

TEST REPORT

Product : HANDHELD VITALSIGNS MONITORING SYSTEM
Trade mark : **bewell** connect
Model/Type reference : BW-X07HD
Serial Number : N/A
Report Number : EED32I00251303
FCC ID : 2AF8T-BW-X07HD
Date of Issue : Jun. 14, 2017
Test Standards : 47 CFR Part 15Subpart C (2015)
Test result : PASS

Prepared for:

BEWELL CONNECT CORP
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Date:

Jun. 14, 2017

Check No.: 2392125448



2 Version

Version No.	Date	Description
00	Jun. 14, 2017	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/ KDB 558074 D01v04	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013/ KDB 558074 D01v04	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013/ KDB 558074 D01v04	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013/ KDB 558074 D01v04	PASS
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013/ KDB 558074 D01v04	PASS
Radiated Spurious Emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013 KDB 558074 D01v04	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013 KDB 558074 D01v04	PASS

Remark:

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

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

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5 Test Requirement

5.1 Test setup

5.1.1 For Radiated Emissions test setup

Radiated Emissions setup:

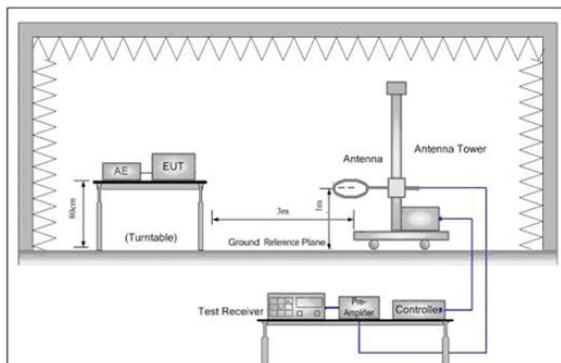


Figure 1. Below 30MHz

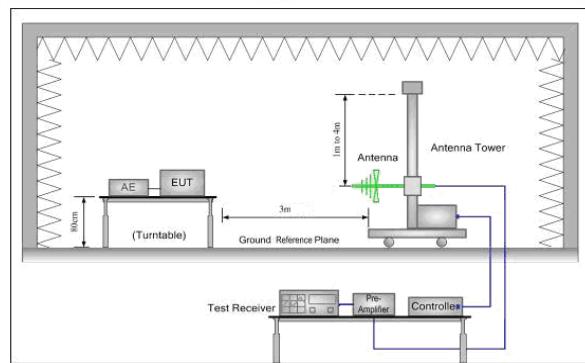


Figure 2. 30MHz to 1GHz

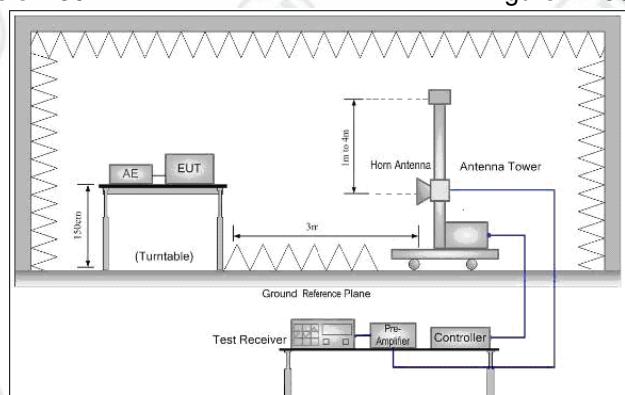
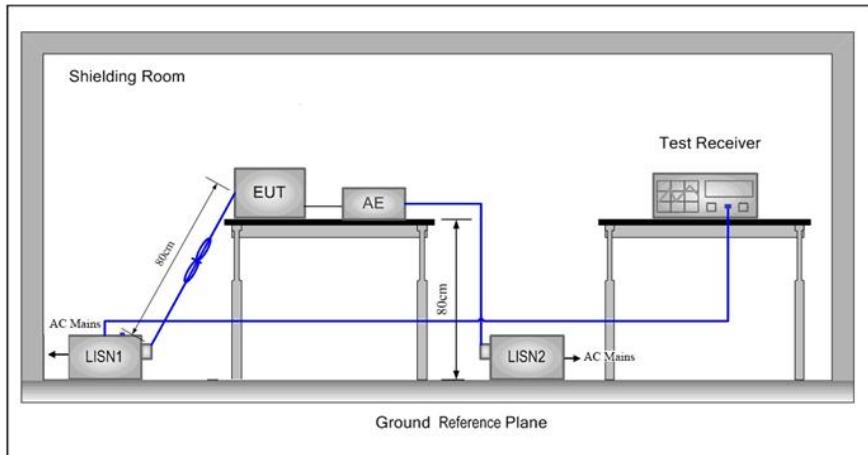


Figure 3. Above 1GHz

5.1.2 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:

Temperature:	23°C
Humidity:	51% RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel11
		2412MHz	2437MHz	2462MHz
802.11n(HT40)	2422MHz ~2452 MHz	Channel 1	Channel 4	Channel7
		2422MHz	2437MHz	2452MHz
Transmitting mode: Keep the EUT at Transmit mode				

Test mode:**Pre-scan under all rate at lowest channel**

Mode	802.11b								
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps					
Power(dBm)	18.53	18.48	18.50	18.54					
Mode	802.11g								
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
Power(dBm)	22.27	22.24	22.26	22.20	22.19	22.22	22.21	22.25	
Mode	802.11n (HT20)								
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps	
Power(dBm)	19.19	19.13	19.16	19.15	19.12	19.16	19.18	19.17	
Mode	802.11n (HT40)								
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps	
Power(dBm)	20.79	20.77	20.71	20.70	20.74	20.76	20.71	20.78	

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:	BEWELL CONNECT CORP
Address of Applicant:	SUITE 410, 185 ALEWIFE BROOK PARKWAY CAMBRIDGE,Massachusetts,United States
Manufacturer:	Visiomed Technology Co., Ltd
Address of Manufacturer:	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China
Factory:	Visiomed Technology Co., Ltd
Address of Factory:	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China

6.2 General Description of EUT

Product Name:	HANDHELD VITALSIGNS MONITORING SYSTEM	
Test Model No.(EUT):	BW-X07HD	
Trade mark:		
EUT Supports Radios application:	LTE Band 2: TX:1850 MHz to 1910 MHz RX:1930 MHz to 1990 MHz. LTE Band 4: TX:1710 MHz to 1755 MHz RX:2110 MHz to 2170 MHz. LTE band 7: TX:2500 MHz to 2570 MHz RX:2620 MHz to 2690 MHz. LTE band 12: TX: 699 MHz to 716 MHz RX: 729 MHz to 746 MHz. WCDMA1900: TX:1850 MHz to 1910 MHz RX:1930 MHz to 1990 MHz. WIFI 802.11b/g/n(20)/n(40): TX/RX:2412 MHz to 2462 MHz BT4.0 Dual mode: 2402 MHz to 2480 MHz. GPS:1575.42MHz	
Power Supply:	AC adapter: INPUT:100-240V~50/60Hz, 500mA OUTPUT:5.0V 2.0A	MODEL No.:UE10WCP1-050200SPA PART No.:UE160106HKWY1-P INPUT:100-240V~50/60Hz, 500mA OUTPUT:5.0V 2.0A
	Battery:	2500mAh 3.7V (Rechargeable Li-ion Battery)
Hardware Version:	(manufacturer declare)H.VS.MSM8909.02	
Software Version:	(manufacturer declare)Visiocheck_1.0.6	
Sample Received Date:	Oct. 19, 2016	
Sample tested Date:	Oct. 19, 2016 to Jun. 13, 2017	

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
Test Power Grade:	N/A
Test Software of EUT:	N/A
Antenna Type and Gain:	PIFA Antenna
Antenna Gain:	2dBi
Test Voltage:	AC 120V, 60Hz

Operation Frequency each of channel(802.11b/g/n HT20)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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 Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385

No tests were sub-contracted.

6.6 Test Facility

FCC-Registration No.: 886427

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 886427.

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	03-14-2017	03-13-2018
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-14-2017	03-13-2018
Signal Generator	Keysight	N5182B	MY53051549	03-14-2017	03-13-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	TTF20120439	01-11-2017	01-10-2018
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	003	01-11-2017	01-10-2018
DC Power	Keysight	E3642A	MY54436035	03-14-2017	03-13-2018
power meter & power sensor	R&S	OSP120	101374	03-14-2017	03-13-2018
RF control unit	JS Tonscend	JS0806-2	158060006	03-14-2017	03-13-2018

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	TTE20130797	06-05-2016	06-05-2019
TRILOG Broadband Antenna	SCHWARZBEC K	VULB9163	9163-618	07-28-2016	07-27-2017
Microwave Preamplifier	Agilent	8449B	3008A02425	02-16-2017	02-15-2018
Horn Antenna	ETS-LINDGREN	3117	00057407	07-20-2015	07-18-2018
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Microwave Preamplifier	A.H.SYSTEMS	PAP-1840-60	6041.6042	06-30-2015	06-28-2018
Horn Antenna	A.H.SYSTEMS	SAS-574 374	374	06-30-2015	06-28-2018
Spectrum Analyzer	R&S	FSP40	100416	06-16-2016	06-15-2017
Receiver	R&S	ESCI	100435	06-16-2016	06-15-2017
LISN	schwarzbeck	NNBM8125	81251547	06-16-2016	06-15-2017
LISN	schwarzbeck	NNBM8125	81251548	06-16-2016	06-15-2017
Signal Generator	Agilent	E4438C	MY45095744	03-14-2017	03-13-2018
Signal Generator	Keysight	E8257D	MY53401106	03-14-2017	03-13-2018
Temperature/ Humidity Indicator	TAYLOR	1451	1905	04-20-2017	04-19-2018
Cable line	Fulai(7M)	SF106	5219/6A	01-11-2017	01-10-2018
Cable line	Fulai(6M)	SF106	5220/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5216/6A	01-11-2017	01-10-2018
Cable line	Fulai(3M)	SF106	5217/6A	01-11-2017	01-10-2018
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	TTF20120439	01-11-2017	01-10-2018
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	003	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	TTF20120434	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	TTF20120435	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	TTF20120436	01-11-2017	01-10-2018
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	TTF20120437	01-11-2017	01-10-2018

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2015)	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	KDB 662911 D01 Multiple Transmitter Output v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band

Test Results List:

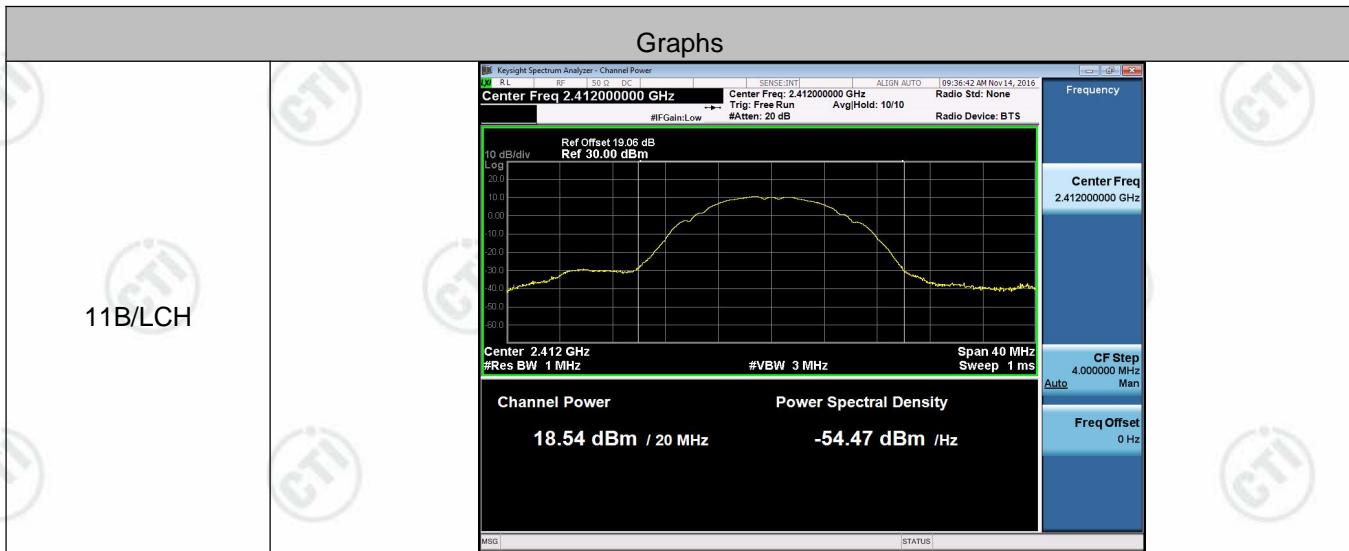
Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10/ KDB 558074	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10/ KDB 558074	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10/ KDB 558074	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10/ KDB 558074	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10/ KDB 558074	Power Spectral Density	PASS	Appendix E)
Part15C Section 15.203/15.247 (c)	ANSI C63.10	Antenna Requirement	PASS	Appendix F)
Part15C Section 15.207	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix G)
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix H)
Part15C Section 15.205/15.209	ANSI C63.10	Radiated Spurious Emissions	PASS	Appendix I)

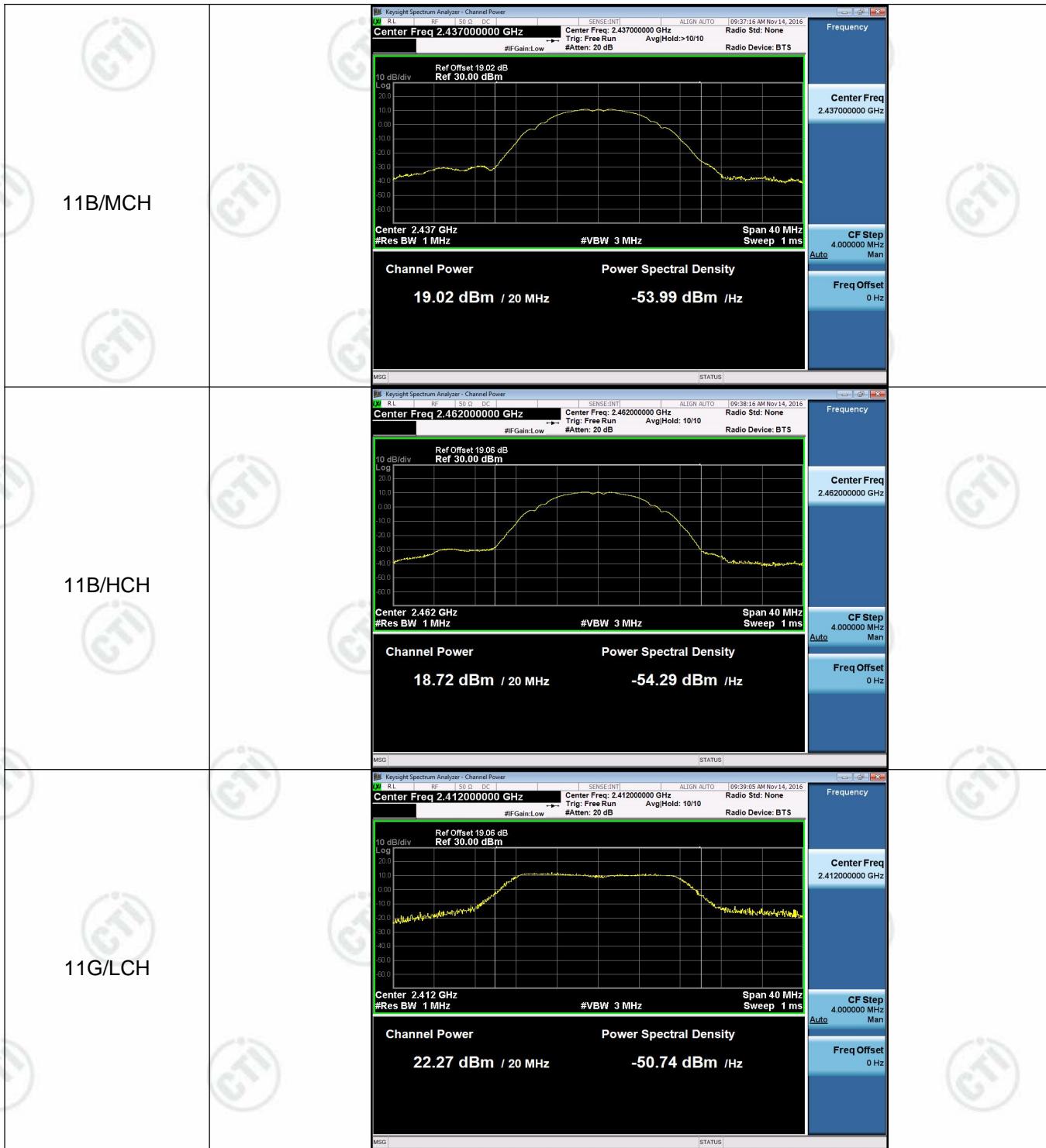
Appendix A): Conducted Peak Output Power

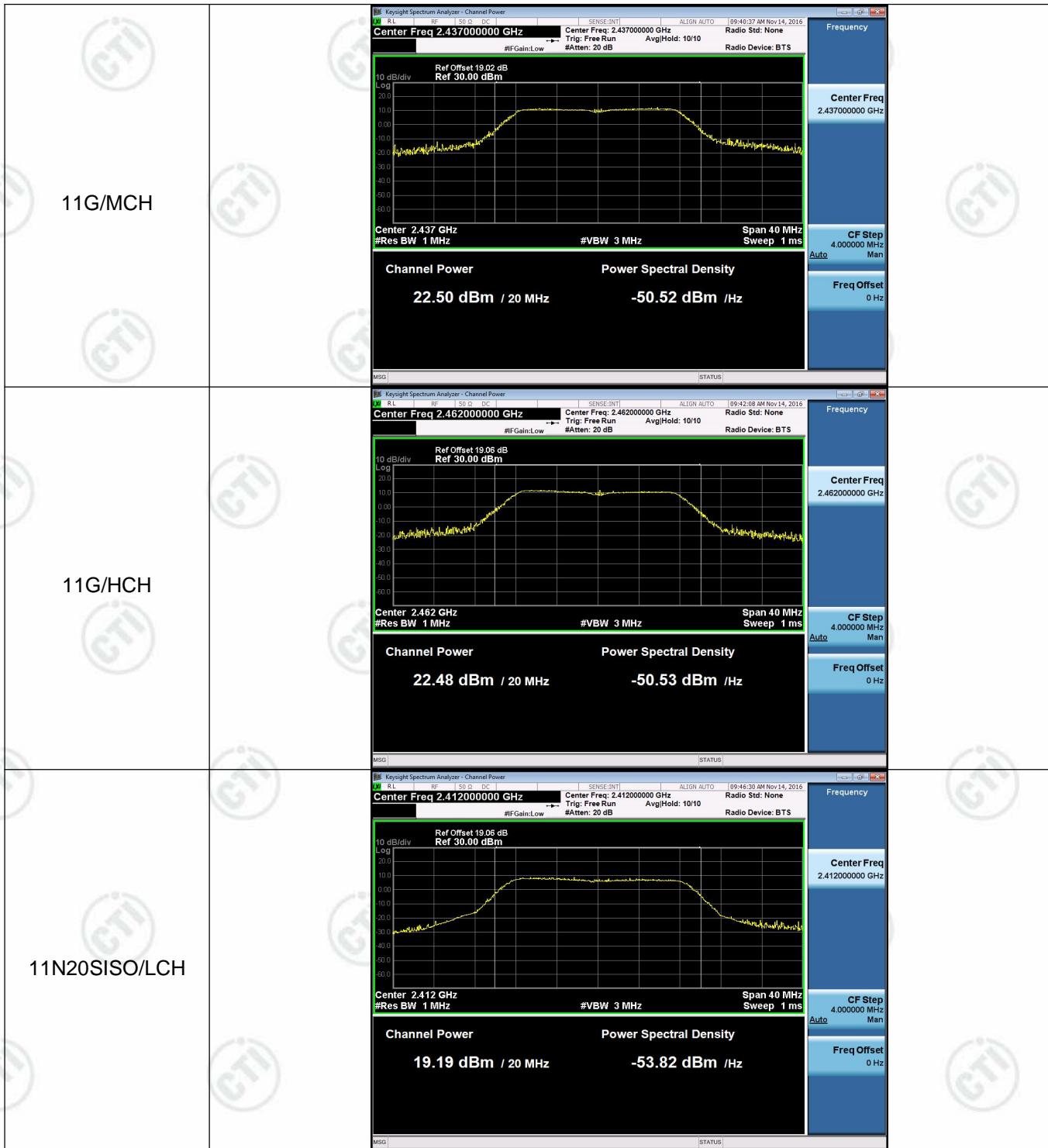
Result Table

Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	18.54	PASS
11B	MCH	19.02	PASS
11B	HCH	18.72	PASS
11G	LCH	22.27	PASS
11G	MCH	22.50	PASS
11G	HCH	22.48	PASS
11N20SISO	LCH	19.19	PASS
11N20SISO	MCH	20.09	PASS
11N20SISO	HCH	19.95	PASS
11N40SISO	LCH	20.79	PASS
11N40SISO	MCH	21.73	PASS
11N40SISO	HCH	22.73	PASS

Test Graph









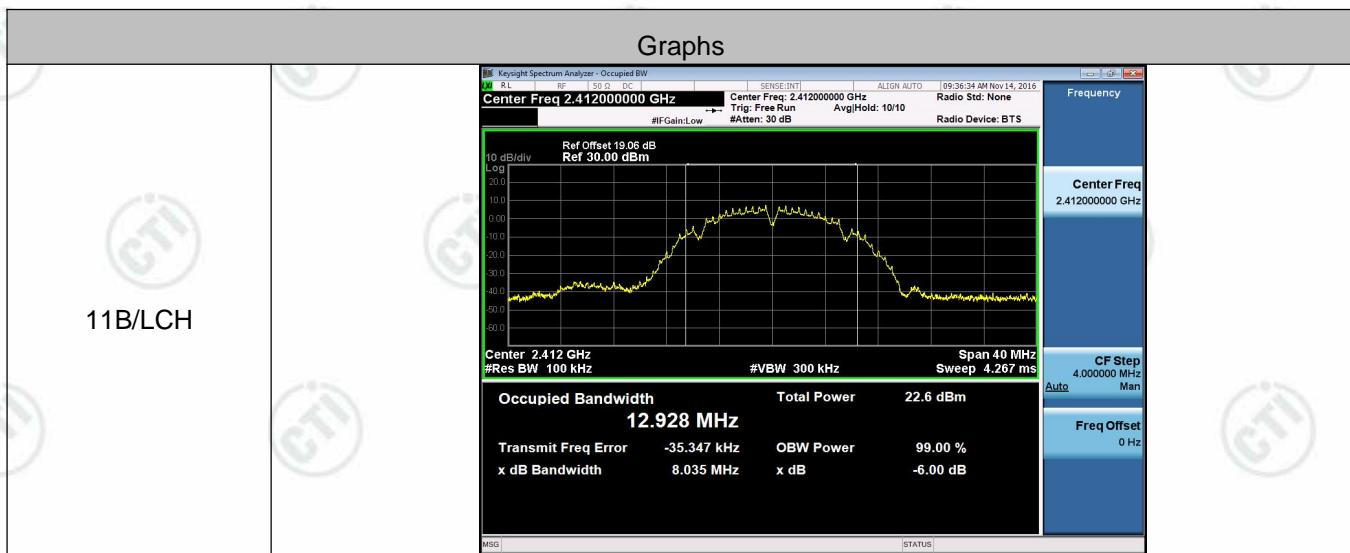


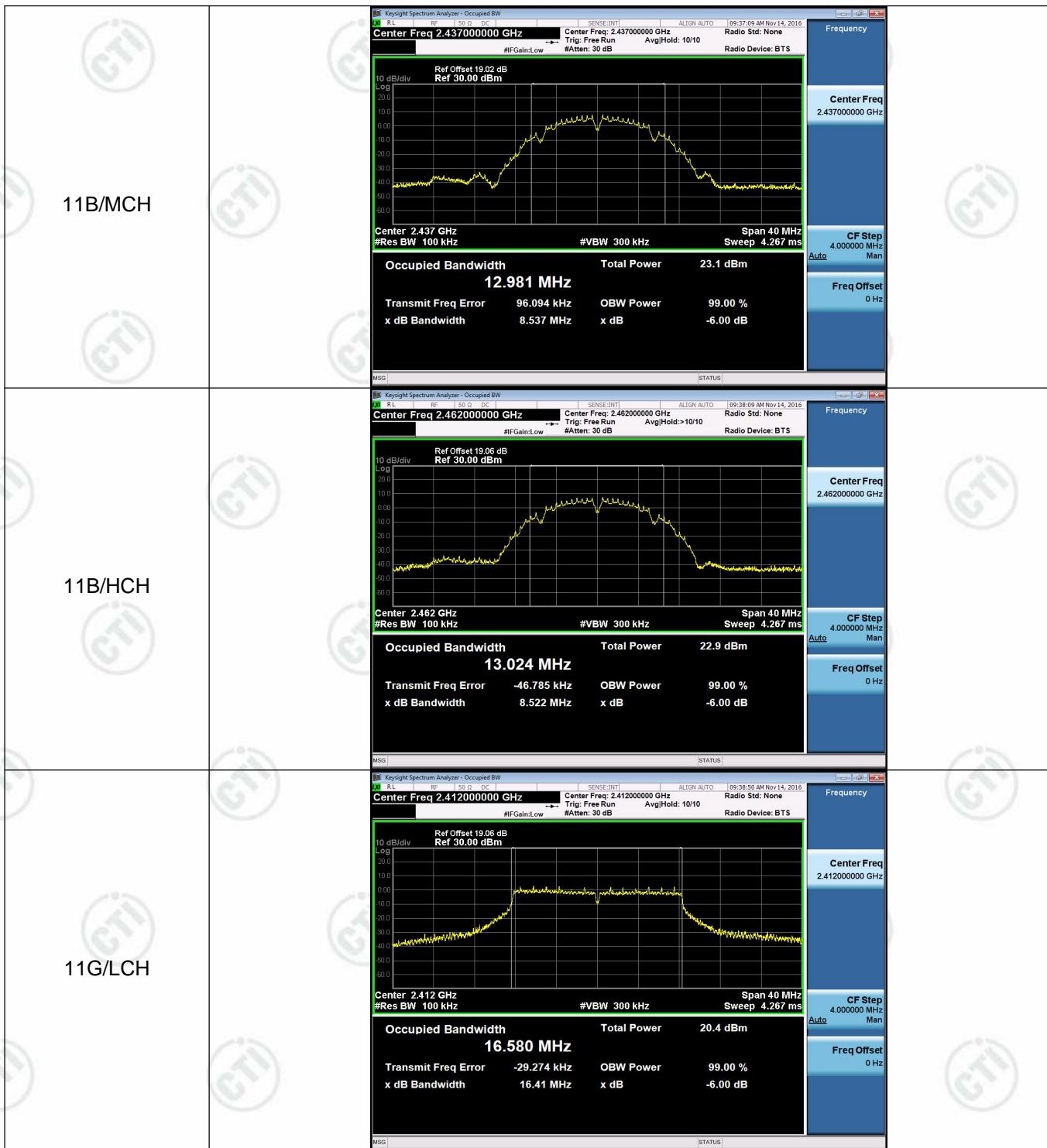
Appendix B): 6dB Occupied Bandwidth

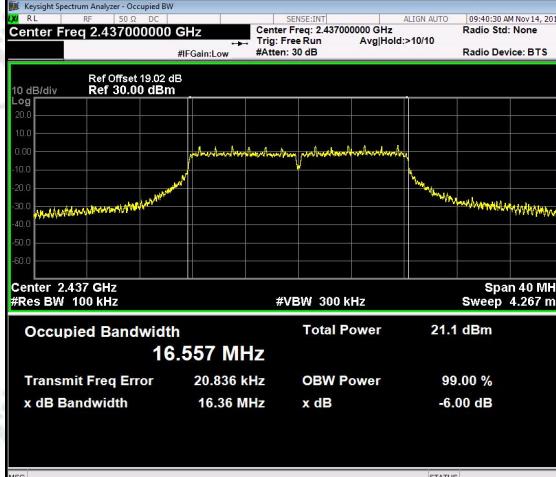
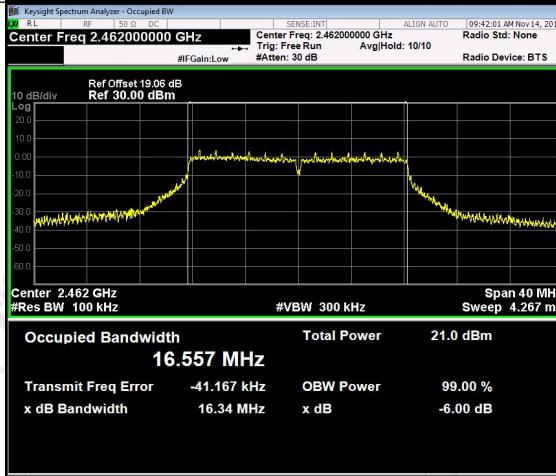
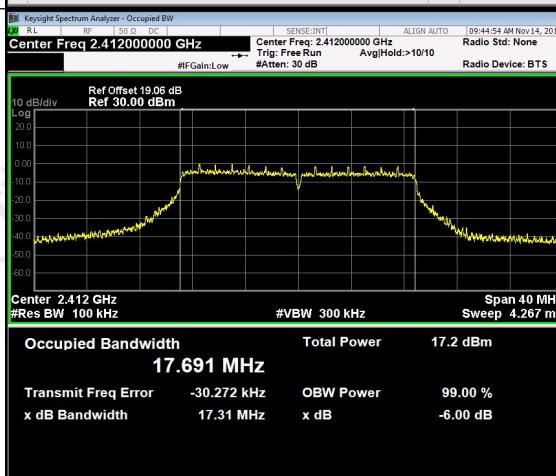
Result Table

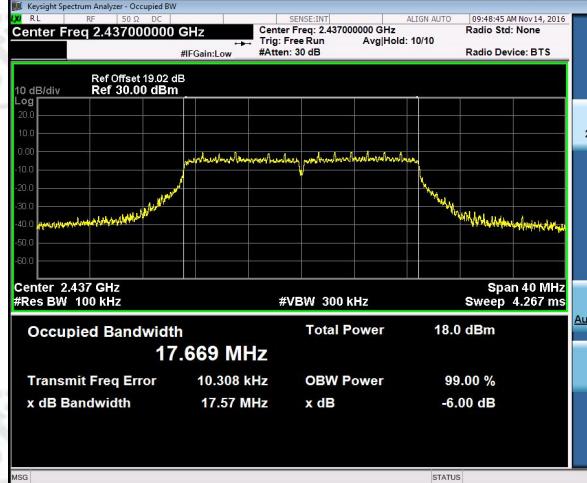
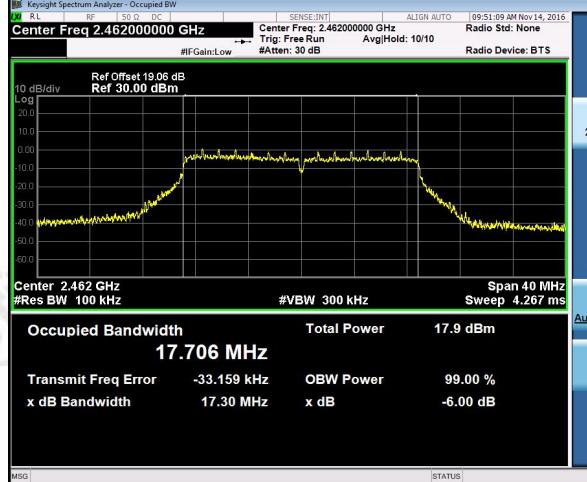
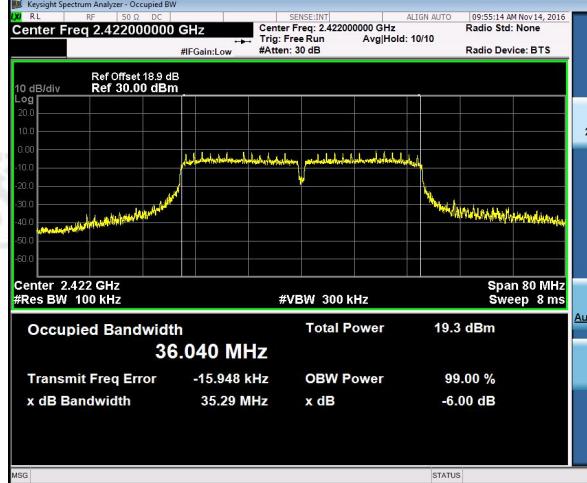
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
11B	LCH	8.035	12.928	PASS	Peak detector
11B	MCH	8.537	12.981	PASS	
11B	HCH	8.522	13.024	PASS	
11G	LCH	16.41	16.580	PASS	
11G	MCH	16.36	16.557	PASS	
11G	HCH	16.34	16.557	PASS	
11N20SISO	LCH	17.31	17.691	PASS	
11N20SISO	MCH	17.57	17.669	PASS	
11N20SISO	HCH	17.30	17.706	PASS	
11N40SISO	LCH	35.29	36.040	PASS	
11N40SISO	MCH	35.12	35.855	PASS	
11N40SISO	HCH	35.12	35.889	PASS	

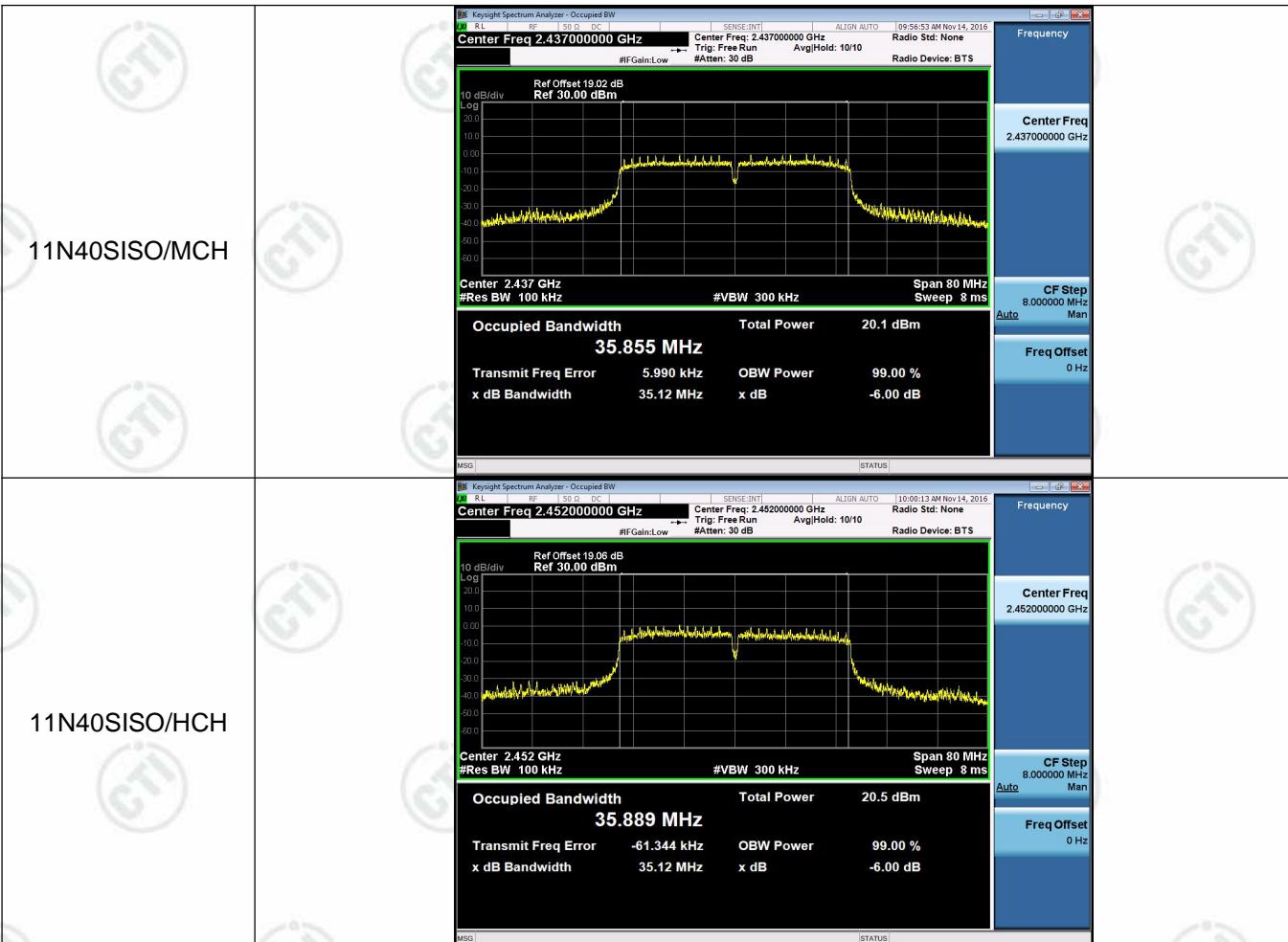
Test Graph





11G/MCH	 <p>Occupied Bandwidth 16.557 MHz</p> <p>Total Power 21.1 dBm</p> <p>Transmit Freq Error 20.836 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.36 MHz x dB -6.00 dB</p>
11G/HCH	 <p>Occupied Bandwidth 16.557 MHz</p> <p>Total Power 21.0 dBm</p> <p>Transmit Freq Error -41.167 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.34 MHz x dB -6.00 dB</p>
11N20SISO/LCH	 <p>Occupied Bandwidth 17.691 MHz</p> <p>Total Power 17.2 dBm</p> <p>Transmit Freq Error -30.272 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 17.31 MHz x dB -6.00 dB</p>

11N20SISO/MCH	
11N20SISO/HCH	
11N40SISO/LCH	



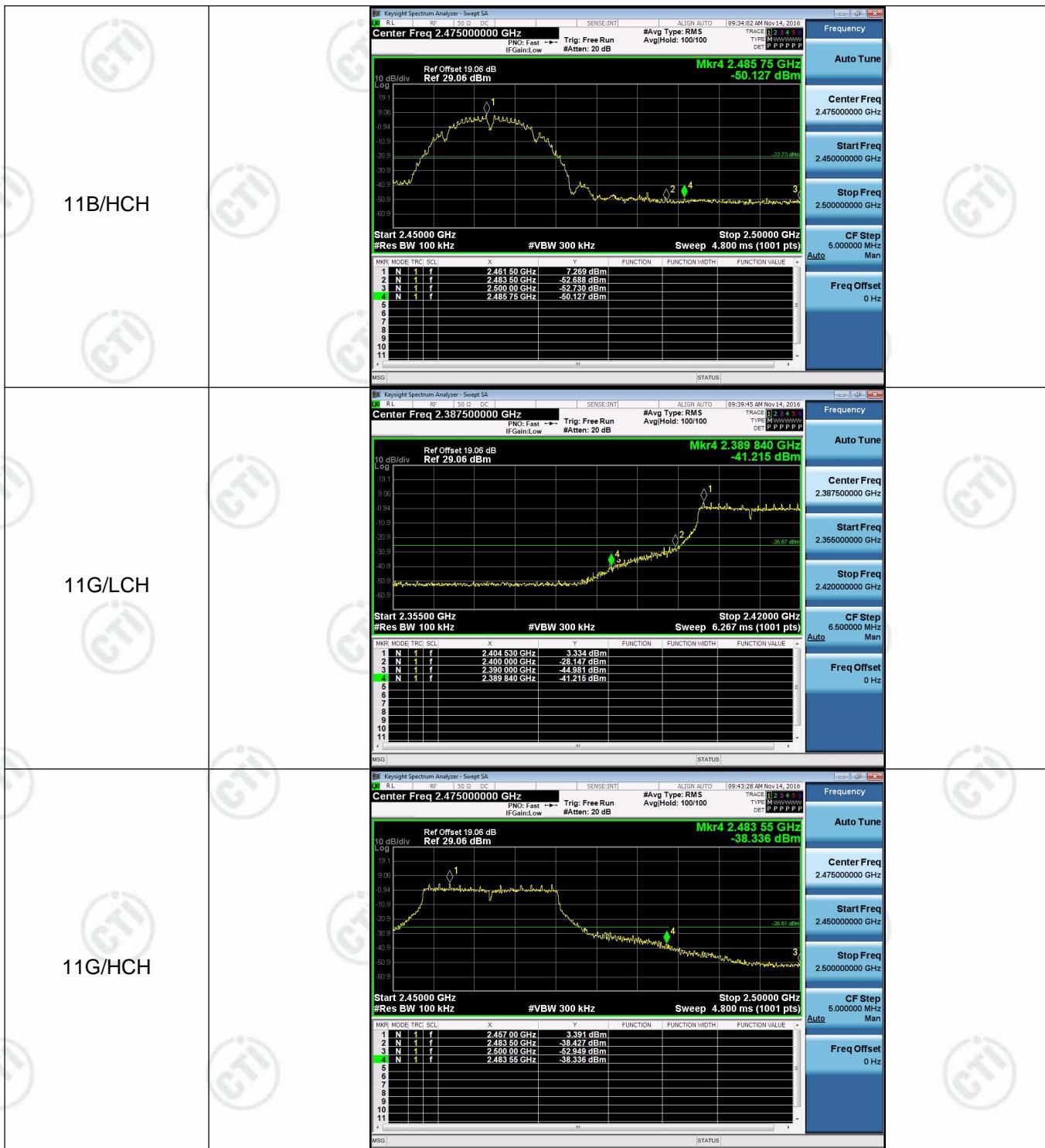
Appendix C): Band-edge for RF Conducted Emissions

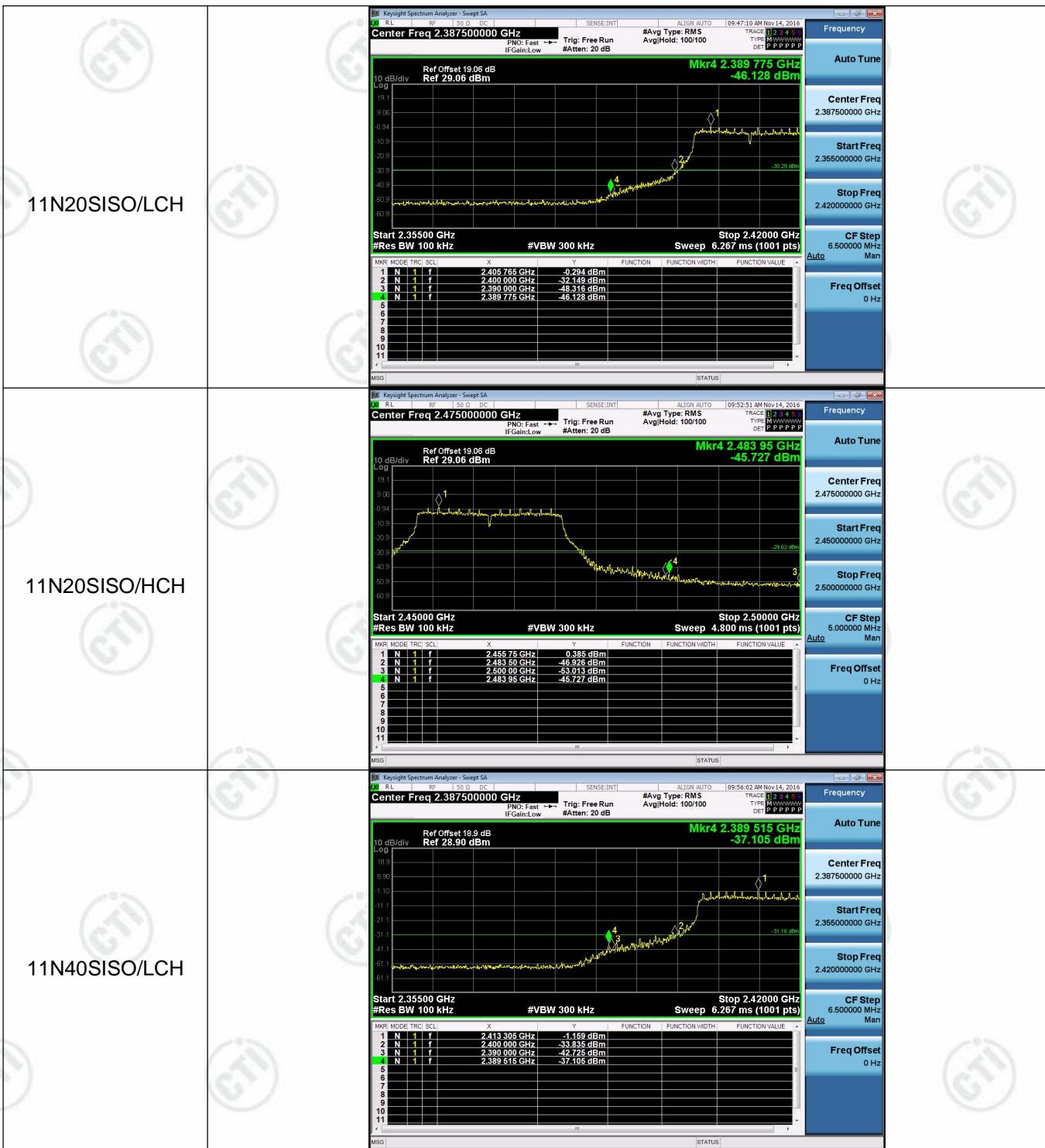
Result Table

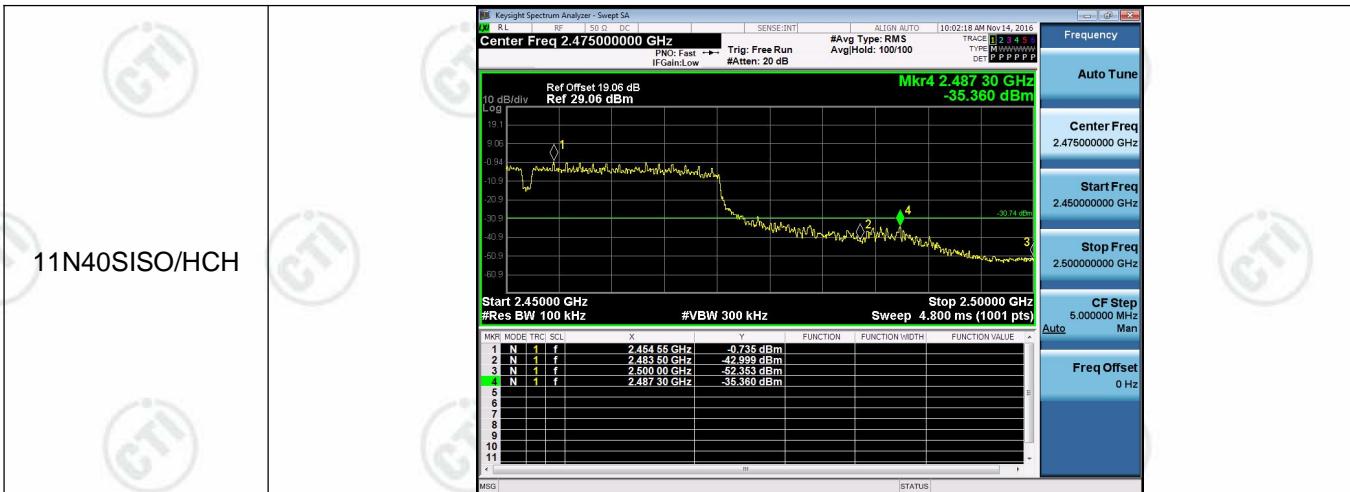
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	6.679	-51.066	-23.32	PASS
11B	HCH	7.269	-50.127	-22.73	PASS
11G	LCH	3.334	-41.215	-26.67	PASS
11G	HCH	3.391	-38.336	-26.61	PASS
11N20SISO	LCH	-0.294	-46.128	-30.29	PASS
11N20SISO	HCH	0.385	-45.727	-29.62	PASS
11N40SISO	LCH	-1.159	-37.105	-31.16	PASS
11N40SISO	HCH	-0.735	-35.360	-30.74	PASS

Test Graph









Appendix D): RF Conducted Spurious Emissions

Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	7.084	<Limit	PASS
11B	MCH	7.523	<Limit	PASS
11B	HCH	6.851	<Limit	PASS
11G	LCH	3.229	<Limit	PASS
11G	MCH	3.468	<Limit	PASS
11G	HCH	3.894	<Limit	PASS
11N20SISO	LCH	-0.079	<Limit	PASS
11N20SISO	MCH	0.206	<Limit	PASS
11N20SISO	HCH	0.794	<Limit	PASS
11N40SISO	LCH	-0.748	<Limit	PASS
11N40SISO	MCH	0.009	<Limit	PASS
11N40SISO	HCH	0.605	<Limit	PASS

Test Graph

