

TEST REPORT

Product : reMarkable paper tablet
Trade mark : **reMarkable**
Model/Type reference : RM102
Serial Number : N/A
Report Number : EED32L00004801
FCC ID : 2AMK2-RM102
Date of Issue : Mar. 12, 2019
Test Standards : 47 CFR Part 15Subpart C
Test result : PASS

Prepared for:

reMarkable AS

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Prepared by:

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Date:

Mar. 12, 2019

Check No.:3096325411



2 Version

Version No.	Date	Description
00	Mar. 12, 2019	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.

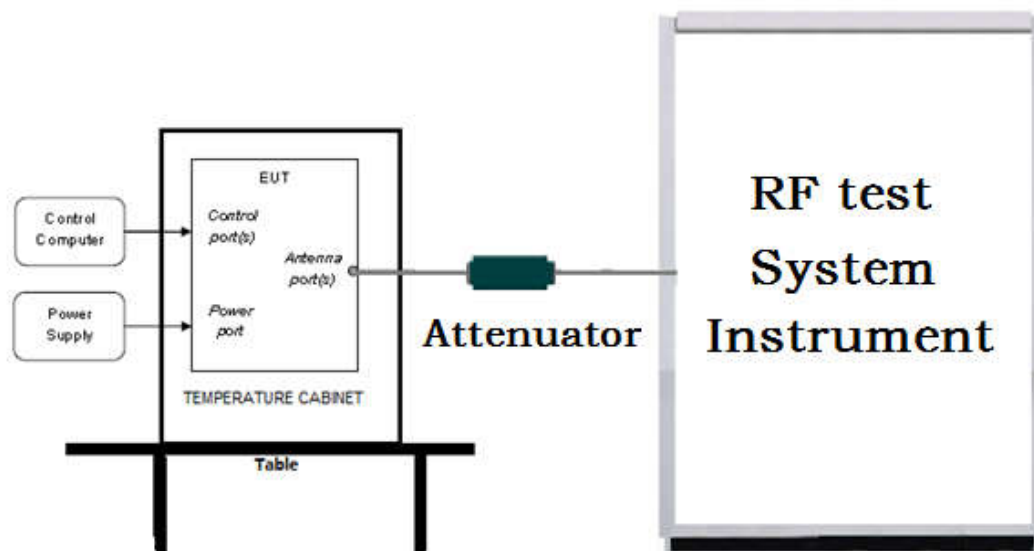
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

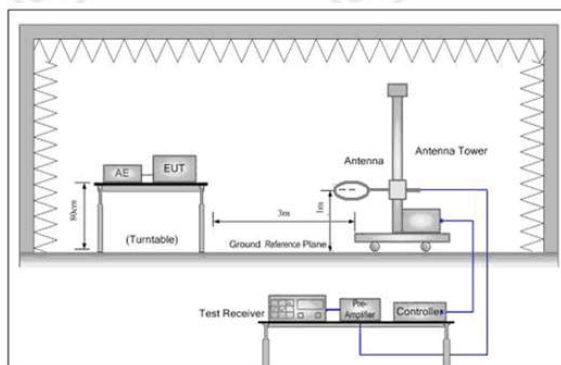


Figure 1. Below 30MHz

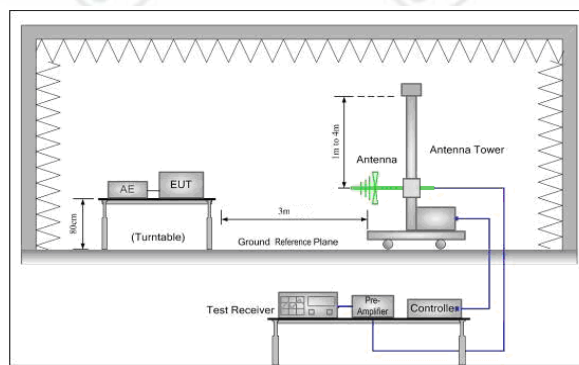


Figure 2. 30MHz to 1GHz

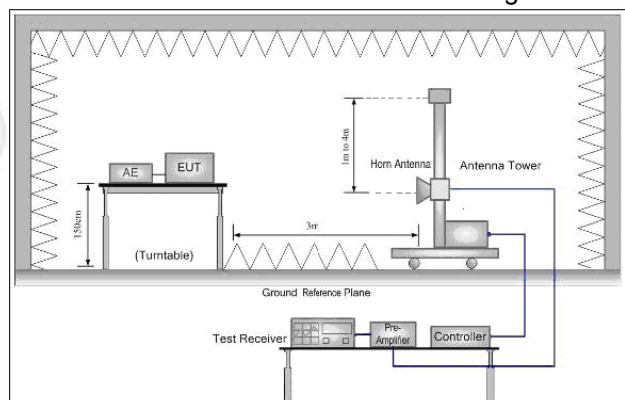
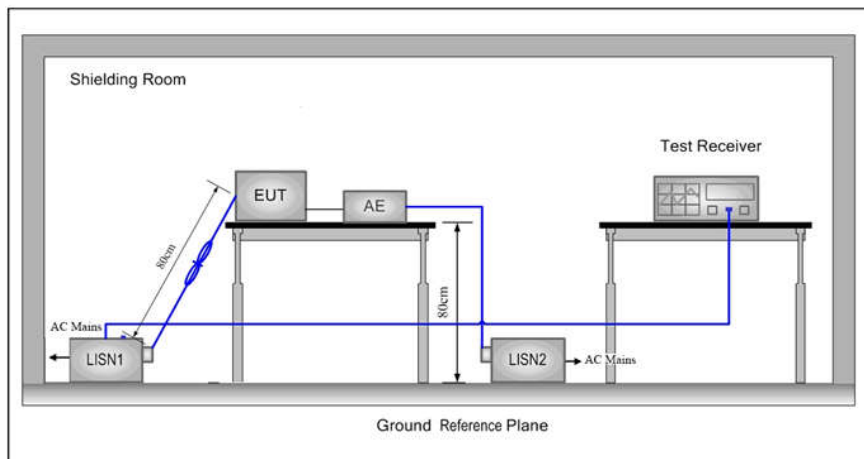


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	21.0 °C
Humidity:	56 % 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

Ocean under an Rate at lowest channel								
Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power(dBm)	17.24	17.85	18.00	18.18				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	18.16	18.07	17.68	17.51	17.32	17.13	17.01	16.85
Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	18.02	17.85	17.61	17.21	17.07	16.82	16.52	16.24

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:	reMarkable AS
Address of Applicant:	Biermanns gate 6, 0374 Oslo, Norway
Manufacturer:	reMarkable AS
Address of Manufacturer:	Biermanns gate 6, 0374 Oslo, Norway
Factory:	Dongguan Kaifa Technology Co., Ltd.
Address of Factory:	Kaifa Park of CEC Industry Base, Humen town, Dongguan City, Guangdong Province.

6.2 General Description of EUT

Product Name:	reMarkable paper tablet
Model No.(EUT):	RM102
Trade Mark:	reMarkable
EUT Supports Radios application:	2.4GHz Wi-Fi: 802.11b/g/n(HT20): 2412MHz ~2462 MHz, 5GHz Wi-Fi : 5.15-5.25GHz;5.725-5.850GHz, 802.11 a, 802.11n(HT20/HT40);802.11ac(VHT20/VHT40/VHT80)
Power Supply:	Polymer Li-ion Battery 3.7V, 3000mAh
USB Cable:	102cm(Unscreened)
Sample Received Date:	Jan. 08, 2019
Sample tested Date:	Jan. 11, 2019 to Jan. 29, 2019

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:	N/A						
Test software of EUT:	N/A						
Firmware version of the sample:	7.45.96.32(manufacturer declare)						
Hardware version of the sample:	D(manufacturer declare)						
Antenna Type:	PIFA Antenna						
Antenna Gain:	2.27dBi						
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	Mouse	Lenovo	M-UAE119	LZ834A60ADM	CTI	FCC
AE2	PC	Apple	MMGF2 ZP/A	ODN20170212	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 8NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
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
Barometer	changchun	DYM3	1188	07-02-2018	07-01-2019

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	EMC051845 SE	980380	01-17-2017 01-16-2018	01-16-2018 01-15-2019
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	11-23-2018	11-22-2019
Multi device Controller	maturio	NCD/070/10711112	---	01-09-2019	01-08-2020
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	01-09-2019	01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2019	01-08-2020
Communication test set	R&S	CMW500	104466	02-05-2018	02-04-2019
High-pass filter	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-09-2019	01-08-2020

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-20-2018	06-19-2019
Receiver	Keysight	N9038A	MY57290136	03-28-2018	03-27-2019
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-28-2018	03-27-2019
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-28-2018	03-27-2019
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-075	04-25-2018	04-23-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-23-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-829	04-25-2018	04-23-2021
Communication Antenna	Schwarzbeck	CLSA 0110L	1014	02-15-2018	02-14-2019
Biconical antenna	Schwarzbeck	VUBA 9117	9117-381	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGR EN	3117	00057407	07-10-2018	07-08-2021
Preamplifier	EMCI	EMC184055SE	980596	06-20-2018	06-19-2019
Communication test set	R&S	CMW500	102898	01-19-2018 01-18-2019	01-18-2019 01-17-2020
Preamplifier	EMCI	EMC001330	980563	06-20-2018	06-19-2019
Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Temperature/Humidity Indicator	biaozhi	GM1360	EE1186631	05-02-2018	05-01-2019
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-13-2018	03-12-2019
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-15-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-08-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-09-2019	01-08-2020
Cable line	Times	EMC104-NMNM-1000	SN160710	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-09-2019	01-08-2020
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-09-2019	01-08-2020

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:

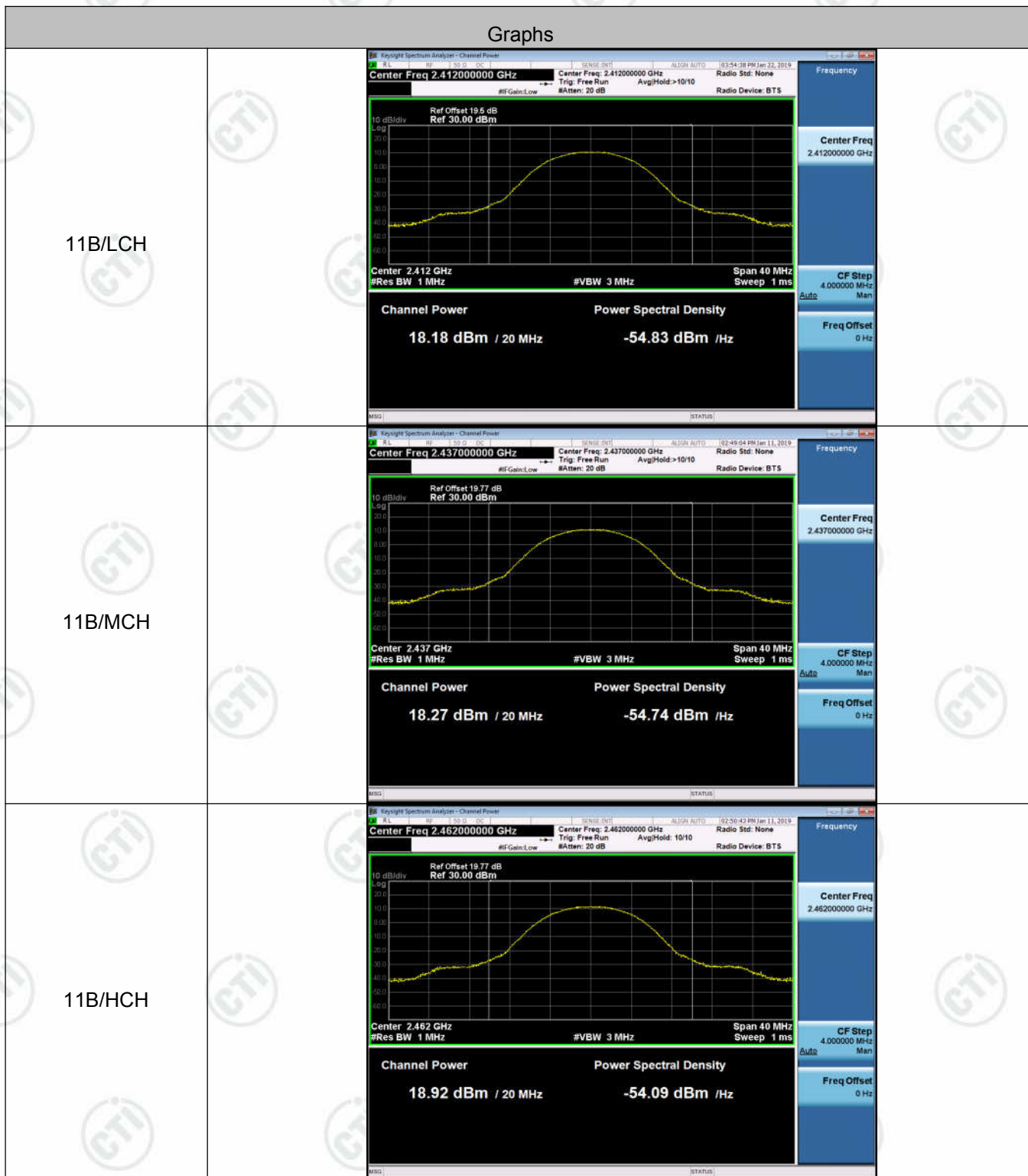
Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS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

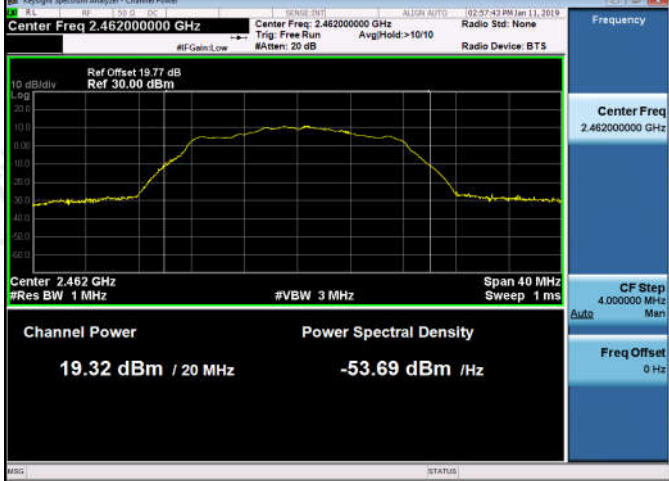
Appendix A): Conducted Peak Output Power

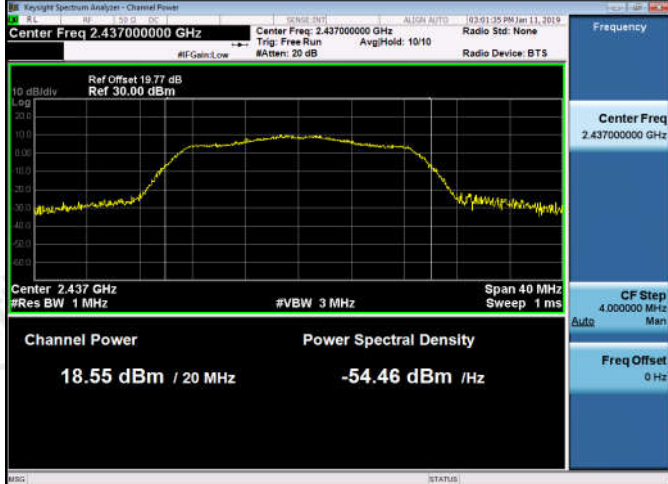
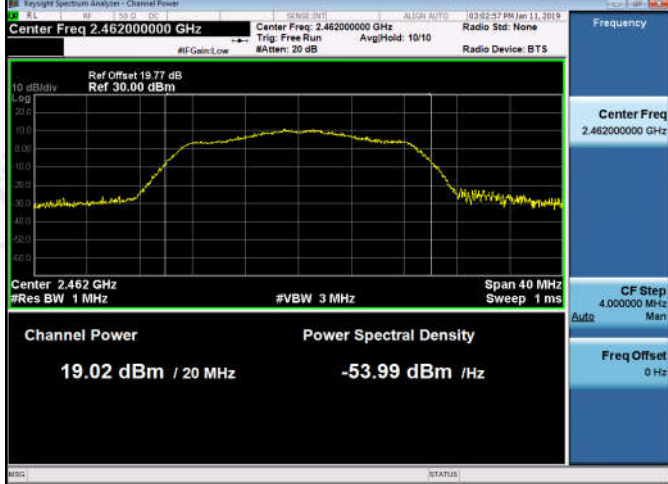
Result Table

Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	18.18	PASS
11B	MCH	18.27	PASS
11B	HCH	18.92	PASS
11G	LCH	18.16	PASS
11G	MCH	18.94	PASS
11G	HCH	19.32	PASS
11N20SISO	LCH	18.02	PASS
11N20SISO	MCH	18.55	PASS
11N20SISO	HCH	19.02	PASS

Test Graph



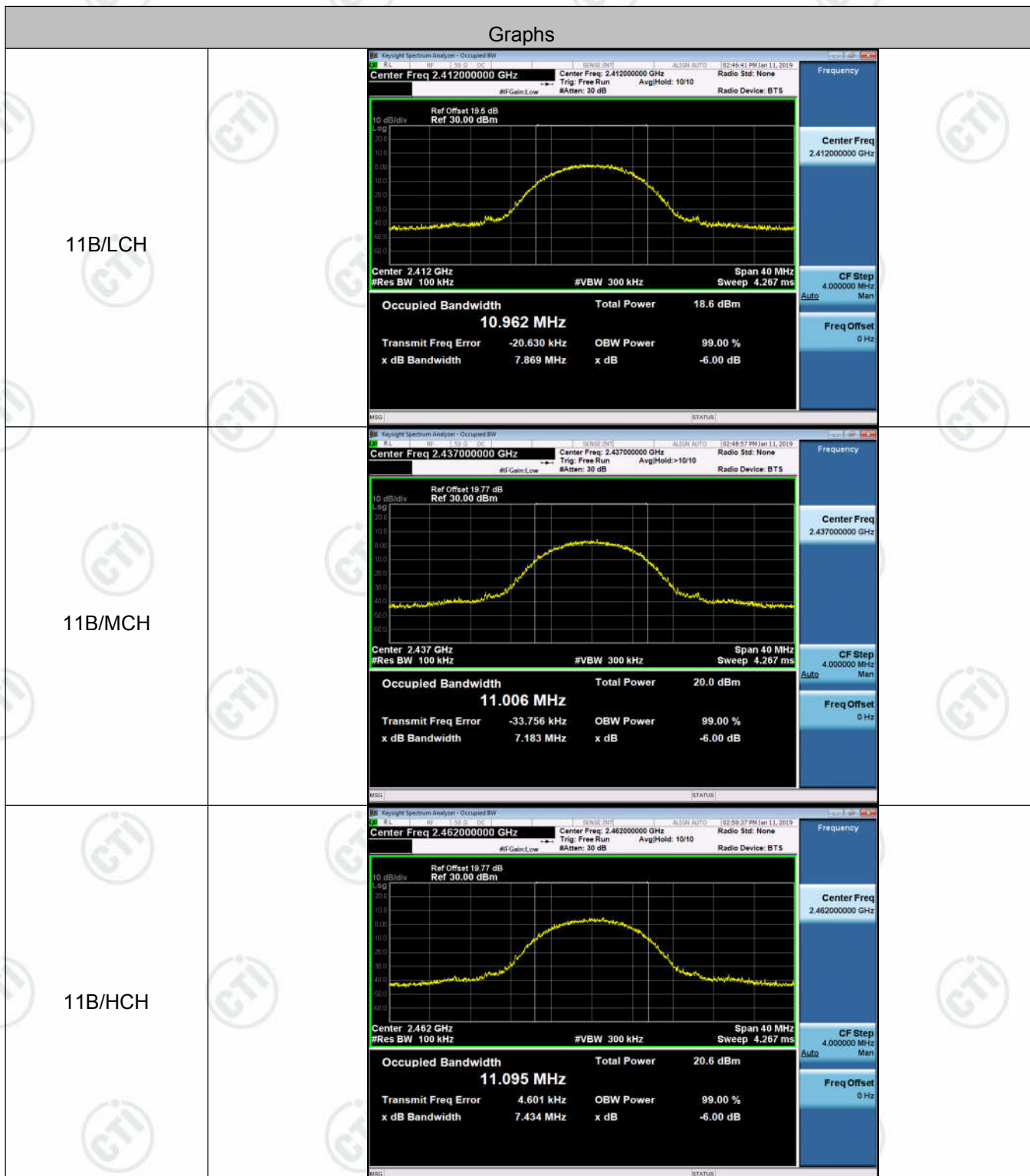
11G/LCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.16 dBm / 20 MHz Power Spectral Density -54.85 dBm / Hz
11G/MCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.94 dBm / 20 MHz Power Spectral Density -54.07 dBm / Hz
11G/HCH	 Keyight Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 19.32 dBm / 20 MHz Power Spectral Density -53.69 dBm / Hz

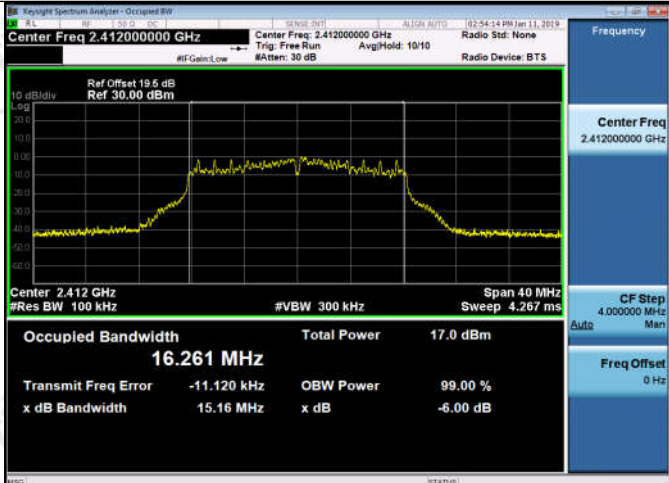
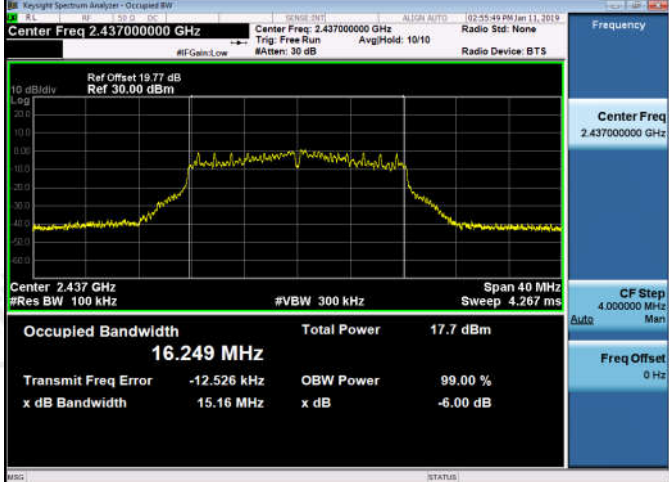
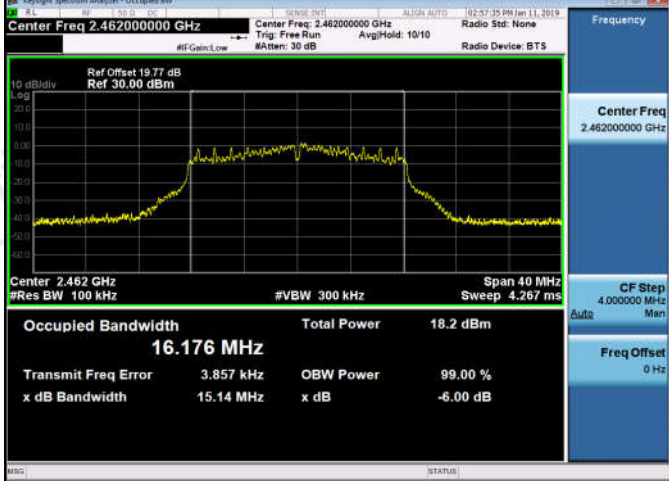
11N20SISO/LCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 29.50 dBm Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.02 dBm / 20 MHz Power Spectral Density -54.99 dBm / Hz Center Freq 2.412000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11N20SISO/MCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 18.55 dBm / 20 MHz Power Spectral Density -54.46 dBm / Hz Center Freq 2.437000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz
11N20SISO/HCH	 Keynote Spectrum Analyzer - Channel Power Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 40 MHz Sweep 1 ms Channel Power 19.02 dBm / 20 MHz Power Spectral Density -53.99 dBm / Hz Center Freq 2.462000000 GHz CF Step 4.000000 MHz Freq Offset 0 Hz

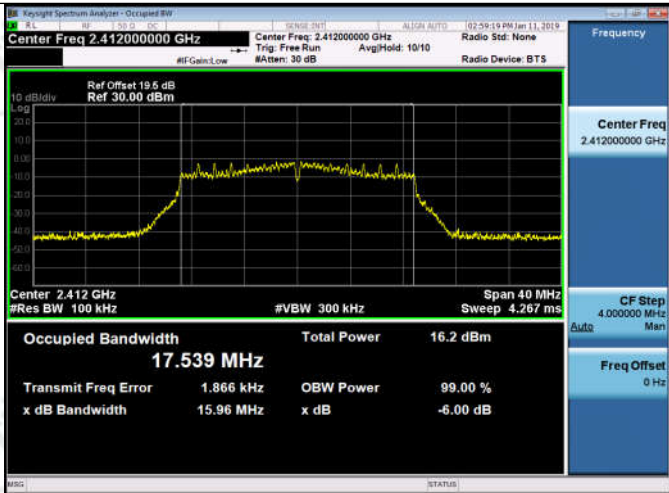
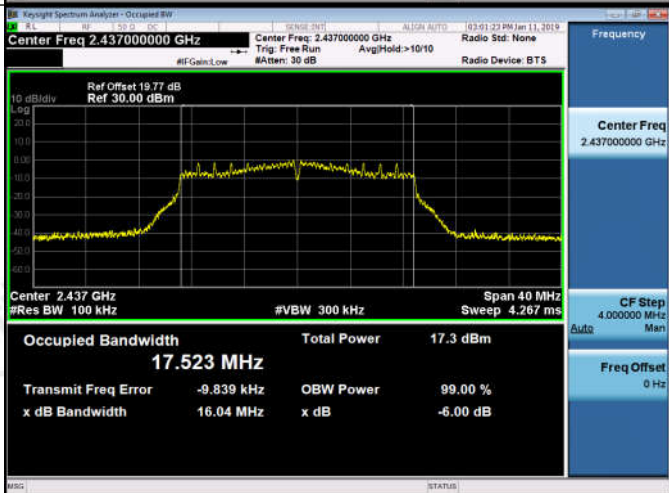
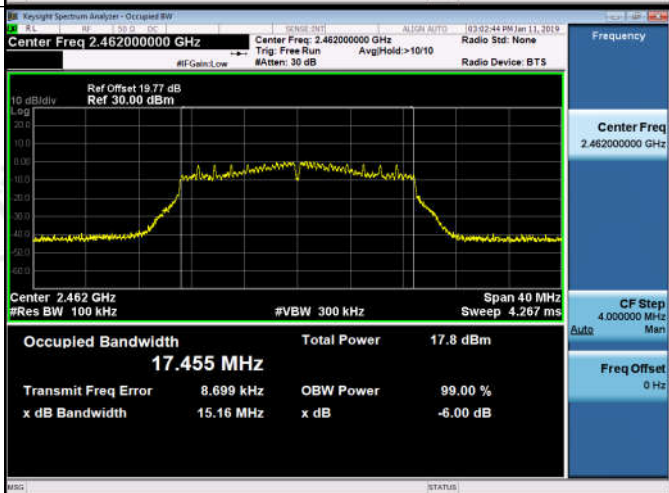
Appendix B): 6dB Occupied Bandwidth Result Table

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	7.869	10.962	PASS	Peak detector
11B	MCH	7.183	11.006	PASS	
11B	HCH	7.434	11.095	PASS	
11G	LCH	15.16	16.261	PASS	
11G	MCH	15.16	16.249	PASS	
11G	HCH	15.14	16.176	PASS	
11N20SISO	LCH	15.96	17.539	PASS	
11N20SISO	MCH	16.04	17.523	PASS	
11N20SISO	HCH	15.16	17.455	PASS	

Test Graph



11G/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center Freq 2.412000000 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.261 MHz Total Power 17.0 dBm Transmit Freq Error -11.120 kHz OBW Power 99.00 % x dB Bandwidth 15.16 MHz x dB -6.00 dB
11G/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center Freq 2.437000000 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.249 MHz Total Power 17.7 dBm Transmit Freq Error -12.526 kHz OBW Power 99.00 % x dB Bandwidth 15.16 MHz x dB -6.00 dB
11G/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center Freq 2.462000000 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.267 ms Occupied Bandwidth 16.176 MHz Total Power 18.2 dBm Transmit Freq Error 3.857 kHz OBW Power 99.00 % x dB Bandwidth 15.14 MHz x dB -6.00 dB

11N20SISO/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz Occupied Bandwidth 17.539 MHz Total Power 16.2 dBm Transmit Freq Error 1.866 kHz OBW Power 99.00 % x dB Bandwidth 15.96 MHz x dB -6.00 dB
11N20SISO/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz Occupied Bandwidth 17.523 MHz Total Power 17.3 dBm Transmit Freq Error -9.839 kHz OBW Power 99.00 % x dB Bandwidth 16.04 MHz x dB -6.00 dB
11N20SISO/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz Occupied Bandwidth 17.455 MHz Total Power 17.8 dBm Transmit Freq Error 8.699 kHz OBW Power 99.00 % x dB Bandwidth 15.16 MHz x dB -6.00 dB

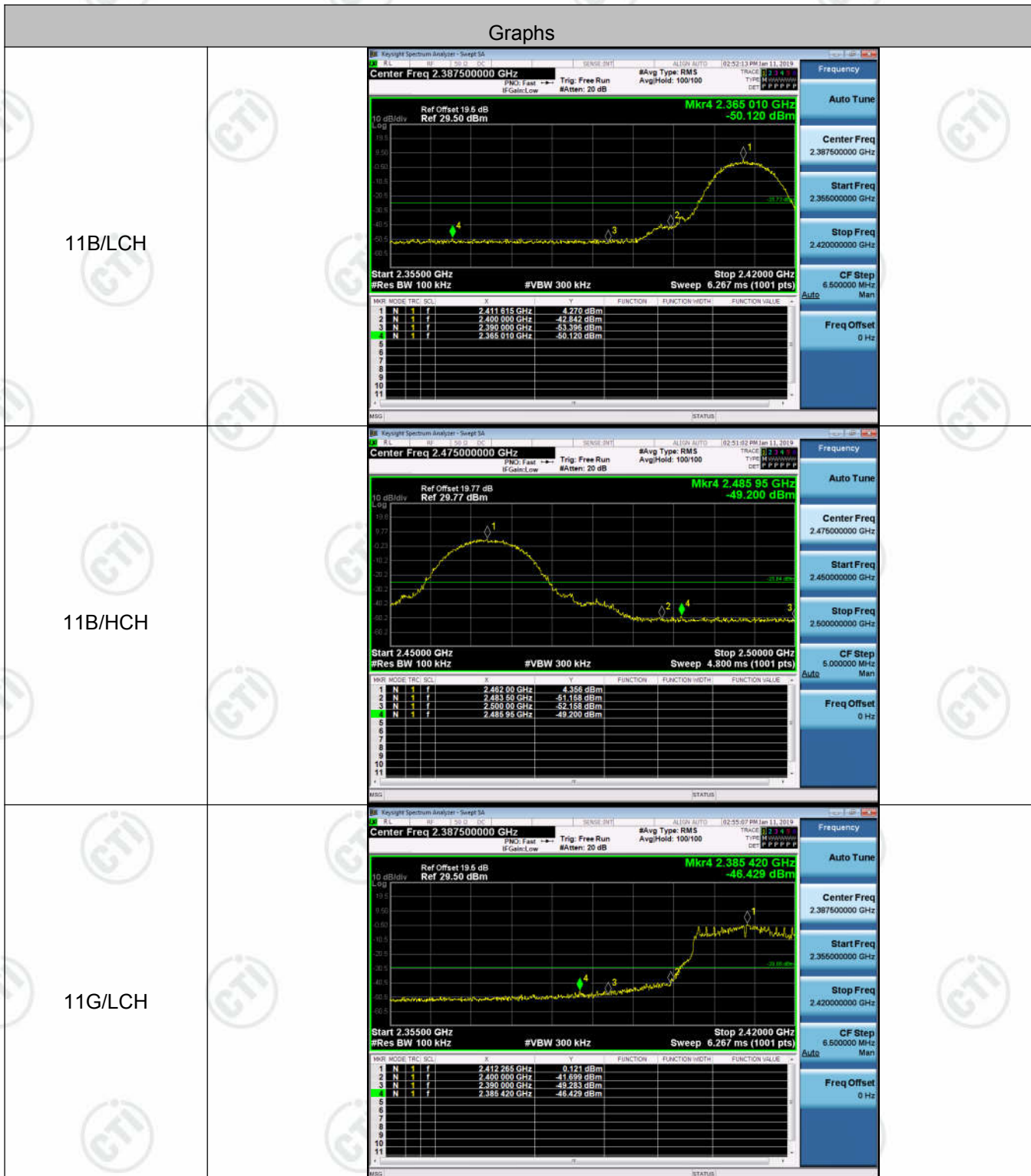
Appendix C): Band-edge for RF Conducted Emissions

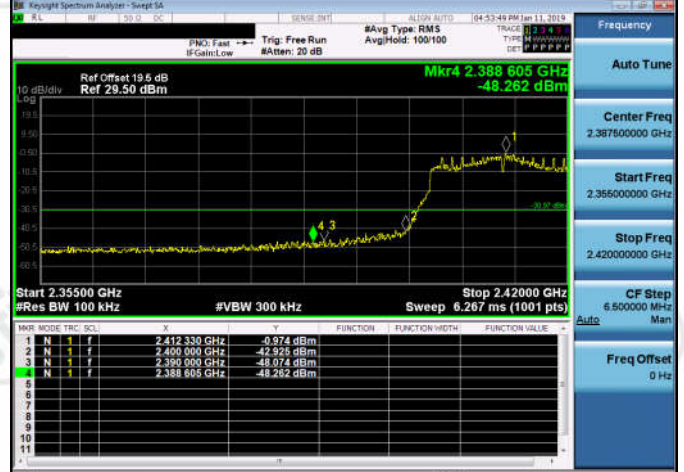
Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	4.270	-50.120	-25.73	PASS
11B	HCH	4.356	-49.200	-25.64	PASS
11G	LCH	0.121	-46.429	-29.88	PASS
11G	HCH	0.958	-48.126	-29.04	PASS
11N20SISO	LCH	-0.974	-48.262	-30.97	PASS
11N20SISO	HCH	0.262	-46.122	-29.74	PASS

Test Graph

Graphs



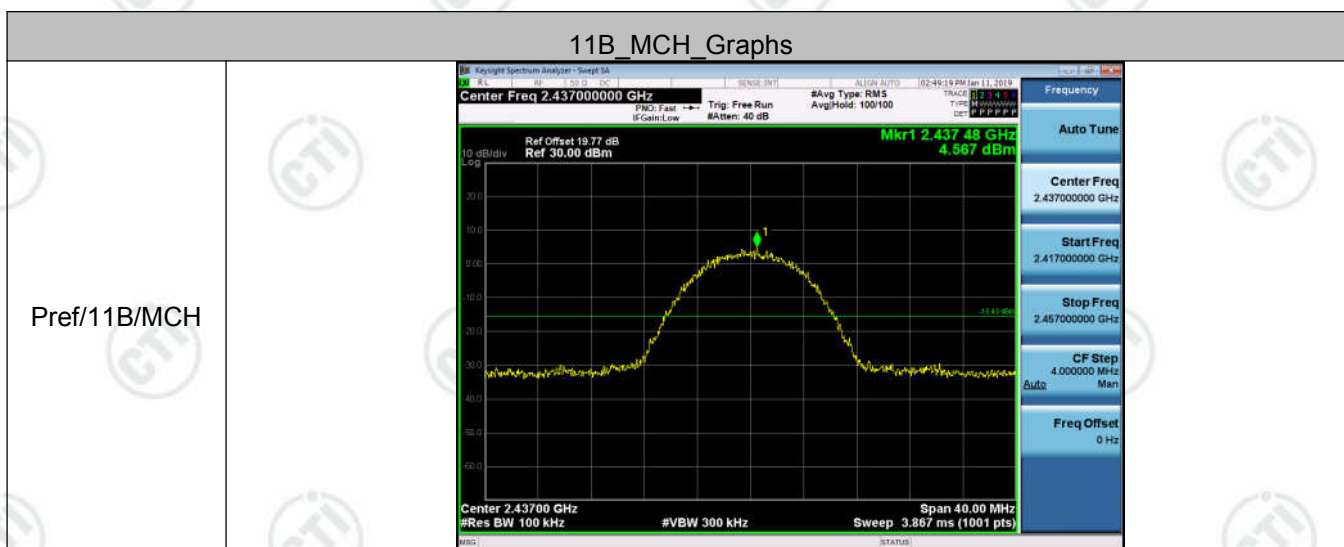
11G/HCH	 <table><tr><th>MR</th><th>MODE</th><th>TRC</th><th>SCN</th><th>F</th><th>F</th><th>FUNCTION</th><th>FUNCTION</th><th>FUNCTION</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.46228</td><td>GHz</td><td>-0.958</td><td>dBm</td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.48350</td><td>GHz</td><td>-47.548</td><td>dBm</td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.50000</td><td>GHz</td><td>-50.970</td><td>dBm</td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.48445</td><td>GHz</td><td>-48.126</td><td>dBm</td><td></td></tr></table>	MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION										1	N	1	f	2.46228	GHz	-0.958	dBm		2	N	1	f	2.48350	GHz	-47.548	dBm		3	N	1	f	2.50000	GHz	-50.970	dBm		4	N	1	f	2.48445	GHz	-48.126	dBm	
MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION																																															
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11N20SISO/LCH	 <table><tr><th>MR</th><th>MODE</th><th>TRC</th><th>SCN</th><th>F</th><th>F</th><th>FUNCTION</th><th>FUNCTION</th><th>FUNCTION</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.412330</td><td>GHz</td><td>-0.974</td><td>dBm</td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400000</td><td>GHz</td><td>-42.925</td><td>dBm</td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390000</td><td>GHz</td><td>-48.074</td><td>dBm</td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.388605</td><td>GHz</td><td>-48.262</td><td>dBm</td><td></td></tr></table>	MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION										1	N	1	f	2.412330	GHz	-0.974	dBm		2	N	1	f	2.400000	GHz	-42.925	dBm		3	N	1	f	2.390000	GHz	-48.074	dBm		4	N	1	f	2.388605	GHz	-48.262	dBm	
MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION																																															
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11N20SISO/HCH	 <table><tr><th>MR</th><th>MODE</th><th>TRC</th><th>SCN</th><th>F</th><th>F</th><th>FUNCTION</th><th>FUNCTION</th><th>FUNCTION</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.46330</td><td>GHz</td><td>-0.262</td><td>dBm</td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.48350</td><td>GHz</td><td>-47.245</td><td>dBm</td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.50000</td><td>GHz</td><td>-51.540</td><td>dBm</td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.48475</td><td>GHz</td><td>-46.122</td><td>dBm</td><td></td></tr></table>	MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION										1	N	1	f	2.46330	GHz	-0.262	dBm		2	N	1	f	2.48350	GHz	-47.245	dBm		3	N	1	f	2.50000	GHz	-51.540	dBm		4	N	1	f	2.48475	GHz	-46.122	dBm	
MR	MODE	TRC	SCN	F	F	FUNCTION	FUNCTION	FUNCTION																																															
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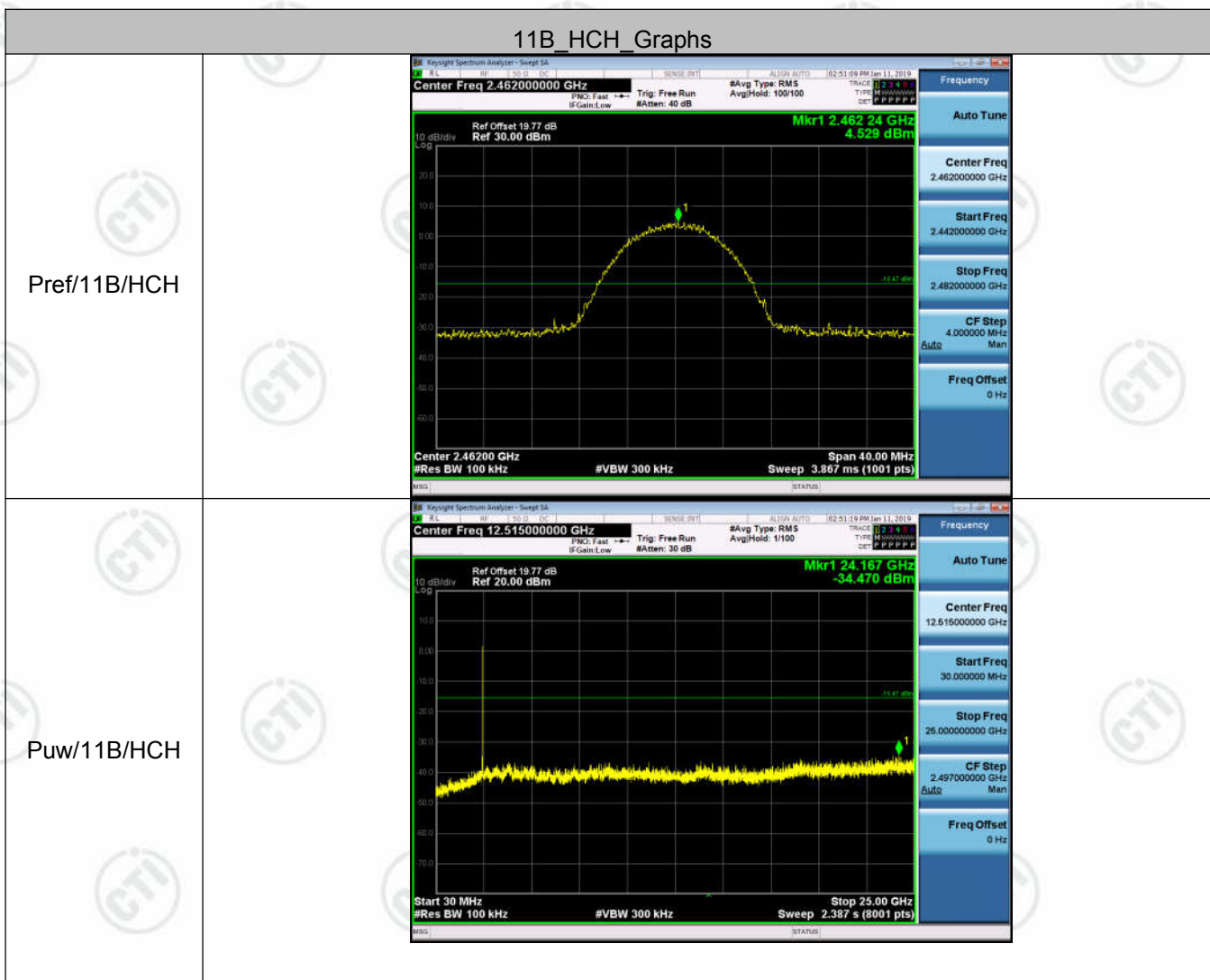
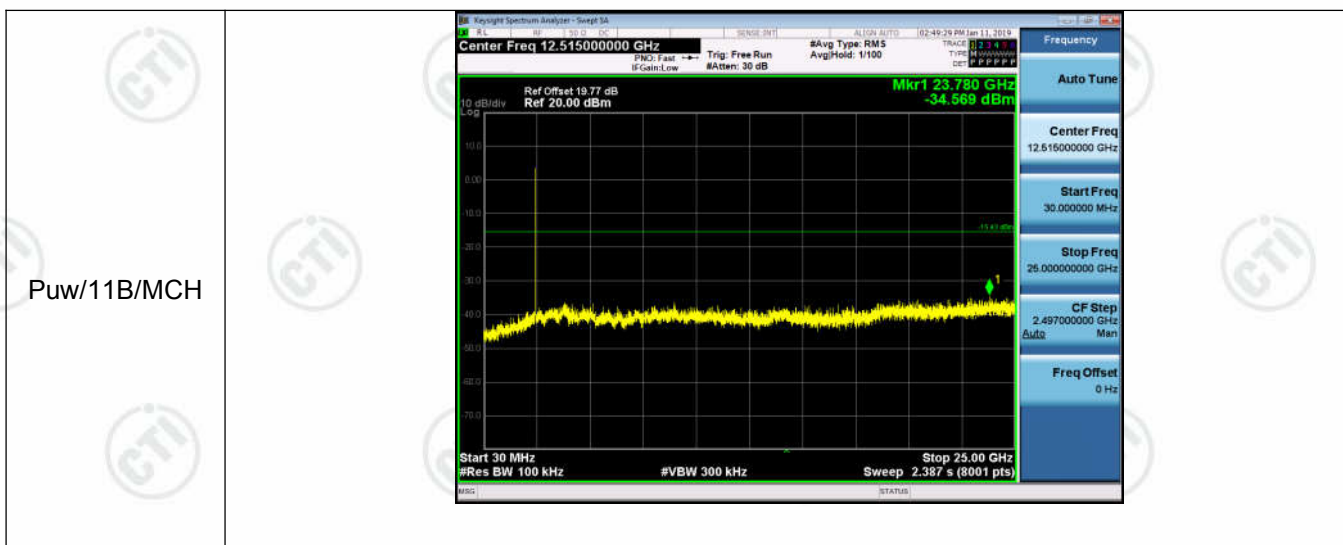
Appendix D): RF Conducted Spurious Emissions

Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	3.41	<Limit	PASS
11B	MCH	4.567	<Limit	PASS
11B	HCH	4.529	<Limit	PASS
11G	LCH	0.127	<Limit	PASS
11G	MCH	1.027	<Limit	PASS
11G	HCH	1.516	<Limit	PASS
11N20SISO	LCH	-1.25	<Limit	PASS
11N20SISO	MCH	-0.37	<Limit	PASS
11N20SISO	HCH	0.613	<Limit	PASS

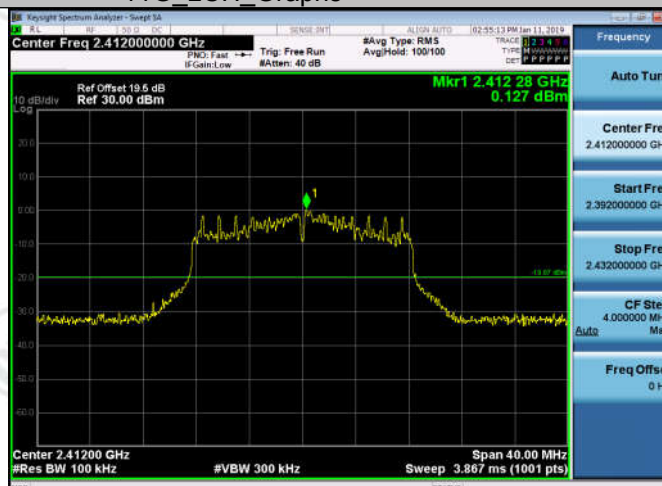
Test Graph



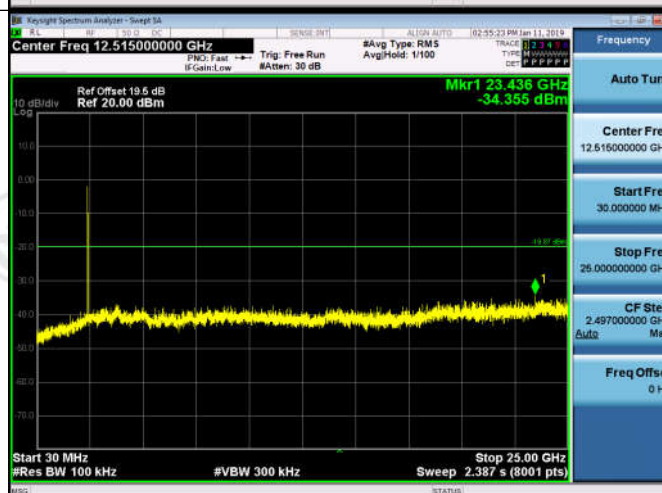


11G_LCH_Graphs

Pref/11G/LCH

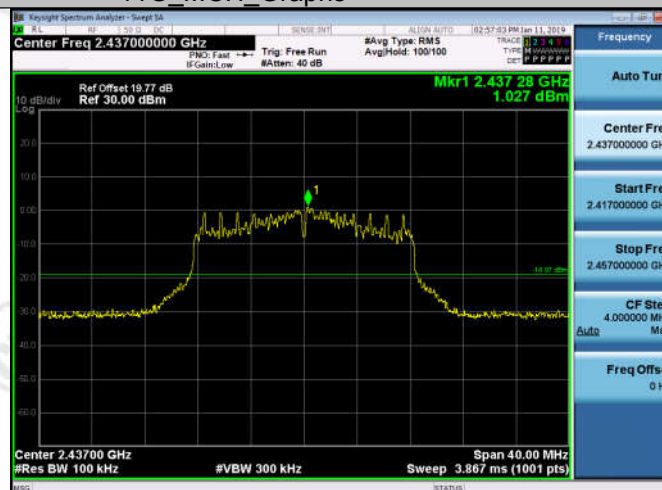


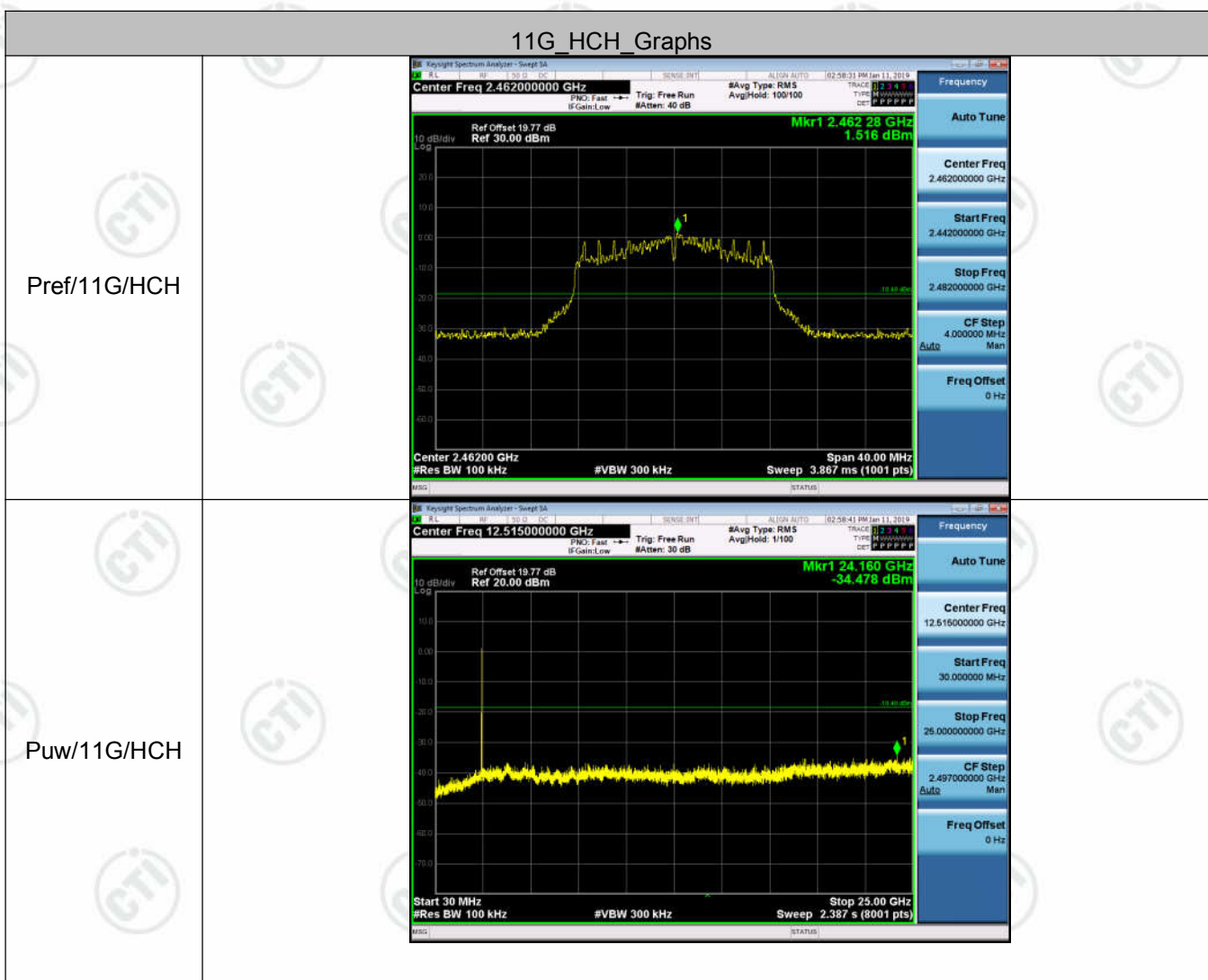
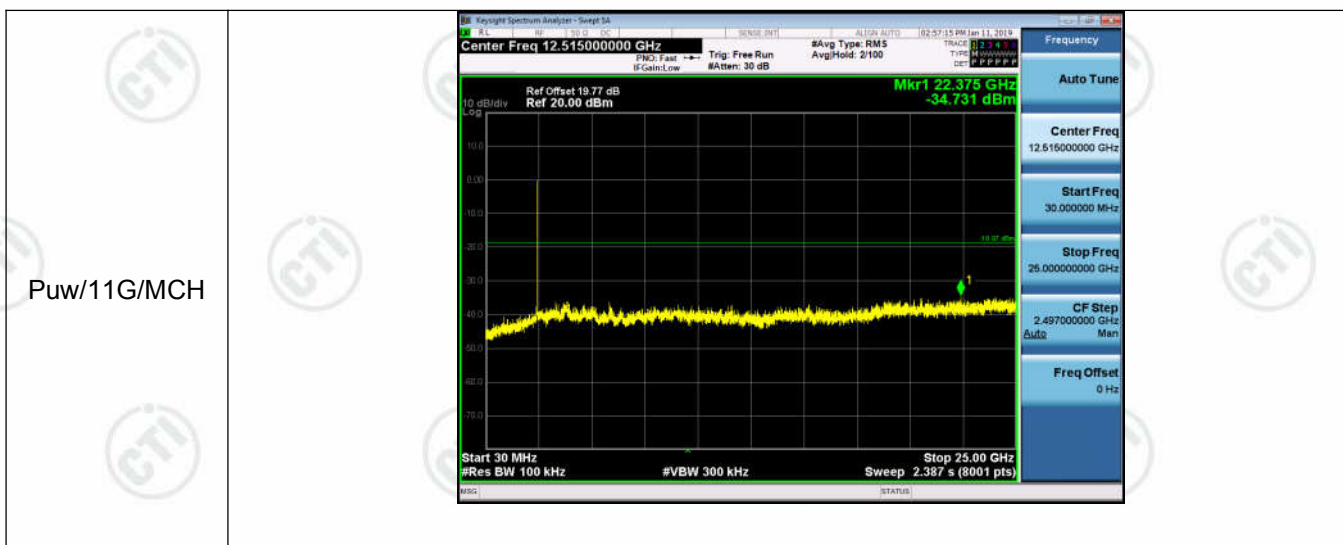
Puw/11G/LCH



11G_MCH_Graphs

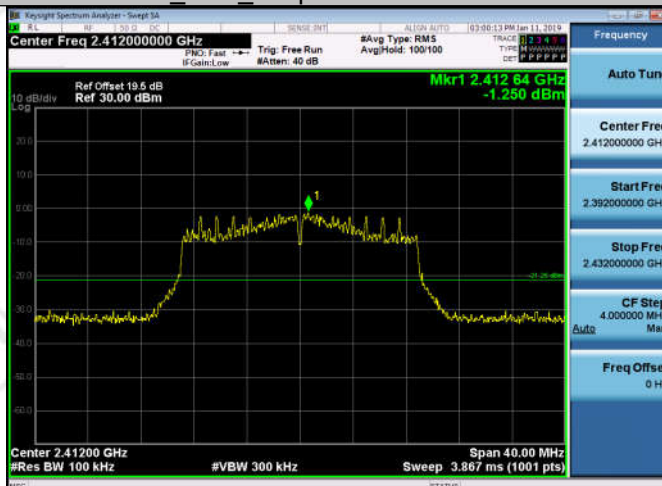
Pref/11G/MCH



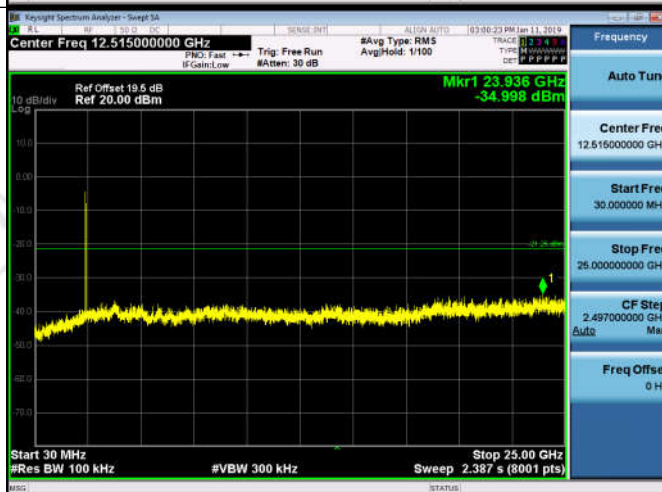


11N20SISO_LCH_Graphs

Pref/11N20SISO/LCH

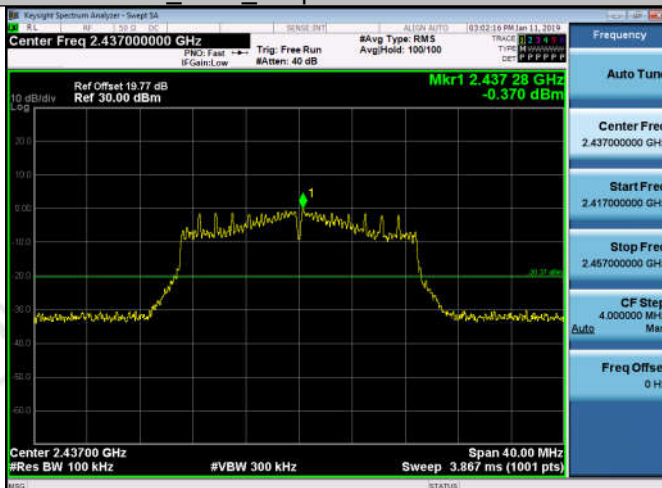


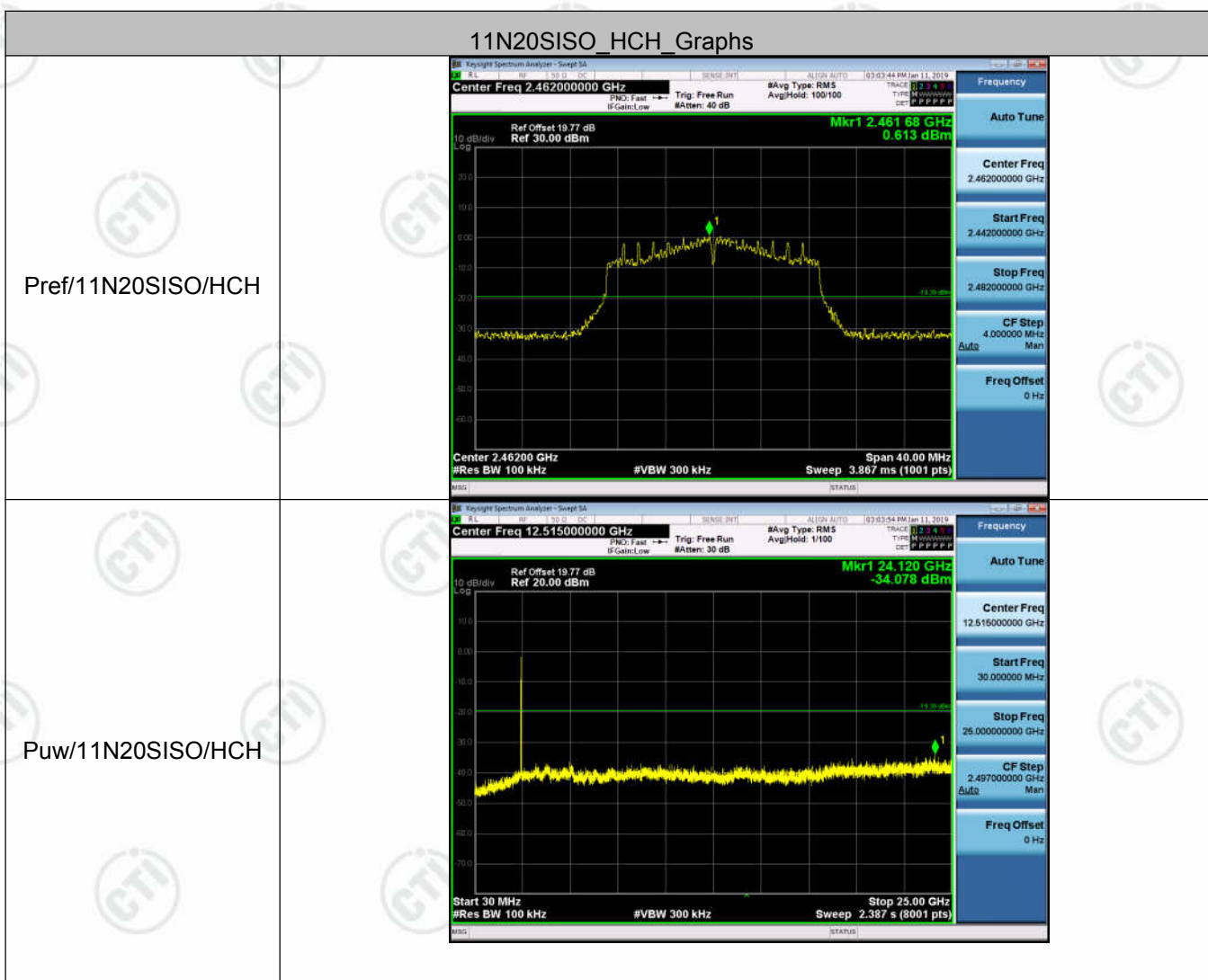
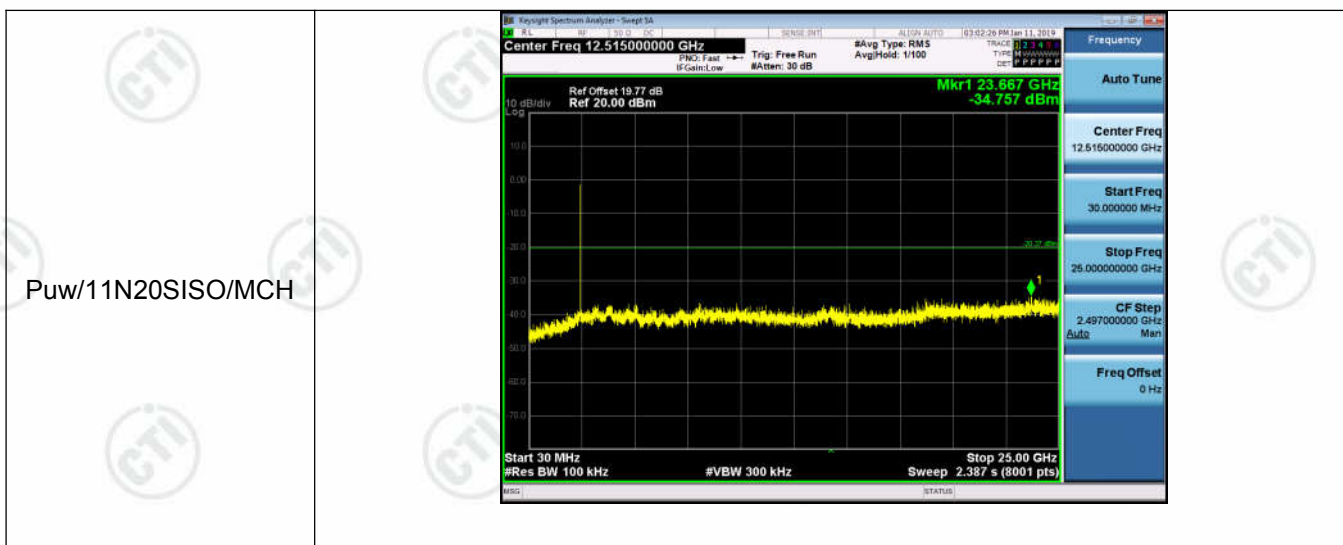
/11N20SISO/LCH



11N20SISO_MCH_Graphs

Pref/11N20SISO/MCH

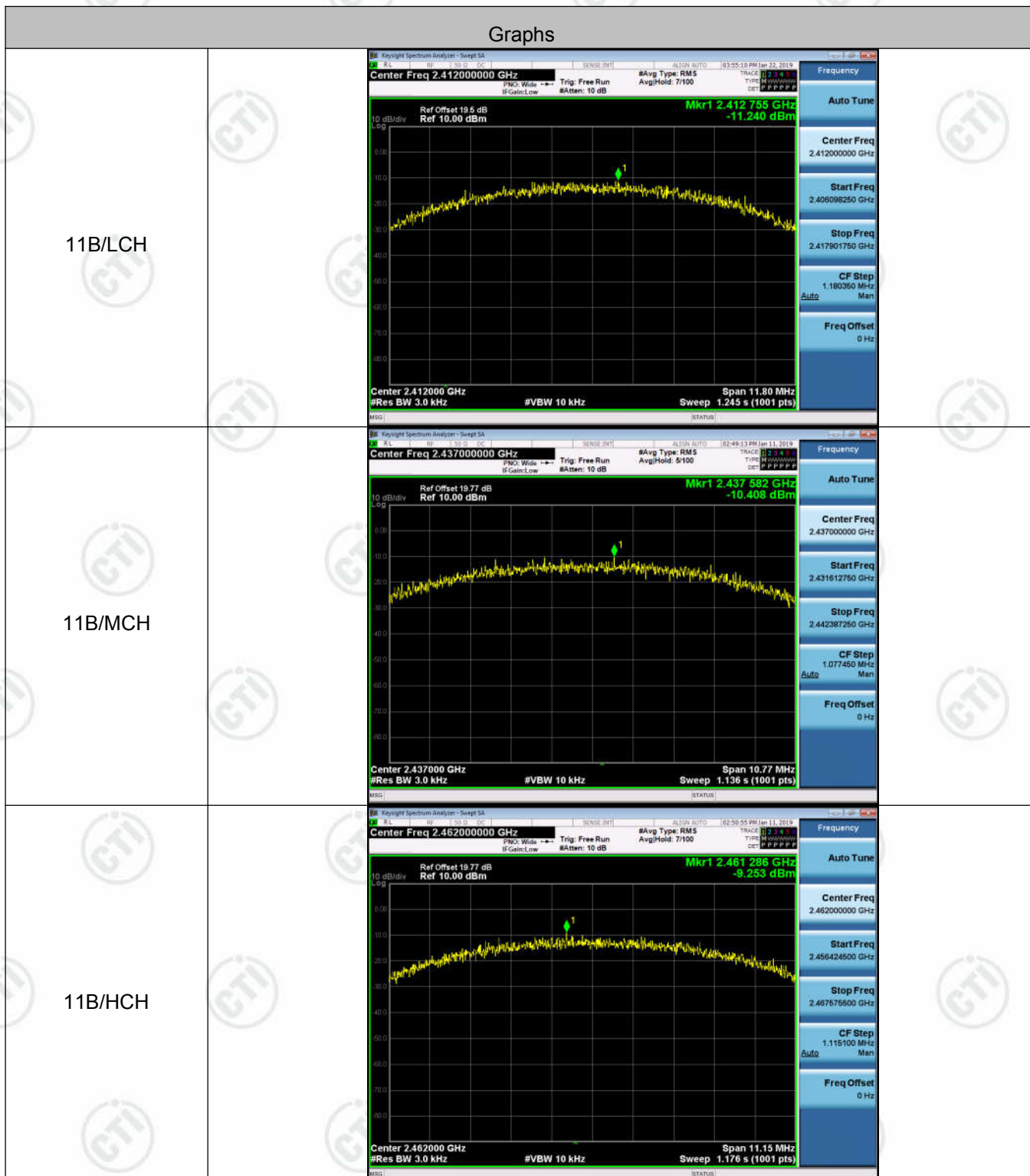


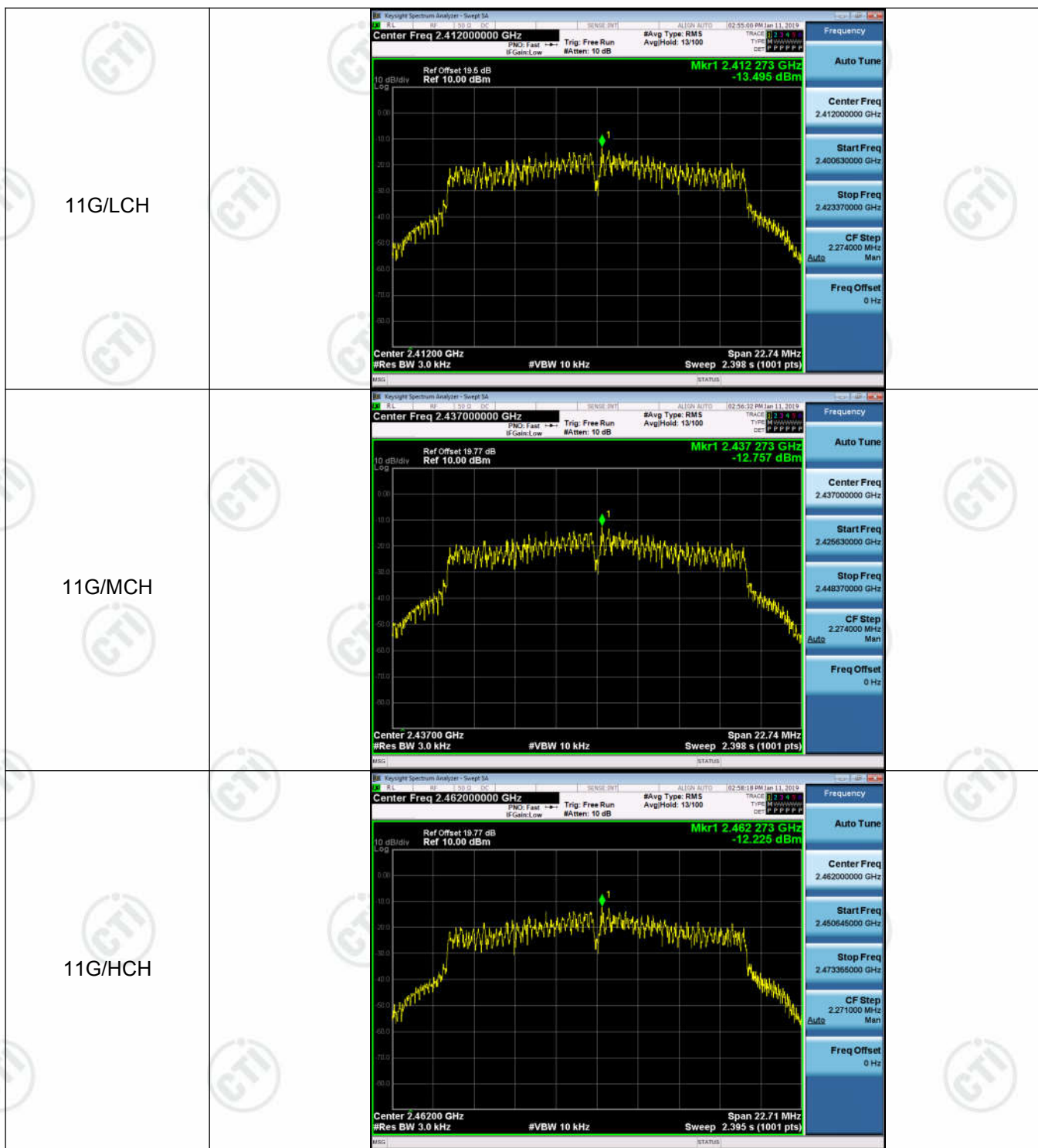


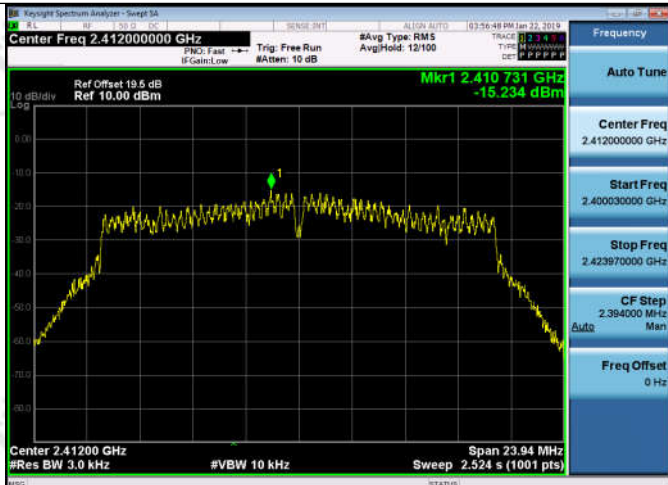
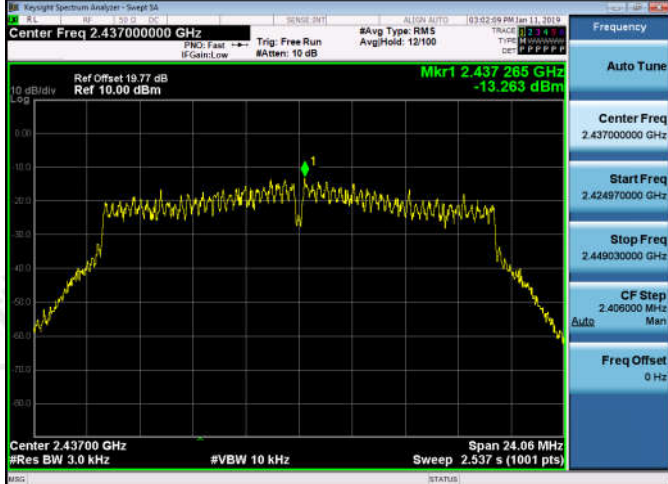
Appendix E): Power Spectral Density Result Table

Mode	Channel	Power Spectral Density [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	LCH	-11.247	8	PASS
11B	MCH	-10.408	8	PASS
11B	HCH	-9.253	8	PASS
11G	LCH	-13.495	8	PASS
11G	MCH	-12.757	8	PASS
11G	HCH	-12.225	8	PASS
11N20SISO	LCH	-15.234	8	PASS
11N20SISO	MCH	-13.263	8	PASS
11N20SISO	HCH	-13.610	8	PASS

Test Graph





11N20SISO/LCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.41200000 GHz Ref Offset 19.5 dB Ref 10.00 dBm Mkr1 2.410 731 GHz -15.234 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 23.94 MHz Sweep 2.524 s (1001 pts)
11N20SISO/MCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.43700000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.437 265 GHz -13.263 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.06 MHz Sweep 2.537 s (1001 pts)
11N20SISO/HCH	 Key: Knight Spectrum Analyzer - Sweep SA Center Freq 2.46200000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.462 318 GHz -13.610 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 22.74 MHz Sweep 2.398 s (1001 pts)

Appendix F): Antenna Requirement

15.203 requirement:

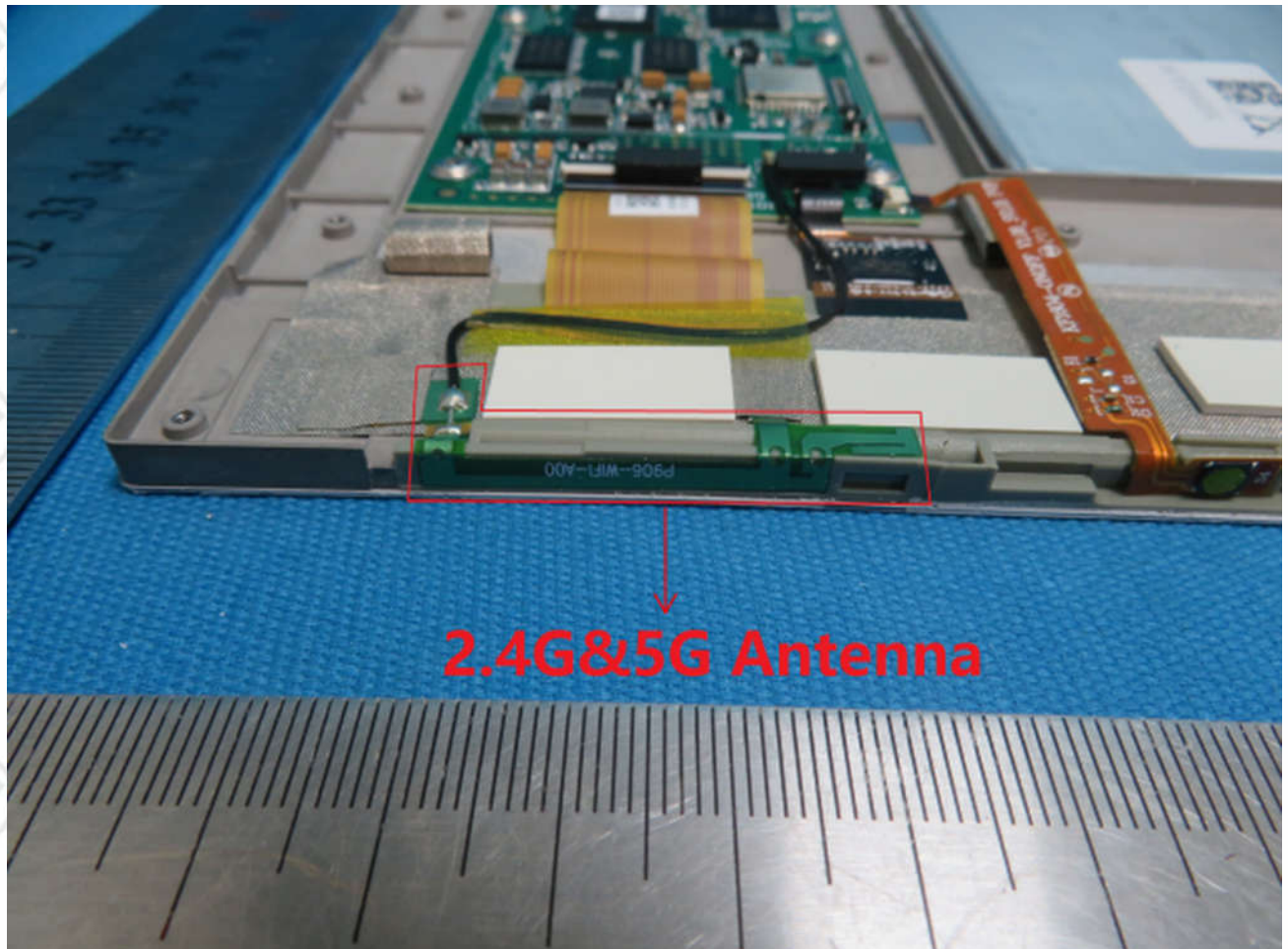
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 PIFA Antenna and no consideration of replacement. The best case gain of the antenna is 2.27dBi.



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 $50\Omega/50\mu H + 5\Omega$ 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.

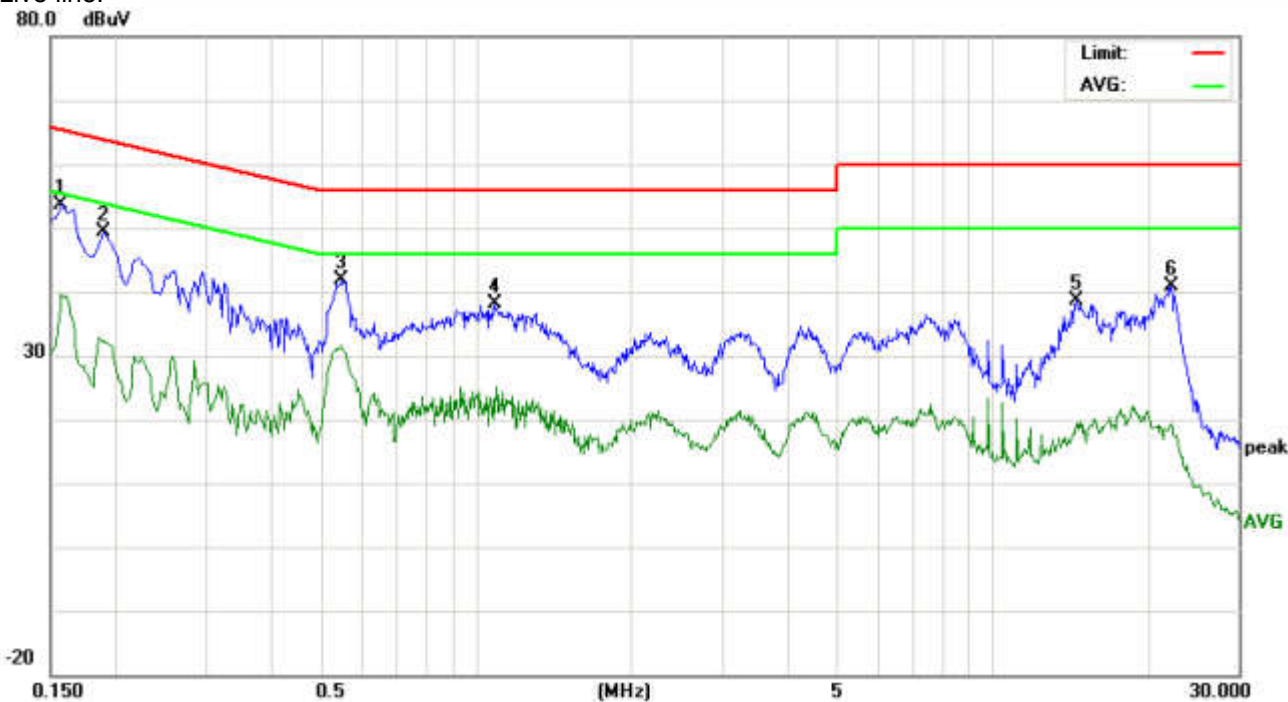
Product : reMarkable paper tablet

Model/Type reference : RM102

Temperature : 22°C

Humidity : 53%

Live line:



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1580	43.65	40.28	29.61	9.91	53.56	50.19	39.52	65.56	55.56	-15.37	-16.04	P	
2	0.1900	39.39	36.58	22.37	9.91	49.30	46.49	32.28	64.03	54.03	-17.54	-21.75	P	
3	0.5500	31.94	28.24	21.66	9.97	41.91	38.21	31.63	56.00	46.00	-17.79	-14.37	P	
4	1.0900	28.20	25.31	11.84	9.80	38.00	35.11	21.64	56.00	46.00	-20.89	-24.36	P	
5	14.5380	28.65	25.47	9.38	9.97	38.62	35.44	19.35	60.00	50.00	-24.56	-30.65	P	
6	22.1980	30.89	26.41	9.54	9.92	40.81	36.33	19.46	60.00	50.00	-23.67	-30.54	P	