CFR 47 FCC PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

iDISPLAY 10.1" DISPLAY

MODEL NUMBER: UIT410B-C11, UIT410X-XYY

FCC ID: 2AO9X-T410

REPORT NUMBER: 4789508589-2

ISSUE DATE: July 01, 2020

Prepared for

Outform Science & Technology (Shenzhen) Co., Ltd.
Unit 3, 1st Floor, Huada Building, Gongye 3rd Road, Yanshan Community,
Zhaoshang Subdistrict, Nanshan District, Shenzhen, China518067

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, 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. This report does not imply that the product(s) has met the criteria for certification.

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	06/29/2020	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			
Clause	**Test Items**	**FCC Rules**	**Test Results**
1	6dB Bandwidth and 99% Occupied Bandwidth	FCC Part 15.247 (a) (2)	Pass
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC Part 15.247 (e)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d)	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207	Pass
7	Antenna Requirement	FCC Part 15.203	Pass
Note: 1.This test report is only published to and used by the applicant, and it is not for evidence purpose in China. 2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >when <Accuracy Method> 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.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 6

2. TEST METHODOLOGY 7

3. FACILITIES AND ACCREDITATION 7

4. CALIBRATION AND UNCERTAINTY 8

4.1. MEASURING INSTRUMENT CALIBRATION 8

4.2. MEASUREMENT UNCERTAINTY 8

5. EQUIPMENT UNDER TEST 9

5.1. DESCRIPTION OF EUT 9

5.2. MAXIMUM OUTPUT POWER 9

5.3. CHANNEL LIST 9

5.4. TEST CHANNEL CONFIGURATION 10

5.5. THE WORSE CASE POWER SETTING PARAMETER 10

5.6. THE WORSE CASE CONFIGURATIONS 10

5.7. DESCRIPTION OF AVAILABLE ANTENNAS 11

5.8. TEST ENVIRONMENT 11

5.9. DESCRIPTION OF TEST SETUP 12

6. MEASURING INSTRUMENT AND SOFTWARE USED 13

7. ANTENNA PORT TEST RESULTS 14

7.1. ON TIME AND DUTY CYCLE 14

7.2. 6 dB DTS BANDWIDTH AND 99% OCCUPIED BANDWIDTH 15

7.3. CONDUCTED OUTPUT POWER 17

7.4. POWER SPECTRAL DENSITY 19

7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS 20

8. RADIATED TEST RESULTS 22

8.1. RESTRICTED BANDEDGE 28

8.1.1. 802.11b MODE 28

8.1.2. 802.11g MODE 33

8.1.3. 802.11n HT20 MODE 40

8.2. SPURIOUS EMISSIONS (3~18GHz) 48

8.2.1. 802.11b MODE 48

8.2.2. 802.11g MODE 54

8.2.3. 802.11n HT20 MODE 60

8.3. SPURIOUS EMISSIONS (1~3GHz) 66

8.3.1. 802.11b MODE 66

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

8.3.2. 802.11g MODE 72
8.3.3. 802.11n HT20 MODE 78

8.4. SPURIOUS EMISSIONS (18~26GHz) 84
8.4.1. 802.11g MODE 84

8.5. SPURIOUS EMISSIONS (0.03 ~ 1 GHz) 86
8.5.1. 802.11g MODE 86

8.6. SPURIOUS EMISSIONS BELOW 30M 88
8.6.1. 802.11g MODE 88

9. AC POWER LINE CONDUCTED EMISSIONS 91

9.1. 802.11g MODE 92

10. ANTENNA REQUIREMENTS 94

10.1. Appendix A: DTS Bandwidth 95
10.1.1. Test Result 95
10.1.2. Test Graphs 96

10.2. Appendix B: Occupied Channel Bandwidth 101
10.2.1. Test Result 101
10.2.2. Test Graphs 102

10.3. Appendix C: Maximum conducted output power 107
10.3.1. Test Result 107

10.4. Appendix D: Maximum power spectral density 108
10.4.1. Test Result 108
10.4.2. Test Graphs 109

10.5. Appendix E: Band edge measurements 114
10.5.1. Test Result 114
10.5.2. Test Graphs 115

10.6. Appendix F: Conducted Spurious Emission 118
10.6.1. Test Result 118
10.6.2. Test Graphs 119

10.7. Appendix G: Duty Cycle 133
10.7.1. Test Result 133
10.7.2. Test Graphs 134

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:	Outform Science & Technology (Shenzhen) Co., Ltd.
Address:	Unit 3, 1st Floor, Huada Building, Gongye 3rd Road, Yanshan Community, Zhaoshang Subdistrict, Nanshan District, Shenzhen, China518067

Manufacturer Information

Company Name:	Outform Science & Technology (Shenzhen) Co., Ltd.
Address:	Unit 3, 1st Floor, Huada Building, Gongye 3rd Road, Yanshan Community, Zhaoshang Subdistrict, Nanshan District, Shenzhen, China518067

EUT Information

EUT Name:	iDISPLAY 10.1" DISPLAY
Model:	UIT410B-C11
Series Model:	UIT410X-XYY
Model difference:	Please refer to section 5.1 for the detail.
Sample Received Date:	June 3, 2020
Sample Status:	Normal
Sample ID:	3102161
Date of Tested:	June 4~29, 2020

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	PASS

Prepared By:

Kebo Zhang
Project Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory 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

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15 and ANSI C63.10-2013.

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 Delcaration 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. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, 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 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz 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 recognize 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	3.62dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Radiation Emission test (1GHz to 26GHz) (include Fundamental emission)	5.78dB (1GHz-18GHz)
	5.23dB (18GHz-26GHz)
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:	iDISPLAY 10.1" DISPLAY
Model Name:	UIT410B-C11
Series Model:	UIT410X-XYY
Model difference:	UIT410X-XYY have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with UIT410B-C11.The difference lies only the model number and colors. UIT410X-XYY The 1st "X" is letter from "A" to "Z". Stands for different colors. The 2nd "X" is letter form "A" to "Z", Stands for product code “YY” is client numbers from "01" to "99"
Radio Technology	IEEE802.11b/g/n HT20
Operation frequency	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz
Modulation	IEEE 802.11b: DSSS(CCK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)
Rated Input	AC120V,60Hz

5.2. MAXIMUM AVG OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Frequency (MHz)	Channel Number	Max AV Conducted Power (dBm)
1	IEEE 802.11b	2412-2462	1-11[11]	10.81
1	IEEE 802.11g	2412-2462	1-11[11]	11.36
1	IEEE 802.11nHT20	2412-2462	1-11[11]	10.93

5.3. CHANNEL LIST

Channel List for 802.11b/g/n (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	/	/

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

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 1, CH 6, CH 11/ Low, Middle, High	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11g)	CH 1, CH 6, CH 11/ Low, Middle, High	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT20)	CH 1, CH 6, CH 11/ Low, Middle, High	2412MHz, 2437MHz, 2462MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		QRCT					
Modulation Mode	Transmit Antenna Number	Test Software setting value					
		NCB: 20MHz			NCB: 40MHz		
		CH 1	CH 6	CH 11	CH 3	CH 6	CH 9
802.11b	1	default	default	default	/		
802.11g	1	default	default	default			
802.11n HT20	1	default	default	default			

5.6. THE WORSE CASE CONFIGURATIONS

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps
802.11b mode: 6 Mbps
802.11n HT20 mode: MCS0

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. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2412-2462	FPC	5.74

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
Note: 1. BT&WLAN 2.4G cannot transmit simultaneously. (declared by client)		

Note: The value of the antenna gain was declared by customer.

5.8. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	45 ~ 70%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	22 ~ 28°C
Voltage :	VL	N/A
	VN	AC120V,60Hz
	VH	N/A

Note: VL= Lower Extreme Test Voltage

VN= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature

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

5.9. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
1	USB DISK	Sandisk	/	8GB	/
2	USB DISK	Sandisk	/	16GB	/
3	USB DISK	Sandisk	/	128GB	/
4	USB DISK	Sandisk	/	8GB	/
5	Earphone	Sony	/	/	/
6	Earphone	Apple	/	/	/
7	Monitor	Lenovo	P2715Q	/	/
8	RJ45 Terminal load	Adafruit	485-4511	/	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	RJ 45	NO	NO	1.0m	/
2	Mini HDMI-HDMI	NO	YES	0.5m	/

Note: Cable 2 provide by customer.

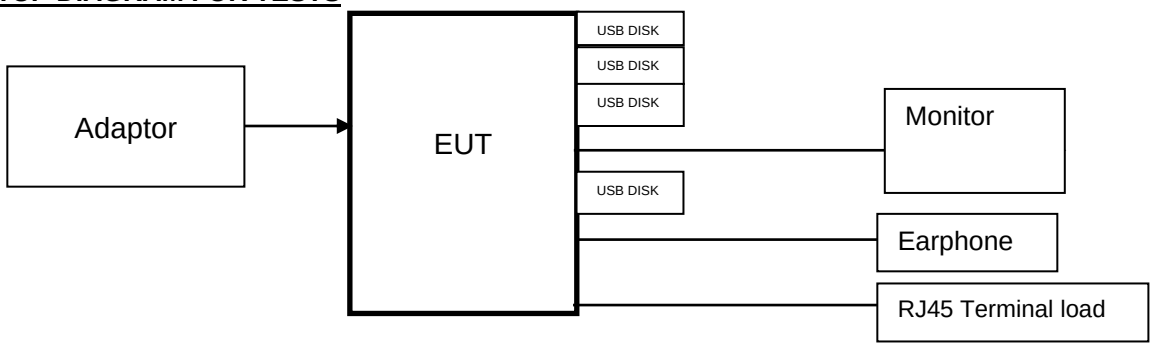
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	SWITCHING ADAPTOR	/	FJ-SW1202000N	INPUT:100~240V,50/60Hz 0.6A Max OUTPUT:12Vdc,2000mA

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



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 INSTRUMENT AND SOFTWARE USED

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	EMI Test Receiver	R&S	ESR3	101961	Dec.05,2019	Dec.05,2020
☑	Two-Line V-Network	R&S	ENV216	101983	Dec.05,2019	Dec.05,2020
☑	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Dec.05,2019	Dec.05,2020
Software						
Used	Description			Manufacturer	Name	Version
☑	Test Software for Conducted disturbance			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.06,2019	Dec.05,2020
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17,2018	Sep.17,2021
☑	Preamplifier	HP	8447D	2944A09099	Dec.05,2019	Dec.05,2020
☑	EMI Measurement Receiver	R&S	ESR26	101377	Dec.05,2019	Dec.05,2020
☑	Horn Antenna	TDK	HRN-0118	130939	Sep.17,2018	Sep.17,2021
☑	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11,2018	Aug.11,2021
☑	Preamplifier	TDK	PA-02-0118	TRS-305-00067	Dec.05,2019	Dec.05,2020
☑	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.05,2019	Dec.05,2020
☑	Loop antenna	Schwarzbeck	1519B	00008	Jan.07,2019	Jan.07,2022
☑	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec.05,2019	Dec.05,2020
☑	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Dec.05,2019	Dec.05,2020
Software						
Used	Description			Manufacturer	Name	Version
☑	Test Software for Radiated disturbance			Farad	EZ-EMC	Ver. UL-3A1

Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☑	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.06,2019	Dec.05,2020
☑	Power sensor, Power Meter	R&S	OSP120	100921	Dec.06,2019	Dec.06,2020

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. ON TIME AND DUTY CYCLE

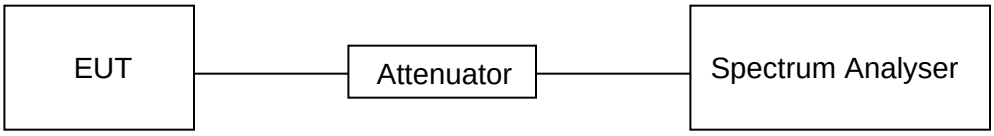
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

Temperature	23.3°C	Relative Humidity	68.8%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix G.

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. 6 dB DTS BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2)	6 dB Bandwidth	≥ 500KHz	2400-2483.5
ANSI C63.10 Clause 6.9.3	99% Occupied Bandwidth	For reporting purposes only.	2400-2483.5

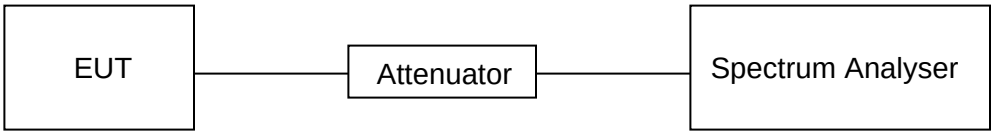
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth :100kHz For 99% Occupied Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% Occupied Bandwidth : ≥3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and 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 6 dB and 99% relative to the maximum level measured in the fundamental emission.

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	23.3°C	Relative Humidity	68.8%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix A and 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. CONDUCTED OUTPUT POWER

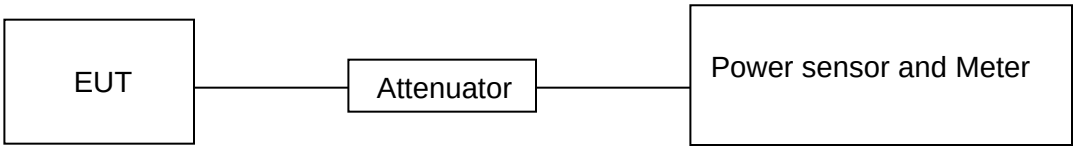
LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	AVG Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
AVG Detector use for AVG result.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.3°C	Relative Humidity	68.8%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

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

RESULTS

Please refer to 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.

7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

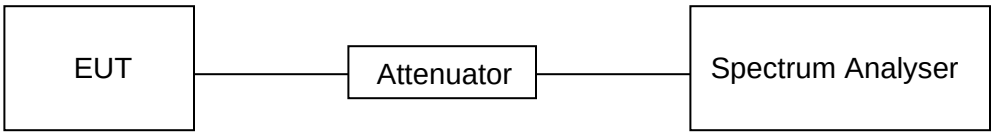
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ 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 amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.3°C	Relative Humidity	68.8%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to 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.

7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

CFR 47 FCC Part15 (15.247) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

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

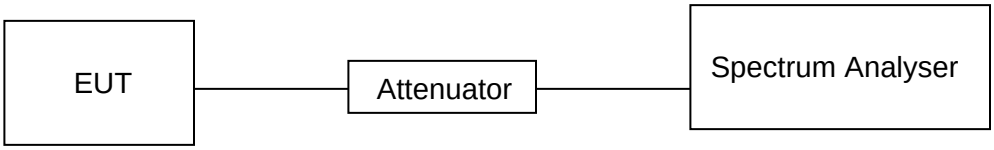
Use the peak marker function to determine the maximum PSD level.

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

Use the peak marker function to determine the maximum amplitude level**.**

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	23.3°C	Relative Humidity	68.8%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

RESULTS

Please refer to appendix E and 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.

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) (9kHz-1GHz)

Emissions radiated outside of the specified frequency bands above 30MHz			
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 30MHz		
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

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

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

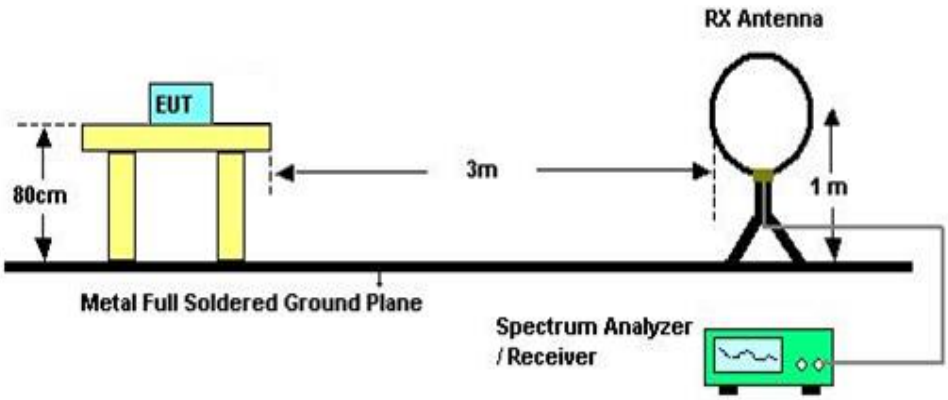
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	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 SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

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

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 0.8 meter above ground.

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

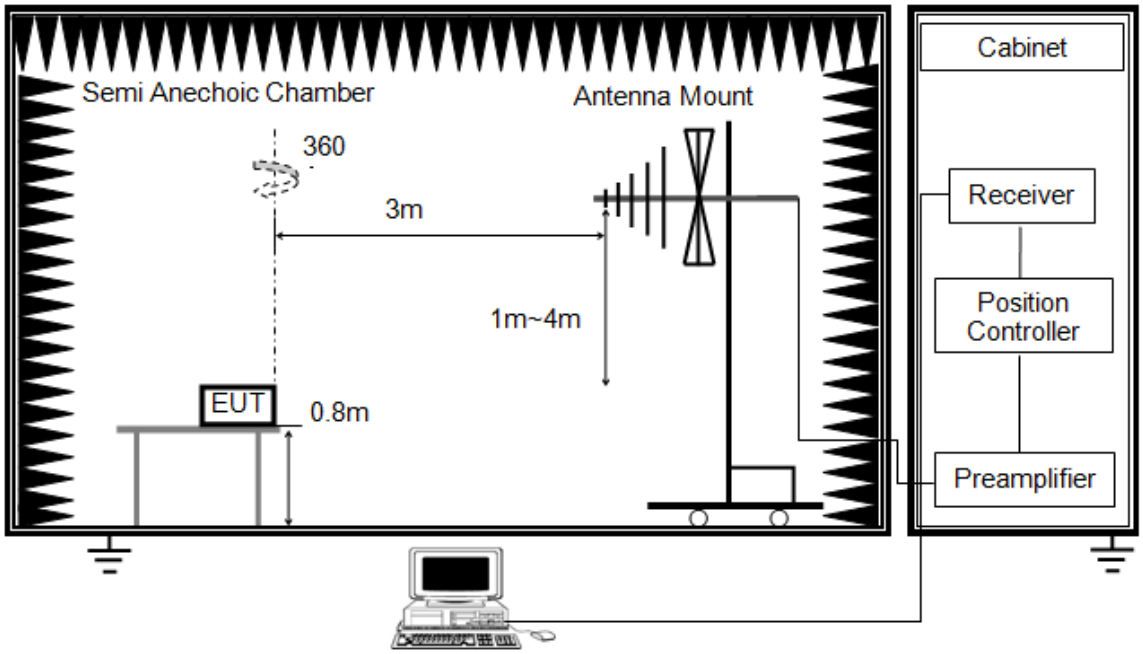
5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the 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.

6. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

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.

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 1G



The setting of the spectrum analyser

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

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

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.

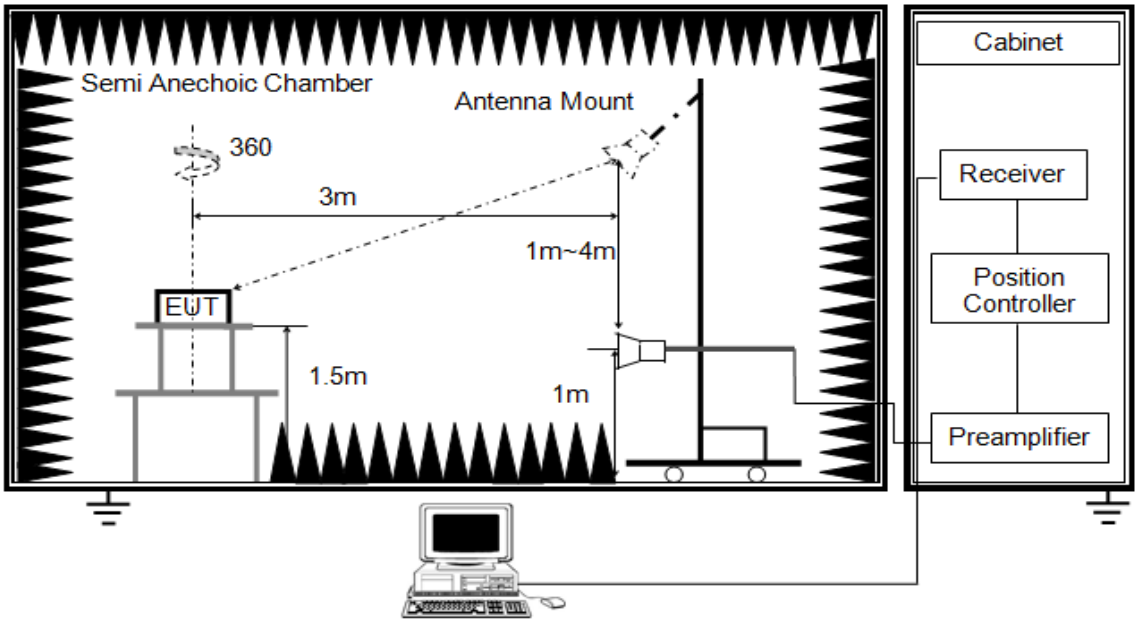
3. The EUT was placed on a turntable with 0.8 meter above ground.

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 1GHz, 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 1G



The setting of the spectrum analyser

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

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

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 1.5m above ground.

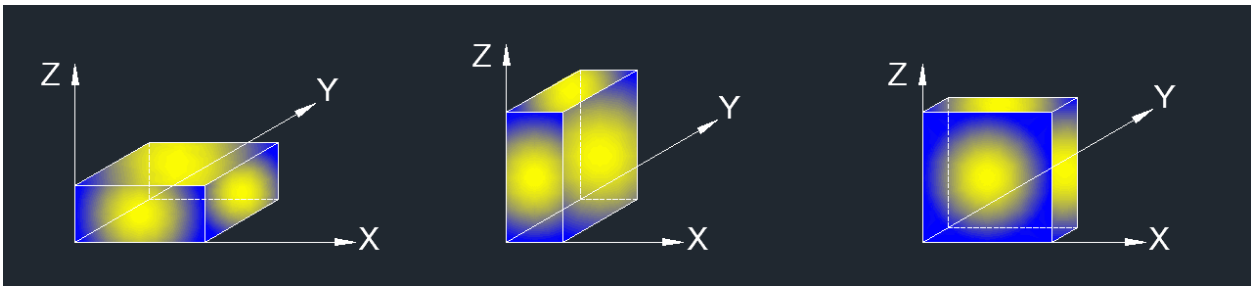
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, 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 7.1.ON TIME AND DUTY CYCLE.

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

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.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	57%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

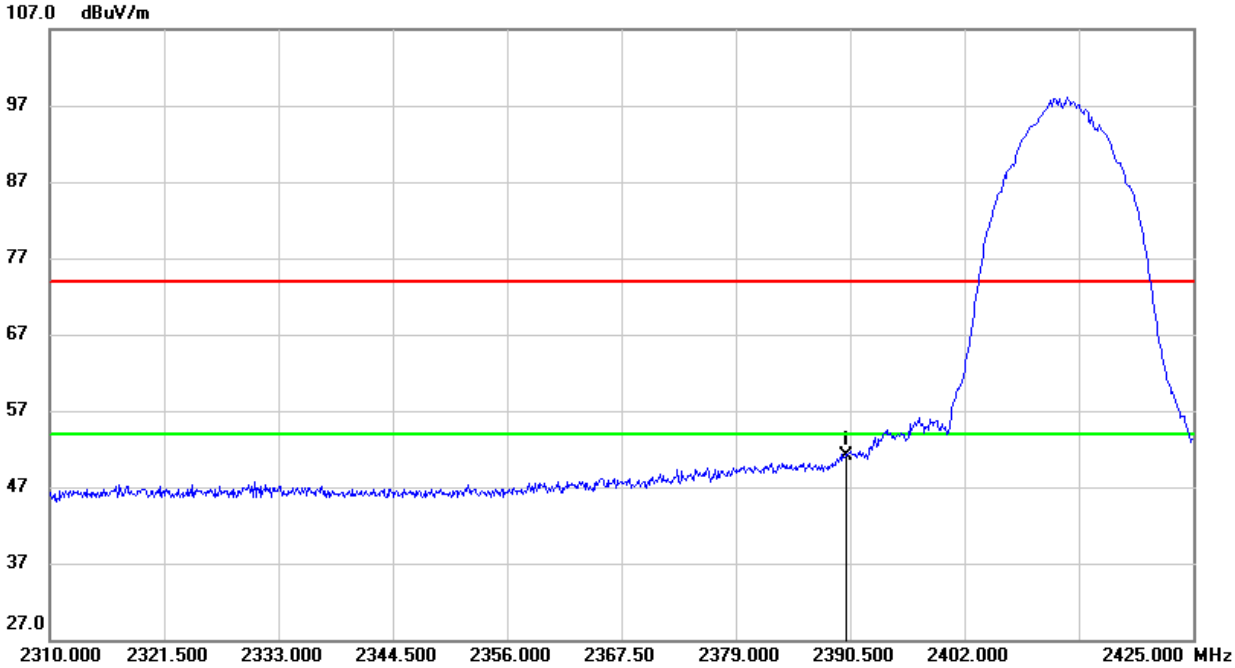
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.1. RESTRICTED BANDEDGE

8.1.1. 802.11b MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK



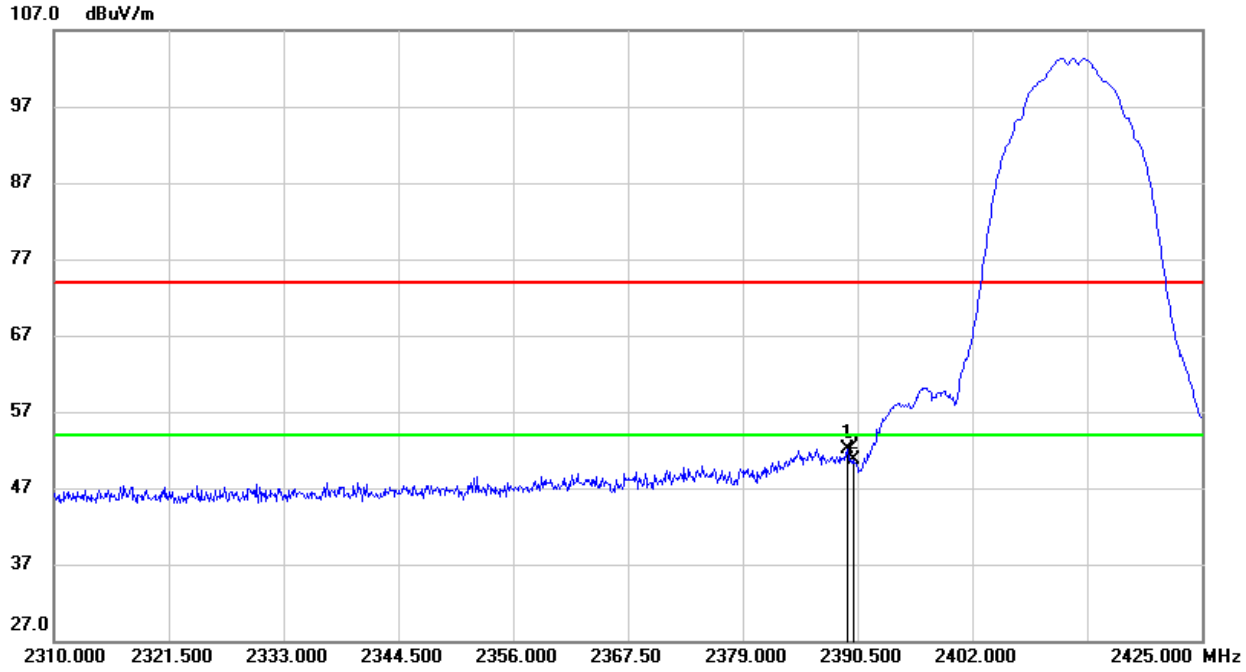
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	18.23	32.94	51.17	74.00	-22.83	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



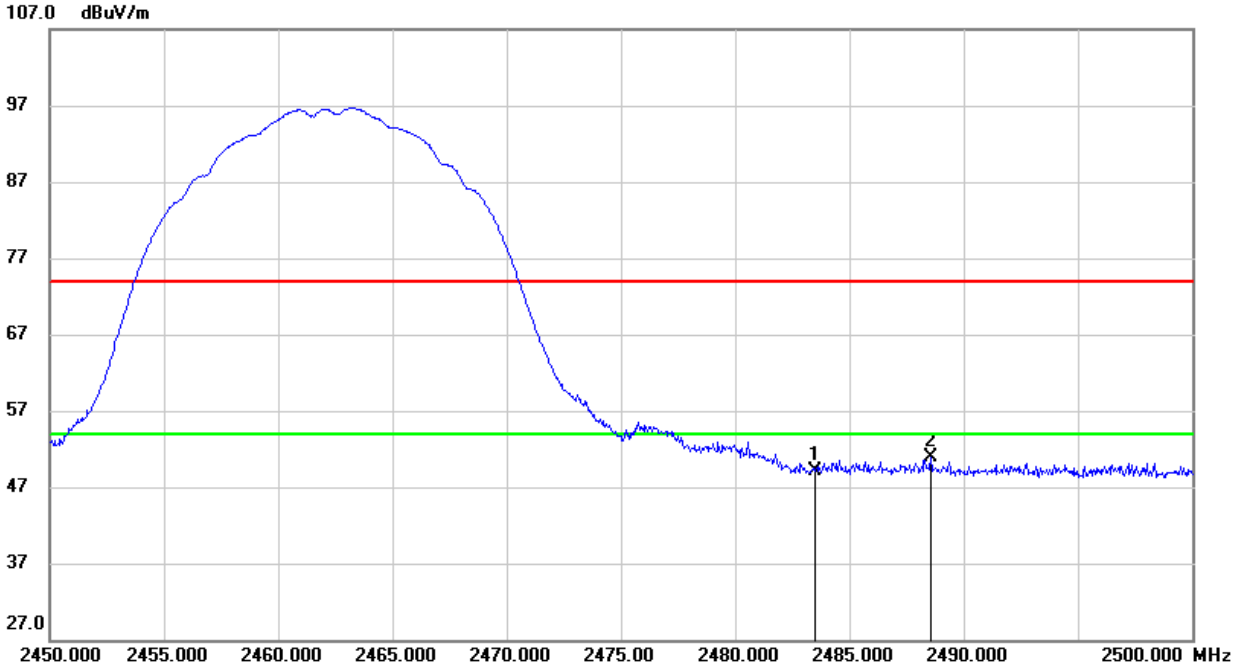
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.465	19.21	32.94	52.15	74.00	-21.85	peak
2	2390.000	17.73	32.94	50.67	74.00	-23.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



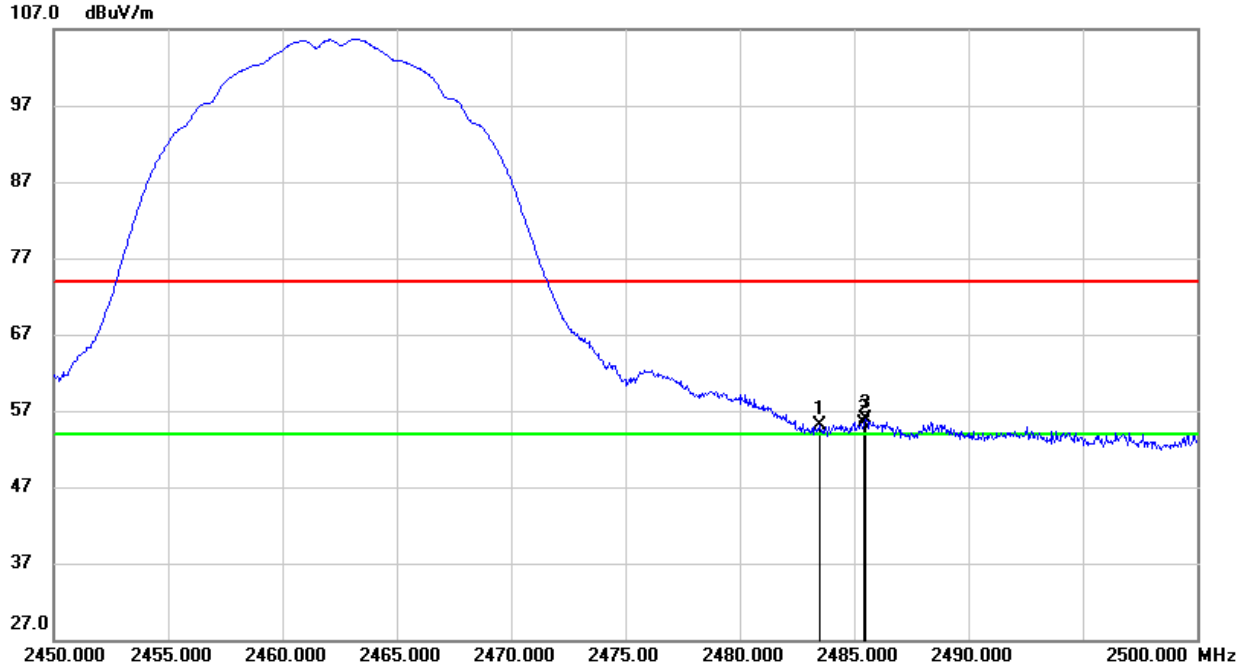
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	15.53	33.58	49.11	74.00	-24.89	peak
2	2488.550	17.20	33.62	50.82	74.00	-23.18	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK

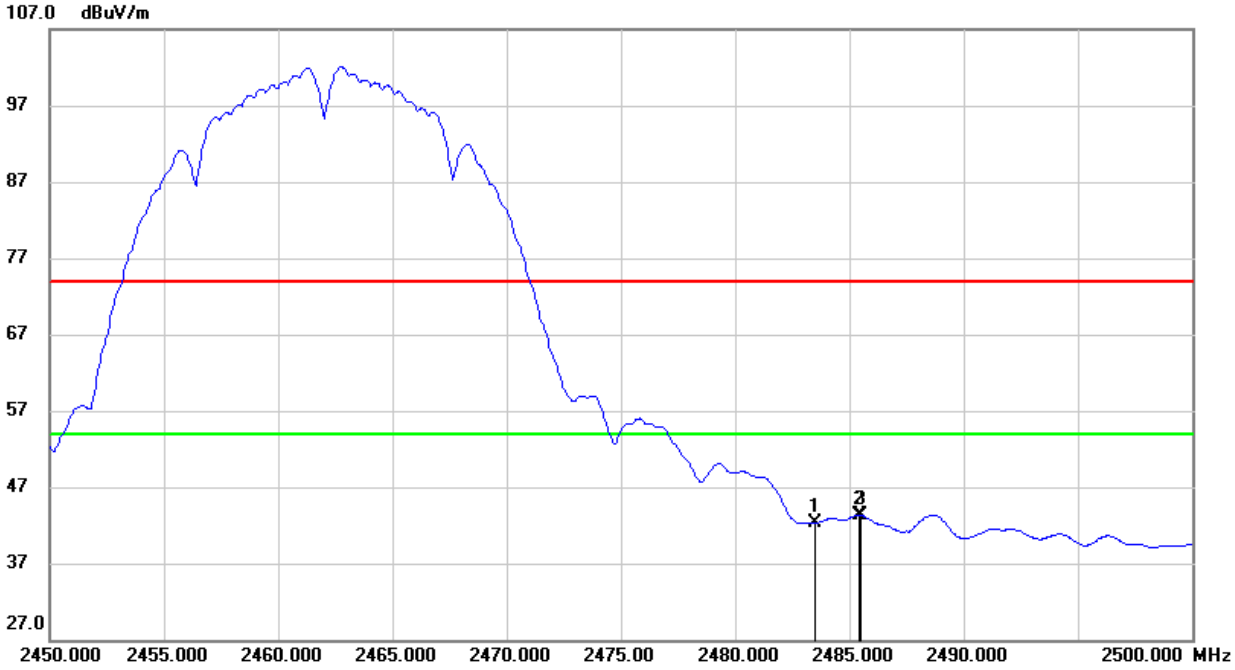


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	21.45	33.58	55.03	74.00	-18.97	peak
2	2485.400	21.62	33.59	55.21	74.00	-18.79	peak
3	2485.500	22.28	33.59	55.87	74.00	-18.13	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	8.70	33.58	42.28	54.00	-11.72	AVG
2	2485.400	9.78	33.59	43.37	54.00	-10.63	AVG
3	2485.500	9.73	33.59	43.32	54.00	-10.68	AVG

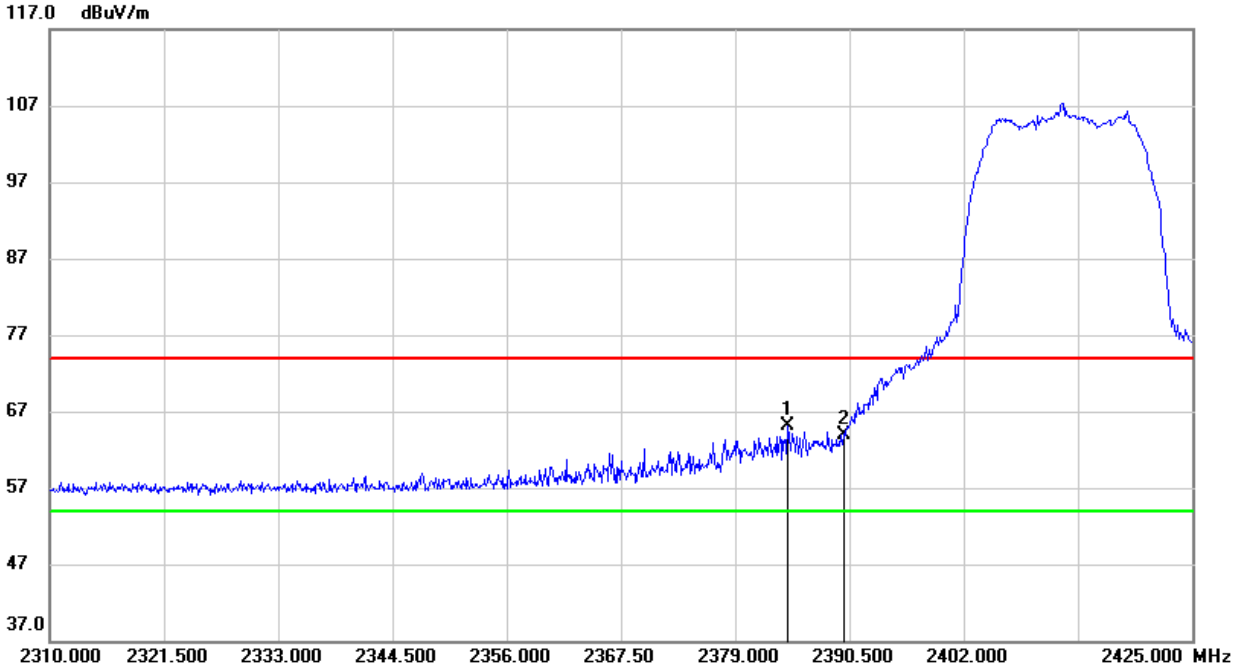
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

8.1.2. 802.11g MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

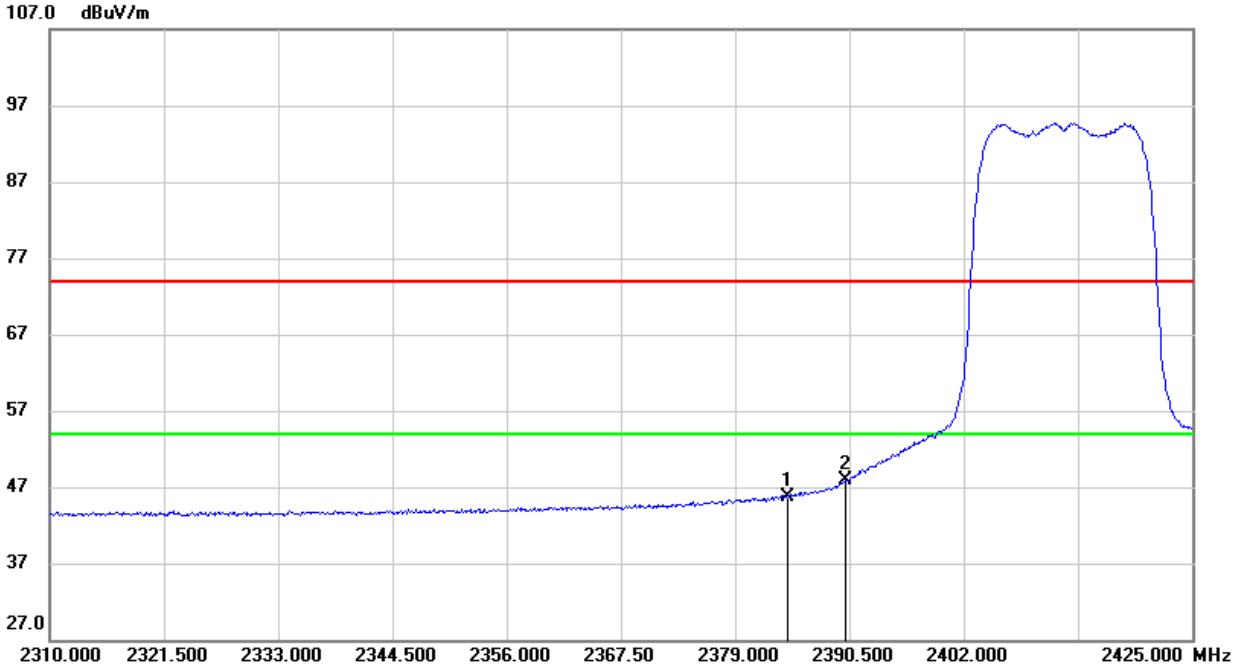


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.290	32.13	32.92	65.05	74.00	-8.95	peak
2	2390.000	30.97	32.94	63.91	74.00	-10.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



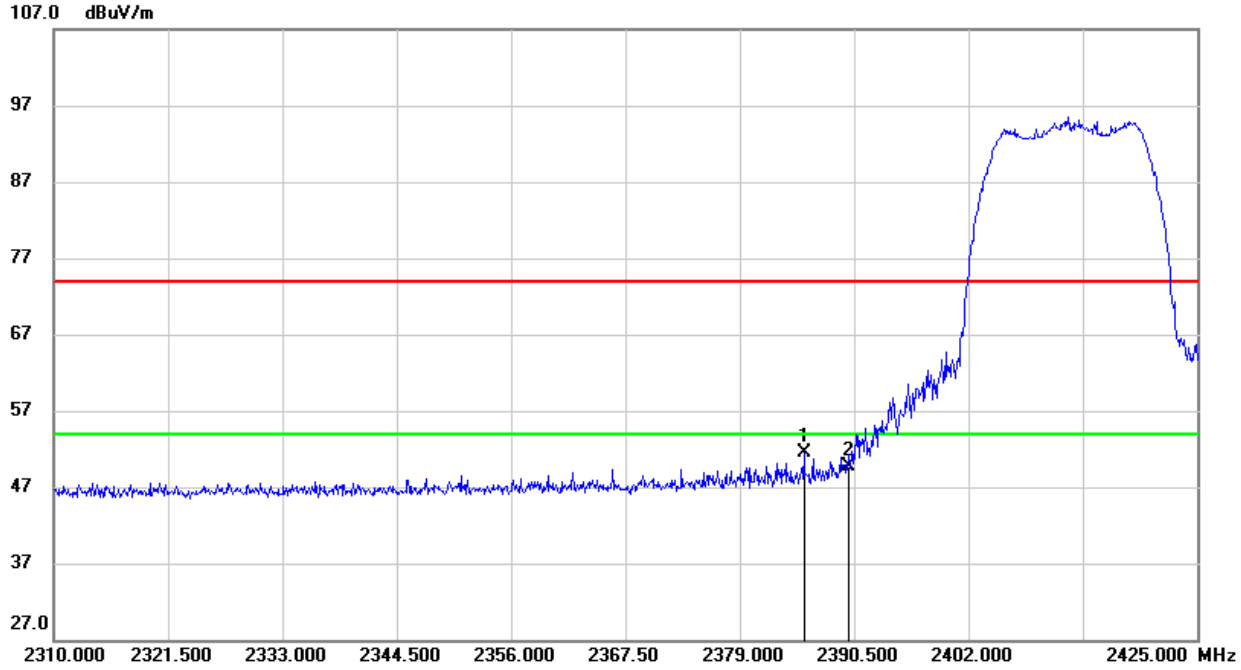
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.290	12.88	32.92	45.80	54.00	-8.20	AVG
2	2390.000	14.87	32.94	47.81	54.00	-6.19	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK



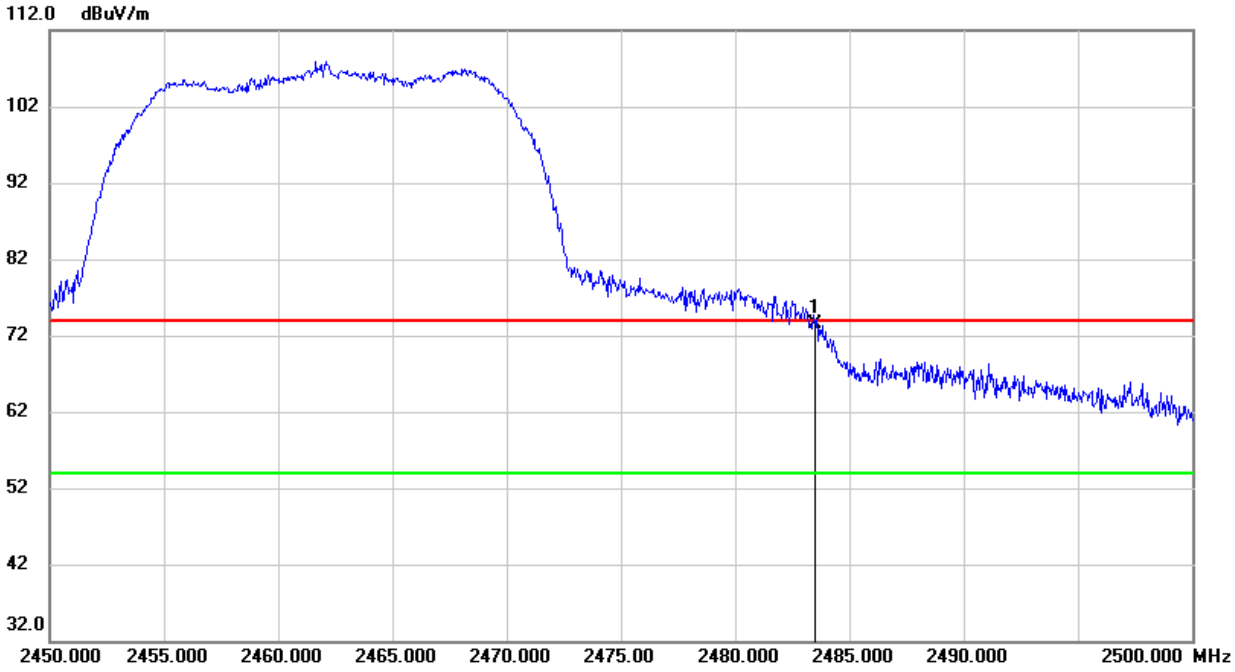
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.440	18.50	32.93	51.43	74.00	-22.57	peak
2	2390.000	16.73	32.94	49.67	74.00	-24.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK

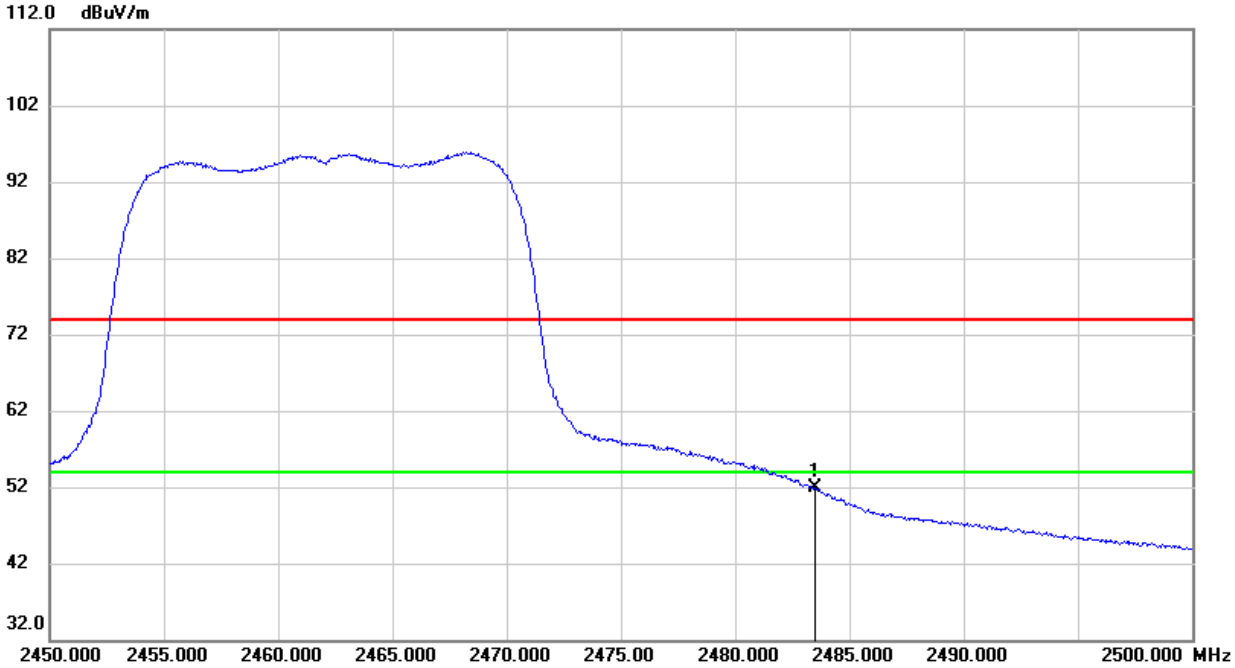


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	39.99	33.58	73.57	74.00	-0.43	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



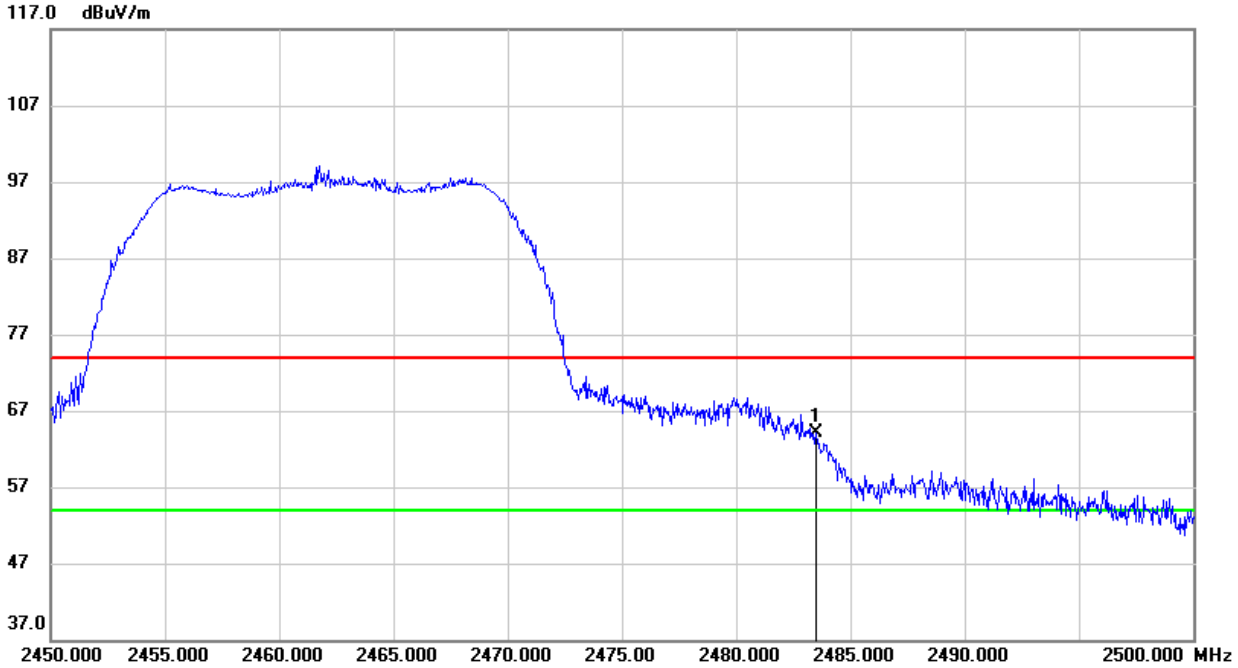
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.25	33.58	51.83	54.00	-2.17	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK

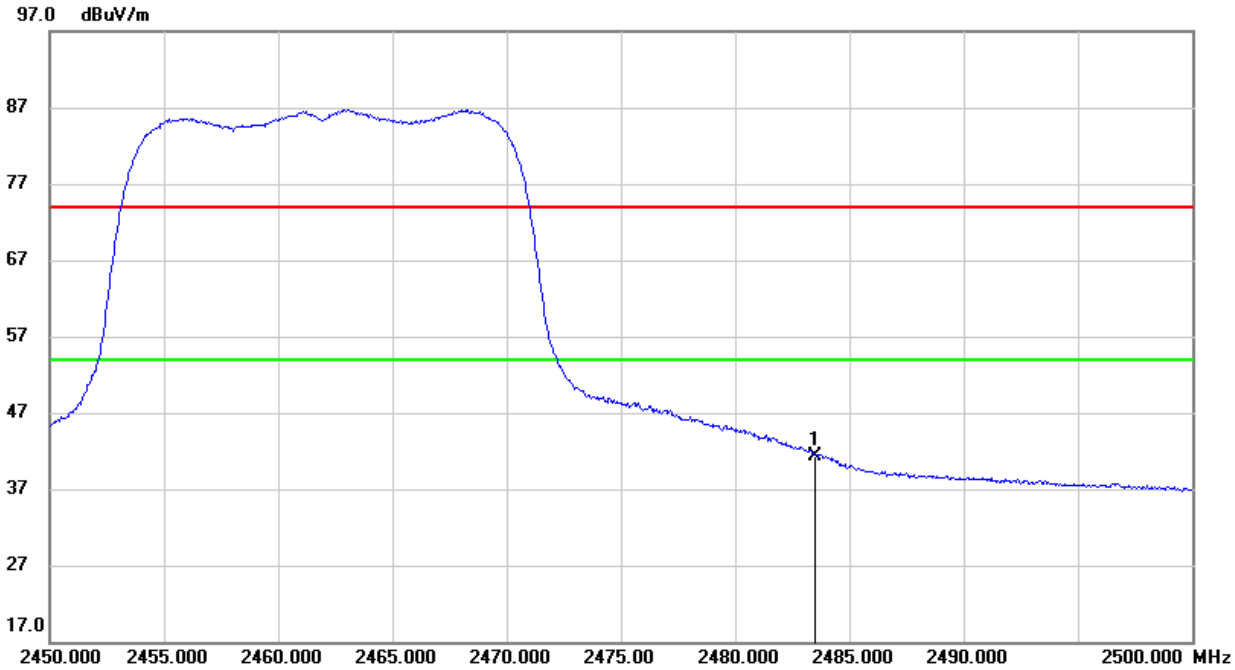


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	30.58	33.58	64.16	74.00	-9.84	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	7.82	33.58	41.40	54.00	-12.60	AVG

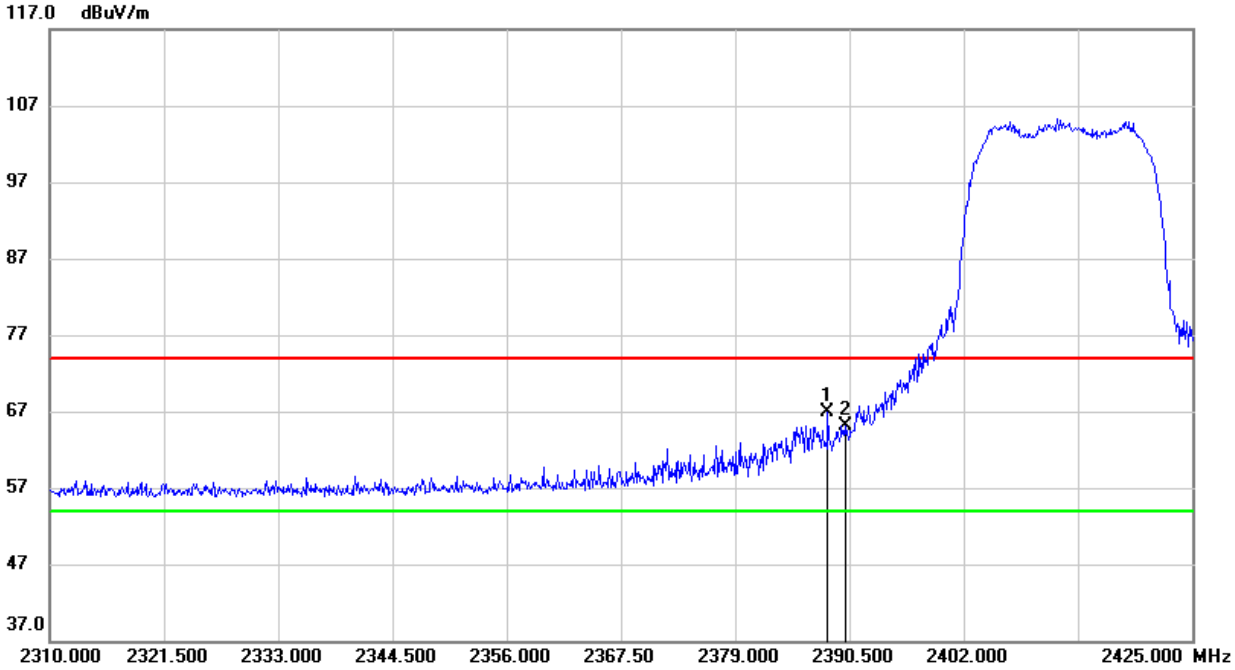
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

8.1.3. 802.11n HT20 MODE

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

PEAK

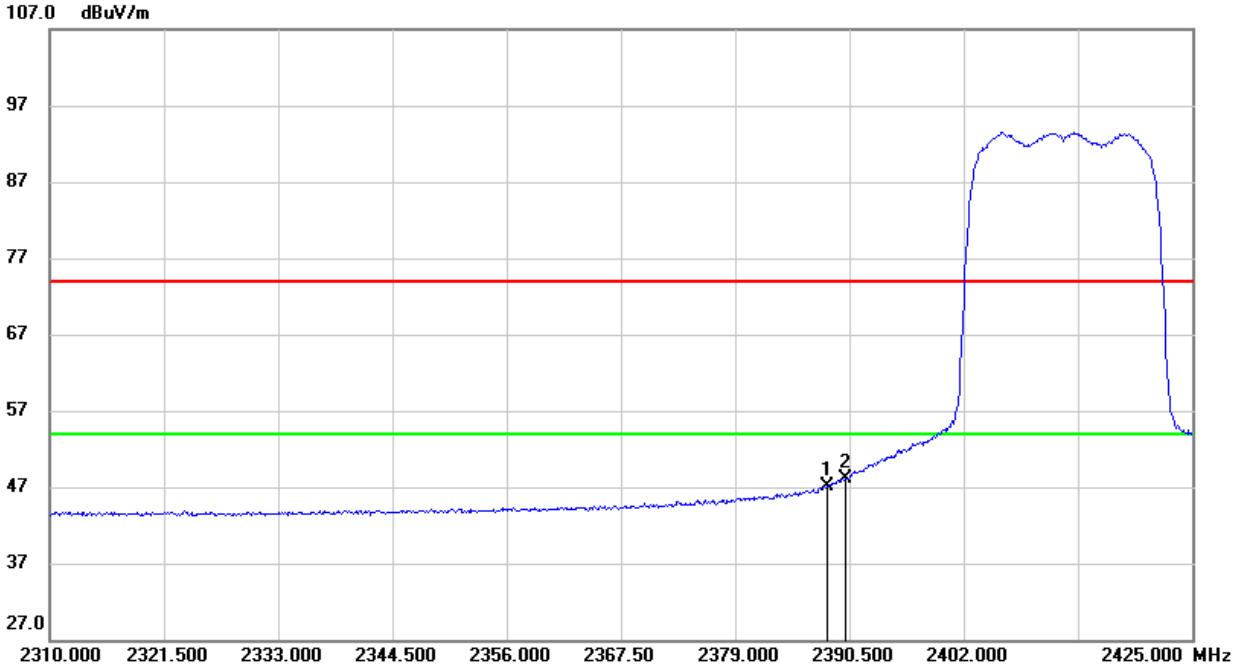


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.315	33.89	32.94	66.83	74.00	-7.17	peak
2	2390.000	32.13	32.94	65.07	74.00	-8.93	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



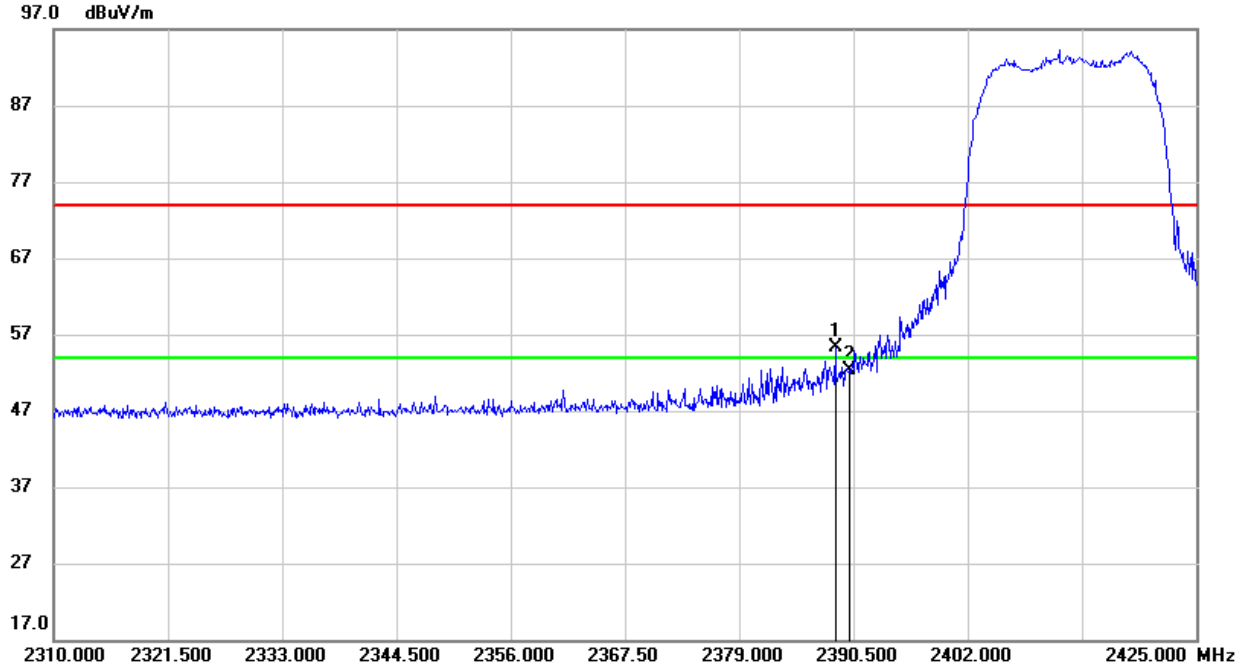
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.315	14.18	32.94	47.12	54.00	-6.88	AVG
2	2390.000	15.10	32.94	48.04	54.00	-5.96	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

PEAK

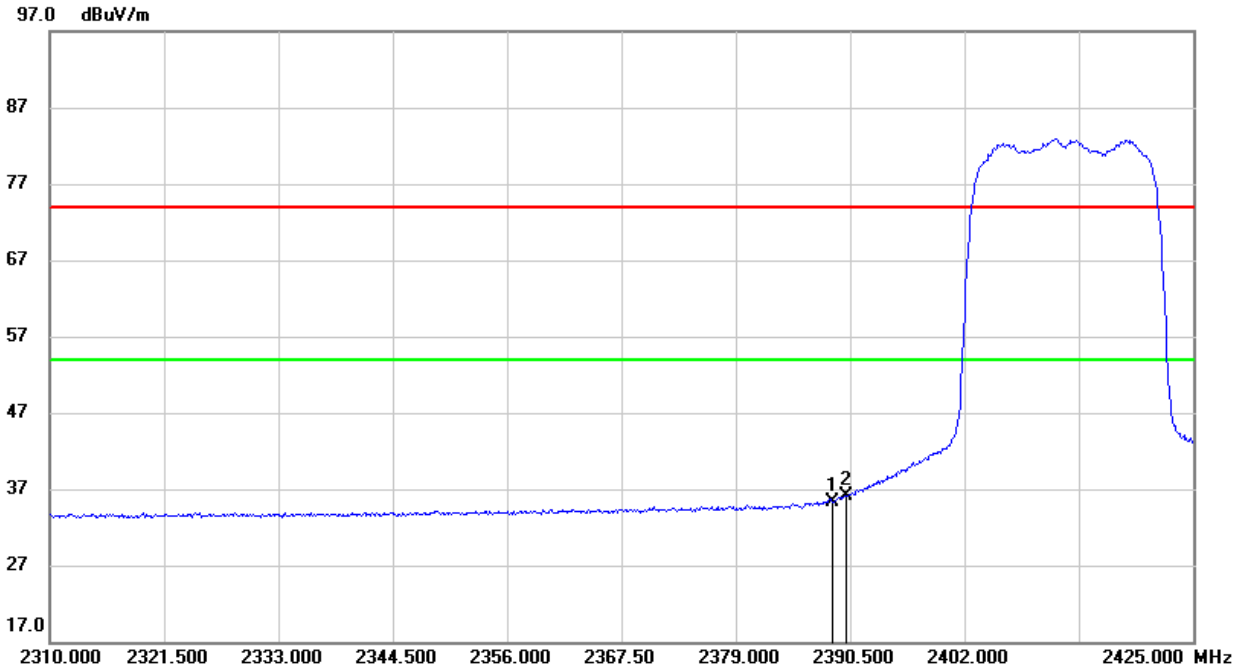


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.660	22.31	32.94	55.25	74.00	-18.75	peak
2	2390.000	19.36	32.94	52.30	74.00	-21.70	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



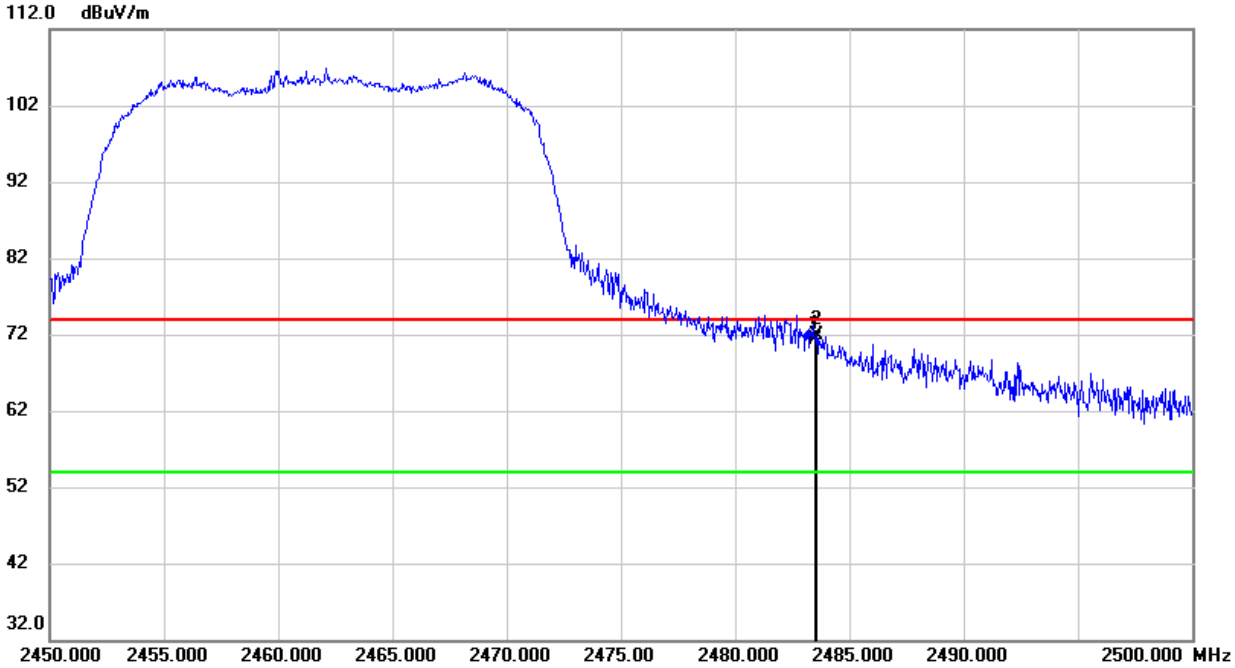
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.660	2.41	32.94	35.35	54.00	-18.65	AVG
2	2390.000	3.24	32.94	36.18	54.00	-17.82	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK

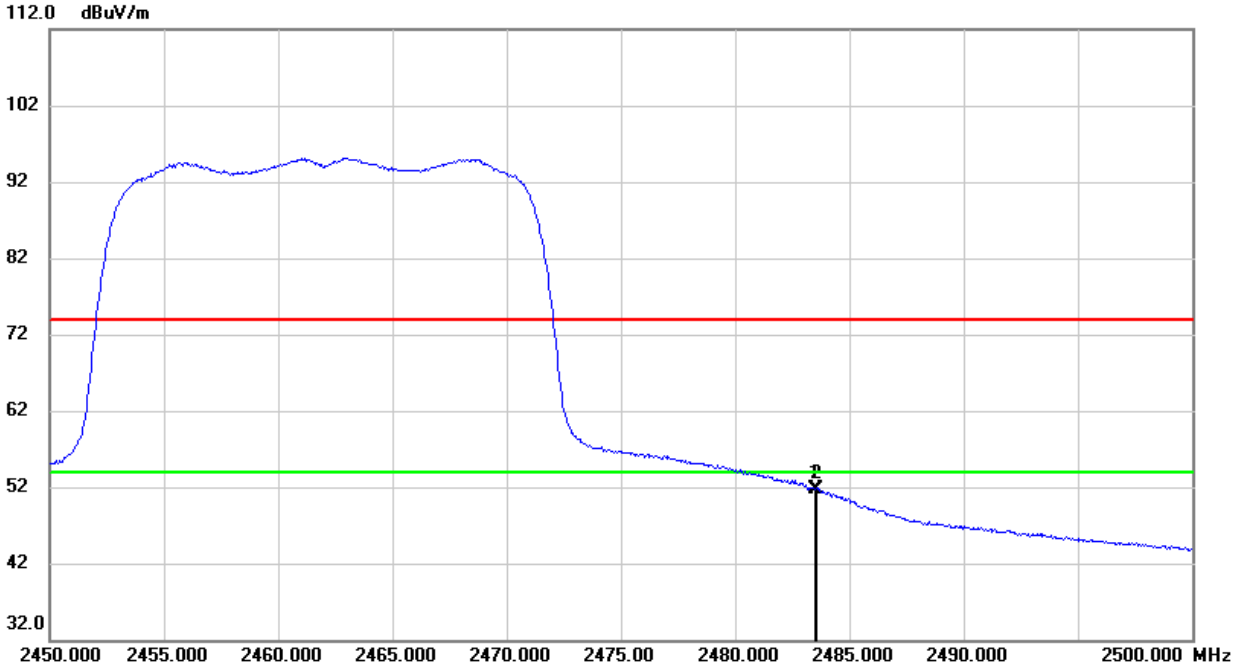


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	37.68	33.58	71.26	74.00	-2.74	peak
2	2483.550	38.25	33.58	71.83	74.00	-2.17	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



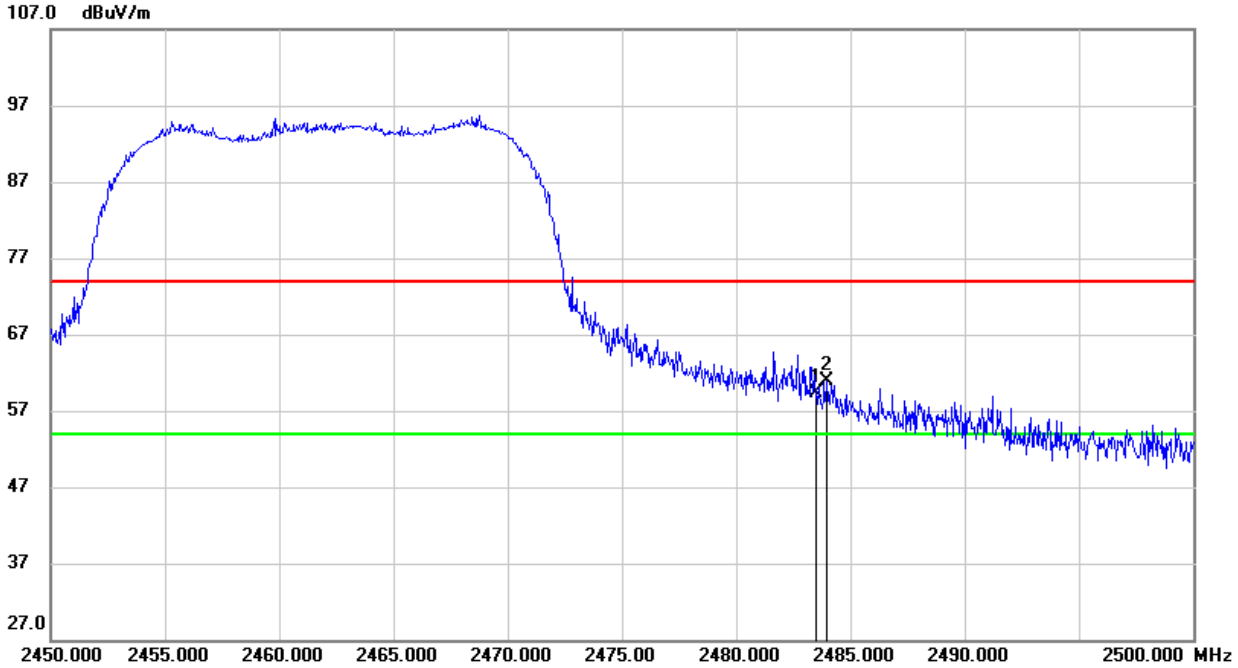
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	18.17	33.58	51.75	54.00	-2.25	AVG
2	2483.550	18.22	33.58	51.80	54.00	-2.20	AVG

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

PEAK

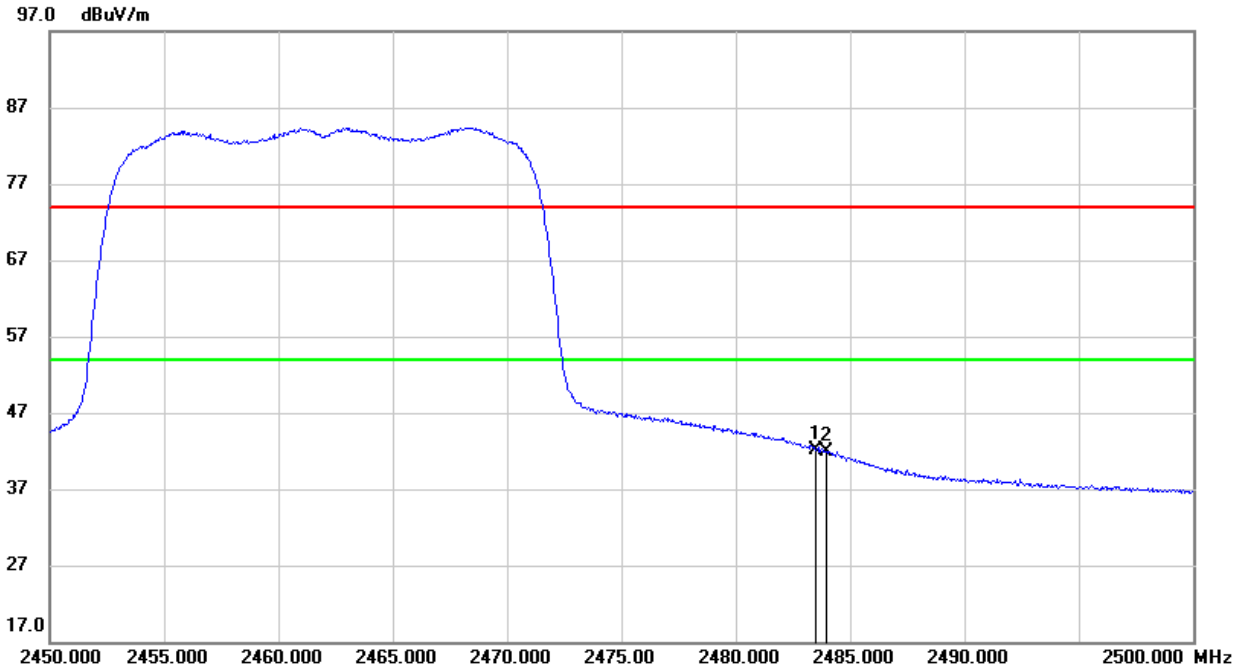


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	25.72	33.58	59.30	74.00	-14.70	peak
2	2483.950	27.25	33.58	60.83	74.00	-13.17	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	8.60	33.58	42.18	54.00	-11.82	AVG
2	2483.950	8.36	33.58	41.94	54.00	-12.06	AVG

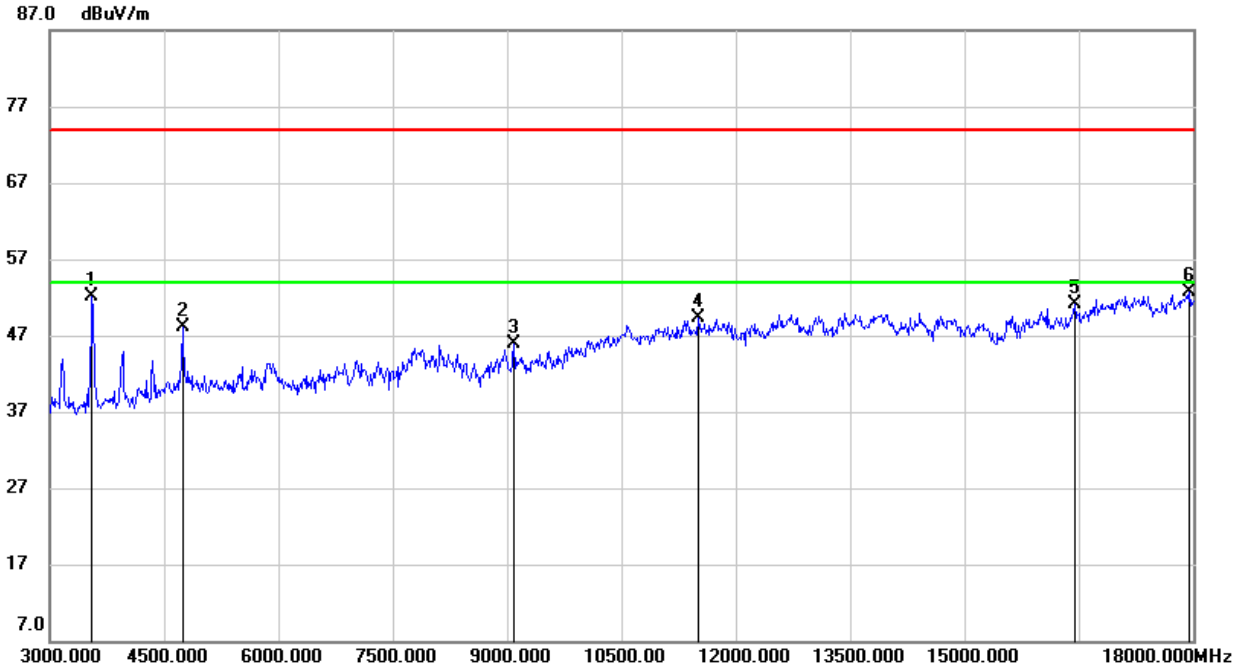
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the 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.

8.2. SPURIOUS EMISSIONS (3~18GHz)

8.2.1. 802.11b MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

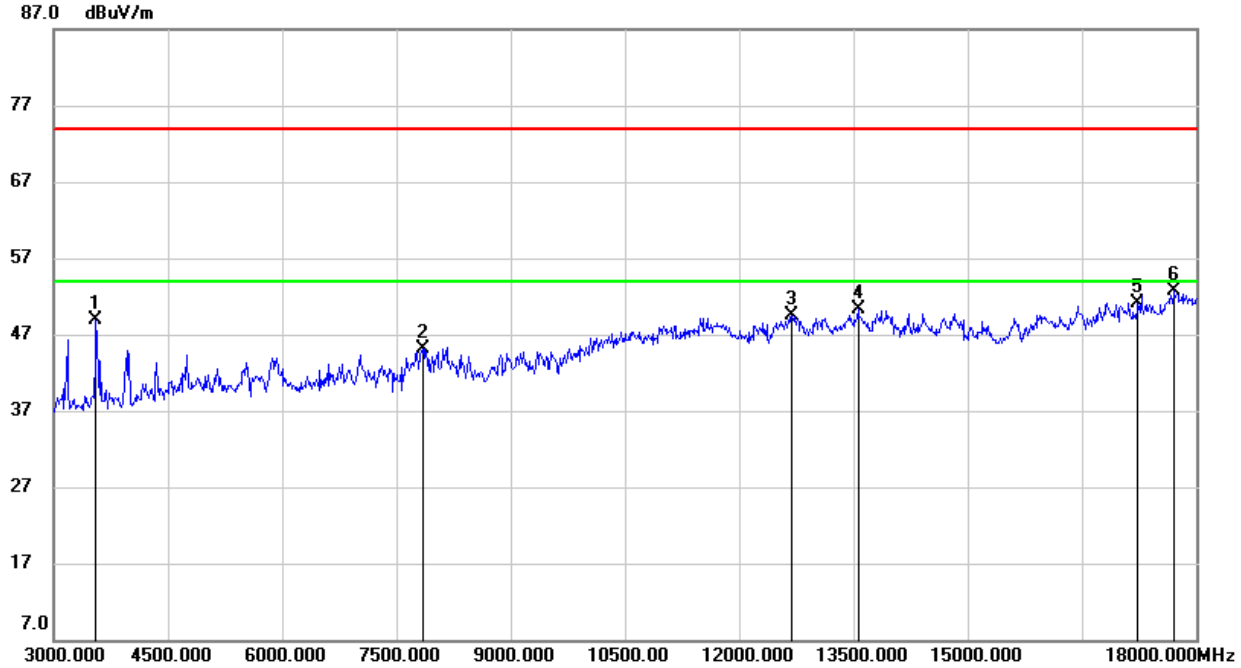


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	55.84	-3.72	52.12	74.00	-21.88	peak
2	4740.000	47.77	0.30	48.07	74.00	-25.93	peak
3	9090.000	36.61	9.28	45.89	74.00	-28.11	peak
4	11505.000	35.84	13.42	49.26	74.00	-24.74	peak
5	16455.000	32.05	19.00	51.05	74.00	-22.95	peak
6	17955.000	29.28	23.41	52.69	74.00	-21.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

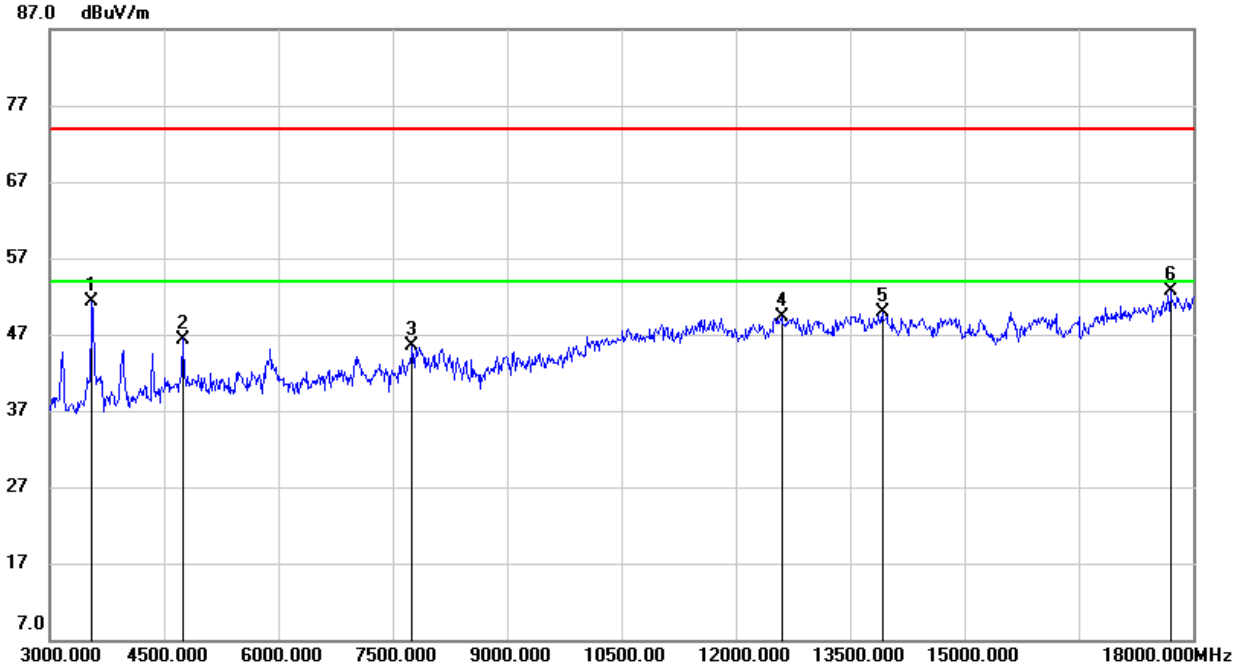


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	52.62	-3.72	48.90	74.00	-25.10	peak
2	7845.000	37.51	7.62	45.13	74.00	-28.87	peak
3	12690.000	35.32	14.25	49.57	74.00	-24.43	peak
4	13560.000	34.41	15.93	50.34	74.00	-23.66	peak
5	17235.000	29.98	21.21	51.19	74.00	-22.81	peak
6	17715.000	30.13	22.56	52.69	74.00	-21.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

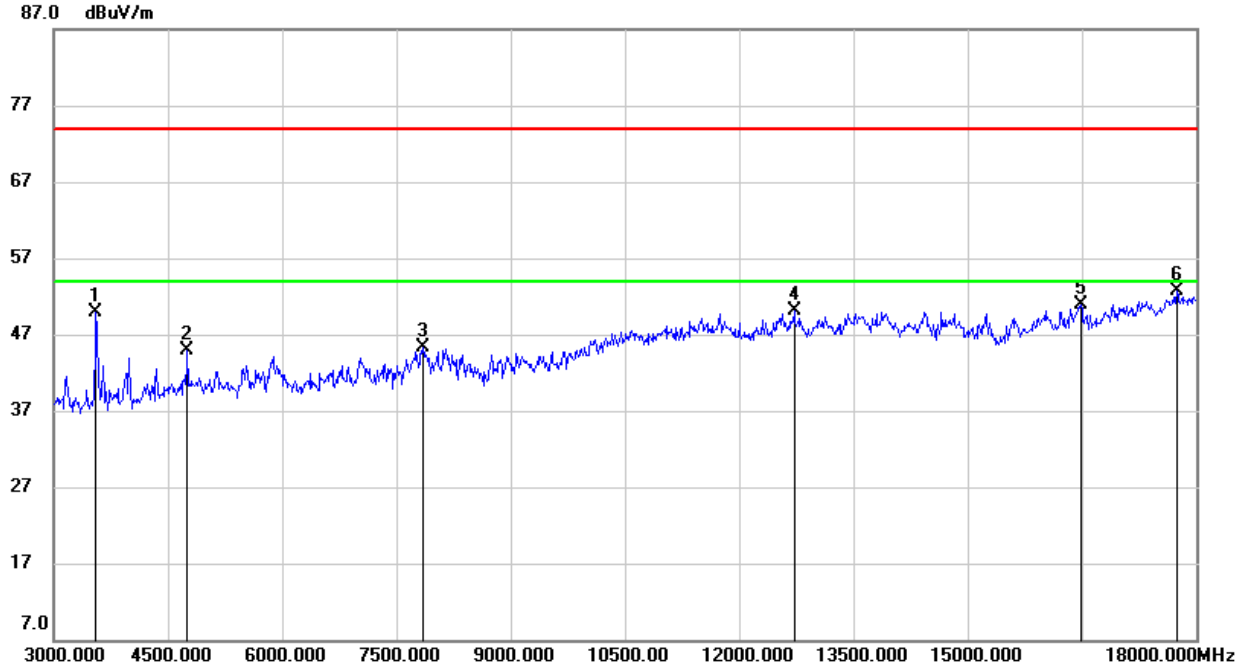


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	54.99	-3.72	51.27	74.00	-22.73	peak
2	4740.000	46.10	0.30	46.40	74.00	-27.60	peak
3	7755.000	38.24	7.29	45.53	74.00	-28.47	peak
4	12600.000	35.23	13.99	49.22	74.00	-24.78	peak
5	13920.000	33.70	16.17	49.87	74.00	-24.13	peak
6	17700.000	30.23	22.43	52.66	74.00	-21.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

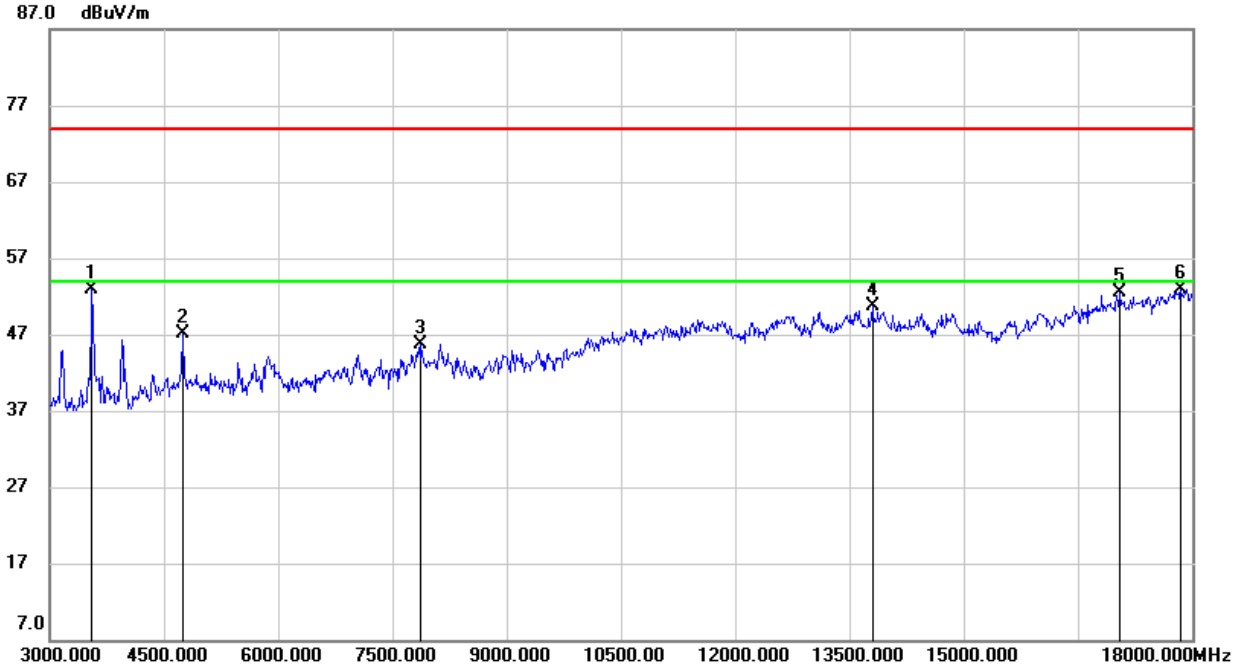


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	53.68	-3.72	49.96	74.00	-24.04	peak
2	4755.000	44.64	0.34	44.98	74.00	-29.02	peak
3	7845.000	37.72	7.62	45.34	74.00	-28.66	peak
4	12720.000	35.51	14.57	50.08	74.00	-23.92	peak
5	16485.000	31.86	19.13	50.99	74.00	-23.01	peak
6	17745.000	29.80	22.82	52.62	74.00	-21.38	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

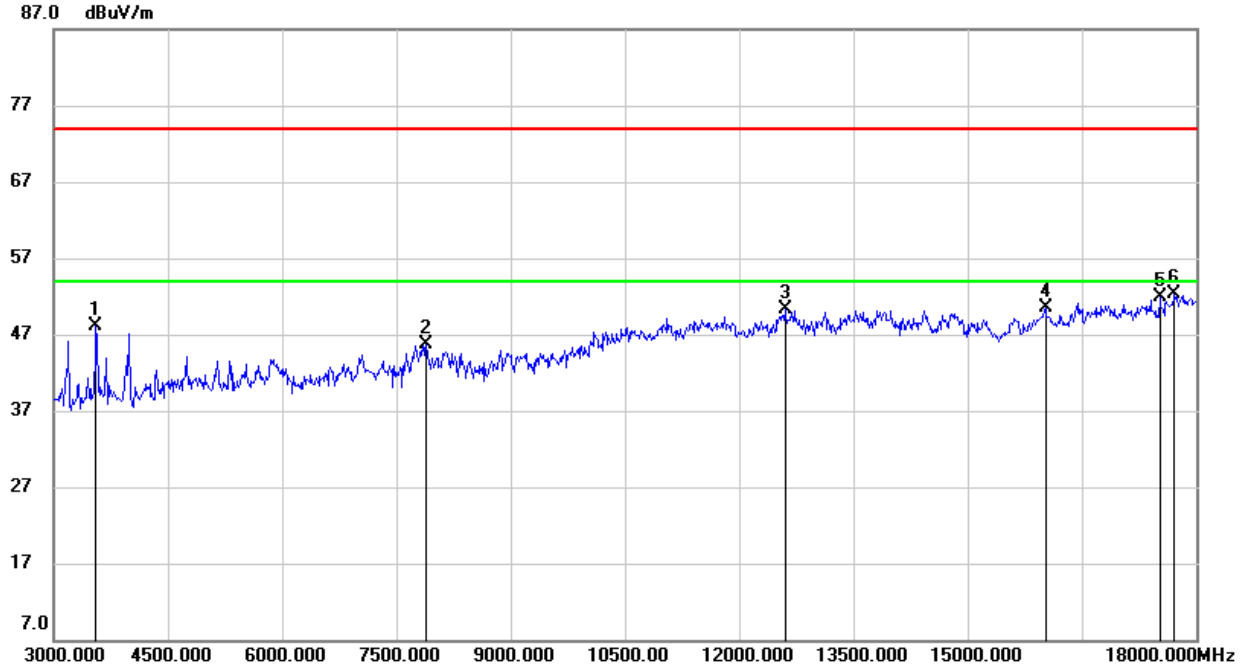


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	56.67	-3.72	52.95	74.00	-21.05	peak
2	4740.000	46.80	0.30	47.10	74.00	-26.90	peak
3	7875.000	38.40	7.40	45.80	74.00	-28.20	peak
4	13800.000	33.64	17.10	50.74	74.00	-23.26	peak
5	17040.000	31.98	20.49	52.47	74.00	-21.53	peak
6	17850.000	29.63	23.32	52.95	74.00	-21.05	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



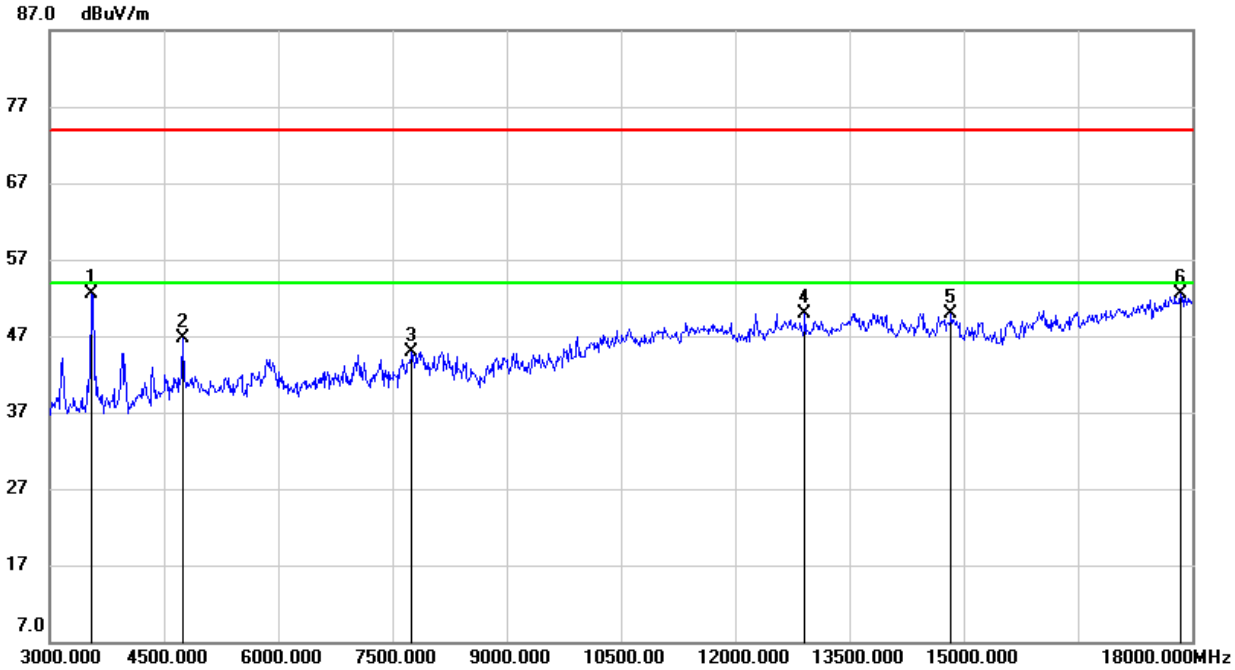
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	51.75	-3.72	48.03	74.00	-25.97	peak
2	7890.000	38.41	7.30	45.71	74.00	-28.29	peak
3	12600.000	36.30	13.99	50.29	74.00	-23.71	peak
4	16020.000	32.66	17.78	50.44	74.00	-23.56	peak
5	17520.000	30.54	21.44	51.98	74.00	-22.02	peak
6	17715.000	29.74	22.56	52.30	74.00	-21.70	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.2.2. 802.11g MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

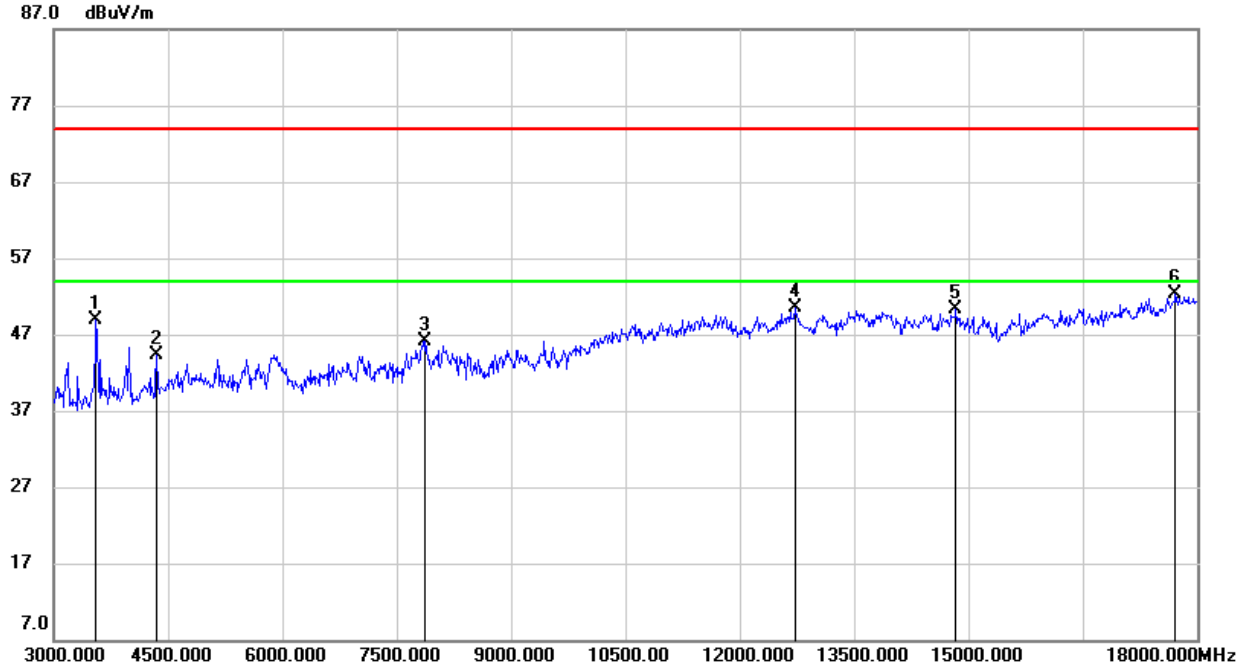


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	56.23	-3.72	52.51	74.00	-21.49	peak
2	4740.000	46.45	0.30	46.75	74.00	-27.25	peak
3	7755.000	37.68	7.29	44.97	74.00	-29.03	peak
4	12915.000	35.07	14.89	49.96	74.00	-24.04	peak
5	14835.000	34.00	15.95	49.95	74.00	-24.05	peak
6	17850.000	29.17	23.32	52.49	74.00	-21.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

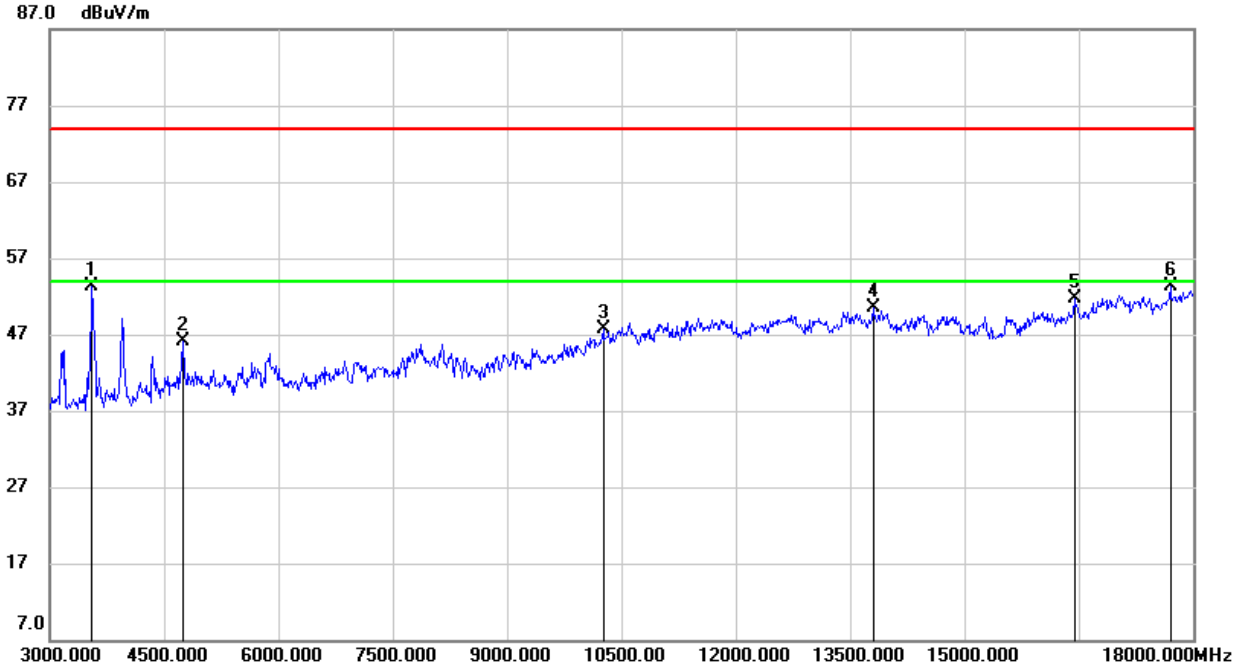


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	52.57	-3.72	48.85	74.00	-25.15	peak
2	4350.000	46.23	-1.87	44.36	74.00	-29.64	peak
3	7875.000	38.71	7.40	46.11	74.00	-27.89	peak
4	12720.000	35.88	14.57	50.45	74.00	-23.55	peak
5	14835.000	34.33	15.95	50.28	74.00	-23.72	peak
6	17715.000	29.78	22.56	52.34	74.00	-21.66	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

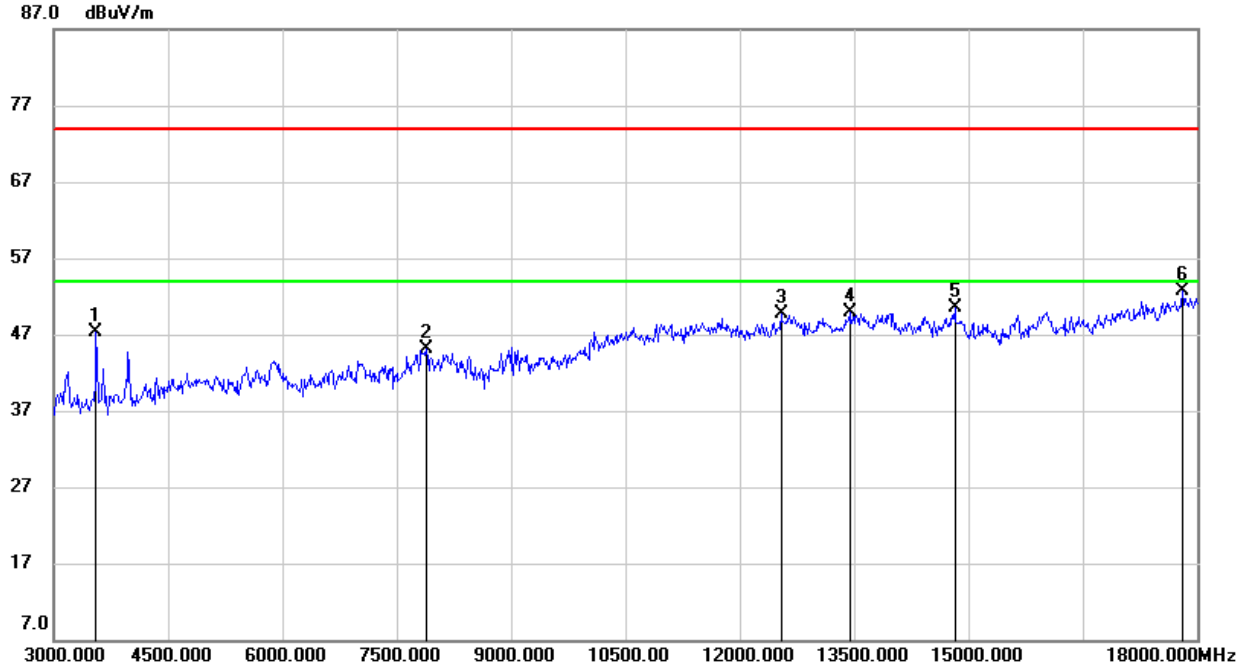


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	56.98	-3.72	53.26	74.00	-20.74	peak
2	4740.000	45.76	0.30	46.06	74.00	-27.94	peak
3	10260.000	36.92	10.71	47.63	74.00	-26.37	peak
4	13800.000	33.40	17.10	50.50	74.00	-23.50	peak
5	16440.000	32.86	18.94	51.80	74.00	-22.20	peak
6	17700.000	30.89	22.43	53.32	74.00	-20.68	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

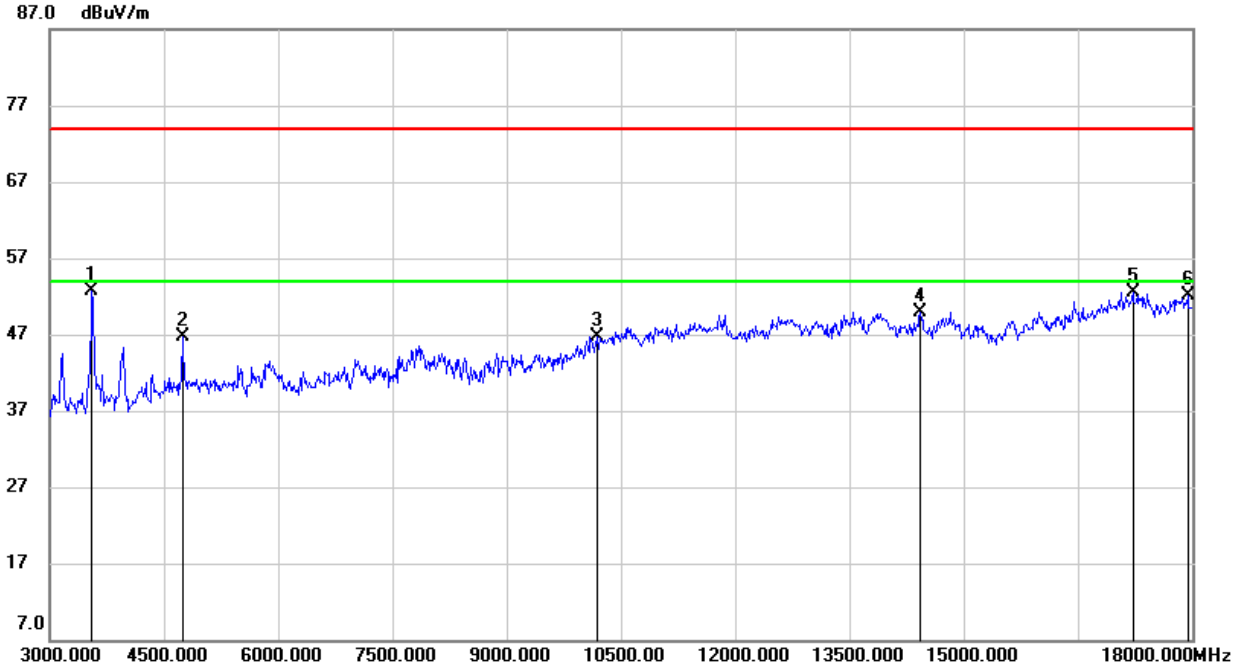


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	51.02	-3.72	47.30	74.00	-26.70	peak
2	7890.000	37.72	7.30	45.02	74.00	-28.98	peak
3	12540.000	35.32	14.33	49.65	74.00	-24.35	peak
4	13440.000	33.92	15.98	49.90	74.00	-24.10	peak
5	14820.000	34.54	15.94	50.48	74.00	-23.52	peak
6	17805.000	29.46	23.31	52.77	74.00	-21.23	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

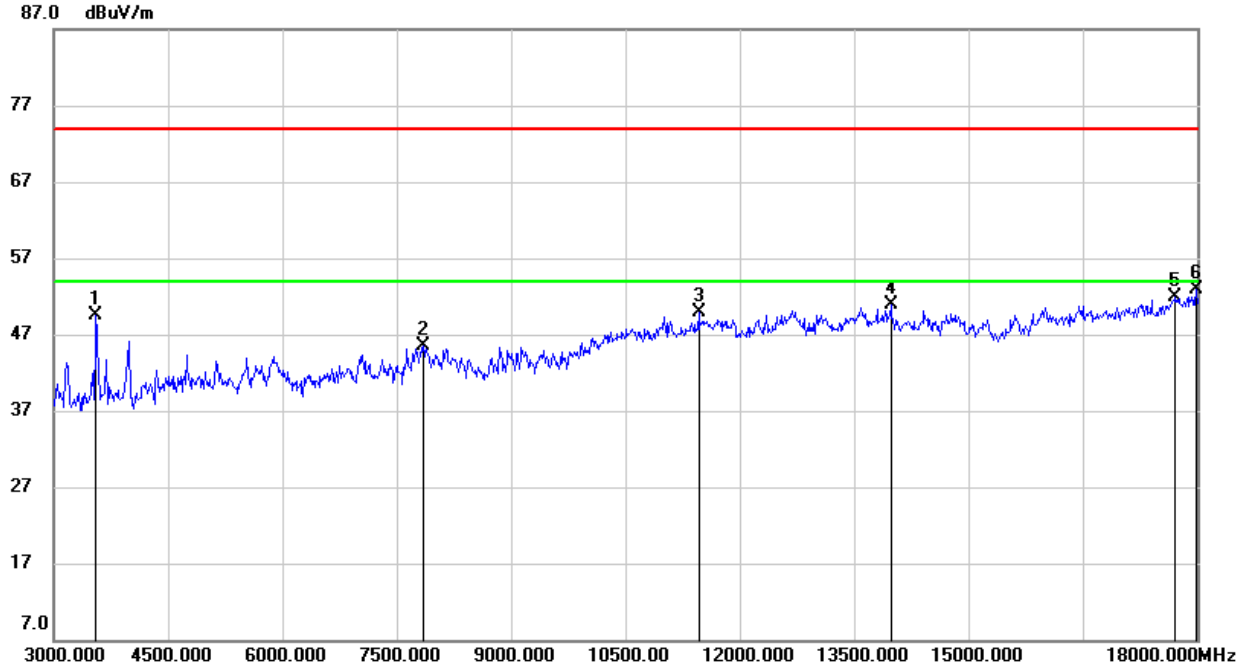


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	56.44	-3.72	52.72	74.00	-21.28	peak
2	4740.000	46.45	0.30	46.75	74.00	-27.25	peak
3	10185.000	36.41	10.21	46.62	74.00	-27.38	peak
4	14430.000	33.61	16.35	49.96	74.00	-24.04	peak
5	17220.000	31.42	21.08	52.50	74.00	-21.50	peak
6	17940.000	28.75	23.39	52.14	74.00	-21.86	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



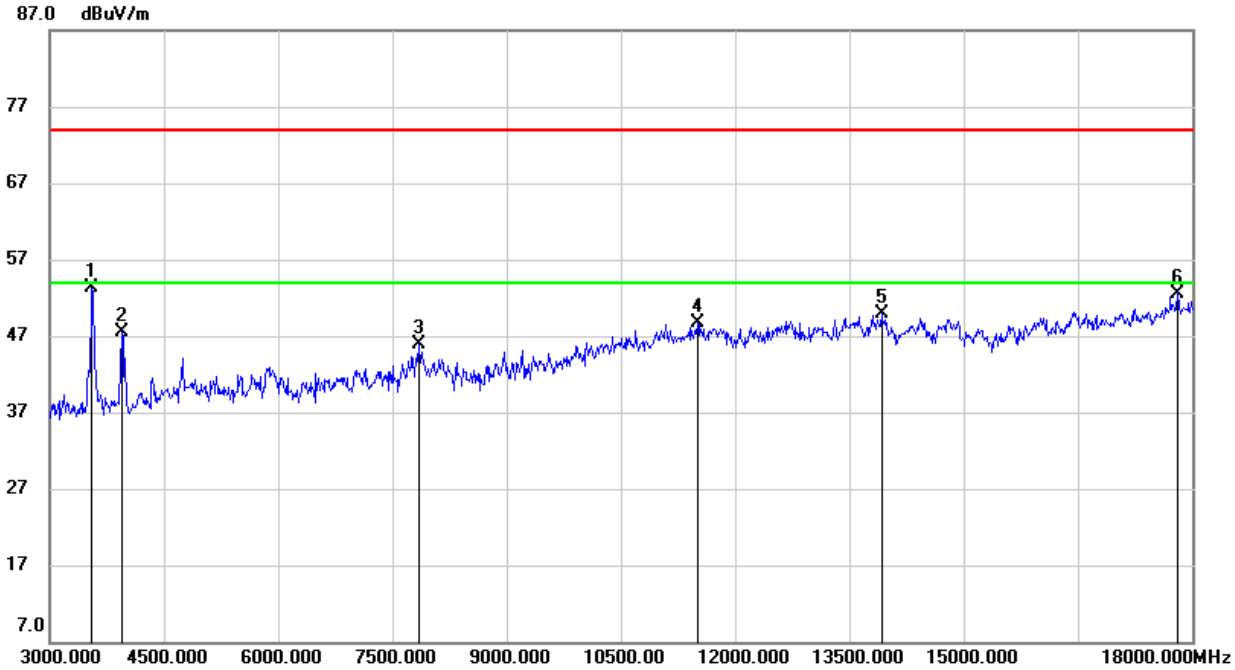
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	53.23	-3.72	49.51	74.00	-24.49	peak
2	7845.000	37.94	7.62	45.56	74.00	-28.44	peak
3	11460.000	36.81	13.11	49.92	74.00	-24.08	peak
4	13980.000	34.80	16.07	50.87	74.00	-23.13	peak
5	17715.000	29.32	22.56	51.88	74.00	-22.12	peak
6	17985.000	29.38	23.44	52.82	74.00	-21.18	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.2.3. 802.11n HT20 MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

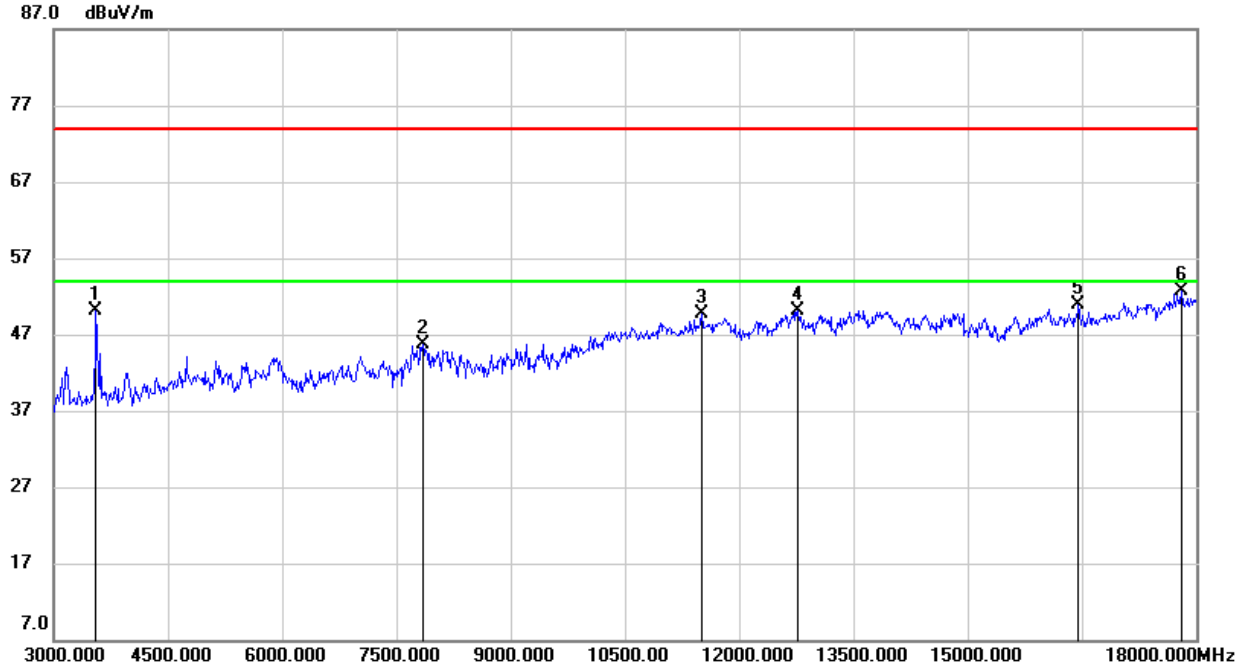


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	57.10	-3.72	53.38	74.00	-20.62	peak
2	3945.000	50.45	-2.92	47.53	74.00	-26.47	peak
3	7845.000	38.31	7.62	45.93	74.00	-28.07	peak
4	11505.000	35.20	13.42	48.62	74.00	-25.38	peak
5	13920.000	33.74	16.17	49.91	74.00	-24.09	peak
6	17805.000	29.29	23.31	52.60	74.00	-21.40	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

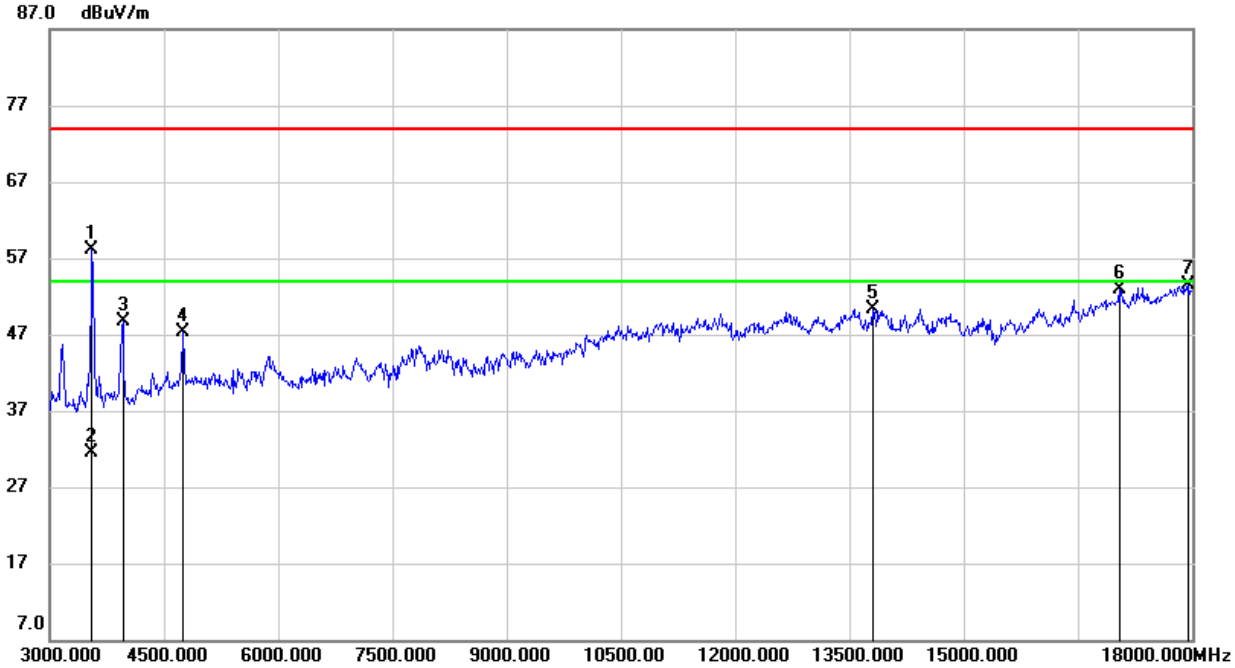


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	53.90	-3.72	50.18	74.00	-23.82	peak
2	7845.000	38.05	7.62	45.67	74.00	-28.33	peak
3	11505.000	36.32	13.42	49.74	74.00	-24.26	peak
4	12765.000	34.86	15.18	50.04	74.00	-23.96	peak
5	16455.000	31.87	19.00	50.87	74.00	-23.13	peak
6	17805.000	29.32	23.31	52.63	74.00	-21.37	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

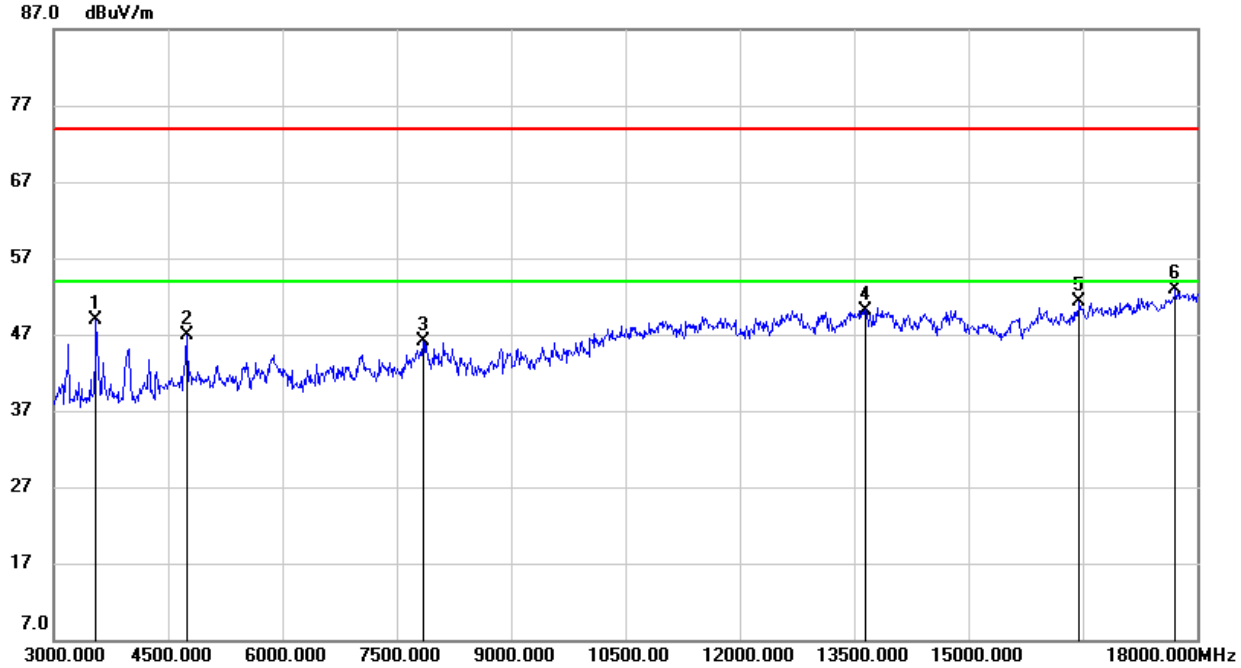


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	61.77	-3.72	58.05	74.00	-15.95	peak
2	3555.000	35.22	-3.72	31.50	54.00	-22.50	AVG
3	3960.000	51.68	-2.91	48.77	74.00	-25.23	peak
4	4755.000	46.98	0.34	47.32	74.00	-26.68	peak
5	13800.000	33.22	17.10	50.32	74.00	-23.68	peak
6	17040.000	32.33	20.49	52.82	74.00	-21.18	peak
7	17955.000	30.09	23.41	53.50	74.00	-20.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

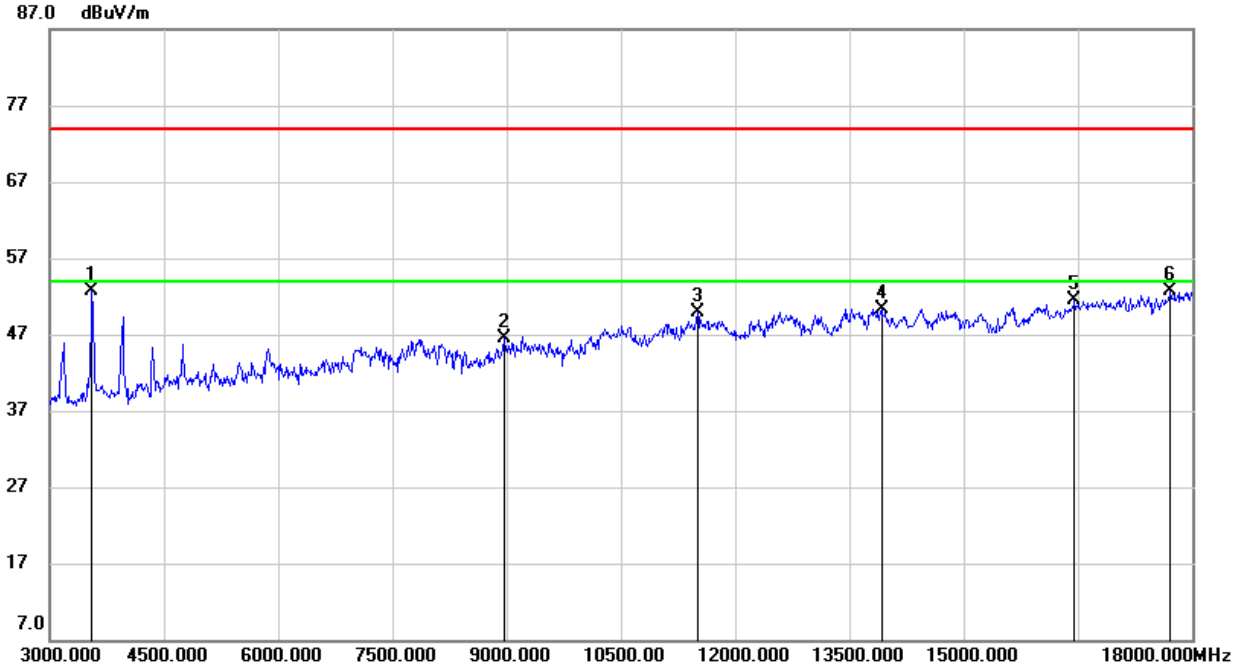


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	52.65	-3.72	48.93	74.00	-25.07	peak
2	4740.000	46.59	0.30	46.89	74.00	-27.11	peak
3	7845.000	38.47	7.62	46.09	74.00	-27.91	peak
4	13650.000	34.26	15.94	50.20	74.00	-23.80	peak
5	16455.000	32.33	19.00	51.33	74.00	-22.67	peak
6	17715.000	30.36	22.56	52.92	74.00	-21.08	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

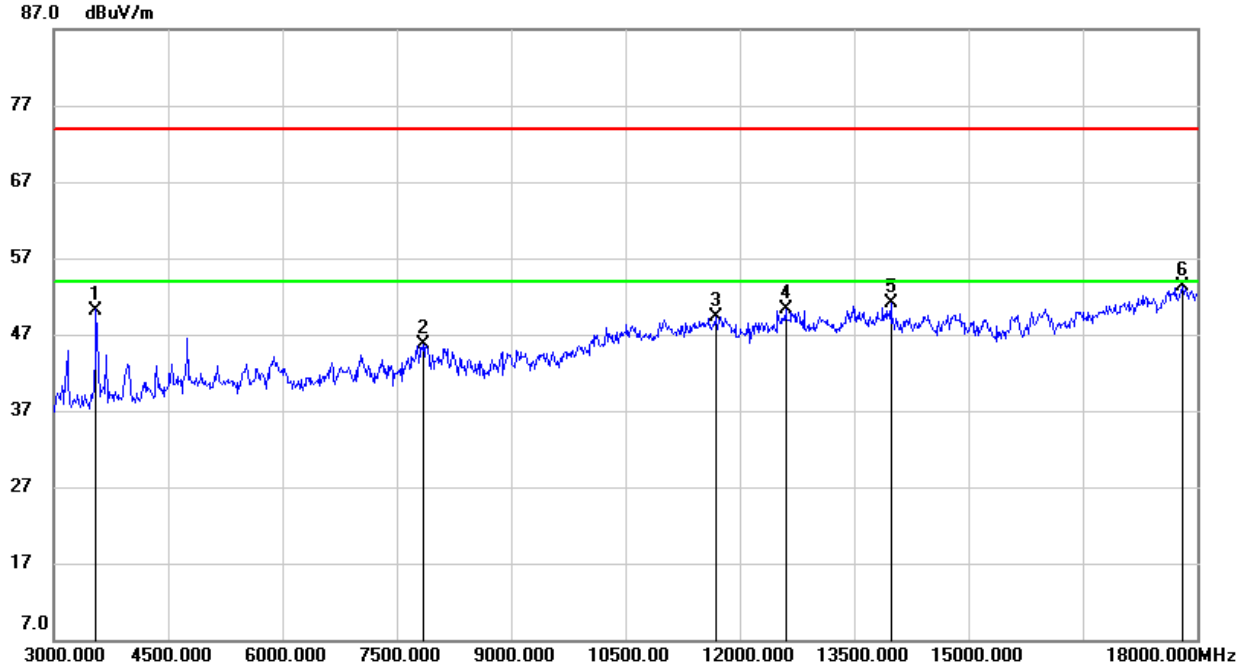


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	56.34	-3.72	52.62	74.00	-21.38	peak
2	8970.000	37.47	9.00	46.47	74.00	-27.53	peak
3	11505.000	36.51	13.42	49.93	74.00	-24.07	peak
4	13920.000	34.19	16.17	50.36	74.00	-23.64	peak
5	16455.000	32.52	19.00	51.52	74.00	-22.48	peak
6	17715.000	30.17	22.56	52.73	74.00	-21.27	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3555.000	53.92	-3.72	50.20	74.00	-23.80	peak
2	7845.000	38.17	7.62	45.79	74.00	-28.21	peak
3	11685.000	36.30	12.98	49.28	74.00	-24.72	peak
4	12600.000	36.30	13.99	50.29	74.00	-23.71	peak
5	13980.000	35.11	16.07	51.18	74.00	-22.82	peak
6	17805.000	30.09	23.31	53.40	74.00	-20.60	peak

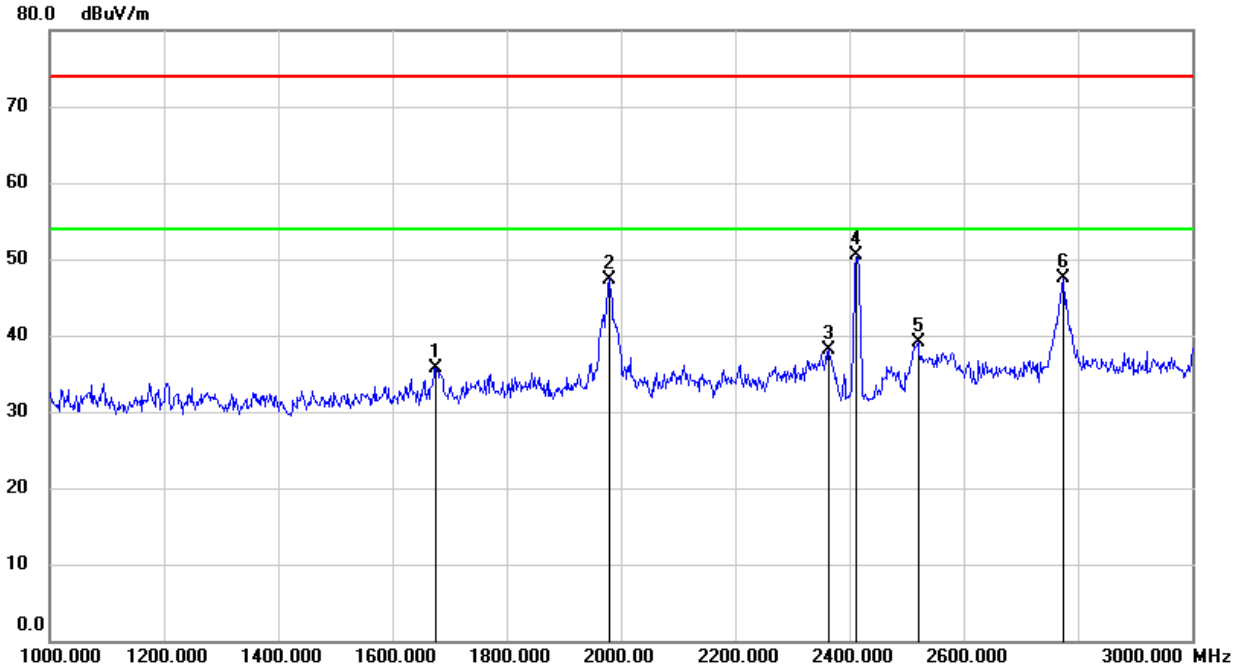
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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 (1~3GHz)

8.3.1. 802.11b MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

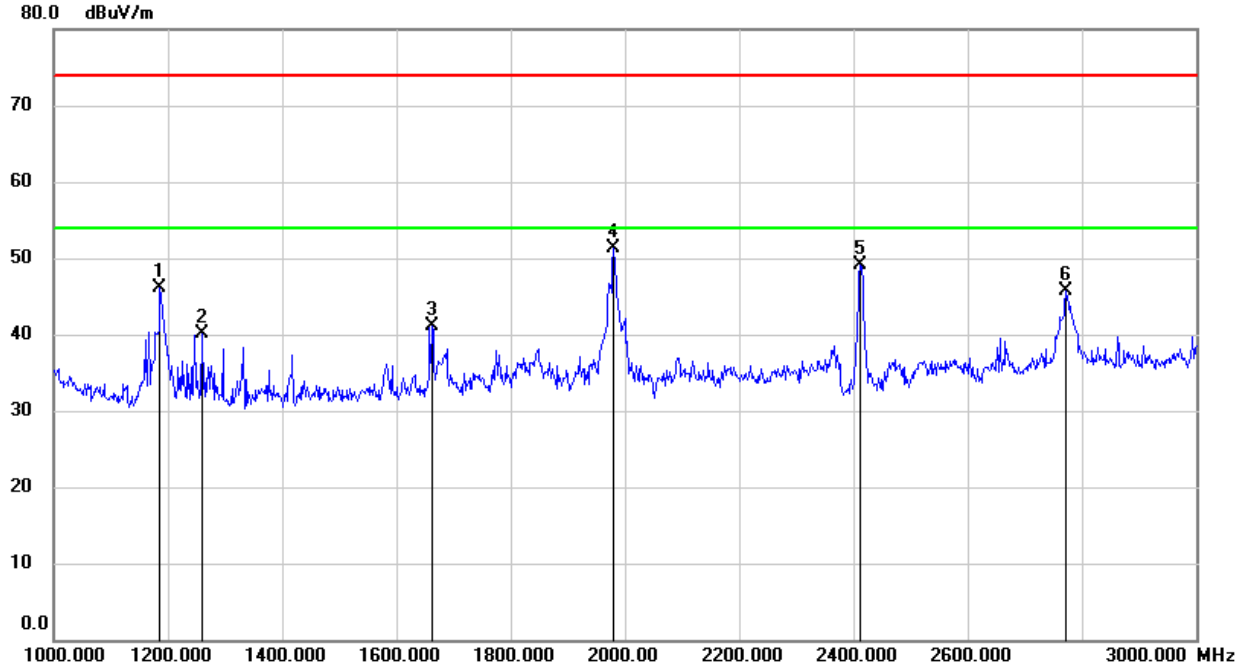


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1676.000	46.80	-11.02	35.78	74.00	-38.22	peak
2	1980.000	57.25	-9.85	47.40	74.00	-26.60	peak
3	2364.000	46.15	-7.98	38.17	74.00	-35.83	peak
4	2412.000	58.25	-7.77	50.48	/	/	fundamental
5	2520.000	46.37	-7.27	39.10	74.00	-34.90	peak
6	2774.000	53.88	-6.33	47.55	74.00	-26.45	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

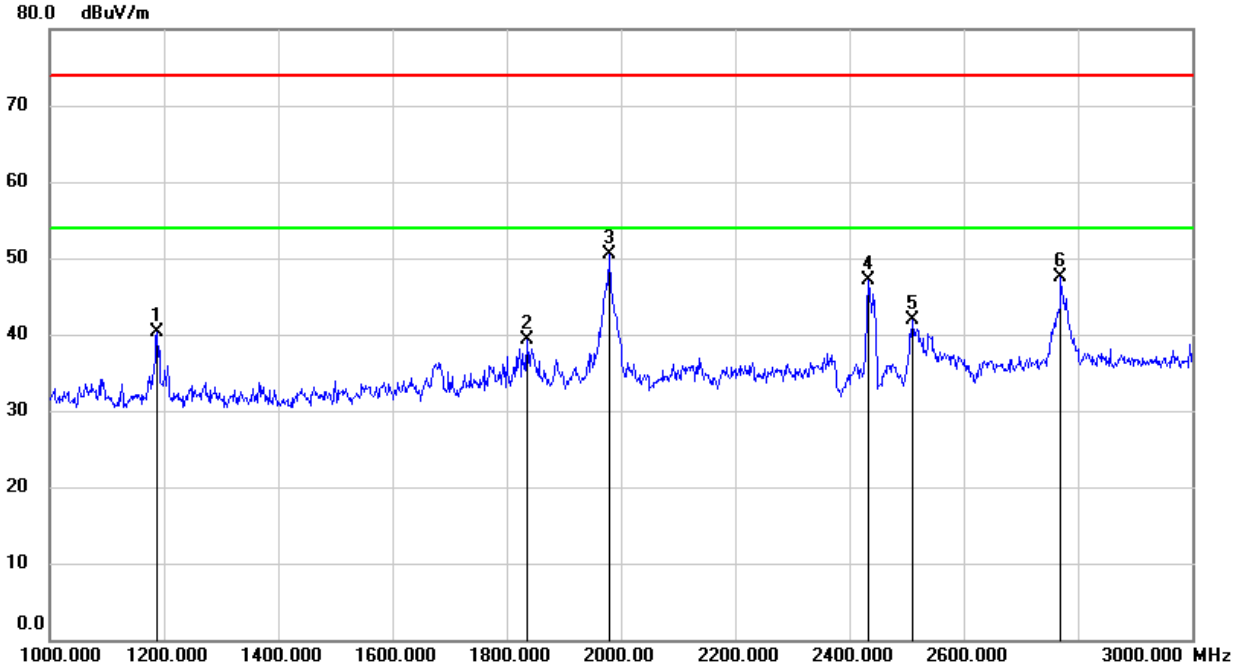


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1186.000	58.99	-12.80	46.19	74.00	-27.81	peak
2	1260.000	52.49	-12.48	40.01	74.00	-33.99	peak
3	1662.000	52.12	-11.09	41.03	74.00	-32.97	peak
4	1980.000	61.09	-9.85	51.24	74.00	-22.76	peak
5	2412.000	56.83	-7.77	49.06	/	/	fundamental
6	2772.000	52.06	-6.35	45.71	74.00	-28.29	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

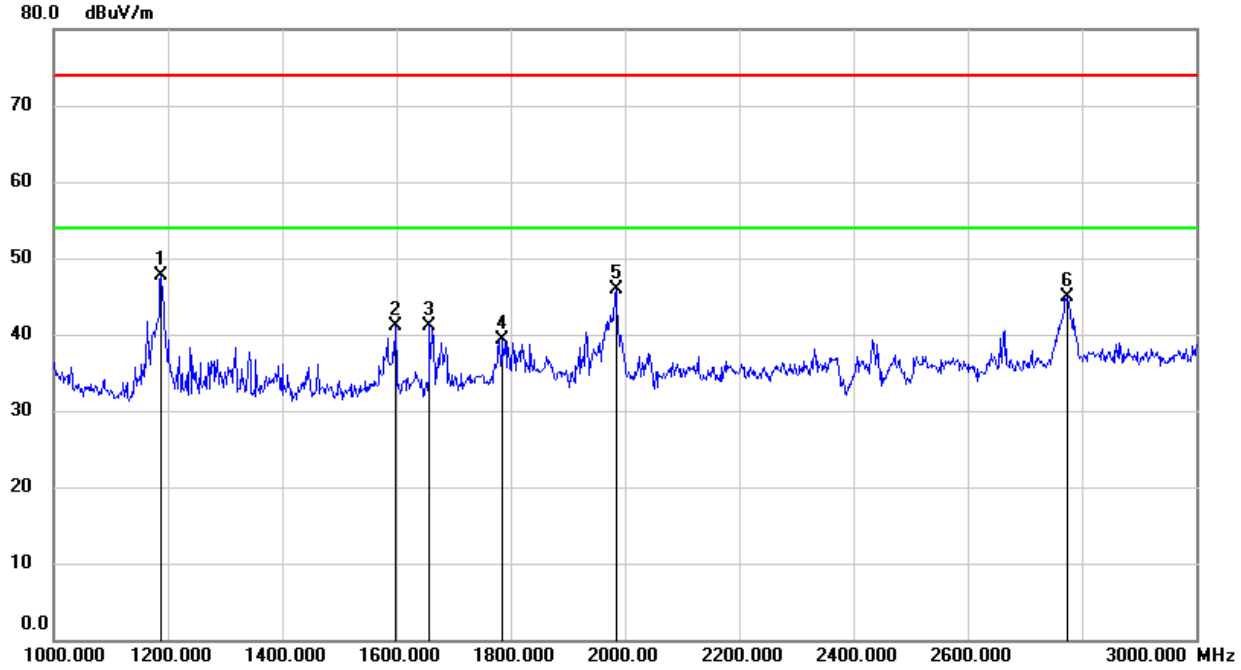


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	53.07	-12.77	40.30	74.00	-33.70	peak
2	1836.000	49.15	-9.92	39.23	74.00	-34.77	peak
3	1980.000	60.43	-9.85	50.58	74.00	-23.42	peak
4	2434.000	54.70	-7.62	47.08	74.00	-26.92	peak
5	2510.000	49.05	-7.21	41.84	74.00	-32.16	peak
6	2770.000	53.97	-6.38	47.59	74.00	-26.41	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

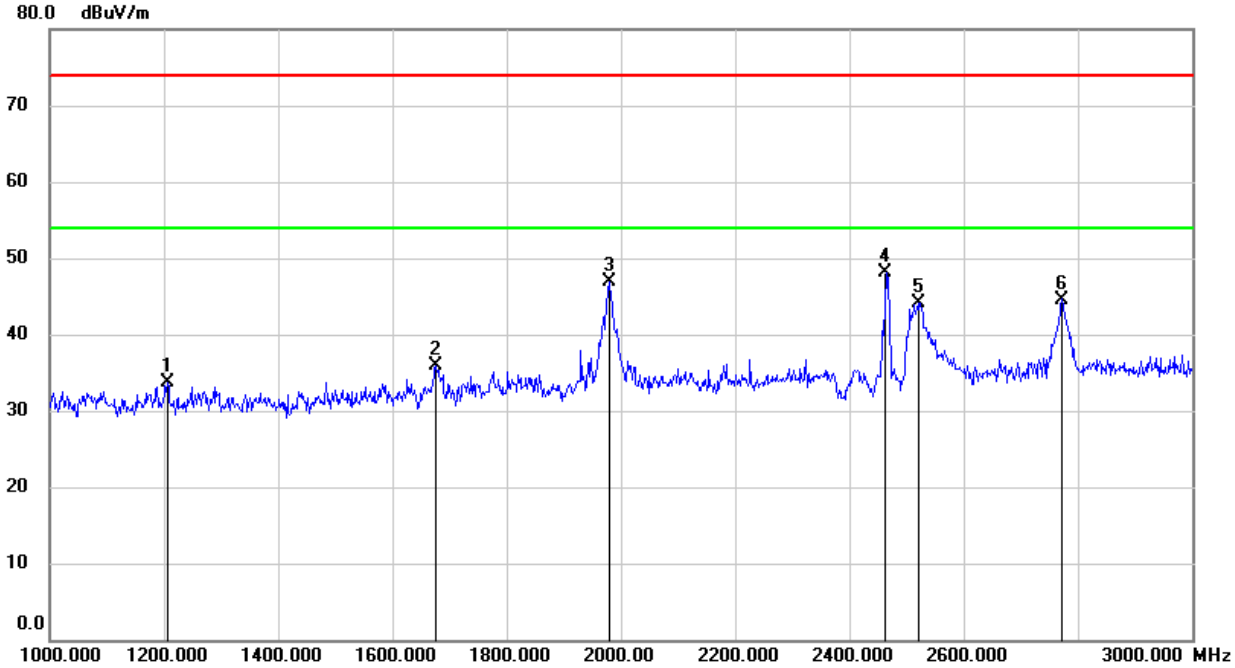


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	60.46	-12.77	47.69	74.00	-26.31	peak
2	1598.000	52.58	-11.42	41.16	74.00	-32.84	peak
3	1658.000	52.31	-11.11	41.20	74.00	-32.80	peak
4	1786.000	49.40	-10.05	39.35	74.00	-34.65	peak
5	1984.000	55.75	-9.84	45.91	74.00	-28.09	peak
6	2774.000	51.24	-6.33	44.91	74.00	-29.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

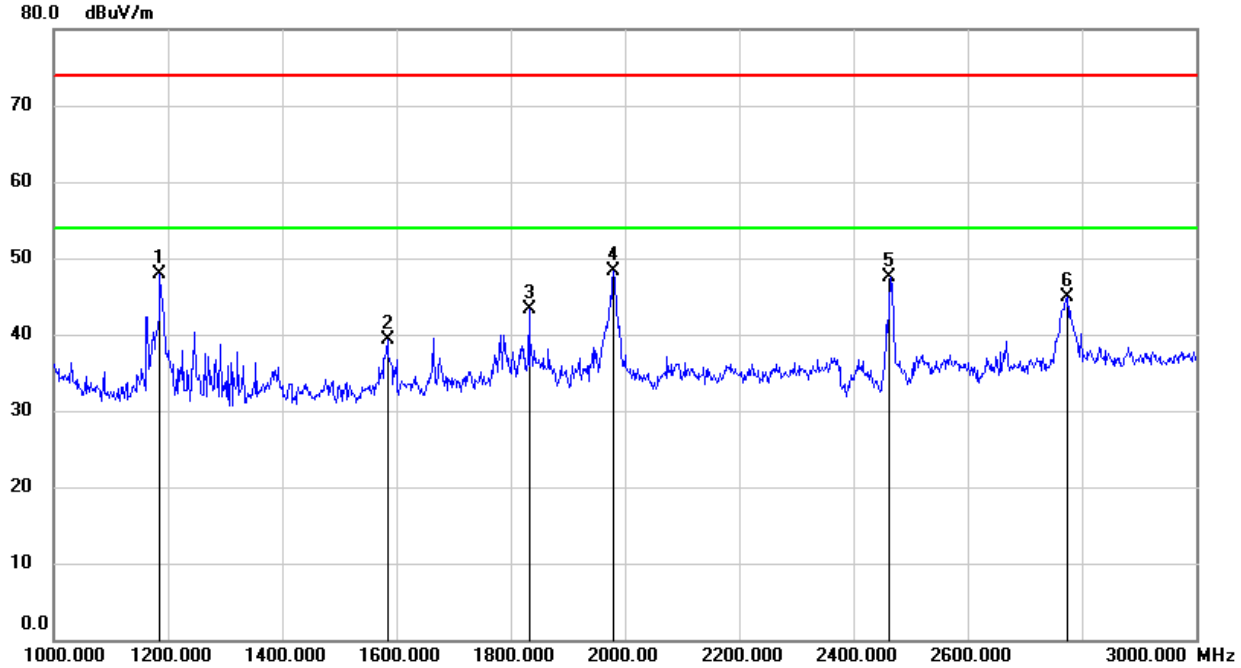


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1206.000	46.29	-12.66	33.63	74.00	-40.37	peak
2	1676.000	46.99	-11.02	35.97	74.00	-38.03	peak
3	1980.000	56.74	-9.85	46.89	74.00	-27.11	peak
4	2462.000	55.55	-7.43	48.12	/	/	fundamental
5	2520.000	51.30	-7.27	44.03	74.00	-29.97	peak
6	2772.000	50.95	-6.35	44.60	74.00	-29.40	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



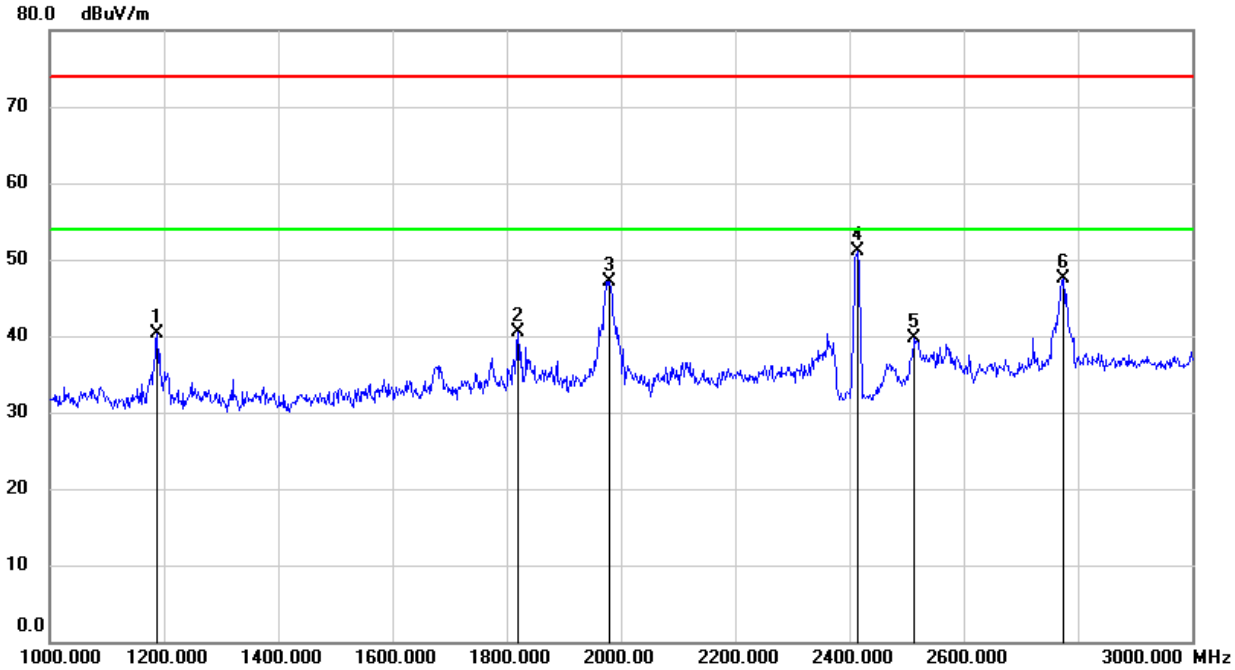
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1186.000	60.65	-12.80	47.85	74.00	-26.15	peak
2	1584.000	50.82	-11.53	39.29	74.00	-34.71	peak
3	1832.000	53.26	-9.93	43.33	74.00	-30.67	peak
4	1980.000	58.09	-9.85	48.24	74.00	-25.76	peak
5	2462.000	54.92	-7.43	47.49	/	/	fundamental
6	2774.000	51.15	-6.33	44.82	74.00	-29.18	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.3.2. 802.11g MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

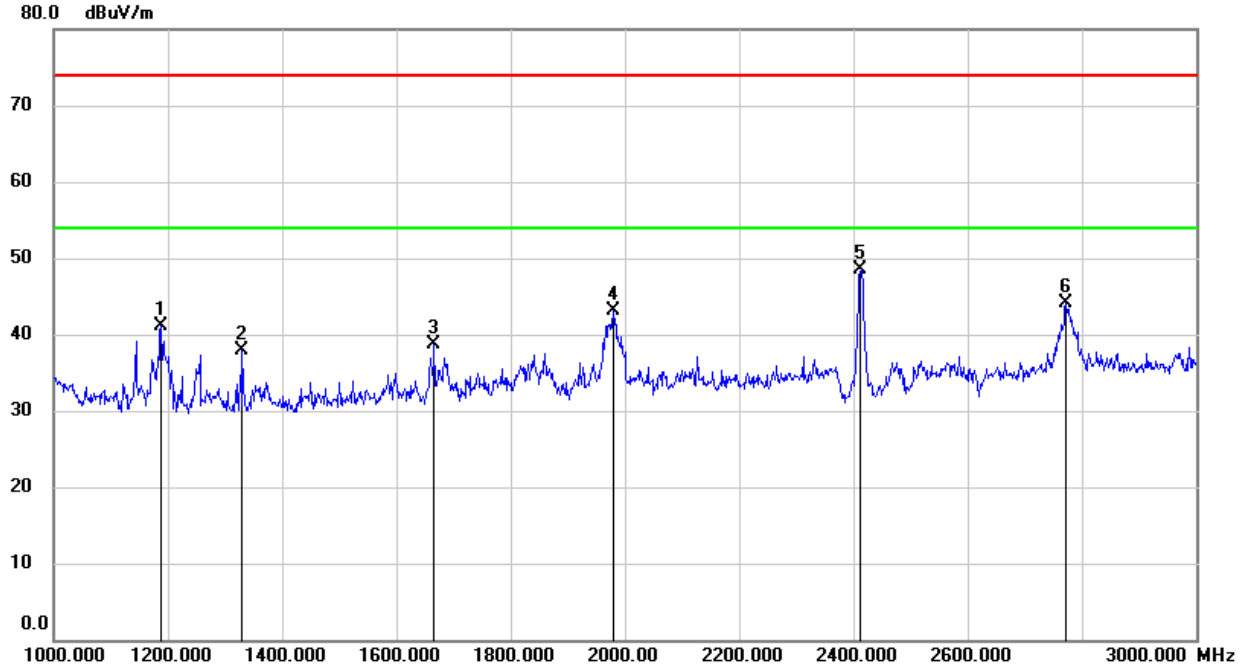


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	53.16	-12.77	40.39	74.00	-33.61	peak
2	1820.000	50.43	-9.92	40.51	74.00	-33.49	peak
3	1980.000	57.04	-9.85	47.19	74.00	-26.81	peak
4	2412.000	58.78	-7.76	51.02	/	/	fundamental
5	2514.000	46.87	-7.24	39.63	74.00	-34.37	peak
6	2774.000	53.82	-6.33	47.49	74.00	-26.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

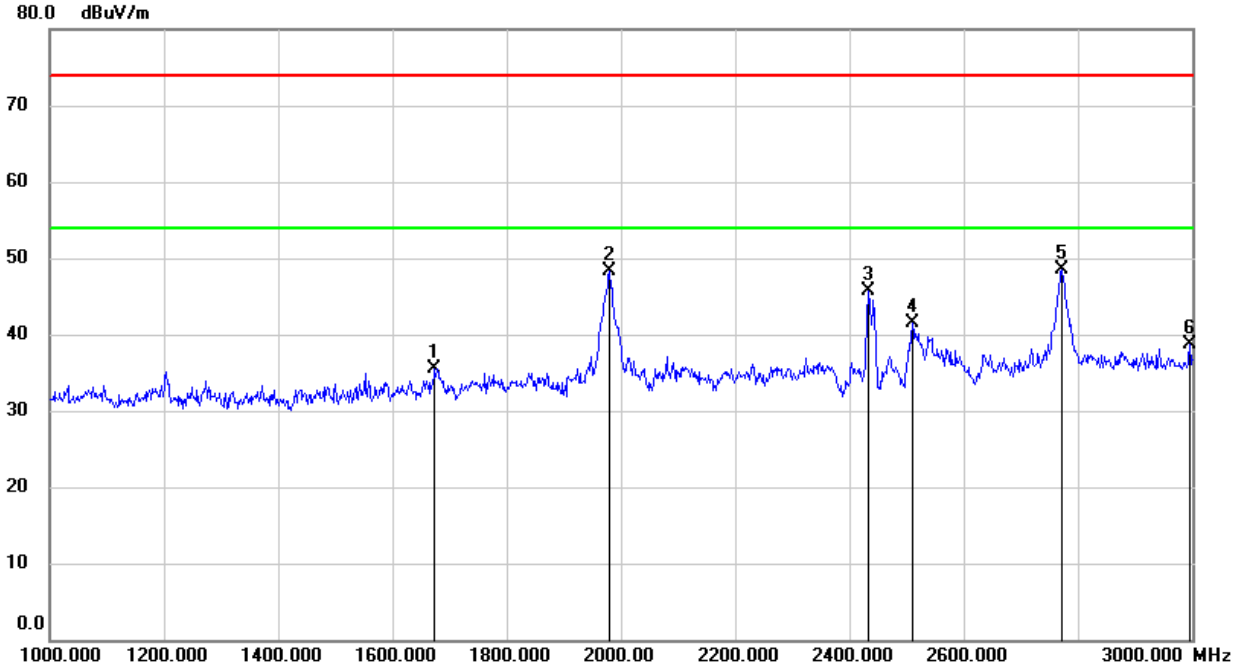


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	53.92	-12.77	41.15	74.00	-32.85	peak
2	1330.000	50.26	-12.36	37.90	74.00	-36.10	peak
3	1666.000	49.69	-11.07	38.62	74.00	-35.38	peak
4	1980.000	52.91	-9.85	43.06	74.00	-30.94	peak
5	2412.000	56.21	-7.77	48.44	/	/	fundamental
6	2772.000	50.53	-6.35	44.18	74.00	-29.82	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

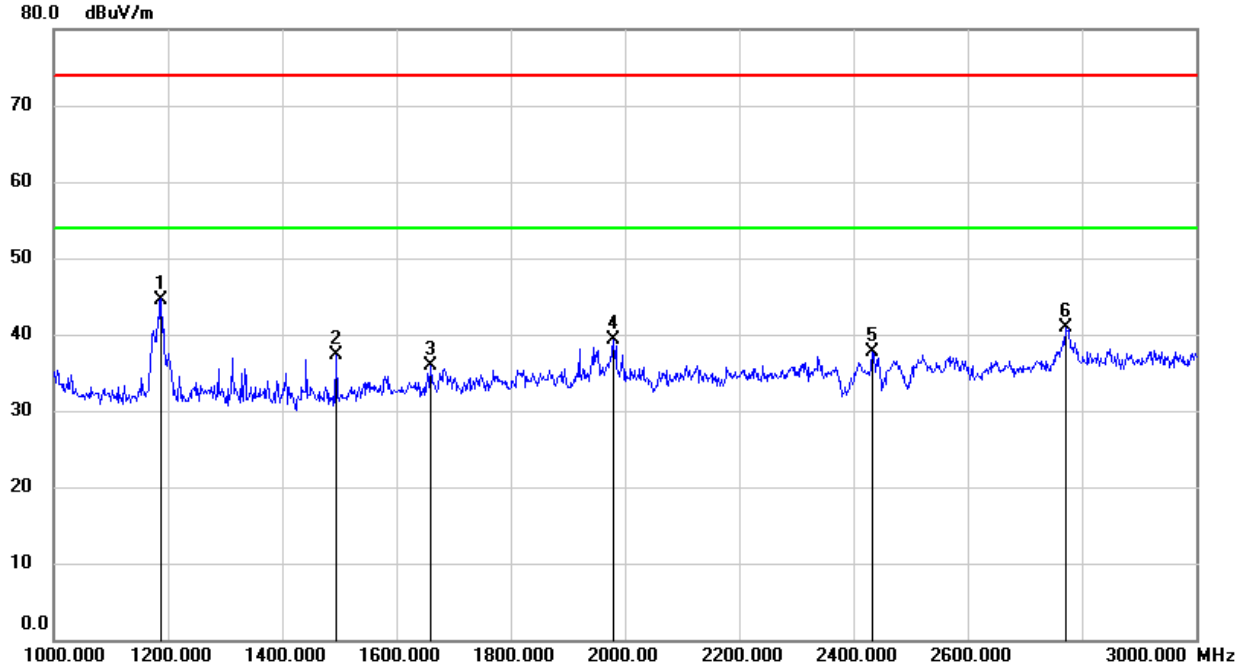


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1674.000	46.45	-11.03	35.42	74.00	-38.58	peak
2	1980.000	58.14	-9.85	48.29	74.00	-25.71	peak
3	2437.000	53.28	-7.62	45.66	/	/	fundamental
4	2510.000	48.81	-7.21	41.60	74.00	-32.40	peak
5	2772.000	54.78	-6.35	48.43	74.00	-25.57	peak
6	2996.000	44.02	-5.30	38.72	74.00	-35.28	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

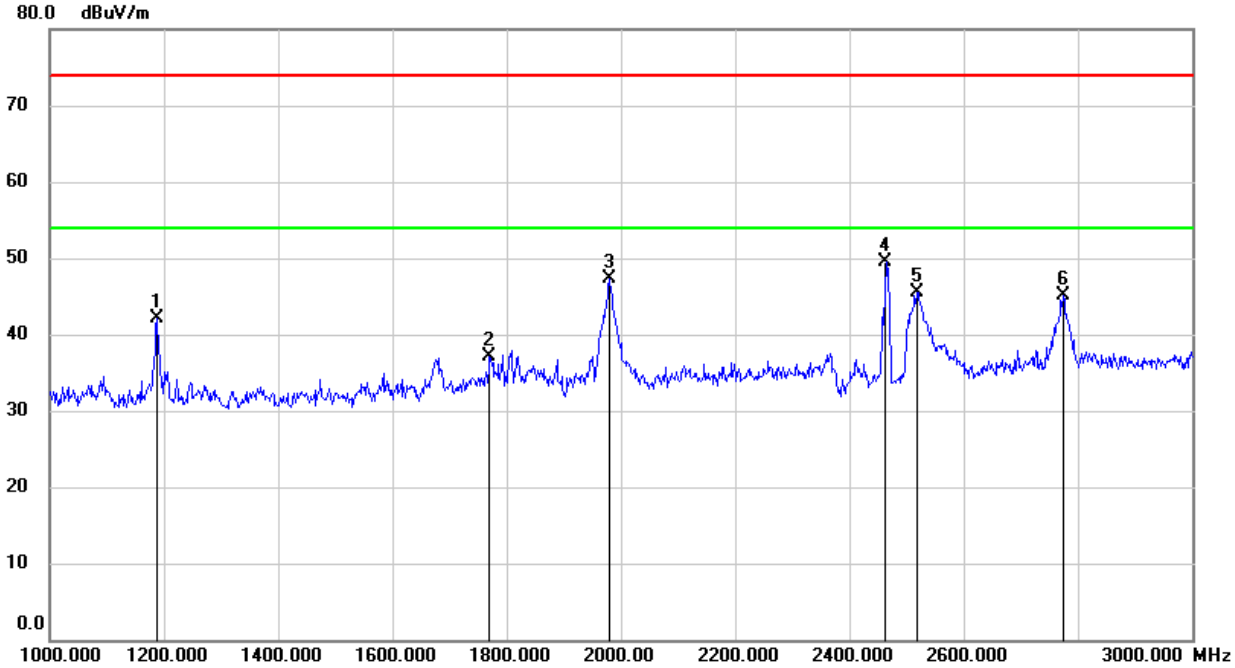


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	57.37	-12.77	44.60	74.00	-29.40	peak
2	1494.000	49.49	-12.22	37.27	74.00	-36.73	peak
3	1660.000	47.09	-11.10	35.99	74.00	-38.01	peak
4	1980.000	49.23	-9.85	39.38	74.00	-34.62	peak
5	2437.000	45.30	-7.62	37.68	/	/	fundamental
6	2772.000	47.17	-6.35	40.82	74.00	-33.18	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

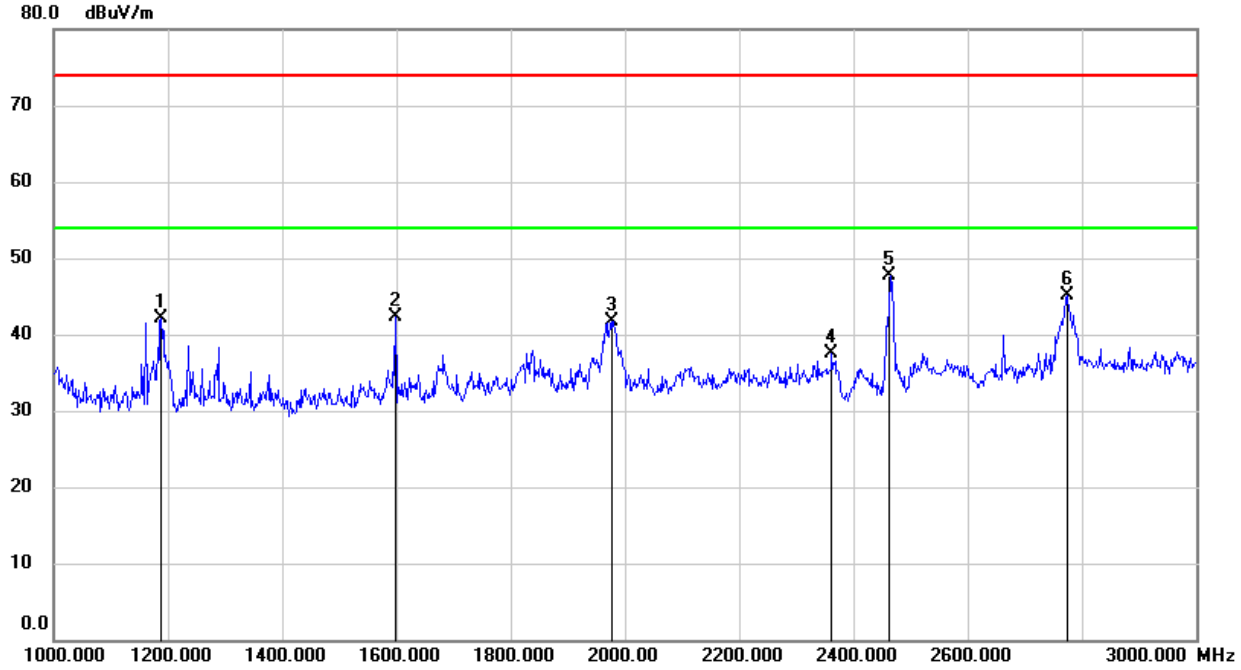


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	54.94	-12.77	42.17	74.00	-31.83	peak
2	1770.000	47.23	-10.21	37.02	74.00	-36.98	peak
3	1980.000	57.22	-9.85	47.37	74.00	-26.63	peak
4	2462.000	56.91	-7.43	49.48	/	/	fundamental
5	2518.000	52.85	-7.27	45.58	74.00	-28.42	peak
6	2774.000	51.38	-6.33	45.05	74.00	-28.95	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



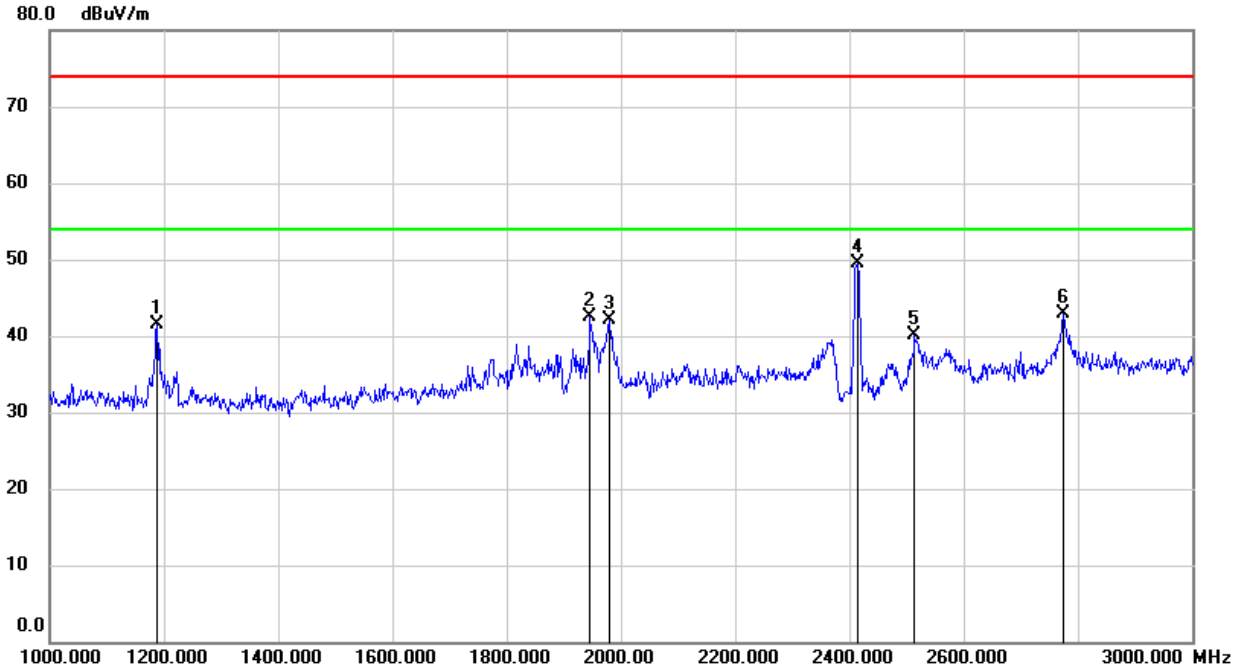
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	54.94	-12.77	42.17	74.00	-31.83	peak
2	1598.000	53.74	-11.42	42.32	74.00	-31.68	peak
3	1978.000	51.51	-9.85	41.66	74.00	-32.34	peak
4	2362.000	45.41	-7.99	37.42	74.00	-36.58	peak
5	2462.000	55.16	-7.43	47.73	/	/	fundamental
6	2774.000	51.35	-6.33	45.02	74.00	-28.98	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

8.3.3. 802.11n HT20 MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

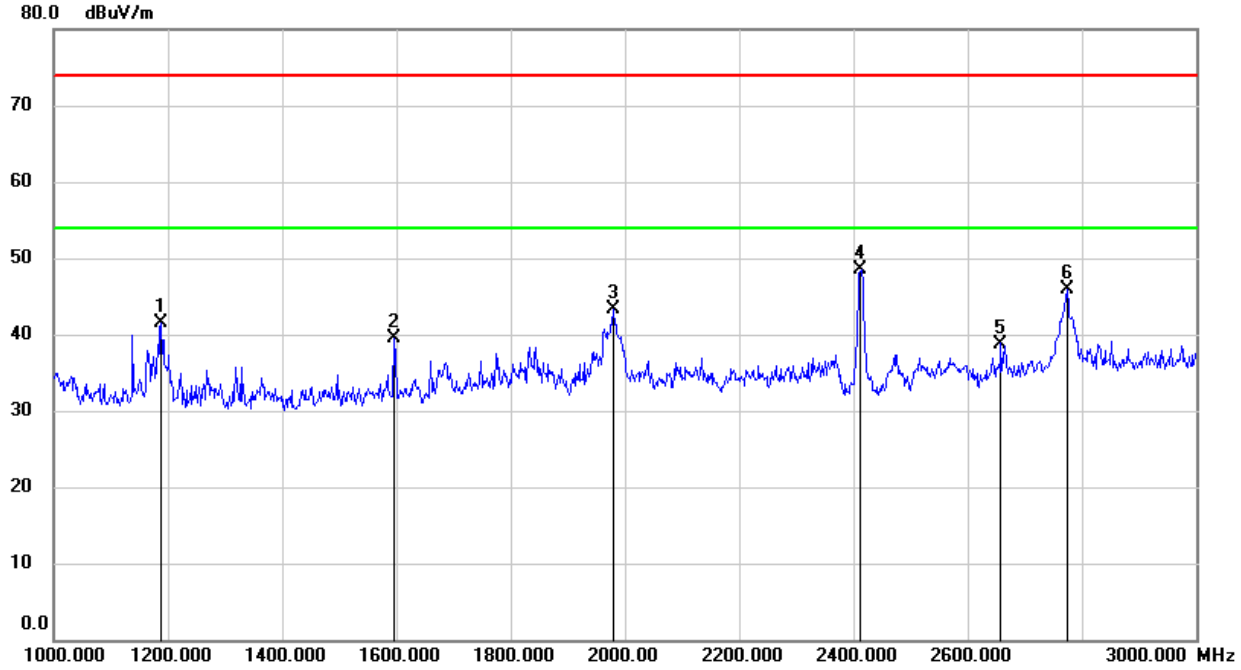


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	54.32	-12.77	41.55	74.00	-32.45	peak
2	1946.000	52.38	-9.90	42.48	74.00	-31.52	peak
3	1980.000	51.86	-9.85	42.01	74.00	-31.99	peak
4	2412.000	57.36	-7.76	49.60	/	/	fundamental
5	2514.000	47.25	-7.24	40.01	74.00	-33.99	peak
6	2774.000	49.19	-6.33	42.86	74.00	-31.14	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

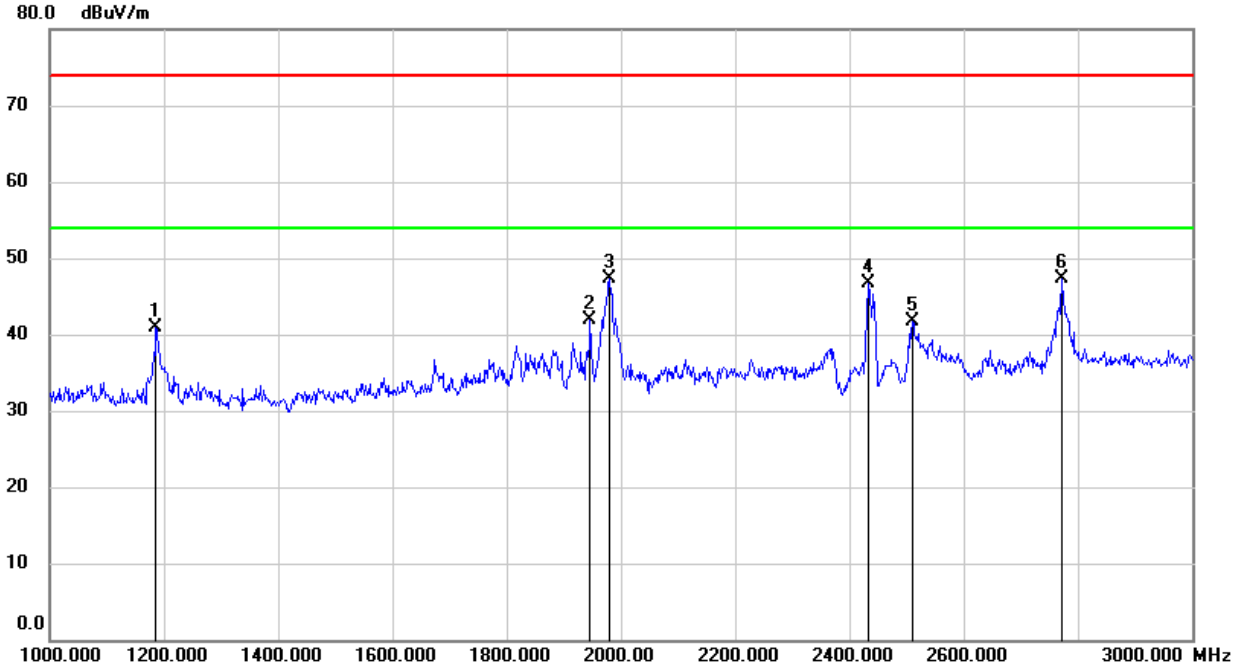


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	54.20	-12.77	41.43	74.00	-32.57	peak
2	1596.000	50.96	-11.44	39.52	74.00	-34.48	peak
3	1980.000	53.07	-9.85	43.22	74.00	-30.78	peak
4	2412.000	56.21	-7.77	48.44	/	/	fundamental
5	2658.000	46.17	-7.37	38.80	74.00	-35.20	peak
6	2774.000	52.30	-6.33	45.97	74.00	-28.03	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

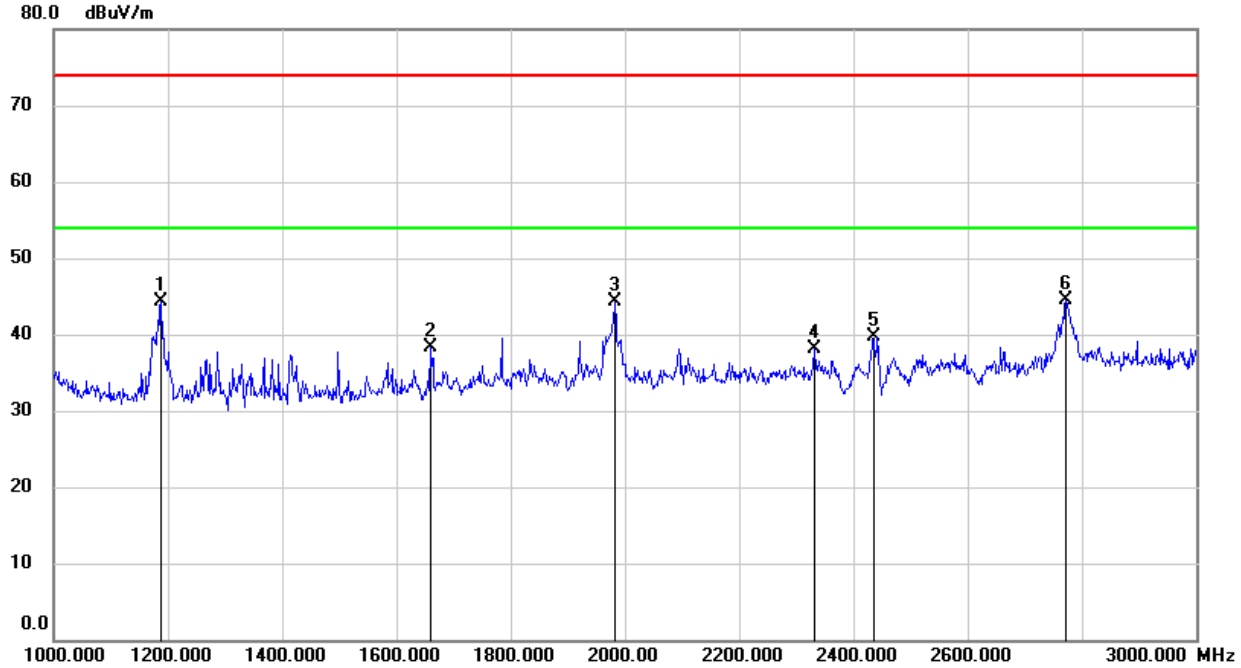


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1186.000	53.77	-12.80	40.97	74.00	-33.03	peak
2	1946.000	51.88	-9.90	41.98	74.00	-32.02	peak
3	1980.000	57.06	-9.85	47.21	74.00	-26.79	peak
4	2437.000	54.40	-7.62	46.78	/	/	fundamental
5	2510.000	48.89	-7.21	41.68	74.00	-32.32	peak
6	2772.000	53.62	-6.35	47.27	74.00	-26.73	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

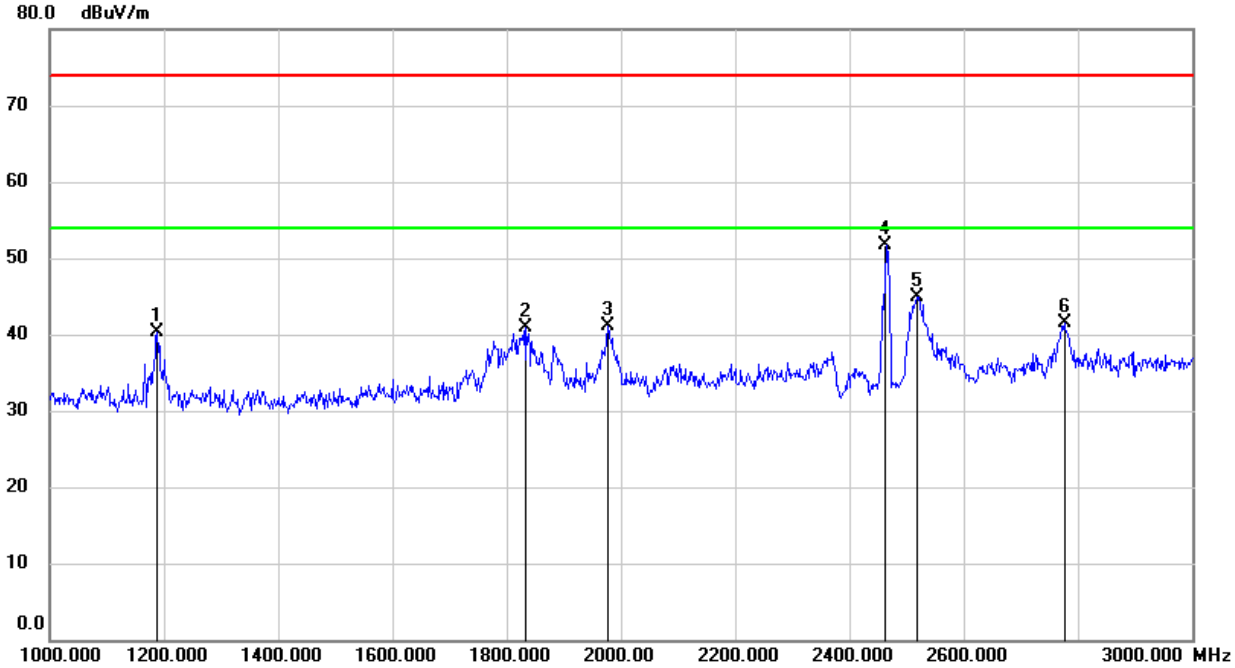


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	57.07	-12.77	44.30	74.00	-29.70	peak
2	1660.000	49.41	-11.10	38.31	74.00	-35.69	peak
3	1982.000	54.18	-9.85	44.33	74.00	-29.67	peak
4	2332.000	46.12	-8.08	38.04	74.00	-35.96	peak
5	2437.000	47.26	-7.60	39.66	/	/	fundamental
6	2772.000	50.78	-6.35	44.43	74.00	-29.57	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

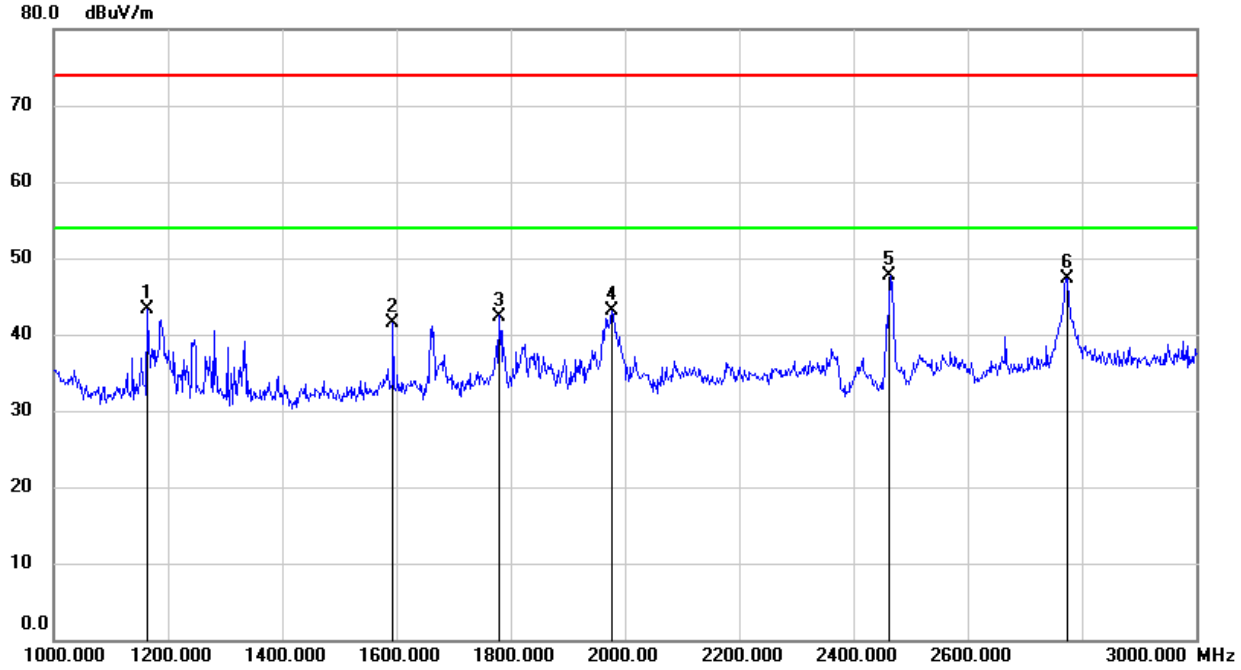


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1188.000	53.13	-12.77	40.36	74.00	-33.64	peak
2	1834.000	50.79	-9.93	40.86	74.00	-33.14	peak
3	1978.000	50.90	-9.85	41.05	74.00	-32.95	peak
4	2462.000	59.06	-7.43	51.63	/	/	fundamental
5	2518.000	52.25	-7.27	44.98	74.00	-29.02	peak
6	2776.000	47.73	-6.32	41.41	74.00	-32.59	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1164.000	56.34	-12.97	43.37	74.00	-30.63	peak
2	1594.000	52.88	-11.45	41.43	74.00	-32.57	peak
3	1780.000	52.52	-10.12	42.40	74.00	-31.60	peak
4	1976.000	52.98	-9.85	43.13	74.00	-30.87	peak
5	2462.000	55.17	-7.43	47.74	/	/	fundamental
6	2774.000	53.71	-6.33	47.38	74.00	-26.62	peak

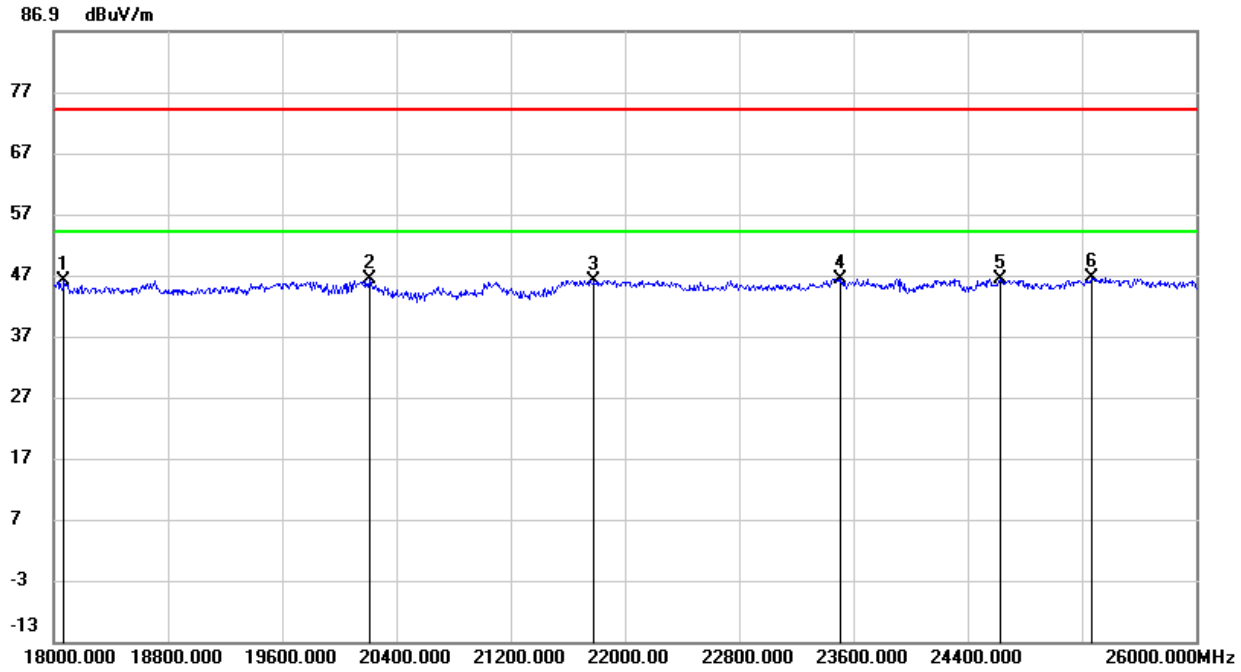
Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band Reject Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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 (18~26GHz)

8.4.1. 802.11g MODE

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

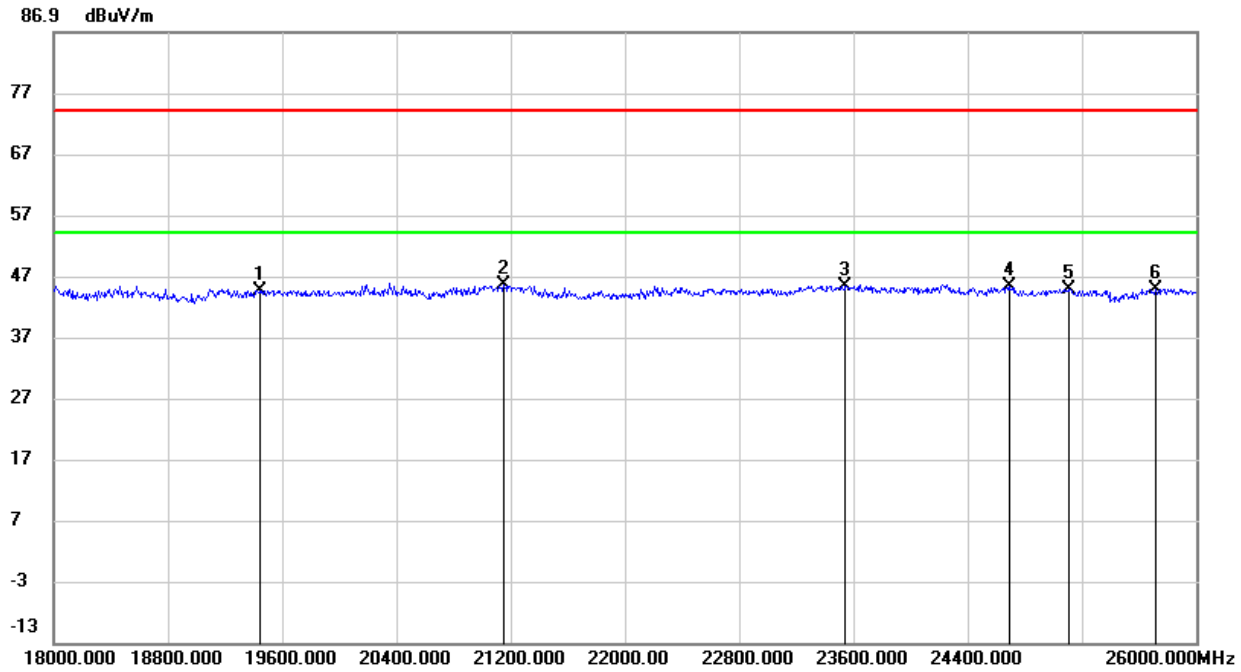


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18072.000	50.05	-4.02	46.03	74.00	-27.97	peak
2	20208.000	51.10	-4.79	46.31	74.00	-27.69	peak
3	21784.000	51.96	-5.82	46.14	74.00	-27.86	peak
4	23512.000	51.14	-4.76	46.38	74.00	-27.62	peak
5	24624.000	48.65	-2.27	46.38	74.00	-27.62	peak
6	25272.000	47.78	-1.23	46.55	74.00	-27.45	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

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

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19440.000	49.49	-4.86	44.63	74.00	-29.37	peak
2	21152.000	51.06	-5.42	45.64	74.00	-28.36	peak
3	23544.000	50.13	-4.73	45.40	74.00	-28.60	peak
4	24688.000	47.39	-2.11	45.28	74.00	-28.72	peak
5	25104.000	46.02	-1.12	44.90	74.00	-29.10	peak
6	25720.000	46.28	-1.39	44.89	74.00	-29.11	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

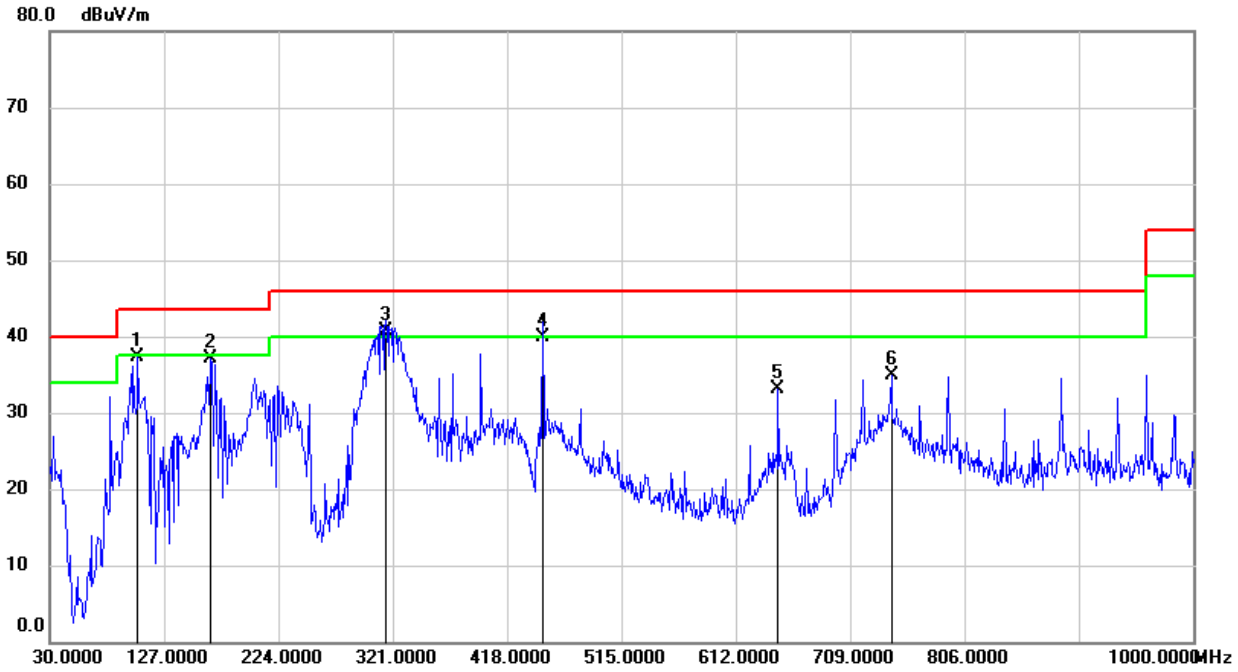
Note: All the test modes have been tested, only the worst data record in the report.

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

8.5. SPURIOUS EMISSIONS (0.03 ~ 1 GHz)

8.5.1. 802.11g MODE

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

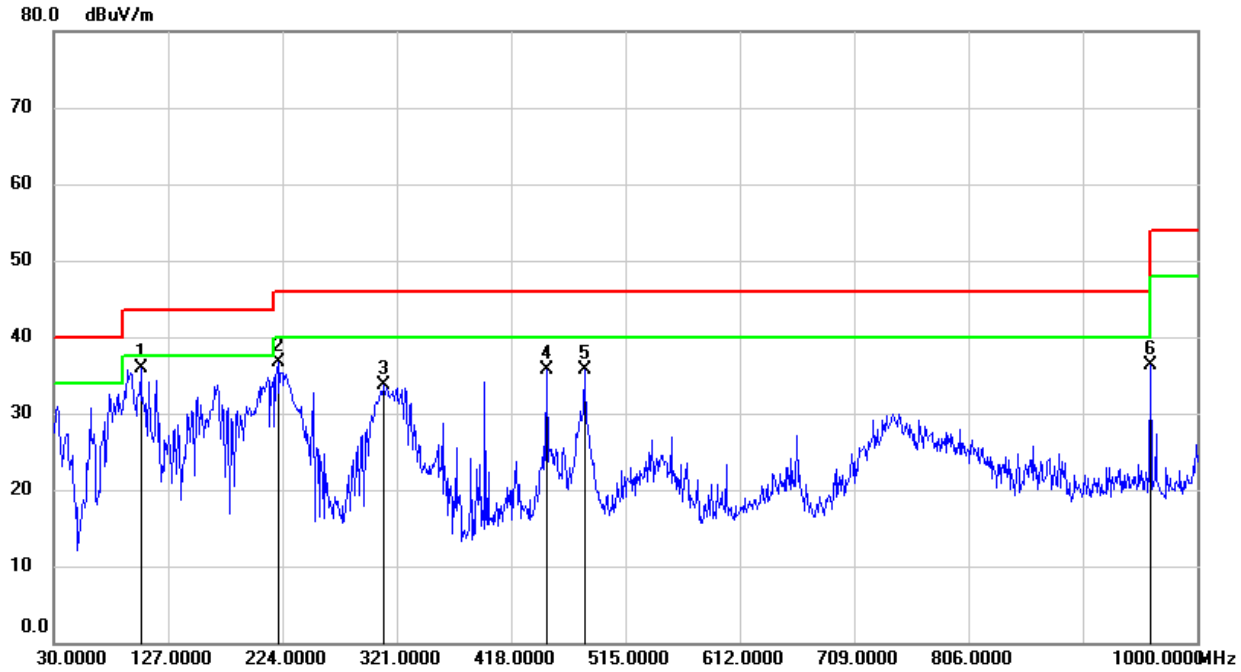


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	104.6900	58.17	-20.95	37.22	43.50	-6.28	QP
2	166.7700	54.66	-17.56	37.10	43.50	-6.40	QP
3	315.1800	55.99	-15.24	40.75	46.00	-5.25	QP
4	448.0700	52.33	-12.50	39.83	46.00	-6.17	QP
5	647.8900	42.64	-9.48	33.16	46.00	-12.84	QP
6	743.9200	43.38	-8.42	34.96	46.00	-11.04	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

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

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	103.7200	56.90	-21.01	35.89	43.50	-7.61	QP
2	220.1200	55.01	-18.39	36.62	46.00	-9.38	QP
3	310.3299	49.03	-15.38	33.65	46.00	-12.35	QP
4	448.0700	48.20	-12.50	35.70	46.00	-10.30	QP
5	480.0800	47.70	-11.98	35.72	46.00	-10.28	QP
6	960.2300	41.41	-5.02	36.39	54.00	-17.61	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Note: All the test modes have been tested, only the worst data record in the report.

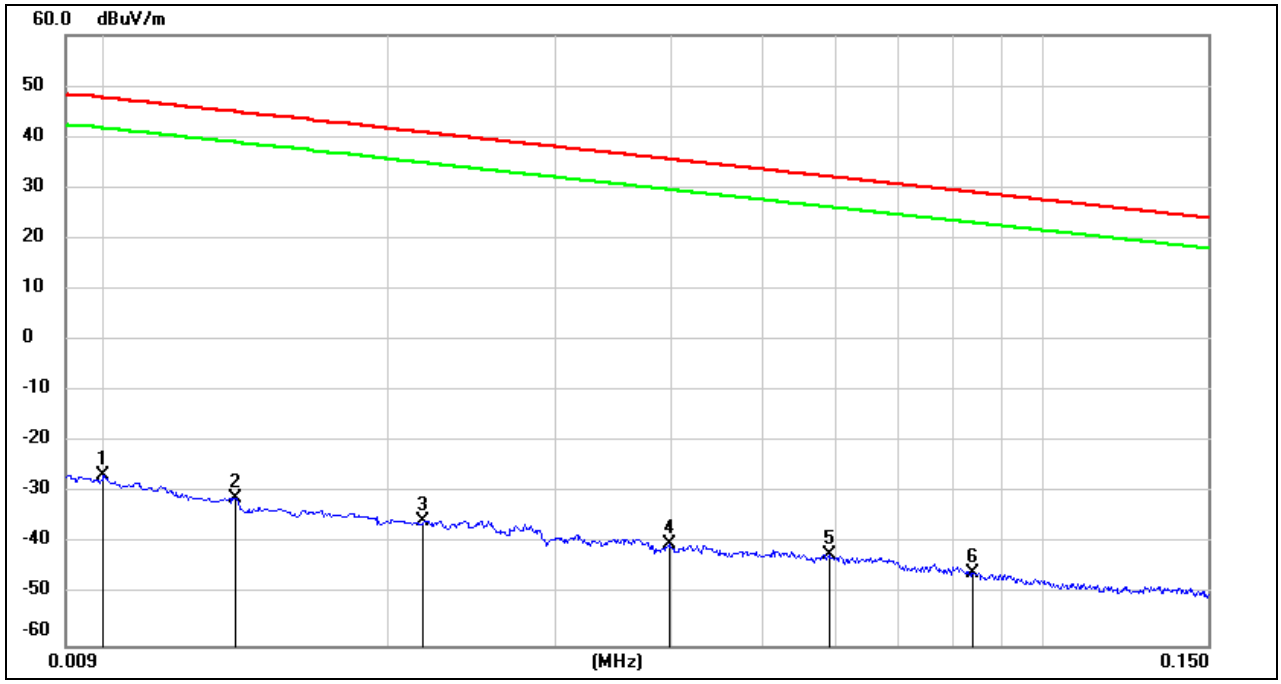
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

8.6. SPURIOUS EMISSIONS BELOW 30M

8.6.1. 802.11g MODE

SPURIOUS EMISSIONS (HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9kHz~ 150kHz

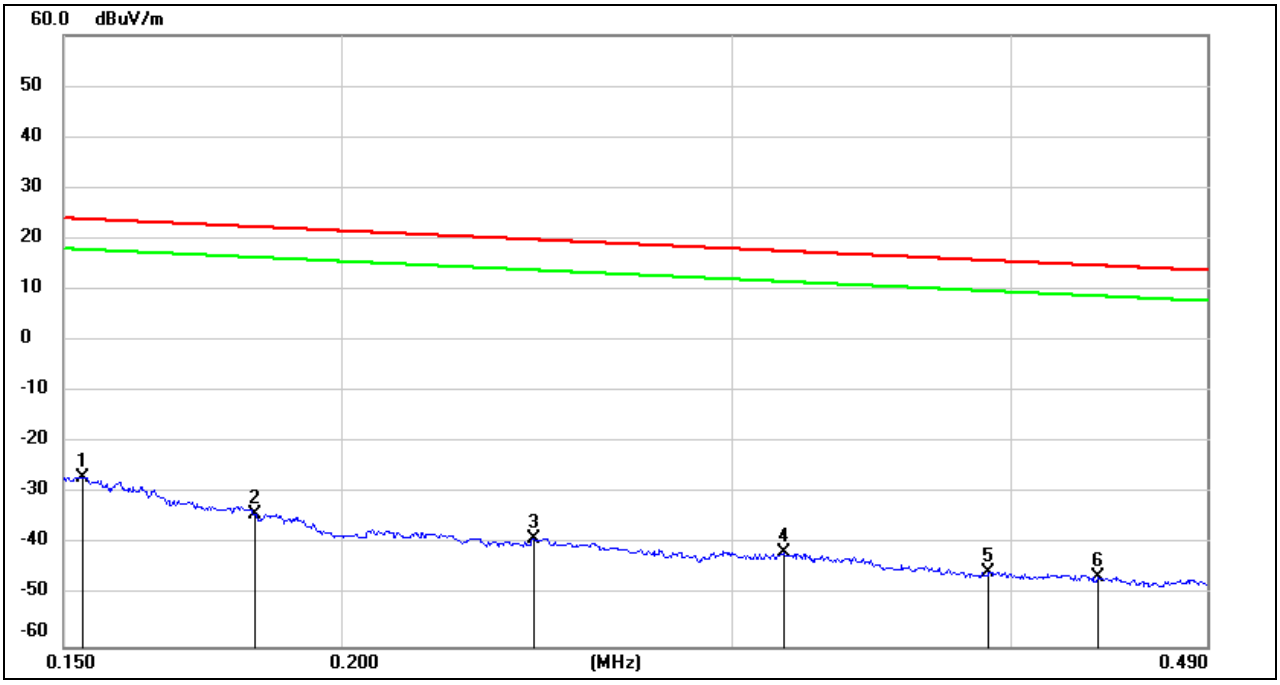


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	74.72	-101.40	-26.68	47.60	-74.28	peak
2	0.0137	70.22	-101.38	-31.16	44.87	-76.03	peak
3	0.0217	65.85	-101.35	-35.50	40.87	-76.37	peak
4	0.0398	61.36	-101.43	-40.07	35.60	-75.67	peak
5	0.0589	59.31	-101.52	-42.21	32.20	-74.41	peak
6	0.0840	56.01	-101.67	-45.66	29.12	-74.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV 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.

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

150kHz ~ 490kHz

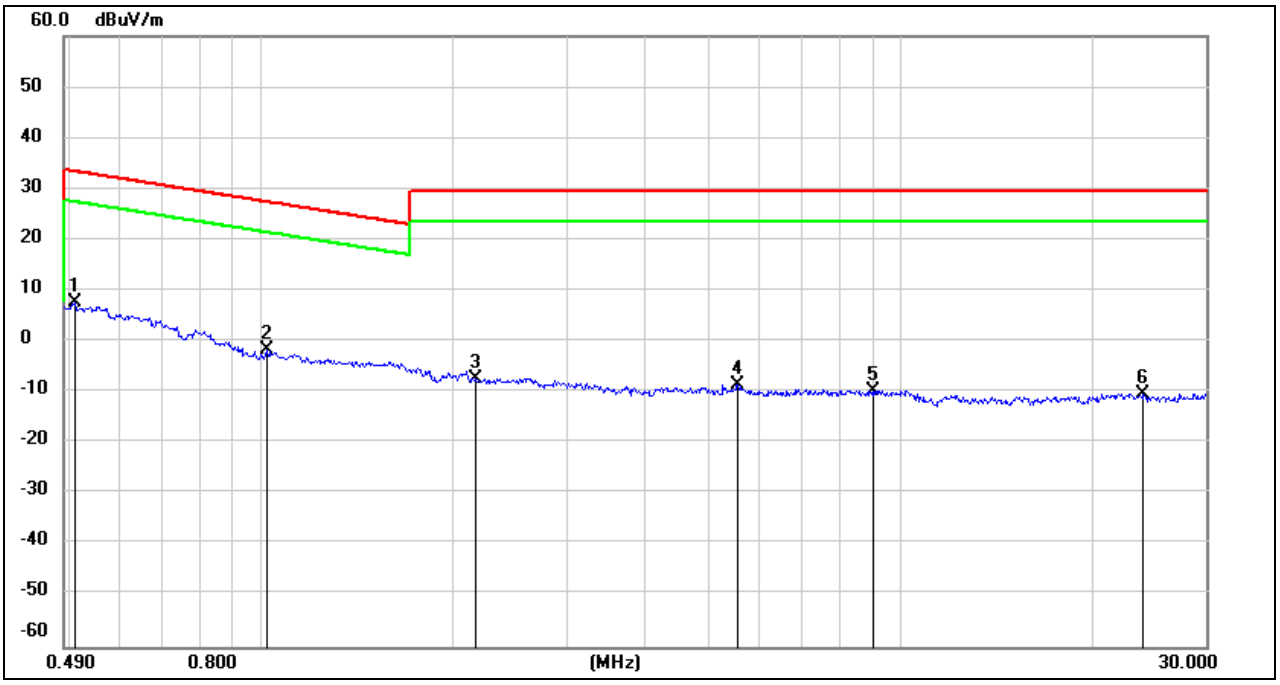


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.1531	74.76	-101.64	-26.88	23.90	-50.78	peak
2	0.1827	67.67	-101.69	-34.02	22.37	-56.39	peak
3	0.2442	63.03	-101.79	-38.76	19.85	-58.61	peak
4	0.3163	60.20	-101.87	-41.67	17.60	-59.27	peak
5	0.3911	56.51	-101.95	-45.44	15.76	-61.20	peak
6	0.4383	55.80	-102.01	-46.21	14.77	-60.98	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV 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.

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

490kHz ~ 30MHz



No.	Frequency	Reading	Correct	FCC Result	FCC Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.5106	69.80	-62.07	7.73	33.44	-25.71	peak
2	1.0212	60.49	-62.25	-1.76	27.42	-29.18	peak
3	2.1719	54.46	-61.78	-7.32	29.54	-36.86	peak
4	5.5655	52.87	-61.41	-8.54	29.54	-38.08	peak
5	9.0479	51.16	-60.93	-9.77	29.54	-39.31	peak
6	23.9800	50.17	-60.53	-10.36	29.54	-39.90	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV 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.

Note: All the test modes have been tested, only the worst data record 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.

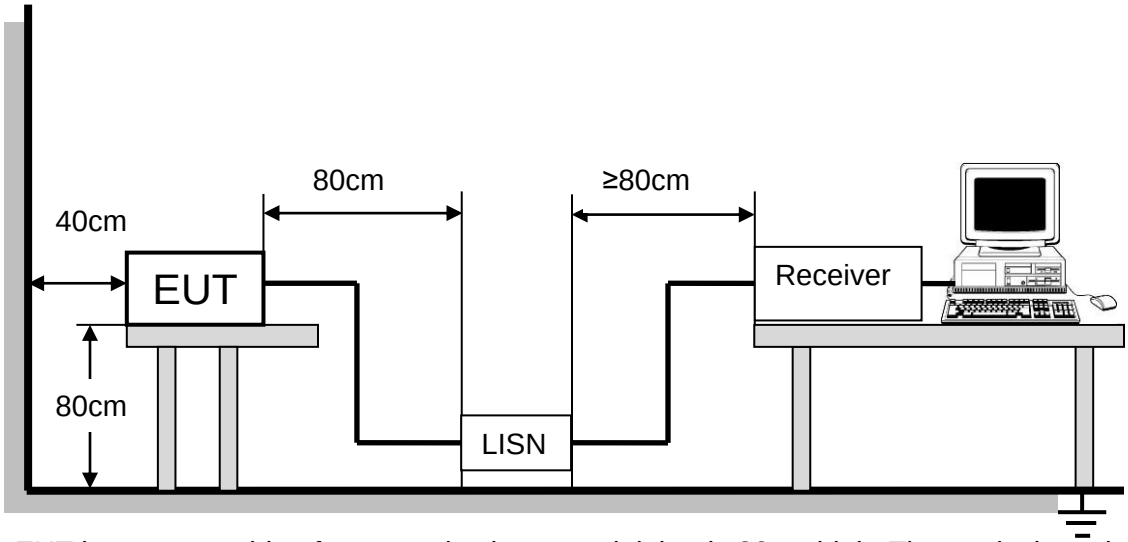
9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to CFR 47 FCC §15.207 (a).

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 SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm 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 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

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 ENVIRONMENT

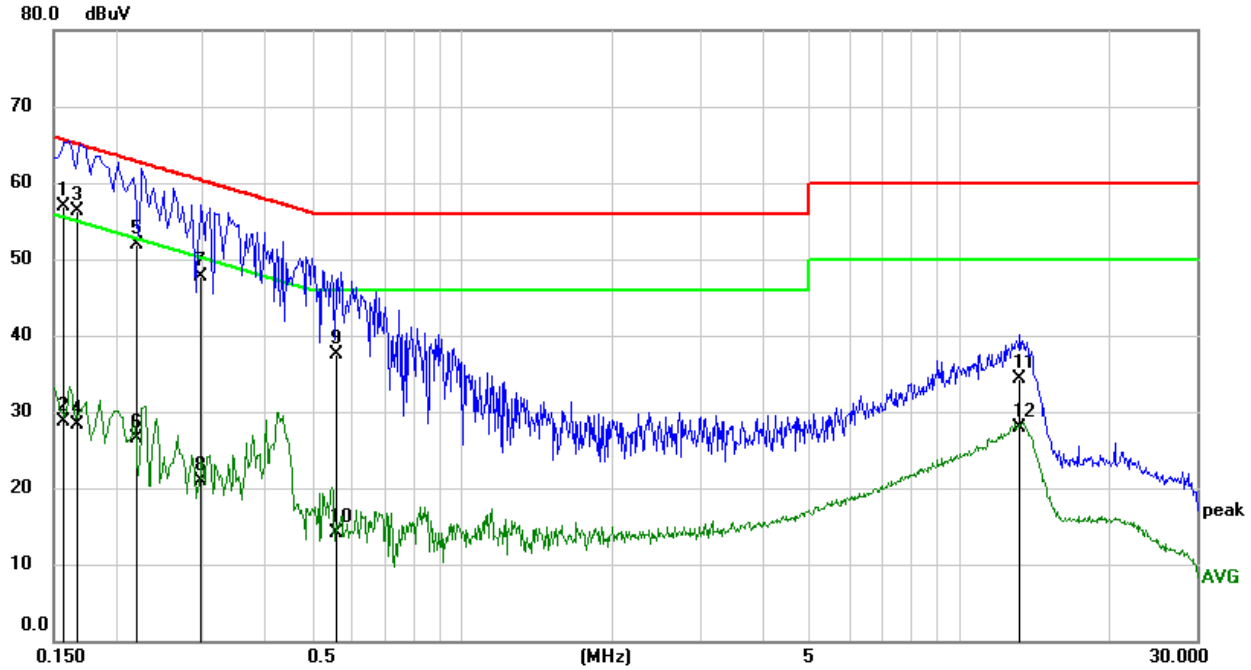
Temperature	25.3°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC120V,60Hz

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

9.1. 802.11g MODE

LINE N RESULTS (HIGH CHANNEL, WORST-CASE CONFIGURATION)

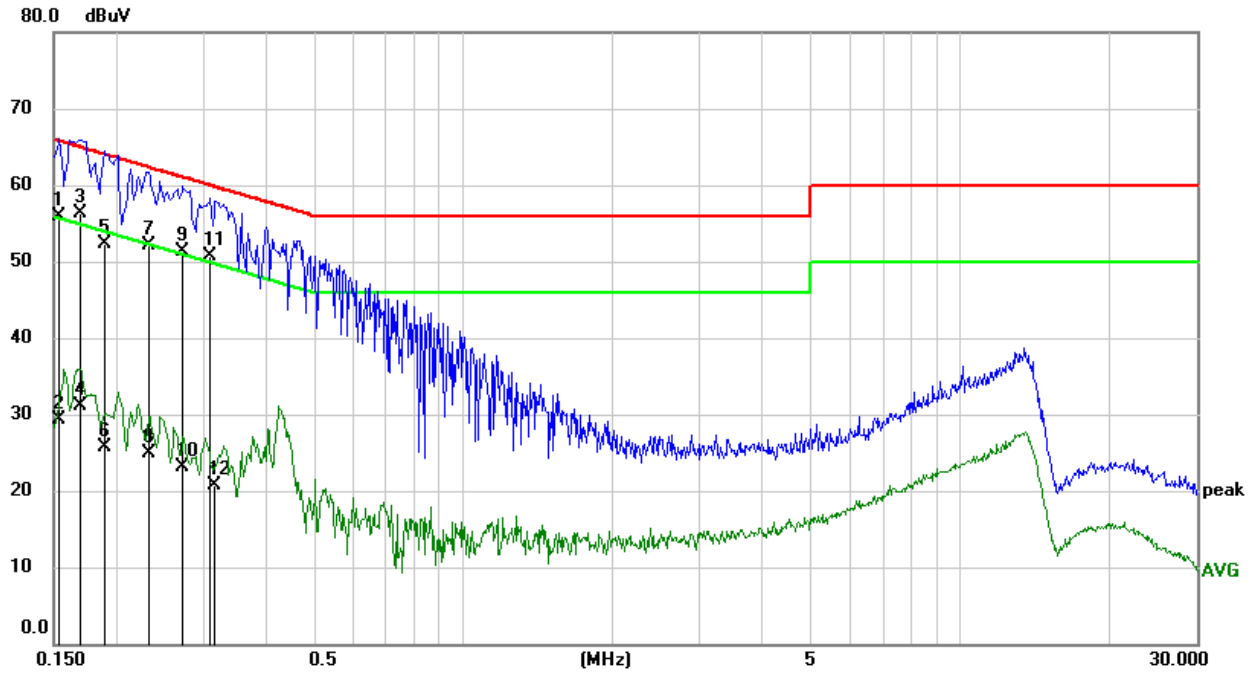


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1570	47.31	9.61	56.92	65.62	-8.70	QP
2	0.1570	19.12	9.61	28.73	55.62	-26.89	AVG
3	0.1664	46.74	9.61	56.35	65.14	-8.79	QP
4	0.1664	18.63	9.61	28.24	55.14	-26.90	AVG
5	0.2216	42.31	9.60	51.91	62.76	-10.85	QP
6	0.2216	16.91	9.60	26.51	52.76	-26.25	AVG
7	0.2972	38.14	9.60	47.74	60.32	-12.58	QP
8	0.2972	11.26	9.60	20.86	50.32	-29.46	AVG
9	0.5542	27.97	9.60	37.57	56.00	-18.43	QP
10	0.5542	4.47	9.60	14.07	46.00	-31.93	AVG
11	13.2528	24.44	9.81	34.25	60.00	-25.75	QP
12	13.2528	18.03	9.81	27.84	50.00	-22.16	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: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

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

LINE L RESULTS (HIGH CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1539	46.26	9.61	55.87	65.79	-9.92	QP
2	0.1539	19.79	9.61	29.40	55.79	-26.39	AVG
3	0.1700	46.63	9.61	56.24	64.96	-8.72	QP
4	0.1700	21.52	9.61	31.13	54.96	-23.83	AVG
5	0.1900	42.67	9.60	52.27	64.04	-11.77	QP
6	0.1900	16.14	9.60	25.74	64.04	-38.30	QP
7	0.2340	42.44	9.60	52.04	62.31	-10.27	QP
8	0.2340	15.36	9.60	24.96	52.31	-27.35	AVG
9	0.2740	41.72	9.60	51.32	61.00	-9.68	QP
10	0.2740	13.42	9.60	23.02	51.00	-27.98	AVG
11	0.3100	41.14	9.60	50.74	59.97	-9.23	QP
12	0.3180	11.03	9.60	20.63	49.76	-29.13	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: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Note: All the test modes have been tested, only the worst data record 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.

10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to 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.

Please refer to FCC §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.

RESULTS

Complies

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

10.1. Appendix A: DTS Bandwidth

10.1.1. Test Result

Test Mode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.640	2408.480	2416.120	0.5	PASS
		2437	8.160	2432.960	2441.120	0.5	PASS
		2462	7.120	2459.000	2466.120	0.5	PASS
11G	Ant1	2412	16.360	2403.880	2420.240	0.5	PASS
		2437	16.400	2428.840	2445.240	0.5	PASS
		2462	16.000	2454.240	2470.240	0.5	PASS
11N20SISO	Ant1	2412	17.640	2403.240	2420.880	0.5	PASS
		2437	17.640	2428.240	2445.880	0.5	PASS
		2462	17.640	2453.240	2470.880	0.5	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.

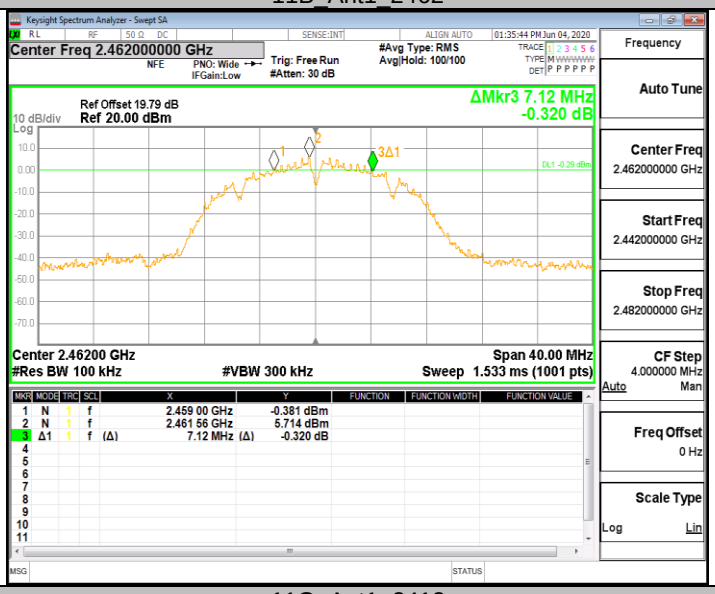
10.1.2. Test Graphs

11B_Ant1_2412

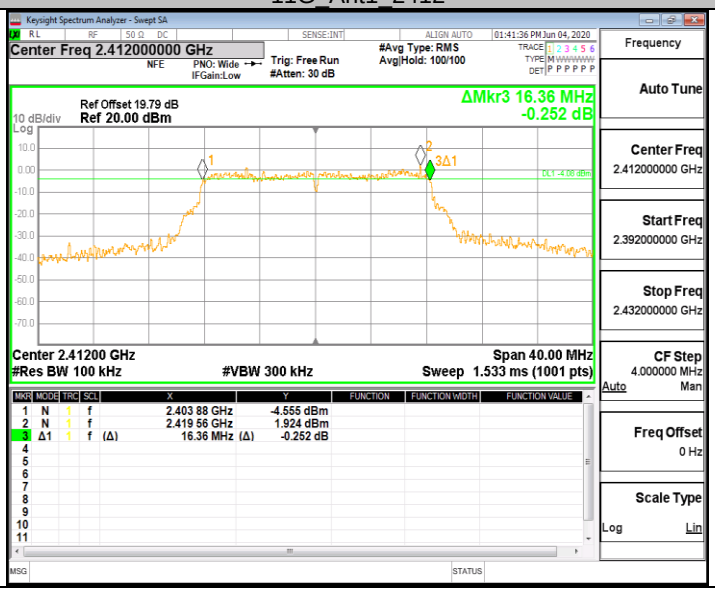
11B_Ant1_2437

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

11B_Ant1_2462

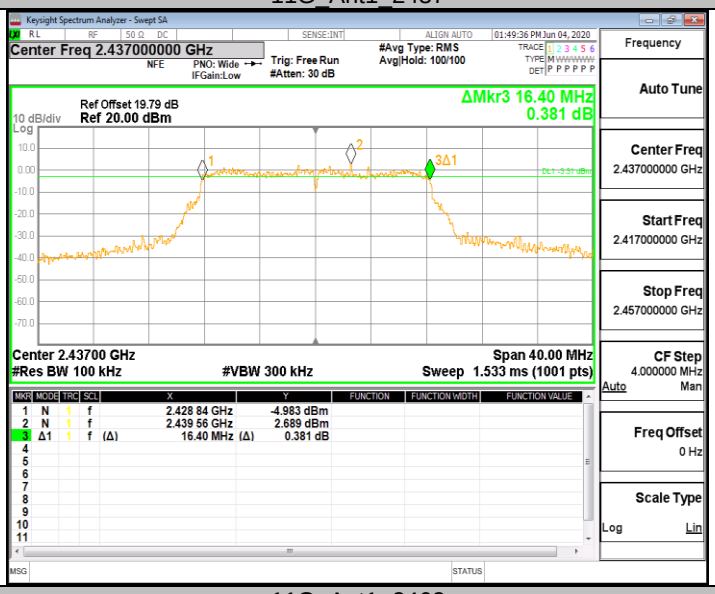


11G_Ant1_2412

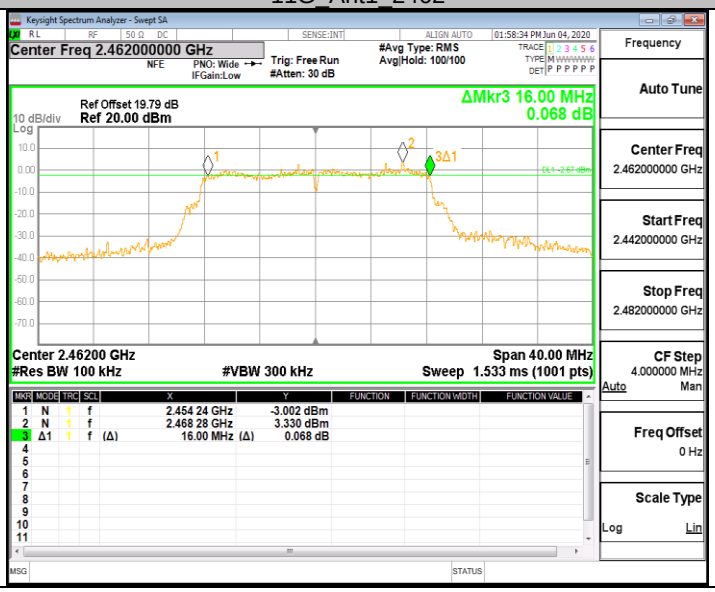


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11G_Ant1_2437

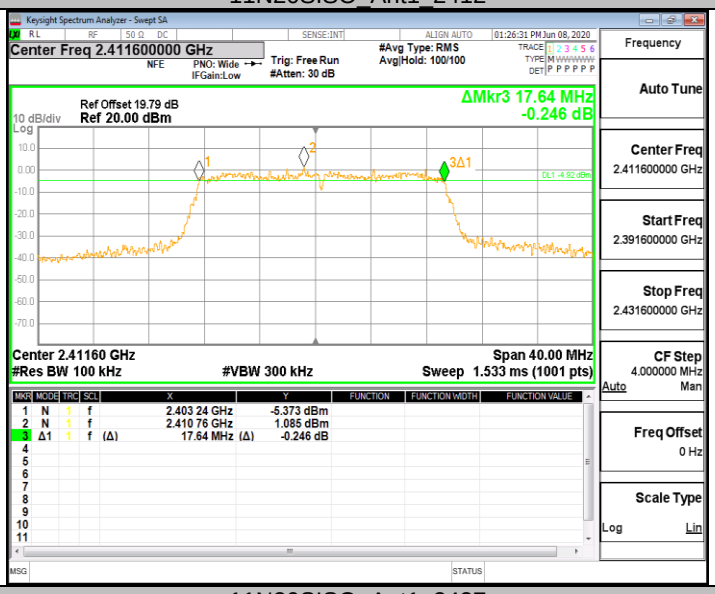


11G_Ant1_2462

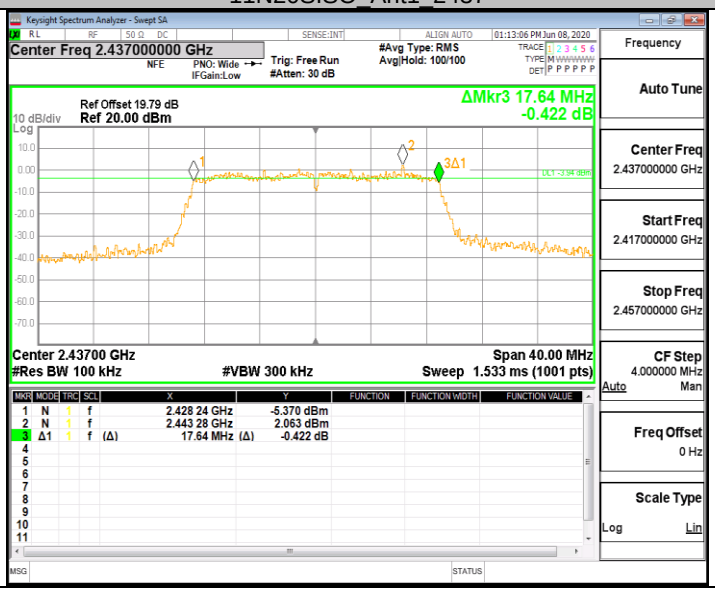


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

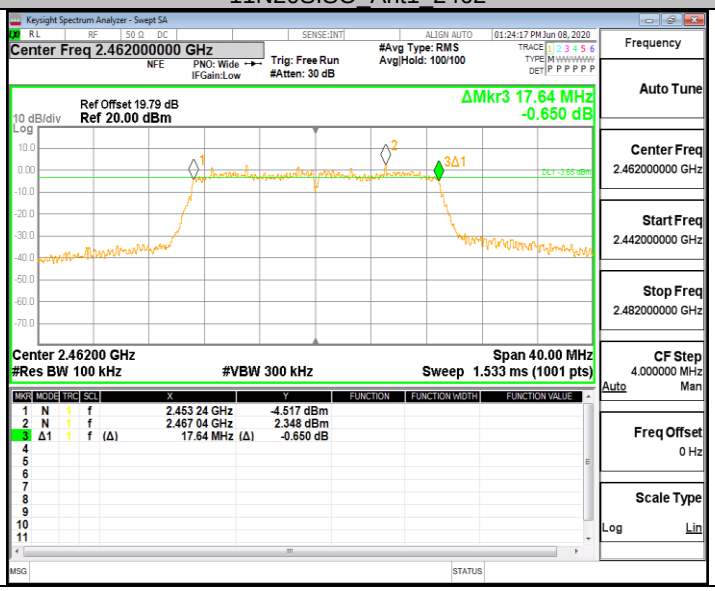
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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

11N20SISO_Ant1_2462


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

10.2. Appendix B: Occupied Channel Bandwidth

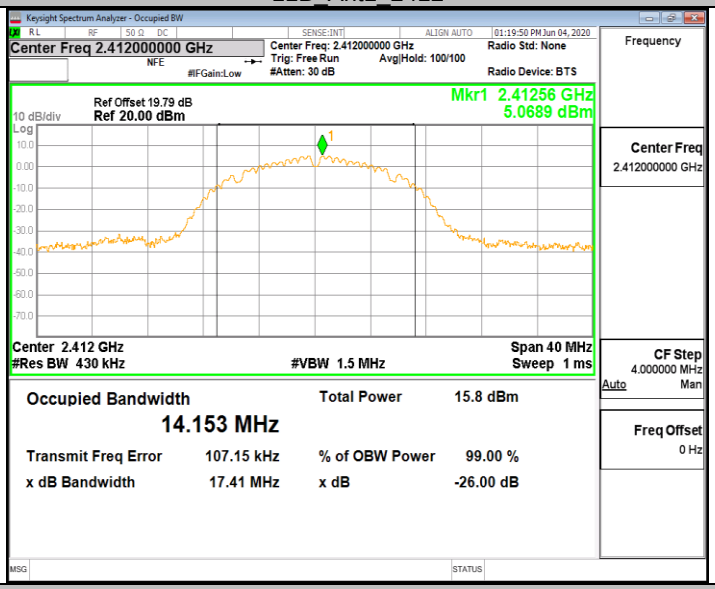
10.2.1. Test Result

Test Mode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.153	2405.031	2419.184	---	PASS
		2437	13.942	2430.055	2443.997	---	PASS
		2462	14.009	2455.168	2469.177	---	PASS
11G	Ant1	2412	17.371	2403.440	2420.811	---	PASS
		2437	17.024	2428.559	2445.583	---	PASS
		2462	17.181	2453.628	2470.809	---	PASS
11N20SISO	Ant1	2412	18.208	2403.011	2421.219	---	PASS
		2437	18.215	2427.973	2446.188	---	PASS
		2462	18.137	2453.032	2471.169	---	PASS

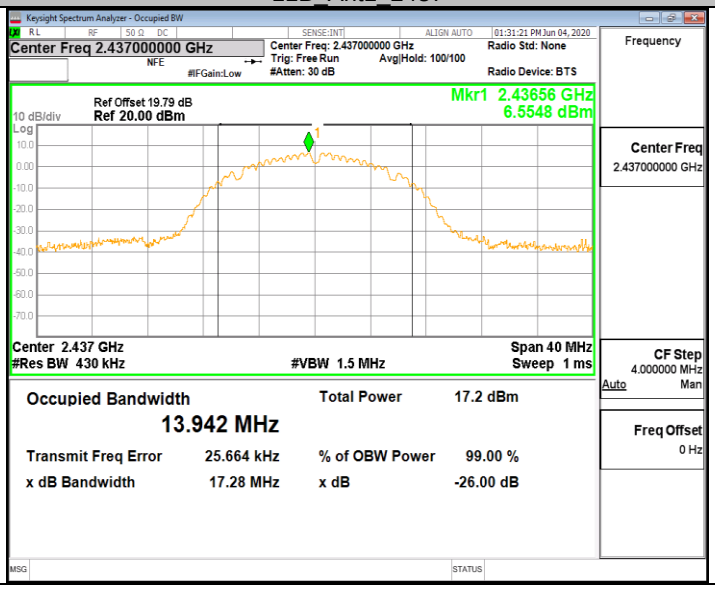
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

10.2.2. Test Graphs

11B_Ant1_2412

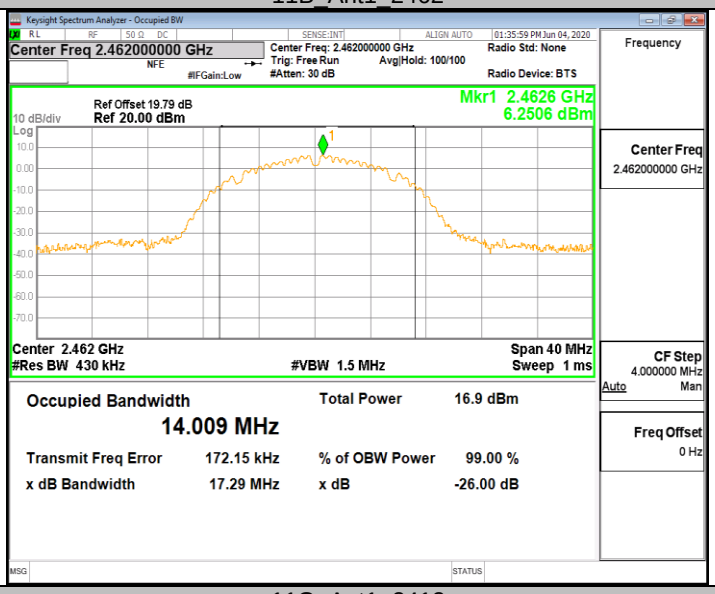


11B_Ant1_2437

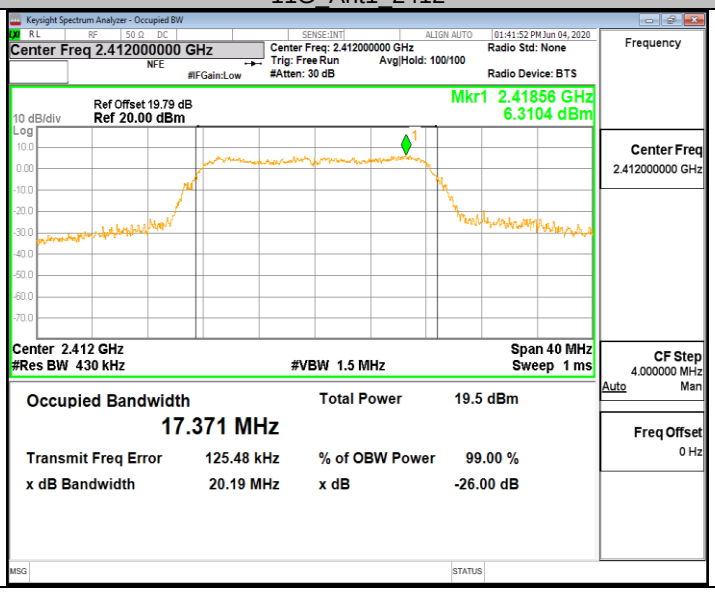


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11B_Ant1_2462

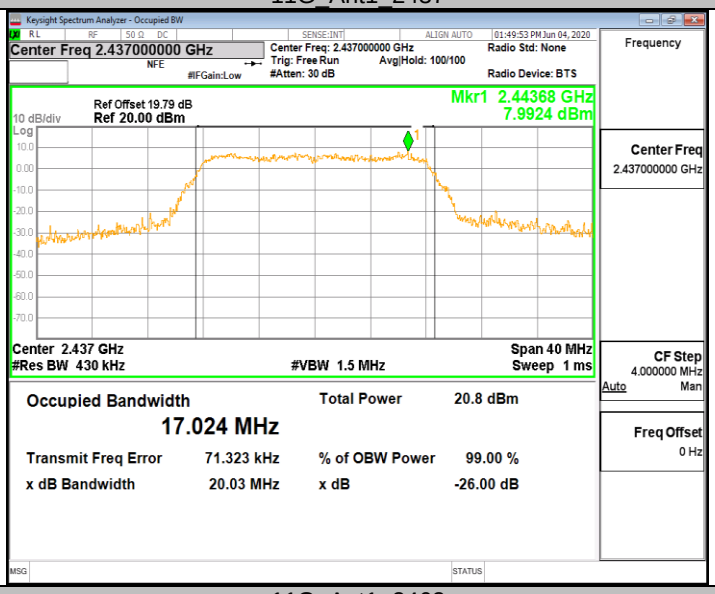


11G_Ant1_2412

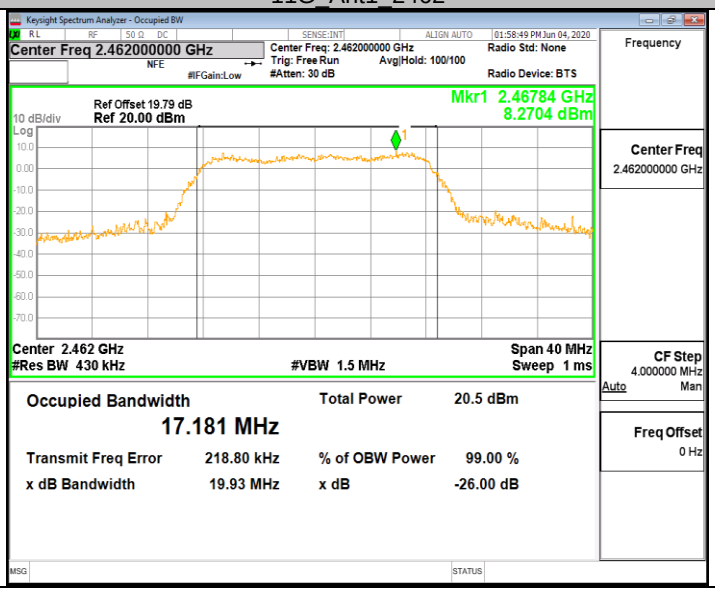


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11G_Ant1_2437

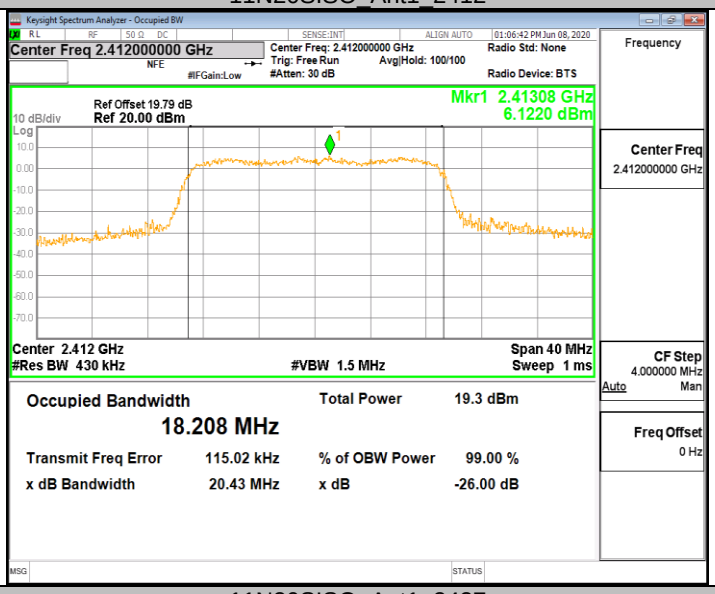


11G_Ant1_2462

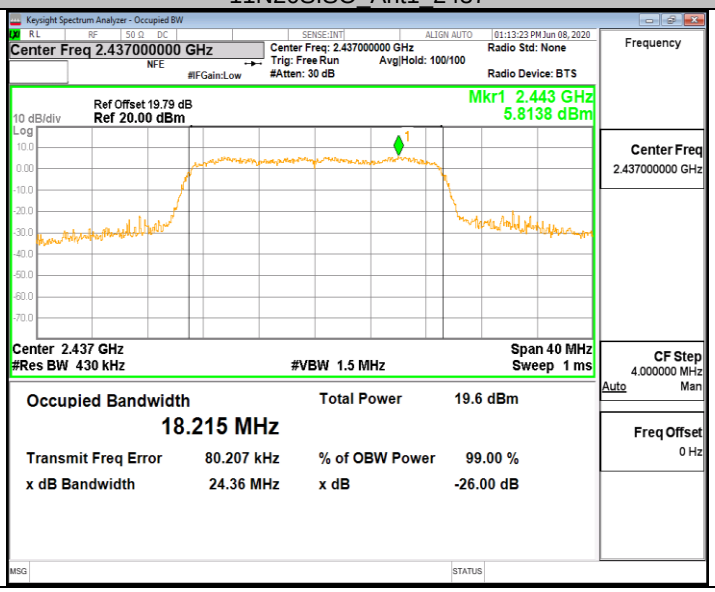


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

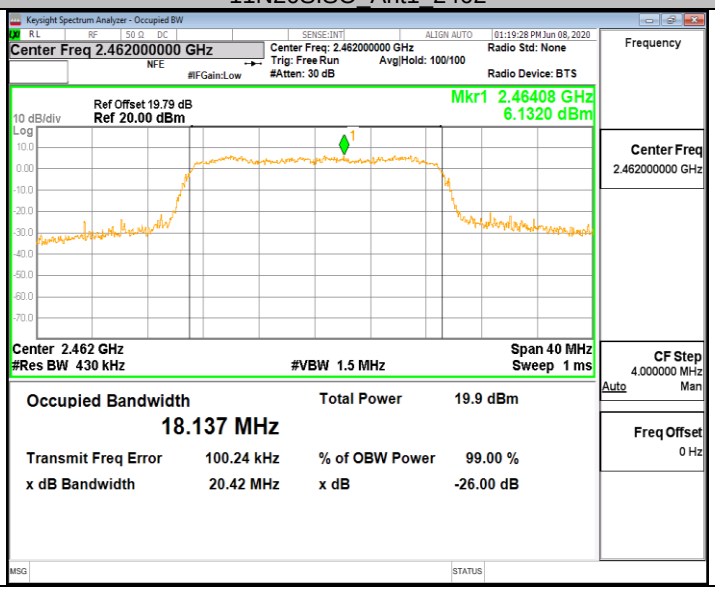
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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

11N20SISO_Ant1_2462


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

10.3. Appendix C: Maximum AVG conducted output power

10.3.1. Test Result

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	10.71	<=30	PASS
		2437	10.62	<=30	PASS
		2462	10.81	<=30	PASS
11G	Ant1	2412	11.17	<=30	PASS
		2437	11.14	<=30	PASS
		2462	11.36	<=30	PASS
11N20SISO	Ant1	2412	10.82	<=30	PASS
		2437	10.79	<=30	PASS
		2462	10.93	<=30	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.

10.4. Appendix D: Maximum power spectral density

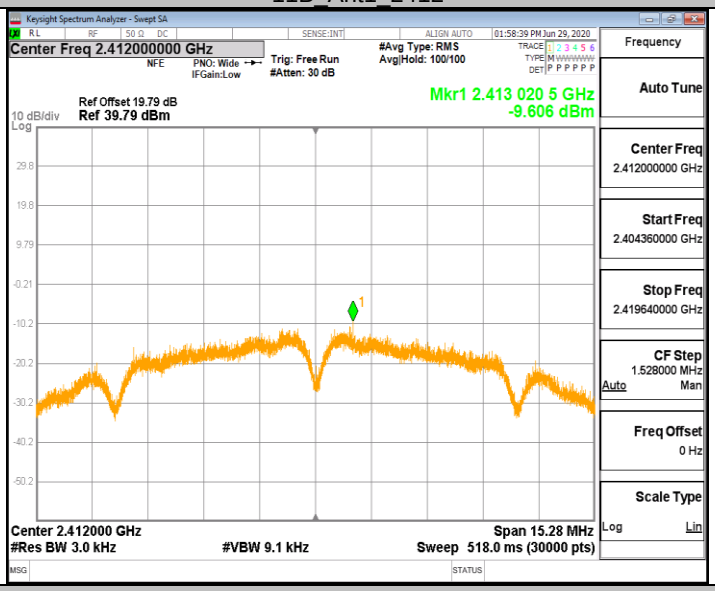
10.4.1. Test Result

Test Mode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.61	<=8	PASS
		2437	-11.21	<=8	PASS
		2462	-9.79	<=8	PASS
11G	Ant1	2412	-13.44	<=8	PASS
		2437	-12.98	<=8	PASS
		2462	-13.02	<=8	PASS
11N20SISO	Ant1	2412	-13.82	<=8	PASS
		2437	-11.91	<=8	PASS
		2462	-13.11	<=8	PASS

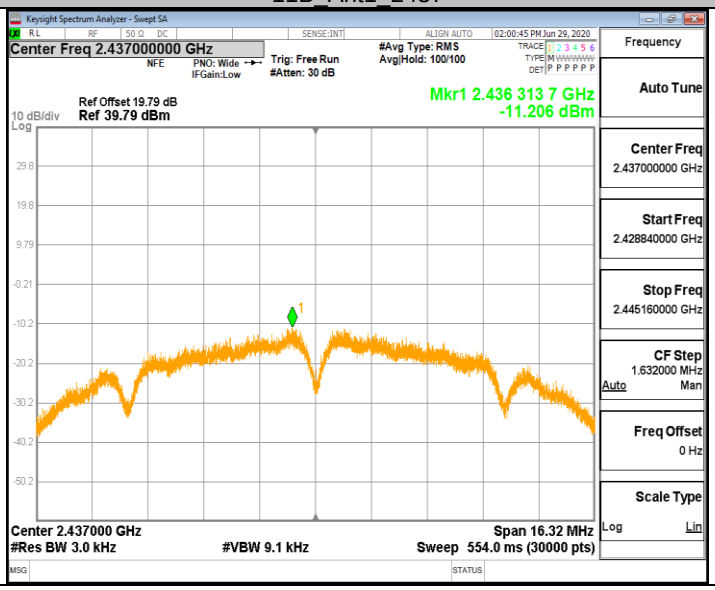
This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

10.4.2. Test Graphs

11B_Ant1_2412

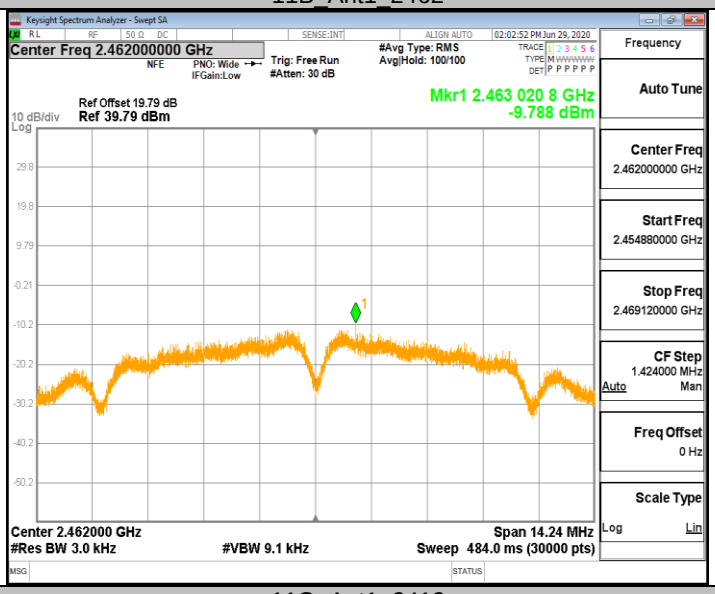


11B_Ant1_2437

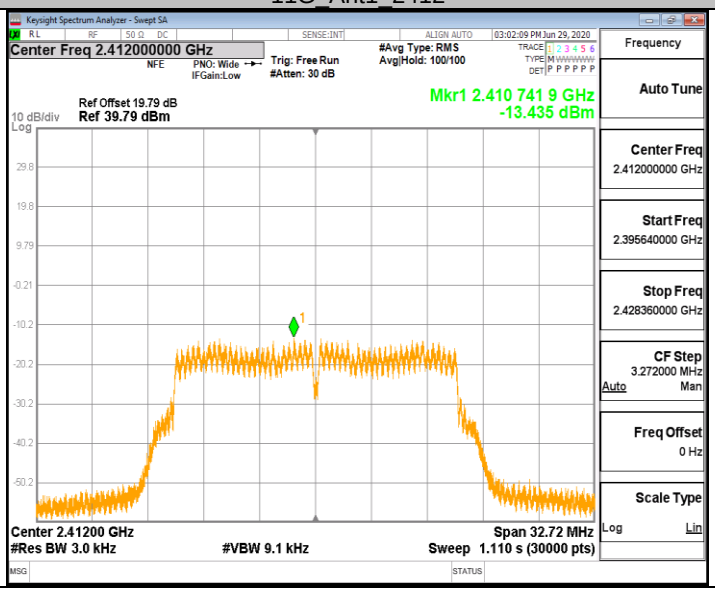


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11B_Ant1_2462

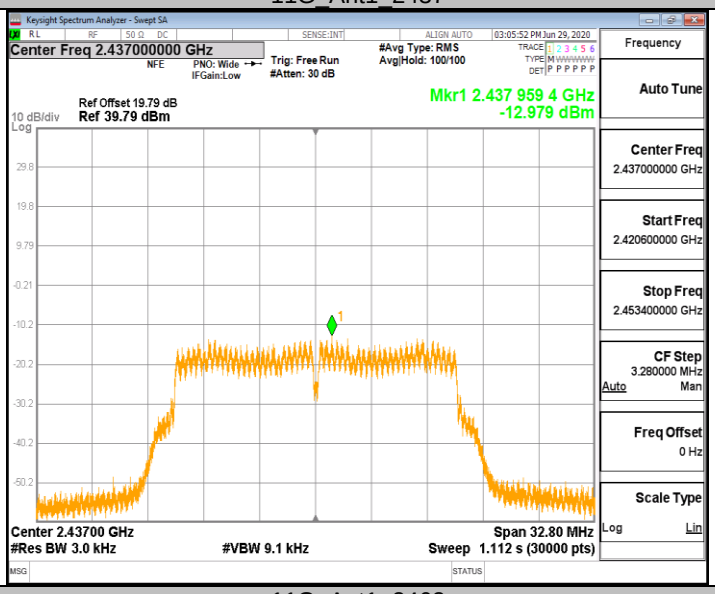


11G_Ant1_2412

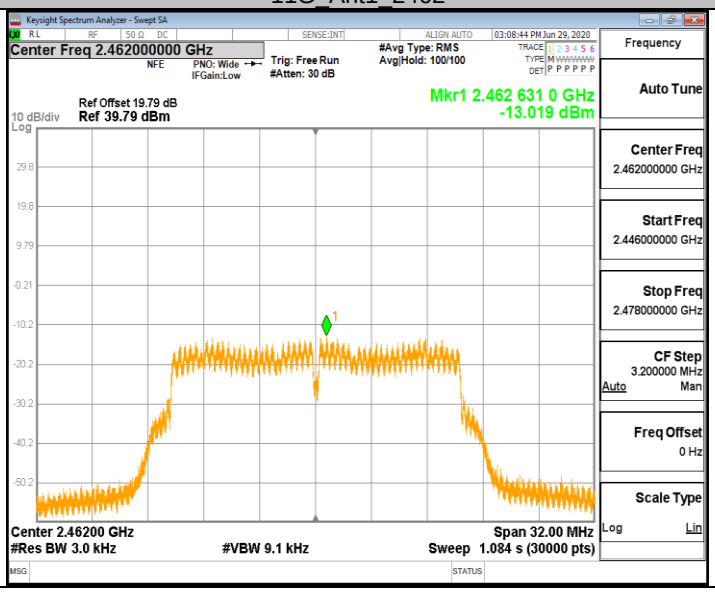


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

11G_Ant1_2437

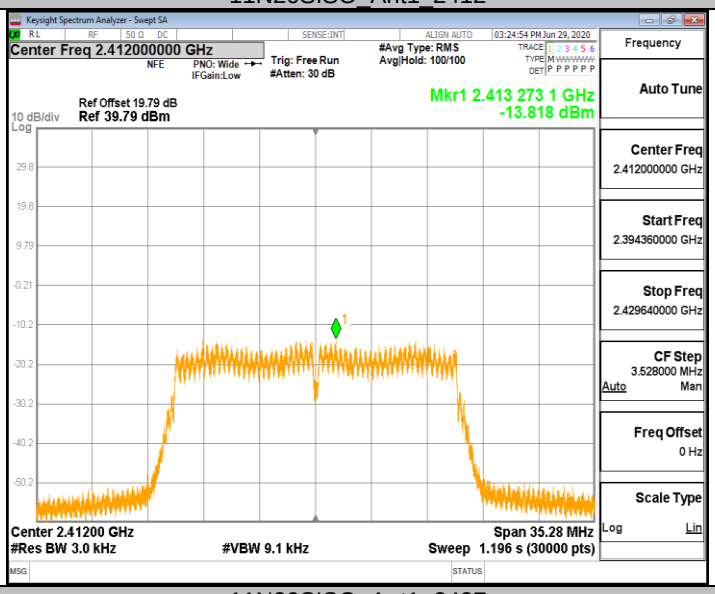


11G_Ant1_2462

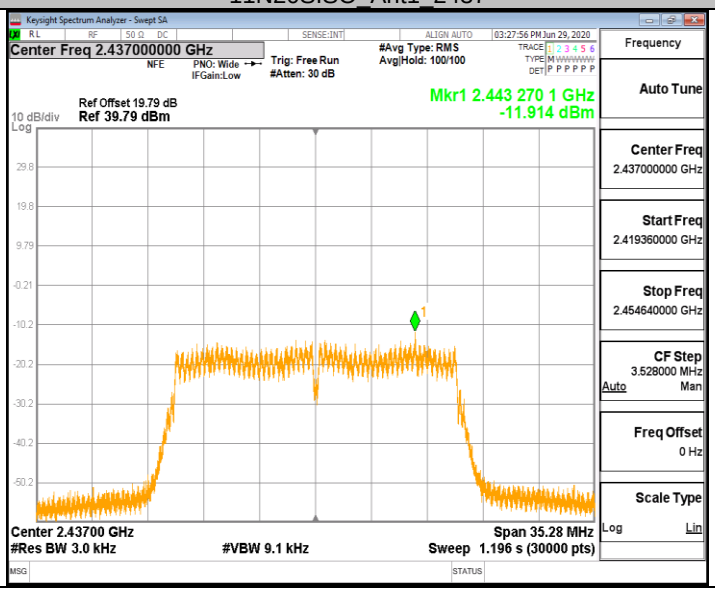


This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

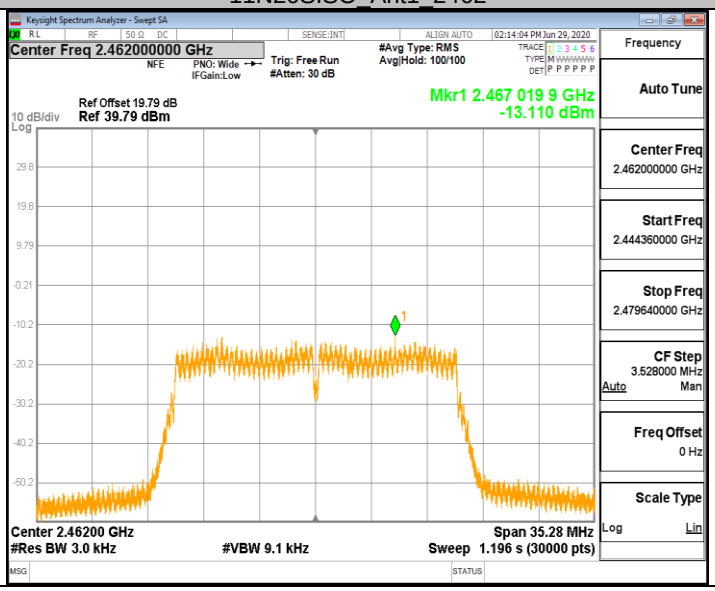
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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

11N20SISO_Ant1_2462


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

10.5. Appendix E: Band edge measurements

10.5.1. Test Result

Test Mode	Antenna	ChName	Channel	Verdict
11B	Ant1	Low	2412	PASS
		High	2462	PASS
11G	Ant1	Low	2412	PASS
		High	2462	PASS
11N20SISO	Ant1	Low	2412	PASS
		High	2462	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.