CFR 47 FCC PART 15 SUBPART C

TEST REPORT

For

XAG XRE1 Range Extender

MODEL NUMBER: M3ACM1A

REPORT NUMBER: 4791750181.2-1-RF-1

ISSUE DATE: May 22, 2025

FCC ID: 2A46G-M3ACM1A

Prepared for

Guangzhou Xaircraft Technology CO.,LTD
Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

Prepared by

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

Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China

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

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	May 22, 2025	Initial Issue	

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
Antenna Requirement	N/A	FCC Part 15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	ANSI C63.10-2013, Clause 6.2	FCC Part 15.207	N/A
Conducted Output Power	ANSI C63.10-2013, Clause 11.9.1.3	FCC Part 15.247 (b)(3)	Pass
6dB Bandwidth and 99% Occupied Bandwidth	ANSI C63.10-2013, Clause 11.8.1	FCC Part 15.247 (a)(2)	Pass
Power Spectral Density	ANSI C63.10-2013, Clause 11.10.2	FCC Part 15.247 (e)	Pass
Conducted Band edge and spurious emission	ANSI C63.10-2013, Clause 11.11	FCC Part 15.247(d)	Pass
Radiated Band edge and Spurious Emission	ANSI C63.10-2013, Clause 11.12 & Clause 11.13	FCC Part 15.247 (d) FCC Part 15.205/15.209	Pass
Duty Cycle	ANSI C63.10-2013, Clause 11.6	None; for reporting purposes only.	Pass

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

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

CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Guangzhou Xaircraft Technology CO.,LTD
Address:	Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

Manufacturer Information

Company Name:	Guangzhou Xaircraft Technology CO.,LTD
Address:	Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

EUT Information

EUT Name:	XAG XRE1 Range Extender
Model:	M3ACM1A
Brand:	XAG
Sample Received Date:	April 15, 2025
Sample Status:	Normal
Sample ID:	8357388
Date of Tested:	April 16, 2025 to May 22, 2025

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

Prepared By:

Daniel Zhang

Project Engineer

Checked By:

Kebo Zhang

Senior Project Engineer

Approved By:

Stephen Guo

Operations Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART C, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 662911 D01 Multiple Transmitter Output v02r01, CFR 47 FCC Part 2, 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 Declaration of Conformity (DoC) and Certification rules. **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.

Note 1:
All tests measurement facilities use to collect the measurement data are located at Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China.

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Duty Cycle	±0.028%
DTS and 99% Occupied Bandwidth	±0.0196%
Maximum Conducted Output Power	±0.686 dB
Maximum Power Spectral Density Level	±0.743 dB
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz)
	±1.328dB (1 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	XAG XRE1 Range Extender
Model	M3ACM1A

Frequency Range:	2412 MHz to 2462 MHz
Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Radio Technology:	IEEE 802.11b/g/n HT20
Normal Test Voltage:	DC 12V-24V

5.2. CHANNEL LIST

Channel List For Bandwidth=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	/	/

5.3. MAXIMUM POWER

IEEE Std. 802.11	Frequency (MHz)	Channel Number	Maximum Conducted AVG Output Power (dBm)	Maximum AVG EIRP (dBm)
b	2412 ~ 2462	1-11[11]	21.45	22.25
g	2412 ~ 2462	1-11[11]	19.73	20.53
n HT20	2412 ~ 2462	1-11[11]	19.96	20.76

5.4. TEST CHANNEL CONFIGURATION

IEEE Std. 802.11	Test Channel Number	Frequency
b	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
g	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz
n HT20	CH 1(Low Channel), CH 6(MID Channel), CH 11(High Channel)	2412 MHz, 2437 MHz, 2462 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		Mobaxterm		
Modulation Mode	Transmit Antenna Number	Test Channel		
		NCB: 20MHz		
		CH 1	CH 6	CH 11
802.11b	0	default	default	default
	1	default	default	default
802.11g	0	default	default	default
	1	default	default	default
802.11n HT20	0	default	default	default
	1	default	default	default

WORST-CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

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

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

802.11b/g/n HT20 only support SISO mode.

802.11b/g/n HT20 SISO mode, Antenna 0 and Antenna 1 has the same power setting, both Antenna 0&1 test data were recorded in the report.

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 0 and Core 1 correspond to antenna 0 and antenna 1 respectively.

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO port.

Conducted bandedge and spurious emissions tests were performed with all supported SISO port.

Radiated emissions tests were performed with the SISO modes of Antenna 1. These were found to be the worst modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest conducted output power level, it was deemed to be the worst case.

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
0	2412-2462	External Antenna	0.8
1	2412-2462	External Antenna	0.8

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒1TX, 1RX	ANT 0 and ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒1TX, 1RX	ANT 0 and ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	☒1TX, 1RX	ANT 0 and ANT 1 can be used as transmitting/receiving antenna.
Note: 1. WLAN 2.4G & WLAN 5G can't transmit simultaneously. (declared by client)		

5.7. SUPPORT UNITS FOR SYSTEM TEST

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remark
1	PC	Lenovo	E14	/
2	DC Power Supply	SophPower	ADC50-10D	Input: AC 230V, 50Hz Output: DC 24V

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	Network Cable	/	/	2.0	/

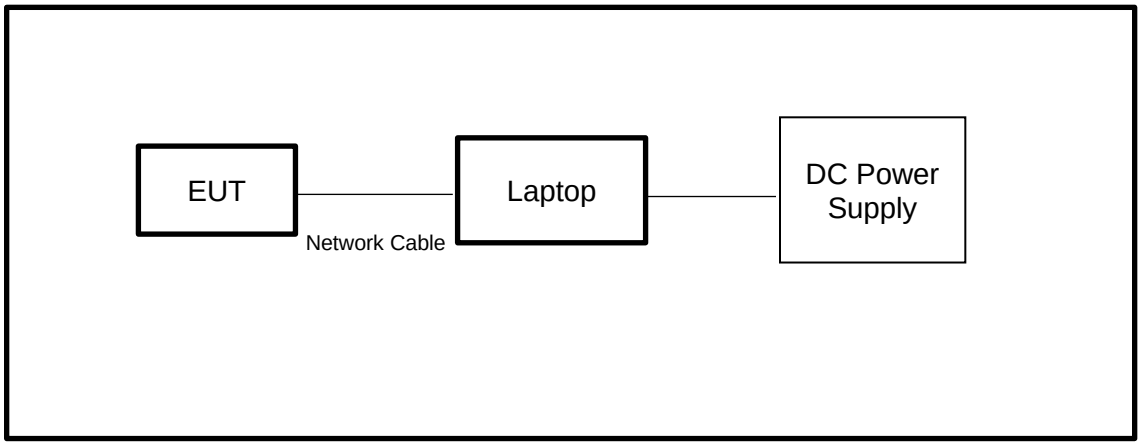
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
/	/	/	/	/

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



6. MEASURING EQUIPMENT AND SOFTWARE USED

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Dec.27,2024	Dec.26,2025
Vector Signal Generator	R&S	SMBV100A	261637	Sep.28, 2024	Sep.27, 2025
Signal Generator	R&S	SMB100A	178553	Sep.28, 2024	Sep.27, 2025
Signal Analyzer	R&S	FSV40	101118	Sep.28, 2024	Sep.27, 2025
Software					
Description	Manufacturer	Name	Version		
For R&S TS 8997 Test System	Rohde & Schwarz	EMC 32	10.60.10		
Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.13, 2024	Sep.12, 2025
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Sep.28, 2024	Sep.27, 2025
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Sep.28, 2024	Sep.27, 2025
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Sep.28, 2024	Sep.27, 2025
DC power supply	Keysight	E3642A	MY55159130	Sep.28, 2024	Sep.27, 2025
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Sep.28, 2024	Sep.27, 2025
Attenuator	Aglient	8495B	2814a12853	Sep.28, 2024	Sep.27, 2025
RF Control Unit	Tonscend	JS0806-2	23B80620666	Dec.27,2024	Dec.26,2025
Software					
Description	Manufacturer	Name	Version		
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System	V3.2.22		

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

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Sep.28, 2024	Sep.27, 2025
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	June 28, 2024	June.27 2027
Preamplifier	HP	8447D	2944A09099	Sep.28, 2024	Sep.27, 2025
EMI Measurement Receiver	R&S	ESR26	101377	Sep.28, 2024	Sep.27, 2025
Horn Antenna	TDK	HRN-0118	130940	Dec.10, 2024	Dec.11, 2027
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Sep.28, 2024	Sep.27, 2025
Horn Antenna	Schwarzbeck	BBHA9170	697	Jun 30, 2024	Jun 29, 2027
Preamplifier	TDK	PA-02-2	TRS-307-00003	Sep.28, 2024	Sep.27, 2025
Preamplifier	TDK	PA-02-3	TRS-308-00002	Sep.28, 2024	Sep.27, 2025
Loop antenna	Schwarzbeck	1519B	00008	Dec.09, 2024	Dec.08, 2027
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Sep.28, 2024	Sep.27, 2025
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Sep.28, 2024	Sep.27, 2025
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

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

7. ANTENNA PORT TEST RESULTS

7.1. CONDUCTED OUTPUT POWER

LIMITS

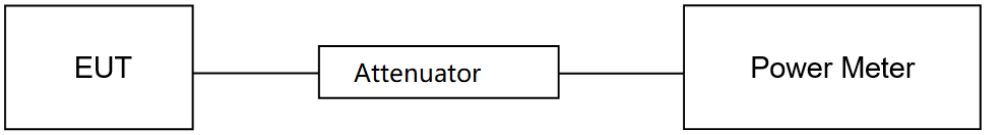
CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	AVG Output Power	1 watt or 30 dBm	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.9.2.3.1.

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).
Measure peak emission level, the indicated level is the average output power, after any corrections for external attenuators and cables.
The test result in dBm by adding [10 log (1 / D)], where D is the duty cycle.

TEST SETUP



TEST ENVIRONMENT

Temperature	24℃	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

Test Date	May 7, 2025	Test By	Bairong Liu

TEST RESULTS

Please refer to section "Test Data" - Appendix C

7.2. 6DB 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) ISED RSS-247 5.2 (a)	6 dB Bandwidth	≥ 500 kHz	2400-2483.5
/	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.

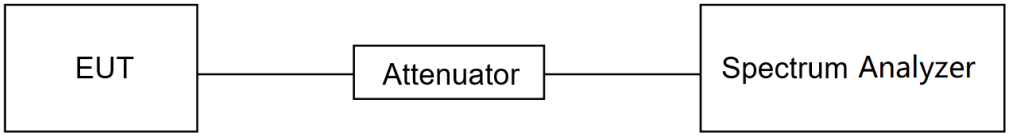
Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Frequency Span	For 6 dB Bandwidth: Enough to capture all products of the modulation carrier emission For 99 % Occupied Bandwidth: Between 1.5 times and 5.0 times the OBW
Detector	Peak
RBW	For 6 dB Bandwidth: 100 kHz For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: ≥3 × RBW For 99 % Occupied Bandwidth: ≥3 × RBW
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) 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 relative to the maximum level measured in the fundamental emission.

TEST SETUP



TEST ENVIRONMENT

Temperature	24℃	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

Test Date	May 7, 2025	Test By	Bairong Liu

TEST RESULTS

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

7.3. 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 in any 3 kHz band	2400-2483.5

TEST PROCEDURE

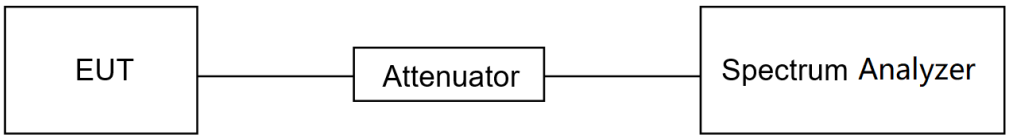
Refer to ANSI C63.10-2013 clause 11.10.2.

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

Center Frequency	The center frequency of the channel under test
Detector	power averaging (rms)
RBW	3 kHz ≤ RBW ≤ 100 kHz
VBW	≥3 × RBW
Span	1.5 x OBW bandwidth
Trace	Employ trace averaging(rms)mode over a minimum of 100 traces
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	24℃	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

Test Date	May 7, 2025	Test By	Bairong Liu

TEST RESULTS

Please refer to section "Test Data" - Appendix D

7.4. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.11 and 11.13.

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

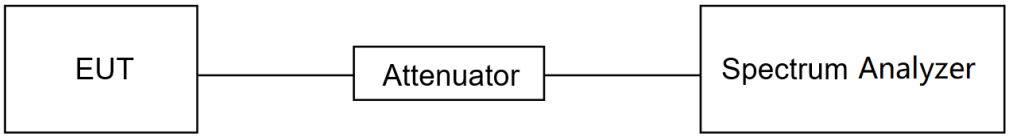
Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.
Change the settings for emission level measurement:

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

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11.

TEST SETUP



TEST ENVIRONMENT

Temperature	24℃	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

Test Date	May 7, 2025	Test By	Bairong Liu

TEST RESULTS

Please refer to section "Test Data" - Appendix E&F

7.5. DUTY CYCLE

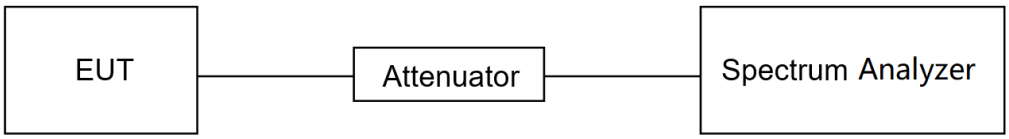
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	24℃	Relative Humidity	60%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

Test Date	May 7, 2025	Test By	Bairong Liu

TEST RESULTS

Please refer to section "Test Data" - Appendix G

8. RADIATED TEST RESULTS

LIMITS

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

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

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

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

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

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

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

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

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

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

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

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

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

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

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

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

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

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

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

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

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

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

Above 1 GHz

The setting of the spectrum analyzer

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

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

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

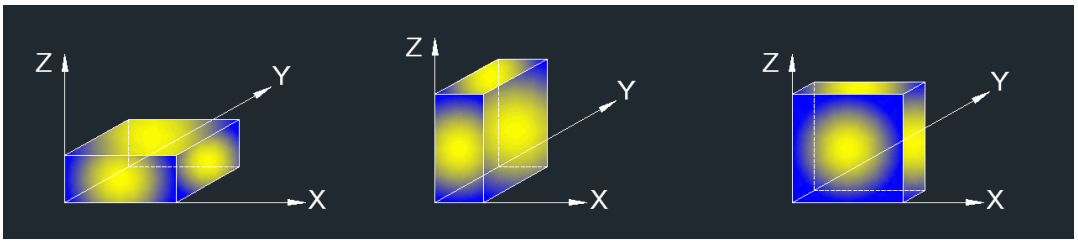
3. The EUT was placed on a turntable with 1.5 m above ground.

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

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

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.5. ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



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

For Restricted Bandedge:
Note:
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. PK=Peak: Peak detector.
4. AV=Average: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.5.
6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
7. Both horizontal and vertical have been tested, only the worst data was recorded in the report.
8. All modes have been tested, but only the worst data was recorded in the report.

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

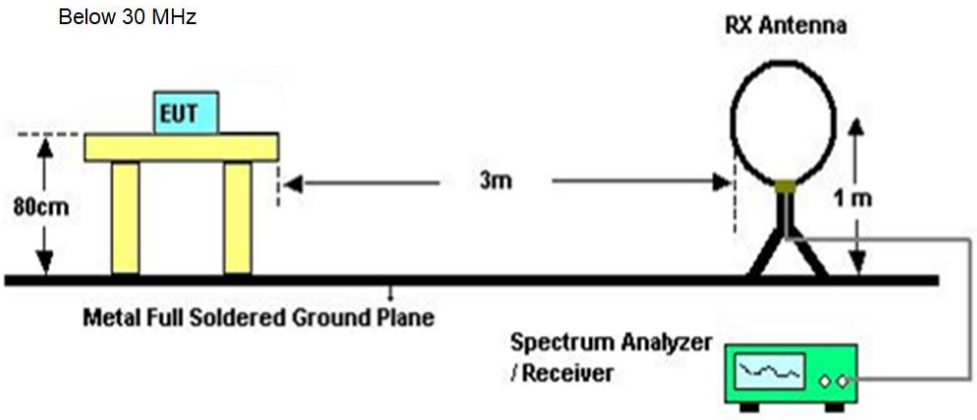
For Radiate Spurious Emission (30 MHz ~ 1 GHz):
Note:
1. Result Level = Read Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious Emission (1 GHz ~ 3 GHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.5.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes have been tested, but only the worst data was recorded in the report.

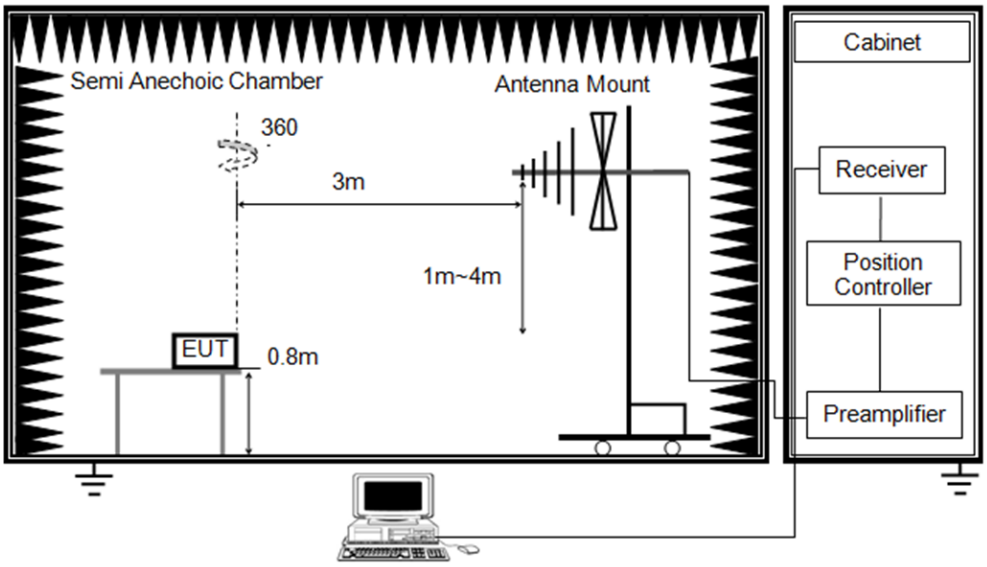
For Radiate Spurious Emission (3 GHz ~ 18 GHz):
Note:
1. Peak Result = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.5.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes have been tested, but only the worst data was recorded in the report.

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

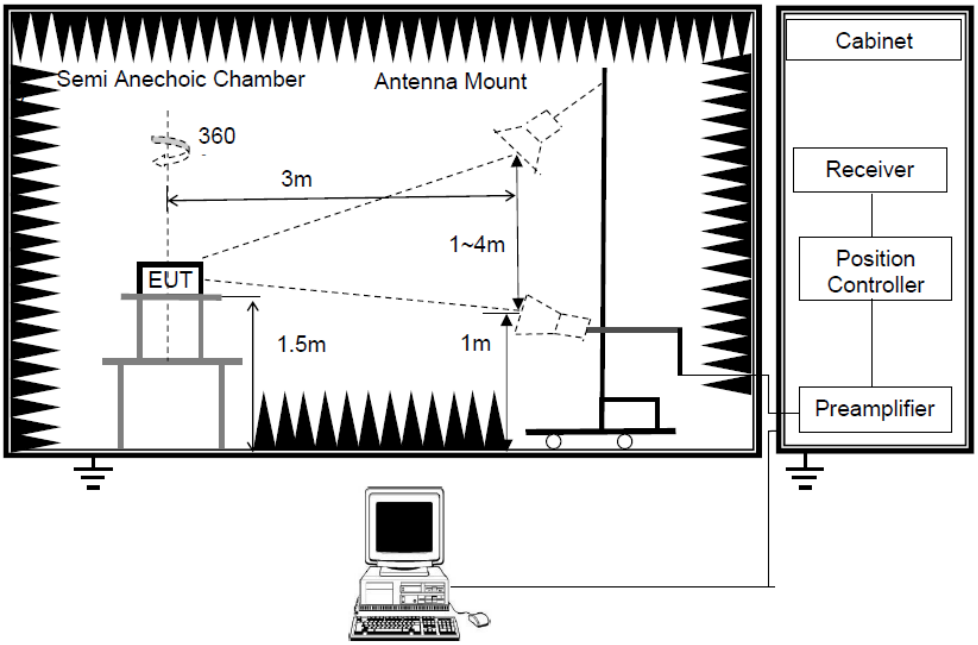
TEST SETUP



Below 1 GHz and above 30 MHz



Above 1GHz



TEST ENVIRONMENT

Temperature	24.2℃	Relative Humidity	55%
Atmosphere Pressure	101kPa	Test Voltage	DC 24V

TEST DATE / ENGINEER

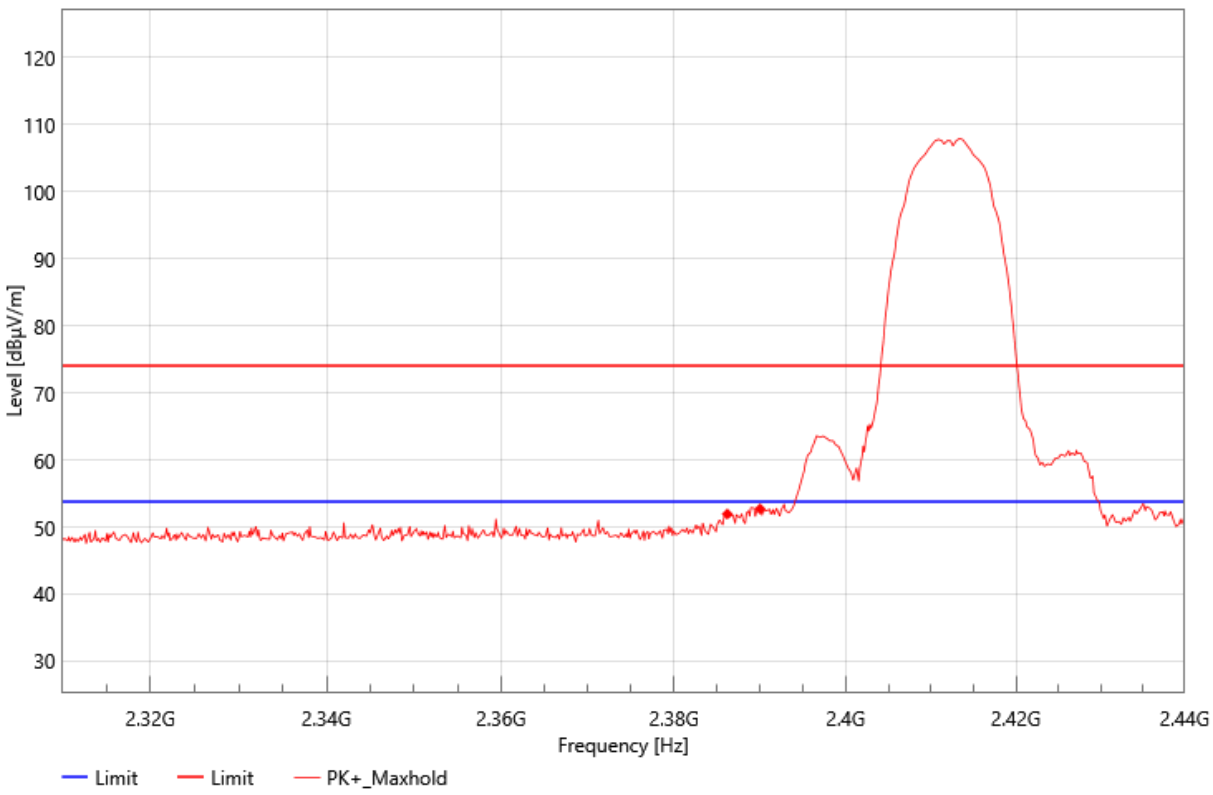
Test Date	May 20, 2025	Test By	Mason Wang

TEST RESULTS

8.1. RESTRICTED BANDEDGE

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

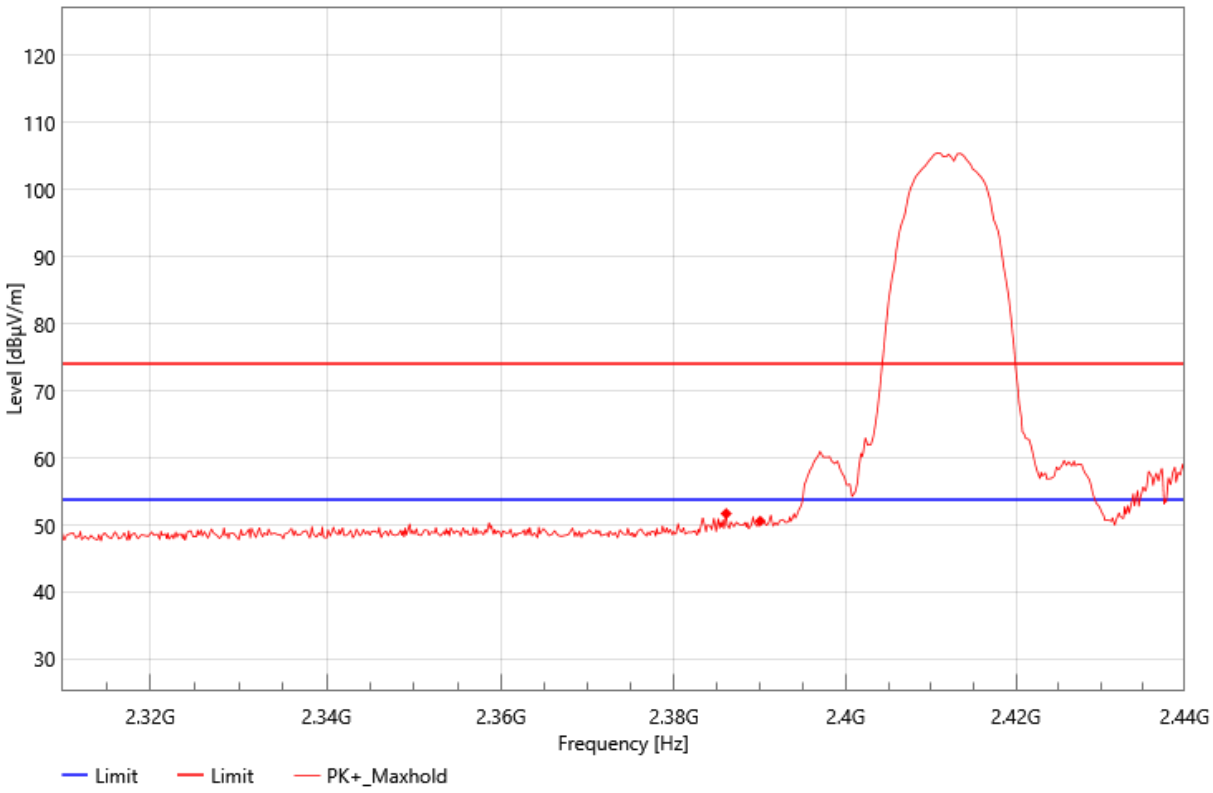
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.18	29.31	51.96	22.65	74.00	22.04	Horizontal	PK	PASS
2	2390.00	30.00	52.72	22.72	74.00	21.28	Horizontal	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

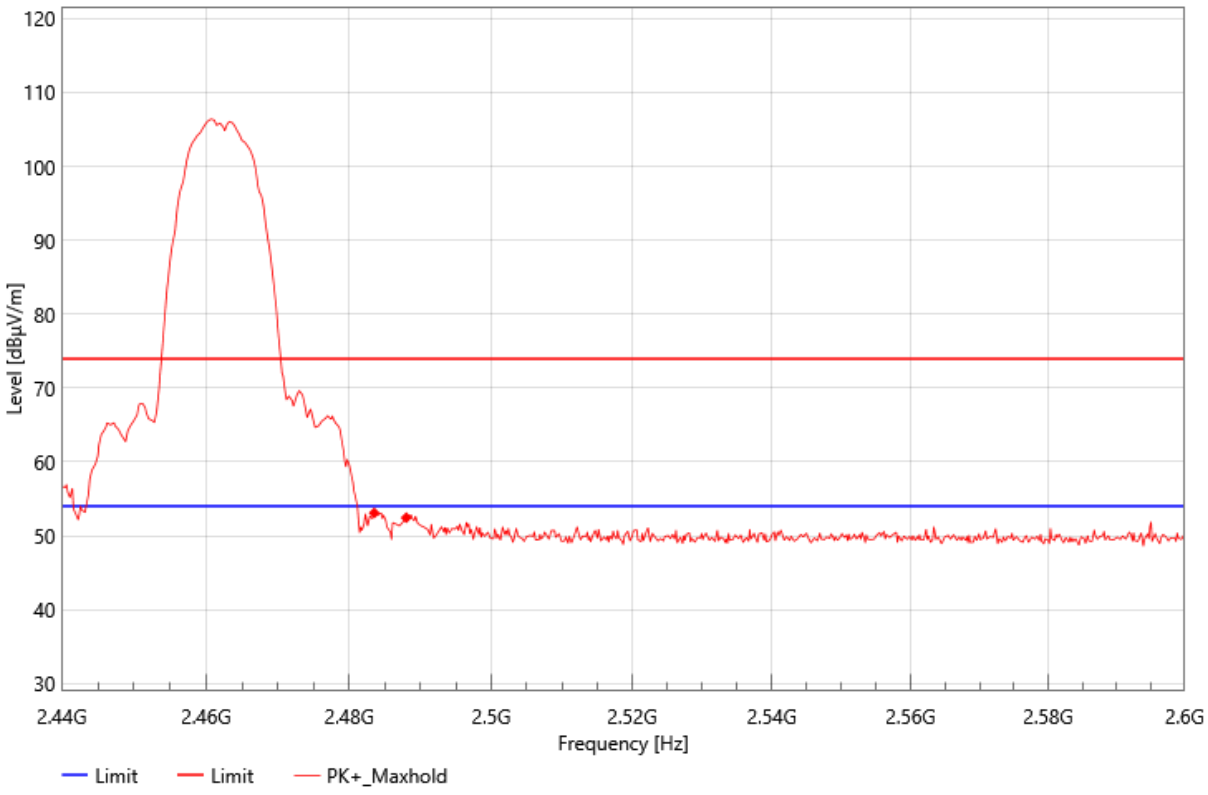
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.05	29.08	51.72	22.64	74.00	22.28	Vertical	PK	PASS
2	2390.00	27.89	50.61	22.72	74.00	23.39	Vertical	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

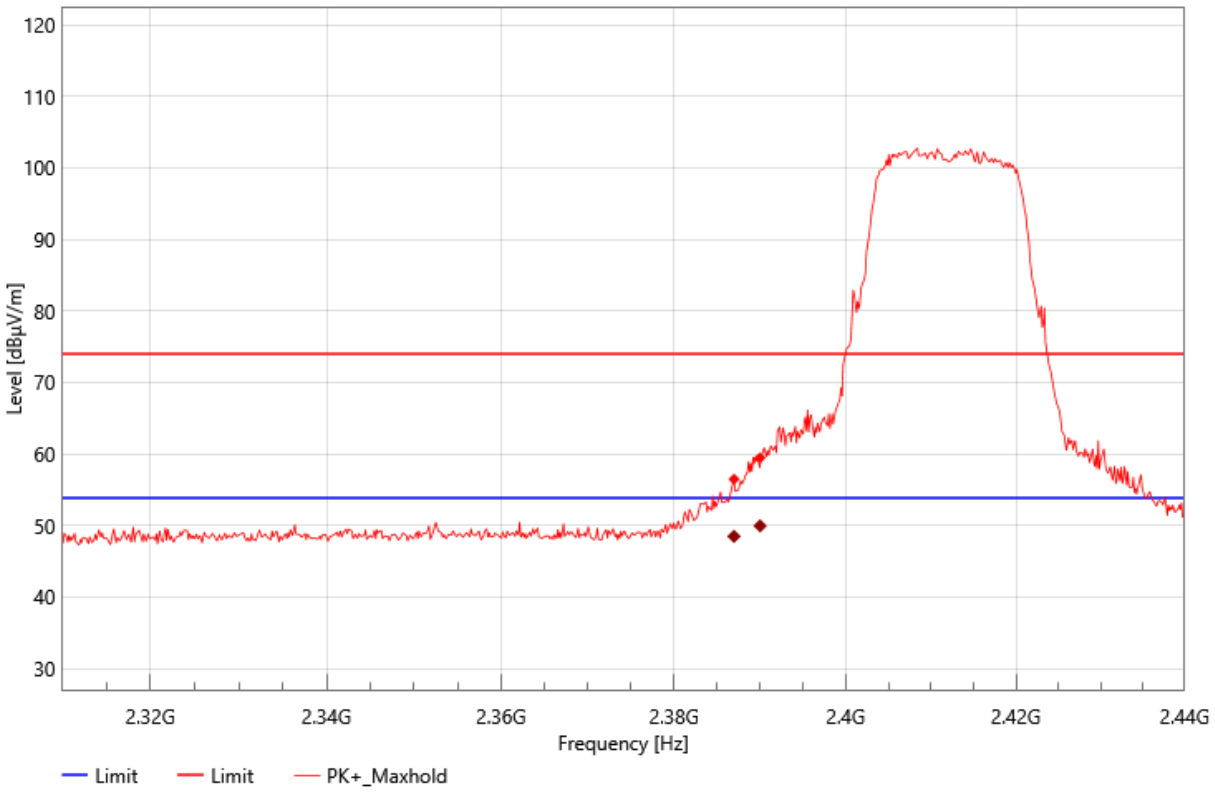
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2483.50	29.94	53.09	23.15	74.00	20.91	Horizontal	PK	PASS
2	2488.00	29.32	52.46	23.14	74.00	21.54	Horizontal	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

Test Graph

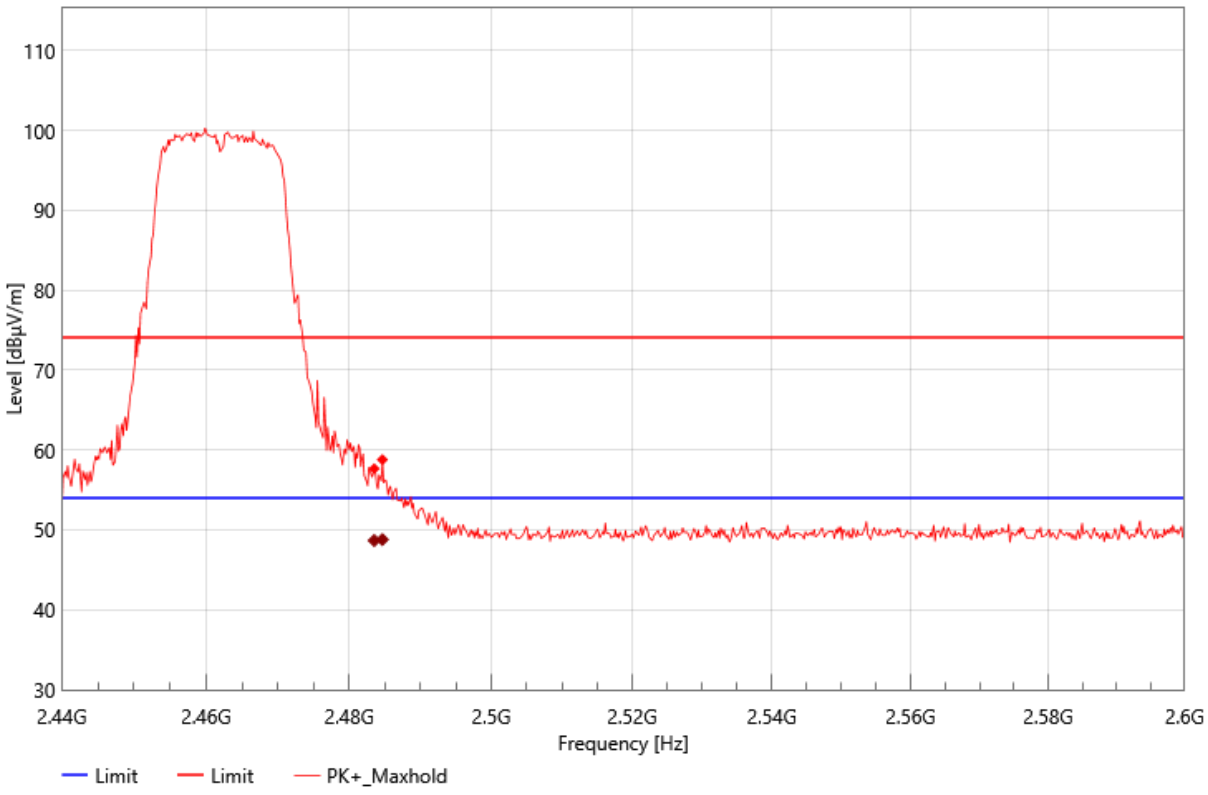


Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.96	33.82	56.48	22.66	74.00	17.52	Horizontal	PK	PASS
2	2390.00	36.73	59.45	22.72	74.00	14.55	Horizontal	PK	PASS

Final Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.96	25.82	48.48	22.66	53.90	5.42	Horizontal	AV	PASS
2	2390.00	27.23	49.95	22.72	53.90	3.95	Horizontal	AV	PASS

Test Mode:	802.11g	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

Test Graph

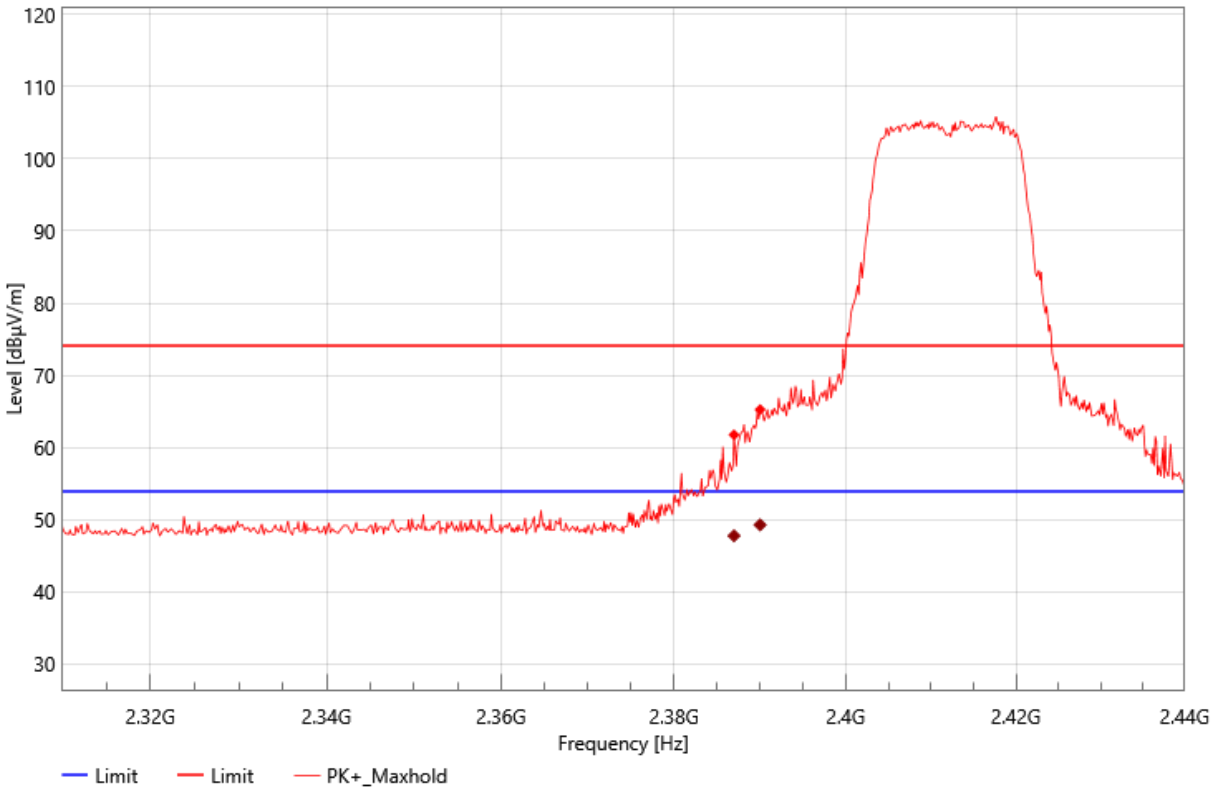


Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2483.50	34.53	57.68	23.15	74.00	16.32	Horizontal	PK	PASS
2	2484.64	35.66	58.81	23.15	74.00	15.19	Horizontal	PK	PASS

Final Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2483.50	25.53	48.68	23.15	53.90	5.22	Horizontal	AV	PASS
2	2484.64	25.66	48.81	23.15	53.90	5.09	Horizontal	AV	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

Test Graph

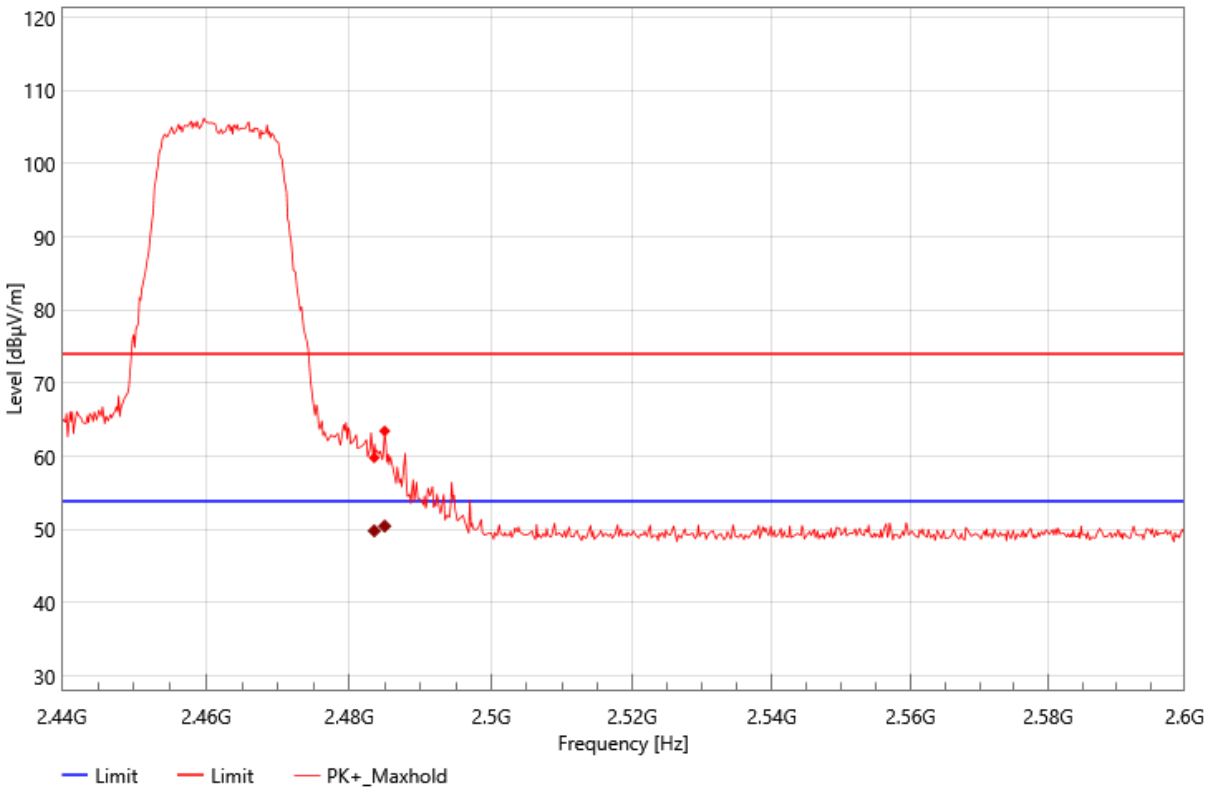


Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.96	39.08	61.74	22.66	74.00	12.26	Horizontal	PK	PASS
2	2390.00	42.53	65.25	22.72	74.00	8.75	Horizontal	PK	PASS

Final Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2386.96	25.08	47.74	22.66	53.90	6.16	Horizontal	AV	PASS
2	2390.00	26.53	49.25	22.72	53.90	4.65	Horizontal	AV	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

Test Graph



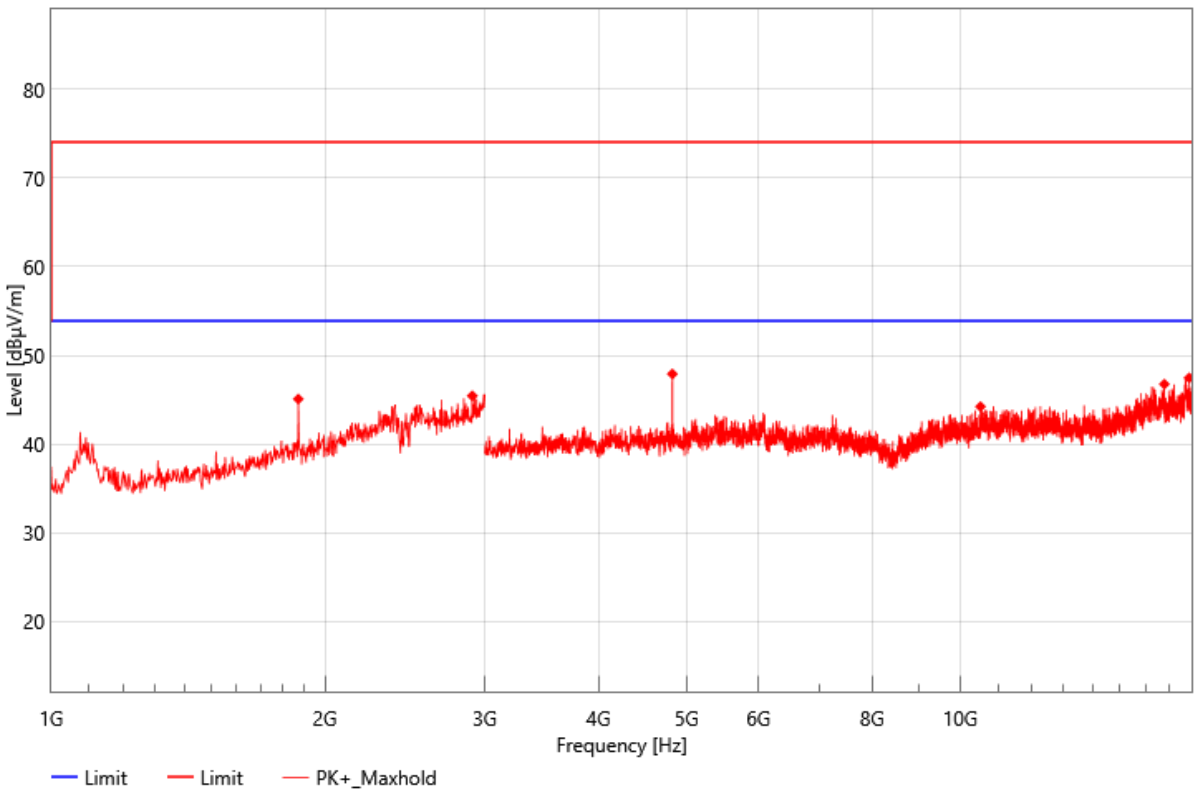
Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2483.50	36.67	59.82	23.15	74.00	14.18	Horizontal	PK	PASS
2	2484.96	40.32	63.47	23.15	74.00	10.53	Horizontal	PK	PASS

Final Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2483.50	26.67	49.82	23.15	53.90	4.08	Horizontal	AV	PASS
2	2484.96	27.32	50.47	23.15	53.90	3.43	Horizontal	AV	PASS

8.2. SPURIOUS EMISSIONS(1 GHZ~18 GHZ)

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

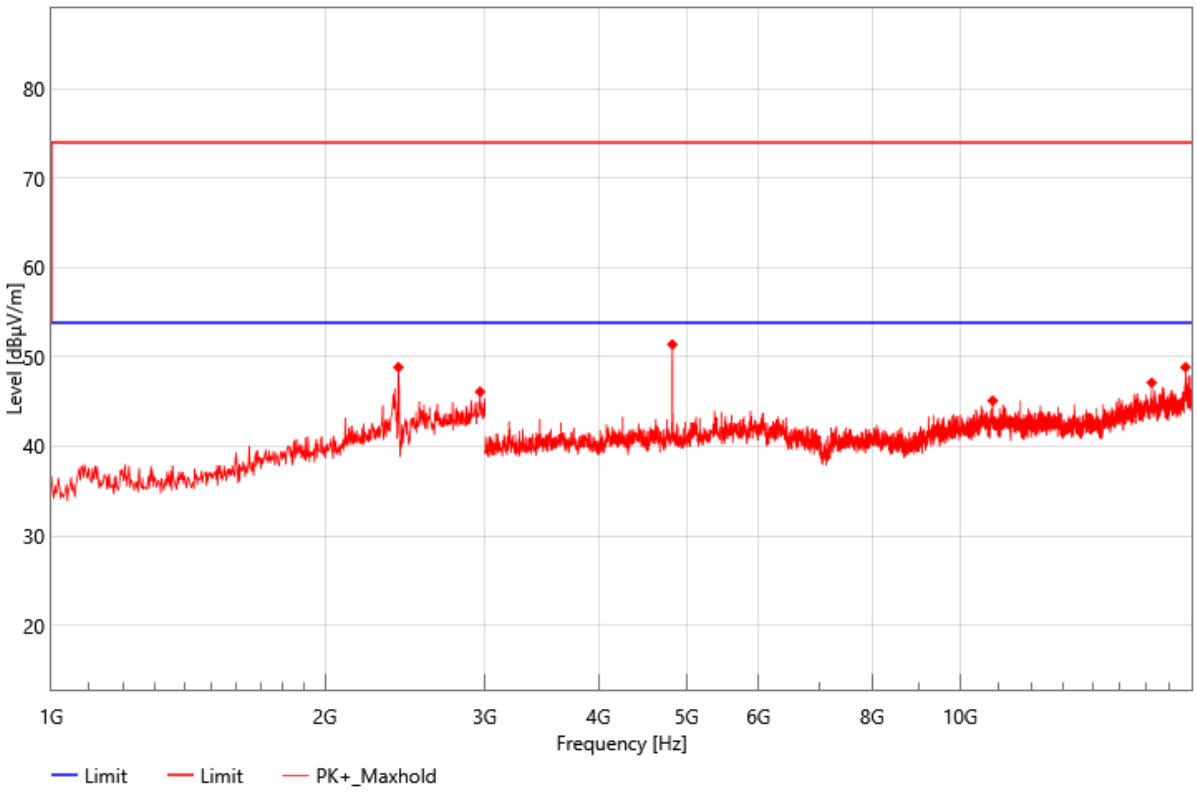
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	1870.00	55.46	45.09	-10.37	74.00	28.91	Horizontal	PK	PASS
2	2906.00	53.17	45.44	-7.73	74.00	28.56	Horizontal	PK	PASS
3	4824.00	59.38	47.91	-11.47	74.00	26.09	Horizontal	PK	PASS
4	10528.50	49.66	44.23	-5.43	74.00	29.77	Horizontal	PK	PASS
5	16768.50	48.10	46.76	-1.34	74.00	27.24	Horizontal	PK	PASS
6	17862.00	47.26	47.46	0.2	74.00	26.54	Horizontal	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

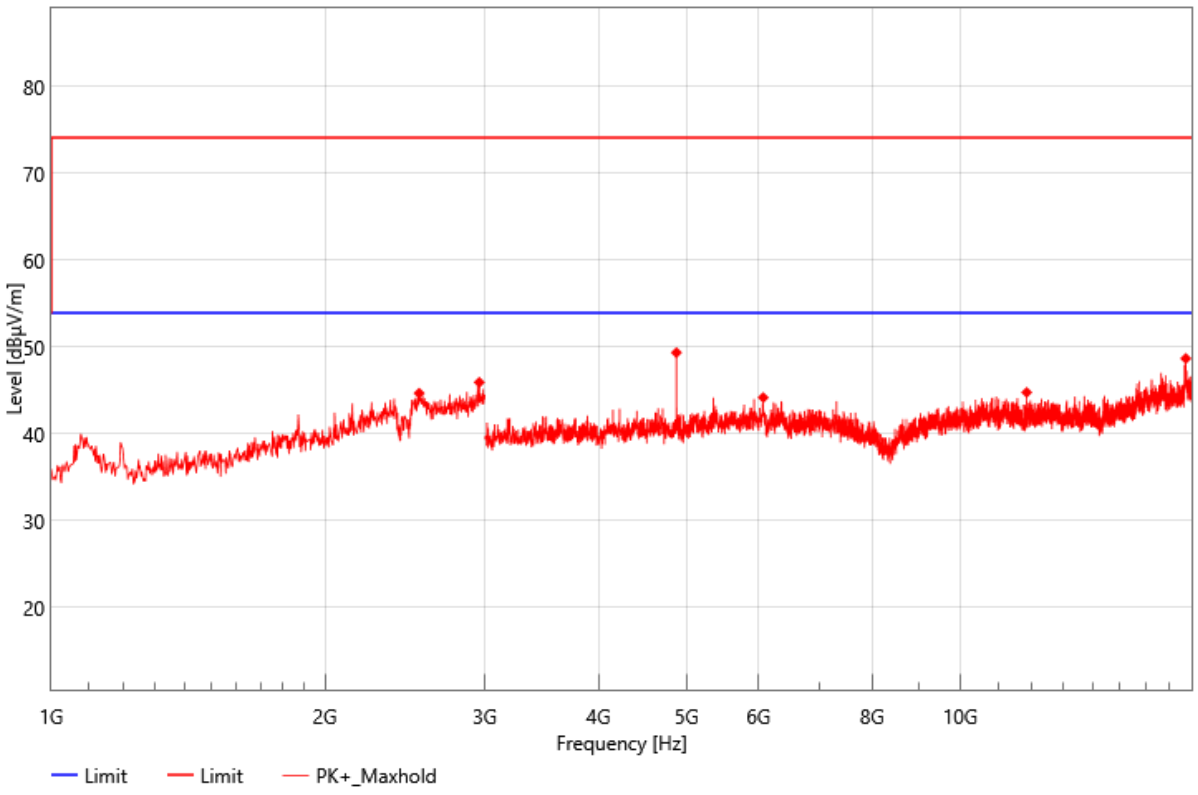


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2410.00	57.38	48.86	-8.52	74.00	25.14	Vertical	PK	PASS
2	2964.00	53.39	46.12	-7.27	74.00	27.88	Vertical	PK	PASS
3	4824.00	62.88	51.41	-11.47	74.00	22.59	Vertical	PK	PASS
4	10858.50	50.24	45.12	-5.12	74.00	28.88	Vertical	PK	PASS
5	16243.50	47.74	47.13	-0.61	74.00	26.87	Vertical	PK	PASS
6	17697.00	48.66	48.86	0.2	74.00	25.14	Vertical	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2437
Polarity:	Horizontal	Test Voltage:	DC 24V

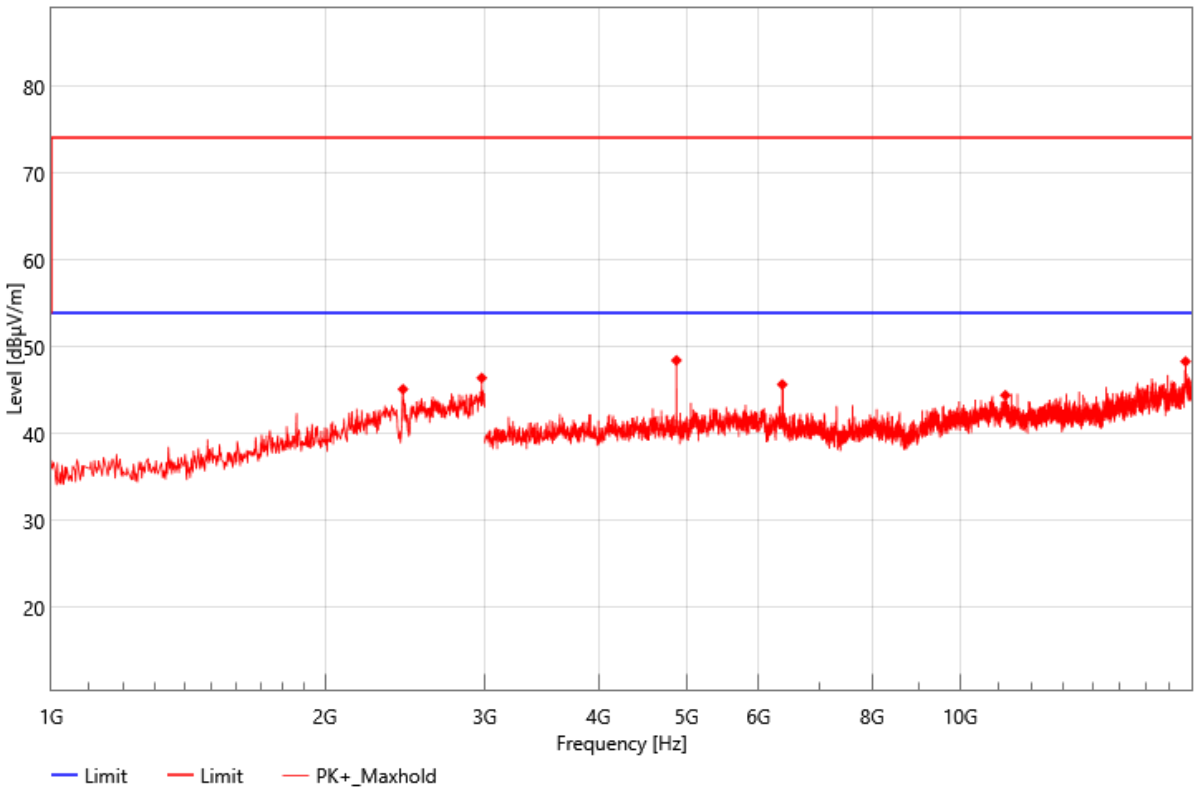
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2540.00	53.08	44.66	-8.42	74.00	29.34	Horizontal	PK	PASS
2	2958.00	53.28	45.91	-7.37	74.00	28.09	Horizontal	PK	PASS
3	4873.50	60.48	49.33	-11.15	74.00	24.67	Horizontal	PK	PASS
4	6072.00	52.21	44.15	-8.06	74.00	29.85	Horizontal	PK	PASS
5	11832.00	49.61	44.75	-4.86	74.00	29.25	Horizontal	PK	PASS
6	17707.50	48.63	48.65	0.02	74.00	25.35	Horizontal	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2437
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

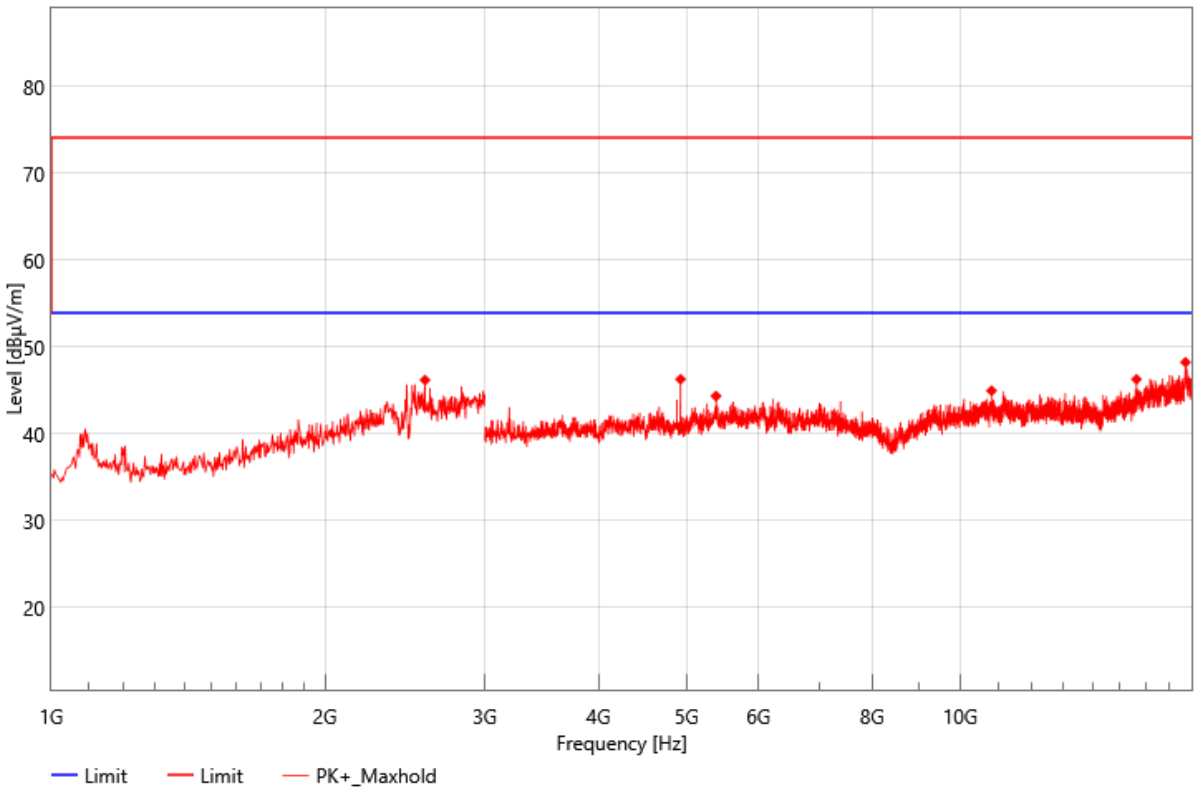


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2438.00	53.59	45.11	-8.48	74.00	28.89	Vertical	PK	PASS
2	2976.00	53.47	46.41	-7.06	74.00	27.59	Vertical	PK	PASS
3	4873.50	59.58	48.43	-11.15	74.00	25.57	Vertical	PK	PASS
4	6372.00	53.55	45.66	-7.89	74.00	28.34	Vertical	PK	PASS
5	11211.00	48.63	44.42	-4.21	74.00	29.58	Vertical	PK	PASS
6	17697.00	48.11	48.31	0.2	74.00	25.69	Vertical	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

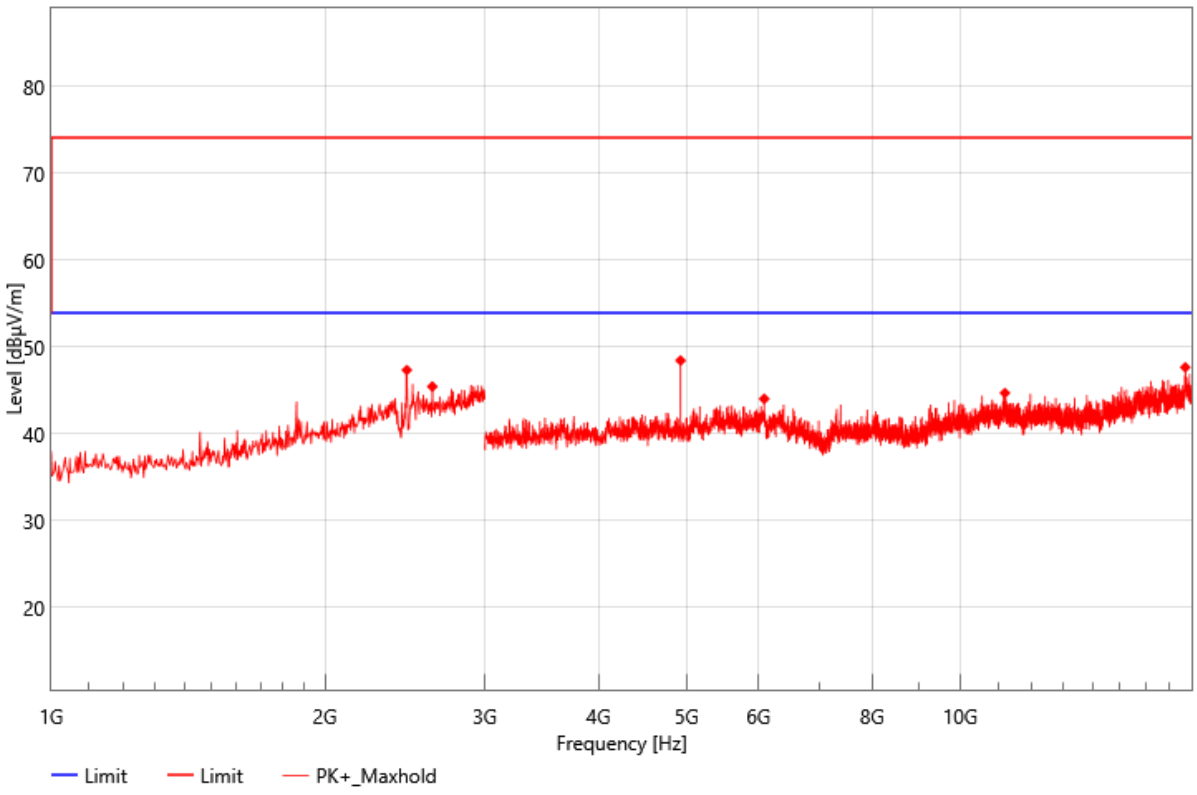
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2578.00	54.22	46.17	-8.05	74.00	27.83	Horizontal	PK	PASS
2	4924.50	57.36	46.26	-11.1	74.00	27.74	Horizontal	PK	PASS
3	5388.00	53.50	44.33	-9.17	74.00	29.67	Horizontal	PK	PASS
4	10827.00	50.07	44.94	-5.13	74.00	29.06	Horizontal	PK	PASS
5	15628.50	48.42	46.26	-2.16	74.00	27.74	Horizontal	PK	PASS
6	17697.00	48.02	48.22	0.2	74.00	25.78	Horizontal	PK	PASS

Test Mode:	802.11b	Frequency(MHz):	2462
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

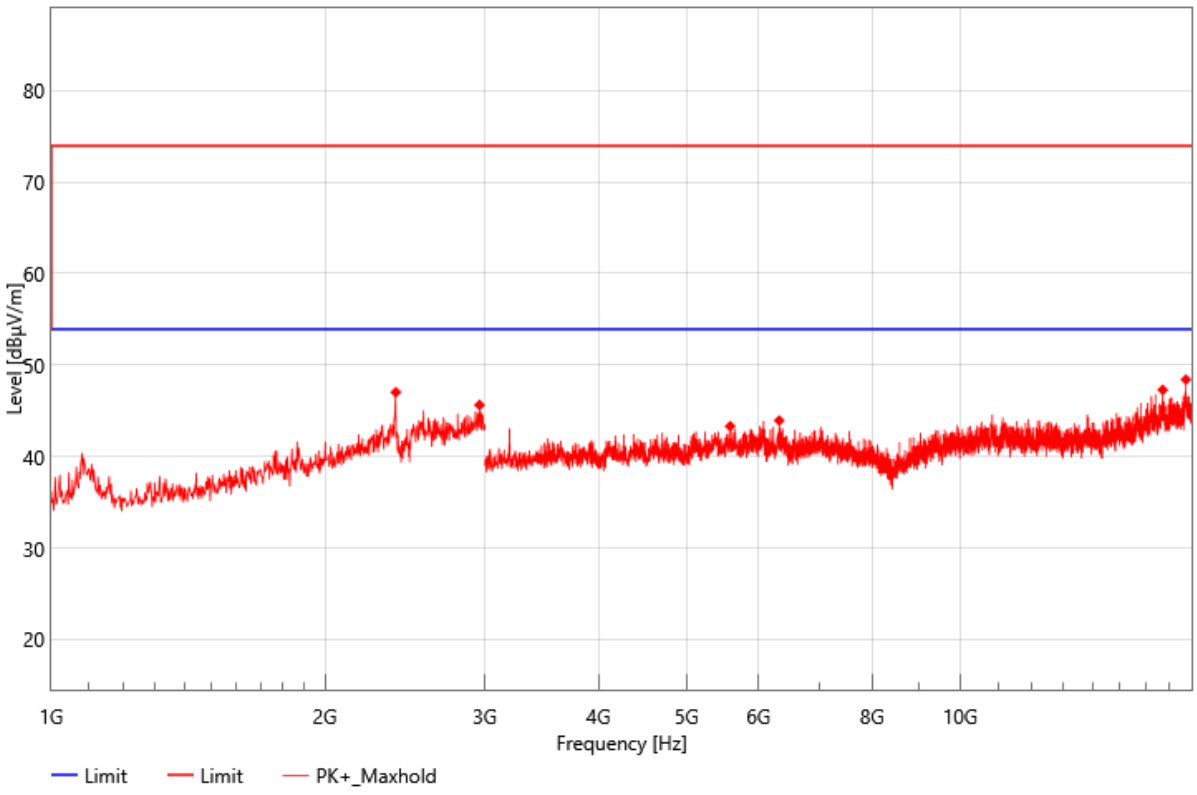


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2462.00	55.78	47.32	-8.46	74.00	26.68	Vertical	PK	PASS
2	2626.00	53.95	45.42	-8.53	74.00	28.58	Vertical	PK	PASS
3	4924.50	59.52	48.42	-11.1	74.00	25.58	Vertical	PK	PASS
4	6087.00	52.27	44.01	-8.26	74.00	29.99	Vertical	PK	PASS
5	11200.50	49.11	44.68	-4.43	74.00	29.32	Vertical	PK	PASS
6	17685.00	47.38	47.64	0.26	74.00	26.36	Vertical	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

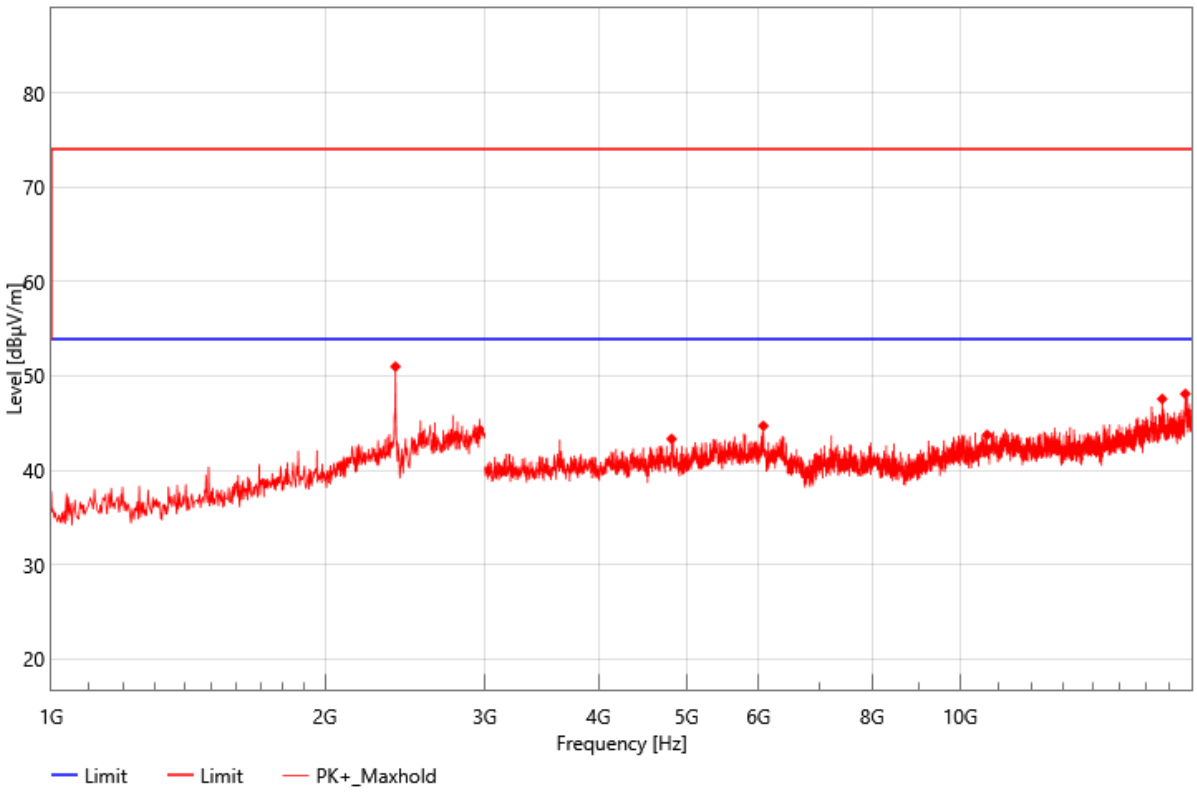
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2394.00	55.57	47.04	-8.53	74.00	26.96	Horizontal	PK	PASS
2	2960.00	52.98	45.64	-7.34	74.00	28.36	Horizontal	PK	PASS
3	5584.50	52.50	43.32	-9.18	74.00	30.68	Horizontal	PK	PASS
4	6322.50	51.76	43.94	-7.82	74.00	30.06	Horizontal	PK	PASS
5	16704.00	47.92	47.29	-0.63	74.00	26.71	Horizontal	PK	PASS
6	17712.00	48.50	48.42	-0.08	74.00	25.58	Horizontal	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

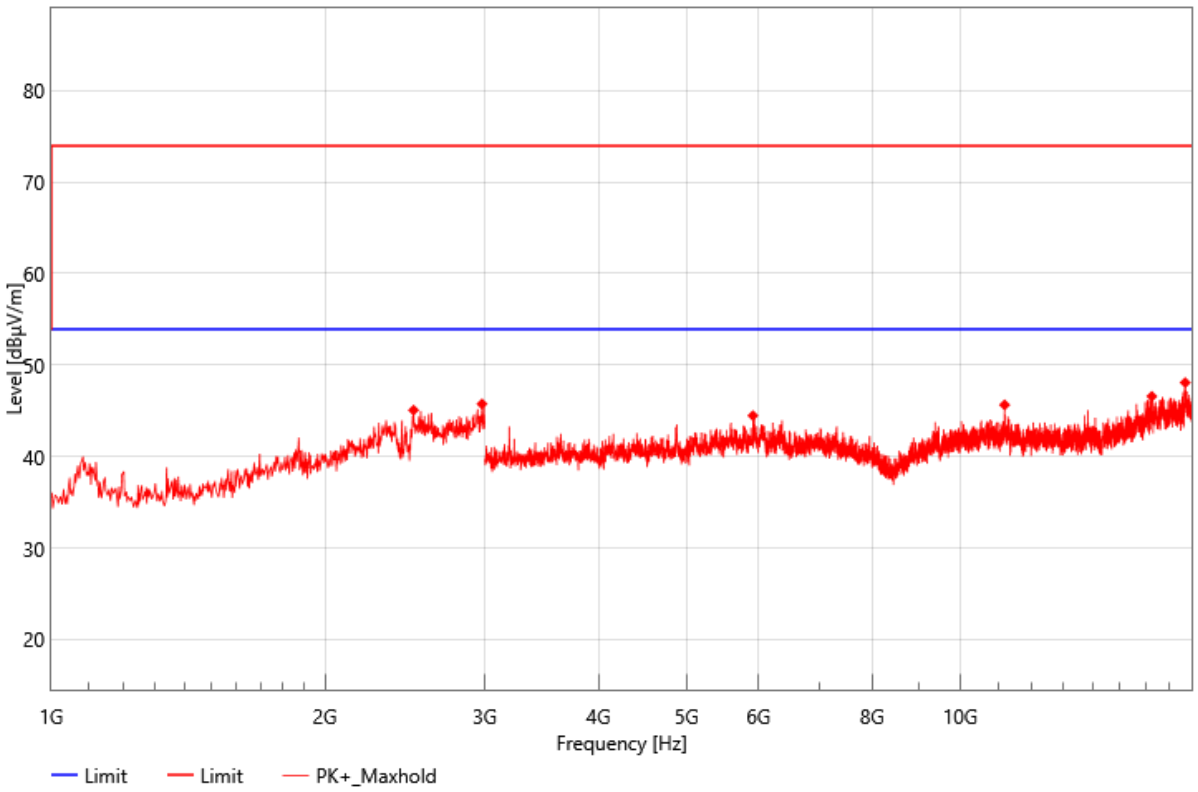


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2392.00	59.53	51.00	-8.53	74.00	23.00	Vertical	PK	PASS
2	4815.00	54.74	43.33	-11.41	74.00	30.67	Vertical	PK	PASS
3	6073.50	52.77	44.70	-8.07	74.00	29.30	Vertical	PK	PASS
4	10702.50	48.62	43.74	-4.88	74.00	30.26	Vertical	PK	PASS
5	16678.50	48.06	47.57	-0.49	74.00	26.43	Vertical	PK	PASS
6	17686.50	47.85	48.10	0.25	74.00	25.90	Vertical	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2437
Polarity:	Horizontal	Test Voltage:	DC 24V

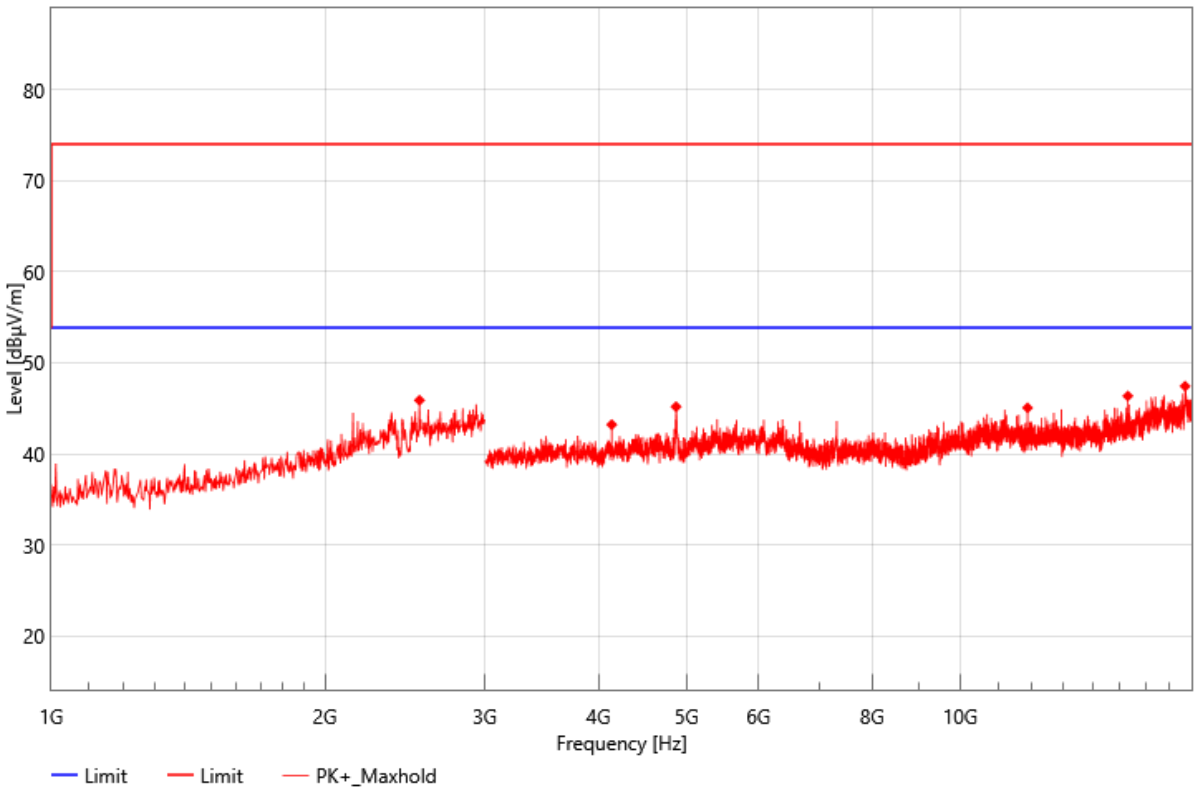
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2504.00	53.49	45.08	-8.41	74.00	28.92	Horizontal	PK	PASS
2	2978.00	52.78	45.76	-7.02	74.00	28.24	Horizontal	PK	PASS
3	5916.00	53.44	44.48	-8.96	74.00	29.52	Horizontal	PK	PASS
4	11191.50	50.27	45.65	-4.62	74.00	28.35	Horizontal	PK	PASS
5	16251.00	47.19	46.59	-0.6	74.00	27.41	Horizontal	PK	PASS
6	17682.00	47.81	48.09	0.28	74.00	25.91	Horizontal	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2437
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

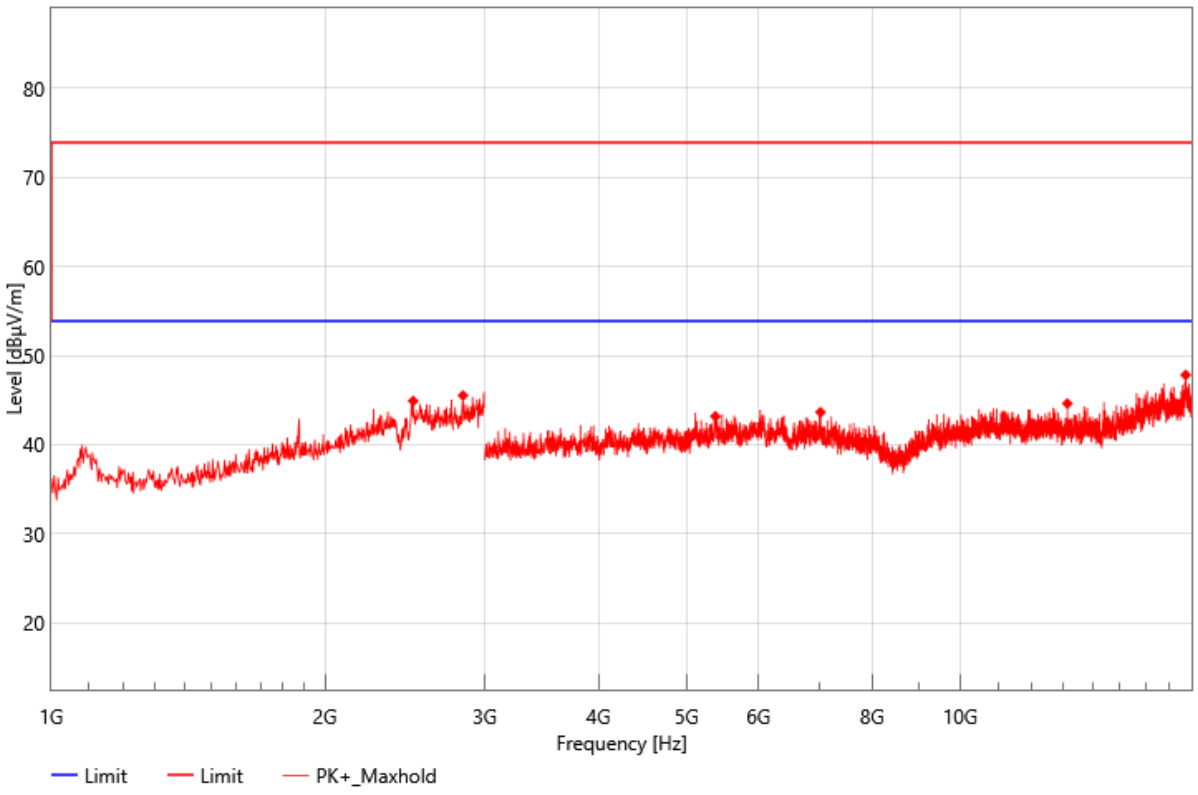


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2542.00	54.27	45.90	-8.37	74.00	28.10	Vertical	PK	PASS
2	4137.00	55.89	43.22	-12.67	74.00	30.78	Vertical	PK	PASS
3	4869.00	56.35	45.18	-11.17	74.00	28.82	Vertical	PK	PASS
4	11860.50	50.11	45.07	-5.04	74.00	28.93	Vertical	PK	PASS
5	15291.00	49.16	46.36	-2.8	74.00	27.64	Vertical	PK	PASS
6	17677.50	47.14	47.44	0.3	74.00	26.56	Vertical	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

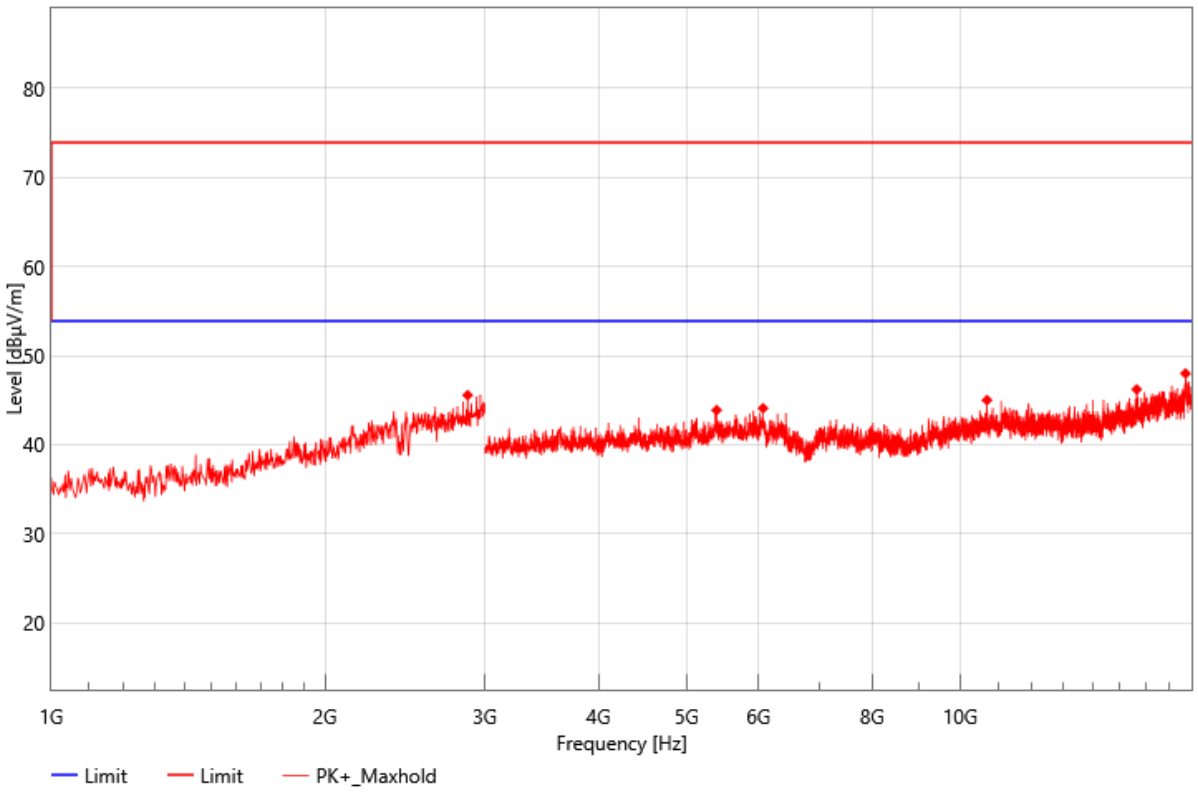
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2502.00	53.32	44.91	-8.41	74.00	29.09	Horizontal	PK	PASS
2	2838.00	53.38	45.52	-7.86	74.00	28.48	Horizontal	PK	PASS
3	5379.00	52.26	43.17	-9.09	74.00	30.83	Horizontal	PK	PASS
4	7020.00	51.46	43.64	-7.82	74.00	30.36	Horizontal	PK	PASS
5	13119.00	49.26	44.62	-4.64	74.00	29.38	Horizontal	PK	PASS
6	17703.00	47.71	47.82	0.11	74.00	26.18	Horizontal	PK	PASS

Test Mode:	802.11g	Frequency(MHz):	2462
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

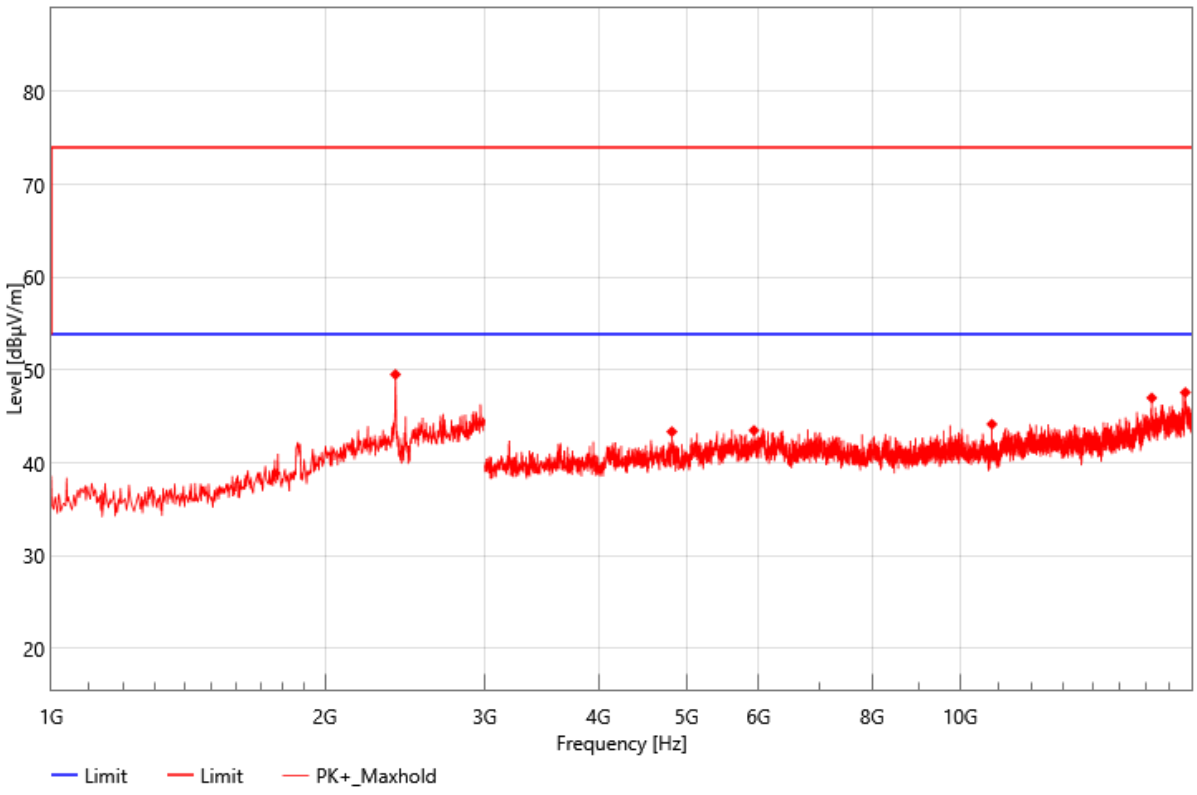


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2872.00	53.82	45.56	-8.26	74.00	28.44	Vertical	PK	PASS
2	5395.50	53.19	43.87	-9.32	74.00	30.13	Vertical	PK	PASS
3	6069.00	52.11	44.08	-8.03	74.00	29.92	Vertical	PK	PASS
4	10701.00	49.88	45.00	-4.88	74.00	29.00	Vertical	PK	PASS
5	15637.50	48.29	46.21	-2.08	74.00	27.79	Vertical	PK	PASS
6	17695.50	47.78	47.99	0.21	74.00	26.01	Vertical	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

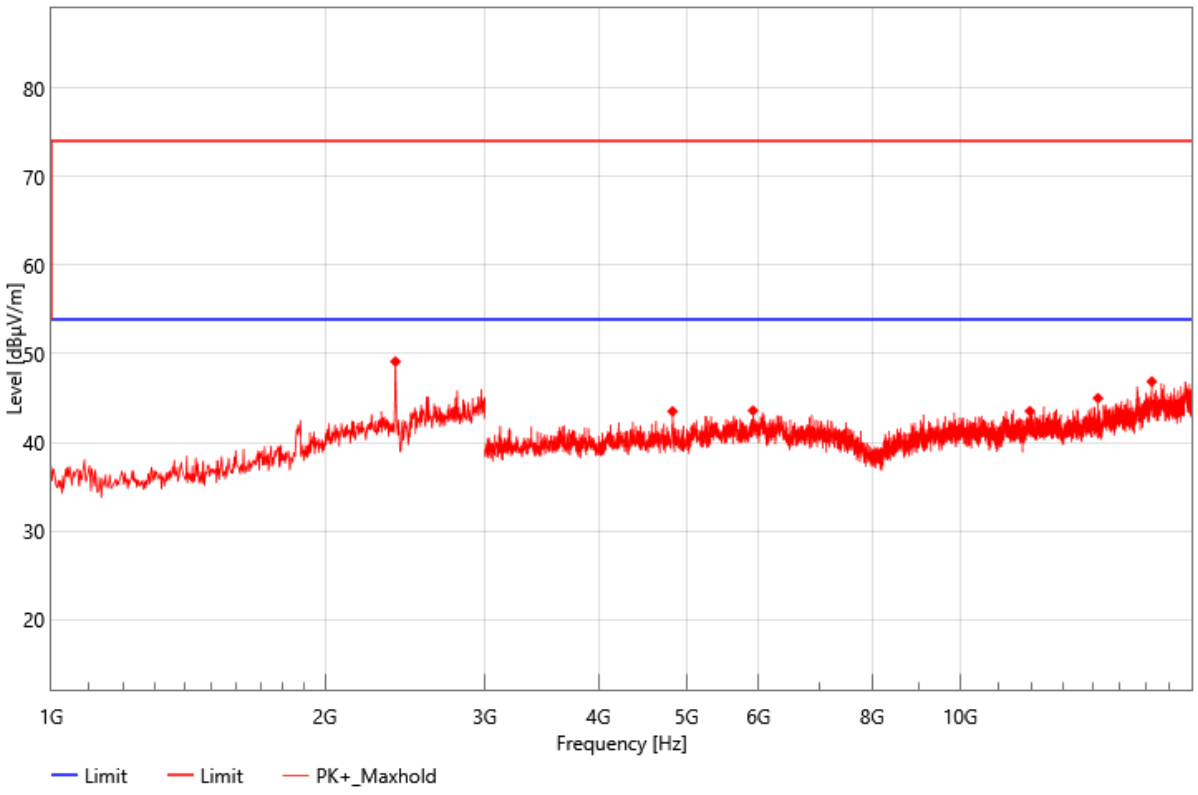
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2392.00	58.07	49.54	-8.53	74.00	24.46	Horizontal	PK	PASS
2	4818.00	54.80	43.37	-11.43	74.00	30.63	Horizontal	PK	PASS
3	5931.00	52.41	43.51	-8.9	74.00	30.49	Horizontal	PK	PASS
4	10837.50	49.30	44.18	-5.12	74.00	29.82	Horizontal	PK	PASS
5	16246.50	47.55	47.02	-0.53	74.00	26.98	Horizontal	PK	PASS
6	17686.50	47.35	47.60	0.25	74.00	26.40	Horizontal	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

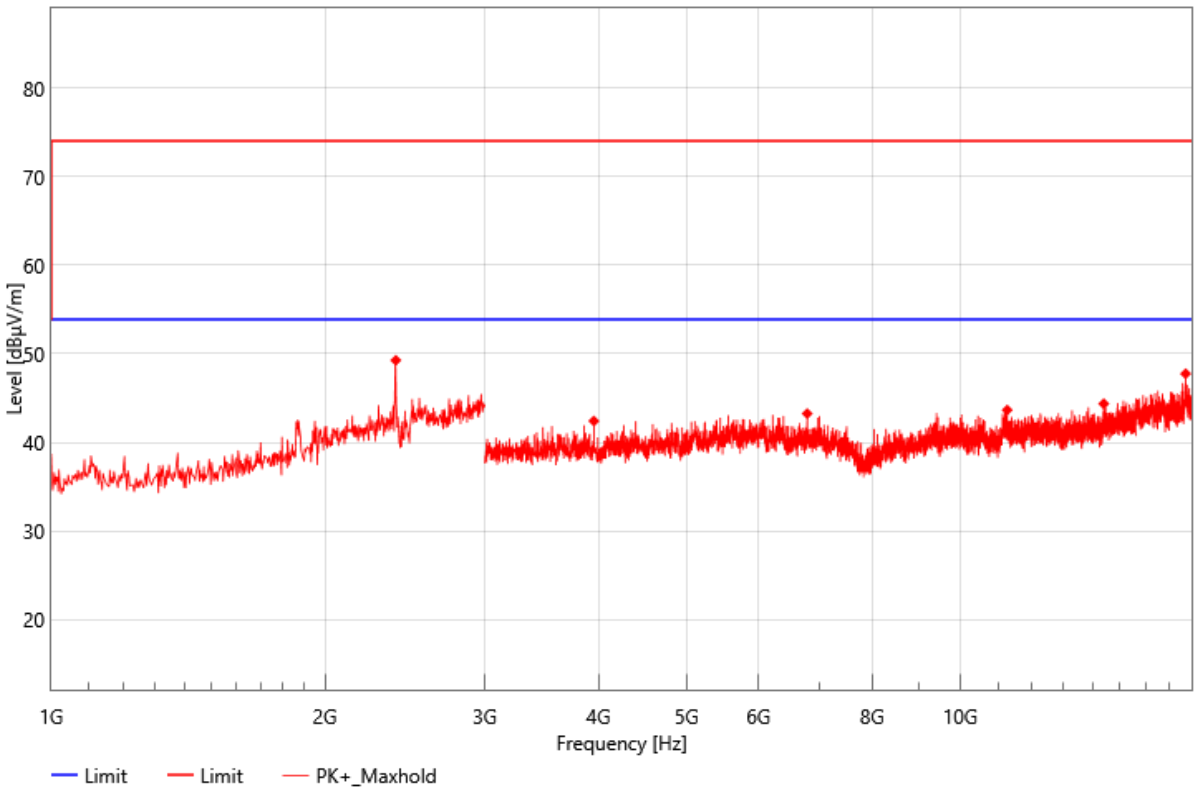
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2392.00	57.66	49.13	-8.53	74.00	24.87	Vertical	PK	PASS
2	4825.50	55.00	43.52	-11.48	74.00	30.48	Vertical	PK	PASS
3	5917.50	52.55	43.60	-8.95	74.00	30.40	Vertical	PK	PASS
4	11932.50	48.04	43.54	-4.5	74.00	30.46	Vertical	PK	PASS
5	14178.00	48.50	45.00	-3.5	74.00	29.00	Vertical	PK	PASS
6	16246.50	47.41	46.88	-0.53	74.00	27.12	Vertical	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2437
Polarity:	Horizontal	Test Voltage:	DC 24V

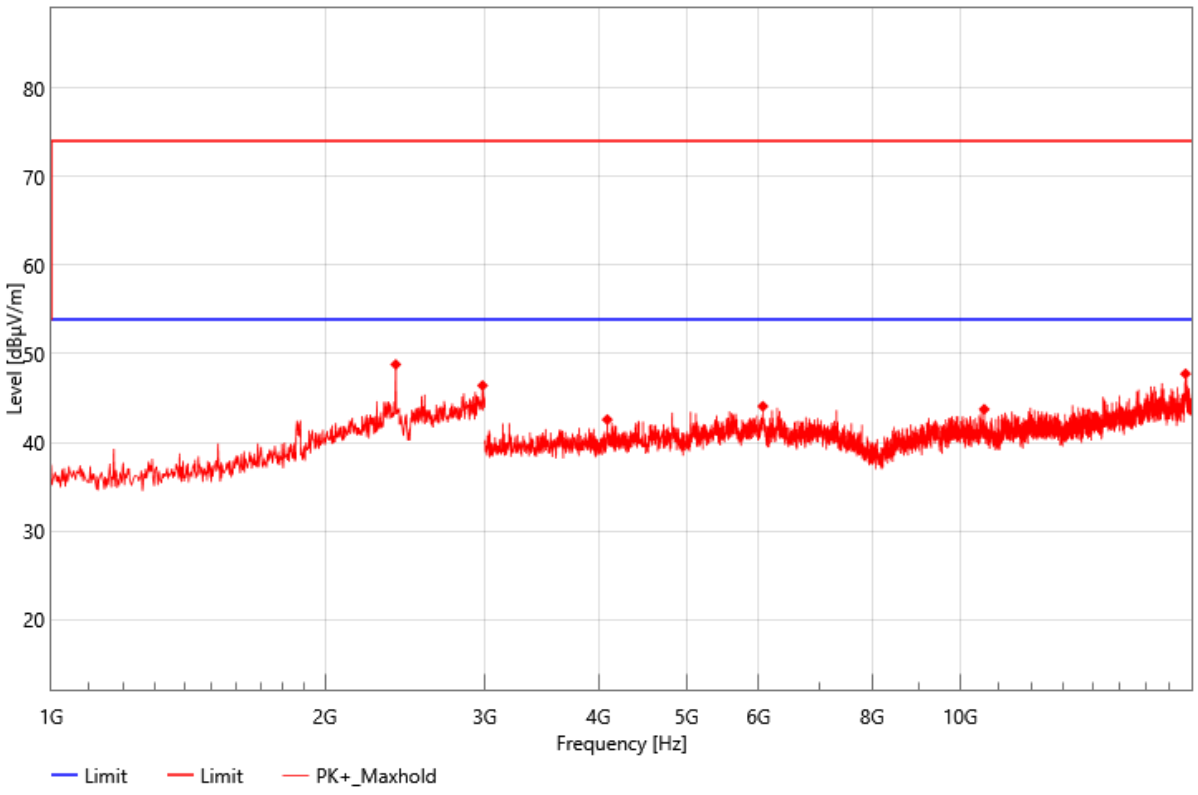
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2394.00	57.81	49.28	-8.53	74.00	24.72	Horizontal	PK	PASS
2	3954.00	55.65	42.43	-13.22	74.00	31.57	Horizontal	PK	PASS
3	6787.50	51.53	43.27	-8.26	74.00	30.73	Horizontal	PK	PASS
4	11265.00	48.05	43.67	-4.38	74.00	30.33	Horizontal	PK	PASS
5	14385.00	47.70	44.38	-3.32	74.00	29.62	Horizontal	PK	PASS
6	17700.00	47.58	47.76	0.18	74.00	26.24	Horizontal	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2437
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph

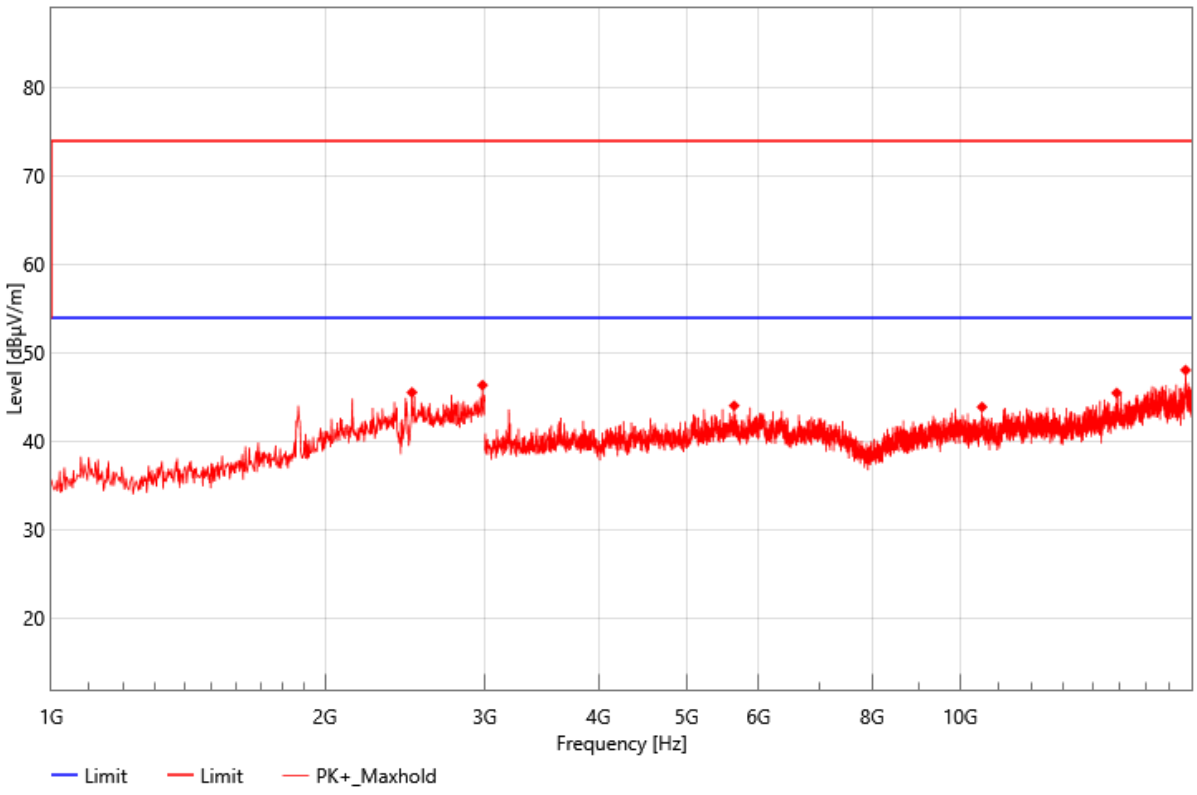


Suspected Data List

NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2394.00	57.34	48.81	-8.53	74.00	25.19	Vertical	PK	PASS
2	2982.00	53.39	46.43	-6.96	74.00	27.57	Vertical	PK	PASS
3	4090.50	55.23	42.58	-12.65	74.00	31.42	Vertical	PK	PASS
4	6066.00	52.09	44.08	-8.01	74.00	29.92	Vertical	PK	PASS
5	10627.50	49.09	43.75	-5.34	74.00	30.25	Vertical	PK	PASS
6	17697.00	47.55	47.75	0.2	74.00	26.25	Vertical	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2462
Polarity:	Horizontal	Test Voltage:	DC 24V

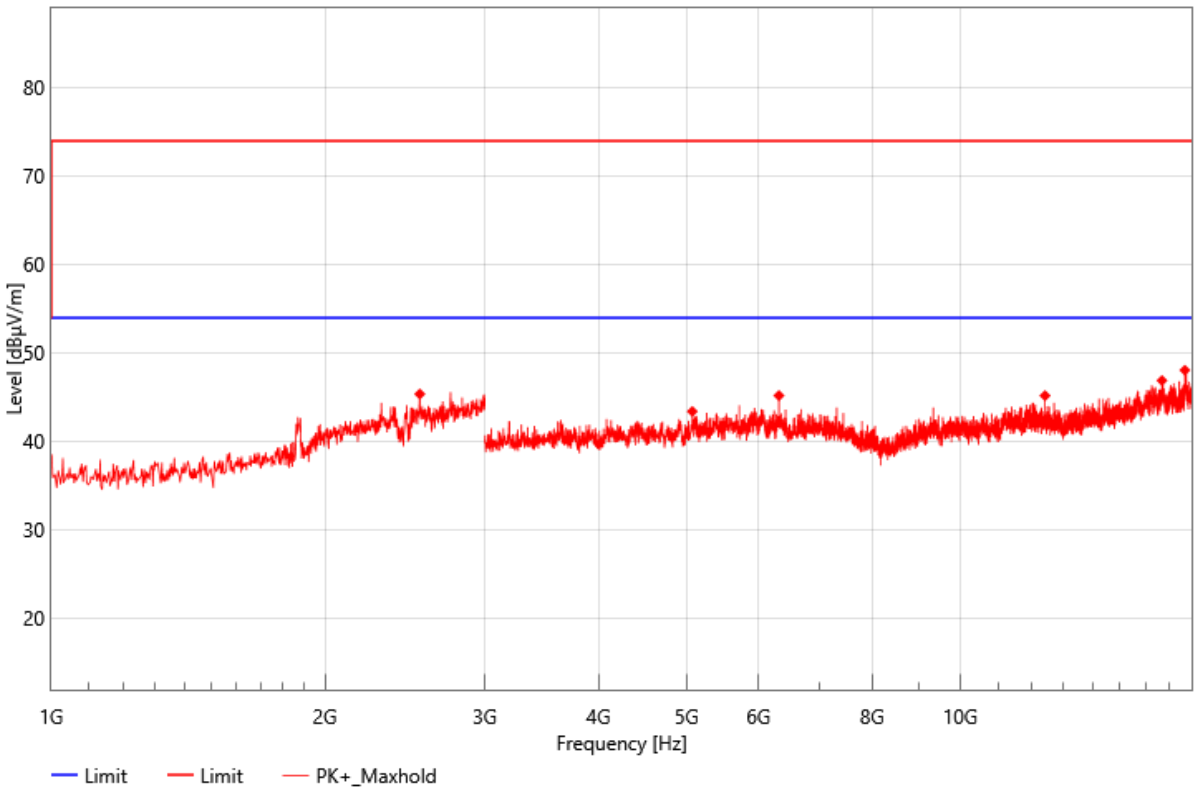
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2494.00	53.93	45.51	-8.42	74.00	28.49	Horizontal	PK	PASS
2	2982.00	53.29	46.33	-6.96	74.00	27.67	Horizontal	PK	PASS
3	5640.00	53.19	44.01	-9.18	74.00	29.99	Horizontal	PK	PASS
4	10569.00	48.97	43.86	-5.11	74.00	30.14	Horizontal	PK	PASS
5	14865.00	48.06	45.45	-2.61	74.00	28.55	Horizontal	PK	PASS
6	17700.00	47.86	48.04	0.18	74.00	25.96	Horizontal	PK	PASS

Test Mode:	802.11n HT20	Frequency(MHz):	2462
Polarity:	Vertical	Test Voltage:	DC 24V

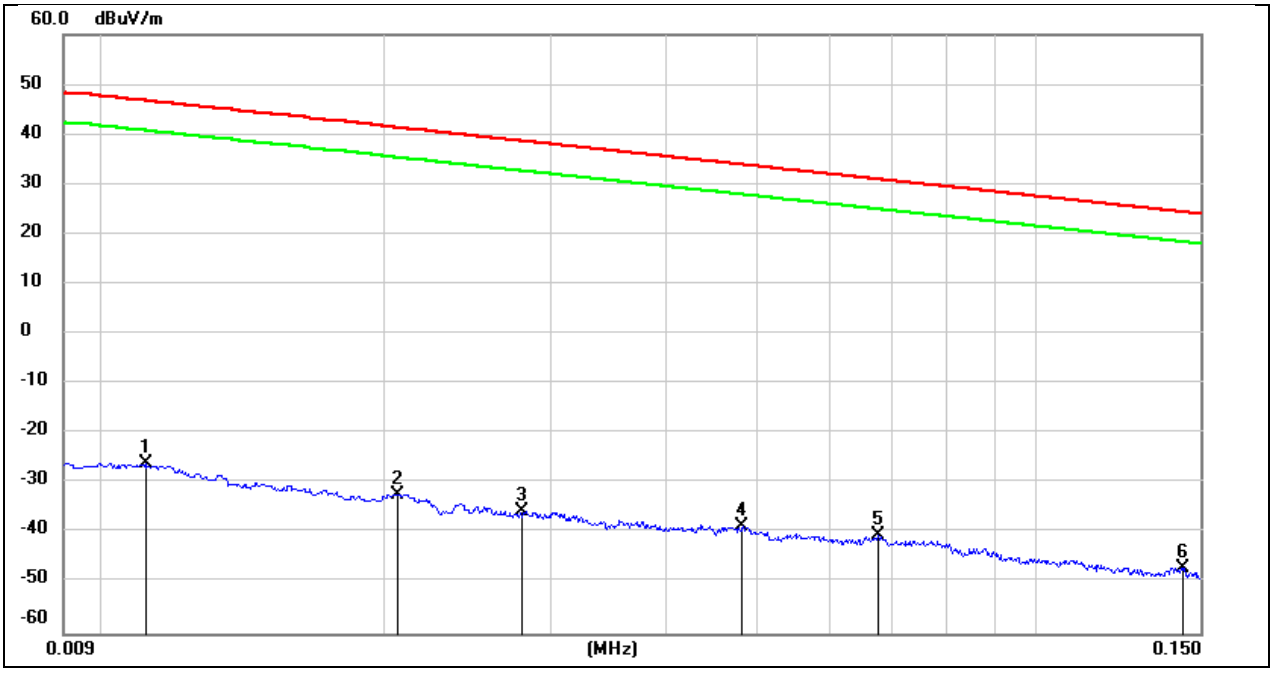
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	2544.00	53.65	45.33	-8.32	74.00	28.67	Vertical	PK	PASS
2	5073.00	53.80	43.36	-10.44	74.00	30.64	Vertical	PK	PASS
3	6318.00	52.88	45.16	-7.72	74.00	28.84	Vertical	PK	PASS
4	12397.50	49.79	45.14	-4.65	74.00	28.86	Vertical	PK	PASS
5	16671.00	47.38	46.86	-0.52	74.00	27.14	Vertical	PK	PASS
6	17665.50	47.84	48.03	0.19	74.00	25.97	Vertical	PK	PASS

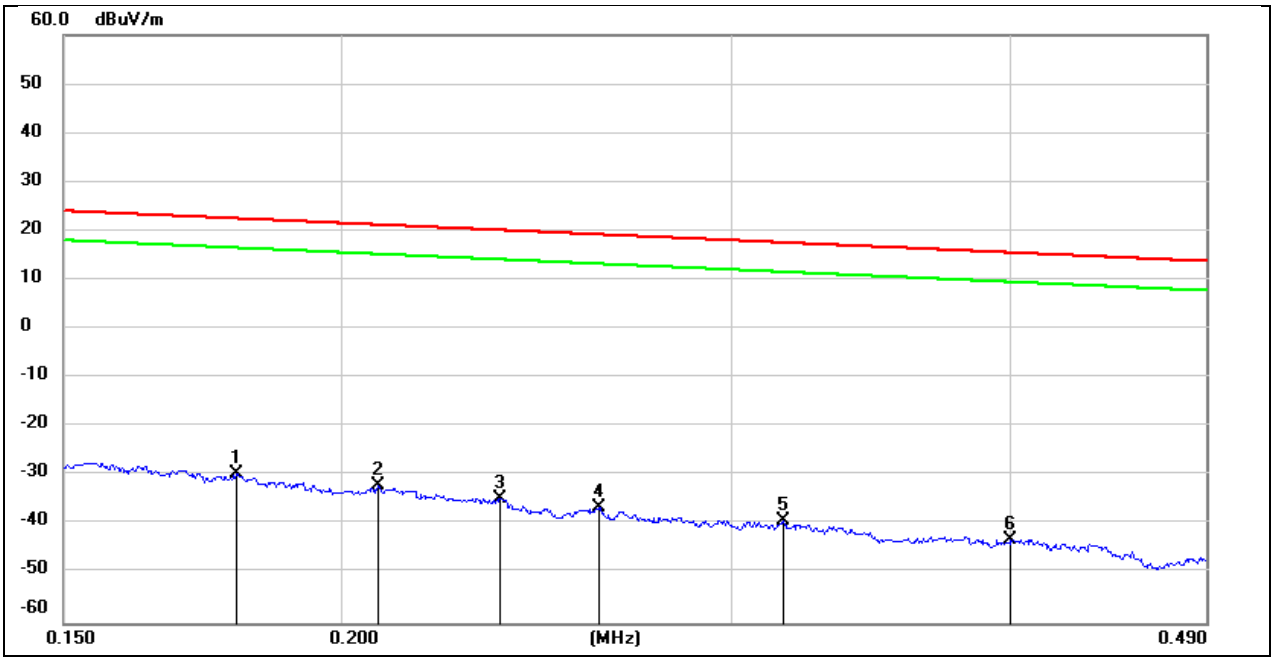
8.3. SPURIOUS EMISSIONS(9 KHZ~30 MHZ)

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V



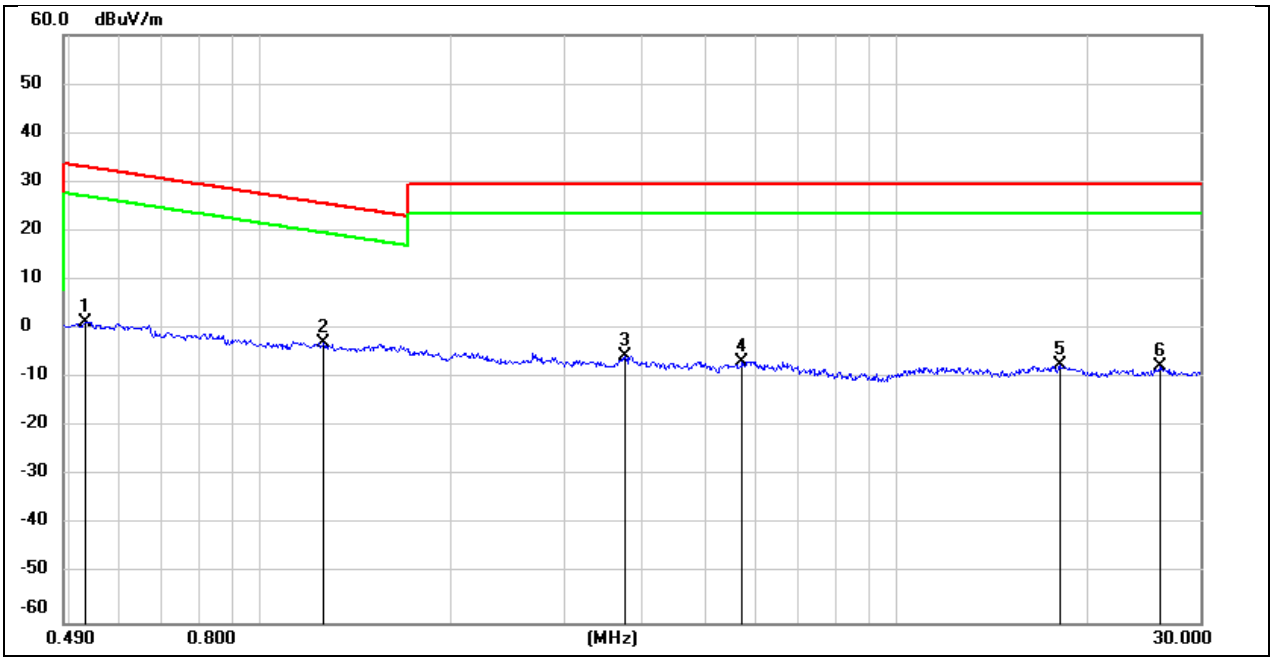
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0111	75.45	-101.39	-25.94	46.69	-72.63	peak
2	0.0206	69.21	-101.35	-32.14	41.32	-73.46	peak
3	0.0280	65.79	-101.38	-35.59	38.66	-74.25	peak
4	0.0483	62.84	-101.47	-38.63	33.92	-72.55	peak
5	0.0675	61.14	-101.56	-40.42	31.02	-71.44	peak
6	0.1440	54.82	-101.65	-46.83	24.43	-71.26	peak

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1794	72.27	-101.68	-29.41	22.53	-51.94	peak
2	0.2078	69.74	-101.73	-31.99	21.25	-53.24	peak
3	0.2358	66.98	-101.78	-34.80	20.15	-54.95	peak
4	0.2615	65.46	-101.81	-36.35	19.25	-55.60	peak
5	0.3163	62.70	-101.87	-39.17	17.60	-56.77	peak
6	0.4001	58.95	-101.96	-43.01	15.56	-58.57	peak

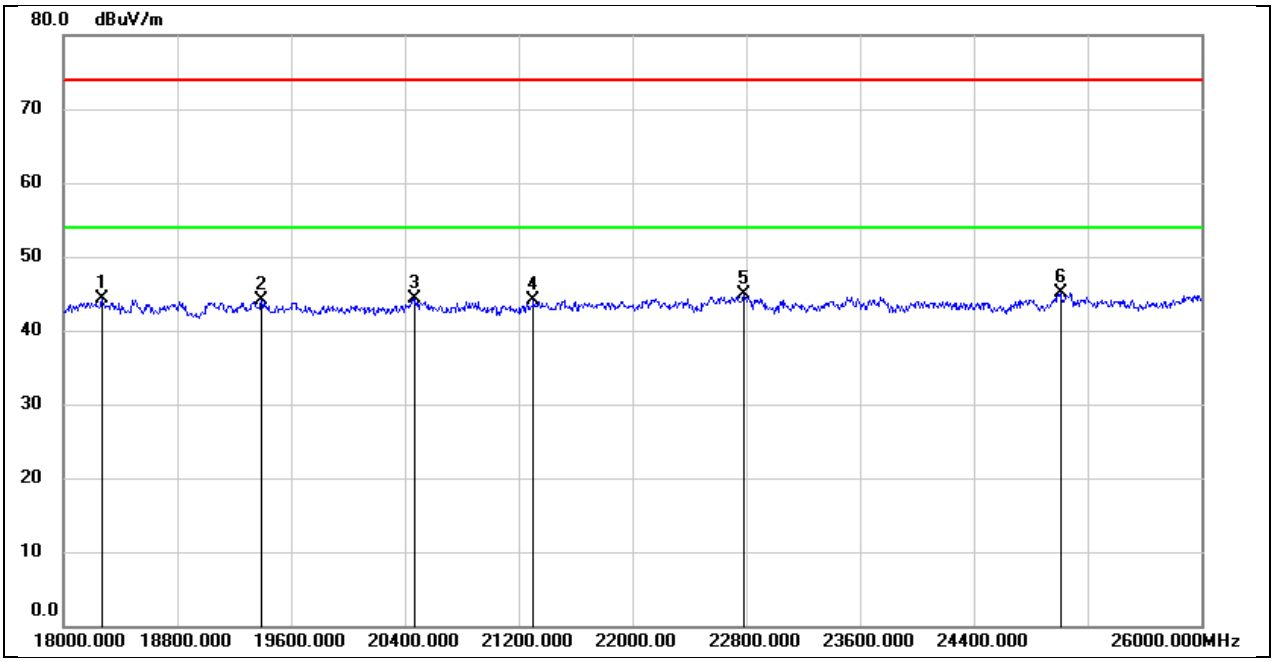
Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5298	63.53	-62.08	1.45	33.12	-31.67	peak
2	1.2573	59.25	-62.15	-2.90	25.62	-28.52	peak
3	3.7406	55.80	-61.40	-5.60	29.54	-35.14	peak
4	5.7145	54.67	-61.39	-6.72	29.54	-36.26	peak
5	18.0181	53.69	-60.91	-7.22	29.54	-36.76	peak
6	25.8978	52.76	-60.36	-7.60	29.54	-37.14	peak

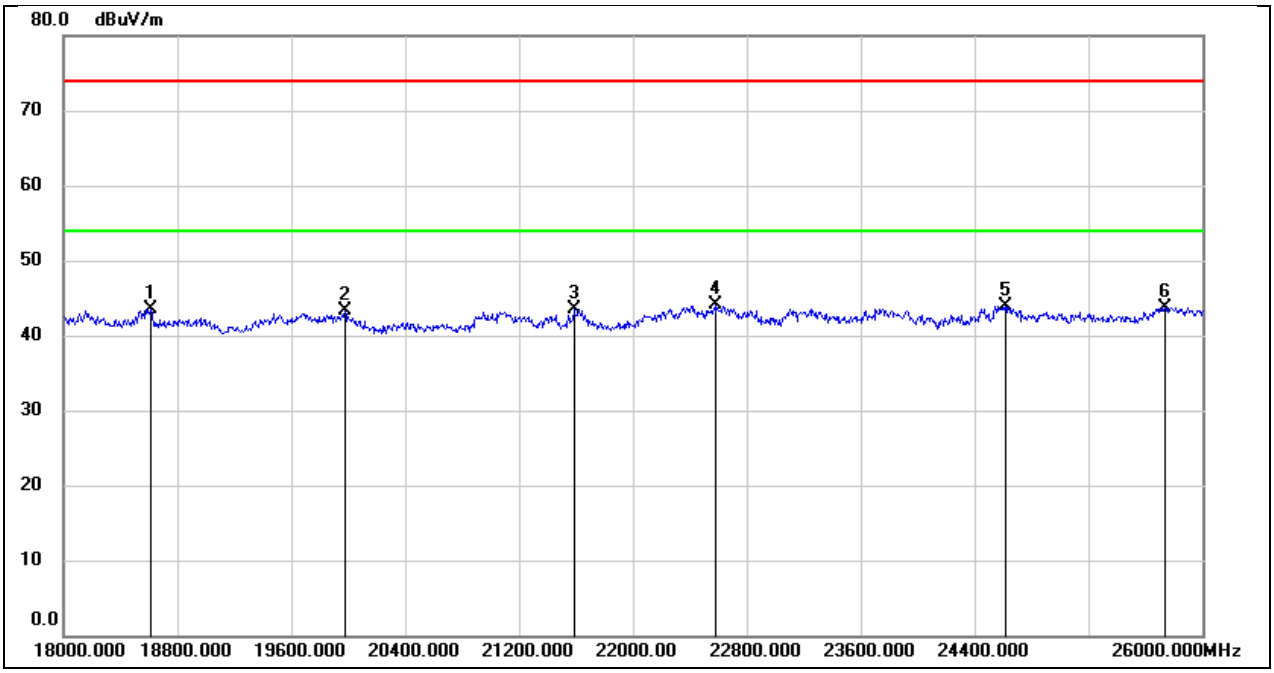
8.4. SPURIOUS EMISSIONS(18 GHZ~26 GHZ)

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18272.000	49.91	-5.53	44.38	74.00	-29.62	peak
2	19392.000	49.62	-5.57	44.05	74.00	-29.95	peak
3	20472.000	49.69	-5.39	44.30	74.00	-29.70	peak
4	21304.000	48.76	-4.75	44.01	74.00	-29.99	peak
5	22784.000	48.48	-3.65	44.83	74.00	-29.17	peak
6	25008.000	47.15	-2.08	45.07	74.00	-28.93	peak

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

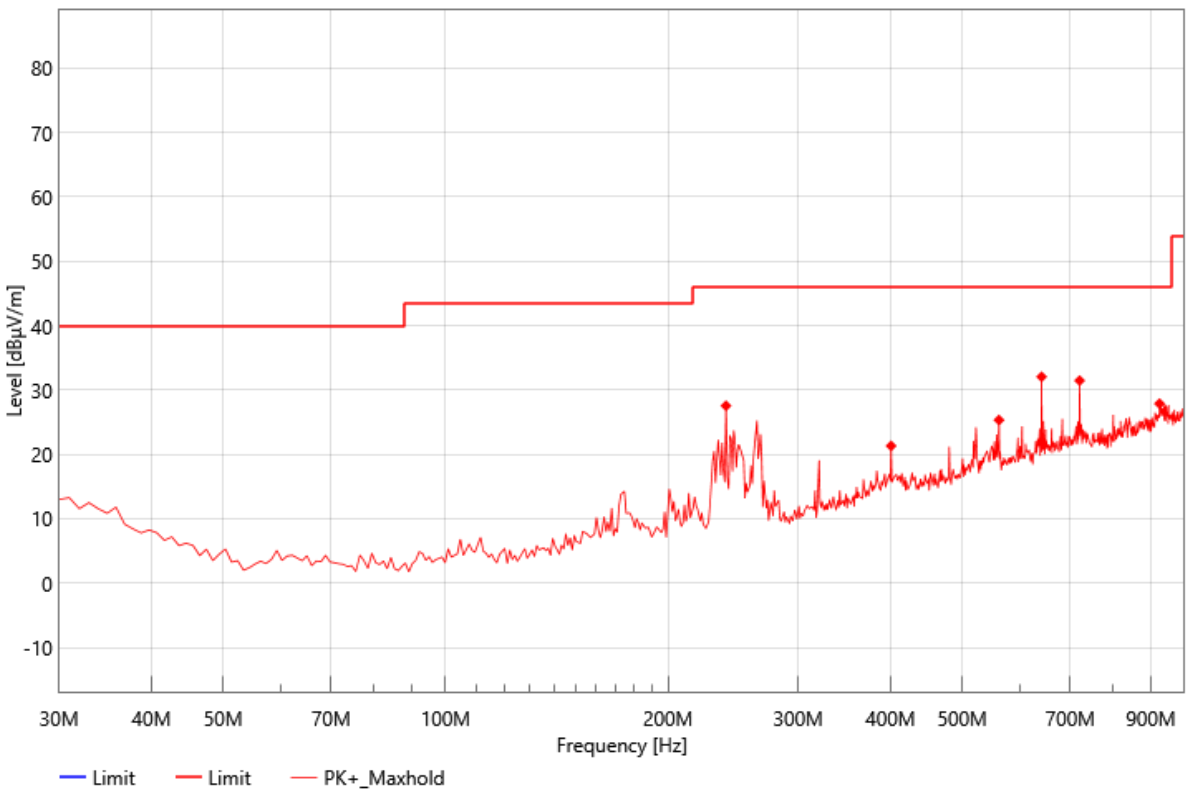


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18616.000	48.89	-5.34	43.55	74.00	-30.45	peak
2	19976.000	48.67	-5.44	43.23	74.00	-30.77	peak
3	21584.000	48.10	-4.56	43.54	74.00	-30.46	peak
4	22584.000	47.85	-3.81	44.04	74.00	-29.96	peak
5	24616.000	46.30	-2.33	43.97	74.00	-30.03	peak
6	25736.000	44.44	-0.68	43.76	74.00	-30.24	peak

8.5. SPURIOUS EMISSIONS(30 MHZ~1 GHZ)

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Horizontal	Test Voltage:	DC 24V

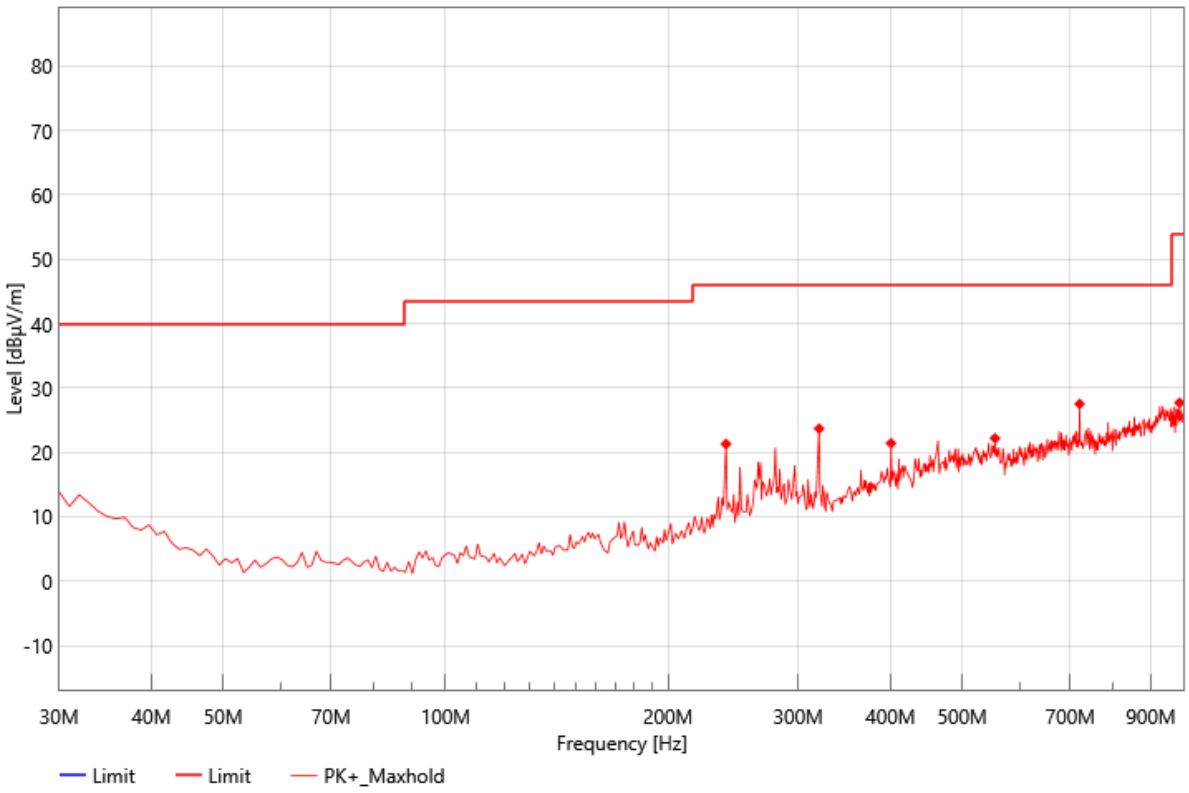
Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	239.52	46.82	27.56	-19.26	46.00	18.44	Horizontal	QP	PASS
2	400.54	34.88	21.33	-13.55	46.00	24.67	Horizontal	QP	PASS
3	560.59	35.38	25.34	-10.04	46.00	20.66	Horizontal	QP	PASS
4	640.13	40.47	32.06	-8.41	46.00	13.94	Horizontal	QP	PASS
5	720.64	37.94	31.48	-6.46	46.00	14.52	Horizontal	QP	PASS
6	924.34	30.40	27.89	-2.51	46.00	18.11	Horizontal	QP	PASS

Test Mode:	802.11b	Frequency(MHz):	2412
Polarity:	Vertical	Test Voltage:	DC 24V

Test Graph



Suspected Data List									
NO.	Frequency [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Polarity	Detector	Verdict
1	239.52	40.58	21.32	-19.26	46.00	24.68	Vertical	QP	PASS
2	320.03	41.23	23.70	-17.53	46.00	22.30	Vertical	QP	PASS
3	400.54	34.99	21.44	-13.55	46.00	24.56	Vertical	QP	PASS
4	553.80	31.86	22.20	-9.66	46.00	23.80	Vertical	QP	PASS
5	720.64	34.00	27.54	-6.46	46.00	18.46	Vertical	QP	PASS
6	983.51	30.34	27.73	-2.61	53.90	26.17	Vertical	QP	PASS

9. ANTENNA REQUIREMENT

REQUIREMENT

Please refer to FCC part 15.203
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

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

DESCRIPTION

Pass

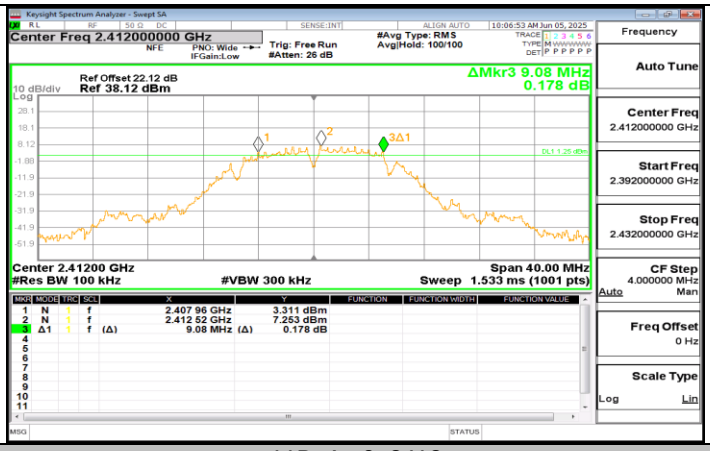
10. TEST DATA

10.1. APPENDIX A: DTS BANDWIDTH

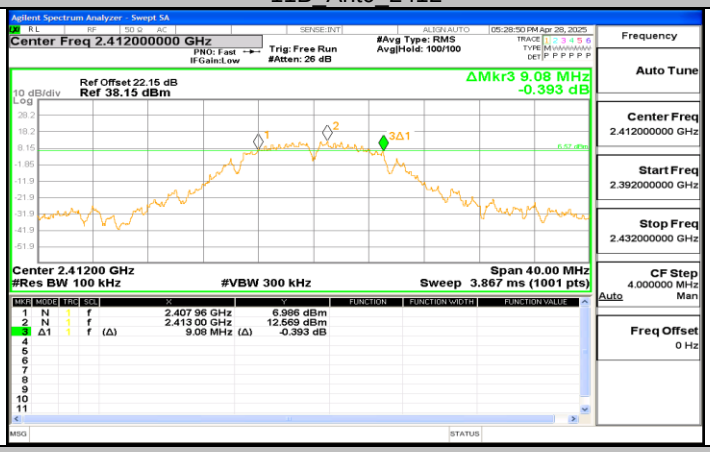
10.1.1. Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant0	2412	9.080	2407.960	2417.040	≥0.5	PASS
	Ant1	2412	9.080	2407.960	2417.040	≥0.5	PASS
	Ant0	2437	9.040	2432.480	2441.520	≥0.5	PASS
	Ant1	2437	8.120	2432.960	2441.080	≥0.5	PASS
	Ant0	2462	8.560	2457.960	2466.520	≥0.5	PASS
	Ant1	2462	8.560	2457.960	2466.520	≥0.5	PASS
11G	Ant0	2412	15.680	2404.240	2419.920	≥0.5	PASS
	Ant1	2412	16.040	2404.120	2420.160	≥0.5	PASS
	Ant0	2437	16.040	2428.880	2444.920	≥0.5	PASS
	Ant1	2437	16.360	2428.800	2445.160	≥0.5	PASS
	Ant0	2462	15.680	2454.240	2469.920	≥0.5	PASS
	Ant1	2462	15.640	2454.120	2469.760	≥0.5	PASS
11N20SISO	Ant0	2412	15.880	2404.280	2420.160	≥0.5	PASS
	Ant1	2412	16.320	2403.840	2420.160	≥0.5	PASS
	Ant0	2437	15.160	2429.120	2444.280	≥0.5	PASS
	Ant1	2437	16.320	2428.840	2445.160	≥0.5	PASS
	Ant0	2462	15.760	2454.120	2469.880	≥0.5	PASS
	Ant1	2462	15.680	2454.120	2469.800	≥0.5	PASS

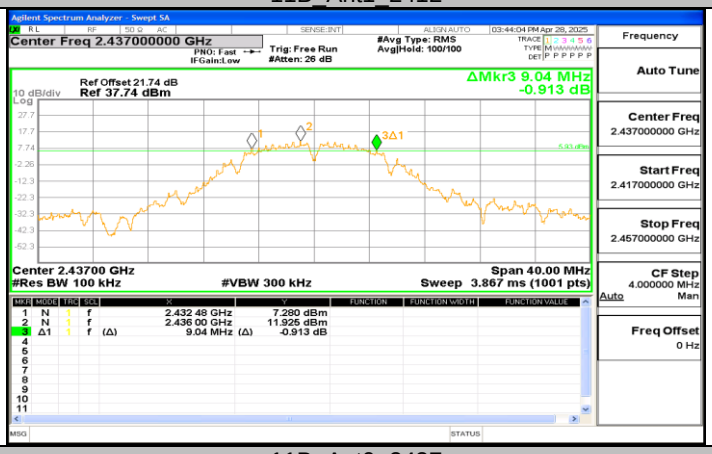
10.1.2. Test Graphs



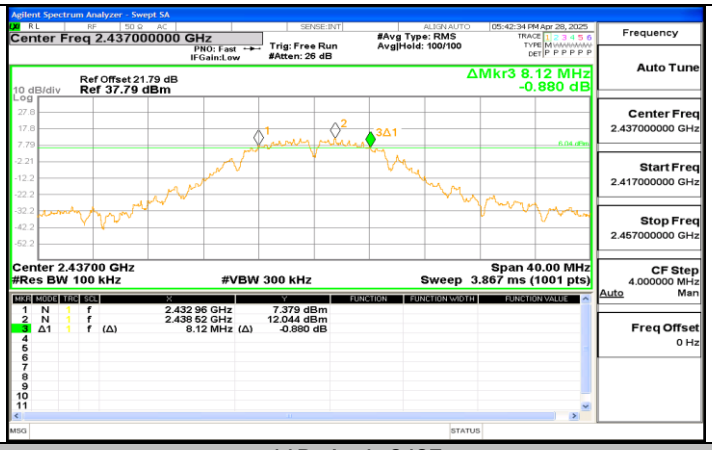
11B_Ant0_2412



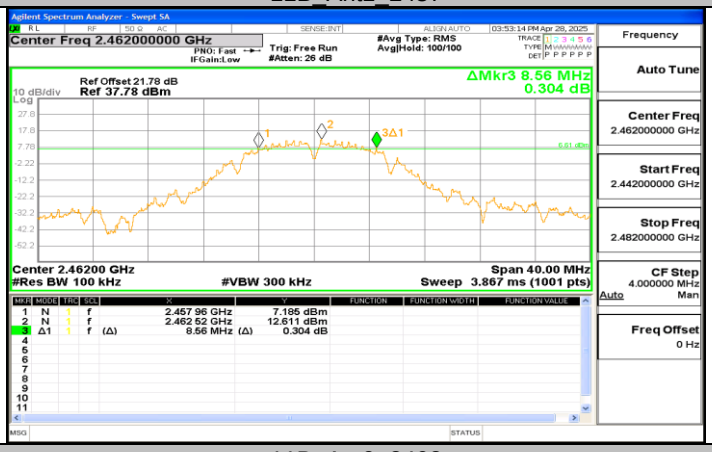
11B_Ant1_2412



11B_Ant0_2437

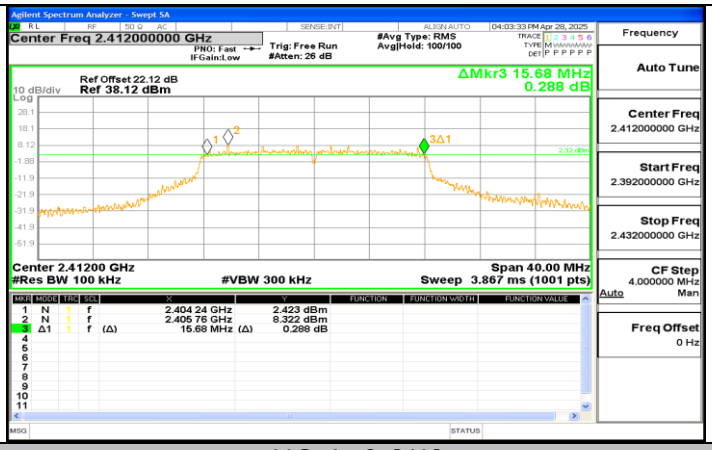


11B_Ant1_2437

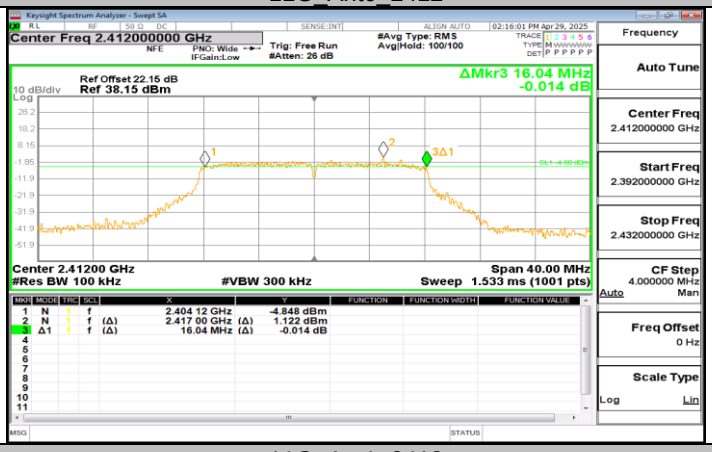


11B_Ant0_2462

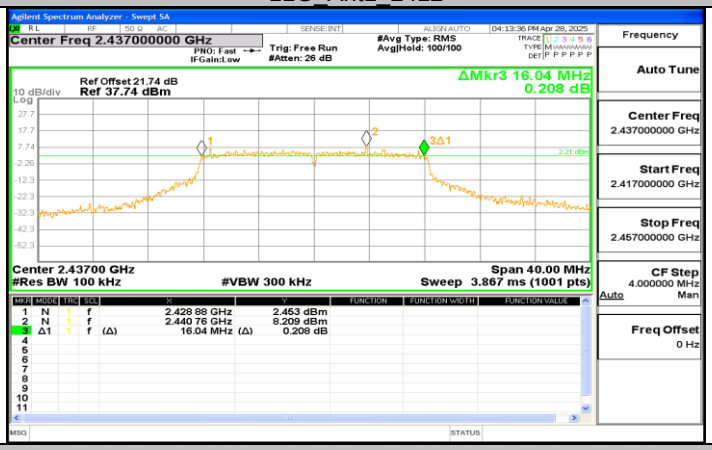
11B_Ant1_2462



11G_Ant0_2412

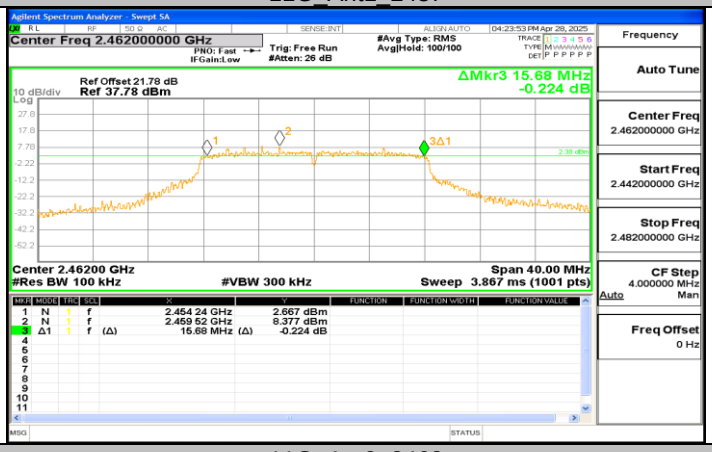


11G_Ant1_2412

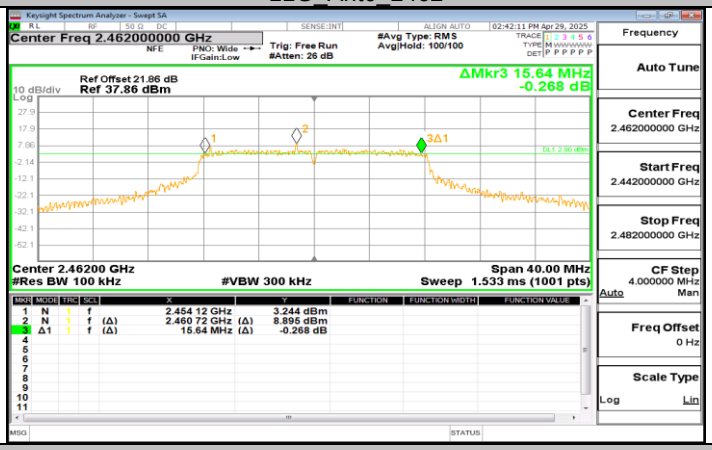


11G_Ant0_2437

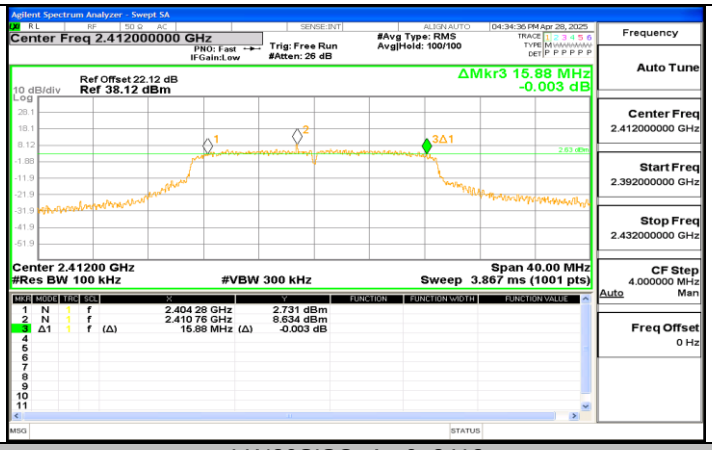
11G_Ant1_2437



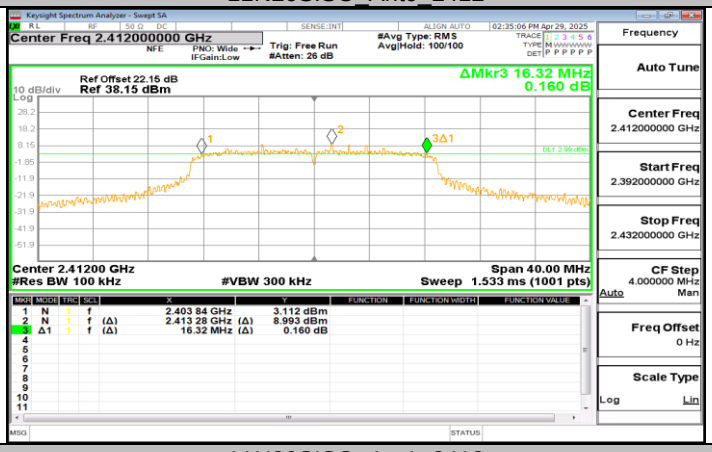
11G_Ant0_2462



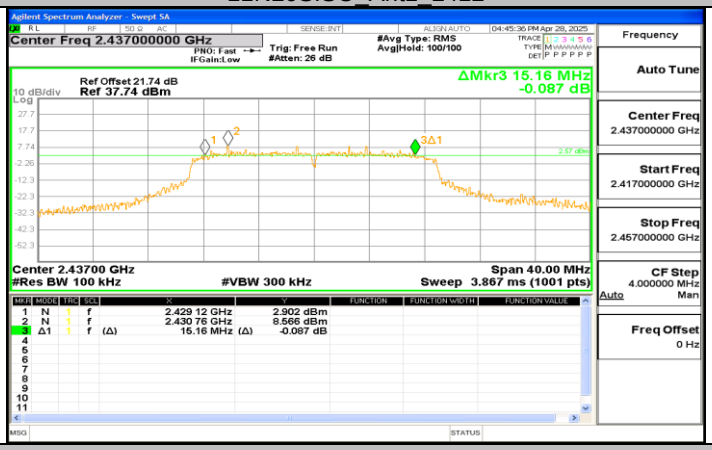
11G_Ant1_2462



11N20SISO_Ant0_2412

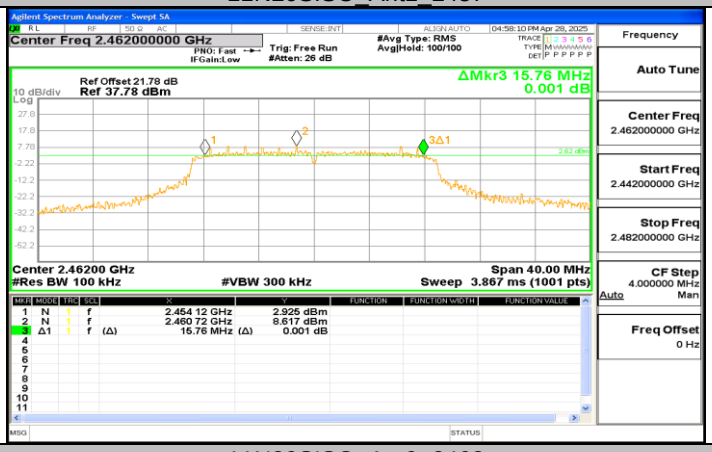


11N20SISO_Ant1_2412

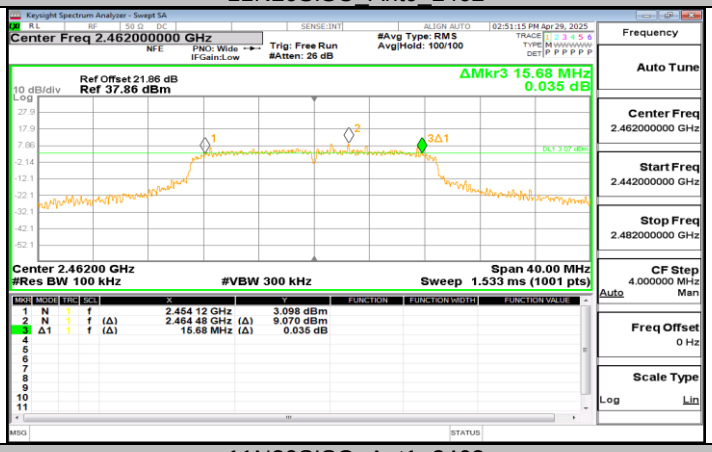


11N20SISO_Ant0_2437

11N20SISO_Ant1_2437



11N20SISO_Ant0_2462



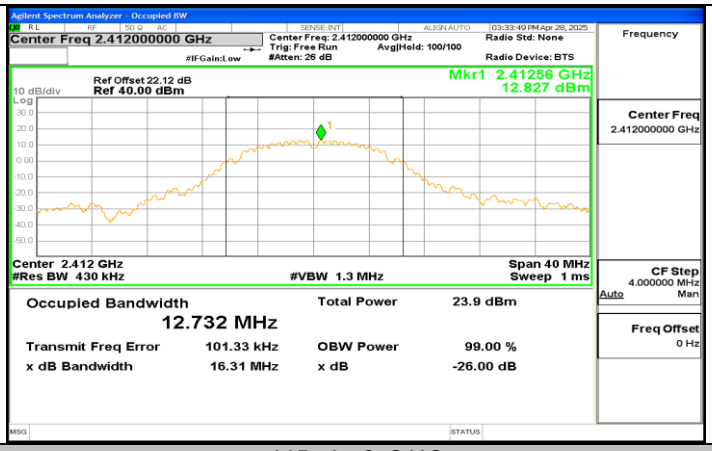
11N20SISO_Ant1_2462

10.2. APPENDIX B: OCCUPIED CHANNEL BANDWIDTH

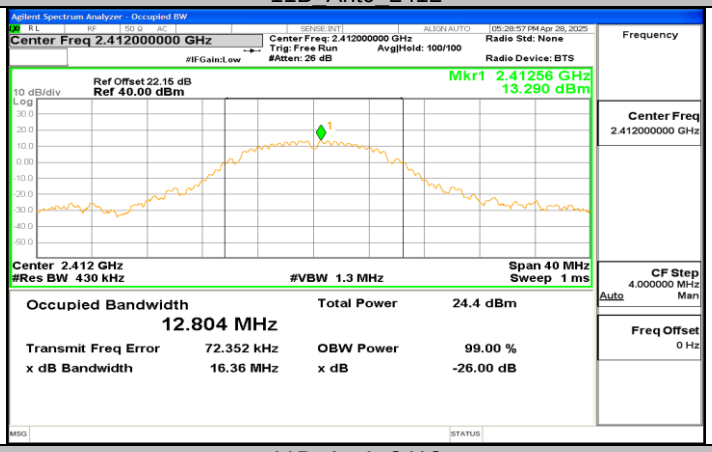
10.2.1. Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11B	Ant0	2412	12.732	2405.7353	2418.4673	PASS
	Ant1	2412	12.804	2405.6704	2418.4744	PASS
	Ant0	2437	12.804	2430.6813	2443.4853	PASS
	Ant1	2437	12.964	2430.5954	2443.5594	PASS
	Ant0	2462	12.739	2455.7342	2468.4732	PASS
	Ant1	2462	12.766	2455.6659	2468.4319	PASS
11G	Ant0	2412	16.827	2403.6631	2420.4901	PASS
	Ant1	2412	16.609	2403.6673	2420.2763	PASS
	Ant0	2437	16.858	2428.6242	2445.4822	PASS
	Ant1	2437	17.051	2428.4729	2445.5239	PASS
	Ant0	2462	16.780	2453.6771	2470.4571	PASS
	Ant1	2462	17.151	2453.4424	2470.5934	PASS
11N20SISO	Ant0	2412	17.746	2403.1976	2420.9436	PASS
	Ant1	2412	17.892	2403.0729	2420.9649	PASS
	Ant0	2437	17.750	2428.1871	2445.9371	PASS
	Ant1	2437	17.814	2428.0962	2445.9102	PASS
	Ant0	2462	17.719	2453.2083	2470.9273	PASS
	Ant1	2462	17.881	2453.0658	2470.9468	PASS

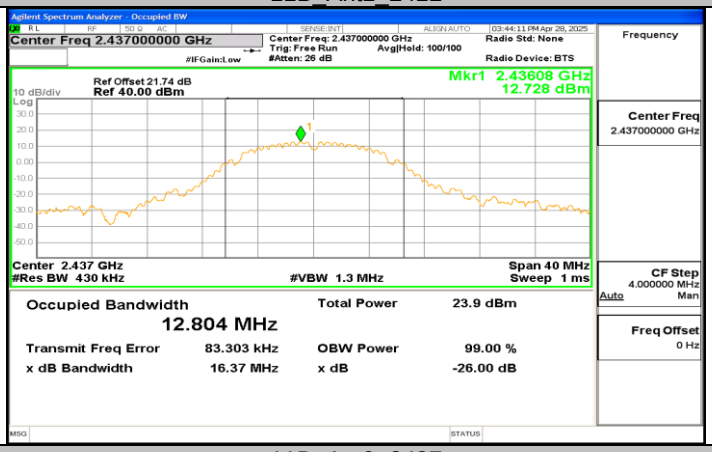
10.2.2. Test Graphs



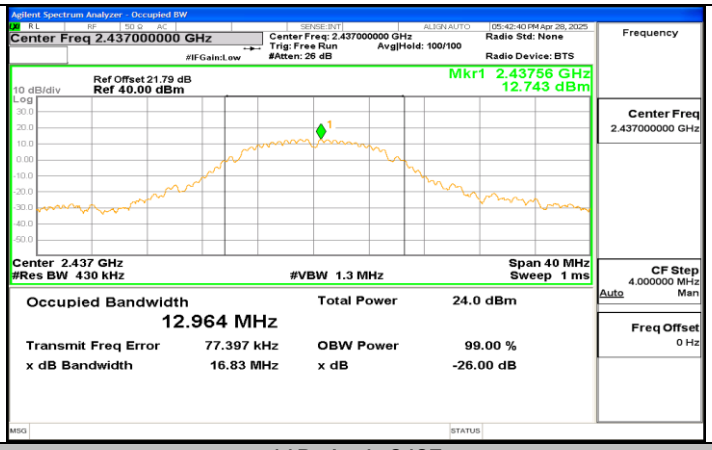
11B_Ant0_2412



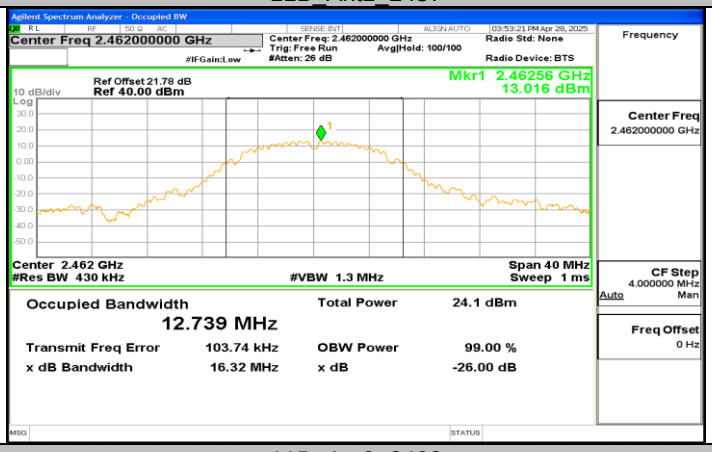
11B_Ant1_2412



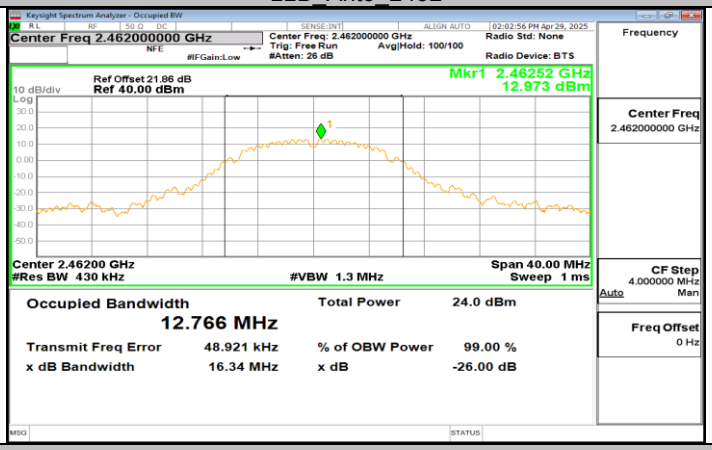
11B_Ant0_2437



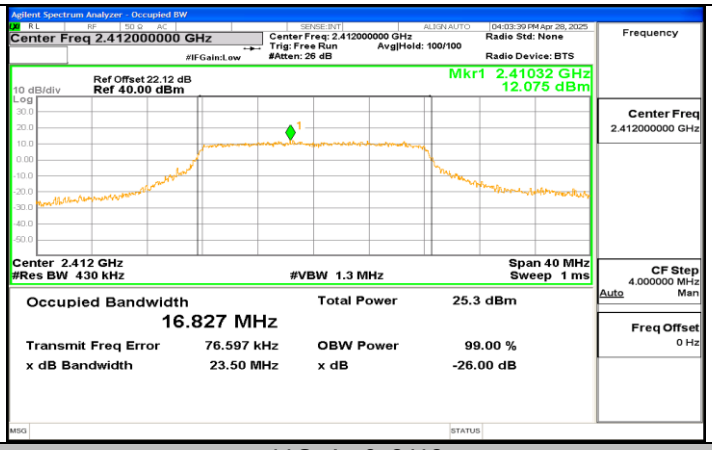
11B_Ant1_2437



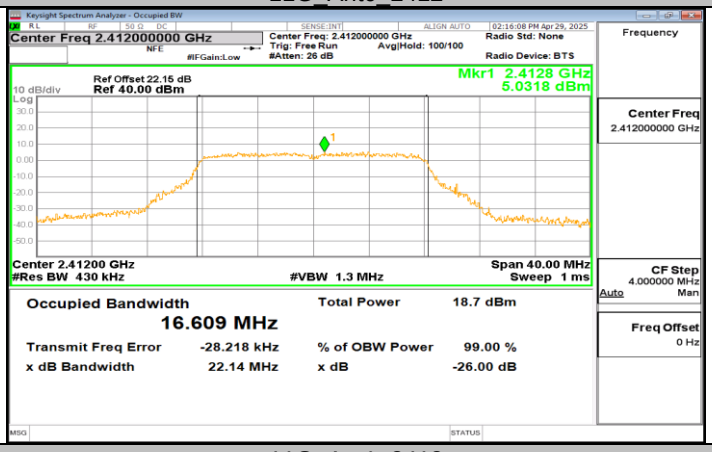
11B_Ant0_2462



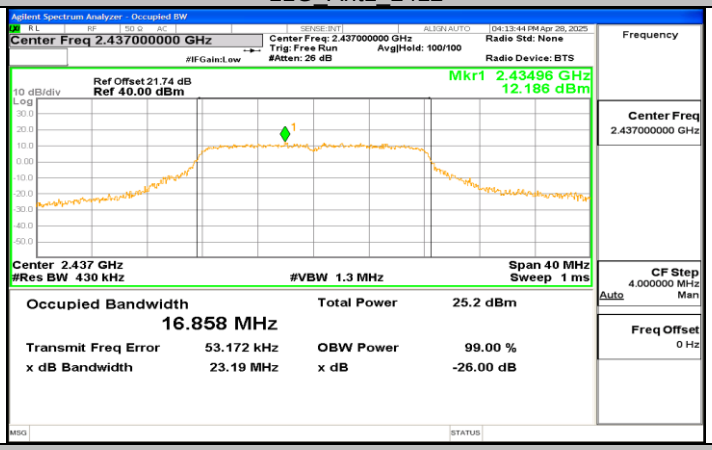
11B_Ant1_2462



11G_Ant0_2412



11G_Ant1_2412



11G_Ant0_2437