

TEST REPORT

Product : WIFI+BT Module
Trade mark : GSD
Model/Type reference : WCT3TM2311
Serial Number : N/A
Report Number : EED32L00127303
FCC ID : 2AC23-WCT3T
Date of Issue : Aug. 16, 2019
Test Standards : 47 CFR Part 15Subpart C
Test result : PASS

Prepared for:

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Date:

Aug. 16, 2019

Check No.: 3096342577



2 Version

Version No.	Date	Description
00	2019-08-16	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.

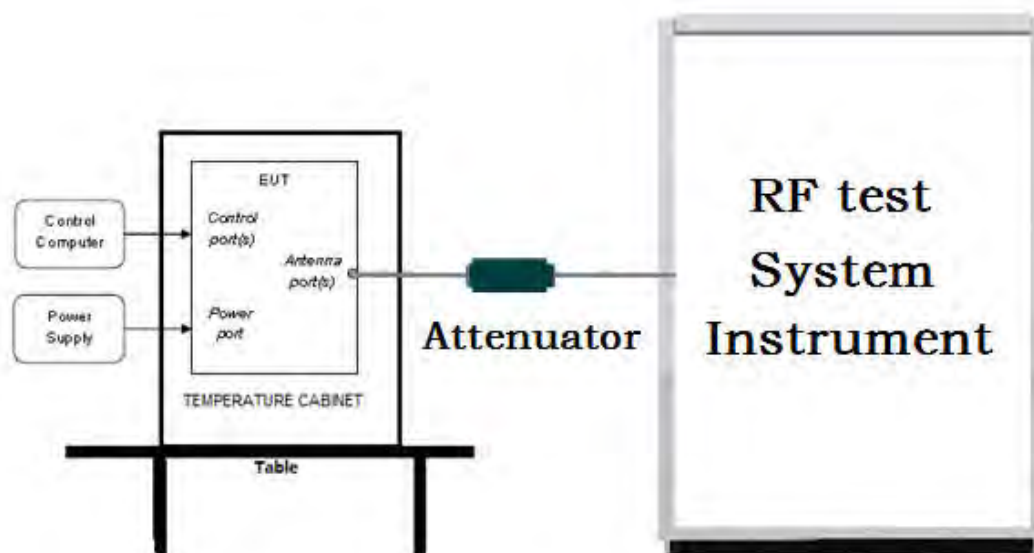
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

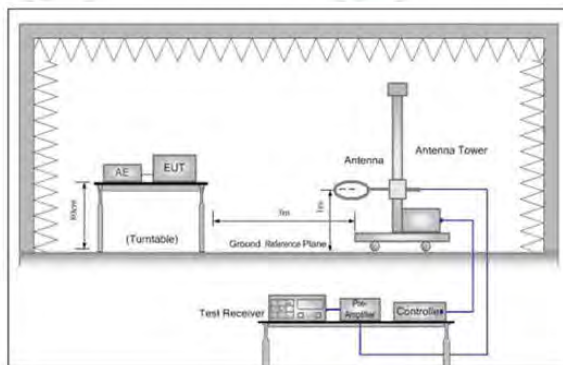


Figure 1. Below 30MHz

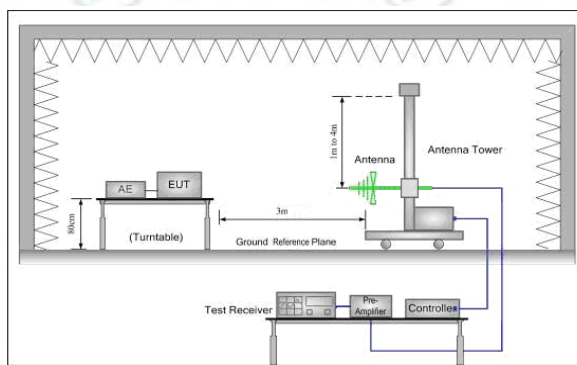


Figure 2. 30MHz to 1GHz

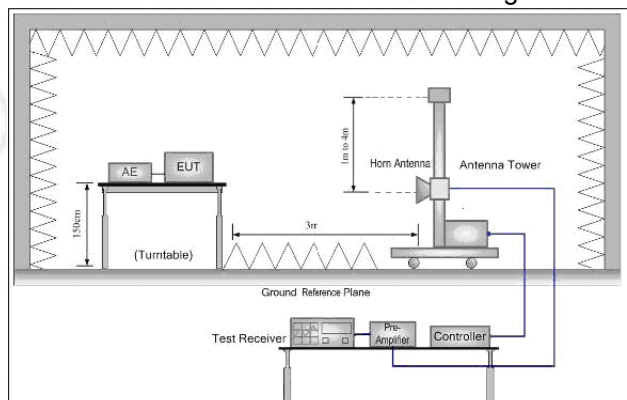
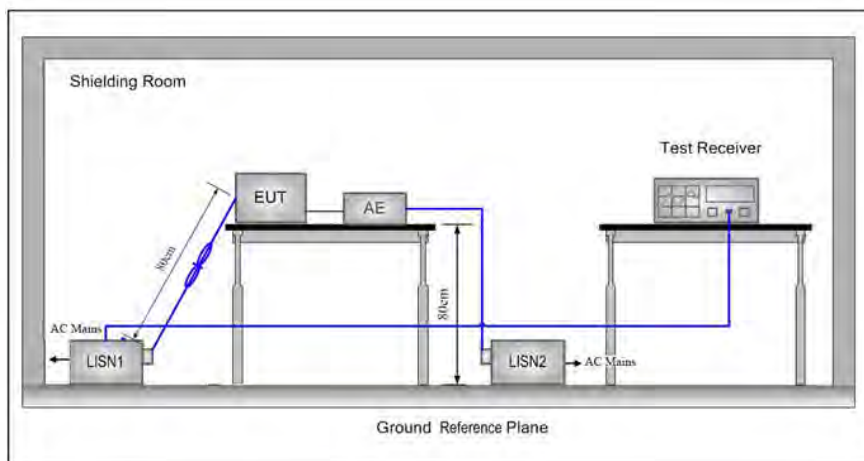


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	24.0 °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
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	17.87	17.82	17.76	17.71				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	17.36	17.32	17.29	17.24	17.21	17.67	17.65	17.59
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	16.7	16.56	16.54	16.51	16.48	16.43	16.38	16.35
Mode	802.11n (HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power(dBm)	15.65	15.62	15.59	15.52	15.49	15.47	15.43	15.41

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:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Applicant:	NO.75 Zhongkai Development Area Huizhou, Guangdong, China
Manufacturer:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Manufacturer:	NO.75 Zhongkai Development Area Huizhou, Guangdong, China
Factory:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Factory:	NO.75 Zhongkai Development Area Huizhou, Guangdong, China

6.2 General Description of EUT

Product Name:	WIFI+BT Module
Model No.(EUT):	WCT3TM2311
Trade Mark:	GSD
EUT Supports Radios application:	2.4G WiFi, 802.11b/g/n(20MHz), 2412-2462MHz
Power Supply:	DC 5V
Sample Received Date:	May. 23, 2019
Sample tested Date:	May. 23, 2019 to Aug. 15, 2019

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:	OFDM,DSSS
Test Power Grade:	Ant 0 802.11b 1E/1E/1D 802.11g 14/12/12 802.11n20 14/12/12 802.11n40 10/10/11 Ant 1 802.11b 1E 802.11g 14/13/13 802.11n20 13 802.11n40 10/10/11
Test Software of EUT:	MT7662 & V1.0.3.14
Antenna Type and Gain:	Type: PIFA Antenna, Gain: 1.53dBi
Test Voltage:	DC 5V

Operation Frequency each of channel(802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		
Operation Frequency each of channel(802.11n HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency		
1	2422MHz	4	2437MHz	7	2452MHz		
2	2427MHz	5	2442MHz				
3	2432MHz	6	2447MHz				

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

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

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	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

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	03-01-2019	02-28-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-01-2019	02-28-2020
Signal Generator	Keysight	N5182B	MY53051549	03-01-2019	02-28-2020
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
DC Power	Keysight	E3642A	MY54426035	03-01-2019	02-28-2020
PC-1	Lenovo	R4960d	---	03-01-2019	02-28-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-01-2019	02-28-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-01-2019	02-28-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-01-2019	02-28-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-01-2019	02-28-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-01-2019	02-28-2020
Temperature/Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100435	05-20-2019	05-18-2020
Temperature/ Humidity Indicator	Defu	TH128	/	06-14-2019	06-12-2020
Communication test set	Agilent	E5515C	GB47050 534	03-01-2019	02-28-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
LISN	R&S	ENV216	100098	05-08-2019	05-06-2020
LISN	schwarzbeck	NNLK8121	8121-529	05-08-2019	05-06-2020
Voltage Probe	R&S	ESH2-Z3 0299.7810.56	100042	06-13-2017	06-11-2020
Current Probe	R&S	EZ-17 816.2063.03	100106	05-20-2019	05-18-2020
ISN	TESEQ	ISN T800	30297	01-16-2019	01-15-2020
Barometer	changchun	DYM3	1188	06-20-2019	06-18-2020

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	---	05-24-2019	05-22-2020
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	12-21-2018	12-20-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-26-2019	07-24-2020
Microwave Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845 SE	980380	01-16-2019	01-15-2020
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057410	06-05-2018	06-03-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	374	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041.6041	07-26-2019	07-24-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
Spectrum Analyzer	R&S	FSP40	100416	04-28-2019	04-26-2020
Receiver	R&S	ESCI	100435	05-20-2019	05-18-2020
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	maturo	NCD/070/10711112	---	01-09-2019	01-08-2020
Signal Generator	Agilent	E4438C	MY45095744	03-01-2019	02-28-2020
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-28-2020
Temperature/Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-01-2019	02-28-2020
Cable line	Fulai(7M)	SF106	5219/6A	01-09-2019	01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2019	01-08-2020
Communication test set	R&S	CMW500	104466	01-18-2019	01-17-2020
High-pass filter	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-09-2019	01-08-2020

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-19-2019	06-17-2020
Receiver	Keysight	N9038A	MY57290136	03-27-2019	03-25-2020
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-27-2019	03-25-2020
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-27-2019	03-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-075	04-25-2018	04-23-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-23-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-829	04-25-2018	04-23-2021
Communication Antenna	Schwarzbeck	CLSA 0110L	1014	02-14-2019	02-13-2020
Biconical antenna	Schwarzbeck	VUBA 9117	9117-381	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-08-2021
Preamplifier	EMCI	EMC184055SE	980596	05-22-2019	05-20-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
Preamplifier	EMCI	EMC001330	980563	05-08-2019	05-06-2020
Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	05-01-2019	04-30-2020
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-01-2019	02-28-2020
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-15-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-08-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-09-2019	01-08-2020
Cable line	Times	EMC104-NMNM-1000	SN160710	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-09-2019	01-08-2020
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-09-2019	01-08-2020

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)

EUT Duty Cycle

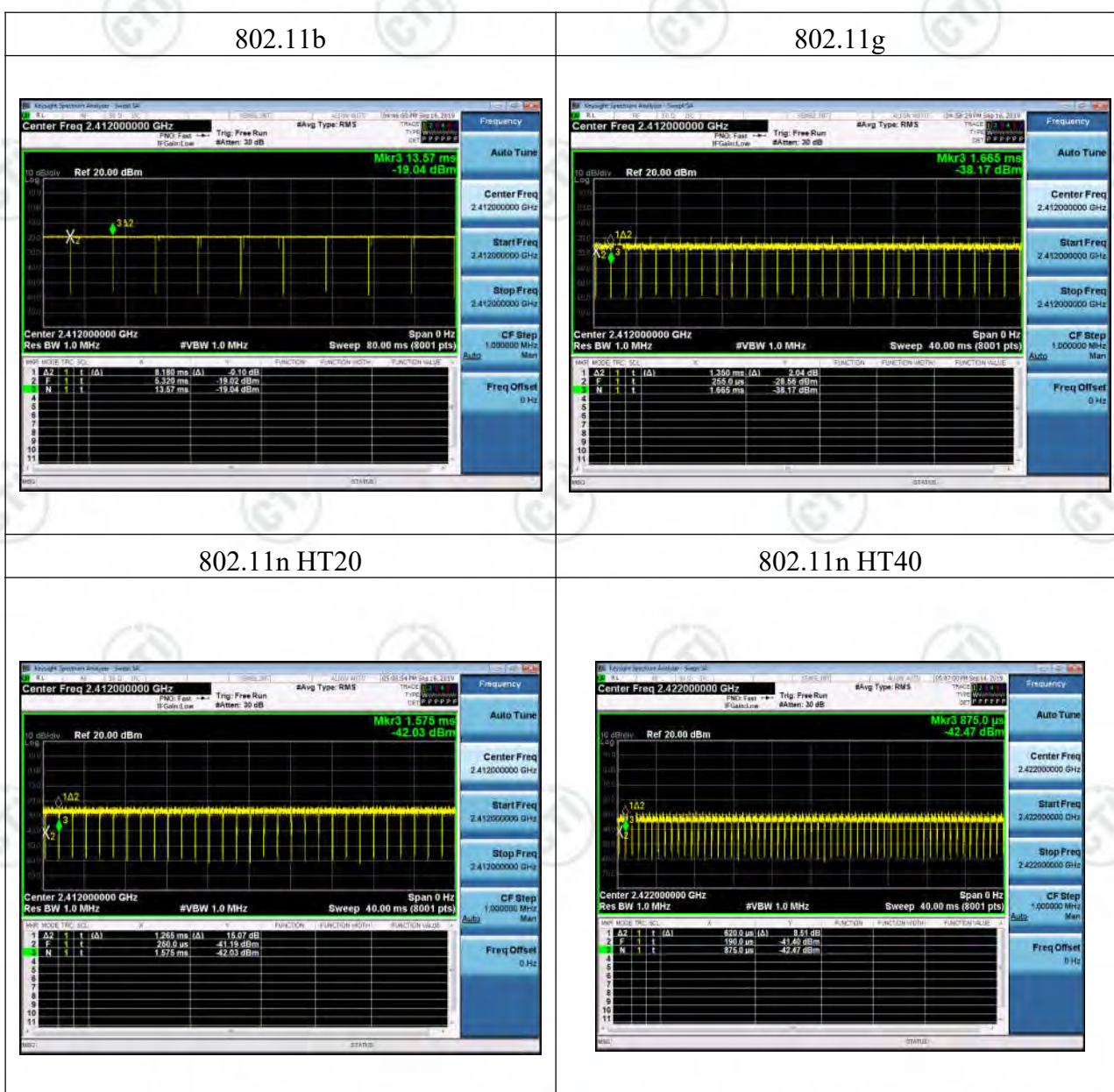
Ant1:

Duty Cycle			
Configuration	TX ON(ms)	TXALL(ms)	Duty Cycle(%)
802.11b	8.170	8.25	99.03%
802.11g	1.350	1.410	95.74%
802.11n HT20	1.260	1.325	95.09%
802.11n HT40	0.6016	0.6768	88.89%



Ant2:

Duty Cycle			
Configuration	TX ON(ms)	TX ALL(ms)	Duty Cycle(%)
802.11b	8.180	8.250	99.2%
802.11g	1.350	1.41	95.7%
802.11n HT20	1.265	1.325	95.5%
802.11n HT40	0.62	0.685	90.5%



Appendix A): Conducted Peak Output Power

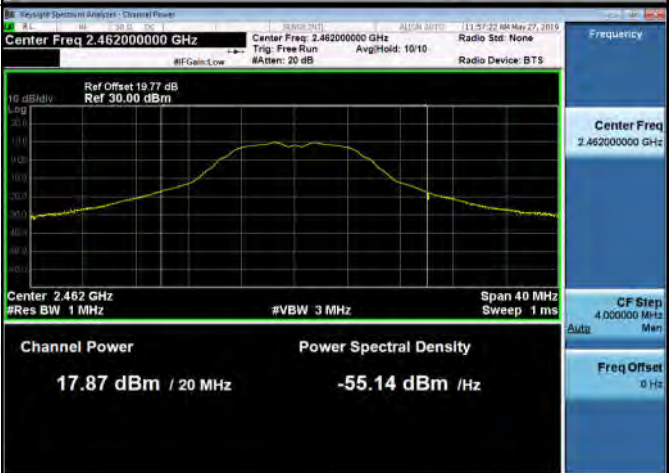
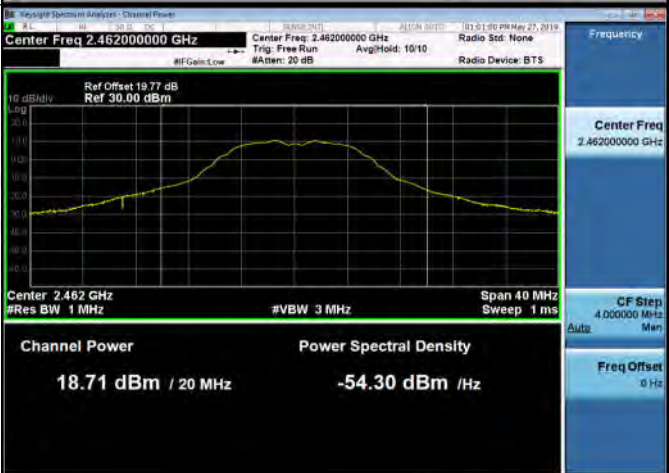
Result Table

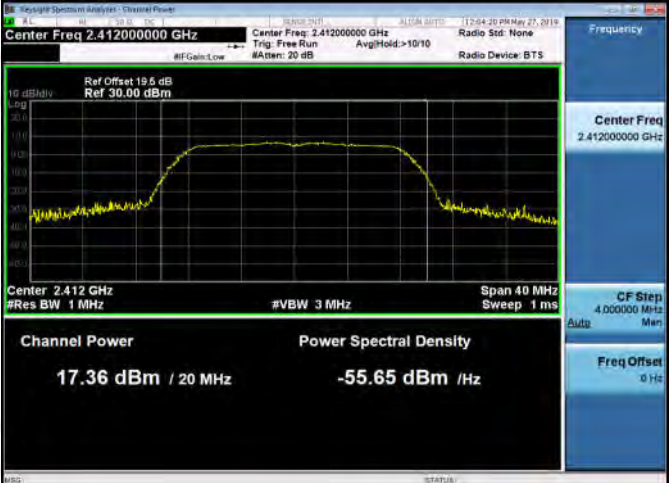
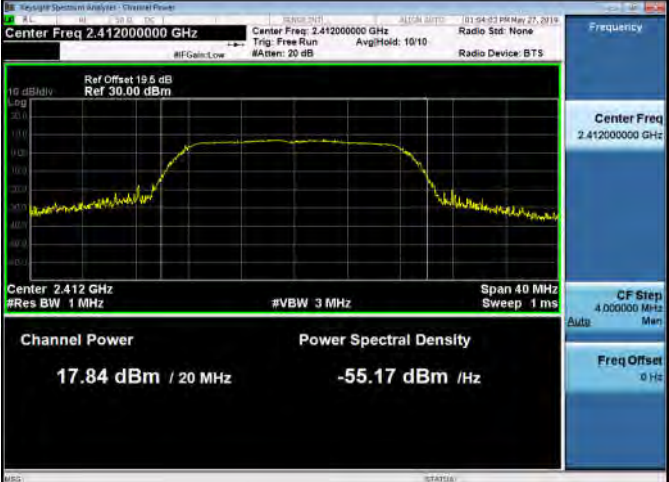
Mode	Antenna	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	Ant1	LCH	17.8	PASS
11B	Ant2	LCH	18.31	PASS
11B	Ant1	MCH	17.7	PASS
11B	Ant2	MCH	18.7	PASS
11B	Ant1	HCH	17.87	PASS
11B	Ant2	HCH	18.71	PASS
11G	Ant1	LCH	17.36	PASS
11G	Ant2	LCH	17.84	PASS
11G	Ant1	MCH	17.12	PASS
11G	Ant2	MCH	17.72	PASS
11G	Ant1	HCH	17.03	PASS
11G	Ant2	HCH	17.63	PASS
11N20SISO	Ant1	LCH	16.7	PASS
11N20SISO	Ant2	LCH	16.9	PASS
11N20SISO	Ant1	MCH	16.65	PASS
11N20SISO	Ant2	MCH	16.59	PASS
11N20SISO	Ant1	HCH	16.43	PASS
11N20SISO	Ant2	HCH	16.61	PASS
11N20MIMO	Ant1	LCH	13.16	PASS
11N20MIMO	Ant2	LCH	13.03	PASS
11N20MIMO	Ant1+2	LCH	16.11	PASS
11N20MIMO	Ant1	MCH	13.12	PASS
11N20MIMO	Ant2	MCH	12.85	PASS
11N20MIMO	Ant1+2	MCH	16.00	PASS
11N20MIMO	Ant1	HCH	13.38	PASS
11N20MIMO	Ant2	HCH	12.53	PASS
11N20MIMO	Ant1+2	HCH	15.99	PASS
11N40SISO	Ant1	LCH	15.58	PASS
11N40SISO	Ant2	LCH	15	PASS
11N40SISO	Ant1	MCH	15.62	PASS
11N40SISO	Ant2	MCH	15	PASS

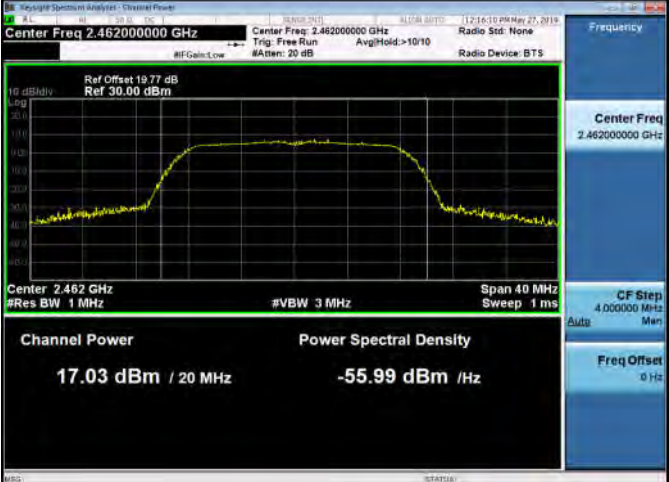
11N40SISO	Ant1	HCH	15.65	PASS
11N40SISO	Ant2	HCH	15.62	PASS
11N40MIMO	Ant1	LCH	12.37	PASS
11N40MIMO	Ant2	LCH	12.31	PASS
11N40MIMO	Ant1+2	LCH	15.35	PASS
11N40MIMO	Ant1	MCH	12.43	PASS
11N40MIMO	Ant2	MCH	13.2	PASS
11N40MIMO	Ant1+2	MCH	15.84	PASS
11N40MIMO	Ant1	HCH	12.78	PASS
11N40MIMO	Ant2	HCH	12.19	PASS
11N40MIMO	Ant1+2	HCH	15.51	PASS

Test Graph

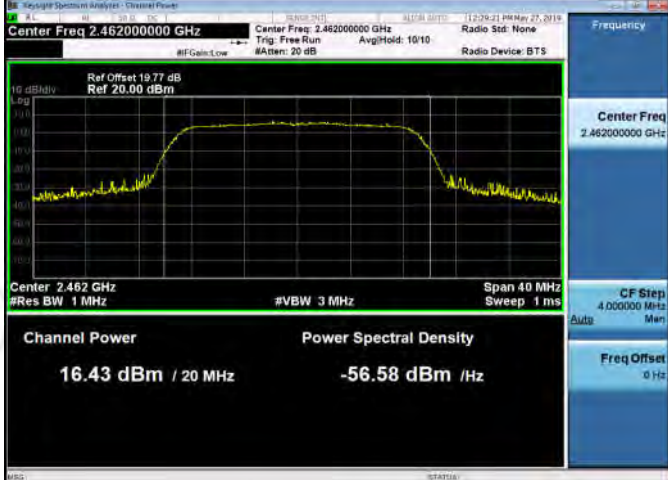


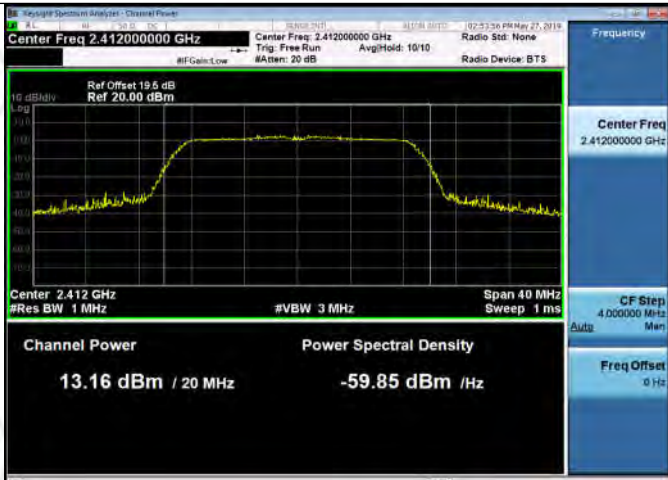
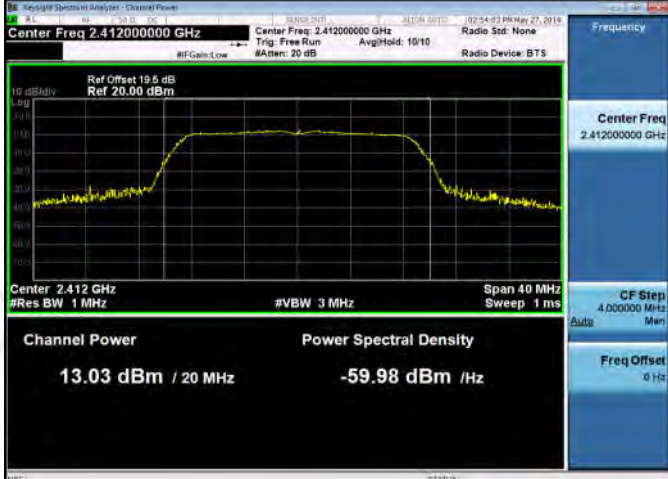
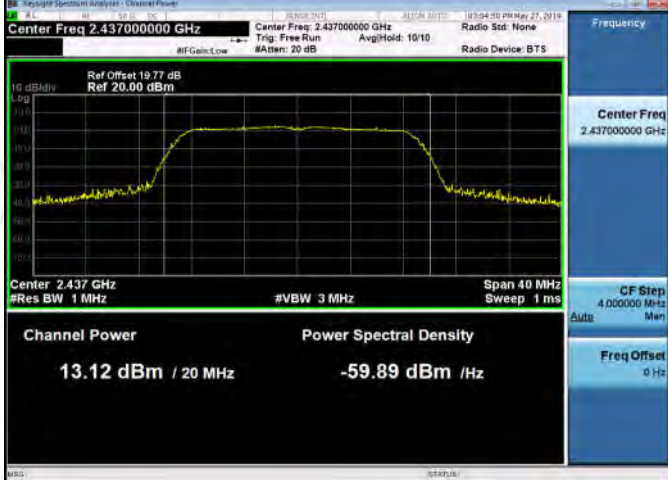
11B/MCH_Ant2	 Key parameters for 11B/MCH_Ant2: - Center Freq: 2.437000000 GHz - Channel Power: 18.70 dBm / 20 MHz - Power Spectral Density: -54.32 dBm / Hz
11B/HCH_Ant1	 Key parameters for 11B/HCH_Ant1: - Center Freq: 2.462000000 GHz - Channel Power: 17.87 dBm / 20 MHz - Power Spectral Density: -55.14 dBm / Hz
11B/HCH_Ant2	 Key parameters for 11B/HCH_Ant2: - Center Freq: 2.462000000 GHz - Channel Power: 18.71 dBm / 20 MHz - Power Spectral Density: -54.30 dBm / Hz

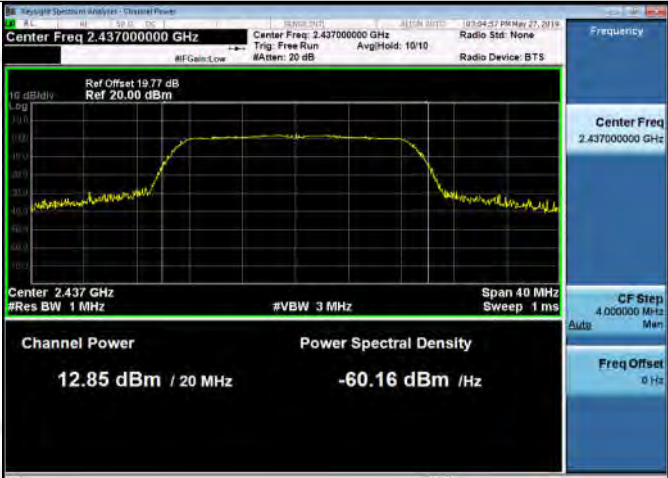
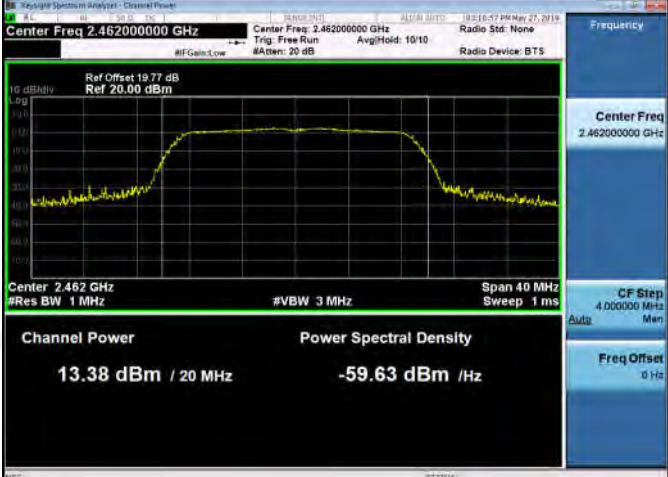
11G/LCH_Ant1	 Key parameters for 11G/LCH_Ant1: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Channel Power: 17.36 dBm / 20 MHz - Power Spectral Density: -55.65 dBm / Hz - Ref Offset: 19.5 dB - Ref: 30.00 dBm
11G/LCH_Ant2	 Key parameters for 11G/LCH_Ant2: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Channel Power: 17.84 dBm / 20 MHz - Power Spectral Density: -55.17 dBm / Hz - Ref Offset: 19.5 dB - Ref: 30.00 dBm
11G/MCH_Ant1	 Key parameters for 11G/MCH_Ant1: - Center Freq: 2.437000000 GHz - Span: 40 MHz - Channel Power: 17.12 dBm / 20 MHz - Power Spectral Density: -55.89 dBm / Hz - Ref Offset: 19.77 dB - Ref: 30.00 dBm

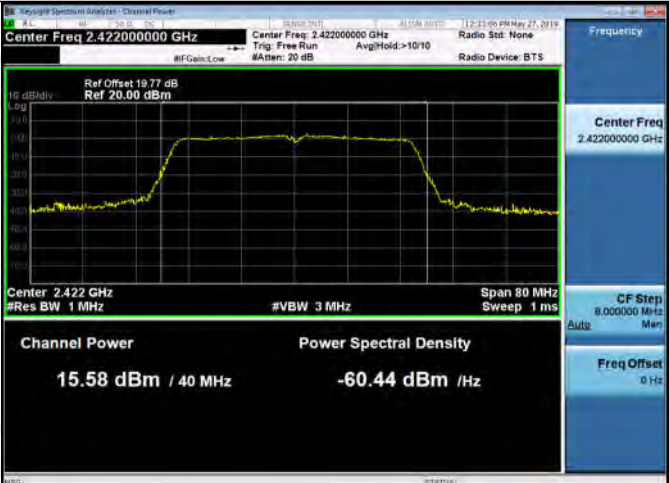
11G/MCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Span: 40 MHz #VBW: 3 MHz #Res BW: 1 MHz - Channel Power: 17.72 dBm / 20 MHz - Power Spectral Density: -55.29 dBm / Hz - Ref Offset: 19.77 dB - Ref: 30.00 dBm
11G/HCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.462000000 GHz - Span: 40 MHz #VBW: 3 MHz #Res BW: 1 MHz - Channel Power: 17.03 dBm / 20 MHz - Power Spectral Density: -55.99 dBm / Hz - Ref Offset: 19.77 dB - Ref: 30.00 dBm
11G/HCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.462000000 GHz - Span: 40 MHz #VBW: 3 MHz #Res BW: 1 MHz - Channel Power: 17.63 dBm / 20 MHz - Power Spectral Density: -55.39 dBm / Hz - Ref Offset: 19.77 dB - Ref: 30.00 dBm

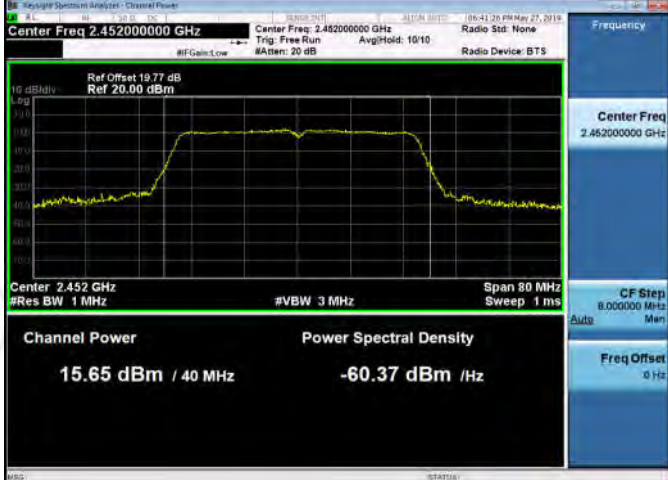
11N20SISO/LCH_Ant1	 Key parameters for 11N20SISO/LCH_Ant1: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Channel Power: 16.70 dBm / 20 MHz - Power Spectral Density: -56.31 dBm / Hz - Ref Offset: 19.5 dB - Ref Power: 20.00 dBm
11N20SISO/LCH_Ant2	 Key parameters for 11N20SISO/LCH_Ant2: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Channel Power: 16.90 dBm / 20 MHz - Power Spectral Density: -56.11 dBm / Hz - Ref Offset: 19.5 dB - Ref Power: 30.00 dBm
11N20SISO/MCH_Ant1	 Key parameters for 11N20SISO/MCH_Ant1: - Center Freq: 2.437000000 GHz - Span: 40 MHz - Channel Power: 16.65 dBm / 20 MHz - Power Spectral Density: -56.36 dBm / Hz - Ref Offset: 19.77 dB - Ref Power: 30.00 dBm

11N20SISO/MCH_Ant2	
11N20SISO/HCH_Ant1	
11N20SISO/HCH_Ant2	

11N20MIMO/LCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 13.16 dBm / 20 MHz - Power Spectral Density: -59.85 dBm / Hz - Ref Offset: 19.6 dB - Ref: 20.00 dBm
11N20MIMO/LCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.412000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 13.03 dBm / 20 MHz - Power Spectral Density: -59.98 dBm / Hz - Ref Offset: 19.6 dB - Ref: 20.00 dBm
11N20MIMO/MCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 13.12 dBm / 20 MHz - Power Spectral Density: -59.89 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm

11N20MIMO/MCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 12.85 dBm / 20 MHz - Power Spectral Density: -60.16 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N20MIMO/HCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.462000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 13.38 dBm / 20 MHz - Power Spectral Density: -59.63 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N20MIMO/HCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.462000000 GHz - Span: 40 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 12.53 dBm / 20 MHz - Power Spectral Density: -60.48 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm

11N40SISO/LCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.422000000 GHz - Span: 80 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 15.58 dBm / 40 MHz - Power Spectral Density: -60.44 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N40SISO/LCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.422000000 GHz - Span: 80 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 15.00 dBm / 40 MHz - Power Spectral Density: -61.02 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N40SISO/MCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Span: 80 MHz - Res BW: 1 MHz - VBW: 3 MHz - Sweep: 1 ms - Channel Power: 15.62 dBm / 40 MHz - Power Spectral Density: -60.40 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm

11N40SISO/MCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Span: 80 MHz - Channel Power: 15.00 dBm / 40 MHz - Power Spectral Density: -61.02 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N40SISO/HCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.452000000 GHz - Span: 80 MHz - Channel Power: 15.65 dBm / 40 MHz - Power Spectral Density: -60.37 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm
11N40SISO/HCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.452000000 GHz - Span: 80 MHz - Channel Power: 15.62 dBm / 40 MHz - Power Spectral Density: -60.40 dBm / Hz - Ref Offset: 19.77 dB - Ref: 20.00 dBm

11N40MIMO/LCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.422000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 12.37 dBm / 40 MHz - Power Spectral Density: -63.65 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz
11N40MIMO/LCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.422000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 12.31 dBm / 40 MHz - Power Spectral Density: -63.71 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz
11N40MIMO/MCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 12.43 dBm / 40 MHz - Power Spectral Density: -63.59 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz

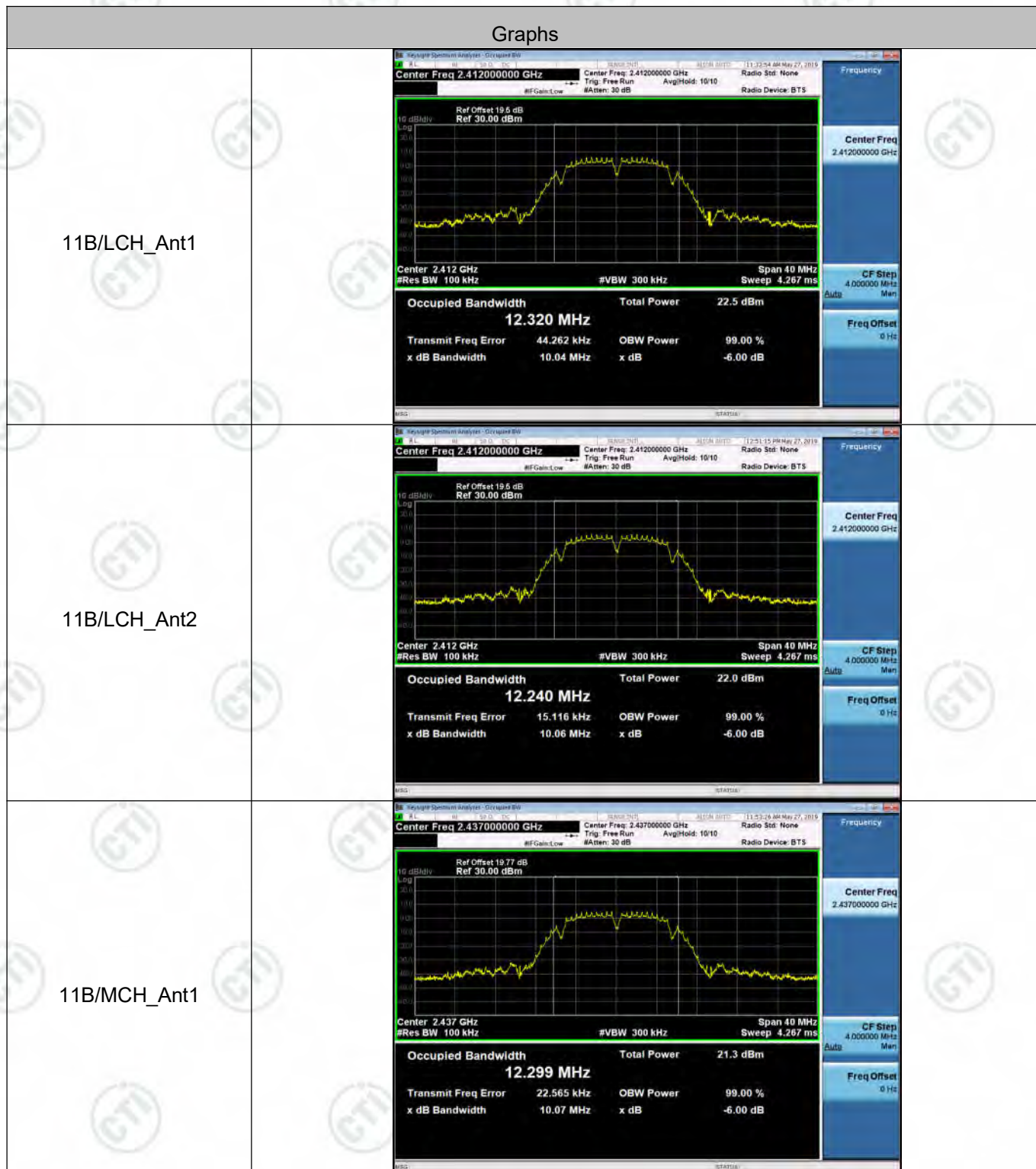
11N40MIMO/MCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.437000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 13.20 dBm / 40 MHz - Power Spectral Density: -62.82 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz
11N40MIMO/HCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.452000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 12.78 dBm / 40 MHz - Power Spectral Density: -63.24 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz
11N40MIMO/HCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.452000000 GHz - Ref Offset: 19.77 dB - Ref: 20.00 dBm - Channel Power: 12.19 dBm / 40 MHz - Power Spectral Density: -63.83 dBm / Hz - Span: 80 MHz - Sweep: 1 ms #Res BW: 1 MHz #VBW: 3 MHz

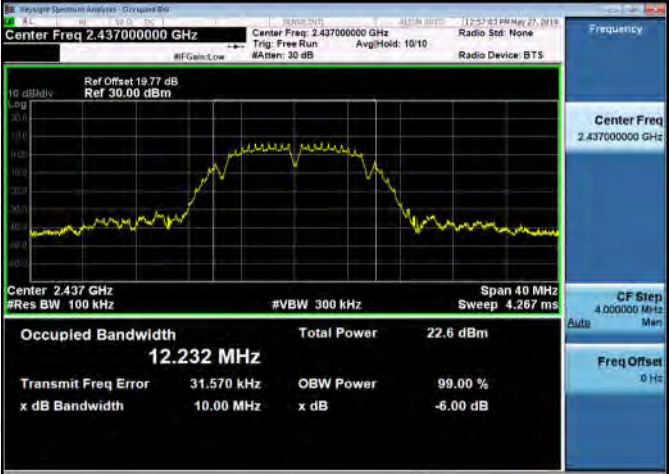
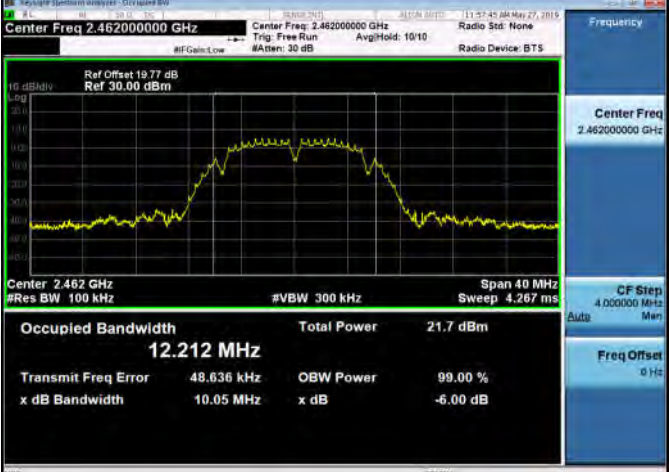
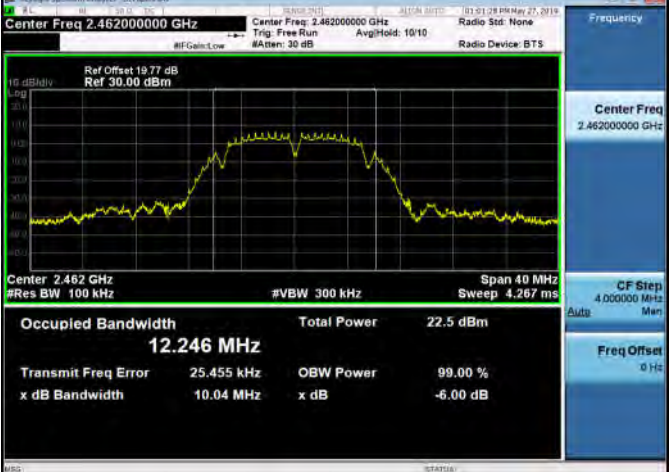
Appendix B): 6dB Occupied Bandwidth

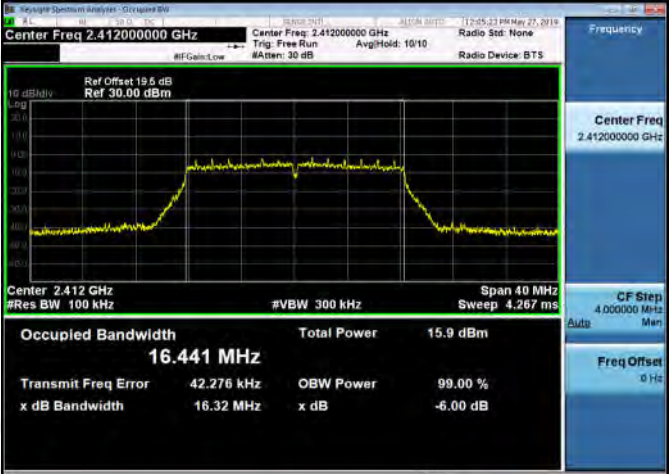
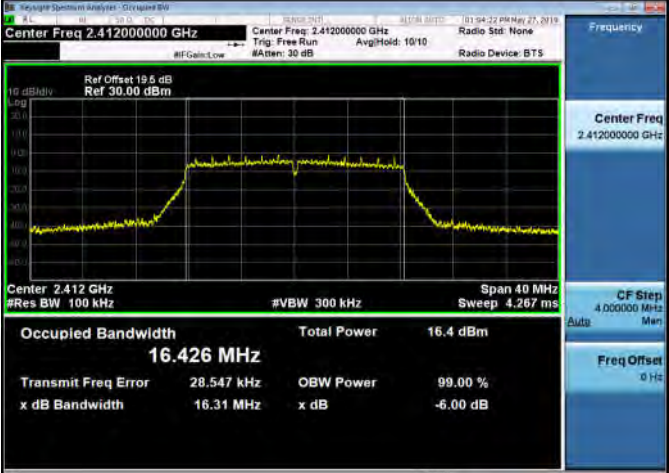
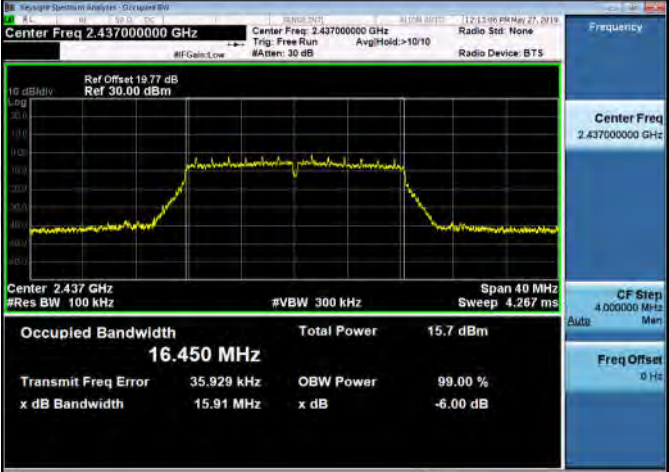
Result Table

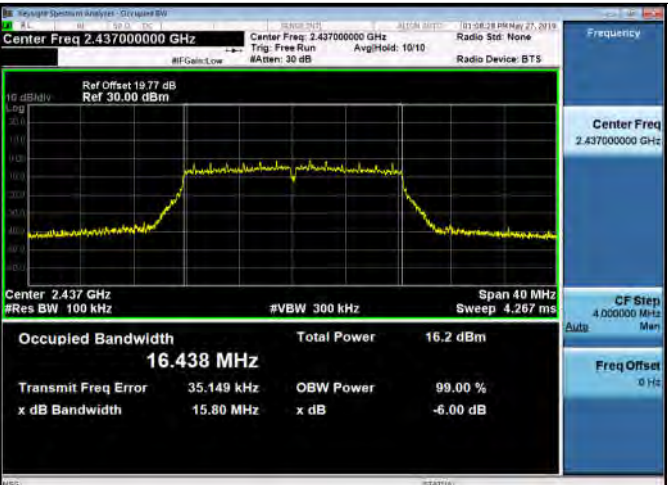
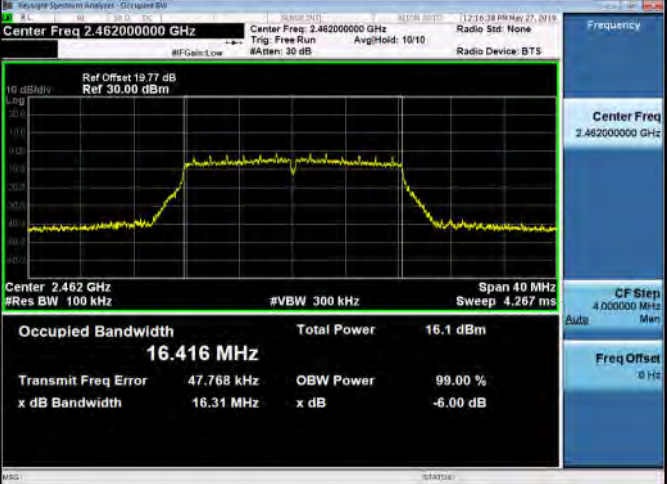
Mode	Antenna	Channel	6dB Bandwidth [MHz]	Verdict
11B	Ant1	LCH	10.04	PASS
11B	Ant2	LCH	10.06	PASS
11B	Ant1	MCH	10.07	PASS
11B	Ant2	MCH	10.00	PASS
11B	Ant1	HCH	10.05	PASS
11B	Ant2	HCH	10.04	PASS
11G	Ant1	LCH	16.32	PASS
11G	Ant2	LCH	16.31	PASS
11G	Ant1	MCH	15.91	PASS
11G	Ant2	MCH	15.80	PASS
11G	Ant1	HCH	16.31	PASS
11G	Ant2	HCH	16.28	PASS
11N20SISO	Ant1	LCH	17.31	PASS
11N20SISO	Ant2	LCH	16.93	PASS
11N20SISO	Ant1	MCH	17.28	PASS
11N20SISO	Ant2	MCH	16.92	PASS
11N20SISO	Ant1	HCH	16.92	PASS
11N20SISO	Ant2	HCH	16.93	PASS
11N40SISO	Ant1	LCH	35.47	PASS
11N40SISO	Ant2	LCH	35.35	PASS
11N40SISO	Ant1	MCH	35.46	PASS
11N40SISO	Ant2	MCH	35.47	PASS
11N40SISO	Ant1	HCH	35.15	PASS
11N40SISO	Ant2	HCH	35.15	PASS

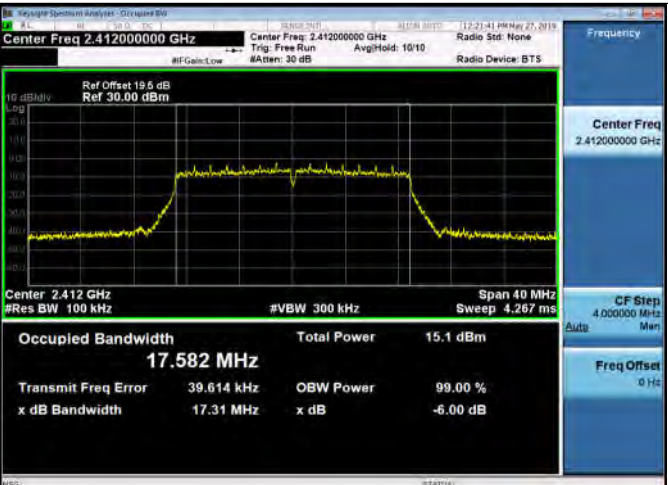
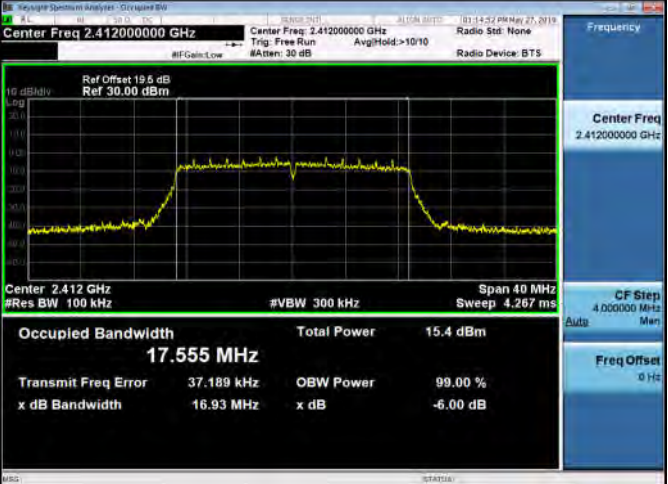
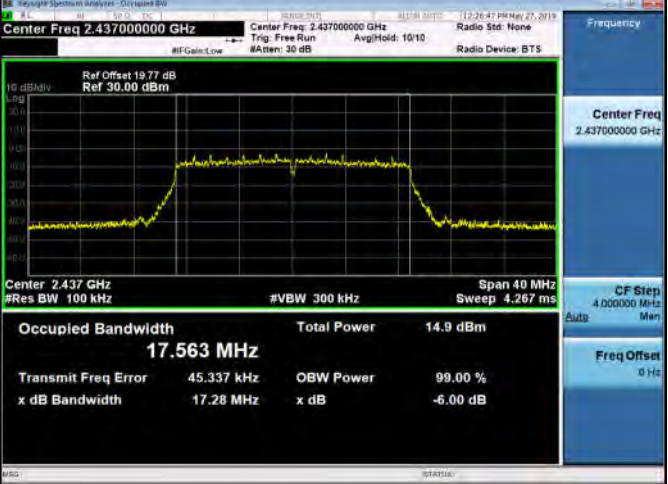
Test Graph

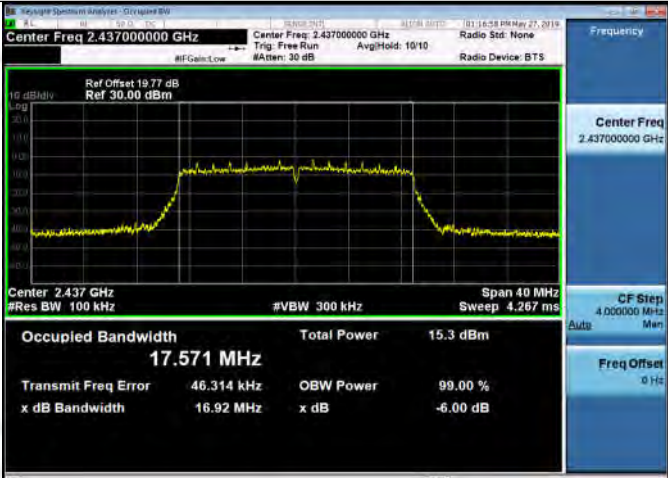
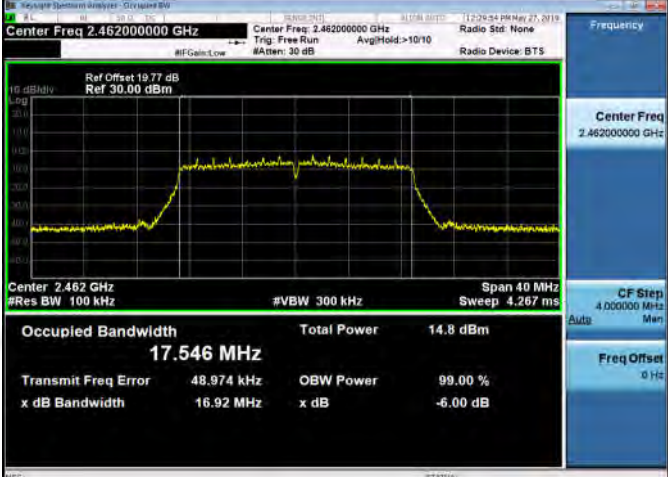
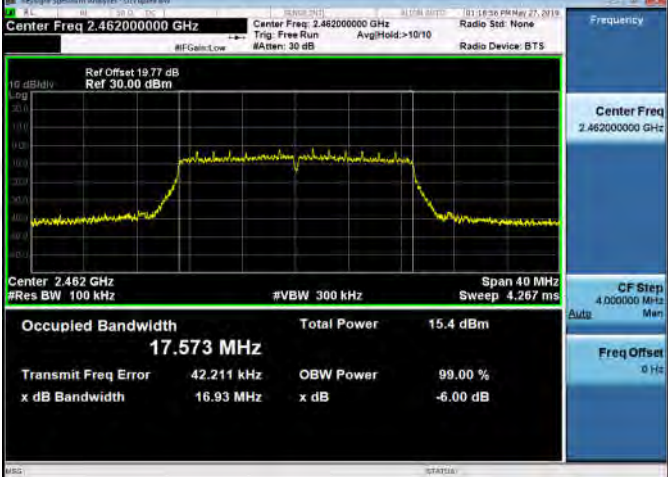


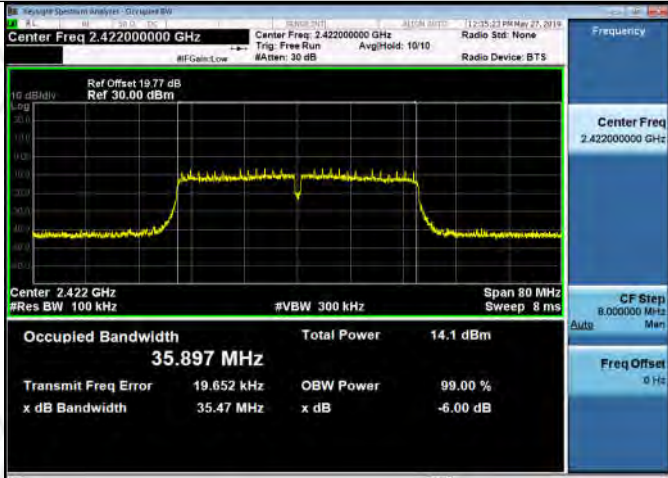
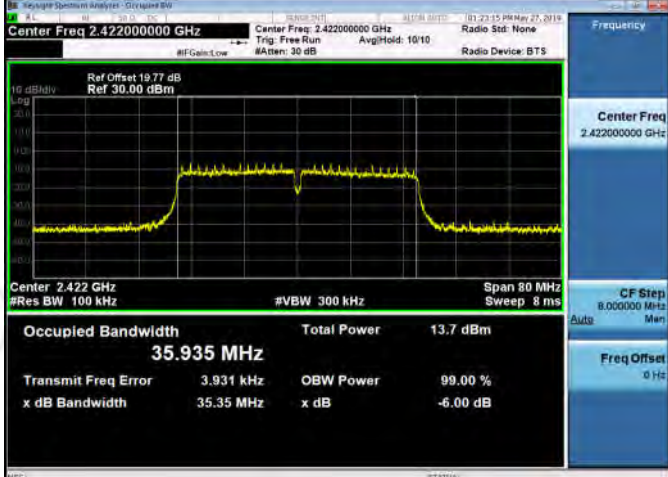
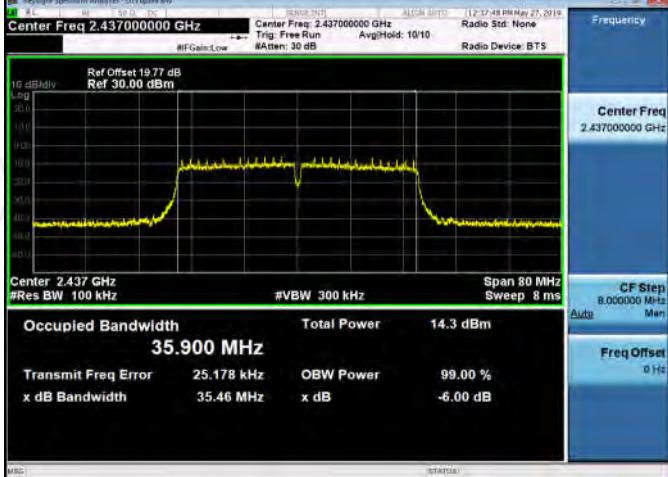
11B/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms <table><tr><td>Occupied Bandwidth</td><td>12.232 MHz</td><td>Total Power</td><td>22.6 dBm</td></tr><tr><td>Transmit Freq Error</td><td>31.570 kHz</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>x dB Bandwidth</td><td>10.00 MHz</td><td>x dB</td><td>-6.00 dB</td></tr></table>	Occupied Bandwidth	12.232 MHz	Total Power	22.6 dBm	Transmit Freq Error	31.570 kHz	OBW Power	99.00 %	x dB Bandwidth	10.00 MHz	x dB	-6.00 dB
Occupied Bandwidth	12.232 MHz	Total Power	22.6 dBm										
Transmit Freq Error	31.570 kHz	OBW Power	99.00 %										
x dB Bandwidth	10.00 MHz	x dB	-6.00 dB										
11B/HCH_Ant1	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms <table><tr><td>Occupied Bandwidth</td><td>12.212 MHz</td><td>Total Power</td><td>21.7 dBm</td></tr><tr><td>Transmit Freq Error</td><td>48.636 kHz</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>x dB Bandwidth</td><td>10.05 MHz</td><td>x dB</td><td>-6.00 dB</td></tr></table>	Occupied Bandwidth	12.212 MHz	Total Power	21.7 dBm	Transmit Freq Error	48.636 kHz	OBW Power	99.00 %	x dB Bandwidth	10.05 MHz	x dB	-6.00 dB
Occupied Bandwidth	12.212 MHz	Total Power	21.7 dBm										
Transmit Freq Error	48.636 kHz	OBW Power	99.00 %										
x dB Bandwidth	10.05 MHz	x dB	-6.00 dB										
11B/HCH_Ant2	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms <table><tr><td>Occupied Bandwidth</td><td>12.246 MHz</td><td>Total Power</td><td>22.5 dBm</td></tr><tr><td>Transmit Freq Error</td><td>25.455 kHz</td><td>OBW Power</td><td>99.00 %</td></tr><tr><td>x dB Bandwidth</td><td>10.04 MHz</td><td>x dB</td><td>-6.00 dB</td></tr></table>	Occupied Bandwidth	12.246 MHz	Total Power	22.5 dBm	Transmit Freq Error	25.455 kHz	OBW Power	99.00 %	x dB Bandwidth	10.04 MHz	x dB	-6.00 dB
Occupied Bandwidth	12.246 MHz	Total Power	22.5 dBm										
Transmit Freq Error	25.455 kHz	OBW Power	99.00 %										
x dB Bandwidth	10.04 MHz	x dB	-6.00 dB										

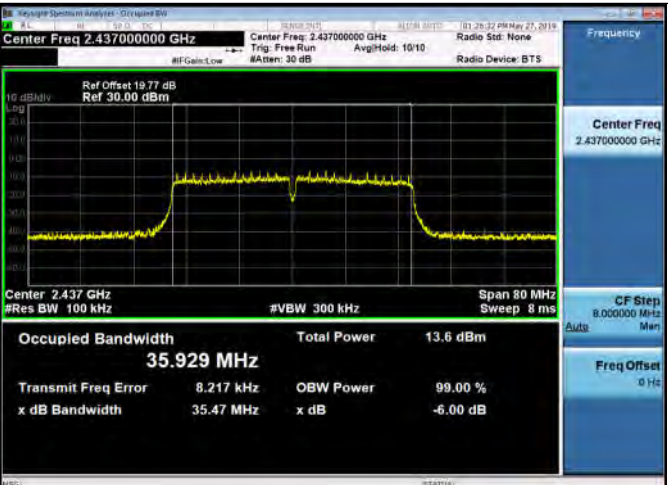
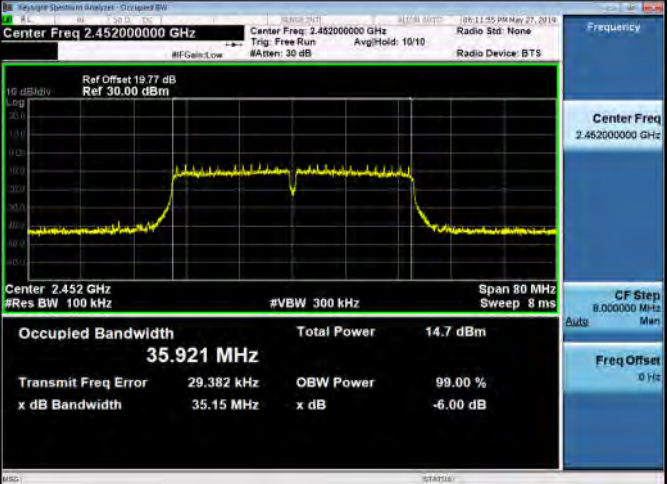
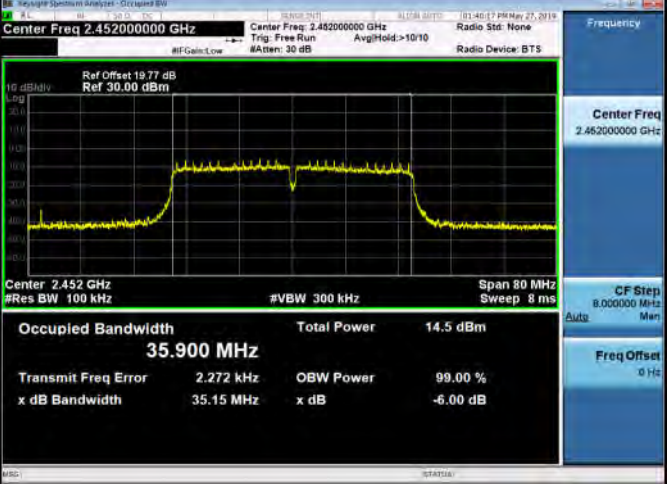
11G/LCH_Ant1	 Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.441 MHz Total Power 15.9 dBm Transmit Freq Error 42.276 kHz OBW Power 99.00 % x dB Bandwidth 16.32 MHz x dB -6.00 dB Freq Offset 0 Hz
11G/LCH_Ant2	 Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.426 MHz Total Power 16.4 dBm Transmit Freq Error 28.547 kHz OBW Power 99.00 % x dB Bandwidth 16.31 MHz x dB -6.00 dB Freq Offset 0 Hz
11G/MCH_Ant1	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.450 MHz Total Power 15.7 dBm Transmit Freq Error 35.929 kHz OBW Power 99.00 % x dB Bandwidth 15.91 MHz x dB -6.00 dB Freq Offset 0 Hz

11G/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.438 MHz Total Power 16.2 dBm Transmit Freq Error 35.149 kHz OBW Power 99.00 % x dB Bandwidth 15.80 MHz x dB -6.00 dB
11G/HCH_Ant1	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.416 MHz Total Power 16.1 dBm Transmit Freq Error 47.768 kHz OBW Power 99.00 % x dB Bandwidth 16.31 MHz x dB -6.00 dB
11G/HCH_Ant2	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.437 MHz Total Power 16.4 dBm Transmit Freq Error 38.480 kHz OBW Power 99.00 % x dB Bandwidth 16.28 MHz x dB -6.00 dB

11N20SISO/LCH_Ant1	 Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.582 MHz Total Power 15.1 dBm Transmit Freq Error 39.614 kHz OBW Power 99.00 % x dB Bandwidth 17.31 MHz x dB -6.00 dB Freq Offset 0 Hz
11N20SISO/LCH_Ant2	 Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.555 MHz Total Power 15.4 dBm Transmit Freq Error 37.189 kHz OBW Power 99.00 % x dB Bandwidth 16.93 MHz x dB -6.00 dB Freq Offset 0 Hz
11N20SISO/MCH_Ant1	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.563 MHz Total Power 14.9 dBm Transmit Freq Error 45.337 kHz OBW Power 99.00 % x dB Bandwidth 17.28 MHz x dB -6.00 dB Freq Offset 0 Hz

11N20SISO/MCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.43700000 GHz - Span: 40 MHz - Occupied Bandwidth: 17.571 MHz - Total Power: 15.3 dBm - Transmit Freq Error: 46.314 kHz - OBW Power: 99.00 % - x dB Bandwidth: 16.92 MHz - x dB: -6.00 dB
11N20SISO/HCH_Ant1	 Key parameters from the screenshot: - Center Freq: 2.46200000 GHz - Span: 40 MHz - Occupied Bandwidth: 17.546 MHz - Total Power: 14.8 dBm - Transmit Freq Error: 48.974 kHz - OBW Power: 99.00 % - x dB Bandwidth: 16.92 MHz - x dB: -6.00 dB
11N20SISO/HCH_Ant2	 Key parameters from the screenshot: - Center Freq: 2.46200000 GHz - Span: 40 MHz - Occupied Bandwidth: 17.573 MHz - Total Power: 15.4 dBm - Transmit Freq Error: 42.211 kHz - OBW Power: 99.00 % - x dB Bandwidth: 16.93 MHz - x dB: -6.00 dB

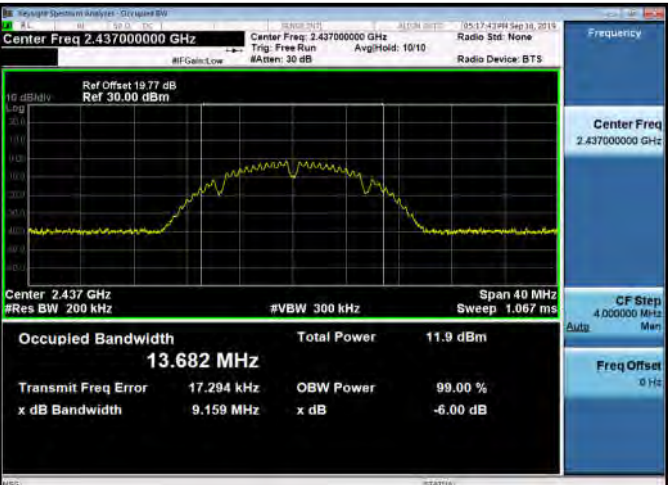
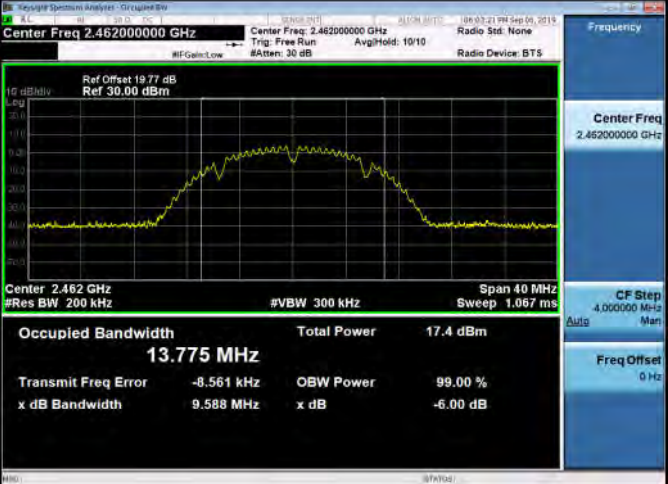
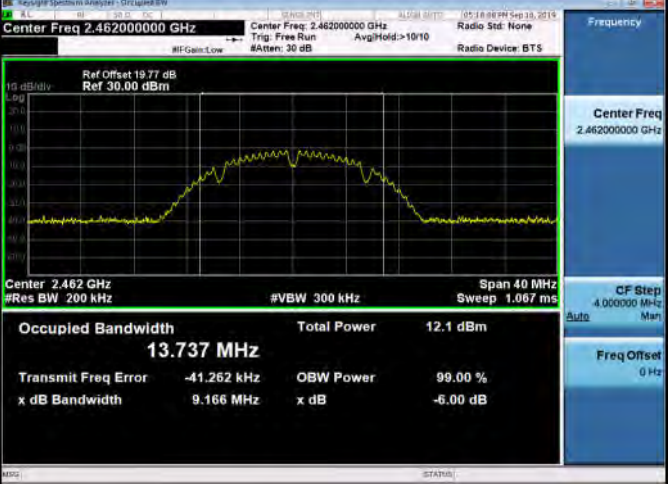
11N40SISO/LCH_Ant1	 Center Freq 2.422000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.897 MHz Total Power 14.1 dBm Transmit Freq Error 19.652 kHz OBW Power 99.00 % x dB Bandwidth 35.47 MHz x dB -6.00 dB
11N40SISO/LCH_Ant2	 Center Freq 2.422000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.935 MHz Total Power 13.7 dBm Transmit Freq Error 3.931 kHz OBW Power 99.00 % x dB Bandwidth 35.35 MHz x dB -6.00 dB
11N40SISO/MCH_Ant1	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.900 MHz Total Power 14.3 dBm Transmit Freq Error 25.178 kHz OBW Power 99.00 % x dB Bandwidth 35.46 MHz x dB -6.00 dB

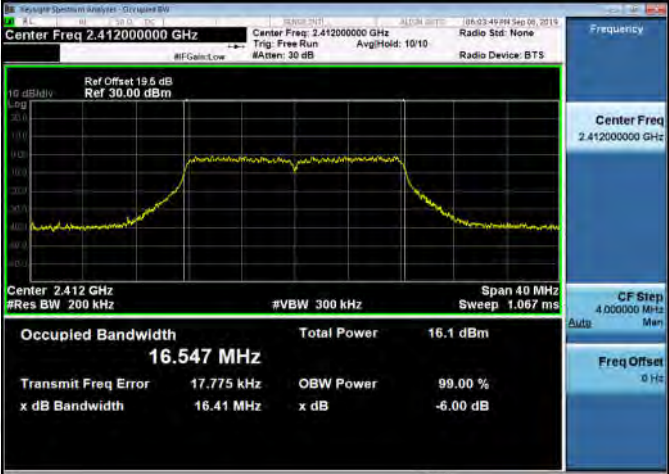
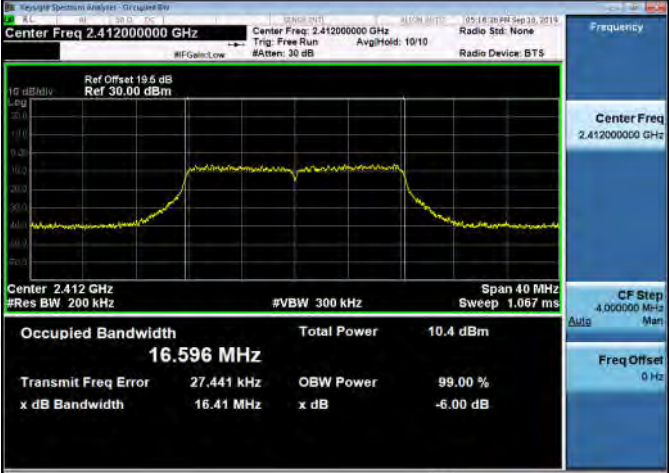
11N40SISO/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.929 MHz Total Power 13.6 dBm Transmit Freq Error 8.217 kHz OBW Power 99.00 % x dB Bandwidth 35.47 MHz x dB -6.00 dB Frequency Center Freq 2.437000000 GHz CF Step 8.000000 MHz Freq Offset 0 Hz
11N40SISO/HCH_Ant1	 Center Freq 2.452000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.921 MHz Total Power 14.7 dBm Transmit Freq Error 29.382 kHz OBW Power 99.00 % x dB Bandwidth 35.15 MHz x dB -6.00 dB Frequency Center Freq 2.452000000 GHz CF Step 8.000000 MHz Freq Offset 0 Hz
11N40SISO/HCH_Ant2	 Center Freq 2.452000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms Occupied Bandwidth 35.900 MHz Total Power 14.5 dBm Transmit Freq Error 2.272 kHz OBW Power 99.00 % x dB Bandwidth 35.15 MHz x dB -6.00 dB Frequency Center Freq 2.452000000 GHz CF Step 8.000000 MHz Freq Offset 0 Hz

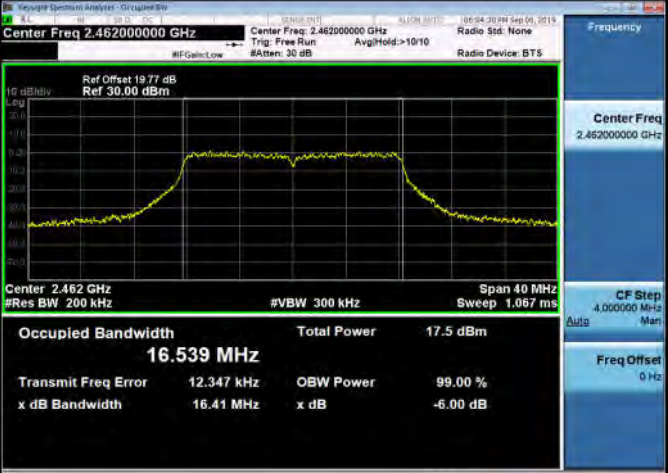
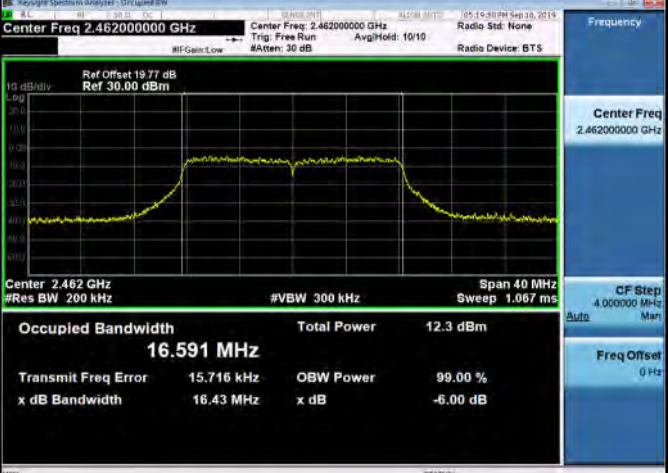
Occupied Bandwidth(99%)

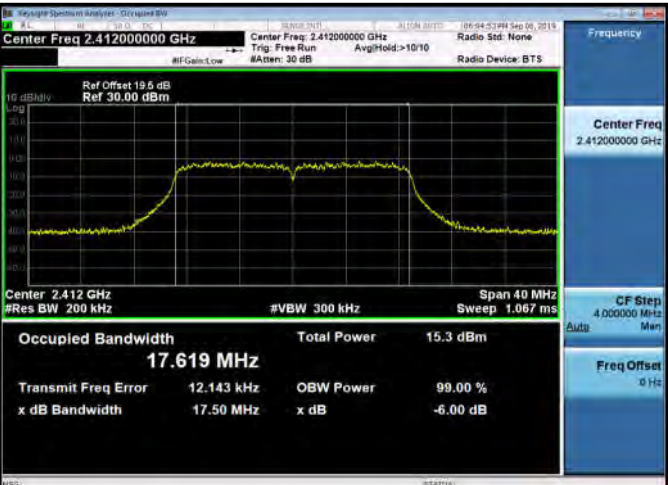
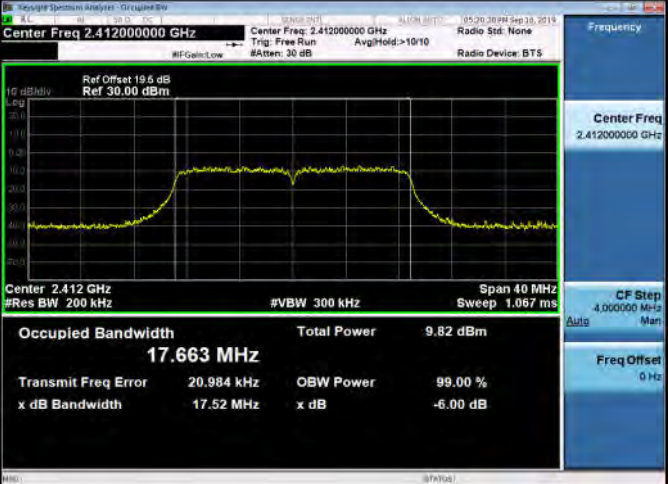
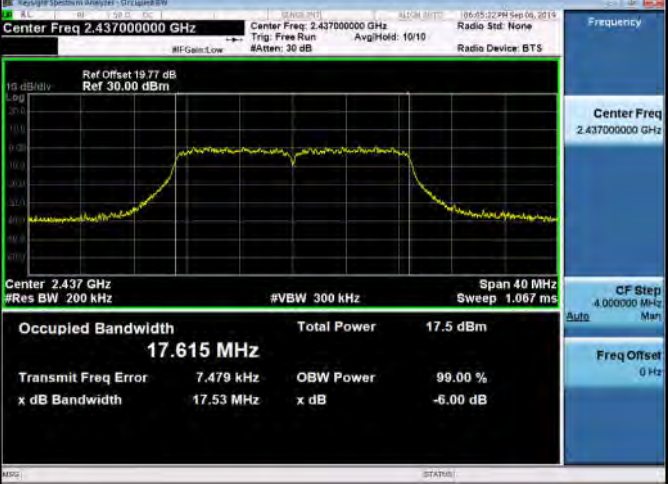
Mode	Antenna	Channel	99% OBW [MHz]	Verdict
11B	Ant1	LCH	13.617	PASS
11B	Ant2	LCH	13.722	PASS
11B	Ant1	MCH	13.688	PASS
11B	Ant2	MCH	13.682	PASS
11B	Ant1	HCH	13.775	PASS
11B	Ant2	HCH	13.737	PASS
11G	Ant1	LCH	16.547	PASS
11G	Ant2	LCH	16.596	PASS
11G	Ant1	MCH	16.558	PASS
11G	Ant2	MCH	16.580	PASS
11G	Ant1	HCH	16.539	PASS
11G	Ant2	HCH	16.591	PASS
11N20SISO	Ant1	LCH	17.619	PASS
11N20SISO	Ant2	LCH	17.663	PASS
11N20SISO	Ant1	MCH	17.615	PASS
11N20SISO	Ant2	MCH	17.665	PASS
11N20SISO	Ant1	HCH	17.618	PASS
11N20SISO	Ant2	HCH	17.658	PASS
11N40SISO	Ant1	LCH	36.516	PASS
11N40SISO	Ant2	LCH	36.615	PASS
11N40SISO	Ant1	MCH	36.517	PASS
11N40SISO	Ant2	MCH	36.619	PASS
11N40SISO	Ant1	HCH	36.502	PASS
11N40SISO	Ant2	HCH	36.627	PASS

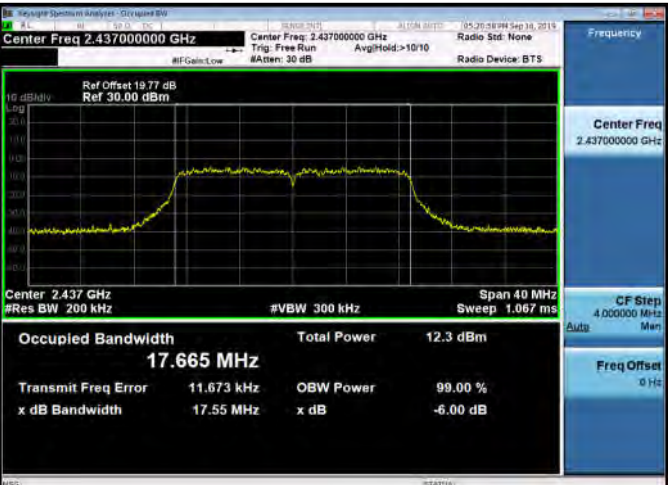
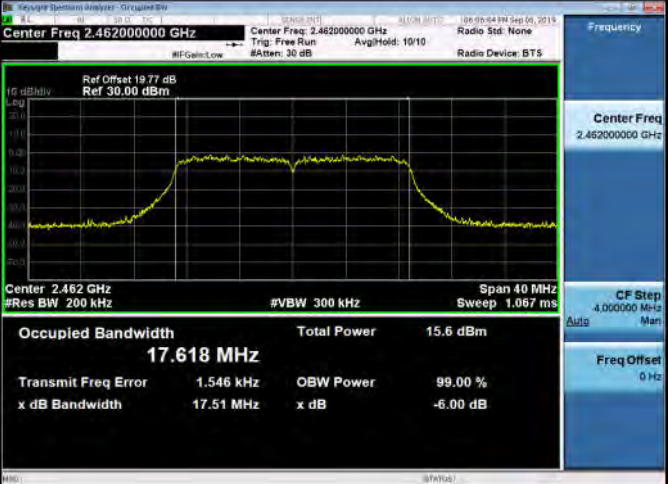
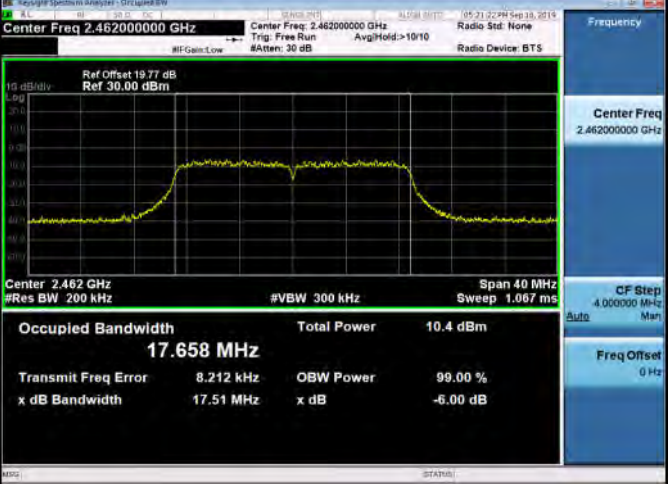


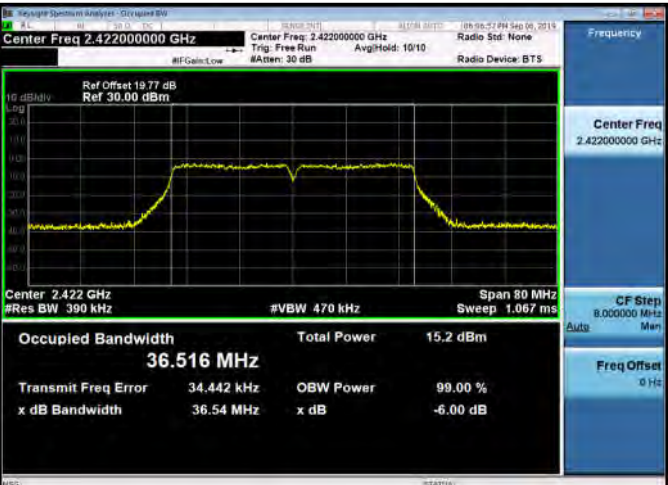
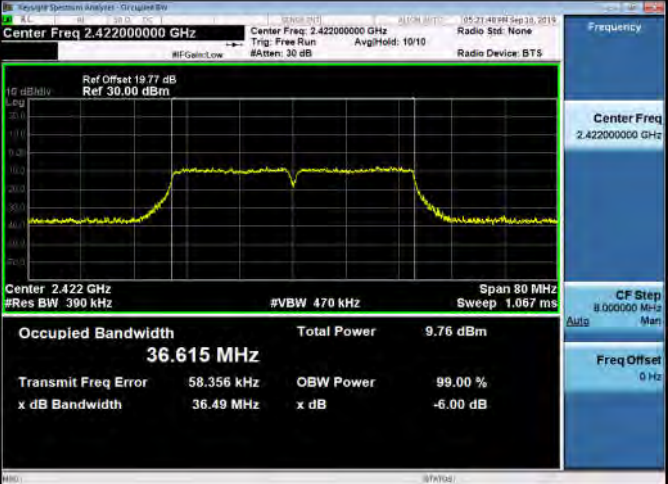
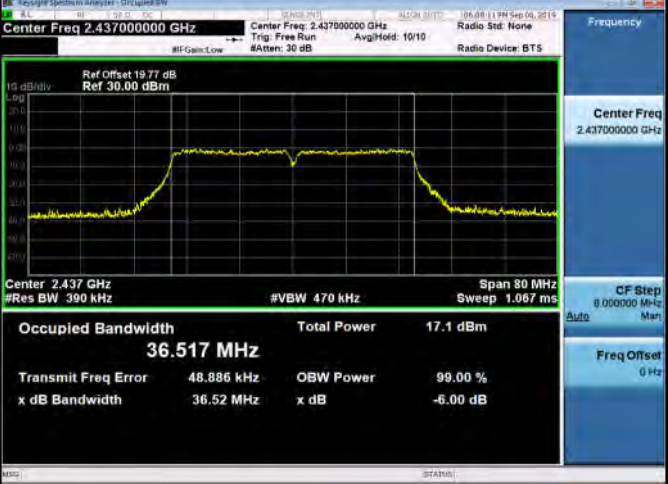
11B/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 13.682 MHz Total Power 11.9 dBm Transmit Freq Error 17.294 kHz OBW Power 99.00 % x dB Bandwidth 9.159 MHz x dB -6.00 dB
11B/HCH_Ant1	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 13.775 MHz Total Power 17.4 dBm Transmit Freq Error -8.561 kHz OBW Power 99.00 % x dB Bandwidth 9.588 MHz x dB -6.00 dB
11B/HCH_Ant2	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 13.737 MHz Total Power 12.1 dBm Transmit Freq Error -41.262 kHz OBW Power 99.00 % x dB Bandwidth 9.166 MHz x dB -6.00 dB

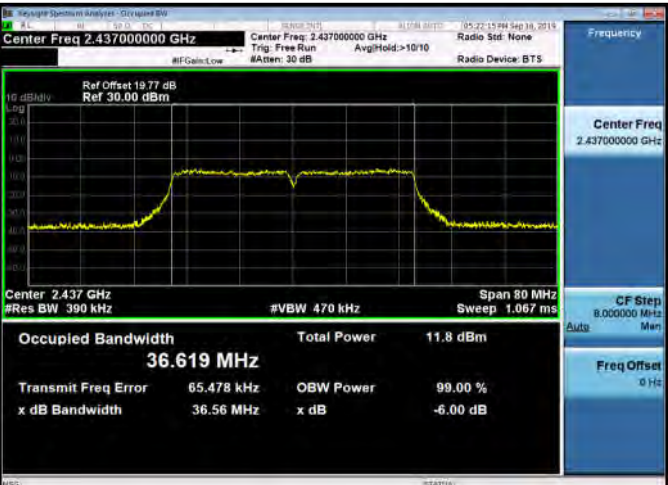
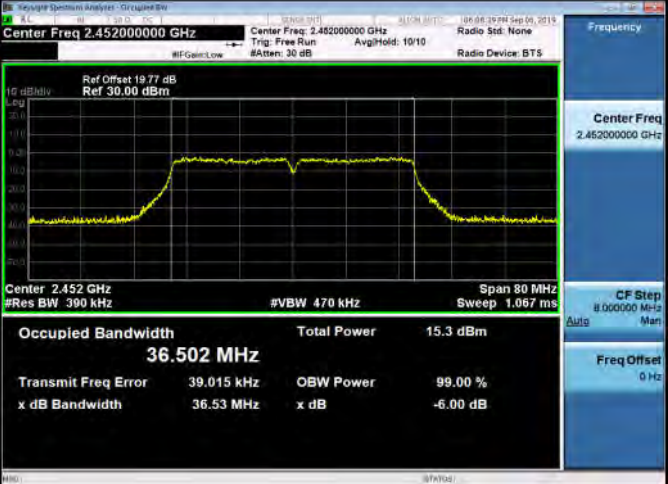
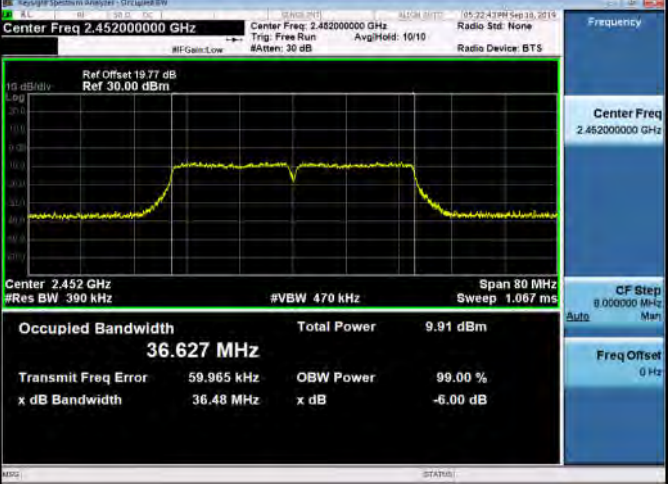
11G/LCH_Ant1	 Center Freq 2.412000000 GHz Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.547 MHz Total Power 16.1 dBm Transmit Freq Error 17.775 kHz OBW Power 99.00 % x dB Bandwidth 16.41 MHz x dB -6.00 dB
11G/LCH_Ant2	 Center Freq 2.412000000 GHz Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.596 MHz Total Power 10.4 dBm Transmit Freq Error 27.441 kHz OBW Power 99.00 % x dB Bandwidth 16.41 MHz x dB -6.00 dB
11G/MCH_Ant1	 Center Freq 2.437000000 GHz Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.558 MHz Total Power 18.3 dBm Transmit Freq Error 21.017 kHz OBW Power 99.00 % x dB Bandwidth 16.39 MHz x dB -6.00 dB

11G/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.580 MHz Total Power 13.3 dBm Transmit Freq Error 26.576 kHz OBW Power 99.00 % x dB Bandwidth 16.41 MHz x dB -6.00 dB
11G/HCH_Ant1	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.539 MHz Total Power 17.5 dBm Transmit Freq Error 12.347 kHz OBW Power 99.00 % x dB Bandwidth 16.41 MHz x dB -6.00 dB
11G/HCH_Ant2	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 16.591 MHz Total Power 12.3 dBm Transmit Freq Error 15.716 kHz OBW Power 99.00 % x dB Bandwidth 16.43 MHz x dB -6.00 dB

11N20SISO/LCH_Ant1	 Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.619 MHz Total Power 15.3 dBm Transmit Freq Error 12.143 kHz OBW Power 99.00 % x dB Bandwidth 17.50 MHz x dB -6.00 dB
11N20SISO/LCH_Ant2	 Center Freq 2.412000000 GHz Ref Offset 19.6 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.663 MHz Total Power 9.82 dBm Transmit Freq Error 20.984 kHz OBW Power 99.00 % x dB Bandwidth 17.52 MHz x dB -6.00 dB
11N20SISO/MCH_Ant1	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.615 MHz Total Power 17.5 dBm Transmit Freq Error 7.479 kHz OBW Power 99.00 % x dB Bandwidth 17.53 MHz x dB -6.00 dB

11N20SISO/MCH_Ant2	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.665 MHz Total Power 12.3 dBm Transmit Freq Error 11.673 kHz OBW Power 99.00 % x dB Bandwidth 17.55 MHz x dB -6.00 dB
11N20SISO/HCH_Ant1	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.618 MHz Total Power 15.6 dBm Transmit Freq Error 1.546 kHz OBW Power 99.00 % x dB Bandwidth 17.51 MHz x dB -6.00 dB
11N20SISO/HCH_Ant2	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 200 kHz #VBW 300 kHz Span 40 MHz Sweep 1.067 ms Occupied Bandwidth 17.658 MHz Total Power 10.4 dBm Transmit Freq Error 8.212 kHz OBW Power 99.00 % x dB Bandwidth 17.51 MHz x dB -6.00 dB

11N40SISO/LCH_Ant1	 Center Freq 2.422000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.422 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.516 MHz Total Power 15.2 dBm Transmit Freq Error 34.442 kHz OBW Power 99.00 % x dB Bandwidth 36.54 MHz x dB -6.00 dB
11N40SISO/LCH_Ant2	 Center Freq 2.422000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.422 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.615 MHz Total Power 9.76 dBm Transmit Freq Error 58.356 kHz OBW Power 99.00 % x dB Bandwidth 36.49 MHz x dB -6.00 dB
11N40SISO/MCH_Ant1	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.517 MHz Total Power 17.1 dBm Transmit Freq Error 48.886 kHz OBW Power 99.00 % x dB Bandwidth 36.52 MHz x dB -6.00 dB

11N40SISO/MCH_Ant2	 Center Freq 2.43700000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.619 MHz Total Power 11.8 dBm Transmit Freq Error 65.478 kHz OBW Power 99.00 % x dB Bandwidth 36.56 MHz x dB -6.00 dB
11N40SISO/HCH_Ant1	 Center Freq 2.45200000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.452 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.502 MHz Total Power 15.3 dBm Transmit Freq Error 39.015 kHz OBW Power 99.00 % x dB Bandwidth 36.53 MHz x dB -6.00 dB
11N40SISO/HCH_Ant2	 Center Freq 2.45200000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.452 GHz #Res BW 390 kHz #VBW 470 kHz Span 80 MHz Sweep 1.067 ms Occupied Bandwidth 36.627 MHz Total Power 9.91 dBm Transmit Freq Error 59.965 kHz OBW Power 99.00 % x dB Bandwidth 36.48 MHz x dB -6.00 dB

Appendix C): Band-edge for RF Conducted Emissions

Result Table

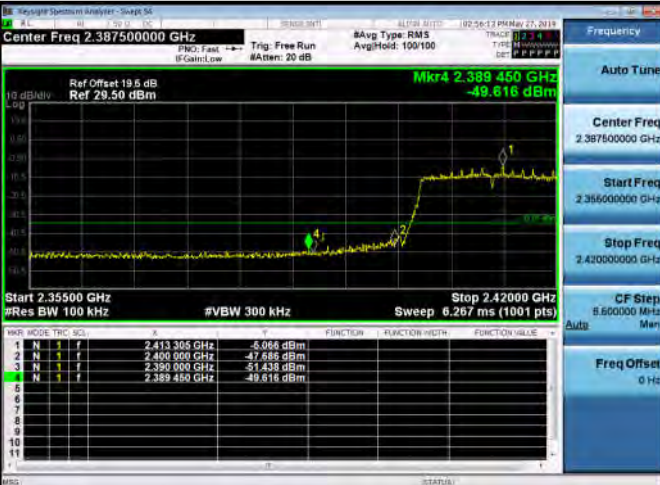
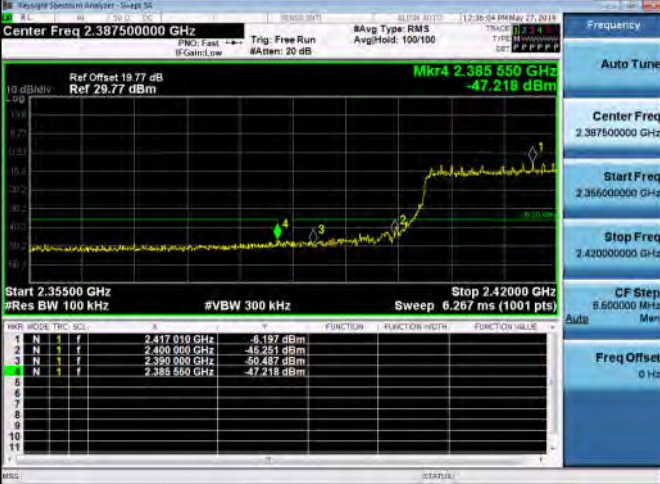
Mode	Antenna	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Ant1	LCH	5.633	-46.545	-24.37	PASS
11B	Ant2	LCH	5.737	-48.721	-24.26	PASS
11B	Ant1	HCH	5.564	-48.493	-24.44	PASS
11B	Ant2	HCH	6.004	-47.677	-24	PASS
11G	Ant1	LCH	-0.897	-48.923	-30.9	PASS
11G	Ant2	LCH	-0.618	-46.286	-30.62	PASS
11G	Ant1	HCH	-0.999	-48.519	-31	PASS
11G	Ant2	HCH	-0.253	-47.281	-30.25	PASS
11N20SISO	Ant1	LCH	-2.494	-49.054	-32.49	PASS
11N20SISO	Ant2	LCH	-2.103	-48.097	-32.1	PASS
11N20SISO	Ant1	HCH	-1.983	-48.799	-31.98	PASS
11N20SISO	Ant2	HCH	-1.864	-47.738	-31.86	PASS
11N20MIMO	Ant1	LCH	-5.066	-49.616	-35.07	PASS
11N20MIMO	Ant2	LCH	-5.351	-48.661	-35.35	PASS
11N20MIMO	Ant1	HCH	-5.340	-49.698	-35.34	PASS
11N20MIMO	Ant2	HCH	-5.687	-49.915	-35.69	PASS
11N40SISO	Ant1	LCH	-6.197	-47.218	-36.2	PASS
11N40SISO	Ant2	LCH	-6.725	-44.799	-36.73	PASS
11N40SISO	Ant1	HCH	-5.799	-46.050	-35.8	PASS
11N40SISO	Ant2	HCH	-6.180	-44.135	-36.18	PASS
11N40MIMO	Ant1	LCH	-9.484	-48.911	-39.48	PASS
11N40MIMO	Ant2	LCH	-9.333	-47.088	-39.33	PASS
11N40MIMO	Ant1	HCH	-8.868	-48.670	-38.87	PASS
11N40MIMO	Ant2	HCH	-9.851	-48.704	-39.85	PASS

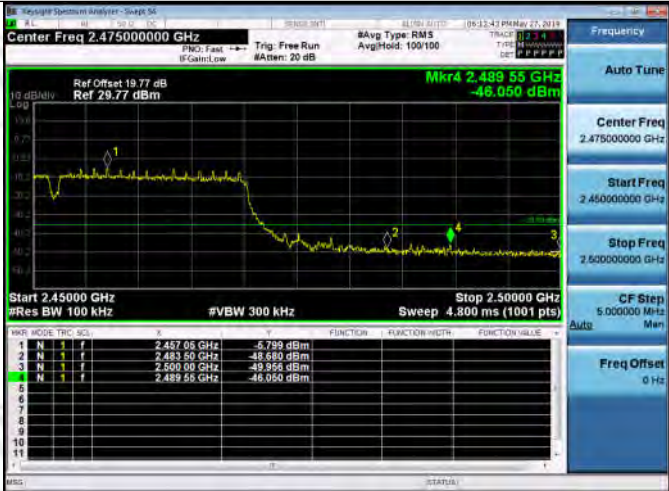
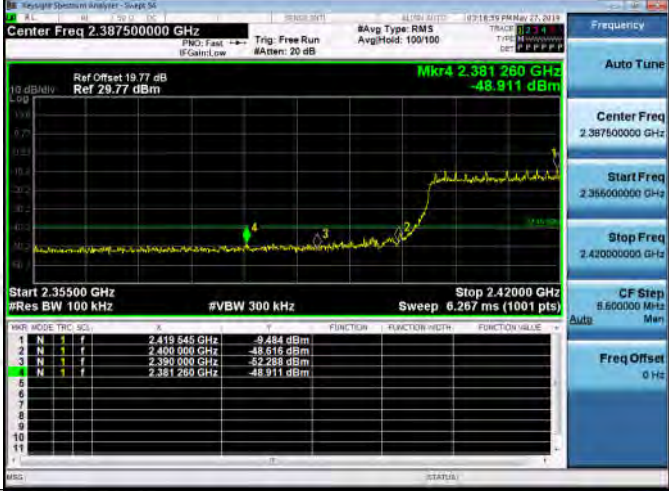
Test Graph

Graphs_Ant1



11G/HCH	 <table><tr><th>PKR</th><th>MODE</th><th>TRIG</th><th>SCN</th><th>F</th><th>M</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.46330 GHz</td><td>-0.999 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.48350 GHz</td><td>-50.117 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.50000 GHz</td><td>-51.714 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.48370 GHz</td><td>-48.519 dBm</td><td></td><td></td><td></td></tr></table>	PKR	MODE	TRIG	SCN	F	M	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.46330 GHz	-0.999 dBm				2	N	1	f	2.48350 GHz	-50.117 dBm				3	N	1	f	2.50000 GHz	-51.714 dBm				4	N	1	f	2.48370 GHz	-48.519 dBm				
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11N20SISO/LCH	 <table><tr><th>PKR</th><th>MODE</th><th>TRIG</th><th>SCN</th><th>F</th><th>M</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.414540 GHz</td><td>-2.494 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400000 GHz</td><td>-43.991 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390000 GHz</td><td>-49.591 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.388800 GHz</td><td>-49.054 dBm</td><td></td><td></td><td></td></tr></table>	PKR	MODE	TRIG	SCN	F	M	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.414540 GHz	-2.494 dBm				2	N	1	f	2.400000 GHz	-43.991 dBm				3	N	1	f	2.390000 GHz	-49.591 dBm				4	N	1	f	2.388800 GHz	-49.054 dBm				
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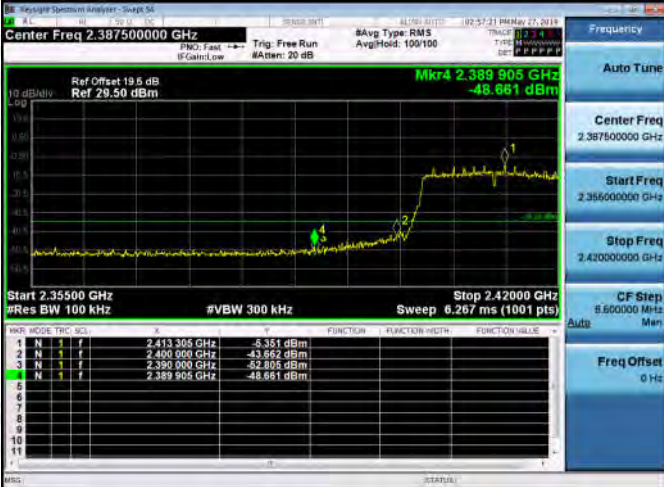
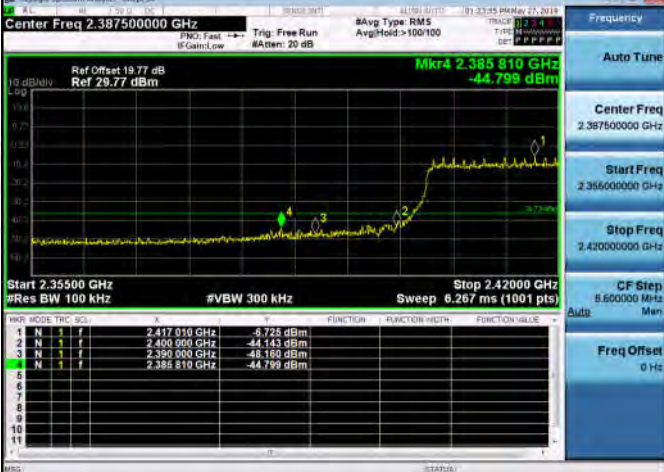
11N20MIMO/LCH		
11N20MIMO/HCH		
11N40SISO/LCH		

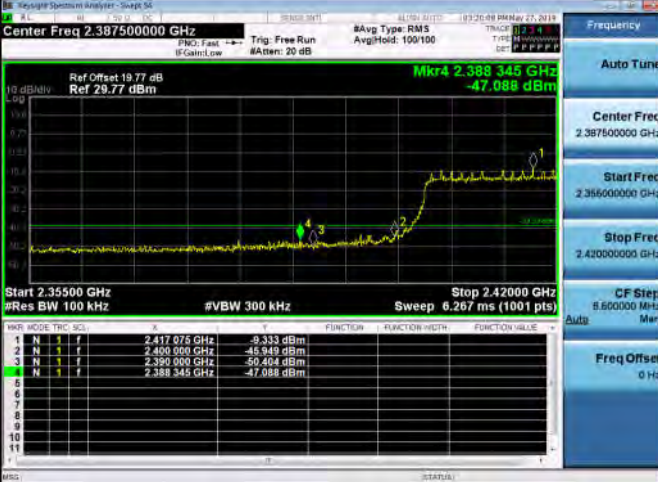
11N40SISO/HCH		
11N40MIMO/LCH		
11N40MIMO/HCH		

Graphs_Ant2



11G/HCH	Key parameters for 11G/HCH: - Center Freq: 2.475000000 GHz - Start Freq: 2.450000000 GHz - Stop Freq: 2.500000000 GHz - CF Step: 5.000000 MHz - Freq Offset: 0 Hz - Ref Offset: 19.77 dB - Ref: 29.77 dBm - Mkr4: 2.48395 GHz, -47.281 dBm
11N20SISO/LCH	Key parameters for 11N20SISO/LCH: - Center Freq: 2.387500000 GHz - Start Freq: 2.365000000 GHz - Stop Freq: 2.420000000 GHz - CF Step: 5.500000 MHz - Freq Offset: 0 Hz - Ref Offset: 19.5 dB - Ref: 29.50 dBm - Mkr4: 2.388280 GHz, -48.097 dBm
11N20SISO/HCH	Key parameters for 11N20SISO/HCH: - Center Freq: 2.475000000 GHz - Start Freq: 2.450000000 GHz - Stop Freq: 2.500000000 GHz - CF Step: 5.000000 MHz - Freq Offset: 0 Hz - Ref Offset: 19.77 dB - Ref: 29.77 dBm - Mkr4: 2.48390 GHz, -47.738 dBm

11N20MIMO/LCH	 <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>2.413305 GHz</td><td>-5.351 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>2.400000 GHz</td><td>-43.662 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>2.390000 GHz</td><td>-52.895 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>2.389905 GHz</td><td>-48.661 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	2.413305 GHz	-5.351 dBm				2	N	2.400000 GHz	-43.662 dBm				3	N	2.390000 GHz	-52.895 dBm				4	N	2.389905 GHz	-48.661 dBm				
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11N20MIMO/HCH	 <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>2.46335 GHz</td><td>-6.687 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>2.49335 GHz</td><td>-51.899 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>2.50000 GHz</td><td>-52.591 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>2.49335 GHz</td><td>-49.915 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	2.46335 GHz	-6.687 dBm				2	N	2.49335 GHz	-51.899 dBm				3	N	2.50000 GHz	-52.591 dBm				4	N	2.49335 GHz	-49.915 dBm				
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11N40SISO/LCH	 <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>2.417010 GHz</td><td>-5.725 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>2.400000 GHz</td><td>-44.143 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>2.390000 GHz</td><td>-48.160 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>2.385810 GHz</td><td>-44.799 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	2.417010 GHz	-5.725 dBm				2	N	2.400000 GHz	-44.143 dBm				3	N	2.390000 GHz	-48.160 dBm				4	N	2.385810 GHz	-44.799 dBm				
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11N40SISO/HCH		
11N40MIMO/LCH		
11N40MIMO/HCH		

Appendix D): RF Conducted Spurious Emissions

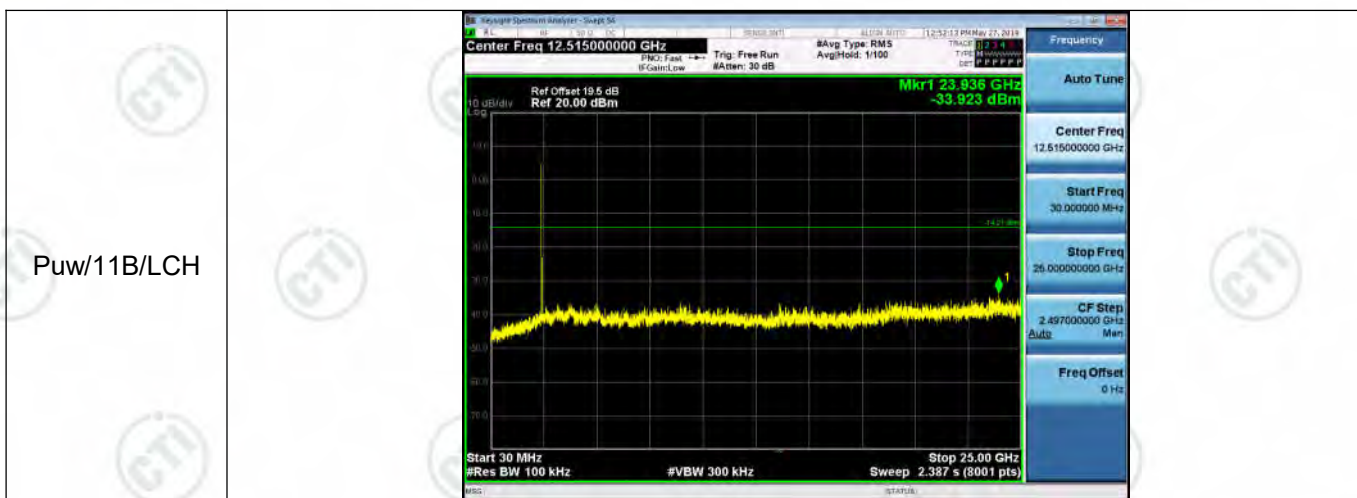
Result Table

Mode	Antenna	Channel	Power Spectral Density [dBm]	Verdict
11B	Ant1	LCH	-7.211	PASS
11B	Ant2	LCH	-7.815	PASS
11B	Ant1	MCH	-8.788	PASS
11B	Ant2	MCH	-7.142	PASS
11B	Ant1	HCH	-8.187	PASS
11B	Ant2	HCH	-7.604	PASS
11G	Ant1	LCH	-14.632	PASS
11G	Ant2	LCH	-14.576	PASS
11G	Ant1	MCH	-14.471	PASS
11G	Ant2	MCH	-14.461	PASS
11G	Ant1	HCH	-14.664	PASS
11G	Ant2	HCH	-14.863	PASS
11N20SISO	Ant1	LCH	-15.872	PASS
11N20SISO	Ant2	LCH	-15.152	PASS
11N20SISO	Ant1	MCH	-15.866	PASS
11N20SISO	Ant2	MCH	-15.804	PASS
11N20SISO	Ant1	HCH	-15.456	PASS
11N20SISO	Ant2	HCH	-16.268	PASS
11N20MIMO	Ant1	LCH	-19.442	PASS
11N20MIMO	Ant2	LCH	-19.183	PASS
11N20MIMO	Ant1+2	LCH	-16.30	PASS
11N20MIMO	Ant1	MCH	-19.322	PASS
11N20MIMO	Ant2	MCH	-18.838	PASS
11N20MIMO	Ant1+2	MCH	-16.06	PASS
11N20MIMO	Ant1	HCH	-19.615	PASS
11N20MIMO	Ant2	HCH	-19.126	PASS
11N20MIMO	Ant1+2	HCH	-16.35	PASS
11N40SISO	Ant1	LCH	-21.029	PASS
11N40SISO	Ant2	LCH	-21.629	PASS
11N40SISO	Ant1	MCH	-18.916	PASS
11N40SISO	Ant2	MCH	-20.266	PASS

11N40SISO	Ant1	HCH	-20.131	PASS
11N40SISO	Ant2	HCH	-20.603	PASS
11N40MIMO	Ant1	LCH	-23.791	PASS
11N40MIMO	Ant2	LCH	-24.205	PASS
11N40MIMO	Ant1+2	LCH	-20.98	PASS
11N40MIMO	Ant1	MCH	-24.018	PASS
11N40MIMO	Ant2	MCH	-23.060	PASS
11N40MIMO	Ant1+2	MCH	-20.50	PASS
11N40MIMO	Ant1	HCH	-22.771	PASS
11N40MIMO	Ant2	HCH	-22.429	PASS
11N40MIMO	Ant1+2	HCH	-19.59	PASS

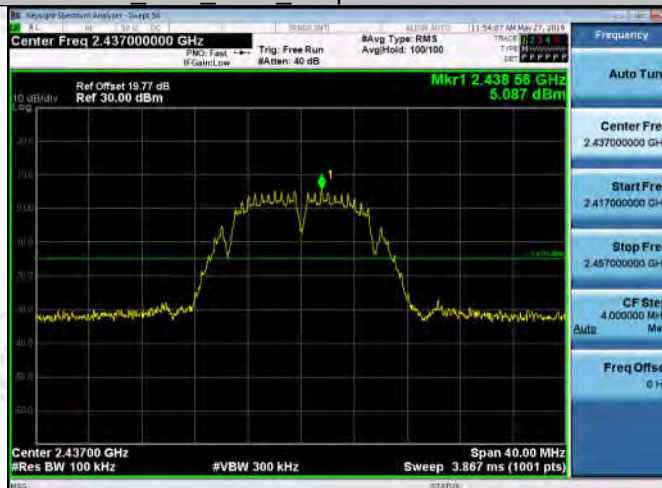
Test Graph





11B Ant1_MCH Graphs

Pref/11B/MCH



Puw/11B/MCH

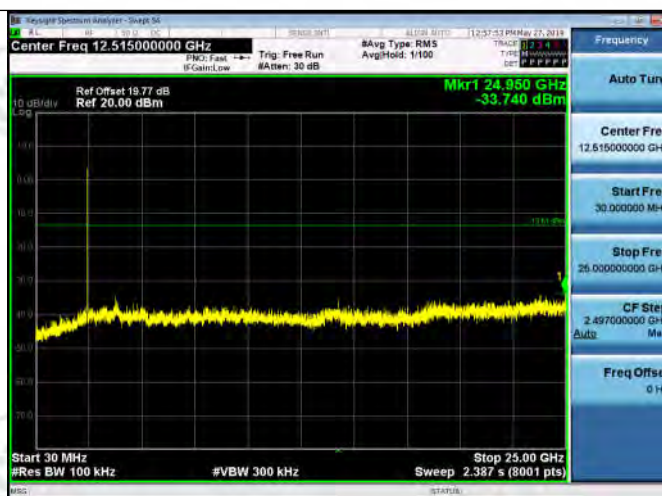


11B Ant2_MCH Graphs

Pref/11B/MCH

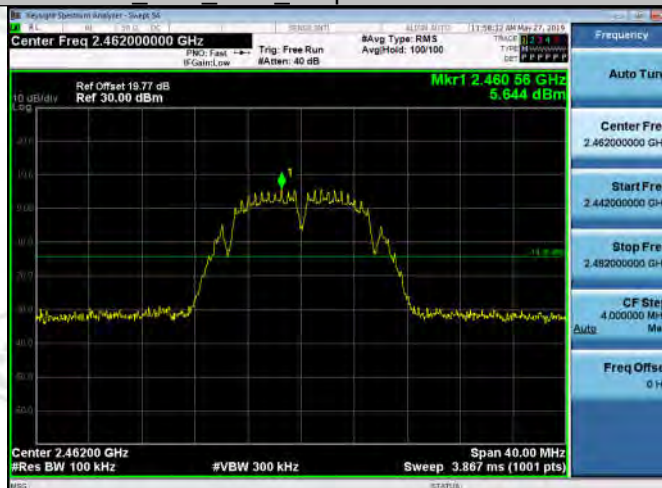


Puw/11B/MCH

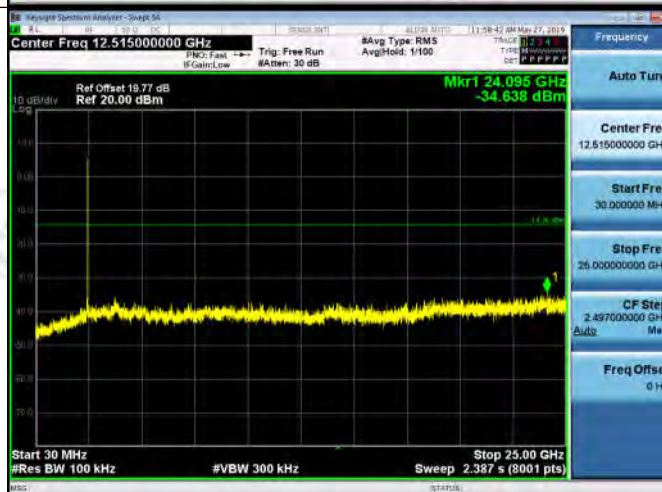


11B_Ant1_HCH Graphs

Pref/11B/HCH

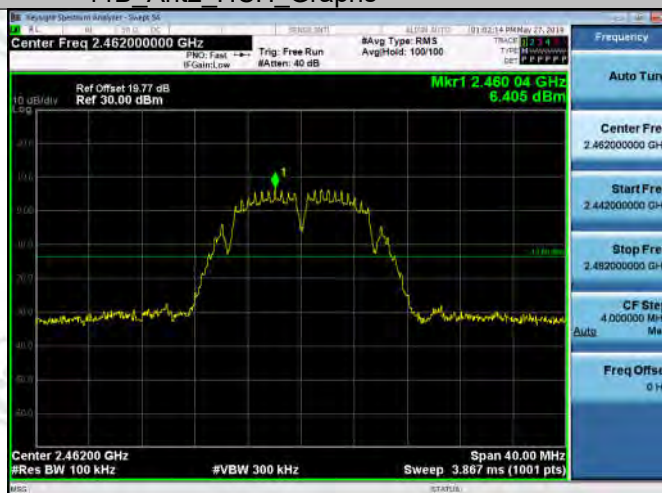


Puw/11B/HCH

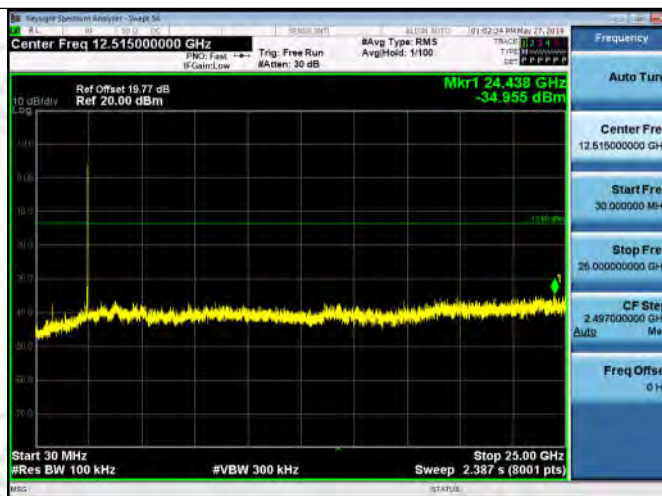


11B_Ant2_HCH Graphs

Pref/11B/HCH

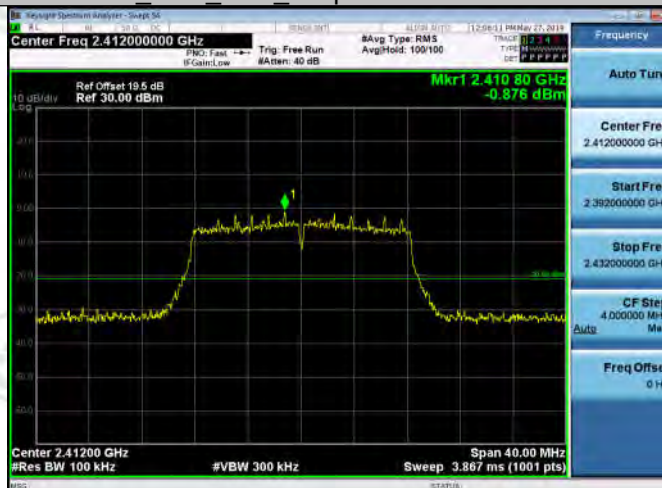


Puw/11B/HCH

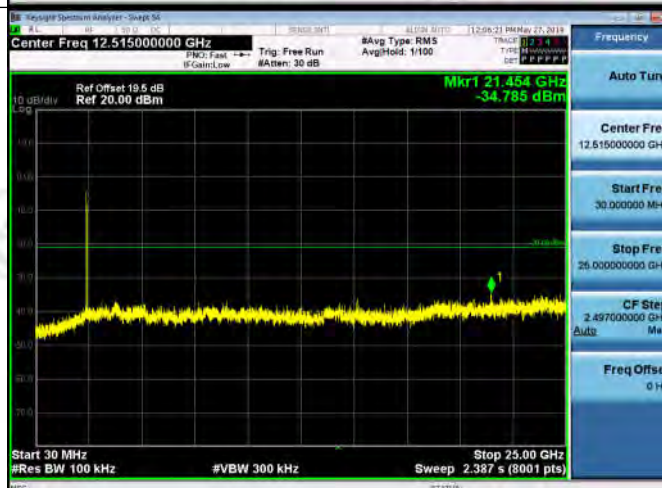


11G_Ant1_LCH Graphs

Pref/11G/LCH



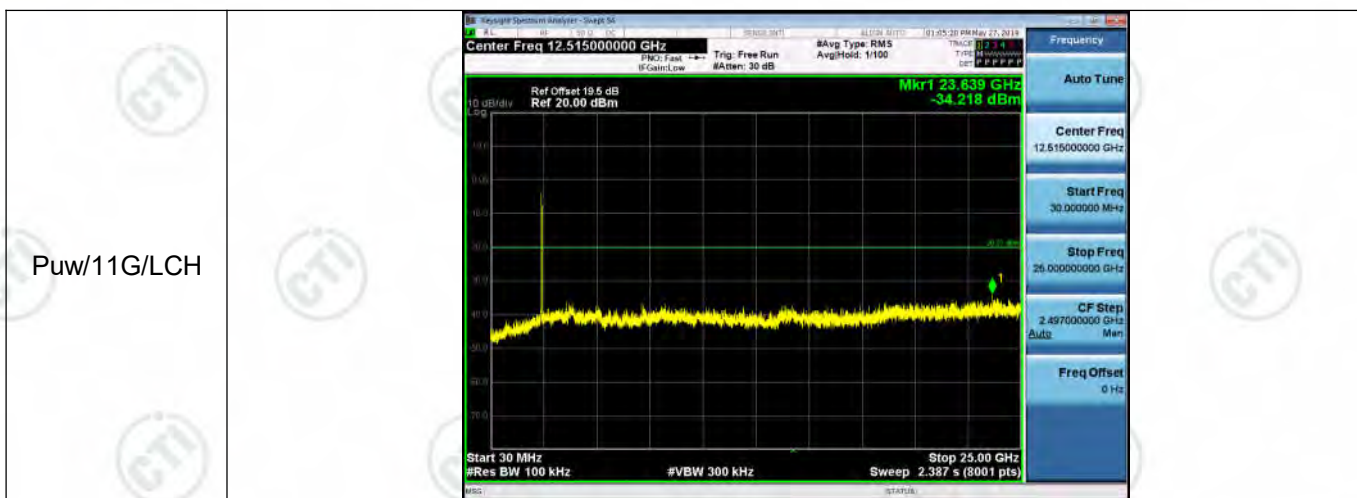
Puw/11G/LCH



11G_Ant2_LCH Graphs

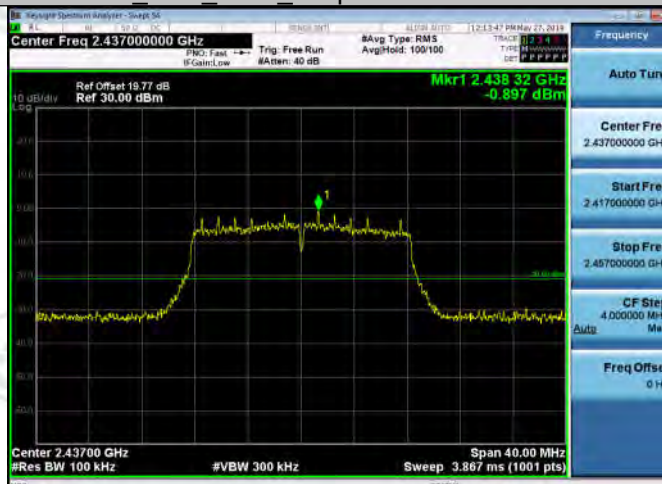
Pref/11G/LCH



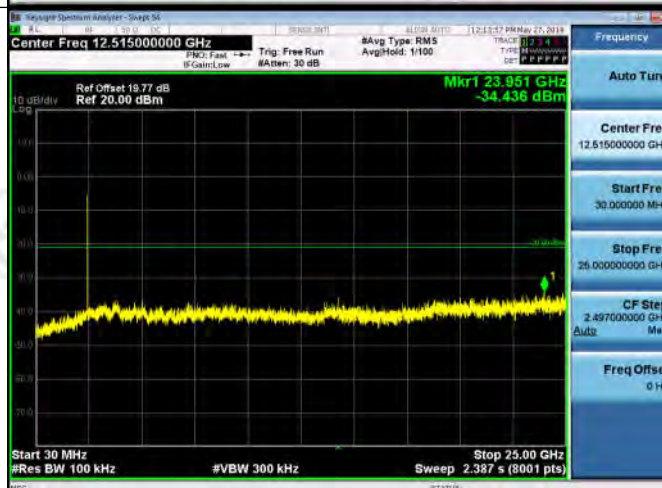


11G_Ant1_MCH_Graphs

Pref/11G/MCH

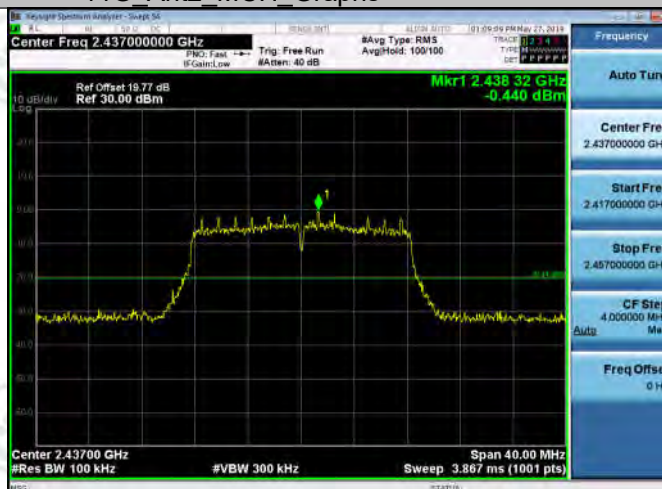


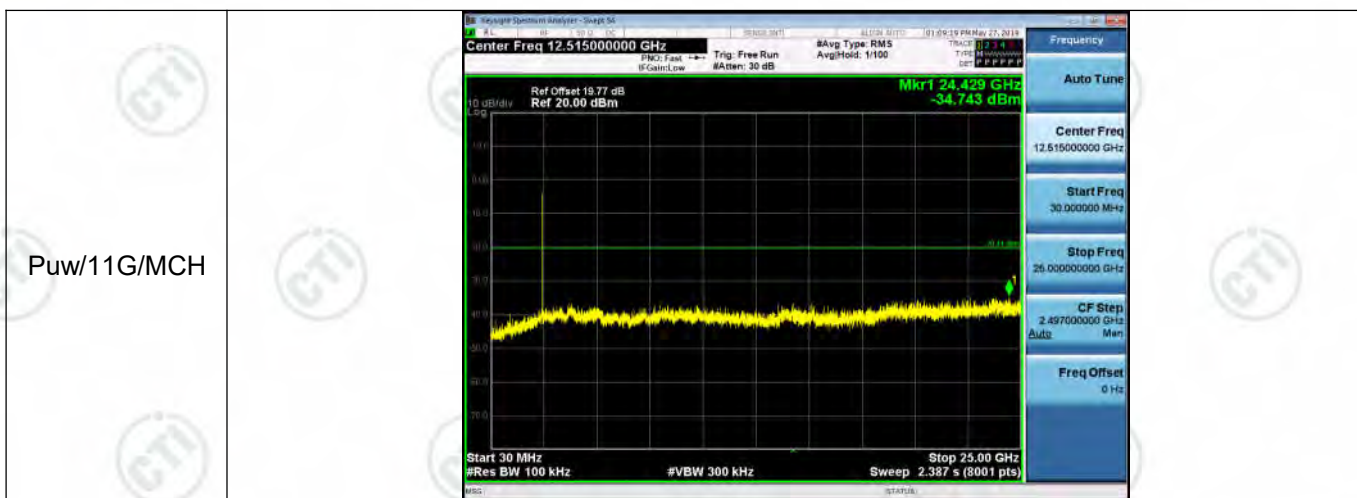
Puw/11G/MCH



11G_Ant2_MCH_Graphs

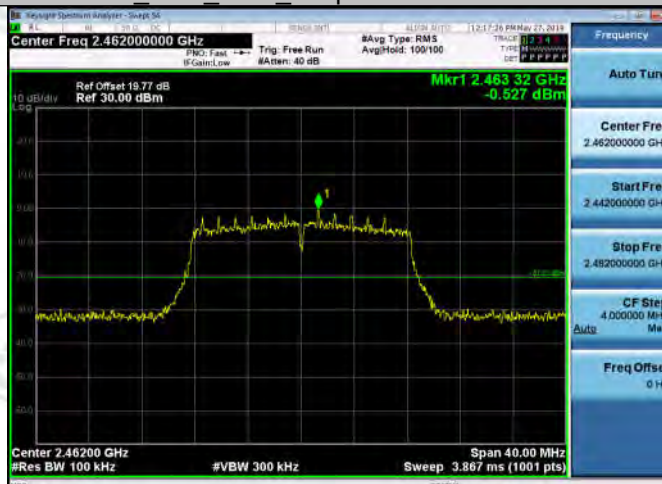
Pref/11G/MCH



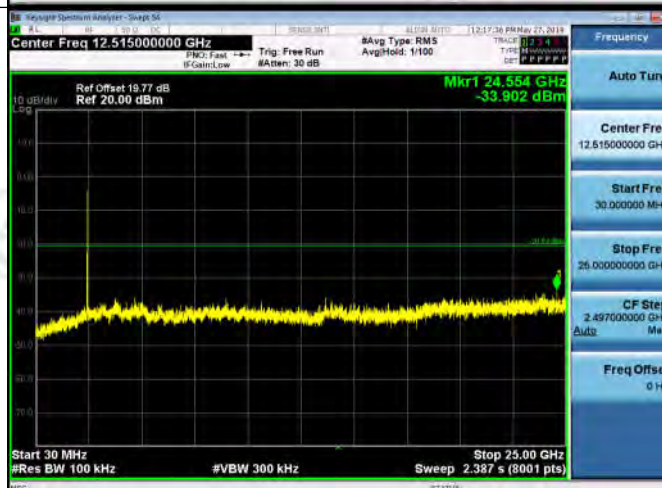


11G_Ant1_HCH_Graphs

Pref/11G/HCH

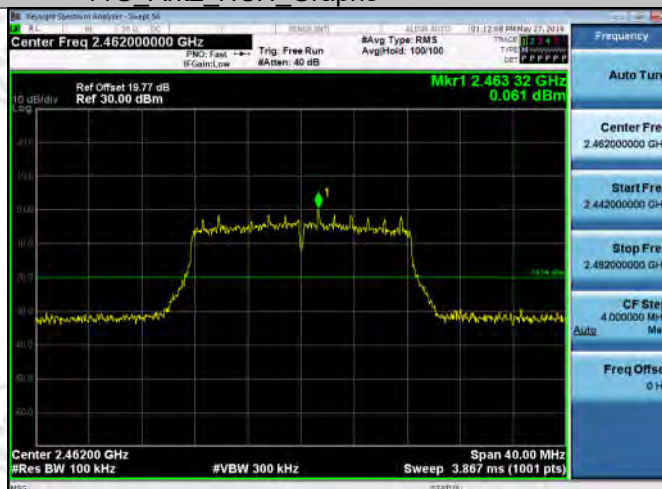


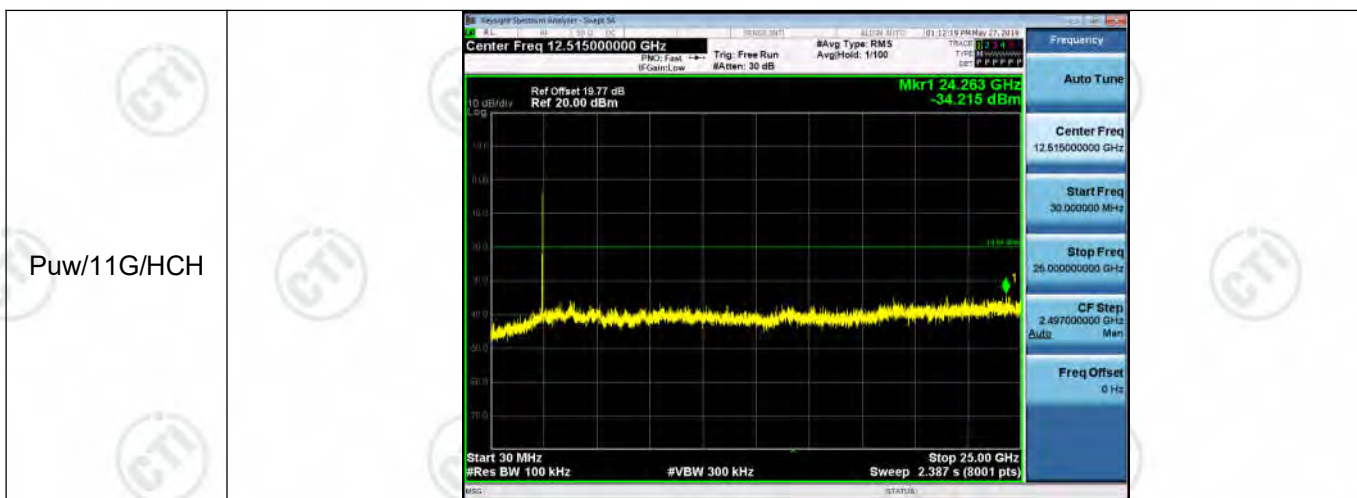
Puw/11G/HCH



11G_Ant2_HCH_Graphs

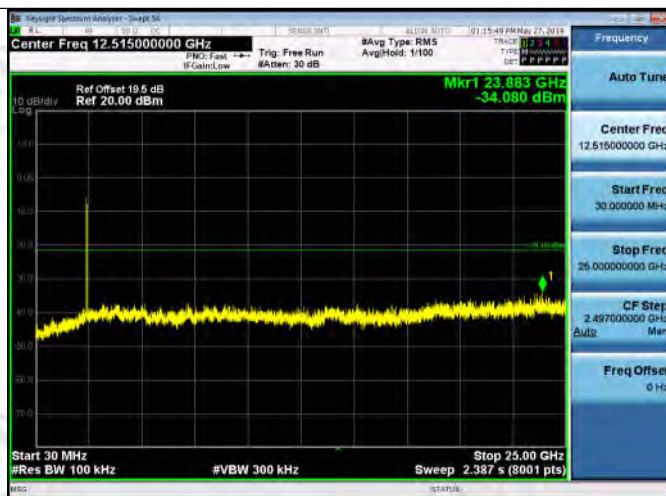
Pref/11G/HCH



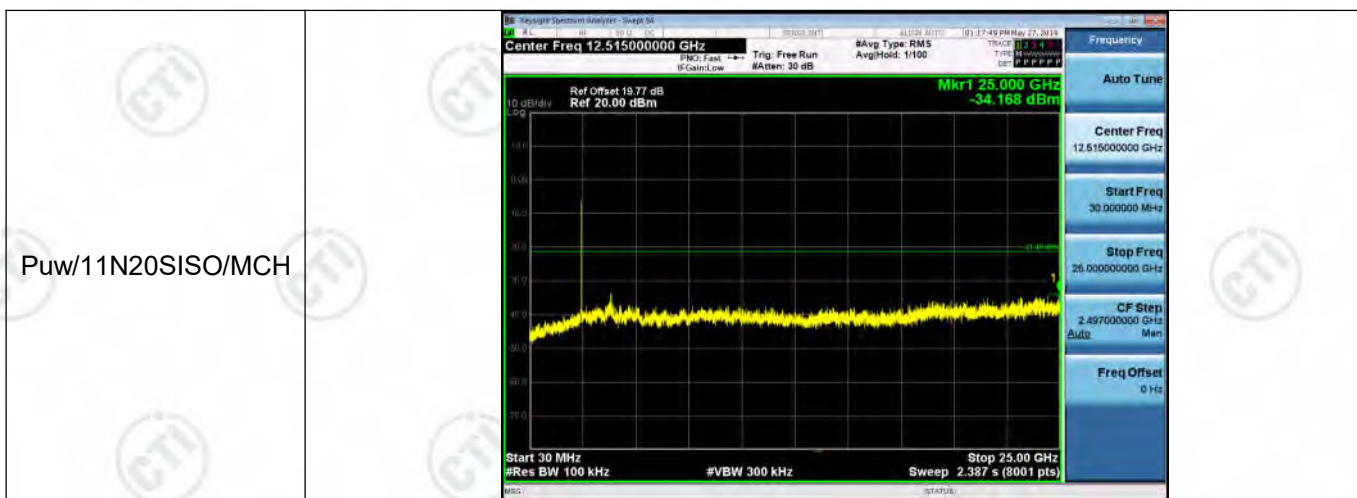


11N20SISO_Ant1_LCH_Graphs	
Pref/11N20SISO/LCH	
Puw/11N20SISO/LCH	
11N20SISO_Ant2_LCH_Graphs	
Pref/11N20SISO/LCH	

Puw/11N20SISO/LCH

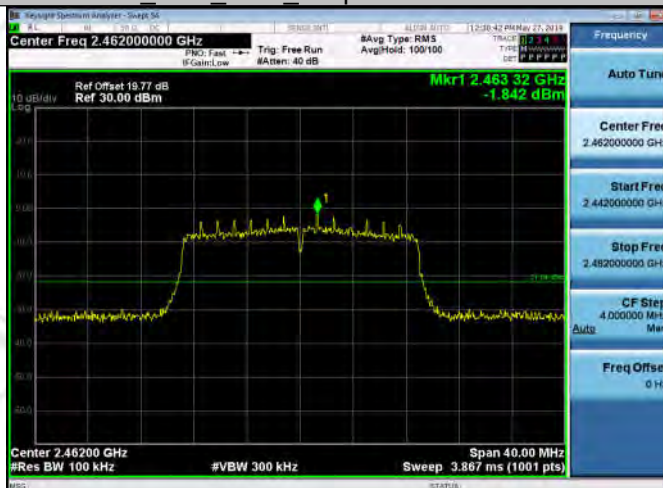


11N20SISO Ant1 MCH Graphs		
Pref/11N20SISO/MCH		
Puw/11N20SISO/MCH		
11N20SISO Ant2 MCH Graphs		
Pref/11N20SISO/MCH		

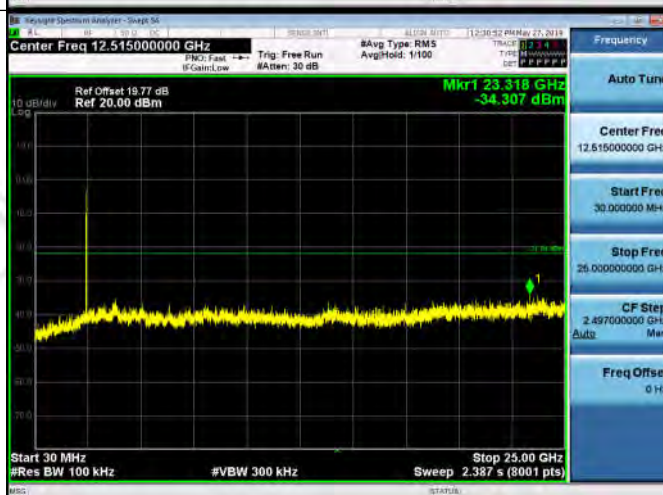


11N20SISO Ant1 HCH Graphs

Pref/11N20SISO/HCH

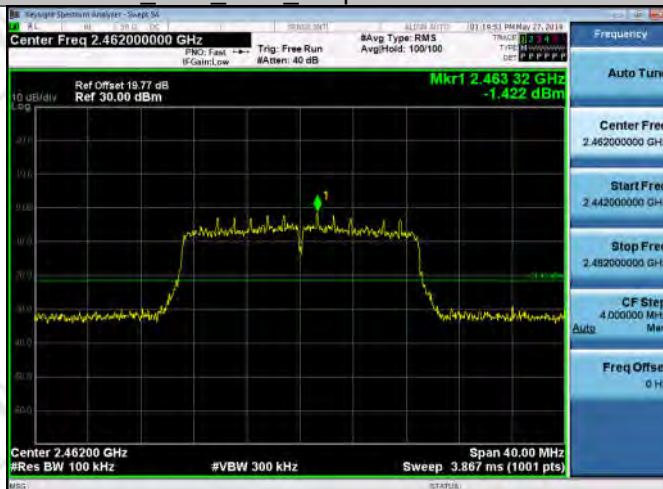


Puw/11N20SISO/HCH

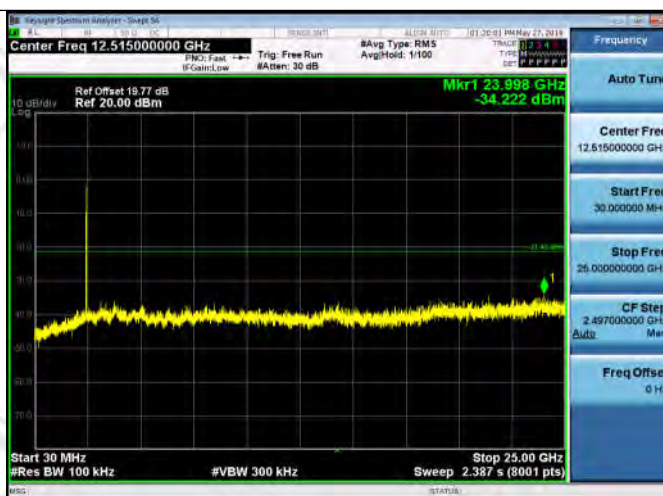


11N20SISO Ant2 HCH Graphs

Pref/11N20SISO/HCH

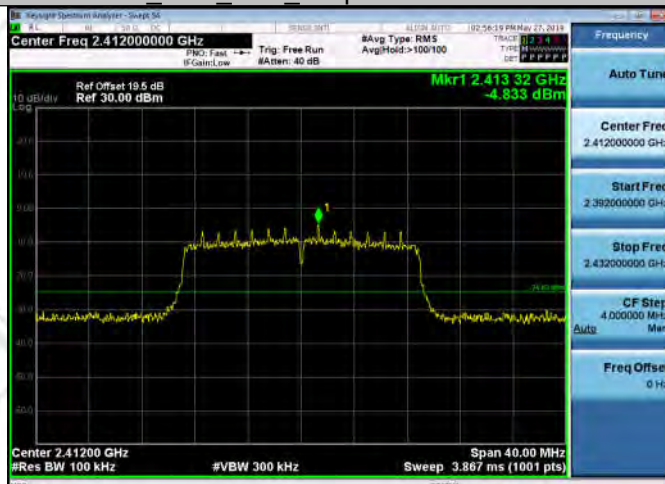


Puw/11N20SISO/HCH

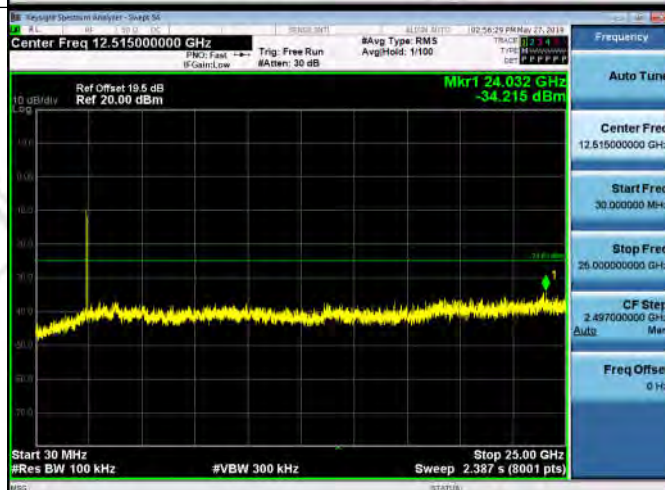


11N20MIMO_Ant1_LCH_Graphs

Pref/11N20MIMO/LCH

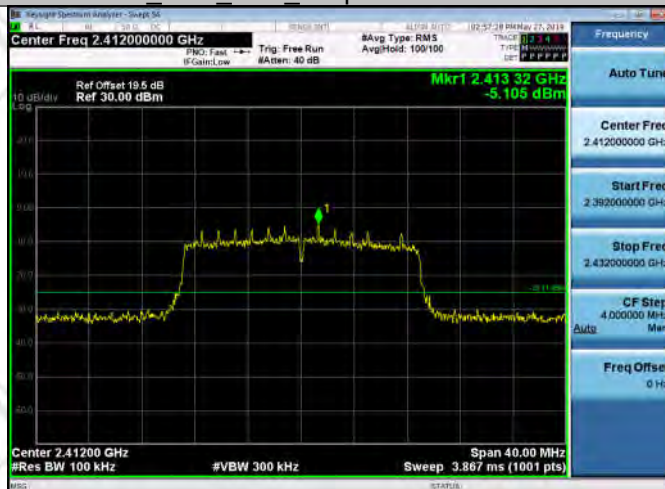


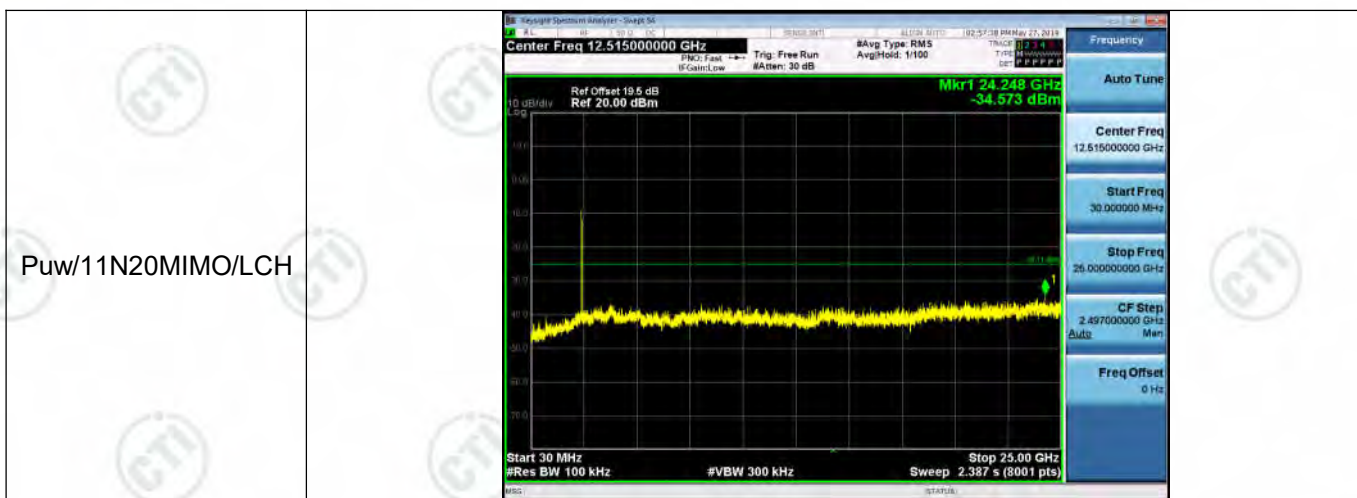
Puw/11N20MIMO/LCH

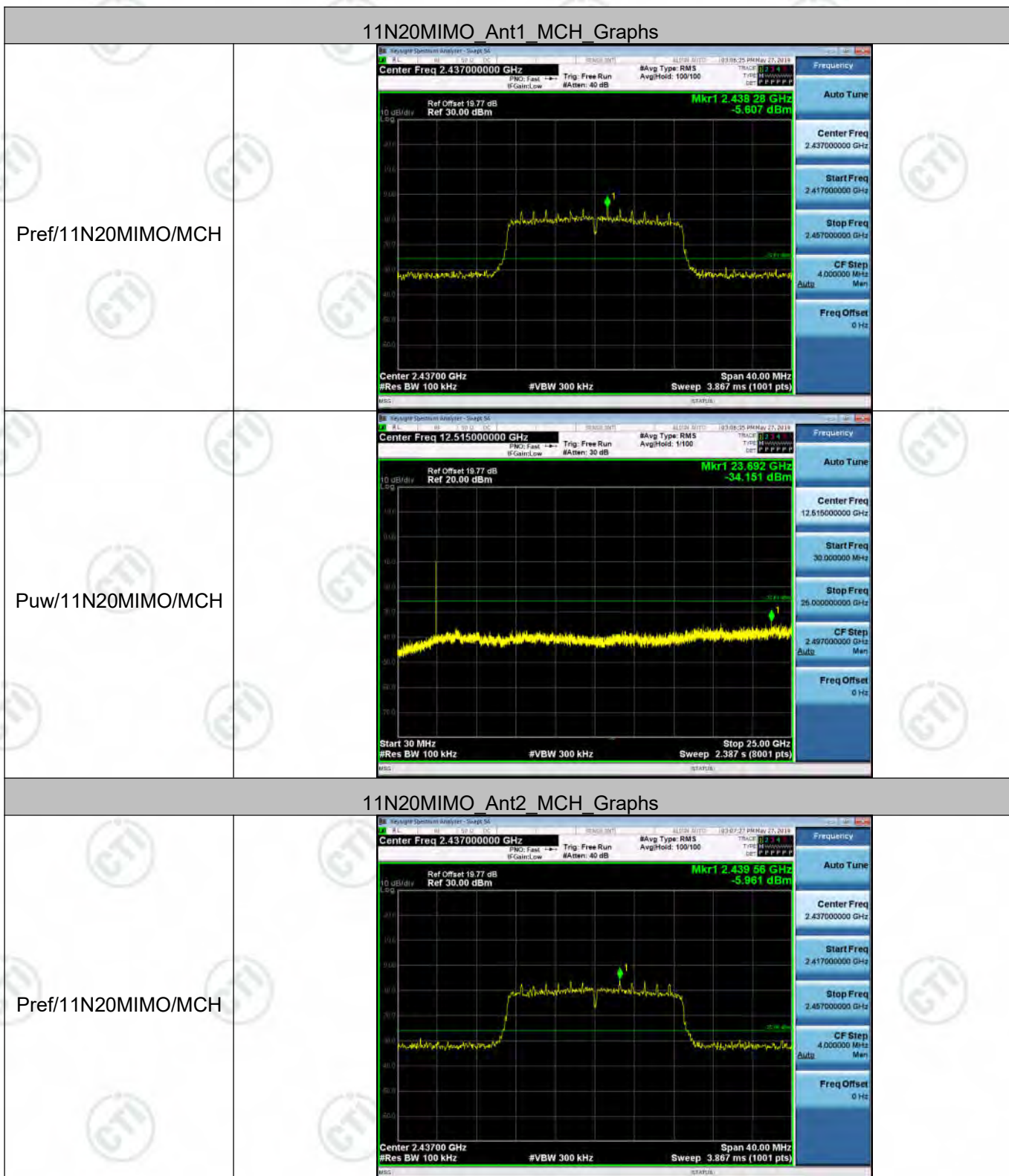


11N20MIMO_Ant2_LCH_Graphs

Pref/11N20MIMO/LCH



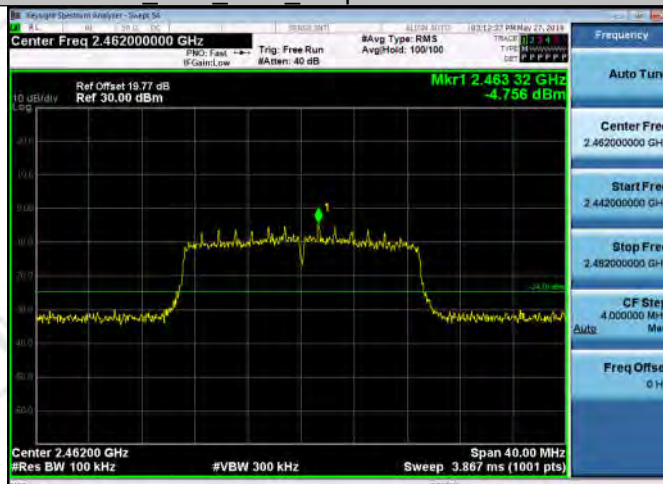




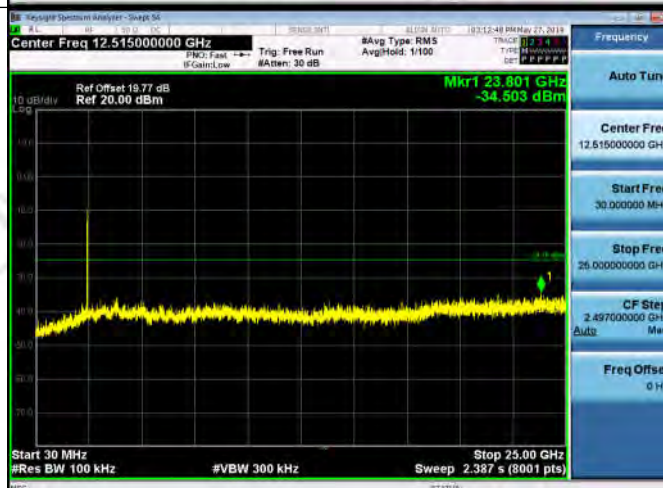


11N20MIMO_Ant1_HCH_Graphs

Pref/11N20MIMO/HCH



Puw/11N20MIMO/HCH



11N20MIMO_Ant2_HCH_Graphs

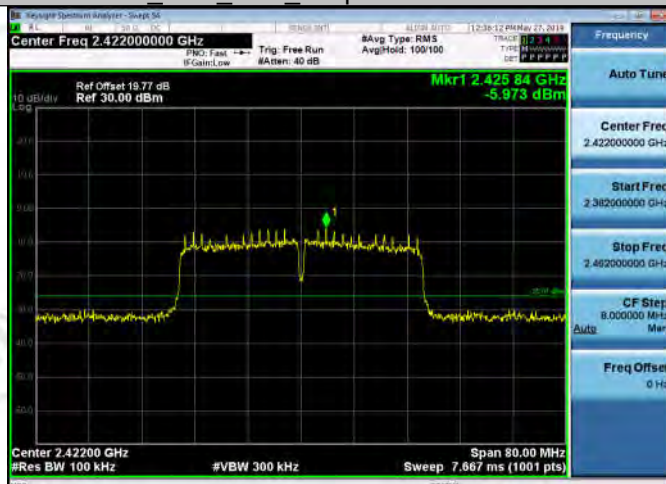
Pref/11N20MIMO/HCH



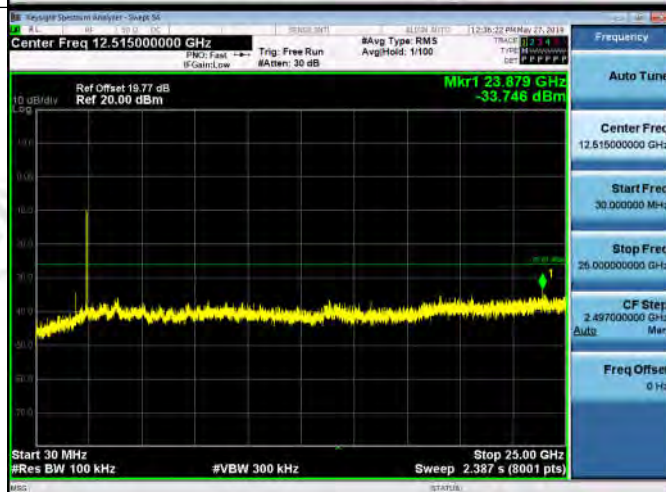


11N40SISO_Ant1_LCH_Graphs

Pref/11N40SISO/LCH

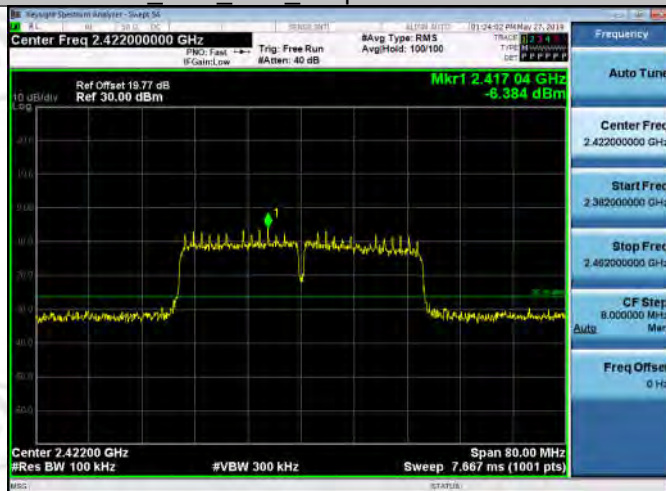


Puw/11N40SISO/LCH

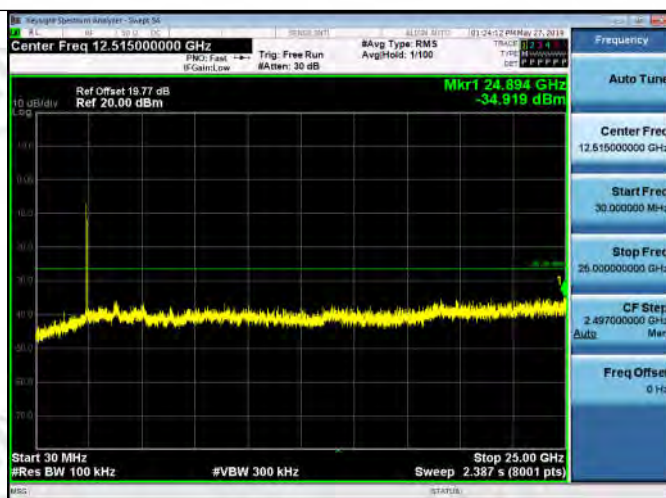


11N40SISO_Ant2_LCH_Graphs

Pref/11N40SISO/LCH

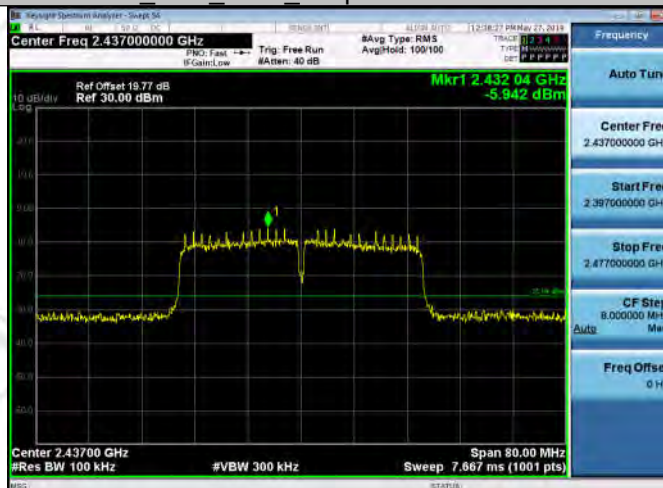


Puw/11N40SISO/LCH

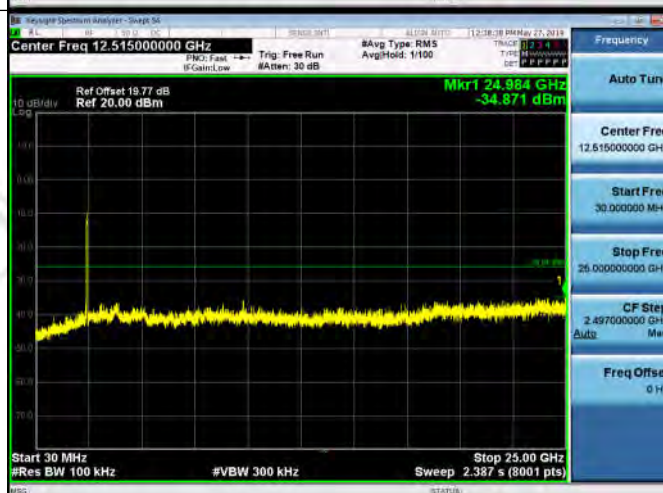


11N40SISO Ant1 MCH Graphs

Pref/11N40SISO/MCH

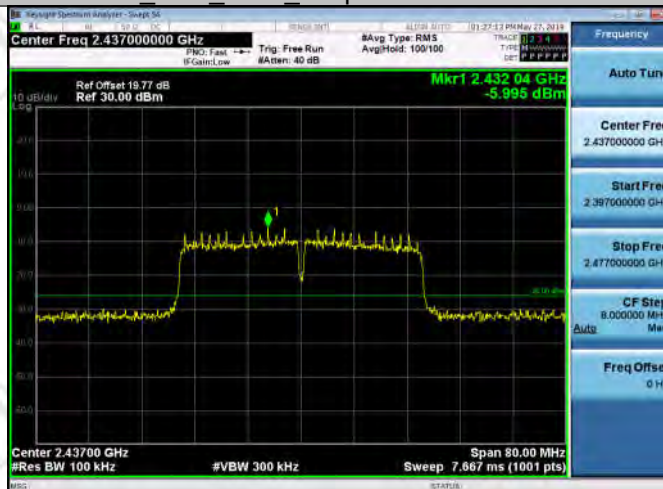


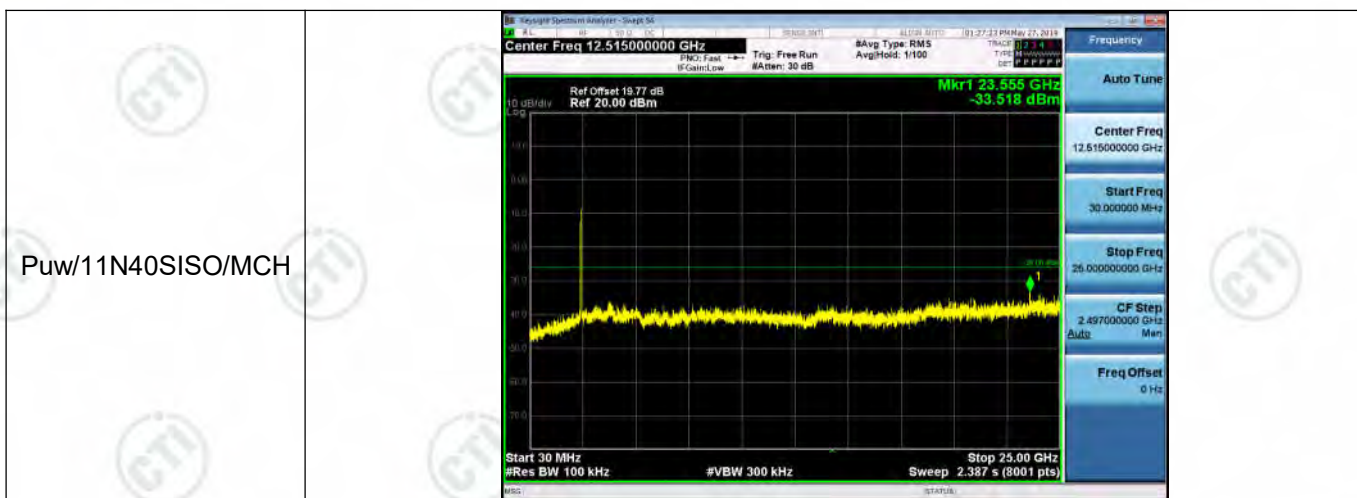
Puw/11N40SISO/MCH



11N40SISO Ant2 MCH Graphs

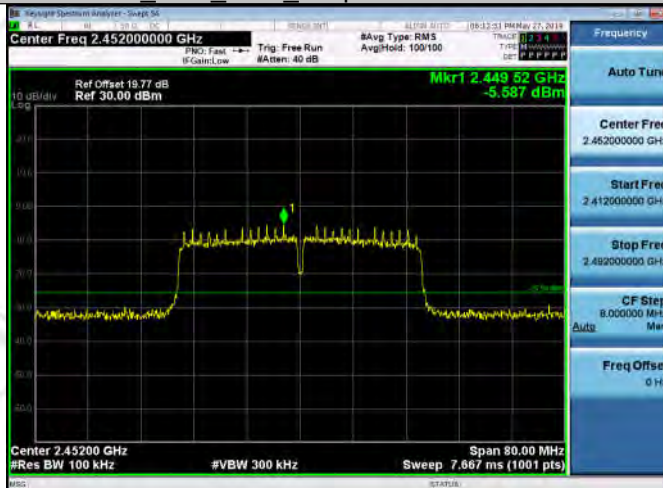
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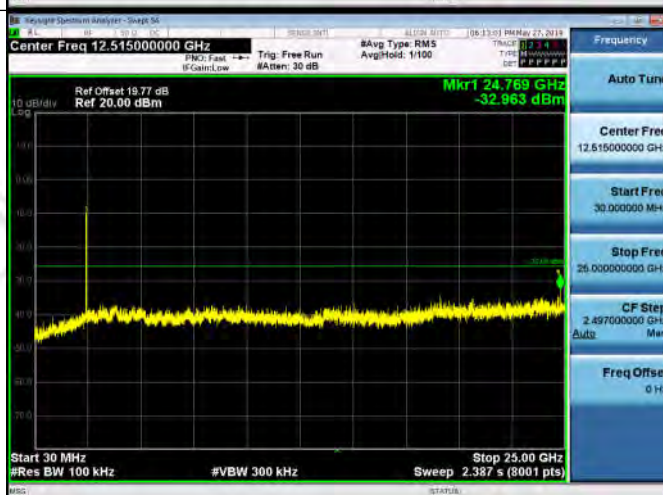


11N40SISO Ant1 HCH Graphs

Pref/11N40SISO/HCH

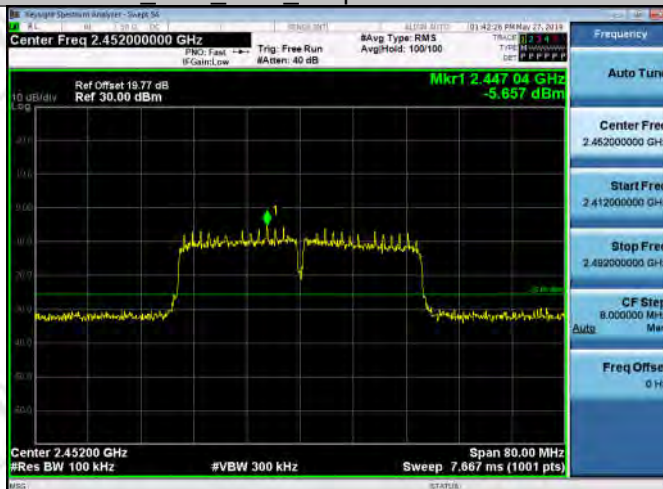


Puw/11N40SISO/HCH



11N40SISO Ant2 HCH Graphs

Pref/11N40SISO/HCH

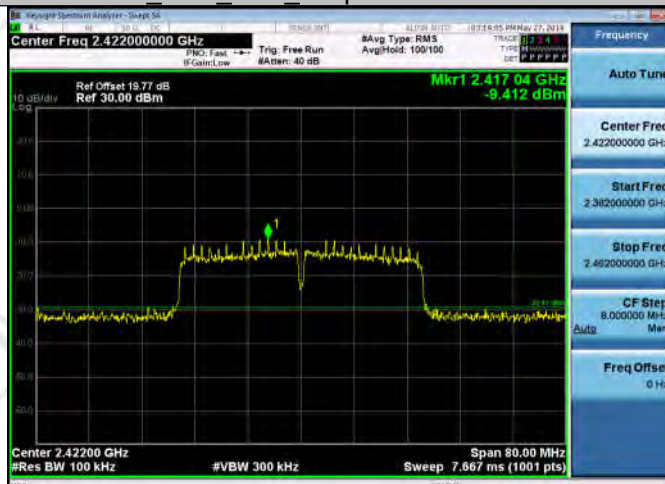


Puw/11N40SISO/HCH

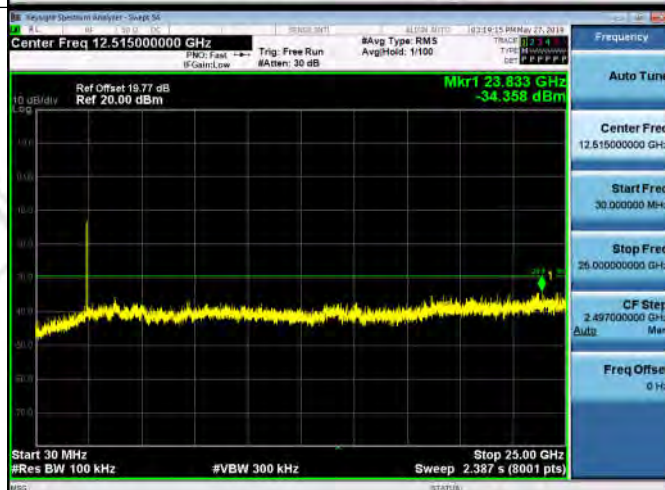


11N40MIMO Ant1 LCH Graphs

Pref/11N40MIMO/LCH

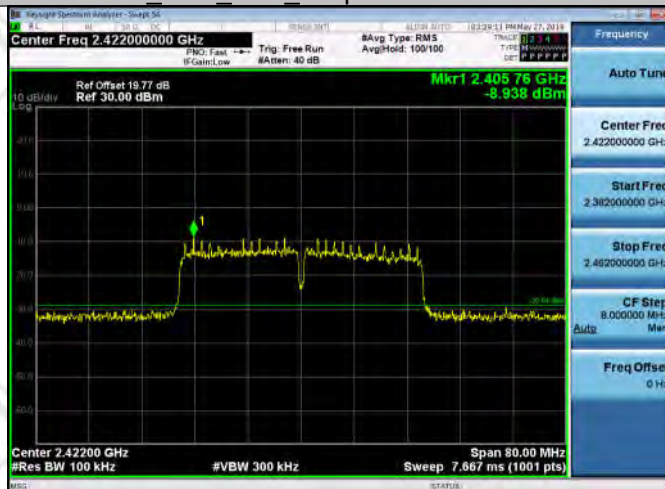


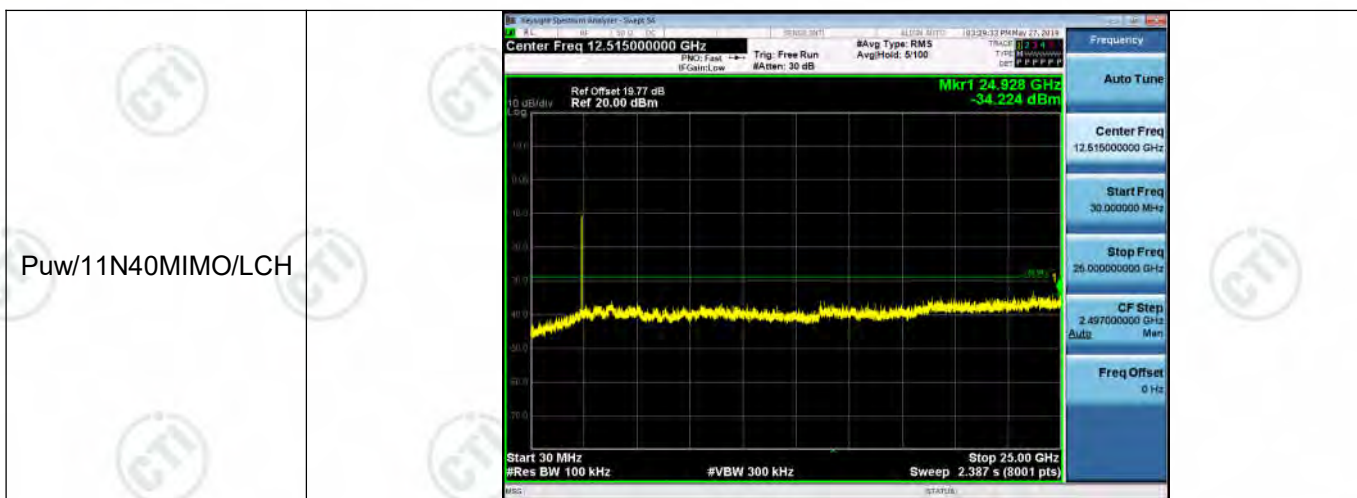
Puw/11N40MIMO/LCH



11N40MIMO Ant2 LCH Graphs

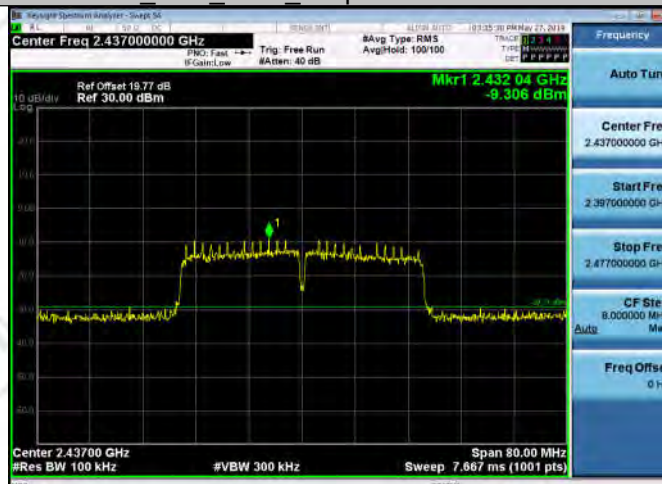
Pref/11N40MIMO/LCH



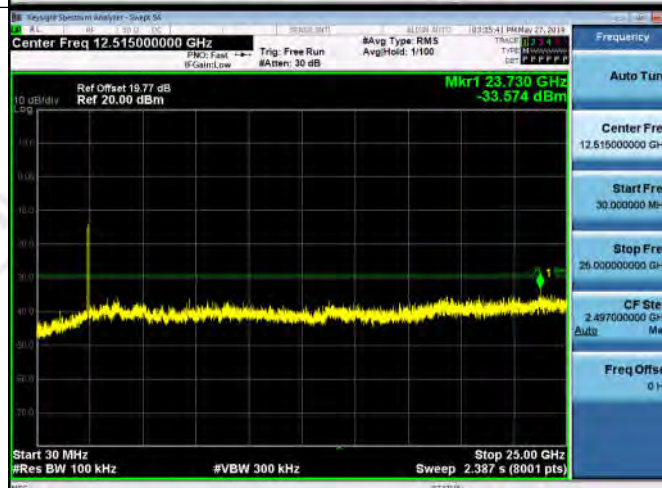


11N40MIMO_Ant1_MCH_Graphs

Pref/11N40MIMO/MCH

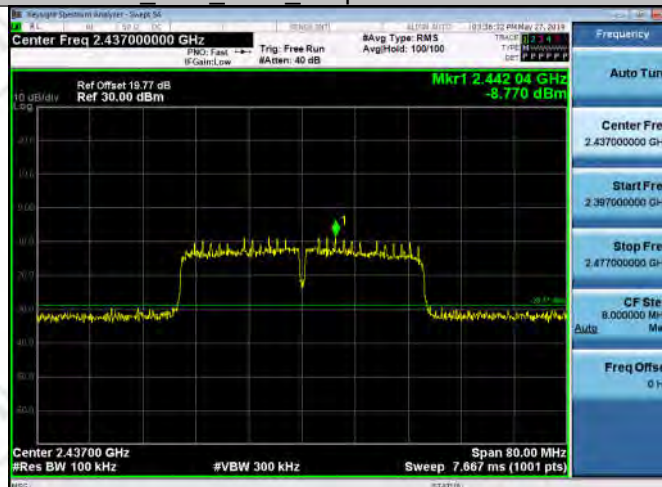


Puw/11N40MIMO/MCH



11N40MIMO_Ant2_MCH_Graphs

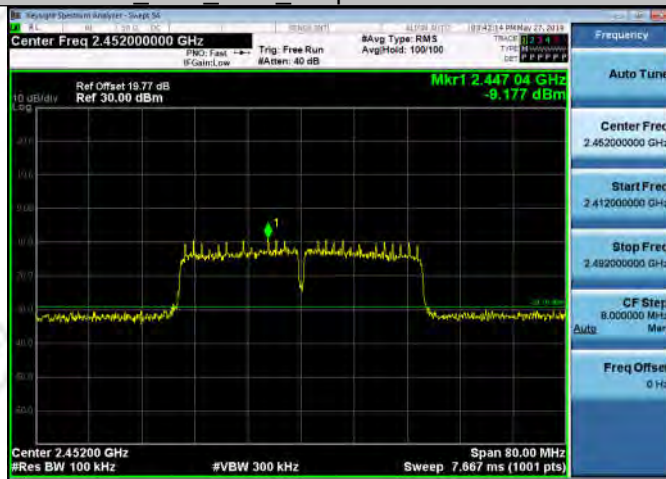
Pref/11N40MIMO/MCH



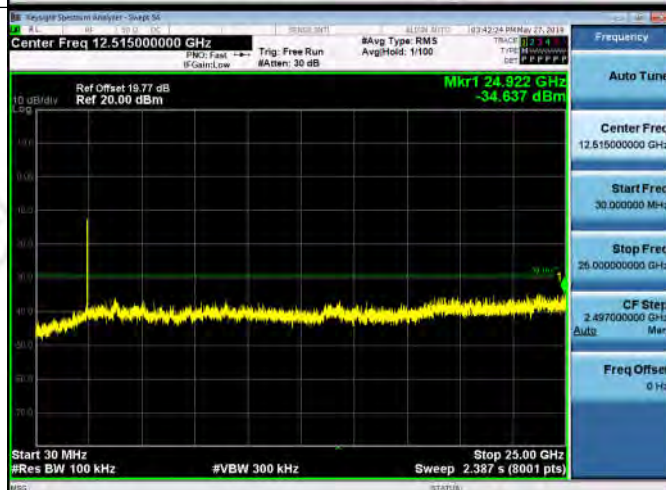


11N40MIMO_Ant1_HCH_Graphs

Pref/11N40MIMO/HCH

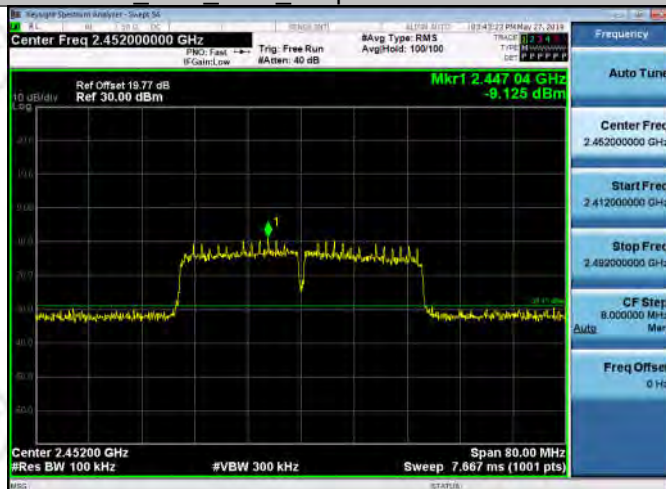


Puw/11N40MIMO/HCH



11N40MIMO_Ant2_HCH_Graphs

Pref/11N40MIMO/HCH





Appendix E): Power Spectral Density

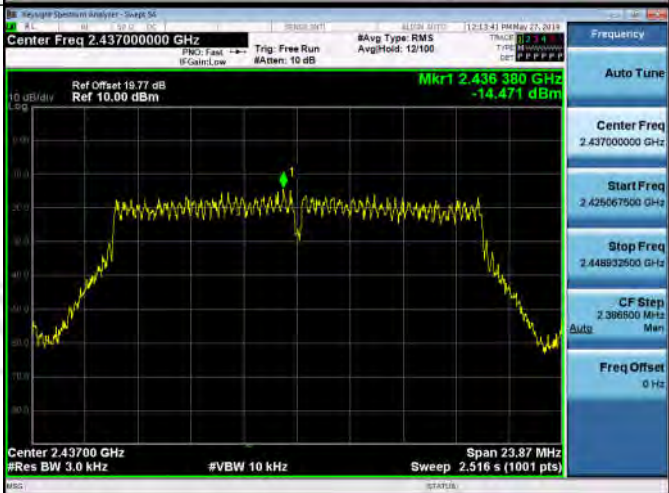
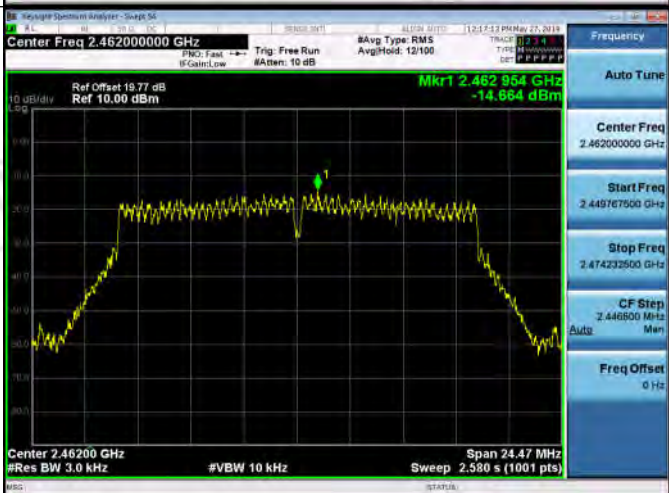
Result Table

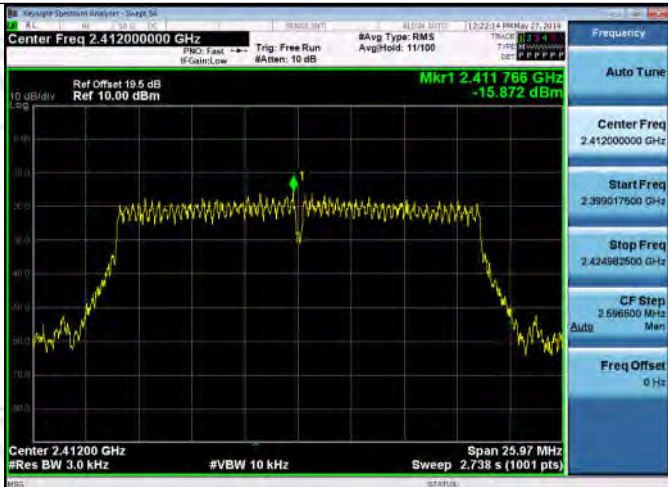
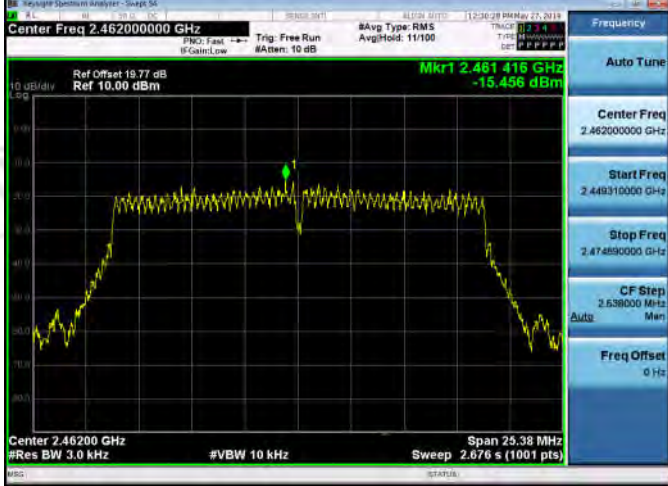
Mode	Antenna	Channel	Power Spectral Density [dBm]	Verdict
11B	Ant1	LCH	-7.211	PASS
11B	Ant2	LCH	-7.815	PASS
11B	Ant1	MCH	-8.788	PASS
11B	Ant2	MCH	-7.142	PASS
11B	Ant1	HCH	-8.187	PASS
11B	Ant2	HCH	-7.604	PASS
11G	Ant1	LCH	-14.632	PASS
11G	Ant2	LCH	-14.576	PASS
11G	Ant1	MCH	-14.471	PASS
11G	Ant2	MCH	-14.461	PASS
11G	Ant1	HCH	-14.664	PASS
11G	Ant2	HCH	-14.863	PASS
11N20SISO	Ant1	LCH	-15.872	PASS
11N20SISO	Ant2	LCH	-15.152	PASS
11N20SISO	Ant1	MCH	-15.866	PASS
11N20SISO	Ant2	MCH	-15.804	PASS
11N20SISO	Ant1	HCH	-15.456	PASS
11N20SISO	Ant2	HCH	-16.268	PASS
11N20MIMO	Ant1	LCH	-19.442	PASS
11N20MIMO	Ant2	LCH	-19.183	PASS
11N20MIMO	Ant1+2	LCH	-16.30	PASS
11N20MIMO	Ant1	MCH	-19.322	PASS
11N20MIMO	Ant2	MCH	-18.838	PASS
11N20MIMO	Ant1+2	MCH	-16.06	PASS
11N20MIMO	Ant1	HCH	-19.615	PASS
11N20MIMO	Ant2	HCH	-19.126	PASS
11N20MIMO	Ant1+2	HCH	-16.35	PASS
11N40SISO	Ant1	LCH	-21.029	PASS
11N40SISO	Ant2	LCH	-21.629	PASS
11N40SISO	Ant1	MCH	-18.916	PASS
11N40SISO	Ant2	MCH	-20.266	PASS
11N40SISO	Ant1	HCH	-20.131	PASS

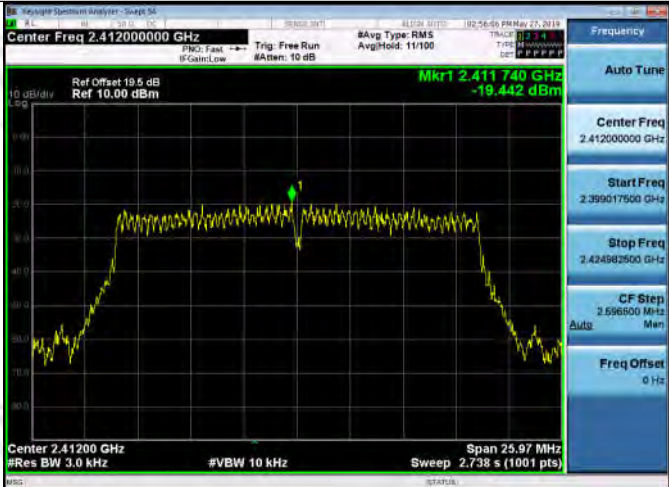
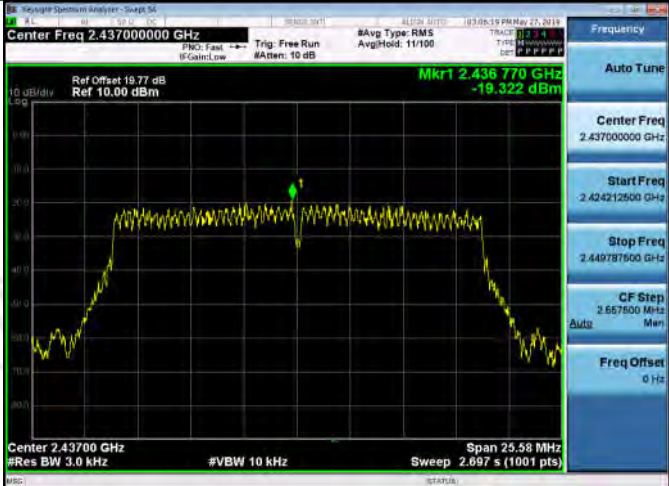
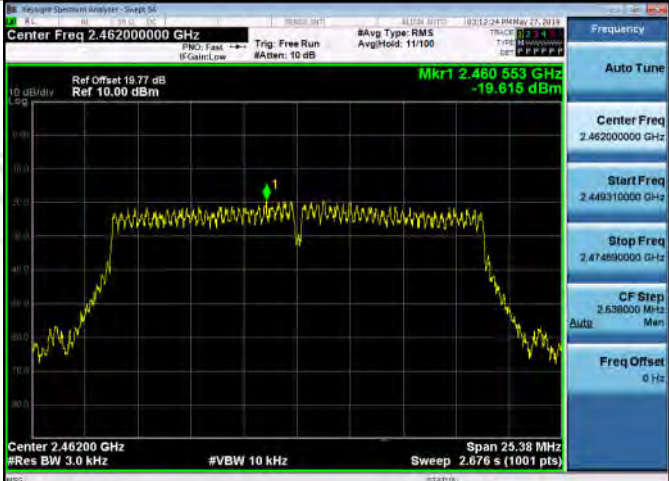
11N40SISO	Ant2	HCH	-20.603	PASS
11N40MIMO	Ant1	LCH	-23.791	PASS
11N40MIMO	Ant2	LCH	-24.205	PASS
11N40MIMO	Ant1+2	LCH	-20.98	PASS
11N40MIMO	Ant1	MCH	-24.018	PASS
11N40MIMO	Ant2	MCH	-23.060	PASS
11N40MIMO	Ant1+2	MCH	-20.50	PASS
11N40MIMO	Ant1	HCH	-22.771	PASS
11N40MIMO	Ant2	HCH	-22.429	PASS
11N40MIMO	Ant1+2	HCH	-19.59	PASS

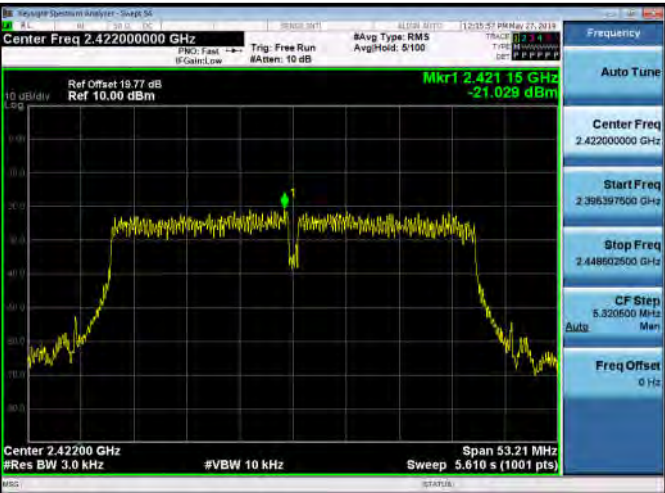
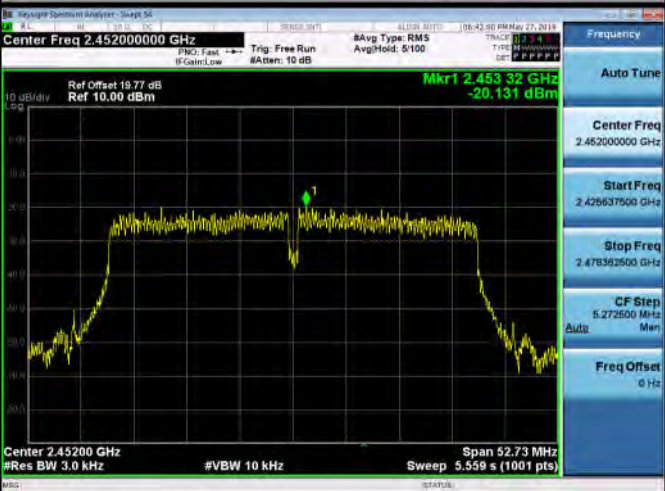
Test Graph

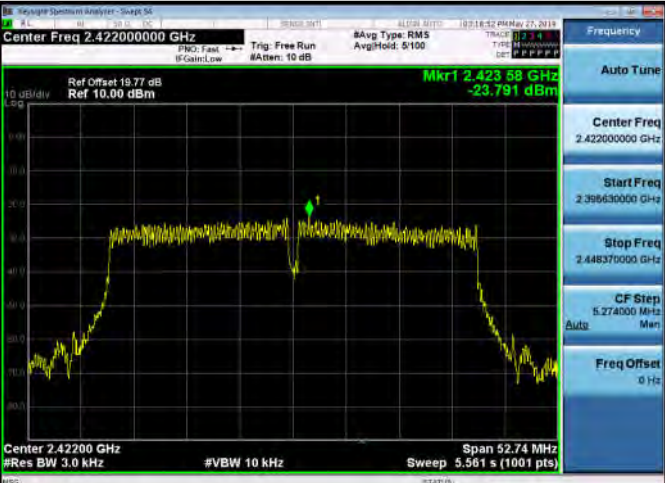


11G/LCH	
11G/MCH	
11G/HCH	

11N20SISO/LCH	 Center Freq 2.41200000 GHz Ref Offset 19.5 dB Ref 10.00 dBm Mkr1 2.411 786 GHz -15.872 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.97 MHz Sweep 2.738 s (1001 pts)
11N20SISO/MCH	 Center Freq 2.43700000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.436 741 GHz -15.868 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.92 MHz Sweep 2.733 s (1001 pts)
11N20SISO/HCH	 Center Freq 2.46200000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.461 416 GHz -15.456 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.38 MHz Sweep 2.676 s (1001 pts)

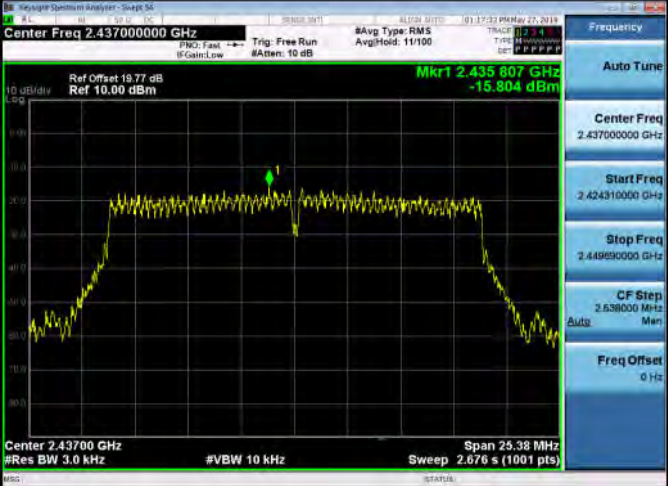
11N20MIMO/LCH	
11N20MIMO/MCH	
11N20MIMO/HCH	

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

11N40MIMO/LCH	
11N40MIMO/MCH	
11N40MIMO/HCH	

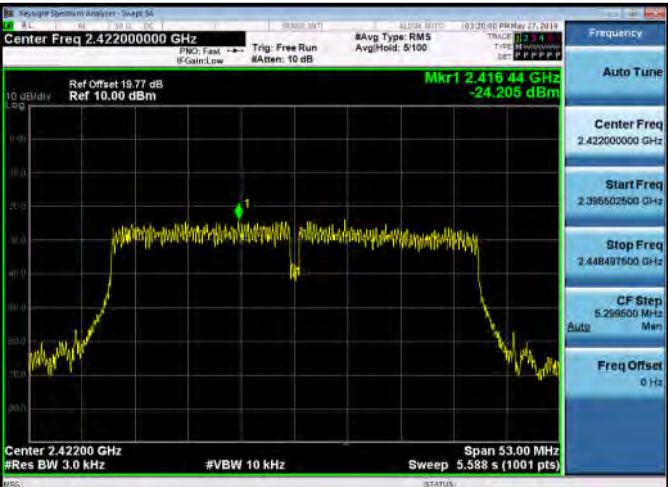




11N20SISO/LCH	 Center Freq 2.41200000 GHz Ref Offset: 19.5 dB Ref 10.00 dBm Mkr1 2.411 746 GHz -15.152 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.40 MHz Sweep 2.678 s (1001 pts)
11N20SISO/MCH	 Center Freq 2.43700000 GHz Ref Offset: 19.77 dB Ref 10.00 dBm Mkr1 2.435 807 GHz -15.804 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.38 MHz Sweep 2.676 s (1001 pts)
11N20SISO/HCH	 Center Freq 2.46200000 GHz Ref Offset: 19.77 dB Ref 10.00 dBm Mkr1 2.462 660 GHz -16.268 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.40 MHz Sweep 2.678 s (1001 pts)

11N20MIMO/LCH	 Center Freq 2.41200000 GHz Ref Offset: 19.5 dB Ref 10.00 dBm Mkr1 2.409 178 GHz -19.183 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.98 MHz Sweep 2.633 s (1001 pts)
11N20MIMO/MCH	 Center Freq 2.43700000 GHz Ref Offset: 19.77 dB Ref 10.00 dBm Mkr1 2.436 719 GHz -18.838 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.58 MHz Sweep 2.697 s (1001 pts)
11N20MIMO/HCH	 Center Freq 2.46200000 GHz Ref Offset: 19.77 dB Ref 10.00 dBm Mkr1 2.461 415 GHz -19.126 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.43 MHz Sweep 2.681 s (1001 pts)

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

11N40MIMO/LCH	 Center Freq 2.42200000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.41644 GHz -24.205 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 53.00 MHz Sweep 5.588 s (1001 pts)
11N40MIMO/MCH	 Center Freq 2.43700000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.43891 GHz -23.060 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 53.09 MHz Sweep 5.597 s (1001 pts)
11N40MIMO/HCH	 Center Freq 2.45200000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.45455 GHz -22.429 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 53.21 MHz Sweep 5.610 s (1001 pts)

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 integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.53 dBi.

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.

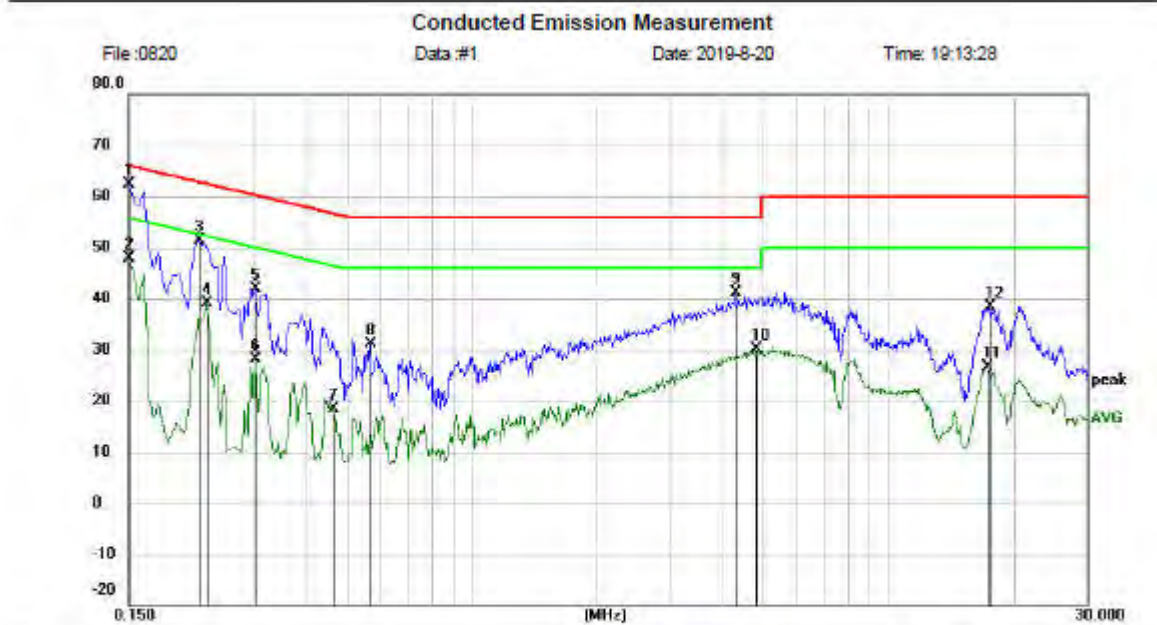
Product : WIFI+BT Module

Model/Type reference :

Temperature : 21°C

Humidity : 51%

Live line:



Site LAB

Phase: L1

Temperature: 21

Limit: FCC Class B CE(QP)

Power: AC120/60Hz

Humidity: 51 %

EUT:

M/N:

Mode: ON

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1500	52.48	9.97	62.45	66.00	-3.55	peak	
2		0.1500	37.92	9.97	47.89	56.00	-8.11	AVG	
3		0.2220	41.36	10.04	51.40	62.74	-11.34	peak	
4		0.2310	29.21	10.04	39.25	52.41	-13.16	AVG	
5		0.3030	31.87	10.10	41.97	60.16	-18.19	peak	
6		0.3030	18.14	10.10	28.24	50.16	-21.92	AVG	
7		0.4650	8.29	10.00	18.29	46.60	-28.31	AVG	
8		0.5685	21.04	10.08	31.12	56.00	-24.88	peak	
9		4.2945	31.20	9.83	41.03	56.00	-14.97	peak	
10		4.8210	20.34	9.83	30.17	46.00	-15.83	AVG	
11		17.2455	16.61	9.96	26.57	50.00	-23.43	AVG	
12		17.5605	28.43	9.95	38.38	60.00	-21.62	peak	

*:Maximum data x:Over limit !:over margin

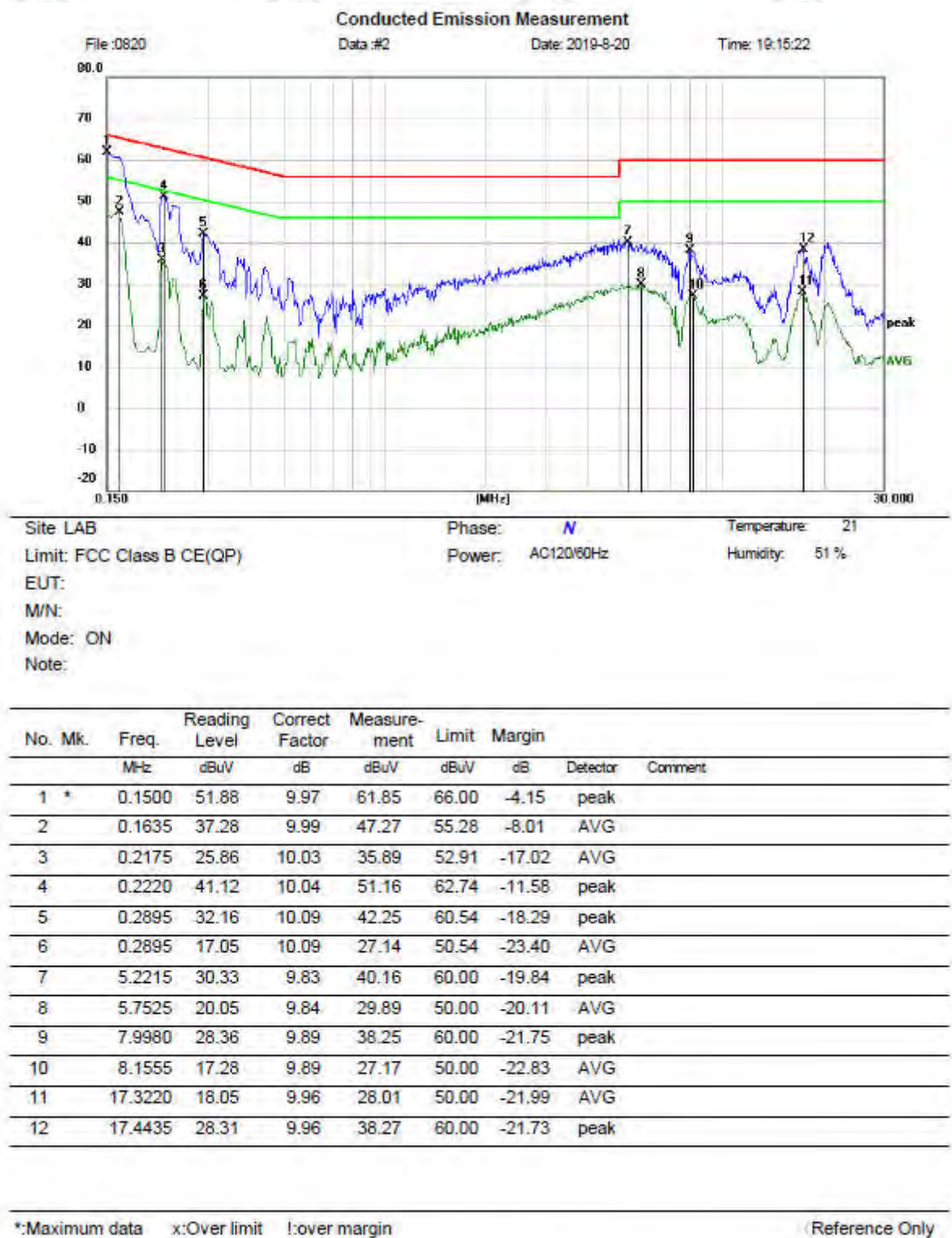
Reference Only

File: 0820/Data: #1

Page: 1

Engineer Signature:

Neutral line:



File :0820\Data :#2

Page: 1

Engineer Signature:

Notes:

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