

TEST REPORT

Product : 10.1" 3G Phone Tablet
Trade mark : Dragon Touch, KingPad, KingSlim, SureTouch
Model/Type reference : E10, E10X, E100, E10 PLUS, E10X PLUS, E100X, E100X PLUS, 1855
Serial Number : N/A
Report Number : EED32H000437-2
FCC ID : S5V-D10E10
Date of Issue: : Jul. 24, 2015
Test Standards : 47 CFR Part 15 Subpart C(2014)
Test result : PASS

Prepared for:

Proexpress Distributor LLC

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

Prepared by:

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Jul. 24, 2015

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Check No.: 1727804505



2 Version

Version No.	Date	Description
00	Jul. 24, 2015	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

Model No.: E10, E10X, E100, E10 PLUS, E10X PLUS, E100X, E100X PLUS, 1855

Only the Model E10 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for all above models. Only different on outer color and model names.

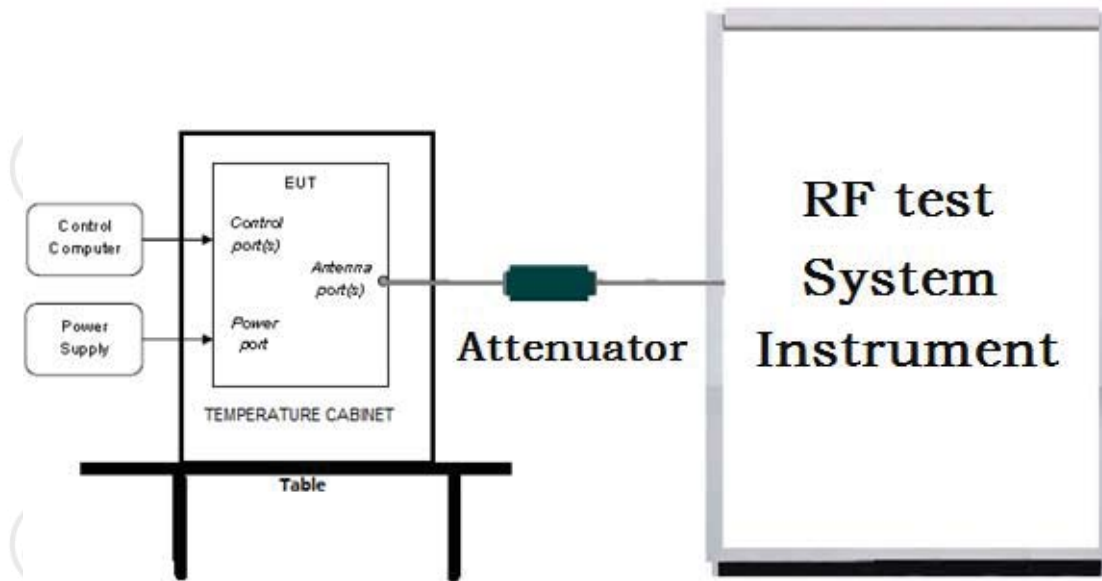
4 Content

1	COVER PAGE	1
2	VERSION	2
3	TEST SUMMARY	3
4	CONTENT	4
5	TEST REQUIREMENT	5
5.1	TEST SETUP	5
5.1.1	For Conducted test setup	5
5.1.2	For Radiated Emissions test setup	5
5.1.3	For Conducted Emissions test setup	6
5.2	TEST ENVIRONMENT	6
5.3	TEST CONDITION	6
6	GENERAL INFORMATION	8
6.1	CLIENT INFORMATION	8
6.2	GENERAL DESCRIPTION OF EUT	8
6.3	PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	8
6.4	DESCRIPTION OF SUPPORT UNITS	9
6.5	TEST LOCATION	9
6.6	TEST FACILITY	9
6.7	DEVIATION FROM STANDARDS	10
6.8	ABNORMALITIES FROM STANDARD CONDITIONS	10
6.9	OTHER INFORMATION REQUESTED BY THE CUSTOMER	10
6.10	MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2)	11
7	EQUIPMENT LIST	12
8	RADIO TECHNICAL REQUIREMENTS SPECIFICATION	14
	Appendix A): Conducted Average Output Power	15
	Appendix B): 6dB Occupied Bandwidth	20
	Appendix C): Band-edge for RF Conducted Emissions	25
	Appendix D): RF Conducted Spurious Emissions	28
	Appendix E): Power Spectral Density	36
	Appendix F) Antenna Requirement	41
	Appendix G) AC Power Line Conducted Emission	42
	Appendix H) Restricted bands around fundamental frequency (Radiated)	47
	Appendix I) Radiated Spurious Emissions	57
	PHOTOGRAPHS OF TEST SETUP	63
	PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	65

5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

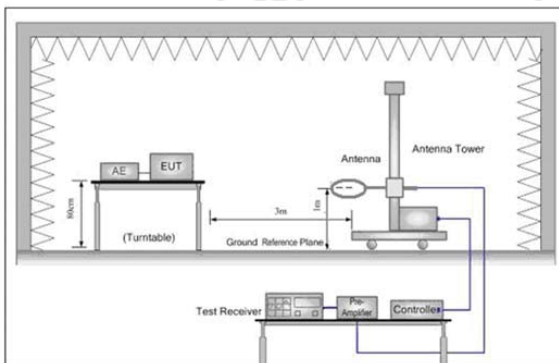


Figure 1. Below 30MHz

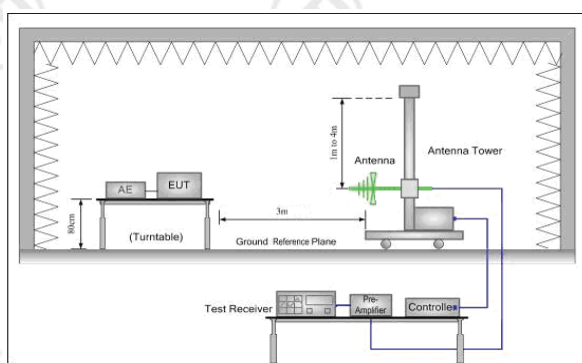


Figure 2. 30MHz to 1GHz

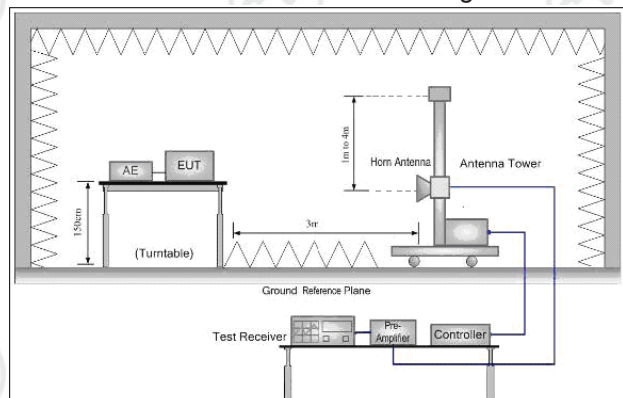
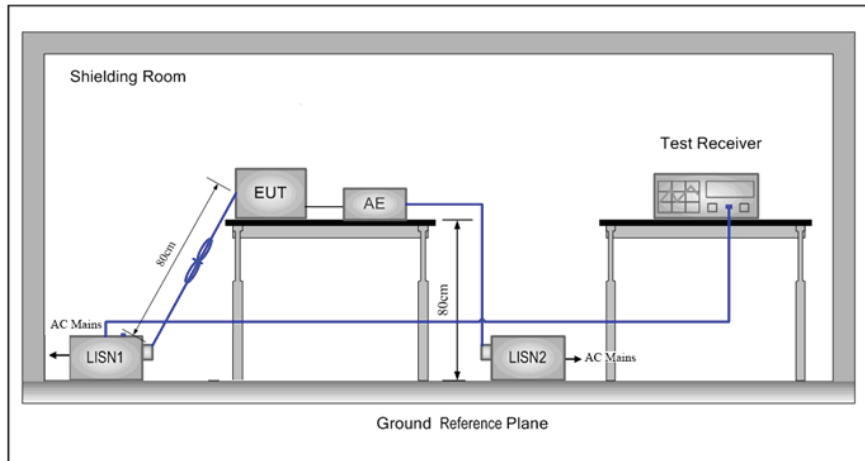


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup
Conducted Emissions setup



5.2 Test Environment

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

5.3 Test Condition

Test channel:

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

Test mode:

Wi-Fi	Channel	Power (dBm) for Data Rates (Mbps)							
		1	2	5.5	11	/	/	/	/
802.11b	1	3.32	3.29	3.31	3.37	/	/	/	/
	6	3.82	3.83	3.82	3.87	/	/	/	/
	11	3.89	3.98	4.00	4.01	/	/	/	/
802.11g	Channel	6	9	12	18	24	36	48	54
	1	3.43	3.42	3.34	3.31	3.23	3.22	3.19	3.18
	6	3.87	3.84	3.82	3.78	3.77	3.71	3.66	3.65
	11	4.32	4.31	4.29	4.21	4.12	4.10	4.09	4.03
802.11n (HT20)	Channel	6.5	13	19.5	26	39	52	58.5	65
	1	3.42	3.42	3.41	3.39	3.32	3.31	3.29	3.19
	6	3.75	3.72	3.70	3.72	3.69	3.65	3.54	3.49
	11	3.77	3.76	3.74	3.71	3.69	3.62	3.52	3.45
802.11n (HT40)	Channel	13.5	27	40.5	54	81	108	121.5	135
	1	3.09	3.08	3.04	2.98	2.87	2.84	2.83	2.81
	4	3.75	3.72	3.71	2.69	2.59	2.55	2.51	2.49
	7	3.78	3.73	3.70	2.66	2.55	2.54	2.49	2.43

Through Pre-scan, 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n (HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).

6 General Information

6.1 Client Information

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

6.2 General Description of EUT

Product Name:	10.1" 3G Phone Tablet	
Model No.(EUT):	E10	
Add Mode No.:	E10X, E100, E10 PLUS, E10X PLUS, E100X, E100X PLUS, 1855	
Trade Mark:	Dragon Touch, KingPad, KingSlim, SureTouch	
EUT Supports Radios application	GSM/GPRS 850: Tx:824.20 - 848.80MHz;Rx: 869.20 – 893.80MHz GSM/GPRS 1900: Tx:1850.20 – 1909.80MHz; Rx:1930.20 – 1989.80MHz WCDMA/HSDPA Band V: Tx:826.40 -846.60MHz;Rx: 871.40 – 891.60MHz WCDMA/HSDPA Band II: Tx:1852.40 – 1907.60MHz;Rx:1932.40 – 1987.60MHz BT4.0: 2402 – 2480MHz IEEE 802.11b/g/n(HT20): 2412 – 2462MHz IEEE 802.11b/g/n(HT40): 2422 – 2452MHz	
Power Supply:	Adapter:	Input: AC 100V-240V 50-60Hz Output: DC 5.0V 2000mA
	Battery:	DC3.7V (Li-on Rechargeable Battery)
Sample Received Date:	May 09, 2015	
Sample tested Date:	May 09, 2015 to Jul. 24, 2015	

6.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK,BPSK)
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	0dBi

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 independently.

6.5 Test Location

All tests were performed at:

Centre Testing International (Shenzhen) Corporation

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

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

No tests were sub-contracted.

6.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1910

Centre Testing International (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. .

A2LA-Lab Cert. No. 3061.01

Centre Testing International (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 565659

Centre Testing International (Shenzhen) Corporation EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 565659.

IC-Registration No.: 7408A

The 3m Alternate Test Site of Centre Testing International (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A .

IC-Registration No.: 7408B

The 10m Alternate Test Site of Centre Testing International (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B.

NEMKO-Aut. No.: ELA503

Centre Testing International (Shenzhen) Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International (Shenzhen) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

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

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)
4	Conduction emission	3.6dB (9kHz to 150kHz)
		3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%

7 Equipment List

RF test system					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
Communication test set test set	Agilent	N4010A	MY47230124	04-02-2015	04-01-2016
Spectrum Analyzer	Keysight	N9010A	MY54510339	04-01-2015	03-31-2016
Attenuator	HuaXiang	SHX370	15040701	04-01-2015	03-31-2016
Signal Generator	Keysight	N5182B	MY53051549	03-31-2015	03-30-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-13-2015	01-12-2016
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-13-2015	01-12-2016
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-13-2015	01-12-2016
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA03C L12-0394-001	---	01-13-2015	01-12-2016
DC Power	Keysight	E3642A	MY54436035	03-31-2015	03-30-2016
PC-1	Lenovo	R4960d	---	04-01-2015	03-31-2016
BT&WI-FI Automatic control	R&S	OSPB157	101374	04-01-2015	03-31-2016
RF control unit	JS Tonscend	JS0806-2	2015860006	04-01-2015	03-31-2016
BT&WI-FI Automatic test software	JS Tonscend	JSTS1120-2	---	04-01-2015	03-31-2016

Radiated Spurious Emission & Radiated Emission					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-02-2015	06-01-2016
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-617	07-14-2015	07-13-2016
Microwave Preamplifier	Agilent	8449B	3008A02425	02-05-2015	02-04-2016
Horn Antenna	ETS-LINDGREN	3117	00057410	07-08-2015	07-07-2016
Loop Antenna	ETS	6502	00071730	07-23-2015	07-22-2016
Spectrum Analyzer	R&S	FSP40	100416	07-09-2015	07-08-2016
Receiver	R&S	ESCI	100435	07-09-2015	07-08-2016
Multi device Controller	matur	NCD/070/10711112	---	01-13-2015	01-12-2016
LISN	schwarzbeck	NNBM8125	81251547	07-09-2015	07-08-2016
LISN	schwarzbeck	NNBM8125	81251546	07-09-2015	07-08-2016
Signal Generator	Agilent	E4438C	MY45095744	04-19-2015	04-18-2016
Signal Generator	Keysight	E8257D	MY53401106	04-14-2015	04-13-2016
Temperature/ Humidity Indicator	TAYLOR	1451	5190	07-10-2015	07-09-2016
Communication test set	Agilent	E5515C	GB47050533	01-13-2015	01-12-2016
Cable line	Fulai(7M)	SF106	5219/6A	01-13-2015	01-12-2016
Cable line	Fulai(6M)	SF106	5220/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5216/6A	01-13-2015	01-12-2016
Cable line	Fulai(3M)	SF106	5217/6A	01-13-2015	01-12-2016
Communication test set	R&S	CMW500	152394	04-19-2015	04-18-2016
High-pass filter(3-18GHz)	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-13-2015	01-12-2016
High-pass filter(5-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-13-2015	01-12-2016
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-13-2015	01-12-2016

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2014)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Test Results List:

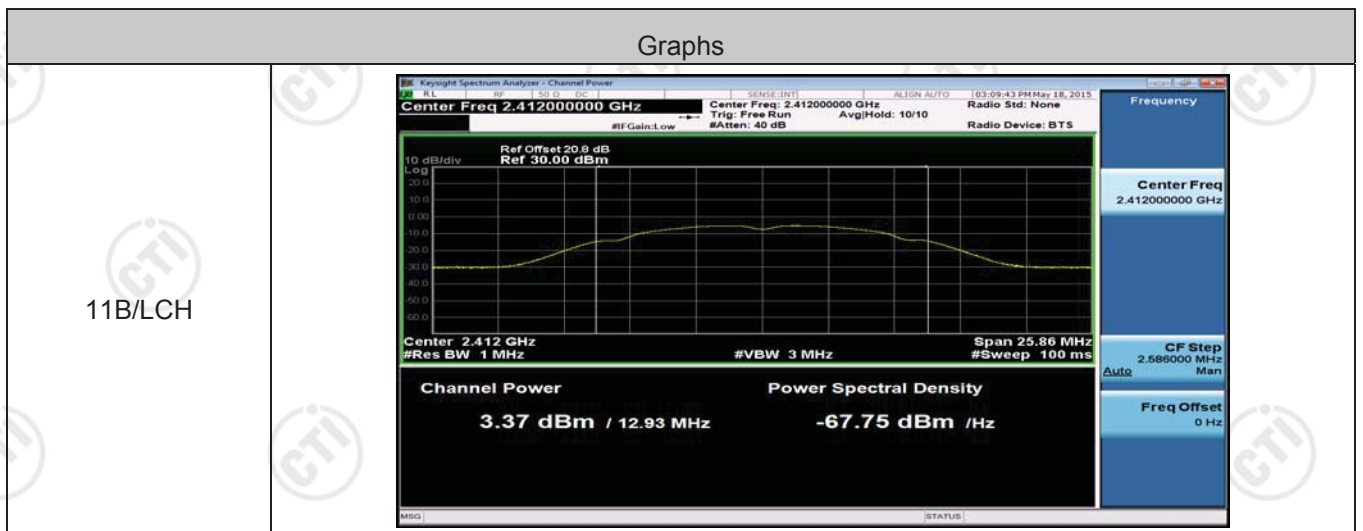
Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS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

Appendix A): Conducted Average Output Power

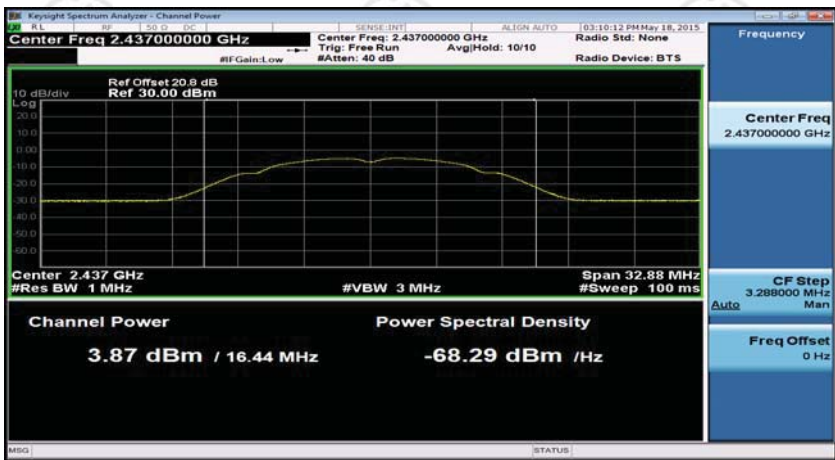
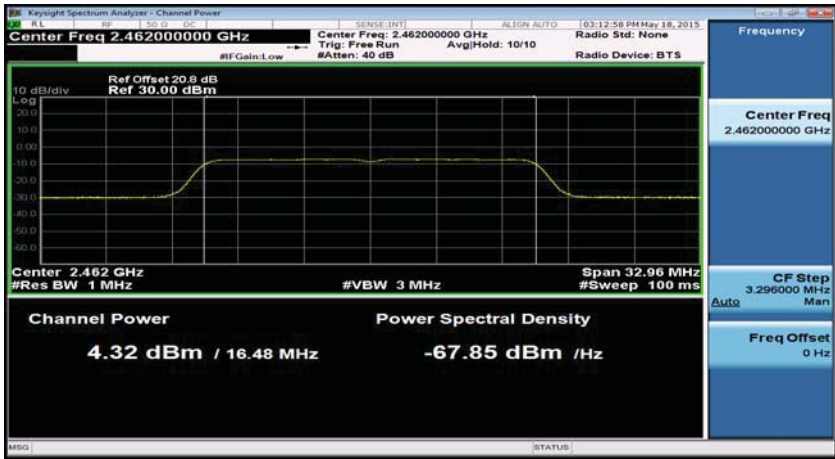
Result Table

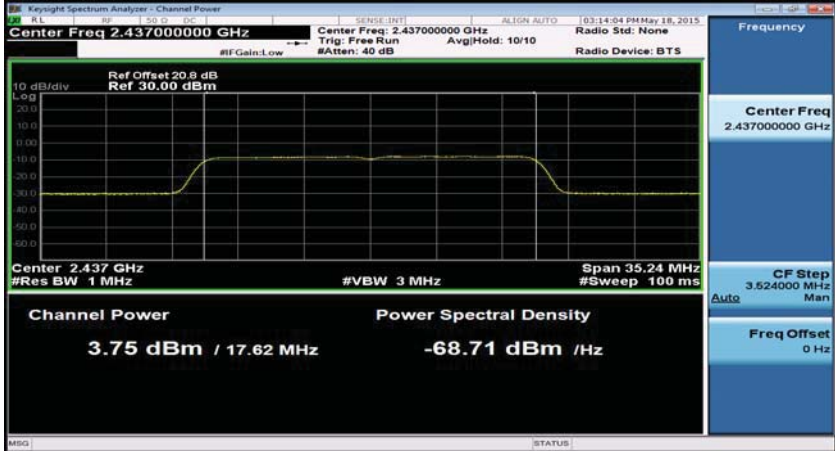
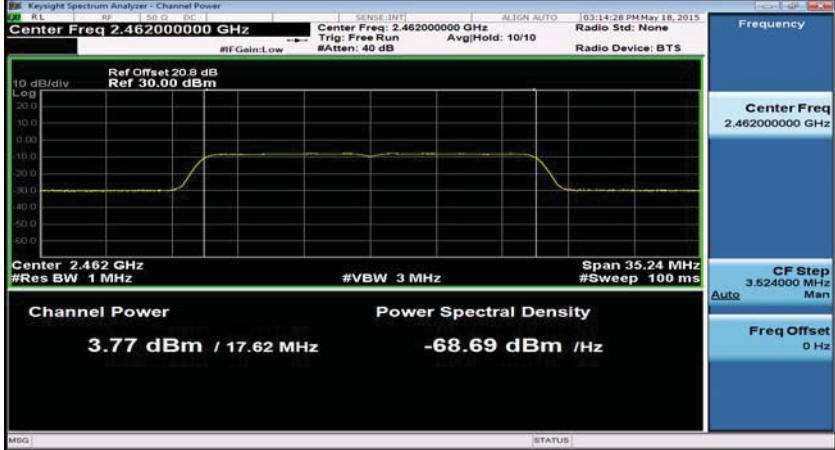
Mode	Channel	Meas.Level [dBm]	Av.Power [dBm]	Verdict
11B	LCH	3.37	3.37	PASS
11B	MCH	3.87	3.87	PASS
11B	HCH	4.01	4.01	PASS
11G	LCH	3.43	3.43	PASS
11G	MCH	3.87	3.87	PASS
11G	HCH	4.32	4.32	PASS
11N20SISO	LCH	3.42	3.42	PASS
11N20SISO	MCH	3.75	3.75	PASS
11N20SISO	HCH	3.77	3.77	PASS
11N40SISO	LCH	3.09	3.09	PASS
11N40SISO	MCH	3.75	3.75	PASS
11N40SISO	HCH	3.78	3.78	PASS

Test Graph



<p>11B/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Channel Power: 3.87 dBm / 16.44 MHz</p> <p>Power Spectral Density: -68.29 dBm / Hz</p>
<p>11B/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.462000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Channel Power: 4.01 dBm / 12.94 MHz</p> <p>Power Spectral Density: -67.11 dBm / Hz</p>
<p>11G/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Channel Power: 3.43 dBm / 16.44 MHz</p> <p>Power Spectral Density: -68.73 dBm / Hz</p>

<p>11G/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.437000000 GHz</p> <p>Channel Power: 3.87 dBm / 16.44 MHz</p> <p>Power Spectral Density: -68.29 dBm / Hz</p>
<p>11G/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.462000000 GHz</p> <p>Channel Power: 4.32 dBm / 16.48 MHz</p> <p>Power Spectral Density: -67.85 dBm / Hz</p>
<p>11N20SISO/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq: 2.412000000 GHz</p> <p>Channel Power: 3.42 dBm / 17.62 MHz</p> <p>Power Spectral Density: -69.04 dBm / Hz</p>

<p>11N20SISO/MCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 40 dB</p> <p>Avg Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 20.9 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 35.24 MHz</p> <p>#Sweep 100 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>3.75 dBm / 17.62 MHz</p> <p>-68.71 dBm / Hz</p> <p>Frequency</p> <p>Center Freq</p> <p>2.437000000 GHz</p> <p>CF Step</p> <p>3.524000 MHz</p> <p>Auto</p> <p>Man</p> <p>Freq Offset</p> <p>0 Hz</p>
<p>11N20SISO/HCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 40 dB</p> <p>Avg Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 20.9 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.462 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 35.24 MHz</p> <p>#Sweep 100 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>3.77 dBm / 17.62 MHz</p> <p>-68.69 dBm / Hz</p> <p>Frequency</p> <p>Center Freq</p> <p>2.462000000 GHz</p> <p>CF Step</p> <p>3.524000 MHz</p> <p>Auto</p> <p>Man</p> <p>Freq Offset</p> <p>0 Hz</p>
<p>11N40SISO/LCH</p>	 <p>Keysight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz</p> <p>Center Freq: 2.422000000 GHz</p> <p>Trig: Free Run</p> <p>#IF Gain: Low</p> <p>#Atten: 40 dB</p> <p>Avg Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 20.9 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.422 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 72.44 MHz</p> <p>#Sweep 100 ms</p> <p>Channel Power</p> <p>Power Spectral Density</p> <p>3.09 dBm / 36.22 MHz</p> <p>-72.50 dBm / Hz</p> <p>Frequency</p> <p>Center Freq</p> <p>2.422000000 GHz</p> <p>CF Step</p> <p>7.244000 MHz</p> <p>Auto</p> <p>Man</p> <p>Freq Offset</p> <p>0 Hz</p>

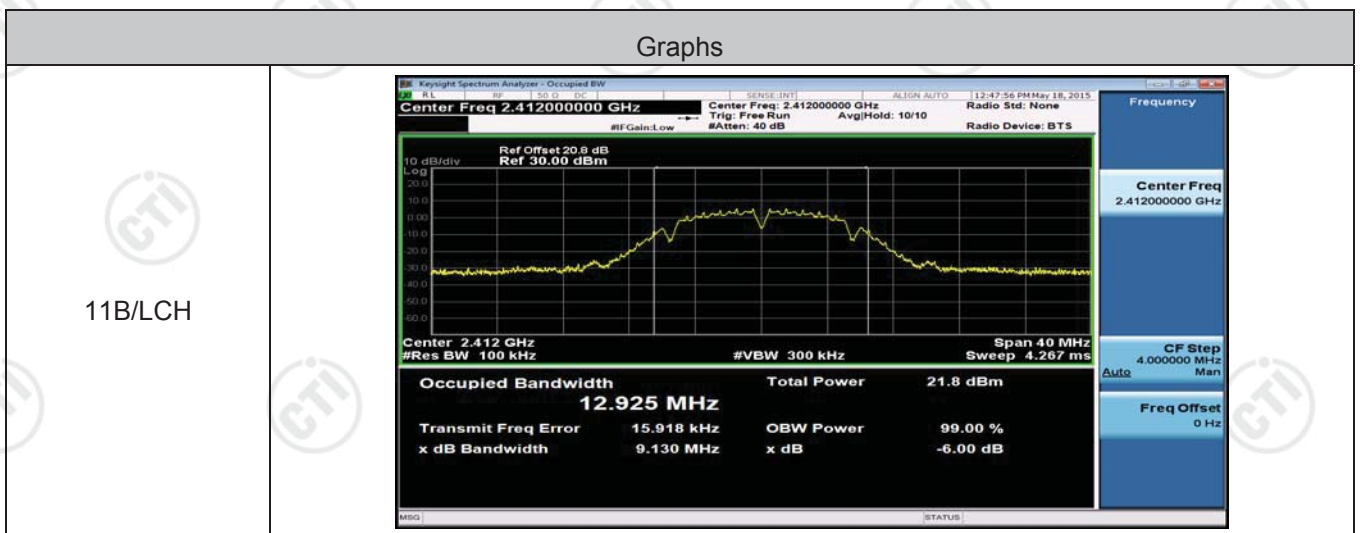


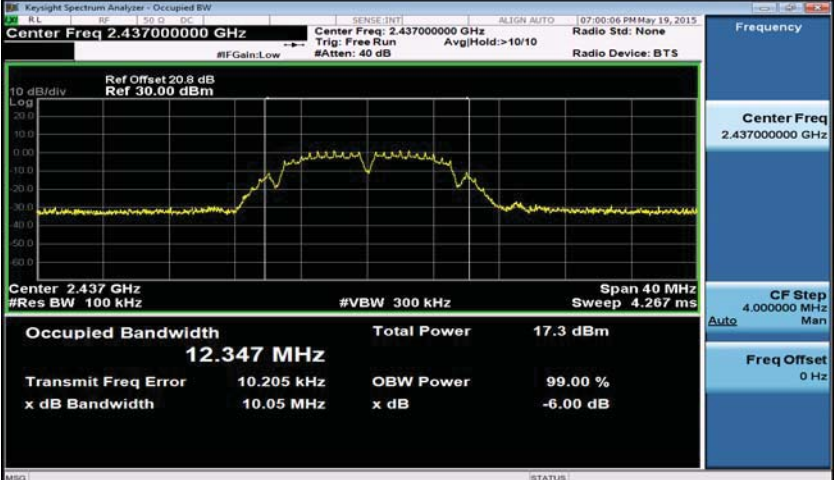
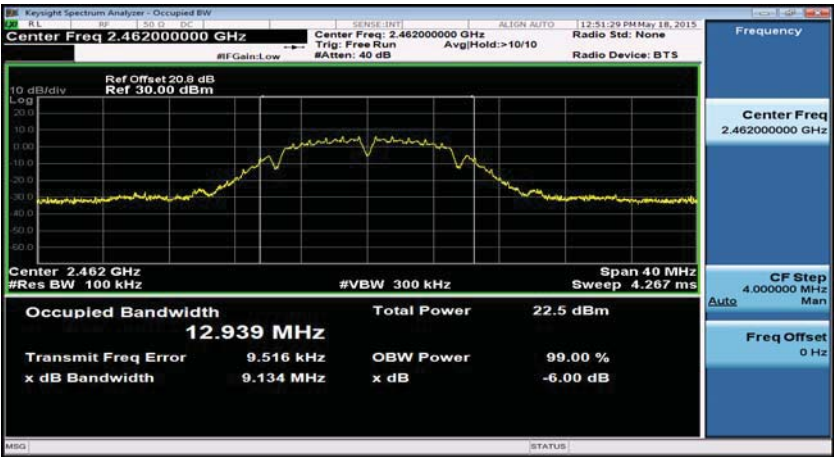
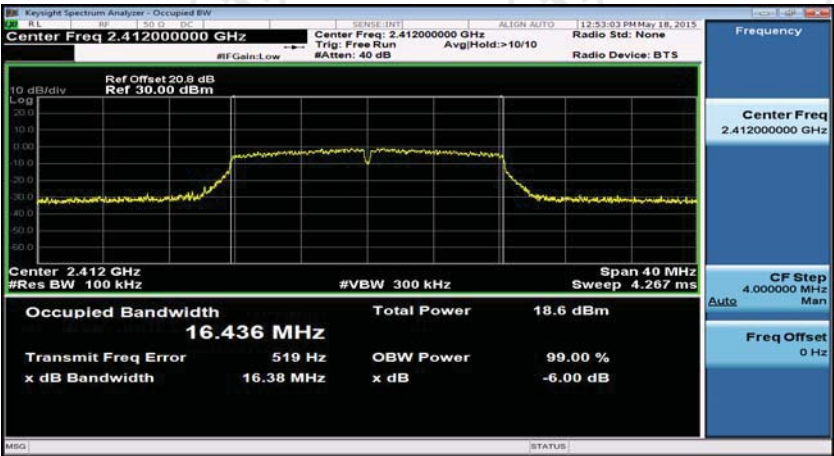
Appendix B): 6dB Occupied Bandwidth

Result Table

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	9.13	12.93	PASS
11B	MCH	10.05	12.35	PASS
11B	HCH	9.13	12.94	PASS
11G	LCH	16.38	16.44	PASS
11G	MCH	16.40	16.44	PASS
11G	HCH	16.38	16.48	PASS
11N20SISO	LCH	17.60	17.62	PASS
11N20SISO	MCH	17.60	17.62	PASS
11N20SISO	HCH	17.59	17.62	PASS
11N40SISO	LCH	36.35	36.22	PASS
11N40SISO	MCH	36.30	36.18	PASS
11N40SISO	HCH	36.16	36.16	PASS

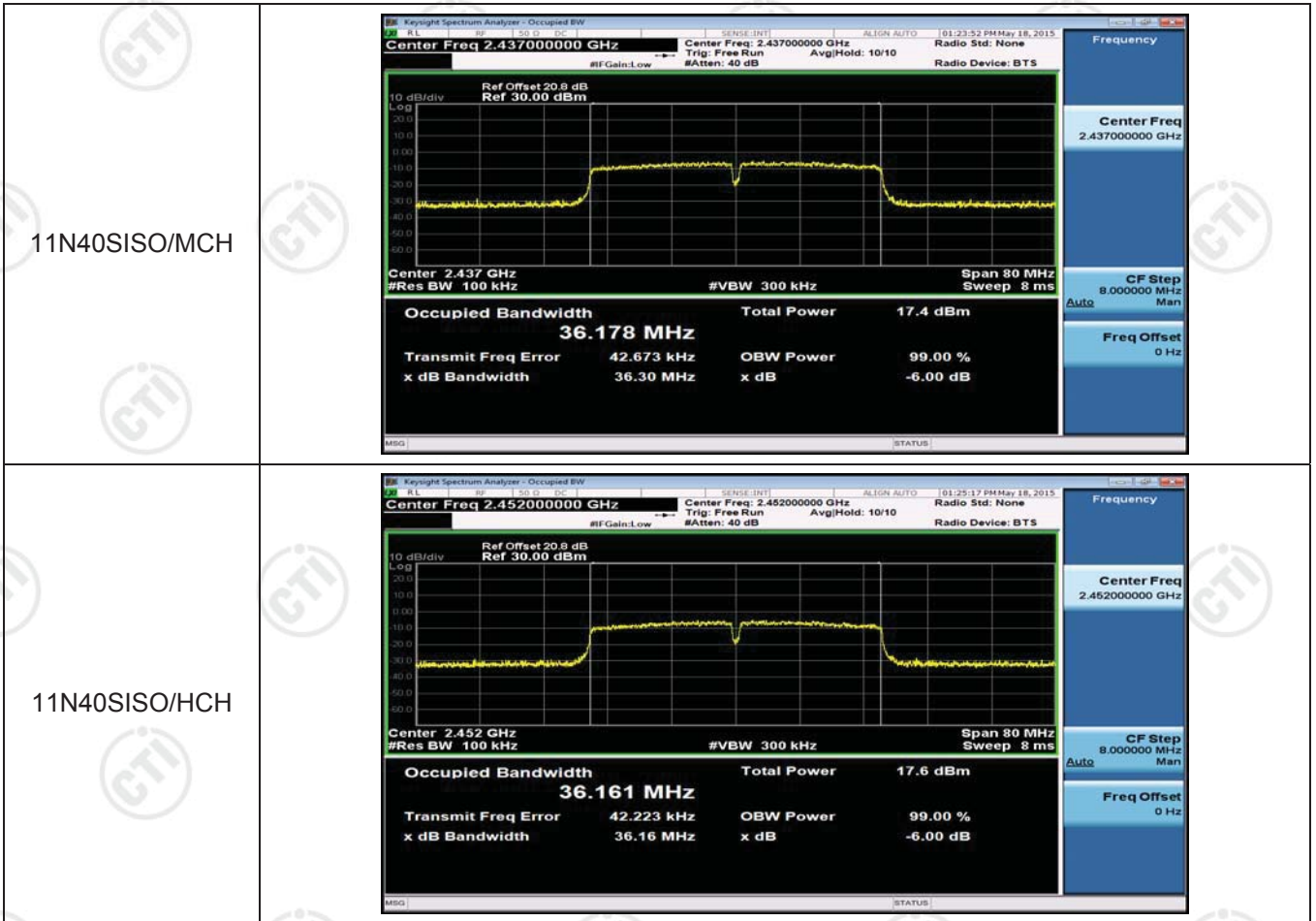
Test Graph



<p>11B/MCH</p>	 <p>Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>#F Gain: Low</p> <p>#Atten: 40 dB</p> <p>Ref Offset 20.8 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth: 12.347 MHz</p> <p>Total Power: 17.3 dBm</p> <p>Transmit Freq Error: 10.205 kHz</p> <p>x dB Bandwidth: 10.05 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>Frequency: 2.437000000 GHz</p> <p>CF Step: 4.000000 MHz</p> <p>Freq Offset: 0 Hz</p>
<p>11B/HCH</p>	 <p>Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>#F Gain: Low</p> <p>#Atten: 40 dB</p> <p>Ref Offset 20.8 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.462 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth: 12.939 MHz</p> <p>Total Power: 22.5 dBm</p> <p>Transmit Freq Error: 9.516 kHz</p> <p>x dB Bandwidth: 9.134 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>Frequency: 2.462000000 GHz</p> <p>CF Step: 4.000000 MHz</p> <p>Freq Offset: 0 Hz</p>
<p>11G/LCH</p>	 <p>Keysight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>#F Gain: Low</p> <p>#Atten: 40 dB</p> <p>Ref Offset 20.8 dB</p> <p>Ref 30.00 dBm</p> <p>10 dB/div</p> <p>Log</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth: 16.436 MHz</p> <p>Total Power: 18.6 dBm</p> <p>Transmit Freq Error: 519 Hz</p> <p>x dB Bandwidth: 16.38 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>Frequency: 2.412000000 GHz</p> <p>CF Step: 4.000000 MHz</p> <p>Freq Offset: 0 Hz</p>

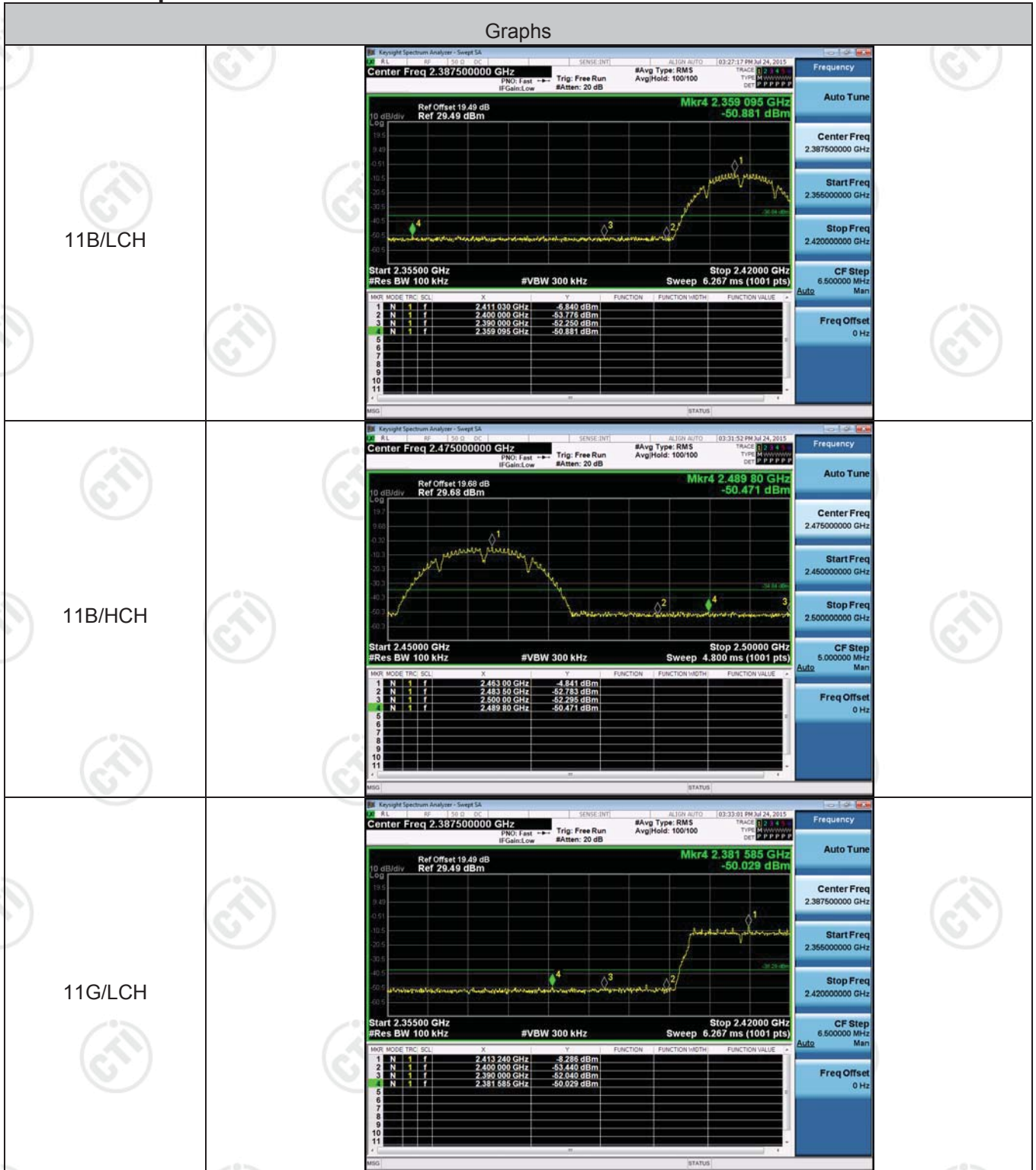
<p>11G/MCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.43700000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 16.438 MHz</p> <p>Total Power 18.4 dBm</p> <p>Transmit Freq Error 7.014 kHz</p> <p>x dB Bandwidth 16.40 MHz</p>
<p>11G/HCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.46200000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 16.480 MHz</p> <p>Total Power 18.6 dBm</p> <p>Transmit Freq Error -8.010 kHz</p> <p>x dB Bandwidth 16.38 MHz</p>
<p>11N20SISO/LCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.41200000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.412 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 17.619 MHz</p> <p>Total Power 17.7 dBm</p> <p>Transmit Freq Error 19.958 kHz</p> <p>x dB Bandwidth 17.60 MHz</p>

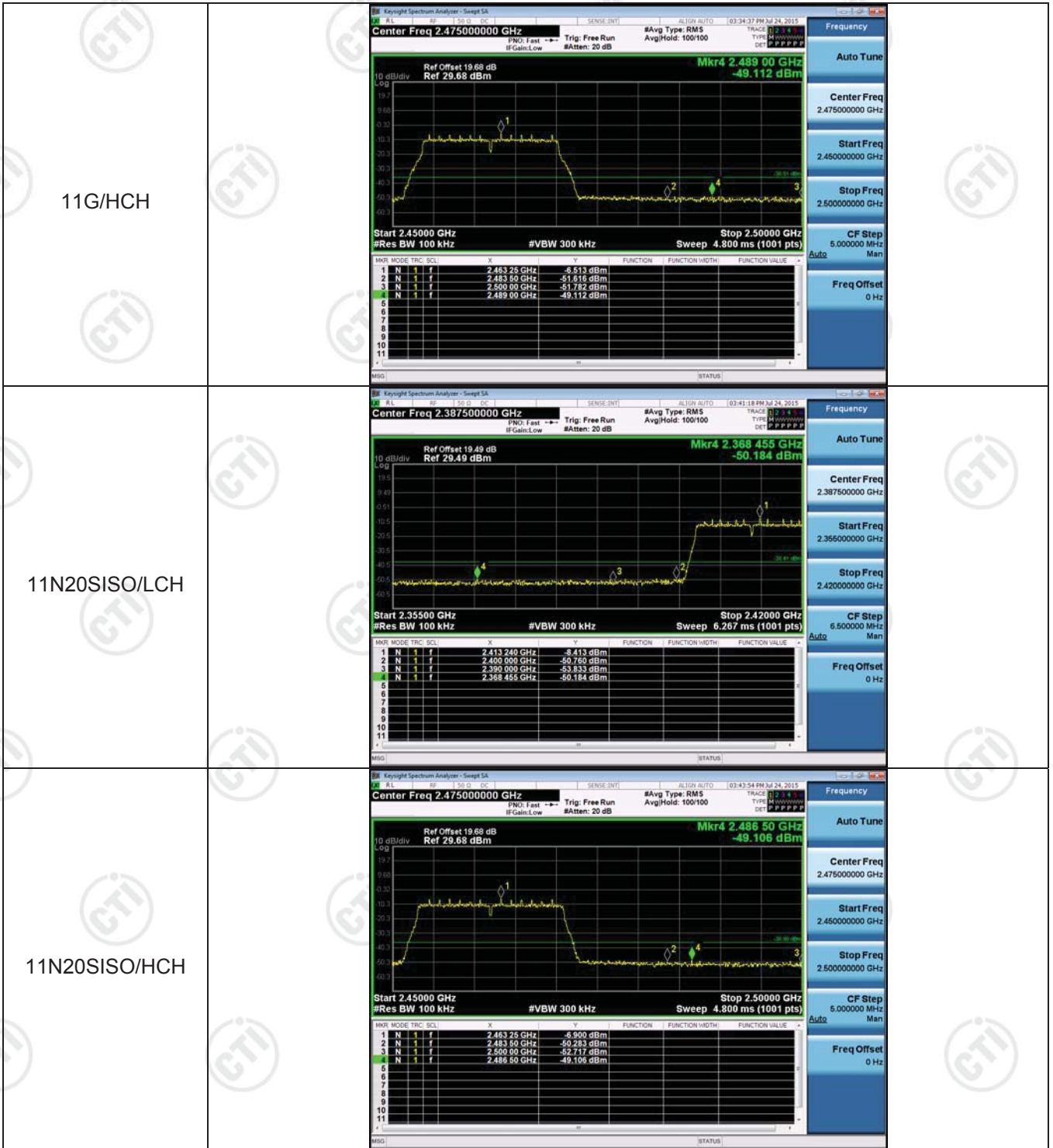
<p>11N20SISO/MCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.437 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 17.623 MHz</p> <p>Total Power 18.5 dBm</p> <p>Transmit Freq Error 24.295 kHz</p> <p>x dB Bandwidth 17.60 MHz</p>
<p>11N20SISO/HCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.462 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 17.624 MHz</p> <p>Total Power 18.5 dBm</p> <p>Transmit Freq Error 13.978 kHz</p> <p>x dB Bandwidth 17.59 MHz</p>
<p>11N40SISO/LCH</p>	<p>Keight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.422000000 GHz</p> <p>Ref Offset 20.9 dB Ref 30.00 dBm</p> <p>Center 2.422 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 36.223 MHz</p> <p>Total Power 16.7 dBm</p> <p>Transmit Freq Error 30.277 kHz</p> <p>x dB Bandwidth 36.35 MHz</p>

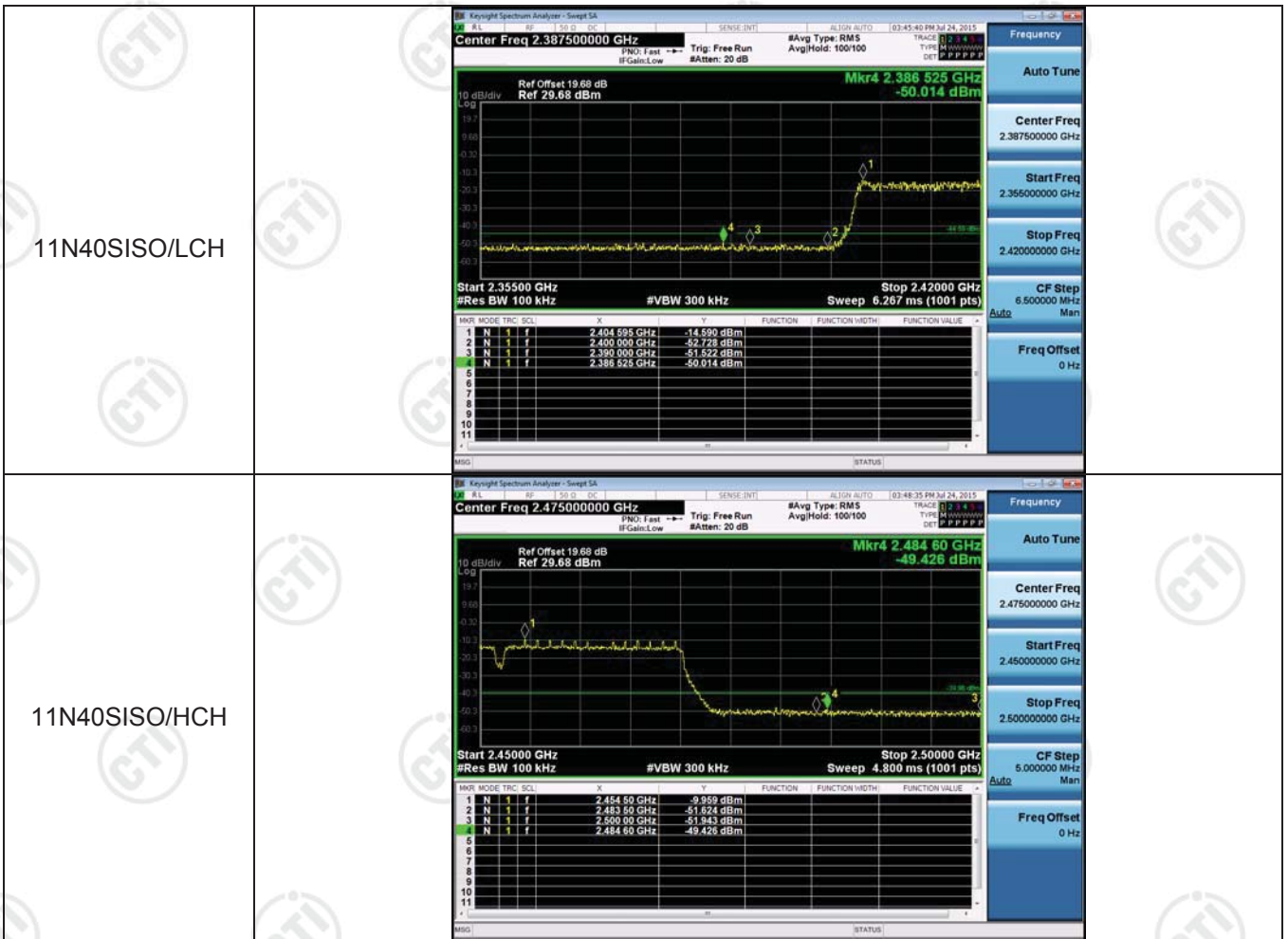


Appendix C): Band-edge for RF Conducted Emissions

Test Graph

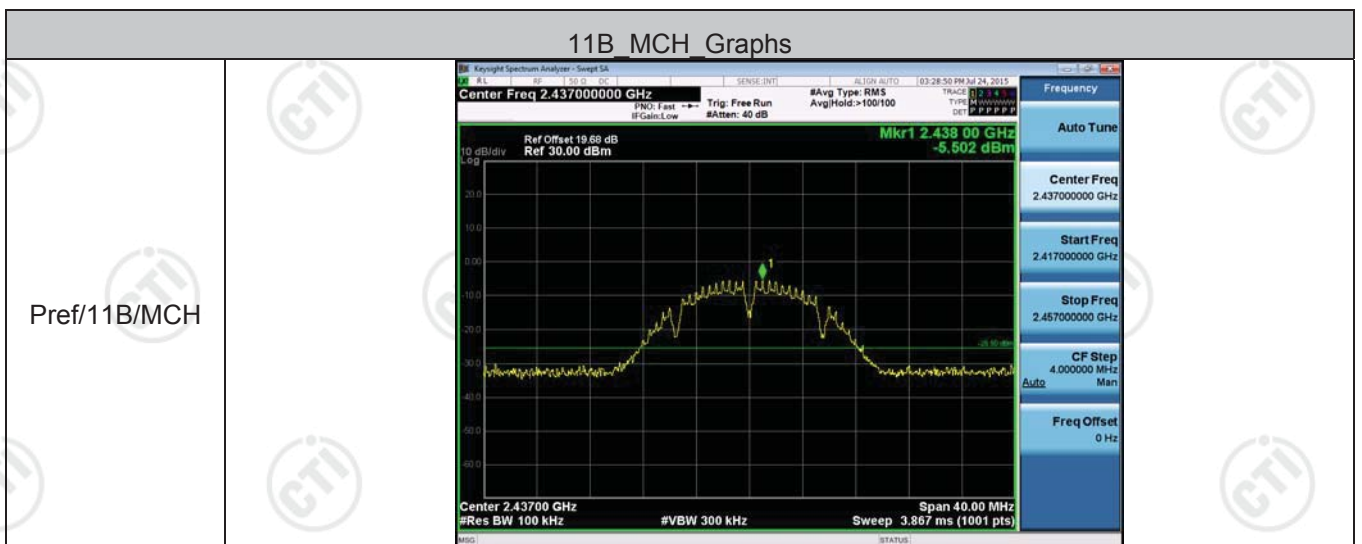
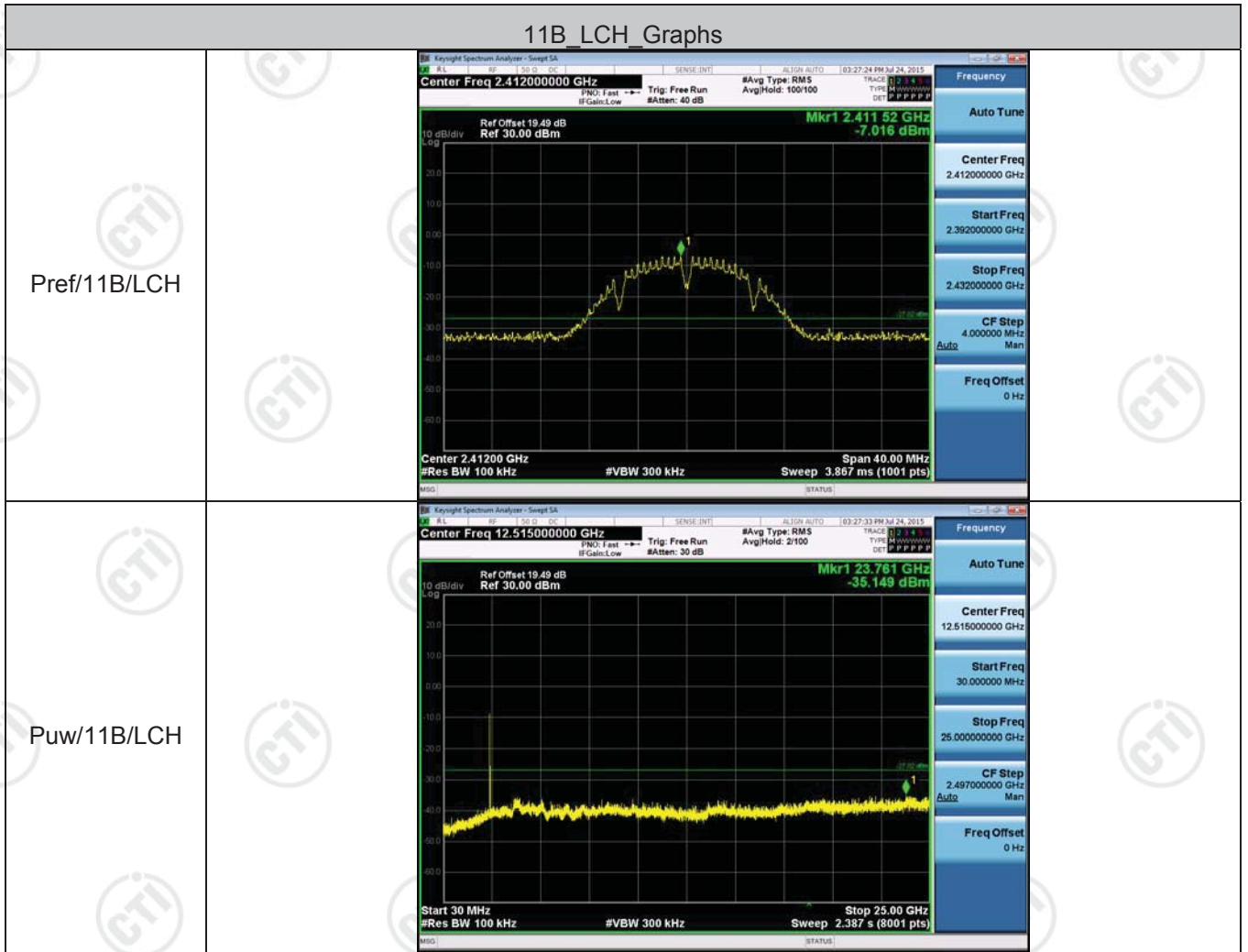


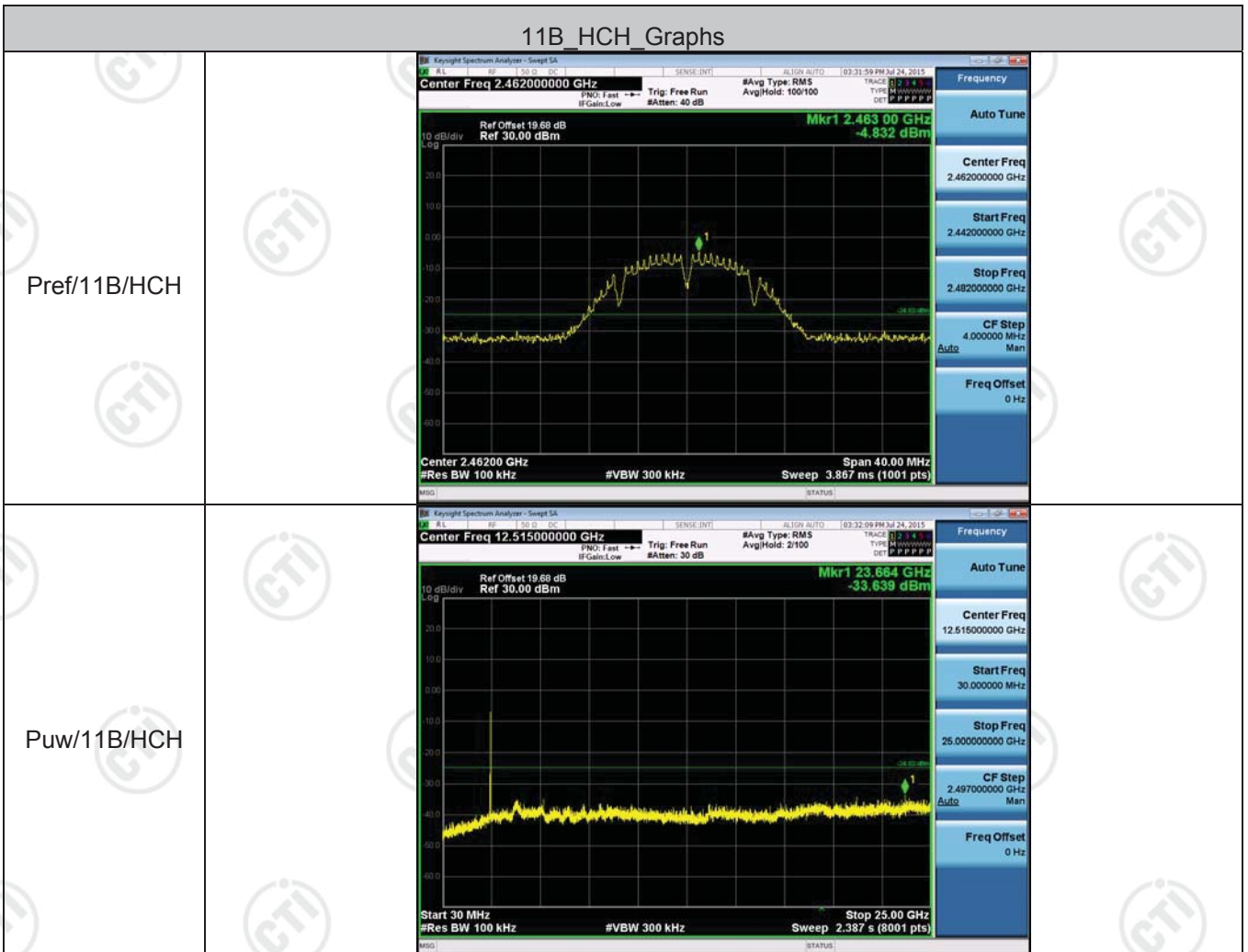
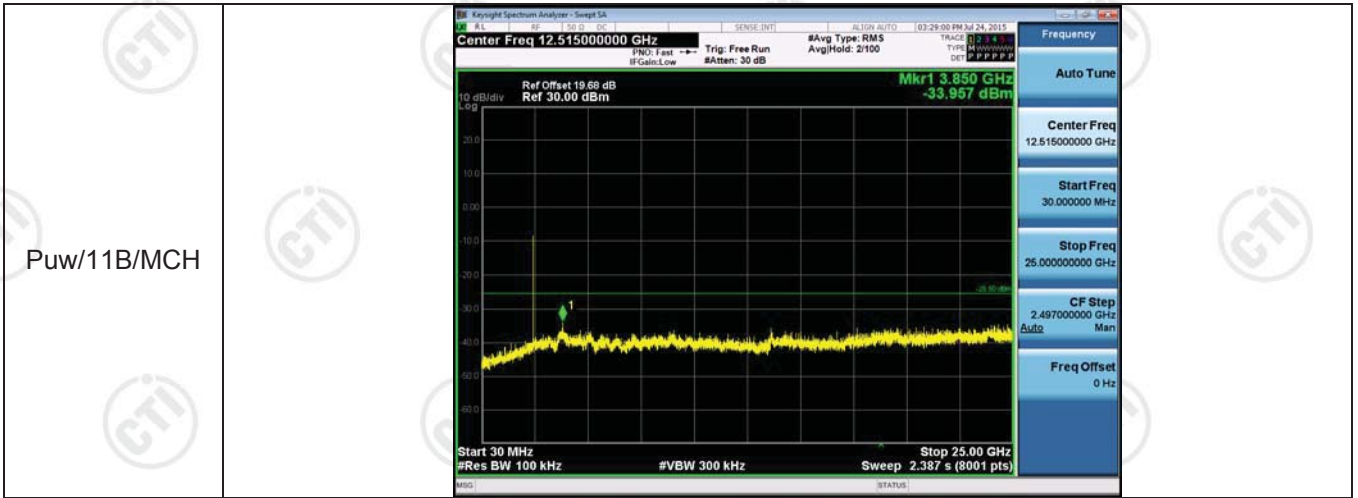


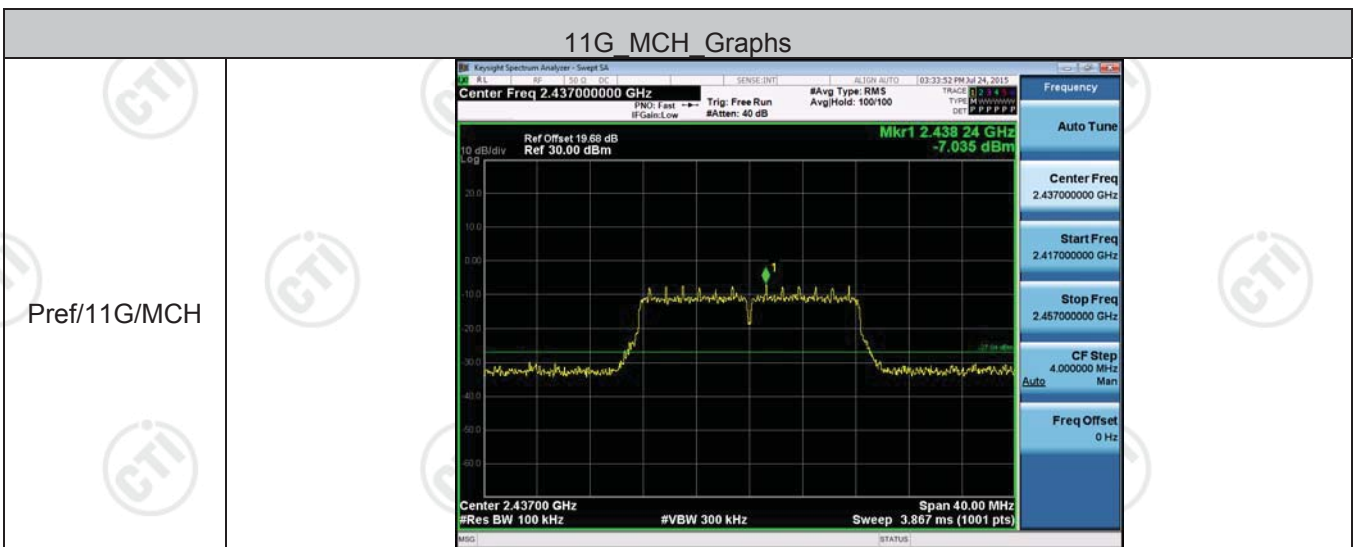
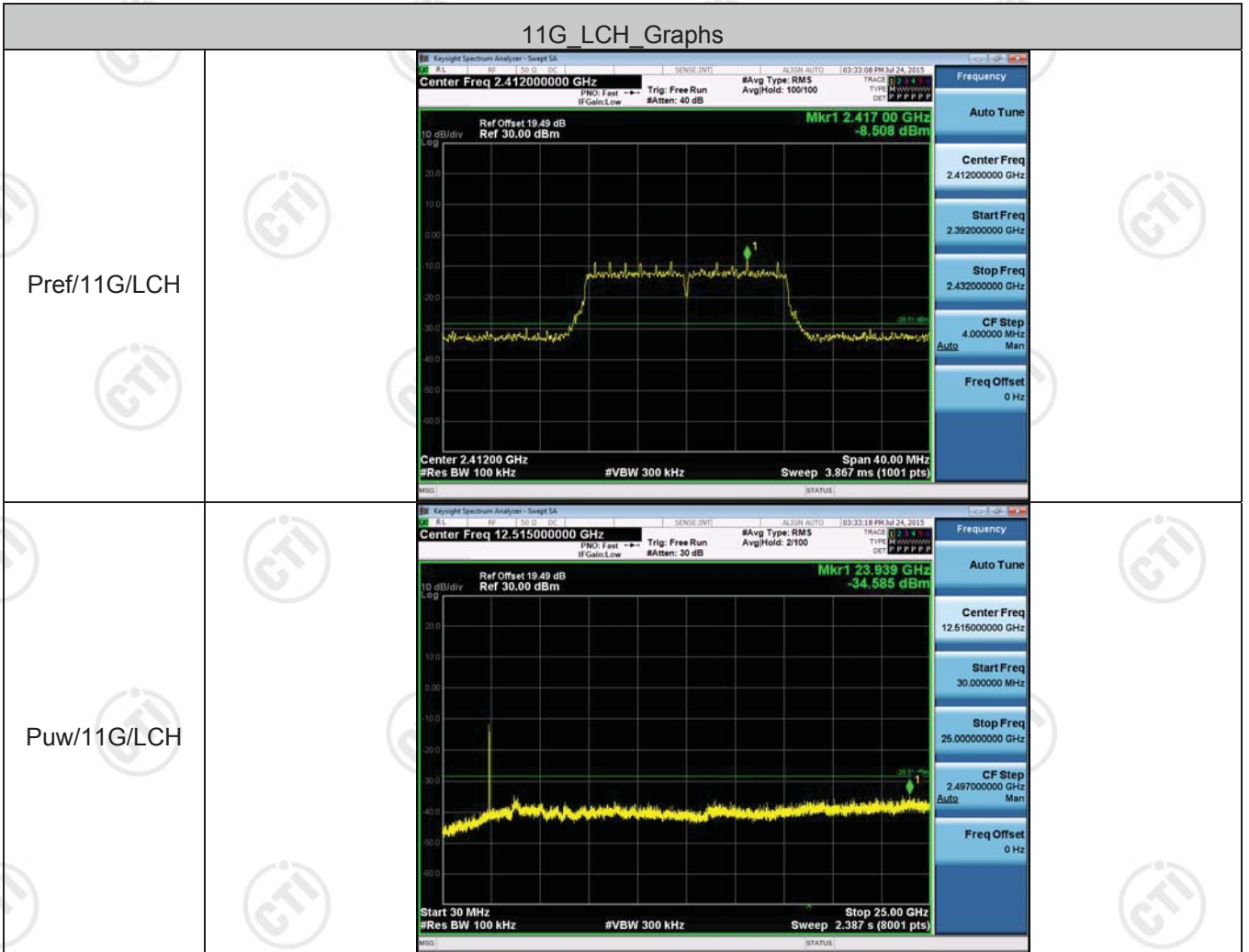


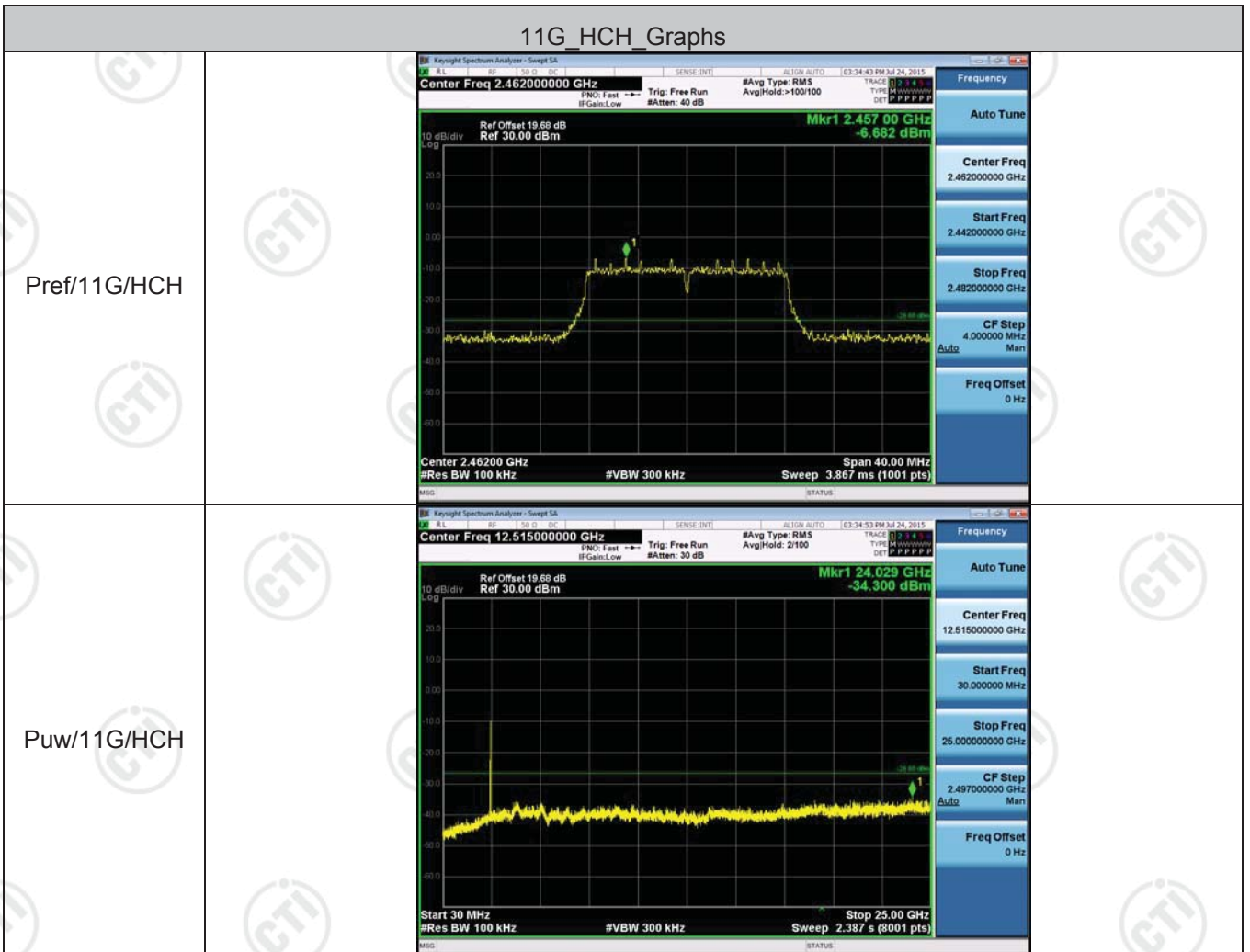
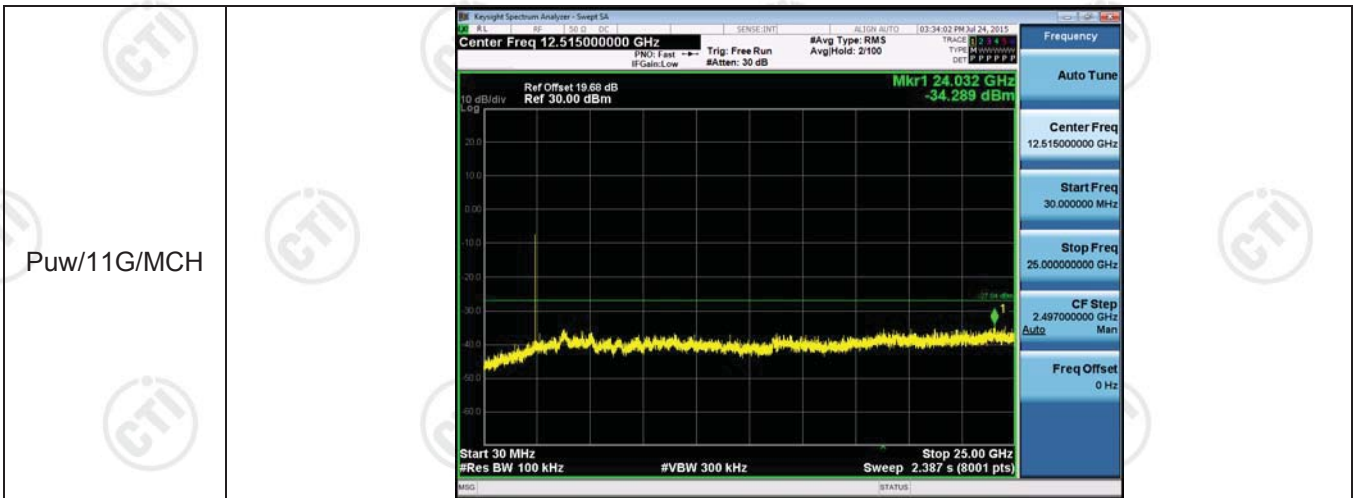
Appendix D): RF Conducted Spurious Emissions

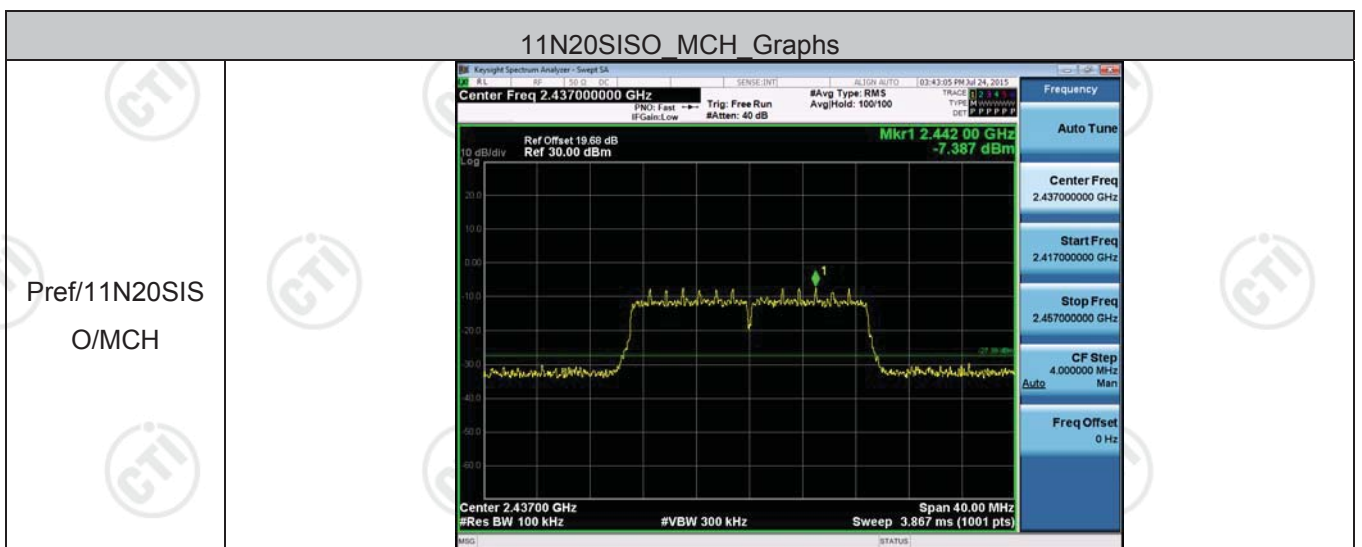
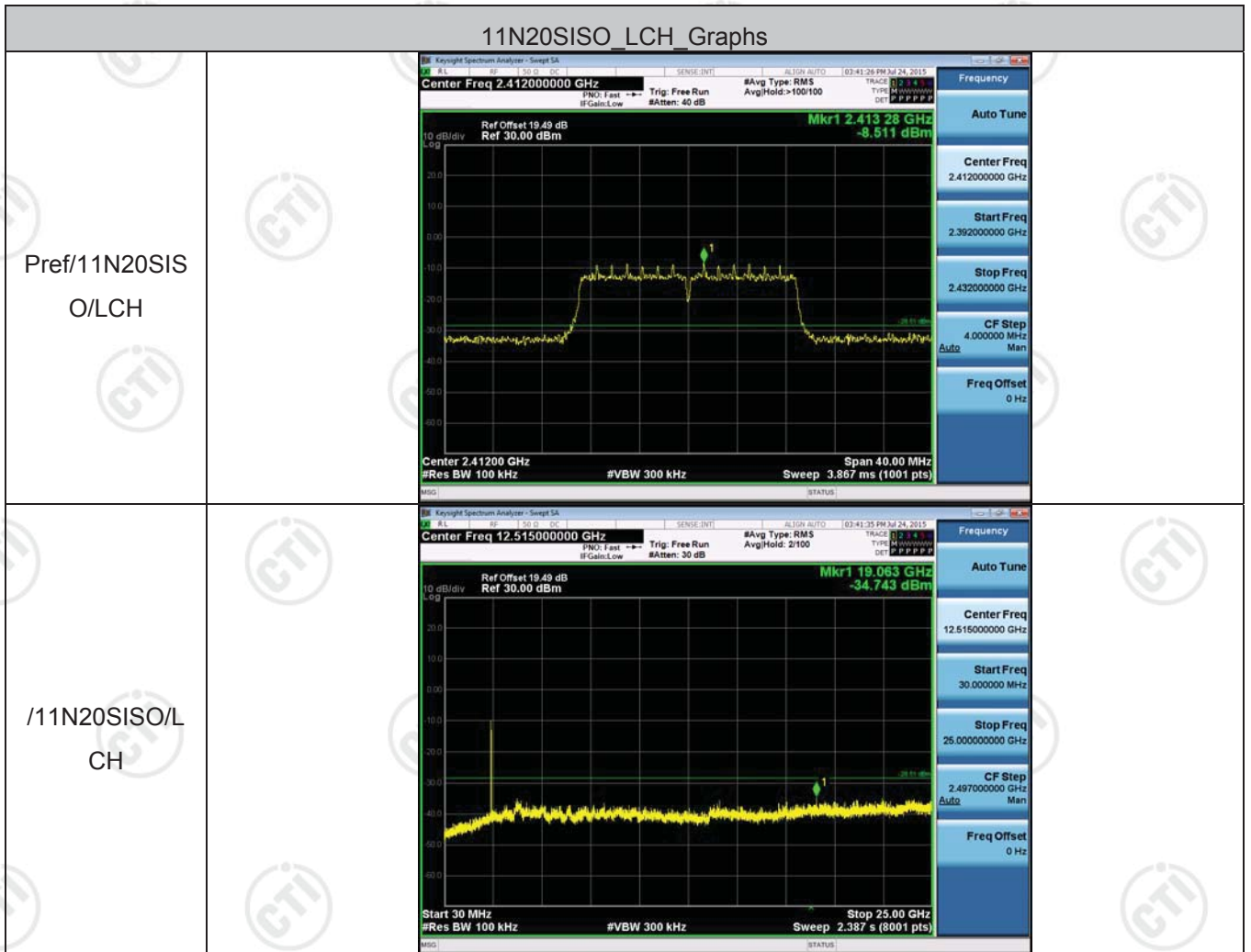
Test Graph

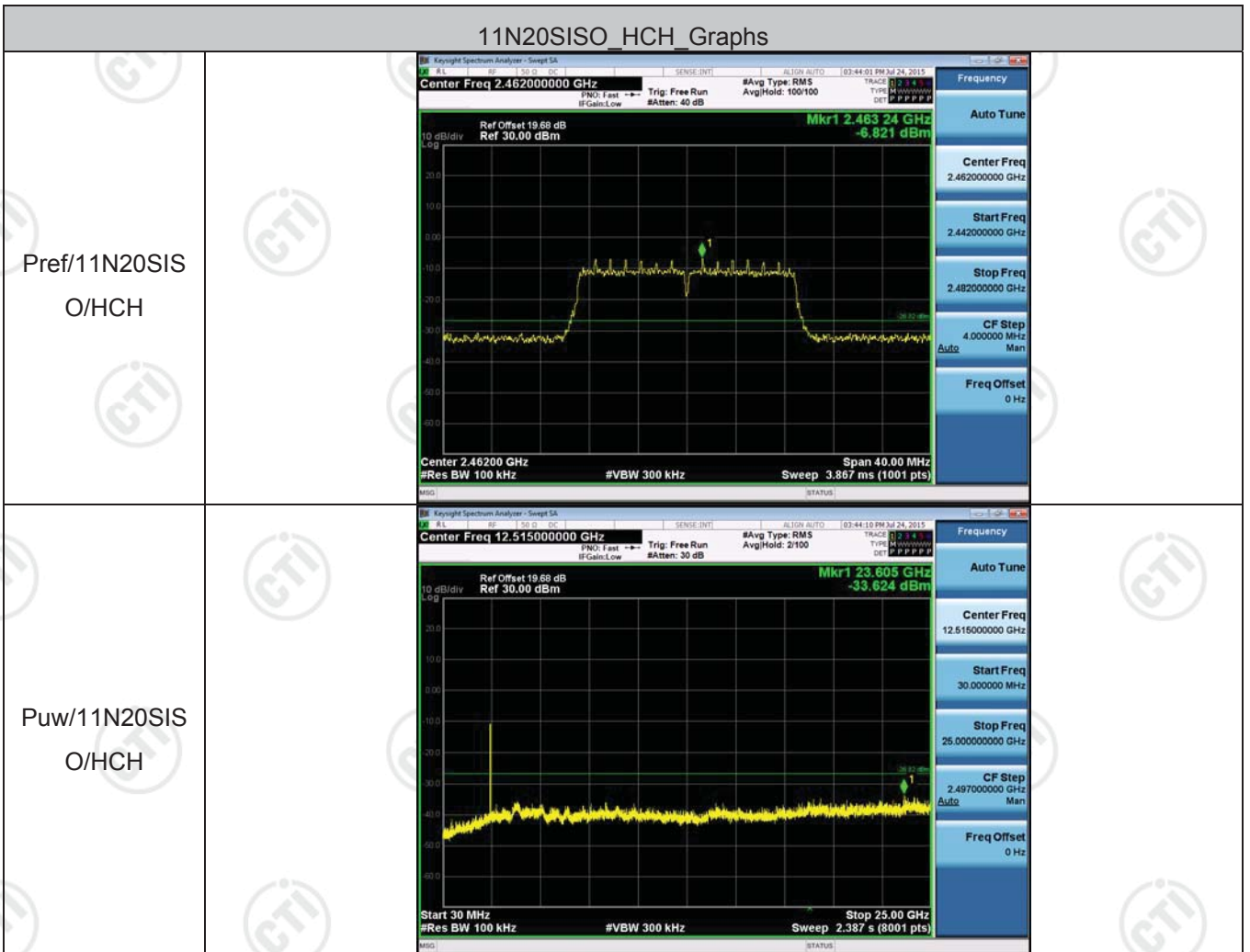
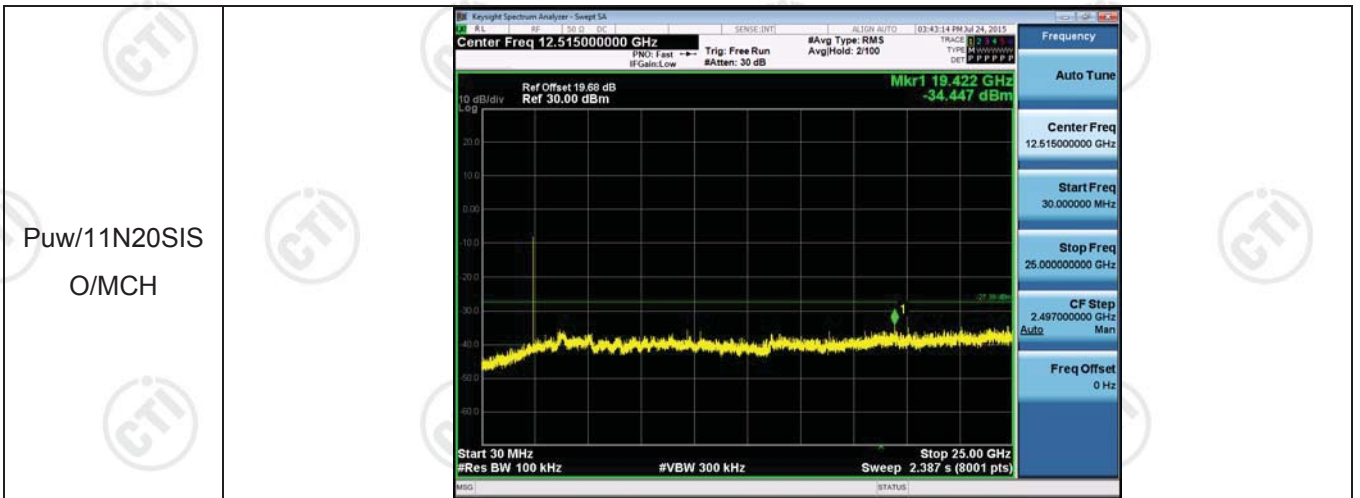


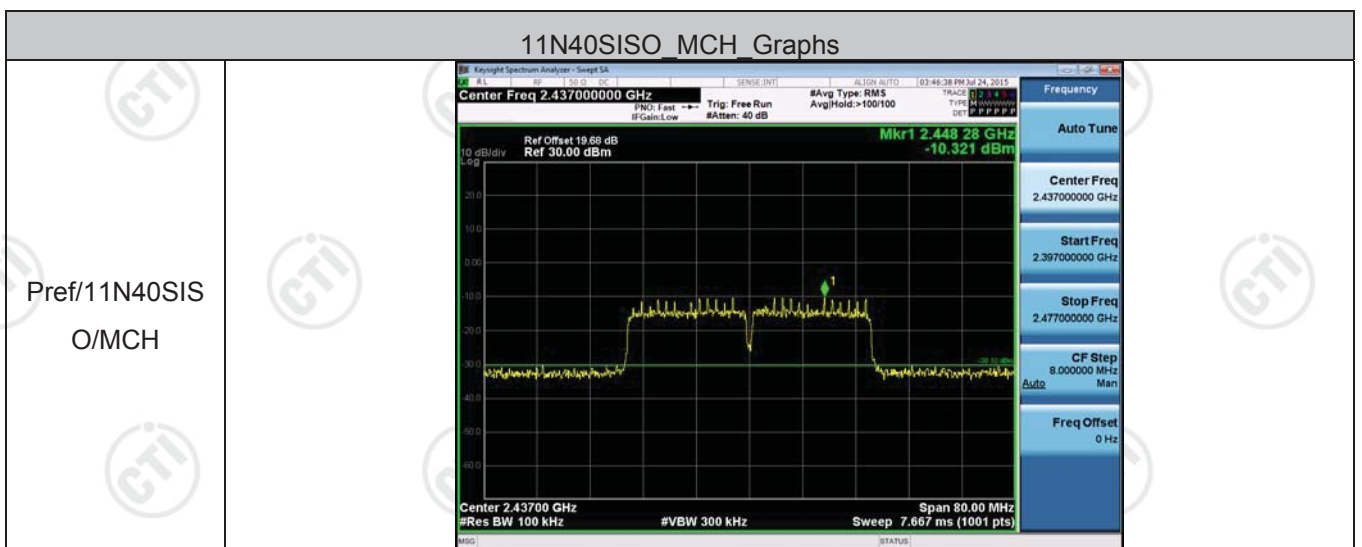
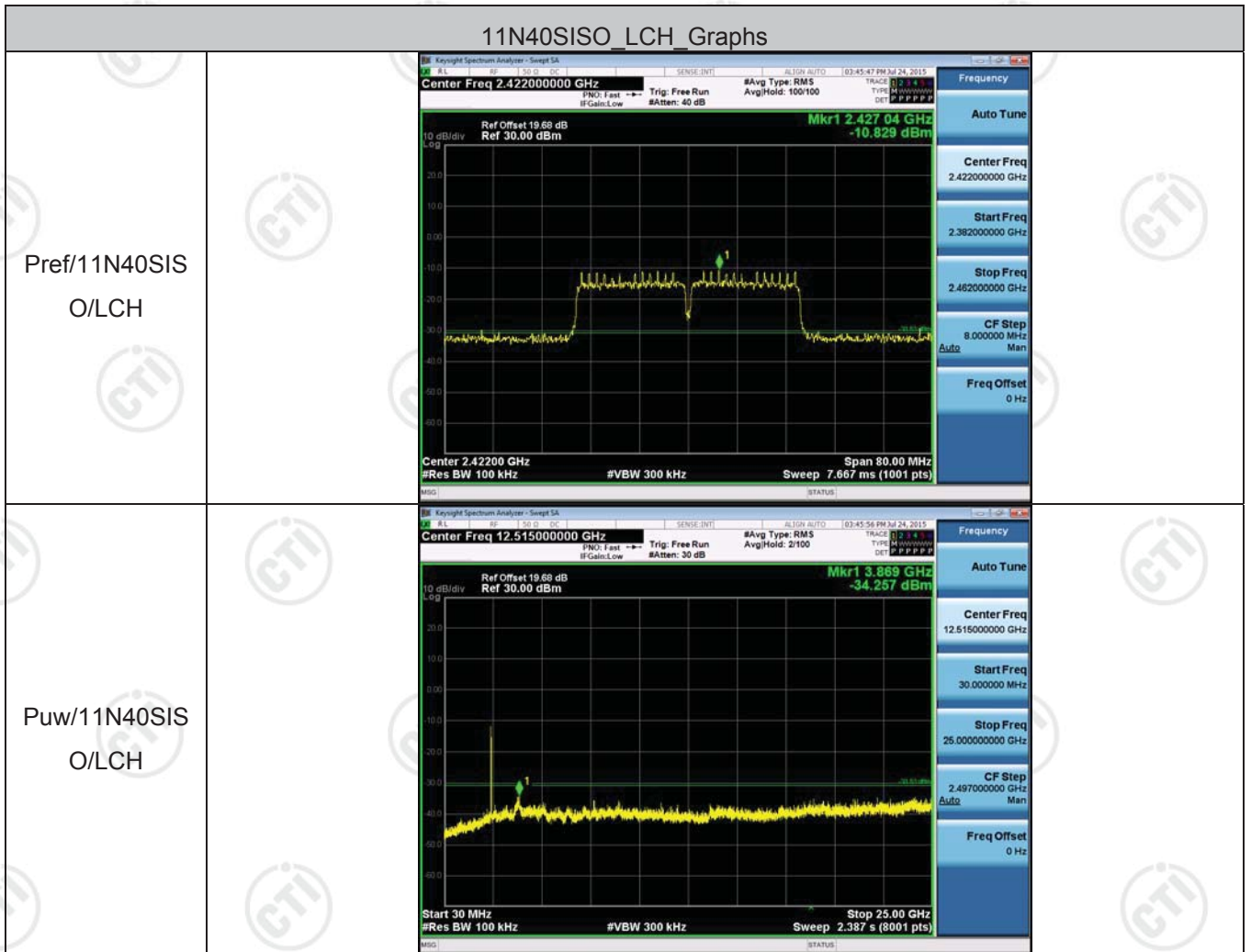


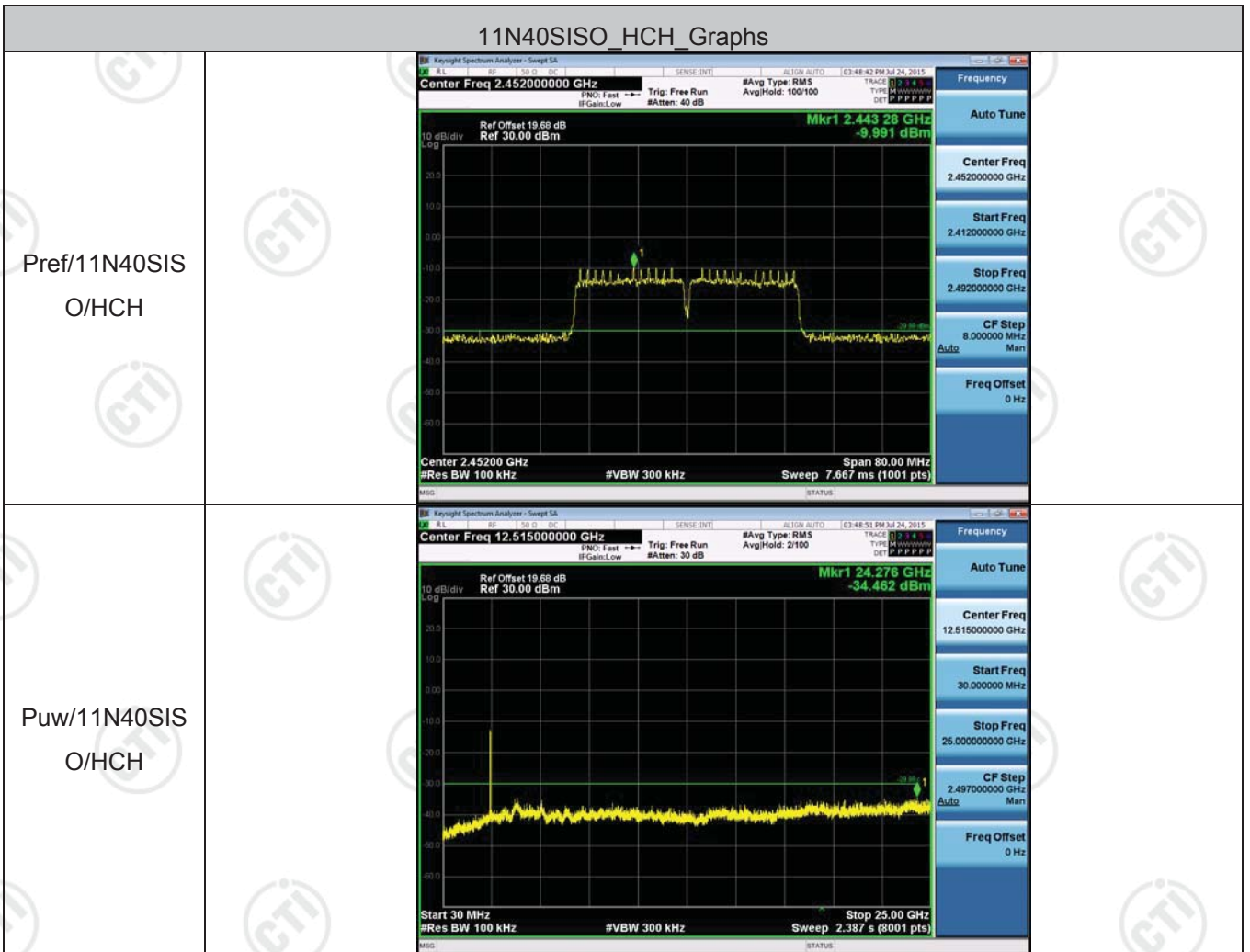
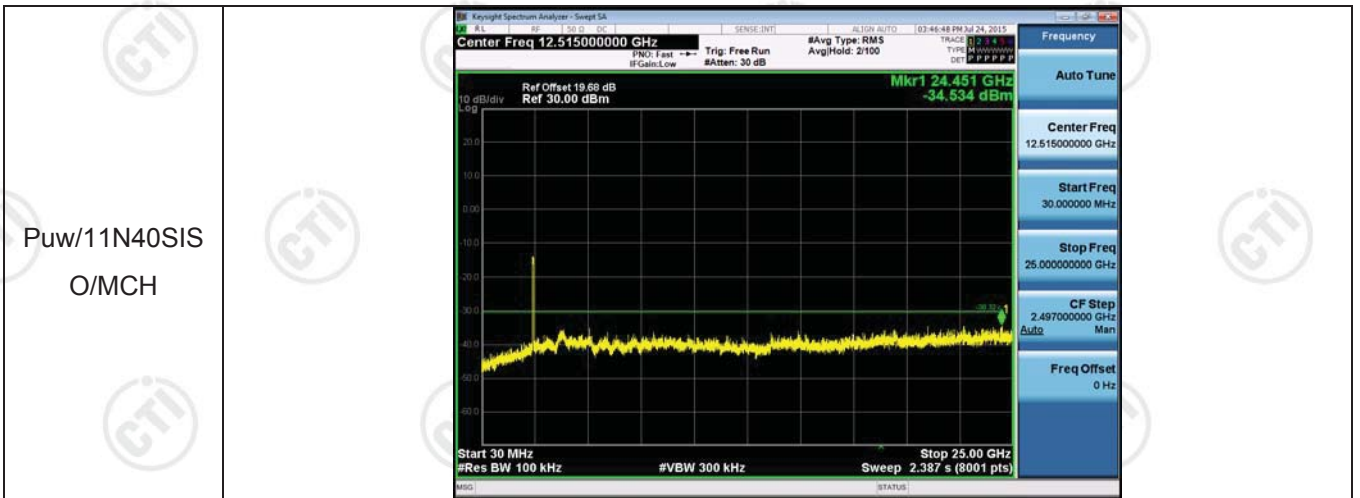










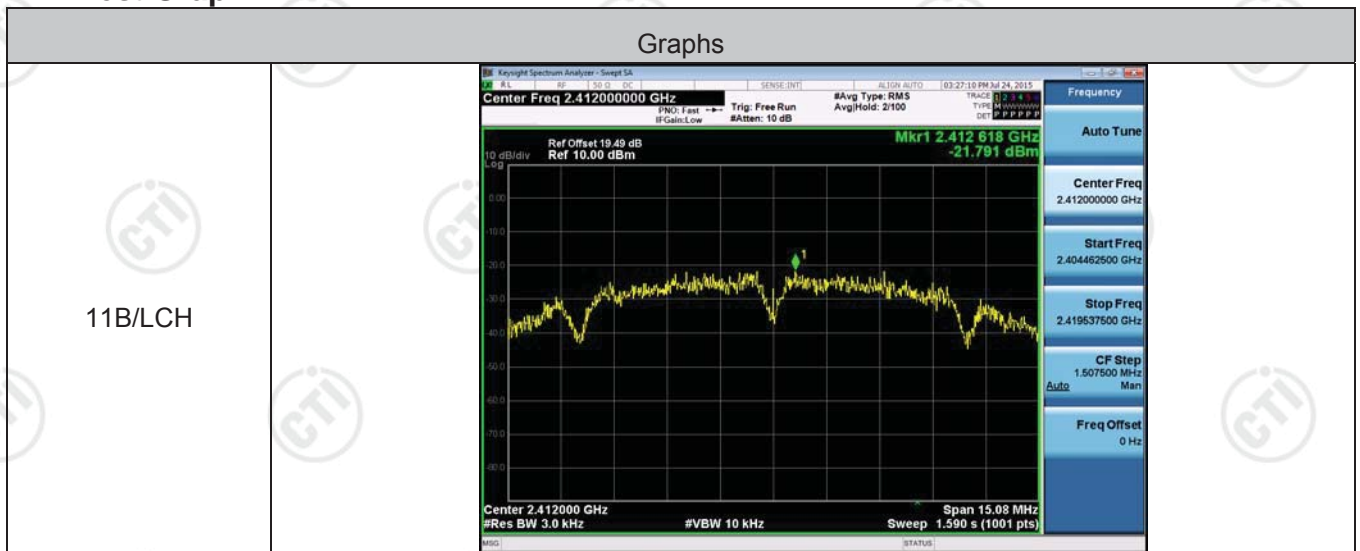


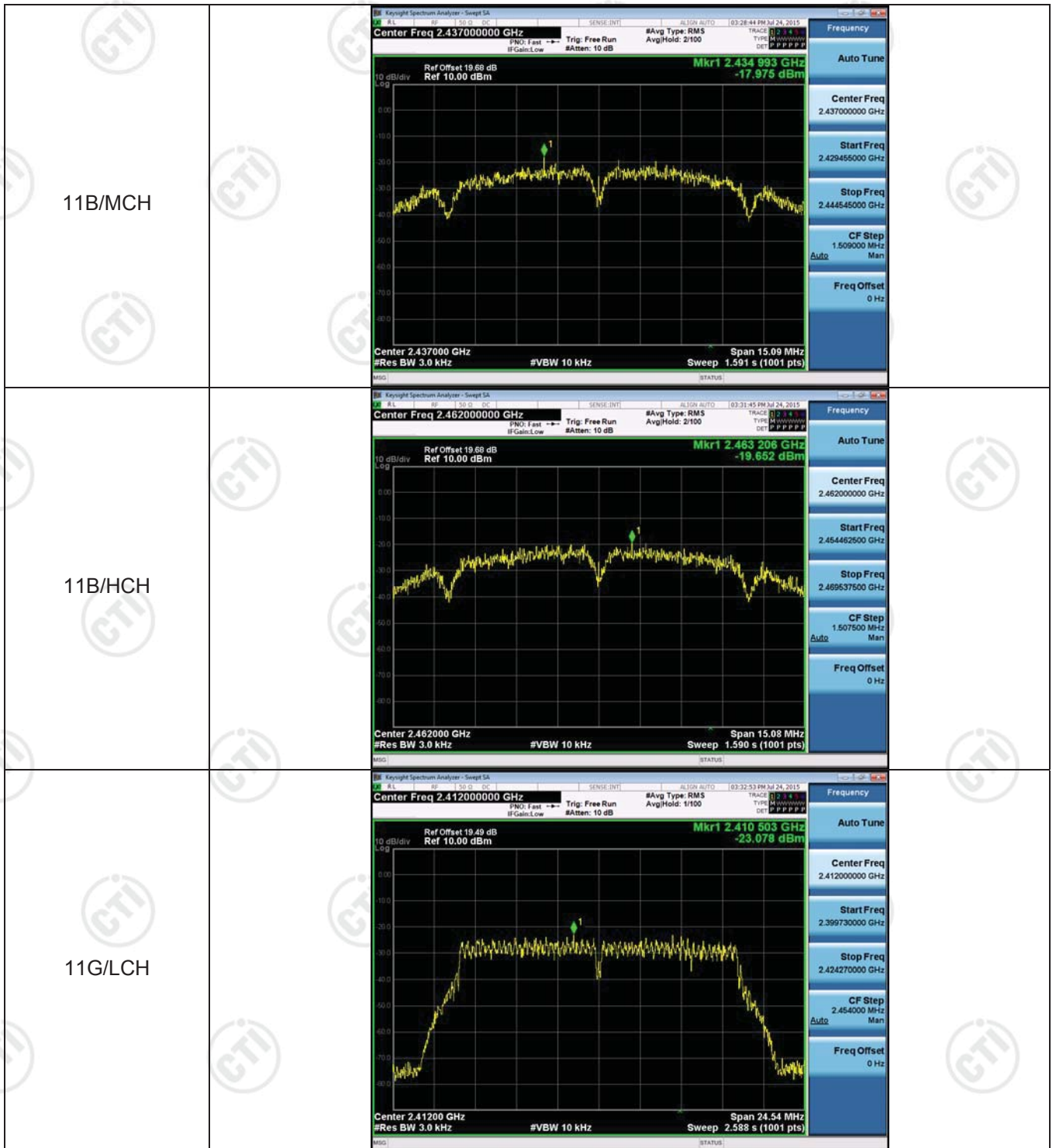
Appendix E): Power Spectral Density

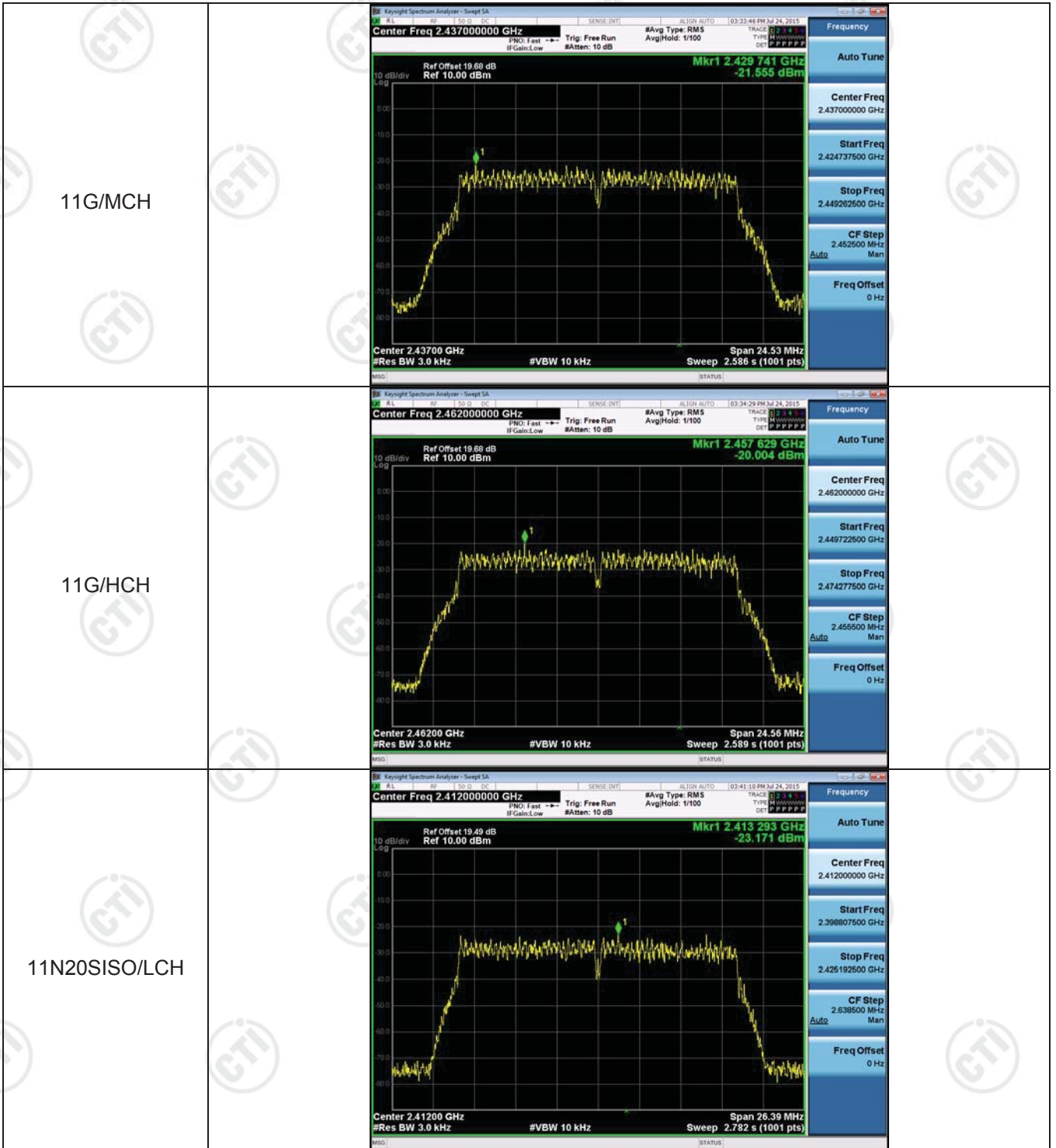
Result Table

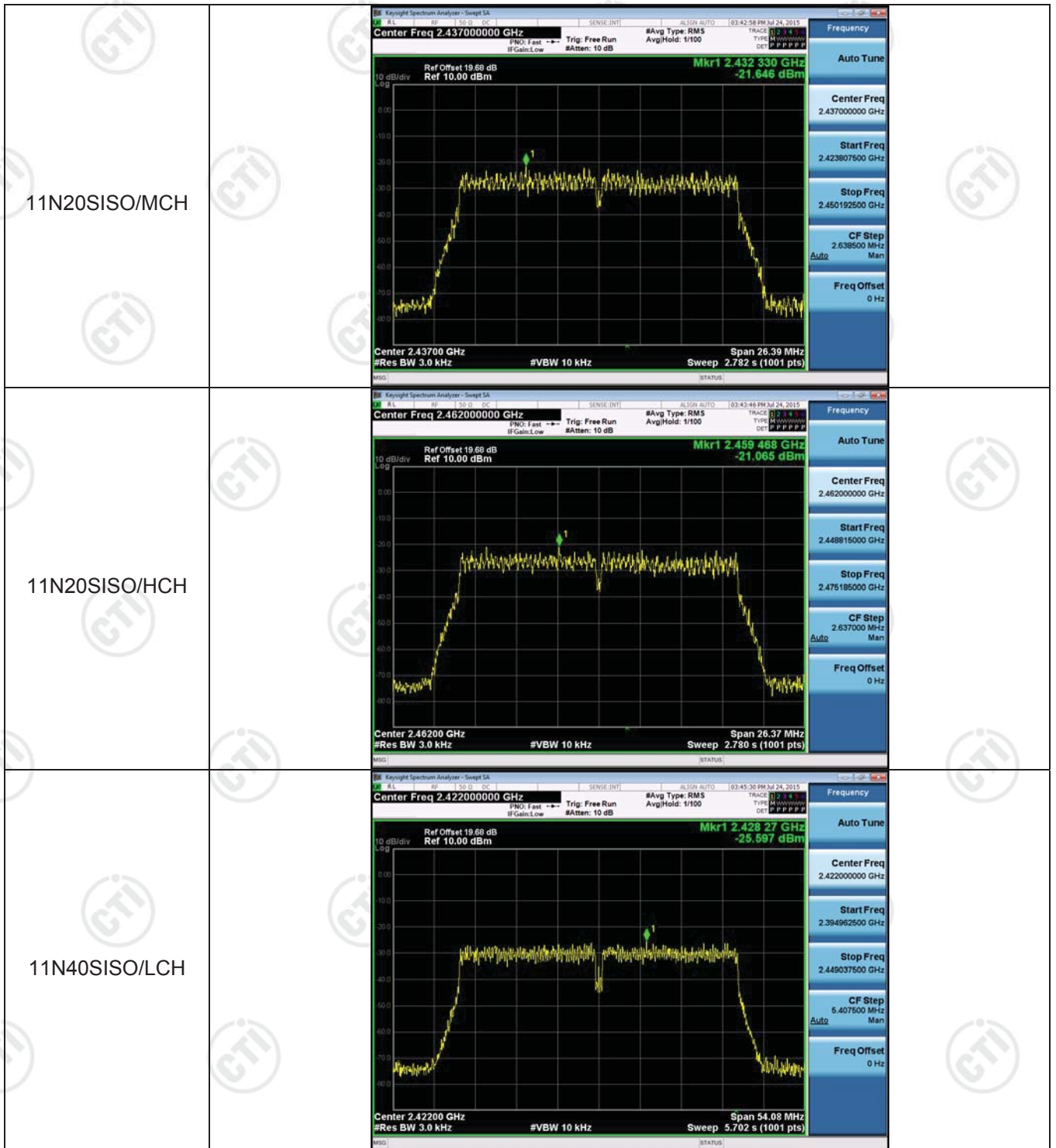
Mode	Channel	Power Spectral Density [dBm]	Verdict
11B	LCH	-21.791	PASS
11B	MCH	-17.975	PASS
11B	HCH	-19.652	PASS
11G	LCH	-23.078	PASS
11G	MCH	-21.555	PASS
11G	HCH	-20.004	PASS
11N20SISO	LCH	-23.171	PASS
11N20SISO	MCH	-21.646	PASS
11N20SISO	HCH	-21.065	PASS
11N40SISO	LCH	-25.597	PASS
11N40SISO	MCH	-25.556	PASS
11N40SISO	HCH	-24.901	PASS

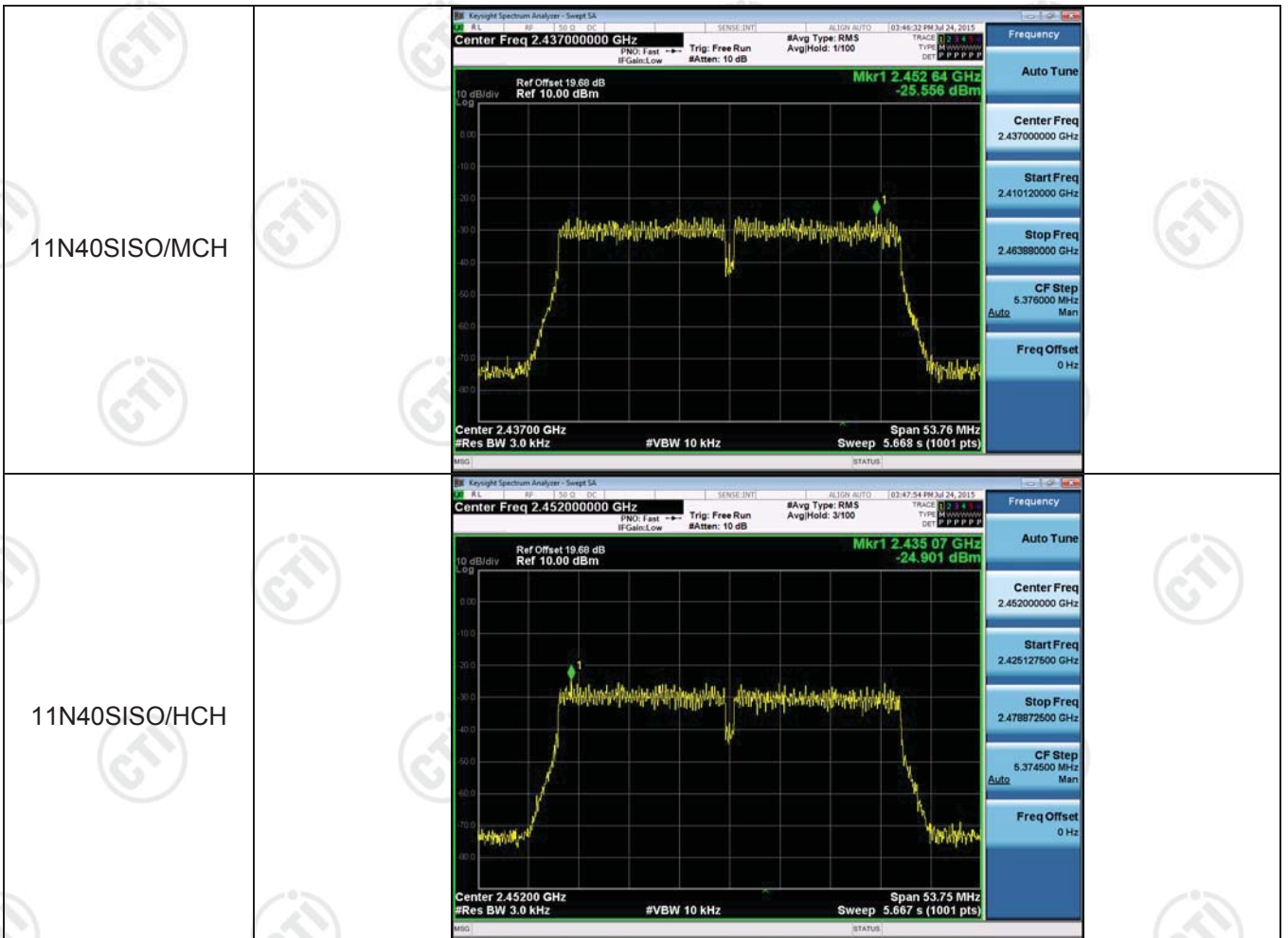
Test Graph











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 0dBi.	
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Appendix G) AC Power Line Conducted Emission

<p>Test Procedure:</p>	<p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> 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. 																
<p>Limit:</p>	<table border="1" data-bbox="497 1227 1369 1447"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.</p> <p>NOTE : The lower limit is applicable at the transition frequency</p>			Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															

Measurement Data

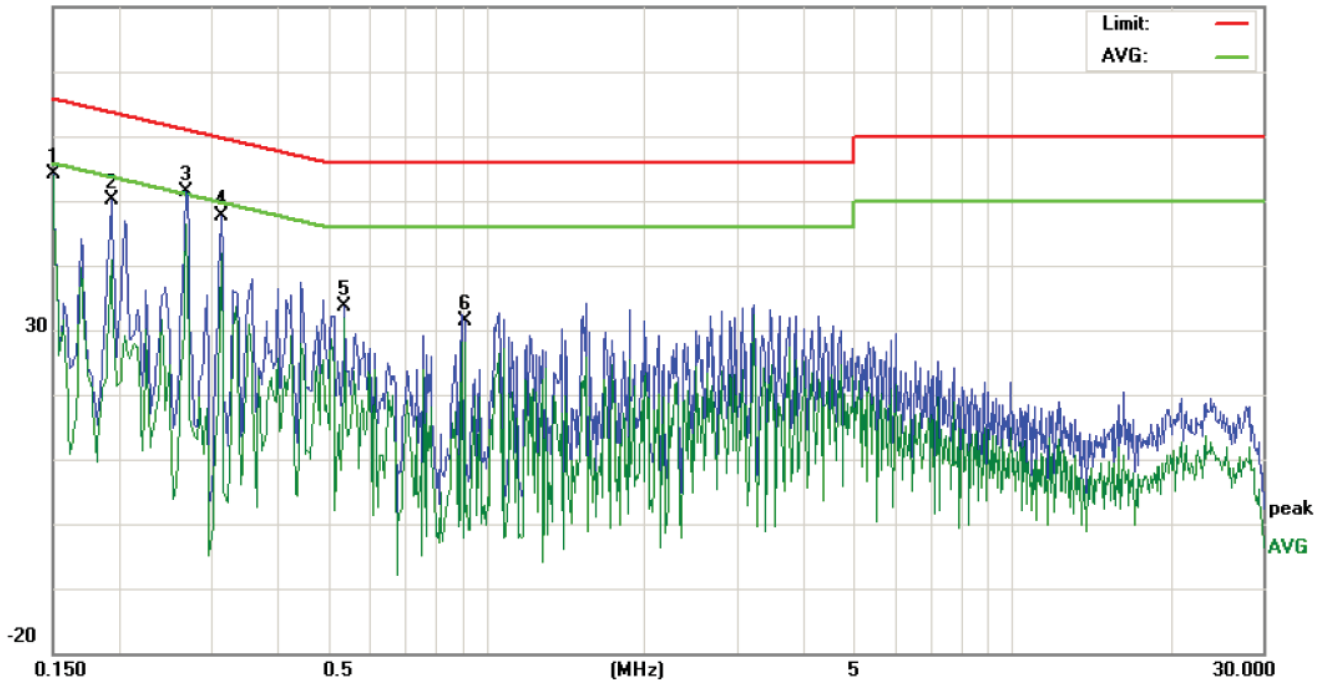
An initial pre-scan was performed on the live and neutral lines with peak detector.

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

Product : 10.1" 3G Phone Tablet **Model/Type reference** : E10
Power : AC 120V/60Hz **Temperature** : 22°C
Mode : Charging **Humidity** : 52%

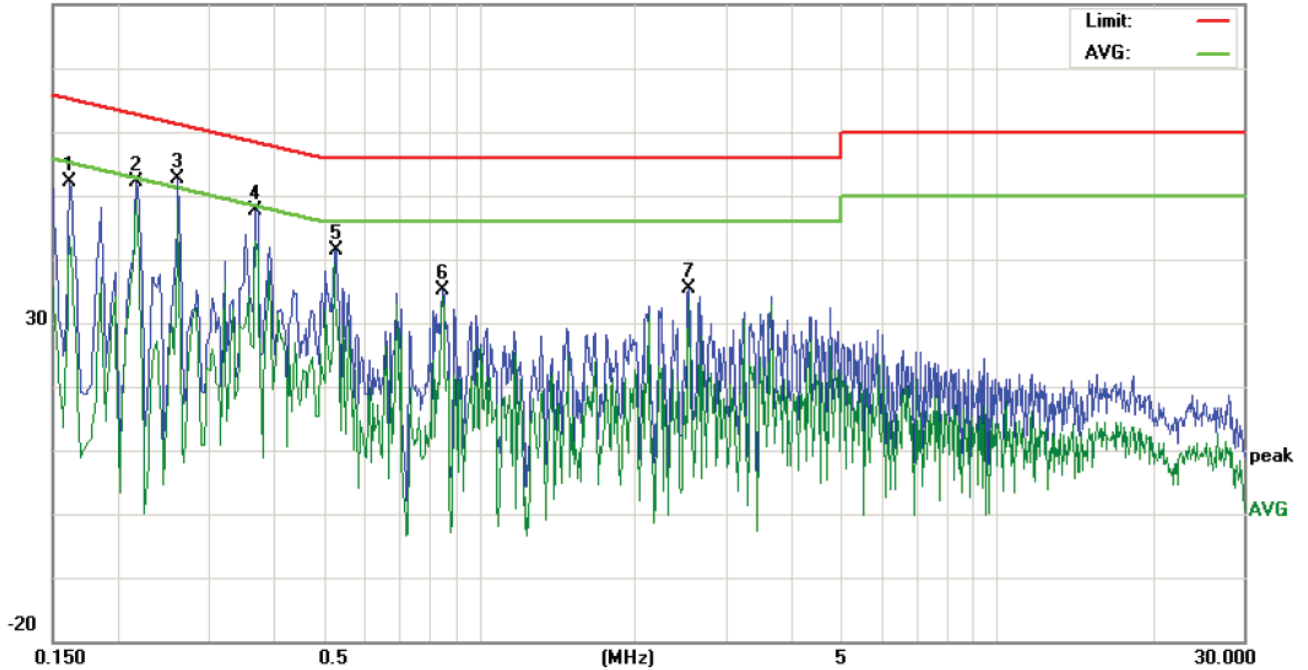
Live line:

80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1500	44.23		44.07	9.90	54.13	53.97	65.99	55.99	-11.86	-2.02	P		
2	0.1940	40.35		30.86	9.90	50.25	40.76	63.86	53.86	-13.61	-13.10	P		
3	0.2700	41.42		36.48	9.90	51.32	46.38	61.12	51.12	-9.80	-4.74	P		
4	0.3140	37.82		31.99	9.90	47.72	41.89	59.86	49.86	-12.14	-7.97	P		
5	0.5380	23.68		21.89	9.90	33.58	31.79	56.00	46.00	-22.42	-14.21	P		
6	0.9100	21.41		18.33	9.90	31.31	28.23	56.00	46.00	-24.69	-17.77	P		

Neutral line:
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1620	42.28		33.78	9.90	52.18	43.68	65.36	55.36	-13.18	-11.68	P		
2	0.2180	42.23		39.48	9.90	52.13	49.38	62.89	52.89	-10.76	-3.51	P		
3	0.2620	42.81		38.95	9.90	52.71	48.85	61.36	51.36	-8.65	-2.51	P		
4	0.3700	37.80		33.04	9.90	47.70	42.94	58.50	48.50	-10.80	-5.56	P		
5	0.5260	31.38		29.38	9.90	41.28	39.28	56.00	46.00	-14.72	-6.72	P		
6	0.8500	25.33		24.25	9.90	35.23	34.15	56.00	46.00	-20.77	-11.85	P		
7	2.5500	25.60		23.69	9.90	35.50	33.59	56.00	46.00	-20.50	-12.41	P		

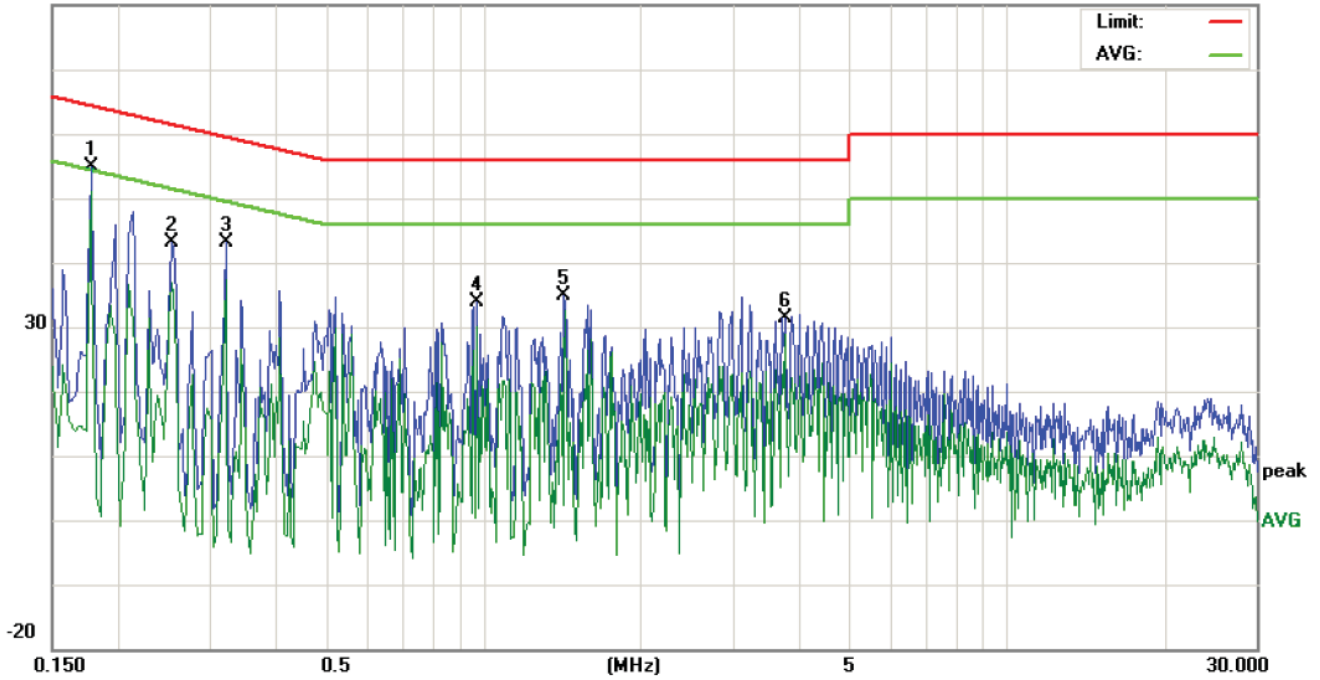
Notes:

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

Product : 10.1" 3G Phone Tablet
Power : AC 240V/60Hz
Mode : Charging

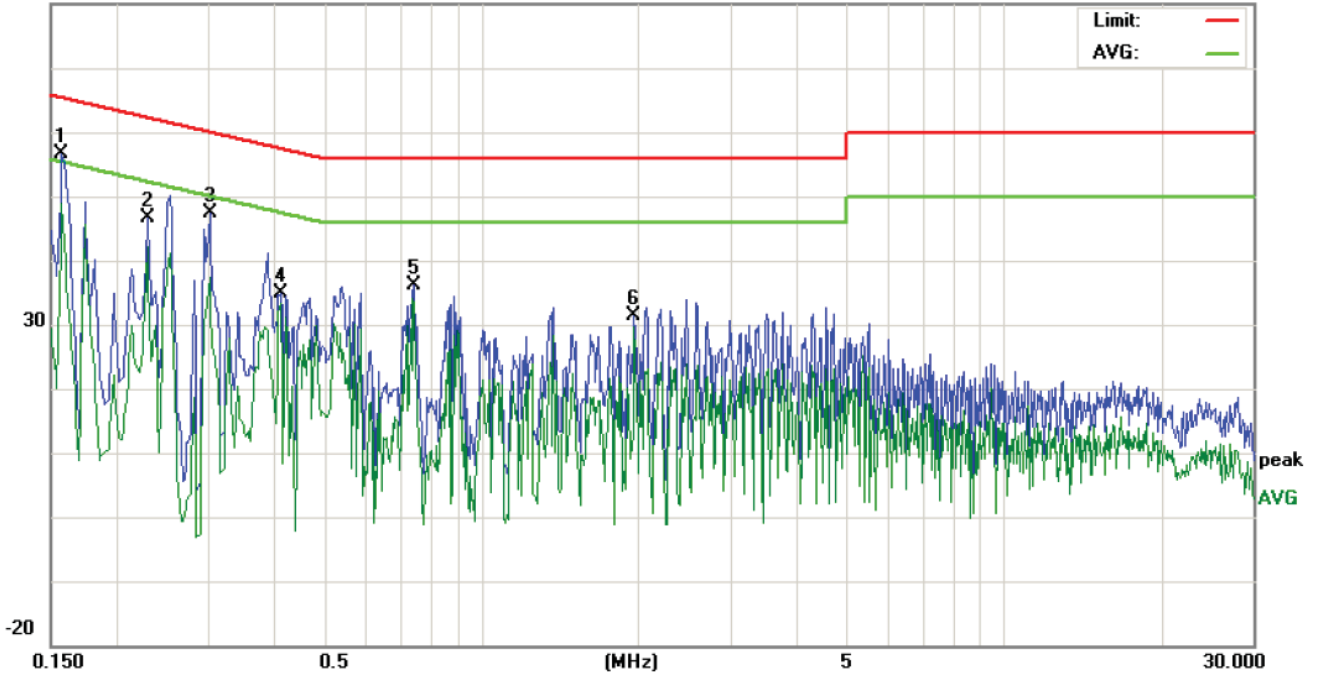
Model/Type reference : E10
Temperature : 22°C
Humidity : 52%

Live line:
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	44.94		41.26	9.90	54.84		51.16	64.57	54.57	-9.73	-3.41	P	
2	0.2540	33.31		26.87	9.90	43.21		36.77	61.62	51.62	-18.41	-14.85	P	
3	0.3220	33.11		27.47	9.90	43.01		37.37	59.65	49.65	-16.64	-12.28	P	
4	0.9780	23.87		20.34	9.90	33.77		30.24	56.00	46.00	-22.23	-15.76	P	
5	1.4340	23.70		22.66	9.90	33.60		32.56	56.00	46.00	-22.40	-13.44	P	
6	3.7780	21.57		18.87	9.90	31.47		28.77	56.00	46.00	-24.53	-17.23	P	

Neutral line:
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1580	46.62		39.06	9.90	56.52	48.96	65.56	55.56	-9.04	-6.60	P		
2	0.2300	36.73		32.26	9.90	46.63	42.16	62.45	52.45	-15.82	-10.29	P		
3	0.3020	37.37		27.37	9.90	47.27	37.27	60.19	50.19	-12.92	-12.92	P		
4	0.4140	24.92		23.52	9.90	34.82	33.42	57.57	47.57	-22.75	-14.15	P		
5	0.7420	25.08		24.11	9.90	34.98	34.01	56.00	46.00	-21.02	-11.99	P		
6	1.9660	21.44		19.80	9.90	31.34	29.70	56.00	46.00	-24.66	-16.30	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.

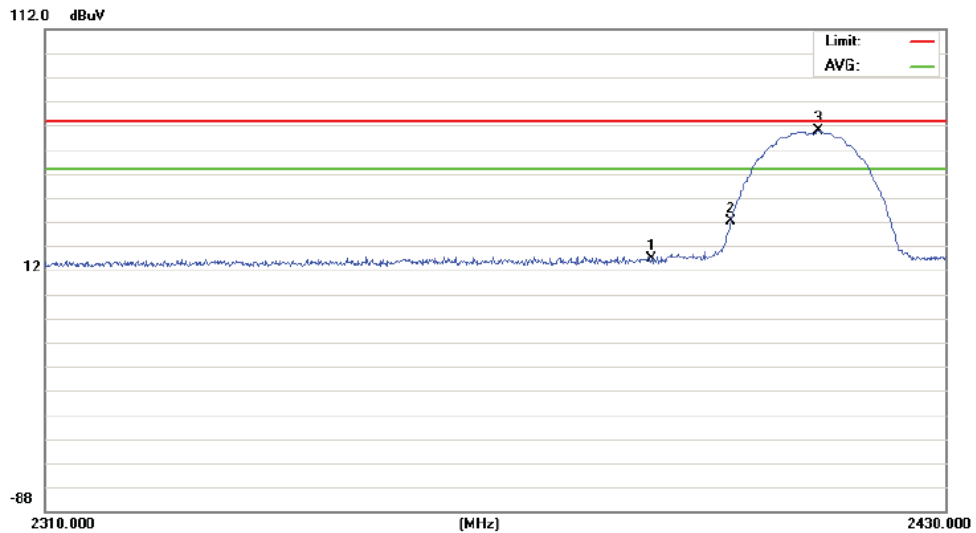
Appendix H) Restricted bands around fundamental frequency (Radiated)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Test Procedure:	<p>Below 1GHz test procedure as below:</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 table 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 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre). 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 (dBuV/m @3m)	Remark		
	30MHz-88MHz	40.0	Quasi-peak Value		
	88MHz-216MHz	43.5	Quasi-peak Value		
	216MHz-960MHz	46.0	Quasi-peak Value		
	960MHz-1GHz	54.0	Quasi-peak Value		
	Above 1GHz	54.0	Average Value		
		74.0	Peak Value		

Test plot as follows:

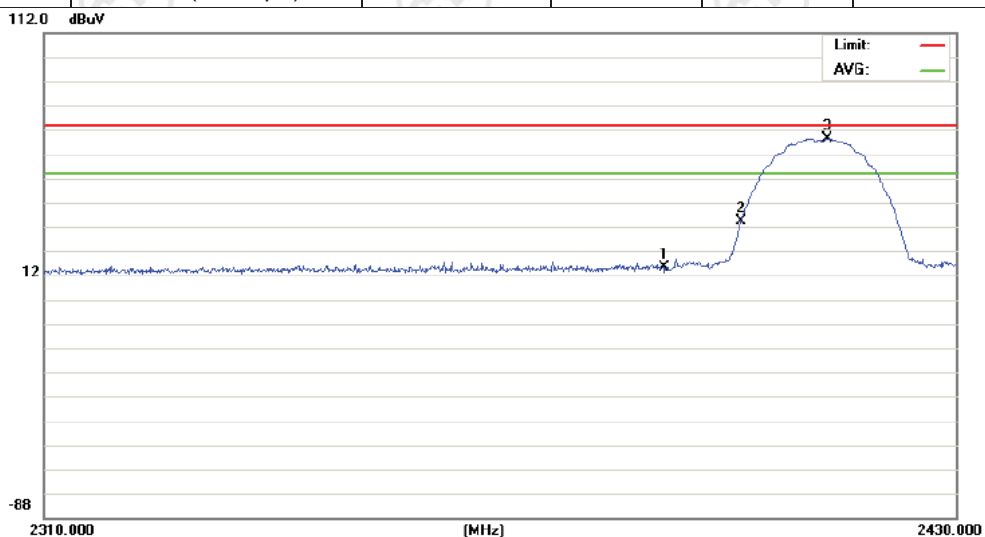
Worse case mode:	802.11b (11Mbps)	Test channel:	Lowest	Remark:	Peak	Vertical
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2412MHz:



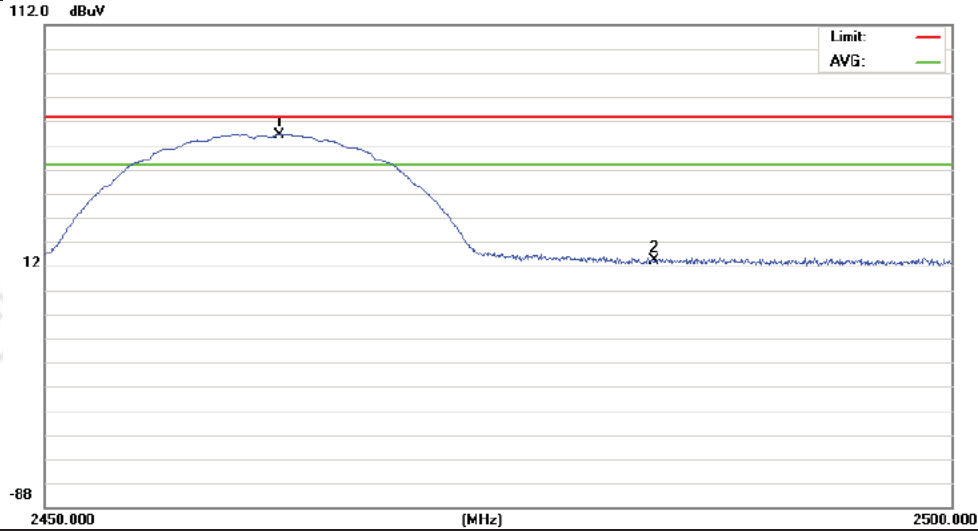
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2390.000	13.82	---	74	54	V	P
2400.000	30.01	---	74	54	V	P

Worse case mode:	802.11b (11Mbps)	Test channel:	Lowest	Remark:	Peak	Horizontal
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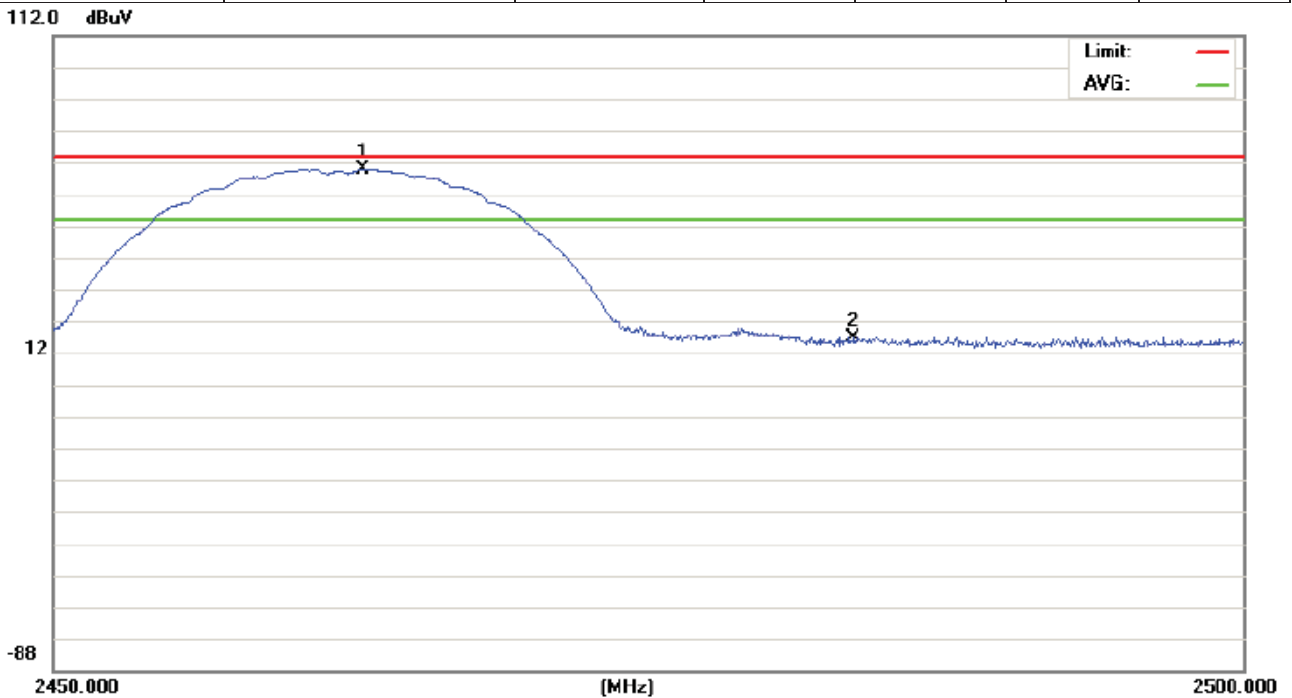
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2390.000	13.78	---	74	54	H	P
2400.000	31.03	---	74	54	H	P

Worse case mode:	802.11b (11Mbps)	Test channel:	Highest	Remark:	Peak	Vertical
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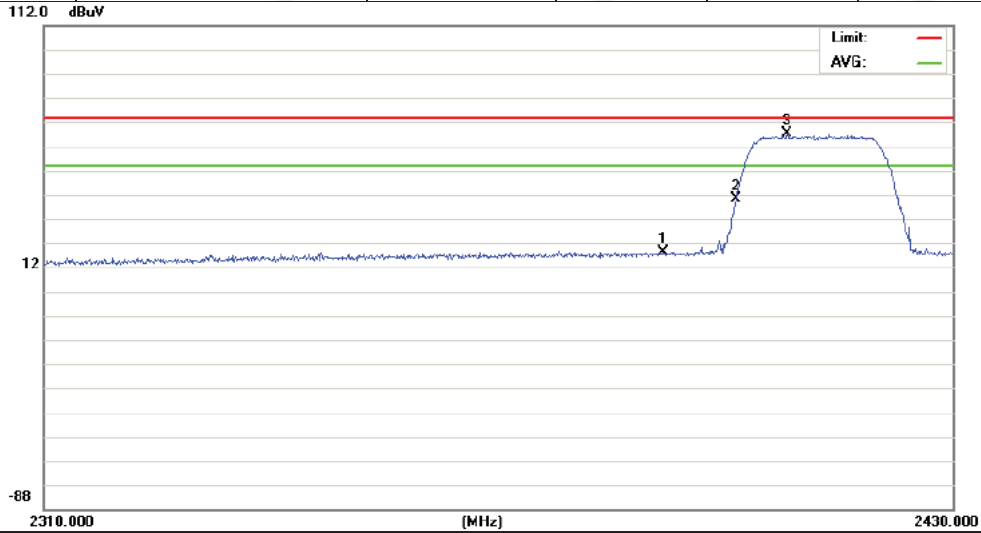
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2483.500	14.21	---	74	54	V	P

Worse case mode:	802.11b (11Mbps)	Test channel:	Highest	Remark:	Peak	Horizontal
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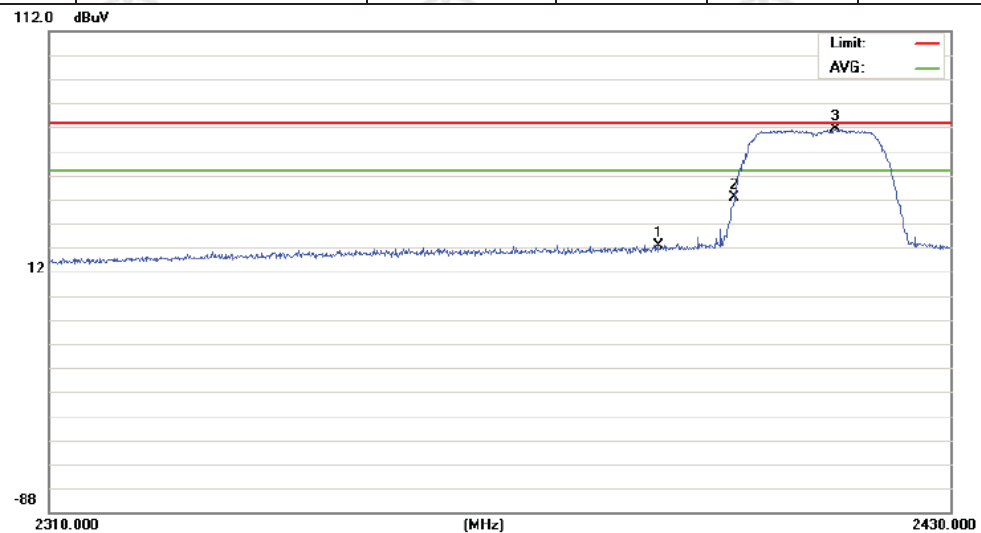
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2483.500	15.25	---	74	54	H	P

Worse case mode:	802.11g (6Mbps)	Test channel:	Lowest	Remark:	Peak	Vertical
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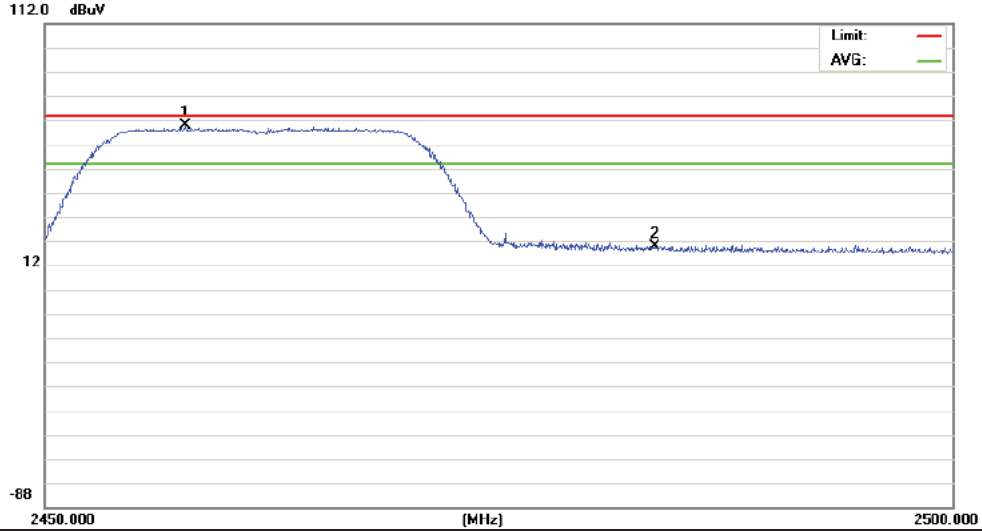
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2390.000	14.34	---	74	54	V	P
2400.000	38.81	---	74	54	V	P

Worse case mode:	802.11g (6Mbps)	Test channel:	Lowest	Remark:	Peak	Horizontal
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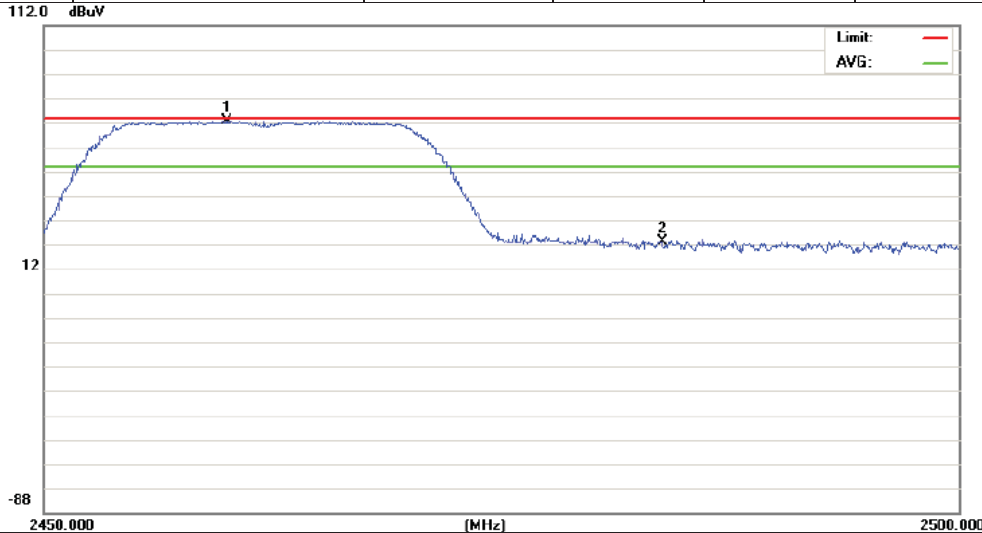
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2390.000	13.31	---	74	54	H	P
2400.000	40.09	---	74	54	H	P

Worse case mode:	802.11g (6Mbps)	Test channel:	Highest	Remark:	Peak	Vertical
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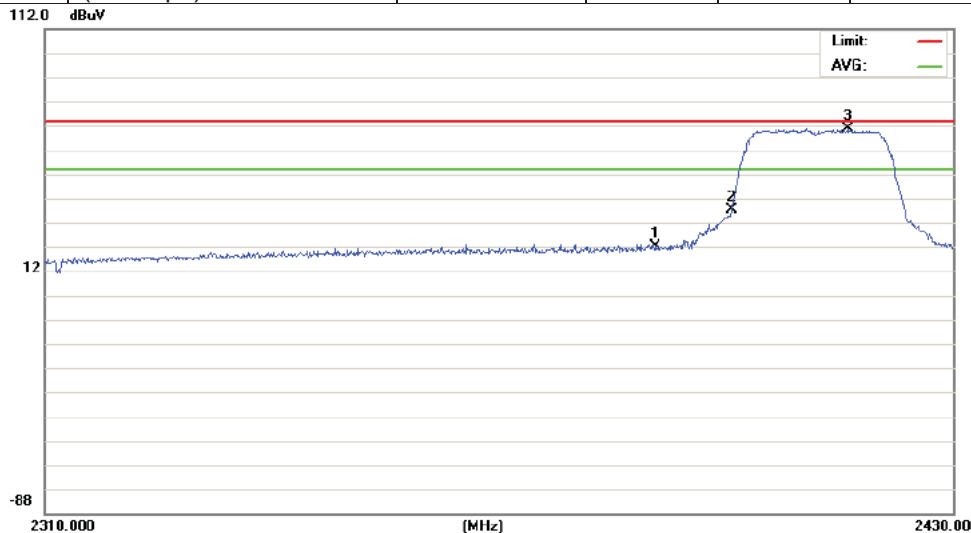
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2483.500	22.61	---	74	54	V	P

Worse case mode:	802.11g (6Mbps)	Test channel:	Highest	Remark:	Peak	Horizontal
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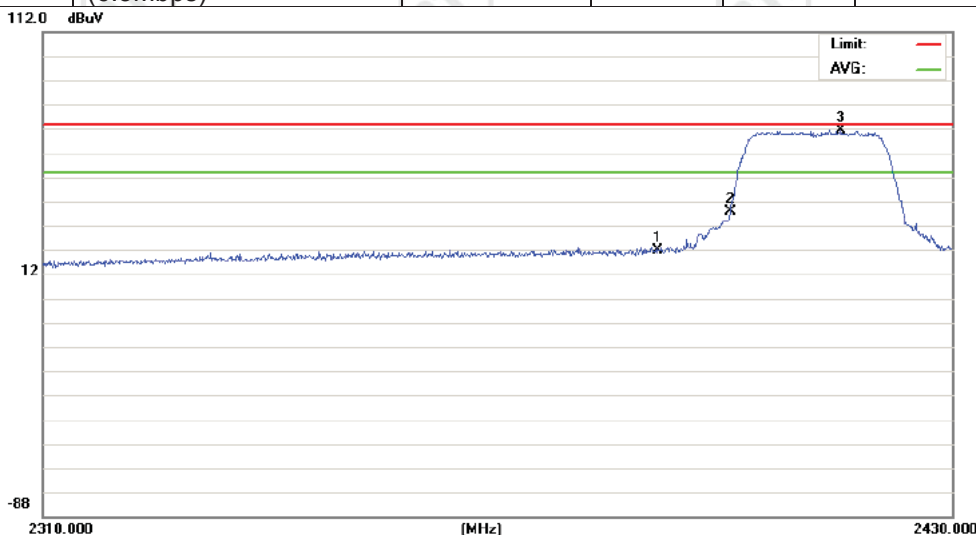
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2483.500	25.64	---	74	54	H	P

Worse case mode:	802.11n(HT20) (6.5Mbps)	Test channel:	Lowest	Remark:	Peak	Vertical
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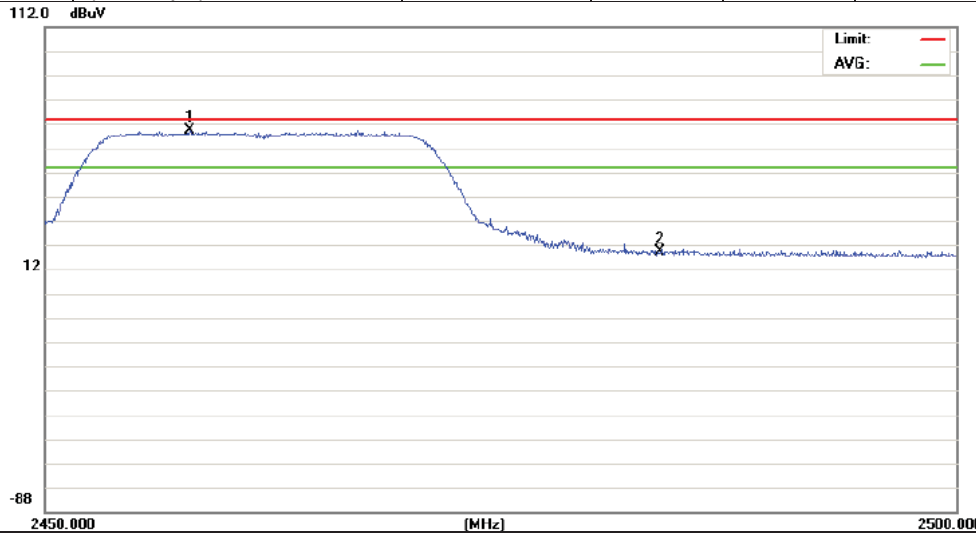
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2390.000	16.21	---	74	54	V	P
2400.000	34.29	---	74	54	V	P

Worse case mode:	802.11n(HT20) (6.5Mbps)	Test channel:	Lowest	Remark:	Peak	Horizontal
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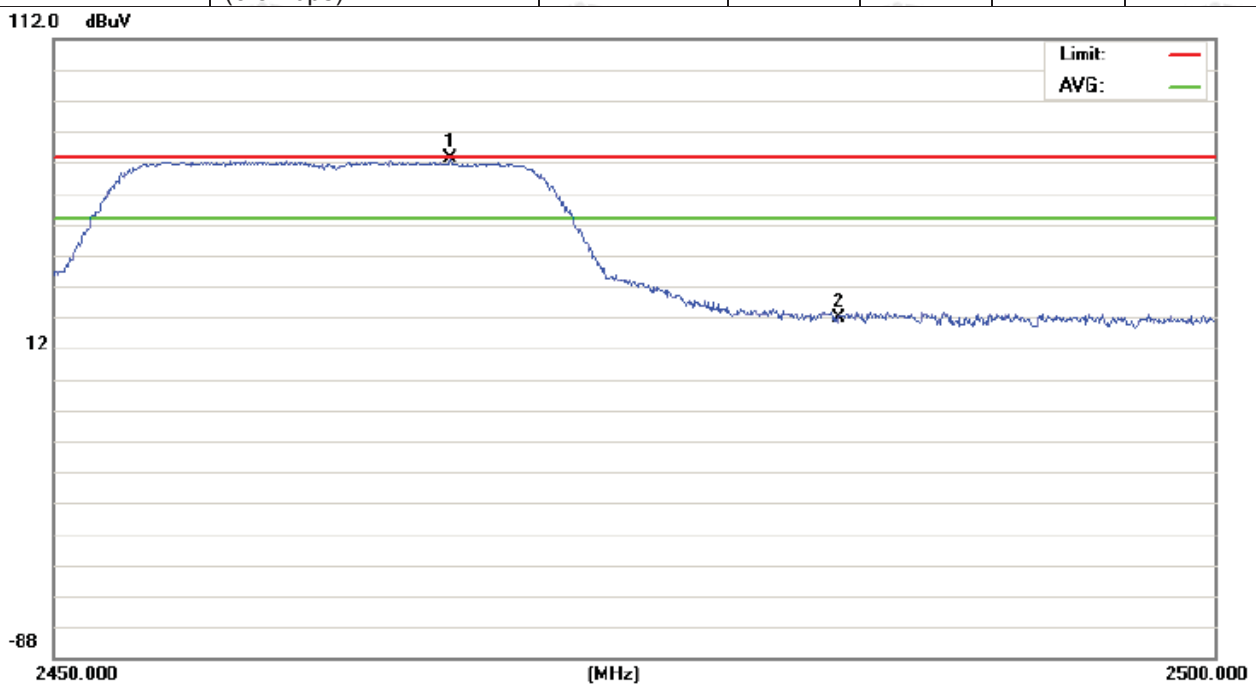
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2390.000	15.29	---	74	54	H	P
2400.000	35.21	---	74	54	H	P

Worse case mode:	802.11n(HT20) (6.5Mbps)	Test channel:	Highest	Remark:	Peak	Vertical
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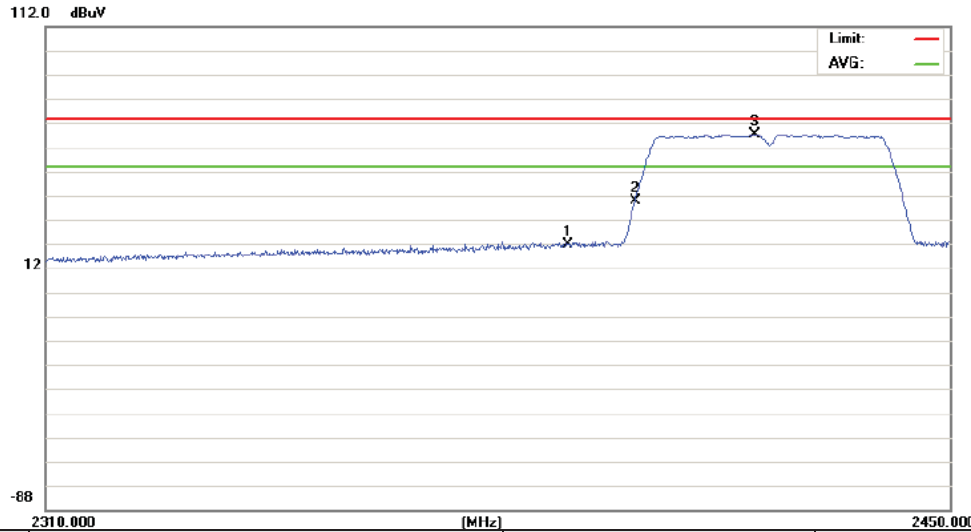
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2483.500	24.21	---	74	54	V	P

Worse case mode:	802.11n(HT20) (6.5Mbps)	Test channel:	Highest	Remark:	Peak	Horizontal
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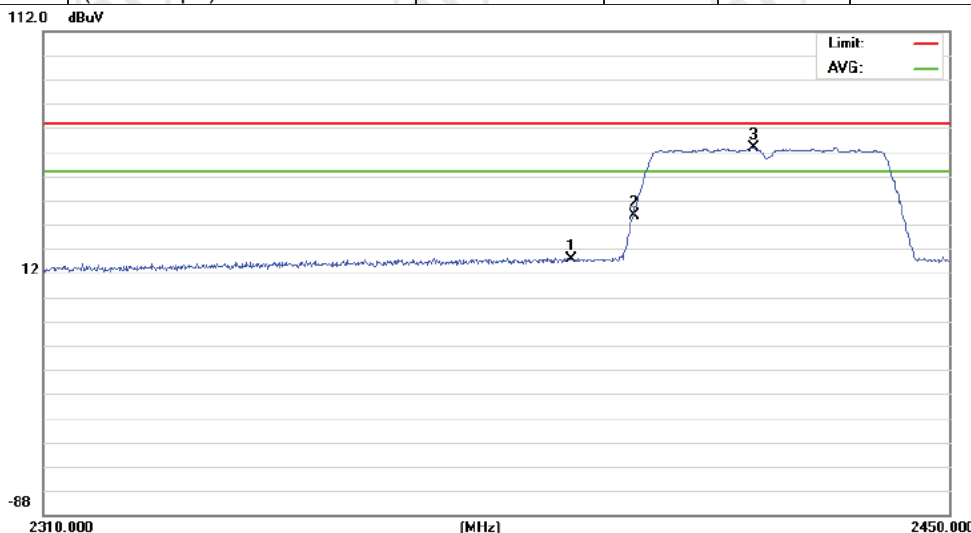
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dB μ V/m)	AV (dB μ V/m)	PK (dB μ V/m)	AV (dB μ V/m)		
2483.500	24.46	---	74	54	V	P

Worse case mode:	802.11n(HT40) (13.5Mbps)	Test channel:	Lowest	Remark:	Peak	Vertical
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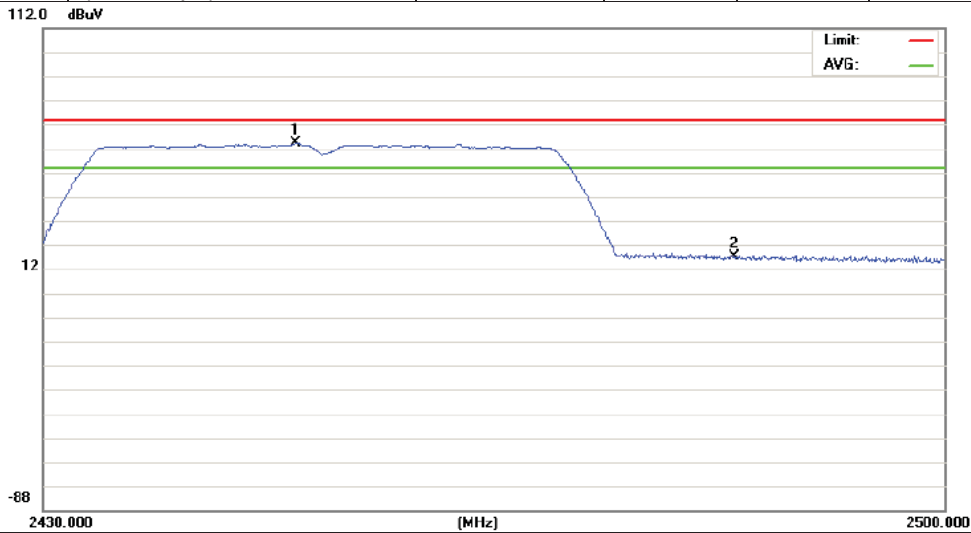
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2390.000	14.27	---	74	54	V	P
2400.000	39.23	---	74	54	V	P

Worse case mode:	802.11n(HT40) (13.5Mbps)	Test channel:	Lowest	Remark:	Peak	Horizontal
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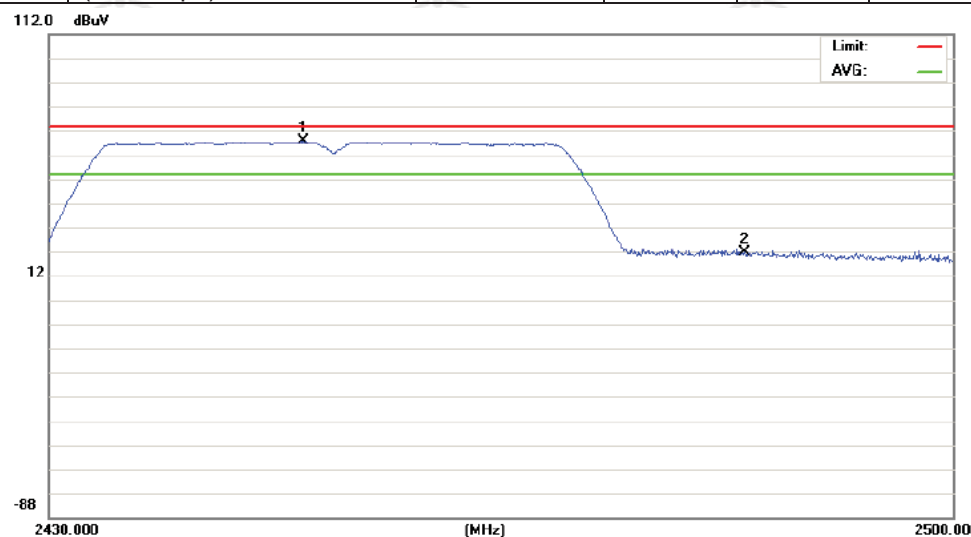
Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBμV/m)	AV (dBμV/m)	PK (dBμV/m)	AV (dBμV/m)		
2390.000	13.98	---	74	54	H	P
2400.000	37.21	---	74	54	H	P

Worse case mode:	802.11n(HT40) (13.5Mbps)	Test channel:	Highest	Remark:	Peak	Vertical
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Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBµV/m)	AV (dBµV/m)	PK (dBµV/m)	AV (dBµV/m)		
2483.500	22.20	---	74	54	V	P

Worse case mode:	802.11n(HT40) (13.5Mbps)	Test channel:	Highest	Remark:	Peak	Horizontal
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Frequency (MHz)	Measurement value		Limit		Antenna (H/V)	Result (P/F)
	PK (dBµV/m)	AV (dBµV/m)	PK (dBµV/m)	AV (dBµV/m)		
2483.500	24.29	---	74	54	V	P

Note:

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

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

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix I) Radiated Spurious Emissions

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table 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.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre)..
- Test the EUT in the lowest channel ,the middle 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	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	<p>Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.</p>				

Radiated Spurious Emissions test Data:

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

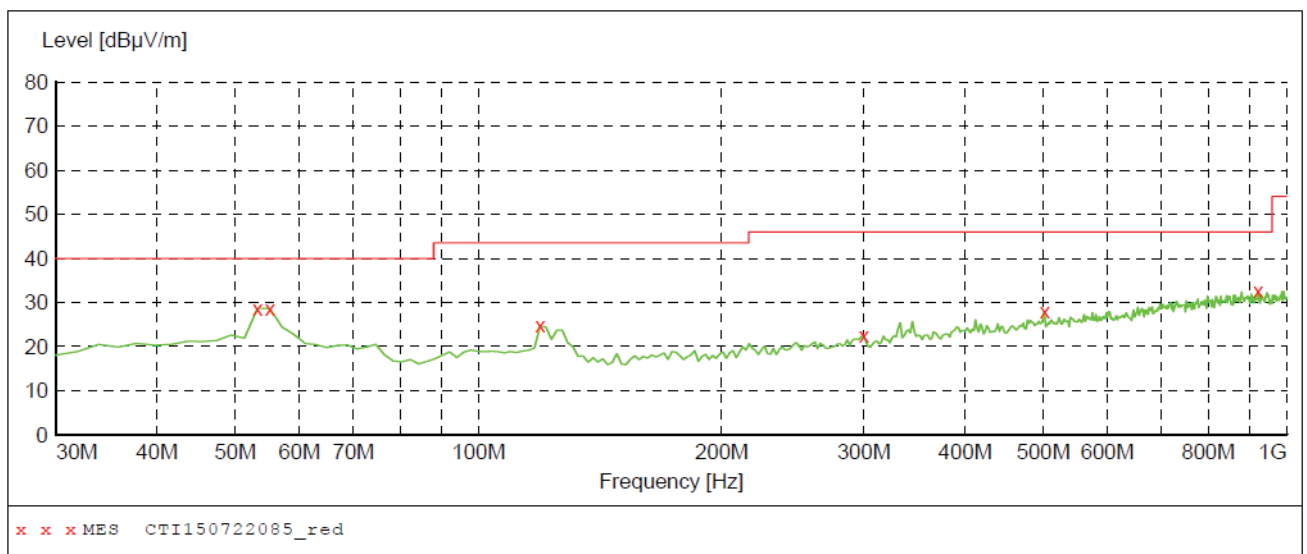
A. Below 30MHz:

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

B. 30MHz ~ 1GHz:

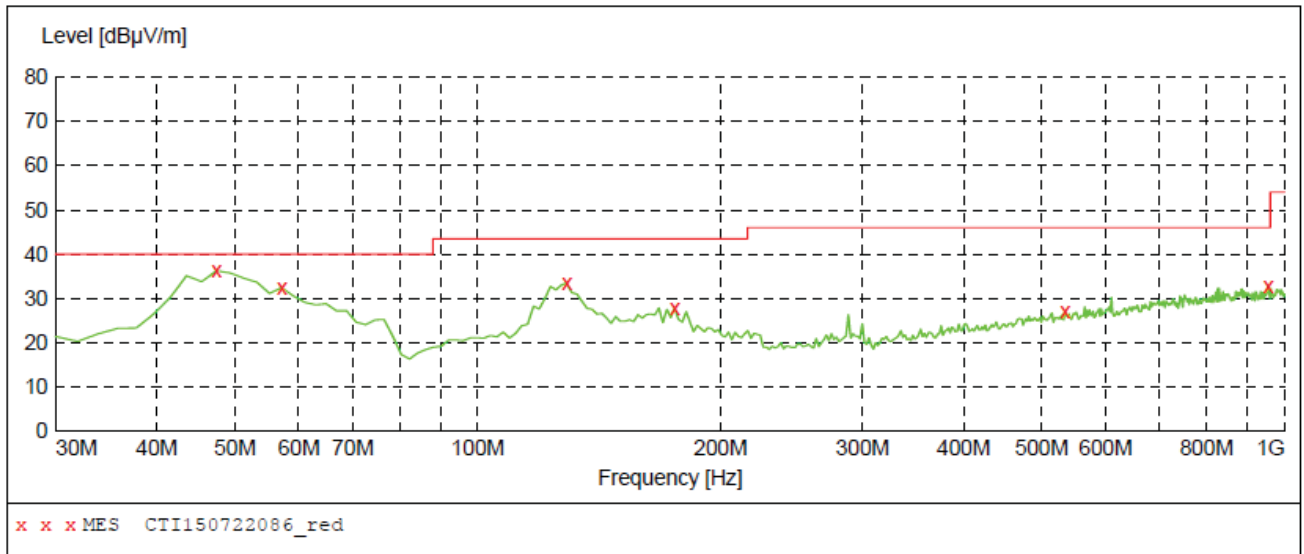
The test data of low channel, middle channel and high channel in IEEE 802.11b/g/n are almost same in frequency bands 30MHz to 1GHz and the data of low channel in IEEE 802.11b of 11Mbps are chosen as representative in below:

H:



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	28.70	16.1	40.0	11.3	---	100.0	344.00	HORIZONTAL
55.220000	28.60	15.8	40.0	11.4	---	100.0	170.00	HORIZONTAL
119.240000	24.70	13.3	43.5	18.8	---	100.0	62.00	HORIZONTAL
299.660000	22.50	15.9	46.0	23.5	---	100.0	159.00	HORIZONTAL
501.420000	28.00	21.5	46.0	18.0	---	100.0	142.00	HORIZONTAL
922.400000	32.50	26.7	46.0	13.5	---	100.0	50.00	HORIZONTAL

V:



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	36.20	16.3	40.0	3.8	---	100.0	182.00	VERTICAL
57.160000	32.40	15.6	40.0	7.6	---	100.0	158.00	VERTICAL
128.940000	33.40	12.6	43.5	10.1	---	100.0	61.00	VERTICAL
175.500000	27.70	12.7	43.5	15.8	---	100.0	158.00	VERTICAL
534.400000	27.10	21.7	46.0	18.9	---	100.0	278.00	VERTICAL
953.440000	32.80	26.7	46.0	13.2	---	100.0	330.00	VERTICAL

C. Above 1GHz:

The test data of worst case are below:

IEEE 802.11b, 11Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
4824.0	45.01	74	PK	H	P
4824.0	43.81	74	PK	V	P
Middle channel (2437MHz)					
4874.0	44.93	74	PK	H	P
4874.0	41.64	74	PK	V	P
High channel (2462MHz)					
4924.0	42.95	74	PK	H	P
4924.0	42.54	74	PK	V	P

IEEE 802.11g, 6Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
4824.0	43.54	74	PK	H	P
4824.0	44.57	74	PK	V	P
Middle channel (2437MHz)					
4874.0	43.51	74	PK	H	P
4874.0	42.68	74	PK	V	P
High channel (2462MHz)					
4924.0	44.36	74	PK	H	P
4924.0	43.26	74	PK	V	P

IEEE 802.11n HT20, 6.5Mbps:

Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2412MHz)					
4824.0	44.52	74	PK	H	P
4824.0	41.66	74	PK	V	P
Middle channel (2437MHz)					
4874.0	45.52	74	PK	H	P
4874.0	43.81	74	PK	V	P
High channel (2462MHz)					
4924.0	44.51	74	PK	H	P
4924.0	43.24	74	PK	V	P

IEEE 802.11n HT40, 13.5Mbps:

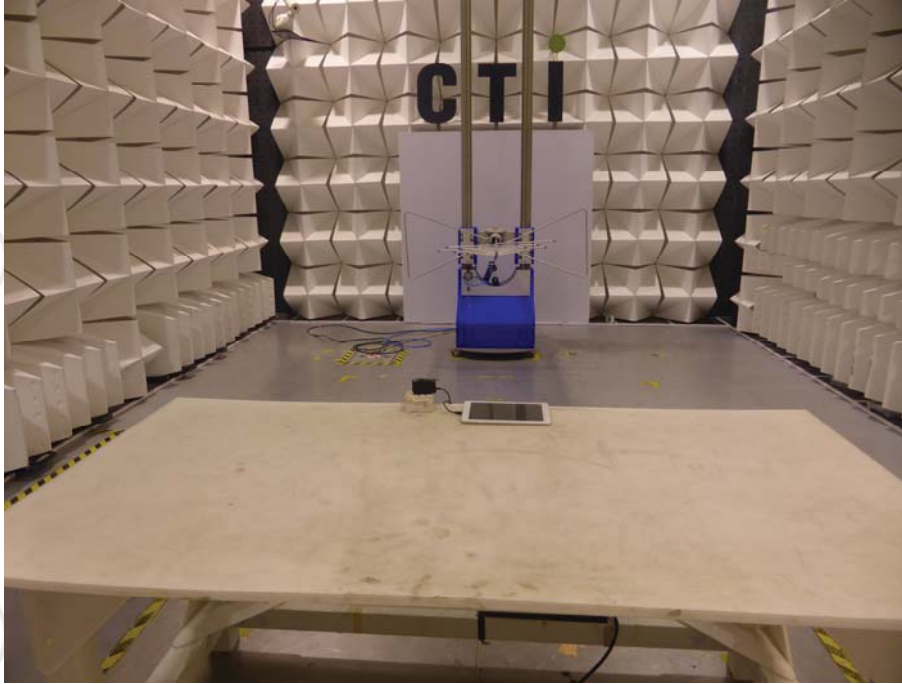
Frequency (MHz)	Measurement (dBuV/m)	Limit (dBuV/m)	Detector Type	Antenna (H/V)	Result (P/F)
Low channel (2422MHz)					
4844.0	40.51	74	PK	H	P
4844.0	40.66	74	PK	V	P
Middle channel (2437MHz)					
4874.0	41.53	74	PK	H	P
4874.0	40.84	74	PK	V	P
High channel (2452MHz)					
4904.0	41.57	74	PK	H	P
4904.0	40.27	74	PK	V	P

Remark:

1. The above tables show that the frequencies peak data are all below the average limit, so the average data of these frequencies are deemed to fulfill the average limits and not reported.
2. No emission found from 18GHz to 25GHz.
3. All outside of operating frequency band and restricted band specified are below 15.209.

PHOTOGRAPHS OF TEST SETUP

Test mode No.: E10



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



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

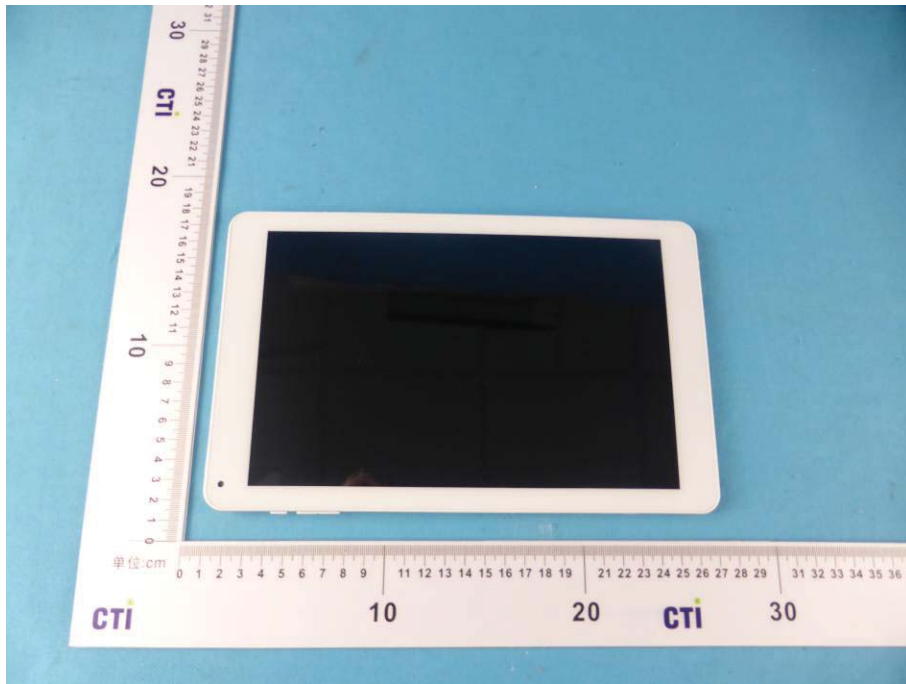


Conducted emission Test Setup

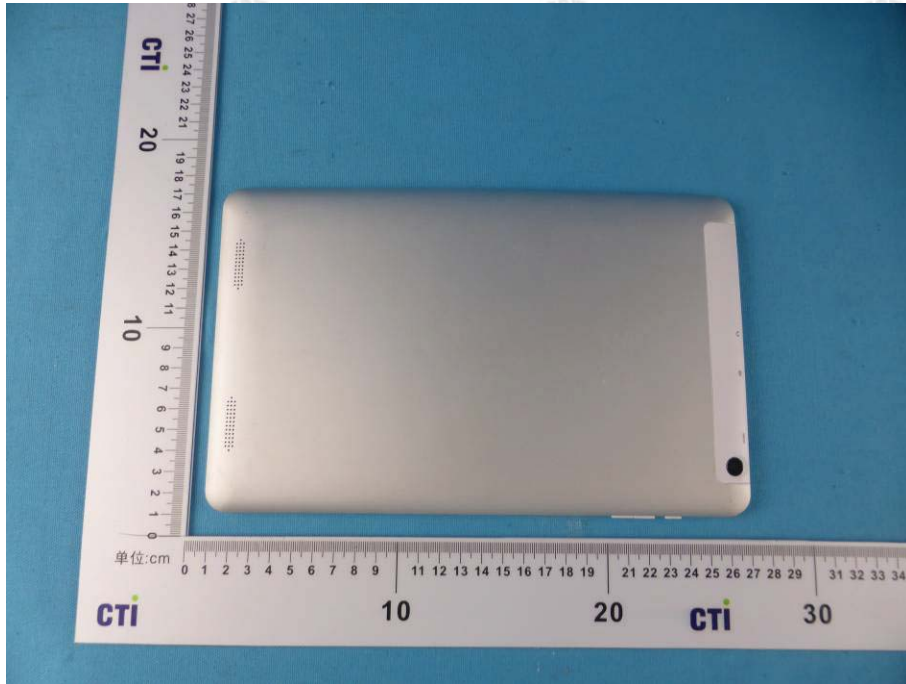
PHOTOGRAPHS OF EUT Constructional Details



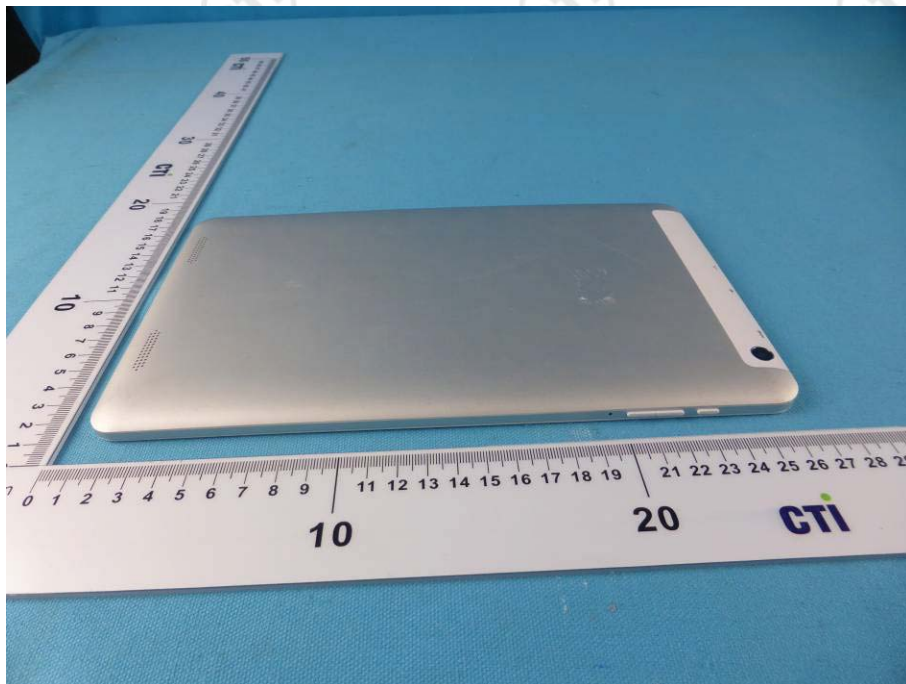
View of external EUT-1



View of external EUT-2



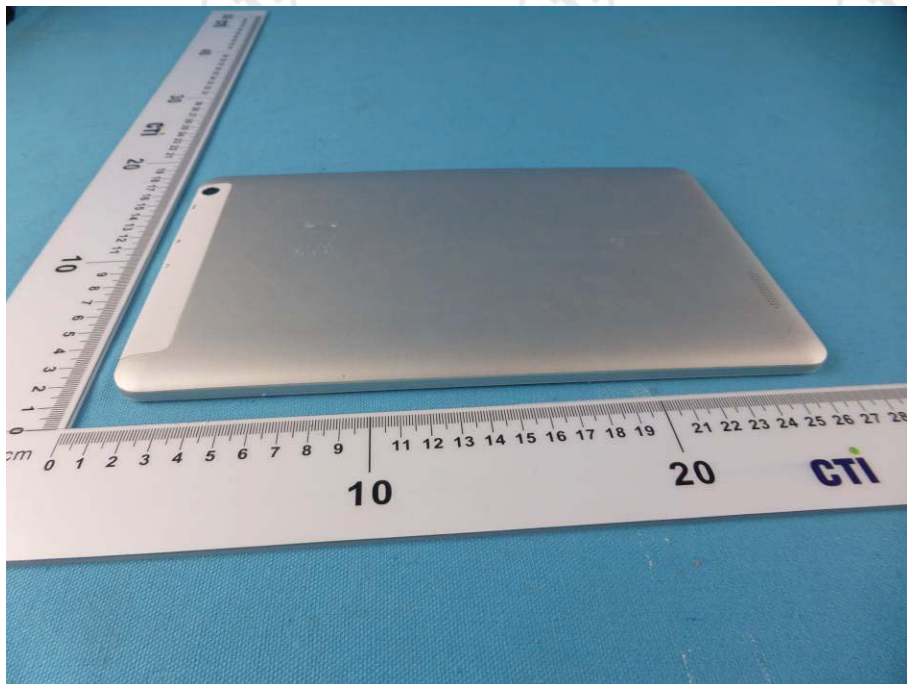
View of external EUT-3



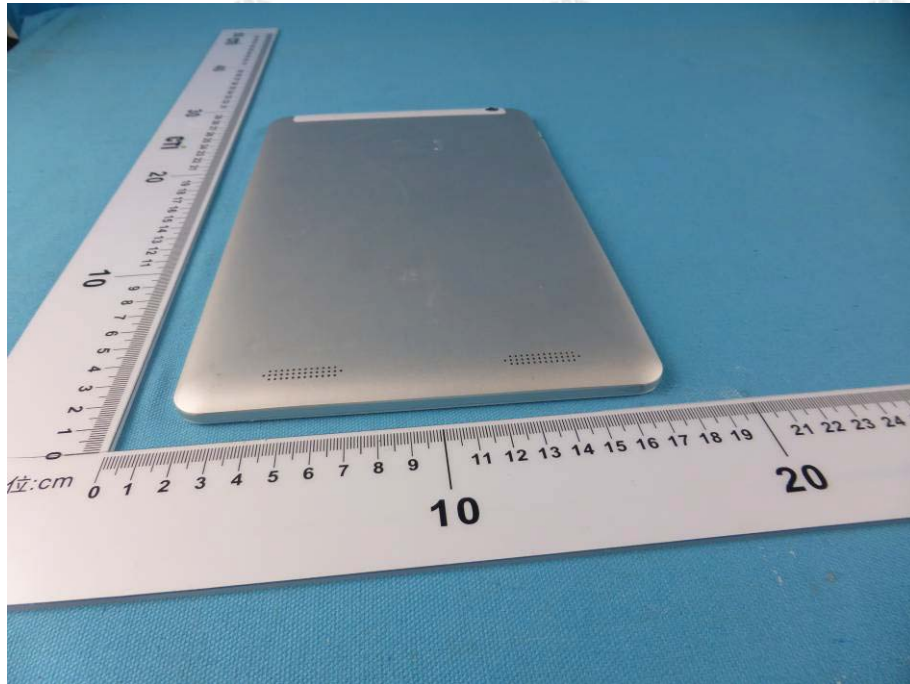
View of external EUT-4



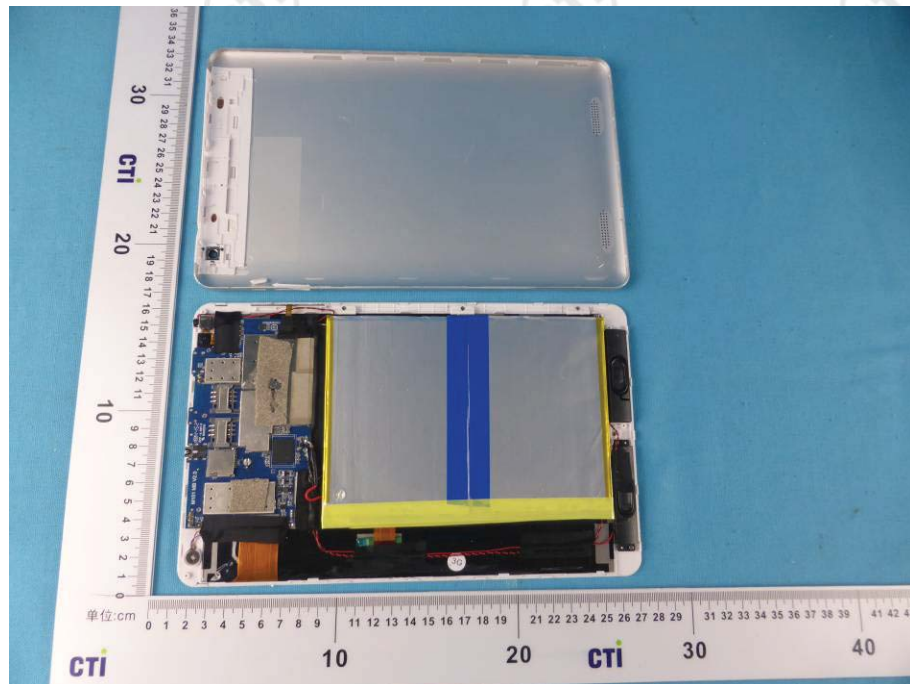
View of external EUT-5



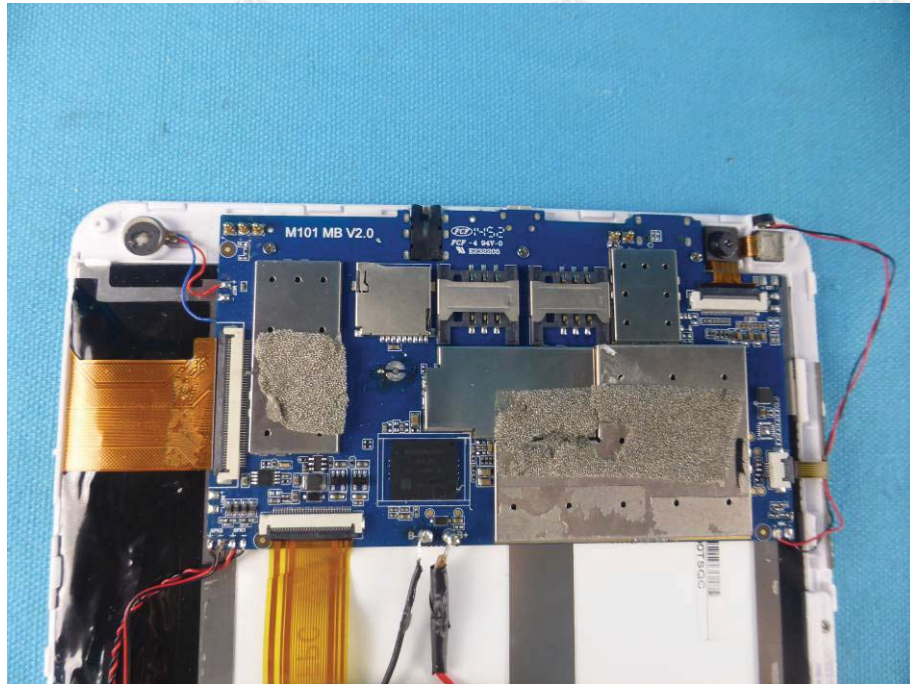
View of external EUT-6



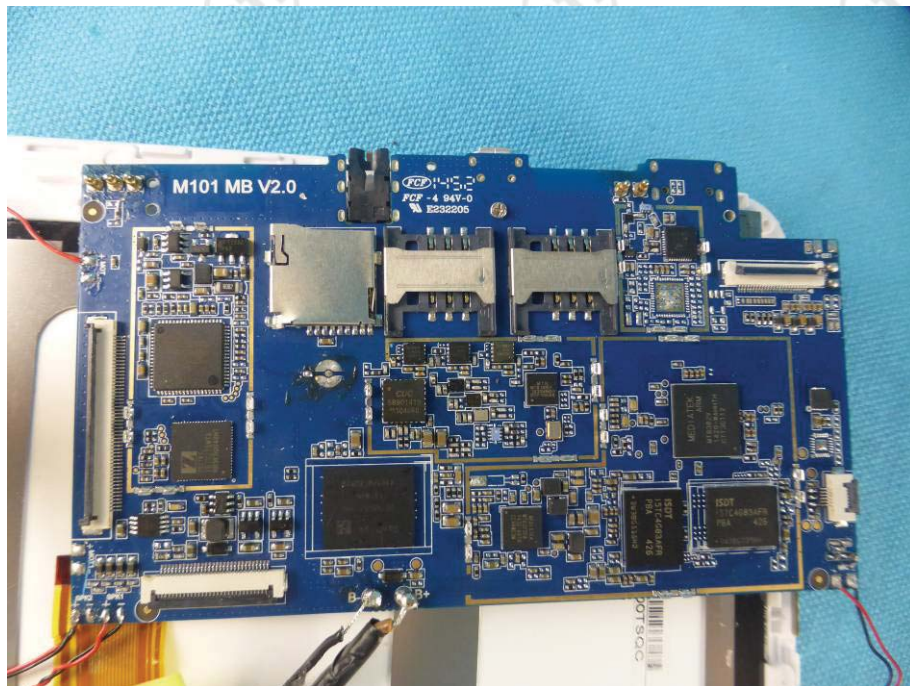
View of external EUT-7



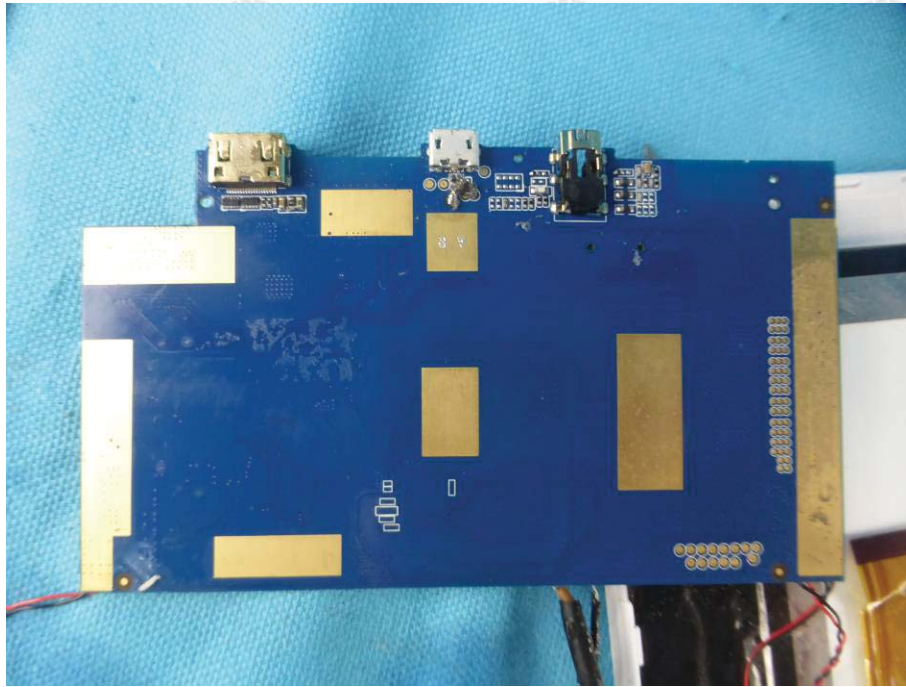
View of internal EUT-1



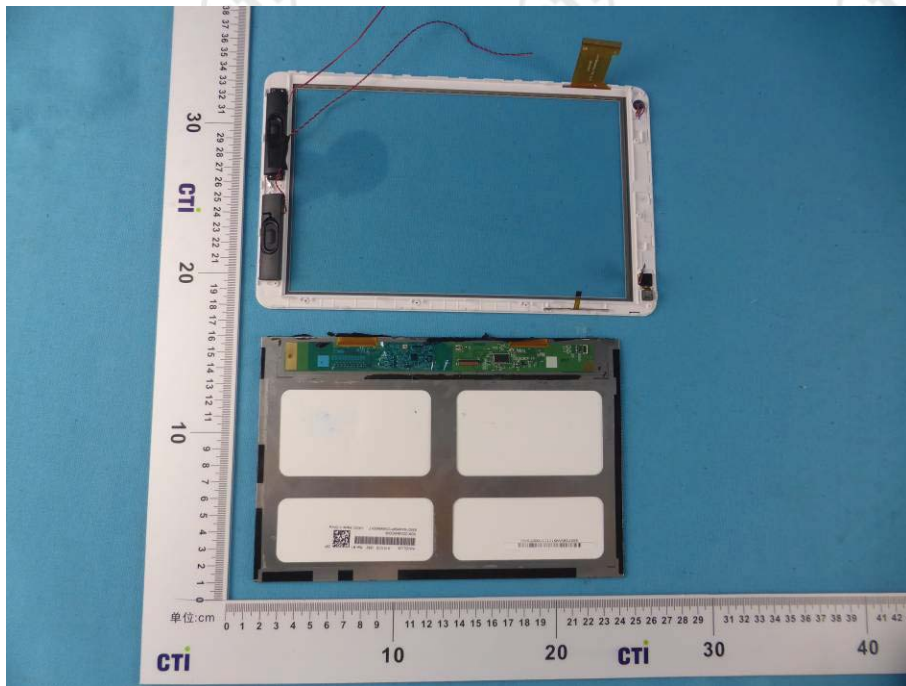
View of internal EUT-2



View of internal EUT-3



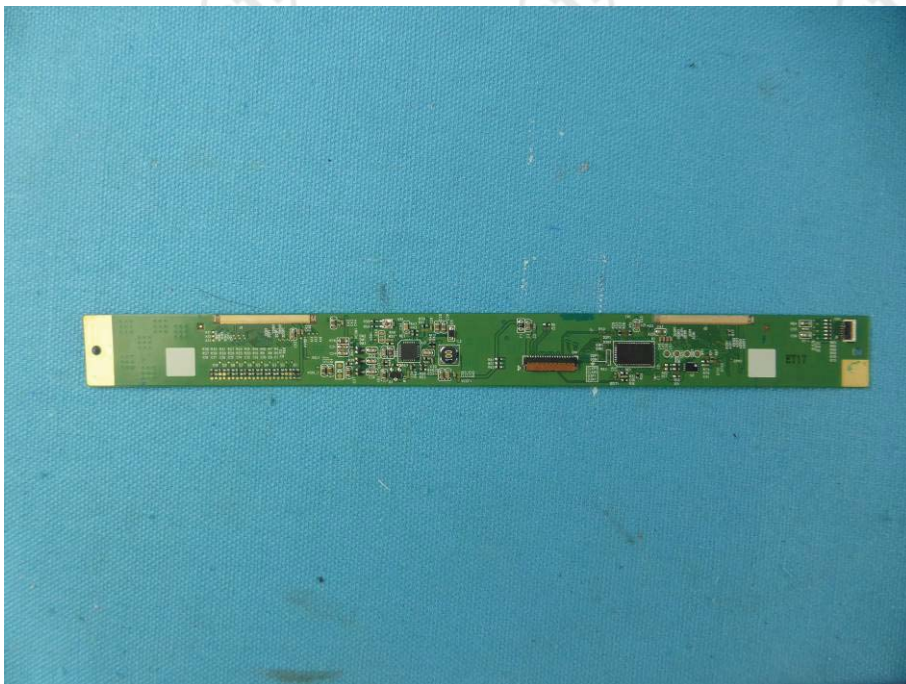
View of internal EUT-4



View of internal EUT-5



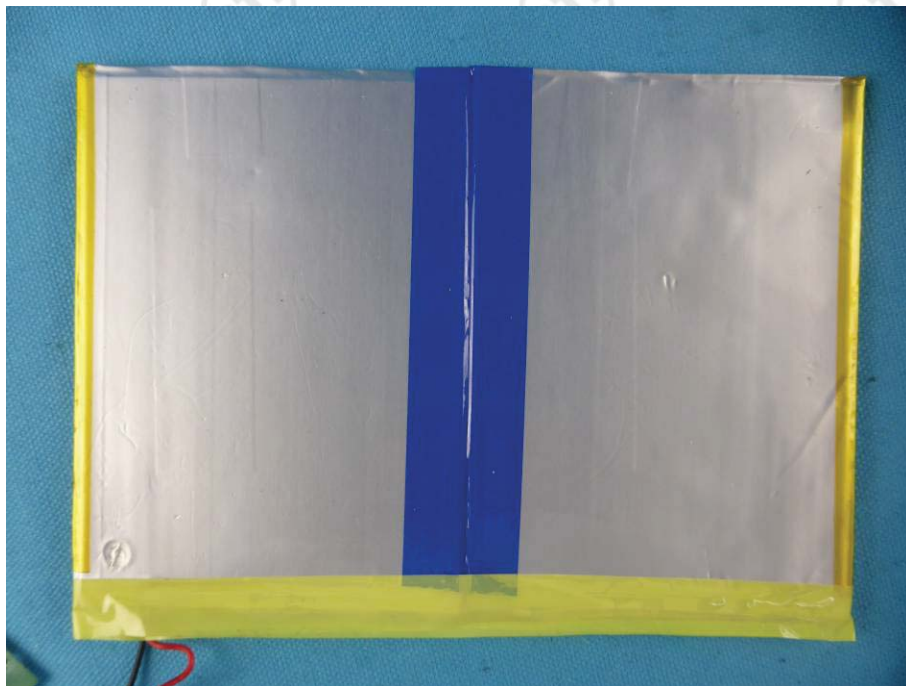
View of internal EUT-6



View of internal EUT-7



View of internal EUT-8



View of internal EUT-9

*** End of Report ***

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