CERTIFICATION TEST REPORT

Report Number. : 12518840-E1V5

Applicant	:	LYTX INC 9785 TOWNE CENTRE DR SAN DIEGO, CA, 92121
Model	:	DC-6000-030
FCC ID	:	UO3UN1DK-D
IC	:	6778A-UN1DKD
EUT Description	:	BATTERY POWERED EVENT RECORDER PLACED ON THE VEHICLE WINDSHIELD WITH WiFi MODULE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C ISED RSS-247 ISSUE 2 ISED RSS-GEN ISSUE 5

Date Of Issue:
April 08, 2019

Prepared by:
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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	1/15/2019	Initial Issue	Eric Y.
V2	2/5/2019	Update Antenna Gain Ch 1	Jose M.
V3	02/20/2019	Addressed TCB comments	Tri P.
V4	02/28/2019	Revised Facilities and Accrediation section Revised Test Methodology section Revised Measurement Method section Revised Worst-Case configuration and mode	F. Ibrahim
V5	4/8/2019	Updated 11b radiated data	Tri P.

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LYTX INC
9785 TOWNE CENTRE DR
SAN DIEGO, CA, 92121

EUT DESCRIPTION: BATTERY POWERED EVENT RECORDER PLACED ON THE VEHICLE WINDSHIELD WITH WiFi MODULE

MODEL: DC-6000-030

SERIAL NUMBER: 1968488 (Conducted)
1968487 (Radiated)

DATE TESTED: October 05, 2018 – April 5, 2019

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r01, RSS-GEN Issue 5, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, 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	47658 Kato Rd
☒ Chamber A (ISED:2324B-1)	☐ Chamber D (ISED:22541-1)	☐ Chamber I (ISED:2324A-5)
☐ Chamber B (ISED:2324B-2)	☐ Chamber E (ISED:22541-2)	☒ Chamber J (ISED:2324A-6)
☐ Chamber C (ISED:2324B-3)	☐ Chamber F (ISED:22541-3)	☒ Chamber K (ISED:2324A-1)
	☐ Chamber G (ISED:22541-4)	☒ Chamber L (ISED:2324A-3)
	☐ Chamber H (ISED:22541-5)	

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code

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

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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

RADIATED EMISSIONS
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

MAINS CONDUCTED EMISSIONS
Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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. EUT DESCRIPTION

Battery powered event recorder placed on the vehicle windshield with wifi module

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2.4GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2Tx			
2412 - 2462	802.11b	19.25	84.14
2412 - 2462	802.11g	16.09	40.64
2412 - 2462	802.11n HT20 CDD	15.10	32.36

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of:

Frequency Band (GHz)	Antenna Gain (dBi) Main (antenna 1)	Antenna Gain (dBi) Sub (antenna 2)
2412 - 2462	4.0	2.50

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was FW build 109

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5.5. WORST-CASE CONFIGURATION AND MODE

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

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

The EUT was used in only standalone orientation; therefore, all final radiated testing was performed with the EUT in standalone orientation.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0

The power per chain for 2TX configuration is the same power SISO configuration. Therefore, 2TX configuration data in this report covers SISO configuration.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	20B7S0A200	PC015REW	NA
AC Adapter	SONY	UCH12	4016W40310044	NA
DC Power Supply	Ametek	XT 20-3	T451	N/A

I/O CABLES (RADIATED AND CONDUCTED EMISSIONS)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Shielded	1	N/A
2	DC	1	DC	Shielded	3	N/A

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Shielded	1	N/A
2	DC	1	DC	Shielded	3	N/A
3	USB	1	USB	Shielded	0.2	USB-DB9
4	AC	1	AC	Shielded	1	N/A
5	DC	1	DC	Shielded	1.5	N/A
6	Antenna	1	RF	Shielded	0.1	To Spectrum Analyzer

TEST SETUP

The EUT is connected to a support laptop computer during the tests. Test software exercised the radio card.

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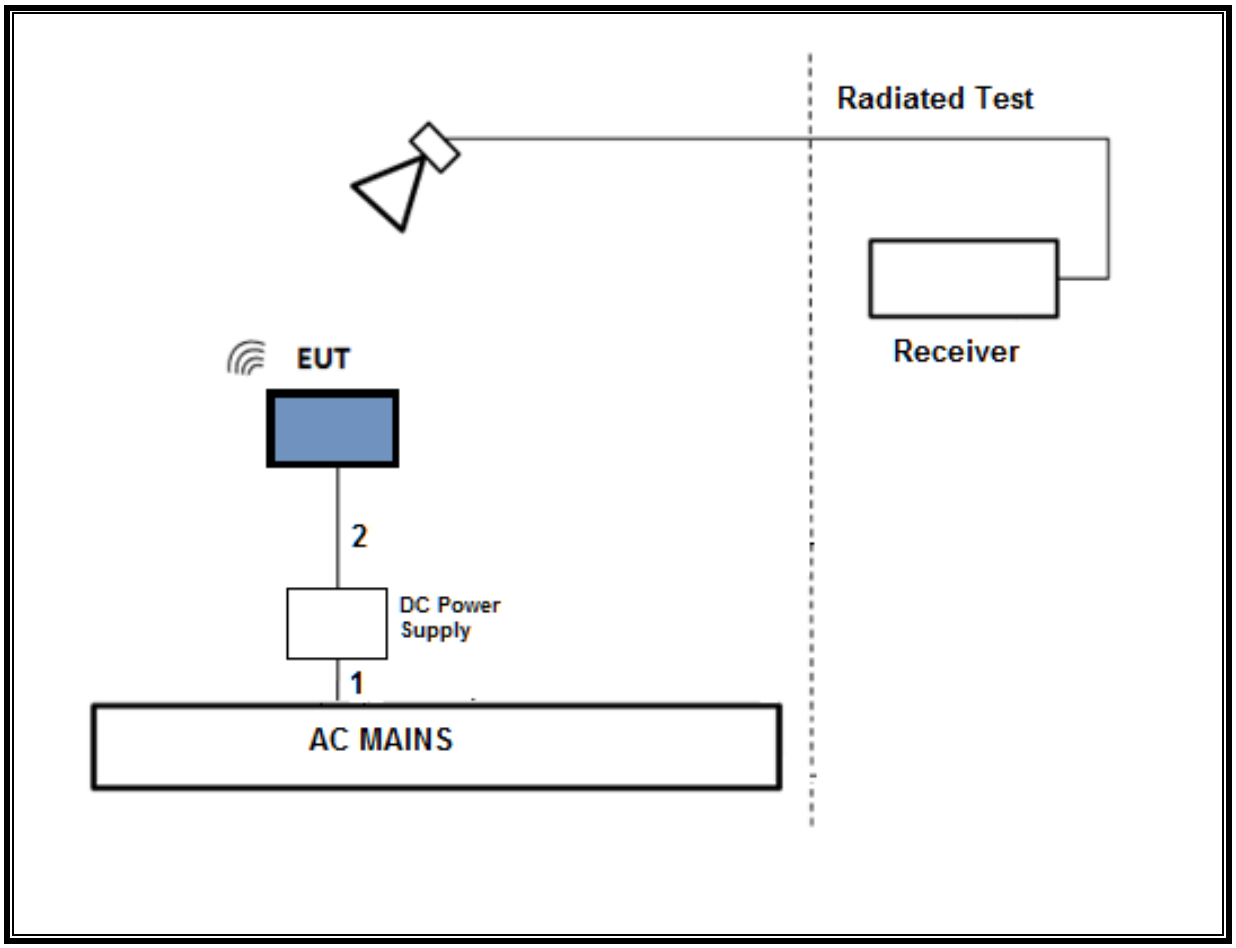
SETUP DIAGRAM FOR RADIATED TESTS



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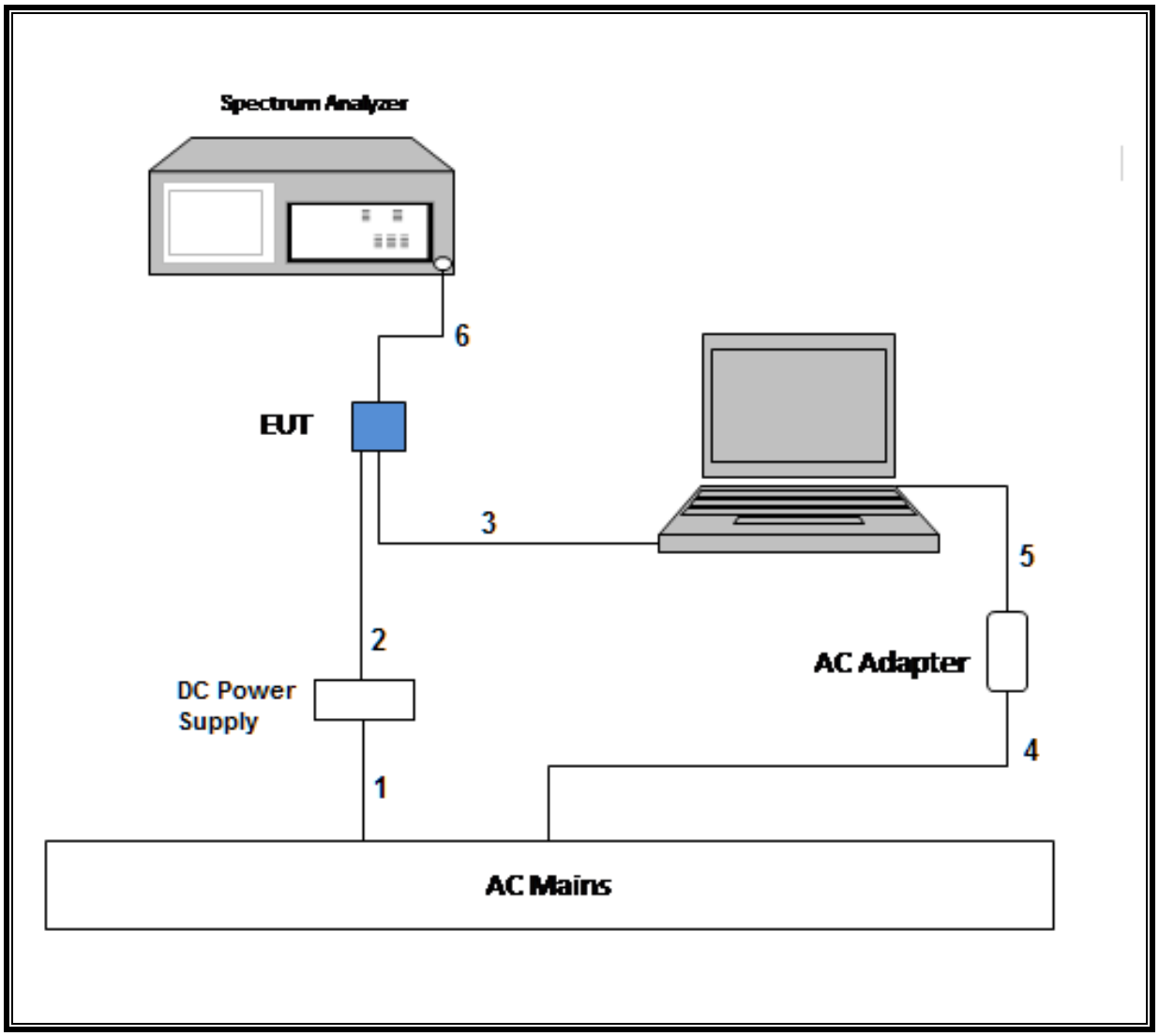
SETUP DIAGRAM FOR CONDUCTED TESTS



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6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v05r01, Section 6.

6 dB BW: KDB 558074 D01 v05r01, Section 8.1.

Output Power: KDB 558074 D01 v05r01, Section 9.2.3.2.

Power Spectral Density: KDB 558074 D01 v05r01, Section 10.3 & 10.5.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v05r01, Section 11.1 (b).

Out-of-band emissions in restricted bands: KDB 558074 D01 v05r01, Section 12.1.

Band-edge: KDB 558074 D01 v05r01, 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**	**ID Num**	**Cal Due**	**Last Cal**
Antenna, Active Loop 9kHz-30MHz	Com-Power Corp.	AL-130R	PRE0165308	12/13/2018	12/13/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB1	T130	10/16/2018	10/16/2017
Amplifier,100KHz-1GHZ,32dB	Agilent (keysight) Technologies	8447D	T15	08/15/2019	08/15/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	EMC4294	04/30/2019	04/30/2018
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T1568	06/21/2019	06/21/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	AT0067	03/26/2019	03/26/2018
RF Amplifier, 1-18GHz	AMPLICAL	AMP1G18-35	T1571	07/30/2019	07/30/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T344	04/30/2019	04/30/2019
RF Amplifier, 1-18GHz	AMPLICAL	AMP1G18-35	T1569	06/032019	06/03/2019
Antenna Hron 18-26.5GHz	ARA	MWH-1826/B	T448	03/13/2019	03/13/2018
Pre-Amp 1-26.5 GHz	Agilent	8449B	T404	03/09/2019	03/09/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1271	07/26/2019	07/26/2018
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T1224	10/09/2019	10/09/2018
EMI Receiver	Rohde & Schwarz	ESW44	PRE0179522	05/11/2019	05/11/2018
EMI Receiver	Rohde & Schwarz	ESW44	PRE0179372	05/04/2019	05/04/2018
EMI Receiver	Rohde & Schwarz	ESW44	PRE0179375	05/08/2019	05/08/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1466	04/16/2019	04/16/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1454	01/08/2019	01/08/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1113	12/21/2018	12/21/2017
DC Power Supply	AMETEK	XT20-3	T415	NA	NA

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 9.3, Dec 06, 2018

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b 2TX	8.607	8.622	0.998	99.83%	0.00	0.010
802.11g 2TX	1.428	1.529	0.934	93.39%	0.30	0.700
802.11n HT20 2TX	0.168	0.190	0.887	88.71%	0.52	5.949

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DUTY CYCLE PLOTS

DUTY CYCLE 802.11b 2TX MODE

DUTY CYCLE 802.11g 2TX MODE

DUTY CYCLE 802.11n HT20 2TX MODE

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8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

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8.2.1. 802.11b MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low 1	2412	10.779	10.766
Mid 6	2437	10.724	10.921
High 11	2462	10.715	10.493

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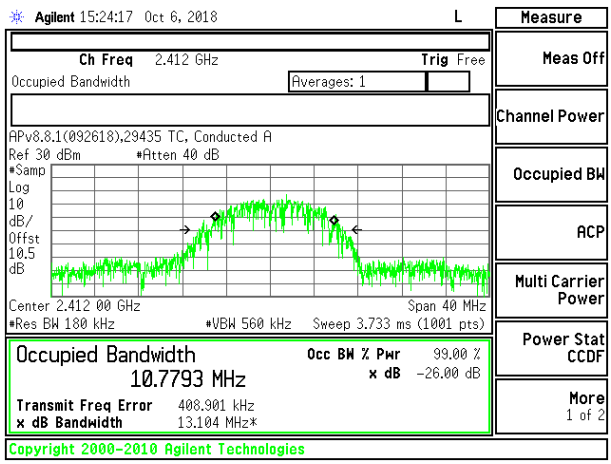
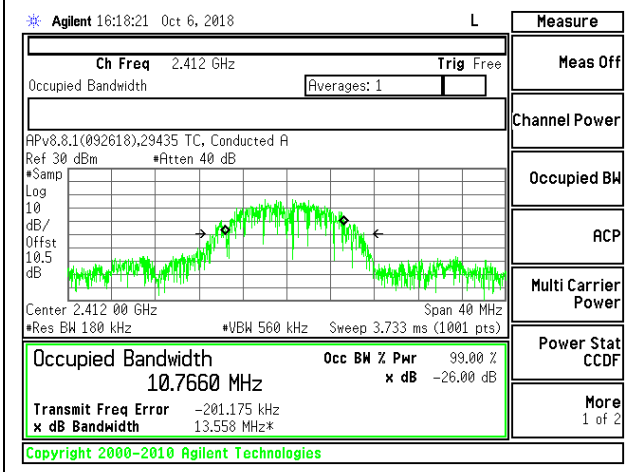
LOW CHANNEL 1

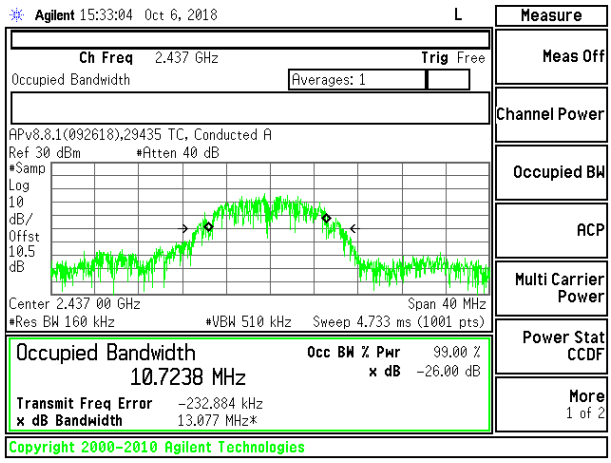


LOW CHANNEL 1 CHAIN 0

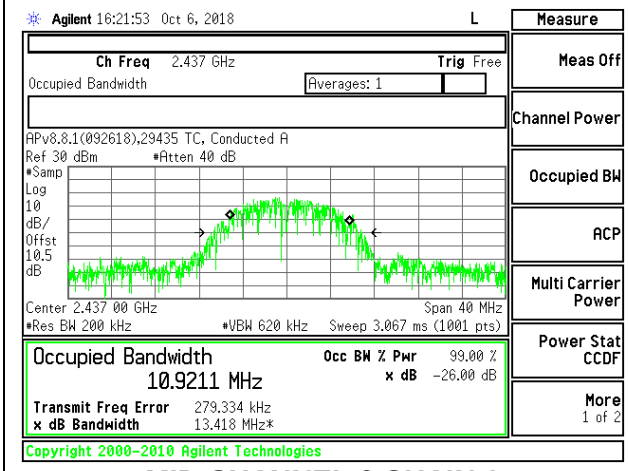


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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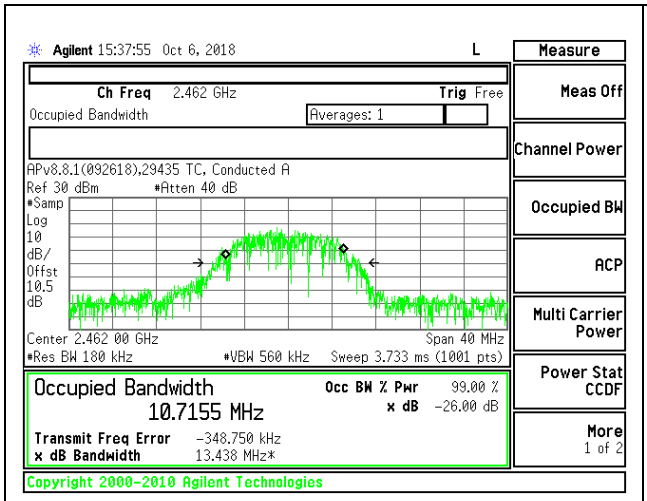
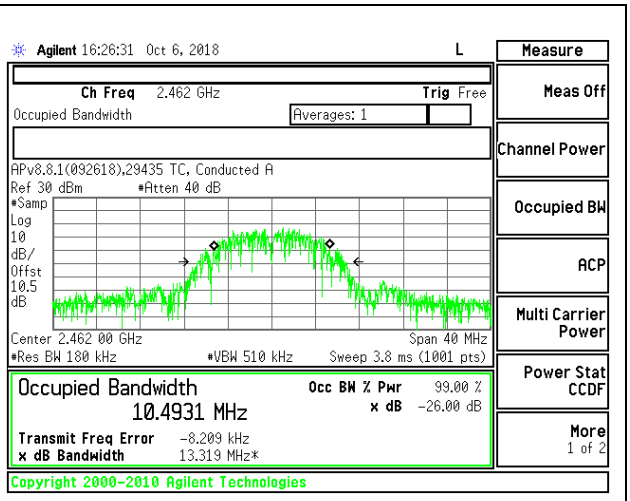
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.2.2. 802.11g MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low 1	2412	16.683	16.731
Mid 6	2437	16.606	16.581
High 11	2462	16.644	16.704

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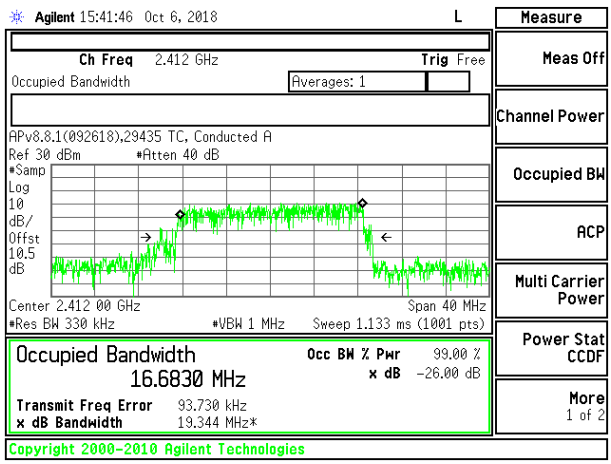
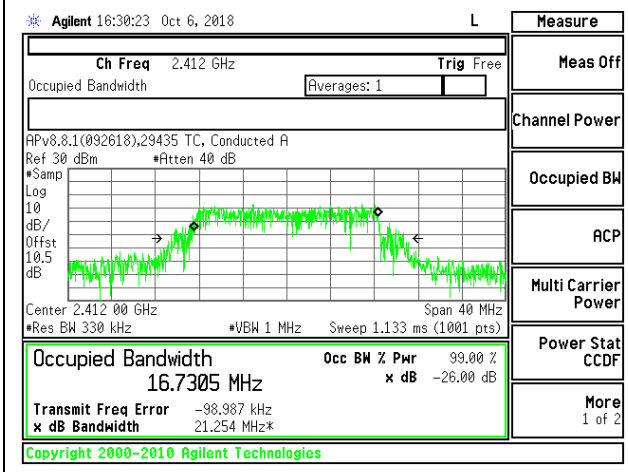
LOW CHANNEL 1

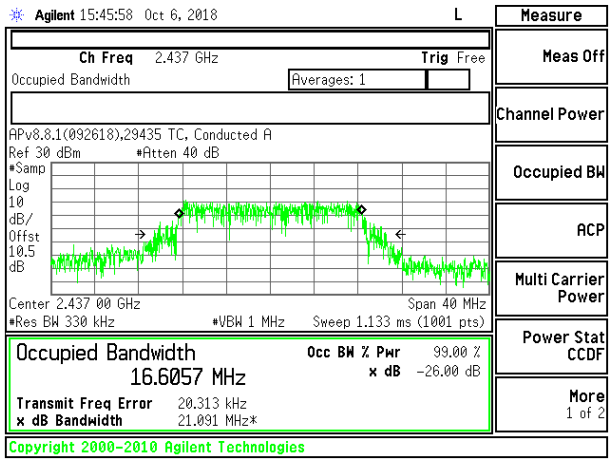


LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



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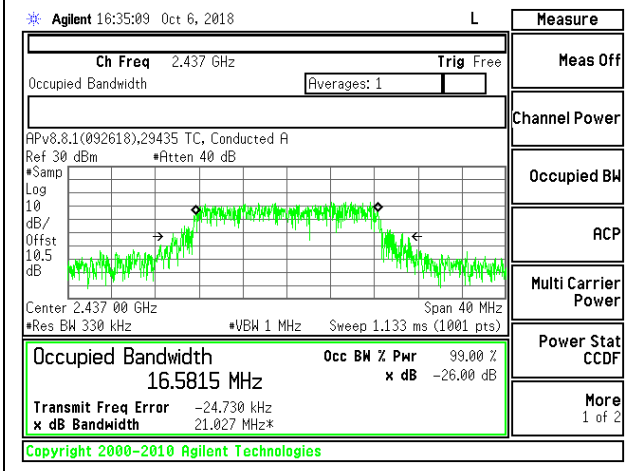

MID CHANNEL 6 CHAIN 1

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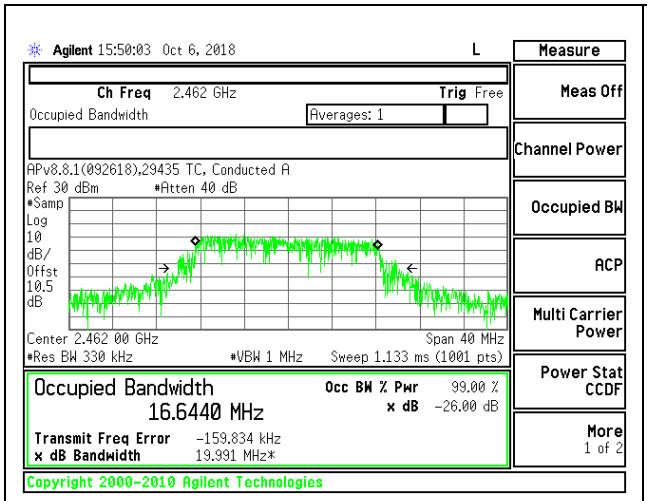
HIGH CHANNEL 11



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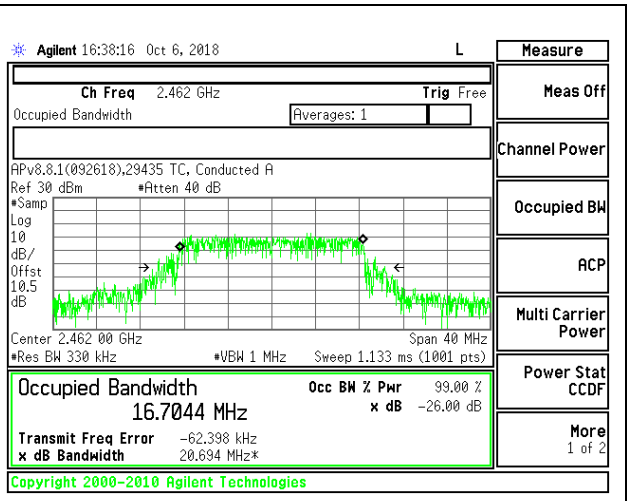

HIGH CHANNEL 11 CHAIN 1

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8.2.3. 802.11n HT20 MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)
Low 1	2412	17.795	17.859
Mid 6	2437	17.998	17.839
High 11	2462	17.800	17.686

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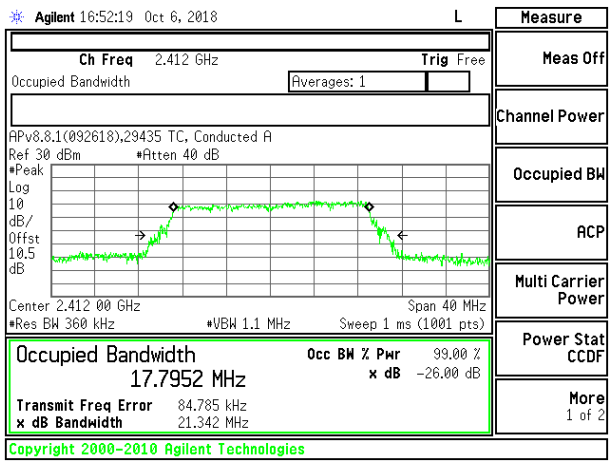
LOW CHANNEL 1



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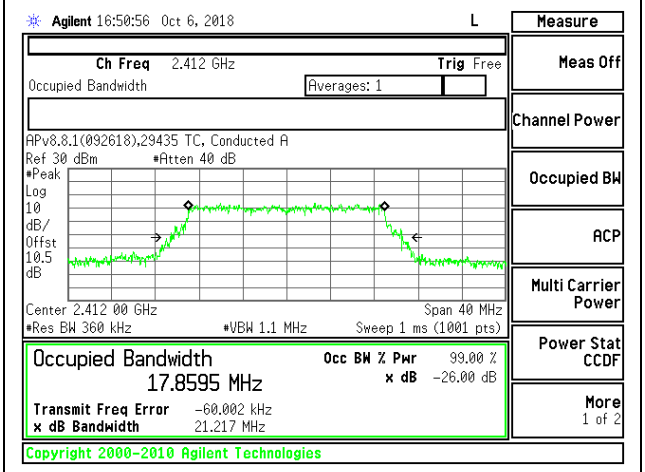
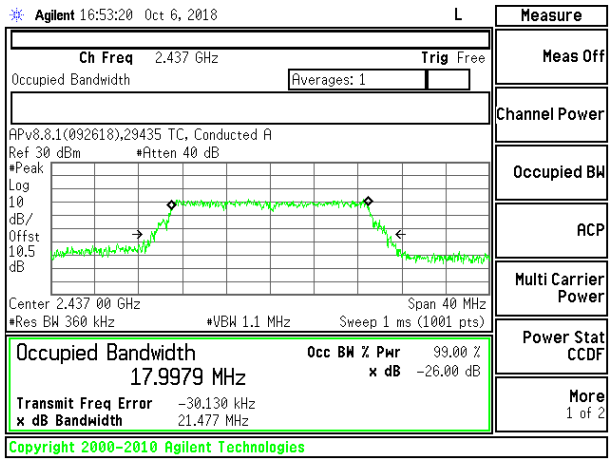
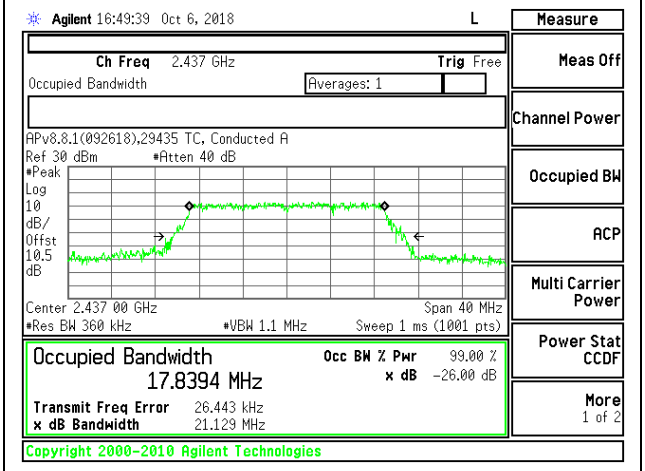


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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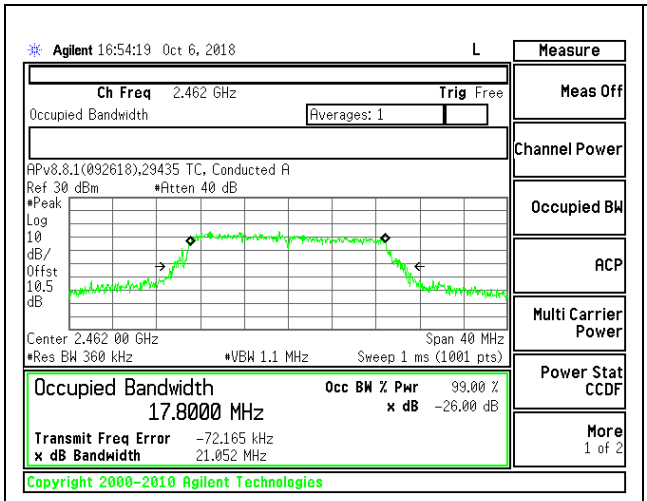
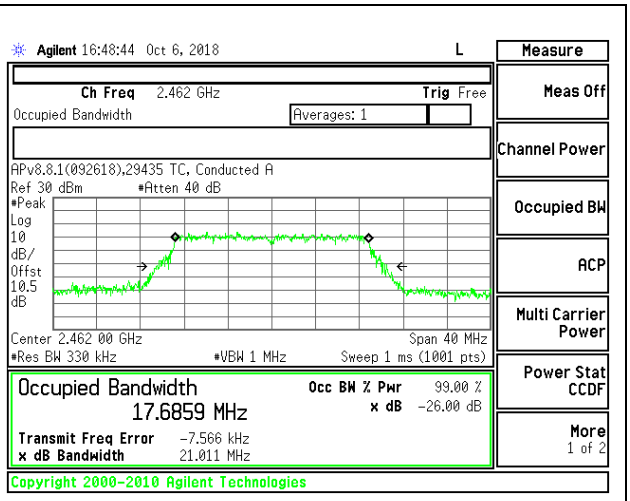
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 5.2 (a)

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

RESULTS

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8.3.1. 802.11b MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low 1	2412	7.040	7.640	0.5
Mid 6	2437	7.600	7.600	0.5
High 11	2462	8.040	8.120	0.5

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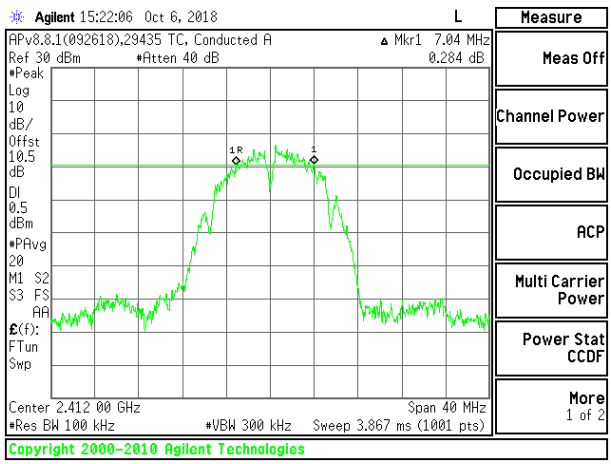
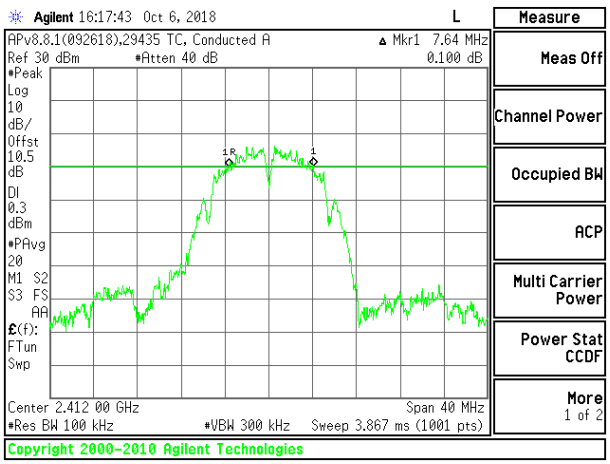
LOW CHANNEL 1

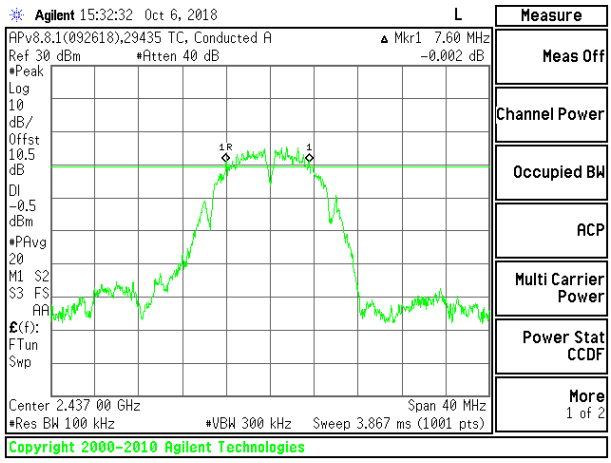


LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



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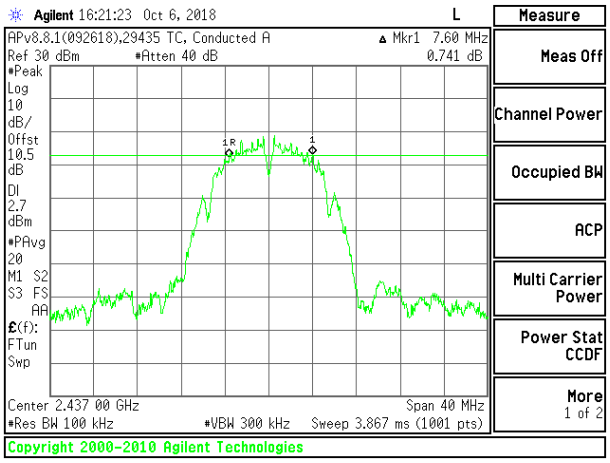

MID CHANNEL 6 CHAIN 1

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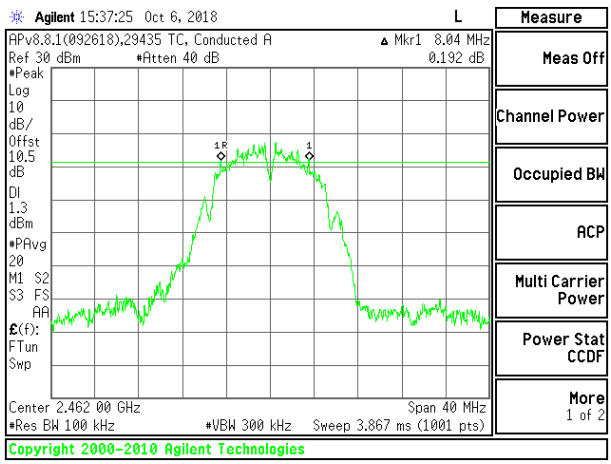
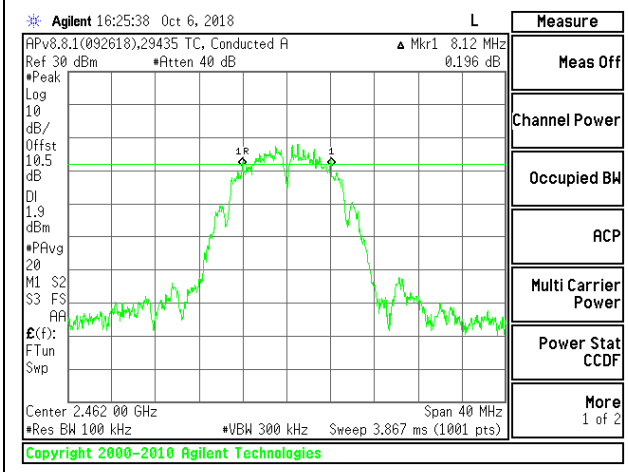
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.3.2. 802.11g MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.480	16.440	0.5
Mid 6	2437	16.560	16.400	0.5
High 11	2462	16.200	16.400	0.5

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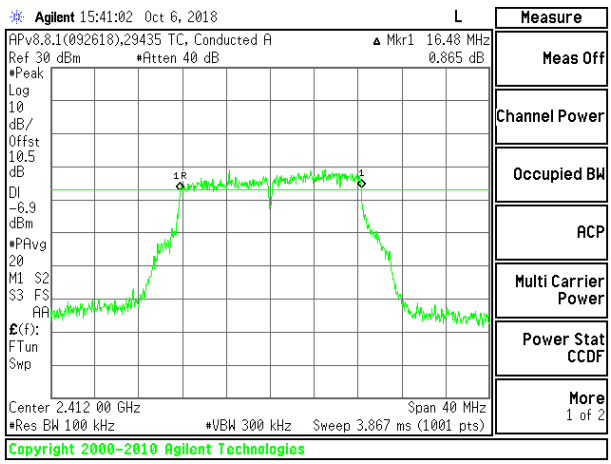
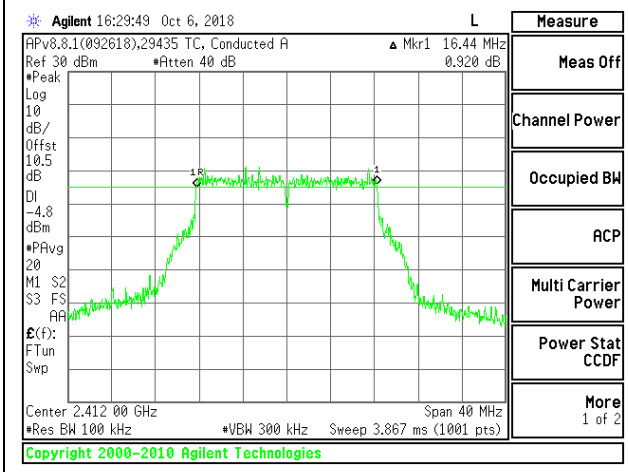
LOW CHANNEL 1

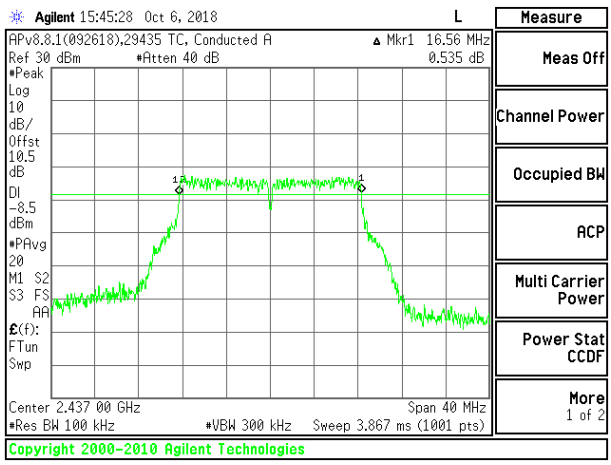


LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



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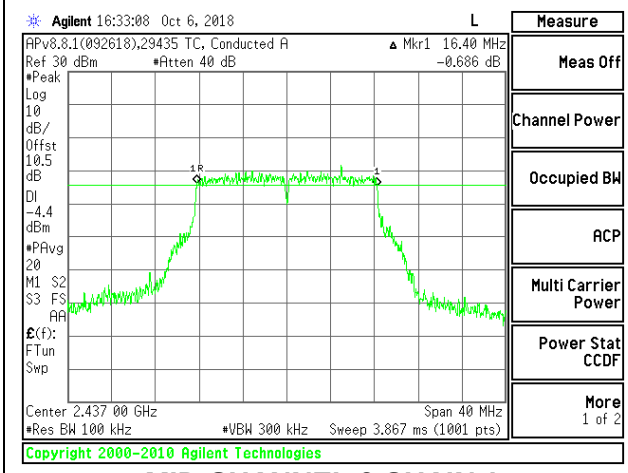

MID CHANNEL 6 CHAIN 1

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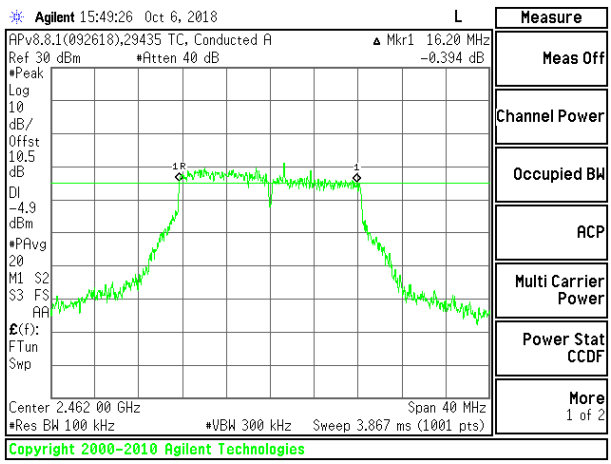
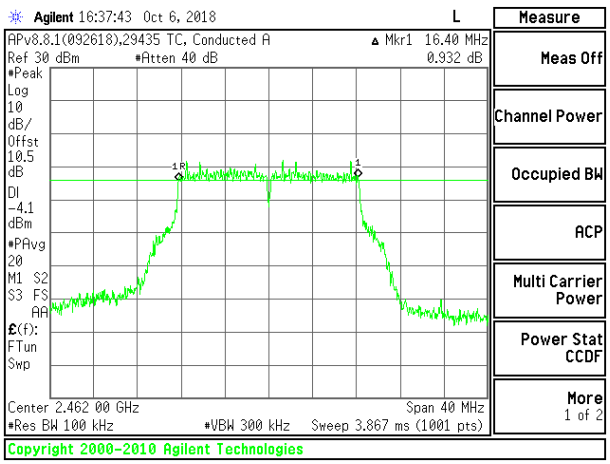
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.3.3. 802.11n HT20 MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.560	17.720	0.5
Mid 6	2437	17.760	17.680	0.5
High 11	2462	17.160	17.720	0.5

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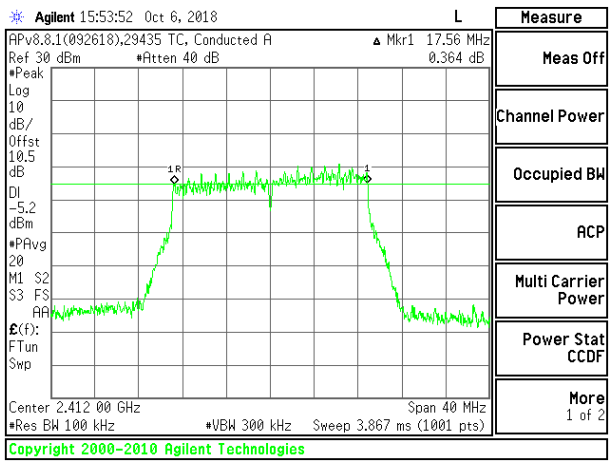
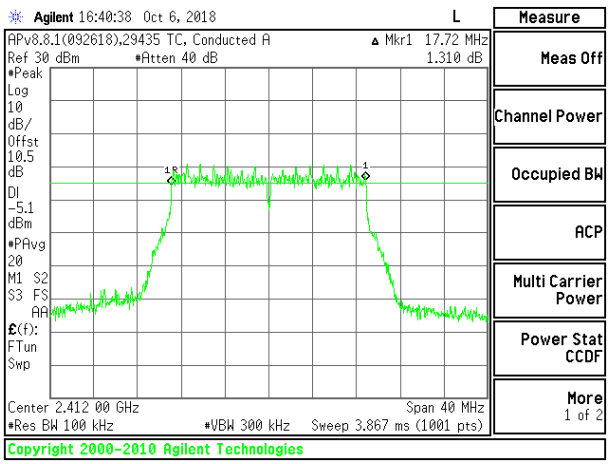
LOW CHANNEL 1

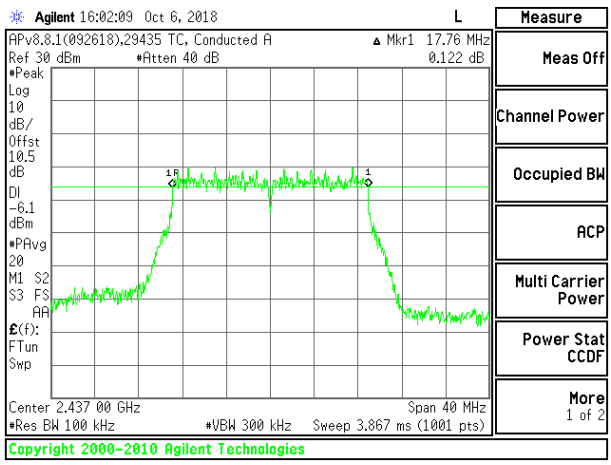


LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



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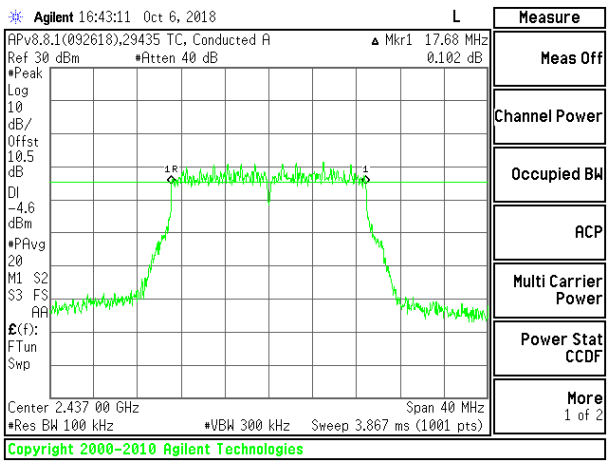

MID CHANNEL 6 CHAIN 1

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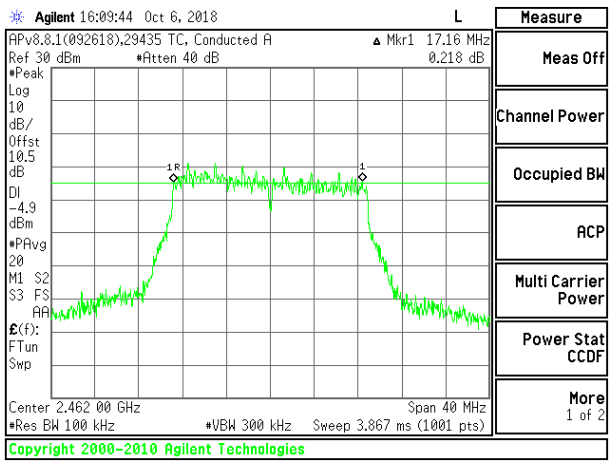
HIGH CHANNEL 11



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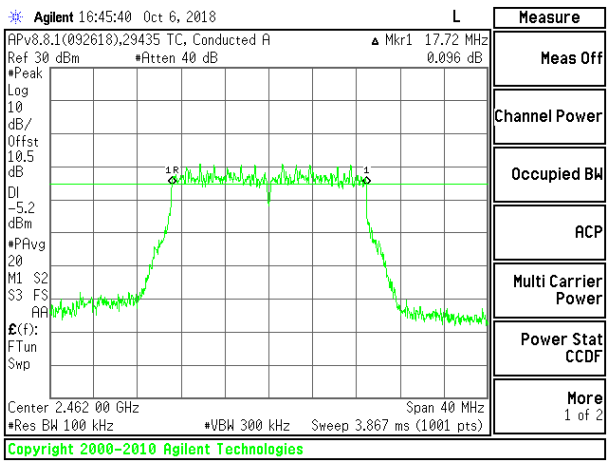

HIGH CHANNEL 11 CHAIN 1

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8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

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

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for a gated peak reading of power.

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DIRECTIONAL ANTENNA GAIN

For 2 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Band (GHz)	Antenna 1 Antenna Gain (dBi)	Antenna 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	4.00	2.50	3.31	6.29

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RESULTS

8.4.1. 802.11b MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	3.31	30.00	36	30.00
Mid 6	2437	3.31	30.00	36	30.00
High 11	2462	3.31	30.00	36	30.00

Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	14.81	15.97	18.44	30.00	-11.56
Mid 6	2437	15.16	16.60	18.95	30.00	-11.05
High 11	2462	16.09	16.38	19.25	30.00	-10.75

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8.4.2. 802.11g MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	3.31	30.00	36	30.00
Mid 6	2437	3.31	30.00	36	30.00
High 11	2462	3.31	30.00	36	30.00

Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	12.06	12.93	15.53	30.00	-14.47
Mid 6	2437	12.08	13.52	15.87	30.00	-14.13
High 11	2462	12.76	13.37	16.09	30.00	-13.91

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8.4.3. 802.11n HT20 MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	3.31	30.00	36	30.00
Mid 6	2437	3.31	30.00	36	30.00
High 11	2462	3.31	30.00	36	30.00

Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low 1	2412	11.36	12.08	14.75	30.00	-15.25
Mid 6	2437	11.32	12.45	14.93	30.00	-15.07
High 11	2462	11.71	12.44	15.10	30.00	-14.90

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8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

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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8.5.1. 802.11b MODE

2TX Antenna 1 + Antenna 2 CDD MODE

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

PSD Results

Channel	Frequency (MHz)	Antenna Meas (dBm/ 3kHz)	Antenna Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-6.38	-5.57	-2.95	8.0	-10.9
Mid 6	2437	-6.50	-4.96	-2.65	8.0	-10.7
High 11	2462	-5.26	-4.66	-1.94	8.0	-9.9

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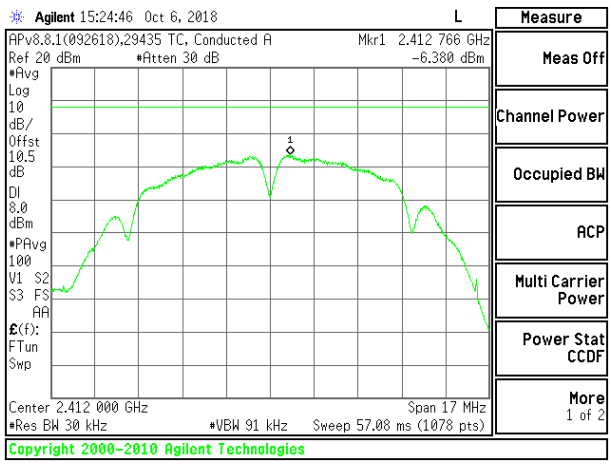
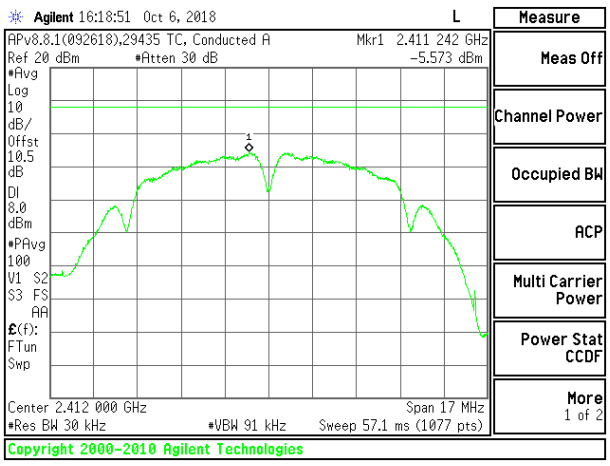
LOW CHANNEL 1

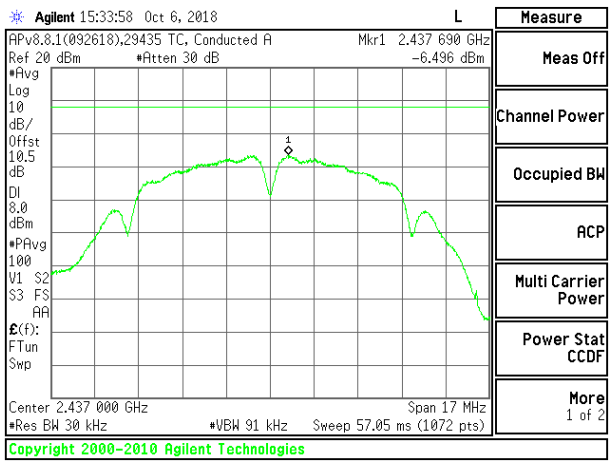


LOW CHANNEL 1 CHAIN 0

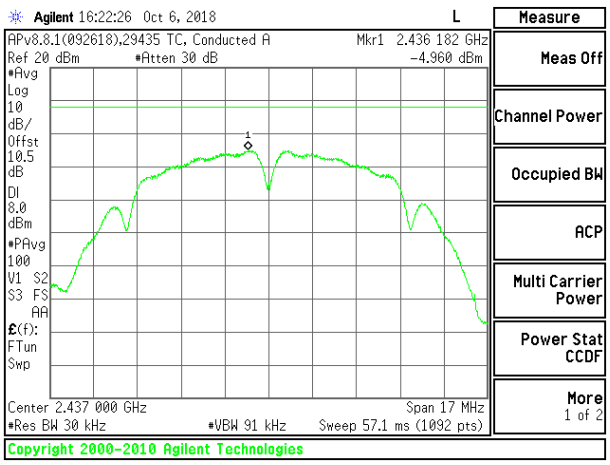


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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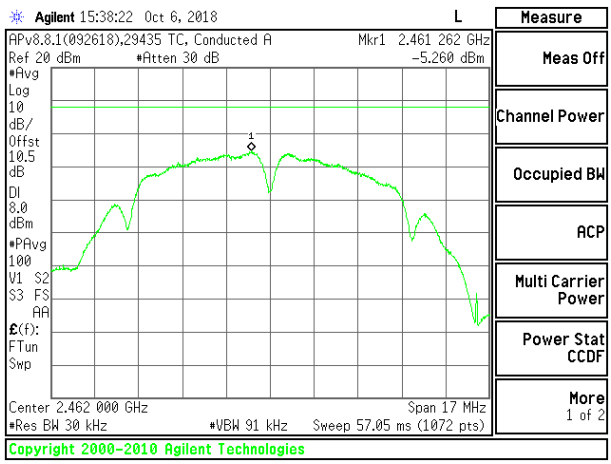
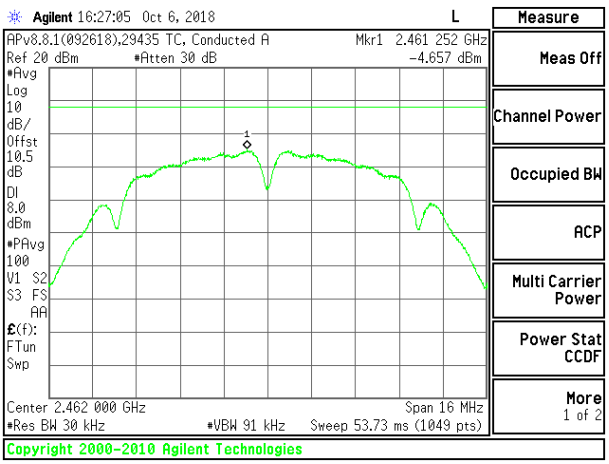
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.5.2. 802.11g MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Duty Cycle CF (dB)	0.30	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Antenna Meas (dBm/ 3kHz)	Antenna Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-11.29	-11.58	-8.12	8.0	-16.1
Mid 6	2437	-12.18	-10.65	-8.04	8.0	-16.0
High 11	2462	-10.63	-10.93	-7.47	8.0	-15.5

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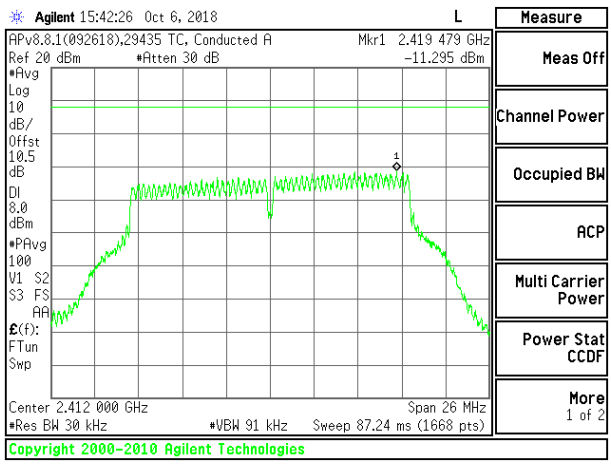
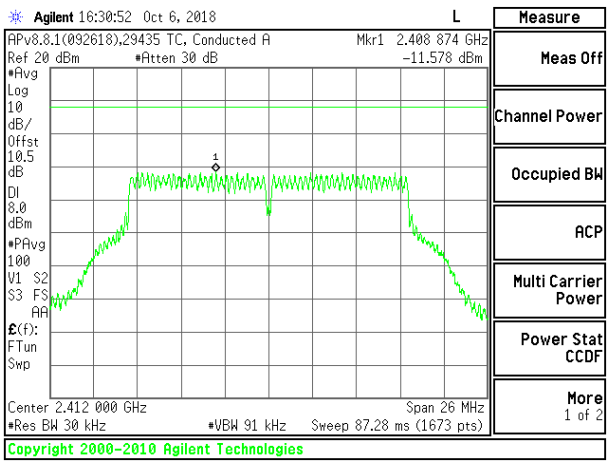
LOW CHANNEL 1

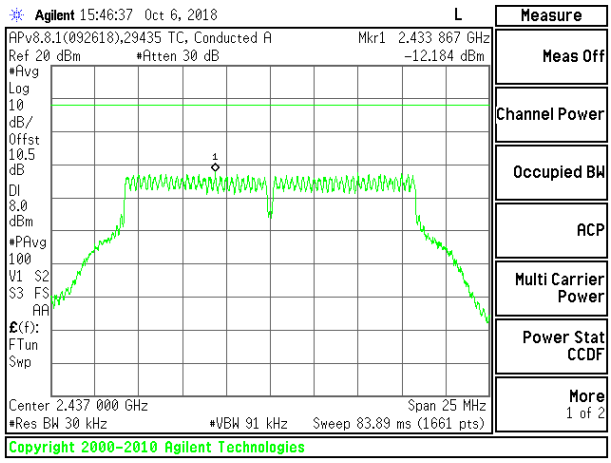


LOW CHANNEL 1 CHAIN 0

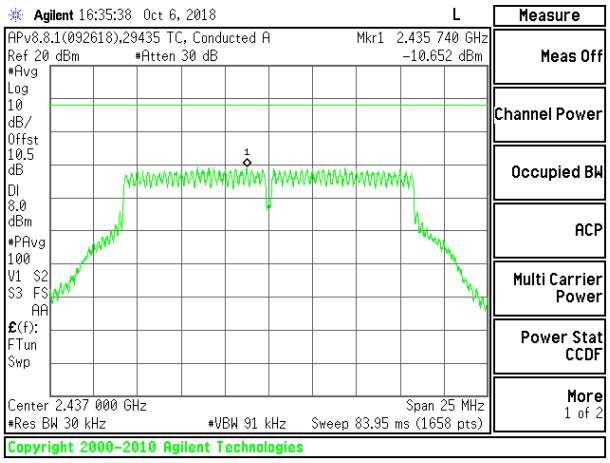


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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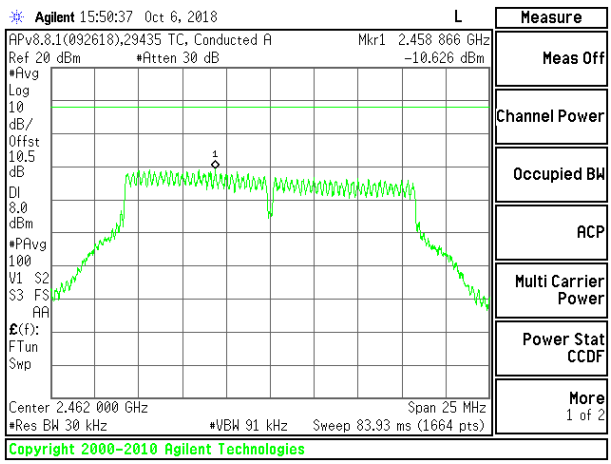
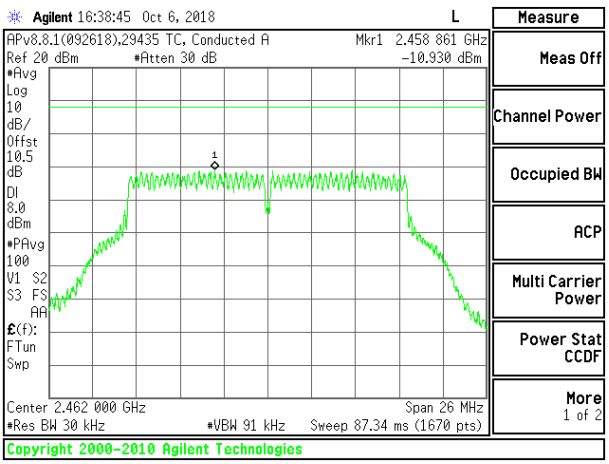
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.5.3. 802.11n HT20 MODE

2TX Antenna 1 + Antenna 2 CDD MODE

Duty Cycle CF (dB)	0.52	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Antenna Meas (dBm/ 3kHz)	Antenna Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-10.85	-11.05	-7.42	8.0	-15.4
Mid 6	2437	-11.96	-9.79	-7.21	8.0	-15.2
High 11	2462	-10.71	-10.91	-7.28	8.0	-15.3

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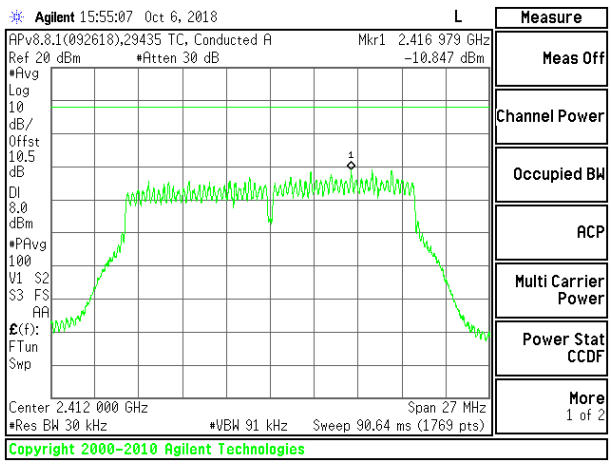
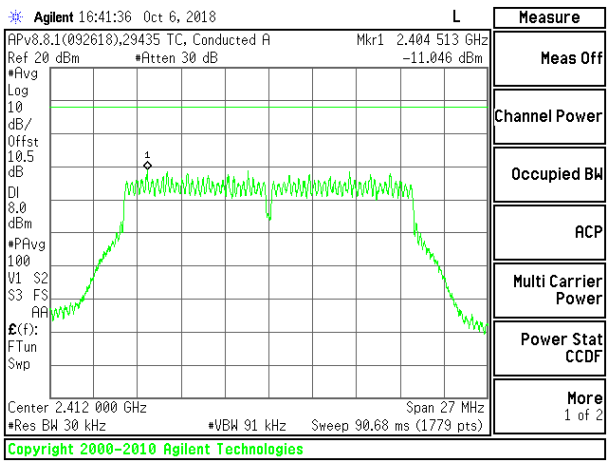
LOW CHANNEL 1

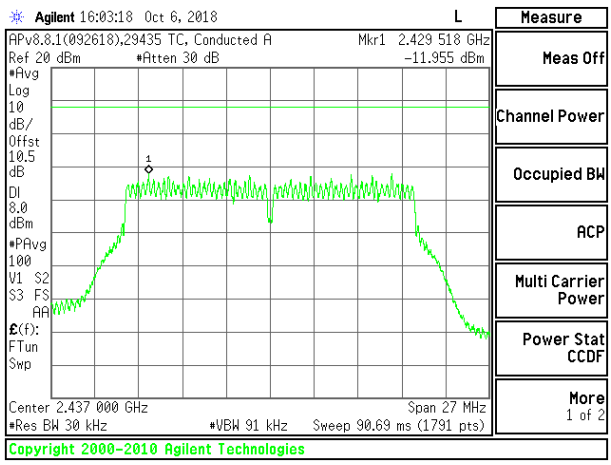


LOW CHANNEL 1 CHAIN 0

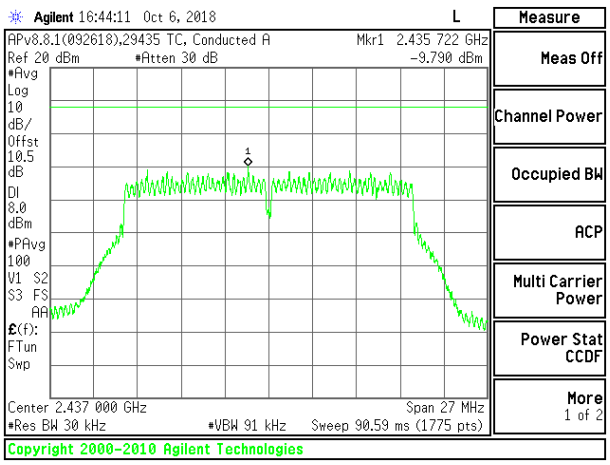


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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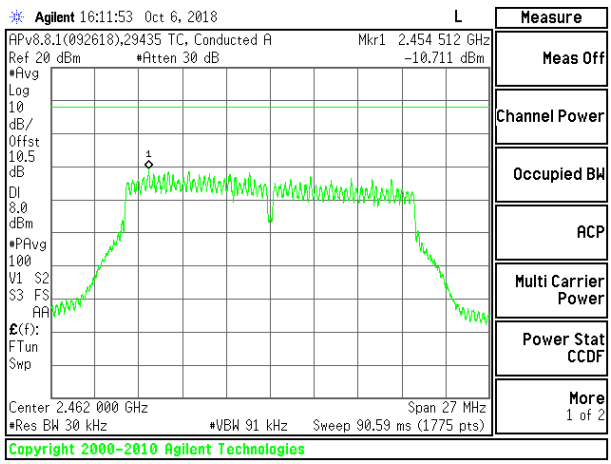
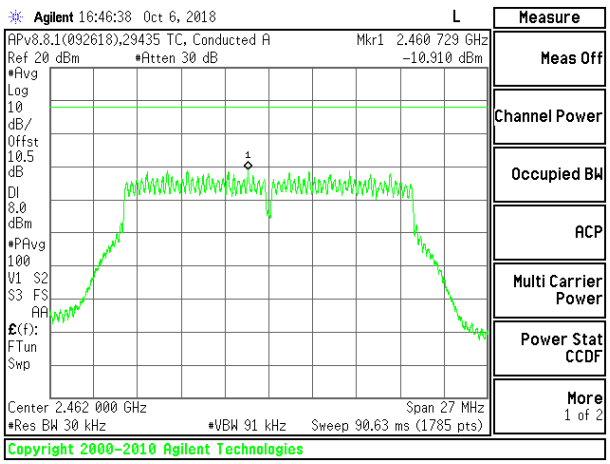
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

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

RESULTS

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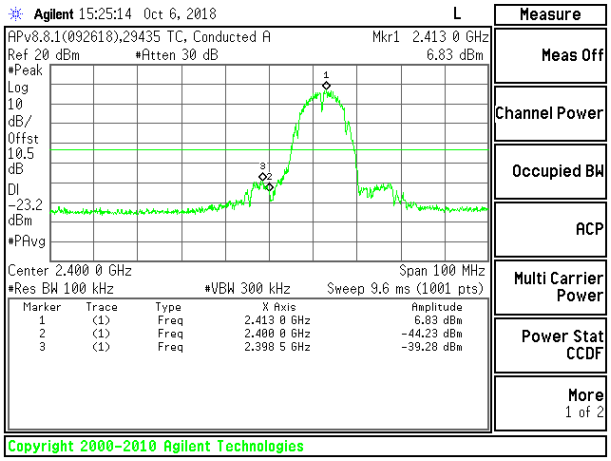
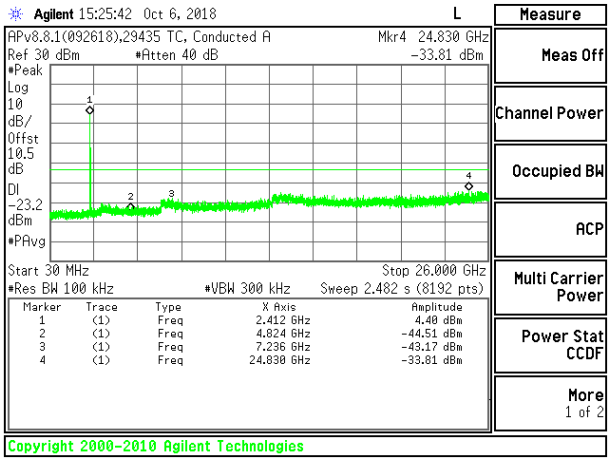
8.6.1. 802.11b MODE

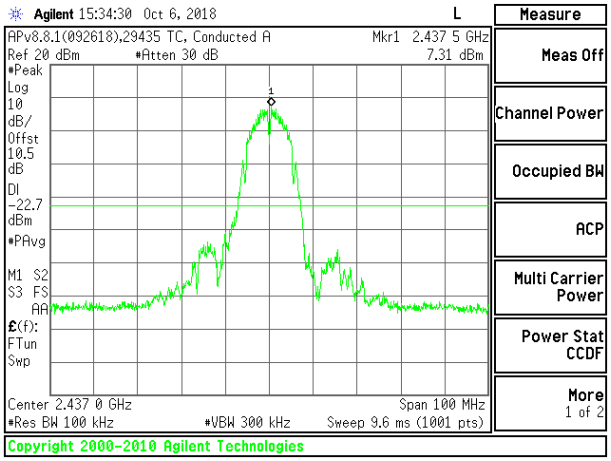
2TX Antenna 1 + Antenna 2 CDD MODE



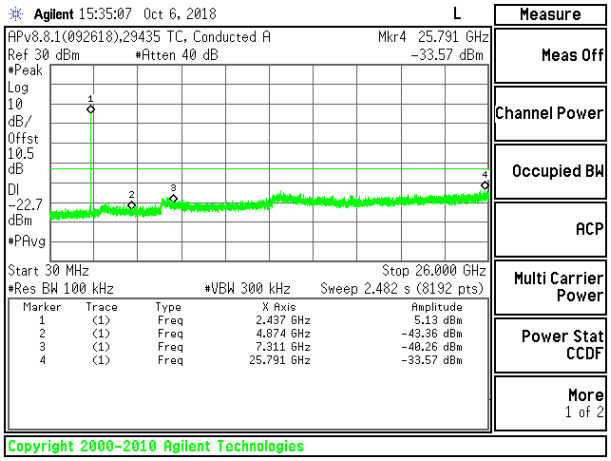
LOW CHANNEL 1 BANDEDGE CHAIN 0



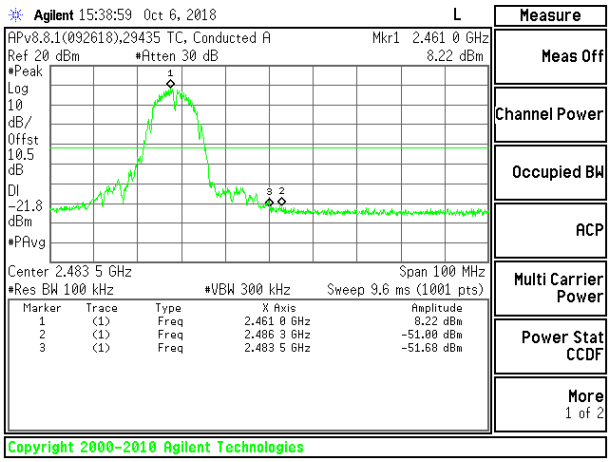
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



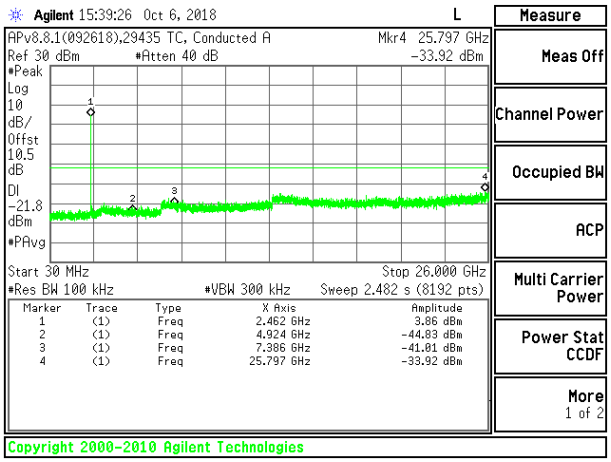
IN-BAND REFERENCE LEVEL CHAIN 0



OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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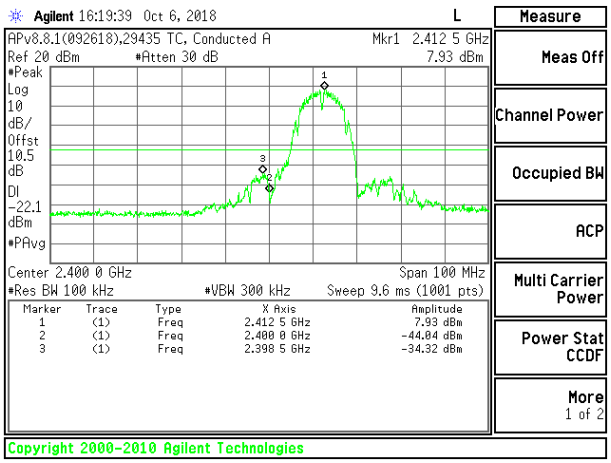
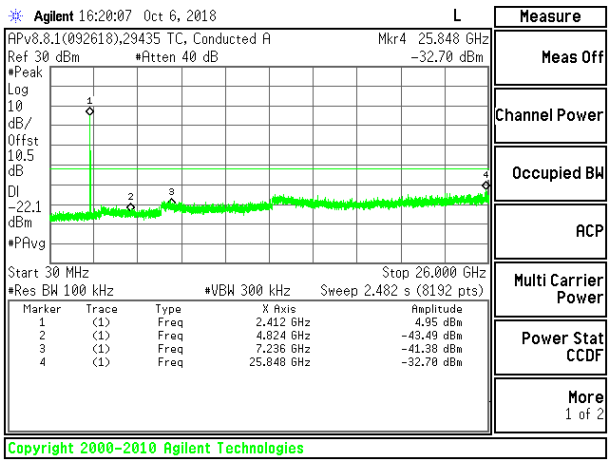
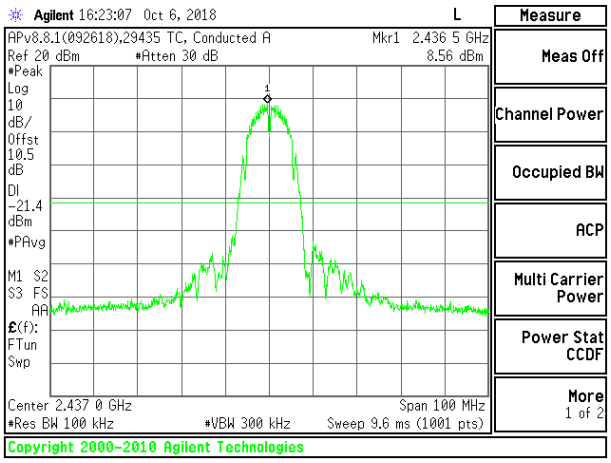


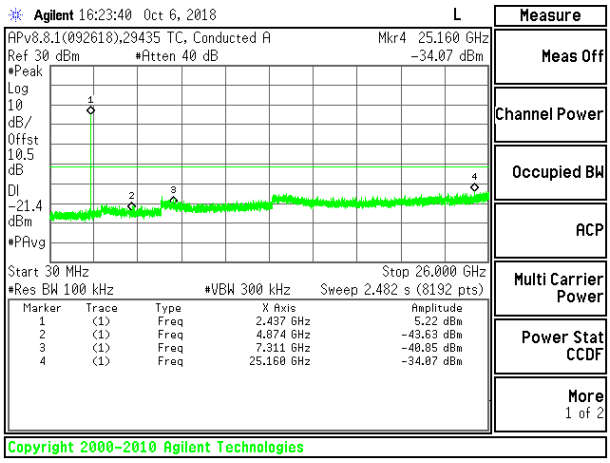
LOW CHANNEL 1 BANDEDGE CHAIN 1



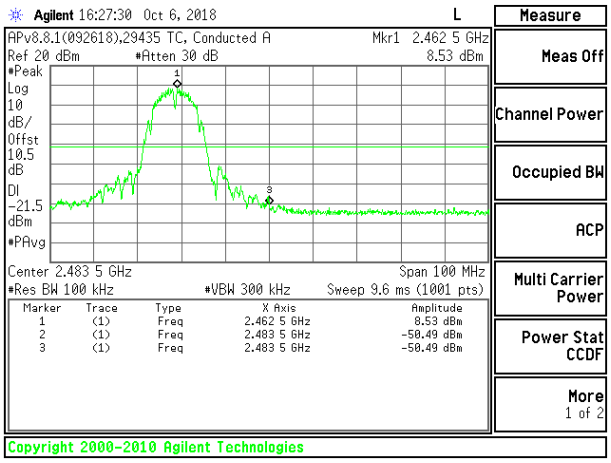
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



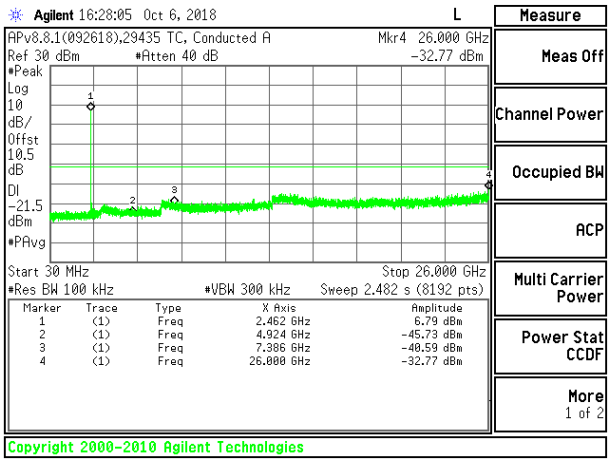
IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1



HIGH CHANNEL 11 BANDEDGE CHAIN 1



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1

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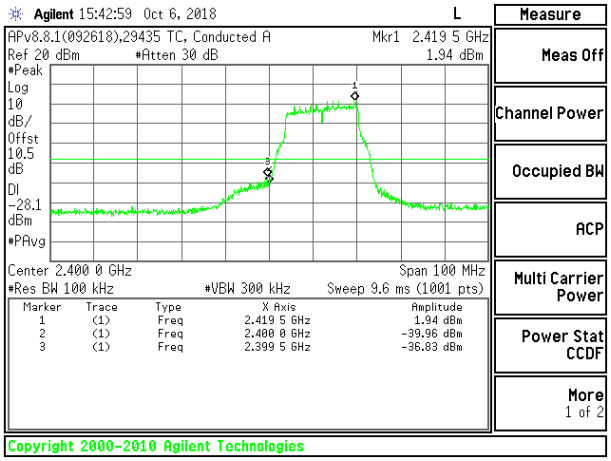
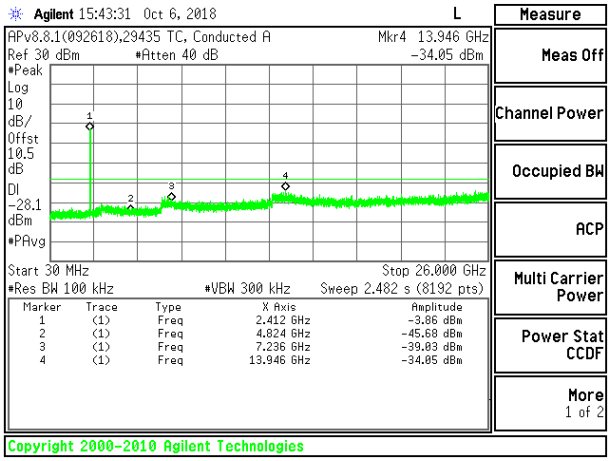
8.6.2. 802.11g MODE

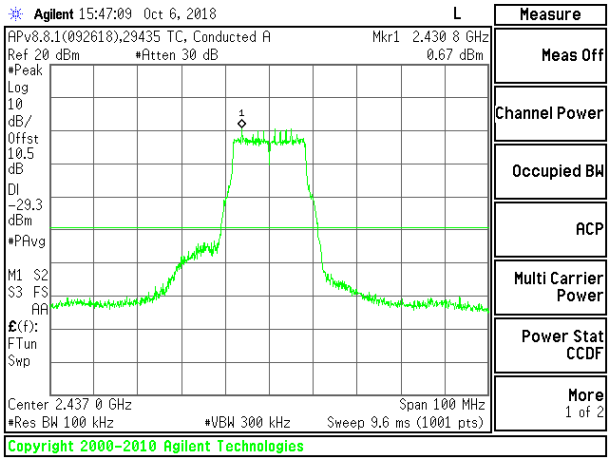
2TX Antenna 1 + Antenna 2 CDD MODE



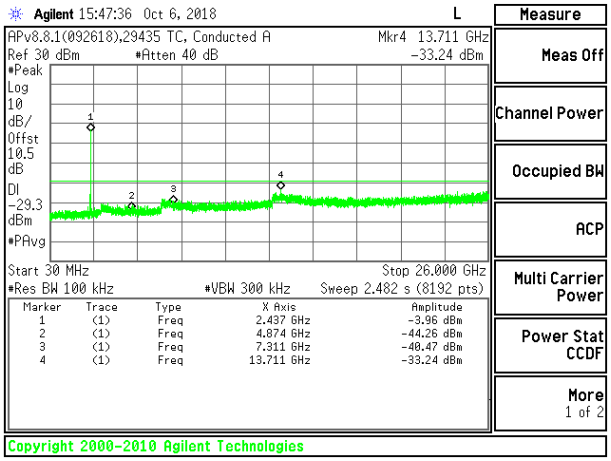
LOW CHANNEL 1 BANDEDGE CHAIN 0



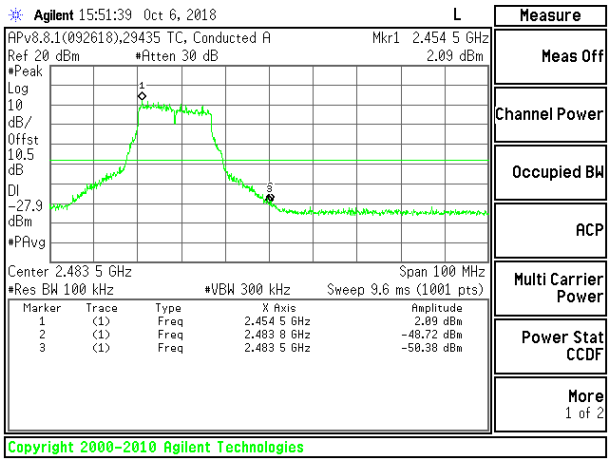
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



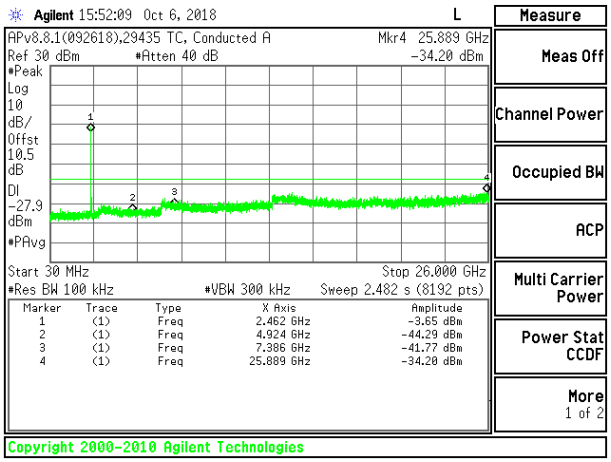
IN-BAND REFERENCE LEVEL CHAIN 0



OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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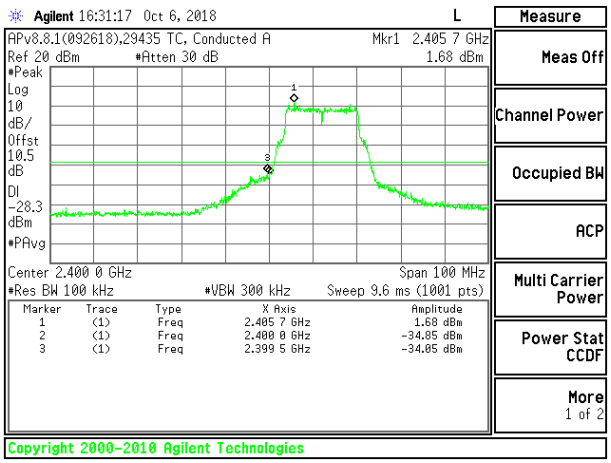
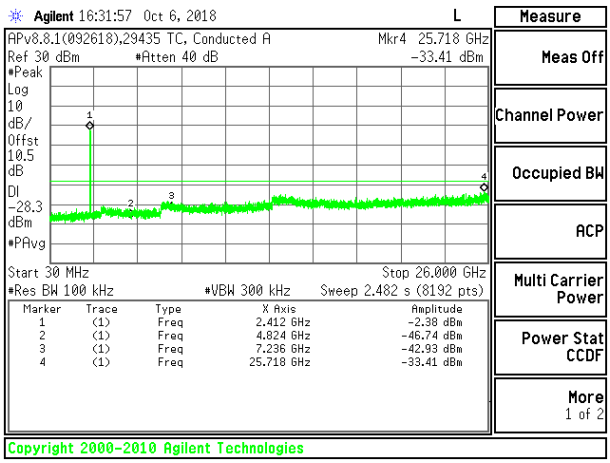
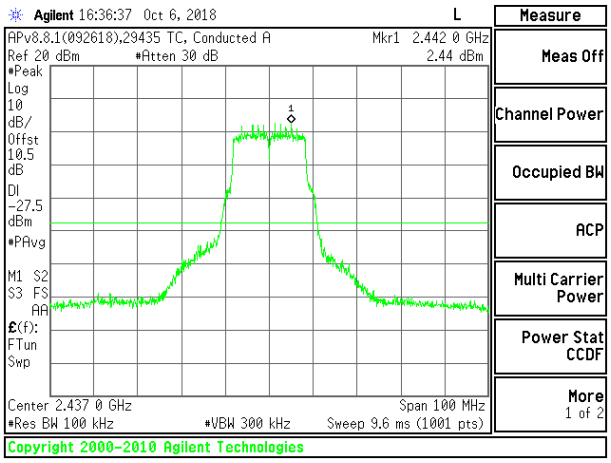


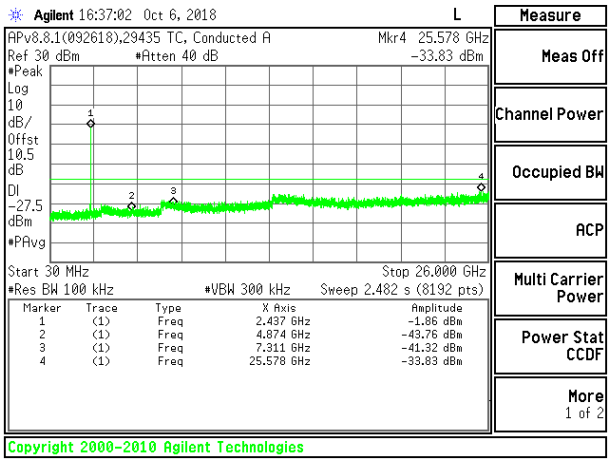
LOW CHANNEL 1 BANDEDGE CHAIN 1



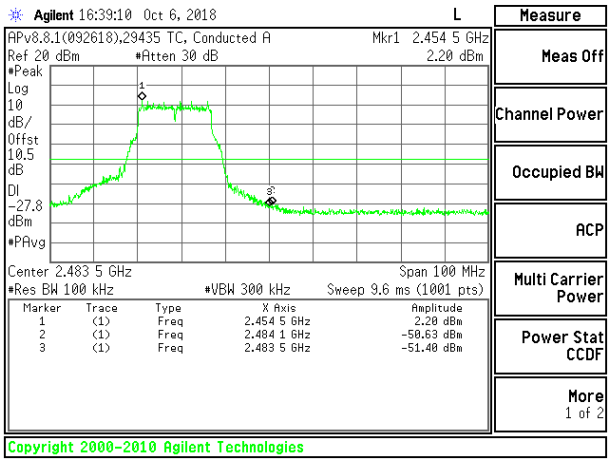
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



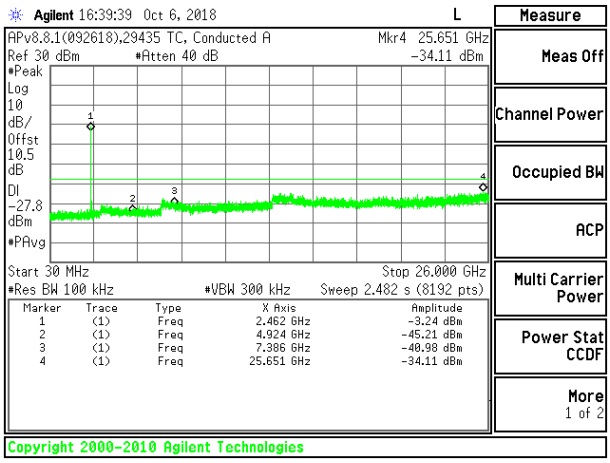
IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1



HIGH CHANNEL 11 BANDEDGE CHAIN 1



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1

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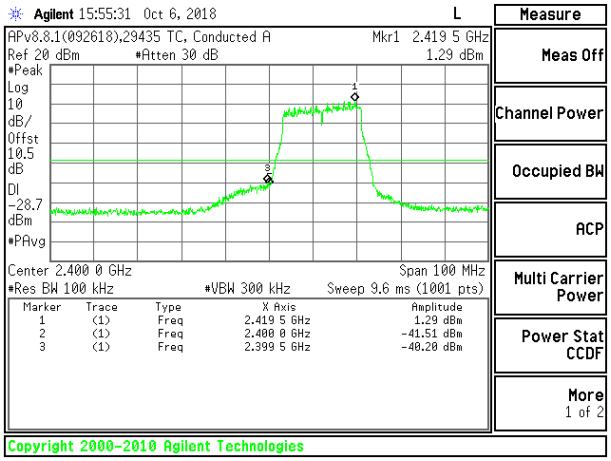
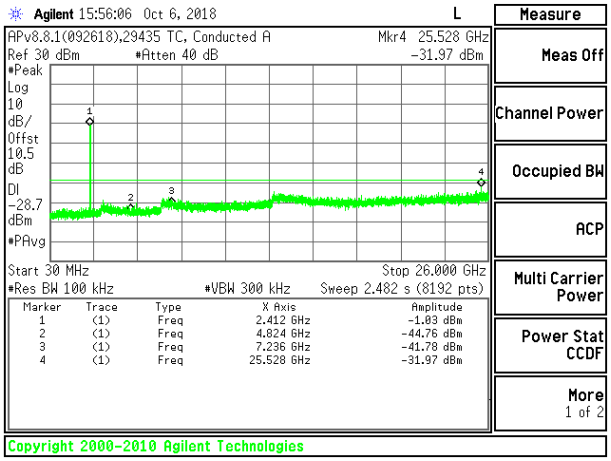
8.6.3. 802.11n HT20 MODE

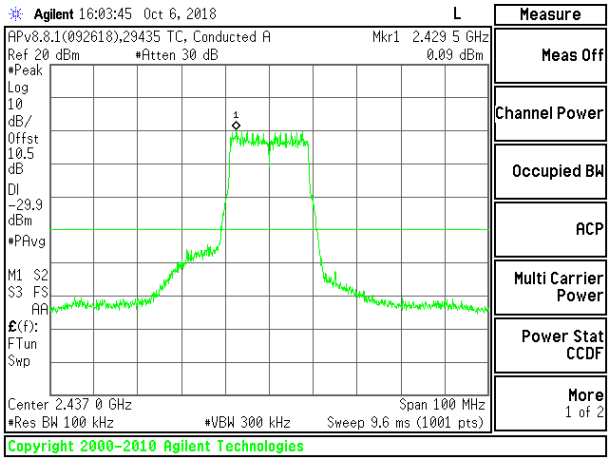
2TX Antenna 1 + Antenna 2 CDD MODE



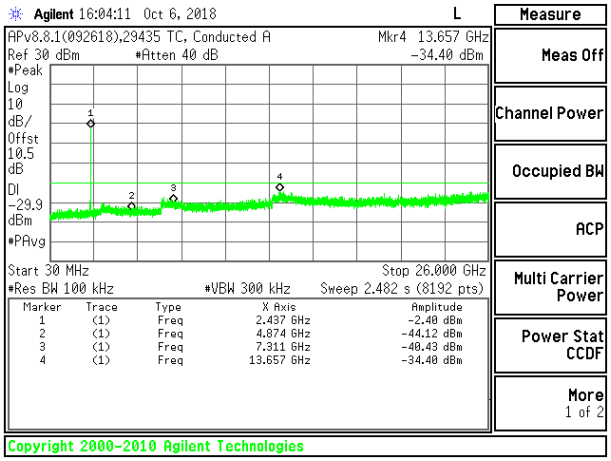
LOW CHANNEL 1 BANDEDGE CHAIN 0



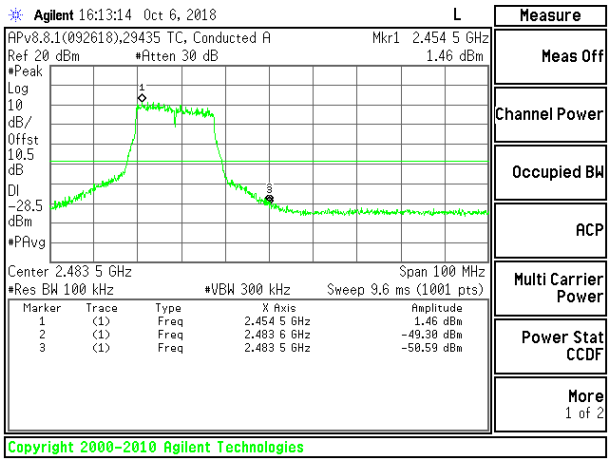
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



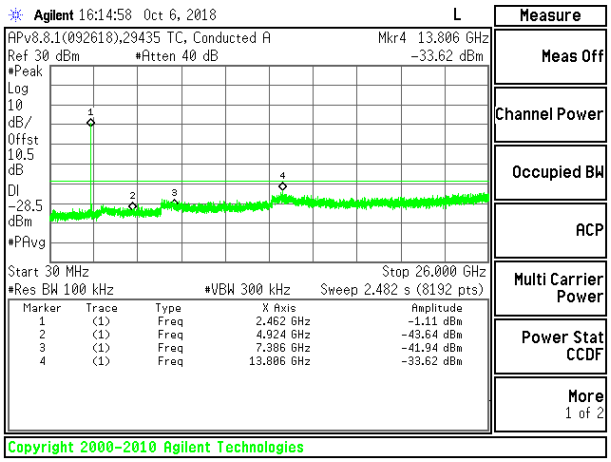
IN-BAND REFERENCE LEVEL CHAIN 0



OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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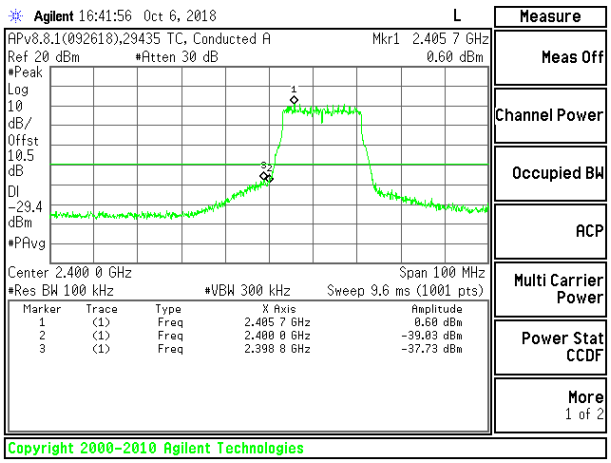
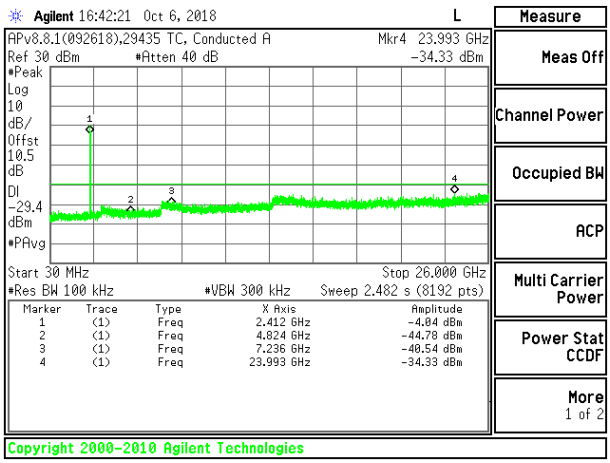
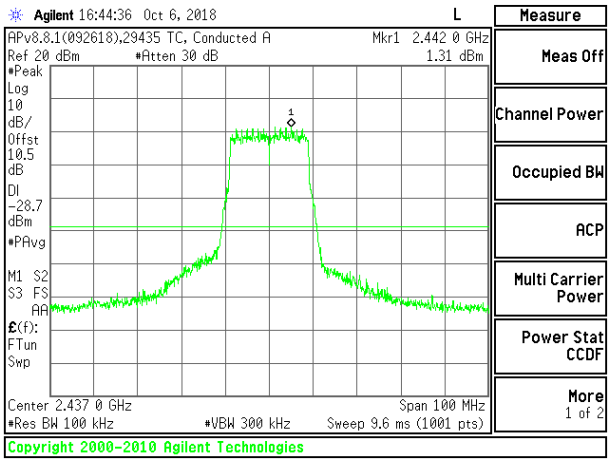


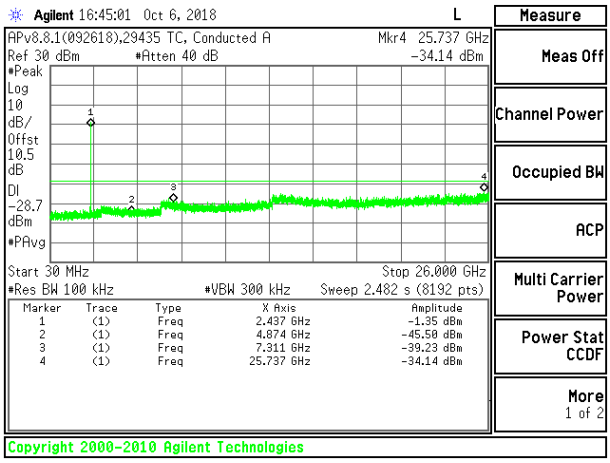
LOW CHANNEL 1 BANDEDGE CHAIN 1



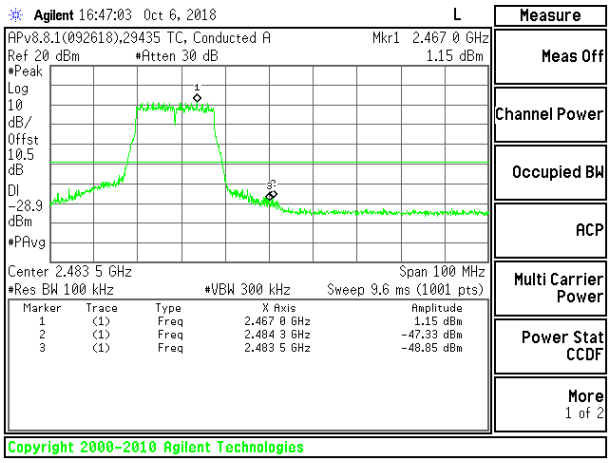
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



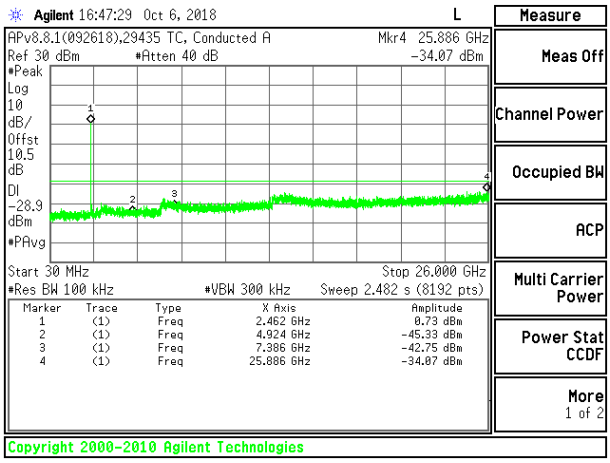
IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1



HIGH CHANNEL 11 BANDEDGE CHAIN 1



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1

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9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10

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

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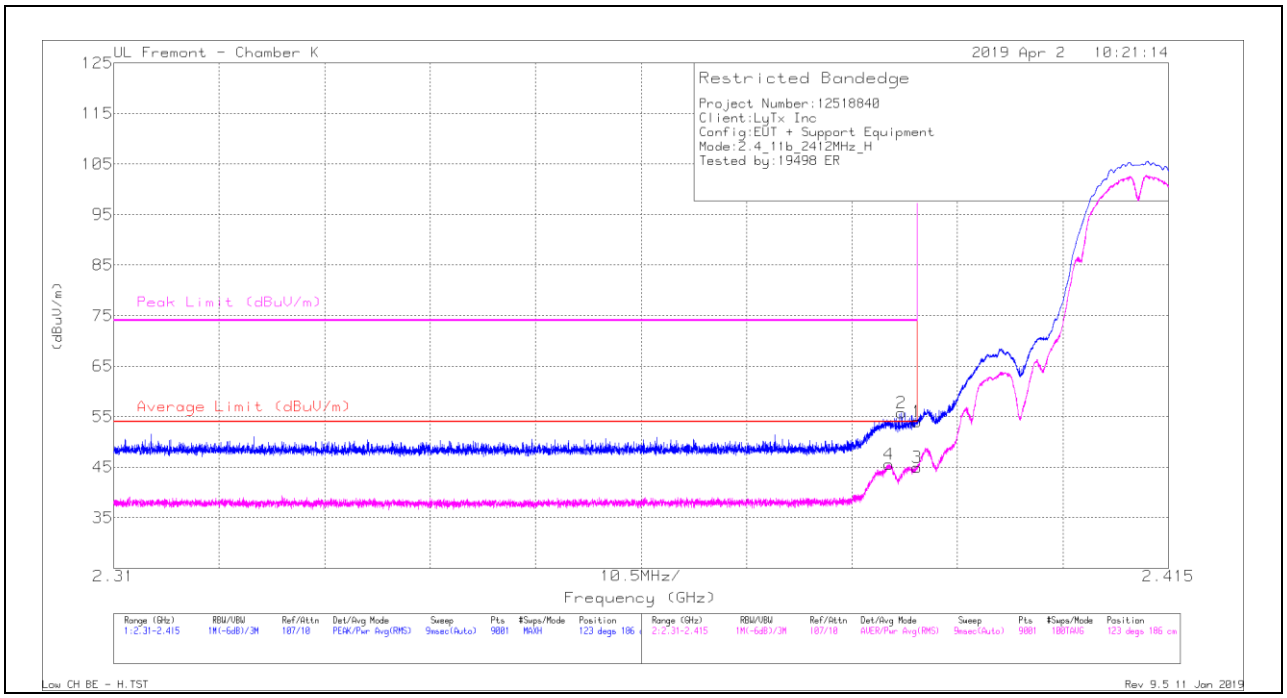
9.1. TRANSMITTER ABOVE 1 GHz

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

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /Pad (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	46.83	Pk	31.9	-24.7	54.03	-	-	74	-19.97	123	186	H
2	* 2.388	48.43	Pk	31.9	-24.6	55.73	-	-	74	-18.27	123	186	H
3	* 2.39	37.72	RMS	31.9	-24.7	44.92	54	-9.08	-	-	123	186	H
4	* 2.387	38.27	RMS	31.9	-24.6	45.57	54	-8.43	-	-	123	186	H

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

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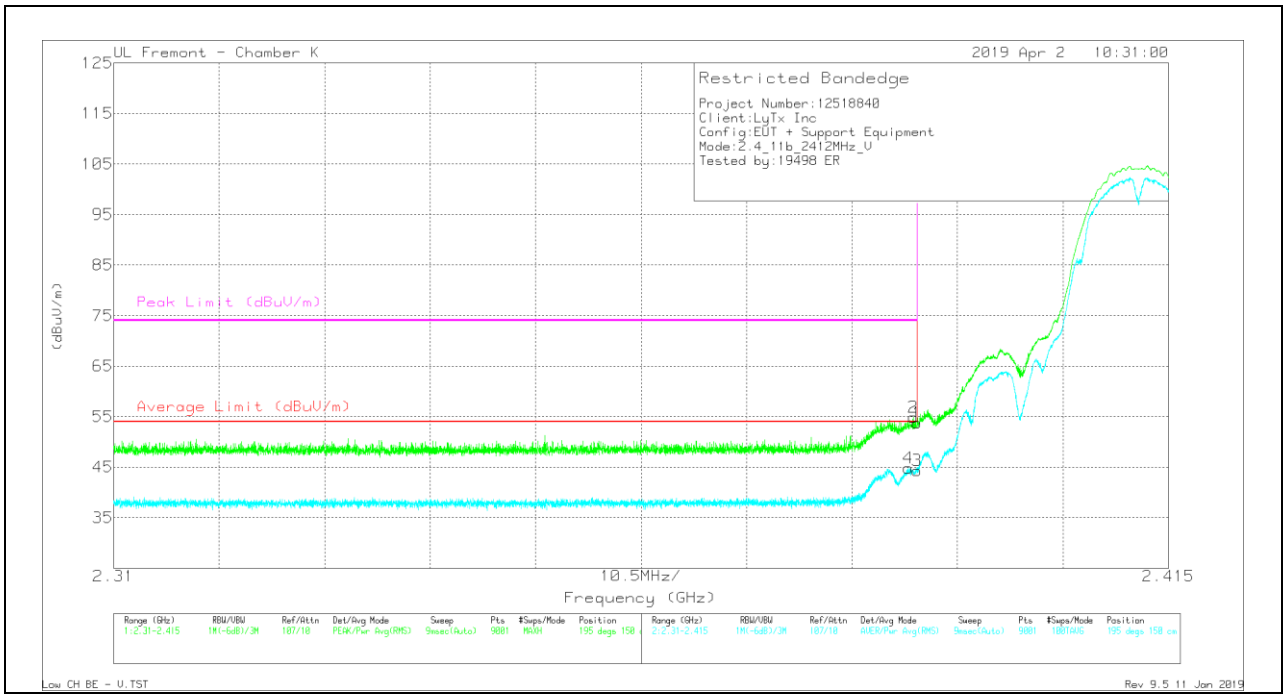
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /Pad (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	46.56	Pk	31.9	-24.7	53.76	-	-	74	-20.24	195	150	V
2	* 2.39	47.71	Pk	31.9	-24.7	54.91	-	-	74	-19.09	195	150	V
3	* 2.39	37.17	RMS	31.9	-24.7	44.37	54	-9.63	-	-	195	150	V
4	* 2.389	37.63	RMS	31.9	-24.7	44.83	54	-9.17	-	-	195	150	V

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

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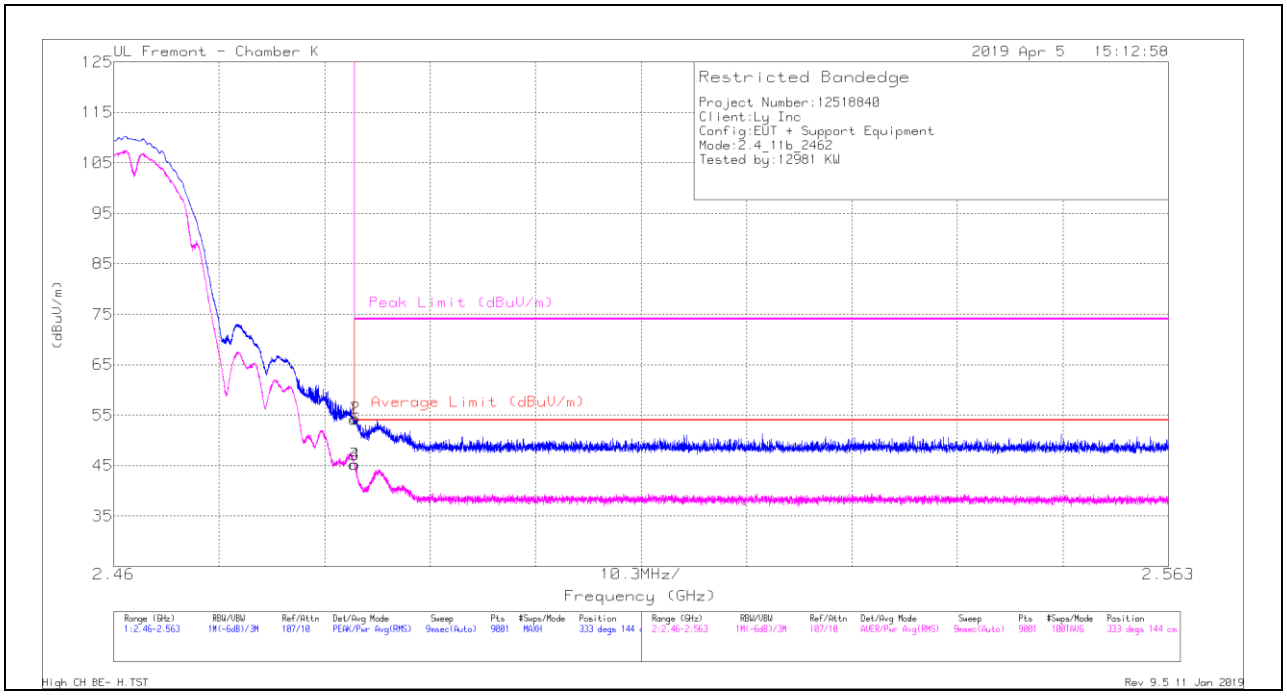
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /Pad (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	46.61	Pk	32.3	-24.8	54.11	-	-	74	-19.89	333	144	H
2	* 2.484	46.89	Pk	32.3	-24.8	54.39	-	-	74	-19.61	333	144	H
3	* 2.484	37.7	RMS	32.3	-24.8	45.2	54	-8.8	-	-	333	144	H
4	* 2.484	37.71	RMS	32.3	-24.8	45.21	54	-8.79	-	-	333	144	H

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

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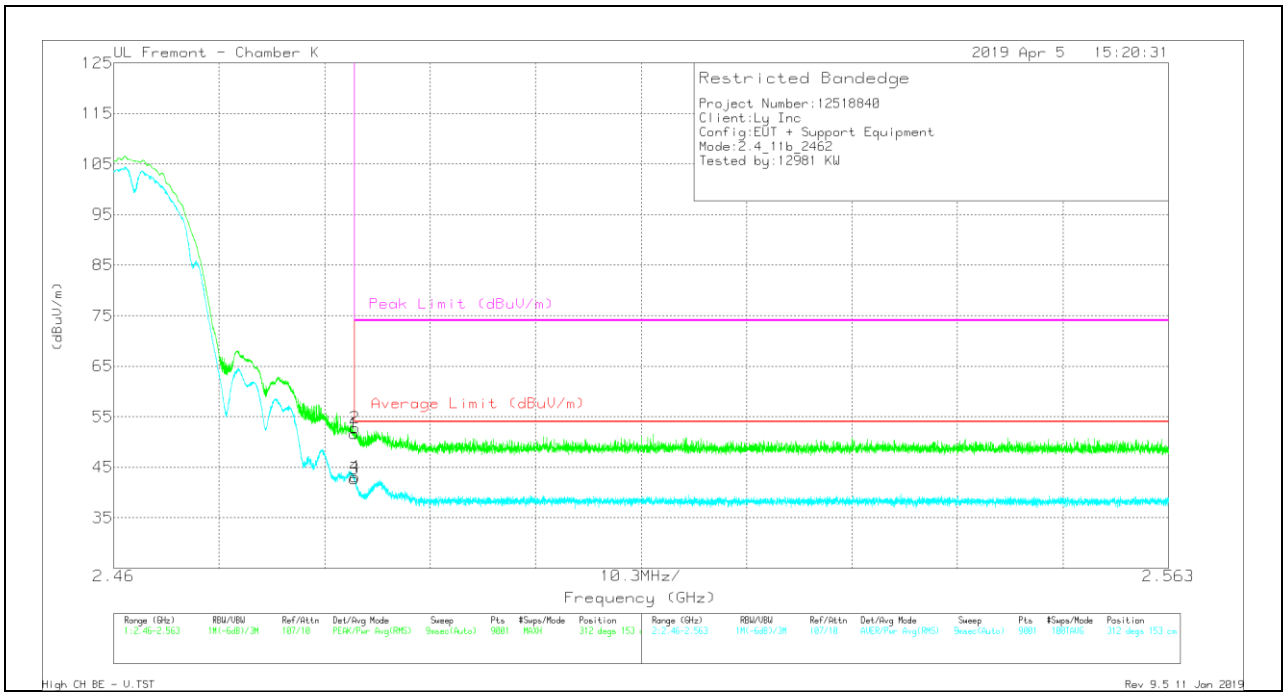
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr /Pad (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	44.18	Pk	32.3	-24.8	51.68	-	-	74	-22.32	312	153	V
2	* 2.484	45.28	Pk	32.3	-24.8	52.78	-	-	74	-21.22	312	153	V
3	* 2.484	35.18	RMS	32.3	-24.8	42.68	54	-11.32	-	-	312	153	V
4	* 2.484	35.57	RMS	32.3	-24.8	43.07	54	-10.93	-	-	312	153	V

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

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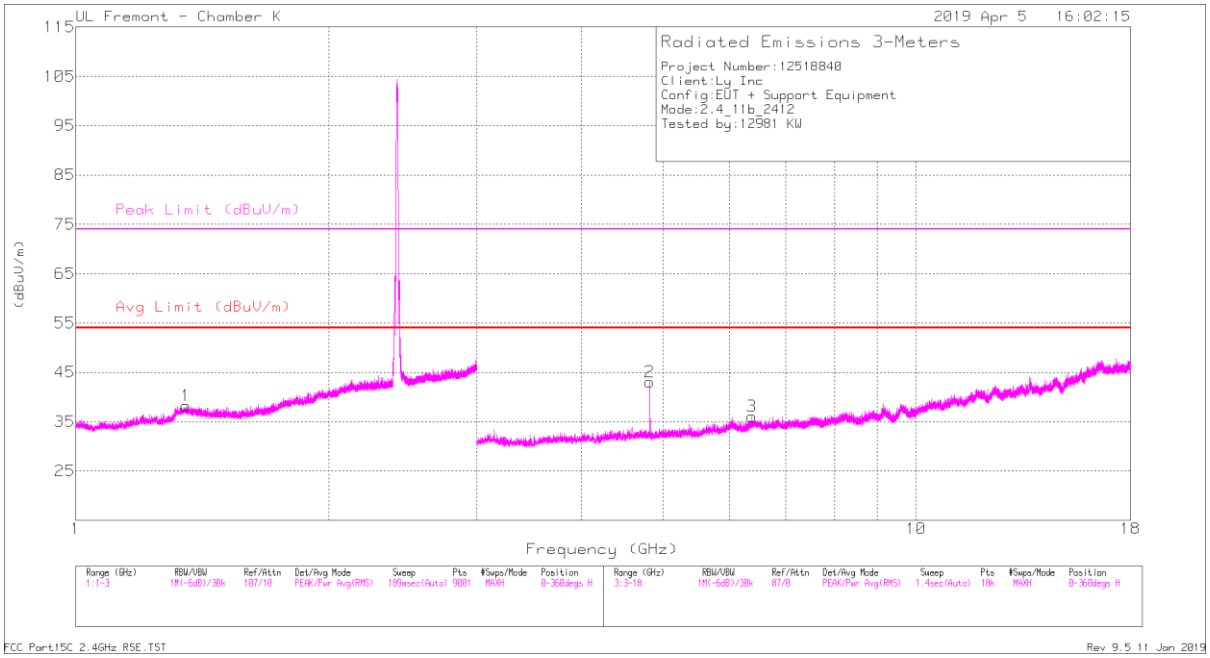
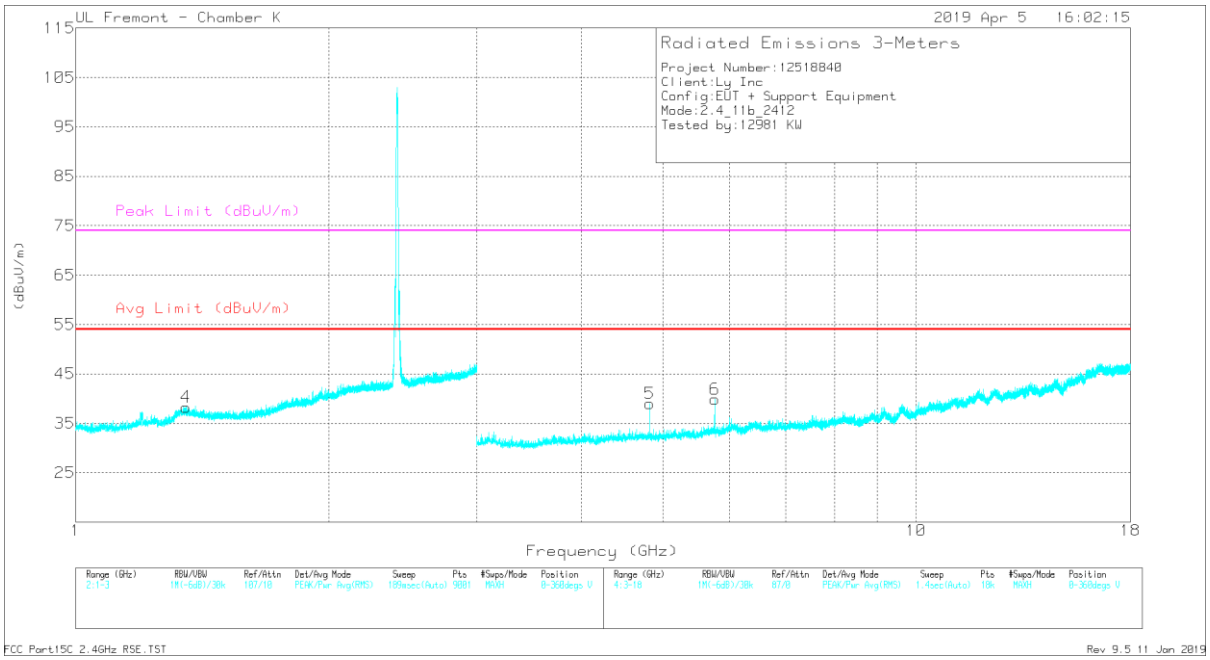
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.352	31.21	PK2	29.4	-16.9	43.71	-	-	74	-30.29	127	175	H
* 1.354	23.05	MAv1	29.4	-16.9	35.55	54	-18.45	-	-	127	175	H
* 1.354	30.64	PK2	29.4	-16.9	43.14	-	-	74	-30.86	190	216	V
* 1.352	22.33	MAv1	29.4	-16.9	34.83	54	-19.17	-	-	190	216	V
* 4.824	42.62	PK2	34.1	-30.4	46.32	-	-	74	-27.68	190	116	H
* 4.824	38.58	MAv1	34.1	-30.4	42.28	54	-11.72	-	-	190	116	H
* 4.824	39.42	PK2	34.1	-30.4	43.12	-	-	74	-30.88	164	116	V
* 4.824	34.07	MAv1	34.1	-30.4	37.77	54	-16.23	-	-	164	116	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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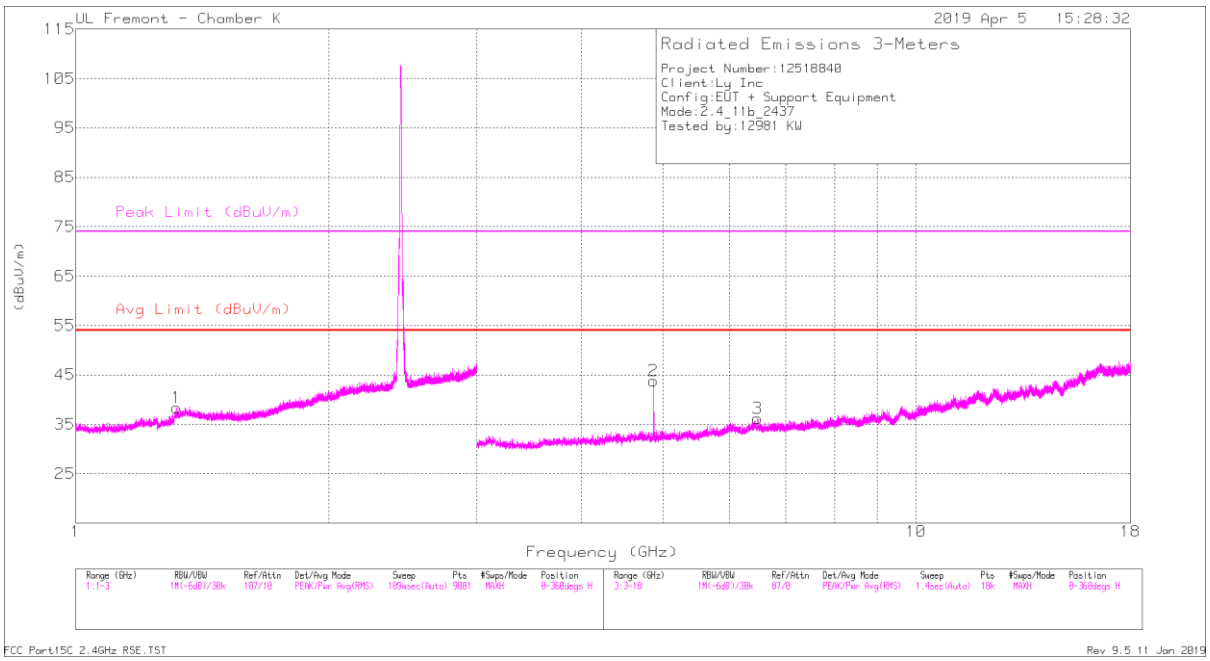
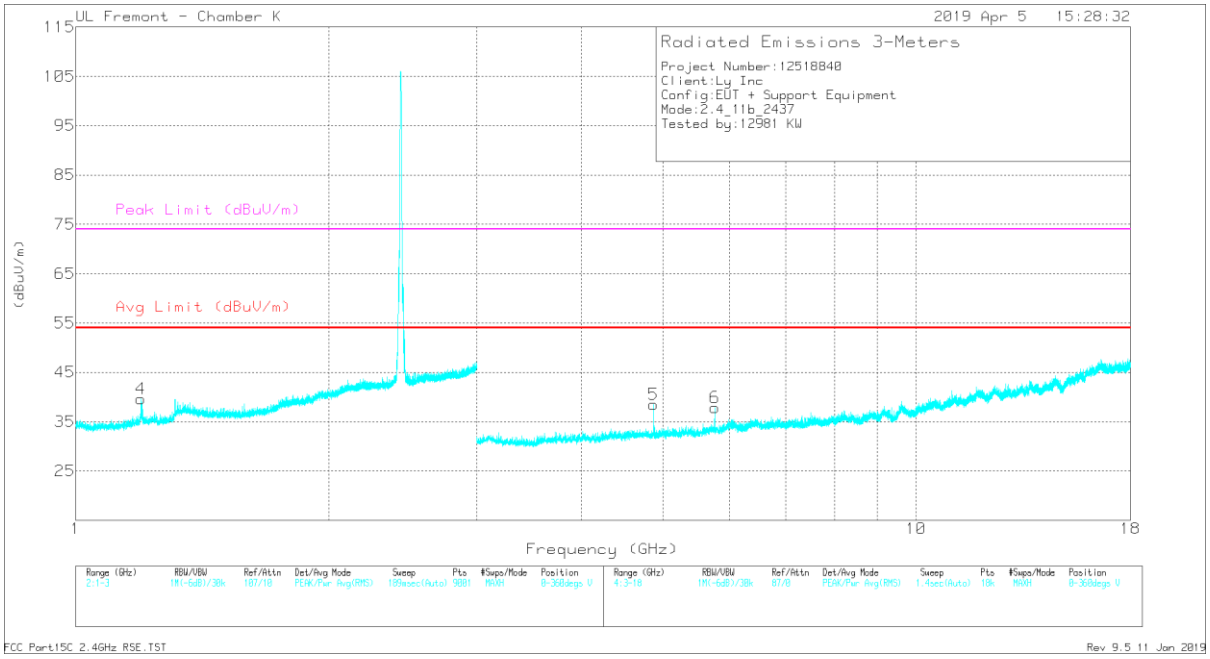
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.319	30.11	PK2	29	-16.9	42.21	-	-	74	-31.79	225	160	H
* 1.32	22.4	MAv1	29	-16.9	34.5	54	-19.5	-	-	225	160	H
* 1.197	30.87	PK2	28.2	-17.5	41.57	-	-	74	-32.43	152	201	V
* 1.194	22.58	MAv1	28.1	-17.5	33.18	54	-20.82	-	-	152	201	V
* 4.874	44.71	PK2	34.1	-30.5	48.31	-	-	74	-25.69	167	102	H
* 4.874	40.5	MAv1	34.1	-30.5	44.1	54	-9.9	-	-	167	102	H
* 4.874	41.75	PK2	34.1	-30.5	45.35	-	-	74	-28.65	117	252	V
* 4.874	37.31	MAv1	34.1	-30.5	40.91	54	-13.09	-	-	117	252	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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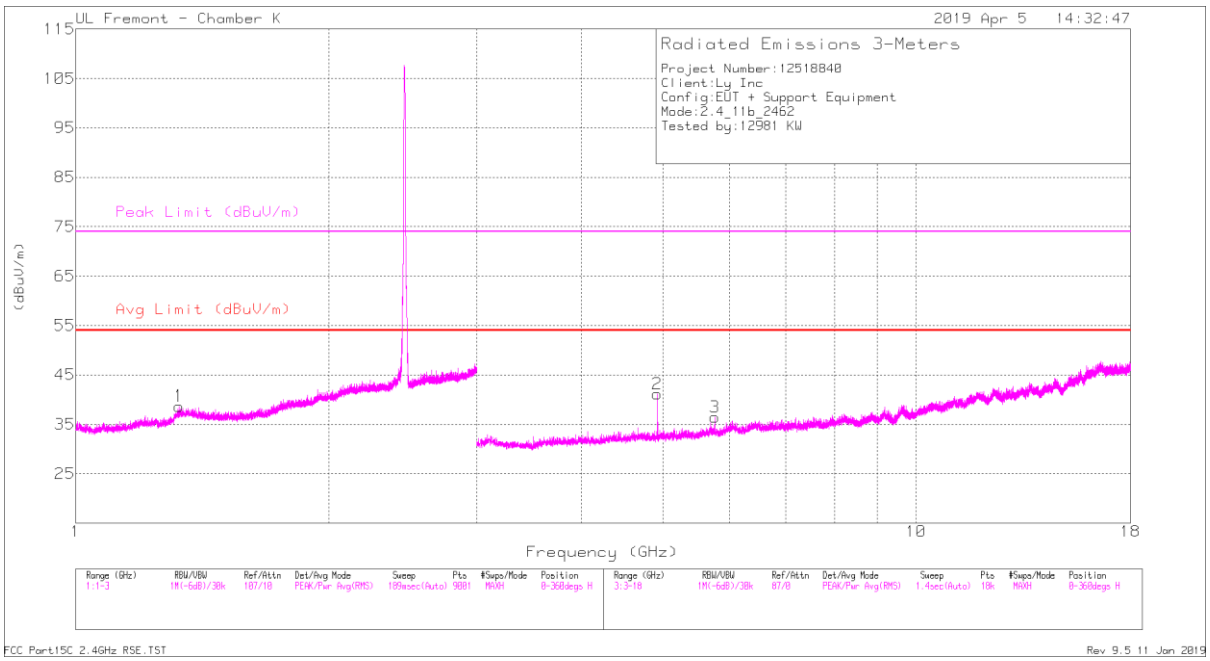
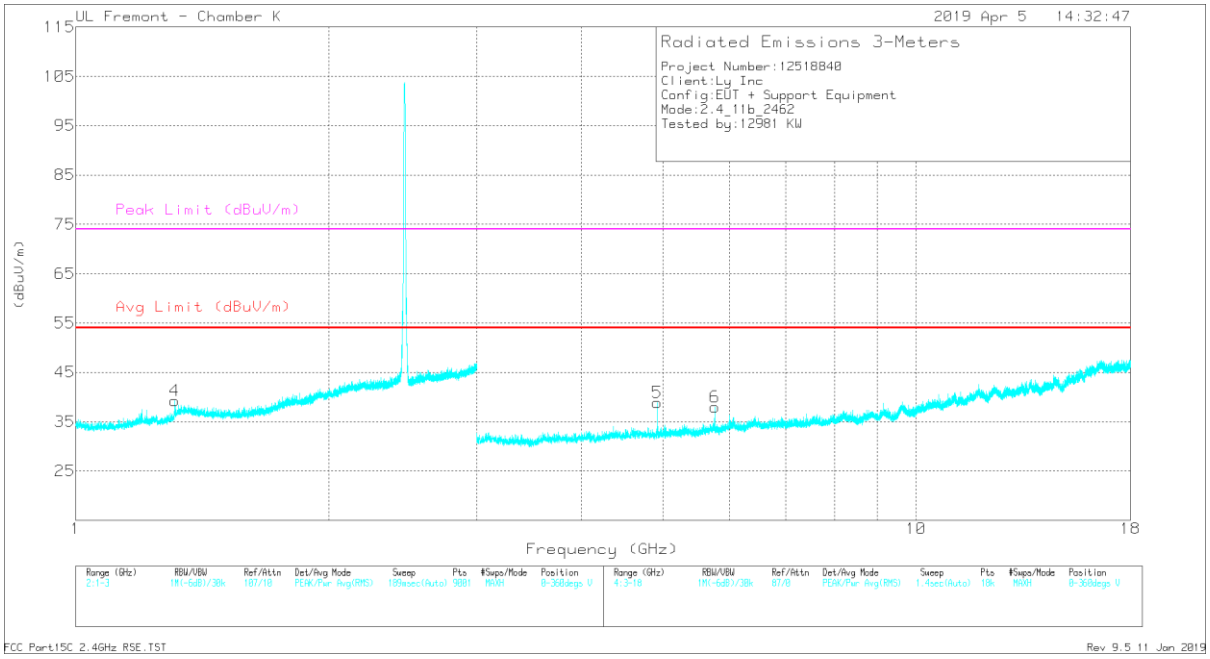
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.329	30.62	PK2	29.2	-16.9	42.92	-	-	74	-31.08	116	138	H
* 1.326	22.72	MAv1	29.1	-16.9	34.92	54	-19.08	-	-	116	138	H
* 1.313	31.67	PK2	28.9	-17.1	43.47	-	-	74	-30.53	206	186	V
* 1.313	22.47	MAv1	28.9	-17.1	34.27	54	-19.73	-	-	206	186	V
* 4.924	41.04	PK2	34.2	-30.6	44.64	-	-	74	-29.36	201	102	H
* 4.924	36.6	MAv1	34.2	-30.6	40.2	54	-13.8	-	-	201	102	H
* 4.924	40.1	PK2	34.2	-30.6	43.7	-	-	74	-30.3	145	234	V
* 4.924	34.77	MAv1	34.2	-30.6	38.37	54	-15.63	-	-	145	234	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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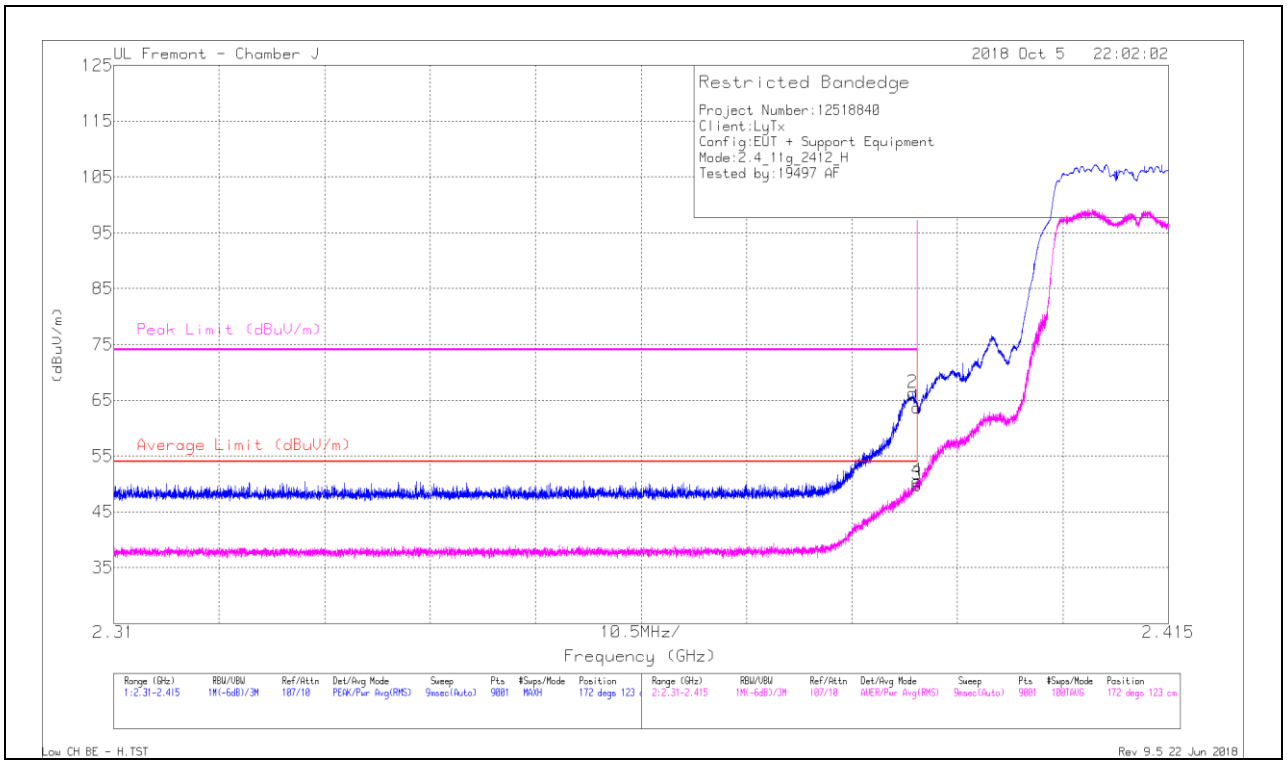
9.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	57.55	Pk	32	-25.8	0	63.75	-	-	74	-10.25	172	123	H
2	* 2.39	60.06	Pk	32	-25.8	0	66.26	-	-	74	-7.74	172	123	H
3	* 2.39	43.36	RMS	32	-25.8	.3	49.86	54	-4.14	-	-	172	123	H
4	* 2.39	44.03	RMS	32	-25.8	.3	50.53	54	-3.47	-	-	172	123	H

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

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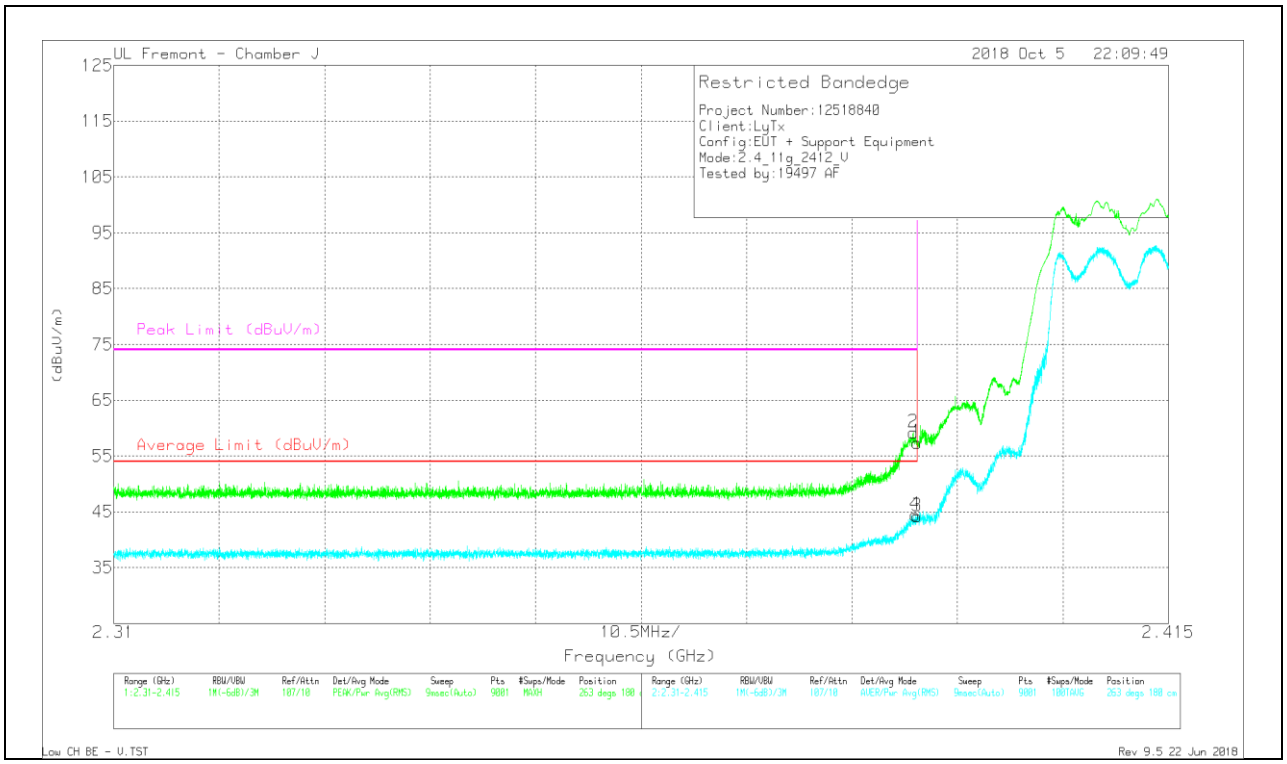
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	-25.8	0	57.43	-	-	74	-16.57	263	180	V
2	* 2.39	53.01	Pk	32	-25.8	0	59.21	-	-	74	-14.79	263	180	V
3	* 2.39	37.98	RMS	32	-25.8	.3	44.48	54	-9.52	-	-	263	180	V
4	* 2.39	38.31	RMS	32	-25.8	.3	44.81	54	-9.19	-	-	263	180	V

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

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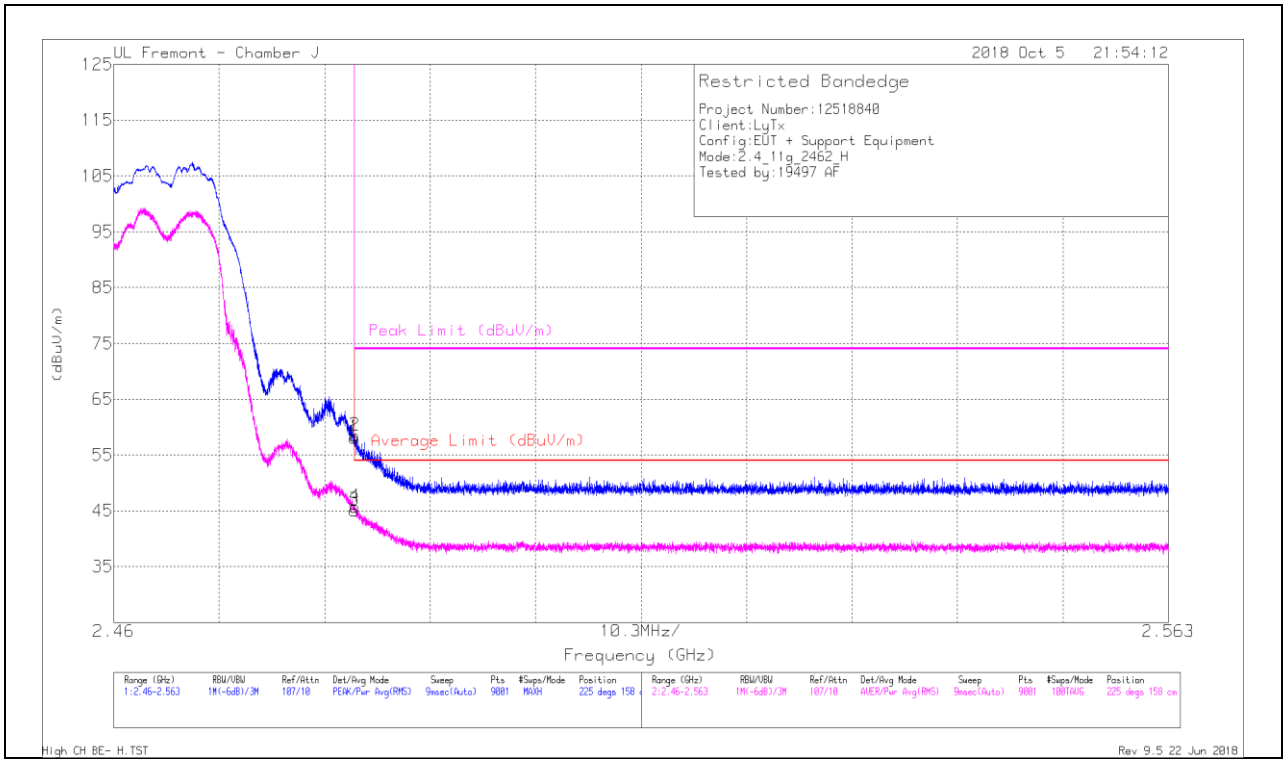
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	51.42	Pk	32.5	-25.8	0	58.12	-	-	74	-15.88	225	158	H
2	* 2.484	51.83	Pk	32.5	-25.8	0	58.53	-	-	74	-15.47	225	158	H
3	* 2.484	38.04	RMS	32.5	-25.8	.3	45.04	54	-8.96	-	-	225	158	H
4	* 2.484	38.67	RMS	32.5	-25.8	.3	45.67	54	-8.33	-	-	225	158	H

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

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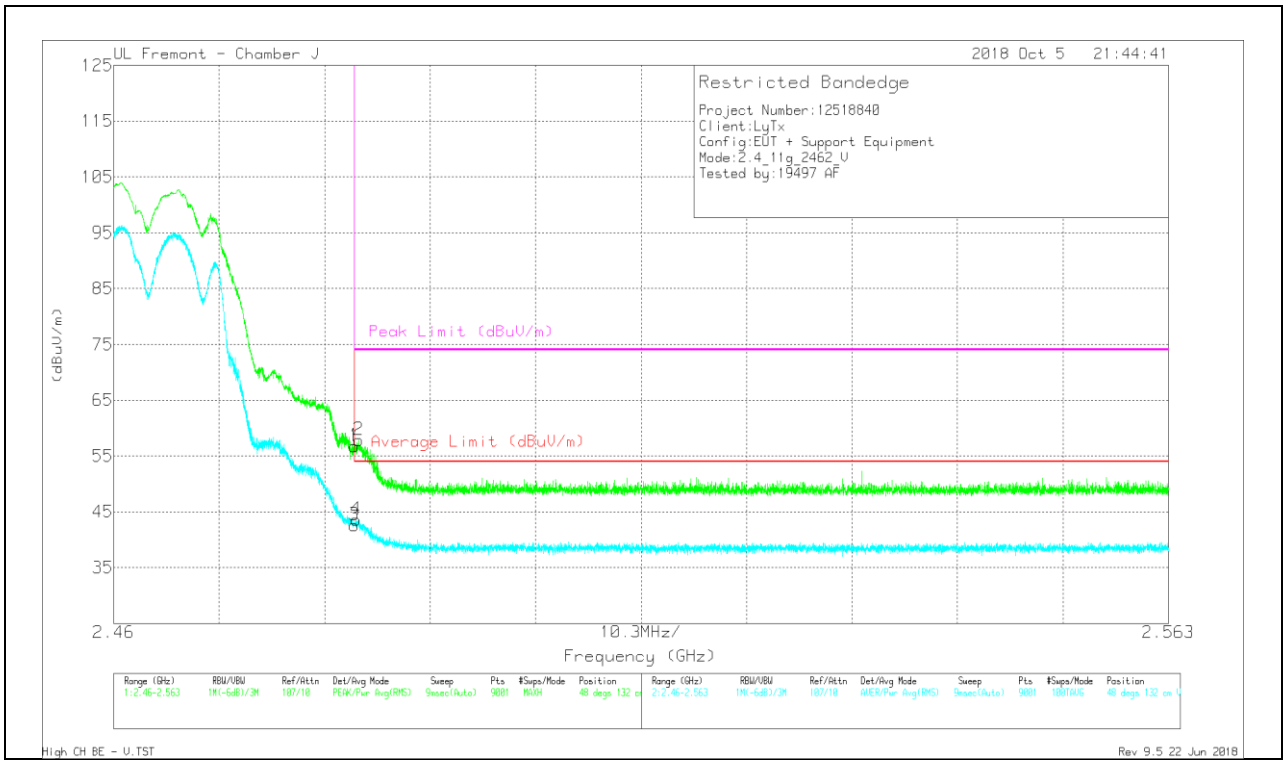
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	50.01	Pk	32.5	-25.8	0	56.71	-	-	74	-17.29	48	132	V
2	* 2.484	51.16	Pk	32.5	-25.8	0	57.86	-	-	74	-16.14	48	132	V
3	* 2.484	35.6	RMS	32.5	-25.8	.3	42.6	54	-11.4	-	-	48	132	V
4	* 2.484	36.54	RMS	32.5	-25.8	.3	43.54	54	-10.46	-	-	48	132	V

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

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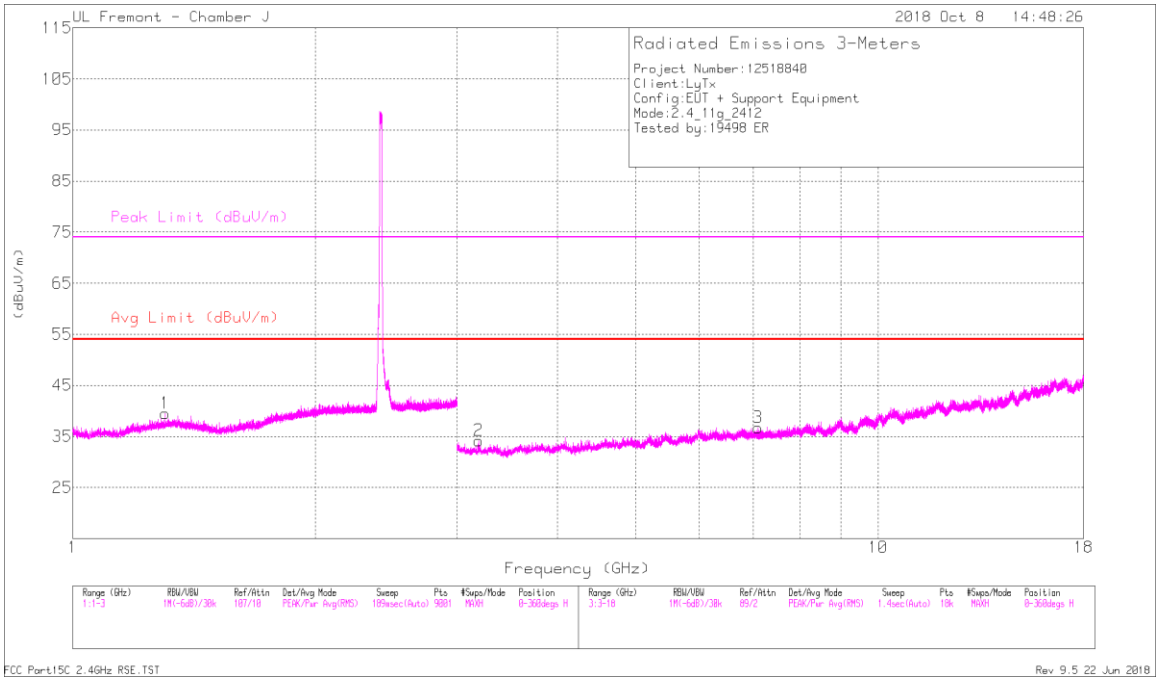
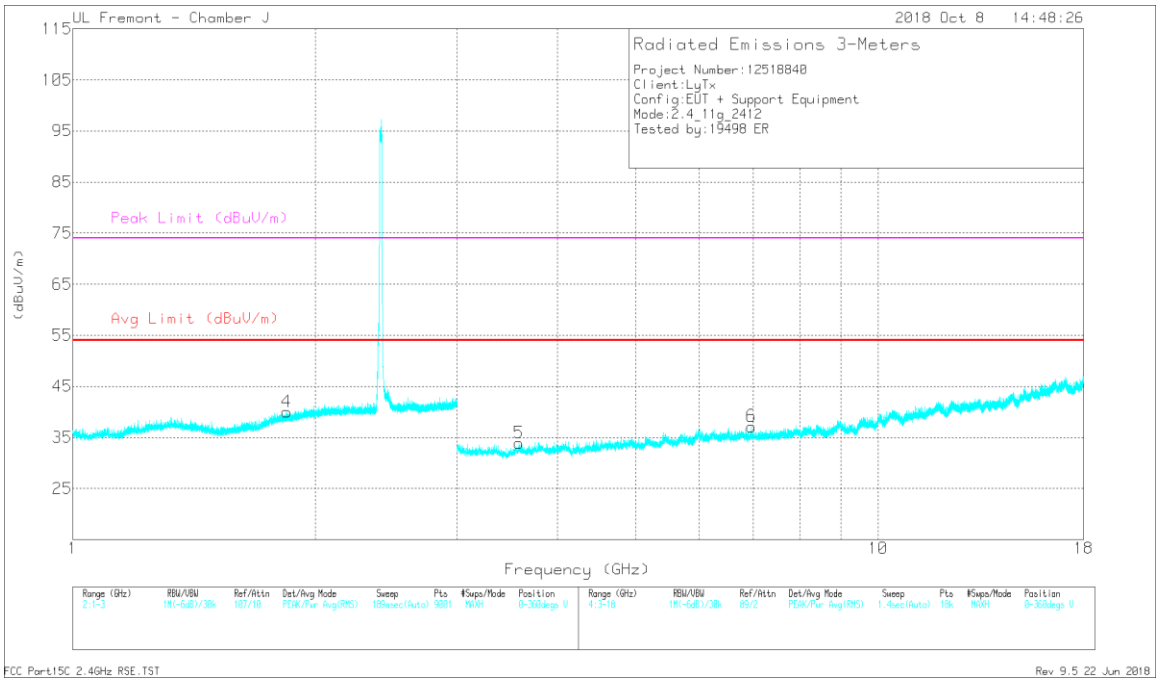
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
1.301	42.19	Pk	29.2	-26.1	0	45.29	-	-	-	-	106	160	H
1.844	41.98	PK2	30.7	-26.1	0	46.58	-	-	-	-	240	128	V
3.191	40.04	PK2	33.2	-34.2	0	39.04	-	-	-	-	125	179	H
7.089	33.81	PK2	35.6	-27.6	0	41.81	-	-	-	-	284	203	H
6.965	34.19	PK2	35.7	-27.7	0	42.19	-	-	-	-	224	252	V
* 3.582	38.61	PK2	33	-33	0	38.61	-	-	74	-35.39	169	150	V
* 3.586	30.86	MAv1	33	-33.1	.3	31.06	54	-22.94	-	-	169	150	V

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

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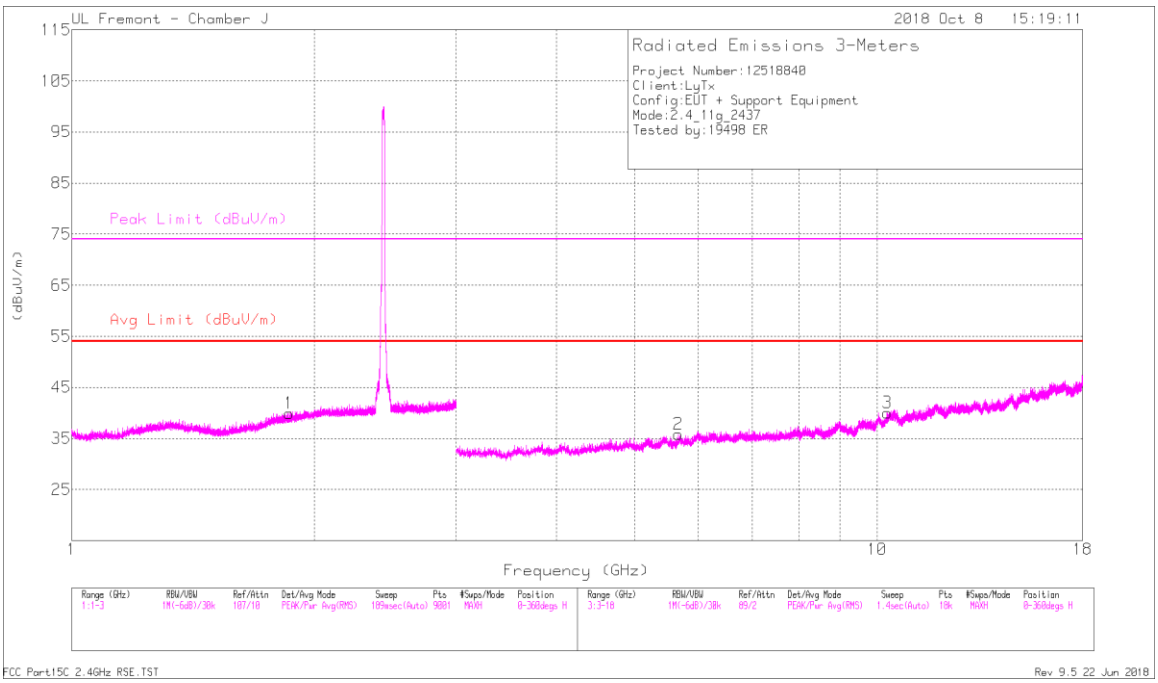
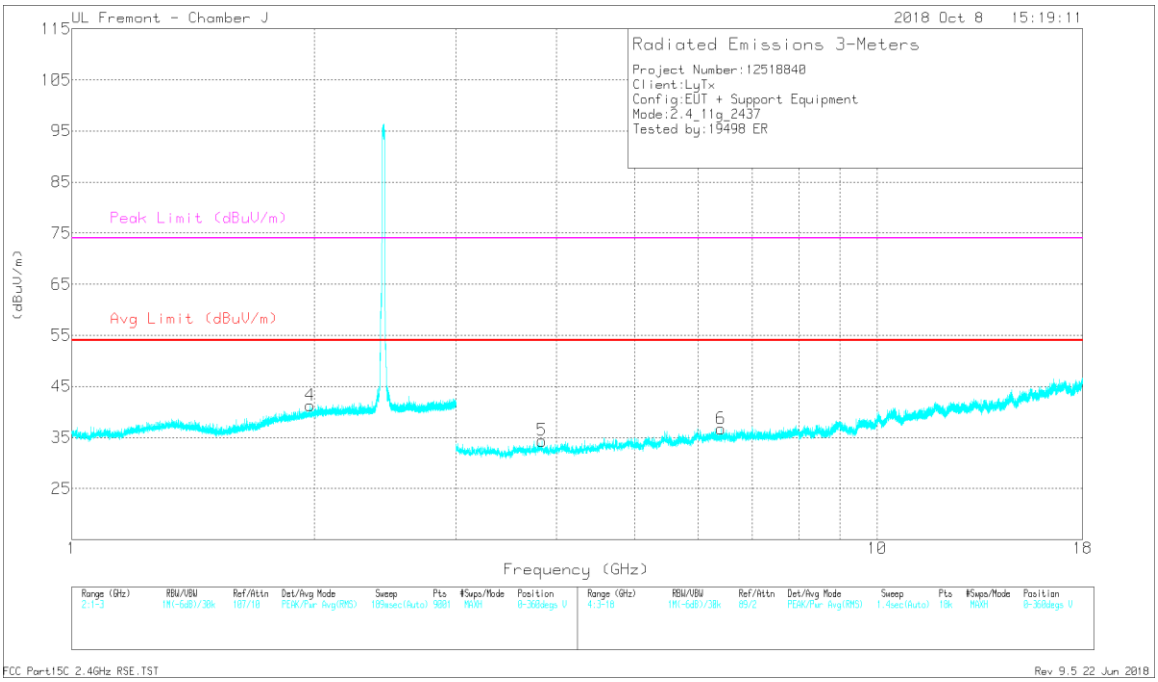
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
1.862	40.43	PK2	30.8	-26	0	45.23	-	-	-	-	67	156	H
1.979	41.17	Pk	31.4	-26	0	46.57	-	-	-	-	113	122	V
5.671	36.92	PK2	34.6	-30.3	0	41.22	-	-	-	-	243	251	H
10.299	33.52	PK2	37.4	-23.8	0	47.12	-	-	-	-	152	305	H
* 3.834	38.53	PK2	33.5	-32.5	0	39.53	-	-	74	-34.47	124	124	V
* 3.835	29.86	MAv1	33.5	-32.5	.3	31.16	54	-22.84	-	-	124	124	V
6.403	34.89	PK2	35.5	-28.9	0	41.49	-	-	-	-	72	223	V

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

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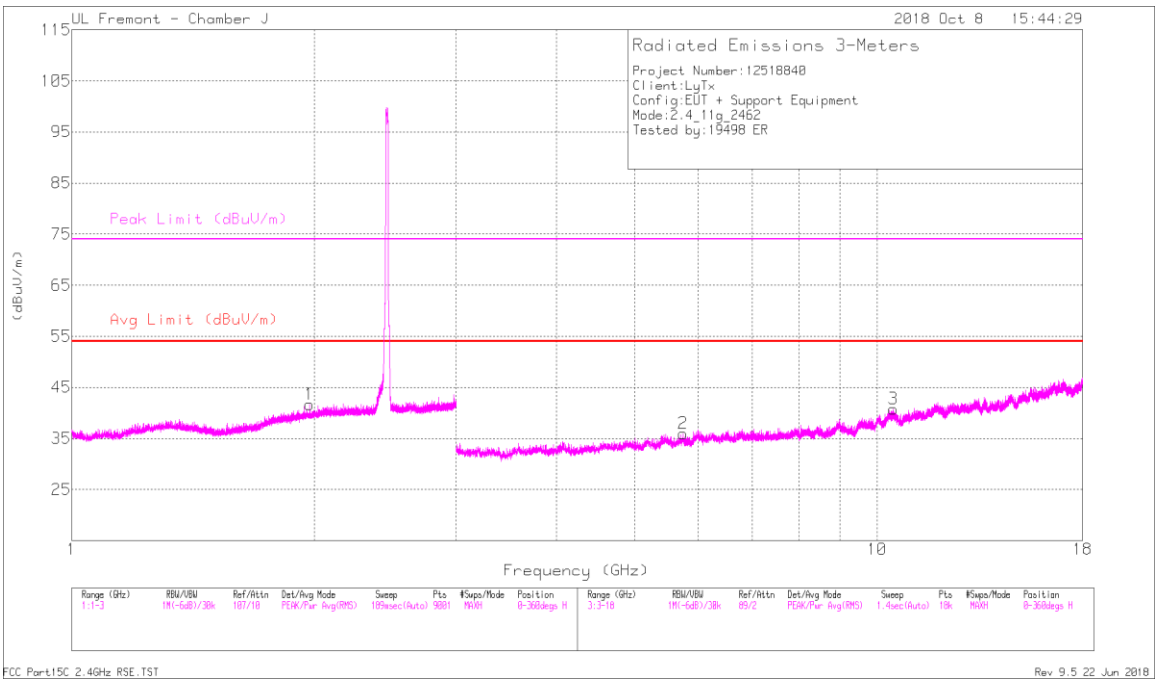
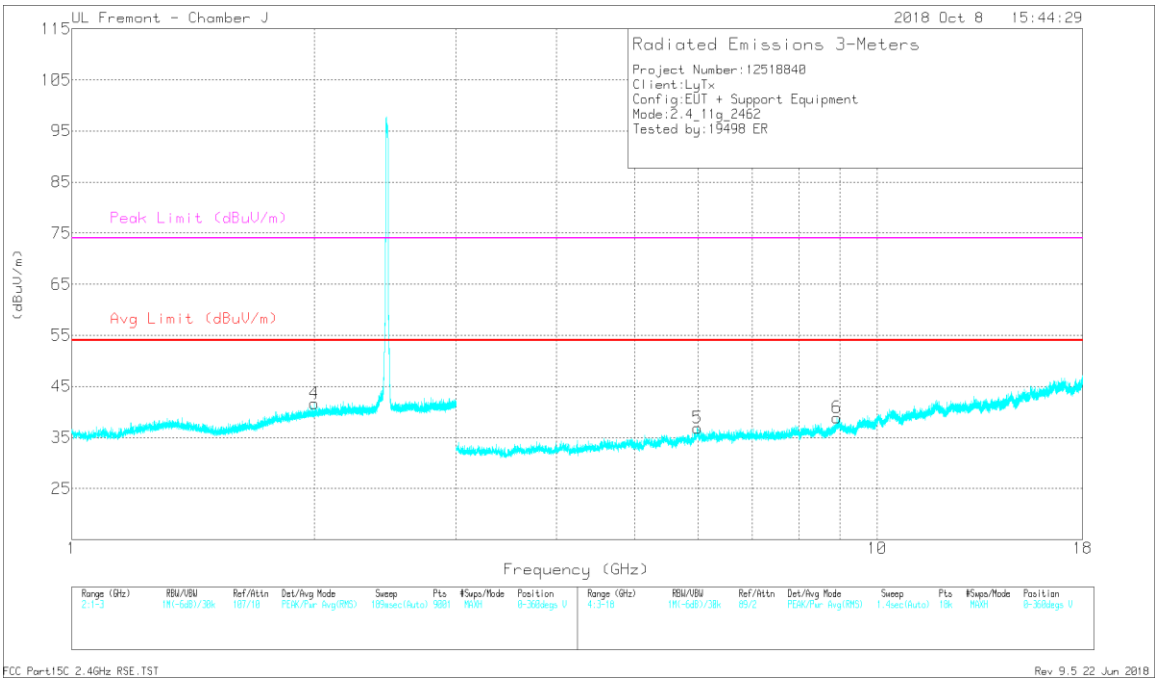
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
1.973	43.41	PK2	31.3	-26	0	48.71	-	-	-	-	124	115	H
1.999	40.32	PK2	31.4	-25.9	0	45.82	-	-	-	-	231	148	V
5.744	36.24	PK2	34.7	-29.1	0	41.84	-	-	-	-	177	211	H
10.469	32.55	PK2	37.5	-24.7	0	45.35	-	-	-	-	309	265	H
5.987	34.37	PK2	35.1	-28.2	0	41.27	-	-	-	-	334	176	V
8.911	33.72	PK2	35.9	-24.5	0	45.12	-	-	-	-	180	216	V

PK2 - KDB558074 Method: Maximum Peak

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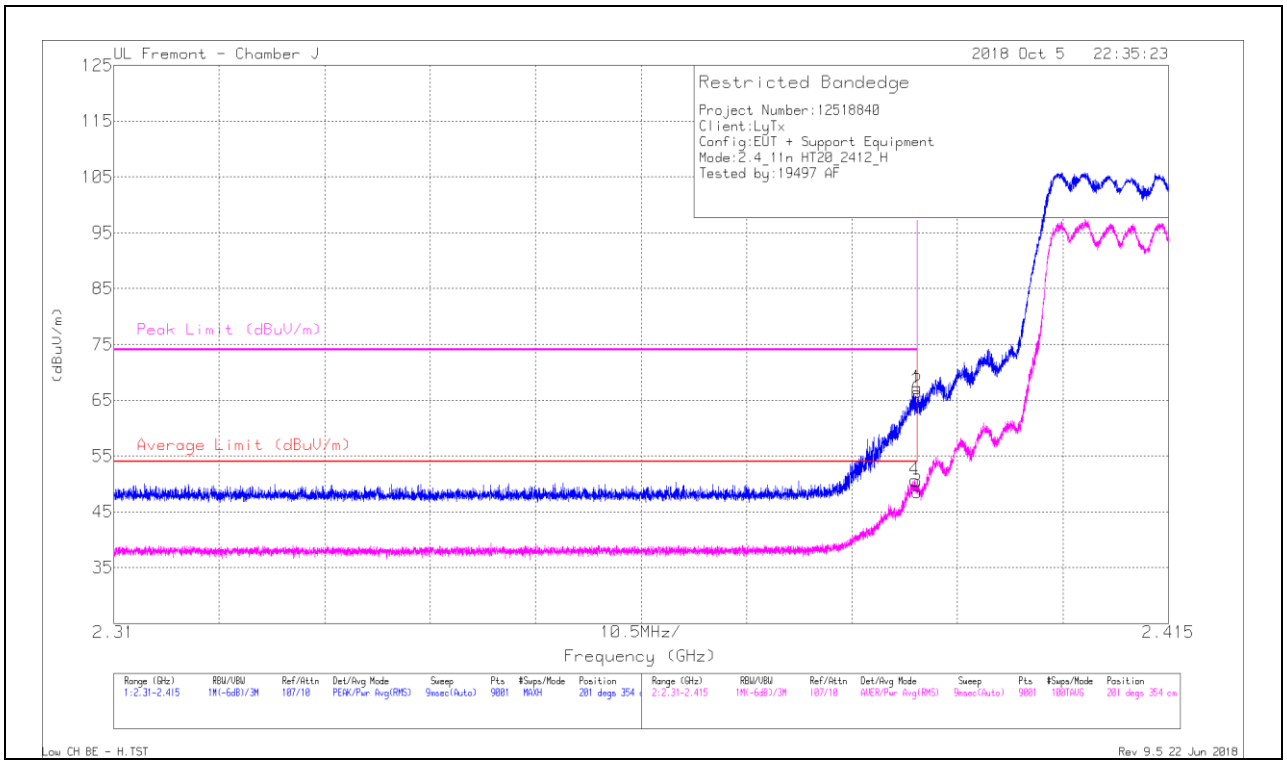
9.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	60.99	Pk	32	-25.8	0	67.19	-	-	74	-6.81	201	354	H
2	* 2.39	60.29	Pk	32	-25.8	0	66.49	-	-	74	-7.51	201	354	H
3	* 2.39	41.82	RMS	32	-25.8	.52	48.54	54	-5.46	-	-	201	354	H
4	* 2.39	43.92	RMS	32	-25.8	.52	50.64	54	-3.36	-	-	201	354	H

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

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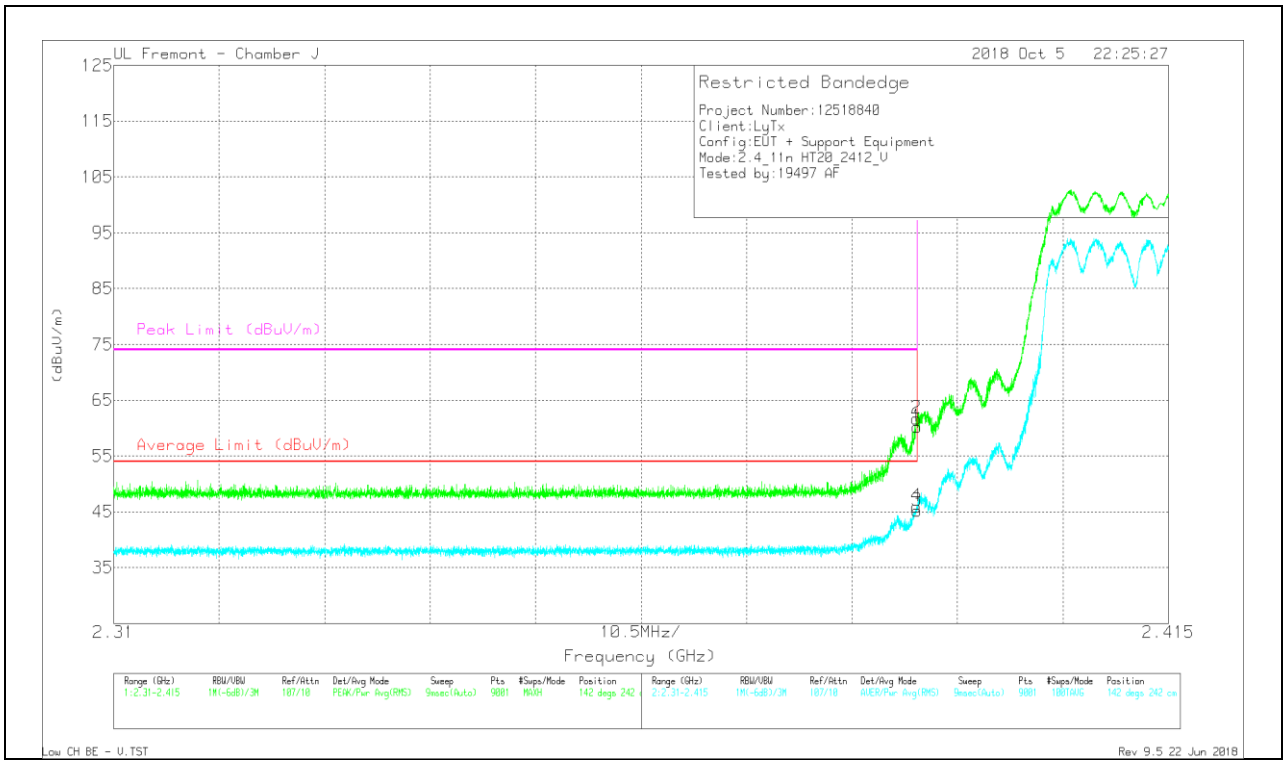
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	53.98	Pk	32	-25.8	0	60.18	-	-	74	-13.82	142	242	V
2	* 2.39	55.57	Pk	32	-25.8	0	61.77	-	-	74	-12.23	142	242	V
3	* 2.39	38.52	RMS	32	-25.8	.52	45.24	54	-8.76	-	-	142	242	V
4	* 2.39	39.28	RMS	32	-25.8	.52	46	54	-8	-	-	142	242	V

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

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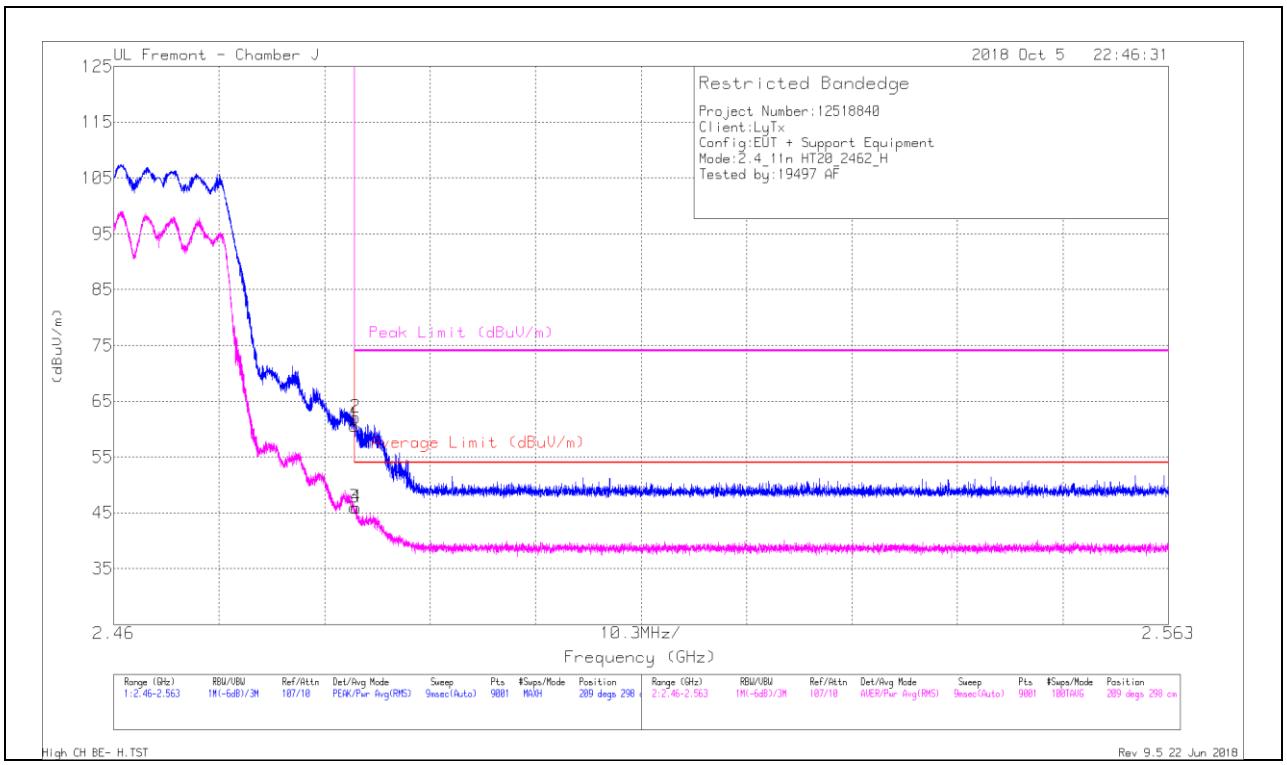
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	53.91	Pk	32.5	-25.8	0	60.61	-	-	74	-13.39	209	298	H
2	* 2.484	55.36	Pk	32.5	-25.8	0	62.06	-	-	74	-11.94	209	298	H
3	* 2.484	38.79	RMS	32.5	-25.8	.52	46	54	-8	-	-	209	298	H
4	* 2.484	38.74	RMS	32.5	-25.8	.52	45.95	54	-8.05	-	-	209	298	H

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

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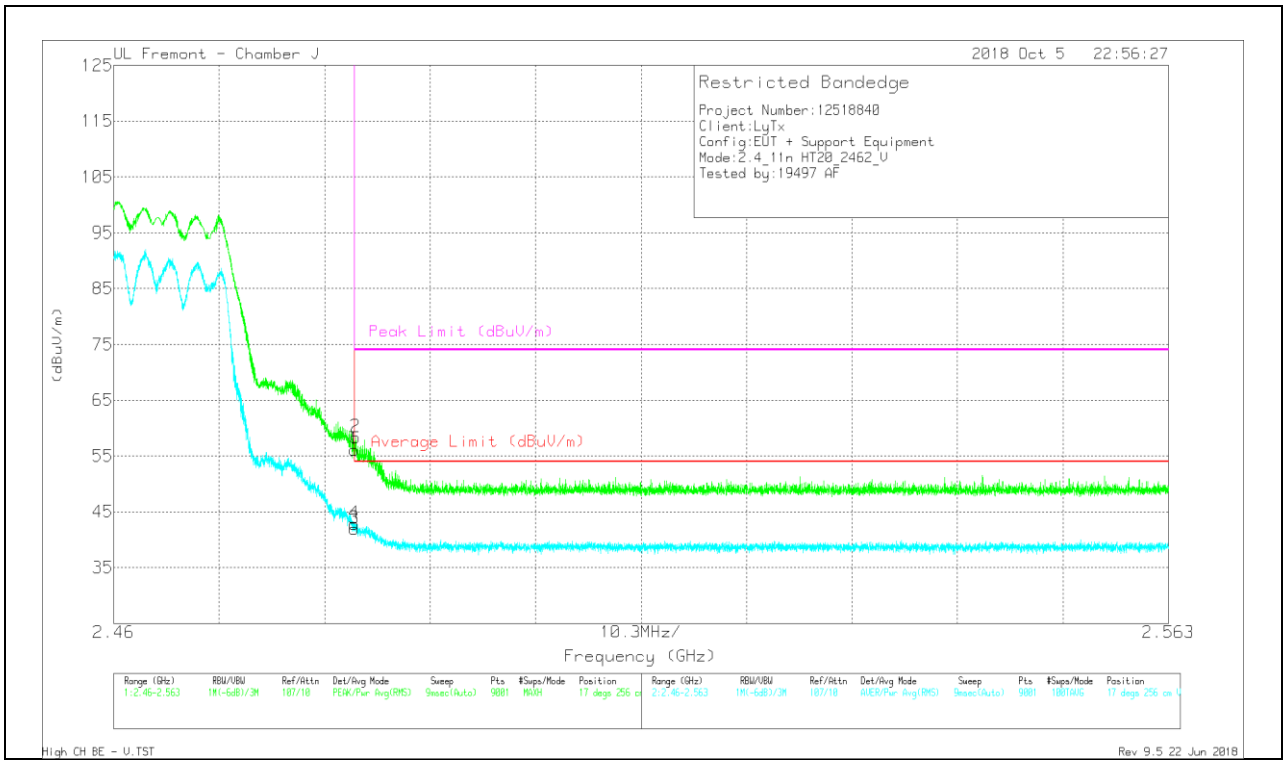
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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	49.46	Pk	32.5	-25.8	0	56.16	-	-	74	-17.84	17	256	V
2	* 2.484	51.65	Pk	32.5	-25.8	0	58.35	-	-	74	-15.65	17	256	V
3	* 2.484	34.74	RMS	32.5	-25.8	.52	41.96	54	-12.04	-	-	17	256	V
4	* 2.484	35.57	RMS	32.5	-25.8	.52	42.79	54	-11.21	-	-	17	256	V

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

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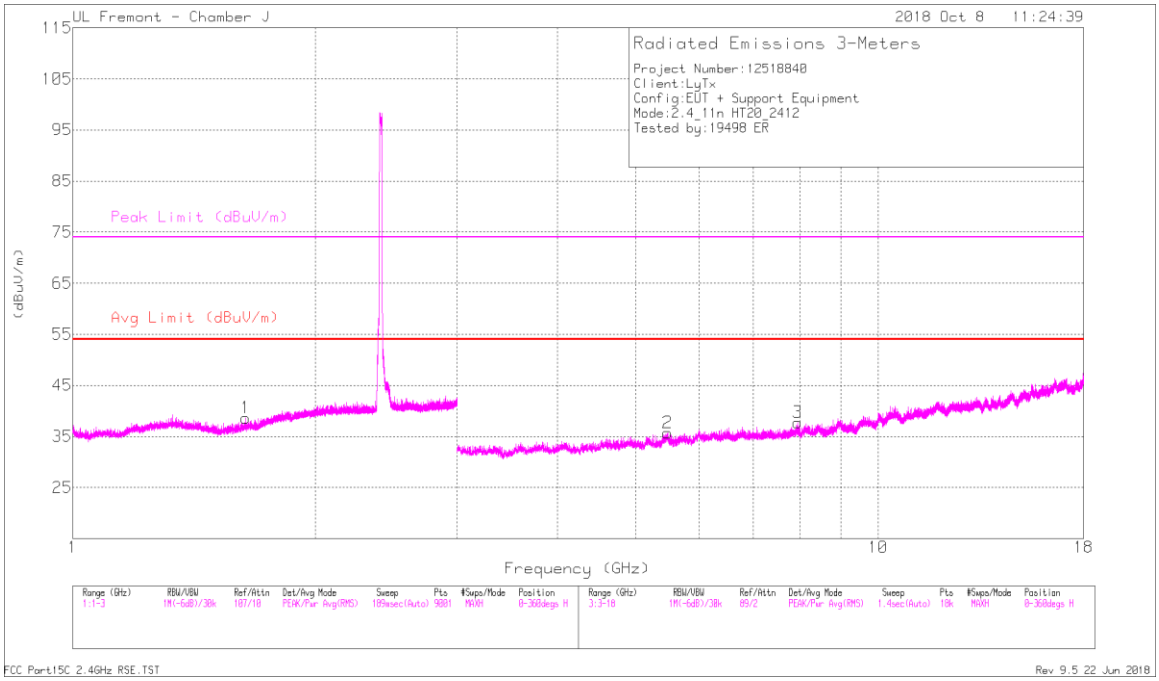
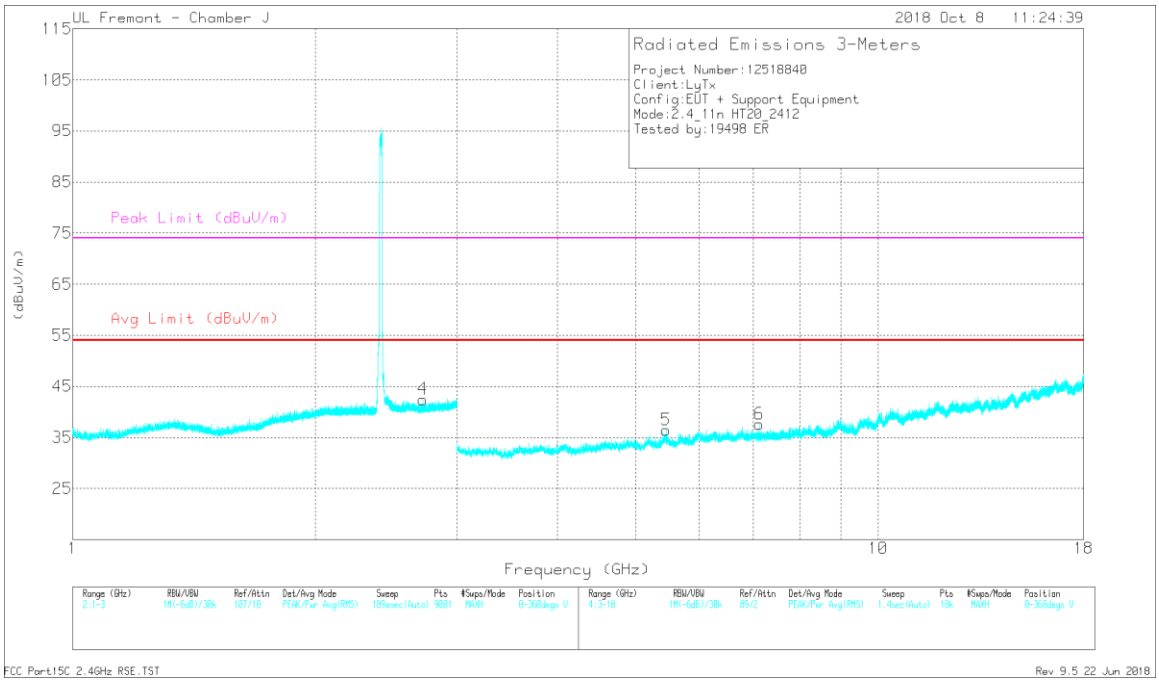
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
1.64	40.59	PK2	28.8	-26.1	0	43.29	-	-	-	-	56	109	H
* 2.719	39.62	PK2	32.1	-25.5	0	46.22	-	-	74	-27.78	306	191	V
* 2.719	32.48	MAv1	32.1	-25.5	.52	39.6	54	-14.4	-	-	306	191	V
5.479	35.73	PK2	34.5	-29.1	0	41.13	-	-	-	-	-	135	H
7.951	34.49	PK2	35.8	-27	0	43.29	-	-	-	-	-	126	H
7.12	35.81	PK2	35.6	-27.5	0	43.91	-	-	-	-	-	154	V
* 5.451	37.79	Pk	34.5	-29.7	0	42.59	-	-	74	-31.41	103	146	V
* 5.451	30.29	Pk	34.5	-29.7	0	35.09	54	-18.91	-	-	103	146	V

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

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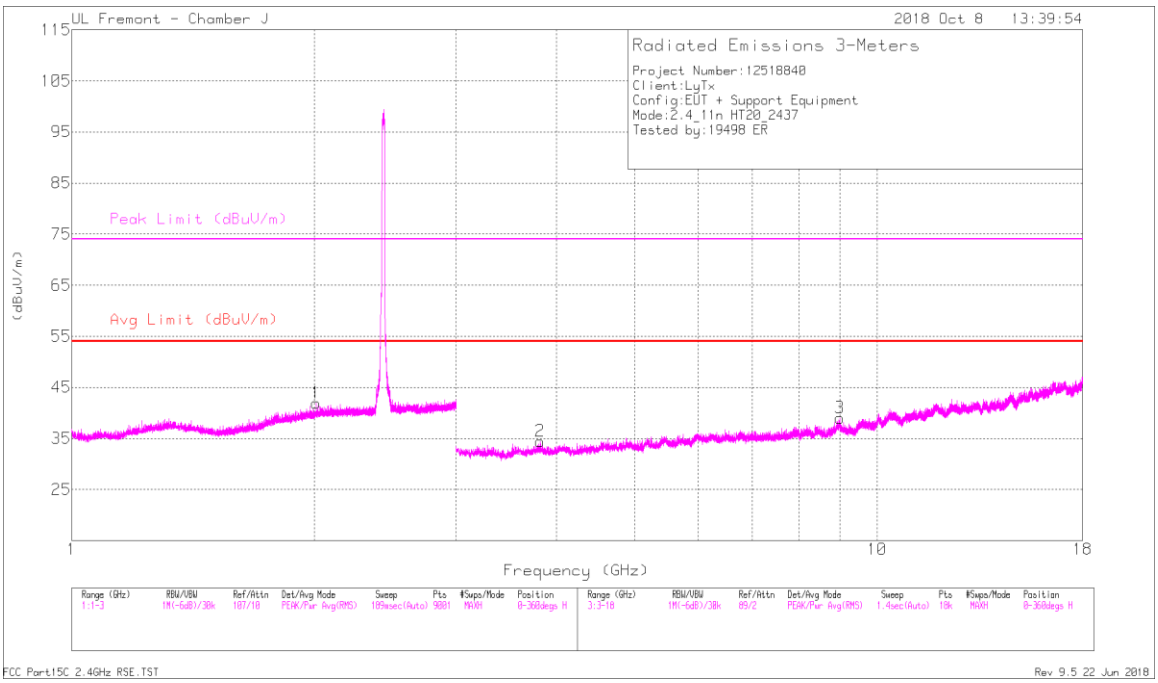
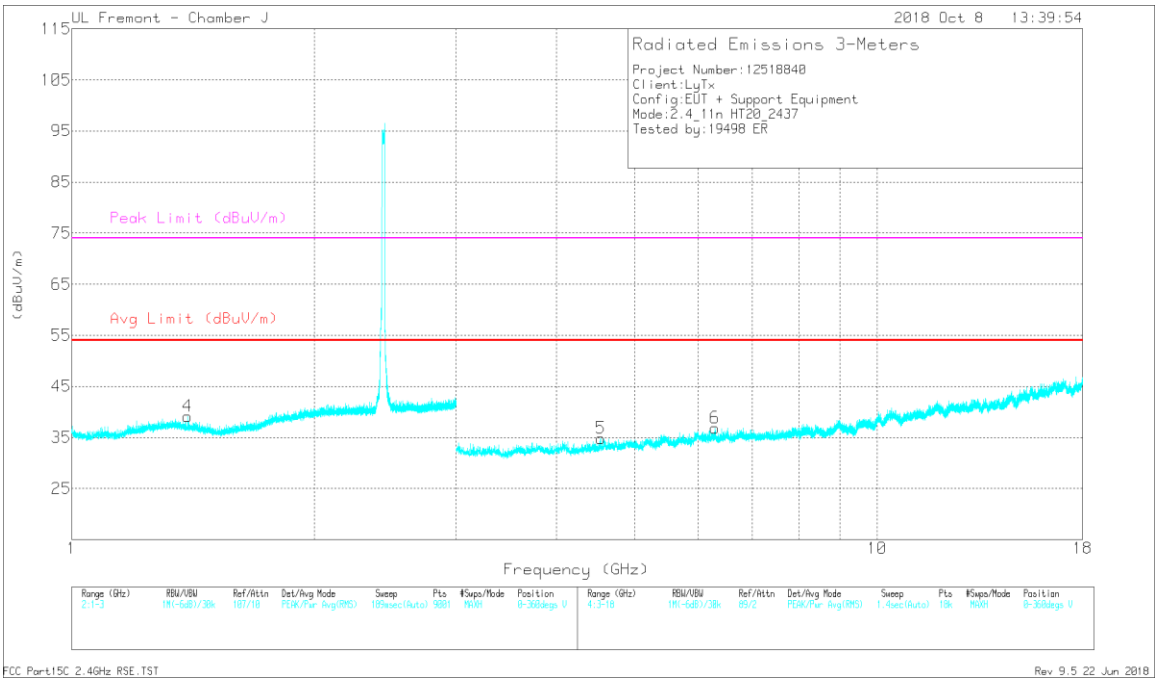
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
2.012	41.71	Pk	31.5	-25.9	0	47.31	-	-	-	-	317	326	H
* 1.393	40.2	PK2	29	-26.1	0	43.1	-	-	74	-30.9	156	270	V
* 1.396	32.42	MAv1	29	-26.1	.52	35.84	54	-18.16	-	-	156	270	V
8.996	32.13	PK2	35.9	-24.3	0	43.73	-	-	-	-	356	286	H
* 3.817	39.39	PK2	33.5	-32.5	0	40.39	-	-	74	-33.61	289	217	H
* 3.818	30.32	MAv1	33.5	-32.5	.52	31.84	54	-22.16	-	-	289	217	H
6.293	34.08	PK2	35.5	-28.4	0	41.18	-	-	-	-	78	253	V
* 4.539	37.24	PK2	34.1	-31.5	0	39.84	-	-	74	-34.16	72	248	V
* 4.54	29.43	MAv1	34.1	-31.5	.52	32.55	54	-21.45	-	-	72	248	V

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

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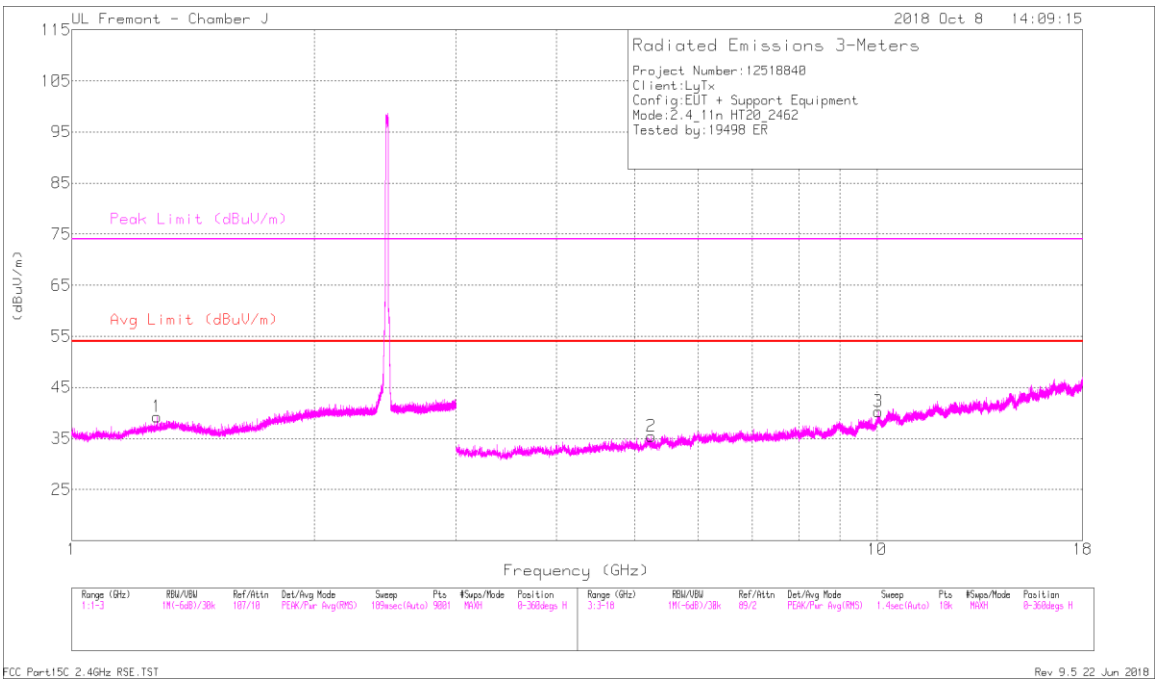
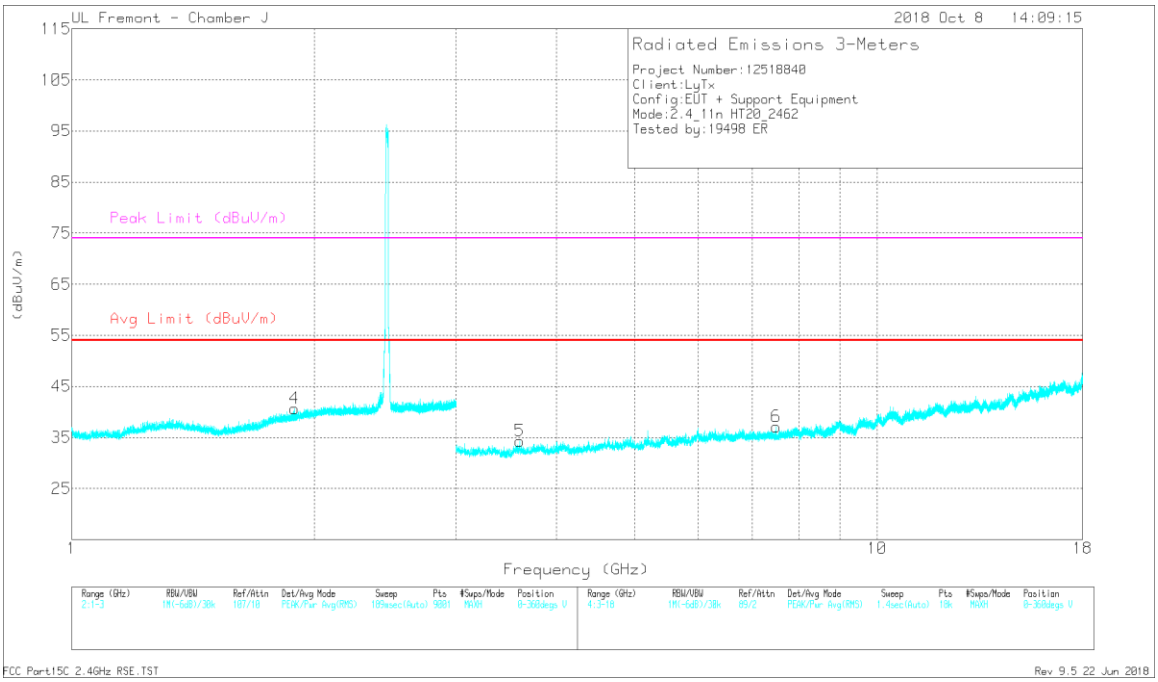
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF AT0067 (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
1.278	41.41	Pk	29.1	-26.1	0	44.41	54	-	-	-	-	116	H
1.89	40.41	PK2	30.9	-26	0	45.31	54	-	-	-	-	154	V
5.239	36.55	PK2	34.2	-30.2	0	40.55	54	-	-	-	-	169	H
10.043	31.43	PK2	37.2	-23.1	0	45.53	54	-	-	-	-	145	H
* 3.601	41.33	PK2	33.1	-32.8	0	41.63	-	-	74	-32.37	192	142	V
* 3.602	30.03	MAv1	33.1	-32.7	.52	30.95	54	-23.05	-	-	192	142	V
* 7.497	33.34	PK2	35.7	-27.6	0	41.44	-	-	74	-32.56	111	179	V
* 7.494	25.23	MAv1	35.7	-27.6	.52	33.85	54	-20.15	-	-	111	179	V

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

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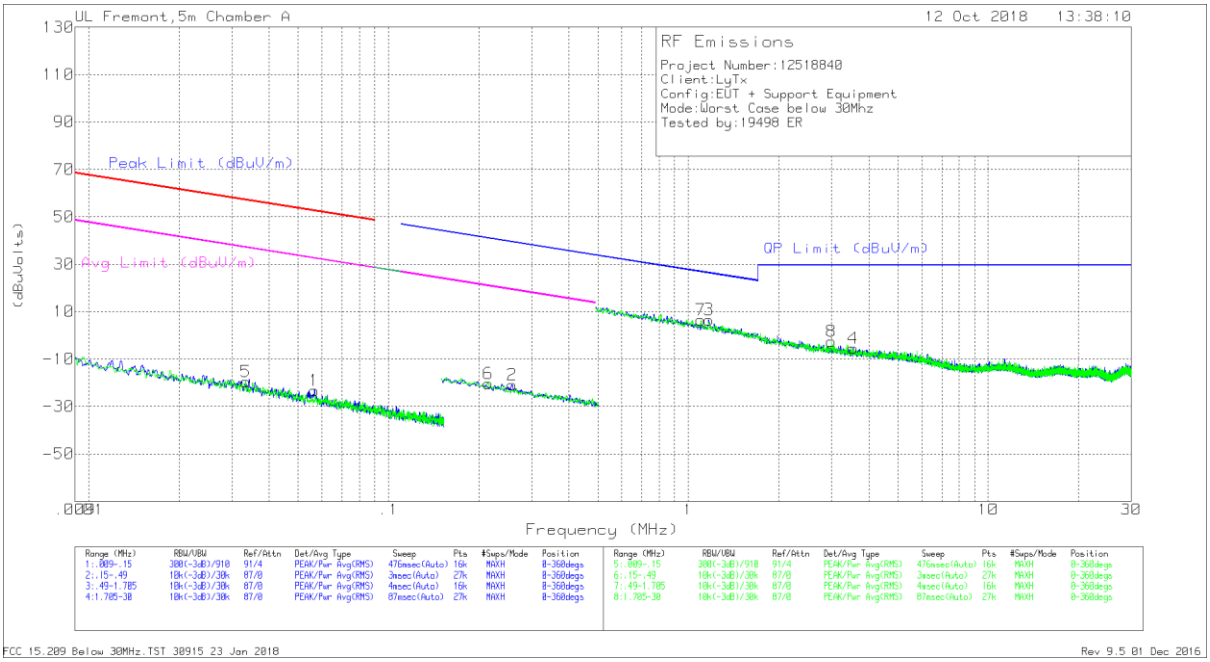
9.2. WORST-CASE BELOW 30 MHz

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

FACE ON AND FACE OFF 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.

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.03335	45.13	Pk	15.1	.1	-80	-19.67	57.12	-76.79	37.12	-56.79	-	-	-	-	0-360
1	.05666	42.39	Pk	14.3	.1	-80	-23.21	52.52	-75.73	32.52	-55.73	-	-	-	-	0-360
6	.2156	45.68	Pk	13.8	.1	-80	-20.42	-	-	-	-	40.94	-61.36	20.94	-41.36	0-360
2	.25819	45.35	Pk	13.7	.1	-80	-20.85	-	-	-	-	39.38	-60.23	19.38	-40.23	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
7	1.10039	32	Pk	14.2	.2	-40	6.4	26.79	-20.39	0-360
3	1.16887	32.22	Pk	14.2	.2	-40	6.62	26.27	-19.65	0-360
8	2.99718	22.75	Pk	14.3	.3	-40	-2.65	29.5	-32.15	0-360
4	3.54372	19.72	Pk	14.4	.3	-40	-5.58	29.5	-35.08	0-360

Pk - Peak detector

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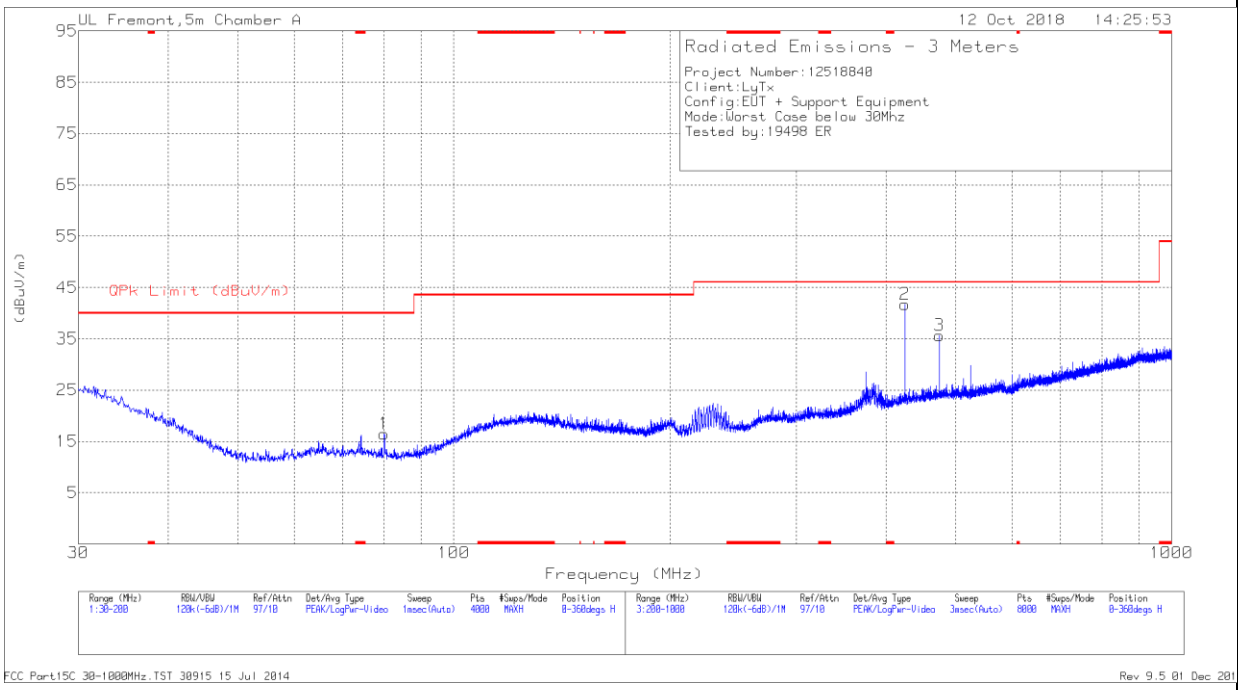
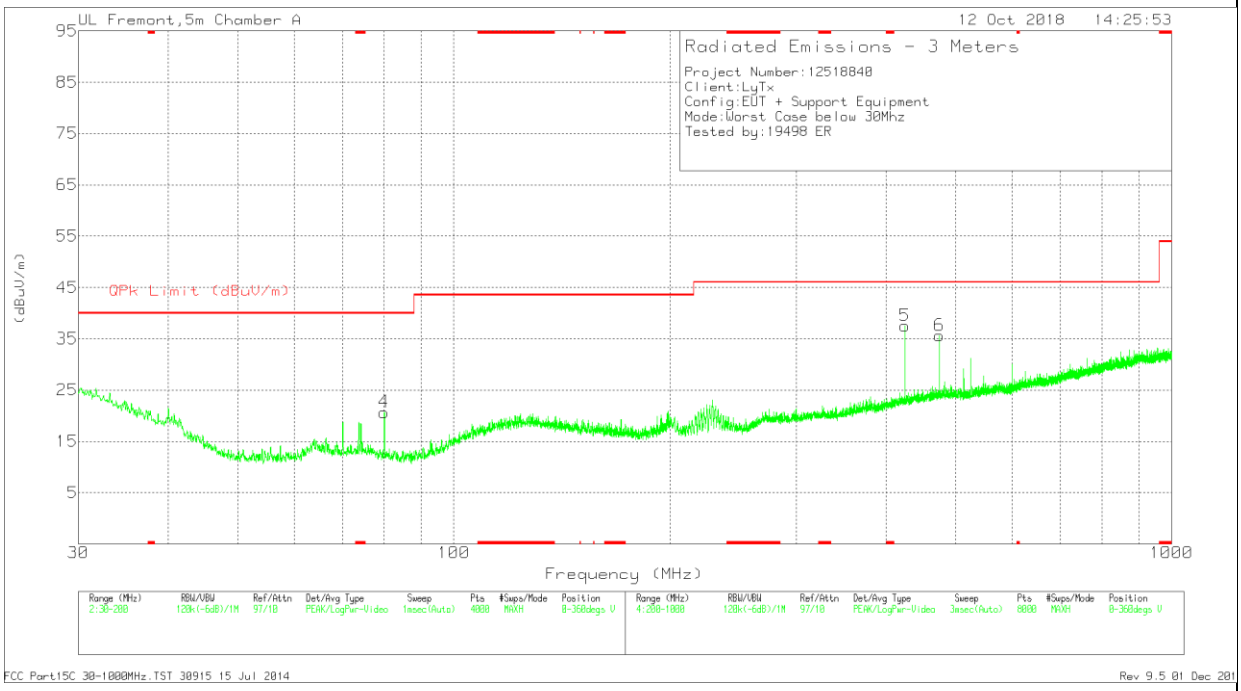
9.3. Worst Case 30 MHz - 1 GHz



HORIZONTAL



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Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	79.9929	31.57	Pk	11.5	-26.6	16.47	40	-23.53	0-360	200	H
4	79.9929	35.81	Pk	11.5	-26.6	20.71	40	-19.29	0-360	100	V
2	424.9292	46.5	Pk	20.4	-25.2	41.7	46.02	-4.32	0-360	101	H
5	424.9292	42.39	Pk	20.4	-25.2	37.59	46.02	-8.43	0-360	100	V
3	474.9357	39.45	Pk	21.5	-25.3	35.65	46.02	-10.37	0-360	200	H
6	474.9357	39.48	Pk	21.5	-25.3	35.68	46.02	-10.34	0-360	100	V

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
424.9839	45.78	Qp	20.4	-25.2	40.98	46.02	-5.04	297	104	H

Qp - Quasi-Peak detector

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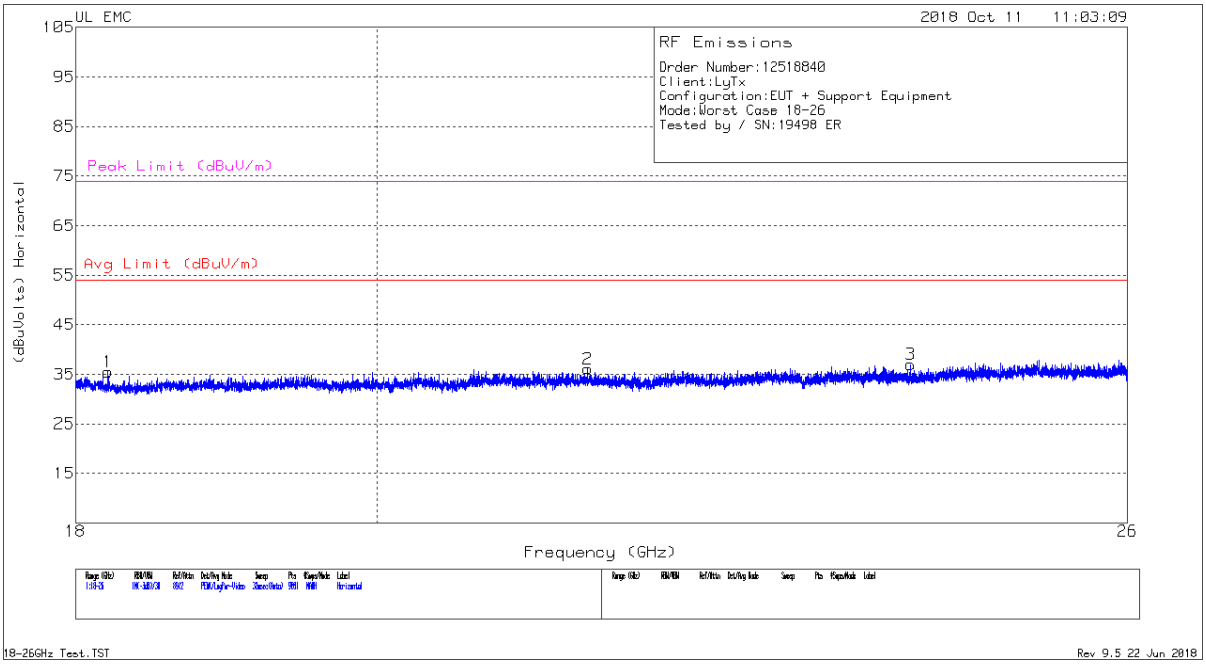
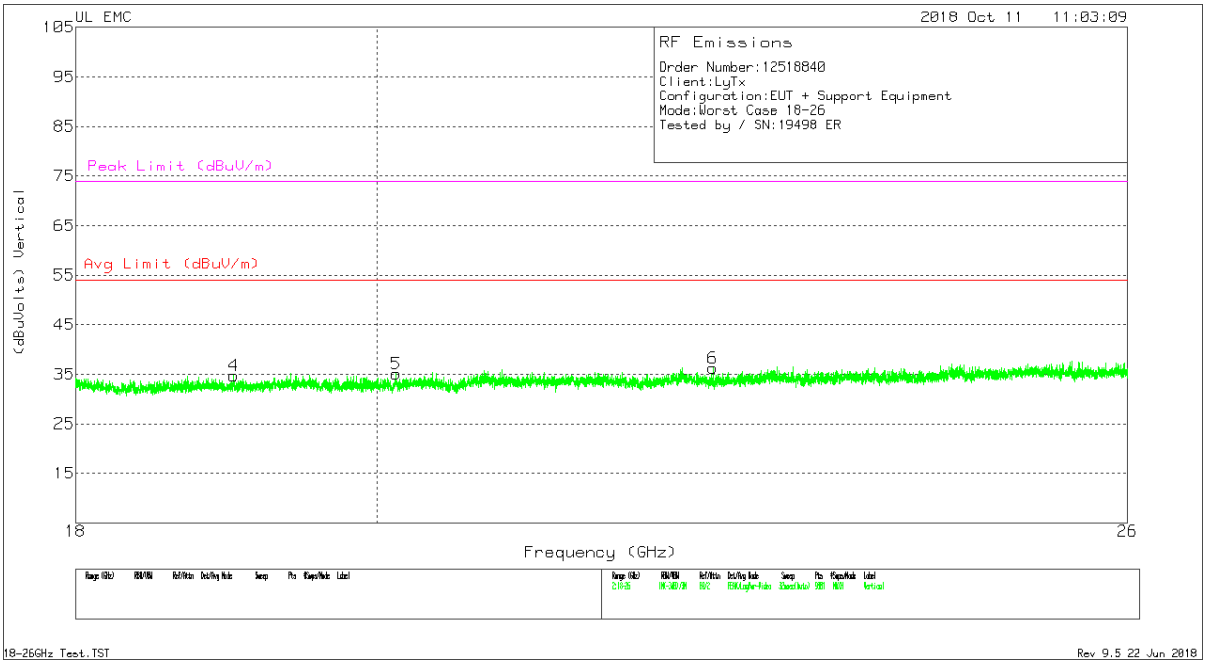
9.4. Worst Case 18-26 GHz



HORIZONTAL



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18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T448 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	18.207	72.43	Pk	32.2	-59.6	-9.5	35.53	54	-18.47	74	-38.47
2	21.529	69.22	Pk	33.3	-56.9	-9.5	36.12	54	-17.88	74	-37.88
3	24.1	69.27	Pk	34	-56.8	-9.5	36.97	54	-17.03	74	-37.03
4	19.025	69.05	Pk	32.5	-57.3	-9.5	34.75	54	-19.25	74	-39.25
5	20.134	68.6	Pk	32.7	-56.7	-9.5	35.1	54	-18.9	74	-38.9
6	22.492	70.04	Pk	33.4	-57.7	-9.5	36.24	54	-17.76	74	-37.76

Pk - Peak detector

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