

TEST REPORT

Product : SMART WIRELESS DOOR OPENER
Trade mark : N/A
Model/Type reference : GD810/GD811/GD812
Serial Number : N/A
Report Number : EED32L00337601
FCC ID : 2AU7E-GD81X
Date of Issue : Mar. 27, 2020
Test Standards : 47 CFR Part 15 Subpart C
Test result : PASS

Prepared for:

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Check No.: 3096310179

2 Version

Version No.	Date	Description
00	Mar. 27, 2020	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.:GD810/GD811/GD812

Only the model GD810 was tested, Their electrical circuit design, layout, components used and internal wiring are identical, Only the type the name,number of external keys is different

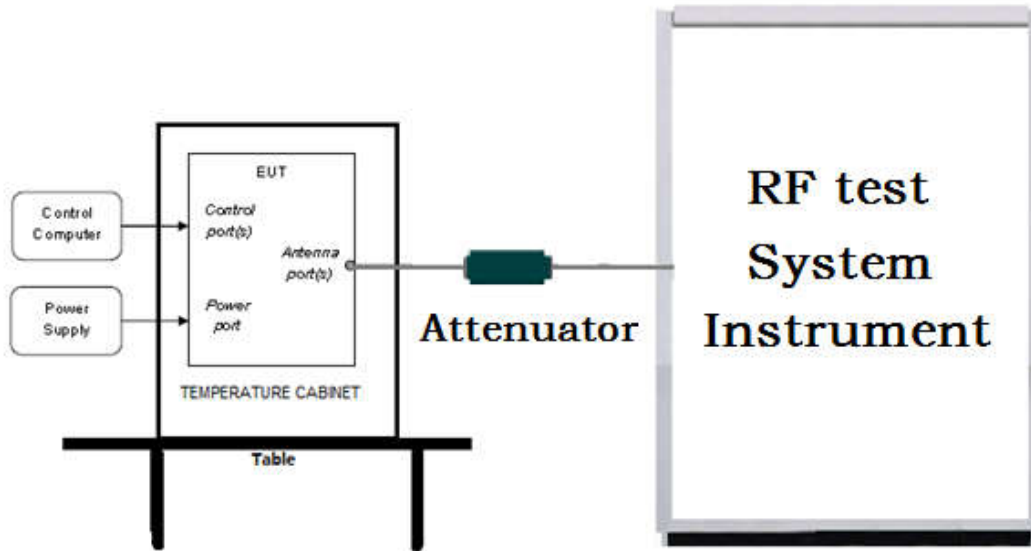
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

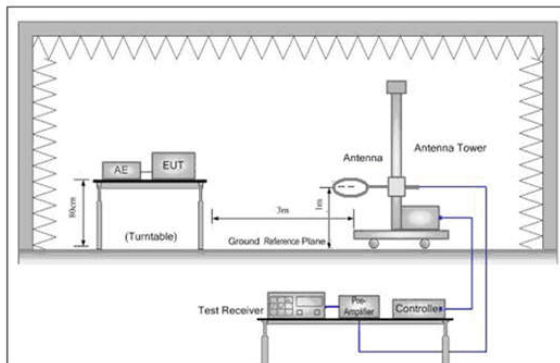


Figure 1. Below 30MHz

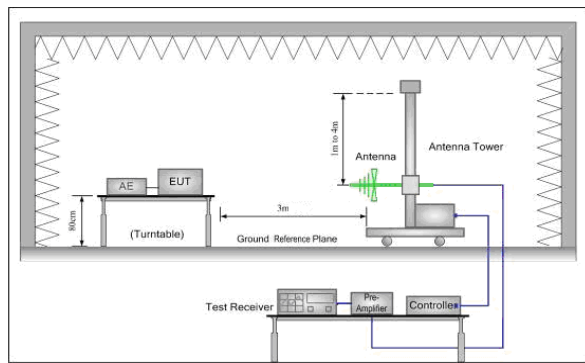


Figure 2. 30MHz to 1GHz

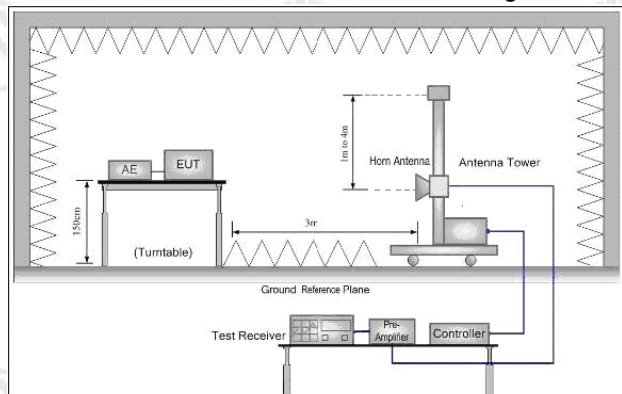
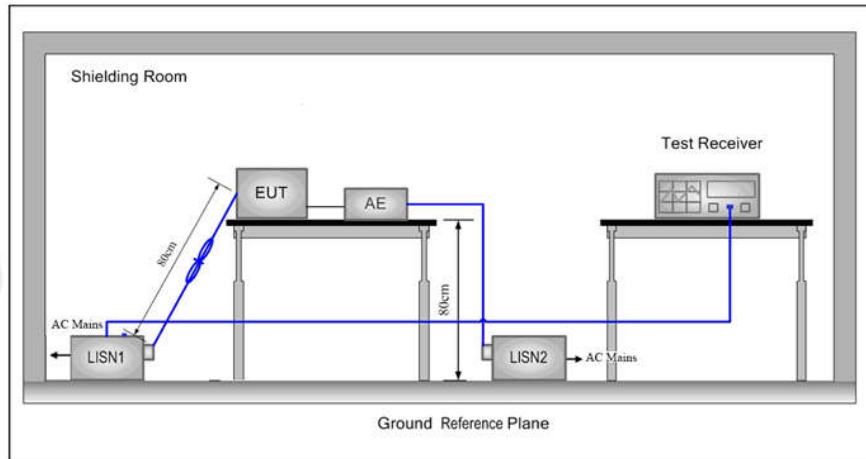


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup
Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	23.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010mbar

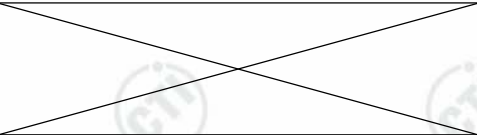
5.3 Test Condition

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:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b								
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps					
Power(dBm)	17.98	18.00	18.10	18.11					
Mode	802.11g								
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
Power(dBm)	17.11	17.10	16.99	16.96	16.95	16.94	16.92	16.90	
Mode	802.11n (HT20)								
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps	
Power(dBm)	16.09	16.07	16.06	16.03	16.00	15.98	15.96	15.95	

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 SigmaWit Technology Co., Ltd
Address of Applicant:	11th floor, Lingyun Building Honglang North 2nd Road, Bao'an, ShenZhen, China
Manufacturer:	ShenZhen SigmaWit Technology Co., Ltd
Address of Manufacturer:	11th floor, Lingyun Building Honglang North 2nd Road, Bao'an, ShenZhen, China
Factory:	ShenZhen SigmaWit Technology Co., Ltd
Address of Factory:	11th floor, Lingyun Building Honglang North 2nd Road, Bao'an, ShenZhen, China

6.2 General Description of EUT

Product Name:	SMART WIRELESS DOOR OPENER	
Model No.(EUT):	GD810/GD811/GD812	
Test Model No:	GD810	
Trade Mark:	N/A	
EUT Supports Radios application:	IEEE 802.11 b/g/n(HT20): 2412MHz to 2462MHz	
Power Supply:	Adapter	MODEL:XSC-0501000SU INPUT:100-240V~50/60Hz 0.4A OUTPUT:5V---1000mA
	LITHIUM BATTERY	MODEL:CR2450, DC 3V
Sample Received Date:	Nov. 13, 2019	
Sample tested Date:	Nov. 13, 2019 to Jan. 06, 2020	

6.3 Product Specification subjective to this standard

Operation Frequency:	2412MHz to 2462MHz
Channel Numbers:	11
Channel Separation:	5M
Type of Modulation:	DSSS,OFDM
Test Power Grade:	B:1008/756/504; G:12/12/12 ; N20:12/12/20
Test Software of EUT:	XCOM V2.0.exe
Antenna Type and Gain:	PCB Antenna,2.5dBi
Test Voltage:	DC 5V

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

Associated equipment name	Manufacture	model	S/N serial number	Supplied by	Certification	
AE1	Notebook	HP	HP 430 G3	5CD6082JLC	CTI	CTI

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

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%

None.

7 Equipment List

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	05-20-2019	05-19-2020
Temperature/ Humidity Indicator	Defu	TH128	/	06-14-2019	06-13-2020
LISN	R&S	ENV216	100098	05-08-2019	05-07-2020
Barometer	changchun	DYM3	1188	06-20-2019	06-19-2020

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	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-26-2019	07-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B- 076	04-25-2018	04-24-2021
Receiver	R&S	ESCI7	100938- 003	10-21-2019	10-20-2020
Multi device Controller	maturo	NCD/070/107 11112	---	01-09-2019	01-08-2020
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	07-26-2019	07-25-2020
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

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	06-19-2019	06-18-2020
Receiver	Keysight	N9038A	MY57290136	03-27-2019	03-26-2020
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-27-2019	03-26-2020
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-27-2019	03-26-2020
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-09-2021
Preamplifier	EMCI	EMC184055SE	980596	05-22-2019	5-21-2020
Preamplifier	EMCI	EMC001330	980563	05-08-2019	05-07-2020
Preamplifier	JS Tonscend	980380	EMC051845 SE	01-16-2019	01-15-2020
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-30-2019	04-29-2020
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-16-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-09-2021
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

RF test system					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-01-2019	02-29-2020
Signal Generator	Keysight	N5182B	MY53051549	03-01-2019	02-29-2020
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	07-26-2019	07-25-2020
High-pass filter	Sinoscite	FL3CX03WG18N M12-0398-002	---	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	MY56376072	03-01-2019	02-29-2020
PC-1	Lenovo	R4960d	---	03-01-2019	02-29-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-2	158060006	03-01-2019	02-29-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-3	---	03-01-2019	02-29-2020

8 Radio Technical Requirements Specification

Reference documents for testing:

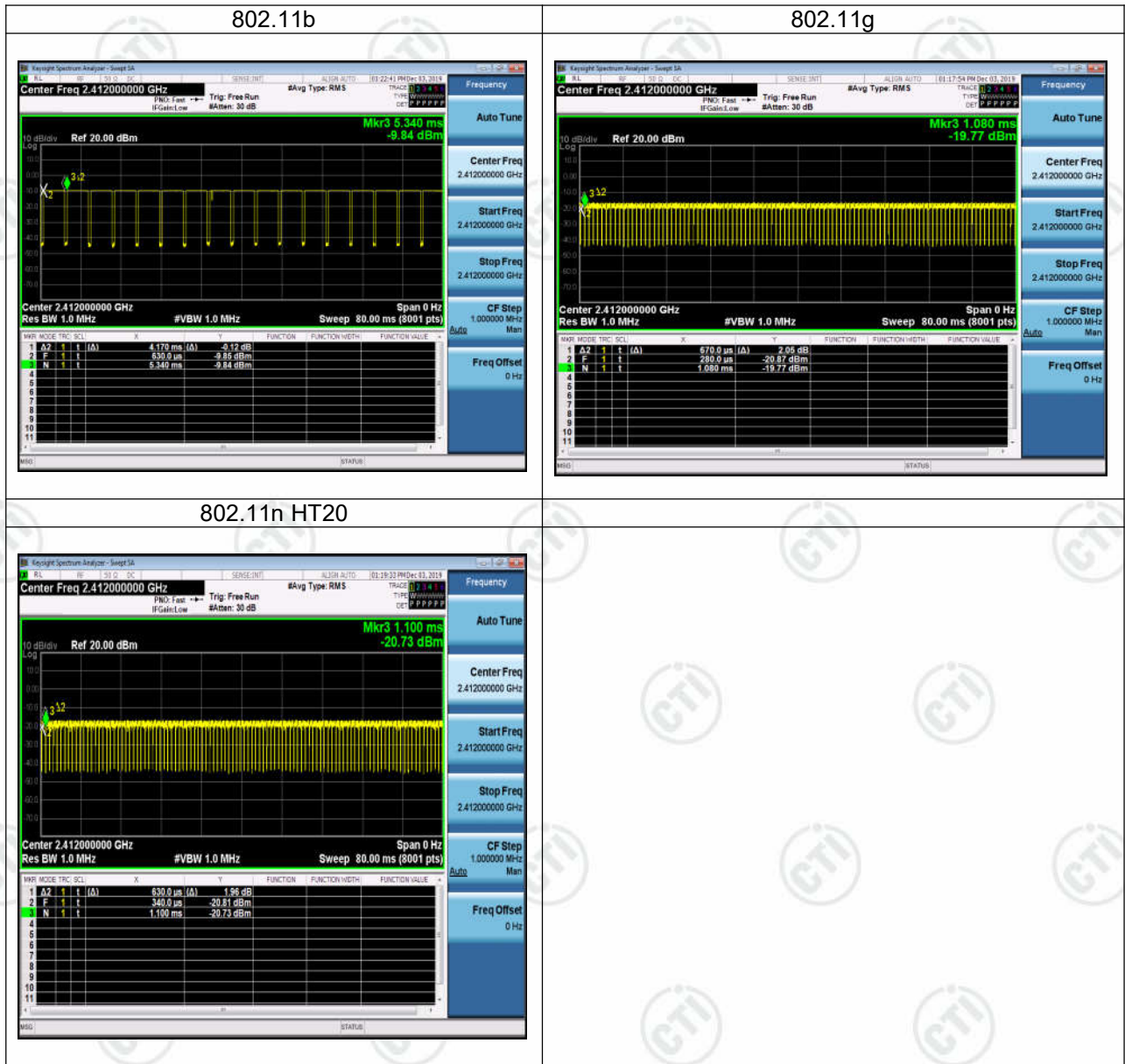
No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

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)

EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON(ms)	TX ALL(ms)	Duty Cycle(%)
802.11b	4.17	4.71	88.53%
802.11g	0.67	0.8	83.75%
802.11n HT20	0.63	0.76	82.9%



Appendix A): Conducted Peak Output Power

Test Limit

According to §15.247(b)(3),

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt(30 dBm), base on the use of antennas with directional gain not exceed 6 dBi. If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
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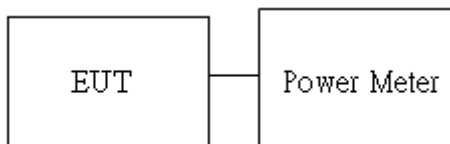
Average output power : For reporting purposes only.

Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

Test Setup




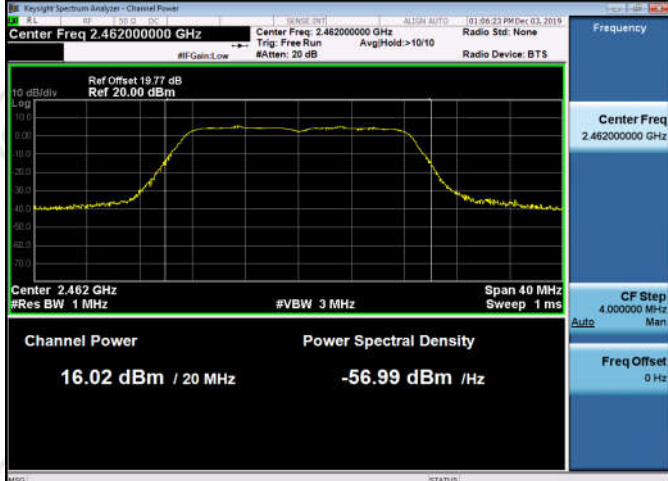
Result Table

Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	18.11	PASS
11B	MCH	18.28	PASS
11B	HCH	18.22	PASS
11G	LCH	17.11	PASS
11G	MCH	17.74	PASS
11G	HCH	17.33	PASS
11N20SISO	LCH	16.09	PASS
11N20SISO	MCH	16.81	PASS
11N20SISO	HCH	16.02	PASS

Test Graph



<p>11G/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz, Center Freq: 2.412000000 GHz, Radio Std: None</p> <p>Ref Offset 19.5 dB, Ref 30.00 dBm</p> <p>Channel Power: 17.11 dBm / 20 MHz, Power Spectral Density: -55.90 dBm / Hz</p>
<p>11G/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz, Center Freq: 2.437000000 GHz, Radio Std: None</p> <p>Ref Offset 19.77 dB, Ref 30.00 dBm</p> <p>Channel Power: 17.74 dBm / 20 MHz, Power Spectral Density: -55.27 dBm / Hz</p>
<p>11G/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.462000000 GHz, Center Freq: 2.462000000 GHz, Radio Std: None</p> <p>Ref Offset 19.77 dB, Ref 29.77 dBm</p> <p>Channel Power: 17.33 dBm / 20 MHz, Power Spectral Density: -55.68 dBm / Hz</p>

<p>11N20SISO/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz Center Freq: 2.412000000 GHz ALIGN AUTO: 12:47:20 PM Dec 03, 2015</p> <p>Ref Offset 19.5 dB Ref 20.00 dBm</p> <p>Channel Power: 16.09 dBm / 20 MHz Power Spectral Density: -56.92 dBm / Hz</p> <p>Center 2.412 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p>
<p>11N20SISO/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz Center Freq: 2.437000000 GHz ALIGN AUTO: 12:52:41 PM Dec 03, 2015</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 16.81 dBm / 20 MHz Power Spectral Density: -56.20 dBm / Hz</p> <p>Center 2.437 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p>
<p>11N20SISO/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.462000000 GHz Center Freq: 2.462000000 GHz ALIGN AUTO: 01:06:23 PM Dec 03, 2015</p> <p>Ref Offset 19.77 dB Ref 20.00 dBm</p> <p>Channel Power: 16.02 dBm / 20 MHz Power Spectral Density: -56.99 dBm / Hz</p> <p>Center 2.462 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p>

Appendix B): 6dB Occupied Bandwidth

Test Limit

According to §15.247(a)(2),

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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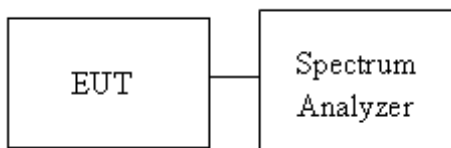
Occupied Bandwidth(99%) : For reporting purposes only.

Test Procedure

Test method Refer as KDB 558074 D01 and ANSI C63.10: 2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW =100KHz , VBW = 300KHz and Detector = Peak, to measurement 6dB Bandwidth
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

Test Setup



Result Table

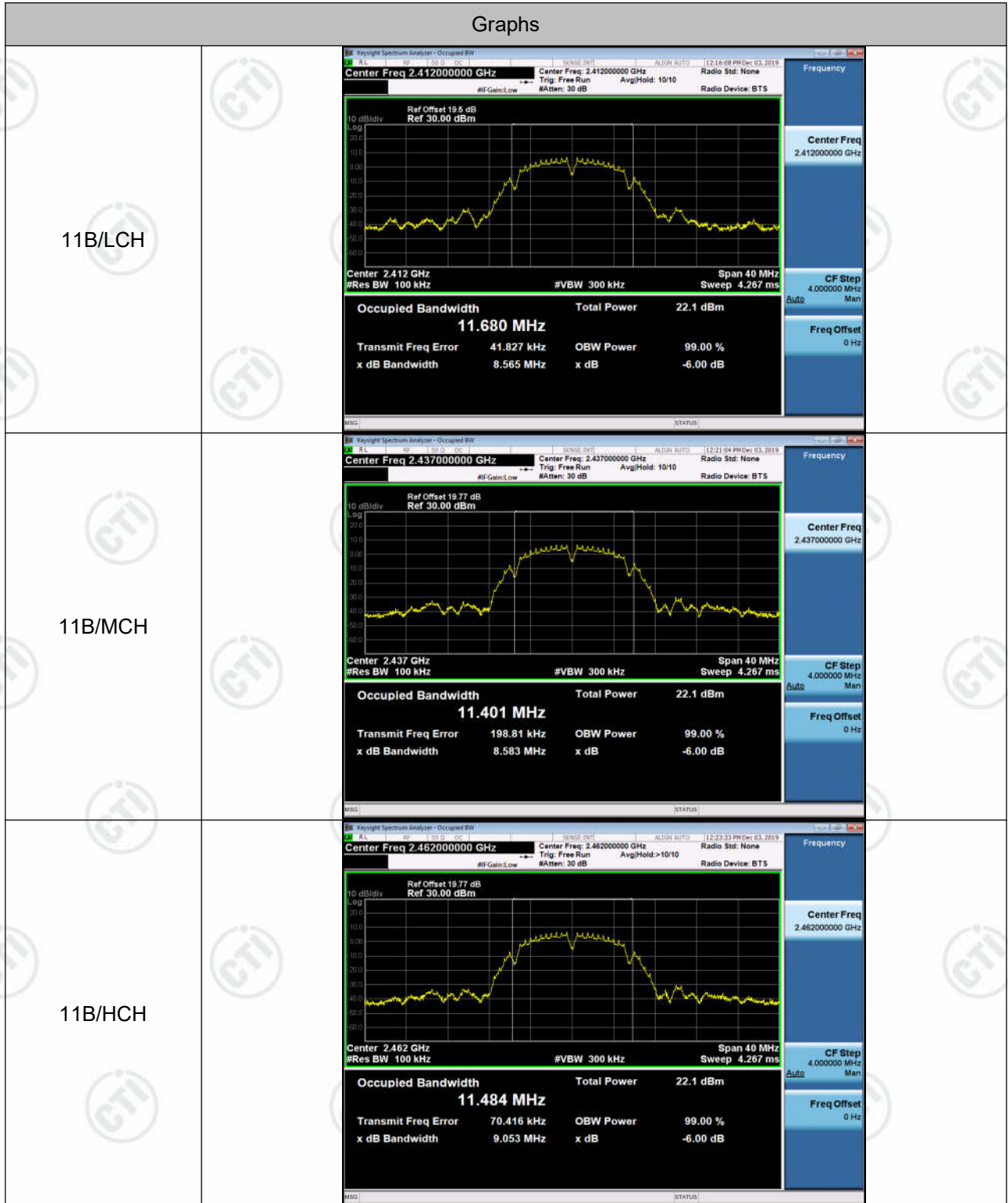
6 dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Verdict
11B	LCH	8.565	PASS
11B	MCH	8.583	PASS
11B	HCH	9.053	PASS
11G	LCH	16.28	PASS
11G	MCH	16.28	PASS
11G	HCH	16.05	PASS
11N20SISO	LCH	16.57	PASS
11N20SISO	MCH	16.56	PASS
11N20SISO	HCH	16.29	PASS

99% OBW

Mode	Channel	99% OBW [MHz]	Verdict
11B	LCH	11.668	PASS
11B	MCH	11.800	PASS
11B	HCH	11.892	PASS
11G	LCH	16.384	PASS
11G	MCH	16.380	PASS
11G	HCH	16.373	PASS
11N20SISO	LCH	17.356	PASS
11N20SISO	MCH	17.353	PASS
11N20SISO	HCH	17.324	PASS

Test Graph
6 dB Bandwidth



<p>11G/LCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz Center Freq: 2.412000000 GHz Radio Std: None</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth Total Power 15.7 dBm</p> <p>16.330 MHz</p> <p>Transmit Freq Error -18.069 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.28 MHz x dB -6.00 dB</p>
<p>11G/MCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth Total Power 16.3 dBm</p> <p>16.336 MHz</p> <p>Transmit Freq Error -15.279 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.28 MHz x dB -6.00 dB</p>
<p>11G/HCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Span 40 MHz Sweep 4.267 ms</p> <p>Occupied Bandwidth Total Power 15.9 dBm</p> <p>16.324 MHz</p> <p>Transmit Freq Error -20.316 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.05 MHz x dB -6.00 dB</p>

<p>11N20SISO/LCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz Radio Std: None</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz Span 40 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.356 MHz Total Power 14.6 dBm</p> <p>Transmit Freq Error -9.746 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.57 MHz x dB -6.00 dB</p>
<p>11N20SISO/MCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz Span 40 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.361 MHz Total Power 15.4 dBm</p> <p>Transmit Freq Error -864 Hz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.56 MHz x dB -6.00 dB</p>
<p>11N20SISO/HCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz Span 40 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.339 MHz Total Power 14.6 dBm</p> <p>Transmit Freq Error -26.844 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.29 MHz x dB -6.00 dB</p>

99% OBW

Graphs	
11B/LCH	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz Center Freq: 2.412000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 Radio Device: BTS #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz Span 40 MHz #Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 11.668 MHz Total Power 19.8 dBm</p> <p>Transmit Freq Error 68.780 kHz OBW Power 99.00 % x dB Bandwidth 9.090 MHz x dB -6.00 dB</p> <p>Frequency: 2.41200000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>
11B/MCH	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz Center Freq: 2.437000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 Radio Device: BTS #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz Span 40 MHz #Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 11.800 MHz Total Power 20.3 dBm</p> <p>Transmit Freq Error 48.391 kHz OBW Power 99.00 % x dB Bandwidth 9.099 MHz x dB -6.00 dB</p> <p>Frequency: 2.43700000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>
11B/HCH	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz Center Freq: 2.462000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 Radio Device: BTS #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz Span 40 MHz #Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 11.892 MHz Total Power 21.0 dBm</p> <p>Transmit Freq Error -16.126 kHz OBW Power 99.00 % x dB Bandwidth 9.079 MHz x dB -6.00 dB</p> <p>Frequency: 2.46200000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>

<p>11G/LCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz Center Freq: 2.412000000 GHz Radio Std: None</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 15.0 dBm</p> <p>16.384 MHz</p> <p>Transmit Freq Error -469 Hz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.38 MHz x dB -6.00 dB</p>
<p>11G/MCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 15.6 dBm</p> <p>16.380 MHz</p> <p>Transmit Freq Error 178 Hz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.37 MHz x dB -6.00 dB</p>
<p>11G/HCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz Center Freq: 2.462000000 GHz Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 16.4 dBm</p> <p>16.373 MHz</p> <p>Transmit Freq Error -13.341 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.33 MHz x dB -6.00 dB</p>

<p>11N20SISO/LCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz Center Freq: 2.412000000 GHz ALIGN AUTO (01:16:53 PM) Dec 03, 2019 Radio Std: None</p> <p>Ref Offset 19.5 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 15.3 dBm</p> <p>17.356 MHz</p> <p>Transmit Freq Error -17.088 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 17.20 MHz x dB -6.00 dB</p>
<p>11N20SISO/MCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Center Freq: 2.437000000 GHz ALIGN AUTO (01:18:15 PM) Dec 03, 2019 Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 16.0 dBm</p> <p>17.353 MHz</p> <p>Transmit Freq Error -13.662 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 17.21 MHz x dB -6.00 dB</p>
<p>11N20SISO/HCH</p>	<p>Keyight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz Center Freq: 2.462000000 GHz ALIGN AUTO (01:18:38 PM) Dec 03, 2019 Radio Std: None</p> <p>Ref Offset 19.77 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz Span 40 MHz</p> <p>#Res BW 200 kHz #VBW 300 kHz Sweep 1.067 ms</p> <p>Occupied Bandwidth Total Power 16.6 dBm</p> <p>17.324 MHz</p> <p>Transmit Freq Error -19.173 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 17.22 MHz x dB -6.00 dB</p>

Appendix C): Band-edge for RF Conducted Emissions

Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

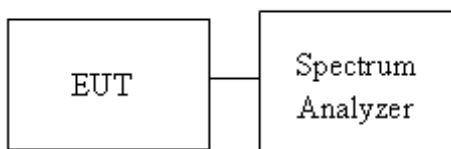
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Test Procedure

Test method Refer as KDB 558074 D01.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

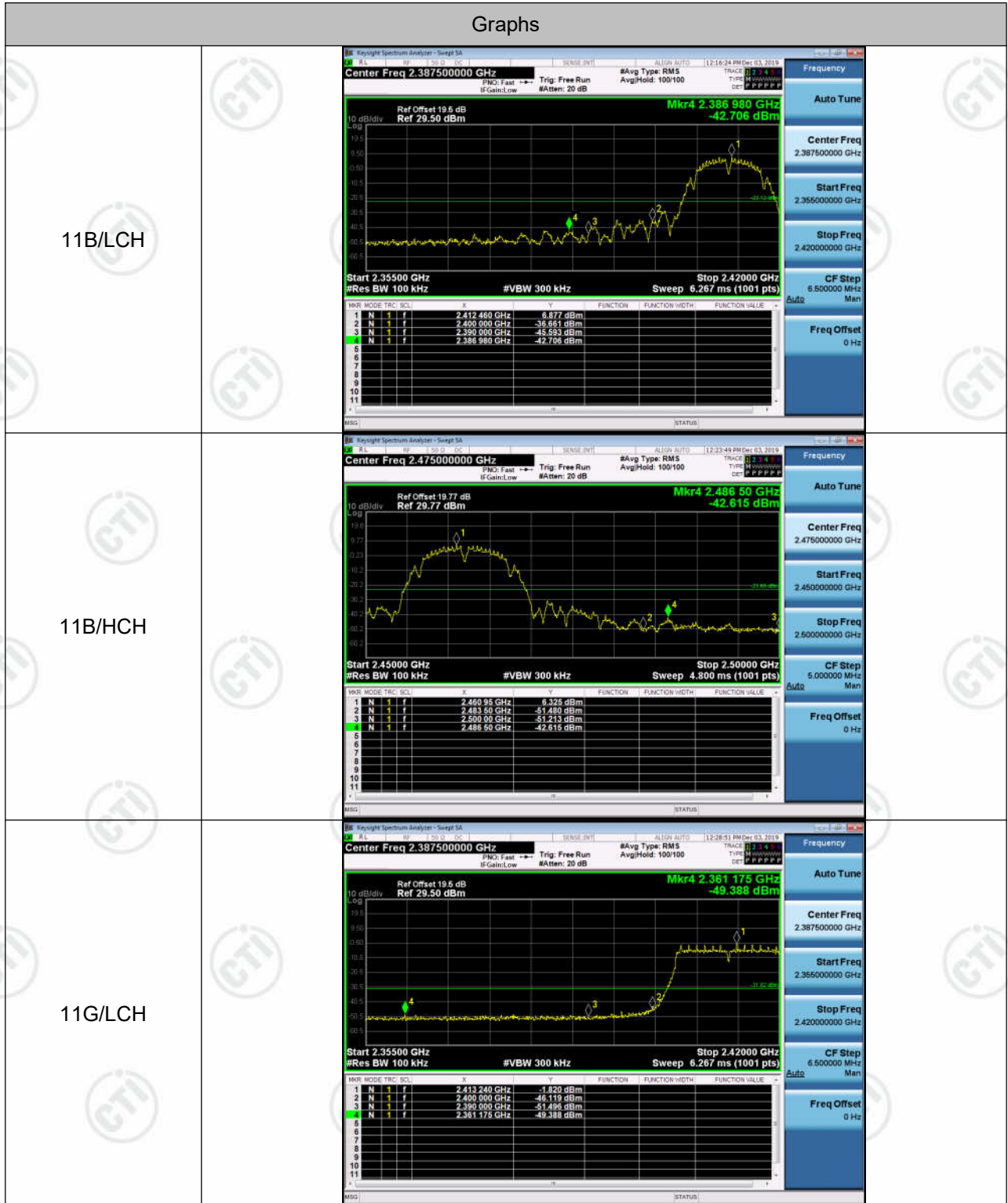
Test Setup



Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	6.877	-42.706	-23.12	PASS
11B	HCH	6.325	-42.615	-23.68	PASS
11G	LCH	-1.820	-49.388	-31.82	PASS
11G	HCH	-1.492	-49.091	-31.49	PASS
11N20SISO	LCH	-3.225	-48.756	-33.23	PASS
11N20SISO	HCH	-3.210	-49.421	-33.21	PASS

Test Graph



<p>11G/HCH</p>	<p>Center Freq 2.47500000 GHz</p> <p>Ref Offset 19.77 dB Ref 29.77 dBm</p> <p>Mkr4 2.498 10 GHz -49.091 dBm</p> <p>Start 2.45000 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Stop 2.50000 GHz Sweep 4.800 ms (1001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SOL</th> <th>F</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.463 28 GHz</td> <td></td> <td></td> <td>-4.492 dBm</td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.483 50 GHz</td> <td></td> <td></td> <td>-51.087 dBm</td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.500 00 GHz</td> <td></td> <td></td> <td>-50.855 dBm</td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.498 10 GHz</td> <td></td> <td></td> <td>-49.091 dBm</td> </tr> </tbody> </table>	MNR	MODE	TRC	SOL	F	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.463 28 GHz			-4.492 dBm	2	N	1	f	2.483 50 GHz			-51.087 dBm	3	N	1	f	2.500 00 GHz			-50.855 dBm	4	N	1	f	2.498 10 GHz			-49.091 dBm
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2	N	1	f	2.483 50 GHz			-51.087 dBm																																		
3	N	1	f	2.500 00 GHz			-50.855 dBm																																		
4	N	1	f	2.498 10 GHz			-49.091 dBm																																		
<p>11N20SISO/LCH</p>	<p>Center Freq 2.38750000 GHz</p> <p>Ref Offset 19.5 dB Ref 29.50 dBm</p> <p>Mkr4 2.387 110 GHz -48.756 dBm</p> <p>Start 2.35500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Stop 2.42000 GHz Sweep 6.267 ms (1001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SOL</th> <th>F</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.407 000 GHz</td> <td></td> <td></td> <td>-3.225 dBm</td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.400 000 GHz</td> <td></td> <td></td> <td>-45.942 dBm</td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.390 000 GHz</td> <td></td> <td></td> <td>-52.557 dBm</td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.387 110 GHz</td> <td></td> <td></td> <td>-48.756 dBm</td> </tr> </tbody> </table>	MNR	MODE	TRC	SOL	F	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.407 000 GHz			-3.225 dBm	2	N	1	f	2.400 000 GHz			-45.942 dBm	3	N	1	f	2.390 000 GHz			-52.557 dBm	4	N	1	f	2.387 110 GHz			-48.756 dBm
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4	N	1	f	2.387 110 GHz			-48.756 dBm																																		
<p>11N20SISO/HCH</p>	<p>Center Freq 2.47500000 GHz</p> <p>Ref Offset 19.77 dB Ref 29.77 dBm</p> <p>Mkr4 2.488 65 GHz -49.421 dBm</p> <p>Start 2.45000 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Stop 2.50000 GHz Sweep 4.800 ms (1001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SOL</th> <th>F</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>2.457 00 GHz</td> <td></td> <td></td> <td>-3.210 dBm</td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>2.483 50 GHz</td> <td></td> <td></td> <td>-50.418 dBm</td> </tr> <tr> <td>3</td> <td>N</td> <td>1</td> <td>f</td> <td>2.500 00 GHz</td> <td></td> <td></td> <td>-51.032 dBm</td> </tr> <tr> <td>4</td> <td>N</td> <td>1</td> <td>f</td> <td>2.488 65 GHz</td> <td></td> <td></td> <td>-49.421 dBm</td> </tr> </tbody> </table>	MNR	MODE	TRC	SOL	F	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.457 00 GHz			-3.210 dBm	2	N	1	f	2.483 50 GHz			-50.418 dBm	3	N	1	f	2.500 00 GHz			-51.032 dBm	4	N	1	f	2.488 65 GHz			-49.421 dBm
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2	N	1	f	2.483 50 GHz			-50.418 dBm																																		
3	N	1	f	2.500 00 GHz			-51.032 dBm																																		
4	N	1	f	2.488 65 GHz			-49.421 dBm																																		

Appendix D): RF Conducted Spurious Emissions

Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

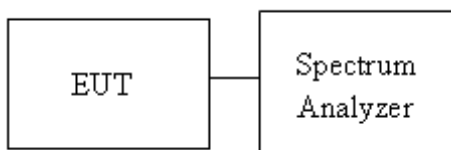
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Test Procedure

Test method Refer as KDB 558074 D01.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

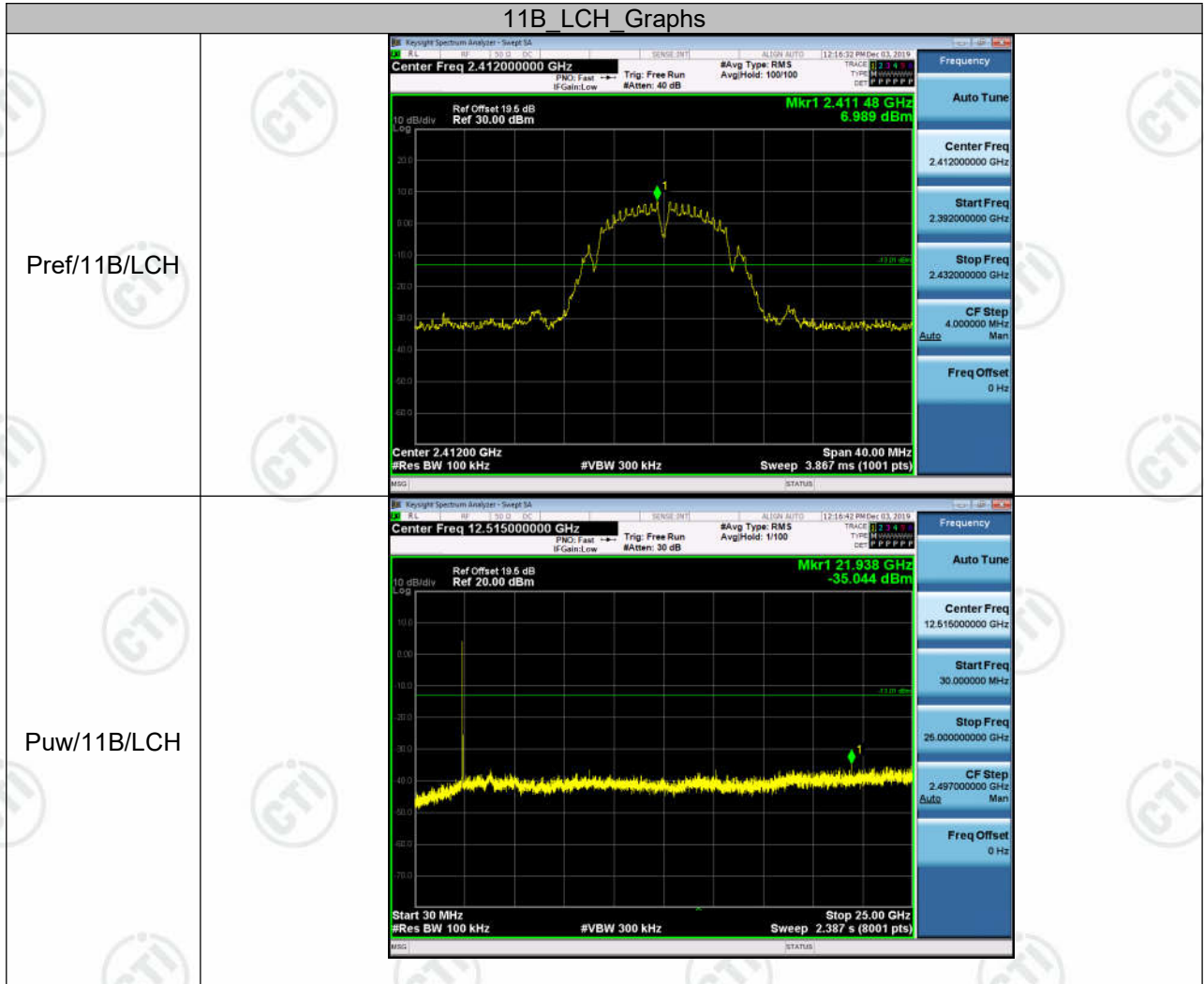
Test Setup

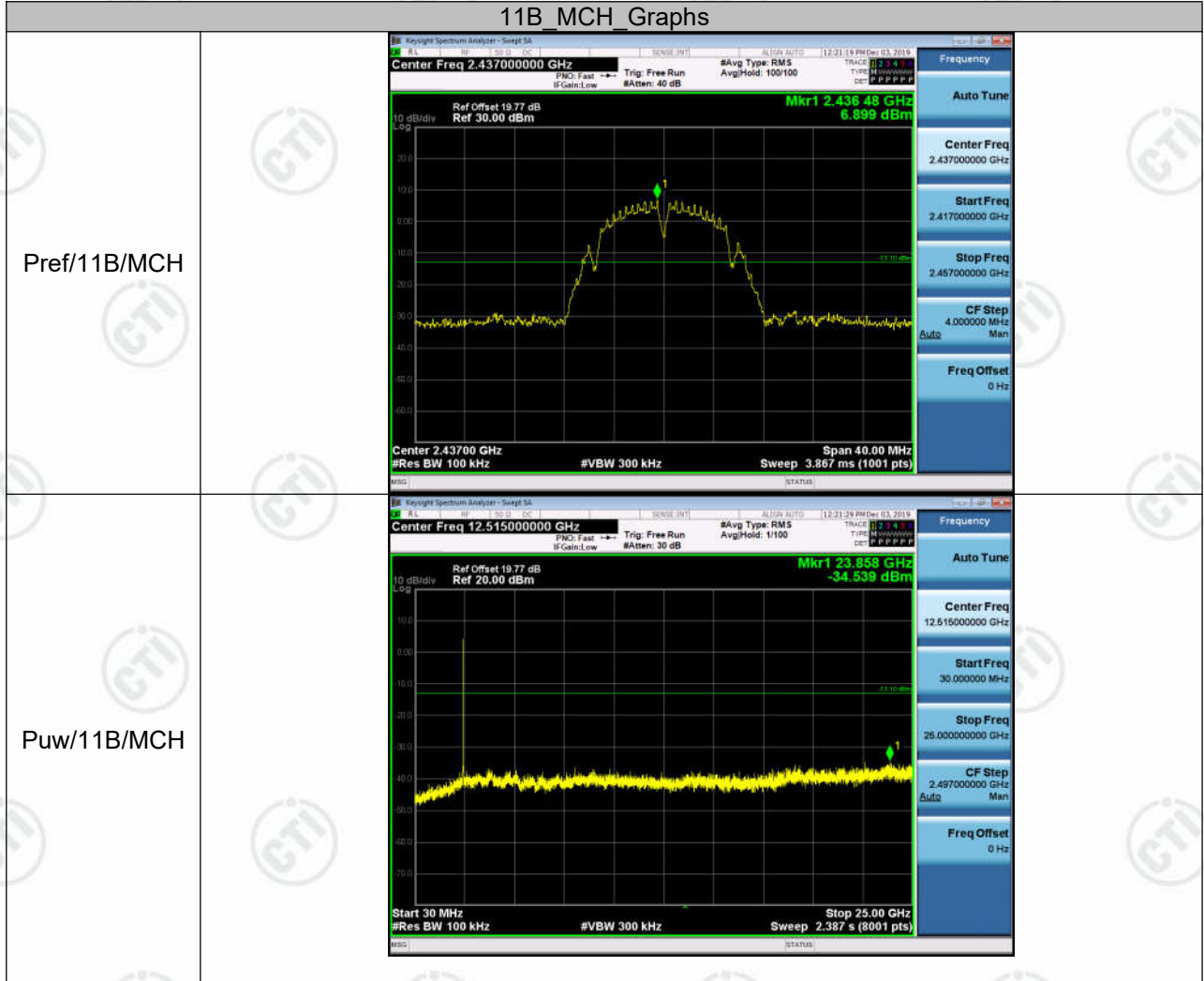


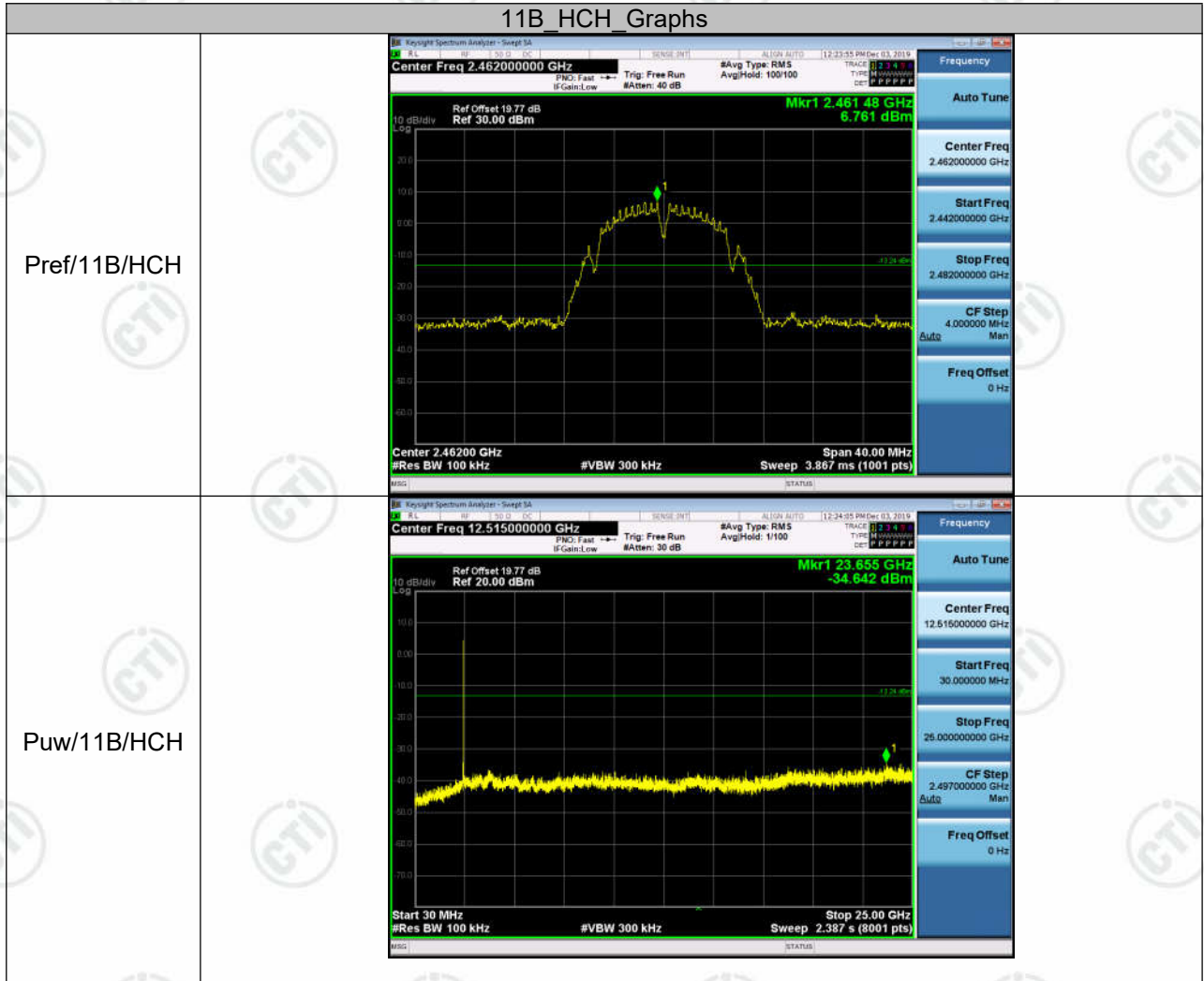
Result Table

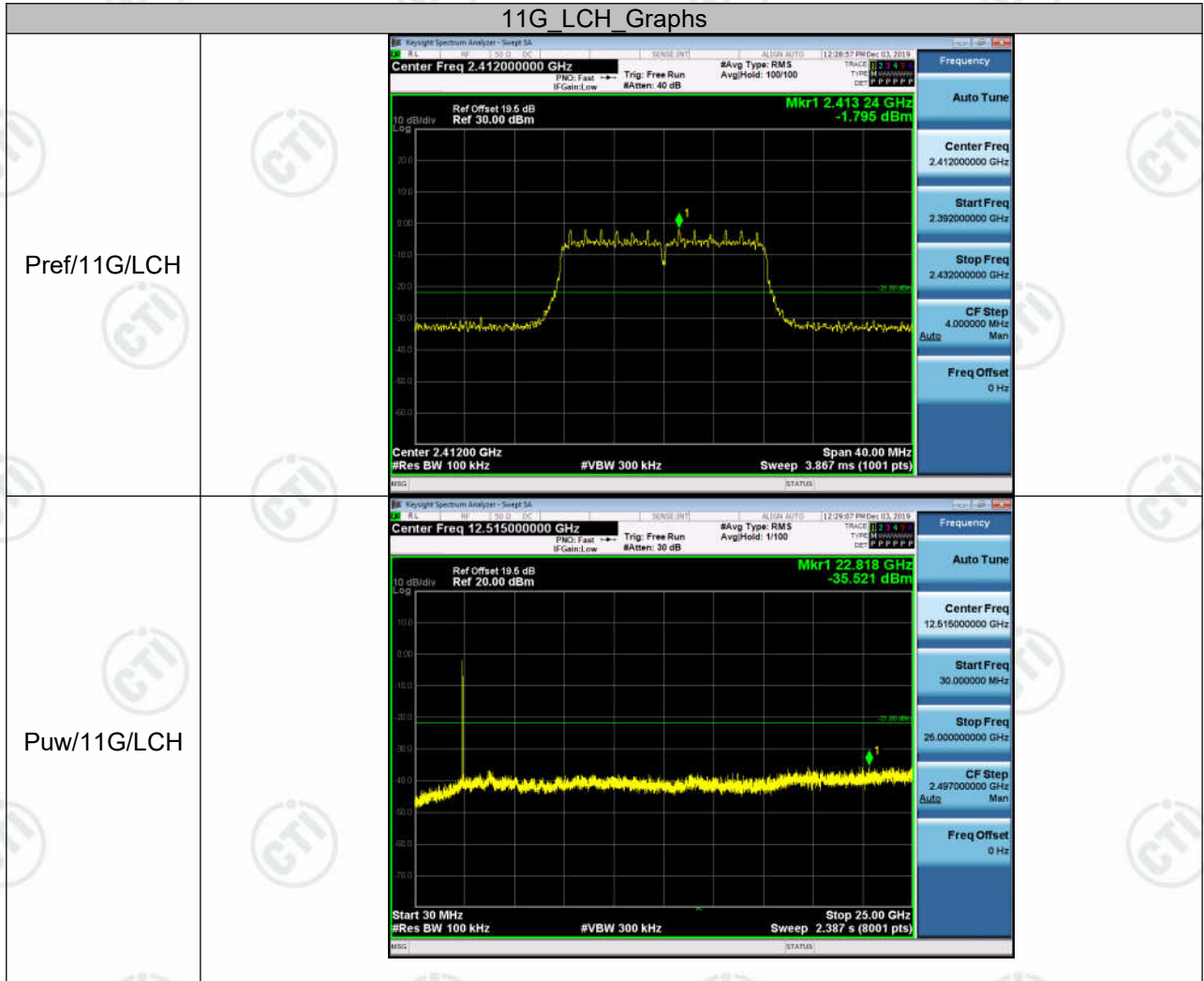
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	6.989	<Limit	PASS
11B	MCH	6.899	<Limit	PASS
11B	HCH	6.761	<Limit	PASS
11G	LCH	-1.795	<Limit	PASS
11G	MCH	-1.175	<Limit	PASS
11G	HCH	-1.579	<Limit	PASS
11N20SISO	LCH	-2.785	<Limit	PASS
11N20SISO	MCH	-2.085	<Limit	PASS
11N20SISO	HCH	-2.822	<Limit	PASS

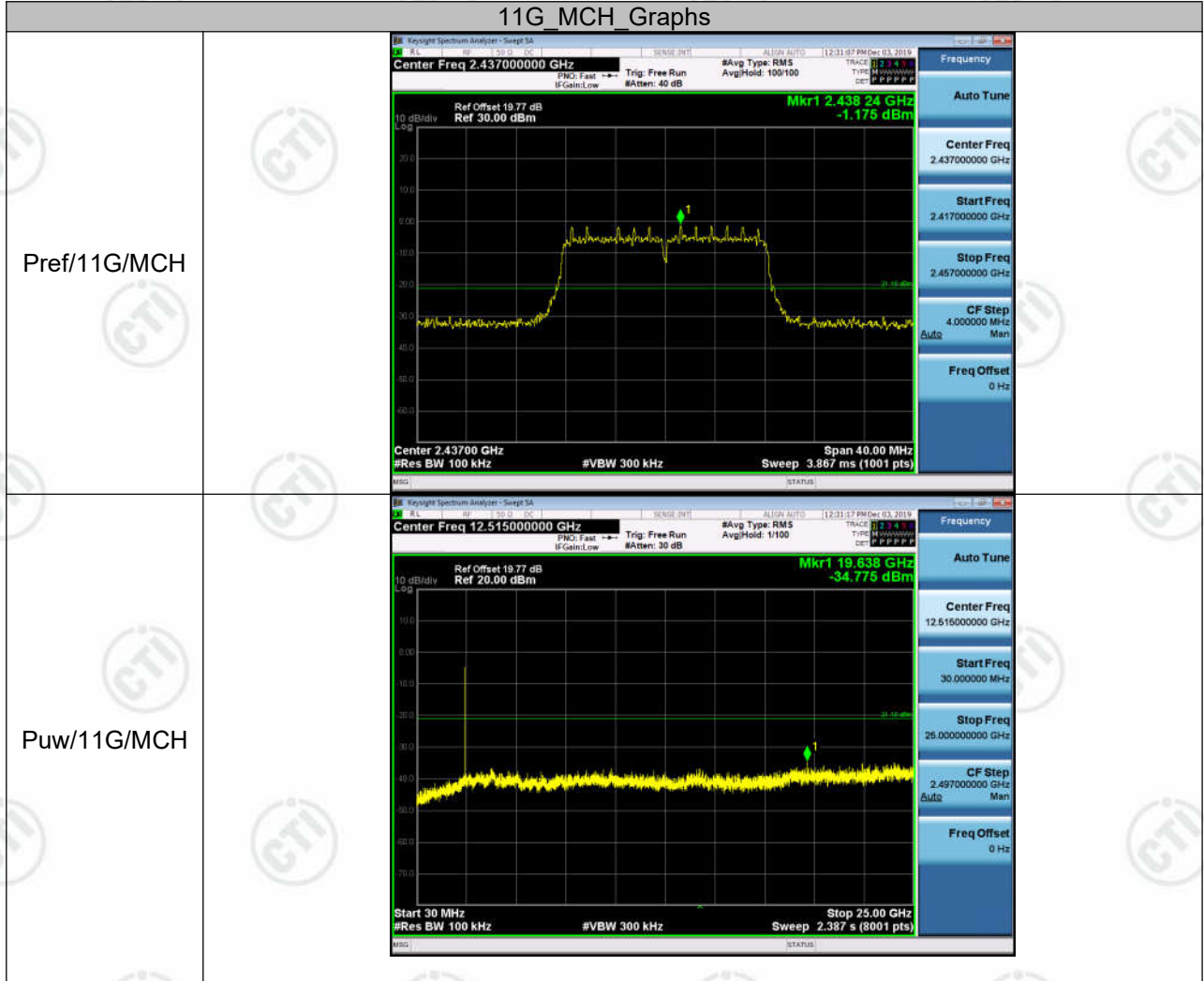
Test Graph

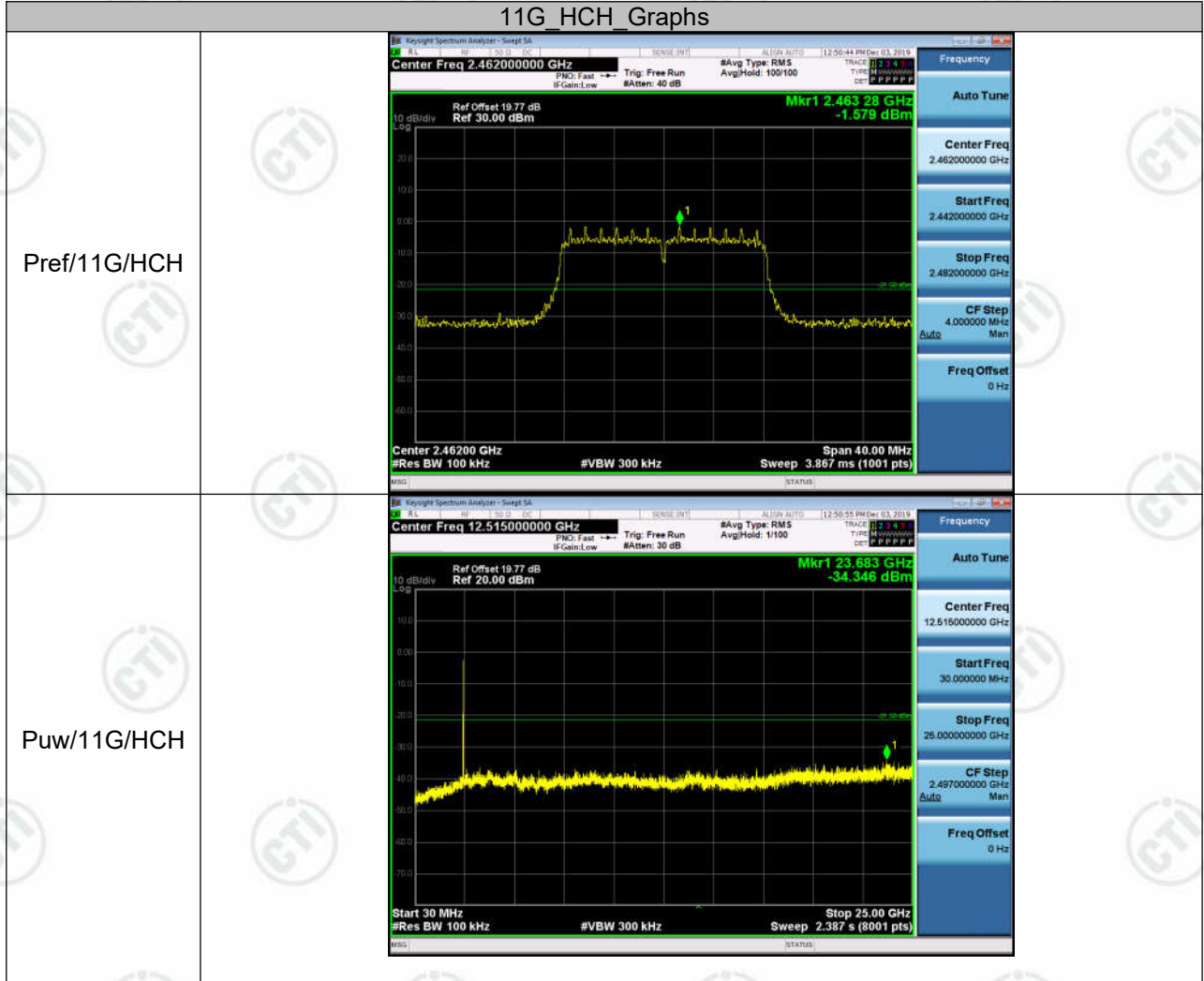


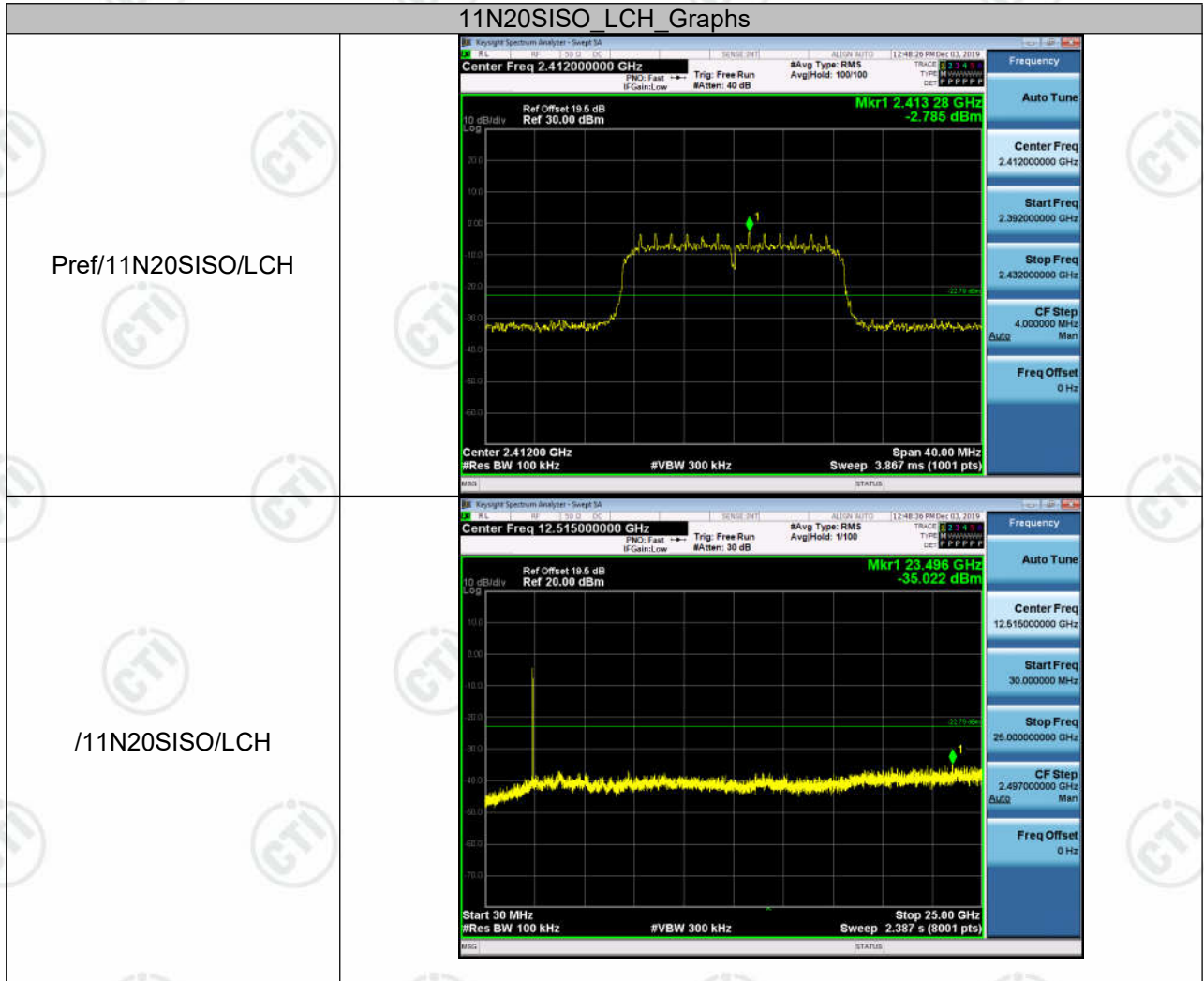


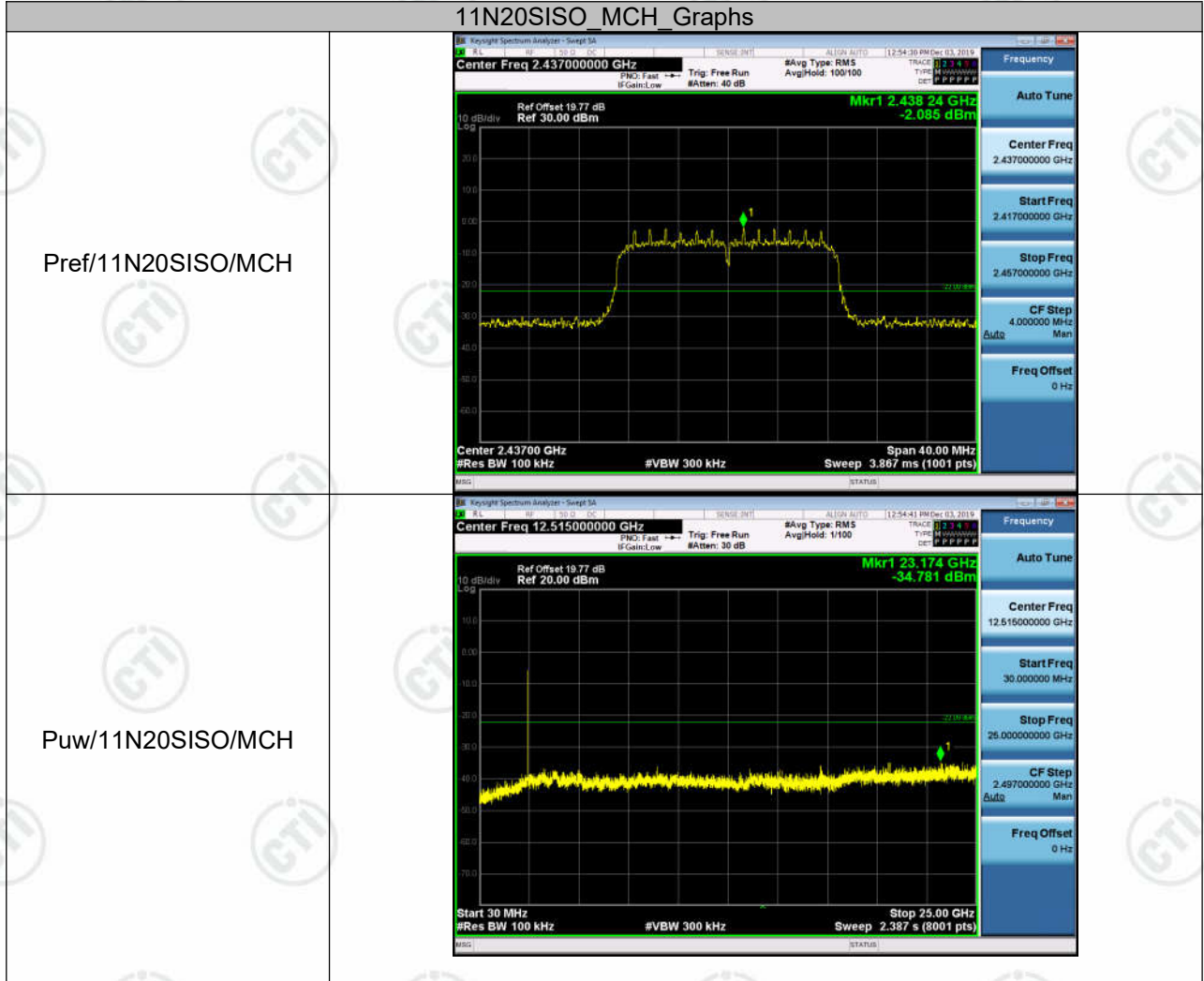


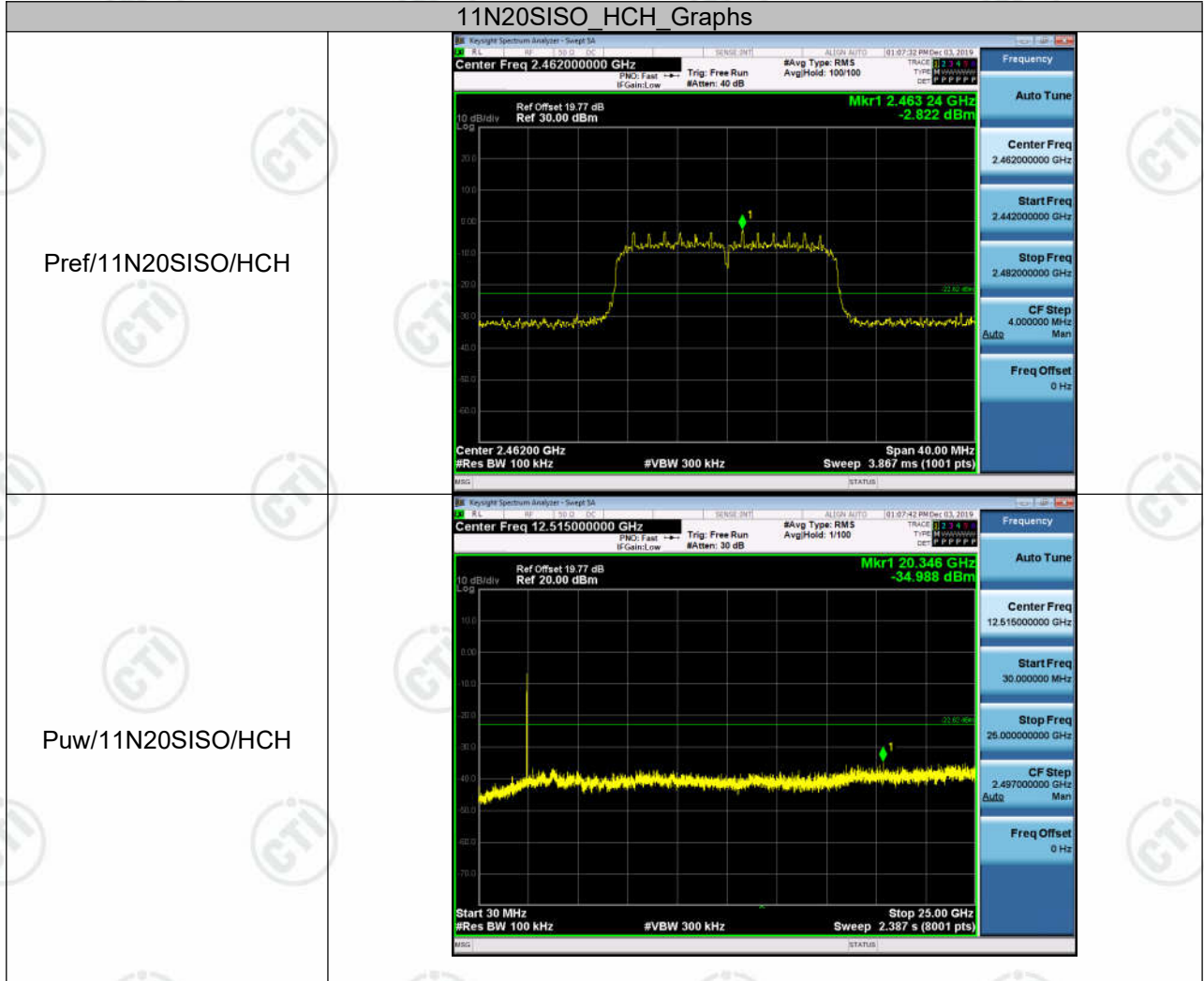












Appendix E): Power Spectral Density

Test Limit

According to §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

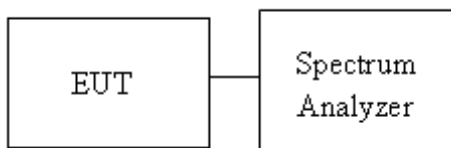
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
-------	---

Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss was compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

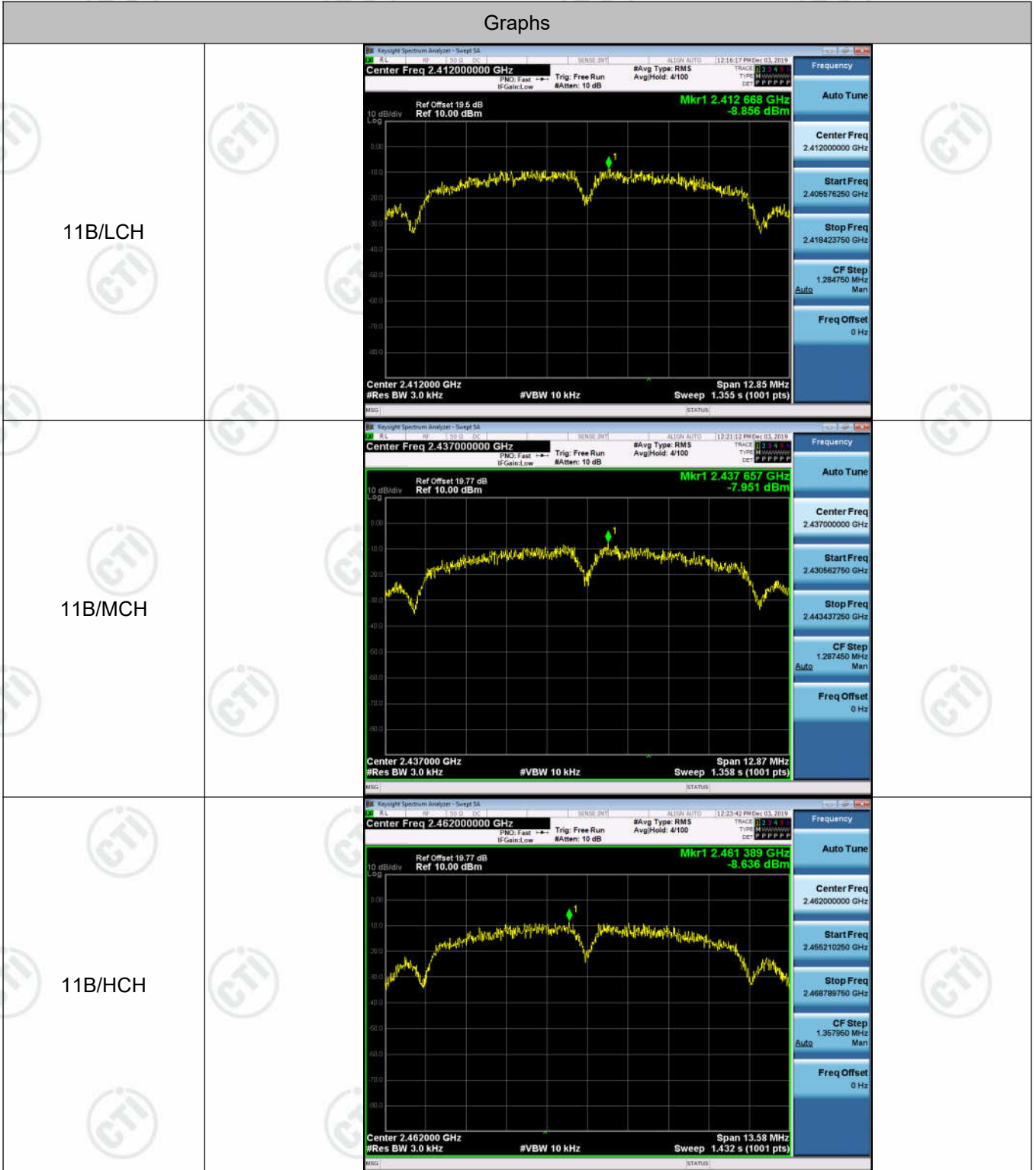
Test Setup

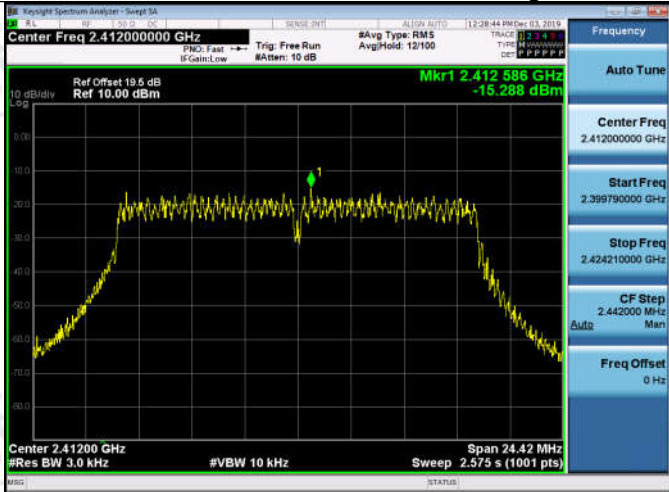
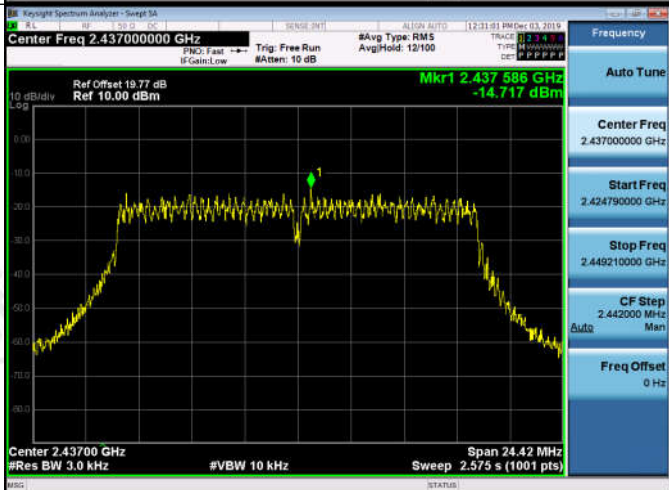
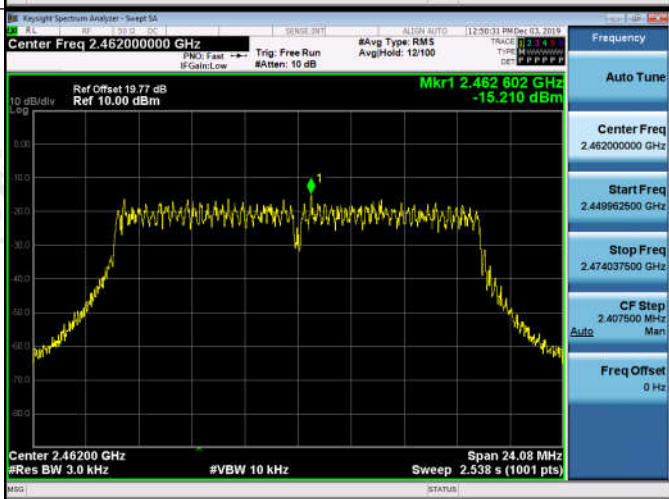


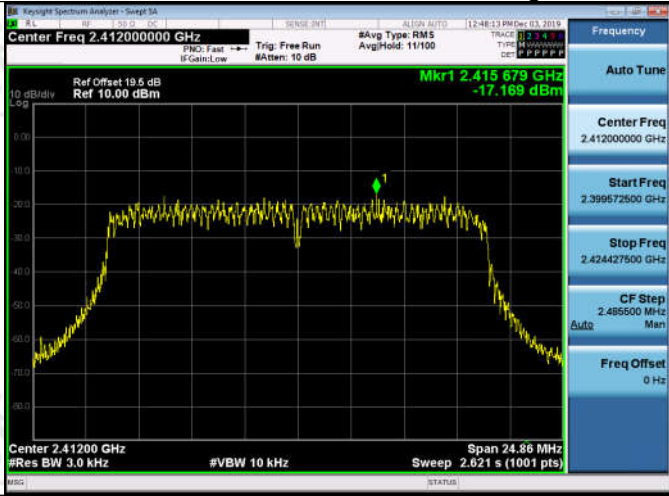
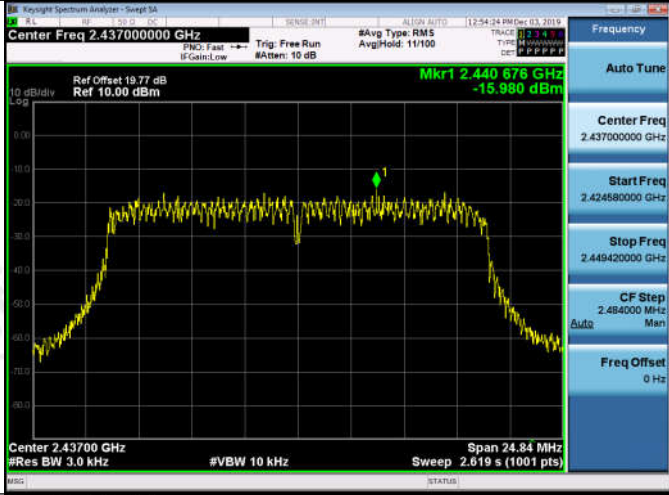
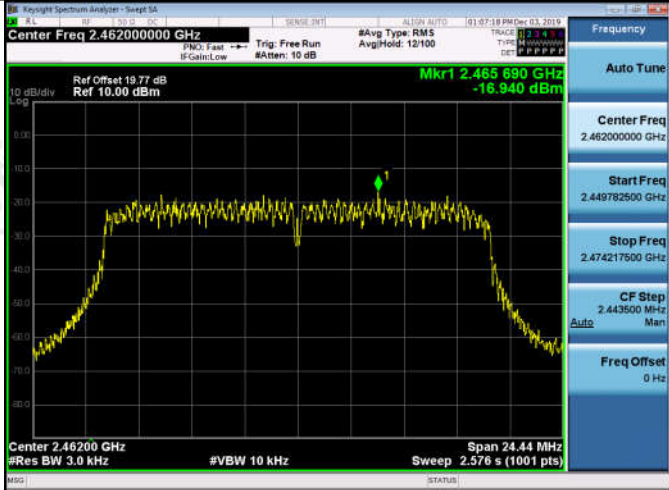
Result Table

Mode	Channel	Power Spectral Density [dBm/3kHz]	Verdict
11B	LCH	-8.856	PASS
11B	MCH	-7.951	PASS
11B	HCH	-8.636	PASS
11G	LCH	-15.288	PASS
11G	MCH	-14.717	PASS
11G	HCH	-15.210	PASS
11N20SISO	LCH	-17.169	PASS
11N20SISO	MCH	-15.980	PASS
11N20SISO	HCH	-16.940	PASS

Test Graph



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

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

Appendix F): Antenna Requirement

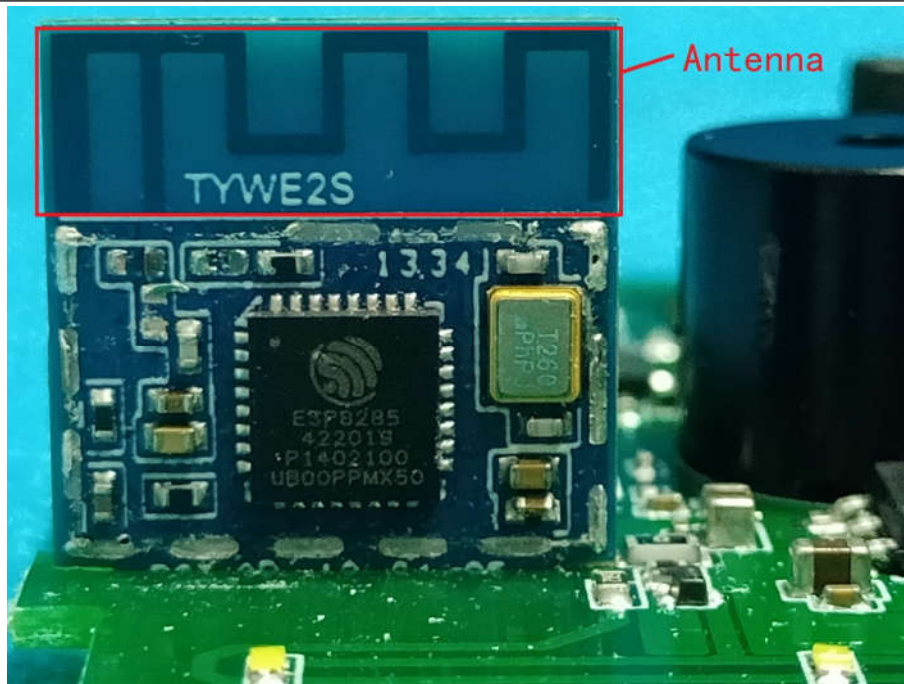
15.203 requirement:

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

15.247(b) (4) requirement:

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

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.5 dBi.

Appendix G): AC Power Line Conducted Emission

<p>Test Procedure:</p>	<p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> 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 50Ω/50μH + 5Ω 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. 														
<p>Limit:</p>	<table border="1" data-bbox="464 1167 1331 1384"> <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> <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 (dBμV)		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 (dBμV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													

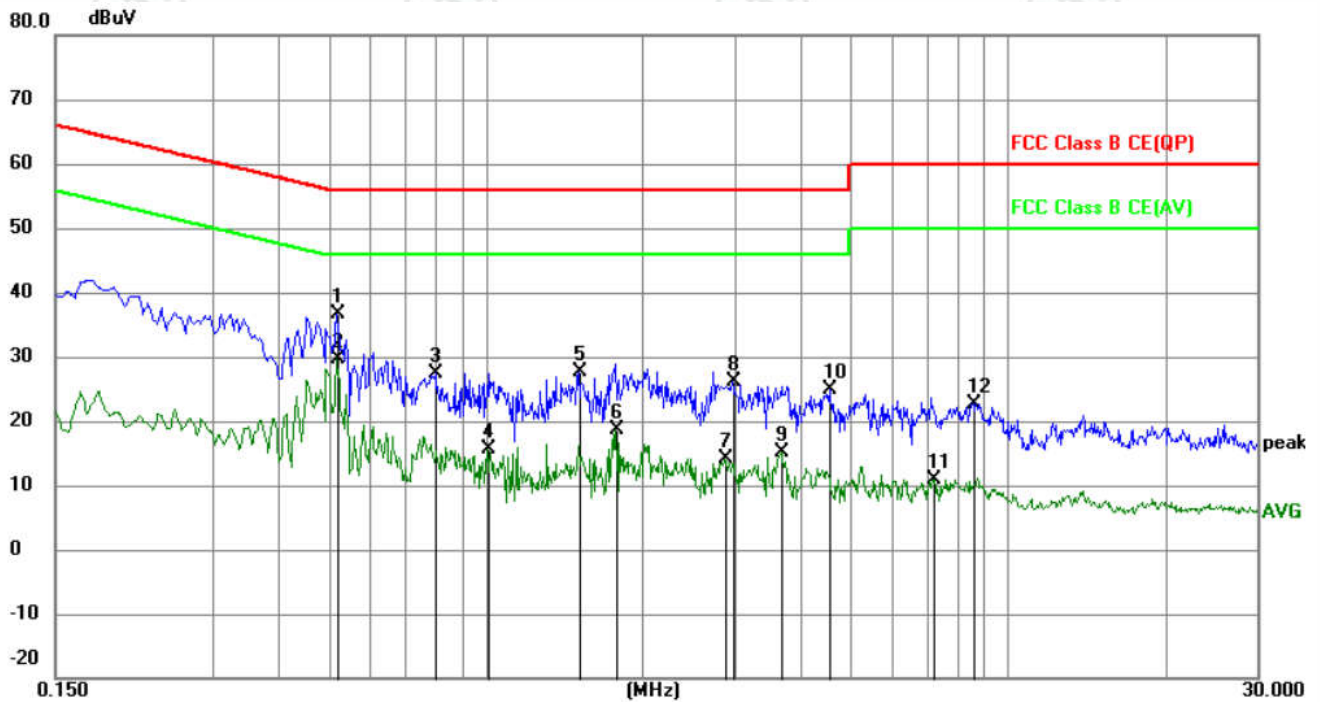
Measurement Data

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.

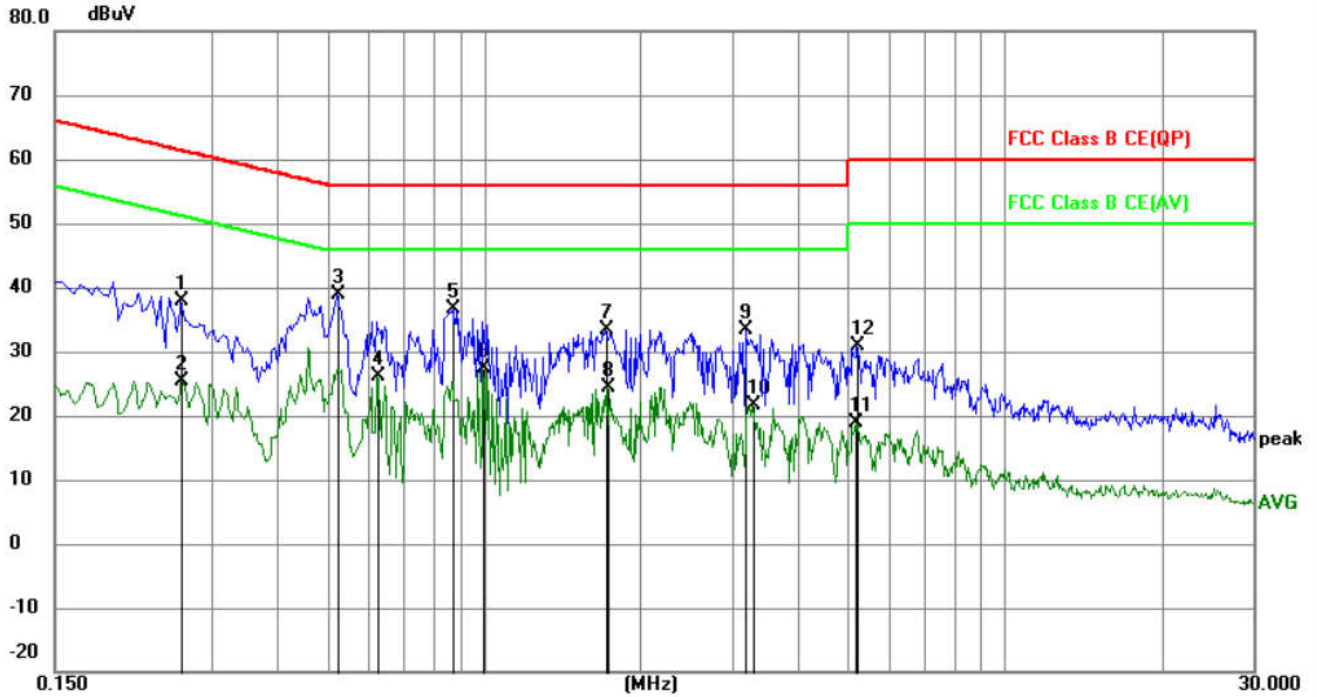
Product : SMART WIRELESS DOOR OPENER **Model/Type** : GD810
reference
Temperature : 24°C **Humidity** : 52%

Live line:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.5190	26.71	10.02	36.73	56.00	-19.27	QP	
2	*	0.5190	19.72	10.02	29.74	46.00	-16.26	AVG	
3		0.8025	17.50	9.91	27.41	56.00	-28.59	QP	
4		1.0050	5.65	9.91	15.56	46.00	-30.44	AVG	
5		1.5090	17.81	9.87	27.68	56.00	-28.32	QP	
6		1.7745	8.72	9.85	18.57	46.00	-27.43	AVG	
7		2.8815	4.25	9.83	14.08	46.00	-31.92	AVG	
8		2.9715	16.18	9.83	26.01	56.00	-29.99	QP	
9		3.6825	5.22	9.83	15.05	46.00	-30.95	AVG	
10		4.5690	15.13	9.83	24.96	56.00	-31.04	QP	
11		7.1835	1.03	9.86	10.89	50.00	-39.11	AVG	
12		8.6325	12.77	9.91	22.68	60.00	-37.32	QP	

Neutral line:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.2625	27.74	10.07	37.81	61.35	-23.54	QP	
2		0.2625	15.27	10.07	25.34	51.35	-26.01	AVG	
3	*	0.5235	28.76	10.03	38.79	56.00	-17.21	QP	
4		0.6270	16.16	9.99	26.15	46.00	-19.85	AVG	
5		0.8745	26.73	9.92	36.65	56.00	-19.35	QP	
6		0.9960	17.49	9.91	27.40	46.00	-18.60	AVG	
7		1.7115	23.49	9.85	33.34	56.00	-22.66	QP	
8		1.7295	14.64	9.85	24.49	46.00	-21.51	AVG	
9		3.1875	23.57	9.83	33.40	56.00	-22.60	QP	
10		3.2865	11.72	9.83	21.55	46.00	-24.45	AVG	
11		5.1810	8.98	9.83	18.81	50.00	-31.19	AVG	
12		5.1945	21.06	9.83	30.89	60.00	-29.11	QP	

Notes:

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

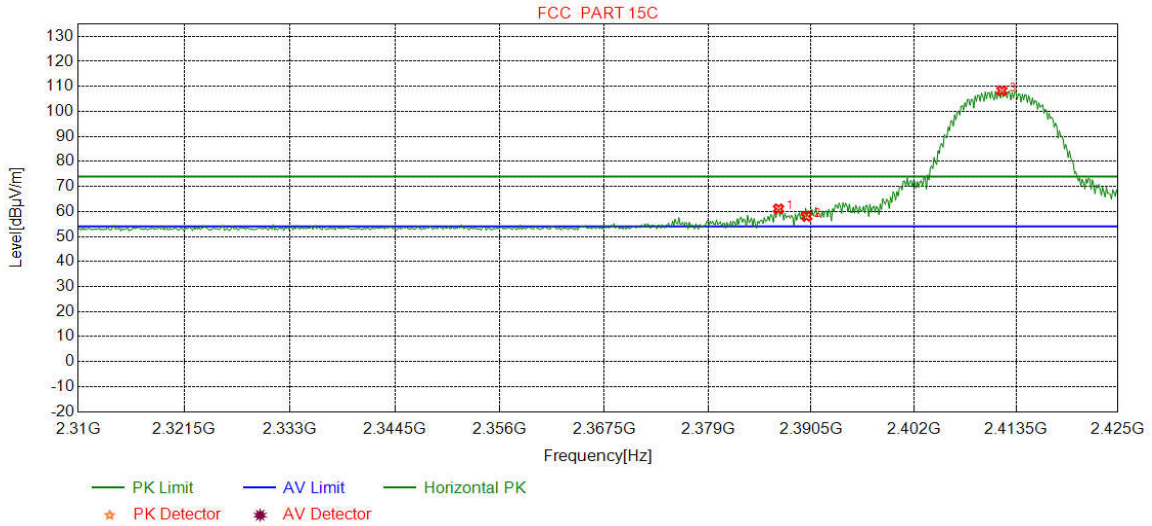
Appendix H): Restricted bands around fundamental frequency (Radiated)

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>Below 1GHz test procedure as below:</p> <p>Test method Refer as KDB 558074 D01</p> <ol style="list-style-type: none"> 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 <p>Above 1GHz test procedure as below:</p> <ol style="list-style-type: none"> 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 (dB μ V/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:

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	PK		

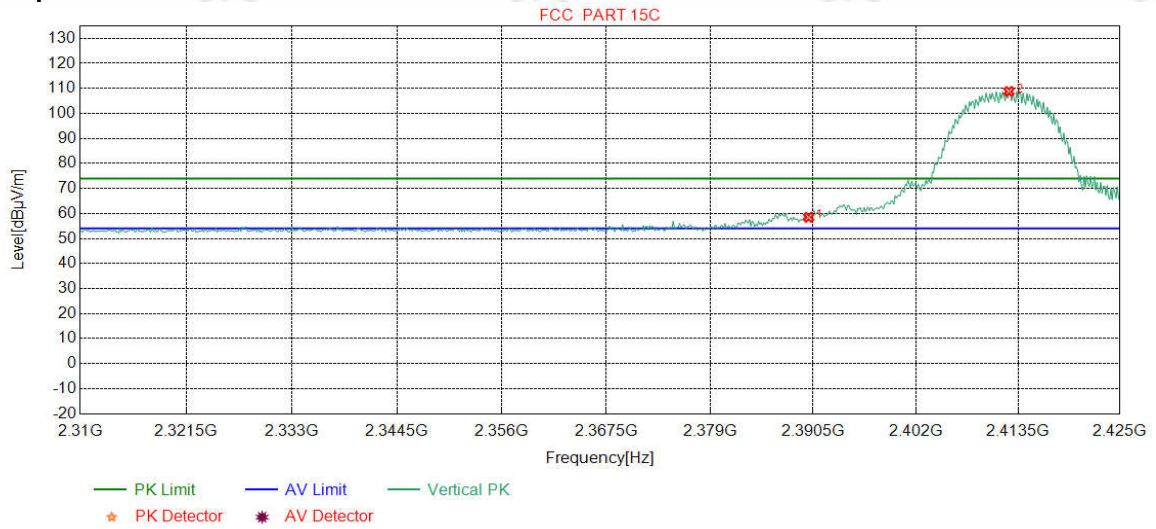
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2386.8586	32.24	13.40	-42.44	57.85	61.05	74.00	12.95	Pass	Horizontal
2	2390.0000	32.25	13.37	-42.44	54.86	58.04	74.00	15.96	Pass	Horizontal
3	2411.9024	32.28	13.35	-42.43	105.08	108.28	74.00	-34.28	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	PK		

Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-42.44	55.30	58.48	74.00	15.52	Pass	Vertical
2	2412.4781	32.28	13.36	-42.43	105.58	108.79	74.00	-34.79	Pass	Vertical