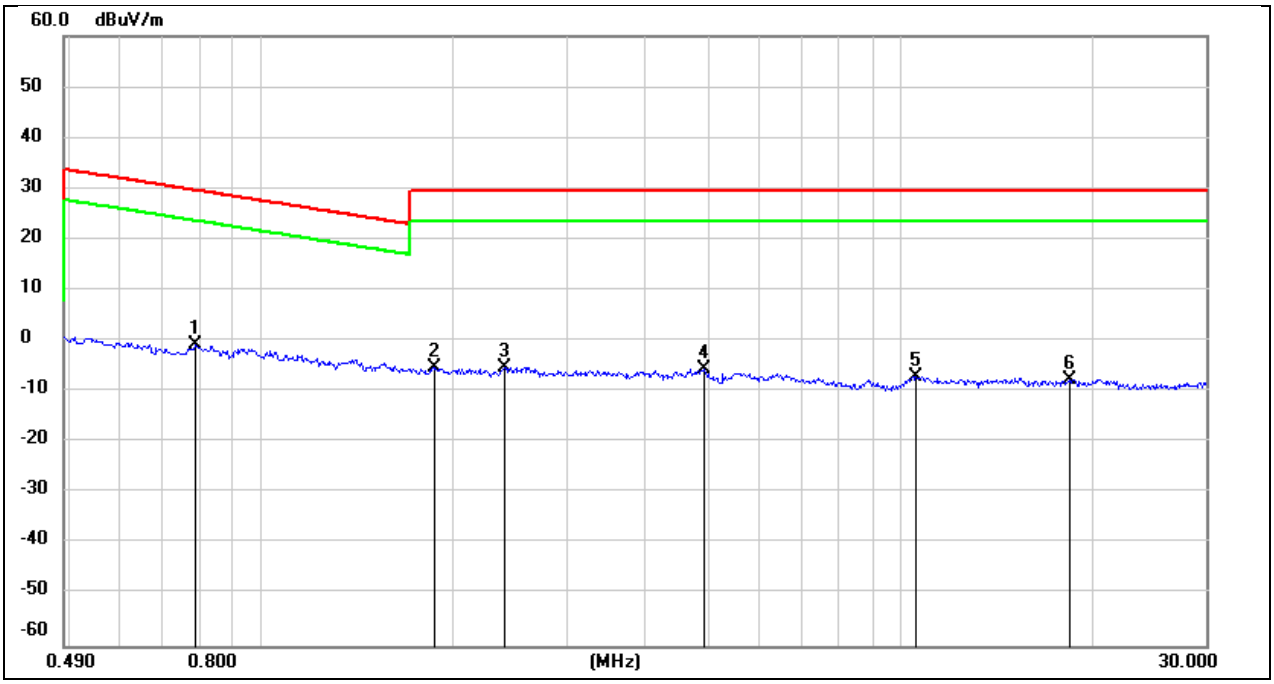
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.1559	73.65	-101.65	-28.00	23.74	-79.50	-27.76	-51.74	peak
2	0.2084	68.47	-101.73	-33.26	21.22	-84.76	-30.28	-54.48	peak
3	0.2535	64.64	-101.80	-37.16	19.52	-88.66	-31.98	-56.68	peak
4	0.3441	61.88	-101.90	-40.02	16.87	-91.52	-34.63	-56.89	peak
5	0.3881	60.40	-101.95	-41.55	15.82	-93.05	-35.68	-57.37	peak
6	0.4405	57.68	-102.01	-44.33	14.72	-95.83	-36.78	-59.05	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V

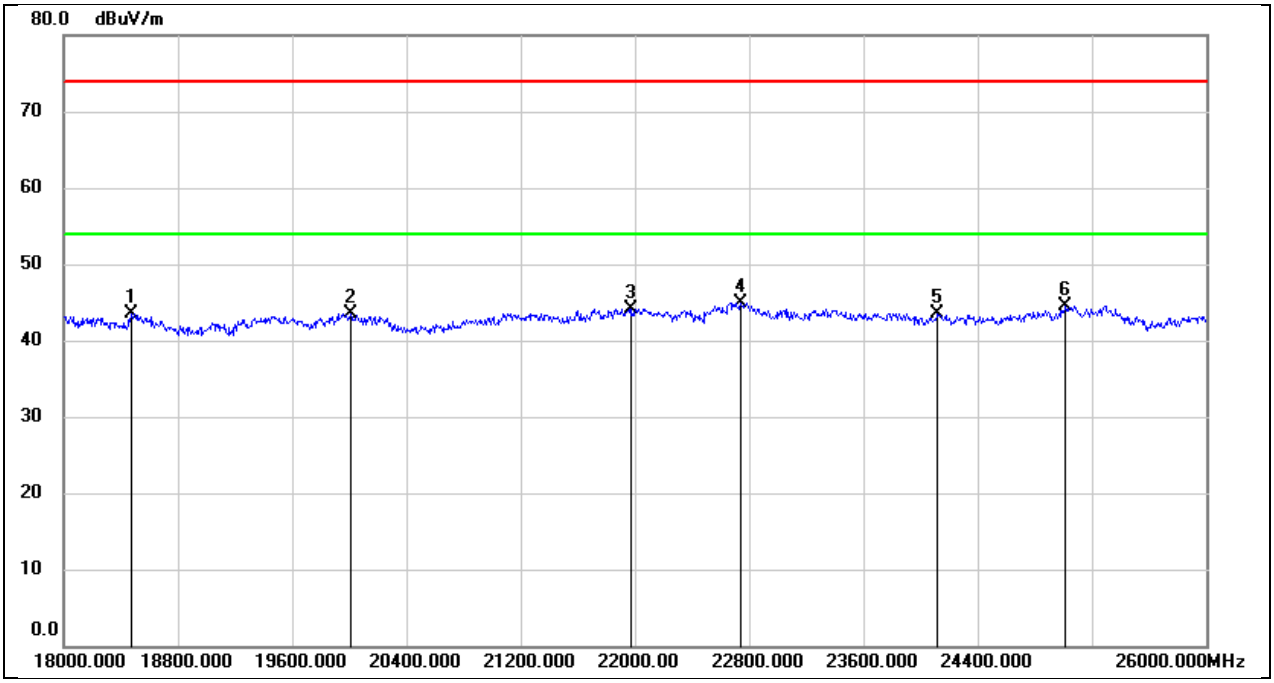


No.	Frequency	Reading	Correct	FCC Result	FCC Limit	ISED Result	ISED Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.7861	61.33	-62.14	-0.81	29.69	-52.31	-21.81	-30.50	peak
2	1.8585	56.69	-61.88	-5.19	29.54	-56.69	-21.96	-34.73	peak
3	2.4081	56.39	-61.72	-5.33	29.54	-56.83	-21.96	-34.87	peak
4	4.9165	55.88	-61.48	-5.60	29.54	-57.10	-21.96	-35.14	peak
5	10.5823	53.82	-60.82	-7.00	29.54	-58.50	-21.96	-36.54	peak
6	18.3429	53.36	-60.90	-7.54	29.54	-59.04	-21.96	-37.08	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.5. SPURIOUS EMISSIONS(18 GHZ~26 GHZ)

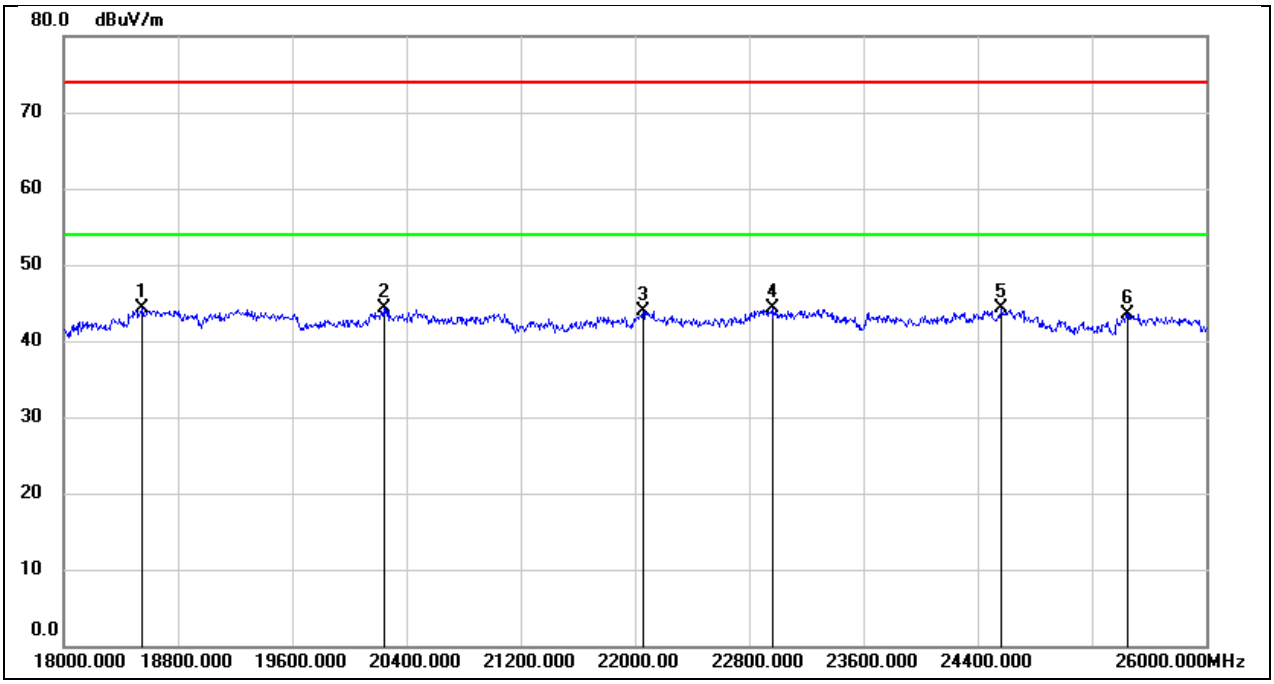
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18472.000	48.76	-5.28	43.48	74.00	-30.52	peak
2	20008.000	49.03	-5.46	43.57	74.00	-30.43	peak
3	21976.000	48.57	-4.47	44.10	74.00	-29.90	peak
4	22736.000	48.63	-3.70	44.93	74.00	-29.07	peak
5	24120.000	46.37	-2.79	43.58	74.00	-30.42	peak
6	25016.000	46.65	-2.07	44.58	74.00	-29.42	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V

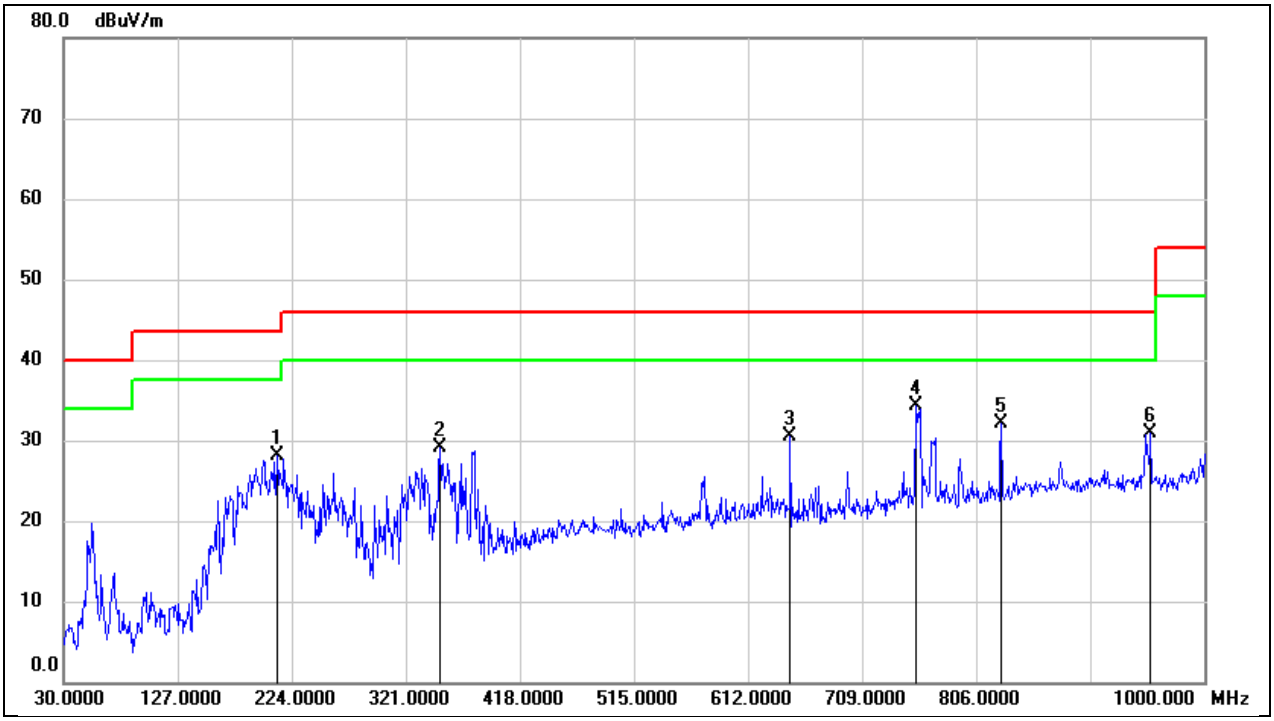


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18552.000	49.54	-5.28	44.26	74.00	-29.74	peak
2	20240.000	49.82	-5.61	44.21	74.00	-29.79	peak
3	22056.000	48.43	-4.43	44.00	74.00	-30.00	peak
4	22960.000	47.76	-3.48	44.28	74.00	-29.72	peak
5	24568.000	46.60	-2.33	44.27	74.00	-29.73	peak
6	25448.000	45.24	-1.76	43.48	74.00	-30.52	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.6. SPURIOUS EMISSIONS(30 MHZ~1 GHZ)

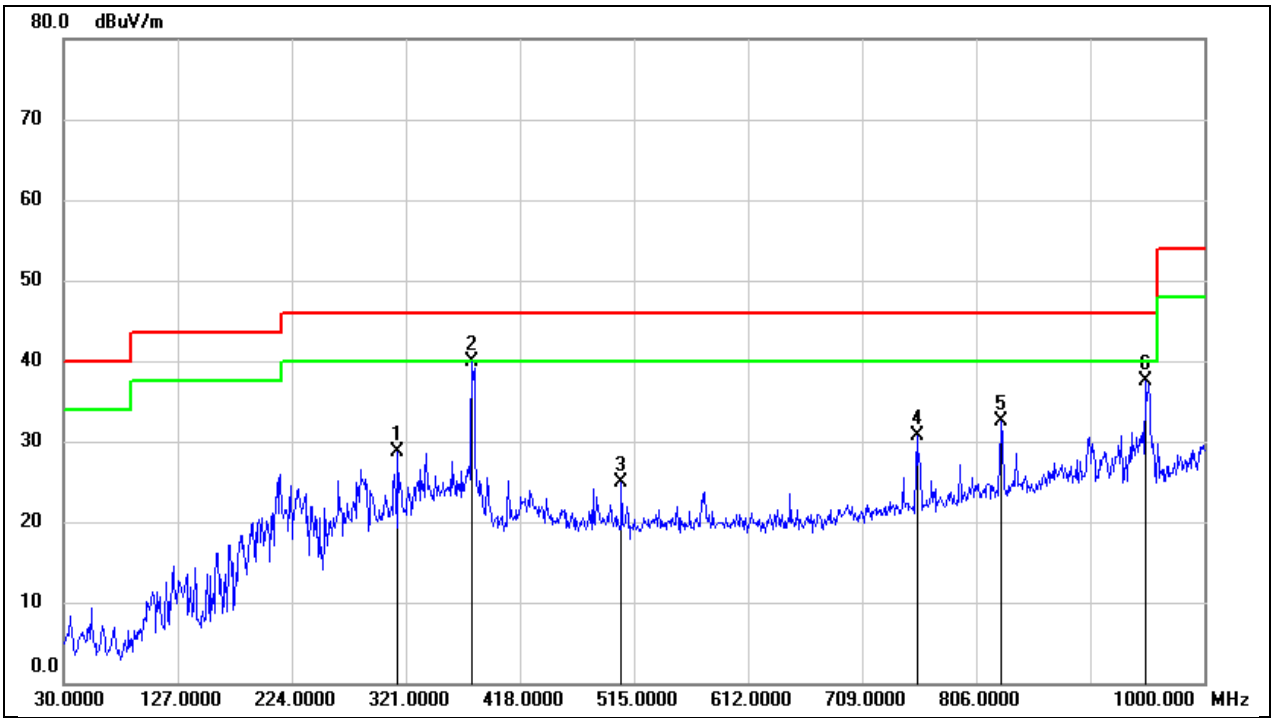
Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Horizontal	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	211.3900	40.80	-12.75	28.05	43.50	-15.45	QP
2	350.1000	38.59	-9.53	29.06	46.00	-16.94	QP
3	647.8900	36.13	-5.61	30.52	46.00	-15.48	QP
4	754.5900	37.74	-3.39	34.35	46.00	-11.65	QP
5	827.3400	33.98	-1.96	32.02	46.00	-13.98	QP
6	954.4100	31.64	-0.74	30.90	46.00	-15.10	QP

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SDR 2.4G	Frequency(MHz):	2402
Polarity:	Vertical	Test Voltage:	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	314.2100	39.66	-10.95	28.71	46.00	-17.29	QP
2	377.2600	49.53	-9.62	39.91	46.00	-6.09	QP
3	504.3300	32.51	-7.62	24.89	46.00	-21.11	QP
4	755.5600	33.97	-3.35	30.62	46.00	-15.38	QP
5	827.3400	34.50	-1.96	32.54	46.00	-13.46	QP
6	950.5300	38.38	-0.82	37.56	46.00	-8.44	QP

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

9. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC part 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.

Please refer to FCC part 15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DESCRIPTION

Pass

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

10. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

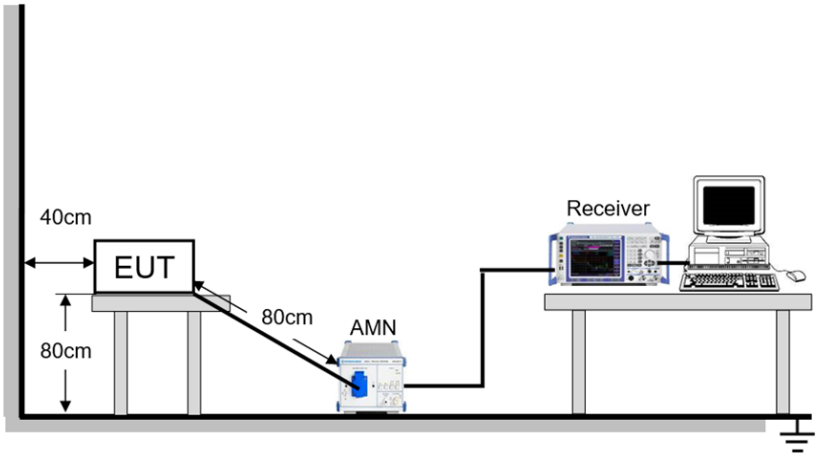
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST SETUP



TEST ENVIRONMENT

Temperature	22.1℃	Relative Humidity	61.2%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V 60Hz

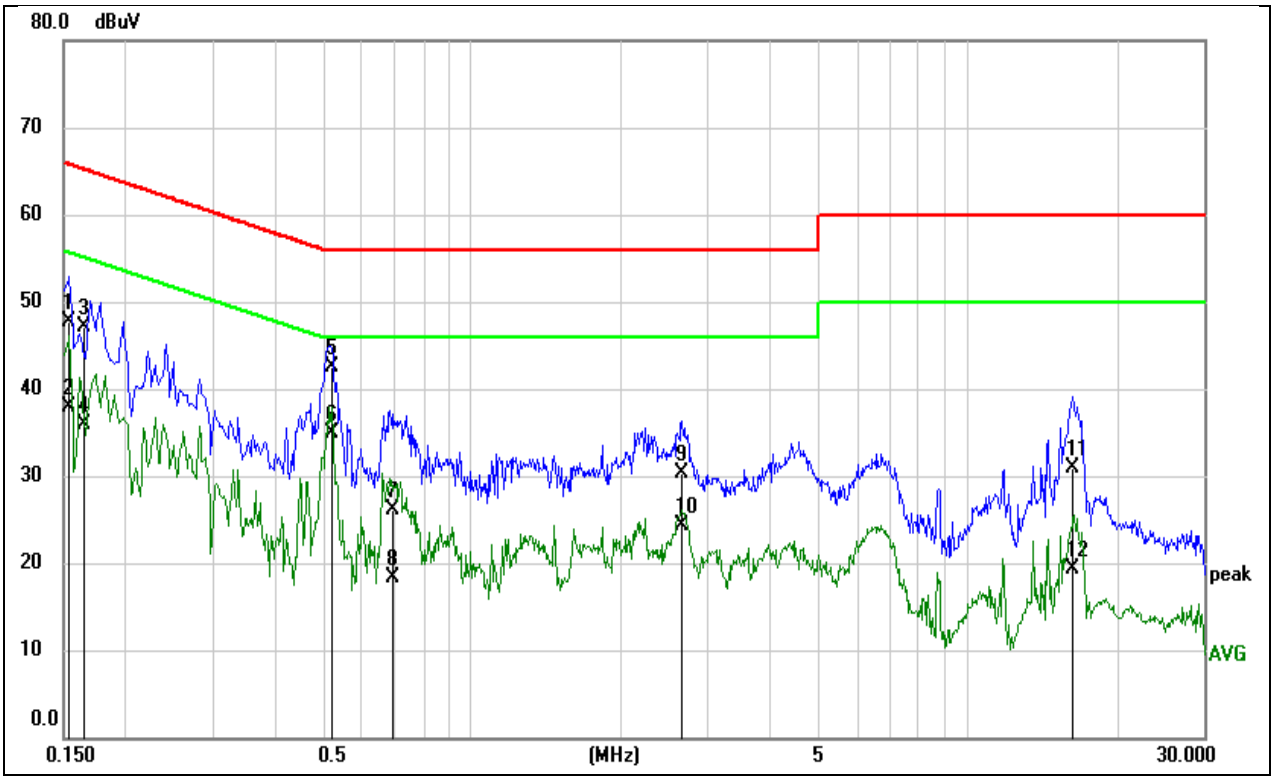
TEST DATE / ENGINEER

Test Date	February 21, 2025	Test By	Johnson Liu

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

TEST RESULTS

Test Mode:	SRD 2.4G	Frequency(MHz):	2402
Line	Line		



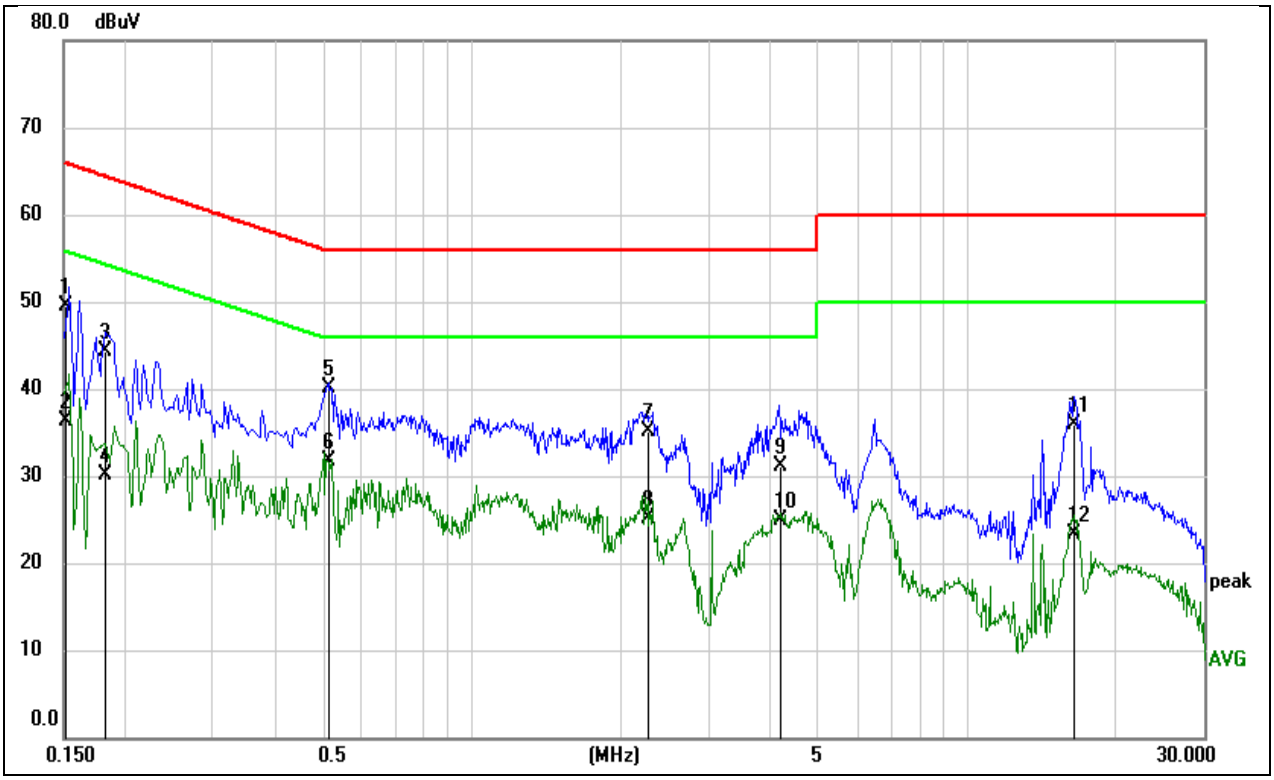
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1538	37.88	9.73	47.61	65.79	-18.18	QP
2	0.1538	28.18	9.73	37.91	55.79	-17.88	AVG
3	0.1658	37.35	9.71	47.06	65.17	-18.11	QP
4	0.1658	26.20	9.71	35.91	55.17	-19.26	AVG
5	0.5224	32.78	9.64	42.42	56.00	-13.58	QP
6	0.5224	25.17	9.64	34.81	46.00	-11.19	AVG
7	0.6913	16.51	9.63	26.14	56.00	-29.86	QP
8	0.6913	8.68	9.63	18.31	46.00	-27.69	AVG
9	2.6614	20.49	9.73	30.22	56.00	-25.78	QP
10	2.6614	14.53	9.73	24.26	46.00	-21.74	AVG
11	16.3982	21.24	9.74	30.98	60.00	-29.02	QP
12	16.3982	9.51	9.74	19.25	50.00	-30.75	AVG

Note:
1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	SRD 2.4G	Frequency(MHz):	2402
Line:	Neutral		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1508	39.68	9.74	49.42	65.96	-16.54	QP
2	0.1508	26.54	9.74	36.28	55.96	-19.68	AVG
3	0.1833	34.60	9.67	44.27	64.33	-20.06	QP
4	0.1833	20.50	9.67	30.17	54.33	-24.16	AVG
5	0.5175	30.54	9.64	40.18	56.00	-15.82	QP
6	0.5175	22.16	9.64	31.80	46.00	-14.20	AVG
7	2.2640	25.31	9.74	35.05	56.00	-20.95	QP
8	2.2640	15.35	9.74	25.09	46.00	-20.91	AVG
9	4.1945	21.41	9.73	31.14	56.00	-24.86	QP
10	4.1945	15.16	9.73	24.89	46.00	-21.11	AVG
11	16.4543	26.09	9.74	35.83	60.00	-24.17	QP
12	16.4543	13.53	9.74	23.27	50.00	-26.73	AVG

Note:
1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11. TEST DATA

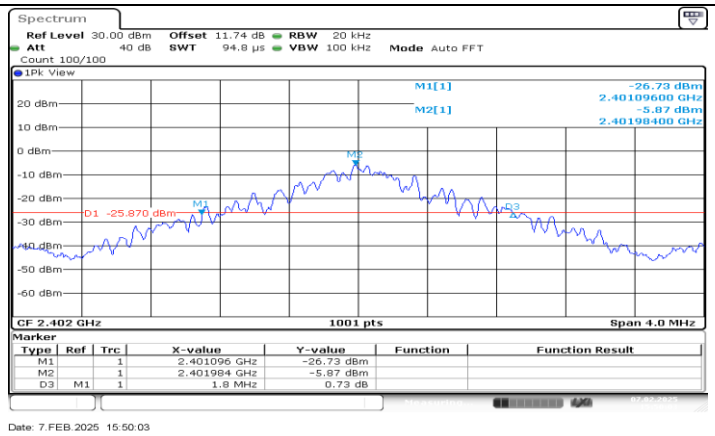
11.1. APPENDIX A: 20DB EMISSION BANDWIDTH

11.1.1. Test Result

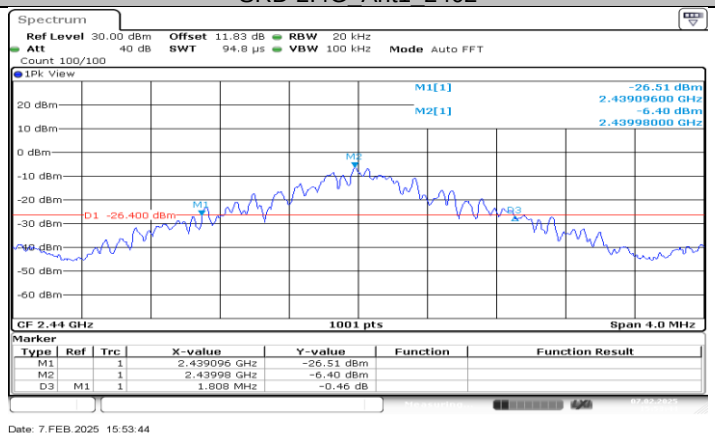
Test Mode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Verdict
SRD 2.4G	Ant1	2402	1.80	2401.10	2402.90	PASS
		2440	1.81	2439.10	2440.90	PASS
		2480	1.95	2479.03	2480.98	PASS

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

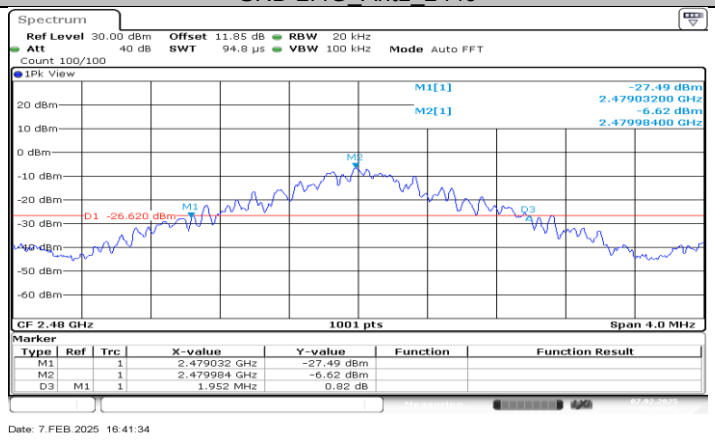
11.1.2. Test Graphs



SRD 2.4G_Ant1_2402



SRD 2.4G_Ant1_2440



SRD 2.4G_Ant1_2480

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

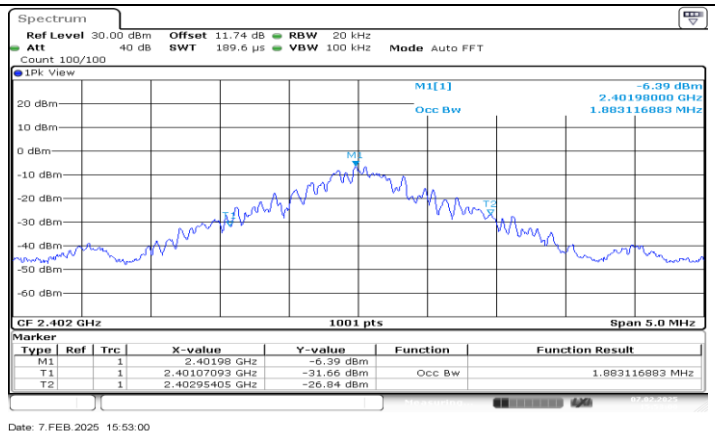
11.2. APPENDIX B: OCCUPIED CHANNEL BANDWIDTH

11.2.1. Test Result

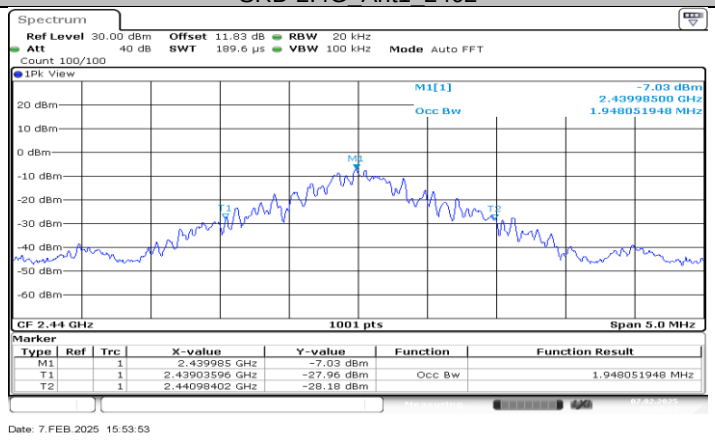
Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
SRD 2.4G	Ant1	2402	1.883	2401.0709	2402.9540	PASS
		2440	1.948	2439.0360	2440.9840	PASS
		2480	1.958	2479.0360	2480.9940	PASS

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

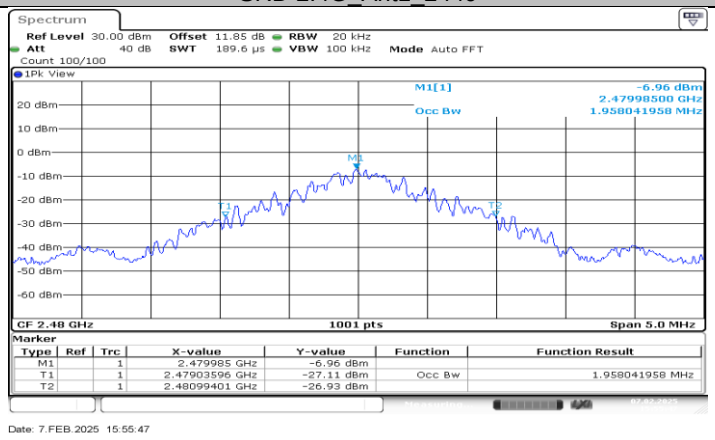
11.2.2. Test Graphs



SRD 2.4G_Ant1_2402



SRD 2.4G_Ant1_2440



SRD 2.4G_Ant1_2480

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11.3. APPENDIX C: MAXIMUM CONDUCTED OUTPUT POWER

11.3.1. Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm]	Limit[dBm]	Verdict
SRD 2.4G	Ant1	2402	1.73	≤20.97	PASS
		2440	1.56	≤20.97	PASS
		2480	1.75	≤20.97	PASS

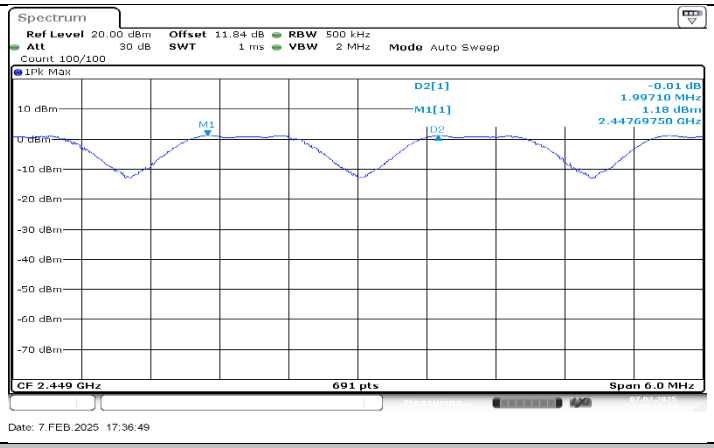
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11.4. APPENDIX D: CARRIER FREQUENCY SEPARATION

11.4.1. Test Result

Test Mode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
SRD 2.4G	Ant1	Hop	1.997	≥1.300	PASS

11.4.2. Test Graphs



SRD 2.4G_Ant1_Hop

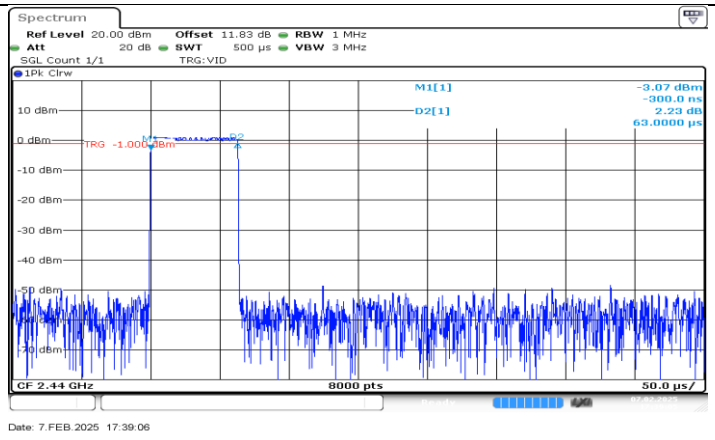
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11.5. APPENDIX E: TIME OF OCCUPANCY

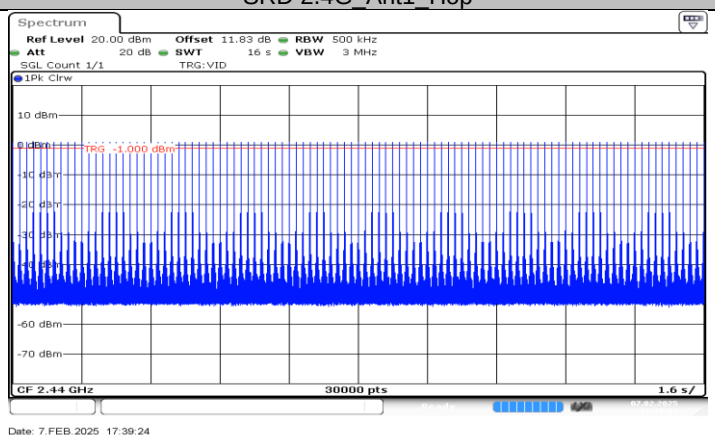
11.5.1. Test Result

Test Mode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
SRD 2.4G	Ant1	Hop	0.063	101	0.006	≤0.4	PASS

11.5.2. Test Graphs



SRD 2.4G_Ant1_Hop



SRD 2.4G_Ant1_Hop

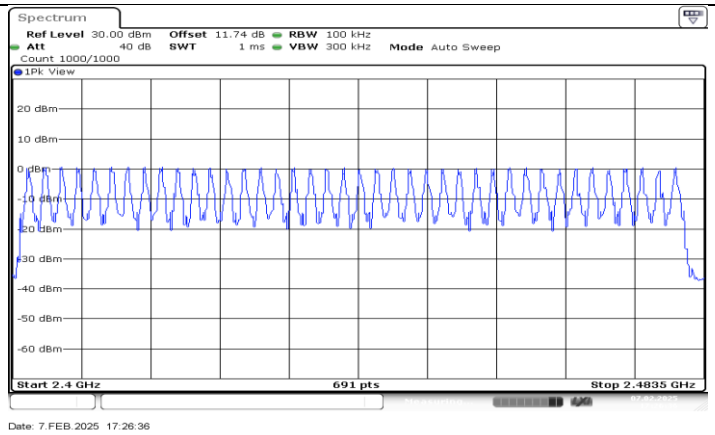
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11.6. APPENDIX F: NUMBER OF HOPPING CHANNELS

11.6.1. Test Result

Test Mode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
SRD 2.4G	Ant1	Hop	40	≥15	PASS

11.6.2. Test Graphs



SRD 2.4G_Ant1_Hop

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

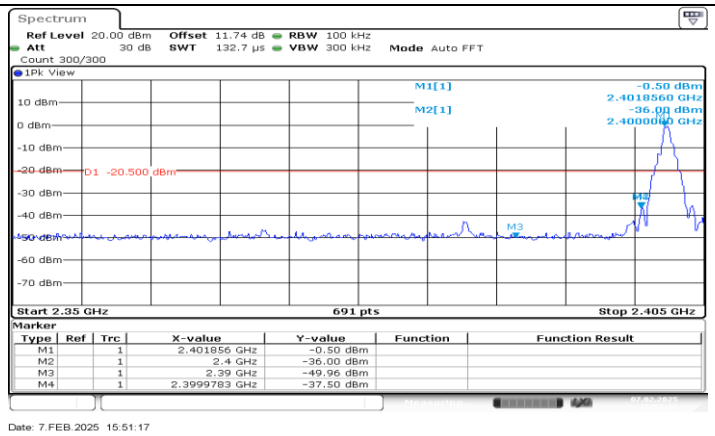
11.7. APPENDIX G: BAND EDGE MEASUREMENTS

11.7.1. Test Result

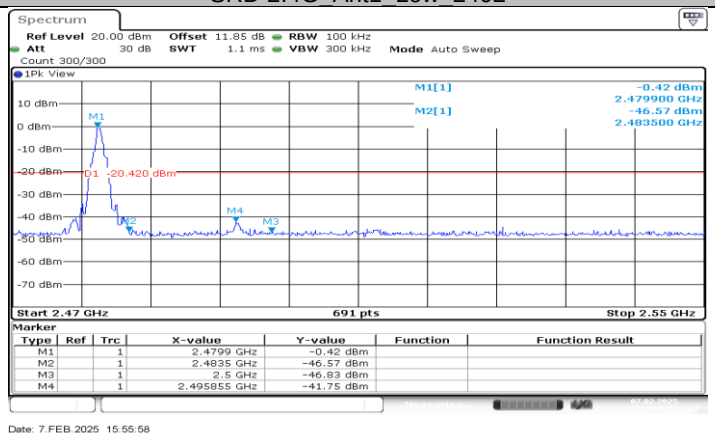
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
SRD 2.4G	Ant1	Low	2402	-0.50	-37.5	≤-20.5	PASS
		High	2480	-0.42	-41.75	≤-20.42	PASS
		Low	Hop_2402	0.67	-38.99	≤-19.33	PASS
		High	Hop_2480	0.36	-44.15	≤-19.64	PASS

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

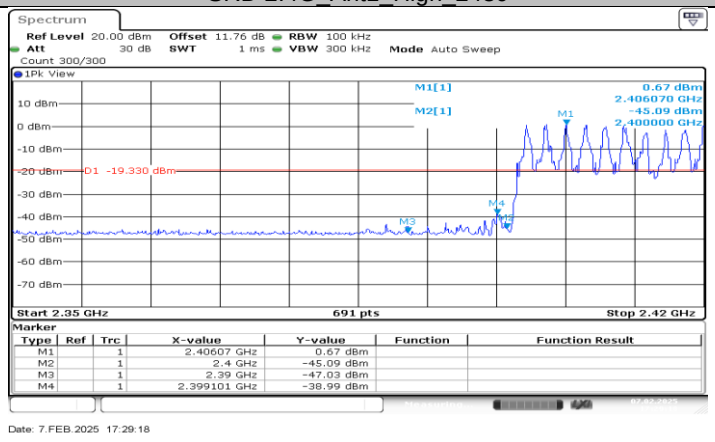
11.7.2. Test Graphs



SRD 2.4G_Ant1_Low_2402

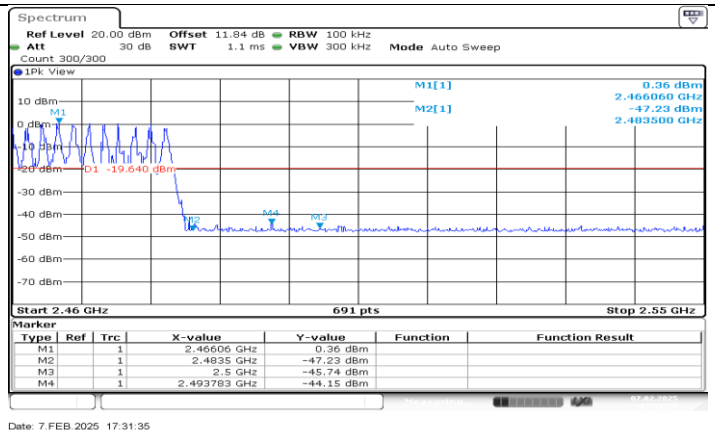


SRD 2.4G_Ant1_High_2480



SRD 2.4G_Ant1_Low_Hop_2402

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



SRD 2.4G_Ant1_High_Hop_2480

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

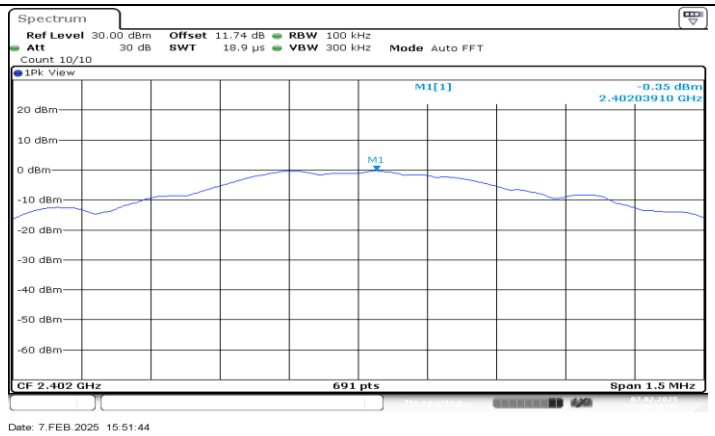
11.8. APPENDIX H: CONDUCTED SPURIOUS EMISSION

11.8.1. Test Result

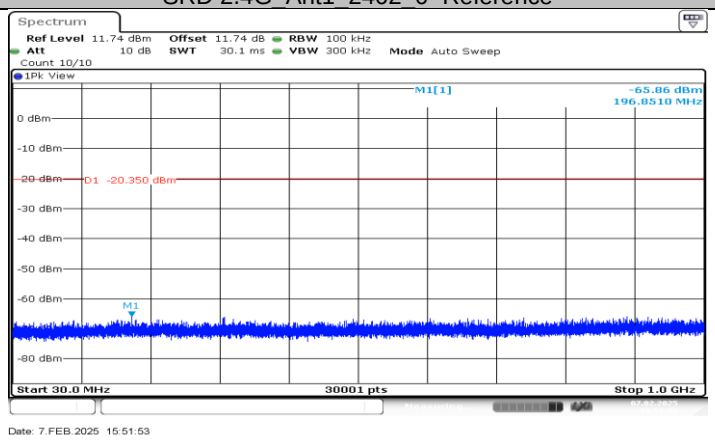
Test Mode	Antenna	Frequency[MHz]	FreqRange [MHz]	Result [dBm]	Limit [dBm]	Verdict
SRD 2.4G	Ant1	2402	Reference	-0.35	---	PASS
			30~1000	-65.86	≤-20.35	PASS
			1000~26500	-46.46	≤-20.35	PASS
		2440	Reference	-0.83	---	PASS
			30~1000	-65.4	≤-20.83	PASS
			1000~26500	-46.58	≤-20.83	PASS
		2480	Reference	-0.53	---	PASS
			30~1000	-65.61	≤-20.53	PASS
			1000~26500	-48.63	≤-20.53	PASS

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

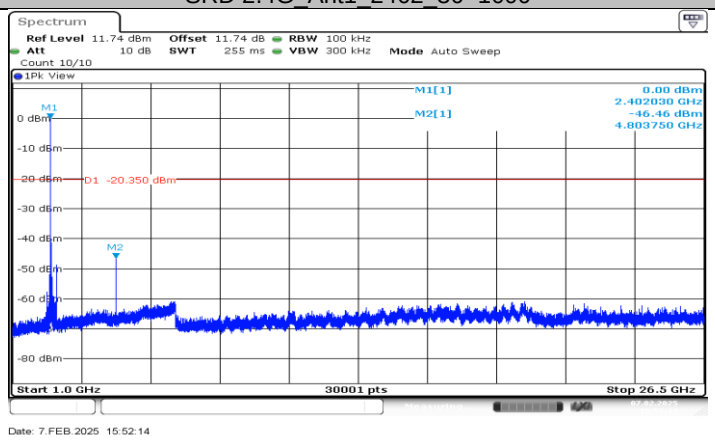
11.8.2. Test Graphs



SRD 2.4G_Ant1_2402_0~Reference

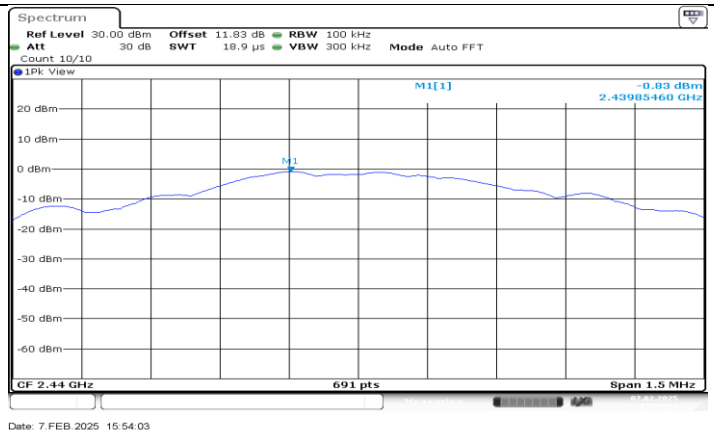


SRD 2.4G_Ant1_2402_30~1000

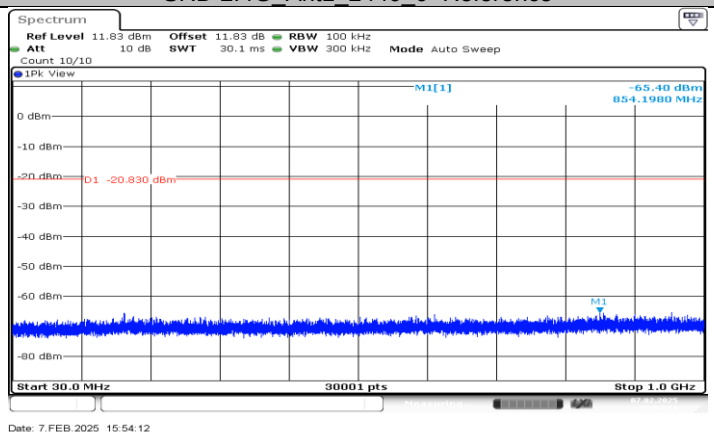


SRD 2.4G_Ant1_2402_1000~26500

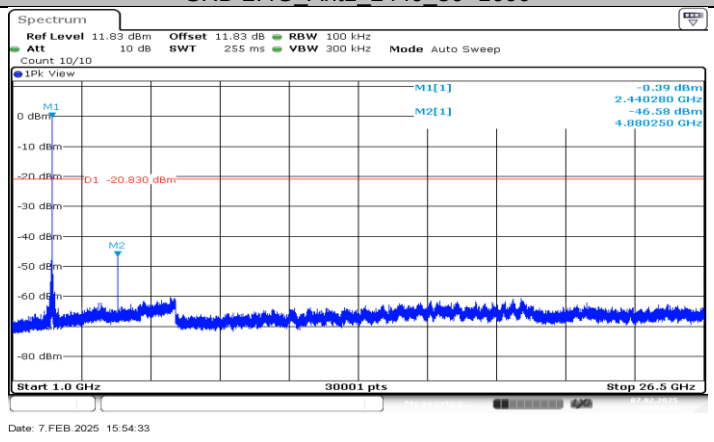
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



SRD 2.4G_Ant1_2440_0~Reference

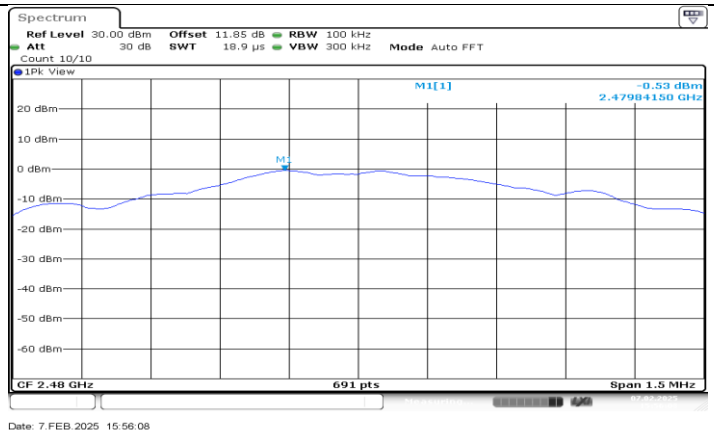


SRD 2.4G_Ant1_2440_30~1000

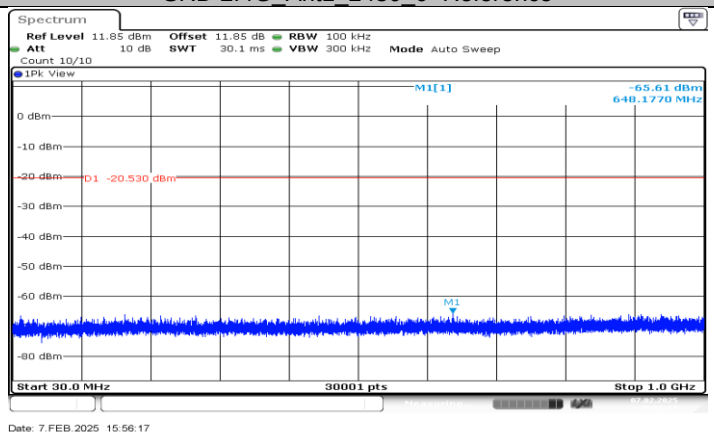


SRD 2.4G_Ant1_2440_1000~26500

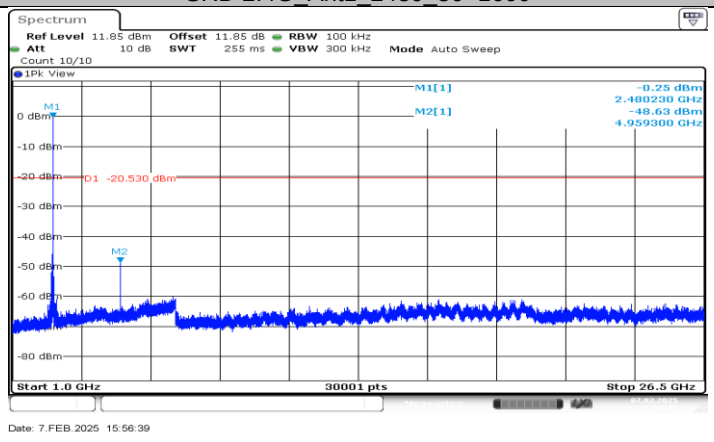
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



SRD 2.4G_Ant1_2480_0~Reference



SRD 2.4G_Ant1_2480_30~1000



SRD 2.4G_Ant1_2480_1000~26500

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

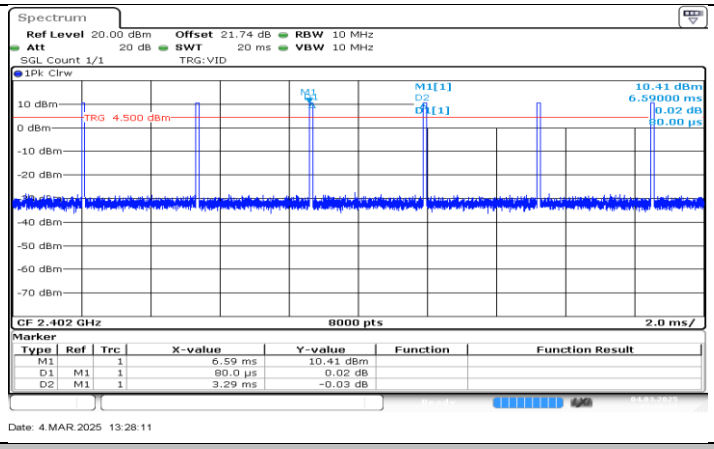
11.9. APPENDIX I: DUTY CYCLE

11.9.1. Test Result

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
SRD 2.4G	0.08	3.29	0.0243	2.43	16.14	12.50	13

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.

11.9.2. Test Graphs



SRD 2.4G_Ant1_2402

END OF REPORT

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.