

TEST REPORT

Product Name : Wireless 802.11AC Dual band USB Adapter
Trade mark : N/A
Model/Type reference : DC29
Serial Number : N/A
Report Number : EED32I00268701
FCC ID : 2AHDI-DC29
Date of Issue : Nov. 22, 2016
Test Standards : 47 CFR Part 15 Subpart C (2015)
Test result : PASS

Prepared for:

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Nov. 22, 2016

Check No.: 2457586783



2 Version

Version No.	Date	Description
00	Nov. 22, 2016	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/ KDB 558074 D01v03r05	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013/ KDB 558074 D01v03r05	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013/ KDB 558074 D01v03r05	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013/ KDB 558074 D01v03r05	PASS
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013/ KDB 558074 D01v03r05	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 and the sample information are provided by the client.

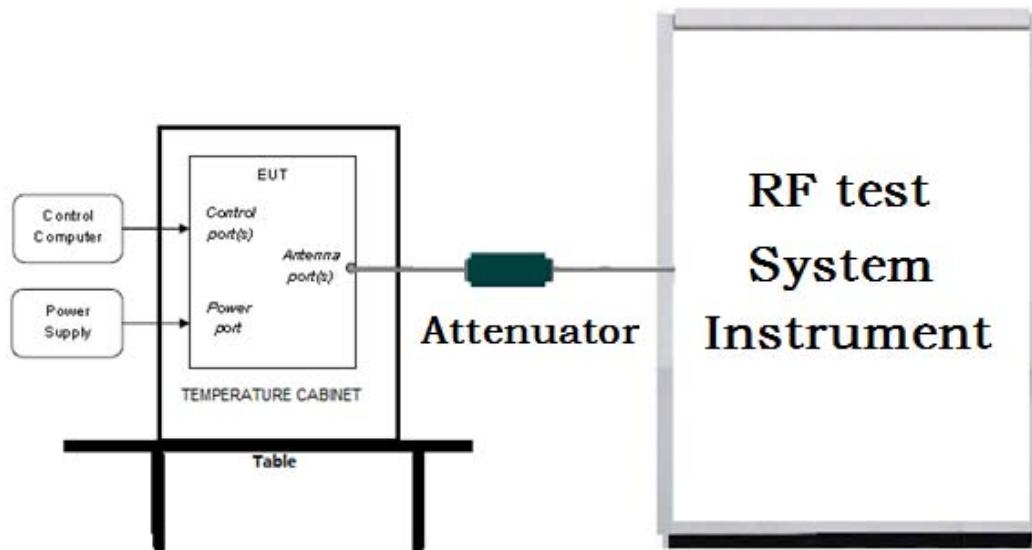
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

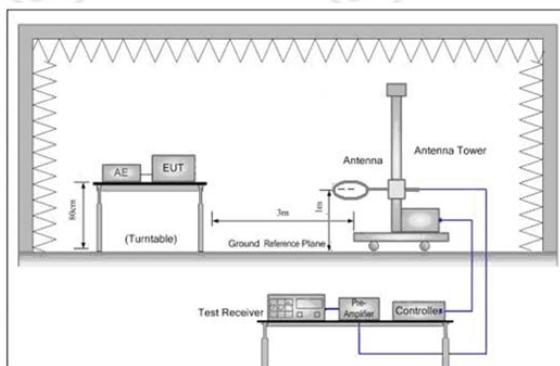


Figure 1. Below 30MHz

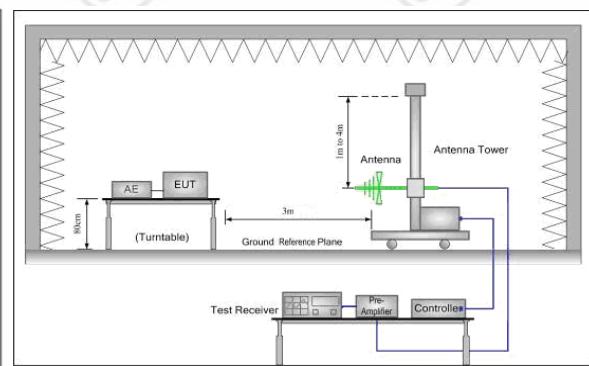


Figure 2. 30MHz to 1GHz

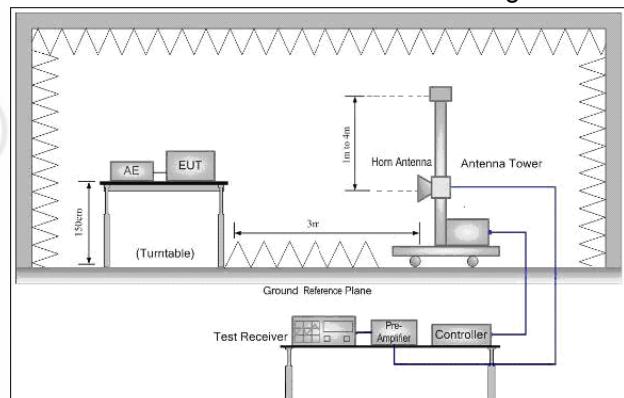
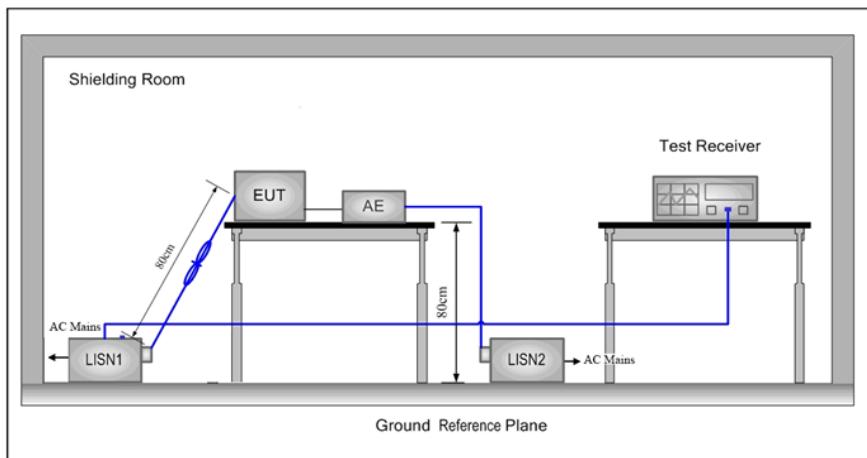


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:

Temperature:	23°C
Humidity:	52% RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx	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 for antenna 1

Mode	802.11b								
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps					
Power(dBm)	16.81	16.87	16.91	16.95					
Mode	802.11g								
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
Power(dBm)	15.38	15.35	15.33	15.30	15.27	15.22	15.20	15.11	
Mode	802.11n (HT20)								
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps	
Power(dBm)	14.58	14.55	14.51	14.50	14.44	14.40	14.33	14.27	
Mode	802.11n (HT40)								
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps	
Power(dBm)	14.30	14.29	14.25	14.21	14.20	14.18	14.11	14.07	

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:	Shenzhen TOMTOP Technology Co., Ltd.
Address of Applicant:	G-4 Zone 5/F, No.1 Exchange Square, Huanan City, Pinghu Town, Longgang Dist, Shenzhen, China.
Manufacturer:	Winstars Technology Limited
Address of Manufacturer:	Block 4, TaiSong Industrial Park, DaLang Street, LongHua Town, Bao'an district, Shenzhen, China

6.2 General Description of EUT

Product Name:	Wireless 802.11AC Dual band USB Adapter
Model No.(EUT):	DC29
Trade Mark:	N/A
EUT Supports Radios application:	WiFi : 2.4G: b/g/n(HT20/HT40) 2412-2462MHz 5G: U-NII-1: 5.15-5.25GHz; U-NII-3: 5.725-5.850GHz 802.11a; 802.11n(20MHz/40MHz); 802.11ac(20MHz/40MHz/80MHz)
Power Supply:	DC 5V
Sample Received Date:	Oct. 12, 2016
Sample tested Date:	Oct. 12, 2016 to Nov. 22, 2016

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)
Test Power Grade:	(manufacturer declare)2.4G WIFI:33; 5G WIFI: 35
Test Software of EUT:	(manufacturer declare) REALTEK
Antenna Type and Gain:	Integral Antenna
Antenna Gain:	3dBi
Test Voltage:	AC 120V/60Hz, AC 240V/50Hz
Power Supply:	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.

support equipment

Description	Manufacturer	Model No.	SN	Supplied by
Laptop	Lenovo	E46L	EB22995690	CTI
Mouse	L.Selectron	OP-200	NA	CTI

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

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

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

No tests were sub-contracted.

6.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1910

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

A2LA-Lab Cert. No. 3061.01

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 886427

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 886427.

IC-Registration No.: 7408A-2

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2 .

IC-Registration No.: 7408B-1

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

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

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)

4	Conduction emission	3.6dB (9kHz to 150kHz) 3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%

7 Equipment List

RF test system					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	04-01-2016	03-31-2017
Communication test set test set	Agilent	N4010A	MY51400230	04-01-2016	03-31-2017
Spectrum Analyzer	Keysight	N9010A	MY54510339	04-01-2016	03-31-2017
Signal Generator	Keysight	N5182B	MY53051549	04-01-2016	03-31-2017
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2016	01-11-2017
DC Power	Keysight	E3642A	MY54436035	04-01-2016	03-31-2017
PC-1	Lenovo	R4960d	---	04-01-2016	03-31-2017
power meter & power sensor	R&S	OSP120	101374	04-01-2016	03-31-2017
RF control unit	JS Tonscend	JS0806-2	158060006	04-01-2016	03-31-2017
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	04-01-2016	03-31-2017

Conducted disturbance Test					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100009	06-16-2016	06-15-2017
Temperature/ Humidity Indicator	TAYLOR	1451	1905	04-27-2016	04-26-2017
Communication test set	Agilent	E5515C	GB47050534	04-01-2016	03-31-2017
Communication test set	R&S	CMW500	152394	04-01-2016	03-31-2017
LISN	R&S	ENV216	100098	06-16-2016	06-15-2017
LISN	schwarzbeck	NNLK8121	8121-529	06-16-2016	06-15-2017
Voltage Probe	R&S	ESH2-Z3	--	07-09-2014	07-07-2017
Current Probe	R&S	EZ17	100106	06-16-2016	06-15-2017
ISN	TESEQ GmbH	ISN T800	30297	01-29-2015	01-27-2017

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-05-2016	06-05-2019
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-484	05-23-2016	05-22-2017
Microwave Preamplifier	Agilent	8449B	3008A02425	02-04-2016	02-03-2017
Horn Antenna	ETS-LINDGREN	3117	00057410	06-30-2015	06-28-2018
Horn Antenna	A.H.SYSTEMS	SAS-574	374	06-30-2015	06-28-2018
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Spectrum Analyzer	R&S	FSP40	100416	06-16-2016	06-15-2017
Receiver	R&S	ESCI	100435	06-16-2016	06-15-2017
Multi device Controller	maturo	NCD/070/1071 1112	---	01-12-2016	01-11-2017
LISN	schwarzbeck	NNBM8125	81251547	06-16-2016	06-15-2017
LISN	schwarzbeck	NNBM8125	81251548	06-16-2016	06-15-2017
Signal Generator	Agilent	E4438C	MY45095744	04-01-2016	03-31-2017
Signal Generator	Keysight	E8257D	MY53401106	04-01-2016	03-31-2017
Temperature/ Humidity Indicator	TAYLOR	1451	1905	04-27-2016	04-26-2017
Communication test set	Agilent	E5515C	GB47050534	04-01-2016	03-31-2017
Cable line	Fulai(7M)	SF106	5219/6A	01-12-2016	01-11-2017
Cable line	Fulai(6M)	SF106	5220/6A	01-12-2016	01-11-2017
Cable line	Fulai(3M)	SF106	5216/6A	01-12-2016	01-11-2017
Cable line	Fulai(3M)	SF106	5217/6A	01-12-2016	01-11-2017
Communication test set	R&S	CMW500	152394	04-01-2016	03-31-2017
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	---	01-12-2016	01-11-2017

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2015)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	KDB 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
4	KDB 558074 D01 v03r05	DTS Meas Guidance

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10/ KDB 558074 / KDB 662911	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10/ KDB 558074	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10/ KDB 558074 / KDB 662911	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10/ KDB 558074 / KDB 662911	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10/ KDB 558074 / KDB 662911	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

Test Procedure

1. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Measure the conducted output power and record the results in the test report.

Result Table

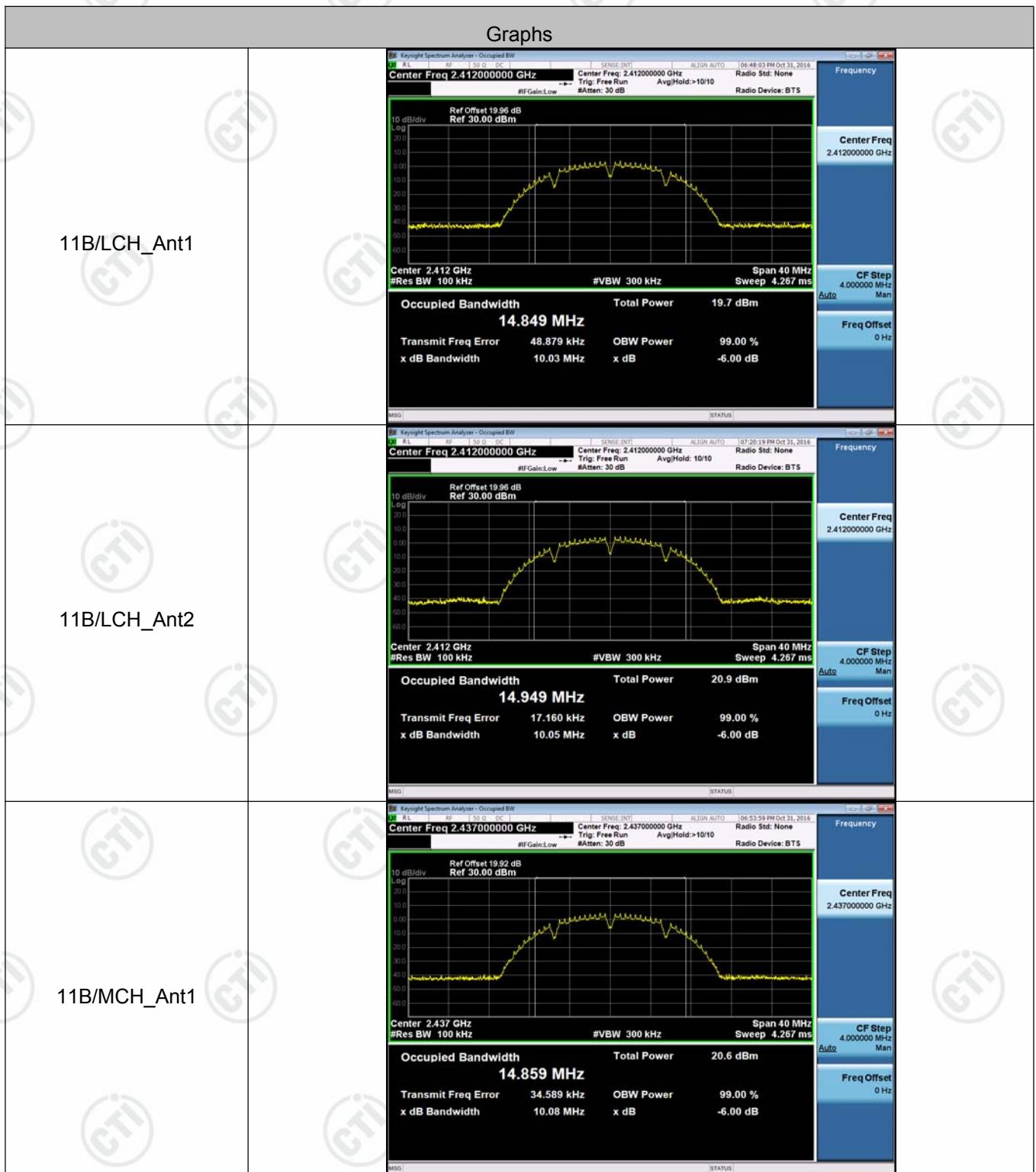
Mode	Antenna	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	Ant1	LCH	16.95	PASS
11B	Ant2	LCH	17.17	PASS
11B	Ant1	MCH	16.86	PASS
11B	Ant2	MCH	16.90	PASS
11B	Ant1	HCH	17.54	PASS
11B	Ant2	HCH	16.54	PASS
11G	Ant1	LCH	15.38	PASS
11G	Ant2	LCH	15.78	PASS
11G	Ant1	MCH	15.54	PASS
11G	Ant2	MCH	15.81	PASS
11G	Ant1	HCH	16.18	PASS
11G	Ant2	HCH	15.23	PASS
11N20SISO	Ant1	LCH	14.58	PASS
11N20SISO	Ant2	LCH	15.96	PASS
11N20SISO	Ant1	MCH	15.31	PASS
11N20SISO	Ant2	MCH	15.71	PASS
11N20SISO	Ant1	HCH	16.08	PASS
11N20SISO	Ant2	HCH	15.19	PASS
11N20MIMO	Ant1	LCH	14.30	PASS
11N20MIMO	Ant2	LCH	15.15	PASS
11N20MIMO	Ant1+2	LCH	15.28	PASS
11N20MIMO	Ant1	MCH	14.06	PASS
11N20MIMO	Ant2	MCH	15.70	PASS
11N20MIMO	Ant1+2	MCH	15.82	PASS
11N20MIMO	Ant1	HCH	15.24	PASS
11N20MIMO	Ant2	HCH	14.53	PASS
11N20MIMO	Ant1+2	HCH	14.68	PASS
11N40SISO	Ant1	LCH	14.30	PASS
11N40SISO	Ant2	LCH	15.14	PASS
11N40SISO	Ant1	MCH	14.68	PASS
11N40SISO	Ant2	MCH	15.17	PASS
11N40SISO	Ant1	HCH	15.25	PASS
11N40SISO	Ant2	HCH	14.85	PASS
11N40MIMO	Ant1	LCH	13.62	PASS
11N40MIMO	Ant2	LCH	14.40	PASS
11N40MIMO	Ant1+2	LCH	14.55	PASS
11N40MIMO	Ant1	MCH	14.15	PASS
11N40MIMO	Ant2	MCH	14.53	PASS
11N40MIMO	Ant1+2	MCH	14.68	PASS
11N40MIMO	Ant1	HCH	14.54	PASS
11N40MIMO	Ant2	HCH	14.24	PASS
11N40MIMO	Ant1+2	HCH	14.40	PASS

Appendix B): 6dB Occupied Bandwidth

Result Table

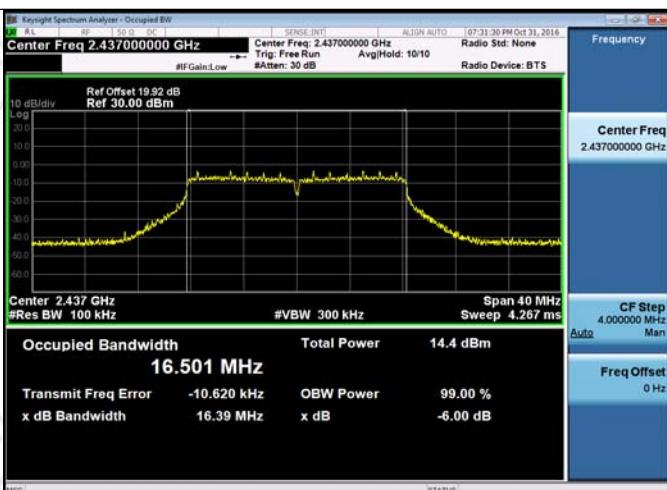
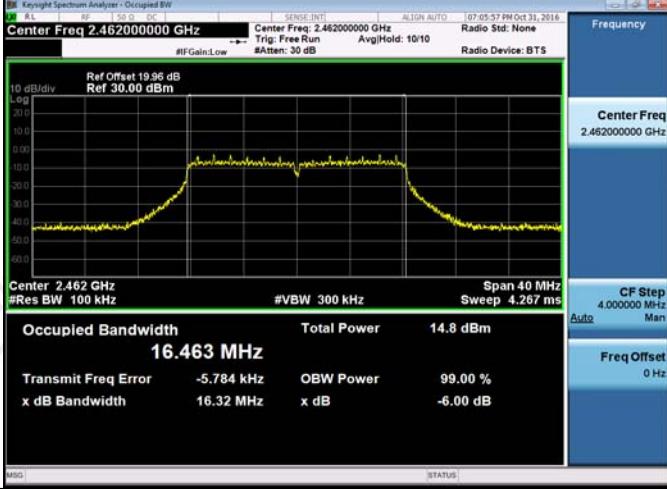
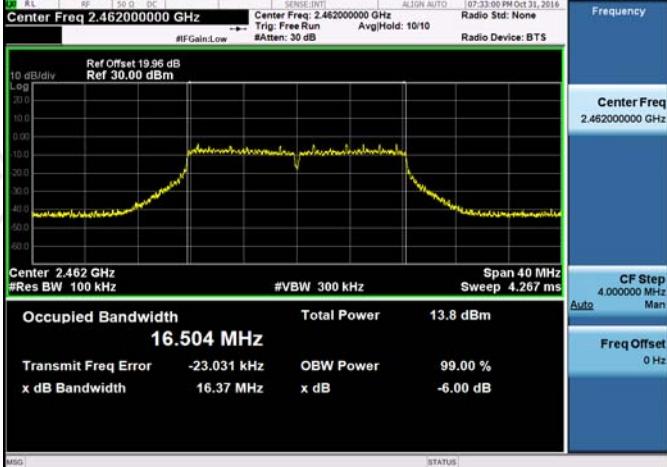
Mode	Antenna	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	Ant1	LCH	10.03	14.849	PASS	Peak detector
11B	Ant2	LCH	10.05	14.949	PASS	
11B	Ant1	MCH	10.08	14.859	PASS	
11B	Ant2	MCH	10.09	14.916	PASS	
11B	Ant1	HCH	10.04	14.851	PASS	
11B	Ant2	HCH	10.06	14.969	PASS	
11G	Ant1	LCH	16.36	16.461	PASS	
11G	Ant2	LCH	16.37	16.521	PASS	
11G	Ant1	MCH	16.34	16.461	PASS	
11G	Ant2	MCH	16.39	16.501	PASS	
11G	Ant1	HCH	16.32	16.463	PASS	
11G	Ant2	HCH	16.37	16.504	PASS	
11N20SISO	Ant1	LCH	17.33	17.615	PASS	
11N20SISO	Ant2	LCH	17.56	17.662	PASS	
11N20SISO	Ant1	MCH	17.54	17.617	PASS	
11N20SISO	Ant2	MCH	17.56	17.661	PASS	
11N20SISO	Ant1	HCH	17.55	17.606	PASS	
11N20SISO	Ant2	HCH	17.56	17.673	PASS	
11N20MIMO	Ant1	LCH	17.32	17.608	PASS	
11N20MIMO	Ant2	LCH	17.55	17.594	PASS	
11N20MIMO	Ant1	MCH	17.50	17.612	PASS	
11N20MIMO	Ant2	MCH	17.56	17.602	PASS	
11N20MIMO	Ant1	HCH	17.54	17.605	PASS	
11N20MIMO	Ant2	HCH	17.58	17.606	PASS	
11N40SISO	Ant1	LCH	35.73	36.128	PASS	
11N40SISO	Ant2	LCH	36.05	36.126	PASS	
11N40SISO	Ant1	MCH	35.42	36.117	PASS	
11N40SISO	Ant2	MCH	35.75	36.148	PASS	
11N40SISO	Ant1	HCH	36.02	36.118	PASS	
11N40SISO	Ant2	HCH	35.91	36.147	PASS	
11N40MIMO	Ant1	LCH	35.73	36.111	PASS	
11N40MIMO	Ant2	LCH	35.75	36.114	PASS	
11N40MIMO	Ant1	MCH	35.91	36.121	PASS	
11N40MIMO	Ant2	MCH	36.03	36.132	PASS	
11N40MIMO	Ant1	HCH	35.83	36.102	PASS	
11N40MIMO	Ant2	HCH	36.01	36.135	PASS	

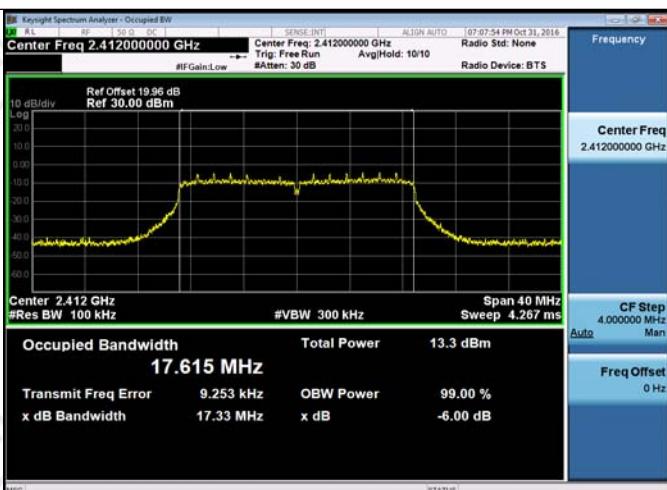
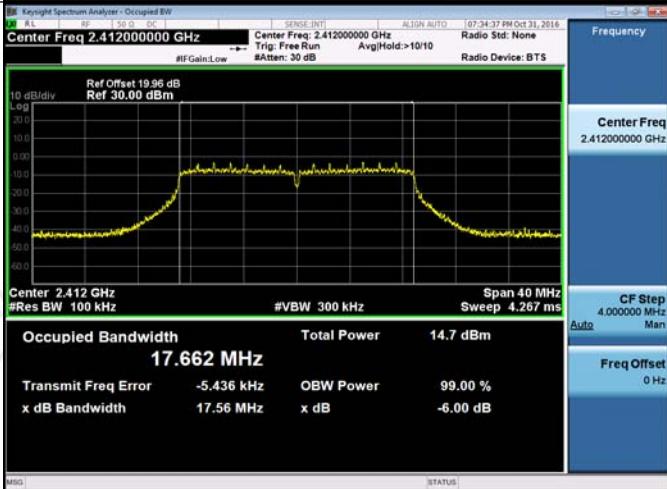
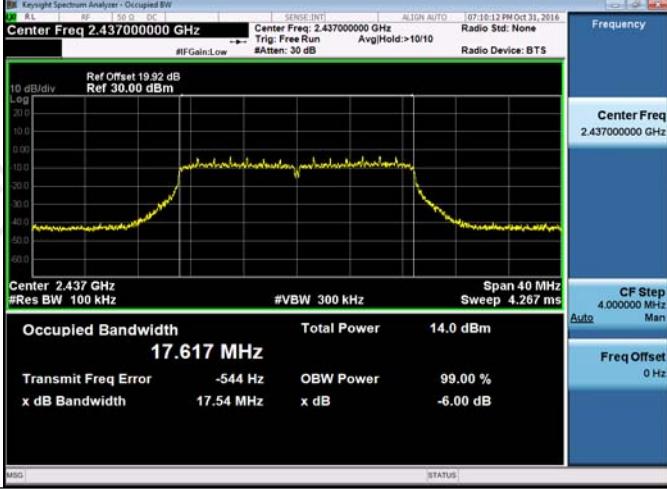
Test Graph



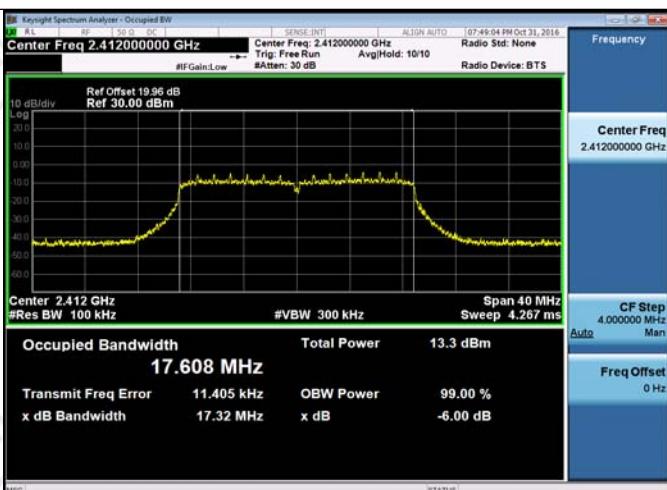
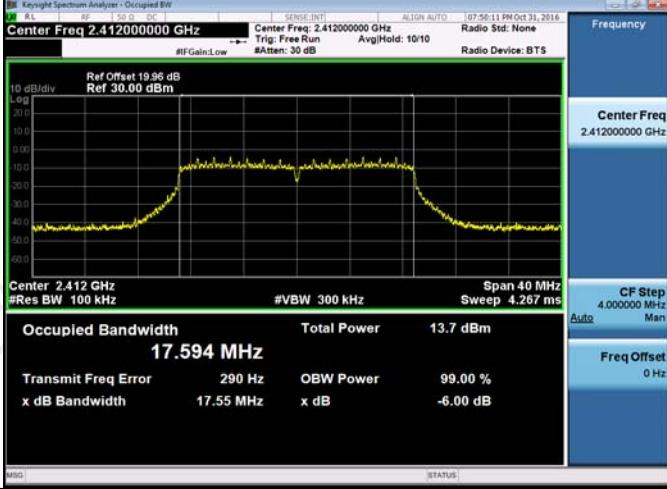
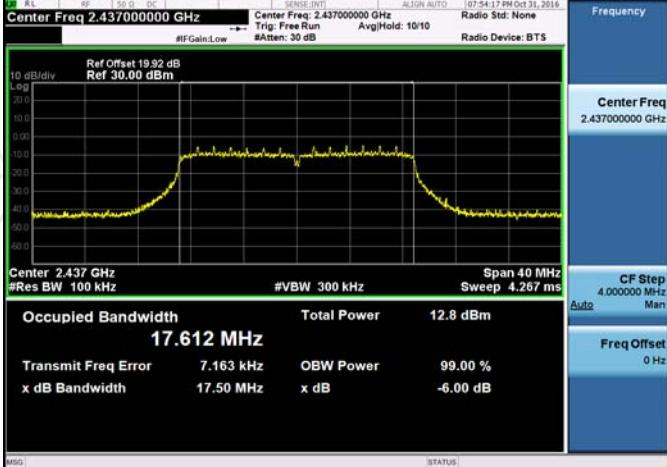


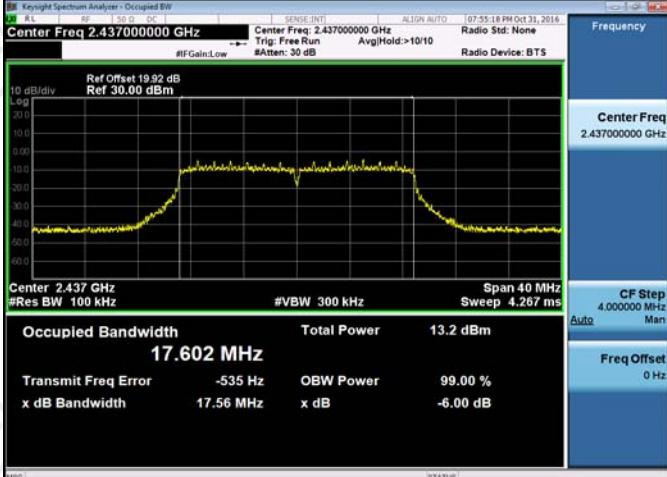
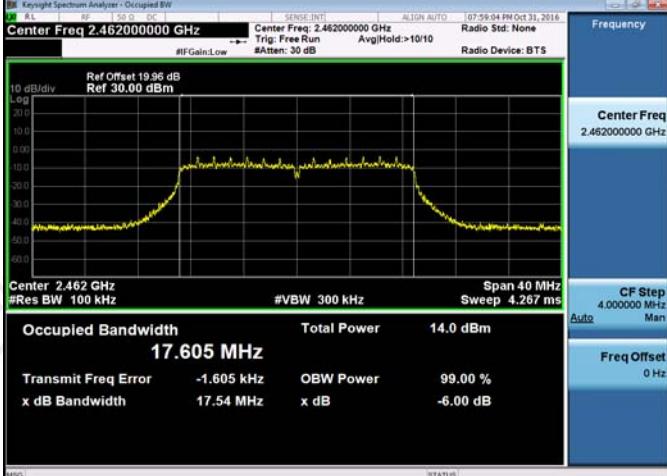
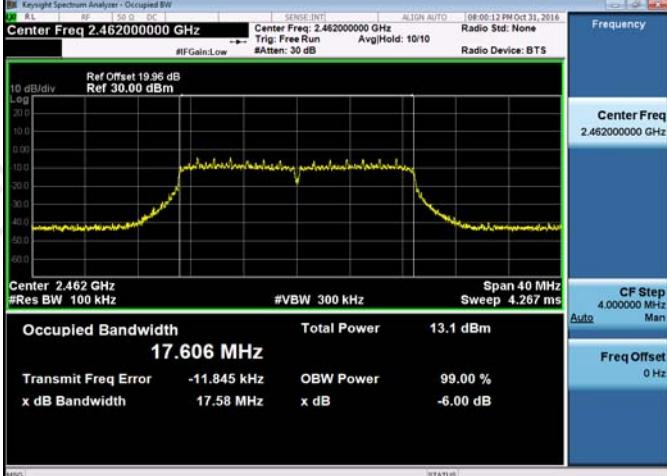


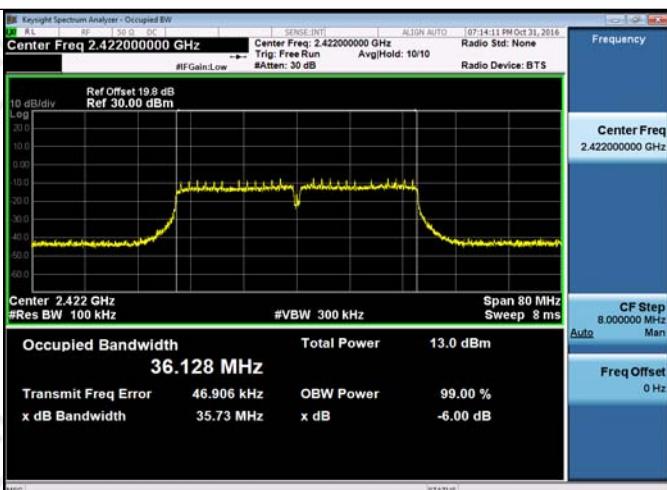
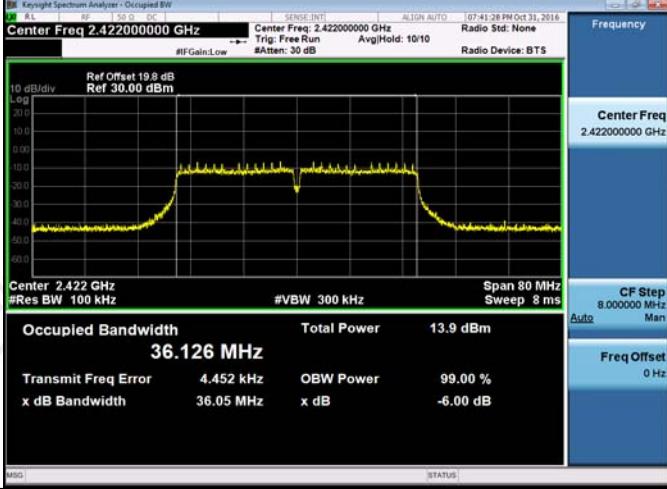
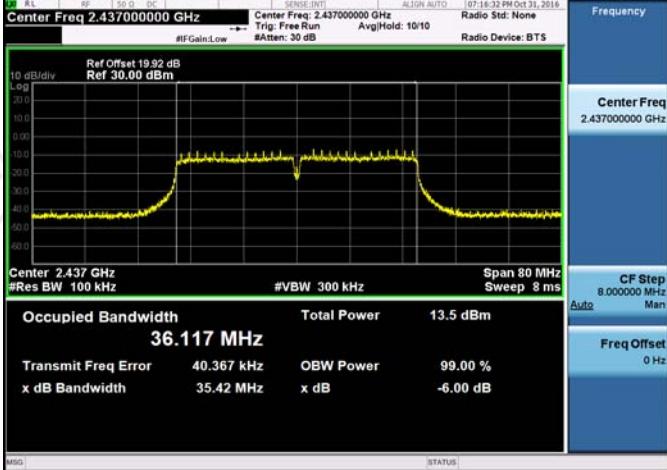
11G/MCH_Ant2	
11G/HCH_Ant1	
11G/HCH_Ant2	

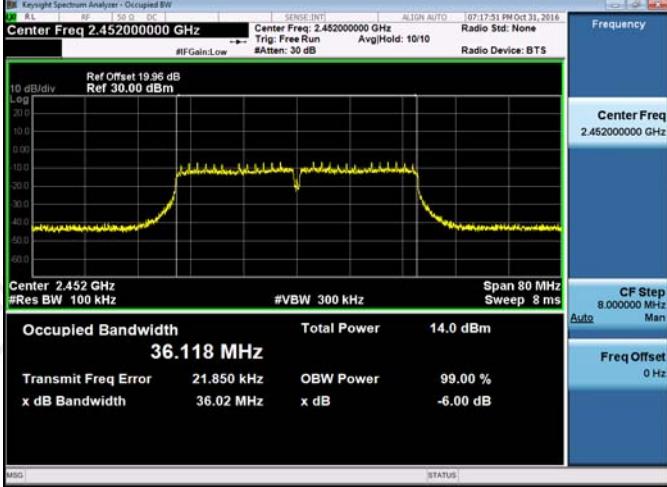
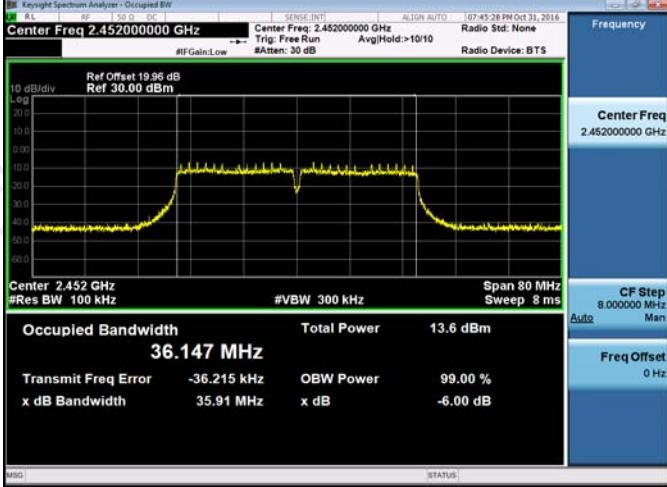
11N20SISO/LCH_Ant1	
11N20SISO/LCH_Ant2	
11N20SISO/MCH_Ant1	

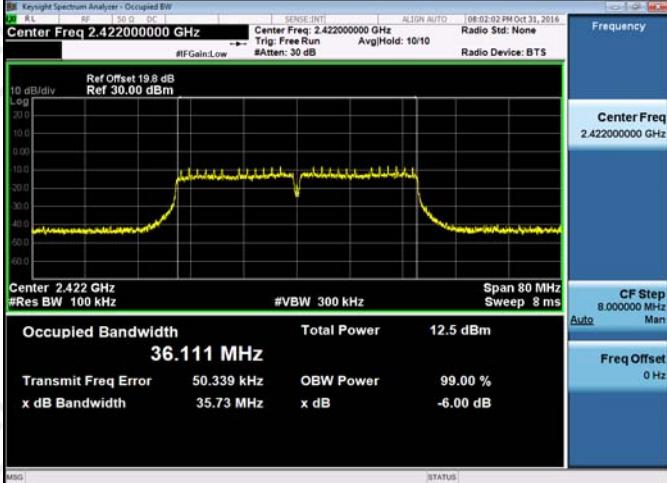
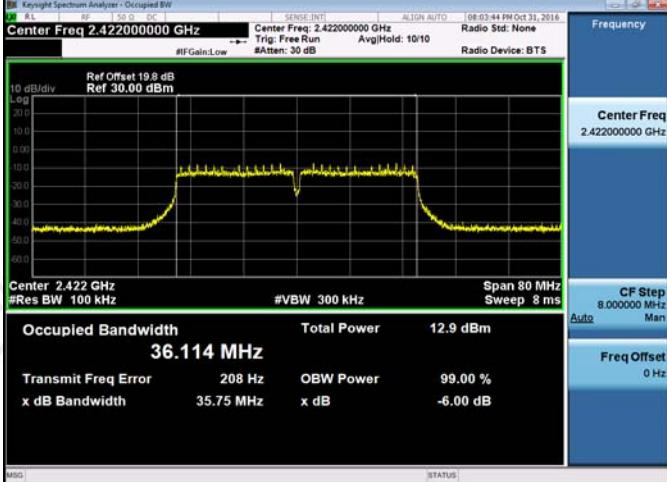
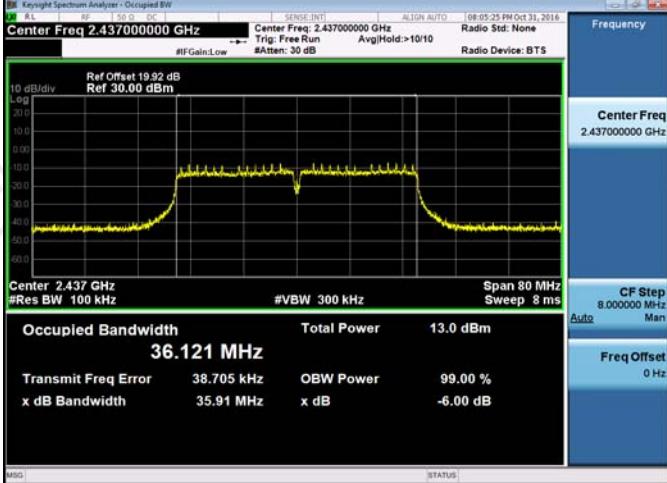


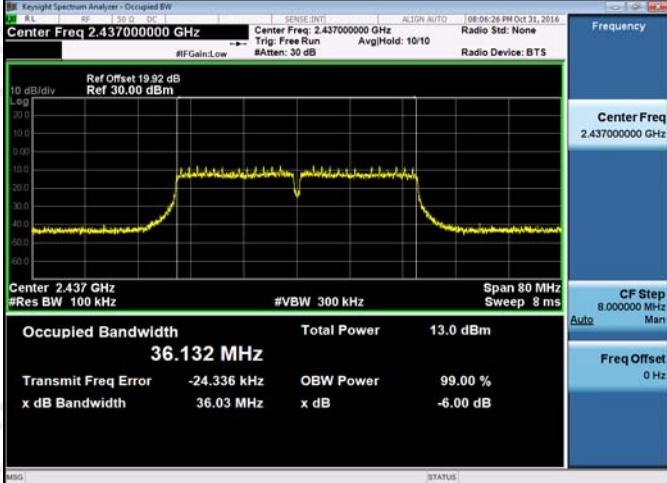
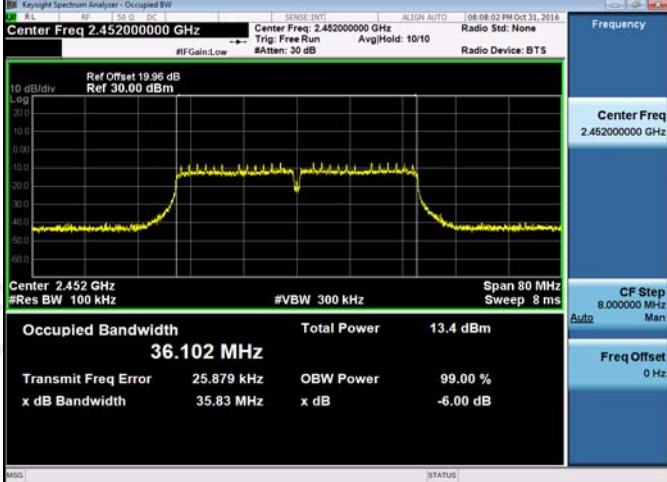
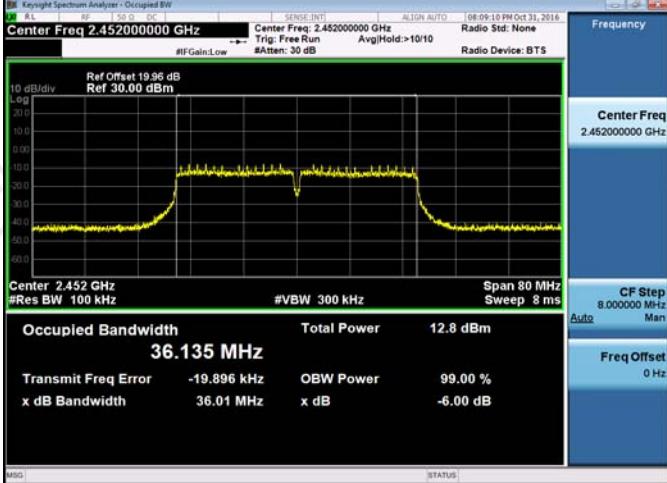
11N20MIMO/LCH_Ant1	
11N20MIMO/LCH_Ant2	
11N20MIMO/MCH_Ant1	

11N20MIMO/MCH_Ant2	
11N20MIMO/HCH_Ant1	
11N20MIMO/HCH_Ant2	

11N40SISO/LCH_Ant1	
11N40SISO/LCH_Ant2	
11N40SISO/MCH_Ant1	

		 <p>11N40SISO/HCH_Ant1</p> <p>Keystream Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.452000000 GHz SENSE:INT ALIGN AUTO 07:17:51 PM Oct 31, 2016</p> <p>#IF Gain:Low Center Freq: 2.452000000 GHz SENSE:INT: 2.452000000 GHz ALIGN AUTO: None Radio Std: None</p> <p>Ref Offset 19.96 dB Ref 30.00 dBm #IF Gain:Low #Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>10 dB/div Log 20.0 10.0 0.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0</p> <p>Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms</p> <p>Occupied Bandwidth 36.118 MHz Total Power 14.0 dBm</p> <p>Transmit Freq Error 21.850 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 36.02 MHz x dB -6.00 dB</p>
		 <p>11N40SISO/HCH_Ant2</p> <p>Keystream Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.452000000 GHz SENSE:INT ALIGN AUTO 07:45:28 PM Oct 31, 2016</p> <p>#IF Gain:Low Center Freq: 2.452000000 GHz SENSE:INT: 2.452000000 GHz ALIGN AUTO: None Radio Std: None</p> <p>Ref Offset 19.96 dB Ref 30.00 dBm #IF Gain:Low #Trig: Free Run Avg/Hold: >10/10 Radio Device: BTS</p> <p>10 dB/div Log 20.0 10.0 0.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0</p> <p>Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 80 MHz Sweep 8 ms</p> <p>Occupied Bandwidth 36.147 MHz Total Power 13.6 dBm</p> <p>Transmit Freq Error -36.215 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.91 MHz x dB -6.00 dB</p>

11N40MIMO/LCH_Ant1	
11N40MIMO/LCH_Ant2	
11N40MIMO/MCH_Ant1	

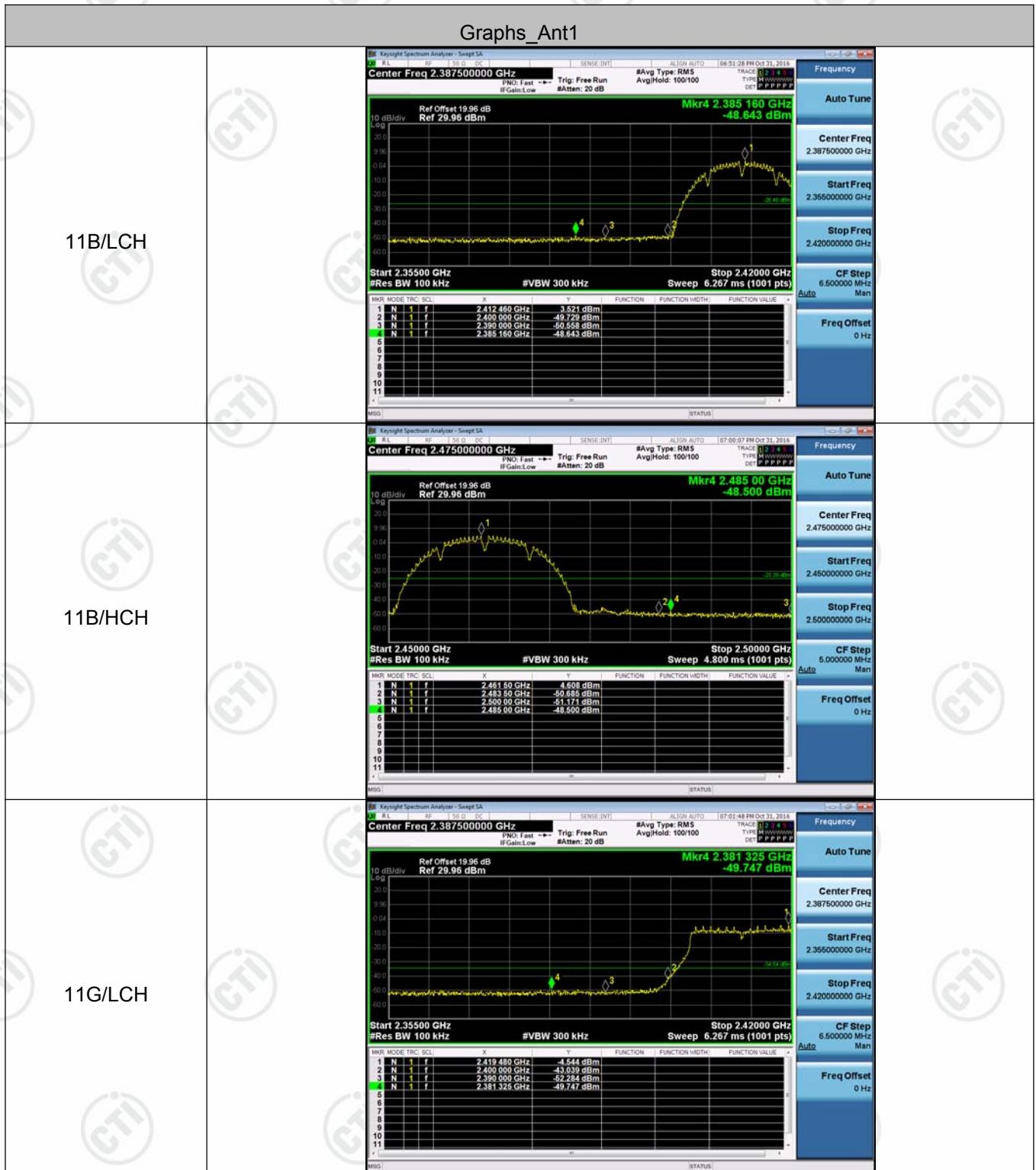
11N40MIMO/MCH_Ant2	
11N40MIMO/HCH_Ant1	
11N40MIMO/HCH_Ant2	

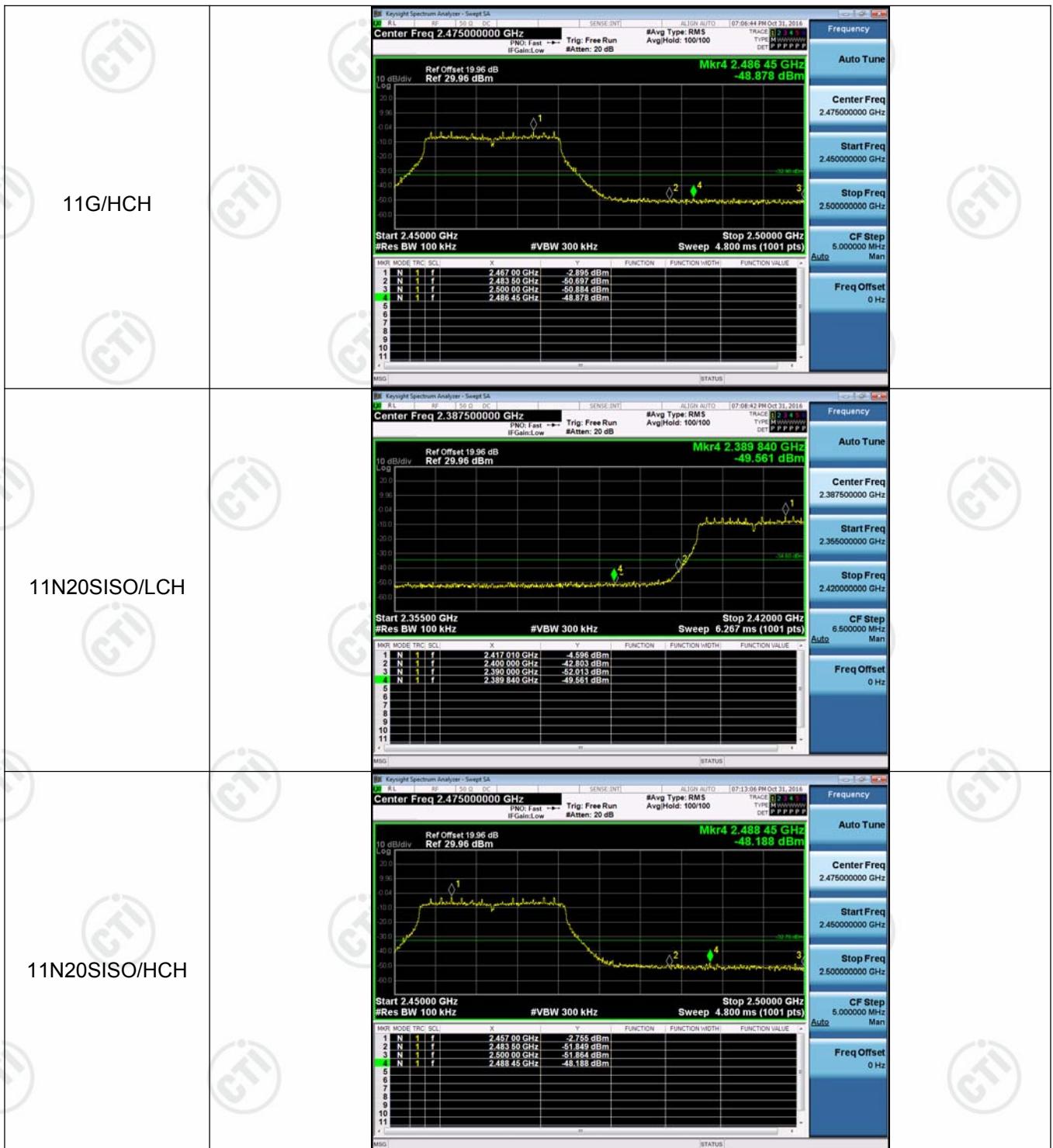
Appendix C): Band-edge for RF Conducted Emissions

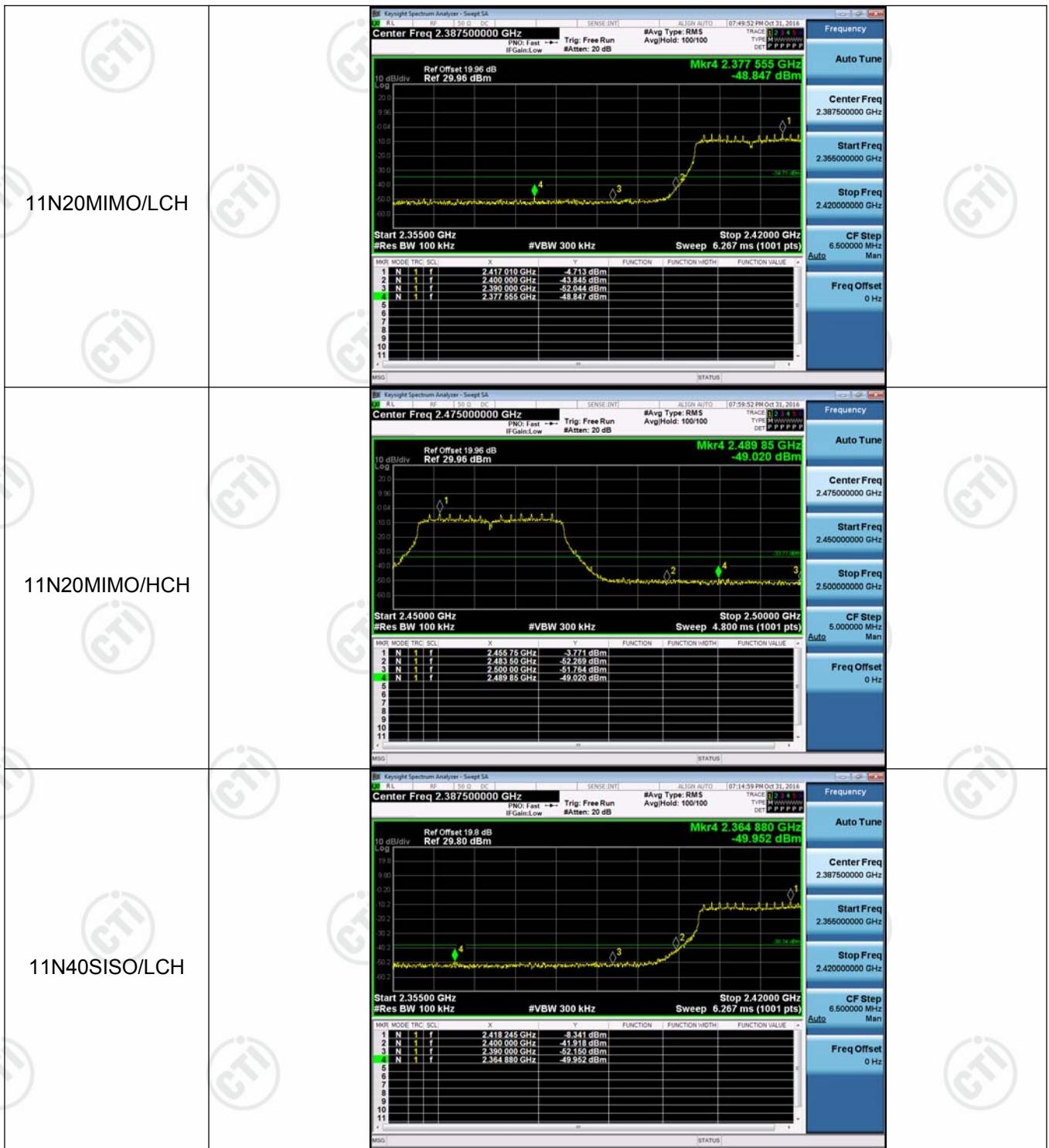
Result Table

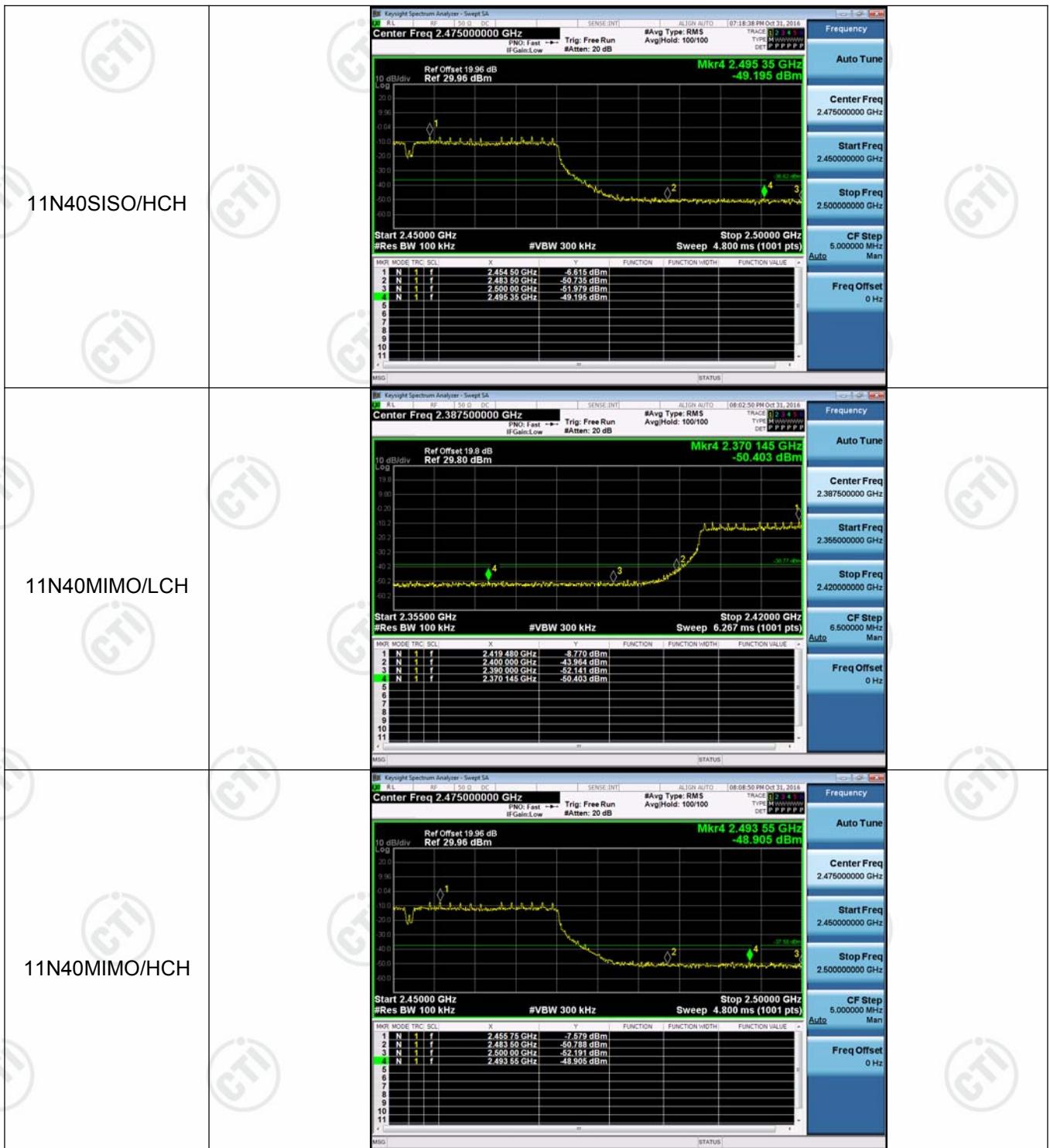
Mode	Antenna	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Ant1	LCH	3.521	-48.643	-26.48	PASS
11B	Ant2	LCH	4.619	-49.440	-25.38	PASS
11B	Ant1	HCH	4.608	-48.500	-25.39	PASS
11B	Ant2	HCH	3.527	-48.915	-26.47	PASS
11G	Ant1	LCH	-4.544	-49.747	-34.54	PASS
11G	Ant2	LCH	-3.091	-49.460	-33.09	PASS
11G	Ant1	HCH	-2.895	-48.878	-32.90	PASS
11G	Ant2	HCH	-3.813	-49.265	-33.81	PASS
11N20SISO	Ant1	LCH	-4.596	-49.561	-34.60	PASS
11N20SISO	Ant2	LCH	-3.242	-49.453	-33.24	PASS
11N20SISO	Ant1	HCH	-2.755	-48.188	-32.76	PASS
11N20SISO	Ant2	HCH	-3.320	-48.999	-33.32	PASS
11N20MIMO	Ant1	LCH	-4.713	-48.847	-34.71	PASS
11N20MIMO	Ant2	LCH	-4.516	-49.185	-34.52	PASS
11N20MIMO	Ant1	HCH	-3.771	-49.020	-33.77	PASS
11N20MIMO	Ant2	HCH	-4.390	-49.297	-34.39	PASS
11N40SISO	Ant1	LCH	-8.341	-49.952	-38.34	PASS
11N40SISO	Ant2	LCH	-6.755	-48.885	-36.76	PASS
11N40SISO	Ant1	HCH	-6.615	-49.195	-36.62	PASS
11N40SISO	Ant2	HCH	-7.232	-49.519	-37.23	PASS
11N40MIMO	Ant1	LCH	-8.770	-50.403	-38.77	PASS
11N40MIMO	Ant2	LCH	-7.819	-49.244	-37.82	PASS
11N40MIMO	Ant1	HCH	-7.579	-48.905	-37.58	PASS
11N40MIMO	Ant2	HCH	-7.831	-49.302	-37.83	PASS

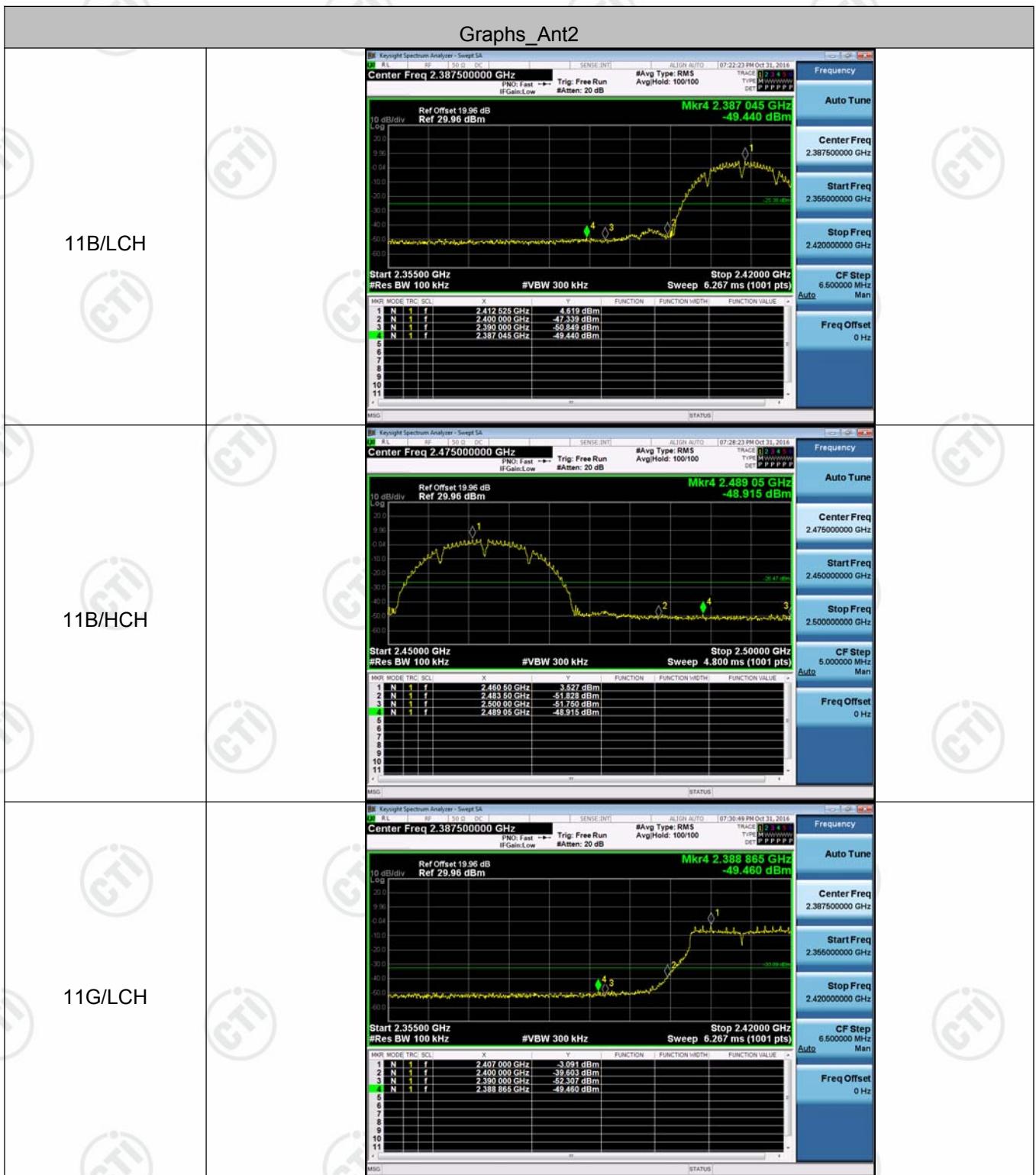
Test Graph

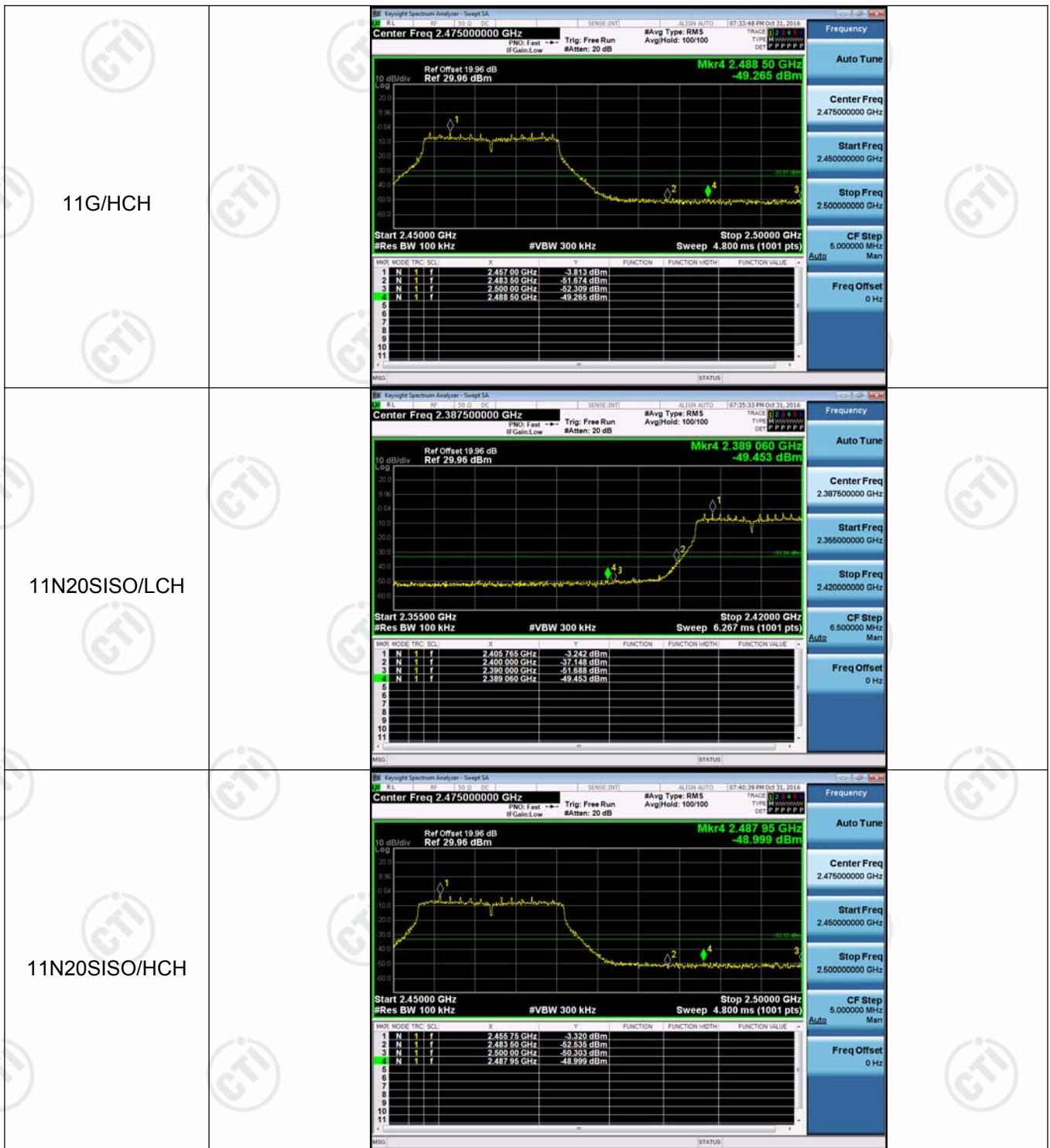


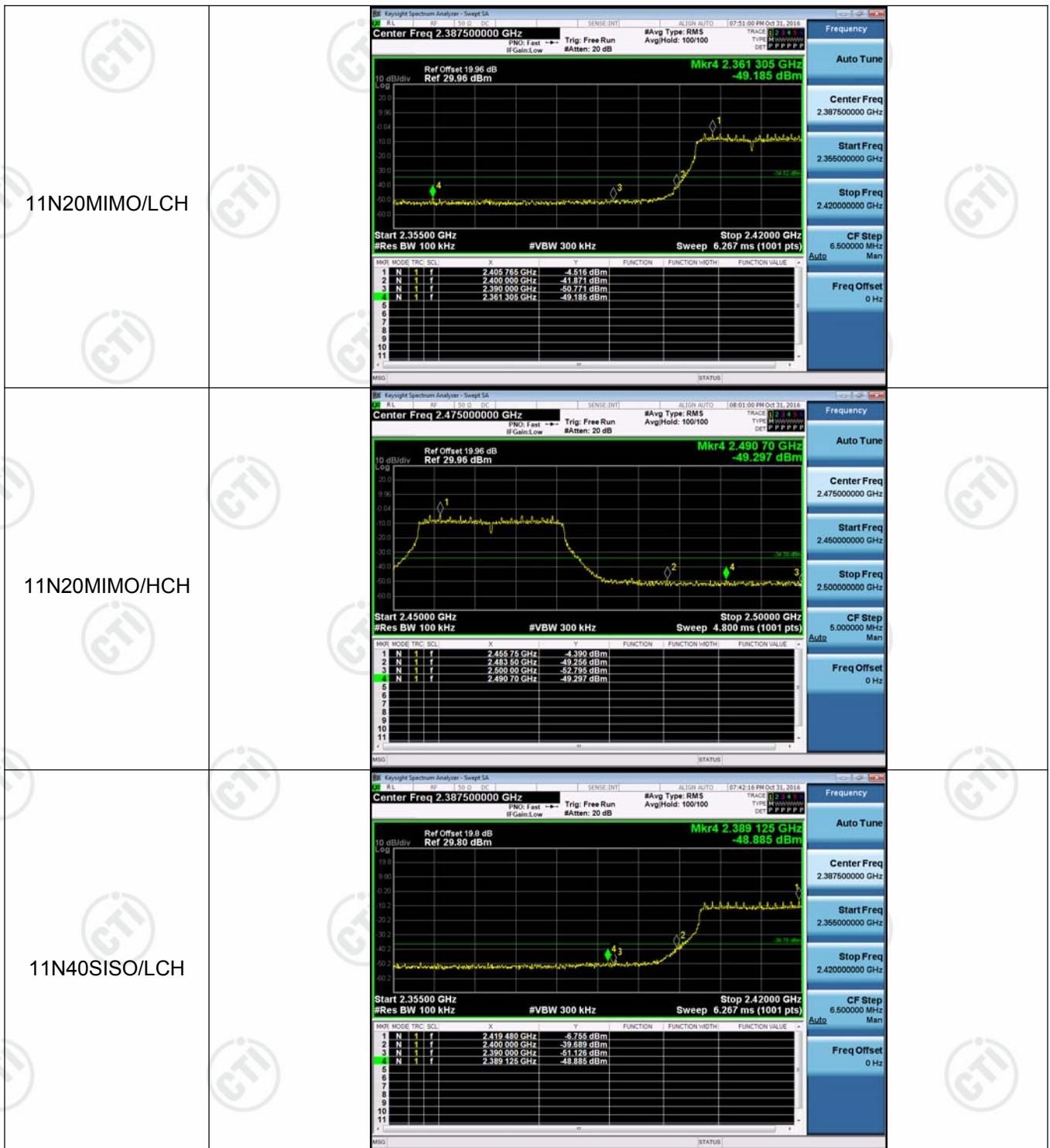


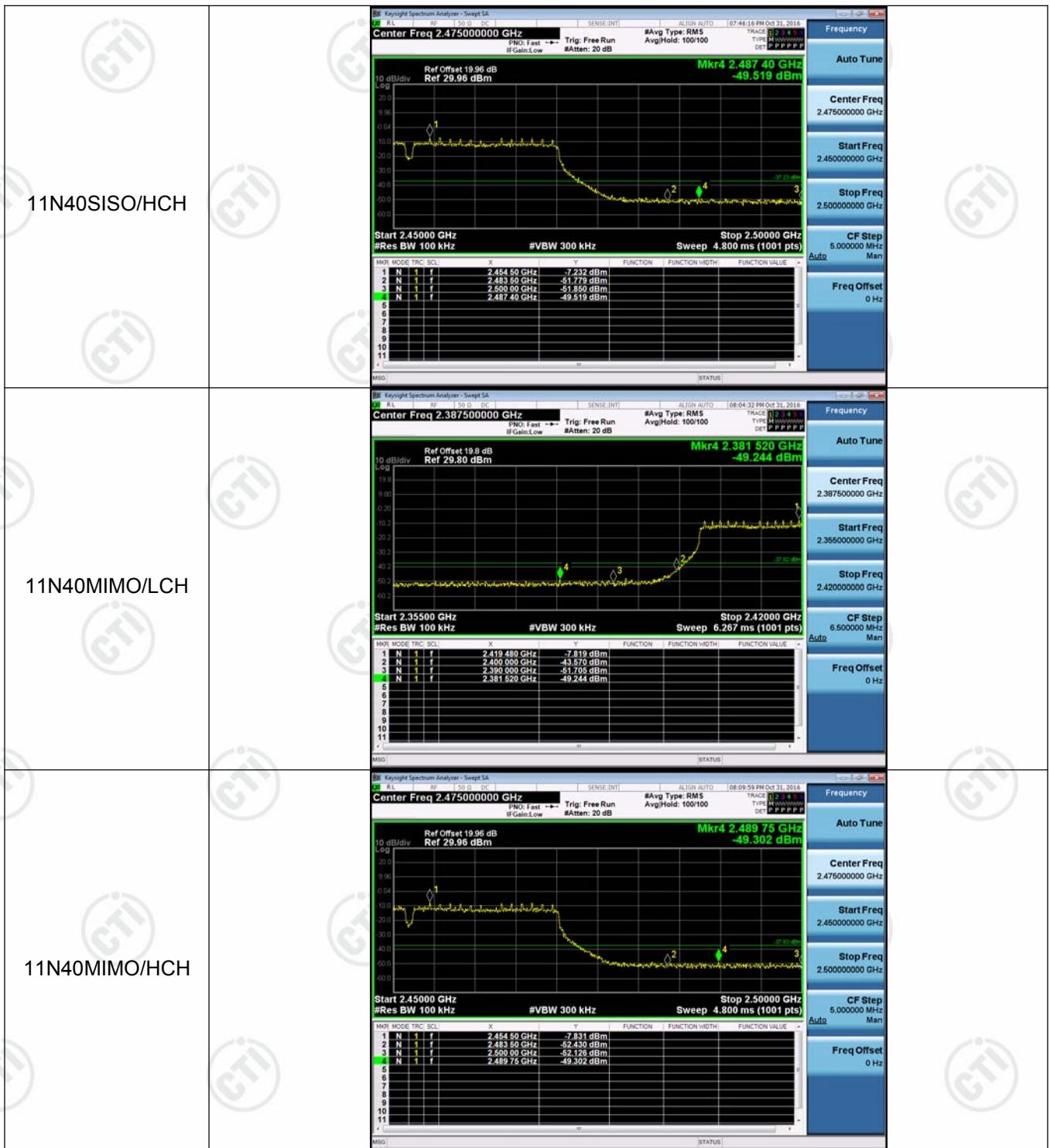












Appendix D): RF Conducted Spurious Emissions

Result Table

Mode	Antenna	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	Ant1	LCH	3.34	<Limit	PASS
11B	Ant2	LCH	4.023	<Limit	PASS
11B	Ant1	MCH	4.24	<Limit	PASS
11B	Ant2	MCH	4.471	<Limit	PASS
11B	Ant1	HCH	4.866	<Limit	PASS
11B	Ant2	HCH	3.928	<Limit	PASS
11G	Ant1	LCH	-4.713	<Limit	PASS
11G	Ant2	LCH	-3.667	<Limit	PASS
11G	Ant1	MCH	-3.457	<Limit	PASS
11G	Ant2	MCH	-3.156	<Limit	PASS
11G	Ant1	HCH	-2.909	<Limit	PASS
11G	Ant2	HCH	-3.325	<Limit	PASS
11N20SISO	Ant1	LCH	-4.329	<Limit	PASS
11N20SISO	Ant2	LCH	-3.309	<Limit	PASS
11N20SISO	Ant1	MCH	-3.582	<Limit	PASS
11N20SISO	Ant2	MCH	-3.103	<Limit	PASS
11N20SISO	Ant1	HCH	-2.79	<Limit	PASS
11N20SISO	Ant2	HCH	-3.47	<Limit	PASS
11N20MIMO	Ant1	LCH	-5.268	<Limit	PASS
11N20MIMO	Ant2	LCH	-4.065	<Limit	PASS
11N20MIMO	Ant1	MCH	-4.717	<Limit	PASS
11N20MIMO	Ant2	MCH	-4.087	<Limit	PASS
11N20MIMO	Ant1	HCH	-3.871	<Limit	PASS
11N20MIMO	Ant2	HCH	-4.069	<Limit	PASS
11N40SISO	Ant1	LCH	-7.594	<Limit	PASS
11N40SISO	Ant2	LCH	-6.744	<Limit	PASS
11N40SISO	Ant1	MCH	-6.905	<Limit	PASS
11N40SISO	Ant2	MCH	-7.007	<Limit	PASS
11N40SISO	Ant1	HCH	-6.529	<Limit	PASS
11N40SISO	Ant2	HCH	-6.872	<Limit	PASS
11N40MIMO	Ant1	LCH	-8.382	<Limit	PASS
11N40MIMO	Ant2	LCH	-7.688	<Limit	PASS
11N40MIMO	Ant1	MCH	-7.905	<Limit	PASS
11N40MIMO	Ant2	MCH	-7.722	<Limit	PASS
11N40MIMO	Ant1	HCH	-7.598	<Limit	PASS
11N40MIMO	Ant2	HCH	-7.804	<Limit	PASS

Test Graph

