FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

4K IPTV Set Top Box
MODEL NUMBER: A12E

FCC ID: WNA-A12E

REPORT NUMBER: 4787944978.2-3

ISSUE DATE: June 15, 2017

Prepared for

Shenzhen Skyworth Digital Technology Co., Ltd
Unit A14/F. Skyworth Building, Gaoxin Ave.1s., Nanshan District, Shenzhen, China

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Room 101, Building 10, Innovation Technology Park,
Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
Tel: +86 769 33817100
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/15/17	Initial Issue	

Summary of Test Results			
Clause	**Test Items**	**FCC/IC Rules**	**Test Results**
1	6dB Bandwidth and 99% Bandwidth	FCC 15.247 (a) IC RSS-247 Clause 5.1	Complied
2	Peak Conducted Output Power	FCC 15.247 (b) IC RSS-247 Clause 5.4	Complied
3	Power Spectral Density	FCC 15.27 (e) IC RSS-247 Clause 5.1 (2)	Complied
4	Conducted Bandedge and Spurious	FCC 15.207 RSS-Gen Issue 4 clause 7.2	Complied
5	Radiated Bandedge and Spurious	FCC 15.247 (d) FCC 15.209 FCC 15.205 IC RSS-247 Clause 5.5 IC RSS-GEN Clause 8.9	Complied
6	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	Complied
7	Antenna Requirement	FCC 15.203 RSS-GEN Clause 8.3	Complied
Remark: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.			

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Shenzhen Skyworth Digital Technology Co., Ltd
Address:	Unit A14/F. Skyworth Building, Gaoxin Ave.1s., Nanshan District, Shenzhen, China

Manufacturer Information

Company Name:	Shenzhen Skyworth Digital Technology Co., Ltd
Address:	Unit A14/F. Skyworth Building, Gaoxin Ave.1s., Nanshan District, Shenzhen, China

EUT Description

Product Name	4K IPTV Set Top Box
Brand Name	VectorMax
Model Name	A12E
FCC ID	WNA-A12E
Date Tested	May 08, 2017 ~ June 12, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	PASS

Tested By:

Leo Liu
Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo

Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

Test Location	Dongguan Dongdian Testing Service Co., Ltd
Address	No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Dongguan City, Guangdong Province, 523808, China
Accreditation Certificate	Dongguan Dongdian Testing Service 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. Valid time is until January 31, 2018. Dongguan Dongdian Testing Service 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 270092, Renewal date March 11, 2015, valid time is until March 11, 2018. The 3m Alternate Test Site of Dongguan Dongdian Testing Service Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 10288A on April 23, 2015, valid time is until April 23, 2018.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Bandwidth	1.1%
Peak Output Power(Conducted)(Spectrum analyzer)	0.86dB(10 MHz ≤ f < 3.6GHz);
	1.38dB(3.6GHz≤ f < 8GHz)
Peak Output Power(Conducted)(Power Sensor)	0.74dB
Dwell Time	0.6%
Conducted spurious emissions	0.86dB(10 MHz ≤ f < 3.6GHz);
	1.40dB(3.6GHz≤ f < 8GHz)
	1.66dB(8GHz≤ f < 22GHz)
Uncertainty for radio frequency (RBW<20KHz)	3×10-8
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-18GHz)	4.10dB(1-6GHz)
	4.40dB (6GHz-18Gz)
Uncertainty for Power line conduction emission test	3.32dB (150KHz-30MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Equipment	4K IPTV Set Top Box
Model Name	A12E
Radio Technology	IEEE802.11b/g/n
Operation frequency	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz IEEE 802.11n HT40: 2422MHz—2452MHz
Modulation	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20/40: OFDM (64QAM, 16QAM, QPSK,BPSK)
Battery	N/A
Power Adapter	Input: AC 100~240V, 50/60Hz, 0.5A Output: DC 12V, 1A

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Number of Transmit Chains (NTX)	Bluetooth Mode	Frequency (MHz)	Channel Number	Max PK Conducted Power (dBm)
2400-2483.5	1	IEEE 802.11b	2412-2462	1-11[11]	11.27
2400-2483.5	1	IEEE 802.11g	2412-2462	1-11[11]	12.57
2400-2483.5	1	IEEE 802.11n	2412-2462	1-11[11]	11.71
2400-2483.5	1	IEEE 802.11n	2422-2452	3-9[6]	9.95

5.3. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2425	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	N/A	N/A

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel
IEEE 802.11b	LCH :CH1 2412
	MCH: CH6 2437
	HCH: CH11 2462
IEEE 802.11g	LCH :CH1 2412
	MCH: CH6 2437
	HCH: CH11 2462
IEEE 802.11n HT20	LCH :CH1 2412
	MCH: CH6 2437
	HCH: CH11 2462
IEEE 802.11n HT40	LCH :CH3 2422
	MCH: CH6 2437
	HCH: CH9 2452

5.5. THE WORSE CASE CONFIGURATIONS

Test Mode	Channel	Setting data rate (Mbps)
IEEE 802.11b	LCH :CH1 2412	CCK-1 (set_tx_power 44)
	MCH: CH6 2437	CCK-1 (set_tx_power 44)
	HCH: CH11 2462	CCK-1 (set_tx_power 44)
IEEE 802.11g	LCH :CH1 2412	OFDM-6 (set_tx_power 48)
	MCH: CH6 2437	OFDM-6 (set_tx_power 48)
	HCH: CH11 2462	OFDM-6 (set_tx_power 48)
IEEE 802.11n HT20	LCH :CH1 2412	MSC0 (set_tx_power 46)
	MCH: CH6 2437	MSC0 (set_tx_power 46)
	HCH: CH11 2462	MSC0 (set_tx_power 46)
IEEE 802.11n HT40	LCH :CH3 2422	MSC0 (set_tx_power 46)
	MCH: CH6 2437	MSC0 (set_tx_power 46)
	HCH: CH9 2452	MSC0 (set_tx_power 46)

Note:Dutycycle>98%

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
3	2402-2480	PCB Antenna	5

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	☒1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.

IEEE 802.11n HT20	☒1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	☒1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.

5.1. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	LCD Monitor	DELL	S2440Lb	N/A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB out 1	USB	Unshielded	0.50	N/A

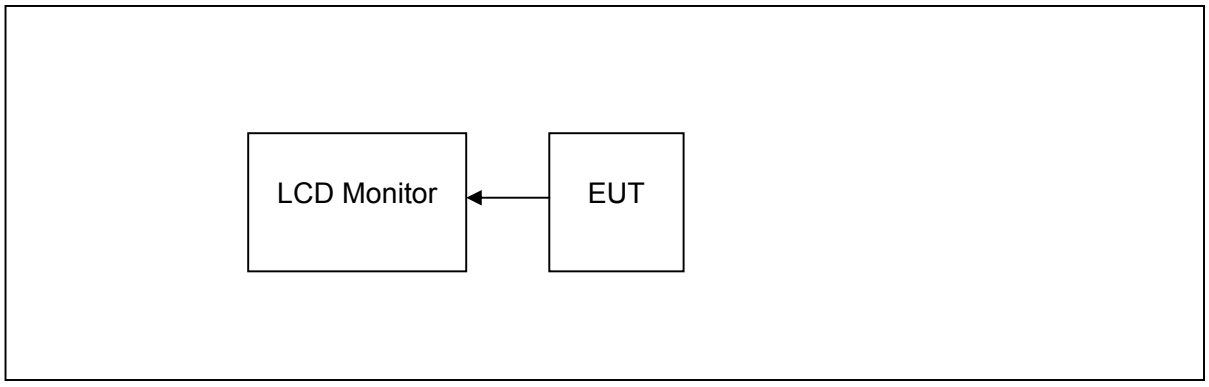
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	Power Adapter	GIANTSUN	GSCU1000S012V15G	Input: AC 100~240V, 50/60Hz, 0.5A Output: DC 12V, 1A

TEST SETUP

The EUT can work in an engineer mode with a software.

SETUP DIAGRAM FOR TESTS



5.2. MEASURING INSTRUMENT AND SOFTWARE USED

Instrument (Conducted for RF Port)						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
☑	Spectrum analyzer	R&S	FSU26	1166.1660.26	Oct. 16, 2016	Oct. 16, 2017
☑	Wideband Radio Communication tester	R&S	CMW500	155523	Dec. 20, 2016	Dec. 20, 2017
☑	Vector Signal Generator	Agilent	E8267D	MY52098743	Oct. 20, 2016	Oct. 20, 2017
☑	Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 05, 2016	Jul. 05, 2017
☑	Power Sensor	Agilent	U2021XA	MY55150010	Apr. 18, 2017	Apr. 18, 2018
☑	Power Sensor	Agilent	U2021XA	MY55150011	Apr. 19, 2017	Apr. 19, 2018
☑	DC Power Source	MATRIS	MPS-3005L-3	D813058W	Oct. 24, 2016	Oct. 24, 2017
☑	Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2016	Aug. 18, 2017
☑	RF Cable	Micable	C10-01-01-1	100309	Aug. 18, 2016	Aug. 18, 2017
☑	Test Software	JS Tonscend	JS1120-2	Ver.2.5	N/A	N/A
☑	USB Data acquisition	Agilent	U2531A	TW55043503	N/A	N/A
☑	Auto control Unit	JS Tonscend	JS0806-2	158060010	N/A	N/A
Instrument (Radiated Tests)						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Expired date
☑	EMI Test Receiver	R&S	ESU8	100316	Oct. 16, 2016	Oct. 16, 2017
☑	PSA Series Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 06, 2016	Jul. 06, 2017
☑	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Oct. 27, 2016	Oct. 27, 2017
☑	Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 27, 2016	Oct. 27, 2017
☑	Double Ridged Horn Antenna	R&S	HF907	100276	Oct. 12, 2016	Oct. 12, 2017
☑	Horn Antenna	ETS-LINDGREN	3160-09	SEL0076	Oct. 16, 2016	Oct. 16, 2017
☑	Pre-amplifier	A.H.	PAM-0118	360	Oct. 16, 2016	Oct. 16, 2017
☑	Pre-amplifier	Compliance Directions	PAP-1G26-48	6279.628	Oct. 16, 2016	Oct. 16, 2017

		Systems Inc.				
☑	RF Cable	HUBSER	CP-X2	W11.03	Oct. 16, 2016	Oct. 16, 2017
☑	RF Cable	HUBSER	CP-X1	W12.02	Oct. 16, 2016	Oct. 16, 2017
☑	MI Cable	HUBSER	C10-01-01-1M	1091629	Oct. 16, 2016	Oct. 16, 2017
☑	Test software	Audix	E3	V 6.11111b	N/A	N/A
Instrument (Line Conducted Emission (AC Main))						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Expired date
☑	Test Receiver	R&S	ESU8	100316	Oct.16, 2016	Oct.16, 2017
☑	LISN 1	R&S	ENV216	101109	Oct.16, 2016	Oct.16, 2017
☑	LISN 2	R&S	ESH2-Z5	100309	Oct.16, 2016	Oct.16, 2017
☑	Pulse Limiter	R&S	ESH3-Z2	101242	Oct.16, 2016	Oct.16, 2017
☑	CE Cable 1	HUBSER	ESU8/RF2	W10.01	Oct.16, 2016	Oct.16, 2017
☑	Test software	Audix	E3	V 6.11111b	N/A	N/A

6. MEASUREMENT METHODS

No.	Test Items	FCC/IC Rules	Test Results
1	6 dB Bandwidth	FCC 15.247 (a) (2) IC RSS-247 Clause 5.1 (1)	Complied
2	Peak Output Power	FCC 15.247 (b) (3) IC RSS-247 Clause 5.4 (4)	Complied
3	Power Spectral Density	FCC 15.247 (3) IC RSS-247 Clause 5.2 (2)	Complied
4	Out-of-band emissions in non-restricted bands	FCC 15.247 (d) IC RSS-247 Clause 5.5	Complied
5	Out-of-band emissions in restricted bands	FCC 15.247 (d) FCC 15.209 FCC 15.205 IC RSS-247 Clause 5.5 IC RSS-GEN Clause 8.9	Complied
6	Band-edge	FCC 15.207 RSS-GEN Clause 8.8	Complied
7	Conducted Emission Test For AC Power Port	FCC 15.203 RSS-GEN Clause 8.3	Complied

7. ANTENNA PORT TEST RESULTS

7.1. 6 dB DTS BANDWIDTH AND 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 1			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2) IC RSS-247 5.1 (1)	6 dB Bandwidth	>= 500KHz	2400-2483.5
RSS-Gen Clause 4.4.1	99% Bandwidth	for reporting purposes only.	2400-2483.5

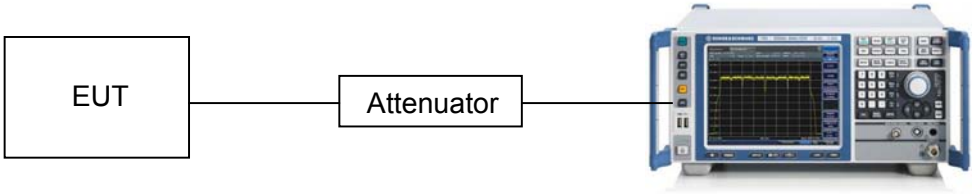
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



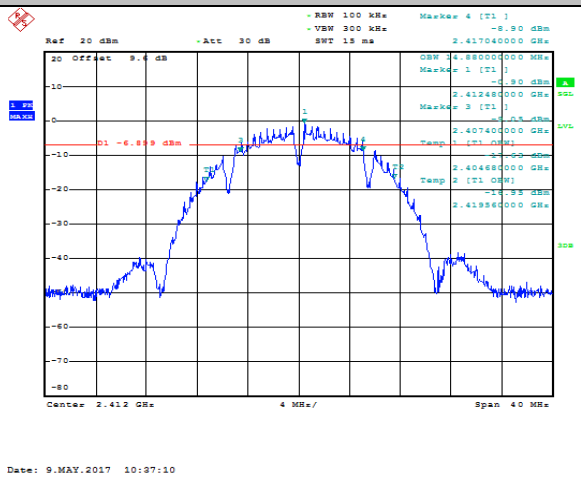
TEST CONDITIONS

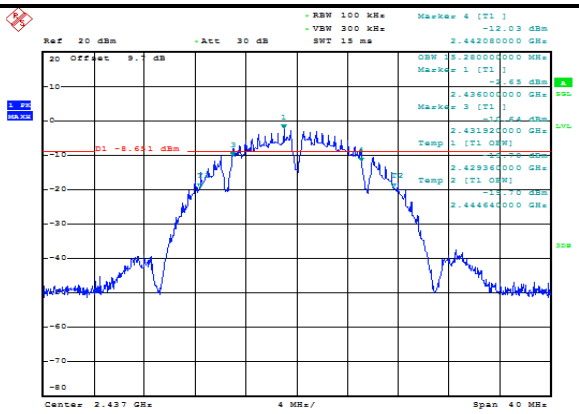
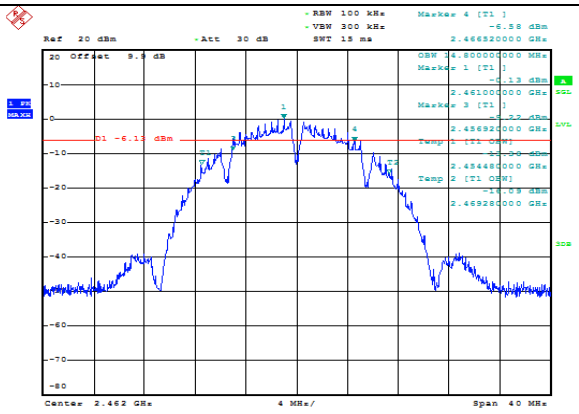
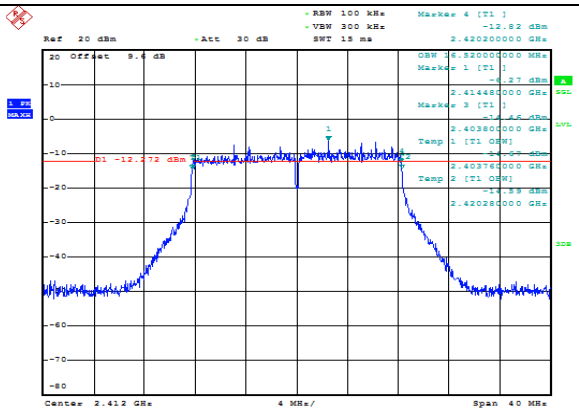
Temperature: 24.8° C
Relative Humidity: 58%
Test Voltage: AC 120V/60HZ

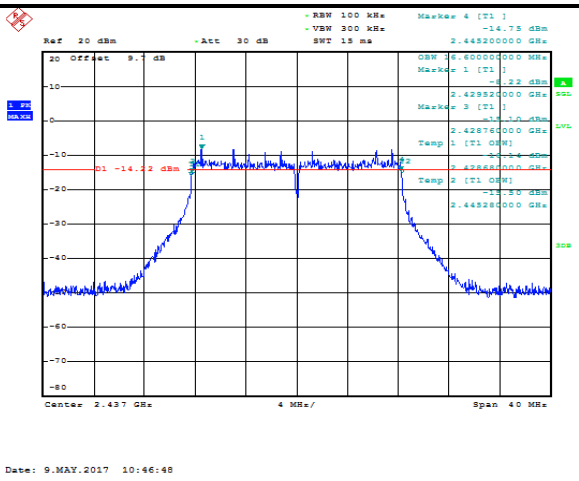
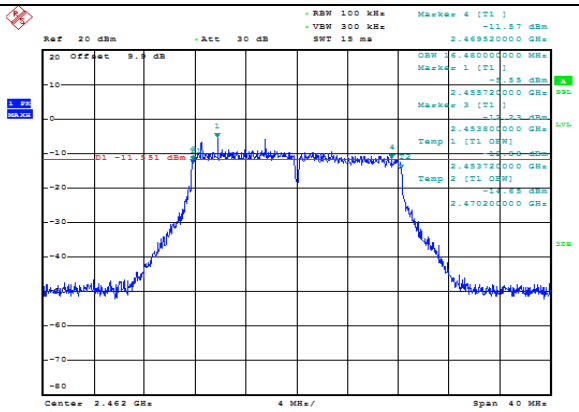
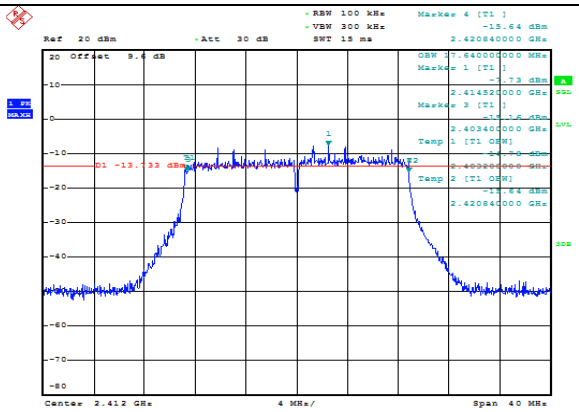
RESULTS

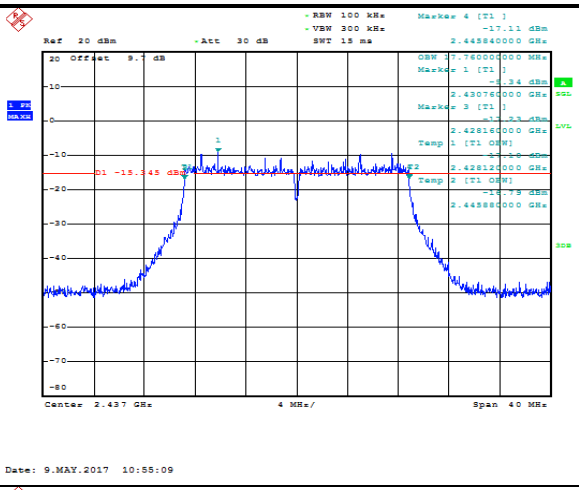
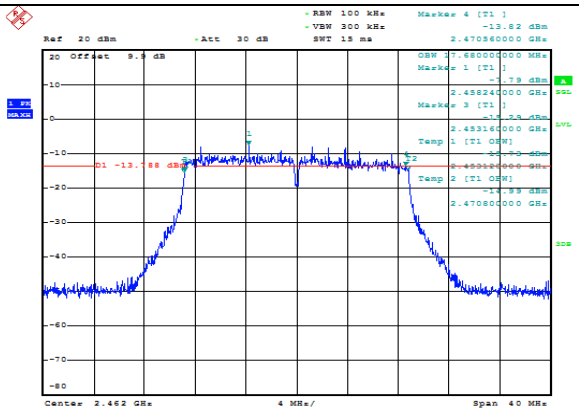
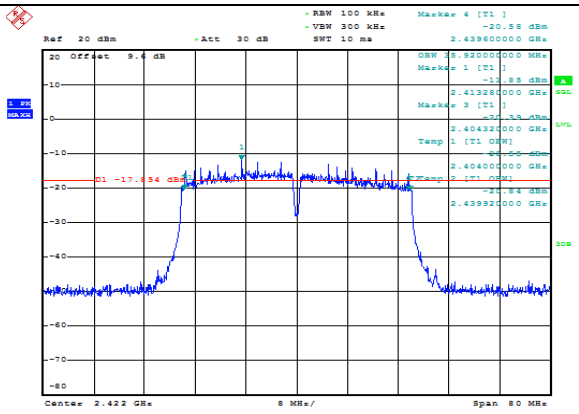
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	9.640	14.880	PASS
11B	MCH	10.160	15.280	PASS
11B	HCH	9.600	14.800	PASS
11G	LCH	16.400	16.520	PASS
11G	MCH	16.440	16.600	PASS
11G	HCH	15.720	16.480	PASS
11N20SISO	LCH	17.440	17.640	PASS
11N20SISO	MCH	17.680	17.760	PASS
11N20SISO	HCH	17.400	17.680	PASS
11N40SISO	LCH	35.280	35.920	PASS
11N40SISO	MCH	36.480	36.240	PASS
11N40SISO	HCH	31.520	35.920	PASS

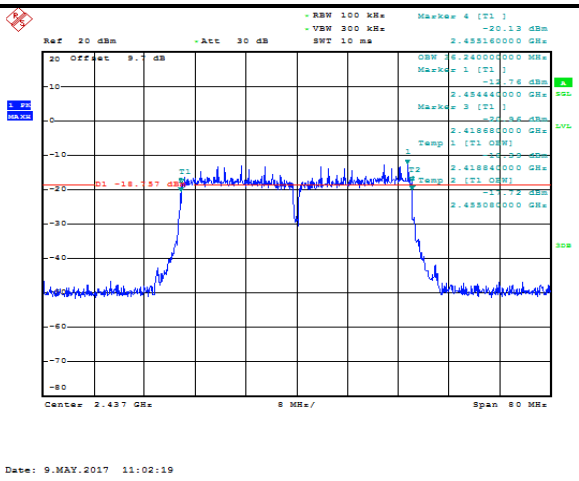
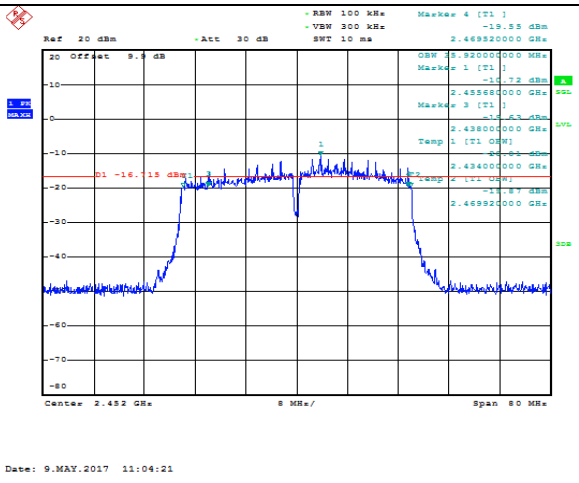
Test Graphs

Graphs	
11B/LCH	

11B/MCH	
11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	
11N20SISO/LCH	

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

11N40SISO/MCH	
11N40SISO/HCH	

7.2. PEAK CONDUCTED OUTPUT POWER

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 1			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) IC RSS-247 5.4 (4)	Peak Output Power	1 watt or 30dBm	2400-2483.5

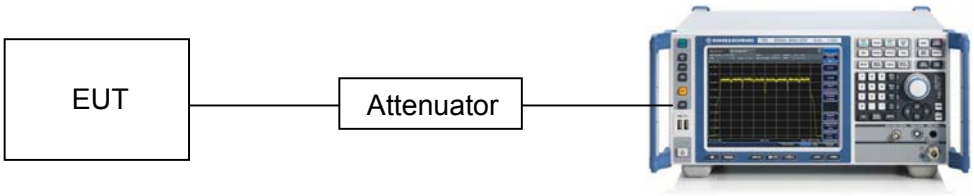
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	≥DTS bandwidth(e.g. 1 MHz for BLE)
VBW	≥3 × RBW
Span	3 x RBW
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use peak marker function to determine the peak amplitude level.

TEST SETUP



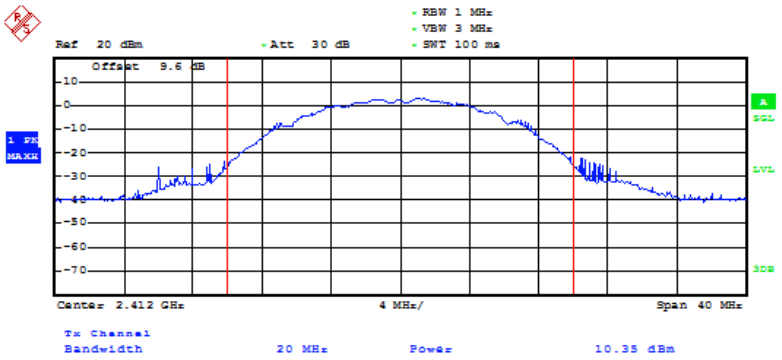
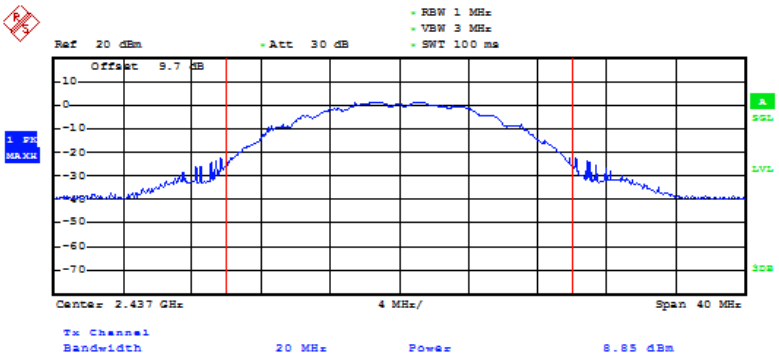
TEST CONDITIONS

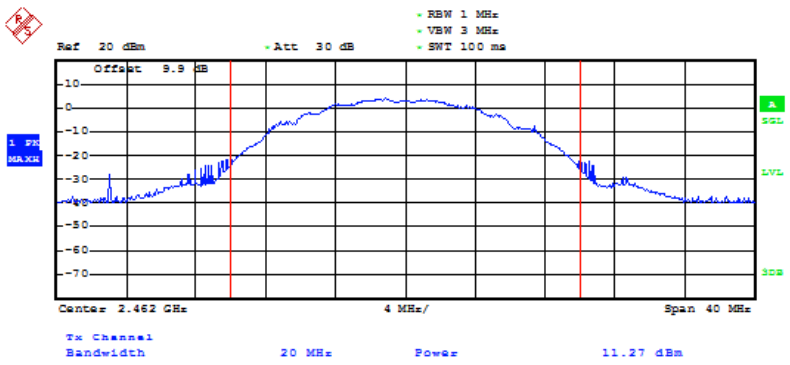
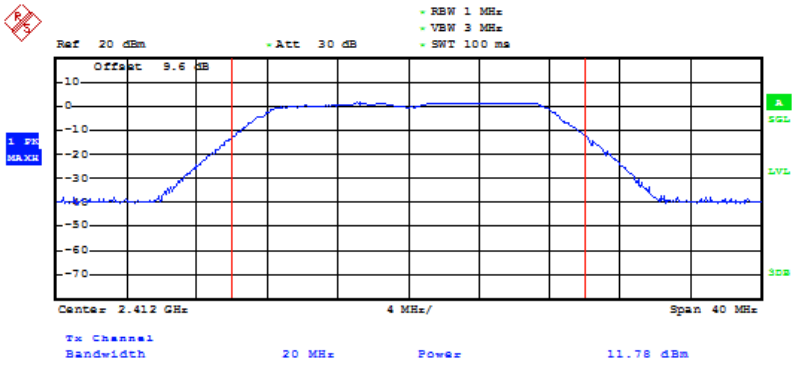
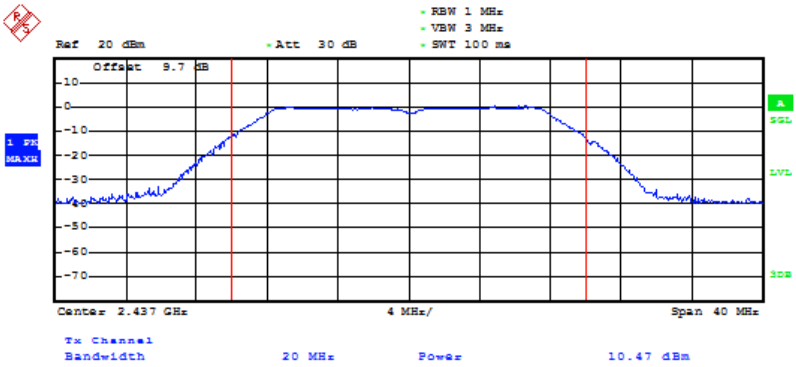
Temperature: 24.8° C
Relative Humidity: 58%
Test Voltage: AC 120V/60HZ

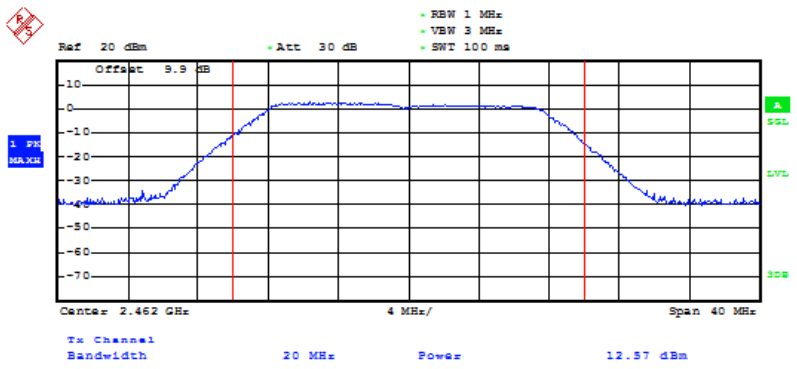
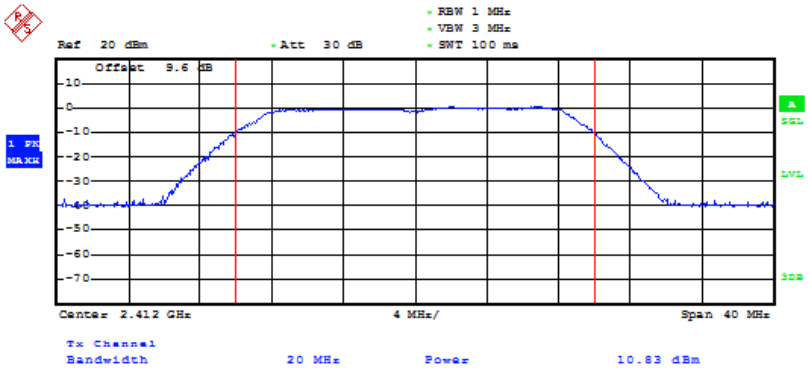
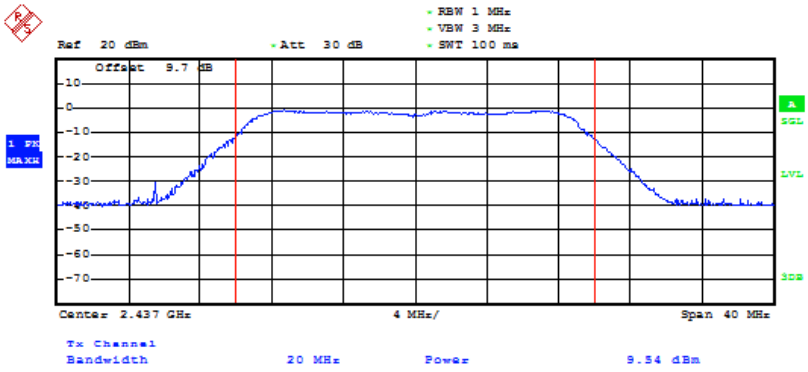
RESULTS

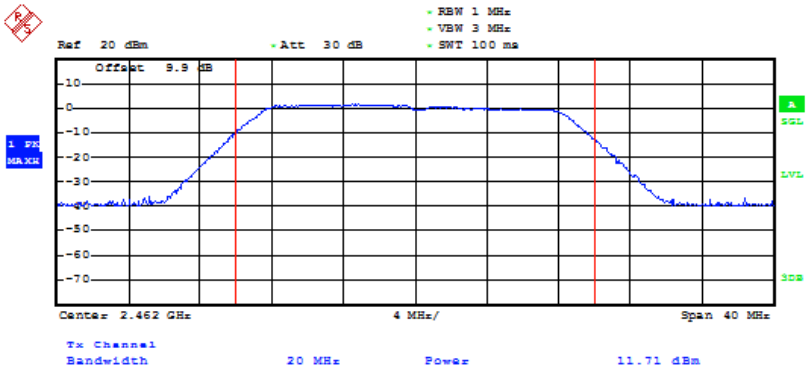
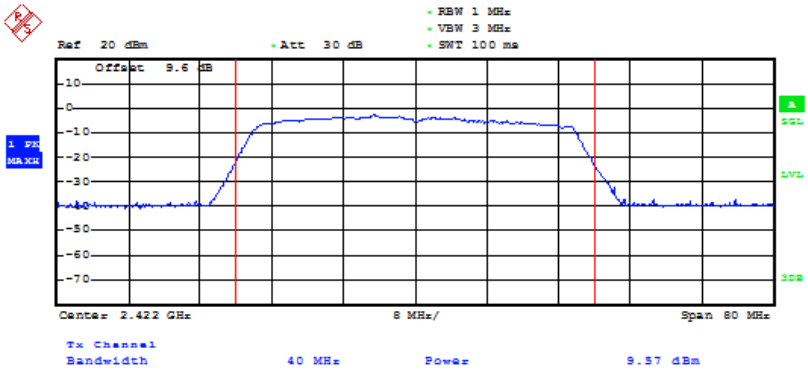
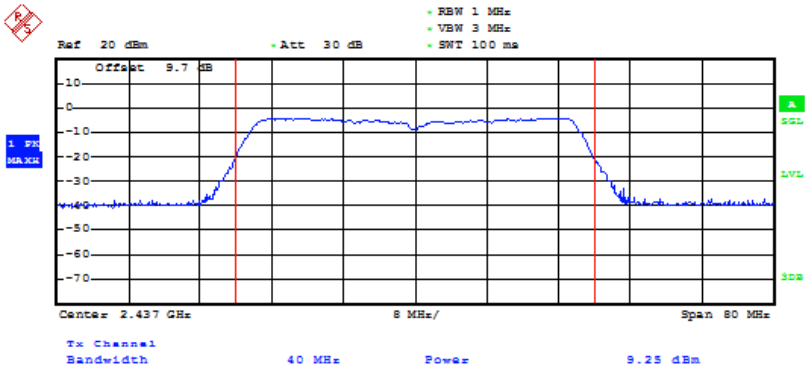
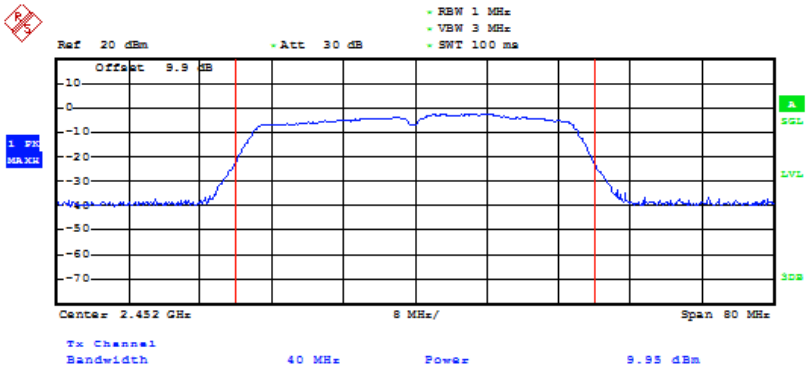
Mode	Channel	Peak.Power [dBm]	Verdict
11B	LCH	10.35	PASS
11B	MCH	8.85	PASS
11B	HCH	11.27	PASS
11G	LCH	11.78	PASS
11G	MCH	10.47	PASS
11G	HCH	12.57	PASS
11N20SISO	LCH	10.83	PASS
11N20SISO	MCH	9.54	PASS
11N20SISO	HCH	11.71	PASS
11N40SISO	LCH	9.57	PASS
11N40SISO	MCH	9.25	PASS
11N40SISO	HCH	9.95	PASS

Test Graphs

Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	
11G/MCH	

11G/HCH	
11N20SISO/LCH	
11N20SISO/MCH	

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

7.3. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 1			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e) IC RSS-247 5.2 (2)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

TEST PROCEDURE

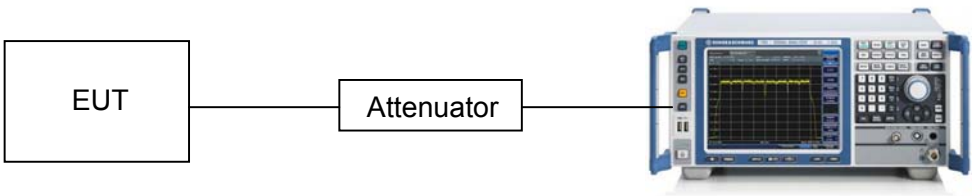
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW 100 ≤ kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



TEST CONDITIONS

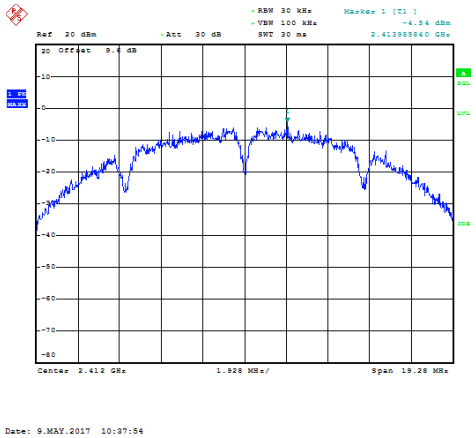
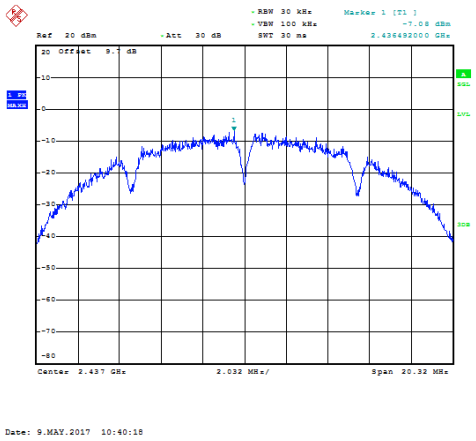
Temperature: 24.8° C

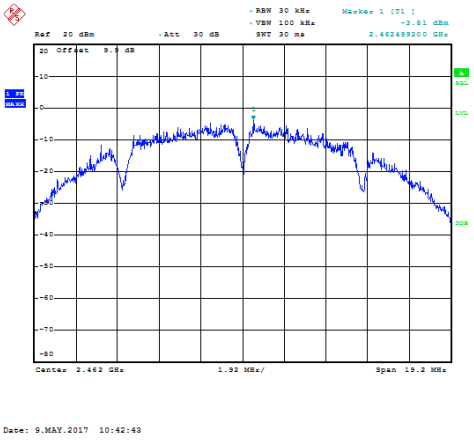
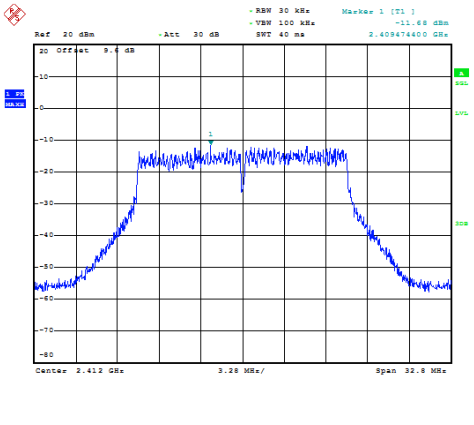
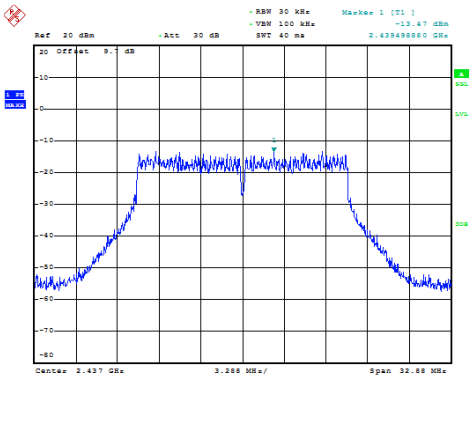
Relative Humidity: 58%
Test Voltage: AC 120V/60HZ

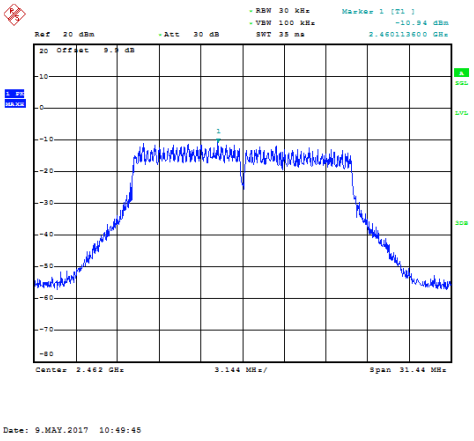
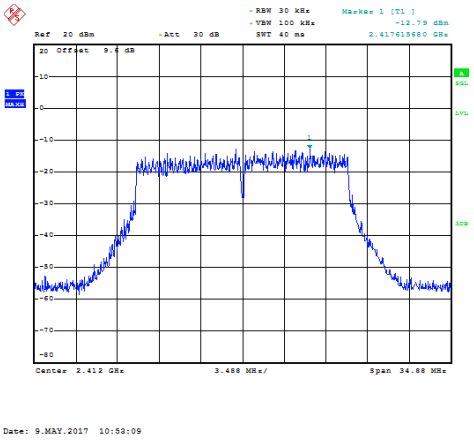
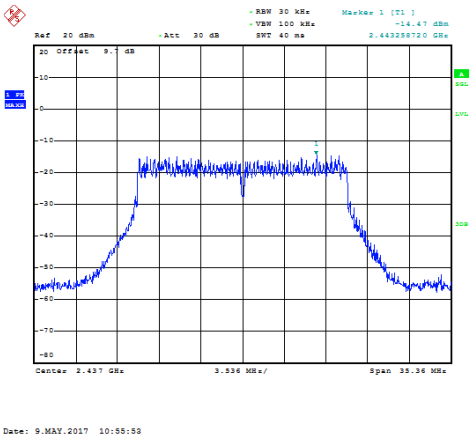
RESULTS

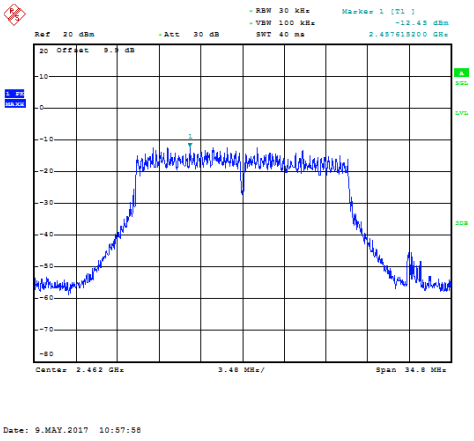
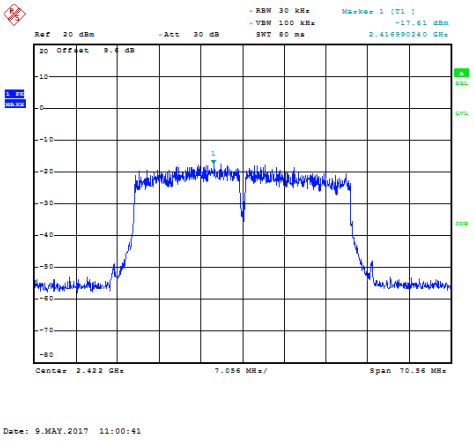
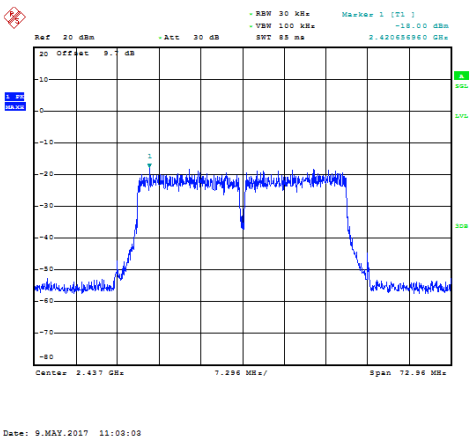
Mode	Channel	Meas.Level [dBm]	Verdict
11B	LCH	-4.54	PASS
11B	MCH	-7.08	PASS
11B	HCH	-3.18	PASS
11G	LCH	-11.68	PASS
11G	MCH	-13.47	PASS
11G	HCH	-10.94	PASS
11N20SISO	LCH	-12.79	PASS
11N20SISO	MCH	-14.47	PASS
11N20SISO	HCH	-12.45	PASS
11N40SISO	LCH	-17.61	PASS
11N40SISO	MCH	-18.00	PASS
11N40SISO	HCH	-16.07	PASS

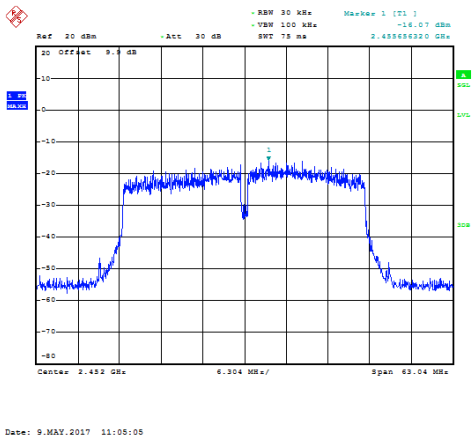
Test Graphs

Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	
11G/MCH	

11G/HCH	
11N20SISO/LCH	
11N20SISO/MCH	

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

11N40SISO/HCH	

7.4. CONDUCTED BANDEDGE

LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 1		
Section	Test Item	Limit
FCC §15.247 (d) IC RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

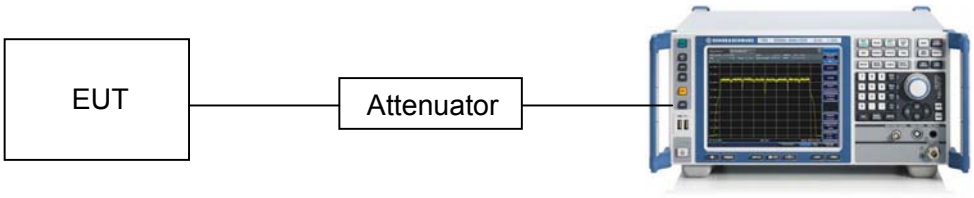
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	≥3 × RBW
measurement points	≥span/RBW
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level**.**

TEST SETUP

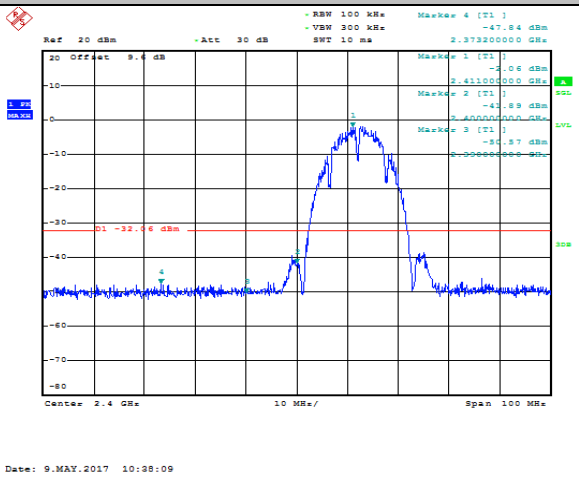
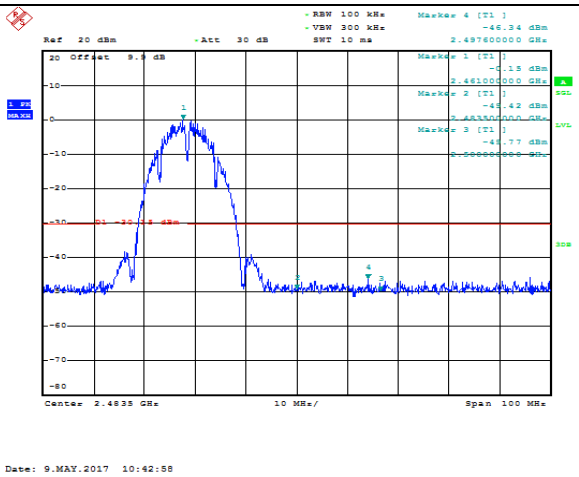


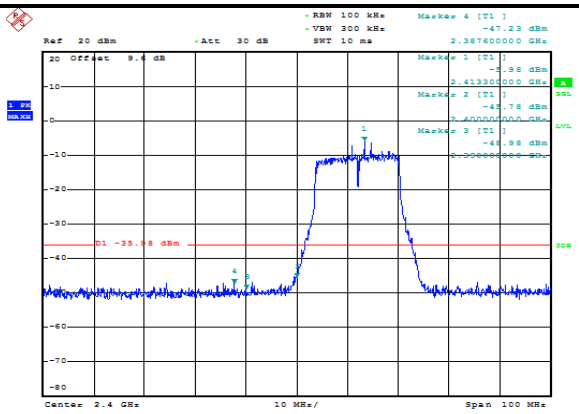
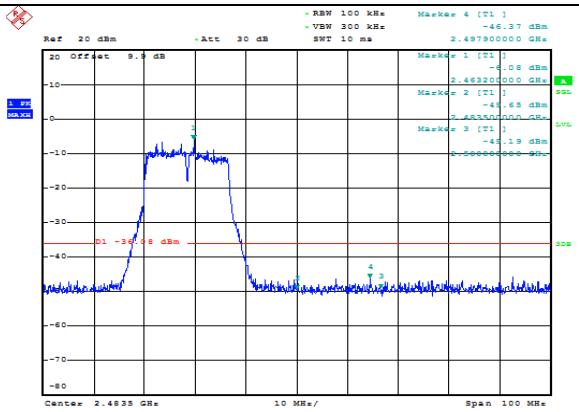
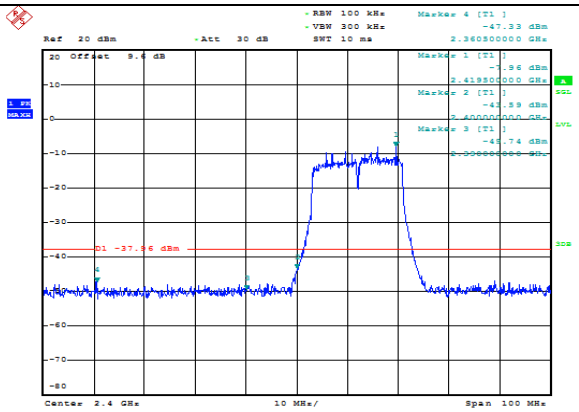
TEST CONDITIONS

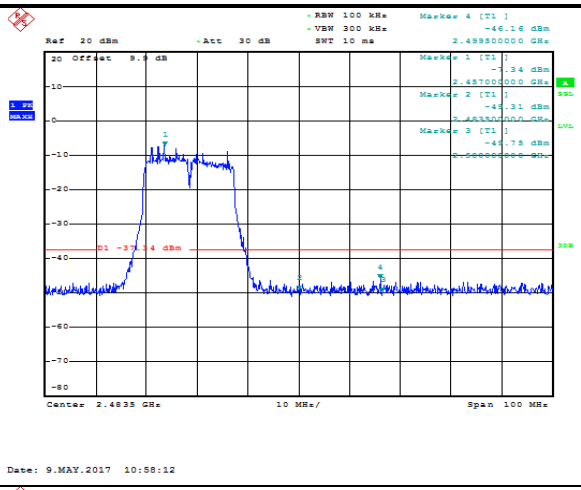
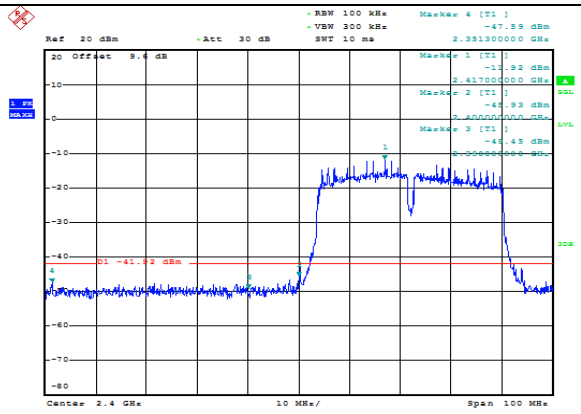
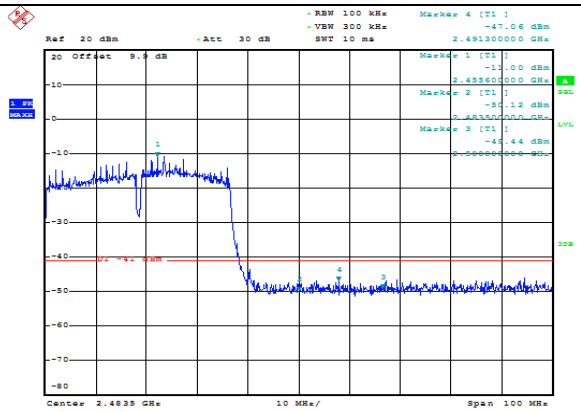
Temperature: 24.8° C
Relative Humidity: 58%
Test Voltage: AC 120V/60HZ

RESULTS

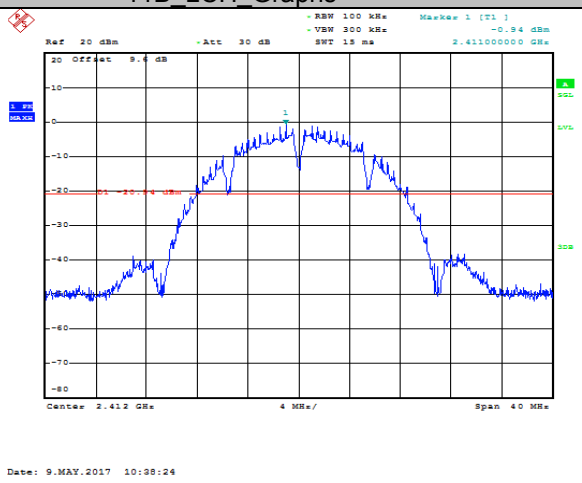
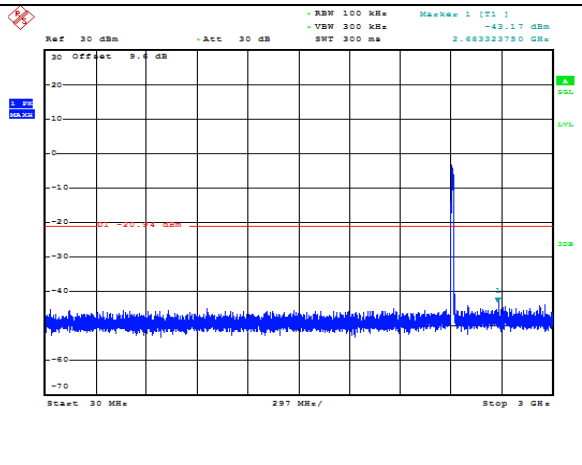
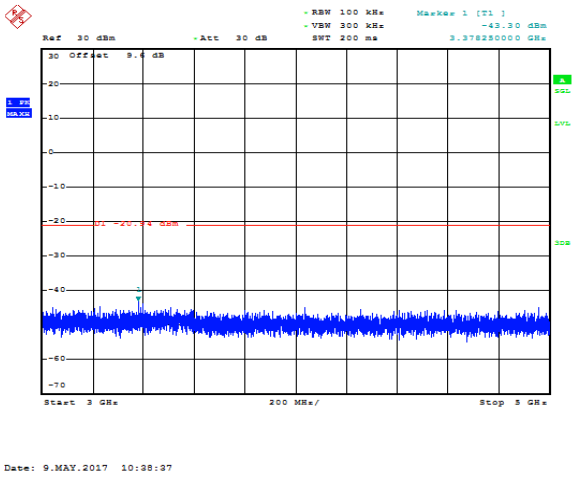
Band-edge:

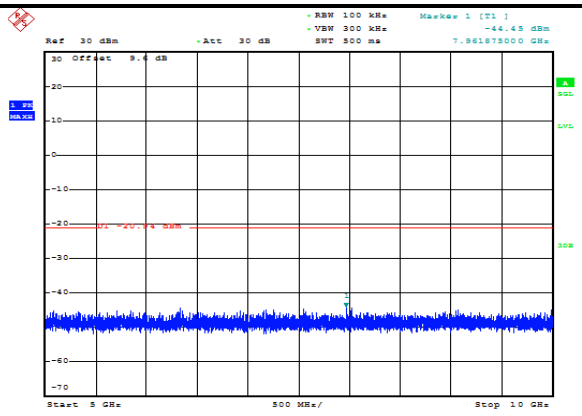
Graphs	
11B/LCH	
11B/HCH	

11G/LCH	
11G/HCH	
11N20SISO/LCH	

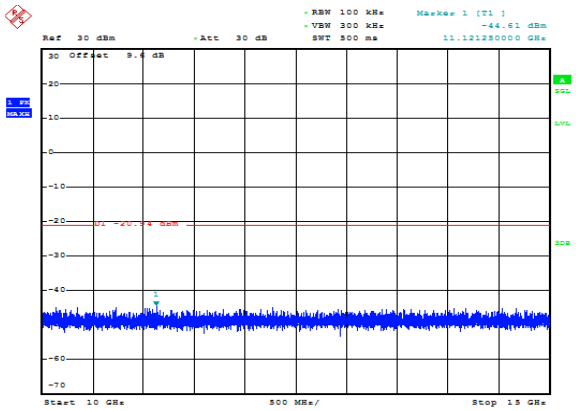
11N20SISO/HCH	 Date: 9.MAY.2017 10:58:12
11N40SISO/LCH	 Date: 9.MAY.2017 11:00:55
11N40SISO/HCH	 Date: 9.MAY.2017 11:05:19

Spurious Emissions:

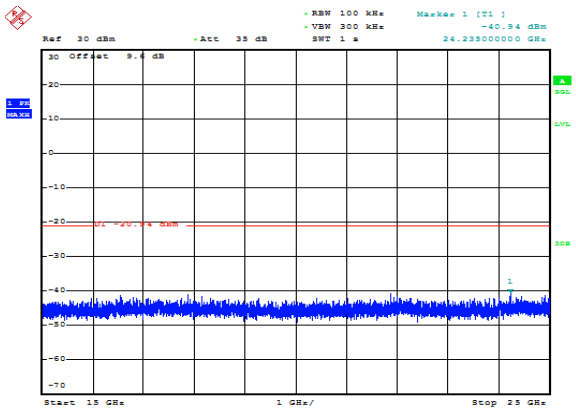
11B_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	 



Date: 9.MAY.2017 10:38:45

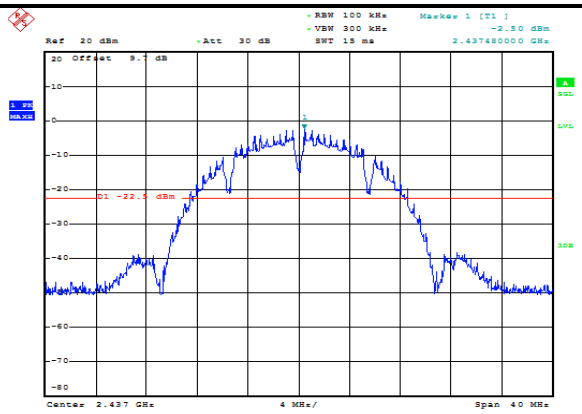
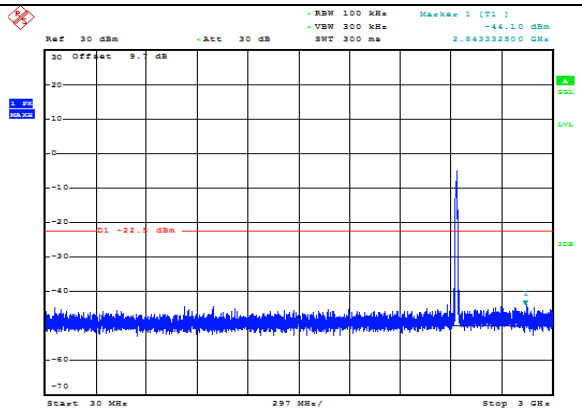
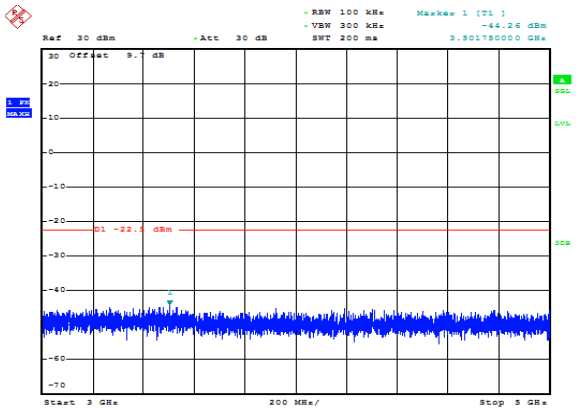


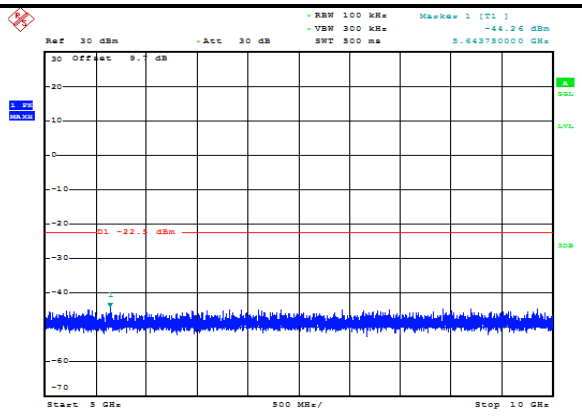
Date: 9.MAY.2017 10:38:53



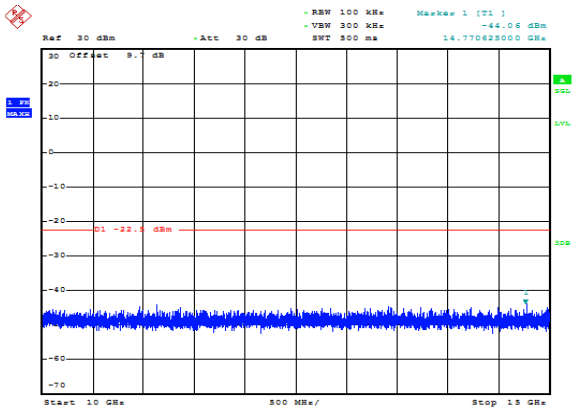
Date: 9.MAY.2017 10:39:01

11B_MCH_Graphs

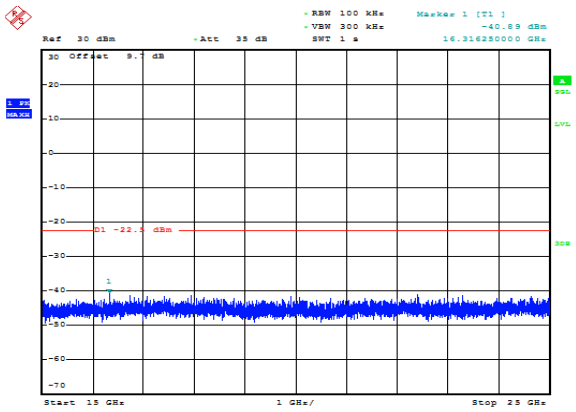
Pref/11B/MCH	
Puw/11B/MCH	 



Date: 9.MAY.2017 10:40:53

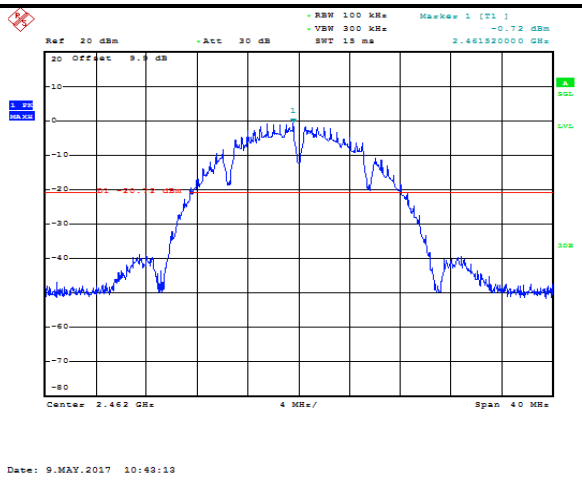
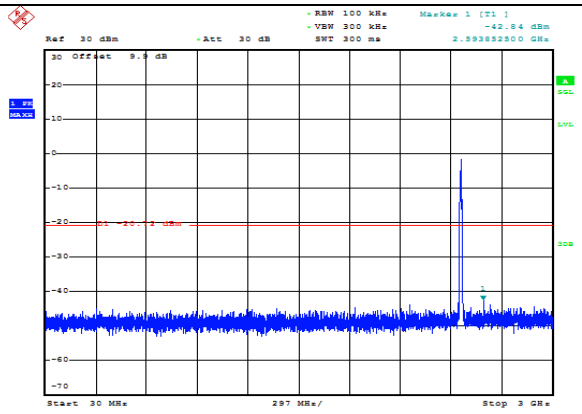
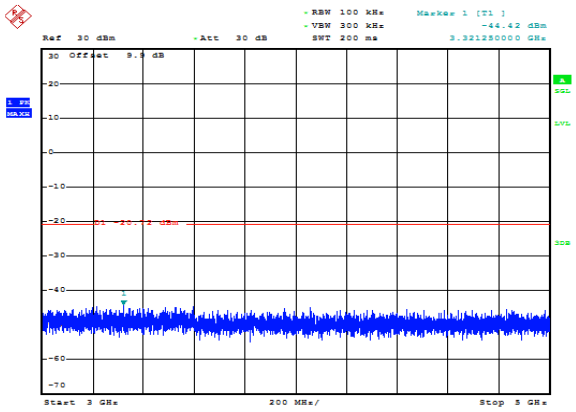


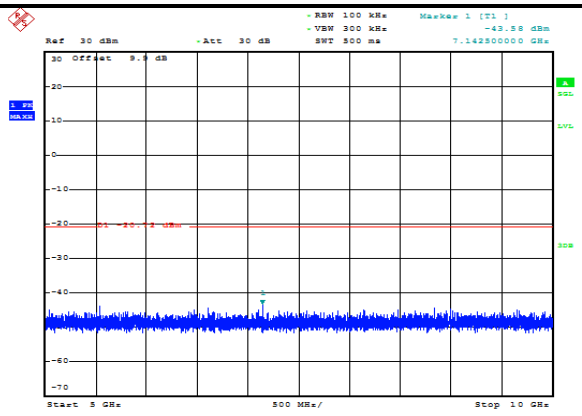
Date: 9.MAY.2017 10:41:01



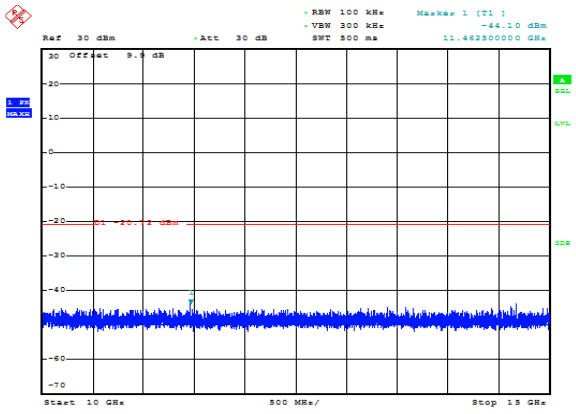
Date: 9.MAY.2017 10:41:10

11B_HCH_Graphs

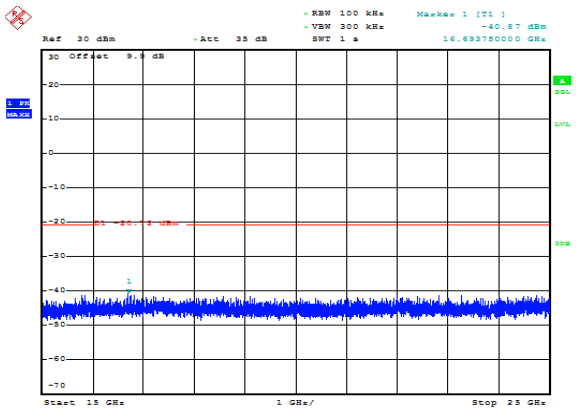
Pref/11B/HCH	
Puw/11B/HCH	 



Date: 9.MAY.2017 10:43:34

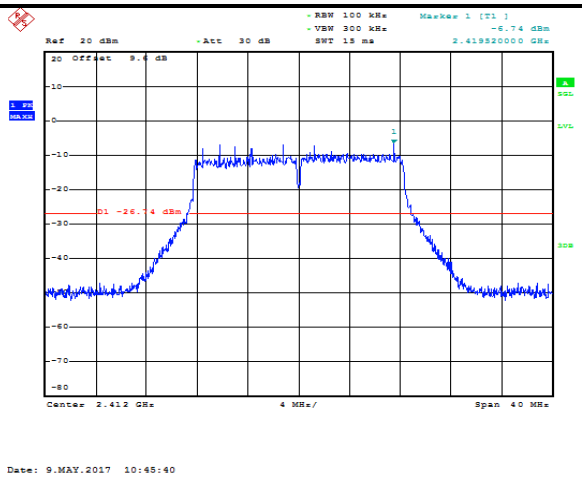
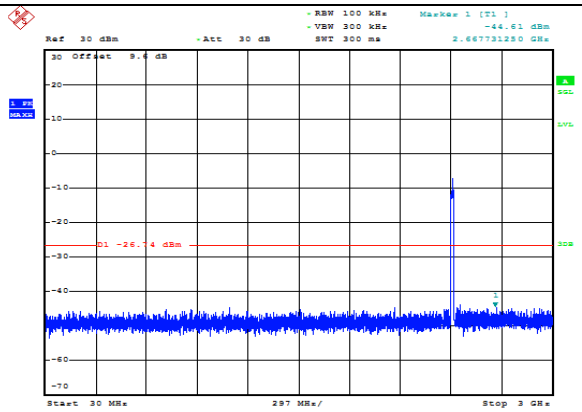
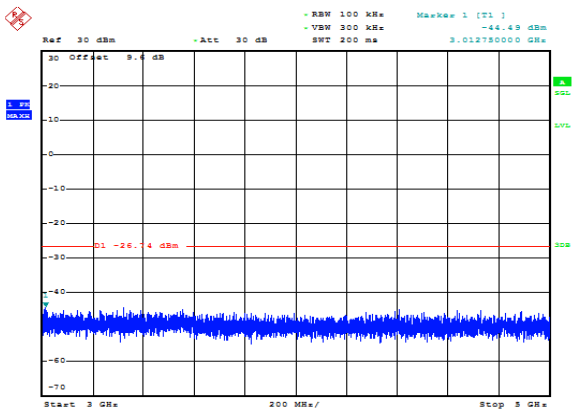


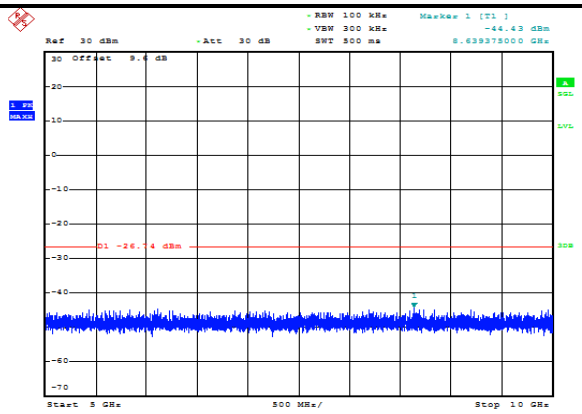
Date: 9.MAY.2017 10:43:42



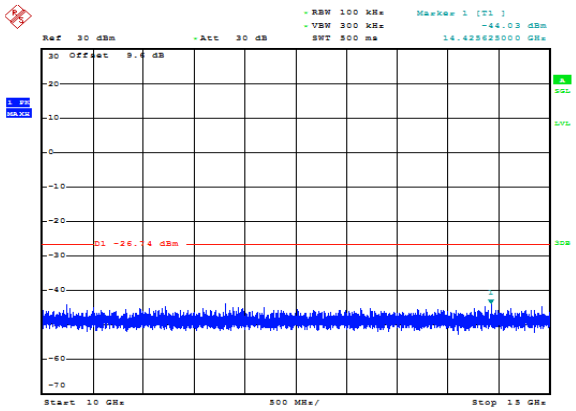
Date: 9.MAY.2017 10:43:50

11G_LCH_Graphs

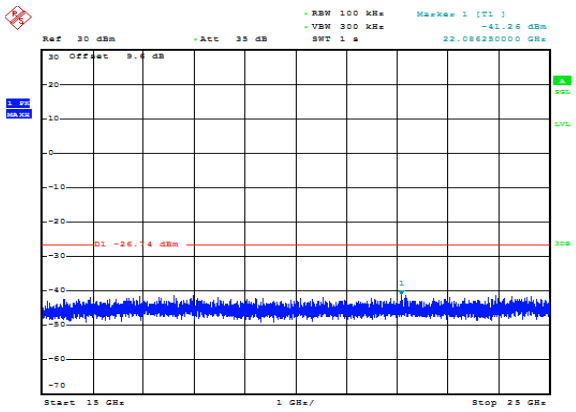
Pref/11G/LCH	
Puw/11G/LCH	 



Date: 9.MAY.2017 10:46:01

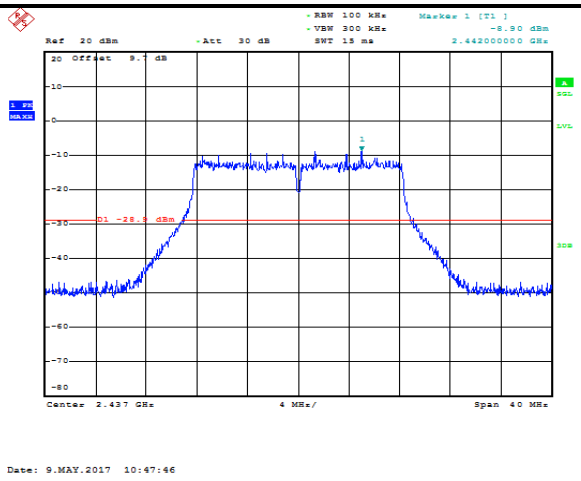
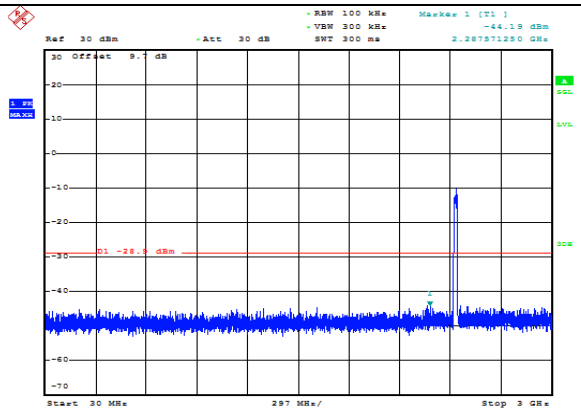
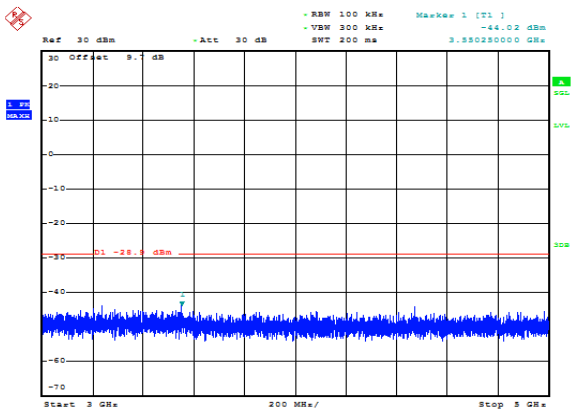


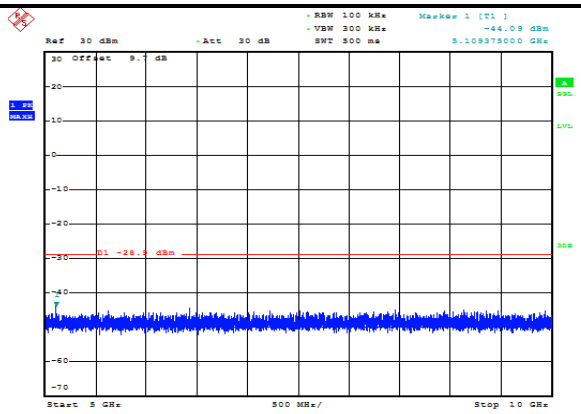
Date: 9.MAY.2017 10:46:09



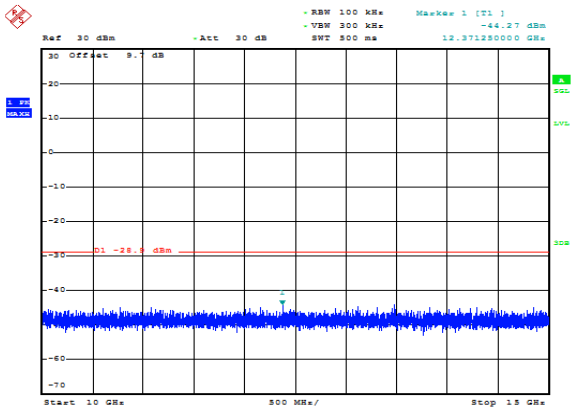
Date: 9.MAY.2017 10:46:17

11G_MCH_Graphs

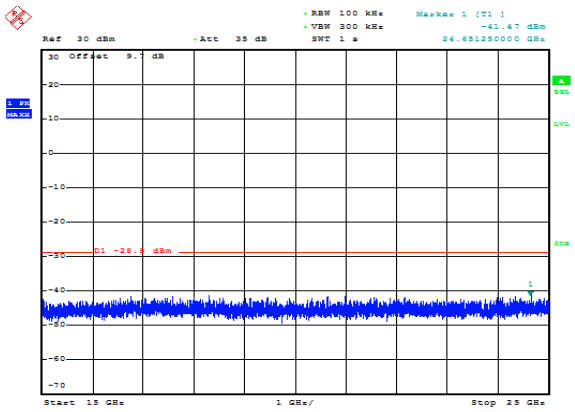
Pref/11G/MCH	 Date: 9.MAY.2017 10:47:46
Puw/11G/MCH	 Date: 9.MAY.2017 10:47:53  Date: 9.MAY.2017 10:47:59



Date: 9.MAY.2017 10:48:07

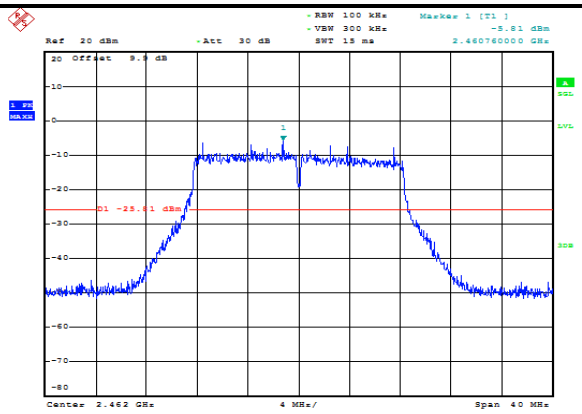
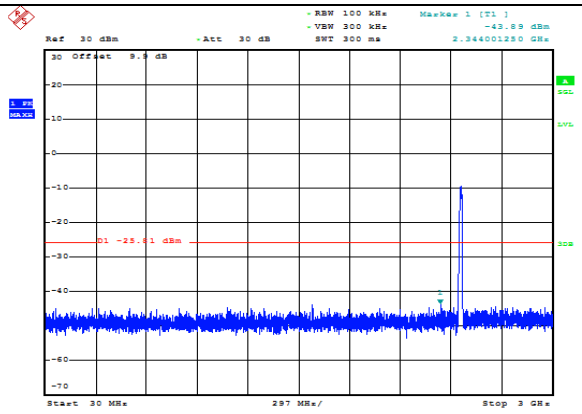
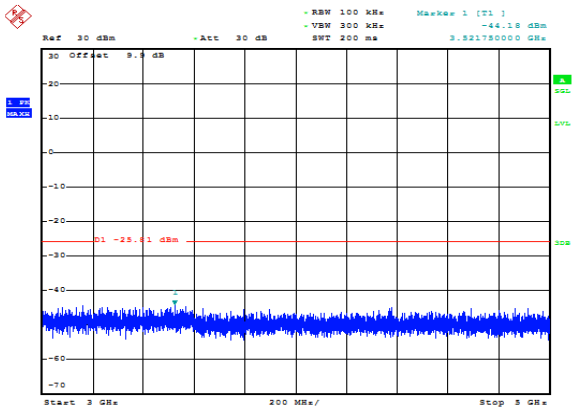


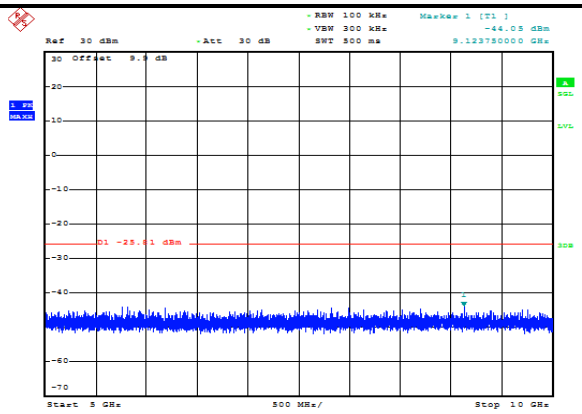
Date: 9.MAY.2017 10:48:15



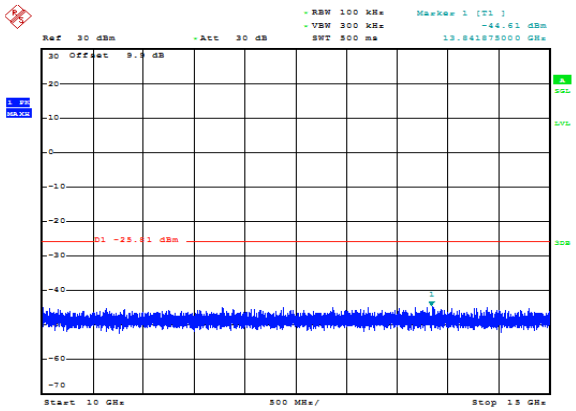
Date: 9.MAY.2017 10:48:23

11G_HCH_Graphs

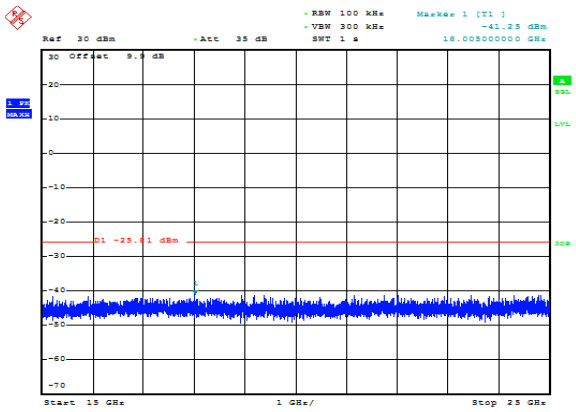
Pref/11G/HCH	
Puw/11G/HCH	 



Date: 9.MAY.2017 10:50:35

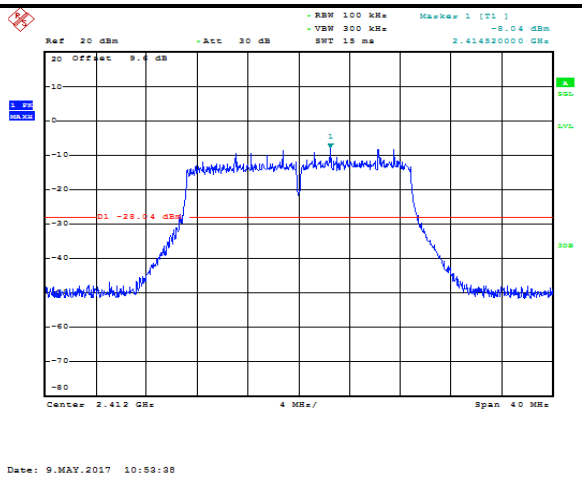
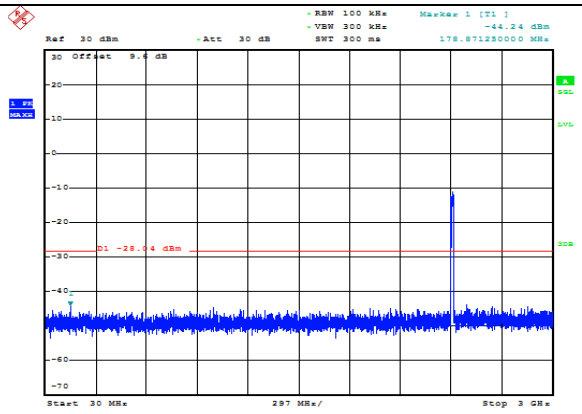
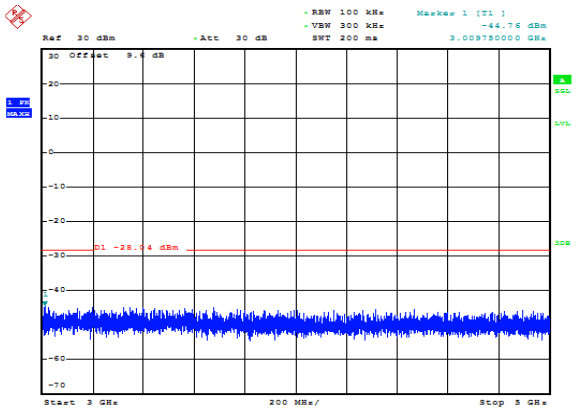


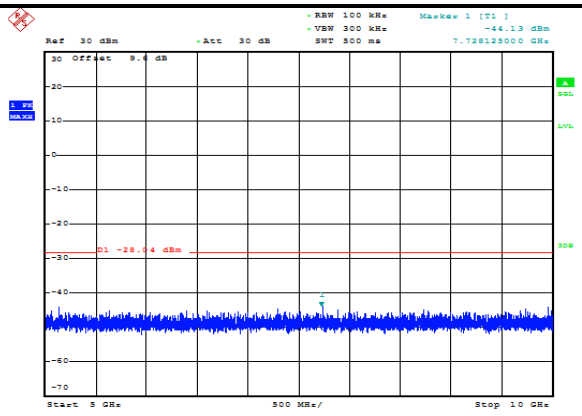
Date: 9.MAY.2017 10:50:44



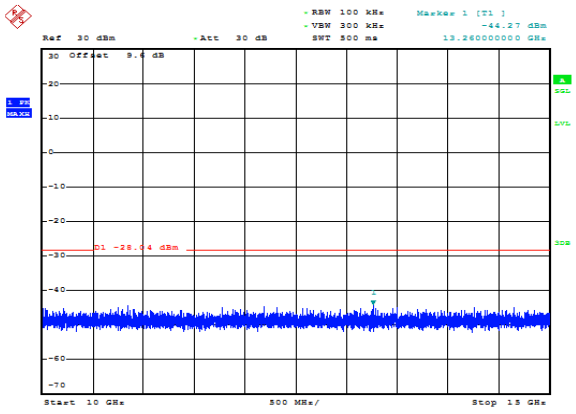
Date: 9.MAY.2017 10:50:52

11N20SISO_LCH_Graphs

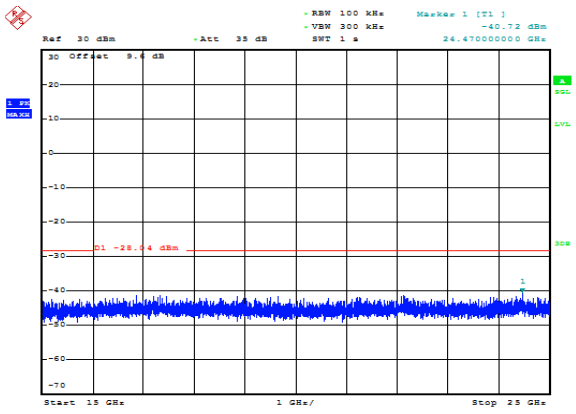
Pref/11N20SISO/LCH	
/11N20SISO/LCH	 



Date: 9.MAY.2017 10:54:00

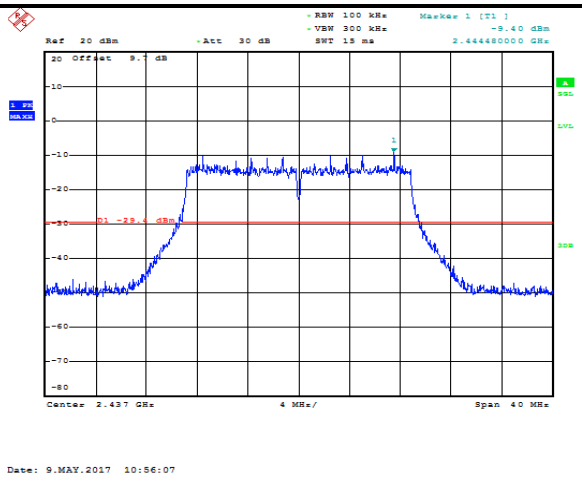
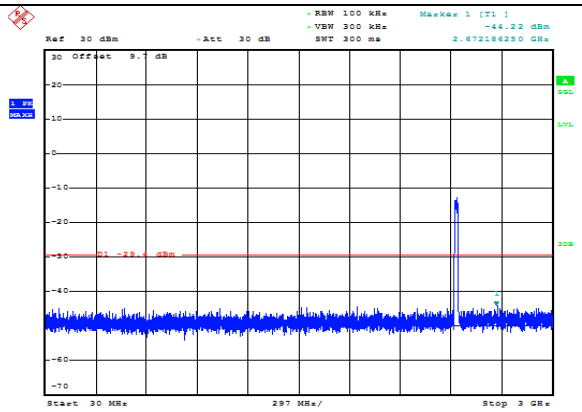
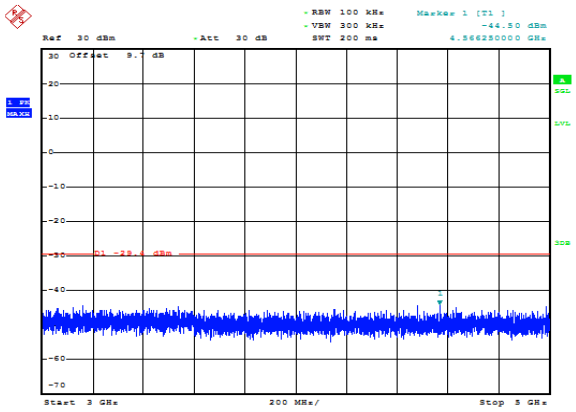


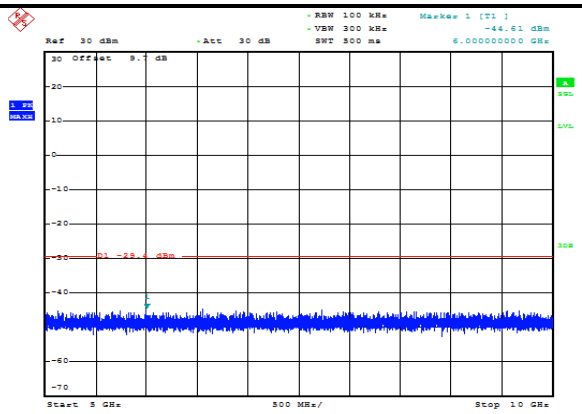
Date: 9.MAY.2017 10:54:08



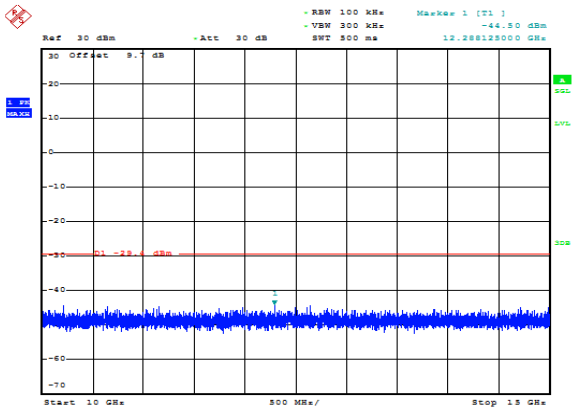
Date: 9.MAY.2017 10:54:16

11N20SISO_MCH_Graphs

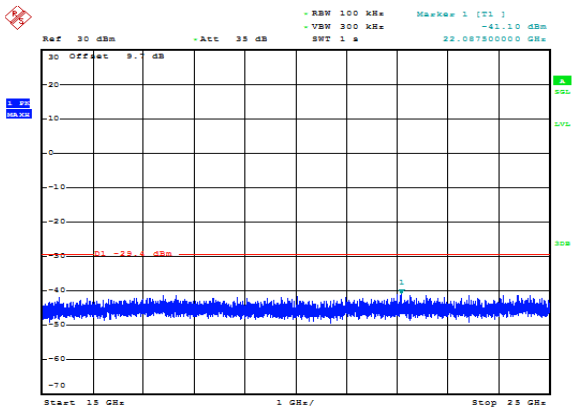
Pref/11N20SISO/MCH	
Puw/11N20SISO/MCH	 



Date: 9.MAY.2017 10:56:28

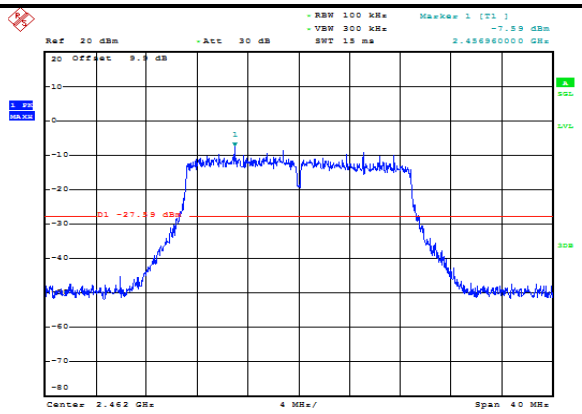
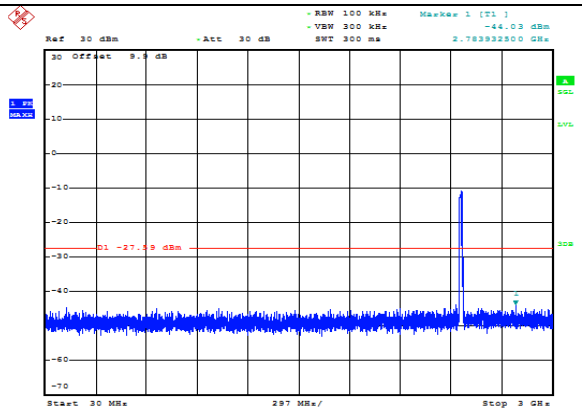
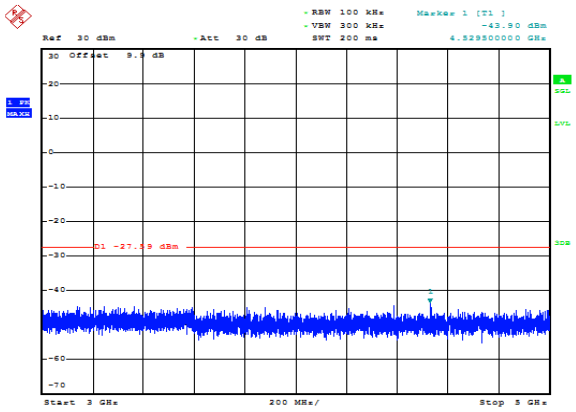


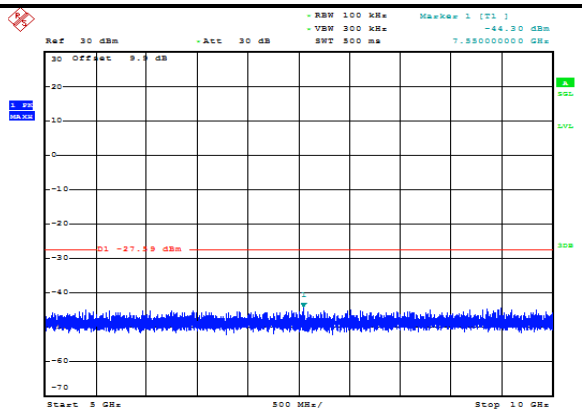
Date: 9.MAY.2017 10:56:36



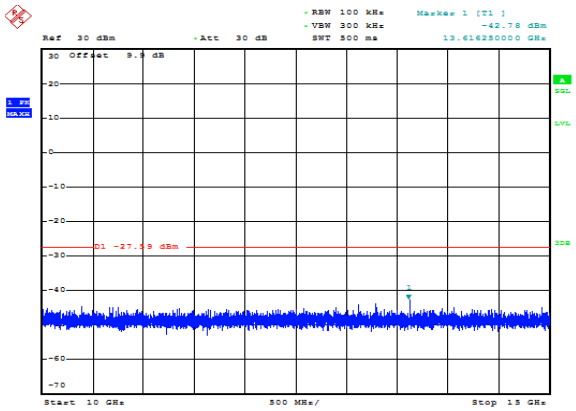
Date: 9.MAY.2017 10:56:44

11N20SISO_HCH_Graphs

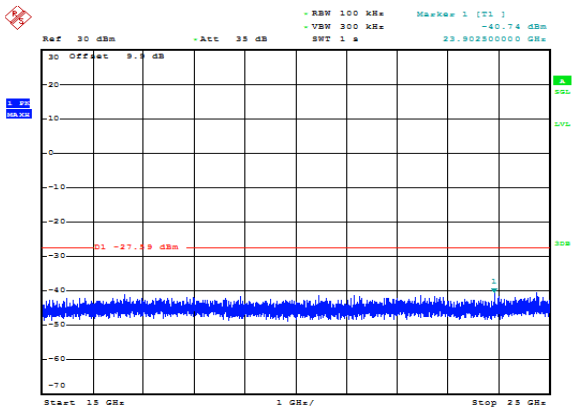
Pref/11N20SISO/HCH	
Puw/11N20SISO/HCH	 



Date: 9.MAY.2017 10:58:48

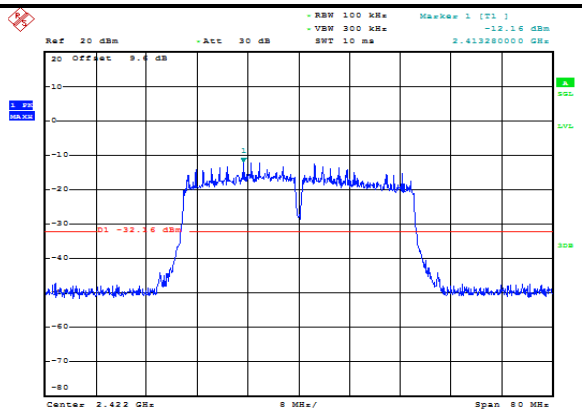
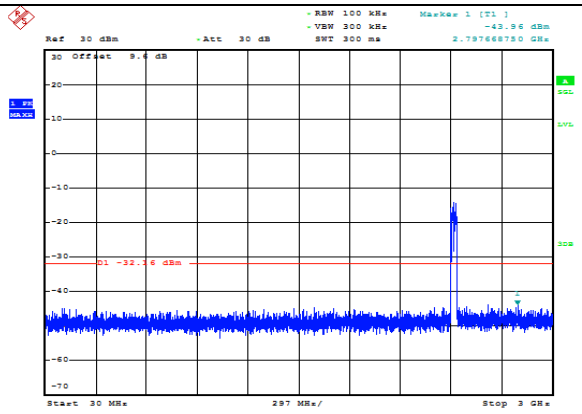
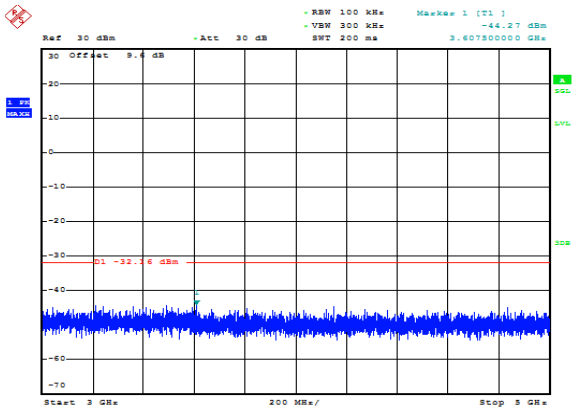


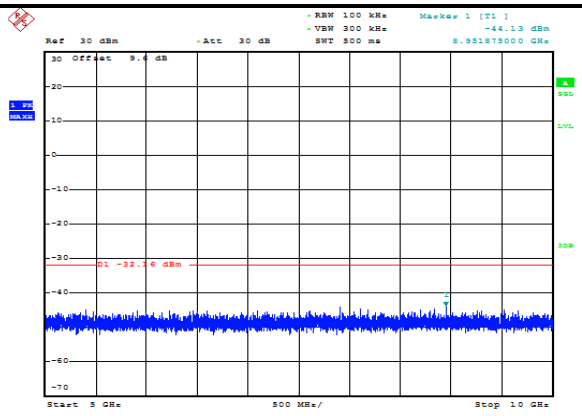
Date: 9.MAY.2017 10:58:56



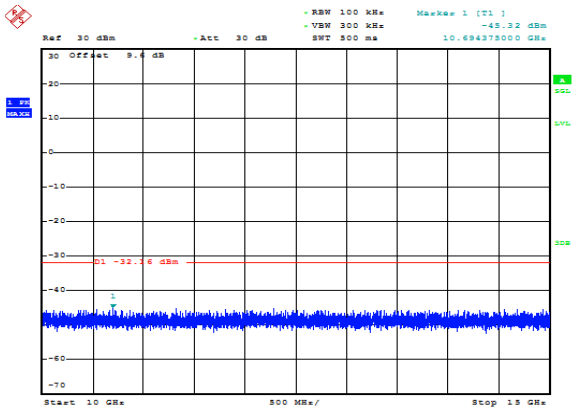
Date: 9.MAY.2017 10:59:04

11N40SISO_LCH_Graphs

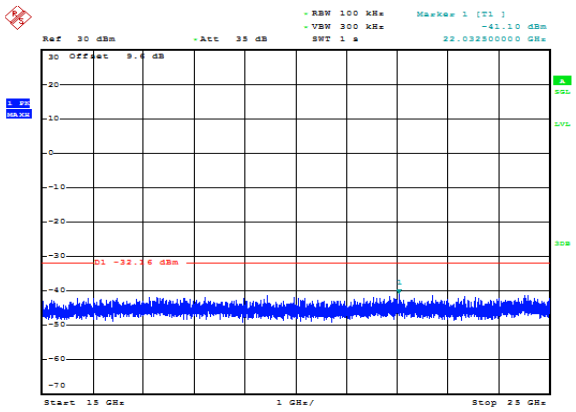
Pref/11N40SISO/LCH	
Puw/11N40SISO/LCH	 



Date: 9.MAY.2017 11:01:31

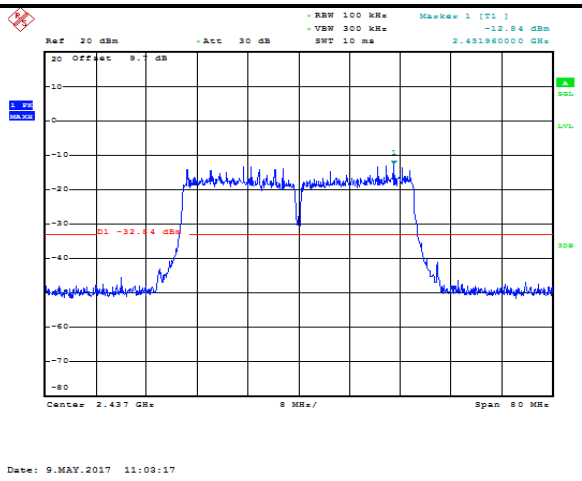
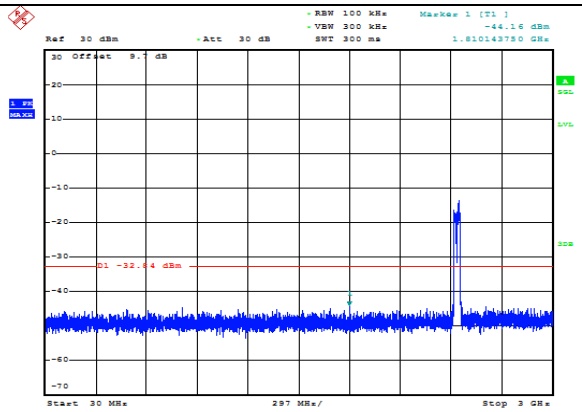
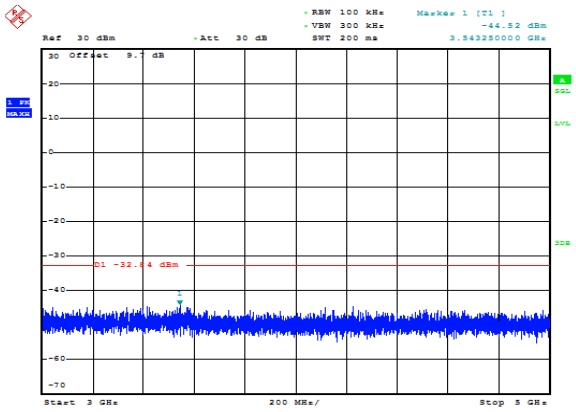


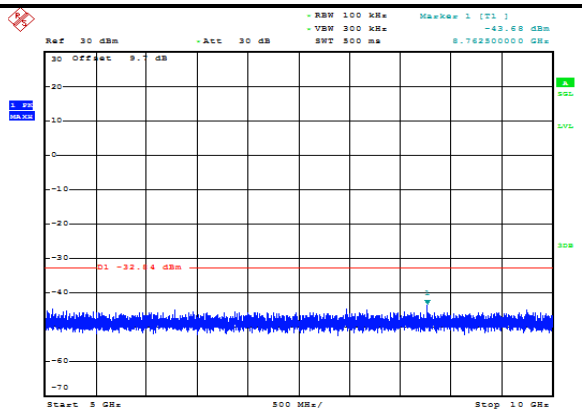
Date: 9.MAY.2017 11:01:39



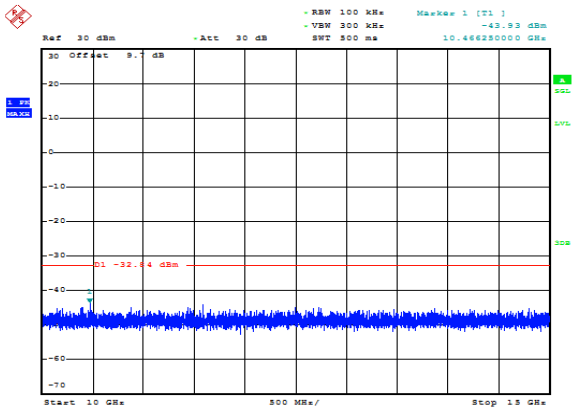
Date: 9.MAY.2017 11:01:47

11N40SISO_MCH_Graphs

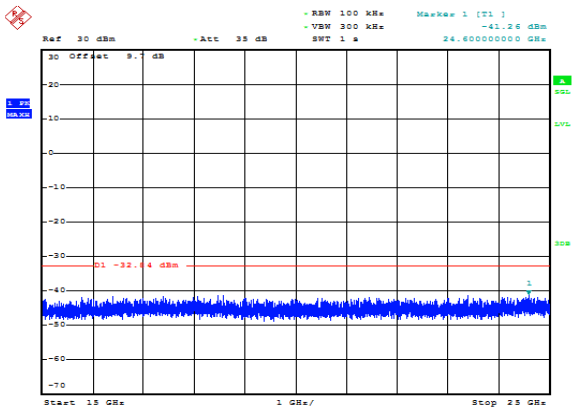
Pref/11N40SISO/MCH	
Puw/11N40SISO/MCH	 



Date: 9.MAY.2017 11:03:38

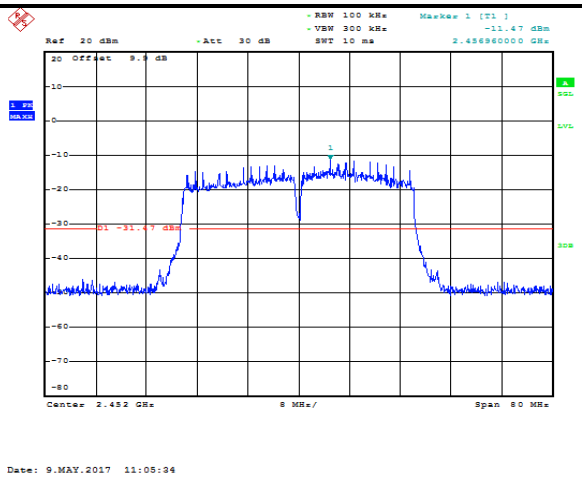
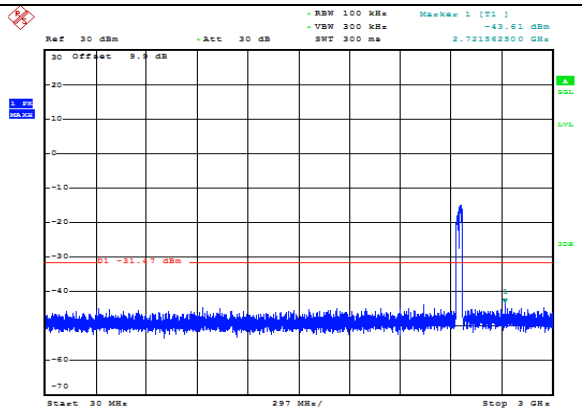
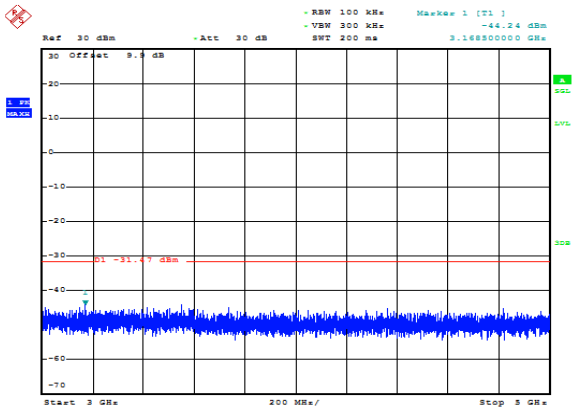


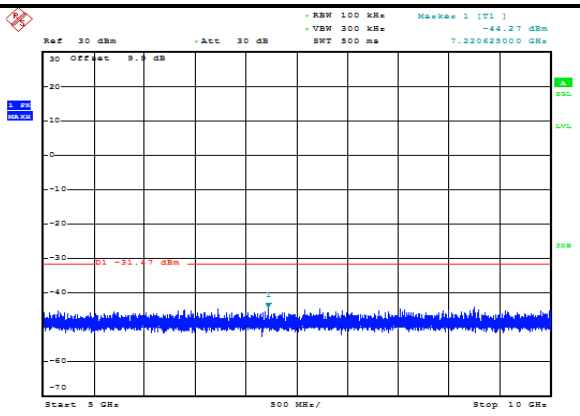
Date: 9.MAY.2017 11:03:46



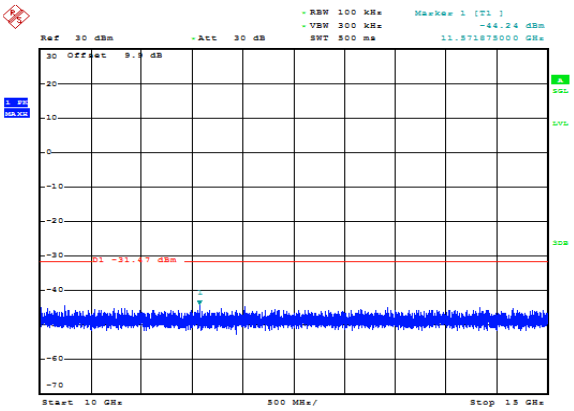
Date: 9.MAY.2017 11:03:54

11N40SISO_HCH_Graphs

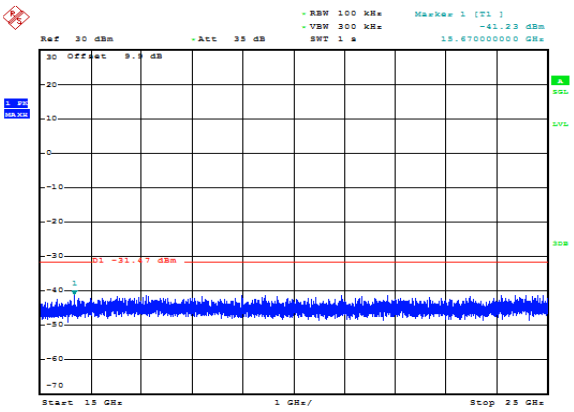
Pref/11N40SISO/HCH	
Puw/11N40SISO/HCH	 



Date: 9.MAY.2017 11:05:55



Date: 9.MAY.2017 11:06:03



Date: 9.MAY.2017 11:06:11

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

Please refer to FCC §15.205 and §15.209

Please refer to IC RSS-GEN Clause 8.9 (Transmitter)

Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

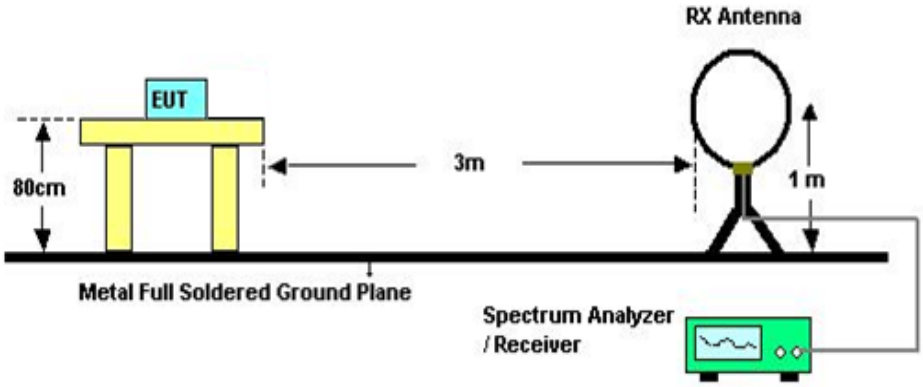
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Radiation Disturbance Test Limit for FCC (Above 1G)

Frequency (MHz)	dB(uV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

TEST SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

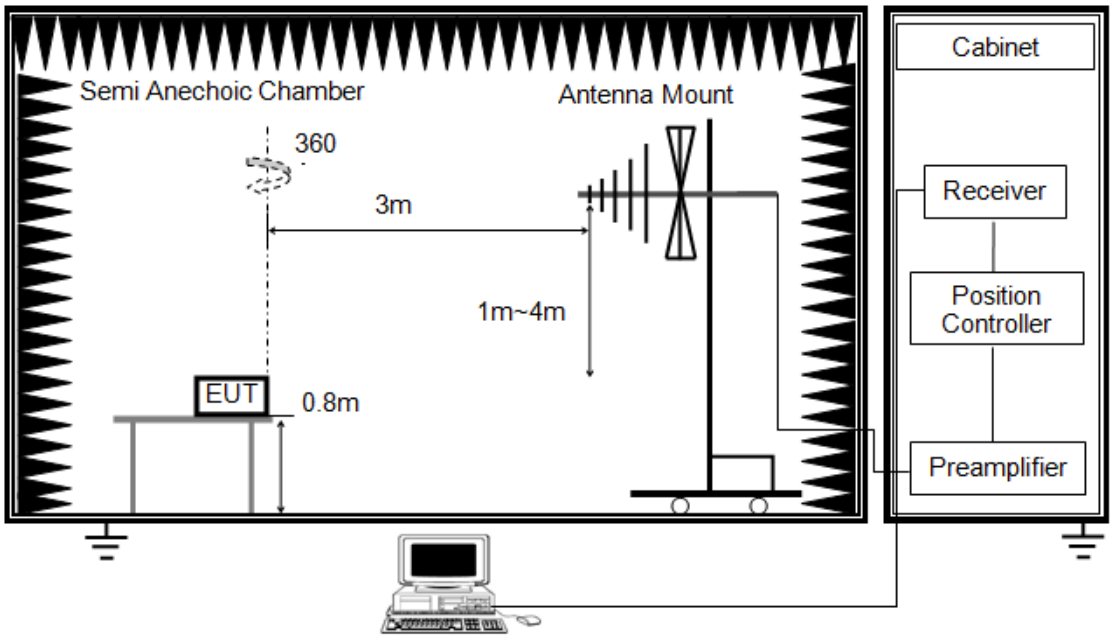
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)

Below 1G



The setting of the spectrum analyser

RBW	120K
VBW	300K
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

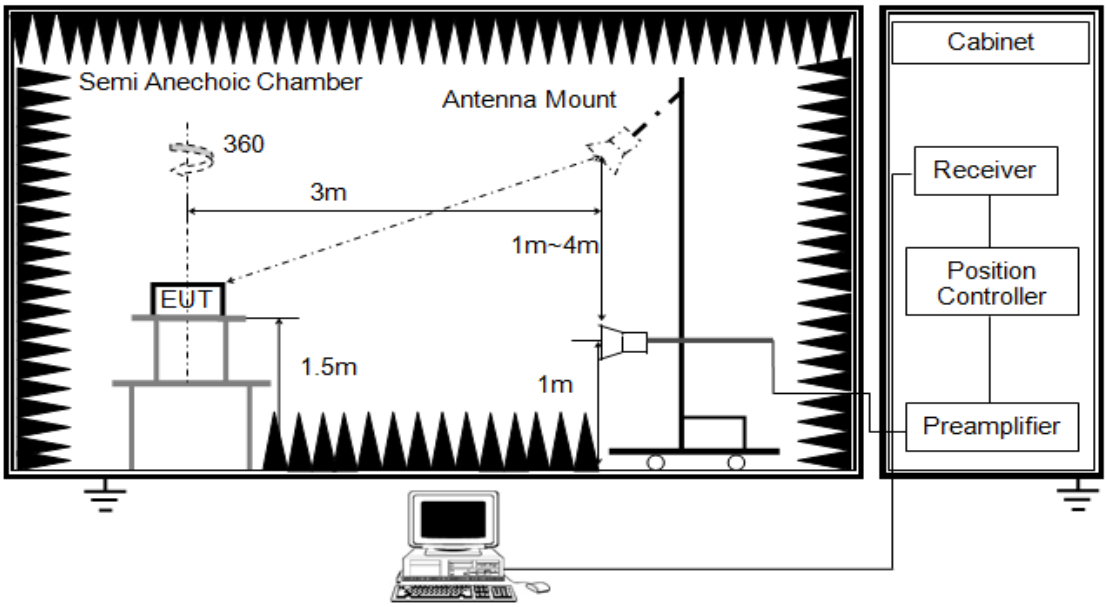
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)

ABOVE 1G



The setting of the spectrum analyser

RBW	1M
VBW	3M
Sweep	Auto
Detector	Peak and CISPR Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (1.5 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5 meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

6. For measurement above 1GHz, the emission measurement will be measured by the peak detector and the AV detector.

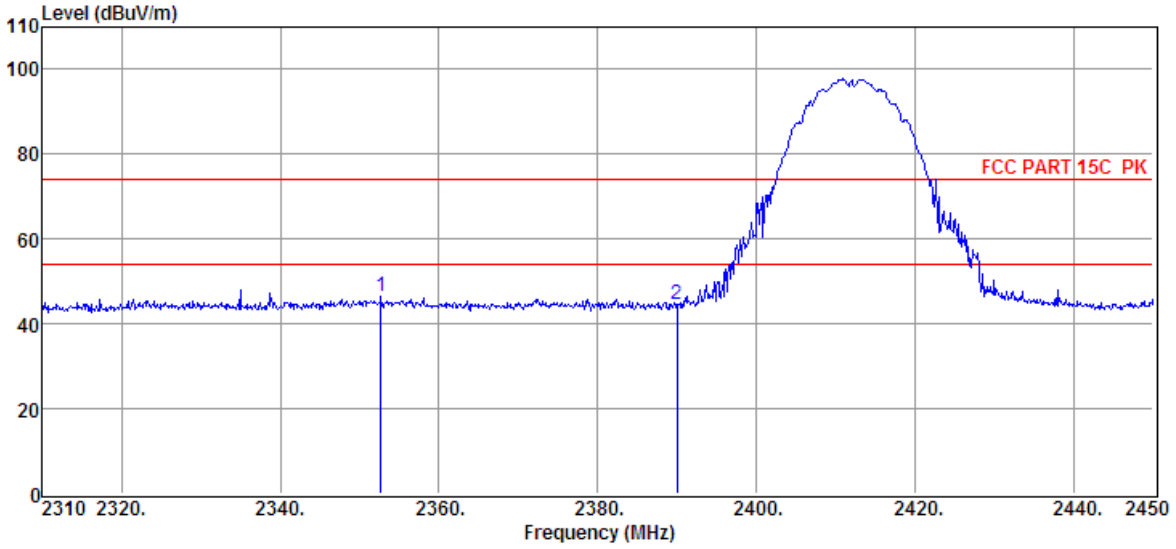
7. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)

TEST CONDITIONS

Temperature: 23.5°C
Relative Humidity: 59.2%
Test Voltage: AC 120V/60HZ

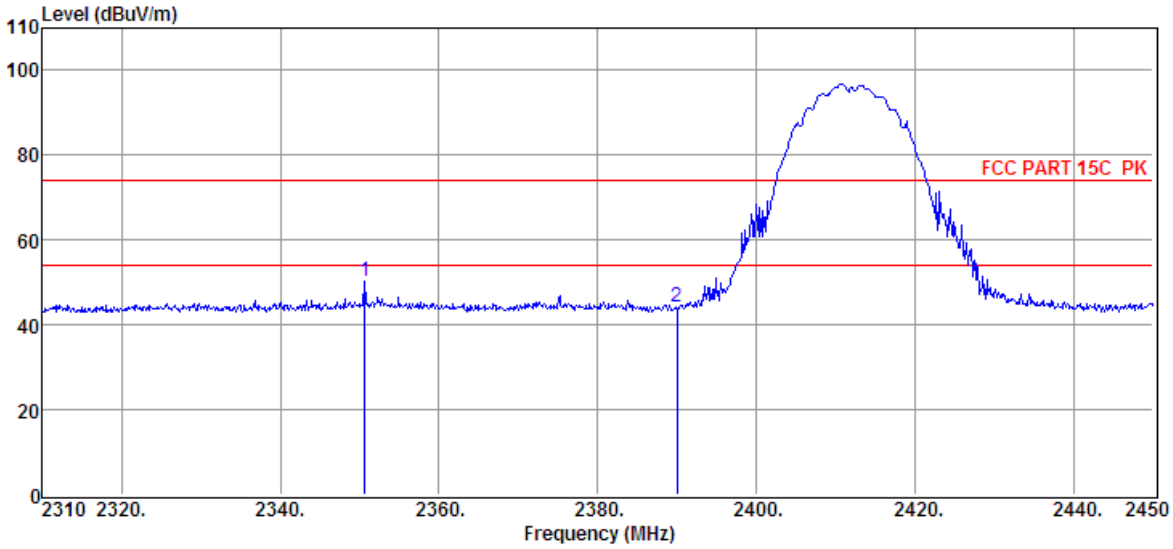
8.2. RESTRICTED BANDEDGE

RESTRICTED BANDEDGE (11b LOW CHANNEL, HORIZONTAL)



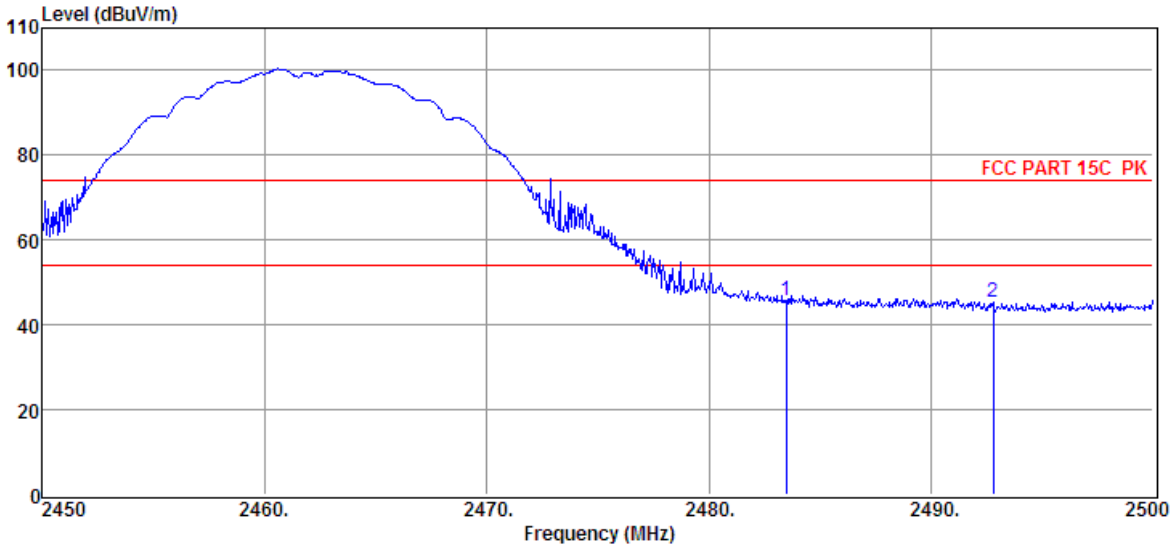
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2352.70	40.22	29.63	29.34	5.96	46.47	74.00	-27.53	Peak	HORIZONTAL
2	2390.00	38.04	29.78	29.41	6.01	44.42	74.00	-29.58	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11b LOW CHANNEL, VERTICAL)



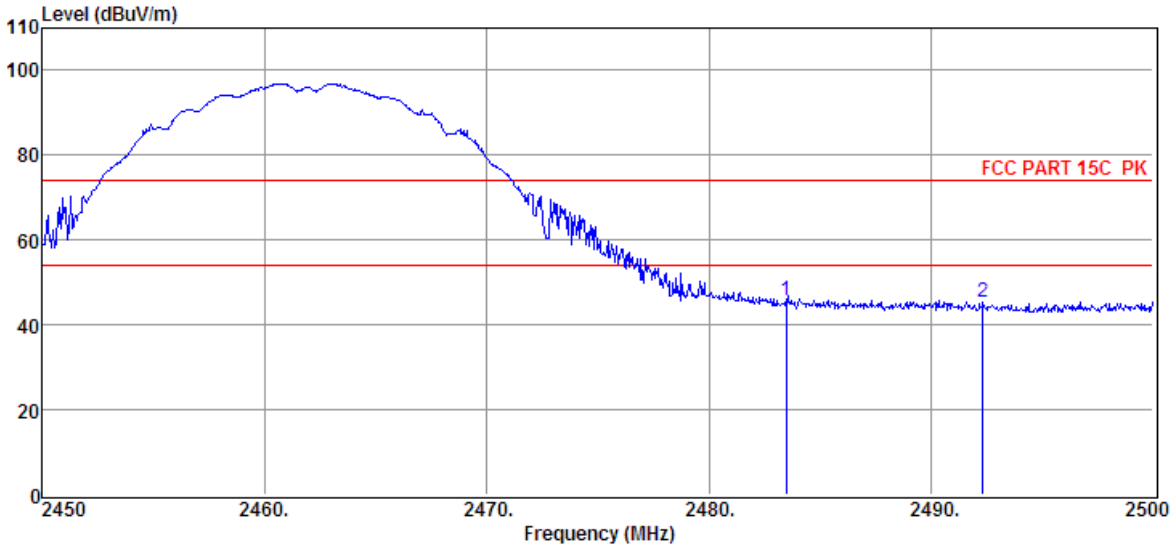
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2350.60	44.22	29.62	29.34	5.96	50.46	74.00	-23.54	Peak	VERTICAL
2	2390.00	37.80	29.78	29.41	6.01	44.18	74.00	-29.82	Peak	VERTICAL

RESTRICTED BANDEDGE (11b HIGH CHANNEL, HORIZONTAL)



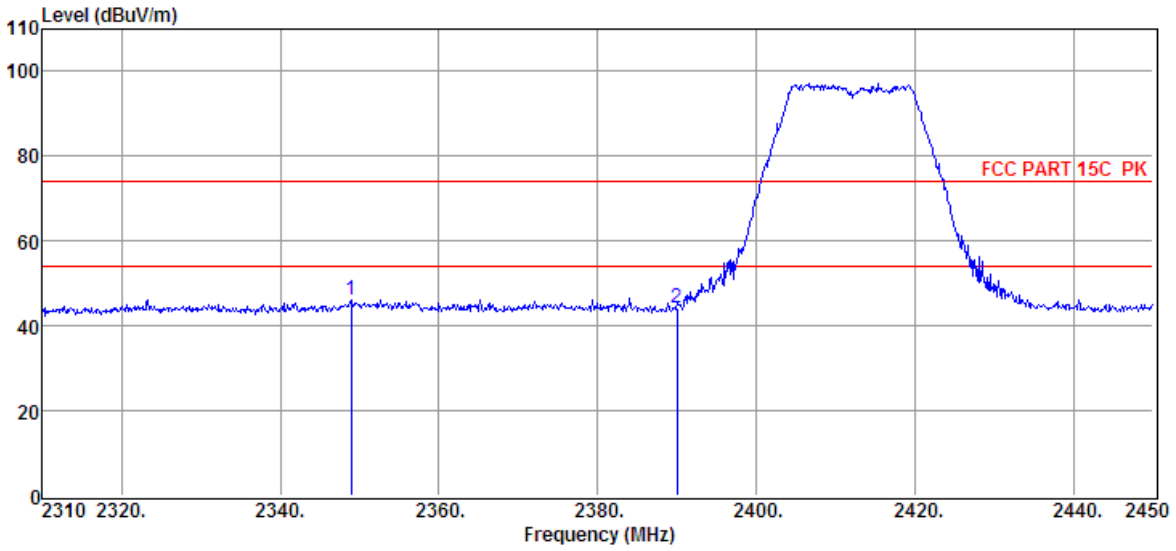
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	39.30	30.14	29.71	6.15	45.88	74.00	-28.12	Peak	HORIZONTAL
2	2492.80	38.77	30.17	29.73	6.15	45.36	74.00	-28.64	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11b HIGH CHANNEL, VERTICAL)



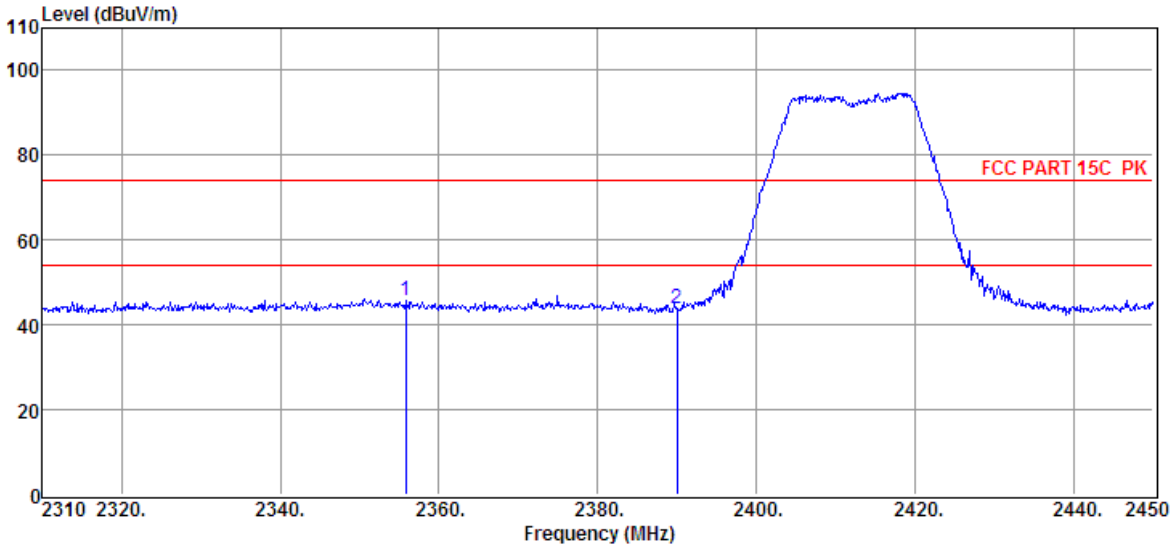
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	39.00	30.14	29.71	6.15	45.58	74.00	-28.42	Peak	VERTICAL
2	2492.35	38.93	30.17	29.73	6.15	45.52	74.00	-28.48	Peak	VERTICAL

RESTRICTED BANDEDGE (11g LOW CHANNEL, HORIZONTAL)



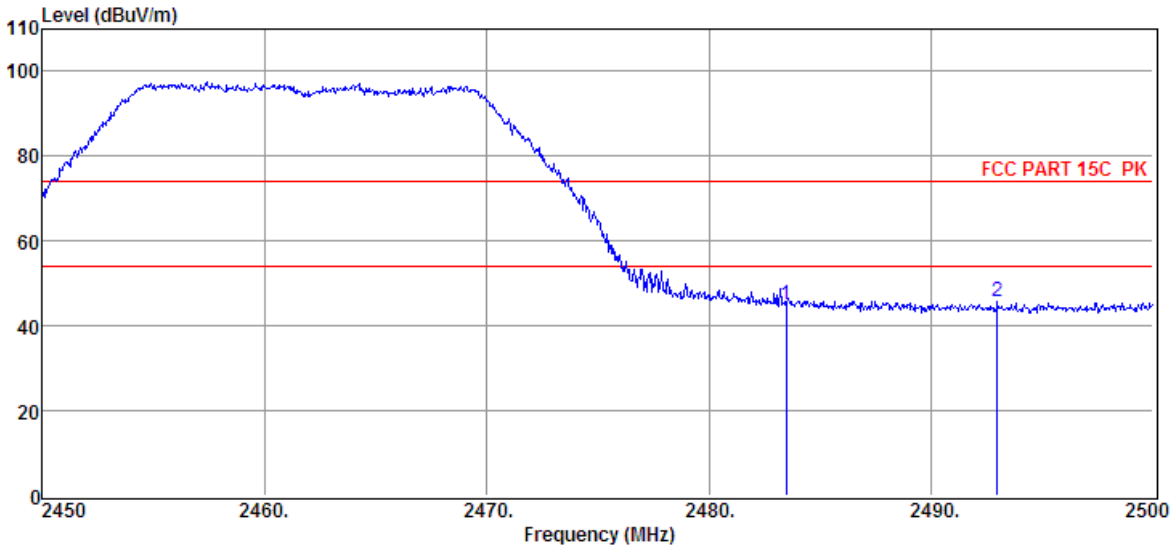
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2348.92	39.87	29.61	29.33	5.96	46.11	74.00	-27.89	Peak	HORIZONTAL
2	2390.00	37.93	29.78	29.41	6.01	44.31	74.00	-29.69	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11g LOW CHANNEL, VERTICAL)



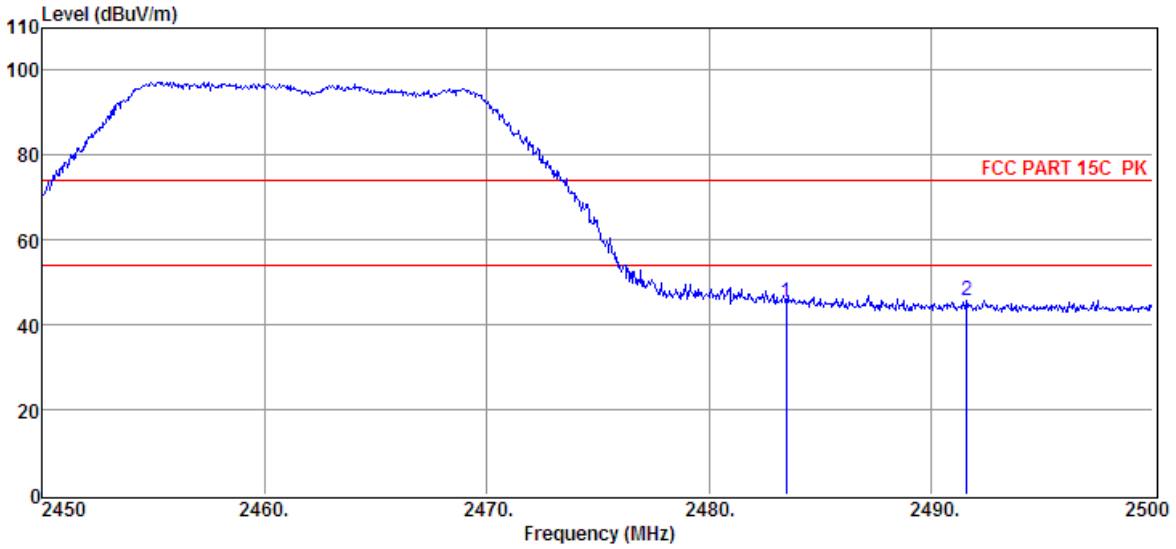
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2355.78	39.48	29.64	29.34	5.96	45.74	74.00	-28.26	Peak	VERTICAL
2	2390.00	37.35	29.78	29.41	6.01	43.73	74.00	-30.27	Peak	VERTICAL

RESTRICTED BANDEDGE (11g HIGH CHANNEL, HORIZONTAL)



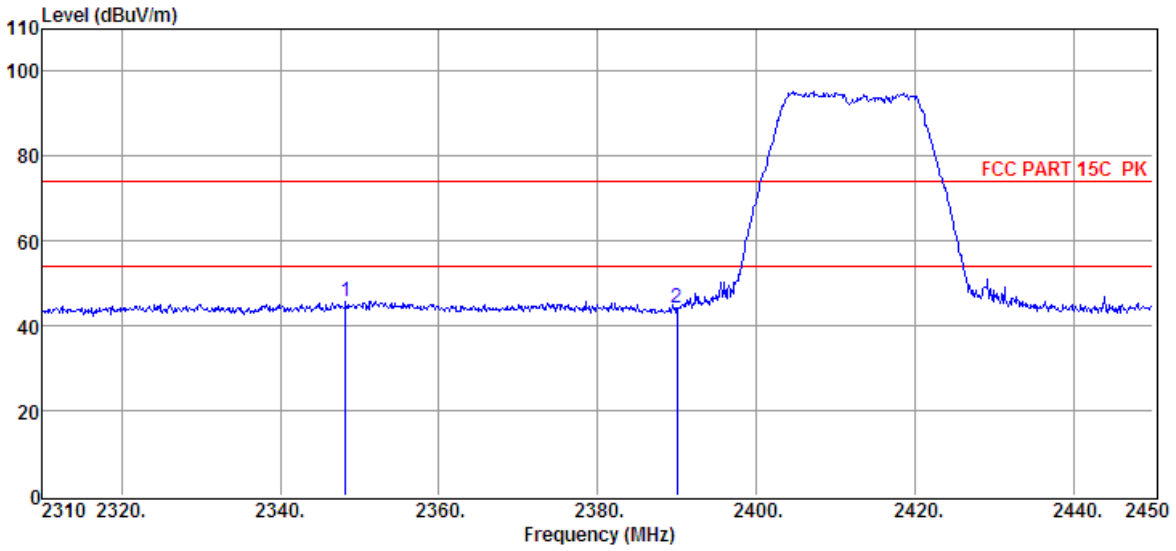
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	38.35	30.14	29.71	6.15	44.93	74.00	-29.07	Peak	HORIZONTAL
2	2493.00	39.05	30.17	29.73	6.15	45.64	74.00	-28.36	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11g HIGH CHANNEL, VERTICAL)



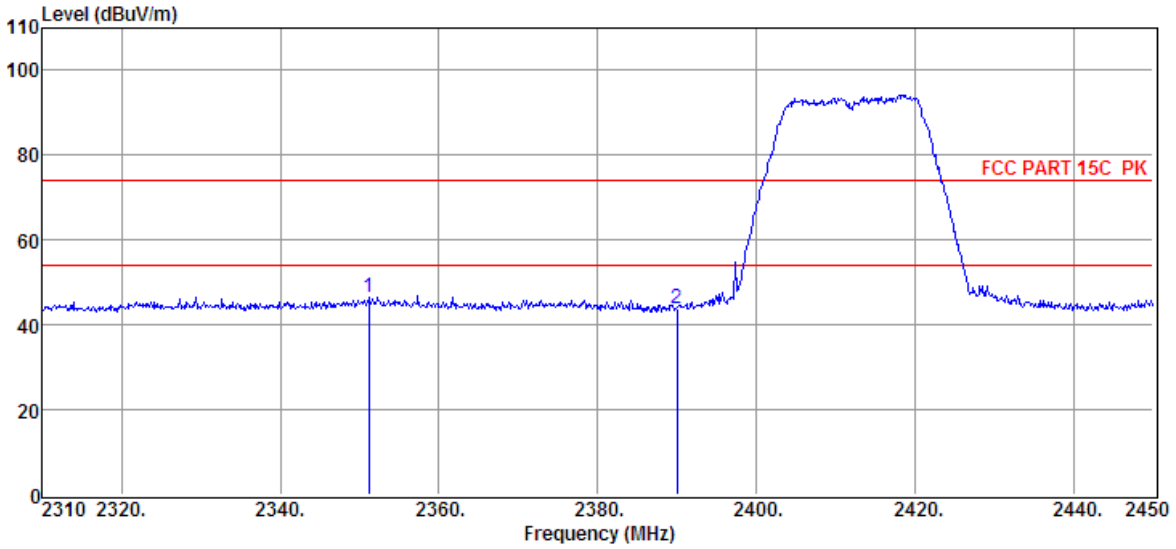
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	38.77	30.14	29.71	6.15	45.35	74.00	-28.65	Peak	VERTICAL
2	2491.60	39.27	30.17	29.73	6.15	45.86	74.00	-28.14	Peak	VERTICAL

RESTRICTED BANDEDGE (11n/20 LOW CHANNEL, HORIZONTAL)



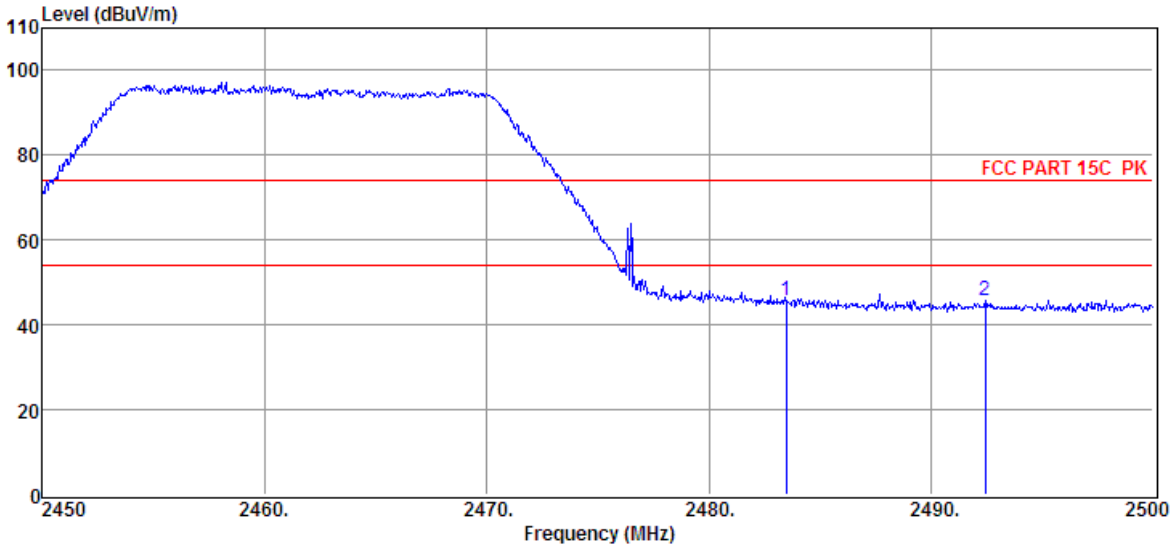
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2348.22	39.58	29.61	29.33	5.96	45.82	74.00	-28.18	Peak	HORIZONTAL
2	2390.00	38.02	29.78	29.41	6.01	44.40	74.00	-29.60	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11n/20 LOW CHANNEL, VERTICAL)



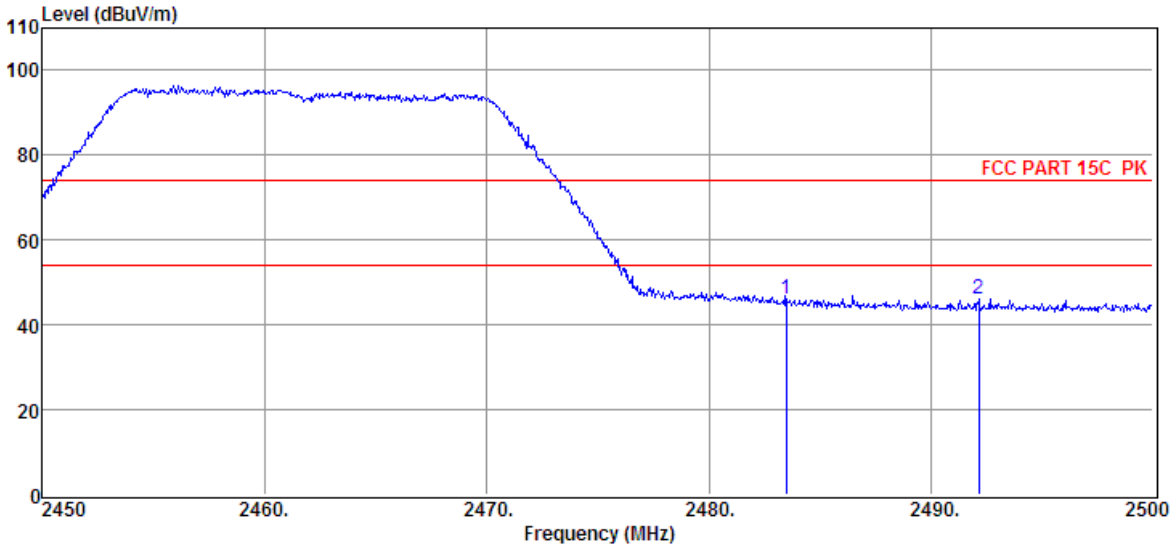
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2351.16	40.18	29.62	29.34	5.96	46.42	74.00	-27.58	Peak	VERTICAL
2	2390.00	37.60	29.78	29.41	6.01	43.98	74.00	-30.02	Peak	VERTICAL

RESTRICTED BANDEDGE (11n/20 HIGH CHANNEL, HORIZONTAL)



Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	39.07	30.14	29.71	6.15	45.65	74.00	-28.35	Peak	HORIZONTAL
2	2492.45	39.12	30.17	29.73	6.15	45.71	74.00	-28.29	Peak	HORIZONTAL

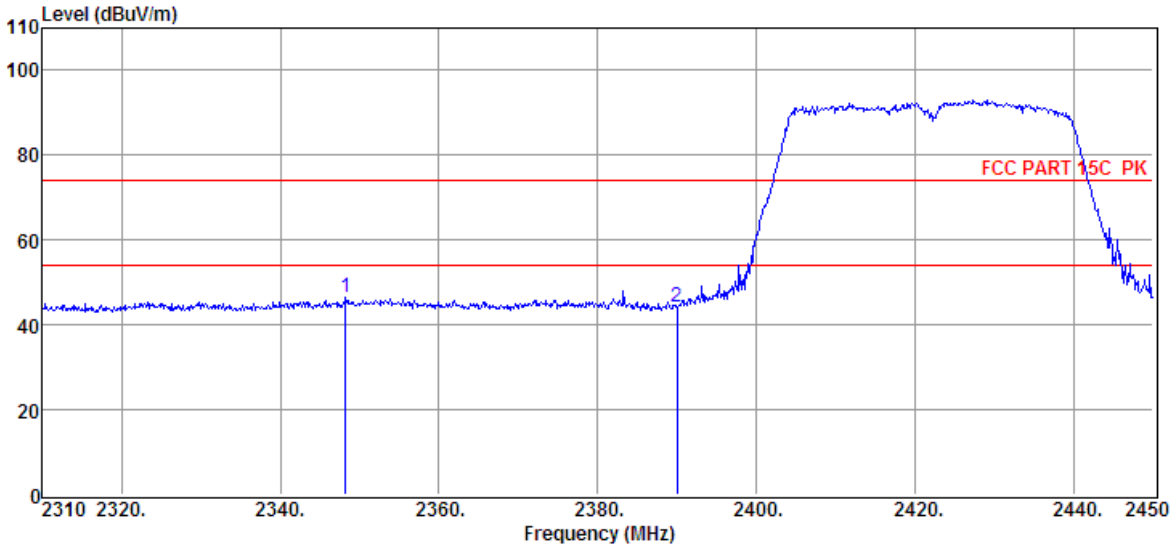
RESTRICTED BANDEDGE (11n/20 HIGH CHANNEL, VERTICAL)



Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2483.50	39.50	30.14	29.71	6.15	46.08	74.00	-27.92	Peak	VERTICAL
2	2492.15	39.57	30.17	29.73	6.15	46.16	74.00	-27.84	Peak	VERTICAL

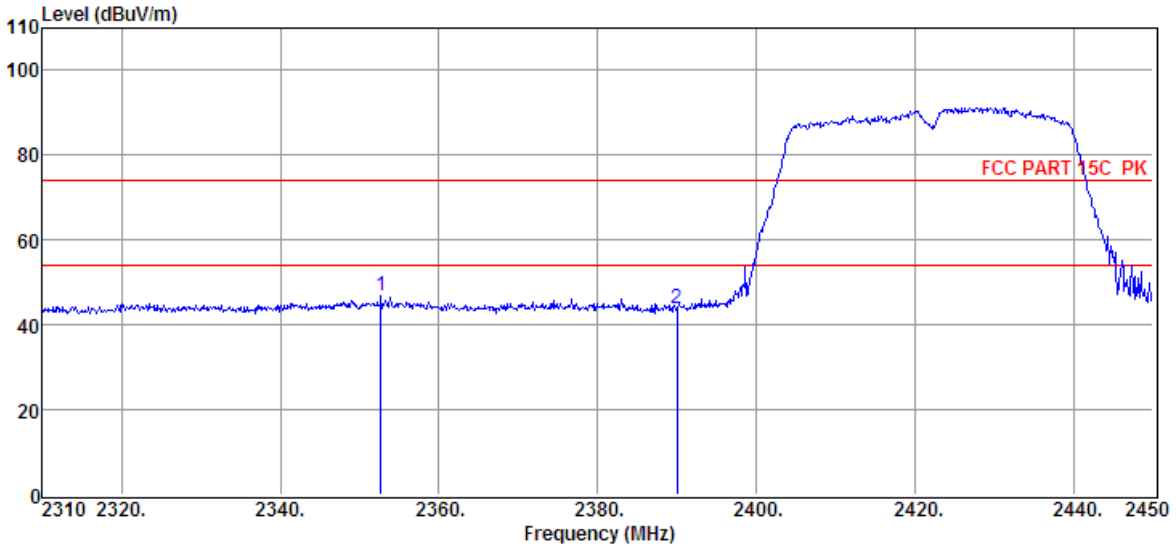
Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

RESTRICTED BANDEDGE (11n/40 LOW CHANNEL, HORIZONTAL)



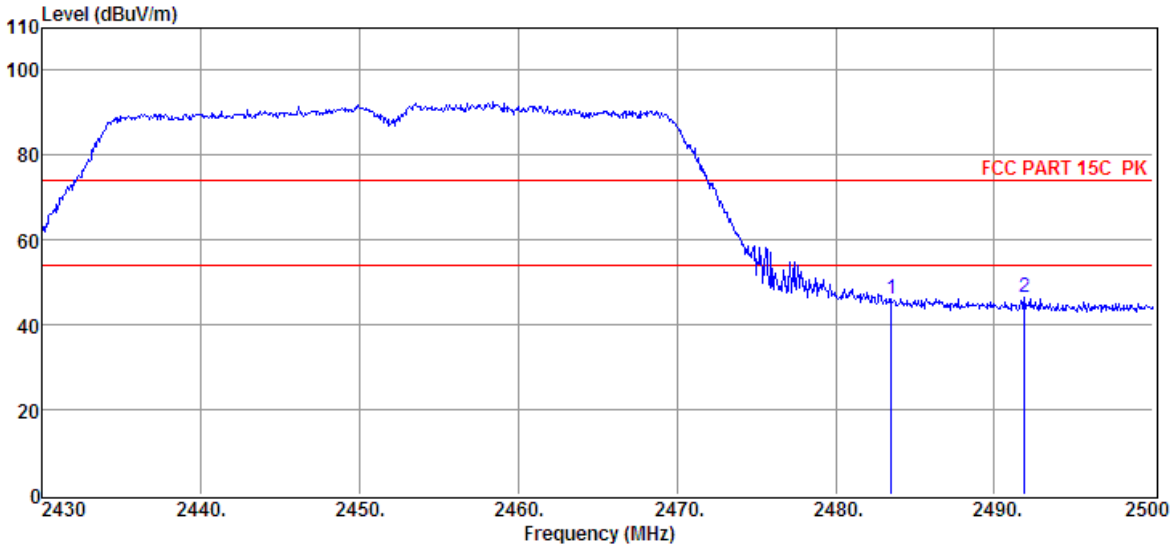
Item	Freq.	Read Level	Antenna Factor	PRM Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBµV)	(dB/m)	dB	dB	(dBµV/m)	(dBµV/m)	(dB)		
1	2348.22	40.11	29.61	29.33	5.96	46.35	74.00	-27.65	Peak	HORIZONTAL
2	2390.00	37.87	29.78	29.41	6.01	44.25	74.00	-29.75	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11n/40 LOW CHANNEL, VERTICAL)



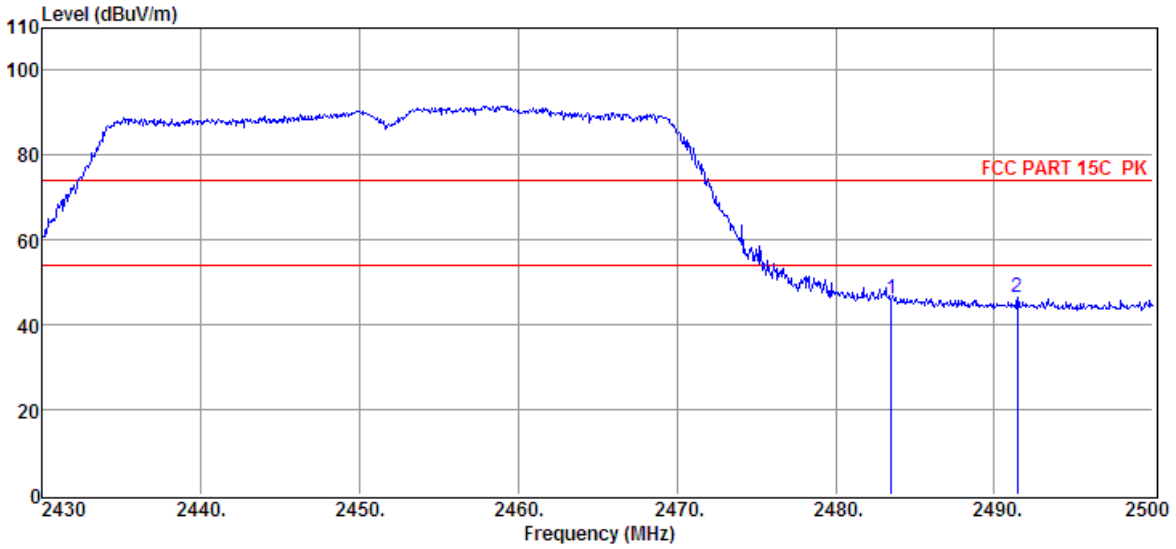
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2352.70	40.62	29.63	29.34	5.96	46.87	74.00	-27.13	Peak	VERTICAL
2	2390.00	37.33	29.78	29.41	6.01	43.71	74.00	-30.29	Peak	VERTICAL

RESTRICTED BANDEDGE (11n/40 HIGH CHANNEL, HORIZONTAL)



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2483.48	39.64	30.14	29.71	6.15	46.22	74.00	-27.78	Peak	HORIZONTAL
2	2491.88	39.84	30.17	29.73	6.15	46.43	74.00	-27.57	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11n/40 HIGH CHANNEL, VERTICAL)



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	2483.48	39.60	30.14	29.71	6.15	46.18	74.00	-27.82	Peak	VERTICAL
2	2491.46	39.76	30.17	29.73	6.15	46.35	74.00	-27.65	Peak	VERTICAL

Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

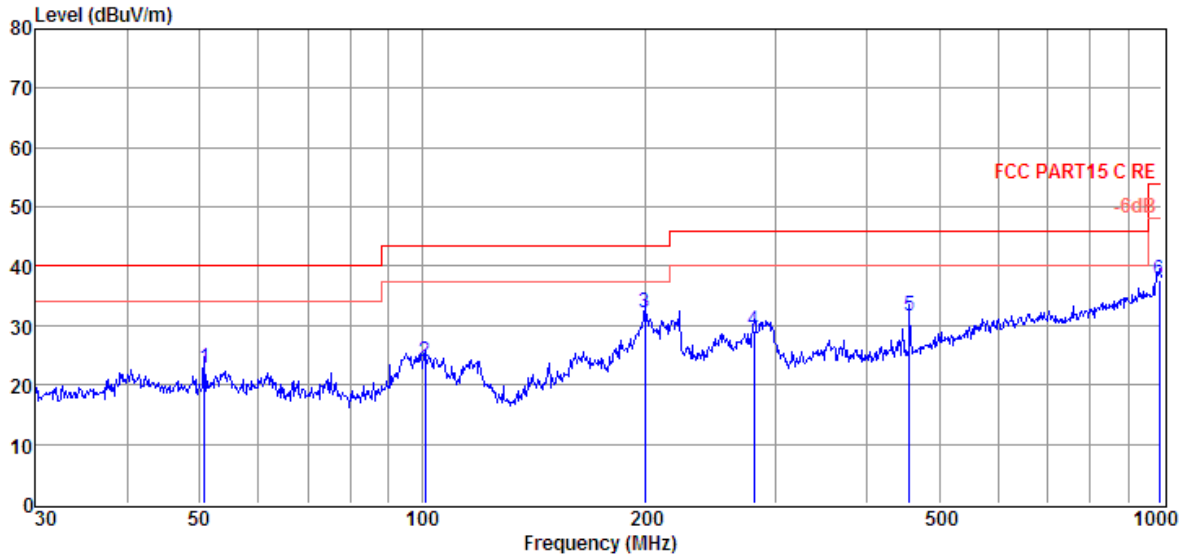
SPURIOUS EMISSIONS (1~25GHz)

Freq (MHz)	Read level (dBμV)	Antenna Factor (dB/m)	PRM Factor(dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector type	Polarization
11b LCH									
2176.00	43.17	28.89	29.12	5.72	48.66	74.00	-25.34	Peak	VERTICAL
2568.00	41.70	30.42	29.87	6.24	48.49	74.00	-25.51	Peak	VERTICAL
3520.00	39.35	31.96	29.49	7.31	49.13	74.00	-24.87	Peak	VERTICAL
3940.00	38.80	33.23	29.07	7.58	50.54	74.00	-23.46	Peak	VERTICAL
5669.00	37.09	34.80	29.23	9.36	52.02	74.00	-21.98	Peak	VERTICAL
6873.00	36.63	36.10	30.30	10.31	52.74	74.00	-21.26	Peak	VERTICAL
2575.00	41.55	30.44	29.88	6.26	48.37	74.00	-25.63	Peak	HORIZONTAL
3891.00	38.37	33.09	29.10	7.54	49.90	74.00	-24.10	Peak	HORIZONTAL
4549.00	37.55	33.79	29.24	8.20	50.30	74.00	-23.70	Peak	HORIZONTAL
5151.00	37.62	34.01	29.33	8.84	51.14	74.00	-22.86	Peak	HORIZONTAL
5697.00	36.37	34.82	29.22	9.38	51.35	74.00	-22.65	Peak	HORIZONTAL
6873.00	36.88	36.10	30.30	10.31	52.99	74.00	-21.01	Peak	HORIZONTAL
11b MCH									
2169.00	43.00	28.86	29.12	5.72	48.46	74.00	-25.54	Peak	VERTICAL
2582.00	41.37	30.47	29.89	6.26	48.21	74.00	-25.79	Peak	VERTICAL
4052.00	37.84	33.44	29.05	7.67	49.90	74.00	-24.10	Peak	VERTICAL
4577.00	37.29	33.78	29.25	8.24	50.06	74.00	-23.94	Peak	VERTICAL
5690.00	36.11	34.82	29.22	9.38	51.09	74.00	-22.91	Peak	VERTICAL
6873.00	37.32	36.10	30.30	10.31	53.43	74.00	-20.57	Peak	VERTICAL
2176.00	43.56	28.89	29.12	5.72	49.05	74.00	-24.95	Peak	HORIZONTAL
2575.00	41.54	30.44	29.88	6.26	48.36	74.00	-25.64	Peak	HORIZONTAL
3961.00	37.89	33.29	29.06	7.59	49.71	74.00	-24.29	Peak	HORIZONTAL
5102.00	37.55	33.91	29.34	8.78	50.90	74.00	-23.10	Peak	HORIZONTAL
6047.00	36.11	35.08	29.23	9.71	51.67	74.00	-22.33	Peak	HORIZONTAL
6712.00	37.15	35.97	30.16	10.15	53.11	74.00	-20.89	Peak	HORIZONTAL
11b HCH									
2561.00	43.06	30.40	29.86	6.24	49.84	74.00	-24.16	Peak	VERTICAL
3891.00	39.07	33.09	29.10	7.54	50.60	74.00	-23.40	Peak	VERTICAL
4416.00	38.06	33.74	29.16	8.06	50.70	74.00	-23.30	Peak	VERTICAL
5613.00	36.02	34.77	29.23	9.31	50.87	74.00	-23.13	Peak	VERTICAL
6061.00	37.28	35.10	29.23	9.72	52.87	74.00	-21.13	Peak	VERTICAL
6999.00	37.45	36.20	30.38	10.44	53.71	74.00	-20.29	Peak	VERTICAL
2561.00	43.06	30.40	29.86	6.24	49.84	74.00	-24.16	Peak	VERTICAL
3891.00	39.07	33.09	29.10	7.54	50.60	74.00	-23.40	Peak	VERTICAL
4416.00	38.06	33.74	29.16	8.06	50.70	74.00	-23.30	Peak	VERTICAL
5613.00	36.02	34.77	29.23	9.31	50.87	74.00	-23.13	Peak	VERTICAL
6061.00	37.28	35.10	29.23	9.72	52.87	74.00	-21.13	Peak	VERTICAL
6999.00	37.45	36.20	30.38	10.44	53.71	74.00	-20.29	Peak	VERTICAL

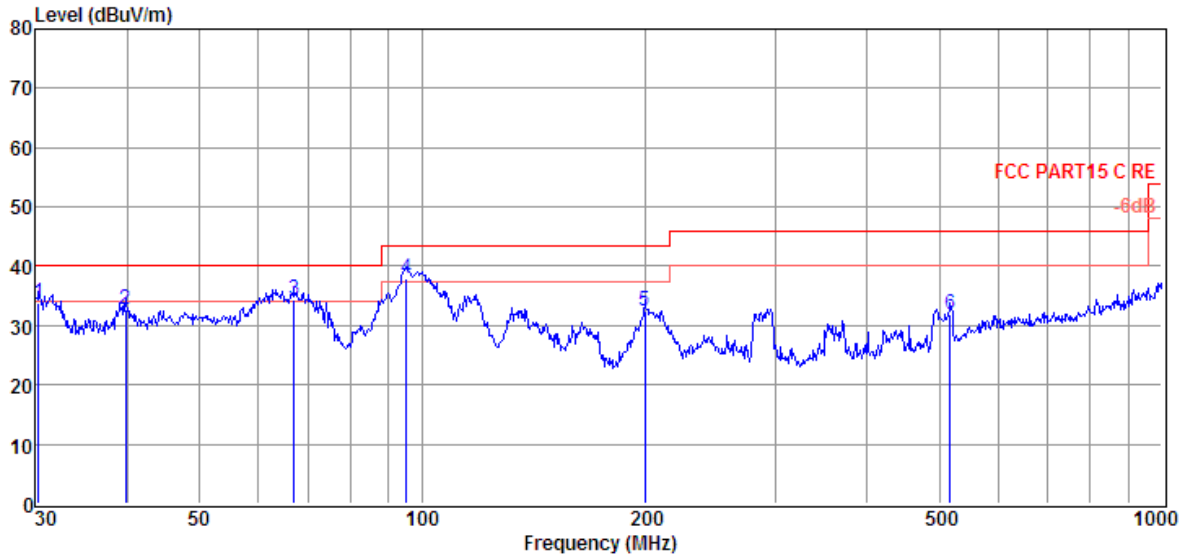
Result: Pass

Note :
1.30MHz~18GHz: (Scan with 11b, 11g, 11n HT20 and 11n HT40, the worst case is 11b Mode)
2. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
3. EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

SPURIOUS EMISSIONS 30M ~ 1 GHz



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	50.76	7.08	11.88	3.90	22.86	40.00	-17.14	QP	HORIZONTAL
2	100.93	7.55	11.92	4.31	23.78	43.50	-19.72	QP	HORIZONTAL
3	199.99	16.85	10.30	4.90	32.05	43.50	-11.45	QP	HORIZONTAL
4	281.01	11.07	12.66	5.29	29.02	46.00	-16.98	QP	HORIZONTAL
5	455.91	9.20	16.30	6.01	31.51	46.00	-14.49	QP	HORIZONTAL
6	993.01	6.86	23.10	7.66	37.62	54.00	-16.38	QP	HORIZONTAL



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	30.32	18.95	11.15	3.67	33.77	40.00	-6.23	QP	VERTICAL
2	39.72	16.83	12.10	3.79	32.72	40.00	-7.28	QP	VERTICAL
3	67.20	21.77	8.60	4.04	34.41	40.00	-5.59	QP	VERTICAL
4	95.09	21.99	11.61	4.26	37.86	43.50	-5.64	QP	VERTICAL
5	199.99	17.24	10.30	4.90	32.44	43.50	-11.06	QP	VERTICAL
6	517.25	8.07	17.57	6.23	31.87	46.00	-14.13	QP	VERTICAL

Note: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

8.3. SPURIOUS EMISSIONS BELOW 30M

Note 1: The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Note 2: EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

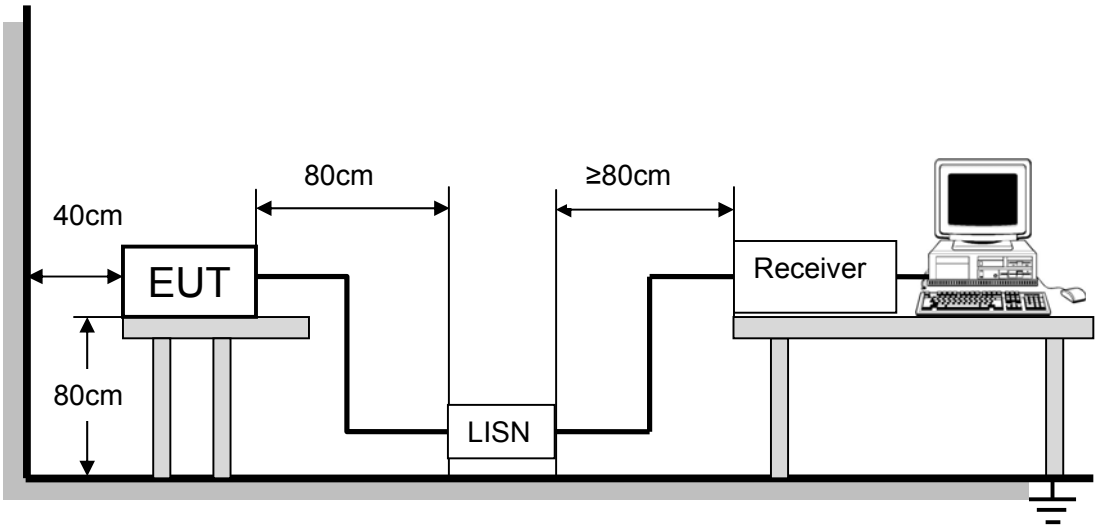
9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a) and RSS-Gen Clause 8.8

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

TEST SETUP AND PROCEDURE

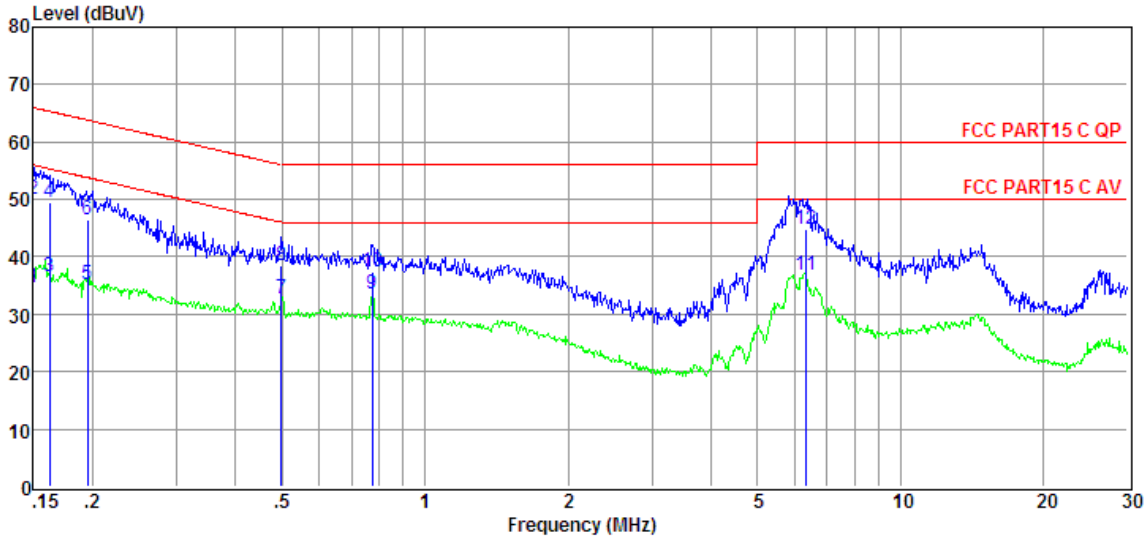


The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2014.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST RESULTS

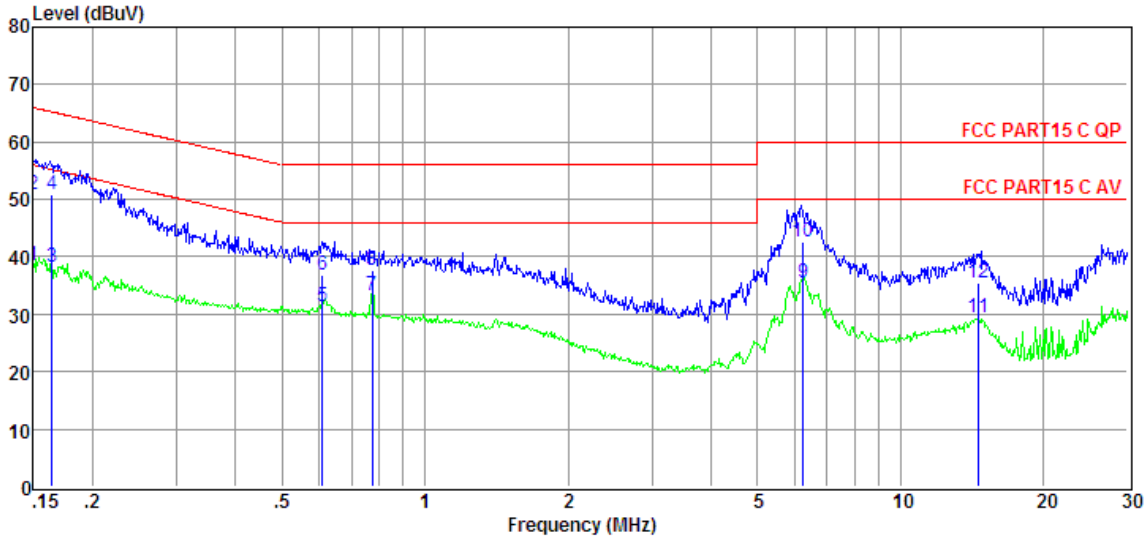
Temperature:	24.5°C	Relative Humidity:	55%
Pressure:	1012 hPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Tx Mode	Phase :	L1



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBµV)	(dB)	(dB)	(dB)	(dBµV)	(dBµV)	(dB)		
1	0.15	15.08	9.61	0.02	9.86	34.57	56.00	-21.43	Average	LINE
2	0.15	30.53	9.61	0.02	9.86	50.02	66.00	-15.98	QP	LINE
3	0.16	17.04	9.61	0.02	9.86	36.53	55.34	-18.81	Average	LINE
4	0.16	30.11	9.61	0.02	9.86	49.60	65.34	-15.74	QP	LINE
5	0.20	15.73	9.61	0.02	9.86	35.22	53.80	-18.58	Average	LINE
6	0.20	26.95	9.61	0.02	9.86	46.44	63.80	-17.36	QP	LINE
7	0.50	13.23	9.61	0.02	9.86	32.72	46.01	-13.29	Average	LINE
8	0.50	19.03	9.61	0.02	9.86	38.52	56.01	-17.49	QP	LINE
9	0.78	13.96	9.61	0.03	9.86	33.46	46.00	-12.54	Average	LINE
10	0.78	18.02	9.61	0.03	9.86	37.52	56.00	-18.48	QP	LINE
11	6.32	17.28	9.68	0.08	9.89	36.93	50.00	-13.07	Average	LINE
12	6.32	25.24	9.68	0.08	9.89	44.89	60.00	-15.11	QP	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Temperature:	24.5°C	Relative Humidity:	55%
Pressure:	1012 hPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Tx Mode	Phase :	N



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBµV)	(dB)	(dB)	(dB)	(dBµV)	(dBµV)	(dB)		
1	0.15	18.88	9.61	0.02	9.86	38.37	56.00	-17.63	Average	NEUTRAL
2	0.15	31.26	9.61	0.02	9.86	50.75	66.00	-15.25	QP	NEUTRAL
3	0.16	18.60	9.61	0.02	9.86	38.09	55.23	-17.14	Average	NEUTRAL
4	0.16	31.26	9.61	0.02	9.86	50.75	65.23	-14.48	QP	NEUTRAL
5	0.61	11.93	9.61	0.03	9.86	31.43	46.00	-14.57	Average	NEUTRAL
6	0.61	17.35	9.61	0.03	9.86	36.85	56.00	-19.15	QP	NEUTRAL
7	0.78	13.65	9.61	0.03	9.86	33.15	46.00	-12.85	Average	NEUTRAL
8	0.78	18.04	9.61	0.03	9.86	37.54	56.00	-18.46	QP	NEUTRAL
9	6.25	15.75	9.68	0.08	9.89	35.40	50.00	-14.60	Average	NEUTRAL
10	6.25	22.98	9.68	0.08	9.89	42.63	60.00	-17.37	QP	NEUTRAL
11	14.52	9.55	9.81	0.13	9.92	29.41	50.00	-20.59	Average	NEUTRAL
12	14.52	15.66	9.81	0.13	9.92	35.52	60.00	-24.48	QP	NEUTRAL

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

10. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

ANTENNA CONNECTOR

EUT has a PCB antenna without antenna connector.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT