

TEST REPORT

Product : 10.1" Tablet PC
Trade mark : KINGPAD, DragonTouch,
KINGSLIM, AKASO
Model/Type reference : V10, V10PLUS, V10X, V100,
V100X
Serial Number : N/A
Report Number : EED32I00070502
FCC ID : S5V-D10V10
Date of Issue : Jun. 17, 2016
Test Standards : 47 CFR Part 15 Subpart C (2015)
Test result : PASS

Prepared for:

PROEXPRESS DISTRIBUTOR LLC
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Prepared by:

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Date:

Jun. 17, 2016

Check No.: 2384378427



2 Version

Version No.	Date	Description
00	Jun. 17, 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 samples and the sample information are provided by the client.

Model No.: V10, V10PLUS, V10X, V100, V100X

Only the model V10 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, V10, V10PLUS, V10X, V100 and V100X are named differently due to difference agent and marketing purposes.

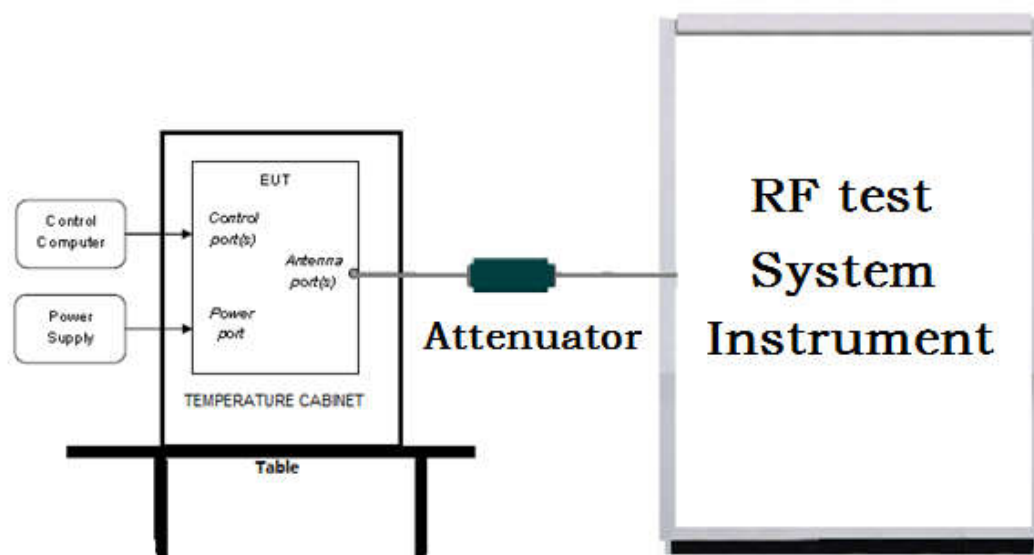
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

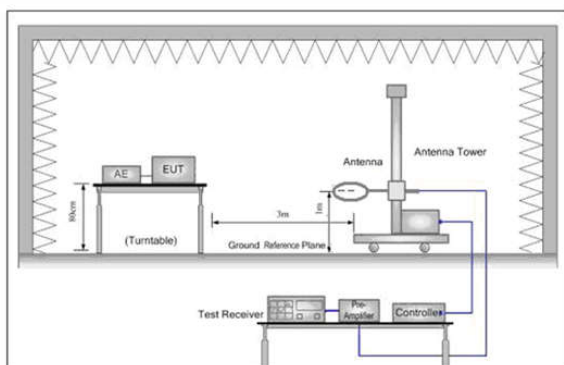


Figure 1. Below 30MHz

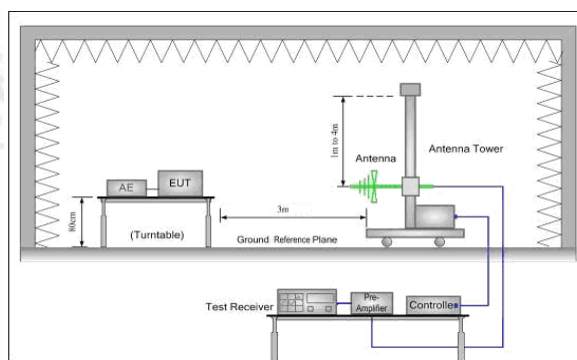


Figure 2. 30MHz to 1GHz

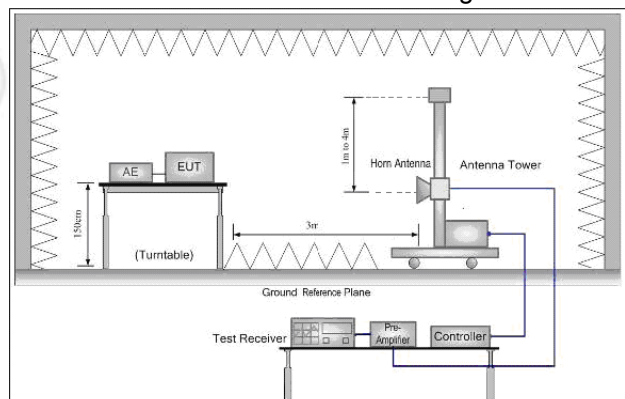
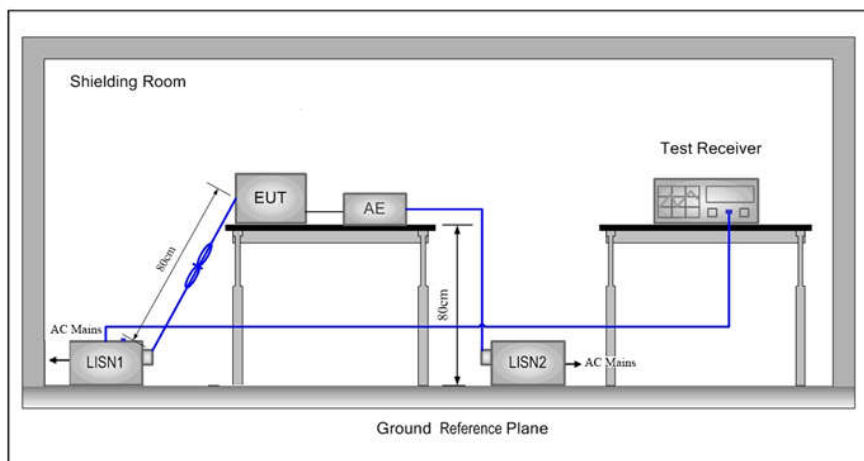


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	24°C
Humidity:	50% 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

Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	9.19	9.29	9.33	9.34				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	8.49	8.41	8.46	8.40	8.39	8.39	8.22	8.15
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	7.74	7.71	7.69	7.66	7.63	7.61	7.61	7.52
Mode	802.11n (HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power(dBm)	6.61	6.60	6.57	6.55	6.54	6.54	6.53	6.50

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:	PROEXPRESS DISTRIBUTOR LLC
Address of Applicant:	11011 Greenwood Ave N 11011 Greenwood Ave N, Seattle Washington United States
Manufacturer:	PROEXPRESS DISTRIBUTOR LLC
Address of Manufacturer:	11011 Greenwood Ave N 11011 Greenwood Ave N, Seattle Washington United States
Factory:	PROEXPRESS DISTRIBUTOR LLC
Address of Factory:	11011 Greenwood Ave N 11011 Greenwood Ave N, Seattle Washington United States

6.2 General Description of EUT

Product Name:	10.1" Tablet PC
Model No.:	V10, V10PLUS, V10X, V100, V100X
Test Mode No.:	V10
Trade mark:	KINGPAD, DragonTouch, KINGSLIM, AKASO
EUT Supports Radios application:	Wlan 2.4GHz 802.11b/g/n(HT20&HT40)
AC adapter:	AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2000mA
EUT power supply:	DC 3.7V, 5000mA
Sample Received Date:	Apr. 05, 2016
Sample tested Date:	Apr. 05, 2016 to Jun. 17, 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)
Sample Type:	Portable production
Test Power Grade:	802.11b: 40, 802.11g: 38, 802.11n(HT20&HT40): 36 (manufacturer declare)
Test Software of EUT:	WLAN Text (manufacturer declare)
Antenna Type and Gain:	Type: Internal Gain: 1.86dBi
Test Voltage:	AC 120V/60Hz

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.

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 (Shenzhen) Corporation. 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 (Shenzhen) Corporation. 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 (Shenzhen) Corporation., 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(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter(6-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2016	01-11-2017
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-12-2016	01-11-2017
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-12-2016	01-11-2017
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-12-2016	01-11-2017
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA03C L12-0394-001	---	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
peak power meter & peak 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

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	---	06-02-2013	06-01-2016
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-01-2016	05-31-2019
TRILOG Broadband Antenna	SCHWARZBEC K	VULB9163	9163-484	05-24-2015	05-23-2016
TRILOG Broadband Antenna	SCHWARZBEC K	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	06-29-2016
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Spectrum Analyzer	R&S	FSP40	100416	06-30-2015	06-28-2016
Receiver	R&S	ESCI	100435	06-30-2015	06-28-2016
Multi device Controller	maturo	NCD/070/10711 112	---	01-12-2016	01-11-2017
LISN	schwarzbeck	NNBM8125	81251547	06-30-2015	06-28-2016
LISN	schwarzbeck	NNBM8125	81251548	06-30-2015	06-28-2016
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	07- 08-2015	07-06-2016
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(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter(6-18GHz)	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

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	06-30-2015	06-28-2016
Temperature/ Humidity Indicator	Belida	TT-512	101	07-09-2015	07-07-2016
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	06-30-2015	06-28-2016
LISN	schwarzbeck	NNLK8121	8121-529	06-30-2015	06-28-2016
Voltage Probe	R&S	ESH2-Z3	100042	07-09-2014	07-08-2017
Current Probe	R&S	EZ17	100106	07-09-2014	07-08-2017
ISN	TESEQ GmbH	ISN T800	30297	01-29-2015	01-27-2017
Receiver	R&S	ESCI	100009	06-30-2015	06-28-2016
Temperature/ Humidity Indicator	Belida	TT-512	101	07-09-2015	07-07-2016

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

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10/ KDB 558074	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	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10/ KDB 558074	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10/ KDB 558074	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

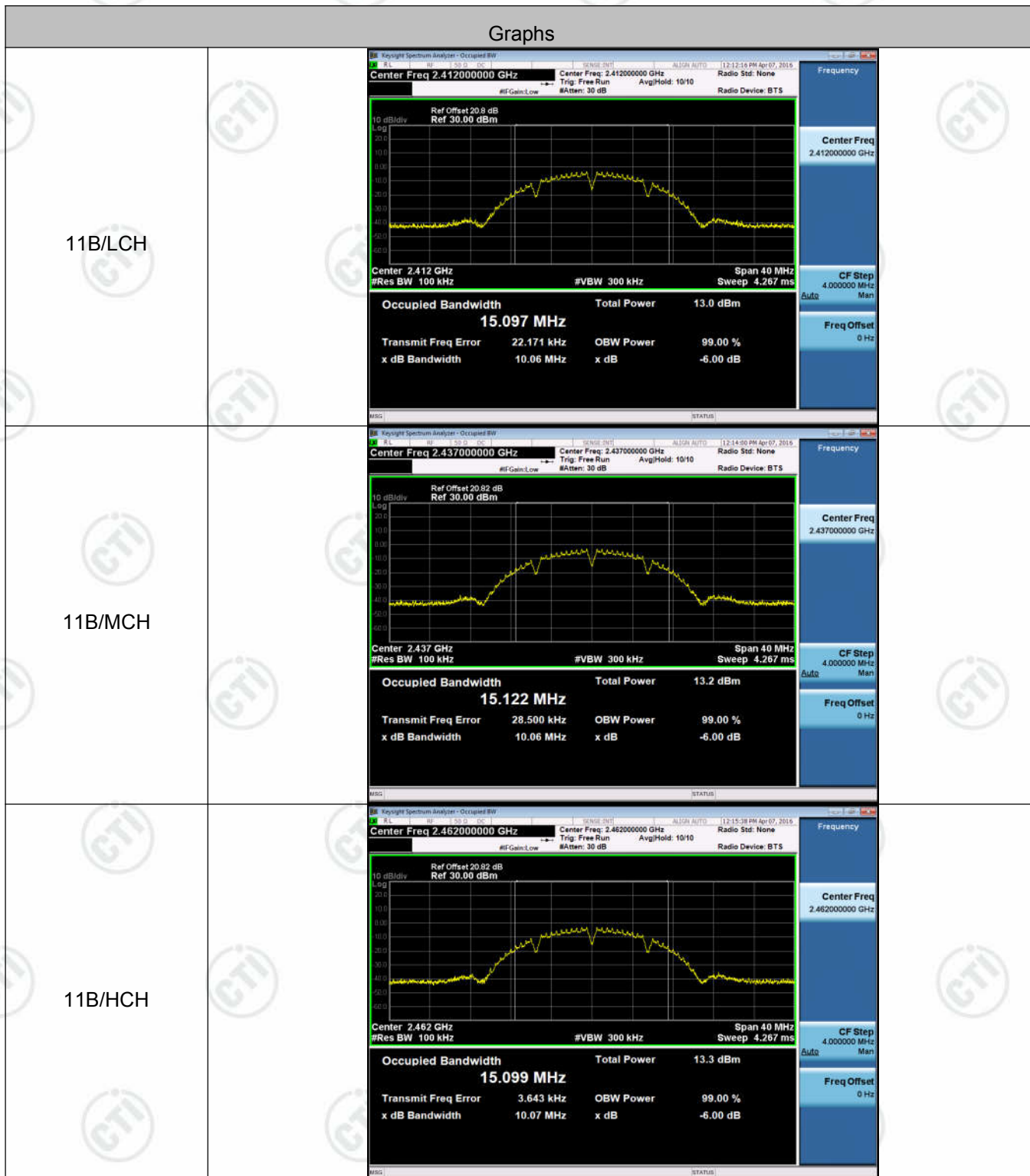
Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	9.59	PASS
11B	MCH	9.81	PASS
11B	HCH	9.52	PASS
11G	LCH	8.17	PASS
11G	MCH	8.29	PASS
11G	HCH	8.26	PASS
11N20SISO	LCH	7.27	PASS
11N20SISO	MCH	7.51	PASS
11N20SISO	HCH	7.31	PASS
11N40SISO	LCH	6.28	PASS
11N40SISO	MCH	6.35	PASS
11N40SISO	HCH	6.21	PASS

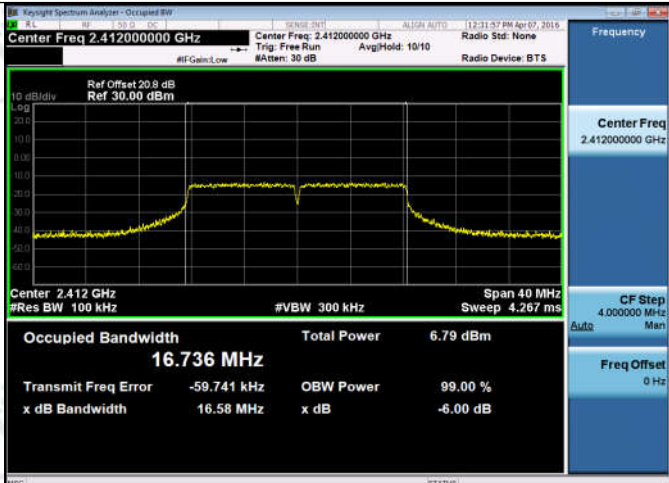
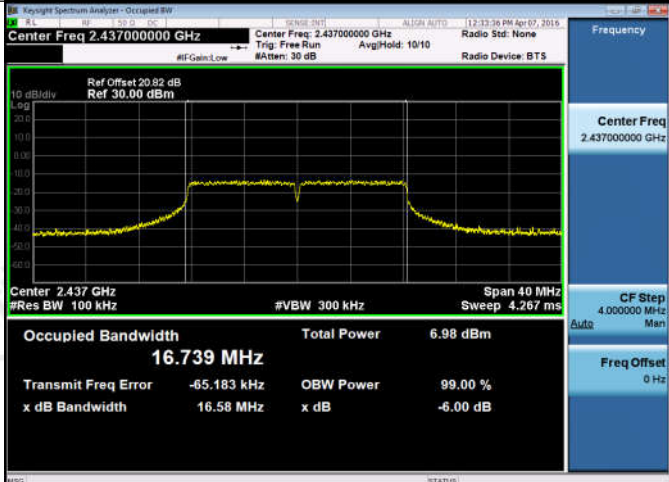
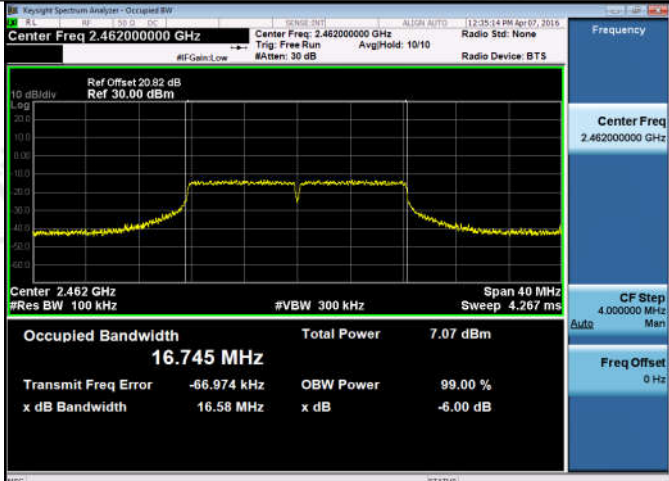
Appendix B): 6dB Occupied Bandwidth

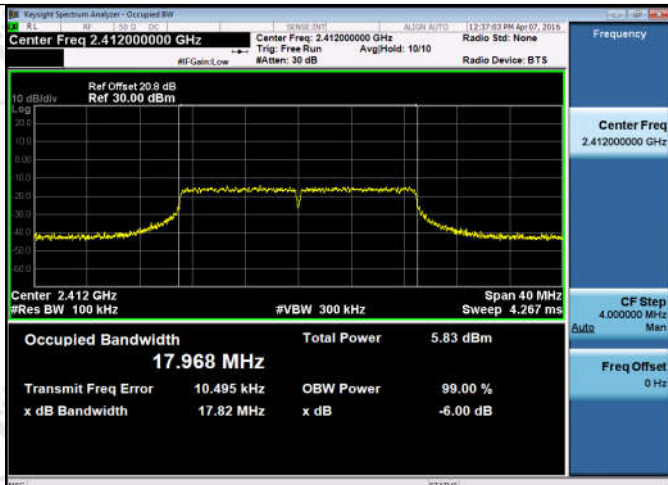
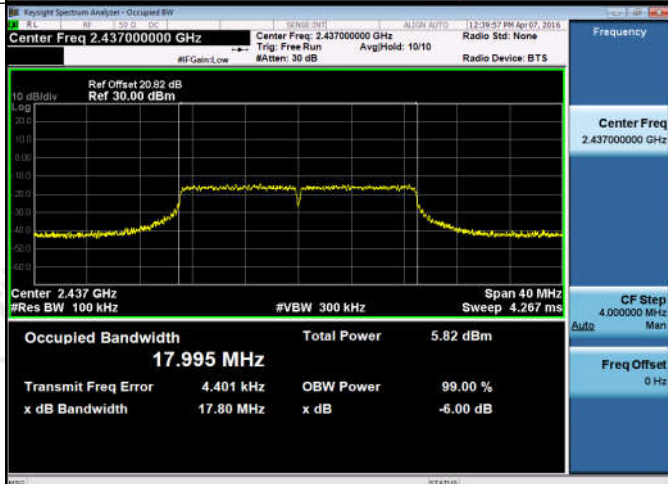
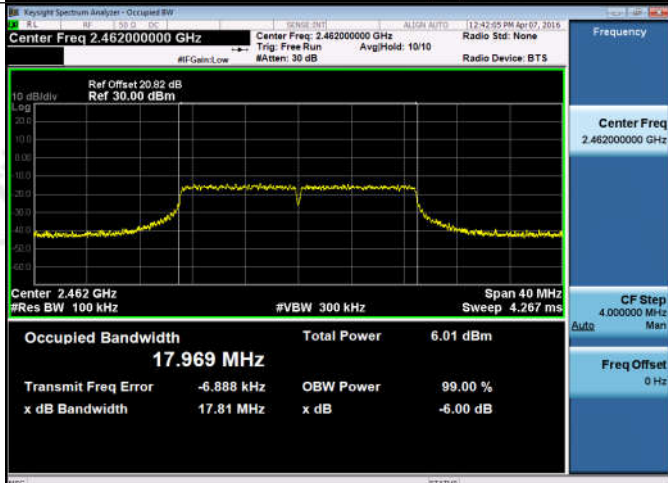
Result Table

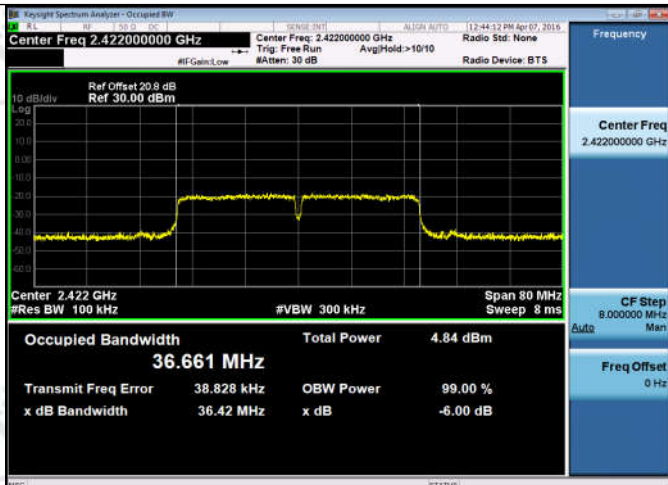
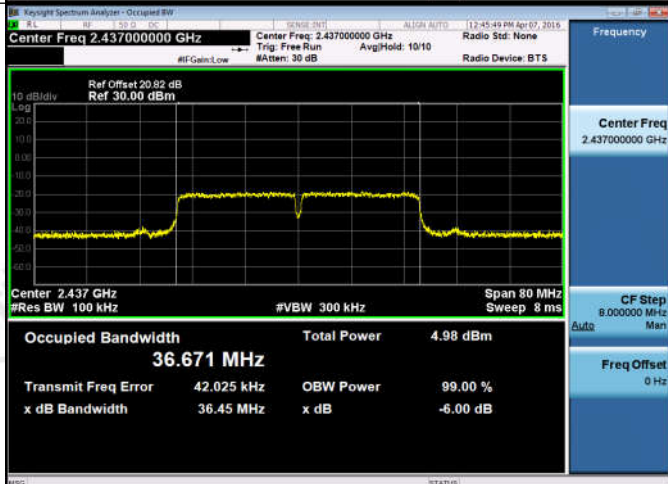
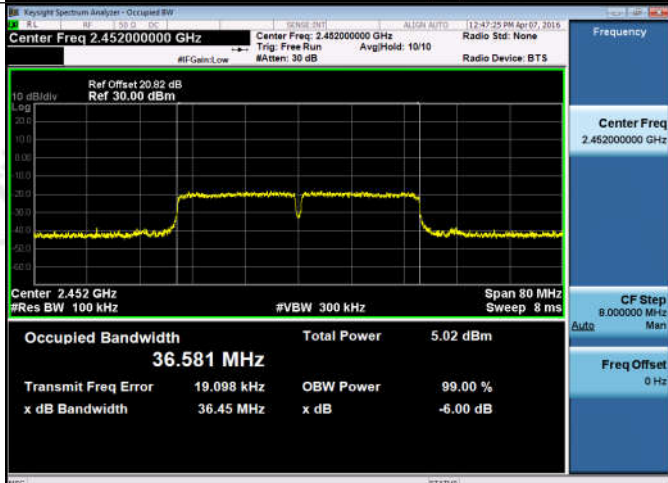
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	10.06	15.097	PASS	Peak detector
11B	MCH	10.06	15.122	PASS	
11B	HCH	10.07	15.099	PASS	
11G	LCH	16.58	16.736	PASS	
11G	MCH	16.58	16.739	PASS	
11G	HCH	16.58	16.745	PASS	
11N20SISO	LCH	17.82	17.968	PASS	
11N20SISO	MCH	17.80	17.995	PASS	
11N20SISO	HCH	17.81	17.969	PASS	
11N40SISO	LCH	36.42	36.661	PASS	
11N40SISO	MCH	36.45	36.671	PASS	
11N40SISO	HCH	36.45	36.581	PASS	

Test Graph



11G/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz ALIGN AUTO 12:31:57 PM Apr 07, 2015 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.412 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 16.736 MHz Total Power 6.79 dBm Transmit Freq Error -59.741 kHz OBW Power 99.00 % x dB Bandwidth 16.58 MHz x dB -6.00 dB
11G/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz ALIGN AUTO 12:33:36 PM Apr 07, 2015 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.437 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 16.739 MHz Total Power 6.98 dBm Transmit Freq Error -65.183 kHz OBW Power 99.00 % x dB Bandwidth 16.58 MHz x dB -6.00 dB
11G/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz ALIGN AUTO 12:35:14 PM Apr 07, 2015 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.462 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 16.745 MHz Total Power 7.07 dBm Transmit Freq Error -66.974 kHz OBW Power 99.00 % x dB Bandwidth 16.58 MHz x dB -6.00 dB

11N20SISO/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz ALIGN AUTO 12:37:53 PM Apr 07, 2015 Ref Offset 20.8 dB Ref 30.00 dBm Center 2.412 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 17.968 MHz Total Power 5.83 dBm Transmit Freq Error 10.495 kHz OBW Power 99.00 % x dB Bandwidth 17.82 MHz x dB -6.00 dB
11N20SISO/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz ALIGN AUTO 12:39:57 PM Apr 07, 2015 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.437 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 17.995 MHz Total Power 5.82 dBm Transmit Freq Error 4.401 kHz OBW Power 99.00 % x dB Bandwidth 17.80 MHz x dB -6.00 dB
11N20SISO/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz ALIGN AUTO 12:42:05 PM Apr 07, 2015 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.462 GHz Span 40 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms Occupied Bandwidth 17.969 MHz Total Power 6.01 dBm Transmit Freq Error -6.888 kHz OBW Power 99.00 % x dB Bandwidth 17.81 MHz x dB -6.00 dB

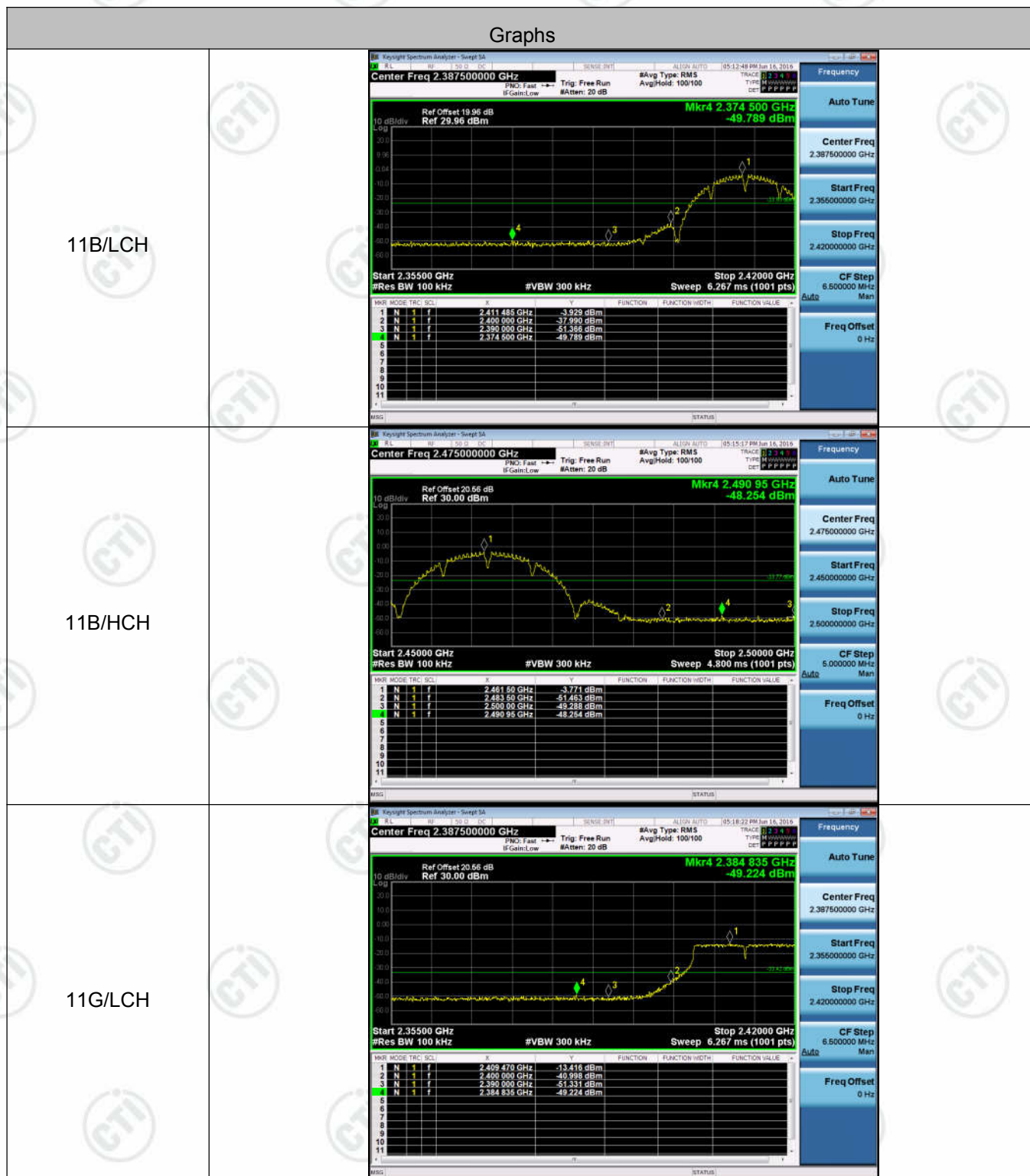
11N40SISO/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz ALIGN AUTO 12:44:53 PM Apr 07, 2019 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.422 GHz Span 80 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms Occupied Bandwidth 36.661 MHz Total Power 4.84 dBm Transmit Freq Error 38.828 kHz OBW Power 99.00 % x dB Bandwidth 36.42 MHz x dB -6.00 dB
11N40SISO/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz ALIGN AUTO 12:45:49 PM Apr 07, 2019 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.437 GHz Span 80 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms Occupied Bandwidth 36.671 MHz Total Power 4.98 dBm Transmit Freq Error 42.025 kHz OBW Power 99.00 % x dB Bandwidth 36.45 MHz x dB -6.00 dB
11N40SISO/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.452000000 GHz Center Freq: 2.452000000 GHz ALIGN AUTO 12:47:25 PM Apr 07, 2019 Ref Offset 20.82 dB Ref 30.00 dBm Center 2.452 GHz Span 80 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms Occupied Bandwidth 36.581 MHz Total Power 5.02 dBm Transmit Freq Error 19.098 kHz OBW Power 99.00 % x dB Bandwidth 36.45 MHz x dB -6.00 dB

Appendix C): Band-edge for RF Conducted Emissions

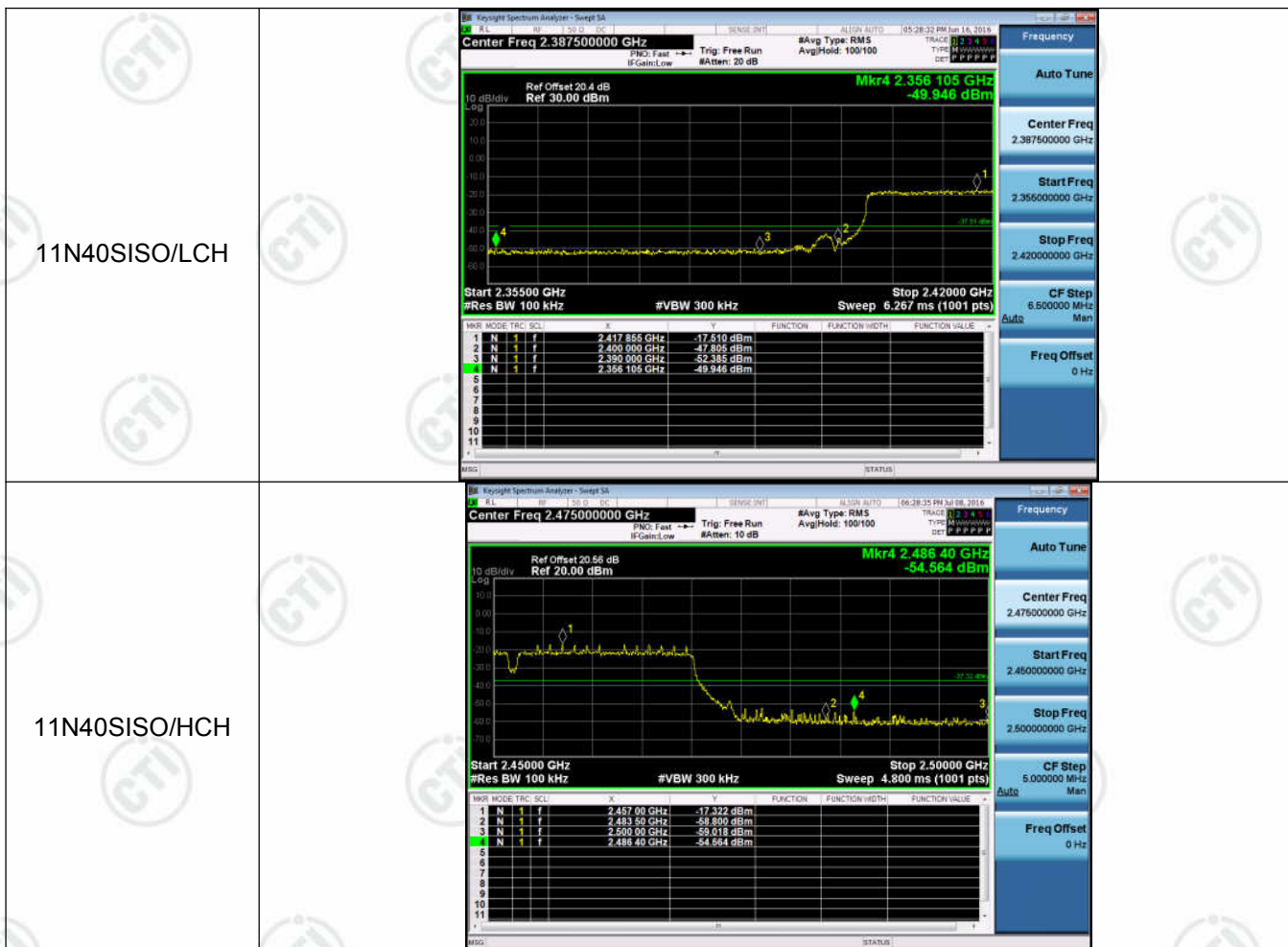
Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.929	-49.789	-23.93	PASS
11B	HCH	-3.771	-48.254	-23.77	PASS
11G	LCH	-13.416	-49.224	-33.42	PASS
11G	HCH	-13.681	-49.357	-33.68	PASS
11N20SISO	LCH	-14.887	-49.589	-34.89	PASS
11N20SISO	HCH	-14.534	-49.057	-34.53	PASS
11N40SISO	LCH	-17.510	-49.946	-37.51	PASS
11N40SISO	HCH	-17.322	-54.564	-37.32	PASS

Test Graph



11G/HCH	Keylight Spectrum Analyzer - Sweep SA Center Freq 2.47500000 GHz Ref Offset 20.56 dB Ref 30.00 dBm Mkr4 2.487 35 GHz -49.357 dBm Start 2.450000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.500000 GHz Sweep 4.800 ms (1001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRC</th><th>SOL</th><th>F</th><th>M</th><th>FUNCTION</th><th>FUNCTION</th><th>VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.459 50 GHz</td><td>-13.681 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 50 GHz</td><td>-51.639 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500 00 GHz</td><td>-51.089 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.487 35 GHz</td><td>-49.357 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SOL	F	M	FUNCTION	FUNCTION	VALUE	1	N	1	f	2.459 50 GHz	-13.681 dBm				2	N	1	f	2.483 50 GHz	-51.639 dBm				3	N	1	f	2.500 00 GHz	-51.089 dBm				4	N	1	f	2.487 35 GHz	-49.357 dBm			
MARK	MODE	TRC	SOL	F	M	FUNCTION	FUNCTION	VALUE																																						
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2	N	1	f	2.483 50 GHz	-51.639 dBm																																									
3	N	1	f	2.500 00 GHz	-51.089 dBm																																									
4	N	1	f	2.487 35 GHz	-49.357 dBm																																									
11N20SISO/LCH	Keylight Spectrum Analyzer - Sweep SA Center Freq 2.387500000 GHz Ref Offset 20.56 dB Ref 30.00 dBm Mkr4 2.359 810 GHz -49.589 dBm Start 2.355000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.420000 GHz Sweep 6.267 ms (1001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRC</th><th>SOL</th><th>F</th><th>M</th><th>FUNCTION</th><th>FUNCTION</th><th>VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.409 145 GHz</td><td>-14.887 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400 000 GHz</td><td>-41.786 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390 000 GHz</td><td>-51.570 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.359 810 GHz</td><td>-49.589 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SOL	F	M	FUNCTION	FUNCTION	VALUE	1	N	1	f	2.409 145 GHz	-14.887 dBm				2	N	1	f	2.400 000 GHz	-41.786 dBm				3	N	1	f	2.390 000 GHz	-51.570 dBm				4	N	1	f	2.359 810 GHz	-49.589 dBm			
MARK	MODE	TRC	SOL	F	M	FUNCTION	FUNCTION	VALUE																																						
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4	N	1	f	2.359 810 GHz	-49.589 dBm																																									
11N20SISO/HCH	Keylight Spectrum Analyzer - Sweep SA Center Freq 2.475000000 GHz Ref Offset 20.56 dB Ref 30.00 dBm Mkr4 2.499 25 GHz -49.057 dBm Start 2.450000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.500000 GHz Sweep 4.800 ms (1001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRC</th><th>SOL</th><th>F</th><th>M</th><th>FUNCTION</th><th>FUNCTION</th><th>VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.459 10 GHz</td><td>-14.534 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 50 GHz</td><td>-51.996 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500 00 GHz</td><td>-52.738 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.499 25 GHz</td><td>-49.057 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SOL	F	M	FUNCTION	FUNCTION	VALUE	1	N	1	f	2.459 10 GHz	-14.534 dBm				2	N	1	f	2.483 50 GHz	-51.996 dBm				3	N	1	f	2.500 00 GHz	-52.738 dBm				4	N	1	f	2.499 25 GHz	-49.057 dBm			
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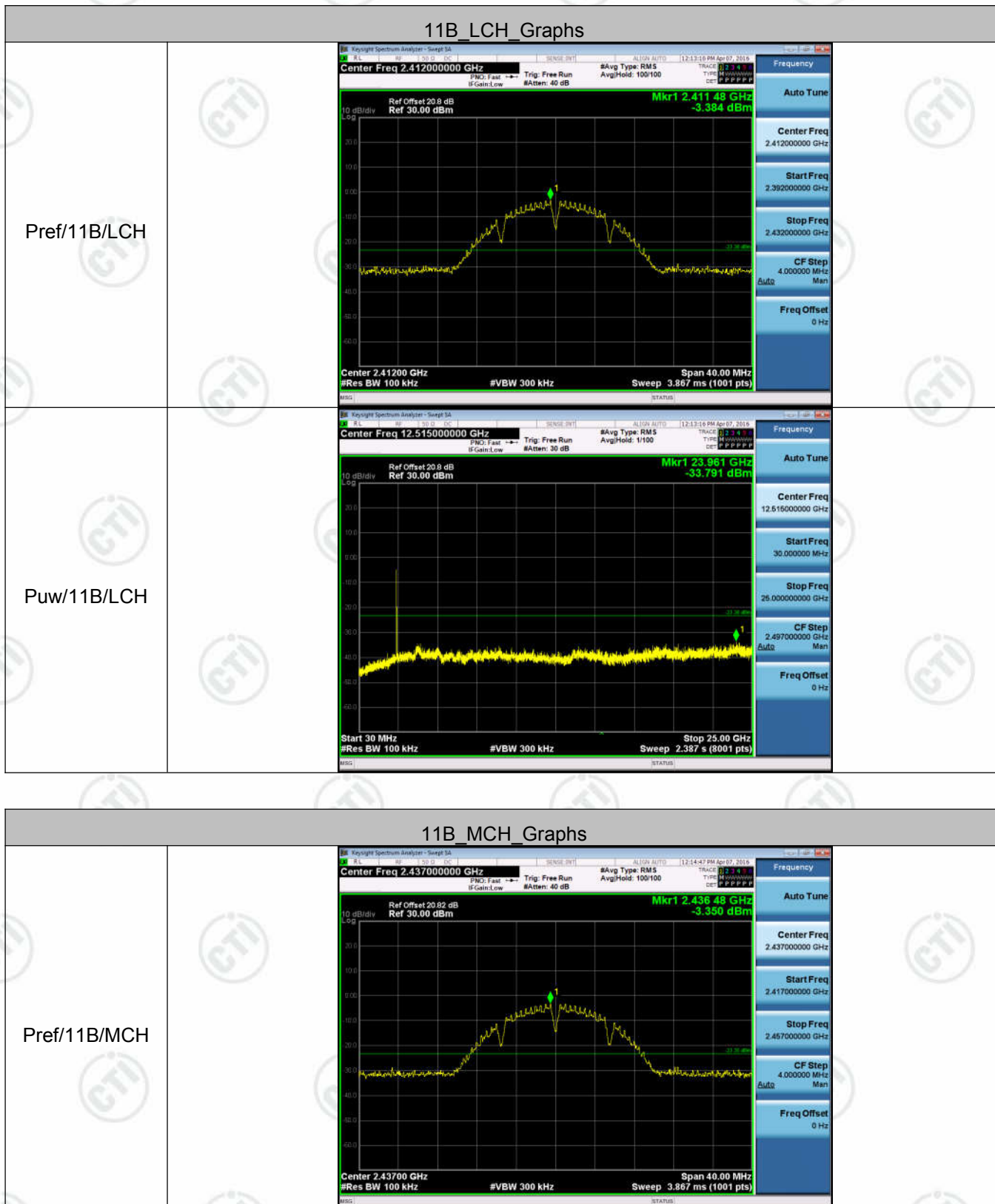


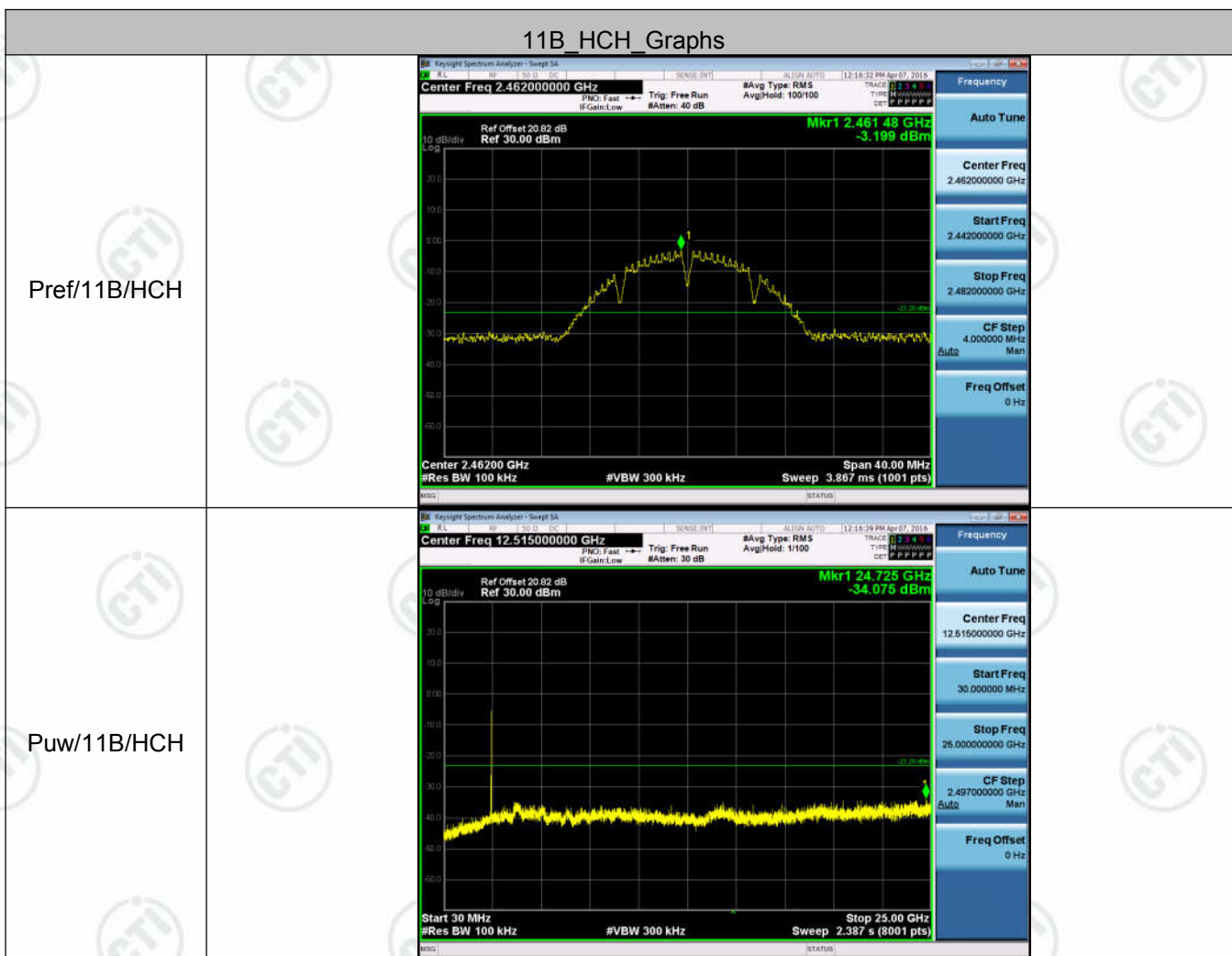
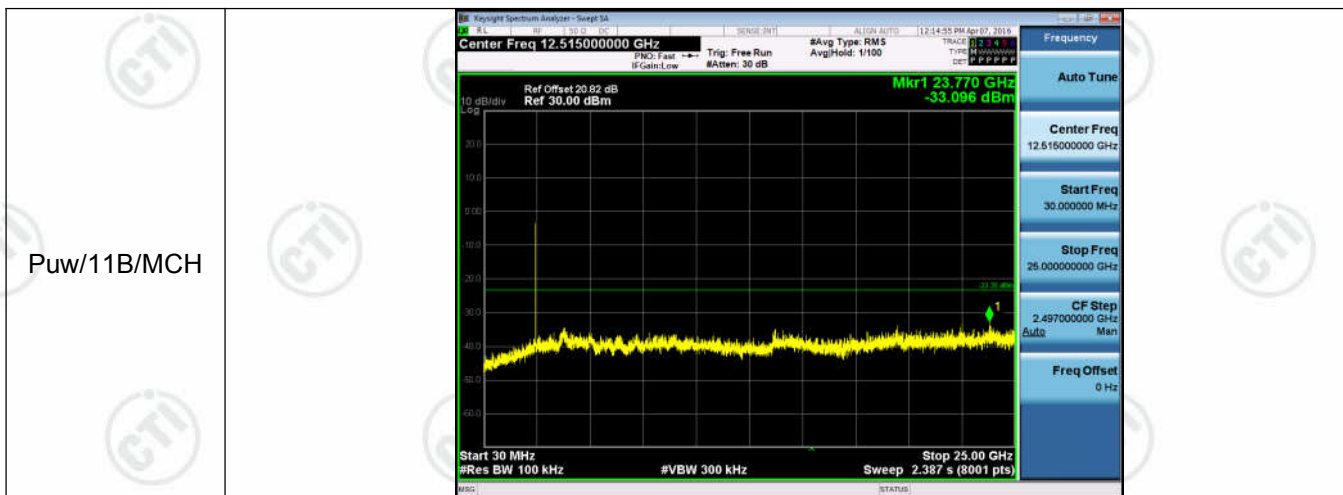
Appendix D): RF Conducted Spurious Emissions

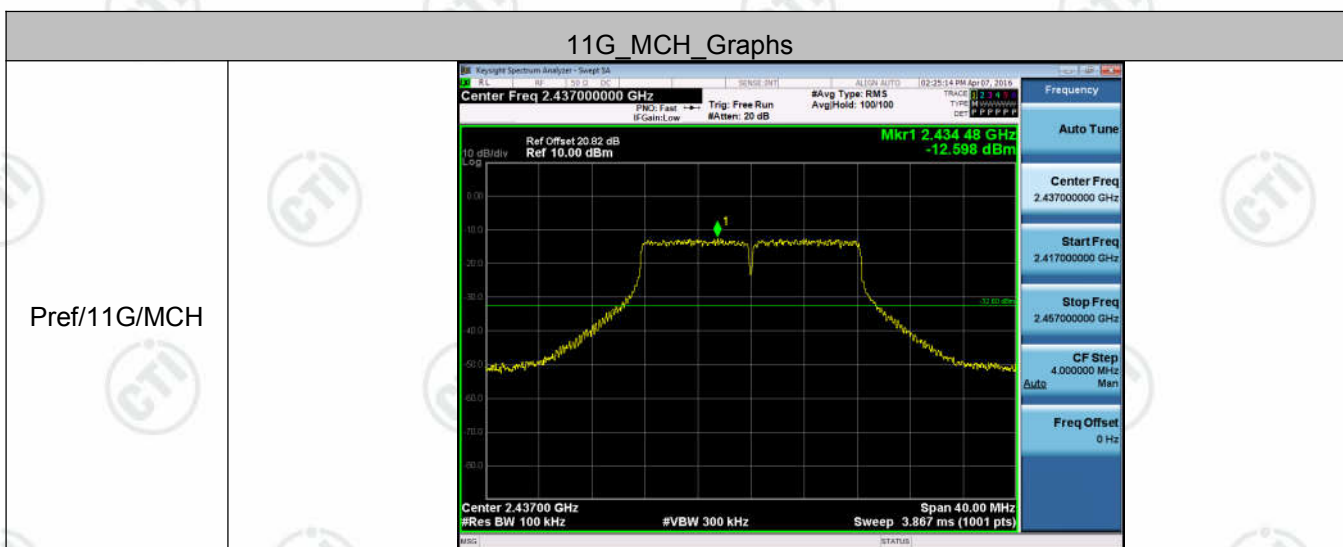
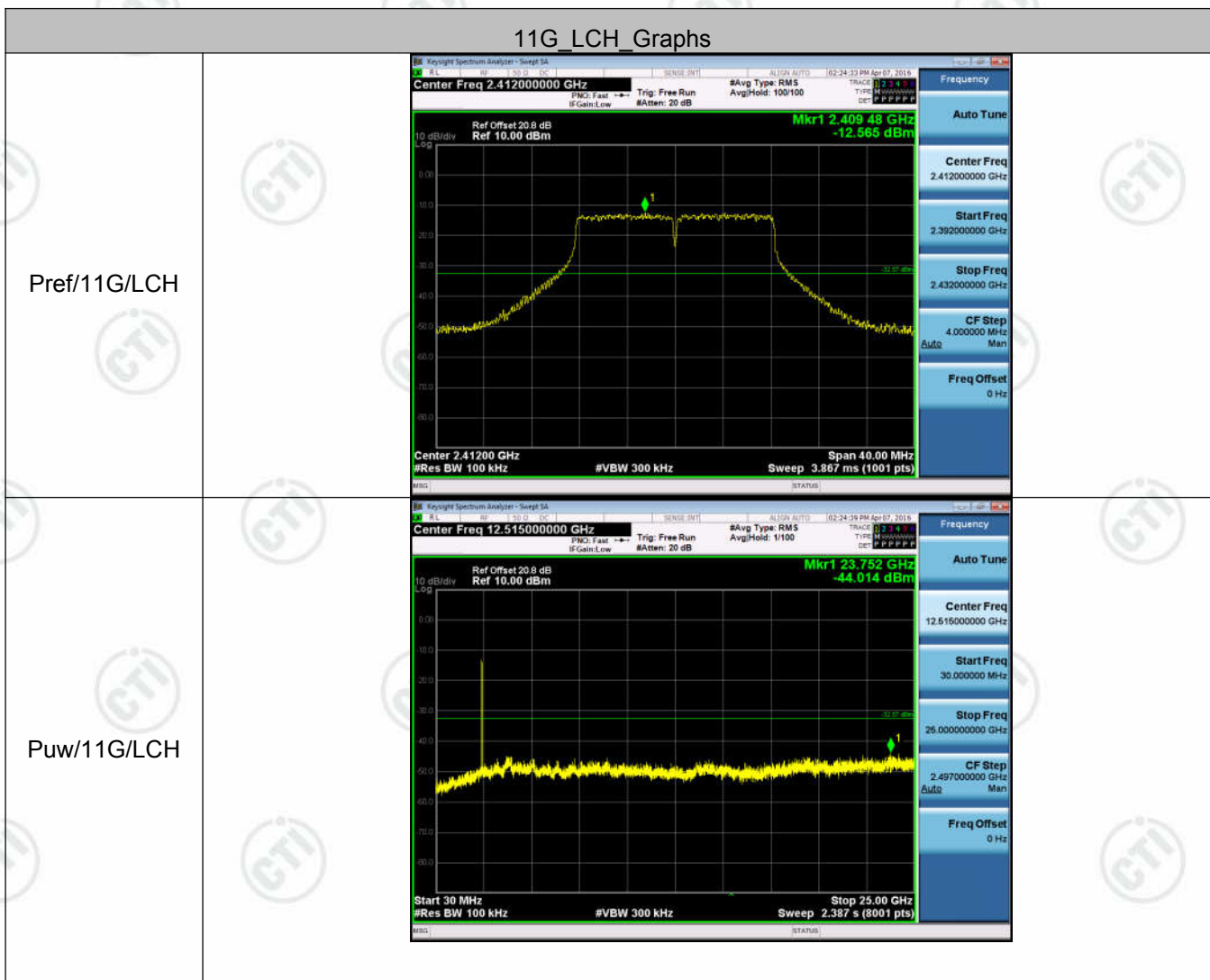
Result Table

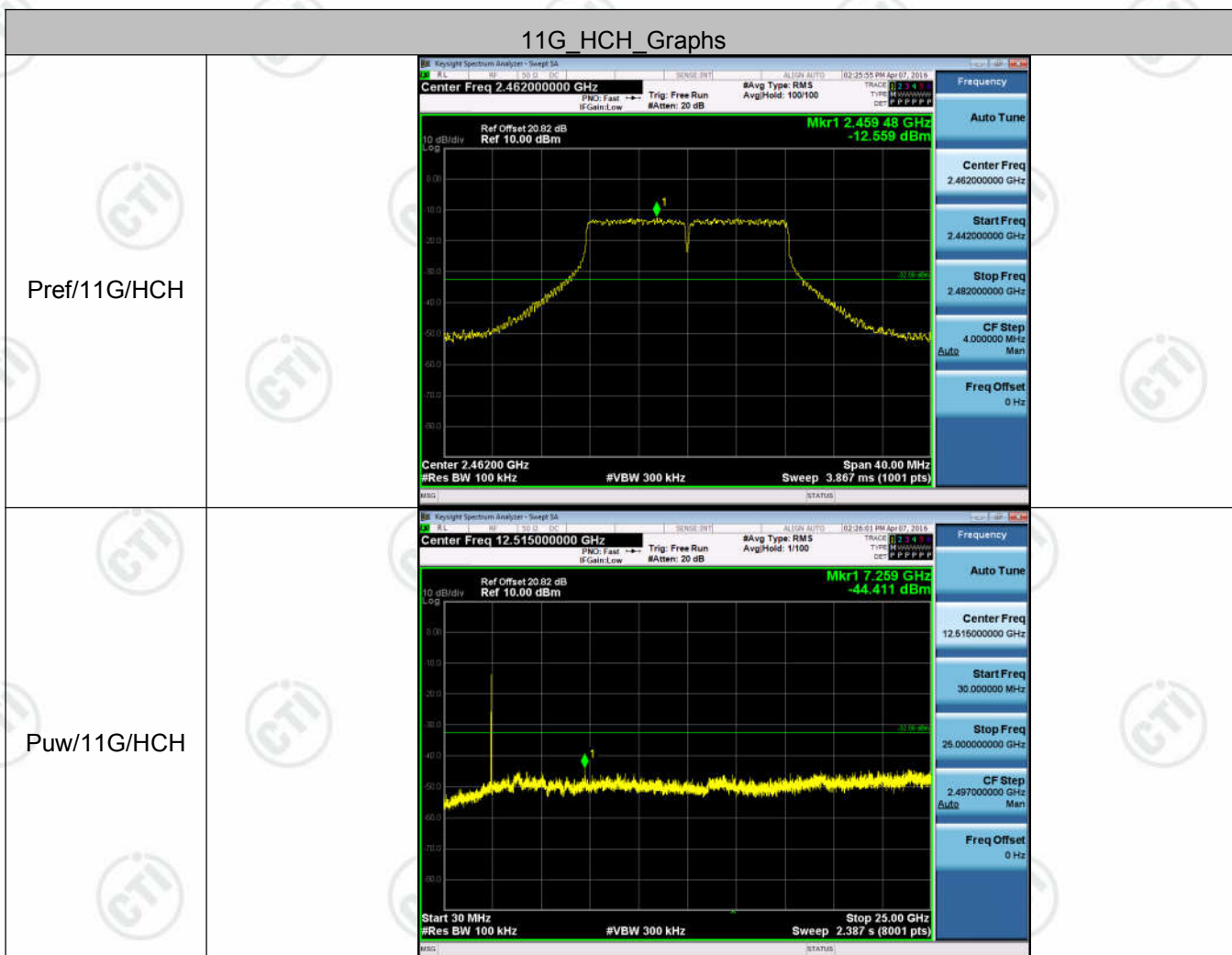
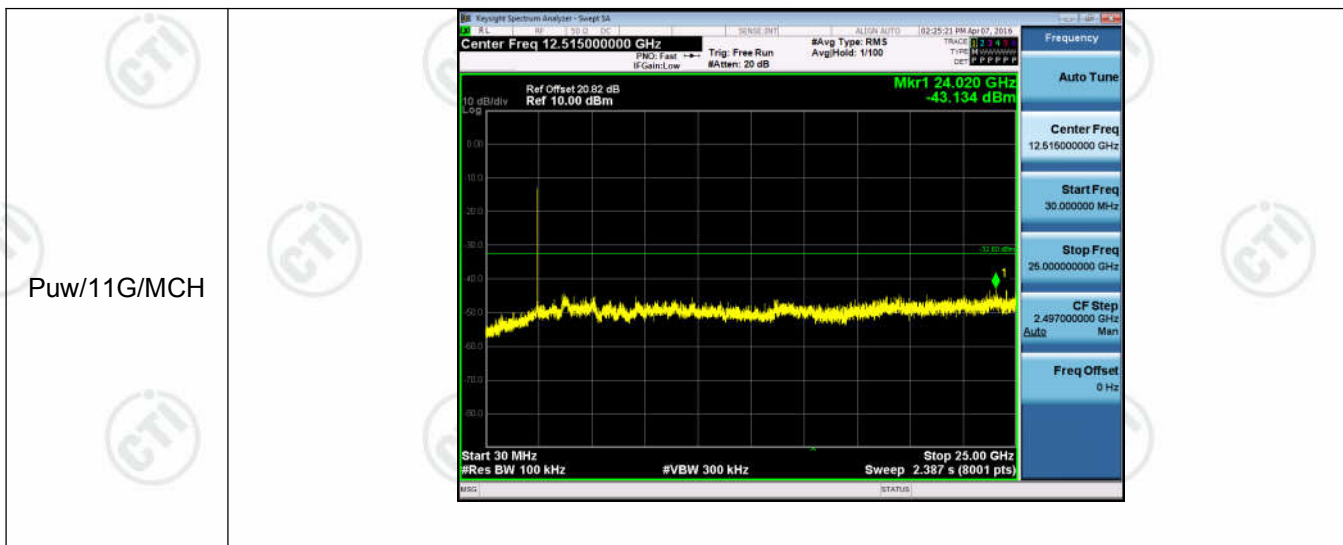
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	-3.384	<Limit	PASS
11B	MCH	-3.35	<Limit	PASS
11B	HCH	-3.199	<Limit	PASS
11G	LCH	-12.565	<Limit	PASS
11G	MCH	-12.598	<Limit	PASS
11G	HCH	-12.559	<Limit	PASS
11N20SISO	LCH	-14.243	<Limit	PASS
11N20SISO	MCH	-13.892	<Limit	PASS
11N20SISO	HCH	-13.942	<Limit	PASS
11N40SISO	LCH	-18.256	<Limit	PASS
11N40SISO	MCH	-18.156	<Limit	PASS
11N40SISO	HCH	-18.071	<Limit	PASS

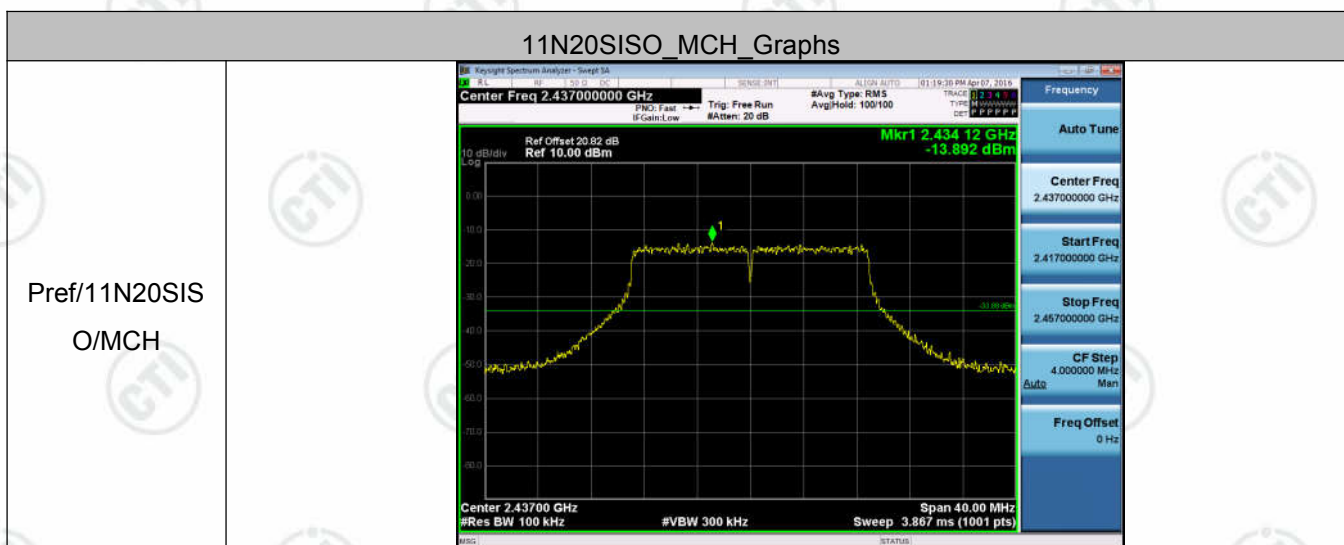
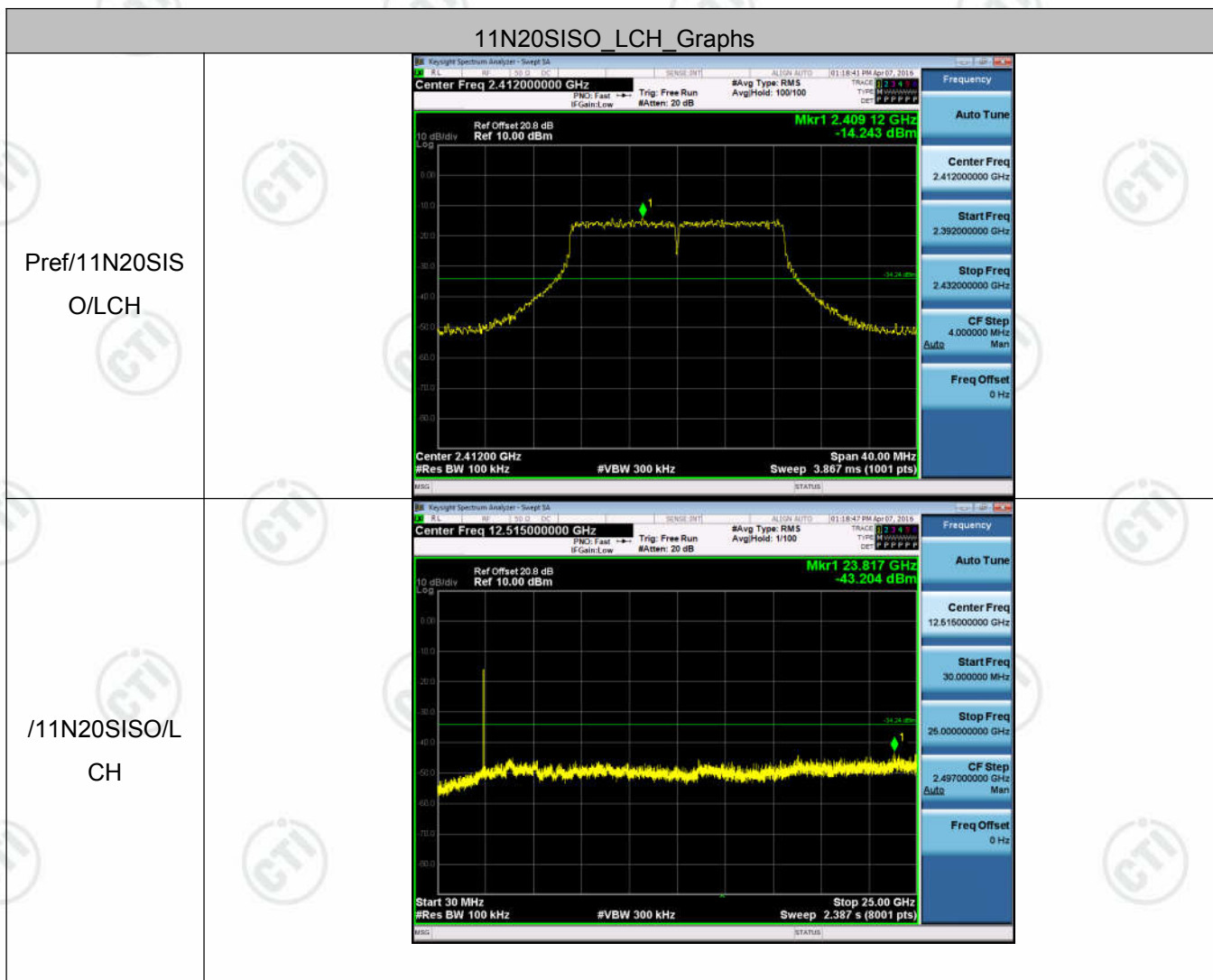
Test Graph

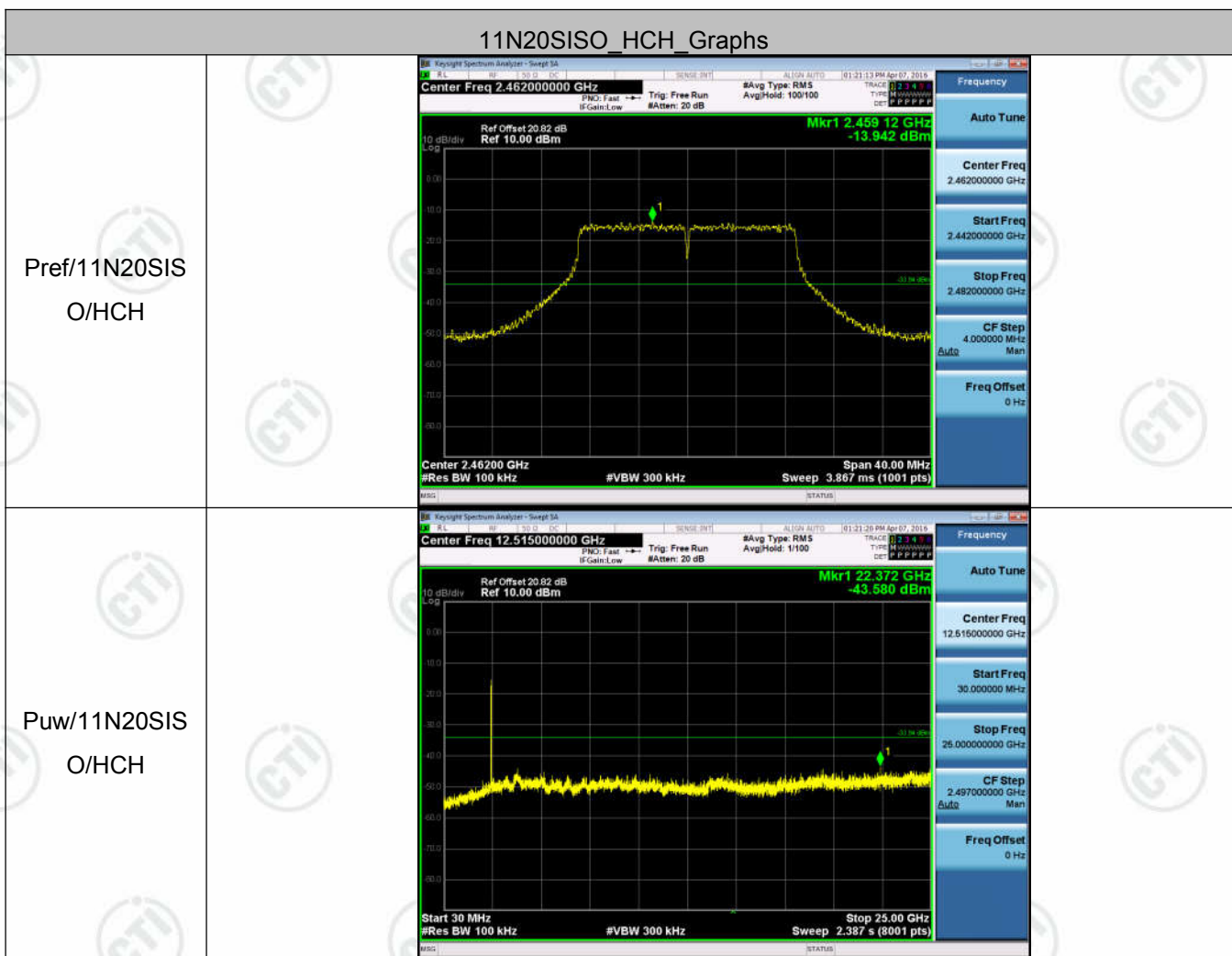
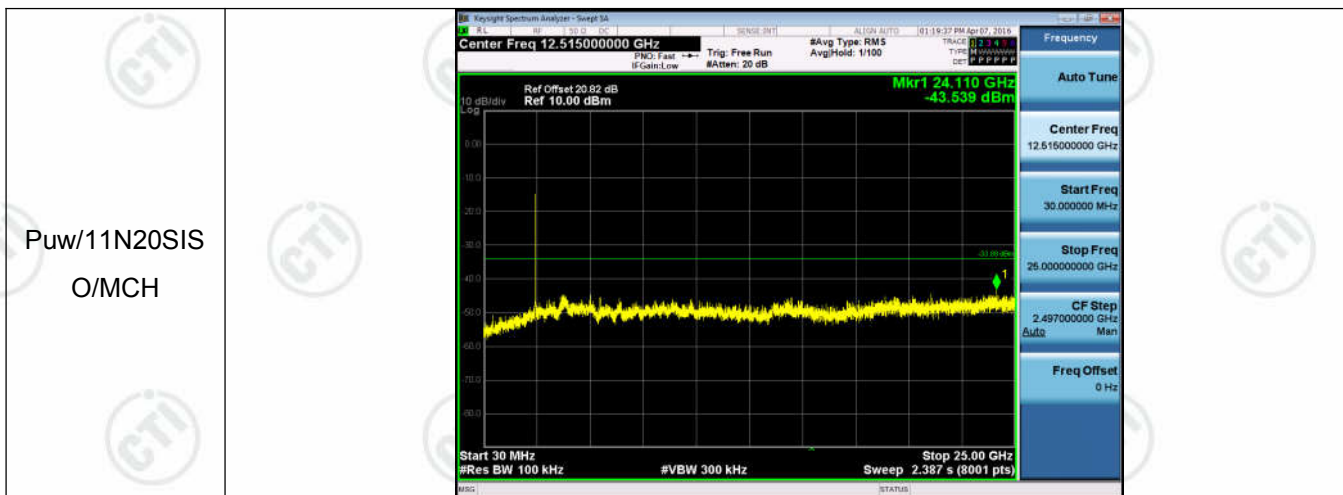


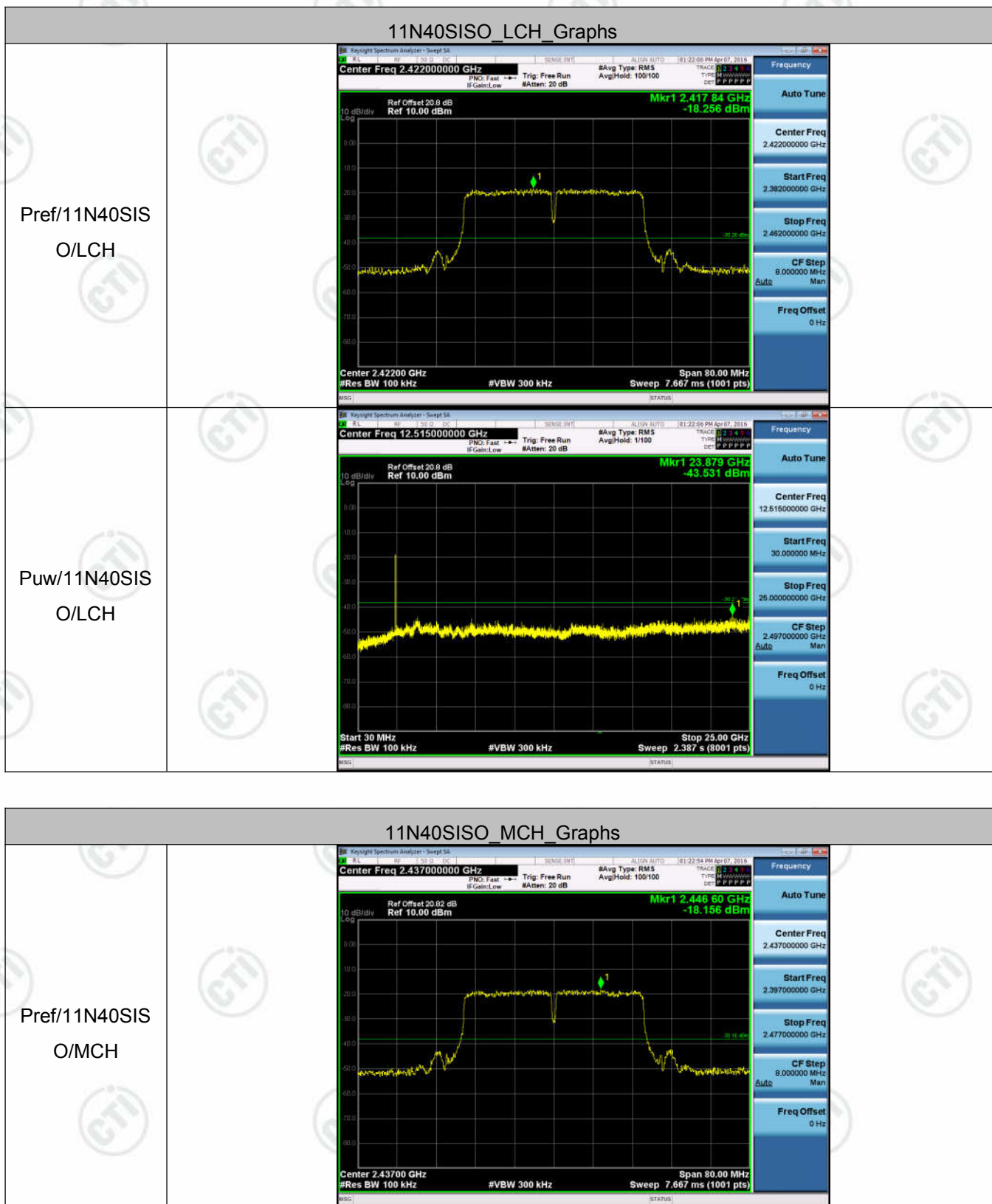


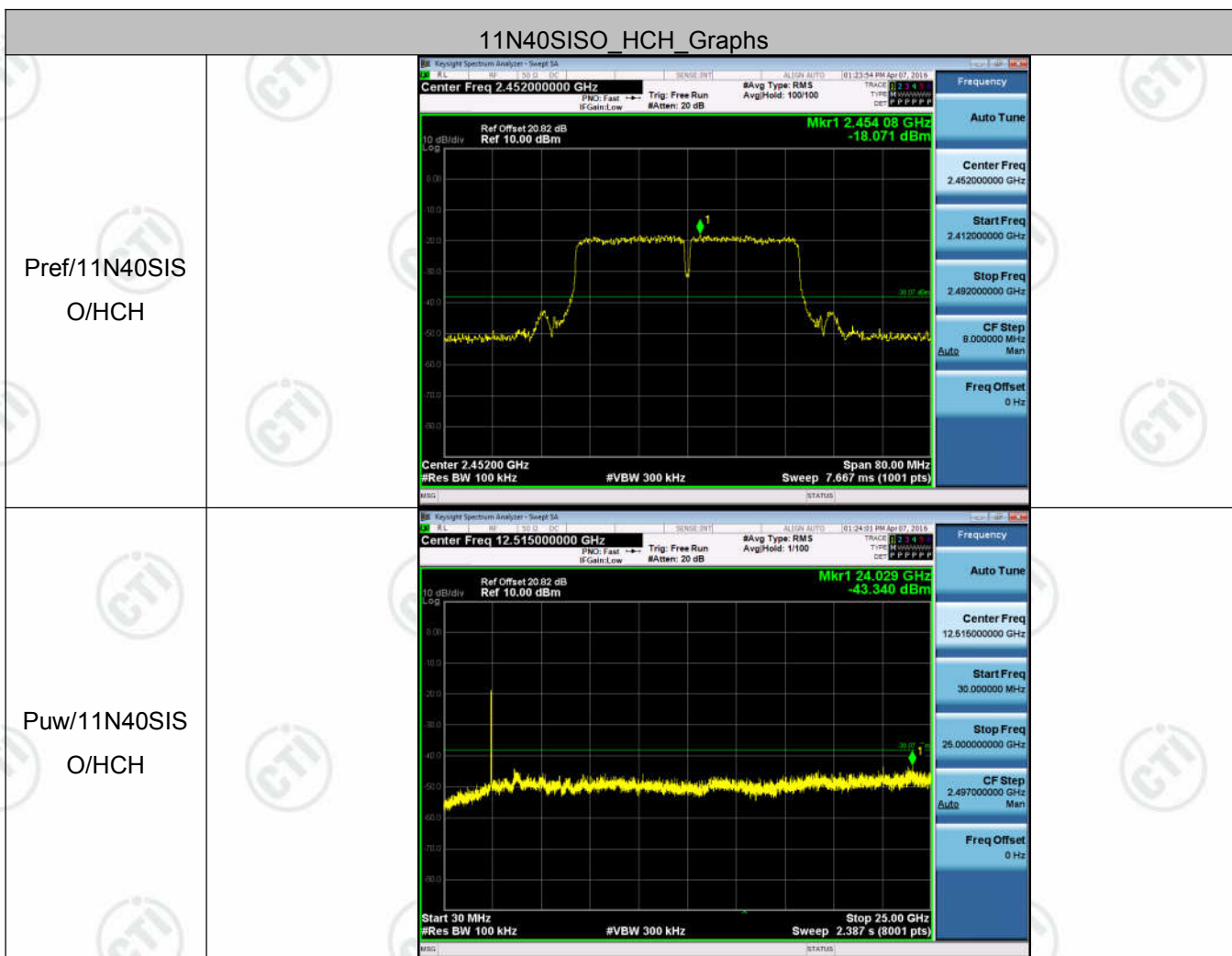
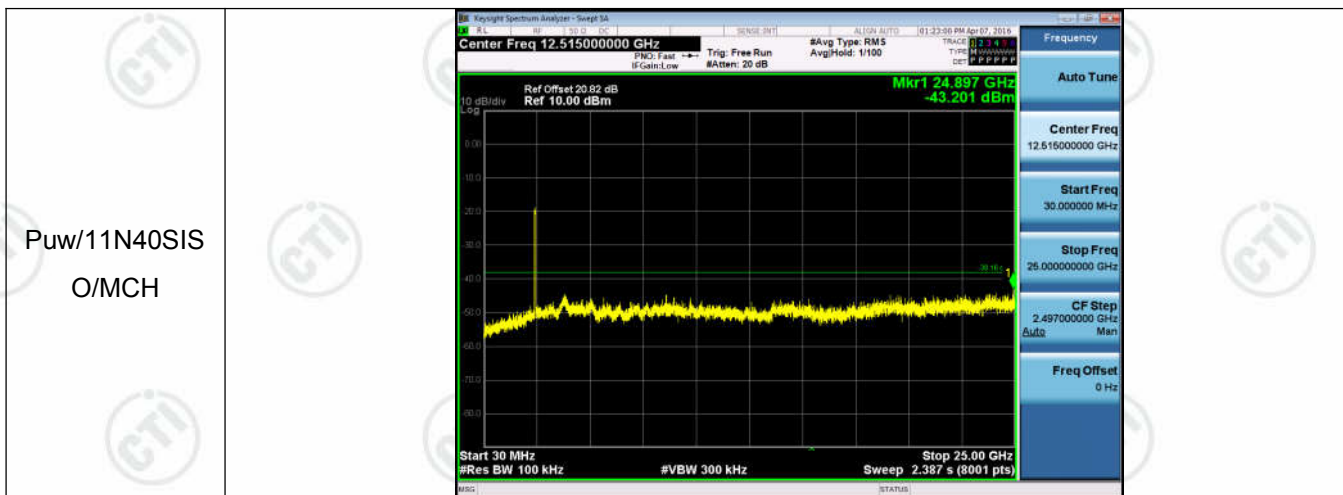












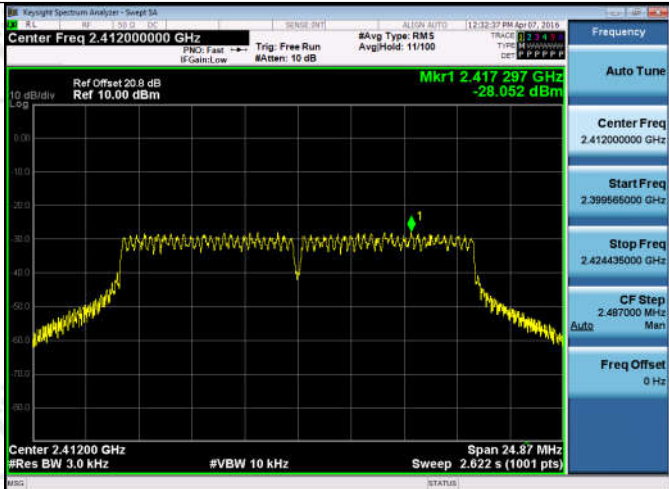
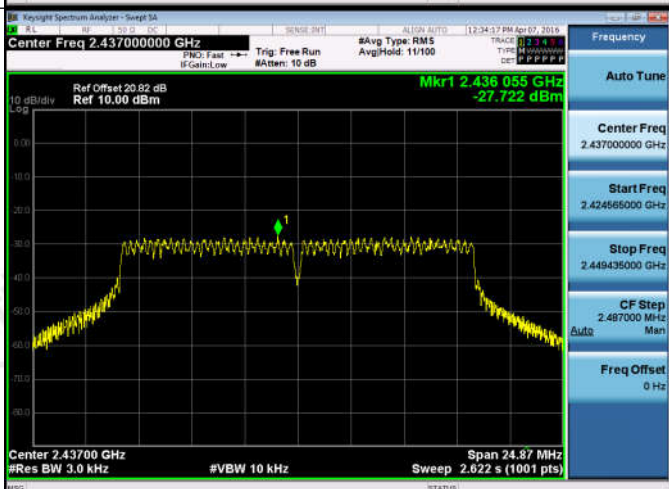
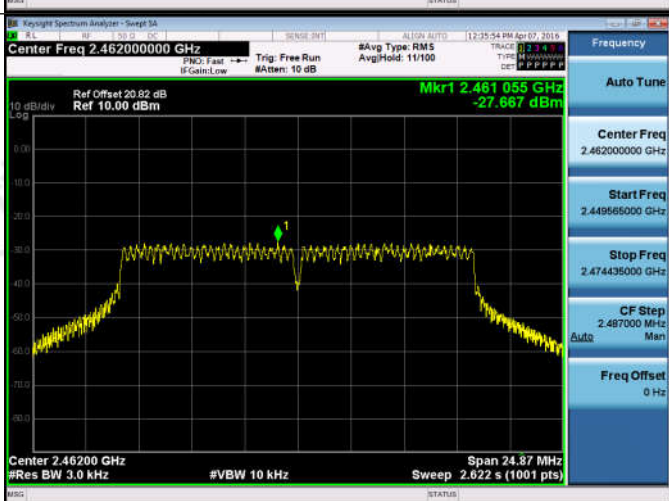
Appendix E): Power Spectral Density

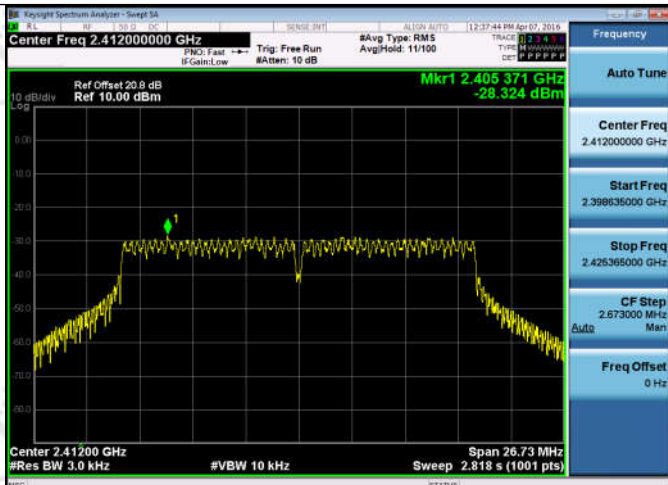
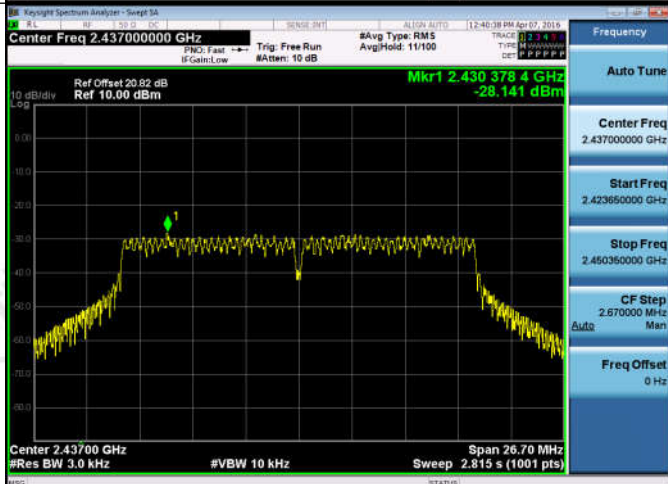
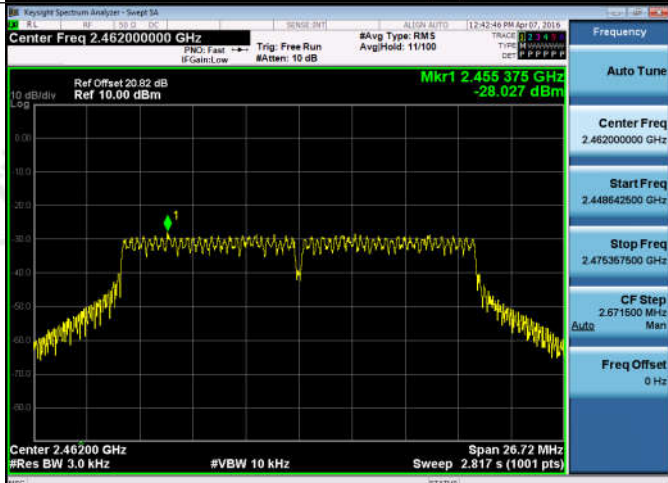
Result Table

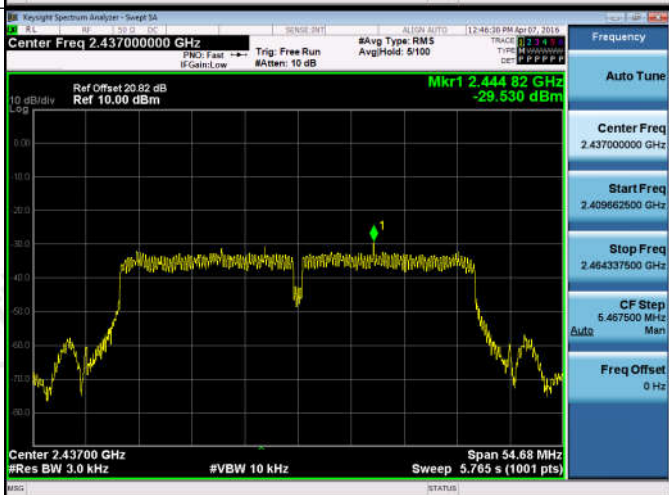
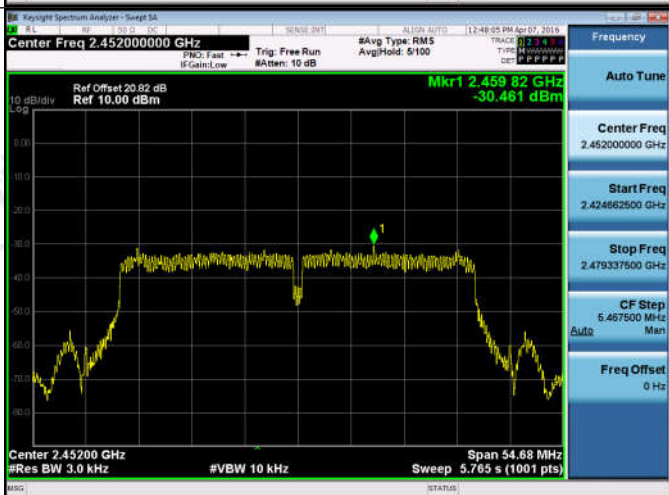
Mode	Channel	Power Spectral Density [dBm]	Verdict
11B	LCH	-23.616	PASS
11B	MCH	-23.478	PASS
11B	HCH	-23.384	PASS
11G	LCH	-28.052	PASS
11G	MCH	-27.722	PASS
11G	HCH	-27.667	PASS
11N20SISO	LCH	-28.324	PASS
11N20SISO	MCH	-28.141	PASS
11N20SISO	HCH	-28.027	PASS
11N40SISO	LCH	-29.159	PASS
11N40SISO	MCH	-29.530	PASS
11N40SISO	HCH	-30.461	PASS

Test Graph



11G/LCH	 Keyight Spectrum Analyzer - Sweep SA Center Freq 2.41200000 GHz Ref Offset 20.82 dB Ref 10.00 dBm Mkr1 2.417297 GHz -28.052 dBm Span 24.87 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.622 s (1001 pts)
11G/MCH	 Keyight Spectrum Analyzer - Sweep SA Center Freq 2.43700000 GHz Ref Offset 20.82 dB Ref 10.00 dBm Mkr1 2.436055 GHz -27.722 dBm Span 24.87 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.622 s (1001 pts)
11G/HCH	 Keyight Spectrum Analyzer - Sweep SA Center Freq 2.46200000 GHz Ref Offset 20.82 dB Ref 10.00 dBm Mkr1 2.461055 GHz -27.667 dBm Span 24.87 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.622 s (1001 pts)

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

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

Appendix F): Antenna Requirement

15.203 requirement:

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

15.247(b) (4) requirement:

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

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.86dBi.

