CERTIFICATION TEST REPORT

Report Number: 12021721-E1V12

Applicant	:	725-1 Corporation 195 Page Mill Road, Suite 115 Palo Alto, CA, 94306
Model	:	725-100
FCC ID	:	2AOMN-725100
EUT Description	:	Car Camera
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date of Issue:
January 18, 2018

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
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NVLAP TESTING
NVLAP LAB CODE 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	1/9/2018	Initial Issue	--
V2	1/18/2018	Updated section 10 with below 30 MHz set-up photos	Huda Mustapha

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: 725-1 Corporation
195 Page Mill Road, Suite 115
Palo Alto, CA, 94306

EUT DESCRIPTION: Car Camera

MODEL: 725-100

SERIAL NUMBER: N746100AALM (Radiated), N746100AAMD (Conducted)

DATE TESTED: December 14th – 21st, 2018

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

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.

Approved & Released For
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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, KDB 558074 D01 v4 and ANSI C63.10-2013.

3. 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 (ISED:2324B-1)	☒ Chamber D (ISED:22541-1)
☒ Chamber B (ISED:2324B-2)	☐ Chamber E (ISED:22541-2)
☒ Chamber C (ISED:2324B-3)	☐ Chamber F (ISED:22541-3)
	☐ Chamber G (ISED:22541-4)
	☐ Chamber H (ISED:22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under ISED Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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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

4.3. 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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5. EQUIPMENT UNDER TEST

5.1. MAXIMUM OUTPUT POWER

The transmitter has a maximum Peak conducted output power as follows:

2.4GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
1Tx			
2412 - 2462	802.11b	18.9	77.62
2412 - 2462	802.11g	21.33	135.83
2412 - 2462	802.11n HT20	21.43	139.00
2422 - 2452	802.11n HT40	21.58	143.88

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5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a Laser Direct Structuring (LDS) antenna, with a maximum gain of 1.4 dBi.

5.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was V2.7B17

The test utility software used during testing was QRCT v3.0.264.0.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1 GHz and above 18 GHz were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated band edge, harmonics and spurious emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0

The EUT is designed for a fixed position in the Y orientation; therefore, all final radiated testing was performed with the EUT in the Y orientation.

AC mains line conducted emissions is not applicable, as the EUT is intended for vehicular use only and has no means to connect to AC mains under normal operation.

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Support Laptop	HP	HP Notebook X2	5CD736D58D	N/A
Custom debug control PCB	N/A	N/A	N/A	N/A
AC Adapter	NoiPosi	RS-AB02J00	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC	1	DC	Shielded	1m	
2	USB	1	MicroUSB	Shielded	1.5m	
3	USB	1	5-pin	Shielded	0.2m	
4	UFL	1	SMA	Shielded	0.1m	

TEST SETUP

Test software on the laptop exercises the EUT transmission through the control PCB.

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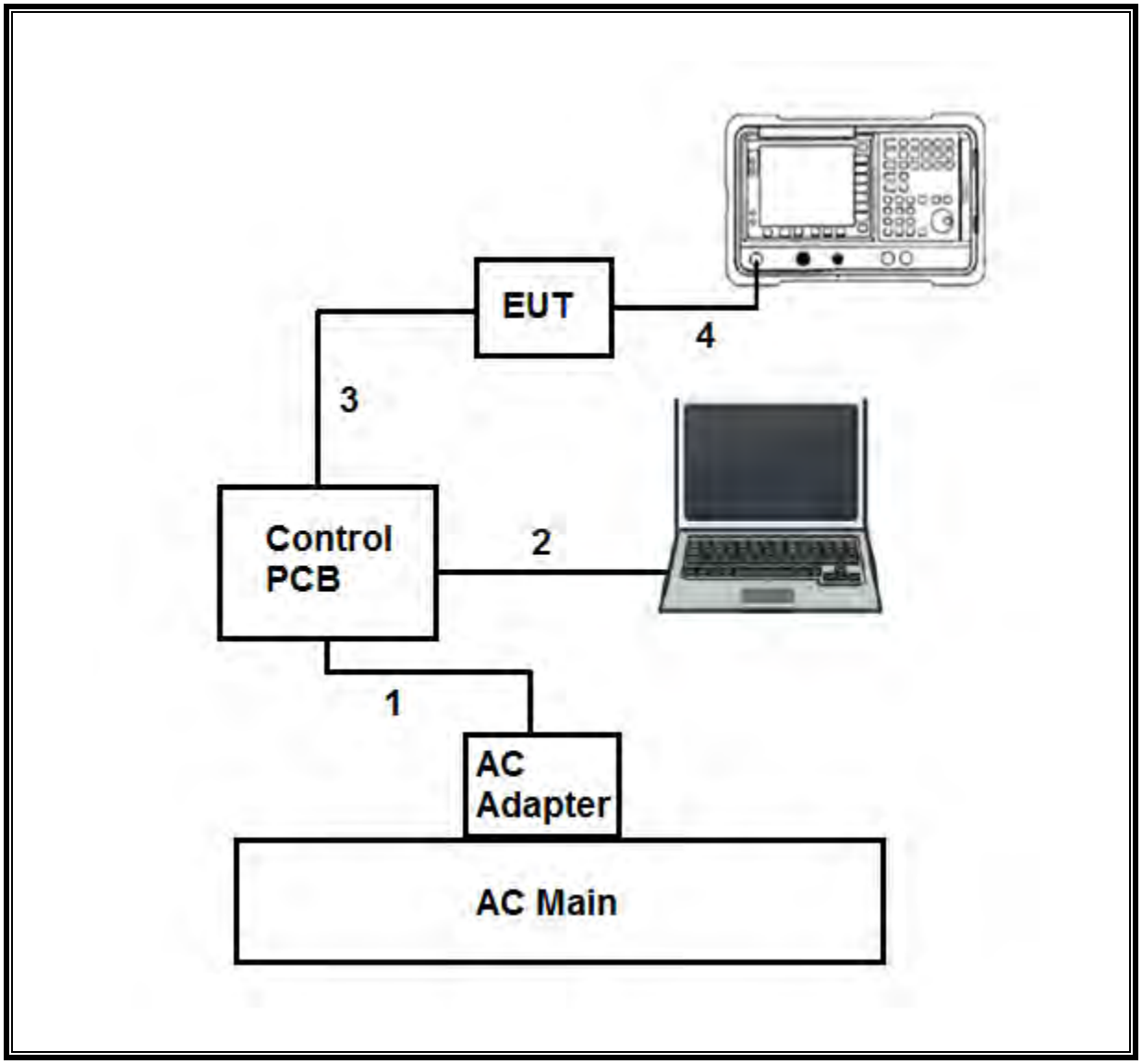
SETUP DIAGRAM FOR CONDUCTED TESTS



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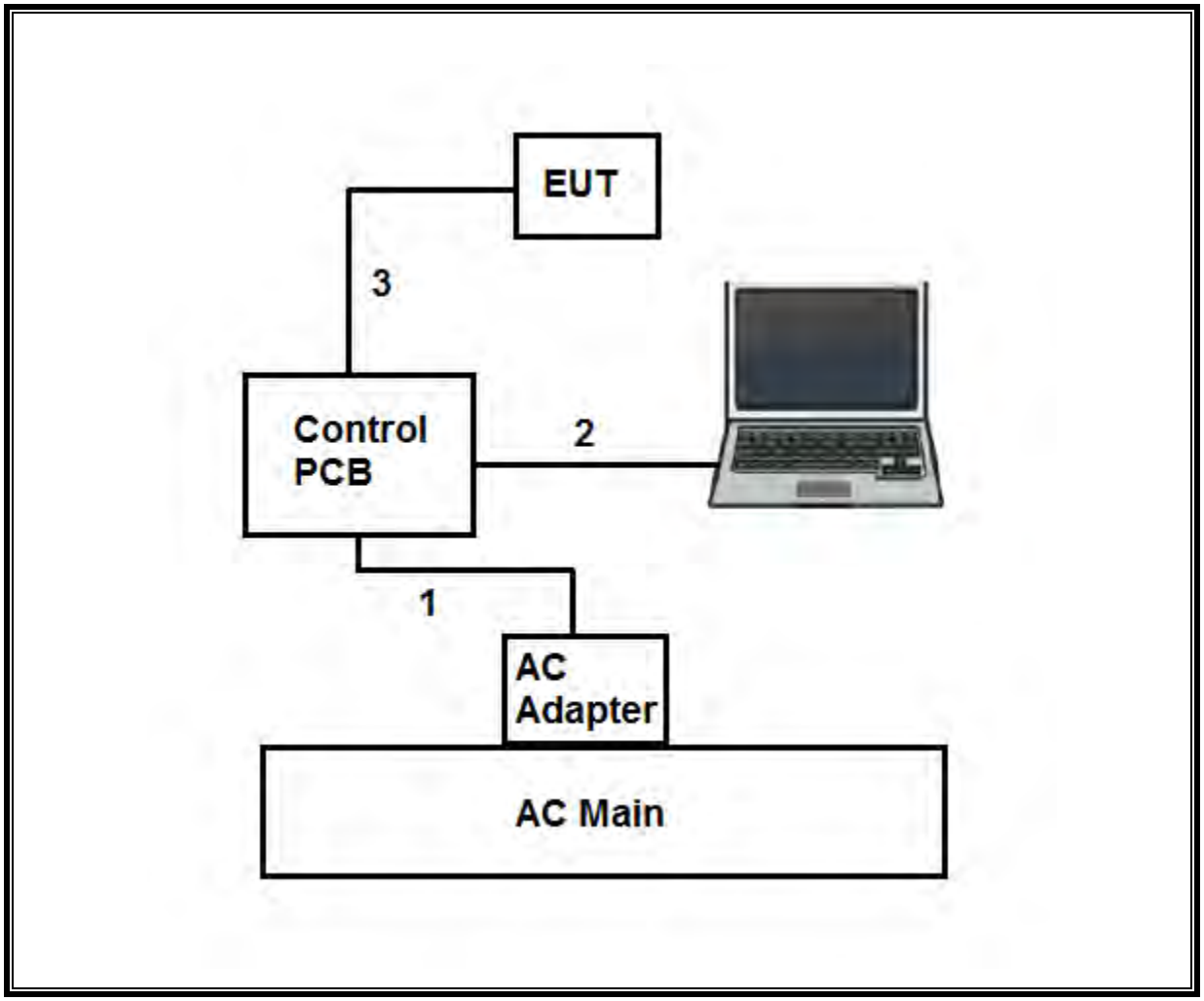
SETUP DIAGRAM FOR RADIATED TESTS



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6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v04, Section 6.

6 dB BW: KDB 558074 D01 v04, Section 8.1.

99% BW: ANSI C63.10-2013, Section 6.9.3.

Output Power: KDB 558074 D01 v04, Section 9.1.3.

Power Spectral Density: KDB 558074 D01 v04, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.1 (b).

Out-of-band emissions in restricted bands: KDB 558074 D01 v04, Section 12.1.

Band-edge: KDB 558074 D01 v04, Section 12.1.

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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 Due**
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad	Sunol Sciences Corp.	JB1	T130	10/16/2018
Antenna, Active Loop 9kHz-30MHz	Com-Power Corp.	AL-130R	T1866	10/10/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T345	04/14/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T346	03/28/2018
Antenna, Horn 18-26.5GHz	ARA	MWH-1826	T89	01/04/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1268	06/15/2018
Power Sensor, P – series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T1223	03/29/2018
Amplifier, 1 - 18GHz	MITEQ	AFS42-00101800-25-S-42	T491	06/01/2018
Amplifier, 1 - 18GHz	MITEQ	AFS42-00101800-25-S-42	T493	06/23/2018
Amplifier, 1-8GHz	MITEQ	AMF-4D-01000800-30-29P	T1156	06/24/2018
Pre Amplifier, 1-26.5GHz	Agilent	8449B	T404	7/23/2018
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	T486	11/25/2018
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	T485	6/24/2018
Amplifier, 10kHz-1GHz	Agilent (Keysight) Technologies	8447D	T15	08/14/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1210	07/17/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T339	09/13/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1466	04/11/2018

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016
Antenna Port Software	UL	UL RF	Ver 7.7, Dec 14, 2017

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8. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247 (b) (3)	TX conducted output power	<30dBm		Pass
15.247 (e)	PSD	<8dBm/3kHz		Pass
15.207 (a)	AC Power Line conducted emissions	Section 10		Not Applicable
15.205, 15.209, 15.247(d)	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass
		< 74dBuV/m		

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b 1TX	8.224	8.421	0.977	97.66%	0.10	0.122
802.11g 1TX	1.364	1.563	0.873	87.27%	0.59	0.733
802.11n HT20 1TX	1.276	1.474	0.866	86.57%	0.63	0.784
802.11n HT40 1TX	0.636	0.835	0.761	76.10%	1.19	1.573

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DUTY CYCLE PLOTS

DUTY CYCLE 802.11b 1TX MODE

DUTY CYCLE 802.11g 1TX MODE

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DUTY CYCLE 802.11n HT20 1TX MODE

DUTY CYCLE 802.11n HT40 1TX MODE

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9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

RESULTS

9.2.1. 802.11b MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.08	0.5
Mid	2437	9.04	0.5
High	2462	7.32	0.5

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LOW CHANNEL 1

MID CHANNEL 6

HIGH CHANNEL 11

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9.2.2. 802.11g MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.44	0.5
Mid	2437	16.40	0.5
High	2462	16.52	0.5

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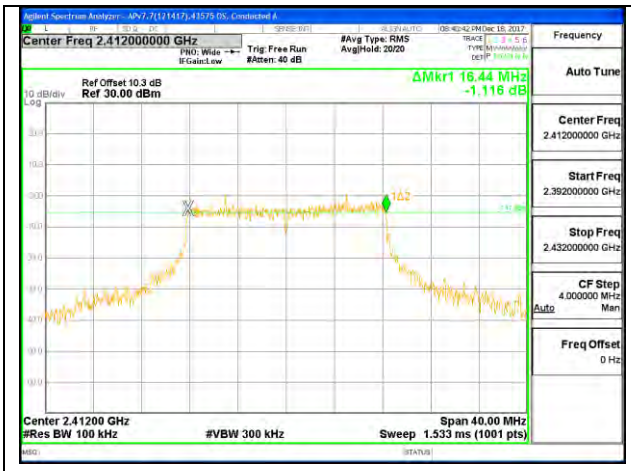
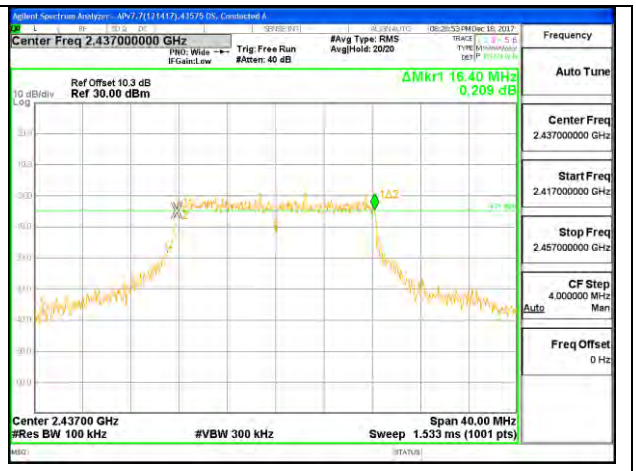


LOW CHANNEL 1



MID CHANNEL 6

HIGH CHANNEL 11

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9.2.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.64	0.5
Mid	2437	17.64	0.5
High	2462	17.60	0.5

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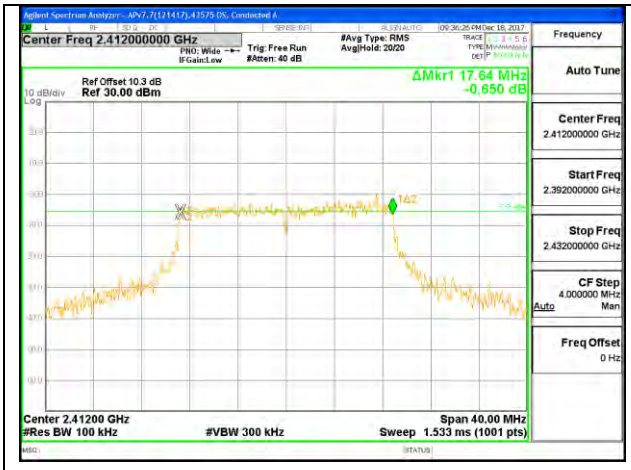
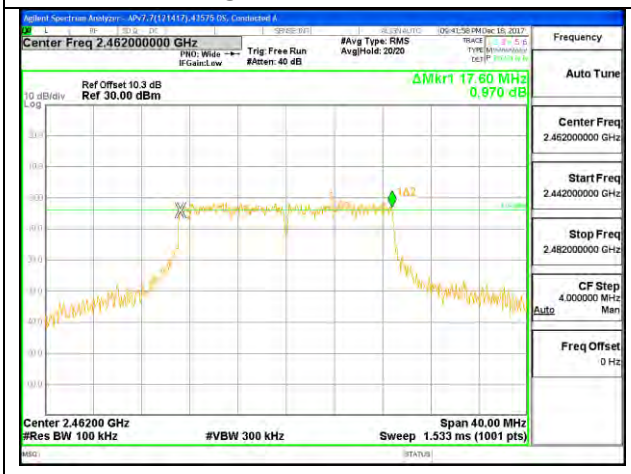


LOW CHANNEL 1

MID CHANNEL 6



HIGH CHANNEL 11

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9.2.4. 802.11n HT40 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2422	34.48	0.5
Mid	2437	35.68	0.5
High	2452	34.24	0.5

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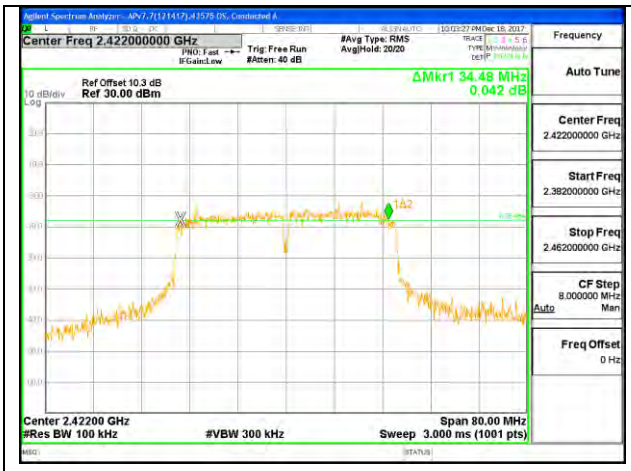
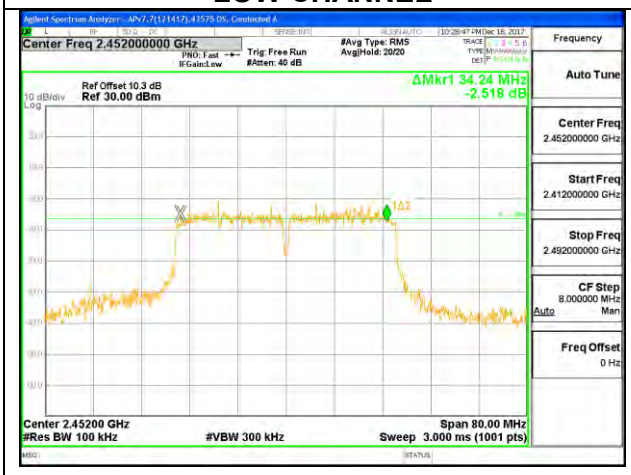


LOW CHANNEL

MID CHANNEL



HIGH CHANNEL

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9.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.3.1. 802.11b MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.036
Mid	2437	13.714
High	2462	13.999

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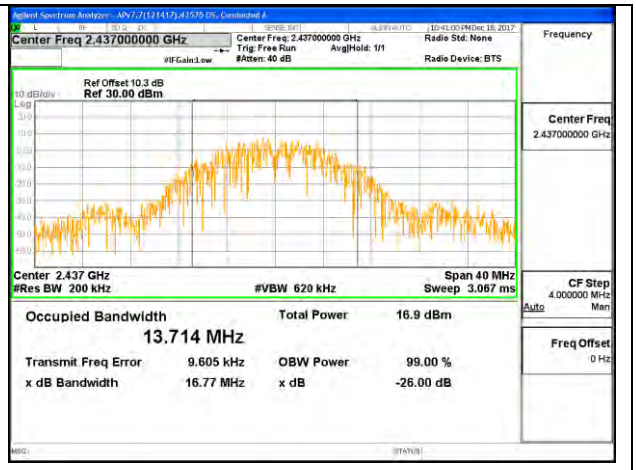
LOW CHANNEL 1



MID CHANNEL 6

HIGH CHANNEL 11

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9.3.1. 802.11g MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.491
Mid	2437	16.580
High	2462	16.722

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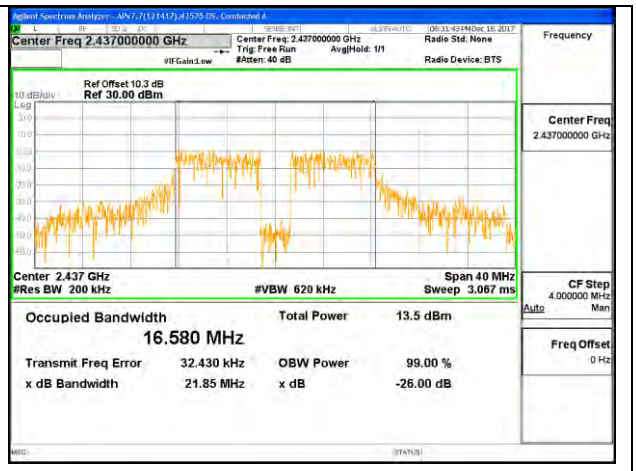
LOW CHANNEL 1



MID CHANNEL 6

HIGH CHANNEL 11

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9.3.1. 802.11n HT20 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.815
Mid	2437	17.895
High	2462	17.834

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MID CHANNEL 6

HIGH CHANNEL 11

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9.3.1. 802.11n HT40 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2422	36.585
Mid	2437	36.050
High	2452	36.482

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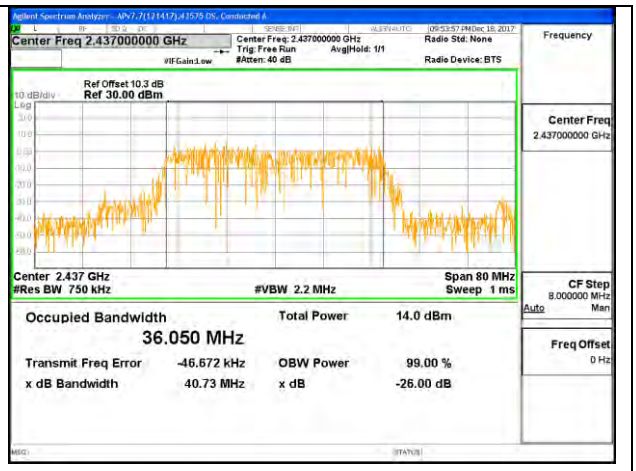
LOW CHANNEL



MID CHANNEL

HIGH CHANNEL

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9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure

KDB 558074 D01 v04 Section 9.1.3.

DIRECTIONAL ANTENNA GAIN

For 1 TX:
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

ID:	43575 OS	Date:	12/19/17

9.4.1. 802.11b MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.40	30.00	30	36	30.00
Mid	2437	1.40	30.00	30	36	30.00
High	2462	1.40	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	17.15	17.15	30.00	-12.85
Mid	2437	18.70	18.70	30.00	-11.30
High	2462	18.90	18.90	30.00	-11.10

The measurements above are peak power measurements

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9.4.2. 802.11g MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.40	30.00	30	36	30.00
Mid	2437	1.40	30.00	30	36	30.00
High	2462	1.40	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	20.11	20.11	30.00	-9.89
Mid	2437	21.33	21.33	30.00	-8.67
High	2462	21.02	21.02	30.00	-8.98

The measurements above are peak power measurements

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9.4.3. 802.11n HT20 MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.40	30.00	30	36	30.00
Mid	2437	1.40	30.00	30	36	30.00
High	2462	1.40	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	20.33	20.33	30.00	-9.67
Mid	2437	21.43	21.43	30.00	-8.57
High	2462	20.92	20.92	30.00	-9.08

The measurements above are peak power measurements

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9.4.4. 802.11n HT40 MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2422	1.40	30.00	30	36	30.00
Mid	2437	1.40	30.00	30	36	30.00
High	2452	1.40	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2422	21.19	21.19	30.00	-8.81
Mid	2437	21.45	21.45	30.00	-8.55
High	2452	21.58	21.58	30.00	-8.42

The measurements above are peak power measurements

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9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.3 dB (including 10 dB pad and 0.3 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power

RESULTS

ID:	43575 OS	**Date:**	12/19/17

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9.5.1. 802.11b MODE

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.8
Mid	2437	16.7
High	2462	16.4

9.5.2. 802.11g MODE

Channel	Frequency (MHz)	Power (dBm)
Low	2412	12.5
Mid	2437	14.0
High	2462	14.0

9.5.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	Power (dBm)
Low	2412	12.5
Mid	2437	13.9
High	2462	13.8

9.5.4. 802.11n HT40 MODE

Channel	Frequency (MHz)	Power (dBm)
Low	2422	13.1
Mid	2437	13.9
High	2452	13.8

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9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

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9.6.1. 802.11b MODE

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.70	-8.70	8.0	-16.7
Mid	2437	-7.72	-7.72	8.0	-15.7
High	2462	-7.10	-7.10	8.0	-15.1

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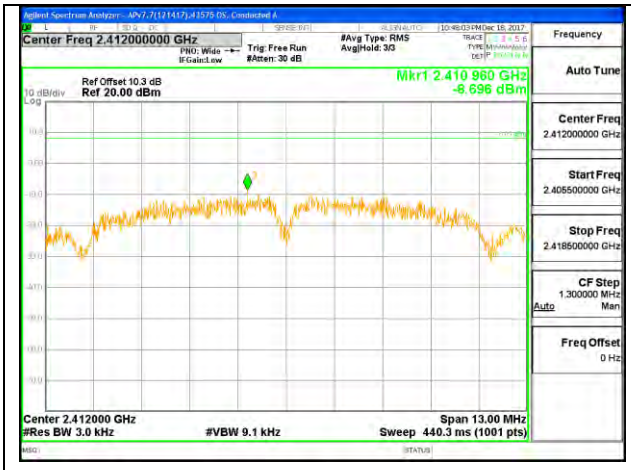

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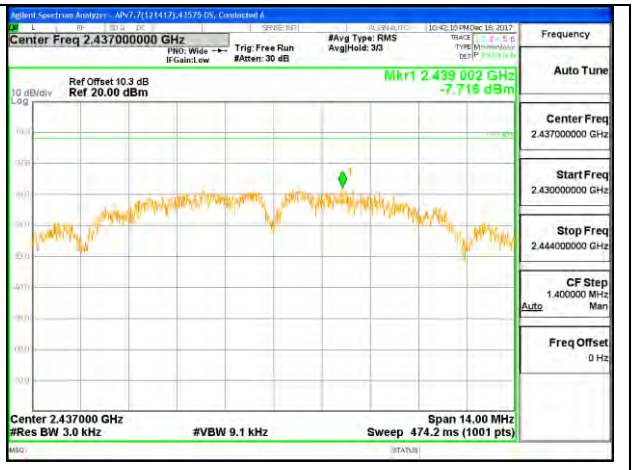
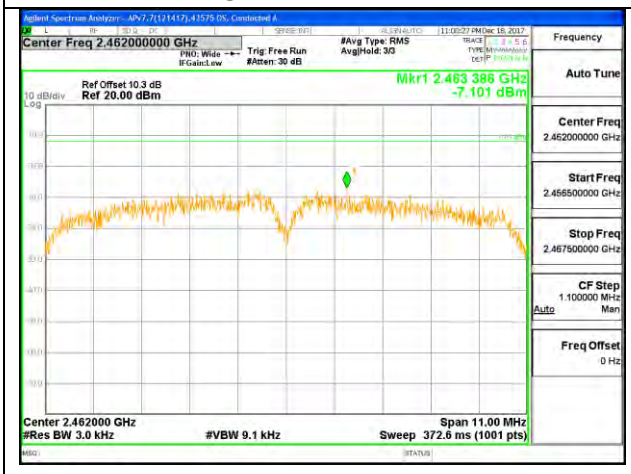


MID CHANNEL 6



HIGH CHANNEL 11

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9.6.2. 802.11g MODE

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2412	-13.69	-13.69	8.0	-21.7
Mid	2437	-13.02	-13.02	8.0	-21.0
High	2462	-11.76	-11.76	8.0	-19.8

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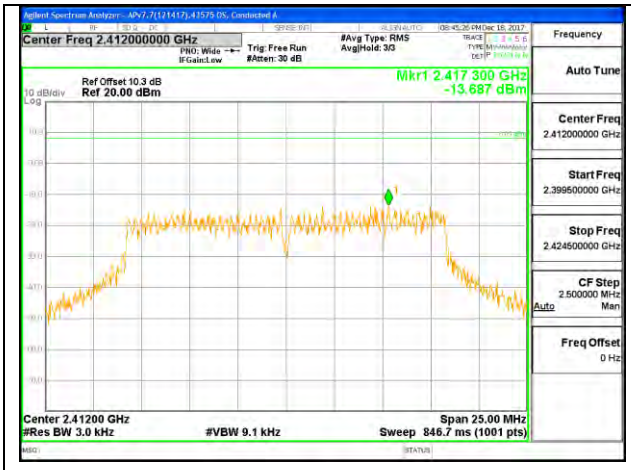

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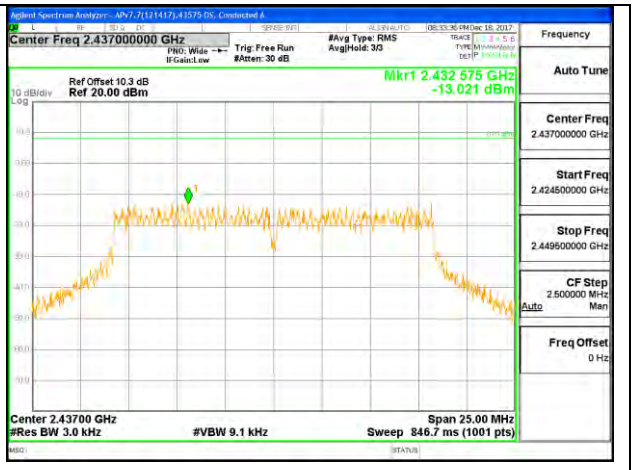

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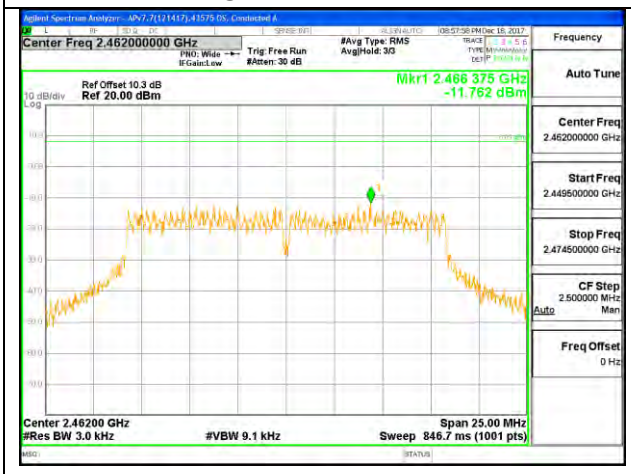

HIGH CHANNEL 11

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9.6.3. 802.11n HT20 MODE

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2412	-14.11	-14.11	8.0	-22.1
Mid	2437	-12.74	-12.74	8.0	-20.7
High	2462	-11.72	-11.72	8.0	-19.7

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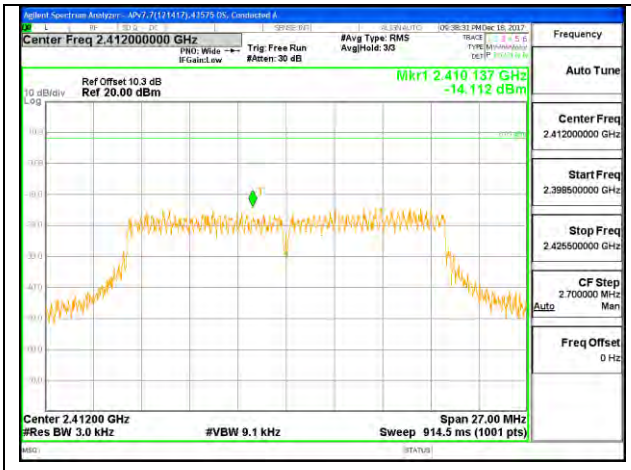

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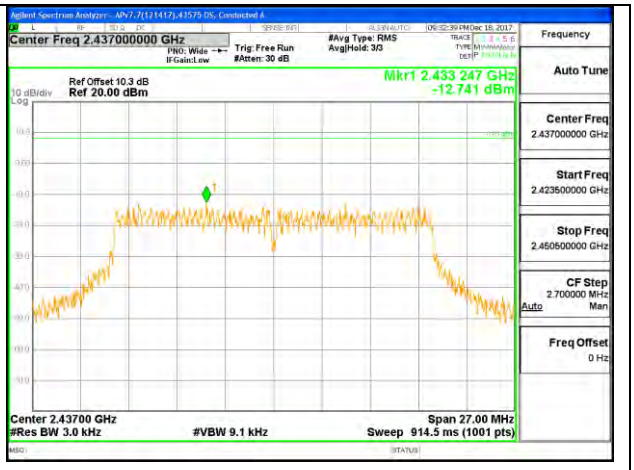

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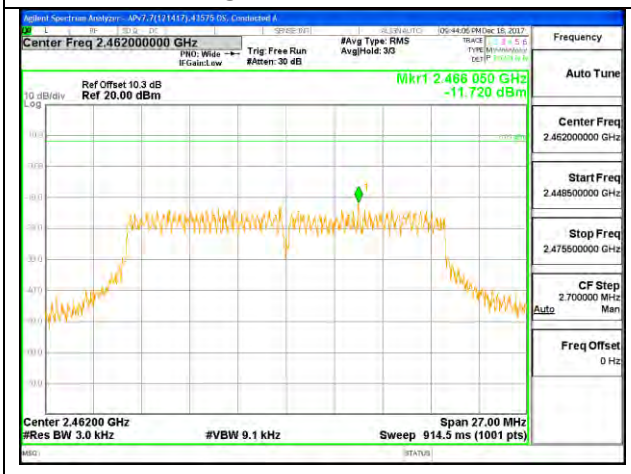

HIGH CHANNEL 11

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9.6.4. 802.11n HT40 MODE

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2422	-15.94	-15.94	8.0	-23.9
Mid	2437	-14.61	-14.61	8.0	-22.6
High	2452	-14.66	-14.66	8.0	-22.7

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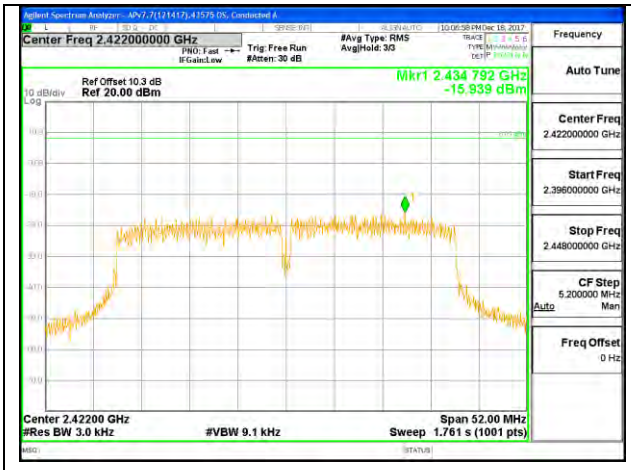
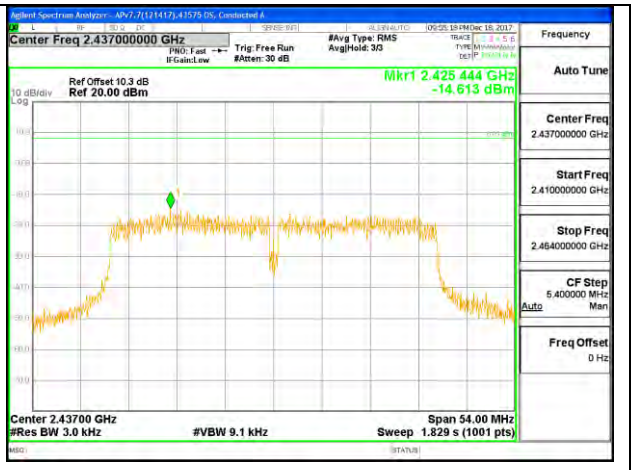
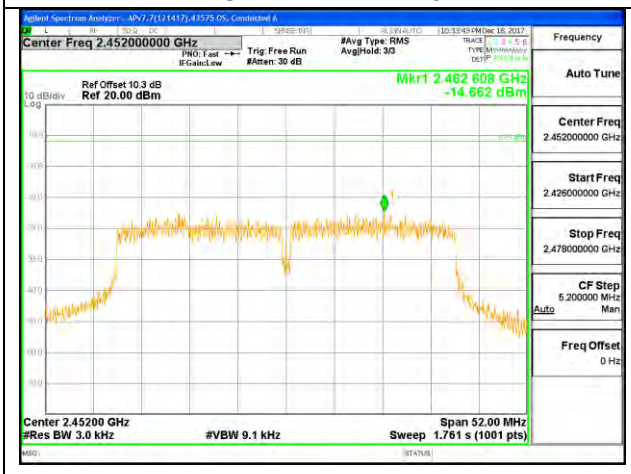


LOW CHANNEL 3



MID CHANNEL 6



HIGH CHANNEL 9

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9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Output power was measured based on the use of peak measurement, therefore the required attenuation was 20 dB.

RESULTS

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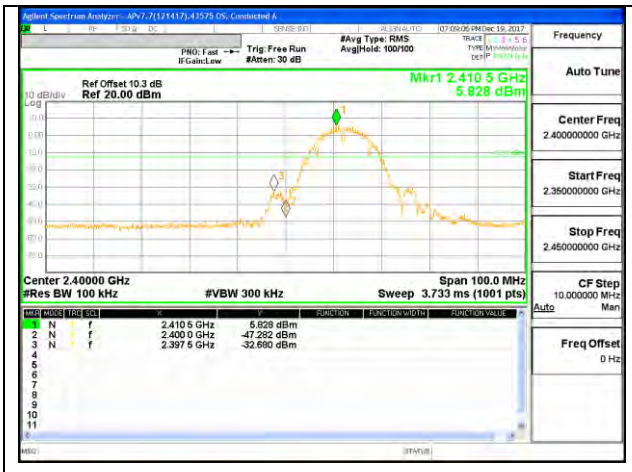
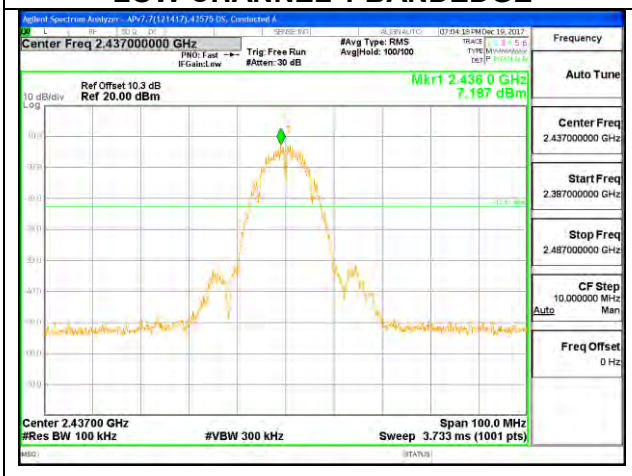
9.7.1. 802.11b MODE

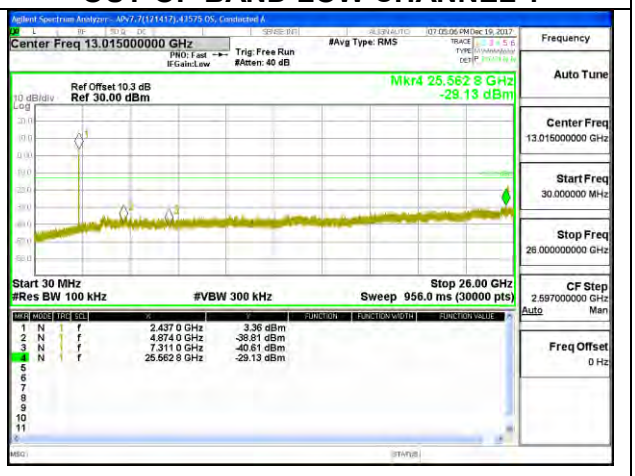


LOW CHANNEL 1 BANDEDGE

OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERNCE LEVEL



OUT-OF-BAND MID CHANNEL

HIGH CHANNEL 11 BANDEDGE

OUT-OF-BAND HIGH CHANNEL 11

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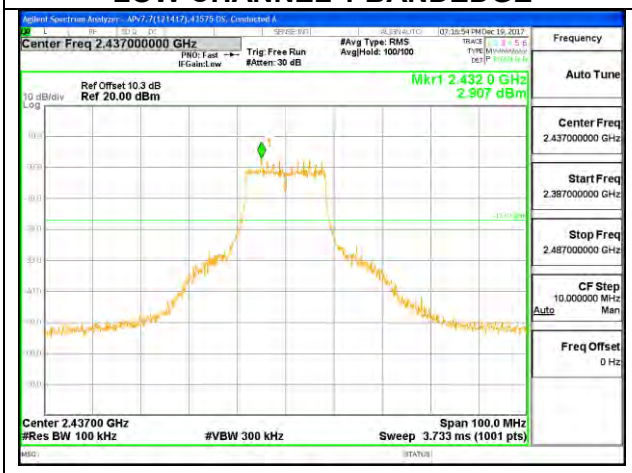
9.7.2. 802.11g MODE

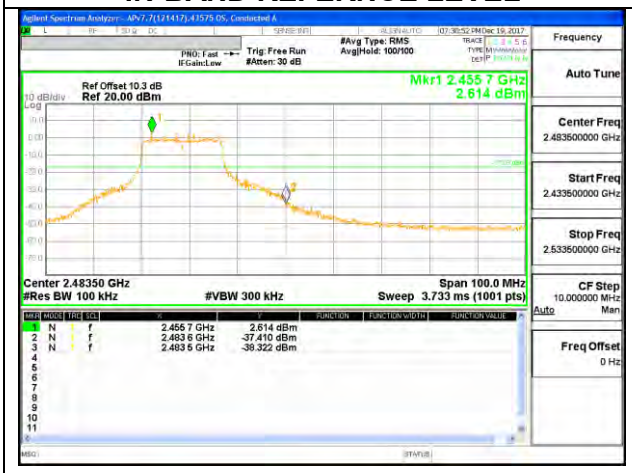
LOW CHANNEL 1 BANDEDGE

OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERNCE LEVEL

OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE

OUT-OF-BAND HIGH CHANNEL 11

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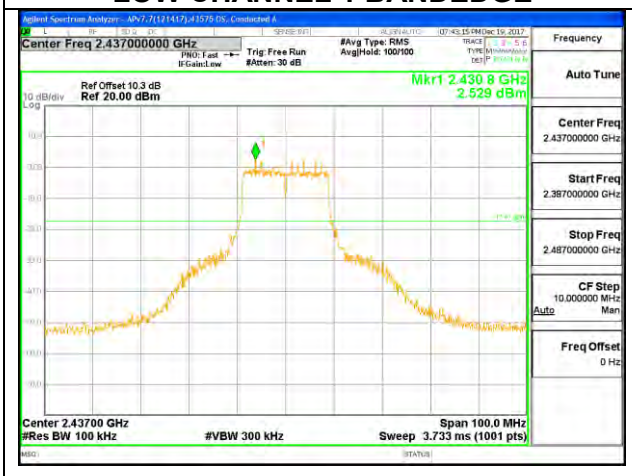
9.7.3. 802.11n HT20 MODE

LOW CHANNEL 1 BANDEDGE

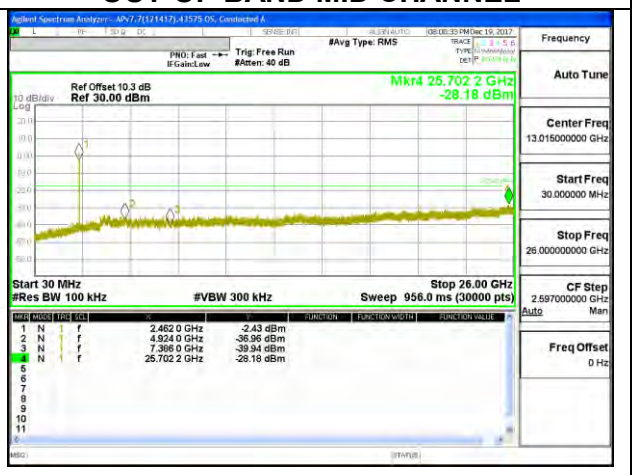
OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERNCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL 11 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 11

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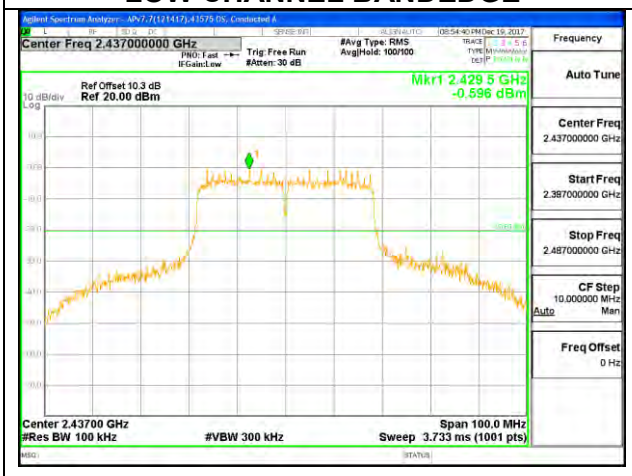
9.7.4. 802.11n HT40 MODE

LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



IN-BAND REFERNCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

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10. RADIATED TEST RESULTS

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
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

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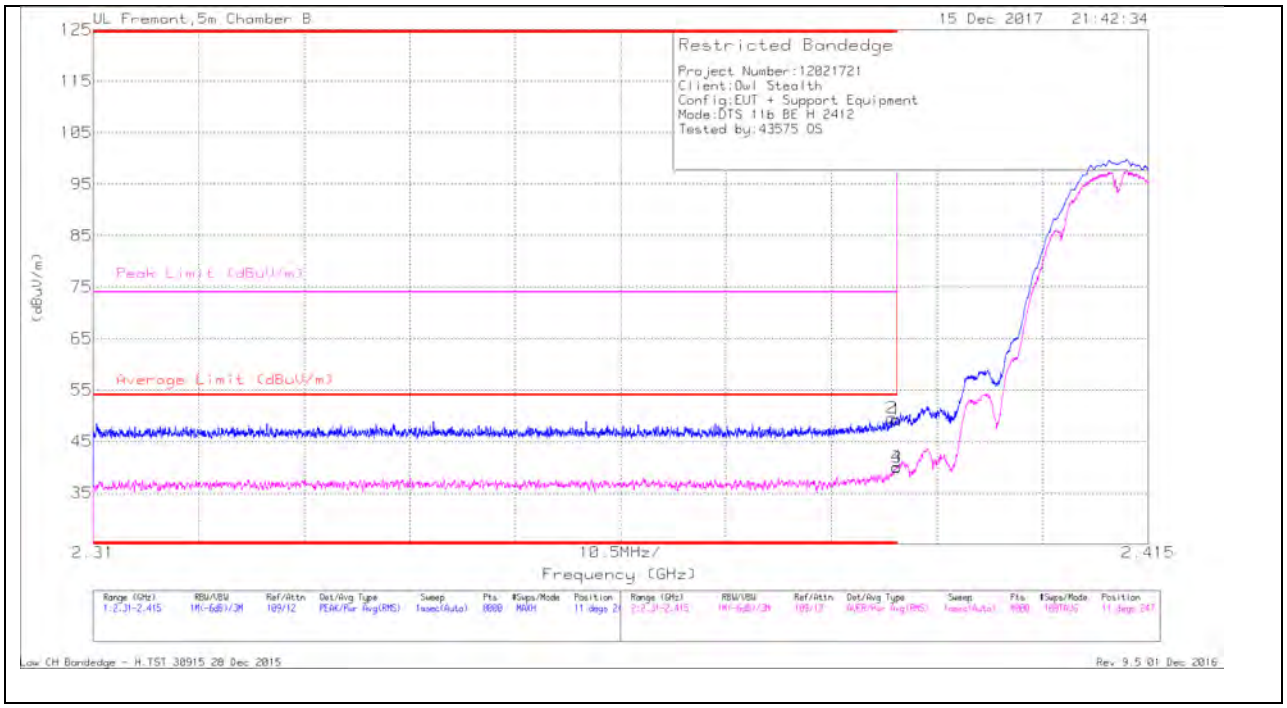
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	38.44	Pk	32	-21.2	0	49.24	-	-	74	-24.76	11	247	H
2	* 2.39	38.8	Pk	32	-21.2	0	49.6	-	-	74	-24.4	11	247	H
3	* 2.39	29.03	RMS	32	-21.2	.1	39.93	54	-14.07	-	-	11	247	H
4	* 2.39	29.13	RMS	32	-21.2	.1	40.03	54	-13.97	-	-	11	247	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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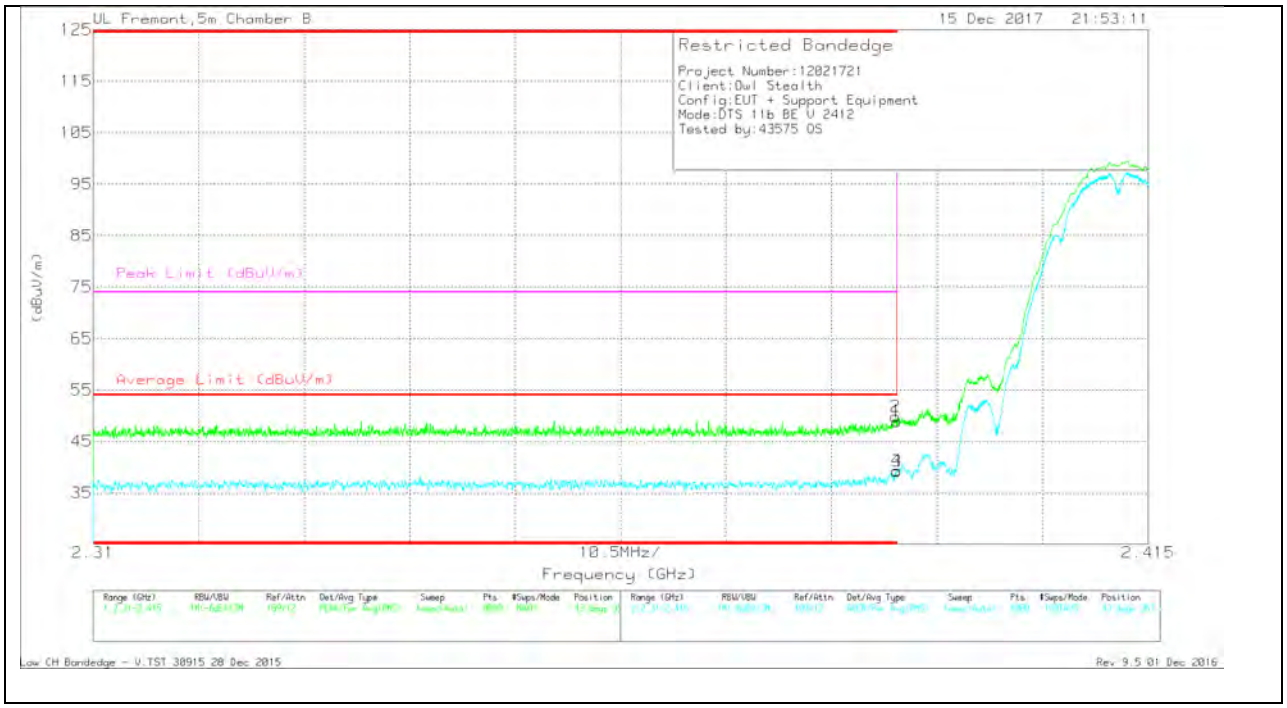
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	38.11	Pk	32	-21.2	0	48.91	-	-	74	-25.09	43	357	V
2	* 2.39	39.03	Pk	32	-21.2	0	49.83	-	-	74	-24.17	43	357	V
3	* 2.39	28.3	RMS	32	-21.2	.1	39.2	54	-14.8	-	-	43	357	V
4	* 2.39	28.41	RMS	32	-21.2	.1	39.31	54	-14.69	-	-	43	357	V

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RMS - RMS detection

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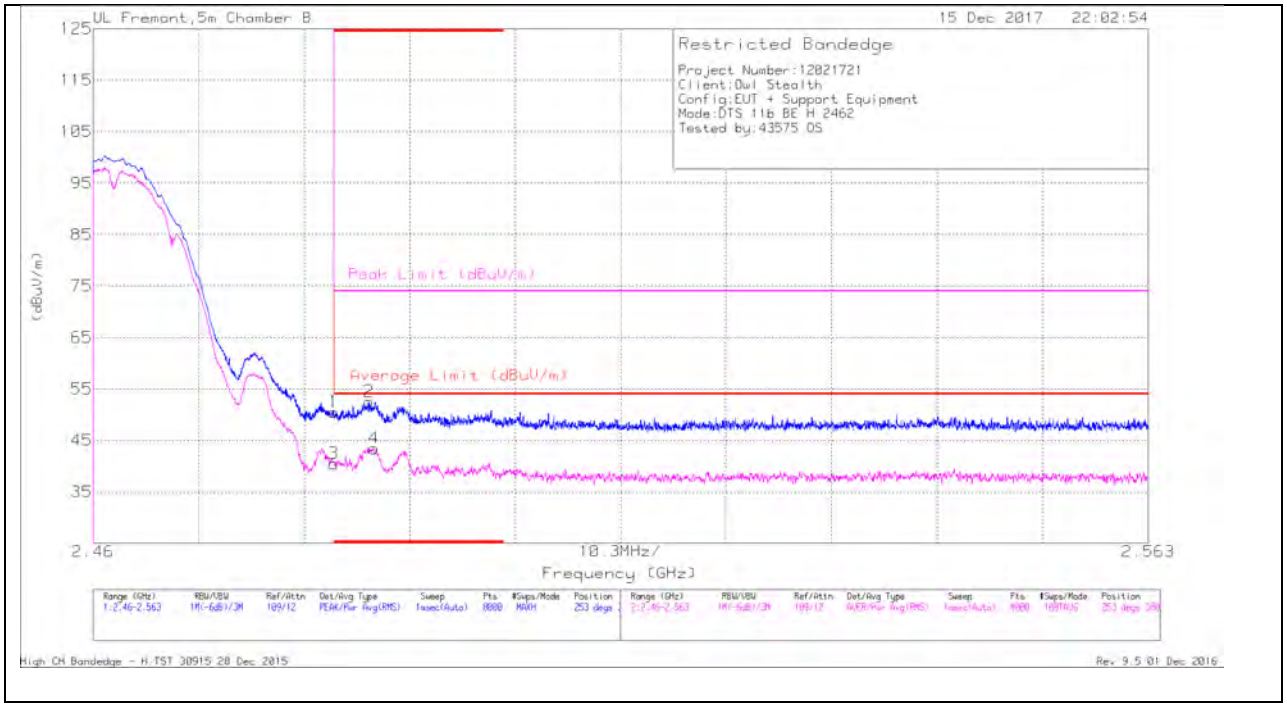
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	38.89	Pk	32.5	-20.9	0	50.49	-	-	74	-23.51	253	380	H
2	* 2.487	40.85	Pk	32.5	-20.8	0	52.55	-	-	74	-21.45	253	380	H
3	* 2.484	28.81	RMS	32.5	-20.9	.1	40.51	54	-13.49	-	-	253	380	H
4	* 2.487	31.64	RMS	32.5	-20.8	.1	43.44	54	-10.56	-	-	253	380	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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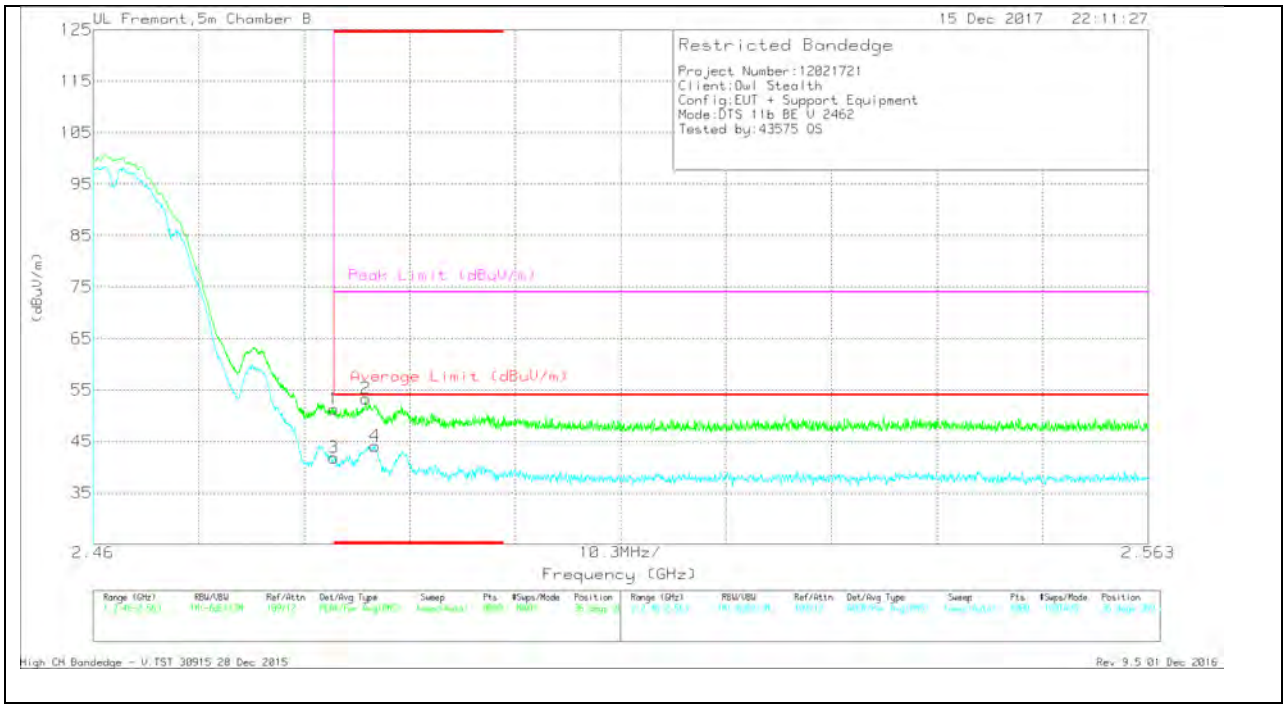
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	39.69	Pk	32.5	-20.9	0	51.29	-	-	74	-22.71	36	389	V
2	* 2.487	41.63	Pk	32.5	-20.8	0	53.33	-	-	74	-20.67	36	389	V
3	* 2.484	30.15	RMS	32.5	-20.9	.1	41.85	54	-12.15	-	-	36	389	V
4	* 2.488	32.31	RMS	32.5	-20.8	.1	44.11	54	-9.89	-	-	36	389	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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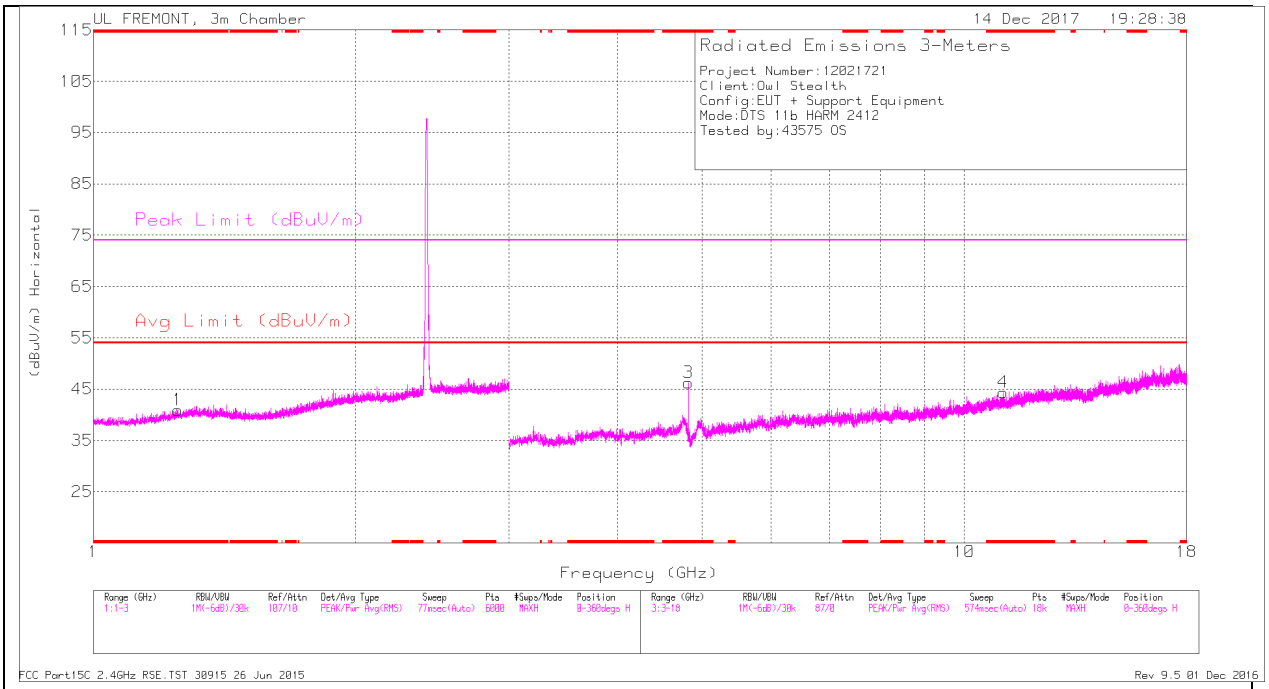
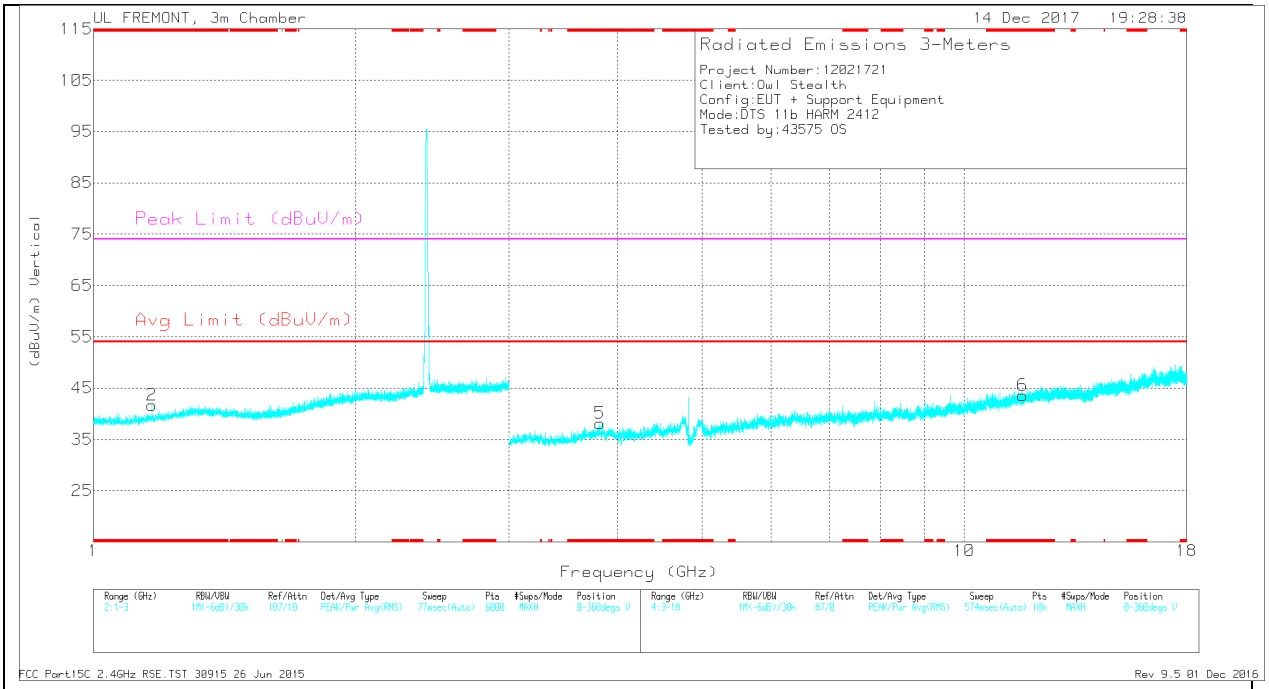
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.249	41.17	PK2	28.6	-22.7	0	47.07	-	-	74	-26.93	112	387	H
* 1.249	28.78	MAv1	28.6	-22.7	.1	34.78	54	-19.22	-	-	112	387	H
* 1.169	41.12	PK2	27.9	-22.7	0	46.32	-	-	74	-27.68	298	115	V
* 1.166	28.94	MAv1	27.9	-22.8	.1	34.14	54	-19.86	-	-	298	115	V
* 4.824	46.65	PK2	34	-28.4	0	52.25	-	-	74	-21.75	154	223	H
* 4.824	43.54	MAv1	34	-28.4	.1	49.24	54	-4.76	-	-	154	223	H
* 11.074	34.48	PK2	37.7	-22.5	0	49.68	-	-	74	-24.32	319	395	H
* 11.073	21.77	MAv1	37.7	-22.5	.1	37.07	54	-16.93	-	-	319	395	H
* 3.815	39.28	PK2	33.4	-28.9	0	43.78	-	-	74	-30.22	26	147	V
* 3.814	27.47	MAv1	33.4	-29.1	.1	31.87	54	-22.13	-	-	26	147	V
* 11.672	34.9	PK2	38.3	-23.1	0	50.1	-	-	74	-23.9	14	102	V
* 11.672	22.45	MAv1	38.3	-23.1	.1	37.75	54	-16.25	-	-	14	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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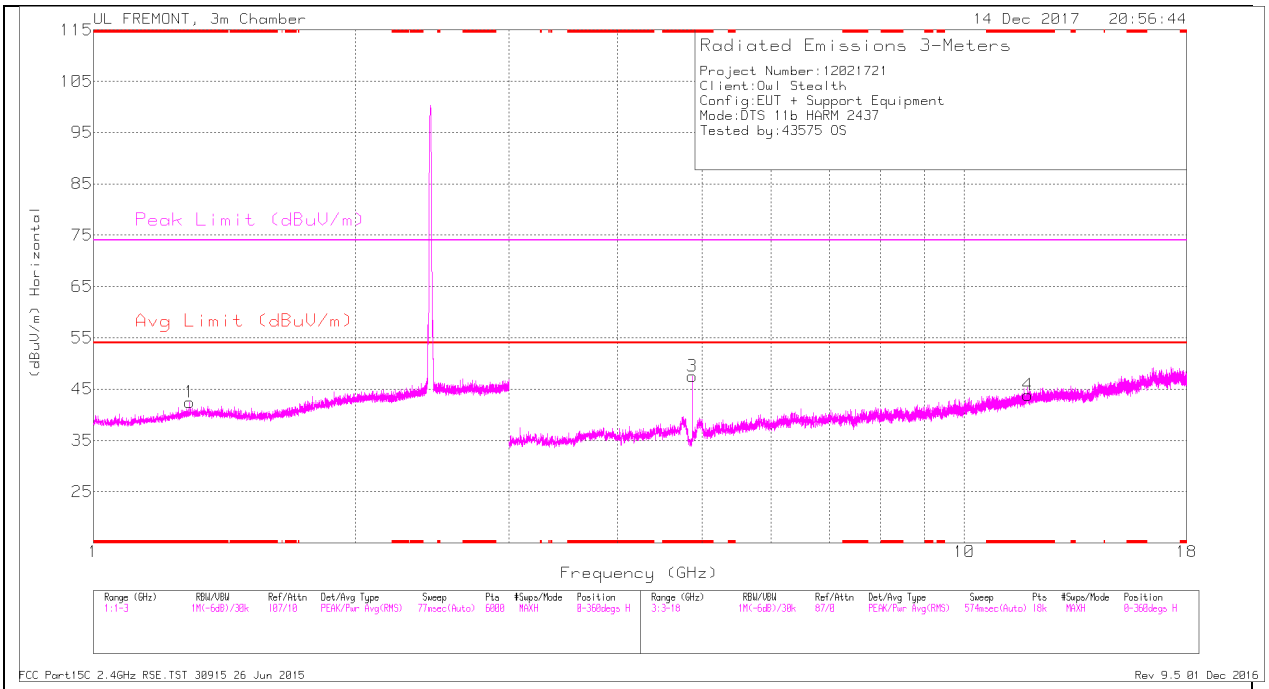
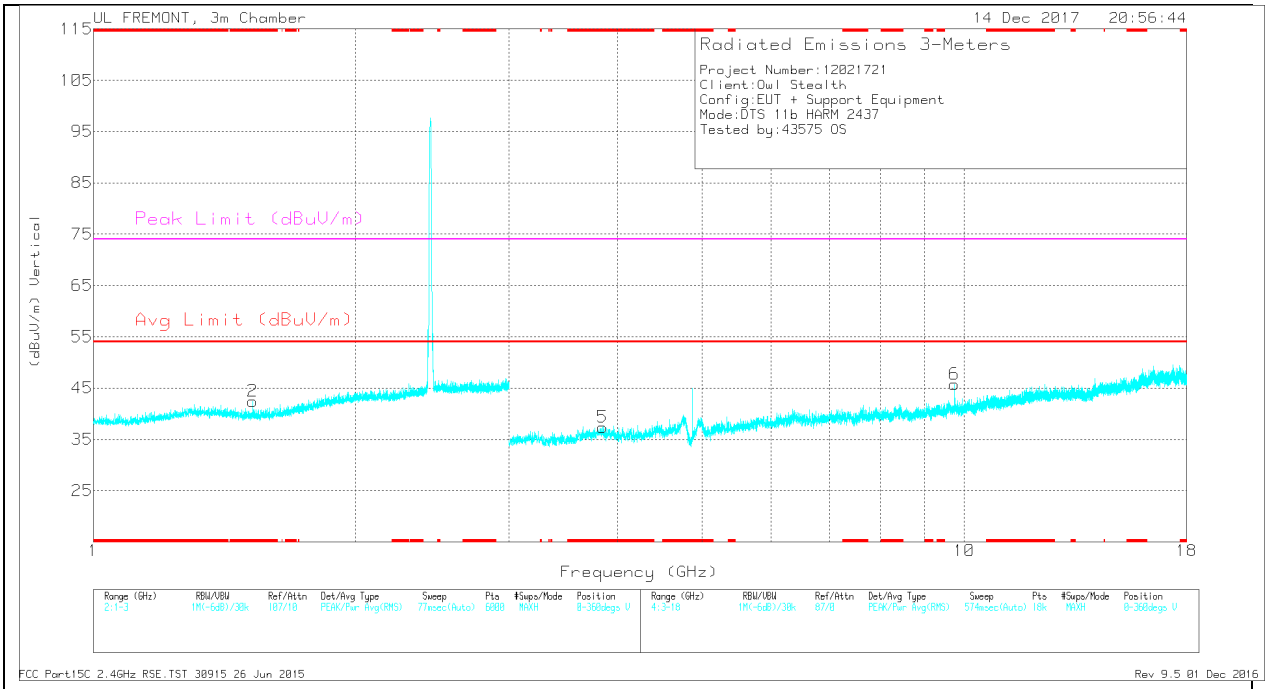
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.29	41.37	PK2	29	-22.6	0	47.77	-	-	74	-26.23	103	117	H
* 1.291	28.7	MAv1	29	-22.6	.1	35.2	54	-18.8	-	-	103	117	H
* 1.525	41.57	PK2	28.2	-22.3	0	47.47	-	-	74	-26.53	188	241	V
* 1.527	28.45	MAv1	28.2	-22.3	.1	34.45	54	-19.55	-	-	188	241	V
* 4.874	45.45	PK2	34	-27.7	0	51.75	-	-	74	-22.25	155	270	H
* 4.874	42.81	MAv1	34	-27.7	.1	49.21	54	-4.79	-	-	155	270	H
* 11.836	35.39	PK2	38.5	-23.1	0	50.79	-	-	74	-23.21	35	281	H
* 11.834	22.4	MAv1	38.5	-23.2	.1	37.8	54	-16.2	-	-	35	281	H
* 3.842	39.46	PK2	33.4	-29.1	0	43.76	-	-	74	-30.24	37	399	V
* 3.841	27.42	MAv1	33.4	-29.1	.1	31.82	54	-22.18	-	-	37	399	V
9.748	37.85	PK2	36.9	-23.4	0	51.35	-	-	-	-	178	290	V
9.748	29.98	MAv1	36.9	-23.4	.1	43.58	-	-	-	-	178	290	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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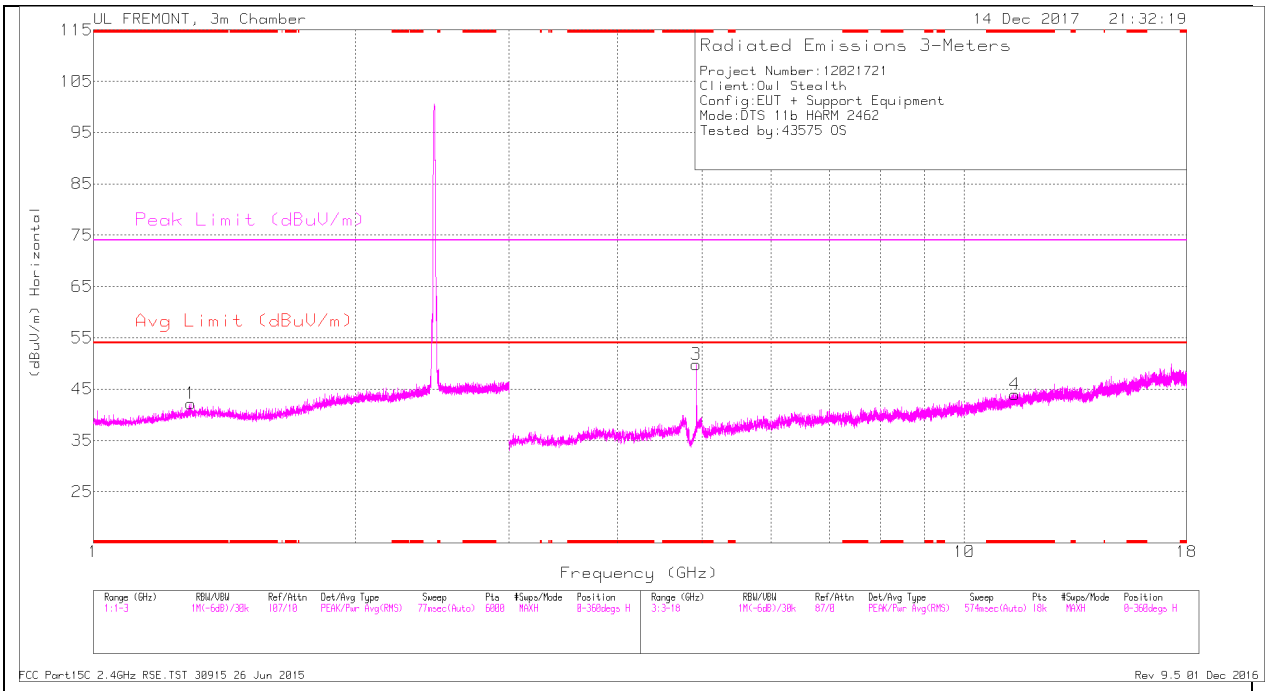
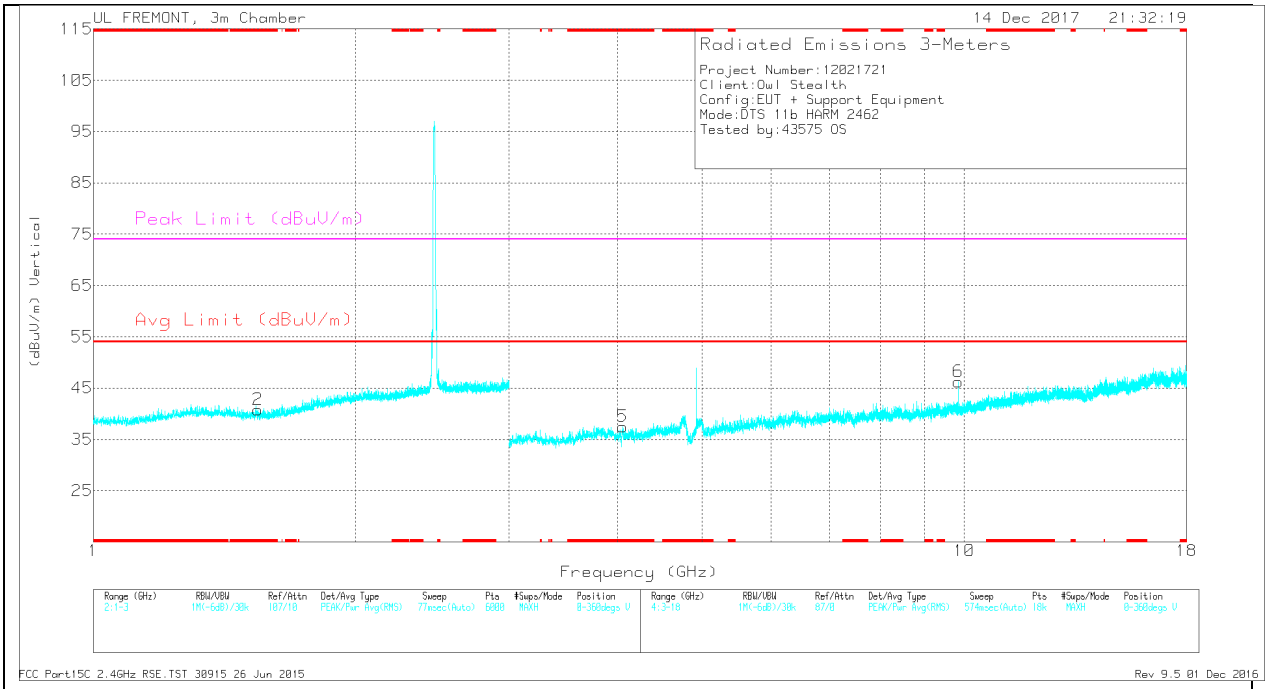
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.294	41.45	PK2	29.1	-22.6	0	47.95	-	-	74	-26.05	280	376	H
* 1.295	28.76	MAv1	29.1	-22.6	.1	35.36	54	-18.64	-	-	280	376	H
* 1.545	41.19	PK2	28.2	-22.3	0	47.09	-	-	74	-26.91	245	179	V
* 1.545	28.51	MAv1	28.2	-22.3	.1	34.51	54	-19.49	-	-	245	179	V
* 4.924	47.67	PK2	34	-28.7	0	52.97	-	-	74	-21.03	156	311	H
* 4.924	44.97	MAv1	34	-28.7	.1	50.37	54	-3.63	-	-	156	311	H
* 11.434	35.43	PK2	38.1	-23.1	0	50.43	-	-	74	-23.57	145	149	H
* 11.433	22.57	MAv1	38.1	-23.1	.1	37.67	54	-16.33	-	-	145	149	H
* 4.05	39.45	PK2	33.4	-28.9	0	43.95	-	-	74	-30.05	237	385	V
* 4.051	27.39	MAv1	33.4	-28.9	.1	31.99	54	-22.01	-	-	237	385	V
9.848	36.73	PK2	36.9	-22.9	0	50.73	-	-	-	-	181	283	V
9.848	29.46	MAv1	36.9	-22.9	.1	43.56	-	-	-	-	181	283	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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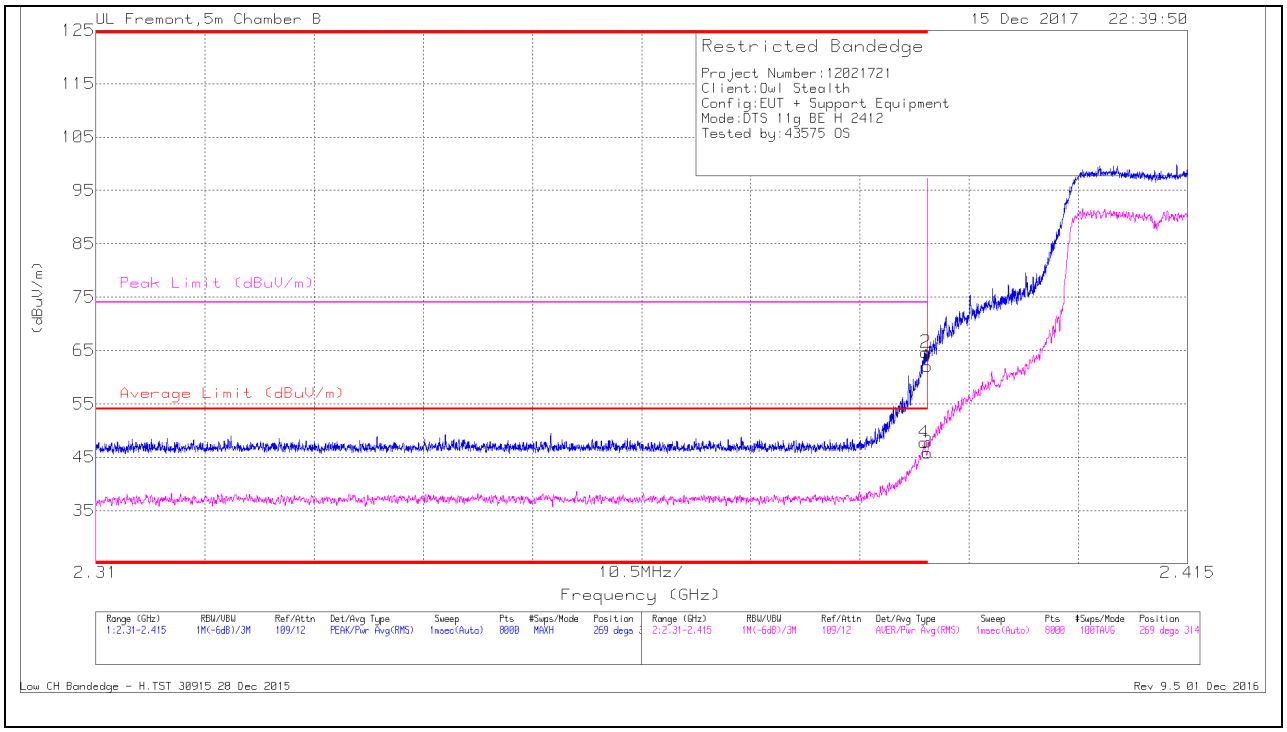
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	51.23	Pk	32	-21.2	0	62.03	-	-	74	-11.97	269	314	H
2	* 2.39	53.85	Pk	32	-21.2	0	64.65	-	-	74	-9.35	269	314	H
3	* 2.39	34.48	RMS	32	-21.2	.59	45.87	54	-8.13	-	-	269	314	H
4	* 2.39	36.38	RMS	32	-21.2	.59	47.77	54	-6.23	-	-	269	314	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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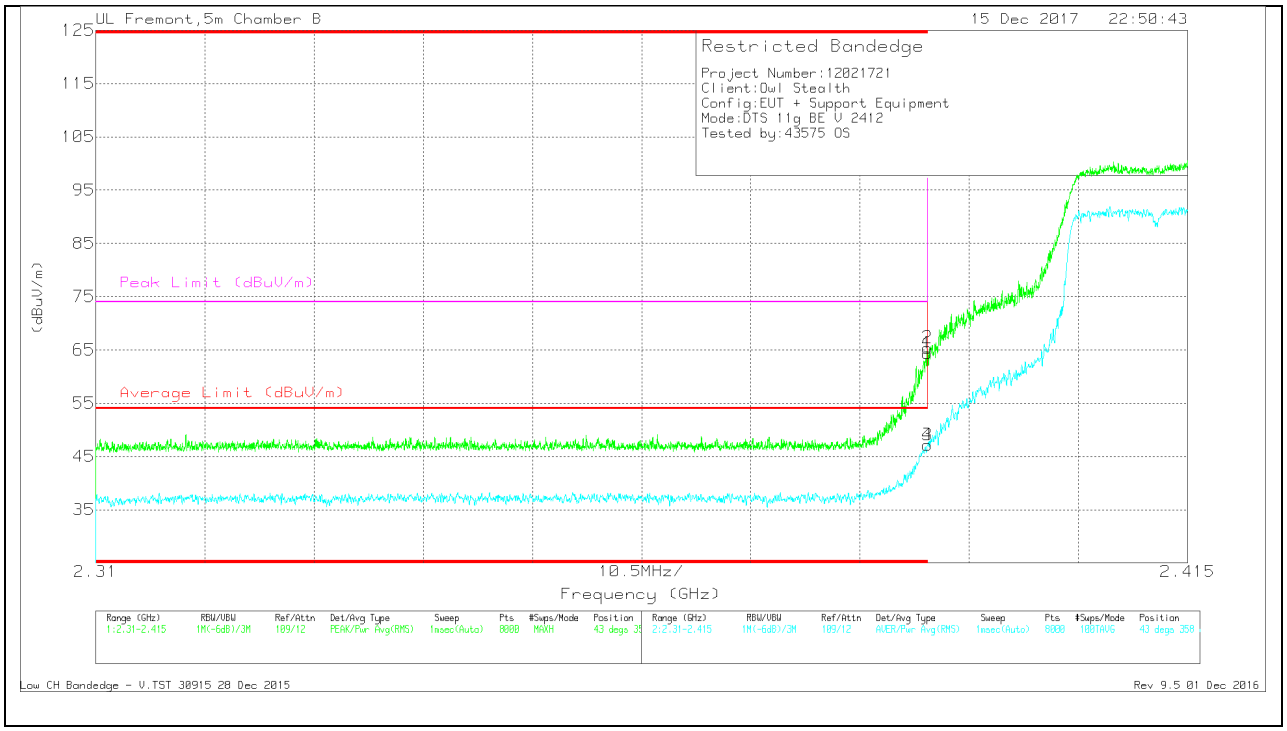
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	53.58	Pk	32	-21.2	0	64.38	-	-	74	-9.62	43	358	V
2	* 2.39	54.57	Pk	32	-21.2	0	65.37	-	-	74	-8.63	43	358	V
3	* 2.39	35.74	RMS	32	-21.2	.59	47.13	54	-6.87	-	-	43	358	V
4	* 2.39	35.74	RMS	32	-21.2	.59	47.13	54	-6.87	-	-	43	358	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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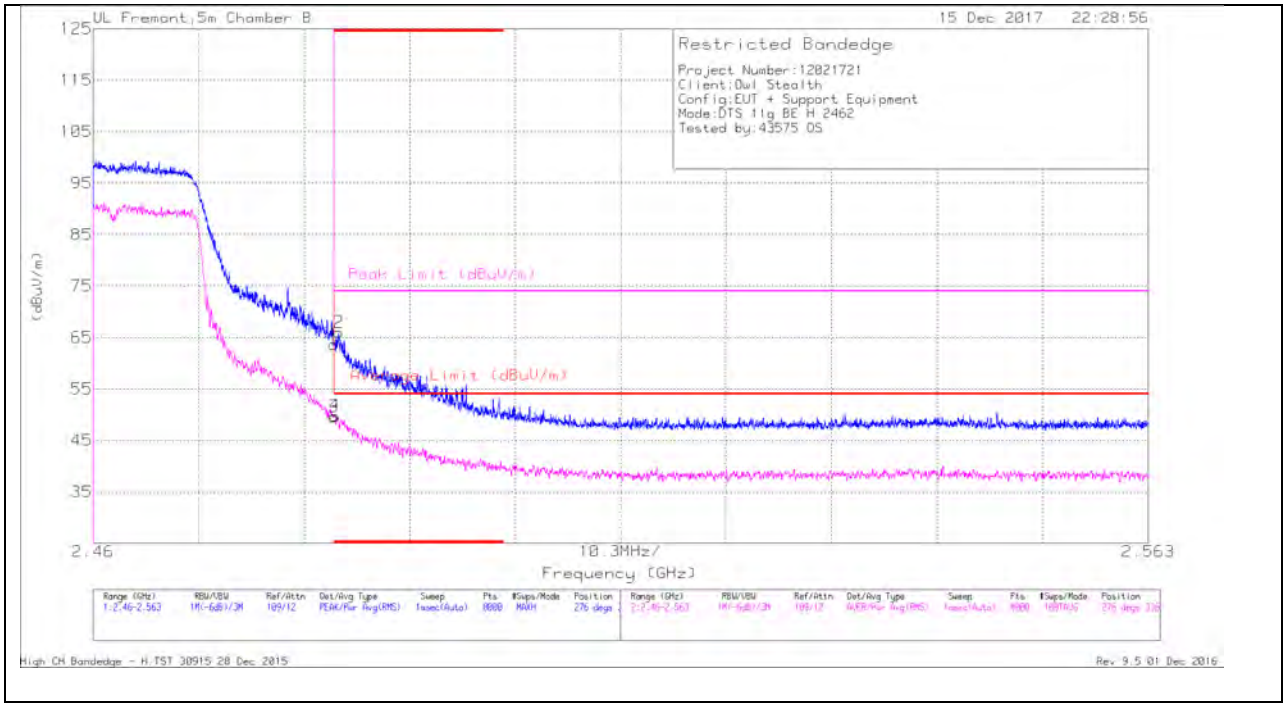
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	52.05	Pk	32.5	-20.9	0	63.65	-	-	74	-10.35	276	336	H
2	* 2.484	54.39	Pk	32.5	-20.9	0	65.99	-	-	74	-8.01	276	336	H
3	* 2.484	37.43	RMS	32.5	-20.9	.59	49.62	54	-4.38	-	-	276	336	H
4	* 2.484	37.58	RMS	32.5	-20.9	.59	49.77	54	-4.23	-	-	276	336	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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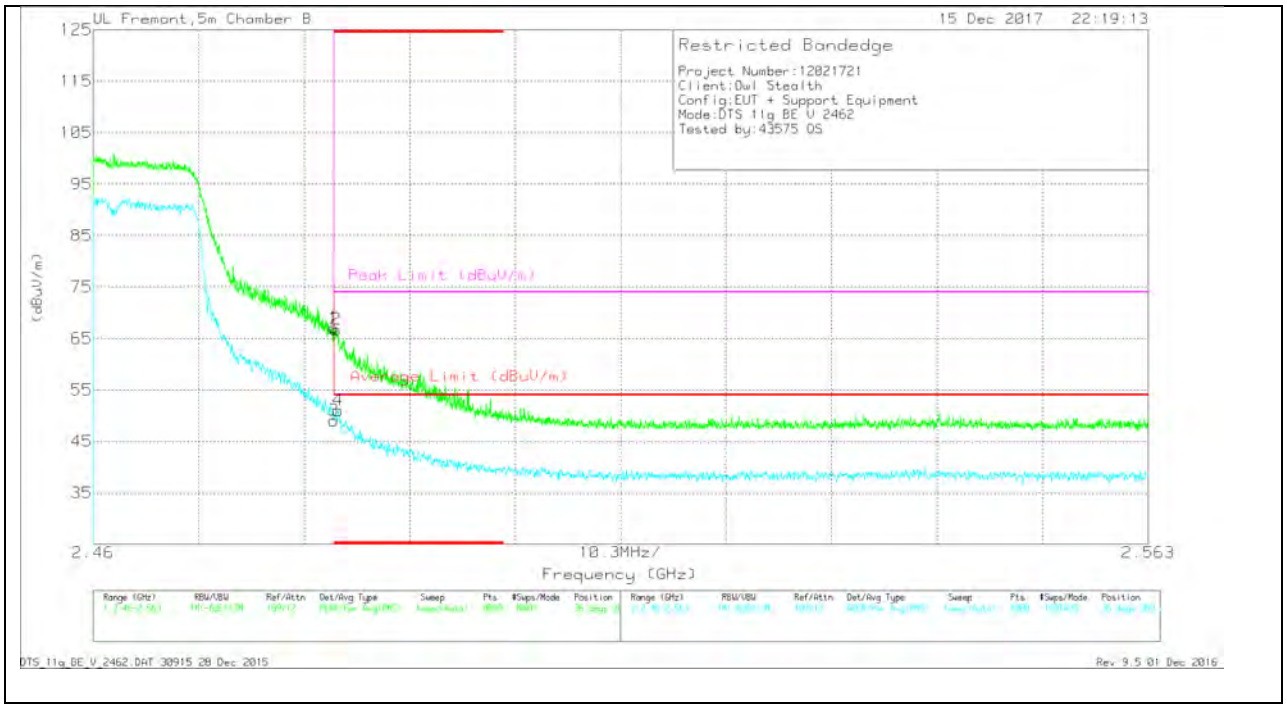
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	55.44	Pk	32.5	-20.9	0	67.04	-	-	74	-6.96	36	389	V
2	* 2.484	55.15	Pk	32.5	-20.9	0	66.75	-	-	74	-7.25	36	389	V
3	* 2.484	36.88	RMS	32.5	-20.9	.59	49.07	54	-4.93	-	-	36	389	V
4	* 2.484	38.83	RMS	32.5	-20.9	.59	51.02	54	-2.98	-	-	36	389	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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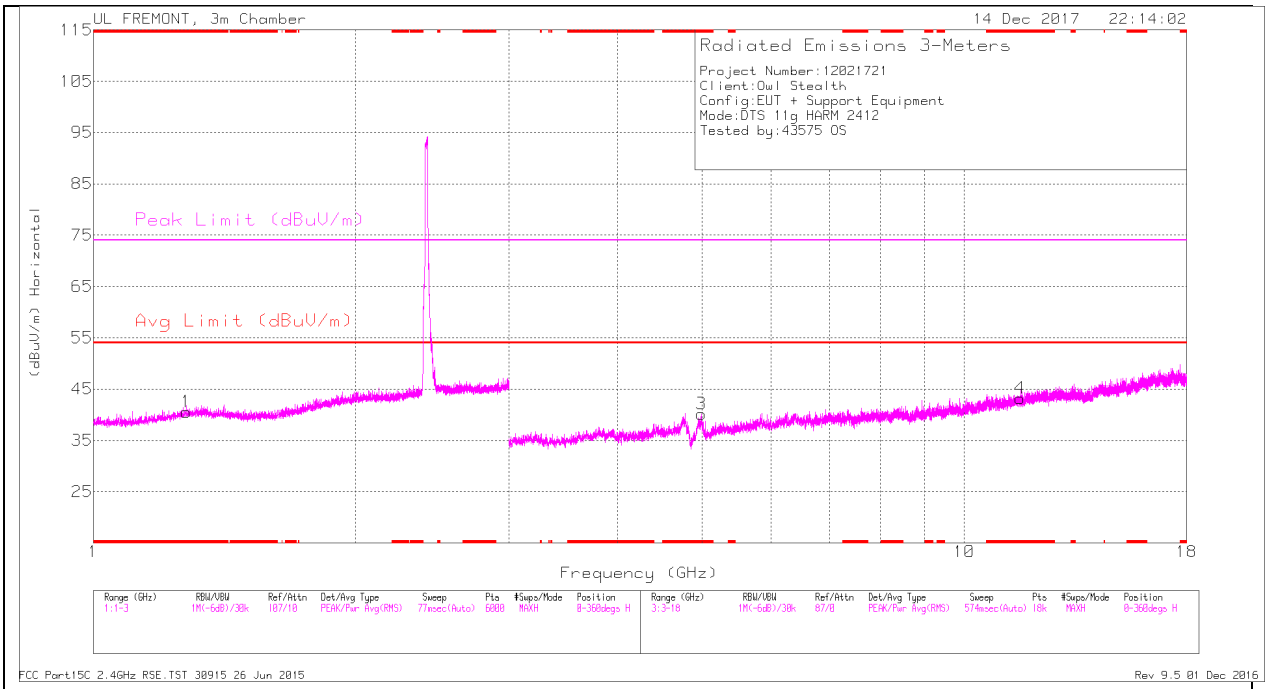
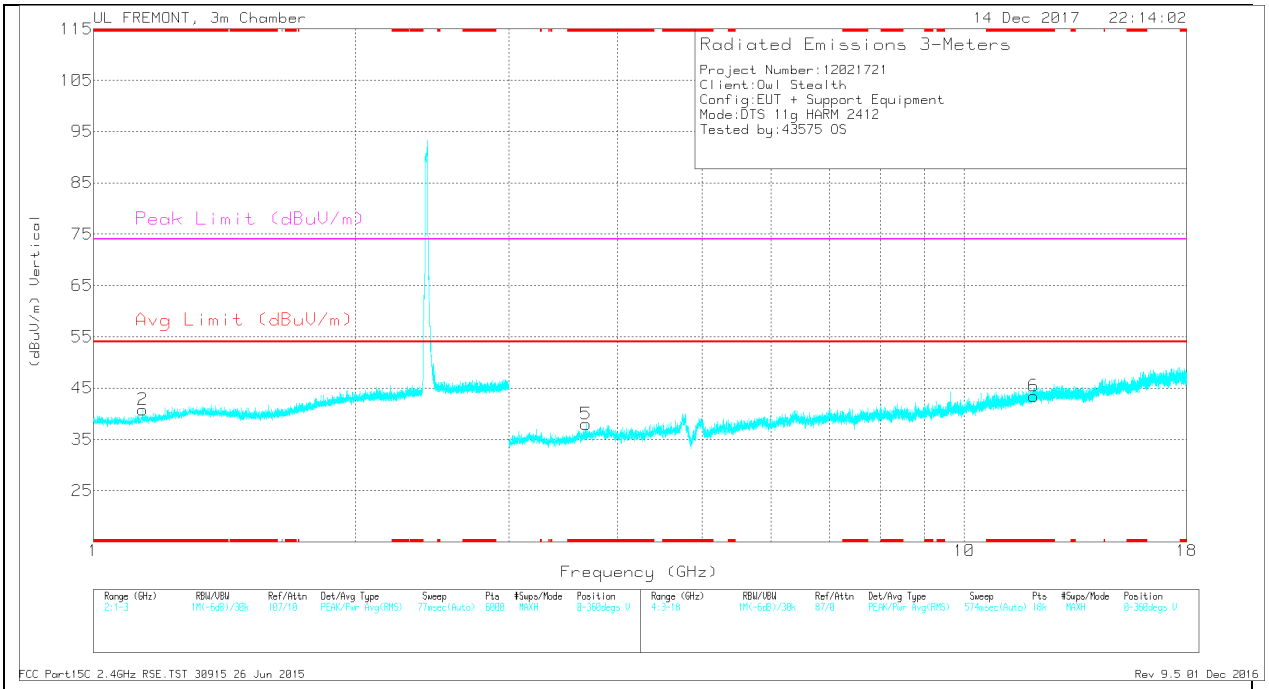
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.281	40.92	PK2	28.9	-22.7	0	47.12	-	-	74	-26.88	305	213	H
* 1.279	28.79	MAv1	28.9	-22.7	.59	35.58	54	-18.42	-	-	305	213	H
* 1.138	41.18	PK2	27.7	-22.8	0	46.08	-	-	74	-27.92	167	264	V
* 1.137	28.93	MAv1	27.7	-22.8	.59	34.42	54	-19.58	-	-	167	264	V
* 4.99	40.27	PK2	34.1	-28.7	0	45.67	-	-	74	-28.33	197	163	H
* 4.987	28.56	MAv1	34.1	-28.9	.59	34.35	54	-19.65	-	-	197	163	H
* 11.588	34.74	PK2	38.2	-23.1	0	49.84	-	-	74	-24.16	67	153	H
* 11.59	21.94	MAv1	38.2	-23.1	.59	37.63	54	-16.37	-	-	67	153	H
* 3.676	39.03	PK2	33.3	-29.4	0	42.93	-	-	74	-31.07	100	289	V
* 3.678	27.32	MAv1	33.3	-29.4	.59	31.81	54	-22.19	-	-	100	289	V
* 12.01	35.4	PK2	38.7	-23.8	0	50.3	-	-	74	-23.7	352	144	V
* 12.009	23.14	MAv1	38.7	-23.8	.59	38.63	54	-15.37	-	-	352	144	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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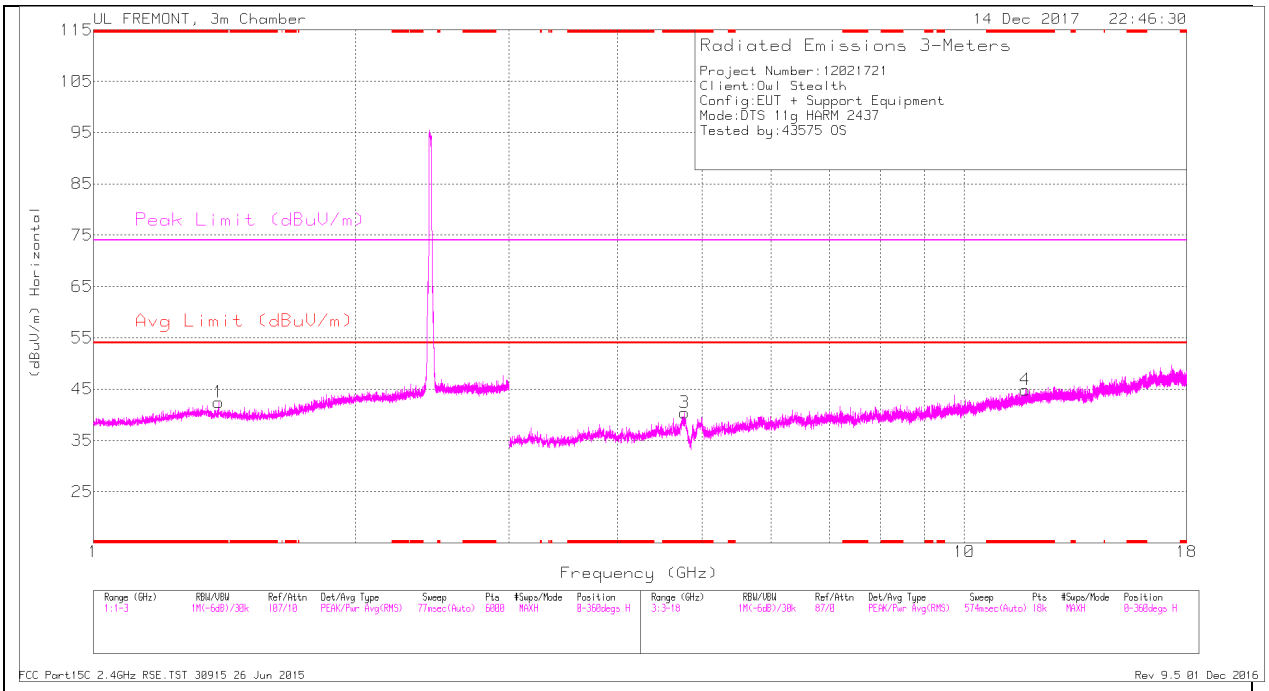
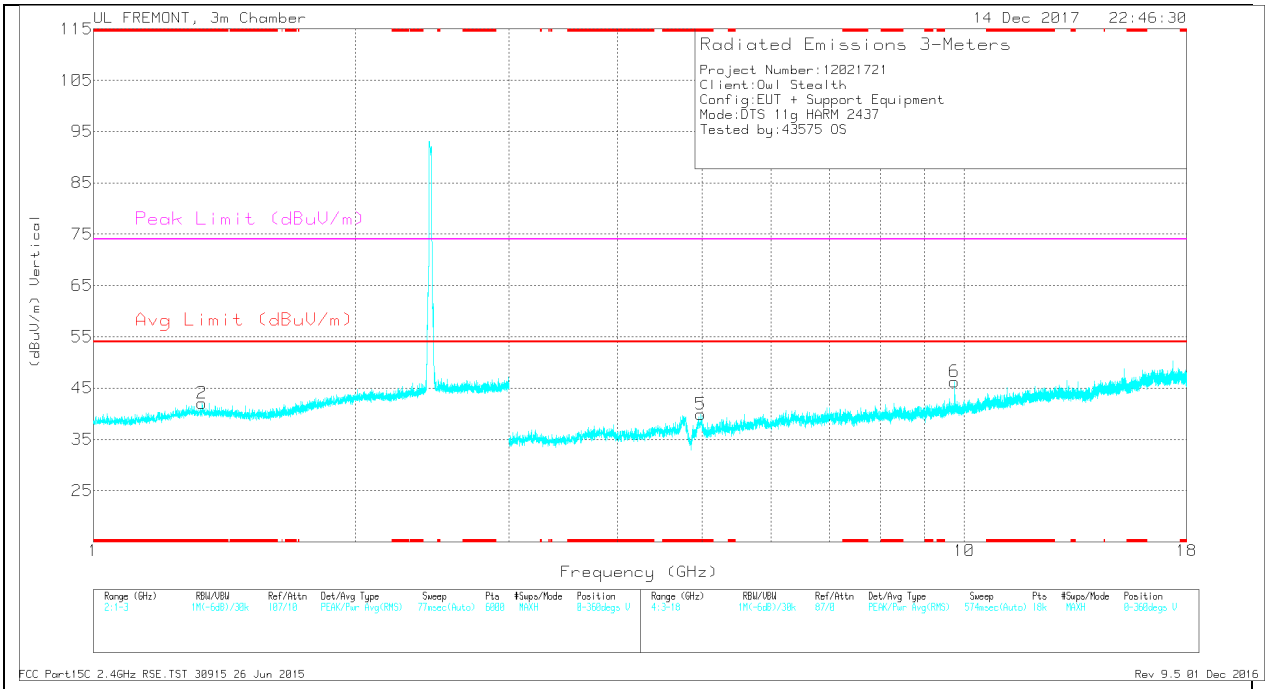
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.394	41.12	PK2	28.8	-22.4	0	47.52	-	-	74	-26.48	186	101	H
* 1.392	28.57	MAv1	28.8	-22.4	.59	35.56	54	-18.44	-	-	186	101	H
* 1.334	41.33	PK2	29	-22.4	0	47.93	-	-	74	-26.07	305	378	V
* 1.332	28.63	MAv1	29	-22.5	.59	35.72	54	-18.28	-	-	305	378	V
* 4.775	40.65	PK2	34	-28.4	0	46.25	-	-	74	-27.75	195	329	H
* 4.776	28.72	MAv1	34	-28.4	.59	34.91	54	-19.09	-	-	195	329	H
* 11.75	34.57	PK2	38.4	-23.2	0	49.77	-	-	74	-24.23	341	286	H
* 11.75	22.58	MAv1	38.4	-23.2	.59	38.37	54	-15.63	-	-	341	286	H
* 4.982	40.65	PK2	34.1	-28.9	0	45.85	-	-	74	-28.15	70	392	V
* 4.984	28.58	MAv1	34.1	-29	.59	34.27	54	-19.73	-	-	70	392	V
9.748	38.26	PK2	36.9	-23.4	0	51.76	-	-	-	-	187	110	V
9.748	31.27	MAv1	36.9	-23.4	.59	45.36	-	-	-	-	187	110	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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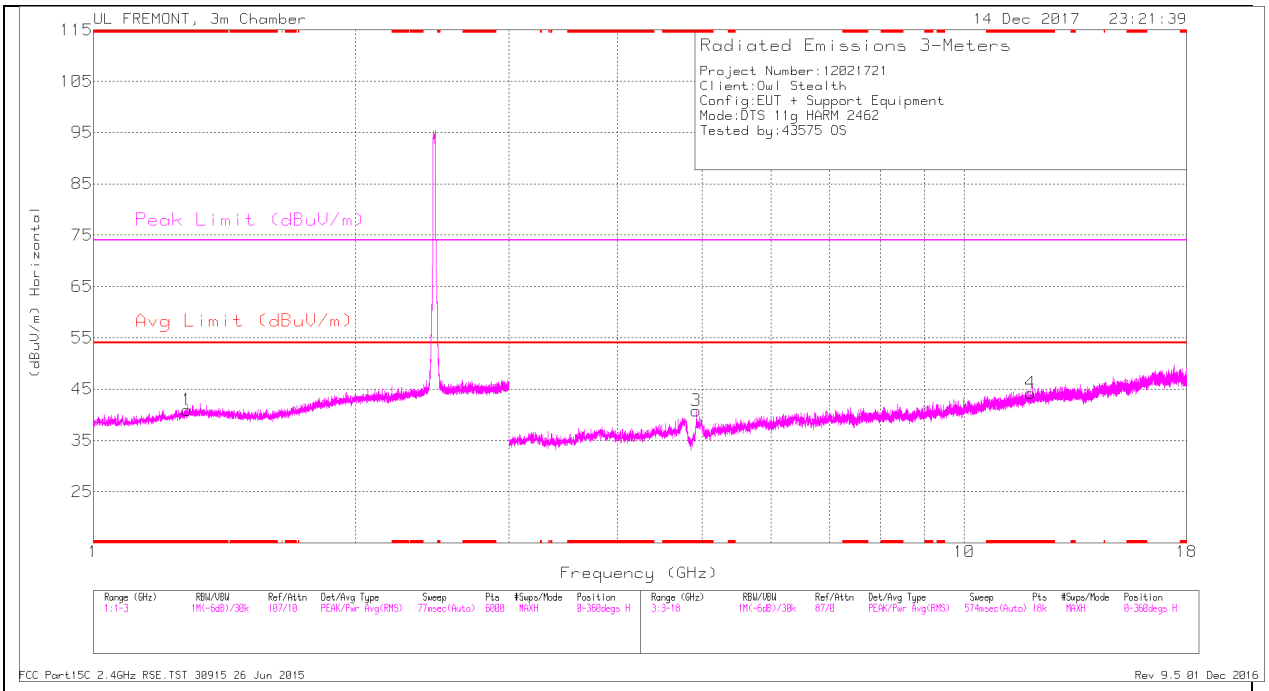
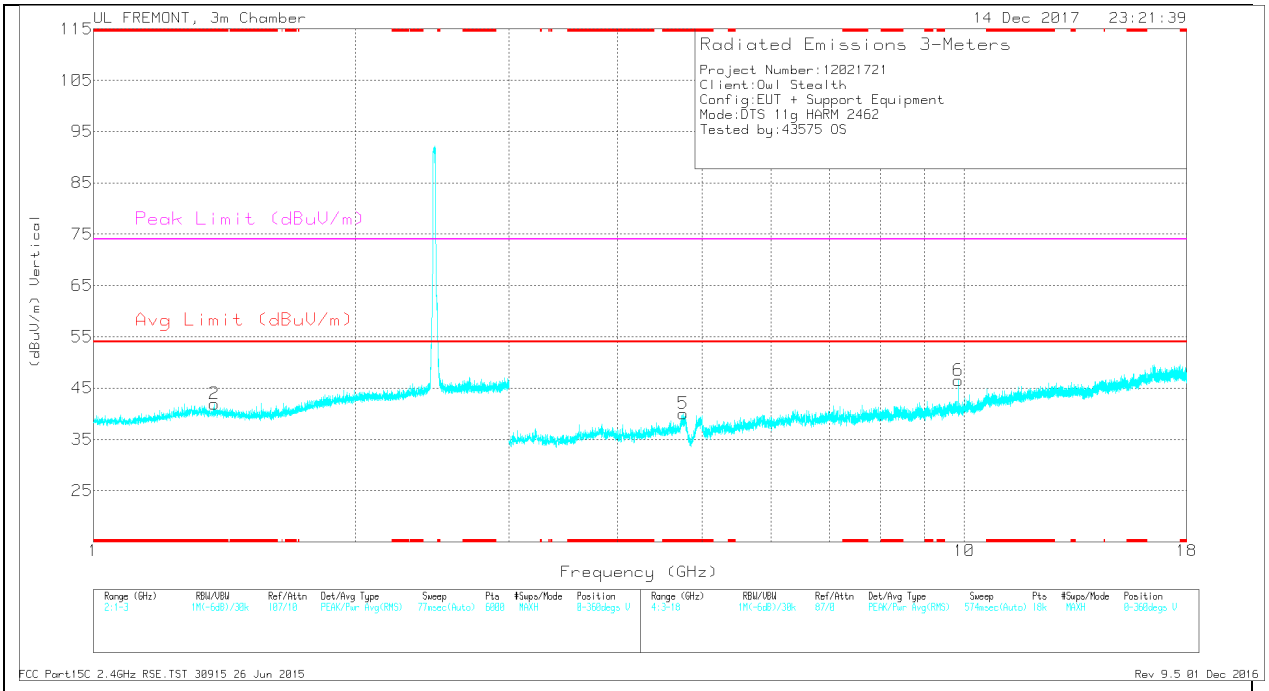
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.28	41.74	PK2	28.9	-22.7	0	47.94	-	-	74	-26.06	235	200	H
* 1.283	28.76	MAv1	28.9	-22.7	.59	35.55	54	-18.45	-	-	235	200	H
* 1.378	40.96	PK2	28.9	-22.4	0	47.46	-	-	74	-26.54	20	135	V
* 1.376	28.49	MAv1	28.9	-22.4	.59	35.58	54	-18.42	-	-	20	135	V
* 4.921	40.8	PK2	34	-28.7	0	46.1	-	-	74	-27.9	292	104	H
* 4.923	29.06	MAv1	34	-28.7	.59	34.95	54	-19.05	-	-	292	104	H
* 11.91	35.89	PK2	38.6	-23.5	0	50.99	-	-	74	-23.01	135	350	H
* 11.909	22.87	MAv1	38.6	-23.5	.59	38.56	54	-15.44	-	-	135	350	H
* 4.754	41.16	PK2	34	-28.6	0	46.56	-	-	74	-27.44	341	370	V
* 4.753	29.13	MAv1	34	-28.6	.59	35.12	54	-18.88	-	-	341	370	V
9.848	37.5	PK2	36.9	-22.9	0	51.5	-	-	-	-	182	290	V
9.848	30.71	MAv1	36.9	-22.9	.59	45.3	-	-	-	-	182	290	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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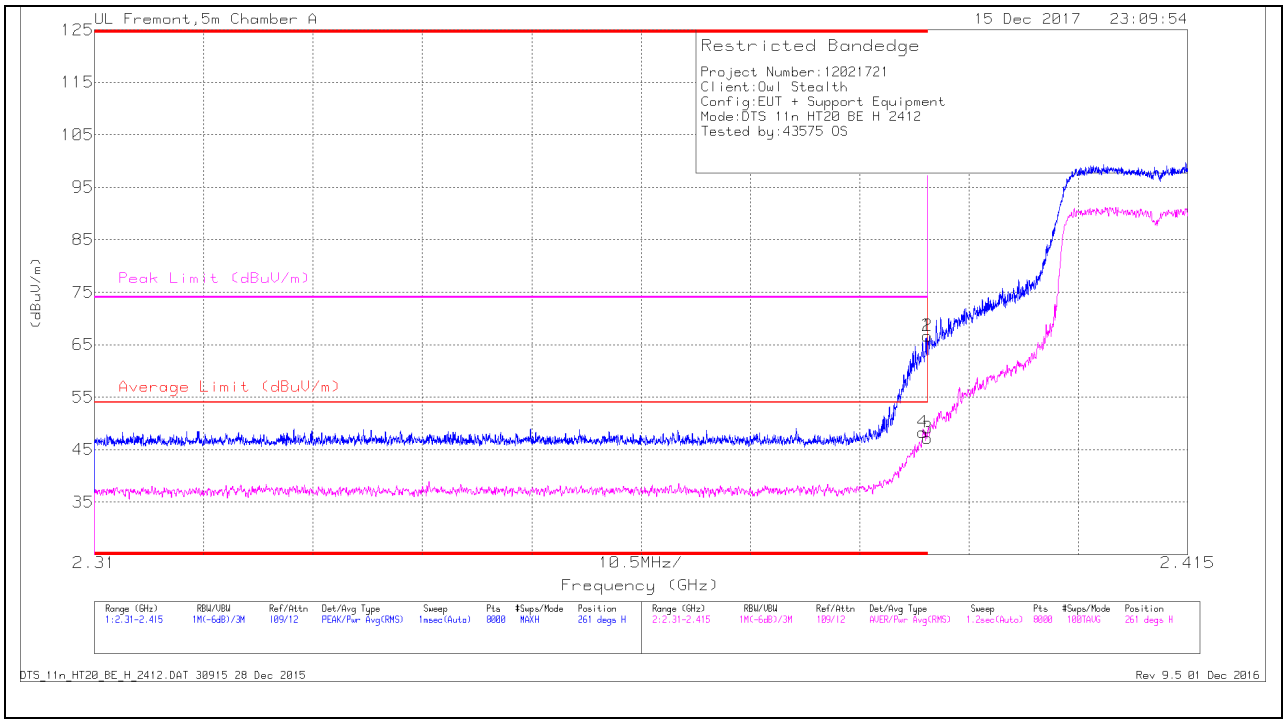
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	55.92	Pk	32	-21.2	0	66.72	-	-	74	-7.28	261	352	H
2	* 2.39	55.91	Pk	32	-21.2	0	66.71	-	-	74	-7.29	261	352	H
3	* 2.39	36.39	RMS	32	-21.2	.63	47.82	54	-6.18	-	-	261	352	H
4	* 2.39	37.53	RMS	32	-21.2	.63	48.96	54	-5.04	-	-	261	352	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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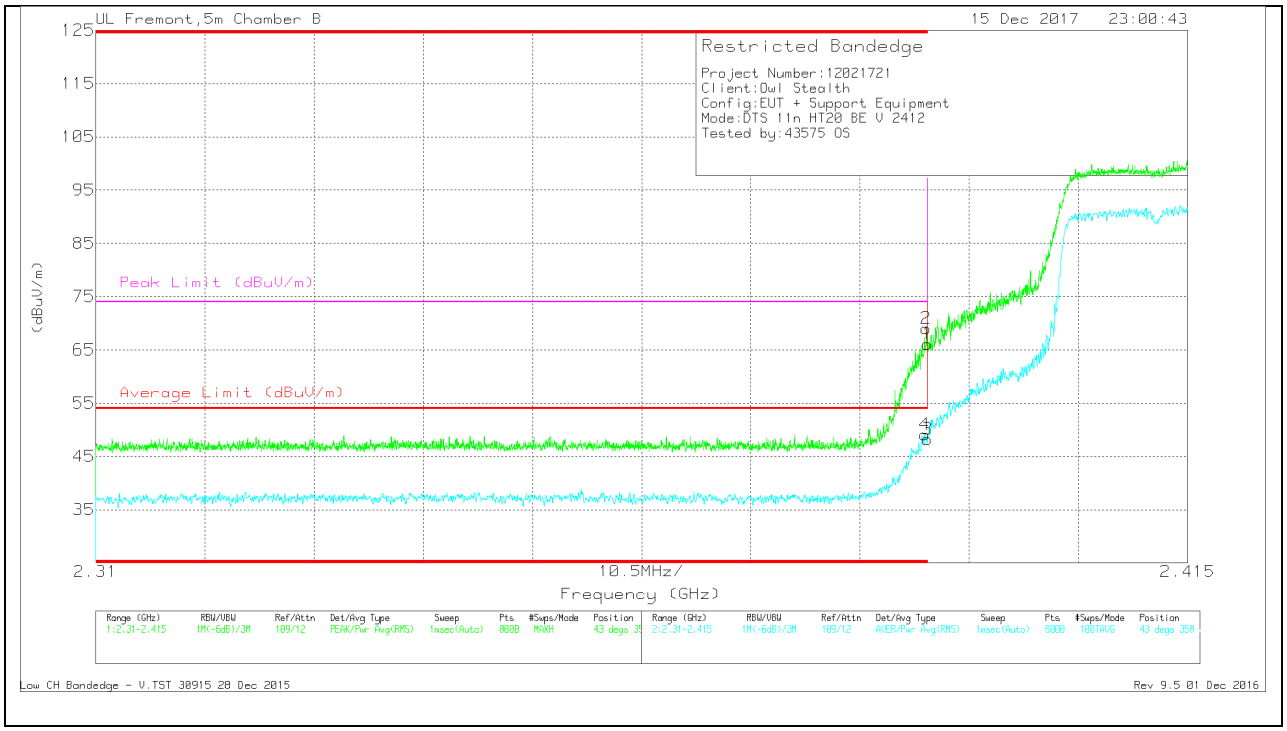
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	55.33	Pk	32	-21.2	0	66.13	-	-	74	-7.87	43	358	V
2	* 2.39	58.2	Pk	32	-21.2	0	69	-	-	74	-5	43	358	V
3	* 2.39	36.8	RMS	32	-21.2	.63	48.23	54	-5.77	-	-	43	358	V
4	* 2.39	37.65	RMS	32	-21.2	.63	49.08	54	-4.92	-	-	43	358	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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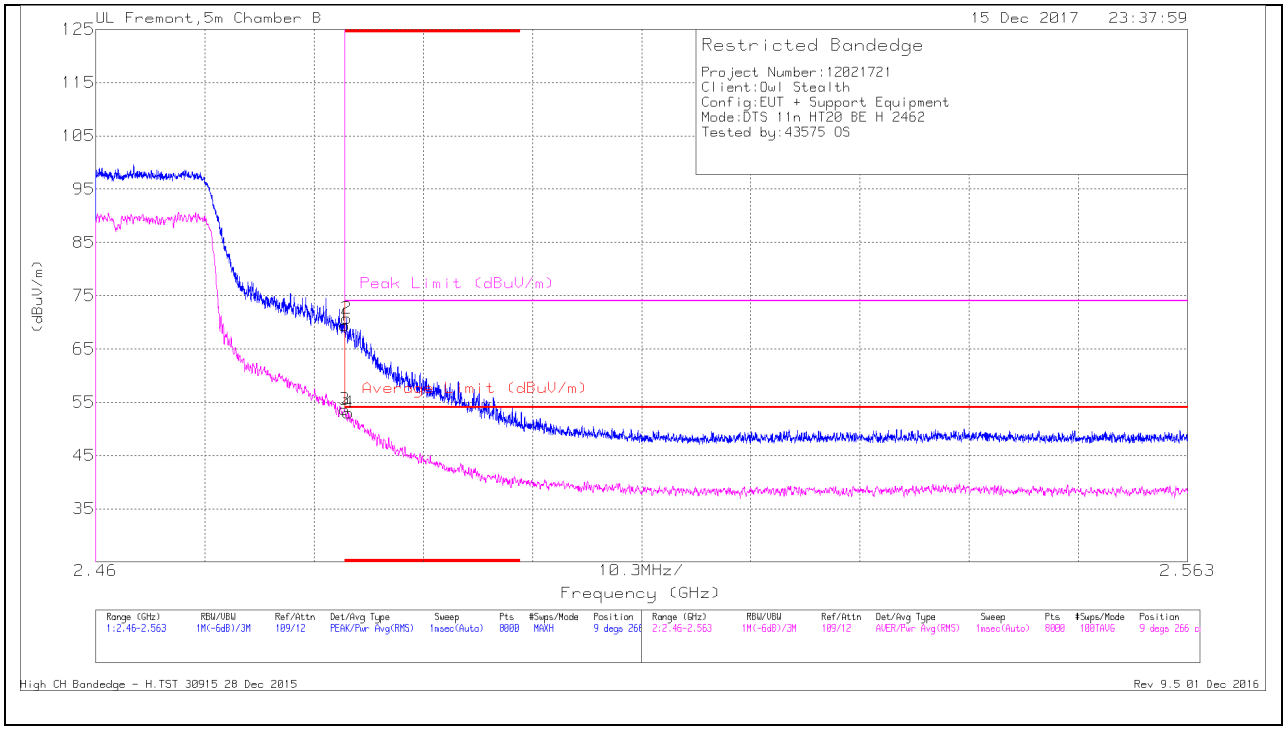
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	57.8	Pk	32.5	-20.9	0	69.4	-	-	74	-4.6	9	266	H
2	* 2.484	59.12	Pk	32.5	-20.9	0	70.72	-	-	74	-3.28	9	266	H
3	* 2.484	41.37	RMS	32.5	-20.9	.63	53.6	54	-.4	-	-	9	266	H
4	* 2.484	40.75	RMS	32.5	-20.9	.63	52.98	54	-1.02	-	-	9	266	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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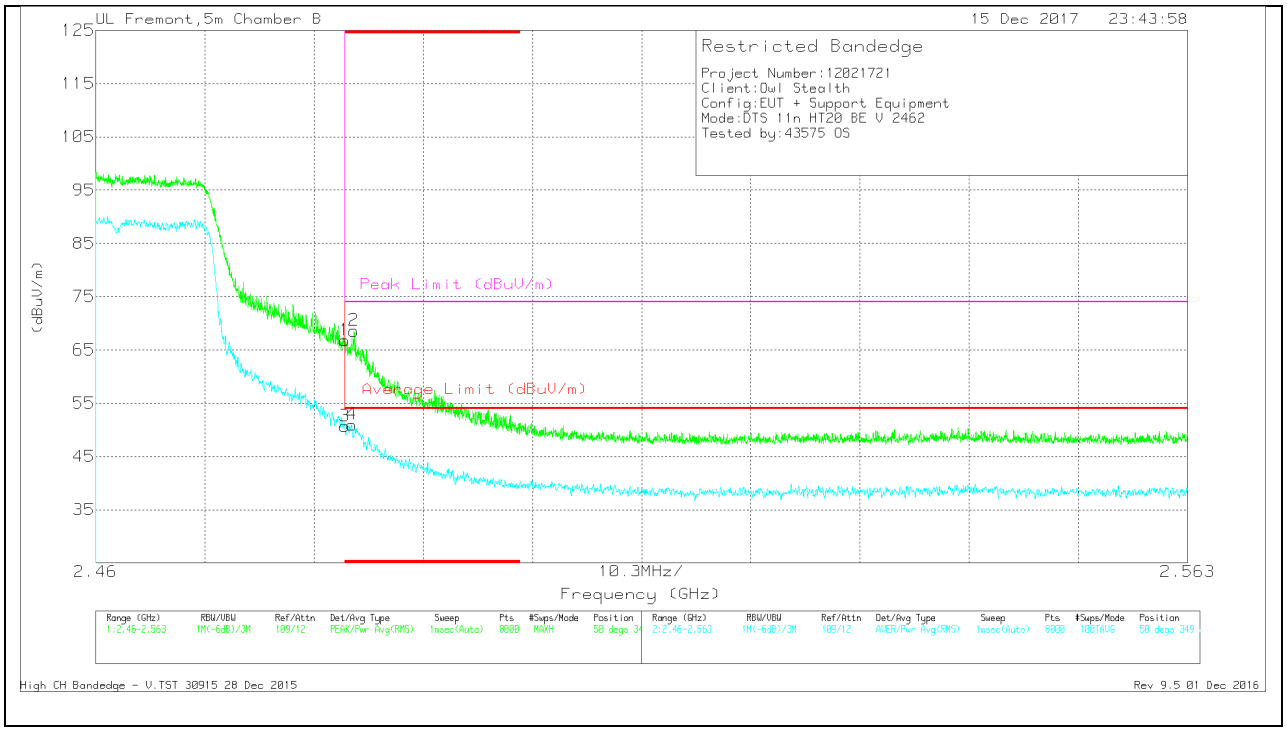
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	55.21	Pk	32.5	-20.9	0	66.81	-	-	74	-7.19	50	349	V
2	* 2.484	57	Pk	32.5	-20.9	0	68.6	-	-	74	-5.4	50	349	V
3	* 2.484	38.43	RMS	32.5	-20.9	.63	50.66	54	-3.34	-	-	50	349	V
4	* 2.484	38.77	RMS	32.5	-20.9	.63	51	54	-3	-	-	50	349	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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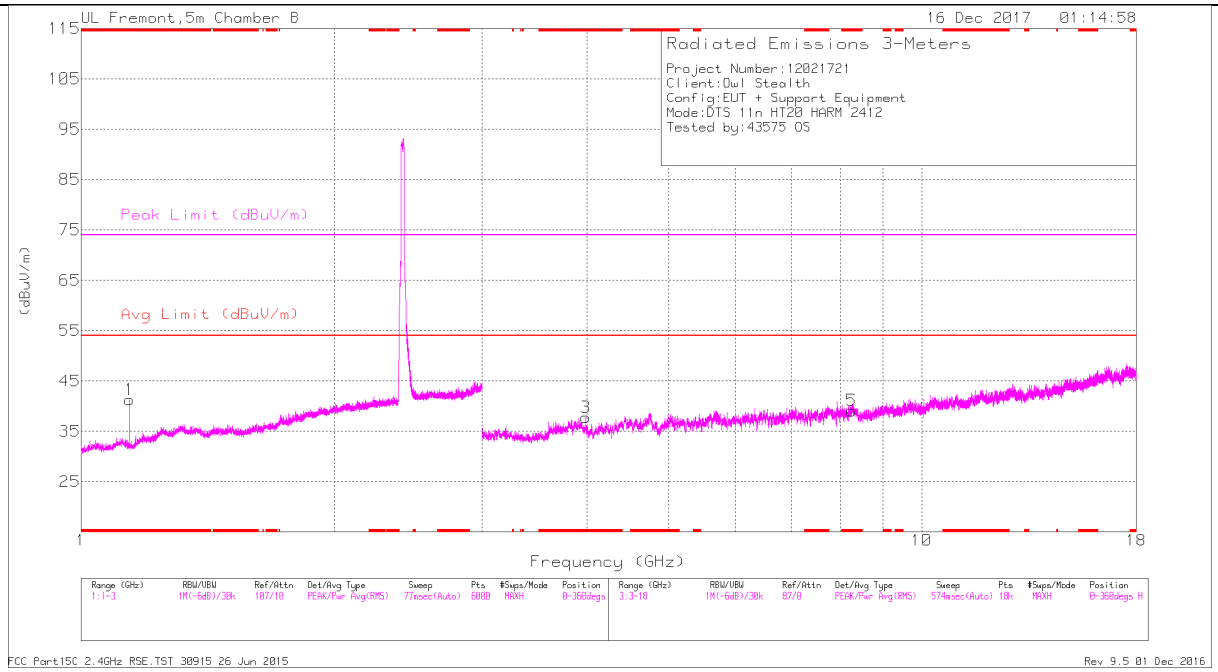
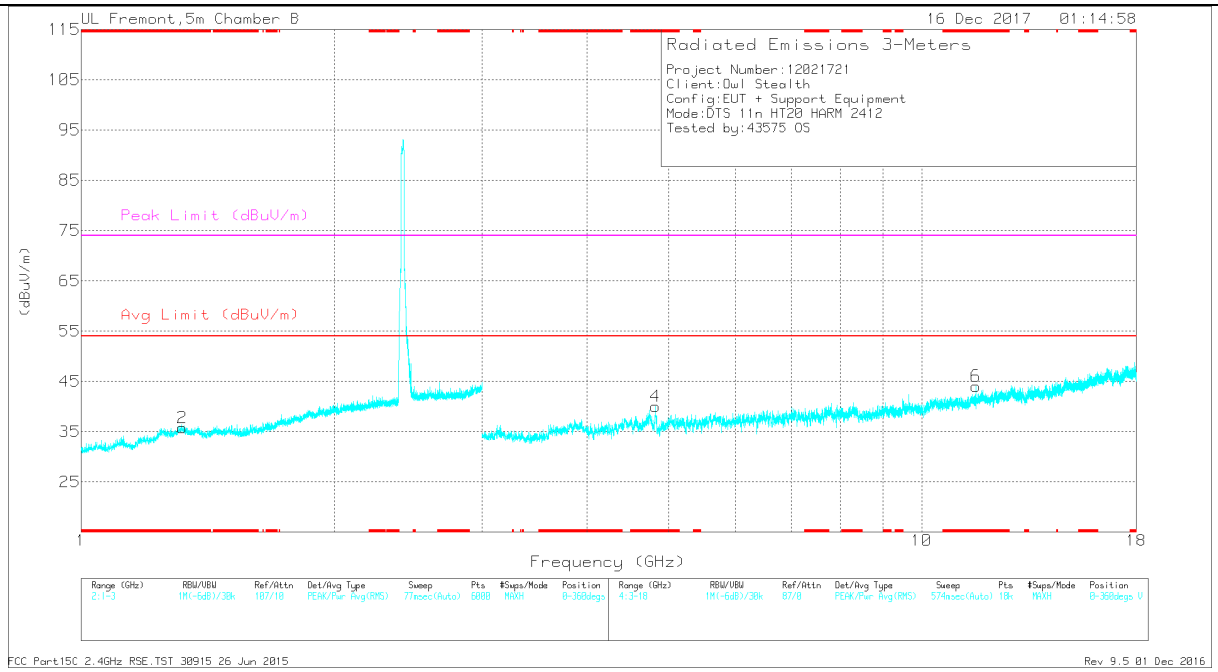
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.143	34.96	PK2	27.5	-22.7	0	39.76	-	-	74	-34.24	133	350	H
* 1.141	22.57	MAv1	27.5	-22.7	.63	28	54	-26	-	-	133	350	H
* 1.32	35.6	PK2	28.9	-21.7	0	42.8	-	-	74	-31.2	60	321	V
* 1.319	23.42	MAv1	28.9	-21.7	.63	31.25	54	-22.75	-	-	60	321	V
* 3.989	40.25	PK2	33.5	-30.5	0	43.25	-	-	74	-30.75	277	240	H
* 3.986	28.4	MAv1	33.5	-30.3	.63	32.23	54	-21.77	-	-	277	240	H
* 8.257	36.46	PK2	36.1	-26.1	0	46.46	-	-	74	-27.54	352	388	H
* 8.257	24.61	MAv1	36.1	-26	.63	35.34	54	-18.66	-	-	352	388	H
* 4.821	41.93	PK2	34.4	-29.2	0	47.13	-	-	74	-26.87	232	282	V
* 4.82	30.13	MAv1	34.4	-29.1	.63	36.06	54	-17.94	-	-	232	282	V
* 11.602	32.49	PK2	38.2	-22.4	0	48.29	-	-	74	-25.71	303	360	V
* 11.6	20.89	MAv1	38.2	-22.4	.63	37.32	54	-16.68	-	-	303	360	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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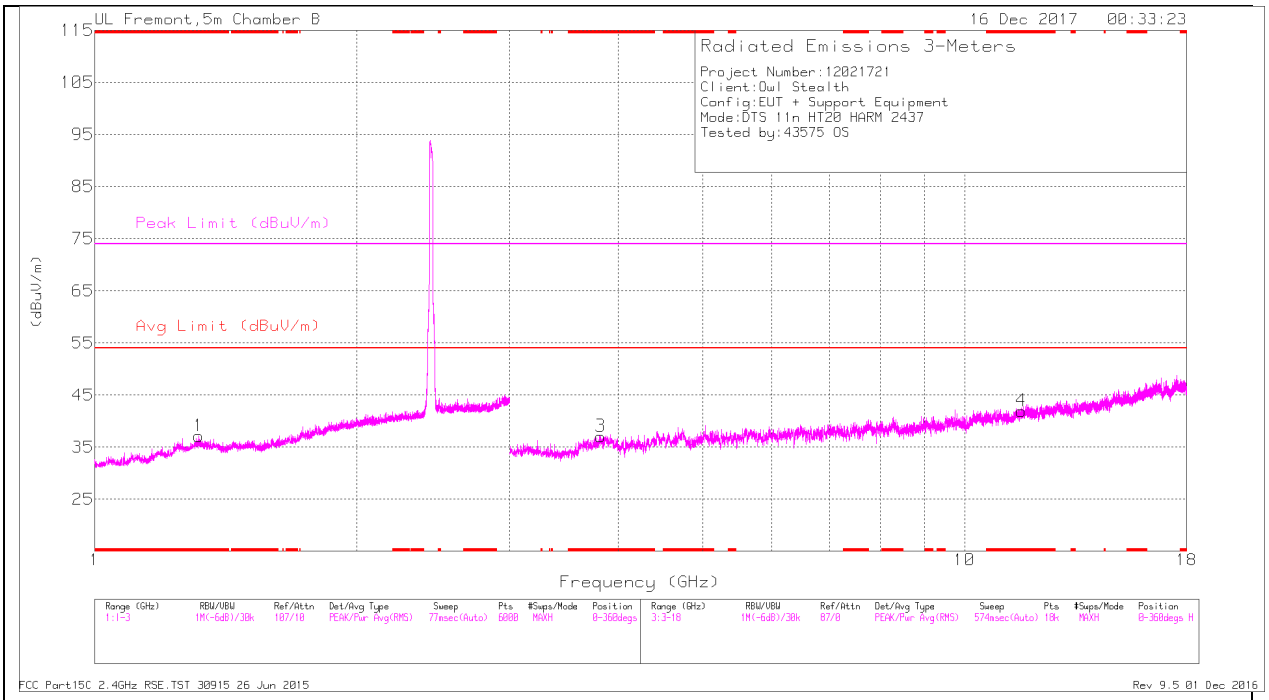
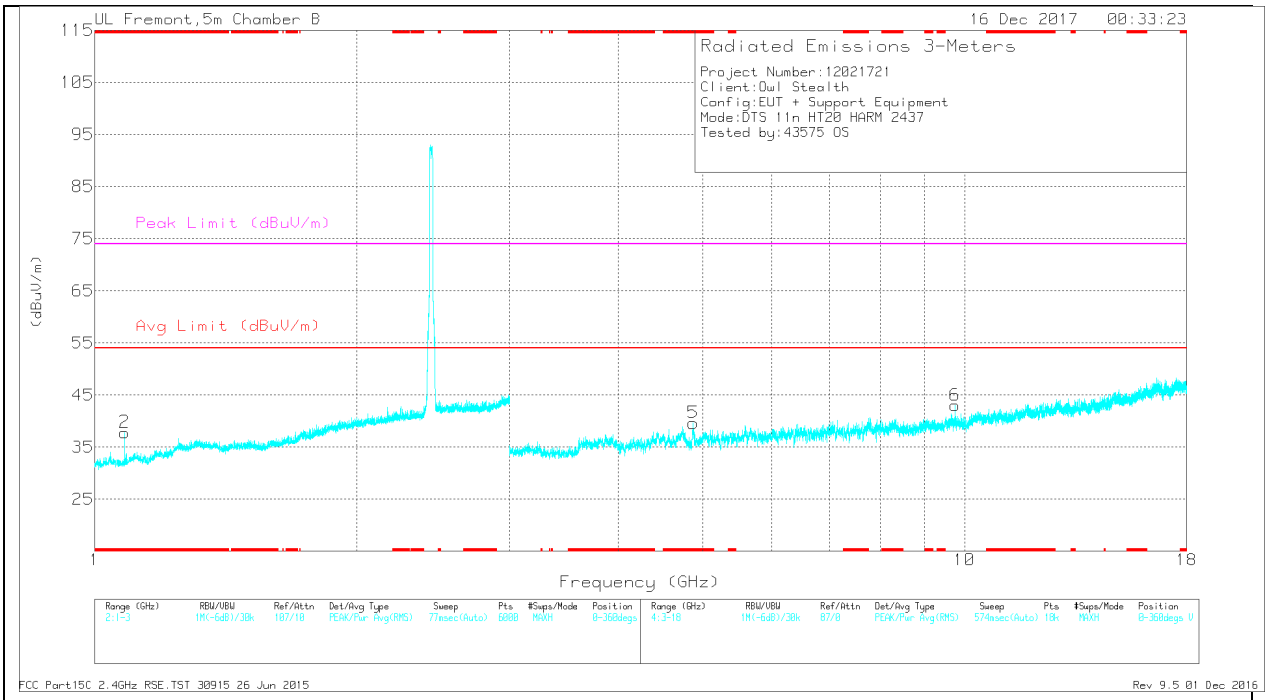
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.318	35.38	PK2	28.9	-21.6	0	42.68	-	-	74	-31.32	94	360	H
* 1.317	23.49	MAv1	28.9	-21.6	.63	31.42	54	-22.58	-	-	94	360	H
* 1.082	34.27	PK2	27.4	-23	0	38.67	-	-	74	-35.33	59	278	V
* 1.084	22.58	MAv1	27.4	-23.1	.63	27.51	54	-26.49	-	-	59	278	V
* 3.818	40.42	PK2	33.5	-30	0	43.92	-	-	74	-30.08	274	225	H
* 3.817	28.42	MAv1	33.5	-30	.63	32.55	54	-21.45	-	-	274	225	H
* 11.625	32.74	PK2	38.3	-22.5	0	48.54	-	-	74	-25.46	258	214	H
* 11.625	20.91	MAv1	38.3	-22.5	.63	37.34	54	-16.66	-	-	258	214	H
* 4.879	41.02	PK2	34.4	-30.3	0	45.12	-	-	74	-28.88	214	238	V
* 4.879	28.98	MAv1	34.4	-30.3	.63	33.71	54	-20.29	-	-	214	238	V
9.748	34.92	PK2	36.9	-23.4	0	48.42	-	-	-	-	353	129	V
9.748	26.47	MAv1	36.9	-23.4	.63	40.6	-	-	-	-	353	129	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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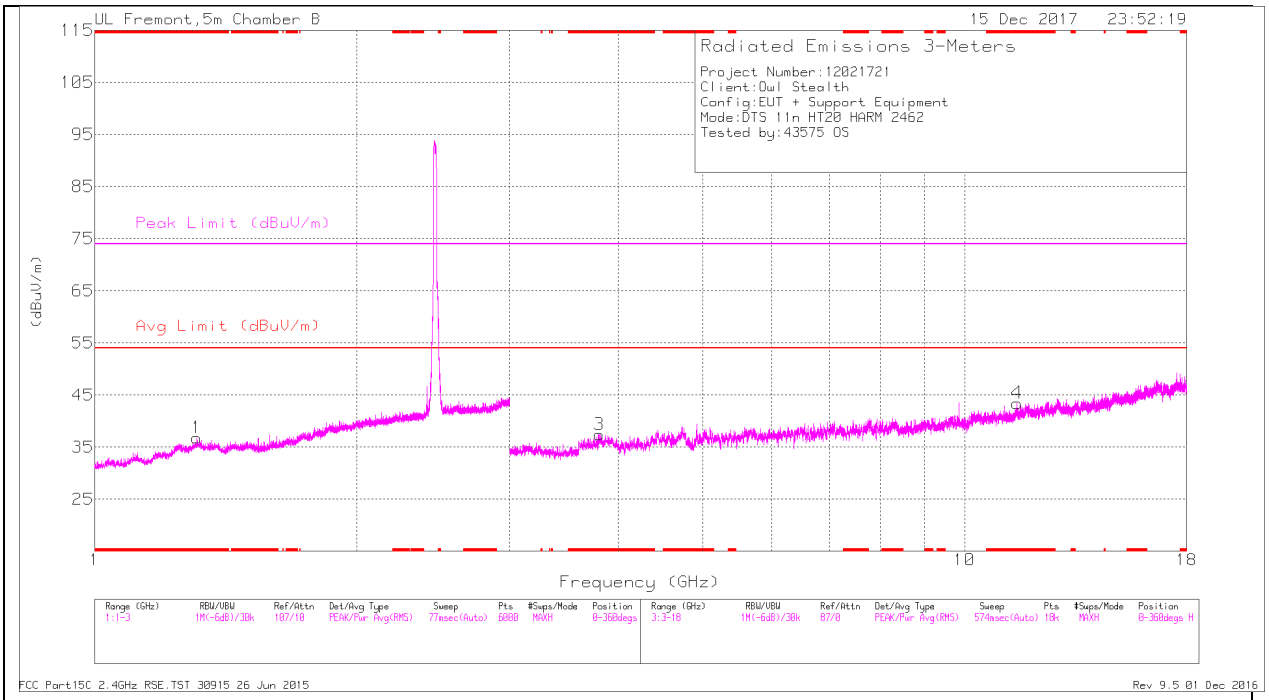
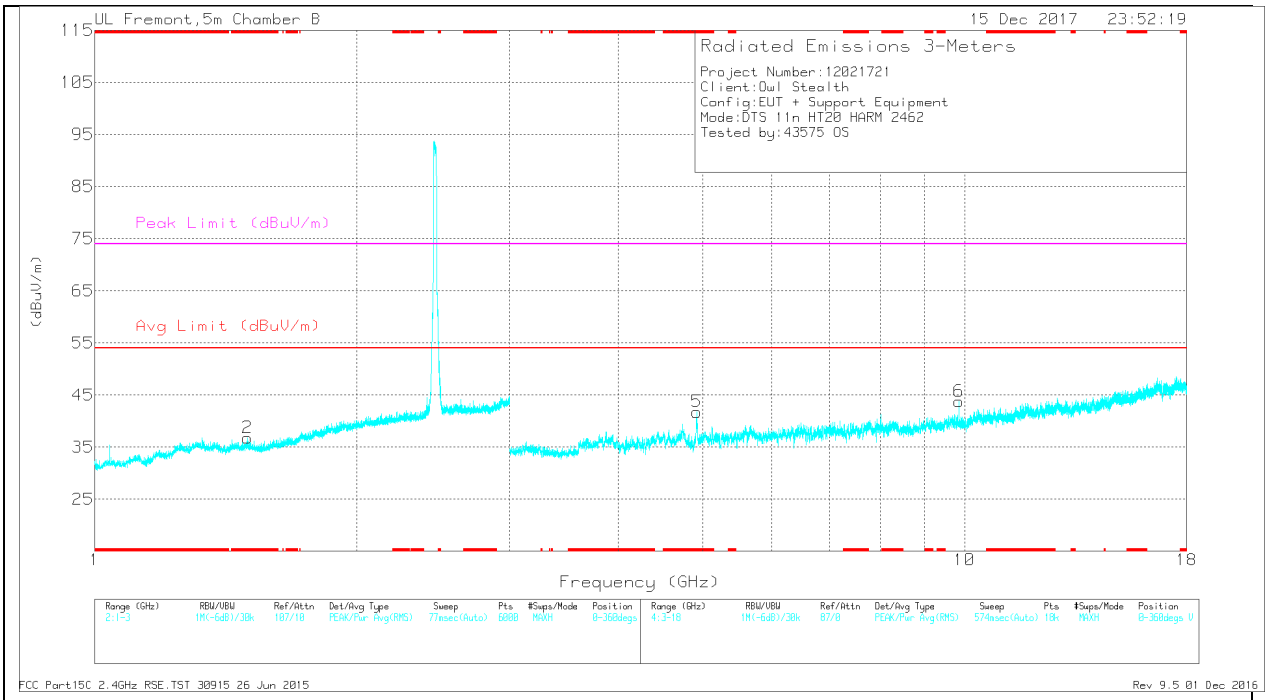
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.311	35.26	PK2	28.9	-21.7	0	42.46	-	-	74	-31.54	217	315	H
* 1.313	23.52	MAv1	28.9	-21.7	.63	31.35	54	-22.65	-	-	217	315	H
* 1.5	35.21	PK2	28.2	-21.2	0	42.21	-	-	74	-31.79	301	340	V
* 1.499	23.16	MAv1	28.2	-21.2	.63	30.79	54	-23.21	-	-	301	340	V
* 3.806	40.27	PK2	33.5	-30.4	0	43.37	-	-	74	-30.63	349	192	H
* 3.806	28.52	MAv1	33.5	-30.4	.63	32.25	54	-21.75	-	-	349	192	H
* 11.495	31.77	PK2	38.1	-21.7	0	48.17	-	-	74	-25.83	280	163	H
* 11.491	20.58	MAv1	38.1	-21.5	.63	37.81	54	-16.19	-	-	280	163	H
* 4.923	44.89	PK2	34.4	-30.2	0	49.09	-	-	74	-24.91	246	308	V
* 4.923	32.71	MAv1	34.4	-30.2	.63	37.54	54	-16.46	-	-	246	308	V
9.848	37.17	PK2	37	-23.9	0	50.27	-	-	-	-	355	102	V
9.848	29.94	MAv1	37	-23.9	.63	43.67	-	-	-	-	355	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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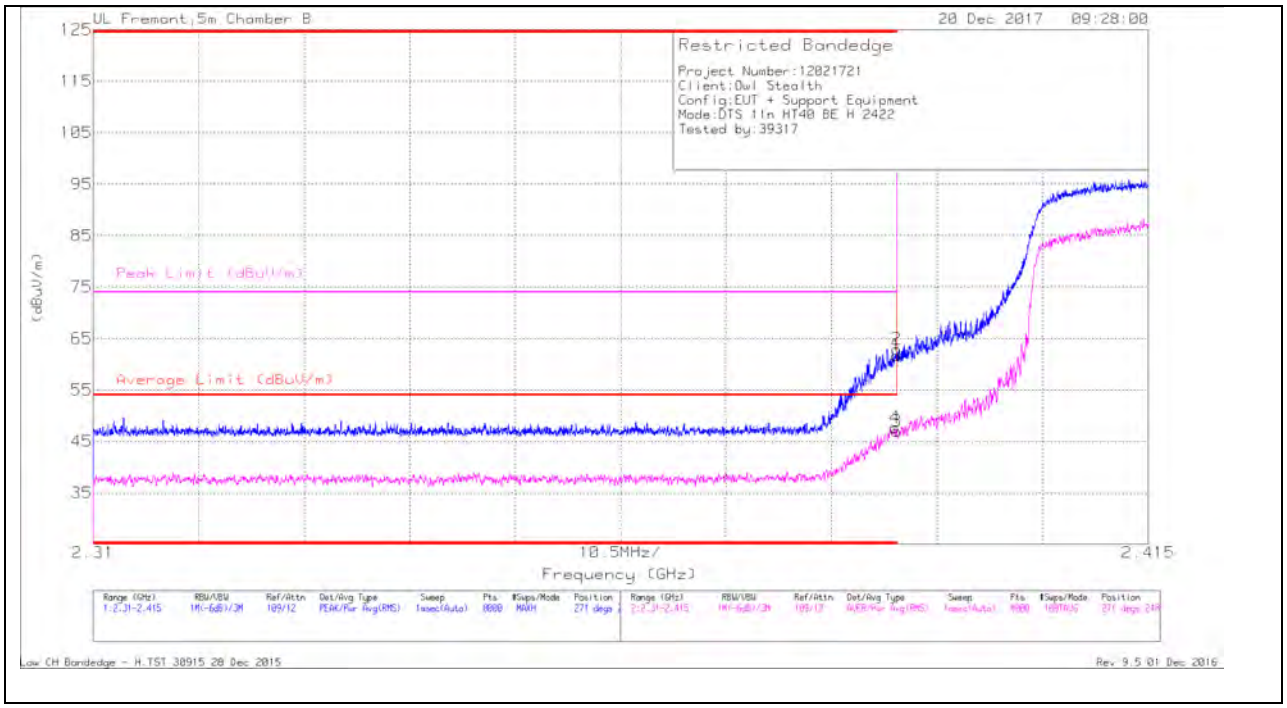
10.1.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.39	50.97	Pk	32	-21.3	0	61.67	-	-	74	-12.33	271	248	H
2	* 2.39	52.26	Pk	32	-21.3	0	62.96	-	-	74	-11.04	271	248	H
3	* 2.39	35.13	RMS	32	-21.3	1.19	47.02	54	-6.98	-	-	271	248	H
4	* 2.39	35.78	RMS	32	-21.3	1.19	47.67	54	-6.33	-	-	271	248	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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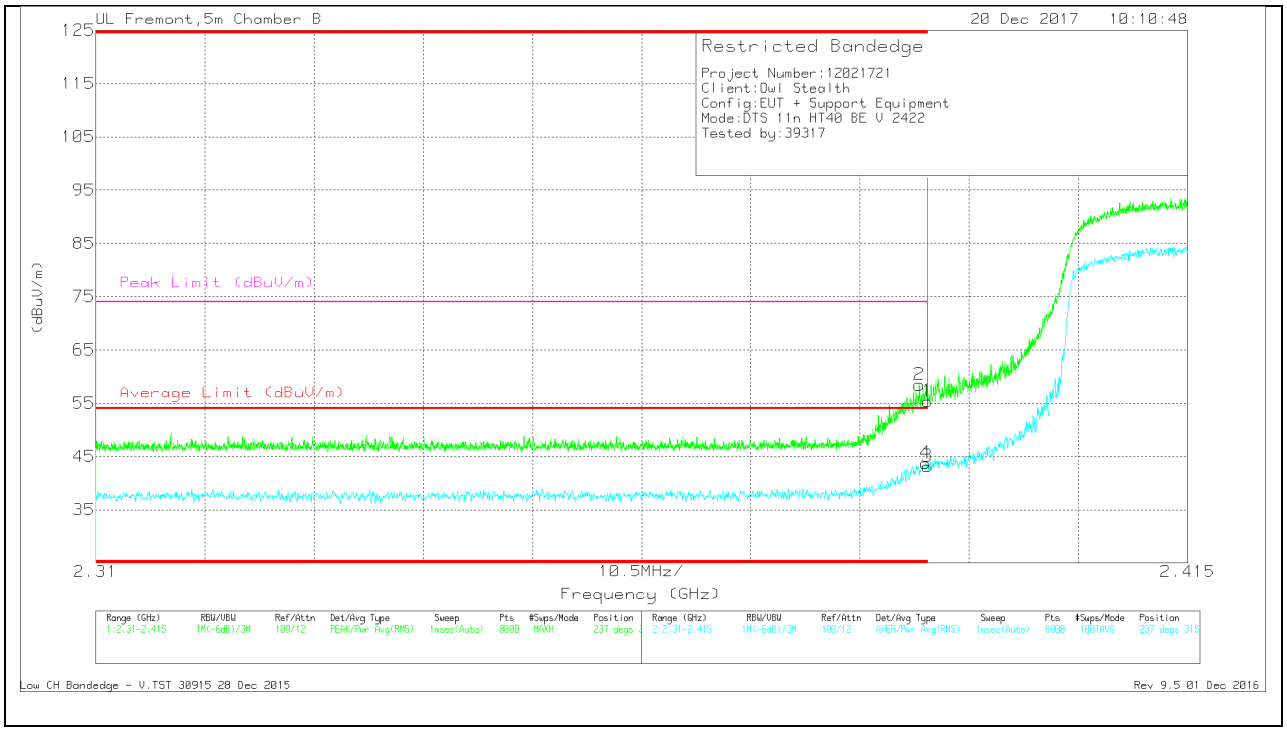
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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
2	* 2.389	47.77	Pk	32	-21.3	0	58.47	-	-	74	-15.53	237	315	V
1	* 2.39	44.68	Pk	32	-21.3	0	55.38	-	-	74	-18.62	237	315	V
3	* 2.39	31.27	RMS	32	-21.3	1.19	43.16	54	-10.84	-	-	237	315	V
4	* 2.39	31.87	RMS	32	-21.3	1.19	43.76	54	-10.24	-	-	237	315	V

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

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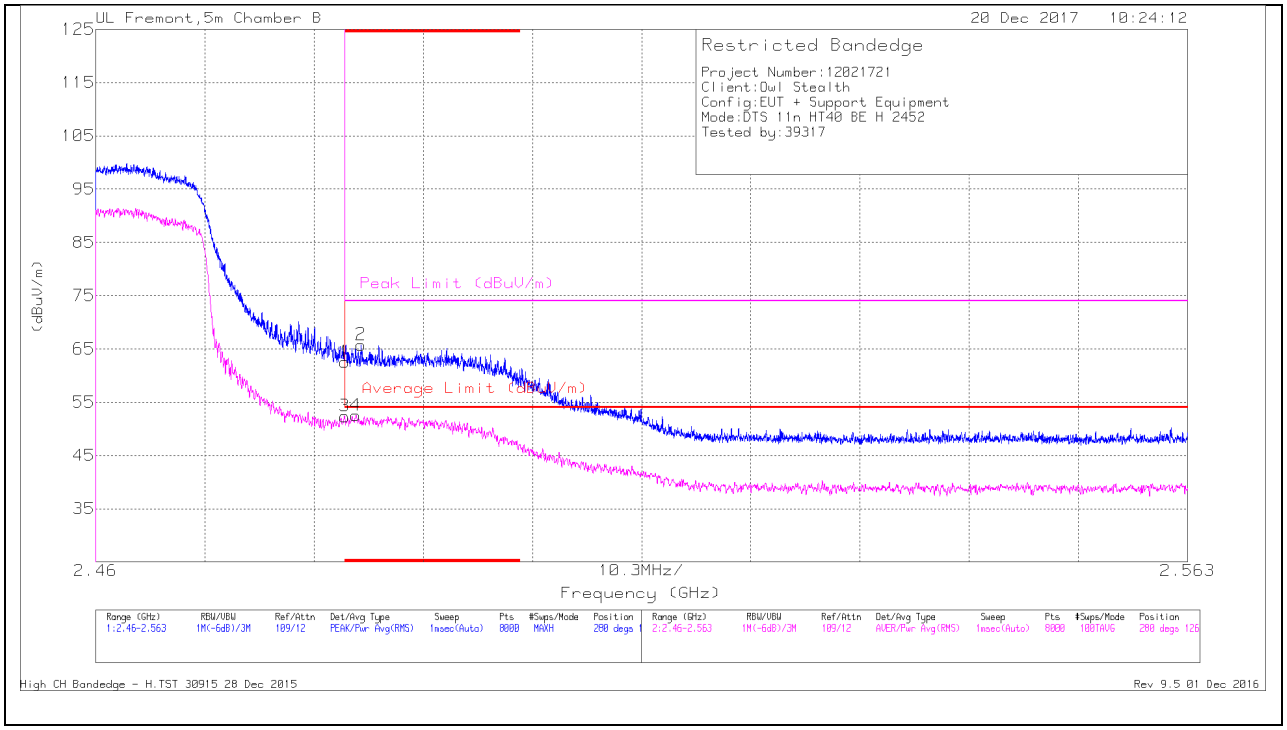
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	51.35	Pk	32.5	-21.3	0	62.55	-	-	74	-11.45	280	126	H
3	* 2.484	39.96	RMS	32.5	-21.3	1.19	52.35	54	-1.65	-	-	280	126	H
2	* 2.485	54.56	Pk	32.5	-21.3	0	65.76	-	-	74	-8.24	280	126	H
4	* 2.485	40.14	RMS	32.5	-21.3	1.19	52.53	54	-1.47	-	-	280	126	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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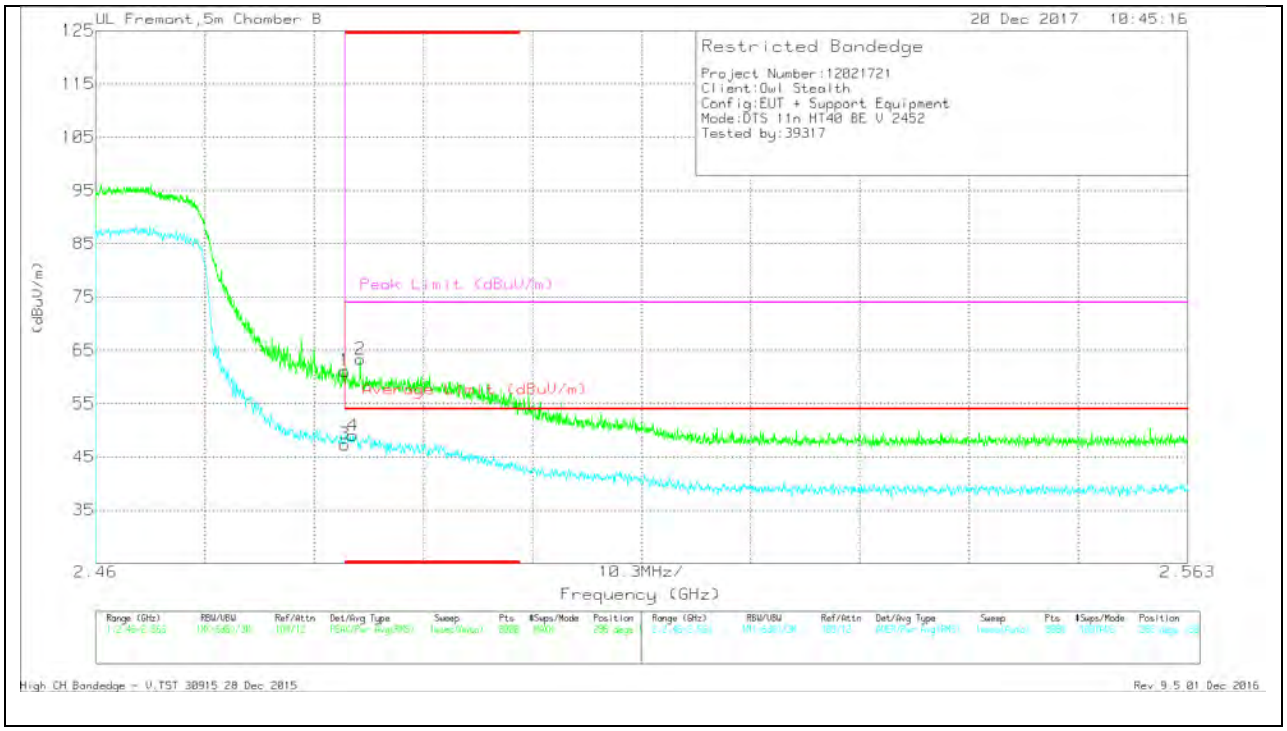
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	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	* 2.484	49.96	Pk	32.5	-21.3	0	61.16	-	-	74	-12.84	288	130	V
3	* 2.484	34.94	RMS	32.5	-21.3	1.19	47.33	54	-6.67	-	-	288	130	V
4	* 2.484	36.58	RMS	32.5	-21.3	1.19	48.97	54	-5.03	-	-	288	130	V
2	* 2.485	52.09	Pk	32.5	-21.3	0	63.29	-	-	74	-10.71	288	130	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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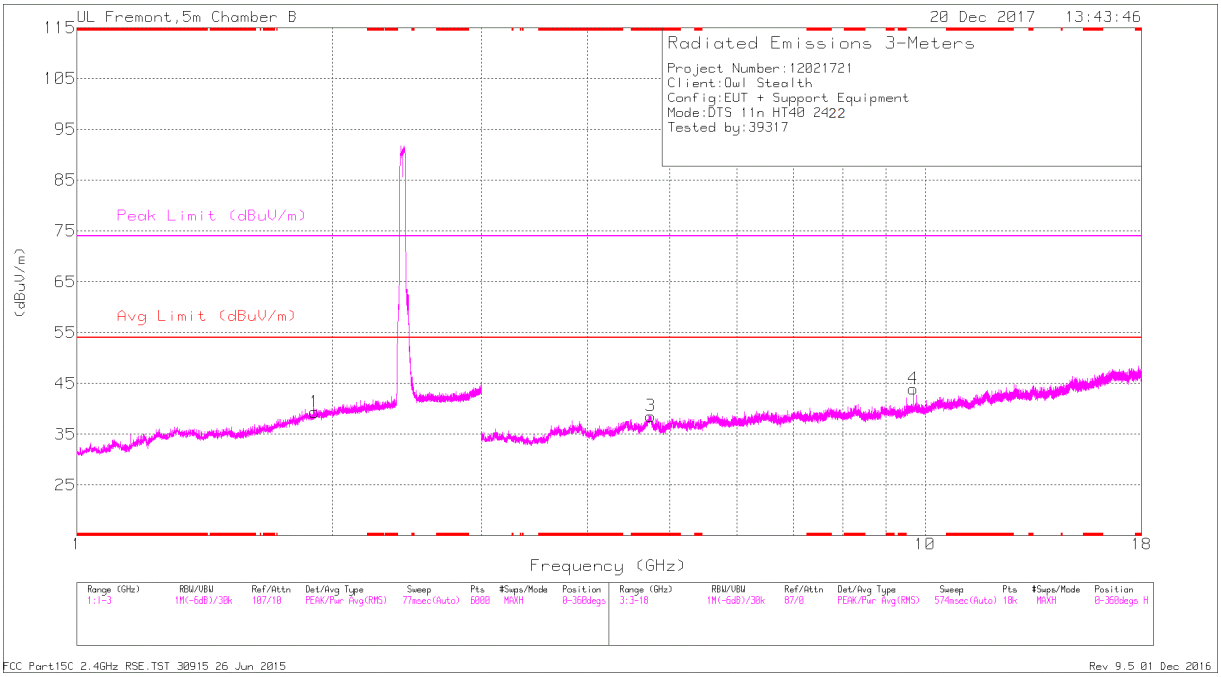
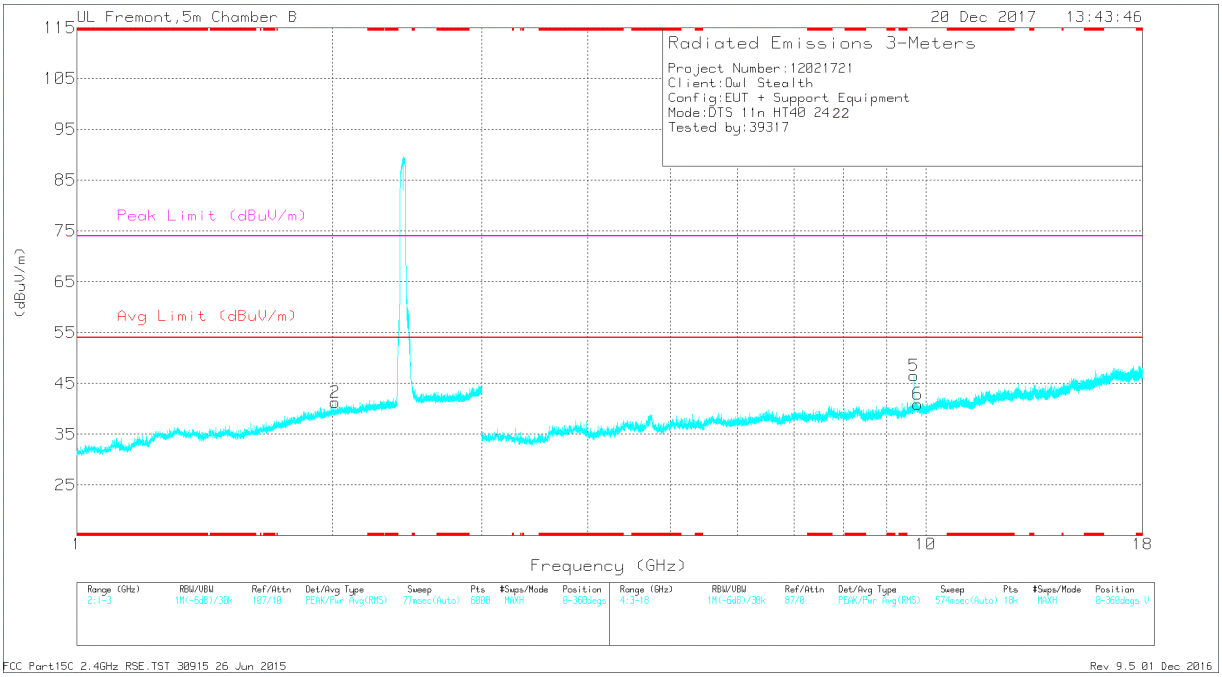
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 3 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.752	40.13	PK2	34.2	-29.3	0	45.03	-	-	74	-28.97	360	104	H
* 4.751	29.13	MAv1	34.2	-29.3	1.19	35.22	54	-18.78	-	-	360	104	H
1.907	35.38	PK2	31	-21.1	0	45.28	-	-	-	-	360	104	H
1.907	24.15	MAv1	31	-21.1	1.19	35.24	-	-	-	-	360	104	H
2.012	24.34	MAv1	31.3	-21.1	1.19	35.73	-	-	-	-	360	199	V
2.013	36.4	PK2	31.3	-21.1	0	46.6	-	-	-	-	360	199	V
9.688	38.1	PK2	36.9	-25.5	0	49.5	-	-	-	-	360	104	H
9.688	28.82	MAv1	36.9	-25.5	1.19	41.41	-	-	-	-	360	104	H
9.688	36.7	PK2	36.9	-25.5	0	48.1	-	-	-	-	360	104	V
9.688	27.19	MAv1	36.9	-25.5	1.19	39.78	-	-	-	-	360	104	V
9.788	35.34	PK2	36.9	-25.3	0	46.94	-	-	-	-	360	199	V
9.789	24.46	MAv1	36.9	-25.3	1.19	37.25	-	-	-	-	360	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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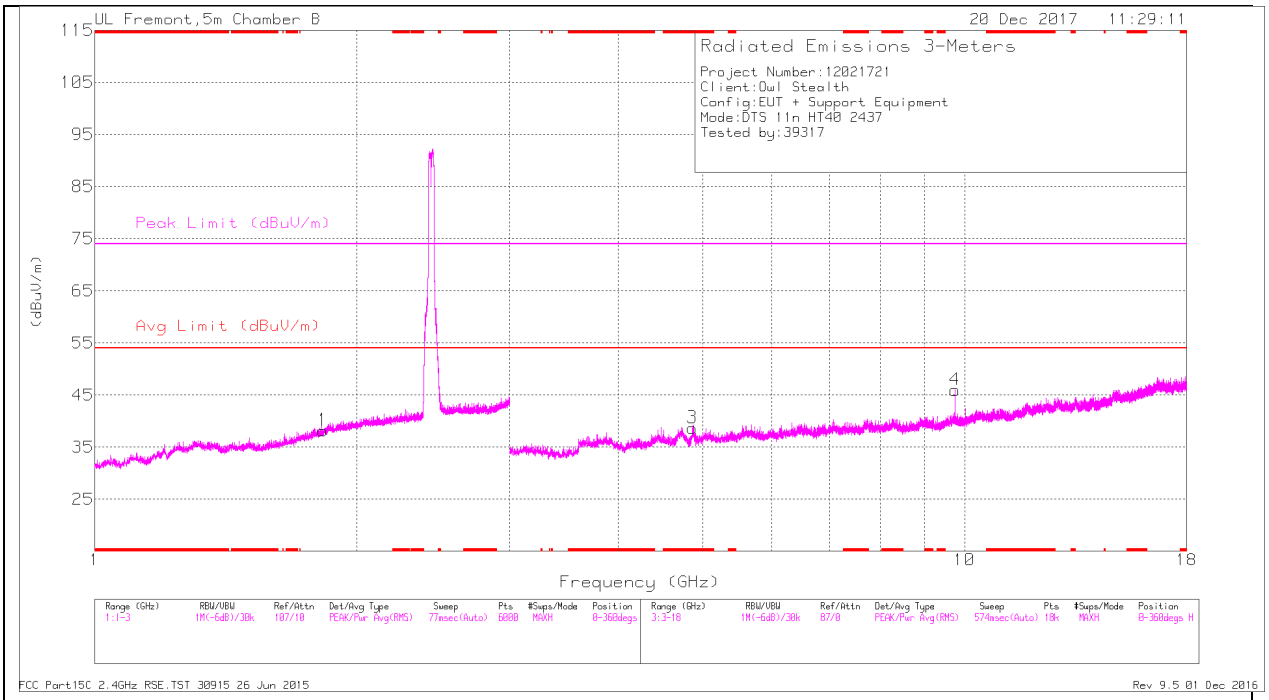
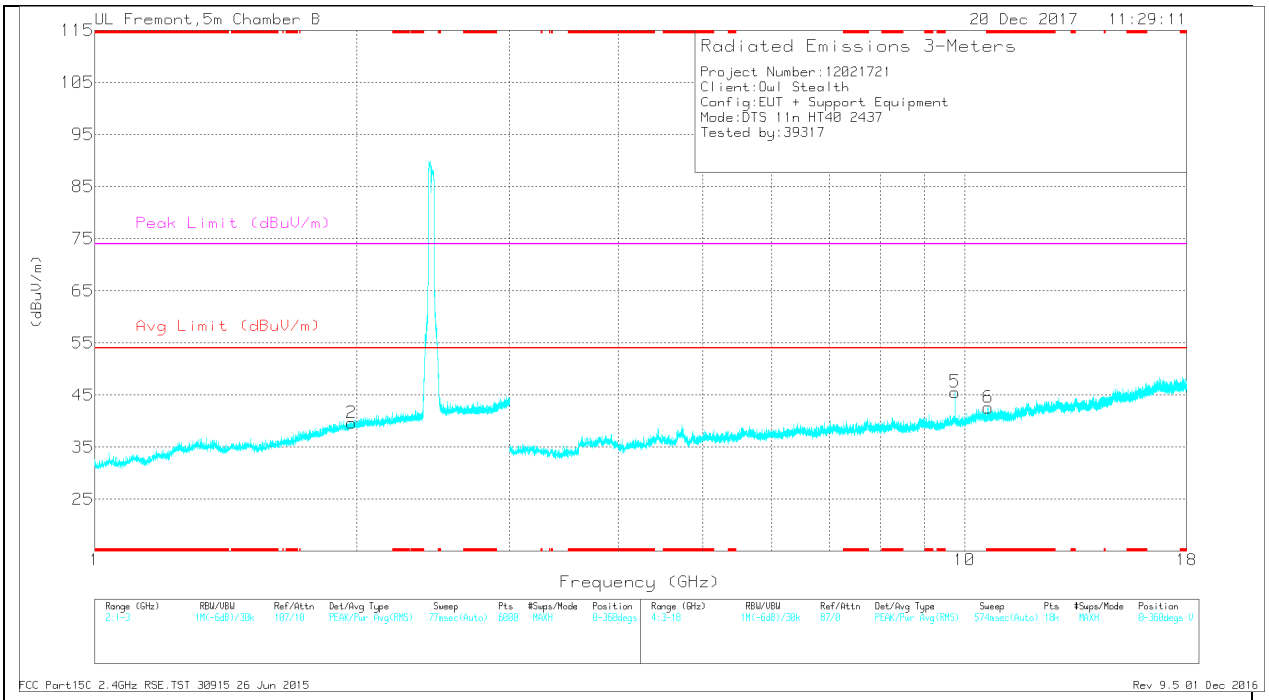
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.868	39.77	PK2	34.4	-31	0	43.17	-	-	74	-30.83	360	104	H
* 4.866	28.78	MAv1	34.4	-31	1.19	33.37	54	-20.63	-	-	360	104	H
* 10.646	34.13	PK2	37.6	-23.9	0	47.83	-	-	74	-26.17	360	104	V
* 10.645	23.26	MAv1	37.6	-23.9	1.19	38.15	54	-15.85	-	-	360	104	V
1.827	23.82	MAv1	30.5	-21.3	1.19	34.21	-	-	-	-	360	198	H
1.83	35.51	PK2	30.6	-21.2	0	44.91	-	-	-	-	360	198	H
1.973	24.11	MAv1	31.2	-21.1	1.19	35.4	-	-	-	-	360	198	V
1.974	35.81	PK2	31.2	-21	0	46.01	-	-	-	-	360	198	V
9.748	36.68	PK2	36.9	-25.1	0	48.48	-	-	-	-	360	199	H
9.748	27.56	MAv1	36.9	-25.1	1.19	40.55	-	-	-	-	360	199	H
9.748	36.76	PK2	36.9	-25.1	0	48.56	-	-	-	-	360	104	V
9.748	28.02	MAv1	36.9	-25.1	1.19	41.01	-	-	-	-	360	104	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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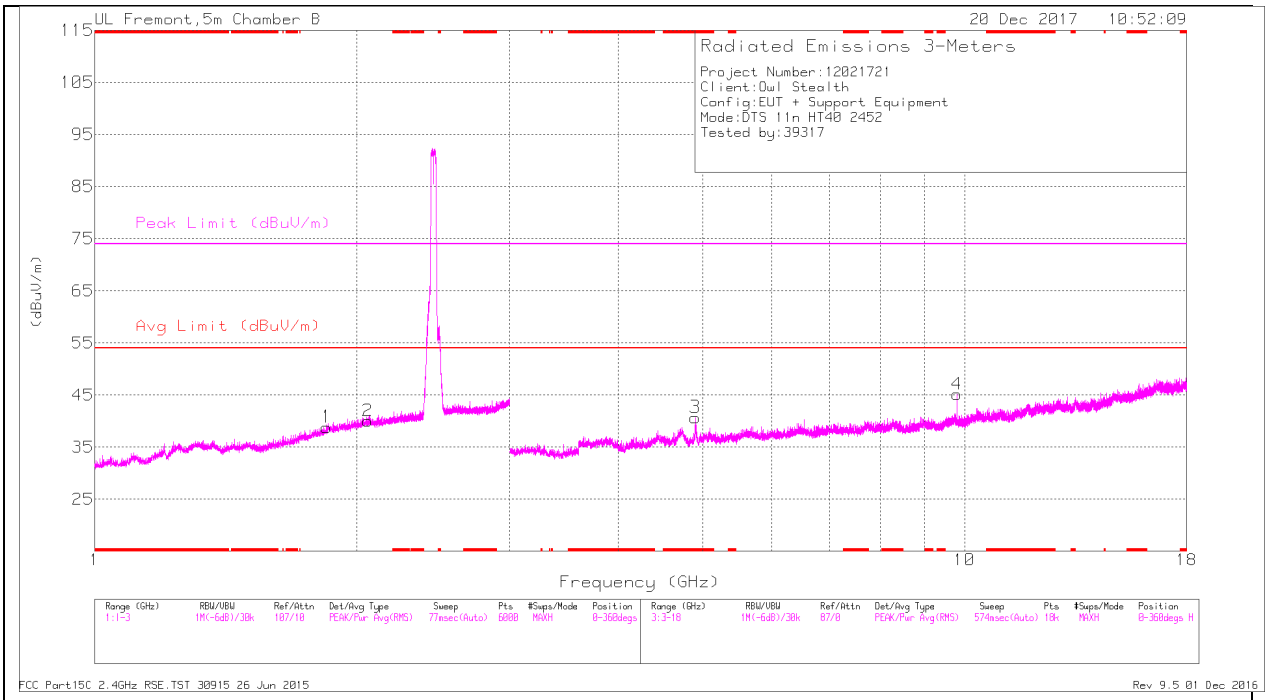
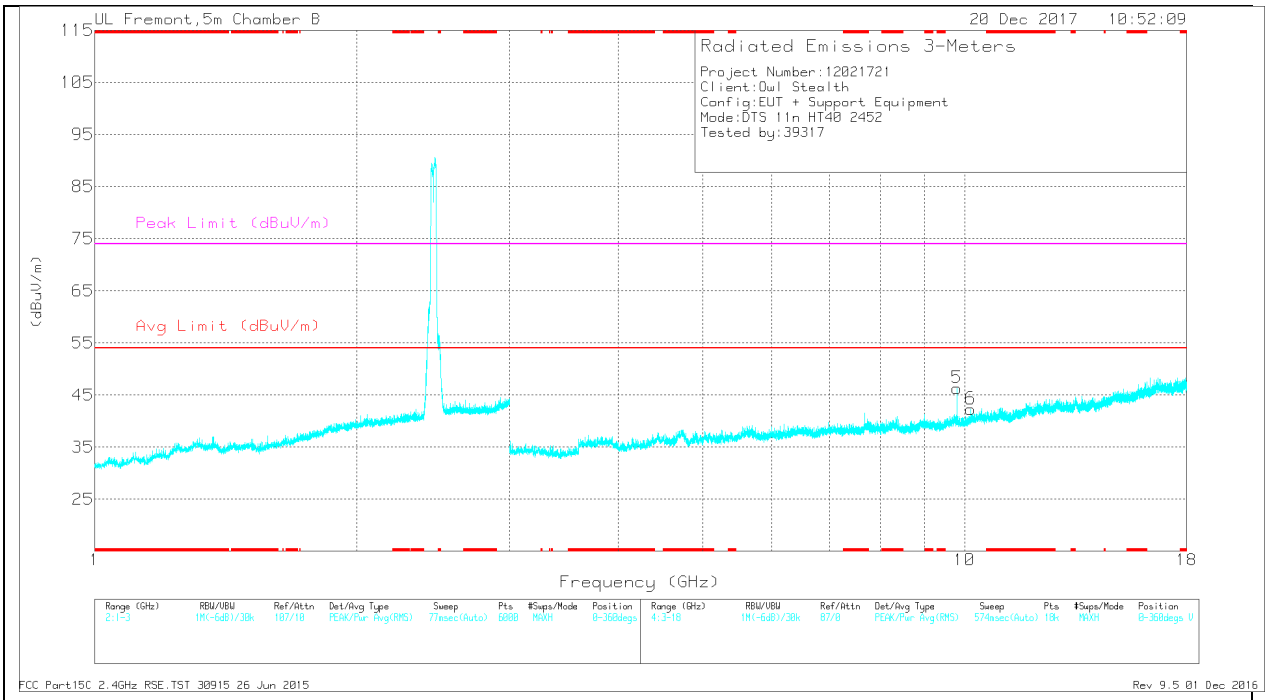
HIGH CHANNEL, CH 9 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.904	41.55	PK2	34.4	-31.5	0	44.45	-	-	74	-29.55	272	104	H
* 4.903	30.48	MAv1	34.4	-31.5	1.19	34.57	54	-19.43	-	-	272	104	H
1.847	35.8	PK2	30.8	-21.2	0	45.4	-	-	-	-	272	198	H
1.848	24.09	MAv1	30.8	-21.2	1.19	34.88	-	-	-	-	272	198	H
2.059	36.08	PK2	31.4	-21.2	0	46.28	-	-	-	-	272	198	H
2.061	24.59	MAv1	31.4	-21.2	1.19	35.98	-	-	-	-	272	198	H
9.808	36.05	PK2	36.9	-25.1	0	47.85	-	-	-	-	272	199	H
9.808	24.57	MAv1	36.9	-25.1	1.19	37.56	-	-	-	-	272	199	H
9.808	36.76	PK2	36.9	-25.1	0	48.56	-	-	-	-	272	104	V
9.808	29	MAv1	36.9	-25.1	1.19	41.99	-	-	-	-	272	104	V
10.165	35.29	PK2	37.4	-25.3	0	47.39	-	-	-	-	272	198	V
10.165	24.24	MAv1	37.4	-25.3	1.19	37.53	-	-	-	-	272	198	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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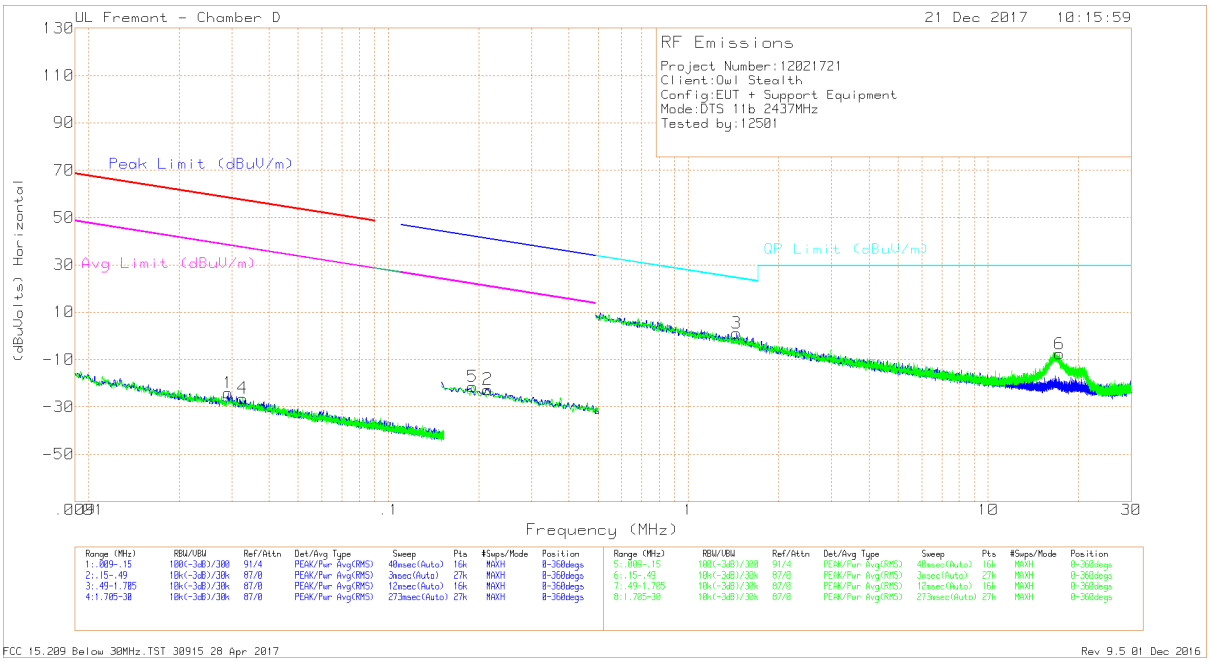
10.2. SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL AND VERTICAL PLOTS



NOTE: KDB 414788 OATS and Chamber Correlation Justification

- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0292	41.44	Pk	14.5	0	-80	-24.06	58.28	-82.34	38.28	-62.34	-	-	-	-	-	-	0-360
4	.03264	39.57	Pk	14.1	0	-80	-26.33	57.31	-83.64	37.31	-63.64	-	-	-	-	-	-	0-360
5	.19084	46.89	Pk	11.6	.1	-80	-21.41	-	-	-	-	-	-	42.01	-63.42	22.01	-43.42	0-360
2	.21407	45.79	Pk	11.5	.1	-80	-22.61	-	-	-	-	-	-	41.01	-63.62	21.01	-43.62	0-360
3	1.44954	29.3	Pk	11.6	.2	-40	1.1	-	-	-	-	24.41	-23.31	-	-	-	-	0-360
6	17.31286	22.12	Pk	9.8	.4	-40	-7.68	-	-	-	-	29.5	-37.18	-	-	-	-	0-360

Pk - Peak detector

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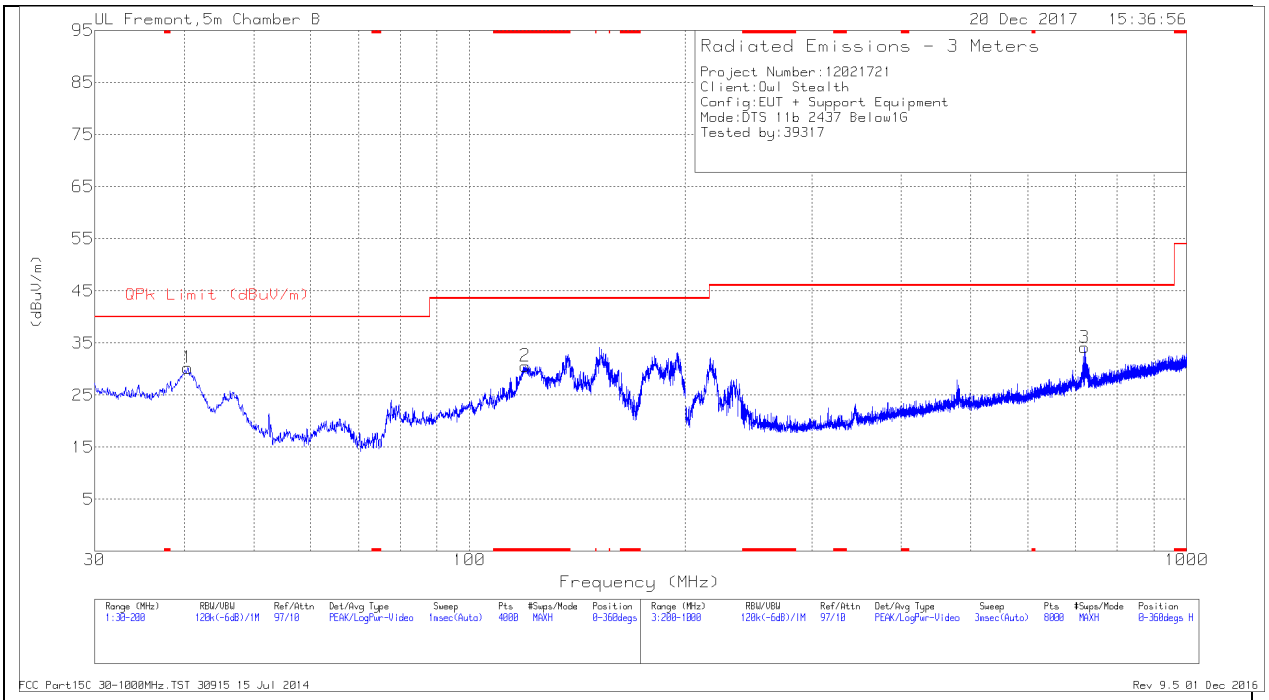
10.3. Worst Case Below 1 GHz



HORIZONTAL

VERTICAL

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Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 119.5282	40.66	Pk	17.6	-27.7	30.56	43.52	-12.96	0-360	200	H
6	* 119.3794	44.5	Pk	17.6	-27.7	34.4	43.52	-9.12	0-360	100	V
4	40.4994	50.13	Qp	17.8	-28.7	39.23	40	-.77	257	100	V
1	40.4577	41.13	Pk	17.8	-28.7	30.23	40	-9.77	0-360	300	H
5	46.4735	48.23	Qp	13.3	-28.6	32.93	40	-7.07	265	109	V
3	719.9676	34.72	Pk	24.3	-24.9	34.12	46.02	-11.9	0-360	300	H

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

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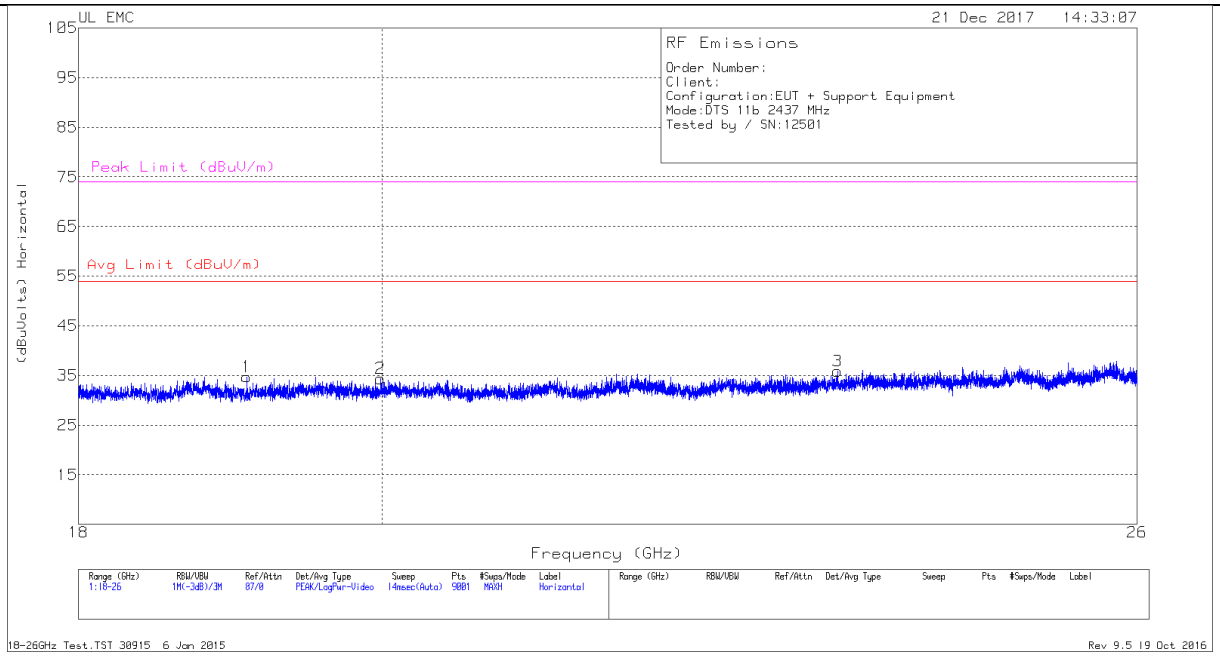
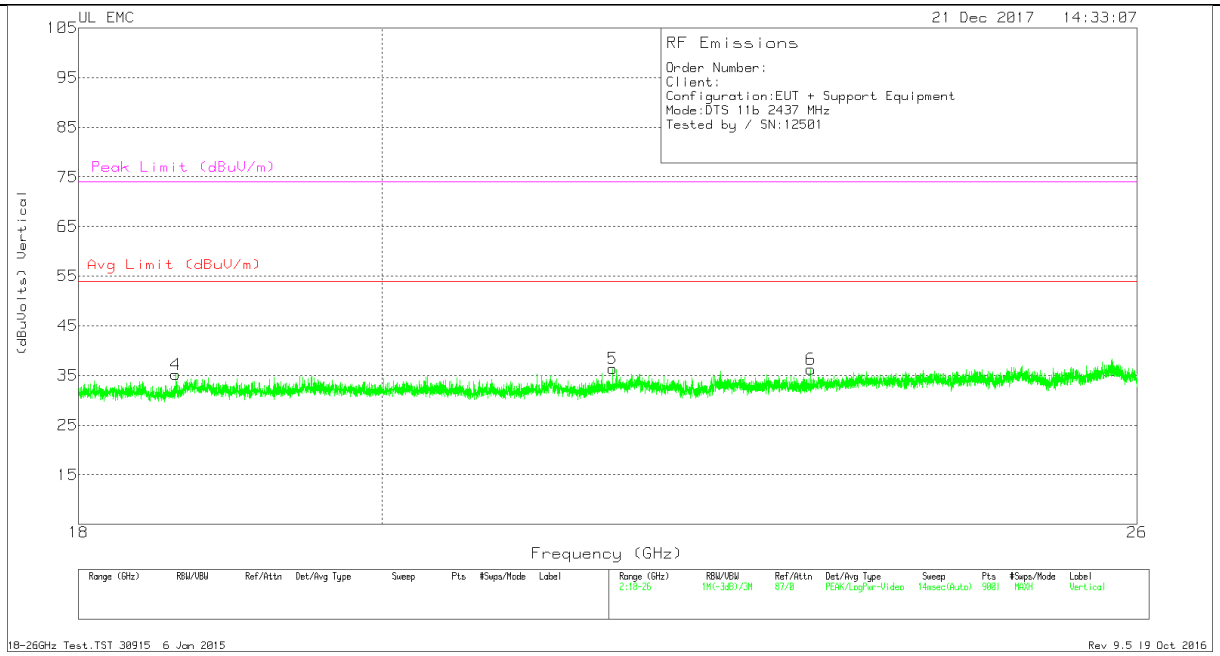
10.4. Worst Case 18-26 GHz



HORIZONTAL



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18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.084	36.91	Pk	32.2	-24.9	-9.5	34.71	54	-19.29	74	-39.29
2	19.99	35.96	Pk	33	-25.1	-9.5	34.36	54	-19.64	74	-39.64
3	23.429	36.46	Pk	33.3	-24.4	-9.5	35.86	54	-18.14	74	-38.14
4	18.618	37.13	Pk	32.5	-24.9	-9.5	35.23	54	-18.77	74	-38.77
5	21.669	37.76	Pk	33.2	-25.1	-9.5	36.36	54	-17.64	74	-37.64
6	23.213	37.24	Pk	33.5	-25	-9.5	36.24	54	-17.76	74	-37.76

Pk - Peak detector

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