FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

HOME AUTOMATION GATEWAY PRODUCT: 802.11a/b/g/n 2x2 MIMO, BLUETOOTH, BLUETOOTH LOW ENERGY, ZigBee and Z-WAVE

MODEL NUMBER: ID: 087

FCC ID: DKNCS08

REPORT NUMBER: R10526502-RF2A

ISSUE DATE: 2015-05-06

Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	2015-05-06	Initial Issue	Jeff Moser

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 6

4.1. MEASURING INSTRUMENT CALIBRATION 6

4.2. SAMPLE CALCULATION 6

4.3. MEASUREMENT UNCERTAINTY 7

5. EQUIPMENT UNDER TEST 8

5.1. DESCRIPTION OF EUT 8

5.2. MAXIMUM OUTPUT POWER 8

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 9

5.4. SOFTWARE AND FIRMWARE 9

5.5. WORST-CASE CONFIGURATION AND MODE 9

5.6. DESCRIPTION OF TEST SETUP 10

6. TEST AND MEASUREMENT EQUIPMENT 12

7. MEASUREMENT METHODS 14

8. ANTENNA PORT TEST RESULTS 15

8.1. ON TIME AND DUTY CYCLE 15

8.2. 802.11a MODE IN THE 5.2 GHz BAND 19

8.2.1. 26 dB BANDWIDTH 19
8.2.2. 99% BANDWIDTH 24
8.2.3. AVERAGE POWER 29
8.2.4. OUTPUT POWER AND PSD 30

8.3. 802.11n HT20 MODE IN THE 5.2 GHz BAND 37

8.3.1. 26 dB BANDWIDTH 37
8.3.2. 99% BANDWIDTH 41
8.3.3. AVERAGE POWER 45
8.3.4. OUTPUT POWER AND PSD 46

8.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND 52

8.4.1. 26 dB BANDWIDTH 52
8.4.2. 99% BANDWIDTH 55
8.4.3. AVERAGE POWER 58
8.4.4. OUTPUT POWER AND PSD 59

8.5. 802.11a MODE IN THE 5.8 GHz BAND 64

8.5.1. 26 dB BANDWIDTH 64
8.5.2. 6 dB BANDWIDTH 68
8.5.3. 99% BANDWIDTH 72

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8.5.4. AVERAGE POWER 76
8.5.5. OUTPUT POWER 77
8.5.6. Maximum Power Spectral Density (PSD) 80

8.6. 802.11n HT20 MODE IN THE 5.8 GHz BAND 86
8.6.1. 26 dB BANDWIDTH 86
8.6.2. 6 dB BANDWIDTH 90
8.6.3. 99% BANDWIDTH 94
8.6.4. AVERAGE POWER 98
8.6.5. OUTPUT POWER 99
8.6.6. Maximum Power Spectral Density (PSD) 101

8.7. 802.11n HT40 MODE IN THE 5.8 GHz BAND 106
8.7.1. 26 dB BANDWIDTH 106
8.7.2. 6 dB BANDWIDTH 109
8.7.3. 99% BANDWIDTH 112
8.7.4. AVERAGE POWER 115
8.7.5. OUTPUT POWER 116
8.7.6. Maximum Power Spectral Density (PSD) 118

9. RADIATED TEST RESULTS 122

9.1. LIMITS 122

9.2. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND 123

9.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND 137

9.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND 144

9.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND 150

9.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND 164

9.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND 171

9.8. WORST-CASE BELOW 1 GHz 177

9.9. WORST-CASE 18-26GHz 179

9.10. WORST-CASE 26-40GHz 181

10. AC POWER LINE CONDUCTED EMISSIONS 183

11. SETUP PHOTOS 188

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ECHOSTAR TECHNOLOGIES LLC
90 INVERNESS CIRCLE EAST
ENGLEWOOD CO, 80112, USA

EUT DESCRIPTION: HOME AUTOMATION GATEWAY PRODUCT

MODEL: ID: 087

SERIAL NUMBER: FCC3, FCC6

DATE TESTED: February 23, 2015 – May 4, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:

FRANCISCO DE ANDA
Project Lead
UL Verification Services Inc.

Prepared By:

Jeff Moser
EMC Program Manager
UL LLC – Consumer Technology Division

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033 and ANSI C63.10-2009.

Note – Radiated testing above 1GHz was performed on a 1.5m table height, per ANSI C63.10: 2013. All other testing was performed per ANSI C63.10: 2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA.

12 Laboratory Dr., RTP, NC 27709
☐ Chamber A
☒ Chamber C

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2002460.htm.

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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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4.3. MEASUREMENT UNCERTAINTY

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

Test	Uncertainty
Conducted Emissions (0.150-30MHz)	+/- 2.37 dB
Total RF power, conducted	+/- 0.45 dB
RF power density, conducted	+/- 1.5 dB
Spurious emissions, conducted	+/- 1.46 dB
Radiated Emissions (30-1000 MHz)	+/- 6.04 dB (3m)
Radiated Emissions (1-6 GHz)	+/- 5.96 dB
Radiated Emissions (6-18 GHz)	+/- 6.10 dB
Radiated Emissions (18-26 GHz)	+/- 6.81 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT, EchoStar's ID:087 Home Automation Gateway Product, is a controller with a portfolio of connected devices offered as part of connected home services which allows the user to manage their home automation connected devices from the TV and their connected mobile hand held devices.

The EUT contains an 802.11a/b/g/n (n - 20MHz/40MHz) 2x2 MIMO transceiver, along with Bluetooth, Bluetooth Low Energy, ZigBee and Z-Wave (908 MHz and 916 MHz) transceivers.

The 802.11a/b/g/n 2.4/5GHz radio in the ID:087 is derived from the MediaTek MT7632U chipset.

This report covers the 802.11 a/n 5 GHz technologies (UNII 1 and 3). Other reports were issued to cover the other radio technologies:

- R10526502-RF1: 802.11 b/g/n 2.4 GHz
- R10526502-RF3: Bluetooth
- R10526502-RF4: Bluetooth Low Energy
- R10526502-RF5: ZigBee
- R10526502-RF6: Z-Wave

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

FCC

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	16.56	45.29
5180 - 5240	802.11n HT20	18.14	65.16
5190 - 5230	802.11n HT40	15.41	34.75
5745 - 5825	802.11a	14.55	28.51
5745 - 5825	802.11n HT20	18.11	64.71
5755 - 5795	802.11n HT40	11.67	14.69

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5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The 802.11a/b/g/n 2.4/5GHz radio uses two Airgain model N2420DS series antennas.

WLAN Antenna 0 has a gain of 3.1dBi in the 2.4GHz band and 2.5dBi in the 5GHz band.
WLAN Antenna 1 has a gain of 3.1dBi in the 2.4GHz band and 2.5dBi in the 5GHz band.

Antenna 0 is J21 u.fl on the PCB and has a short cable, Antenna 1 is J20 u.fl on the PCB and has a longer cable.

The Zigbee antenna is a trace antenna on the PCB. The trace antenna has a gain of 3dBi.

The Bluetooth antenna is a trace antenna on the PCB. The trace antenna has a gain of 3dBi

The Z-wave antenna is a trace antenna on the PCB. The trace antenna has a gain of 1.6dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware in all units was: Linux kernel version 3.1.10

The driver for Bluetooth: HCI Control 1.0

The driver SW for Zigbee: Nodetest version 1.0

The driver for Z-wave: ZWave test ZM5304

The driver for Wi-Fi: Linux MT7662 0.0.00

The test utility SW: Python Test Scripts rev. 1.0

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The device is a table-top device and was positioned as such during radiated and line-conducted testing.

Worst-case data rates as provided by the client were and confirmed:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS8
802.11n HT40mode: MCS8

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
EUT AC adapter	LITEON	PB-1180-2ES1	ETC1444046079	-
Laptop PC	HP	EliteBook 8470p	CNU342CL9Z	-
Laptop PC AC adapter	HP	677774-001	WCNXA0C3U5IA7F	

I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Ethernet	1	RJ45	CAT5UTP	15	Connection between laptop PC and EUT used to control the transmitter function of the EUT.
2	DC (12V)	1	2C DC	Unshielded	1.8	Wall-wart AC adapter DC output to EUT. Non-detachable.
3	AC	1	2C AC	N/A	0	Wall-wart AC adapter's AC input.
4	DC	1	2C DC	Unshielded	1.8	Laptop AC adapter output to laptop PC. Non-detachable
5	AC	1	3C AC	Unshielded	1.8	Laptop PC power adapter AC input. Detachable.

TEST SETUP

The EUT was configured as a table-top device connected to a located laptop PC over an Ethernet cable. This Ethernet connection was used to control the transmitter function of the EUT.

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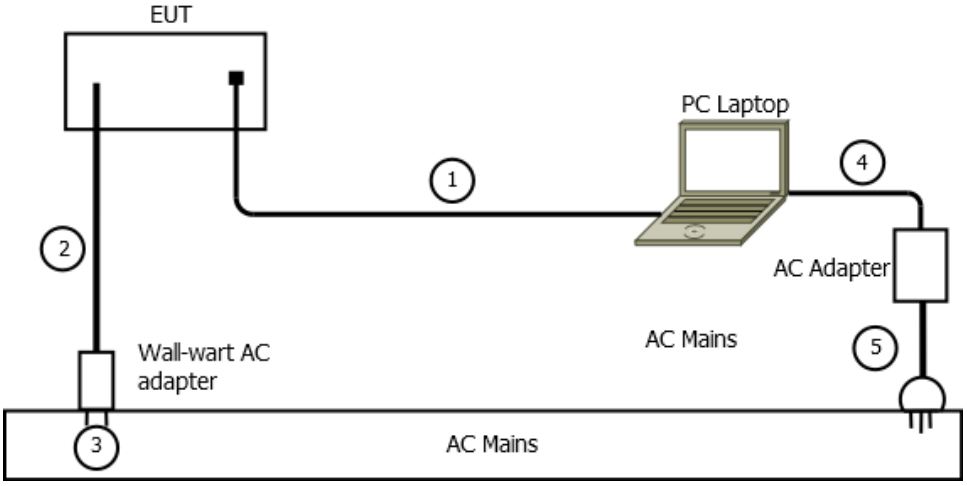
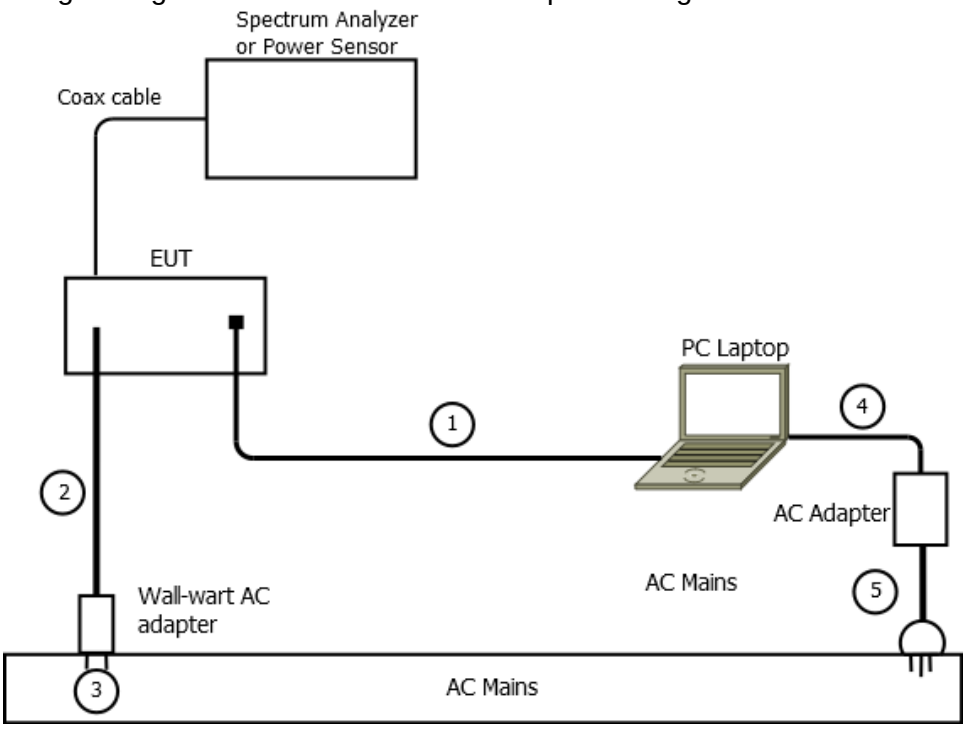
SETUP DIAGRAM FOR TESTS

The following arrangement was used for radiated and line-conducted testing.



The following arrangement was used for antenna-port testing.



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Disturbance Emissions (E-field) – Chamber C

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0066	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB1	2014-07-10	2015-07-31
AT0062 (Testing after 02/28/2015)	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2014-07-22	2015-07-31
AT0067 (Testing before 03/01/2015)	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2014-02-19	2015-02-28
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2014-07-23	2015-07-31
AT0061	Horn Antenna, 26.5-40GHz	ARA	MWH-2640/B	2014-07-23	2015-07-31
SAC_G (Hybrid)	Gain-Loss string for Hyrbid antenna at 3m	Various	Various	2015-02-01	2016-02-29
SAC_G (3117)	Gain-Loss string for 3117 antenna at 3m	Various	Various	2015-02-01	2016-02-29
SAC_G (MWH-1826/B)	Gain-Loss string for MWH-1826/B antenna at 3m	Various	Various	2015-01-26	2016-01-31
SAC_G (MWH-2640/B)	Gain-Loss string for MWH-2640/B antenna at 3m	Various	Various	2015-01-26	2016-01-31
SA0018	Spectrum Analyzer	Agilent	N9030A	2014-06-26	2015-06-30
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
HPF009	1GHz High-pass Filter	Micro-Tronics	HPM17672	2015-01-28	2016-01-31
HI0069	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2014-06-27	2015-06-27

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Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
SA0020	Spectrum Analyzer, 3Hz-44GHz	Agilent Technologies	E4446	2015-02-26	2016-02-29
PAR0037	Power Meter, 100kHz to 110 GHz	HP	437B	2015-01-19	2016-01-31
MM0143	Digital Multimeter	Fluke	175	2014-09-04	2016-09-30
HI0069	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2014-06-27	2015-06-27

Power-line Conducted Disturbance Emissions - Voltage

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
SA0021	EMI Test Receiver 9kHz-3.6GHz	Rohde & Schwarz	ESR3	2014-05-26	2015-05-31
ATA509	Coaxial cable, 20 ft., BNC - male to BNC-male	UL	RG-223	2014-09-15	2015-07-31
HI0041	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2015-03-23	2016-03-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
ATA508	Transient Limiter, 0.009 to 100 MHz	Electro-Metrics	EM 7600	2014-09-03	2015-09-30
LISN002 (EUT)	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2014-09-04	2015-09-30
LISN003 (AUX)	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2014-09-04	2015-09-30

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7. MEASUREMENT METHODS

26 dB and 6 dB Emission BW: KDB 789033 D02 v01, Section C.

99% Occupied BW: KDB 789033 D02 v01, Section D.

Conducted Output Power: KDB 789033 D02 v01, Section E.3.a (Method PM).

Power Spectral Density: KDB 789033 D02 v01, Section F.

Unwanted emissions in restricted bands: KDB 789033 D02 v01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01, Sections G.3, G.4, and G.5.

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

5.2 GHz Band

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a	1.395	1.411	0.989	98.87%	0.00	0.010
802.11n HT20	0.663	0.679	0.976	97.64%	0.10	1.507
802.11n HT40	0.335	0.350	0.957	95.75%	0.19	2.982

5.8 GHz Band

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a	1.395	1.411	0.989	98.87%	0.00	0.010
802.11n HT20	0.663	0.680	0.976	97.56%	0.11	1.508
802.11n HT40	0.335	0.350	0.958	95.77%	0.19	2.985

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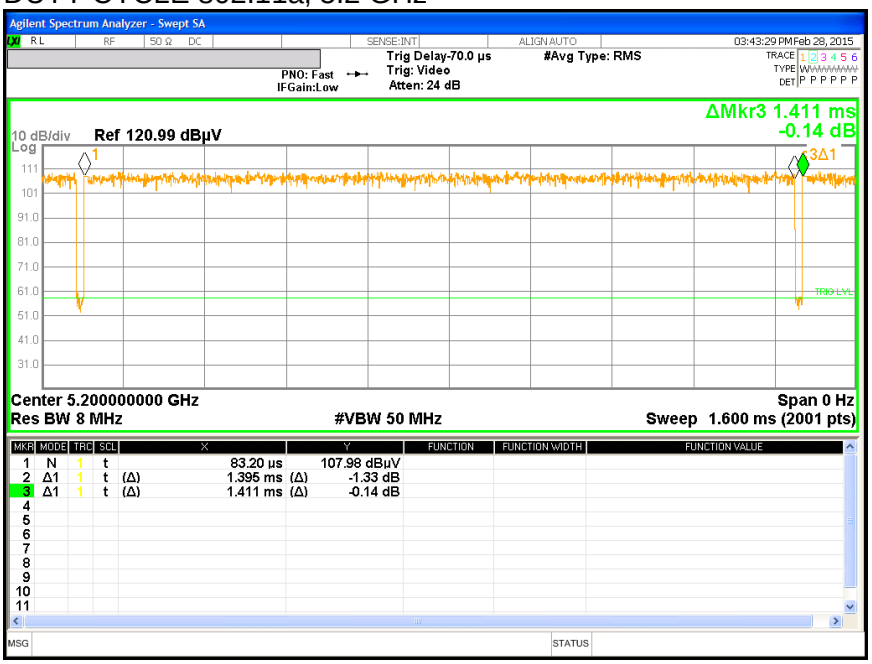
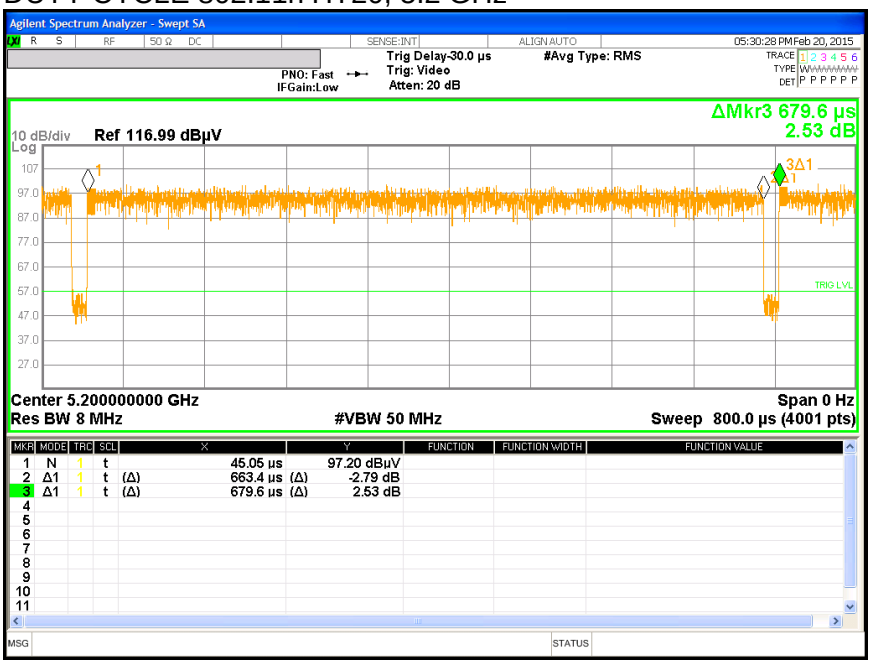
DUTY CYCLE PLOTS

DUTY CYCLE 802.11a, 5.2 GHz



DUTY CYCLE 802.11n HT20, 5.2 GHz



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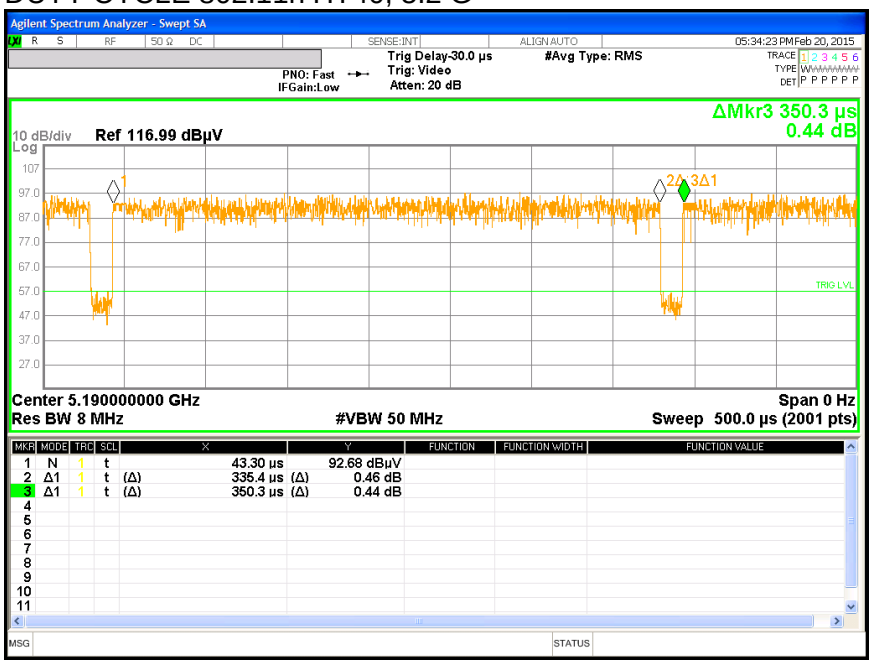
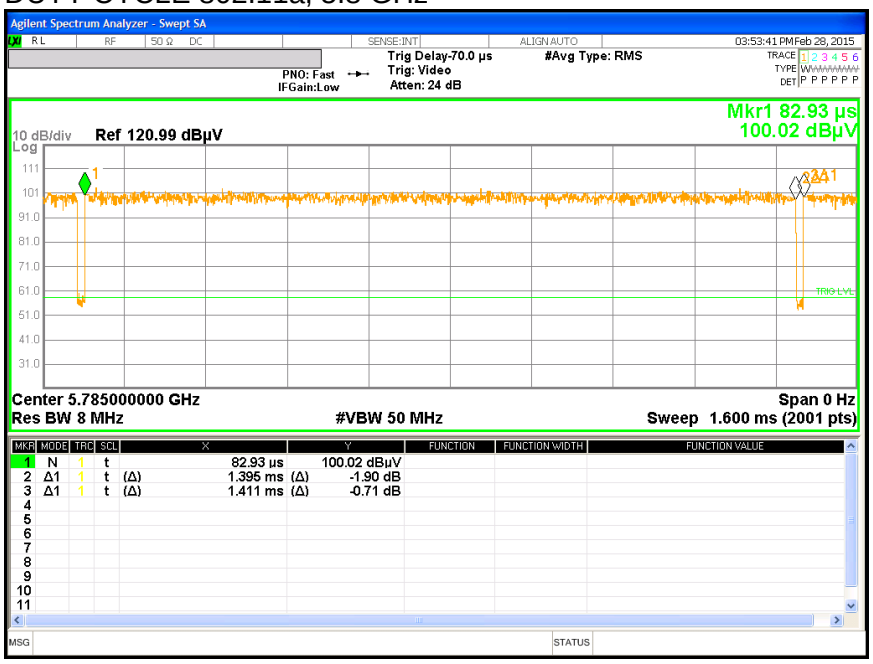
DUTY CYCLE 802.11n HT40, 5.2 G



Hz

DUTY CYCLE 802.11a, 5.8 GHz



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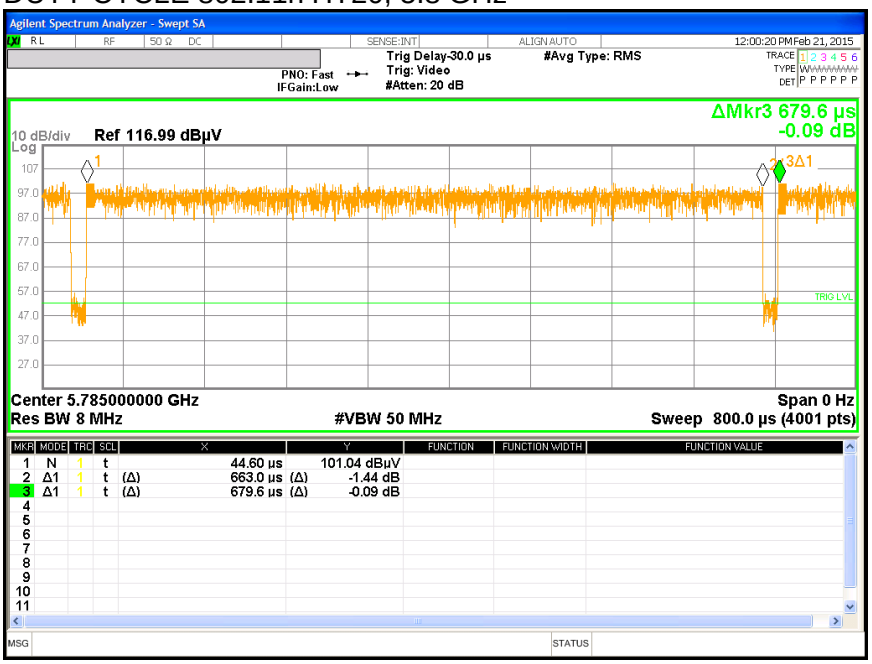
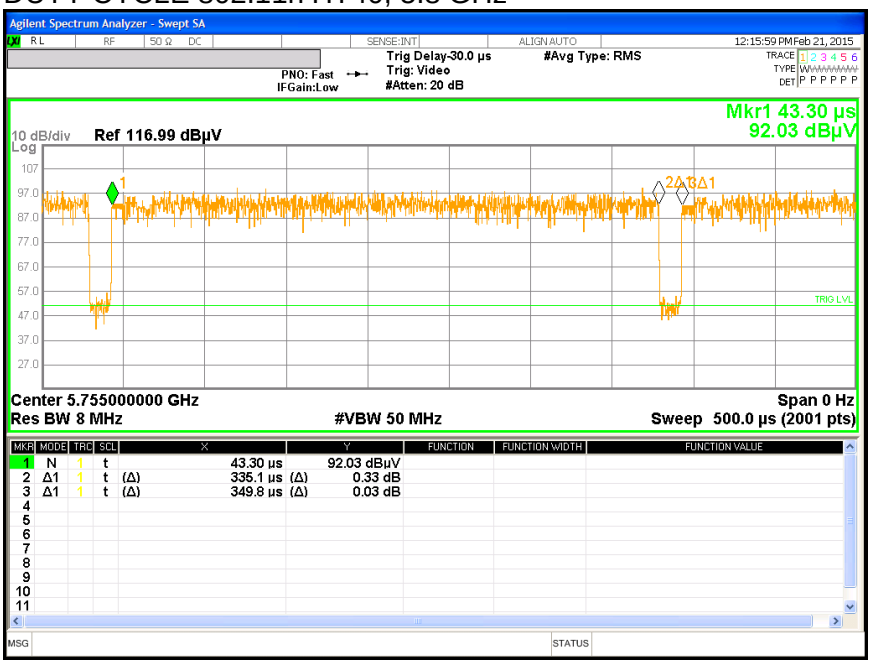
DUTY CYCLE 802.11n HT20, 5.8 GHz



DUTY CYCLE 802.11n HT40, 5.8 GHz



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8.2. 802.11a MODE IN THE 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS – 802.11a

Antenna 0

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	35.88
Mid	5200	35.59
High	5240	35.20

Antenna 1

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	35.04
Mid	5200	34.22
High	5240	32.05

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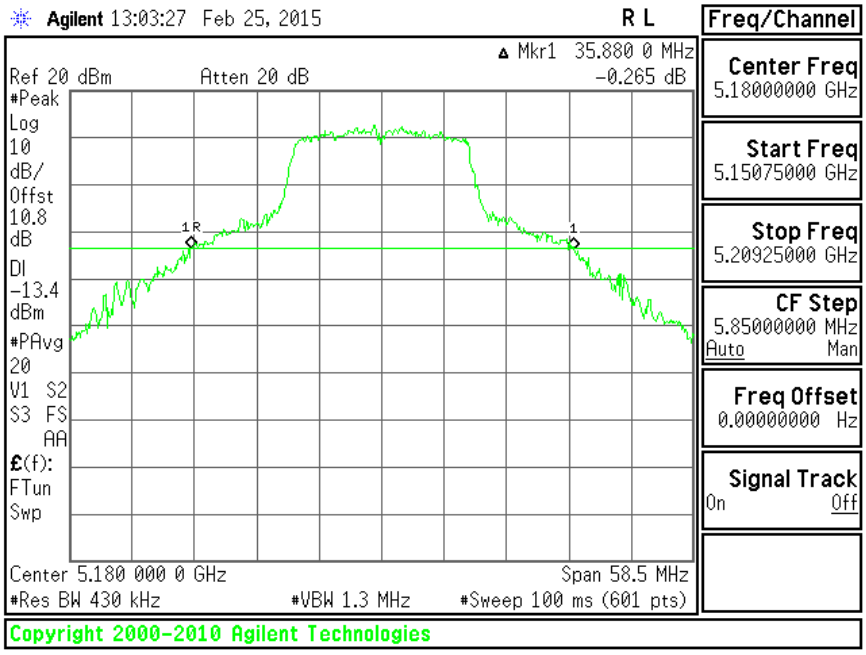
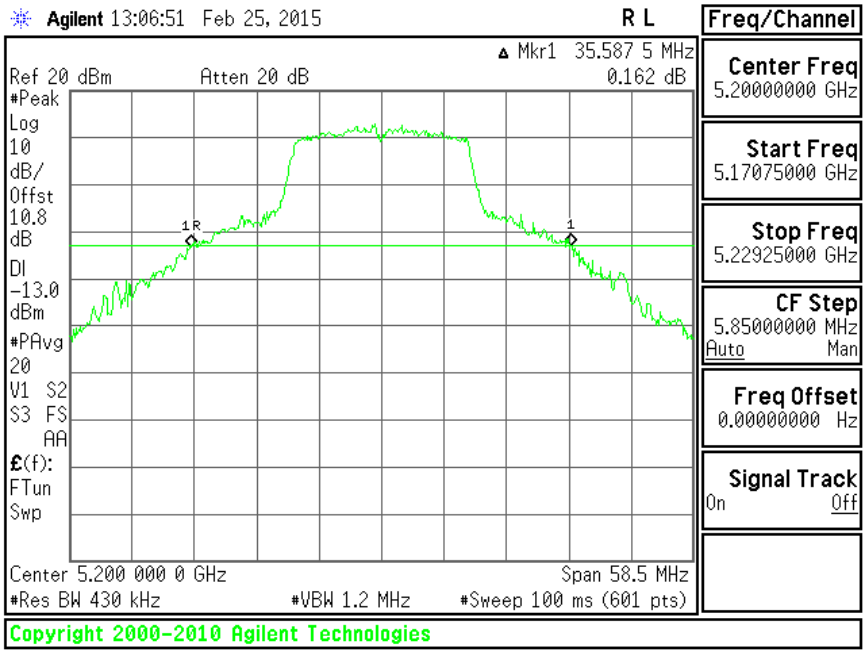
26 dB BANDWIDTH

BANDWIDTH LOW CH – Antenna 0



BANDWIDTH MID CH – Antenna 0



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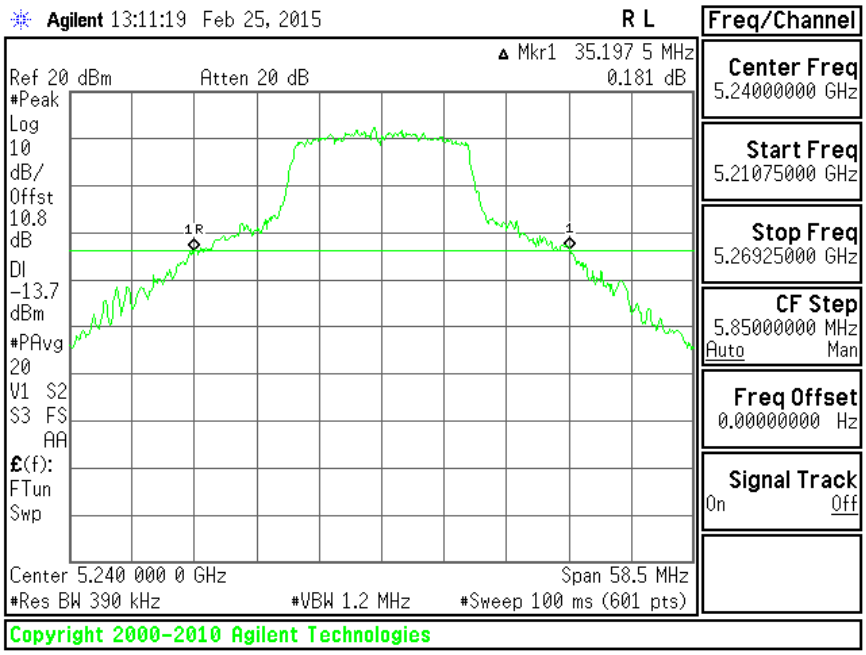
BANDWIDTH HIGH CH – Antenna 0



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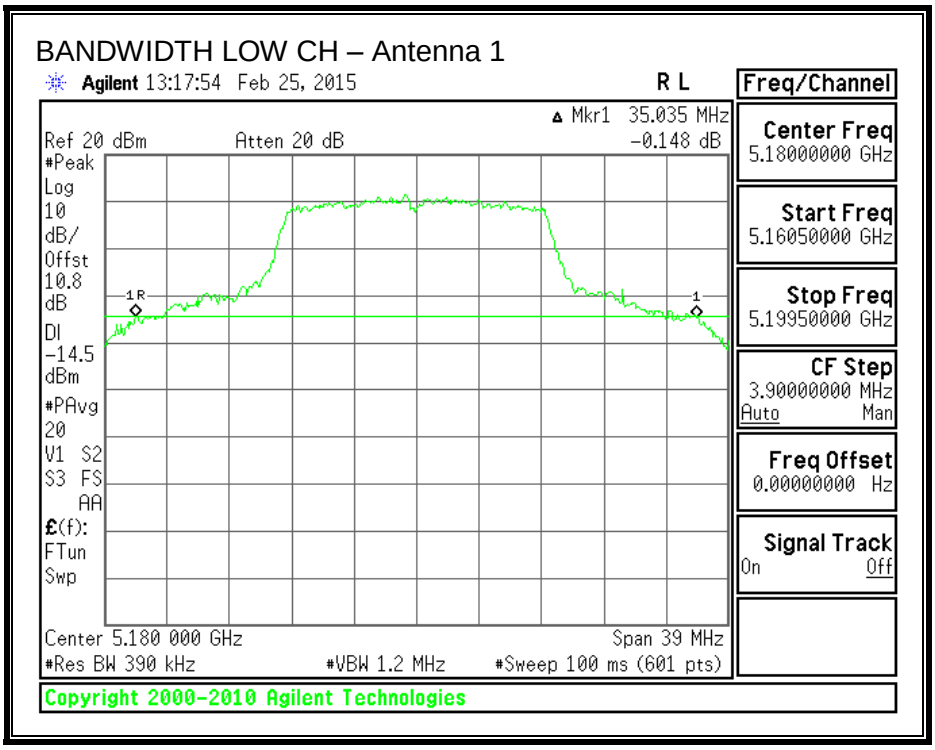
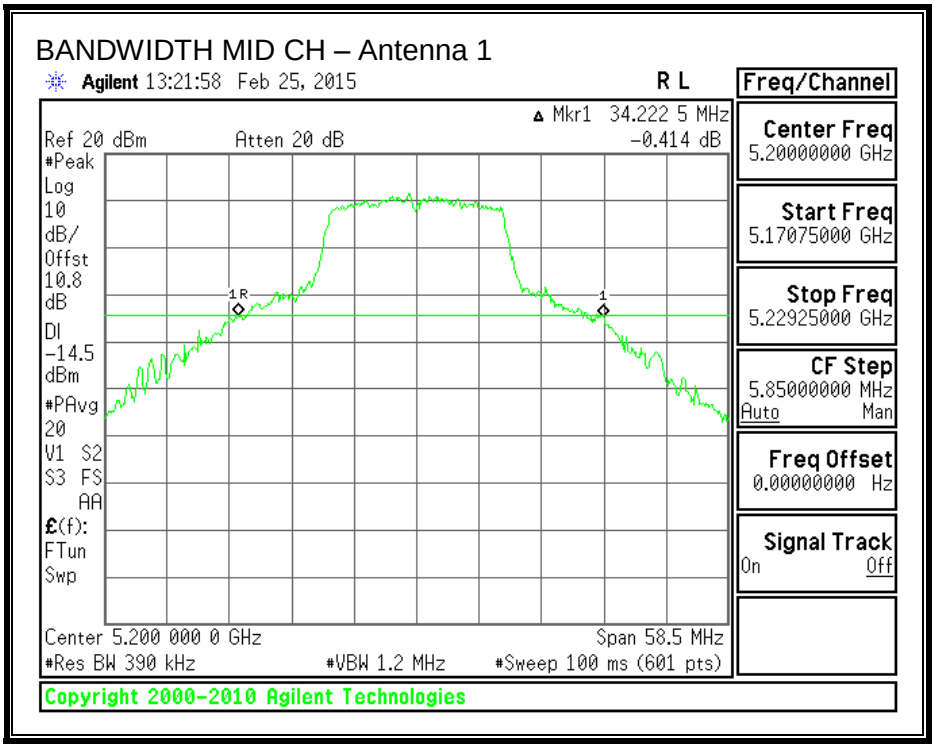
BANDWIDTH LOW CH – Antenna 1



BANDWIDTH MID CH – Antenna 1



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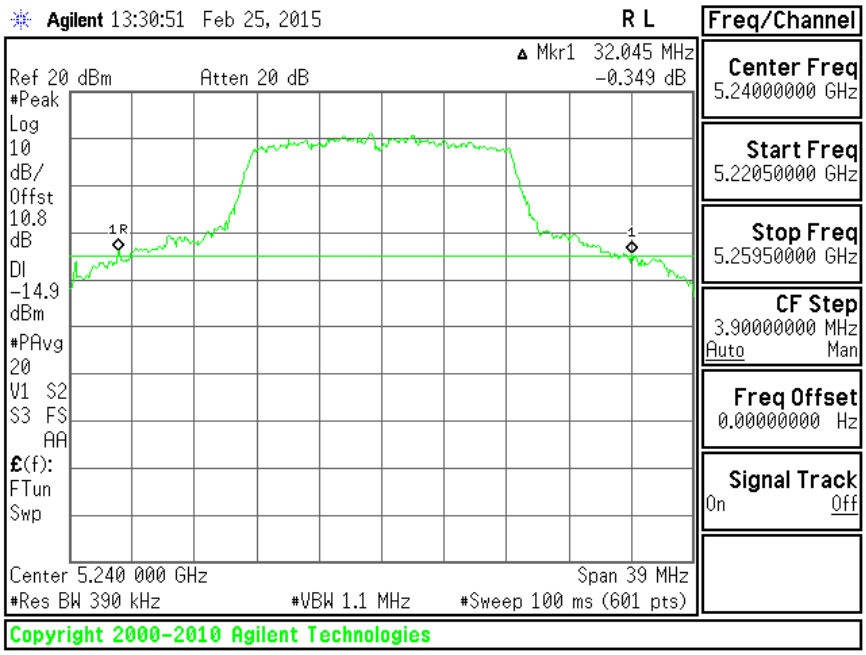
BANDWIDTH HIGH CH – Antenna 1



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8.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS – 802.11a

Antenna 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.7136
Mid	5200	16.7372
High	5240	16.6808

Antenna 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.6578
Mid	5200	16.6518
High	5240	16.5937

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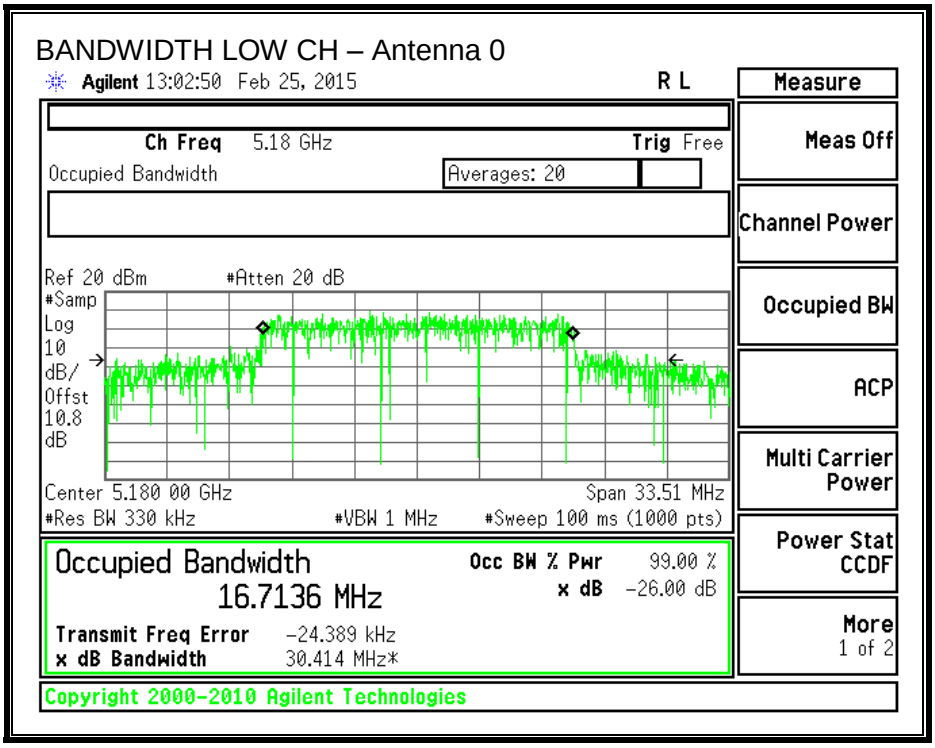
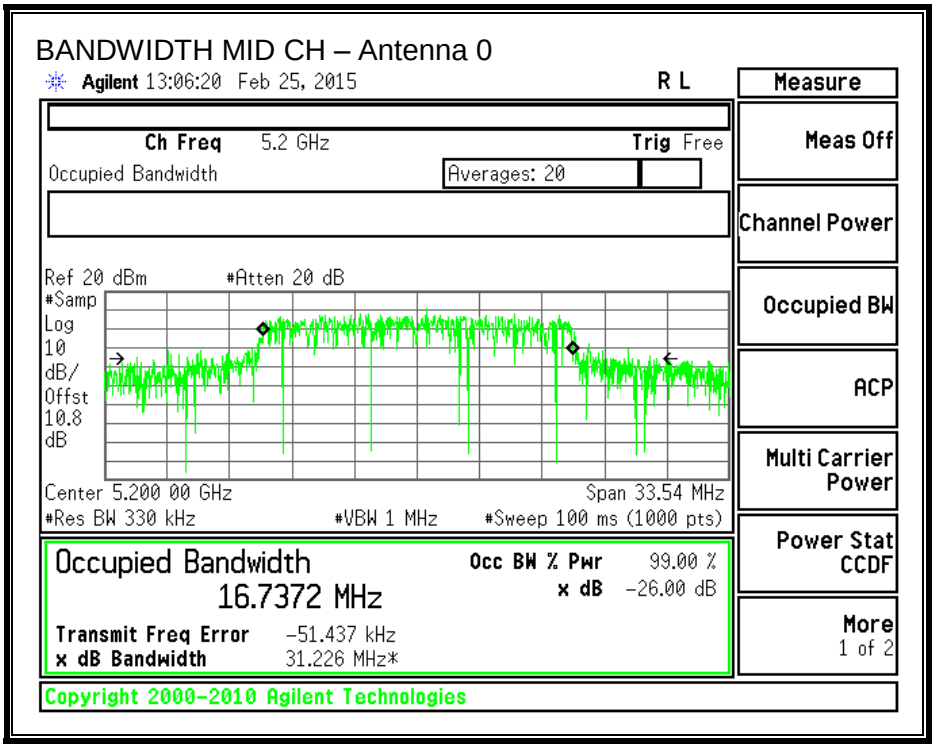
99% BANDWIDTH

BANDWIDTH LOW CH – Antenna 0



BANDWIDTH MID CH – Antenna 0



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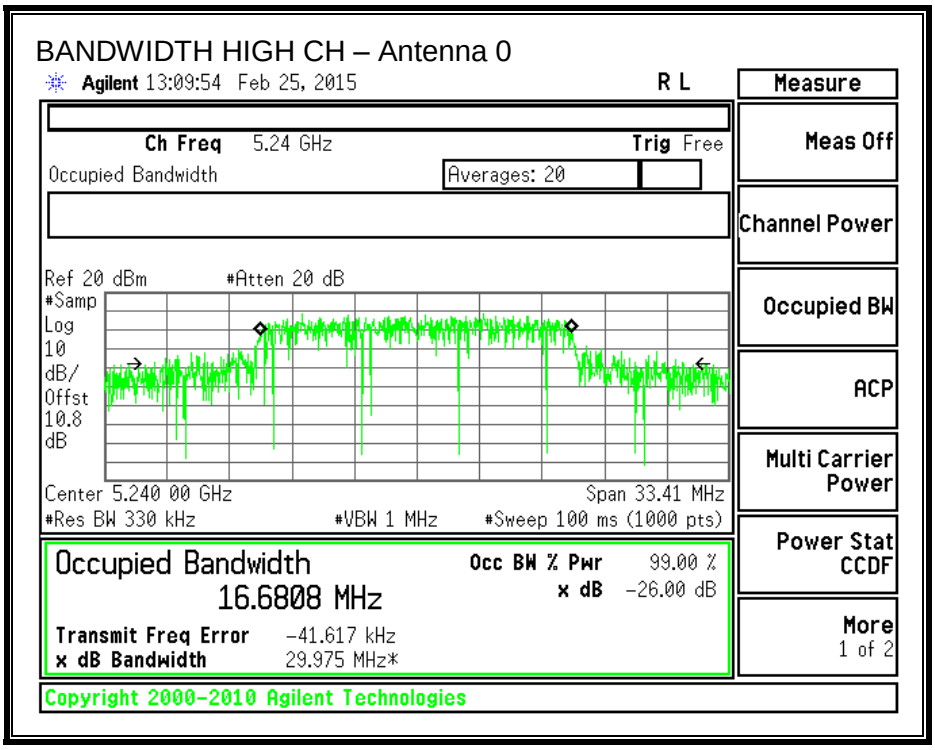
BANDWIDTH HIGH CH – Antenna 0



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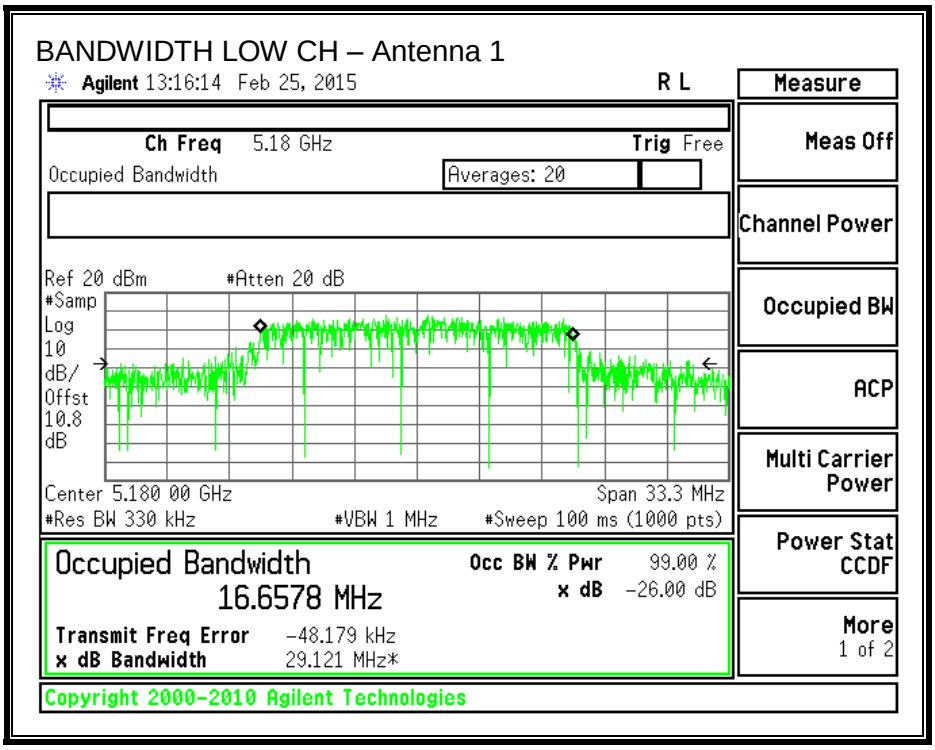
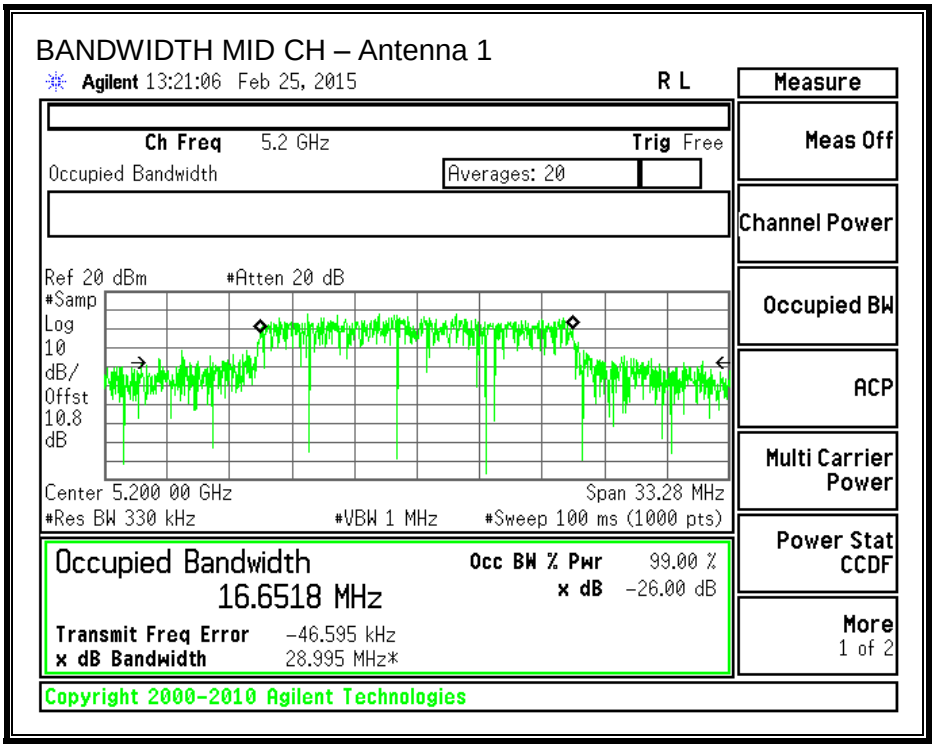
BANDWIDTH LOW CH – Antenna 1



BANDWIDTH MID CH – Antenna 1



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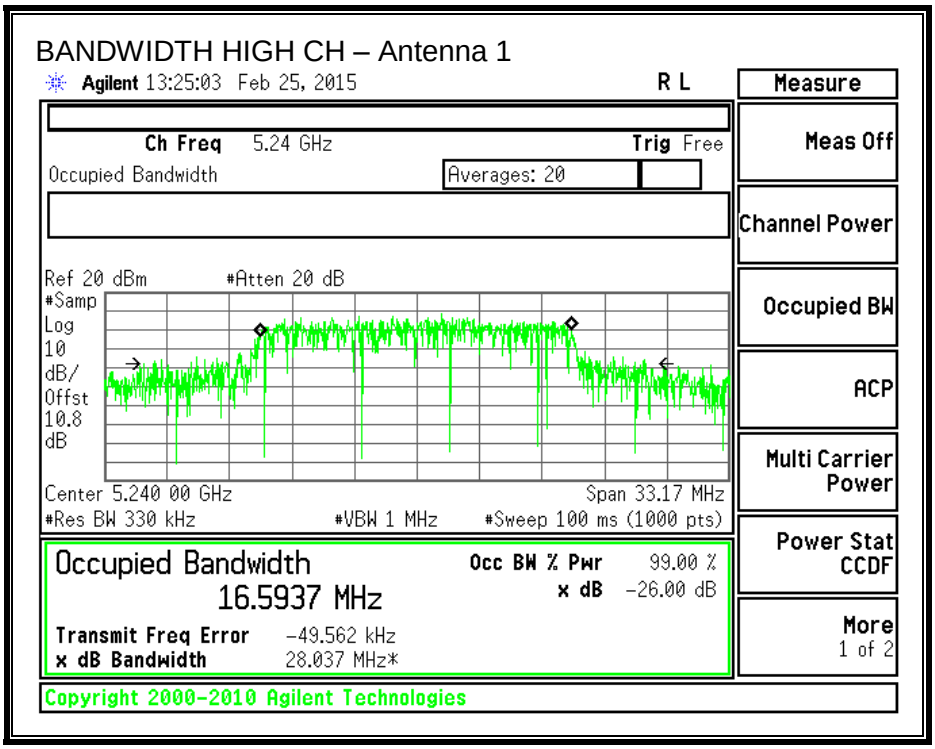
BANDWIDTH HIGH CH – Antenna 1



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8.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS – 802.11a

Antenna 0

Channel	Frequency (MHz)	Power (dBm)
Low	5180	16.31
Mid	5200	16.56
High	5240	16.25

Antenna 1

Channel	Frequency (MHz)	Power (dBm)
Low	5180	15.47
Mid	5200	15.64
High	5240	15.58

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8.2.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain. Note – In this mode, the device works as a SISO device and utilizes the two antennas for diversity.

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RESULTS

Antenna 0

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.50	2.50	30.00	17.00
Mid	5200	2.50	2.50	30.00	17.00
High	5240	2.50	2.50	30.00	17.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	16.31	16.31	30.00	-13.69
Mid	5200	16.56	16.56	30.00	-13.44
High	5240	16.25	16.25	30.00	-13.75

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	6.42	6.42	17.00	-10.58
Mid	5200	6.54	6.54	17.00	-10.46
High	5240	5.69	5.69	17.00	-11.32

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Antenna 1

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.50	2.50	30.00	17.00
Mid	5200	2.50	2.50	30.00	17.00
High	5240	2.50	2.50	30.00	17.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.47	15.47	30.00	-14.53
Mid	5200	15.64	15.64	30.00	-14.36
High	5240	15.58	15.58	30.00	-14.42

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	5.46	5.46	17.00	-11.54
Mid	5200	5.10	5.10	17.00	-11.90
High	5240	5.44	5.44	17.00	-11.56

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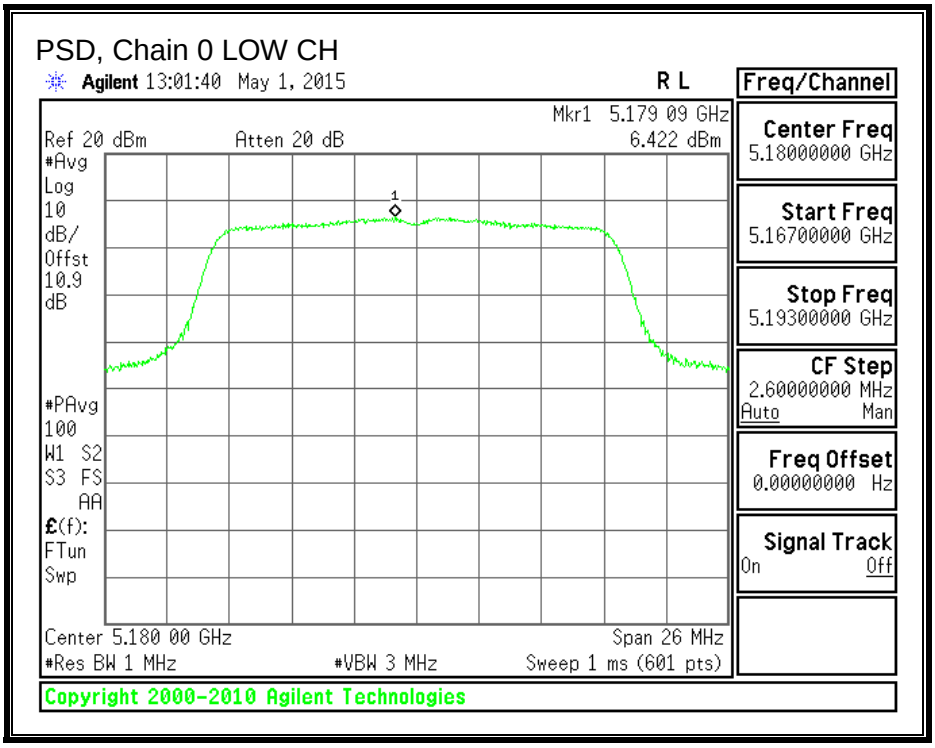
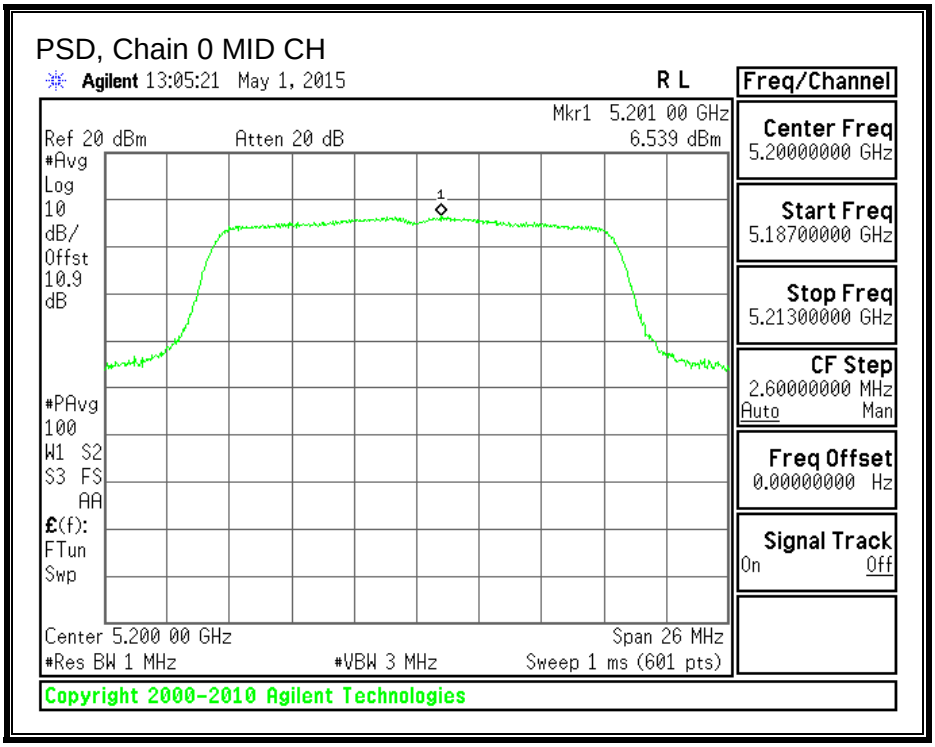
PSD, Chain 0





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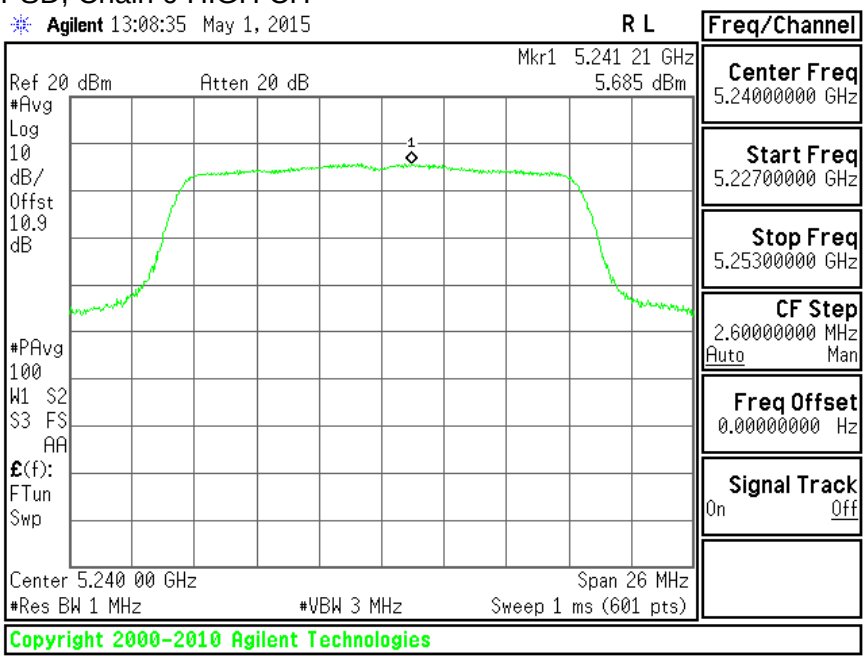
PSD, Chain 0 HIGH CH



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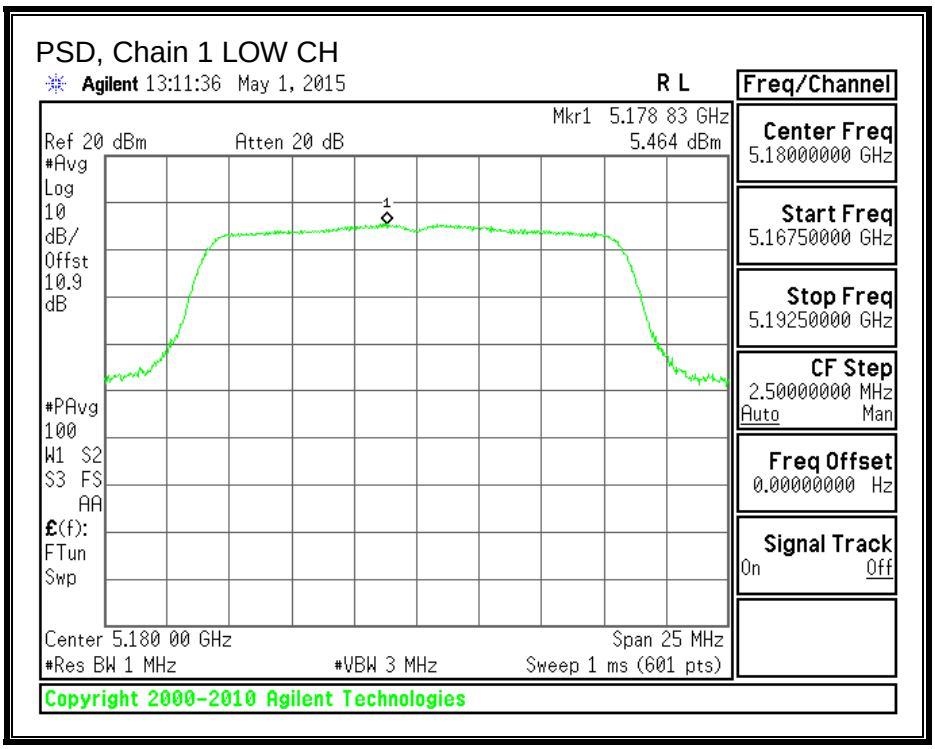
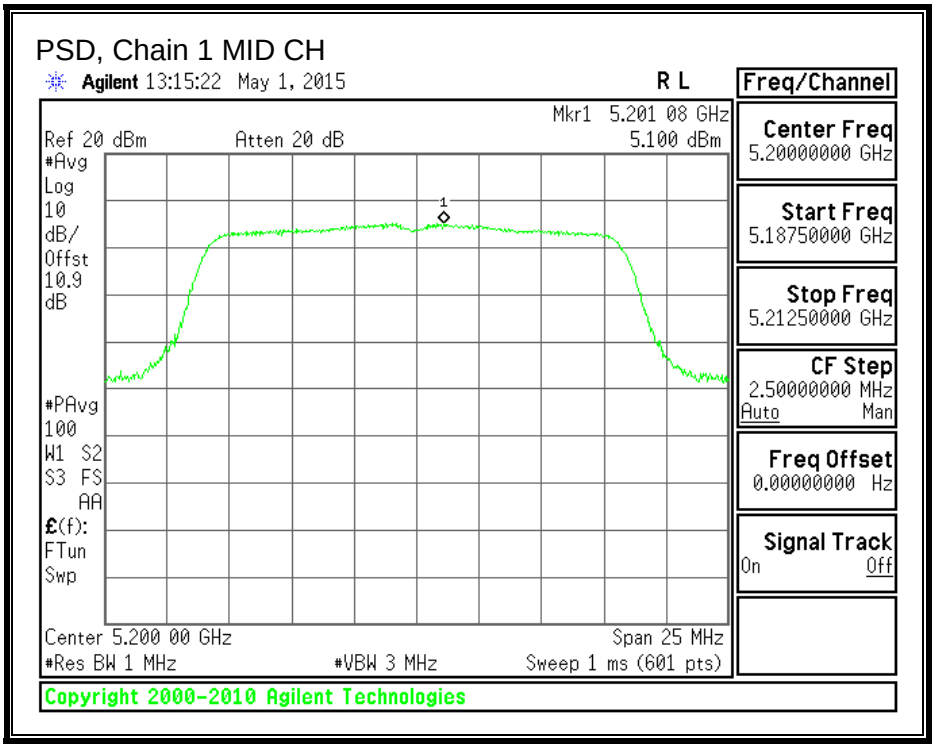
PSD, Chain 1





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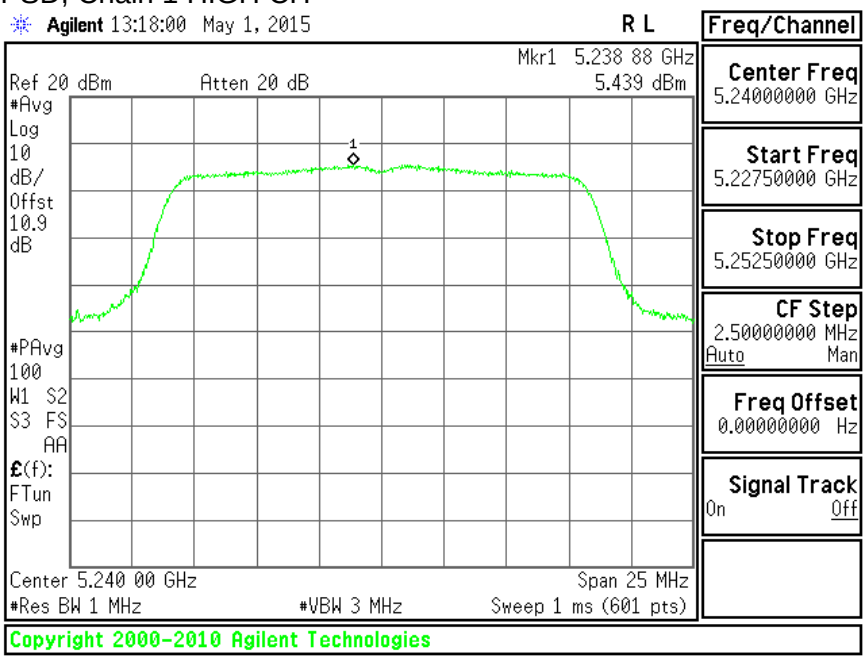
PSD, Chain 1 HIGH CH



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8.3. 802.11n HT20 MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.2 GHz band

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	28.93	25.48
Mid	5200	33.93	29.90
High	5240	38.51	35.69

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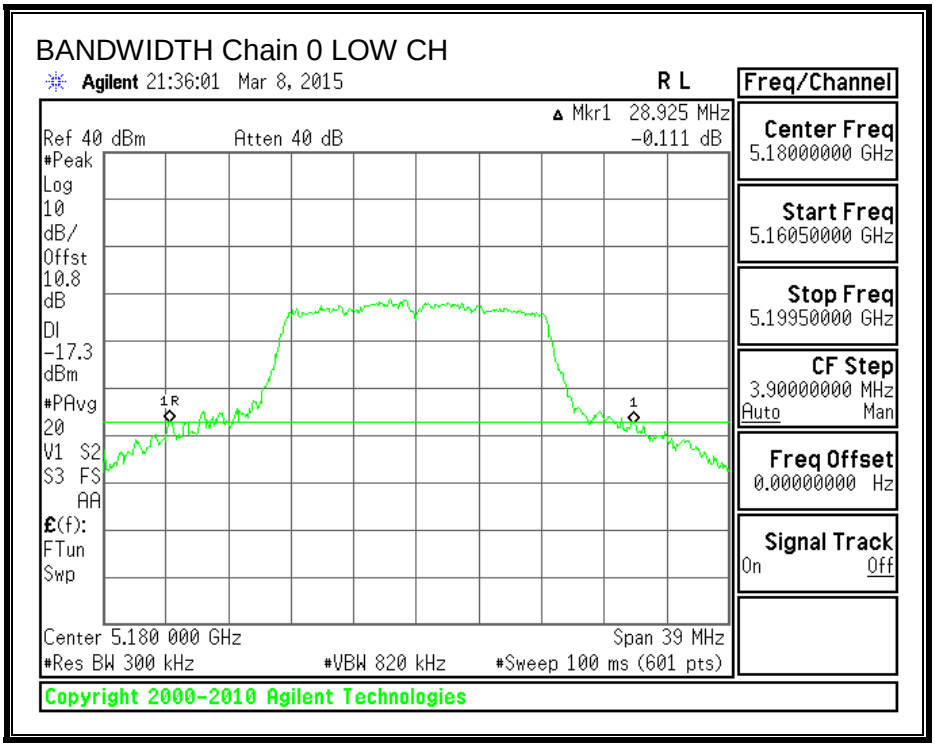
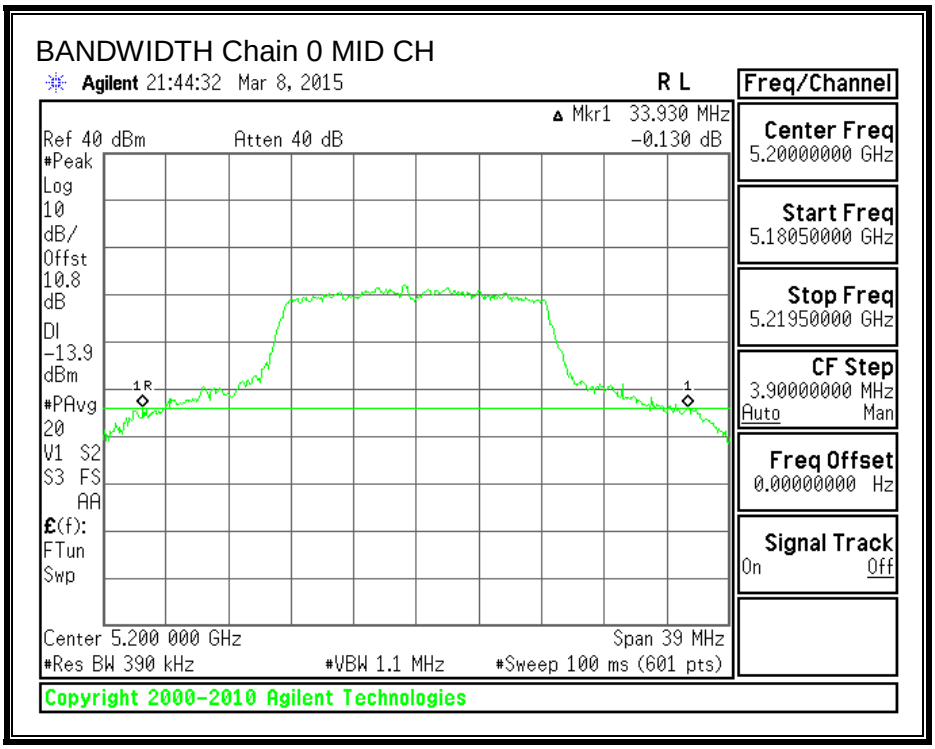
26 dB BANDWIDTH, Chain 0





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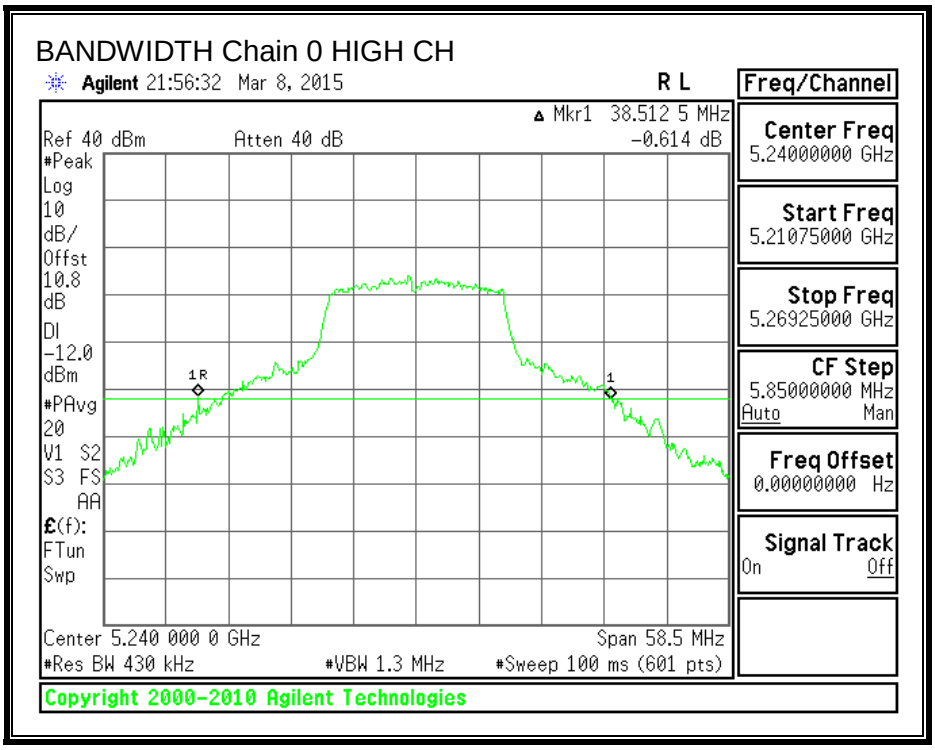
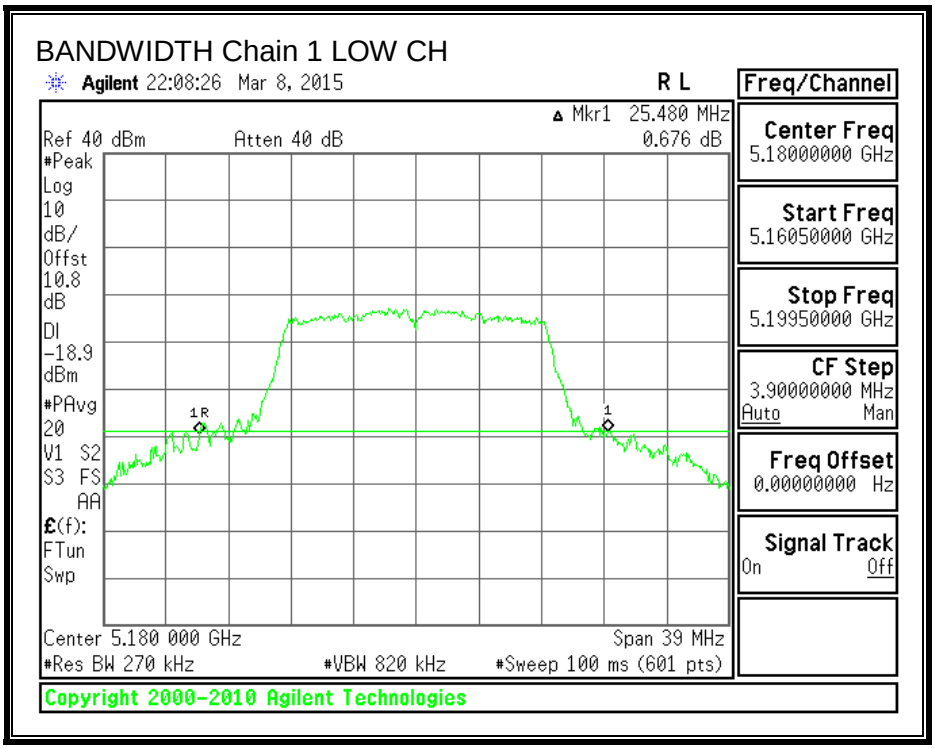


26 dB BANDWIDTH, Chain 1



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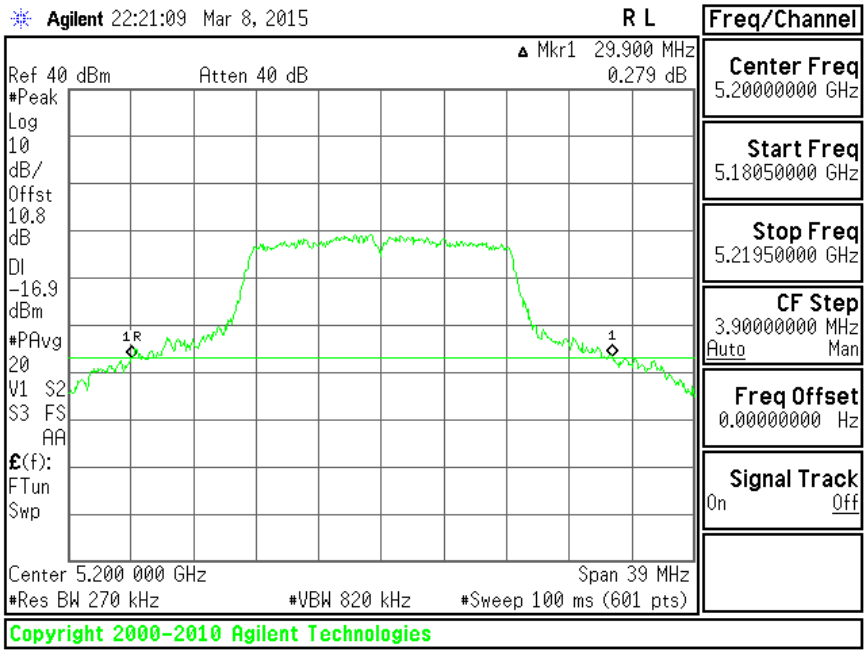
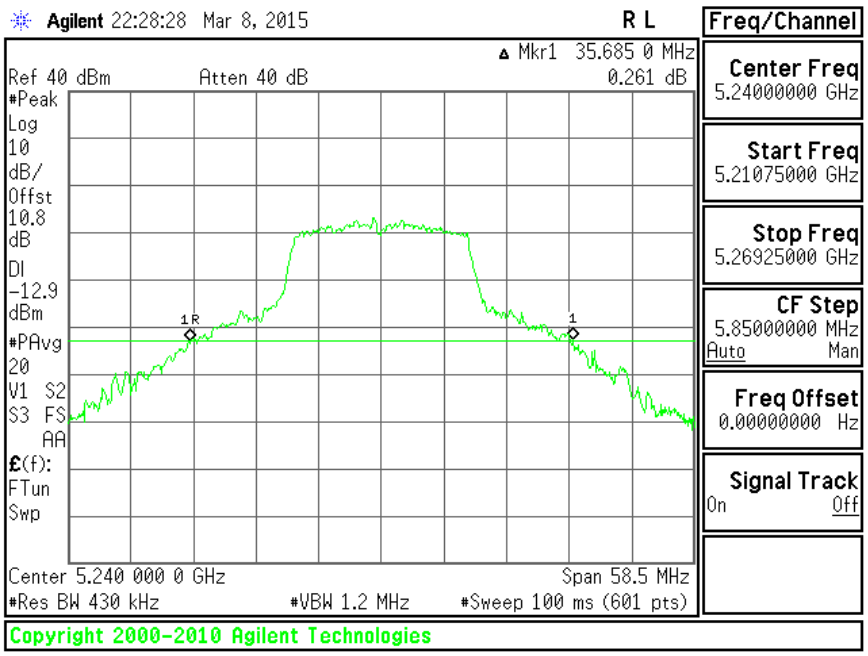
BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



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8.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.2 GHz band

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	16.5399	16.4949
Mid	5200	16.5983	16.5634
High	5240	16.8771	16.7408

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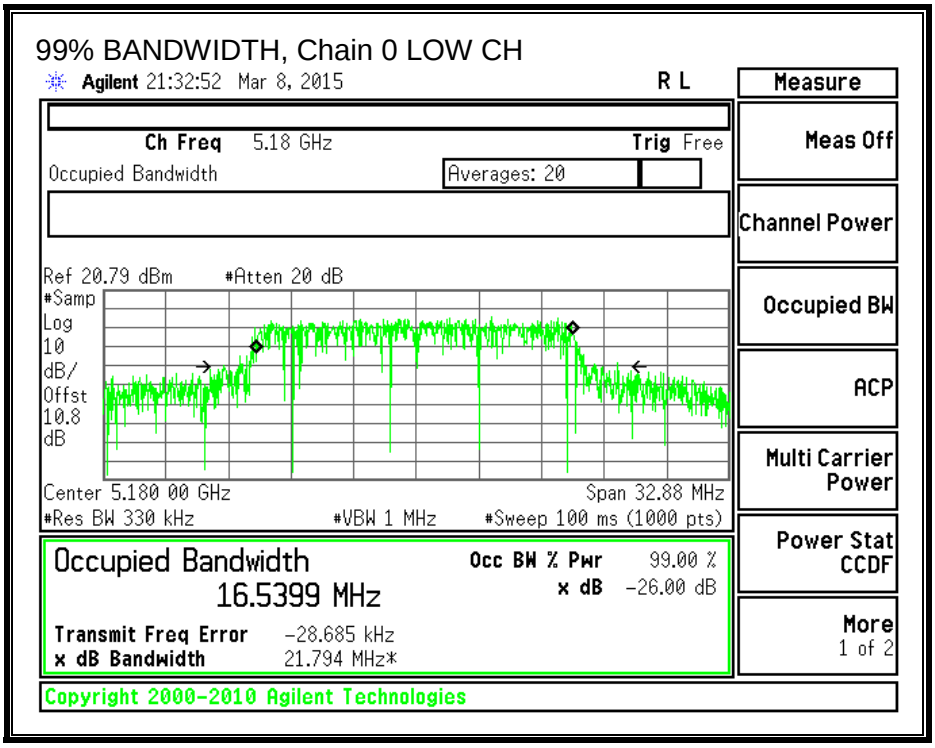
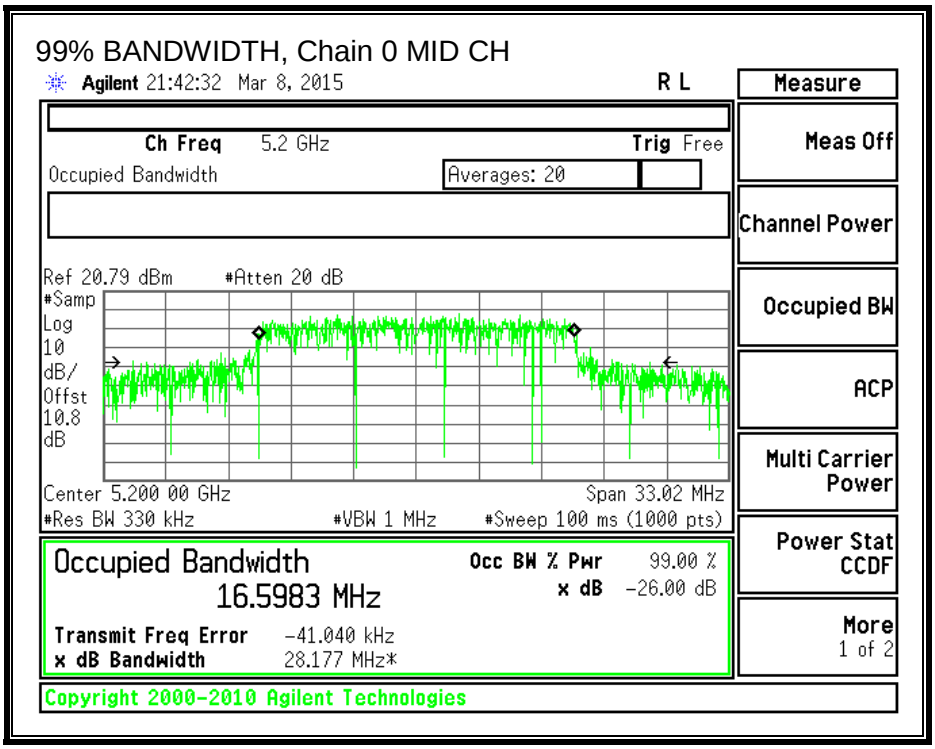
99% BANDWIDTH, Chain 0





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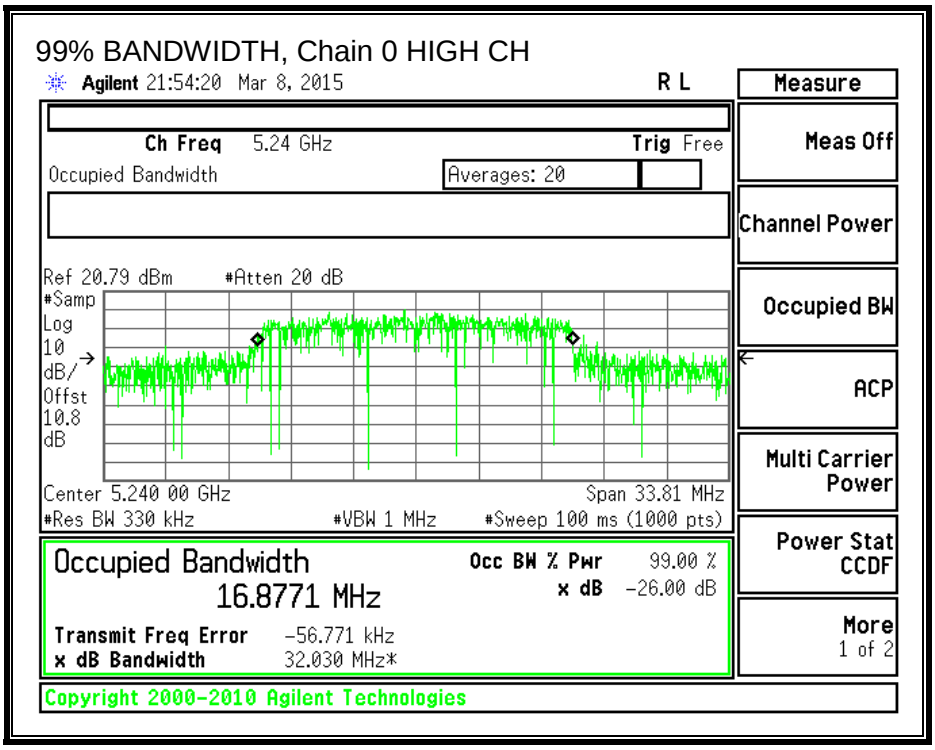
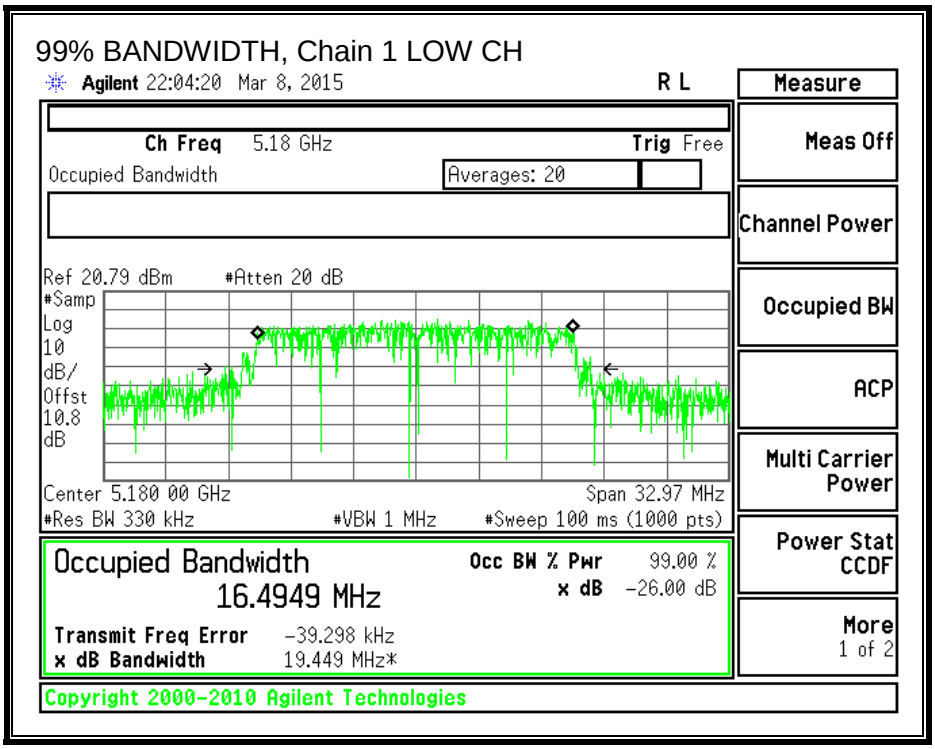


99% BANDWIDTH, Chain 1



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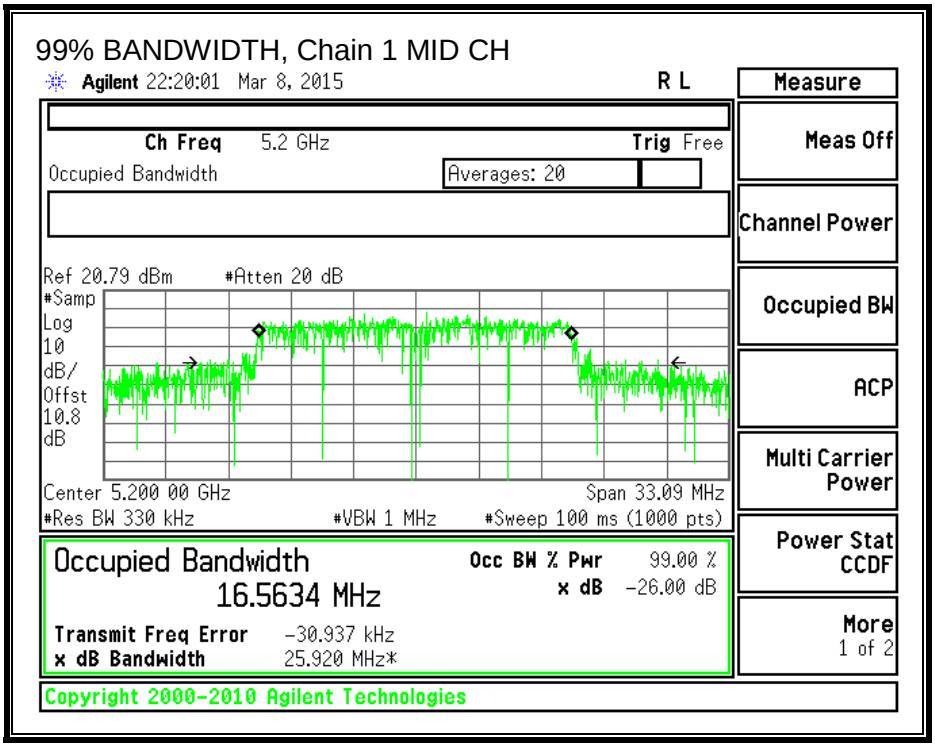

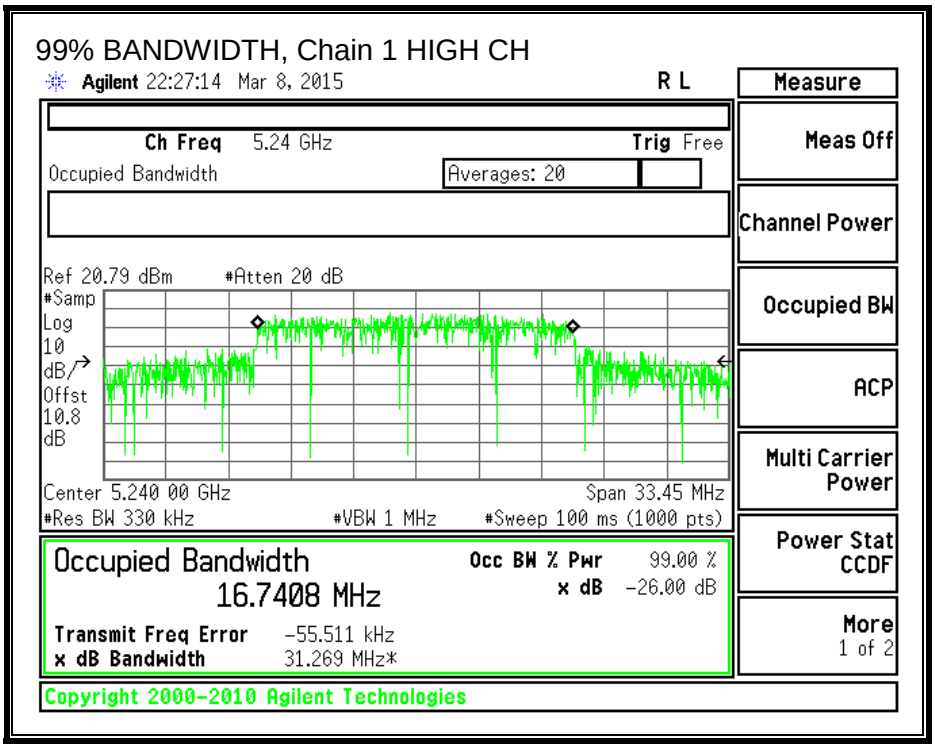

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8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.2 GHz band

Average Power - FCC

Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)
Low	5180	14.28	14.41	17.46
Mid	5200	14.31	14.00	17.27
High	5240	15.16	14.90	18.14

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8.3.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

Power - The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.50	2.50	2.50

Power Spectral Density - The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
2.50	3.01	5.51

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RESULTS - 802.11n HT20, 5.2 GHz band

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	2.50	5.51	30.00	17.00
Mid	5200	2.50	5.51	30.00	17.00
High	5240	2.50	5.51	30.00	17.00

Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd Power & PSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.28	14.41	17.46	30.00	-12.54
Mid	5200	14.31	14.00	17.27	30.00	-12.73
High	5240	15.16	14.90	18.14	30.00	-11.86

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	5.63	5.24	8.55	17.00	-8.45
Mid	5200	5.60	5.19	8.51	17.00	-8.49
High	5240	5.87	5.14	8.63	17.00	-8.37

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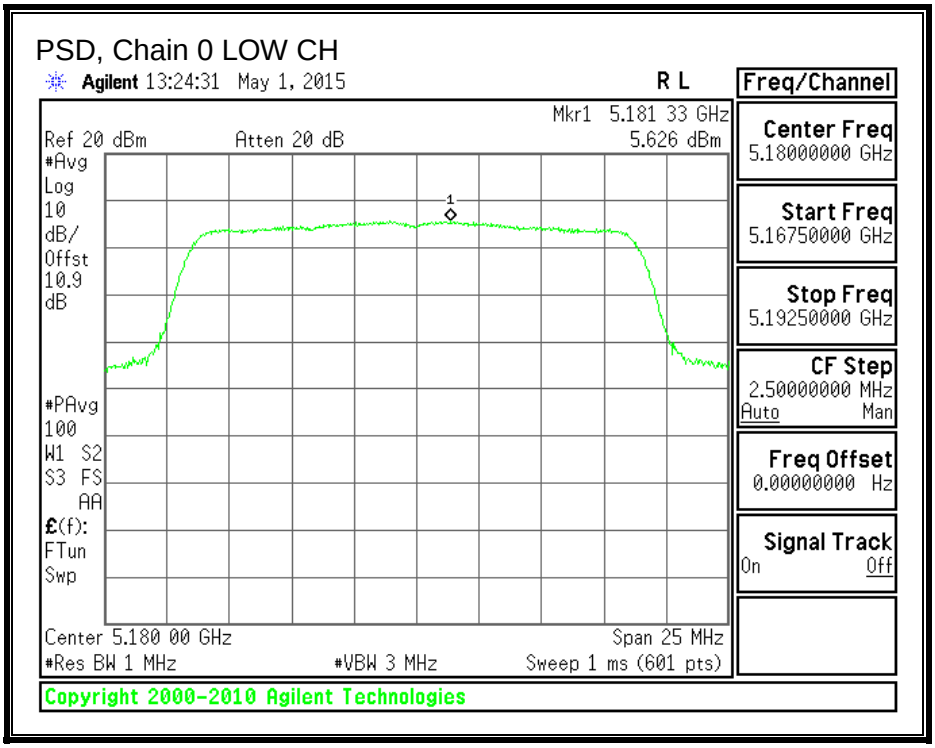
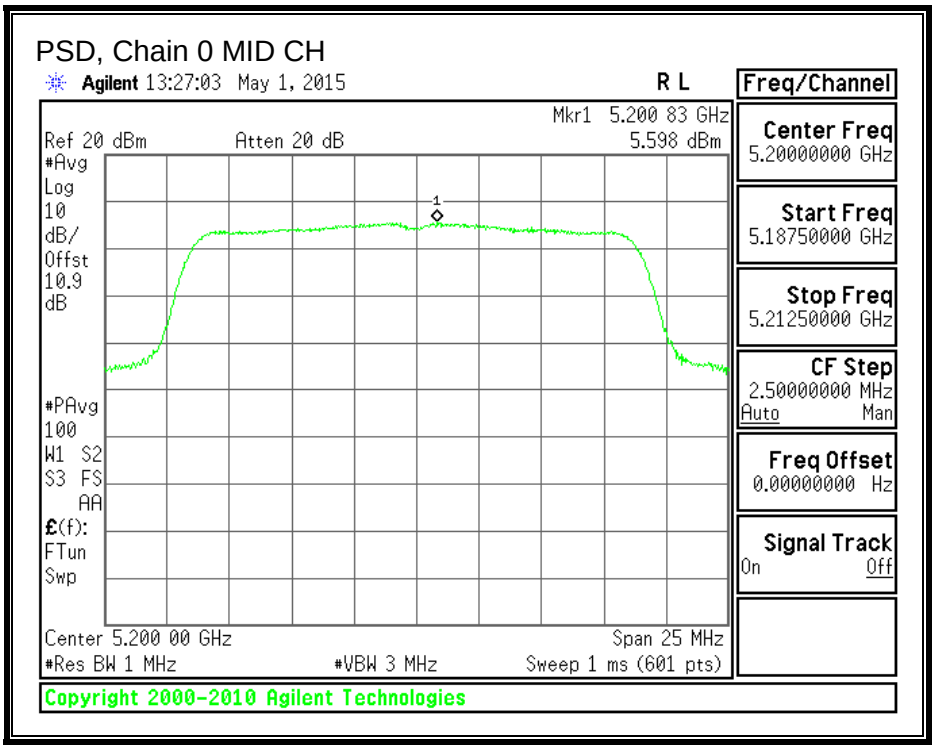
PSD, Chain 0





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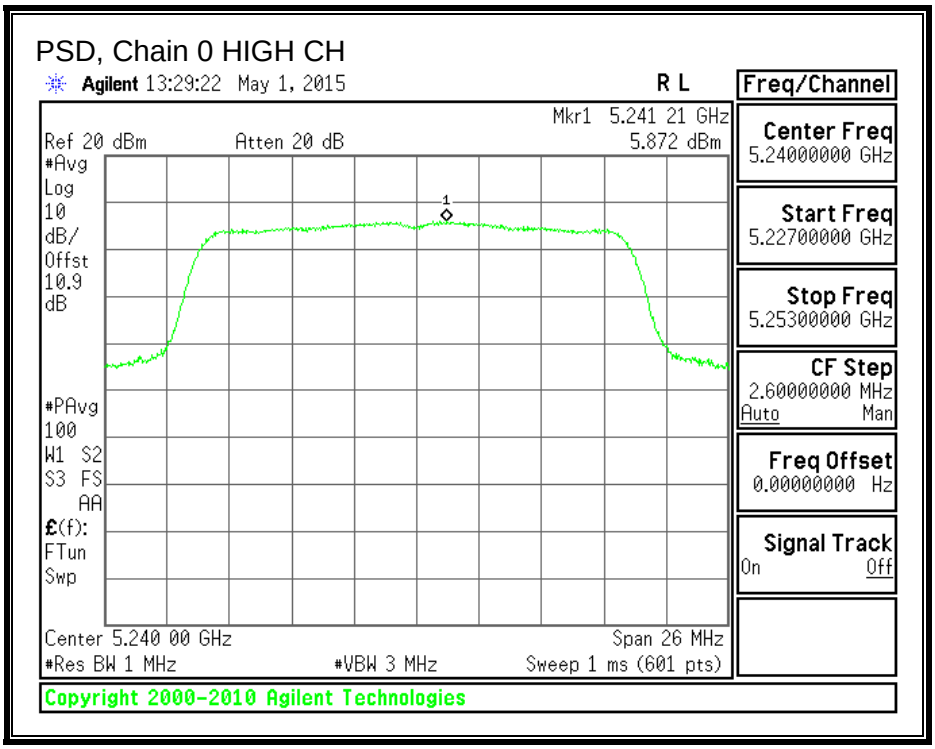
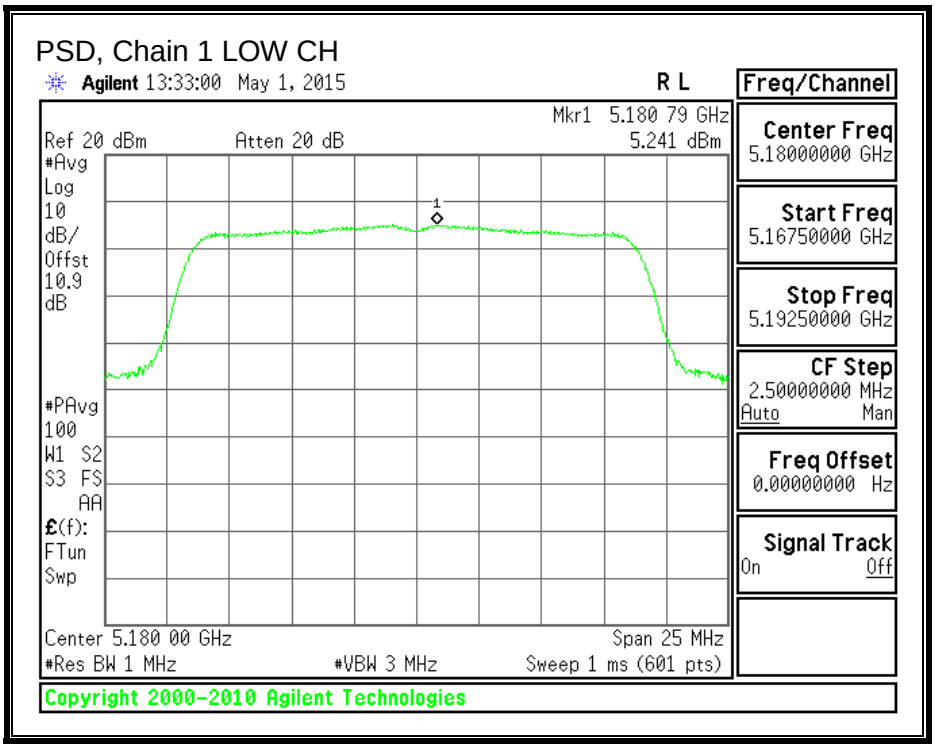


PSD, Chain 1



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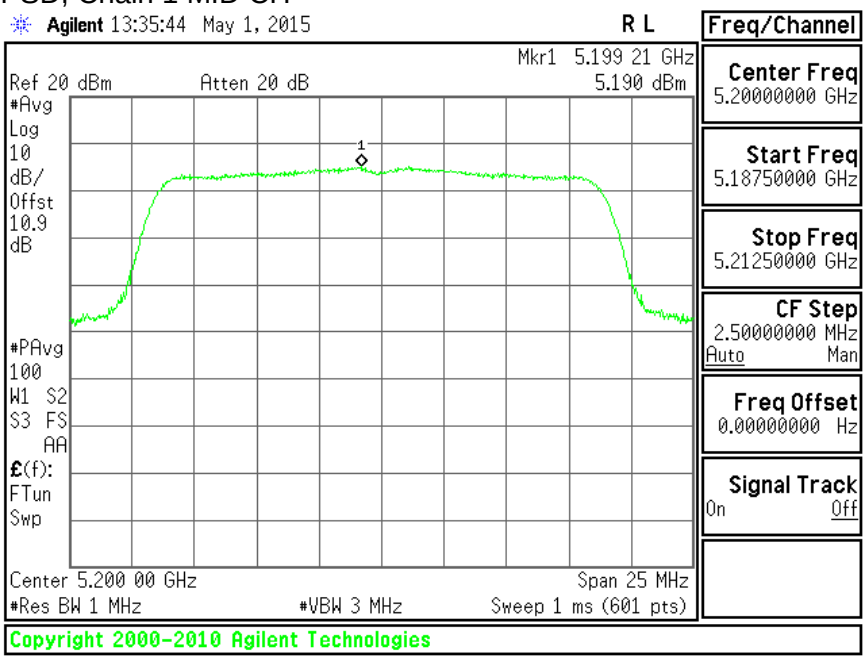
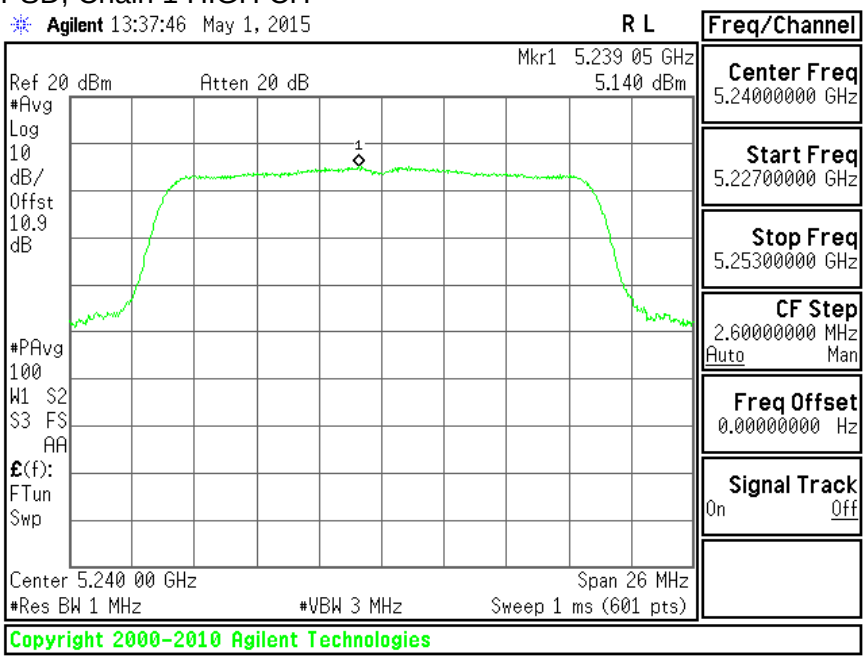
PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



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8.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND

8.4.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40, 5.2 GHz band

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	67.71	40.07
High	5230	86.21	84.90

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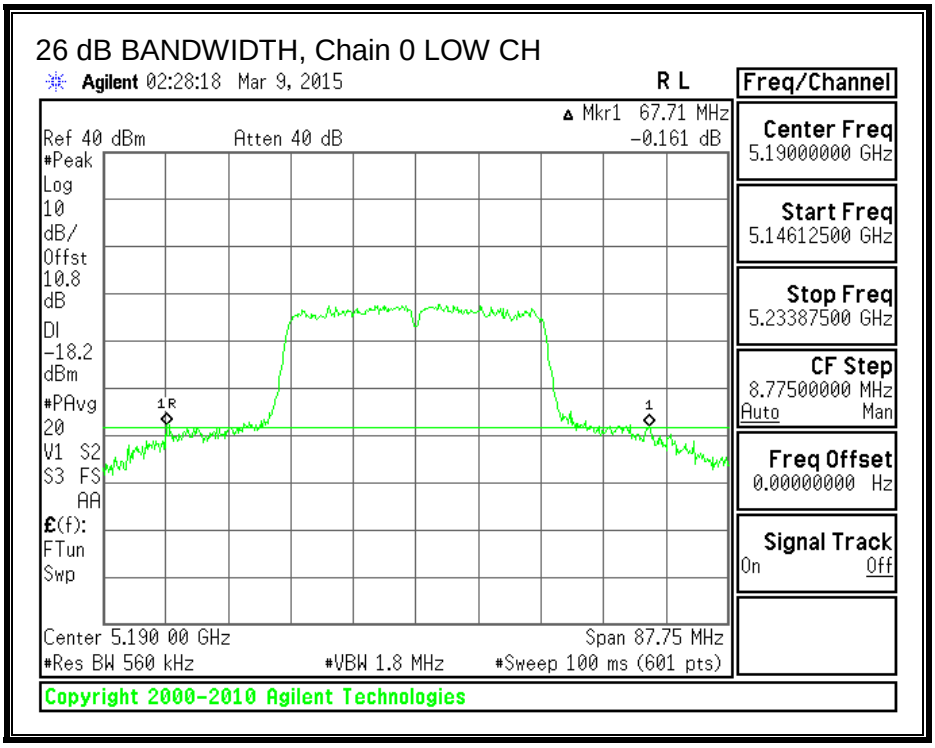
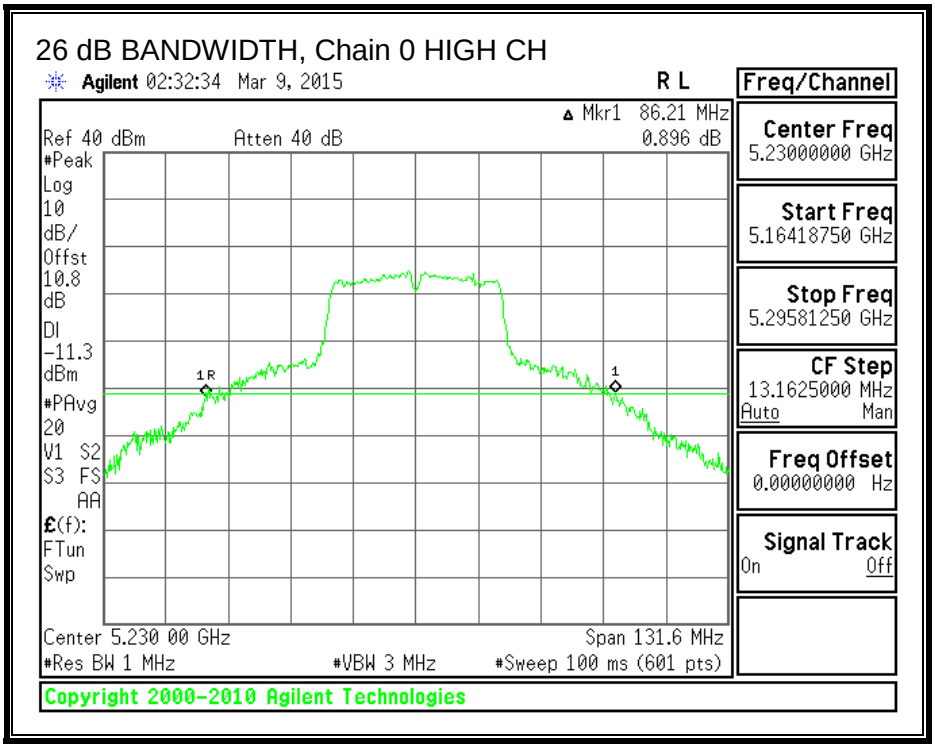
26 dB BANDWIDTH, Chain 0





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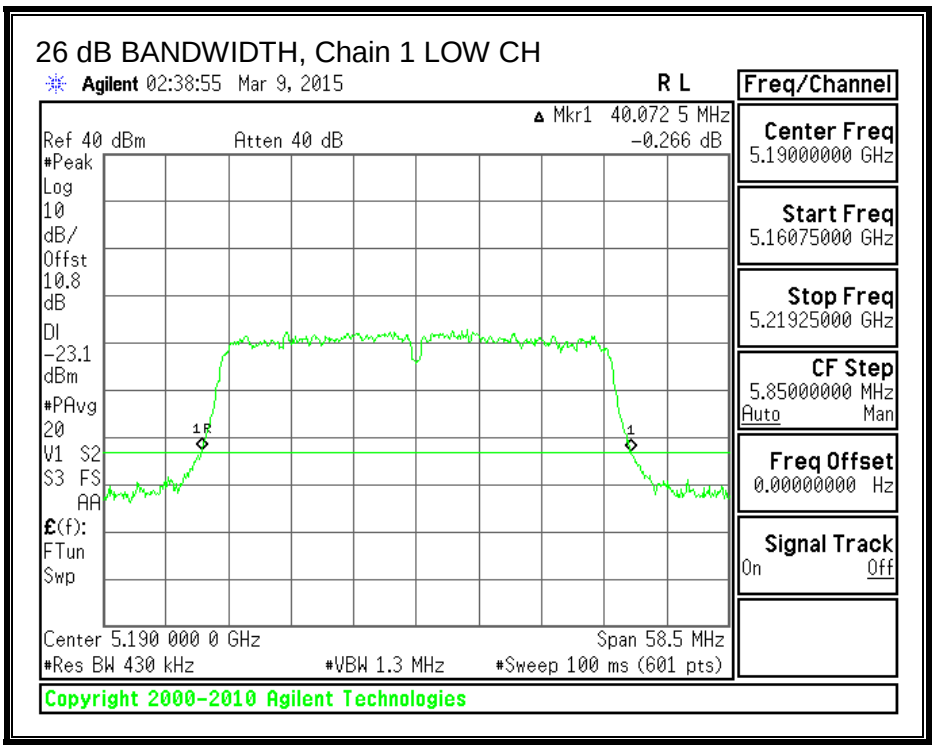
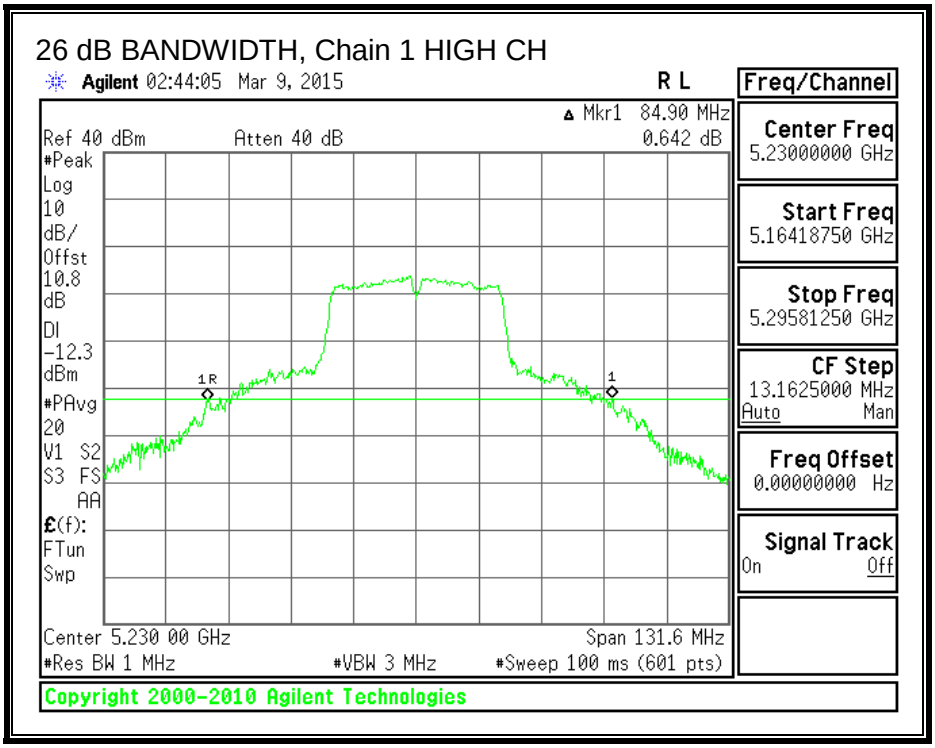
26 dB BANDWIDTH, Chain 1





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8.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40, 5.2 GHz band

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.1545	36.0620
High	5230	37.0058	36.6241

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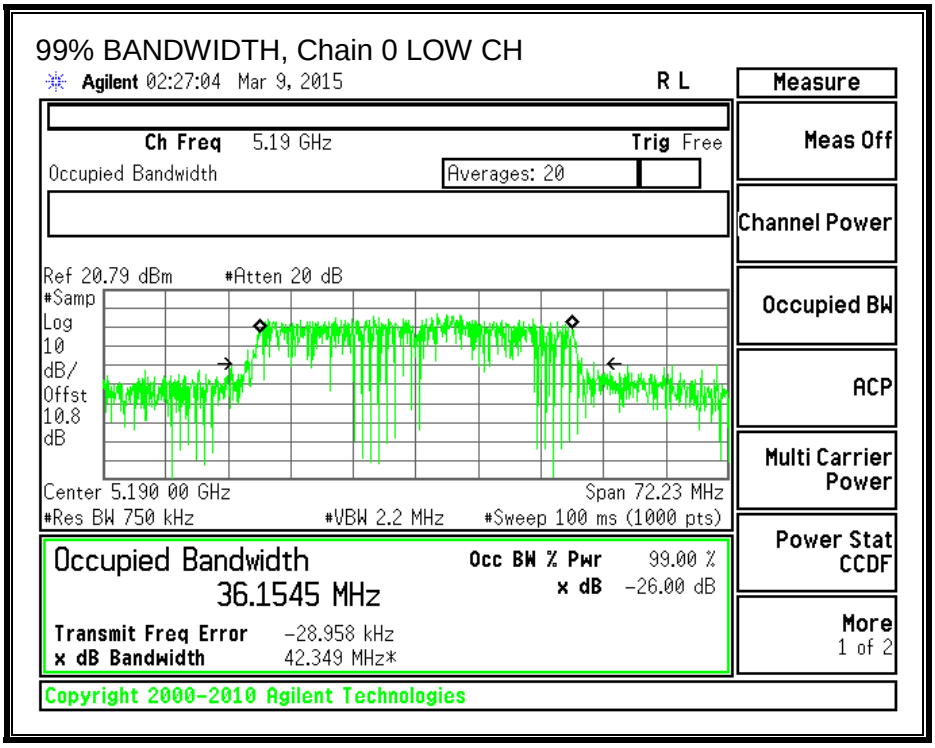
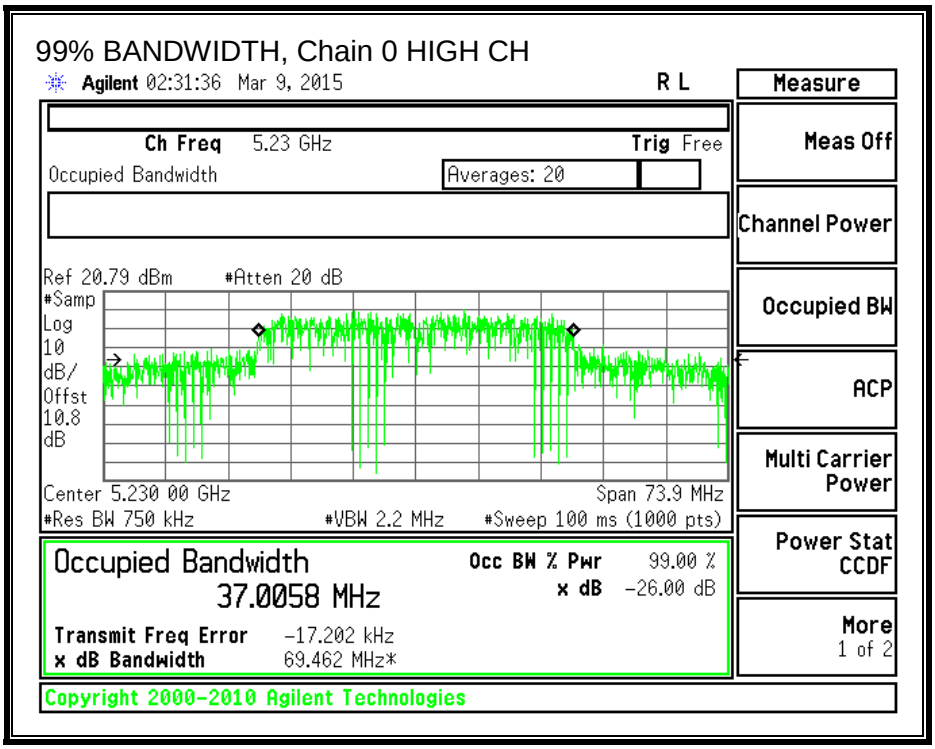
99% BANDWIDTH, Chain 0





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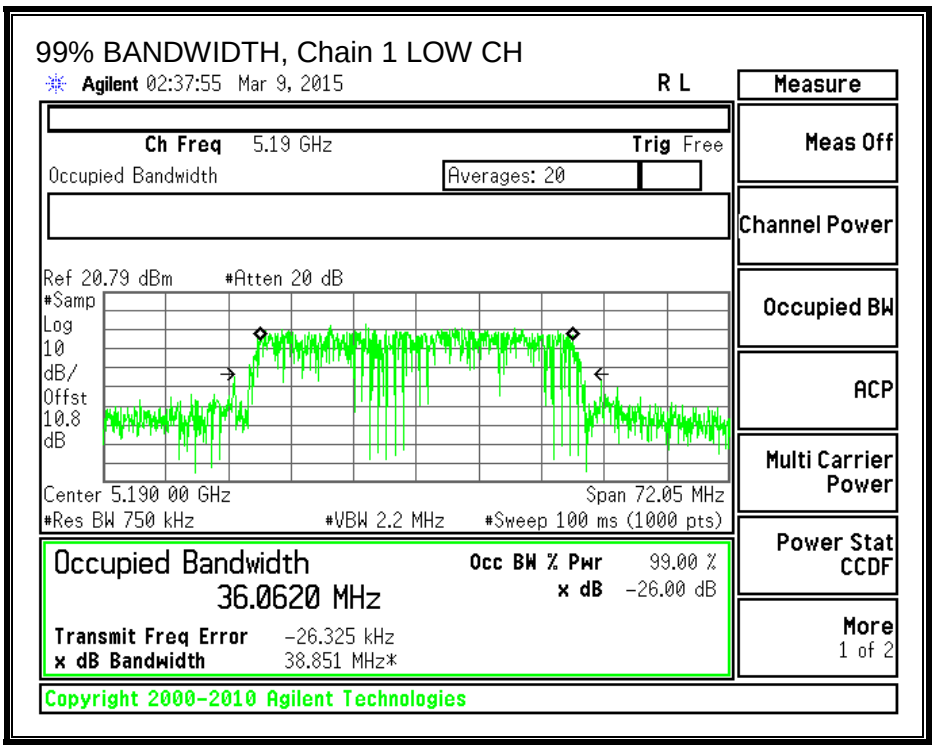
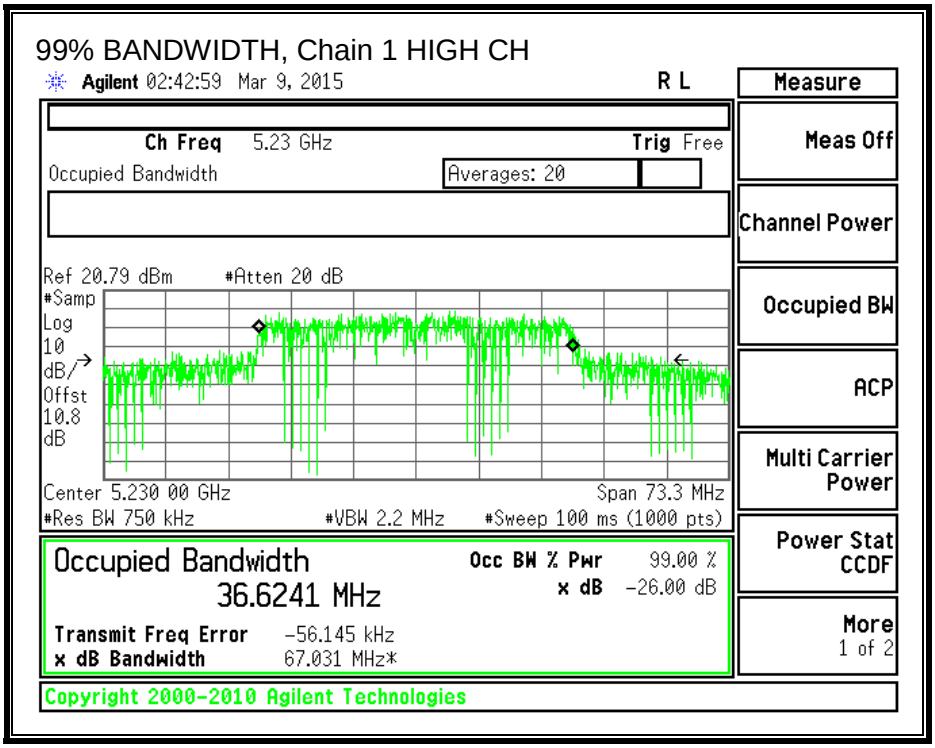
99% BANDWIDTH, Chain 1





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8.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40, 5.2 GHz band

Average Power - FCC

Duty Cycle CF (dB)	0.19	**Included in Calculations of Corr'd Power**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)
Low	5190	12.72	11.64	15.41
High	5230	12.92	11.37	15.41

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8.4.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

Output Power - The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.50	2.50	2.50

Power Spectral Density - The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
2.50	3.01	5.51

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RESULTS - 802.11n HT40, 5.2 GHz band

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5190	2.50	5.51	30.00	17.00
High	5230	2.50	5.51	30.00	17.00

Duty Cycle CF (dB)	0.19	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.72	11.64	15.41	30.00	-14.59
High	5230	12.92	11.37	15.41	30.00	-14.59

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5190	-0.52	-1.67	2.15	17.00	-14.85
High	5230	-0.75	-2.02	1.86	17.00	-15.14

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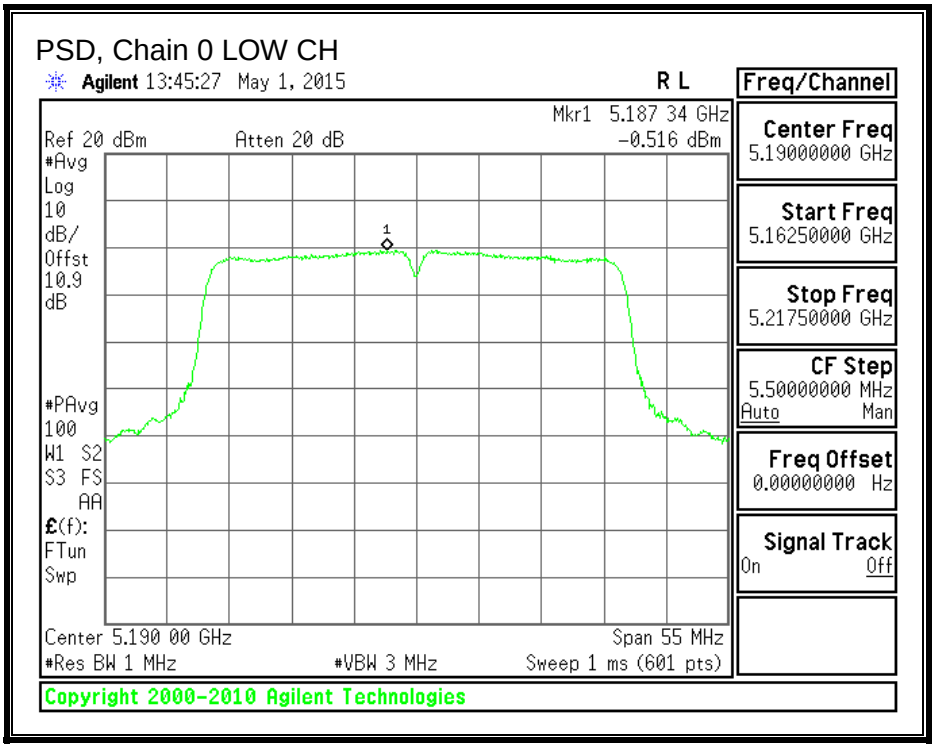
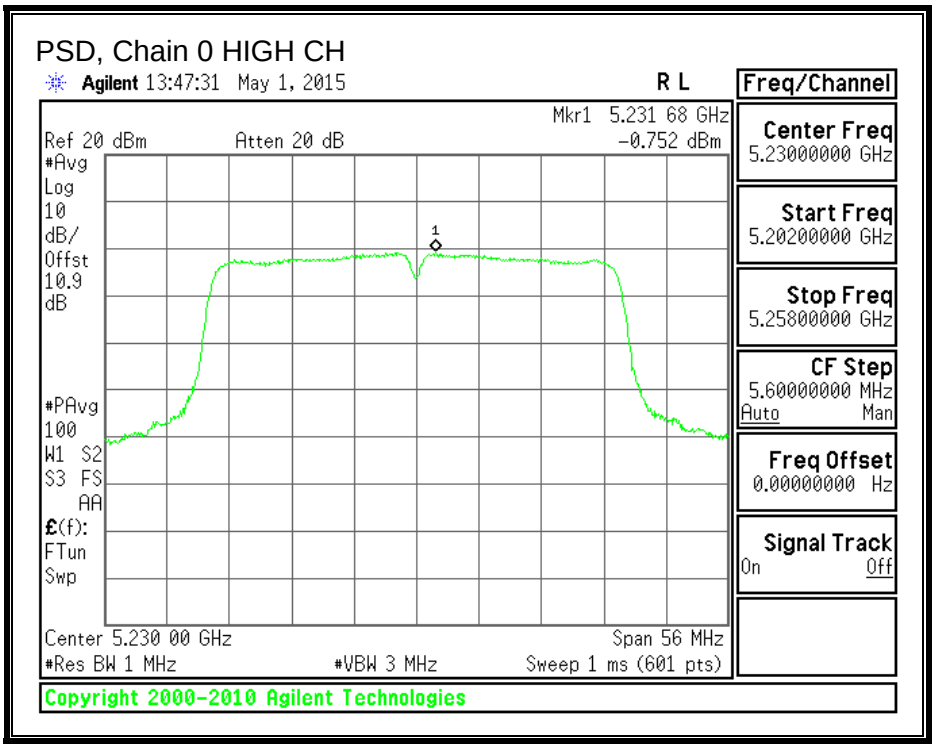
PSD, Chain 0





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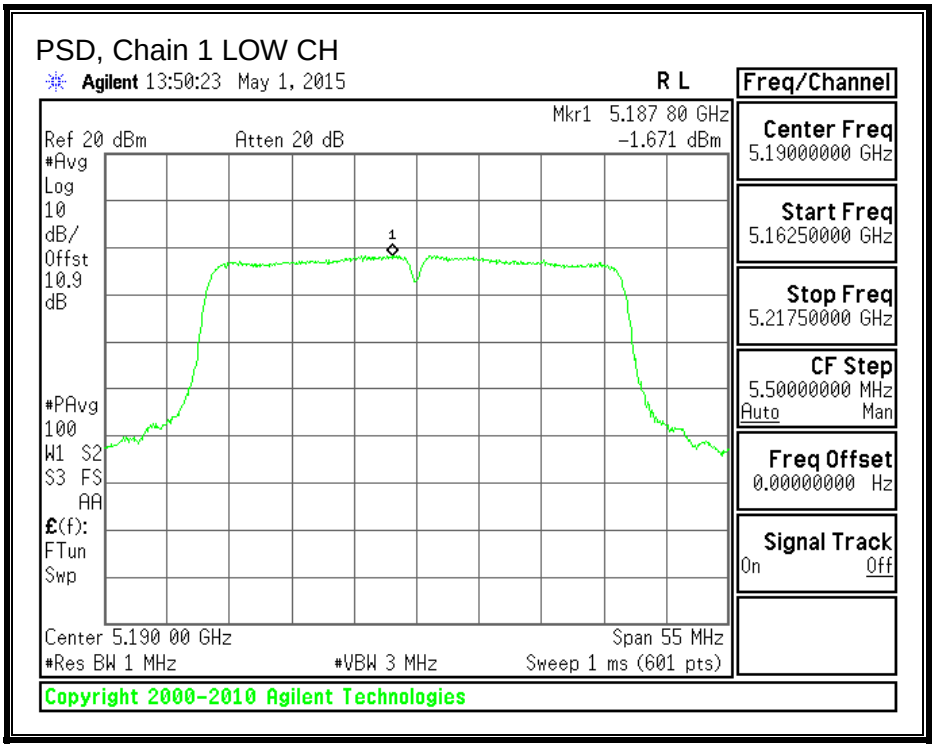
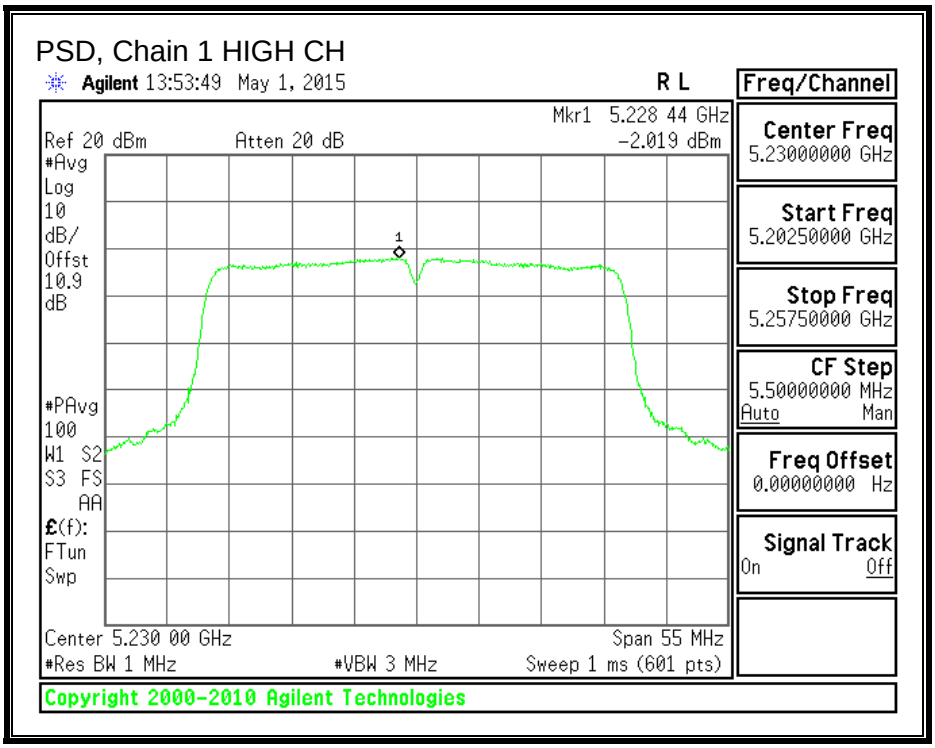
PSD, Chain 1





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8.5. 802.11a MODE IN THE 5.8 GHz BAND

8.5.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS – 802.11a, 5.8 GHz band

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5745	23.83	21.36
Mid	5785	22.36	21.36
High	5825	24.96	21.45

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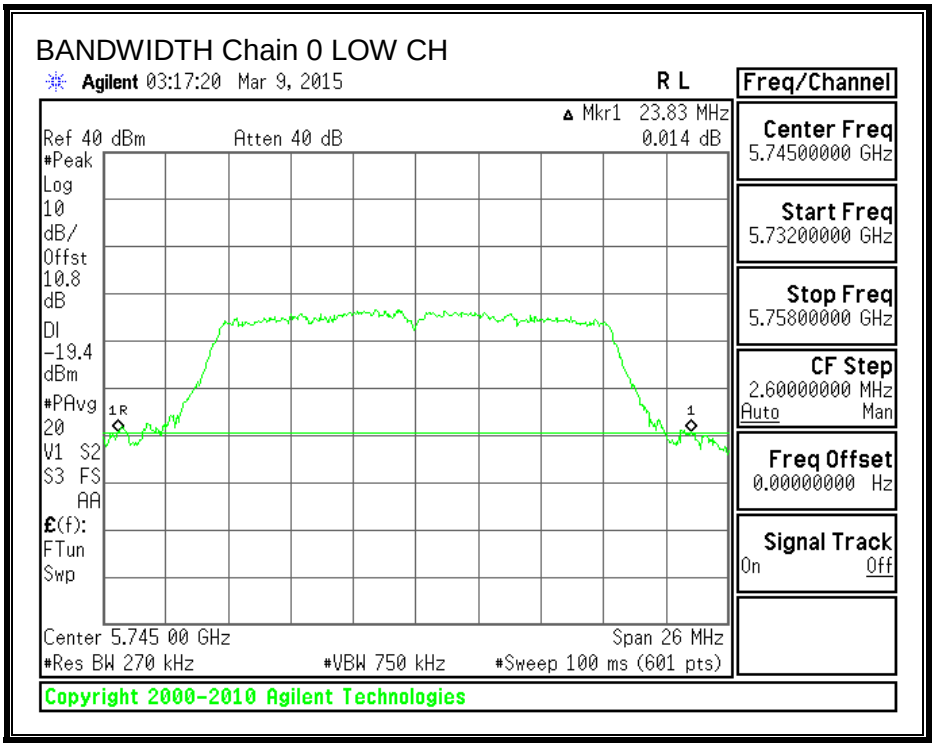
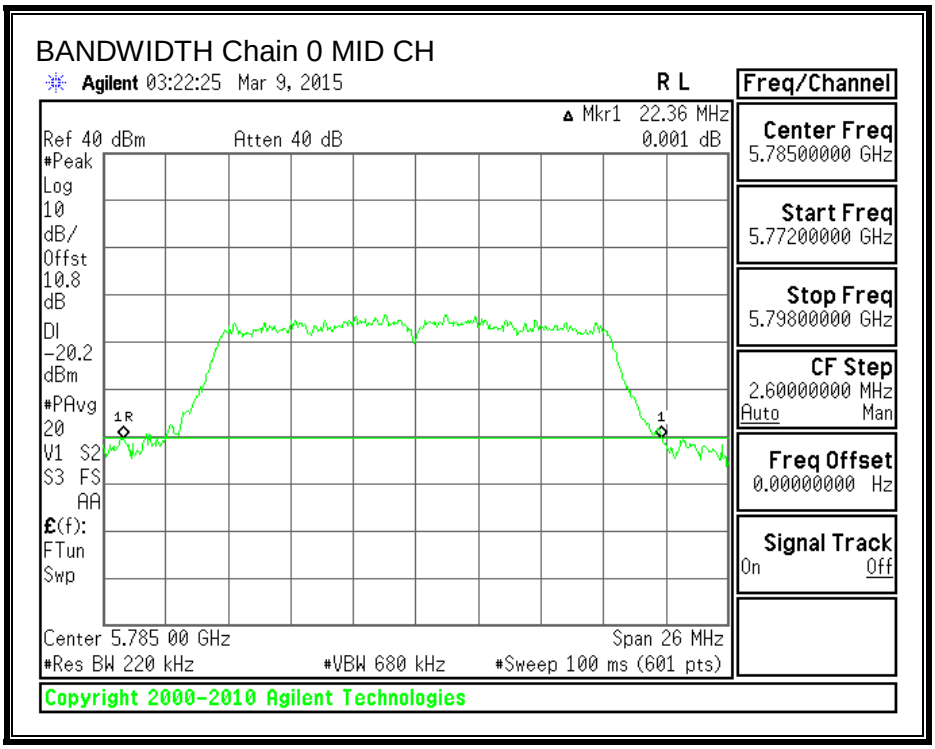
26 dB BANDWIDTH, Chain 0





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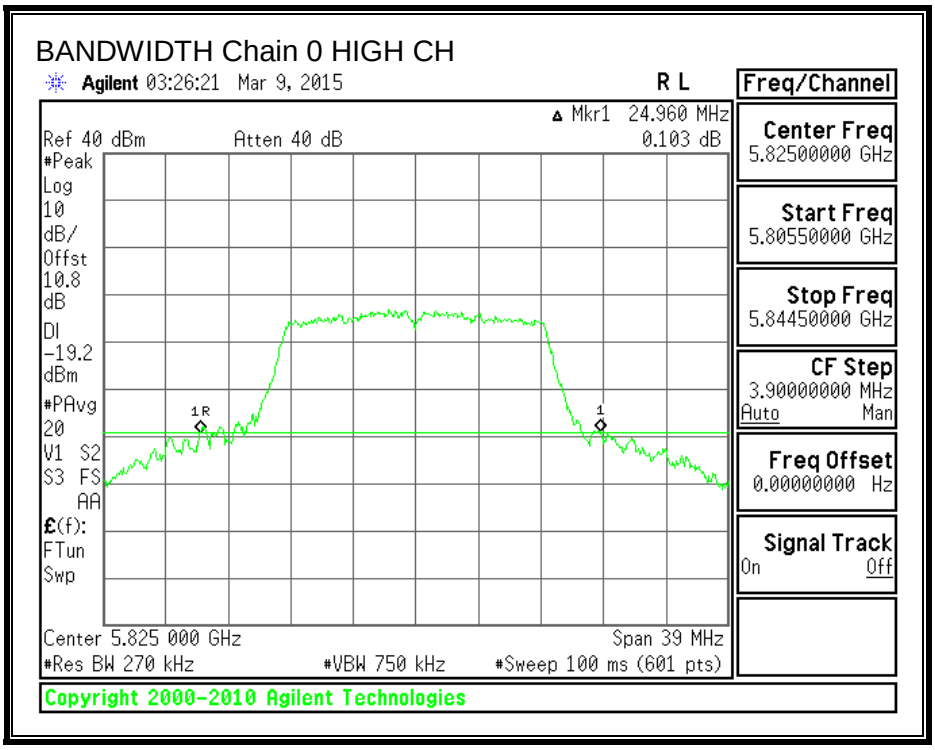
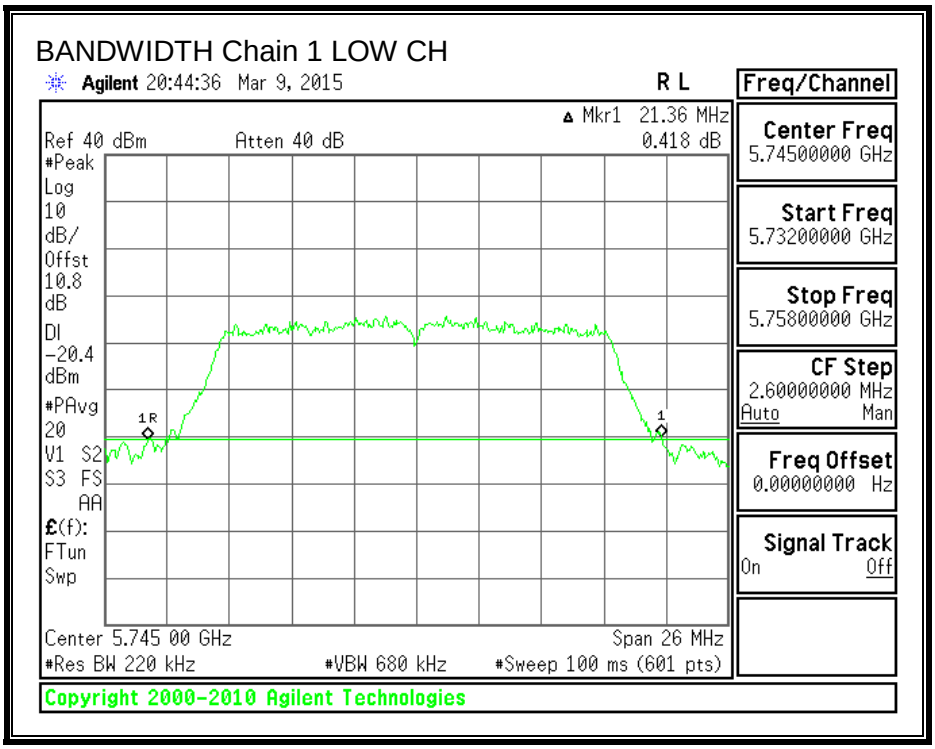


26 dB BANDWIDTH, Chain 1



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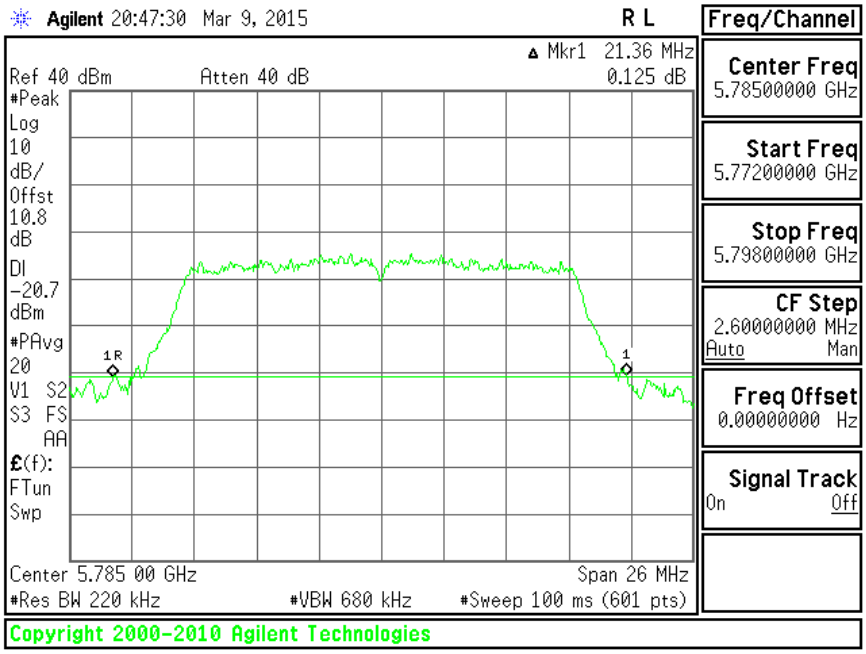
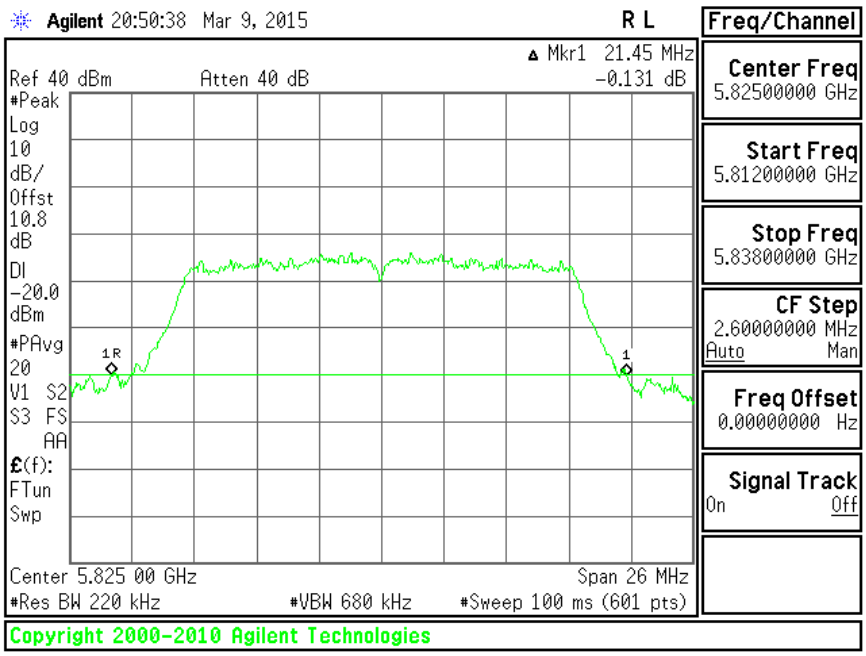
BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



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8.5.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS - 802.11a, 5.8 GHz band

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	16.3390	16.3580	0.5
Mid	5785	16.3340	16.3580	0.5
High	5825	16.3100	16.3470	0.5

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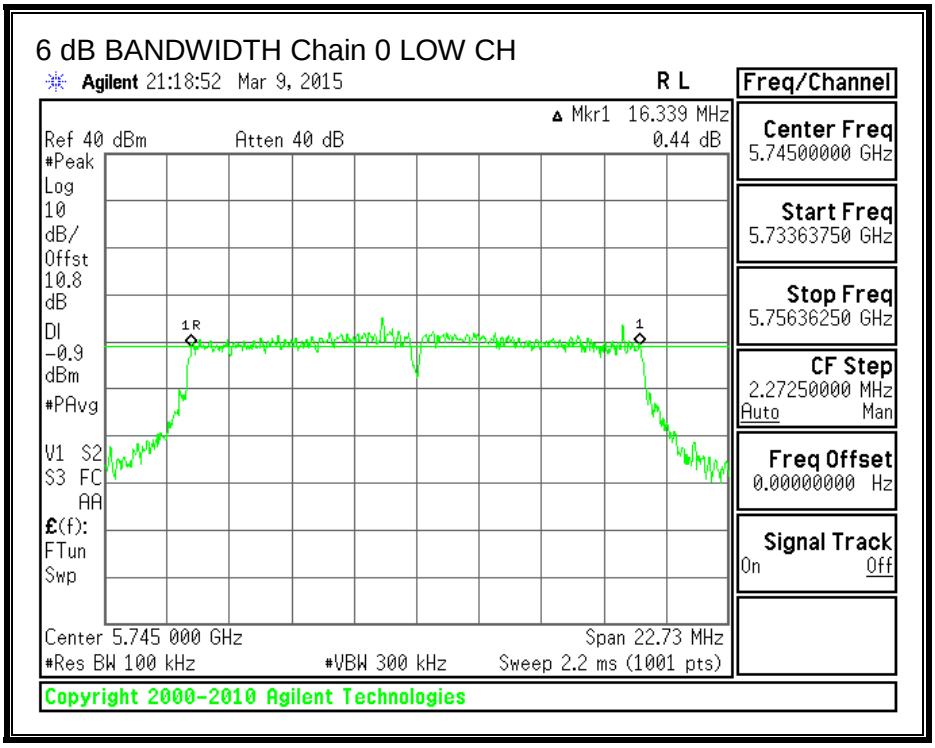
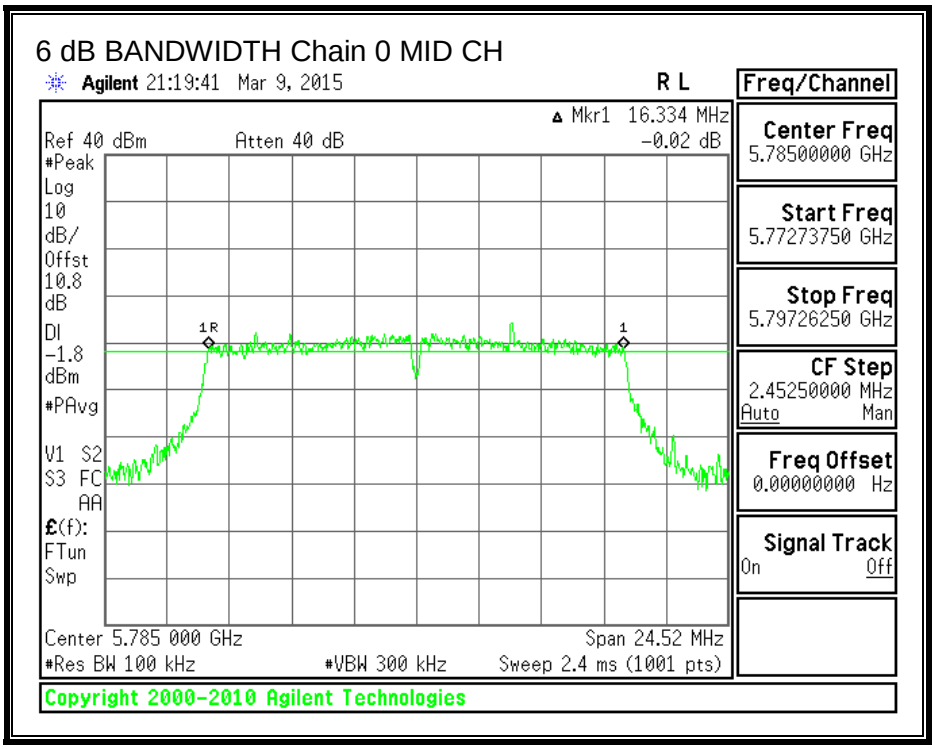
6 dB BANDWIDTH, Chain 0





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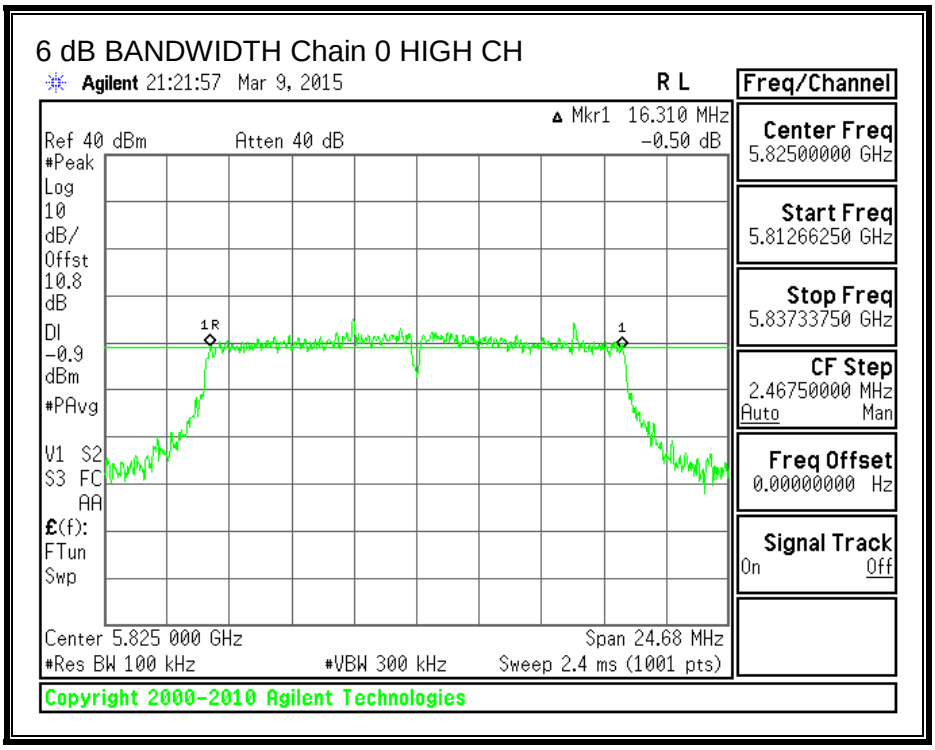
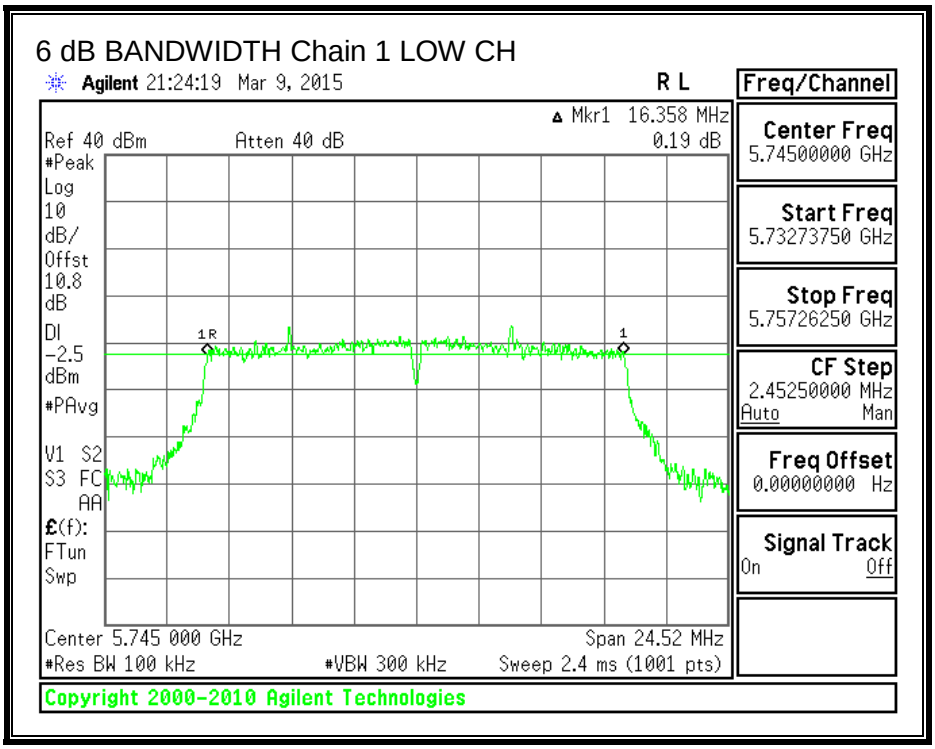


6 dB BANDWIDTH, Chain 1



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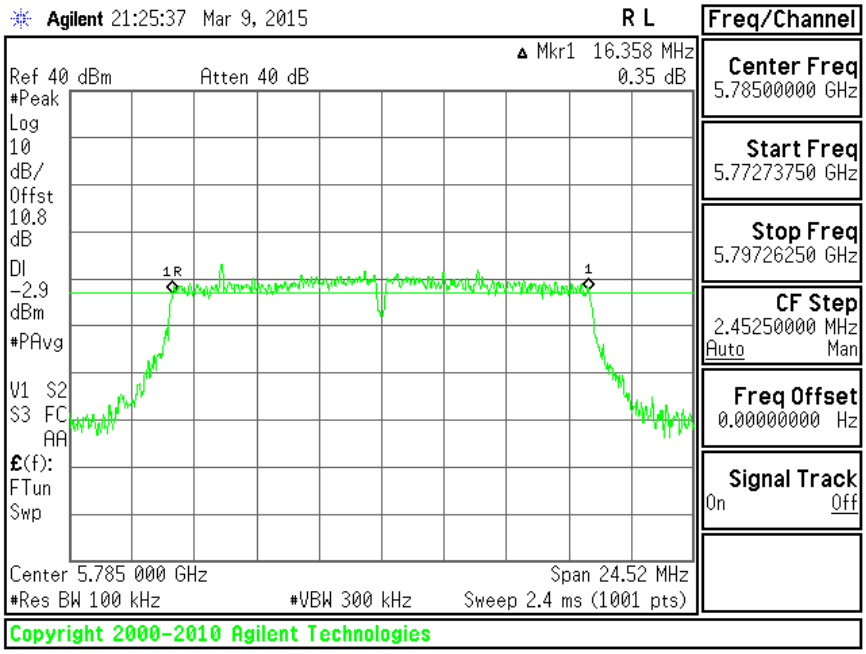
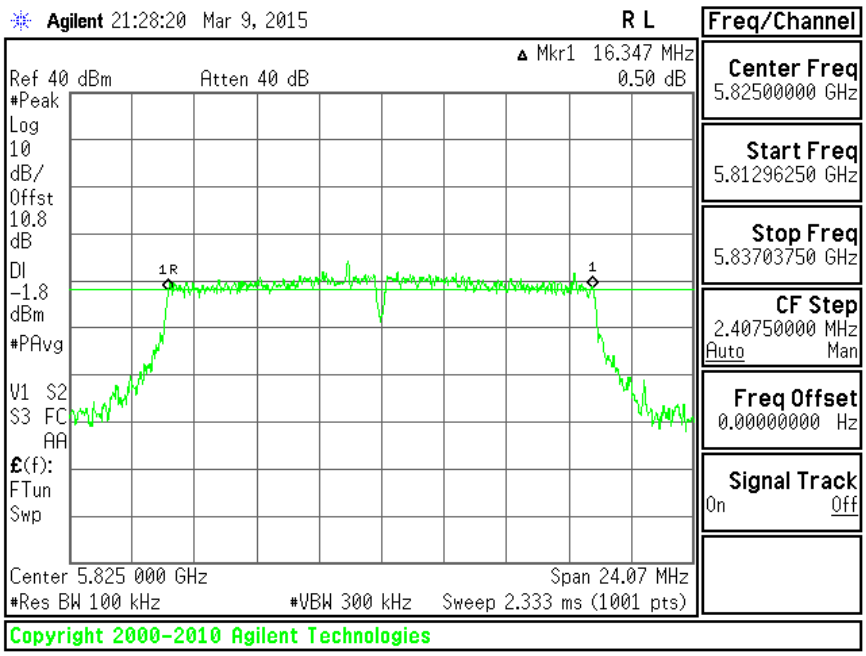
6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



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8.5.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11a, 5.8 GHz band

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	16.4765	16.4845
Mid	5785	16.4752	16.4663
High	5825	16.4735	16.4910

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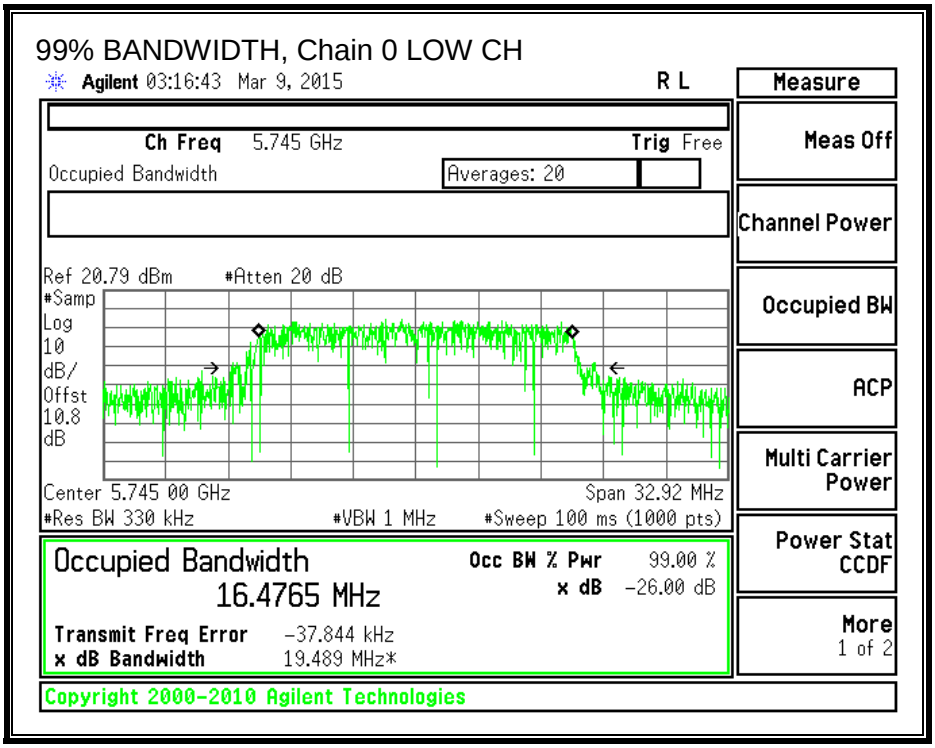
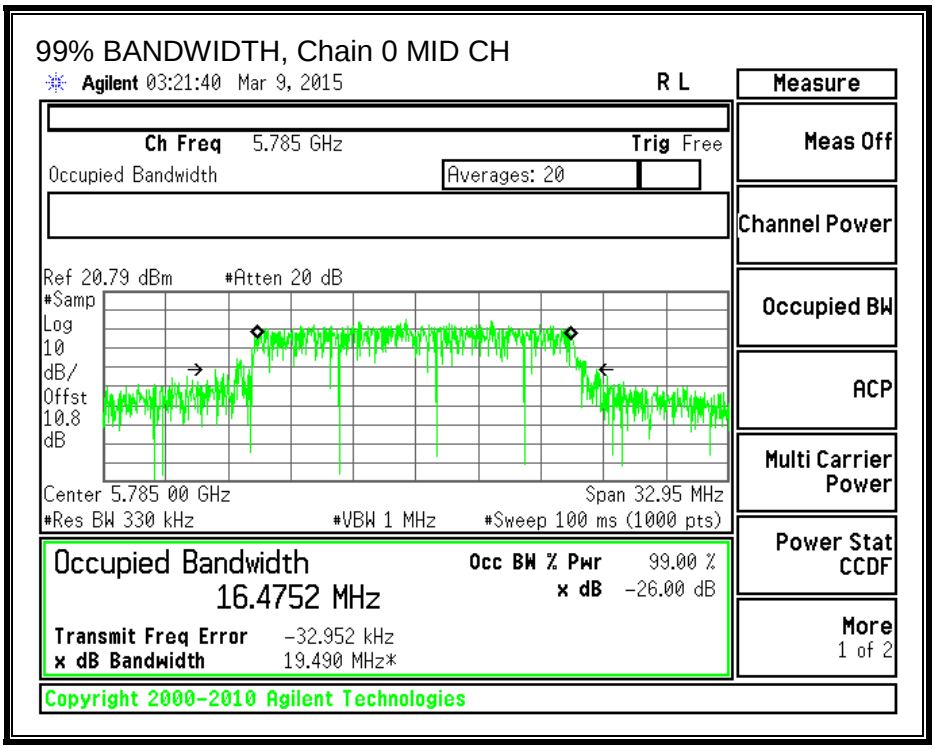
99% BANDWIDTH, Chain 0





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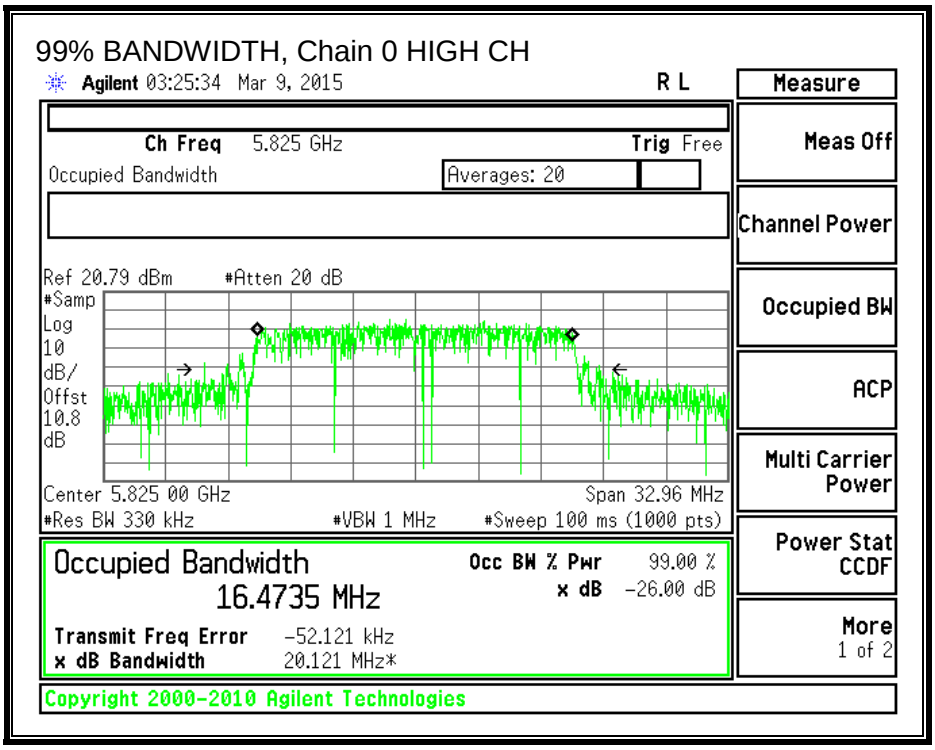
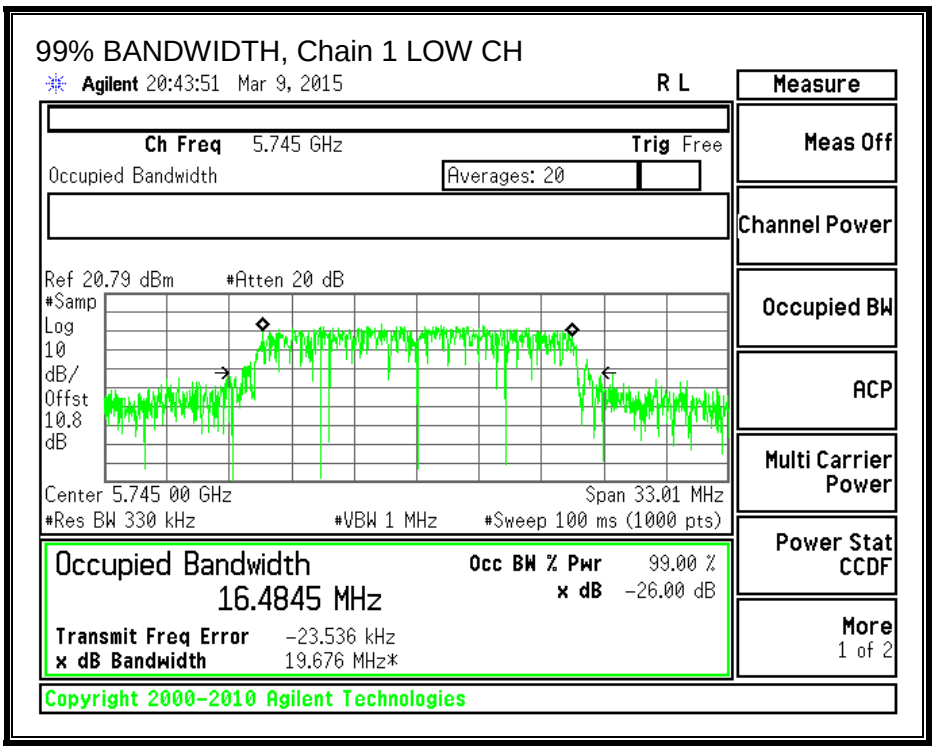


99% BANDWIDTH, Chain 1



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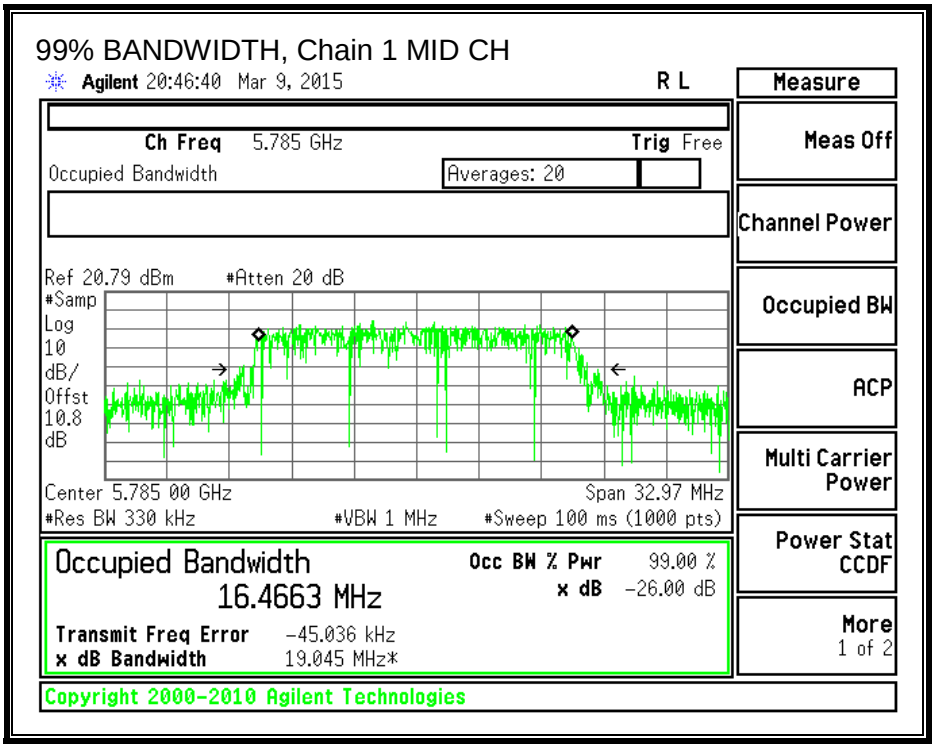

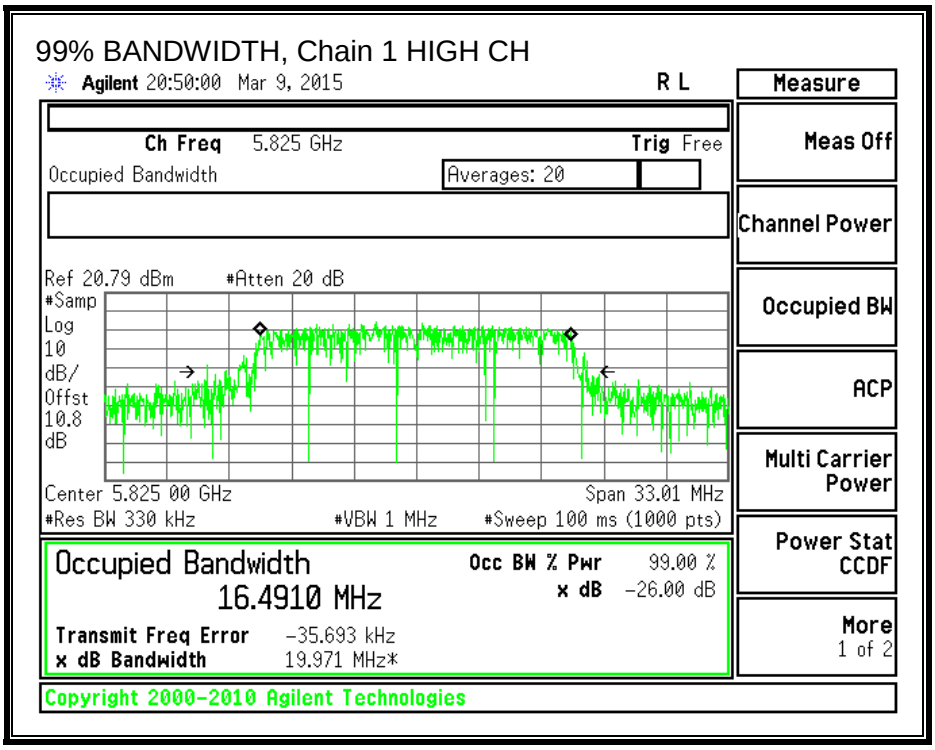

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8.5.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS - 802.11a, 5.8 GHz band

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Total Power (dBm)
Low	5745	14.52	14.52
Mid	5785	14.55	14.55
High	5825	14.45	14.45

Channel	Frequency (MHz)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5745	13.79	13.79
Mid	5785	14.01	14.01
High	5825	13.87	13.87

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8.5.5. OUTPUT POWER

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Note – In this mode, the device works as a SISO device and utilizes the two antennas for diversity.

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RESULTS - 802.11a, 5.8 GHz band

Antenna 0

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5745	2.50	30.00
Mid	5785	2.50	30.00
High	5825	2.50	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	14.52	14.52	30.00	-15.48
Mid	5785	14.55	14.55	30.00	-15.45
High	5825	14.45	14.45	30.00	-15.55

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Antenna 1

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5745	2.50	30.00
Mid	5785	2.50	30.00
High	5825	2.50	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power**

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	13.79	13.79	30.00	-16.21
Mid	5785	14.01	14.01	30.00	-15.99
High	5825	13.87	13.87	30.00	-16.13

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8.5.6. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Note – In this mode, the device works as a SISO device and utilizes the two antennas for diversity.

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RESULTS - 802.11a, 5.8 GHz band

Antenna 0

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	2.50	30.00
Mid	5785	2.50	30.00
High	5825	2.50	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	4.43	4.43	30.00	-25.57
Mid	5785	3.98	3.98	30.00	-26.03
High	5825	3.96	3.96	30.00	-26.04

Antenna 1

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	2.50	30.00
Mid	5785	2.50	30.00
High	5825	2.50	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	3.27	3.27	30.00	-26.73
Mid	5785	2.86	2.86	30.00	-27.14
High	5825	3.27	3.27	30.00	-26.73

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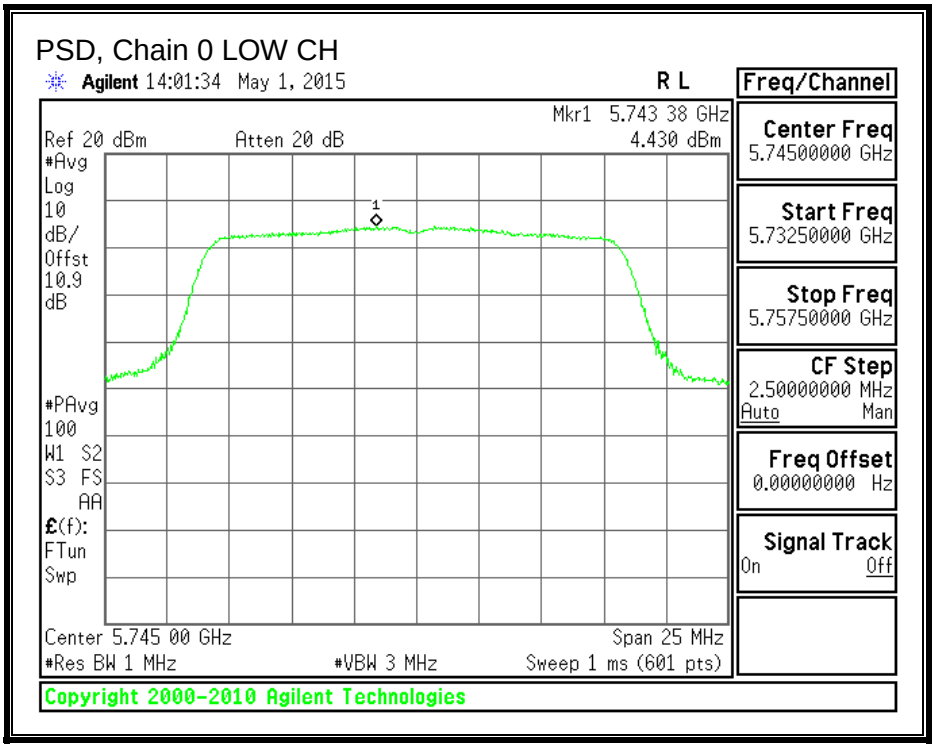
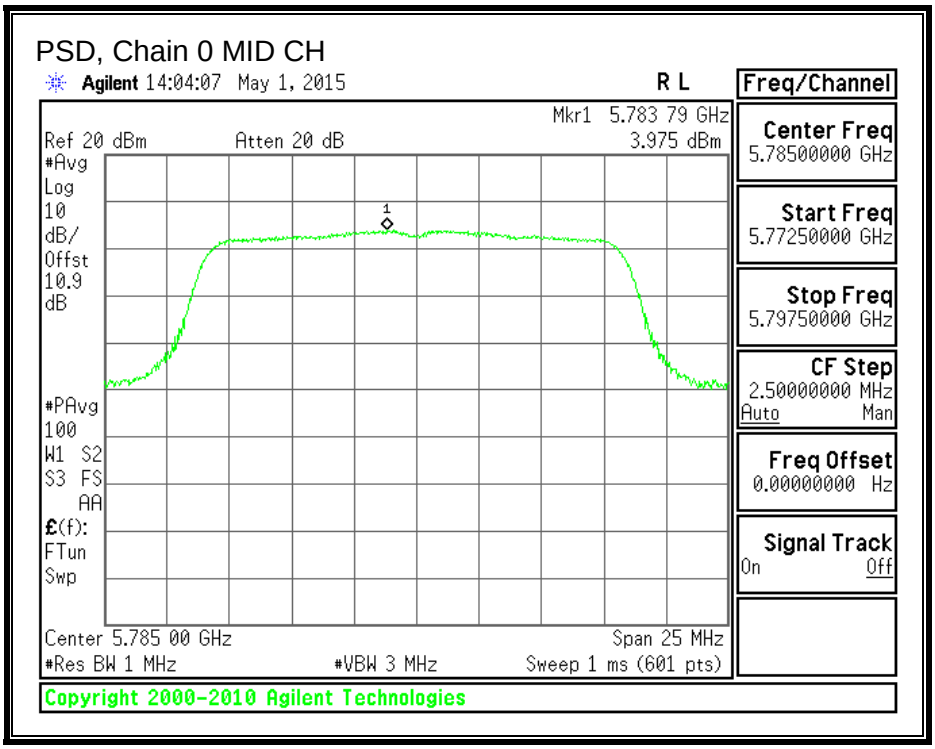
PSD, Chain 0





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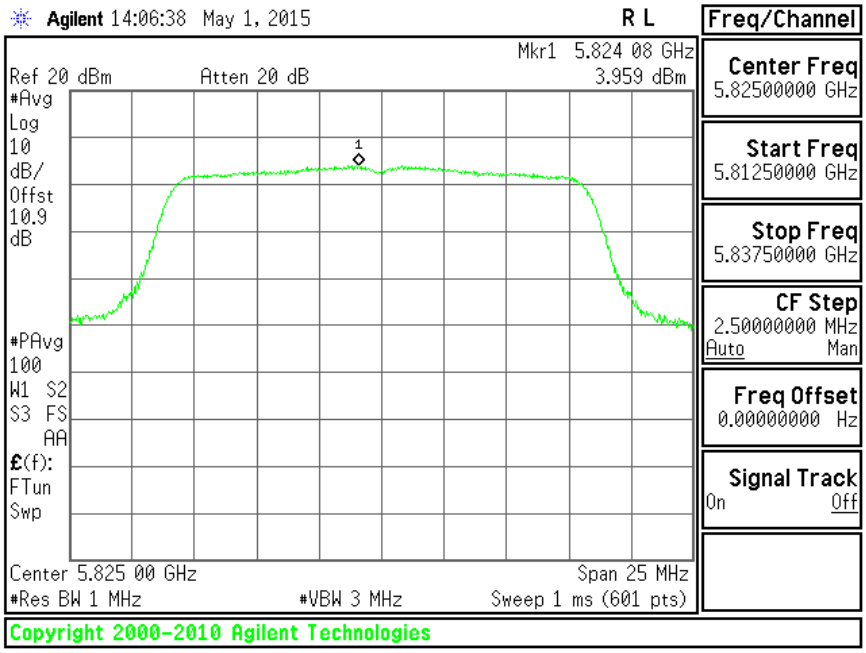
PSD, Chain 0 HIGH CH



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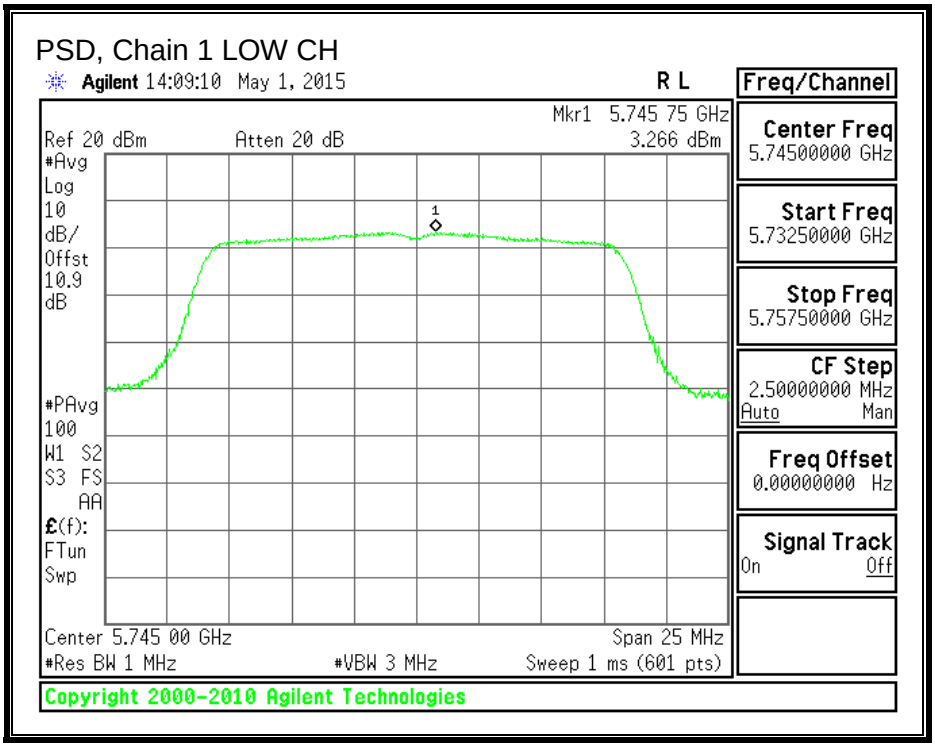
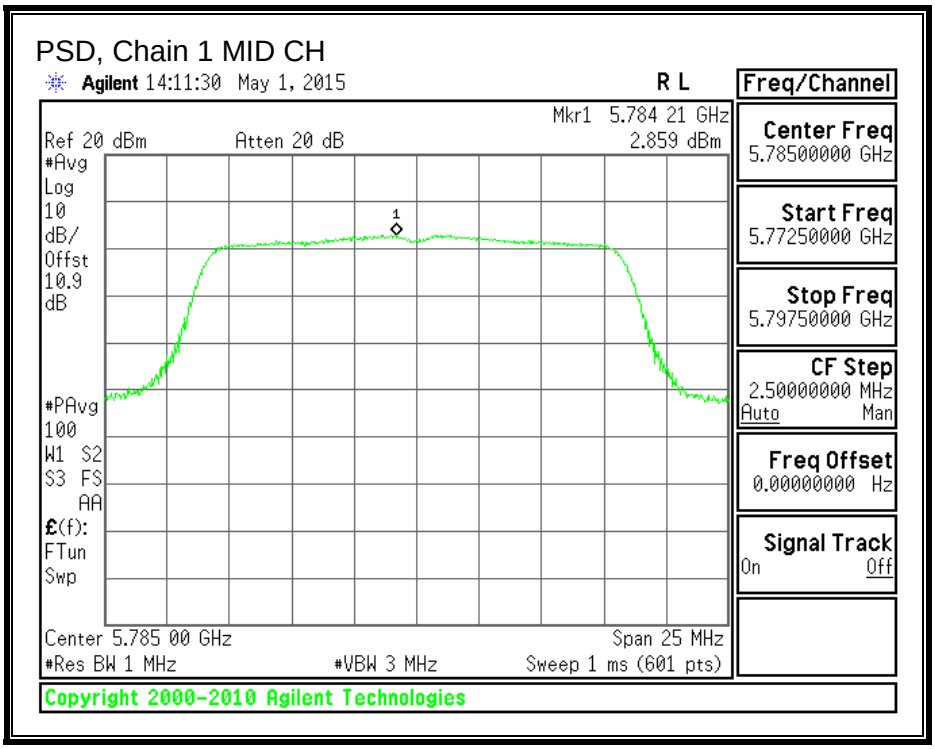
PSD, Chain 1





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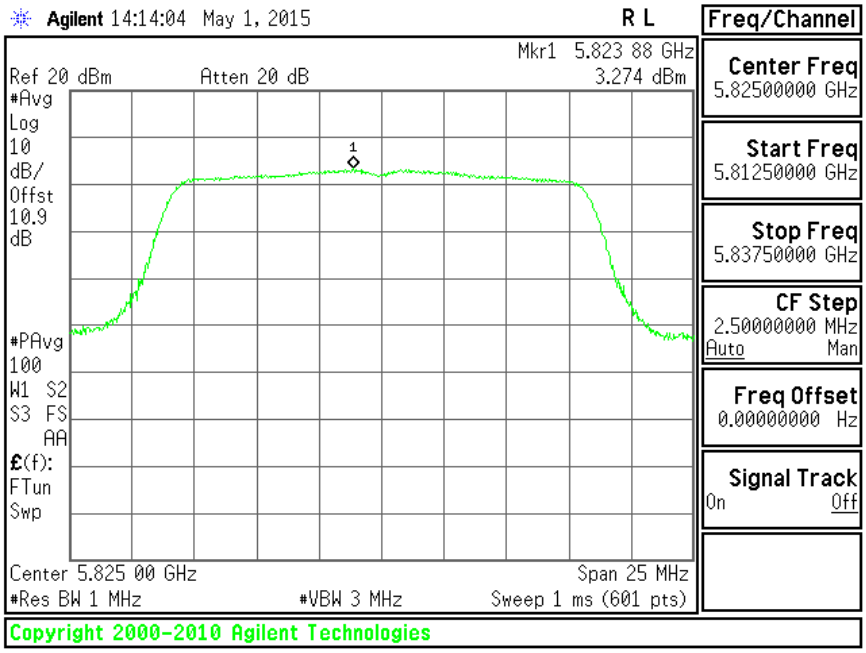
PSD, Chain 1 HIGH CH



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8.6. 802.11n HT20 MODE IN THE 5.8 GHz BAND

8.6.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.8 GHz band

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5745	21.28	20.80
Mid	5785	21.32	20.84
High	5825	21.58	21.02

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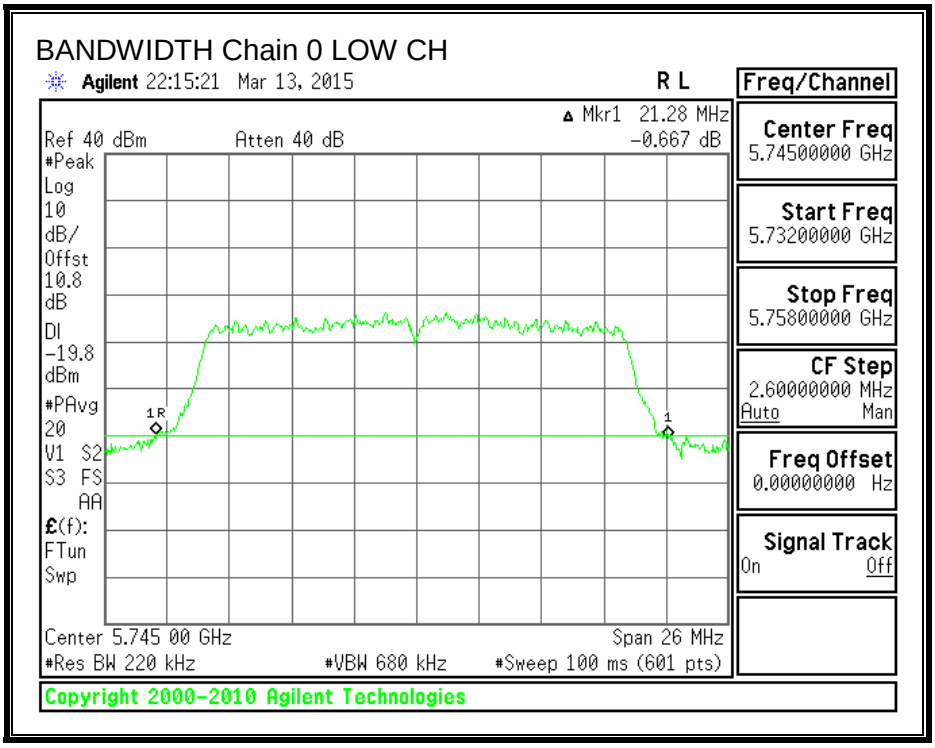
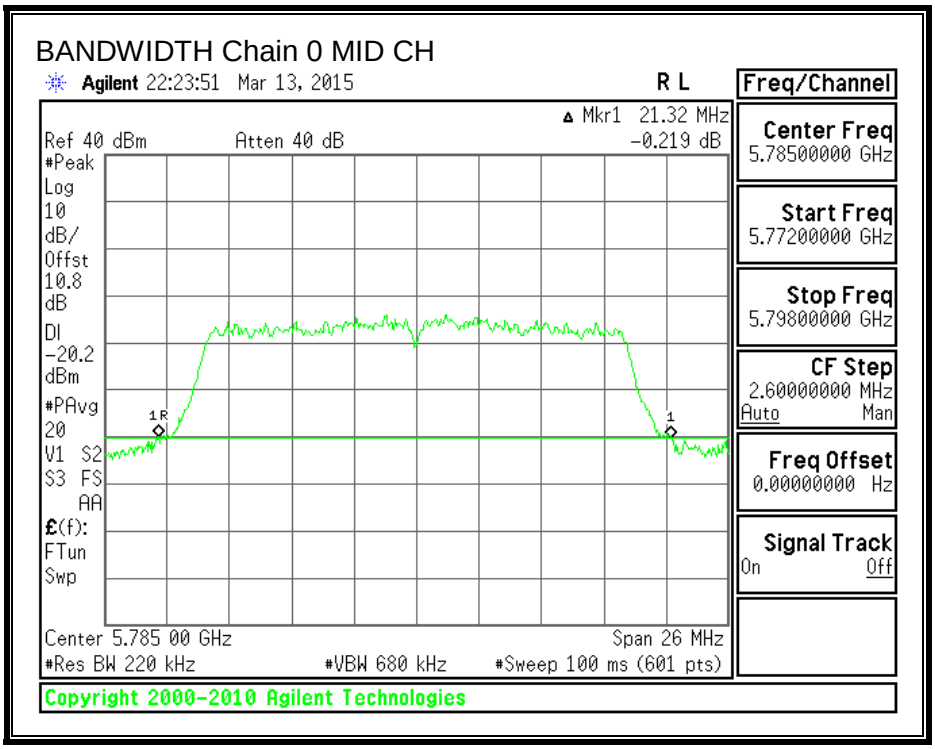
26 dB BANDWIDTH, Chain 0





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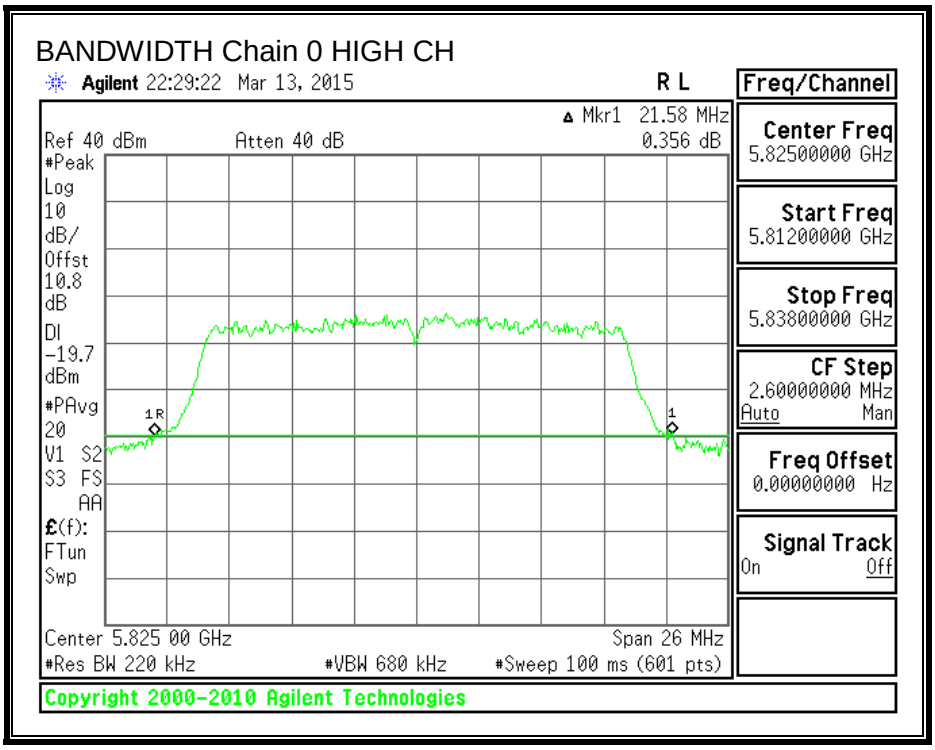
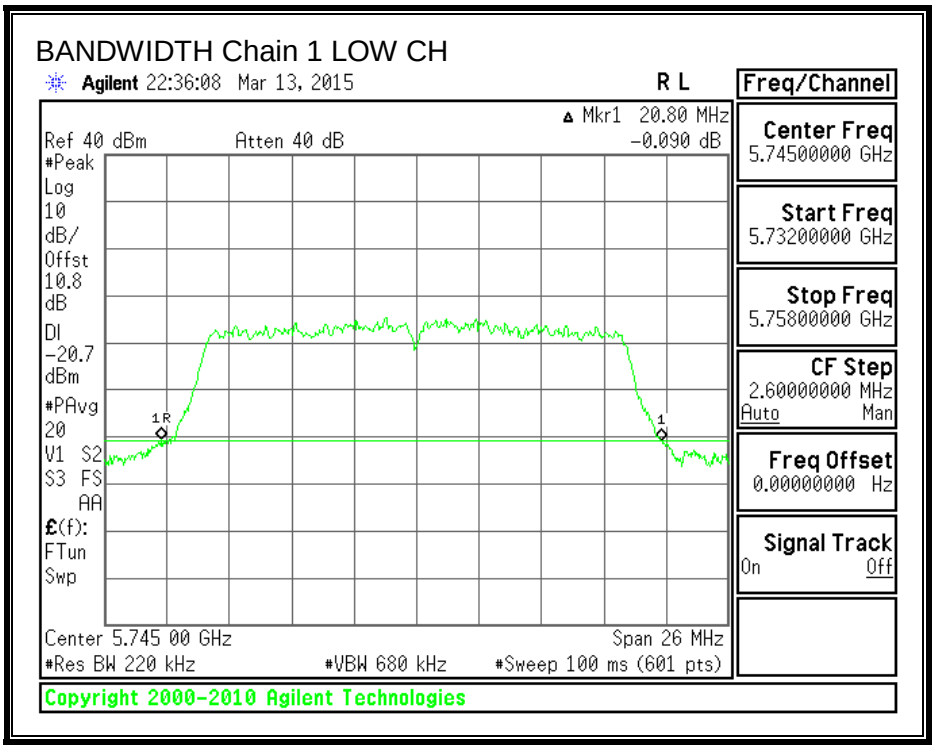


26 dB BANDWIDTH, Chain 1



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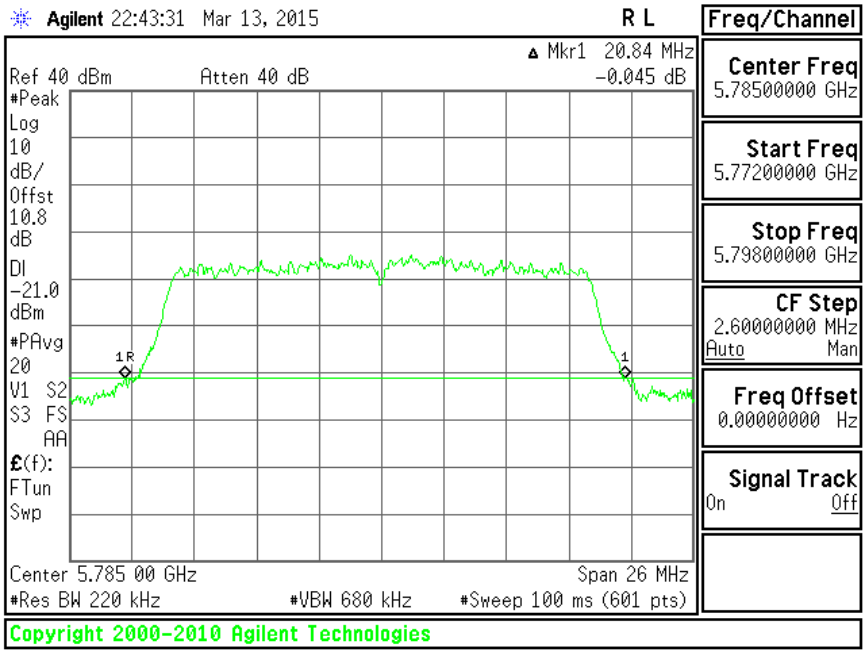
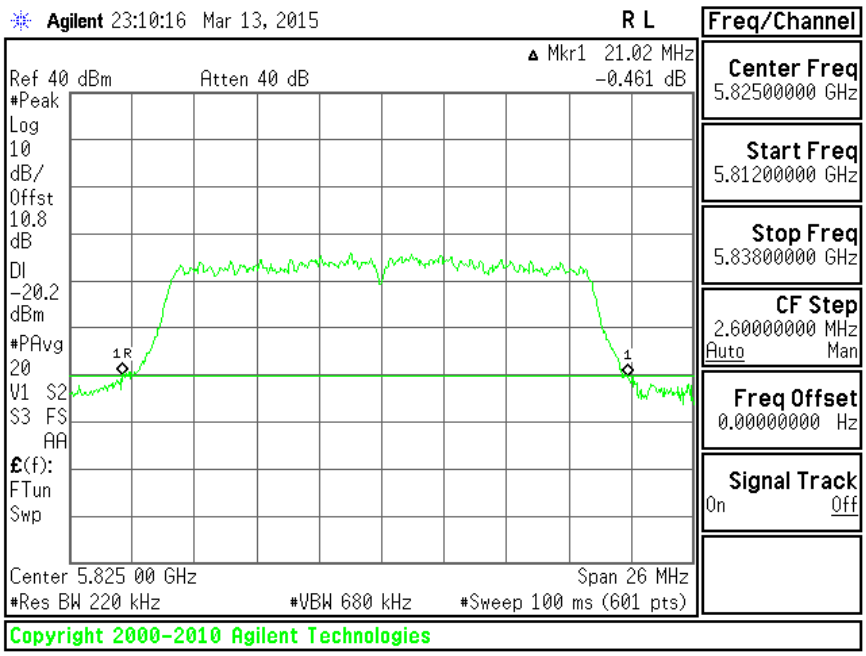
BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



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8.6.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS - 802.11n HT20, 5.8 GHz band

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	17.2880	16.9080	0.5
Mid	5785	17.0590	16.8330	0.5
High	5825	16.9830	16.9050	0.5

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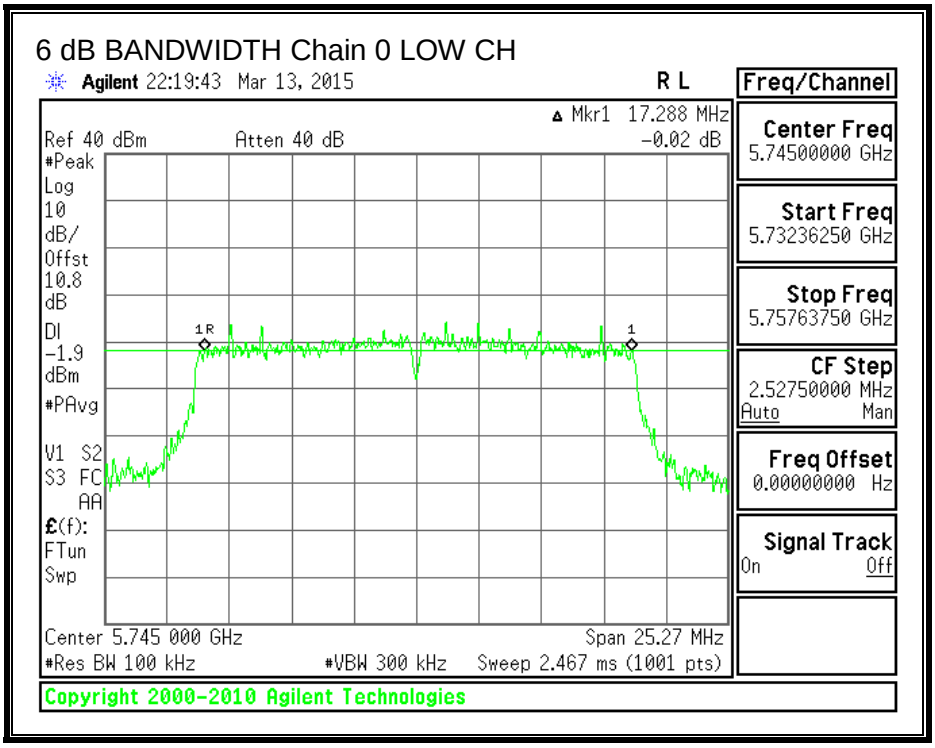
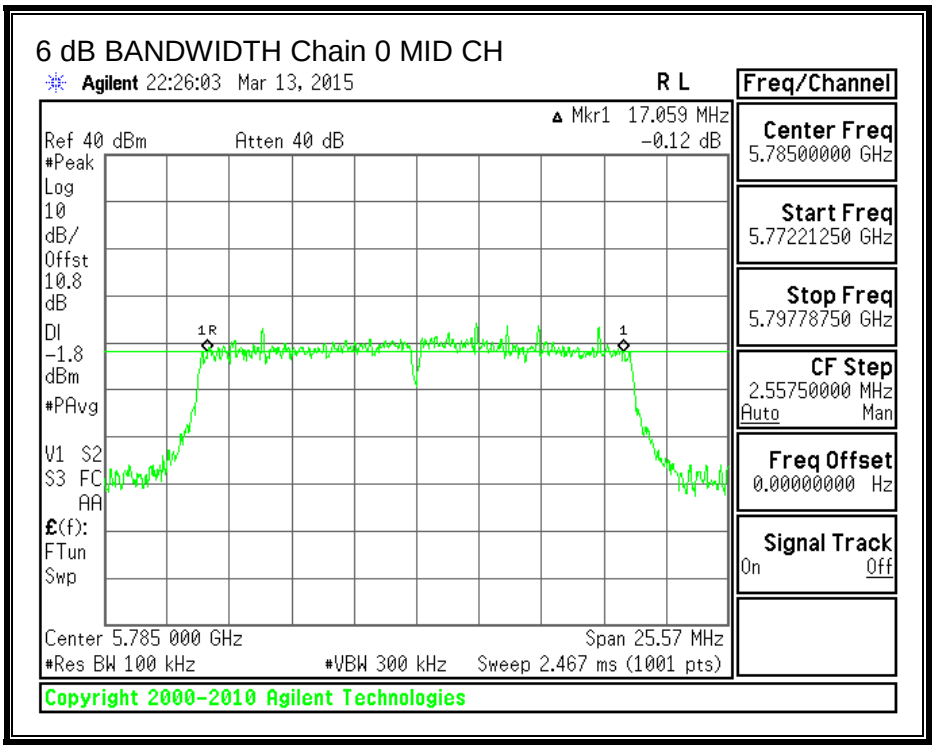
6 dB BANDWIDTH, Chain 0





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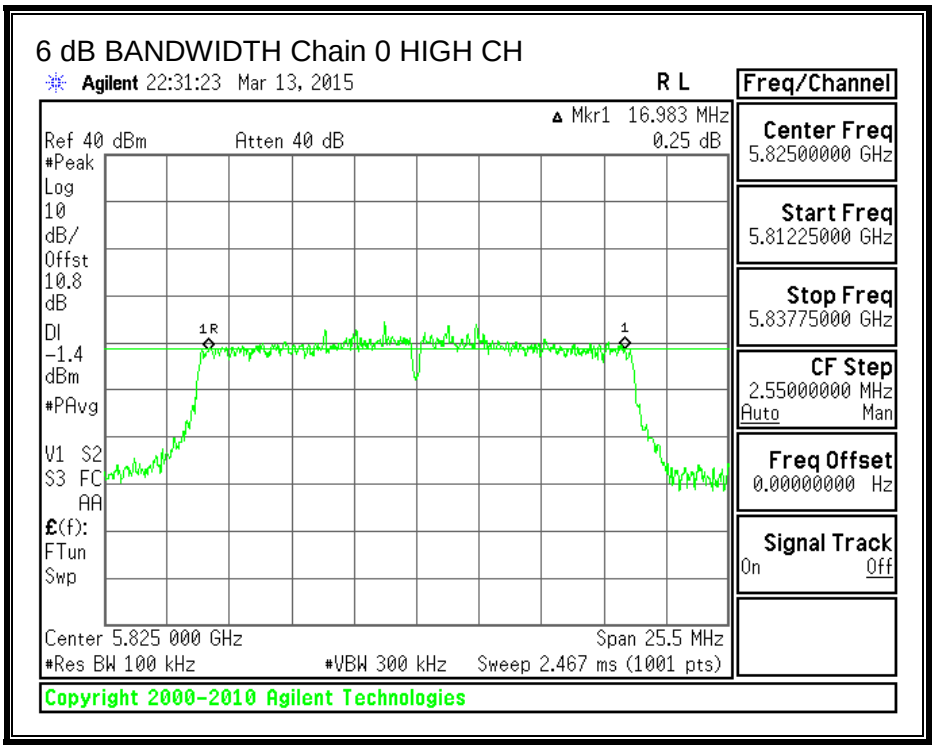
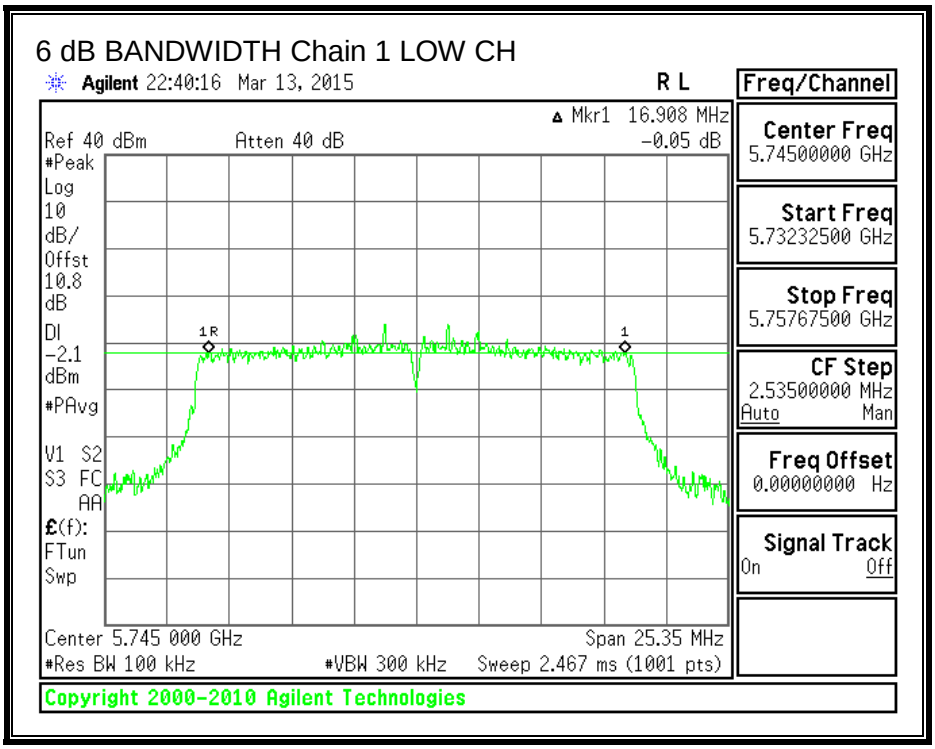


6 dB BANDWIDTH, Chain 1



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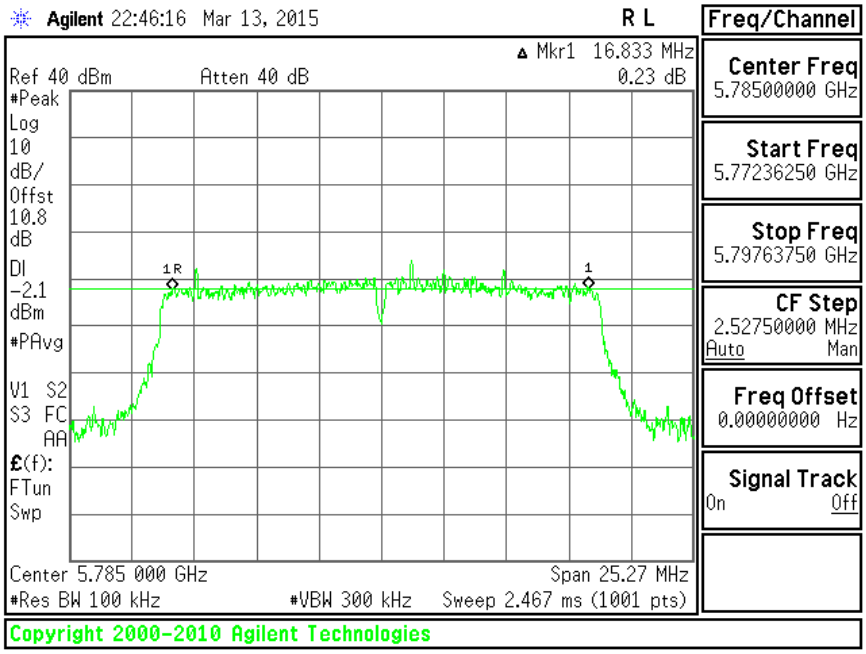
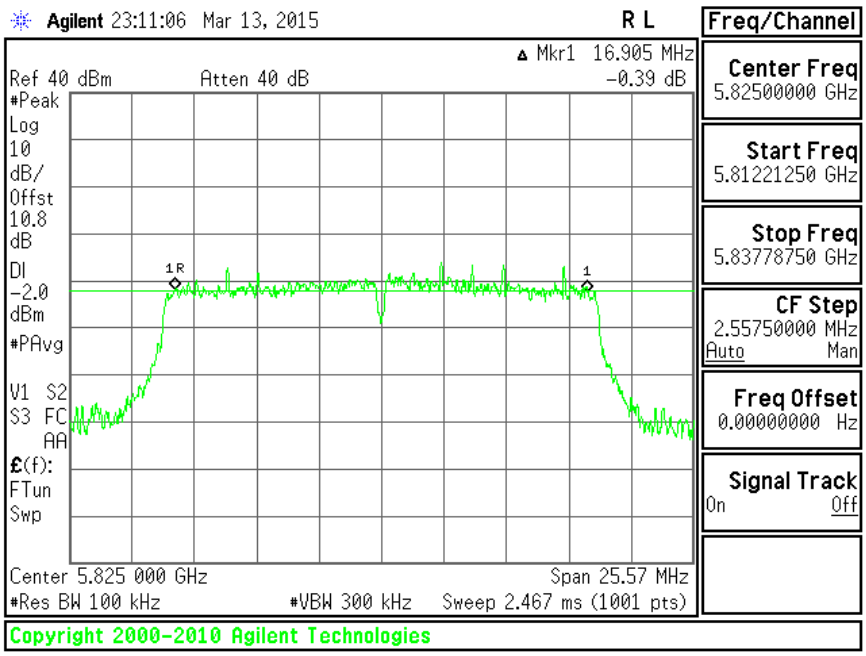
6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



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8.6.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.8 GHz band

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	17.6507	17.6390
Mid	5785	17.6592	17.6477
High	5825	17.6702	17.6531

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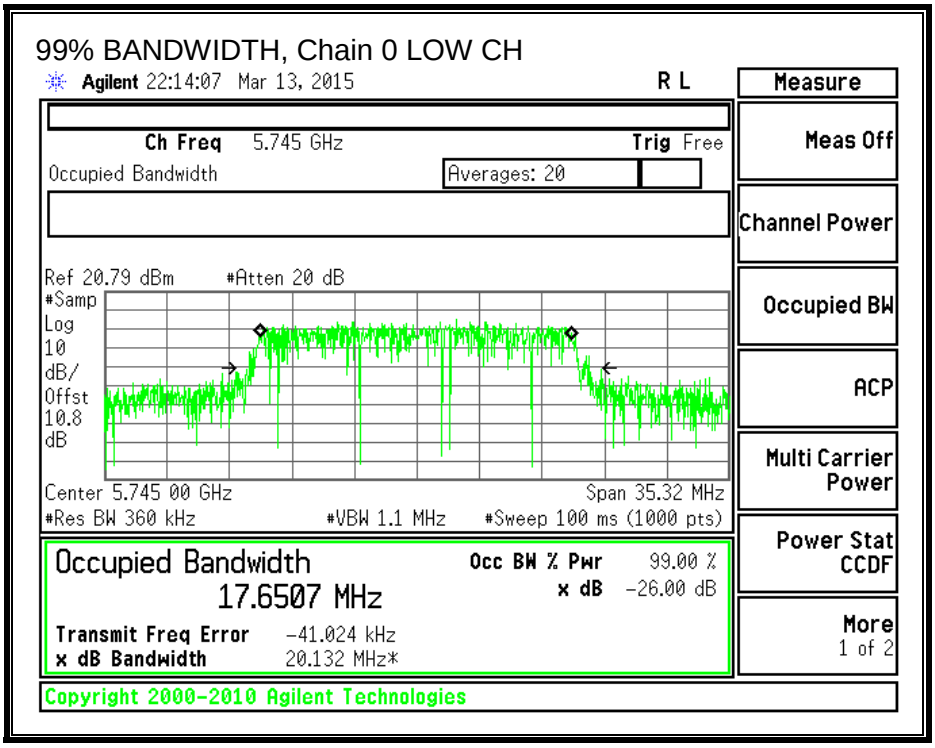
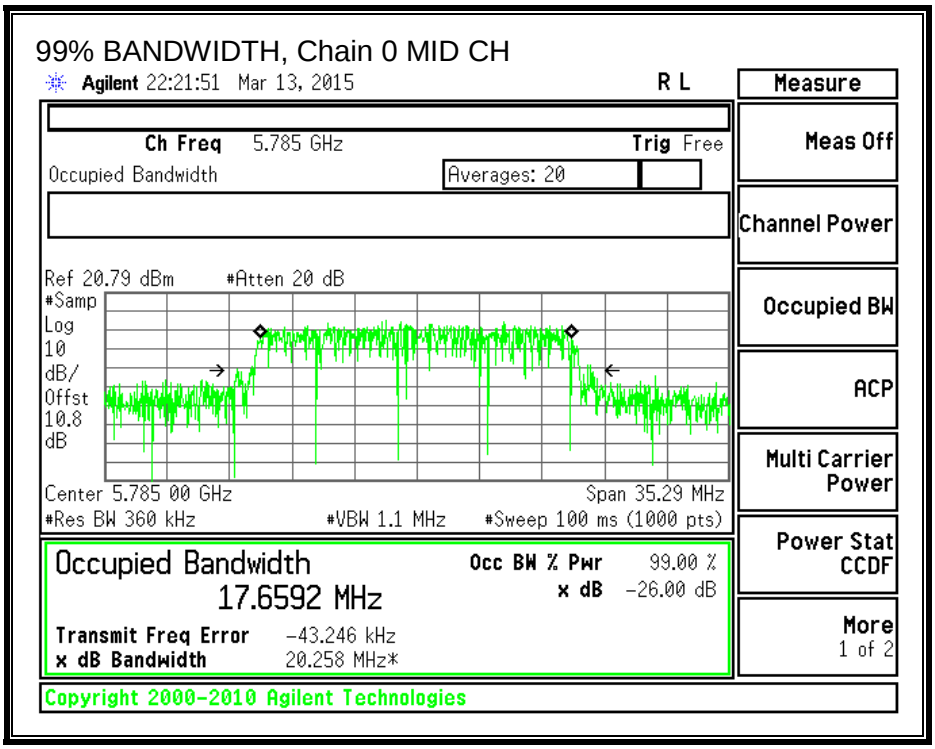
99% BANDWIDTH, Chain 0





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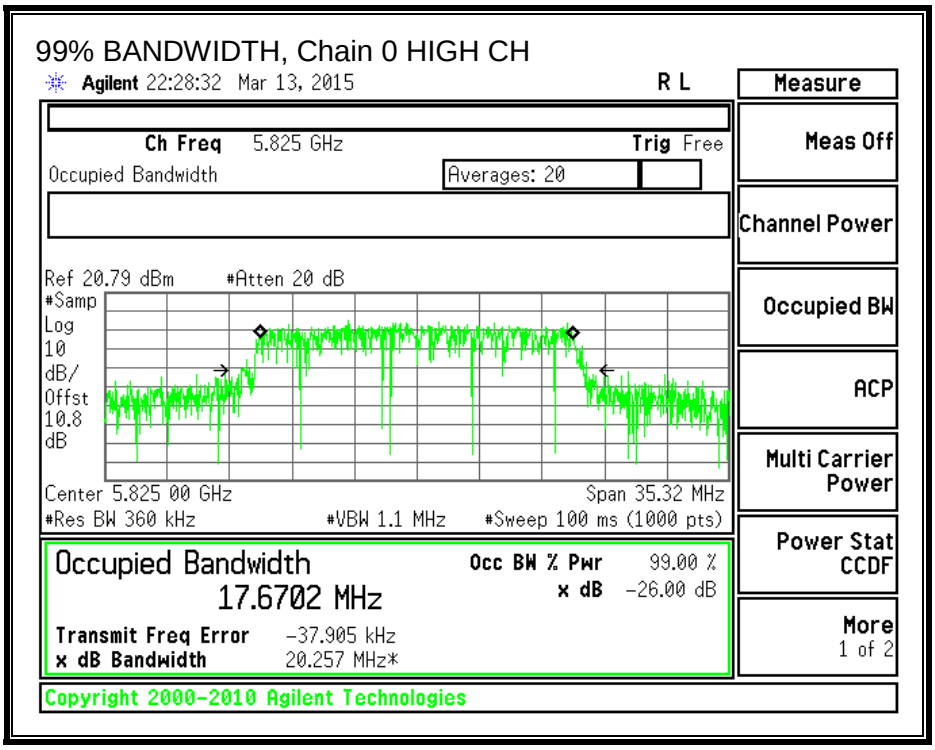
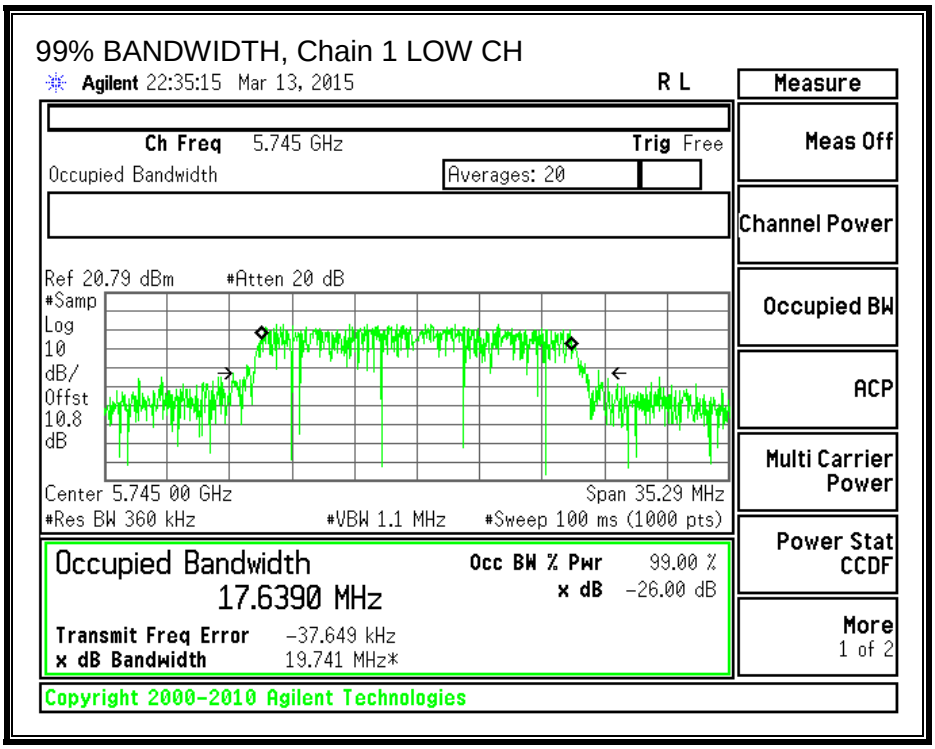


99% BANDWIDTH, Chain 1



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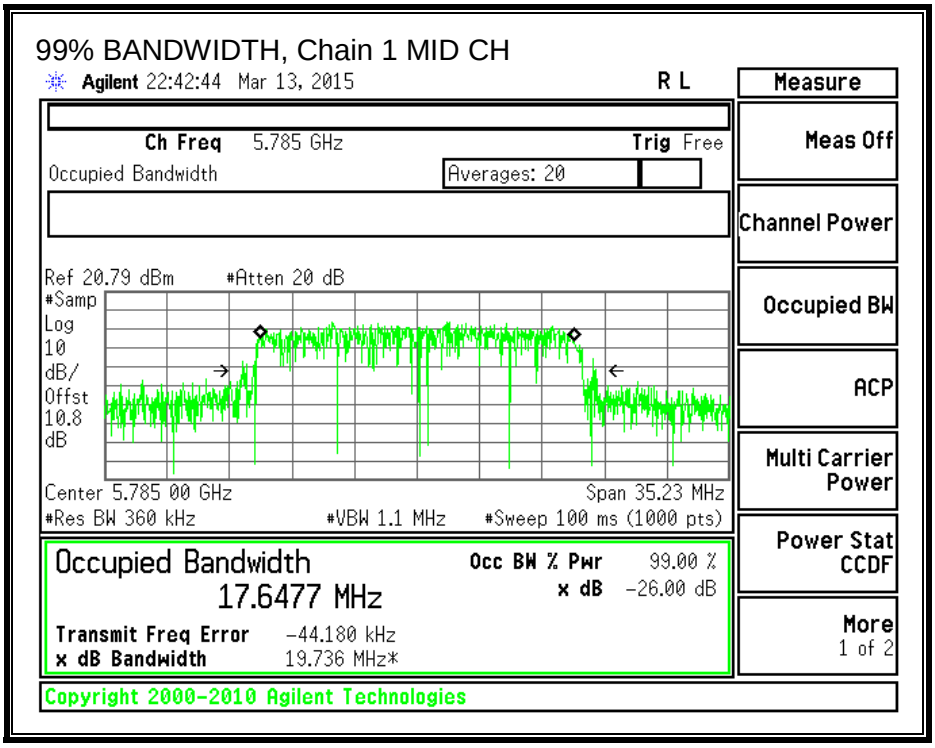

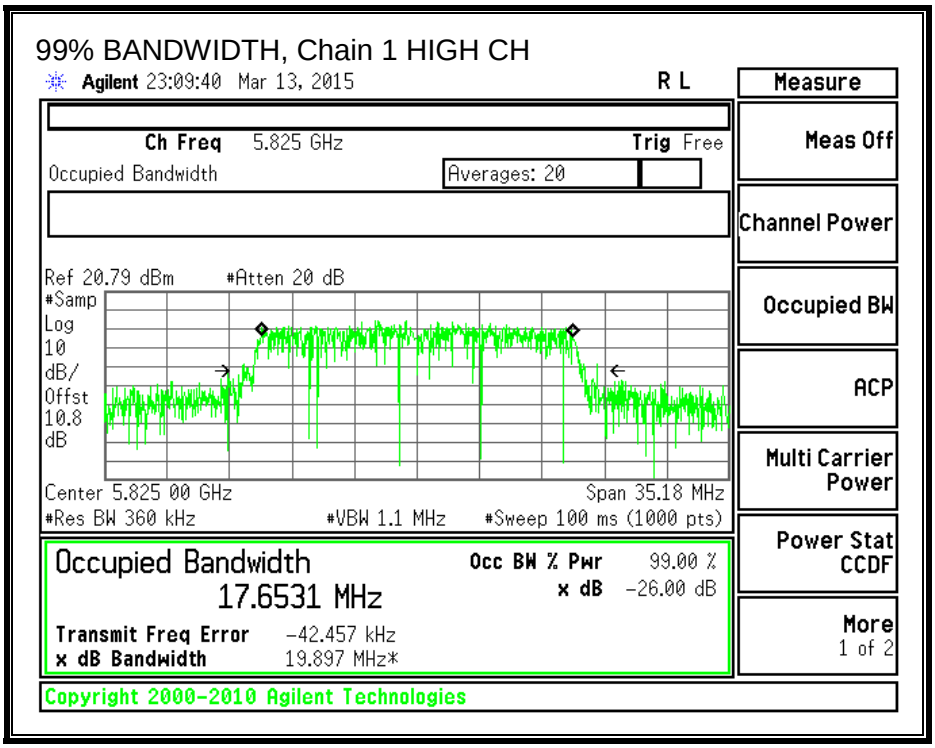

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8.6.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT20, 5.8 GHz band

Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd Power

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)
Low	5745	15.08	14.44	17.89
Mid	5785	15.00	14.43	17.84
High	5825	15.48	14.43	18.11

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8.6.5. OUTPUT POWER

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.50	2.50	2.50

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RESULTS - 802.11n HT20, 5.8 GHz band

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5745	2.50	30.00
Mid	5785	2.50	30.00
High	5825	2.50	30.00

Duty Cycle CF (dB)	0.11	**Included in Calculations of Corr'd Power**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	15.08	14.44	17.89	30.00	-12.11
Mid	5785	15.00	14.43	17.84	30.00	-12.16
High	5825	15.48	14.43	18.11	30.00	-11.89

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8.6.6. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

Power Spectral Density - The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
2.50	3.01	5.51

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RESULTS - 802.11n HT20, 5.8 GHz band

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	5.51	30.00
Mid	5785	5.51	30.00
High	5825	5.51	30.00

Duty Cycle CF (dB)	0.11	**Included in Calculations of Corr'd PSD**

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	2.22	1.51	4.99	30.00	-25.01
Mid	5785	1.50	-0.34	3.80	30.00	-26.20
High	5825	2.34	0.24	4.54	30.00	-25.46

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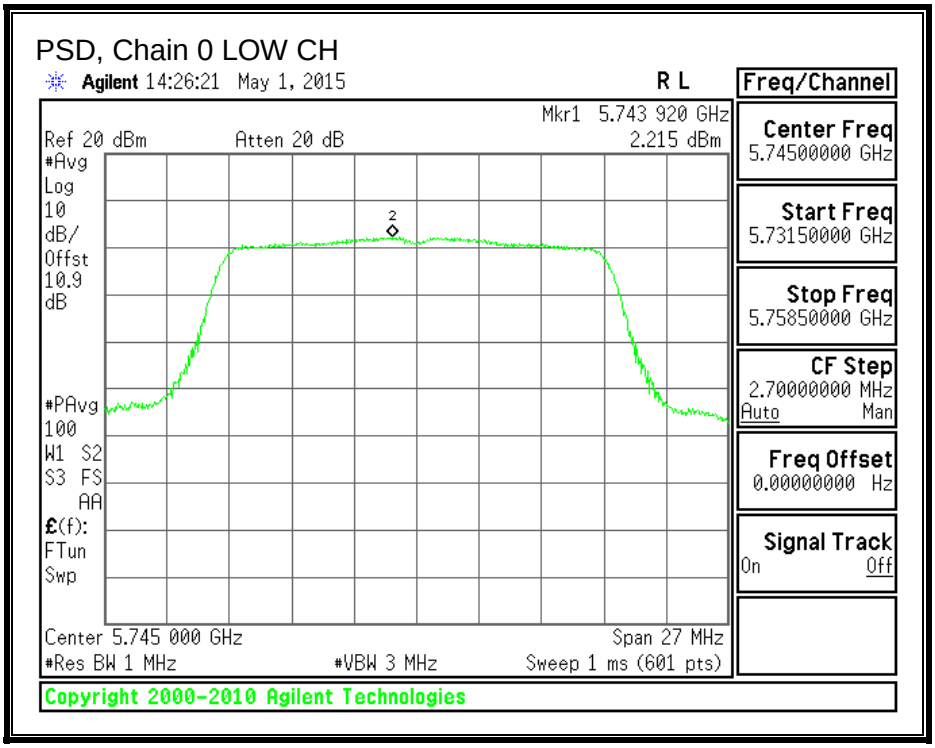
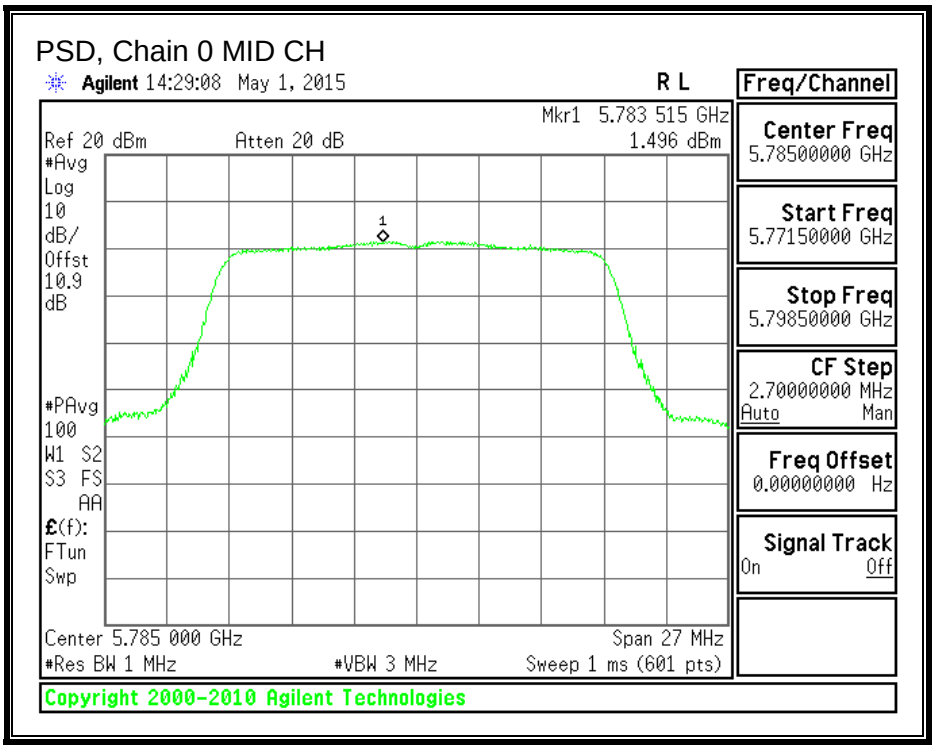
PSD, Chain 0





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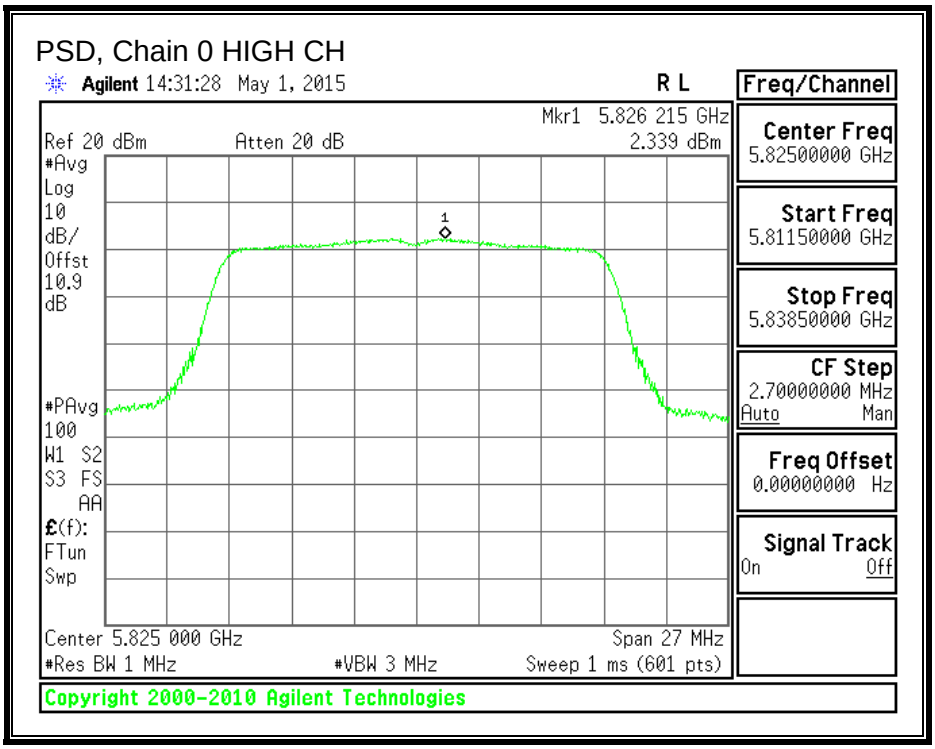
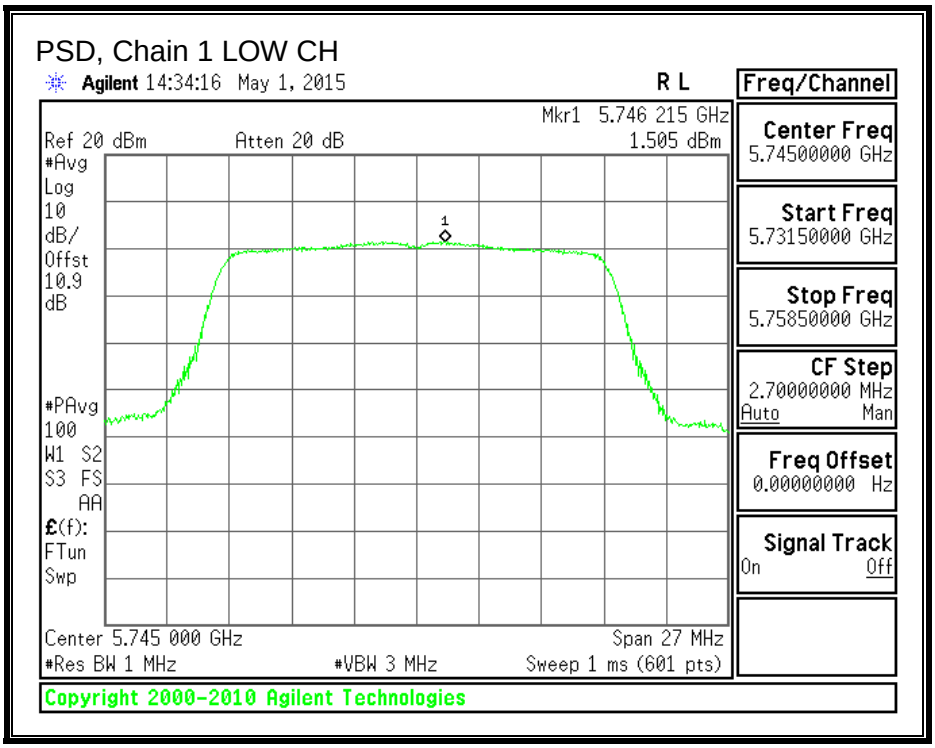


PSD, Chain 1



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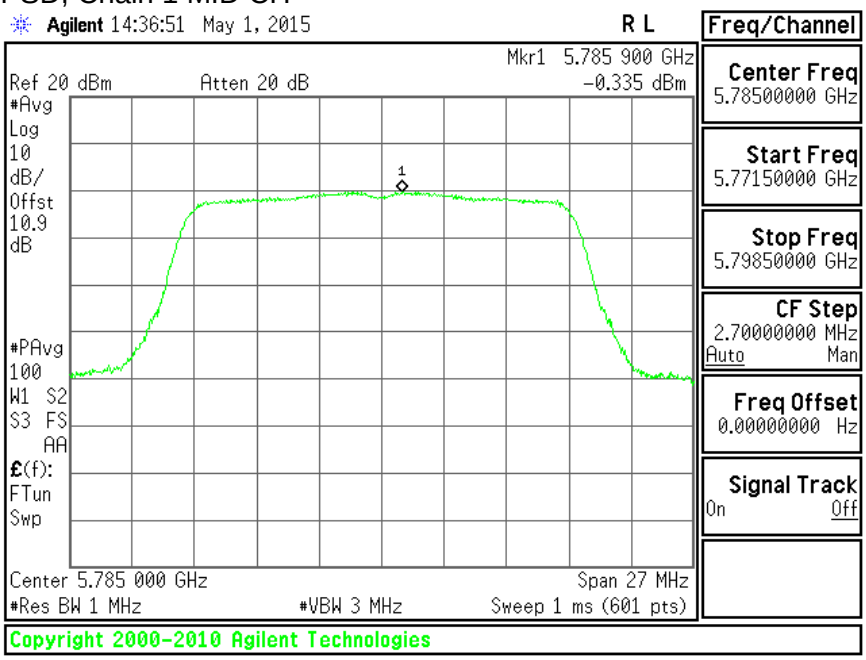
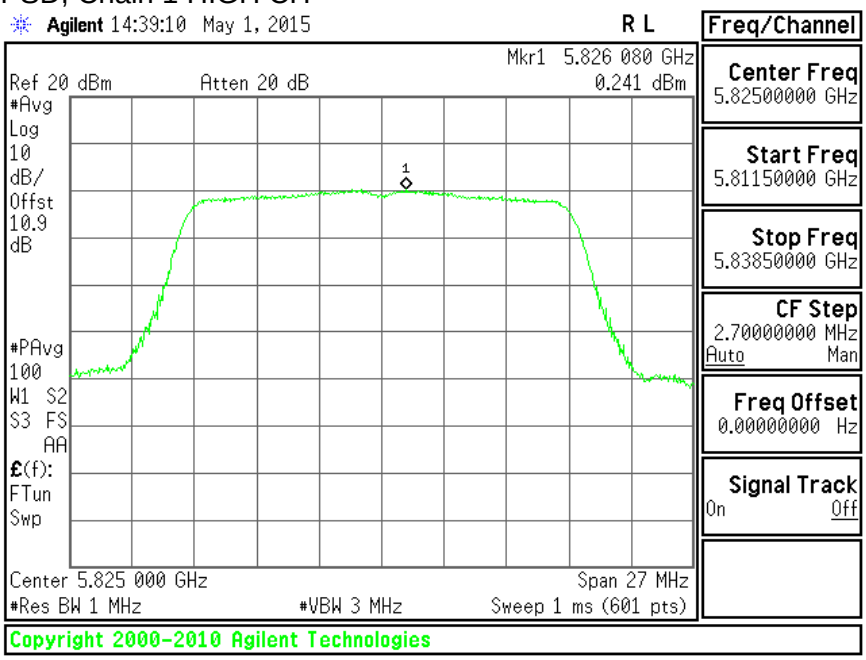
PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



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8.7. 802.11n HT40 MODE IN THE 5.8 GHz BAND

8.7.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40 5.8 GHz band

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5755	40.31	40.19
High	5795	40.31	40.01

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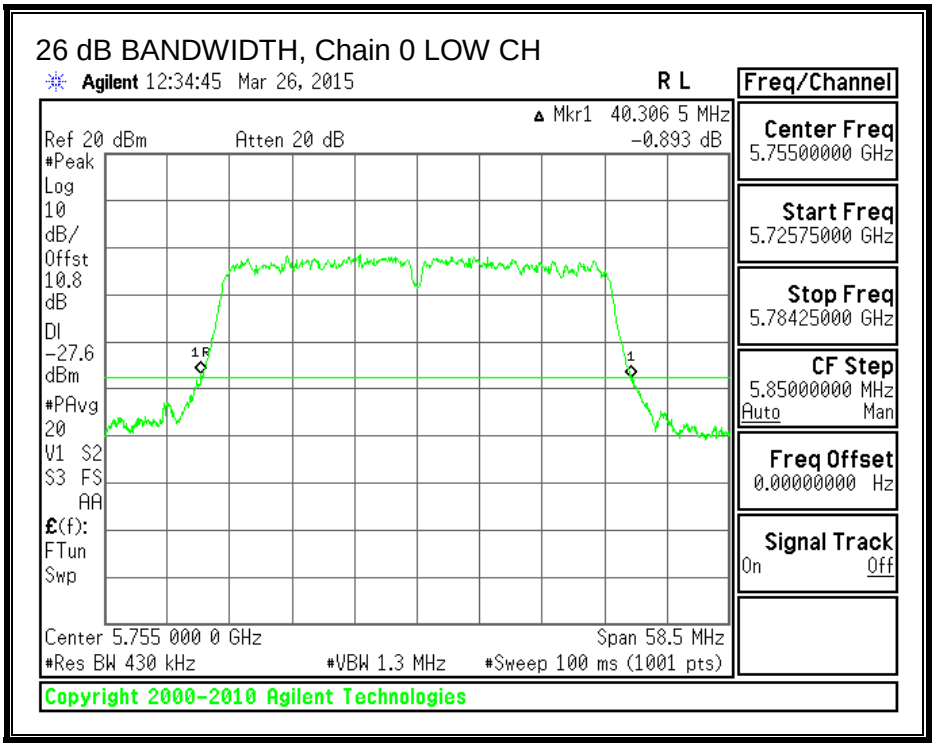
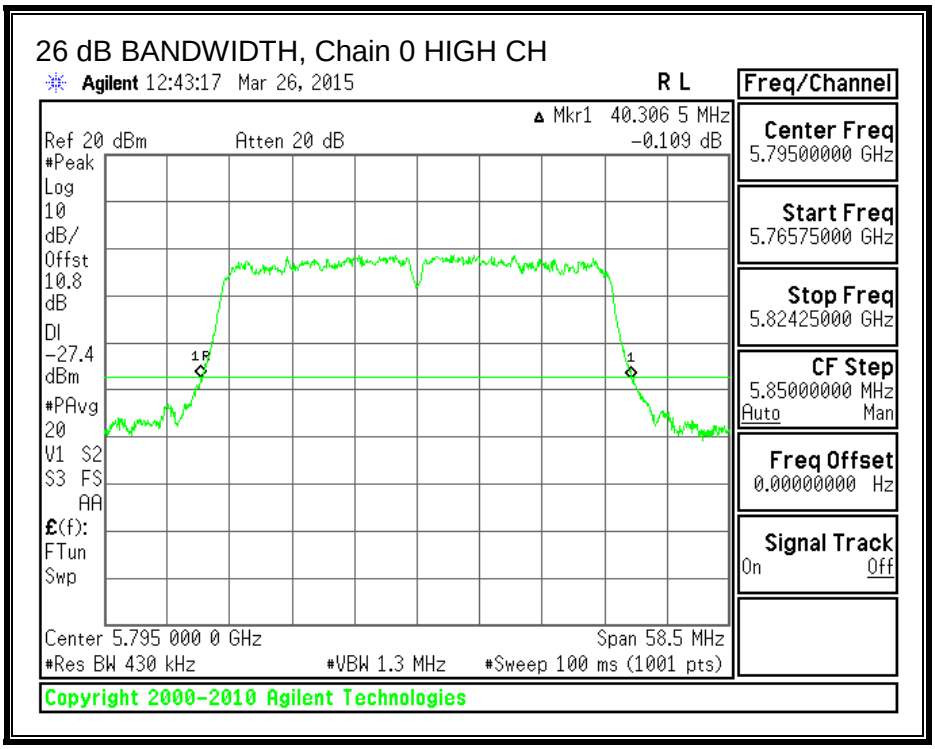
26 dB BANDWIDTH, Chain 0





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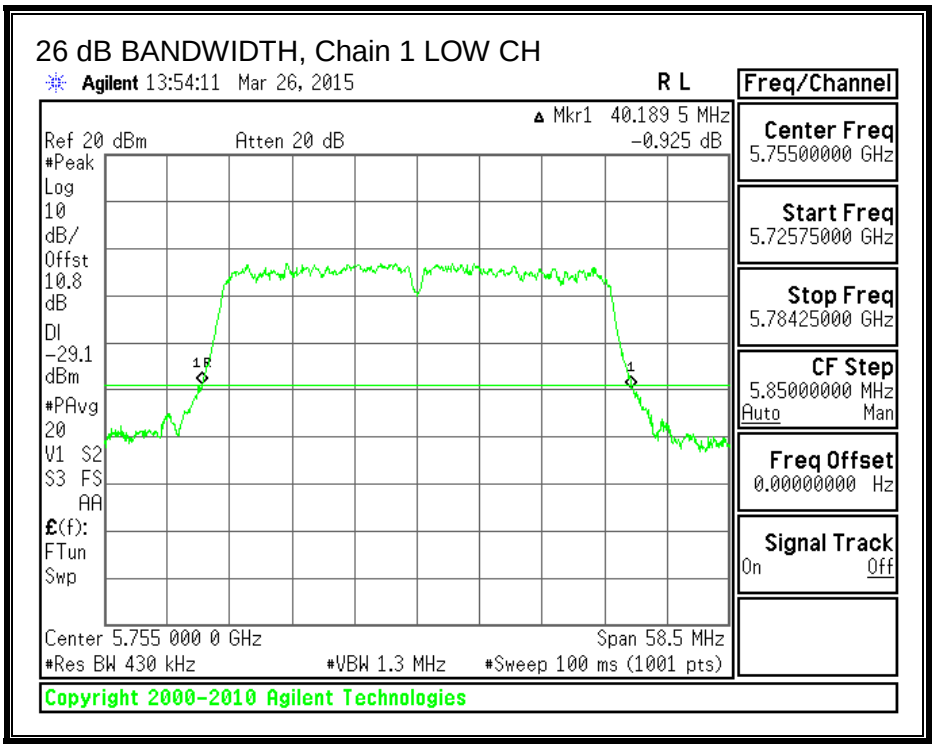
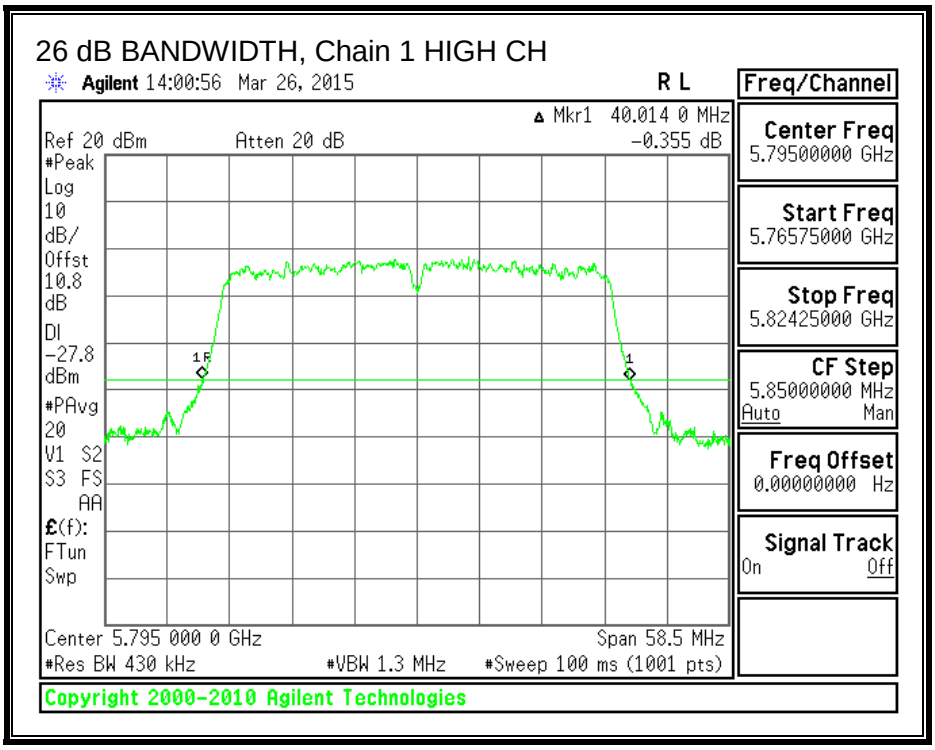
26 dB BANDWIDTH, Chain 1





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8.7.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS - 802.11n HT40 5.8 GHz band

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	35.1800	35.1900	0.5
High	5795	35.1200	35.1702	0.5

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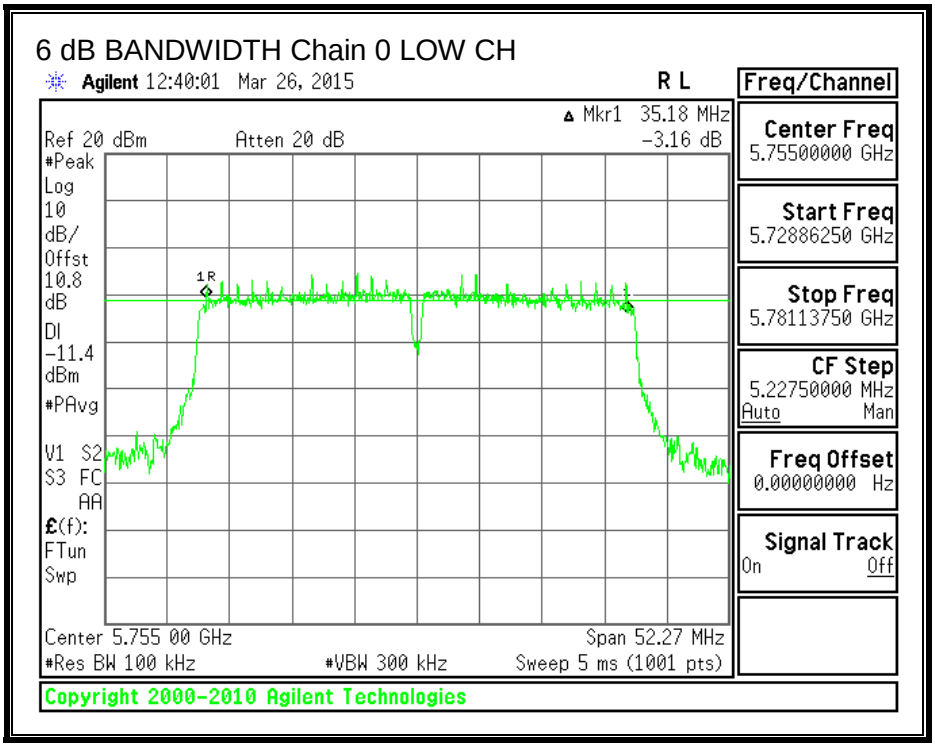
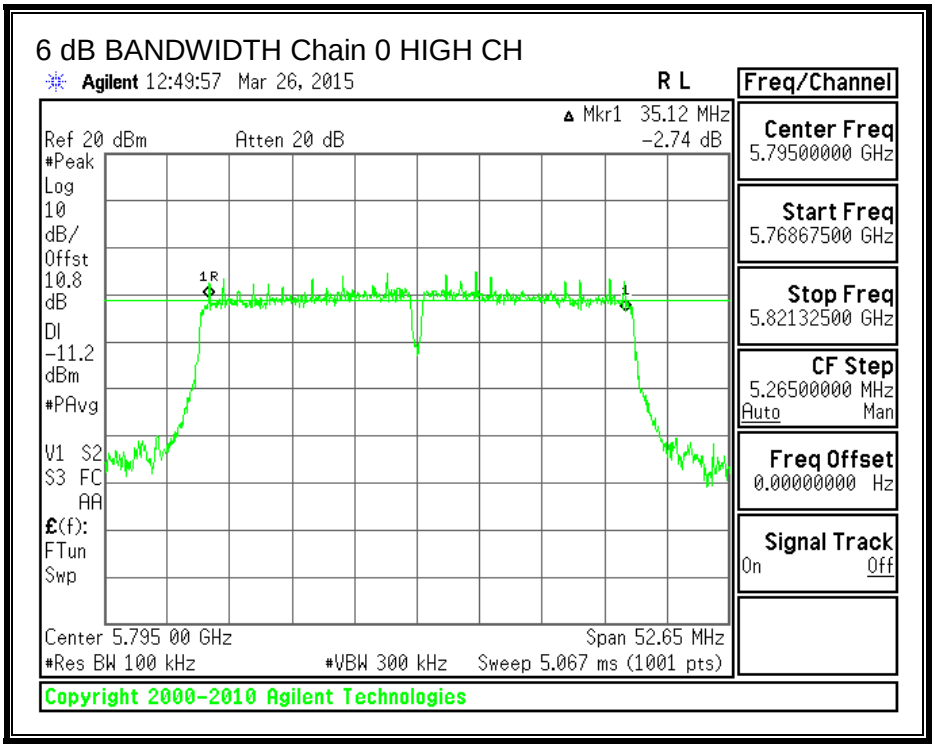
6 dB BANDWIDTH, Chain 0





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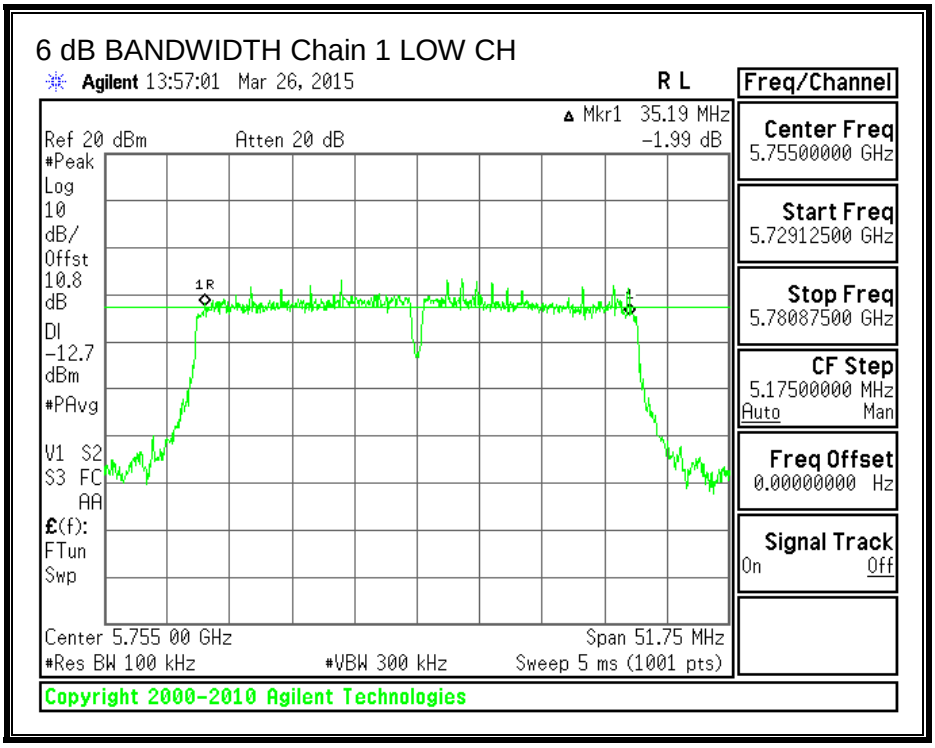
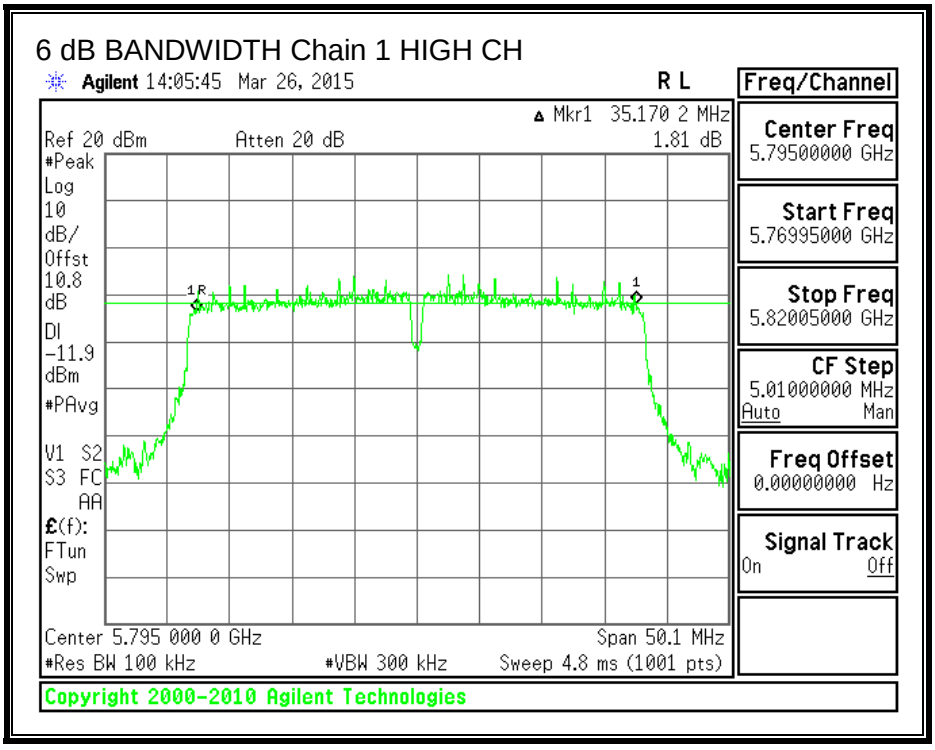
6 dB BANDWIDTH, Chain 1





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8.7.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40 5.8 GHz band

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5755	36.0082	36.0410
High	5795	36.0225	36.0300

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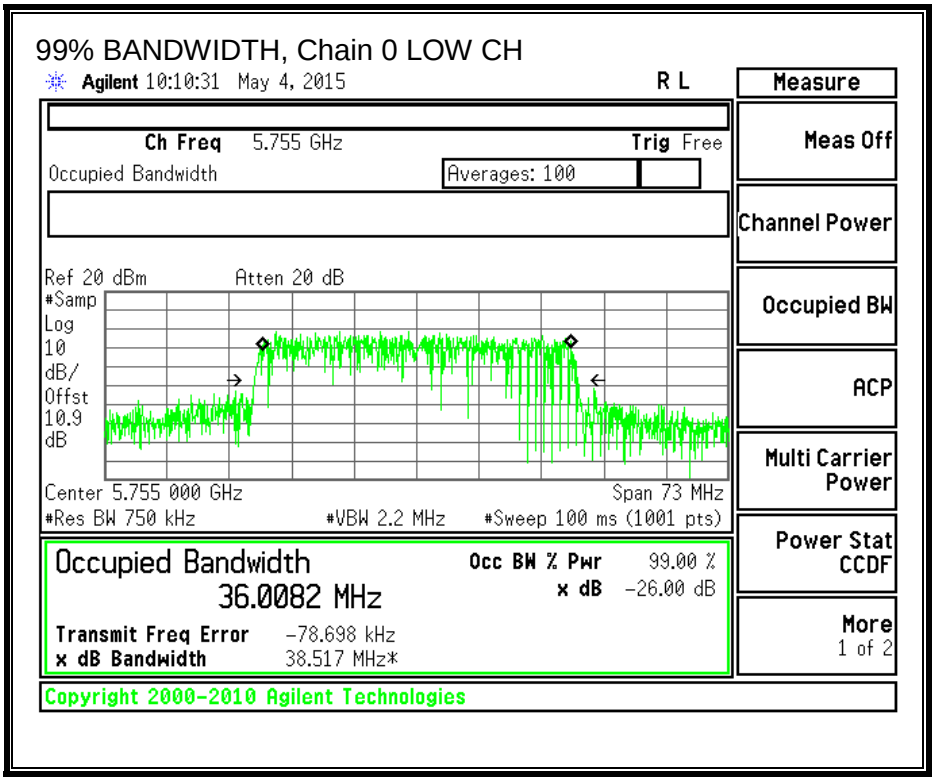
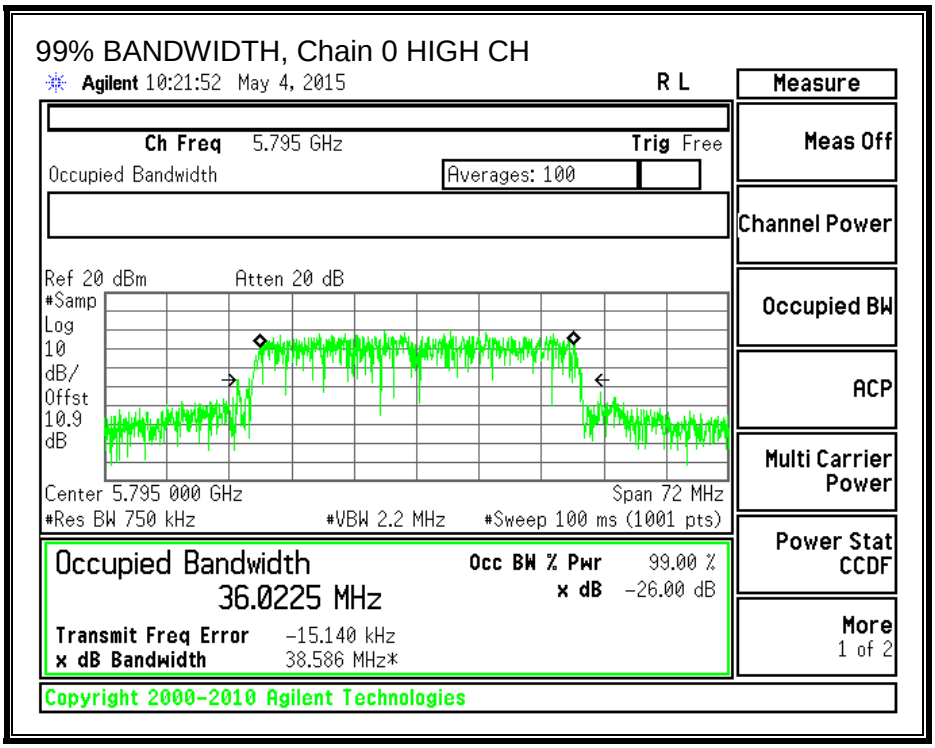
99% BANDWIDTH, Chain 0





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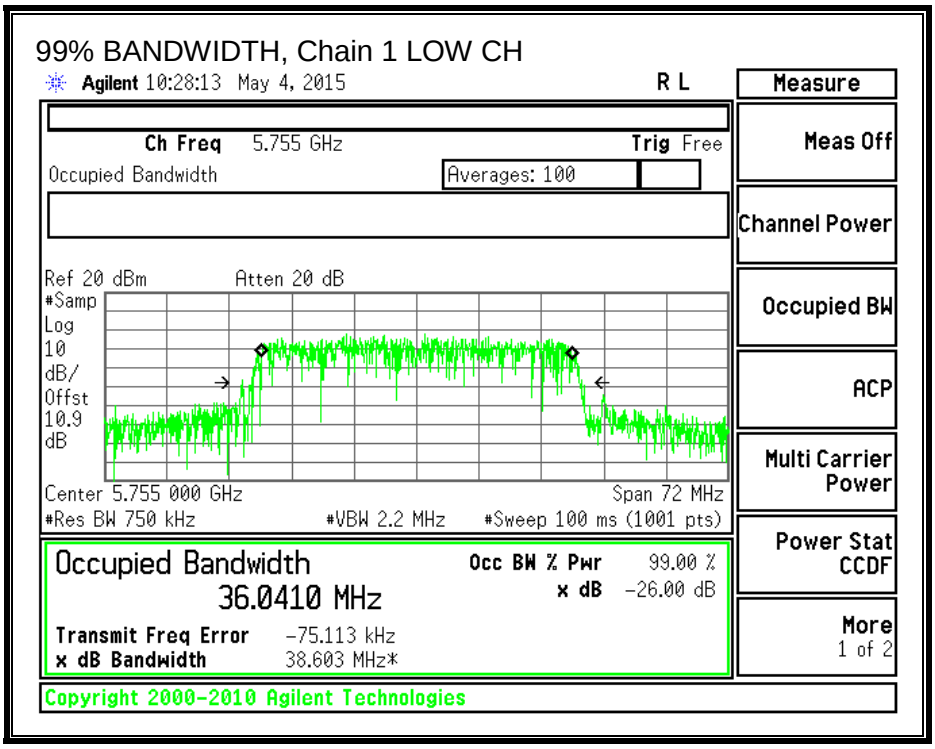
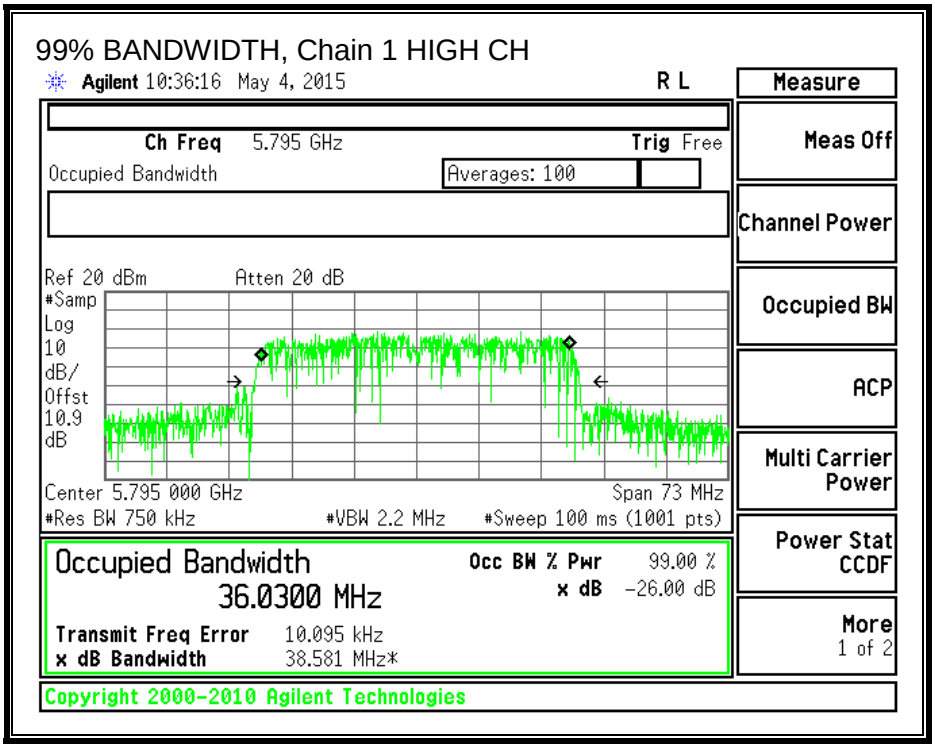
99% BANDWIDTH, Chain 1





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8.7.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS - 802.11n HT40 5.8 GHz band

Duty Cycle CF (dB)	0.19	Included in Calculations of Corr'd Power

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)
Low	5755	8.53	7.22	11.12
High	5795	8.96	7.92	11.67

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8.7.5. OUTPUT POWER

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

The TX chains are uncorrelated and the antenna gain is the same for each chain. The directional gain is equal to the antenna gain.

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.50	2.50	2.50

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RESULTS - 802.11n HT40 5.8 GHz band

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)
Low	5755	2.50	30.00
High	5795	2.50	30.00

Duty Cycle CF (dB)	0.19	**Included in Calculations of Corr'd Power**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	8.53	7.22	11.12	30.00	-18.88
High	5795	8.96	7.92	11.67	30.00	-18.33

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8.7.6. Maximum Power Spectral Density (PSD)

LIMITS

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The EUT operated in CDD mode. Therefore, for output power the chains were considered uncorrelated and for Power Spectral Density, the chains were considered correlated.

The TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
2.50	3.01	5.51

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RESULTS

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5755	5.51	30.00
High	5795	5.51	30.00

Duty Cycle CF (dB)	0.19	**Included in Calculations of Corr'd PSD**

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5755	-4.91	-5.83	-2.14	30.00	-32.14
High	5795	-5.29	-5.90	-2.38	30.00	-32.38

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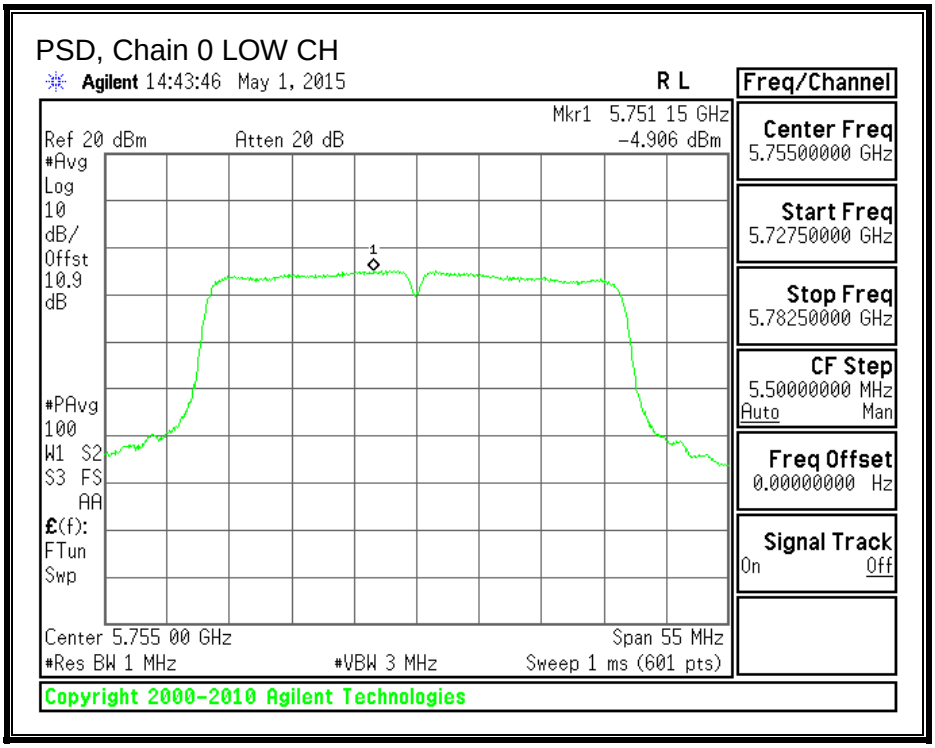
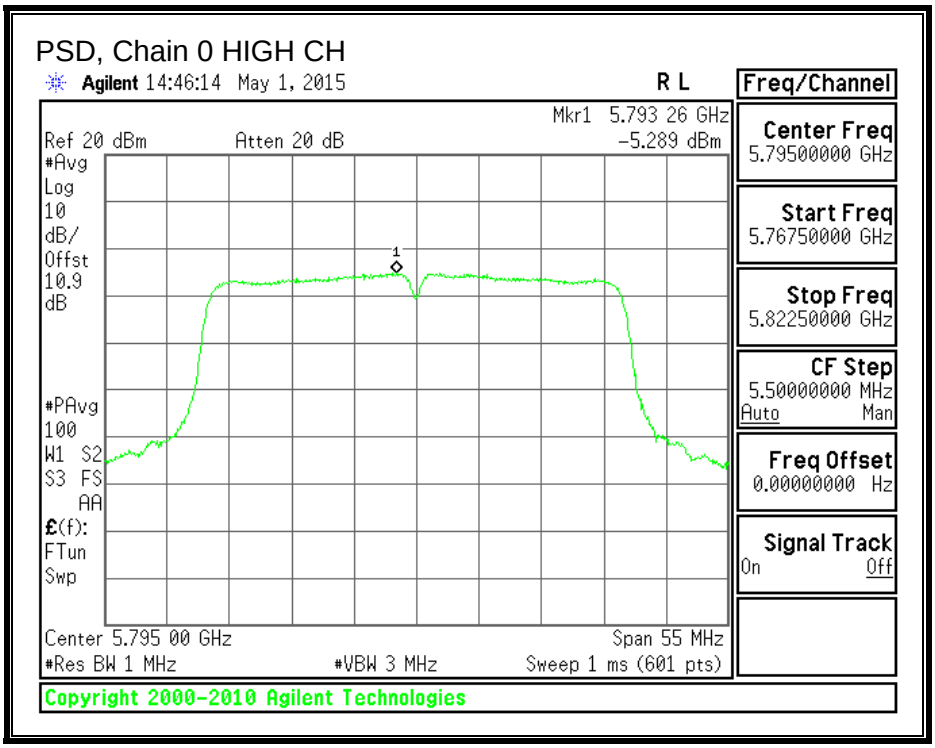
PSD, Chain 0





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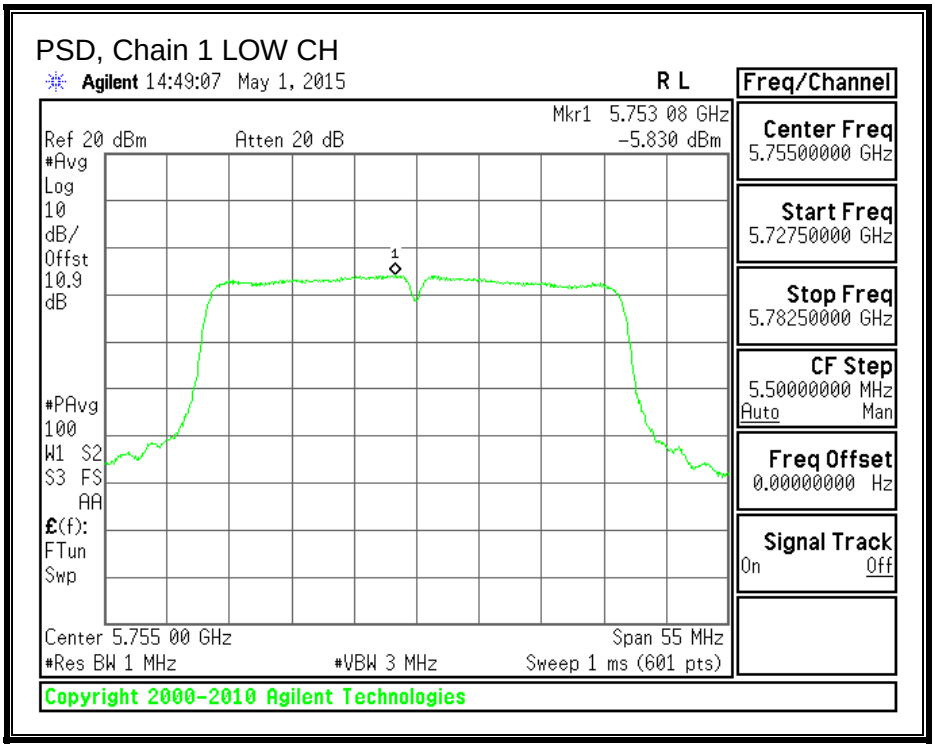
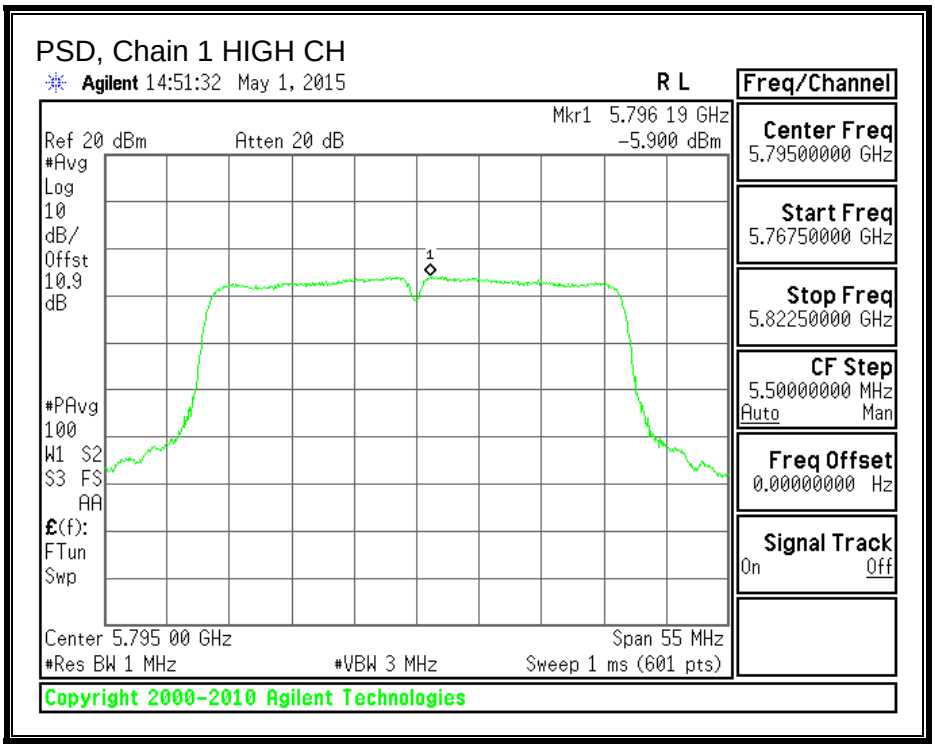
PSD, Chain 1





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9. RADIATED TEST RESULTS

9.1. LIMITS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

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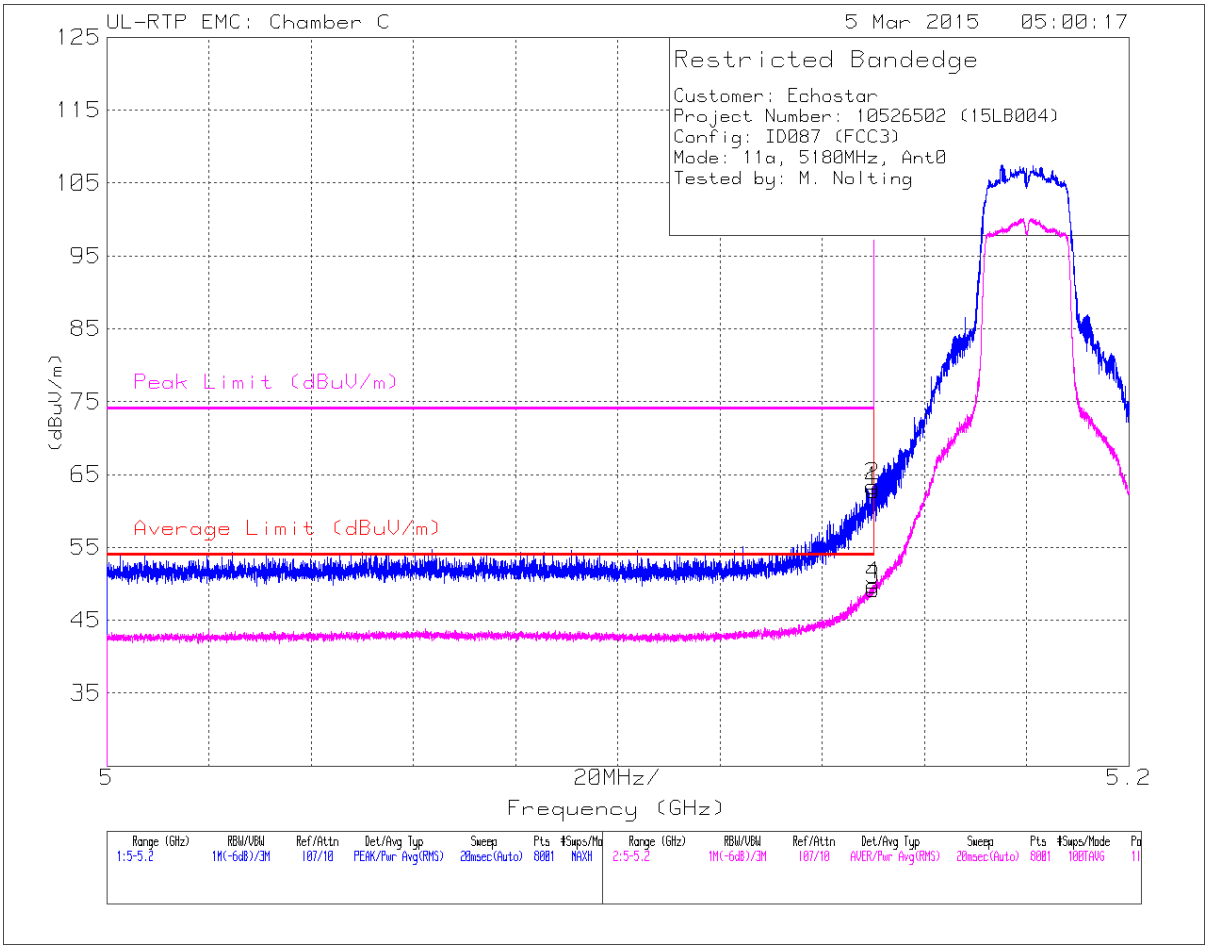
9.2. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL – ANTENNA 0)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	51.81	Pk	34.2	-23.2	62.81	-	-	74	-11.19	117	273	H
2	* 5.15	52.4	Pk	34.2	-23.2	63.4	-	-	74	-10.6	117	273	H
3	* 5.15	38.22	RMS	34.2	-23.2	49.22	54	-4.78	-	-	117	273	H
4	* 5.15	38.78	RMS	34.2	-23.2	49.78	54	-4.22	-	-	117	273	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
RMS - RMS detection

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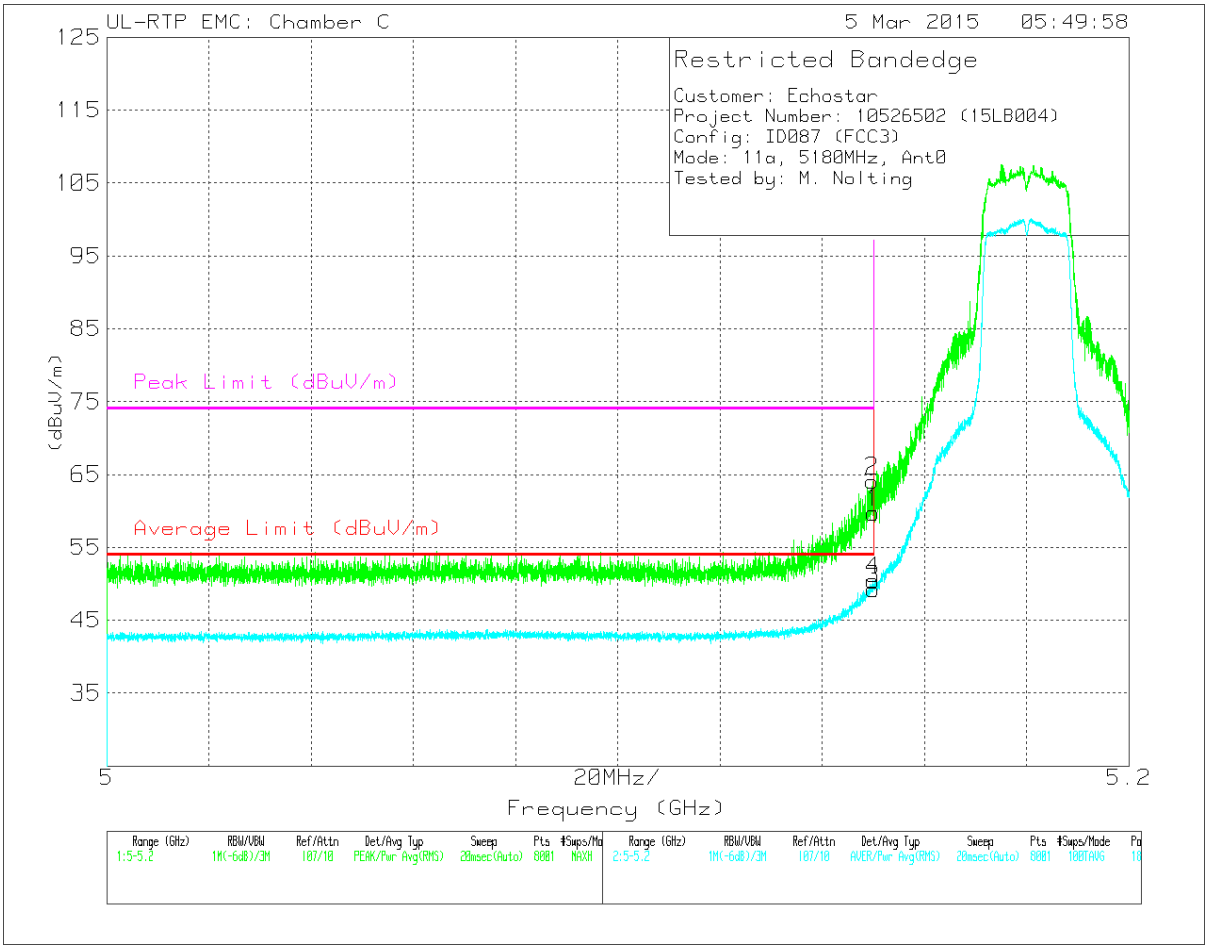
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	48.76	Pk	34.2	-23.2	59.76	-	-	74	-14.24	181	304	V
2	* 5.15	53.09	Pk	34.2	-23.2	64.09	-	-	74	-9.91	181	304	V
3	* 5.15	38.28	RMS	34.2	-23.2	49.28	54	-4.72	-	-	181	304	V
4	* 5.15	39.42	RMS	34.2	-23.2	50.42	54	-3.58	-	-	181	304	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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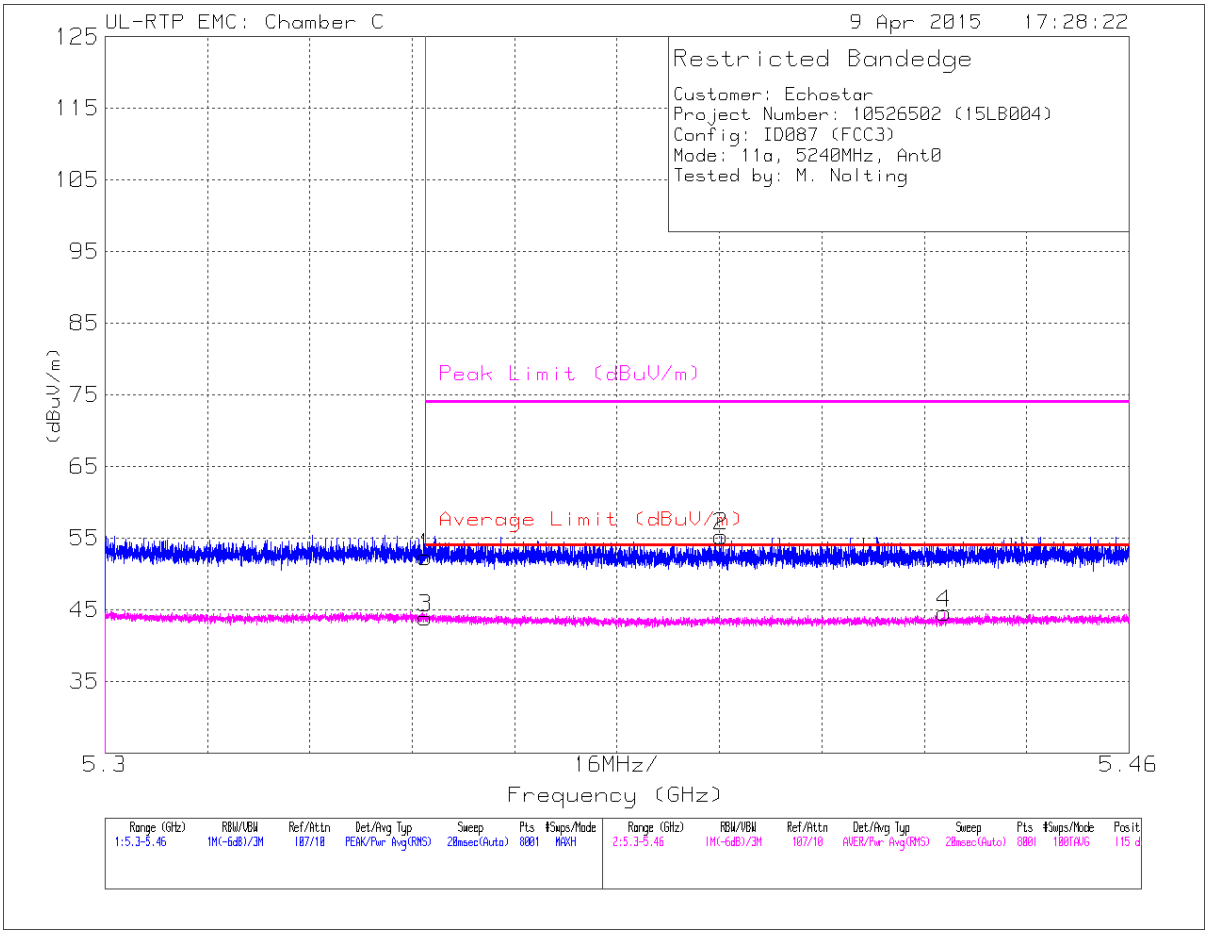
RESTRICTED BANDEDGE (HIGH CHANNEL – ANTENNA 0)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.66	Pk	34.5	-22.8	52.36	-	-	74	-21.64	115	262	H
2	* 5.396	43.38	Pk	34.5	-22.6	55.28	-	-	74	-18.72	115	262	H
3	* 5.35	32.19	RMS	34.5	-22.8	43.89	54	-10.11	-	-	115	262	H
4	* 5.431	32.37	RMS	34.5	-22.3	44.57	54	-9.43	-	-	115	262	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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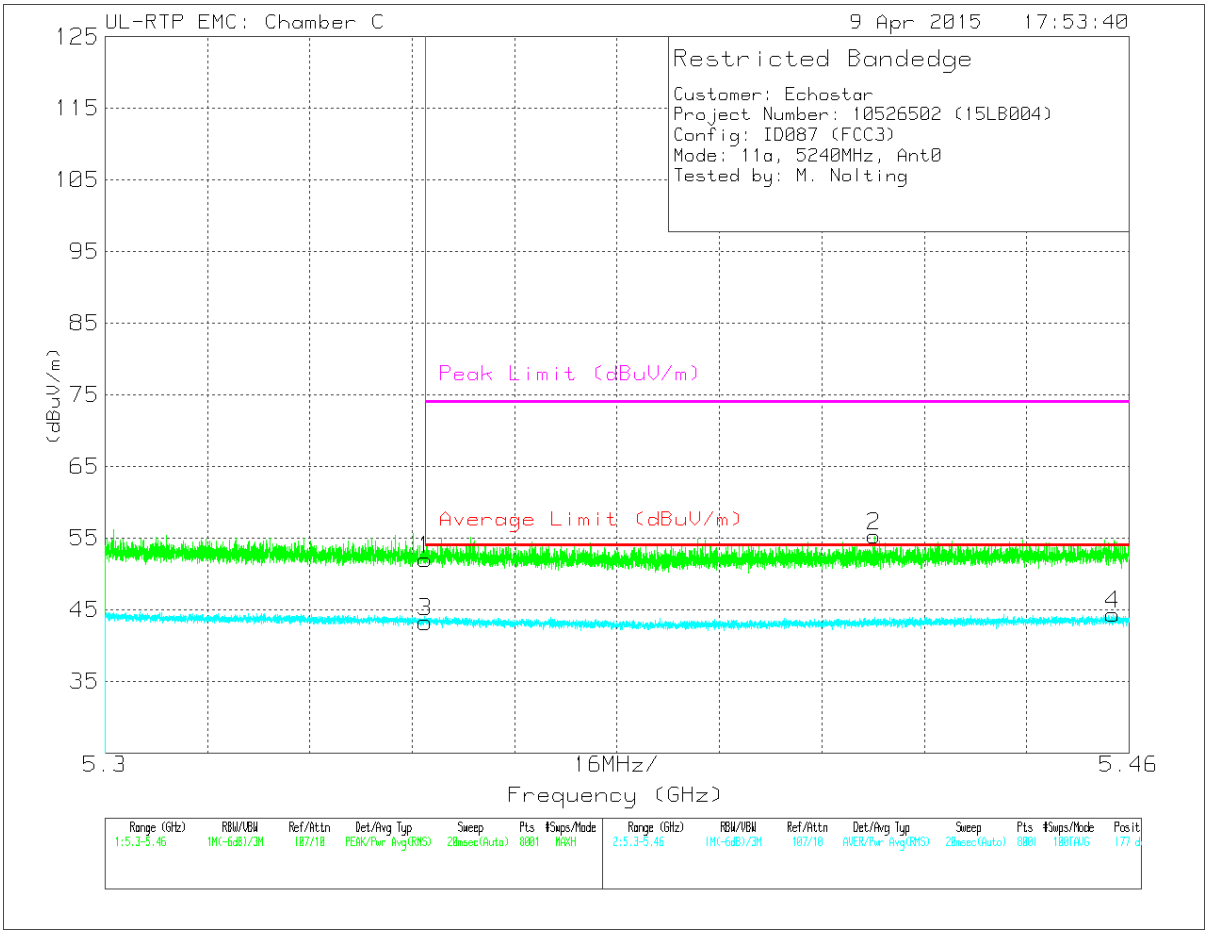
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.33	Pk	34.5	-22.8	52.03	-	-	74	-21.97	177	335	V
2	* 5.42	43.2	Pk	34.5	-22.4	55.3	-	-	74	-18.7	177	335	V
3	* 5.35	31.6	RMS	34.5	-22.8	43.3	54	-10.7	-	-	177	335	V
4	* 5.458	31.96	RMS	34.5	-22.1	44.36	54	-9.64	-	-	177	335	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
RMS - RMS detection

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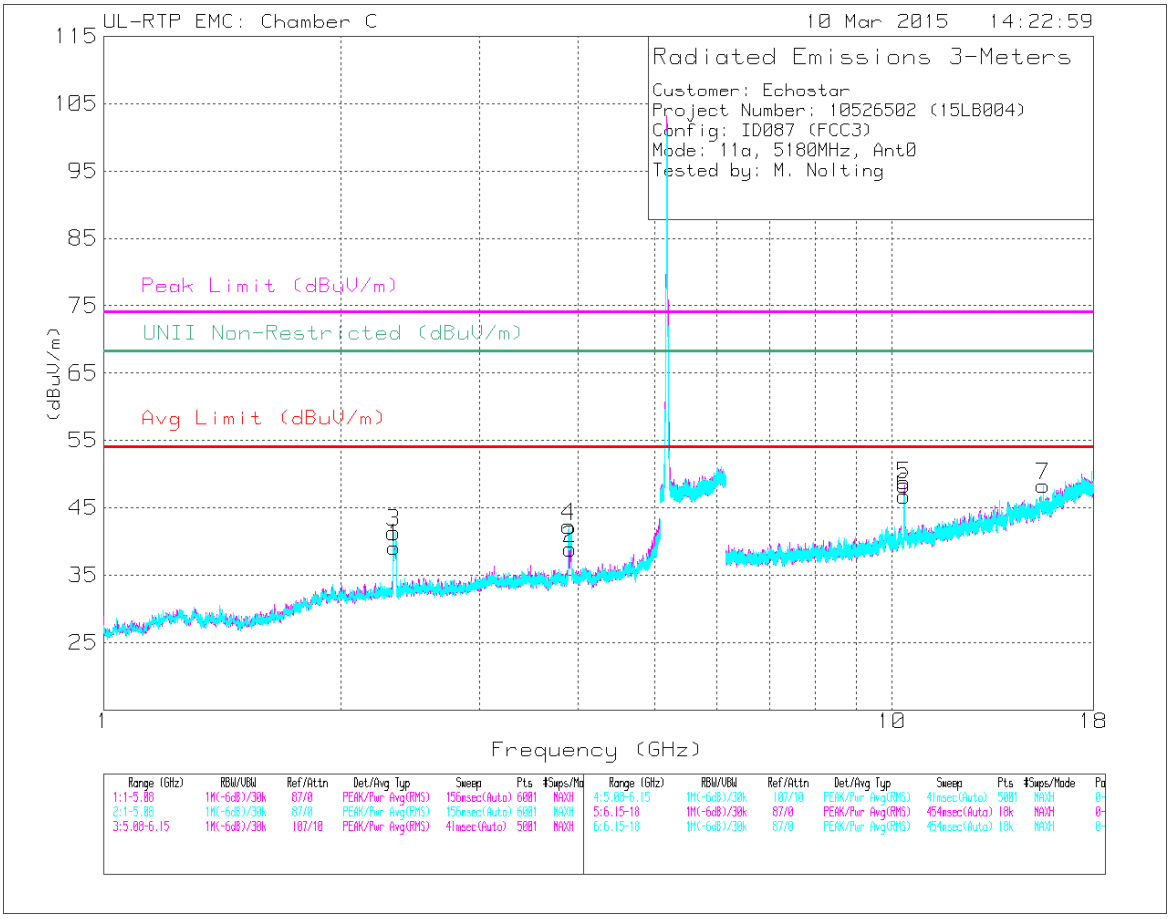
HARMONICS AND SPURIOUS EMISSIONS- ANTENNA 0

LOW CHANNEL ANTENNA 0 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.336	53.12	PK3	32	-36.5	48.62	-	-	74	-25.38	68.2	-19.58	44	280	H
	* 2.333	38.56	ADR	32	-36.5	34.06	54	-19.94	-	-	-	-	44	280	H
2	* 3.889	49.36	PK3	33.6	-34.4	48.56	-	-	74	-25.44	68.2	-19.64	288	307	H
	* 3.89	34.89	ADR	33.6	-34.4	34.09	54	-19.91	-	-	-	-	288	307	H
3	* 2.334	54.73	PK3	32	-36.5	50.23	-	-	74	-23.77	68.2	-17.97	101	295	V
	* 2.334	39.16	ADR	32	-36.5	34.66	54	-19.34	-	-	-	-	101	295	V
4	* 3.89	53.15	PK3	33.6	-34.4	52.35	-	-	74	-21.65	68.2	-15.85	306	263	V
	* 3.884	37.15	ADR	33.6	-34.4	36.35	54	-17.65	-	-	-	-	306	263	V
7	* 15.537	41.87	PK3	40.4	-24.2	58.07	-	-	74	-15.93	68.2	-10.13	273	283	V
	* 15.54	29.45	ADR	40.4	-24.2	45.65	54	-8.35	-	-	-	-	273	283	V
6	10.358	45.11	PK3	37.3	-25.7	56.71	-	-	74	-17.29	68.2	-11.49	205	304	V
5	10.358	46.14	PK3	37.3	-25.7	57.74	-	-	74	-16.26	68.2	-10.46	275	288	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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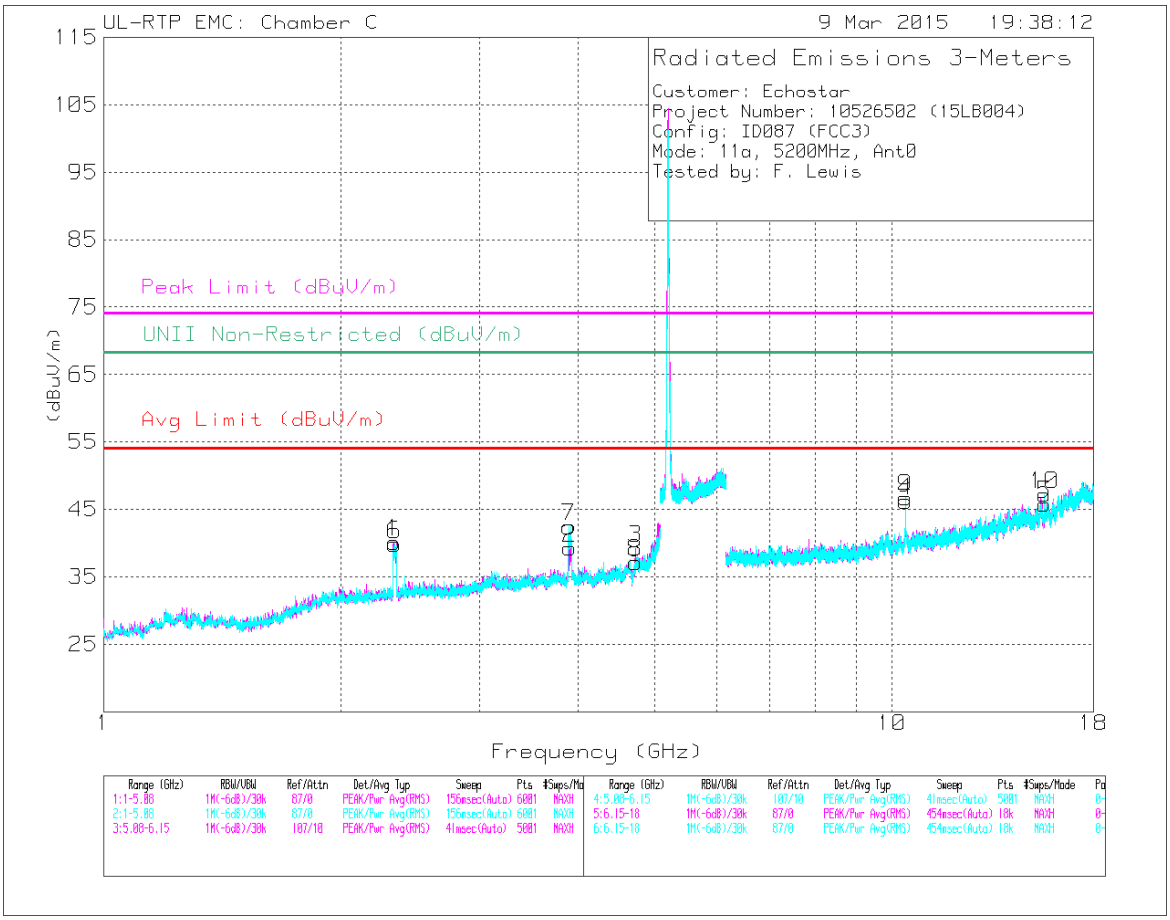
MID CHANNEL ANTENNA 0 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.333	54.11	PK3	32	-36.5	49.61	-	-	74	-24.39	68.2	-18.59	39	233	H
	* 2.333	38.77	ADR	32	-36.5	34.27	54	-19.73	-	-	-	-	39	233	H
2	* 3.889	51.05	PK3	33.6	-34.4	50.25	-	-	74	-23.75	68.2	-17.95	112	363	H
	* 3.889	35.74	ADR	33.6	-34.4	34.94	54	-19.06	-	-	-	-	112	363	H
3	* 4.726	45.8	PK3	34.1	-32.9	47	-	-	74	-27	68.2	-21.2	280	248	H
	* 4.728	35.35	ADR	34.1	-32.8	36.65	54	-17.35	-	-	-	-	280	248	H
6	* 2.333	54.64	PK3	32	-36.5	50.14	-	-	74	-23.86	68.2	-18.06	191	267	V
	* 2.348	40.17	ADR	32	-36.4	35.77	54	-18.23	-	-	-	-	191	267	V
7	* 3.911	52.97	PK3	33.6	-33.9	52.67	-	-	74	-21.33	68.2	-15.53	305	312	V
	* 3.888	36.96	ADR	33.6	-34.4	36.16	54	-17.84	-	-	-	-	305	312	V
8	* 4.727	44.33	PK3	34.1	-32.8	45.63	-	-	74	-28.37	68.2	-22.57	19	129	V
	* 4.727	33.58	ADR	34.1	-32.8	34.88	54	-19.12	-	-	-	-	19	129	V
5	* 15.598	39.63	PK3	40.4	-23.6	56.43	-	-	74	-17.57	68.2	-11.77	305	204	H
	* 15.602	27.65	ADR	40.4	-23.6	44.45	54	-9.55	-	-	-	-	305	204	H
10	* 15.603	42.08	PK3	40.4	-23.6	58.88	-	-	74	-15.12	68.2	-9.32	268	285	V
	* 15.6	29.88	ADR	40.4	-23.6	46.68	54	-7.32	-	-	-	-	268	285	V
9	10.396	43.48	PK3	37.4	-24.5	56.38	-	-	74	-17.62	68.2	-11.82	272	267	H
4	10.398	43.08	PK3	37.4	-24.4	56.08	-	-	74	-17.92	68.2	-12.12	201	321	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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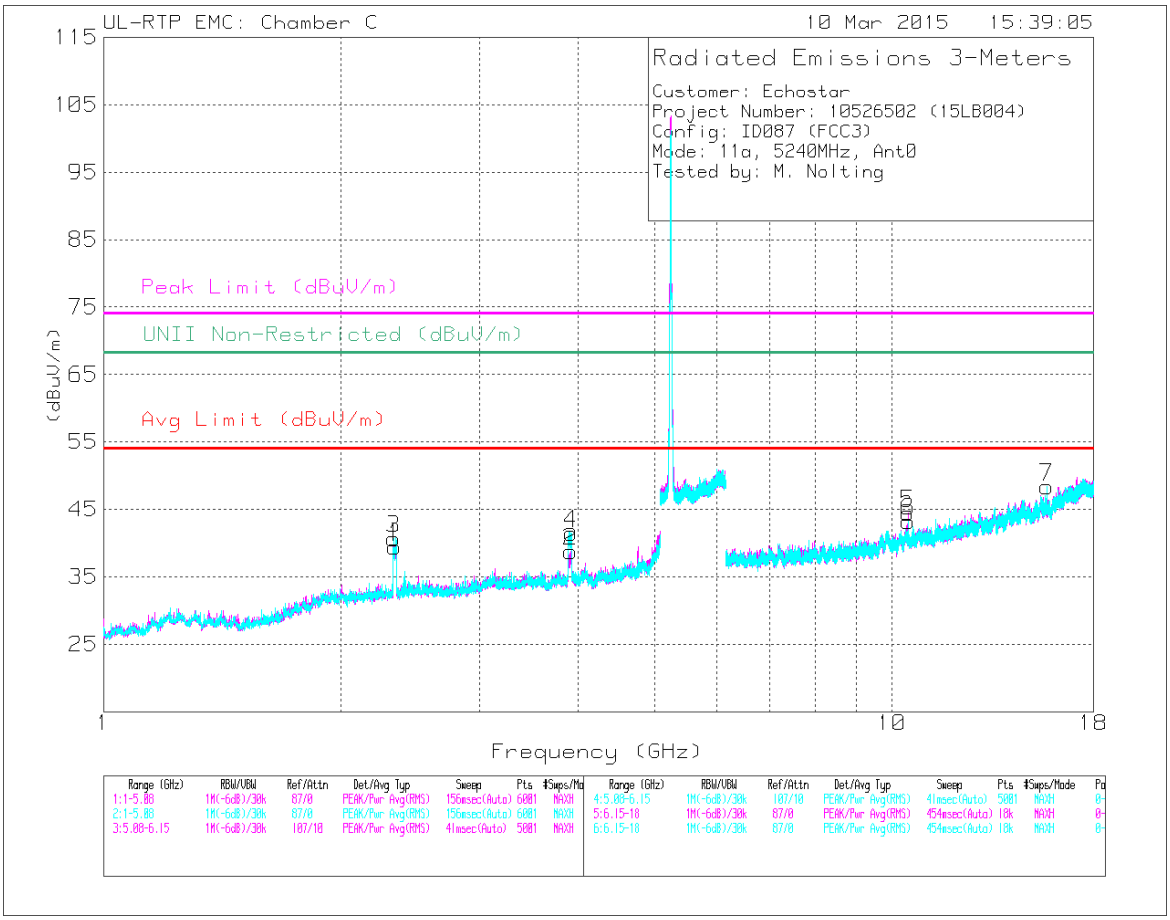
HIGH CHANNEL ANTENNA 0 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	53.22	PK3	32	-36.5	48.72	-	-	74	-25.28	68.2	-19.48	45	281	H
	* 2.332	38.68	ADR	32	-36.5	34.18	54	-19.82	-	-	-	-	45	281	H
2	* 3.89	49.53	PK3	33.6	-34.4	48.73	-	-	74	-25.27	68.2	-19.47	288	307	H
	* 3.89	34.79	ADR	33.6	-34.4	33.99	54	-20.01	-	-	-	-	288	307	H
3	* 2.334	54.97	PK3	32	-36.5	50.47	-	-	74	-23.53	68.2	-17.73	99	306	V
	* 2.334	39.41	ADR	32	-36.5	34.91	54	-19.09	-	-	-	-	99	306	V
4	* 3.89	53.6	PK3	33.6	-34.4	52.8	-	-	74	-21.2	68.2	-15.4	306	262	V
	* 3.884	37.15	ADR	33.6	-34.4	36.35	54	-17.65	-	-	-	-	306	262	V
7	* 15.709	40.9	PK3	40.4	-24	57.3	-	-	74	-16.7	68.2	-10.9	272	242	V
	* 15.72	28.51	ADR	40.4	-24	44.91	54	-9.09	-	-	-	-	272	242	V
5	10.478	41.21	PK3	37.5	-25.1	53.61	-	-	74	-20.39	68.2	-14.59	291	324	H
6	10.482	40.38	PK3	37.5	-25.2	52.68	-	-	74	-21.32	68.2	-15.52	205	305	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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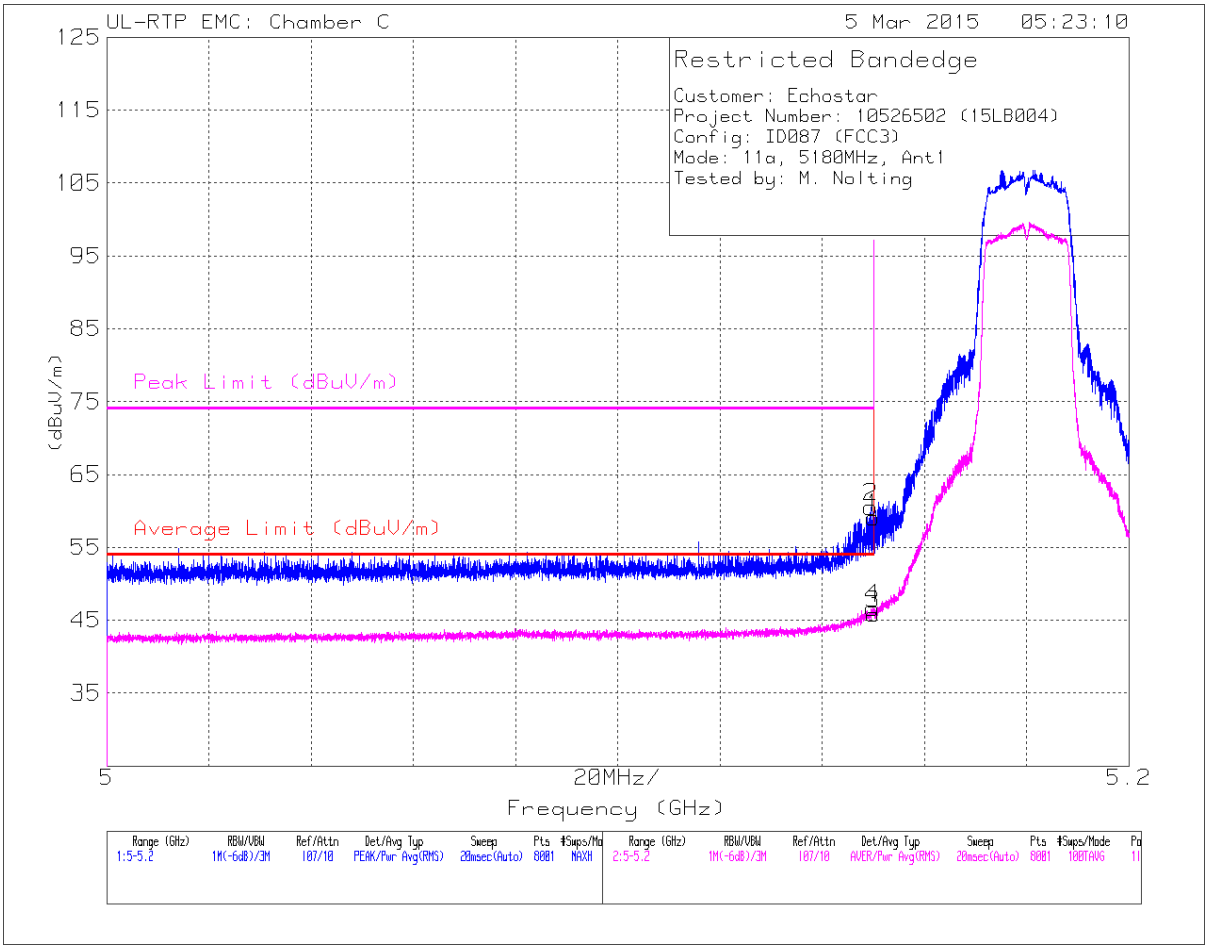
RESTRICTED BANDEDGE (LOW CHANNEL – ANTENNA 1)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	48.08	Pk	34.2	-23.2	59.08	-	-	74	-14.92	113	249	H
2	* 5.15	49.62	Pk	34.2	-23.3	60.52	-	-	74	-13.48	113	249	H
3	* 5.15	34.82	RMS	34.2	-23.2	45.82	54	-8.18	-	-	113	249	H
4	* 5.15	35.64	RMS	34.2	-23.2	46.64	54	-7.36	-	-	113	249	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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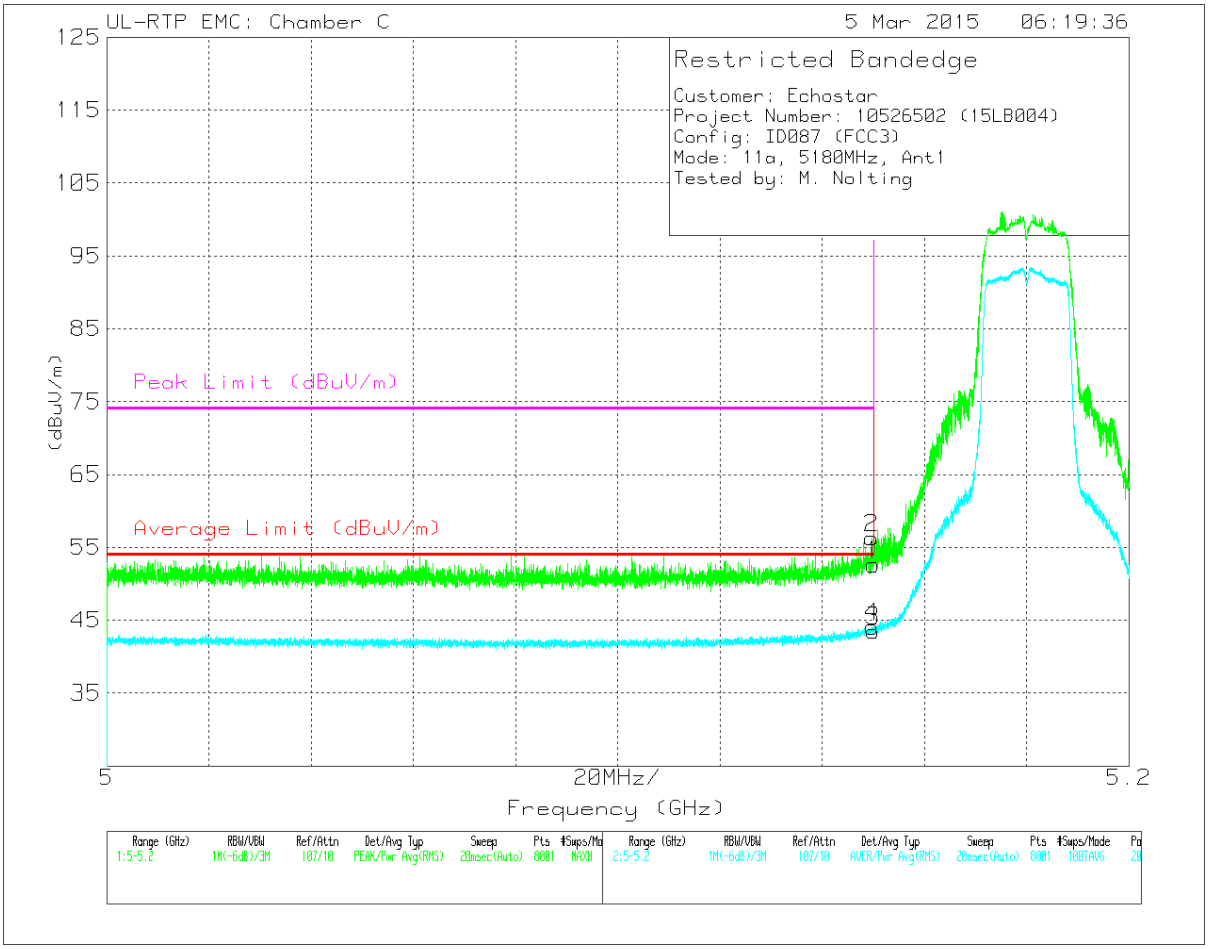
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	41.64	Pk	34.2	-23.2	52.64	-	-	74	-21.36	20	366	V
2	* 5.15	45.3	Pk	34.2	-23.2	56.3	-	-	74	-17.7	20	366	V
3	* 5.15	32.52	RMS	34.2	-23.2	43.52	54	-10.48	-	-	20	366	V
4	* 5.15	33.12	RMS	34.2	-23.2	44.12	54	-9.88	-	-	20	366	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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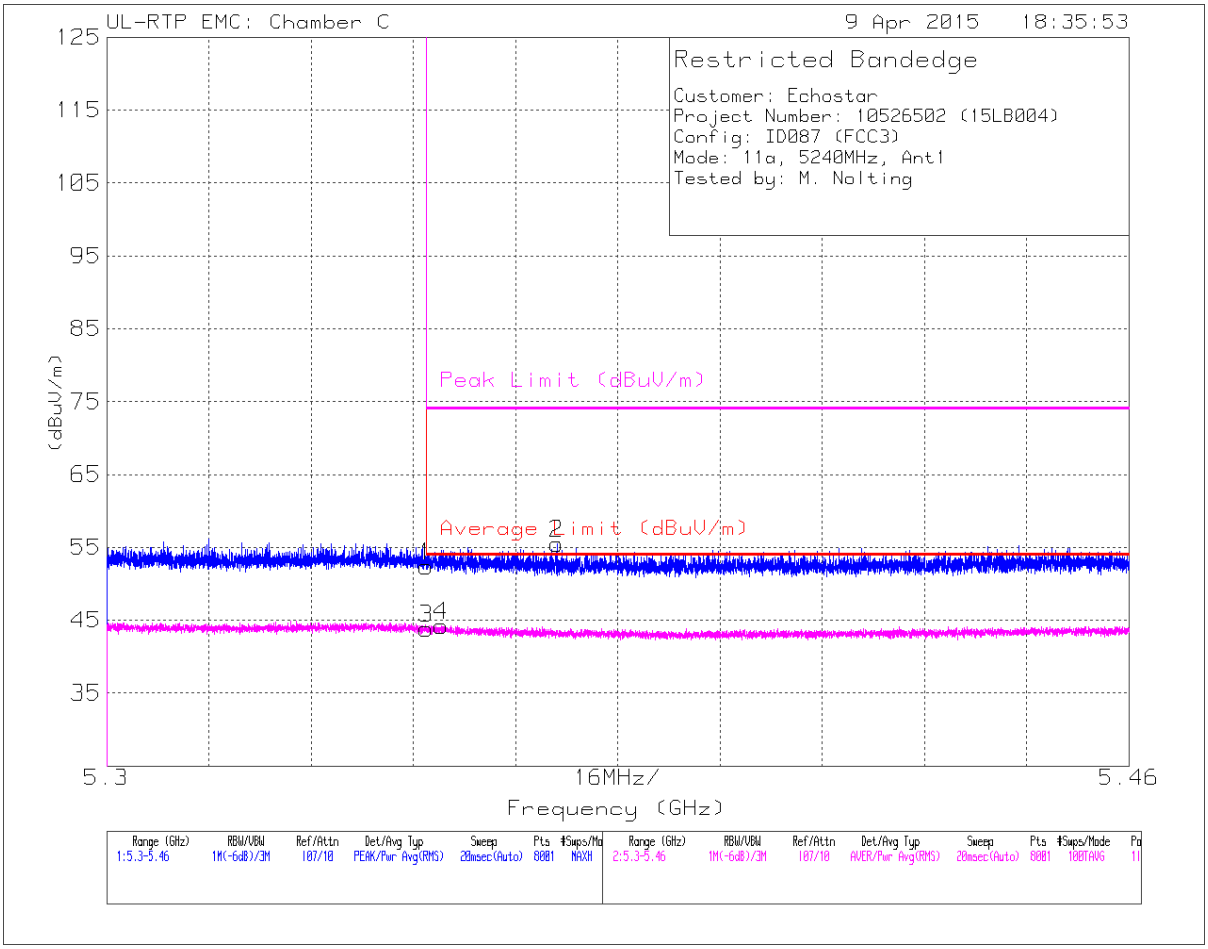
RESTRICTED BANDEDGE (HIGH CHANNEL – ANTENNA 1)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.66	Pk	34.5	-22.8	52.36	-	-	74	-21.64	115	110	H
3	* 5.35	32.16	RMS	34.5	-22.8	43.86	54	-10.14	-	-	115	110	H
4	* 5.352	32.55	RMS	34.5	-22.8	44.25	54	-9.75	-	-	115	110	H
2	* 5.37	43.78	Pk	34.5	-22.8	55.48	-	-	74	-18.52	115	110	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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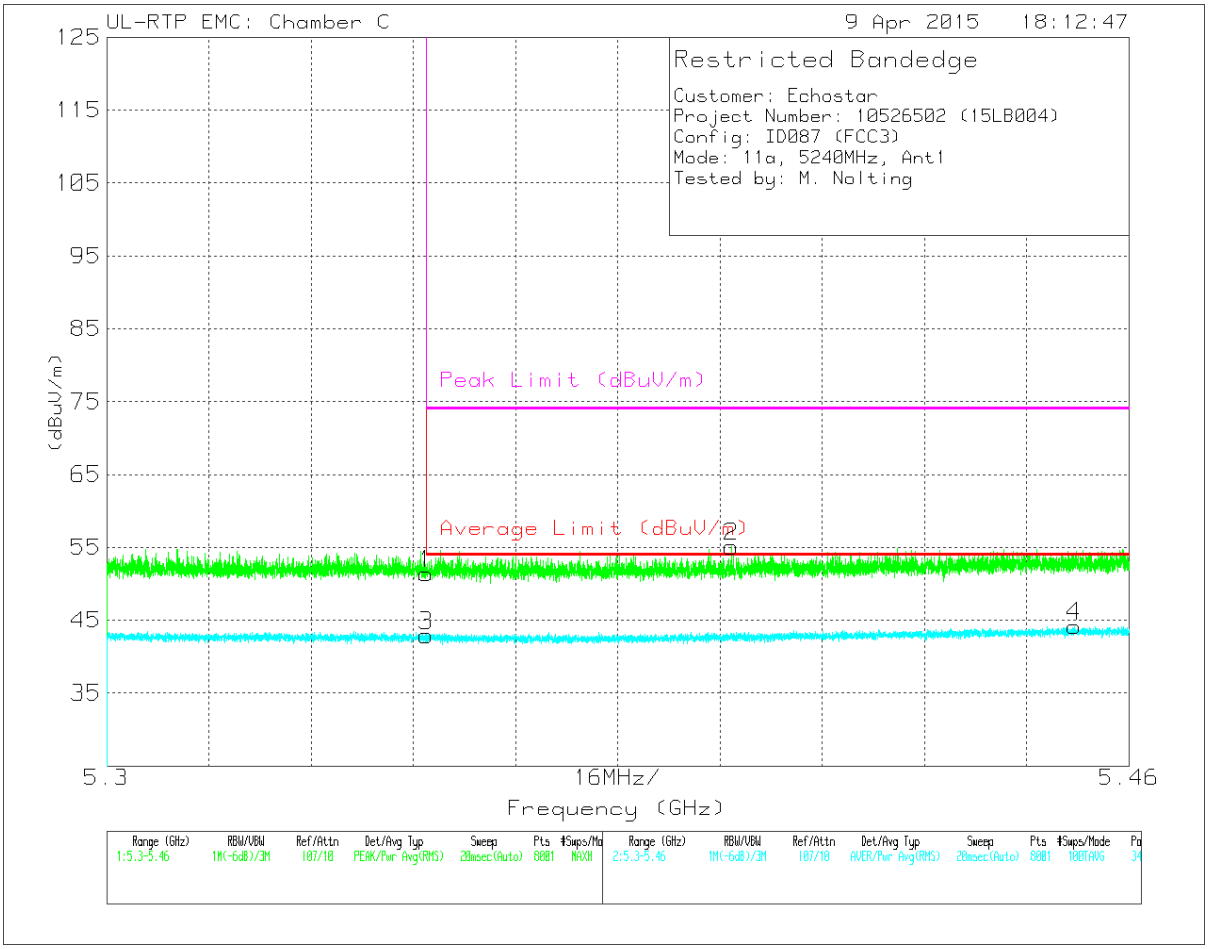
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.68	Pk	34.5	-22.8	51.38	-	-	74	-22.62	34	369	V
2	* 5.398	43.2	Pk	34.5	-22.6	55.1	-	-	74	-18.9	34	369	V
3	* 5.35	31.2	RMS	34.5	-22.8	42.9	54	-11.1	-	-	34	369	V
4	* 5.451	31.86	RMS	34.5	-22.2	44.16	54	-9.84	-	-	34	369	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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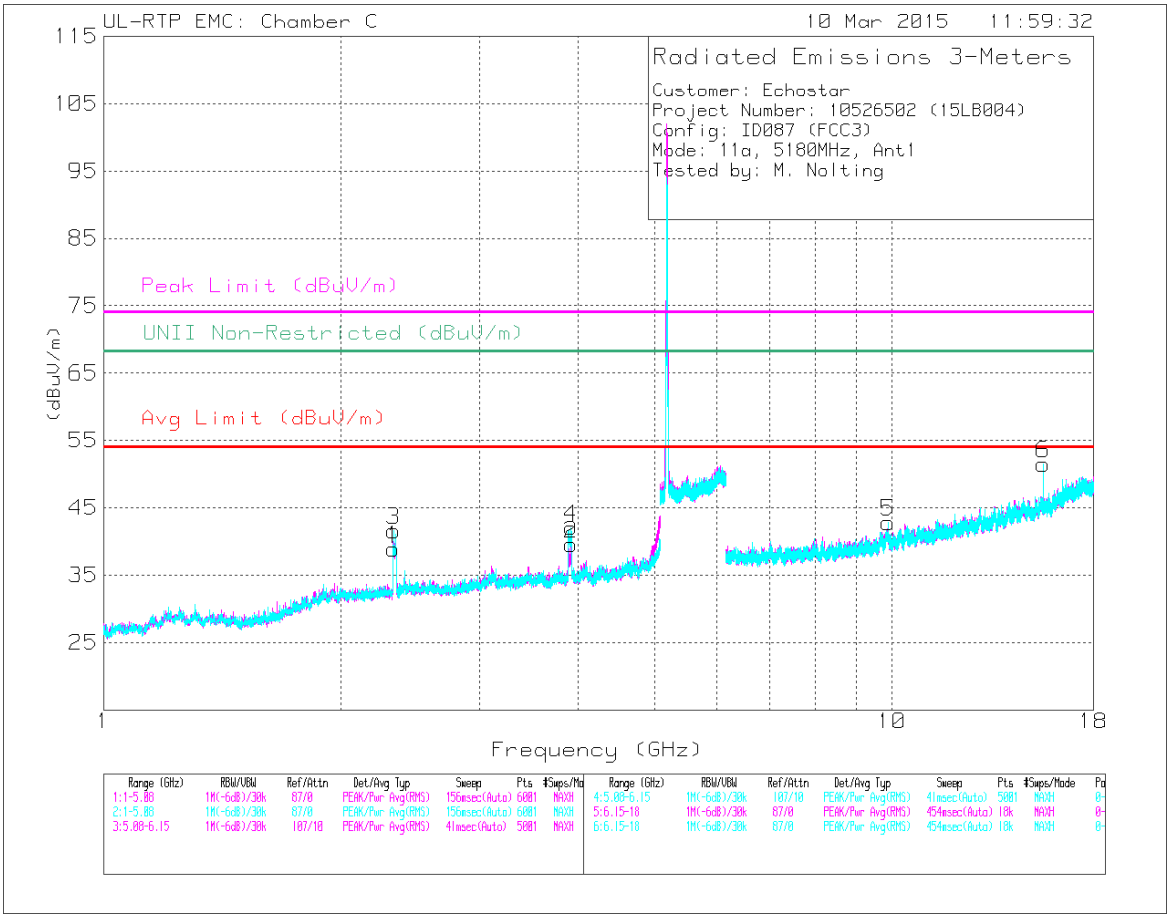
HARMONICS AND SPURIOUS EMISSIONS- ANTENNA 1

LOW CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.338	52.84	PK3	32	-36.4	48.44	-	-	74	-25.56	68.2	-19.76	46	281	H
	* 2.333	38.83	ADR	32	-36.5	34.33	54	-19.67	-	-	-	-	46	281	H
2	* 3.89	49.7	PK3	33.6	-34.4	48.9	-	-	74	-25.1	68.2	-19.3	288	312	H
	* 3.89	34.85	ADR	33.6	-34.4	34.05	54	-19.95	-	-	-	-	288	312	H
3	* 2.334	54.8	PK3	32	-36.5	50.3	-	-	74	-23.7	68.2	-17.9	100	295	V
	* 2.334	39.45	ADR	32	-36.5	34.95	54	-19.05	-	-	-	-	100	295	V
4	* 3.89	52.84	PK3	33.6	-34.4	52.04	-	-	74	-21.96	68.2	-16.16	306	269	V
	* 3.885	36.81	ADR	33.6	-34.4	36.01	54	-17.99	-	-	-	-	306	269	V
6	* 15.547	45.72	PK3	40.4	-24.2	61.92	-	-	74	-12.08	68.2	-6.28	310	210	V
	* 15.539	32.9	ADR	40.4	-24.2	49.1	54	-4.9	-	-	-	-	310	210	V
5	9.884	37.48	PK3	37.1	-25	49.58	-	-	-	-	68.2	-18.62	341	152	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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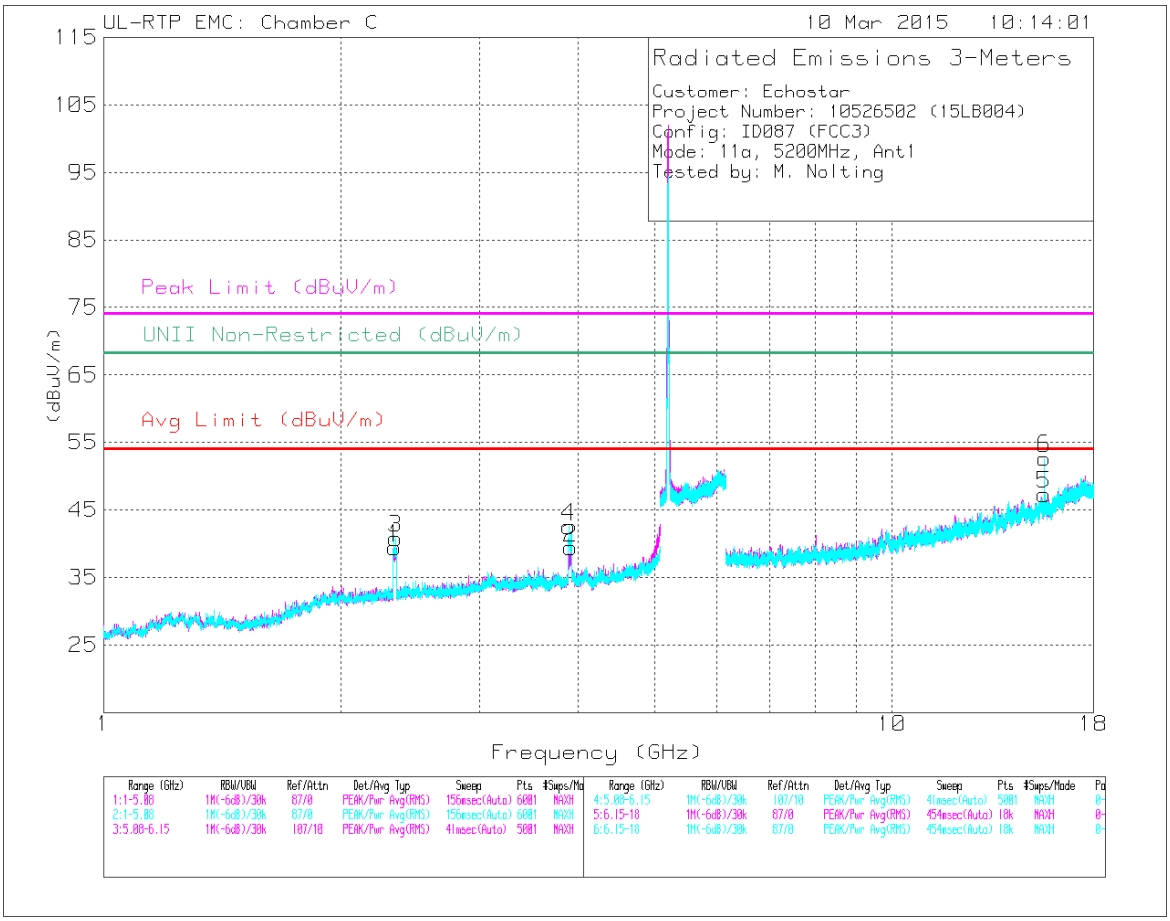
MID CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.342	52.86	PK3	32	-36.4	48.46	-	-	74	-25.54	68.2	-19.74	45	281	H
	* 2.332	38.62	ADR	32	-36.5	34.12	54	-19.88	-	-	-	-	45	281	H
2	* 3.89	49.51	PK3	33.6	-34.4	48.71	-	-	74	-25.29	68.2	-19.49	288	305	H
	* 3.89	34.77	ADR	33.6	-34.4	33.97	54	-20.03	-	-	-	-	288	305	H
3	* 2.334	54.62	PK3	32	-36.5	50.12	-	-	74	-23.88	68.2	-18.08	100	295	V
	* 2.334	39.17	ADR	32	-36.5	34.67	54	-19.33	-	-	-	-	100	295	V
4	* 3.89	53.69	PK3	33.6	-34.4	52.89	-	-	74	-21.11	68.2	-15.31	306	262	V
	* 3.89	37.05	ADR	33.6	-34.4	36.25	54	-17.75	-	-	-	-	306	262	V
5	* 15.602	41.49	PK3	40.4	-23.6	58.29	-	-	74	-15.71	68.2	-9.91	152	392	H
	* 15.603	28.54	ADR	40.4	-23.6	45.34	54	-8.66	-	-	-	-	152	392	H
6	* 15.602	46.53	PK3	40.4	-23.6	63.33	-	-	74	-10.67	68.2	-4.87	310	210	V
	* 15.599	33.86	ADR	40.4	-23.6	50.66	54	-3.34	-	-	-	-	310	210	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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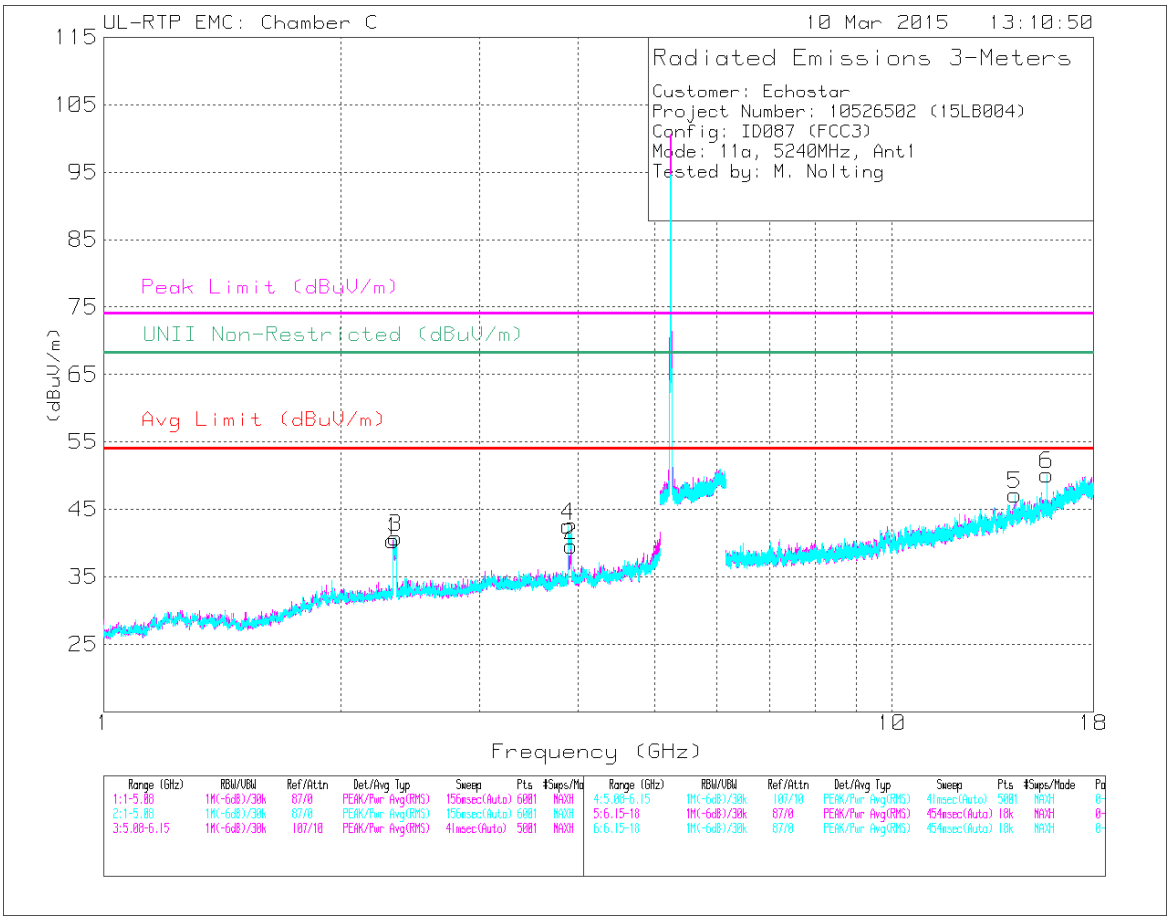
HIGH CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/Filtr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	52.98	PK3	32	-36.5	48.48	-	-	74	-25.52	68.2	-19.72	45	280	H
	* 2.331	38.75	ADR	32	-36.5	34.25	54	-19.75	-	-	-	-	45	280	H
2	* 3.89	49.69	PK3	33.6	-34.4	48.89	-	-	74	-25.11	68.2	-19.31	288	307	H
	* 3.89	34.83	ADR	33.6	-34.4	34.03	54	-19.97	-	-	-	-	288	307	H
3	* 2.334	54.6	PK3	32	-36.5	50.1	-	-	74	-23.9	68.2	-18.1	100	294	V
	* 2.334	39.28	ADR	32	-36.5	34.78	54	-19.22	-	-	-	-	100	294	V
4	* 3.89	53.33	PK3	33.6	-34.4	52.53	-	-	74	-21.47	68.2	-15.67	306	261	V
	* 3.885	36.98	ADR	33.6	-34.4	36.18	54	-17.82	-	-	-	-	306	261	V
6	* 15.716	45.02	PK3	40.4	-24	61.42	-	-	74	-12.58	68.2	-6.78	310	215	V
	* 15.719	31.85	ADR	40.4	-24	48.25	54	-5.75	-	-	-	-	310	215	V
5	14.304	36.36	PK3	39	-22.2	53.16	-	-	-	-	68.2	-15.04	312	152	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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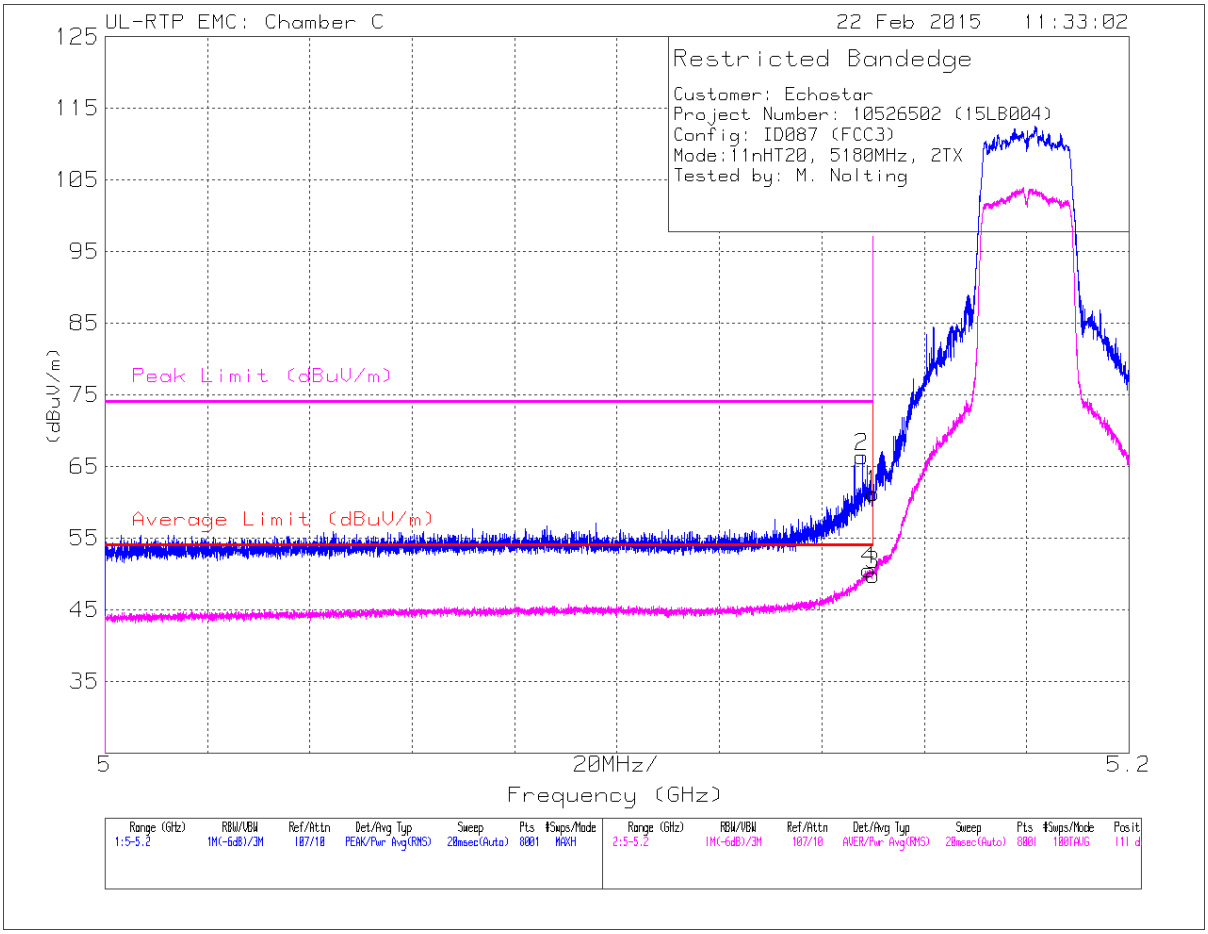
9.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	49.25	Pk	35.2	-23.2	0	61.25	-	-	74	-12.75	111	271	H
2	* 5.148	54.5	Pk	35.2	-23.3	0	66.4	-	-	74	-7.6	111	271	H
3	* 5.15	37.77	RMS	35.2	-23.2	.11	49.88	54	-4.12	-	-	111	271	H
4	* 5.149	38.56	RMS	35.2	-23.3	.11	50.57	54	-3.43	-	-	111	271	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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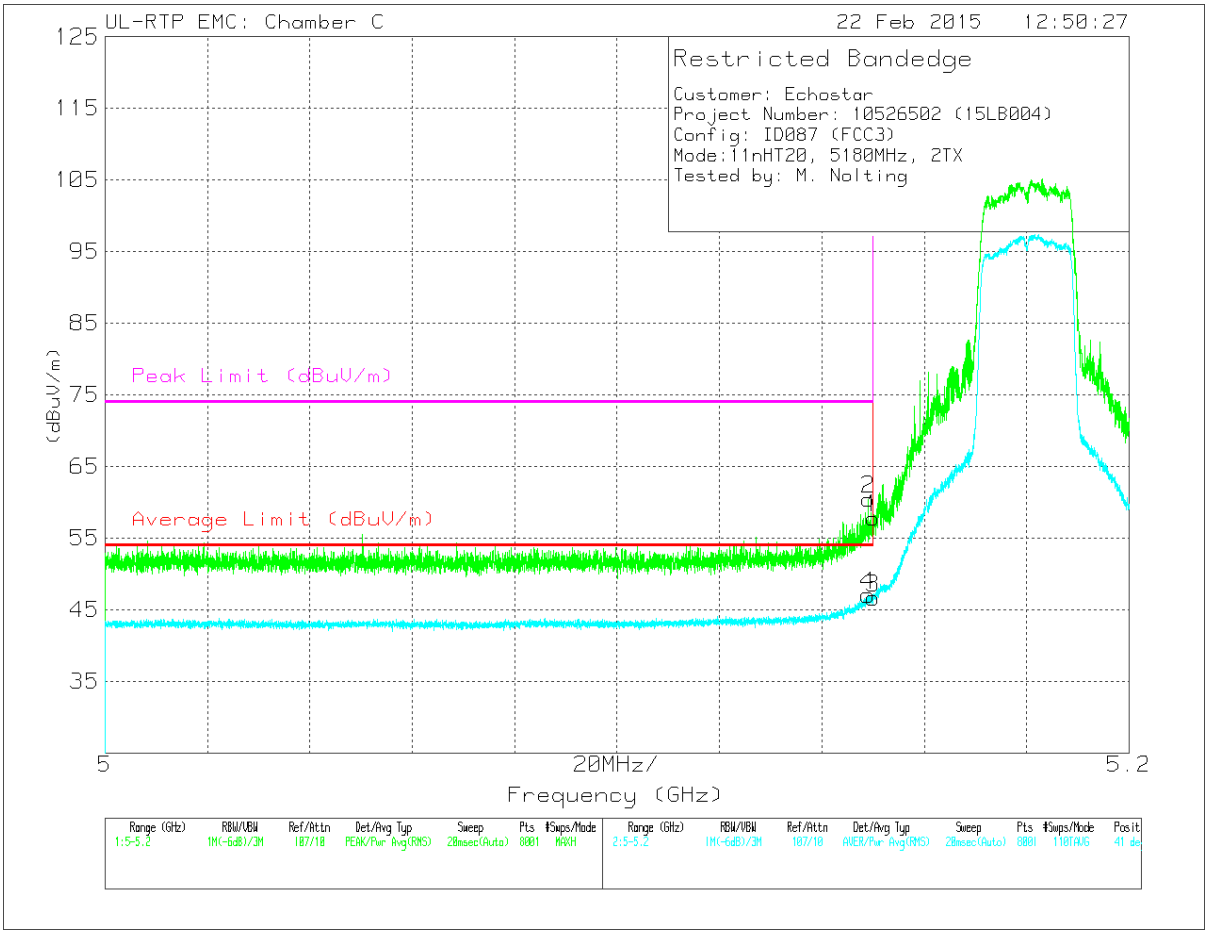
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	45.84	Pk	35.2	-23.2	0	57.84	-	-	74	-16.16	41	101	V
2	* 5.149	48.55	Pk	35.2	-23.3	0	60.45	-	-	74	-13.55	41	101	V
3	* 5.15	34.57	RMS	35.2	-23.2	.11	46.68	54	-7.32	-	-	41	101	V
4	* 5.149	35.08	RMS	35.2	-23.3	.11	47.09	54	-6.91	-	-	41	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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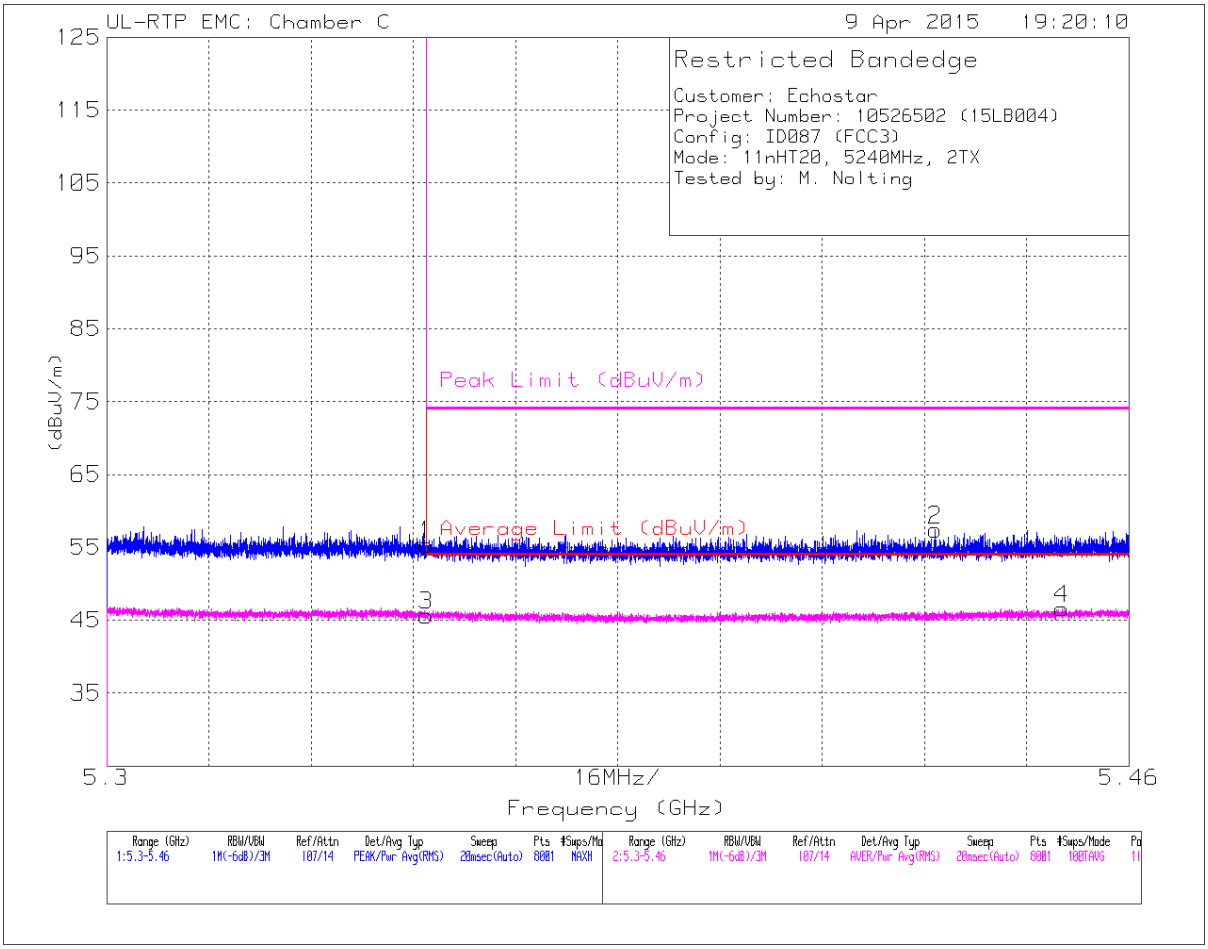
RESTRICTED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/Filtr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	43.61	Pk	34.5	-22.8	0	55.31	-	-	74	-18.69	114	262	H
3	* 5.35	33.83	RMS	34.5	-22.8	.11	45.64	54	-8.36	-	-	114	262	H
2	* 5.43	45.18	Pk	34.5	-22.3	0	57.38	-	-	74	-16.62	114	262	H
4	* 5.45	34.18	RMS	34.5	-22.2	.11	46.59	54	-7.41	-	-	114	262	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
RMS - RMS detection

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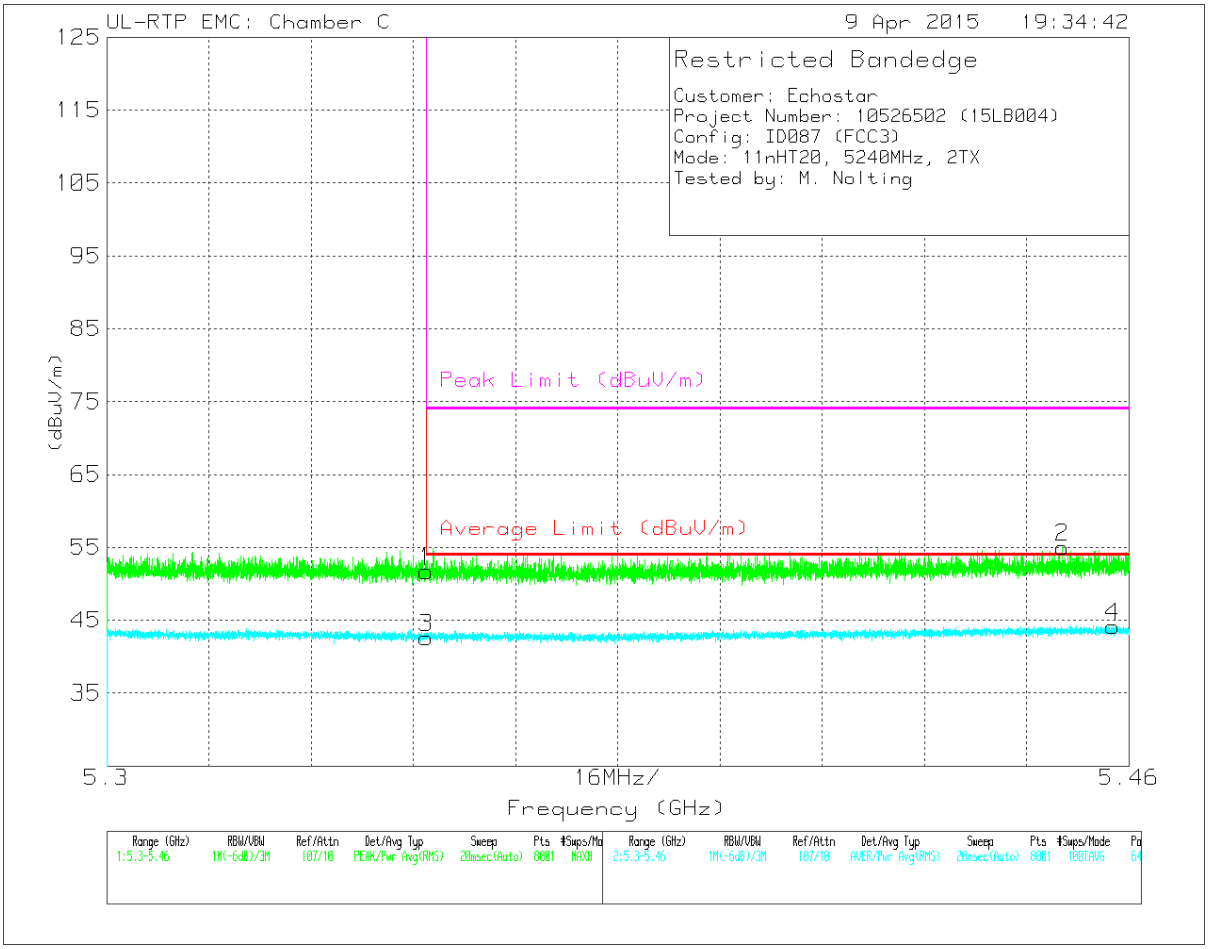
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.99	Pk	34.5	-22.8	0	51.69	-	-	74	-22.31	64	104	V
2	* 5.45	42.71	Pk	34.5	-22.2	0	55.01	-	-	74	-18.99	64	104	V
3	* 5.35	30.9	RMS	34.5	-22.8	.11	42.71	54	-11.29	-	-	64	104	V
4	* 5.458	31.75	RMS	34.5	-22.1	.11	44.26	54	-9.74	-	-	64	104	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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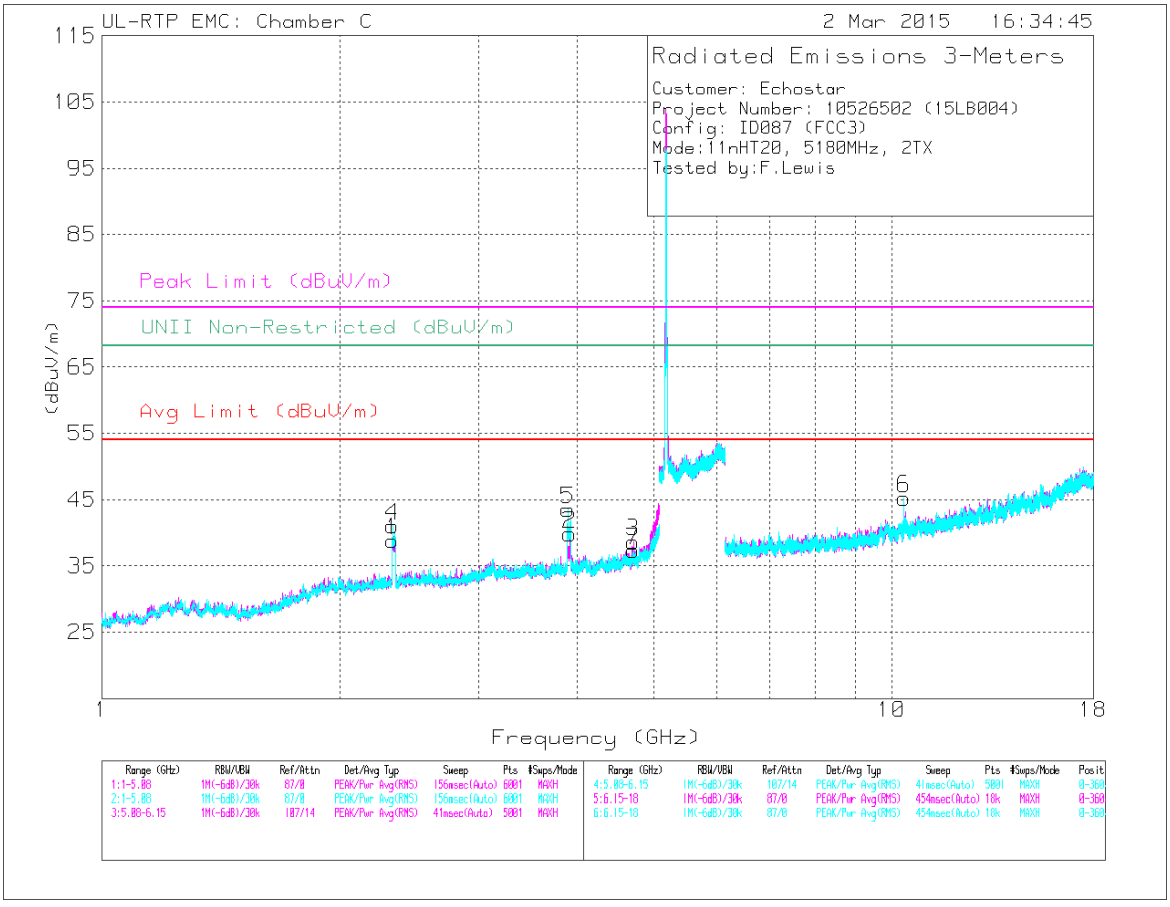
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	52.79	PK3	32	-36.5	0	48.29	-	-	74	-25.71	68.2	-19.91	40	216	H
	* 2.334	47.81	ADR	32	-36.5	0	43.31	54	-10.69	-	-	-	-	40	216	H
2	* 3.889	51.56	PK3	33.6	-34.4	0	50.76	-	-	74	-23.24	68.2	-17.44	122	359	H
	* 3.889	46.19	ADR	33.6	-34.4	0	45.39	54	-8.61	-	-	-	-	122	359	H
3	* 4.708	46.18	PK3	34.1	-32.9	0	47.38	-	-	74	-26.62	68.2	-20.82	286	290	H
	* 4.708	41.23	ADR	34.1	-32.9	0	42.43	54	-11.57	-	-	-	-	286	290	H
4	* 2.334	54.37	PK3	32	-36.5	0	49.87	-	-	74	-24.13	68.2	-18.33	191	240	V
	* 2.334	48.96	ADR	32	-36.5	0	44.46	54	-9.54	-	-	-	-	191	240	V
5	* 3.889	53.21	PK3	33.6	-34.4	0	52.41	-	-	74	-21.59	68.2	-15.79	304	296	V
	* 3.889	47.75	ADR	33.6	-34.4	0	46.95	54	-7.05	-	-	-	-	304	296	V
7	* 4.694	44.15	PK3	34.1	-33.1	0	45.15	-	-	74	-28.85	68.2	-23.05	198	281	V
	* 4.692	39.52	ADR	34.1	-33.2	0	40.42	54	-13.58	-	-	-	-	198	281	V
6	10.357	42.55	PK3	37.3	-25.8	0	54.05	-	-	74	-19.95	68.2	-14.15	201	278	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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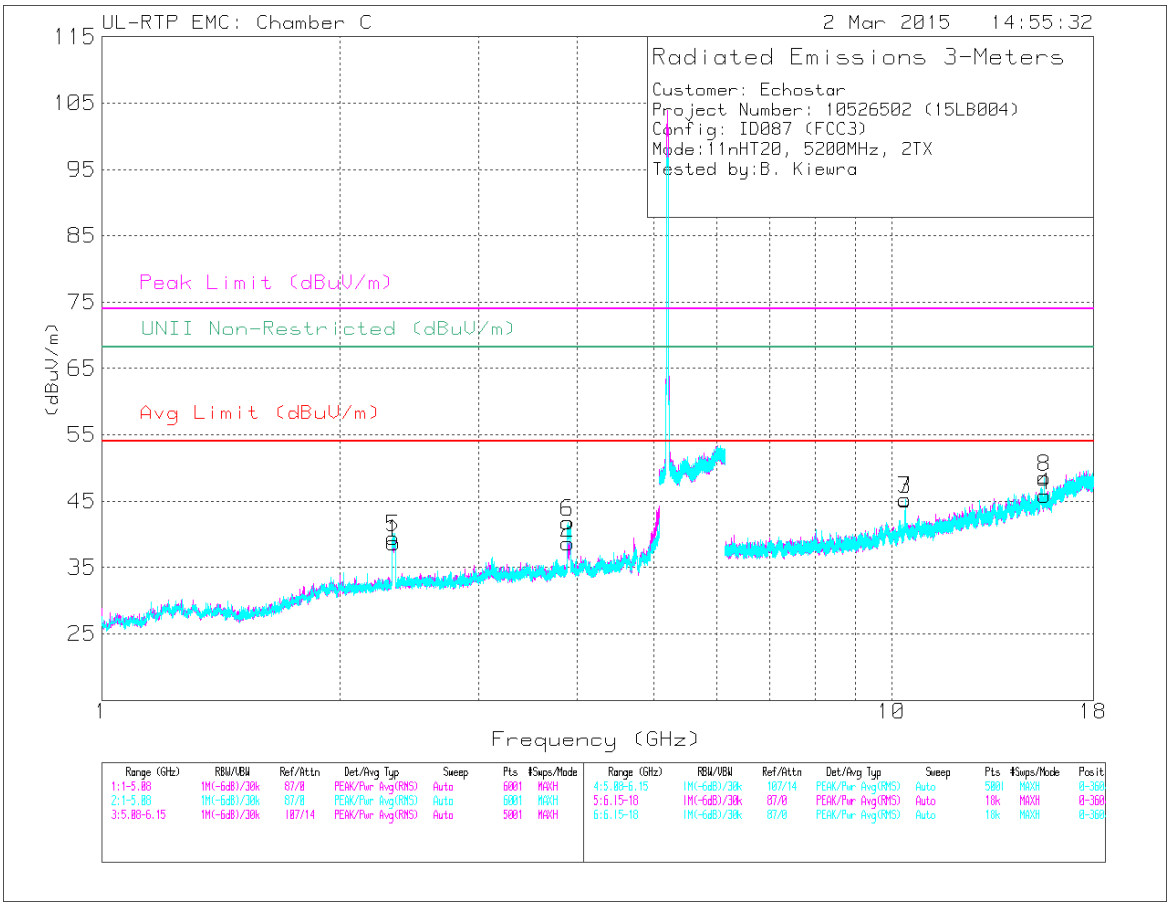
MID CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.333	52.83	PK3	32	-36.5	0	48.33	-	-	74	-25.67	68.2	-19.87	36	218	H
	* 2.334	47.8	ADR	32	-36.5	0	43.3	54	-10.7	-	-	-	-	36	218	H
2	* 3.889	51.39	PK3	33.6	-34.4	0	50.59	-	-	74	-23.41	68.2	-17.61	124	346	H
	* 3.889	46.11	ADR	33.6	-34.4	0	45.31	54	-8.69	-	-	-	-	124	346	H
5	* 2.334	54.06	PK3	32	-36.5	0	49.56	-	-	74	-24.44	68.2	-18.64	74	288	V
	* 2.334	49.13	ADR	32	-36.5	0	44.63	54	-9.37	-	-	-	-	74	288	V
6	* 3.889	52.25	PK3	33.6	-34.4	0	51.45	-	-	74	-22.55	68.2	-16.75	307	313	V
	* 3.889	43.35	ADR	33.6	-34.4	0	42.55	54	-11.45	-	-	-	-	307	313	V
4	* 15.602	38.74	PK3	40.4	-23.6	0	55.54	-	-	74	-18.46	68.2	-12.66	119	392	H
	* 15.598	33.43	ADR	40.4	-23.6	.11	50.34	54	-3.66	-	-	-	-	119	392	H
8	* 15.601	41.79	PK3	40.4	-23.6	0	58.59	-	-	74	-15.41	68.2	-9.61	311	250	V
	* 15.599	33.79	ADR	40.4	-23.6	.11	50.7	54	-3.3	-	-	-	-	311	250	V
3	10.4	40.52	PK3	37.4	-24.4	0	53.52	-	-	74	-20.48	68.2	-14.68	273	237	H
7	10.397	40.2	PK3	37.4	-24.4	0	53.2	-	-	74	-20.8	68.2	-15	203	245	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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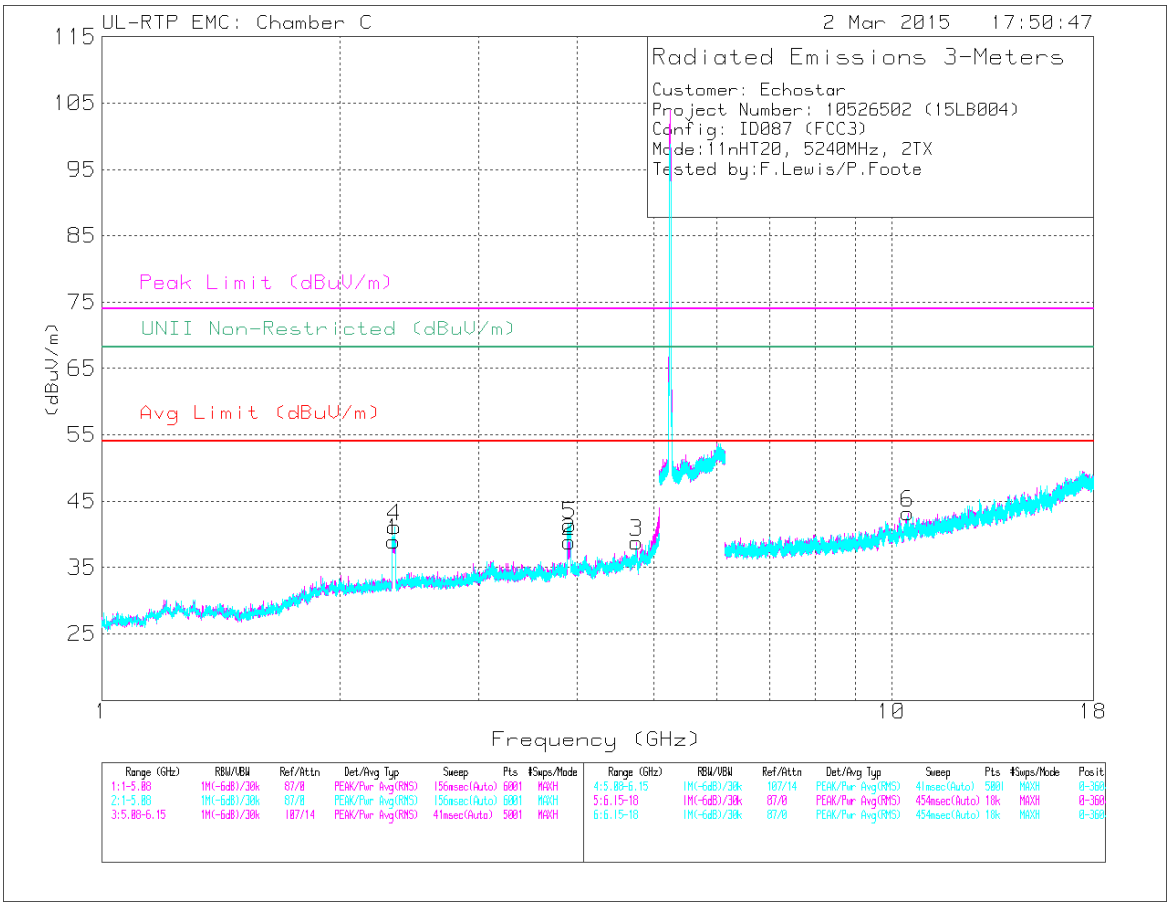
HIGH CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.331	52.52	PK3	32	-36.5	0	48.02	-	-	74	-25.98	68.2	-20.18	50	282	H
	* 2.339	47.33	ADR	32	-36.4	0	42.93	54	-11.07	-	-	-	-	50	282	H
2	* 3.881	49	PK3	33.6	-34.5	0	48.1	-	-	74	-25.9	68.2	-20.1	192	309	H
	* 3.885	43.31	ADR	33.6	-34.4	0	42.51	54	-11.49	-	-	-	-	192	309	H
3	* 4.752	48.2	PK3	34.1	-32.8	0	49.5	-	-	74	-24.5	68.2	-18.7	96	101	H
	* 4.752	44.07	ADR	34.1	-32.8	0	45.37	54	-8.63	-	-	-	-	96	101	H
4	* 2.333	54.33	PK3	32	-36.5	0	49.83	-	-	74	-24.17	68.2	-18.37	208	335	V
	* 2.333	49.06	ADR	32	-36.5	0	44.56	54	-9.44	-	-	-	-	208	335	V
5	* 3.889	52.95	PK3	33.6	-34.4	0	52.15	-	-	74	-21.85	68.2	-16.05	300	264	V
	* 3.889	47.5	ADR	33.6	-34.4	0	46.7	54	-7.3	-	-	-	-	300	264	V
6	10.477	40.15	PK3	37.5	-25.1	0	52.55	-	-	74	-21.45	68.2	-15.65	276	325	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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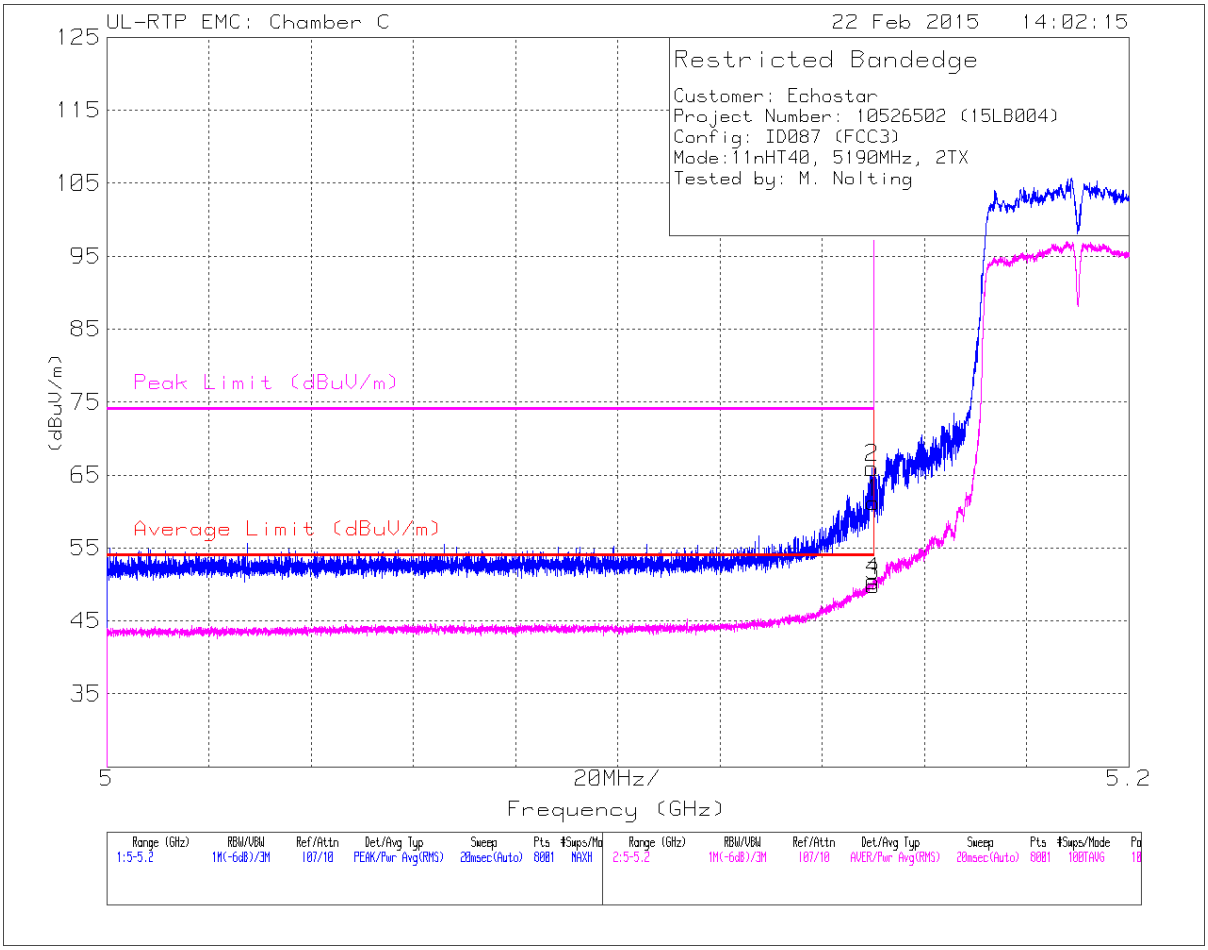
9.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	49.22	Pk	35.2	-23.2	0	61.22	-	-	74	-12.78	107	257	H
2	* 5.15	53.97	Pk	35.2	-23.2	0	65.97	-	-	74	-8.03	107	257	H
3	* 5.15	37.64	RMS	35.2	-23.2	.19	49.83	54	-4.17	-	-	107	257	H
4	* 5.15	38.26	RMS	35.2	-23.2	.19	50.45	54	-3.55	-	-	107	257	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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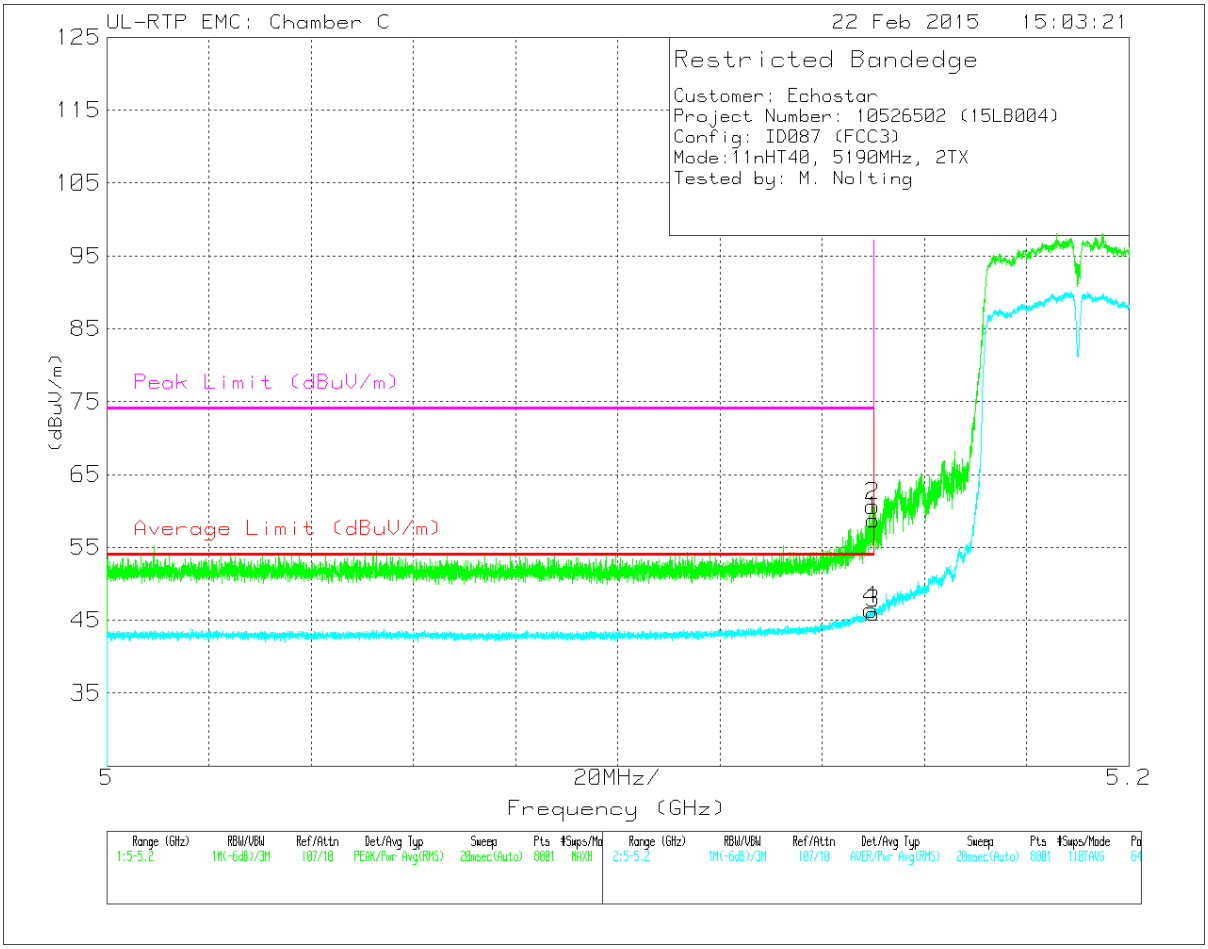
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	46.77	Pk	35.2	-23.2	0	58.77	-	-	74	-15.23	64	106	V
2	* 5.15	48.67	Pk	35.2	-23.2	0	60.67	-	-	74	-13.33	64	106	V
3	* 5.15	33.78	RMS	35.2	-23.2	.19	45.97	54	-8.03	-	-	64	106	V
4	* 5.15	34.32	RMS	35.2	-23.3	.19	46.41	54	-7.59	-	-	64	106	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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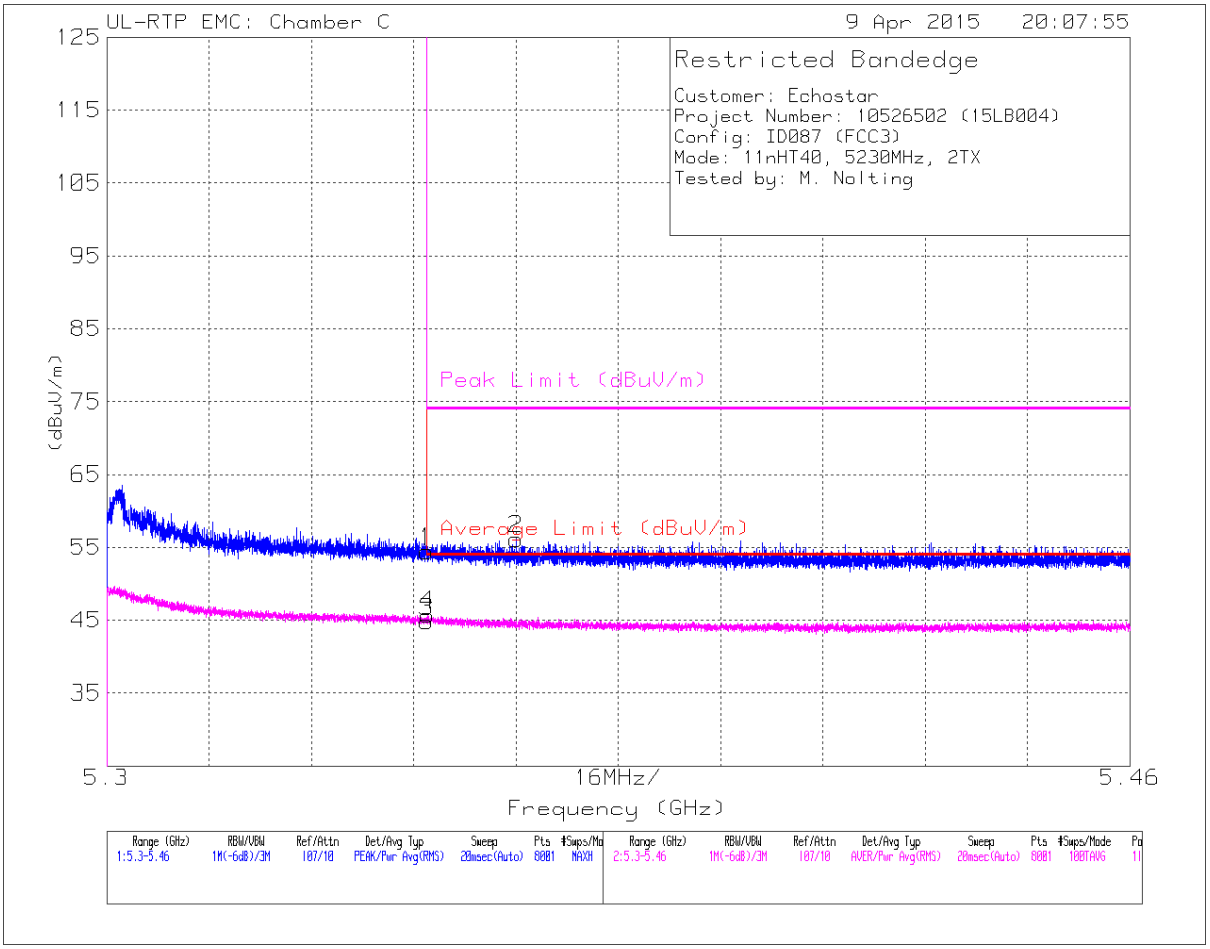
RESTRICTED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	42.71	Pk	34.5	-22.8	0	54.41	-	-	74	-19.59	114	261	H
2	* 5.364	44.42	Pk	34.5	-22.8	0	56.12	-	-	74	-17.88	114	261	H
3	* 5.35	32.91	RMS	34.5	-22.8	.19	44.8	54	-9.2	-	-	114	261	H
4	* 5.35	33.83	RMS	34.5	-22.8	.19	45.72	54	-8.28	-	-	114	261	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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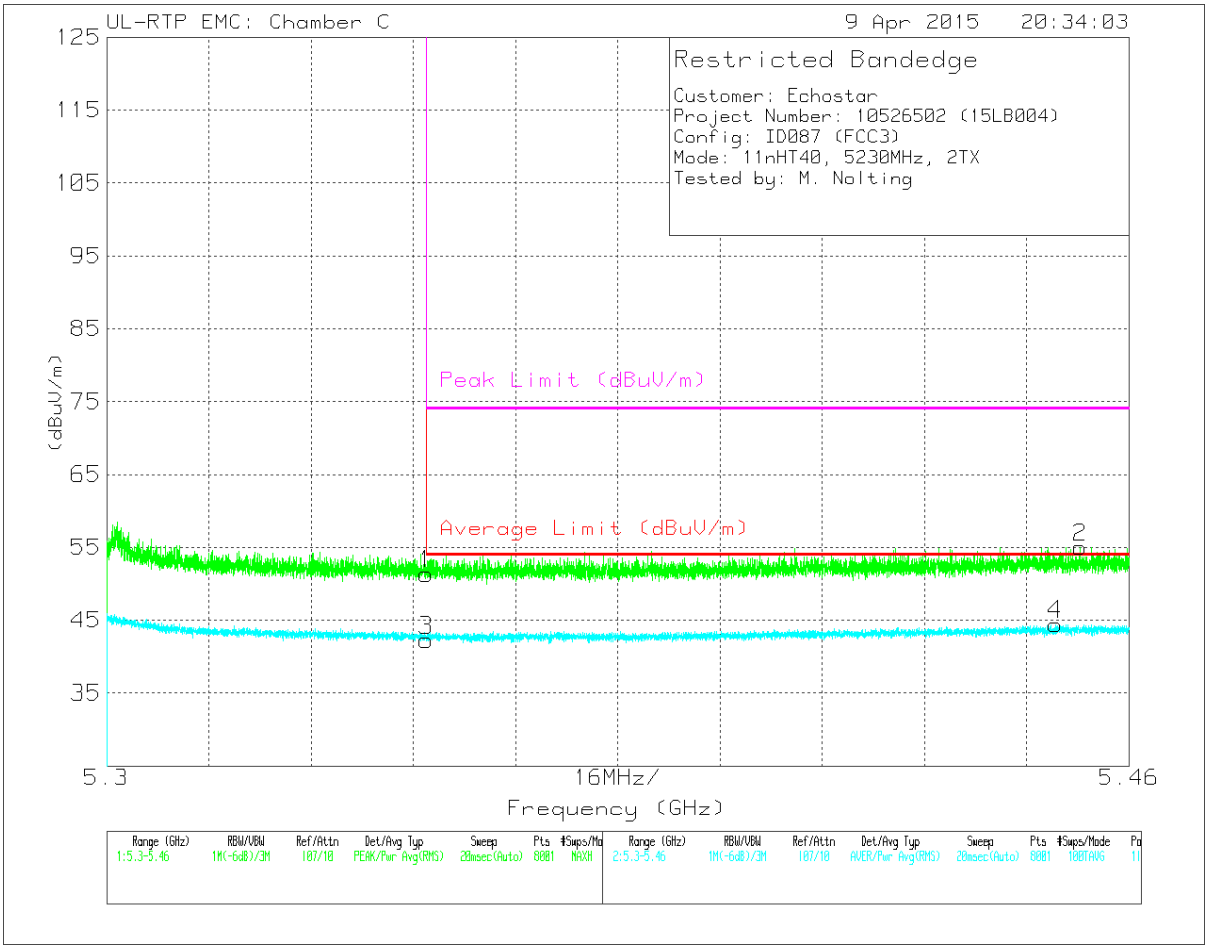
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.64	Pk	34.5	-22.8	0	51.34	-	-	74	-22.66	111	118	V
3	* 5.35	30.35	RMS	34.5	-22.8	.19	42.24	54	-11.76	-	-	111	118	V
4	* 5.449	31.93	RMS	34.5	-22.2	.19	44.42	54	-9.58	-	-	111	118	V
2	* 5.452	42.62	Pk	34.5	-22.1	0	55.02	-	-	74	-18.98	111	118	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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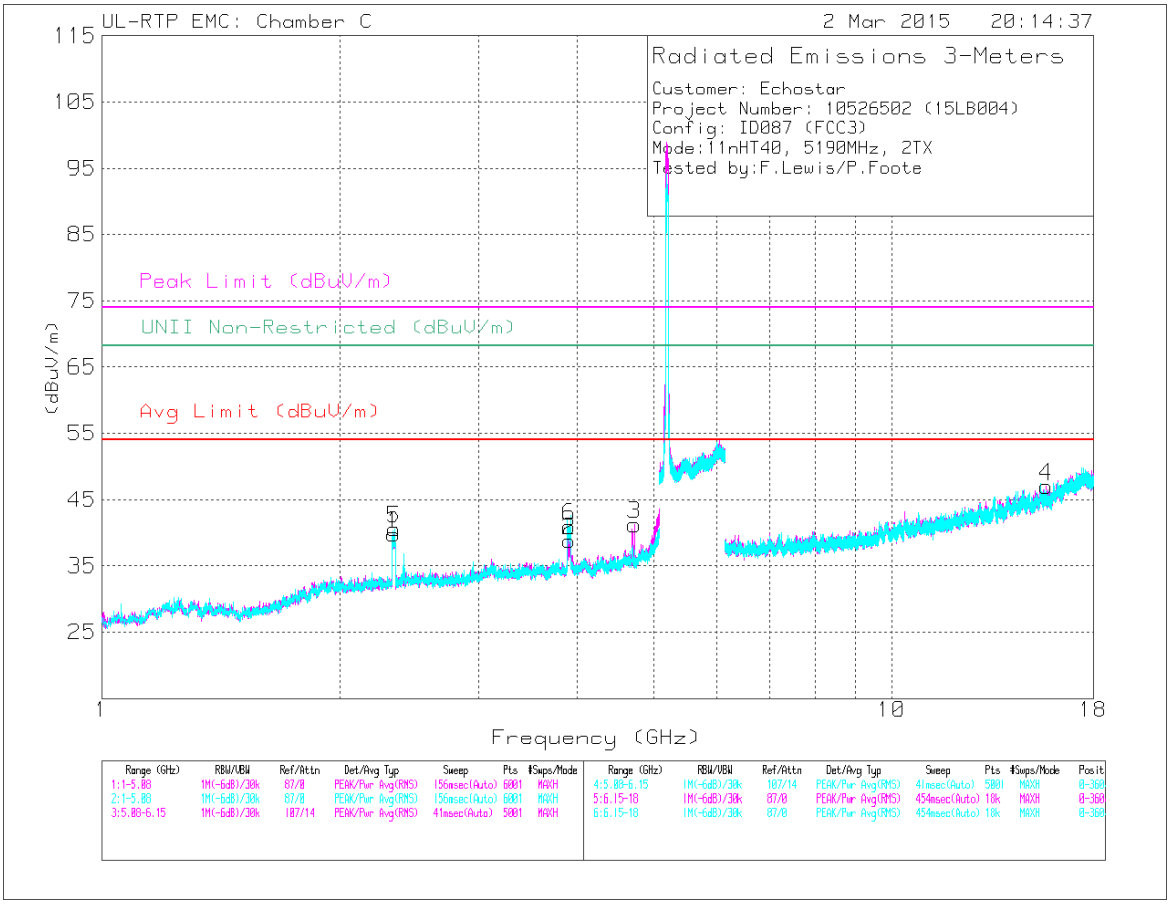
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	52.77	PK3	32	-36.5	0	48.27	-	-	74	-25.73	68.2	-19.93	39	213	H
	* 2.334	47.39	ADR	32	-36.5	0	42.89	54	-11.11	-	-	-	-	39	213	H
2	* 3.911	51.53	PK3	33.6	-33.9	0	51.23	-	-	74	-22.77	68.2	-16.97	120	388	H
	* 3.889	46.13	ADR	33.6	-34.4	0	45.33	54	-8.67	-	-	-	-	120	388	H
3	* 4.727	49.81	PK3	34.1	-32.8	0	51.11	-	-	74	-22.89	68.2	-17.09	98	110	H
	* 4.726	46.27	ADR	34.1	-32.9	0	47.47	54	-6.53	-	-	-	-	98	110	H
5	* 2.347	55.44	PK3	32	-36.4	0	51.04	-	-	74	-22.96	68.2	-17.16	203	396	V
	* 2.347	49.75	ADR	32	-36.4	0	45.35	54	-8.65	-	-	-	-	203	396	V
6	* 3.889	52.56	PK3	33.6	-34.4	0	51.76	-	-	74	-22.24	68.2	-16.44	298	260	V
	* 3.889	47.05	ADR	33.6	-34.4	0	46.25	54	-7.75	-	-	-	-	298	260	V
4	* 15.57	37.62	PK3	40.4	-24.1	0	53.92	-	-	74	-20.08	68.2	-14.28	169	320	H
	* 15.57	32.8	ADR	40.4	-24.1	.19	49.29	54	-4.71	-	-	-	-	169	320	H
7	* 15.57	38.23	PK3	40.4	-24.1	0	54.53	-	-	74	-19.47	68.2	-13.67	275	314	V
	* 15.57	33.14	ADR	40.4	-24.1	.19	49.63	54	-4.37	-	-	-	-	275	314	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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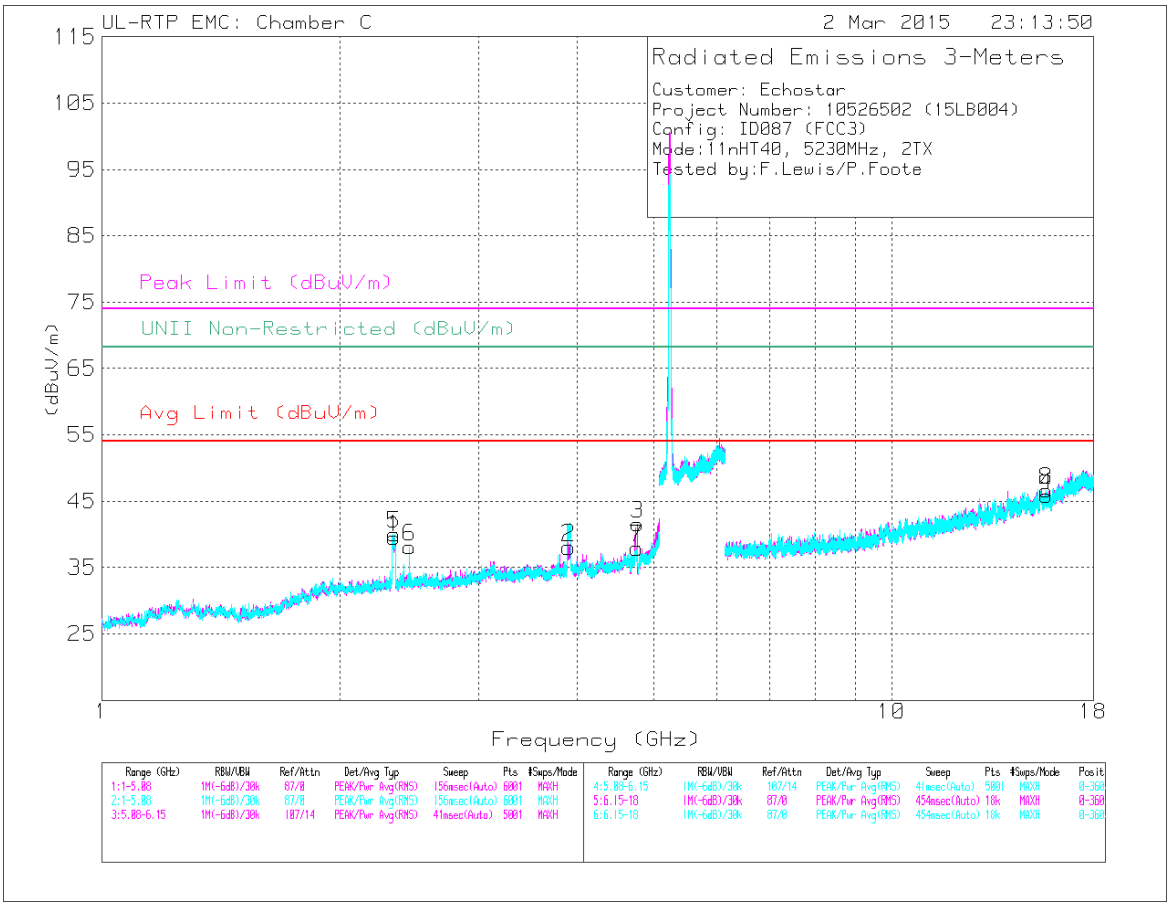
HIGH CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.33	52.4	PK3	32	-36.5	0	47.9	-	-	74	-26.1	68.2	-20.3	48	347	H
	* 2.334	46.99	ADR	32	-36.5	0	42.49	54	-11.51	-	-	-	-	48	347	H
2	* 3.908	49.18	PK3	33.6	-33.9	0	48.88	-	-	74	-25.12	68.2	-19.32	277	340	H
	* 3.888	43.57	ADR	33.6	-34.4	0	42.77	54	-11.23	-	-	-	-	277	340	H
3	* 2.347	55.55	PK3	32	-36.4	0	51.15	-	-	74	-22.85	68.2	-17.05	202	398	V
	* 2.347	49.69	ADR	32	-36.4	0	45.29	54	-8.71	-	-	-	-	202	398	V
5	* 4.766	48.53	PK3	34.1	-33.1	0	49.53	-	-	74	-24.47	68.2	-18.67	209	398	V
	* 4.767	44.77	ADR	34.1	-33.1	0	45.77	54	-8.23	-	-	-	-	209	398	V
7	* 15.69	38.08	PK3	40.4	-23.7	0	54.78	-	-	74	-19.22	68.2	-13.42	310	274	V
	* 15.69	32.82	ADR	40.4	-23.7	.19	49.71	54	-4.29	-	-	-	-	310	274	V
4	2.43	46.23	PK3	32.2	-36.1	0	42.33	-	-	74	-31.67	68.2	-25.87	114	202	V
8	2.451	46.15	PK3	32.2	-35.9	0	42.45	-	-	74	-31.55	68.2	-25.75	320	378	V
6	2.452	41.79	Pk	32.2	-35.9	0	38.09	-	-	74	-35.91	68.2	-30.11	0-360	151	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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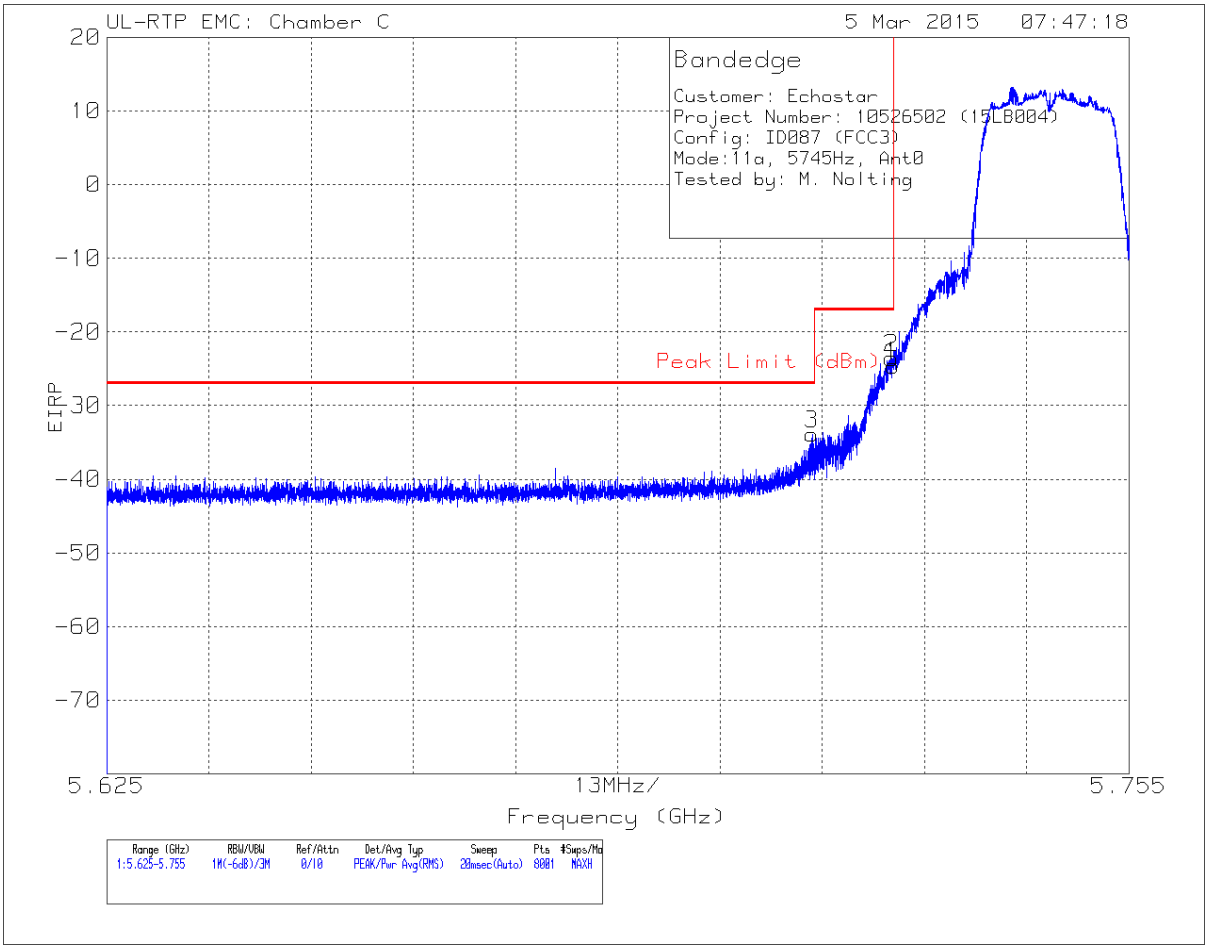
9.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL – ANTENNA 0)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	5.715	-58.47	Pk	34.6	-21.8	11.8	-33.87	-27	-6.87	116	230	H
1	5.725	-49.19	Pk	34.6	-21.8	11.8	-24.59	-17	-7.59	116	230	H
2	5.725	-48.13	Pk	34.6	-21.8	11.8	-23.53	-17	-6.53	116	230	H

Pk - Peak detector

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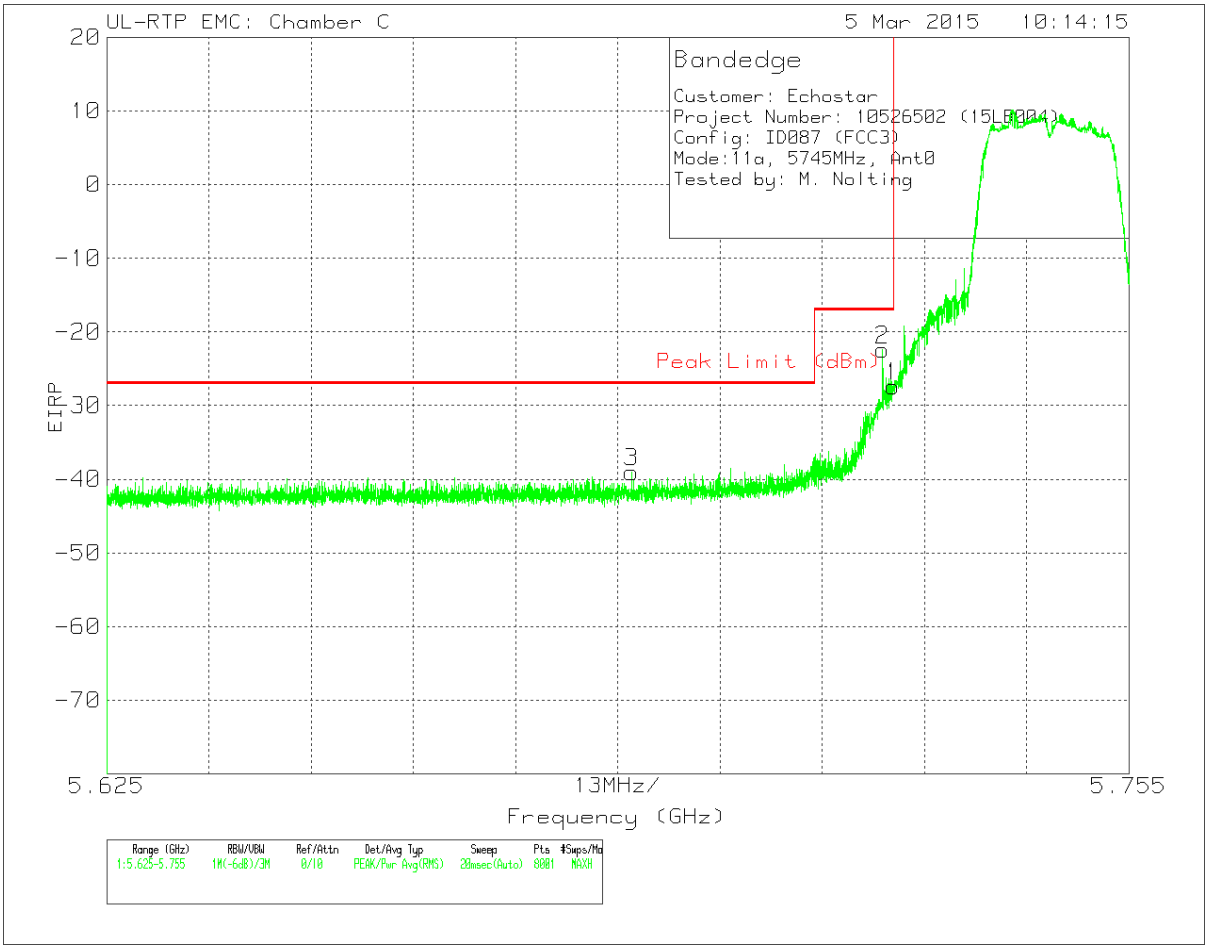
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	5.692	-63.6	Pk	34.6	-21.8	11.8	-39	-27	-12	165	336	V
2	5.724	-47.03	Pk	34.6	-21.8	11.8	-22.43	-17	-5.43	165	336	V
1	5.725	-51.96	Pk	34.6	-21.8	11.8	-27.36	-17	-10.36	165	336	V

Pk - Peak detector

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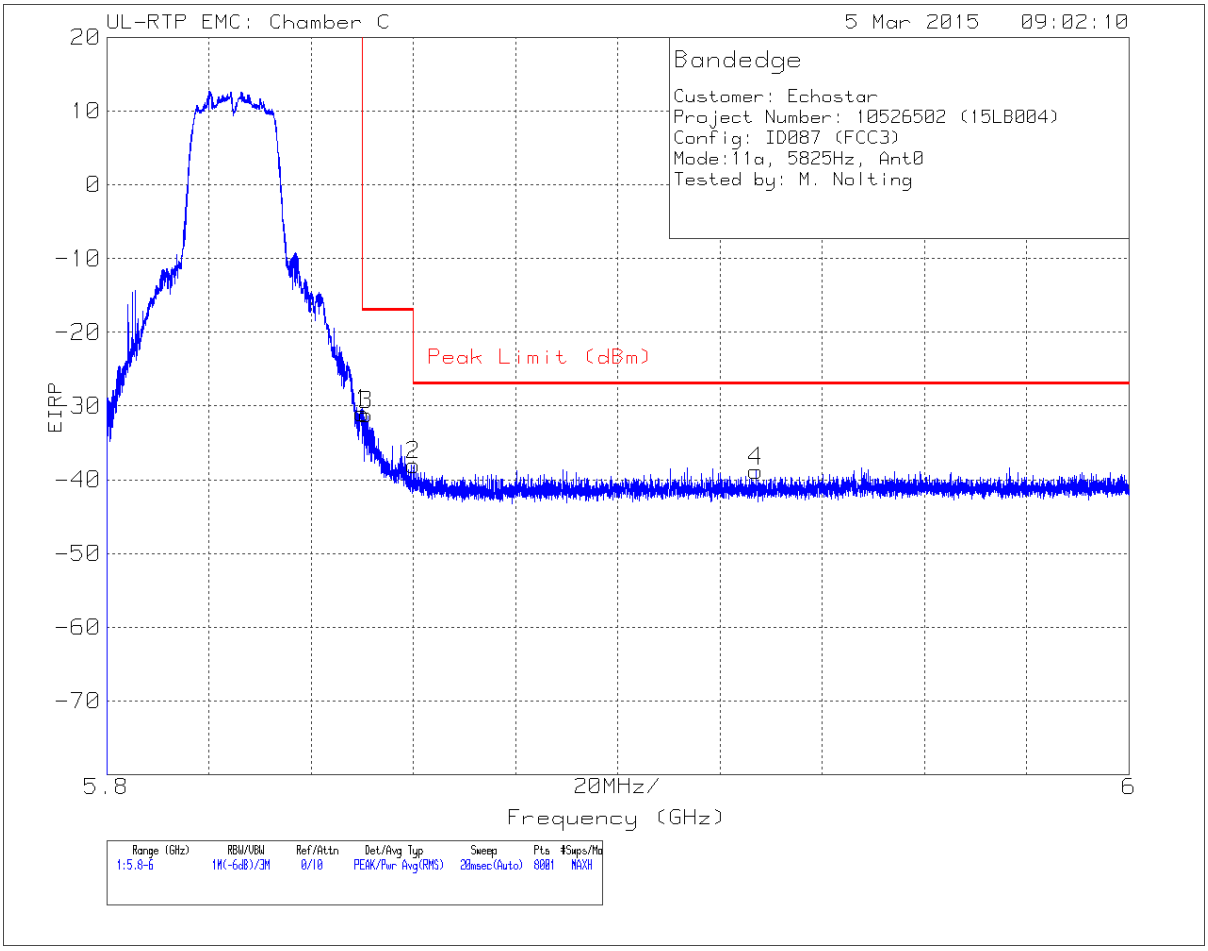
RESTRICTED BANDEDGE (HIGH CHANNEL – ANTENNA 0)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-56.48	Pk	34.9	-21.2	11.8	-30.98	-17	-13.98	283	310	H
3	5.851	-56.67	Pk	34.9	-21.2	11.8	-31.17	-17	-14.17	283	310	H
2	5.86	-63.52	Pk	34.9	-21.2	11.8	-38.02	-27	-11.02	283	310	H
4	5.927	-64.53	Pk	35.1	-21.2	11.8	-38.83	-27	-11.83	283	310	H

Pk - Peak detector

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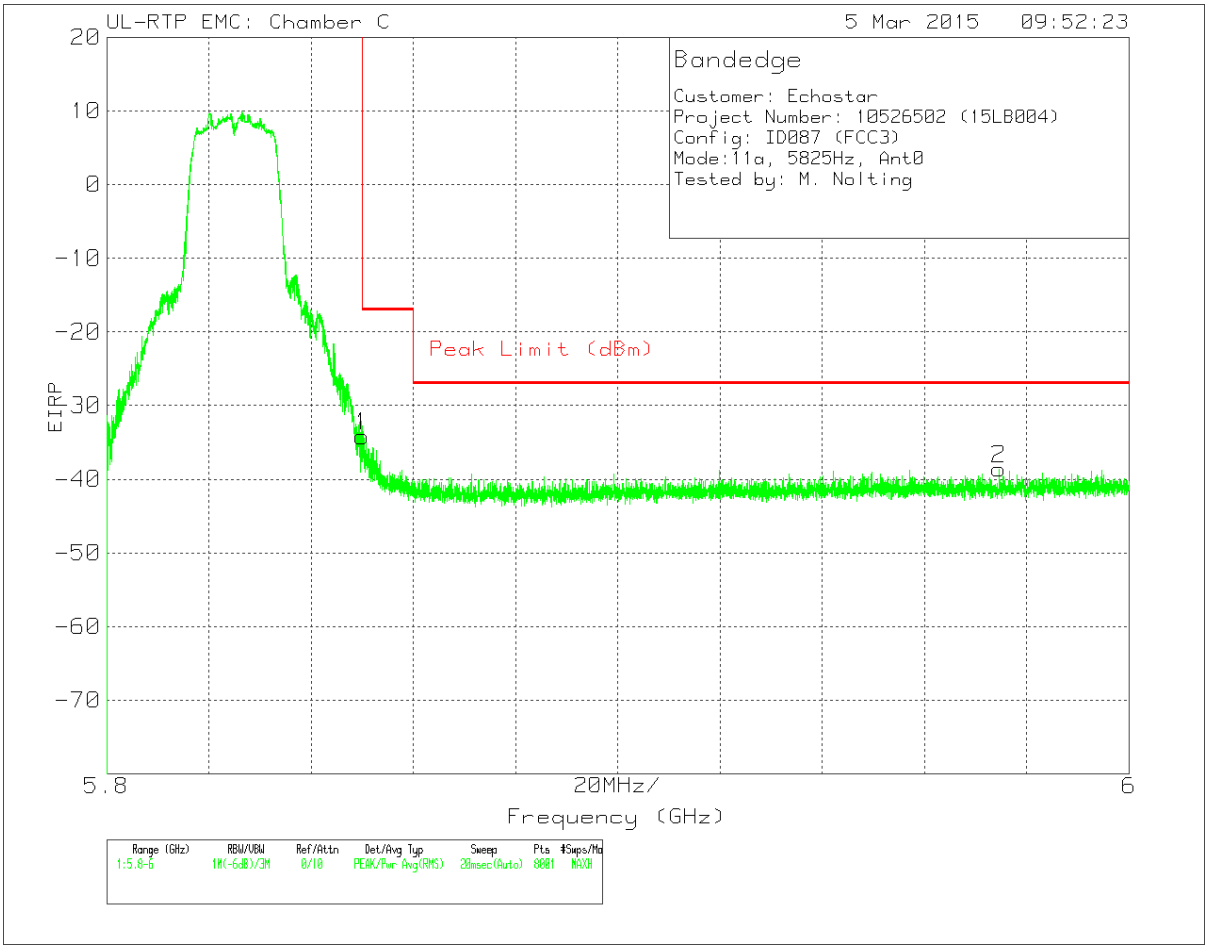
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-59.65	Pk	34.9	-21.2	11.8	-34.15	-17	-17.15	86	273	V
2	5.975	-64.59	Pk	35.2	-21	11.8	-38.59	-27	-11.59	86	273	V

Pk - Peak detector

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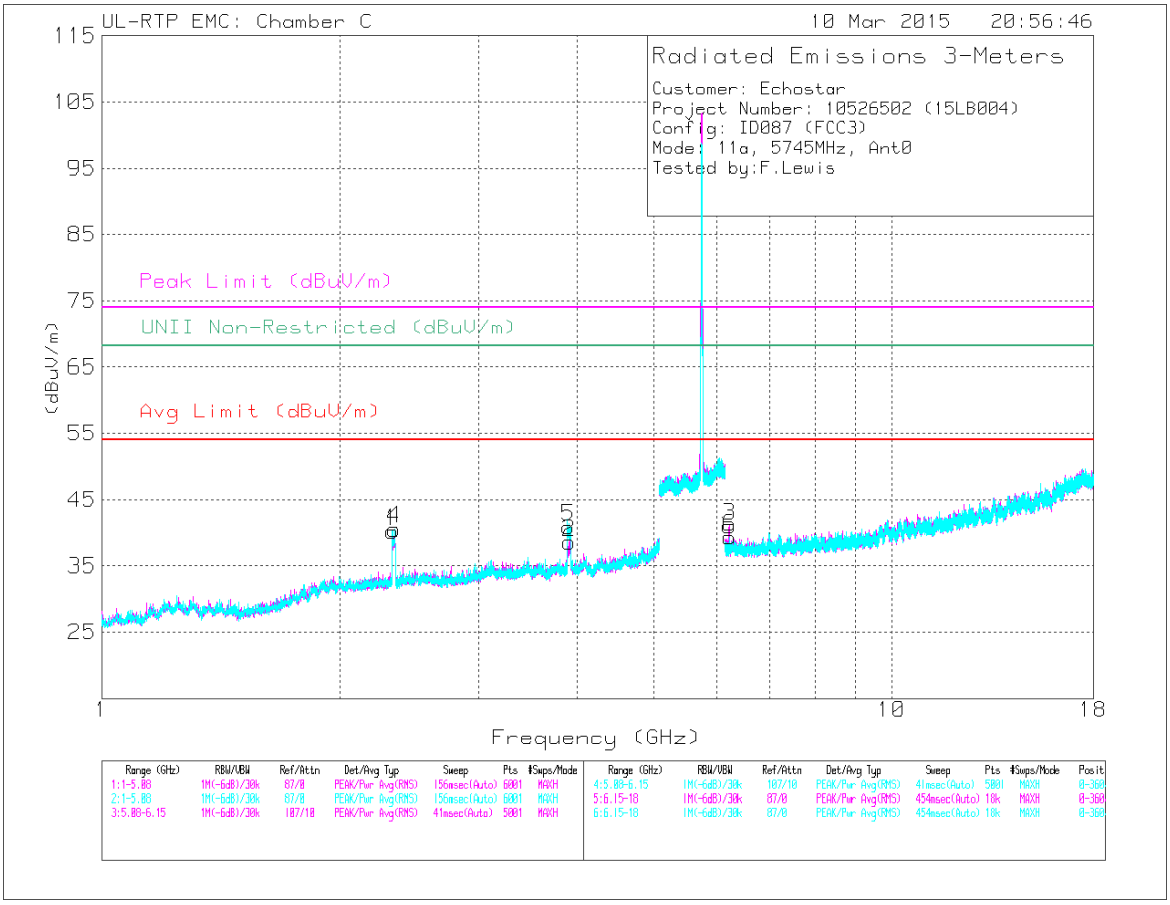
HARMONICS AND SPURIOUS EMISSIONS – ANTENNA 0

LOW CHANNEL ANTENNA 0 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	53.12	PK3	32	-36.5	48.62	-	-	74	-25.38	68.2	-19.58	245	273	H
	* 2.334	37.83	ADR	32	-36.5	33.33	54	-20.67	-	-	-	-	245	273	H
2	* 3.89	49.57	PK3	33.6	-34.4	48.77	-	-	74	-25.23	68.2	-19.43	290	308	H
	* 3.89	34.69	ADR	33.6	-34.4	33.89	54	-20.11	-	-	-	-	290	308	H
4	* 2.334	50.34	PK3	32	-36.5	45.84	-	-	74	-28.16	68.2	-22.36	290	298	V
	* 2.334	35.89	ADR	32	-36.5	31.39	54	-22.61	-	-	-	-	290	298	V
5	* 3.89	52.58	PK3	33.6	-34.4	51.78	-	-	74	-22.22	68.2	-16.42	306	261	V
	* 3.885	36.73	ADR	33.6	-34.4	35.93	54	-18.07	-	-	-	-	306	261	V
3	6.232	42.88	PK3	35.6	-29	49.48	-	-	74	-24.52	68.2	-18.72	276	251	H
6	6.232	41.24	PK3	35.6	-29	47.84	-	-	74	-26.16	68.2	-20.36	216	314	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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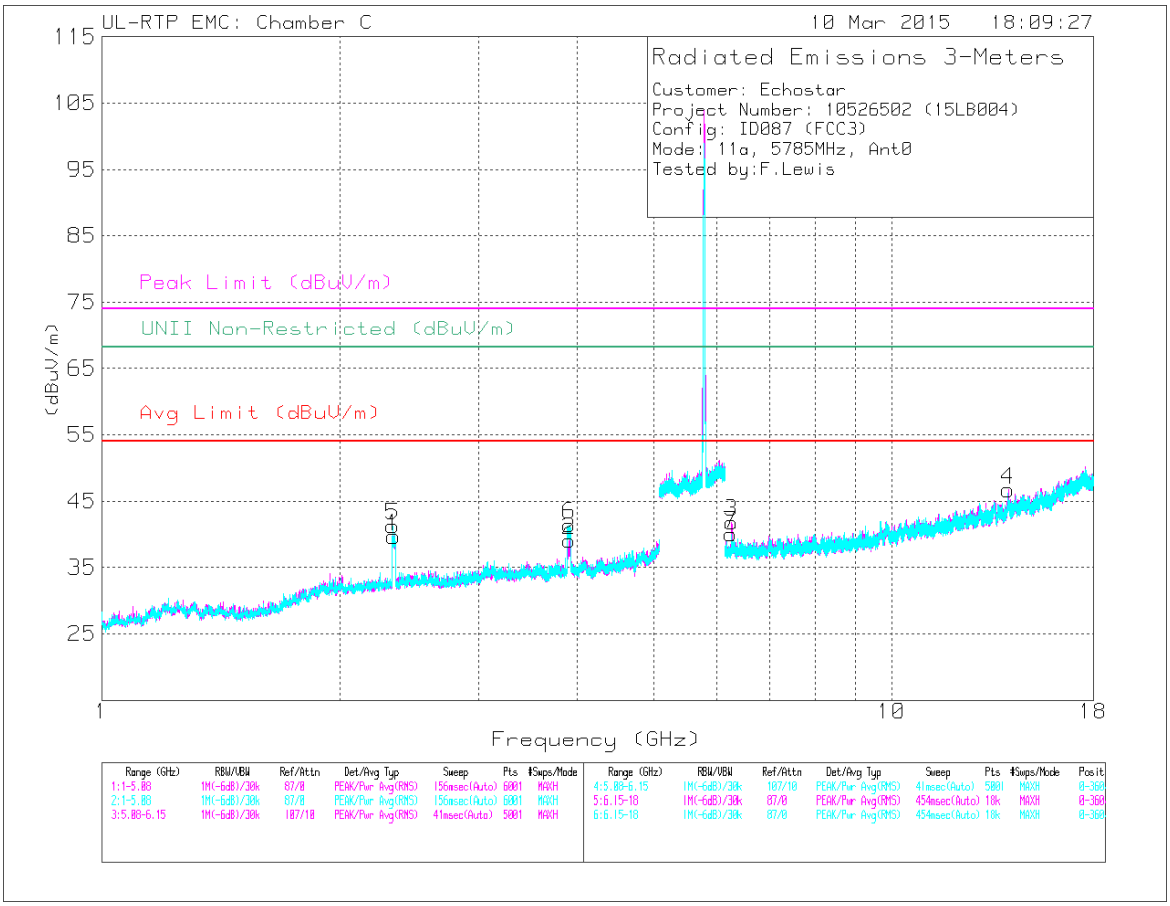
MID CHANNEL ANTENNA 0 - PLOT



Range (GHz)	RBW/VBW	Ref/Attn	Det/Avg Typ	Sweep	Pts	#Swps/Mode
1:1-5.88	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	156msec(Auto)	6001	MAXH
2:1-5.88	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	156msec(Auto)	6001	MAXH
3:5.88-6.15	1M(-6dB)/30k	107/10	PEAK/Pwr Avg(RMS)	41msec(Auto)	5001	MAXH
4:5.88-6.15	1M(-6dB)/30k	107/10	PEAK/Pwr Avg(RMS)	41msec(Auto)	5001	MAXH
5:6.15-18	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	454msec(Auto)	18k	MAXH
6:6.15-18	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	454msec(Auto)	18k	MAXH

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.332	52.85	PK3	32	-36.5	48.35	-	-	74	-25.65	68.2	-19.85	44	271	H
	* 2.347	38.38	ADR	32	-36.4	33.98	54	-20.02	-	-	-	-	44	271	H
2	* 3.89	49.79	PK3	33.6	-34.4	48.99	-	-	74	-25.01	68.2	-19.21	288	307	H
	* 3.89	34.49	ADR	33.6	-34.4	33.69	54	-20.31	-	-	-	-	288	307	H
5	* 2.334	51.24	PK3	32	-36.5	46.74	-	-	74	-27.26	68.2	-21.46	293	296	V
	* 2.334	37.21	ADR	32	-36.5	32.71	54	-21.29	-	-	-	-	293	296	V
6	* 3.89	53.36	PK3	33.6	-34.4	52.56	-	-	74	-21.44	68.2	-15.64	306	264	V
	* 3.89	36.8	ADR	33.6	-34.4	36	54	-18	-	-	-	-	306	264	V
3	6.271	40.56	PK3	35.6	-28.6	47.56	-	-	74	-26.44	68.2	-20.64	212	313	V
7	6.271	42.88	PK3	35.6	-28.6	49.88	-	-	74	-24.12	68.2	-18.32	279	250	H
4	14.048	36.77	PK3	38.6	-21.6	53.77	-	-	74	-20.23	68.2	-14.43	118	297	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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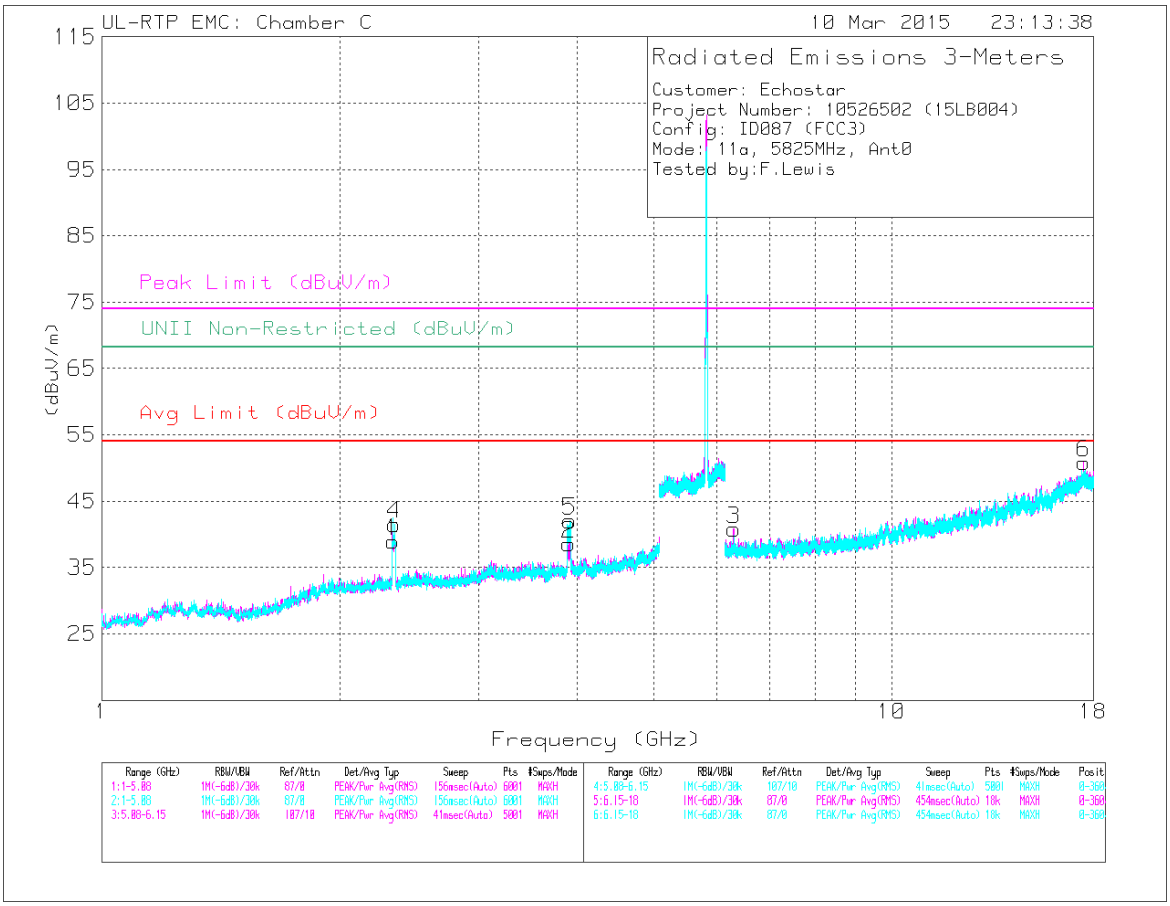
HIGH CHANNEL ANTENNA 0 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.346	52.75	PK3	32	-36.4	48.35	-	-	74	-25.65	68.2	-19.85	46	274	H
	* 2.348	38.35	ADR	32	-36.4	33.95	54	-20.05	-	-	-	-	46	274	H
2	* 3.889	49.61	PK3	33.6	-34.4	48.81	-	-	74	-25.19	68.2	-19.39	285	305	H
	* 3.884	34.57	ADR	33.6	-34.5	33.67	54	-20.33	-	-	-	-	285	305	H
4	* 2.334	51.06	PK3	32	-36.5	46.56	-	-	74	-27.44	68.2	-21.64	295	294	V
	* 2.334	36.7	ADR	32	-36.5	32.2	54	-21.8	-	-	-	-	295	294	V
5	* 3.89	53.11	PK3	33.6	-34.4	52.31	-	-	74	-21.69	68.2	-15.89	308	262	V
	* 3.885	36.98	ADR	33.6	-34.4	36.18	54	-17.82	-	-	-	-	308	262	V
3	6.313	42.48	PK3	35.7	-27.9	50.28	-	-	74	-23.72	68.2	-17.92	281	238	H
6	17.471	35.3	PK3	41.6	-19.9	57	-	-	74	-17	68.2	-11.2	145	250	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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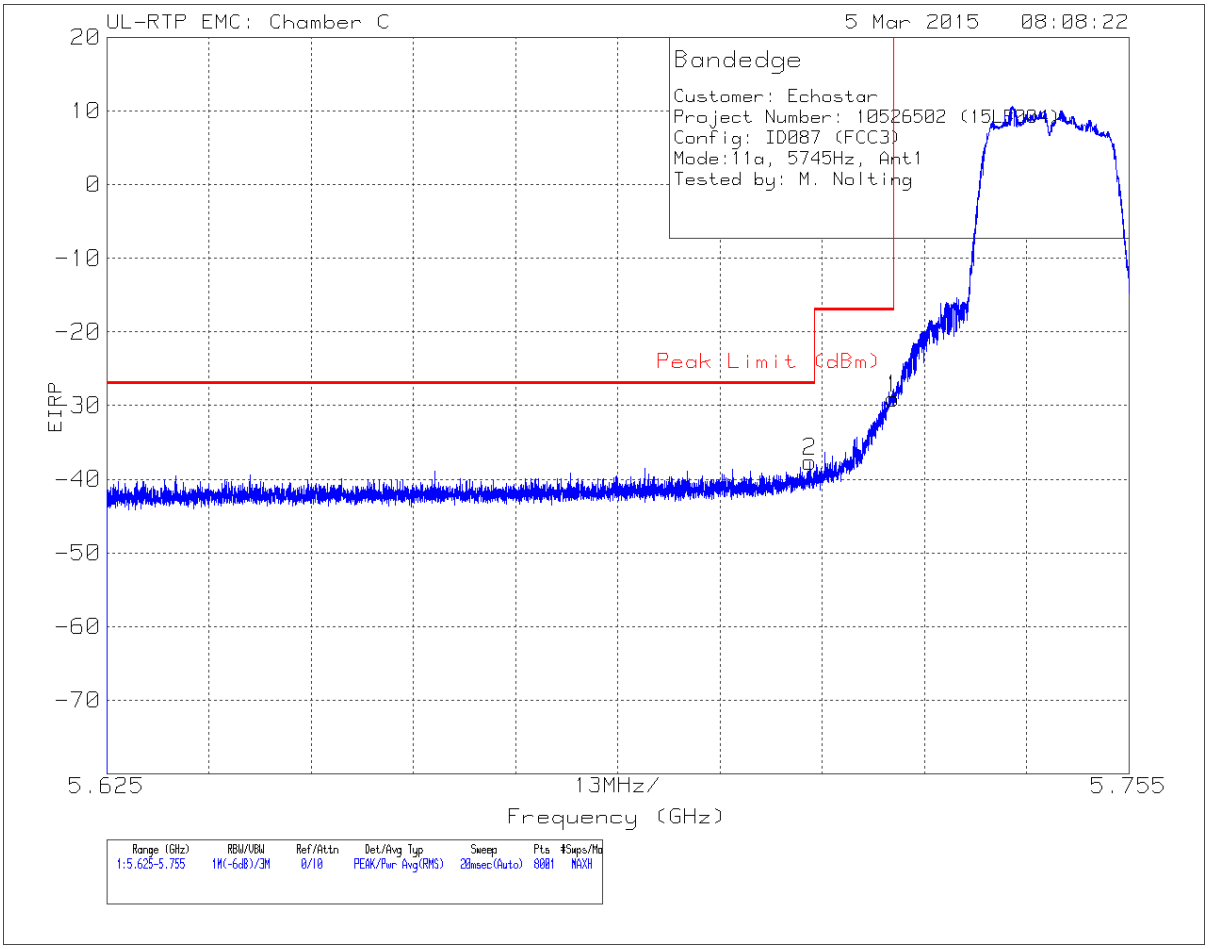
RESTRICTED BANDEDGE (LOW CHANNEL – ANTENNA 1)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.714	-62.2	Pk	34.6	-21.8	11.8	-37.6	-27	-10.6	120	242	H
1	5.725	-53.65	Pk	34.6	-21.8	11.8	-29.05	-17	-12.05	120	242	H

Pk - Peak detector

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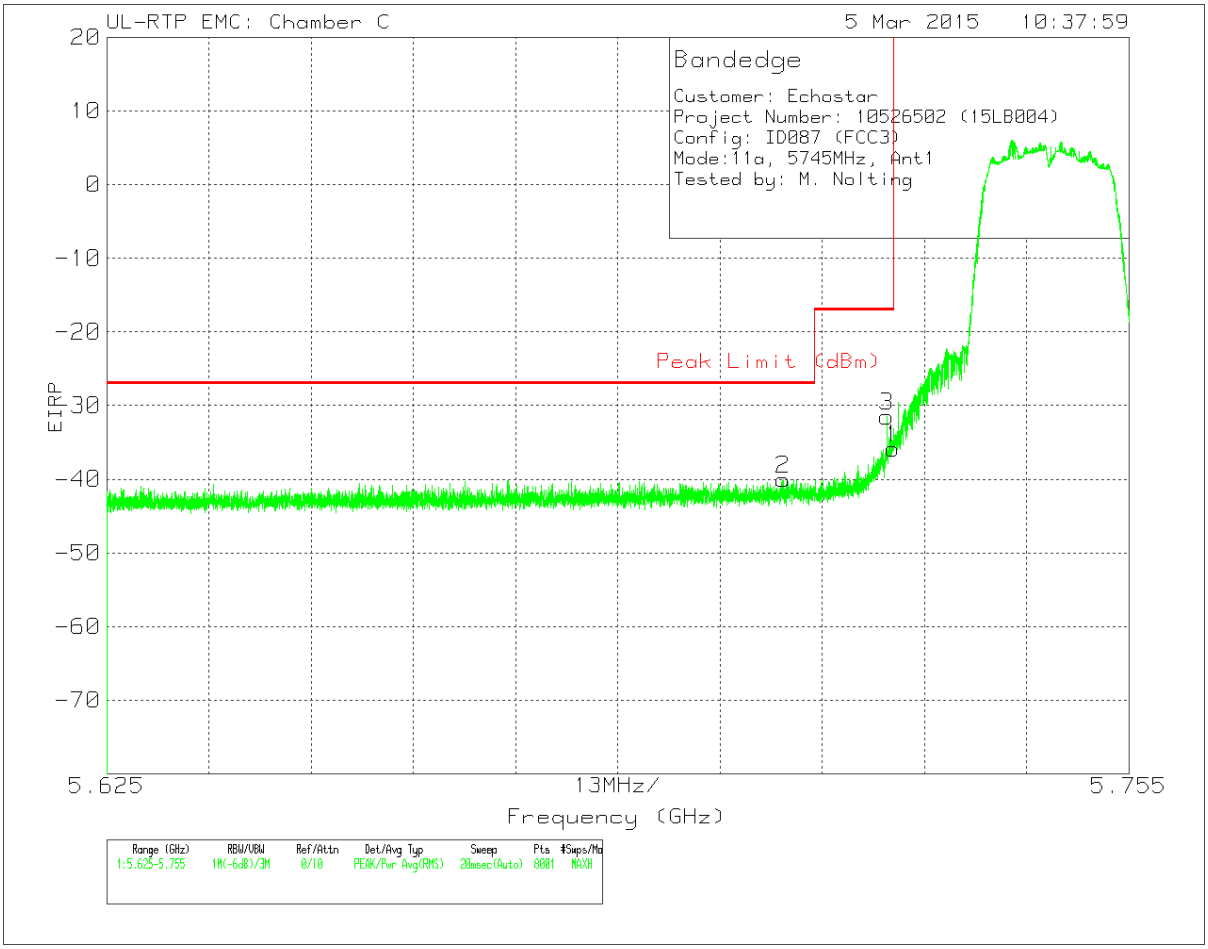
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.711	-64.62	Pk	34.6	-21.8	11.8	-40.02	-27	-13.02	11	376	V
3	5.724	-56.07	Pk	34.6	-21.8	11.8	-31.47	-17	-14.47	11	376	V
1	5.725	-60.45	Pk	34.6	-21.8	11.8	-35.85	-17	-18.85	11	376	V

Pk - Peak detector

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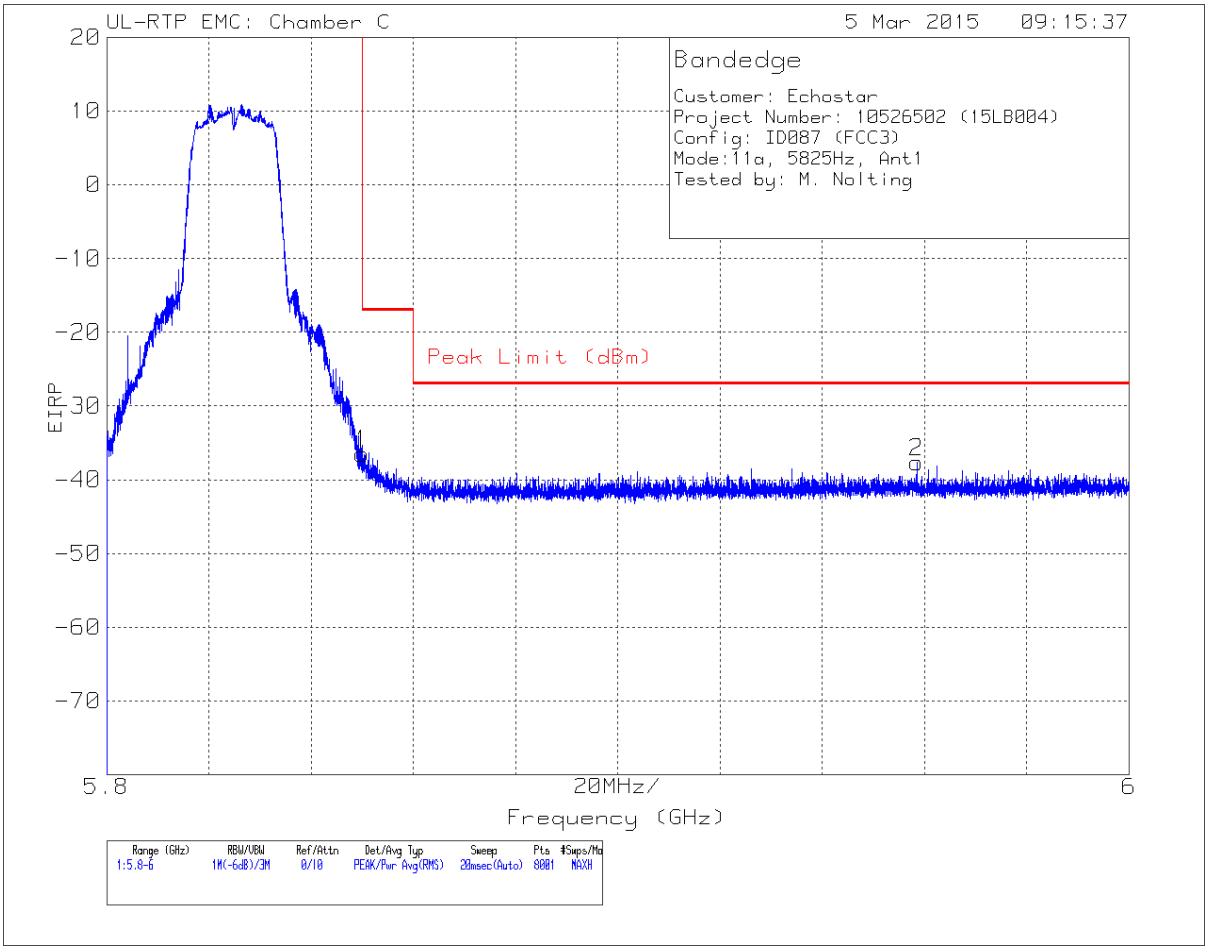
RESTRICTED BANDEDGE (HIGH CHANNEL – ANTENNA 1)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-62	Pk	34.9	-21.2	11.8	-36.5	-17	-19.5	108	254	H
2	5.958	-63.53	Pk	35.2	-21.1	11.8	-37.63	-27	-10.63	108	254	H

Pk - Peak detector

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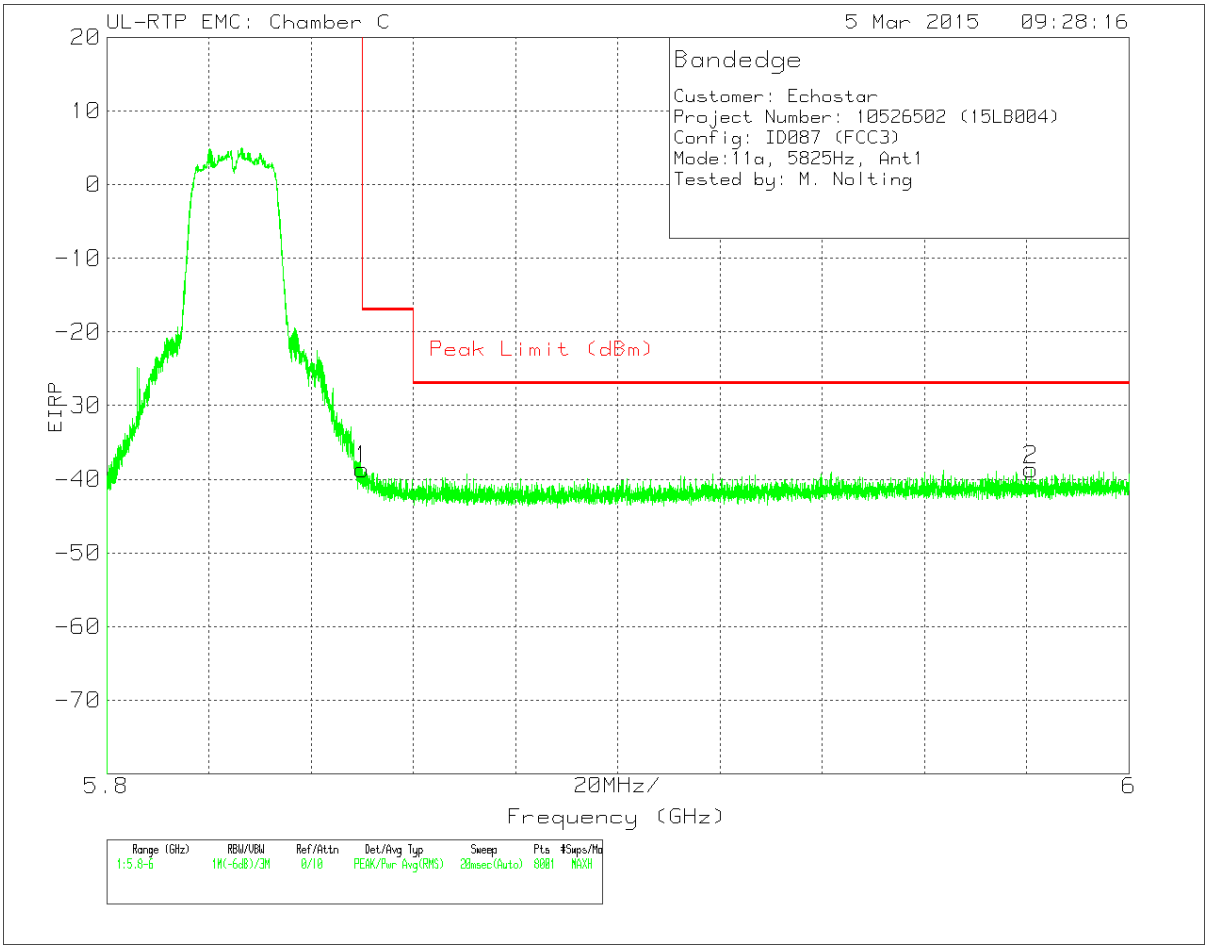
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0062 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-64.16	Pk	34.9	-21.2	11.8	-38.66	-17	-21.66	18	398	V
2	5.981	-64.69	Pk	35.2	-21	11.8	-38.69	-27	-11.69	18	398	V

Pk - Peak detector

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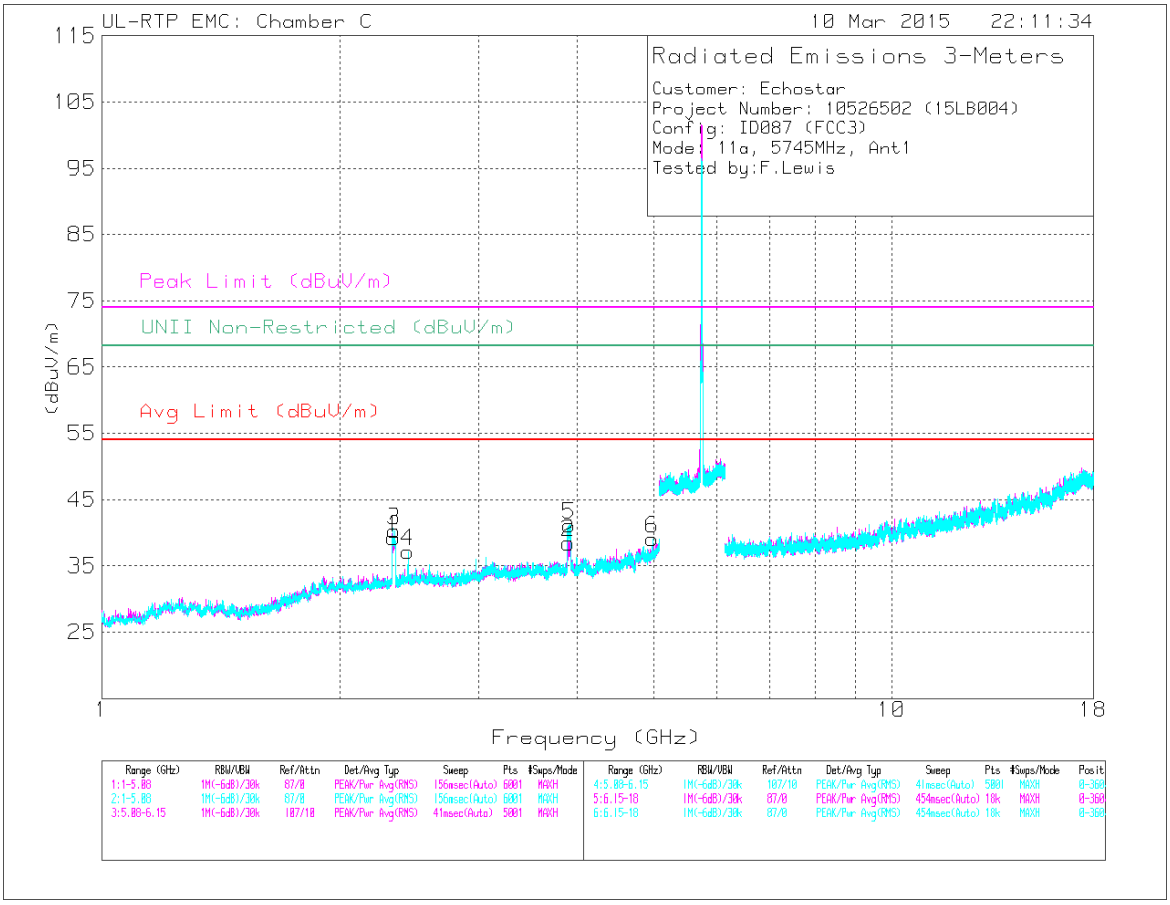
HARMONICS AND SPURIOUS EMISSIONS – ANTENNA 1

LOW CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.33	52.24	PK3	32	-36.5	47.74	-	-	74	-26.26	68.2	-20.46	50	271	H
	* 2.341	37.92	ADR	32	-36.4	33.52	54	-20.48	-	-	-	-	50	271	H
2	* 3.889	49.11	PK3	33.6	-34.4	48.31	-	-	74	-25.69	68.2	-19.89	285	307	H
	* 3.884	34.69	ADR	33.6	-34.4	33.89	54	-20.11	-	-	-	-	285	307	H
3	* 2.334	51.14	PK3	32	-36.5	46.64	-	-	74	-27.36	68.2	-21.56	296	292	V
	* 2.334	36.5	ADR	32	-36.5	32	54	-22	-	-	-	-	296	292	V
5	* 3.89	52.76	PK3	33.6	-34.4	51.96	-	-	74	-22.04	68.2	-16.24	306	265	V
	* 3.886	36.62	ADR	33.6	-34.4	35.82	54	-18.18	-	-	-	-	306	265	V
6	* 4.959	43.11	PK3	34.1	-31.7	45.51	-	-	74	-28.49	68.2	-22.69	56	219	V
	* 4.999	31.49	ADR	34.1	-31.7	33.89	54	-20.11	-	-	-	-	56	219	V
4	2.441	48.4	PK3	32.2	-36	44.6	-	-	74	-29.4	68.2	-23.6	355	178	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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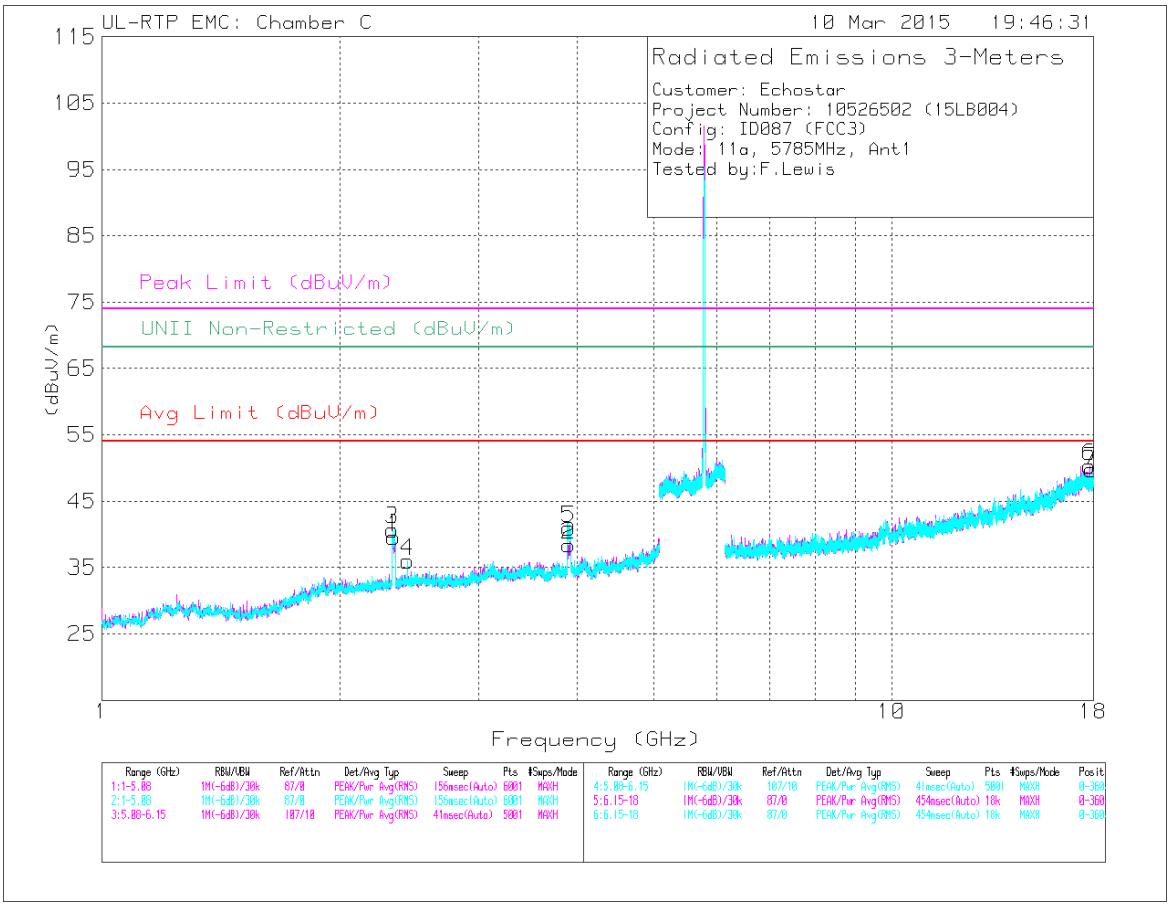
MID CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	52.8	PK3	32	-36.5	48.3	-	-	74	-25.7	68.2	-19.9	45	272	H
	* 2.349	38.68	ADR	32	-36.4	34.28	54	-19.72	-	-	-	-	45	272	H
2	* 3.89	49.89	PK3	33.6	-34.4	49.09	-	-	74	-24.91	68.2	-19.11	288	307	H
	* 3.89	34.74	ADR	33.6	-34.4	33.94	54	-20.06	-	-	-	-	288	307	H
3	* 2.334	51.54	PK3	32	-36.5	47.04	-	-	74	-26.96	68.2	-21.16	295	293	V
	* 2.334	36.6	ADR	32	-36.5	32.1	54	-21.9	-	-	-	-	295	293	V
5	* 3.89	53.37	PK3	33.6	-34.4	52.57	-	-	74	-21.43	68.2	-15.63	307	263	V
	* 3.889	36.92	ADR	33.6	-34.4	36.12	54	-17.88	-	-	-	-	307	263	V
6	* 17.796	35.74	PK3	41.4	-20.2	56.94	-	-	74	-17.06	68.2	-11.26	89	224	H
	* 17.792	23.65	ADR	41.4	-20.2	44.85	54	-9.15	-	-	-	-	89	224	H
7	* 17.928	34.91	PK3	41.2	-20	56.11	-	-	74	-17.89	68.2	-12.09	312	339	V
	* 17.901	23.53	ADR	41.3	-20.1	44.73	54	-9.27	-	-	-	-	312	339	V
4	2.441	47.78	PK3	32.2	-36	43.98	-	-	74	-30.02	68.2	-24.22	153	202	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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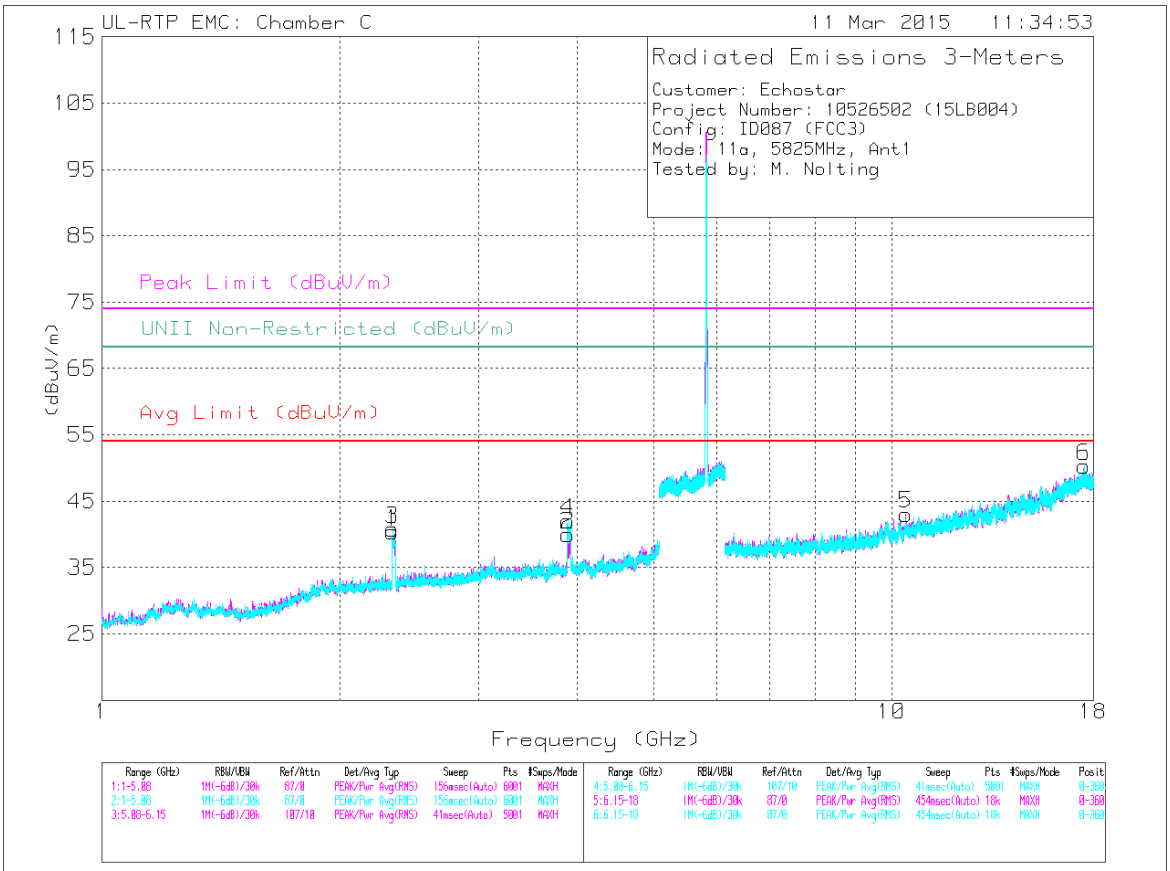
HIGH CHANNEL ANTENNA 1 - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (dB/m)	Amp/Cbl/ Fltr/Pad	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.335	52.9	PK3	32	-36.5	48.4	-	-	74	-25.6	68.2	-19.8	45	283	H
	* 2.333	38.64	ADR	32	-36.5	34.14	54	-19.86	-	-	-	-	45	283	H
2	* 3.882	48.44	PK3	33.6	-34.5	47.54	-	-	74	-26.46	68.2	-20.66	288	311	H
	* 3.885	34.85	ADR	33.6	-34.4	34.05	54	-19.95	-	-	-	-	288	311	H
3	* 2.334	53.53	PK3	32	-36.5	49.03	-	-	74	-24.97	68.2	-19.17	101	294	V
	* 2.331	38.98	ADR	32	-36.5	34.48	54	-19.52	-	-	-	-	101	294	V
4	* 3.89	51.98	PK3	33.6	-34.4	51.18	-	-	74	-22.82	68.2	-17.02	306	271	V
	* 3.889	37.49	ADR	33.6	-34.4	36.69	54	-17.31	-	-	-	-	306	271	V
5	10.422	36.66	PK3	37.4	-24.1	49.96	-	-	74	-24.04	68.2	-18.24	110	199	H
6	17.515	35.55	PK3	41.6	-20.1	57.05	-	-	74	-16.95	68.2	-11.15	230	198	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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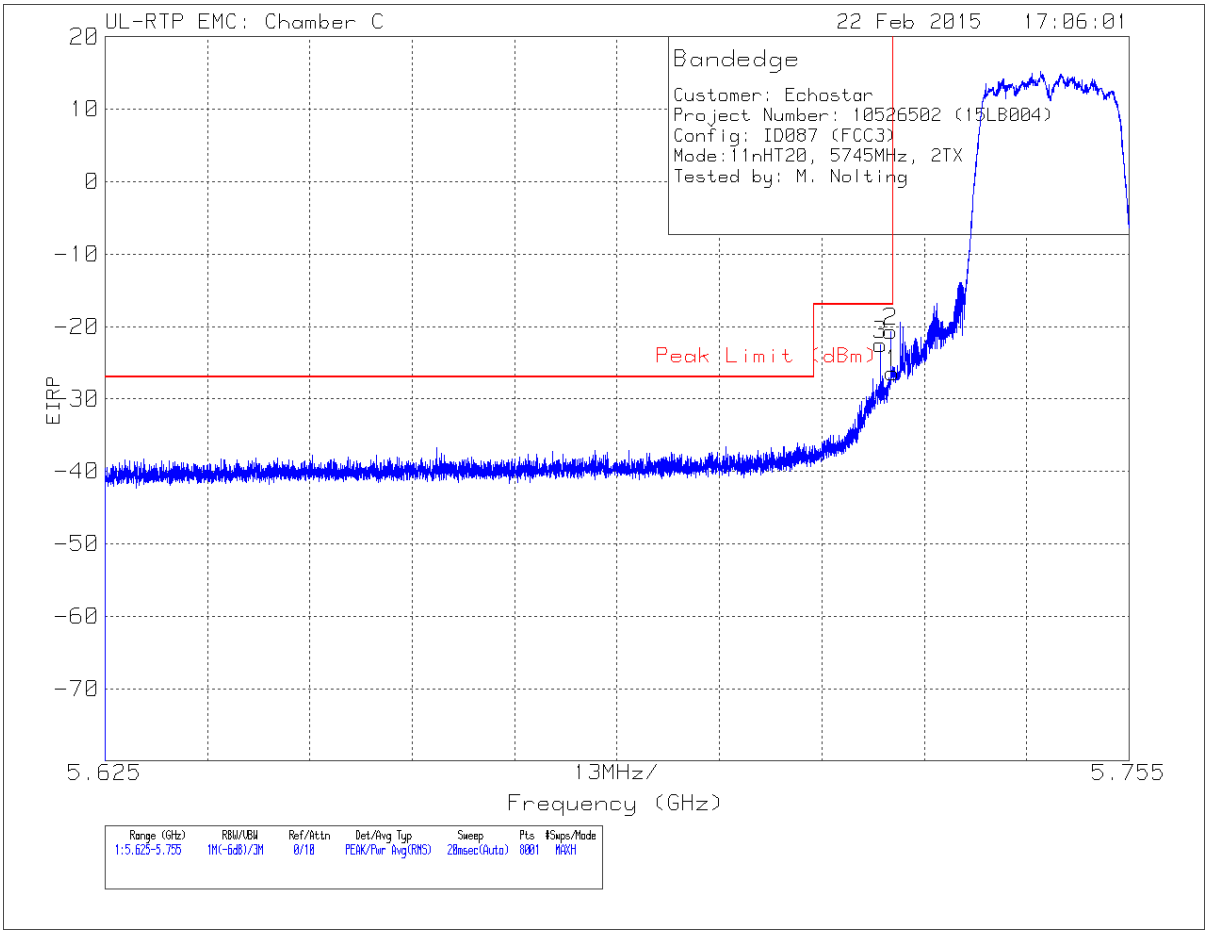
9.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	5.723	-48.42	Pk	35.9	-21.8	11.8	-22.52	-17	-5.52	118	245	H
1	5.725	-52.3	Pk	35.9	-21.8	11.8	-26.4	-17	-9.4	118	245	H
2	5.725	-46.58	Pk	35.9	-21.8	11.8	-20.68	-17	-3.68	118	245	H

Pk - Peak detector

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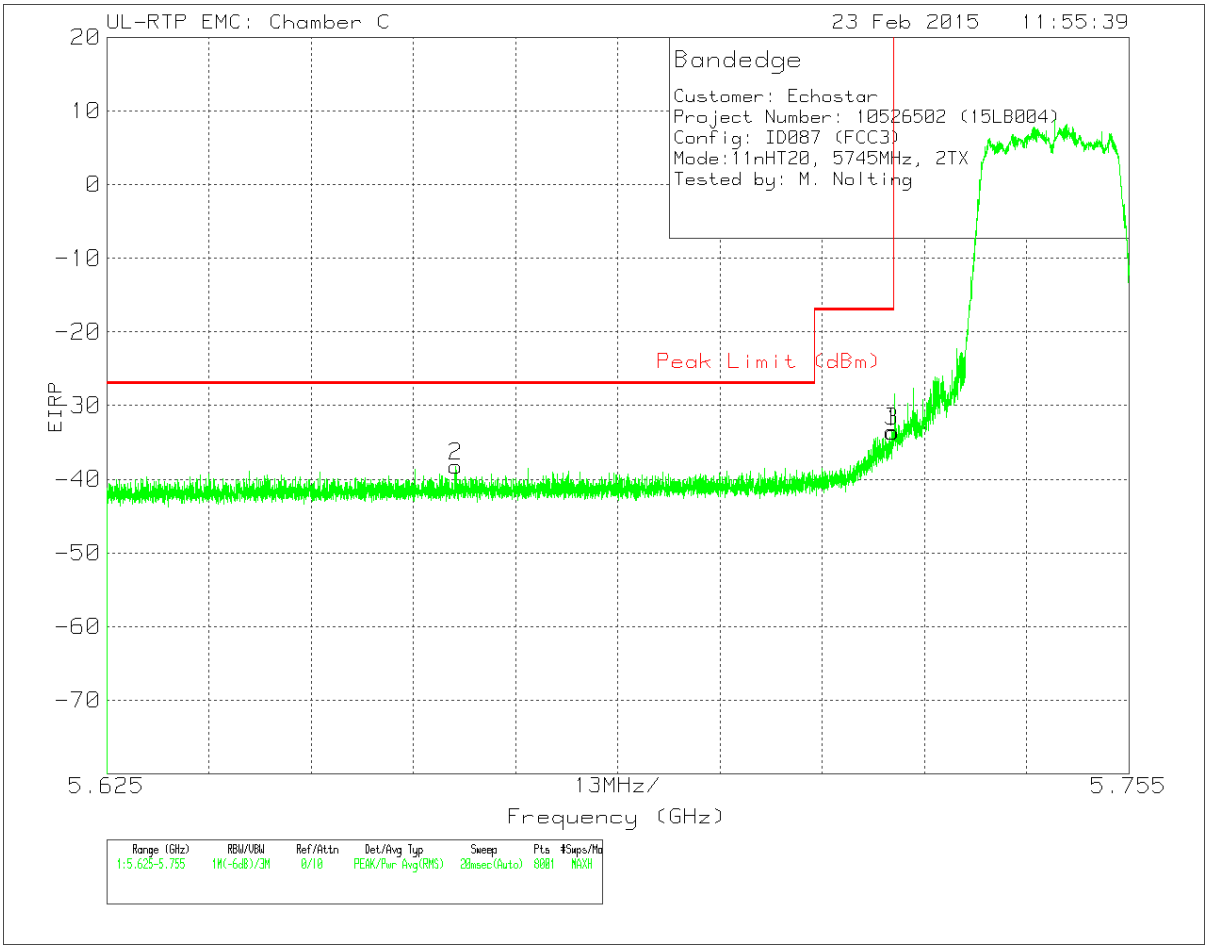
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.669	-64.03	Pk	35.9	-21.9	11.8	-38.23	-27	-11.23	114	119	V
1	5.725	-59.51	Pk	35.9	-21.8	11.8	-33.61	-17	-16.61	114	119	V
3	5.725	-59.41	Pk	35.9	-21.8	11.8	-33.51	-17	-16.51	114	119	V

Pk - Peak detector

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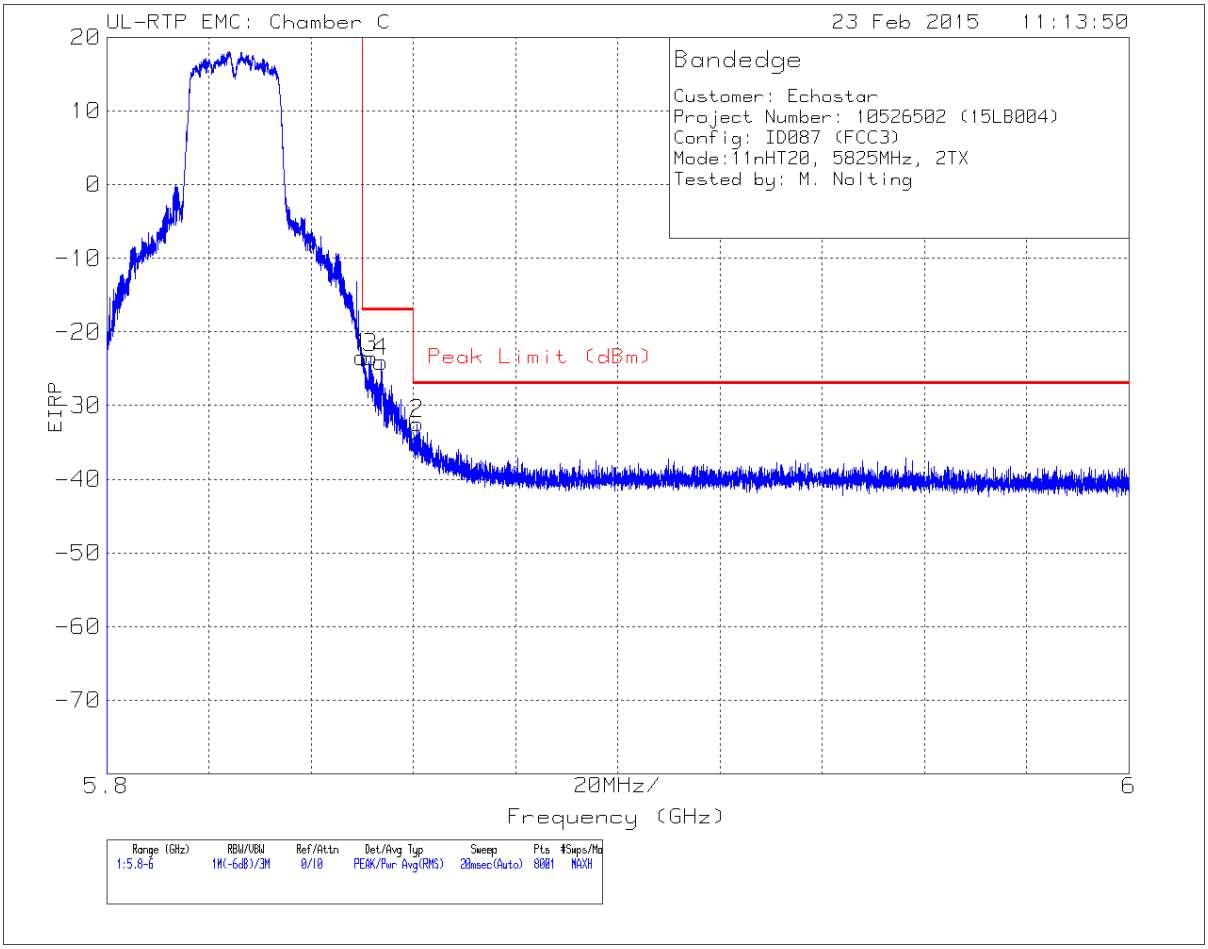
RESTRICTED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-49.71	Pk	35.7	-21.2	11.8	-23.41	-17	-6.41	117	229	H
3	5.852	-49.77	Pk	35.7	-21.2	11.8	-23.47	-17	-6.47	117	229	H
4	5.854	-50.33	Pk	35.7	-21.2	11.8	-24.03	-17	-7.03	117	229	H
2	5.861	-58.74	Pk	35.7	-21.2	11.8	-32.44	-27	-5.44	117	229	H

Pk - Peak detector

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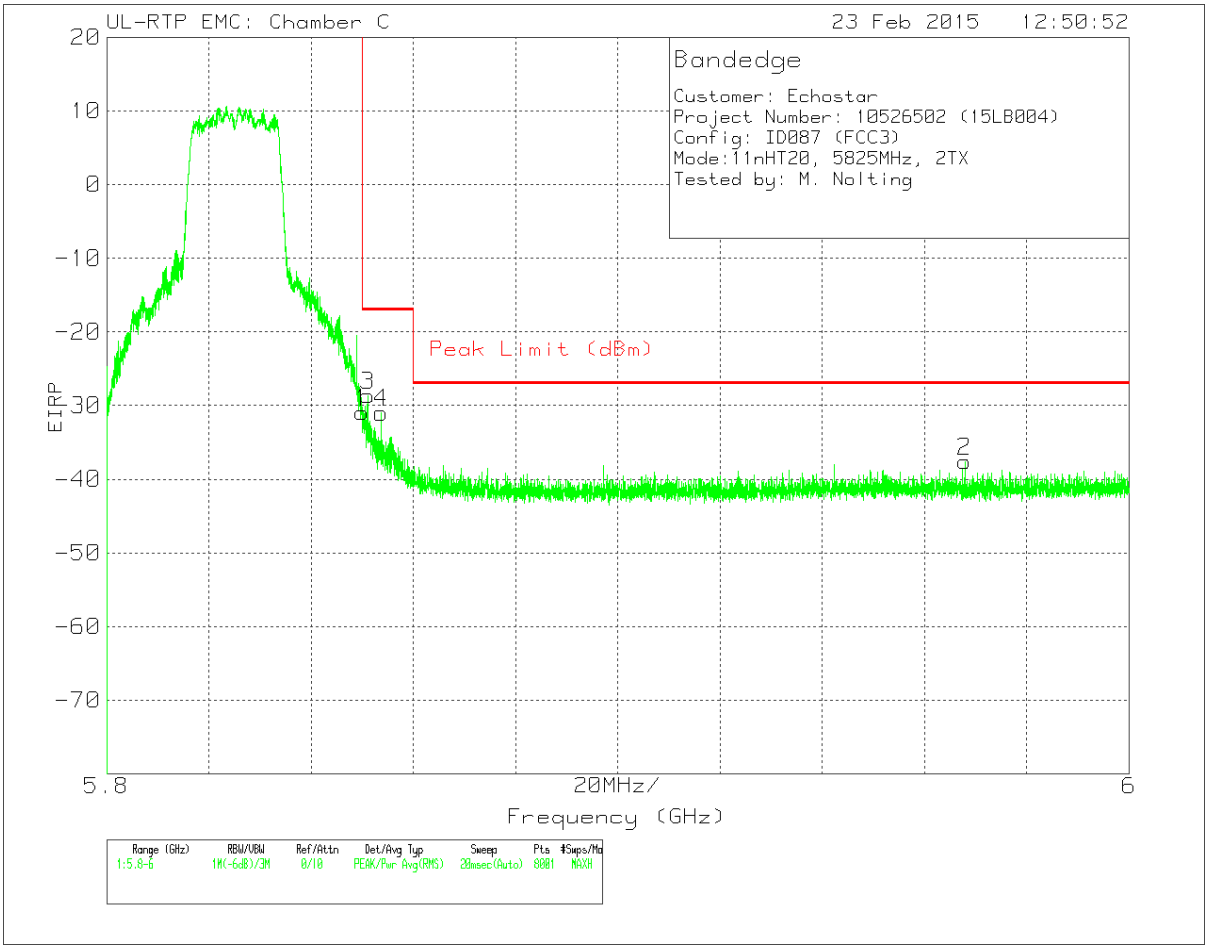
VERTICAL



Pk - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-57.21	Pk	35.7	-21.2	11.8	-30.91	-17	-13.91	115	152	V
3	5.851	-54.93	Pk	35.7	-21.2	11.8	-28.63	-17	-11.63	115	152	V
4	5.854	-57.25	Pk	35.7	-21.2	11.8	-30.95	-17	-13.95	115	152	V
2	5.968	-63.87	Pk	35.6	-21.1	11.8	-37.57	-27	-10.57	115	152	V

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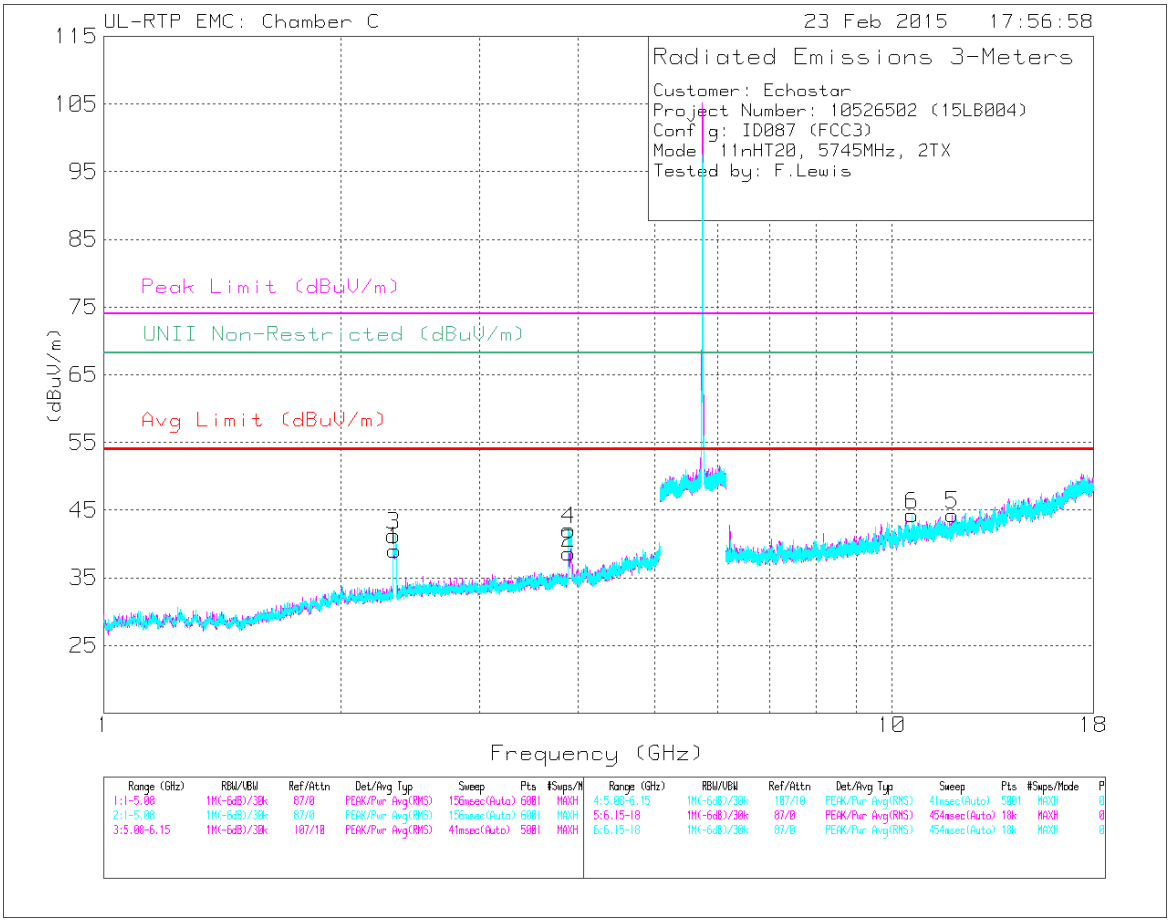
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/Filtr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.34	53.26	PK3	32.1	-36.4	0	48.96	-	-	74	-25.04	68.2	-19.24	38	359	H
	* 2.346	48.34	ADR	32.1	-36.4	0	44.04	54	-9.96	-	-	-	-	38	359	H
2	* 3.89	51.14	PK3	33.7	-34.4	0	50.44	-	-	74	-23.56	68.2	-17.76	113	400	H
	* 3.89	45.34	ADR	33.7	-34.4	0	44.64	54	-9.36	-	-	-	-	113	400	H
3	* 2.334	54.95	PK3	32.1	-36.5	0	50.55	-	-	74	-23.45	68.2	-17.65	104	288	V
	* 2.334	49.81	ADR	32.1	-36.5	0	45.41	54	-8.59	-	-	-	-	104	288	V
4	* 3.89	51.89	PK3	33.7	-34.3	0	51.29	-	-	74	-22.71	68.2	-16.91	319	276	V
	* 3.89	46.93	ADR	33.7	-34.4	0	46.23	54	-7.77	-	-	-	-	319	276	V
5	* 11.923	37.88	PK3	39.1	-26	0	50.98	-	-	74	-23.02	68.2	-17.22	359	152	H
	* 11.923	32.87	ADR	39.1	-26	0	45.97	54	-8.03	-	-	-	-	359	152	H
6	* 10.604	37.4	PK3	38.4	-25.5	0	50.3	-	-	74	-23.7	68.2	-17.9	79	250	V
	* 10.604	32.58	ADR	38.4	-25.5	0	45.48	54	-8.52	-	-	-	-	79	250	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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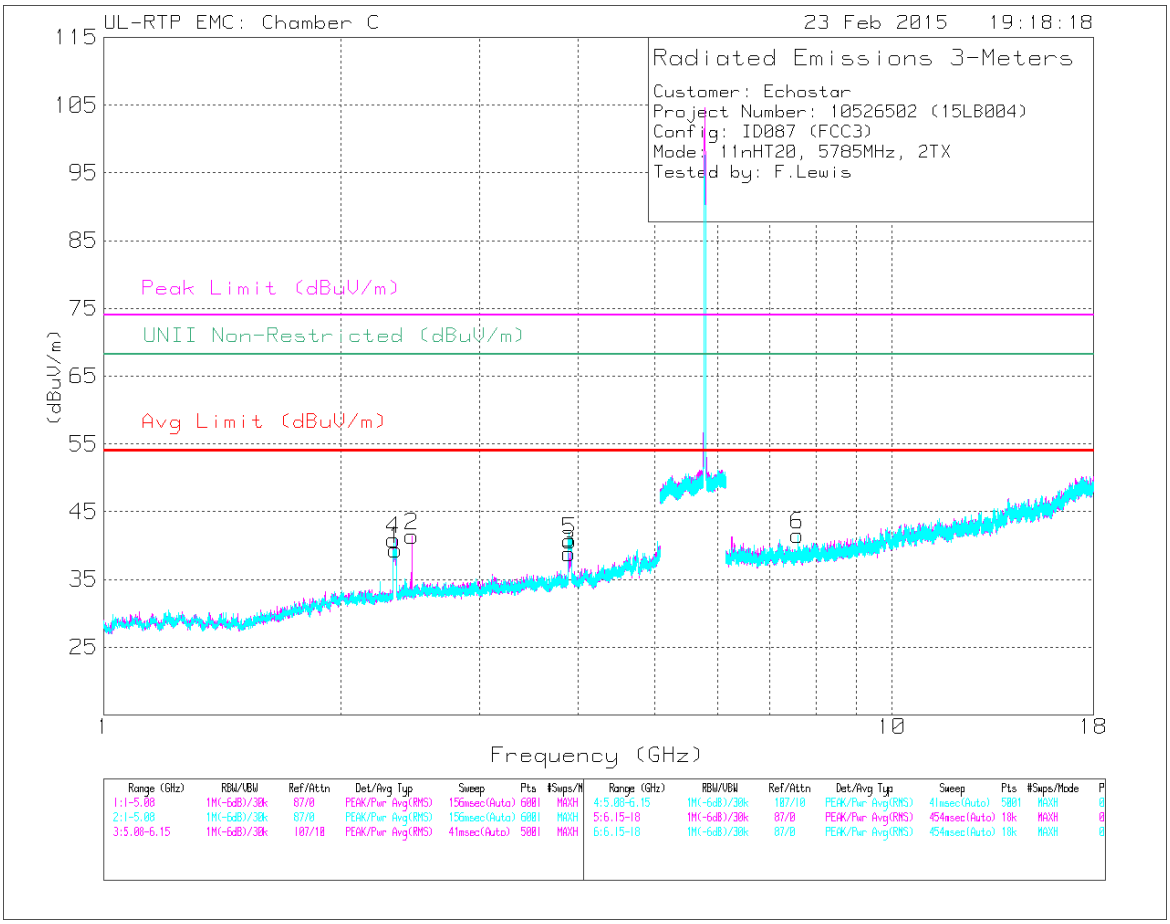
MID CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.334	53.22	PK3	32.1	-36.5	0	48.82	-	-	74	-25.18	68.2	-19.38	37	360	H
	* 2.343	48.82	ADR	32.1	-36.4	0	44.52	54	-9.48	-	-	-	-	37	360	H
3	* 3.89	48.84	PK3	33.7	-34.4	0	48.14	-	-	74	-25.86	68.2	-20.06	3	367	H
	* 3.89	43.16	ADR	33.7	-34.3	0	42.56	54	-11.44	-	-	-	-	3	367	H
4	* 2.334	55.02	PK3	32.1	-36.5	0	50.62	-	-	74	-23.38	68.2	-17.58	349	262	V
	* 2.334	49.84	ADR	32.1	-36.5	0	45.44	54	-8.56	-	-	-	-	349	262	V
5	* 3.89	51.37	PK3	33.7	-34.4	0	50.67	-	-	74	-23.33	68.2	-17.53	315	282	V
	* 3.89	46.68	ADR	33.7	-34.4	0	45.98	54	-8.02	-	-	-	-	315	282	V
6	* 7.578	38.97	PK3	36.1	-27.4	0	47.67	-	-	74	-26.33	68.2	-20.53	153	269	V
	* 7.577	33.95	ADR	36.1	-27.4	0	42.65	54	-11.35	-	-	-	-	153	269	V
2	2.458	46.21	PK3	32.5	-35.9	0	42.81	-	-	74	-31.19	68.2	-25.39	166	152	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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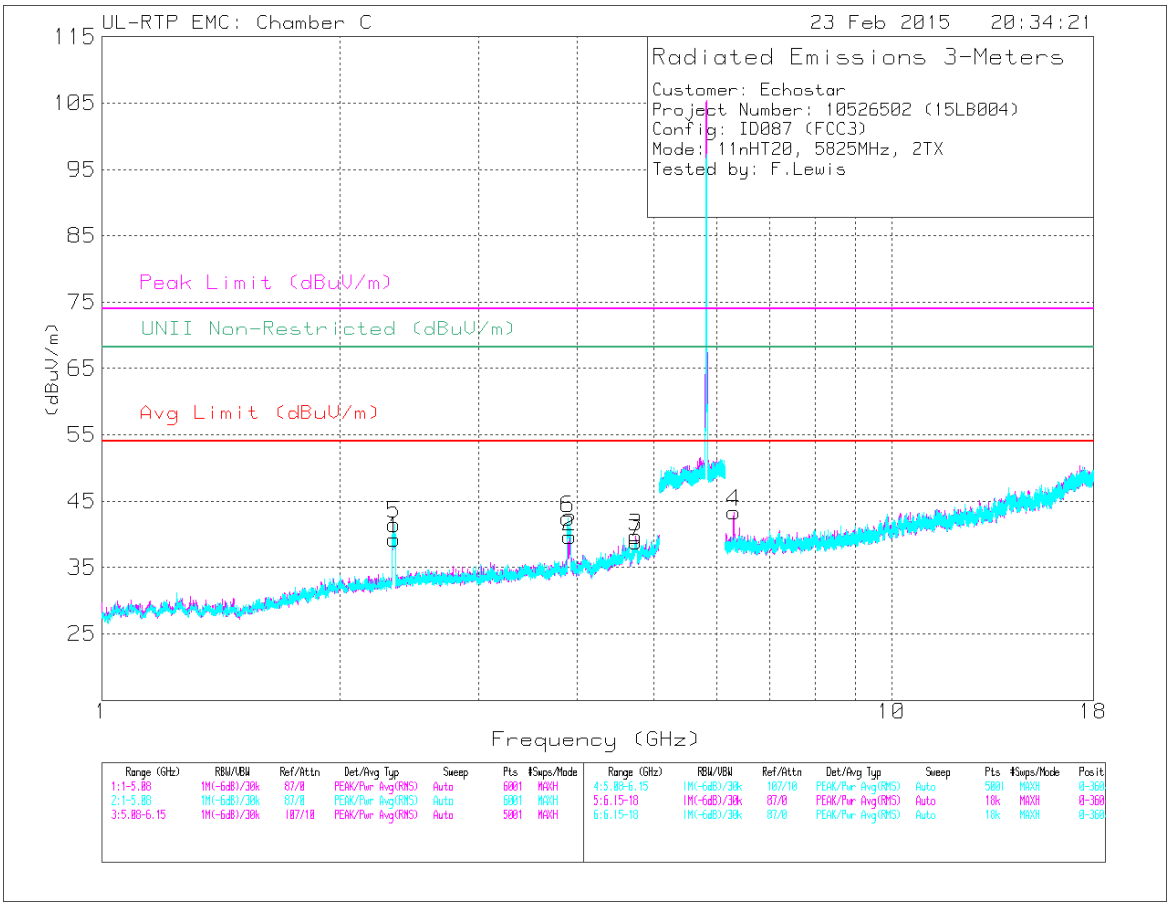
HIGH CHANNEL - PLOT



Range (GHz)	RBW/VBW	Ref/Attn	Det/Avg Typ	Sweep	Pts	#Swps/Mode
1:1-5.88	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	Auto	6001	MAXH
2:1-5.88	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	Auto	6001	MAXH
3:5.88-6.15	1M(-6dB)/30k	107/10	PEAK/Pwr Avg(RMS)	Auto	5001	MAXH

Range (GHz)	RBW/VBW	Ref/Attn	Det/Avg Typ	Sweep	Pts	#Swps/Mode	Posit
4:5.88-6.15	1M(-6dB)/30k	107/10	PEAK/Pwr Avg(RMS)	Auto	5001	MAXH	0-360
5:6.15-18	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	Auto	18k	MAXH	0-360
6:6.15-18	1M(-6dB)/30k	87/0	PEAK/Pwr Avg(RMS)	Auto	18k	MAXH	0-360

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.329	52.97	PK3	32.1	-36.5	0	48.57	-	-	74	-25.43	68.2	-19.63	41	214	H
	* 2.334	47.96	ADR	32.1	-36.5	0	43.56	54	-10.44	-	-	-	-	41	214	H
2	* 3.89	50.49	PK3	33.7	-34.4	0	49.79	-	-	74	-24.21	68.2	-18.41	193	279	H
	* 3.91	44.33	ADR	33.7	-33.9	0	44.13	54	-9.87	-	-	-	-	193	279	H
3	* 4.745	45.15	PK3	35.3	-32.8	0	47.65	-	-	74	-26.35	68.2	-20.55	123	342	H
	* 4.752	39.82	ADR	35.3	-32.8	0	42.32	54	-11.68	-	-	-	-	123	342	H
5	* 3.89	51.83	PK3	33.7	-34.4	0	51.13	-	-	74	-22.87	68.2	-17.07	311	291	V
	* 3.89	46.78	ADR	33.7	-34.3	0	46.18	54	-7.82	-	-	-	-	311	291	V
6	* 2.334	55.3	PK3	32.1	-36.5	0	50.9	-	-	74	-23.1	68.2	-17.3	203	286	V
	* 2.334	50.28	ADR	32.1	-36.5	0	45.88	54	-8.12	-	-	-	-	203	286	V
7	* 4.781	44.36	PK3	35.2	-33.2	0	46.36	-	-	74	-27.64	68.2	-21.84	357	168	V
	* 4.752	39.76	ADR	35.3	-32.8	0	42.26	54	-11.74	-	-	-	-	357	168	V
4	6.313	44.14	PK3	36.1	-27.9	0	52.34	-	-	74	-21.66	68.2	-15.86	282	233	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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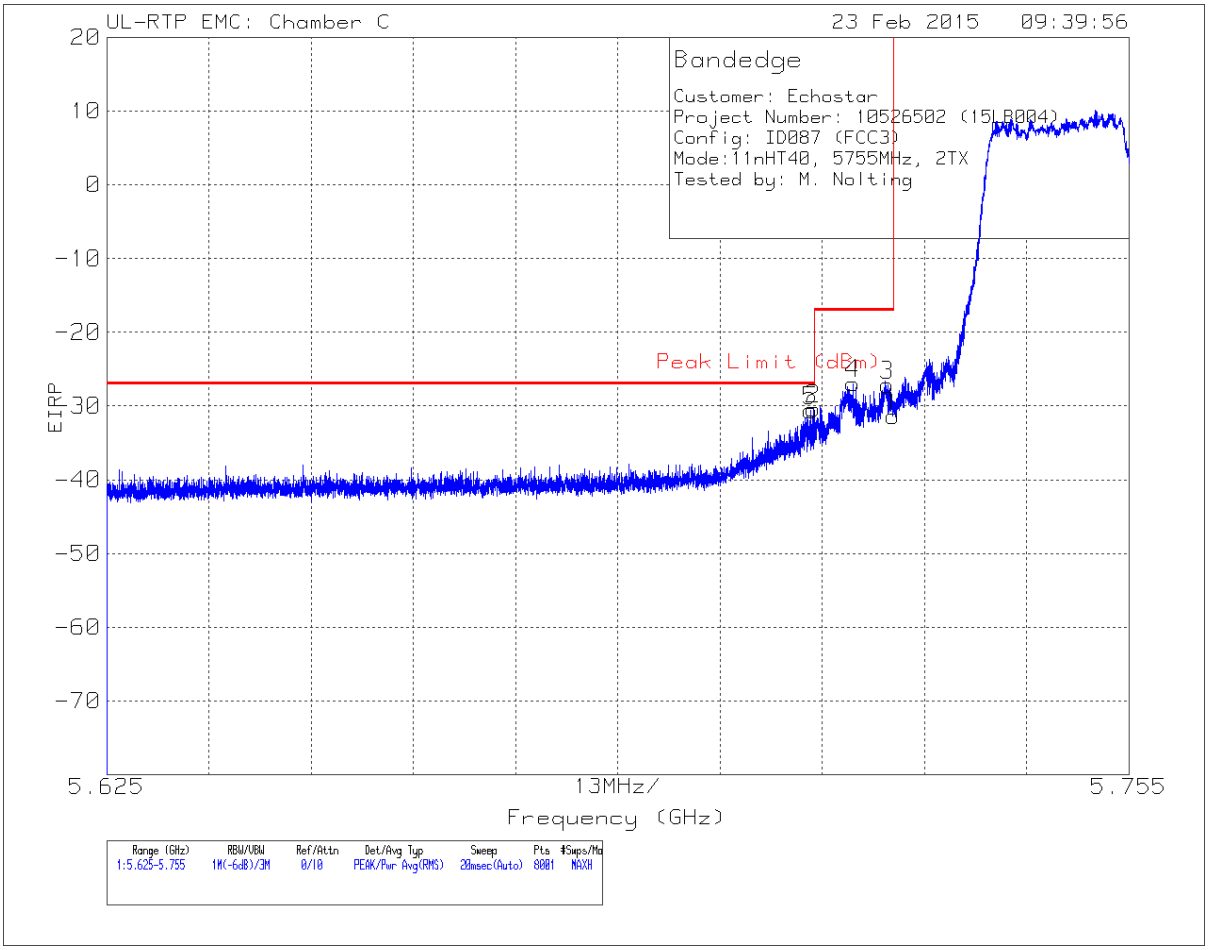
9.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.715	-56.28	Pk	35.9	-21.8	11.8	-30.38	-27	-3.38	119	243	H
5	5.715	-56.51	Pk	35.9	-21.8	11.8	-30.61	-27	-3.61	119	243	H
4	5.72	-52.83	Pk	35.9	-21.8	11.8	-26.93	-17	-9.93	119	243	H
3	5.724	-53.05	Pk	35.9	-21.8	11.8	-27.15	-17	-10.15	119	243	H
1	5.725	-57.25	Pk	35.9	-21.8	11.8	-31.35	-17	-14.35	119	243	H

Pk - Peak detector

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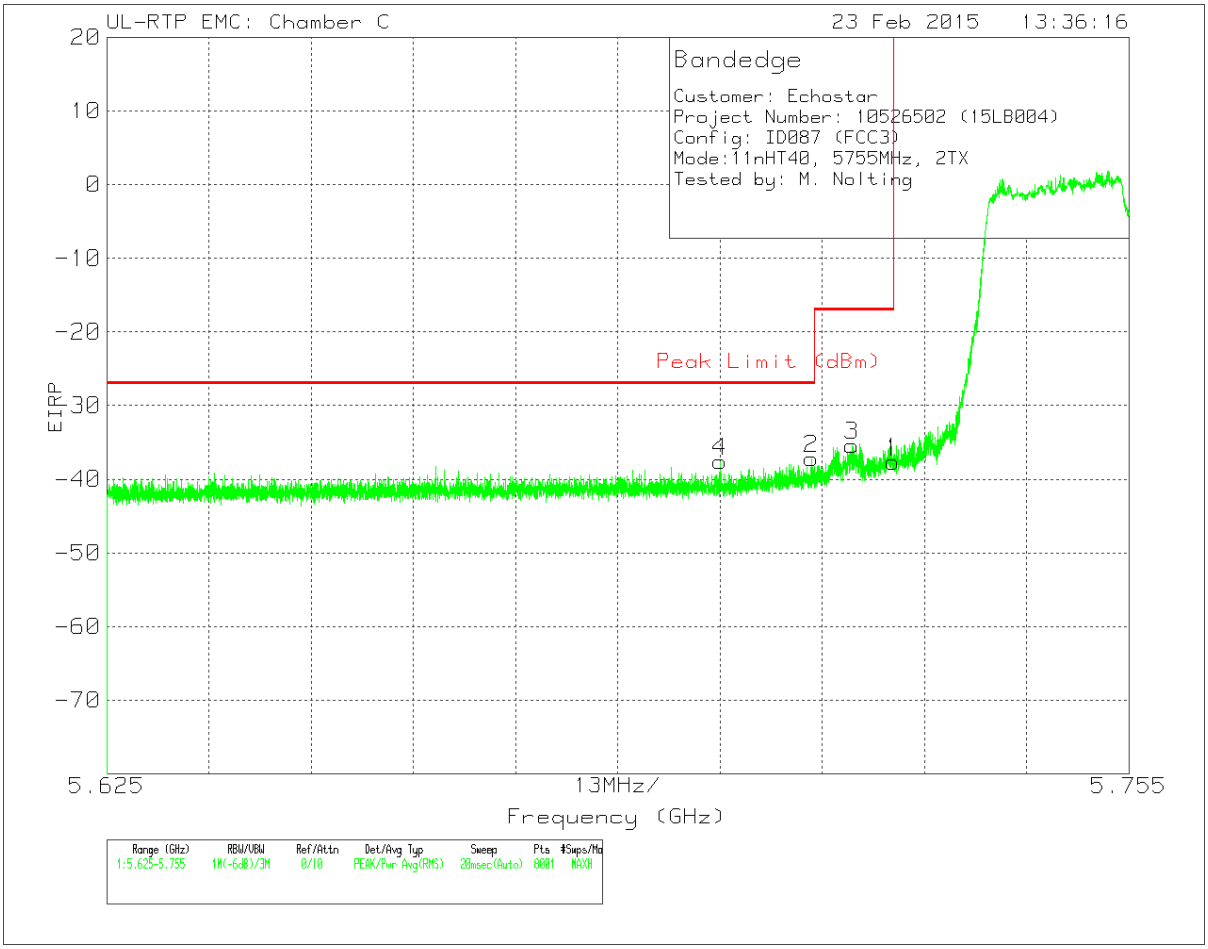
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	5.703	-63.48	Pk	35.9	-21.8	11.8	-37.58	-27	-10.58	116	151	V
2	5.715	-63.09	Pk	35.9	-21.8	11.8	-37.19	-27	-10.19	116	151	V
3	5.72	-61.31	Pk	35.9	-21.8	11.8	-35.41	-17	-18.41	116	151	V
1	5.725	-63.56	Pk	35.9	-21.8	11.8	-37.66	-17	-20.66	116	151	V

Pk - Peak detector

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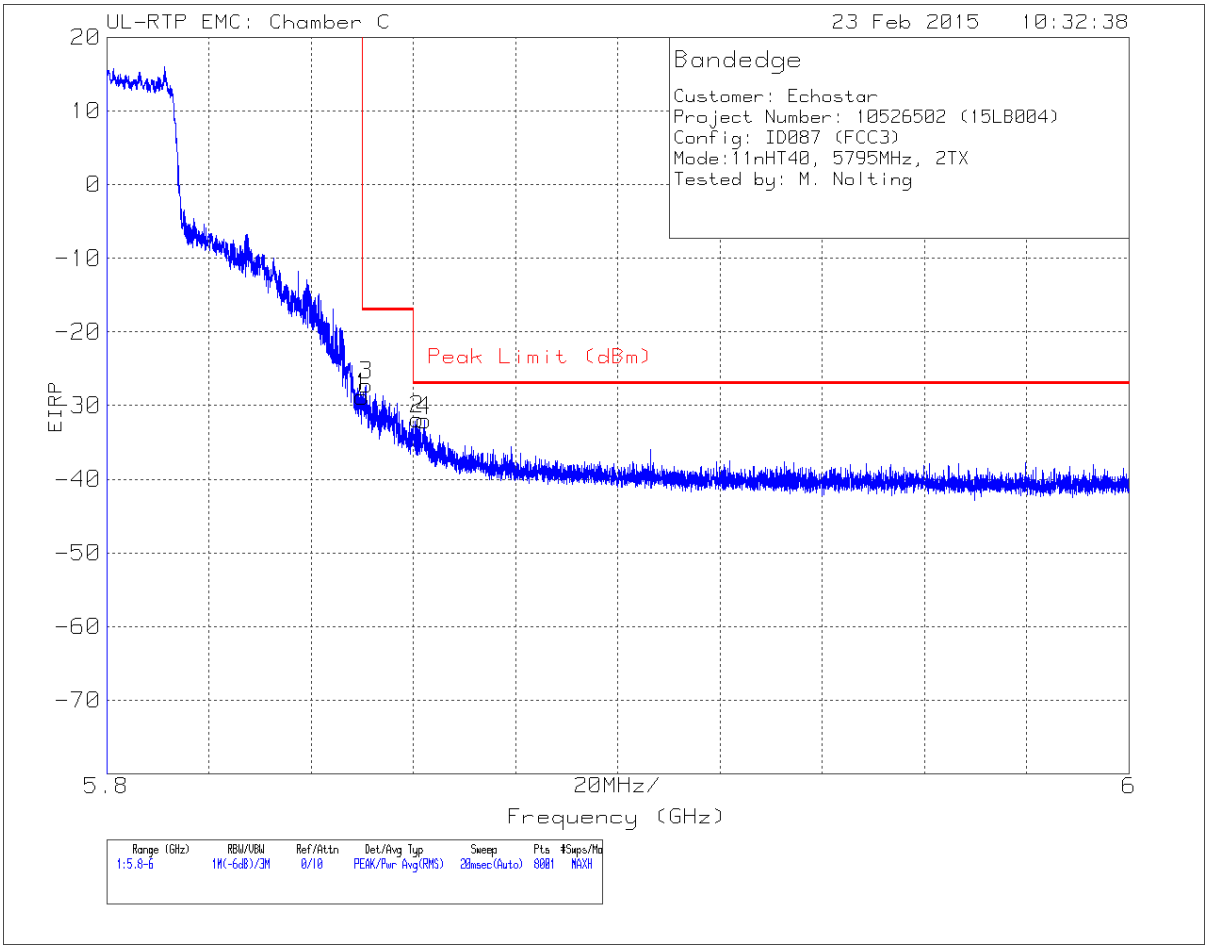
RESTRICTED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Filtr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-55.09	Pk	35.7	-21.2	11.8	-28.79	-17	-11.79	119	247	H
3	5.851	-53.5	Pk	35.7	-21.2	11.8	-27.2	-17	-10.2	119	247	H
2	5.861	-58.15	Pk	35.7	-21.2	11.8	-31.85	-27	-4.85	119	247	H
4	5.862	-58.33	Pk	35.7	-21.2	11.8	-32.03	-27	-5.03	119	247	H

Pk - Peak detector

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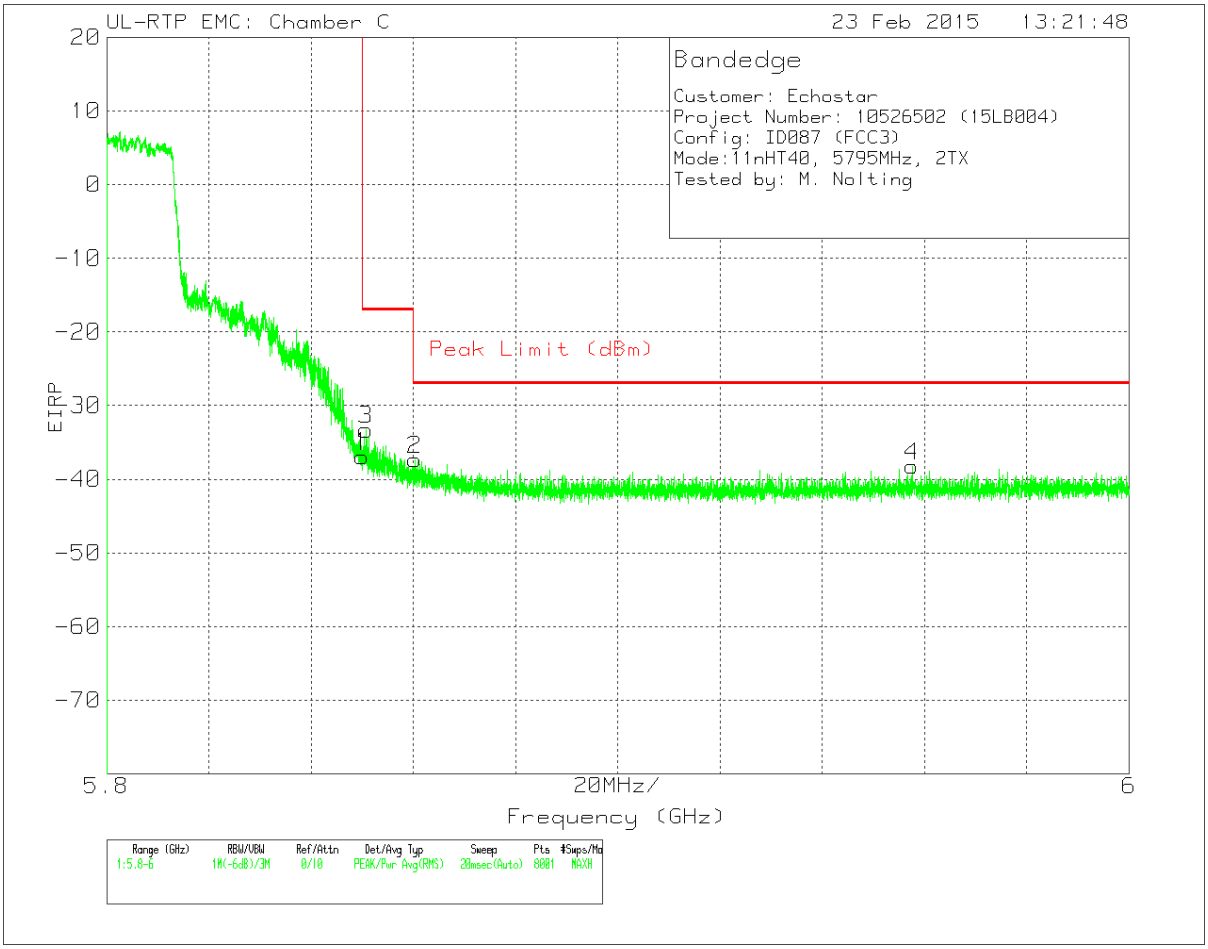
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-63.22	Pk	35.7	-21.2	11.8	-36.92	-17	-19.92	114	152	V
3	5.851	-59.59	Pk	35.7	-21.2	11.8	-33.29	-17	-16.29	114	152	V
2	5.86	-63.62	Pk	35.7	-21.2	11.8	-37.32	-27	-10.32	114	152	V
4	5.958	-64.52	Pk	35.6	-21.1	11.8	-38.22	-27	-11.22	114	152	V

Pk - Peak detector

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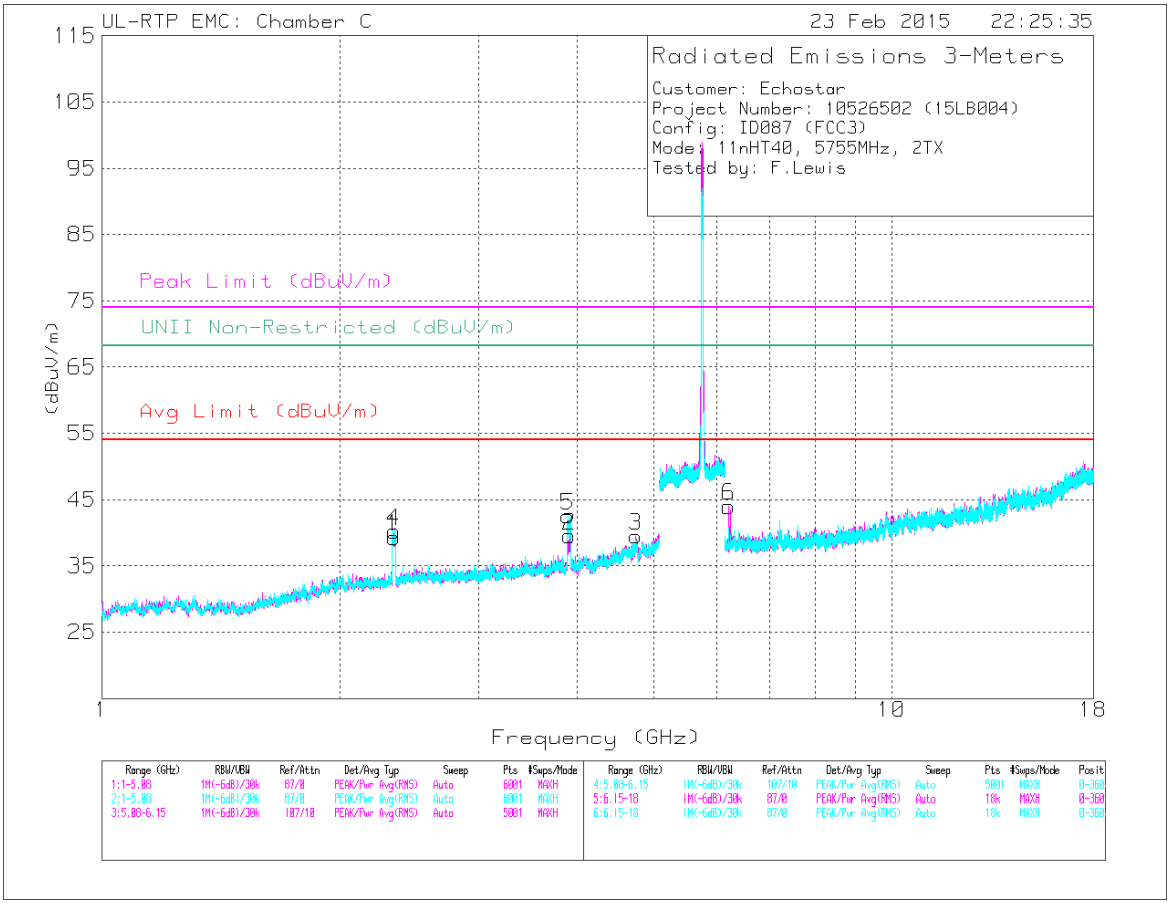
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl/Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.346	52.28	PK3	32.1	-36.4	0	47.98	-	-	74	-26.02	68.2	-20.22	38	311	H
	* 2.334	46.8	ADR	32.1	-36.5	0	42.4	54	-11.6	-	-	-	-	38	311	H
2	* 3.889	52.01	PK3	33.7	-34.4	0	51.31	-	-	74	-22.69	68.2	-16.89	134	386	H
	* 3.89	46.65	ADR	33.7	-34.4	0	45.95	54	-8.05	-	-	-	-	134	386	H
3	* 4.758	44.49	PK3	35.3	-32.9	0	46.89	-	-	74	-27.11	68.2	-21.31	76	198	H
	* 4.778	39.47	ADR	35.2	-33.2	0	41.47	54	-12.53	-	-	-	-	76	198	H
4	* 2.334	55.63	PK3	32.1	-36.5	0	51.23	-	-	74	-22.77	68.2	-16.97	203	286	V
	* 2.334	50.24	ADR	32.1	-36.5	0	45.84	54	-8.16	-	-	-	-	203	286	V
5	* 3.89	51.85	PK3	33.7	-34.4	0	51.15	-	-	74	-22.85	68.2	-17.05	316	284	V
	* 3.89	46.59	ADR	33.7	-34.4	0	45.89	54	-8.11	-	-	-	-	316	284	V
6	6.218	45.03	PK3	35.9	-28.9	0	52.03	-	-	74	-21.97	68.2	-16.17	269	224	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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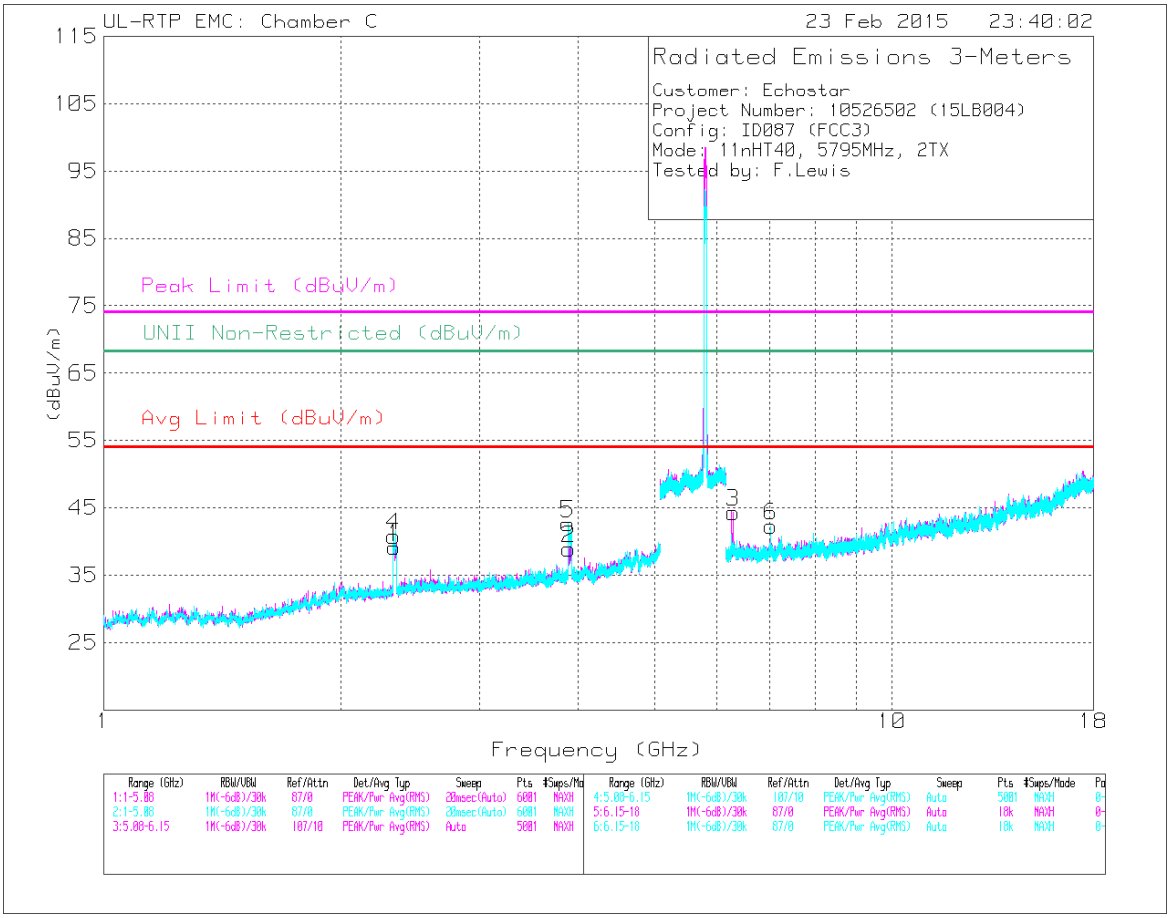
HIGH CHANNEL - PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Amp/Cbl /Fltr/Pad	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.338	53	PK3	32.1	-36.4	0	48.7	-	-	74	-25.3	68.2	-19.5	35	359	H
	* 2.334	48.09	ADR	32.1	-36.5	0	43.69	54	-10.31	-	-	-	-	35	359	H
2	* 3.891	49.84	PK3	33.7	-34.3	0	49.24	-	-	74	-24.76	68.2	-18.96	291	364	H
	* 3.891	44.12	ADR	33.7	-34.3	0	43.52	54	-10.48	-	-	-	-	291	364	H
4	* 2.334	54.54	PK3	32.1	-36.5	0	50.14	-	-	74	-23.86	68.2	-18.06	199	236	V
	* 2.334	49.41	ADR	32.1	-36.5	0	45.01	54	-8.99	-	-	-	-	199	236	V
5	* 3.89	51.85	PK3	33.7	-34.4	0	51.15	-	-	74	-22.85	68.2	-17.05	316	284	V
	* 3.89	46.59	ADR	33.7	-34.4	0	45.89	54	-8.11	-	-	-	-	316	284	V
3	6.218	45.03	PK3	35.9	-28.9	0	52.03	-	-	74	-21.97	68.2	-16.17	269	224	H
6	7.02	33.59	Pk	36	-27.3	0	42.29	-	-	74	-31.71	68.2	-25.91	0-360	250	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

PK3 - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

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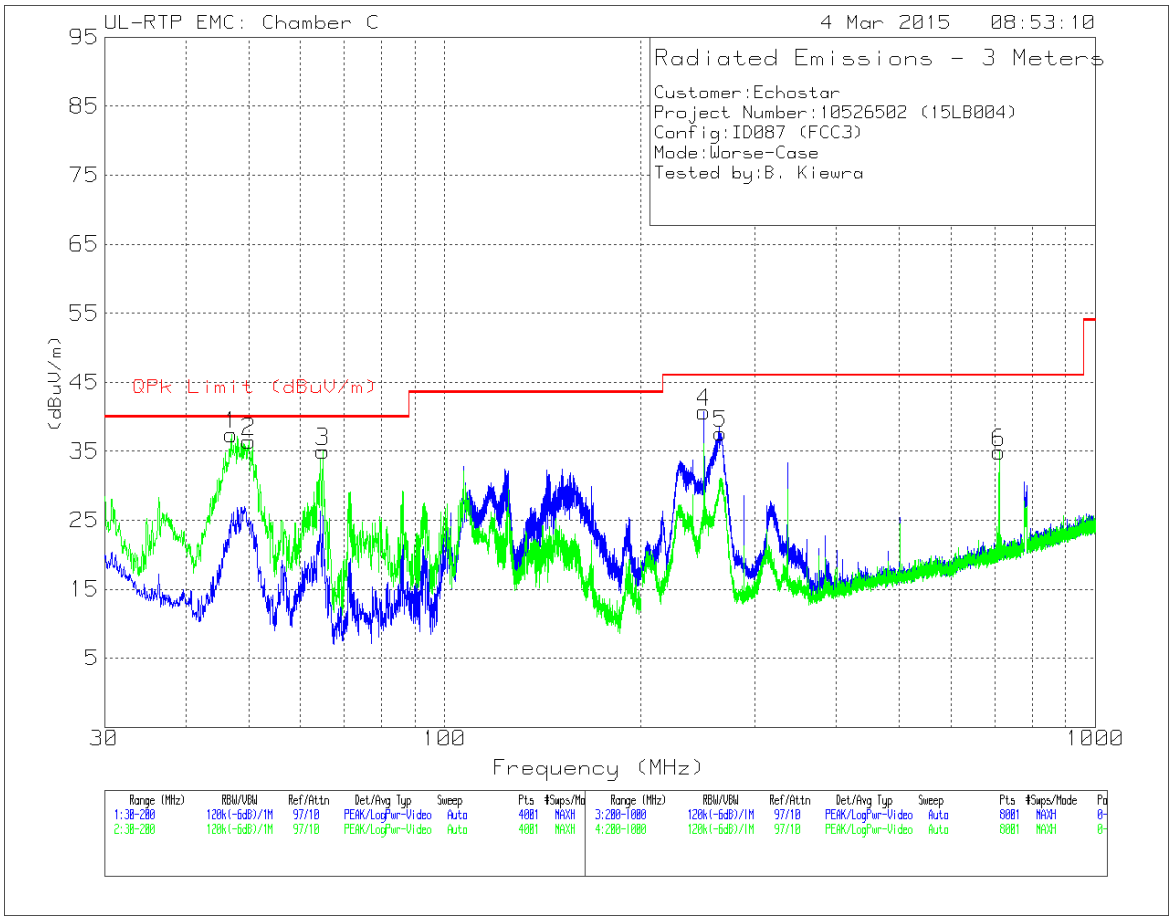
9.8. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE 5.2GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 250	58.98	Qp	11.5	-30	40.48	46.02	-5.54	265	116	H
5	* 265.5	54.7	Pk	12.8	-29.9	37.6	46.02	-8.42	0-360	101	H
1	48.008	55.83	Qp	8.7	-31.4	33.13	40	-6.87	233	117	V
2	48.4735	56.34	Qp	8.5	-31.4	33.44	40	-6.56	345	105	V
3	64.1895	55.16	Qp	8.2	-31.2	32.16	40	-7.84	0	100	V
6	711.4	43.07	Pk	20.4	-28.6	34.87	46.02	-11.15	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

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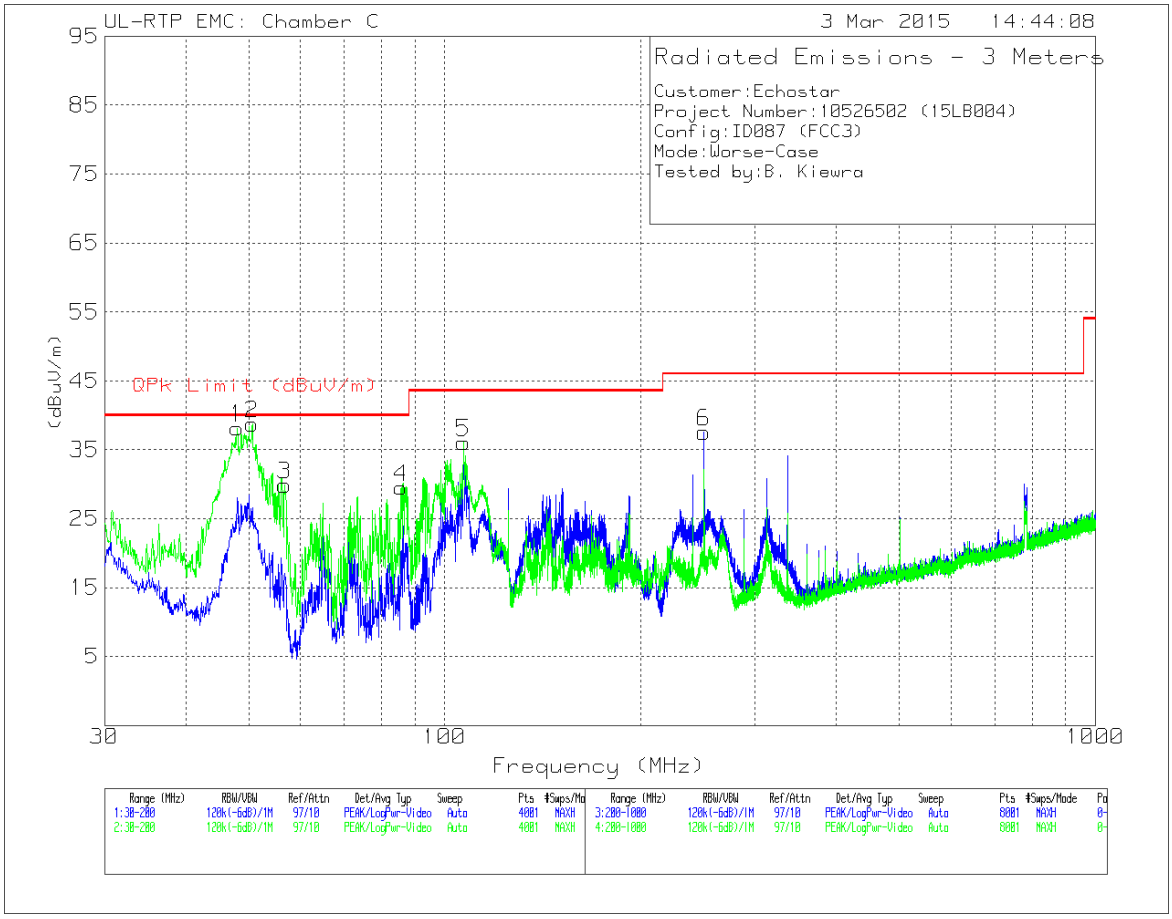
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE 5.8GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 250.3	56.06	Pk	11.5	-30	37.56	46.02	-8.46	0-360	100	H
1	47.7935	59.48	Qp	8.8	-31.4	36.88	40	-3.12	39	106	V
2	49.0485	58.49	Qp	8.2	-31.4	35.29	40	-4.71	47	102	V
3	56.7325	53.81	Pk	7.4	-31.3	29.91	40	-10.09	0-360	100	V
4	85.7175	53.42	Pk	7.1	-31	29.52	40	-10.48	0-360	100	V
5	106.925	54.74	Pk	12.1	-30.8	36.04	43.52	-7.48	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

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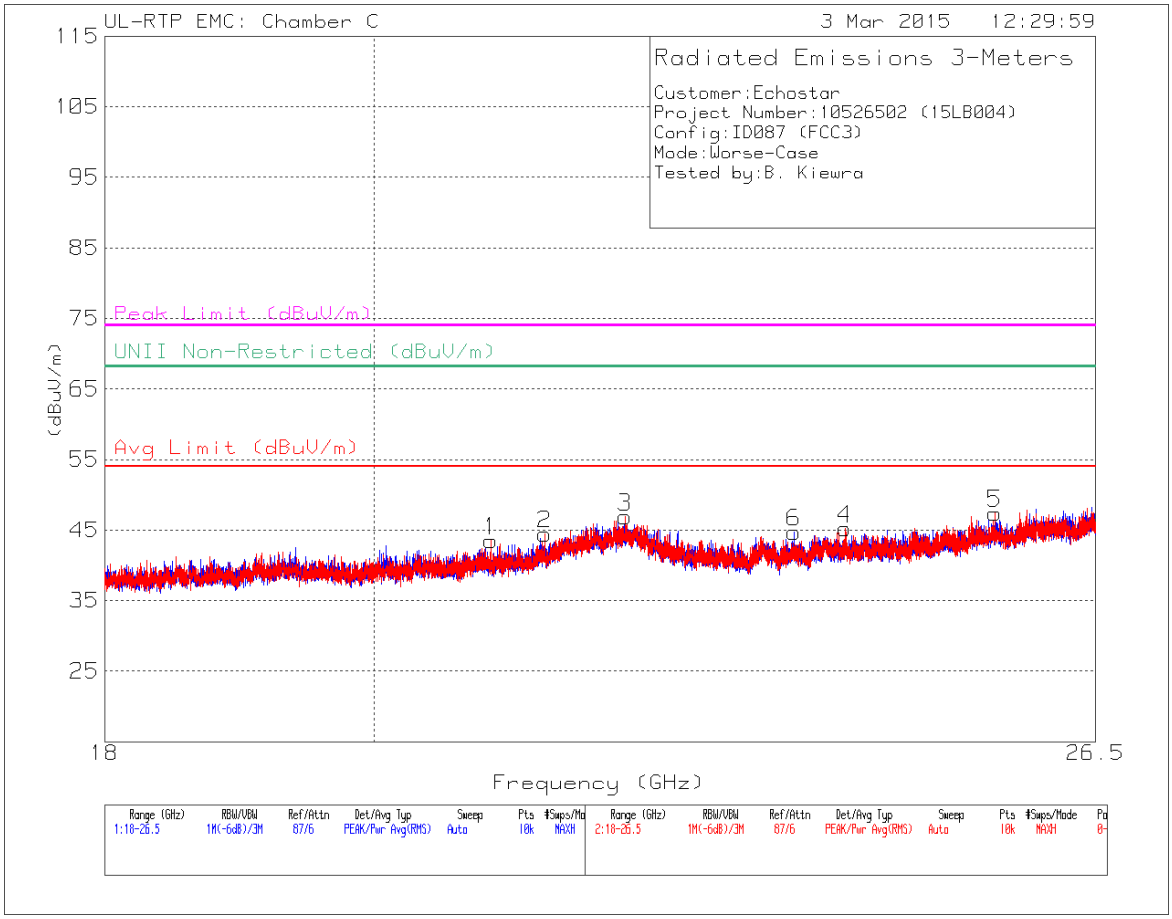
9.9. WORST-CASE 18-26GHz

SPURIOUS EMISSIONS 18 TO 26GHz (WORST-CASE 5.2GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn AT0063 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 20.931	42.69	Pk	33.5	-32.7	43.49	54	-10.51	74	-30.51	68.2	-24.71	0-360	151	V
2	* 21.374	42.37	Pk	34.3	-32.2	44.47	54	-9.53	74	-29.53	68.2	-23.73	0-360	151	V
3	* 22.054	41.68	Pk	36.9	-31.7	46.88	54	-7.12	74	-27.12	68.2	-21.32	0-360	250	V
6	23.558	42.02	Pk	33.7	-31	44.72	-	-	74	-29.28	68.2	-23.48	0-360	250	H
4	24.032	41.78	Pk	33.6	-30.2	45.18	-	-	74	-28.82	68.2	-23.02	0-360	151	V
5	25.483	42.27	Pk	33.9	-28.8	47.37	-	-	74	-26.63	68.2	-20.83	0-360	151	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

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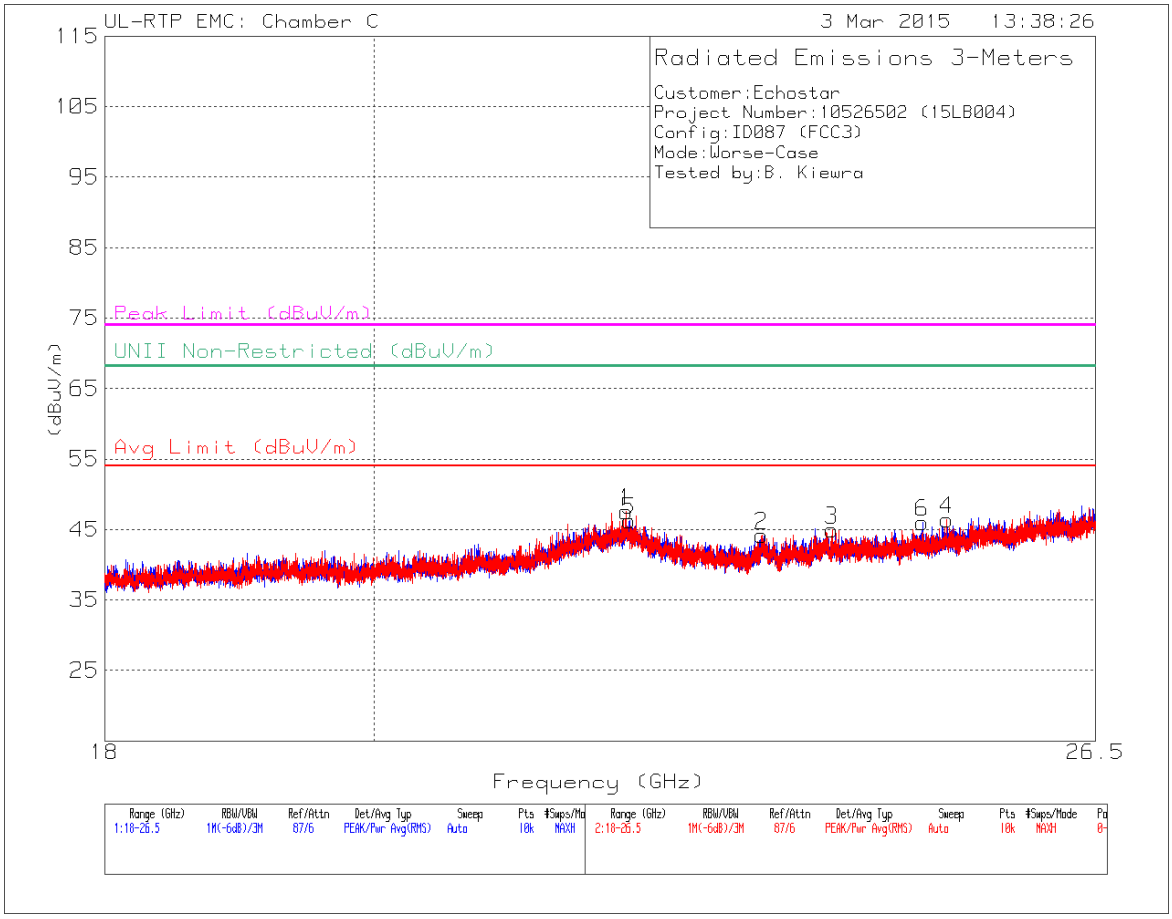
SPURIOUS EMISSIONS 18 TO 26GHz (WORST-CASE 5.8GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn AT0063 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 22.093	41.66	Pk	36.8	-32.2	0	46.26	54	-7.74	74	-27.74	68.2	-21.94	0-360	250	H
1	* 22.067	44.9	PK3	36.9	-31.8	0	50	-	-	74	-24	68.2	-18.2	108	259	V
	* 22.067	39.48	ADR	36.9	-31.8	0	44.58	54	-9.42	-	-	-	-	108	259	V
3	* 23.911	42.32	Pk	33.7	-31.1	0	44.92	54	-9.08	74	-29.08	68.2	-23.28	0-360	151	V
2	23.264	41.75	Pk	33.5	-31.1	0	44.15	54	-9.85	74	-29.85	68.2	-24.05	0-360	151	V
6	24.77	41.59	Pk	33.8	-29.4	0	45.99	54	-8.01	74	-28.01	68.2	-22.21	0-360	250	H
4	25.008	41.78	Pk	33.9	-29.3	0	46.38	54	-7.62	74	-27.62	68.2	-21.82	0-360	250	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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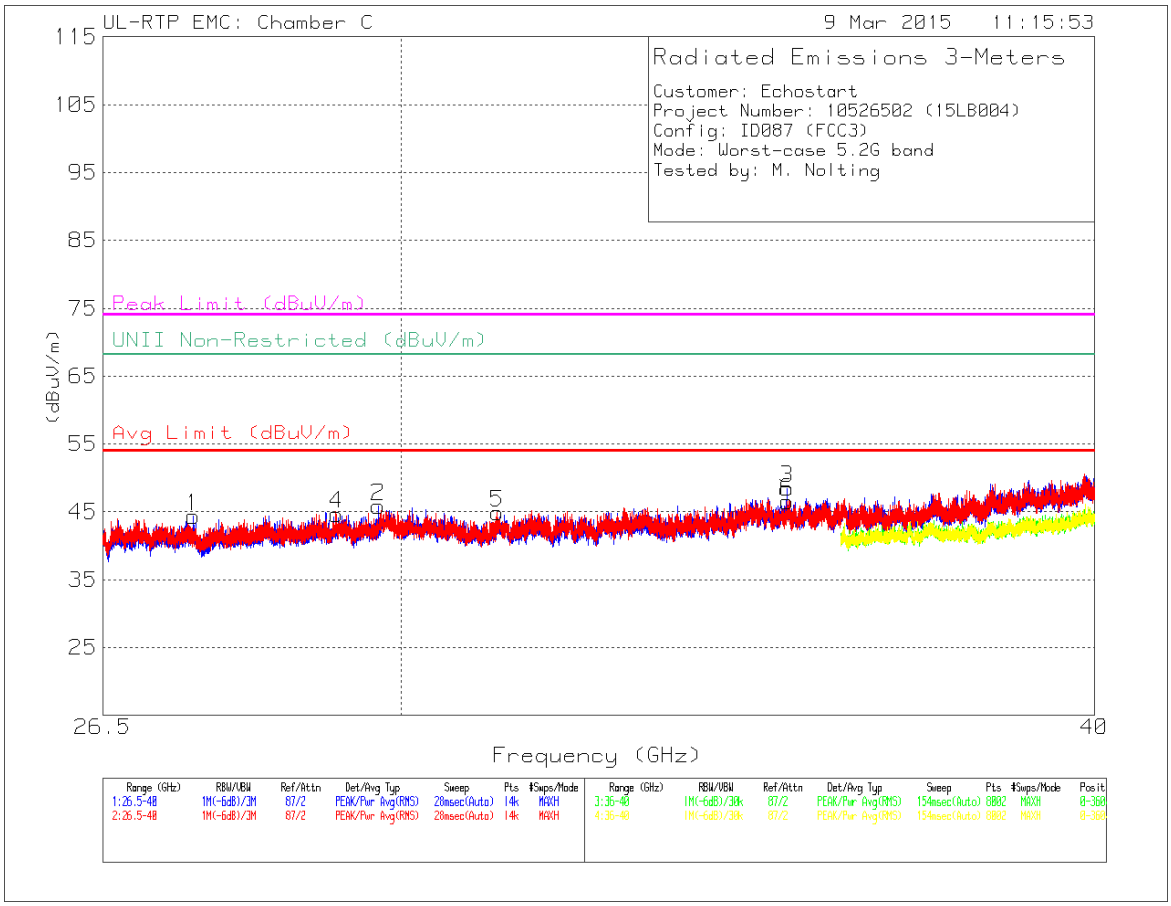
9.10. WORST-CASE 26-40GHz

SPURIOUS EMISSIONS 26 TO 40 GHz (WORST-CASE 5.2GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 31.217	45.79	PK3	36.4	-34.7	47.49	-	-	74	-26.51	68.2	-20.71	62	150	V
	* 31.221	34.53	ADR	36.4	-34.6	36.33	54	-17.67	-	-	-	-	62	150	V
1	27.514	45.44	Pk	35.8	-36.9	44.34	-	-	74	-29.66	68.2	-23.86	0-360	175	H
4	29.201	44.74	Pk	35.9	-36	44.64	-	-	74	-29.36	68.2	-23.56	0-360	200	V
2	29.713	45.33	Pk	36	-35.5	45.83	-	-	74	-28.17	68.2	-22.37	0-360	200	H
3	35.205	46.84	Pk	37	-35.4	48.44	-	-	74	-25.56	68.2	-19.76	0-360	200	H
6	35.209	44.82	Pk	37	-35.3	46.52	-	-	74	-27.48	68.2	-21.68	0-360	150	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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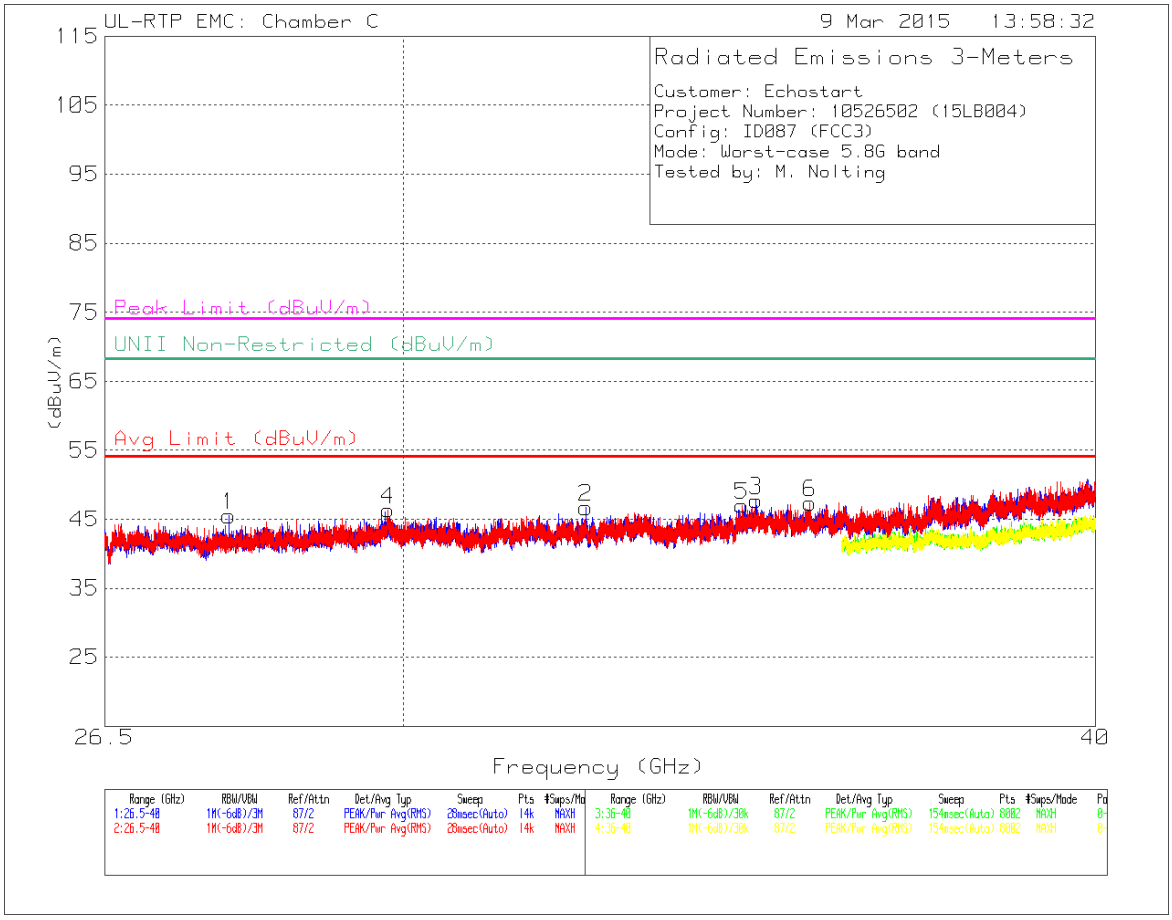
SPURIOUS EMISSIONS 26 TO 40 GHz (WORST-CASE 5.8GHz CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.906	46.54	Pk	35.7	-36.7	45.54	-	-	74	-28.46	68.2	-22.66	0-360	175	H
4	29.816	45.36	Pk	36.2	-35.2	46.36	-	-	74	-27.64	68.2	-21.84	0-360	175	V
2	32.371	44.81	Pk	36.3	-34.4	46.71	-	-	74	-27.29	68.2	-21.49	0-360	200	H
5	34.534	45.51	Pk	37	-35.5	47.01	-	-	74	-26.99	68.2	-21.19	0-360	200	V
3	34.742	46.01	Pk	37	-35.3	47.71	-	-	74	-26.29	68.2	-20.49	0-360	175	H
6	35.526	45.66	Pk	37.3	-35.6	47.36	-	-	74	-26.64	68.2	-20.84	0-360	200	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
Pk - Peak detector
PK3 - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

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10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

Consistent with ANSI C63.4 and ANSI C63.10.

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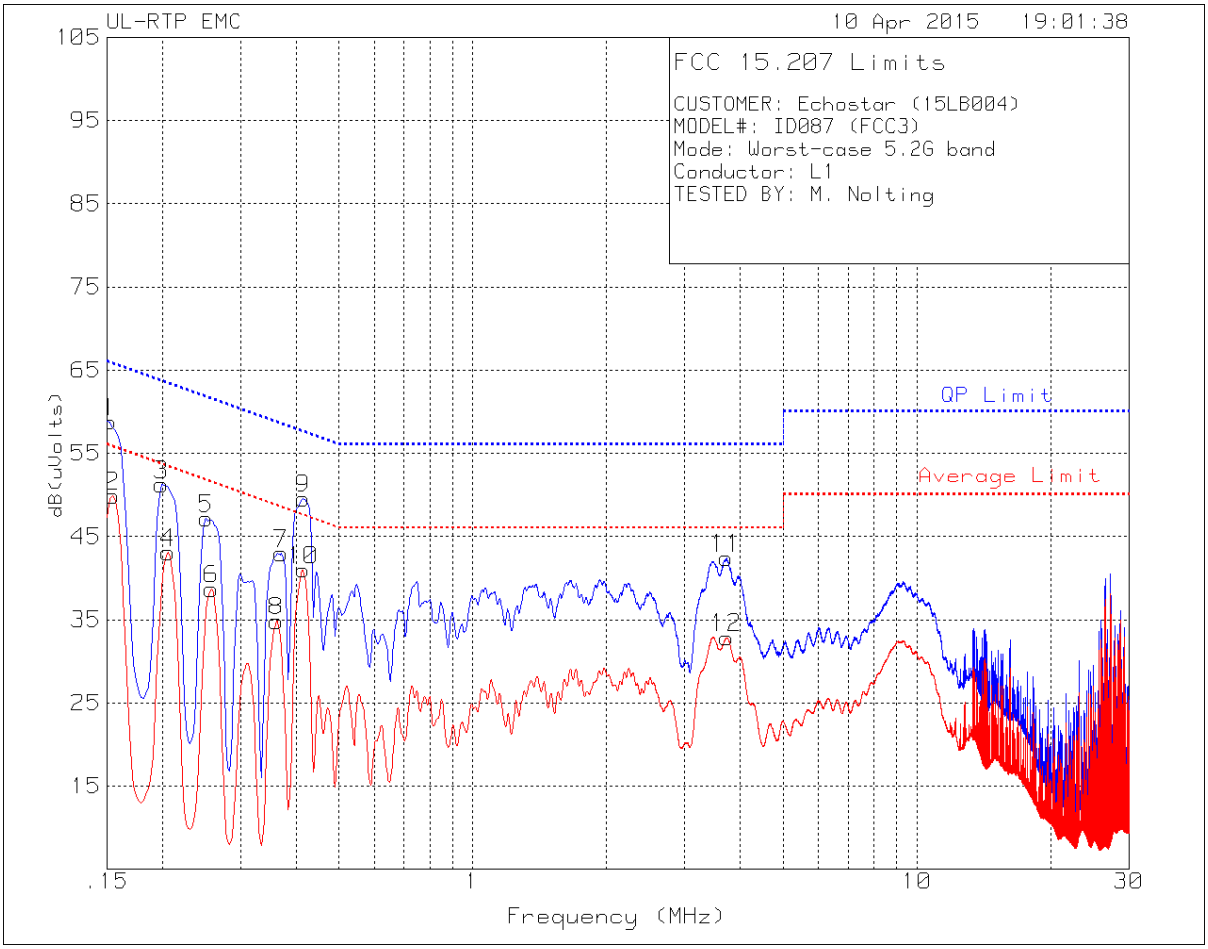
RESULTS

LINE 1 RESULTS (5.2GHz Band)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Limiter & Cable (dB)	Corrected Reading (dBuV)	QP Limit	QP Margin (dB)	Average Limit	Average Margin (dB)
1	.15225	48.99	Qp	.4	9.4	58.79	65.88	-7.09	-	-
2	.1545	40.08	Ca	.4	9.4	49.88	-	-	55.75	-5.87
3	.1995	41.64	Qp	.2	9.4	51.24	63.63	-12.39	-	-
4	.20625	33.48	Ca	.2	9.4	43.08	-	-	53.35	-10.27
5	.25125	37.54	Qp	.2	9.4	47.14	61.72	-14.58	-	-
6	.258	29.1	Ca	.2	9.4	38.7	-	-	51.5	-12.8
8	.3615	25.35	Ca	.1	9.4	34.85	-	-	48.69	-13.84
7	.3705	33.46	Qp	.1	9.4	42.96	58.49	-15.53	-	-
9	.4155	40.07	Qp	.1	9.4	49.57	57.54	-7.97	-	-
10	.4155	31.49	Ca	.1	9.4	40.99	-	-	47.54	-6.55
11	3.723	32.88	Qp	0	9.5	42.38	56	-13.62	-	-
12	3.72638	23.35	Ca	0	9.5	32.85	-	-	46	-13.15

Qp - Quasi-Peak detector
Ca - CISPR average detection

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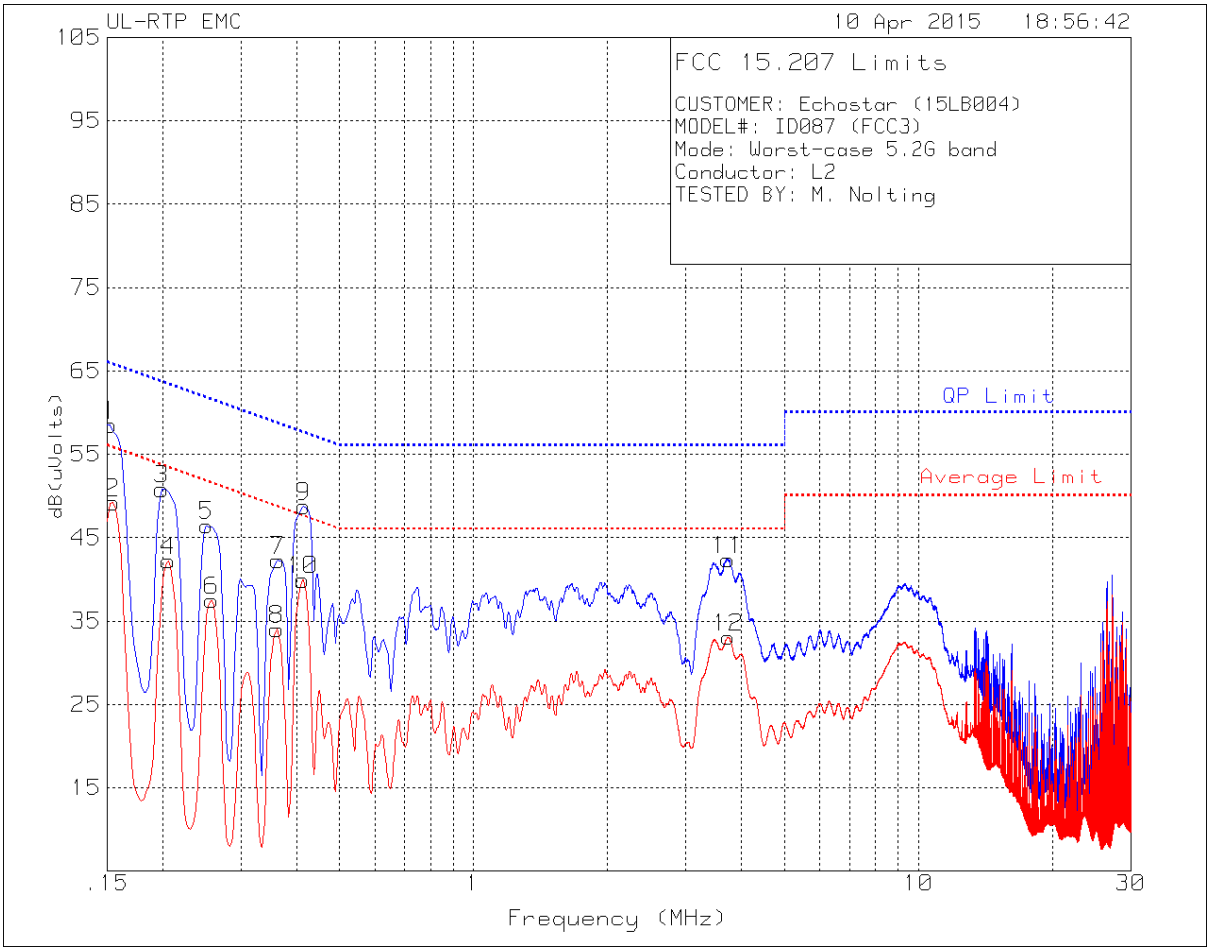
LINE 2 RESULTS (5.2GHz Band)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Limiter & Cable (dB)	Corrected Reading (dBuV)	QP Limit	QP Margin (dB)	Average Limit	Average Margin (dB)
1	.15225	48.69	Qp	.4	9.4	58.49	65.88	-7.39	-	-
2	.1545	39.39	Ca	.4	9.4	49.19	-	-	55.75	-6.56
3	.1995	41.22	Qp	.2	9.4	50.82	63.63	-12.81	-	-
4	.20625	32.63	Ca	.2	9.4	42.23	-	-	53.35	-11.12
5	.25125	36.85	Qp	.2	9.4	46.45	61.72	-15.27	-	-
6	.258	27.88	Ca	.2	9.4	37.48	-	-	51.5	-14.02
8	.3615	24.49	Ca	.1	9.4	33.99	-	-	48.69	-14.7
7	.36375	32.76	Qp	.1	9.4	42.26	58.64	-16.38	-	-
10	.41325	30.43	Ca	.1	9.4	39.93	-	-	47.58	-7.65
9	.4155	39.25	Qp	.1	9.4	48.75	57.54	-8.79	-	-
11	3.732	32.85	Qp	0	9.5	42.35	56	-13.65	-	-
12	3.741	23.56	Ca	0	9.5	33.06	-	-	46	-12.94

Qp - Quasi-Peak detector
Ca - CISPR average detection

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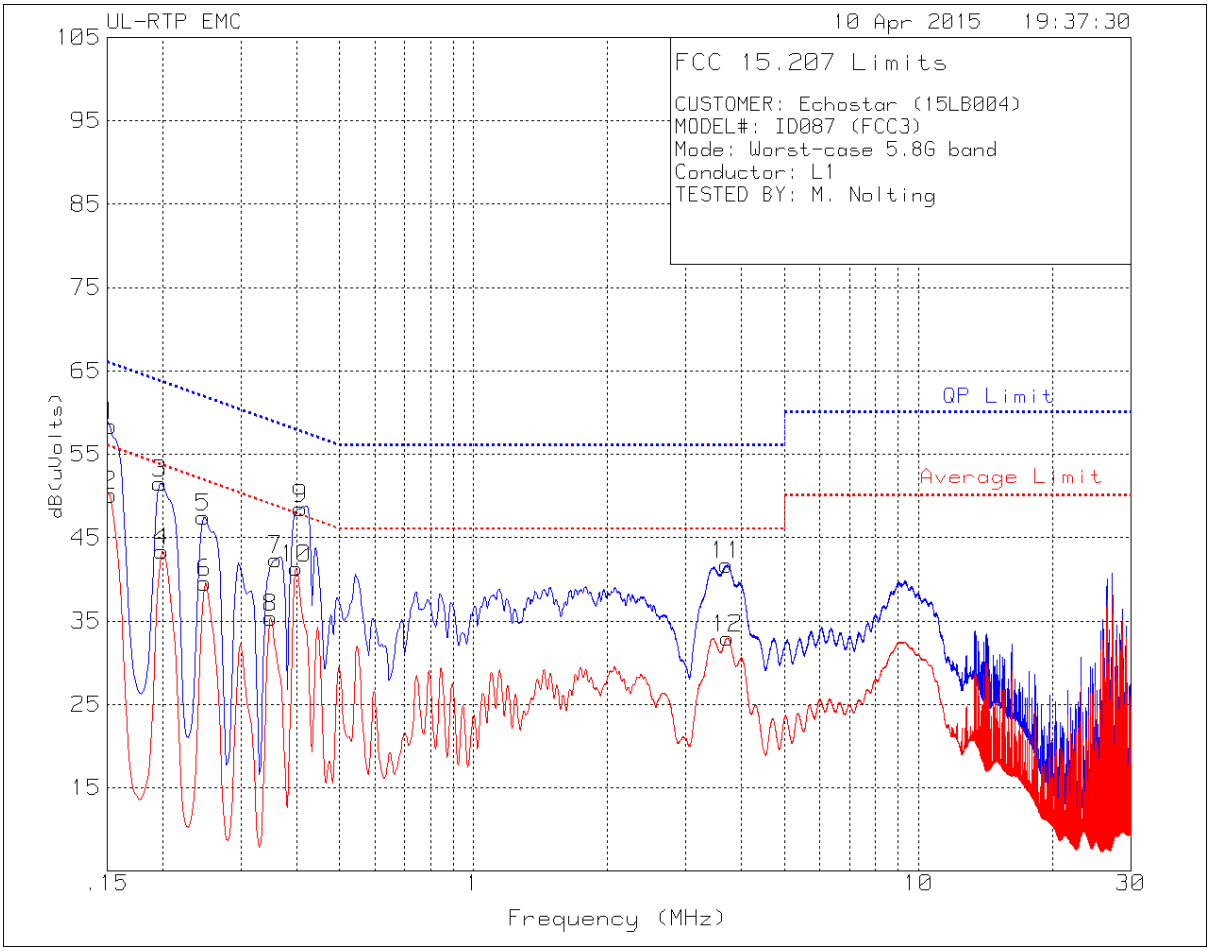
LINE 1 RESULTS (5.8GHz Band)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Limiter & Cable (dB)	Corrected Reading (dBuV)	QP Limit	QP Margin (dB)	Average Limit	Average Margin (dB)
1	.15225	48.63	Qp	.4	9.4	58.43	65.88	-7.45	-	-
2	.15225	40.31	Ca	.4	9.4	50.11	-	-	55.88	-5.77
3	.19725	41.92	Qp	.2	9.4	51.52	63.73	-12.21	-	-
4	.1995	33.77	Ca	.2	9.4	43.37	-	-	53.63	-10.26
5	.24675	37.86	Qp	.2	9.4	47.46	61.87	-14.41	-	-
6	.249	30	Ca	.2	9.4	39.6	-	-	51.79	-12.19
8	.35025	25.88	Ca	.1	9.4	35.38	-	-	48.96	-13.58
7	.35925	32.87	Qp	.1	9.4	42.37	58.75	-16.38	-	-
10	.39975	31.83	Ca	.1	9.4	41.33	-	-	47.86	-6.53
9	.40875	38.99	Qp	.1	9.4	48.49	57.67	-9.18	-	-
11	3.705	32.23	Qp	0	9.5	41.73	56	-14.27	-	-
12	3.72075	23.45	Ca	0	9.5	32.95	-	-	46	-13.05

Qp - Quasi-Peak detector
Ca - CISPR average detection

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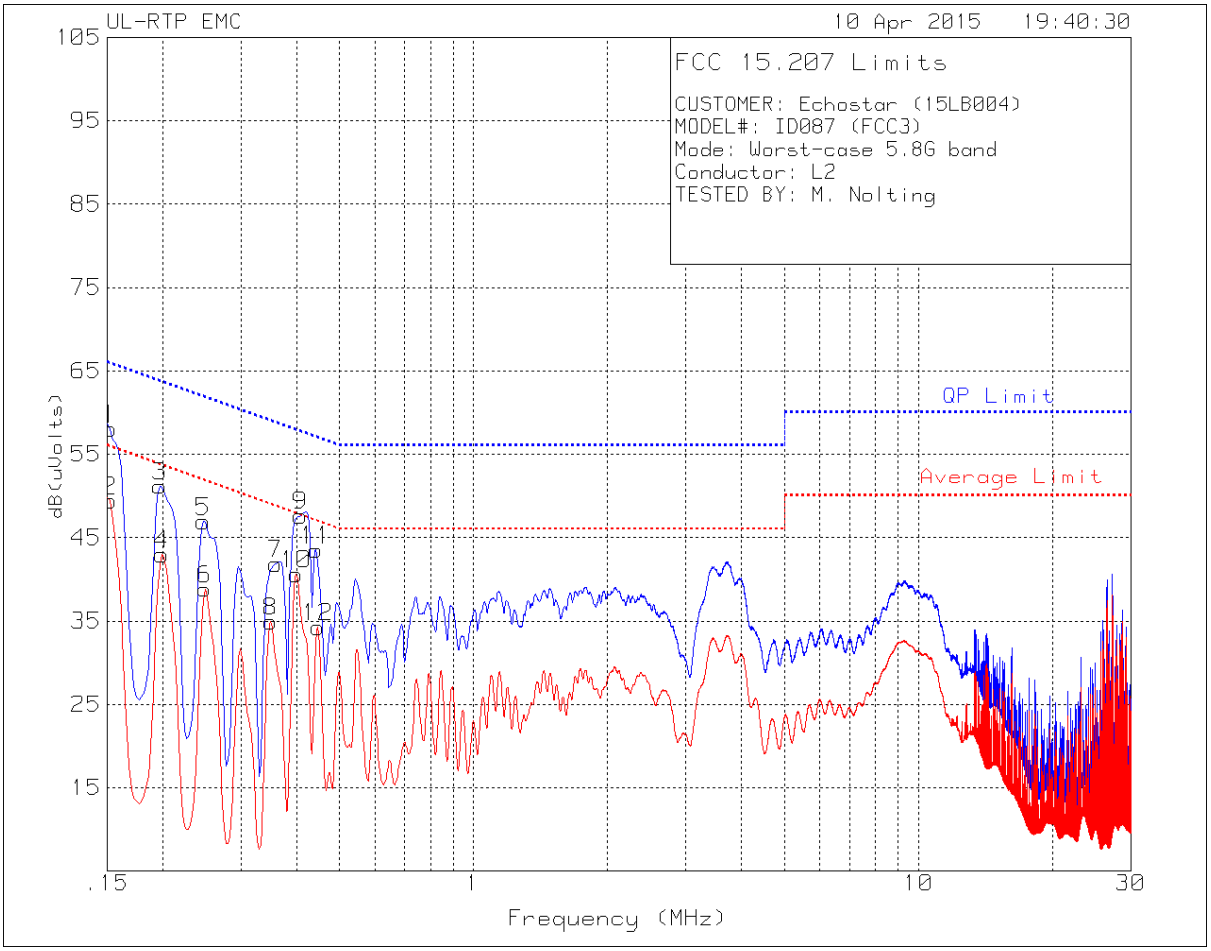
LINE 2 RESULTS (5.8GHz Band)



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Limiter & Cable (dB)	Corrected Reading (dBuV)	QP Limit	QP Margin (dB)	Average Limit	Average Margin (dB)
1	.15225	48.23	Qp	.4	9.4	58.03	65.88	-7.85	-	-
2	.15225	39.62	Ca	.4	9.4	49.42	-	-	55.88	-6.46
3	.19725	41.58	Qp	.2	9.4	51.18	63.73	-12.55	-	-
4	.1995	33.38	Ca	.2	9.4	42.98	-	-	53.63	-10.65
5	.24675	37.32	Qp	.2	9.4	46.92	61.87	-14.95	-	-
6	.249	29.25	Ca	.2	9.4	38.85	-	-	51.79	-12.94
8	.35025	25.43	Ca	.1	9.4	34.93	-	-	48.96	-14.03
7	.35925	32.35	Qp	.1	9.4	41.85	58.75	-16.9	-	-
10	.39975	31.13	Ca	.1	9.4	40.63	-	-	47.86	-7.23
9	.40875	38.15	Qp	.1	9.4	47.65	57.67	-10.02	-	-
11	.4425	34.01	Qp	.1	9.4	43.51	57.01	-13.5	-	-
12	.447	24.78	Ca	.1	9.4	34.28	-	-	46.93	-12.65

Qp - Quasi-Peak detector
Ca - CISPR average detection

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