

## TEST REPORT

**Product** : 9" Tablet PC  
**Trade mark** : KINGPAD, Dragon Touch  
**Model/Type reference** : K90, K90X, K90 PLUS, K90 PRO,  
K90X PLUS, K90X PRO  
**Serial Number** : N/A  
**Report Number** : EED32H000944-2  
**FCC ID** : S5V-D109K1  
**Date of Issue** : Aug. 24, 2015  
**Test Standards** : 47 CFR Part 15 Subpart C (2014)  
**Test result** : PASS

Prepared for:

**Proexpress Distributor LLC**

**11011 GREENWOOD AVE.N APT 5, SEATTLE, WA 98103, United States**

Prepared by:

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Date:

Aug. 24, 2015

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Lab supervisor

Check No.: 2212824360



## 2 Version

Version No.	Date	Description
00	Aug. 24, 2015	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

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

Remark:

All models are same except model name and brand name. Model K90 was selected for test.

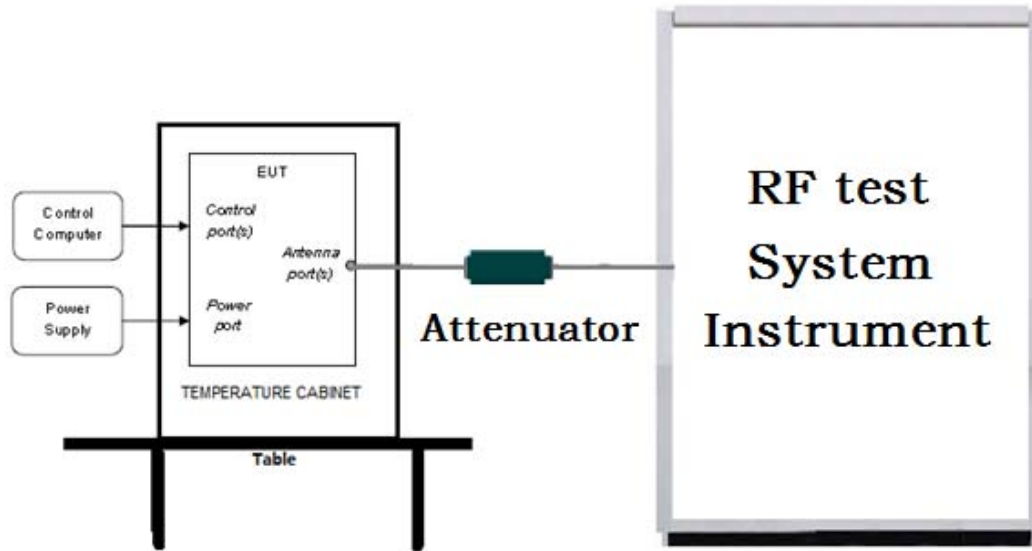
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

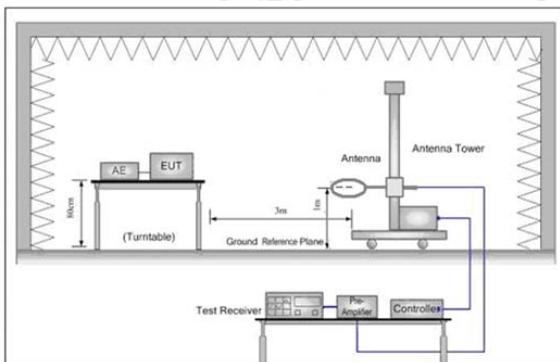


Figure 1. Below 30MHz

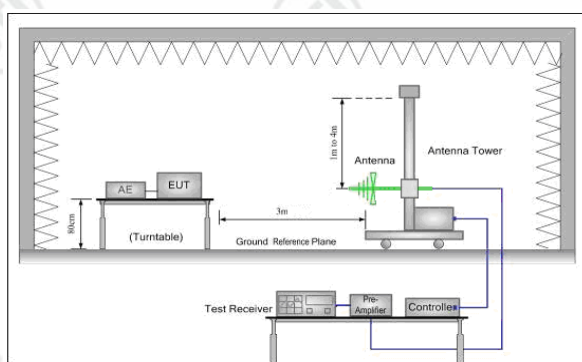


Figure 2. 30MHz to 1GHz

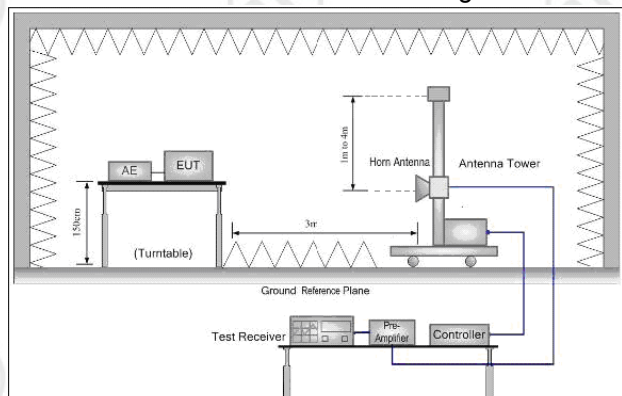
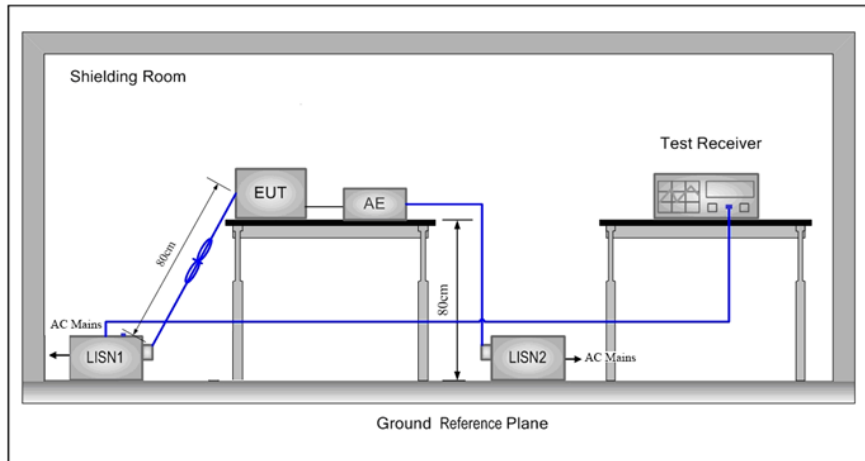


Figure 3. Above 1GHz

### 5.1.3 For Conducted Emissions test setup

#### Conducted Emissions setup



## 5.2 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	53 % RH
Atmospheric Pressure:	995mbar

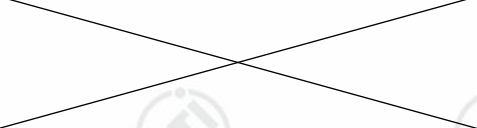
## 5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel11
		2412MHz	2437MHz	2462MHz
802.11n(HT40)	2422MHz ~2452 MHz	Channel 1	Channel 4	Channel7
		2422MHz	2437MHz	2452MHz
Transmitting mode:	1. Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. 2. Duty cycle > 98%.			

Test mode:

**Pre-scan under all rate at lowest channel 1**

<b>Mode</b>	<b>802.11b</b>								
<b>Data Rate</b>	<b>1Mbps</b>	<b>2Mbps</b>	<b>5.5Mbps</b>	<b>11Mbps</b>					
<b>EIRP(dBm)</b>	7.21	7.67	8.38	8.81					
<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>	
<b>EIRP(dBm)</b>	8.81	8.23	7.98	7.63	6.78	6.66	6.45	5.99	
<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>	
<b>EIRP(dBm)</b>	8.87	8.41	8.31	7.78	6.98	6.67	6.54	6.24	
<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>	
<b>EIRP(dBm)</b>	7.84	7.65	7.24	6.89	6.67	6.54	5.43	5.21	


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 APT 5, SEATTLE, WA 98103, United States
Manufacturer:	Proexpress Distributor LLC
Address of Manufacturer:	11011 GREENWOOD AVE.N APT 5, SEATTLE, WA 98103, United States

### 6.2 General Description of EUT

Product Name:	9" Tablet PC
Model No.(EUT):	K90, K90X, K90 PLUS, K90 PRO, K90X PLUS, K90X PRO
Trade mark:	KINGPAD, Dragon Touch
EUT Supports Radios application:	IEEE 802.11b/g/n
Power Supply:	Input: 5V  2A
Sample Received Date:	Jun. 29, 2015
Sample tested Date:	Jun. 29, 2015 to Aug. 24, 2015

### 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
Antenna Type and Gain:	Type: integral antenna Gain: 0dBi
Test Voltage:	DC 3.7V

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:

Device Type	Brand	Model	Data Cable	Remark
--	--	--	--	--
--	--	--	--	--

## 6.5 Test Location

All tests were performed at:

Centre Testing International (Shenzhen) Corporation

Building C, Scientific Innovation Park, Tiegang Reservoir, Xixiang, Baoan District, Shenzhen, China

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.: 565659

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 565659.

**IC-Registration No.: 7408A**

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 .

**IC-Registration No.: 7408B**

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.

**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	$7.9 \times 10^{-8}$
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	04-14-2015	04-13-2016
Communication test set test set	Agilent	N4010A	MY47230124	04-02-2015	04-01-2016
Spectrum Analyzer	Keysight	N9010A	MY54510339	04-01-2015	03-31-2016
Attenuator	HuaXiang	SHX370	15040701	04-01-2015	03-31-2016
Signal Generator	Keysight	N5182B	MY53051549	03-31-2015	03-30-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-13-2015	01-12-2016
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-13-2015	01-12-2016
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-13-2015	01-12-2016
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-13-2015	01-12-2016
DC Power	Keysight	E3642A	MY54436035	03-31-2015	03-30-2016
PC-1	Lenovo	R4960d	---	04-01-2015	03-31-2016
BT&WI-FI Automatic control	R&S	OSPB157	101374	04-01-2015	03-31-2016
RF control unit	JS Tonscend	JS0806-2	2015860006	04-01-2015	03-31-2016
BT&WI-FI Automatic test software	JS Tonscend	JSTS1120-2	---	04-01-2015	03-31-2016

Shielding Room No. 1 – Conduction Emission Test					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100009	07-09-2014	07-08-2015
Receiver	R&S	ESCI	100009	07-09-2015	07-08-2016
Receiver	R&S	ESCI	100009	07-09-2014	07-08-2015
Receiver	R&S	ESCI	100009	07-09-2015	07-08-2016
LISN	R&S	ENV216	100098	11-12-2014	11-13-2015

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber	TDK	SAC-3	---	06-02-2015	06-01-2016
TRILOG Broadband Antenna	schwarzbeck	VULB9163	9163-617	07-14-2014	07-13-2015
TRILOG Broadband Antenna	schwarzbeck	VULB9163	9163-617	07-14-2015	07-13-2016
TRILOG Broadband Antenna	schwarzbeck	VULB9163	9163-617	07-14-2014	07-13-2015
TRILOG Broadband Antenna	schwarzbeck	VULB9163	9163-617	07-14-2015	07-13-2016
Microwave Preamplifier	Agilent	8449B	3008A02425	02-05-2015	02-04-2016
Horn Antenna	ETS-LINDGREN	3117	00057410	07-08-2014	07-07-2015
Horn Antenna	ETS-LINDGREN	3117	00057410	07-08-2015	07-07-2016
Horn Antenna	ETS-LINDGREN	3117	00057410	07-08-2014	07-07-2015
Horn Antenna	ETS-LINDGREN	3117	00057410	07-08-2015	07-07-2016
Loop Antenna	ETS	6502	00071730	07-23-2014	07-22-2015
Loop Antenna	ETS	6502	00071730	07-23-2015	07-22-2016
Loop Antenna	ETS	6502	00071730	07-23-2014	07-22-2015
Loop Antenna	ETS	6502	00071730	07-23-2015	07-22-2016
Spectrum Analyzer	R&S	FSP40	100416	07-09-2014	07-08-2015
Spectrum Analyzer	R&S	FSP40	100416	07-09-2015	07-08-2016
Spectrum Analyzer	R&S	FSP40	100416	07-09-2014	07-08-2015
Spectrum Analyzer	R&S	FSP40	100416	07-09-2015	07-08-2016
Receiver	R&S	ESCI	100435	07-09-2014	07-08-2015
Receiver	R&S	ESCI	100435	07-09-2015	07-08-2016
Receiver	R&S	ESCI	100435	07-09-2014	07-08-2015
Receiver	R&S	ESCI	100435	07-09-2015	07-08-2016
Multi device Controller	matur	NCD/070/10711112	---	01-13-2015	01-12-2016
LISN	schwarzbeck	NNBM8125	81251547	07-09-2014	07-08-2015
LISN	schwarzbeck	NNBM8125	81251547	07-09-2015	07-08-2016
LISN	schwarzbeck	NNBM8125	81251547	07-09-2014	07-08-2015
LISN	schwarzbeck	NNBM8125	81251547	07-09-2015	07-08-2016
LISN	schwarzbeck	NNBM8125	81251546	07-09-2014	07-08-2015
LISN	schwarzbeck	NNBM8125	81251546	07-09-2015	07-08-2016
LISN	schwarzbeck	NNBM8125	81251546	07-09-2014	07-08-2015
LISN	schwarzbeck	NNBM8125	81251546	07-09-2015	07-08-2016
Signal Generator	Agilent	E4438C	MY45095744	04-19-2015	04-18-2016
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
Temperature/Humidity Indicator	TAYLOR	1451	5190	07-10-2014	07-09-2015
Temperature/Humidity Indicator	TAYLOR	1451	5190	07-10-2015	07-09-2016
Temperature/Humidity Indicator	TAYLOR	1451	5190	07-10-2014	07-09-2015
Temperature/Humidity Indicator	TAYLOR	1451	5190	07-10-2015	07-09-2016
Communication test set	Agilent	E5515C	GB47050533	01-13-2015	01-12-2016
Cable line	Fulai(7M)	SF106	5219/6A	01-13-2015	01-12-2016
Cable line	Fulai(6M)	SF106	5220/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5216/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5217/6A	01-13-2015	01-12-2016
Communication test set	R&S	CMW500	152394	04-19-2015	04-18-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18NM 12-0398-002	---	01-13-2015	01-12-2016

High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX01CA09CL1 2-0395-001	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX01CA08CL1 2-0393-001	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX02CA04CL1 2-0396-002	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX02CA03CL1 2-0394-001	---	01-13-2015	01-12-2016

## 8 Radio Technical Requirements Specification

### Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2014)	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 H)

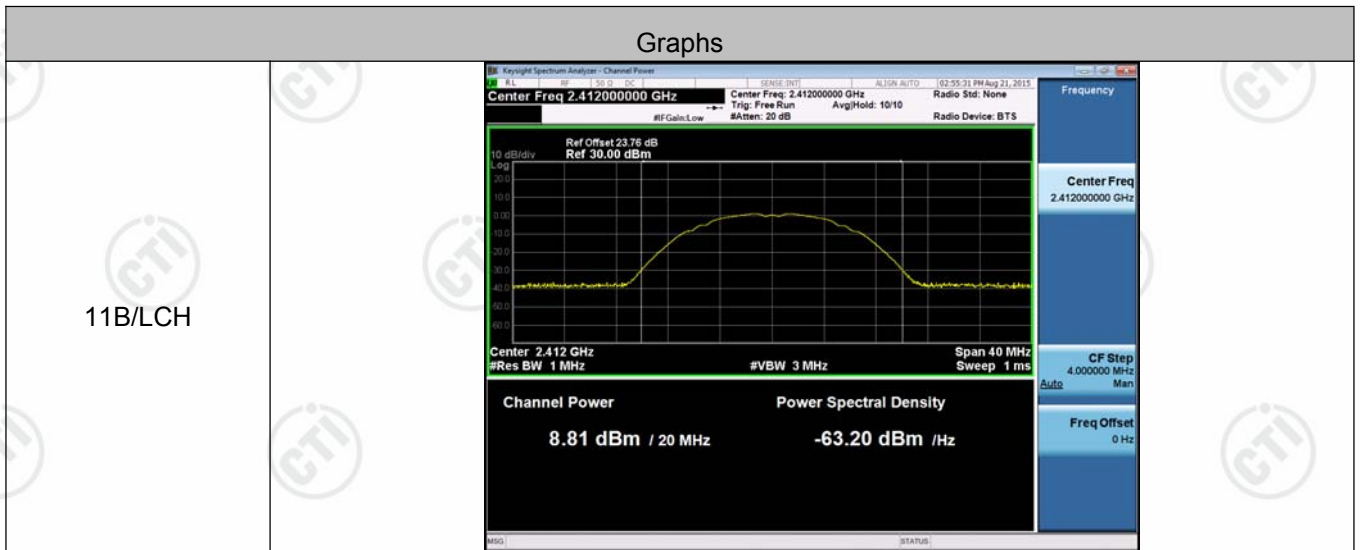
## Appendix A): Conducted Peak Output Power

**Result Table**

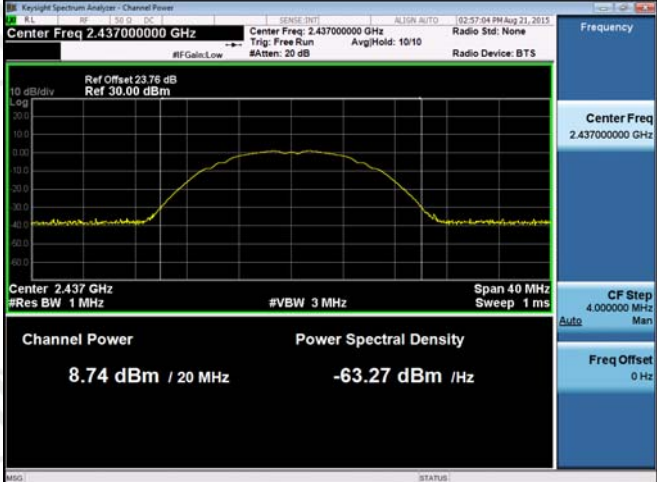
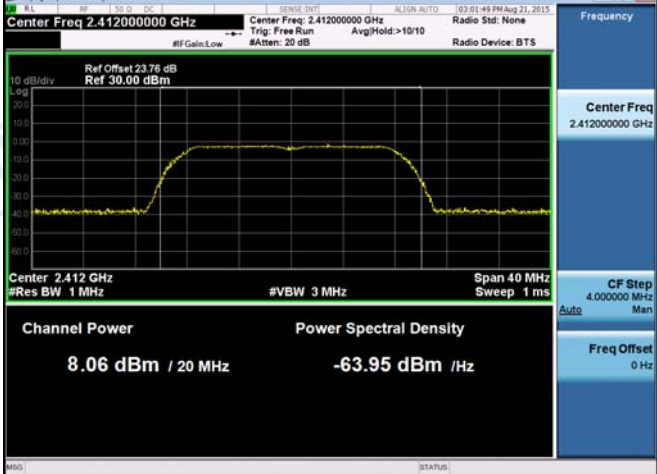
Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	8.81	PASS
11B	MCH	8.74	PASS
11B	HCH	8.58	PASS
11G	LCH	8.06	PASS
11G	MCH	8.81	PASS
11G	HCH	8.39	PASS
11N20SISO	LCH	8.08	PASS
11N20SISO	MCH	8.87	PASS
11N20SISO	HCH	8.56	PASS
11N40SISO	LCH	7.28	PASS
11N40SISO	MCH	7.84	PASS
11N40SISO	HCH	7.37	PASS

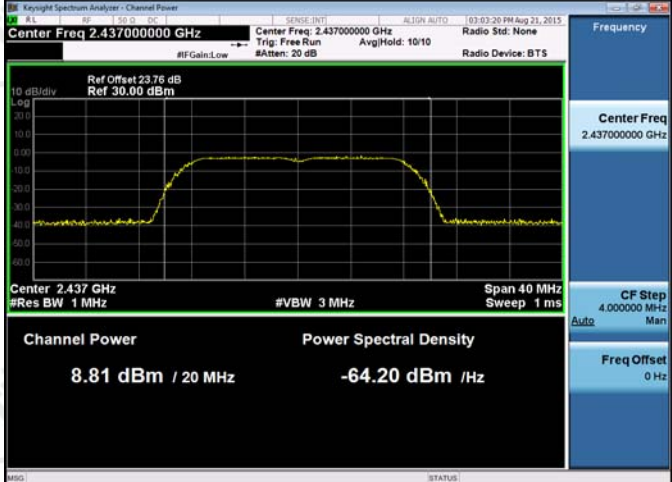
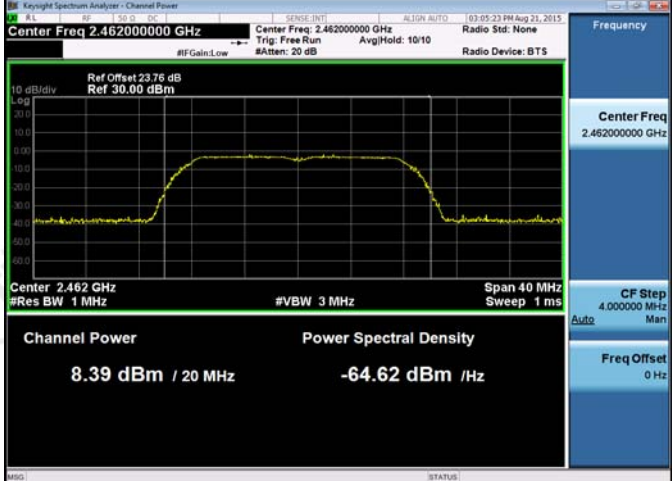
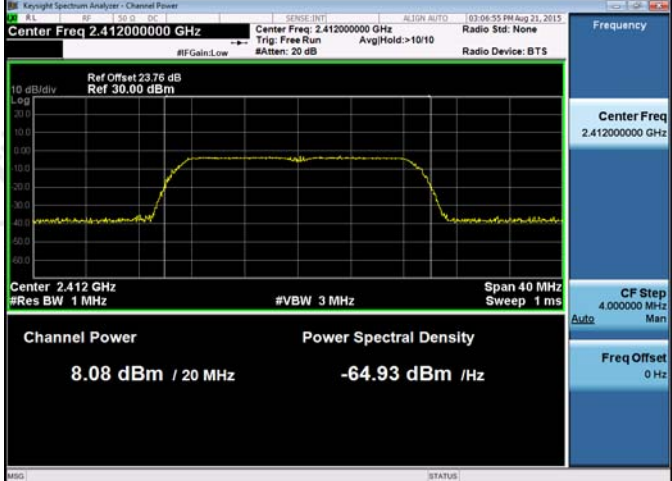
Remark: Peak detector is used.

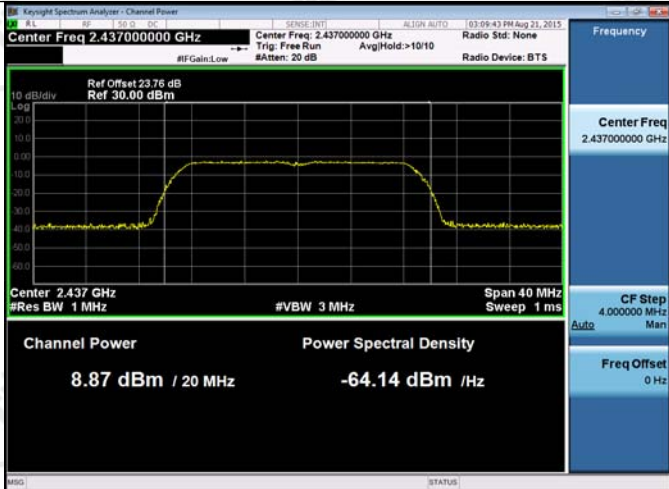
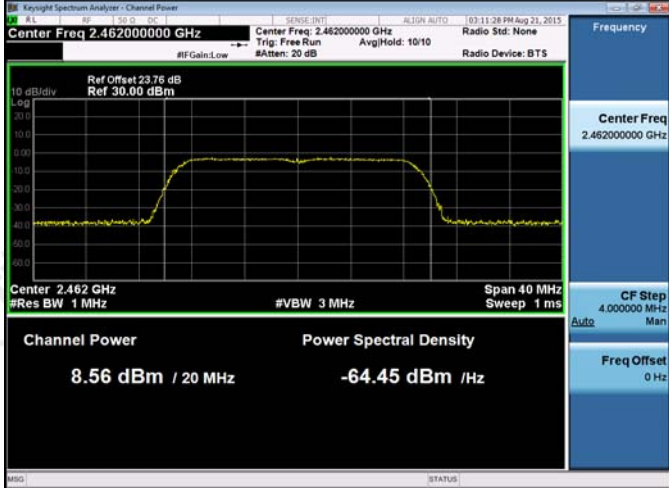

### Test Graph

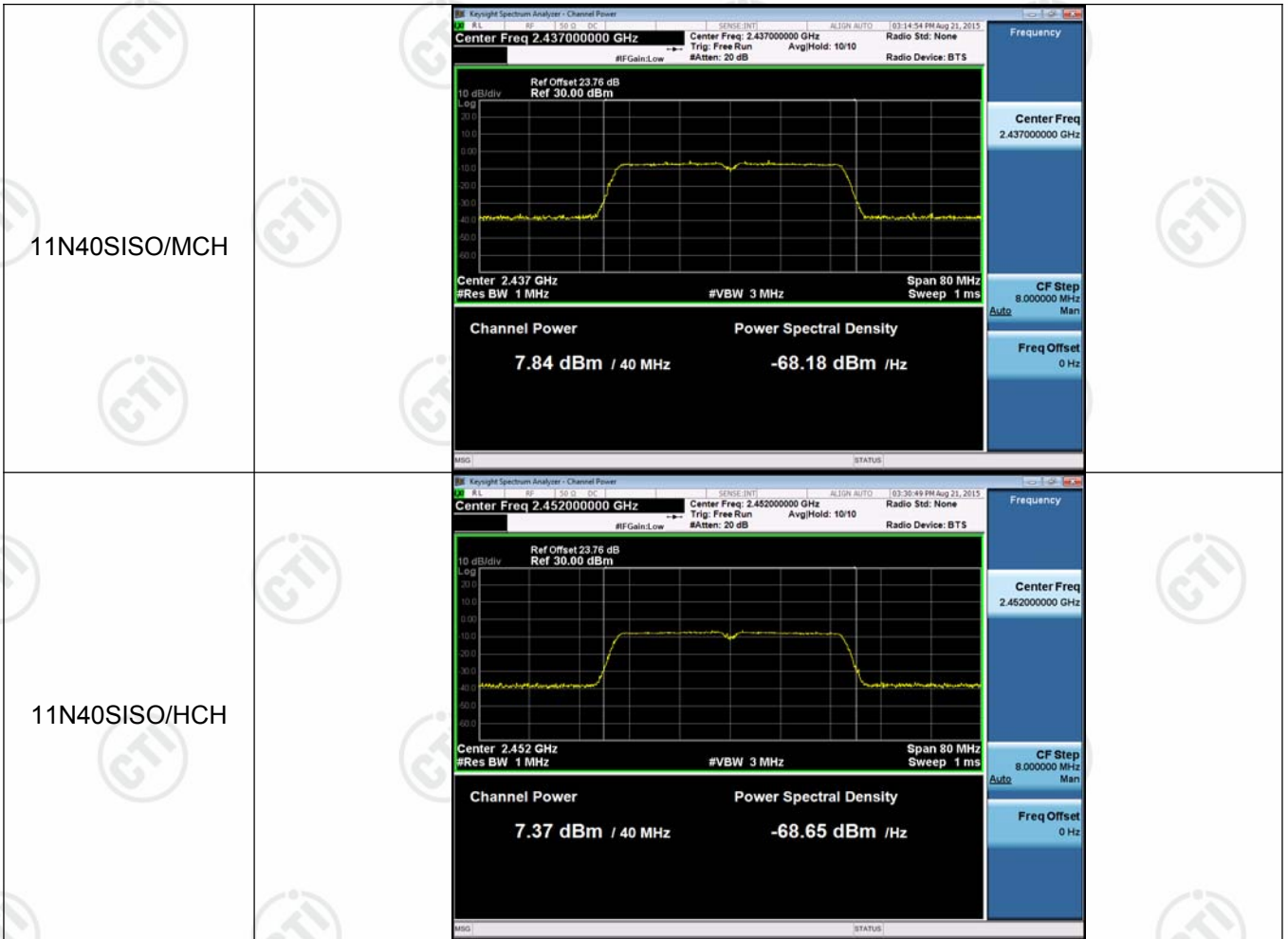




<p>11B/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz</p> <p>Channel Power: 8.74 dBm / 20 MHz</p> <p>Power Spectral Density: -63.27 dBm / Hz</p>
<p>11B/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.462000000 GHz</p> <p>Channel Power: 8.58 dBm / 20 MHz</p> <p>Power Spectral Density: -63.43 dBm / Hz</p>
<p>11G/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz</p> <p>Channel Power: 8.06 dBm / 20 MHz</p> <p>Power Spectral Density: -63.95 dBm / Hz</p>

<p>11G/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Channel Power: 8.81 dBm / 20 MHz</p> <p>Power Spectral Density: -64.20 dBm / Hz</p>
<p>11G/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Channel Power: 8.39 dBm / 20 MHz</p> <p>Power Spectral Density: -64.62 dBm / Hz</p>
<p>11N20SISO/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Channel Power: 8.08 dBm / 20 MHz</p> <p>Power Spectral Density: -64.93 dBm / Hz</p>

<p>11N20SISO/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Channel Power: 8.87 dBm / 20 MHz</p> <p>Power Spectral Density: -64.14 dBm / Hz</p>
<p>11N20SISO/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Channel Power: 8.56 dBm / 20 MHz</p> <p>Power Spectral Density: -64.45 dBm / Hz</p>
<p>11N40SISO/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Center Freq: 2.422000000 GHz</p> <p>Channel Power: 7.28 dBm / 40 MHz</p> <p>Power Spectral Density: -68.74 dBm / Hz</p>



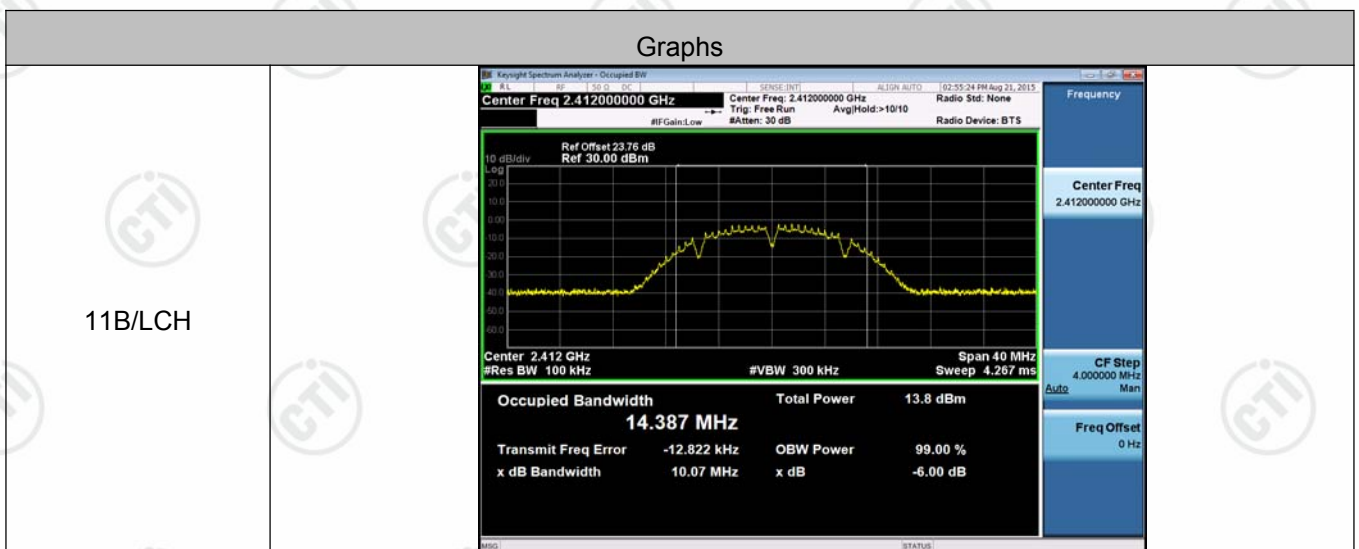
## Appendix B): 6dB Occupied Bandwidth

### Result Table

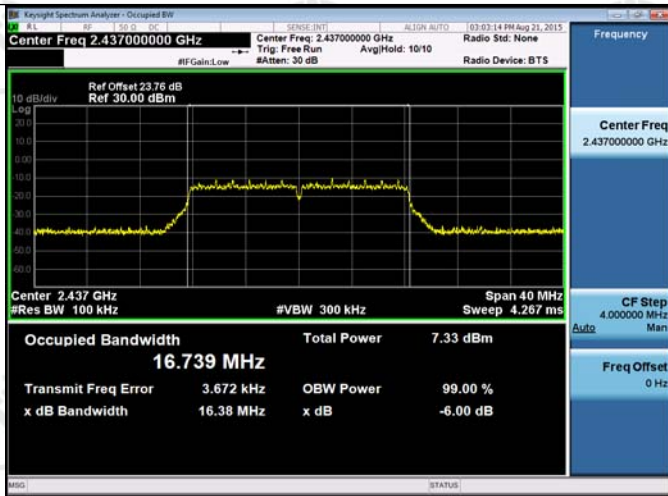
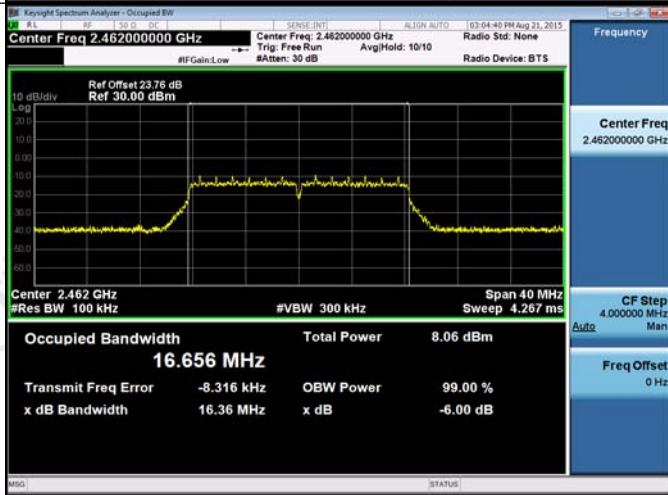
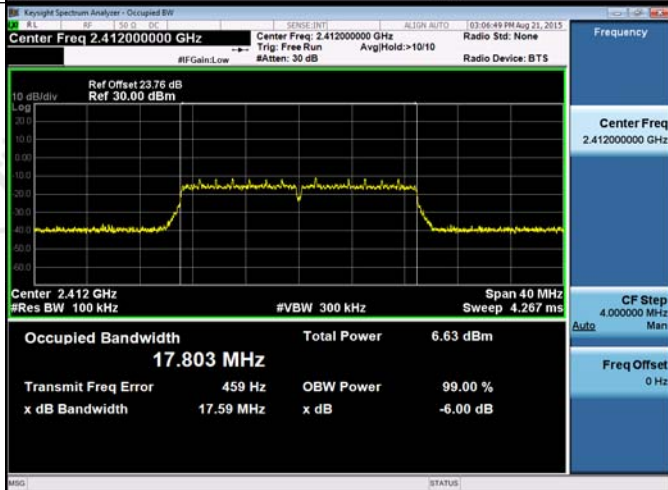
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	10.07	14.387	PASS
11B	MCH	10.06	14.339	PASS
11B	HCH	10.06	14.391	PASS
11G	LCH	16.39	16.730	PASS
11G	MCH	16.38	16.739	PASS
11G	HCH	16.36	16.656	PASS
11N20SISO	LCH	17.59	17.803	PASS
11N20SISO	MCH	17.61	17.767	PASS
11N20SISO	HCH	17.58	17.767	PASS
11N40SISO	LCH	36.29	43.497	PASS
11N40SISO	MCH	36.00	39.517	PASS
11N40SISO	HCH	35.84	37.284	PASS

Remark: Peak detector is used.

### Test Graph

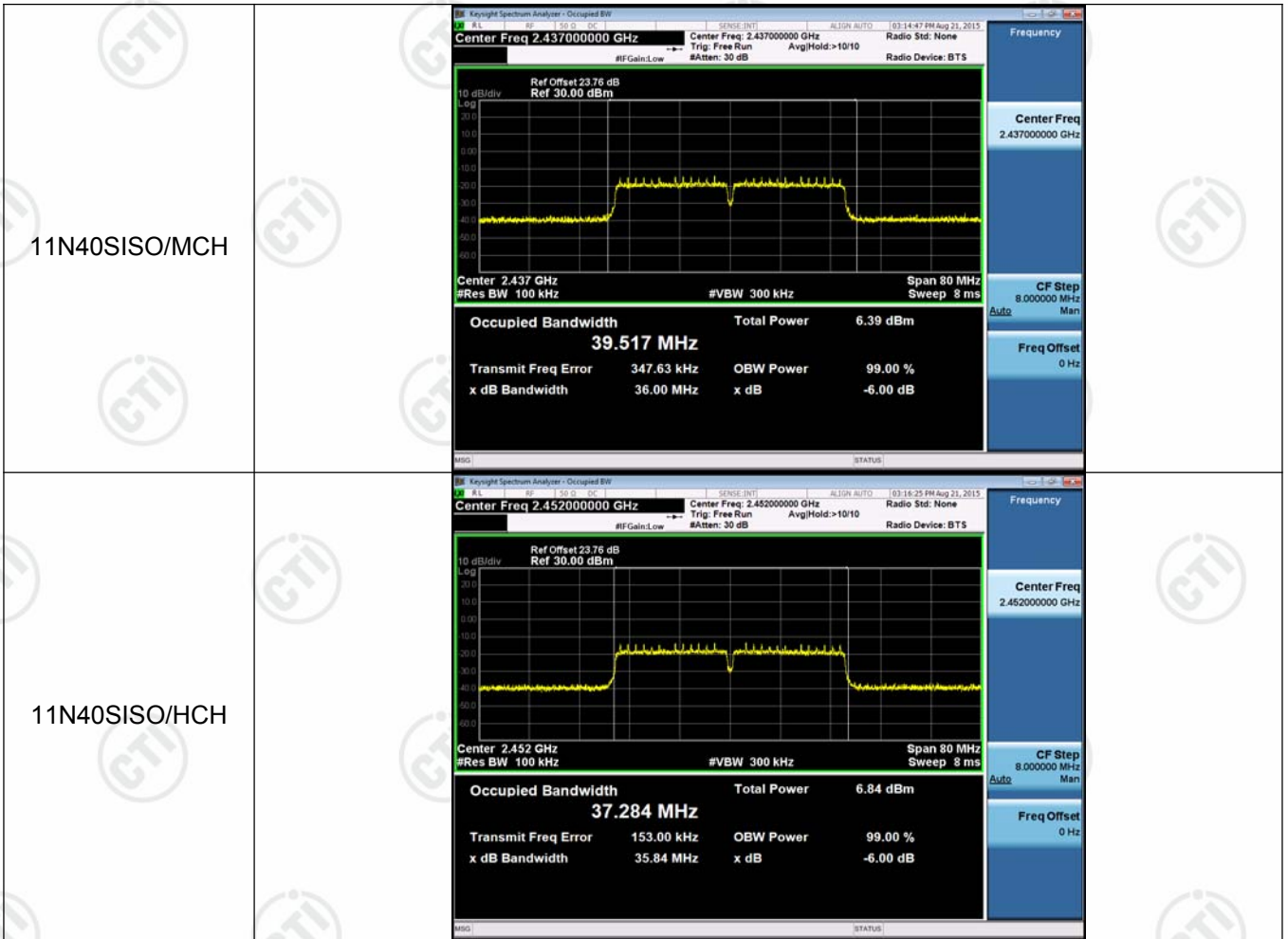


<p>11B/MCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run Avg/Hold: &gt;10/10</p> <p>#Gain: Low #Atten: 30 dB</p> <p>Radio Std: None Radio Device: BTS</p> <p>Ref Offset 23.76 dB Ref 30.00 dBm</p> <p>10 dB/Div Log</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 14.339 MHz Total Power 13.6 dBm</p> <p>Transmit Freq Error 14.677 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 10.06 MHz x dB -6.00 dB</p> <p>Frequency Center Freq 2.437000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz</p>
<p>11B/HCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run Avg/Hold: 10/10</p> <p>#Gain: Low #Atten: 30 dB</p> <p>Radio Std: None Radio Device: BTS</p> <p>Ref Offset 23.76 dB Ref 30.00 dBm</p> <p>10 dB/Div Log</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 14.391 MHz Total Power 14.1 dBm</p> <p>Transmit Freq Error -25.362 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 10.06 MHz x dB -6.00 dB</p> <p>Frequency Center Freq 2.462000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz</p>
<p>11G/LCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run Avg/Hold: 10/10</p> <p>#Gain: Low #Atten: 30 dB</p> <p>Radio Std: None Radio Device: BTS</p> <p>Ref Offset 23.76 dB Ref 30.00 dBm</p> <p>10 dB/Div Log</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 16.730 MHz Total Power 7.56 dBm</p> <p>Transmit Freq Error -24.478 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.39 MHz x dB -6.00 dB</p> <p>Frequency Center Freq 2.412000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz</p>

<p>11G/MCH</p>	 <p>Center Freq: 2.437000000 GHz</p> <p>Occupied Bandwidth: 16.739 MHz</p> <p>Total Power: 7.33 dBm</p> <p>Transmit Freq Error: 3.672 kHz</p> <p>x dB Bandwidth: 16.38 MHz</p>
<p>11G/HCH</p>	 <p>Center Freq: 2.462000000 GHz</p> <p>Occupied Bandwidth: 16.656 MHz</p> <p>Total Power: 8.06 dBm</p> <p>Transmit Freq Error: -8.316 kHz</p> <p>x dB Bandwidth: 16.36 MHz</p>
<p>11N20SISO/LCH</p>	 <p>Center Freq: 2.412000000 GHz</p> <p>Occupied Bandwidth: 17.803 MHz</p> <p>Total Power: 6.63 dBm</p> <p>Transmit Freq Error: 459 Hz</p> <p>x dB Bandwidth: 17.59 MHz</p>

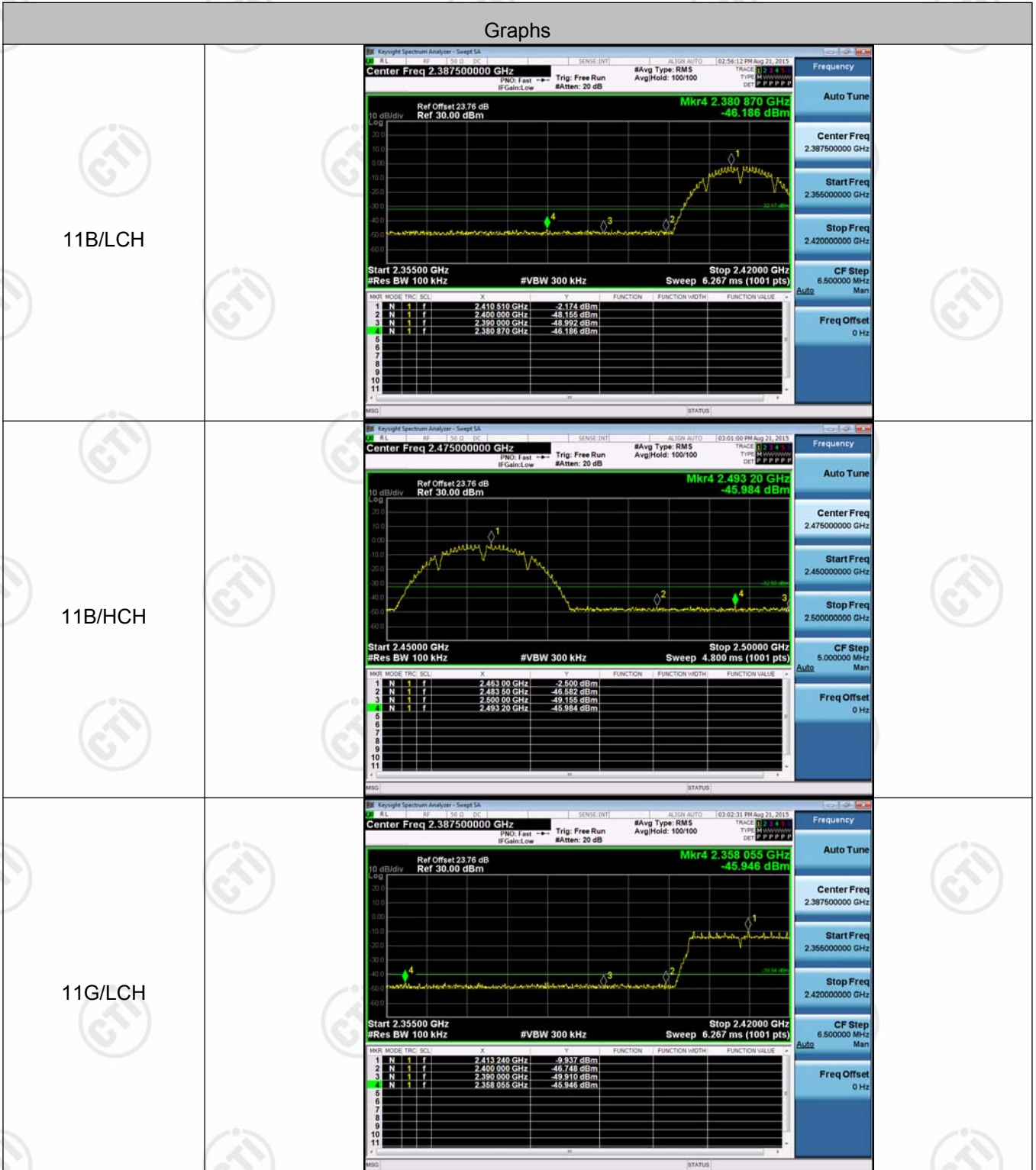
<p>11N20SISO/MCH</p>	<p>Center Freq 2.437000000 GHz</p> <p>Occupied Bandwidth 17.767 MHz</p> <p>Total Power 7.45 dBm</p> <p>Transmit Freq Error 14.397 kHz</p> <p>x dB Bandwidth 17.61 MHz</p>
<p>11N20SISO/HCH</p>	<p>Center Freq 2.462000000 GHz</p> <p>Occupied Bandwidth 17.767 MHz</p> <p>Total Power 8.02 dBm</p> <p>Transmit Freq Error 2.425 kHz</p> <p>x dB Bandwidth 17.58 MHz</p>
<p>11N40SISO/LCH</p>	<p>Center Freq 2.422000000 GHz</p> <p>Occupied Bandwidth 43.497 MHz</p> <p>Total Power 5.83 dBm</p> <p>Transmit Freq Error 347.25 kHz</p> <p>x dB Bandwidth 36.29 MHz</p>

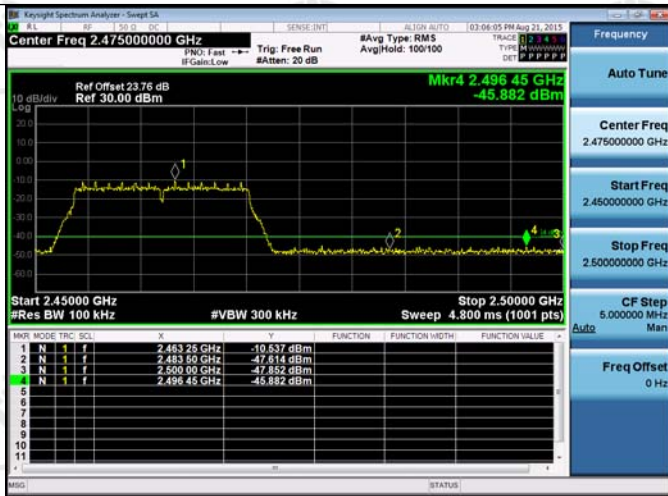
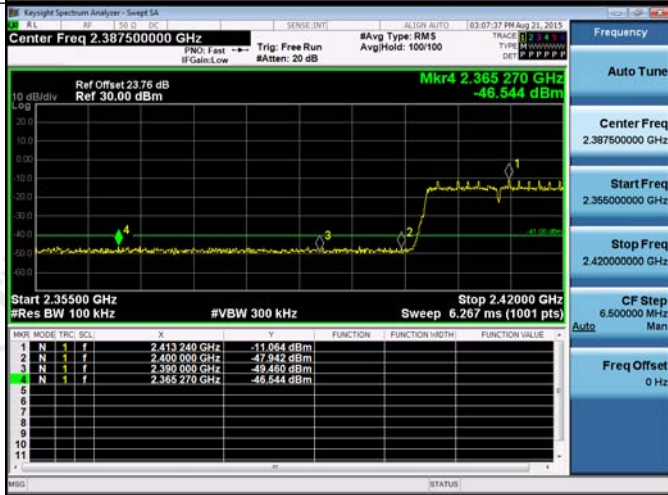
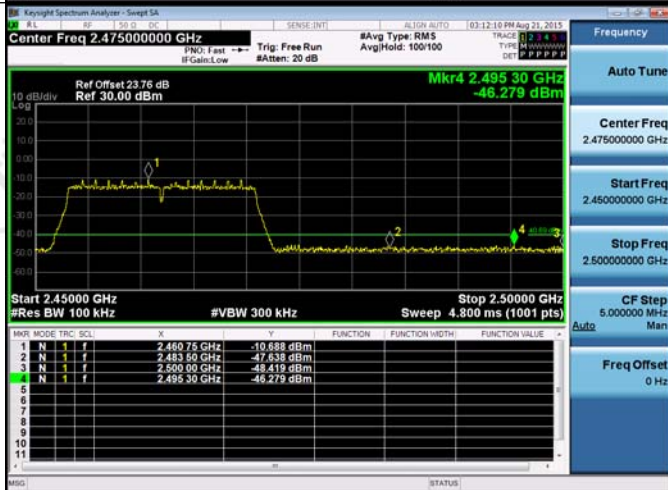


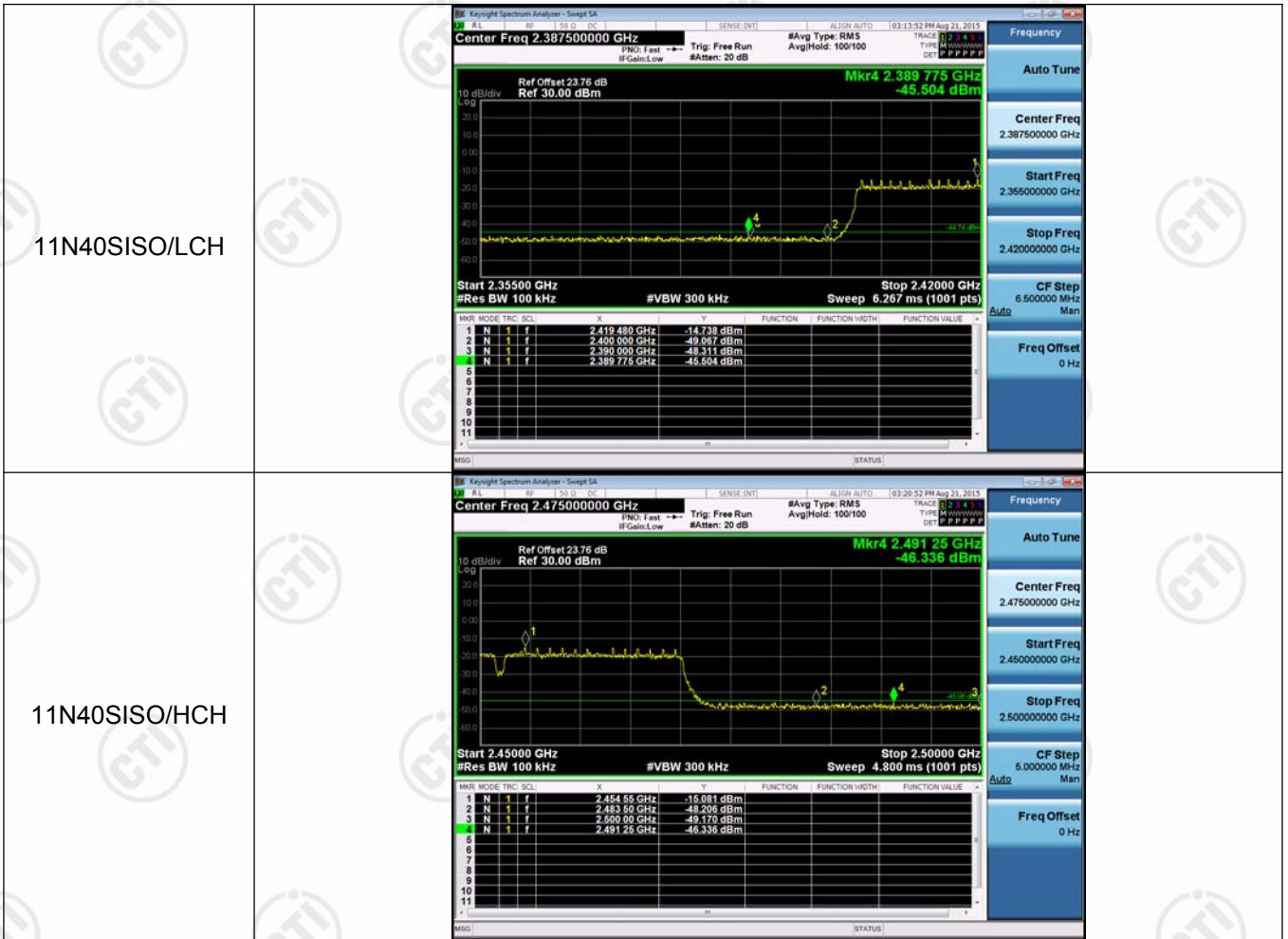


## Appendix C): Band-edge for RF Conducted Emissions

### Test Graph

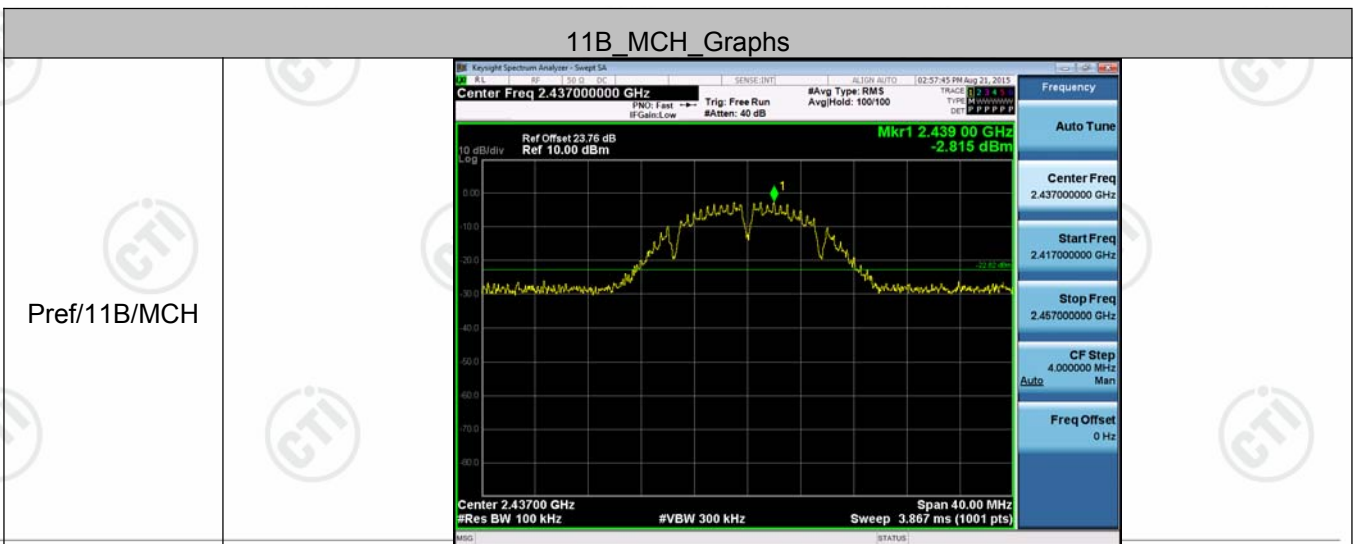
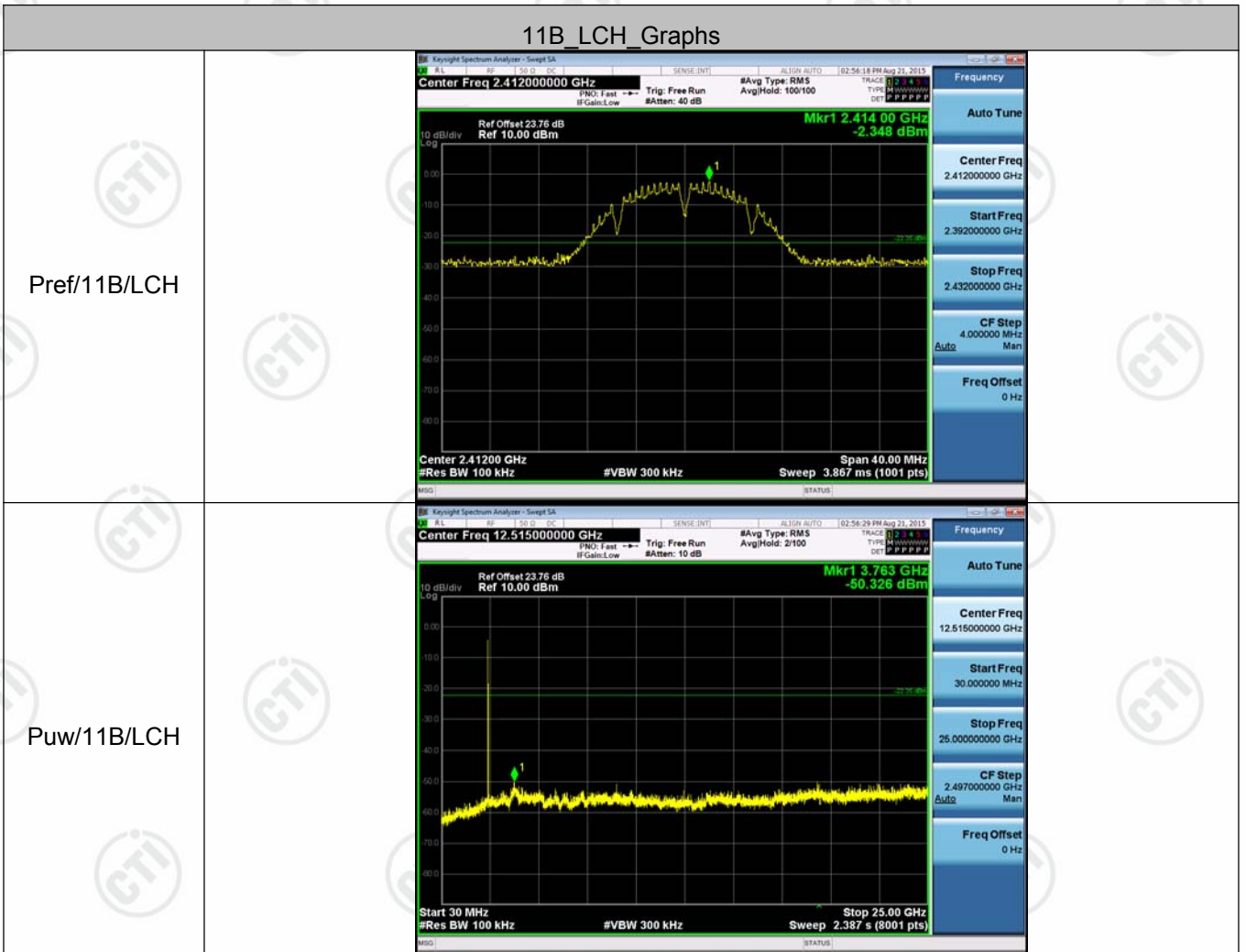


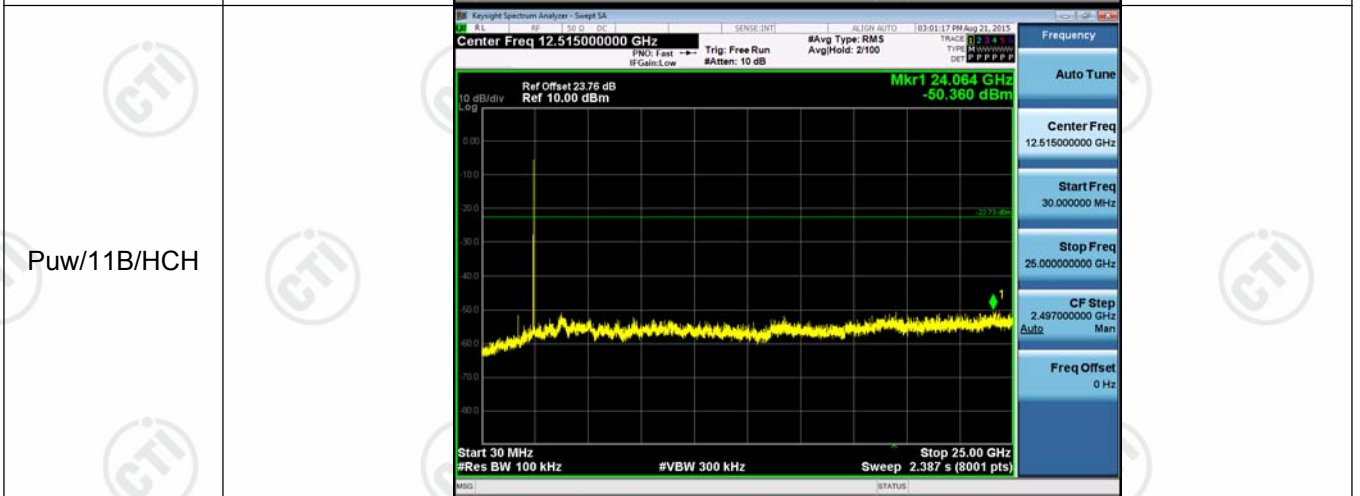
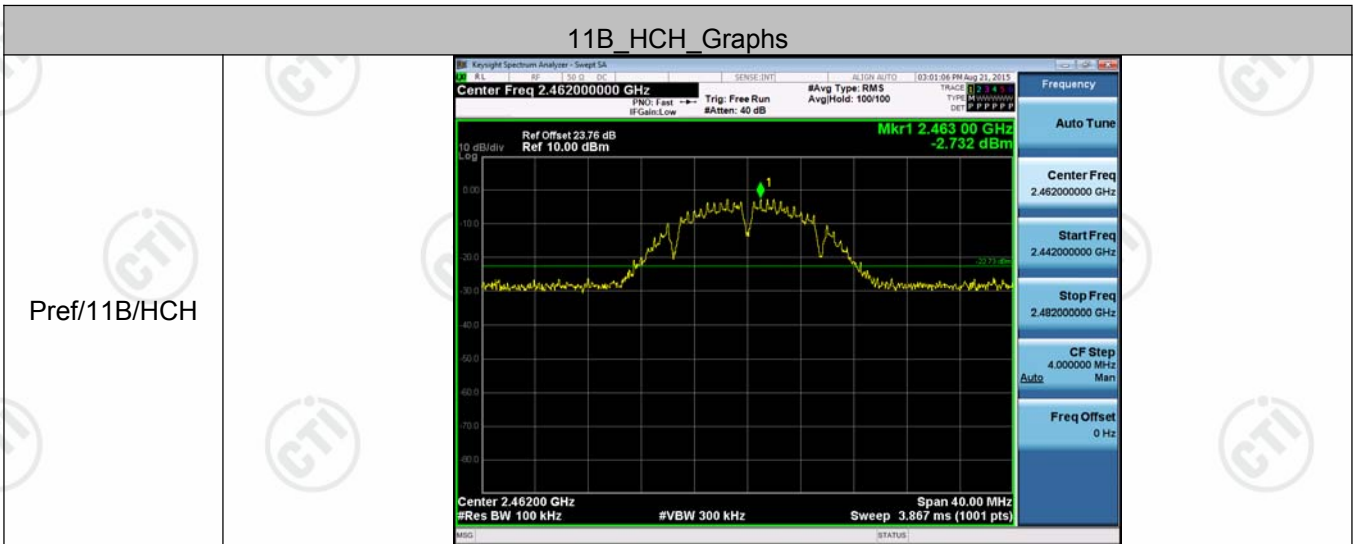
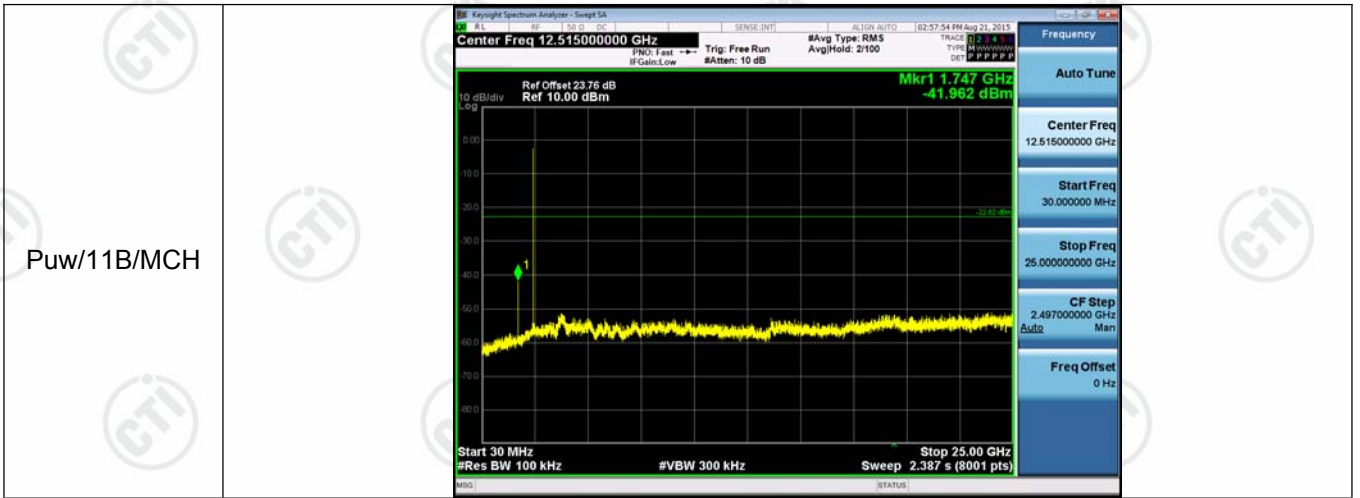
<p>11G/HCH</p>	
<p>11N20SISO/LCH</p>	
<p>11N20SISO/HCH</p>	

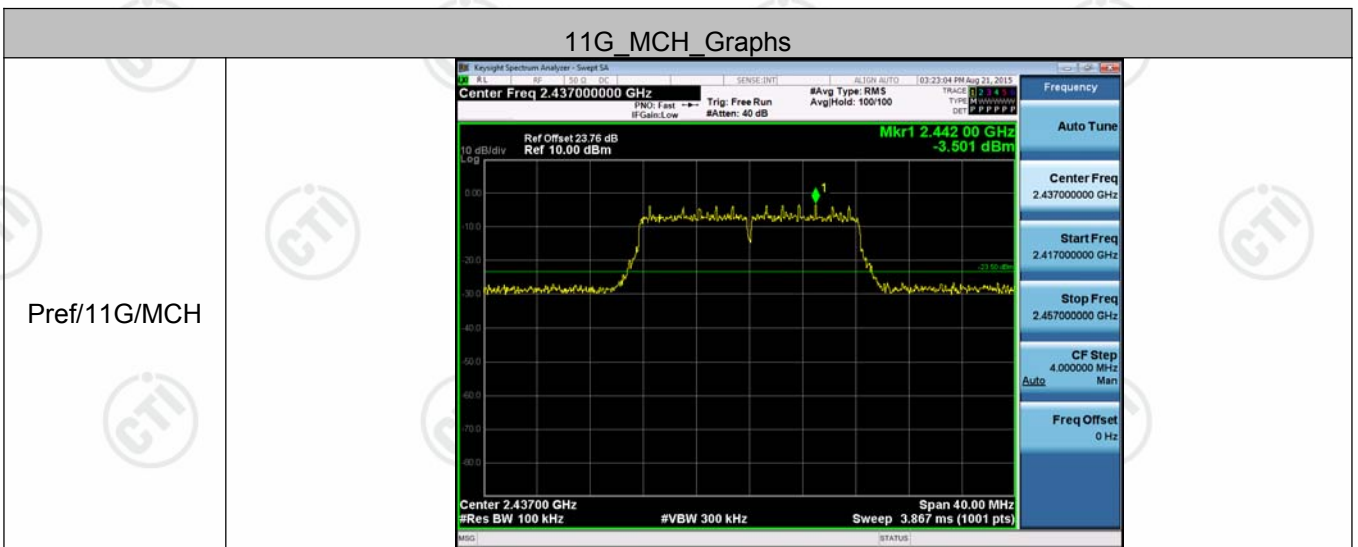
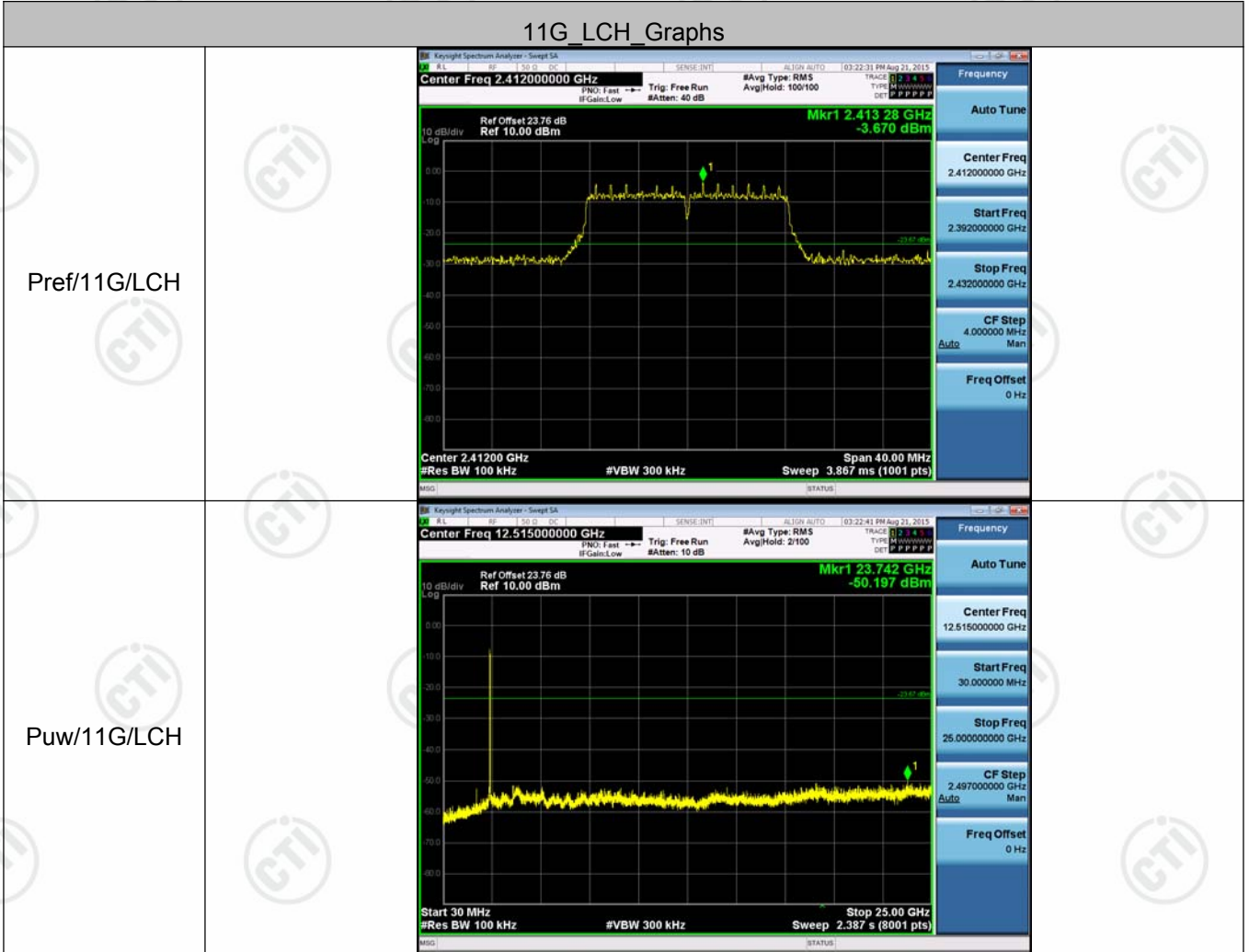


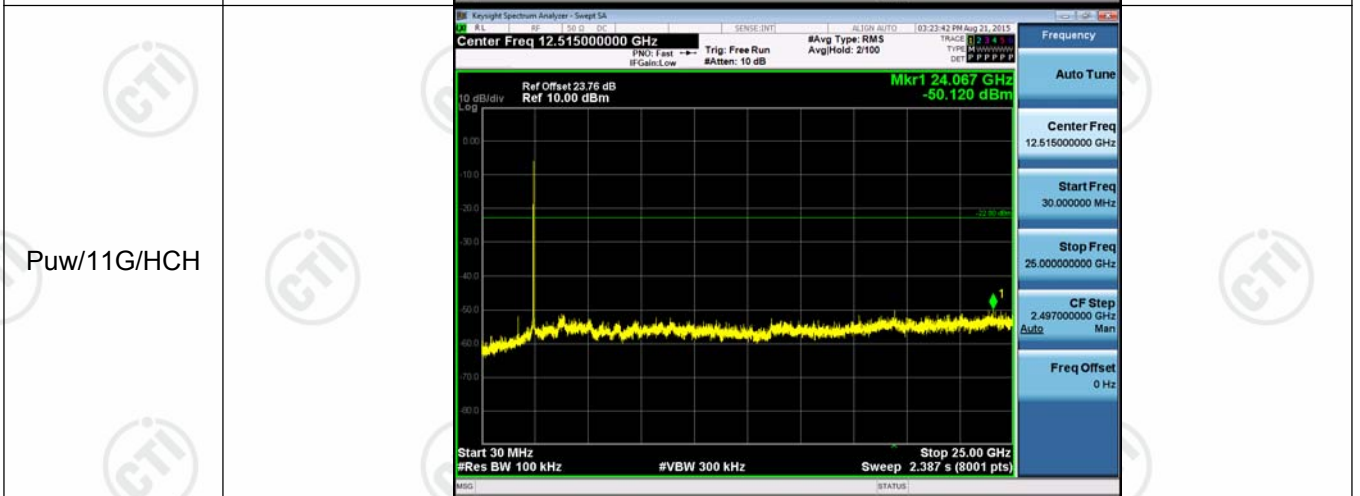
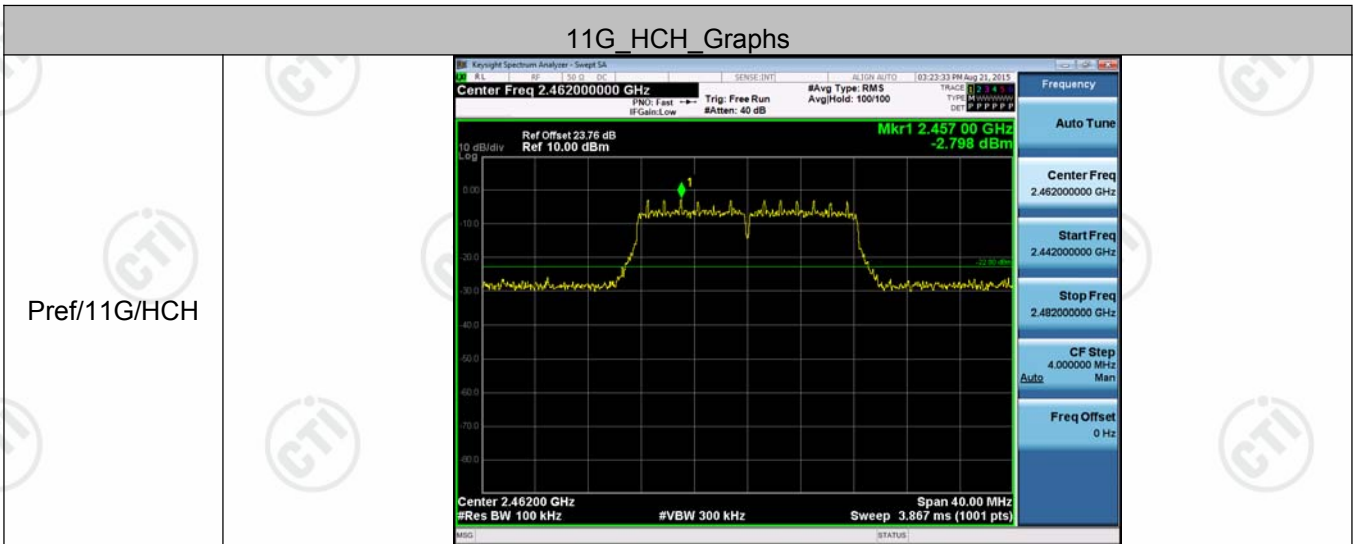
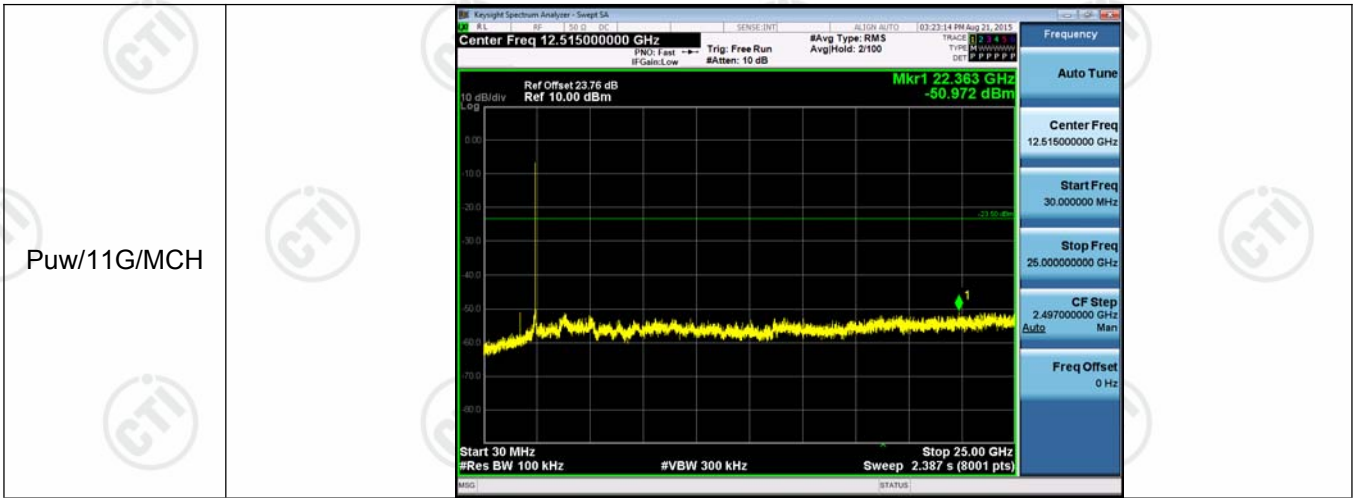
## Appendix D): RF Conducted Spurious Emissions

### Test Graph

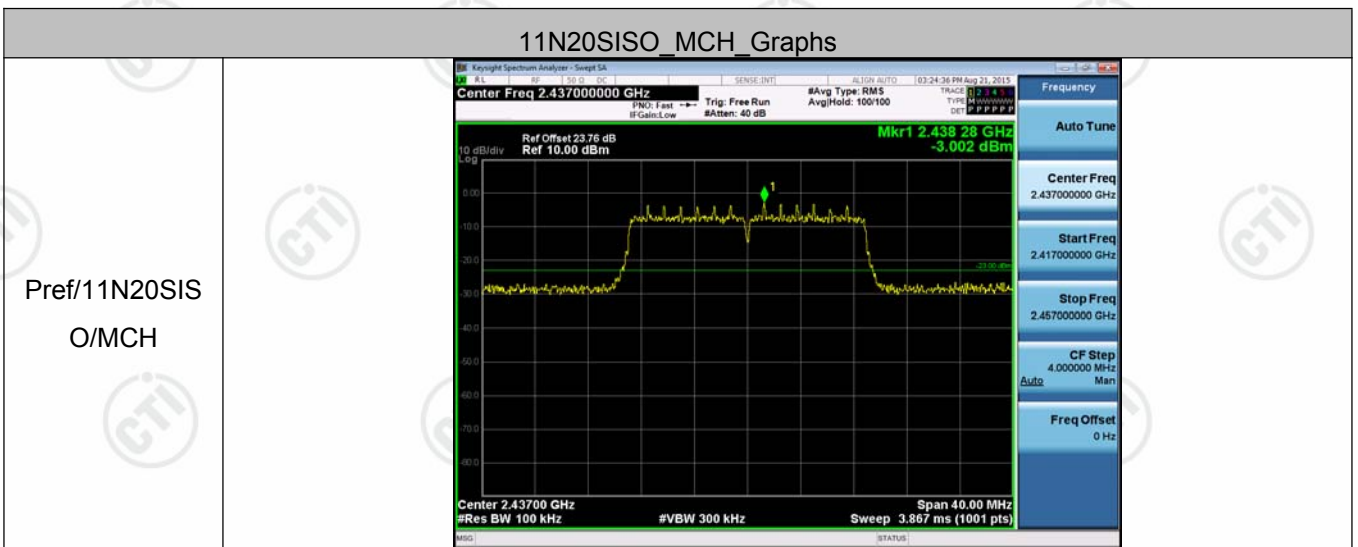
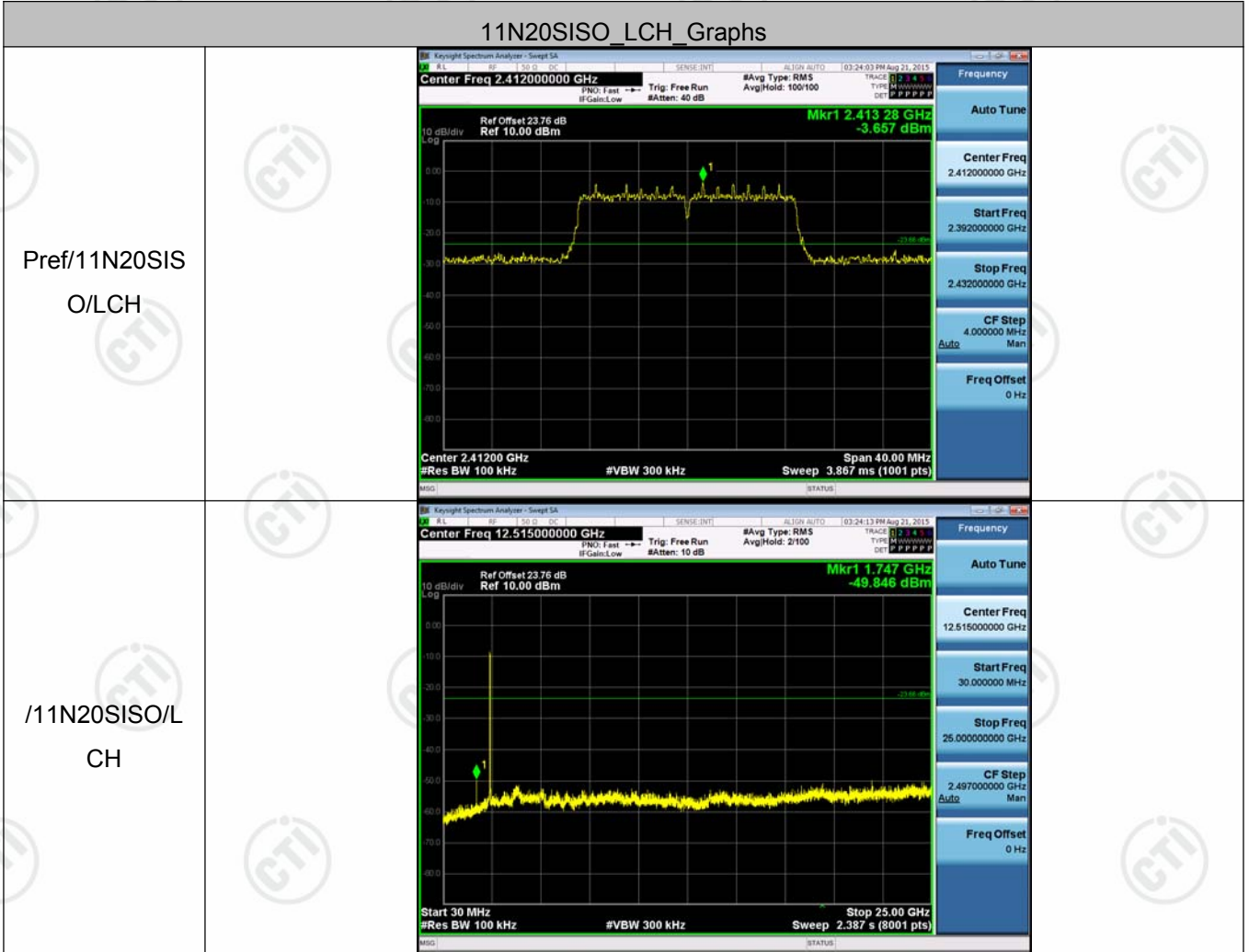


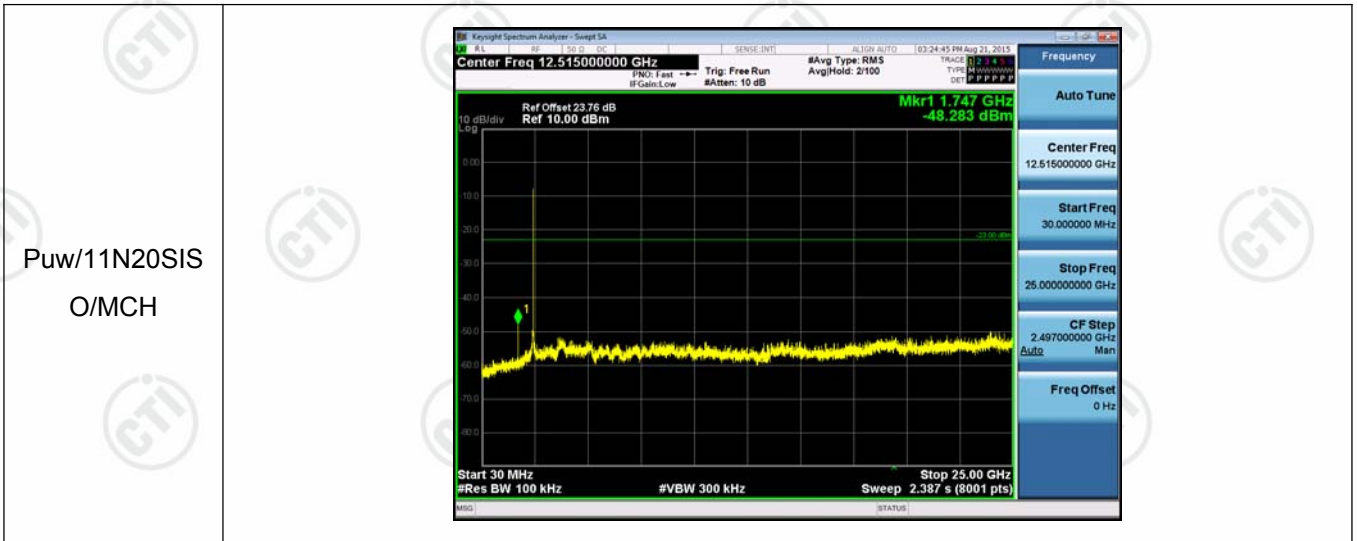




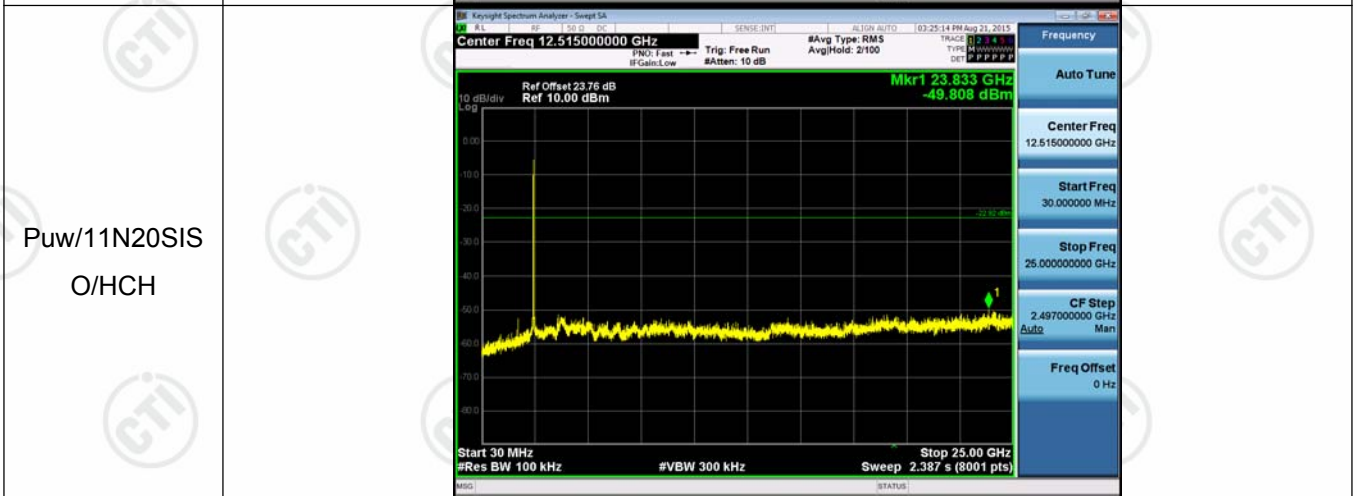
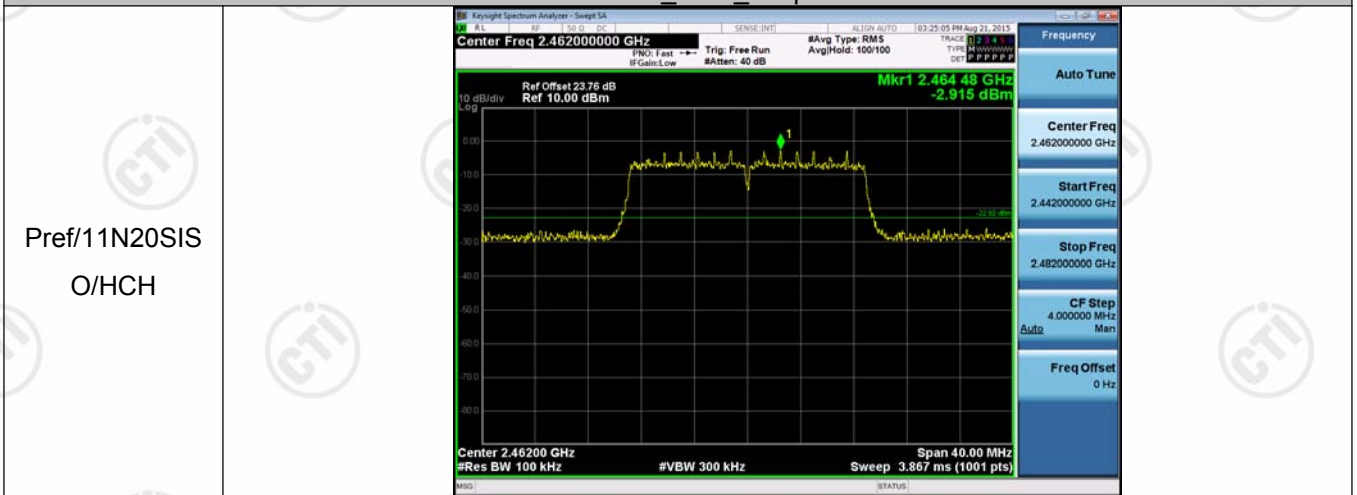


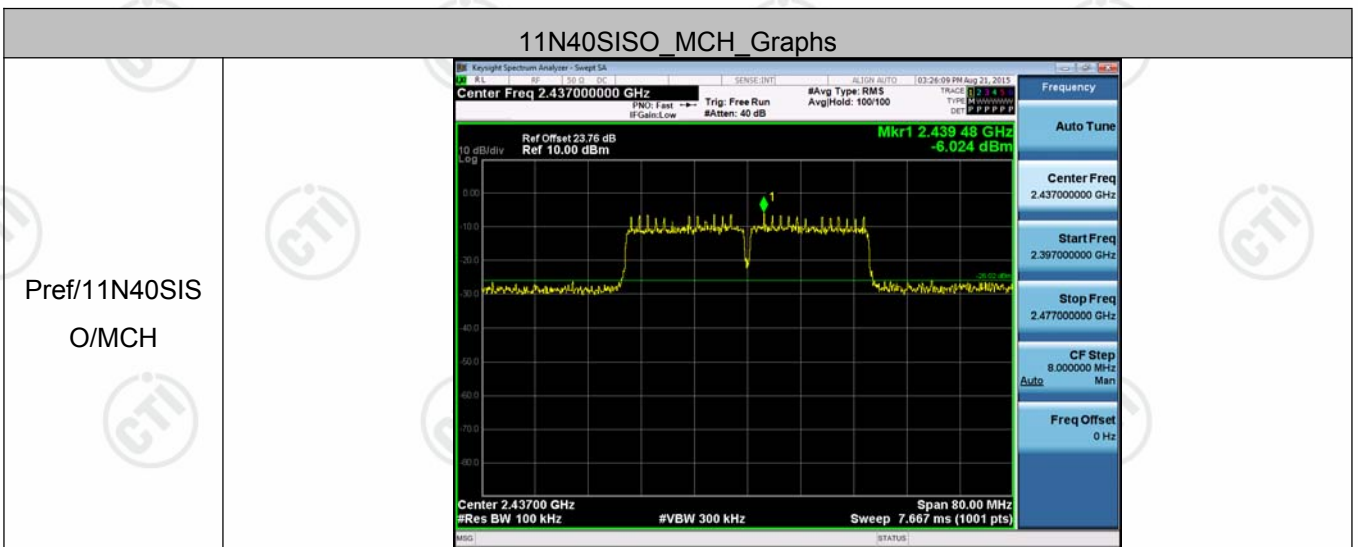
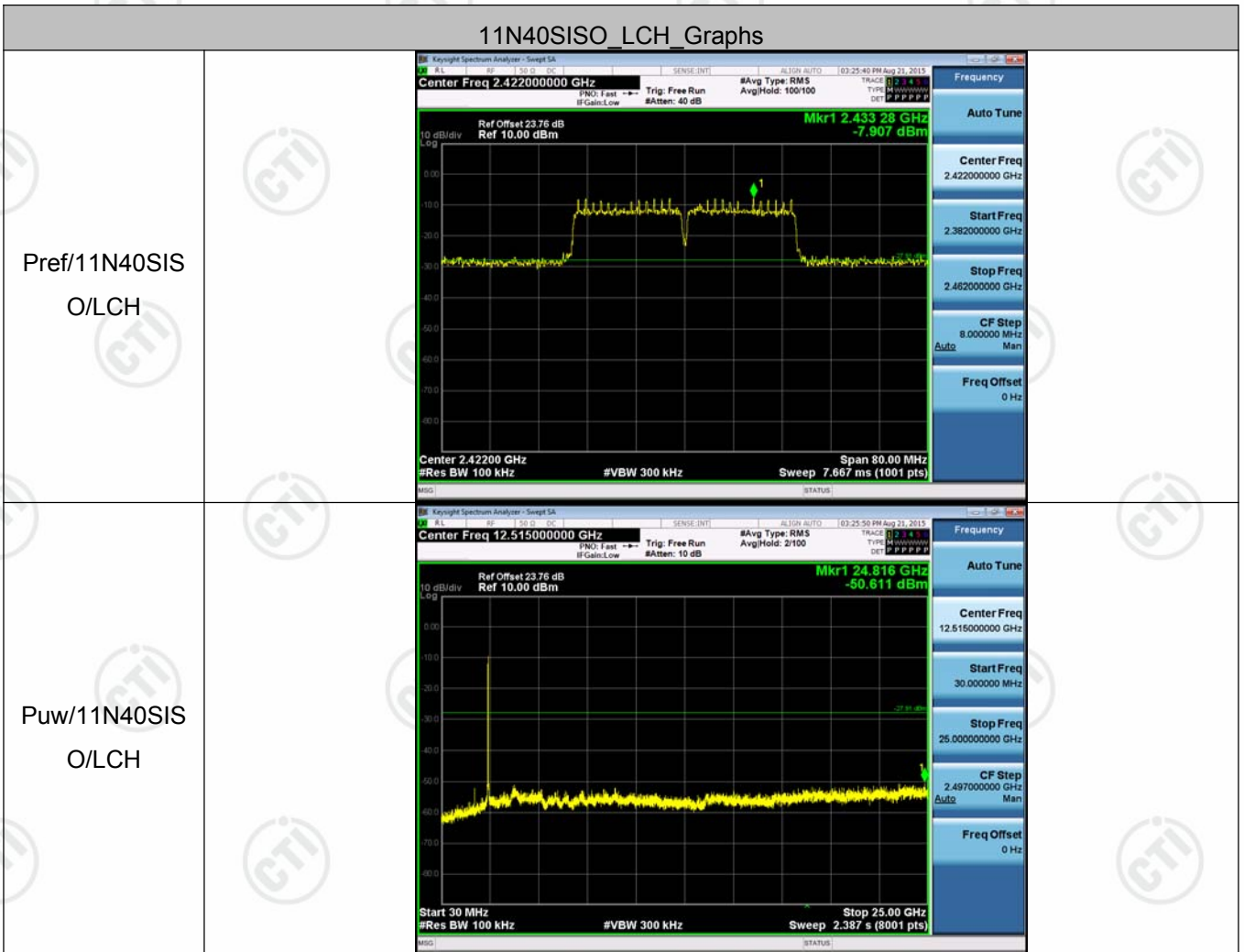


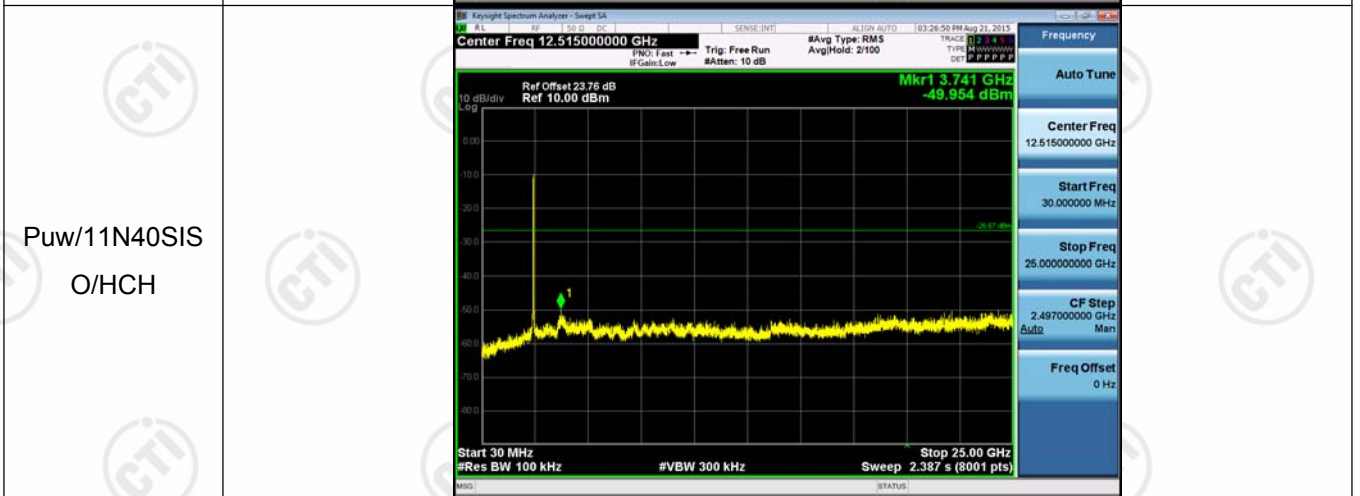
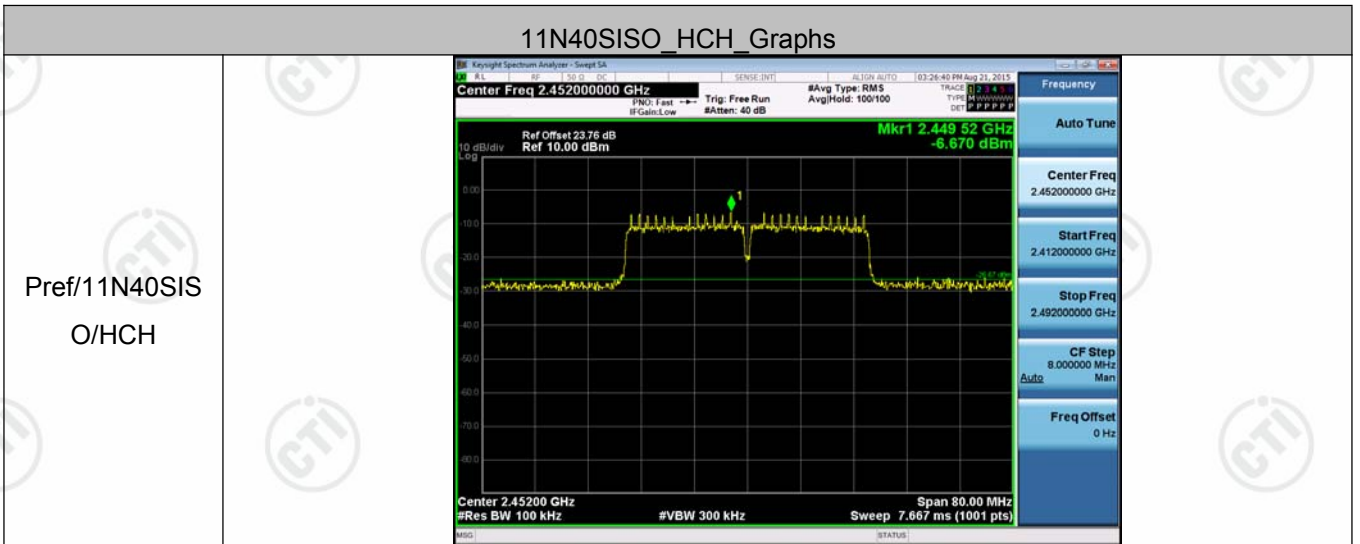
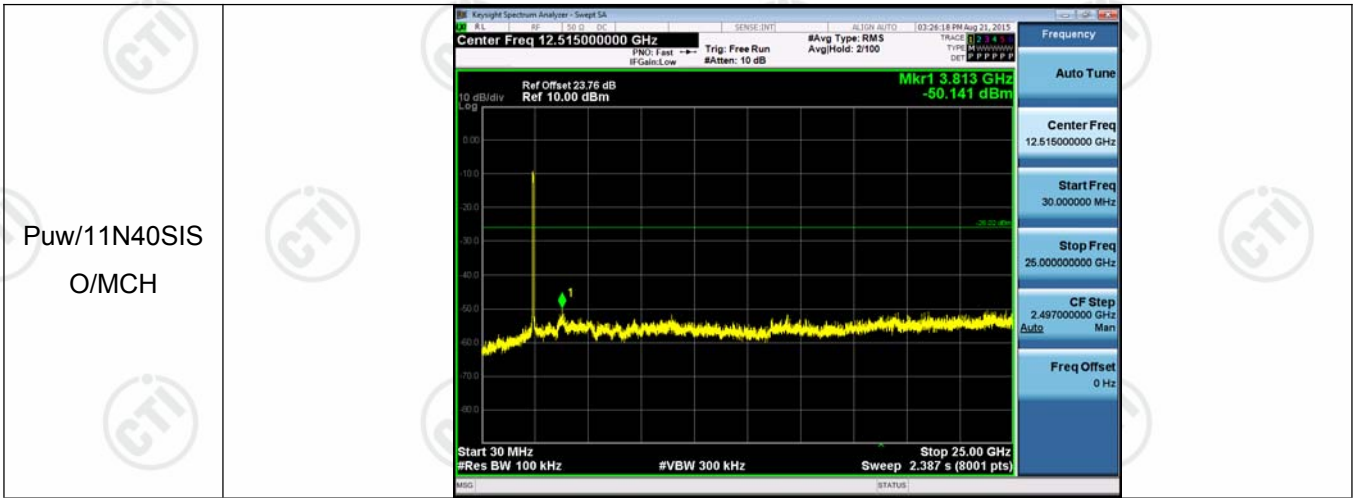




11N20SISO\_HCH\_Graphs





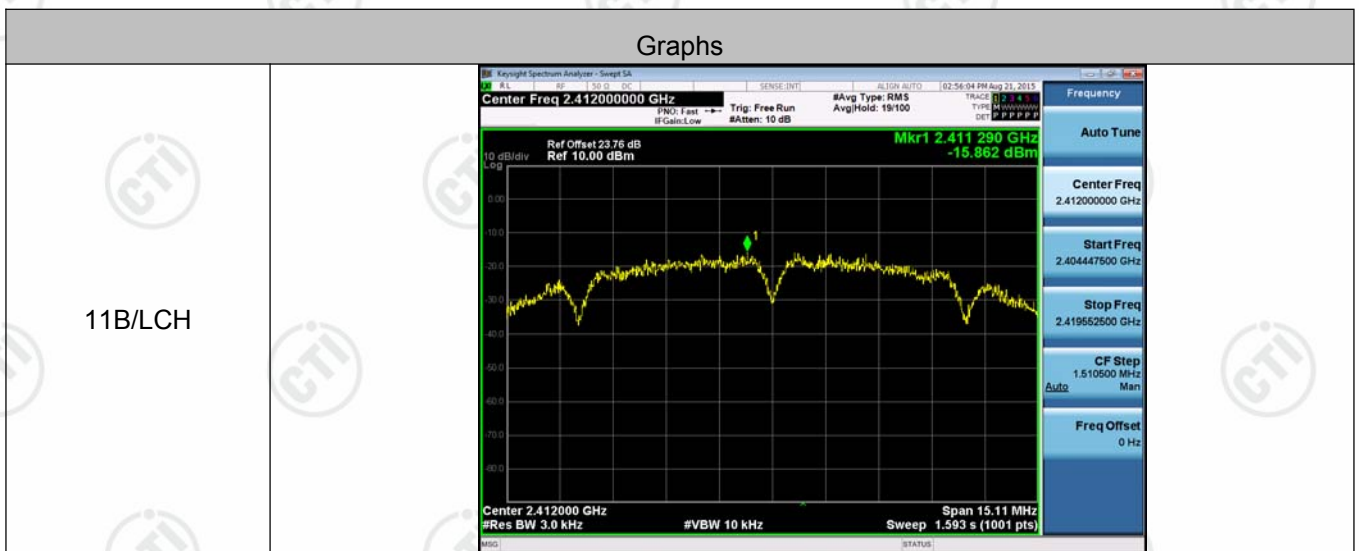





## Appendix E): Power Spectral Density


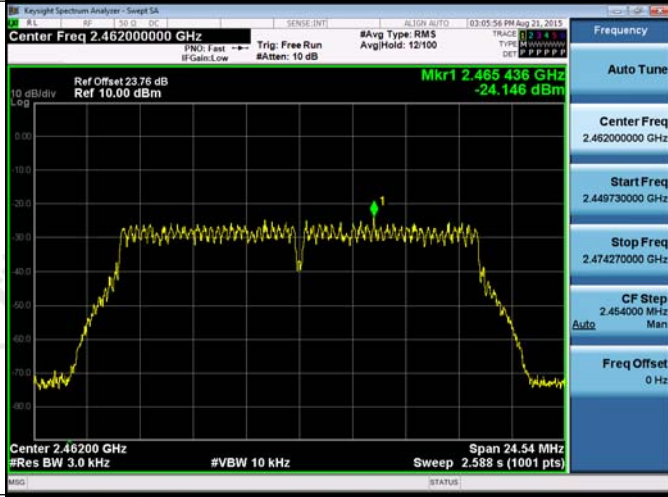
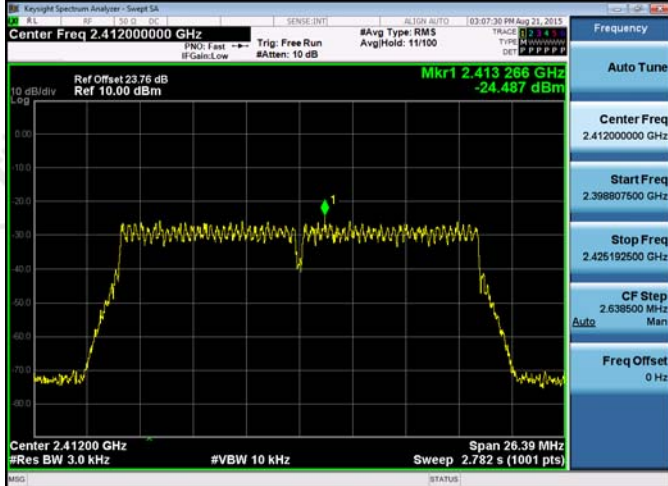
Result Table

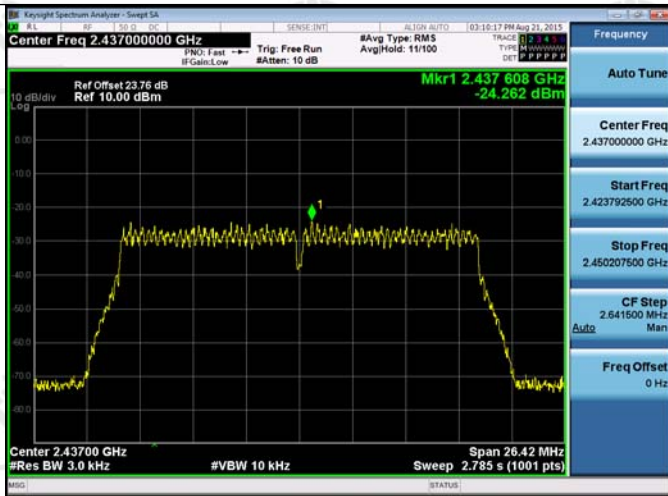
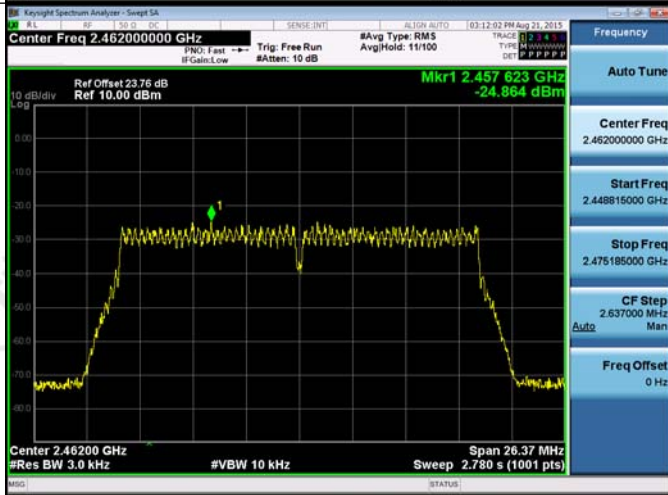
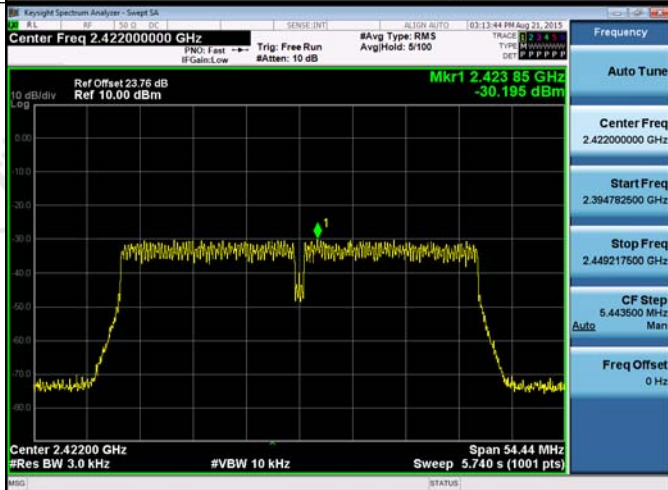
Mode	Channel	Power Spectral Density [dBm]	Verdict
11B	LCH	-15.862	PASS
11B	MCH	-16.509	PASS
11B	HCH	-16.335	PASS
11G	LCH	-23.808	PASS
11G	MCH	-24.157	PASS
11G	HCH	-24.146	PASS
11N20SISO	LCH	-24.487	PASS
11N20SISO	MCH	-24.262	PASS
11N20SISO	HCH	-24.864	PASS
11N40SISO	LCH	-30.195	PASS
11N40SISO	MCH	-29.001	PASS
11N40SISO	HCH	-28.766	PASS

## Test Graph

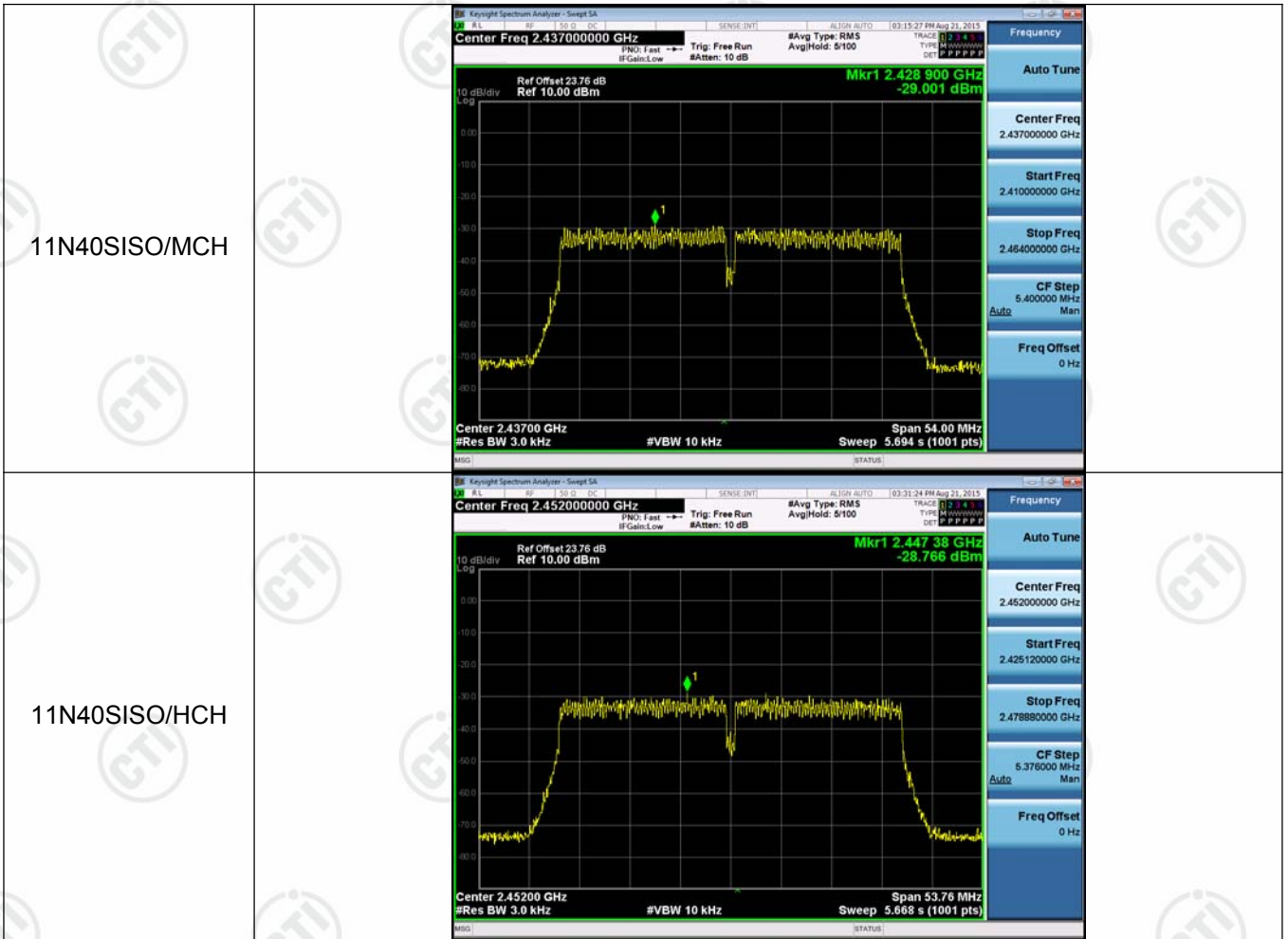


<p>11B/MCH</p>	
<p>11B/HCH</p>	
<p>11G/LCH</p>	

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

<p>11N20SISO/MCH</p>	 <p>Center Freq 2.43700000 GHz</p> <p>Mkr1 2.437608 GHz -24.262 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 26.42 MHz Sweep 2.785 s (1001 pts)</p>
<p>11N20SISO/HCH</p>	 <p>Center Freq 2.46200000 GHz</p> <p>Mkr1 2.457623 GHz -24.864 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 26.37 MHz Sweep 2.780 s (1001 pts)</p>
<p>11N40SISO/LCH</p>	 <p>Center Freq 2.42200000 GHz</p> <p>Mkr1 2.42385 GHz -30.195 dBm</p> <p>Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 54.44 MHz Sweep 5.740 s (1001 pts)</p>





## 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.

<b>EUT Antenna:</b>	
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The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.	
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## Appendix G) AC Power Line Conducted Emission

<p>Test Procedure:</p>	<p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.</li> </ol>																
<p>Limit:</p>	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50		
Frequency range (MHz)	Limit (dBuV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															
<p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.</p> <p>NOTE : The lower limit is applicable at the transition frequency</p>																	

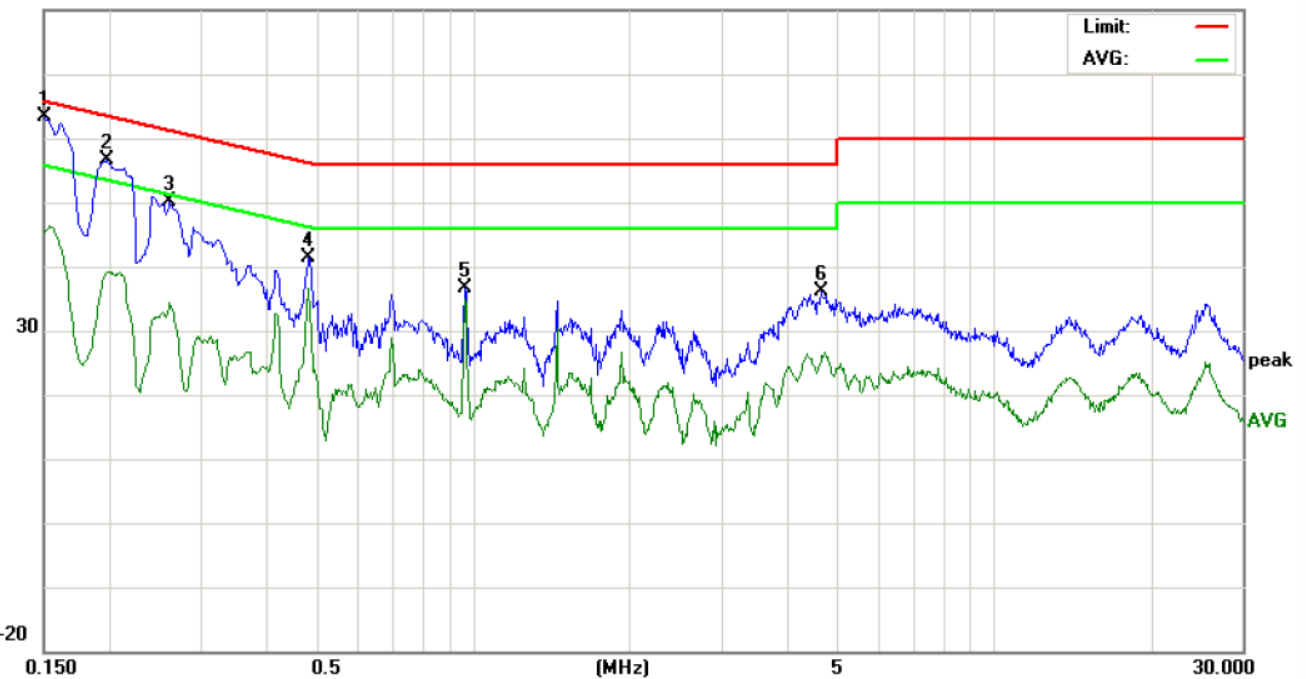
**Measurement Data**

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

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

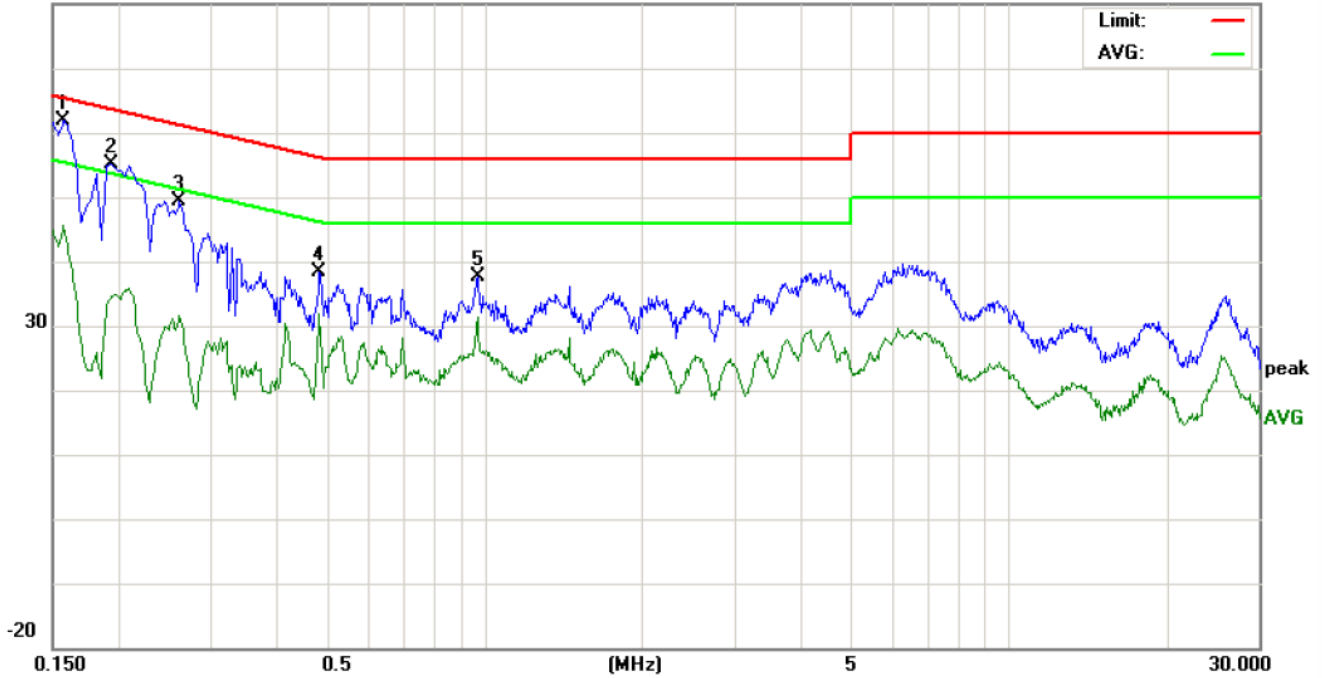
Live line:

80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1500	53.43	50.14	35.46	9.90	63.33	60.04	45.36	65.99	55.99	-5.95	-10.63	P	
2	0.1980	46.72		29.24	9.90	56.62		39.14	63.69	53.69	-7.07	-14.55	P	
3	0.2620	40.11		24.51	9.90	50.01		34.41	61.36	51.36	-11.35	-16.95	P	
4	0.4820	31.38		26.77	9.90	41.28		36.67	56.30	46.30	-15.02	-9.63	P	
5	0.9660	26.66		25.00	9.90	36.56		34.90	56.00	46.00	-19.44	-11.10	P	
6	4.6579	26.11		15.44	9.90	36.01		25.34	56.00	46.00	-19.99	-20.66	P	

Neutral line:  
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1580	51.99	49.09	33.22	9.90	61.89	58.99	43.12	65.56	55.56	-6.57	-12.44	P	
2	0.1940	45.29		24.59	9.90	55.19		34.49	63.86	53.86	-8.67	-19.37	P	
3	0.2620	39.36		21.77	9.90	49.26		31.67	61.36	51.36	-12.10	-19.69	P	
4	0.4860	28.44		21.99	9.90	38.34		31.89	56.24	46.24	-17.90	-14.35	P	
5	0.9700	27.80		21.48	9.90	37.70		31.38	56.00	46.00	-18.30	-14.62	P	

Notes:

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

## Appendix H) Restricted bands around fundamental frequency /Radiated Spurious Emissions

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

**Below 1GHz test procedure as below:**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**Above 1GHz test procedure as below:**

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter( Above 18GHz the distance is 1 meter and table is 1.5 meter)..
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
- j. Repeat above procedures until all frequencies measured was complete.

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

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

### Radiated Spurious Emissions test Data:

All the modes of operation (X, Y, Z) were investigated and the worst-case emissions are reported.

#### A. Below 30MHz:

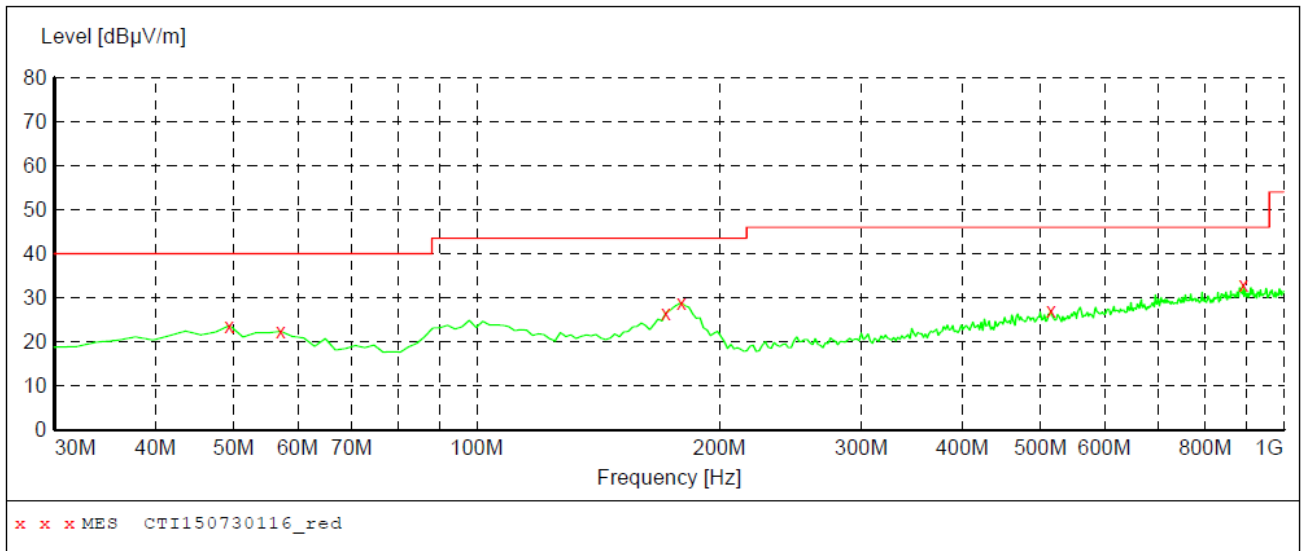
No emissions were found higher than the background below 30MHz and background is lower than the limit, so it deems to compliance with the limit without recorded.

#### B. 30MHz ~ 1GHz:

The test data of low channel, middle channel and high channel are almost same in frequency bands 30MHz to 1GHz, and the data of IEEE 802.11b are chosen as representative in below:

The all low channel, middle channel and high channel are tested, the worst-case IEEE 802.11b is reported.

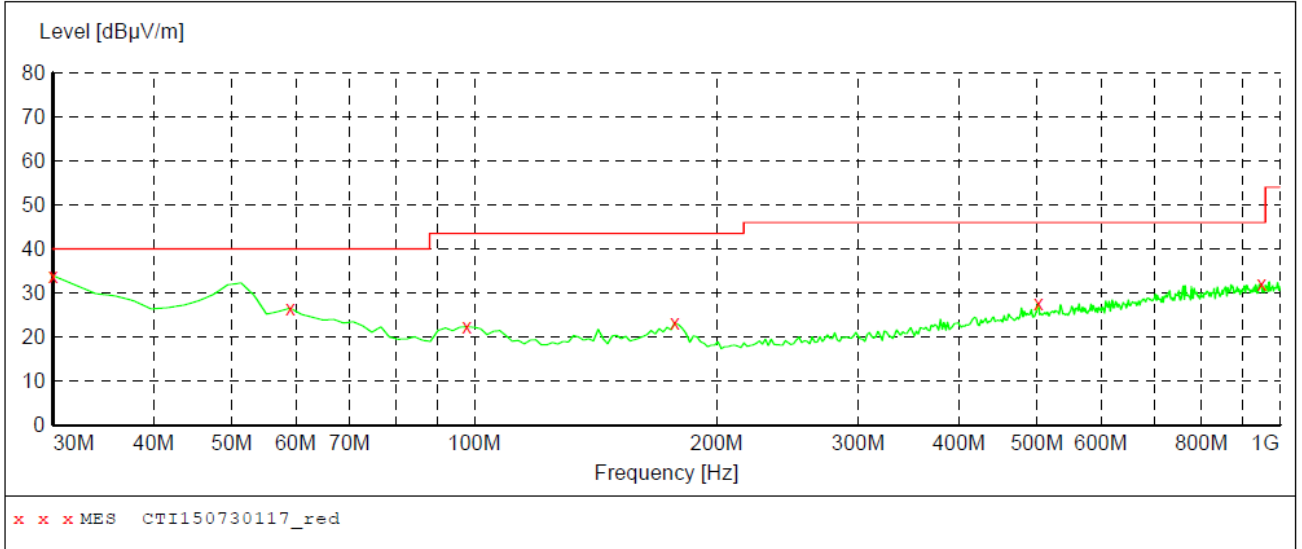
H:



Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
49.400000	23.70	16.5	40.0	16.3	---	100.0	10.00	HORIZONTAL
57.160000	22.40	15.6	40.0	17.6	---	100.0	335.00	HORIZONTAL
171.620000	26.60	12.5	43.5	16.9	---	100.0	55.00	HORIZONTAL
179.380000	28.90	12.9	43.5	14.6	---	100.0	11.00	HORIZONTAL
515.000000	27.00	21.6	46.0	19.0	---	100.0	254.00	HORIZONTAL
891.360000	32.90	26.6	46.0	13.1	---	100.0	283.00	HORIZONTAL



V:



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	33.90	13.7	40.0	6.1	---	100.0	254.00	VERTICAL
59.100000	26.60	15.3	40.0	13.4	---	100.0	242.00	VERTICAL
97.900000	22.40	14.4	43.5	21.1	---	100.0	305.00	VERTICAL
177.440000	23.20	12.8	43.5	20.3	---	100.0	146.00	VERTICAL
501.420000	27.60	21.5	46.0	18.4	---	100.0	266.00	VERTICAL
949.560000	32.00	26.7	46.0	14.0	---	100.0	346.00	VERTICAL

**C. Above 1GHz:**

IEEE 802.11b, 11Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
2390.0	36.14	74	PK	H	P
2400.0	51.47	74	PK	H	P
4824.0	46.16	74	PK	H	P
2390.0	36.41	74	PK	V	P
2400.0	50.23	74	PK	V	P
4824.0	47.09	74	PK	V	P
Middle channel (2437MHz)					
4874.0	46.01	74	PK	H	P
4874.0	46.69	74	PK	V	P
High channel (2462MHz)					
2483.5	44.66	74	PK	H	P
4924.0	46.01	74	PK	H	P
2483.5	46.71	74	PK	V	P
4924.0	46.56	74	PK	V	P

IEEE 802.11g, 6Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
2390.0	36.51	74	PK	H	P
2400.0	50.54	74	PK	H	P
4824.0	45.66	74	PK	H	P
2390.0	36.21	74	PK	V	P
2400.0	51.13	74	PK	V	P
4824.0	46.64	74	PK	V	P
Middle channel (2437MHz)					
4874.0	46.61	74	PK	H	P
4874.0	45.76	74	PK	V	P
High channel (2462MHz)					
2483.5	45.79	74	PK	H	P
4924.0	46.42	74	PK	H	P
2483.5	46.23	74	PK	V	P
4924.0	46.37	74	PK	V	P

## IEEE 802.11n HT20, 6.5Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
2390.0	36.13	74	PK	H	P
2400.0	50.55	74	PK	H	P
4824.0	45.66	74	PK	H	P
2390.0	36.42	74	PK	V	P
2400.0	50.53	74	PK	V	P
4824.0	47.76	74	PK	V	P
Middle channel (2437MHz)					
4874.0	46.63	74	PK	H	P
4874.0	46.31	74	PK	V	P
High channel (2462MHz)					
2483.5	46.03	74	PK	H	P
4924.0	47.71	74	PK	H	P
2483.5	46.43	74	PK	V	P
4924.0	47.34	74	PK	V	P

## IEEE 802.11n HT40, 13.5Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2422MHz)					
2390.0	36.21	74	PK	H	P
2400.0	51.45	74	PK	H	P
4844.0	47.14	74	PK	H	P
2390.0	36.32	74	PK	V	P
2400.0	51.44	74	PK	V	P
4844.0	48.74	74	PK	V	P
Middle channel (2437MHz)					
4874.0	48.66	74	PK	H	P
4874.0	47.61	74	PK	V	P
High channel (2452MHz)					
2483.5	46.91	74	PK	H	P
4904.0	49.43	74	PK	H	P
2483.5	45.53	74	PK	V	P
4904.0	47.61	74	PK	V	P

*Note:*

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

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

*Final Test Level = Receiver Reading - Correct Factor*

*Correct Factor = Preamplifier Factor - Antenna Factor - Cable Factor*

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

### PHOTOGRAPHS OF TEST SETUP



**Radiated spurious emission Test Setup-1(Below 1GHz)**



**Radiated spurious emission Test Setup-2(Above 1GHz)**



**Conducted emission Test Setup**

### PHOTOGRAPHS OF EUT Constructional Details



View of General Product-1



View of External Product-1



View of External Product-2



View of External Product-3





View of External Product-4



View of External Product-5



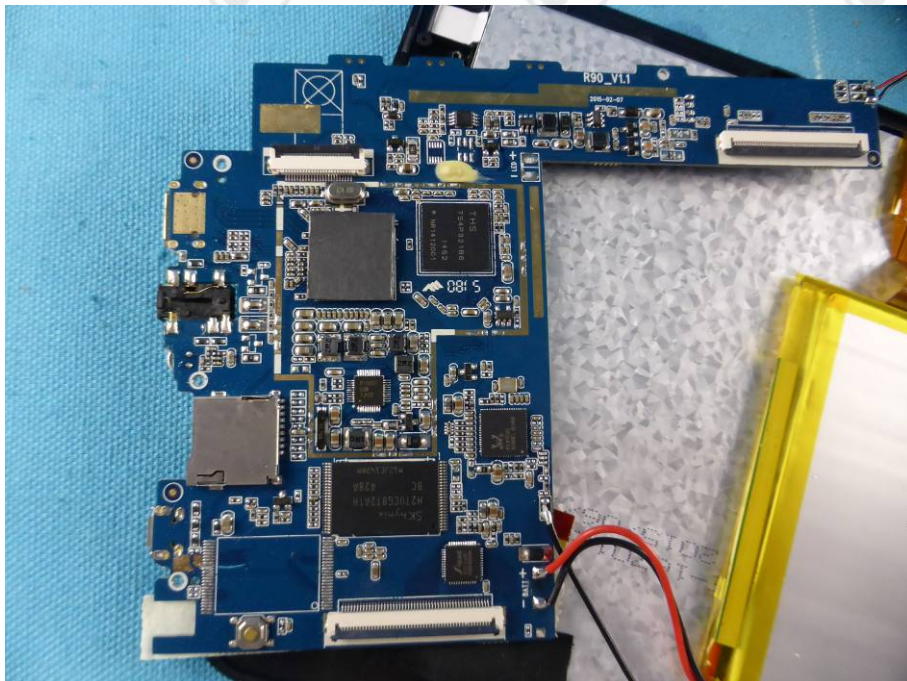
View of External Product-6



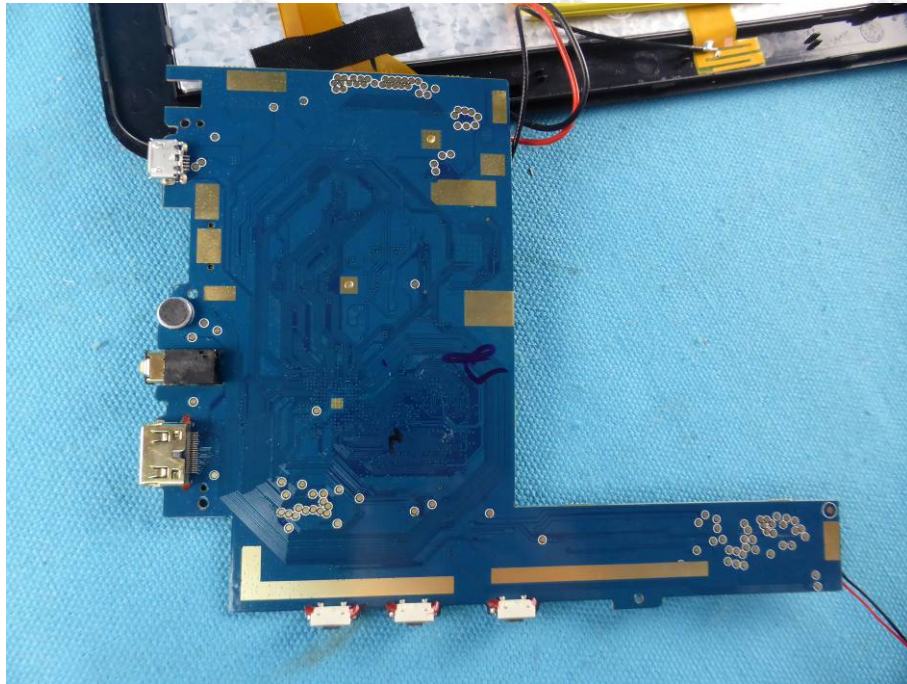
View of Internal Product-1



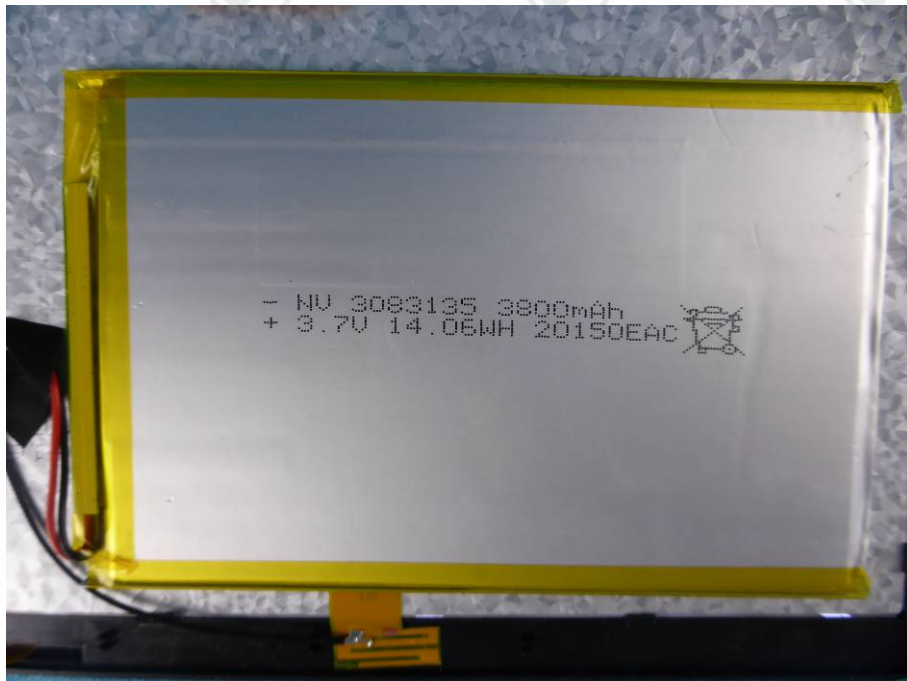
View of Internal Product-2



View of Internal Product-3



View of Internal Product-4



View of Internal Product-5

\*\*\* End of Report \*\*\*

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