CLASS II PERMISSIVE CHANGE TEST REPORT

Report Number : 12079729-E1V4

Applicant	:	Adaptrum 2740 Zanker Road Suite 100 San Jose, CA 95131
Model	:	ACRS2-B1000
FCC ID	:	A2UACRS2F-B1
EUT Description	:	Fixed TV Band Device
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART H

Date of Issue:
March 16, 2018

Prepared by:
UL Verification Services Inc.
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NVLAP TESTING
NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	1/18/18	Initial release	---
V2	2/27/18	Updated section 1 and 7	C. Susa
V3	3/15/18	Updated section 6.2	F. de Anda
V4	3/16/18	Updated section 9.1.1	C. Susa

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. SCOPE 6

3. TEST METHODOLOGY 6

4. FACILITIES AND ACCREDITATION 6

5. CALIBRATION AND UNCERTAINTY 7

5.1. MEASURING INSTRUMENT CALIBRATION 7

5.2. SAMPLE CALCULATION 7

5.3. MEASUREMENT UNCERTAINTY 7

6. EQUIPMENT UNDER TEST 8

6.1. DESCRIPTION OF EUT 8

6.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE 8

6.3. DATABASE PROVIDER 8

6.4. MAXIMUM OUTPUT POWER 8

6.5. DESCRIPTION OF AVAILABLE ANTENNAS 8

6.6. SOFTWARE AND FIRMWARE 8

6.7. WORST-CASE CONFIGURATION AND MODE 9

6.8. DESCRIPTION OF TEST SETUP 9

7. TEST AND MEASUREMENT EQUIPMENT 12

8. MEASUREMENT METHODS 13

9. ANTENNA PORT TEST RESULTS 14

9.1. OUTPUT POWER AND POWER SPECTRAL DENSITY 14

9.1.1. UHF BAND 15

9.2. BAND-EDGE 18

9.2.1. UHF BAND 19

9.3. ADJACENT CHANNEL EMISSIONS 23

9.3.1. UHF BAND 24

10. RADIATED EMISSIONS 28

10.1. TRANSMITTER BELOW 1GHz WITH PANEL ANTENNA 29

10.1.1. UHF BAND 29

10.2. TRANSMITTER BELOW 1GHz WITH LOG PERIODIC ANTENNA 35

10.2.1. UHF BAND 35

10.3. TRANSMITTER ABOVE 1GHz WITH PANEL ANTENNA 41

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10.3.1. HARMONICS AND SPURIOUS EMISSIONS IN THE UHF BAND 41

10.4. TRANSMITTER ABOVE 1GHz WITH LOG PERIODIC ANTENNA 47
10.4.1. HARMONICS AND SPURIOUS EMISSIONS IN THE UHF BAND 47

10.5. RECEIVER SPURIOUS EMISSIONS BELOW 1 GHz 53
10.5.1. UHF BAND.....53

10.6. RECEIVER SPURIOUS EMISSIONS ABOVE 1 GHz.....55
10.6.1. UHF BAND.....55

11. AC MAINS LINE CONDUCTED EMISSIONS.....57

11.1. UHF BAND WORST CASE 58
11.1.1. LINE 1 RESULTS.....58
11.1.2. LINE 2 RESULTS.....59

12. SETUP PHOTOS.....60

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Adaptrum
2740 Zanker Road Suite 100
San Jose, CA 95131

EUT DESCRIPTION: Fixed TV Band Device

MODEL: ACRS2-B1000

SERIAL NUMBER: Proto 1

DATE TESTED: July 26th 2017 and March 14th 2018(Conducted);
December 12th 2017 - January 17th 2018 (Radiated)

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART H	Complies

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 the U.S. government.

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2. SCOPE

This Class III permissive change report documents the results of RF emissions tests to demonstrate compliance to the applicable rules in Part 15 Subpart H – White Space Devices with addition of Channel Bonding (Channel Aggregation) support.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 15 Subpart H, KDB 416721 D01 v03, and ANSI C63.10-2013.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☐ Chamber B	☒ Chamber E
☐ Chamber C	☒ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

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5. CALIBRATION AND UNCERTAINTY

5.1. 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.

5.2. 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

5.3. MEASUREMENT UNCERTAINTY

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

Parameter	Uncertainty
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

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6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a Fixed TV Band Device with a tuning range from 470 to 698MHz.

6.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The purpose of this C2PC is to cover the addition of the channel bonding feature to allow 12MHz bandwidth transmission signals.

6.3. DATABASE PROVIDER

The database provider used during testing is Google TVWS Database.

6.4. MAXIMUM OUTPUT POWER

The transmitter has a maximum power as follows:

UHF BAND				
Frequency Range (MHz)	Conducted		EIRP	
	Output Power (dBm)	Output Power (mW)	Output Power (dBm)	Output Power (W)
470-698	25.5	354.81	37.5	5.62

6.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio can be configured with the following antenna types, and highest gain for each type:

Type	Band	Gain
Log Periodic	UHF	11.0 dBi
Panel	UHF	12 dBi

6.6. SOFTWARE AND FIRMWARE

The software used during test was Adaptrum TVBD v3.6.0.60

The firmware installed in the EUT during testing was K.7.8.99

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6.7. WORST-CASE CONFIGURATION AND MODE

For below and above 1 GHz radiated emissions were performed with the EUT set to transmit at L/M/H channels at highest power and worst-case data rate as worst-case scenario.

Power line conducted emissions were performed with the EUT set to transmit at the channel with the highest power and worst-case data rate as worst-case scenario.

Preliminary baseline tests were performed to determine worst case data rate. The worst case data rate was determined to be QPSK.

All final radiated testing was performed with the EUT in the X (Flatbed) orientation.

6.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
Laptop	Lenovo	20319	CB37160795
POE	Laird	POE-HP-50i	138009847DRC00

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**No. of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	3-Prong	Unshielded	2	
2	Ethernet	2	RJ45	Shielded	2.1	
3	antenna	1	N-Type	shielded	1.2	

TEST SETUP

The EUT was installed in a typical configuration. The customer provided test software to exercise the EUT during test. Refer to the following diagram.

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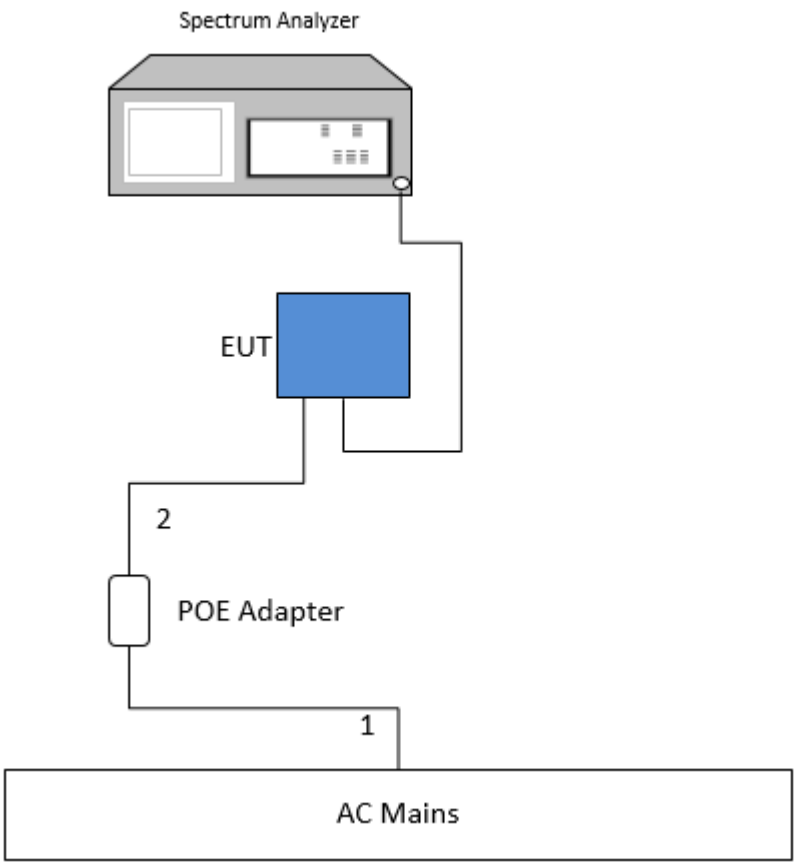
SETUP DIAGRAM FOR ANTENNA PORT CONDUCTED TESTS



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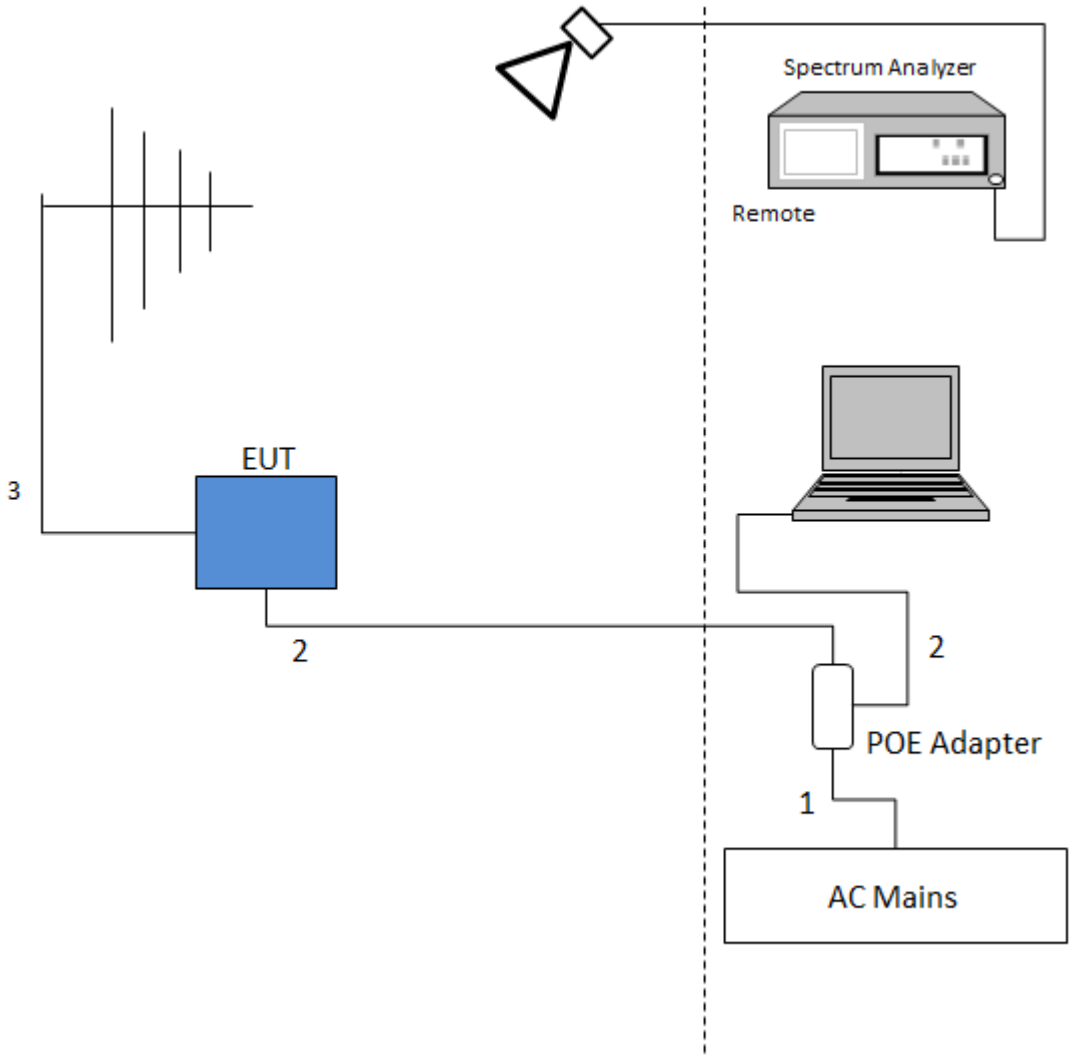
SETUP DIAGRAM FOR RADIATED TESTS



Note: EUT antennas used during testing were the Log periodic and the Panel antennas

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7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
Spectrum Analyzer	Agilent	E4446A	T146	07/18/17	07/18/18
Spectrum Analyzer	Keysight	N9030A	T341	11/12/17	11/12/18
Spectrum Analyzer	Keysight	N9030A	T340	12/15/17	12/15/18
Spectrum Analyzer	Keysight	N9030A	PRE0176799	02/21/18	02/21/19
RF Preamplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T742	12/04/17	12/04/18
Antenna, Horn, 1-18GHz	ETS Lindgren	3117	T119	03/28/17	03/28/18
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	T900	05/31/17	05/31/18
Notch filter, 476MHz	EWT	EWT-14-0557	PRE0164925	11/20/17	11/20/18
Notch filter, 590MHz	EWT	EWT-14-0558	PRE0164926	11/20/17	11/20/18
Notch filter, 692MHz	EWT	EWT-14-0559	PRE0164927	11/20/17	11/20/18
High Pass filter, 625MHz	EWT	EWT-57-0194	T237	07/6/17	07/06/18
Spectrum Analyzer	Keysight	N9030A	T906	02/04/17	02/04/18
RF Preamplifier, 1 - 8GHz	Miteq	AMF-4D-01000800-30-29P	T1169	12/30/17	12/30/18
RF Preamplifier, 10kHz - 1GHz	Sonoma	310N	T285	06/24/17	06/24/18
Antenna, Horn, 1-18GHz	ETS Lindgren	3117	T346	03/28/17	03/28/18
LISN	Fischer Custom Communications	FCC-LISN-50/250-25-2-01	T1310	06/15/17	06/15/18
EMI Receiver	Rohde & Schwarz	ESCI7	T212	09/15/17	09/15/18

TEST SOFTWARE LIST			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	9.5, 12/01/16
Conducted Emissions Software	UL	UL EMC	9.5, 5/26/15

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8. MEASUREMENT METHODS

Output Power & Power Spectral Density: KDB 416721 D01 v03 Section II, (2)(c)(i).

Band-Edge Measurement: KDB 416721 D01 v03 Section II (2)(d)(i)

Adjacent Channel Emissions: KDB 416721 D01 v03 Section II (2)(d)(ii)

Beyond Adjacent Channel Emissions: ANSI C63.10-2013, Section 6.5 and 6.6.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

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9. ANTENNA PORT TEST RESULTS

9.1. OUTPUT POWER AND POWER SPECTRAL DENSITY

LIMITS

§15.709 (b)(1) Fixed White Space Device

For operation at EIRP levels of 36 dBm (4000 mW) or less, fixed white space devices may operate at EIRP levels between the values shown in the table provided that the conducted power and the conducted power spectral density (PSD) limits are linearly interpolated between the values shown and the adjacent channel emission limit of the higher value shown in the table is met. Operation at EIRP levels above 36 dBm (4000 mW) shall follow the requirements for 40 dBm (10,000 mW).

EIRP (6 MHz)	Conducted power limit[1] (6 MHz)	Conducted PSD limit (100 kHz)	Conducted adjacent channel emission limit (100 kHz)
16 dBm (40 mW)	10 dBm (10 mW)	−7.4 dBm	−62.8 dBm
20 dBm (100 mW)	14 dBm (25 mW)	−3.4 dBm	−58.8 dBm
24 dBm (250 mW)	18 dBm (63 mW)	0.6 dBm	−54.8 dBm
28 dBm (625 mW)	22 dBm (158 mW)	4.6 dBm	−50.8 dBm
32 dBm (1600 mW)	26 dBm (400 mW)	8.6 dBm	−46.8 dBm
36 dBm (4000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm
40 dBm (10000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm

[1]The conducted power spectral density from a fixed white space device shall not be greater than the values shown in the table when measured in any 100 kHz band during any time interval of continuous transmission, except that a 40 mW fixed white space device operating in a four megahertz channel within a seven megahertz guard band must comply with a conducted power spectral density limit of −5.4 dBm.

§15.709 (c)(1) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at up to 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.709 (c)(2) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at greater than 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 10 dBi. If transmitting antennas of directional gain greater than 10 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 10 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

9.1.1. UHF BAND

Tested By:	37699 CS
Test Date:	7/26/2017, 3/14/18

Antenna Gain (dBi)	12.00

Output Power Results

Channel	Frequency (MHz)	Measured Output Power Chain 0 (dBm)	Measured Total Output Power (dBm)	Measured Total EIRP (dBm)	Conducted Power Limit (dBm)	Margin (dBm)
Low	476	25.50	25.50	37.50	28.00	-2.50
Mid	590	25.39	25.39	37.39	28.00	-2.61
High	692	25.33	25.33	37.33	28.00	-2.67

PSD Results

Channel	Frequency (MHz)	Measured Output PSD Chain 0 (dBm)	Measured Total PSD Power (dBm)	Conducted PSD Limit (dBm)	Margin (dBm)
Low	476	7.02	7.02	10.60	-3.58
Mid	590	6.79	6.79	10.60	-3.81
High	692	6.85	6.85	10.60	-3.75

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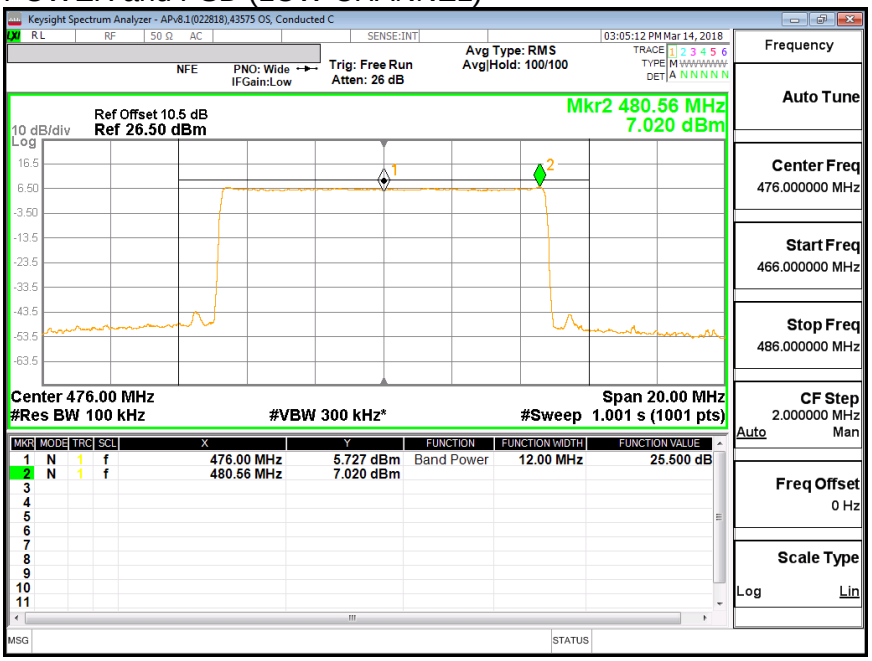
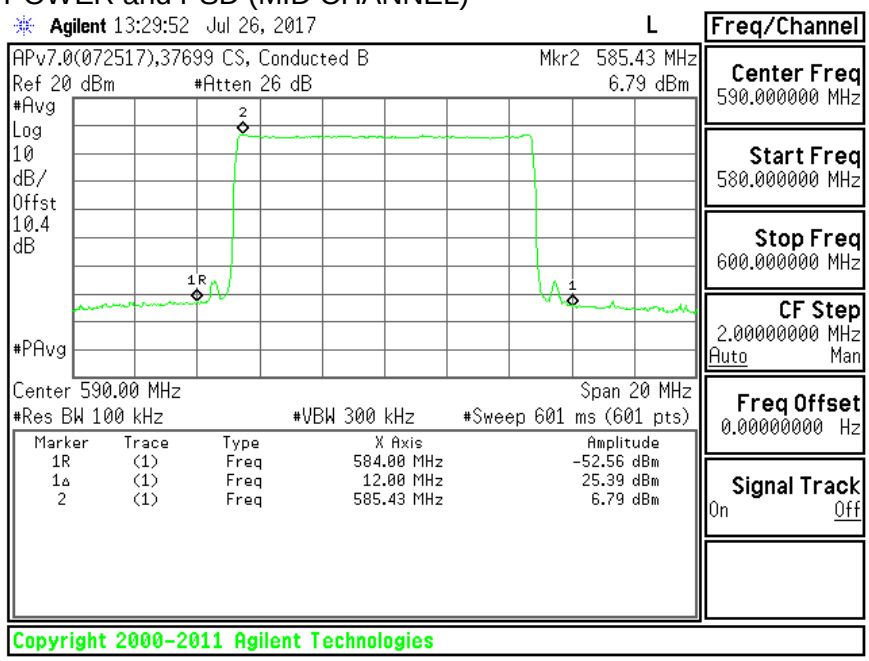
POWER and PSD (LOW CHANNEL)



POWER and PSD (MID CHANNEL)



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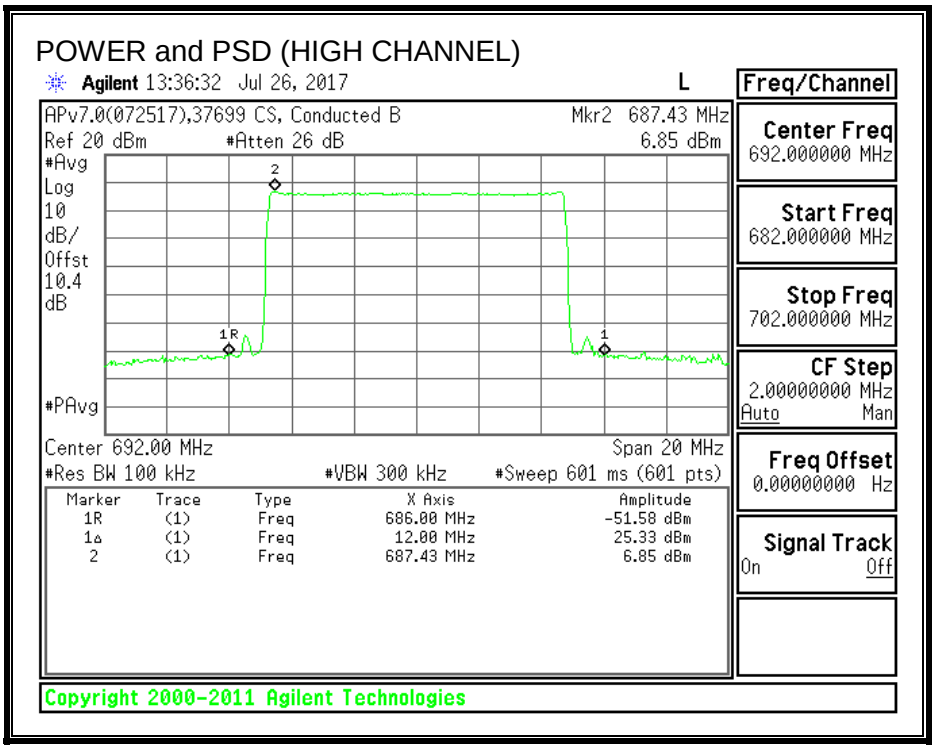
POWER and PSD (HIGH CHANNEL)



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9.2. BAND-EDGE

LIMITS

§15.709 (b)(1) Fixed White Space Device

For operation at EIRP levels of 36 dBm (4000 mW) or less, fixed white space devices may operate at EIRP levels between the values shown in the table provided that the conducted power and the conducted power spectral density (PSD) limits are linearly interpolated between the values shown and the adjacent channel emission limit of the higher value shown in the table is met. Operation at EIRP levels above 36 dBm (4000 mW) shall follow the requirements for 40 dBm (10,000 mW).

EIRP (6 MHz)	Conducted power limit[1] (6 MHz)	Conducted PSD limit (100 kHz)	Conducted adjacent channel emission limit (100 kHz)
16 dBm (40 mW)	10 dBm (10 mW)	−7.4 dBm	−62.8 dBm
20 dBm (100 mW)	14 dBm (25 mW)	−3.4 dBm	−58.8 dBm
24 dBm (250 mW)	18 dBm (63 mW)	0.6 dBm	−54.8 dBm
28 dBm (625 mW)	22 dBm (158 mW)	4.6 dBm	−50.8 dBm
32 dBm (1600 mW)	26 dBm (400 mW)	8.6 dBm	−46.8 dBm
36 dBm (4000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm
40 dBm (10000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm

[1]The conducted power spectral density from a fixed white space device shall not be greater than the values shown in the table when measured in any 100 kHz band during any time interval of continuous transmission, except that a 40 mW fixed white space device operating in a four megahertz channel within a seven megahertz guard band must comply with a conducted power spectral density limit of −5.4 dBm.

§15.709 (c)(1) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at up to 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.709 (c)(2) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at greater than 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 10 dBi. If transmitting antennas of directional gain greater than 10 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 10 dBi.

RESULTS

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9.2.1. UHF BAND

Tested By:	37699 CS
Test Date:	07/26/17

Lower Band-Edge Emissions

Channel	Frequency (MHz)	Measured Emission Chain 0 (dBm)	Measured Total Emission (dBm)	Emissions Limit (dBm)	Worst Case Margin (dBm)
Low	476	-49.01	-49.01	-44.8	-4.21
Mid	590	-51.71	-51.71	-44.8	-6.91
High	692	-50.49	-50.49	-44.8	-5.69

Upper Band-Edge Emissions

Channel	Frequency (MHz)	Measured Emission Chain 0 (dBm)	Measured Total Emission (dBm)	Emissions Limit (dBm)	Worst Case Margin (dBm)
Low	476	-51.20	-51.20	-44.8	-6.40
Mid	590	-53.12	-53.12	-44.8	-8.32
High	692	-50.76	-50.76	-44.8	-5.96

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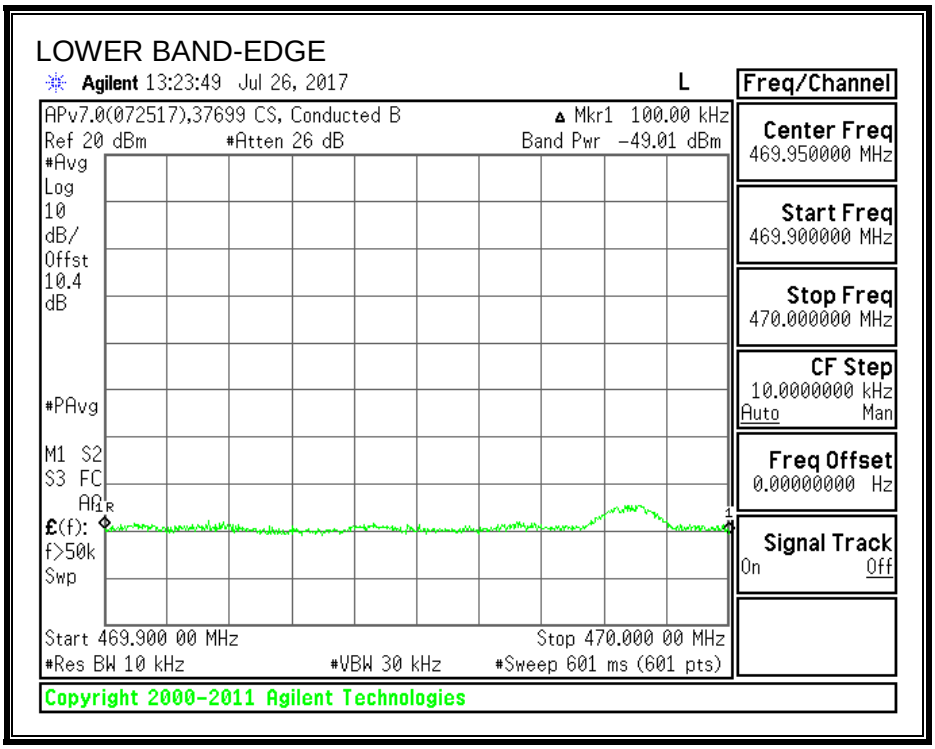
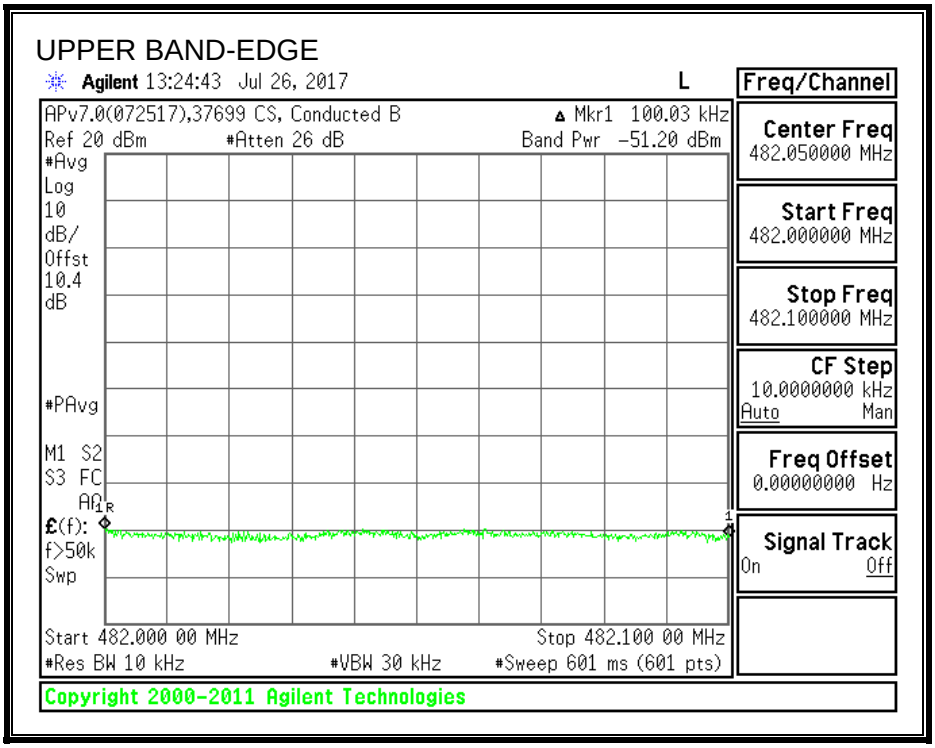
LOW CHANNEL





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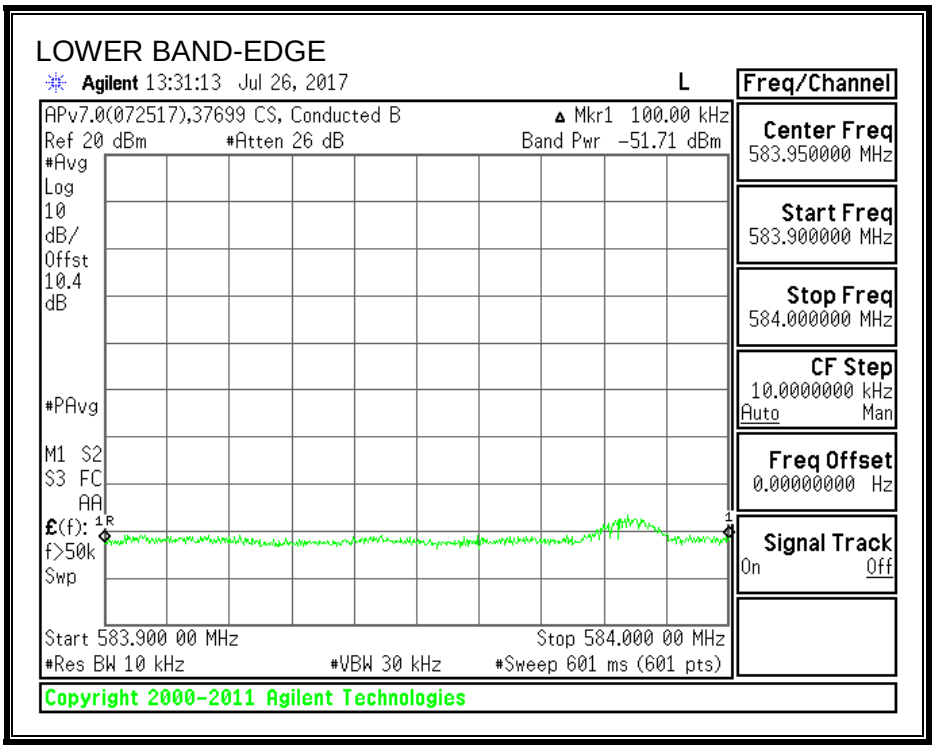
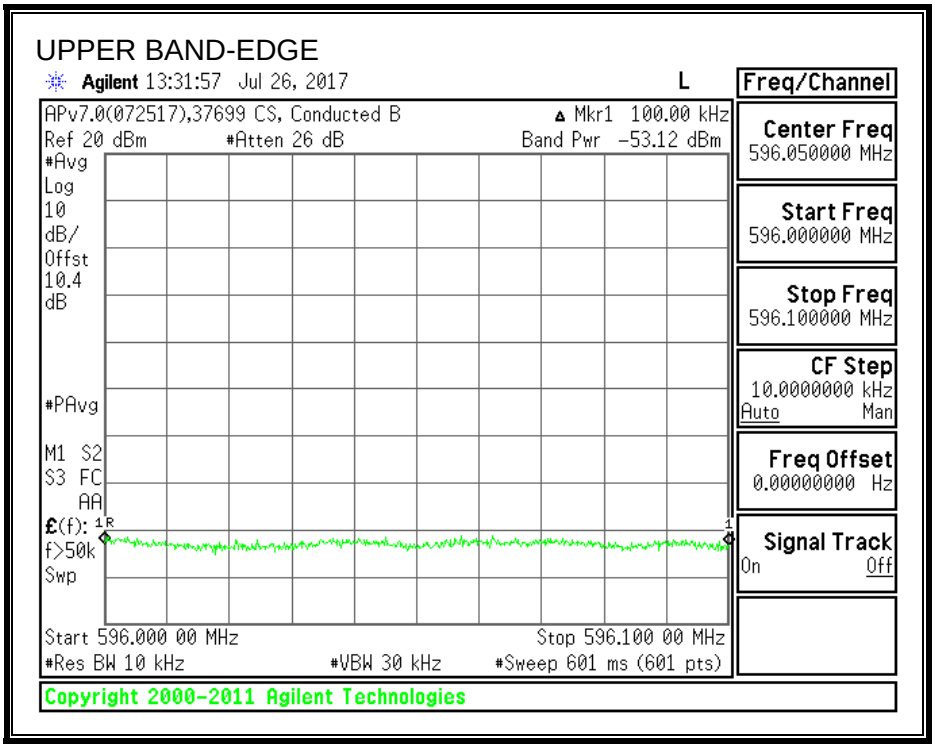
MID CHANNEL





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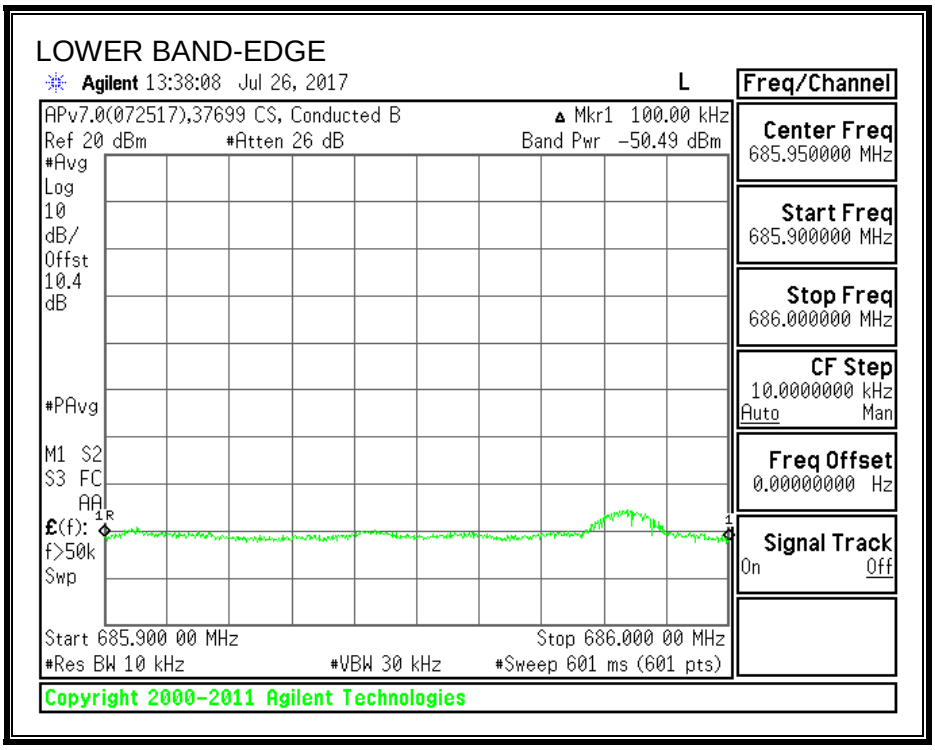
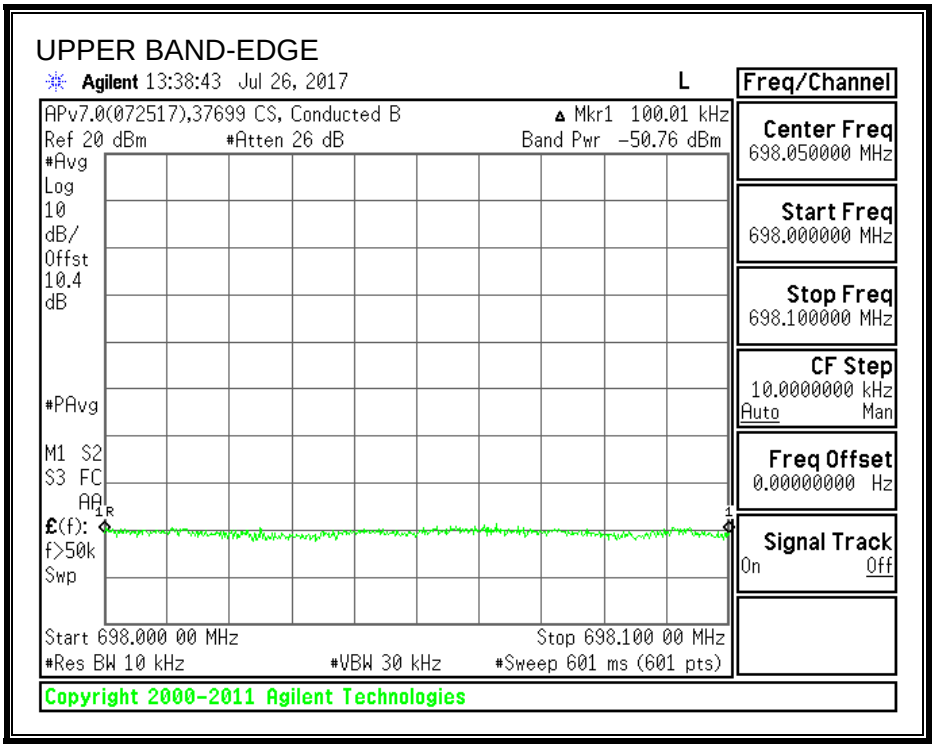
HIGH CHANNEL





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9.3. ADJACENT CHANNEL EMISSIONS

LIMITS

§15.709 (b)(1) Fixed White Space Device

For operation at EIRP levels of 36 dBm (4000 mW) or less, fixed white space devices may operate at EIRP levels between the values shown in the table provided that the conducted power and the conducted power spectral density (PSD) limits are linearly interpolated between the values shown and the adjacent channel emission limit of the higher value shown in the table is met. Operation at EIRP levels above 36 dBm (4000 mW) shall follow the requirements for 40 dBm (10,000 mW).

EIRP (6 MHz)	Conducted power limit[1] (6 MHz)	Conducted PSD limit (100 kHz)	Conducted adjacent channel emission limit (100 kHz)
16 dBm (40 mW)	10 dBm (10 mW)	−7.4 dBm	−62.8 dBm
20 dBm (100 mW)	14 dBm (25 mW)	−3.4 dBm	−58.8 dBm
24 dBm (250 mW)	18 dBm (63 mW)	0.6 dBm	−54.8 dBm
28 dBm (625 mW)	22 dBm (158 mW)	4.6 dBm	−50.8 dBm
32 dBm (1600 mW)	26 dBm (400 mW)	8.6 dBm	−46.8 dBm
36 dBm (4000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm
40 dBm (10000 mW)	30 dBm (1000 mW)	12.6 dBm	−42.8 dBm

[1]The conducted power spectral density from a fixed white space device shall not be greater than the values shown in the table when measured in any 100 kHz band during any time interval of continuous transmission, except that a 40 mW fixed white space device operating in a four megahertz channel within a seven megahertz guard band must comply with a conducted power spectral density limit of −5.4 dBm.

§15.709 (c)(1) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at up to 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.709 (c)(2) The conducted power, PSD and adjacent channel limits for fixed white space devices operating at greater than 36 dBm (4000 milliwatts) EIRP shown in the table in paragraph (b)(1) of this section are based on a maximum transmitting antenna gain of 10 dBi. If transmitting antennas of directional gain greater than 10 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 10 dBi

RESULTS

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9.3.1. UHF BAND

Tested By:	37699 CS
Test Date:	07/26/17

Lower Adjacent Channel Emissions

Channel	Frequency (MHz)	Measured Emission Chain 0 (dBm)	Measured Total Emission (dBm)	Emissions Limit (dBm)	Worst Case Margin (dBm)
Low	476	-49.72	-49.72	-44.8	-4.92
Mid	590	-52.36	-52.36	-44.8	-7.56
High	692	-51.17	-51.17	-44.8	-6.37

Upper Adjacent Channel Emissions

Channel	Frequency (MHz)	Measured Emission Chain 0 (dBm)	Measured Total Emission (dBm)	Emissions Limit (dBm)	Worst Case Margin (dBm)
Low	476	-50.60	-50.60	-44.8	-5.80
Mid	590	-52.40	-52.40	-44.8	-7.60
High	692	-49.47	-49.47	-44.8	-4.67

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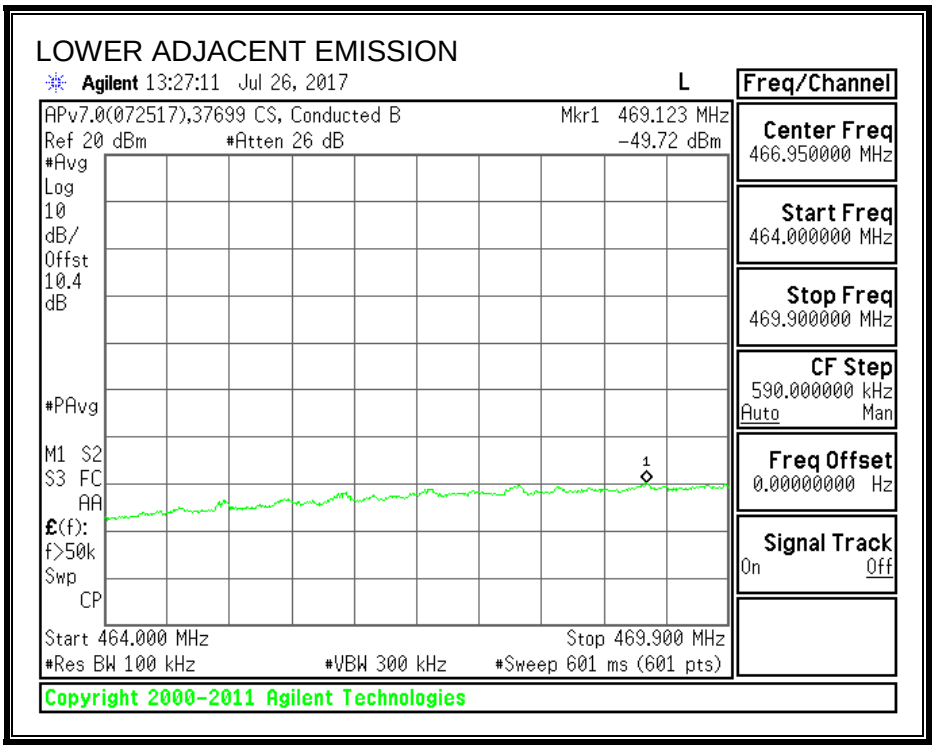
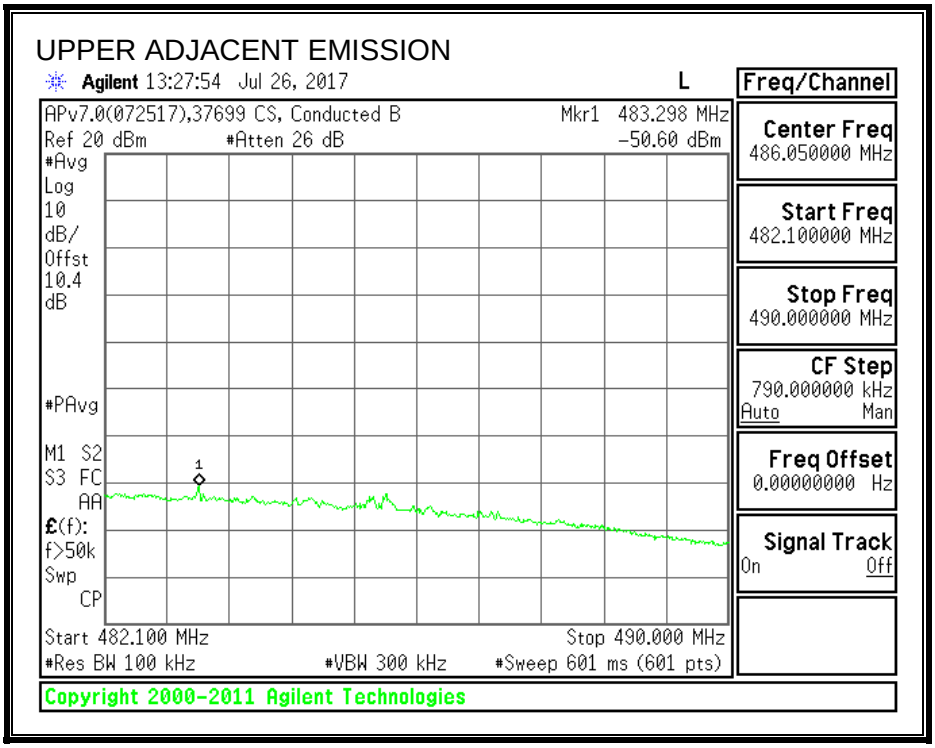
LOW CHANNEL





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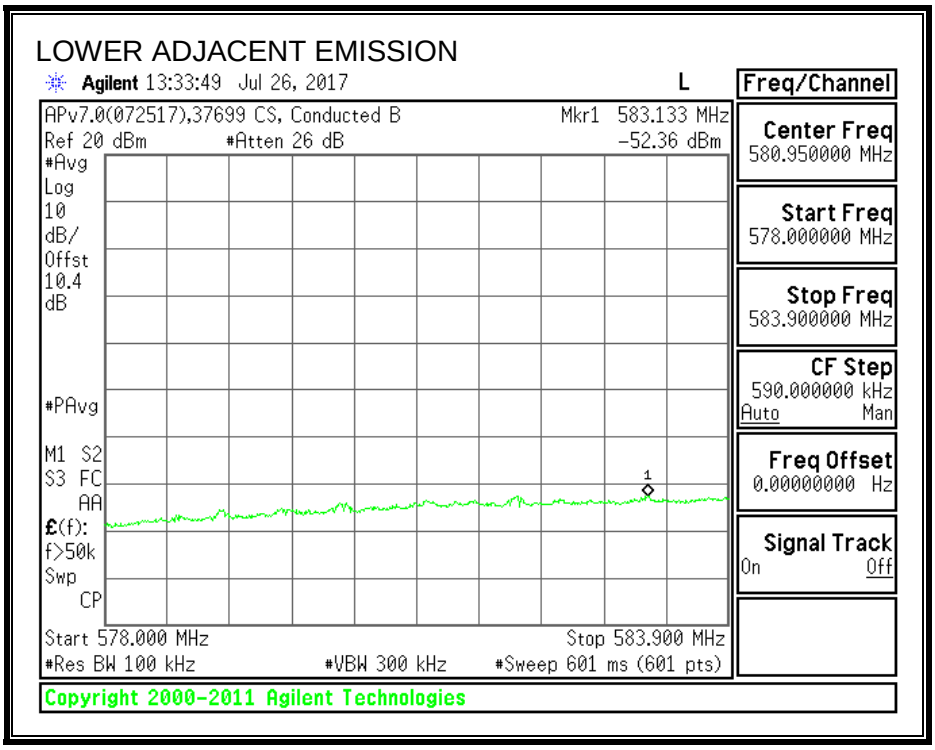
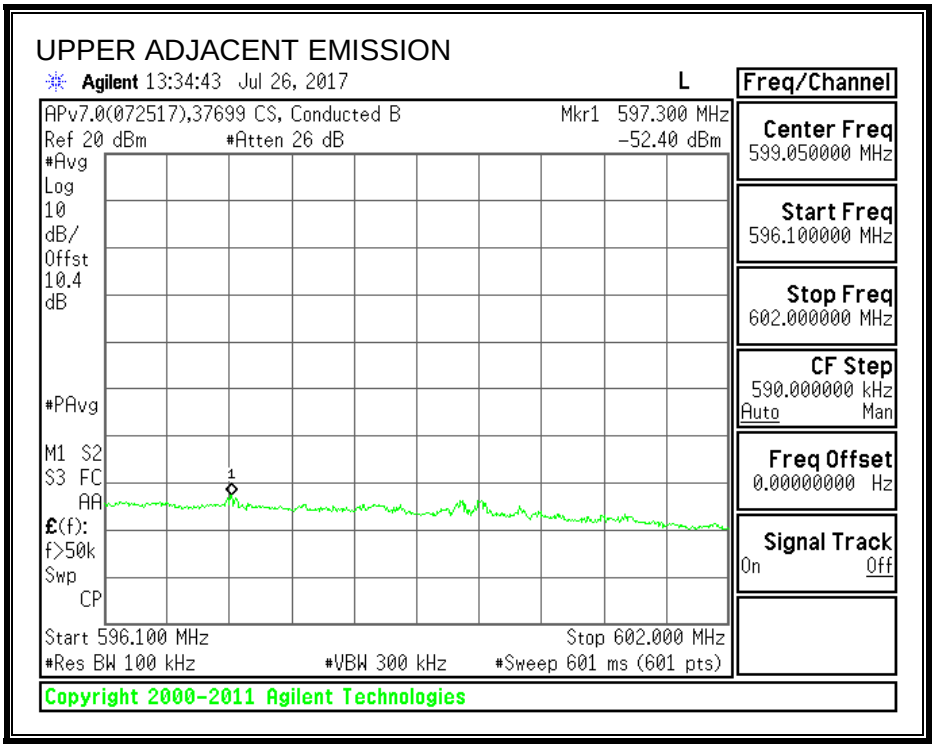
MID CHANNEL





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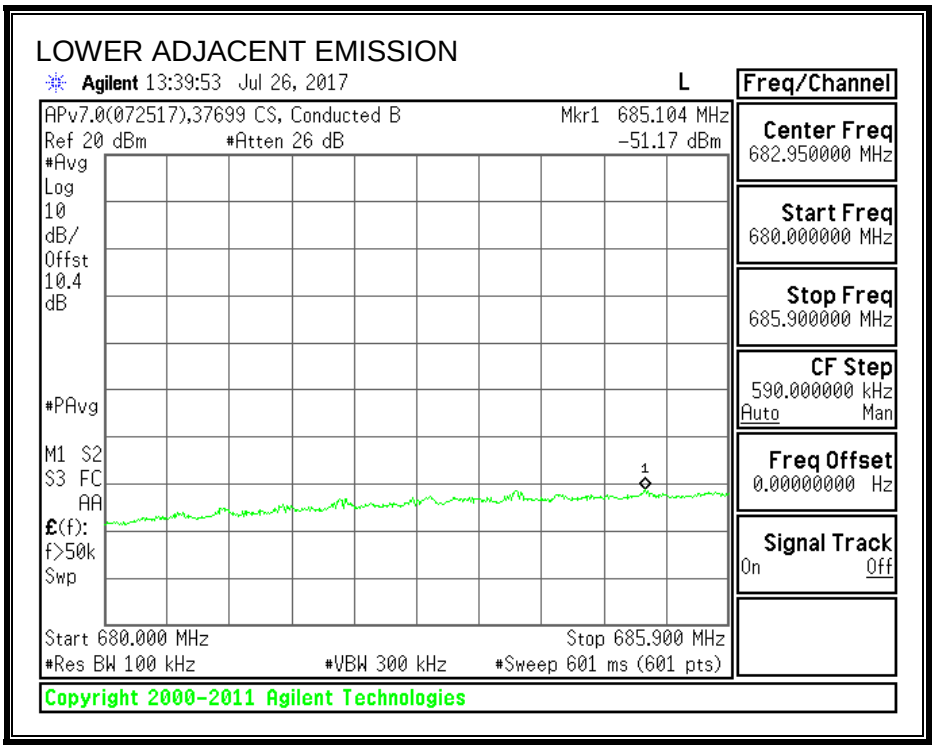
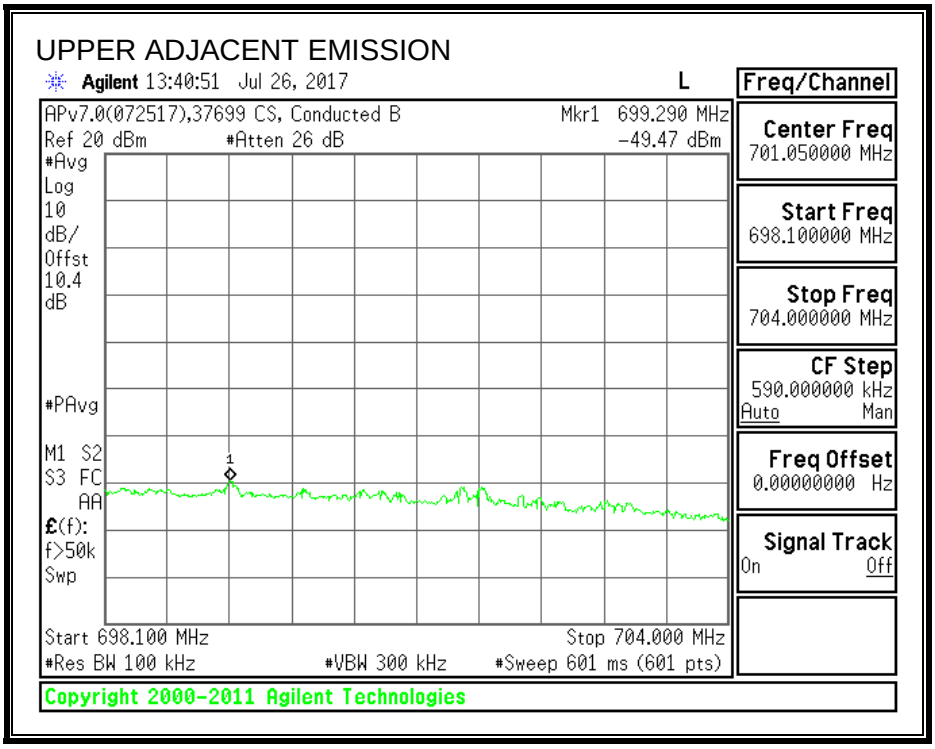
HIGH CHANNEL





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10. RADIATED EMISSIONS

BEYOND ADJACENT CHANNEL EMISSION LIMITS

FCC §15.709 (d) (2) At frequencies beyond the six megahertz channel immediately adjacent to each white space channel or group of contiguous white space channels in which the white space device is operating the white space device shall meet the requirements of §15.209.

The DUT must comply with radiated emission limits for a Class B digital device, except that authorization as a Class A device may be considered with appropriate justification for non-residential use.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3m	Measurement distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

TEST PROCEDURE

ANSI C63.10-2013.

The EUT is set to transmit in a continuous mode.

High-Q Cavity Notch filters are used to reduce the amplitude of the intentional transmitter and prevent overload of the system preamplifier.

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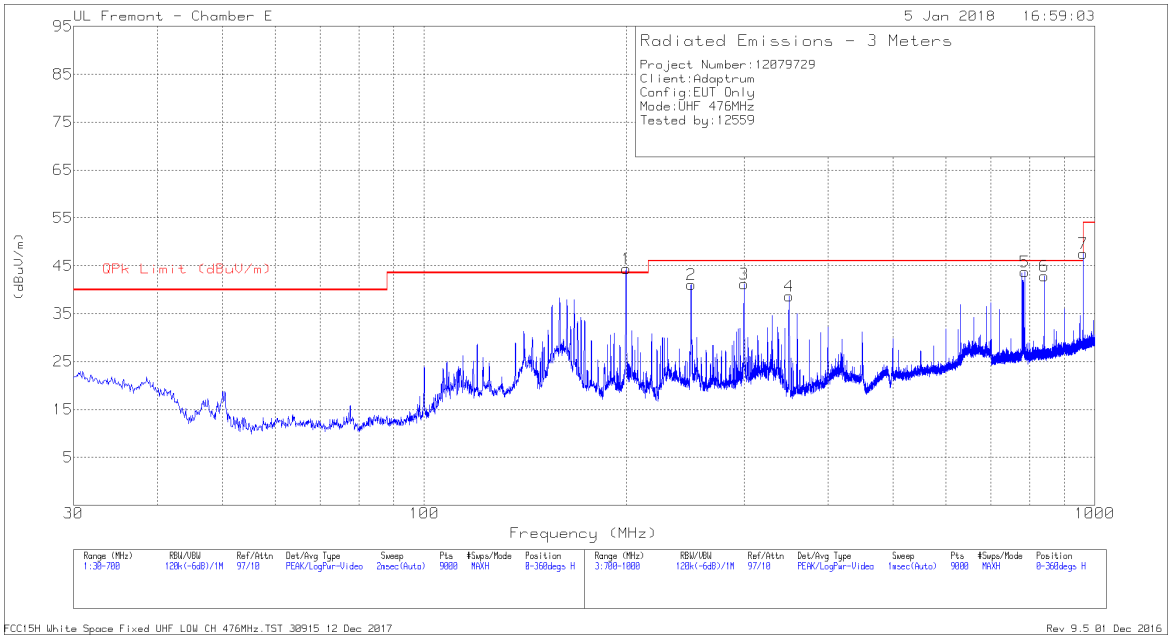
10.1. TRANSMITTER BELOW 1GHz WITH PANEL ANTENNA

10.1.1. UHF BAND

BEYOND ADJACENT CHANNEL (LOW CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT

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LOW CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 250.0192	22.43	Qp	15	-29.6	1.2	9.03	46	-36.97	224	110	H
3	299.9671	17.55	Qp	16.8	-29.2	1.5	6.65	46	-39.35	96	144	H
1	200.1389	22.11	Qp	16.2	-29.9	1.1	9.51	43.5	-33.99	192	358	H
4	349.9318	23.41	Qp	17.7	-28.9	1.5	13.71	46	-32.29	185	265	H
8	99.8509	20.97	Qp	13.6	-30.7	.8	4.67	43.5	-38.83	190	187	V
9	199.9186	22.09	Qp	16.2	-29.9	1.1	9.49	43.5	-34.01	115	300	V
10	* 249.7715	22.62	Qp	15	-29.6	1.2	9.22	46	-36.78	216	165	V
11	300.3555	23.25	Qp	16.8	-29.2	1.5	12.35	46	-33.65	50	126	V
5	786.0201	24.86	Qp	25.2	-26.7	.5	23.86	46	-22.14	36	337	H
6	840.0138	42.96	Qp	25.4	-26.3	.4	42.46	46	-3.54	223	110	H
7	* 960.0092	45.19	Qp	26.9	-25.1	.2	47.19	54	-6.81	111	104	H
13	840.0075	40.43	Qp	25.4	-26.3	.4	39.93	46	-6.07	94	100	V
14	959.9833	38.8	Qp	26.9	-25.1	.2	40.8	46	-5.2	150	104	V
12	785.9412	23.03	Qp	25.2	-26.7	.5	22.03	46	-23.97	176	209	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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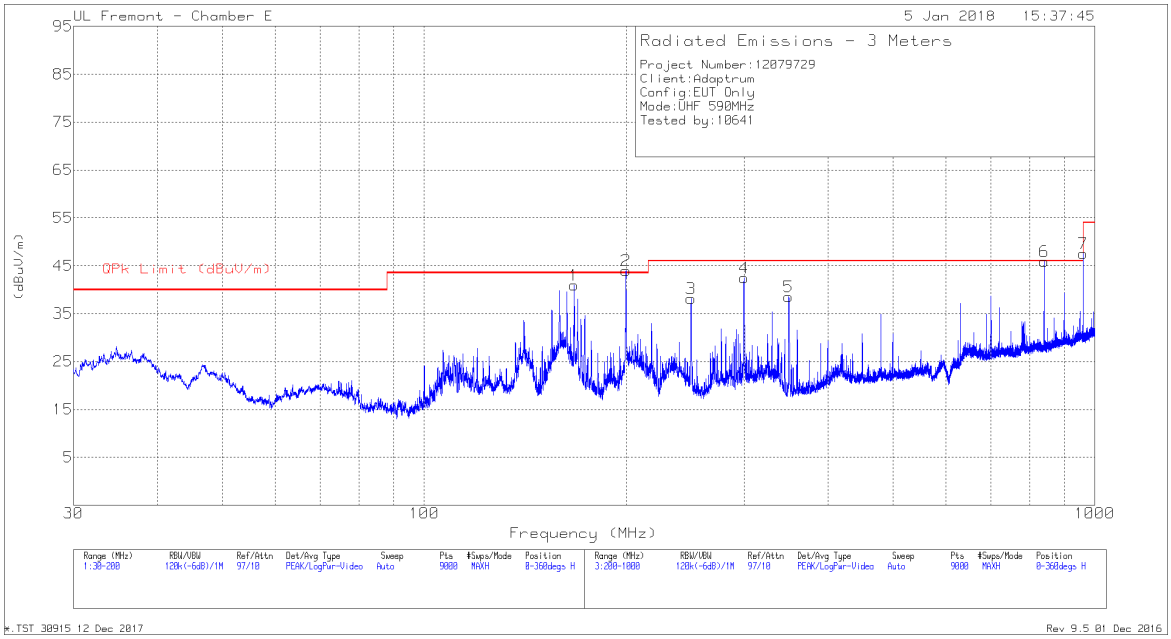
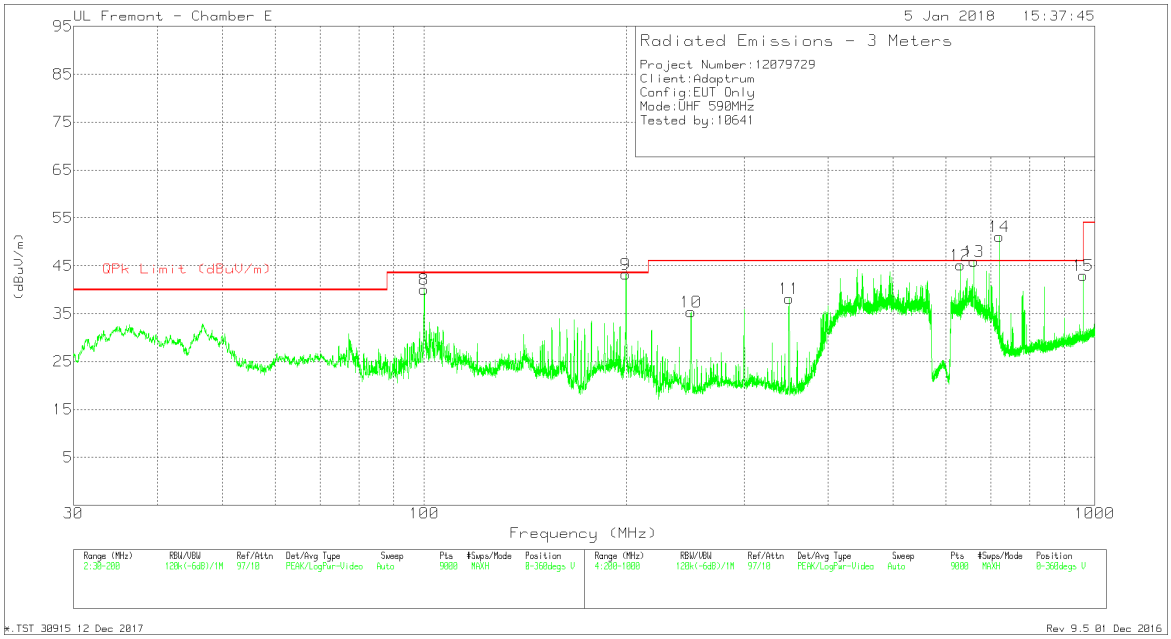
BEYOND ADJACENT CHANNEL (MID CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT



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MID CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 249.9838	47.76	Qp	15	-29.6	1.1	34.26	46	-11.74	41	116	H
10	* 249.9958	50.46	Qp	15	-29.6	1.1	36.96	46	-9.04	218	114	V
15	* 960.0259	36.96	Qp	26.9	-25.1	1.7	40.46	54	-13.54	29	106	V
8	99.927	49.17	Qp	13.6	-30.7	.8	32.87	43.5	-10.63	204	104	V
1	167.289	44.59	Qp	15.4	-30.2	.9	30.69	43.5	-12.81	136	189	H
9	199.942	51.02	Qp	16.2	-29.9	1.1	38.42	43.5	-5.08	336	176	H
2	199.9423	50.37	Qp	16.2	-29.9	1.1	37.77	43.5	-5.73	238	101	V
4	299.893	46.08	Qp	16.8	-29.2	1.4	35.08	46	-10.92	88	101	H
5	349.8739	47.26	Qp	17.7	-28.9	1.4	37.46	46	-8.54	27	101	H
11	349.9691	43.91	Qp	17.7	-28.9	1.4	34.11	46	-11.89	177	124	V
12	629.9675	44.05	Qp	23.1	-27.5	1.6	41.25	46	-4.75	89	109	V
13	659.9495	38.03	Qp	23.6	-27.5	1.7	35.83	46	-10.17	103	122	V
14	720.0063	43.08	Qp	24.3	-27	1.8	42.18	46	-3.82	99	102	V
6	840.0021	44.1	Qp	25.4	-26.3	1.4	44.6	46	-1.4	226	110	H
7	959.9933	39.37	Qp	26.9	-25.1	1.7	42.87	46	-3.13	121	105	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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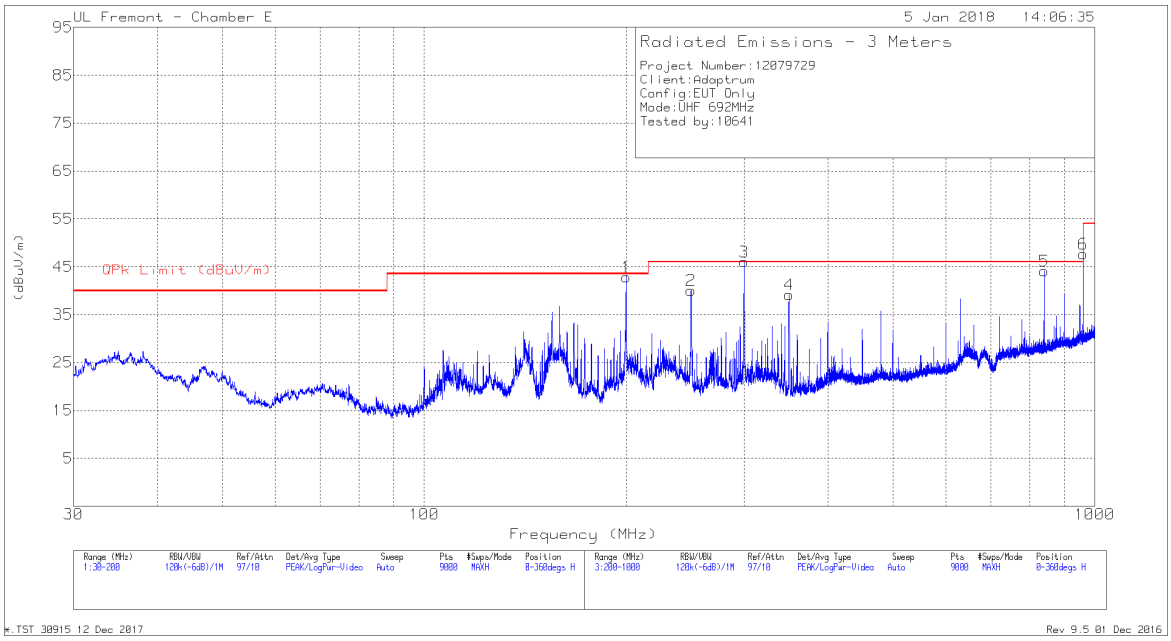
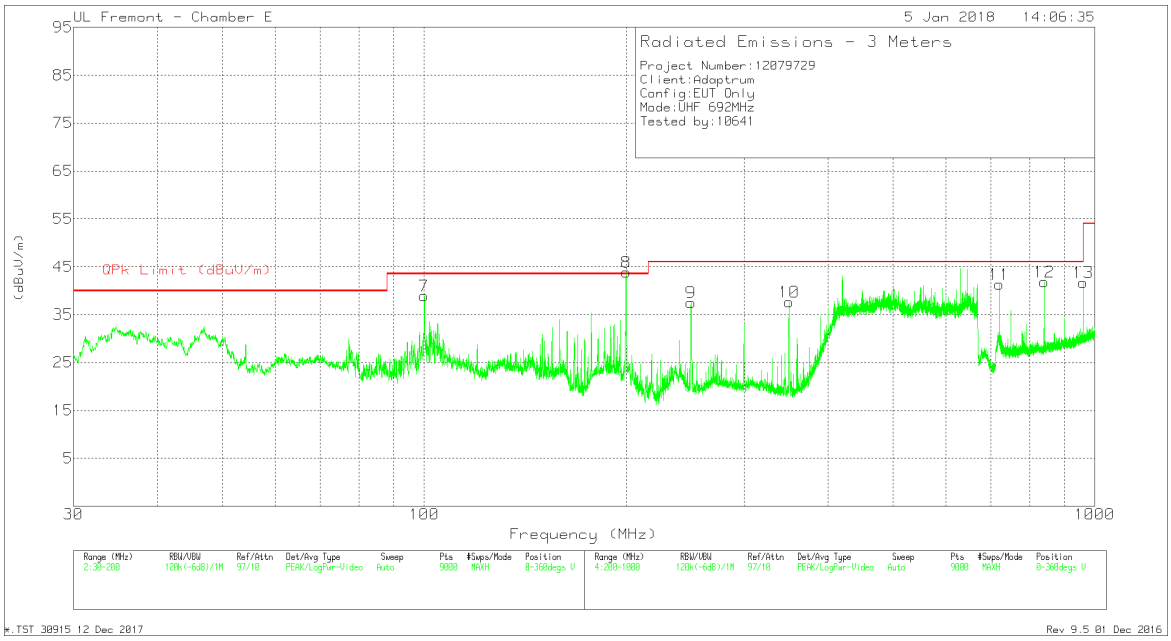
BEYOND ADJACENT CHANNEL (HIGH CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT



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HIGH CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 960.0038	42.94	Qp	26.9	-25.1	1.4	46.14	54	-7.86	269	101	H
2	* 249.9982	52.72	Qp	15	-29.6	1.1	39.22	46	-6.78	30	111	H
9	* 249.9694	51.07	Qp	15	-29.6	1.1	37.57	46	-8.43	6	142	V
7	100.0222	50.77	Qp	13.7	-30.7	.8	34.57	43.5	-8.93	245	114	V
1	199.9376	50.21	Qp	16.2	-29.9	1	37.51	43.5	-5.99	314	162	H
8	199.9767	49.13	Qp	16.2	-29.9	1	36.43	43.5	-7.07	139	103	V
3	300.0004	50.19	Qp	16.8	-29.2	1.4	39.19	46	-6.81	121	106	H
4	349.9986	48.09	Qp	17.7	-28.9	1.3	38.19	46	-7.81	125	101	H
10	350.0063	46.42	Qp	17.7	-28.9	1.3	36.52	46	-9.48	272	103	V
11	720.0025	41.1	Qp	24.3	-27	1.6	40	46	-6	112	102	V
5	839.9738	41.62	Qp	25.4	-26.3	1.3	42.02	46	-3.98	125	103	H
12	840.0036	38.5	Qp	25.4	-26.3	1.3	38.9	46	-7.1	99	103	V
13	959.9818	39.02	Qp	26.9	-25.1	1.4	42.22	46	-3.78	9	115	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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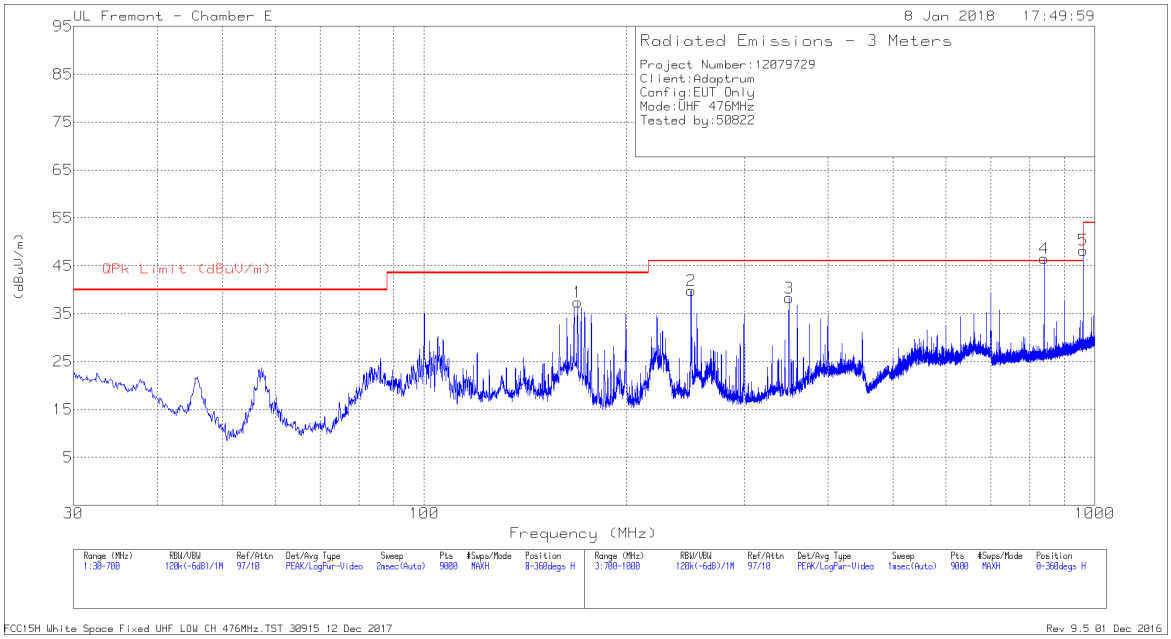
10.2. TRANSMITTER BELOW 1GHz WITH LOG PERIODIC ANTENNA

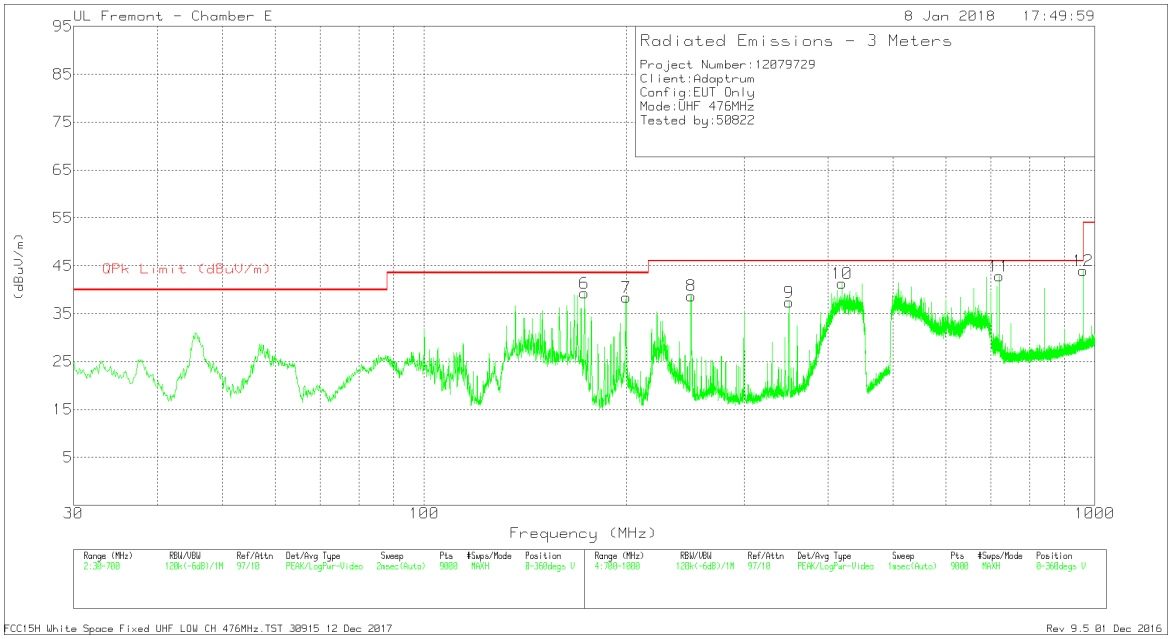
10.2.1. UHF BAND

BEYOND ADJACENT CHANNEL (LOW CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT



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LOW CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 169.2322	21.87	Qp	15.4	-30.2	1	8.07	43.5	-35.43	26	128	H
2	* 249.9579	22.68	Qp	15	-29.6	1.2	9.28	46	-36.72	26	138	H
8	* 250.0244	22.68	Qp	15	-29.6	1.2	9.28	46	-36.72	44	378	V
6	173.5306	22.06	Qp	15.2	-30.1	1	8.16	43.5	-35.34	177	244	V
7	200.1254	22.19	Qp	16.2	-29.9	1.1	9.59	43.5	-33.91	81	135	V
3	349.7795	23.67	Qp	17.7	-28.9	1.5	13.97	46	-32.03	162	234	V
9	349.9513	23.61	Qp	17.7	-28.9	1.5	13.91	46	-32.09	94	128	H
10	419.8978	22.63	Qp	19.8	-28.5	1.5	15.43	46	-30.57	36	247	V
11	719.9086	34.45	Qp	24.3	-27	.7	32.45	46	-13.55	59	108	V
4	840.008	45.82	Qp	25.4	-26.3	.4	45.32	46	-.68	301	102	H
5	959.9665	43.22	Qp	26.9	-25.1	.2	45.22	46	-.78	146	103	H
12	959.9934	41.71	Qp	26.9	-25.1	.2	43.71	46	-2.29	279	103	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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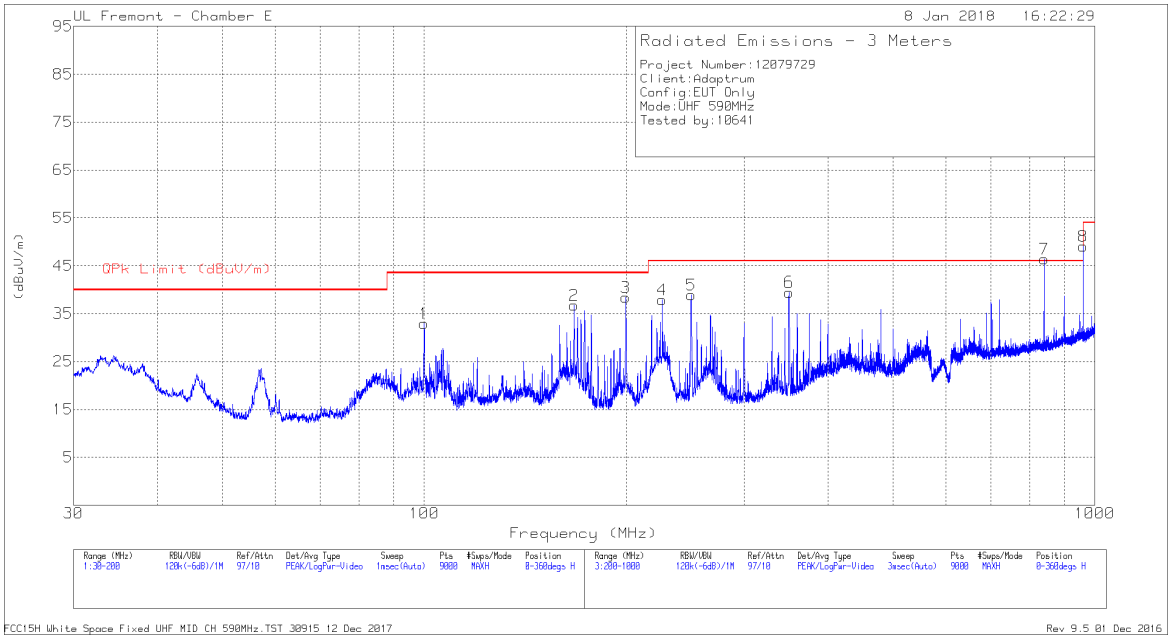
BEYOND ADJACENT CHANNEL (MID CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT

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MID CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	* 960.002	44.36	Qp	26.9	-25.1	1.7	47.86	54	-6.14	151	171	H
5	* 249.9526	47.57	Qp	15	-29.6	1.1	34.07	46	-11.93	1	111	H
12	* 249.9622	51.01	Qp	15	-29.6	1.1	37.51	46	-8.49	34	100	V
1	99.9675	44.82	Qp	13.7	-30.7	.8	28.62	43.5	-14.88	330	163	H
9	100.0001	41.84	Qp	13.7	-30.7	.8	25.64	43.5	-17.86	167	105	V
2	167.2861	46.05	Qp	15.4	-30.2	.9	32.15	43.5	-11.35	295	184	H
10	199.9145	42.1	Qp	16.2	-29.9	1.1	29.5	43.5	-14	35	165	H
3	199.9777	46.66	Qp	16.2	-29.9	1.1	34.06	43.5	-9.44	68	105	V
11	222.5802	40.87	Qp	14.1	-29.8	1.1	26.27	46	-19.73	35	115	V
4	226.3924	43.07	Qp	14.3	-29.7	1.1	28.77	46	-17.23	360	105	H
6	349.9514	41.46	Qp	17.7	-28.9	1.4	31.66	46	-14.34	32	106	H
13	477.0616	40.56	Qp	21.1	-28.1	1.2	34.76	46	-11.24	76	104	V
14	720.0404	43.3	Qp	24.3	-27	1.8	42.4	46	-3.6	57	126	V
7	840.0113	45.32	Qp	25.4	-26.3	1.4	45.82	46	-.18	299	104	H
15	959.9851	40.93	Qp	26.9	-25.1	1.7	44.43	46	-1.57	280	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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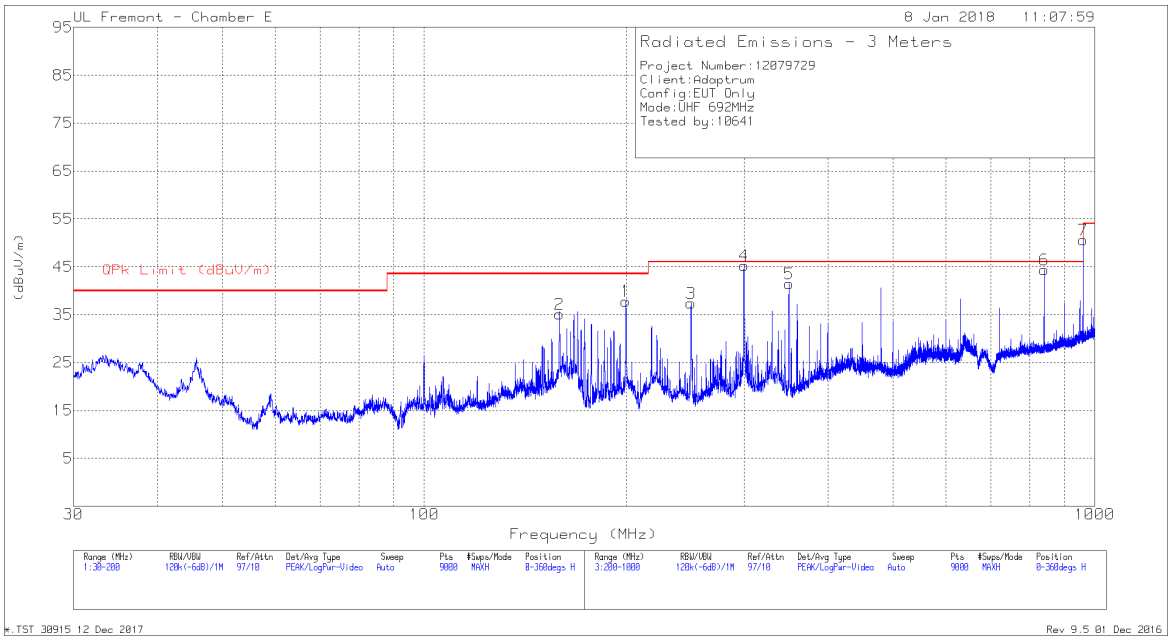
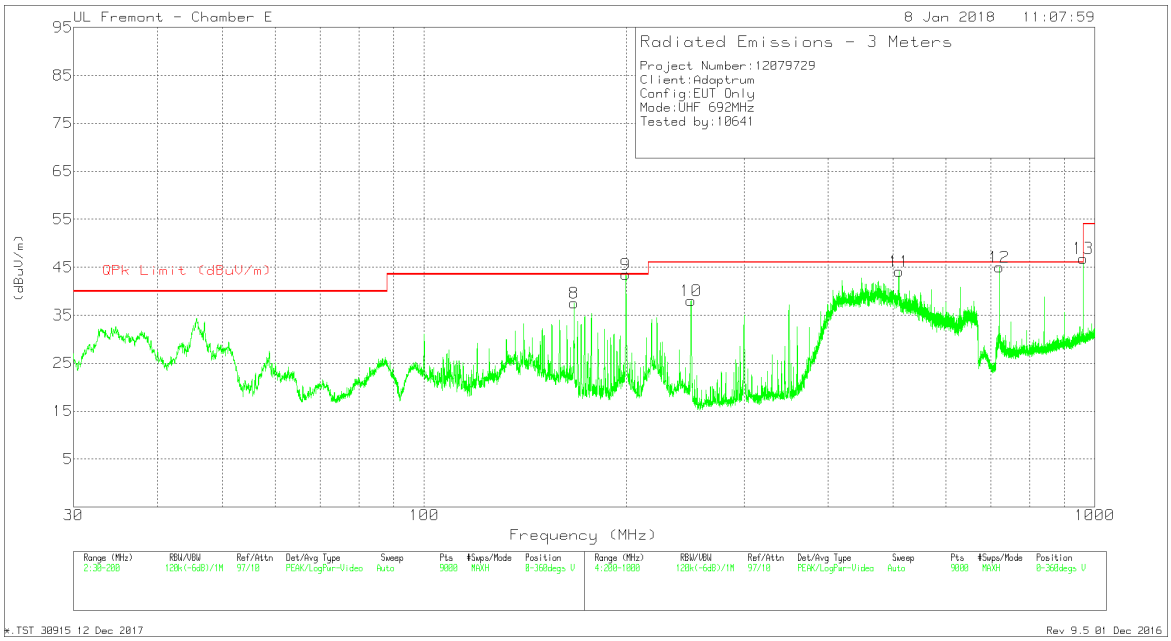
BEYOND ADJACENT CHANNEL (HIGH CHANNEL)

HORIZONTAL PLOT



VERTICAL PLOT



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HIGH CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Fltr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	* 960.0014	46.48	Qp	26.9	-25.1	1.4	49.68	54	-4.32	22	100	H
3	* 249.9919	48.91	Qp	15	-29.6	1.1	35.41	46	-10.59	221	124	H
10	* 249.9545	48.11	Qp	15	-29.6	1.1	34.61	46	-11.39	68	108	V
2	159.0855	42.35	Qp	15.4	-30.3	.9	28.35	43.5	-15.15	3	192	H
8	167.3906	38.62	Qp	15.4	-30.2	.9	24.72	43.5	-18.78	80	112	V
1	199.8659	43.03	Qp	16.2	-29.9	1	30.33	43.5	-13.17	75	111	V
9	199.9325	45.56	Qp	16.2	-29.9	1	32.86	43.5	-10.64	106	164	H
4	299.8917	40.25	Qp	16.8	-29.2	1.4	29.25	46	-16.75	176	107	H
5	349.973	46.3	Qp	17.7	-28.9	1.3	36.4	46	-9.6	352	101	H
11	510.2613	37.89	Qp	21.3	-28.1	1.1	32.19	46	-13.81	90	102	V
12	720.0202	44.57	Qp	24.3	-27	1.6	43.47	46	-2.53	43	127	V
6	840.0021	42.78	Qp	25.4	-26.3	1.3	43.18	46	-2.82	318	107	H
13	959.9827	42.55	Qp	26.9	-25.1	1.4	45.75	46	-.25	188	115	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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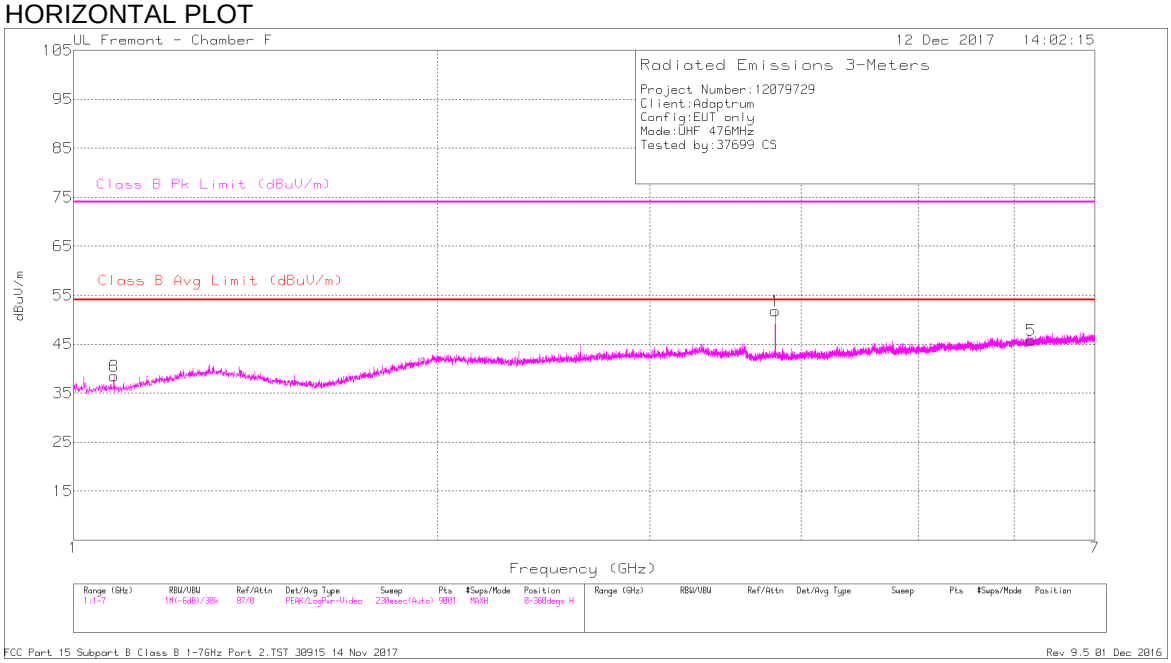
10.3. TRANSMITTER ABOVE 1GHz WITH PANEL ANTENNA

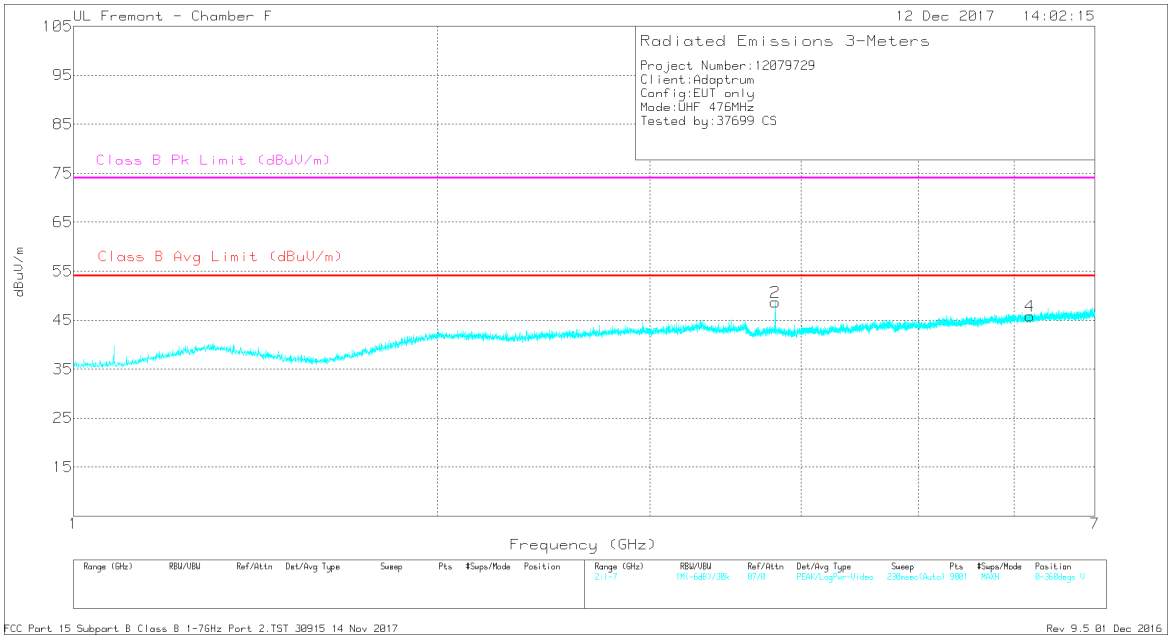
10.3.1. HARMONICS AND SPURIOUS EMISSIONS IN THE UHF BAND

LOW CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.808	42.29	Pk	33.3	-19.3	56.29	-	-	74	-17.71	43	116	H
	3.808	34.73	Av	33.3	-19.3	48.73	54	-5.27	-	-	43	116	H
3	1.08	44.12	Pk	26.8	-22.5	48.42	-	-	74	-25.58	177	252	H
	1.08	32.67	Av	26.8	-22.5	36.97	54	-17.03	-	-	177	252	H
5	6.199	36	Pk	35.4	-17.2	54.2	-	-	74	-19.8	109	243	H
	6.199	23.36	Av	35.4	-17.2	41.56	54	-12.44	-	-	109	243	H
6	1.08	44.35	Pk	26.8	-22.5	48.65	-	-	74	-25.35	186	190	H
	1.08	32.28	Av	26.8	-22.5	36.58	54	-17.42	-	-	186	190	H
2	3.808	39.95	Pk	33.3	-19.3	53.95	-	-	74	-20.05	360	310	V
	3.808	29.17	Av	33.3	-19.3	43.17	54	-10.83	-	-	360	310	V
4	6.185	36.48	Pk	35.4	-17.2	54.68	-	-	74	-19.32	327	258	V
	6.185	23.4	Av	35.4	-17.2	41.6	54	-12.4	-	-	327	258	V

Pk - Peak detector
Av - Average detection

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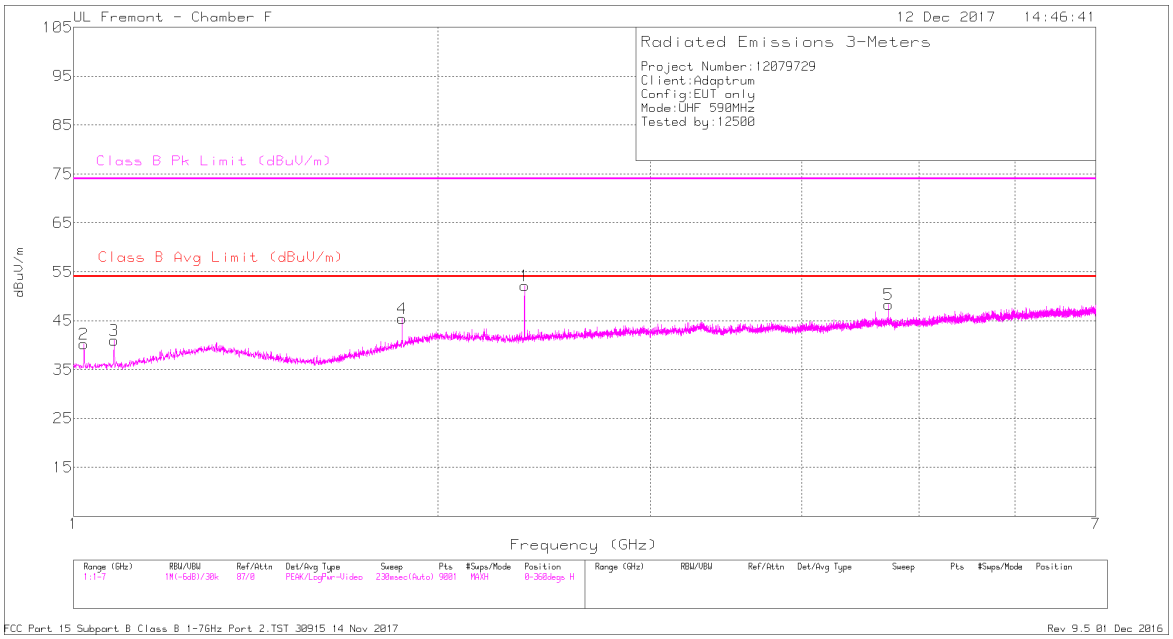
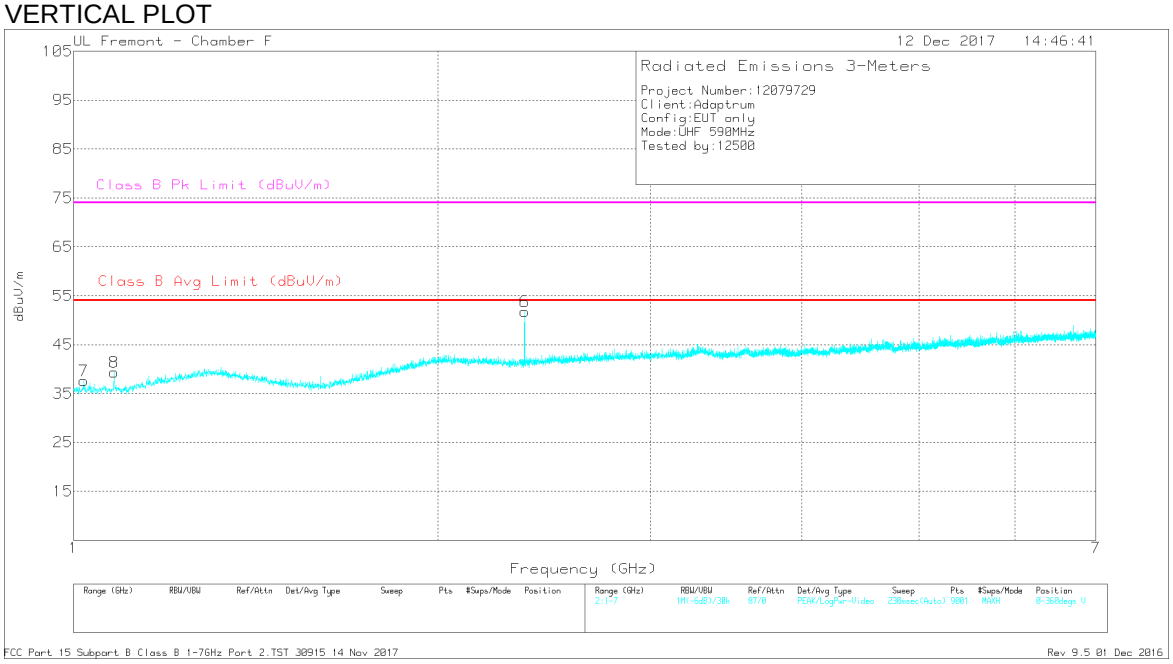
MID CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.36	45.24	Pk	31.8	-20.7	56.34	-	-	74	-17.66	53	124	H
	2.36	40.44	Av	31.8	-20.7	51.54	54	-2.46	-	-	53	124	H
2	1.02	43.26	Pk	26.7	-22.6	47.36	-	-	74	-26.64	45	225	H
	1.02	30.91	Av	26.7	-22.6	35.01	54	-18.99	-	-	45	225	H
3	1.08	43.66	Pk	26.8	-22.5	47.96	-	-	74	-26.04	164	196	H
	1.08	31.54	Av	26.8	-22.5	35.84	54	-18.16	-	-	164	196	H
4	1.868	39.19	Pk	30.8	-21.1	48.89	-	-	74	-25.11	311	316	H
	1.868	26.87	Av	30.8	-21.1	36.57	54	-17.43	-	-	311	316	H
5	4.72	40.29	Pk	34.1	-18.6	55.79	-	-	74	-18.21	138	231	H
	4.72	29.43	Av	34.1	-18.6	44.93	54	-9.07	-	-	138	231	H
6	2.36	44.55	Pk	31.8	-20.7	55.65	-	-	74	-18.35	358	141	V
	2.36	38.18	Av	31.8	-20.7	49.28	54	-4.72	-	-	358	141	V
7	1.02	40.75	Pk	26.7	-22.6	44.85	-	-	74	-29.15	98	113	V
	1.02	28.28	Av	26.7	-22.6	32.38	54	-21.62	-	-	98	113	V
8	1.08	41.28	Pk	26.8	-22.5	45.58	-	-	74	-28.42	74	128	V
	1.08	28.59	Av	26.8	-22.5	32.89	54	-21.11	-	-	74	128	V

Pk - Peak detector
Av - Average detection

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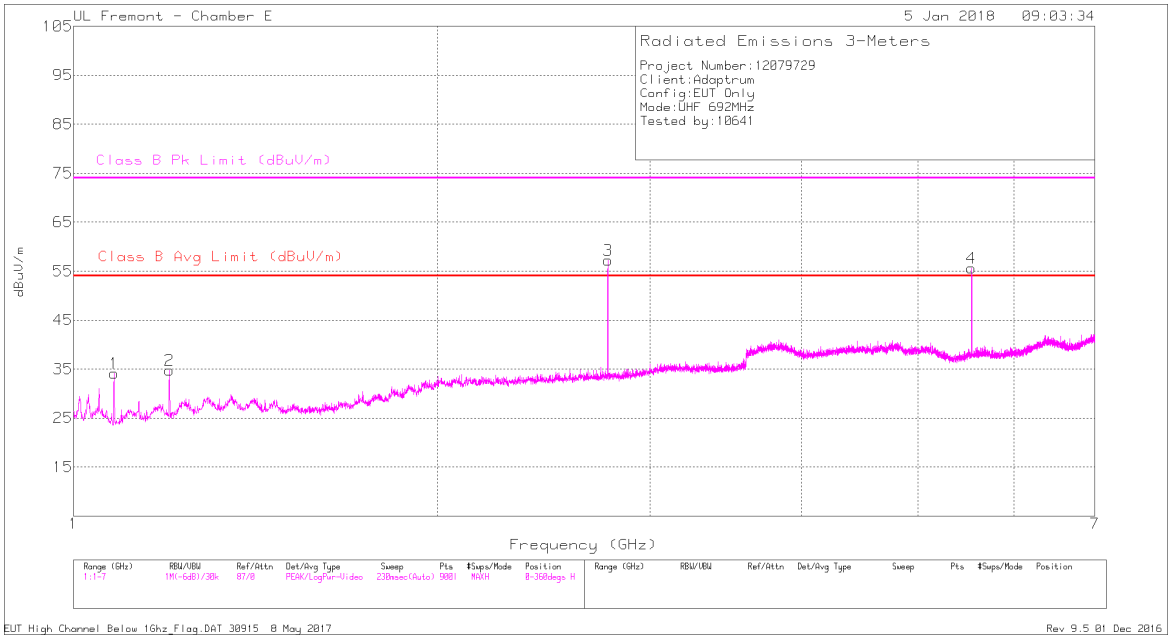
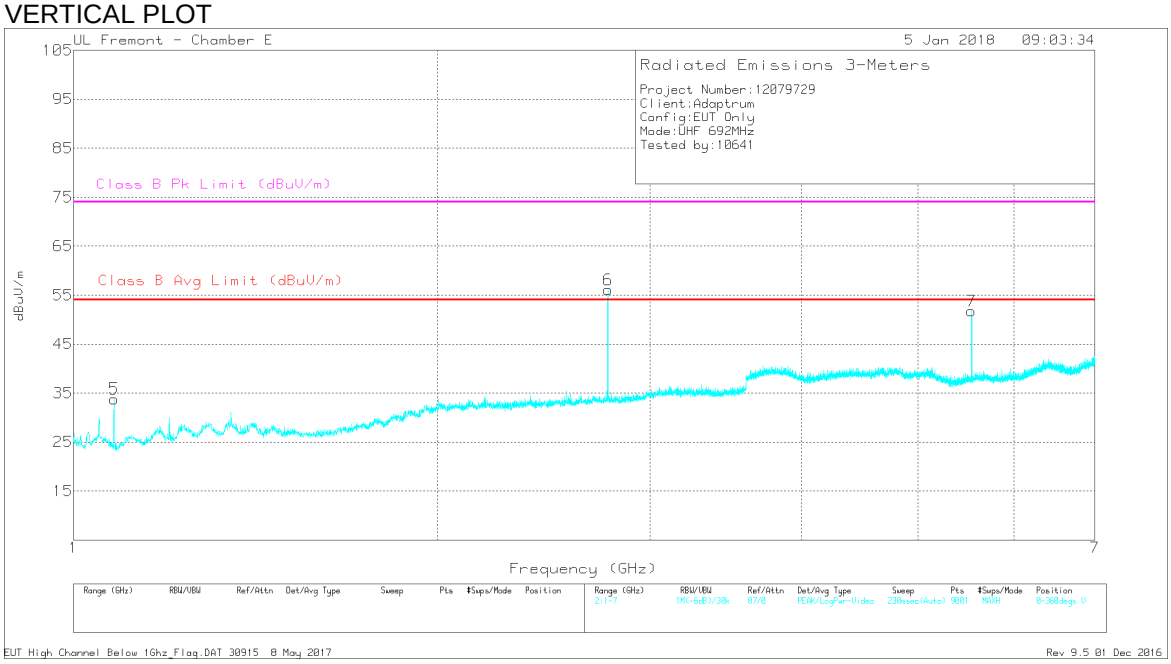
HIGH CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.08	32.22	Av	26.4	-22.8	35.82	54	-18.18	-	-	24	114	H
	1.08	36.45	Pk	26.4	-22.8	40.05	-	-	74	-33.95	23	119	H
5	1.08	32.13	Pk	26.4	-22.8	35.73	-	-	74	-38.27	41	111	V
	1.08	24.46	Av	26.4	-22.8	28.06	54	-25.94	-	-	41	111	V
2	1.2	32.42	Pk	28	-22.3	38.12	-	-	74	-35.88	191	193	H
	1.2	24.16	Av	28	-22.3	29.86	54	-24.14	-	-	191	193	H
3	2.768	39.69	Av	32.6	-19.3	52.99	54	-1.01	-	-	184	143	H
	2.768	43.72	Pk	32.6	-19.3	57.02	-	-	74	-16.98	184	185	H
6	2.768	39.63	Av	32.6	-19.3	52.93	54	-1.07	-	-	215	303	V
	2.768	42.31	Pk	32.6	-19.3	55.61	-	-	74	-18.39	213	301	V
4	5.536	39.14	Pk	35.1	-19.1	55.14	-	-	74	-18.86	100	102	H
	5.536	36.22	Av	35.1	-19.1	52.22	54	-1.78	-	-	100	102	H
5	5.536	30.49	Av	35.1	-19.1	46.49	54	-7.51	-	-	54	259	V
	5.536	35.58	Pk	35.1	-19.1	51.58	-	-	74	-22.42	55	236	V

Pk - Peak detector
Av - Average detection

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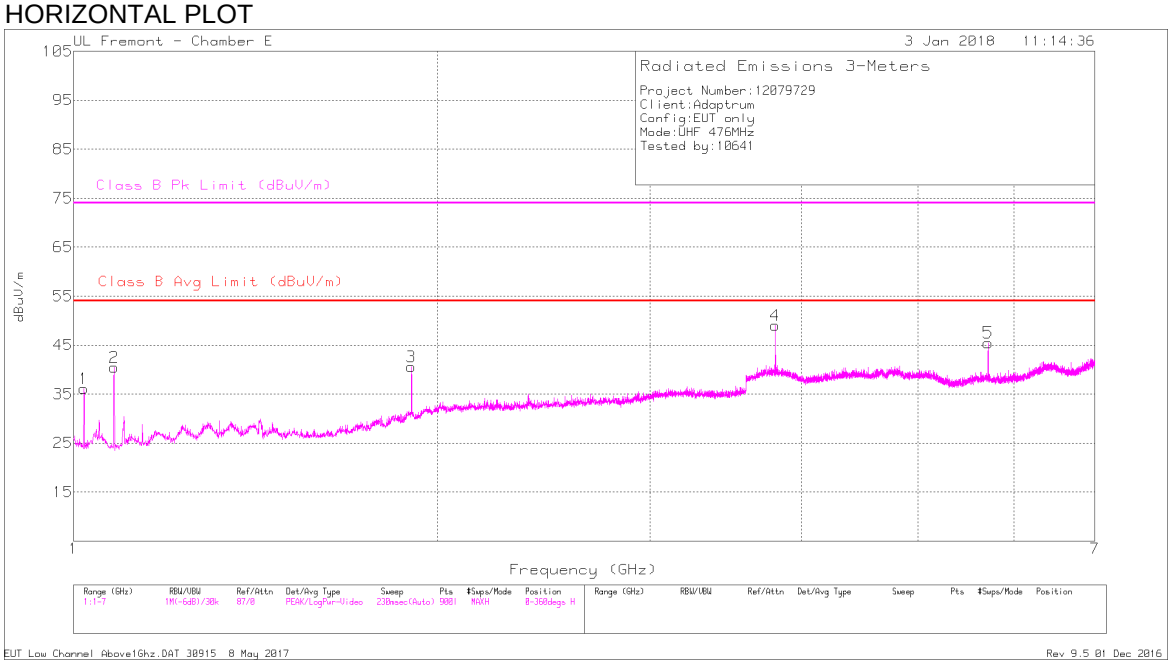
10.4. TRANSMITTER ABOVE 1GHz WITH LOG PERIODIC ANTENNA

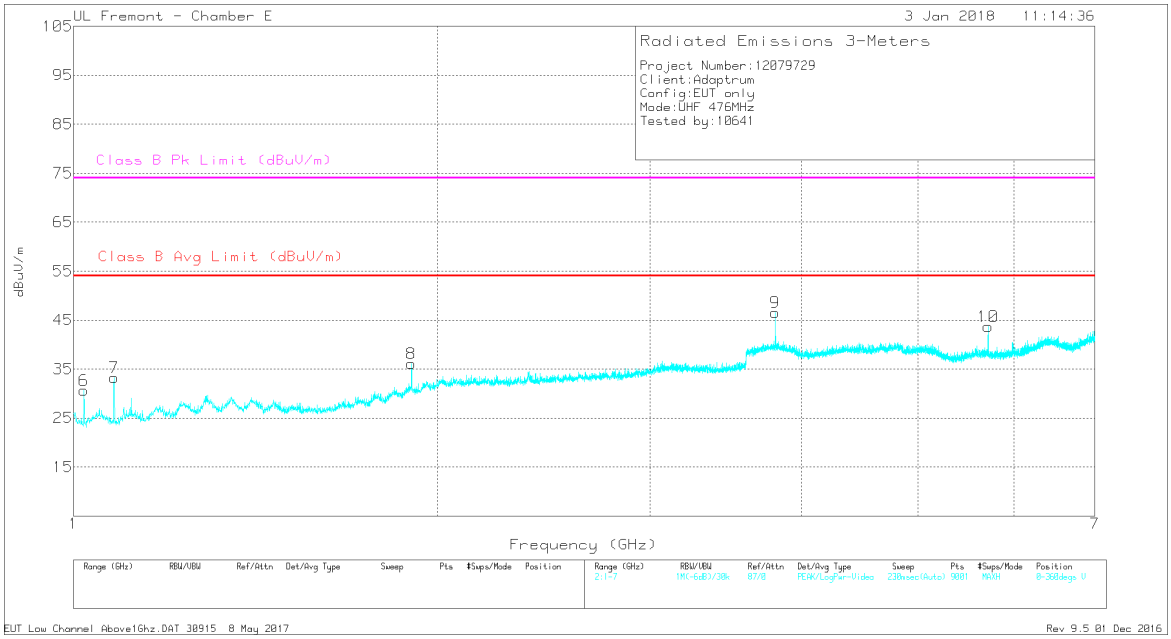
10.4.1. HARMONICS AND SPURIOUS EMISSIONS IN THE UHF BAND

LOW CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.02	28.79	Av	26.5	-23.4	31.89	54	-22.11	-	-	198	252	H
	1.02	39.39	Pk	26.5	-23.4	42.49	-	-	74	-31.51	199	114	H
6	1.02	24.2	Av	26.5	-23.4	27.3	54	-26.7	-	-	162	201	V
	1.02	36.43	Pk	26.5	-23.4	39.53	-	-	74	-34.47	163	155	V
2	1.08	31.53	Av	26.4	-22.8	35.13	54	-18.87	-	-	180	105	H
	1.08	39.5	Pk	26.4	-22.8	43.1	-	-	74	-30.9	174	102	H
7	1.08	26.27	Av	26.4	-22.8	29.87	54	-24.13	-	-	131	193	V
	1.08	36.99	Pk	26.4	-22.8	40.59	-	-	74	-33.41	106	108	V
3	1.904	27.16	Av	30.9	-20	38.06	54	-15.94	-	-	330	204	H
	1.904	32.66	Pk	30.9	-20	43.56	-	-	74	-30.44	327	239	H
8	1.904	23.89	Av	30.9	-20	34.79	54	-19.21	-	-	91	114	V
	1.904	32.97	Pk	30.9	-20	43.87	-	-	74	-30.13	20	272	V
4	3.808	30.96	Av	33.7	-17.2	47.46	54	-6.54	-	-	197	104	H
	3.808	34.24	Pk	33.7	-17.2	50.74	-	-	74	-23.26	188	133	H
9	3.808	27.14	Av	33.7	-17.2	43.64	54	-10.36	-	-	322	100	V
	3.808	33.12	Pk	33.7	-17.2	49.62	-	-	74	-24.38	320	114	V
5	5.712	28.56	Av	35.1	-19.2	44.46	54	-9.54	-	-	187	114	H
	5.712	34.47	Pk	35.1	-19.2	50.37	-	-	74	-23.63	195	105	H
10	5.712	22.8	Av	35.1	-19.2	38.7	54	-15.3	-	-	210	259	V
	5.712	32.93	Pk	35.1	-19.2	48.83	-	-	74	-25.17	213	179	V

Pk - Peak detector
Av - Average detection

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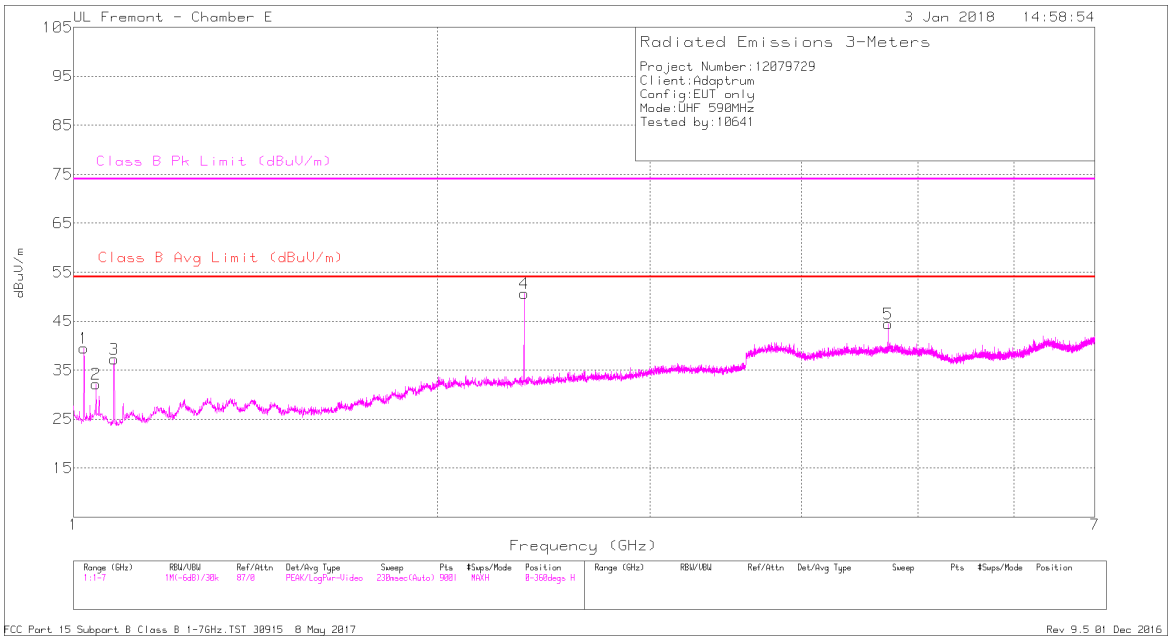
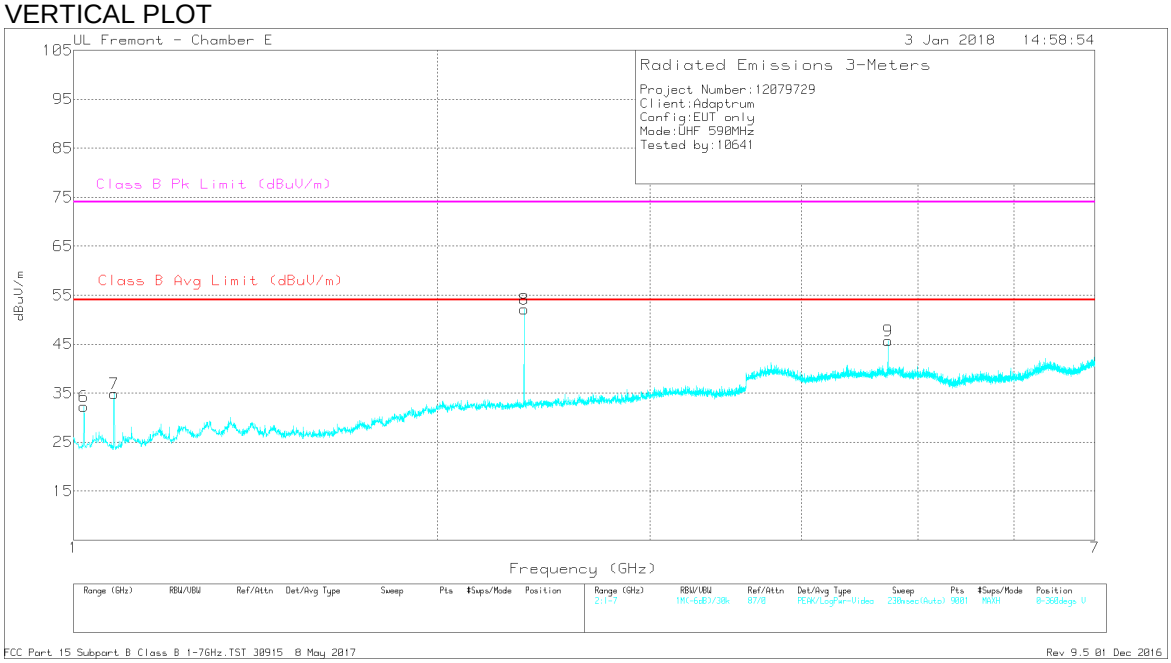
MID CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.02	35.93	Pk	26.5	-23.4	39.03	-	-	74	-34.97	214	354	H
	1.02	23.92	Av	26.5	-23.4	27.02	54	-26.98	-	-	214	354	H
6	1.02	35.31	Pk	26.5	-23.4	38.41	-	-	74	-35.59	195	140	V
	1.02	23.63	Av	26.5	-23.4	26.73	54	-27.27	-	-	195	140	V
2	1.044	39.59	Pk	26.4	-23.2	42.79	-	-	74	-31.21	196	114	H
	1.044	20.83	Av	26.4	-23.2	24.03	54	-29.97	-	-	196	114	H
3	1.08	40.32	Pk	26.4	-22.8	43.92	-	-	74	-30.08	227	207	H
	1.08	32.3	Av	26.4	-22.8	35.9	54	-18.1	-	-	227	207	H
7	1.08	37.56	Pk	26.4	-22.8	41.16	-	-	74	-32.84	94	113	V
	1.08	28.92	Av	26.4	-22.8	32.52	54	-21.48	-	-	94	113	V
4	2.36	40.26	Pk	31.9	-19.4	52.76	-	-	74	-21.24	214	102	H
	2.36	38.18	Av	31.9	-19.4	50.68	54	-3.32	-	-	214	102	H
8	2.36	41.79	Pk	31.9	-19.4	54.29	-	-	74	-19.71	145	121	V
	2.36	40.1	Av	31.9	-19.4	52.6	54	-1.4	-	-	145	121	V
5	4.72	33.34	Pk	34.4	-17	50.74	-	-	74	-23.26	227	376	H
	4.72	25.98	Av	34.4	-17	43.38	54	-10.62	-	-	227	376	H
9	4.72	33.72	Pk	34.4	-17	51.12	-	-	74	-22.88	192	252	V
	4.72	27.4	Av	34.4	-17	44.8	54	-9.2	-	-	192	252	V

Pk - Peak detector
Av - Average detection

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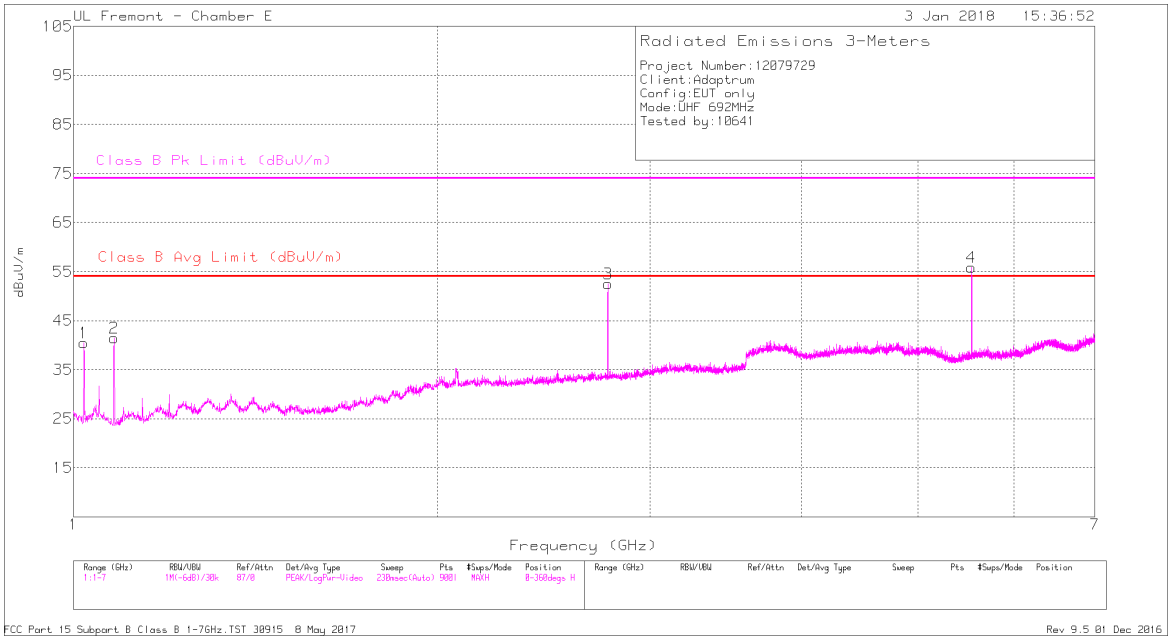
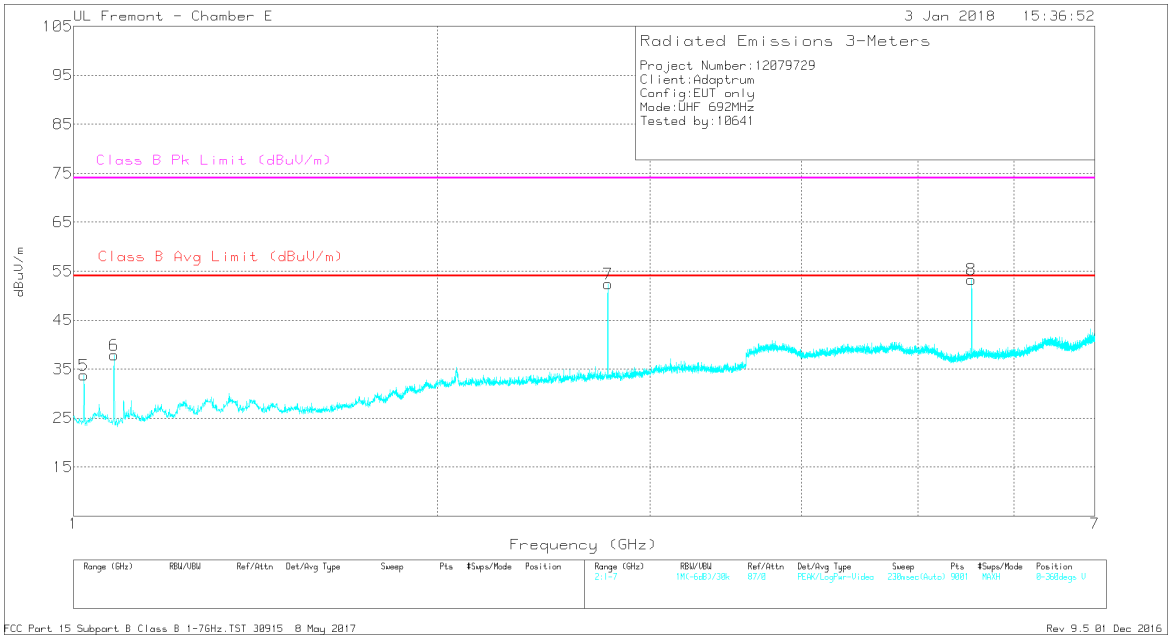
HIGH CHANNEL

HORIZONTAL PLOT



VERTICAL PLOT



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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av Margin (dB)	Class B Pk Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.02	41.9	Pk	26.5	-23.4	45	-	-	74	-29	203	285	H
	1.02	30.03	Av	26.5	-23.4	33.13	54	-20.87	-	-	203	285	H
5	1.02	34.9	Pk	26.5	-23.4	38	-	-	74	-36	187	202	V
	1.02	23.48	Av	26.5	-23.4	26.58	54	-27.42	-	-	187	202	V
2	1.08	40.61	Pk	26.4	-22.8	44.21	-	-	74	-29.79	233	206	H
	1.08	32.64	Av	26.4	-22.8	36.24	54	-17.76	-	-	233	206	H
6	1.08	38.62	Pk	26.4	-22.8	42.22	-	-	74	-31.78	161	137	V
	1.08	30.14	Av	26.4	-22.8	33.74	54	-20.26	-	-	161	137	V
3	2.768	42.3	Pk	32.6	-19.3	55.6	-	-	74	-18.4	188	148	H
	2.768	40.63	Av	32.6	-19.3	53.93	54	-.07	-	-	188	148	H
7	2.768	41.28	Pk	32.6	-19.3	54.58	-	-	74	-19.42	337	116	V
	2.768	39.62	Av	32.6	-19.3	52.92	54	-1.08	-	-	337	116	V
4	5.536	39.43	Pk	35.1	-19.1	55.43	-	-	74	-18.57	172	229	V
	5.536	36.09	Av	35.1	-19.1	52.09	54	-1.91	-	-	172	229	V
8	5.536	40.76	Pk	35.1	-19.1	56.76	-	-	74	-17.24	246	104	H
	5.536	37.18	Av	35.1	-19.1	53.18	54	-.82	-	-	246	104	H

Pk - Peak detector
Av - Average detection

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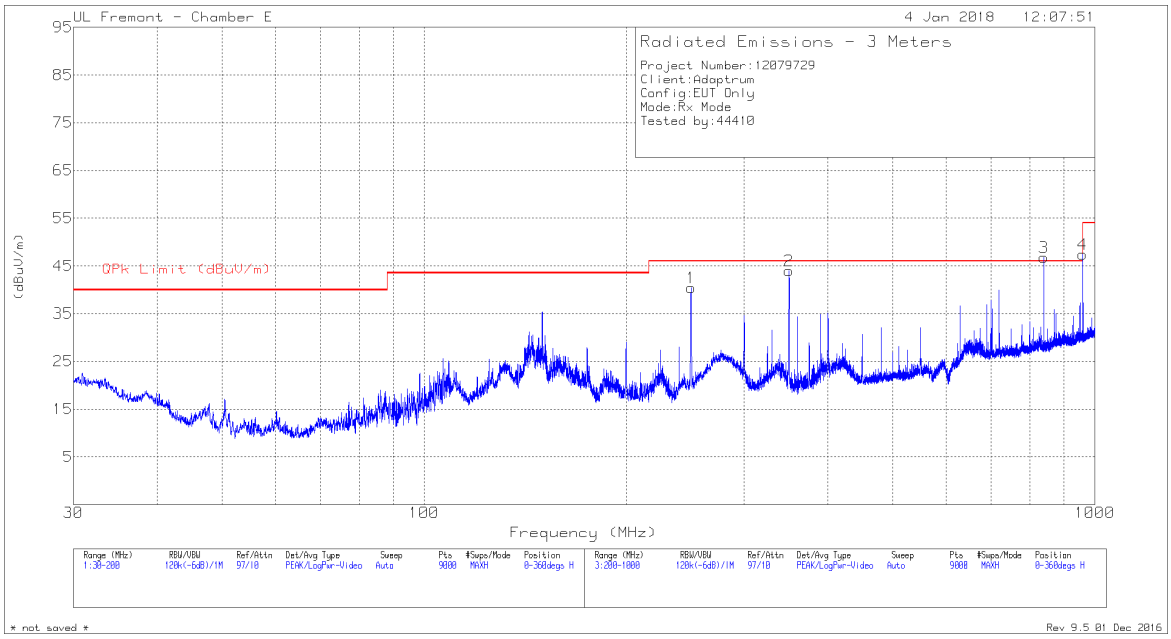
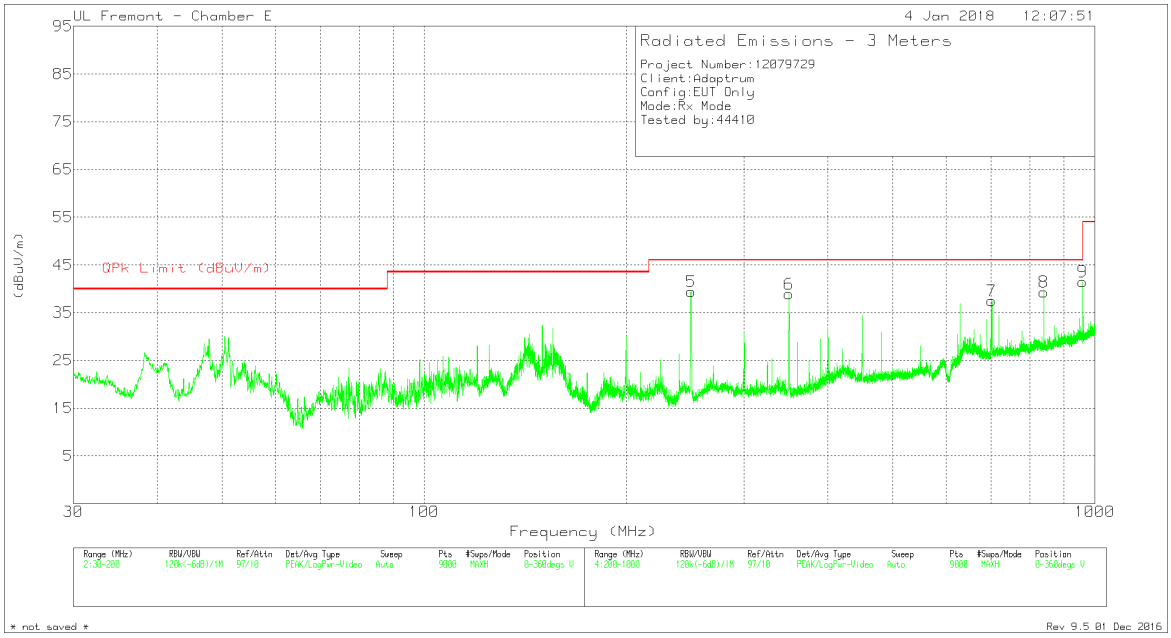
10.5. RECEIVER SPURIOUS EMISSIONS BELOW 1 GHz

10.5.1. UHF BAND

HORIZONTAL PLOT



VERTICAL PLOT



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DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T900 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 249.9704	54.48	Qp	15	-29.6	39.88	46	-6.12	247	183	H
5	* 249.907	51.37	Qp	15	-29.6	36.77	46	-9.23	220	102	V
6	349.8977	48.34	Qp	17.7	-28.9	37.14	46	-8.86	228	127	V
2	350.1916	47.98	Qp	17.7	-28.9	36.78	46	-9.22	331	101	H
7	702.3197	23.59	Qp	24	-27.2	20.39	46	-25.61	254	132	V
3	839.9786	37.43	Qp	25.4	-26.3	36.53	46	-9.47	300	110	V
8	839.9882	45.26	Qp	25.4	-26.3	44.36	46	-1.64	298	101	H
4	959.9654	41.67	Qp	26.9	-25.1	43.47	46	-2.53	302	101	H
9	959.9875	37.58	Qp	26.9	-25.1	39.38	46	-6.62	287	156	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Qp - Quasi-Peak detector

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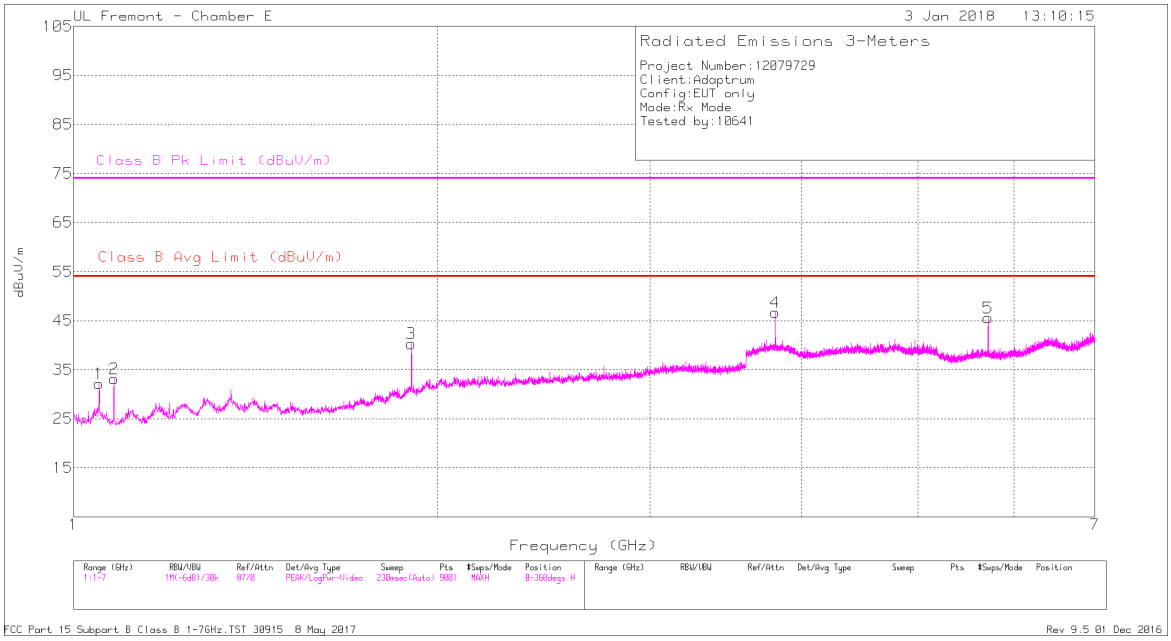
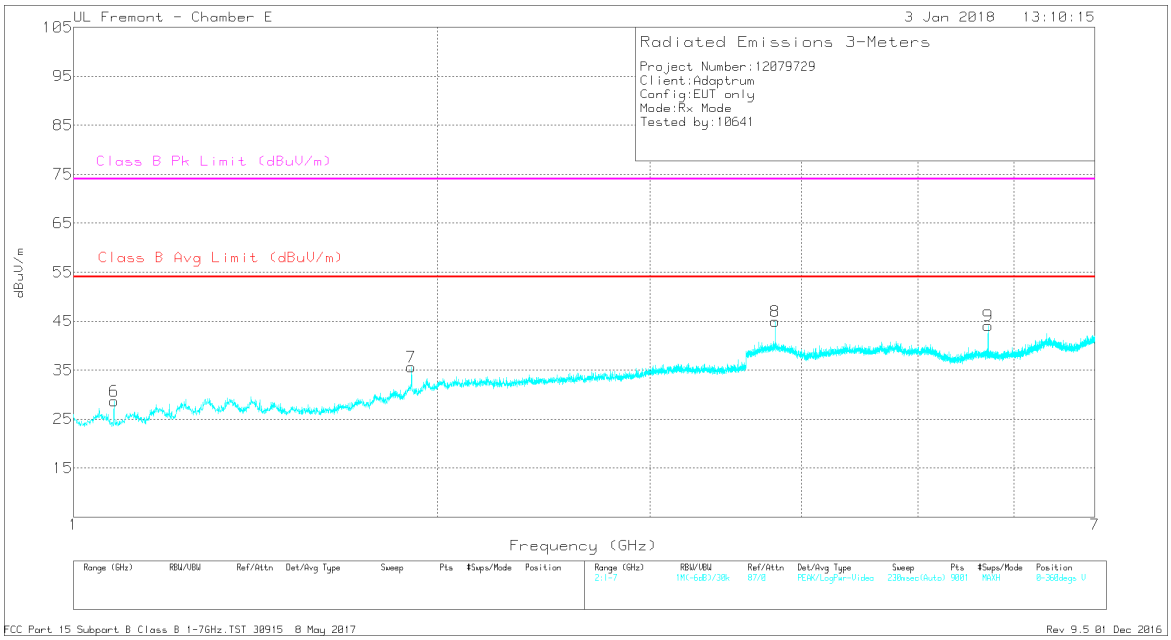
10.6. RECEIVER SPURIOUS EMISSIONS ABOVE 1 GHz

10.6.1. UHF BAND

HORIZONTAL PLOT



VERTICAL PLOT



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DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.05	27.63	Av	26.4	-22.9	31.13	54	-22.87	-	-	193	110	H
	1.05	36.65	Pk	26.4	-23	40.05	-	-	74	-33.95	193	102	H
2	1.08	28.2	Av	26.4	-22.8	31.8	54	-22.2	-	-	201	220	H
	1.08	31.06	Pk	26.4	-22.8	34.66	-	-	74	-39.34	223	384	H
6	1.08	24.23	Av	26.4	-22.8	27.83	54	-26.17	-	-	135	197	V
	1.08	33.29	Pk	26.4	-22.8	36.89	-	-	74	-37.11	166	192	V
3	1.904	28.64	Av	30.9	-20	39.54	54	-14.46	-	-	184	131	H
	1.904	34.86	Pk	30.9	-20	45.76	-	-	74	-28.24	186	132	H
7	1.904	24.81	Av	30.9	-20	35.71	54	-18.29	-	-	313	185	V
	1.904	32.74	Pk	30.9	-20	43.64	-	-	74	-30.36	213	246	V
4	3.808	28.66	Av	33.7	-17.2	45.16	54	-8.84	-	-	196	159	H
	3.808	35.71	Pk	33.7	-17.2	52.21	-	-	74	-21.79	196	156	H
8	3.808	26.03	Av	33.7	-17.2	42.53	54	-11.47	-	-	315	262	V
	3.808	32.63	Pk	33.7	-17.2	49.13	-	-	74	-24.87	160	114	V
5	5.712	25.82	Av	35.1	-19.2	41.72	54	-12.28	-	-	178	109	H
	5.712	33.1	Pk	35.1	-19.2	49	-	-	74	-25	256	111	H
9	5.712	23.28	Av	35.1	-19.2	39.18	54	-14.82	-	-	172	228	V
	5.712	33.24	Pk	35.1	-19.2	49.14	-	-	74	-24.86	174	225	V

Pk - Peak detector
Av - Average detection

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11. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50
Note: The lower limit shall apply at the transition frequencies		

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4-2009.

Line conducted data is recorded for both NEUTRAL and HOT lines.

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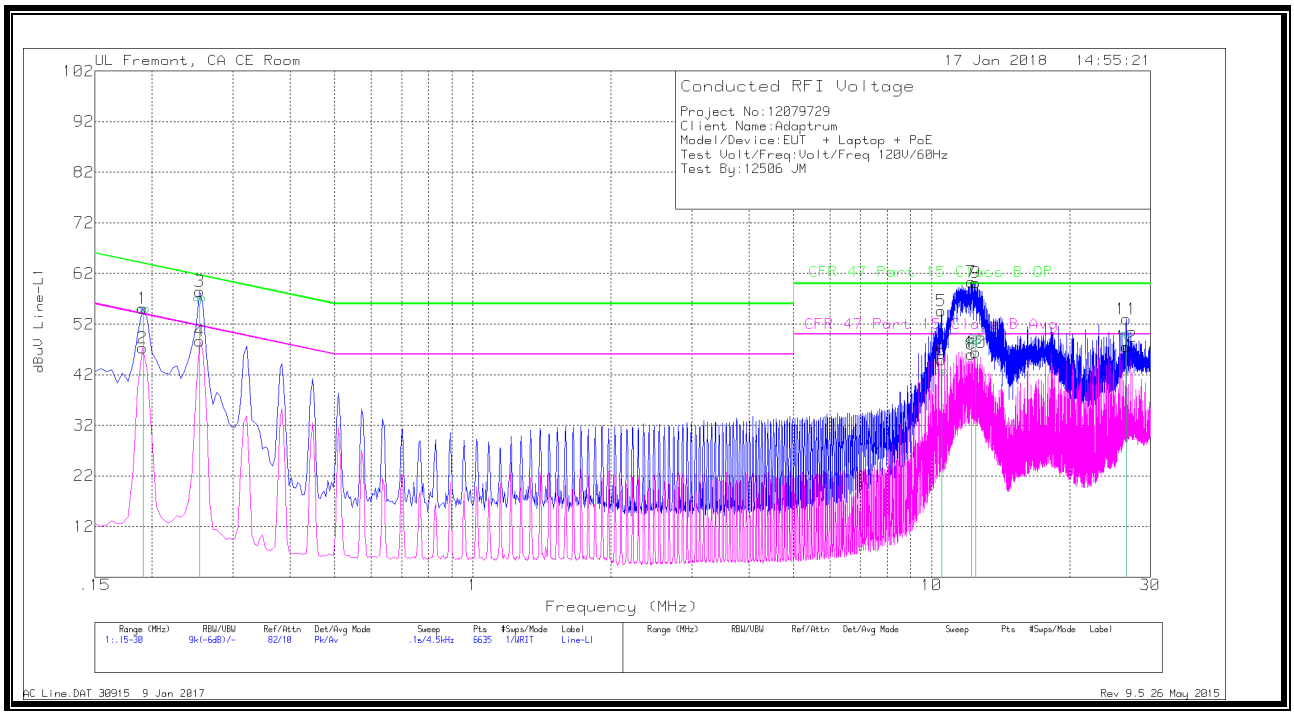
11.1. UHF BAND WORST CASE

11.1.1. LINE 1 RESULTS



DATA

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
1	.1905	43.72	Qp	0	0	10.1	53.82	63.99	-10.17	-	-
2	.1905	37.18	Av	0	0	10.1	47.28	-	-	54.01	-6.73
3	.2535	45.84	Qp	0	0	10.1	55.94	61.62	-5.68	-	-
4	.2535	38.49	Av	0	0	10.1	48.59	-	-	51.64	-3.05
5	10.5135	31.29	Qp	0	.2	10.2	41.69	60	-18.31	-	-
6	10.5135	34.51	Av	0	.2	10.2	44.91	-	-	50	-5.09
7	12.228	36.87	Qp	.1	.2	10.2	47.37	60	-12.63	-	-
8	12.228	35.59	Av	.1	.2	10.2	46.09	-	-	50	-3.91
9	12.48225	38	Qp	.1	.2	10.2	48.5	60	-11.5	-	-
10	12.48	35.92	Av	.1	.2	10.2	46.42	-	-	50	-3.58
11	26.61	38.16	Qp	.1	.3	10.5	49.06	60	-10.94	-	-
12	26.61	36.66	Av	.1	.3	10.5	47.56	-	-	50	-2.44

Qp - Quasi-Peak detector
Av - Average detection

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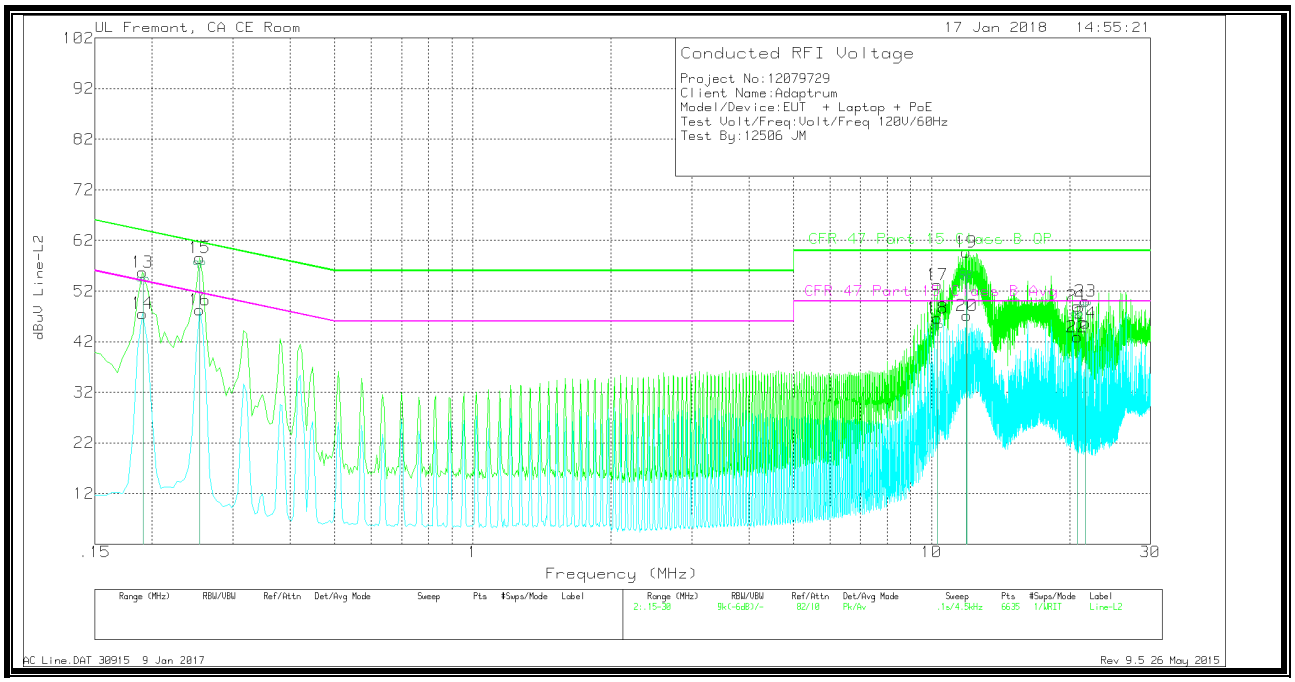
11.1.2. LINE 2 RESULTS



DATA

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
13	.1905	43.24	Qp	0	0	10.1	53.34	63.99	-10.65	-	-
14	.1905	37.49	Av	0	0	10.1	47.59	-	-	54.01	-6.42
15	.2535	46.53	Qp	0	0	10.1	56.63	61.62	-4.99	-	-
16	.2535	38.21	Av	0	0	10.1	48.31	-	-	51.64	-3.33
17	10.2975	33.77	Qp	0	.2	10.2	44.17	60	-15.83	-	-
18	10.2975	36.31	Av	0	.2	10.2	46.71	-	-	50	-3.29
19	11.8905	43.43	Qp	0	.2	10.2	53.83	60	-6.17	-	-
20	11.9535	36.77	Av	0	.2	10.2	47.17	-	-	50	-2.83
21	20.8095	35.7	Qp	0	.3	10.4	46.4	60	-13.6	-	-
22	20.8095	32.27	Av	0	.3	10.4	42.97	-	-	50	-7.03
23	21.6645	37.91	Qp	0	.3	10.4	48.61	60	-11.39	-	-
24	21.6645	34.98	Av	0	.3	10.4	45.68	-	-	50	-4.32

Qp - Quasi-Peak detector
Av - Average detection

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