FCC PART 15 SUBPART C
ISED RSS-247 ISSUE 2

CERTIFICATION TEST REPORT

For

Wyze Light Strip
MODEL NUMBER: WLPSTPR-10, WLPSTG-10, WLPSTG-5, WLPSTPR-5

FCC ID: 2AUIUWLPST4
IC: 25466-WLPST4

REPORT NUMBER: 4790005918-F2

ISSUE DATE: 18 August 2021

Prepared for

Wyze Labs, Inc.
5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States

Prepared by

UL-CCIC COMPANY LIMITED
No. 2, Chengwan Road, Suzhou Industrial Park, People's Republic of China
Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
--	18/08/2021	Initial Issue	--

Summary of Test Results

Clause	Test Items	FCC/IC Rules	Test Results
1	6 dB Bandwidth and 99% Bandwidth	FCC Part 15.247 (a) (2) RSS-247 Clause 5.2 (a) RSS-Gen Clause 6.7	Pass
2	Conducted Output Power	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (d)	Pass
3	Power Spectral Density	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
7	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 6.8	Pass

Remark:
1) 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.
2) Model WLPSTPR-10 was performed all tests, Model WLPSTG-10 was only performed conducted emission and radiated spurious emission.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Wyze Labs, Inc.
Address:	5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States

Manufacturer Information

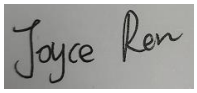
Company Name:	Wyze Labs, Inc.
Address:	5808 Lake Washington Blvd NE Ste 300,Kirkland,WA,United States

EUT Description

EUT Name:	Wyze Light Strip
Brand Name:	WYZE
Model:	WLPSTPR-10, WLPSTG-10, WLPSTG-5, WLPSTPR-5
Sample Status:	Normal
Sample ID:	210630006-1, 210630007-1
Sample Received Date:	01 July 2021
Date of Tested:	01 July 2021 ~ 25 July 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC Part 15 Subpart C	**PASS**
ISED RSS-247 Issue 2	**PASS**
ISED RSS-GEN Issue 5	**PASS**

Prepared By:

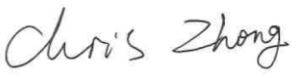


Joyce Ren
Engineer

Reviewed By:

Shawn Wen
Laboratory Leader

Authorized By:



Chris Zhong
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4338.01)** Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with A2LA**.** **CNAS (Registration No.: L7649)** Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with CNAS. **IC(Company No.: 12108A)** Shenzhen STS Test Services Co., Ltd. has been registered and fully described in a report filed with Industry Canada. The Company Number is 12108A.

Note: All tests measurement facilities use to collect the measurement data are located at A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.7dB
2	Unwanted Emissions, conducted	±3.0dB
3	All emissions, radiated 9K-30MHz	±2.7dB
4	All emissions, radiated 30M-1GHz	±4.4dB
5	All emissions, radiated 1G-6GHz	±5.1dB
6	All emissions, radiated>6G	±5.5dB
7	Conducted Emission (9KHz-150KHz)	±2.8dB
8	Conducted Emission (150KHz-30MHz)	±2.8dB

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Wyze Light Strip	
EUT Description	The EUT is a LED strips	
Model	WLPSTPR-10, WLPSTG-10	
PMN	LED strips	
HVIN	WLPSTPR-10, WLPSTG-10	
FVIN	1.3.1.1	
Serial number	7c78b26e00ca, 7c78b26e01b8	
Serial model	WLPSTG-5, WLPSTPR-5	
Model difference	See below difference list	
Product Description (Bluetooth)	Operation Frequency	2402 MHz ~ 2480 MHz
	Modulation Type	Data Rate
	GFSK	1Mbps
Power Supply	Adapter Input: WLPSTG-5: GA-1201500: AC 100-240V 50/60Hz 0.6A WLPSTG-10: GA-0361203000: AC 110-240V 50/60Hz 0.8A WLPSTPR-5: GA-1202000: AC 100-240V 50/60Hz 0.6A WLPSTPR-10: GA-0481204000: AC 100-240V 50/60Hz 1.2A Adapter Output: WLPSTG-5: GA-1201500: DC 12.0V 1500mA WLPSTG-10: GA-0361203000: DC 12.0V 3000mA WLPSTPR-5: GA-1202000: DC 12.0V 2000mA WLPSTPR-10: GA-0481204000: DC 12.0V 4000mA	
Bluetooth Version	4.2	
Bluetooth Configuration	LE	
Hardware Version	0.0.0.0	
Software Version	1.3.1.1	

Difference list

Model name	Power Adapter	LED strips		Controller	
				Circuit schematic & Layout	PWM output control
WLPSTG-5	GA-1201500	Same	1pcs 5m strip	Same	Triode control
WLPSTG-10	GA-0361203000		2pcs 5m strips		
WLPSTPR-5	GA-1202000	Same	1pcs 5m strip		IC control
WLPSTPR-10	GA-0481204000		2pcs 5m strips		

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Number of Transmit Chains (NTX)	Bluetooth Mode	Frequency (MHz)	Channel Number	Max average Conducted Power (dBm)
2400-2483.5	1	BLE	2402-2480	0-39[40]	-2.18

5.3. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	11	2424	22	2446	33	2468
01	2404	12	2426	23	2448	34	2470
02	2406	13	2428	24	2450	35	2472
03	2408	14	2430	25	2452	36	2474
04	2410	15	2432	26	2454	37	2476
05	2412	16	2434	27	2456	38	2478
06	2414	17	2436	28	2458	39	2480
07	2416	18	2438	29	2460		
08	2418	19	2440	30	2462		
09	2420	20	2442	31	2464		
10	2422	21	2444	32	2466		

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 00, CH 19, CH 39	2402MHz, 2440MHz, 2480MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Modulation Type	Transmit Antenna Number	Test Channel		
		CH 00	CH 19	CH 39
GFSK	1	6	6	6

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2402-2480	PCB Antenna	0.96 (Provided by applicant)

Test Mode	Transmit and Receive Mode	Description

GFSK	☒1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.

5.7. WORST-CASE CONFIGURATIONS

Bluetooth Mode	Modulation Technology	Modulation Type	Data Rate (Mbps)
BLE	DTS	GFSK	1Mbit/s

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	PC	DELL	VOSTRO.3800	Provided by lab

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(cm)	Remarks
1	USB Cable	NO	N/A	100cm	Provided by lab

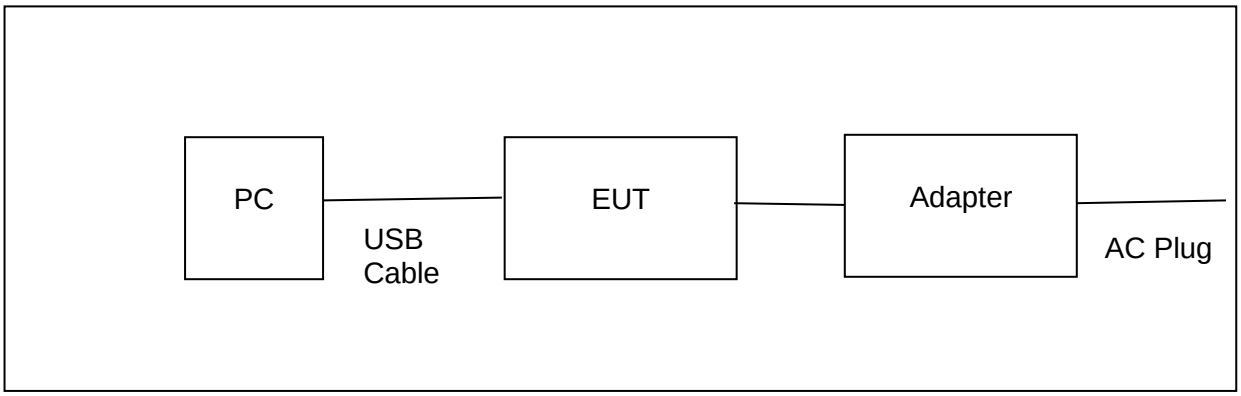
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	N/A	N/A	N/A	N/A

TEST SETUP

The EUT can work in engineering mode with software EspRFTestTool_v2.8_Manual through a Laptop.

SETUP DIAGRAM FOR TESTS



6. MEASURING INSTRUMENT AND SOFTWARE USED

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
Active loop Antenna	ZHINAN	ZN30900C	16035	2021.04.11	2022.04.10
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2019.10.15	2021.10.14
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Temperature & Humidity	HH660	Mieo	N/A	2020.10.12	2021.10.11
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Band Reject Filter (2.4-2.5GHz)	COM-MW	ZBSF-2400-2500	N/A	2020.10.12	2021.10.11
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
LISN	R&S	ENV216	101242	2020.10.12	2021.10.11
LISN	EMCO	3810/2NM	23625	2020.10.12	2021.10.11
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Power Sensor	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
			MY55520006	2020.10.10	2021.10.09
			MY56120038	2020.10.10	2021.10.09
			MY56280002	2020.10.10	2021.10.09
Signal Analyzer	Agilent	N9020A	MY51110105	2021.03.04	2022.03.03
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

7. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6 dB Bandwidth and 99% Bandwidth	558074 D01 15.247 Meas Guidance v05r02	8.2
2	Conducted Output Power	558074 D01 15.247 Meas Guidance v05r02	8.1.3
3	Power Spectral Density	558074 D01 15.247 Meas Guidance v05r02	8.4
4	Out-of-band emissions in non-restricted bands	558074 D01 15.247 Meas Guidance v05r02	8.5
5	Out-of-band emissions in restricted bands	558074 D01 15.247 Meas Guidance v05r02	8.6
6	Band-edge	558074 D01 15.247 Meas Guidance v05r02	8.7
7	Conducted Emission Test For AC Power Port	ANSI C63.10-2013	6.2

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

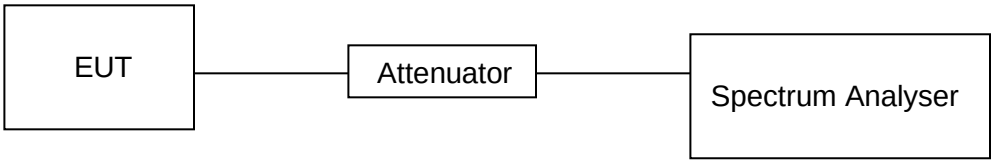
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

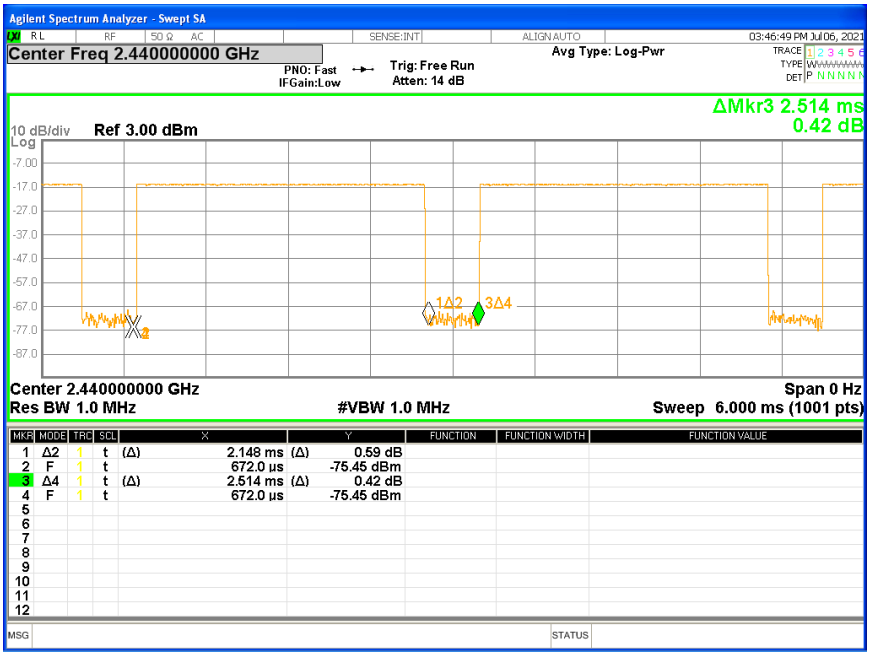
Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/B Minimum VBW (KHz)
GFSK	2.148	2.514	0.854	85.44%	0.683	0.5

Note: Duty Cycle Correction Factor=10log(1/x).
Where: x is Duty Cycle(Linear)
Where: B is On Time
When Duty Cycle > 98%, VBW ⩽ RBW/100; When Duty Cycle < 98%, VBW ⩾ 1/B;
Set the final test VBW = 1KHz;

ON TIME AND DUTY CYCLE MID CH



8.2. 6 dB BANDWIDTH & 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2) RSS-247 5.2 (a)	6dB Bandwidth	>= 500KHz	2400-2483.5
RSS-Gen Clause 6.7	99% 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 6 dB Bandwidth :100K For 99% Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% Bandwidth : approximately 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.

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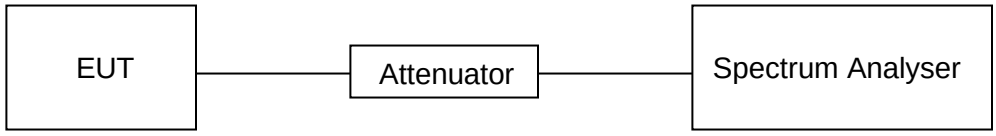
TEST SETUP



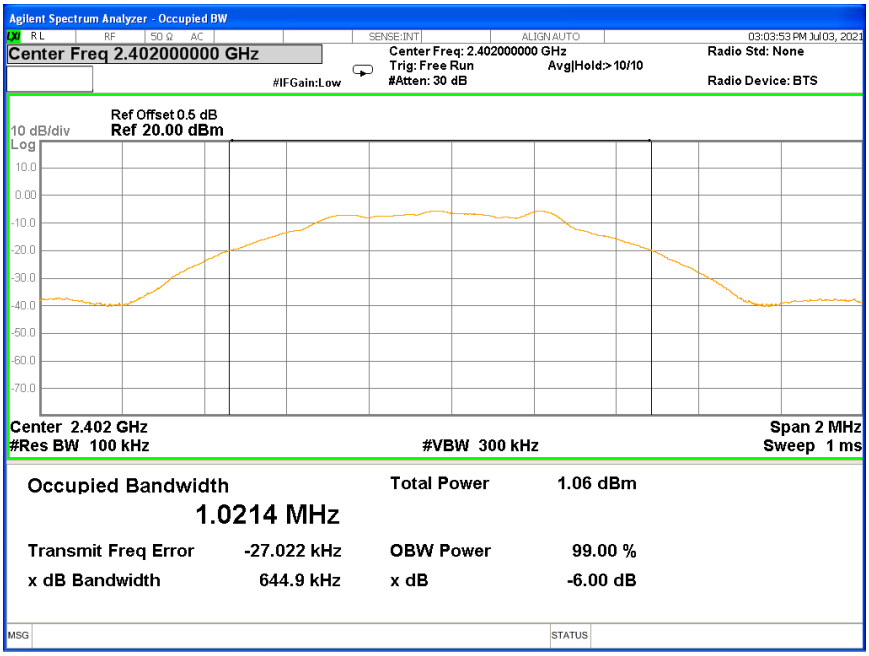
TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

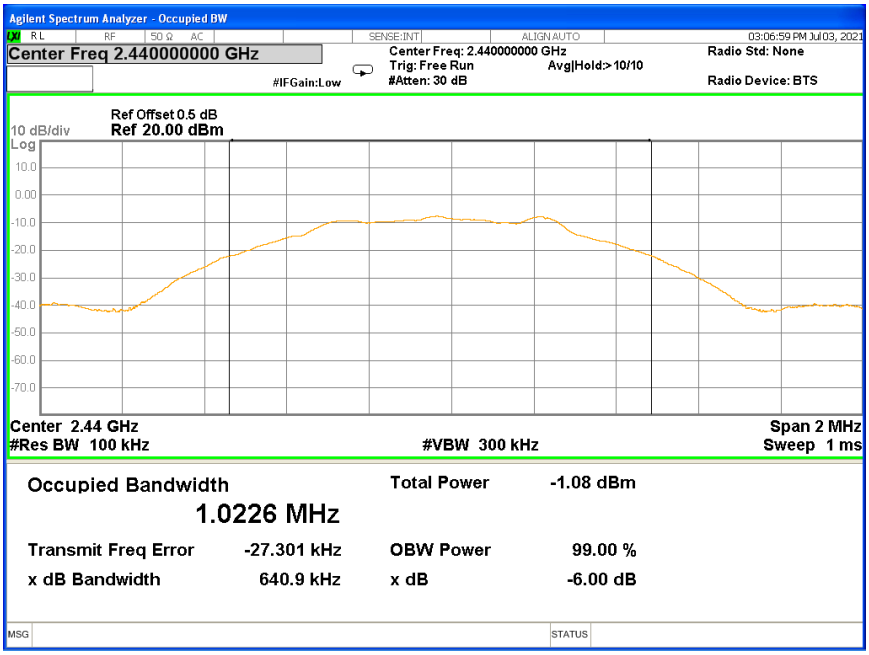
RESULTS

Channel	Frequency (MHz)	6dB bandwidth (KHz)	99% bandwidth (KHz)	Limit (kHz)	Result
Low	2402	644.900	1022.000	500	Pass
Middle	2440	640.900	1021.500	500	Pass
High	2480	641.400	1021.300	500	Pass

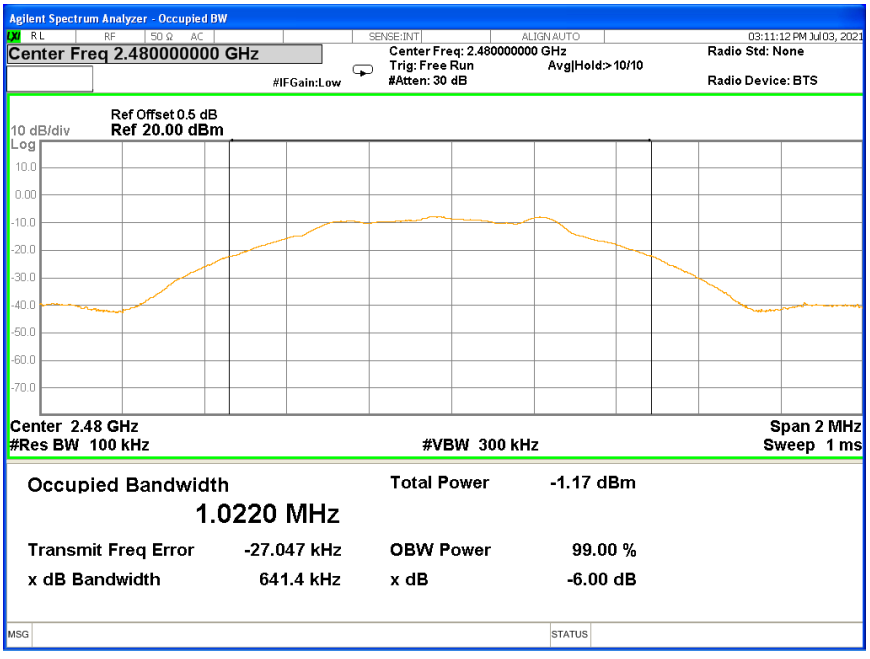
6 dB BANDWIDTH LOW CH



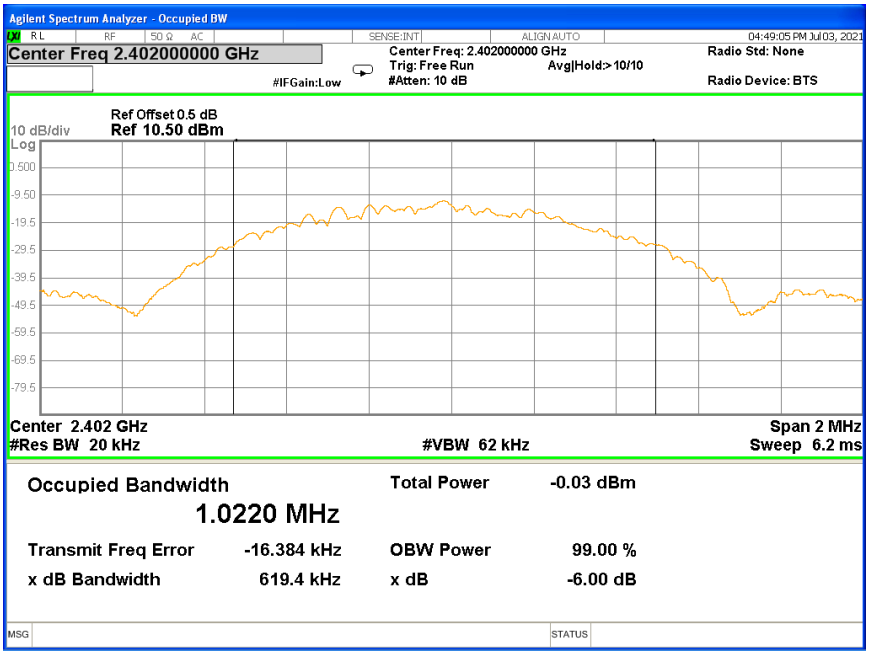
6 dB BANDWIDTH MID CH



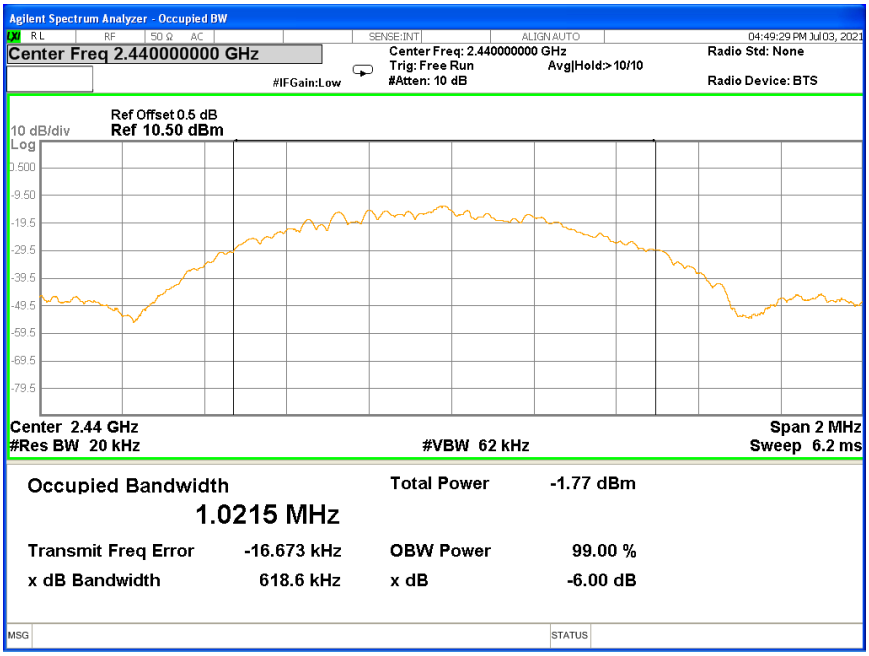
6 dB BANDWIDTH HIGH CH



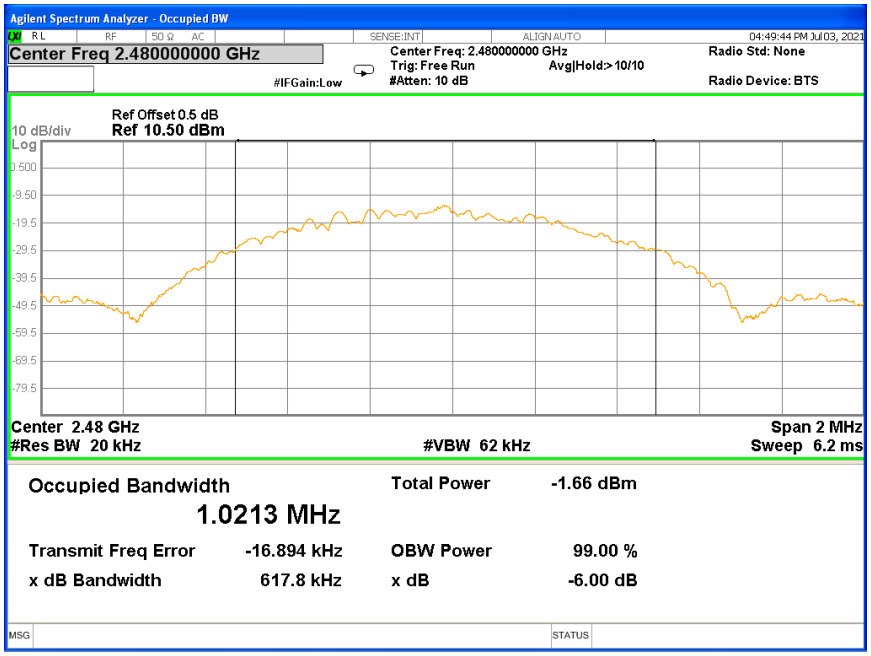
99% BANDWIDTH LOW CH



99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH



8.3. CONDUCTED OUTPUT POWER

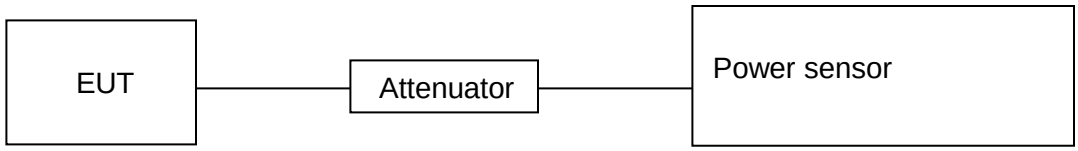
LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) RSS-247 5.4 (d)	Peak 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.
Measure peak power each channel.

TEST SETUP



TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

RESULTS

Test Channel	Frequency	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AVG)	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
Low	2402	2.92	1.21	30
Middle	2440	3.68	1.94	30
High	2480	3.80	2.09	30

EIRP

Test Channel	Frequency	Peak Conducted Output Power	Antenna Gain	EIRP Power	LIMIT
	(MHz)	(dBm)	(dBi)	(dBm)	dBm
CH0	2402	2.92	0.96	3.88	36.02
CH19	2440	3.68	0.96	4.64	36.02
CH39	2480	3.80	0.96	4.76	36.02

Note: The power sensor has no duty cycle display. The measured AVG power is Burst power. The software has considered the factor of the duty cycle correction factor, so it is unnecessary to add it again.

8.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e) RSS-247 5.2 (b)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

TEST PROCEDURE

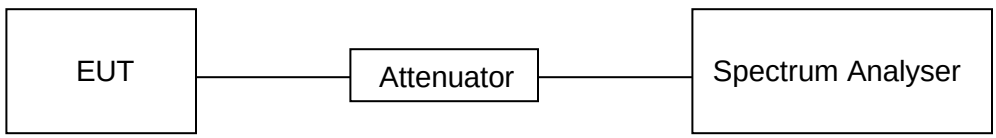
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW ≤ 100kHz
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



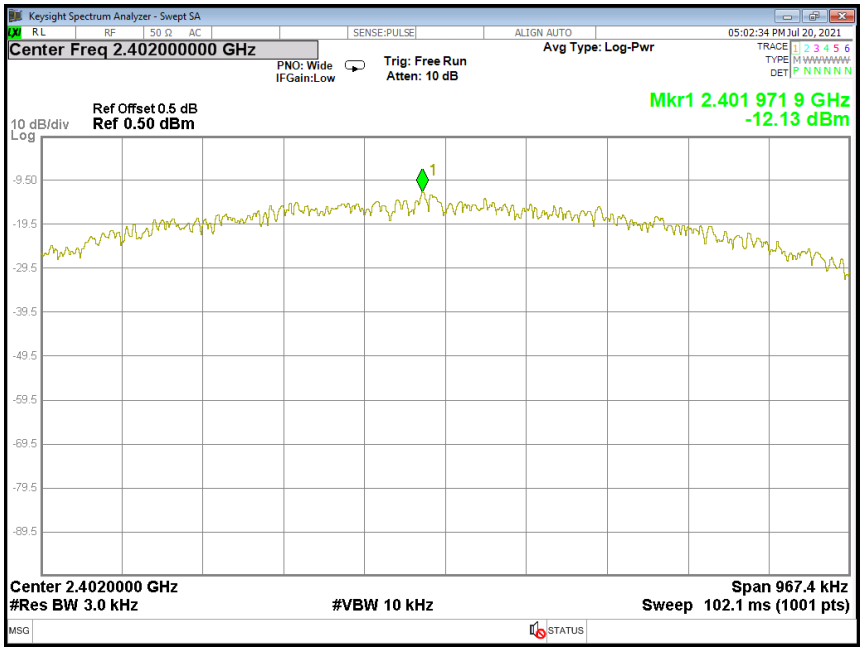
TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

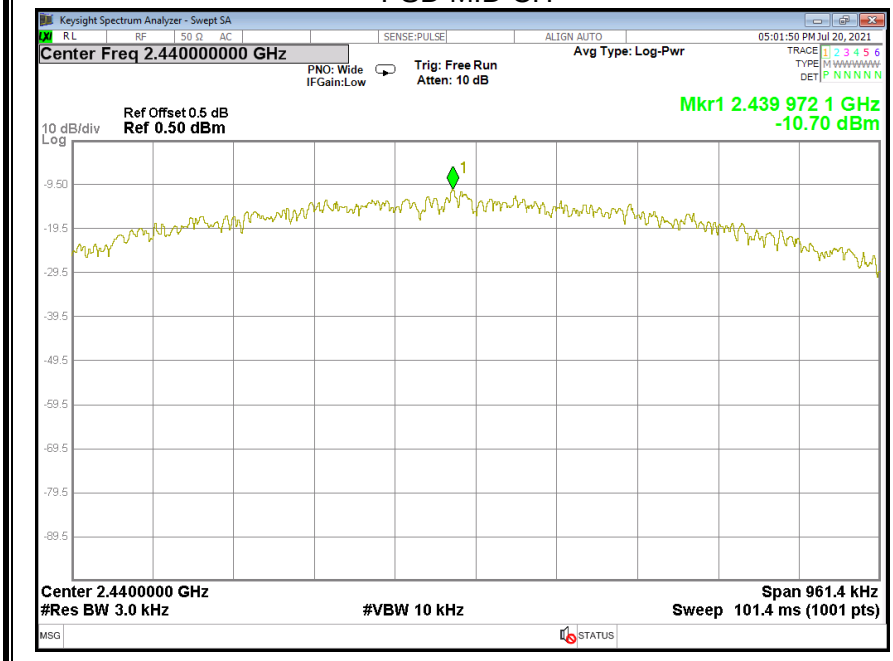
RESULTS

Test Channel	Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	2402 MHz	-12.130	8	PASS
Middle	2440 MHz	-10.700	8	PASS
High	2480 MHz	-10.770	8	PASS

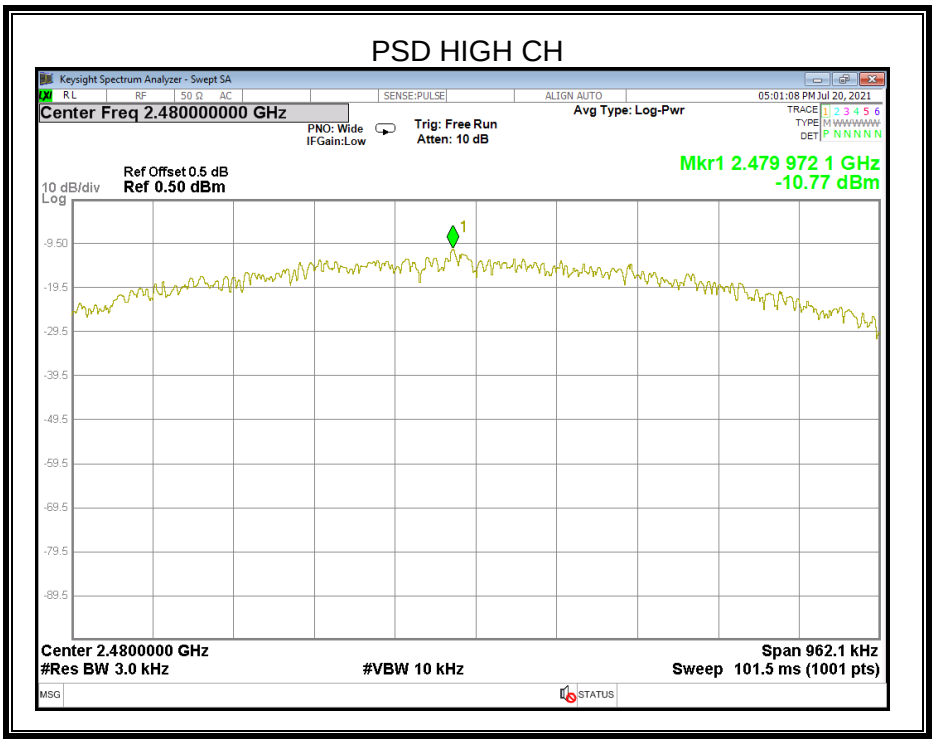
PSD LOW CH



PSD MID CH



PSD HIGH CH



8.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2		
Section	Test Item	Limit
FCC §15.247 (d) RSS-247 5.5	Conducted Bandedge and Spurious Emissions	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

TEST PROCEDURE

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

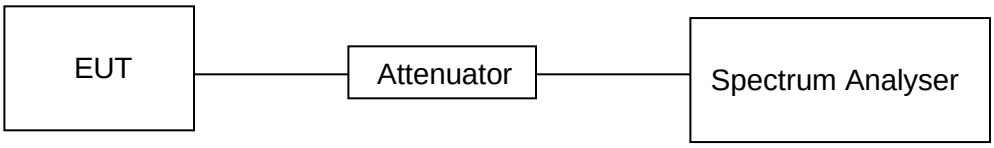
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	100K
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**.**

TEST SETUP

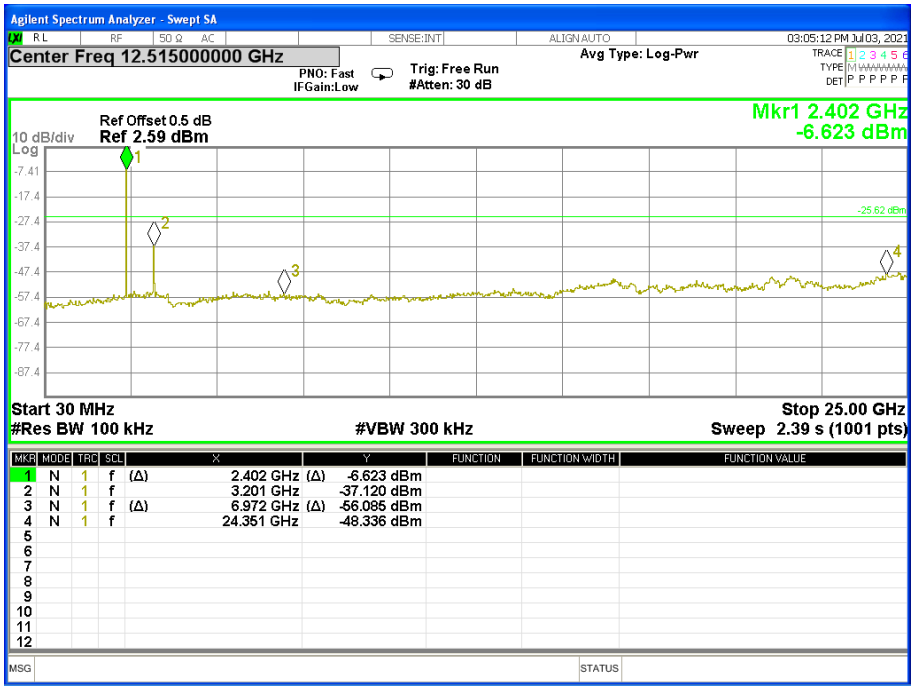


TEST ENVIRONMENT

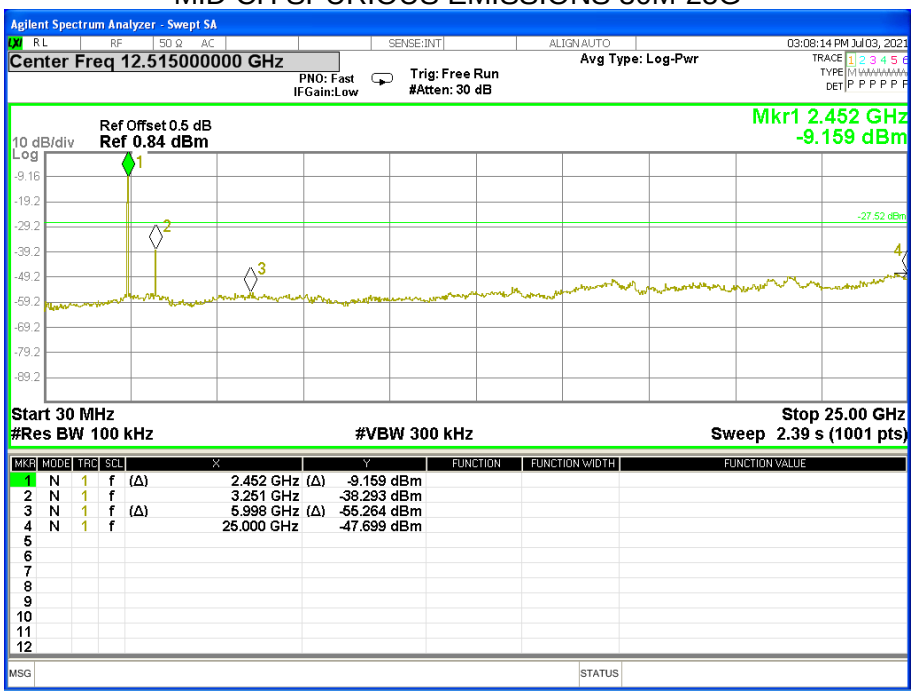
Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

RESULTS

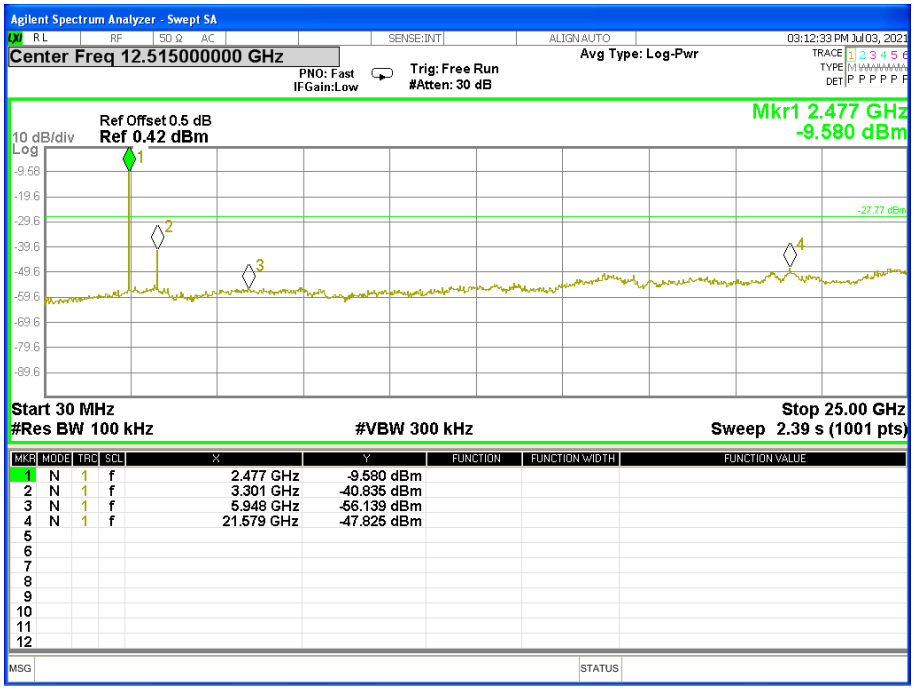
LOW CH SPURIOUS EMISSIONS 30M-25G



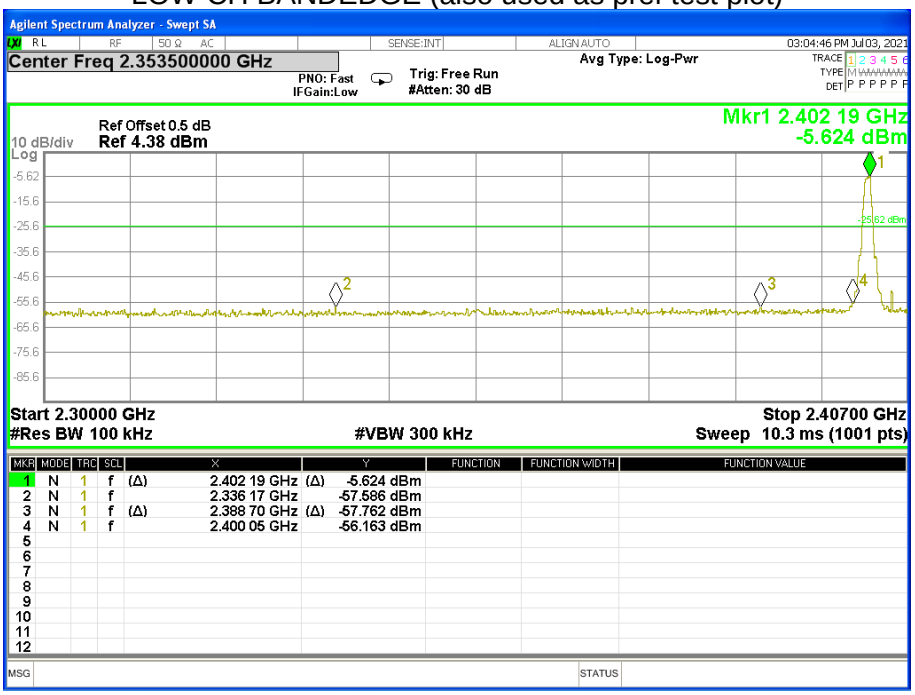
MID CH SPURIOUS EMISSIONS 30M-25G



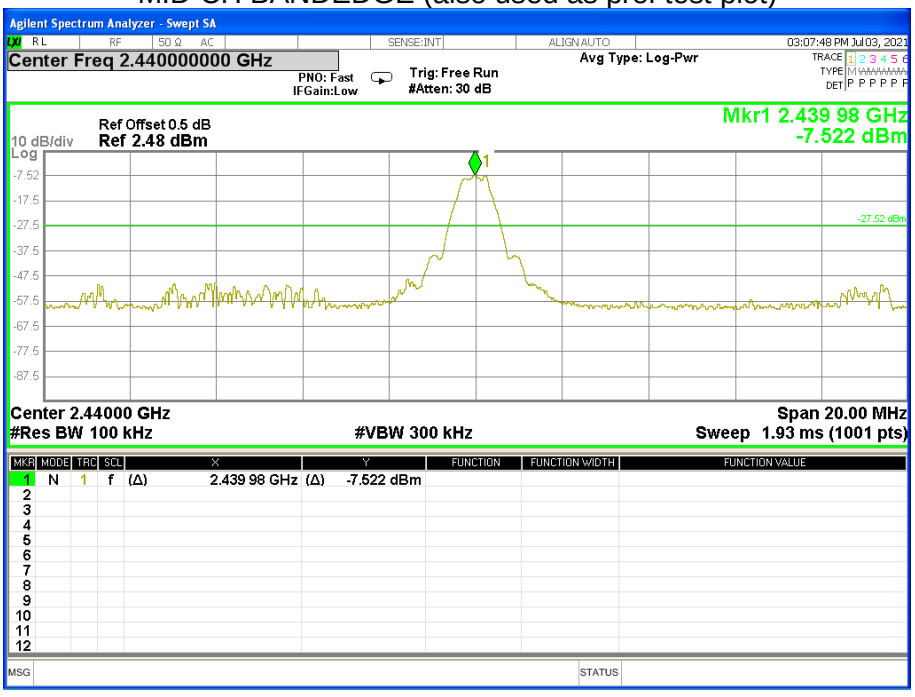
HIGH CH SPURIOUS EMISSIONS 30M-25G



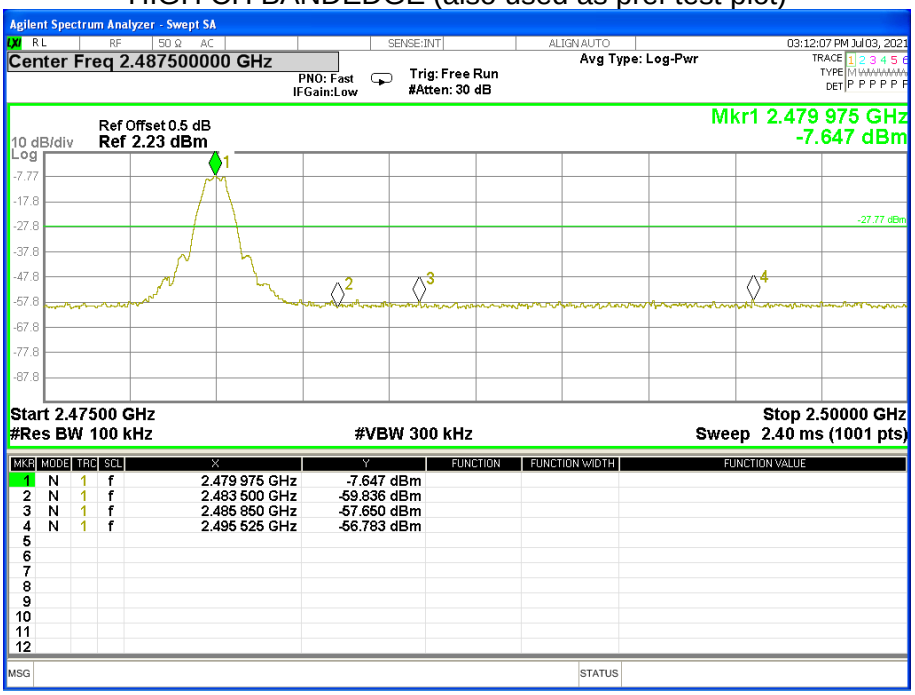
LOW CH BANDEDGE (also used as pref test plot)



MID CH BANDEDGE (also used as pref test plot)



HIGH CH BANDEDGE (also used as pref test plot)



9. RADIATED TEST RESULTS

LIMITS

Please refer to FCC §15.205 and §15.209

Please refer to RSS-GEN Clause 8.9 (Transmitter)

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

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
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

Radiation Disturbance Test Limit for RSS-Gen (9KHz-1GHz)

Frequencies (MHz)	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (meters)
0.009~0.490	6.37/F(KHz)	300
0.490~1.705	63.7/F(KHz)	30
1.705~30.0	0.08	30

Frequencies (MHz)	Field strength (μV/m at 3 m)
30~88	100
88~216	150
216~960	200
Above 960	500

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

Radiation Disturbance Test Limit for FCC (Above 1G)

Frequency (MHz)	dB(uV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

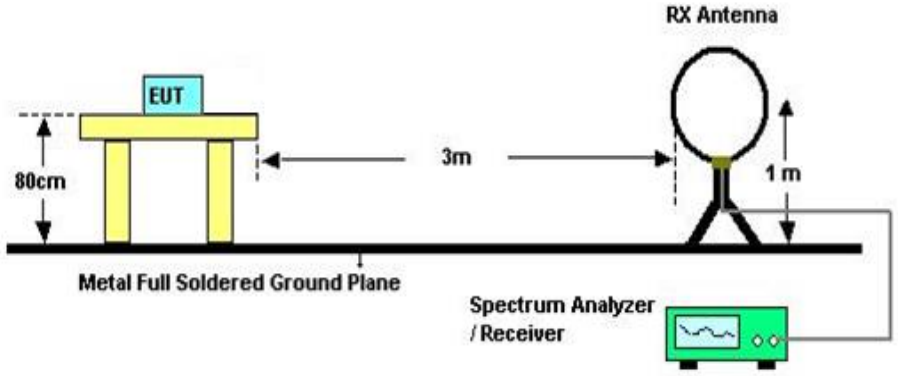
Restricted bands of operation

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

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 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.

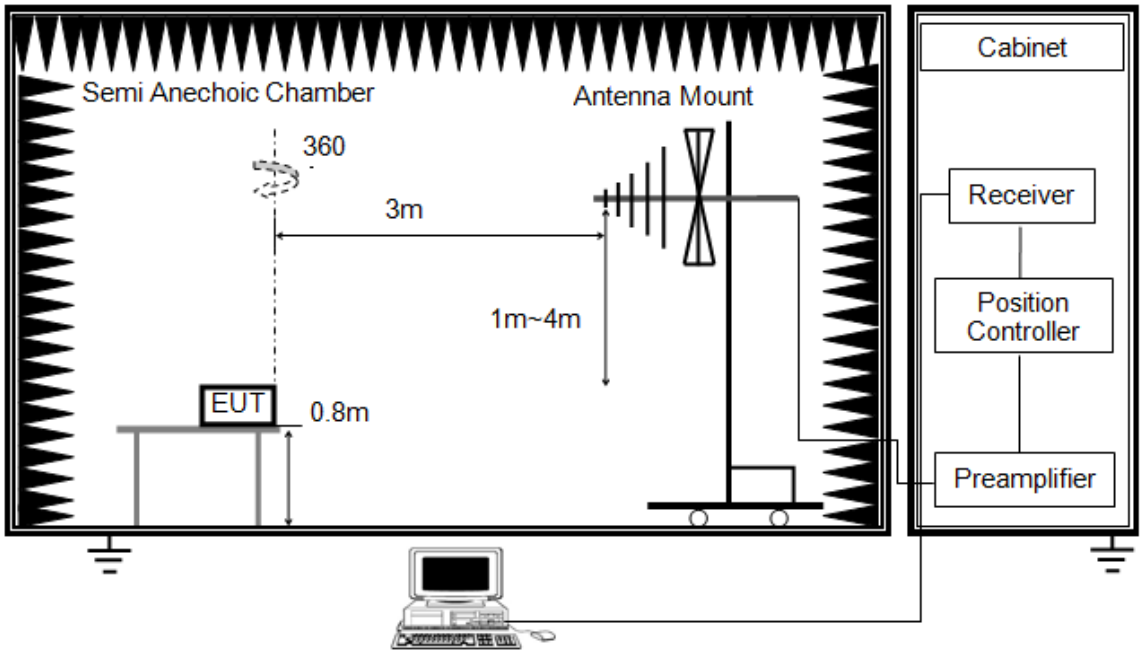
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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.

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

Note: Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open are test 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 based on KDB 414788.

Below 1G



The setting of the spectrum analyser

RBW	120K
VBW	300K
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.

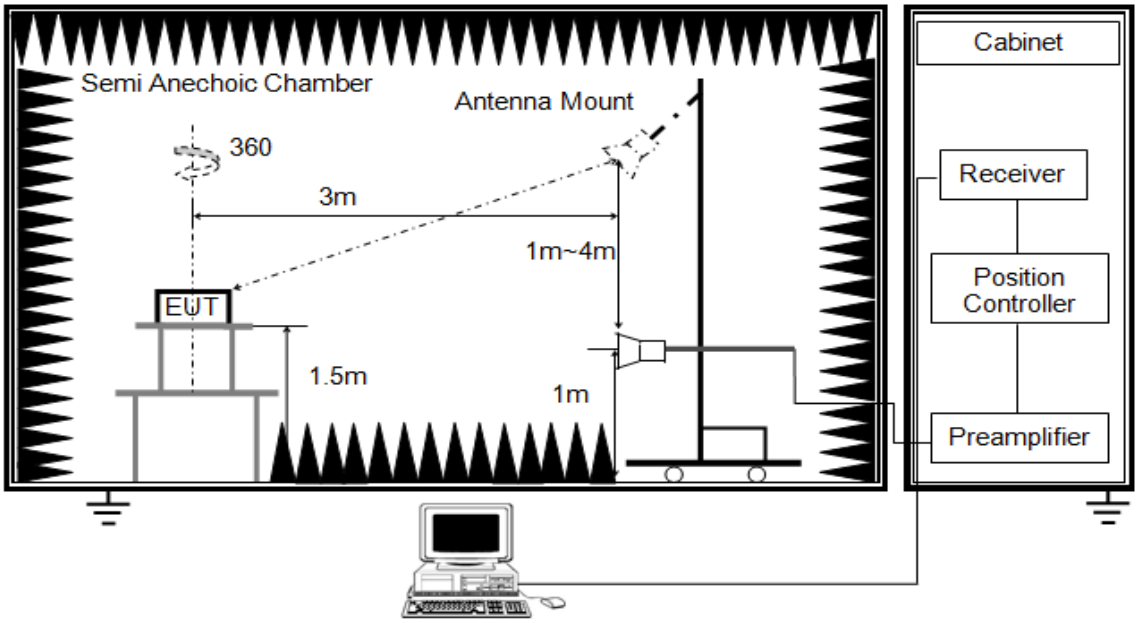
3. The EUT was placed on a turntable with 0.8 meter above ground.

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.

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

ABOVE 1G



The setting of the spectrum analyser

RBW	1M
VBW	PEAK: 3M 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.

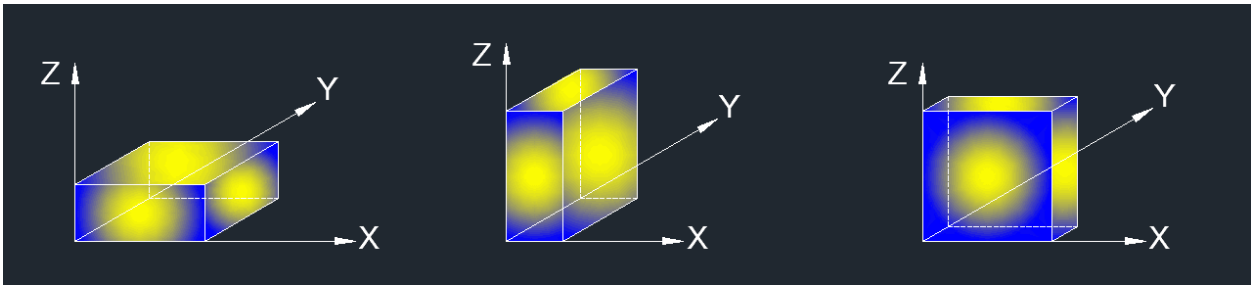
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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 peak measurements, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz with peak detector; For average measurements, the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1KHz with peak detector.

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

X axis, Y axis, Z axis positions:



TEST ENVIRONMENT

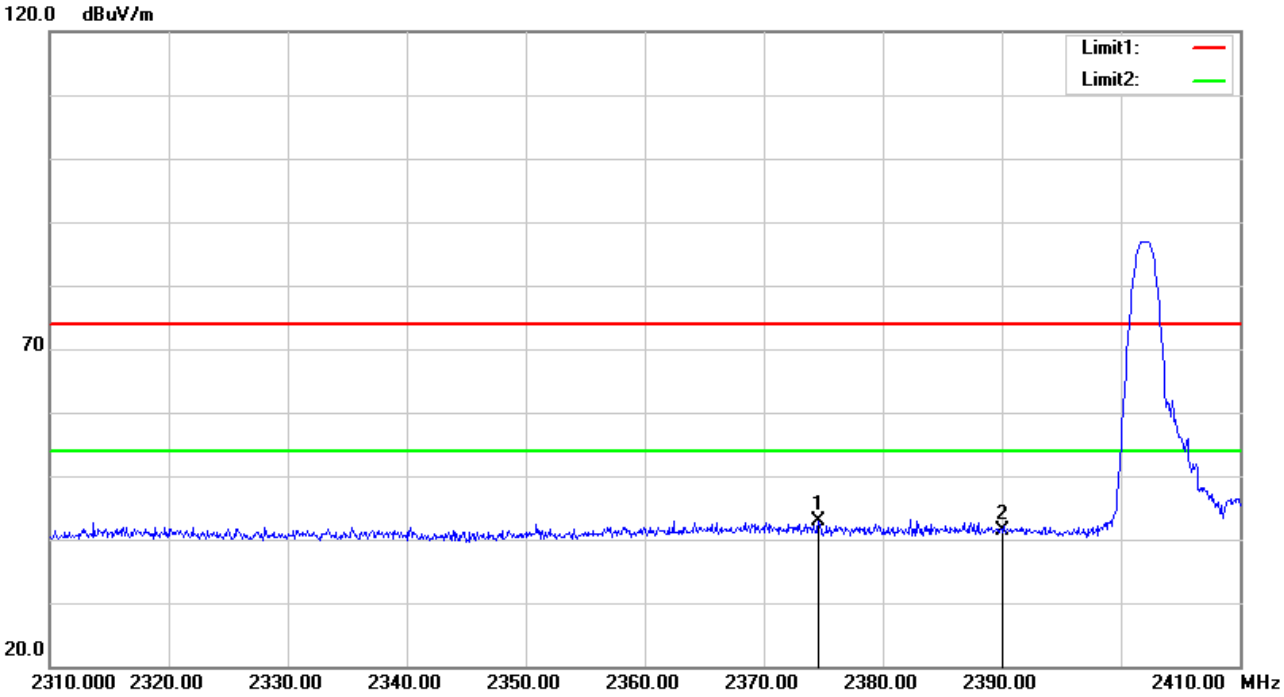
Temperature	25C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

Note: Pre-test X-axis, Y-axis, and Z-axis positions, find the worst case in X-axis and record it in this report.

9.1. RESTRICTED BANDEDGE

GFSK

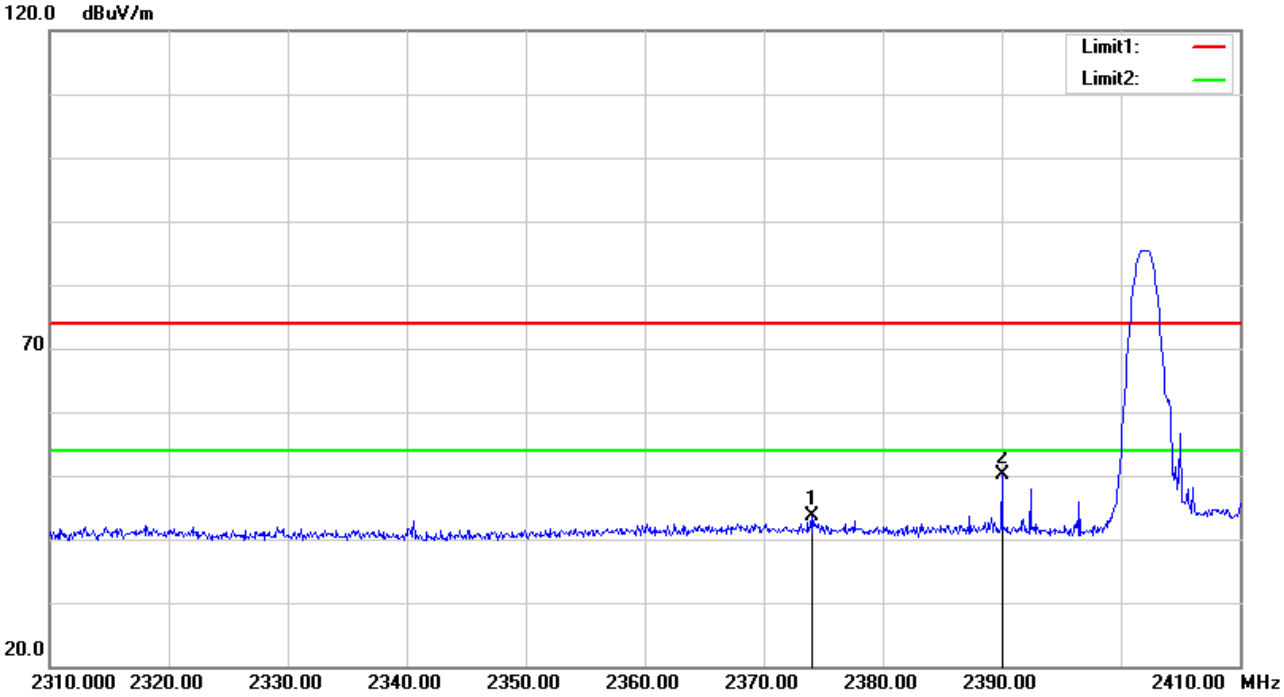
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2374.600	38.72	4.11	42.83	74.00	-31.17	peak
2	2390.000	36.93	4.34	41.27	74.00	-32.73	peak

Note: Measurement = Reading Level + Correct Factor.

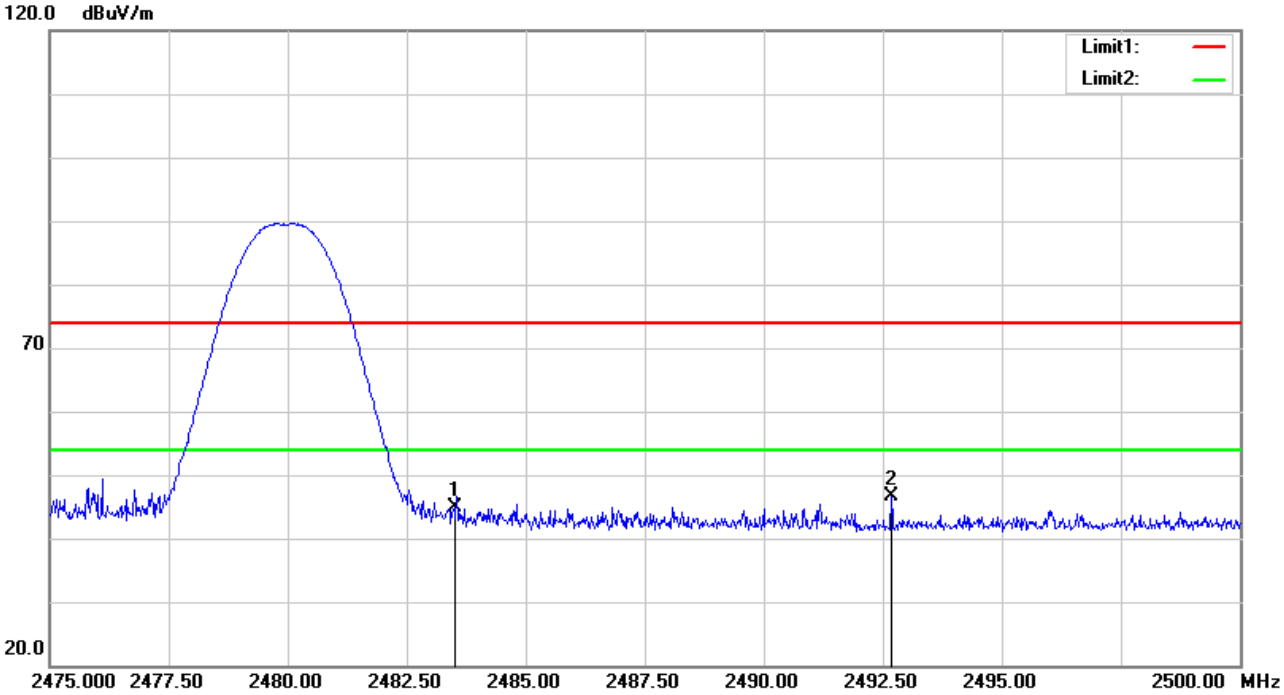
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2374.000	39.62	4.10	43.72	74.00	-30.28	peak
2	2390.000	45.91	4.34	50.25	74.00	-23.75	peak

Note: Measurement = Reading Level + Correct Factor.

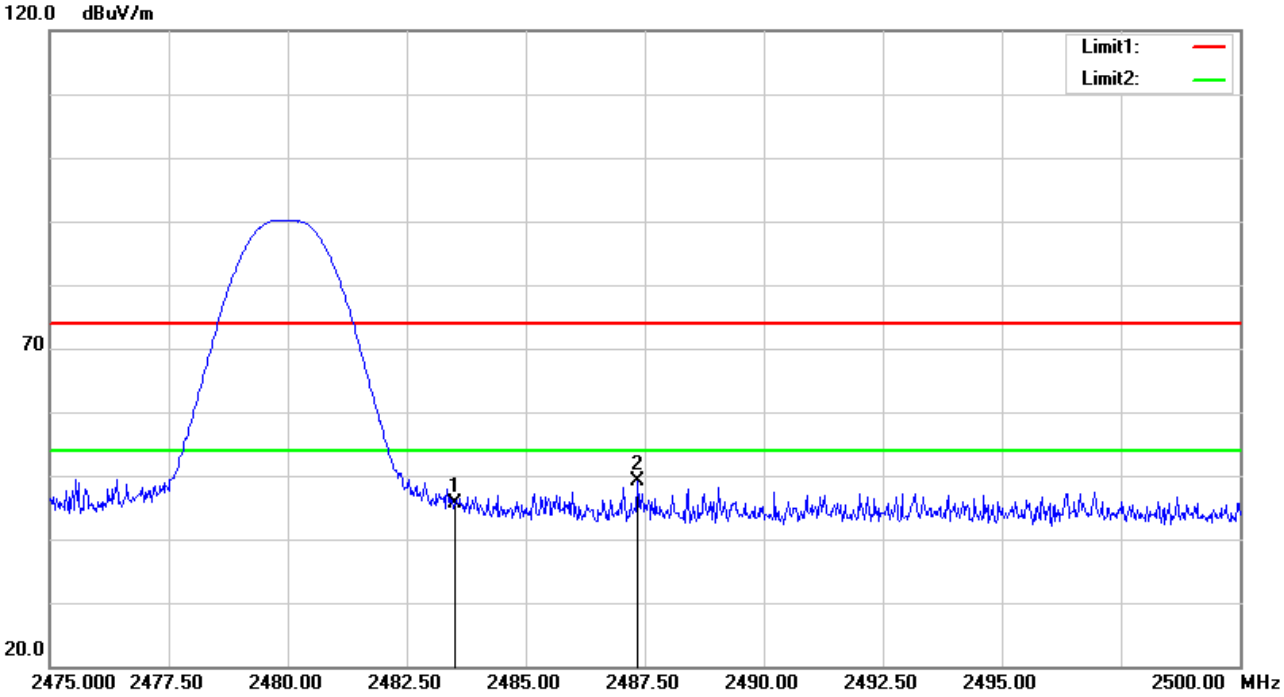
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	40.22	4.60	44.82	74.00	-29.18	peak
2	2492.675	42.01	4.64	46.65	74.00	-27.35	peak

Note: Measurement = Reading Level + Correct Factor.

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	41.13	4.60	45.73	74.00	-28.27	peak
2	2487.350	44.42	4.62	49.04	74.00	-24.96	peak

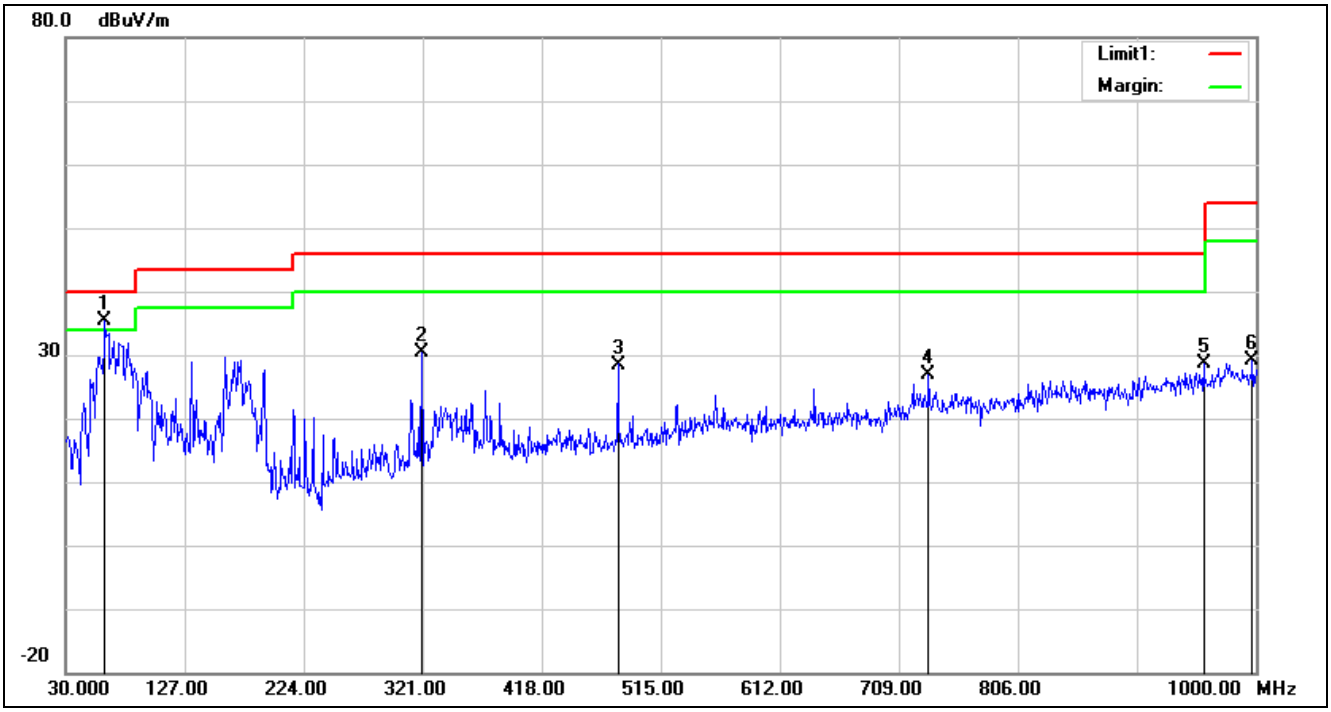
Note: Measurement = Reading Level + Correct Factor.

9.2. SPURIOUS EMISSIONS 30MHz-1GHz

Note: All the channels had been tested, but only the worst data recorded in the report.

Test Model: WLPSTPR-10

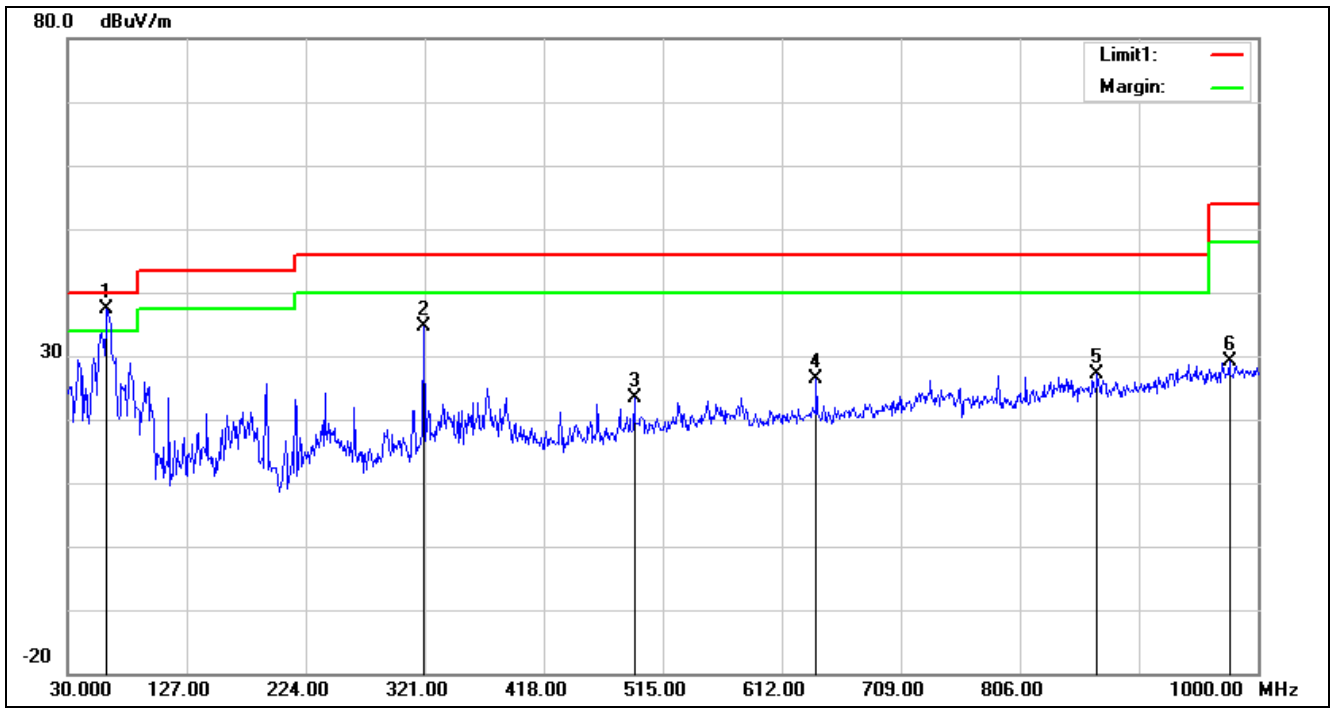
HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	62.0100	61.10	-25.76	35.34	40.00	-4.66	QP
2	320.0300	44.33	-14.00	30.33	46.00	-15.67	QP
3	480.0800	37.15	-8.65	28.50	46.00	-17.50	QP
4	733.2500	29.11	-2.35	26.76	46.00	-19.24	QP
5	957.3200	26.88	1.72	28.60	46.00	-17.40	QP
6	997.0900	27.01	2.04	29.05	54.00	-24.95	QP

Note: Measurement = Reading Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)

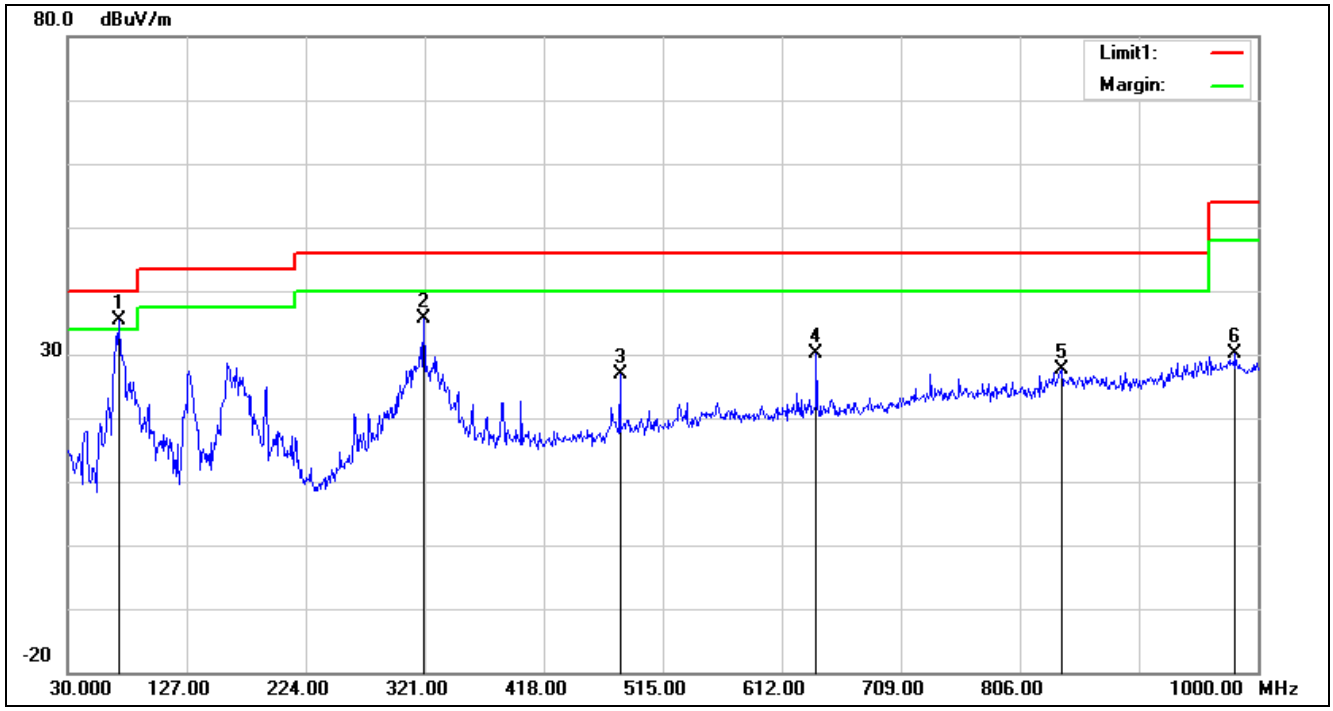


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	62.0100	62.23	-25.76	36.47	40.00	-3.53	QP
2	320.0300	48.55	-14.00	34.55	46.00	-11.45	QP
3	491.7200	31.49	-8.18	23.31	46.00	-22.69	QP
4	640.1300	31.31	-4.84	26.47	46.00	-19.53	QP
5	869.0500	27.66	-0.52	27.14	46.00	-18.86	QP
6	976.7200	26.57	2.45	29.02	54.00	-24.98	QP

Note: Measurement = Reading Level + Correct Factor.

Test Model: WLPSTG-10

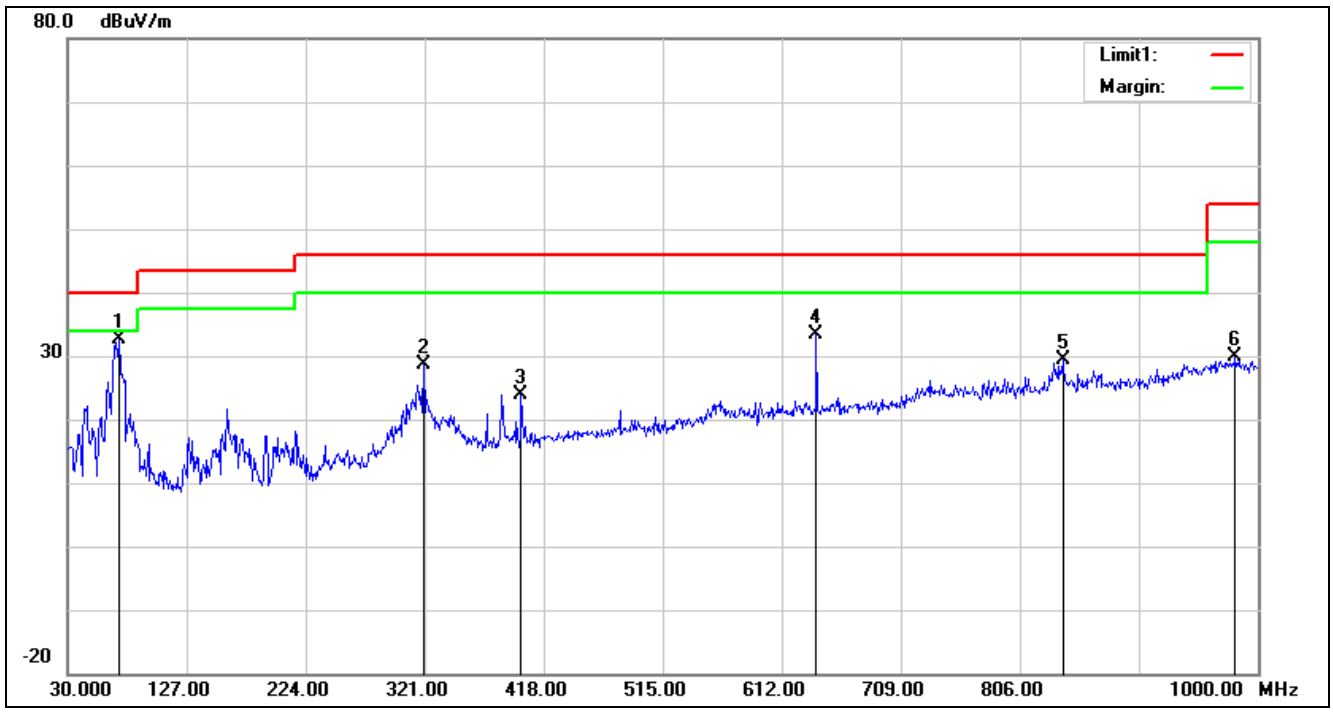
HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	71.7100	59.91	-24.56	35.35	40.00	-4.65	QP
2	320.0300	49.53	-14.00	35.53	46.00	-10.47	QP
3	480.0800	35.48	-8.65	26.83	46.00	-19.17	QP
4	640.1300	35.07	-4.84	30.23	46.00	-15.77	QP
5	839.9500	28.08	-0.34	27.74	46.00	-18.26	QP
6	981.5700	27.50	2.57	30.07	54.00	-23.93	QP

Note: Measurement = Reading Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)

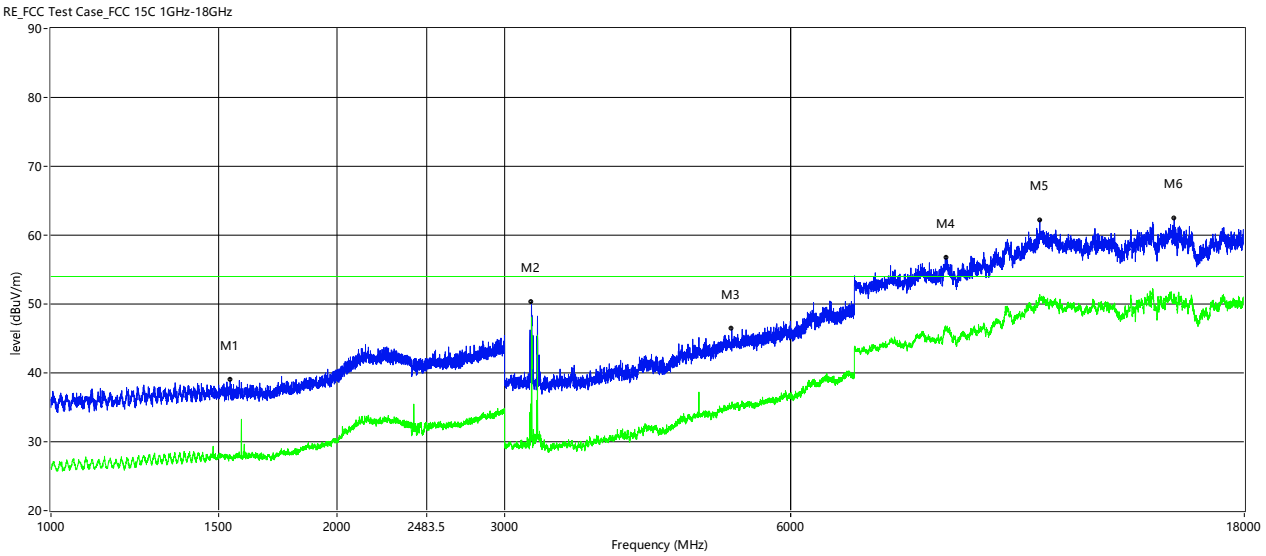


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	71.7100	57.28	-24.56	32.72	40.00	-7.28	QP
2	320.0300	42.61	-14.00	28.61	46.00	-17.39	QP
3	399.5700	35.11	-11.16	23.95	46.00	-22.05	QP
4	640.1300	38.12	-4.84	33.28	46.00	-12.72	QP
5	840.9200	29.69	-0.38	29.31	46.00	-16.69	QP
6	981.5700	27.40	2.57	29.97	54.00	-24.03	QP

Note: Measurement = Reading Level + Correct Factor.

9.3. SPURIOUS EMISSIONS Above 1 GHz

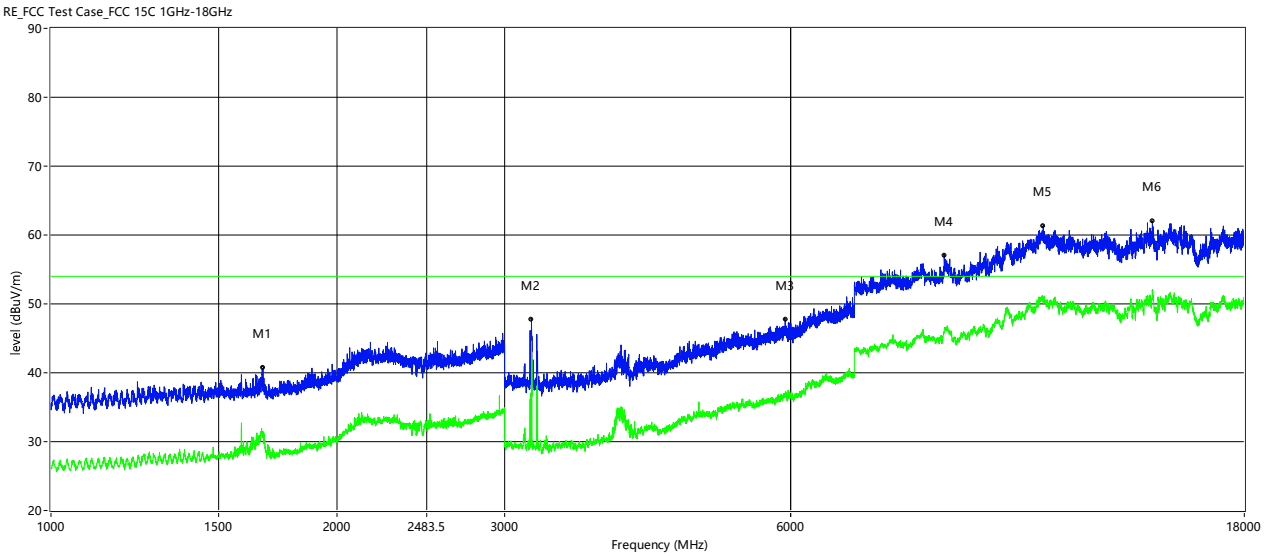
Test Model: WLPSTPR-10
Low Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1543.500	38.98	27.95	-0.61	74.0	54.0	-26.05	Horizontal	Pass
3202.000	50.33	48.10	-12.12	74.0	54.0	-5.90	Horizontal	Pass
5202.000	46.38	35.05	-4.88	74.0	54.0	-18.95	Horizontal	Pass
8740.750	56.72	46.27	5.03	74.0	54.0	-7.73	Horizontal	Pass
10968.250	62.13	50.39	9.98	74.0	54.0	-3.61	Horizontal	Pass
15186.750	62.36	50.12	10.94	74.0	54.0	-3.88	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

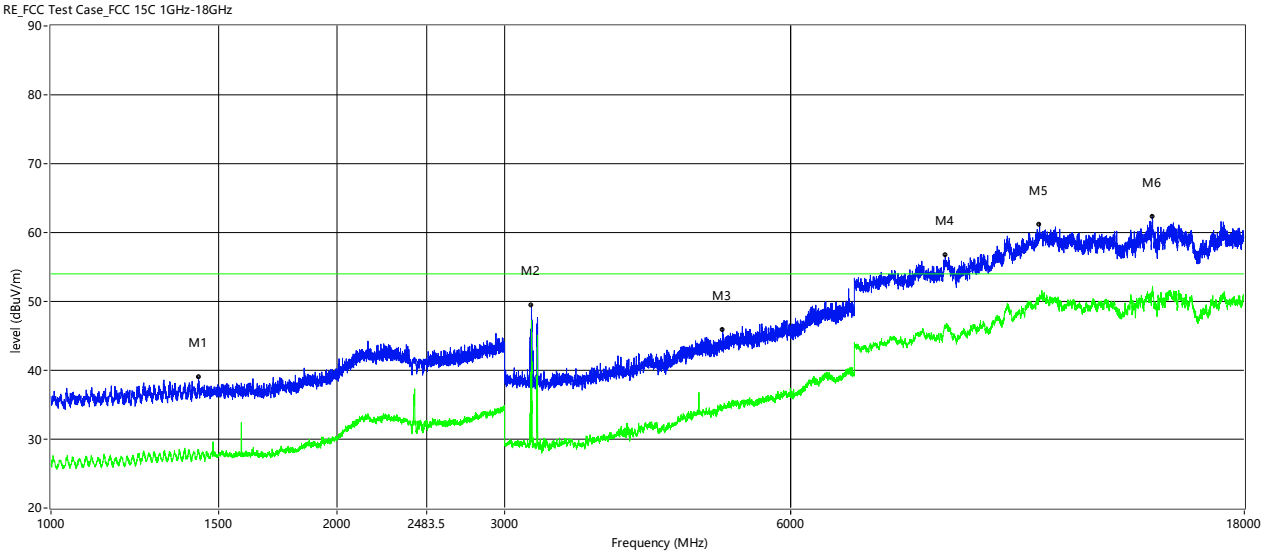
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1671.000	40.64	31.21	-0.49	74.0	54.0	-22.79	Vertical	Pass
3202.000	47.69	44.60	-12.12	74.0	54.0	-9.40	Vertical	Pass
5921.000	47.70	36.70	-3.19	74.0	54.0	-17.30	Vertical	Pass
8702.250	57.05	46.14	5.15	74.0	54.0	-7.86	Vertical	Pass
11059.000	61.27	50.82	9.90	74.0	54.0	-3.18	Vertical	Pass
14405.750	61.96	50.75	11.36	74.0	54.0	-3.25	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

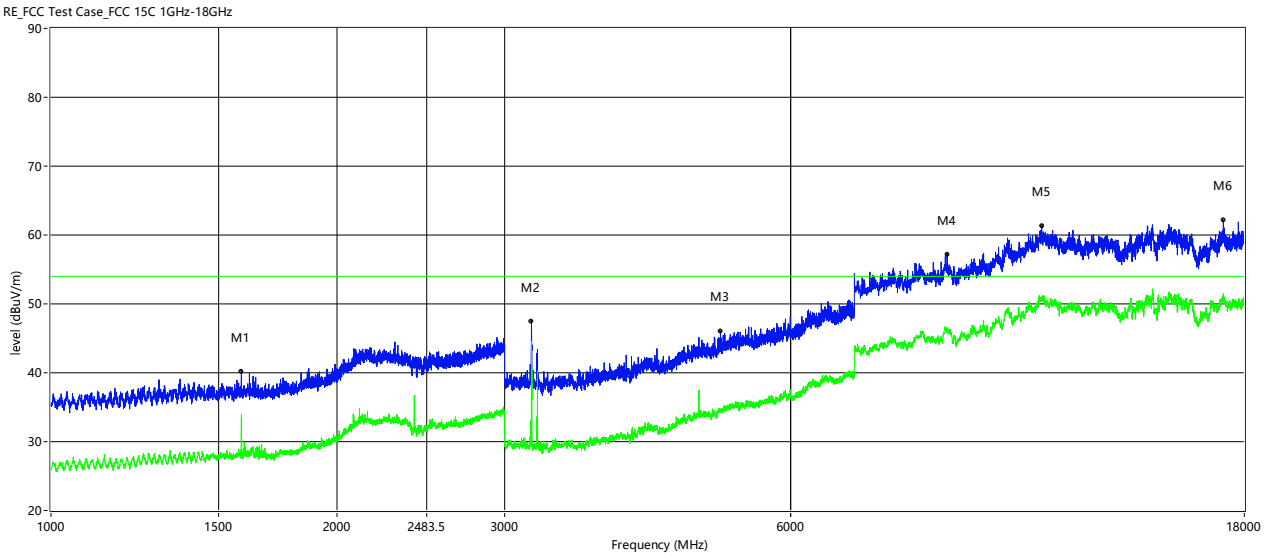
Mid Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1429.500	39.03	28.12	-0.62	74.0	54.0	-25.88	Horizontal	Pass
3202.000	49.46	47.20	-12.12	74.0	54.0	-6.80	Horizontal	Pass
5088.000	45.91	34.41	-5.64	74.0	54.0	-19.59	Horizontal	Pass
8724.250	56.69	46.31	5.08	74.0	54.0	-7.69	Horizontal	Pass
10962.750	61.12	50.92	9.93	74.0	54.0	-3.08	Horizontal	Pass
14405.750	62.31	50.63	11.36	74.0	54.0	-3.37	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

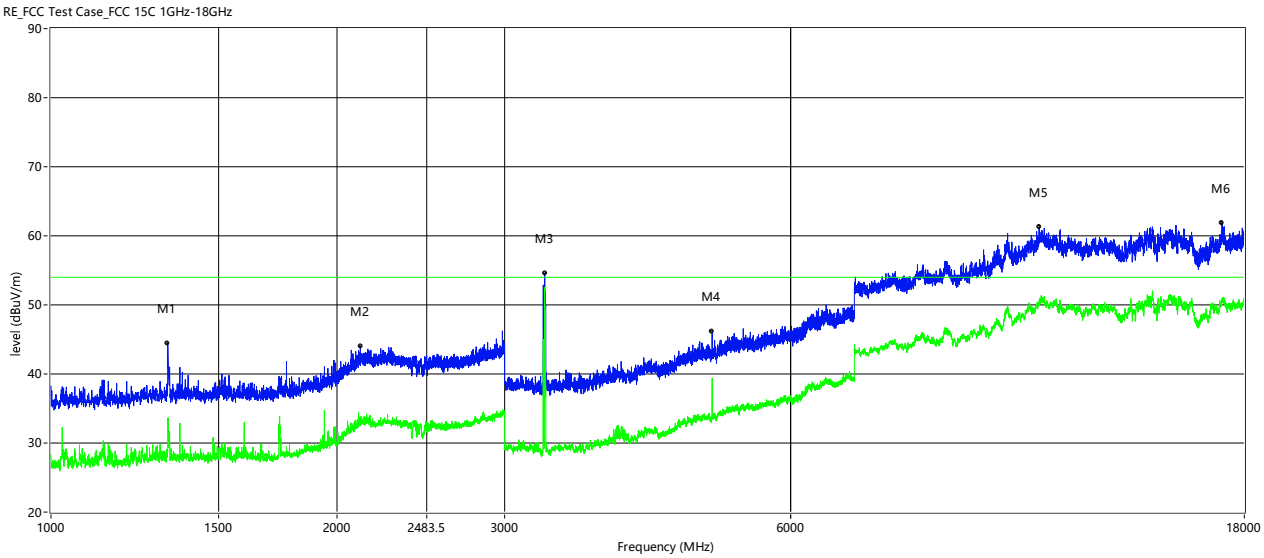
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1586.000	40.11	33.67	-0.53	74.0	54.0	-20.33	Vertical	Pass
3202.000	47.42	44.53	-12.12	74.0	54.0	-9.47	Vertical	Pass
5060.000	46.00	34.55	-5.88	74.0	54.0	-19.45	Vertical	Pass
8762.750	57.20	46.44	4.97	74.0	54.0	-7.56	Vertical	Pass
11017.750	61.33	50.90	10.12	74.0	54.0	-3.10	Vertical	Pass
17109.000	62.11	50.15	10.43	74.0	54.0	-3.85	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

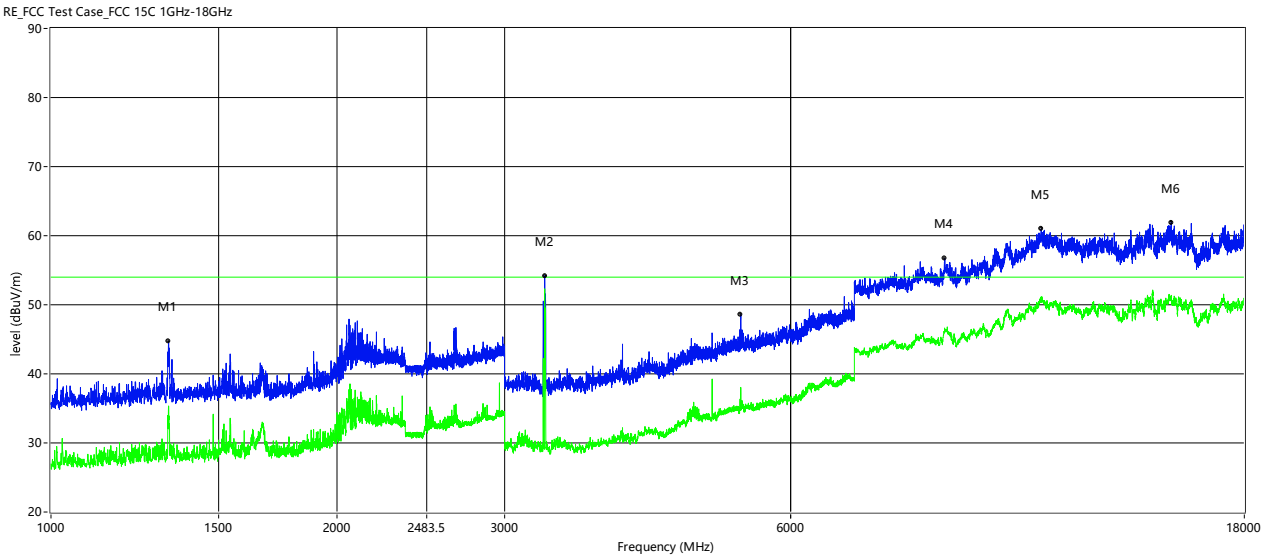
High Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1327.000	44.43	33.60	-0.86	74.0	54.0	-20.40	Horizontal	Pass
2115.500	43.96	33.73	4.05	74.0	54.0	-20.27	Horizontal	Pass
3306.000	54.51	50.51	-12.21	74.0	54.0	-3.49	Horizontal	Pass
4960.000	46.09	39.38	-6.38	74.0	54.0	-14.62	Horizontal	Pass
10949.000	61.23	50.34	9.83	74.0	54.0	-3.66	Horizontal	Pass
17054.000	61.92	50.80	10.15	74.0	54.0	-3.20	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

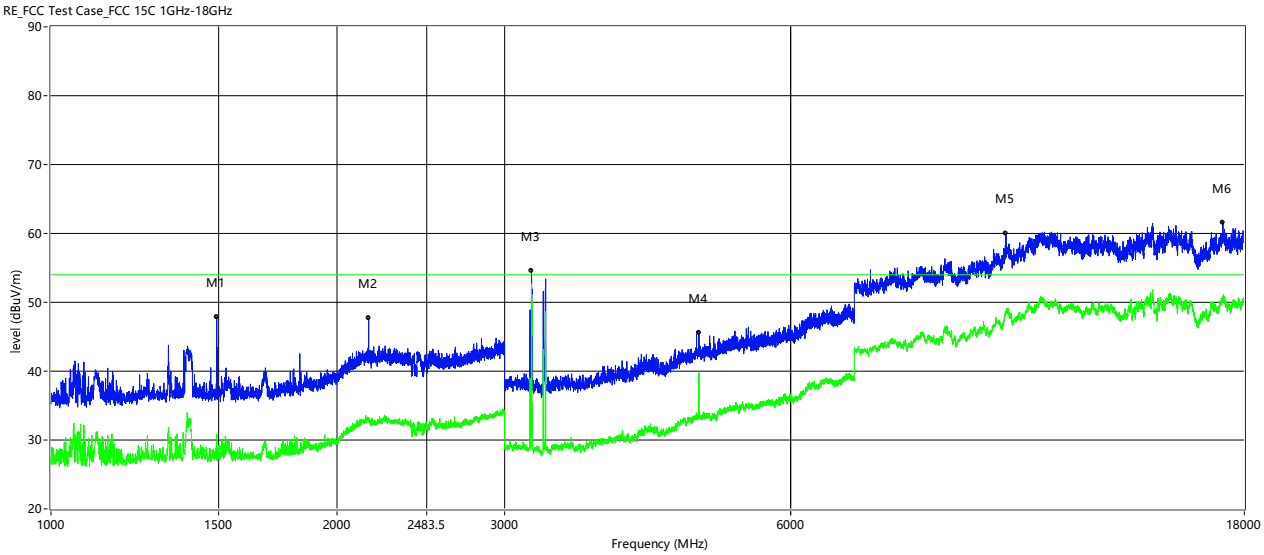
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1330.000	44.72	35.27	-0.85	74.0	54.0	-18.73	Vertical	Pass
3306.000	54.21	50.32	-12.21	74.0	54.0	-3.68	Vertical	Pass
5317.000	48.58	37.02	-4.97	74.0	54.0	-16.98	Vertical	Pass
8713.250	56.70	46.24	5.12	74.0	54.0	-7.76	Vertical	Pass
11004.000	60.98	50.16	10.20	74.0	54.0	-3.84	Vertical	Pass
15076.750	61.93	50.75	10.33	74.0	54.0	-3.25	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

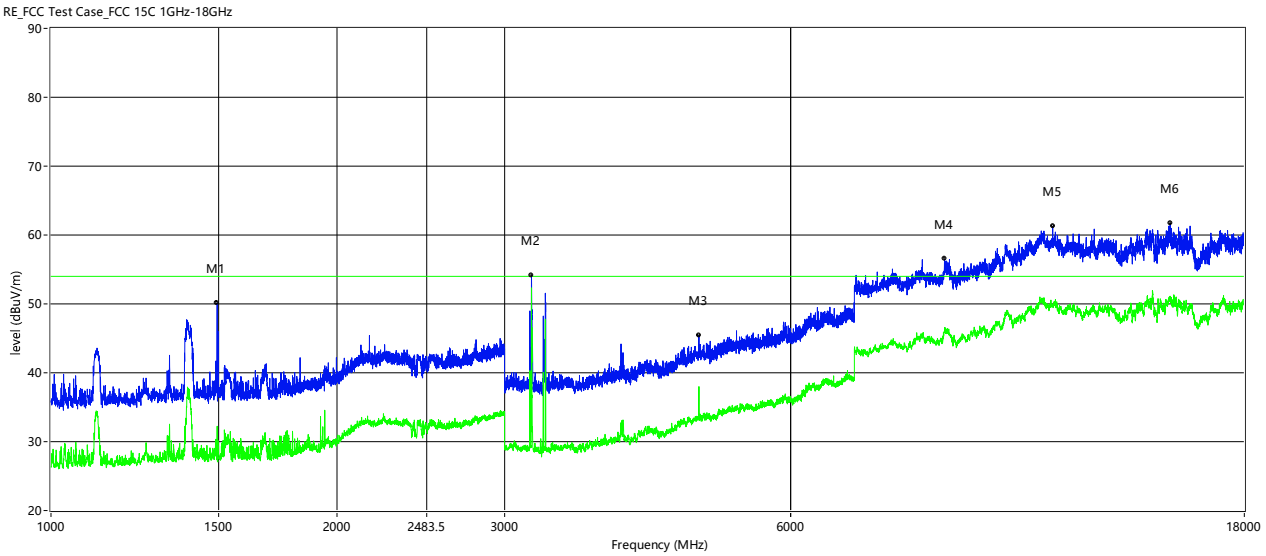
Test Model: WLPSTG-10
Low Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1494.000	47.84	30.81	-0.56	74.0	54.0	-23.19	Horizontal	Pass
2158.500	47.65	33.29	4.54	74.0	54.0	-20.71	Horizontal	Pass
3202.000	54.52	50.68	-12.12	74.0	54.0	-3.32	Horizontal	Pass
4804.000	45.58	39.77	-6.96	74.0	54.0	-14.23	Horizontal	Pass
10104.750	60.01	48.70	7.18	74.0	54.0	-5.30	Horizontal	Pass
17089.750	61.61	50.52	10.41	74.0	54.0	-3.48	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

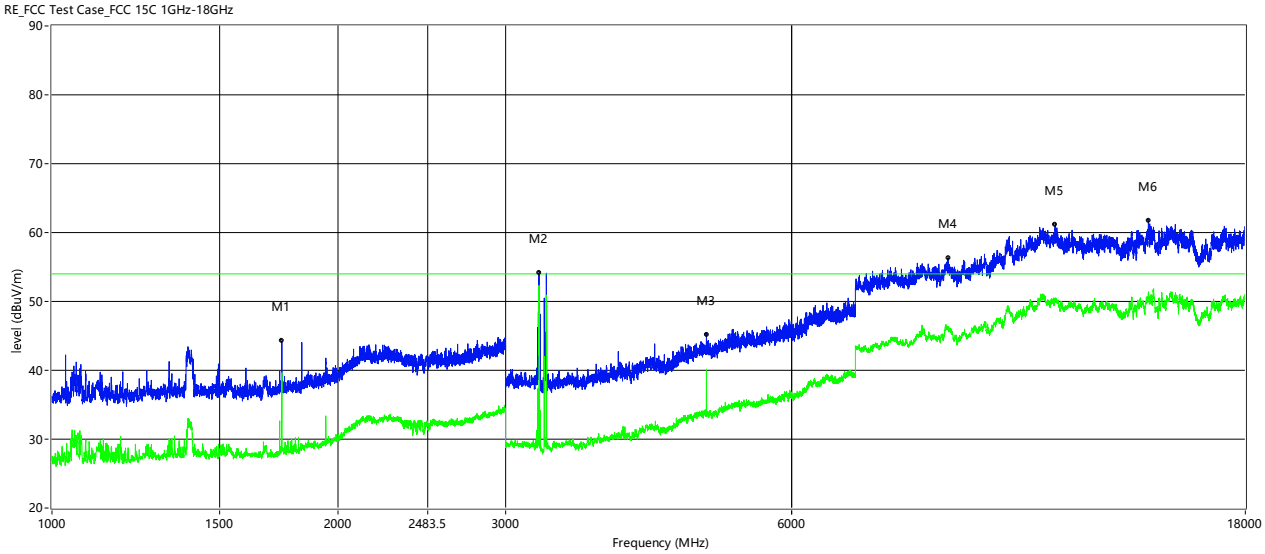
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1495.500	50.15	32.25	-0.56	74.0	54.0	-21.75	Vertical	Pass
3202.000	54.10	50.33	-12.12	74.0	54.0	-3.67	Vertical	Pass
4804.000	45.45	38.01	-6.96	74.0	54.0	-15.99	Vertical	Pass
8707.750	56.50	45.86	5.14	74.0	54.0	-8.14	Vertical	Pass
11317.500	61.25	49.65	9.57	74.0	54.0	-4.35	Vertical	Pass
15041.000	61.70	50.92	10.36	74.0	54.0	-3.08	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

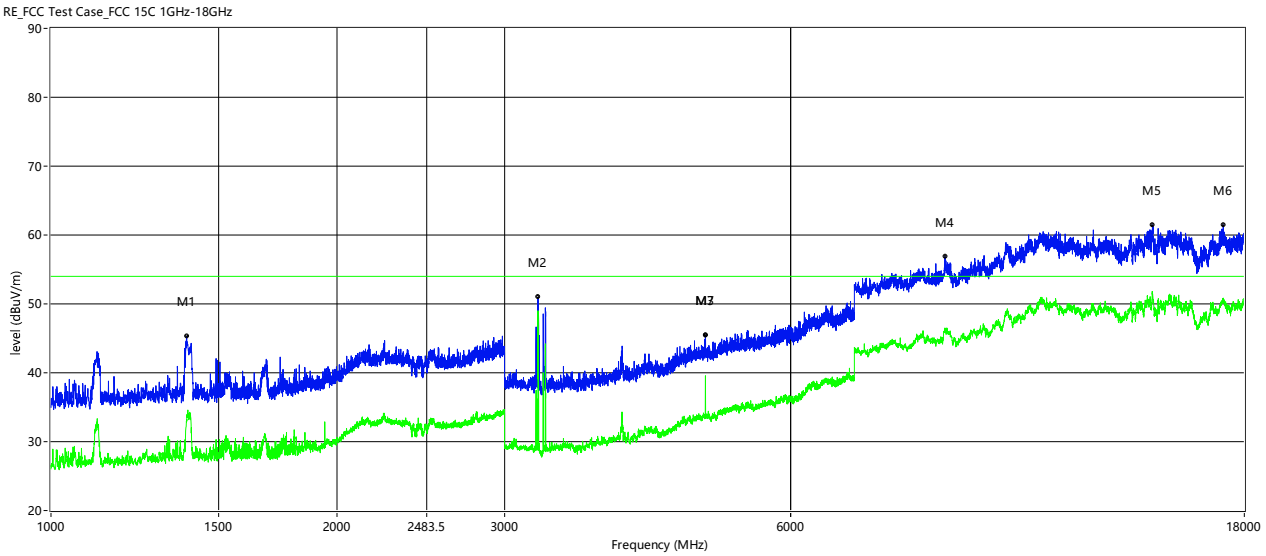
Mid Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1744.500	44.26	37.90	-0.00	74.0	54.0	-16.10	Horizontal	Pass
3253.000	54.16	50.33	-12.18	74.0	54.0	-3.67	Horizontal	Pass
4880.000	45.21	40.18	-6.51	74.0	54.0	-13.82	Horizontal	Pass
8762.750	56.24	46.17	4.97	74.0	54.0	-7.83	Horizontal	Pass
11353.250	61.10	50.06	9.64	74.0	54.0	-3.94	Horizontal	Pass
14232.500	61.73	50.10	11.35	74.0	54.0	-3.90	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

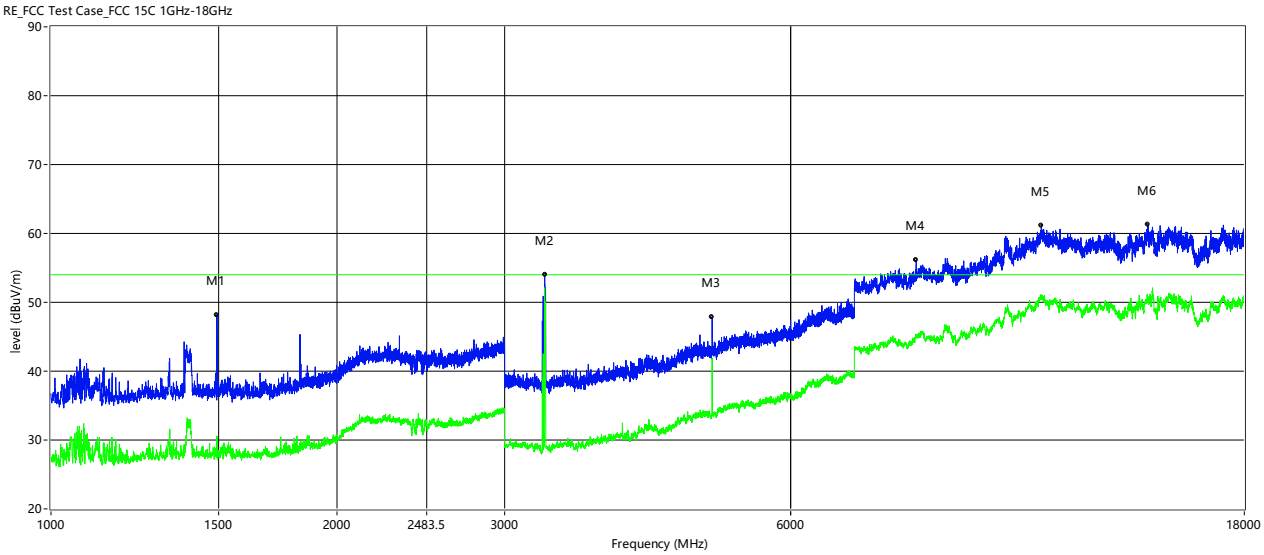
Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1389.000	45.28	33.26	-0.69	74.0	54.0	-20.74	Vertical	Pass
3253.000	50.98	49.02	-12.18	74.0	54.0	-4.98	Vertical	Pass
4879.000	45.48	37.37	-6.51	74.0	54.0	-16.63	Vertical	Pass
8718.750	56.88	46.17	5.10	74.0	54.0	-7.83	Vertical	Pass
14408.500	61.47	50.39	11.32	74.0	54.0	-3.61	Vertical	Pass
17103.500	61.48	50.69	10.46	74.0	54.0	-3.31	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

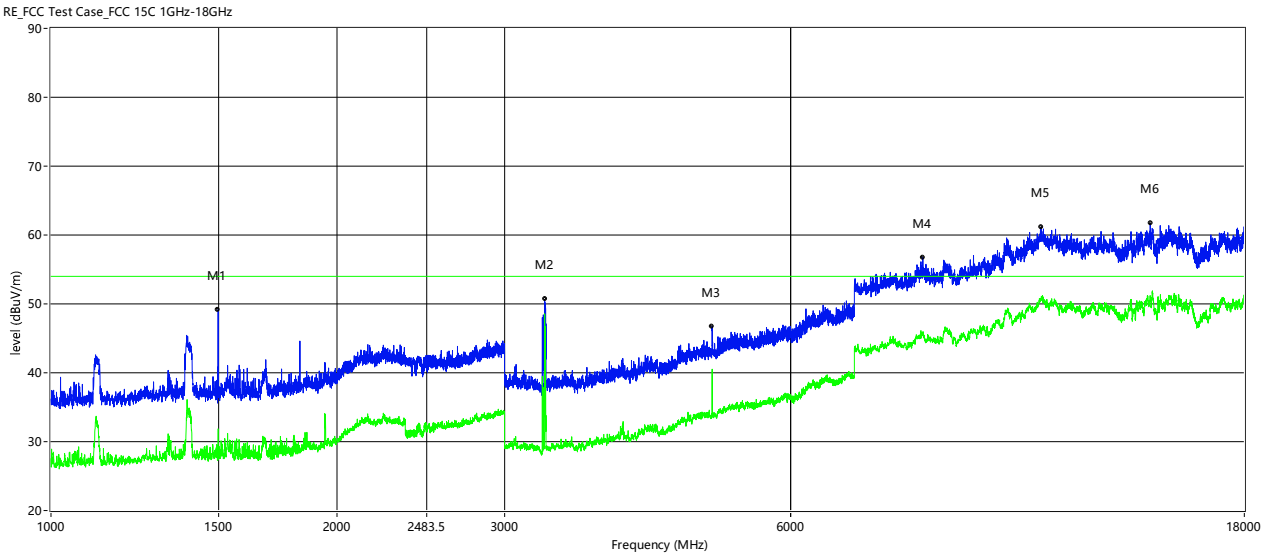
High Channel
Horizontal



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1495.000	48.21	30.57	-0.56	74.0	54.0	-23.43	Horizontal	Pass
3306.000	55.97	50.12	-12.21	74.0	54.0	-3.88	Horizontal	Pass
4960.000	47.83	41.93	-6.38	74.0	54.0	-12.07	Horizontal	Pass
8130.250	56.09	45.18	4.18	74.0	54.0	-8.82	Horizontal	Pass
11006.750	61.09	50.66	10.18	74.0	54.0	-3.34	Horizontal	Pass
14254.500	61.28	50.86	11.18	74.0	54.0	-3.14	Horizontal	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

Vertical



Frequency (MHz)	Peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1499.000	49.17	31.89	-0.56	74.0	54.0	-22.11	Vertical	Pass
3306.000	50.66	48.57	-12.21	74.0	54.0	-5.43	Vertical	Pass
4959.000	46.75	38.34	-6.38	74.0	54.0	-15.66	Vertical	Pass
8262.250	56.75	45.57	4.22	74.0	54.0	-8.43	Vertical	Pass
11004.000	61.10	50.68	10.20	74.0	54.0	-3.32	Vertical	Pass
14331.500	61.68	50.86	11.01	74.0	54.0	-3.14	Vertical	Pass

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier + BRF Factor.
2. Margin = Limit - Emission Level
3. Tests were performed in three frequency range 1GHz~3GHz, 3GHz~13GHz, 13GHz~18GHz.
4. Above 18GHz emissions are mainly from the environment noise, not show in report.

9.4. SPURIOUS EMISSIONS BELOW 30M

Freq.	Reading	Limit	Margin	State	Test Result
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	
--	--	--	--	--	PASS
--	--	--	--	--	PASS

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits (dBuv) + distance extrapolation factor.

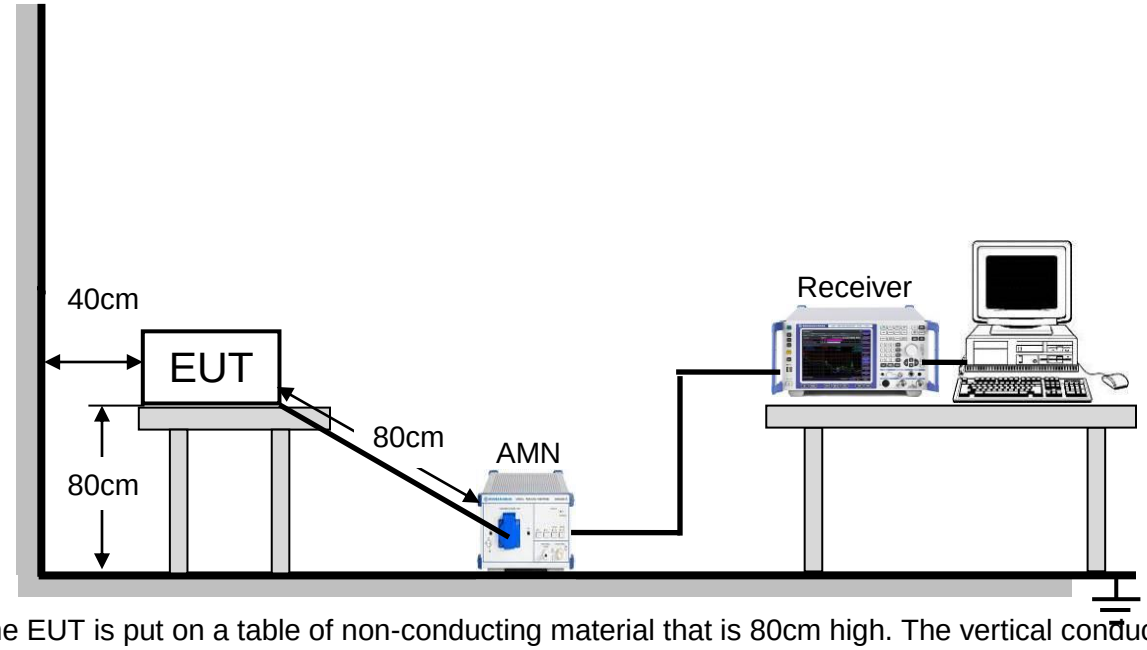
10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

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

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

TEST 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 7 and 13 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.

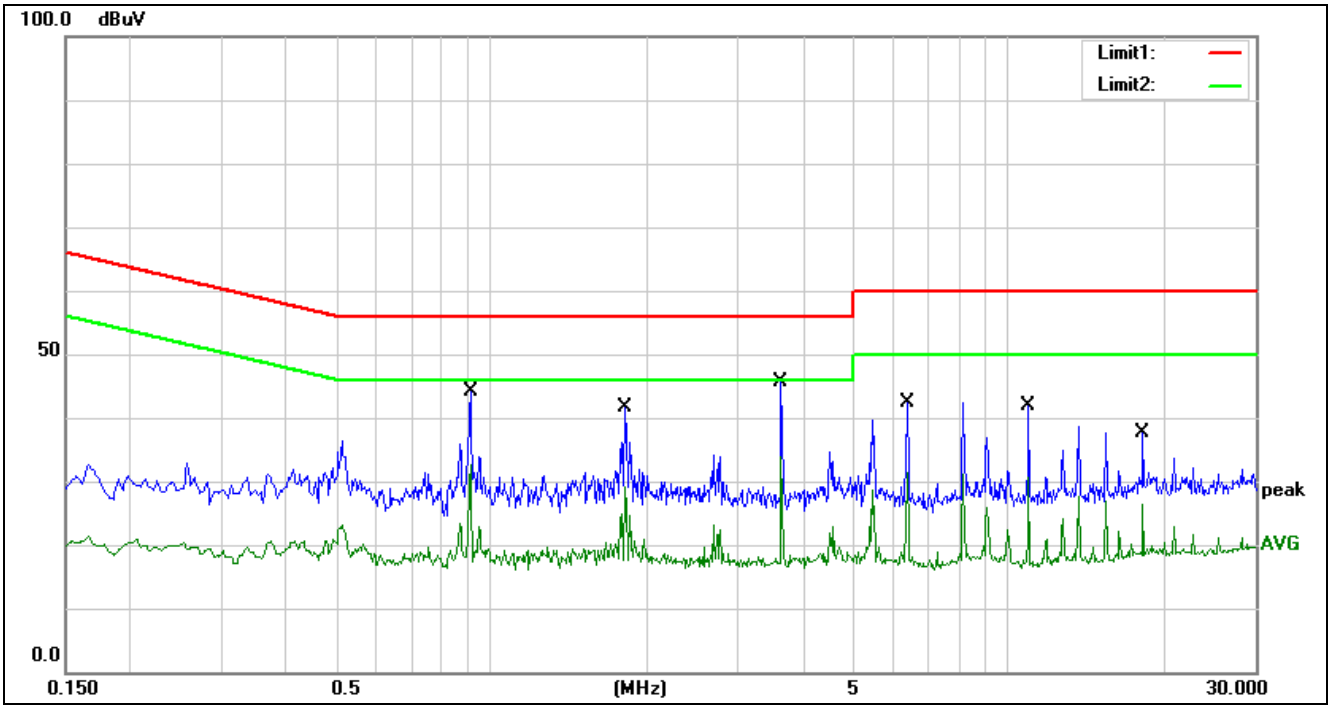
TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V/60Hz

TEST RESULTS

Test Model: WLPSTPR-10

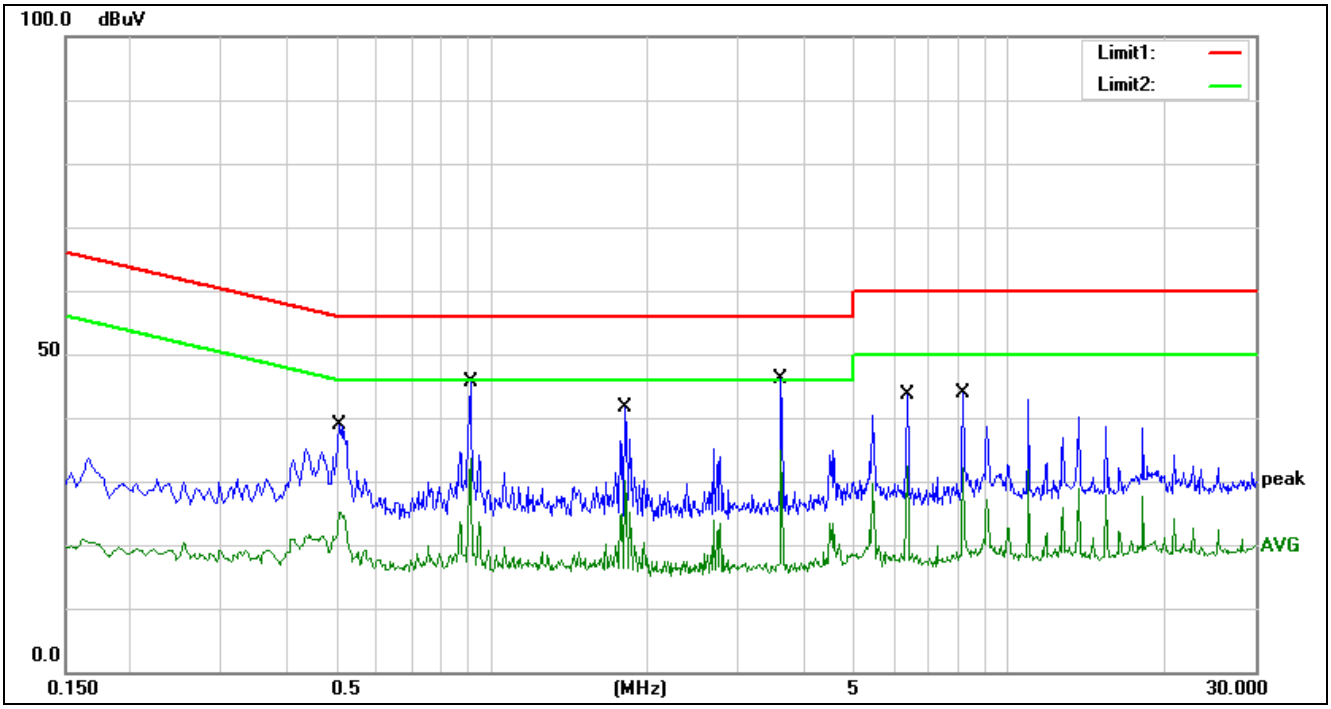
NEUTRAL N RESULTS



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.9100	23.86	20.32	44.18	56.00	-11.82	QP
2	0.9100	12.24	20.32	32.56	46.00	-13.44	AVG
3	1.8180	21.44	20.30	41.74	56.00	-14.26	QP
4	1.8180	8.89	20.30	29.19	46.00	-16.81	AVG
5	3.6380	25.24	20.38	45.62	56.00	-10.38	QP
6	3.6380	13.53	20.38	33.91	46.00	-12.09	AVG
7	6.3620	21.87	20.54	42.41	60.00	-17.59	QP
8	6.3620	10.80	20.54	31.34	50.00	-18.66	AVG
9	10.9100	20.53	21.30	41.83	60.00	-18.17	QP
10	10.9100	9.44	21.30	30.74	50.00	-19.26	AVG
11	18.1820	15.08	22.47	37.55	60.00	-22.45	QP
12	18.1820	3.91	22.47	26.38	50.00	-23.62	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.

LINE L RESULTS

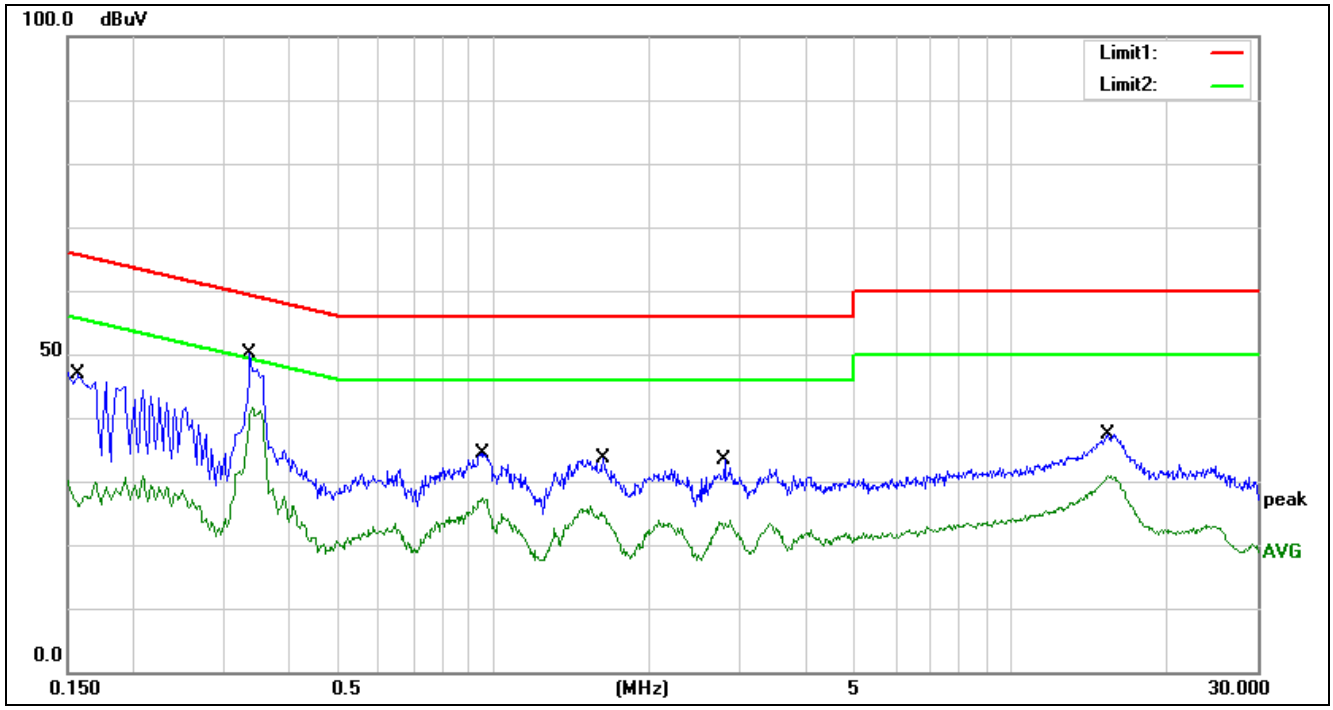


No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5100	18.23	20.53	38.76	56.00	-17.24	QP
2	0.5100	4.59	20.53	25.12	46.00	-20.88	AVG
3	0.9100	25.29	20.32	45.61	56.00	-10.39	QP
4	0.9100	13.36	20.32	33.68	46.00	-12.32	AVG
5	1.8180	21.27	20.30	41.57	56.00	-14.43	QP
6	1.8180	9.80	20.30	30.10	46.00	-15.90	AVG
7	3.6380	25.83	20.38	46.21	56.00	-9.79	QP
8	3.6380	14.52	20.38	34.90	46.00	-11.10	AVG
9	6.3620	23.08	20.54	43.62	60.00	-16.38	QP
10	6.3620	11.78	20.54	32.32	50.00	-17.68	AVG
11	8.1820	23.01	20.82	43.83	60.00	-16.17	QP
12	8.1820	11.40	20.82	32.22	50.00	-17.78	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.

Test Model: WLPSTG-10

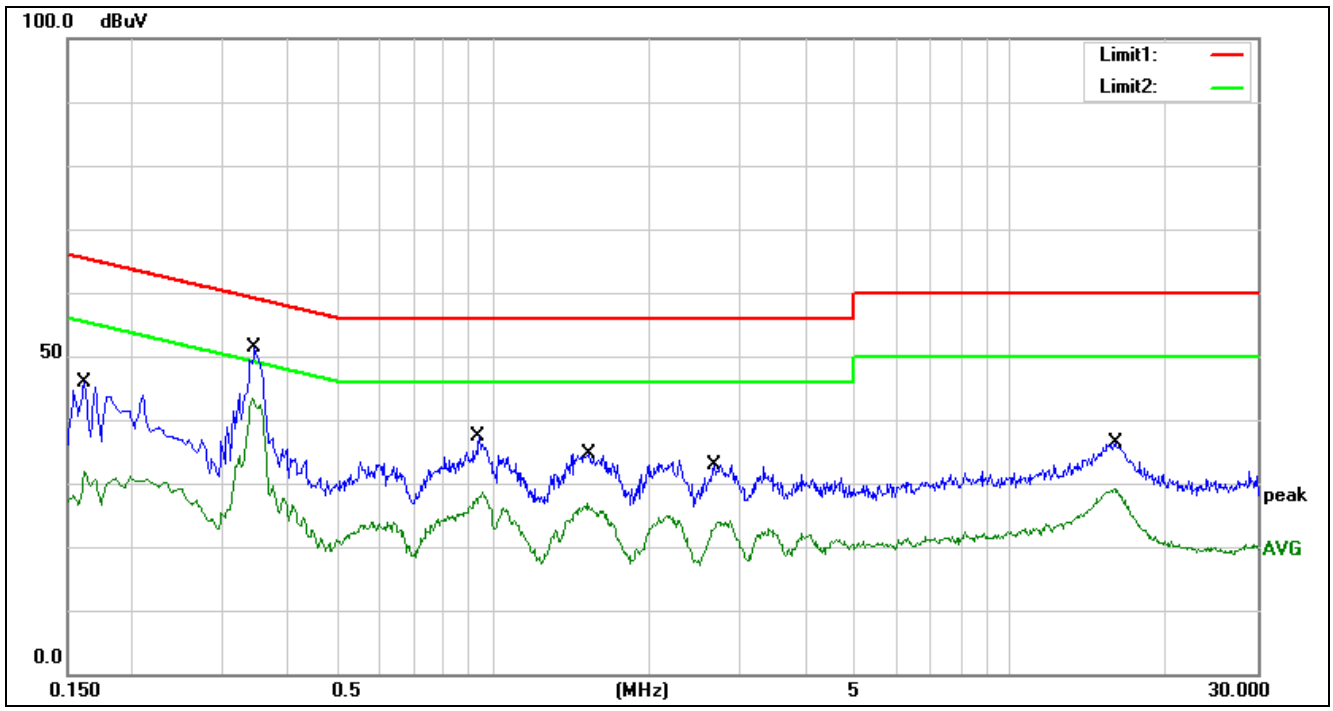
NEUTRAL N RESULTS



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1580	26.42	20.33	46.75	65.57	-18.82	QP
2	0.1580	6.81	20.33	27.14	55.57	-28.43	AVG
3	0.3420	29.57	20.66	50.23	59.15	-8.92	QP
4	0.3420	20.87	20.66	41.53	49.15	-7.62	AVG
5	0.9540	14.03	20.31	34.34	56.00	-21.66	QP
6	0.9540	6.96	20.31	27.27	46.00	-18.73	AVG
7	1.6340	13.33	20.30	33.63	56.00	-22.37	QP
8	1.6340	4.32	20.30	24.62	46.00	-21.38	AVG
9	2.8060	12.98	20.34	33.32	56.00	-22.68	QP
10	2.8060	3.09	20.34	23.43	46.00	-22.57	AVG
11	15.4340	15.63	21.84	37.47	60.00	-22.53	QP
12	15.4340	9.12	21.84	30.96	50.00	-19.04	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.

LINE L RESULTS



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	25.43	20.33	45.76	65.36	-19.60	QP
2	0.1620	11.44	20.33	31.77	55.36	-23.59	AVG
3	0.3420	30.76	20.66	51.42	59.15	-7.73	QP
4	0.3420	22.62	20.66	43.28	49.15	-5.87	AVG
5	0.9420	17.10	20.31	37.41	56.00	-18.59	QP
6	0.9420	7.63	20.31	27.94	46.00	-18.06	AVG
7	1.5300	14.29	20.30	34.59	56.00	-21.41	QP
8	1.5300	6.60	20.30	26.90	46.00	-19.10	AVG
9	2.6660	12.55	20.33	32.88	56.00	-23.12	QP
10	2.6660	3.61	20.33	23.94	46.00	-22.06	AVG
11	15.9060	14.46	21.94	36.40	60.00	-23.60	QP
12	15.9060	7.17	21.94	29.11	50.00	-20.89	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.

11. 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.

ANTENNA CONNECTOR

EUT has a PCB Antenna without antenna connector.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

Test photos

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

END OF REPORT