



**FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 2**

CERTIFICATION TEST REPORT

For

**MEMOBIRD
MODEL NUMBER: MEMOBIRD G2**

**FCC ID: S96000G2
IC: 22175-0000G2**

REPORT NUMBER: 4787985235.1-2

ISSUE DATE: June 16, 2017

Prepared for

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	06/16/17	Initial Issue	

Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6dB Bandwidth and 99% Bandwidth	FCC 15.247 (a) RSS-247 Issue 2 5.2.b	Complied
2	Peak Conducted Output Power	FCC 15.247 (b) RSS-247 Issue 2 5.4.d	Complied
3	Power Spectral Density	FCC 15.27 (e) RSS-247 Issue 2 5.2.a	Complied
4	Conducted Bandedge and Spurious	FCC 15.207 RSS-247 Issue 2 clause 5.5	Complied
5	Radiated Bandedge and Spurious	FCC 15.247 (d) FCC 15.209 FCC 15.205 RSS-247 Issue 2 5.5 RSS-Gen Issue 4 8.9 8.10	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.			

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Xiamen Intretech Inc.

Address: No.588.Jiahe Road,Xiamen,Fujian,China 361006

Manufacturer Information

Company Name: Xiamen Intretech Inc.

Address: No.588.Jiahe Road,Xiamen,Fujian,China 361006

EUT Description

Product Name MEMOBIRD
Brand Name MEMOBIRD
Model Name MEMOBIRD G2
FCC ID S960000G2
IC 22175-0000G2
Date Tested June 11, 2017 ~ June 14, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS
INDUSTRY CANADA RSS-247 Issue 2	PASS
INDUSTRY CANADA RSS-GEN Issue 4	PASS

Tested By:

Checked By:



Leo Liu
Engineer

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	<p>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.</p> <p>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.</p> <p>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.</p>

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°C
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	MEMOBIRD
Model Name	MEMOBIRD G2
Radio Technology	IEEE802.11b/g/n
Operation frequency	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz
Modulation	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)
Battery	N/A
Power Adapter	Input: AC 100~240V, 50/60Hz, 0.35A Output: DC 5V, 2A

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]	18.95
2400-2483.5	1	IEEE 802.11g	2412-2462	1-11[11]	15.88
2400-2483.5	1	IEEE 802.11n	2412-2462	1-11[11]	15.23

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

5.5. THE WORSE CASE CONFIGURATIONS

Test Mode	Channel	Setting data rate (Mbps)
IEEE 802.11b	LCH :CH1 2412	CCK-1 (set_tx_power 15)
	MCH: CH6 2437	CCK-1 (set_tx_power 15)
	HCH: CH11 2462	CCK-1 (set_tx_power 15)
IEEE 802.11g	LCH :CH1 2412	OFDM-6 (set_tx_power 13)
	MCH: CH6 2437	OFDM-6 (set_tx_power 13)
	HCH: CH11 2462	OFDM-6 (set_tx_power 13)
IEEE 802.11n HT20	LCH :CH1 2412	MSC0 (set_tx_power 13)
	MCH: CH6 2437	MSC0 (set_tx_power 13)
	HCH: CH11 2462	MSC0 (set_tx_power 13)

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
3	2402-2480	PCB Antenna	2.5

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.

Note:Dutycycle>98%

5.1. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	ThinkPad	Latitude D610	N/A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB out 1	USB	Unshielded	0.80	N/A

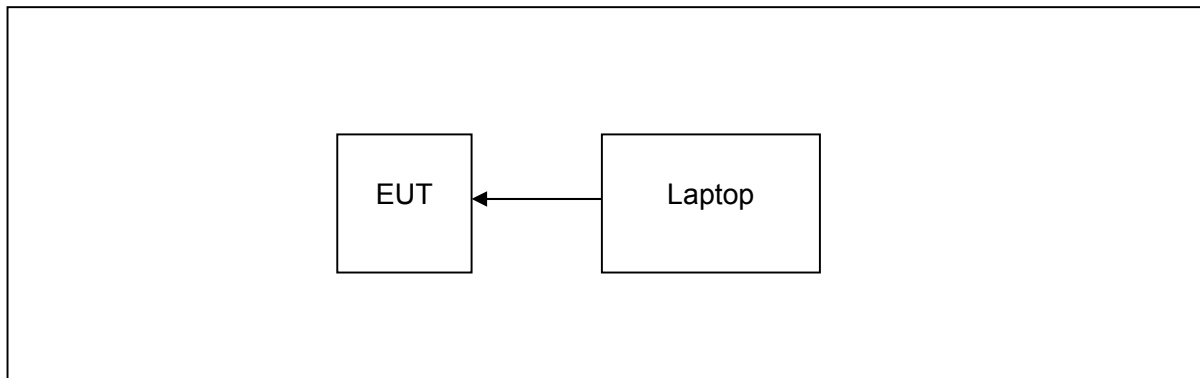
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	Power Supply	FLYPOWER	PS10K050K2000UD	Input: AC 100~240V, 50/60Hz, 0.35A Output: DC 5V, 2A

TEST SETUP

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

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
<input checked="" type="checkbox"/>	Spectrum analyzer	R&S	FSU26	1166.1660.26	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	Wideband Radio Communication tester	R&S	CMW500	155523	Dec. 20, 2016	Dec. 20, 2017
<input checked="" type="checkbox"/>	Vector Signal Generator	Agilent	E8267D	MY52098743	Oct. 20, 2016	Oct. 20, 2017
<input checked="" type="checkbox"/>	Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 05, 2016	Jul. 05, 2017
<input checked="" type="checkbox"/>	Power Sensor	Agilent	U2021XA	MY55150010	Apr. 18, 2017	Apr. 18, 2018
<input checked="" type="checkbox"/>	Power Sensor	Agilent	U2021XA	MY55150011	Apr. 19, 2017	Apr. 19, 2018
<input checked="" type="checkbox"/>	DC Power Source	MATRIS	MPS-3005L-3	D813058W	Oct. 24, 2016	Oct. 24, 2017
<input checked="" type="checkbox"/>	Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2016	Aug. 18, 2017
<input checked="" type="checkbox"/>	RF Cable	Micable	C10-01-01-1	100309	Aug. 18, 2016	Aug. 18, 2017
<input checked="" type="checkbox"/>	Test Software	JS Tonscend	JS1120-2	Ver.2.5	N/A	N/A
<input checked="" type="checkbox"/>	USB Data acquisition	Agilent	U2531A	TW55043503	N/A	N/A
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESU8	100316	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	PSA Series Spectrum analyzer	Agilent	E4447A	MY5018003 1	Jul. 06, 2016	Jul. 06, 2017
<input checked="" type="checkbox"/>	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Oct. 27, 2016	Oct. 27, 2017
<input checked="" type="checkbox"/>	Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 27, 2016	Oct. 27, 2017
<input checked="" type="checkbox"/>	Double Ridged Horn Antenna	R&S	HF907	100276	Oct. 12, 2016	Oct. 12, 2017
<input checked="" type="checkbox"/>	Horn Antenna	ETS-LINDGREN	3160-09	SEL0076	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	Pre-amplifier	A.H.	PAM-0118	360	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	Pre-amplifier	Compliance Directions Systems Inc.	PAP-1G26-48	6279.628	Oct. 16, 2016	Oct. 16, 2017

<input checked="" type="checkbox"/>	RF Cable	HUBSER	CP-X2	W11.03	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	RF Cable	HUBSER	CP-X1	W12.02	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	MI Cable	HUBSER	C10-01-01-1M	1091629	Oct. 16, 2016	Oct. 16, 2017
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESU8	100316	Oct.16, 2016	Oct.16, 2017
<input checked="" type="checkbox"/>	LISN 1	R&S	ENV216	101109	Oct.16, 2016	Oct.16, 2017
<input checked="" type="checkbox"/>	LISN 2	R&S	ESH2-Z5	100309	Oct.16, 2016	Oct.16, 2017
<input checked="" type="checkbox"/>	Pulse Limiter	R&S	ESH3-Z2	101242	Oct.16, 2016	Oct.16, 2017
<input checked="" type="checkbox"/>	CE Cable 1	HUBSER	ESU8/RF2	W10.01	Oct.16, 2016	Oct.16, 2017
<input checked="" type="checkbox"/>	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) RSS-247 Issue 2 5.2.a	Complied
2	Peak Output Power	FCC 15.247 (b) (3) RSS-247 Issue 2 5.4.d	Complied
3	Power Spectral Density	FCC 15.247 (3) RSS-247 Issue 2 5.2.b	Complied
4	Out-of-band emissions in non-restricted bands	FCC 15.247 (d) RSS-247 Clause 5.5	Complied
5	Out-of-band emissions in restricted bands	FCC 15.247 (d) FCC 15.209 FCC 15.205 RSS-247 Issue 2 5.5 RSS-Gen Issue 4 8.9 8.10	Complied
6	Band-edge	FCC 15.207 RSS-247 Issue 2 5.5	Complied
7	Conducted Emission Test For AC Power Port	FCC 15.203 RSS-GEN Clause 8.8	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 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2) IC RSS-247 5.2 (a)	6 dB Bandwidth	>= 500KHz	2400-2483.5
RSS-Gen Clause 6.6	99% Bandwidth	for reporting purposes only.	2400-2483.5

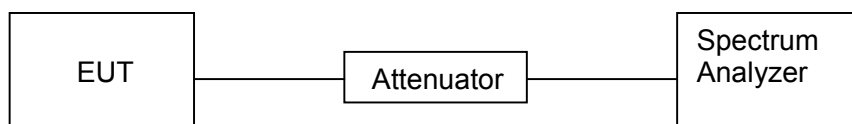
TEST PROCEDURE

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	$\geq 3 \times \text{RBW}$
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

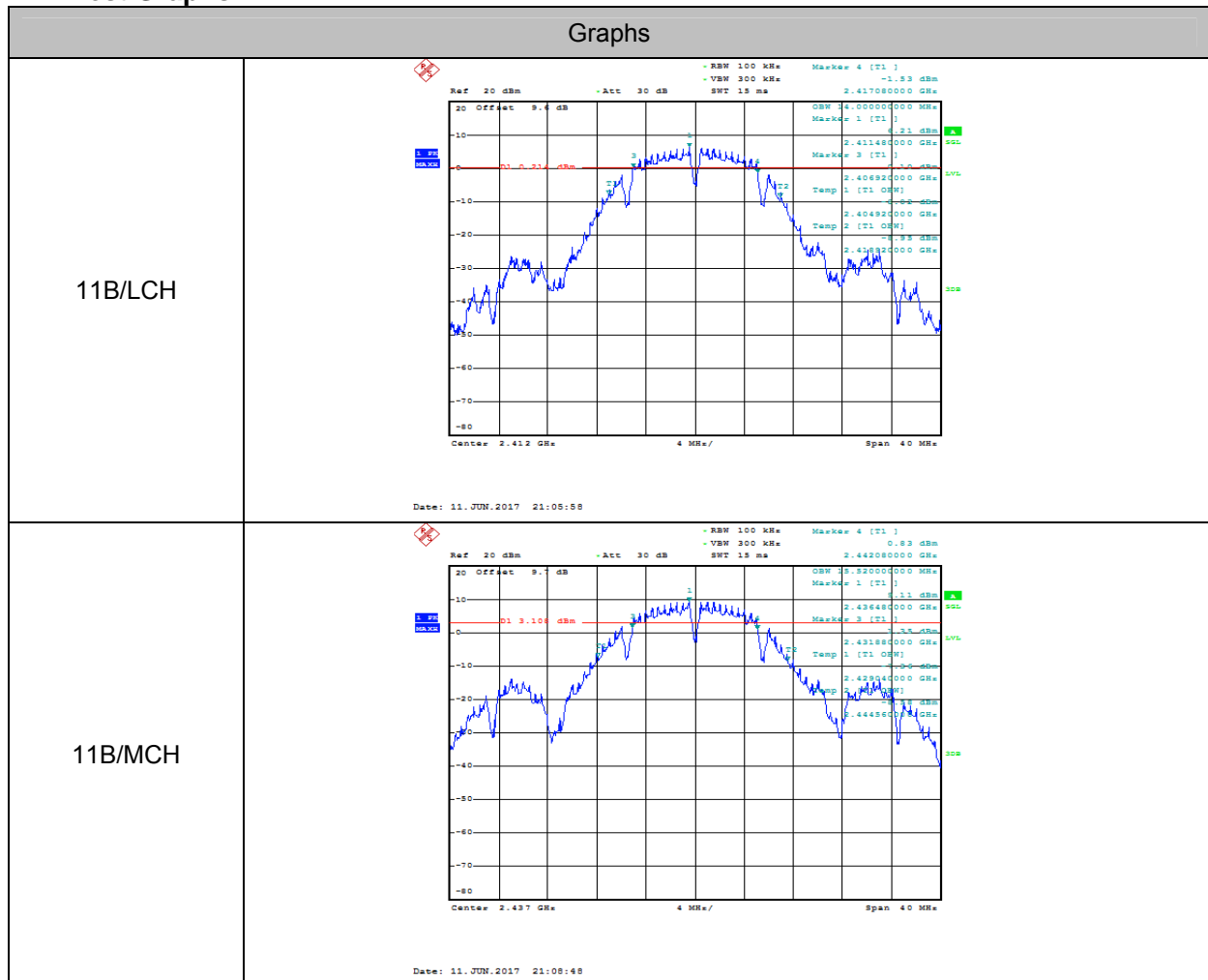


Temperature: 24.8° C
 Relative Humidity: 58%
 Test Voltage: AC 120V/60HZ

RESULTS

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	10.160	14.000	PASS
11B	MCH	10.200	15.520	PASS
11B	HCH	10.120	16.240	PASS
11G	LCH	16.400	22.040	PASS
11G	MCH	16.400	20.120	PASS
11G	HCH	16.360	22.760	PASS
11N20SISO	LCH	17.400	20.080	PASS
11N20SISO	MCH	17.680	18.680	PASS
11N20SISO	HCH	17.640	20.600	PASS

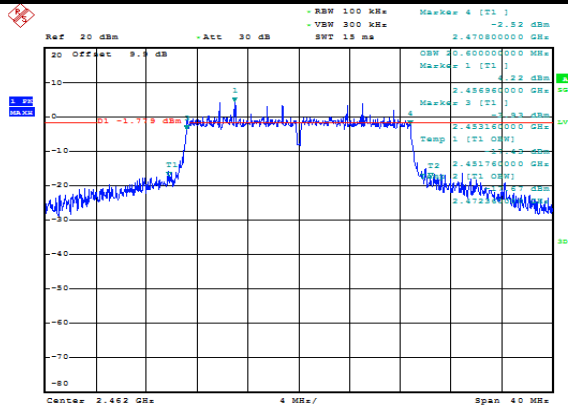
Test Graphs



<p>11B/HCH</p>	<p>Ref 20 dBm - Att 30 dB RBW 100 kHz VBW 300 kHz SMT 15 ms</p> <p>Offset 9.4 dB</p> <p>Center 2.462 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11 JUN 2017 21:11:02</p>
<p>11G/LCH</p>	<p>Ref 20 dBm - Att 30 dB RBW 100 kHz VBW 300 kHz SMT 15 ms</p> <p>Offset 9.4 dB</p> <p>Center 2.412 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11 JUN 2017 21:13:38</p>
<p>11G/MCH</p>	<p>Ref 20 dBm - Att 30 dB RBW 100 kHz VBW 300 kHz SMT 15 ms</p> <p>Offset 9.4 dB</p> <p>Center 2.437 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11 JUN 2017 21:16:14</p>

<p>11G/HCH</p>	<p>Ref 20 dBm - Attc 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 15 ms - Marker 4 [T1] - 2.470160000 GHz -1.17 dBm</p> <p>20 Offset 9.4 dB</p> <p>OSW 2.76000000 GHz Marker 1 [T1] -1.16 dBm 2.45700000 GHz Marker 3 [T1] -1.16 dBm 2.45380000 GHz Temp 1 [T1] (CW) 2.45050000 GHz 2.47332000 GHz</p> <p>Center 2.462 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11.JUN.2017 21:18:33</p>
<p>11N20SISO/LCH</p>	<p>Ref 20 dBm - Attc 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 15 ms - Marker 4 [T1] - 2.420800000 GHz 2.00 dBm</p> <p>20 Offset 9.4 dB</p> <p>OSW 2.08000000 GHz Marker 1 [T1] 2.00 dBm 2.41690000 GHz Marker 3 [T1] -1.16 dBm 2.40240000 GHz Temp 1 [T1] (CW) 2.40280000 GHz 2.42264000 GHz</p> <p>Center 2.412 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11.JUN.2017 21:20:59</p>
<p>11N20SISO/MCH</p>	<p>Ref 20 dBm - Attc 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 15 ms - Marker 4 [T1] - 2.443840000 GHz -3.51 dBm</p> <p>20 Offset 9.4 dB</p> <p>OSW 2.68000000 GHz Marker 1 [T1] -3.50 dBm 2.44200000 GHz Marker 3 [T1] -1.16 dBm 2.42810000 GHz Temp 1 [T1] (CW) 2.42770000 GHz 2.44201000 GHz</p> <p>Center 2.437 GHz 4 MHz/ Span 40 MHz</p> <p>Date: 11.JUN.2017 21:23:29</p>

11N20SISO/HCH



Date: 11 JUN 2017 21:26:02

7.2. PEAK CONDUCTED OUTPUT POWER

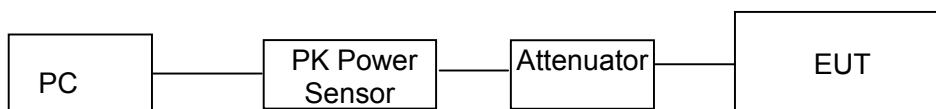
LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) RSS-247 5.4 (d)	Peak Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Connect the EUT to the a broadband peak RF power meter, the power meter shall have a video bandwidth that is greater than or equal to the bandwidth and shall utilize a fast-responding diode detector.

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	15.40	PASS
11B	MCH	18.95	PASS
11B	HCH	17.97	PASS
11G	LCH	15.88	PASS
11G	MCH	15.85	PASS
11G	HCH	15.34	PASS
11N20SISO	LCH	15.23	PASS
11N20SISO	MCH	15.00	PASS
11N20SISO	HCH	14.27	PASS

7.3. POWER SPECTRAL DENSITY

LIMITS

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

TEST PROCEDURE

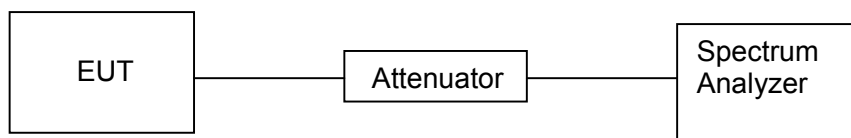
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
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



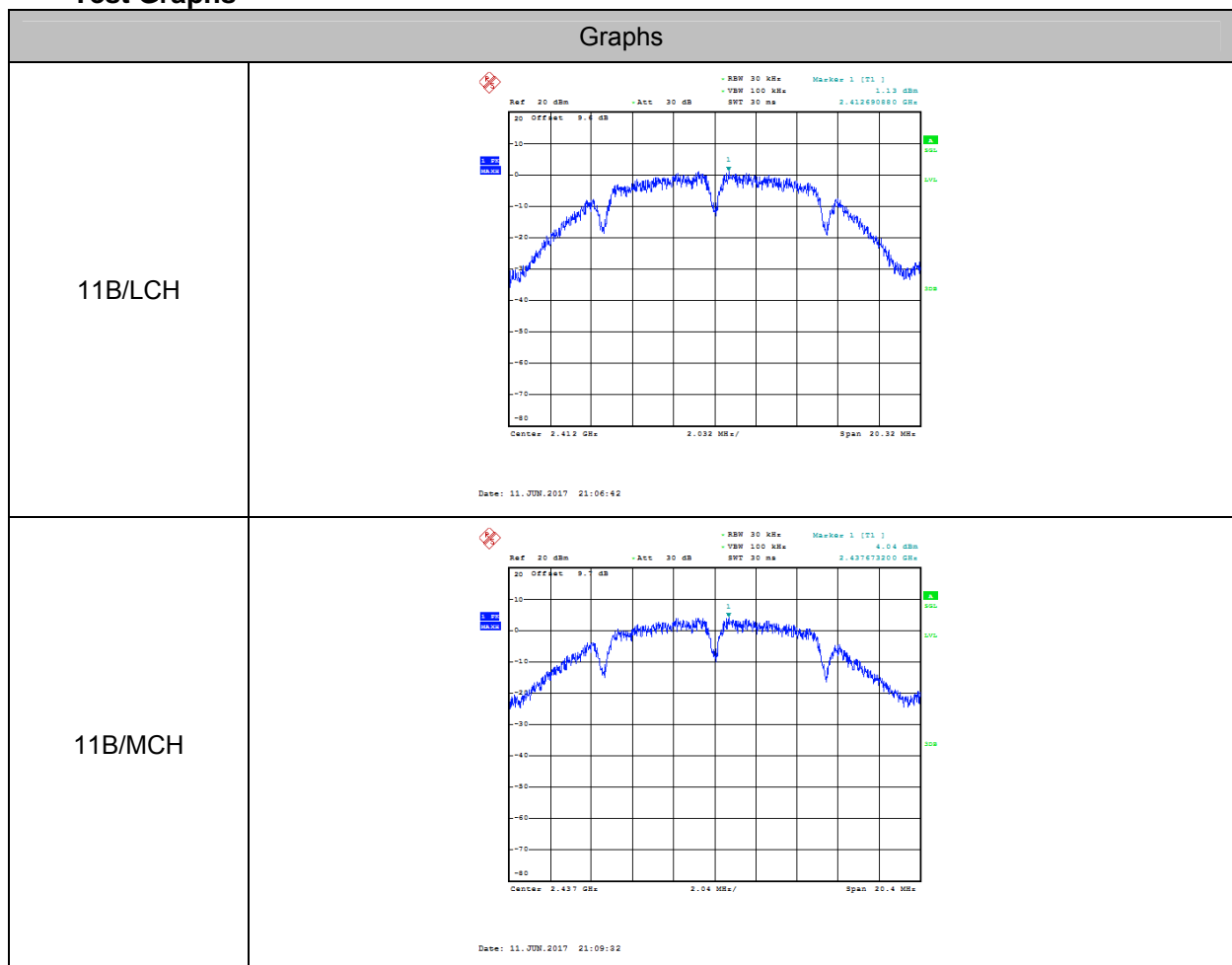
TEST CONDITIONS

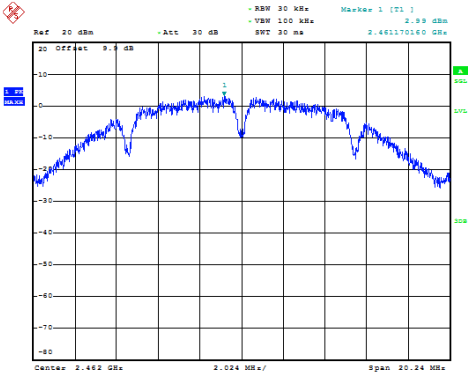
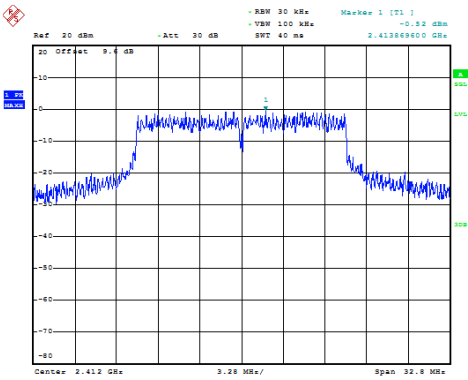
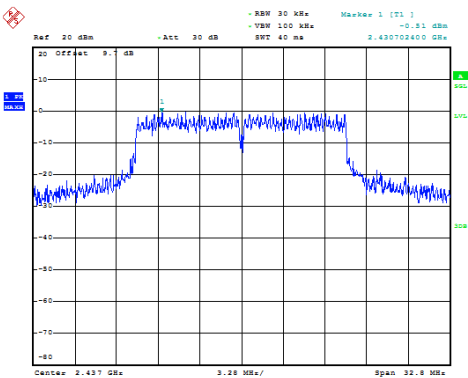
Temperature: 24.8° C
 Relative Humidity: 58%
 Test Voltage: AC 120V/60HZ

RESULTS

Mode	Channel	Meas.Level [dBm]	Verdict
11B	LCH	1.13	PASS
11B	MCH	4.04	PASS
11B	HCH	2.99	PASS
11G	LCH	-0.52	PASS
11G	MCH	-0.51	PASS
11G	HCH	-0.65	PASS
11N20SISO	LCH	-0.83	PASS
11N20SISO	MCH	-0.04	PASS
11N20SISO	HCH	-1.31	PASS

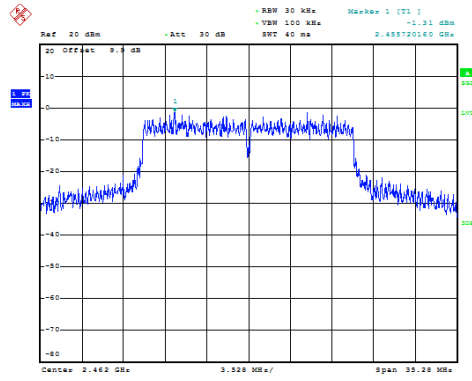
Test Graphs



<p>11B/HCH</p>	 <p>Ref: 20 dBm -Att: 30 dB -RBW: 30 kHz -VBW: 100 kHz -SMT: 30 ns Marker 1 (T1) 2.99 dBm 2.46170160 GHz</p> <p>Date: 11 JUN 2017 21:11:46</p>
<p>11G/LCH</p>	 <p>Ref: 20 dBm -Att: 30 dB -RBW: 30 kHz -VBW: 100 kHz -SMT: 40 ns Marker 1 (T1) -0.22 dBm 2.41268800 GHz</p> <p>Date: 11 JUN 2017 21:14:22</p>
<p>11G/MCH</p>	 <p>Ref: 20 dBm -Att: 30 dB -RBW: 30 kHz -VBW: 100 kHz -SMT: 40 ns Marker 1 (T1) -0.21 dBm 2.430702400 GHz</p> <p>Date: 11 JUN 2017 21:16:58</p>

<p>11G/HCH</p>	<p>Ref 20 dBm -Att 30 dB -RBW 30 kHz -VBW 100 kHz -SWT 40 ms Marker 1 [T1] -0.83 dBm 2.46446000 GHz</p> <p>Center: 2.462 GHz 3.272 MHz/ Span: 32.72 MHz</p> <p>Date: 11 JUN 2017 21:19:17</p>
<p>11N20SISO/LCH</p>	<p>Ref 20 dBm -Att 30 dB -RBW 30 kHz -VBW 100 kHz -SWT 40 ms Marker 1 [T1] -0.84 dBm 2.41278000 GHz</p> <p>Center: 2.412 GHz 3.48 MHz/ Span: 34.8 MHz</p> <p>Date: 11 JUN 2017 21:21:43</p>
<p>11N20SISO/MCH</p>	<p>Ref 20 dBm -Att 30 dB -RBW 30 kHz -VBW 100 kHz -SWT 40 ms Marker 1 [T1] -0.84 dBm 2.43872040 GHz</p> <p>Center: 2.437 GHz 3.536 MHz/ Span: 35.36 MHz</p> <p>Date: 11 JUN 2017 21:24:13</p>

11N20SISO/HCH



Date: 11 JUN 2017 21:26:46

7.4. CONDUCTED BANDEGE

LIMITS

FCC Part15 (15.247) , Subpart C RSS-247 ISSUE 2		
Section	Test Item	Limit
FCC §15.247 (d) 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:

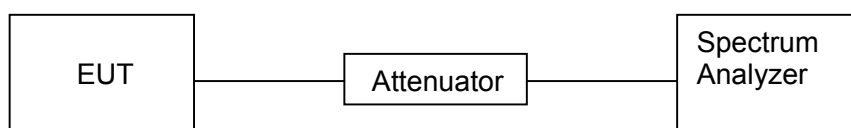
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP

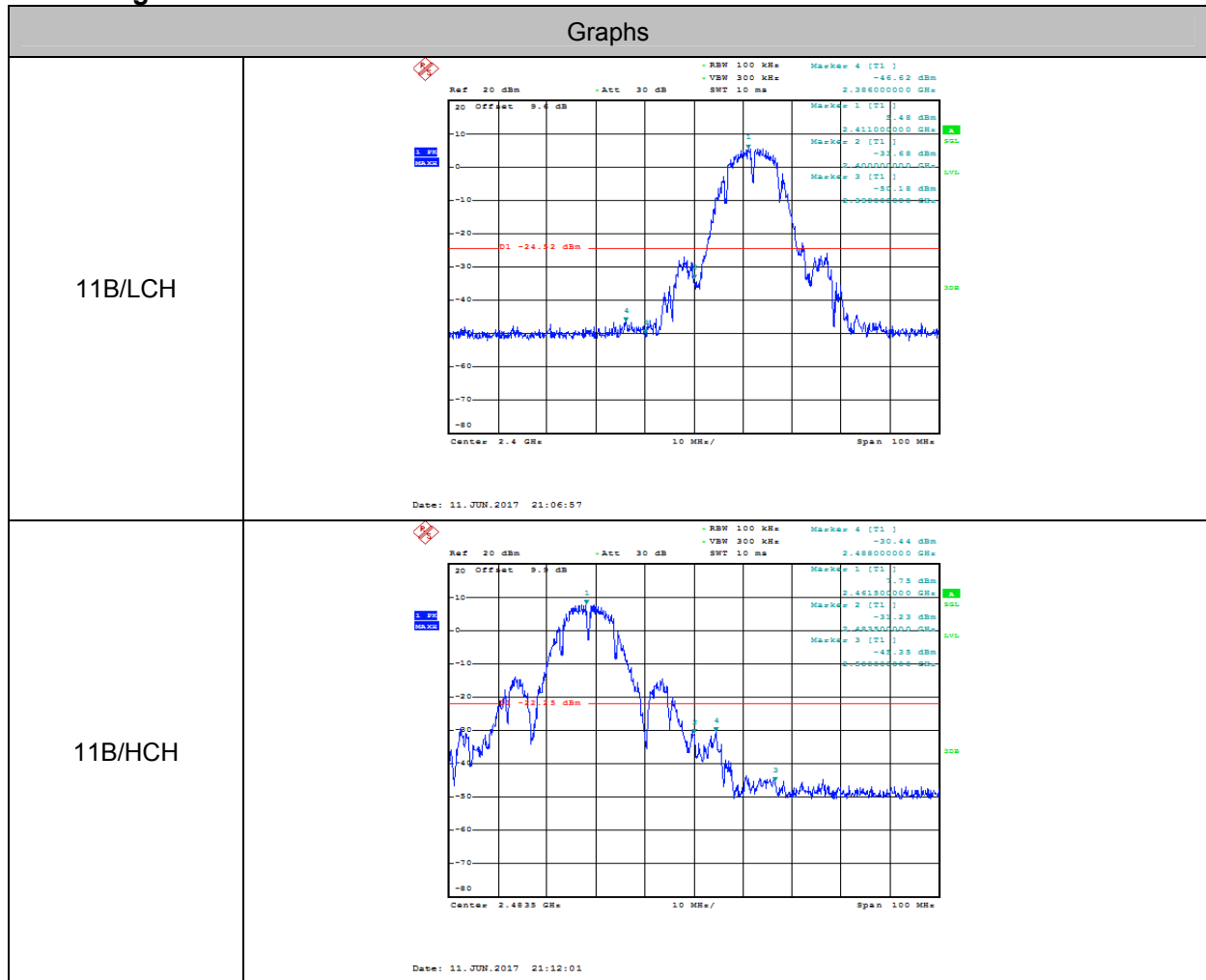


TEST CONDITIONS

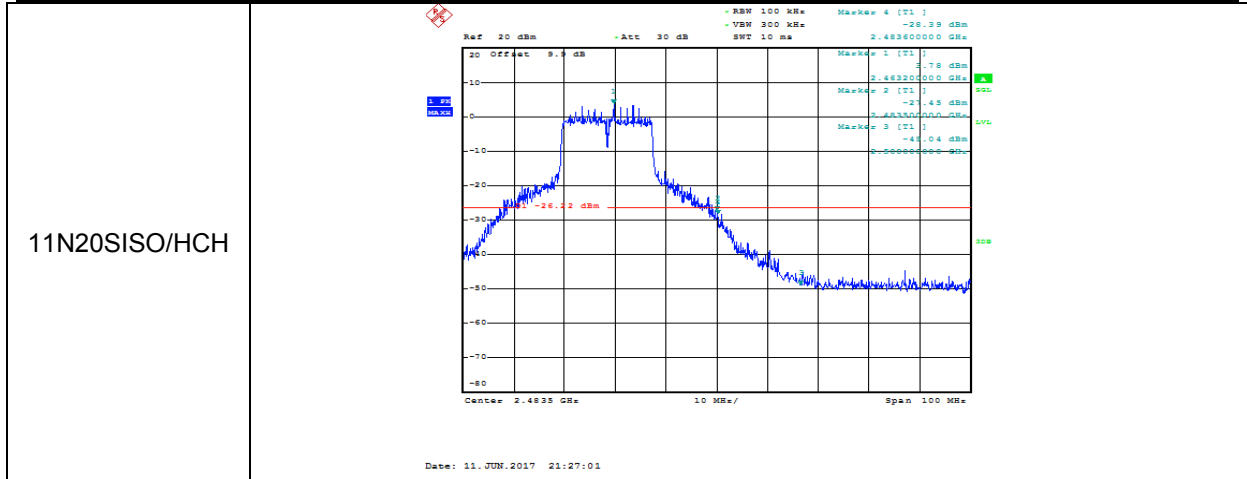
Temperature: 24.8° C
 Relative Humidity: 58%
 Test Voltage: AC 120V/60HZ

RESULTS

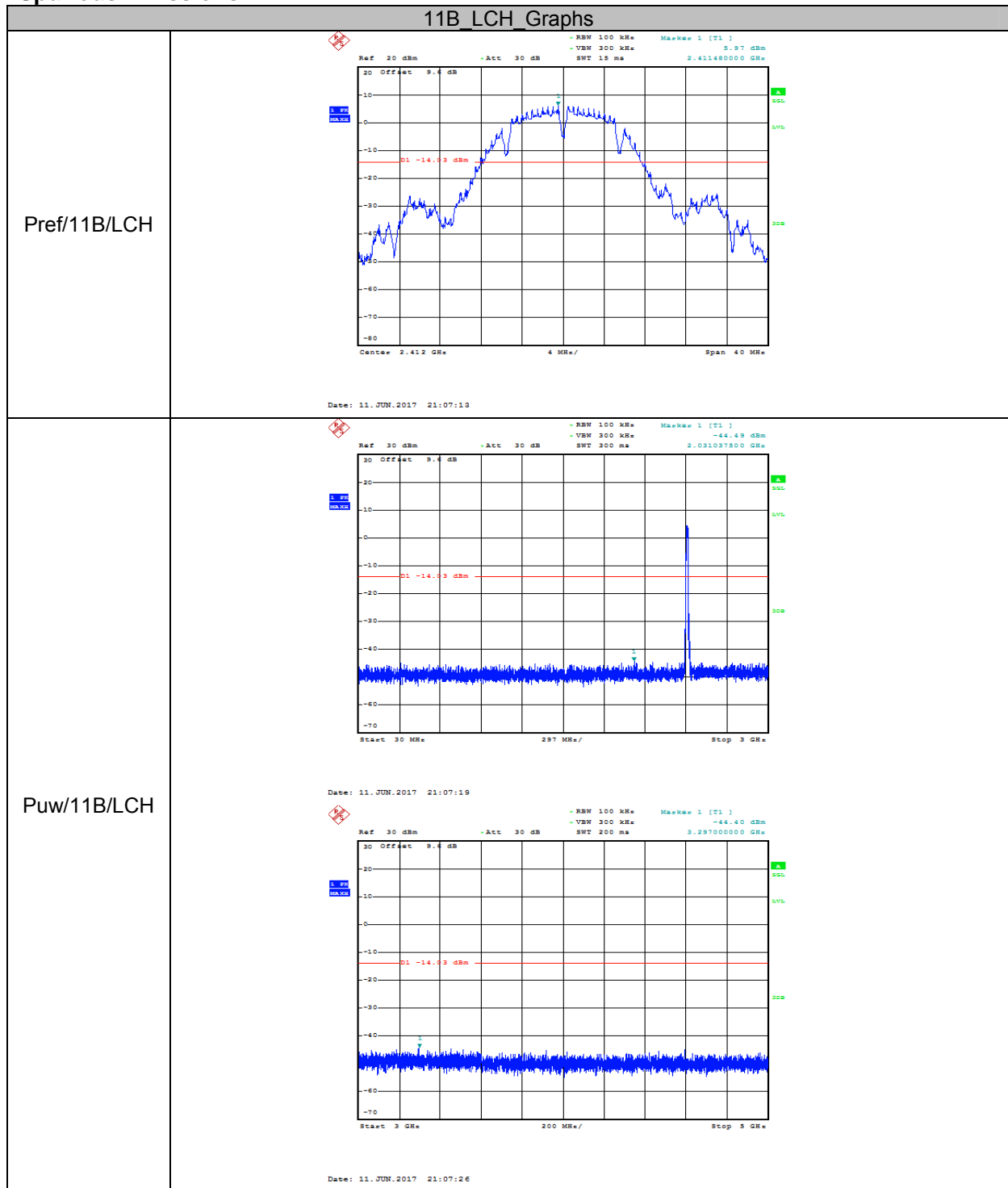
Band-edge:

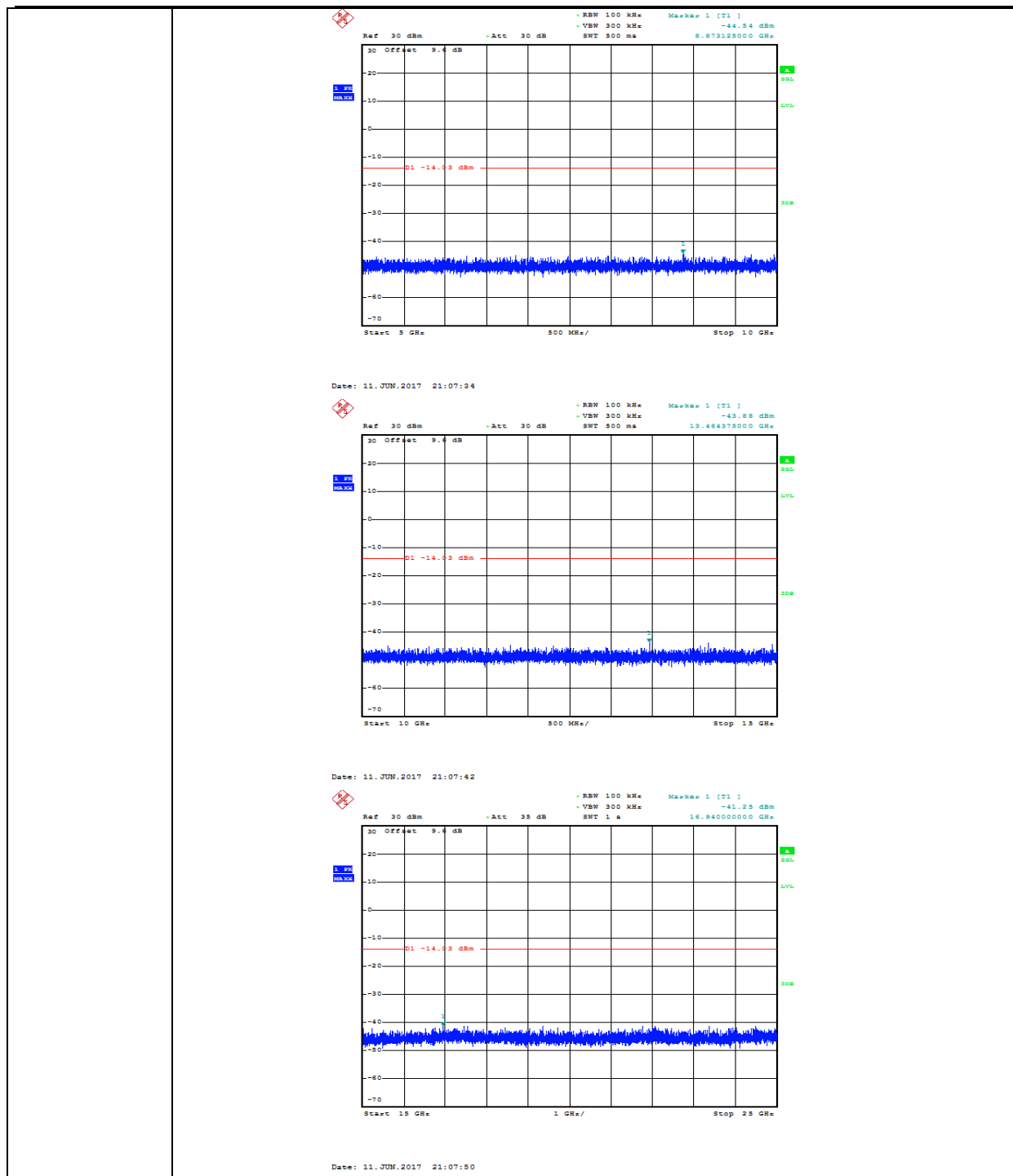


<p>11G/LCH</p>	<p>Ref 20 dBm - Att 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 10 ms - Mask 4 [T1]</p> <p>20 Offset 9.4 dB -20.14 dBm 2.41330000 GHz -10 -1.75 dBm Mask 2 [T1] -21.15 dBm 2.42000000 GHz -20 -31.66 dBm Mask 3 [T1] -31.66 dBm 2.43000000 GHz</p> <p>D1 -24.23 dBm</p> <p>Center 2.4 GHz 10 MHz/ Span 100 MHz</p> <p>Date: 11 JUN 2017 21:14:37</p>
<p>11G/HCH</p>	<p>Ref 20 dBm - Att 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 10 ms - Mask 4 [T1]</p> <p>20 Offset 9.4 dB -4.80 dBm 2.48700000 GHz -10 -28.87 dBm Mask 2 [T1] -28.87 dBm 2.49330000 GHz -20 -40.78 dBm Mask 3 [T1] -40.78 dBm 2.50000000 GHz</p> <p>D1 -22.5 dBm</p> <p>Center 2.4835 GHz 10 MHz/ Span 100 MHz</p> <p>Date: 11 JUN 2017 21:19:31</p>
<p>11N20SISO/LCH</p>	<p>Ref 20 dBm - Att 30 dB - RBW 100 kHz - VBW 300 kHz - SWT 10 ms - Mask 4 [T1]</p> <p>20 Offset 9.4 dB -25.43 dBm 2.40570000 GHz -10 -25.63 dBm Mask 2 [T1] -25.63 dBm 2.41200000 GHz -20 -25.28 dBm Mask 3 [T1] -25.28 dBm 2.41830000 GHz</p> <p>D1 -25.46 dBm</p> <p>Center 2.4 GHz 10 MHz/ Span 100 MHz</p> <p>Date: 11 JUN 2017 21:21:58</p>

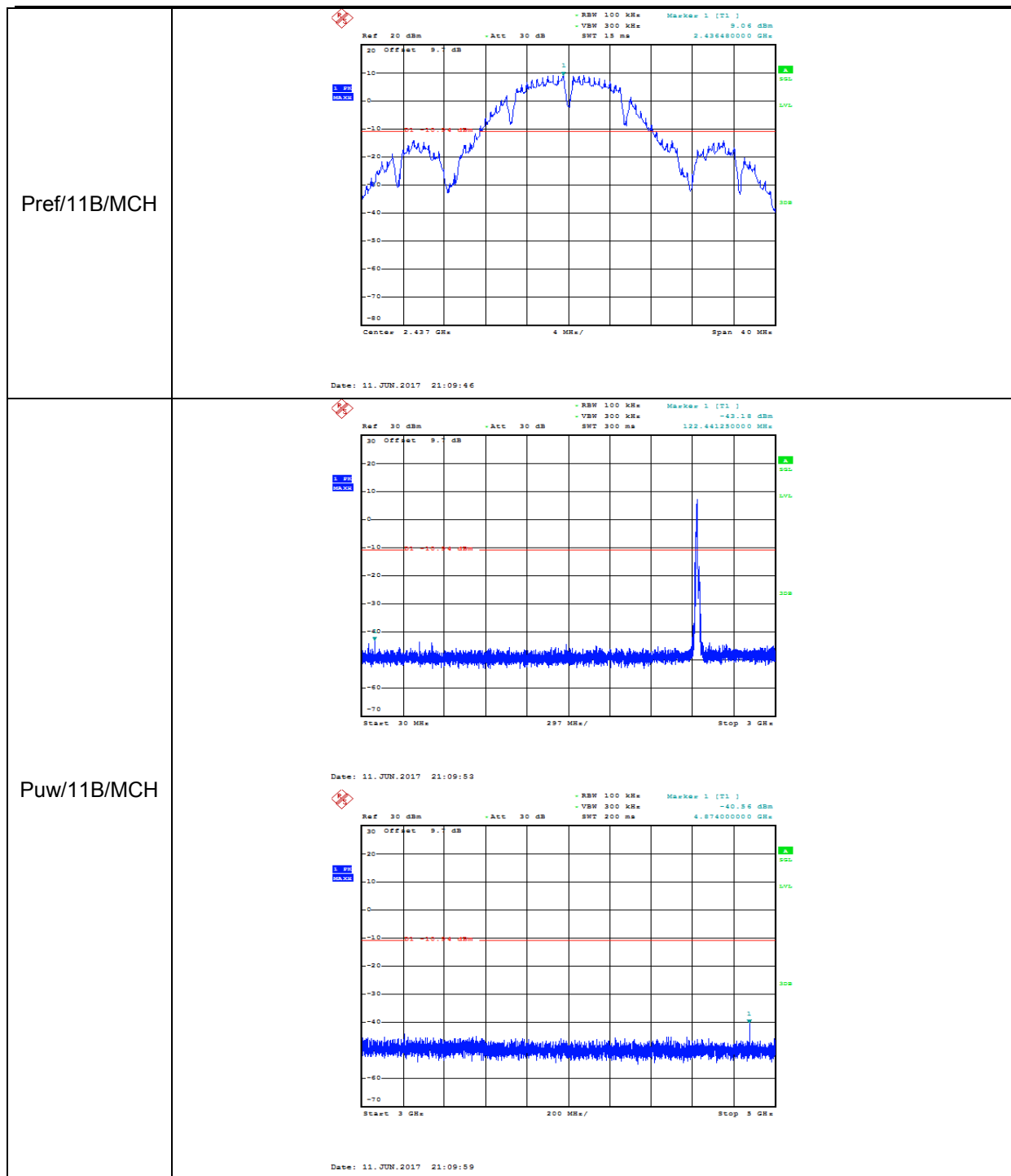


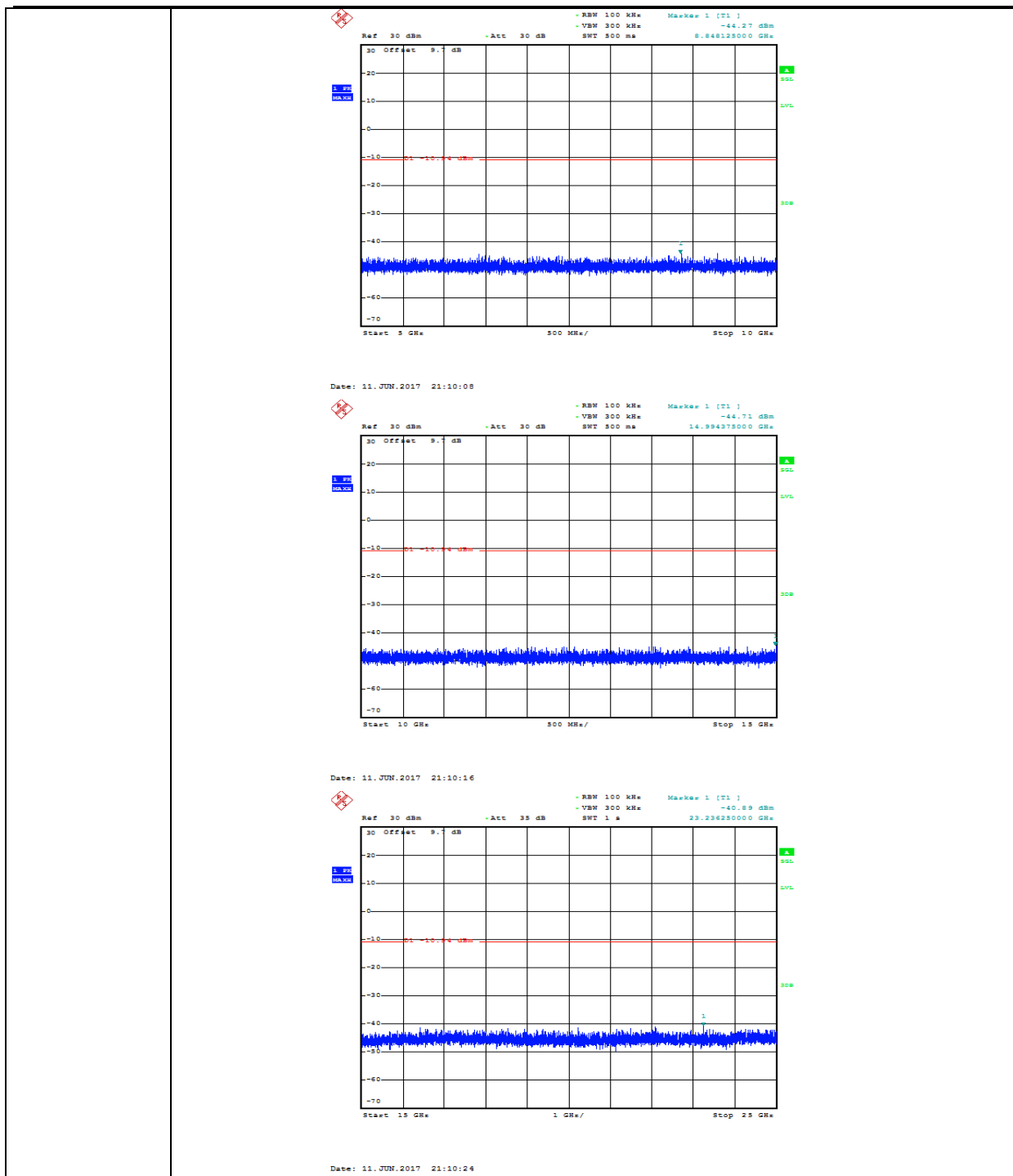
Spurious Emissions:



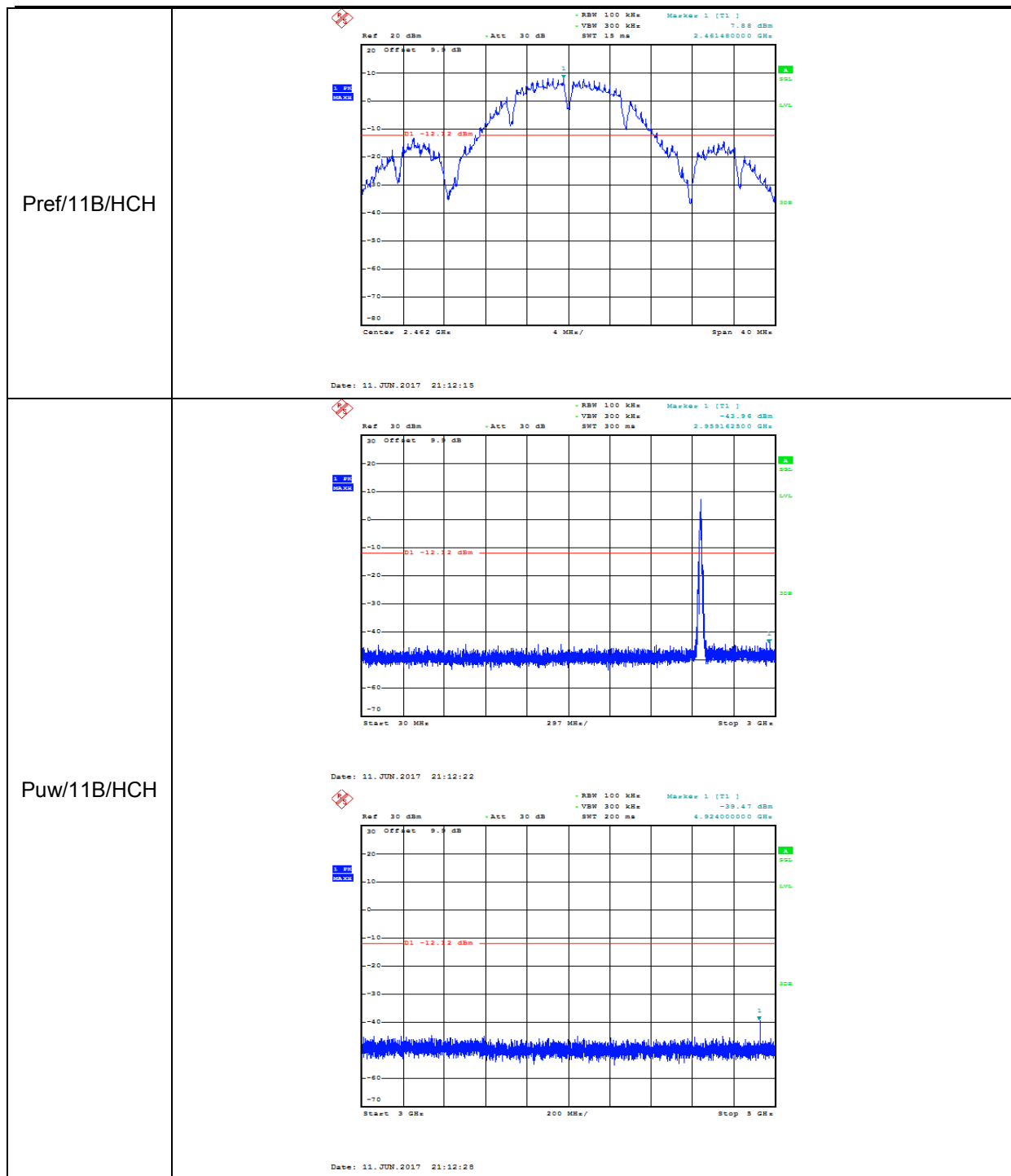


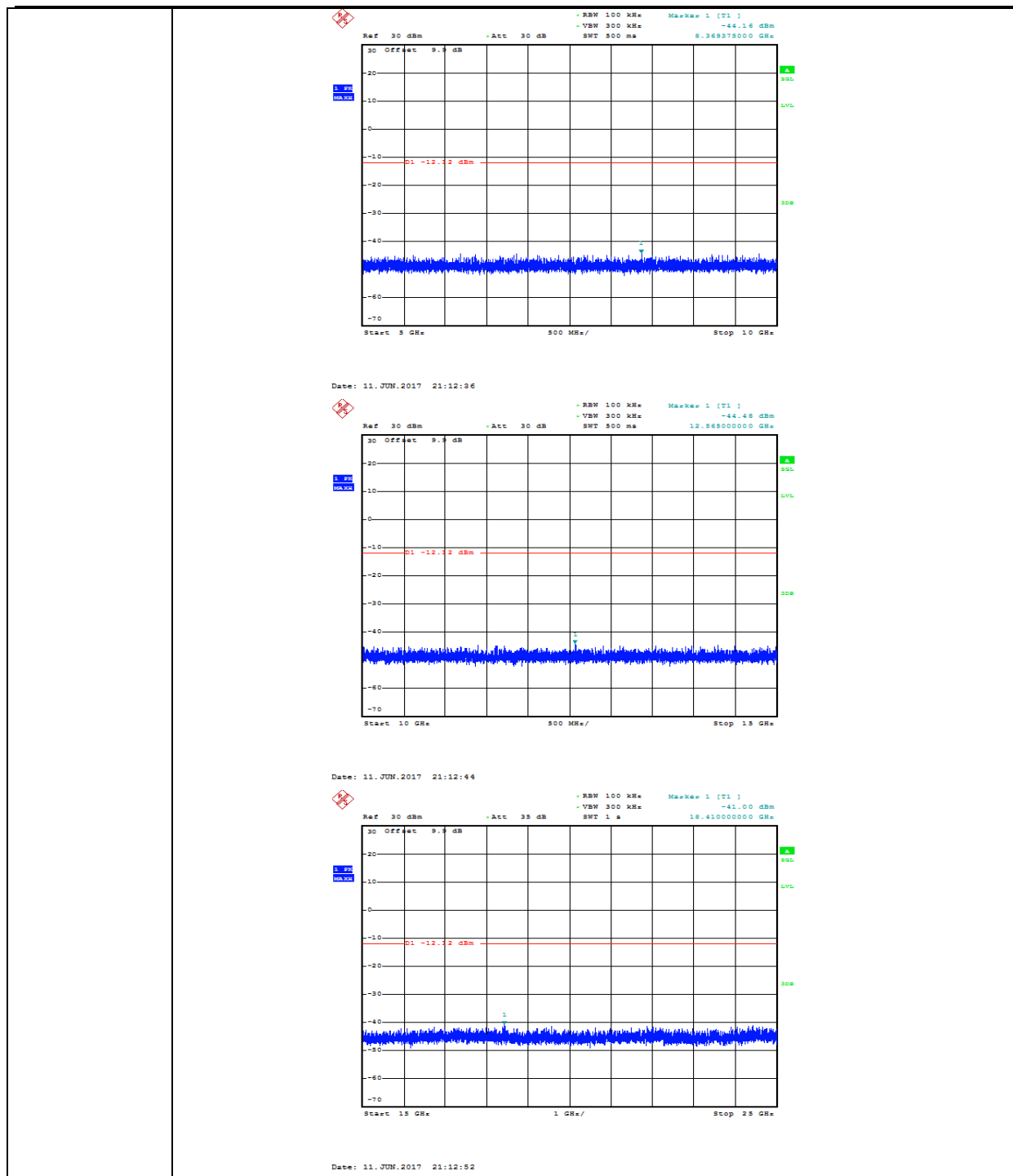
11B_MCH_Graphs



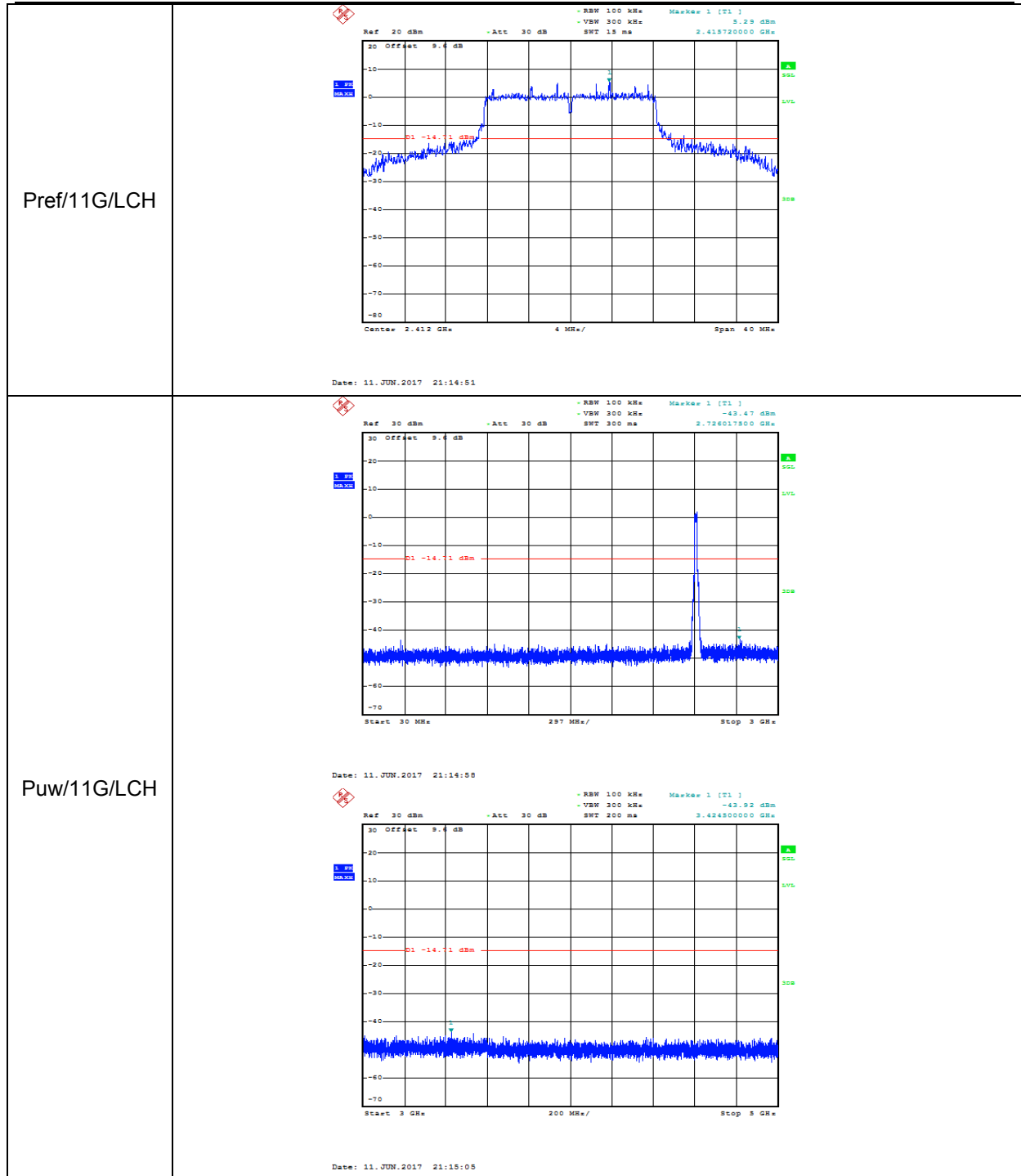


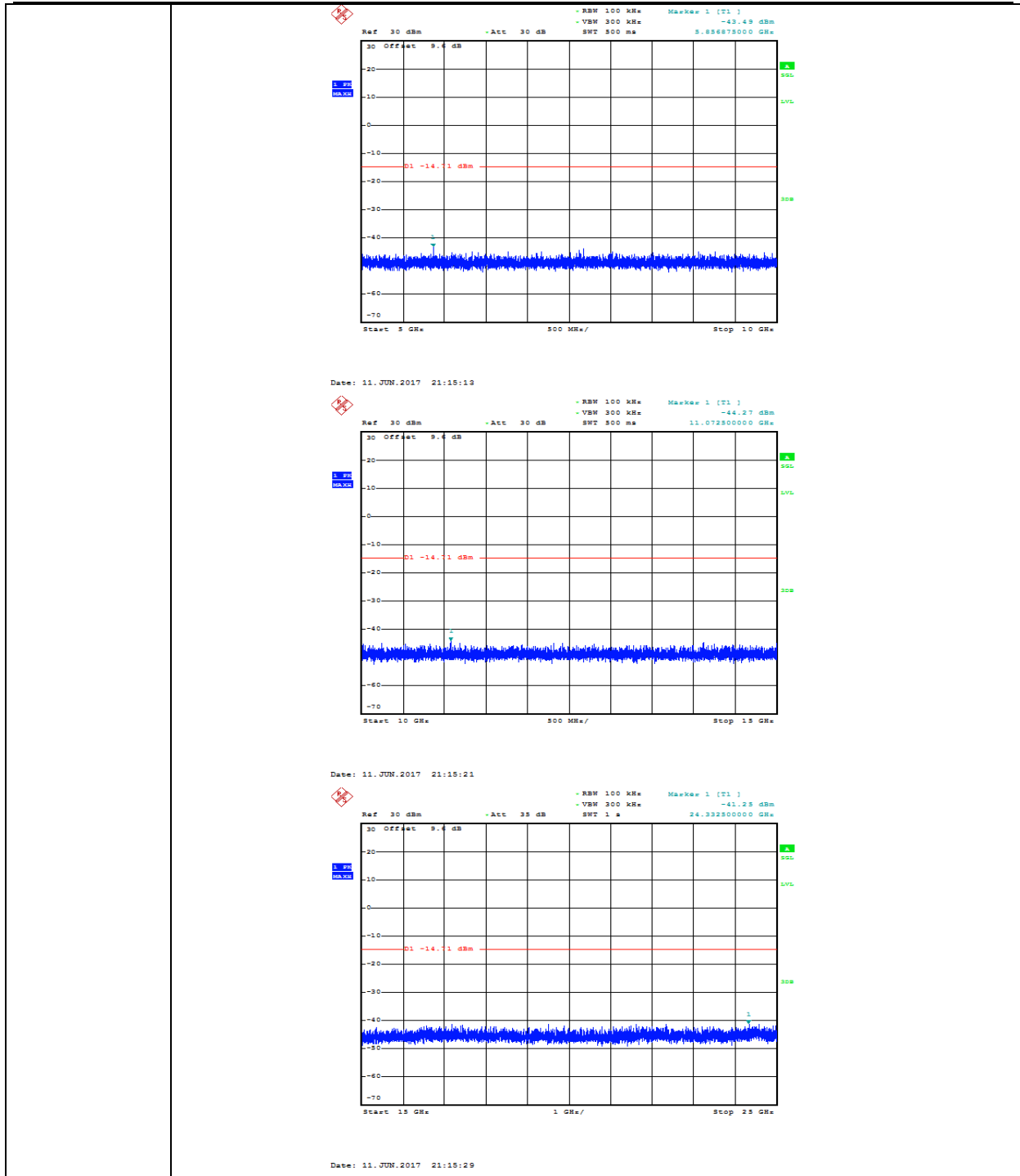
11B_HCH_Graphs



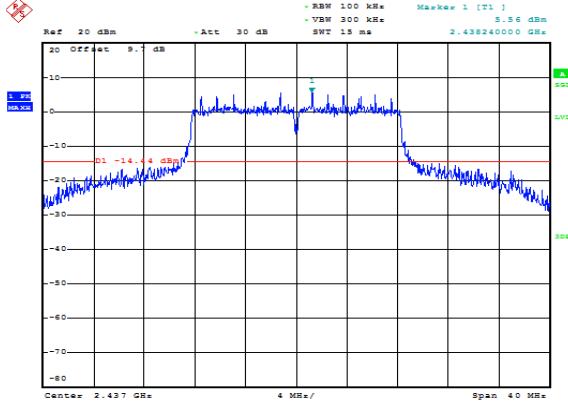
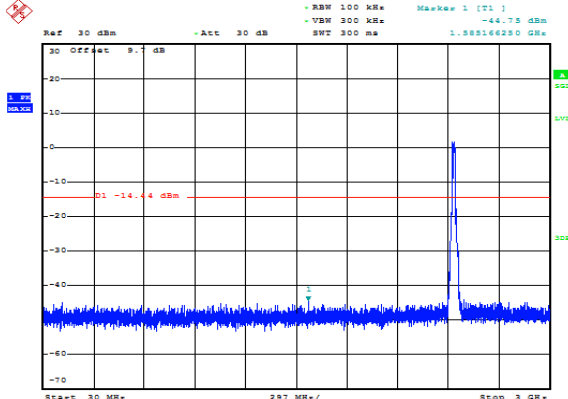
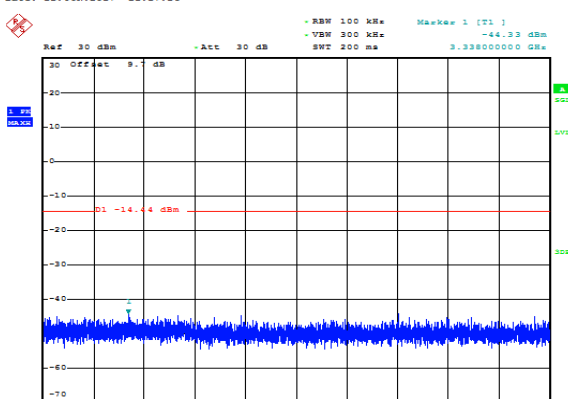


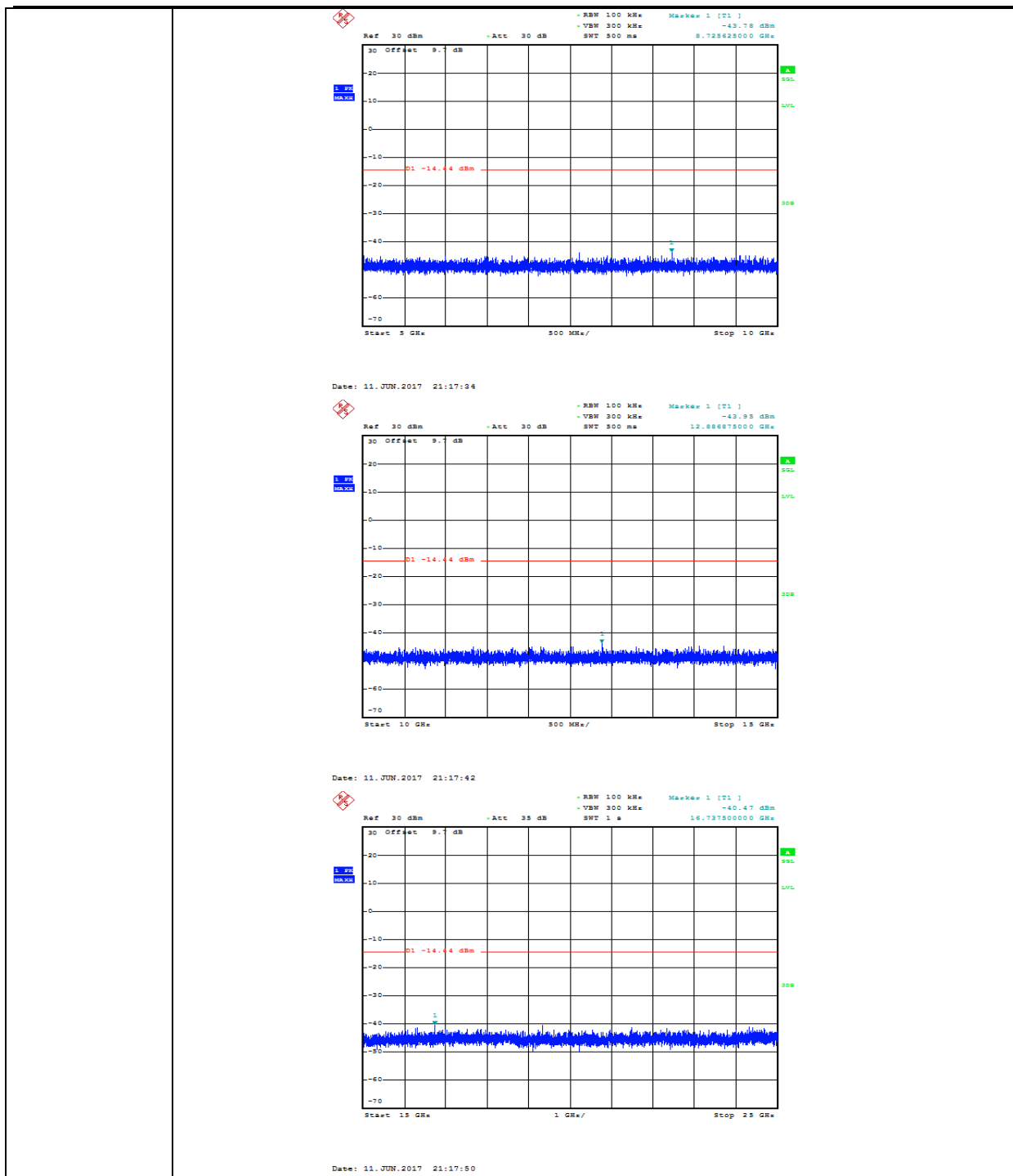
11G_LCH_Graphs



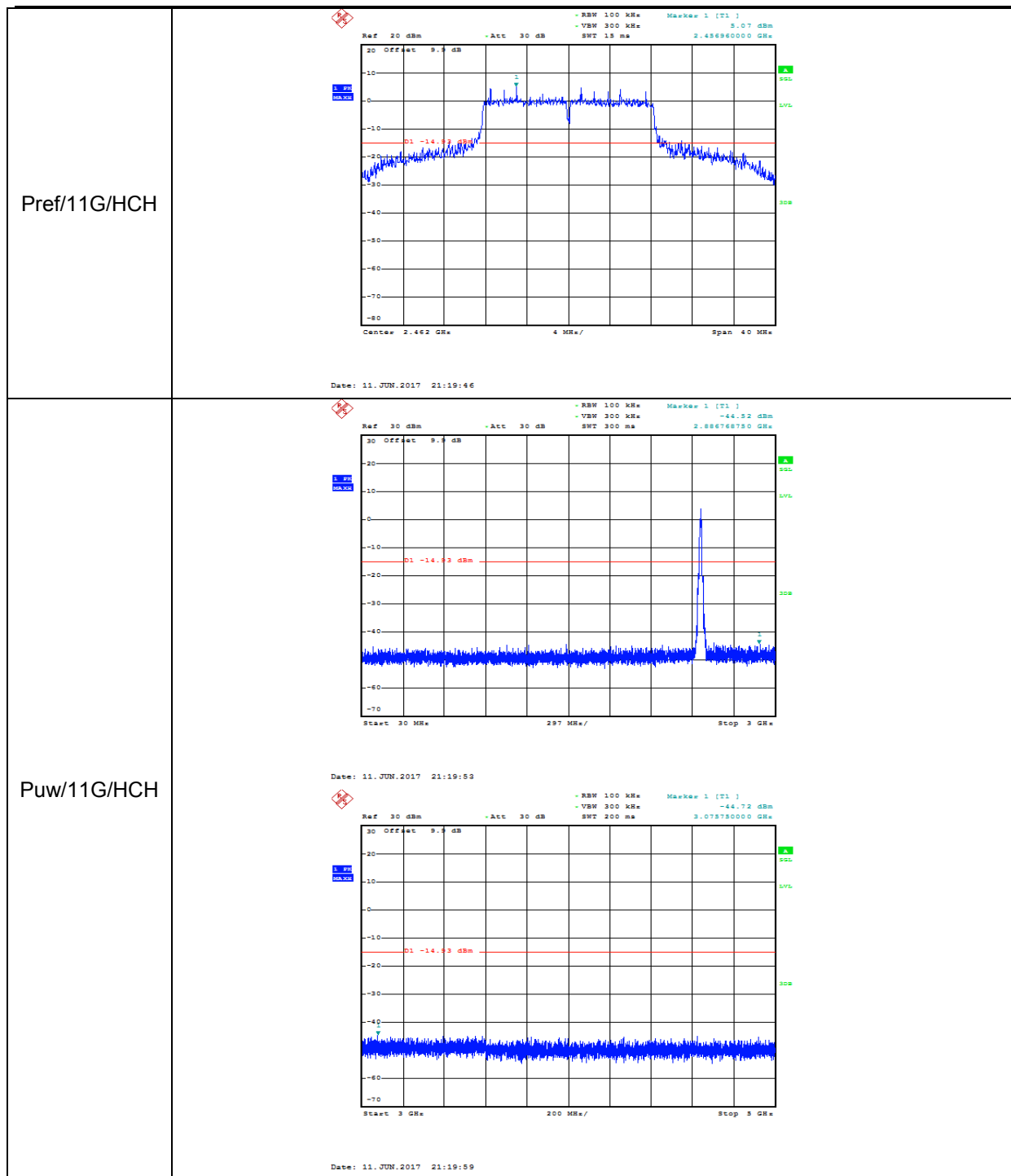


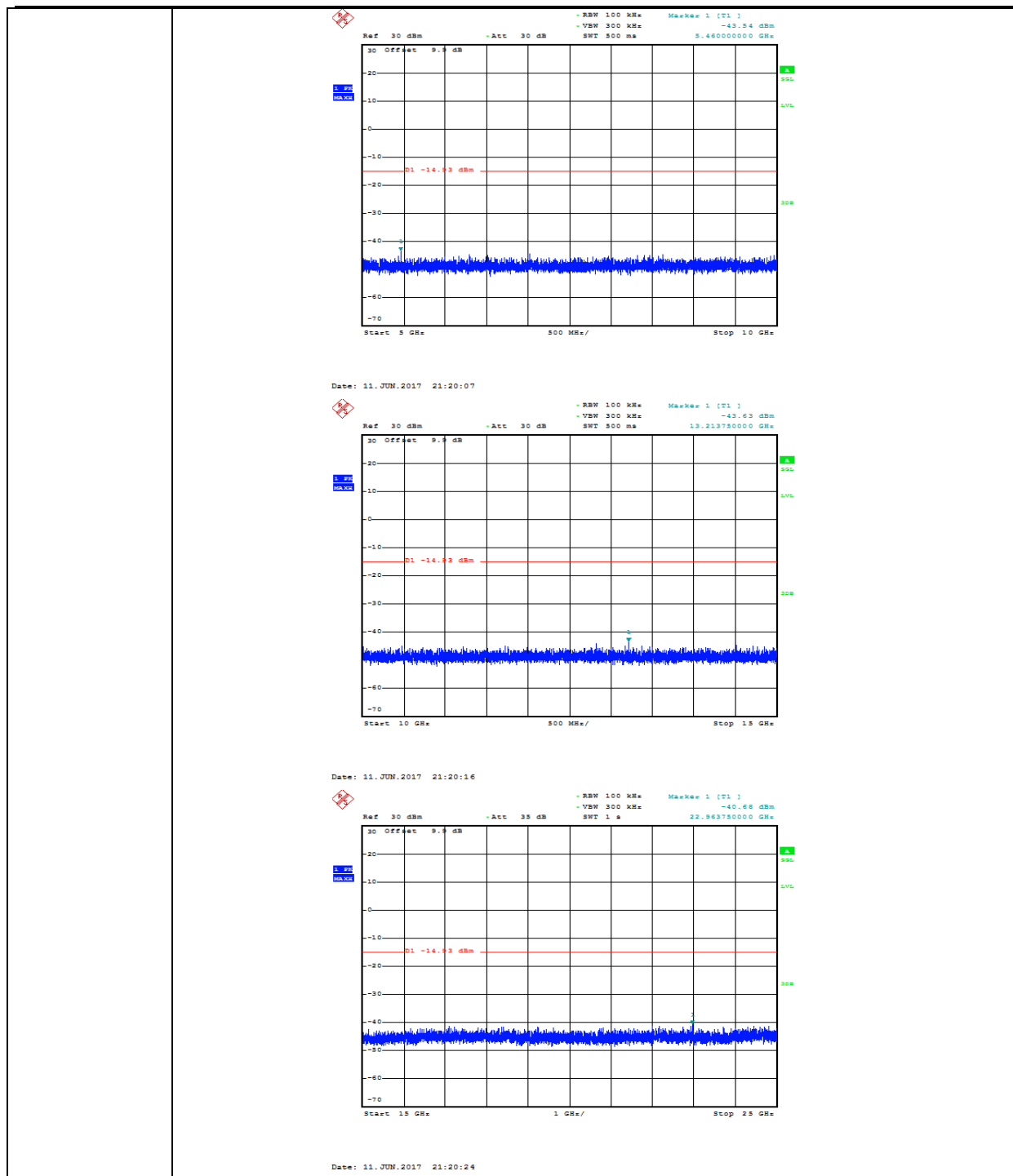
11G_MCH_Graphs

Pref/11G/MCH	 <p>Date: 11 JUN 2017 21:17:12</p>
Puw/11G/MCH	 <p>Date: 11 JUN 2017 21:17:19</p>  <p>Date: 11 JUN 2017 21:17:26</p>

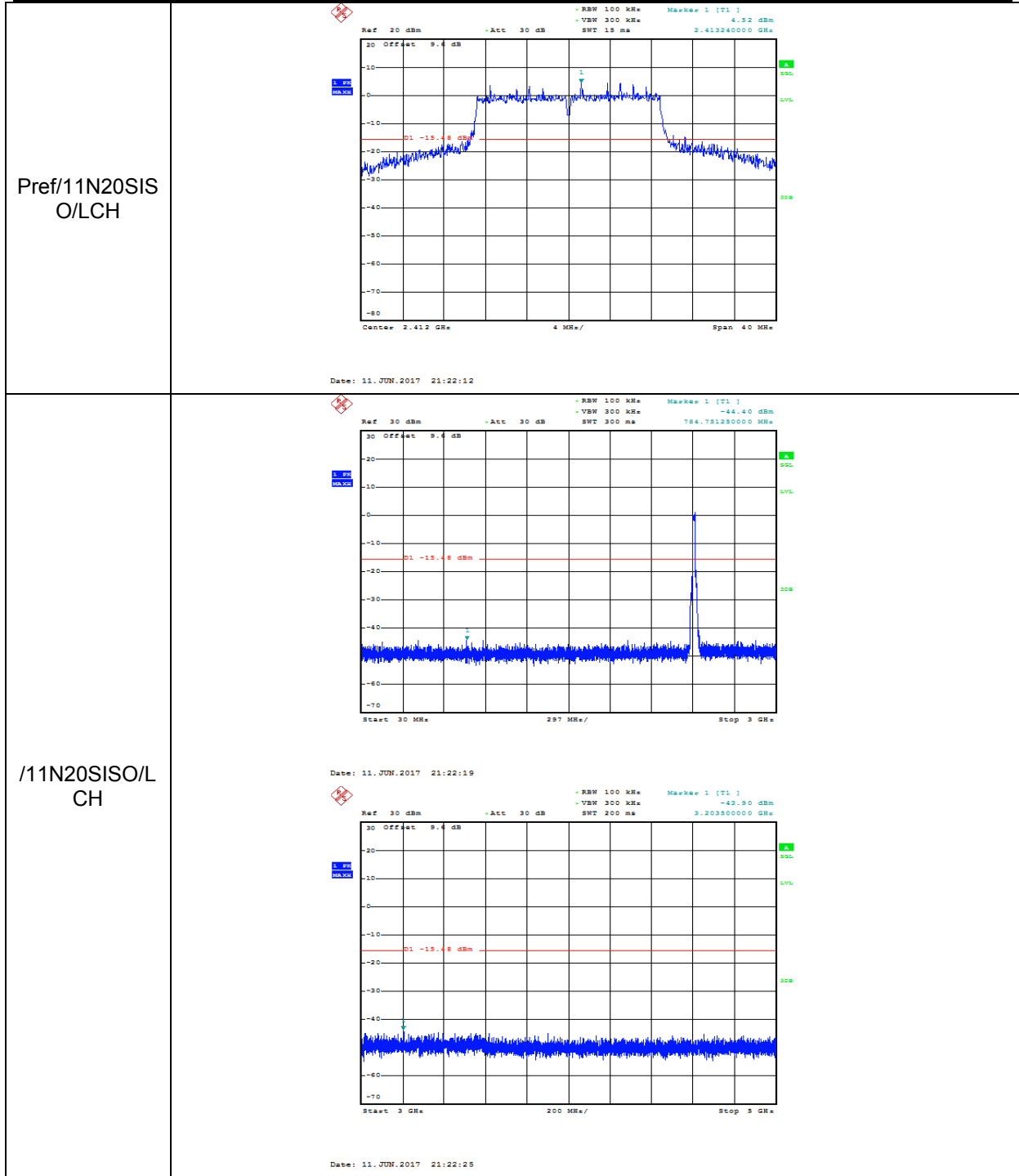


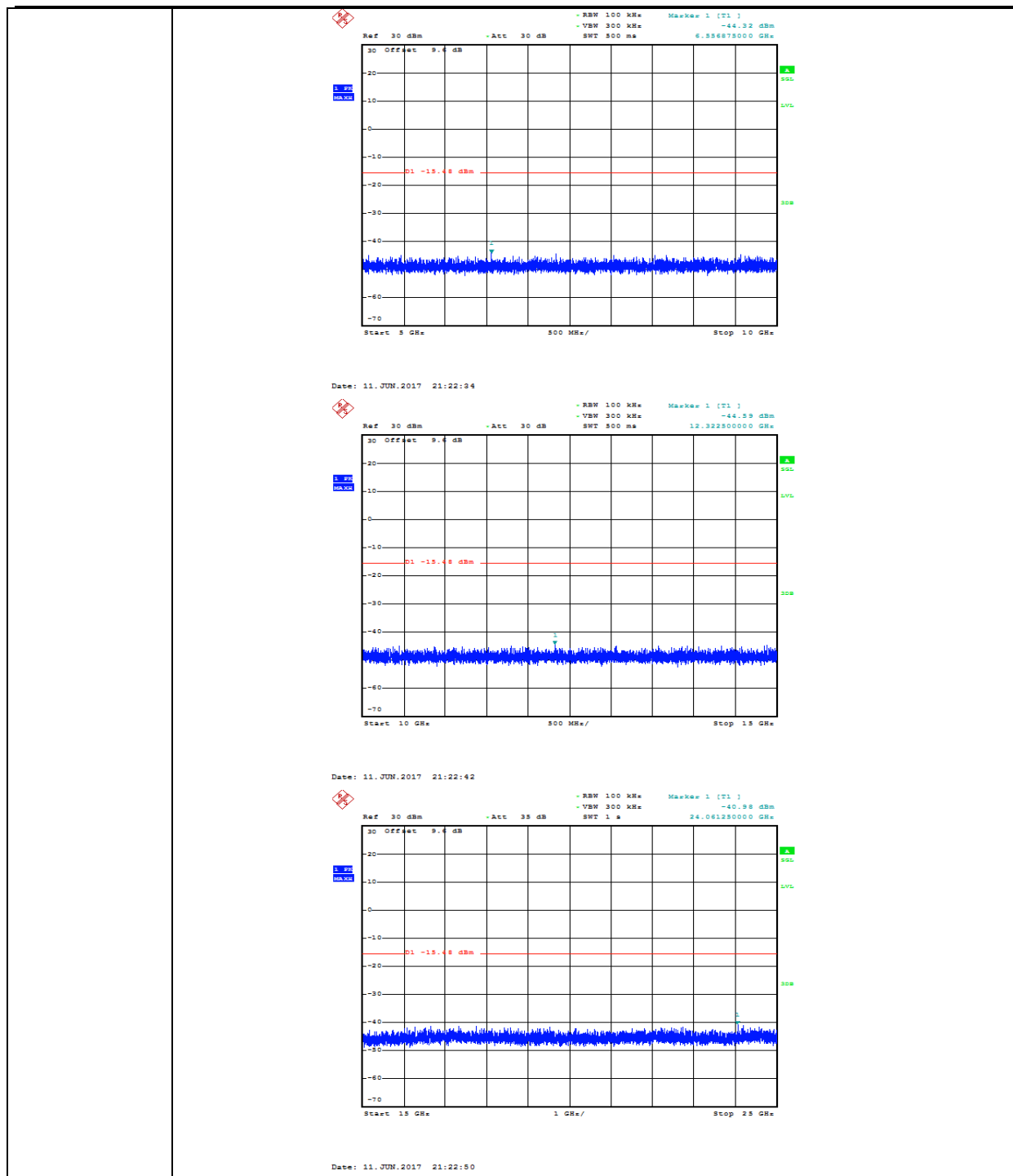
11G_HCH_Graphs



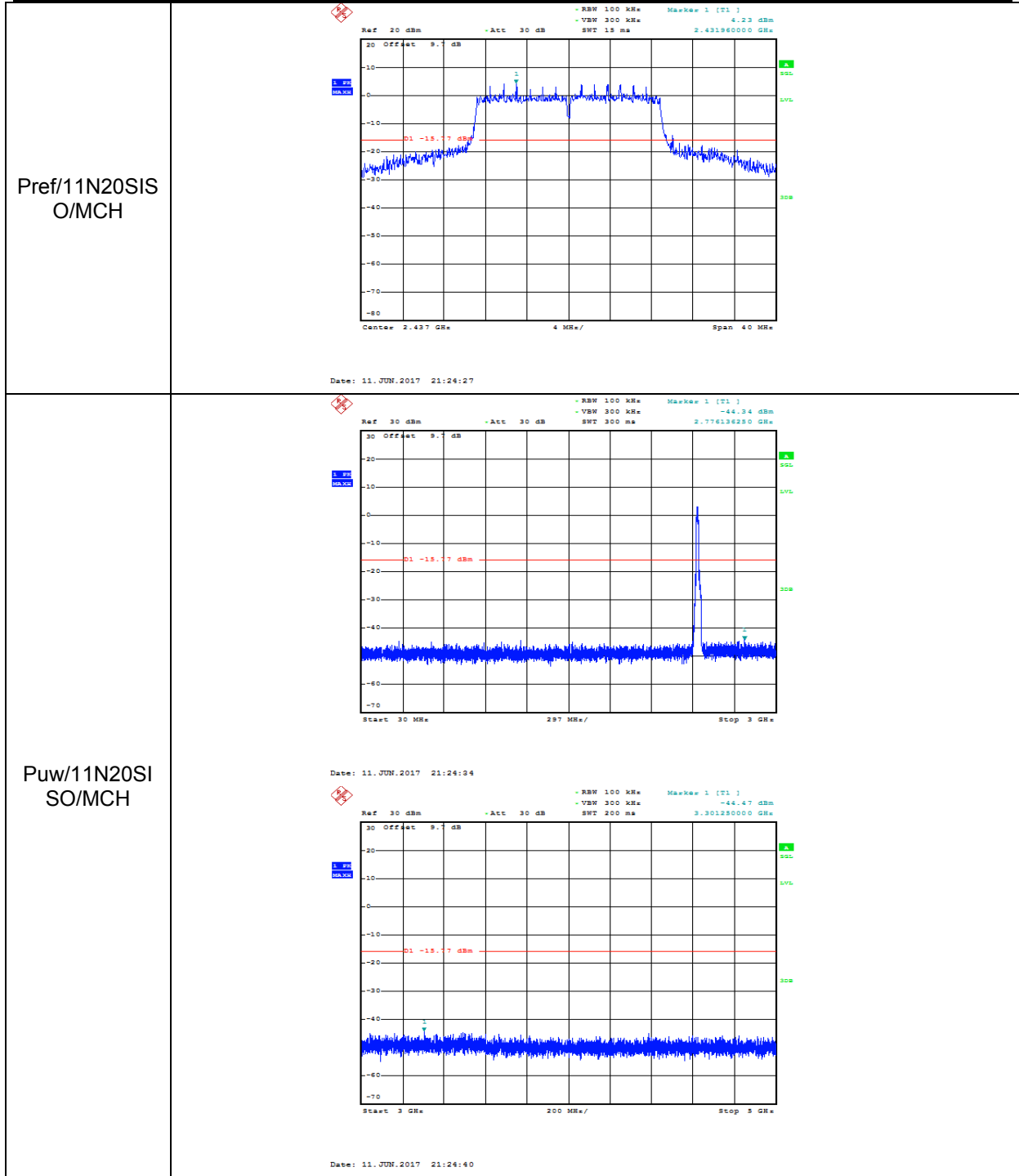


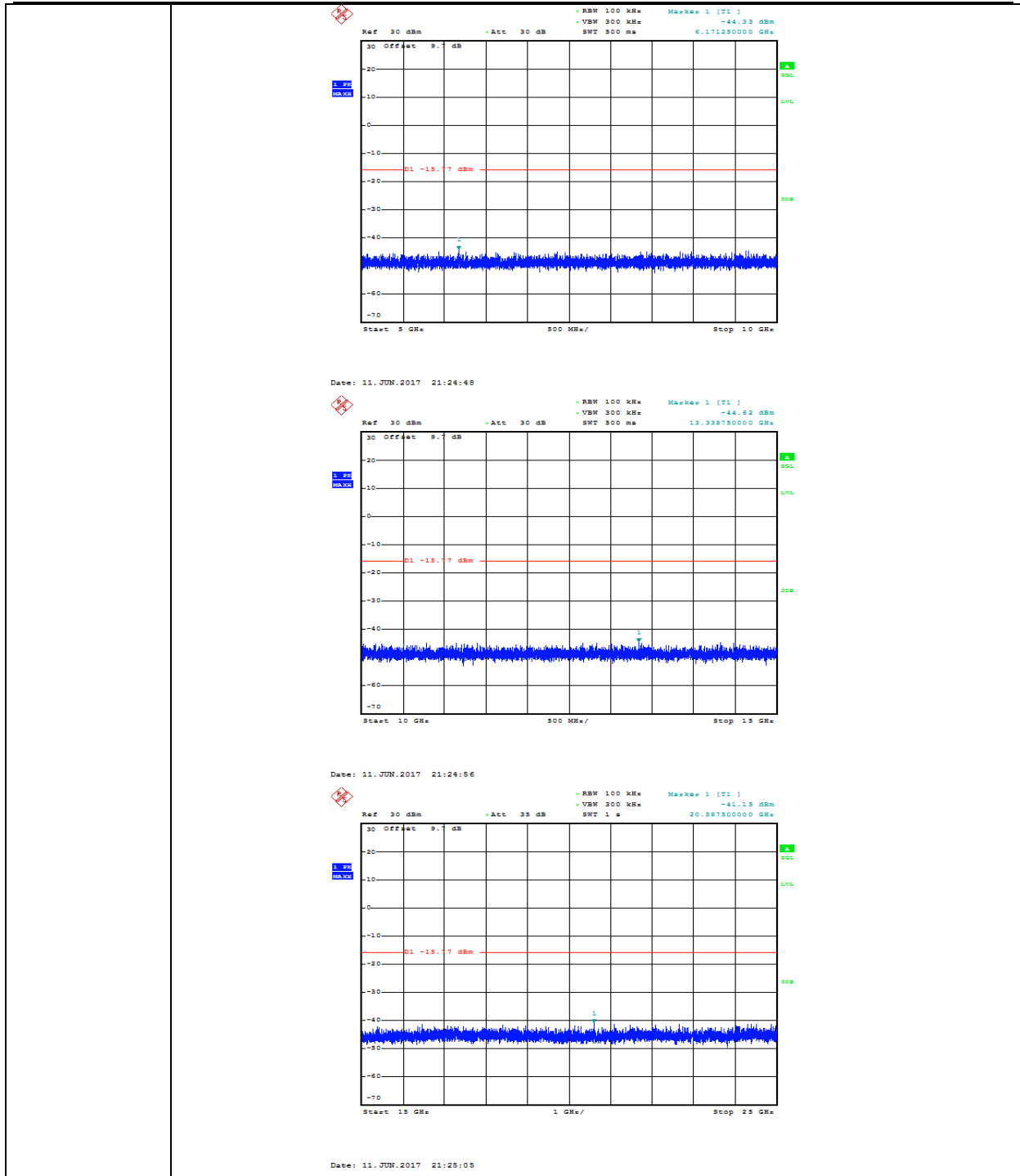
11N20SISO_LCH_Graphs



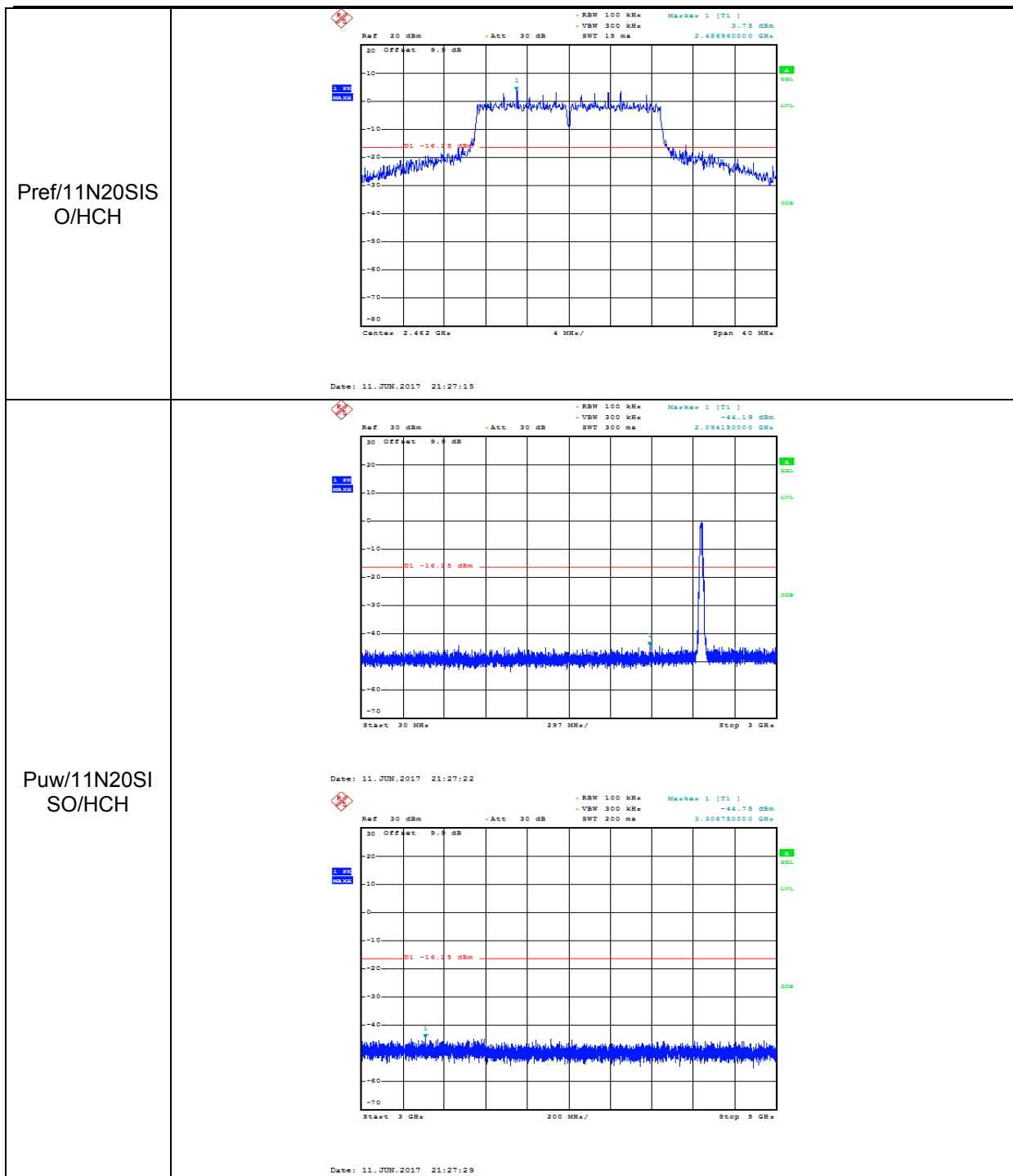


11N20SISO_MCH_Graphs





11N20SISO_HCH_Graphs





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)

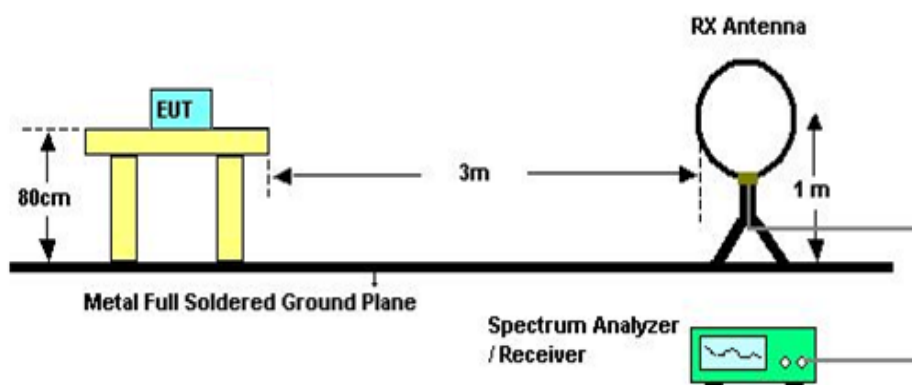
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

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

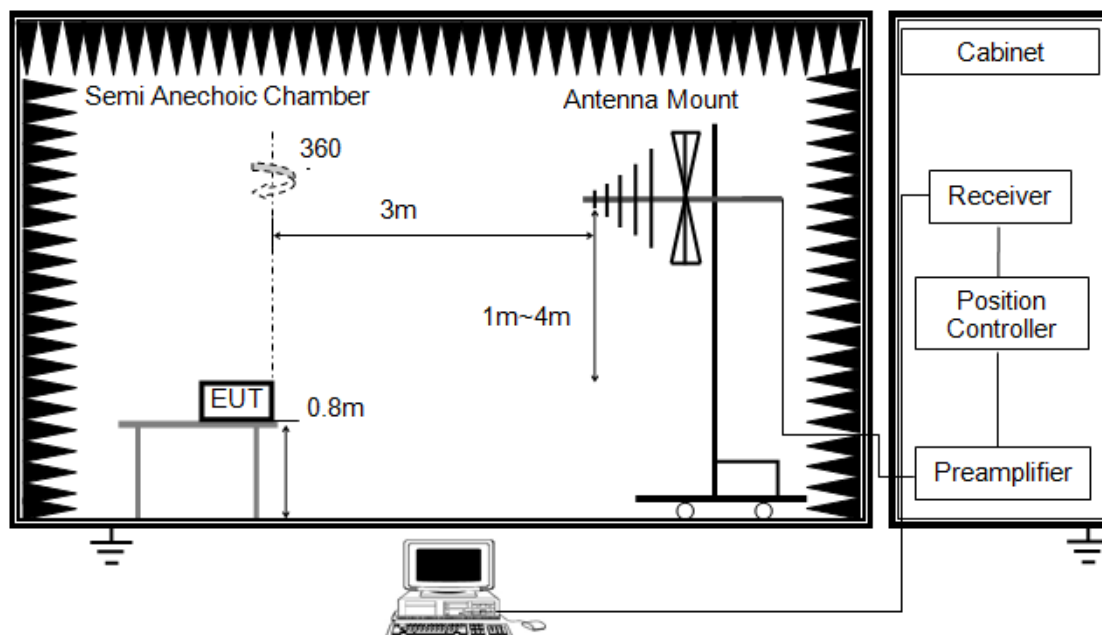


The setting of the spectrum analyser

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

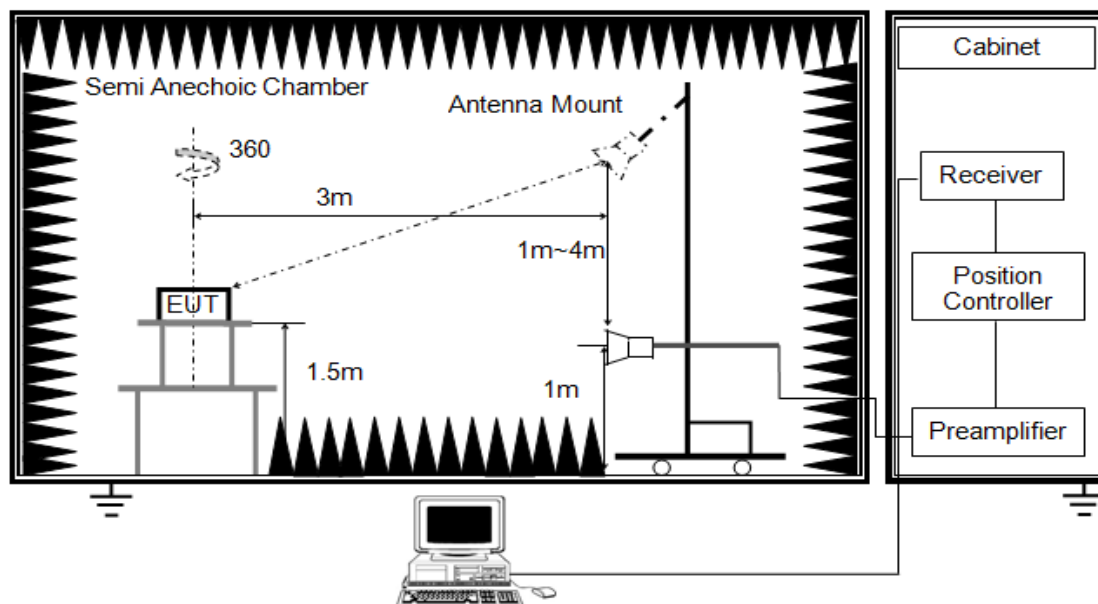


The setting of the spectrum analyser

RBW	120KHz
VBW	300KHz
Sweep	Auto
Detector	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	1MHz
VBW	3MHz
Sweep	Auto
Detector	Peak and CISPR Average
Trace	Max hold

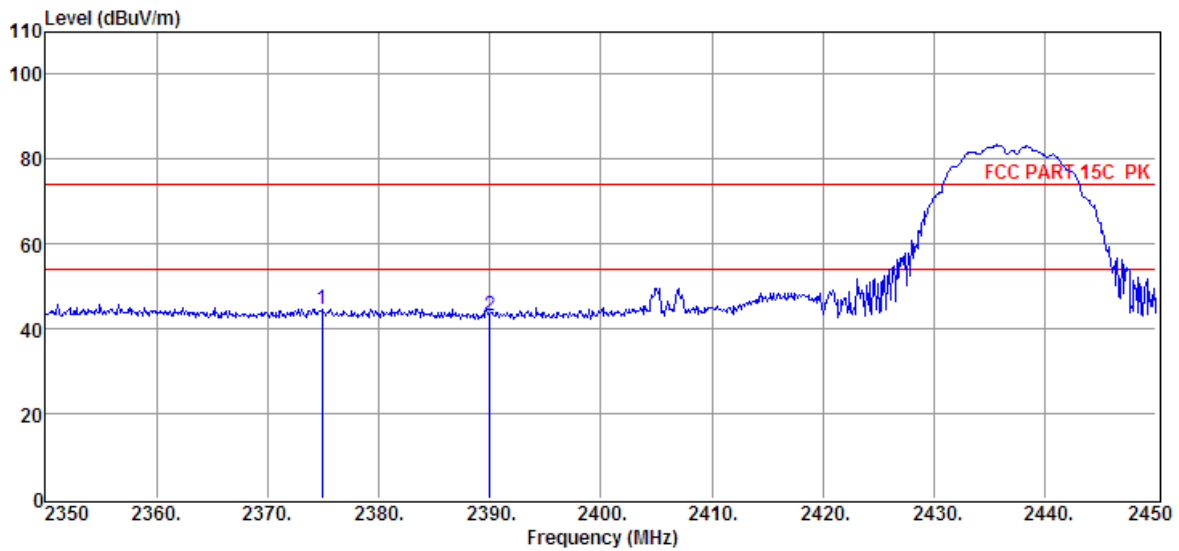
1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (1.5 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. 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

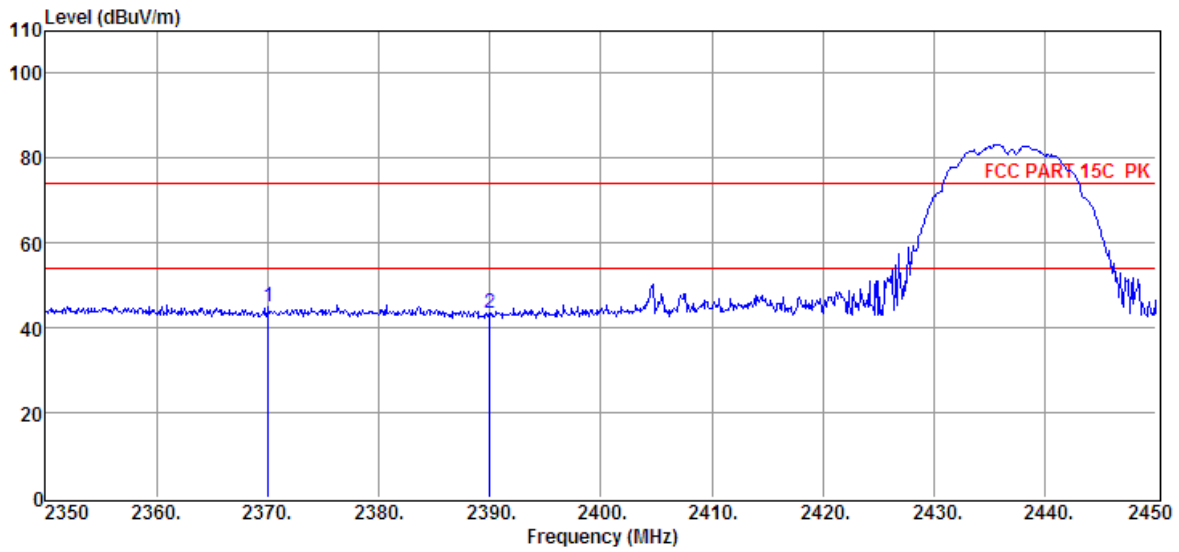
8.2. RESTRICTED BANDEDGE

RESTRICTED BANDEDGE (11b LOW CHANNEL, HORIZONTAL)



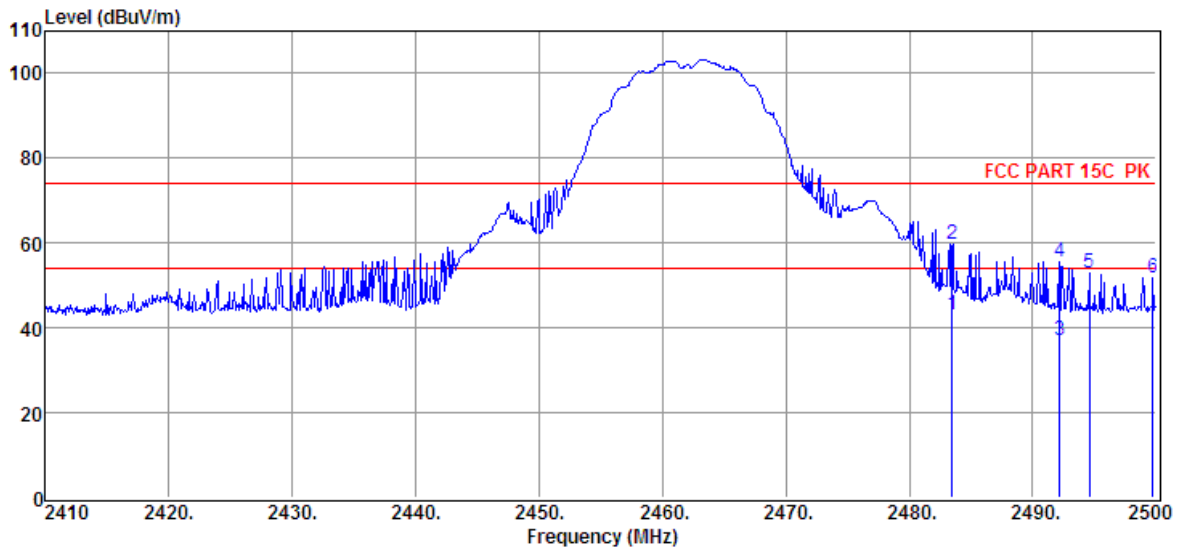
Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detecto r	Polarization
1	2374.90	38.39	29.72	29.39	6.01	44.73	74.00	-29.27	Peak	HORIZONTAL
2	2390.00	36.68	29.78	29.42	6.03	43.07	74.00	-30.93	Peak	HORIZONTAL

RESTRICTED BANDEGE (11b LOW CHANNEL, VERTICAL)



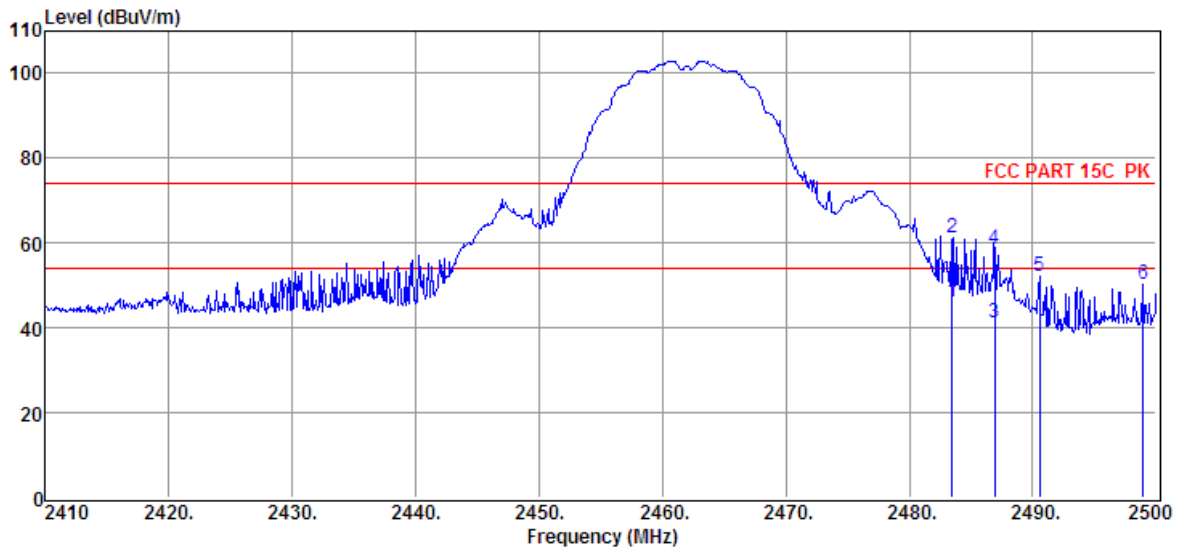
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detecto r	Polarization
1	2370.10	38.80	29.70	29.37	6.01	45.14	74.00	-28.86	Peak	VERTICAL
2	2390.00	37.07	29.78	29.42	6.03	43.46	74.00	-30.54	Peak	VERTICAL

RESTRICTED BANDEDGE (11b HIGH CHANNEL, HORIZONTAL)



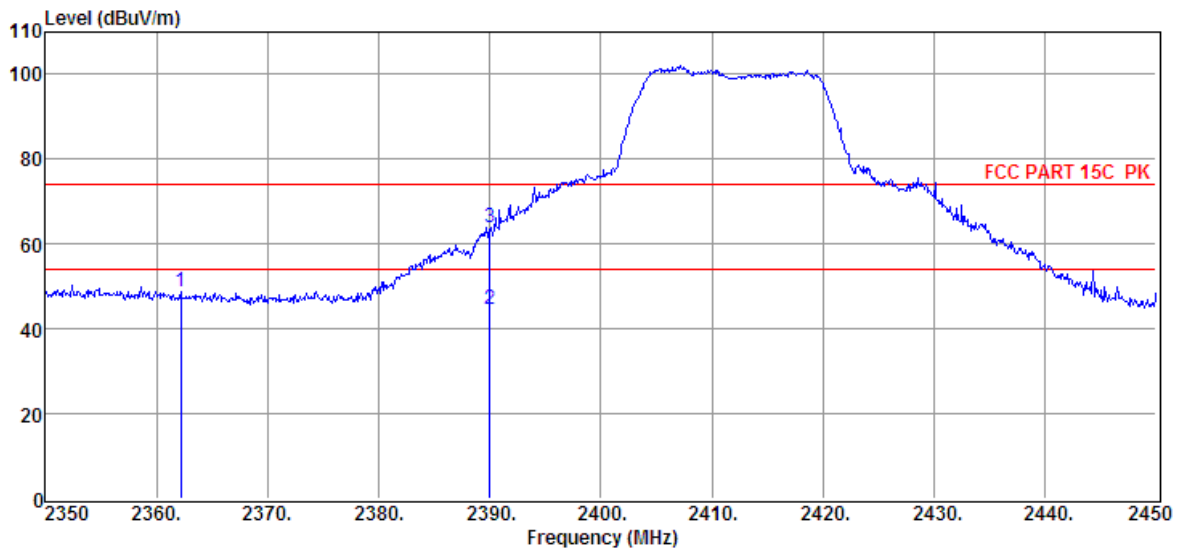
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	36.53	30.14	29.71	6.13	43.09	54.00	-10.91	Average	HORIZONTAL
2	2483.50	53.06	30.14	29.71	6.13	59.62	74.00	-14.38	Peak	HORIZONTAL
3	2492.17	30.45	30.17	29.73	6.17	37.06	54.00	-16.94	Average	HORIZONTAL
4	2492.17	49.13	30.17	29.73	6.17	55.74	74.00	-18.26	Peak	HORIZONTAL
5	2494.60	46.35	30.18	29.73	6.17	52.97	74.00	-21.03	Peak	HORIZONTAL
6	2499.73	45.30	30.20	29.75	6.17	51.92	74.00	-22.08	Peak	HORIZONTAL

RESTRICTED BANDEGE (11b HIGH CHANNEL, VERTICAL)



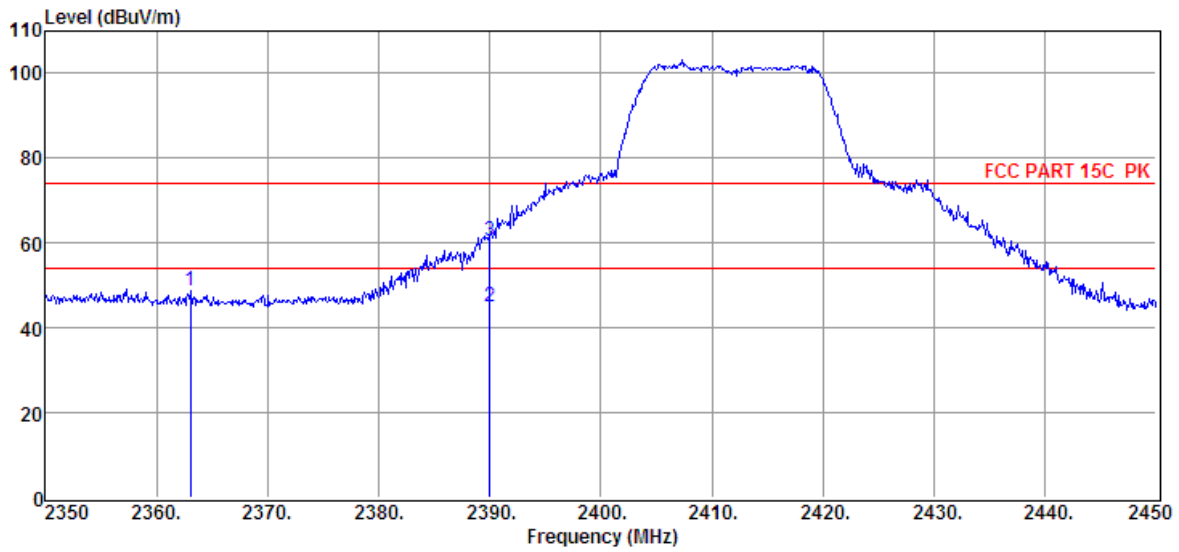
Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	39.53	30.14	29.71	6.13	46.09	54.00	-7.91	Average	VERTICAL
2	2483.50	54.69	30.14	29.71	6.13	61.25	74.00	-12.75	Peak	VERTICAL
3	2486.95	34.45	30.15	29.71	6.13	41.02	54.00	-12.98	Average	VERTICAL
4	2486.95	52.04	30.15	29.71	6.13	58.61	74.00	-15.39	Peak	VERTICAL
5	2490.55	45.63	30.16	29.71	6.17	52.25	74.00	-21.75	Peak	VERTICAL
6	2498.92	43.53	30.20	29.75	6.17	50.15	74.00	-23.85	Peak	VERTICAL

RESTRICTED BANDEDGE (11g LOW CHANNEL, HORIZONTAL)



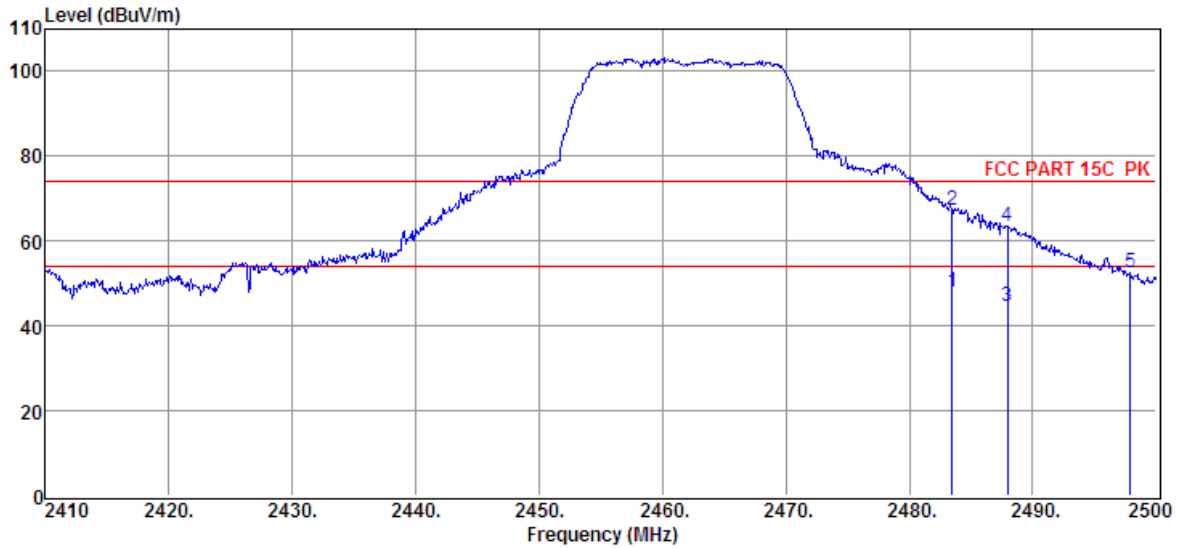
Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detecto r	Polarization
1	2362.20	42.62	29.67	29.35	5.96	48.90	74.00	-25.10	Peak	HORIZONTAL
2	2390.00	38.12	29.78	29.42	6.03	44.51	54.00	-9.49	Average	HORIZONTAL
3	2390.00	57.68	29.78	29.42	6.03	64.07	74.00	-9.93	Peak	HORIZONTAL

RESTRICTED BANDEDGE (11g LOW CHANNEL, VERTICAL)



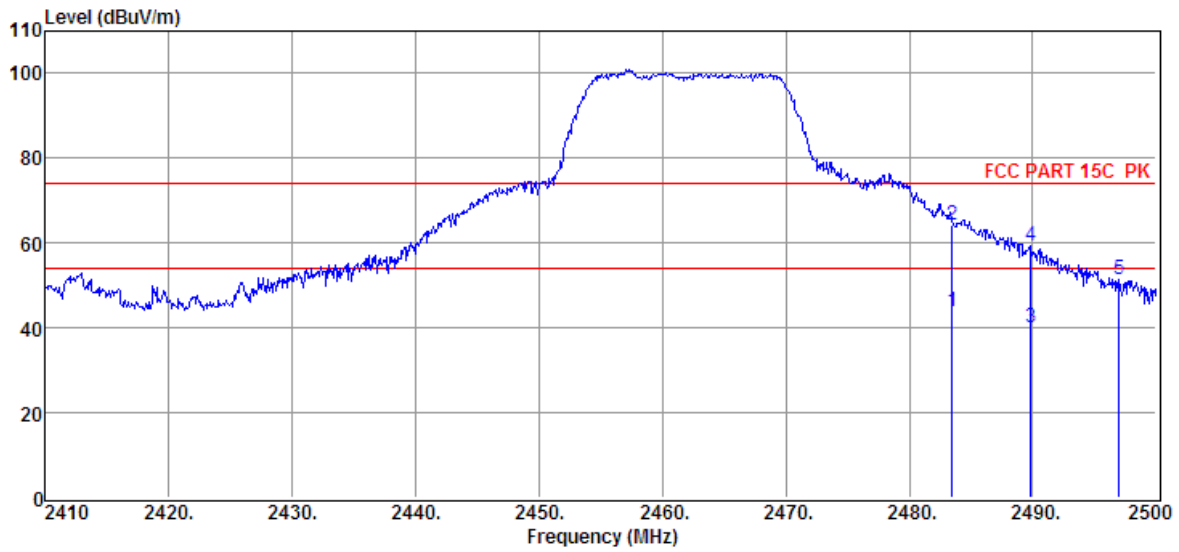
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detecto r	Polarization
1	2363.10	42.65	29.67	29.35	5.96	48.93	74.00	-25.07	Peak	VERTICAL
2	2390.00	38.77	29.78	29.42	6.03	45.16	54.00	-8.84	Average	VERTICAL
3	2390.00	54.05	29.78	29.42	6.03	60.44	74.00	-13.56	Peak	VERTICAL

RESTRICTED BANDEDGE (11g HIGH CHANNEL, HORIZONTAL)



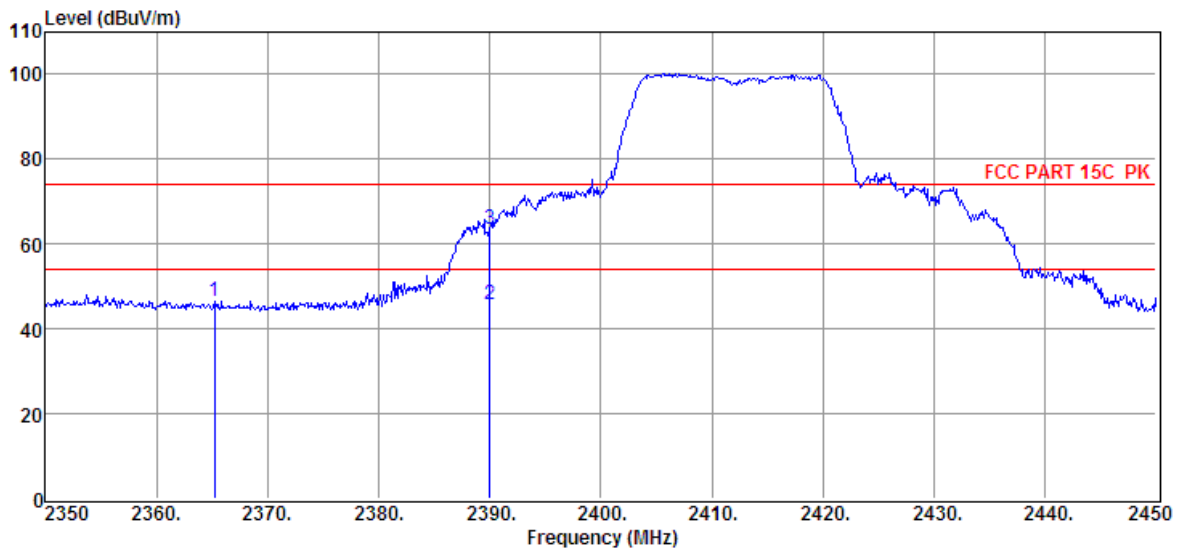
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	41.28	30.14	29.71	6.13	47.84	54.00	-6.16	Average	HORIZONTAL
2	2483.50	60.84	30.14	29.71	6.13	67.40	74.00	-6.60	Peak	HORIZONTAL
3	2487.94	38.00	30.15	29.71	6.13	44.57	54.00	-9.43	Average	HORIZONTAL
4	2487.94	57.02	30.15	29.71	6.13	63.59	74.00	-10.41	Peak	HORIZONTAL
5	2497.93	45.96	30.19	29.73	6.17	52.59	74.00	-21.41	Peak	HORIZONTAL

RESTRICTED BANDEGE (11g HIGH CHANNEL, VERTICAL)



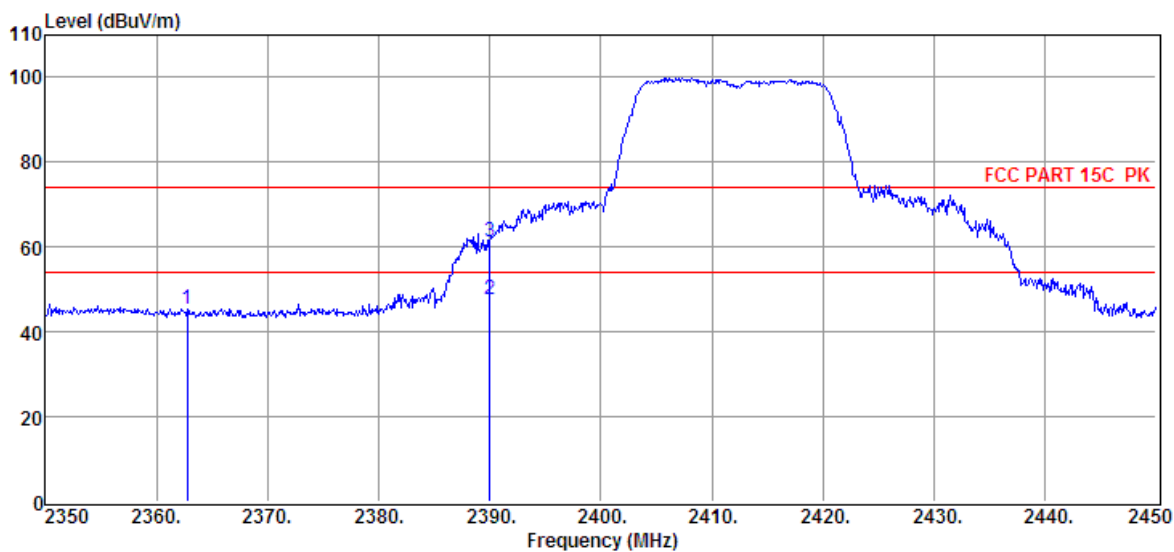
Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detecto r	Polarization
1	2483.50	37.11	30.14	29.71	6.13	43.67	54.00	-10.33	Average	VERTICAL
2	2483.50	57.66	30.14	29.71	6.13	64.22	74.00	-9.78	Peak	VERTICAL
3	2489.83	33.54	30.16	29.71	6.17	40.16	54.00	-13.84	Average	VERTICAL
4	2489.83	52.61	30.16	29.71	6.17	59.23	74.00	-14.77	Peak	VERTICAL
5	2497.03	44.93	30.19	29.73	6.17	51.56	74.00	-22.44	Peak	VERTICAL

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



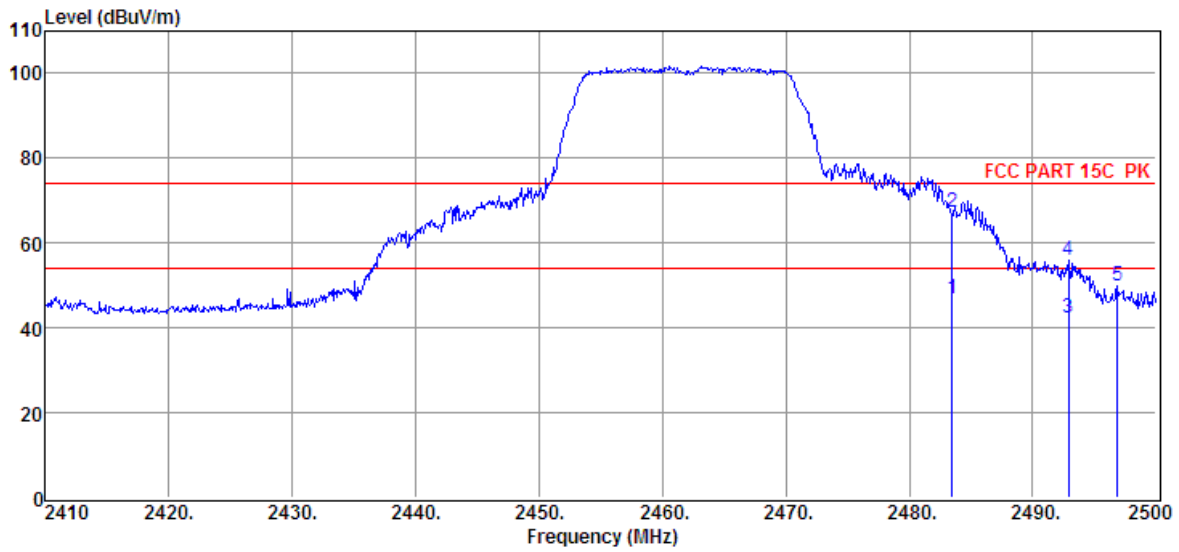
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detecto r	Polarization
1	2365.20	40.34	29.68	29.35	6.01	46.68	74.00	-27.32	Peak	HORIZONTAL
2	2390.00	39.51	29.78	29.42	6.03	45.90	54.00	-8.10	Average	HORIZONTAL
3	2390.00	57.10	29.78	29.42	6.03	63.49	74.00	-10.51	Peak	HORIZONTAL

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



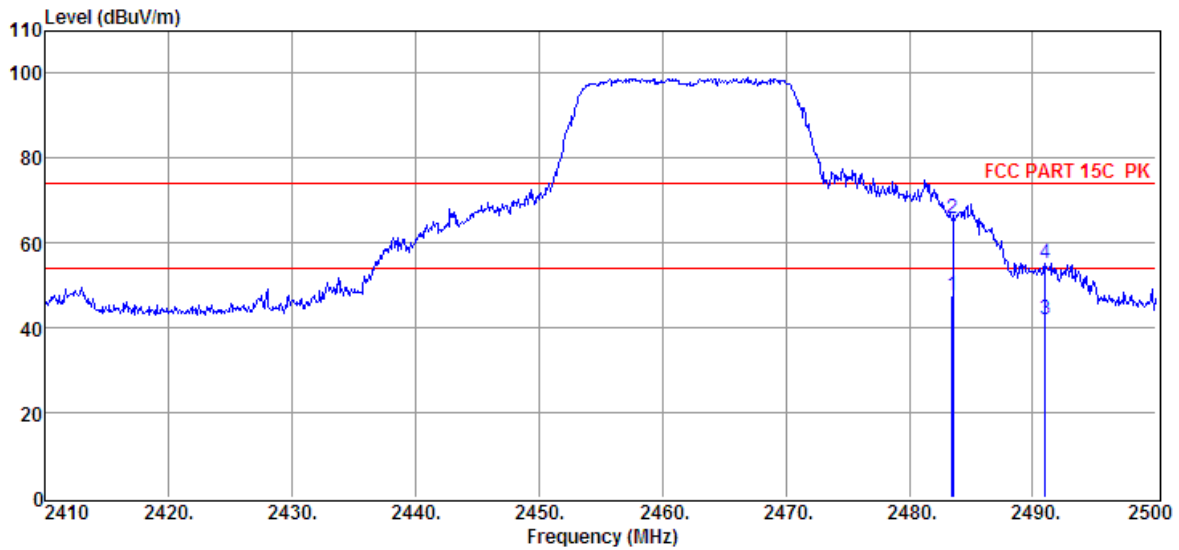
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detecto r	Polarization
1	2362.80	39.25	29.67	29.35	5.96	45.53	74.00	-28.47	Peak	VERTICAL
2	2390.00	41.11	29.78	29.42	6.03	47.50	54.00	-6.50	Average	VERTICAL
3	2390.00	54.77	29.78	29.42	6.03	61.16	74.00	-12.84	Peak	VERTICAL

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



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detecto r	Polarization
1	2483.50	40.21	30.14	29.71	6.13	46.77	54.00	-7.23	Average	HORIZONTAL
2	2483.50	60.62	30.14	29.71	6.13	67.18	74.00	-6.82	Peak	HORIZONTAL
3	2492.89	35.85	30.17	29.73	6.17	42.46	54.00	-11.54	Average	HORIZONTAL
4	2492.89	49.32	30.17	29.73	6.17	55.93	74.00	-18.07	Peak	HORIZONTAL
5	2496.85	43.11	30.19	29.73	6.17	49.74	74.00	-24.26	Peak	HORIZONTAL

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



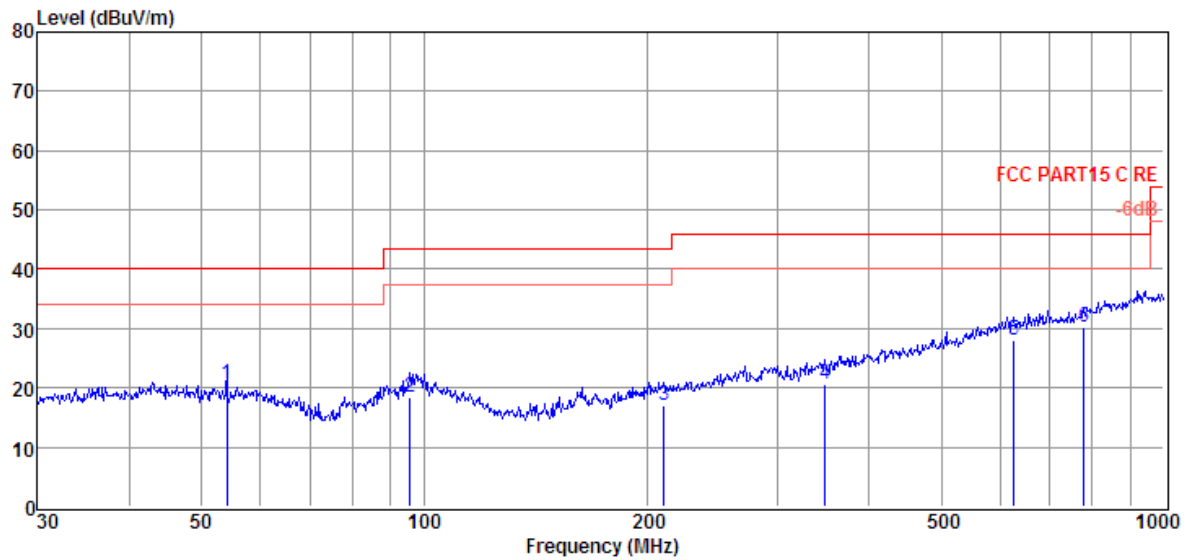
Item (Mark)	Freq. (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Facto r dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detecto r	Polarization
1	2483.50	40.97	30.14	29.71	6.13	47.53	54.00	-6.47	Average	VERTICAL
2	2483.53	59.34	30.14	29.71	6.13	65.90	74.00	-8.10	Peak	VERTICAL
3	2491.00	35.41	30.17	29.73	6.17	42.02	54.00	-11.98	Average	VERTICAL
4	2491.00	48.59	30.17	29.73	6.17	55.20	74.00	-18.80	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.

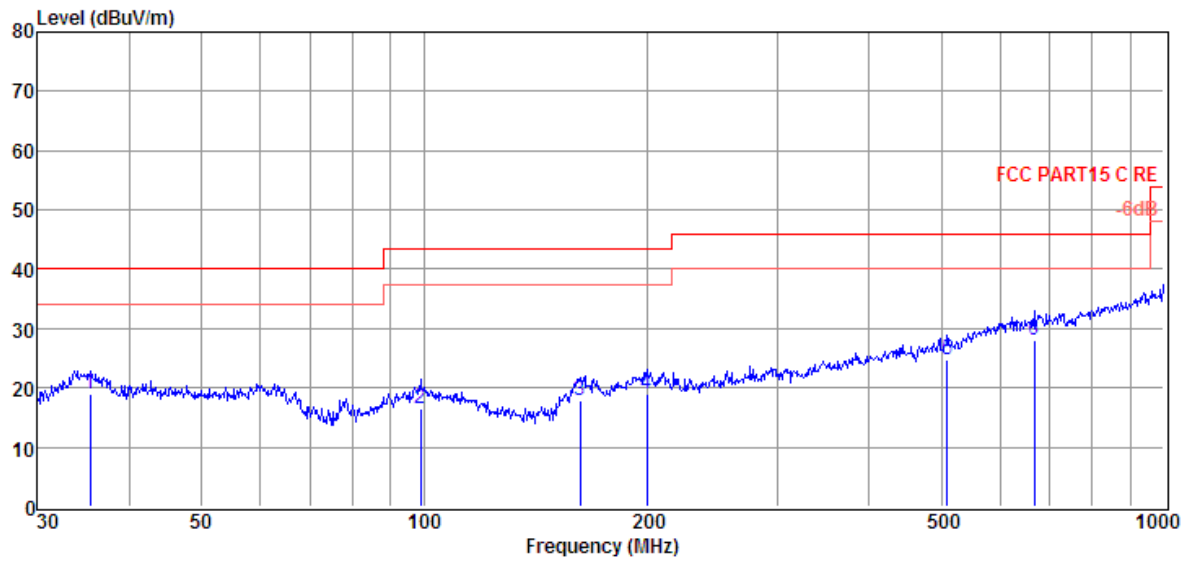
SPURIOUS EMISSIONS (1~25GHz)

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									
3527.00	38.60	31.99	29.47	7.32	48.44	74.00	-25.56	Peak	VERTICAL
4423.00	37.40	33.74	29.17	8.08	50.05	74.00	-23.95	Peak	VERTICAL
5515.00	36.82	34.71	29.26	9.22	51.49	74.00	-22.51	Peak	VERTICAL
6299.00	36.12	35.49	29.49	9.84	51.96	74.00	-22.04	Peak	VERTICAL
6964.00	35.64	36.17	30.37	10.40	51.84	74.00	-22.16	Peak	VERTICAL
7552.00	35.20	36.61	30.84	10.88	51.85	74.00	-22.15	Peak	VERTICAL
3198.00	38.87	31.78	30.05	6.98	47.58	74.00	-26.42	Peak	HORIZONTAL
3954.00	38.13	33.27	29.07	7.58	49.91	74.00	-24.09	Peak	HORIZONTAL
4626.00	37.39	33.77	29.27	8.29	50.18	74.00	-23.82	Peak	HORIZONTAL
5774.00	36.19	34.87	29.21	9.47	51.32	74.00	-22.68	Peak	HORIZONTAL
6432.00	35.85	35.69	29.70	9.90	51.74	74.00	-22.26	Peak	HORIZONTAL
7664.00	36.29	36.63	30.96	10.95	52.91	74.00	-21.09	Peak	HORIZONTAL
11b MCH									
3310.00	38.39	31.83	29.93	7.09	47.38	74.00	-26.62	Peak	VERTICAL
3583.00	38.73	32.16	29.38	7.34	48.85	74.00	-25.15	Peak	VERTICAL
4066.00	38.05	33.46	29.05	7.69	50.15	74.00	-23.85	Peak	VERTICAL
4874.00	24.34	33.72	29.33	8.56	37.29	54.00	-16.71	Average	VERTICAL
4874.00	57.37	33.72	29.33	8.56	70.32	74.00	-3.68	Peak	VERTICAL
6264.00	36.41	35.43	29.44	9.82	52.22	74.00	-21.78	Peak	VERTICAL
3128.00	39.52	31.75	30.11	6.90	48.06	74.00	-25.94	Peak	HORIZONTAL
4024.00	38.18	33.42	29.04	7.63	50.19	74.00	-23.81	Peak	HORIZONTAL
4874.00	27.23	33.72	29.33	8.56	40.18	54.00	-13.82	Average	HORIZONTAL
4874.00	43.75	33.72	29.33	8.56	56.70	74.00	-17.30	Peak	HORIZONTAL
6859.00	34.75	36.09	30.28	10.28	50.84	74.00	-23.16	Peak	HORIZONTAL
7370.00	35.31	36.50	30.65	10.75	51.91	74.00	-22.09	Peak	HORIZONTAL
11b HCH									
3898.00	38.03	33.11	29.09	7.54	49.59	74.00	-24.41	Peak	VERTICAL
4924.00	25.78	33.71	29.34	8.60	38.75	54.00	-15.25	Average	VERTICAL
4924.00	55.71	33.71	29.34	8.60	68.68	74.00	-5.32	Peak	VERTICAL
6005.00	36.04	35.01	29.19	9.68	51.54	74.00	-22.46	Peak	VERTICAL
6320.00	35.81	35.52	29.51	9.85	51.67	74.00	-22.33	Peak	VERTICAL
7496.00	35.35	36.60	30.78	10.84	52.01	74.00	-21.99	Peak	VERTICAL
3373.00	38.82	31.85	29.83	7.17	48.01	74.00	-25.99	Peak	HORIZONTAL
4255.00	36.53	33.61	29.10	7.89	48.93	74.00	-25.07	Peak	HORIZONTAL
4924.00	32.46	33.71	29.34	8.60	45.43	54.00	-8.57	Average	HORIZONTAL
4924.00	55.86	33.71	29.34	8.60	68.83	74.00	-5.17	Peak	HORIZONTAL
5788.00	35.85	34.88	29.21	9.48	51.00	74.00	-23.00	Peak	HORIZONTAL
7335.00	34.58	36.47	30.59	10.72	51.18	74.00	-22.82	Peak	HORIZONTAL
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 (dB μ V)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	54.07	5.12	11.70	3.93	20.75	40.00	-19.25	QP	HORIZONTAL
2	95.76	2.48	11.66	4.27	18.41	43.50	-25.09	QP	HORIZONTAL
3	210.79	1.22	10.83	4.95	17.00	43.50	-26.50	QP	HORIZONTAL
4	348.03	0.47	14.70	5.58	20.75	46.00	-25.25	QP	HORIZONTAL
5	627.27	1.93	19.40	6.60	27.93	46.00	-18.07	QP	HORIZONTAL
6	779.61	2.53	20.69	7.06	30.28	46.00	-15.72	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	35.38	3.26	11.88	3.73	18.87	40.00	-21.13	QP	VERTICAL
2	98.83	0.19	11.91	4.29	16.39	43.50	-27.11	QP	VERTICAL
3	162.61	4.95	8.15	4.68	17.78	43.50	-25.72	QP	VERTICAL
4	199.99	3.85	10.30	4.90	19.05	43.50	-24.45	QP	VERTICAL
5	510.04	1.14	17.50	6.20	24.84	46.00	-21.16	QP	VERTICAL
6	668.14	1.50	19.76	6.73	27.99	46.00	-18.01	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.

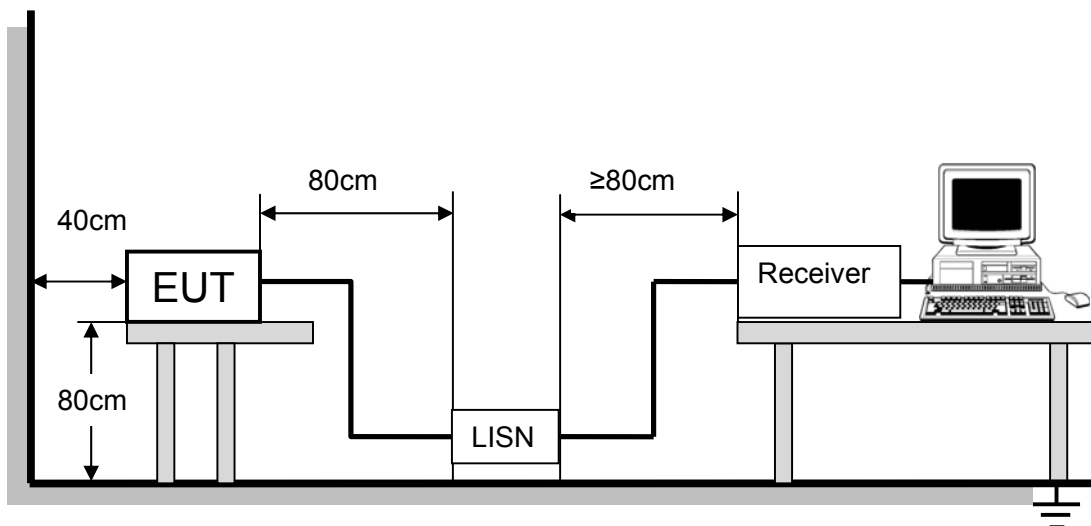
9. AC POWER LINE CONDUCTED EMISSIONS

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

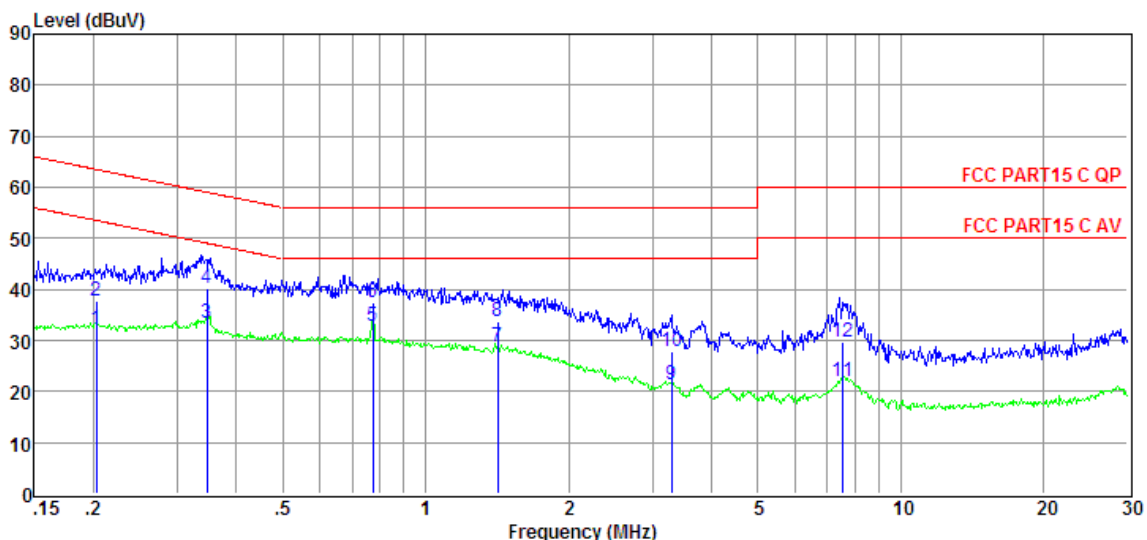


The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) 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

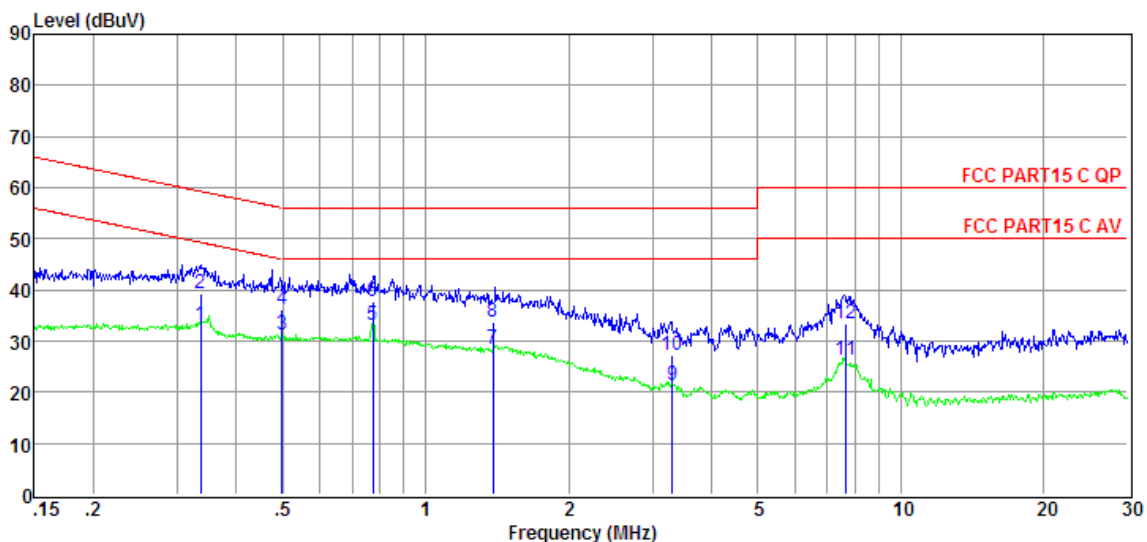
Temperature:	24.5°C	Relative Humidity:	55%
Pressure:	1012 hPa	Test Voltage:	AC 120V/60Hz
Test Mode:	Tx Mode	Phase :	L1



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.20	12.69	9.61	0.02	9.86	32.18	53.49	-21.31	Average	LINE
2	0.20	18.31	9.61	0.02	9.86	37.80	63.49	-25.69	QP	LINE
3	0.35	13.87	9.61	0.02	9.86	33.36	49.05	-15.69	Average	LINE
4	0.35	20.75	9.61	0.02	9.86	40.24	59.05	-18.81	QP	LINE
5	0.78	13.43	9.61	0.03	9.86	32.93	46.00	-13.07	Average	LINE
6	0.78	18.06	9.61	0.03	9.86	37.56	56.00	-18.44	QP	LINE
7	1.42	9.14	9.62	0.03	9.86	28.65	46.00	-17.35	Average	LINE
8	1.42	14.09	9.62	0.03	9.86	33.60	56.00	-22.40	QP	LINE
9	3.29	1.83	9.64	0.05	9.87	21.39	46.00	-24.61	Average	LINE
10	3.29	8.34	9.64	0.05	9.87	27.90	56.00	-28.10	QP	LINE
11	7.57	2.18	9.70	0.09	9.89	21.86	50.00	-28.14	Average	LINE
12	7.57	10.11	9.70	0.09	9.89	29.79	60.00	-30.21	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 (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.34	13.50	9.61	0.02	9.86	32.99	49.31	-16.32	Average	NEUTRAL
2	0.34	19.71	9.61	0.02	9.86	39.20	59.31	-20.11	QP	NEUTRAL
3	0.50	11.63	9.61	0.02	9.86	31.12	46.01	-14.89	Average	NEUTRAL
4	0.50	16.76	9.61	0.02	9.86	36.25	56.01	-19.76	QP	NEUTRAL
5	0.78	13.57	9.61	0.03	9.86	33.07	46.00	-12.93	Average	NEUTRAL
6	0.78	18.10	9.61	0.03	9.86	37.60	56.00	-18.40	QP	NEUTRAL
7	1.39	9.05	9.62	0.03	9.86	28.56	46.00	-17.44	Average	NEUTRAL
8	1.39	14.29	9.62	0.03	9.86	33.80	56.00	-22.20	QP	NEUTRAL
9	3.31	1.68	9.64	0.05	9.87	21.24	46.00	-24.76	Average	NEUTRAL
10	3.31	7.56	9.64	0.05	9.87	27.12	56.00	-28.88	QP	NEUTRAL
11	7.69	6.68	9.70	0.09	9.89	26.36	50.00	-23.64	Average	NEUTRAL
12	7.69	13.60	9.70	0.09	9.89	33.28	60.00	-26.72	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

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