

TEST REPORT

Product : 10 inch WIFI Digital Photo Frame
Trade mark : N/A
Model/Type reference : Skylight 2, D104S
Serial Number : N/A
Report Number : EED32K00312401
FCC ID : 2AABK-SKYLIGHT2
Date of Issue : Dec. 19, 2018
Test Standards : 47 CFR Part 15Subpart C
Test result : PASS

Prepared for:

Shenzhen Chuangwei Electronic Appliance Tech Co., Ltd.
4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street,
Bao'an District, Shenzhen, P. R. China

Prepared by:

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2 Version

Version No.	Date	Description
00	Dec. 19, 2018	Original

3 Test Summary

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

Remark:

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

The tested sample(s) and the sample information are provided by the client.

Model No.: Skylight 2, D104S

Only the model Skylight 2 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, Only the models are different.

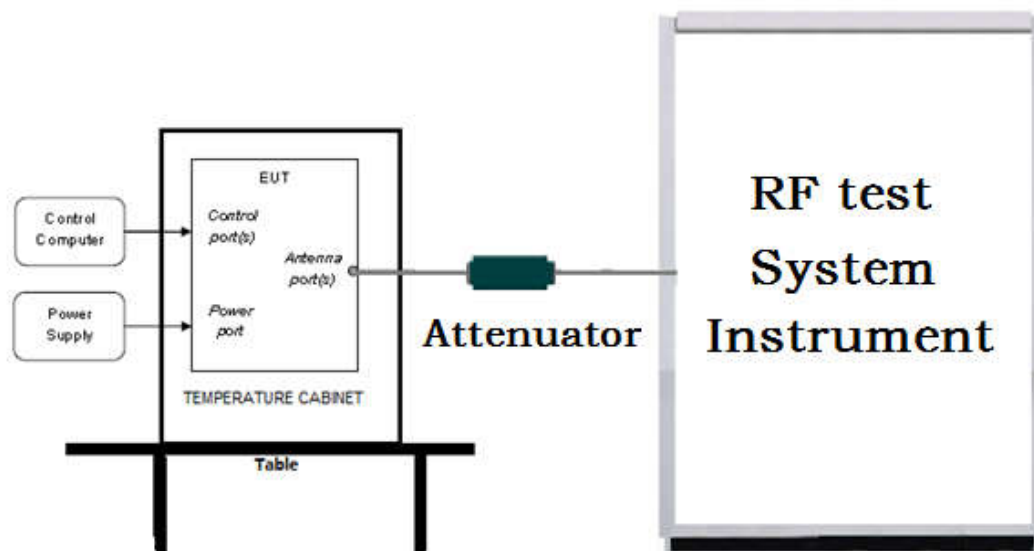
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

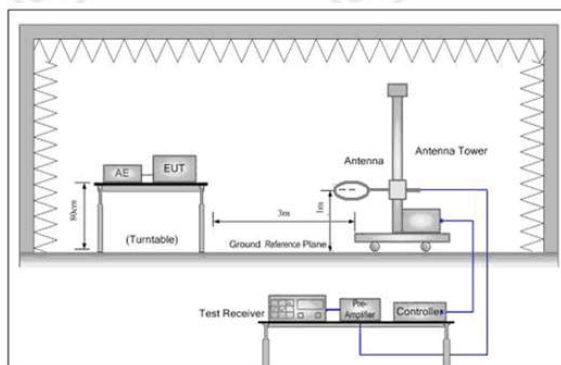


Figure 1. Below 30MHz

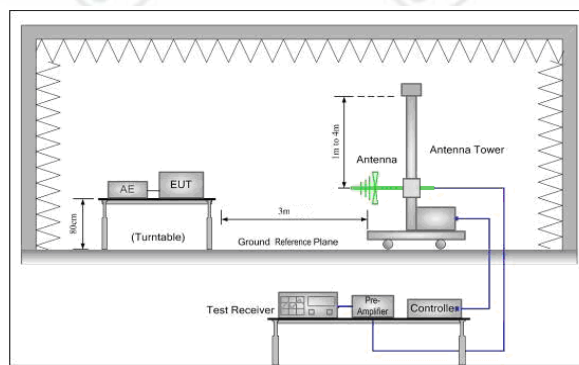


Figure 2. 30MHz to 1GHz

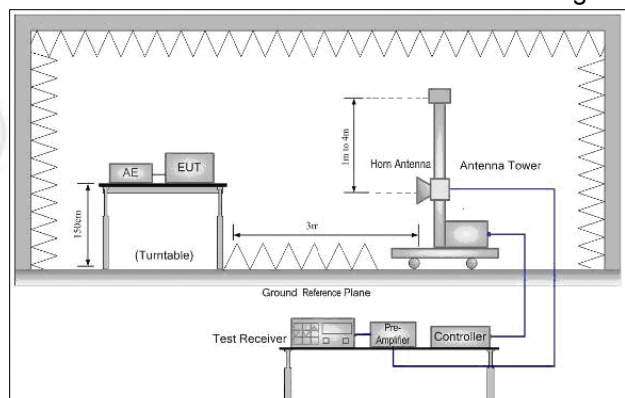
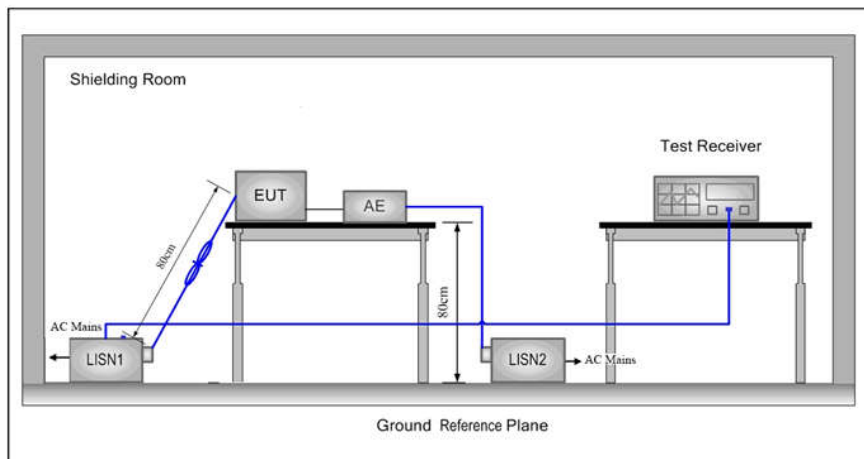


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	20 °C
Humidity:	53 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel11
		2412MHz	2437MHz	2462MHz
Transmitting mode:	The EUT transmitted the continuous signal at the specific channel(s).			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	13.25	13.87	14.01	14.26				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	18.40	18.20	18.00	17.85	17.64	17.21	17.01	16.87
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	18.56	18.34	18.14	17.94	17.75	17.54	17.21	17.01

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:	Shenzhen Chuangwei Electronic Appliance Tech Co., Ltd.
Address of Applicant:	4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street, Bao'an District, Shenzhen, P. R. China
Manufacturer:	Shenzhen Chuangwei Electronic Appliance Tech Co., Ltd.
Address of Manufacturer:	4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street, Bao'an District, Shenzhen, P. R. China
Factory:	Shenzhen Chuangwei Electronic Appliance Tech Co., Ltd.
Address of Factory:	4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street, Bao'an District, Shenzhen, P. R. China

6.2 General Description of EUT

Product Name:	10 inch WIFI Digital Photo Frame	
Model No.(EUT):	Skylight 2, D104S	
Test Model No.:	Skylight 2	
Trade Mark:	N/A	
EUT Supports Radios application:	2.4GHz: Wi-Fi:802.11b/g/n(HT20)(HT40): 2412MHz ~2472 MHz 5GHz: Wi-Fi: U-NII-1: 5.15-5.25GHz; U-NII-2A: 5.25-5.35GHz U-NII-2C: 5.470-5.725GHz; U-NII-3: 5.725-5.850GHz 802.11a, 802.11n(20MHz/40MHz)	
Power Supply:	Adapter	Model:TPA-46050150UU Input:100~240V~ 50/60Hz, 0.3A Output:5V --- 1500mA
Firmware version:	D104.V2.05(manufacturer declare)	
Hardware version:	V01(manufacturer declare)	
Sample Received Date:	Nov. 19, 2018	
Sample tested Date:	Nov. 22, 2018 to Dec. 19, 2018	

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:	Fixed production
Test Power Grade:	N/A
Test Software of EUT:	Ampak RFTestTool, VER:5.3(manufacturer declare)
Antenna Type:	Integral antenna
Antenna Gain:	4dBi@2.4G 2dBi@5G
Test Voltage:	AC 120V, 60Hz

Operation Frequency each of channel(802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		
Operation Frequency each of channel(802.11n HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency		
1	2422MHz	4	2437MHz	7	2452MHz		
2	2427MHz	5	2442MHz				
3	2432MHz	6	2447MHz				

6.4 Description of Support Units

The EUT has been tested with associated equipment below.

Associated equipment name		Manufacture	model	serial number	Supplied by	Certification
AE1	Phone	Apple	A1367	TTF20120027	CTI	FCC
AE2	Router	HuaWei	WS550	K8E8W1531400278 4	CTI	FCC

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

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

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

7 Equipment List

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	03-13-2018	03-12-2019
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-13-2018	03-12-2019
Signal Generator	Keysight	N5182B	MY53051549	03-13-2018	03-12-2019
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-0 02	---	01-10-2018	01-09-2019
High-pass filter	MICRO-TRO NICS	SPA-F-63029-4	---	01-10-2018	01-09-2019
DC Power	Keysight	E3642A	MY54426035	03-13-2018	03-12-2019
PC-1	Lenovo	R4960d	---	03-13-2018	03-12-2019
BT&WI-FI Automatic control	R&S	OSP120	101374	03-13-2018	03-12-2019
RF control unit	JS Tonscend	JS0806-2	15860006	03-13-2018	03-12-2019
RF control unit	JS Tonscend	JS0806-1	15860004	03-13-2018	03-12-2019
RF control unit	JS Tonscend	JS0806-4	158060007	03-13-2018	03-12-2019
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-13-2018	03-12-2019
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Temperature/ Humidity Indicator	Defu	TH128	/	07-02-2018	07-01-2019
Communication test set	Agilent	E5515C	GB47050 534	03-16-2018	03-15-2019
Communication test set	R&S	CMW500	152394	03-16-2018	03-15-2019
LISN	R&S	ENV216	100098	05-10-2018	05-10-2019
LISN	schwarzbeck	NNLK8121	8121-529	05-10-2018	05-10-2019
Voltage Probe	R&S	ESH2-Z3 0299.7810.5 6	100042	06-13-2017	06-11-2020
Current Probe	R&S	EZ-17 816.2063.03	100106	05-30-2018	05-29-2019
ISN	TESEQ	ISN T800	30297	02-06-2018	02-05-2019

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-04-2016	06-03-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	10-28-2018	10-27-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-30-2018	07-29-2019
Microwave Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845SE	980380	01-19-2018	01-18-2019
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057410	06-05-2018	06-03-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	6042	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041	06-05-2018	06-04-2021
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018	05-10-2019
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Receiver	R&S	ESCI7	100938-003	11-22-2017	11-23-2018
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	matur	NCD/070/10711112	---	01-10-2018	01-09-2019
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018	05-10-2019
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018	05-10-2019
Signal Generator	Agilent	E4438C	MY45095744	03-13-2018	03-12-2019
Signal Generator	Keysight	E8257D	MY53401106	03-13-2018	03-12-2019
Temperature/Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-16-2018	03-15-2019
Cable line	Fulai(7M)	SF106	5219/6A	01-10-2018	01-09-2019
Cable line	Fulai(6M)	SF106	5220/6A	01-10-2018	01-09-2019
Cable line	Fulai(3M)	SF106	5216/6A	01-10-2018	01-09-2019
Cable line	Fulai(3M)	SF106	5217/6A	01-10-2018	01-09-2019
Communication test set	R&S	CMW500	104466	02-05-2018	02-04-2019
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-10-2018	01-09-2019
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	---	01-10-2018	01-09-2019
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	---	01-10-2018	01-09-2019

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Test Results List:

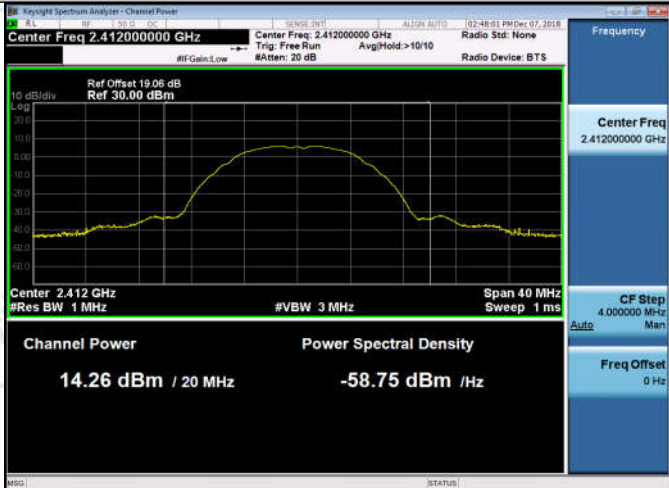
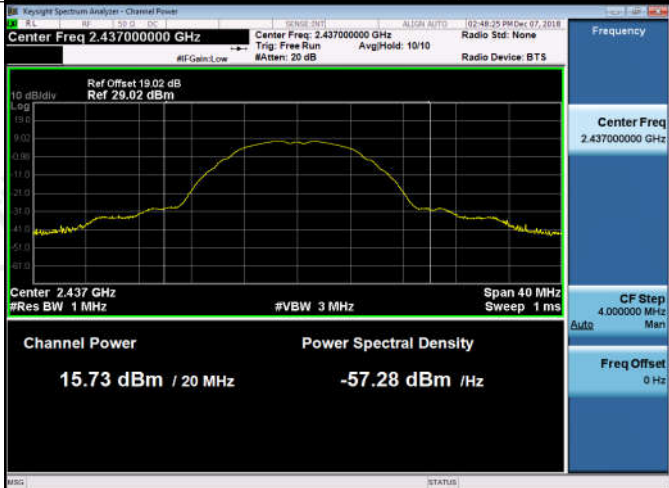
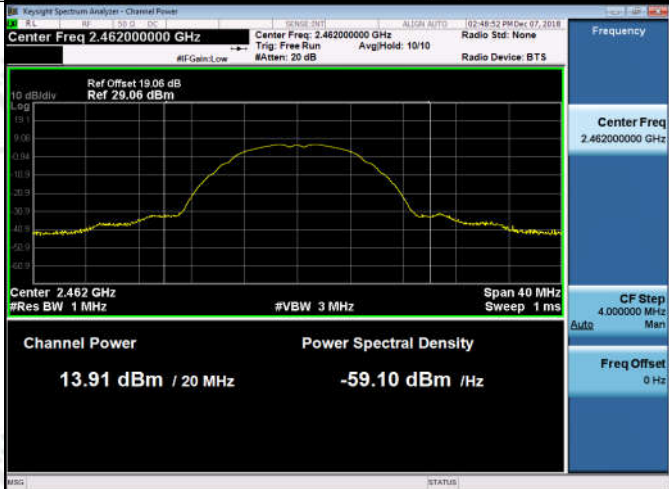
Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS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

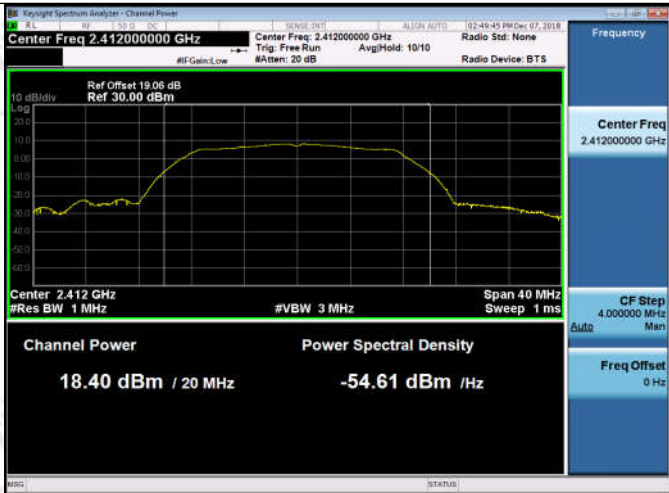
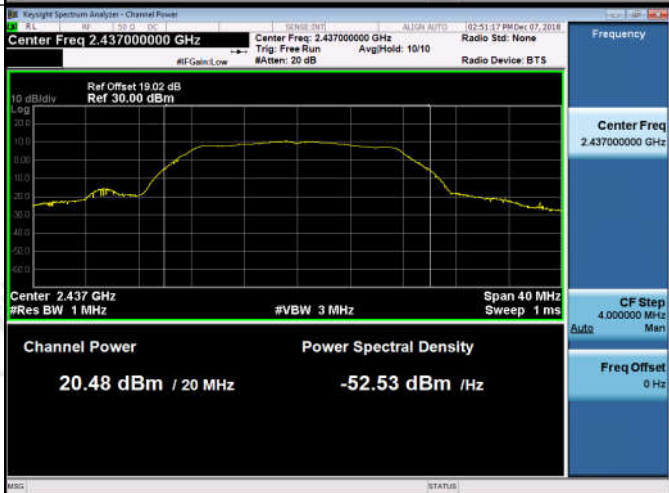
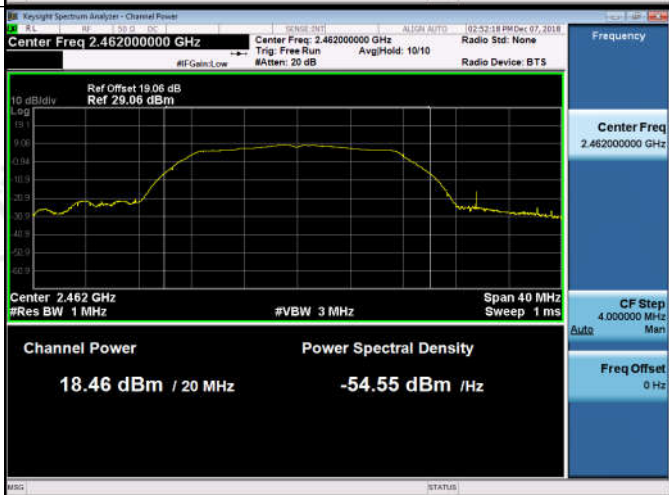
Appendix A): Conducted Peak Output Power

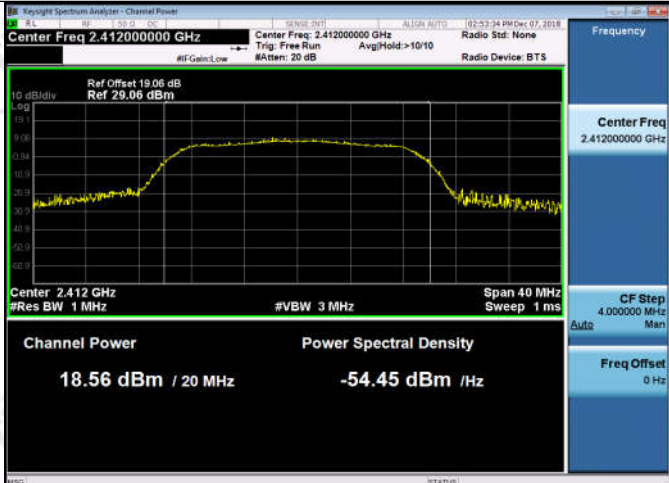
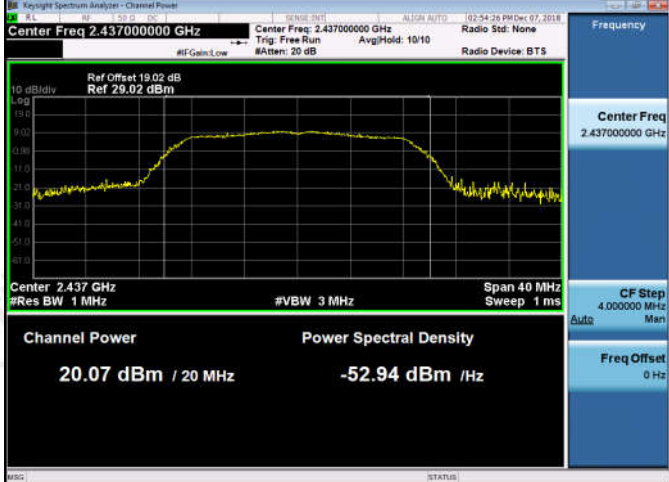
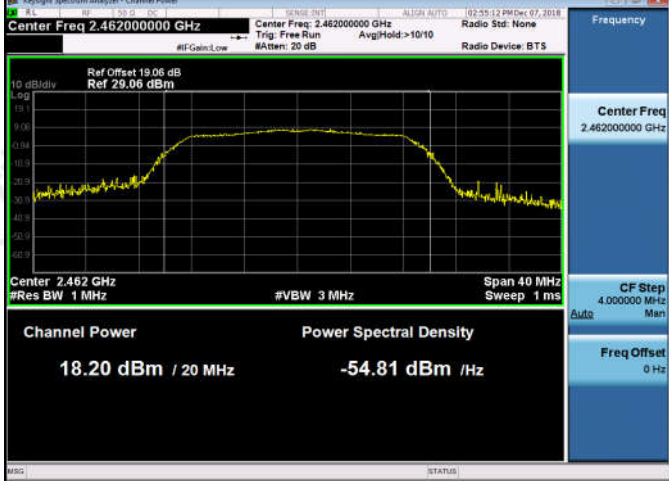
Result Table

Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	14.26	PASS
11B	MCH	15.73	PASS
11B	HCH	13.91	PASS
11G	LCH	18.4	PASS
11G	MCH	20.48	PASS
11G	HCH	18.46	PASS
11N20SISO	LCH	18.56	PASS
11N20SISO	MCH	20.07	PASS
11N20SISO	HCH	18.2	PASS

Test Graph

Graphs	
11B/LCH	 Keygraph Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz Radio Std: None Trig: Free Run Avg/Hold: >10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS Ref Offset 19.06 dB Ref 30.00 dBm Center 2.412 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms Channel Power Power Spectral Density 14.26 dBm / 20 MHz -58.75 dBm / Hz Frequency Center Freq 2.412000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11B/MCH	 Keygraph Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None Trig: Free Run Avg/Hold: 10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS Ref Offset 19.02 dB Ref 29.02 dBm Center 2.437 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms Channel Power Power Spectral Density 15.73 dBm / 20 MHz -57.28 dBm / Hz Frequency Center Freq 2.437000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11B/HCH	 Keygraph Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None Trig: Free Run Avg/Hold: 10/10 #IF Gain: Low #Atten: 20 dB Radio Device: BTS Ref Offset 19.06 dB Ref 29.06 dBm Center 2.462 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms Channel Power Power Spectral Density 13.91 dBm / 20 MHz -59.10 dBm / Hz Frequency Center Freq 2.462000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz

11G/LCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.40 dBm / 20 MHz Power Spectral Density -54.61 dBm / Hz Frequency Center Freq 2.412000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
11G/MCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 20.48 dBm / 20 MHz Power Spectral Density -52.53 dBm / Hz Frequency Center Freq 2.437000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz
11G/HCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 29.06 dBm Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.46 dBm / 20 MHz Power Spectral Density -54.55 dBm / Hz Frequency Center Freq 2.462000000 GHz CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz

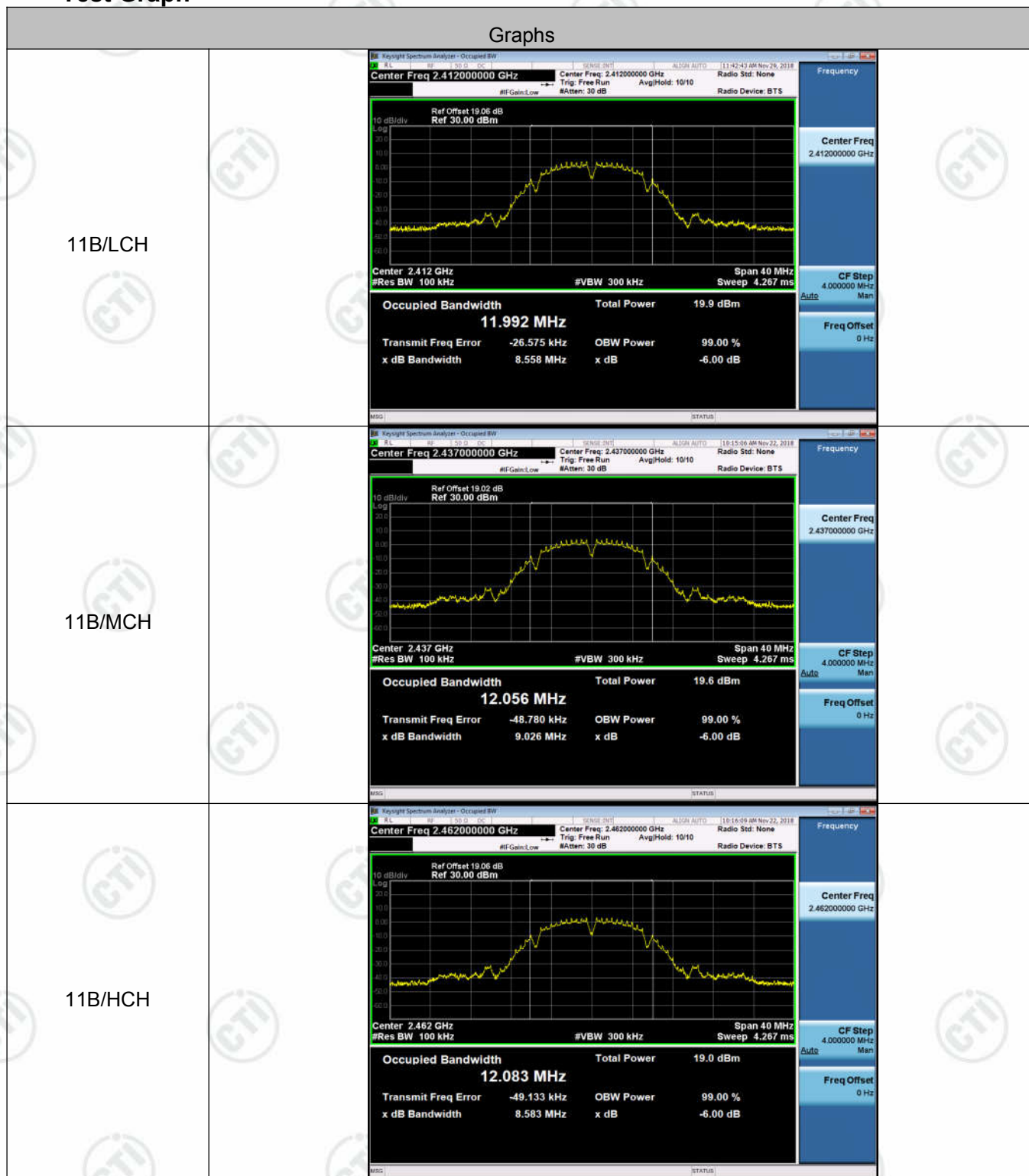
11N20SISO/LCH	 Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 29.06 dBm Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.56 dBm / 20 MHz Power Spectral Density -54.45 dBm /Hz
11N20SISO/MCH	 Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 29.02 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 20.07 dBm / 20 MHz Power Spectral Density -52.94 dBm /Hz
11N20SISO/HCH	 Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 29.06 dBm Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.20 dBm / 20 MHz Power Spectral Density -54.81 dBm /Hz

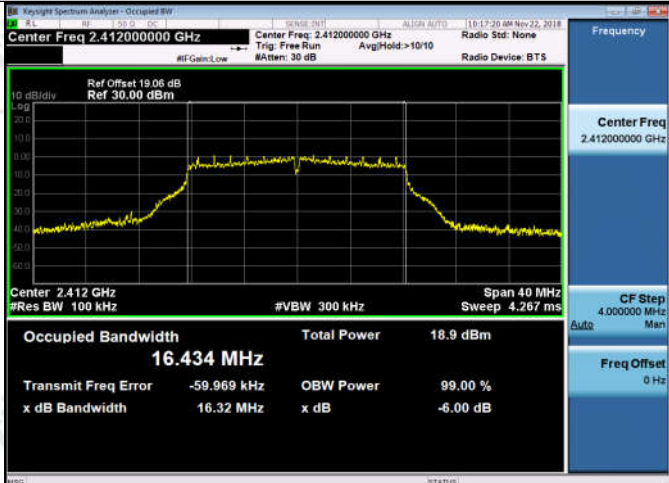
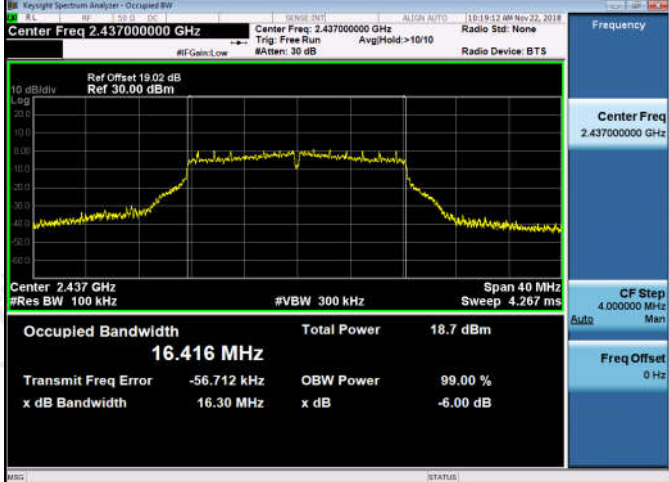
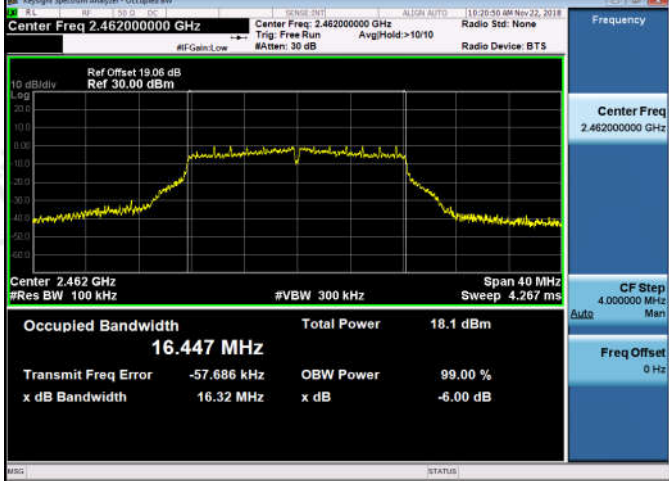
Appendix B): 6dB Occupied Bandwidth

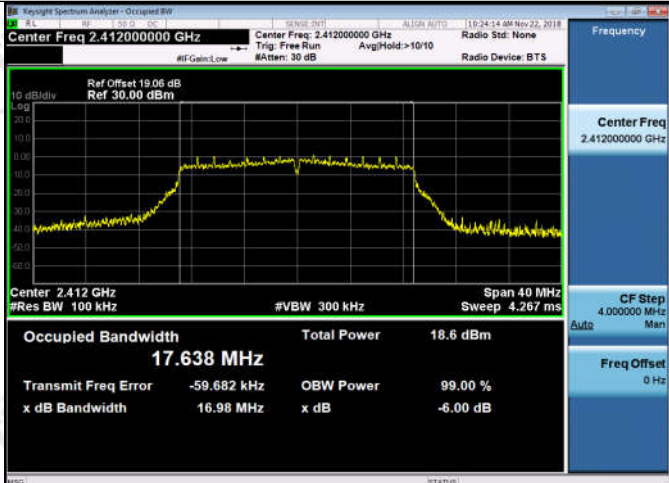
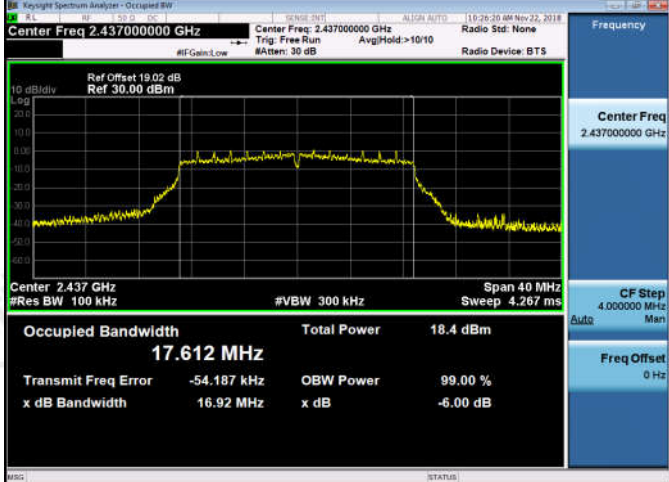
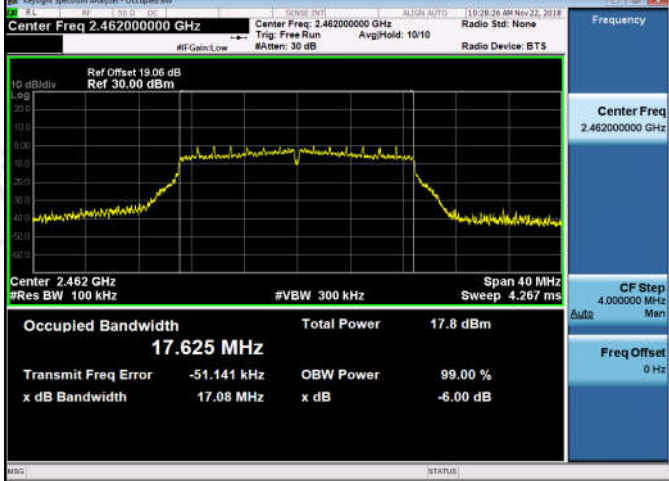
Result Table

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	8.558	11.992	PASS	Peak detector
11B	MCH	9.026	12.056	PASS	
11B	HCH	8.583	12.083	PASS	
11G	LCH	16.32	16.434	PASS	
11G	MCH	16.30	16.416	PASS	
11G	HCH	16.32	16.447	PASS	
11N20SISO	LCH	16.98	17.638	PASS	
11N20SISO	MCH	16.92	17.612	PASS	
11N20SISO	HCH	17.08	17.625	PASS	

Test Graph



11G/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center Freq 2.412000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.434 MHz Total Power 18.9 dBm Transmit Freq Error -59.969 kHz OBW Power 99.00 % x dB Bandwidth 16.32 MHz x dB -6.00 dB
11G/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Center Freq 2.437000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.416 MHz Total Power 18.7 dBm Transmit Freq Error -56.712 kHz OBW Power 99.00 % x dB Bandwidth 16.30 MHz x dB -6.00 dB
11G/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center Freq 2.462000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.447 MHz Total Power 18.1 dBm Transmit Freq Error -57.686 kHz OBW Power 99.00 % x dB Bandwidth 16.32 MHz x dB -6.00 dB

11N20SISO/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.638 MHz Total Power 18.6 dBm Transmit Freq Error -59.682 kHz OBW Power 99.00 % x dB Bandwidth 16.98 MHz x dB -6.00 dB
11N20SISO/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 19.02 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.612 MHz Total Power 18.4 dBm Transmit Freq Error -54.187 kHz OBW Power 99.00 % x dB Bandwidth 16.92 MHz x dB -6.00 dB
11N20SISO/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 19.06 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 17.625 MHz Total Power 17.8 dBm Transmit Freq Error -51.141 kHz OBW Power 99.00 % x dB Bandwidth 17.08 MHz x dB -6.00 dB

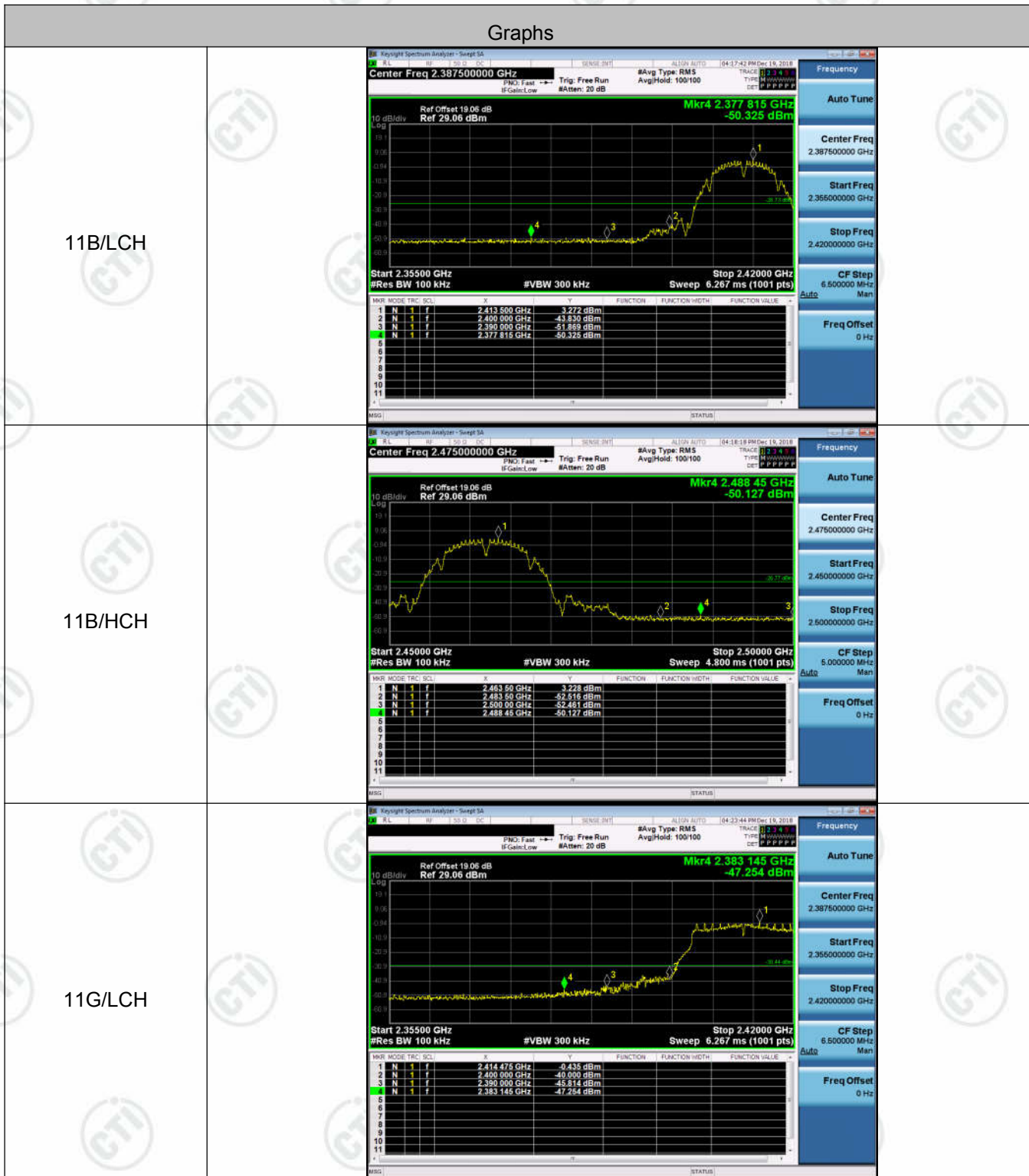
Appendix C): Band-edge for RF Conducted Emissions

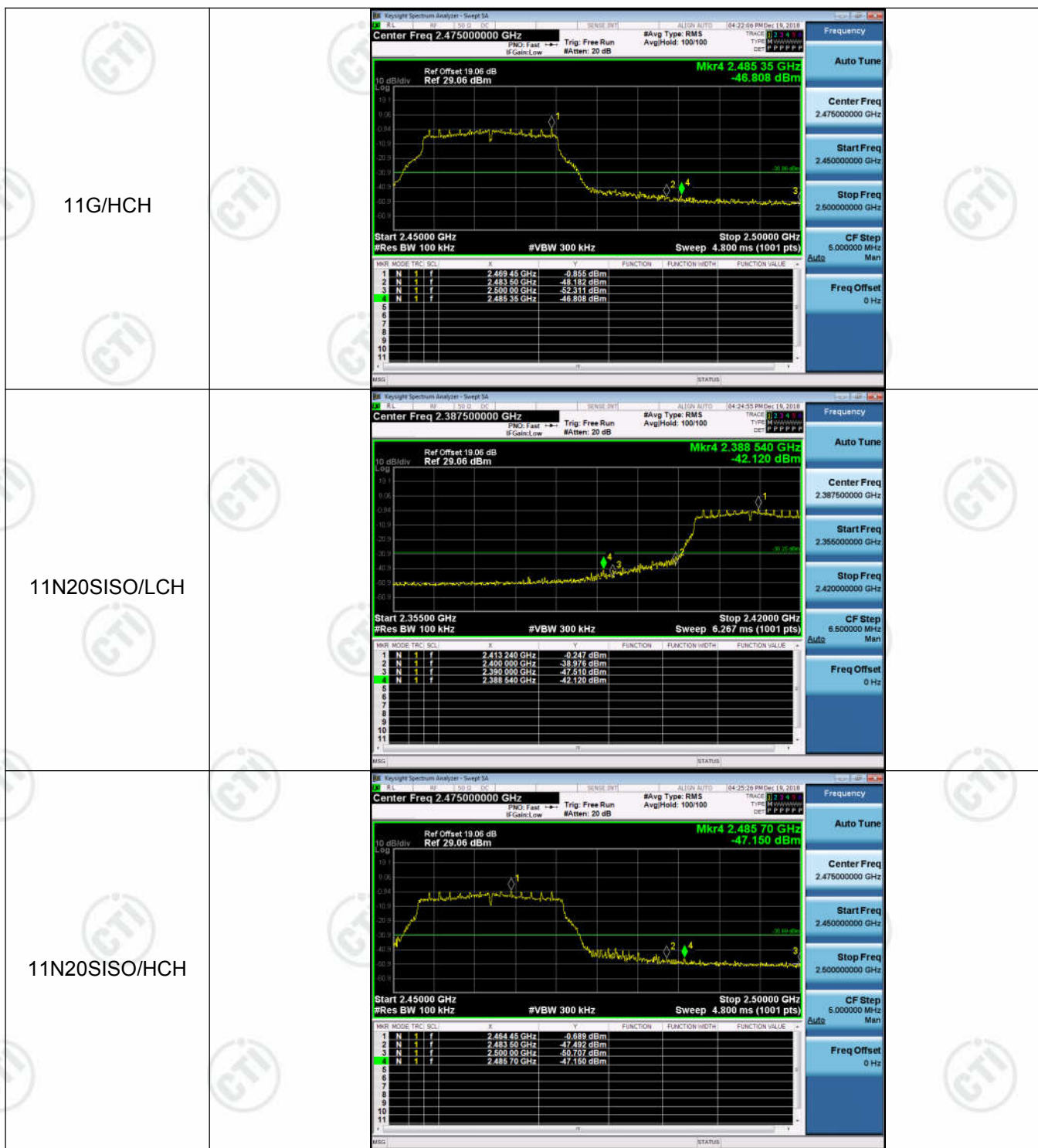
Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.272	-50.325	-26.73	PASS
11B	HCH	3.228	-50.127	-26.77	PASS
11G	LCH	-0.435	-47.254	-30.44	PASS
11G	HCH	-0.855	-46.808	-30.86	PASS
11N20SISO	LCH	-0.247	-42.120	-30.25	PASS
11N20SISO	HCH	-0.689	-47.150	-30.69	PASS

Test Graph

Graphs



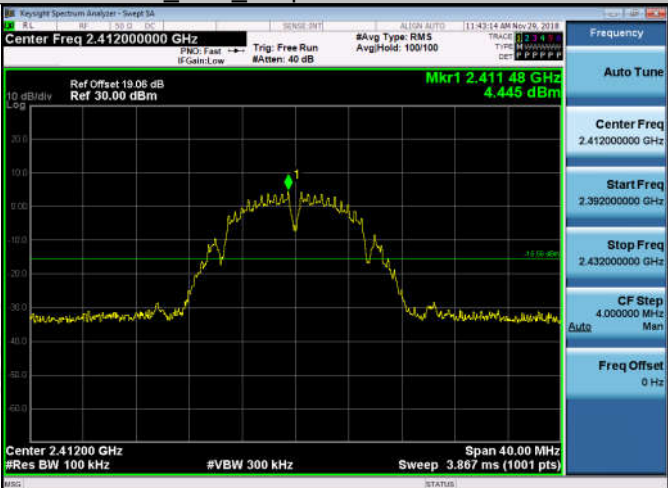
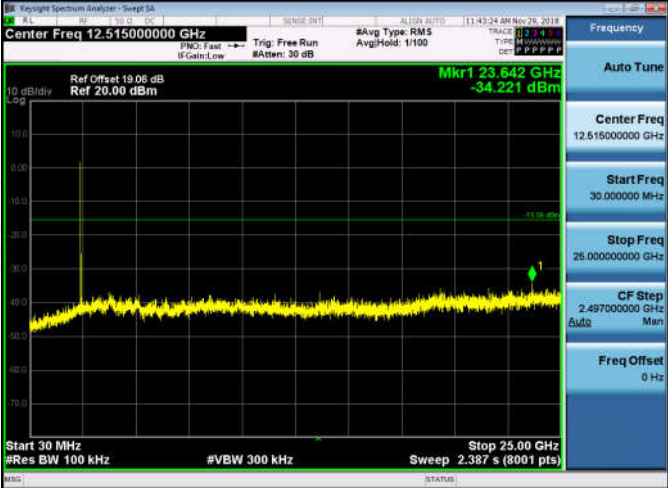


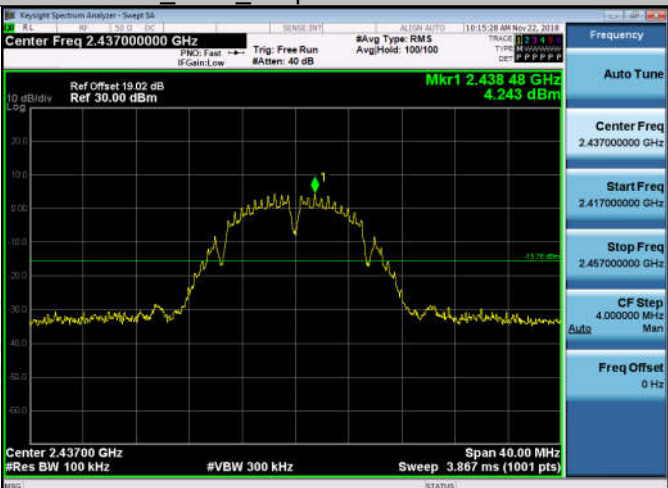
Appendix D): RF Conducted Spurious Emissions

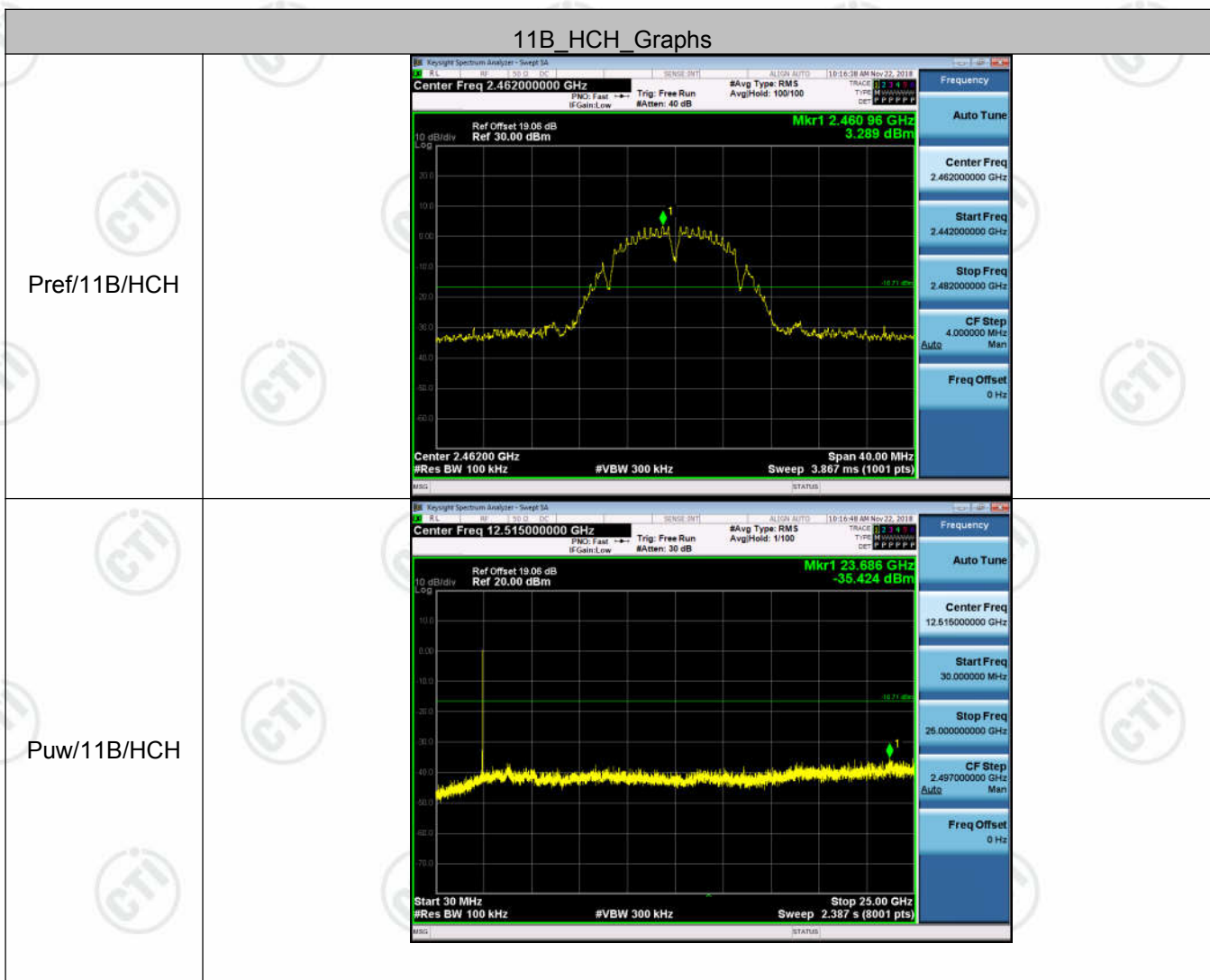
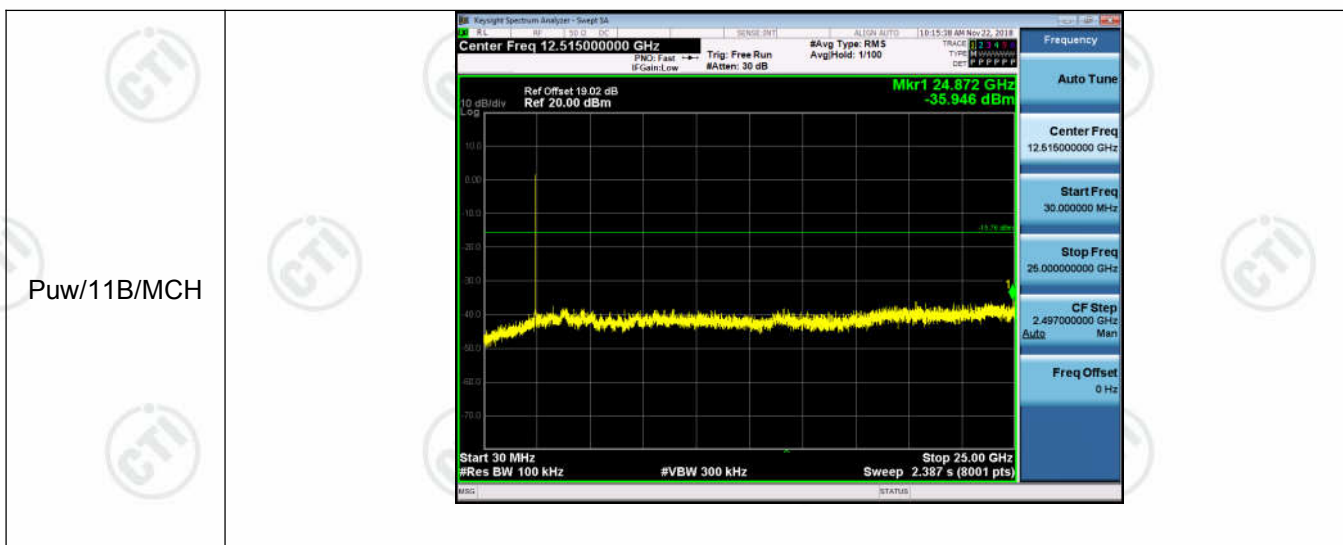
Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	4.445	<Limit	PASS
11B	MCH	4.243	<Limit	PASS
11B	HCH	3.289	<Limit	PASS
11G	LCH	1.128	<Limit	PASS
11G	MCH	0.835	<Limit	PASS
11G	HCH	0.195	<Limit	PASS
11N20SISO	LCH	0.608	<Limit	PASS
11N20SISO	MCH	1.006	<Limit	PASS
11N20SISO	HCH	0.095	<Limit	PASS

Test Graph

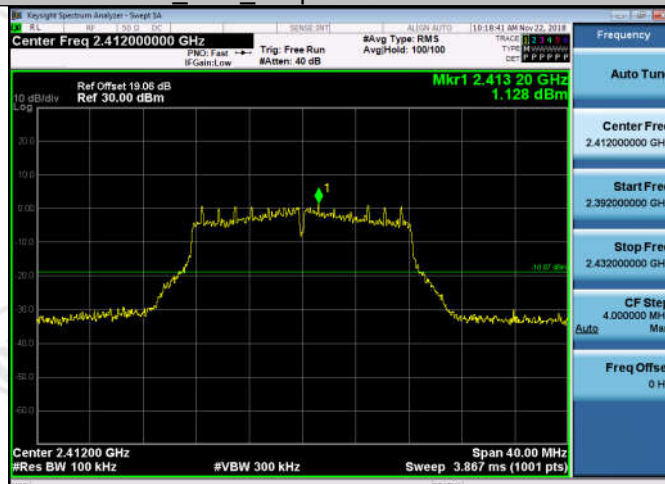
11B_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	

11B_MCH_Graphs	
Pref/11B/MCH	

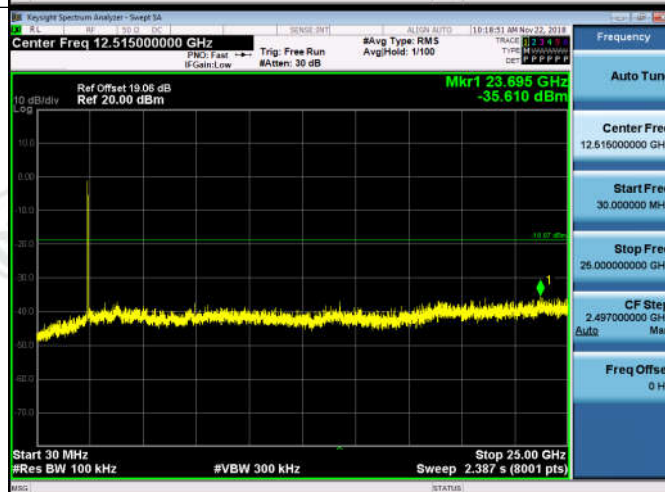


11G_LCH_Graphs

Pref/11G/LCH

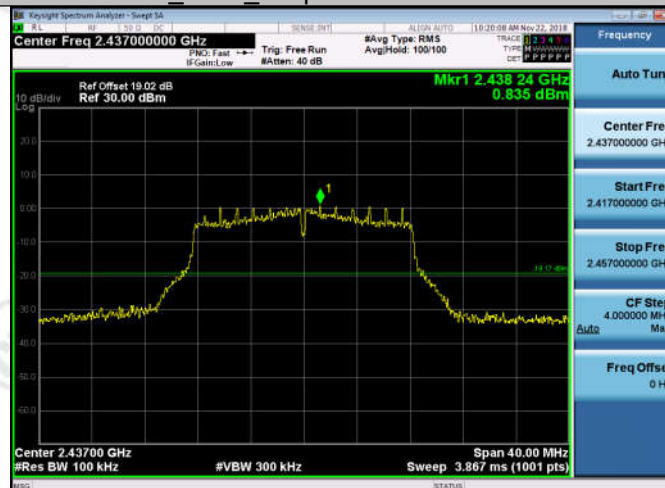


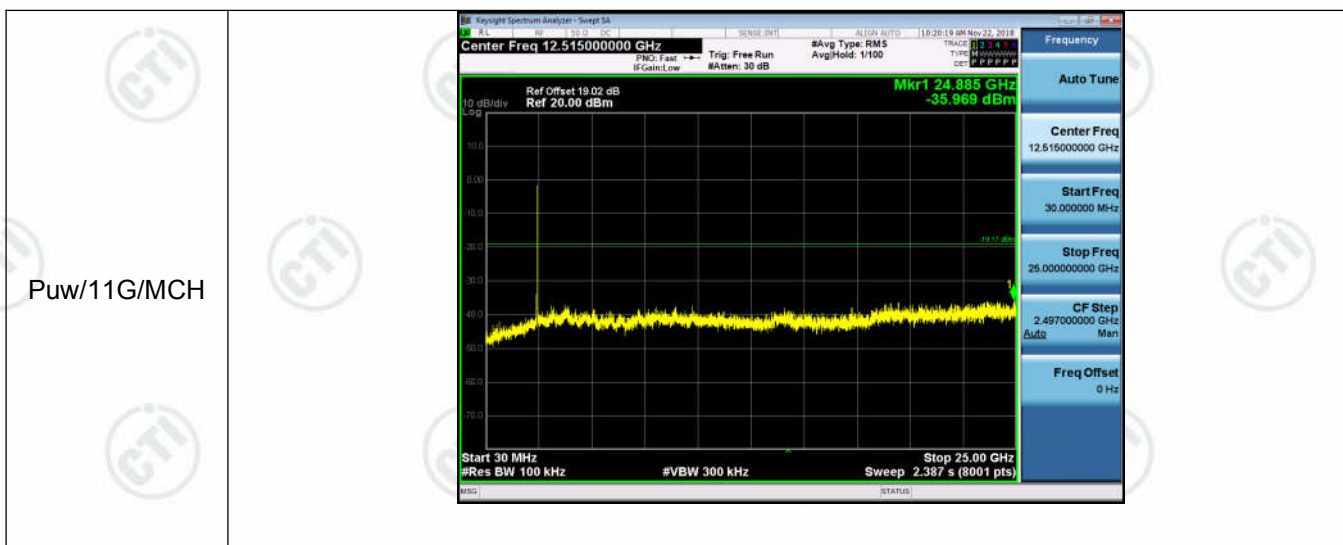
Puw/11G/LCH

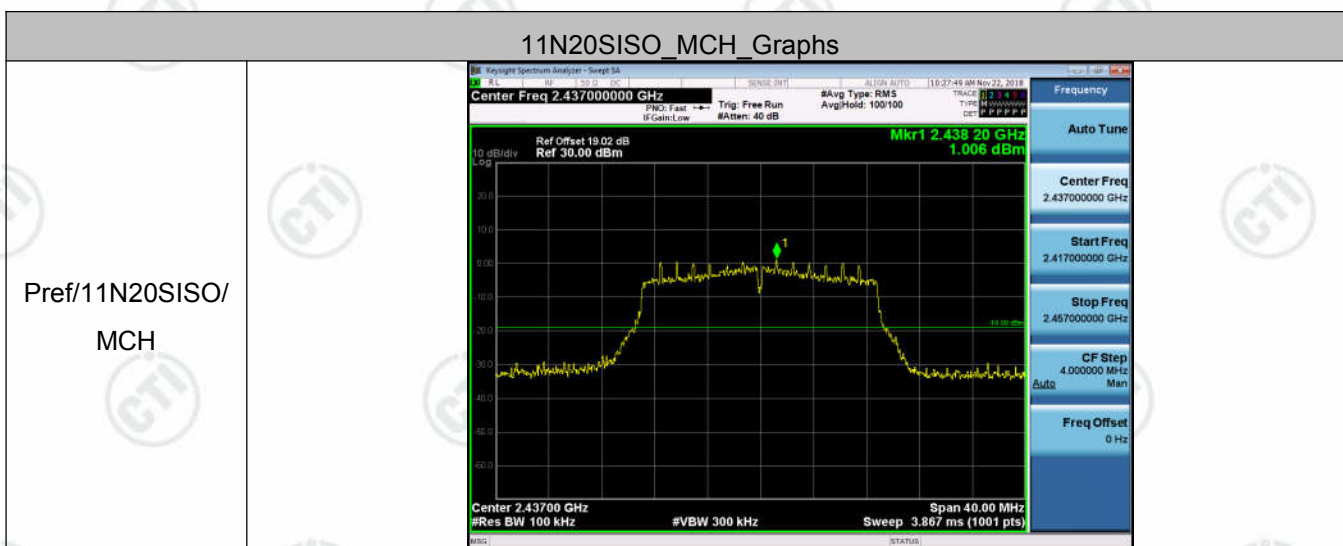
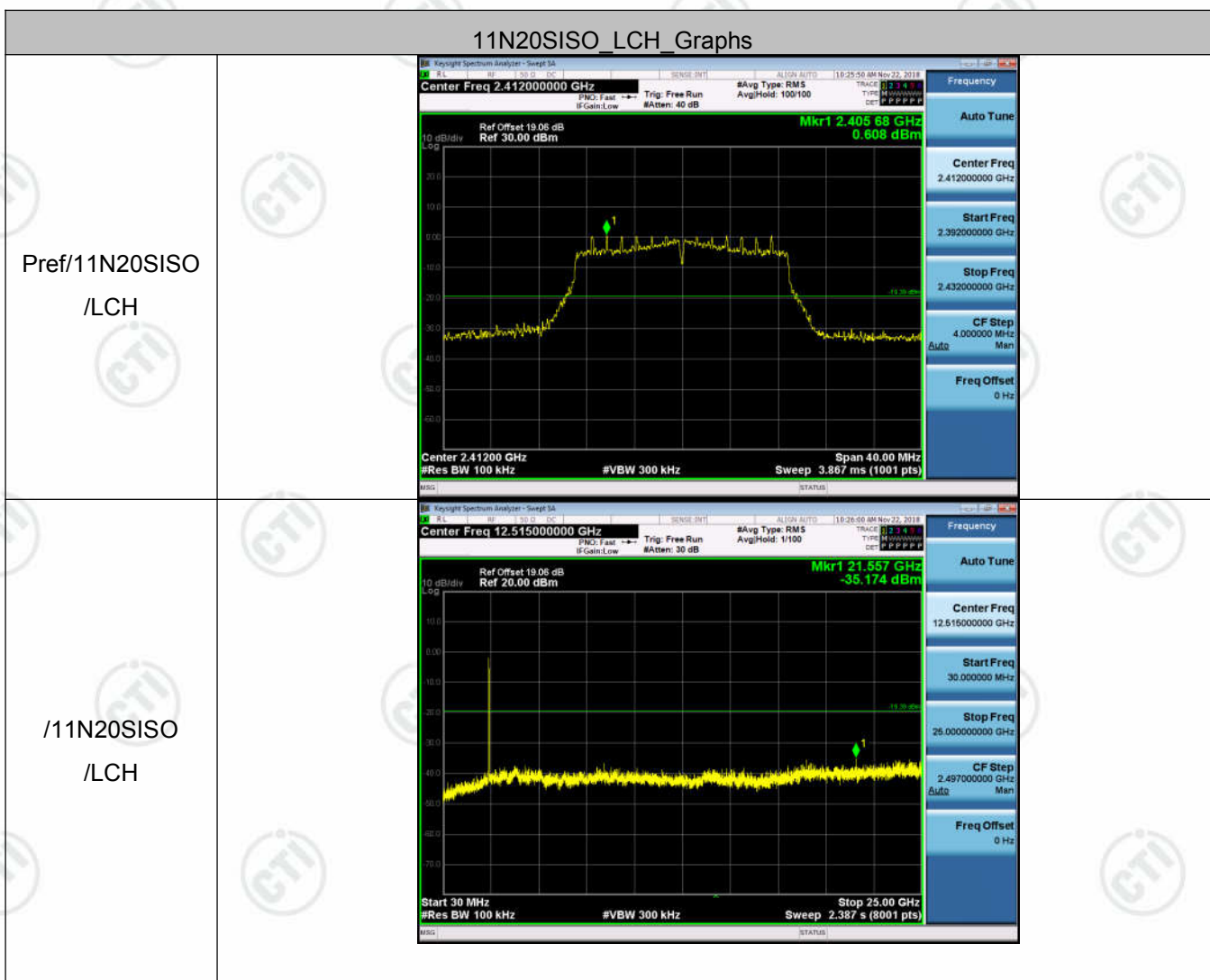


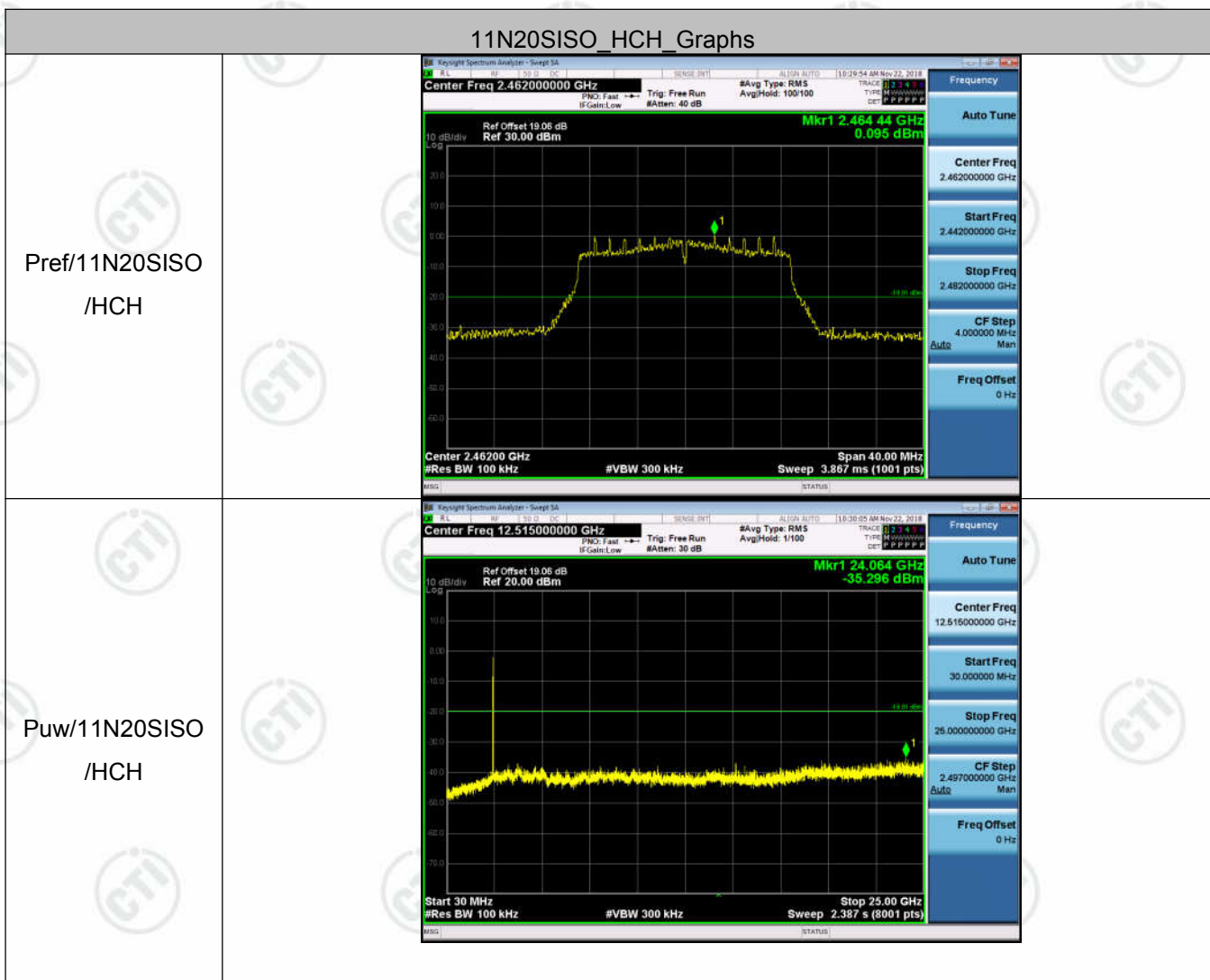
11G_MCH_Graphs

Pref/11G/MCH









Appendix E): Power Spectral Density

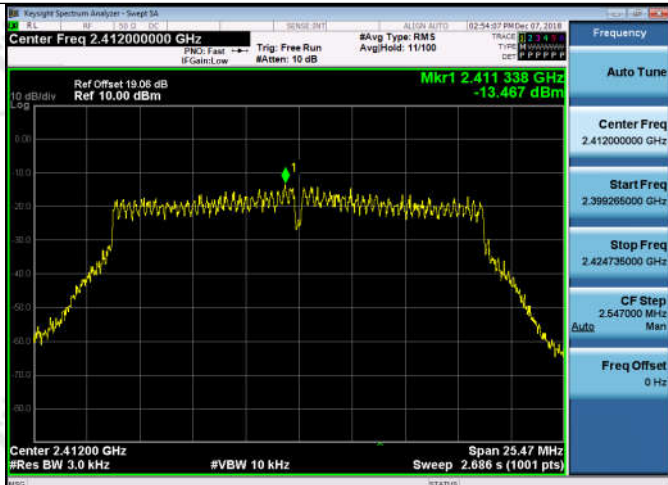
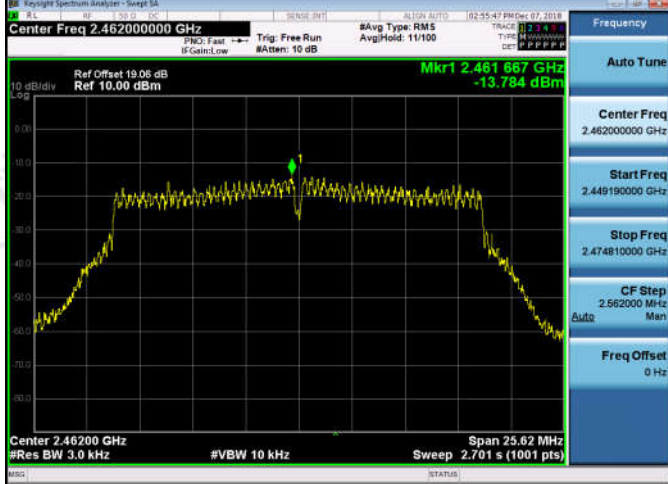
Result Table

Mode	Channel	Power Spectral Density[dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	LCH	-12.225	8	PASS
11B	MCH	-10.274	8	PASS
11B	HCH	-11.458	8	PASS
11G	LCH	-13.064	8	PASS
11G	MCH	-10.791	8	PASS
11G	HCH	-12.804	8	PASS
11N20SISO	LCH	-13.467	8	PASS
11N20SISO	MCH	-11.685	8	PASS
11N20SISO	HCH	-13.784	8	PASS

Test Graph

Graphs	
11B/LCH	Keyight Spectrum Analyzer - Swept SA Center Freq 2.41200000 GHz Ref Offset 19.06 dB Ref 10.00 dBm Mkr1 2.409896 GHz -12.225 dBm Center 2.412000 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 1.354 s (1001 pts) Span 12.84 MHz Frequency Auto Tune Center Freq 2.41200000 GHz Start Freq 2.405591500 GHz Stop Freq 2.418418500 GHz CF Step 1.283700 MHz Auto Man Freq Offset 0 Hz
11B/MCH	Keyight Spectrum Analyzer - Swept SA Center Freq 2.43700000 GHz Ref Offset 19.02 dB Ref 10.00 dBm Mkr1 2.437555 GHz -10.274 dBm Center 2.437000 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 1.428 s (1001 pts) Span 13.54 MHz Frequency Auto Tune Center Freq 2.43700000 GHz Start Freq 2.430230500 GHz Stop Freq 2.443769500 GHz CF Step 1.353900 MHz Auto Man Freq Offset 0 Hz
11B/HCH	Keyight Spectrum Analyzer - Swept SA Center Freq 2.46200000 GHz Ref Offset 19.06 dB Ref 10.00 dBm Mkr1 2.459966 GHz -11.458 dBm Center 2.462000 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 1.358 s (1001 pts) Span 12.87 MHz Frequency Auto Tune Center Freq 2.46200000 GHz Start Freq 2.455562750 GHz Stop Freq 2.468437250 GHz CF Step 1.287450 MHz Auto Man Freq Offset 0 Hz



11N20SISO/LCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.41200000 GHz Ref Offset 19.06 dB Ref 10.00 dBm Mkr1 2.411 338 GHz -13.467 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.47 MHz Sweep 2.686 s (1001 pts)
11N20SISO/MCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.43700000 GHz Ref Offset 19.02 dB Ref 10.00 dBm Mkr1 2.436 366 GHz -11.685 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.38 MHz Sweep 2.676 s (1001 pts)
11N20SISO/HCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.46200000 GHz Ref Offset 19.06 dB Ref 10.00 dBm Mkr1 2.461 567 GHz -13.784 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.62 MHz Sweep 2.701 s (1001 pts)

Appendix F): Antenna Requirement

15.203 requirement:

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

15.247(b) (4) requirement:

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

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 4dBi.



Appendix G): AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ 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. 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, 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. 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.															
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</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> * 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		Frequency range (MHz)	Limit (dB μ 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 μ V)															
	Quasi-peak	Average														
0.15-0.5	66 to 56*	56 to 46*														
0.5-5	56	46														
5-30	60	50														

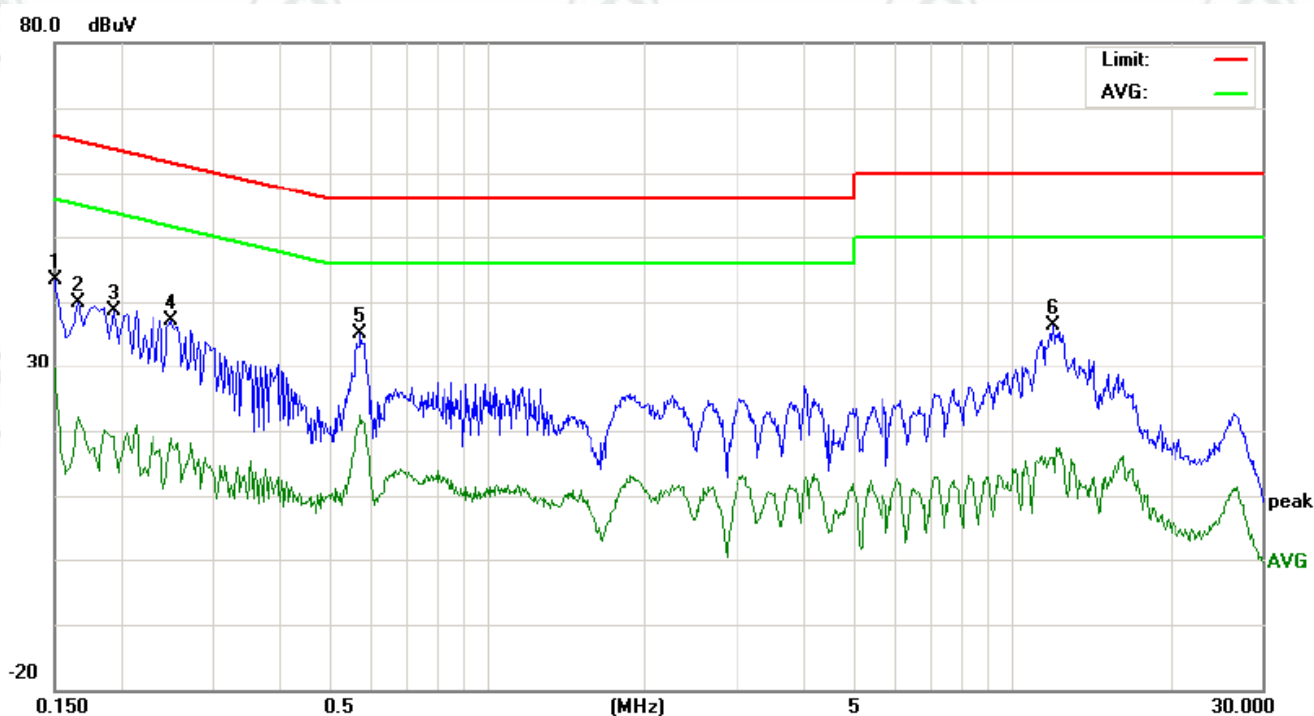
Measurement Data

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.

Product : 10 inch WIFI Digital Photo
Temperature : 24℃
Phase : L

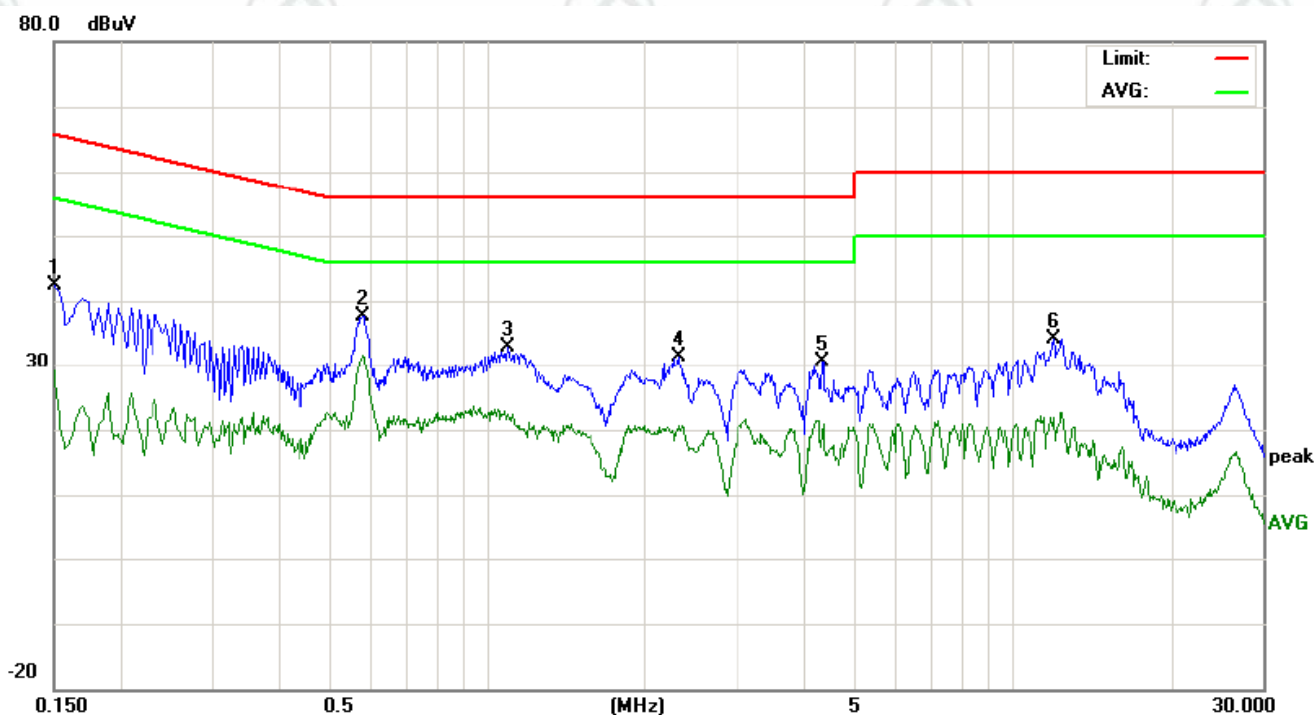
Model/Type reference : Skylight 2
Humidity : 53%



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	33.45	30.02	19.75	9.91	43.36	39.93	29.66	65.99	55.99	-26.06	-26.33	P	
2	0.1660	29.89	25.70	12.29	9.91	39.80	35.61	22.20	65.15	55.15	-29.54	-32.95	P	
3	0.1940	28.80	25.14	9.11	9.91	38.71	35.05	19.02	63.86	53.86	-28.81	-34.84	P	
4	0.2500	27.19	24.26	8.91	9.89	37.08	34.15	18.80	61.75	51.75	-27.60	-32.95	P	
5	0.5740	25.27	21.38	12.59	9.84	35.11	31.22	22.43	56.00	46.00	-24.78	-23.57	P	
6	12.0219	26.30	23.48	5.88	10.08	36.38	33.56	15.96	60.00	50.00	-26.44	-34.04	P	

Product : 10 inch WIFI Digital Photo
Temperature : 24°C
Phase : N

Model/Type reference : Skylight 2
Humidity : 53%



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	32.36	29.18	19.25	9.91	42.27	39.09	29.16	65.99	55.99	-26.90	-26.83	P	
2	0.5820	27.72	24.35	21.84	9.84	37.56	34.19	31.68	56.00	46.00	-21.81	-14.32	P	
3	1.0940	22.96	19.12	12.57	9.81	32.77	28.93	22.38	56.00	46.00	-27.07	-23.62	P	
4	2.3179	21.54	17.42	10.42	9.72	31.26	27.14	20.14	56.00	46.00	-28.86	-25.86	P	
5	4.3540	20.97	17.56	9.91	9.72	30.69	27.28	19.63	56.00	46.00	-28.72	-26.37	P	
6	12.0260	24.09	20.17	11.83	10.08	34.17	30.25	21.91	60.00	50.00	-29.75	-28.09	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:	Below 1GHz test procedure as below: - 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. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - 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. - 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. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - 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 Above 1GHz test procedure as below: - 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). - Test the EUT in the lowest channel , the Highest channel - 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. - Repeat above procedures until all frequencies measured was complete.				
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	