

TEST REPORT

Product : Voice Lighted Mirror
Trade mark : Kohler
99571-VLAN-NA,
Model/Type reference : 99572-VLAN-NA,
99573-VLAN-NA
Serial Number : N/A
Report Number : EED32K00040203
FCC ID : N82-KOHLER026
Date of Issue : Apr. 13, 2018
Test Standards : 47 CFR Part 15 Subpart C
Test result : PASS

Prepared for:

Kohler Co.

444 Highland Drive, Kohler, Wisconsin 53044 USA

Prepared by:

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Apr. 13, 2018

Check No.:3096379408



2 Version

Version No.	Date	Description
00	Apr. 13, 2018	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
Radiated Spurious Emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

Remark:

Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

The tested sample(s) and the sample information are provided by the client.

Model No.:99571-VLAN-NA, 99572-VLAN-NA, 99573-VLAN-NA

Only the model 99571-VLAN-NA was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being the appearance and size.

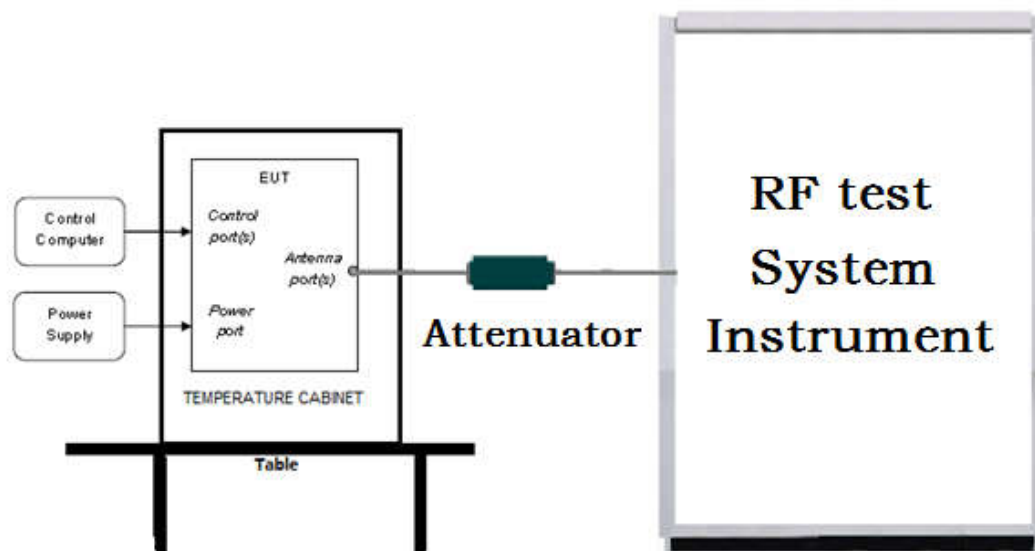
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

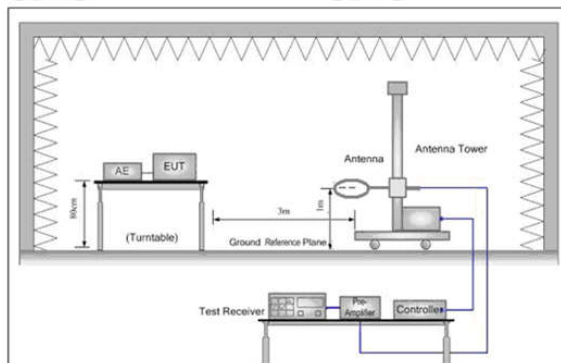


Figure 1. Below 30MHz

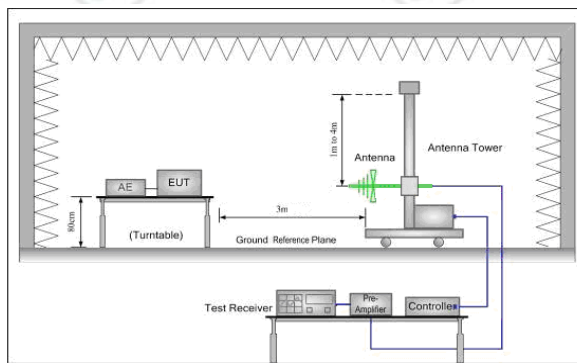


Figure 2. 30MHz to 1GHz

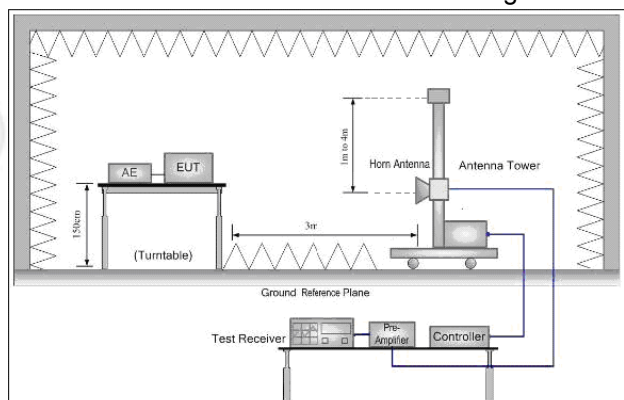
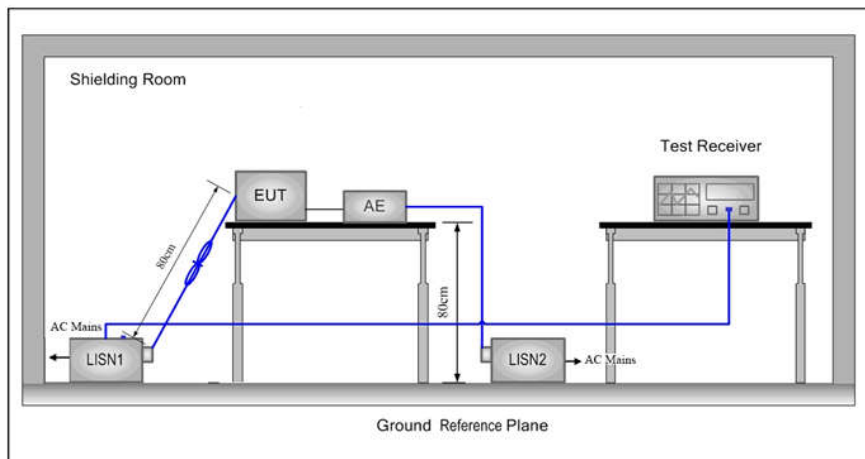


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:

Temperature:	24.1 °C
Humidity:	58 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel11
		2412MHz	2437MHz	2462MHz
802.11n(HT40)	2422MHz ~2452 MHz	Channel 1	Channel 4	Channel7
		2422MHz	2437MHz	2452MHz
TX mode:	The EUT transmitted the continuous signal at the specific channel(s).			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	17.56	17.98	17.63	18.33				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	15.77	15.65	15.23	15.01	15.18	15.34	15.54	15.40
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	15.58	15.01	15.15	15.36	15.06	15.00	14.89	14.97
Mode	802.11n (HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power(dBm)	14.71	14.62	14.34	14.18	14.04	14.11	13.98	14.16

Through Pre-scan, 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).

6 General Information

6.1 Client Information

Applicant:	Kohler Co.
Address of Applicant:	444 Highland Drive, Kohler, Wisconsin 53044 USA
Manufacturer:	Kohler Co.
Address of Manufacturer:	444 Highland Drive, Kohler, Wisconsin 53044 USA

6.2 General Description of EUT

Product Name:	Voice Lighted Mirror
Model No.(EUT):	99571-VLAN-NA, 99572-VLAN-NA, 99573-VLAN-NA
Test Model No.:	99571-VLAN-NA
Trade Mark:	Kohler
EUT Supports Radios application:	BT 4.0 Dual mode, 2402-2480MHz; WiFi 802.11b/g/n(20MHz)/n(40MHz) ,2412-2462MHz;
Power Supply:	AC 120V, 60Hz
Sample Received Date:	Mar. 02, 2018
Sample tested Date:	Mar. 02, 2018 to Apr. 12, 2018

6.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK,BPSK)
Sample Type:	Fixed production
Test Power Grade:	(manufacturer declare)802.11b:16; 802.11g/n:0F
Test Software of EUT:	(manufacturer declare)MT7628 QA 0.0.0.96
Hardware Version:	V02A(manufacturer declare)
Firmware version:	V29(manufacturer declare)
Antenna Type and Gain:	Type: Balun antenna; Gain:2.5dBi
Test Voltage:	AC 120V, 60Hz

6.4 Description of Support Units

The EUT has been tested independently.

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

6.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)
4	Conduction emission	3.6dB (9kHz to 150kHz)
		3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%

7 Equipment List

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	03-13-2018	03-12-2019
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-13-2018	03-12-2019
Signal Generator	Keysight	N5182B	MY53051549	03-13-2018	03-12-2019
High-pass filter	Sinoscite	FL3CX03WG 18NM12- 0398-002	---	01-10-2018	01-09-2019
DC Power	Keysight	E3642A	MY54426035	03-13-2018	03-12-2019
power meter & power sensor	R&S	OSP120	101374	03-13-2018	03-12-2019
RF control unit	JS Tonscend	JS0806-2	158060006	03-13-2018	03-12-2019
Temperature / Humidity Indicator	Defu	TH128	---	07-08-2017	07-07-2018

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber&Accessory Equipment	TDK	SAC-3	---	06-04-2016	06-03-2019
Spectrum Analyzer	Agilent	E4443A	MY45300910	11-16-2017	11-15-2018
Receiver	R&S	ESCI	100435	06-14-2017	06-13-2018
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-618	08-15-2017	08-14-2018
Spectrum Analyzer	R&S	FSP40	100416	06-13-2017	06-12-2018
Microwave Preamplifier	JS Tonscend	EMC051845 SE	980380	01-19-2018	01-18-2019
Loop Antenna	ETS-LINDGREN	6502	00071730	06-22-2017	06-21-2019
Horn Antenna	ETS-LINGREN	3117	00057407	07-20-2015	07-18-2018
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	6042	06-30-2015	06-28-2018
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041	06-30-2015	06-28-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	05-08-2017	05-07-2018

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100009	06-14-2017	06-13-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	06-14-2017	06-13-2018
LISN	schwarzbeck	NNLK8121	8121-529	06-13-2017	06-12-2018

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10	Power Spectral Density	PASS	Appendix E)
Part15C Section 15.203/15.247 (c)	ANSI C63.10	Antenna Requirement	PASS	Appendix F)
Part15C Section 15.207	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix G)
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix H)
Part15C Section 15.205/15.209	ANSI C63.10	Radiated Spurious Emissions	PASS	Appendix I)

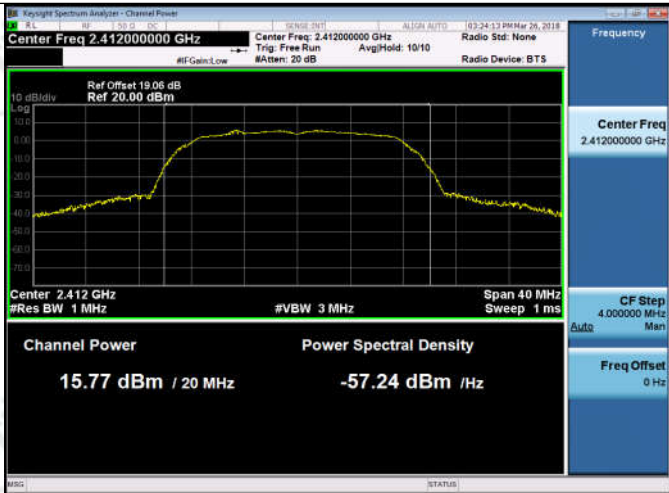
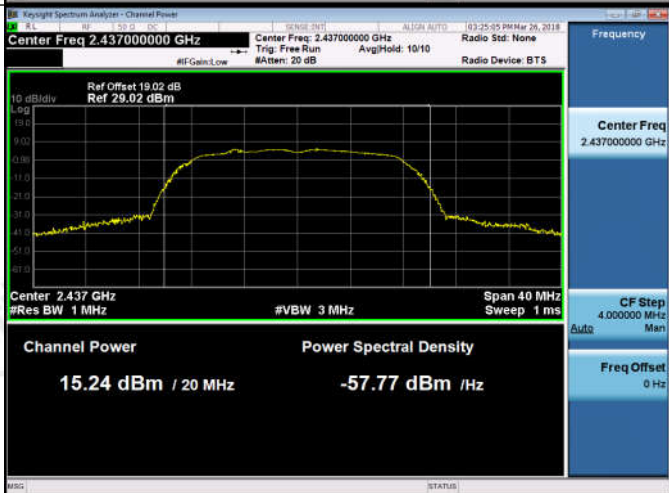
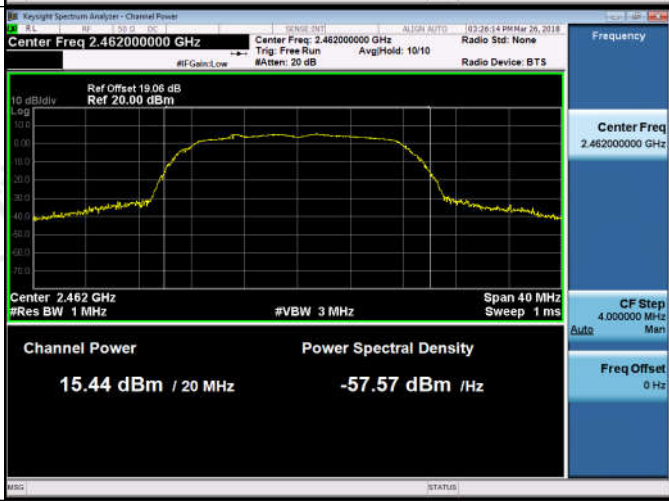
Appendix A): Conducted Peak Output Power

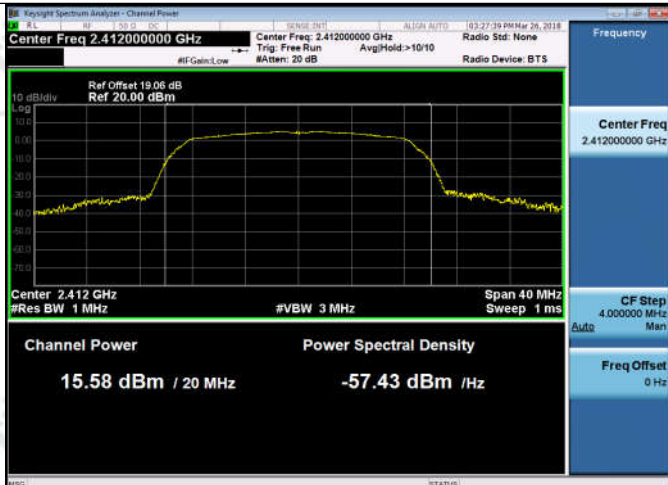
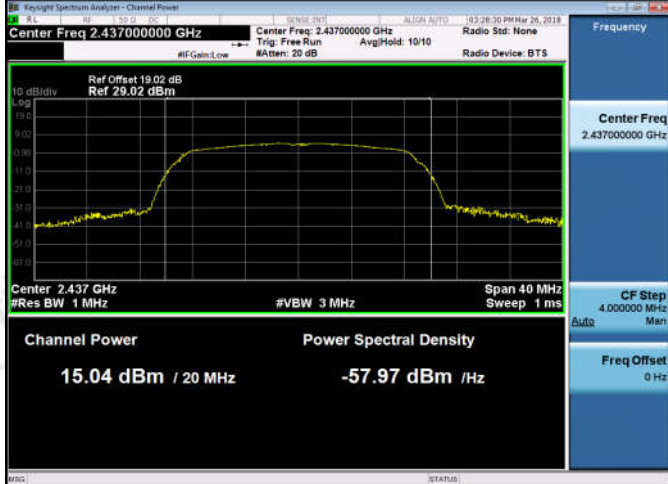
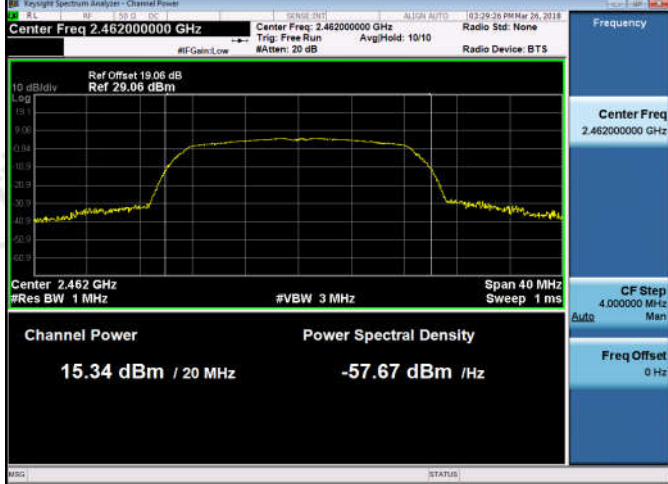
Result Table

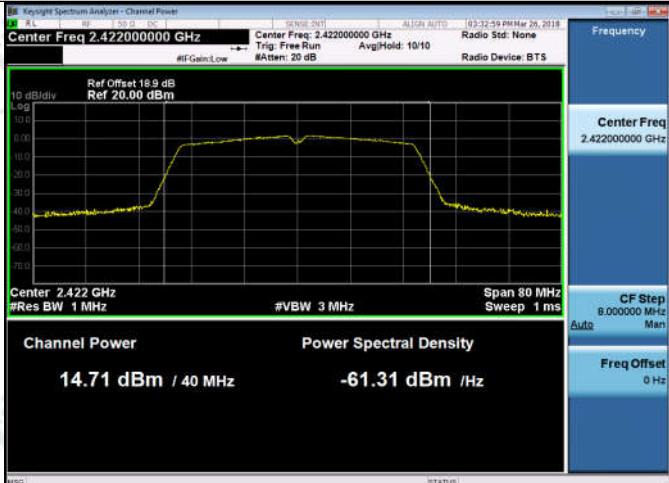
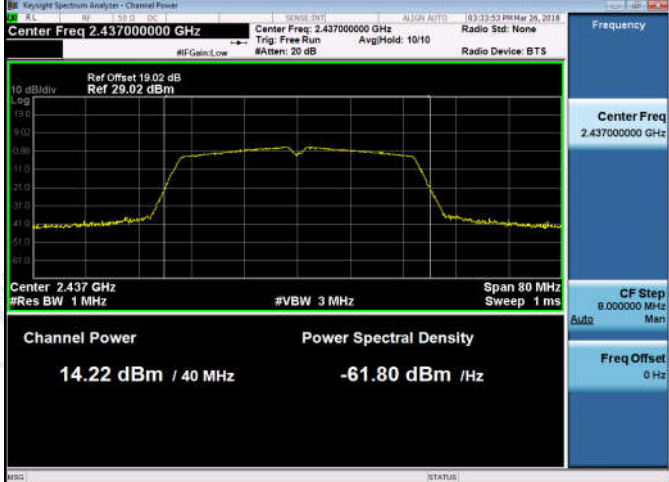
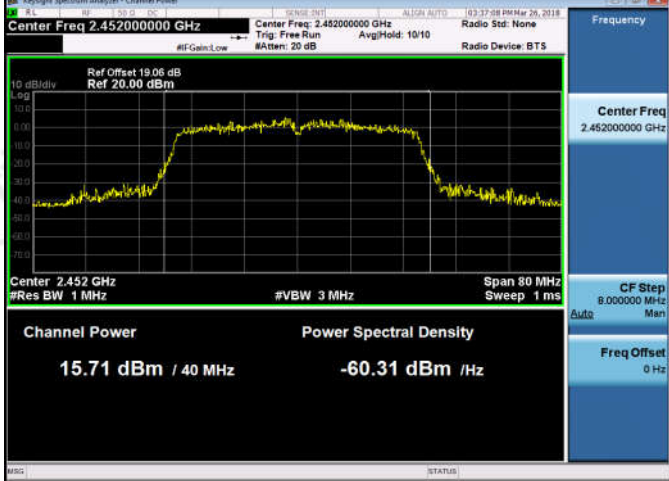
Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	18.33	PASS
11B	MCH	17.82	PASS
11B	HCH	17.90	PASS
11G	LCH	15.77	PASS
11G	MCH	15.24	PASS
11G	HCH	15.44	PASS
11N20SISO	LCH	15.58	PASS
11N20SISO	MCH	15.04	PASS
11N20SISO	HCH	15.34	PASS
11N40SISO	LCH	14.71	PASS
11N40SISO	MCH	14.22	PASS
11N40SISO	HCH	15.71	PASS

Test Graph

Graphs	
11B/LCH	Keygraph Spectrum Analyzer - Channel Power Center Freq: 2.412000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Channel Power: 18.33 dBm / 20 MHz Power Spectral Density: -54.68 dBm / Hz
11B/MCH	Keygraph Spectrum Analyzer - Channel Power Center Freq: 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Channel Power: 17.82 dBm / 20 MHz Power Spectral Density: -55.19 dBm / Hz
11B/HCH	Keygraph Spectrum Analyzer - Channel Power Center Freq: 2.462000000 GHz Ref Offset 19.06 dB Ref 29.06 dBm Channel Power: 17.90 dBm / 20 MHz Power Spectral Density: -55.11 dBm / Hz

11G/LCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 20.00 dBm Center Freq 2.412000000 GHz Trig: Free Run #IF Gain: Low #Attenu: 20 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS 10 dB/div Log Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.77 dBm / 20 MHz Power Spectral Density -57.24 dBm / Hz Frequency Center Freq 2.412000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
11G/MCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 29.02 dBm Center Freq 2.437000000 GHz Trig: Free Run #IF Gain: Low #Attenu: 20 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS 10 dB/div Log Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.24 dBm / 20 MHz Power Spectral Density -57.77 dBm / Hz Frequency Center Freq 2.437000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
11G/HCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 20.00 dBm Center Freq 2.462000000 GHz Trig: Free Run #IF Gain: Low #Attenu: 20 dB Avg/Hold: 10/10 Radio Std: None Radio Device: BTS 10 dB/div Log Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.44 dBm / 20 MHz Power Spectral Density -57.57 dBm / Hz Frequency Center Freq 2.462000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz

11N20SISO/LCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 20.00 dBm Center Freq 2.412000000 GHz Trig: Free Run Avg/Hold: 10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS 10 dB/div Log Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.58 dBm / 20 MHz Power Spectral Density -57.43 dBm /Hz Frequency Center Freq 2.412000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11N20SISO/MCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 29.02 dBm Center Freq 2.437000000 GHz Trig: Free Run Avg/Hold: 10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS 10 dB/div Log Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.04 dBm / 20 MHz Power Spectral Density -57.97 dBm /Hz Frequency Center Freq 2.437000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11N20SISO/HCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 29.06 dBm Center Freq 2.462000000 GHz Trig: Free Run Avg/Hold: 10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS 10 dB/div Log Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 15.34 dBm / 20 MHz Power Spectral Density -57.67 dBm /Hz Frequency Center Freq 2.462000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz

11N40SISO/LCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.422000000 GHz Ref Offset 19.9 dB Ref 20.00 dBm Center 2.422 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1 ms Channel Power 14.71 dBm / 40 MHz Power Spectral Density -61.31 dBm / Hz
11N40SISO/MCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 29.02 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1 ms Channel Power 14.22 dBm / 40 MHz Power Spectral Density -61.80 dBm / Hz
11N40SISO/HCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.452000000 GHz Ref Offset 19.06 dB Ref 20.00 dBm Center 2.452 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1 ms Channel Power 15.71 dBm / 40 MHz Power Spectral Density -60.31 dBm / Hz

Appendix B): 6dB Occupied Bandwidth

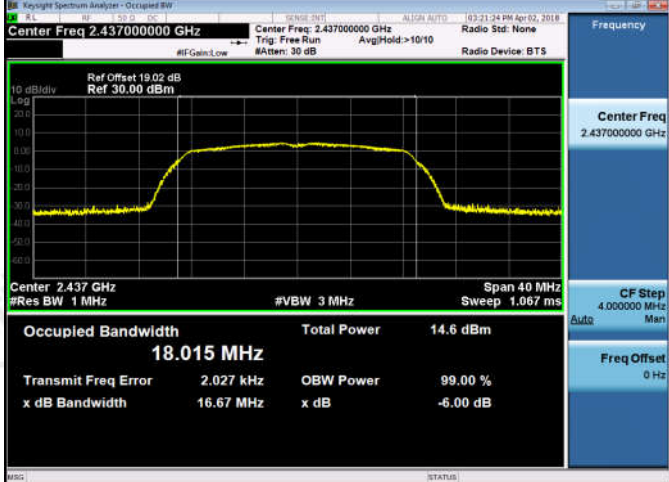
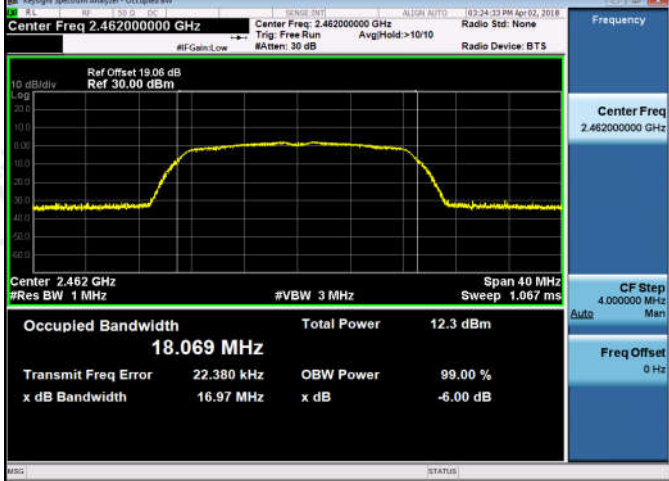
Result Table

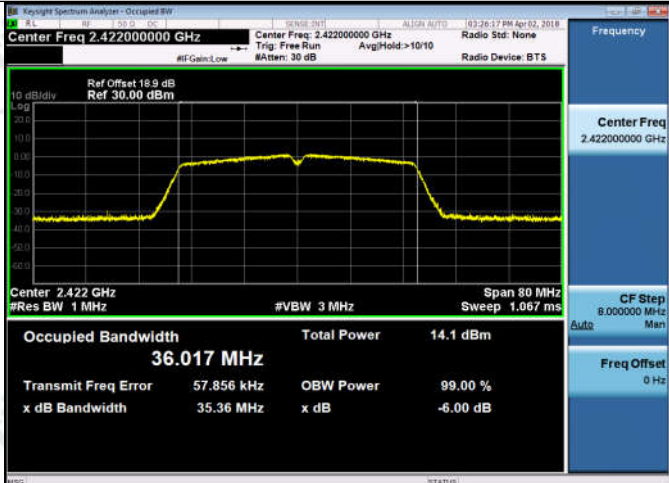
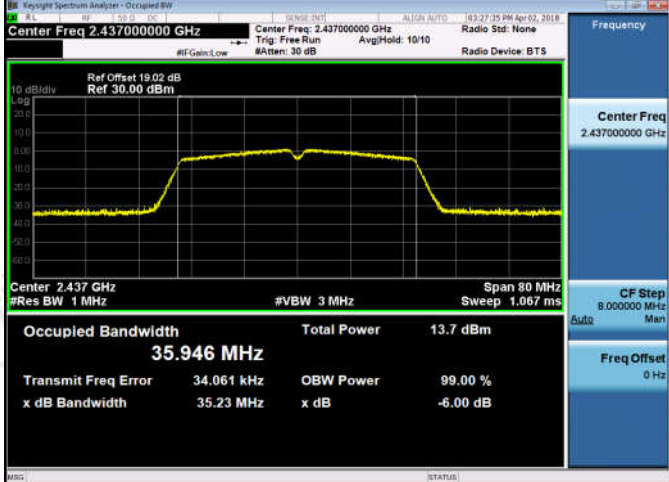
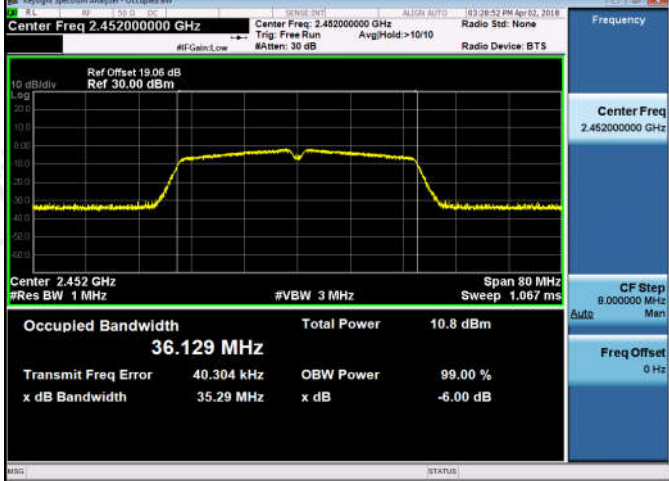
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	9.722	14.641	PASS	Peak detector
11B	MCH	9.681	14.514	PASS	
11B	HCH	9.706	14.598	PASS	
11G	LCH	15.52	17.426	PASS	
11G	MCH	15.67	17.313	PASS	
11G	HCH	15.71	17.367	PASS	
11N20SISO	LCH	16.98	18.079	PASS	
11N20SISO	MCH	16.67	18.015	PASS	
11N20SISO	HCH	16.97	18.069	PASS	
11N40SISO	LCH	35.36	36.017	PASS	
11N40SISO	MCH	35.23	35.946	PASS	
11N40SISO	HCH	35.29	36.129	PASS	

Test Graph

Graphs	
11B/LCH	
11B/MCH	
11B/HCH	



11N20SISO/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 18.079 MHz Total Power 15.3 dBm Transmit Freq Error -8.361 kHz OBW Power 99.00 % x dB Bandwidth 16.98 MHz x dB -6.00 dB
11N20SISO/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 18.015 MHz Total Power 14.6 dBm Transmit Freq Error 2.027 kHz OBW Power 99.00 % x dB Bandwidth 16.67 MHz x dB -6.00 dB
11N20SISO/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 18.069 MHz Total Power 12.3 dBm Transmit Freq Error 22.380 kHz OBW Power 99.00 % x dB Bandwidth 16.97 MHz x dB -6.00 dB

11N40SISO/LCH	 Center Freq 2.422000000 GHz Ref Offset 19.9 dB Ref 30.00 dBm Center 2.422 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.017 MHz Total Power 14.1 dBm Transmit Freq Error 57.856 kHz OBW Power 99.00 % x dB Bandwidth 35.36 MHz x dB -6.00 dB
11N40SISO/MCH	 Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 35.946 MHz Total Power 13.7 dBm Transmit Freq Error 34.061 kHz OBW Power 99.00 % x dB Bandwidth 35.23 MHz x dB -6.00 dB
11N40SISO/HCH	 Center Freq 2.452000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.452 GHz #Res BW 1 MHz #VBW 3 MHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.129 MHz Total Power 10.8 dBm Transmit Freq Error 40.304 kHz OBW Power 99.00 % x dB Bandwidth 35.29 MHz x dB -6.00 dB

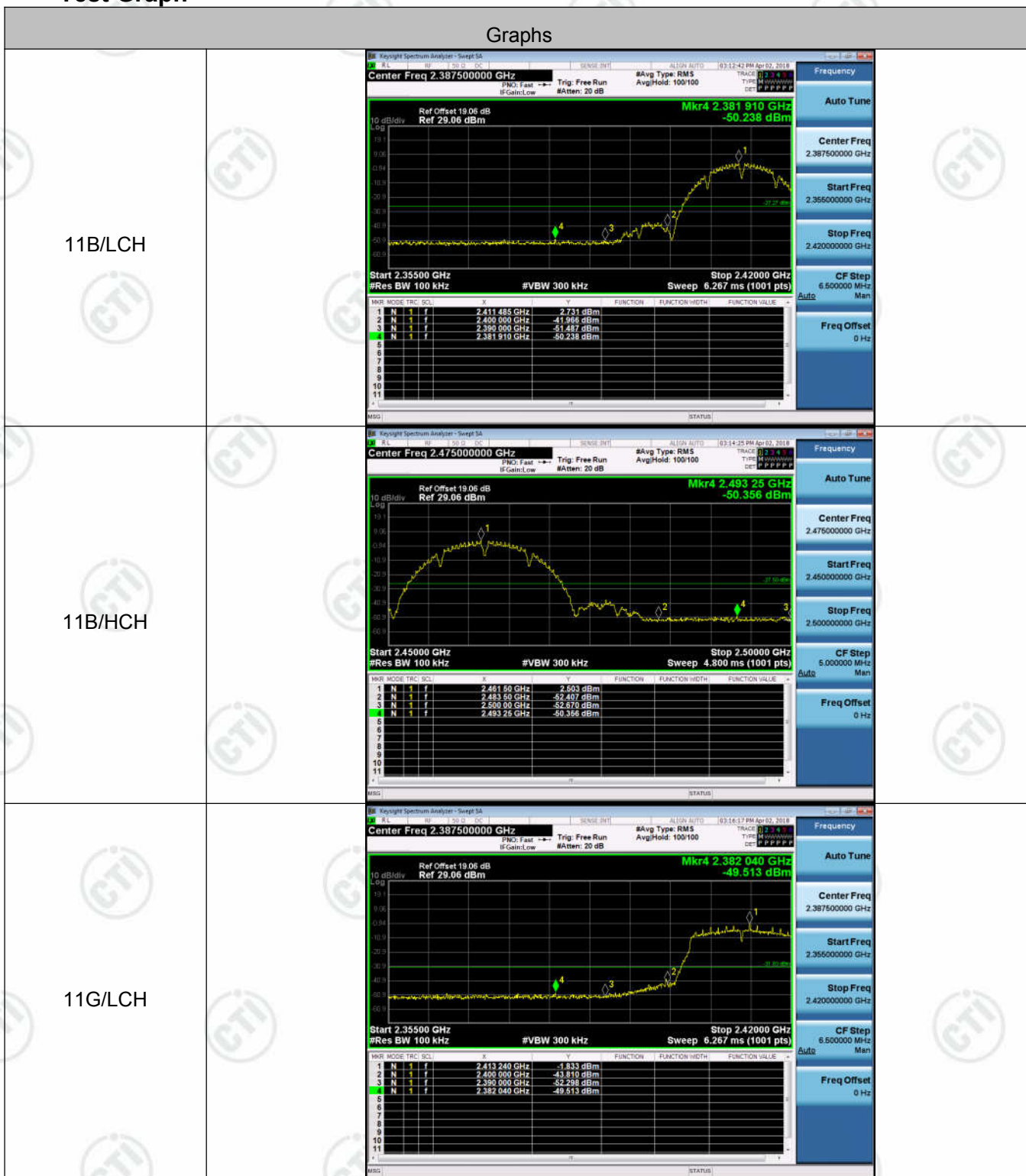
Appendix C): Band-edge for RF Conducted Emissions

Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	2.731	-50.238	-27.27	PASS
11B	HCH	2.503	-50.356	-27.5	PASS
11G	LCH	-1.833	-49.513	-31.83	PASS
11G	HCH	-2.500	-48.725	-32.50	PASS
11N20SISO	LCH	-1.853	-49.857	-31.85	PASS
11N20SISO	HCH	-4.826	-49.636	-34.83	PASS
11N40SISO	LCH	-5.876	-47.671	-35.88	PASS
11N40SISO	HCH	-9.263	-50.399	-39.26	PASS

Test Graph

Graphs





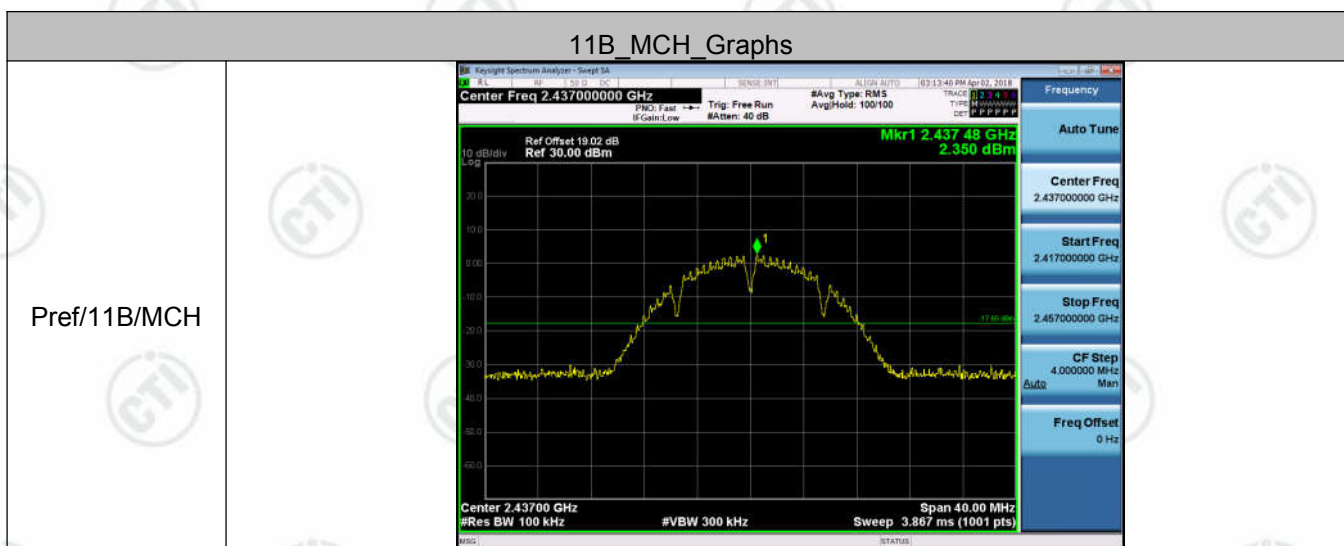


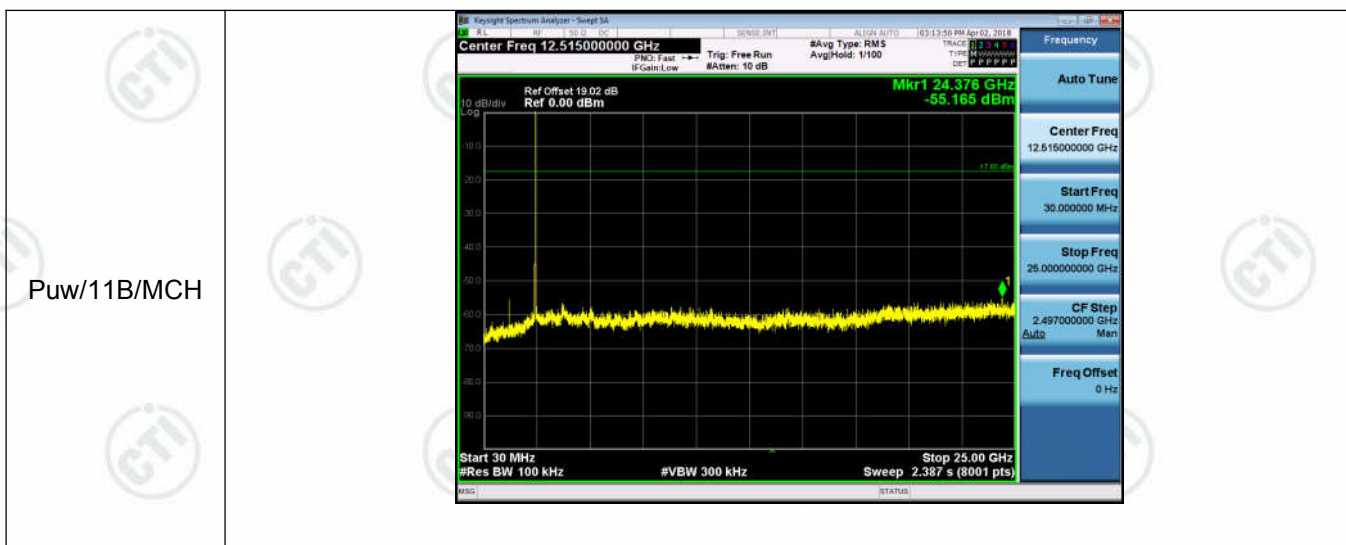
Appendix D): RF Conducted Spurious Emissions

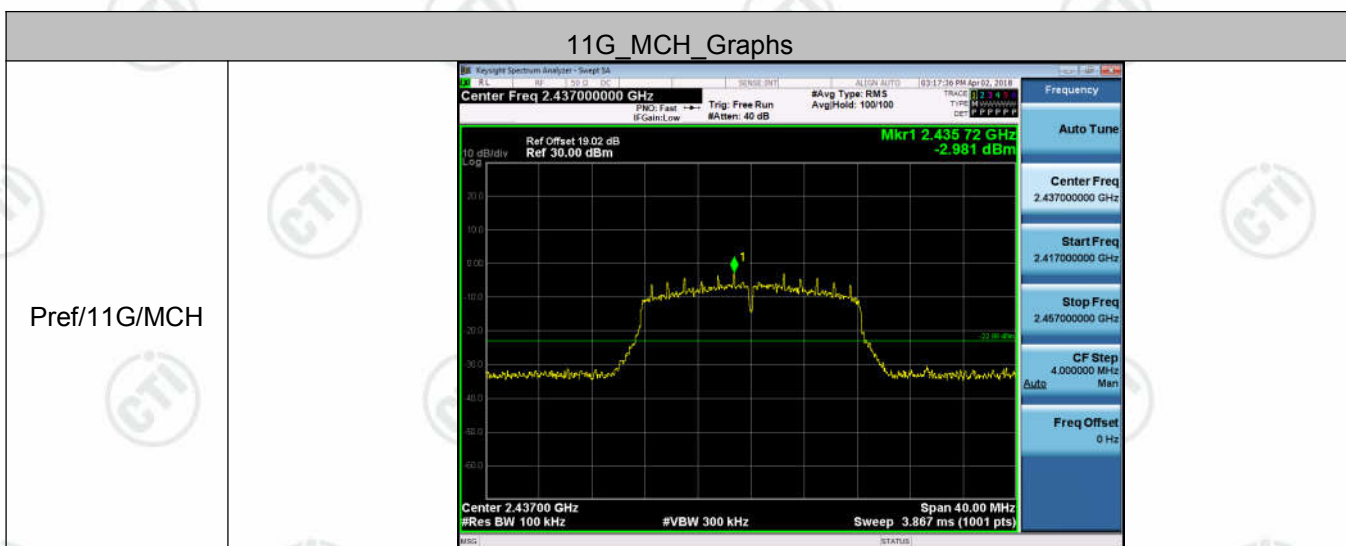
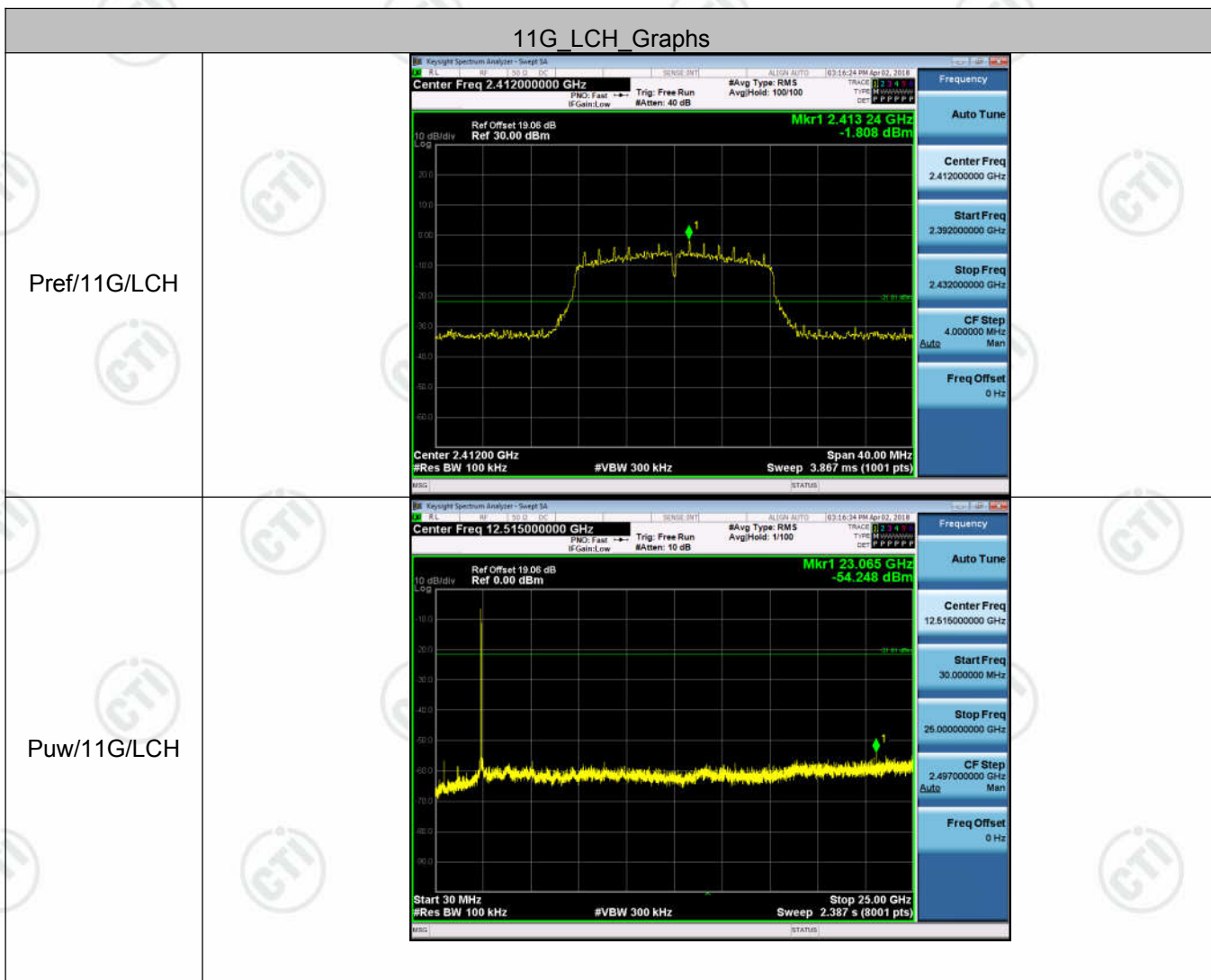
Result Table

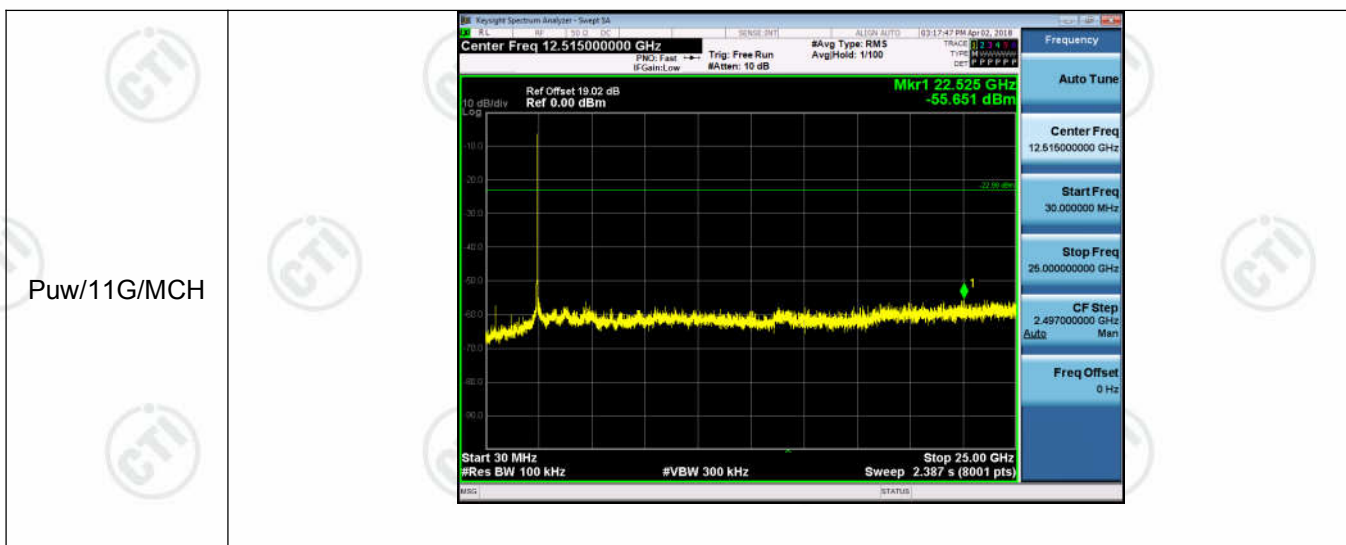
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	2.770	<Limit	PASS
11B	MCH	2.350	<Limit	PASS
11B	HCH	2.527	<Limit	PASS
11G	LCH	-1.808	<Limit	PASS
11G	MCH	-2.981	<Limit	PASS
11G	HCH	-2.605	<Limit	PASS
11N20SISO	LCH	-1.898	<Limit	PASS
11N20SISO	MCH	-3.021	<Limit	PASS
11N20SISO	HCH	-4.976	<Limit	PASS
11N40SISO	LCH	-5.871	<Limit	PASS
11N40SISO	MCH	-6.141	<Limit	PASS
11N40SISO	HCH	-9.14	<Limit	PASS

Test Graph



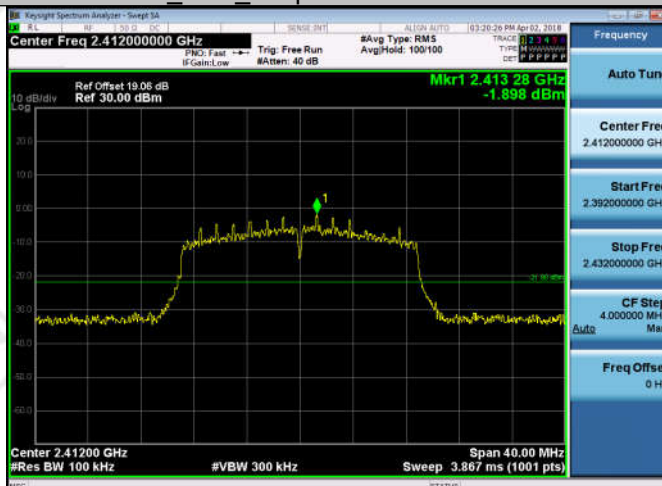




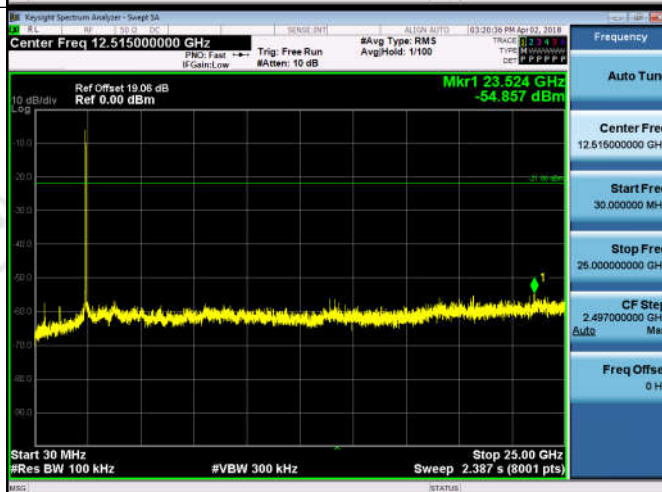


11N20SISO_LCH_Graphs

Pref/11N20SISO/LCH

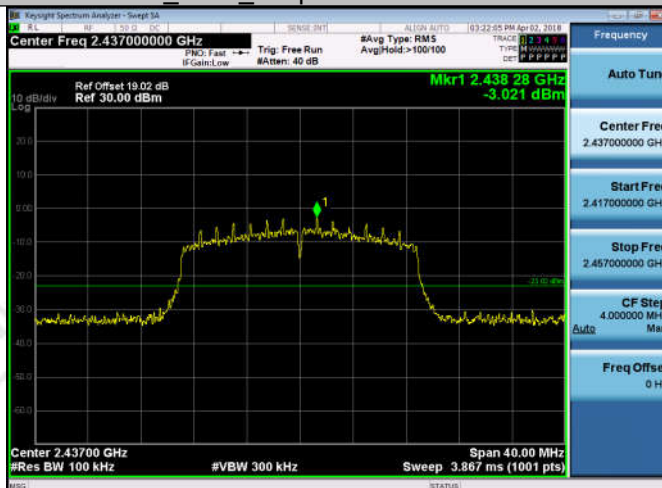


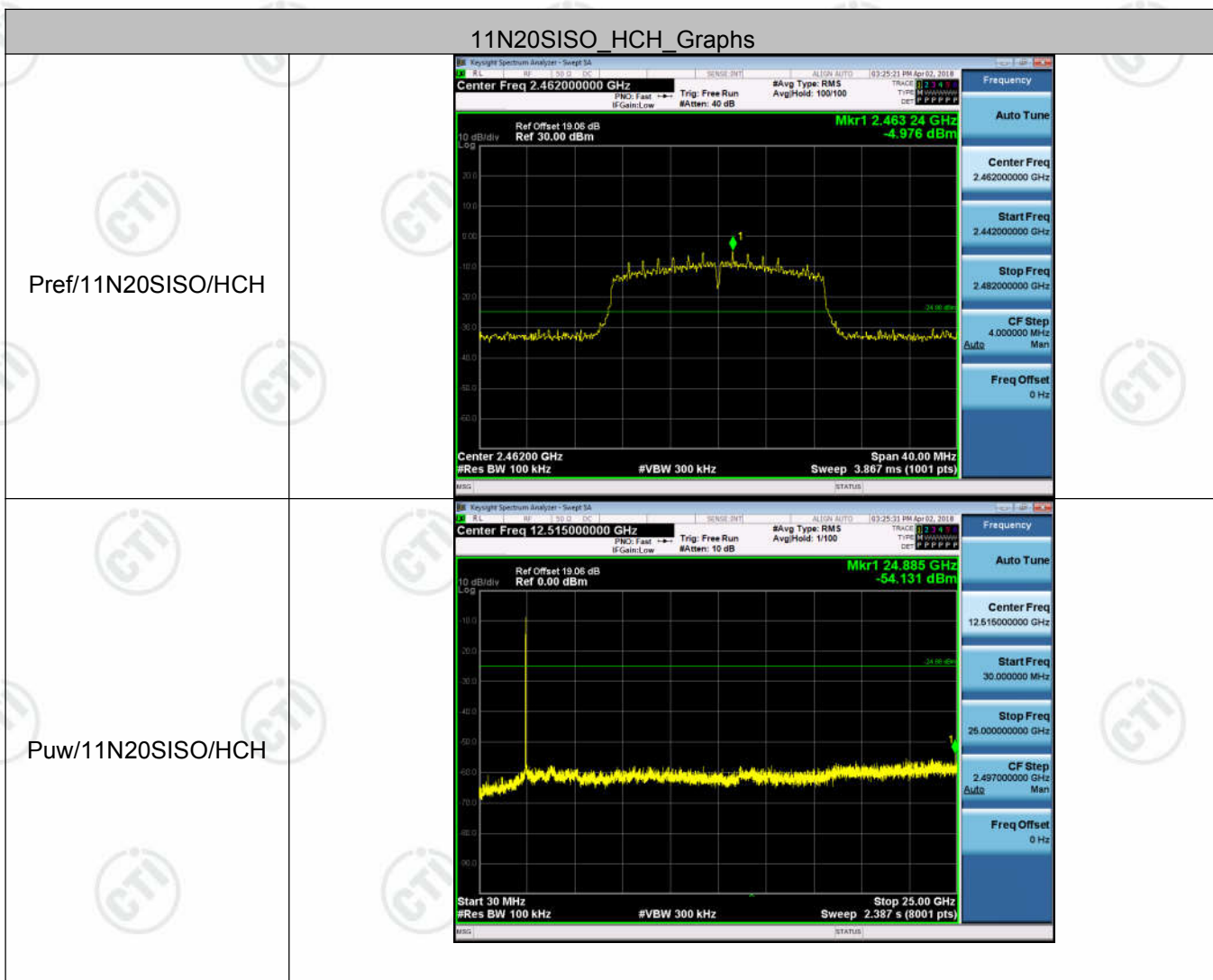
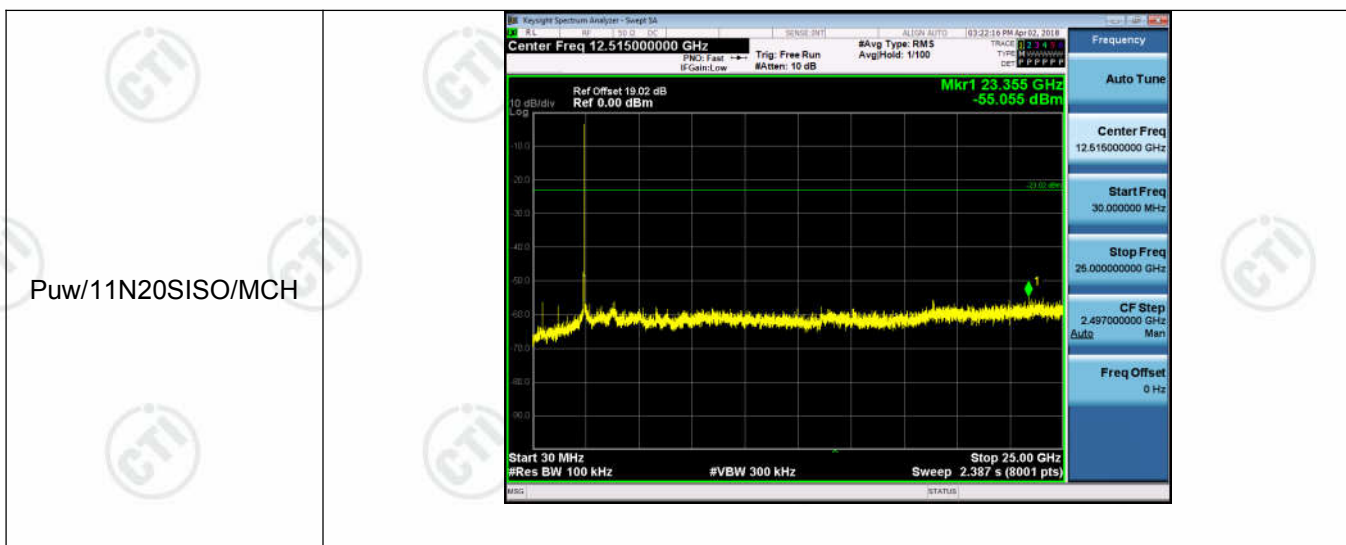
/11N20SISO/LCH



11N20SISO_MCH_Graphs

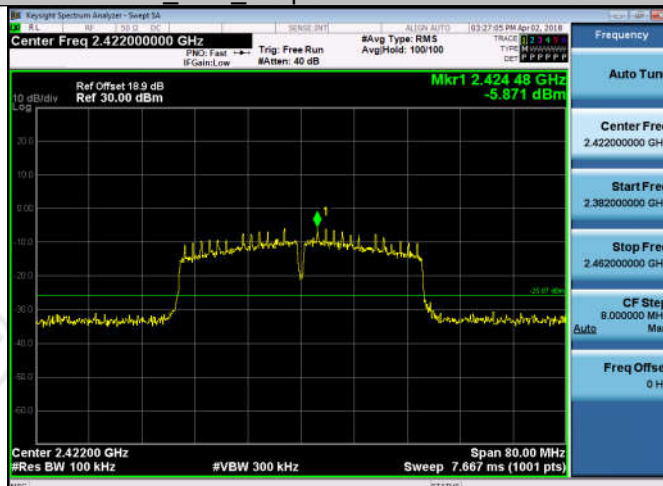
Pref/11N20SISO/MCH



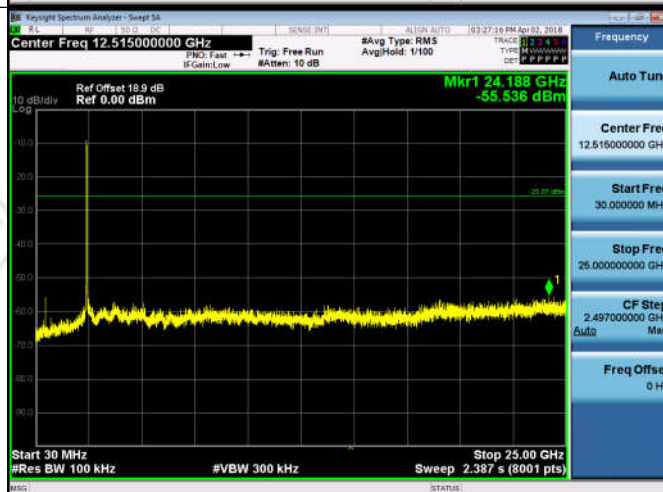


11N40SISO_LCH_Graphs

Pref/11N40SISO/LCH

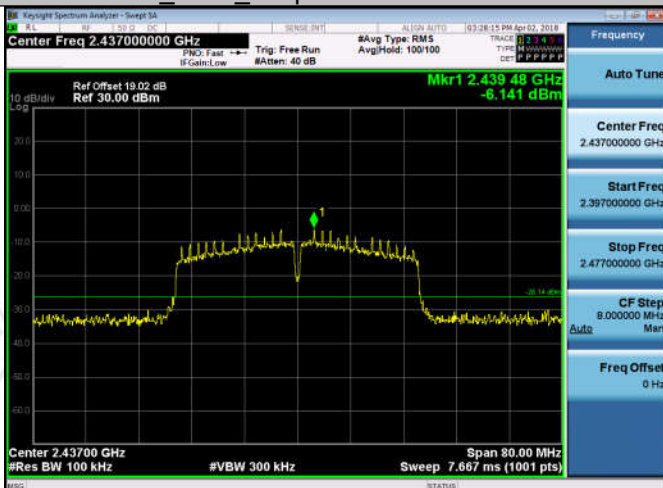


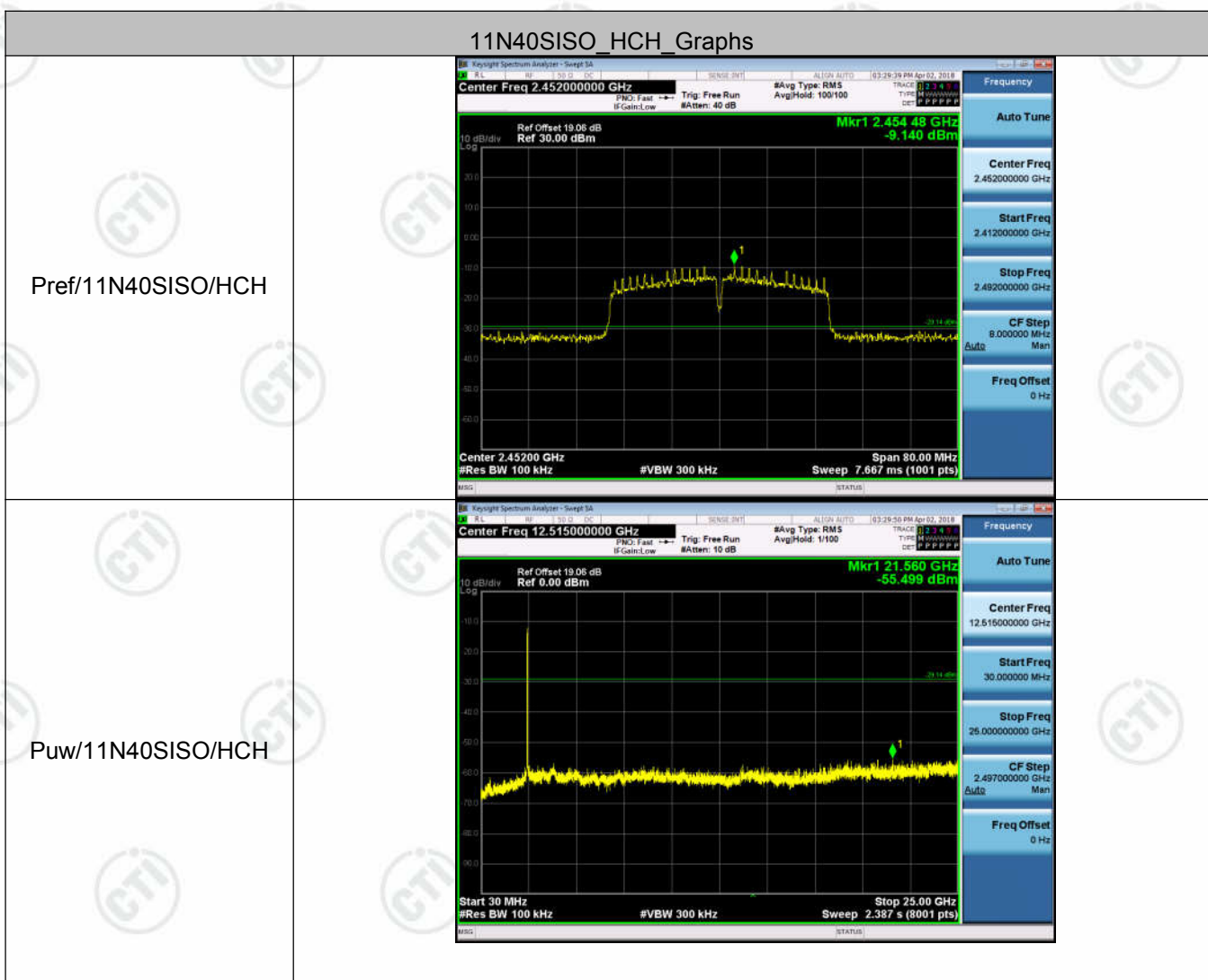
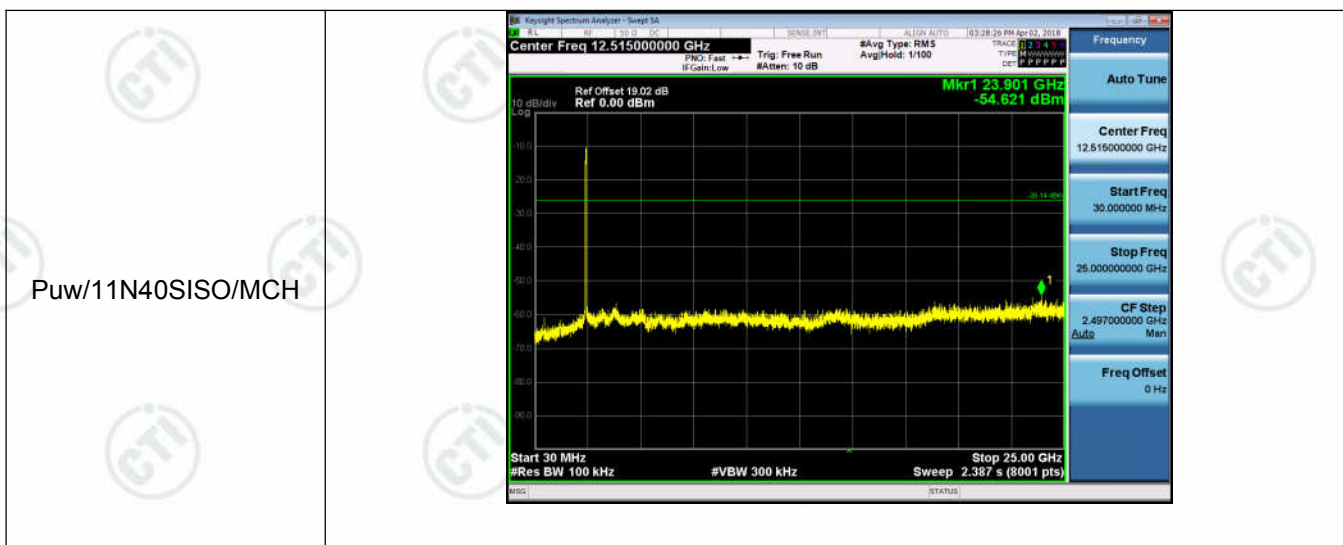
Puw/11N40SISO/LCH



11N40SISO_MCH_Graphs

Pref/11N40SISO/MCH





Appendix E): Power Spectral Density

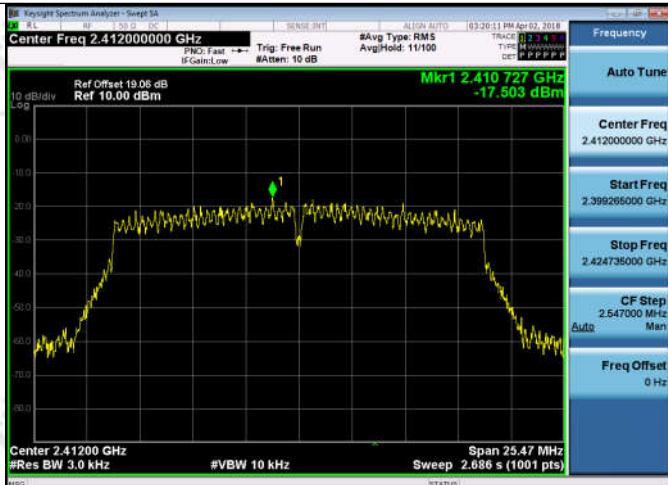
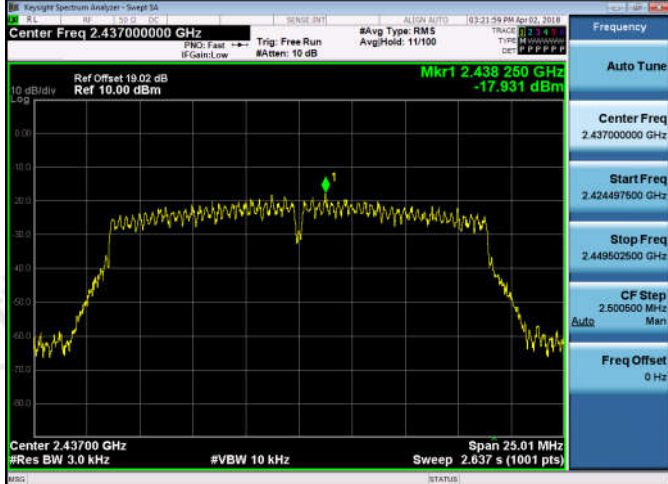
Result Table

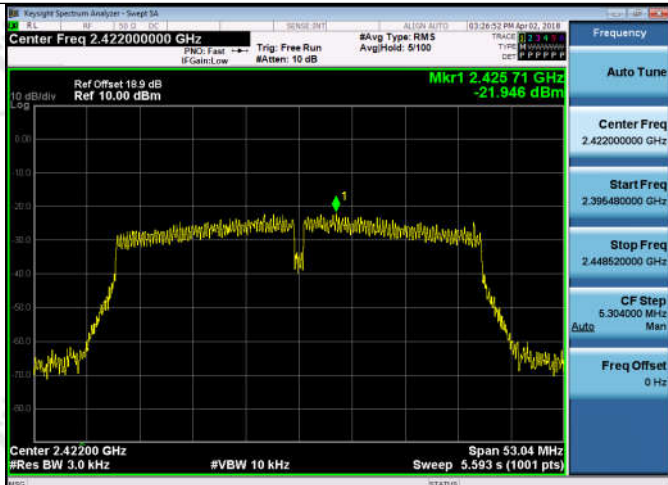
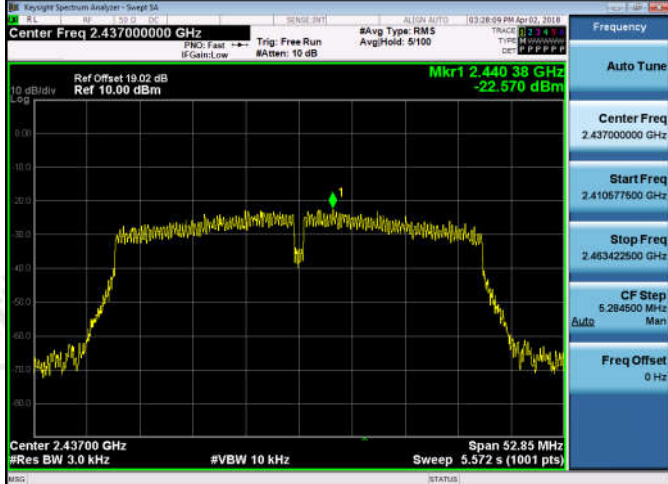
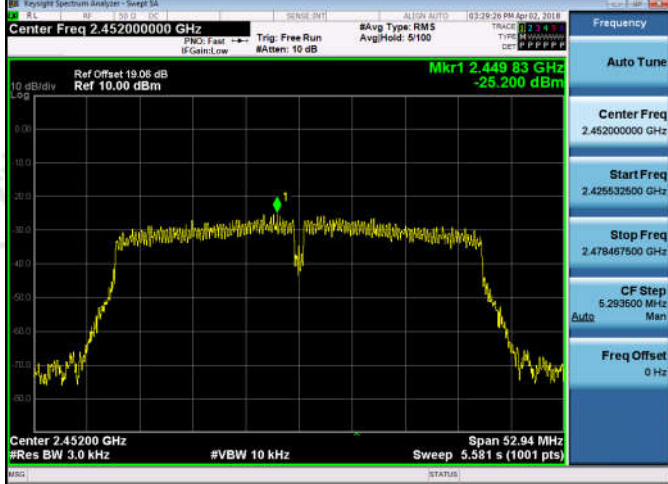
Mode	Channel	Power Spectral Density [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	LCH	-13.034	8	PASS
11B	MCH	-14.040	8	PASS
11B	HCH	-13.080	8	PASS
11G	LCH	-18.543	8	PASS
11G	MCH	-18.435	8	PASS
11G	HCH	-17.786	8	PASS
11N20SISO	LCH	-17.503	8	PASS
11N20SISO	MCH	-17.931	8	PASS
11N20SISO	HCH	-19.764	8	PASS
11N40SISO	LCH	-21.946	8	PASS
11N40SISO	MCH	-22.570	8	PASS
11N40SISO	HCH	-25.200	8	PASS

Test Graph





11N20SISO/LCH	
11N20SISO/MCH	
11N20SISO/HCH	

11N40SISO/LCH	
11N40SISO/MCH	
11N40SISO/HCH	

Appendix F): Antenna Requirement

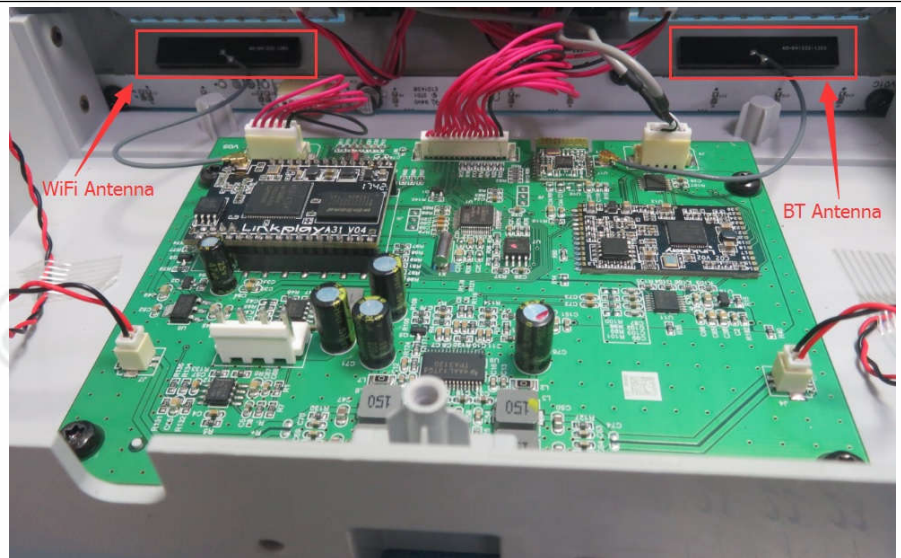
15.203 requirement:

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, 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.

15.247(b) (4) requirement:

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.

EUT Antenna:



The antenna is attached to the inner shell of the EUT and no consideration of replacement. The best case gain of the antenna is 2.5dBi.

Appendix G): AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.															
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr> <tr> <th>Quasi-peak</th><th>Average</th></tr> </thead> <tbody> <tr> <td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr> <tr> <td>0.5-5</td><td>56</td><td>46</td></tr> <tr> <td>5-30</td><td>60</td><td>50</td></tr> </tbody> </table> * The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. NOTE : The lower limit is applicable at the transition frequency		Frequency range (MHz)	Limit (dB μ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dB μ V)															
	Quasi-peak	Average														
0.15-0.5	66 to 56*	56 to 46*														
0.5-5	56	46														
5-30	60	50														

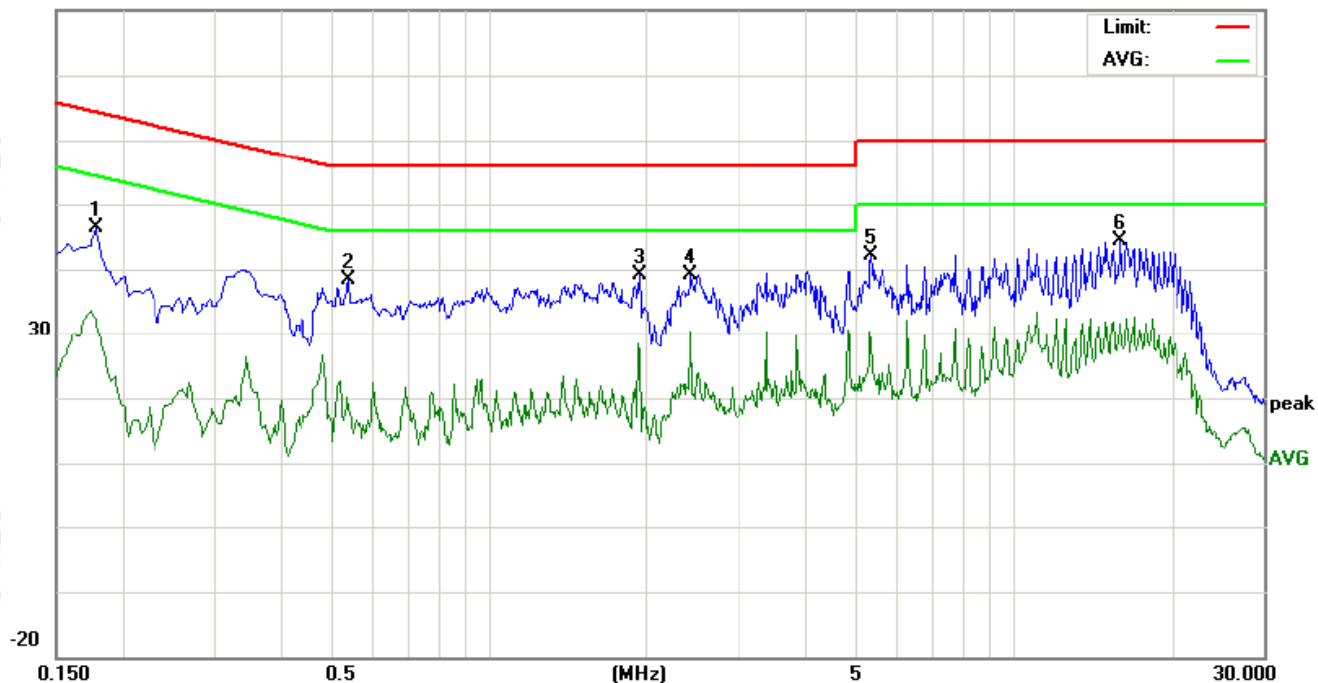
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:

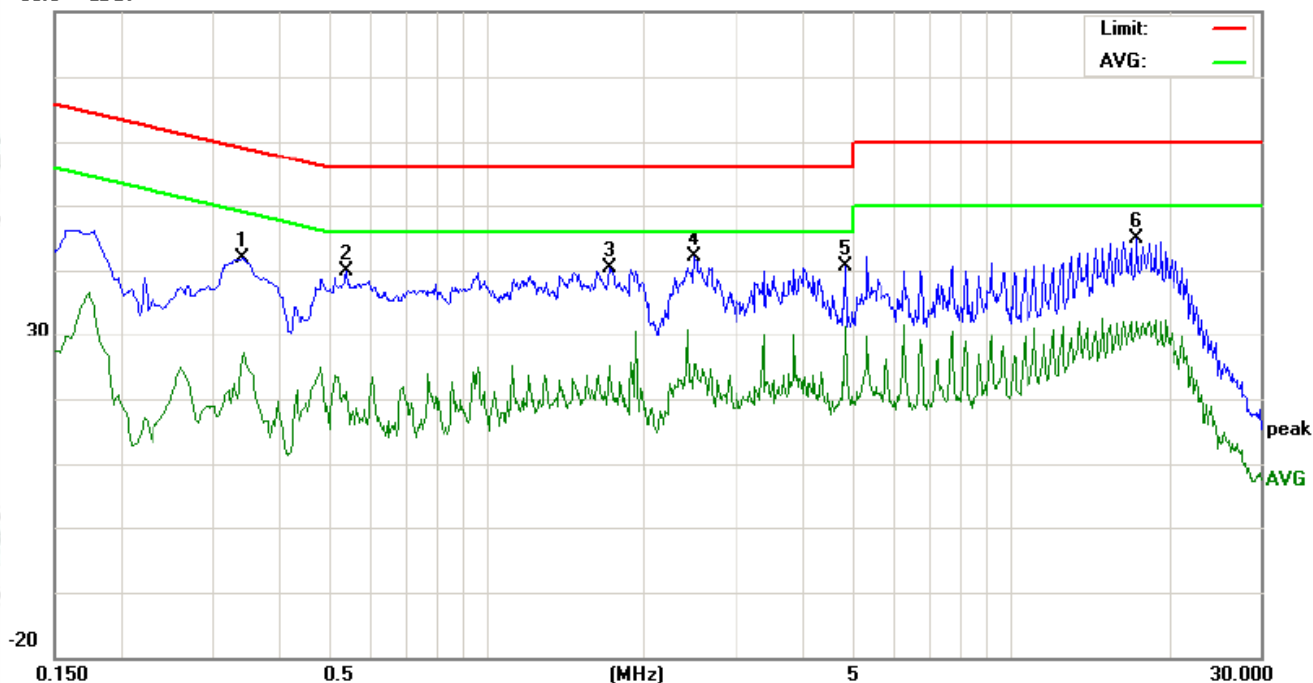
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	36.63	30.18	22.70	9.73	46.36	39.91	32.43	64.57	54.57	-24.66	-22.14	P	
2	0.5420	28.75	23.56	8.94	9.73	38.48	33.29	18.67	56.00	46.00	-22.71	-27.33	P	
3	1.9410	29.34	22.34	13.34	9.72	39.06	32.06	23.06	56.00	46.00	-23.94	-22.94	P	
4	2.4300	29.53	24.39	20.55	9.71	39.24	34.10	30.26	56.00	46.00	-21.90	-15.74	P	
5	5.3340	32.52	27.03	19.34	9.62	42.14	36.65	28.96	60.00	50.00	-23.35	-21.04	P	
6	16.0060	34.34	28.63	21.59	10.02	44.36	38.65	31.61	60.00	50.00	-21.35	-18.39	P	

Neutral line:

80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.3420	32.16	26.14	16.54	9.77	41.93	35.91	26.31	59.15	49.15	-23.24	-22.84	P	
2	0.5420	30.15	24.39	11.27	9.73	39.88	34.12	21.00	56.00	46.00	-21.88	-25.00	P	
3	1.7260	30.68	24.62	13.81	9.72	40.40	34.34	23.53	56.00	46.00	-21.66	-22.47	P	
4	2.4980	32.40	27.62	15.64	9.70	42.10	37.32	25.34	56.00	46.00	-18.68	-20.66	P	
5	4.8420	31.01	25.18	21.85	9.63	40.64	34.81	31.48	56.00	46.00	-21.19	-14.52	P	
6	17.4260	34.88	29.39	22.20	10.03	44.91	39.42	32.23	60.00	50.00	-20.58	-17.77	P	

Notes:

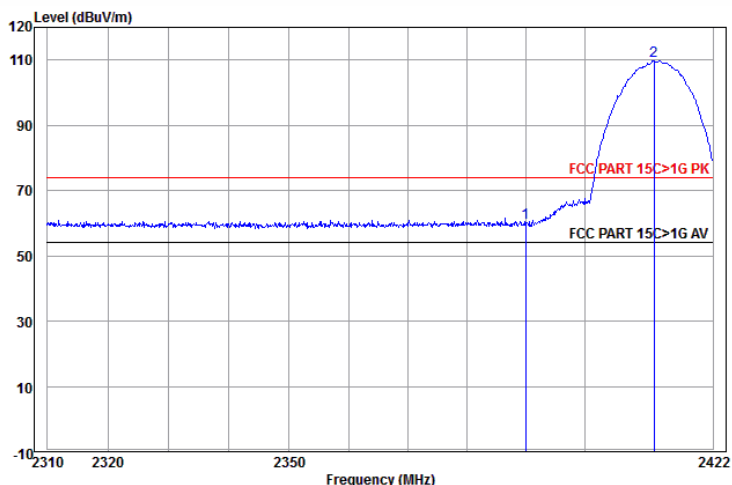
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

Appendix H): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Test Procedure:	Below 1GHz test procedure as below: - The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel Above 1GHz test procedure as below: - Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). - Test the EUT in the lowest channel , the Highest channel - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. - Repeat above procedures until all frequencies measured was complete.				
Limit:	Frequency	Limit (dBμV/m @3m)		Remark	
	30MHz-88MHz	40.0		Quasi-peak Value	
	88MHz-216MHz	43.5		Quasi-peak Value	
	216MHz-960MHz	46.0		Quasi-peak Value	
	960MHz-1GHz	54.0		Quasi-peak Value	
	Above 1GHz	54.0		Average Value	
		74.0		Peak Value	

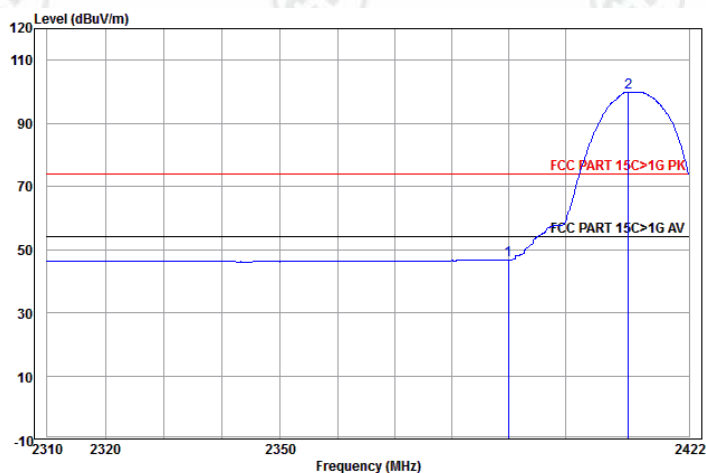
Test plot as follows:

Worse case mode:	802.11b (11Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



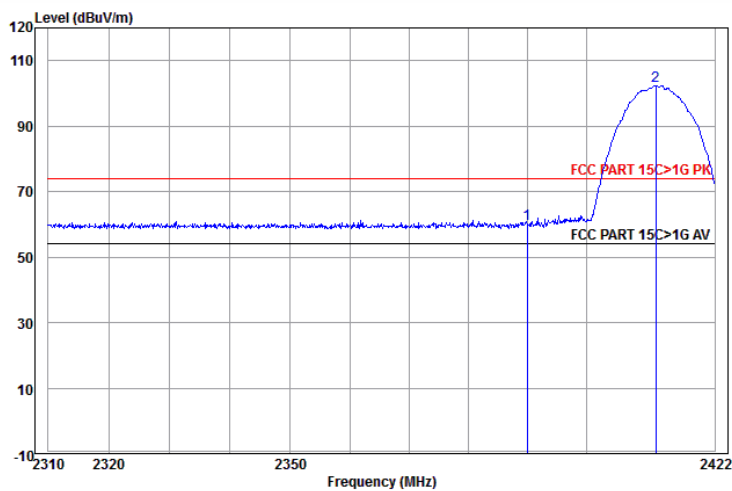
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	24.43	60.03	74.00	-13.97	Horizontal	
2 pp	2411.930	32.58	3.08	74.05	109.71	74.00	35.71	Horizontal	

Worse case mode:	802.11b (11Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Average



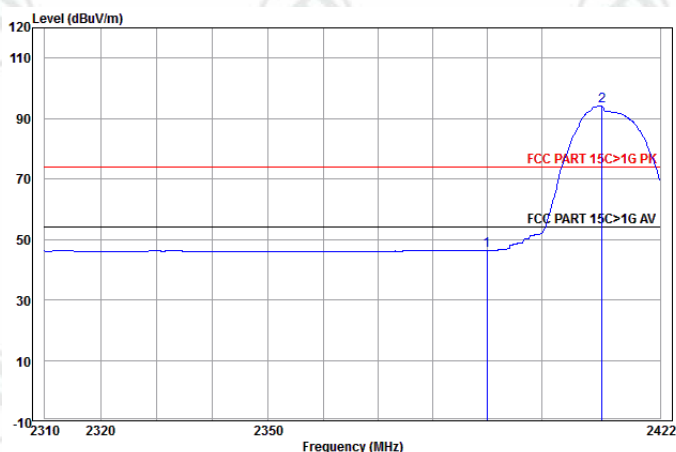
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	11.19	46.79	54.00	-7.21	Horizontal	Average
2 pp	2411.245	32.58	3.08	64.24	99.90	54.00	45.90	Horizontal	Average

Worse case mode:	802.11b (11Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



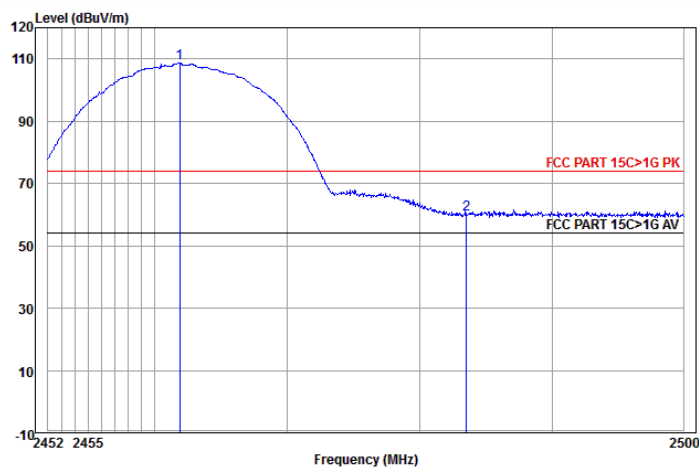
	Ant Freq	Cable Factor	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	32.53	3.07	24.49	60.09	74.00	-13.91 Vertical
2 pp	2411.930	32.58	3.08	66.77	102.43	74.00	28.43 Vertical

Worse case mode:	802.11b (11Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Average



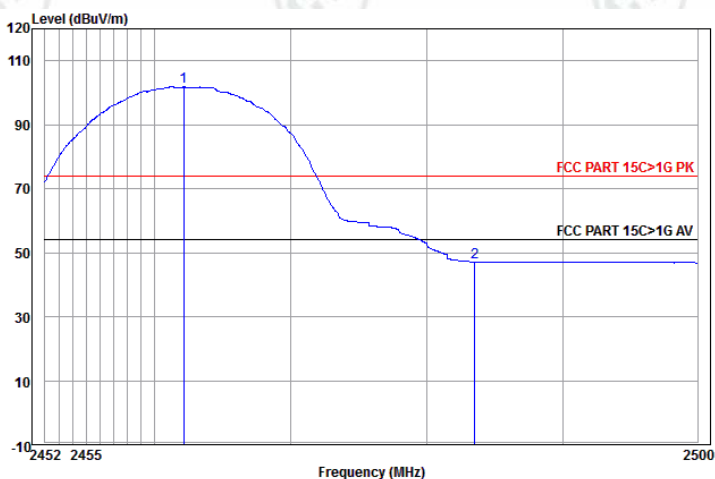
	Ant Freq	Cable Factor	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	32.53	3.07	10.86	46.46	54.00	-7.54 Vertical
2 pp	2411.245	32.58	3.08	58.50	94.16	54.00	40.16 Vertical

Worse case mode:	802.11b (11Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



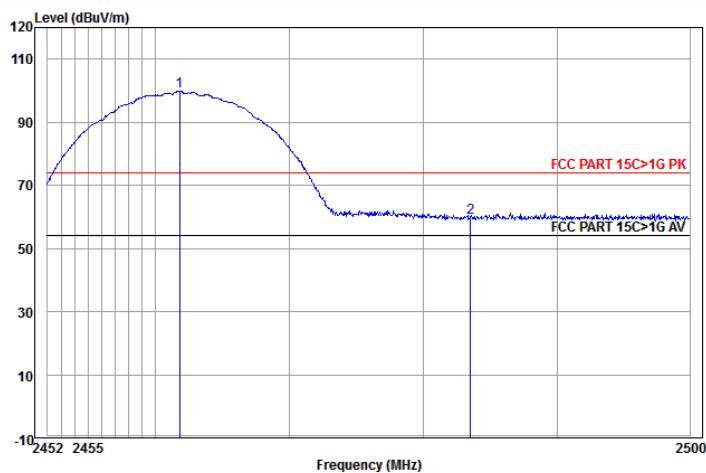
	Ant Freq Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2461.860	32.67	3.11	72.78	108.56	74.00	34.56	Horizontal
2	2483.500	32.71	3.12	24.33	60.16	74.00	-13.84	Horizontal

Worse case mode:	802.11b (11Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Average



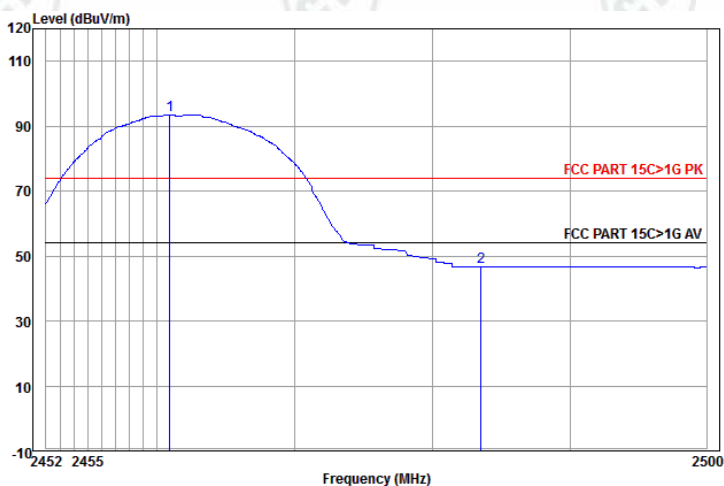
	Ant Freq Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2462.146	32.67	3.11	66.06	101.84	54.00	47.84	Horizontal Average
2	2483.500	32.71	3.12	11.31	47.14	54.00	-6.86	Horizontal Average

Worse case mode:	802.11b (11Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



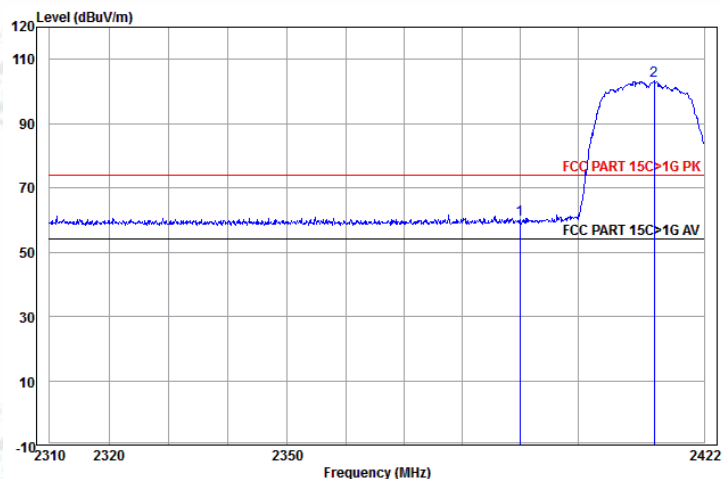
	Ant Freq	Cable Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz		dB	dBuV	dBuV/m	dBuV/m	dB		
1	pp 2461.812	32.67	3.11	64.02	99.80	74.00	25.80	Vertical	
2	2483.500	32.71	3.12	23.84	59.67	74.00	-14.33	Vertical	

Worse case mode:	802.11b (11Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Average



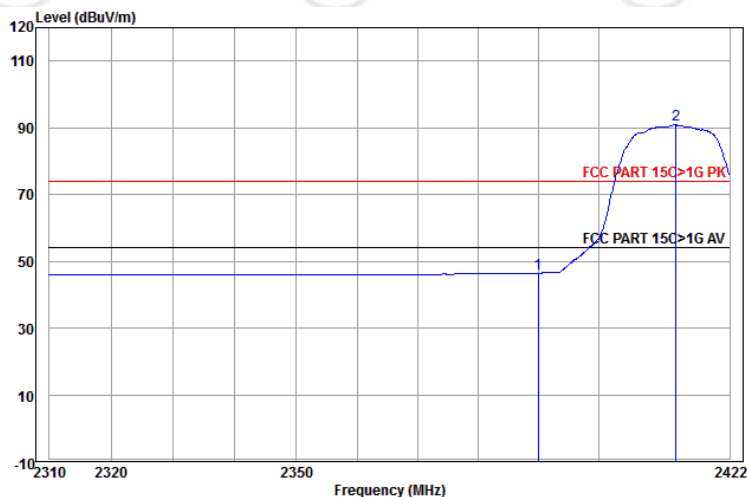
	Ant Freq	Cable Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz		dB	dBuV	dBuV/m	dBuV/m	dB		
1	pp 2460.906	32.67	3.11	57.71	93.49	54.00	39.49	Vertical	Average
2	2483.500	32.71	3.12	10.79	46.62	54.00	-7.38	Vertical	Average

Worse case mode:	802.11g (6Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



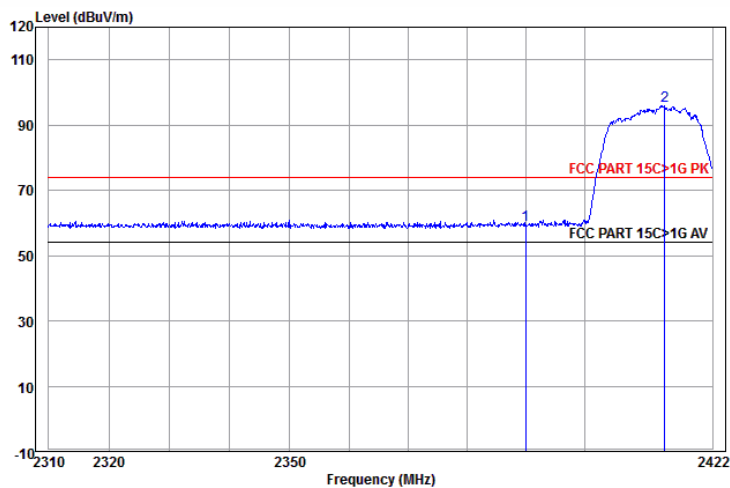
	Freq	Ant	Cable	Read	Level	Limit	Over	Pol/Phase	Remark
	MHz	Factor	Loss	Level	Level	Line	Limit		
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	24.55	60.15	74.00	-13.85	Horizontal	
2 pp	2413.301	32.58	3.08	67.67	103.33	74.00	29.33	Horizontal	

Worse case mode:	802.11g (6Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Average



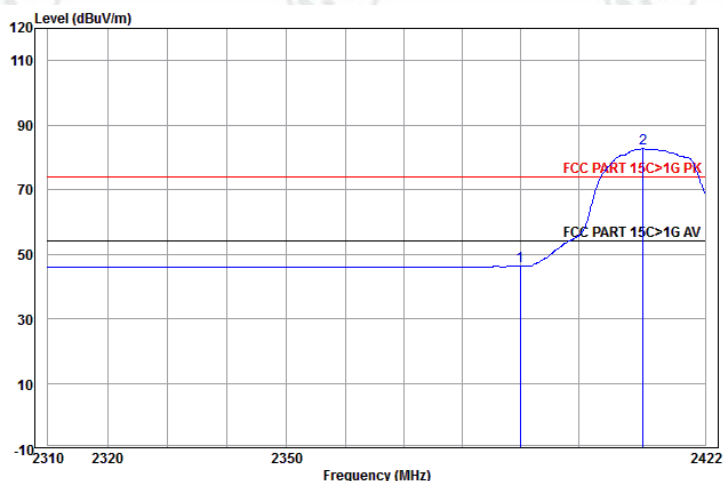
	Freq	Ant	Cable	Read	Level	Limit	Over	Pol/Phase	Remark
	MHz	Factor	Loss	Level	Level	Line	Limit		
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	10.85	46.45	54.00	-7.55	Horizontal	Average
2 pp	2412.958	32.58	3.08	55.24	90.90	54.00	36.90	Horizontal	Average

Worse case mode:	802.11g (6Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



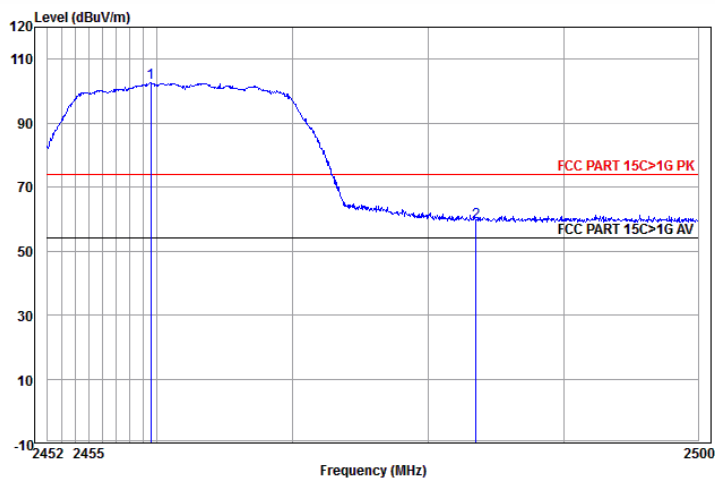
	Ant Freq	Cable Factor	Read Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	23.92	59.52	74.00	-14.48	Vertical	
2 pp	2413.758	32.58	3.08	60.38	96.04	74.00	22.04	Vertical	

Worse case mode:	802.11g (6Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Average



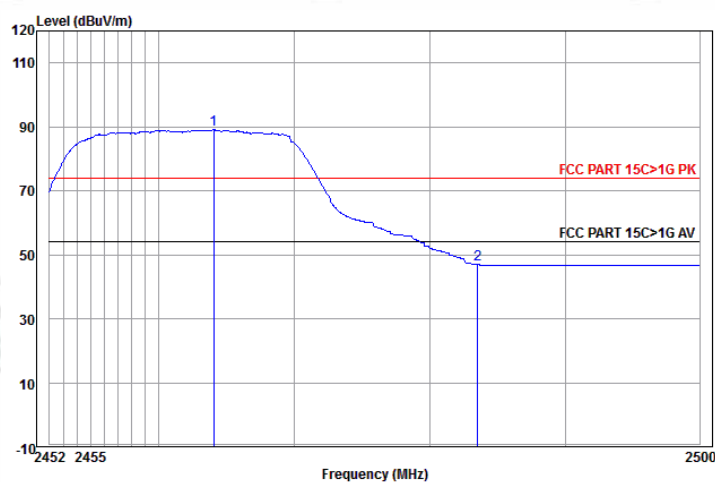
	Ant Freq	Cable Factor	Read Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	10.68	46.28	54.00	-7.72	Vertical	Average
2 pp	2411.245	32.58	3.08	47.10	82.76	54.00	28.76	Vertical	Average

Worse case mode:	802.11g (6Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



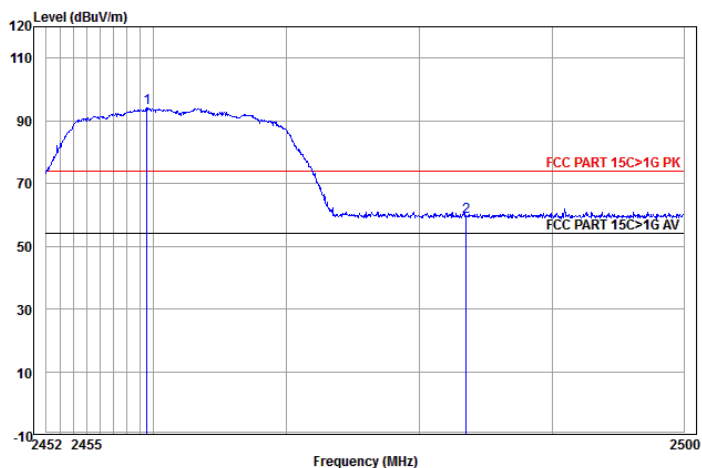
	Ant Freq	Cable Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2459.570	32.67	3.11	66.77	102.55	74.00	28.55	Horizontal
2	2483.500	32.71	3.12	23.27	59.10	74.00	-14.90	Horizontal

Worse case mode:	802.11g (6Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Average



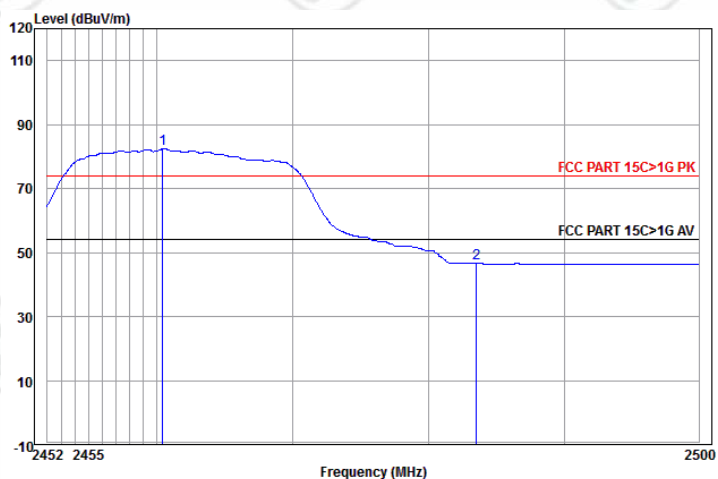
	Ant Freq	Cable Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2464.056	32.68	3.11	53.33	89.12	54.00	35.12	Horizontal Average
2	2483.500	32.71	3.12	11.03	46.86	54.00	-7.14	Horizontal Average

Worse case mode:	802.11g (6Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



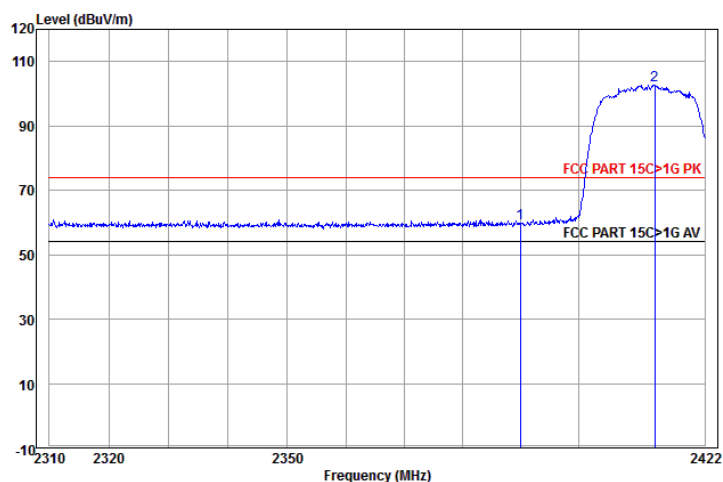
		Ant	Cable	Read	Limit	Over		
	Freq	Factor	Loss	Level	Line	Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2459.522	32.67	3.11	58.22	94.00	74.00	20.00	Vertical
2	2483.500	32.71	3.12	23.49	59.32	74.00	-14.68	Vertical

Worse case mode:	802.11g (6Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Average



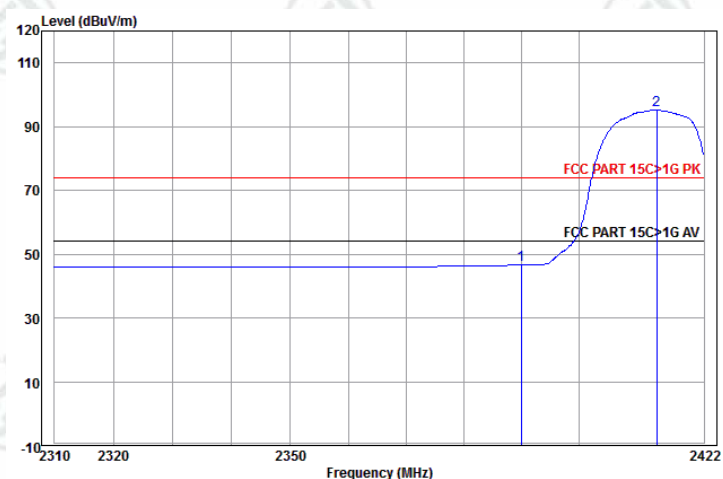
		Ant	Cable	Read	Limit	Over		
	Freq	Factor	Loss	Level	Line	Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2460.428	32.67	3.11	46.67	82.45	54.00	28.45	Vertical Average
2	2483.500	32.71	3.12	10.69	46.52	54.00	-7.48	Vertical Average

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



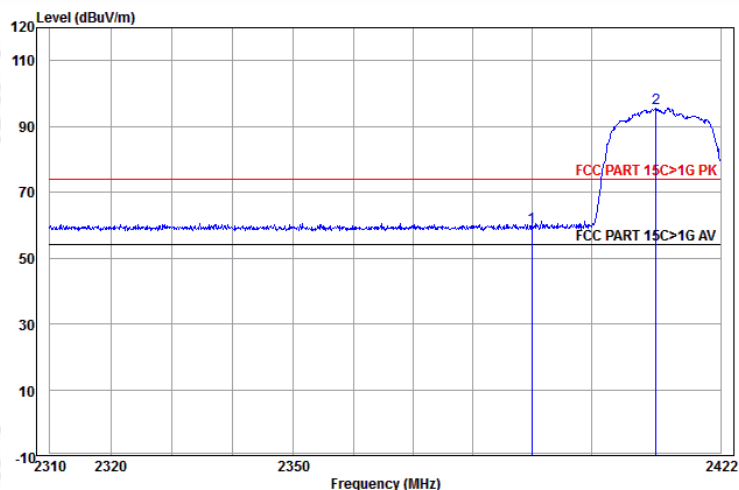
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz		dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000		32.53	3.07	24.02	59.62	74.00	-14.38	Horizontal
2 pp	2413.301		32.58	3.08	67.11	102.77	74.00	28.77	Horizontal

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Average



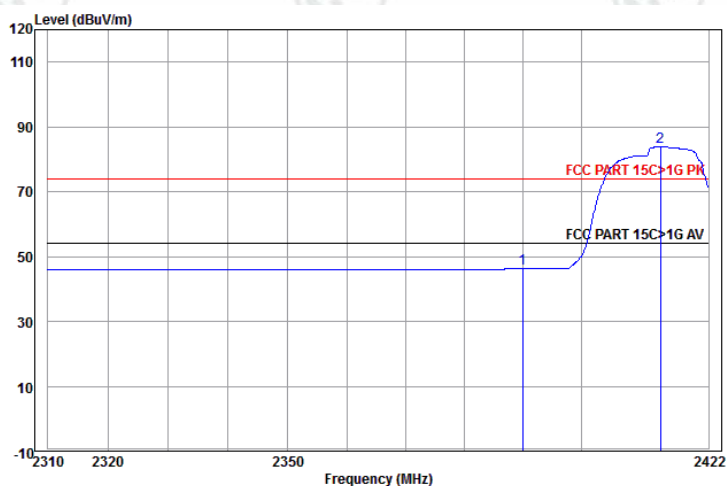
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz		dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000		32.53	3.07	10.98	46.58	54.00	-7.42	Horizontal Average
2 pp	2413.643		32.58	3.08	59.53	95.19	54.00	41.19	Horizontal Average

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



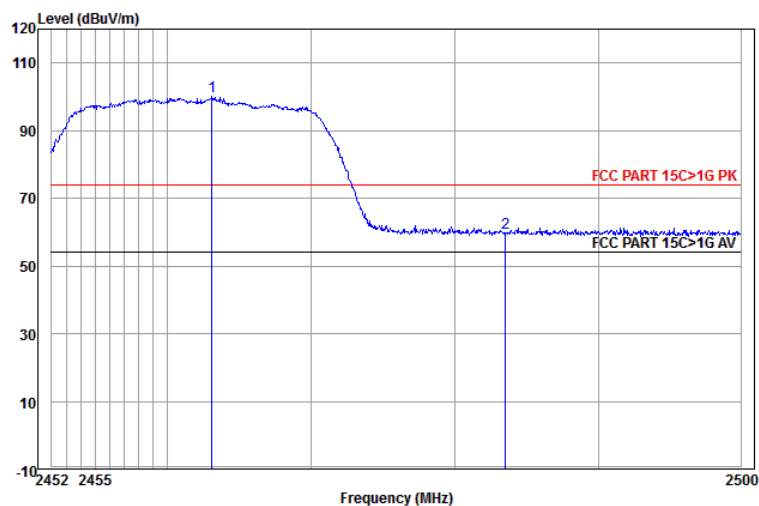
	Ant Freq	Cable Factor	Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	23.93	59.53	74.00	-14.47	Vertical	
2 pp	2411.016	32.58	3.08	59.93	95.59	74.00	21.59	Vertical	

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2412MHz	Test channel: Lowest	Polarization: Vertical	Remark: Average



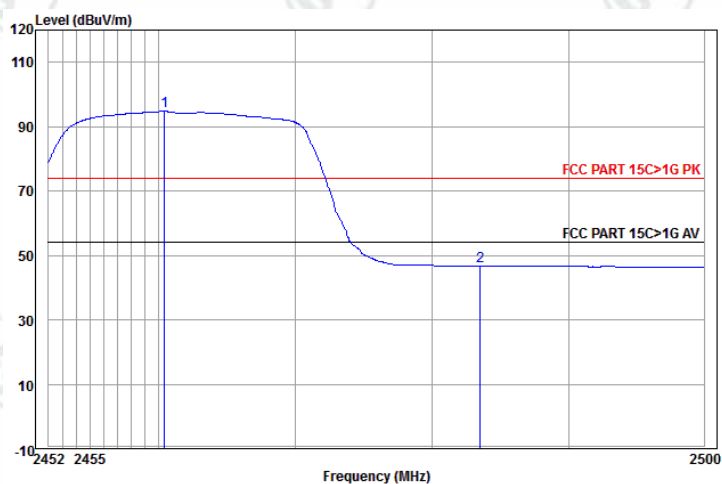
	Ant Freq	Cable Factor	Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	10.66	46.26	54.00	-7.74	Vertical	Average
2 pp	2413.643	32.58	3.08	48.18	83.84	54.00	29.84	Vertical	Average

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



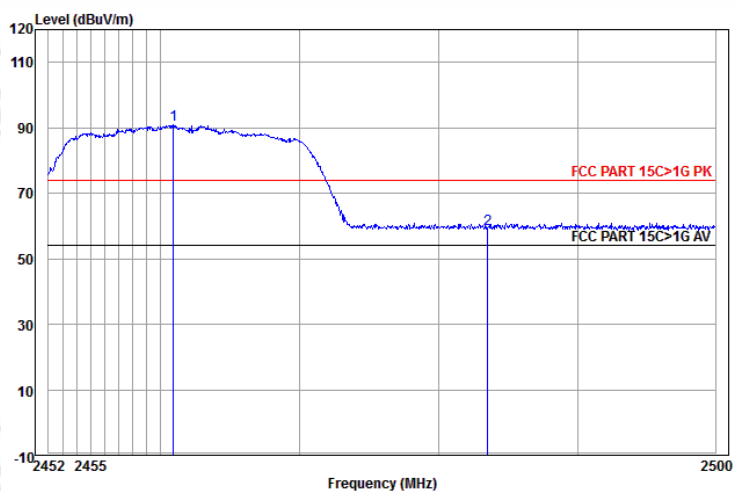
	Ant Freq	Cable Factor	Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2463.101	32.68	3.11	64.39	100.18	74.00	26.18	Horizontal	
2	2483.500	32.71	3.12	24.05	59.88	74.00	-14.12	Horizontal	

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Horizontal	Remark: Average



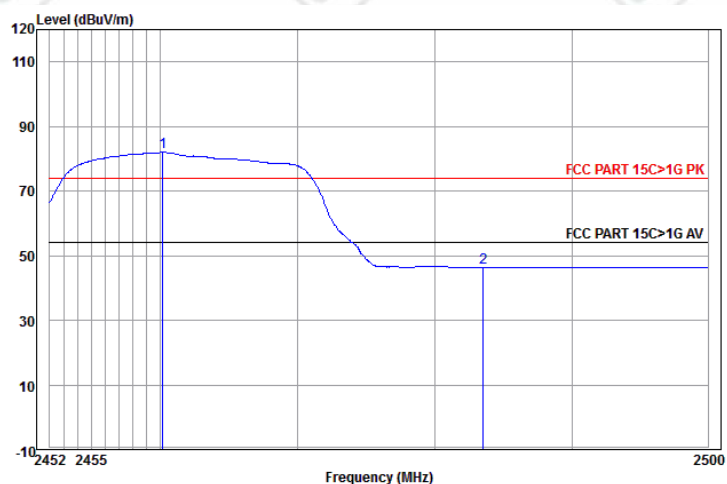
	Ant Freq	Cable Factor	Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2460.428	32.67	3.11	59.00	94.78	54.00	40.78	Horizontal	Average
2	2483.500	32.71	3.12	10.83	46.66	54.00	-7.34	Horizontal	Average

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



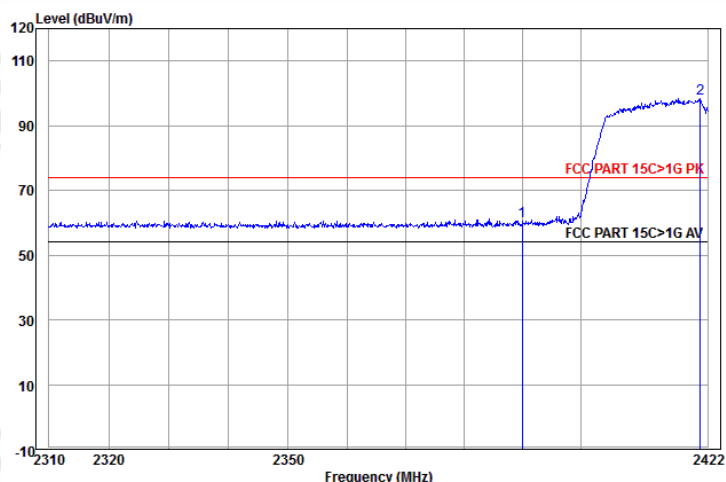
	Ant Freq	Cable Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2460.906	32.67	3.11	55.09	90.87	74.00	16.87	Vertical	
2	2483.500	32.71	3.12	23.31	59.14	74.00	-14.86	Vertical	

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2462MHz	Test channel: Highest	Polarization: Vertical	Remark: Average



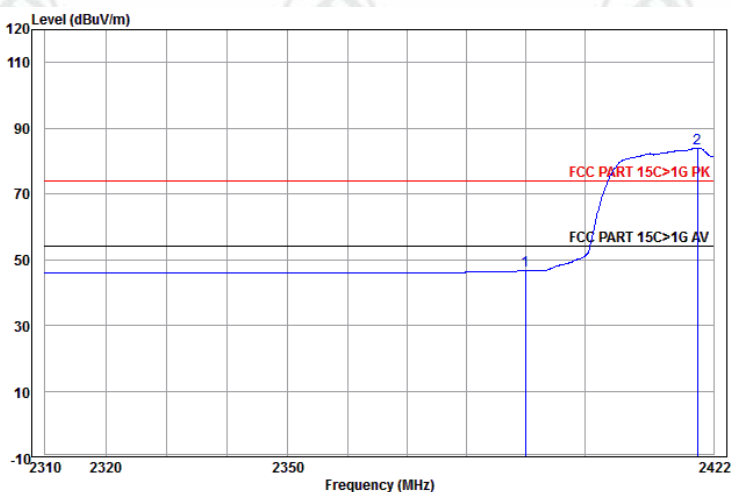
	Ant Freq	Cable Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	2460.190	32.67	3.11	46.17	81.95	54.00	27.95	Vertical	Average
2	2483.500	32.71	3.12	10.65	46.48	54.00	-7.52	Vertical	Average

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2422MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



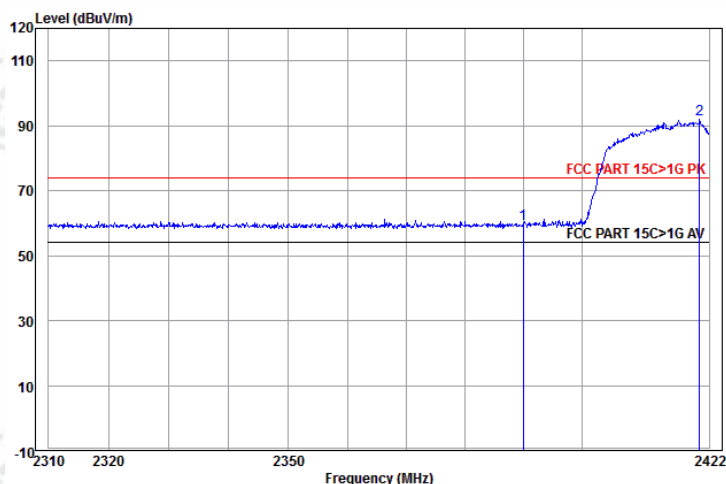
	Ant Freq	Cable Factor	Read Loss	Level	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	24.82	60.42	74.00	-13.58	Horizontal	
2 pp	2420.739	32.59	3.08	62.67	98.34	74.00	24.34	Horizontal	

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2422MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Average



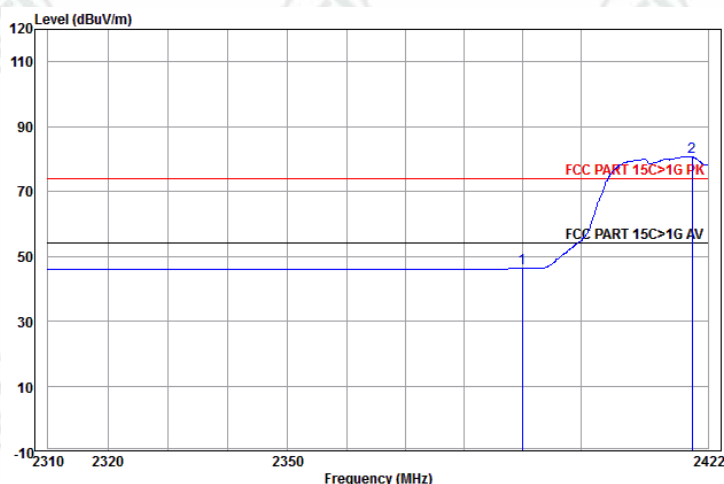
	Ant Freq	Cable Factor	Read Loss	Level	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	10.98	46.58	54.00	-7.42	Horizontal	Average
2 pp	2419.250	32.59	3.08	48.31	83.98	54.00	29.98	Horizontal	Average

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2422MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



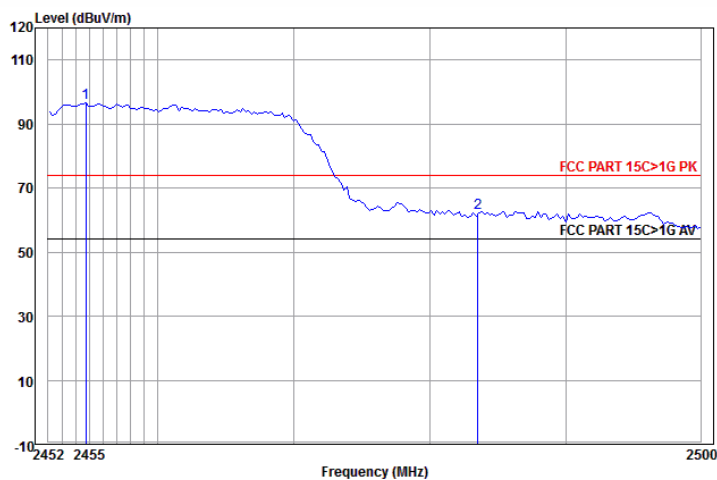
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	24.16	59.76	74.00	-14.24	Vertical	
2 pp	2420.395	32.59	3.08	56.44	92.11	74.00	18.11	Vertical	

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2422MHz	Test channel: Lowest	Polarization: Vertical	Remark: Average



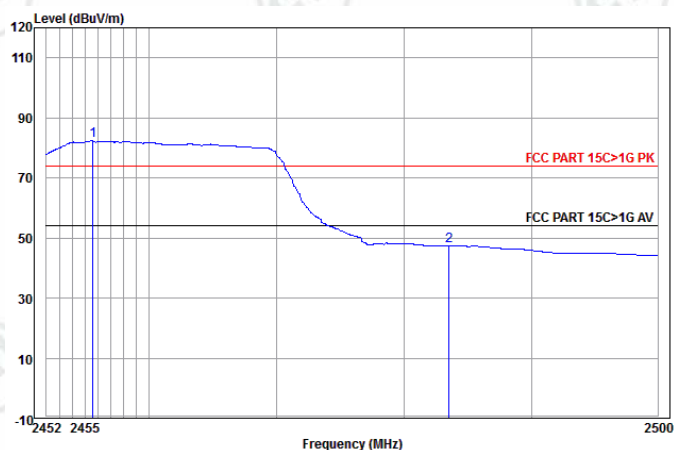
	Ant Freq	Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2390.000	32.53	3.07	10.66	46.26	54.00	-7.74	Vertical	Average
2 pp	2419.250	32.59	3.08	45.06	80.73	54.00	26.73	Vertical	Average

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2452MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



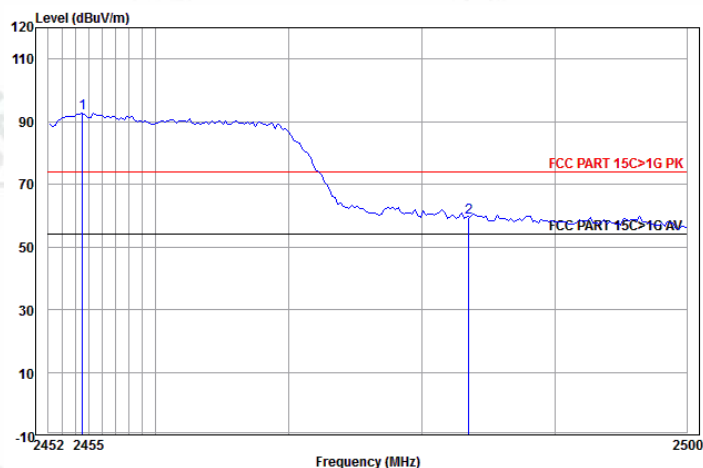
	Ant Freq	Cable Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2454.763	32.66	3.10	60.71	96.47	74.00	22.47	Horizontal
2	2483.500	32.71	3.12	26.44	62.27	74.00	-11.73	Horizontal

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2452MHz	Test channel: Highest	Polarization: Horizontal	Remark: Average



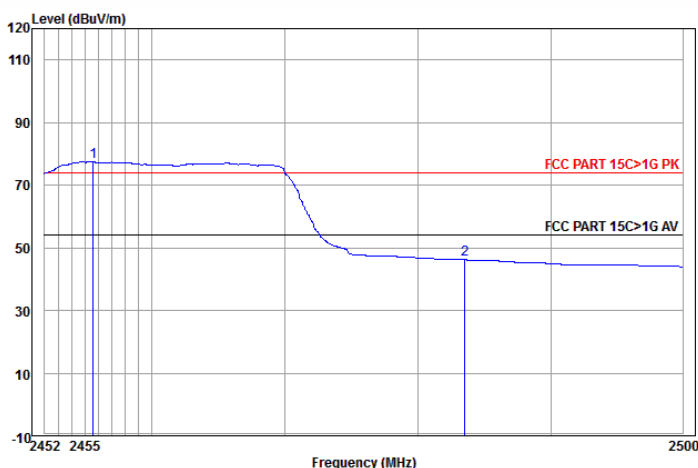
	Ant Freq	Cable Factor	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2455.615	32.66	3.10	46.57	82.33	54.00	28.33	Horizontal Average
2	2483.500	32.71	3.12	11.56	47.39	54.00	-6.61	Horizontal Average

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2452MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



	Ant Freq	Cable Factor	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2454.558	32.66	3.10	57.06	92.82	74.00	18.82 Vertical
2	2483.500	32.71	3.12	23.52	59.35	74.00	-14.65 Vertical

Worse case mode:	802.11n(HT40) (6.5Mbps)		
Frequency: 2452MHz	Test channel: Highest	Polarization: Vertical	Remark:Average



	Ant Freq	Cable Factor	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2455.615	32.66	3.10	41.81	77.57	54.00	23.57 Vertical Average
2	2483.500	32.71	3.12	10.35	46.18	54.00	-7.82 Vertical Average

Note:1) Through Pre-scan transmitting mode and charge+transmitter mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) ; 13.5Mbps of rate is the worst case of 802.11n(HT40),and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor- Antenna Factor-Cable Factor

Appendix I): Radiated Spurious Emissions

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter)..

h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

j. Repeat above procedures until all frequencies measured was complete.

Limit:

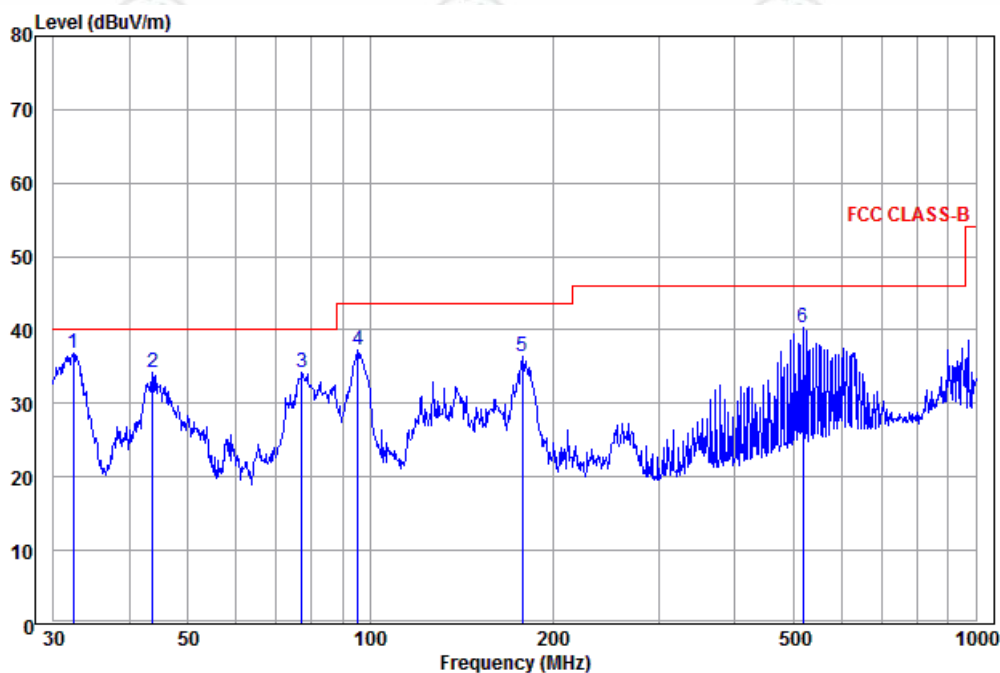
Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Radiated Spurious Emissions test Data: **Radiated Emission below 1GHz**

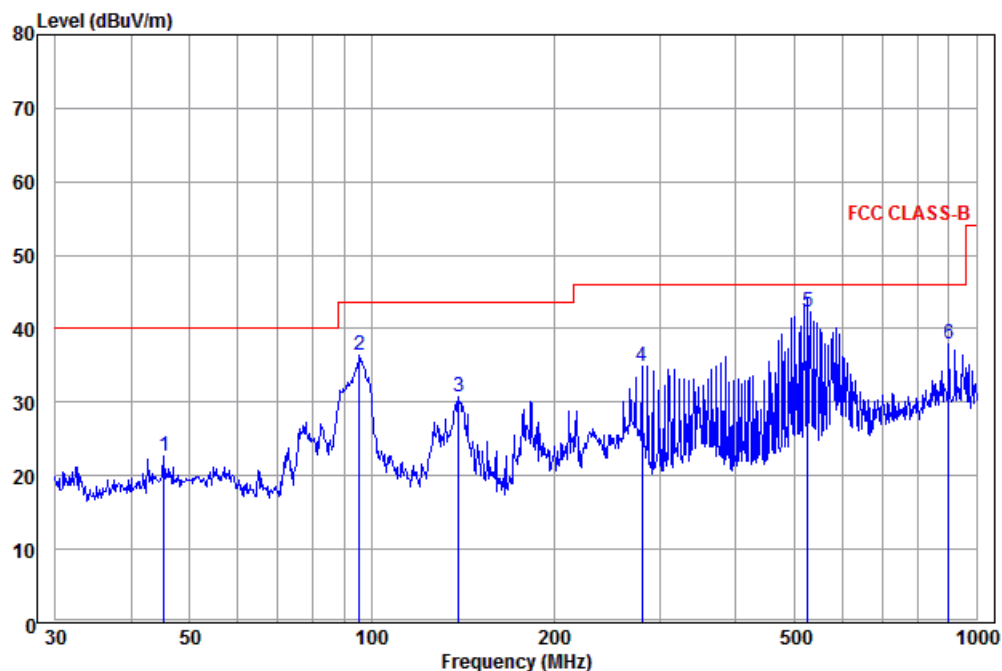
30MHz~1GHz (QP)

Test mode:	Transmitting	Vertical
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		Ant	Cable	Read	Limit	Over			
	Freq	Factor	Loss	Level	Level	Limit	Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	pp	32.293	12.39	0.08	24.29	36.76	40.00	-3.24	Vertical QP
2		43.659	14.11	0.07	20.03	34.21	40.00	-5.79	Vertical QP
3		77.051	9.11	0.37	24.75	34.23	40.00	-5.77	Vertical QP
4		95.427	11.79	0.51	25.00	37.30	43.50	-6.20	Vertical QP
5		178.133	10.41	0.90	25.08	36.39	43.50	-7.11	Vertical QP
6		519.065	17.25	1.53	21.47	40.25	46.00	-5.75	Vertical QP

Test mode:	Transmitting	Horizontal
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	Ant Freq	Ant Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	45.375	14.25	0.08	8.38	22.71	40.00	-17.29	Horizontal	QP
2	95.427	11.79	0.51	24.01	36.31	43.50	-7.19	Horizontal	QP
3	139.361	9.47	0.61	20.55	30.63	43.50	-12.87	Horizontal	QP
4	280.024	13.10	1.17	20.59	34.86	46.00	-11.14	Horizontal	QP
5 pp	526.397	17.39	1.53	23.30	42.22	46.00	-3.78	Horizontal	QP
6	900.147	22.10	2.49	13.39	37.98	46.00	-8.02	Horizontal	QP

Transmitter Emission above 1GHz

Test mode: 802.11b(11Mbps)			Test Frequency: 2412MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1260.670	30.37	1.95	44.30	48.55	36.57	74.00	-37.43	Pass	Horizontal
1589.289	31.04	2.40	43.90	47.75	37.29	74.00	-36.71	Pass	Horizontal
4824.000	34.73	6.02	44.60	52.56	48.71	74.00	-25.29	Pass	Horizontal
5718.399	35.69	7.16	44.53	47.53	45.85	74.00	-28.15	Pass	Horizontal
7236.000	36.42	6.94	44.80	49.68	48.24	74.00	-25.76	Pass	Horizontal
9648.000	37.93	7.01	45.57	48.62	47.99	74.00	-26.01	Pass	Horizontal
1232.117	30.30	1.91	44.34	47.89	35.76	74.00	-38.24	Pass	Vertical
1533.648	30.93	2.33	43.96	48.29	37.59	74.00	-36.41	Pass	Vertical
1823.477	31.43	2.66	43.66	47.70	38.13	74.00	-35.87	Pass	Vertical
4824.000	34.73	6.02	44.60	53.97	50.12	74.00	-23.88	Pass	Vertical
7236.000	36.42	6.94	44.80	50.71	49.27	74.00	-24.73	Pass	Vertical
9648.000	37.93	7.01	45.57	48.98	48.35	74.00	-25.65	Pass	Vertical

Test mode: 802.11b(11Mbps)			Test Frequency: 2437MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1280.072	30.41	1.98	44.27	48.60	36.72	74.00	-37.28	Pass	Horizontal
1537.557	30.94	2.34	43.96	48.25	37.57	74.00	-36.43	Pass	Horizontal
4874.000	34.84	6.12	44.60	52.50	48.86	74.00	-25.14	Pass	Horizontal
5850.919	35.79	7.29	44.51	49.05	47.62	74.00	-26.38	Pass	Horizontal
7311.000	36.43	6.86	44.86	50.48	48.91	74.00	-25.09	Pass	Horizontal
9748.000	38.03	7.10	45.55	48.99	48.57	74.00	-25.43	Pass	Horizontal
1280.072	30.41	1.98	44.27	48.81	36.93	74.00	-37.07	Pass	Vertical
1617.862	31.09	2.43	43.87	48.03	37.68	74.00	-36.32	Pass	Vertical
4874.000	34.84	6.12	44.60	54.29	50.65	74.00	-23.35	Pass	Vertical
6047.776	35.93	7.43	44.51	48.57	47.42	74.00	-26.58	Pass	Vertical
7311.000	36.43	6.86	44.86	51.18	49.61	74.00	-24.39	Pass	Vertical
9748.000	38.03	7.10	45.55	48.15	47.73	74.00	-26.27	Pass	Vertical

Test mode: 802.11b(11Mbps)			Test Frequency: 2462MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1167.982	30.15	1.81	44.43	48.14	35.67	74.00	-38.33	Pass	Horizontal
1617.862	31.09	2.43	43.87	48.46	38.11	74.00	-35.89	Pass	Horizontal
4924.000	34.94	6.22	44.60	53.90	50.46	74.00	-23.54	Pass	Horizontal
6662.007	36.24	7.27	44.57	48.33	47.27	74.00	-26.73	Pass	Horizontal
7386.000	36.44	6.78	44.92	51.02	49.32	74.00	-24.68	Pass	Horizontal
9848.000	38.14	7.19	45.53	49.11	48.91	74.00	-25.09	Pass	Horizontal
1176.935	30.17	1.82	44.42	48.15	35.72	74.00	-38.28	Pass	Vertical
1533.648	30.93	2.33	43.96	48.31	37.61	74.00	-36.39	Pass	Vertical
1809.605	31.41	2.65	43.67	47.97	38.36	74.00	-35.64	Pass	Vertical
4924.000	34.94	6.22	44.60	52.00	48.56	74.00	-25.44	Pass	Vertical
7386.000	36.44	6.78	44.92	51.25	49.55	74.00	-24.45	Pass	Vertical
9848.000	38.14	7.19	45.53	49.20	49.00	74.00	-25.00	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2412MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1413.674	30.70	2.17	44.10	48.08	36.85	74.00	-37.15	Pass	Horizontal
1759.638	31.33	2.59	43.72	48.91	39.11	74.00	-34.89	Pass	Horizontal
4824.000	34.73	6.02	44.60	49.54	45.69	74.00	-28.31	Pass	Horizontal
6047.776	35.93	7.43	44.51	48.78	47.63	74.00	-26.37	Pass	Horizontal
7236.000	36.42	6.94	44.80	49.40	47.96	74.00	-26.04	Pass	Horizontal
9648.000	37.93	7.01	45.57	48.27	47.64	74.00	-26.36	Pass	Horizontal
1251.079	30.35	1.94	44.31	48.54	36.52	74.00	-37.48	Pass	Vertical
1521.981	30.91	2.32	43.97	48.94	38.20	74.00	-35.80	Pass	Vertical
4824.000	34.73	6.02	44.60	50.73	46.88	74.00	-27.12	Pass	Vertical
6078.644	35.94	7.42	44.51	48.85	47.70	74.00	-26.30	Pass	Vertical
7236.000	36.42	6.94	44.80	50.58	49.14	74.00	-24.86	Pass	Vertical
9648.000	37.93	7.01	45.57	47.96	47.33	74.00	-26.67	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2437MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1316.422	30.49	2.04	44.22	48.82	37.13	74.00	-36.87	Pass	Horizontal
1809.605	31.41	2.65	43.67	48.38	38.77	74.00	-35.23	Pass	Horizontal
4874.000	34.84	6.12	44.60	50.08	46.44	74.00	-27.56	Pass	Horizontal
6032.401	35.92	7.43	44.50	48.43	47.28	74.00	-26.72	Pass	Horizontal
7311.000	36.43	6.86	44.86	50.45	48.88	74.00	-25.12	Pass	Horizontal
9748.000	38.03	7.10	45.55	47.82	47.40	74.00	-26.60	Pass	Horizontal
1273.572	30.40	1.97	44.28	49.40	37.49	74.00	-36.51	Pass	Vertical
1805.005	31.40	2.64	43.68	49.79	40.15	74.00	-33.85	Pass	Vertical
4874.000	34.84	6.12	44.60	51.87	48.23	74.00	-25.77	Pass	Vertical
6017.064	35.91	7.44	44.50	48.87	47.72	74.00	-26.28	Pass	Vertical
7311.000	36.43	6.86	44.86	50.96	49.39	74.00	-24.61	Pass	Vertical
9748.000	38.03	7.10	45.55	48.20	47.78	74.00	-26.22	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2462MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1280.072	30.41	1.98	44.27	48.72	36.84	74.00	-37.16	Pass	Horizontal
1545.405	30.96	2.35	43.95	48.30	37.66	74.00	-36.34	Pass	Horizontal
1814.218	31.42	2.65	43.67	48.22	38.62	74.00	-35.38	Pass	Horizontal
4924.000	34.94	6.22	44.60	50.90	47.46	74.00	-26.54	Pass	Horizontal
7386.000	36.44	6.78	44.92	51.78	50.08	74.00	-23.92	Pass	Horizontal
9848.000	38.14	7.19	45.53	47.83	47.63	74.00	-26.37	Pass	Horizontal
1316.422	30.49	2.04	44.22	48.60	36.91	74.00	-37.09	Pass	Vertical
1814.218	31.42	2.65	43.67	48.42	38.82	74.00	-35.18	Pass	Vertical
4924.000	34.94	6.22	44.60	52.14	48.70	74.00	-25.30	Pass	Vertical
6063.190	35.93	7.42	44.51	48.96	47.80	74.00	-26.20	Pass	Vertical
7386.000	36.44	6.78	44.92	52.06	50.36	74.00	-23.64	Pass	Vertical
9848.000	38.14	7.19	45.53	48.03	47.83	74.00	-26.17	Pass	Vertical

Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2412MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1138.626	30.07	1.76	44.48	48.55	35.90	74.00	-38.10	Pass	Horizontal
1557.252	30.98	2.36	43.93	48.49	37.90	74.00	-36.10	Pass	Horizontal
4824.000	34.73	6.02	44.60	50.61	46.76	74.00	-27.24	Pass	Horizontal
6662.007	36.24	7.27	44.57	48.83	47.77	74.00	-26.23	Pass	Horizontal
7236.000	36.42	6.94	44.80	49.79	48.35	74.00	-25.65	Pass	Horizontal
9648.000	37.93	7.01	45.57	47.43	46.80	74.00	-27.20	Pass	Horizontal
1235.257	30.31	1.92	44.33	48.07	35.97	74.00	-38.03	Pass	Vertical
1557.252	30.98	2.36	43.93	48.12	37.53	74.00	-36.47	Pass	Vertical
4824.000	34.73	6.02	44.60	50.80	46.95	74.00	-27.05	Pass	Vertical
5880.782	35.81	7.32	44.51	49.12	47.74	74.00	-26.26	Pass	Vertical
7236.000	36.42	6.94	44.80	49.82	48.38	74.00	-25.62	Pass	Vertical
9648.000	37.93	7.01	45.57	47.84	47.21	74.00	-26.79	Pass	Vertical

Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2437MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1280.072	30.41	1.98	44.27	48.25	36.37	74.00	-37.63	Pass	Horizontal
1601.472	31.06	2.41	43.88	48.67	38.26	74.00	-35.74	Pass	Horizontal
4874.000	34.84	6.12	44.60	50.45	46.81	74.00	-27.19	Pass	Horizontal
6078.644	35.94	7.42	44.51	48.23	47.08	74.00	-26.92	Pass	Horizontal
7311.000	36.43	6.86	44.86	48.69	47.12	74.00	-26.88	Pass	Horizontal
9748.000	38.03	7.10	45.55	48.15	47.73	74.00	-26.27	Pass	Horizontal
1276.818	30.41	1.98	44.28	48.31	36.42	74.00	-37.58	Pass	Vertical
1638.585	31.12	2.46	43.85	47.90	37.63	74.00	-36.37	Pass	Vertical
4874.000	34.84	6.12	44.60	50.55	46.91	74.00	-27.09	Pass	Vertical
5850.919	35.79	7.29	44.51	48.06	46.63	74.00	-27.37	Pass	Vertical
7311.000	36.43	6.86	44.86	50.67	49.10	74.00	-24.90	Pass	Vertical
9748.000	38.03	7.10	45.55	47.95	47.53	74.00	-26.47	Pass	Vertical

Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2462MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1251.079	30.35	1.94	44.31	48.75	36.73	74.00	-37.27	Pass	Horizontal
1805.005	31.40	2.64	43.68	48.13	38.49	74.00	-35.51	Pass	Horizontal
4924.000	34.94	6.22	44.60	49.72	46.28	74.00	-27.72	Pass	Horizontal
6078.644	35.94	7.42	44.51	48.65	47.50	74.00	-26.50	Pass	Horizontal
7386.000	36.44	6.78	44.92	52.04	50.34	74.00	-23.66	Pass	Horizontal
9848.000	38.14	7.19	45.53	46.43	46.23	74.00	-27.77	Pass	Horizontal
1350.362	30.57	2.09	44.18	48.23	36.71	74.00	-37.29	Pass	Vertical
1809.605	31.41	2.65	43.67	48.73	39.12	74.00	-34.88	Pass	Vertical
4924.000	34.94	6.22	44.60	52.16	48.72	74.00	-25.28	Pass	Vertical
6047.776	35.93	7.43	44.51	48.92	47.77	74.00	-26.23	Pass	Vertical
7386.000	36.44	6.78	44.92	52.29	50.59	74.00	-23.41	Pass	Vertical
9848.000	38.14	7.19	45.53	47.97	47.77	74.00	-26.23	Pass	Vertical

Test mode: 802.11n(HT40)(13.5Mbps)				Test Frequency: 2422MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1238.405	30.32	1.92	44.33	48.12	36.03	74.00	-37.97	Pass	Horizontal
1533.648	30.93	2.33	43.96	48.10	37.40	74.00	-36.60	Pass	Horizontal
1800.416	31.40	2.64	43.68	48.18	38.54	74.00	-35.46	Pass	Horizontal
4844.000	34.77	6.06	44.60	48.77	45.00	74.00	-29.00	Pass	Horizontal
7266.000	36.43	6.91	44.82	48.26	46.78	74.00	-27.22	Pass	Horizontal
9688.000	37.97	7.05	45.56	48.60	48.06	74.00	-25.94	Pass	Horizontal
1219.635	30.27	1.89	44.36	47.99	35.79	74.00	-38.21	Pass	Vertical
1402.920	30.68	2.16	44.11	49.45	38.18	74.00	-35.82	Pass	Vertical
4844.000	34.77	6.06	44.60	50.15	46.38	74.00	-27.62	Pass	Vertical
5880.782	35.81	7.32	44.51	48.34	46.96	74.00	-27.04	Pass	Vertical
7266.000	36.43	6.91	44.82	49.41	47.93	74.00	-26.07	Pass	Vertical
9688.000	37.97	7.05	45.56	46.77	46.23	74.00	-27.77	Pass	Vertical

Test mode: 802.11n(HT20)(13.5Mbps)			Test Frequency: 2437MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1173.943	30.16	1.82	44.42	49.21	36.77	74.00	-37.23	Pass	Horizontal
1510.402	30.89	2.30	43.99	48.26	37.46	74.00	-36.54	Pass	Horizontal
4874.000	34.84	6.12	44.60	50.31	46.67	74.00	-27.33	Pass	Horizontal
6251.257	36.03	7.37	44.53	48.69	47.56	74.00	-26.44	Pass	Horizontal
7311.000	36.43	6.86	44.86	49.06	47.49	74.00	-26.51	Pass	Horizontal
9748.000	38.03	7.10	45.55	47.36	46.94	74.00	-27.06	Pass	Horizontal
1276.818	30.41	1.98	44.28	48.37	36.48	74.00	-37.52	Pass	Vertical
1573.189	31.01	2.38	43.92	48.07	37.54	74.00	-36.46	Pass	Vertical
4874.000	34.84	6.12	44.60	48.81	45.17	74.00	-28.83	Pass	Vertical
6063.190	35.93	7.42	44.51	49.00	47.84	74.00	-26.16	Pass	Vertical
7311.000	36.43	6.86	44.86	49.79	48.22	74.00	-25.78	Pass	Vertical
9748.000	38.03	7.10	45.55	46.82	46.40	74.00	-27.60	Pass	Vertical

Test mode: 802.11n(HT20)(13.5Mbps)			Test Frequency: 2452MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Final test level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1276.818	30.41	1.98	44.28	48.22	36.33	74.00	-37.67	Pass	Horizontal
1597.401	31.05	2.41	43.89	48.31	37.88	74.00	-36.12	Pass	Horizontal
4904.000	34.90	6.18	44.60	46.80	43.28	74.00	-30.72	Pass	Horizontal
6283.164	36.05	7.37	44.53	48.74	47.63	74.00	-26.37	Pass	Horizontal
7356.000	36.44	6.81	44.90	47.32	45.67	74.00	-28.33	Pass	Horizontal
9808.000	38.10	7.16	45.54	47.13	46.85	74.00	-27.15	Pass	Horizontal
1216.534	30.27	1.89	44.36	49.03	36.83	74.00	-37.17	Pass	Vertical
1621.985	31.10	2.44	43.86	47.69	37.37	74.00	-36.63	Pass	Vertical
4904.000	34.90	6.18	44.60	49.84	46.32	74.00	-27.68	Pass	Vertical
6109.670	35.96	7.41	44.51	48.57	47.43	74.00	-26.57	Pass	Vertical
7356.000	36.44	6.81	44.90	49.12	47.47	74.00	-26.53	Pass	Vertical
9808.000	38.10	7.16	45.54	48.29	48.01	74.00	-25.99	Pass	Vertical

Note:

1) Through Pre-scan transmitting mode and charge+transmitter mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) ; 13.5Mbps of rate is the worst case of 802.11n(HT40), and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

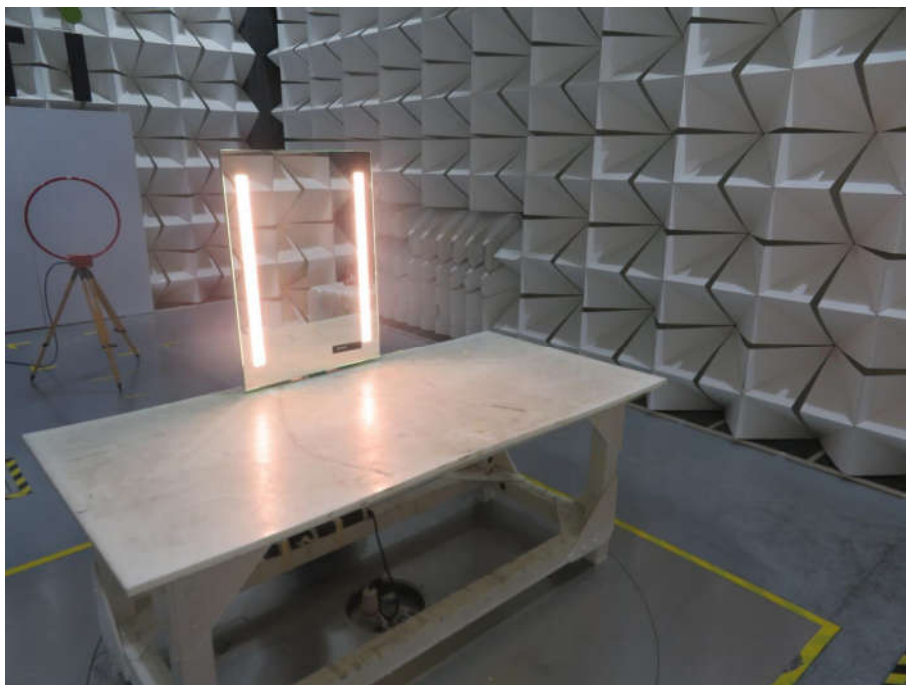
Final Test Level = Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor - Antenna Factor - Cable Factor

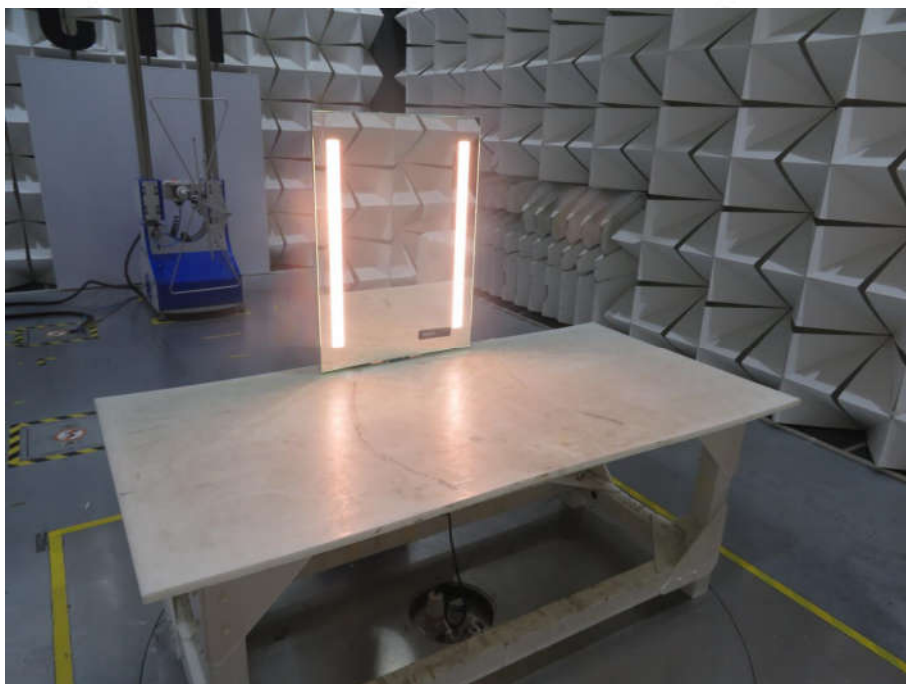
3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

PHOTOGRAPHS OF TEST SETUP

Test model No.: 99571-VLAN-NA



Radiated spurious emission Test Setup-1(Below 30MHz)



Radiated emission Test Setup-2(30MHz-1GHz)



Radiated spurious emission Test Setup-3(Above 1GHz)



Conducted Emissions Test Setup

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No.EED32K00040201 for EUT external and internal photos.

*** End of Report ***

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.