

## TEST REPORT

**Product** : 8"Tablet PC  
**Trade mark** : DragonTouch, KINGPAD, KINGSLIM, AKASO  
**Model/Type reference** : S8, S80, S8 PLUS, S8 PRO, S8X, S8 KIDS  
**Serial Number** : N/A  
**Report Number** : EED32100213902  
**FCC ID** : S5V-D08S80  
**Date of Issue** : Aug. 24, 2016  
**Test Standards** : 47 CFR Part 15 Subpart C (2015)  
**Test result** : PASS

Prepared for:

**Proexpress Distributor LLC**  
**11011 GREENWOOD AVE.N APT 5,SEATTLE,WA 98103**

Prepared by:

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Aug. 24, 2016



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Check No.: 2384337805

## 2 Version

Version No.	Date	Description
00	Aug. 24, 2016	Original

### 3 Test Summary

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

Remark:

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

The tested sample and the sample information are provided by the client.

Model No.: S8, S80, S8 PLUS, S8 PRO, S8X, S8 KIDS

Only the model S8 was tested, since the PCB, Schematic, Hardware etc were identical for the above models, S8, S80, S8 PLUS, S8 PRO, S8X, S8 KIDS are named differently due to difference agent and marketing purposes.

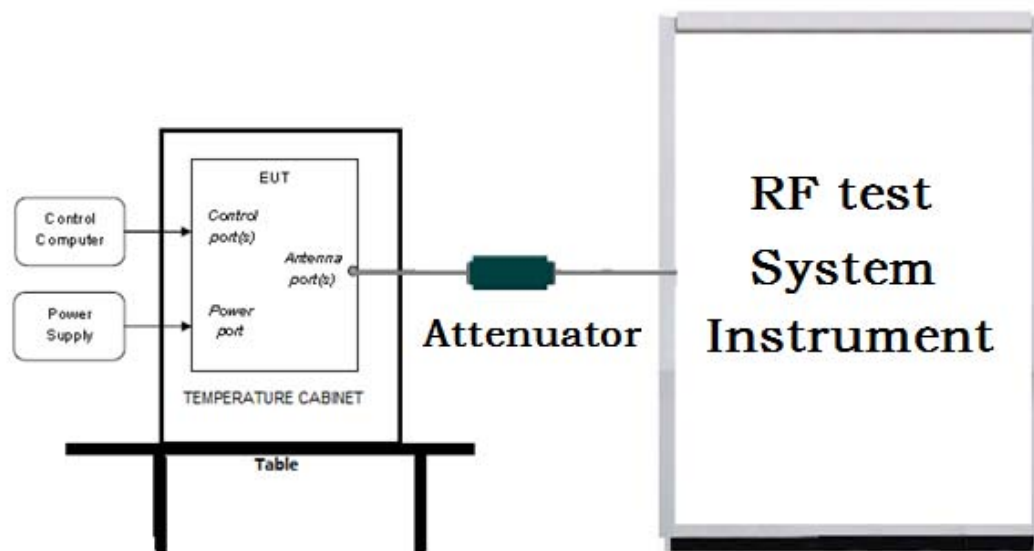
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

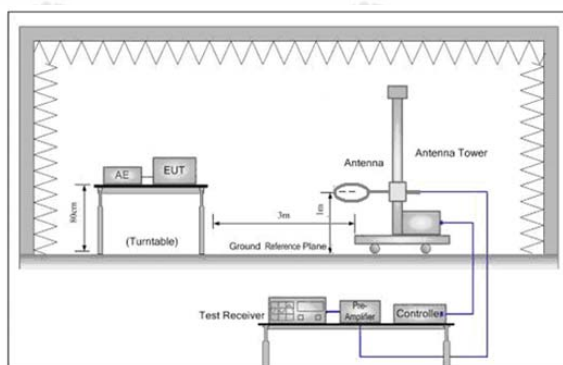


Figure 1. Below 30MHz

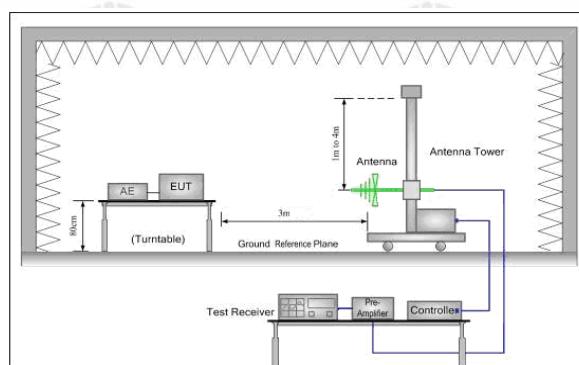


Figure 2. 30MHz to 1GHz

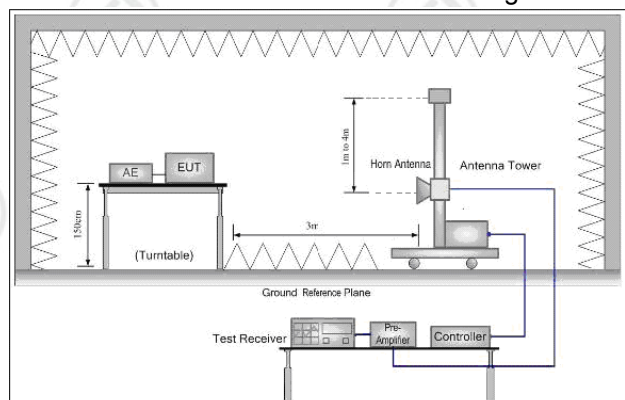
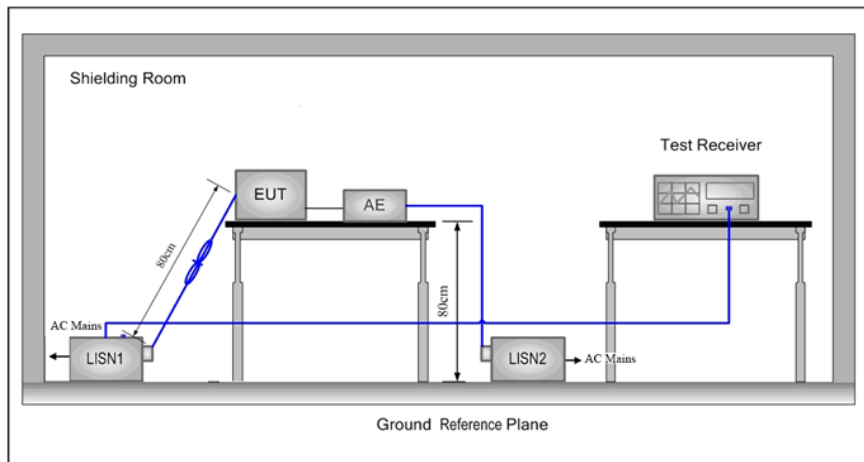


Figure 3. Above 1GHz



### 5.1.3 For Conducted Emissions test setup

#### Conducted Emissions setup



## 5.2 Test Environment

#### Operating Environment:

Temperature:	21 °C
Humidity:	54% 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
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 highest channel 11

Scan under all rate at highest channel 11								
Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	7.81	7.88	7.90	7.91				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	6.88	6.85	6.81	6.81	6.59	6.55	6.54	6.31
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	6.28	6.25	6.22	6.19	6.15	6.13	6.10	6.01

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).

## 6 General Information

### 6.1 Client Information

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

### 6.2 General Description of EUT

Product Name:	8"Tablet PC
Mode No.:	S8, S80, S8 PLUS, S8 PRO, S8X, S8 KIDS
Test Mode No.:	S8
Trade Mark:	DragonTouch, KINGPAD, KINGSLIM, AKASO
EUT Supports Radios application:	Wlan 2.4GHz 802.11b/g/n(HT20)
AC adapter:	Model: UBP-623-052000 Input: 100-240VAC 50/60Hz Output: DC 5V $\overline{\sim}$ 2000mA
USB Line:	100cm(Unshield)
Sample Received Date:	Jul. 27, 2016
Sample tested Date:	Jul. 27, 2016 to Aug. 24, 2016

### 6.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 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) : OFDM (64QAM, 16QAM, QPSK,BPSK)
Sample Type:	Portable production
Test Power Grade:	802.11b: 10; 802.11g: 4; 802.11n(HT20): 3 (manufacturer declare )
Test Software of EUT:	SoFia RFTTestTool V1.1 (manufacturer declare )
Antenna Type:	PIFA antenna
Antenna Gain:	2dBi
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		

### 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 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	$7.9 \times 10^{-8}$
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	04-01-2016	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
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	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	00057407	07-20-2015	07-18-2018
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/070/10711 112	---	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	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
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

### Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10	Power Spectral Density	PASS	Appendix E)
Part15C Section 15.203/15.247 (c)	ANSI C63.10	Antenna Requirement	PASS	Appendix F)
Part15C Section 15.207	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix G)
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix H)
Part15C Section 15.205/15.209	ANSI C63.10	Radiated Spurious Emissions	PASS	Appendix I)

## Appendix A): Conducted Peak Output Power

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	6.78	PASS
11B	MCH	7.13	PASS
11B	HCH	7.91	PASS
11G	LCH	6.08	PASS
11G	MCH	6.06	PASS
11G	HCH	6.88	PASS
11N20SISO	LCH	5.42	PASS
11N20SISO	MCH	5.51	PASS
11N20SISO	HCH	6.28	PASS

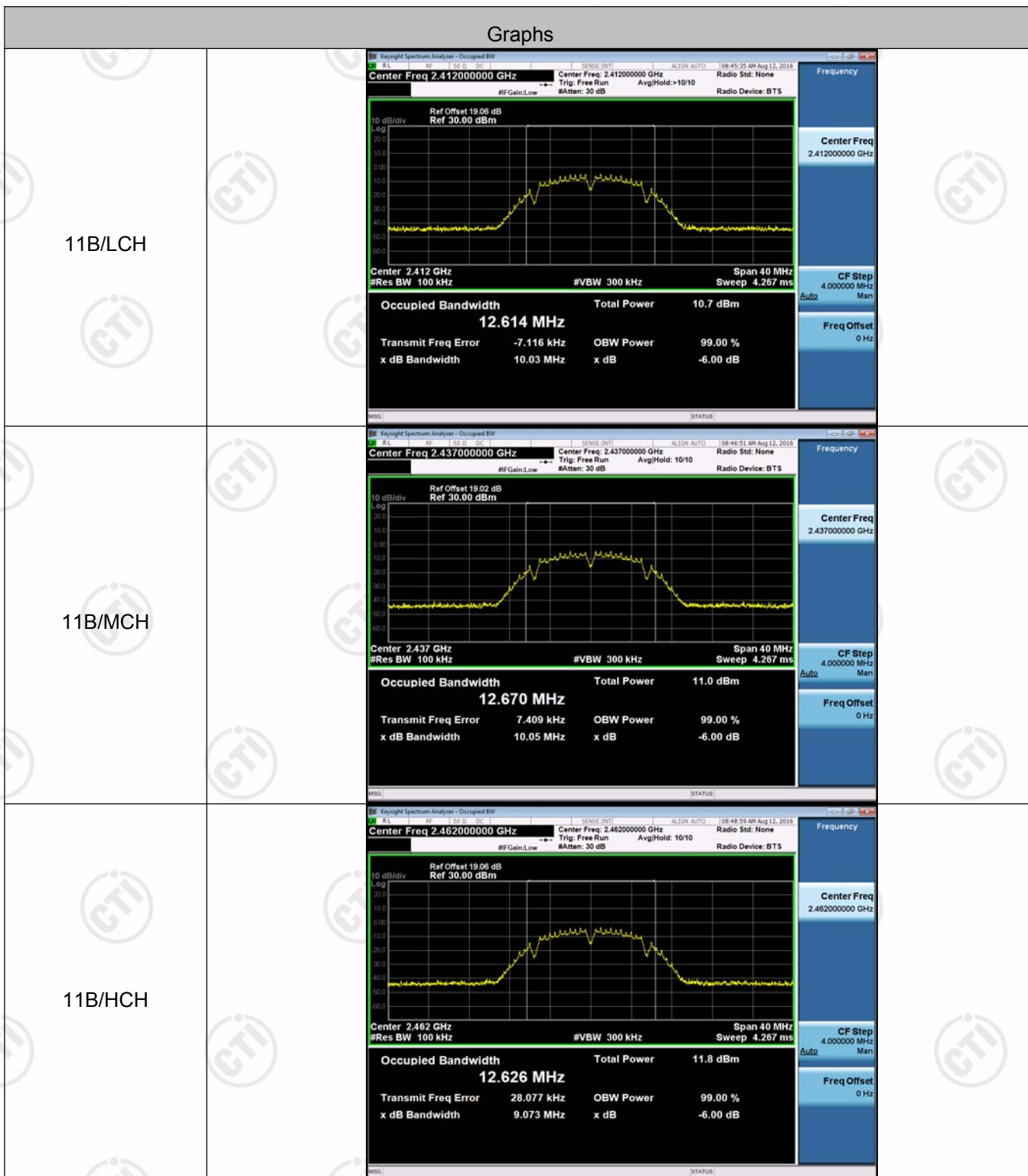


## Appendix B): 6dB Occupied Bandwidth

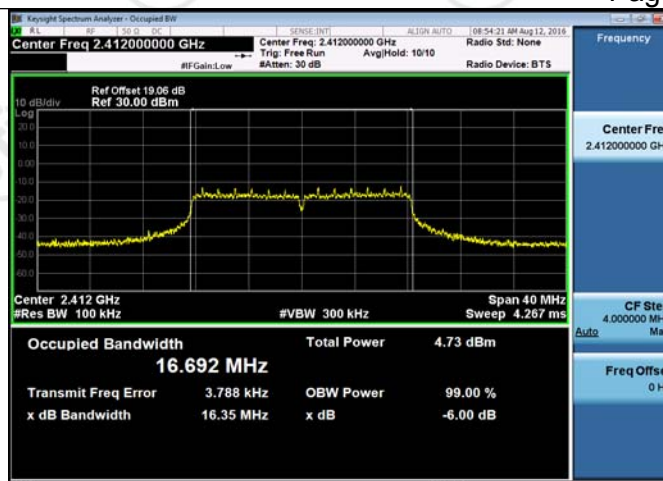
**Result Table**

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	10.03	12.614	PASS	Peak detector
11B	MCH	10.05	12.670	PASS	
11B	HCH	9.073	12.626	PASS	
11G	LCH	16.35	16.692	PASS	
11G	MCH	16.34	16.759	PASS	
11G	HCH	16.33	16.724	PASS	
11N20SISO	LCH	17.58	17.882	PASS	
11N20SISO	MCH	17.57	17.903	PASS	
11N20SISO	HCH	17.56	17.878	PASS	

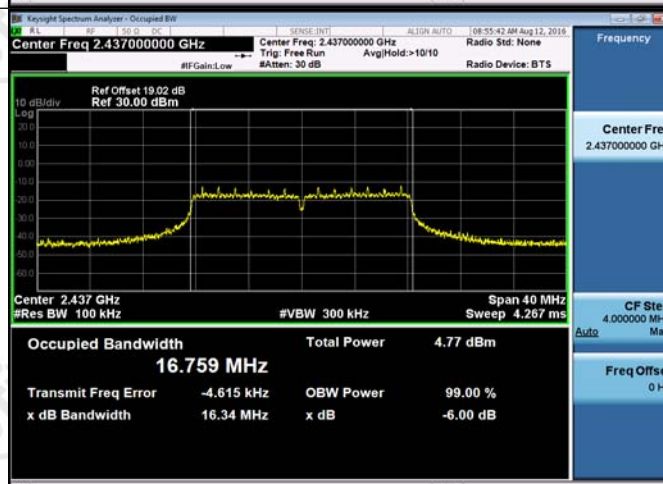
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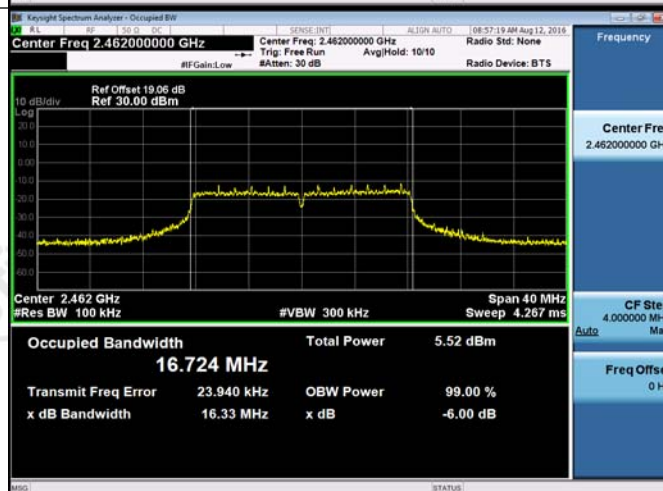
11G/LCH

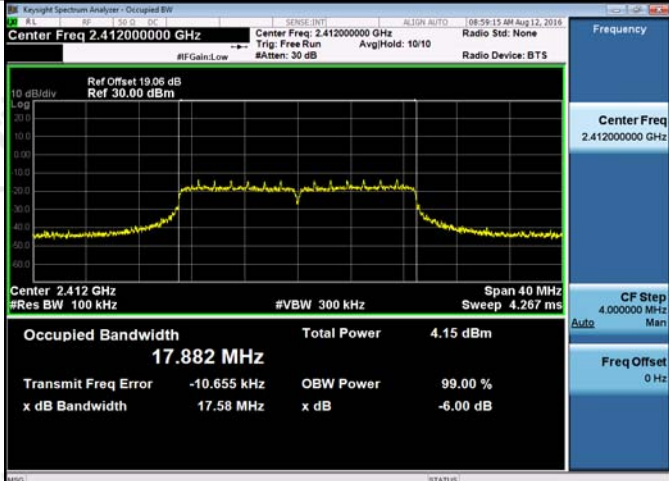
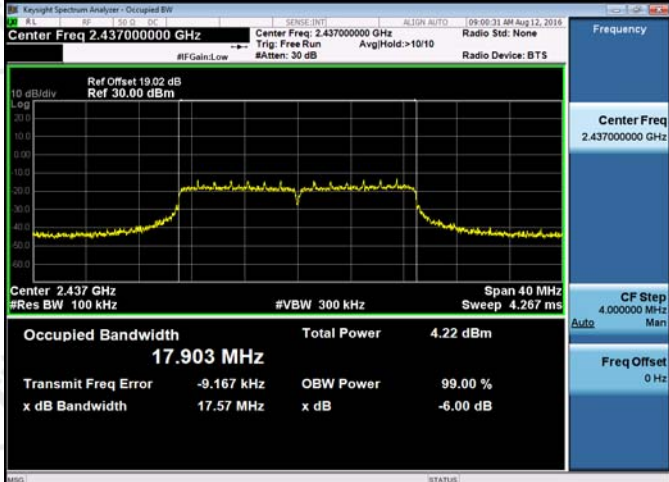
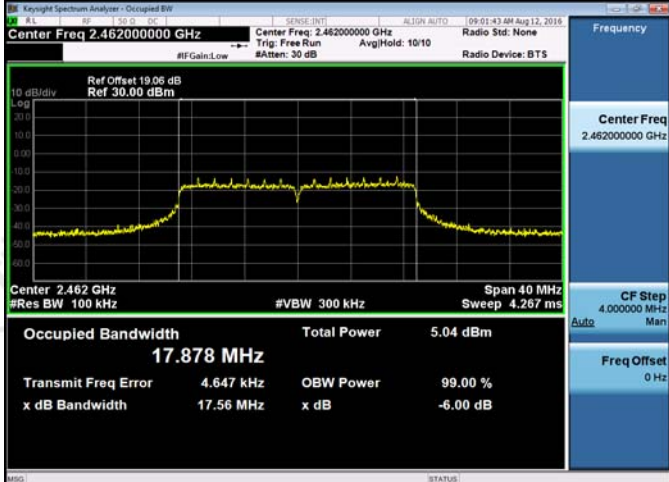


11G/MCH



11G/HCH



11N20SISO/LCH	 <p>Key: KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz</p> <p>Ref Offset: 19.00 dB Ref: 30.00 dBm</p> <p>Center: 2.412 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 40 MHz Sweep: 4.267 ms</p> <p>Occupied Bandwidth: 17.882 MHz</p> <p>Total Power: 4.15 dBm</p> <p>Transmit Freq Error: -10.655 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 17.58 MHz</p> <p>x dB: -6.00 dB</p>
11N20SISO/MCH	 <p>Key: KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz</p> <p>Ref Offset: 19.00 dB Ref: 30.00 dBm</p> <p>Center: 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 40 MHz Sweep: 4.267 ms</p> <p>Occupied Bandwidth: 17.903 MHz</p> <p>Total Power: 4.22 dBm</p> <p>Transmit Freq Error: -9.167 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 17.57 MHz</p> <p>x dB: -6.00 dB</p>
11N20SISO/HCH	 <p>Key: KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz</p> <p>Ref Offset: 19.00 dB Ref: 30.00 dBm</p> <p>Center: 2.462 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 40 MHz Sweep: 4.267 ms</p> <p>Occupied Bandwidth: 17.878 MHz</p> <p>Total Power: 5.04 dBm</p> <p>Transmit Freq Error: 4.647 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 17.56 MHz</p> <p>x dB: -6.00 dB</p>

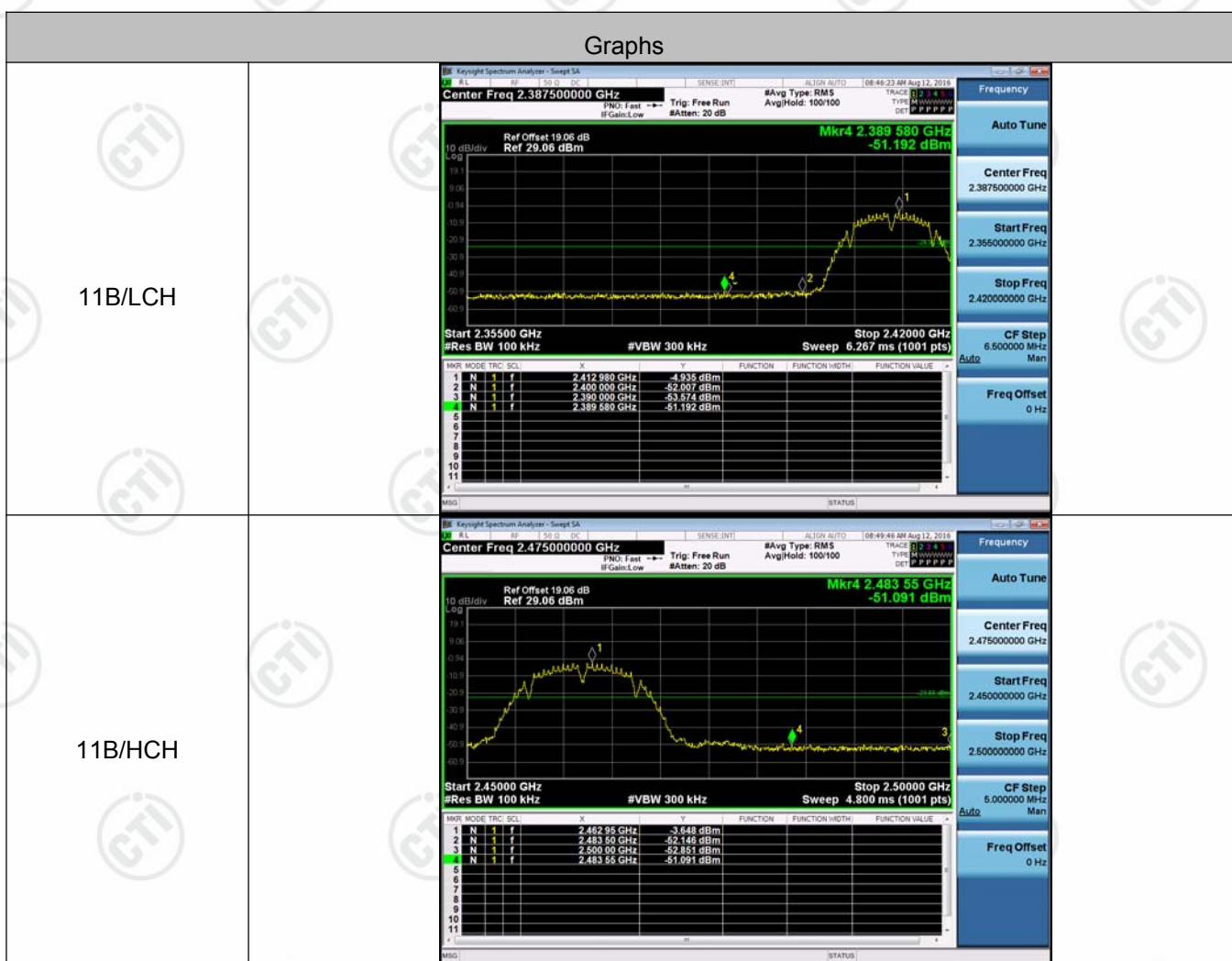


## Appendix C): Band-edge for RF Conducted Emissions



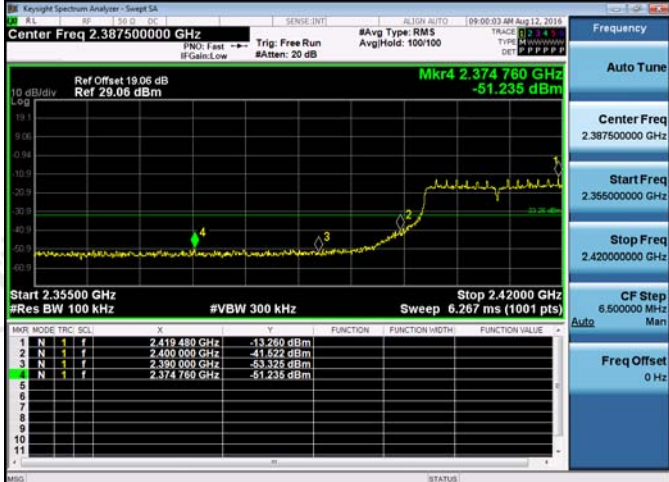
Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-4.935	-51.192	-24.94	PASS
11B	HCH	-3.648	-51.091	-23.65	PASS
11G	LCH	-12.458	-51.324	-32.46	PASS
11G	HCH	-11.407	-50.336	-31.41	PASS
11N20SISO	LCH	-13.260	-51.235	-33.26	PASS
11N20SISO	HCH	-12.396	-50.427	-32.4	PASS

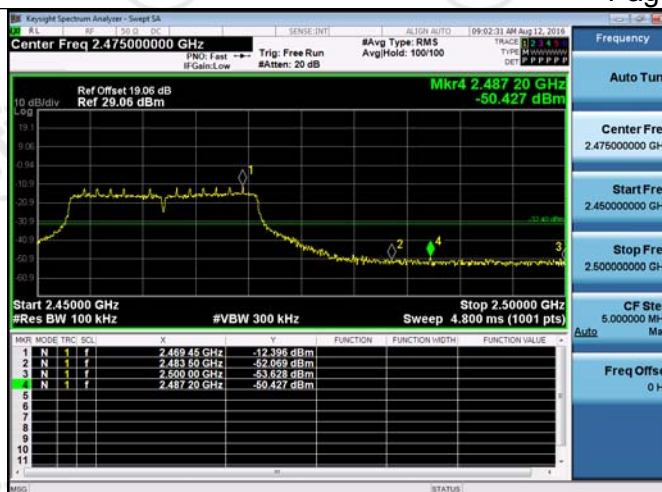
Test Graph





11G/LCH	 <p>Key parameters for 11G/LCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.387500000 GHz</li> <li>Start Freq: 2.355000000 GHz</li> <li>Stop Freq: 2.420000000 GHz</li> <li>CF Step: 6.500000 MHz</li> <li>Freq Offset: 0 Hz</li> </ul>
11G/HCH	 <p>Key parameters for 11G/HCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.475000000 GHz</li> <li>Start Freq: 2.450000000 GHz</li> <li>Stop Freq: 2.500000000 GHz</li> <li>CF Step: 5.000000 MHz</li> <li>Freq Offset: 0 Hz</li> </ul>
11N20SISO/LCH	 <p>Key parameters for 11N20SISO/LCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.387500000 GHz</li> <li>Start Freq: 2.355000000 GHz</li> <li>Stop Freq: 2.420000000 GHz</li> <li>CF Step: 6.500000 MHz</li> <li>Freq Offset: 0 Hz</li> </ul>

11N20SISO/HCH

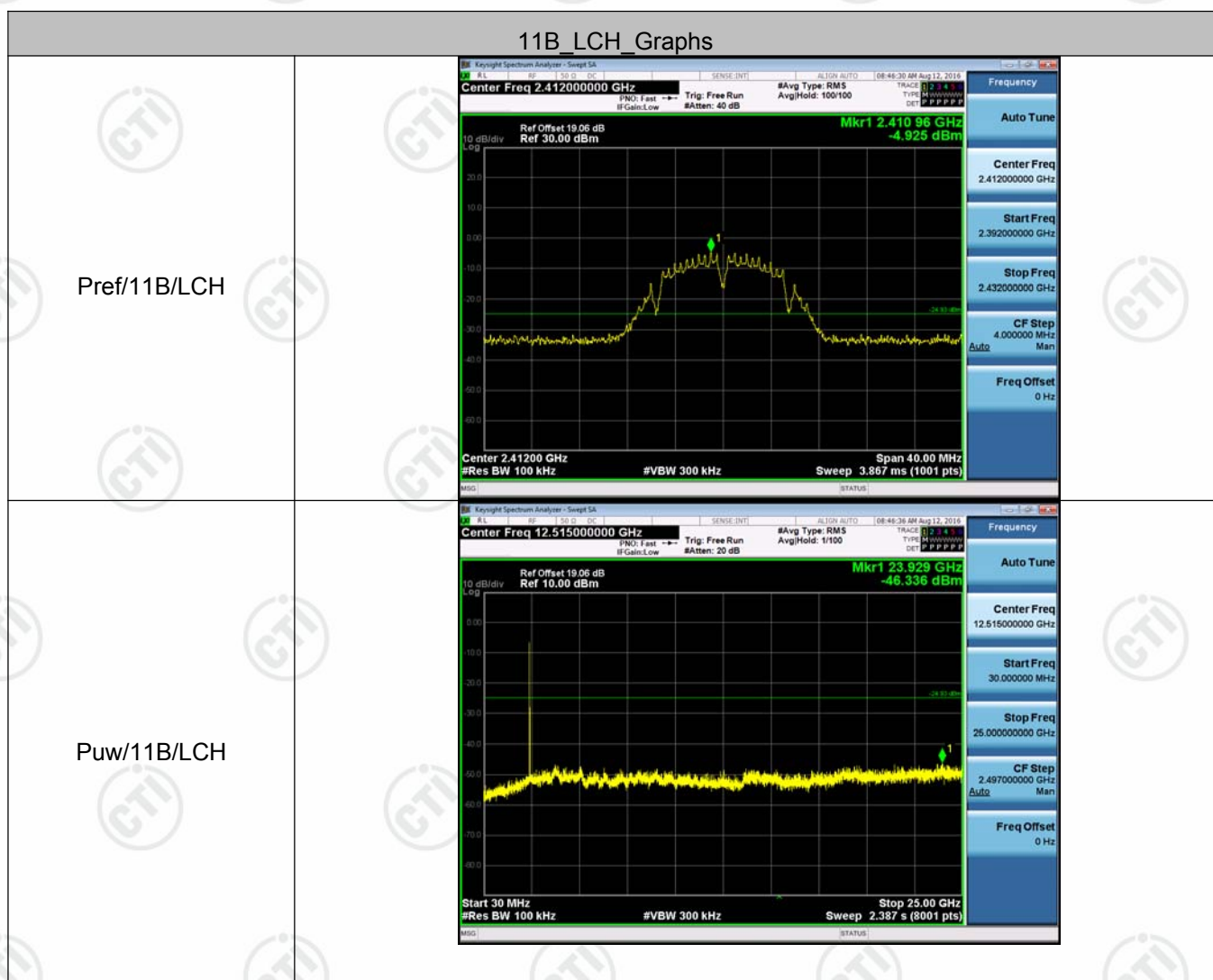


## Appendix D): RF Conducted Spurious Emissions

Result Table

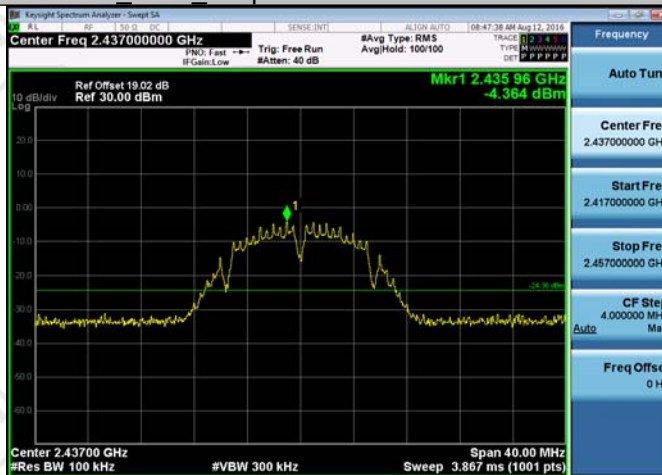
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	-4.925	<Limit	PASS
11B	MCH	-4.364	<Limit	PASS
11B	HCH	-3.708	<Limit	PASS
11G	LCH	-12.229	<Limit	PASS
11G	MCH	-12.275	<Limit	PASS
11G	HCH	-11.995	<Limit	PASS
11N20SISO	LCH	-13.321	<Limit	PASS
11N20SISO	MCH	-13.103	<Limit	PASS
11N20SISO	HCH	-12.334	<Limit	PASS

Test Graph

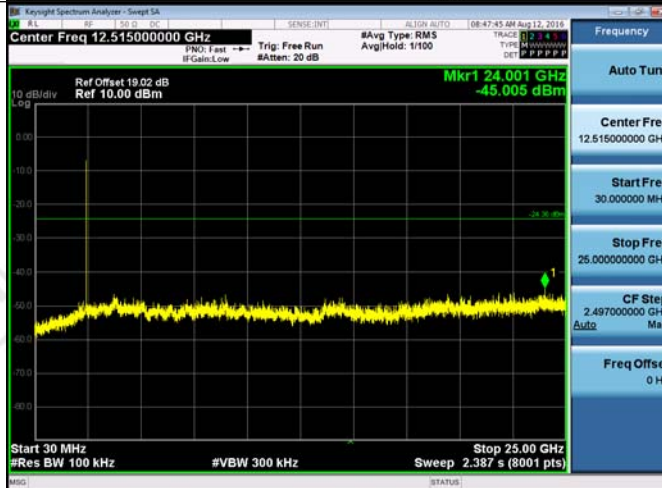


### 11B\_MCH\_Graphs

Pref/11B/MCH

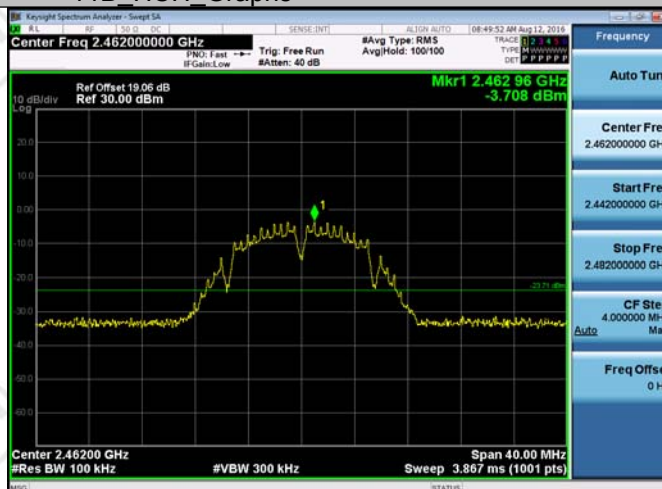


Puw/11B/MCH



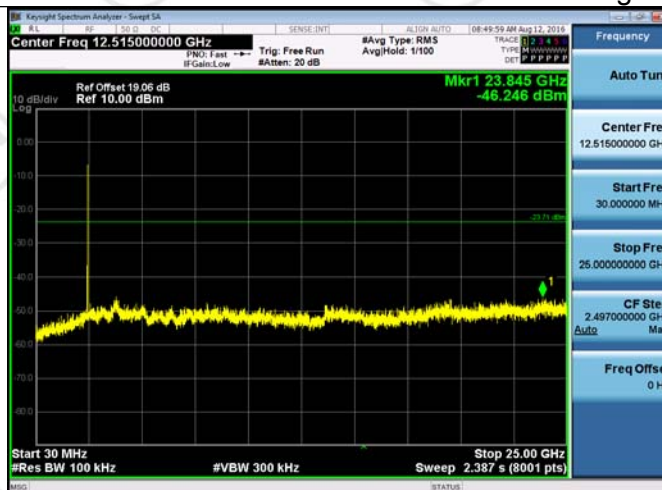
### 11B\_HCH\_Graphs

Pref/11B/HCH



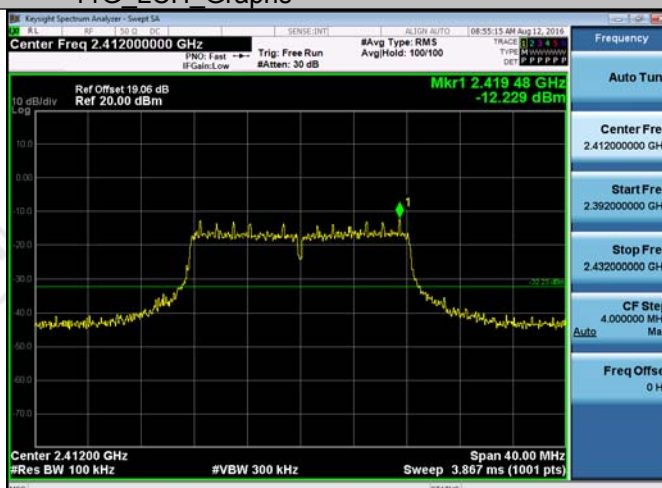


Puw/11B/HCH

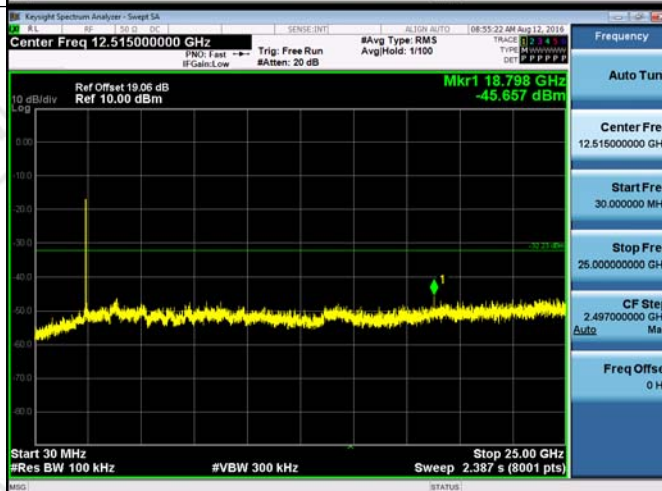


### 11G LCH Graphs

Pref/11G/LCH



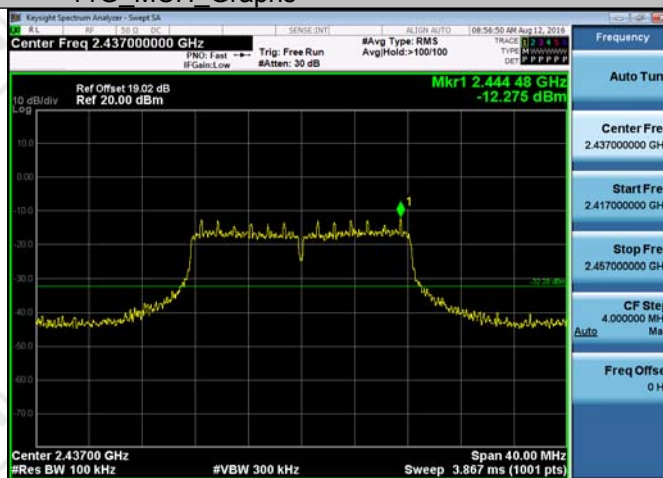
Puw/11G/LCH



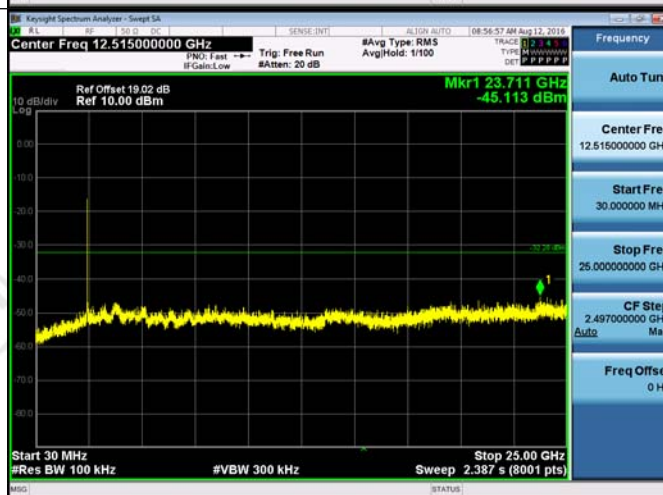


### 11G\_MCH\_Graphs

Pref/11G/MCH

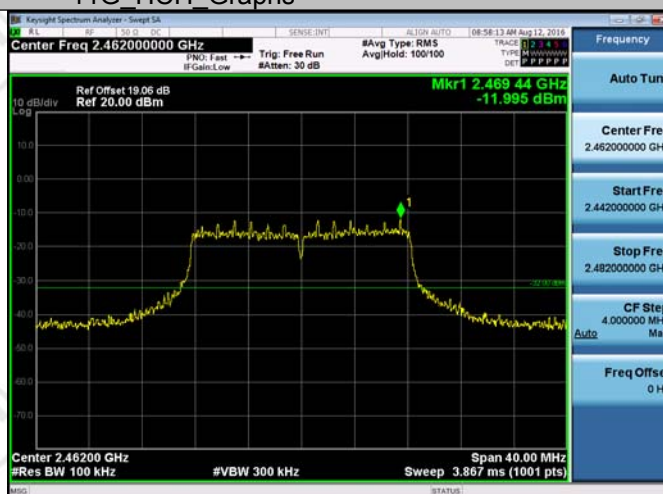


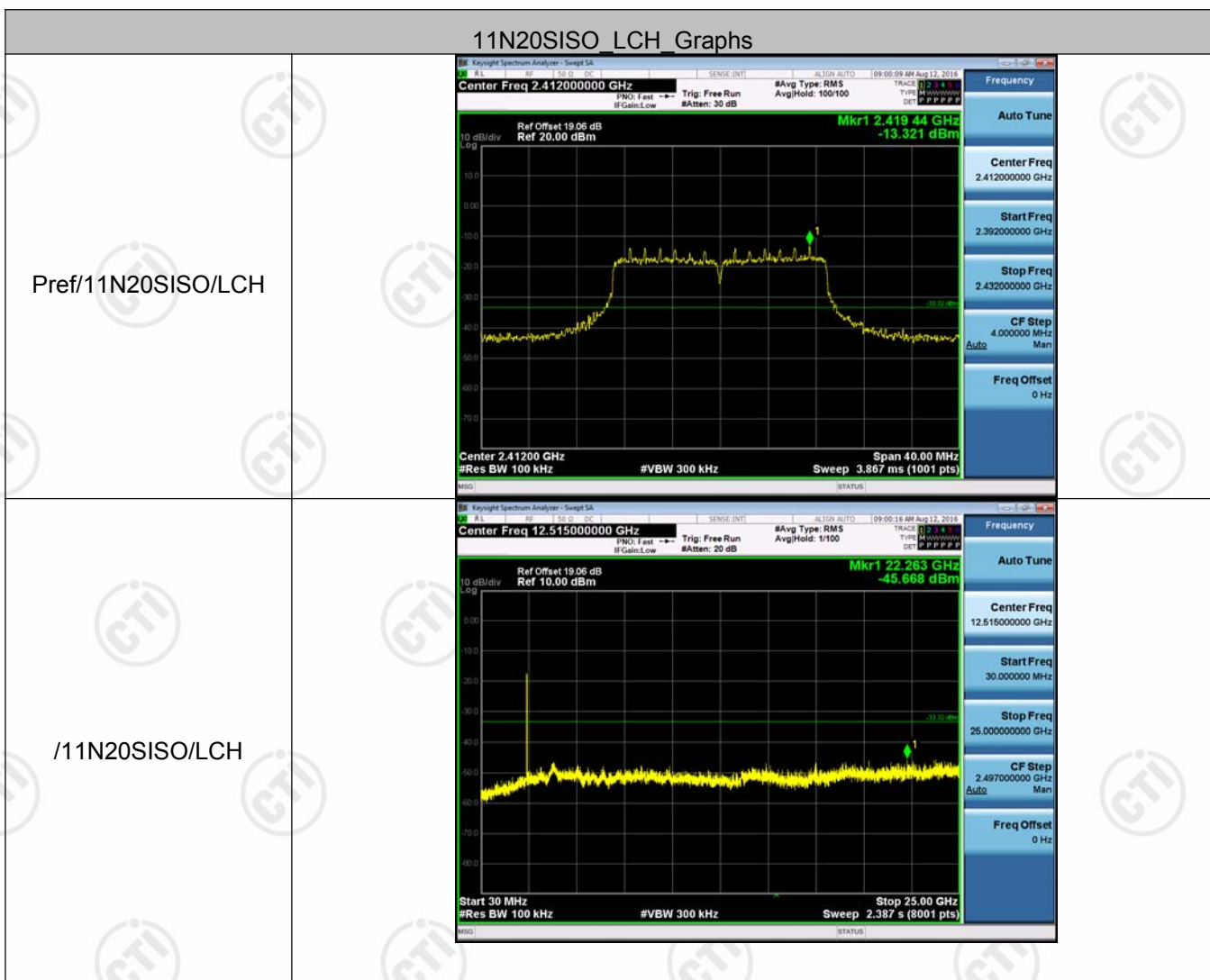
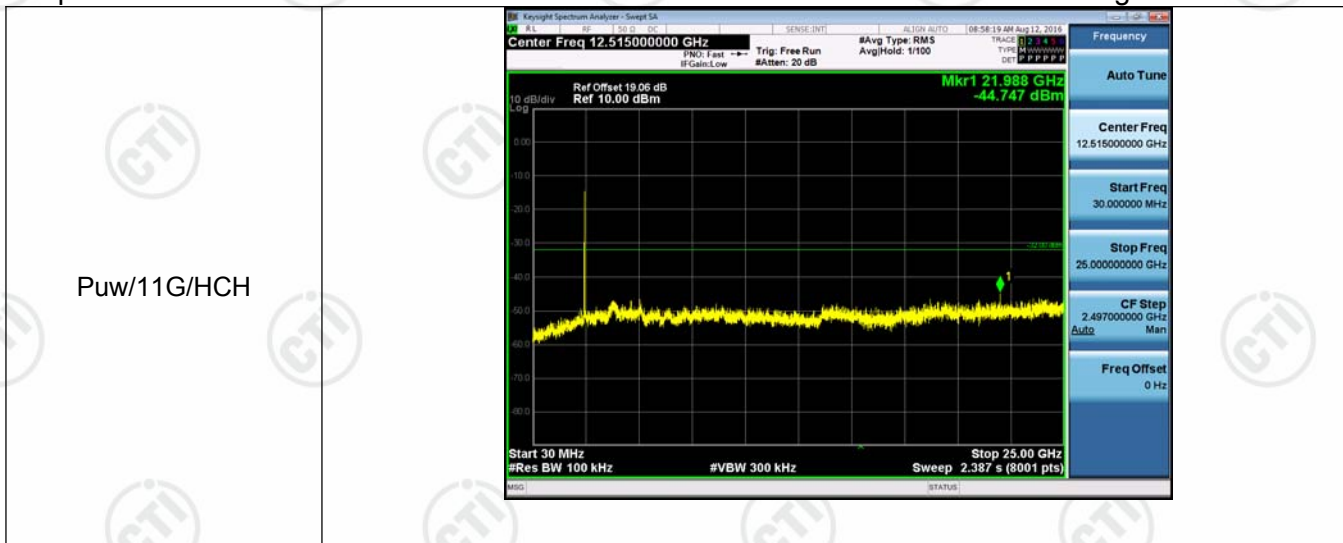
Puw/11G/MCH



### 11G\_HCH\_Graphs

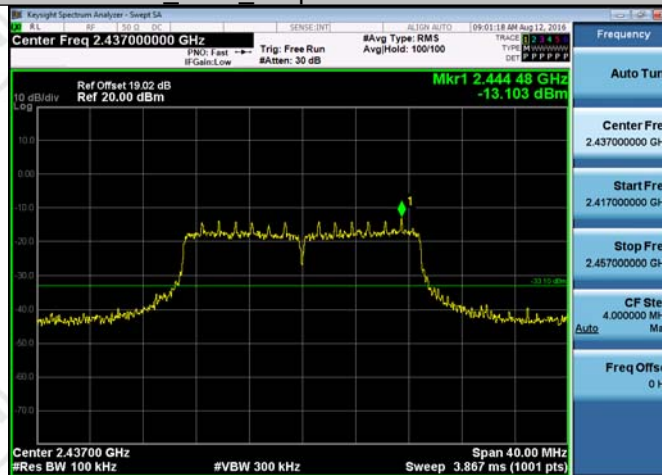
Pref/11G/HCH



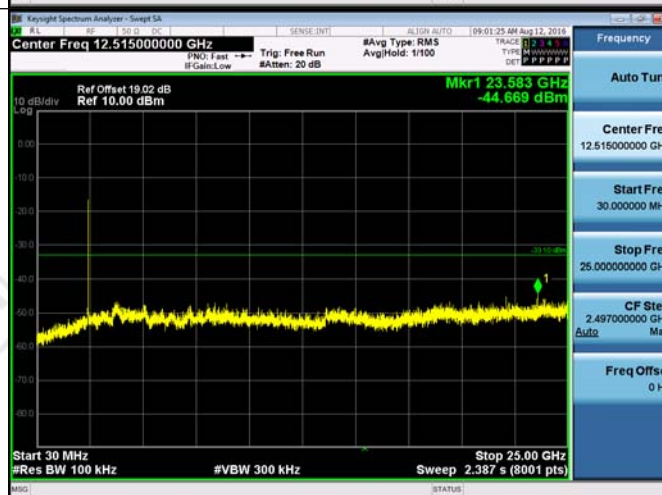


### 11N20SISO MCH\_Graphs

Pref/11N20SISO/MCH

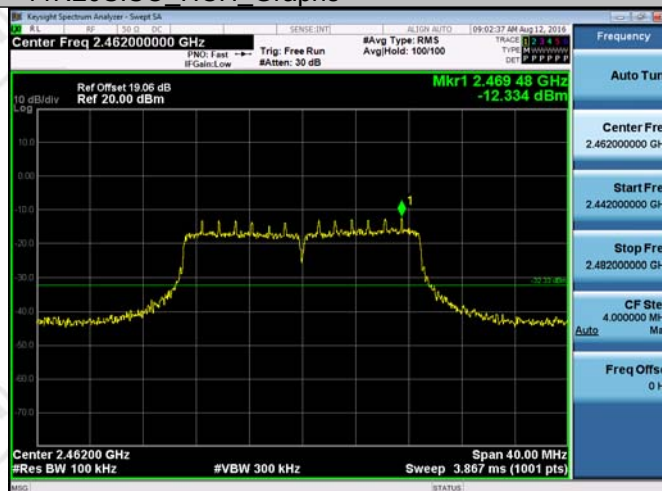


Puw/11N20SISO/MCH

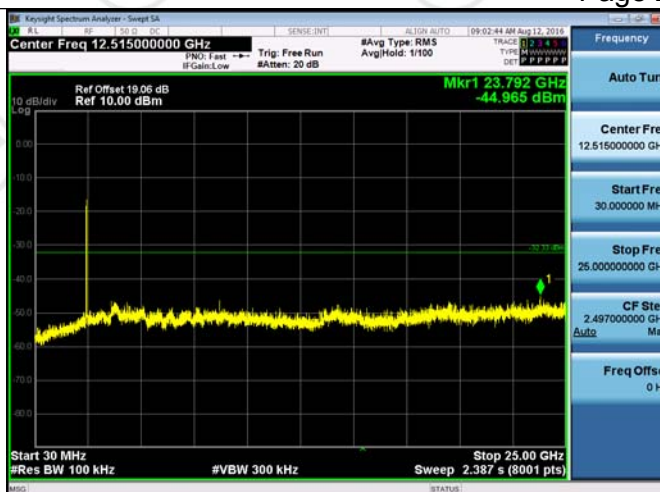


### 11N20SISO HCH\_Graphs

Pref/11N20SISO/HCH



Puw/11N20SISO/HCH





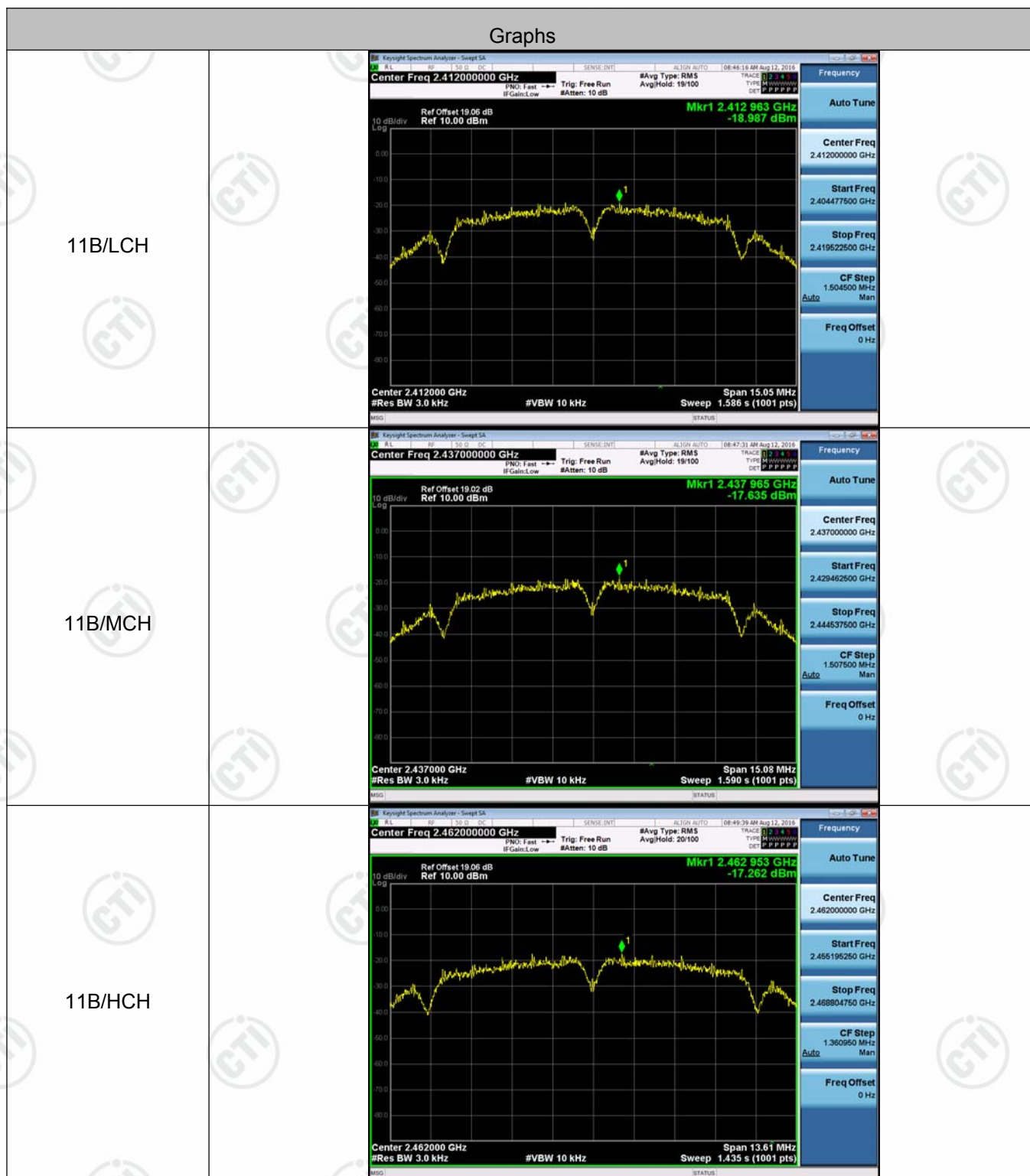
## Appendix E): Power Spectral Density

**Result Table**

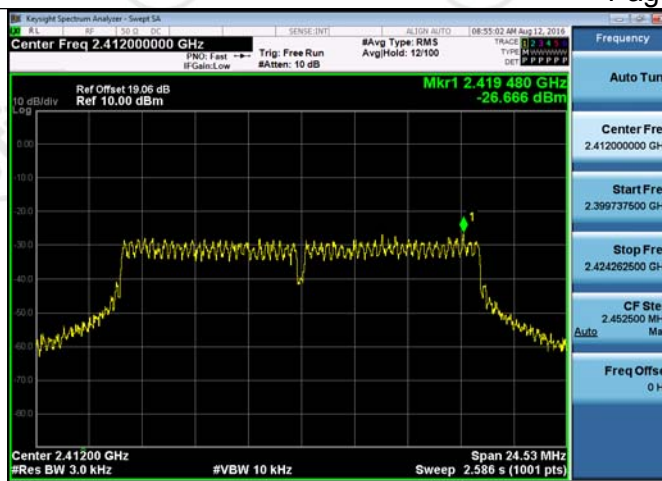
Mode	Channel	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	LCH	-18.987	8	PASS
11B	MCH	-17.635	8	PASS
11B	HCH	-17.262	8	PASS
11G	LCH	-26.666	8	PASS
11G	MCH	-26.955	8	PASS
11G	HCH	-26.117	8	PASS
11N20SISO	LCH	-28.420	8	PASS
11N20SISO	MCH	-28.174	8	PASS
11N20SISO	HCH	-27.046	8	PASS



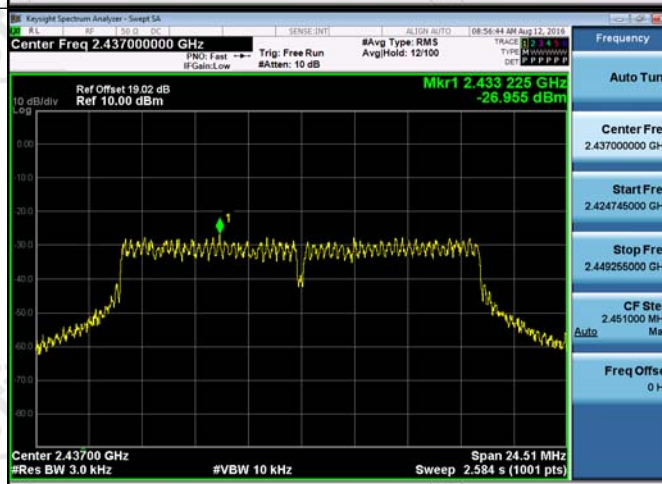
## Test Graph



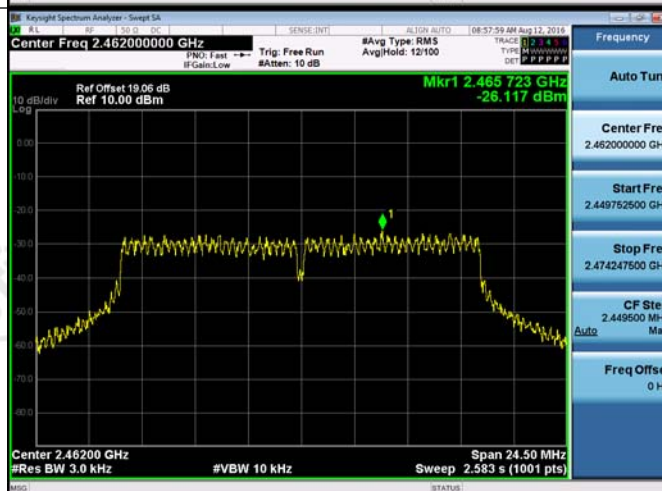
11G/LCH

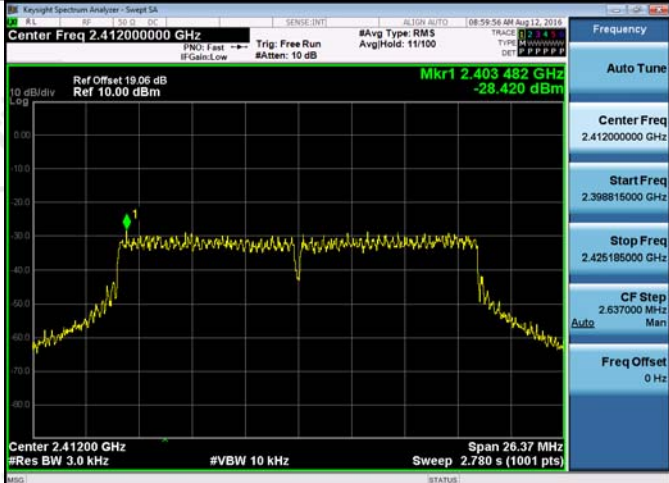
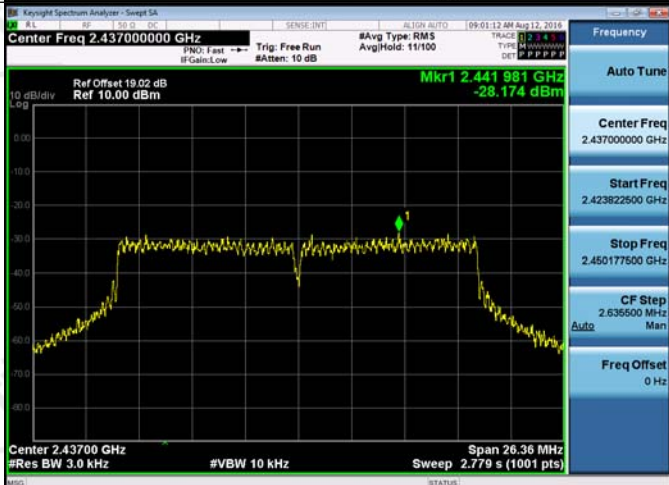
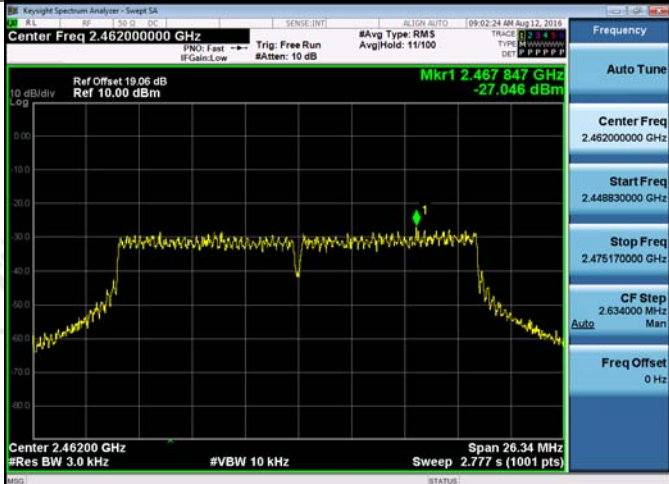


11G/MCH



11G/HCH



11N20SISO/LCH	 <p>Key parameters for 11N20SISO/LCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.41200000 GHz</li> <li>Start Freq: 2.398815000 GHz</li> <li>Stop Freq: 2.425185000 GHz</li> <li>CF Step: 2.637000 MHz</li> <li>Freq Offset: 0 Hz</li> <li>Center Freq (Mkr1): 2.403482 GHz</li> <li>Level (Mkr1): -28.420 dBm</li> </ul>
11N20SISO/MCH	 <p>Key parameters for 11N20SISO/MCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.43700000 GHz</li> <li>Start Freq: 2.423822500 GHz</li> <li>Stop Freq: 2.450177500 GHz</li> <li>CF Step: 2.635500 MHz</li> <li>Freq Offset: 0 Hz</li> <li>Center Freq (Mkr1): 2.441981 GHz</li> <li>Level (Mkr1): -28.174 dBm</li> </ul>
11N20SISO/HCH	 <p>Key parameters for 11N20SISO/HCH:</p> <ul style="list-style-type: none"> <li>Center Freq: 2.46200000 GHz</li> <li>Start Freq: 2.448830000 GHz</li> <li>Stop Freq: 2.475170000 GHz</li> <li>CF Step: 2.634000 MHz</li> <li>Freq Offset: 0 Hz</li> <li>Center Freq (Mkr1): 2.467847 GHz</li> <li>Level (Mkr1): -27.046 dBm</li> </ul>



## 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 PIFA antenna and no consideration of replacement. The best case gain of the antenna is 2dBi.





## Appendix G): AC Power Line Conducted Emission

Test Procedure:	<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>															
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dB<math>\mu</math>V)</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> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. NOTE : The lower limit is applicable at the transition frequency</p>		Frequency range (MHz)	Limit (dB $\mu$ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dB $\mu$ V)															
	Quasi-peak	Average														
0.15-0.5	66 to 56*	56 to 46*														
0.5-5	56	46														
5-30	60	50														

### Measurement Data

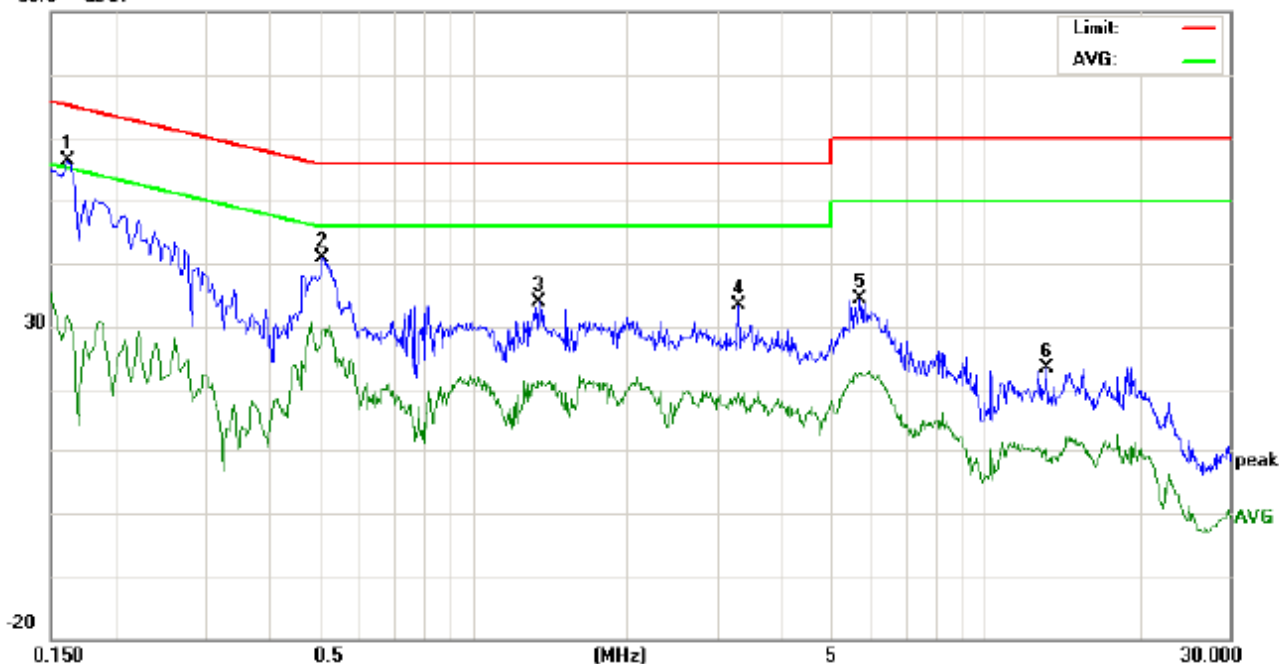
An initial pre-scan was performed on the live and neutral lines with peak detector.

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

AC 120V/60Hz

Live line:

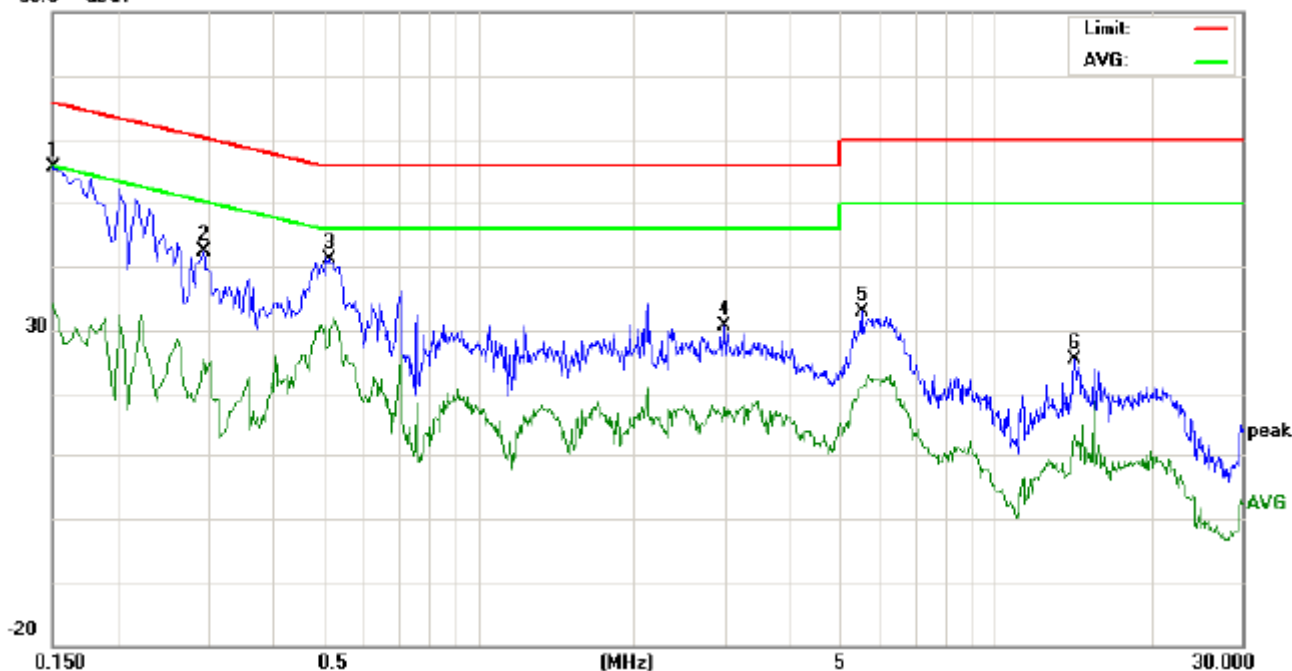
90.0 dBuV



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	0.1620	46.68		21.94	9.80	56.48		31.74	65.36	55.36	-8.88	-23.62	P	
2	0.5100	30.89		19.50	9.90	40.79		29.40	56.00	46.00	-15.21	-16.60	P	
3	1.3460	23.88		10.88	10.00	33.88		20.88	56.00	46.00	-22.12	-25.12	P	
4	3.2940	23.36		9.29	10.00	33.36		19.29	56.00	46.00	-22.64	-26.71	P	
5	5.7060	24.43		12.62	10.00	34.43		22.62	60.00	50.00	-25.57	-27.38	P	
6	13.1820	13.31		0.46	10.06	23.37		10.52	60.00	50.00	-36.63	-39.48	P	

Neutral line:

90.0 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	45.78		24.32	9.80	55.58		34.12	65.99	55.99	-10.41	-21.87	P	
2	0.2940	32.48		15.62	9.80	42.28		25.42	60.41	50.41	-18.13	-24.99	P	
3	0.5140	31.25		17.79	9.90	41.15		27.69	56.00	46.00	-14.85	-18.31	P	
4	3.0020	20.65		8.00	10.00	30.65		18.00	56.00	46.00	-25.35	-28.00	P	
5	5.5060	22.98		11.23	10.00	32.98		21.23	60.00	50.00	-27.02	-28.77	P	
6	14.2540	15.24		3.30	10.08	25.32		13.38	60.00	50.00	-34.68	-36.62	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.

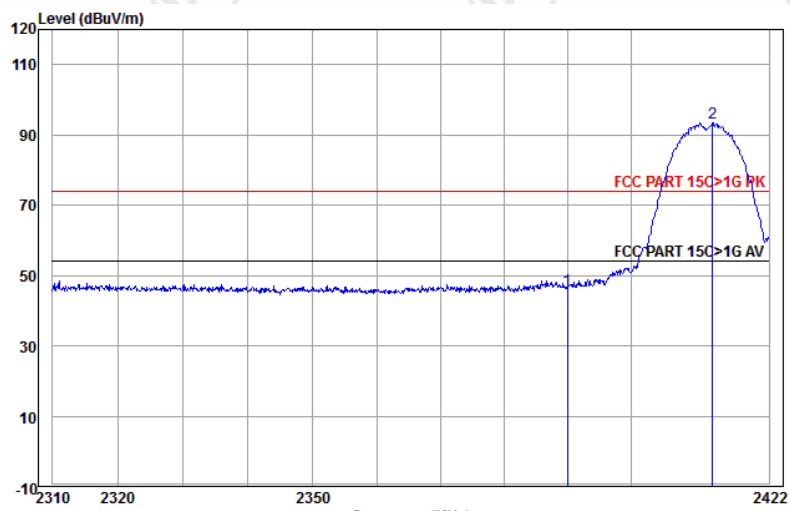
## Appendix H): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Test Procedure:	<p><b>Below 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>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.</li> <li>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 and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> </ol> <p><b>Above 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter( Above 18GHz the distance is 1 meter and table is 1.5 meter).</li> <li>Test the EUT in the lowest channel , the Highest channel</li> <li>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.</li> <li>Repeat above procedures until all frequencies measured was complete.</li> </ol>				
Limit:	Frequency	Limit (dBμV/m @3m)		Remark	
	30MHz-88MHz	40.0		Quasi-peak Value	
	88MHz-216MHz	43.5		Quasi-peak Value	
	216MHz-960MHz	46.0		Quasi-peak Value	
	960MHz-1GHz	54.0		Quasi-peak Value	
	Above 1GHz	54.0		Average Value	
		74.0		Peak Value	



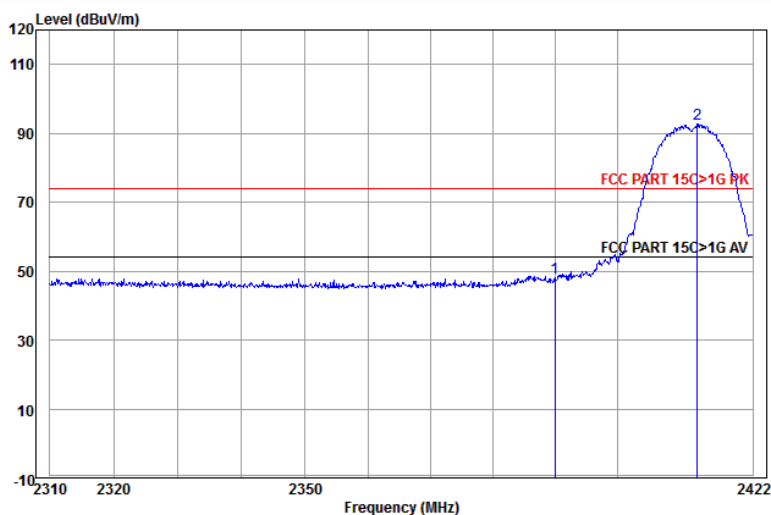
**Test plot as follows:**

Worse case mode:	802.11b (11Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



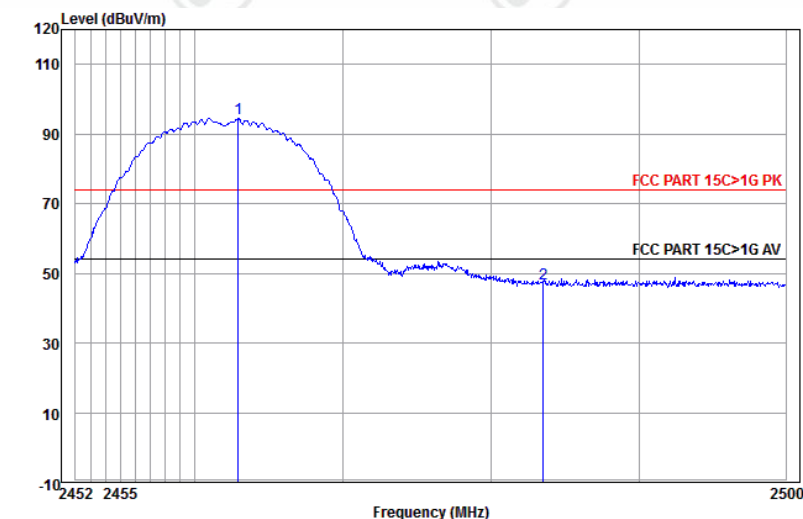
	Ant Freq	Cable Factor	Preamp Loss	Preamp Factor	Read Level	Read Level	Limit Line	Over Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	dB		
1	2390.000	32.53	4.28	34.39	43.63	46.05	74.00	-27.95		Horizontal	
2 pp	2412.958	32.58	4.34	34.39	90.93	93.46	74.00	19.46		Horizontal	

Worse case mode:	802.11b (11Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



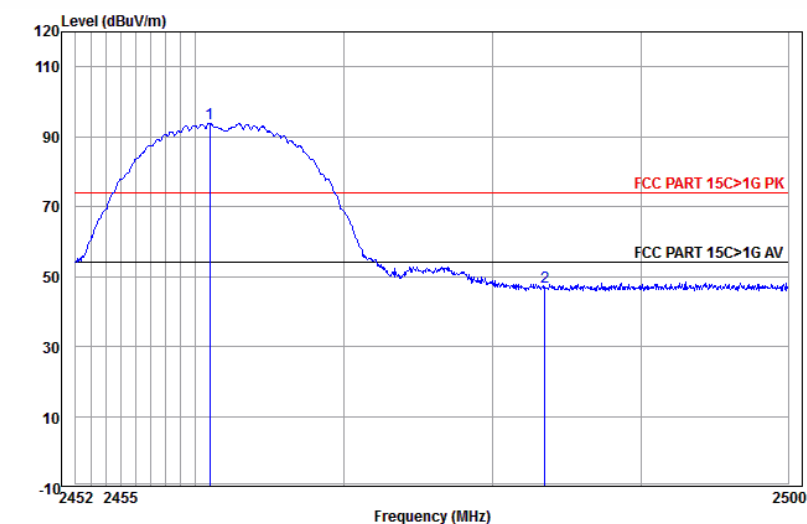
	Ant Freq	Cable Factor	Preamp Loss	Preamp Factor	Read Level	Read Level	Limit Line	Over Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	dB		
1	2390.000	32.53	4.28	34.39	45.50	47.92	74.00	-26.08		Vertical	
2 pp	2412.958	32.58	4.34	34.39	90.19	92.72	74.00	18.72		Vertical	

Worse case mode:	802.11b (11Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



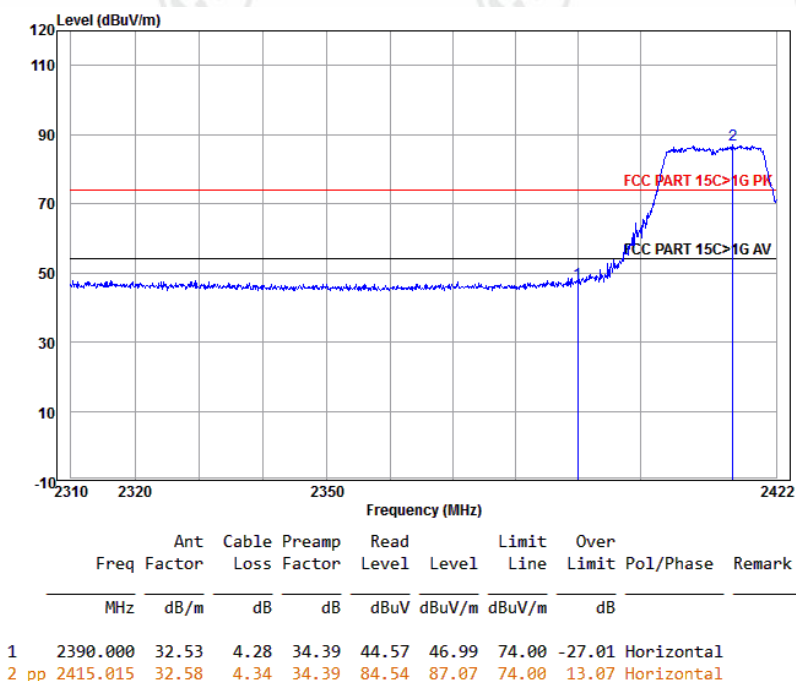
	Ant	Cable	Preamp	Read	Limit	Over		
Freq	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2462.910	32.68	4.46	34.40	91.68	94.42	74.00	20.42	Horizontal
2 2483.500	32.71	4.51	34.41	44.39	47.20	74.00	-26.80	Horizontal

Worse case mode:	802.11b (11Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak

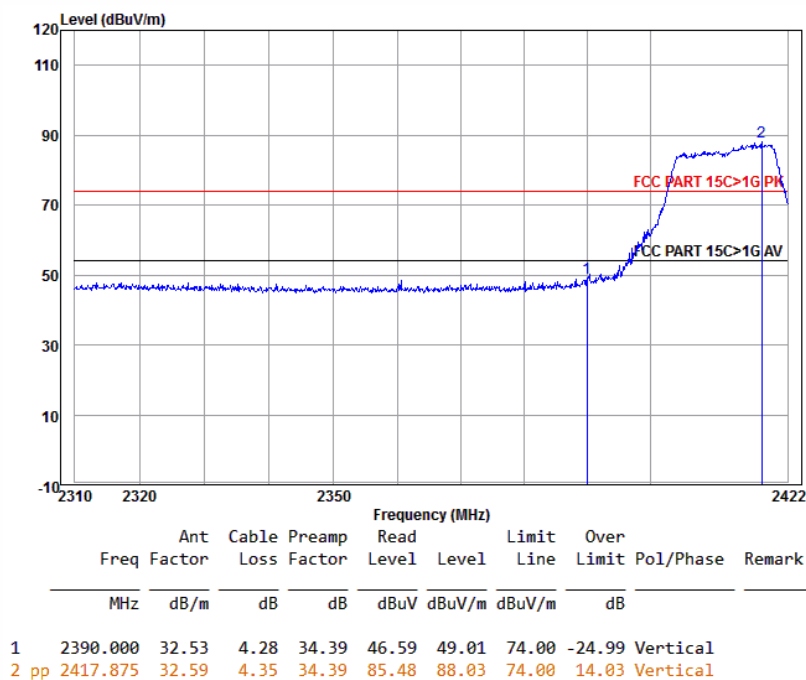


	Ant	Cable	Preamp	Read	Limit	Over		
Freq	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 2460.953	32.67	4.45	34.40	91.11	93.83	74.00	19.83	Vertical
2 2483.500	32.71	4.51	34.41	44.35	47.16	74.00	-26.84	Vertical

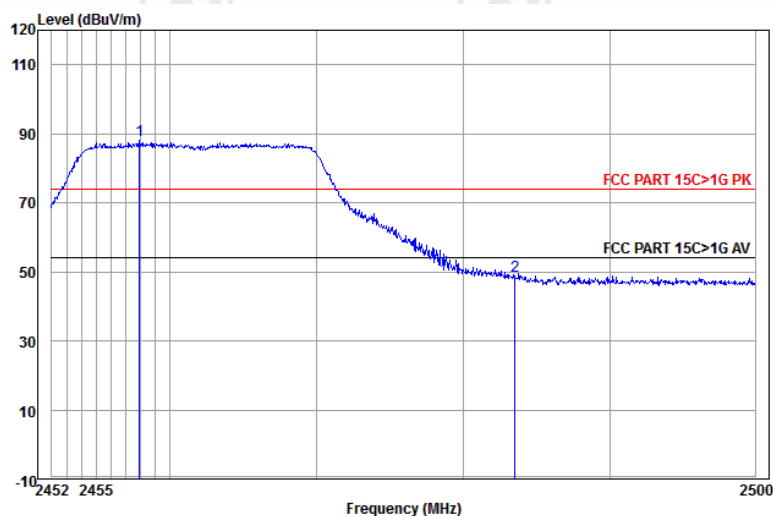
Worse case mode:	802.11g (6Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



Worse case mode:	802.11g (6Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak

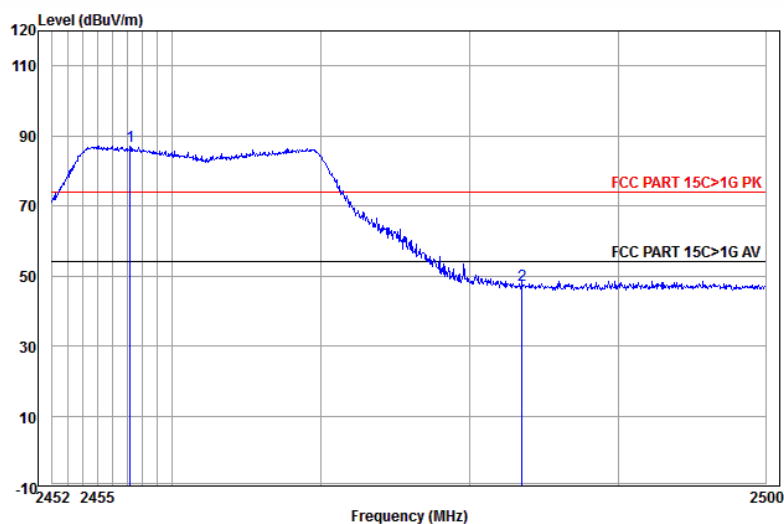


Worse case mode:	802.11g (6Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



	Ant Freq	Cable Factor	Preamp Loss	Read Level	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2457.949	32.67	4.45	34.40	85.29	88.01	74.00	14.01	Horizontal
2	2483.500	32.71	4.51	34.41	46.00	48.81	74.00	-25.19	Horizontal

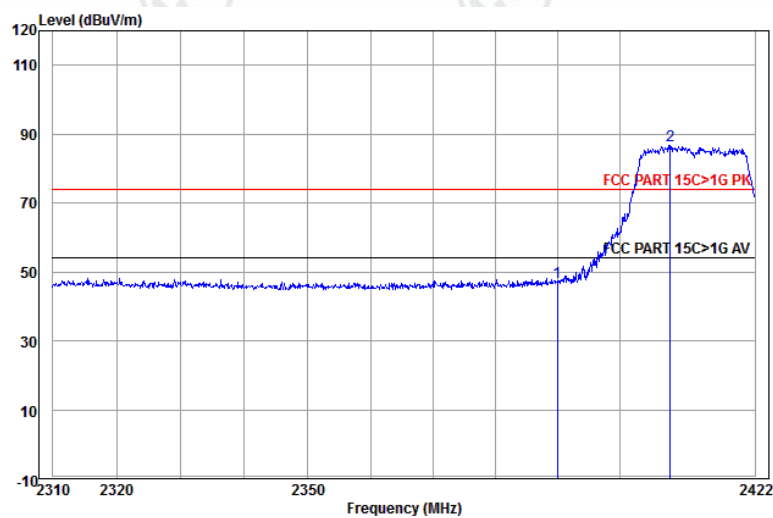
Worse case mode:	802.11g (6Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



	Ant Freq	Cable Factor	Preamp Loss	Read Level	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2457.187	32.66	4.44	34.40	84.50	87.20	74.00	13.20	Vertical
2	2483.500	32.71	4.51	34.41	44.48	47.29	74.00	-26.71	Vertical

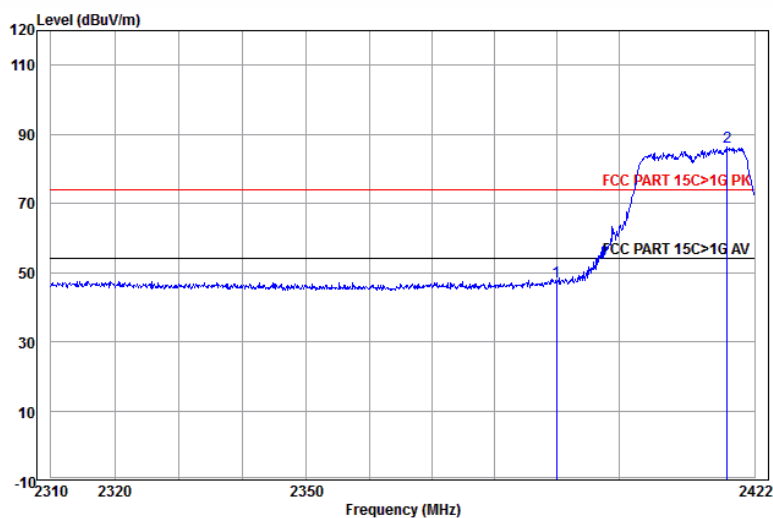


Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Horizontal	Remark: Peak



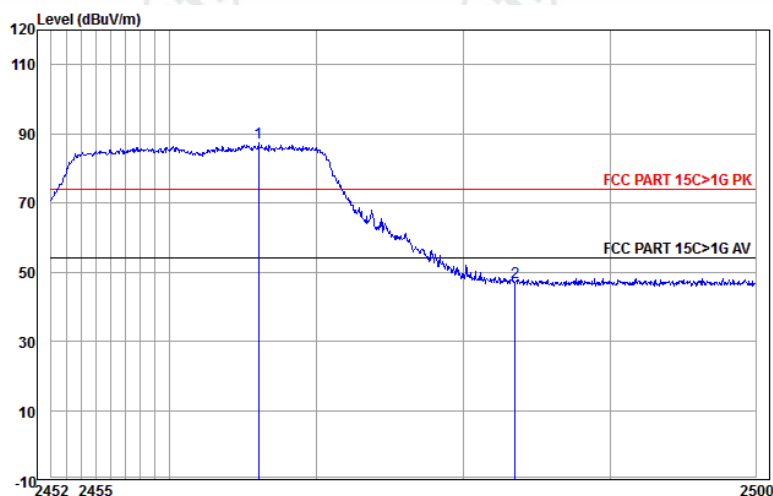
	Ant Freq	Cable Factor	Preamp Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	32.53	4.28	34.39	44.65	47.07	74.00	-26.93	Horizontal
2 pp	2408.278	32.57	4.32	34.39	84.19	86.69	74.00	12.69	Horizontal

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2390.0MHz	Test channel: Lowest	Polarization: Vertical	Remark: Peak



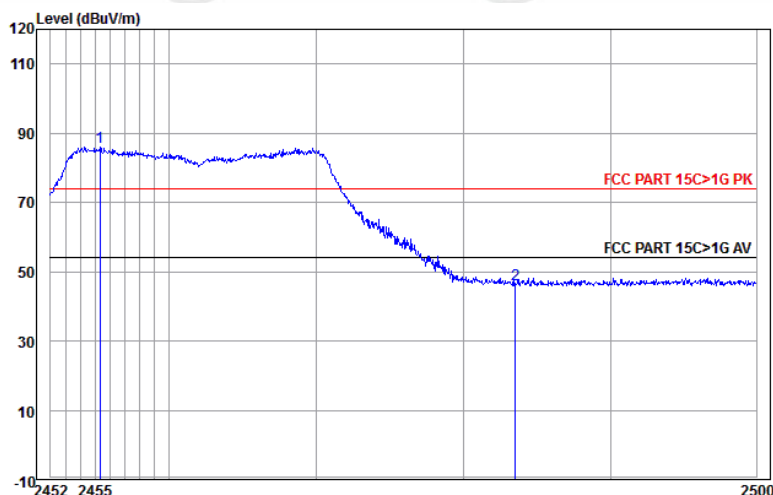
	Ant Freq	Cable Factor	Preamp Loss	Read Level	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	32.53	4.28	34.39	44.83	47.25	74.00	-26.75	Vertical
2 pp	2417.532	32.59	4.35	34.39	83.85	86.40	74.00	12.40	Vertical

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Horizontal	Remark: Peak



	Ant	Cable	Preamp	Read	Level	Limit	Over		
	Freq	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2466.016	32.68	4.46	34.40	84.60	87.34	74.00	13.34	Horizontal
2	2483.500	32.71	4.51	34.41	44.10	46.91	74.00	-27.09	Horizontal

Worse case mode:	802.11n(HT20) (6.5Mbps)		
Frequency: 2483.5MHz	Test channel: Highest	Polarization: Vertical	Remark: Peak



	Ant	Cable	Preamp	Read	Level	Limit	Over		
	Freq	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 2455.330	32.66	4.44	34.40	83.39	86.09	74.00	12.09	Vertical
2	2483.500	32.71	4.51	34.41	43.47	46.28	74.00	-27.72	Vertical

Remark:

1) Through Pre-scan transmitter 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), 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

## Appendix I): 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	120kHz	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:

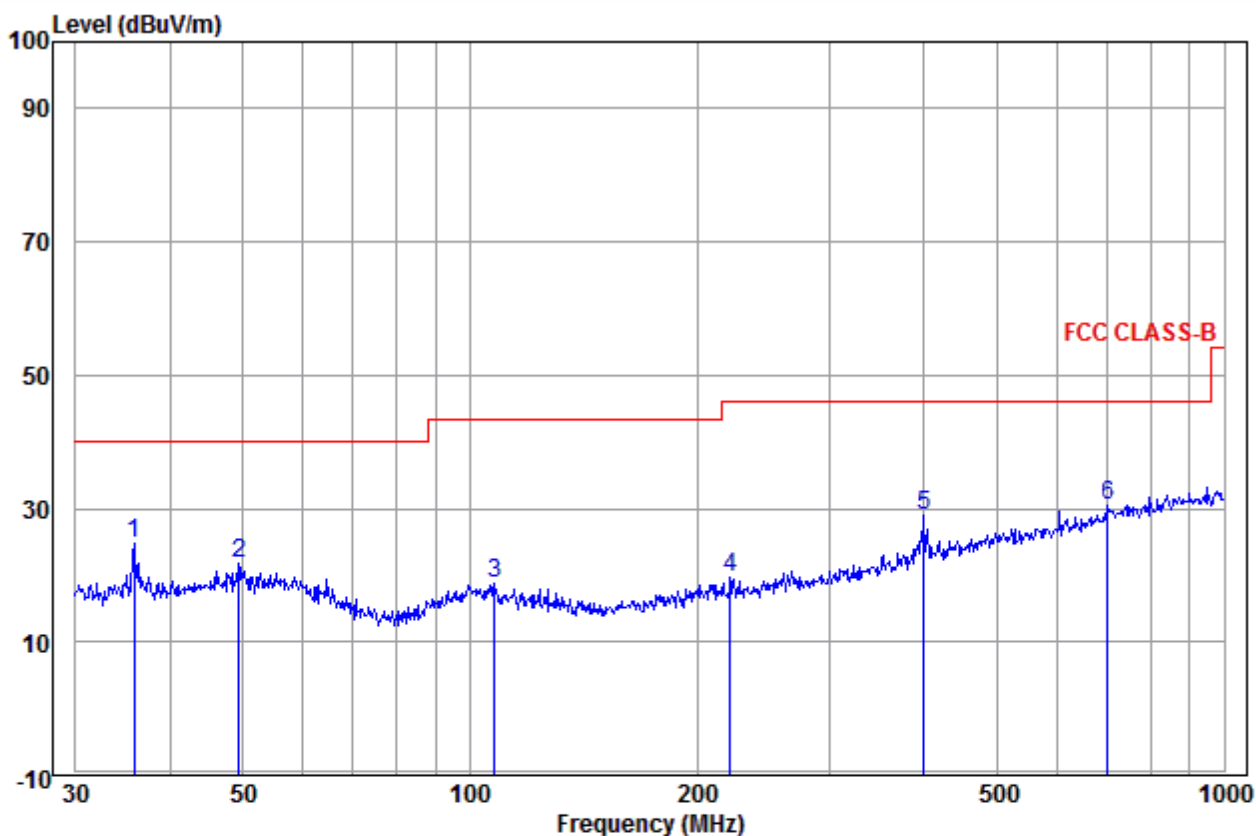
Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	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:**  
**Radiated Emission below 1GHz**

30MHz~1GHz (QP)

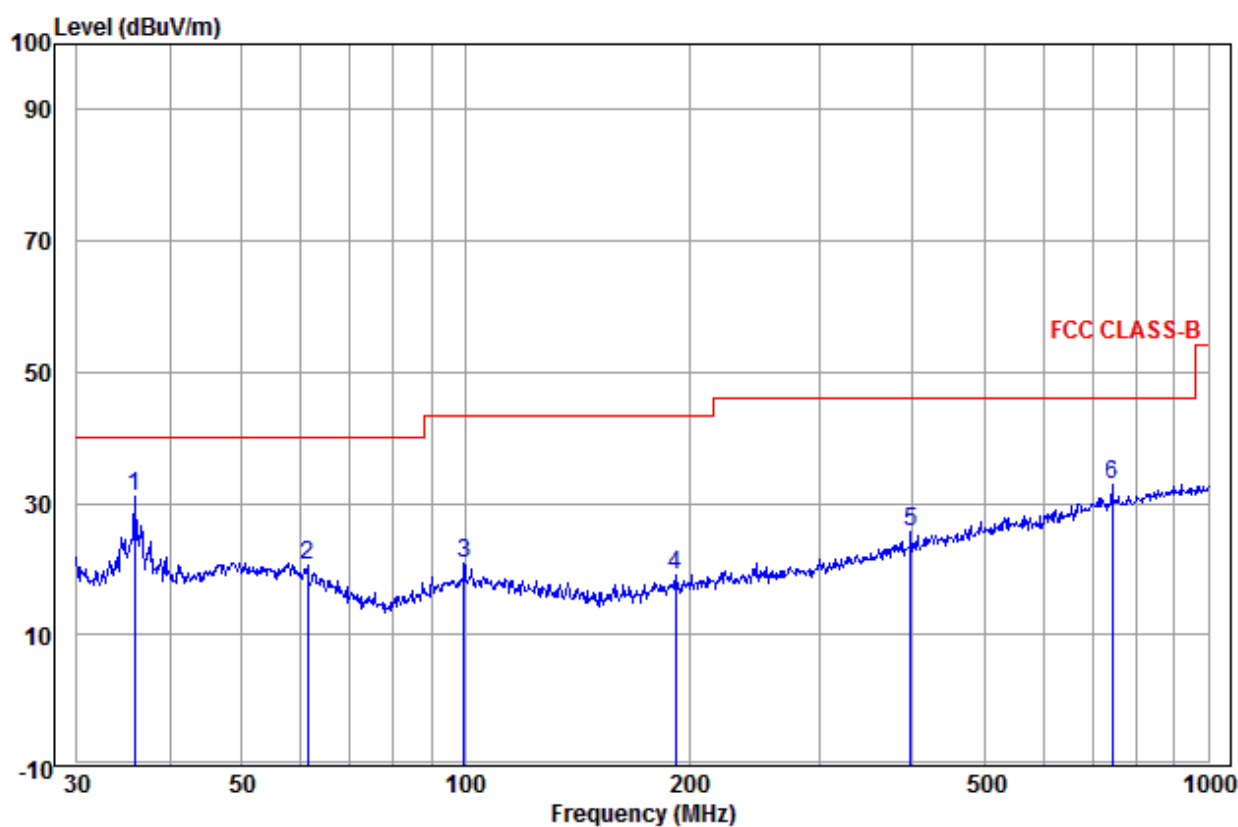
Test mode:	Transmitting	Horizontal
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	Ant Freq	Cable Factor	Cable Loss	Read Level	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	35.875	13.56	0.78	10.42	24.76	40.00	-15.24	Horizontal
2	49.359	15.05	1.35	5.25	21.65	40.00	-18.35	Horizontal
3	107.888	12.54	1.57	4.71	18.82	43.50	-24.68	Horizontal
4	221.392	11.96	2.27	5.54	19.77	46.00	-26.23	Horizontal
5	400.432	16.31	2.80	9.82	28.93	46.00	-17.07	Horizontal
6	701.761	20.71	3.89	5.81	30.41	46.00	-15.59	Horizontal



Test mode:	Transmitting	Vertical
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	Ant	Cable	Read	Limit	Over			
	Freq	Factor	Loss	Level	Level	Line	Limit	Pol/Phase
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	Remark
1 pp	35.875	13.56	0.78	16.85	31.19	40.00	-8.81	Vertical
2	61.346	13.31	1.43	5.85	20.59	40.00	-19.41	Vertical
3	99.528	13.11	1.57	6.10	20.78	43.50	-22.72	Vertical
4	191.745	11.32	2.12	5.68	19.12	43.50	-24.38	Vertical
5	397.633	16.23	2.80	6.51	25.54	46.00	-20.46	Vertical
6	742.259	20.95	3.99	7.97	32.91	46.00	-13.09	Vertical

**Transmitter Emission above 1GHz**

Test mode: 802.11b(11Mbps)			Test Frequency: 2412MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1306.407	30.47	2.63	34.85	45.50	43.75	74	-30.25	Pass	Horizontal
3489.840	33.18	5.53	34.55	44.14	48.30	74	-25.70	Pass	Horizontal
4824.000	34.73	5.10	34.35	44.66	50.14	74	-23.86	Pass	Horizontal
5940.967	35.86	7.30	34.30	40.24	49.10	74	-24.90	Pass	Horizontal
7246.000	36.43	6.70	34.90	41.50	49.73	74	-24.27	Pass	Horizontal
9648.000	37.93	7.70	35.07	38.05	48.61	74	-25.39	Pass	Horizontal
1374.639	30.62	2.71	34.79	45.13	43.67	74	-30.33	Pass	Vertical
3033.908	33.57	5.61	34.50	44.15	48.83	74	-25.17	Pass	Vertical
4824.000	34.73	5.10	34.35	44.36	49.84	74	-24.16	Pass	Vertical
5420.742	35.45	6.10	34.30	42.33	49.58	74	-24.42	Pass	Vertical
7236.000	36.42	6.69	34.90	42.17	50.38	74	-23.62	Pass	Vertical
9648.000	37.93	7.70	35.07	43.70	54.26	74	-20.04	Pass	Vertical

Test mode: 802.11b(11Mbps)			Test Frequency: 2437MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1267.104	30.38	2.59	34.89	44.96	43.04	74	-30.96	Pass	Horizontal
1918.716	31.58	3.17	34.35	44.23	44.63	74	-29.37	Pass	Horizontal
4107.316	33.07	5.39	34.56	42.38	46.28	74	-27.72	Pass	Horizontal
4874.000	34.84	5.09	34.33	43.72	49.32	74	-24.68	Pass	Horizontal
7311.000	36.43	6.76	34.90	40.11	48.40	74	-25.60	Pass	Horizontal
9748.000	38.03	7.61	35.05	39.56	50.15	74	-23.85	Pass	Horizontal
1676.558	31.19	2.98	34.53	44.63	44.27	74	-29.73	Pass	Vertical
3709.691	33.01	5.49	34.57	43.88	47.81	74	-26.19	Pass	Vertical
4874.000	34.84	5.09	34.33	43.57	49.17	74	-24.83	Pass	Vertical
6125.242	35.97	7.30	34.38	41.53	50.42	74	-23.58	Pass	Vertical
7311.000	36.43	6.76	34.90	40.10	48.39	74	-25.61	Pass	Vertical
9748.000	38.03	7.61	35.05	37.29	47.88	74	-26.12	Pass	Vertical

Test mode: 802.11b(11Mbps)			Test Frequency: 2462MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1296.469	30.45	2.62	34.86	44.73	42.94	74	-31.06	Pass	Horizontal
1851.542	31.48	3.12	34.40	45.48	45.68	74	-28.32	Pass	Horizontal
3815.033	32.93	5.47	34.58	43.15	46.97	74	-27.03	Pass	Horizontal
4924.000	34.94	5.07	34.32	41.51	47.20	74	-26.80	Pass	Horizontal
7386.000	36.44	6.83	34.90	40.69	49.06	74	-24.94	Pass	Horizontal
9848.000	38.14	7.53	35.03	32.66	43.30	74	-30.70	Pass	Horizontal
1286.606	30.43	2.61	34.87	44.48	42.65	74	-31.35	Pass	Vertical
3128.013	33.48	5.59	34.51	43.99	48.55	74	-25.45	Pass	Vertical
4924.000	34.94	5.07	34.32	41.43	47.12	74	-26.88	Pass	Vertical
5532.263	35.54	6.37	34.30	40.70	48.31	74	-25.69	Pass	Vertical
7386.000	36.44	6.83	34.90	41.16	49.53	74	-24.47	Pass	Vertical
9848.000	38.14	7.53	35.03	38.00	48.64	74	-25.36	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2412MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1495.101	30.86	2.82	34.68	43.77	42.77	74	-31.23	Pass	Horizontal
3112.129	33.50	5.60	34.51	44.39	48.98	74	-25.02	Pass	Horizontal
4824.000	34.73	5.10	34.35	41.34	46.82	74	-27.18	Pass	Horizontal
5588.881	35.59	6.50	34.30	40.11	47.90	74	-26.10	Pass	Horizontal
7236.000	36.42	6.69	34.90	40.68	48.89	74	-25.11	Pass	Horizontal
9648.000	37.93	7.70	35.07	38.39	48.95	74	-25.05	Pass	Horizontal
1313.075	30.49	2.64	34.85	44.38	42.66	74	-31.34	Pass	Vertical
1978.230	31.67	3.21	34.31	43.31	43.88	74	-30.12	Pass	Vertical
3844.279	32.91	5.46	34.59	42.50	46.28	74	-27.72	Pass	Vertical
4824.000	34.73	5.10	34.35	40.83	46.31	74	-27.69	Pass	Vertical
7236.000	36.42	6.69	34.90	40.10	48.31	74	-25.69	Pass	Vertical
9648.000	37.93	7.70	35.07	38.15	48.71	74	-25.29	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2437MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1273.572	30.40	2.60	34.89	45.80	43.91	74	-30.09	Pass	Horizontal
1786.719	31.37	3.07	34.45	43.25	43.24	74	-30.76	Pass	Horizontal
3489.840	33.18	5.53	34.55	42.53	46.69	74	-27.31	Pass	Horizontal
4874.000	34.84	5.09	34.33	41.57	47.17	74	-26.83	Pass	Horizontal
7311.000	36.43	6.76	34.90	38.96	47.25	74	-26.75	Pass	Horizontal
9748.000	38.03	7.61	35.05	37.93	48.52	74	-25.48	Pass	Horizontal
1435.431	30.74	2.77	34.73	44.60	43.38	74	-30.62	Pass	Vertical
3041.641	33.56	5.61	34.50	43.41	48.08	74	-25.92	Pass	Vertical
4874.000	34.84	5.09	34.33	40.98	46.58	74	-27.42	Pass	Vertical
6094.137	35.95	7.33	34.36	37.45	46.37	74	-27.63	Pass	Vertical
7311.000	36.43	6.76	34.90	41.03	49.32	74	-24.68	Pass	Vertical
9748.000	38.03	7.61	35.05	36.78	47.37	74	-26.63	Pass	Vertical

Test mode: 802.11g(6Mbps)			Test Frequency: 2462MHz			Remark: Peak			
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1680.831	31.20	2.99	34.53	44.42	44.08	74	-29.92	Pass	Horizontal
3728.625	33.00	5.48	34.58	44.27	48.17	74	-25.83	Pass	Horizontal
4924.000	34.94	5.07	34.32	42.01	47.70	74	-26.30	Pass	Horizontal
6379.864	36.10	7.05	34.54	42.12	50.73	74	-23.27	Pass	Horizontal
7386.000	36.44	6.83	34.90	39.36	47.73	74	-26.27	Pass	Horizontal
9848.000	38.14	7.53	35.03	36.76	47.40	74	-26.60	Pass	Horizontal
1461.238	30.79	2.79	34.71	44.34	43.21	74	-30.79	Pass	Vertical
3588.939	33.10	5.51	34.56	43.27	47.32	74	-26.68	Pass	Vertical
4924.000	34.94	5.07	34.32	40.93	46.62	74	-27.38	Pass	Vertical
6428.771	36.12	7.00	34.57	38.66	47.21	74	-26.79	Pass	Vertical
7386.000	36.44	6.83	34.90	41.07	49.44	74	-24.56	Pass	Vertical
9848.000	38.14	7.53	35.03	36.82	47.46	74	-26.54	Pass	Vertical



Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2412MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1228.984	30.29	2.55	34.93	43.28	41.19	74	-32.81	Pass	Horizontal
1846.834	31.47	3.12	34.40	44.76	44.95	74	-29.05	Pass	Horizontal
3543.550	33.14	5.52	34.56	42.60	46.70	74	-27.30	Pass	Horizontal
4824.000	34.73	5.10	34.35	41.26	46.74	74	-27.26	Pass	Horizontal
7236.000	36.42	6.69	34.90	40.32	48.53	74	-25.47	Pass	Horizontal
9648.000	37.93	7.70	35.07	37.01	47.57	74	-26.43	Pass	Horizontal
1577.198	31.01	2.90	34.61	44.39	43.69	74	-30.31	Pass	Vertical
3525.555	33.15	5.52	34.56	43.19	47.30	74	-26.70	Pass	Vertical
4824.000	34.73	5.10	34.35	40.86	46.34	74	-27.66	Pass	Vertical
6172.197	35.99	7.25	34.41	40.42	49.25	74	-24.75	Pass	Vertical
7236.000	36.42	6.69	34.90	42.17	50.38	74	-23.62	Pass	Vertical
9648.000	37.93	7.70	35.07	37.44	48.00	74	-26.00	Pass	Vertical

Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2437MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1254.268	30.35	2.58	34.91	44.94	42.96	74	-31.04	Pass	Horizontal
1659.574	31.16	2.97	34.54	44.90	44.49	74	-29.51	Pass	Horizontal
4107.316	33.07	5.39	34.56	42.34	46.24	74	-27.76	Pass	Horizontal
4874.000	34.84	5.09	34.33	40.96	46.56	74	-27.44	Pass	Horizontal
7311.000	36.43	6.76	34.90	40.50	48.79	74	-25.21	Pass	Horizontal
9748.000	38.03	7.61	35.05	38.51	49.10	74	-24.90	Pass	Horizontal
1267.104	30.38	2.59	34.89	43.63	41.71	74	-32.29	Pass	Vertical
1933.424	31.60	3.18	34.34	43.61	44.05	74	-29.95	Pass	Vertical
3953.443	32.83	5.45	34.60	41.40	45.08	74	-28.92	Pass	Vertical
4874.000	34.84	5.09	34.33	40.84	46.44	74	-27.56	Pass	Vertical
7311.000	36.43	6.76	34.90	40.99	49.28	74	-24.72	Pass	Vertical
9748.000	38.03	7.61	35.05	38.73	49.32	74	-24.68	Pass	Vertical

Test mode: 802.11n(HT20)(6.5Mbps)				Test Frequency: 2462MHz			Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Result	Antenna Polaxis
1286.606	30.43	2.61	34.87	44.84	43.01	74	-30.99	Pass	Horizontal
1851.542	31.48	3.12	34.40	44.28	44.48	74	-29.52	Pass	Horizontal
3893.520	32.88	5.46	34.59	42.46	46.21	74	-27.79	Pass	Horizontal
4924.000	34.94	5.07	34.32	41.08	46.77	74	-27.23	Pass	Horizontal
7386.000	36.44	6.83	34.90	41.66	50.03	74	-23.97	Pass	Horizontal
9848.000	38.14	7.53	35.03	38.26	48.90	74	-25.10	Pass	Horizontal
1207.279	30.24	2.52	34.96	44.46	42.26	74	-31.74	Pass	Vertical
1846.834	31.47	3.12	34.40	44.48	44.67	74	-29.33	Pass	Vertical
4065.707	32.97	5.41	34.58	44.23	48.03	74	-25.97	Pass	Vertical
4924.000	34.94	5.07	34.32	41.59	47.28	74	-26.72	Pass	Vertical
7386.000	36.44	6.83	34.90	42.03	50.40	74	-23.60	Pass	Vertical
9848.000	38.14	7.53	35.03	38.43	49.07	74	-24.93	Pass	Vertical

**Remark:**

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), 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:

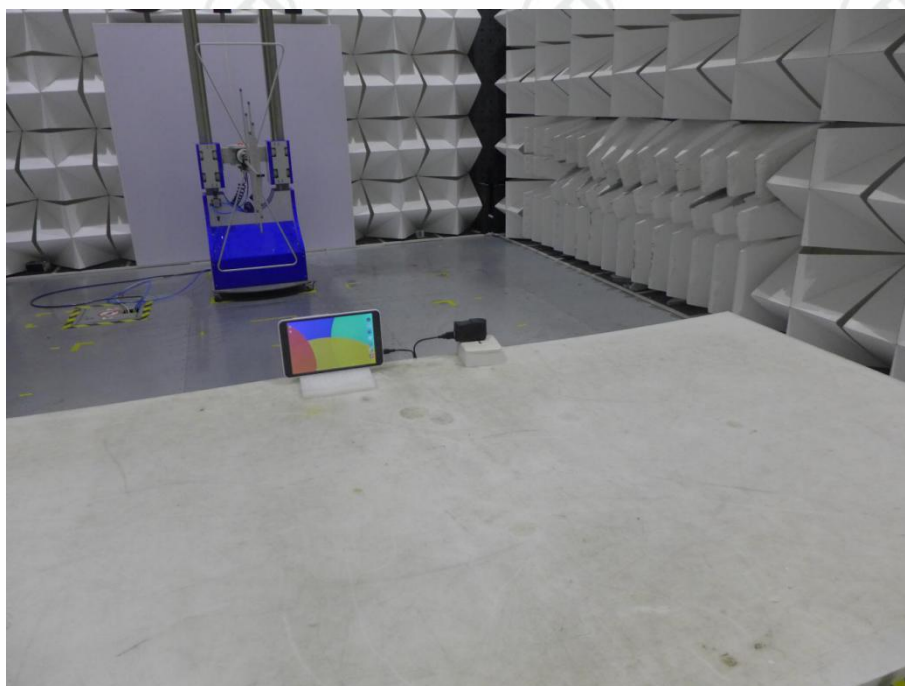
Final Test Level = Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor - Antenna Factor - Cable Factor

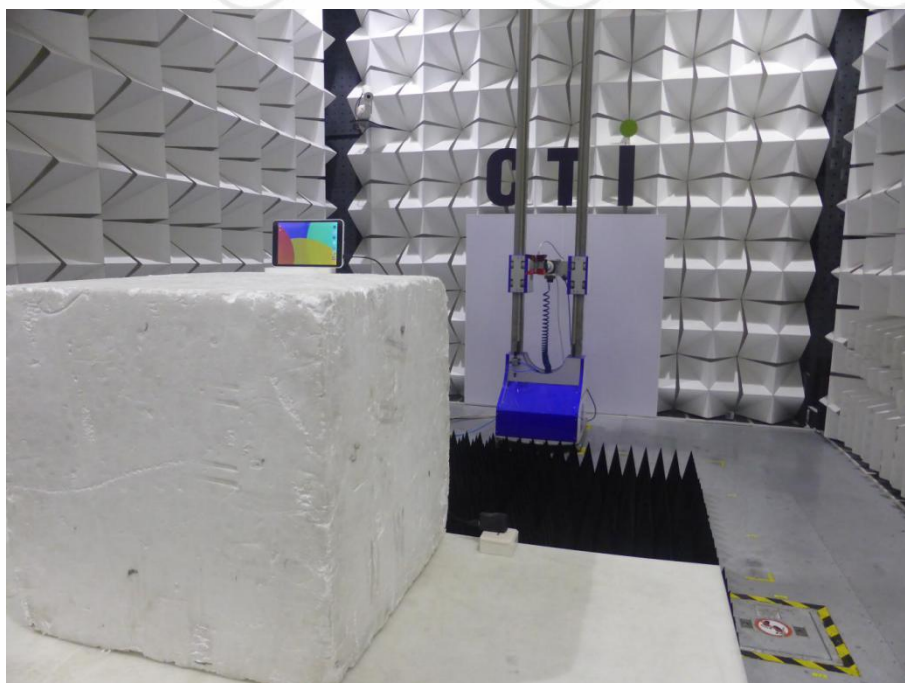
3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below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

## PHOTOGRAPHS OF TEST SETUP

Test mode No.: S8



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



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



**Conducted Emissions Test Setup**



## PHOTOGRAPHS OF EUT Constructional Details

Test mode No.: S8



View of Product-1



View of Product-2



View of Product-3



View of Product-4





View of Product-5



View of Product-6



View of Product-7

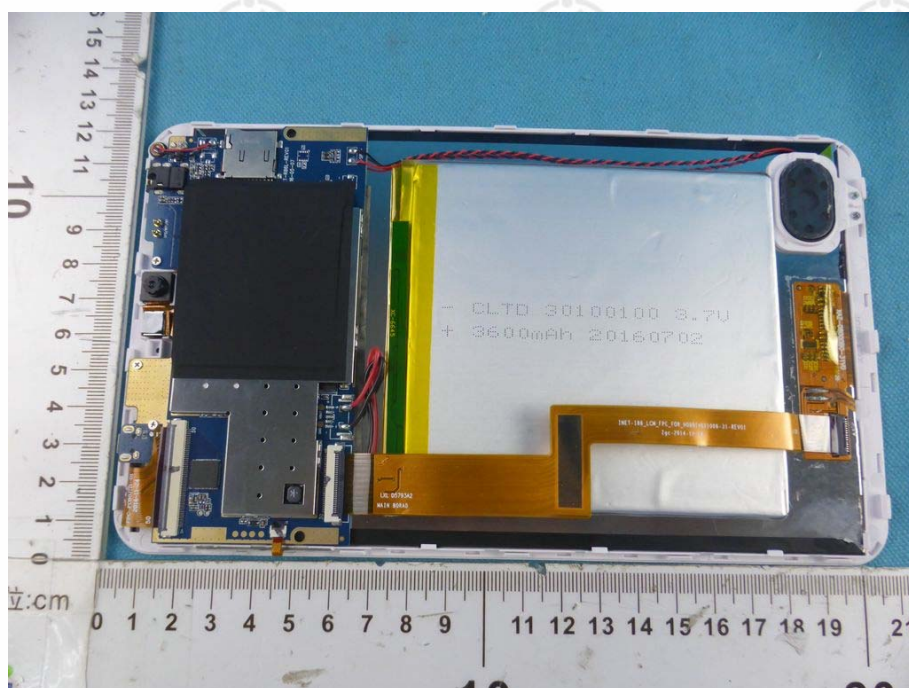


View of Product-8

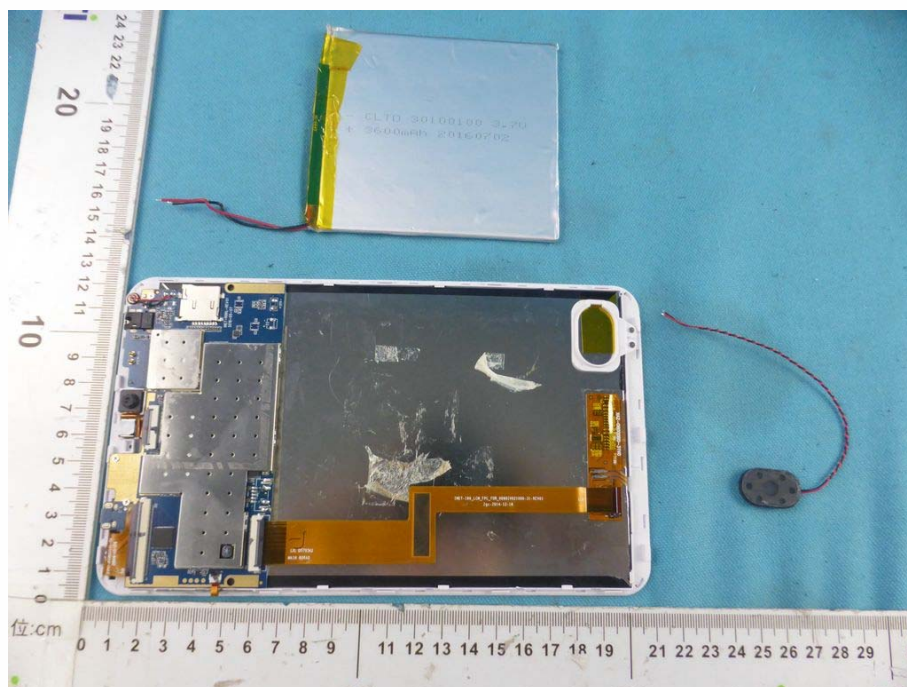




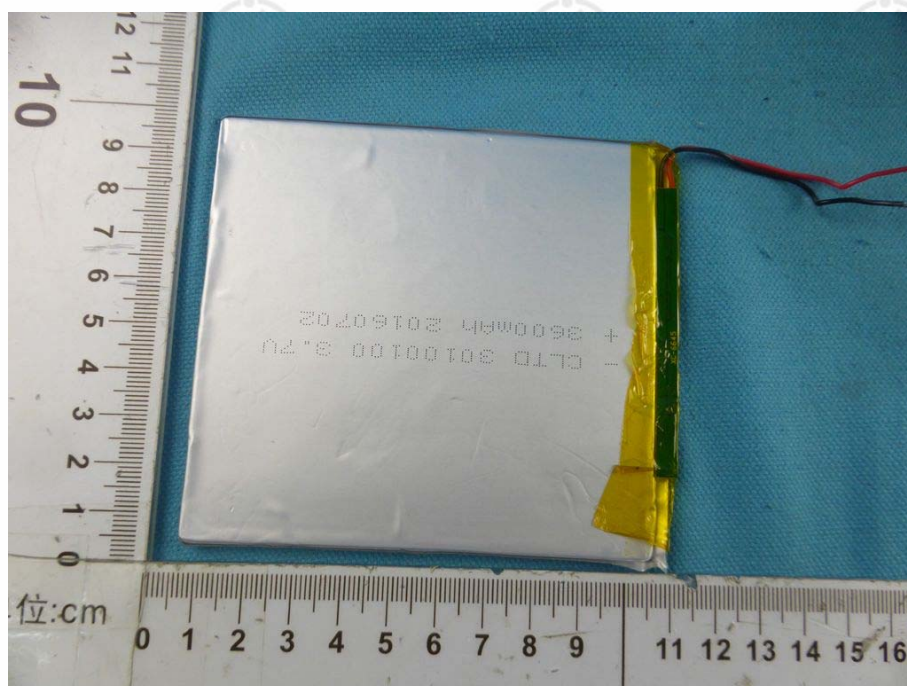
View of Product-9



View of Product-10

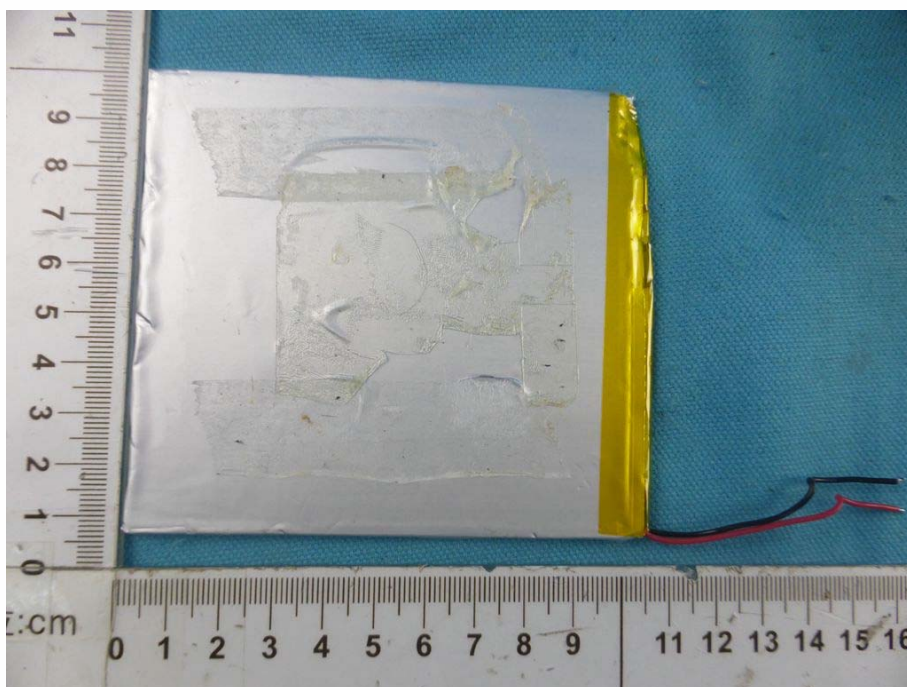


View of Product-11



View of Product-12

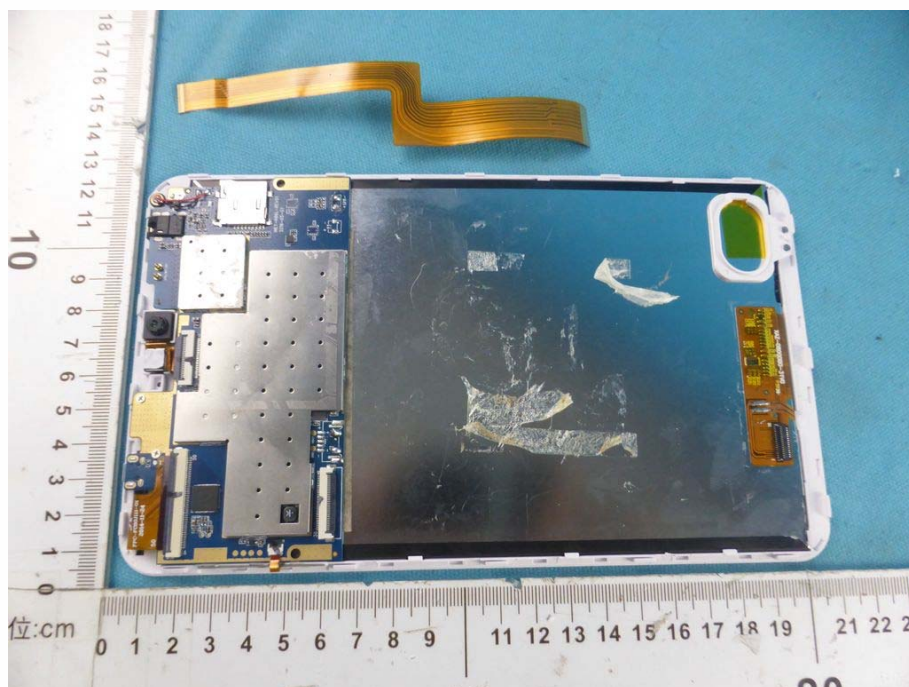




View of Product-13



View of Product-14

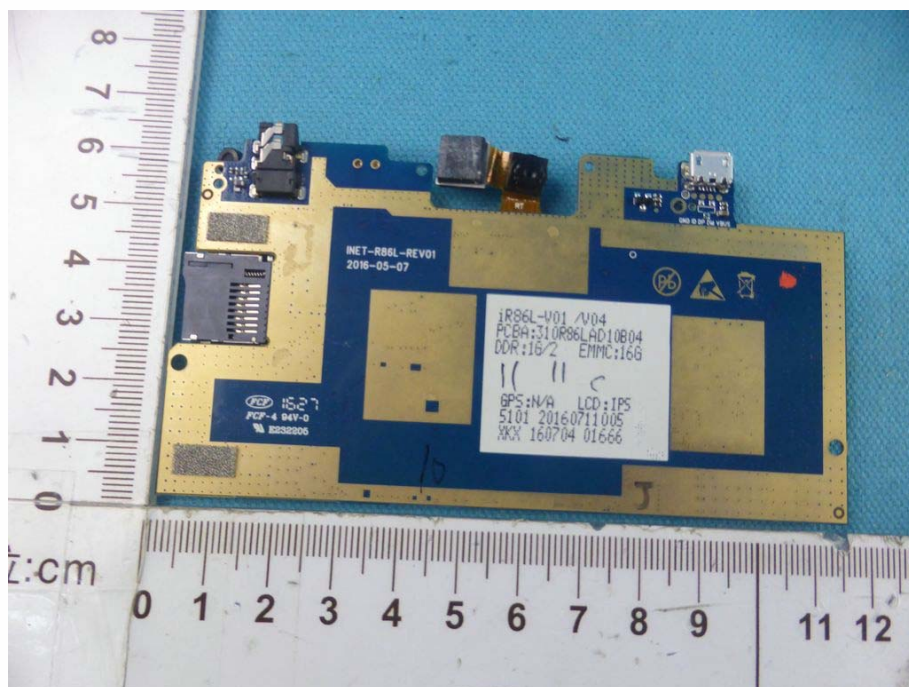


View of Product-15

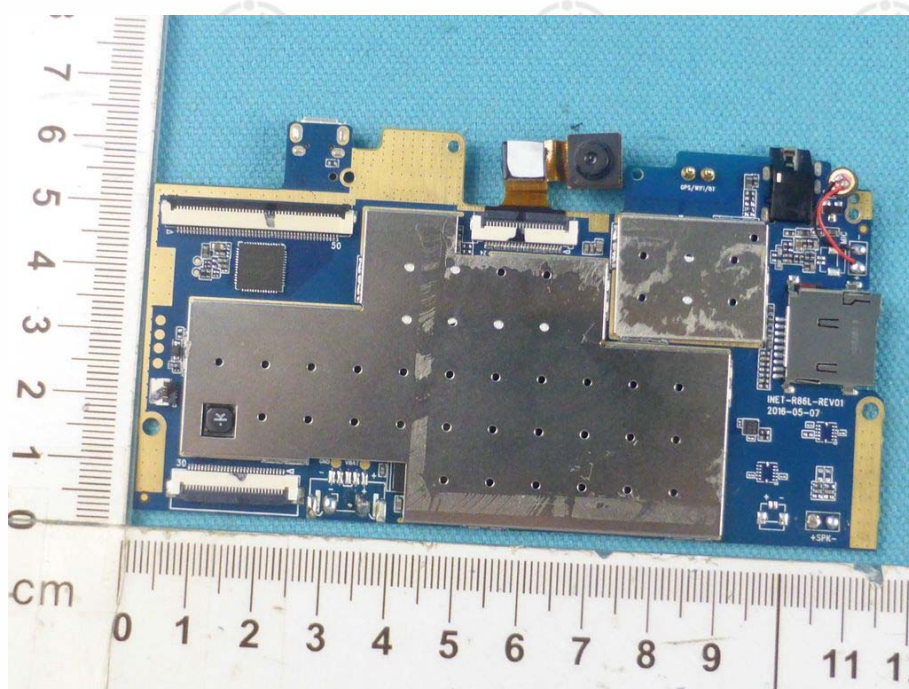


View of Product-16

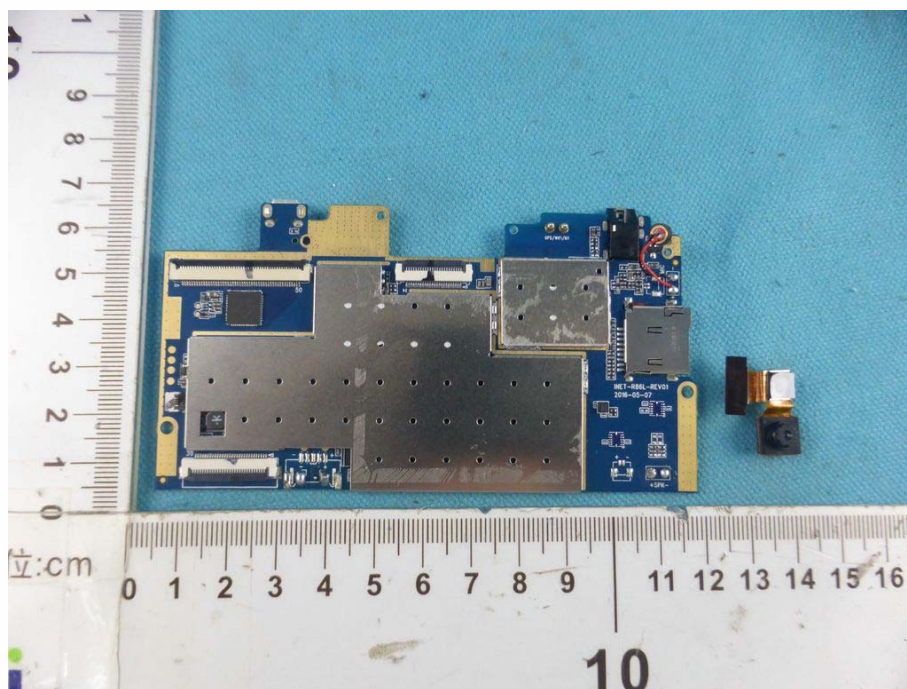




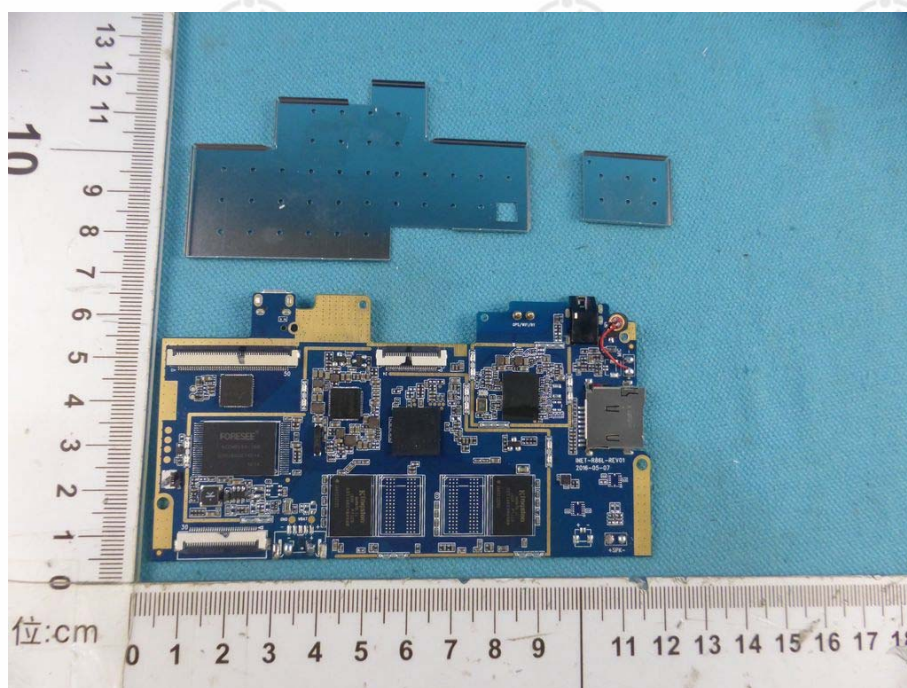
View of Product-17



View of Product-18

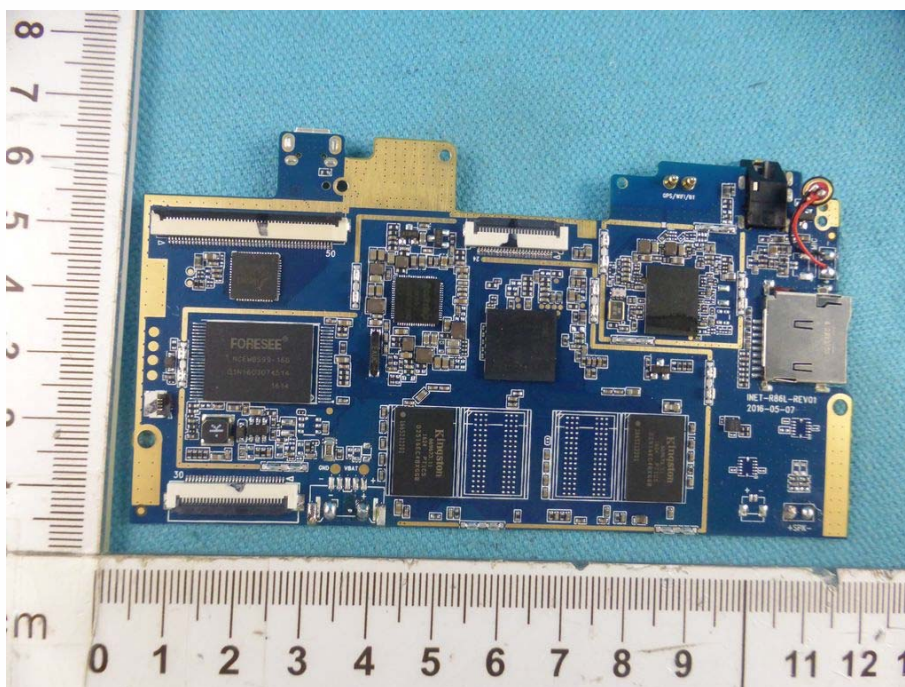


View of Product-19

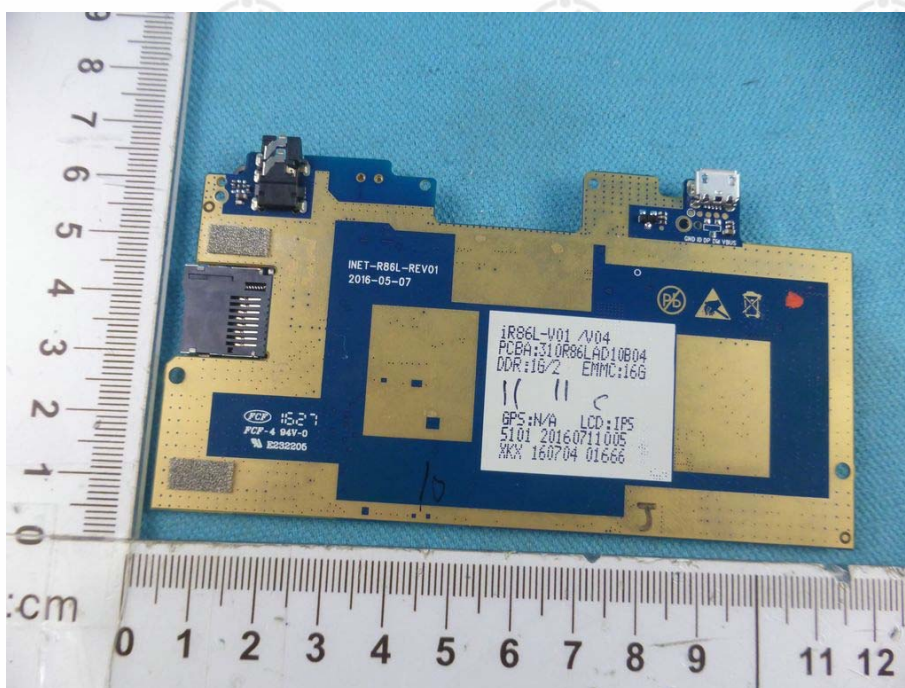


View of Product-20





View of Product-21



View of Product-22



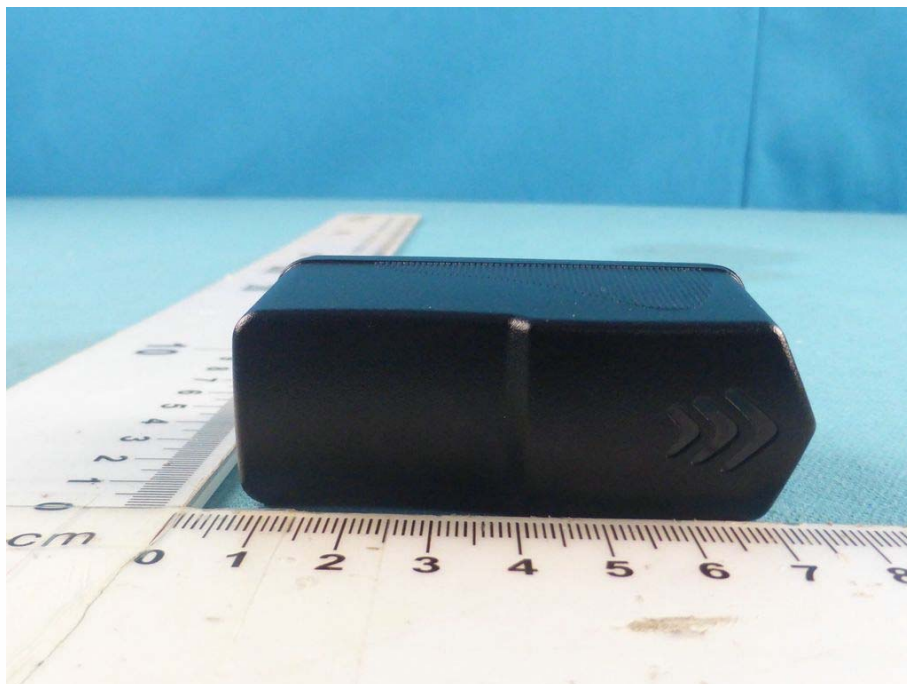


View of Product-23(Adaptor)

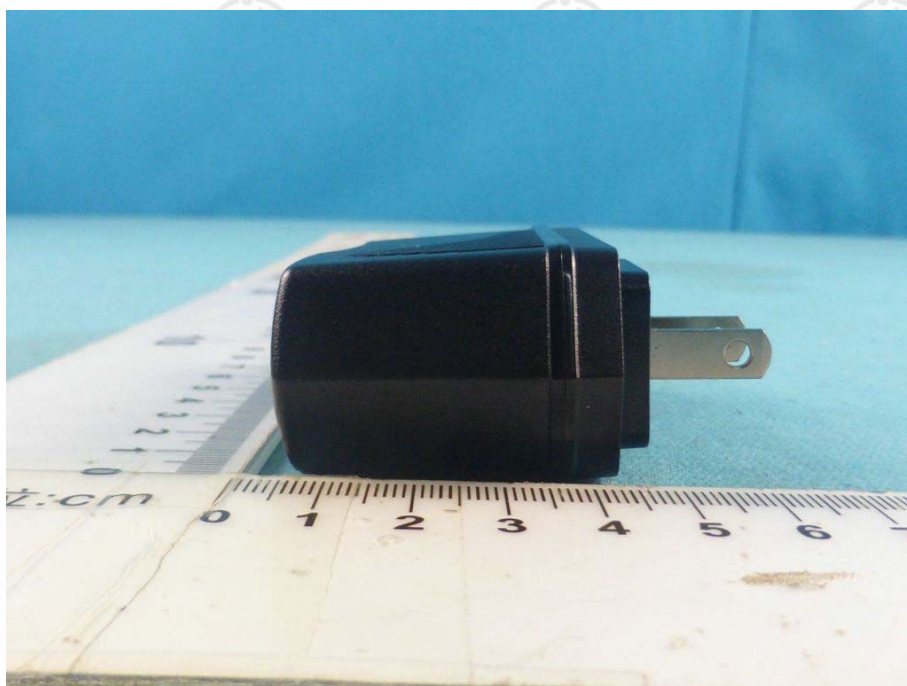


View of Product-24(Adaptor)





View of Product-25(Adaptor)



View of Product-26(Adaptor)



View of Product-27(Adaptor)



View of Product-28(Adaptor)

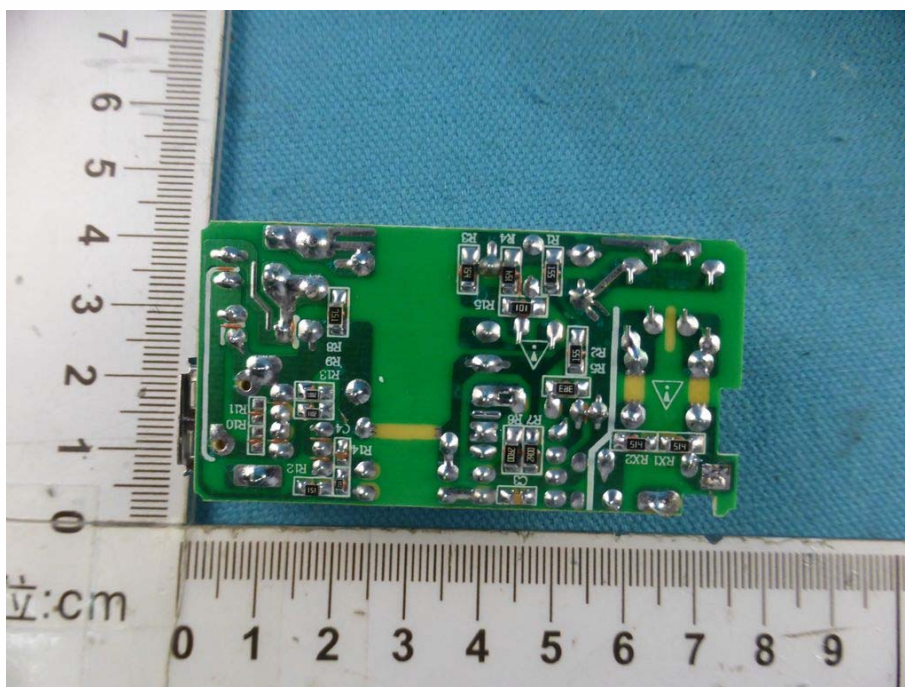




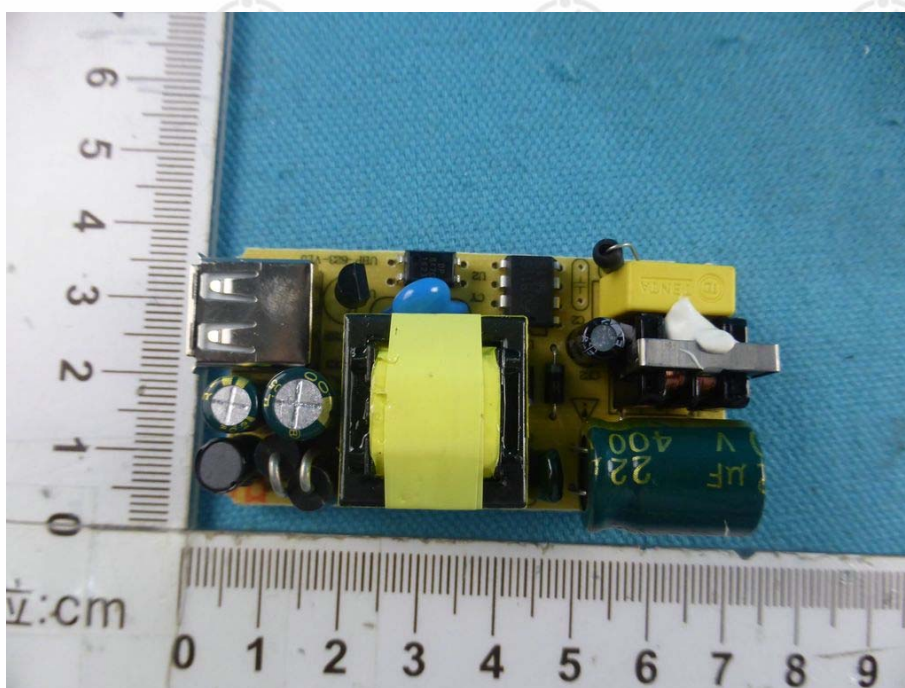
View of Product-29(Adaptor)



View of Product-30(Adaptor)



View of Product-31(Adaptor)



View of Product-32(Adaptor)

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

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