

## TEST REPORT

**Product** : WIFI Module  
**Trade mark** : GSD  
**Model/Type reference** : WC3HM2511  
**Serial Number** : N/A  
**Report Number** : EED32K00324401  
**FCC ID** : 2AC23-WC3HM2511  
**Date of Issue** : May 21, 2019  
**Test Standards** : 47 CFR Part 15 Subpart C  
**Test result** : PASS

Prepared for:

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**No. 75 Zhongkai Development Area Huizhou, Guangdong, China**

Prepared by:

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Date:

May 21, 2019

Check No.:3096391277



## 2 Version

Version No.	Date	Description
00	May 21, 2019	Original

### 3 Test Summary

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

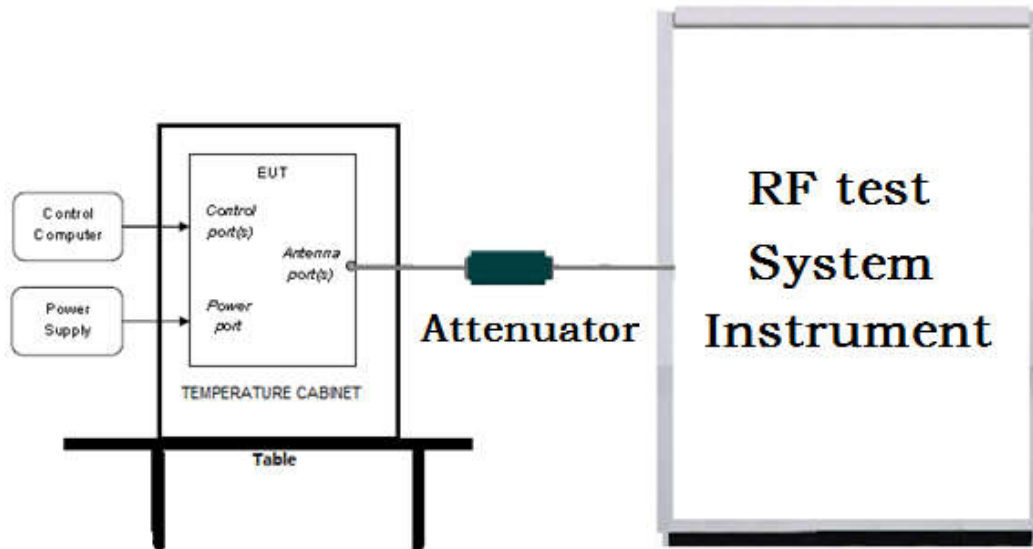
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

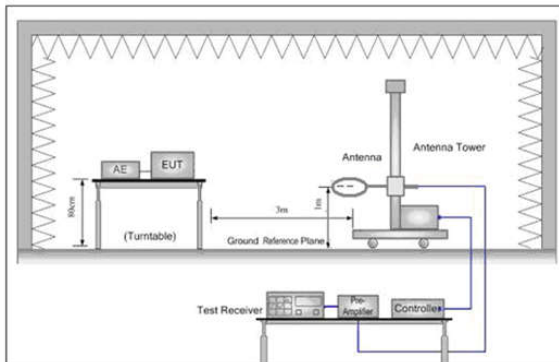


Figure 1. Below 30MHz

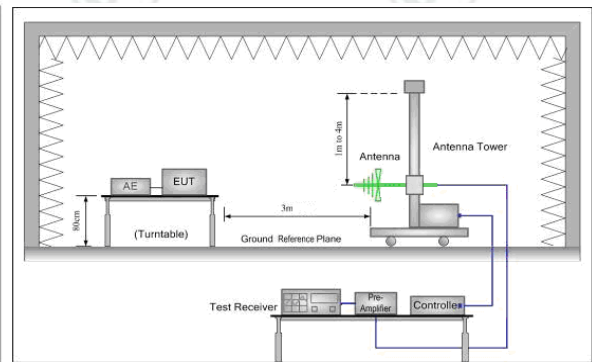


Figure 2. 30MHz to 1GHz

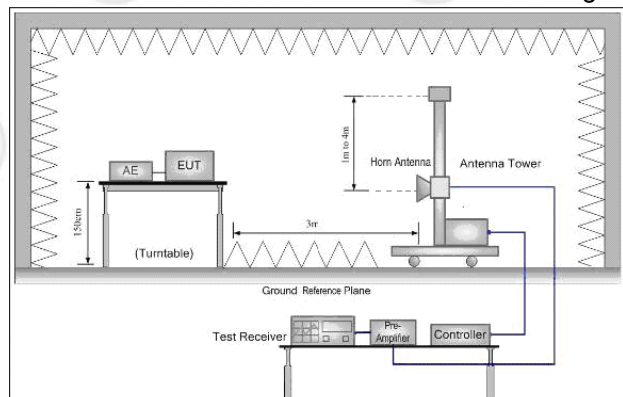
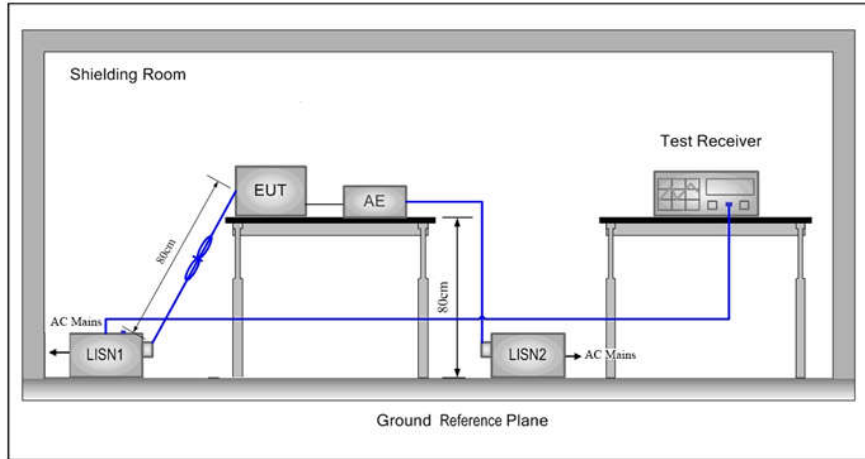


Figure 3. Above 1GHz



### 5.1.3 For Conducted Emissions test setup

#### Conducted Emissions setup



## 5.2 Test Environment

### Operating Environment for RF test:

Temperature:	26°C
Humidity:	60% 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 for Antenna 1**

<b>Mode</b>	<b>802.11b</b>				X				
<b>Data Rate</b>	<b>1Mbps</b>	<b>2Mbps</b>	<b>5.5Mbps</b>	<b>11Mbps</b>					
Power(dBm)	22.74	22.98	23.00	23.08					
<b>Mode</b>	<b>802.11g</b>								
<b>Data Rate</b>	<b>6Mbps</b>	<b>9Mbps</b>	<b>12Mbps</b>	<b>18Mbps</b>	<b>24Mbps</b>	<b>36Mbps</b>	<b>48Mbps</b>	<b>54Mbps</b>	
Power(dBm)	22.38	22.31	22.21	22.07	22.03	22.00	21.99	21.91	
<b>Mode</b>	<b>802.11n (HT20)</b>								
<b>Data Rate</b>	<b>6.5Mbps</b>	<b>13Mbps</b>	<b>19.5Mbps</b>	<b>26Mbps</b>	<b>39Mbps</b>	<b>52Mbps</b>	<b>58.5Mbps</b>	<b>65Mbps</b>	
Power(dBm)	21.47	21.41	21.40	21.33	21.24	21.19	21.15	21.07	
<b>Mode</b>	<b>802.11n (HT40)</b>								
<b>Data Rate</b>	<b>13.5Mbps</b>	<b>27Mbps</b>	<b>40.5Mbps</b>	<b>54Mbps</b>	<b>81Mbps</b>	<b>108Mbps</b>	<b>121.5Mbps</b>	<b>135Mbps</b>	
Power(dBm)	20.99	20.97	20.84	20.63	20.60	20.45	20.41	20.39	

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 Module
Model No.(EUT):	WC3HM2511
Trade Mark:	GSD
EUT Supports Radios application:	2.4G WiFi: IEEE802.11b/g/n(20MHz)/n(40MHz), 2412MHz-2462MHz 5G WiFi: IEEE802.11a/ac(HT20)/ac(HT40)/ac(HT80), 5150-5250MHz, 5725-5850MHz
Power Supply:	DC 5V
Sample Received Date:	Dec. 05, 2018
Sample tested Date:	Dec. 25, 2018 to May 18, 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:	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)
Firmware version of the sample:	V1.0(manufacturer declare)
Hardware version of the sample:	V1.0(manufacturer declare)
Test Power Grade:	B:26, G:1D , N20:1B, N40:18
Test Software of EUT:	MT7662 QA (manufacturer declare)
Antenna Type:	PIFA Antenna
Antenna gain:	2dBi
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 with associated equipment below.

Associated equipment name		Manufacture	model	serial number	Supplied by	Certification
AE1	Laptop	HP	430 G3	5CD6082JLC	CTI	CE
AE2	Mouse	L.Selectron	OP-308	G1103000147VJKJ	CTI	CE
AE3	PC	Apple	MMGF2Z P/A	ODN20170212	CTI	CE

## 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	$7.9 \times 10^{-8}$
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	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Signal Generator	Keysight	N5182B	MY53051549	03-02-2018 03-01-2019	03-01-2019 02-29-2020
High-pass filter	Sinoscite	FL3CX03WG18N M12-0398-002	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
DC Power	Keysight	E3642A	MY54426035	03-02-2018 03-01-2019	03-01-2019 02-29-2020
PC-1	Lenovo	R4960d	---	03-02-2018 03-01-2019	03-01-2019 02-29-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-02-2018 03-01-2019	03-01-2019 02-29-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-02-2018 03-01-2019	03-01-2019 02-29-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-02-2018 03-01-2019	03-01-2019 02-29-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-02-2018 03-01-2019	03-01-2019 02-29-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-02-2018 03-01-2019	03-01-2019 02-29-2020
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	05-25-2018	05-24-2019
Temperature/ Humidity Indicator	Defu	TH128	/	07-02-2018	07-01-2019
Communication test set	Agilent	E5515C	GB47050534	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Communication test set	R&S	CMW500	102898	01-19-2018 01-18-2019	01-18-2019 01-17-2020
LISN	R&S	ENV216	100098	05-10-2018 05-08-2019	05-10-2019 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	05-30-2018	05-29-2019
ISN	TESEQ	ISN T800	30297	01-17-2018 01-16-2019	01-16-2019 01-15-2020

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	---	06-04-2016	06-03-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	12-21-2018	12-20-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-30-2018	07-29-2019
Microwave Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845SE	980380	01-17-2018 01-16-2019	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	08-08-2018	08-07-2019
Preamplifier	EMCI	EMC001330	980563	06-20-2018	06-19-2019
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018 04-28-2019	05-10-2019 04-26-2020
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	maturo	NCD/070/10711 112	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018 05-08-2019	05-10-2019 05-06-2020
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018 05-08-2019	05-10-2019 05-06-2020
Signal Generator	Agilent	E4438C	MY45095744	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Signal Generator	Keysight	E8257D	MY53401106	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-02-2018 03-01-2019	03-01-2019 02-29-2020
Cable line	Fulai(7M)	SF106	5219/6A	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Communication test set	R&S	CMW500	104466	01-10-2018 01-09-2019	01-09-2019 01-08-2020
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-10-2018 01-09-2019	01-09-2019 01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-10-2018 01-09-2019	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	06-20-2018	06-19-2019
Receiver	Keysight	N9038A	MY57290136	03-28-2018 03-27-2019	03-27-2019 03-25-2020
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-28-2018 03-27-2019	03-27-2019 03-25-2020
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-28-2018 03-27-2019	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	02-15-2018 02-14-2019	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	06-20-2018	06-19-2019
Communication test set	R&S	CMW500	102898	01-19-2018 01-18-2019	01-18-2019 01-17-2020
Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	05-02-2018 04-30-2019	05-01-2019 04-28-2020
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-02-2018 03-01-2019	03-01-2019 02-29-2020
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	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	EMC104-NMNM-1000	SN160710	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-10-2018 01-09-2019	01-09-2019 01-08-2020
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-10-2018 01-09-2019	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)

## Appendix A): Conducted Peak Output Power

### Directional Antenna Gain

The TX chains are correlated, the antenna gain is equal among the chains.

Employs an antenna that operates simultaneously on multiple directional beams using the same frequency channels. No carrier aggregation techniques.

The directional gain is:

Antenna 1 Gain(dBi)	Antenna 2 Gain(dBi)	Correlated Chains DirectionalGain(dBi)
2	2	5

### Result Table

Mode	Antenna	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	Ant1	LCH	23.08	PASS
11B	Ant2	LCH	23.74	PASS
11B	Ant1	MCH	23.72	PASS
11B	Ant2	MCH	23.63	PASS
11B	Ant1	HCH	23.34	PASS
11B	Ant2	HCH	23.7	PASS
11G	Ant1	LCH	22.38	PASS
11G	Ant2	LCH	22.89	PASS
11G	Ant1	MCH	22.95	PASS
11G	Ant2	MCH	22.63	PASS
11G	Ant1	HCH	23.07	PASS
11G	Ant2	HCH	22.52	PASS
11N20SISO	Ant1	LCH	21.47	PASS
11N20SISO	Ant2	LCH	21.22	PASS
11N20SISO	Ant1	MCH	21.96	PASS
11N20SISO	Ant2	MCH	21.73	PASS
11N20SISO	Ant1	HCH	21.99	PASS
11N20SISO	Ant2	HCH	21.57	PASS
11N20MIMO	Ant1	LCH	18.48	PASS
11N20MIMO	Ant2	LCH	18.42	PASS
11N20MIMO	Ant1+2	LCH	21.46	PASS
11N20MIMO	Ant1	MCH	18.52	PASS
11N20MIMO	Ant2	MCH	18.84	PASS
11N20MIMO	Ant1+2	MCH	21.69	PASS
11N20MIMO	Ant1	HCH	18.67	PASS
11N20MIMO	Ant2	HCH	18.79	PASS
11N20MIMO	Ant1+2	HCH	21.74	PASS
11N40SISO	Ant1	LCH	20.99	PASS
11N40SISO	Ant2	LCH	20.48	PASS
11N40SISO	Ant1	MCH	20.78	PASS
11N40SISO	Ant2	MCH	20.57	PASS
11N40SISO	Ant1	HCH	20.77	PASS
11N40SISO	Ant2	HCH	20.67	PASS
11N40MIMO	Ant1	LCH	17.59	PASS
11N40MIMO	Ant2	LCH	17.74	PASS
11N40MIMO	Ant1+2	LCH	20.68	PASS
11N40MIMO	Ant1	MCH	17.82	PASS
11N40MIMO	Ant2	MCH	17.82	PASS
11N40MIMO	Ant1+2	MCH	20.83	PASS
11N40MIMO	Ant1	HCH	17.74	PASS
11N40MIMO	Ant2	HCH	17.49	PASS
11N40MIMO	Ant1+2	HCH	20.63	PASS

**Test Graph**

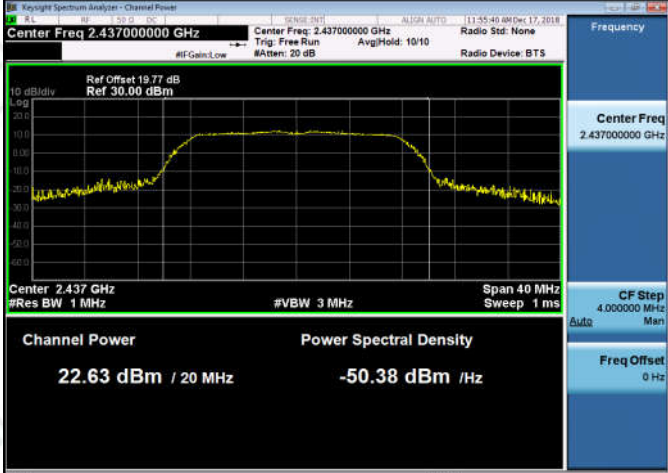
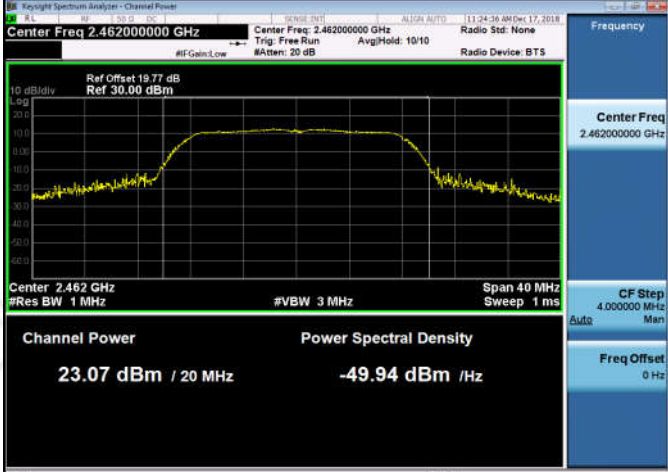
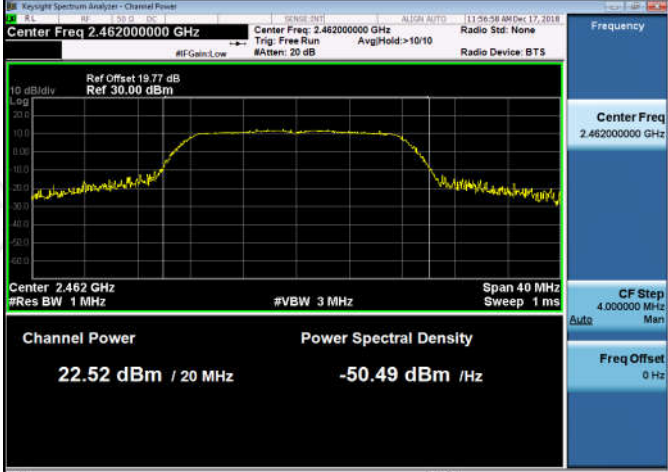


<p>11B/MCH_Ant2</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 23.63 dBm / 20 MHz</p> <p>Power Spectral Density: -49.38 dBm / Hz</p>
<p>11B/HCH_Ant1</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 23.34 dBm / 20 MHz</p> <p>Power Spectral Density: -49.67 dBm / Hz</p>
<p>11B/HCH_Ant2</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 23.70 dBm / 20 MHz</p> <p>Power Spectral Density: -49.31 dBm / Hz</p>



<p>11G/LCH_Ant1</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.6 dB Ref 30.00 dBm</p> <p>Channel Power: 22.38 dBm / 20 MHz</p> <p>Power Spectral Density: -50.63 dBm / Hz</p>
<p>11G/LCH_Ant2</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.6 dB Ref 30.00 dBm</p> <p>Channel Power: 22.89 dBm / 20 MHz</p> <p>Power Spectral Density: -50.12 dBm / Hz</p>
<p>11G/MCH_Ant1</p>	<p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 22.95 dBm / 20 MHz</p> <p>Power Spectral Density: -50.06 dBm / Hz</p>



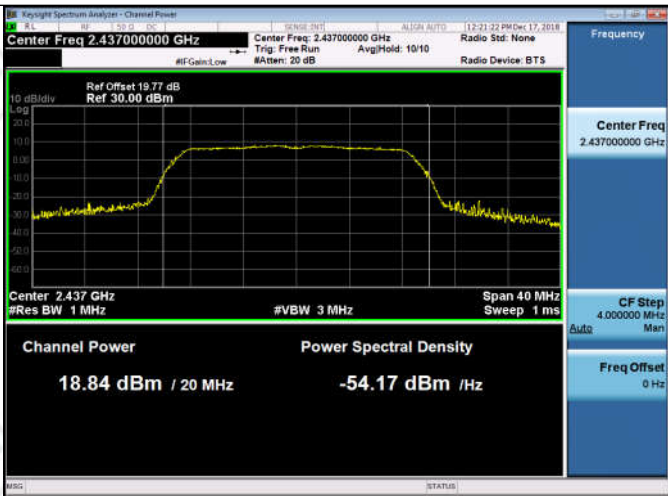
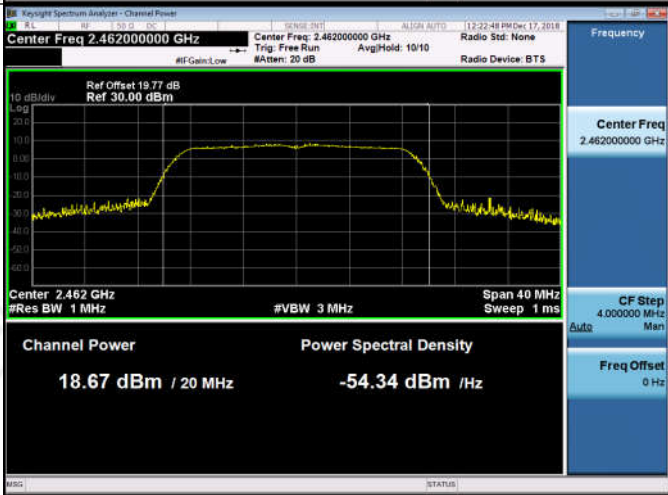
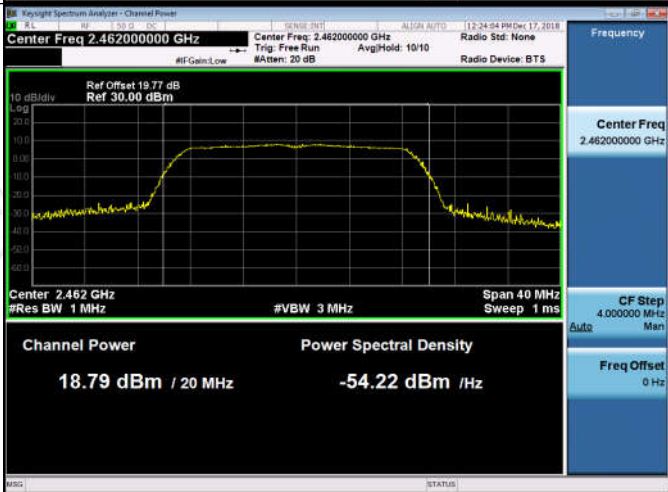
<p>11G/MCH_Ant2</p>	
<p>11G/HCH_Ant1</p>	
<p>11G/HCH_Ant2</p>	

<p>11N20SISO/LCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 21.47 dBm / 20 MHz</p> <p>Power Spectral Density: -51.54 dBm / Hz</p>
<p>11N20SISO/LCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 21.22 dBm / 20 MHz</p> <p>Power Spectral Density: -51.79 dBm / Hz</p>
<p>11N20SISO/MCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms</p> <p>Channel Power: 21.96 dBm / 20 MHz</p> <p>Power Spectral Density: -51.05 dBm / Hz</p>

<p>11N20SISO/MCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 21.73 dBm / 20 MHz</p> <p>Power Spectral Density: -51.28 dBm / Hz</p>
<p>11N20SISO/HCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 21.99 dBm / 20 MHz</p> <p>Power Spectral Density: -51.02 dBm / Hz</p>
<p>11N20SISO/HCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 21.57 dBm / 20 MHz</p> <p>Power Spectral Density: -51.44 dBm / Hz</p>

<p>11N20MIMO/LCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz</p> <p>Ref Offset: 19.6 dB Ref: 29.50 dBm</p> <p>Channel Power: 18.48 dBm / 20 MHz</p> <p>Power Spectral Density: -54.53 dBm / Hz</p>
<p>11N20MIMO/LCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz</p> <p>Ref Offset: 19.6 dB Ref: 30.00 dBm</p> <p>Channel Power: 18.42 dBm / 20 MHz</p> <p>Power Spectral Density: -54.59 dBm / Hz</p>
<p>11N20MIMO/MCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz</p> <p>Ref Offset: 19.77 dB Ref: 30.00 dBm</p> <p>Channel Power: 18.52 dBm / 20 MHz</p> <p>Power Spectral Density: -54.49 dBm / Hz</p>

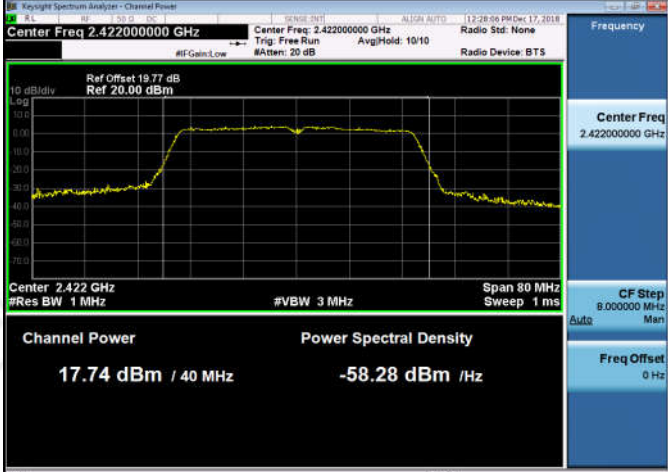
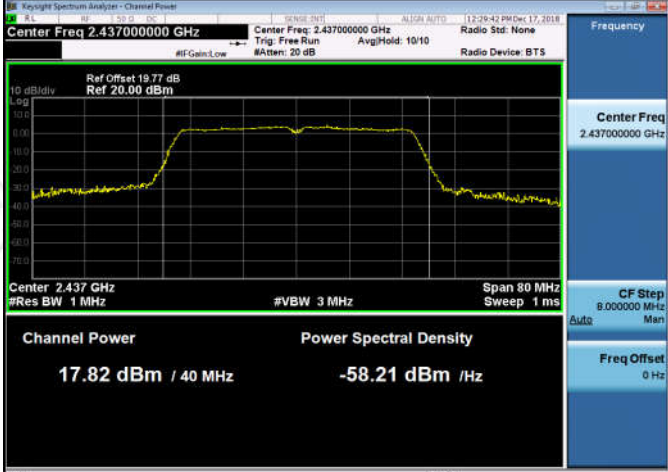


<p>11N20MIMO/MCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 18.84 dBm / 20 MHz</p> <p>Power Spectral Density: -54.17 dBm / Hz</p>
<p>11N20MIMO/HCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 18.67 dBm / 20 MHz</p> <p>Power Spectral Density: -54.34 dBm / Hz</p>
<p>11N20MIMO/HCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 18.79 dBm / 20 MHz</p> <p>Power Spectral Density: -54.22 dBm / Hz</p>



<p>11N40SISO/LCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.99 dBm / 40 MHz</p> <p>Power Spectral Density: -55.03 dBm / Hz</p>
<p>11N40SISO/LCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.48 dBm / 40 MHz</p> <p>Power Spectral Density: -55.54 dBm / Hz</p>
<p>11N40SISO/MCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.78 dBm / 40 MHz</p> <p>Power Spectral Density: -55.24 dBm / Hz</p>

<p>11N40SISO/MCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.57 dBm / 40 MHz</p> <p>Power Spectral Density: -55.45 dBm / Hz</p>
<p>11N40SISO/HCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.452000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.77 dBm / 40 MHz</p> <p>Power Spectral Density: -55.25 dBm / Hz</p>
<p>11N40SISO/HCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.452000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Channel Power: 20.67 dBm / 40 MHz</p> <p>Power Spectral Density: -55.35 dBm / Hz</p>

<p>11N40MIMO/LCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.59 dBm / 40 MHz</p> <p>Power Spectral Density: -58.44 dBm / Hz</p>
<p>11N40MIMO/LCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.74 dBm / 40 MHz</p> <p>Power Spectral Density: -58.28 dBm / Hz</p>
<p>11N40MIMO/MCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.82 dBm / 40 MHz</p> <p>Power Spectral Density: -58.21 dBm / Hz</p>

<p>11N40MIMO/MCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.82 dBm / 40 MHz</p> <p>Power Spectral Density: -58.20 dBm / Hz</p>
<p>11N40MIMO/HCH_Ant1</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.452000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.74 dBm / 40 MHz</p> <p>Power Spectral Density: -58.28 dBm / Hz</p>
<p>11N40MIMO/HCH_Ant2</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.452000000 GHz</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 17.49 dBm / 40 MHz</p> <p>Power Spectral Density: -58.53 dBm / Hz</p>



## Appendix B): 6dB Occupied Bandwidth

### Result Table

Mode	Antenna	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	Ant1	LCH	10.06	12.712	PASS
11B	Ant2	LCH	9.994	12.820	PASS
11B	Ant1	MCH	10.07	12.936	PASS
11B	Ant2	MCH	10.06	13.126	PASS
11B	Ant1	HCH	9.578	12.701	PASS
11B	Ant2	HCH	10.03	13.006	PASS
11G	Ant1	LCH	16.32	16.444	PASS
11G	Ant2	LCH	16.29	16.454	PASS
11G	Ant1	MCH	15.82	16.441	PASS
11G	Ant2	MCH	16.29	16.452	PASS
11G	Ant1	HCH	16.29	16.415	PASS
11G	Ant2	HCH	16.04	16.433	PASS
11N20SISO	Ant1	LCH	16.90	17.560	PASS
11N20SISO	Ant2	LCH	17.06	17.573	PASS
11N20SISO	Ant1	MCH	17.04	17.564	PASS
11N20SISO	Ant2	MCH	17.23	17.574	PASS
11N20SISO	Ant1	HCH	17.03	17.554	PASS
11N20SISO	Ant2	HCH	17.31	17.571	PASS
11N20MIMO	Ant1	LCH	16.76	17.565	PASS
11N20MIMO	Ant2	LCH	17.10	17.557	PASS
11N20MIMO	Ant1	MCH	16.68	17.565	PASS
11N20MIMO	Ant2	MCH	17.09	17.562	PASS
11N20MIMO	Ant1	HCH	17.05	17.552	PASS
11N20MIMO	Ant2	HCH	16.67	17.550	PASS
11N40SISO	Ant1	LCH	35.31	35.913	PASS
11N40SISO	Ant2	LCH	35.35	35.896	PASS
11N40SISO	Ant1	MCH	35.09	35.914	PASS
11N40SISO	Ant2	MCH	35.15	35.887	PASS
11N40SISO	Ant1	HCH	35.11	35.876	PASS
11N40SISO	Ant2	HCH	35.14	35.907	PASS
11N40MIMO	Ant1	LCH	35.16	35.889	PASS
11N40MIMO	Ant2	LCH	35.12	35.896	PASS
11N40MIMO	Ant1	MCH	35.15	35.919	PASS
11N40MIMO	Ant2	MCH	35.09	35.876	PASS
11N40MIMO	Ant1	HCH	35.34	35.895	PASS
11N40MIMO	Ant2	HCH	35.46	35.920	PASS

**Test Graph**



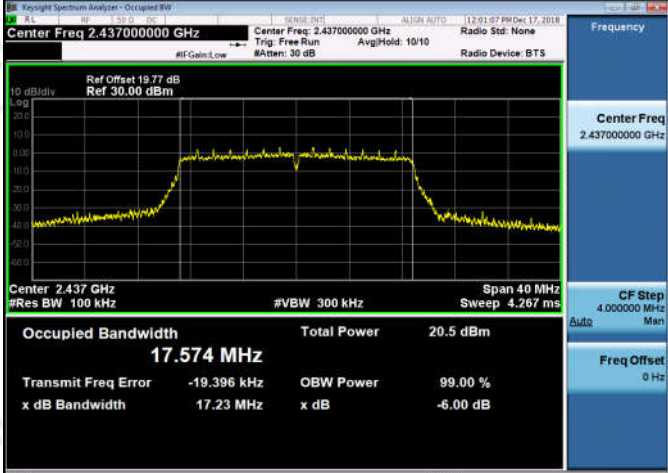
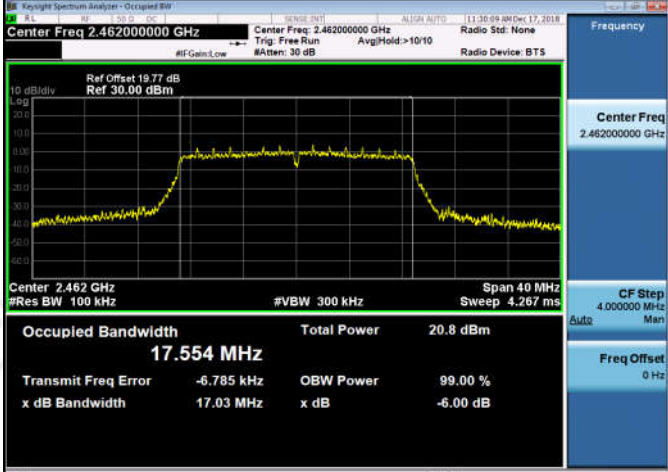
<p>11B/MCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run AvgHold: 10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 13.126 MHz Total Power 28.0 dBm</p> <p>Transmit Freq Error -37.217 kHz OBW Power 99.00 % x dB Bandwidth 10.06 MHz x dB -6.00 dB</p>
<p>11B/HCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run AvgHold: 10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 12.701 MHz Total Power 27.2 dBm</p> <p>Transmit Freq Error -20.102 kHz OBW Power 99.00 % x dB Bandwidth 9.578 MHz x dB -6.00 dB</p>
<p>11B/HCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run AvgHold: 10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 13.006 MHz Total Power 27.3 dBm</p> <p>Transmit Freq Error -25.992 kHz OBW Power 99.00 % x dB Bandwidth 10.03 MHz x dB -6.00 dB</p>

<p>11G/LCH_Ant1</p>	<p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.5 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>21.0 dBm</td> </tr> <tr> <td><b>16.444 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-16.883 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>16.32 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	21.0 dBm	<b>16.444 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	-16.883 kHz	x dB	-6.00 dB	x dB Bandwidth			16.32 MHz		
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x dB Bandwidth																			
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<p>11G/LCH_Ant2</p>	<p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.5 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>21.5 dBm</td> </tr> <tr> <td><b>16.454 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-19.097 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>16.29 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	21.5 dBm	<b>16.454 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	-19.097 kHz	x dB	-6.00 dB	x dB Bandwidth			16.29 MHz		
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<p>11G/MCH_Ant1</p>	<p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.77 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>21.6 dBm</td> </tr> <tr> <td><b>16.441 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-7.629 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>15.82 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	21.6 dBm	<b>16.441 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	-7.629 kHz	x dB	-6.00 dB	x dB Bandwidth			15.82 MHz		
Occupied Bandwidth	Total Power	21.6 dBm																	
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Transmit Freq Error	OBW Power	99.00 %																	
-7.629 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
15.82 MHz																			



<p>11G/MCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.452 MHz</b></p> <p>Total Power 21.3 dBm</p> <p>Transmit Freq Error -17.349 kHz</p> <p>x dB Bandwidth 16.29 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
<p>11G/HCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.415 MHz</b></p> <p>Total Power 21.7 dBm</p> <p>Transmit Freq Error -10.908 kHz</p> <p>x dB Bandwidth 16.29 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
<p>11G/HCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>16.433 MHz</b></p> <p>Total Power 21.2 dBm</p> <p>Transmit Freq Error -16.608 kHz</p> <p>x dB Bandwidth 16.04 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>

<p>11N20SISO/LCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>17.560 MHz</b></p> <p>Total Power 20.2 dBm</p> <p>Transmit Freq Error -11.056 kHz</p> <p>x dB Bandwidth 16.90 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
<p>11N20SISO/LCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>17.573 MHz</b></p> <p>Total Power 19.8 dBm</p> <p>Transmit Freq Error -17.797 kHz</p> <p>x dB Bandwidth 17.06 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
<p>11N20SISO/MCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>17.564 MHz</b></p> <p>Total Power 20.6 dBm</p> <p>Transmit Freq Error -6.404 kHz</p> <p>x dB Bandwidth 17.04 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>

<p>11N20SISO/MCH_Ant2</p>	 <p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run AvgHold: 10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>20.5 dBm</td> </tr> <tr> <td><b>17.574 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-19.396 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>17.23 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	20.5 dBm	<b>17.574 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	-19.396 kHz	x dB	-6.00 dB	x dB Bandwidth			17.23 MHz		
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<p>11N20MIMO/LCH_Ant1</p>	<p>Center Freq 2.412000000 GHz</p> <p>Occupied Bandwidth <b>17.565 MHz</b></p> <p>Total Power 17.2 dBm</p> <p>Transmit Freq Error -11.975 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.76 MHz</p> <p>x dB -6.00 dB</p>
<p>11N20MIMO/LCH_Ant2</p>	<p>Center Freq 2.412000000 GHz</p> <p>Occupied Bandwidth <b>17.557 MHz</b></p> <p>Total Power 17.1 dBm</p> <p>Transmit Freq Error -19.619 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.10 MHz</p> <p>x dB -6.00 dB</p>
<p>11N20MIMO/MCH_Ant1</p>	<p>Center Freq 2.437000000 GHz</p> <p>Occupied Bandwidth <b>17.565 MHz</b></p> <p>Total Power 17.3 dBm</p> <p>Transmit Freq Error -7.733 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.68 MHz</p> <p>x dB -6.00 dB</p>



<p>11N20MIMO/MCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Trig: Free Run AvgHold: &gt;10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.562 MHz Total Power 17.5 dBm Transmit Freq Error -16.286 kHz OBW Power 99.00 % x dB Bandwidth 17.09 MHz x dB -6.00 dB</p>
<p>11N20MIMO/HCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run AvgHold: &gt;10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.552 MHz Total Power 17.4 dBm Transmit Freq Error -7.650 kHz OBW Power 99.00 % x dB Bandwidth 17.05 MHz x dB -6.00 dB</p>
<p>11N20MIMO/HCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run AvgHold: &gt;10/10 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.550 MHz Total Power 17.5 dBm Transmit Freq Error -15.341 kHz OBW Power 99.00 % x dB Bandwidth 16.67 MHz x dB -6.00 dB</p>

<p>11N40SISO/LCH_Ant1</p>	<p>Center Freq 2.422000000 GHz</p> <p>Occupied Bandwidth <b>35.913 MHz</b></p> <p>Total Power 19.4 dBm</p> <p>Transmit Freq Error -19.195 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.31 MHz</p>
<p>11N40SISO/LCH_Ant2</p>	<p>Center Freq 2.422000000 GHz</p> <p>Occupied Bandwidth <b>35.896 MHz</b></p> <p>Total Power 19.1 dBm</p> <p>Transmit Freq Error -61.240 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.35 MHz</p>
<p>11N40SISO/MCH_Ant1</p>	<p>Center Freq 2.437000000 GHz</p> <p>Occupied Bandwidth <b>35.914 MHz</b></p> <p>Total Power 19.4 dBm</p> <p>Transmit Freq Error -12.199 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.09 MHz</p>

<p>11N40SISO/MCH_Ant2</p>	<p>Center Freq 2.437000000 GHz</p> <p>Occupied Bandwidth <b>35.887 MHz</b></p> <p>Total Power 19.2 dBm</p> <p>Transmit Freq Error -50.402 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.15 MHz</p> <p>x dB -6.00 dB</p>
<p>11N40SISO/HCH_Ant1</p>	<p>Center Freq 2.452000000 GHz</p> <p>Occupied Bandwidth <b>35.876 MHz</b></p> <p>Total Power 19.4 dBm</p> <p>Transmit Freq Error -14.653 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.11 MHz</p> <p>x dB -6.00 dB</p>
<p>11N40SISO/HCH_Ant2</p>	<p>Center Freq 2.452000000 GHz</p> <p>Occupied Bandwidth <b>35.907 MHz</b></p> <p>Total Power 19.3 dBm</p> <p>Transmit Freq Error -53.703 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 35.14 MHz</p> <p>x dB -6.00 dB</p>

<p>11N40MIMO/LCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.422 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>35.889 MHz</b></p> <p>Total Power 16.3 dBm</p> <p>Transmit Freq Error -23.963 kHz</p> <p>x dB Bandwidth 35.16 MHz</p>
<p>11N40MIMO/LCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.422 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>35.896 MHz</b></p> <p>Total Power 16.4 dBm</p> <p>Transmit Freq Error -45.538 kHz</p> <p>x dB Bandwidth 35.12 MHz</p>
<p>11N40MIMO/MCH_Ant1</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth <b>35.919 MHz</b></p> <p>Total Power 16.5 dBm</p> <p>Transmit Freq Error -15.815 kHz</p> <p>x dB Bandwidth 35.15 MHz</p>



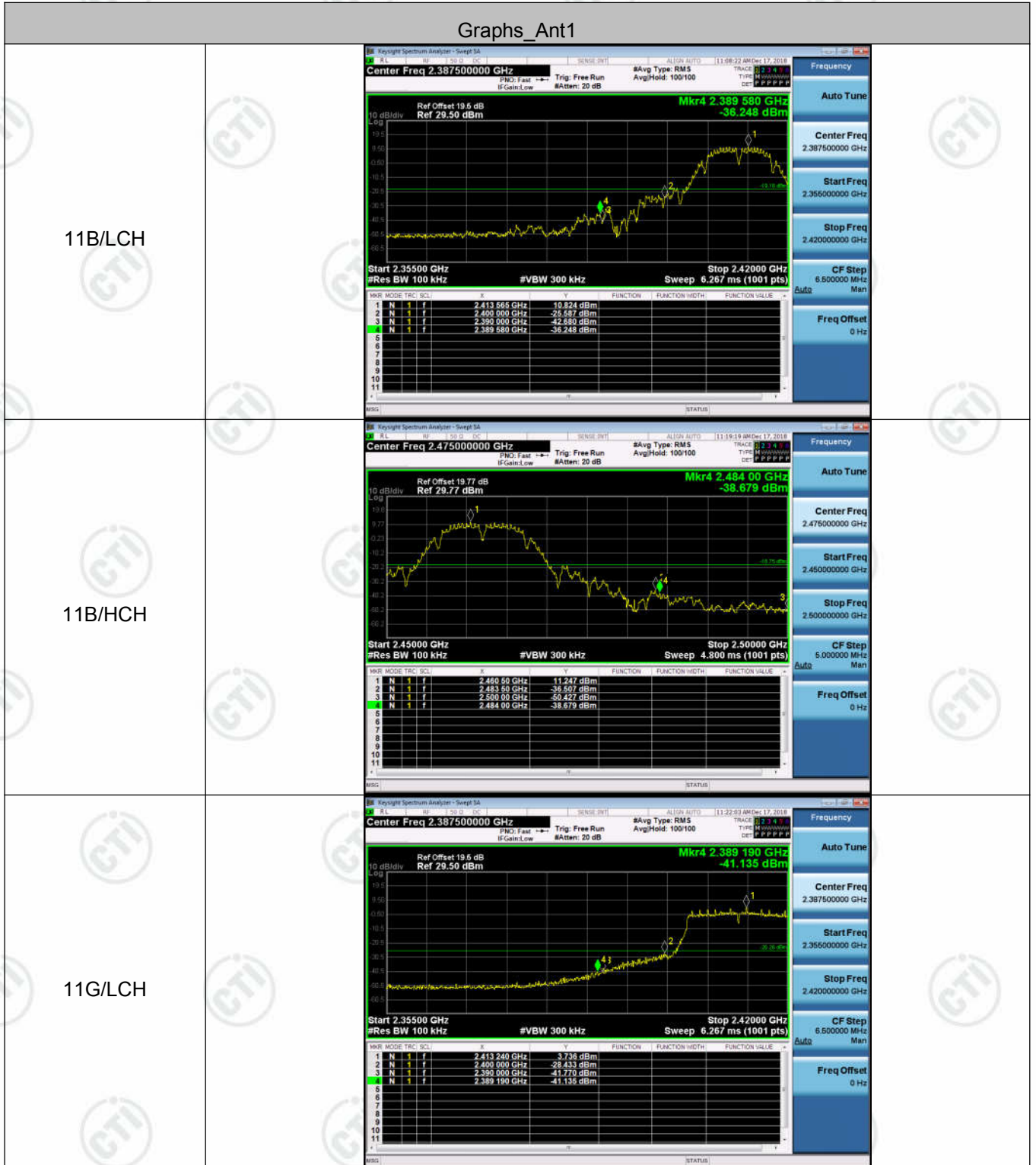
<p>11N40MIMO/MCH_Ant2</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>16.5 dBm</td> </tr> <tr> <td><b>35.876 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-40.096 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>35.09 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	16.5 dBm	<b>35.876 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	-40.096 kHz	x dB	-6.00 dB	x dB Bandwidth			35.09 MHz		
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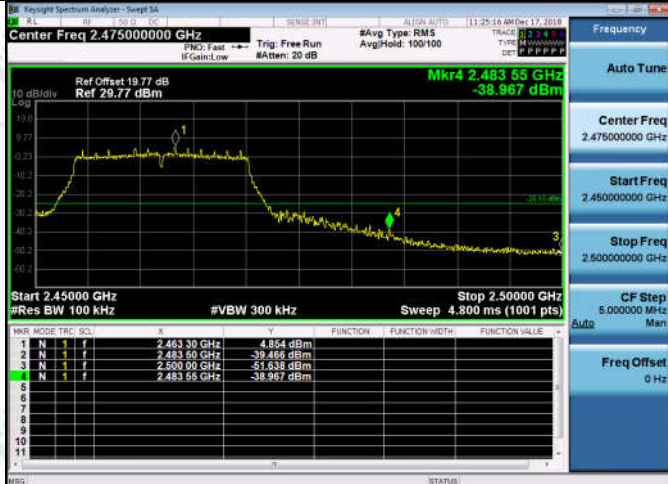
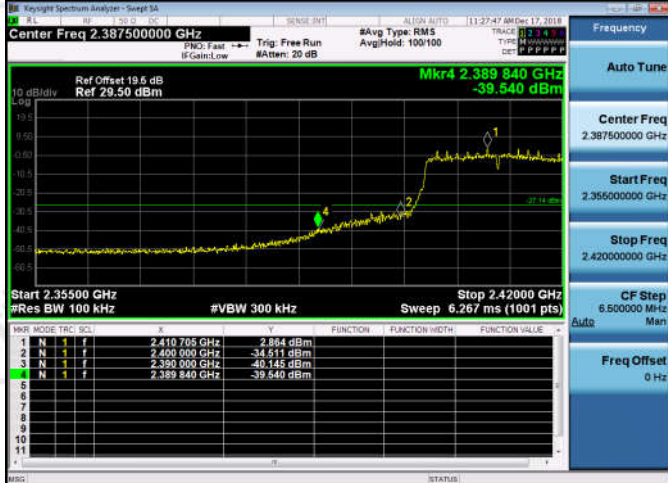

## Appendix C): Band-edge for RF Conducted Emissions

### Result Table

Mode	Antenna	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Ant1	LCH	10.824	-36.248	-19.18	PASS
11B	Ant2	LCH	11.611	-34.723	-18.39	PASS
11B	Ant1	HCH	11.247	-38.679	-18.75	PASS
11B	Ant2	HCH	11.252	-34.044	-18.75	PASS
11G	Ant1	LCH	3.736	-41.135	-26.26	PASS
11G	Ant2	LCH	4.870	-39.163	-25.13	PASS
11G	Ant1	HCH	4.854	-38.967	-25.15	PASS
11G	Ant2	HCH	3.889	-40.922	-26.11	PASS
11N20SISO	Ant1	LCH	2.864	-39.540	-27.14	PASS
11N20SISO	Ant2	LCH	3.150	-41.373	-26.85	PASS
11N20SISO	Ant1	HCH	3.412	-42.657	-26.59	PASS
11N20SISO	Ant2	HCH	2.357	-43.007	-27.64	PASS
11N20MIMO	Ant1	LCH	-0.247	-44.298	-30.25	PASS
11N20MIMO	Ant2	LCH	-0.408	-45.633	-30.41	PASS
11N20MIMO	Ant1	HCH	0.615	-46.919	-29.39	PASS
11N20MIMO	Ant2	HCH	0.560	-48.125	-29.44	PASS
11N40SISO	Ant1	LCH	-0.664	-34.204	-30.66	PASS
11N40SISO	Ant2	LCH	-0.998	-35.053	-31	PASS
11N40SISO	Ant1	HCH	-0.861	-43.027	-30.86	PASS
11N40SISO	Ant2	HCH	-1.160	-39.181	-31.16	PASS
11N40MIMO	Ant1	LCH	-3.722	-38.376	-33.72	PASS
11N40MIMO	Ant2	LCH	-3.812	-40.389	-33.81	PASS
11N40MIMO	Ant1	HCH	-3.879	-41.431	-33.88	PASS
11N40MIMO	Ant2	HCH	-4.476	-44.658	-34.48	PASS

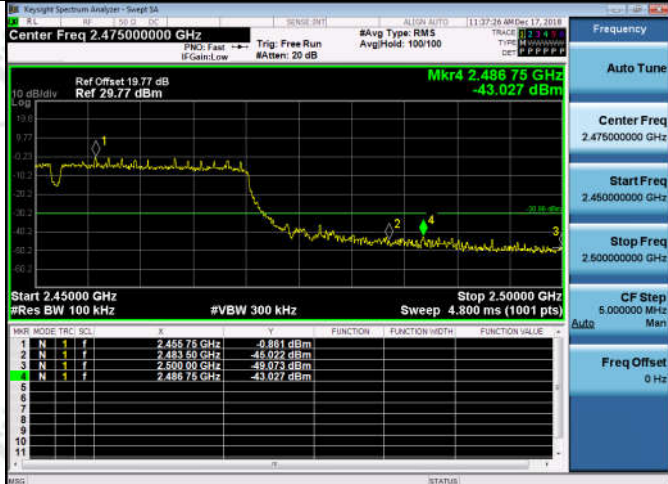
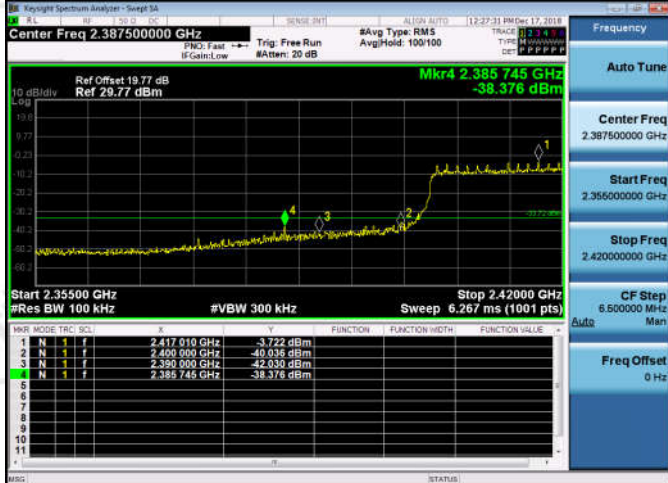
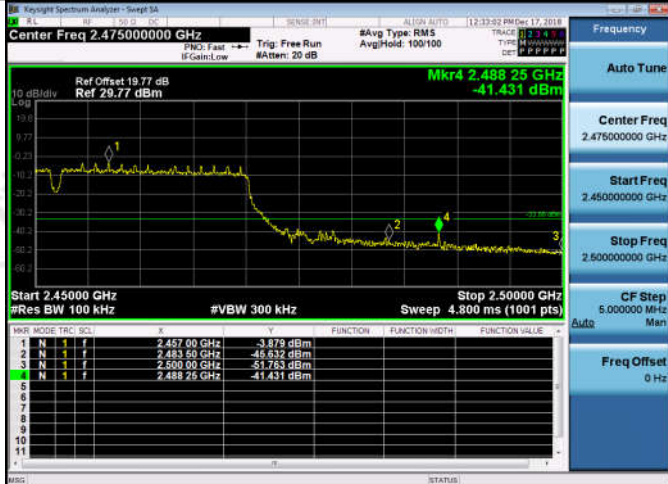
**Test Graph**



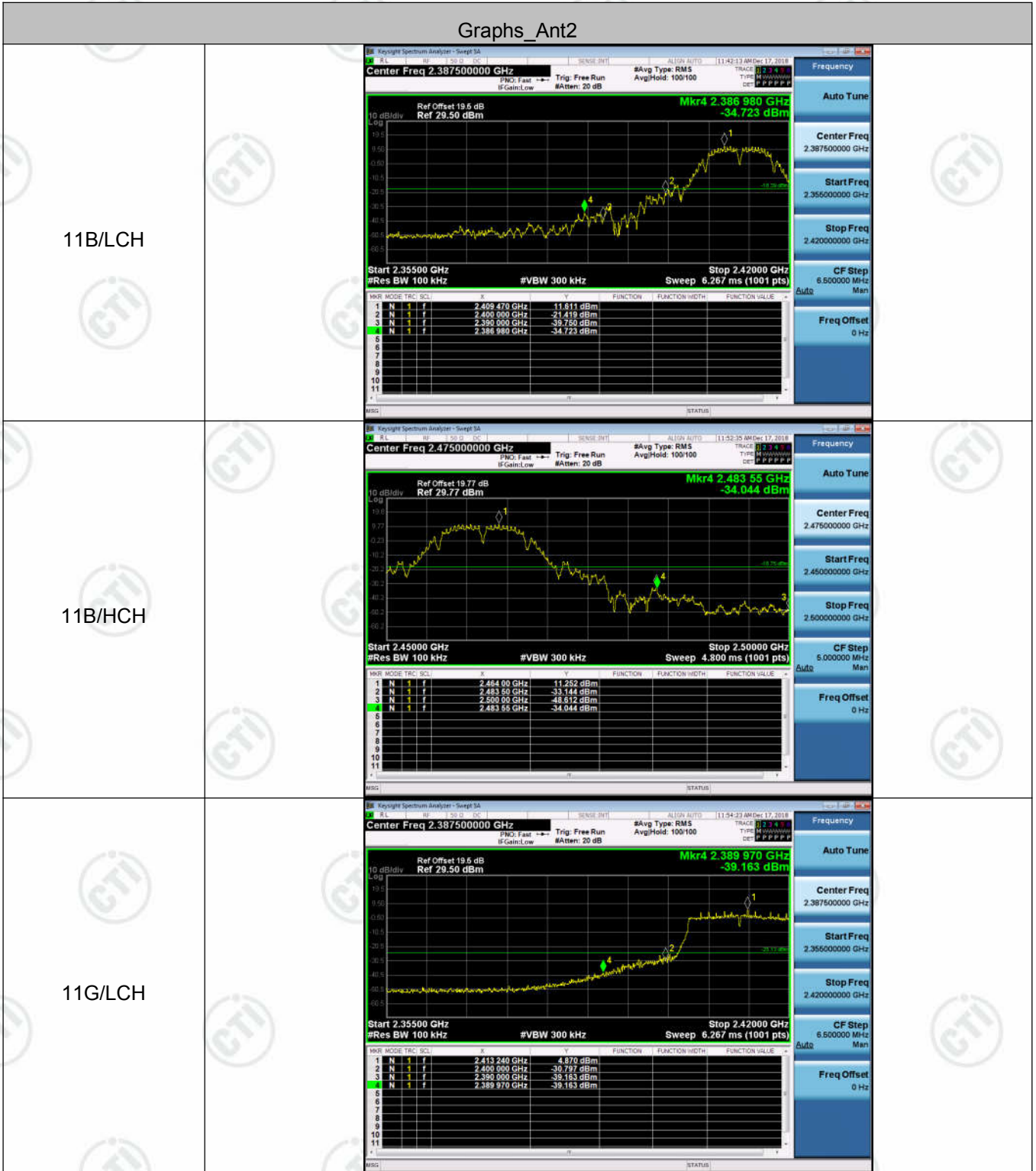
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<p>11N20SISO/LCH</p>	
<p>11N20SISO/HCH</p>	



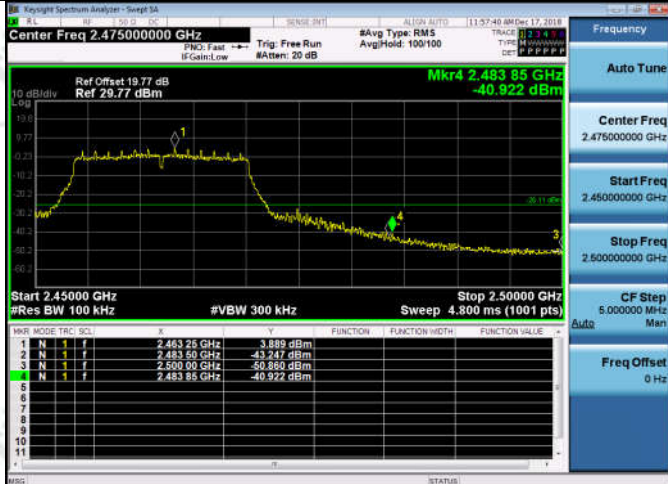
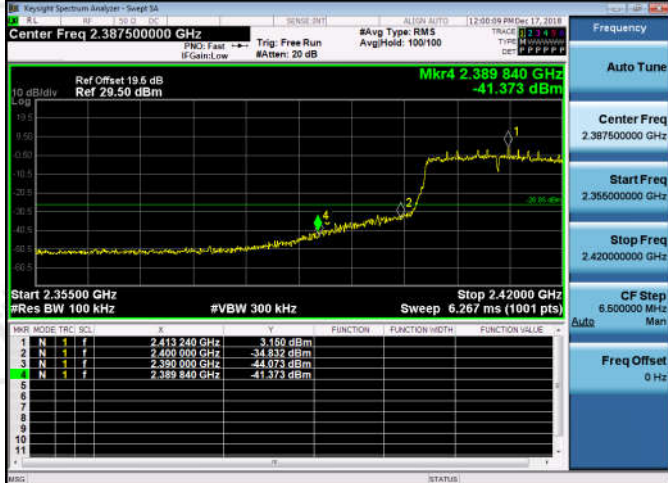
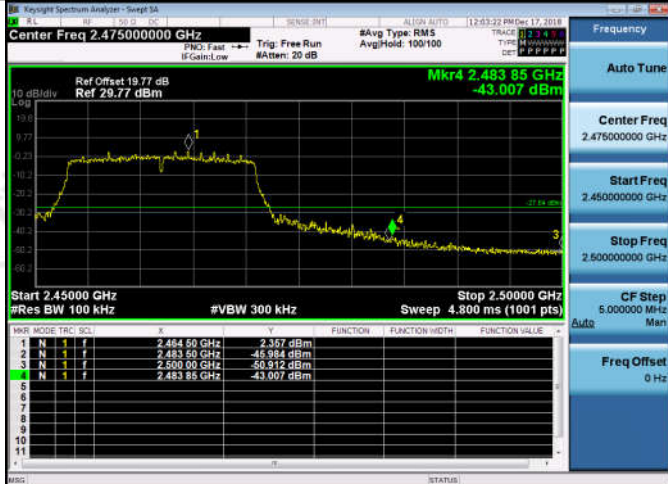
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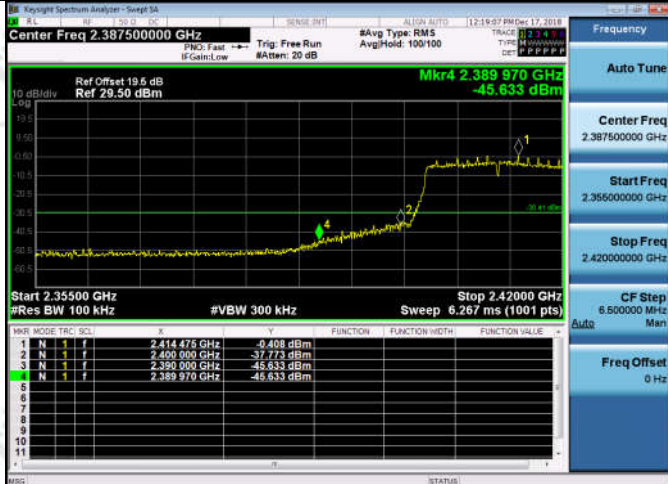
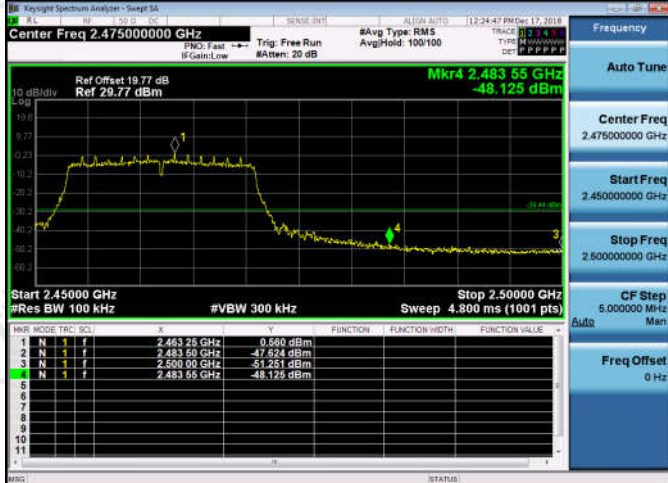
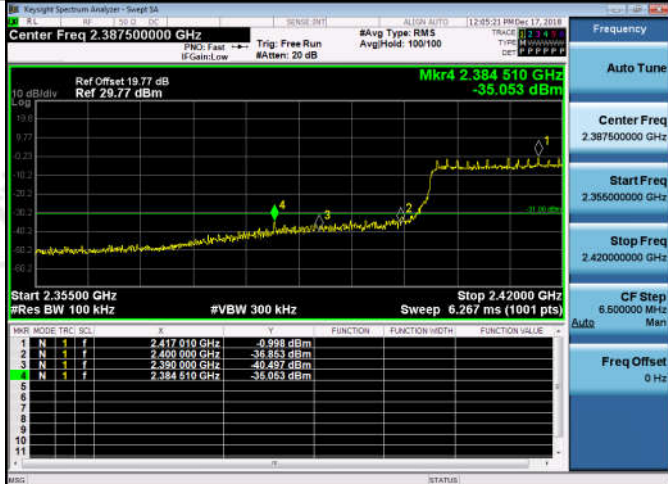
Graphs\_Ant2

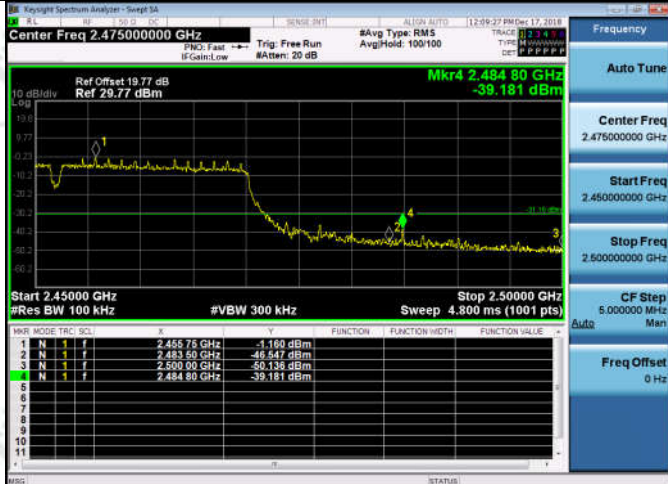
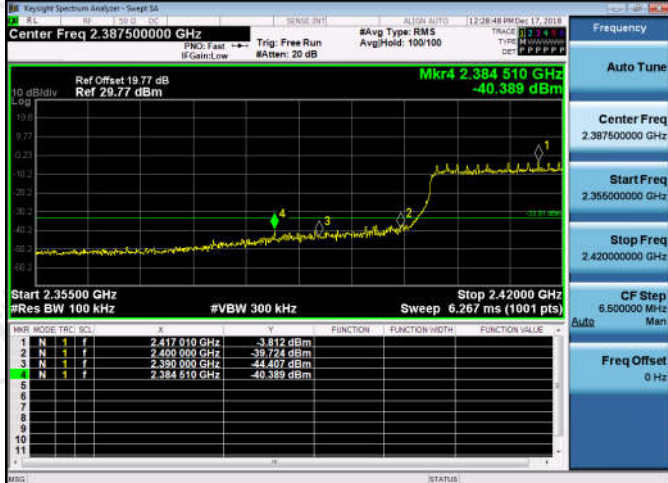
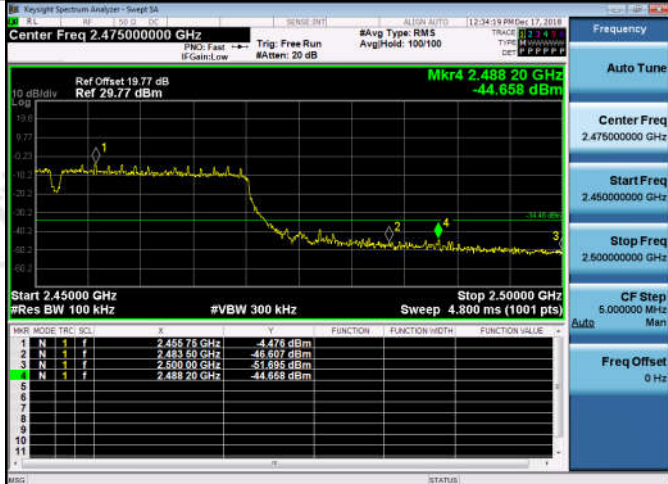




<p>11G/HCH</p>	
<p>11N20SISO/LCH</p>	
<p>11N20SISO/HCH</p>	



<p>11N20MIMO/LCH</p>	
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## Appendix D): RF Conducted Spurious Emissions

**Result Table**

Mode	Antenna	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	Ant1	LCH	10.994	<Limit	PASS
11B	Ant2	LCH	11.882	<Limit	PASS
11B	Ant1	MCH	11.525	<Limit	PASS
11B	Ant2	MCH	11.551	<Limit	PASS
11B	Ant1	HCH	10.775	<Limit	PASS
11B	Ant2	HCH	11.324	<Limit	PASS
11G	Ant1	LCH	3.7	<Limit	PASS
11G	Ant2	LCH	4.851	<Limit	PASS
11G	Ant1	MCH	4.902	<Limit	PASS
11G	Ant2	MCH	4.301	<Limit	PASS
11G	Ant1	HCH	5.017	<Limit	PASS
11G	Ant2	HCH	3.676	<Limit	PASS
11N20SISO	Ant1	LCH	3.391	<Limit	PASS
11N20SISO	Ant2	LCH	3.111	<Limit	PASS
11N20SISO	Ant1	MCH	3.538	<Limit	PASS
11N20SISO	Ant2	MCH	3.646	<Limit	PASS
11N20SISO	Ant1	HCH	4.067	<Limit	PASS
11N20SISO	Ant2	HCH	3.487	<Limit	PASS
11N20MIMO	Ant1	LCH	-0.134	<Limit	PASS
11N20MIMO	Ant2	LCH	-0.384	<Limit	PASS
11N20MIMO	Ant1	MCH	0.378	<Limit	PASS
11N20MIMO	Ant2	MCH	0.383	<Limit	PASS
11N20MIMO	Ant1	HCH	0.031	<Limit	PASS
11N20MIMO	Ant2	HCH	0.791	<Limit	PASS
11N40SISO	Ant1	LCH	-0.597	<Limit	PASS
11N40SISO	Ant2	LCH	-0.971	<Limit	PASS
11N40SISO	Ant1	MCH	-0.846	<Limit	PASS
11N40SISO	Ant2	MCH	-0.811	<Limit	PASS
11N40SISO	Ant1	HCH	-0.842	<Limit	PASS
11N40SISO	Ant2	HCH	-0.976	<Limit	PASS
11N40MIMO	Ant1	LCH	-3.636	<Limit	PASS
11N40MIMO	Ant2	LCH	-3.701	<Limit	PASS
11N40MIMO	Ant1	MCH	-3.889	<Limit	PASS
11N40MIMO	Ant2	MCH	-4.037	<Limit	PASS
11N40MIMO	Ant1	HCH	-3.703	<Limit	PASS
11N40MIMO	Ant2	HCH	-3.583	<Limit	PASS

**Test Graph**

