TEST REPORT

Report Number. : R13335074-E11

Applicant	:	eero LLC 660 3rd Street 4th Floor San Francisco, CA 94107 United States
Model	:	K010001
FCC ID	:	2AEM4-30317
IC	:	20631-30317
EUT Description	:	Wireless router for home and small office
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E (EXCEPT DFS) ISED RSS-247 ISSUE 2 ISED RSS-GEN ISSUE 5

Date Of Issue:
2020-09-22

Prepared by:
UL LLC
12 Laboratory Dr.
Research Triangle Park, NC 27709 U.S.A.
TEL: (919) 549-1400

NVLAP TESTING

NVLAP Lab code: 200246-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2020-08-10	Initial Issue	Niklas Haydon
V2	2020-09-11	Correction of typo on page 64	Niklas Haydon
V3	2020-09-22	Updated statement on simultaneous transmission	Niklas Haydon

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: eero LLC
660 3rd Street
4th Floor
San Francisco, CA 94107
United States

EUT DESCRIPTION: Wireless router for home and small office

MODEL: K010001

SERIAL NUMBER: ZU12WF5, KA58-0400-4W00-00CG

SAMPLE RECEIPT DATE: 2020-06-02

DATE TESTED: 2020-06-26 to 2020-07-17

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E (EXCEPT DFS)	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL LLC 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.

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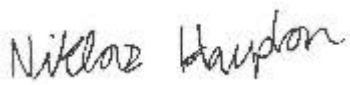
Approved & Released For
UL Verification Services Inc. By:

Dan Coronia
Operations Leader
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Niklas Haydon
Operations Leader
Consumer Technology Division
UL LLC

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2. TEST RESULT SUMMARY

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only.	Per ANSI C63.10, Section 12.2.
See Comment	RSS-GEN 6.7	26dB BW/99% OBW	Reporting purposes only.	Per ANSI C63.10 Sections 6.9.2 and 6.9.3
15.407 (e)	RSS-247 6.2.4.1	6 dB BW	Compliant.	None.
15.407 (a) (1-4), (h) (1)	RSS-247 6.2	Output Power	Compliant.	None.
15.407 (a) (1-3, 5)	RSS-247 6.2	PSD	Compliant.	None.
15.209, 15.205, 15.407 (b)	RSS-GEN 8.9, 8.10, RSS-247 6.2	Radiated Emissions	Compliant.	See UL LLC report R13335074-E12 for worst case radiated emisisons.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Not performed.	See UL LLC report R13335074-E12.

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3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with;

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15,
- FCC KDB 662911 D01 v02r01
- FCC KDB 789033 D02 v02r01
- ANSI C63.10-2013,
- RSS-GEN Issue 5
- RSS-247 Issue 2

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, NC 27709, USA and 2800 Perimeter Park Dr., Suite B, Morrisville, NC 27560, USA. 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.

12 Laboratory Dr.	2800 Perimeter Park Dr.
Site Code: 2180C	
☐ Chamber A RTP	☒ North Chamber
☒ Chamber C RTP	☒ South Chamber

The above test sites and facilities are covered under FCC Test Firm Registration # 703469. Chambers above are covered under Industry Canada company address and respective code.

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5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	2.00%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	5.17 dB
Conducted Emissions (0.150-30MHz) - LISN	3.07 dB
Temperature	2.26°C
Humidity	6.79%
DC Supply voltages	1.70%
Time	3.39%

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

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5.4. 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

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a wireless router for home and small office.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.8 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 4TX			
5745-5825	802.11a CDD	29.57	905.73
5745-5825	802.11n HT20 CDD	29.37	864.97
5755-5795	802.11n HT40 CDD	29.79	952.80
5775	802.11ac VHT80 CDD	28.80	758.58

5.8 GHz BAND (IC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 4TX			
5745-5825	802.11a CDD	29.57	905.73
5745-5825	802.11n HT20 CDD	29.37	864.97
5755-5795	802.11n HT40 CDD	29.79	952.80
5775	802.11ac VHT80 CDD	28.80	758.58

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6.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Range	Max Gain (dBi)
5.8 GHz U-N11-3 wlan CH0	2.8
5.8 GHz U-N11-3 wlan CH1	5.1
5.8 GHz U-N11-3 wlan CH2	5.2
5.8 GHz U-N11-3 wlan CH3	3.4

NOTE:
Antenna 1 = Chain 0 = ANT2 = CH0
Antenna 2 = Chain 1 = ANT4 = CH1
Antenna 3 = Chain 2 = ANT5 = CH2
Antenna 4 = Chain 3 = ANT7 = CH3

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6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was eeroQSDK version builder@4162cb4b0759.
The test utility software used during testing was QRCT v4.0.00163.0.

6.5. 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 and data rate with highest power spectral density across all data rates as worst-case scenario. Please refer to UL LLC report R13335074-E12 for this data.

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 only operates in one orientation X, therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac VHT80 mode: MCS0

Simultaneous transmission of the following combinations was investigated and there were not any non-conformances found:

802.15.4 radio, 5.2 WLAN radio, and 5.8 WLAN radio
BLE radio, 5.2 WLAN radio, and 5.8 WLAN radio

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop PC	Dell	Latitude E6430	J29SNX1	N/A
Laptop PC	Dell	Latitude E5450	HRR5N72	N/A
AC adapter (EUT)	Foxlink	C210001	A019F0000171	N/A
AC adapter (EUT)	RF Tech	C210001	A027A0000361	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 In	1	USB-C	Unshielded	1.5	Cable captured to AC power supply
2	LAN	2	RJ45-unshielded	Unshielded	15	Includes 1.7m cable that accompanied the EUT

TEST SETUP

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

SETUP DIAGRAMS

Please refer to R13335074-EP1 for setup diagrams.

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7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section II. B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section II. C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section II. C.1

99% Occupied BW: KDB 789033 D02 v02r01, Section II. D.

Conducted Output Power: KDB 789033 D02 v02r01, Section II. E.3.b (Method PM-G) and KDB 789033 D02 v02r01, Section E.2.b (Method SA-1)

Power Spectral Density: KDB 789033 D02 v02r01, Section II. F

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections II. G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections II. G.3, G.4, and G.5.

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

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8. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2020-04-27	2021-04-27
	Gain-Loss Chains				
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2020-03-15	2021-03-15
	Receiver & Software				
SA0025	Spectrum Analyzer	Agilent	N9030A	2020-03-17	2021-03-17
SA0027	Spectrum Analyzer	Agilent	N9030A	2020-06-10	2021-06-10
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Additional Equipment used				
s/n 181474341	Environmental Meter	Fisher Scientific	15-077-963	2018-07-27	2020-07-27

Test Equipment Used - Antenna Port Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
72822	Spectrum Analyzer	Agilent Technologies	E4446A	2020-01-02	2021-01-02
PWM003	RF Power Meter	Keysight Technologies	N1911A	2019-08-23	2020-08-23
PWS002	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	E1921A	2019-08-23	2020-08-23
SN 181562858	Environmental Meter	Fisher Scientific	14-650-118	2018-09-04	2020-09-04
76022	DC Regulated Power Supply	Circuit Specialists	CSI3005X5	N/A	N/A
SOFTEMI	EMC Software	UL	Version 2020.3.11 and 2020.4.17	NA	NA

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Test Equipment Used - Radiated Disturbance Emissions (E-field) – Chamber C

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
AT0062	HORN Antenna	ETS-Lindgren	3117	2020-01-30	2021-01-30
	Gain-Loss Chains				
C-SAC02	Gain-loss string: 1-18GHz	Various	Various	2020-03-03	2021-03-03
C-SAC02 Path 7	Gain-loss string 1-7GHz	Various	Various	2020-04-03	2021-04-03
	Receiver & Software				
SA0018	Spectrum Analyzer	Agilent	PXA (N9030A)	2020-03-02	2021-03-02
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Additional Equipment used				
HI0085	Temp/Humid/Pressure Meter	EXTECH	SD700	2020-04-20	2021-04-30

NOTES:

1. For equipment listed above that was calibrated during the testing period, please note the equipment was used for testing after calibration.
2. For equipment listed above that has a calibration due date during the testing period, the testing was completed before the equipment expiration date.

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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 B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB) - Conducted	Duty Cycle Correction Factor (dB) - Radiated	1/B Minimum VBW (kHz)
802.11a CDD	0.999	1.131	0.883	88.33%	0.54	1.08	1.001
802.11n HT20 CDD	5.415	5.850	0.926	92.56%	0.34	0.67	0.185
802.11n HT40 CDD	5.406	5.671	0.953	95.33%	0.21	0.42	0.185
802.11ac VHT80 CDD	5.415	5.655	0.958	95.76%	0.19	0.38	0.185

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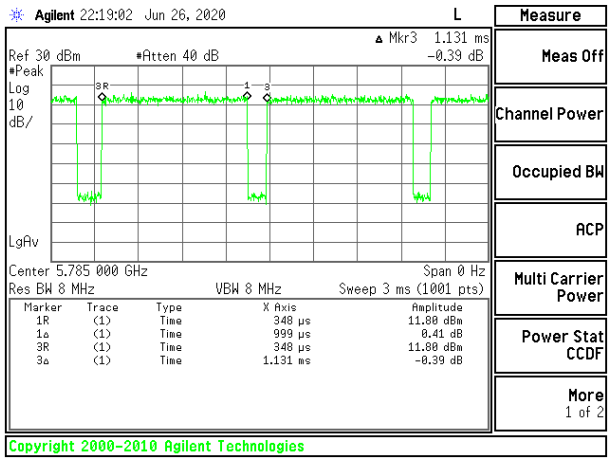
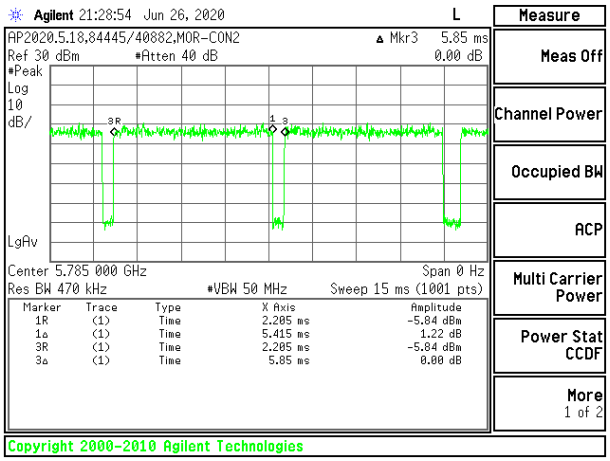
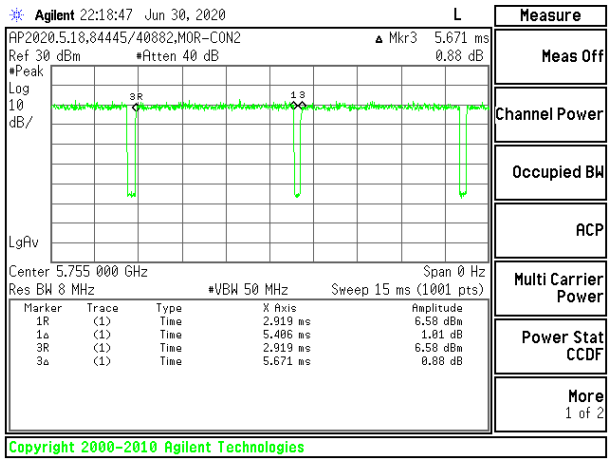
DUTY CYCLE PLOTS



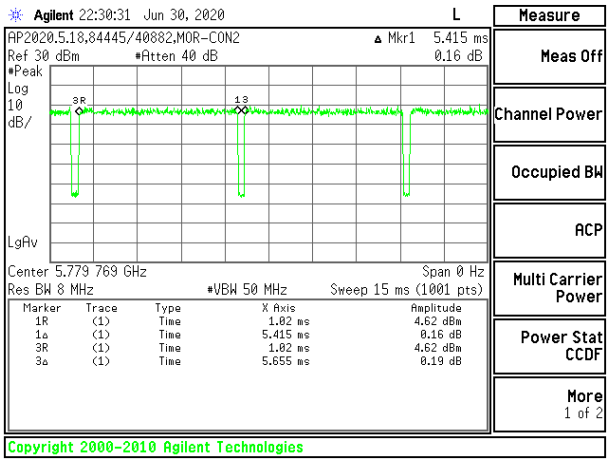
DUTY CYCLE 802.11a CDD MODE



DUTY CYCLE 802.11n HT20 CDD MODE



DUTY CYCLE 802.11n HT40 CDD MODE



DUTY CYCLE 802.11ac VHT80 CDD MODE

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9.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

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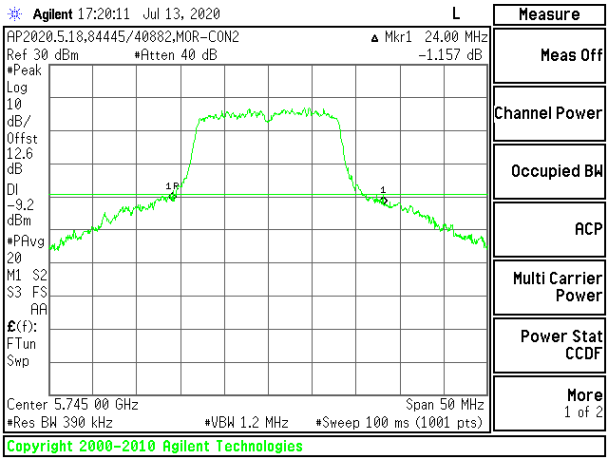
9.2.1. 802.11a MODE IN THE 5.8 GHz BAND

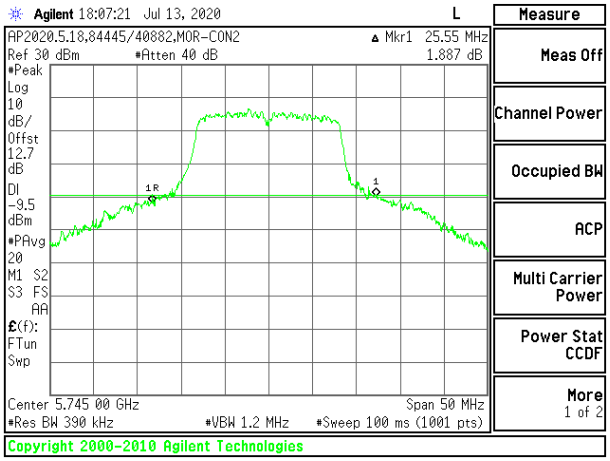
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Antenna 1 (MHz)	26 dB Bandwidth Antenna 2 (MHz)	26 dB Bandwidth Antenna 3 (MHz)	26 dB Bandwidth Antenna 4 (MHz)
Low	5745	24.00	25.55	22.80	24.35
Mid	5785	21.45	24.50	22.70	21.10
High	5825	24.90	33.40	23.25	24.10

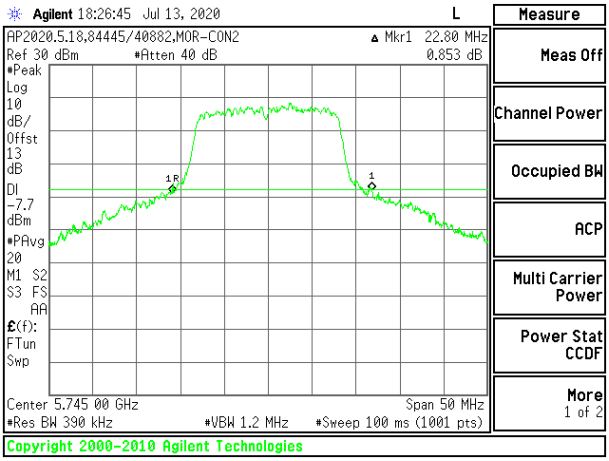
LOW CHANNEL



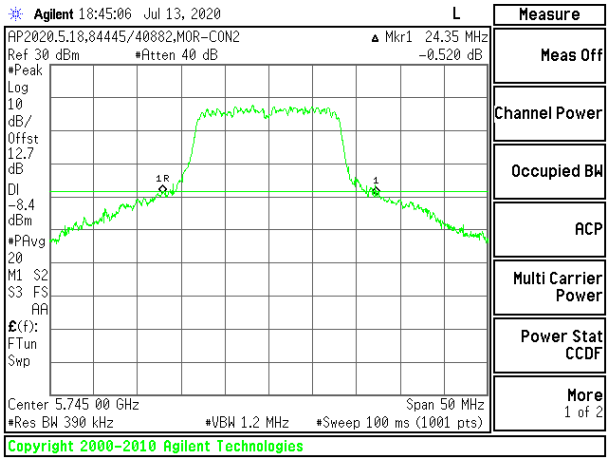
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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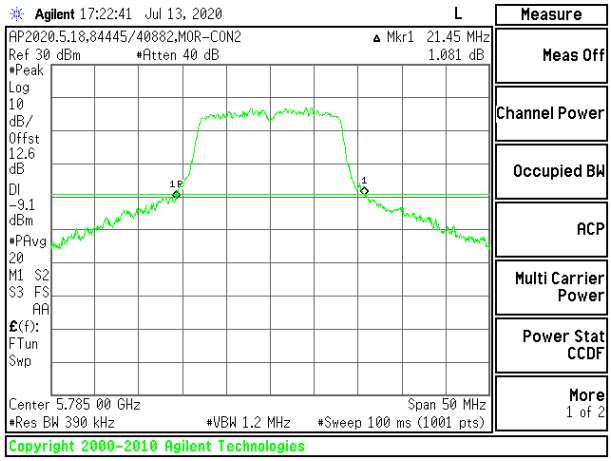
MID CHANNEL



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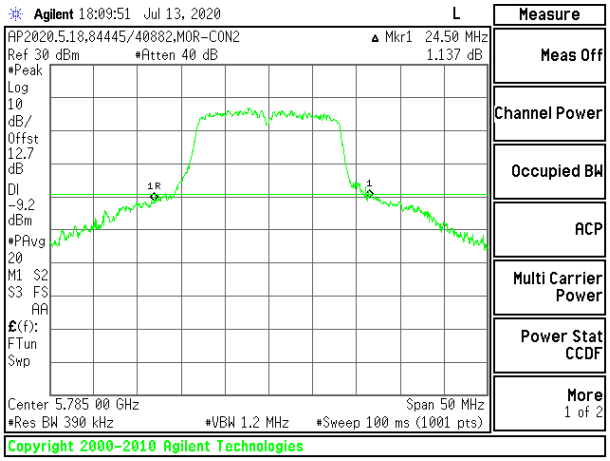

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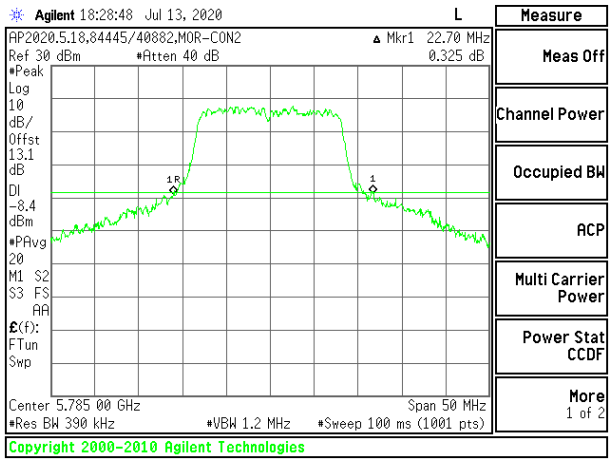

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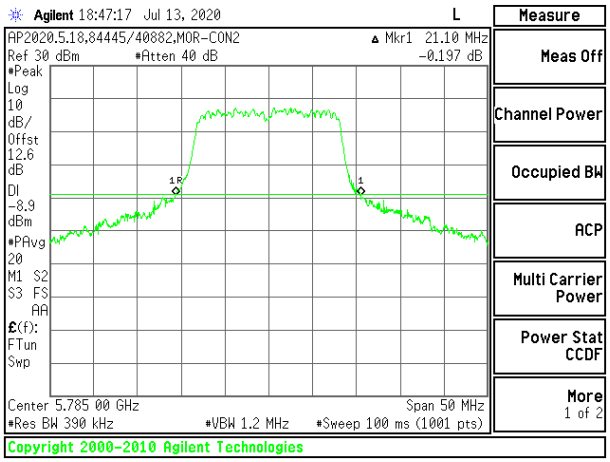

MID CHANNEL CHAIN 3

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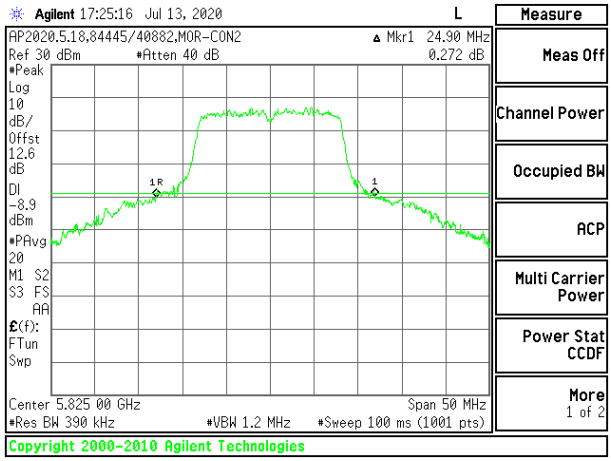
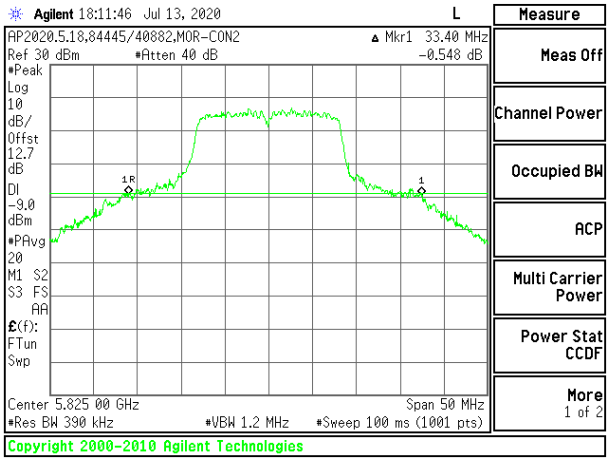
HIGH CHANNEL



HIGH CHANNEL CHAIN 0



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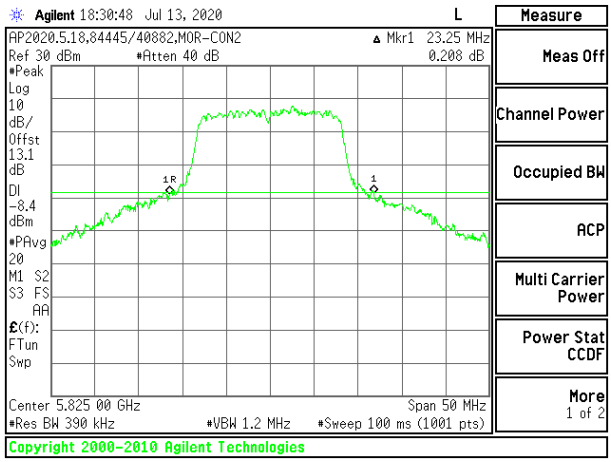
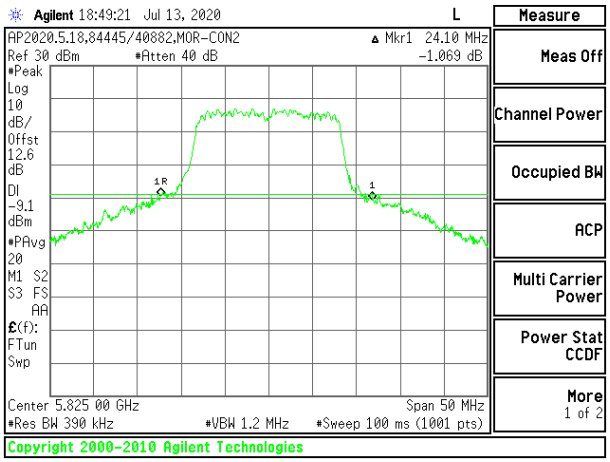


HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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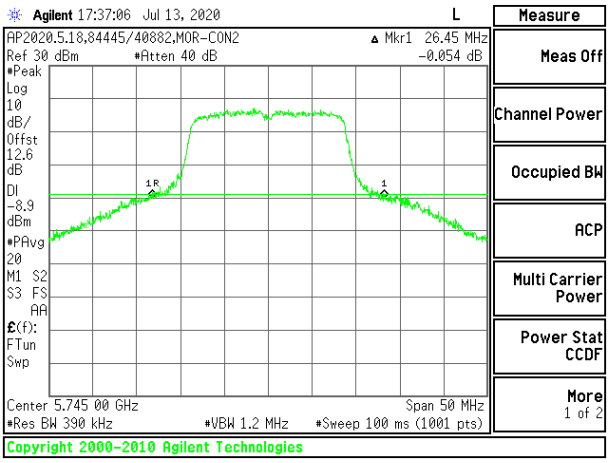
9.2.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

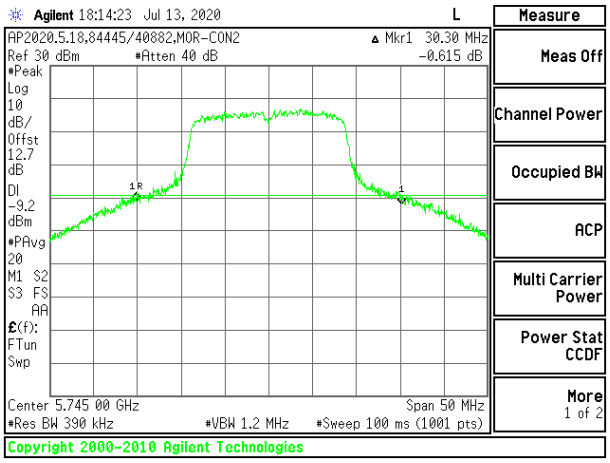
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Antenna 1 (MHz)	26 dB Bandwidth Antenna 2 (MHz)	26 dB Bandwidth Antenna 3 (MHz)	26 dB Bandwidth Antenna 4 (MHz)
Low	5745	26.45	30.30	25.95	25.35
Mid	5785	24.45	26.60	23.10	22.45
High	5825	27.50	36.20	27.05	26.15

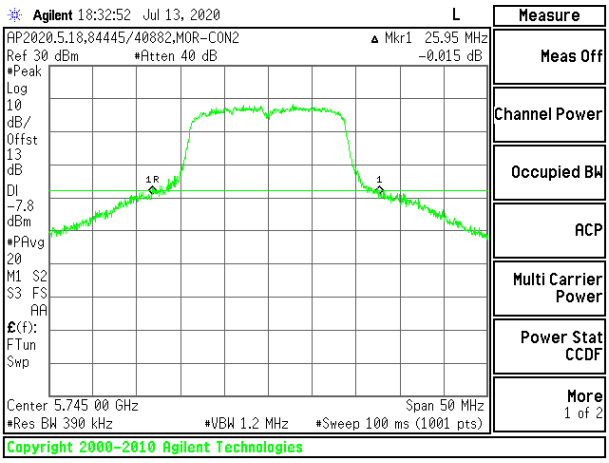
LOW CHANNEL



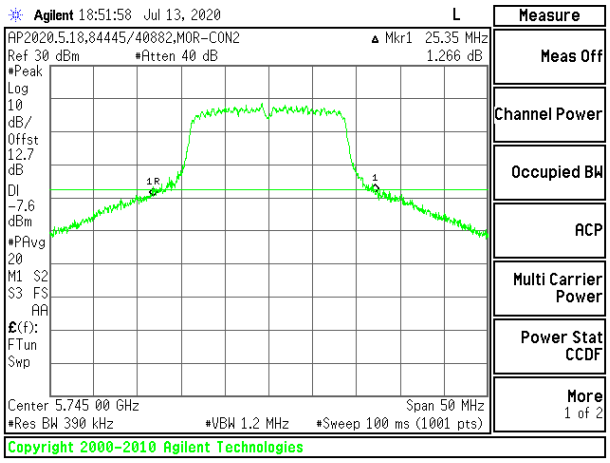
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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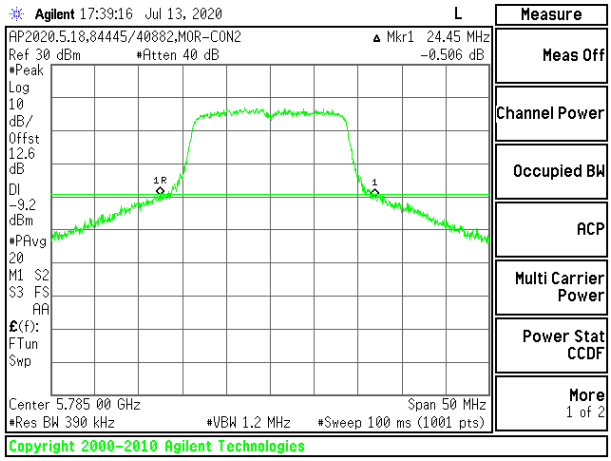
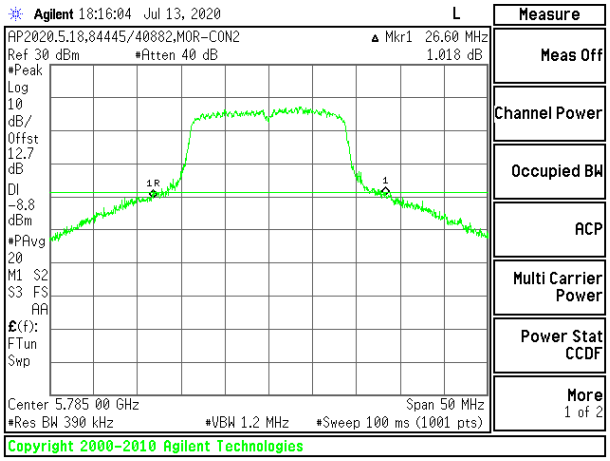
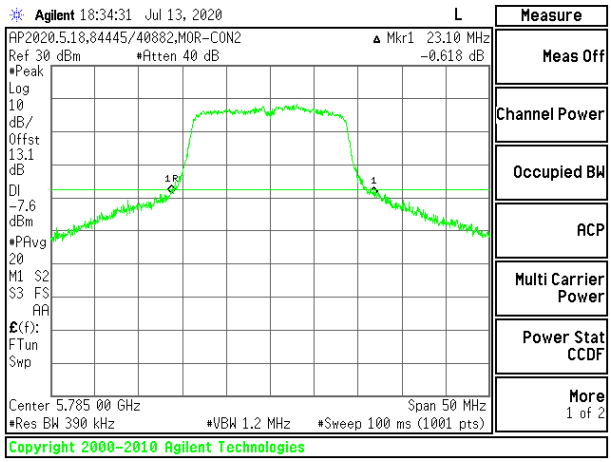
MID CHANNEL



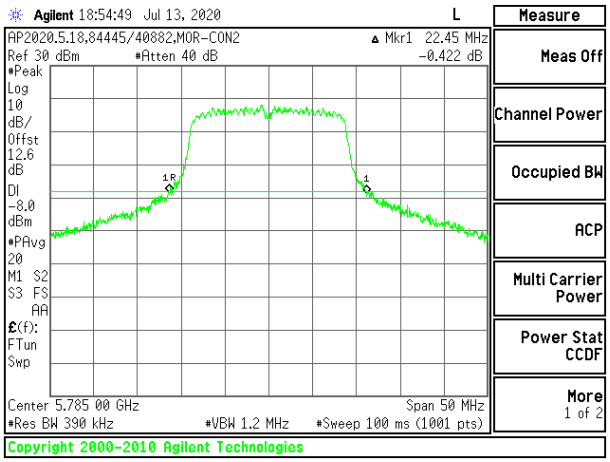
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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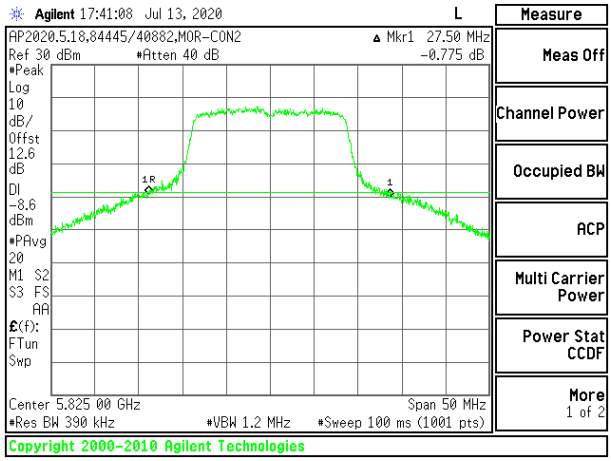
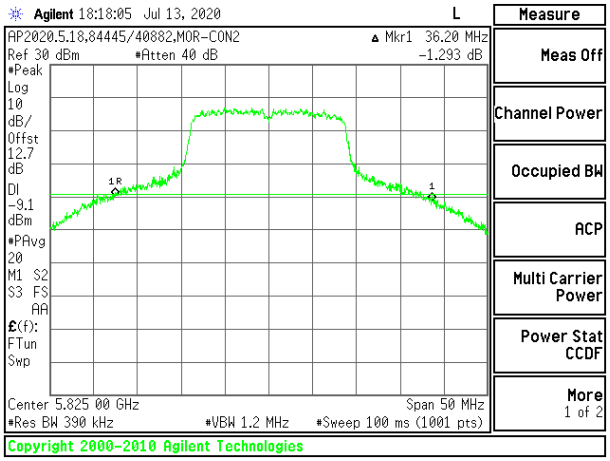
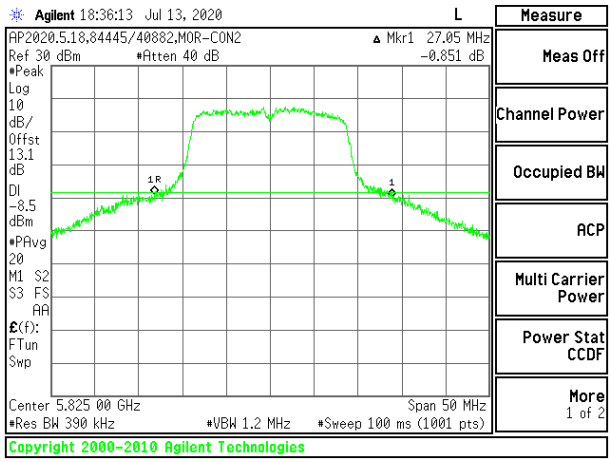
HIGH CHANNEL



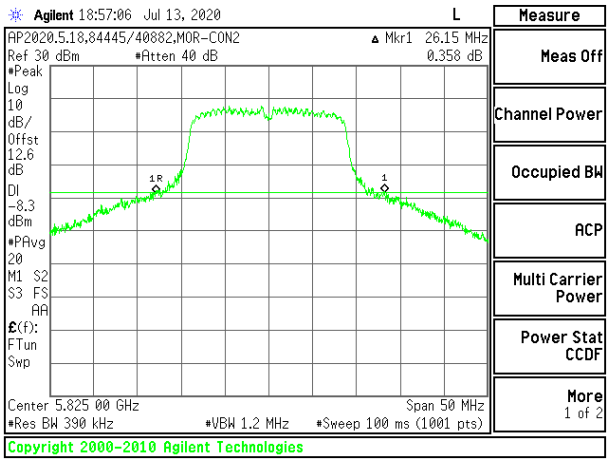
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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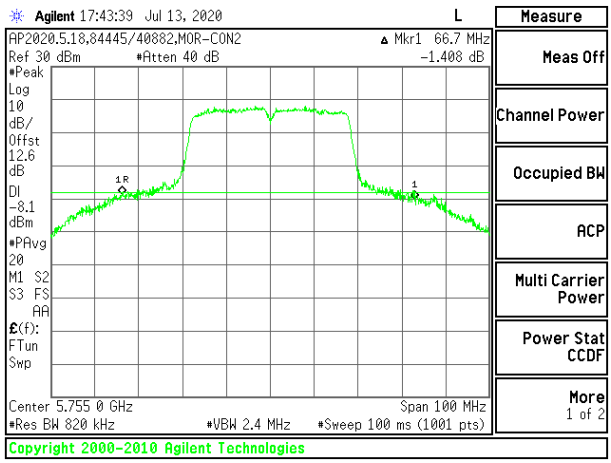
9.2.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

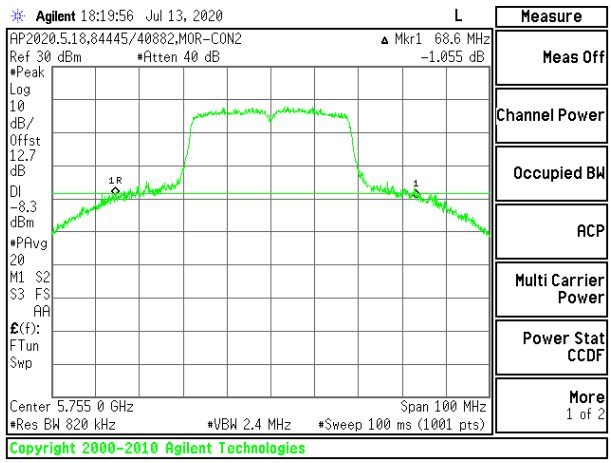
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Antenna 1 (MHz)	26 dB Bandwidth Antenna 2 (MHz)	26 dB Bandwidth Antenna 3 (MHz)	26 dB Bandwidth Antenna 4 (MHz)
Low	5755	66.70	68.60	55.40	59.90
High	5795	62.60	73.70	61.50	44.10

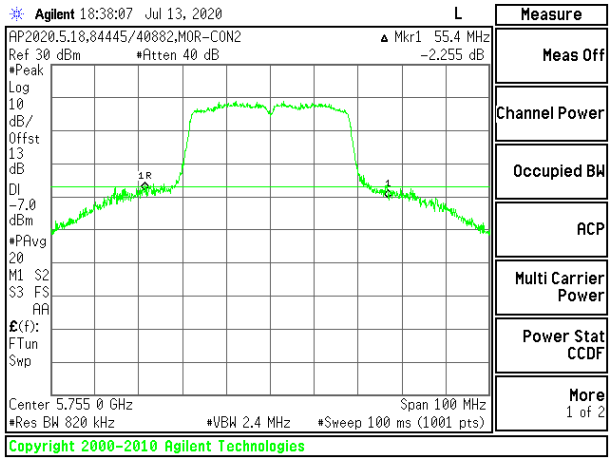
LOW CHANNEL



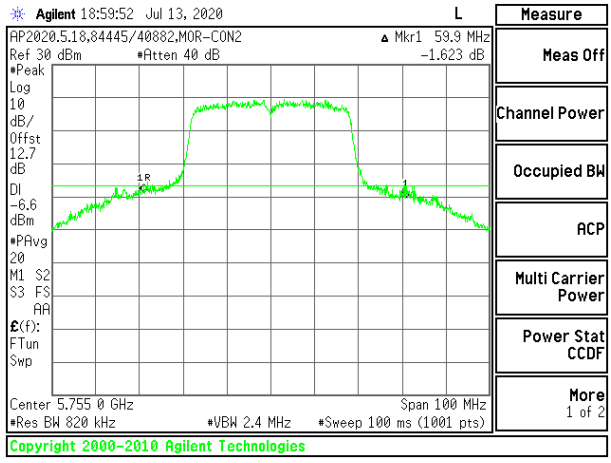
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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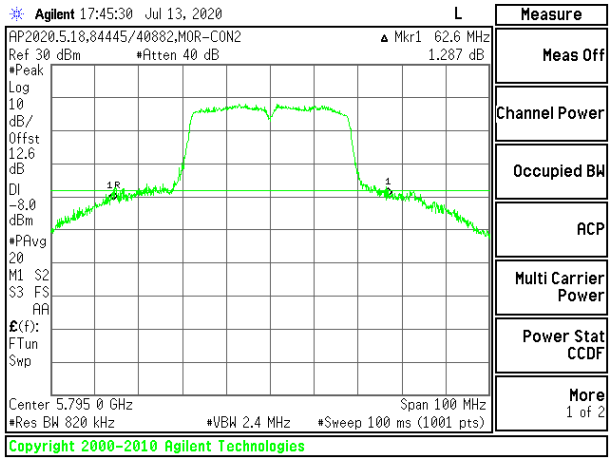
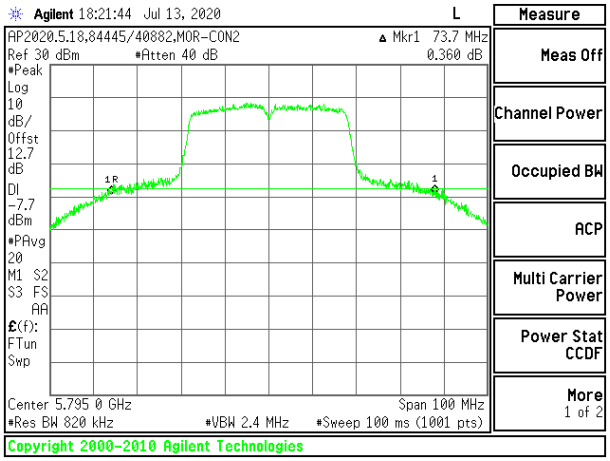
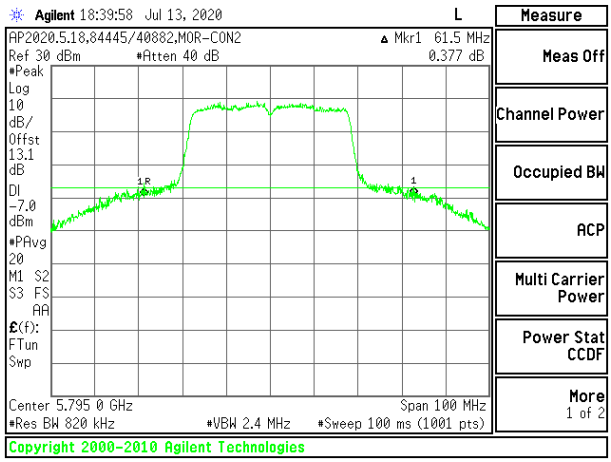
HIGH CHANNEL



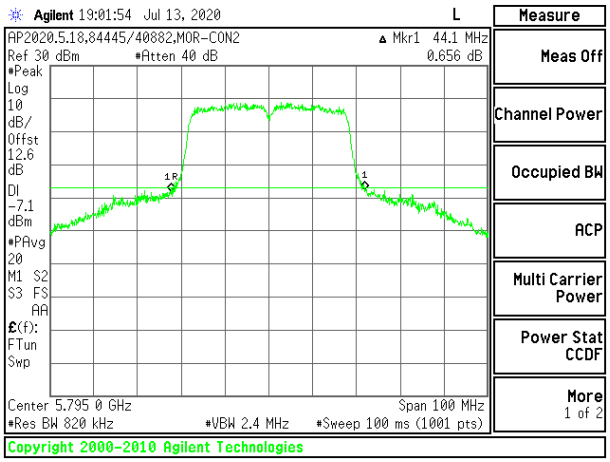
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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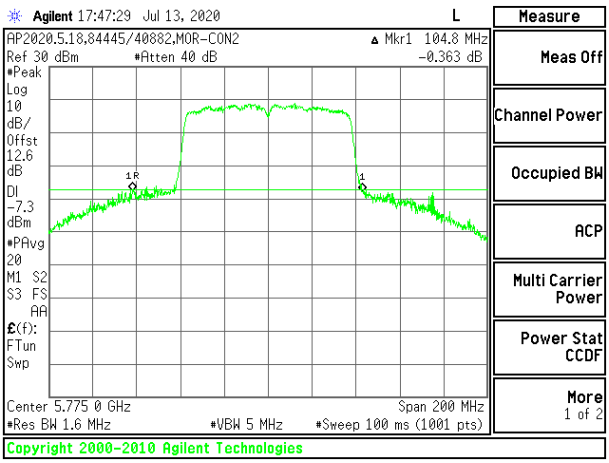
9.2.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

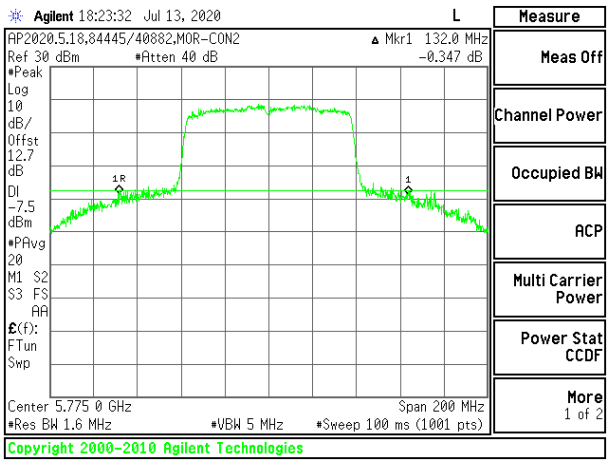
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Antenna 1 (MHz)	26 dB Bandwidth Antenna 2 (MHz)	26 dB Bandwidth Antenna 3 (MHz)	26 dB Bandwidth Antenna 4 (MHz)
Mid	5775	104.80	132.00	95.60	84.20

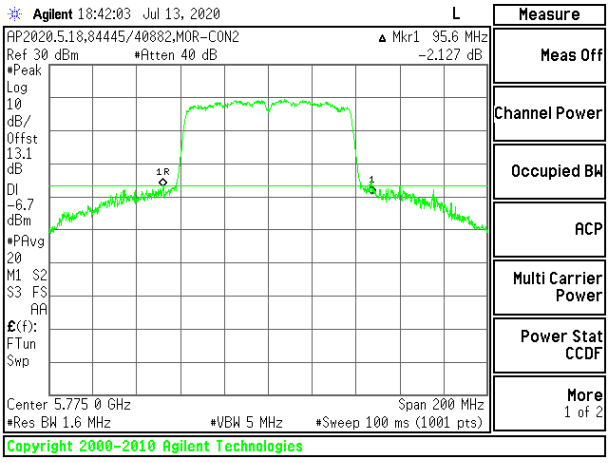
MID CHANNEL



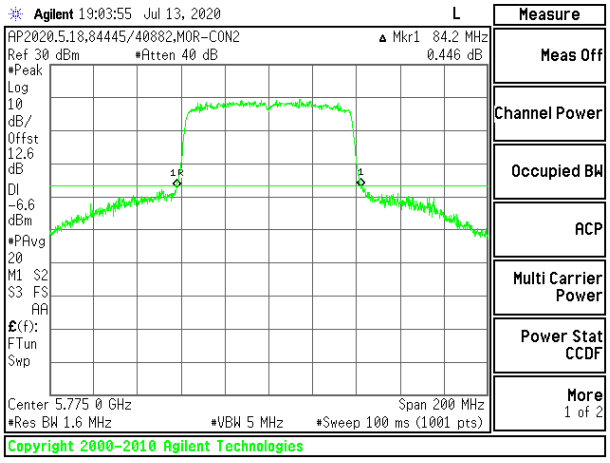
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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9.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

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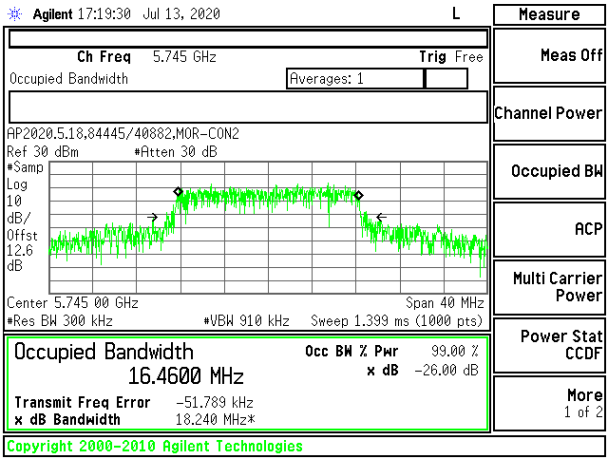
9.3.1. 802.11a MODE IN THE 5.8 GHz BAND

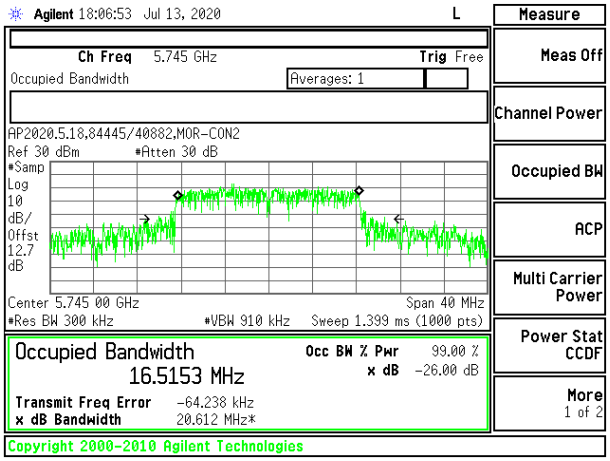
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	16.460	16.515	16.365	16.512
Mid	5785	16.460	16.504	16.469	16.436
High	5825	16.533	16.540	16.431	16.446

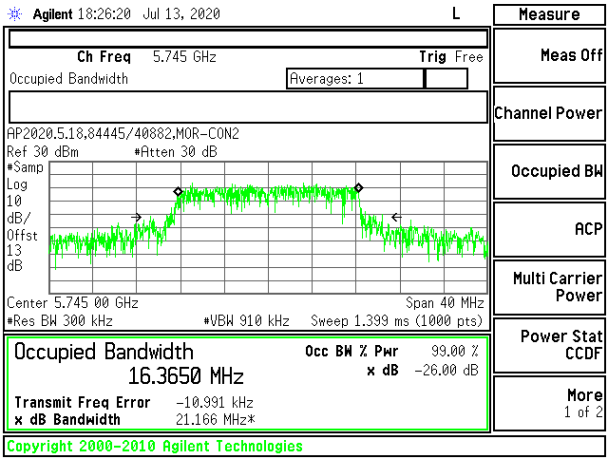
LOW CHANNEL



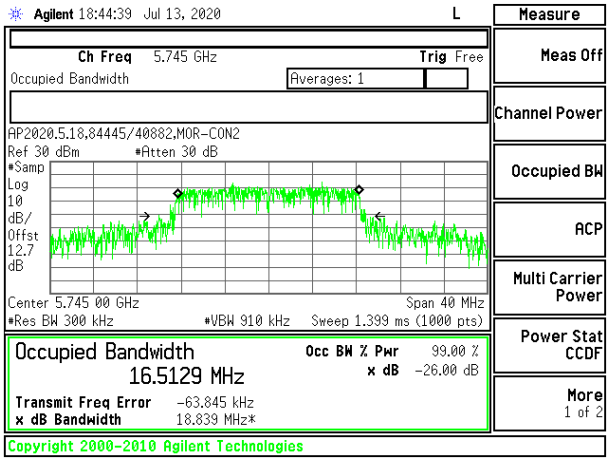
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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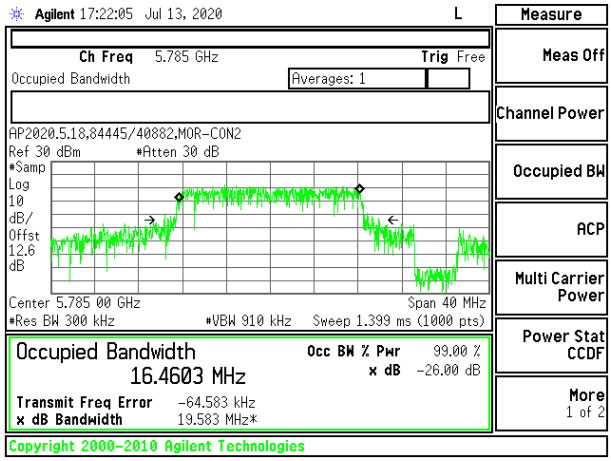
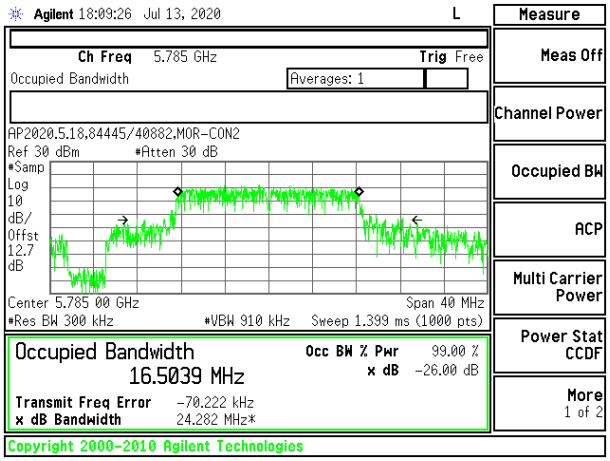
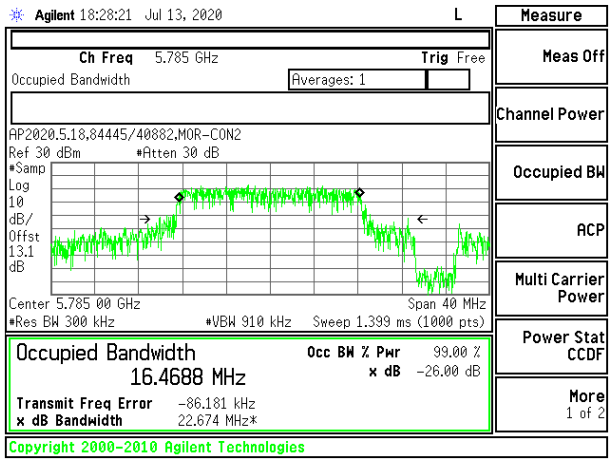
MID CHANNEL



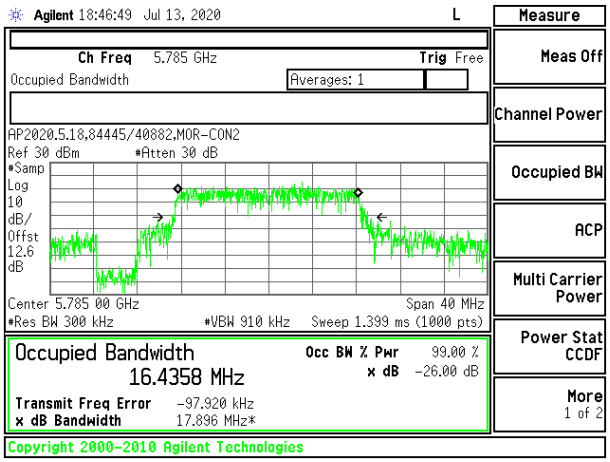
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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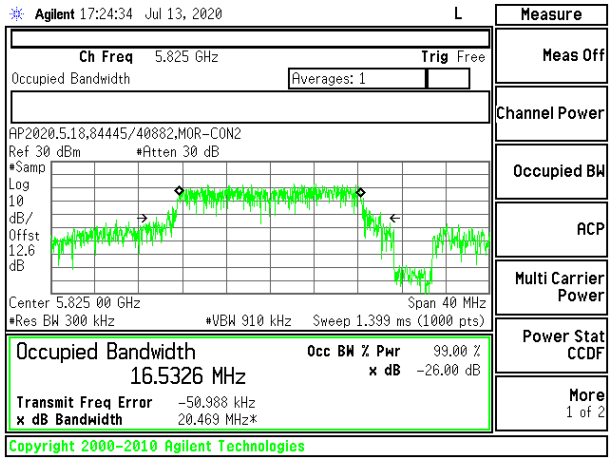
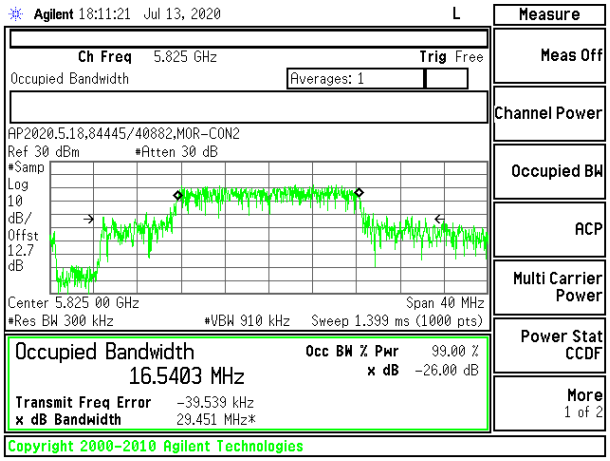
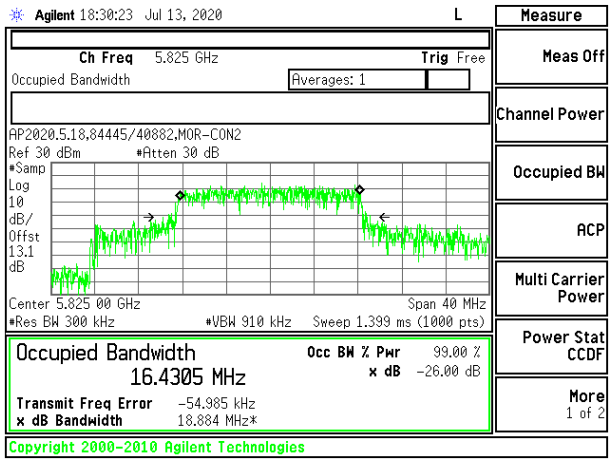
HIGH CHANNEL



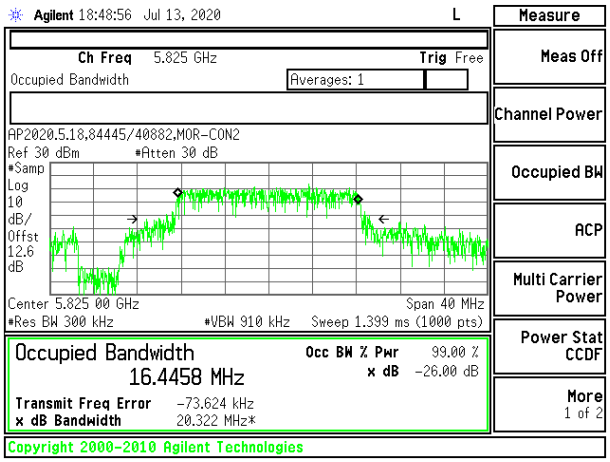
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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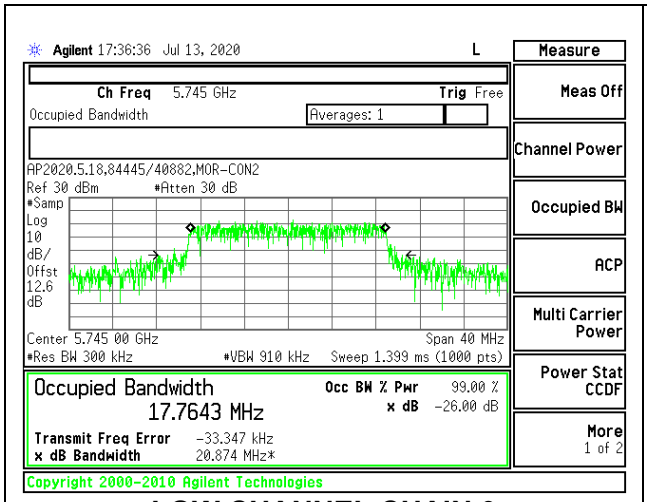
9.3.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

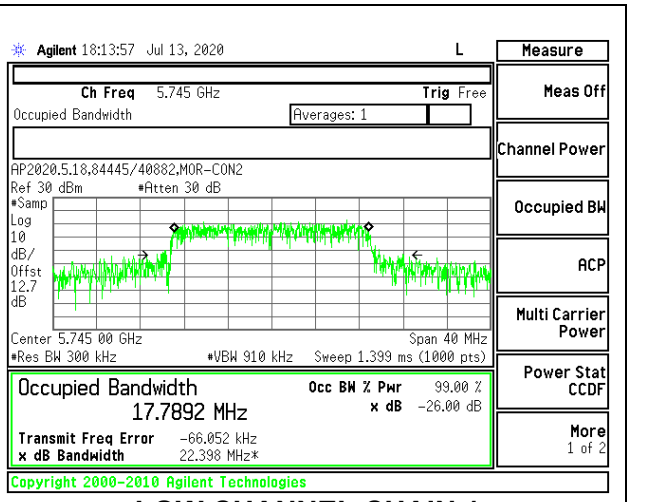
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5745	17.764	17.789	17.648	17.700
Mid	5785	17.714	17.684	17.645	17.614
High	5825	17.744	17.784	17.714	17.750

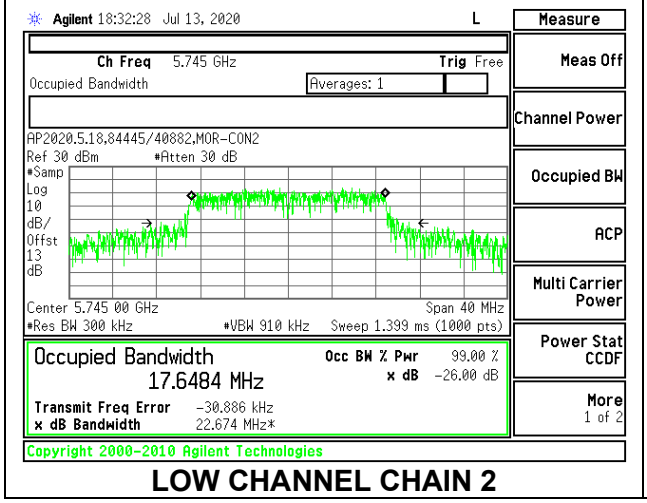
LOW CHANNEL



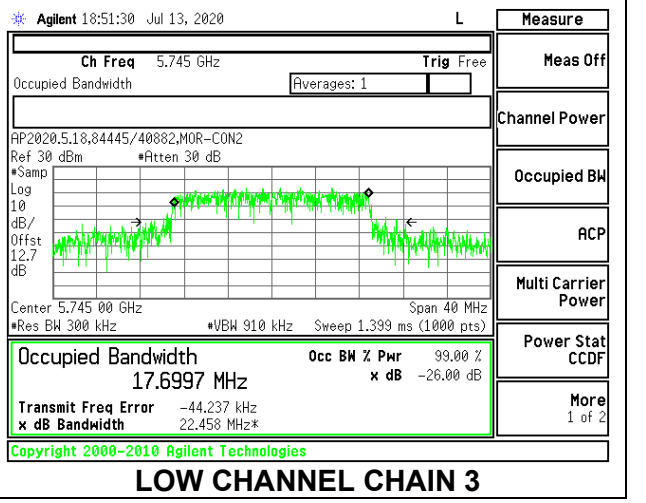
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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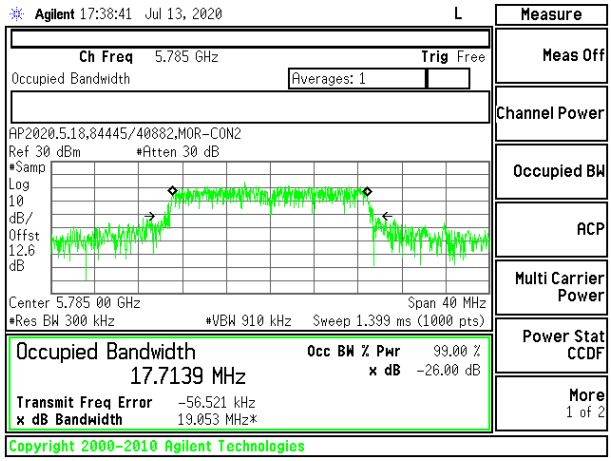
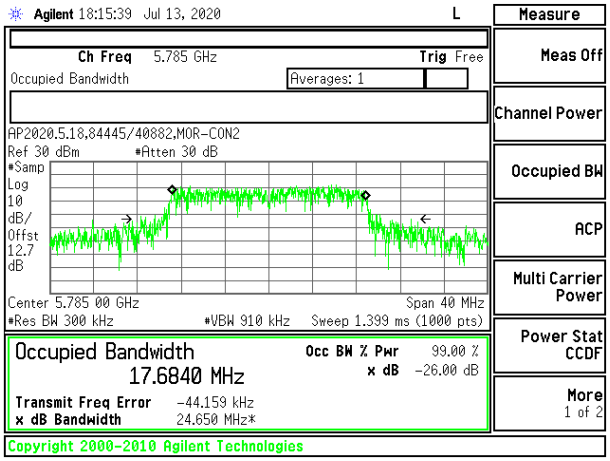
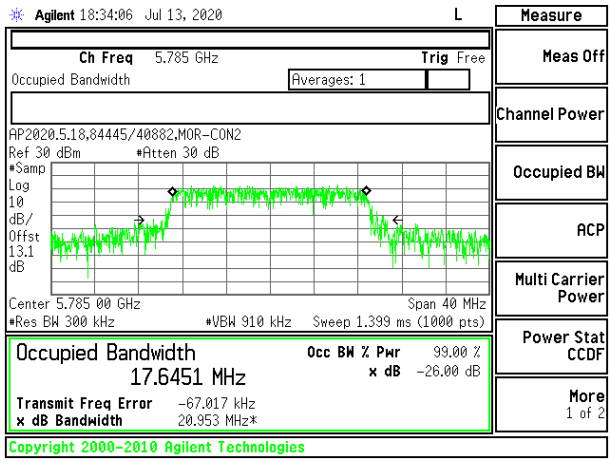
MID CHANNEL



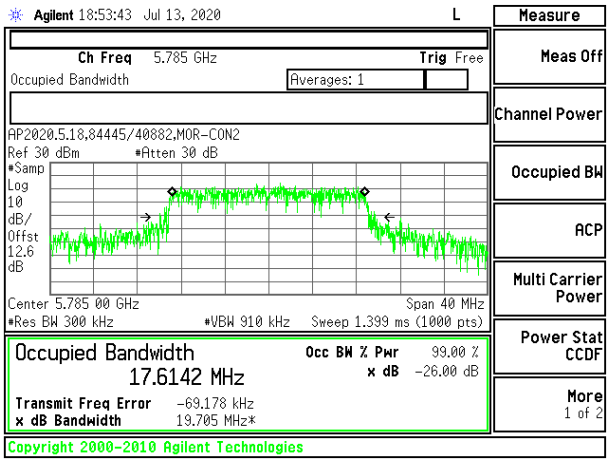
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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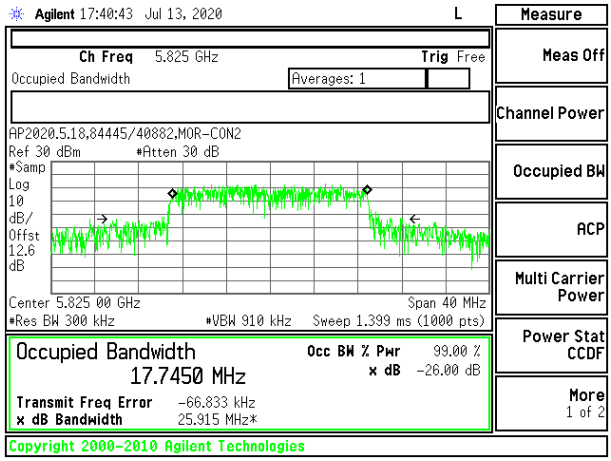
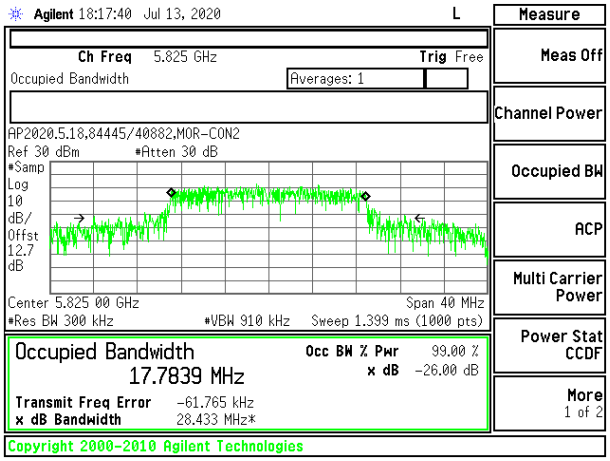
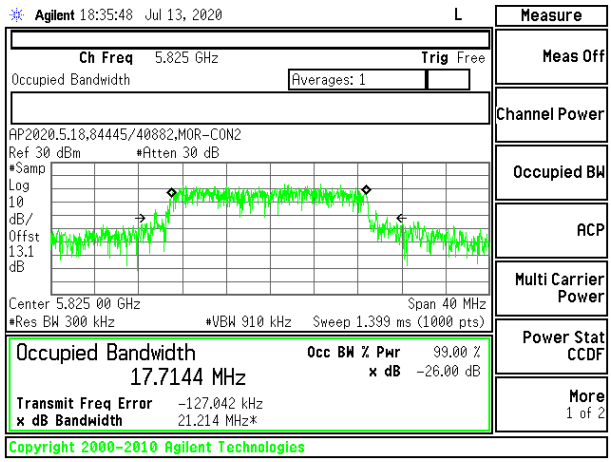
HIGH CHANNEL



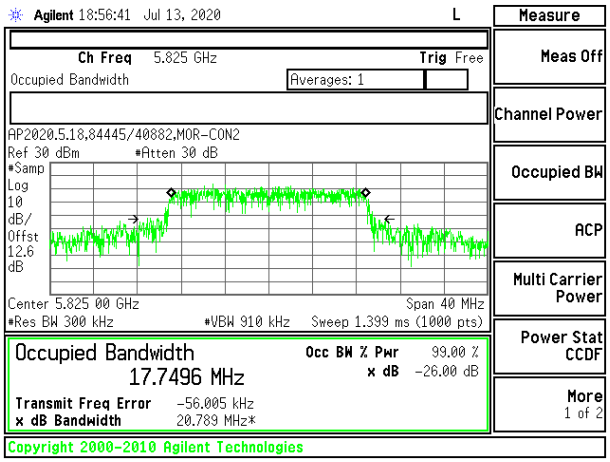
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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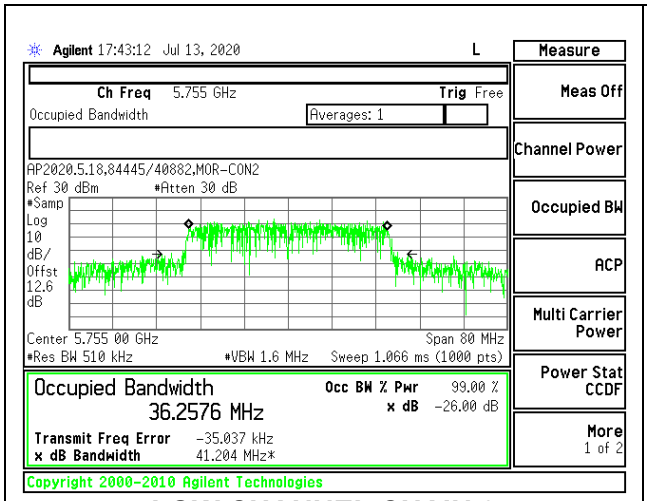
9.3.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

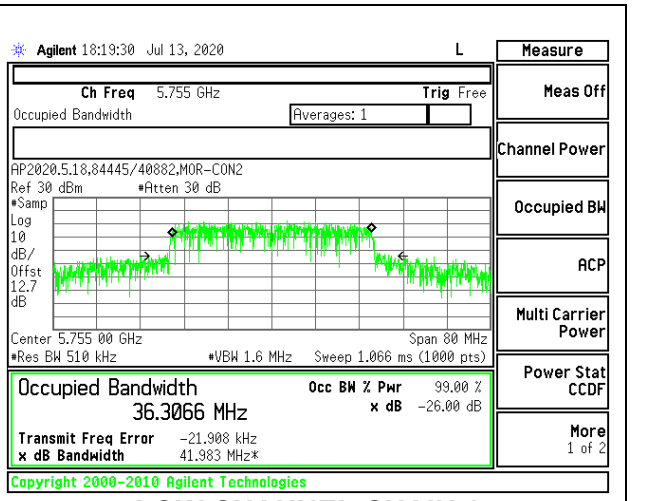
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Low	5755	36.258	36.307	36.042	36.244
High	5795	36.096	36.368	36.218	36.193

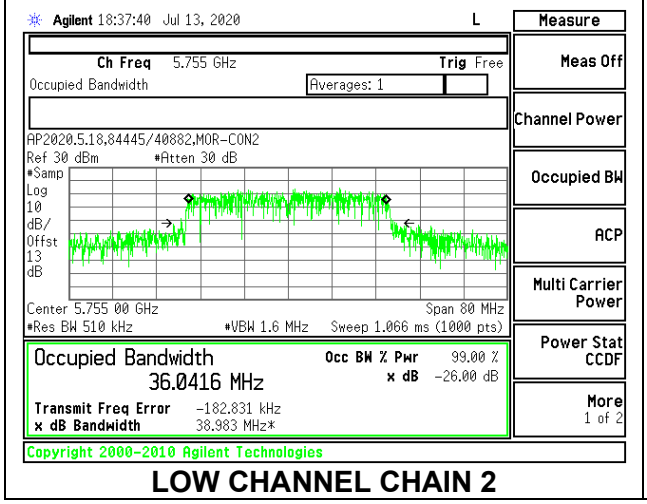
LOW CHANNEL



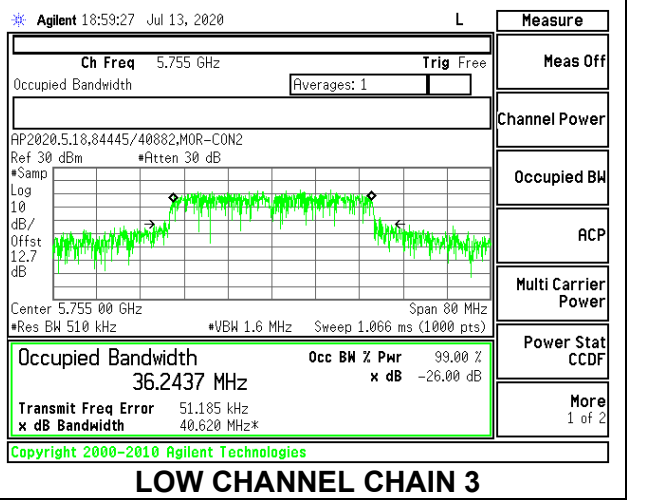
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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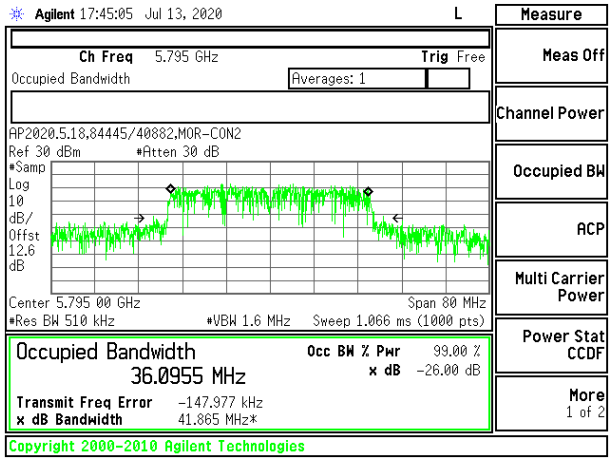
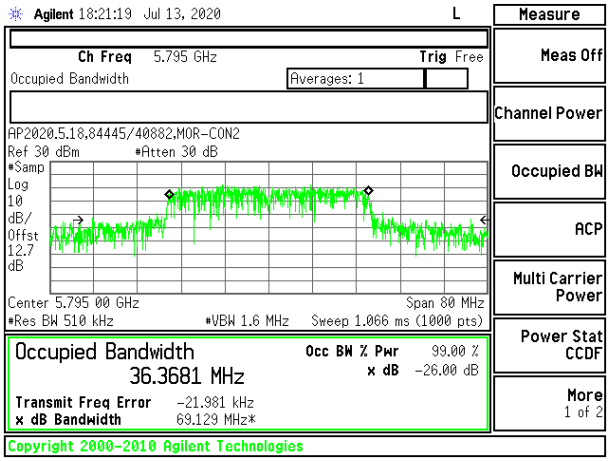
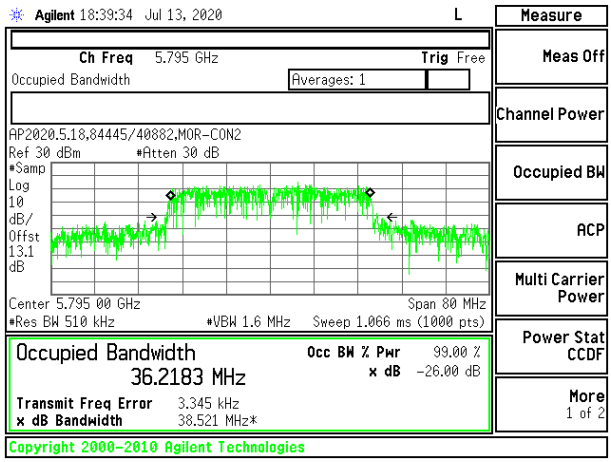
HIGH CHANNEL



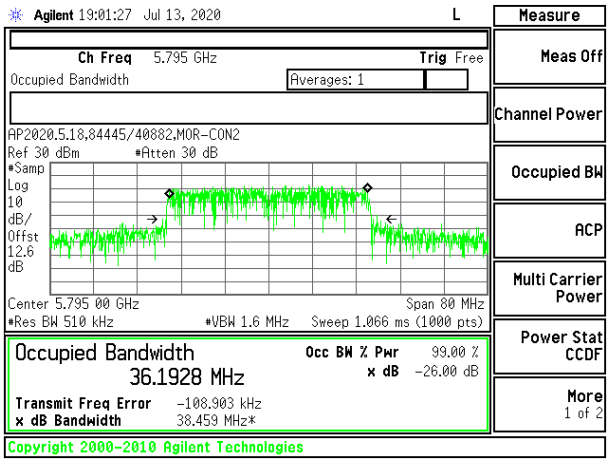
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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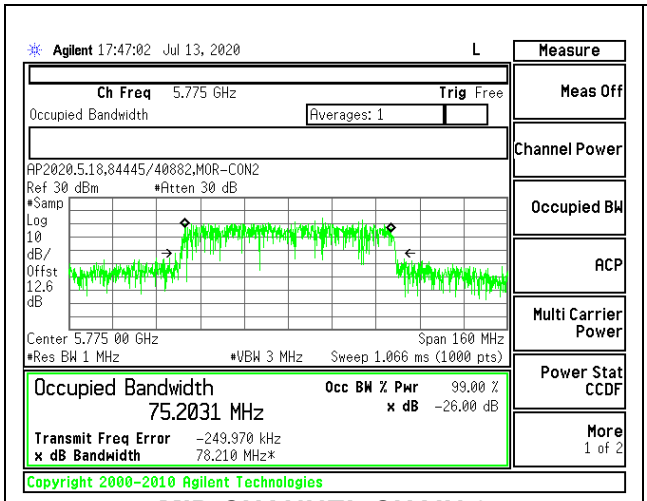
9.3.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

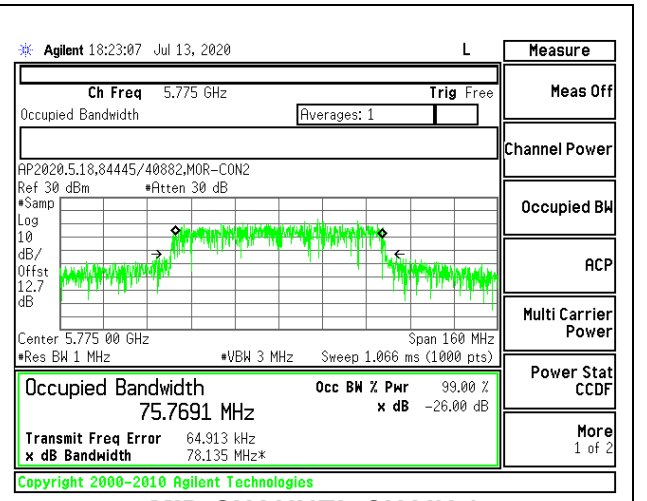
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	99% Bandwidth Antenna 1 (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)	99% Bandwidth Antenna 4 (MHz)
Mid	5775	75.203	75.769	75.721	75.460

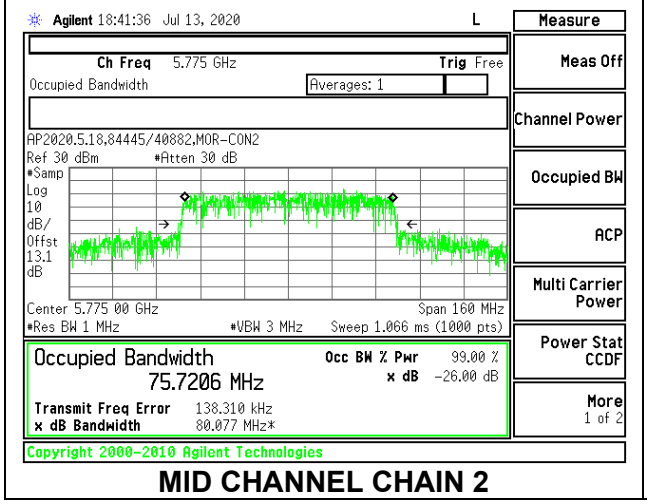
MID CHANNEL



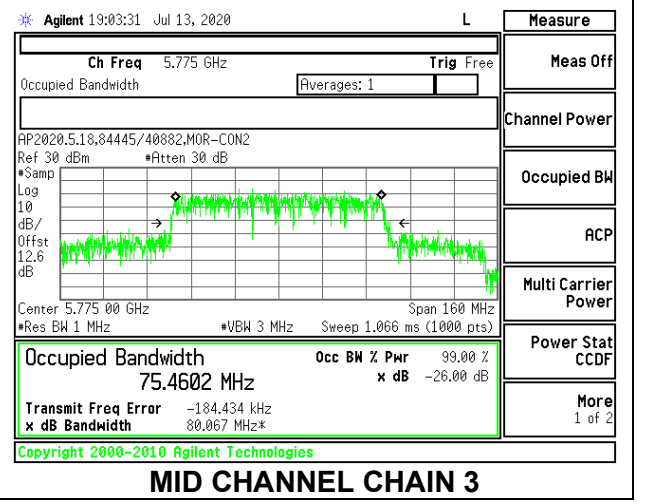
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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9.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)
RSS-247 6.2.4.1

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

RESULTS

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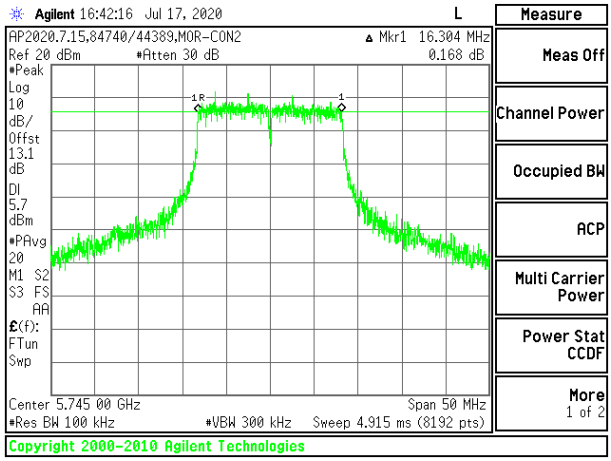
9.4.1. 802.11a MODE IN THE 5.8 GHz BAND

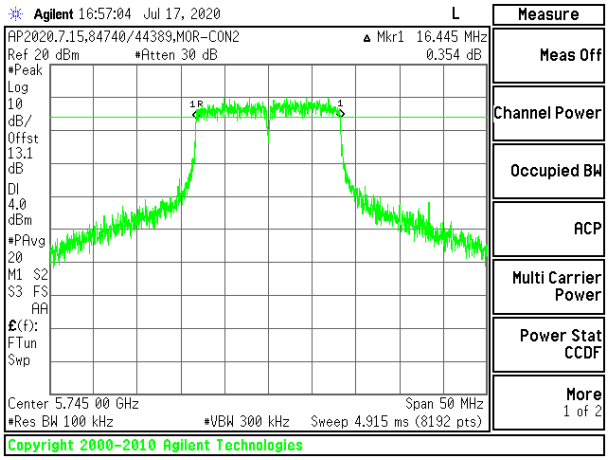
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	16.304	16.445	16.738	16.457	0.5
Mid	5785	16.335	16.433	16.329	15.645	0.5
High	5825	16.335	16.335	16.079	16.280	0.5

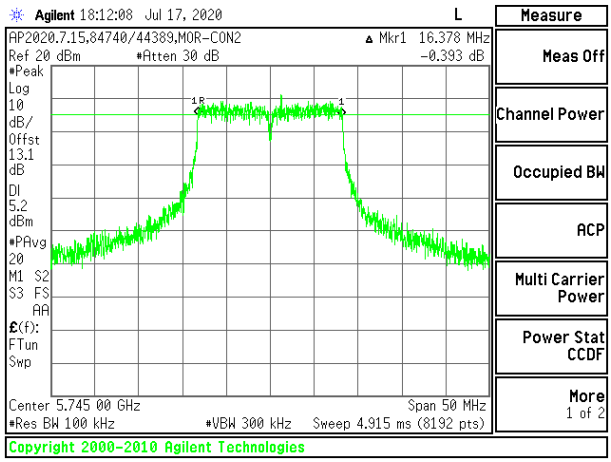
LOW CHANNEL



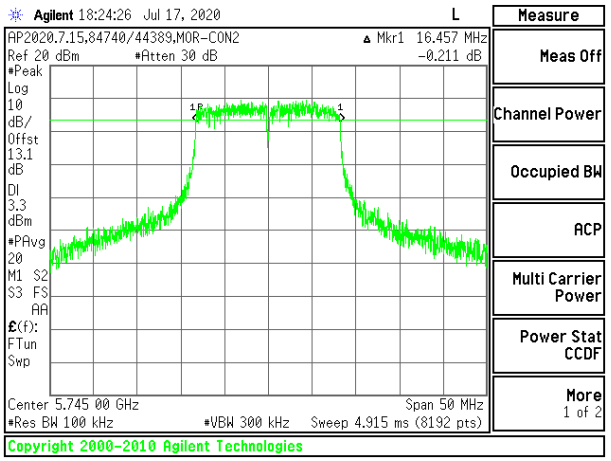
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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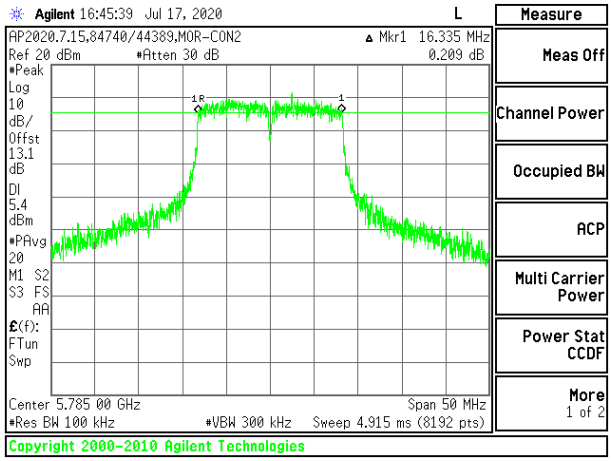
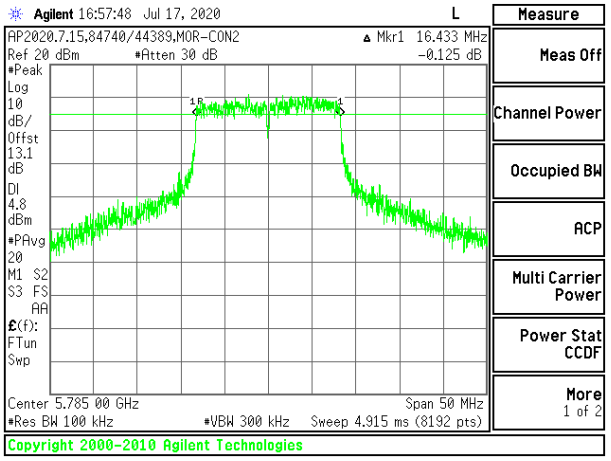
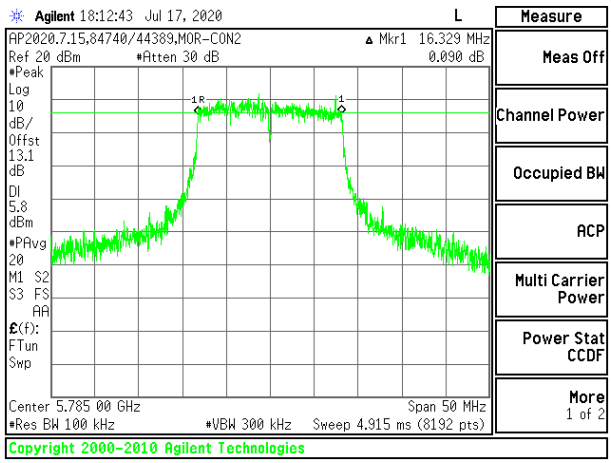
MID CHANNEL



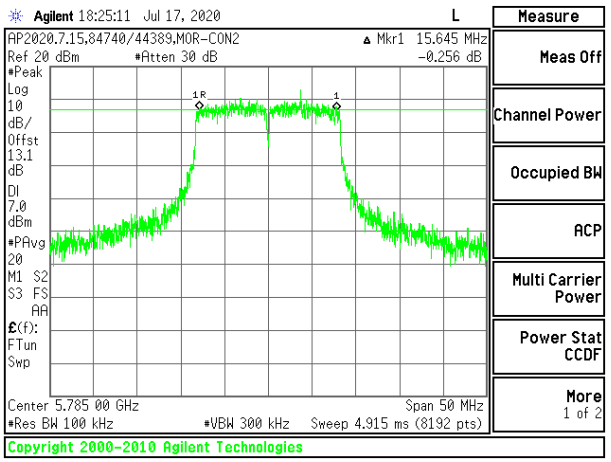
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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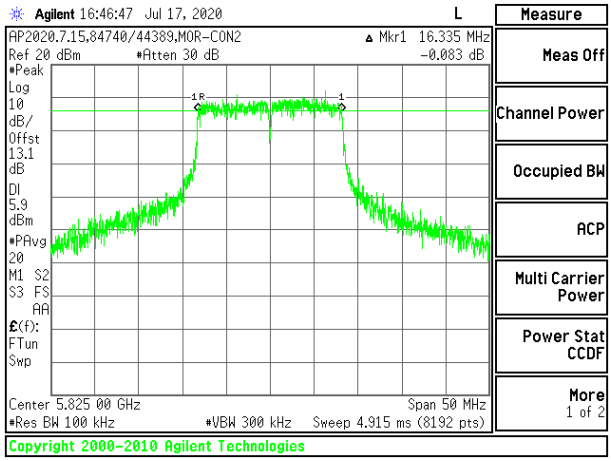
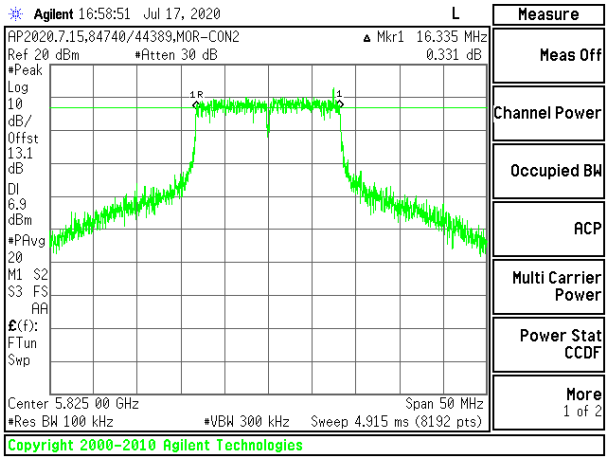
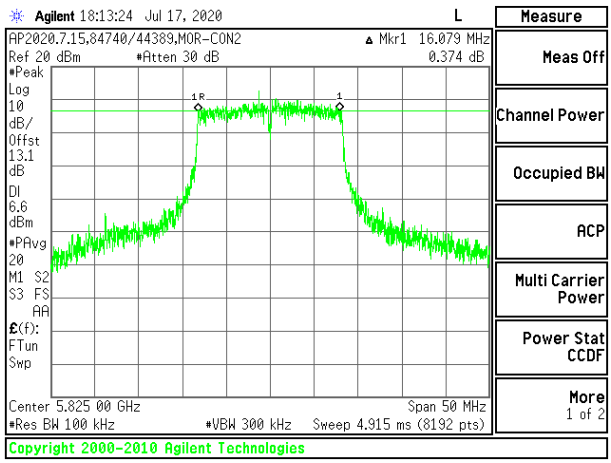
HIGH CHANNEL



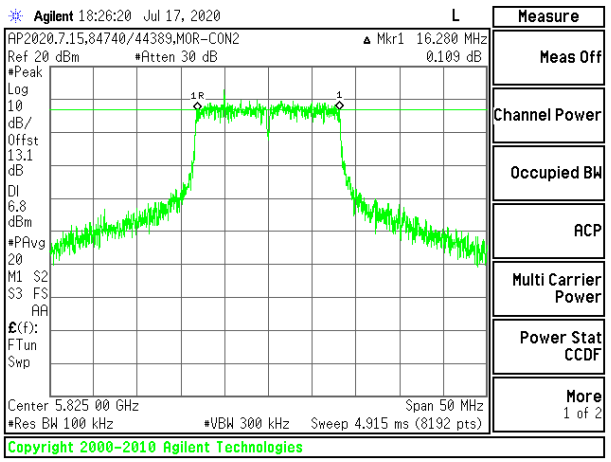
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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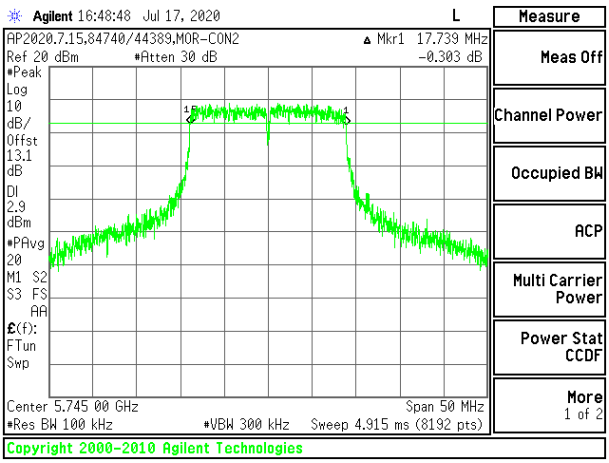
9.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

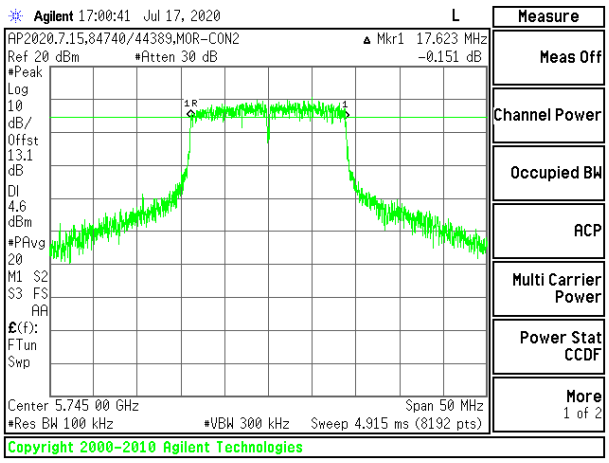
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5745	17.739	17.623	16.225	17.672	0.5
Mid	5785	17.263	17.745	17.715	17.617	0.5
High	5825	17.623	17.617	17.684	17.666	0.5

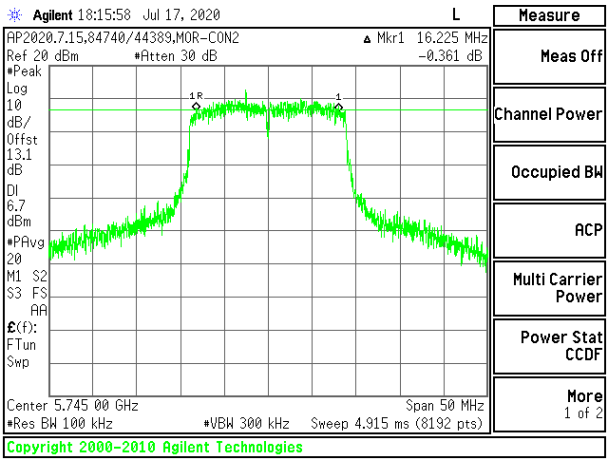
LOW CHANNEL



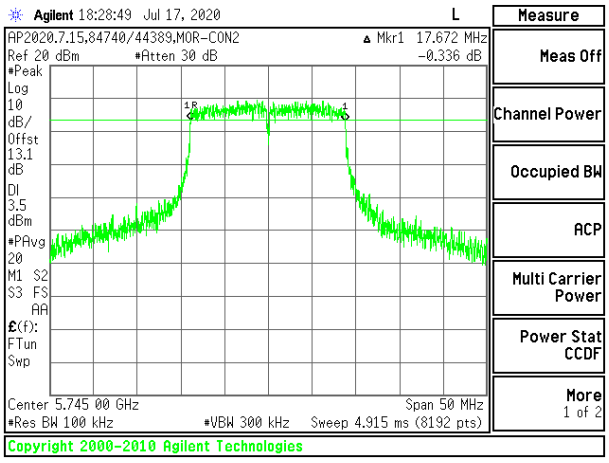
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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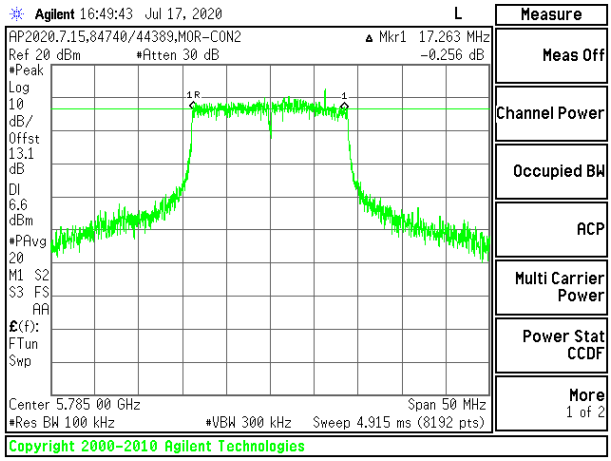
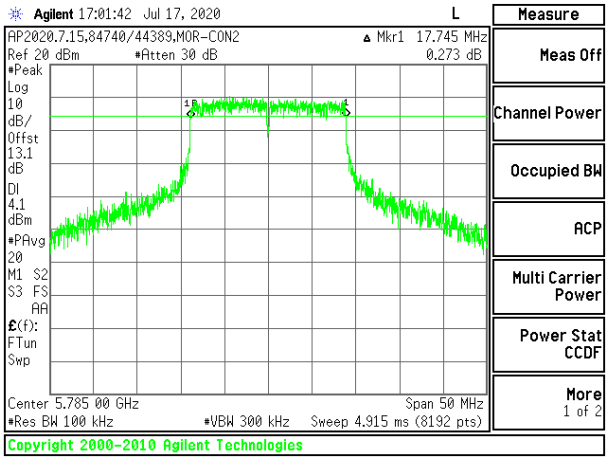
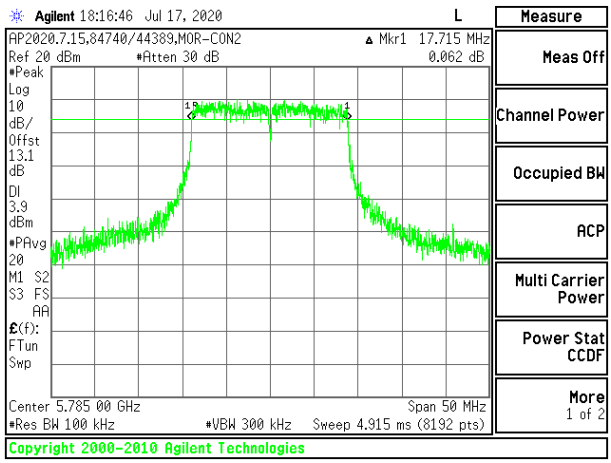
MID CHANNEL



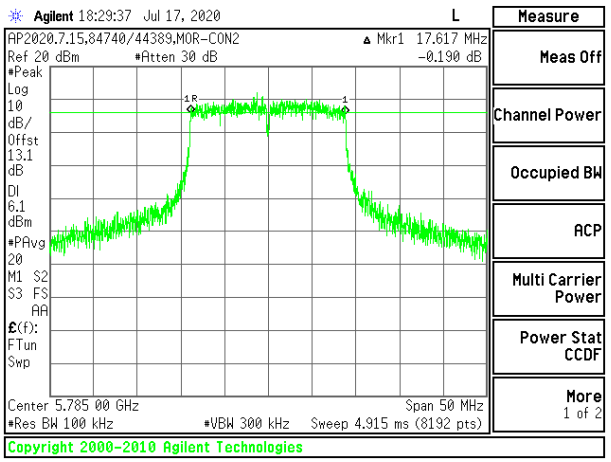
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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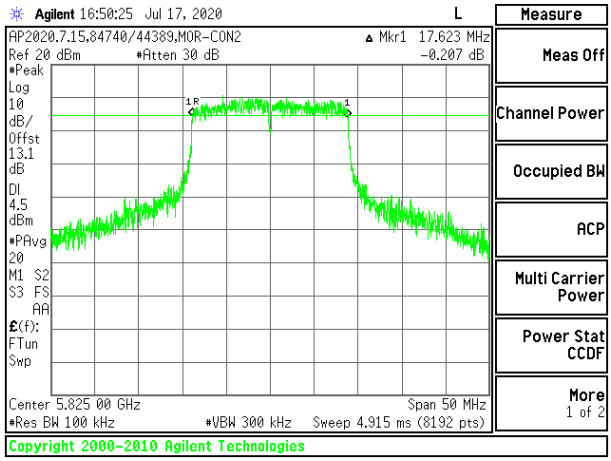
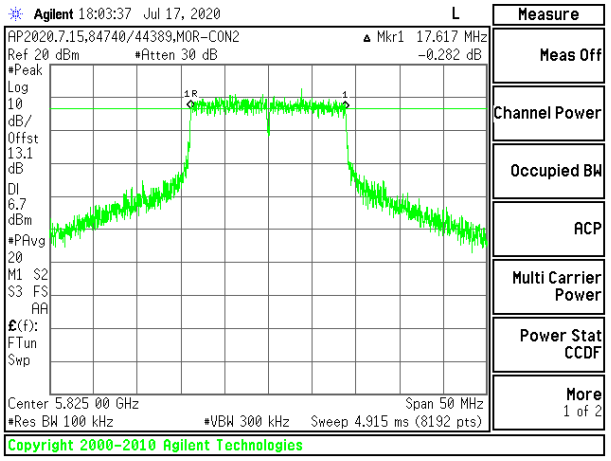
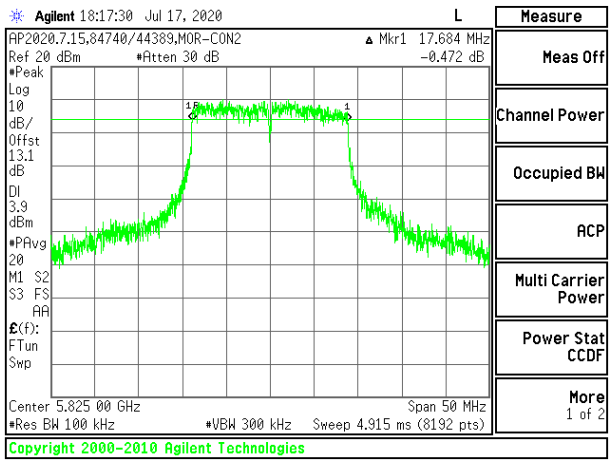
HIGH CHANNEL



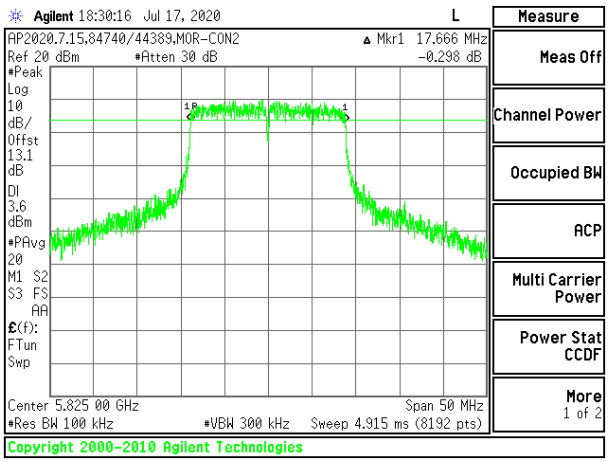
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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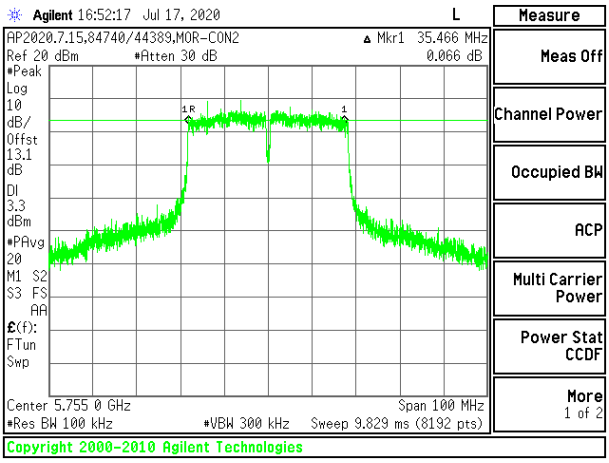
9.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

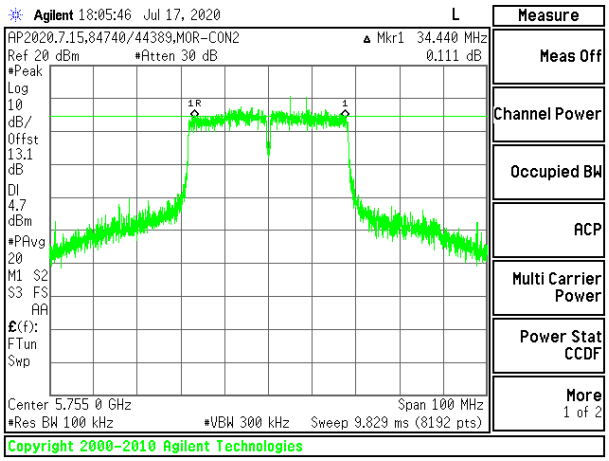
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Low	5755	35.466	34.440	36.296	36.345	0.5
High	5795	36.394	35.954	36.369	36.418	0.5

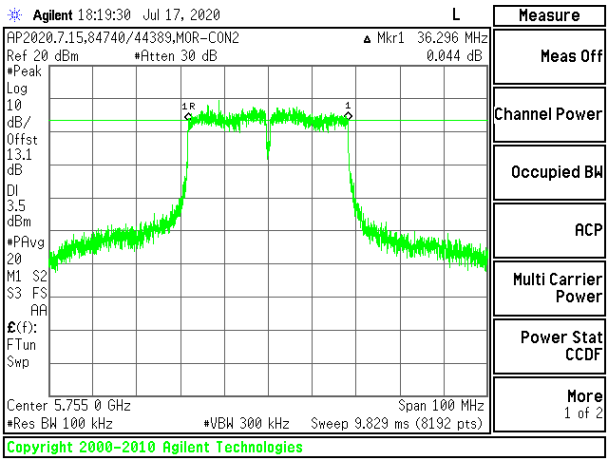
LOW CHANNEL



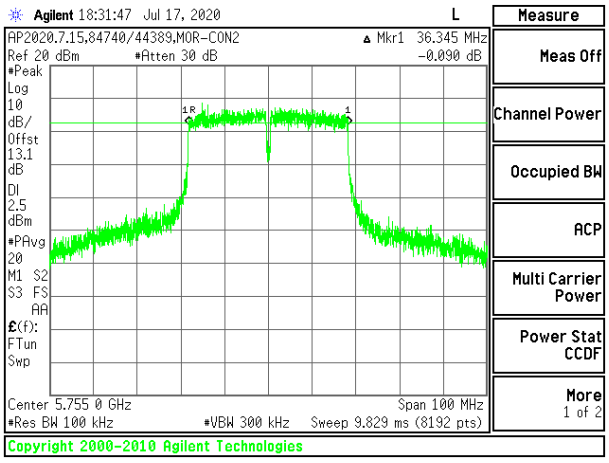
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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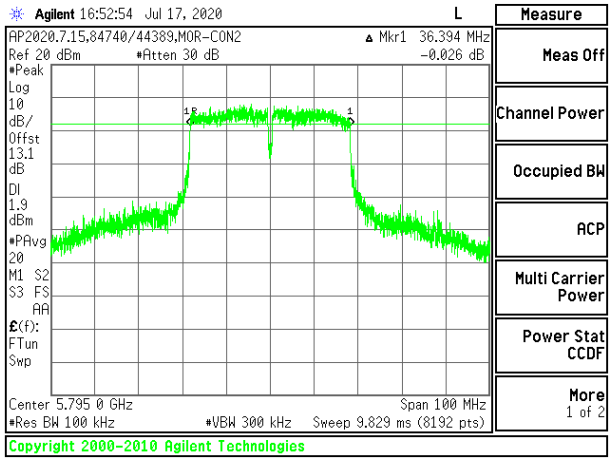
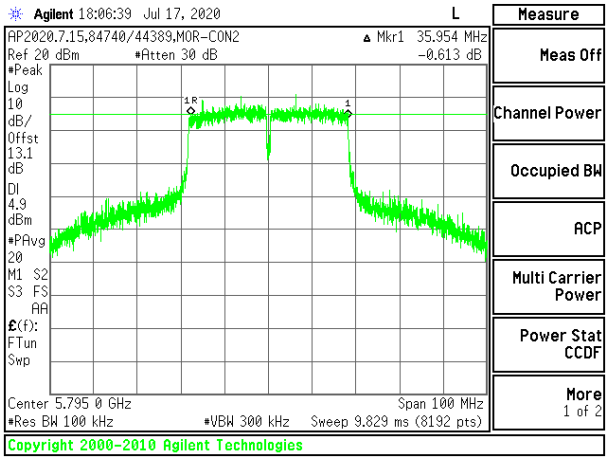
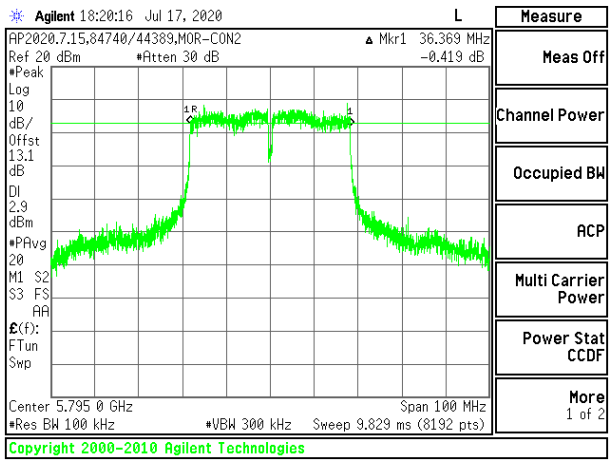
HIGH CHANNEL



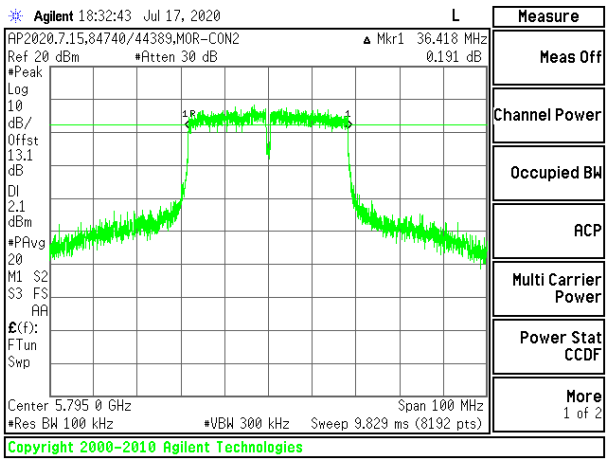
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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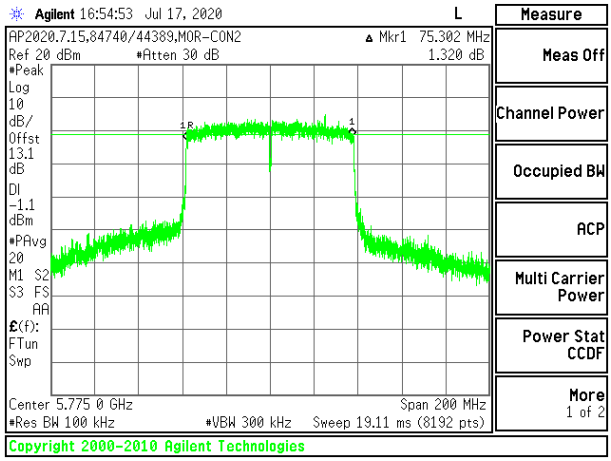
9.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

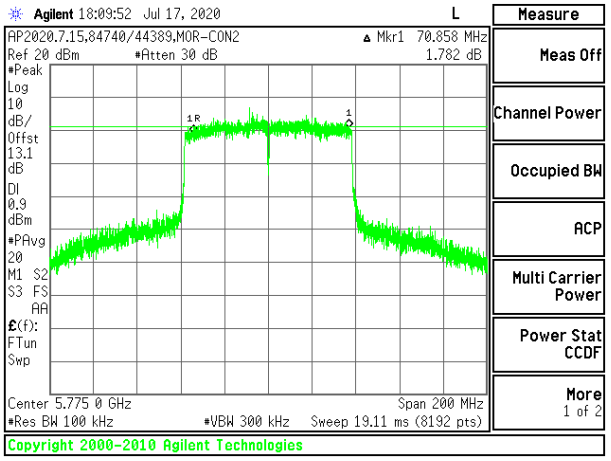
4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

Channel	Frequency (MHz)	6 dB BW Antenna 1 (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	6 dB BW Antenna 4 (MHz)	Minimum Limit (MHz)
Mid	5775	75.302	70.858	76.132	76.352	0.5

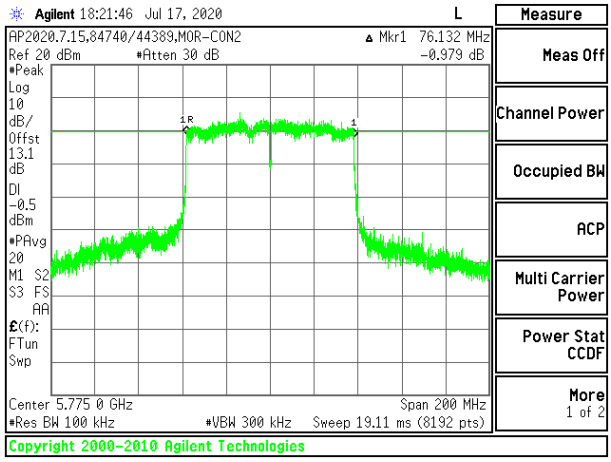
MID CHANNEL



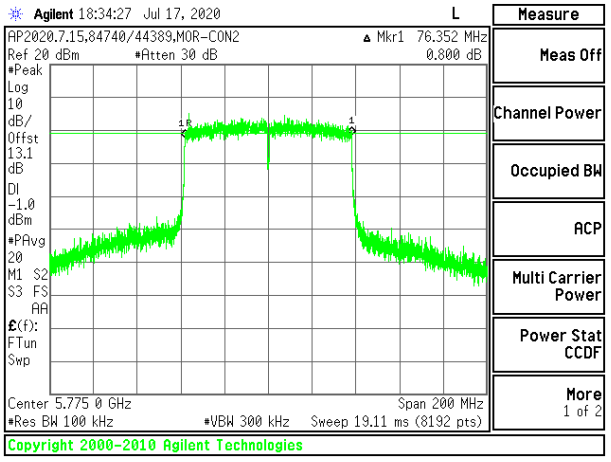
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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9.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

RSS-247

Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and for straddles channels KDB 789033 D02 v02r01, Section E.2.b (Method SA-1) was used.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F

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DIRECTIONAL ANTENNA GAIN

For 4 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)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Chain 3 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.8	2.8	5.1	5.2	3.4	4.25	10.21

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RESULTS

9.5.1. 802.11a MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (FCC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	4.25	10.21	30.00	25.79
Mid	5785	4.25	10.21	30.00	25.79
High	5825	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.65	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	24.44	23.30	23.90	22.25	29.57	30.00	-0.43
Mid	5785	22.73	23.30	23.72	23.06	29.24	30.00	-0.76
High	5825	22.89	23.30	22.81	22.20	28.84	30.00	-1.16

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	10.10	9.07	11.45	10.36	17.00	25.79	-8.79
Mid	5785	9.85	9.78	10.65	10.16	16.80	25.79	-8.99
High	5825	9.96	9.31	10.21	9.77	16.50	25.79	-9.29

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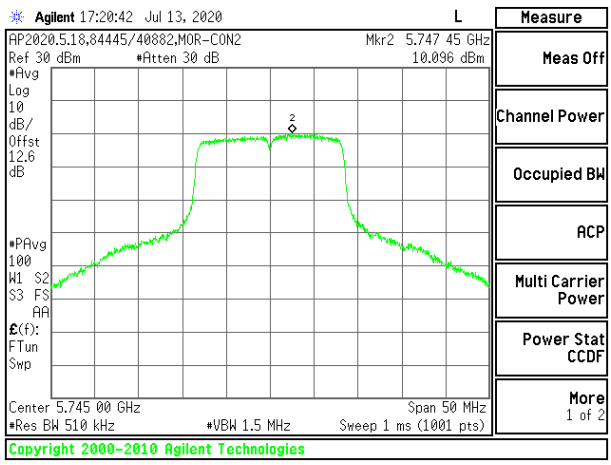
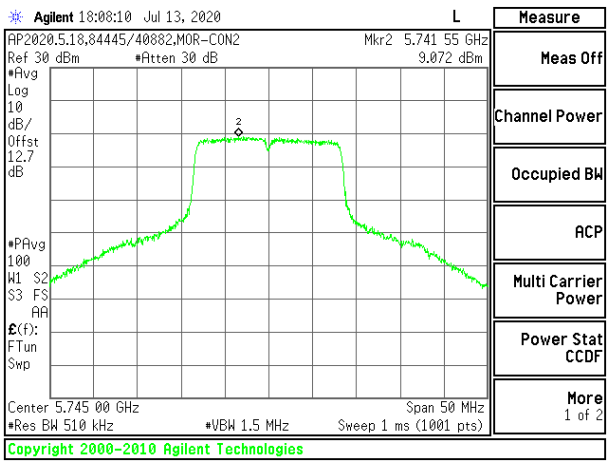
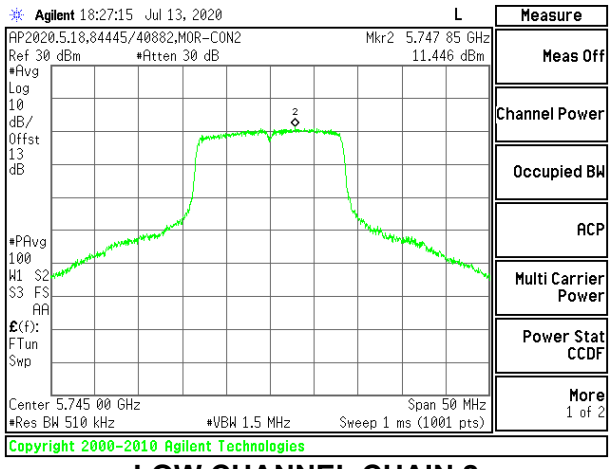
LOW CHANNEL



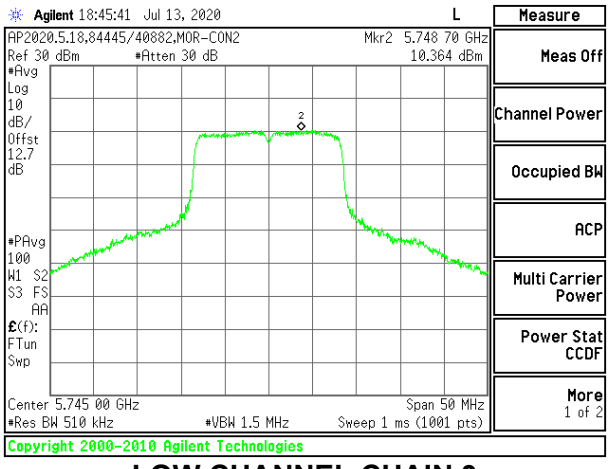
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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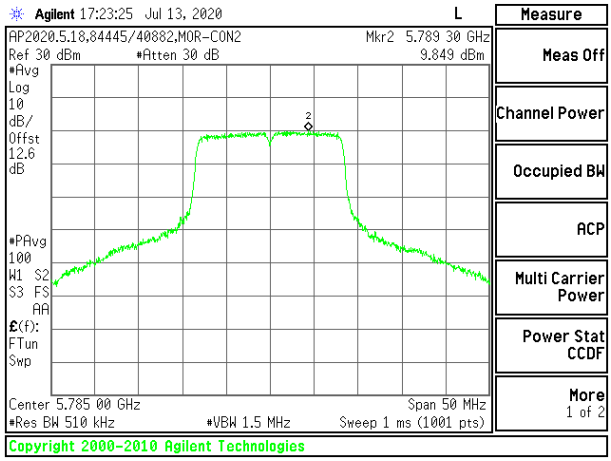
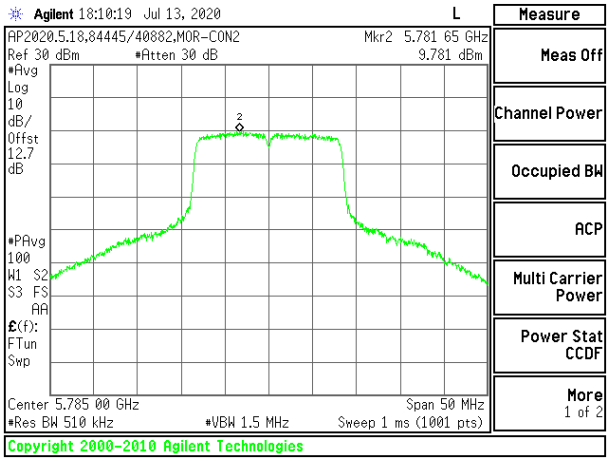
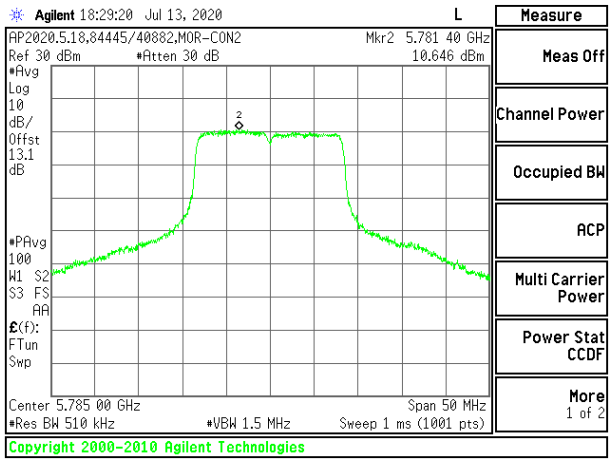
MID CHANNEL



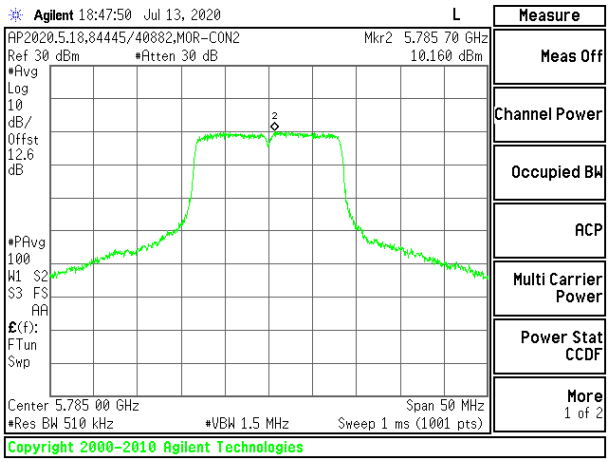
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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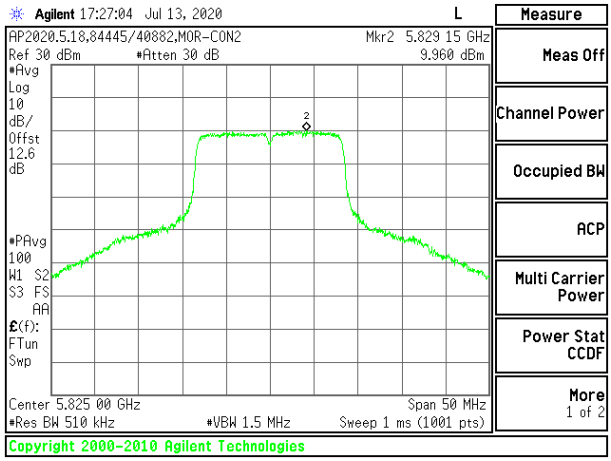
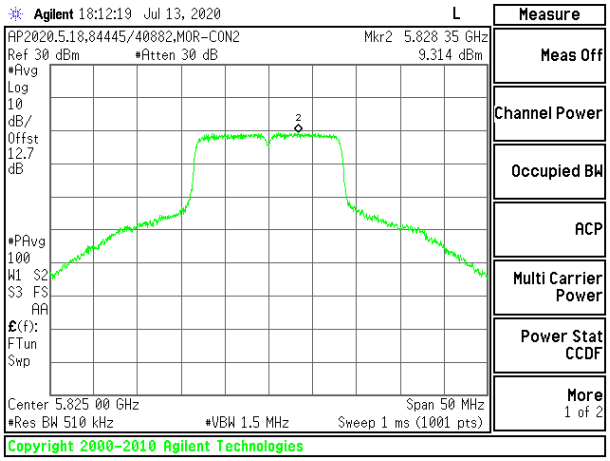
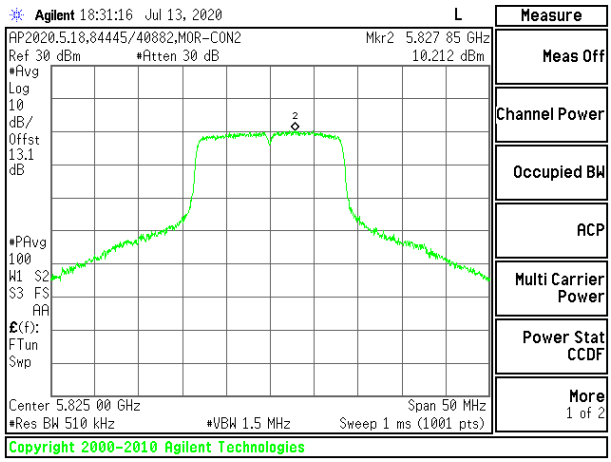
HIGH CHANNEL



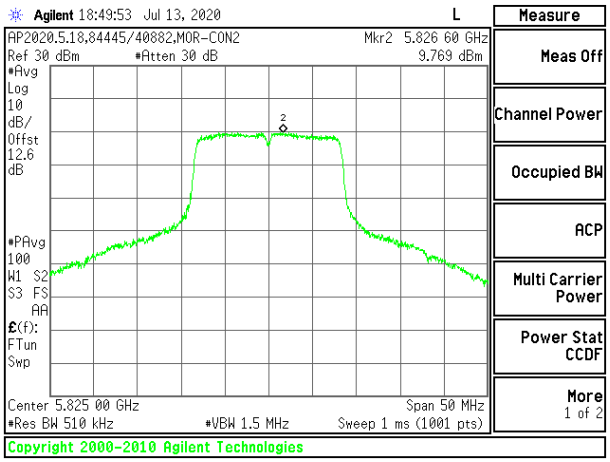
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (IC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	4.25	10.21	30.00	25.79
Mid	5785	4.25	10.21	30.00	25.79
High	5825	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.65	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	24.44	23.30	23.90	22.25	29.57	30.00	-0.43
Mid	5785	22.73	23.30	23.72	23.06	29.24	30.00	-0.76
High	5825	22.89	23.30	22.81	22.20	28.84	30.00	-1.16

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	10.10	9.07	11.45	10.36	17.00	25.79	-8.79
Mid	5785	9.85	9.78	10.65	10.16	16.80	25.79	-8.99
High	5825	9.96	9.31	10.21	9.77	16.50	25.79	-9.29

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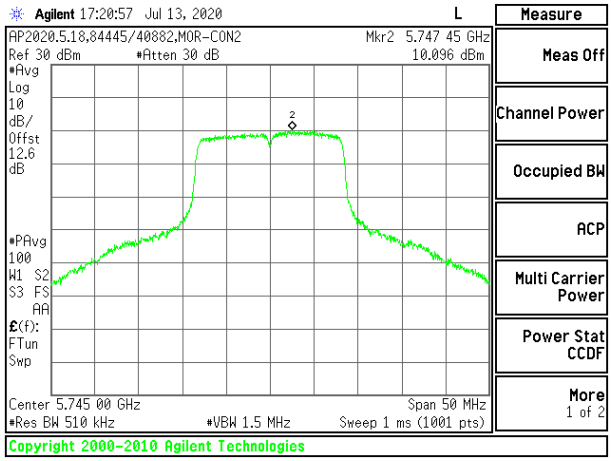
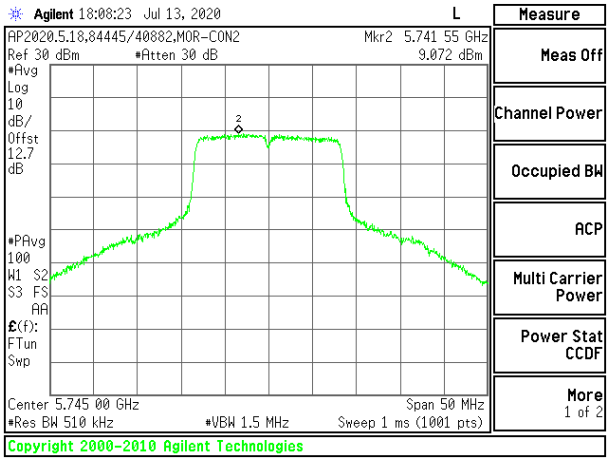
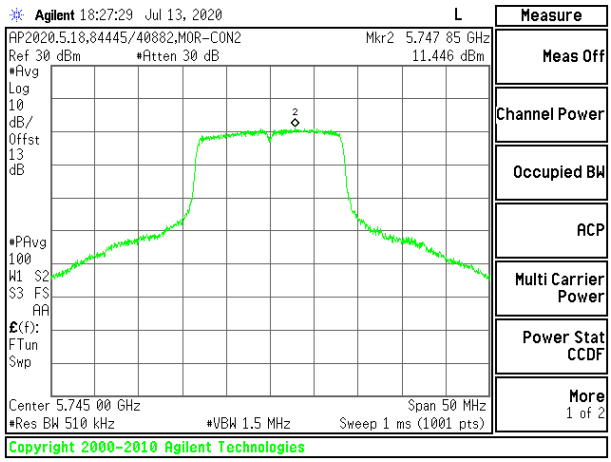
LOW CHANNEL



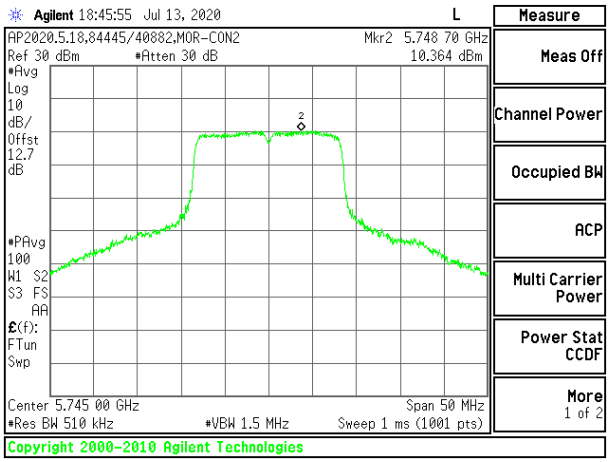
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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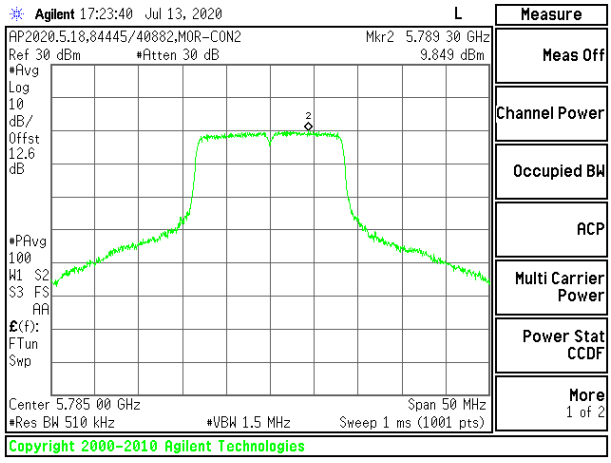
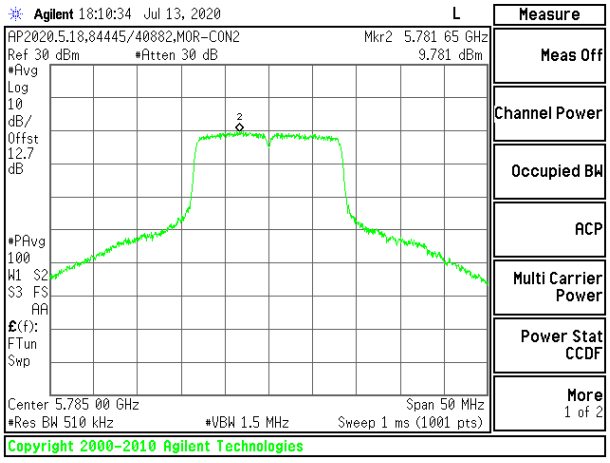
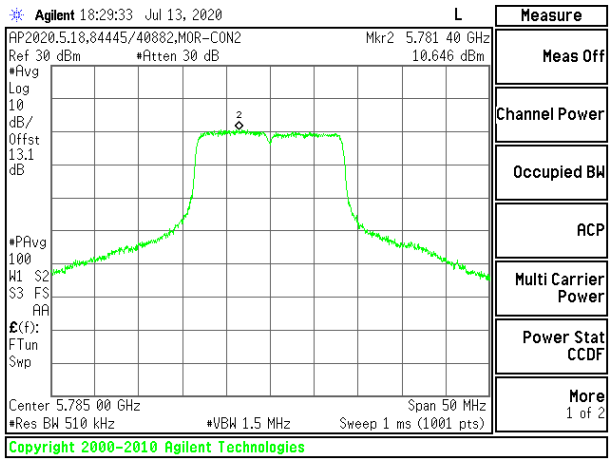
MID CHANNEL



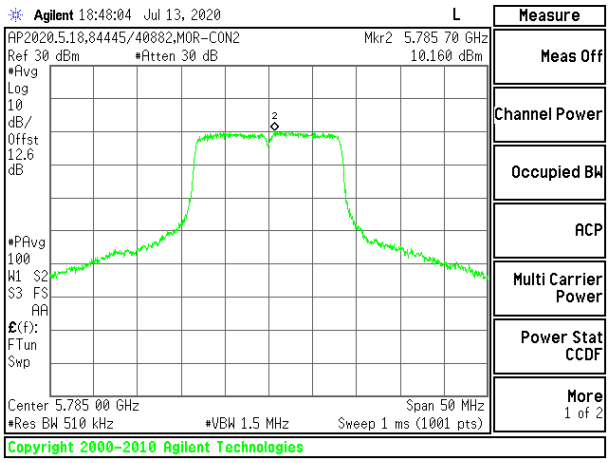
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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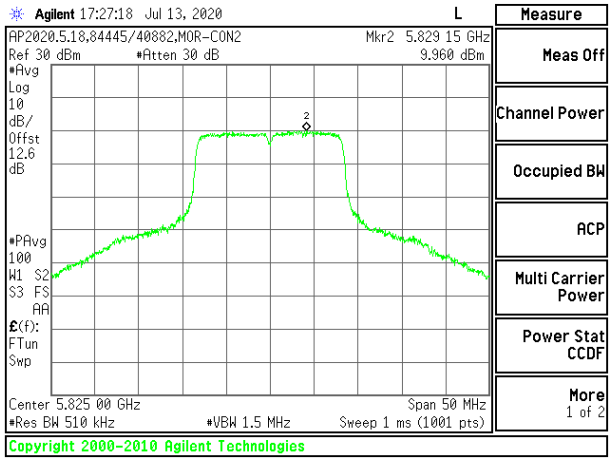
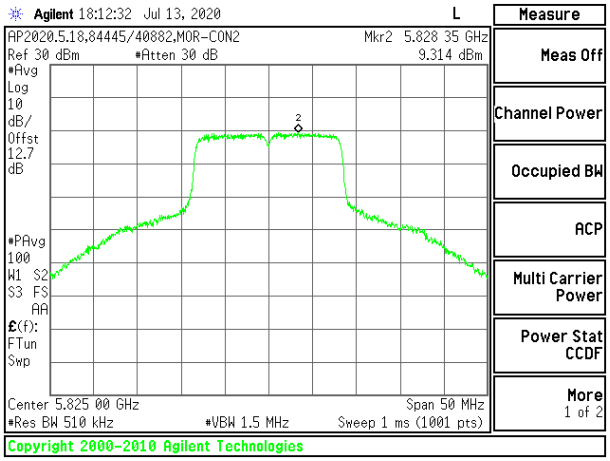
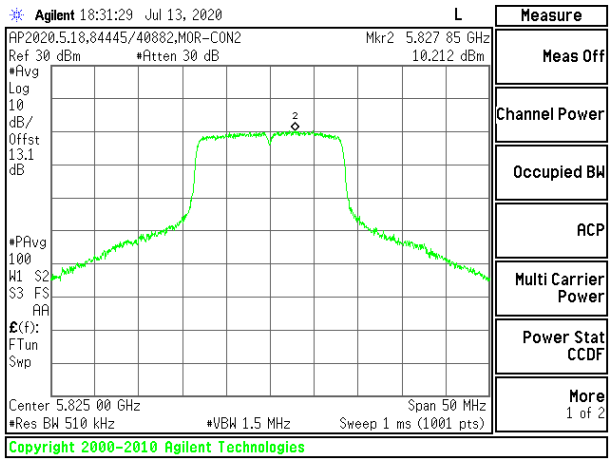
HIGH CHANNEL



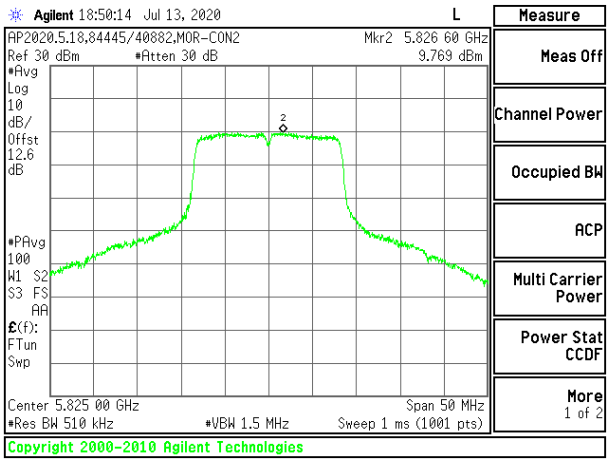
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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9.5.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (FCC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directiona Gain For Power (dBi)	Directiona Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	4.25	10.21	30.00	25.79
Mid	5785	4.25	10.21	30.00	25.79
High	5825	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.32	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	22.39	23.15	23.61	22.81	29.03	30.00	-0.97
Mid	5785	22.74	23.68	23.86	23.03	29.37	30.00	-0.63
High	5825	22.74	23.45	23.15	22.25	28.94	30.00	-1.06

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	10.06	9.29	10.73	10.31	16.47	25.79	-9.32
Mid	5785	10.03	9.76	11.19	10.23	16.68	25.79	-9.11
High	5825	10.39	9.72	10.54	10.04	16.53	25.79	-9.26

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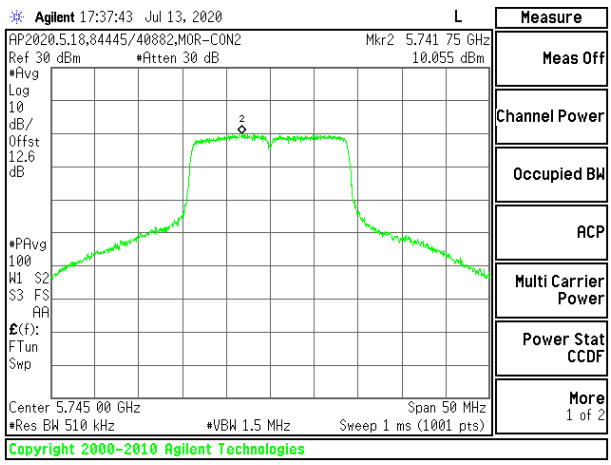
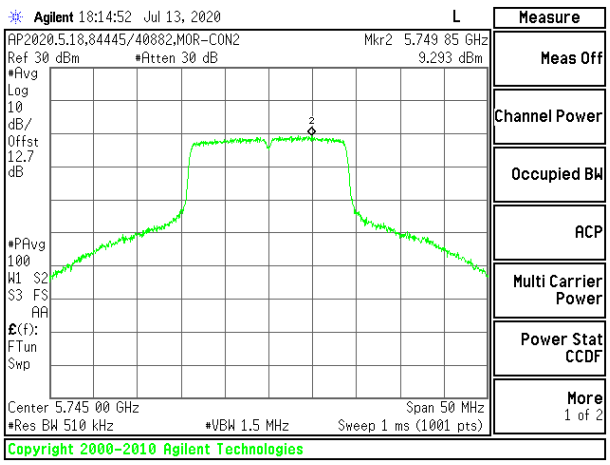
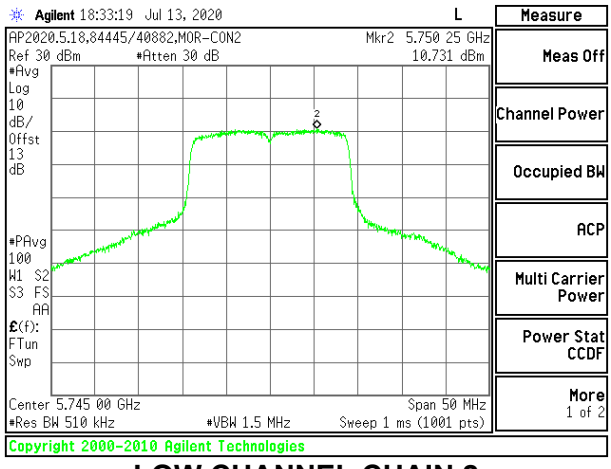
LOW CHANNEL



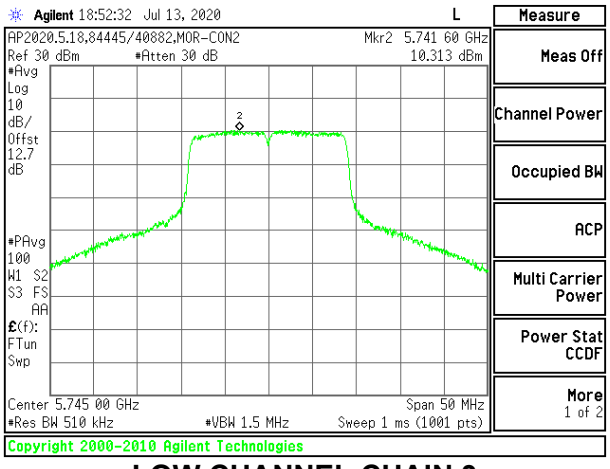
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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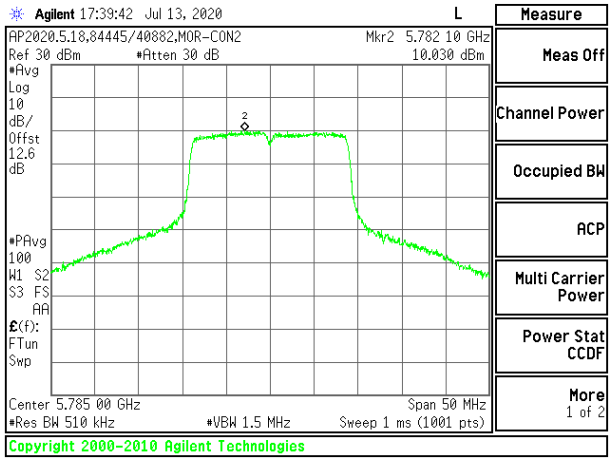
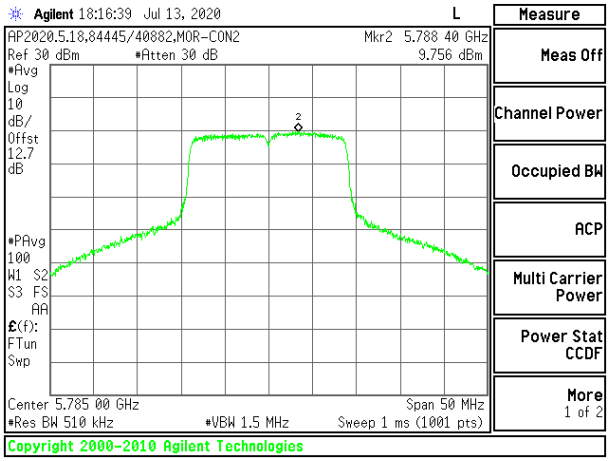
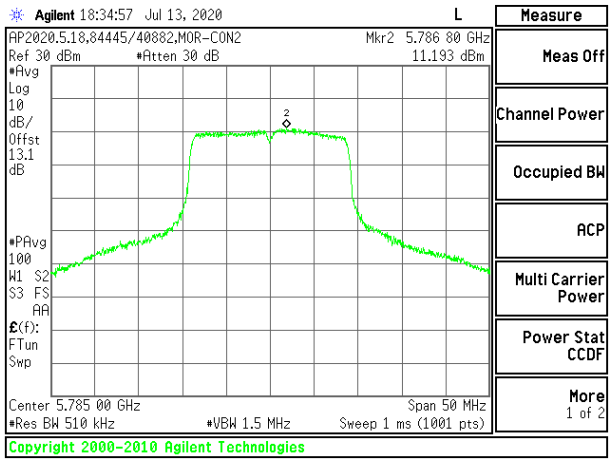
MID CHANNEL



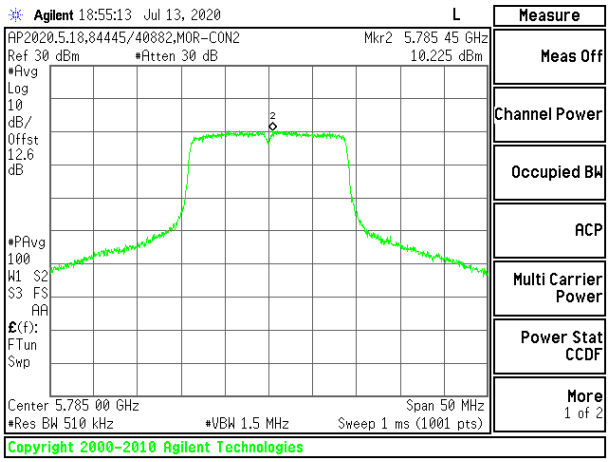
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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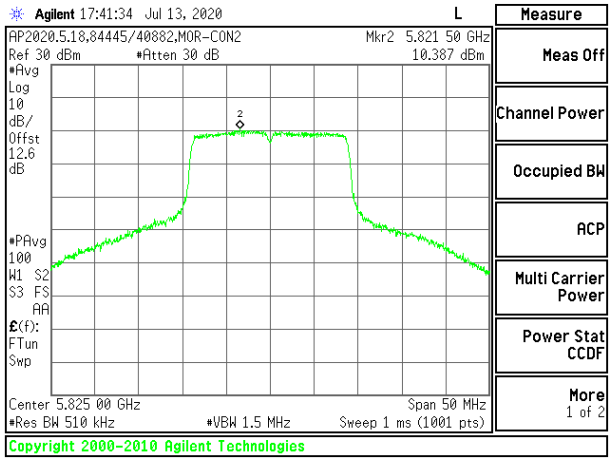
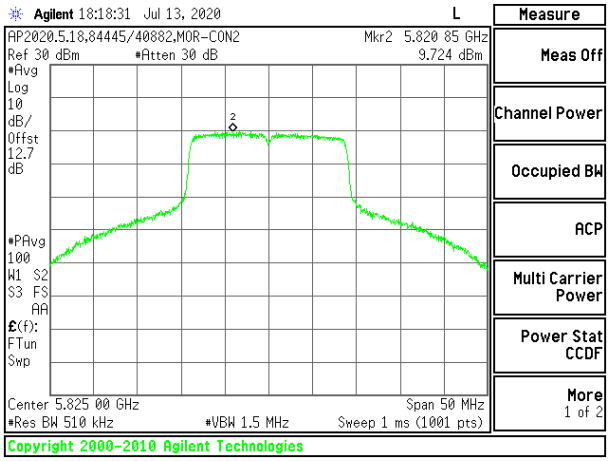
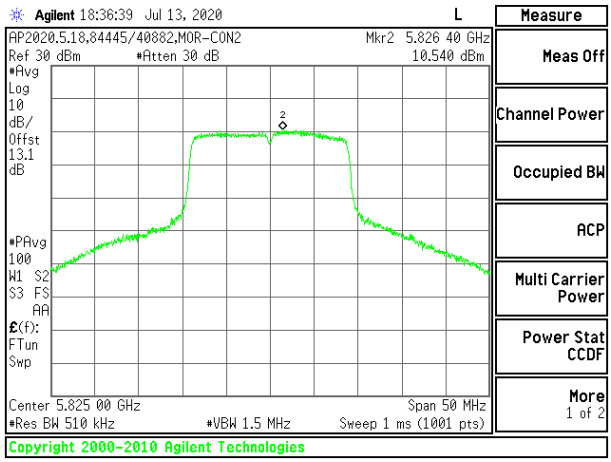
HIGH CHANNEL



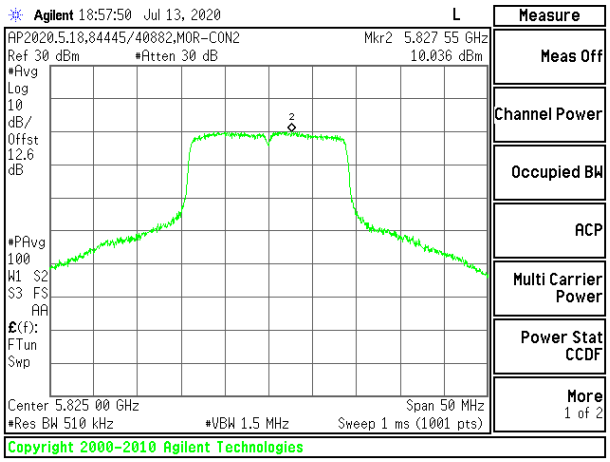
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (IC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5745	4.25	10.21	30.00	25.79
Mid	5785	4.25	10.21	30.00	25.79
High	5825	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.32	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	22.39	23.15	23.61	22.81	29.03	30.00	-0.97
Mid	5785	22.74	23.68	23.86	23.03	29.37	30.00	-0.63
High	5825	22.74	23.45	23.45	23.15	29.23	30.00	-0.77

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	10.06	9.29	10.73	10.31	16.47	25.79	-9.32
Mid	5785	10.03	9.76	11.19	10.23	16.68	25.79	-9.11
High	5825	10.39	9.72	10.54	10.04	16.53	25.79	-9.26

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12 Laboratory Dr., RTP, NC 27709, USA TEL:(919) 549-1400
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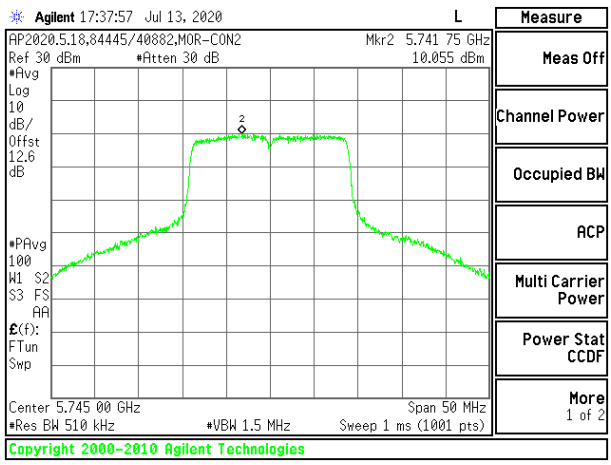
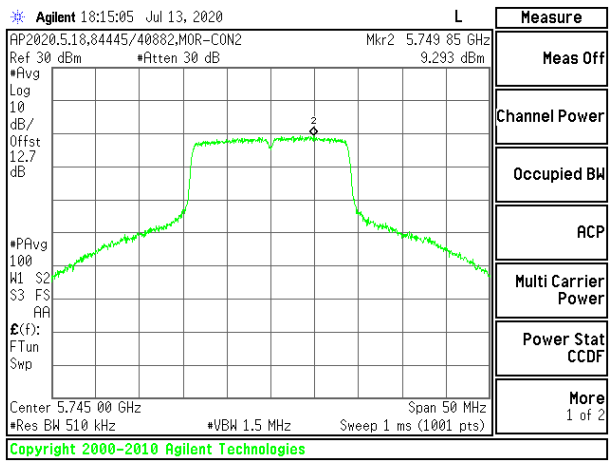
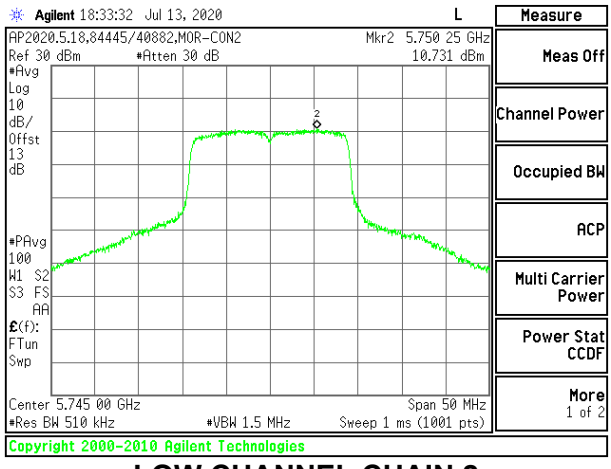
LOW CHANNEL



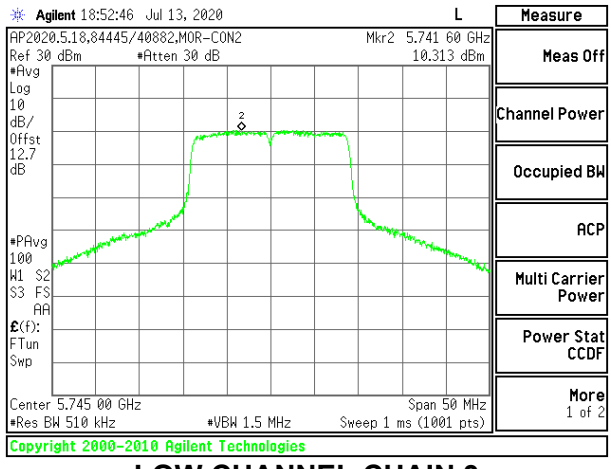
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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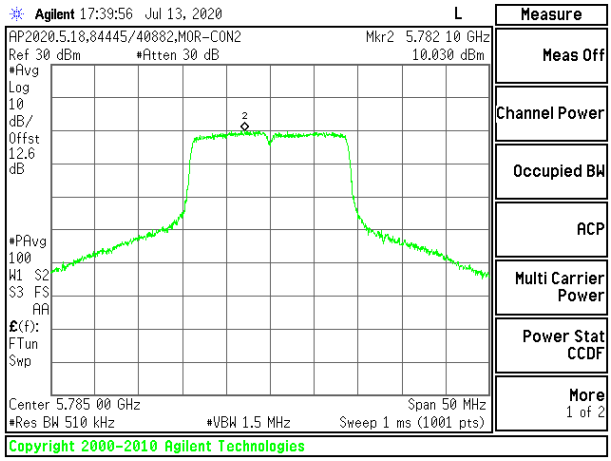
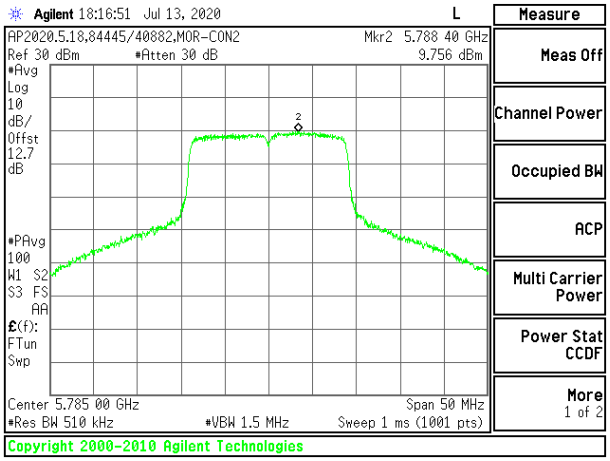
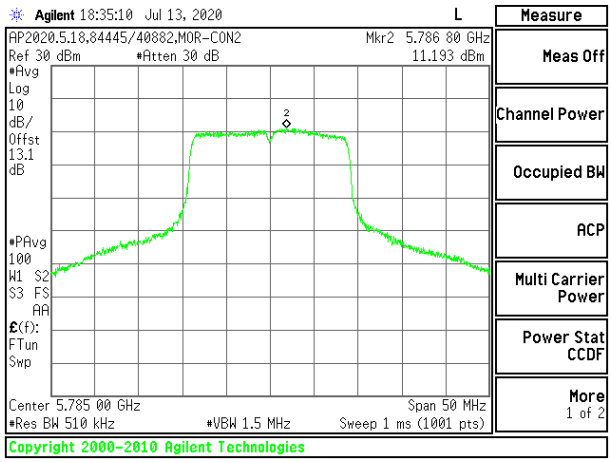
MID CHANNEL



MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



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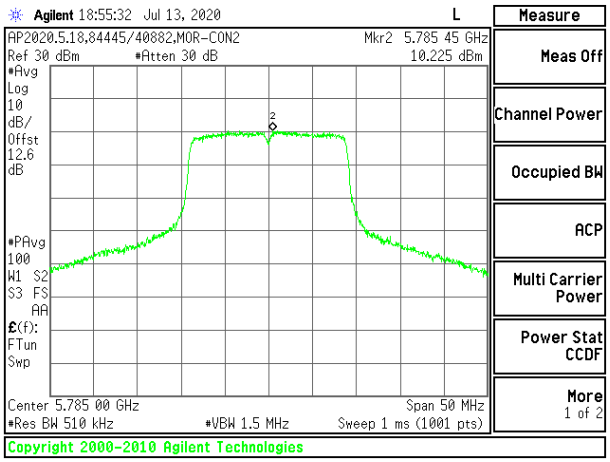

MID CHANNEL CHAIN 3

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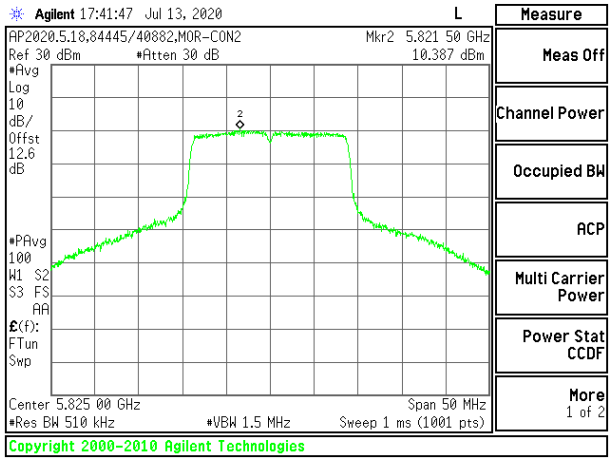
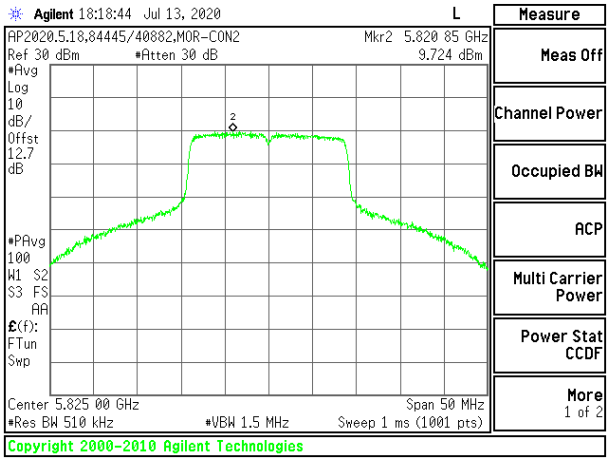
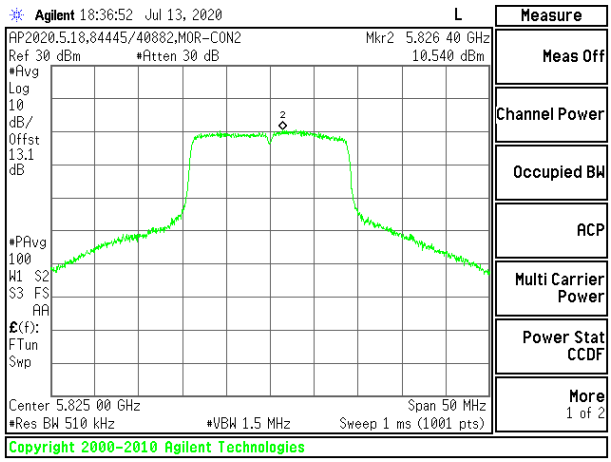
HIGH CHANNEL



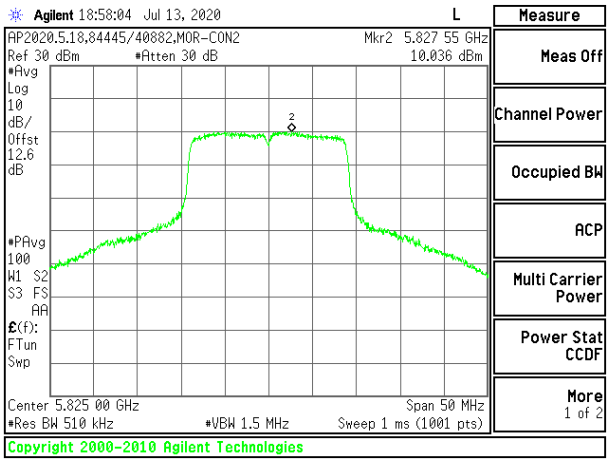
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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9.5.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (FCC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5755	4.25	10.21	30.00	25.79
High	5795	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.26	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	23.15	23.68	24.31	23.27	29.65	30.00	-0.35
High	5795	23.43	24.16	24.16	23.24	29.79	30.00	-0.21

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5755	7.50	7.16	8.24	7.89	13.99	25.79	-11.80
High	5795	7.60	7.23	8.32	7.61	13.98	25.79	-11.81

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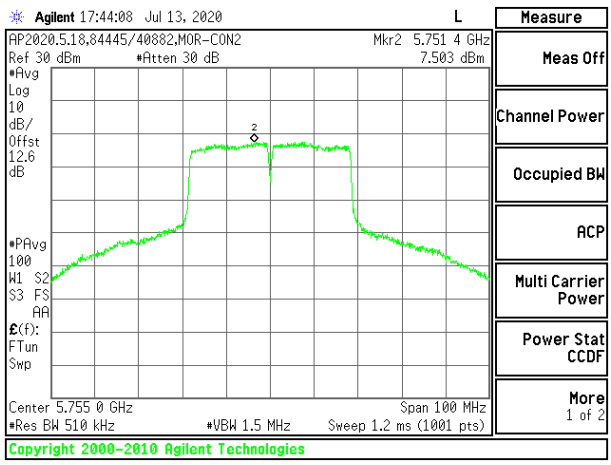
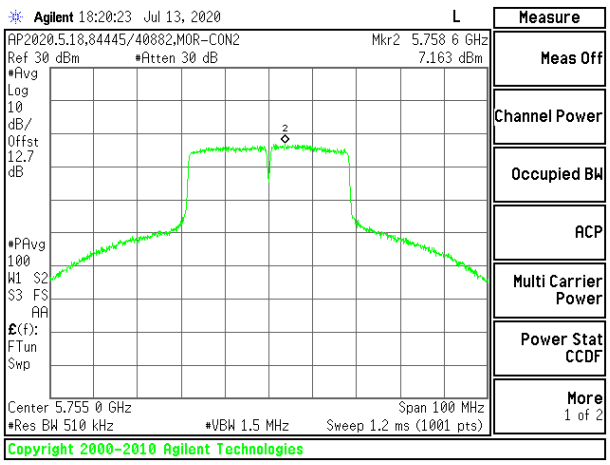
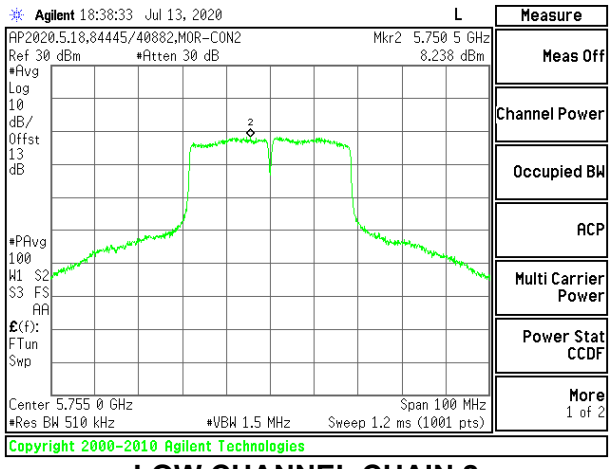
LOW CHANNEL



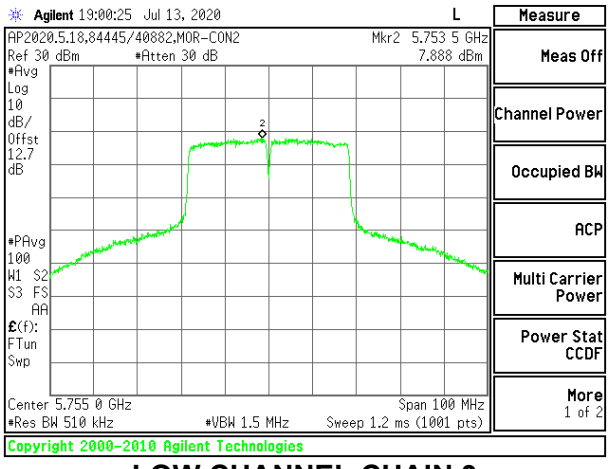
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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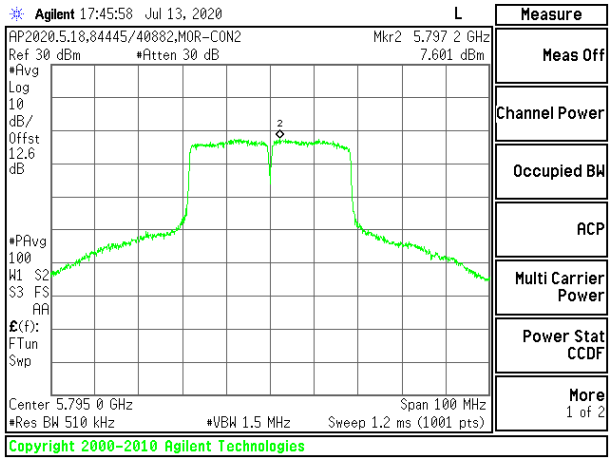
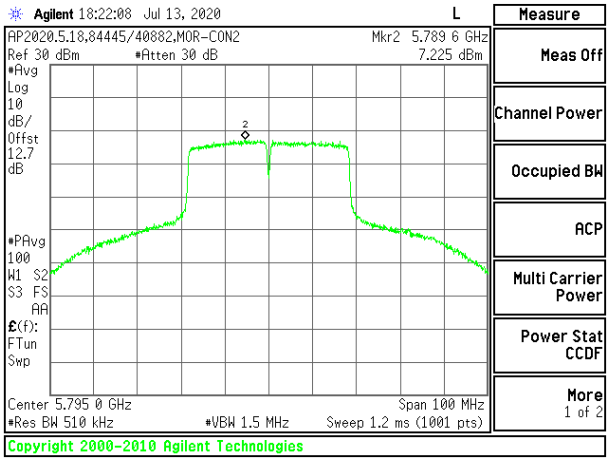
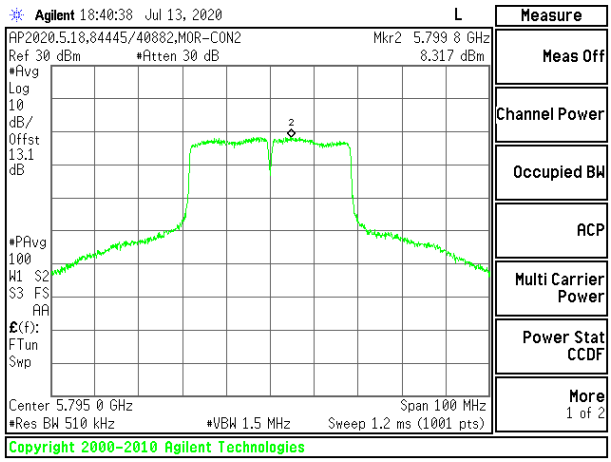
HIGH CHANNEL



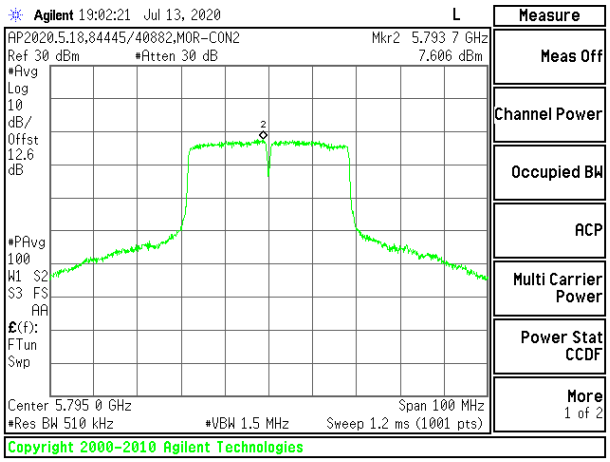
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (IC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5755	4.25	10.21	30.00	25.79
High	5795	4.25	10.21	30.00	25.79

Duty Cycle CF (dB)	0.26	**Included in Calculations of Corr'd Power & PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	23.15	23.69	24.31	23.27	29.65	30.00	-0.35
High	5795	23.43	24.16	24.16	23.24	29.79	30.00	-0.21

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5755	7.50	7.16	8.24	7.89	13.99	25.79	-11.80
High	5795	7.60	7.23	8.32	7.61	13.98	25.79	-11.81

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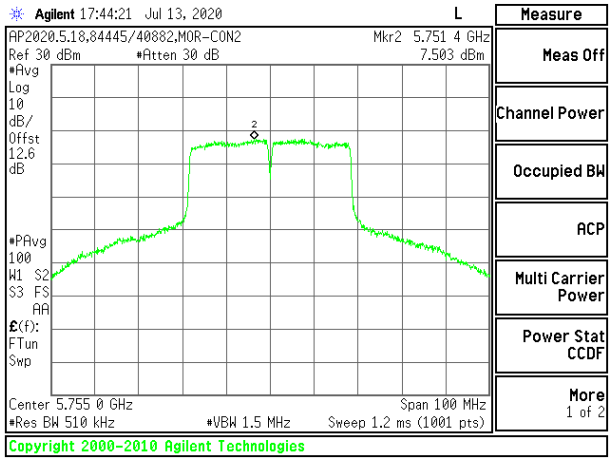
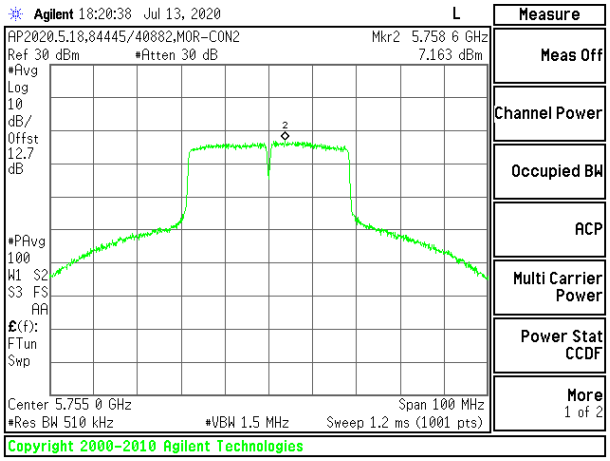
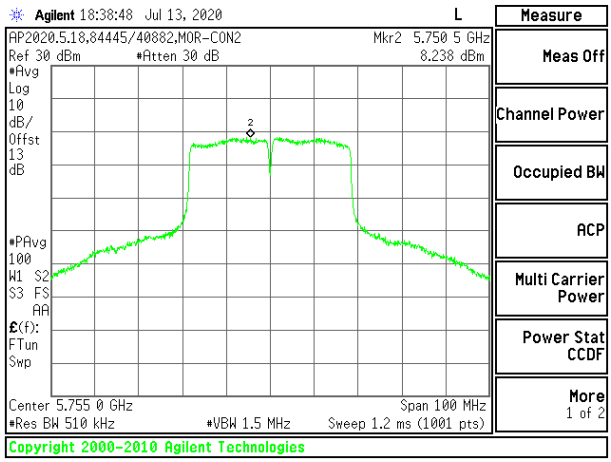
LOW CHANNEL



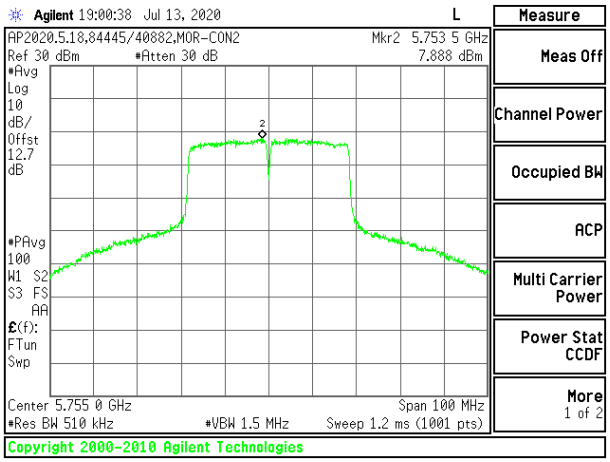
LOW CHANNEL CHAIN 0



LOW CHANNEL CHAIN 1



LOW CHANNEL CHAIN 2



LOW CHANNEL CHAIN 3

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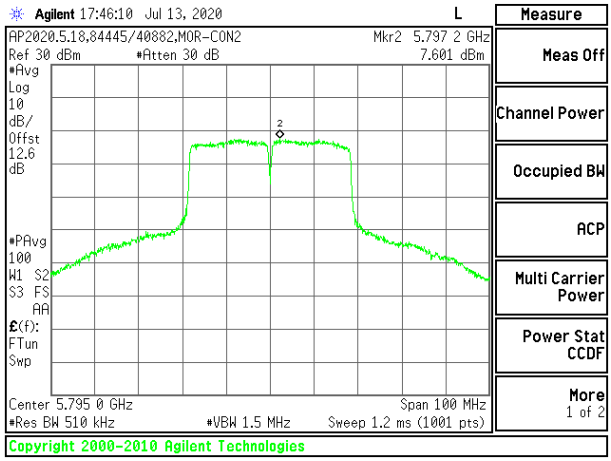
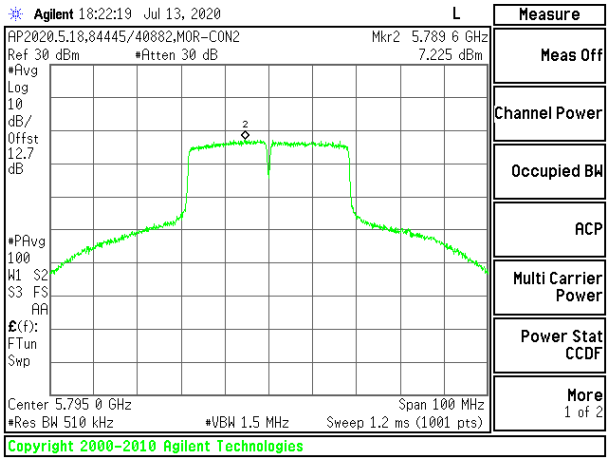
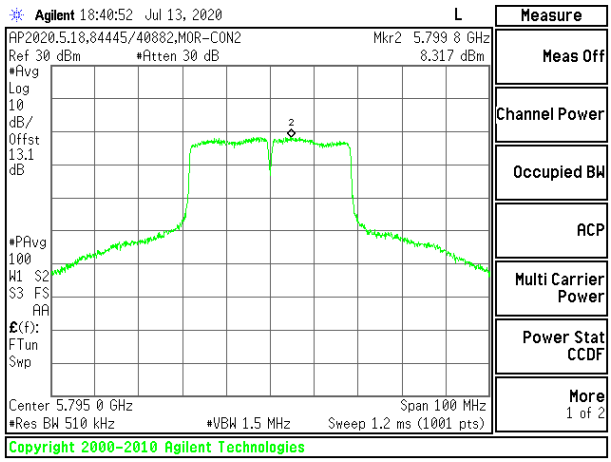
HIGH CHANNEL



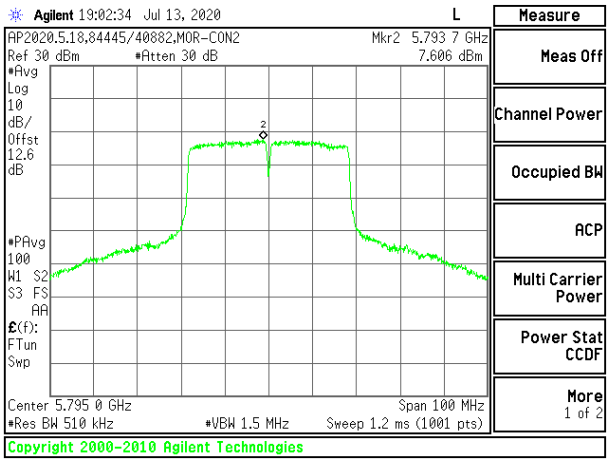
HIGH CHANNEL CHAIN 0



HIGH CHANNEL CHAIN 1



HIGH CHANNEL CHAIN 2



HIGH CHANNEL CHAIN 3

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9.5.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (FCC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Mid	5775	4.25	10.21	30.00	25.79

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

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	22.29	23.21	23.18	22.37	28.80	30.00	-1.20

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Mid	5775	3.76	3.11	4.26	3.55	10.00	25.79	-15.79

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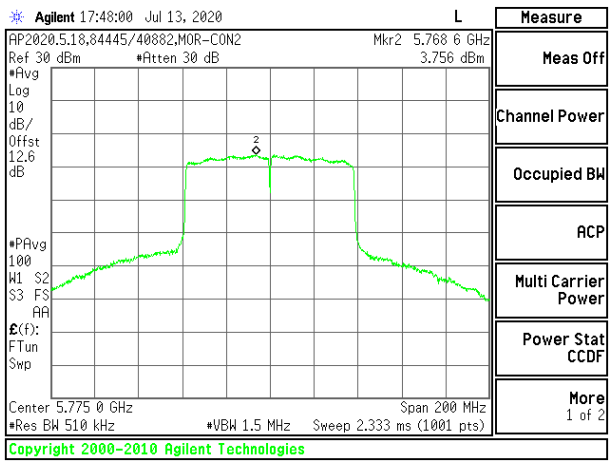
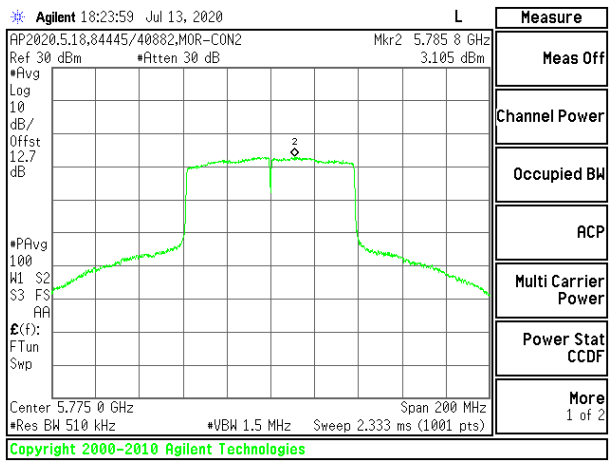
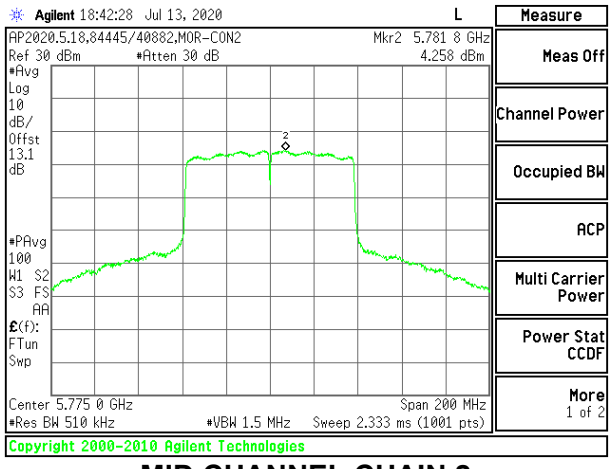
MID CHANNEL



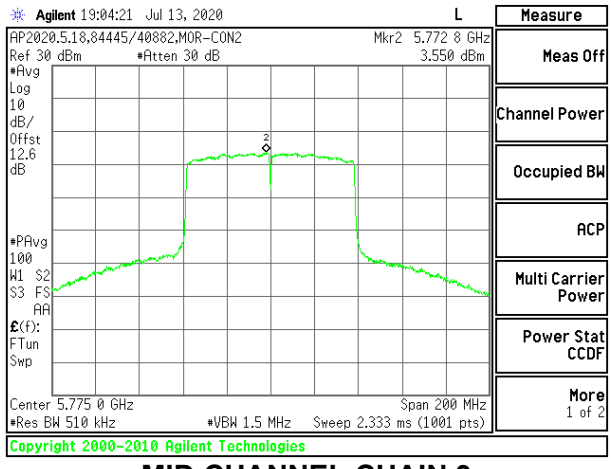
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE (IC)

Test Engineer:	84740 / 44389
Test Date:	2020-07-10 – 2020-07-14

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Mid	5775	4.25	10.21	30.00	25.79

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

Output Power Results

Channel	Frequency (MHz)	Antenna 1 Meas Power (dBm)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Antenna 4 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	22.29	23.21	23.18	22.37	28.80	30.00	-1.20

PSD Results

Channel	Frequency (MHz)	Antenna 1 Meas PSD (dBm/ 500KHz)	Antenna 2 Meas PSD (dBm/ 500KHz)	Antenna 3 Meas PSD (dBm/ 500KHz)	Antenna 4 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Mid	5775	3.76	3.11	4.26	3.55	10.00	25.79	-15.79

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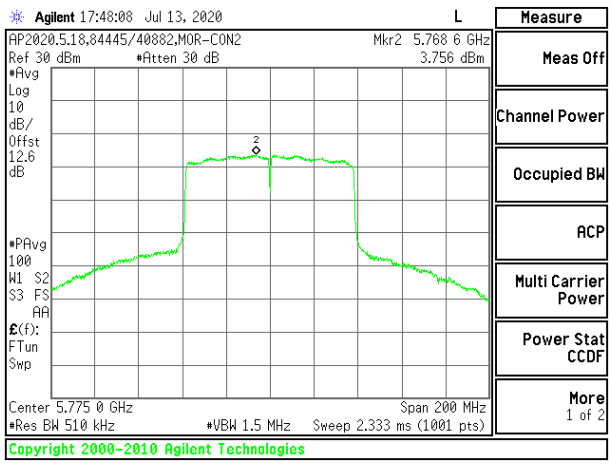
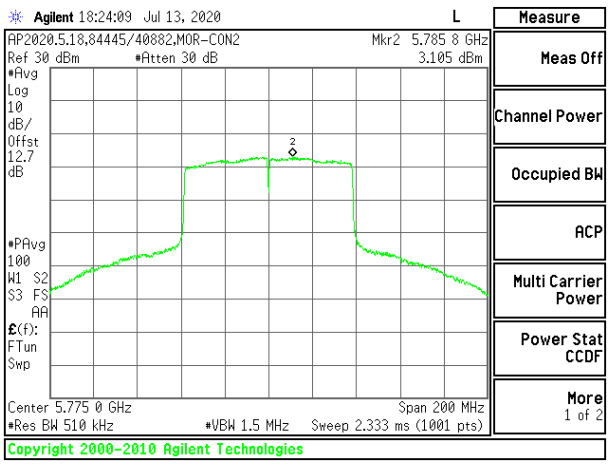
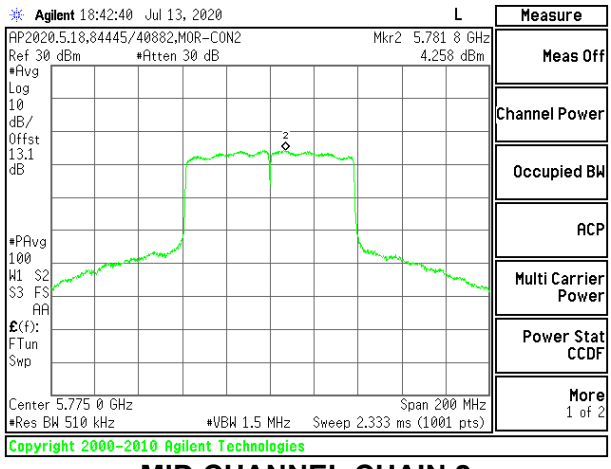
MID CHANNEL



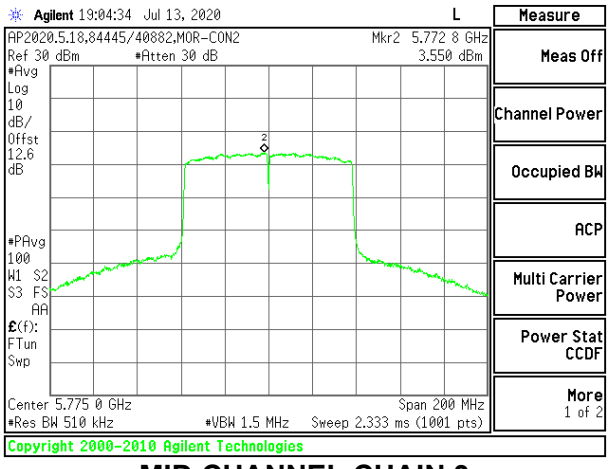
MID CHANNEL CHAIN 0



MID CHANNEL CHAIN 1



MID CHANNEL CHAIN 2



MID CHANNEL CHAIN 3

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10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restriced bands
FCC §15.407(b)(1-3) -Un-Restriced bands

After January 01, 2019 for Outside of the Restricted Bands Emissions

RSS 247 Issue 2 Sections
6.2.1.2 (for 5150-5250 MHz band)
6.2.2.2 (for 5250-5350 MHz band)
6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)
6.2.4.2 (for 5725-5850 MHz band)

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

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 30 MHz to 1GHz and 18GHz to 40 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 5 GHz bands.

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.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

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KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base 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.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

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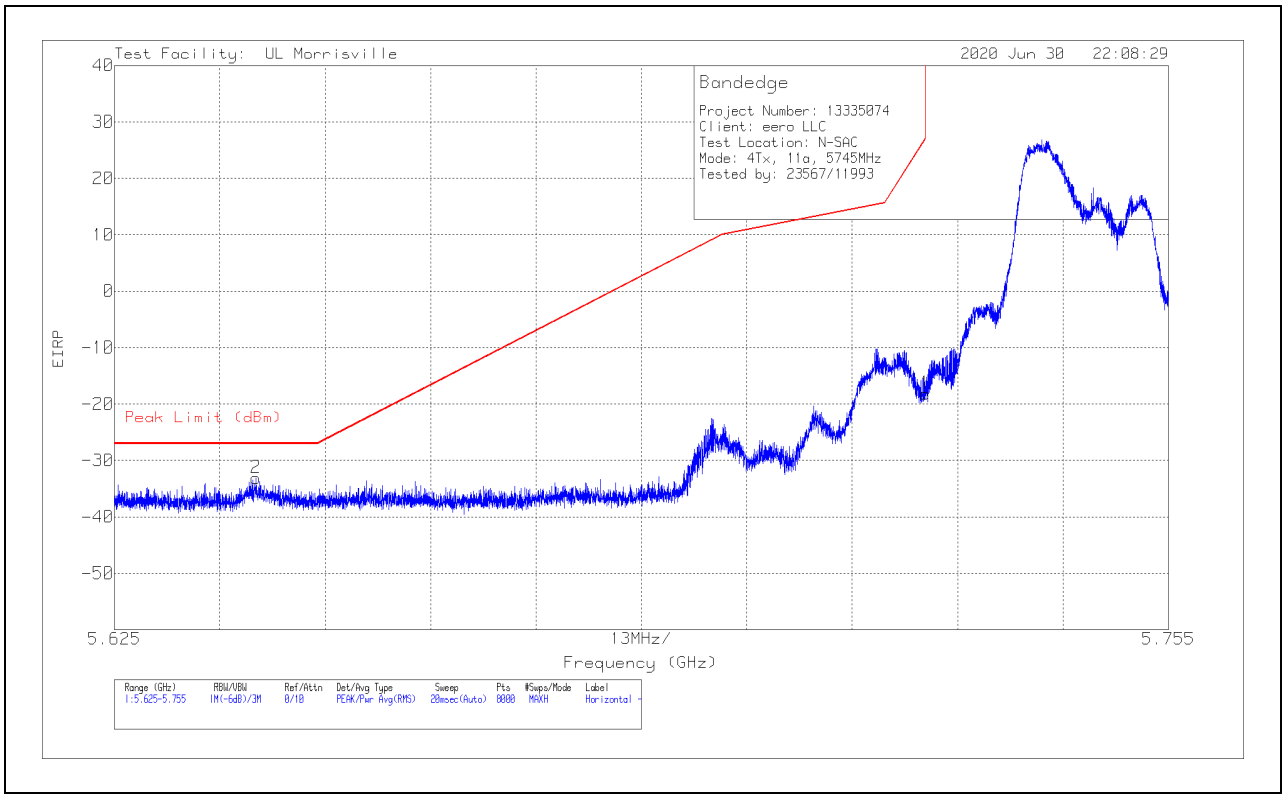
10.1. TRANSMITTER ABOVE 1 GHz

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

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64244	-67.55	Pk	34.6	-22	11.8	10	-33.15	-27	-6.15	45	286	H
1	5.725	-52.74	Pk	34.6	-21.8	11.8	10	-18.14	27	-45.14	45	286	H

Pk - Peak detector

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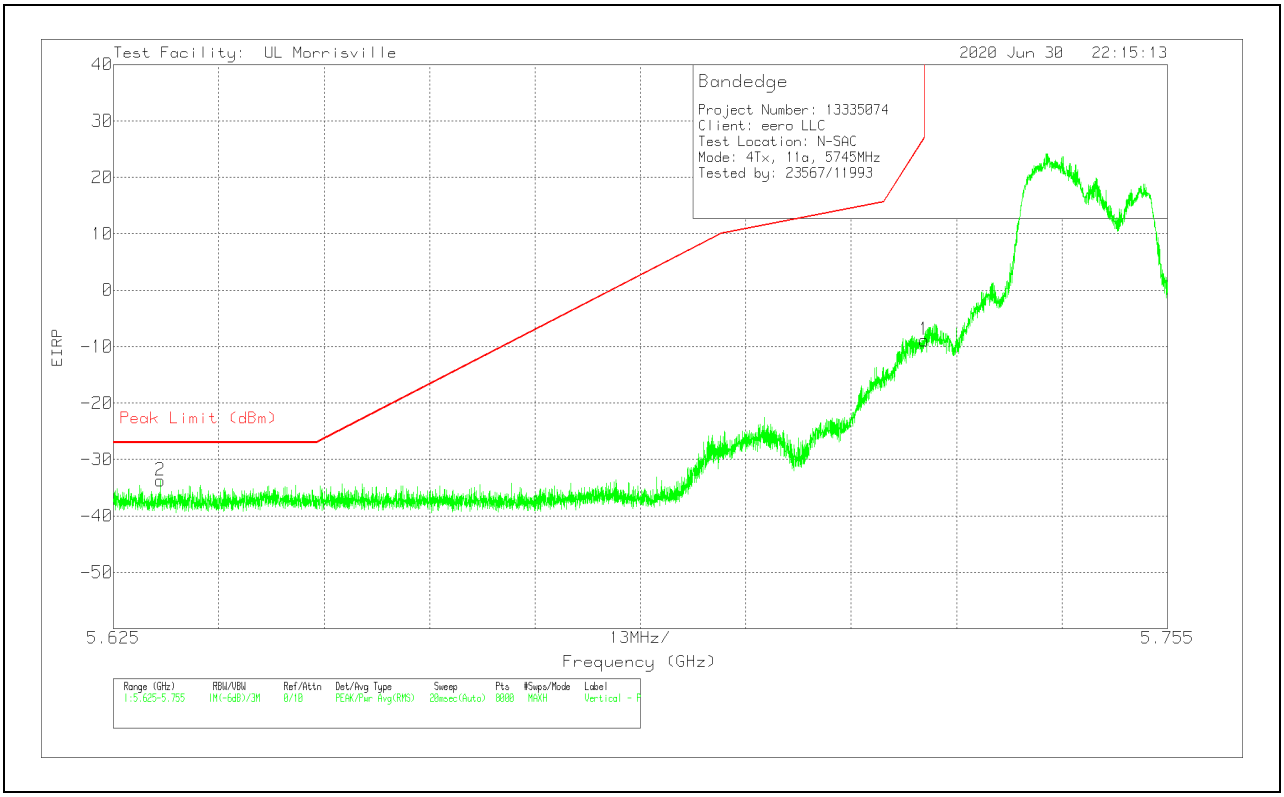
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.63077	-68.04	Pk	34.6	-22.1	11.8	10	-33.74	-27	-6.74	183	381	V
1	5.725	-43.46	Pk	34.6	-21.8	11.8	10	-8.86	27	-35.86	183	381	V

Pk - Peak detector

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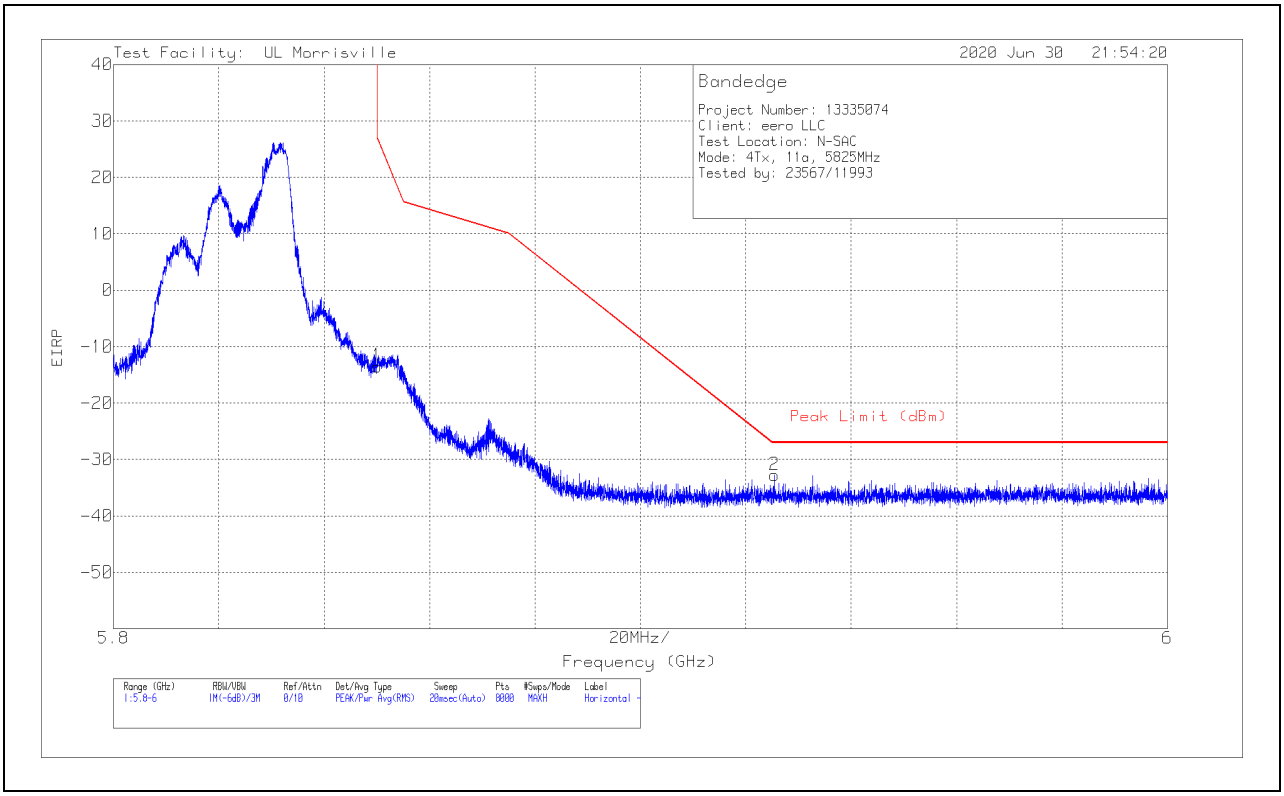
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-48.69	Pk	34.8	-21.4	11.8	10	-13.49	26.99	-40.48	91	328	H
2	5.92539	-68.57	Pk	35	-21	11.8	10	-32.77	-27	-5.77	91	328	H

Pk - Peak detector

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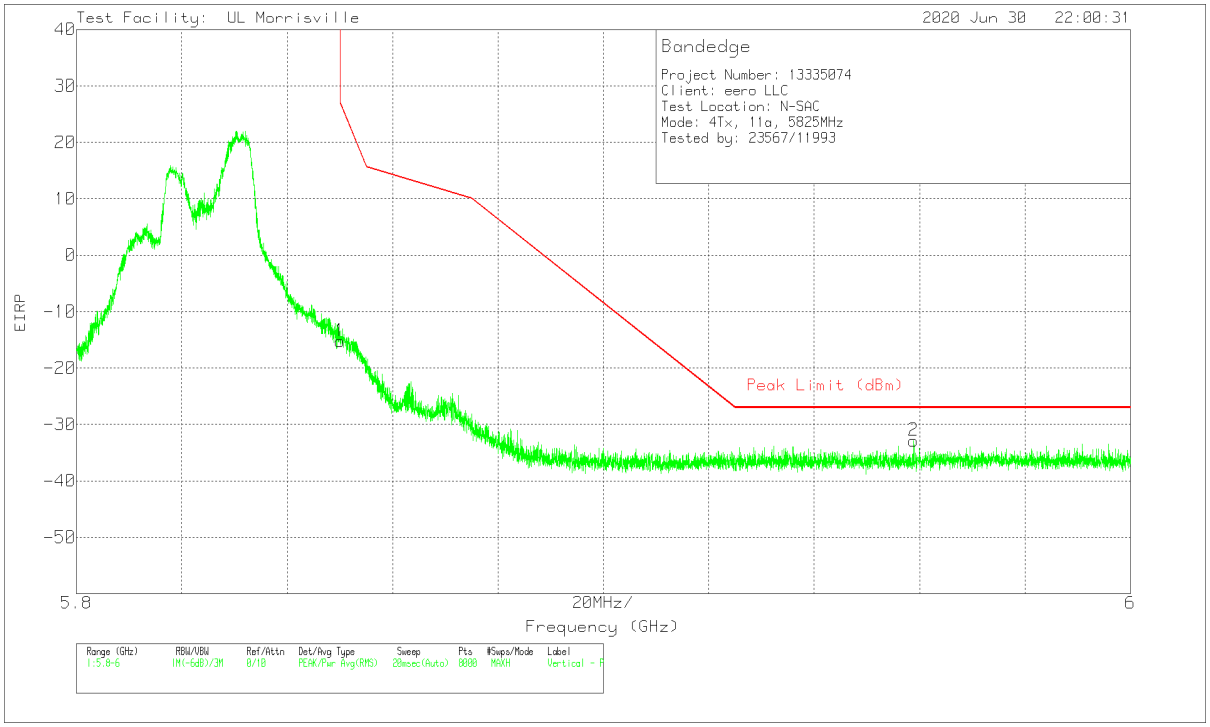
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-50.42	Pk	34.8	-21.4	11.8	10	-15.22	26.99	-42.21	193	359	V
2	5.95889	-68.78	Pk	35	-20.9	11.8	10	-32.88	-27	-5.88	193	359	V

Pk - Peak detector

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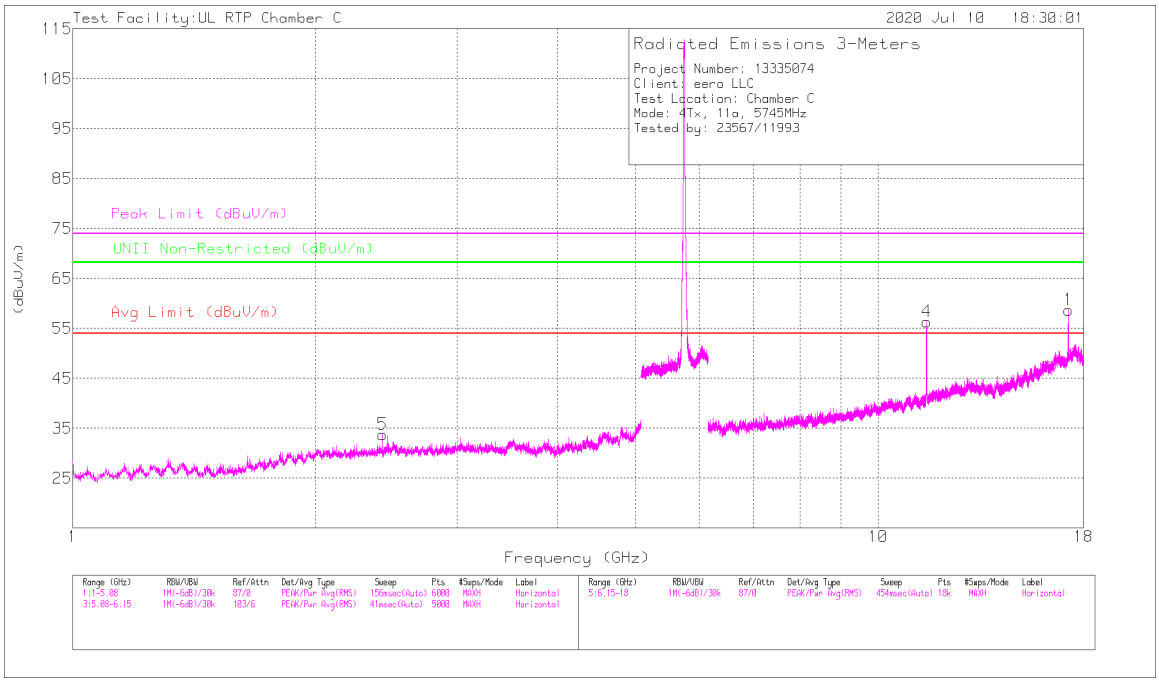
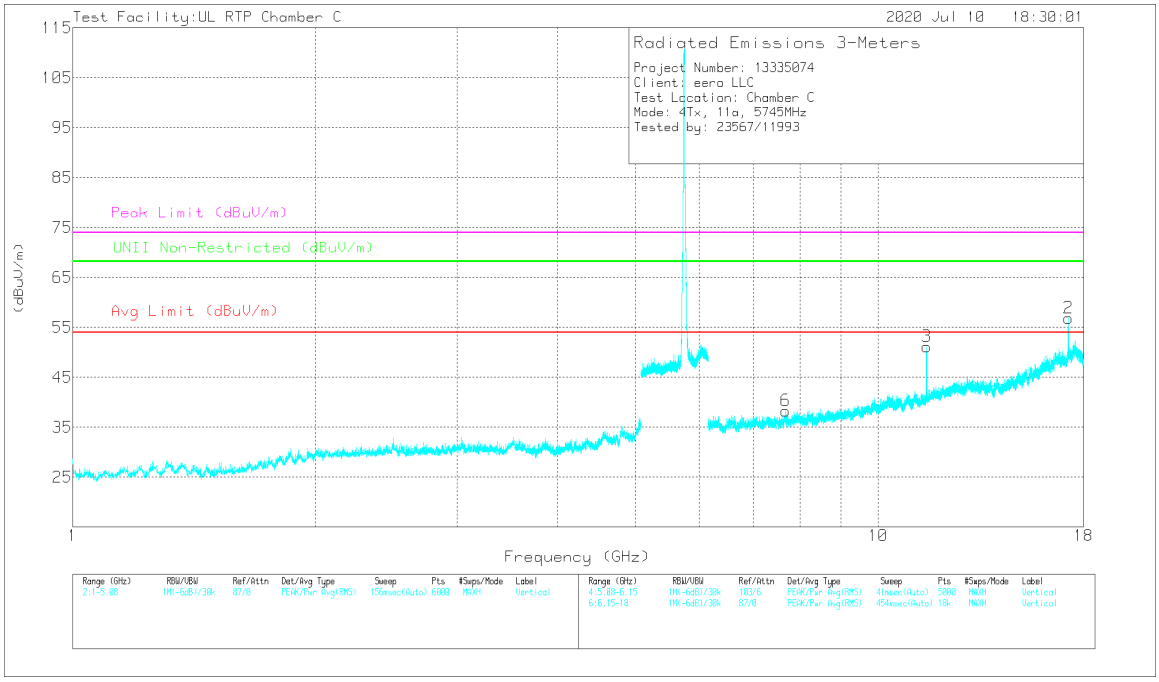
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* ** 11.49356	67.05	PK-U	38.2	-41.7	0	63.55	-	-	74	-10.45	-	-	130	210	H
	* ** 11.49273	54.9	ADV	38.2	-41.7	1.08	52.48	54	-1.52	-	-	-	-	130	210	H
3	* ** 11.4939	61.41	PK-U	38.2	-41.7	0	57.91	-	-	74	-16.09	-	-	82	248	V
	* ** 11.49411	49.24	ADV	38.2	-41.7	1.08	46.82	54	-7.18	-	-	-	-	82	248	V
6	* ** 7.68436	53.43	PK-U	35.9	-46	0	43.33	-	-	74	-30.67	-	-	160	147	V
	* ** 7.68585	40.74	ADV	35.9	-46	1.08	31.72	54	-22.28	-	-	-	-	160	147	V
5	2.42639	56.61	PK-U	32.2	-52.8	0	36.01	-	-	-	-	68.2	-32.19	354	102	H
2	17.22862	59.77	PK-U	41.8	-35.9	0	65.67	-	-	-	-	68.2	-2.53	278	102	V
1	17.23274	59.07	PK-U	41.8	-35.9	0	64.97	-	-	-	-	68.2	-3.23	135	202	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average
Pk - Peak detector

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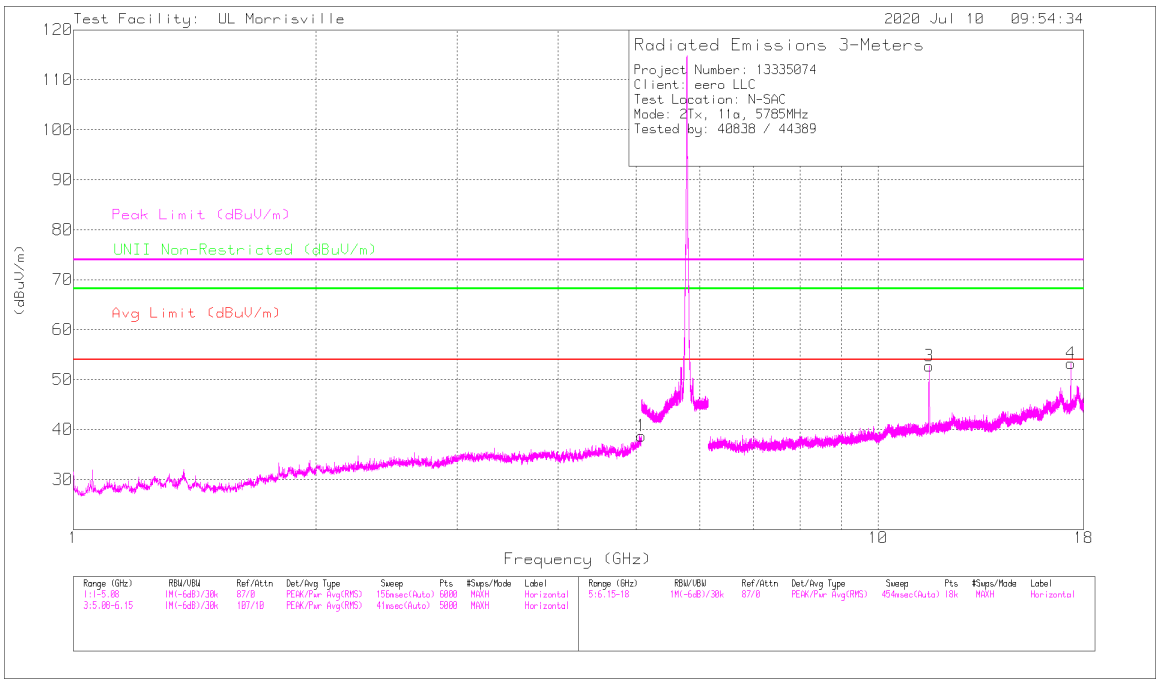
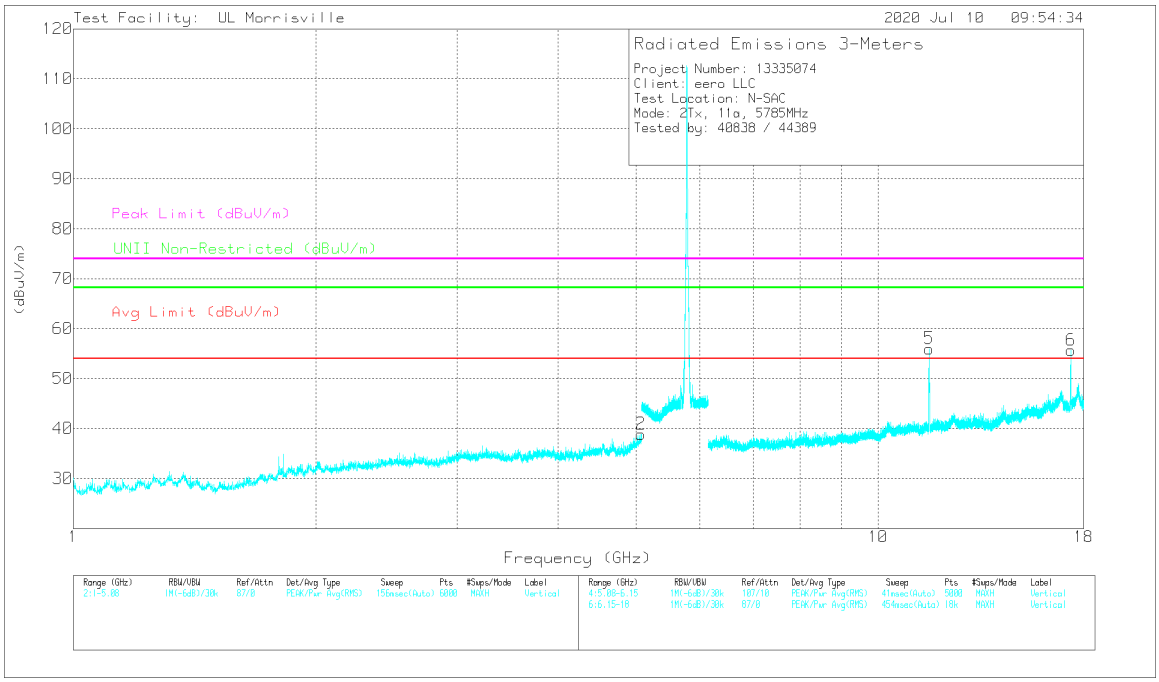
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.07796	39.64	PK-U	34.2	-29.2	0	44.64	-	-	74	-29.36	-	-	202	344	H
	* ** 5.07541	27.37	ADV	34.2	-29.4	1.08	33.25	54	-20.75	-	-	-	-	202	344	H
2	* ** 5.07566	40.11	PK-U	34.2	-29.4	0	44.91	-	-	74	-29.09	-	-	92	171	V
	* ** 5.07332	27.39	ADV	34.2	-29.5	1.08	33.17	54	-20.83	-	-	-	-	92	171	V
3	* ** 11.56171	50.31	PK-U	38.2	-25.5	0	63.01	-	-	74	-10.99	-	-	145	346	H
	* ** 11.56169	36.3	ADV	38.2	-25.5	1.08	50.08	54	-3.92	-	-	-	-	145	346	H
5	* ** 11.56765	49.07	PK-U	38.2	-25.7	0	61.57	-	-	74	-12.43	-	-	177	386	V
	* ** 11.56803	36.75	ADV	38.2	-25.7	1.08	50.33	54	-3.67	-	-	-	-	177	386	V
6	17.35676	49.12	PK-U	41.4	-24.4	0	66.12	-	-	-	-	68.2	-2.08	108	135	V
4	17.35949	47.24	PK-U	41.4	-24.4	0	64.24	-	-	-	-	68.2	-3.96	158	388	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average
Pk - Peak detector

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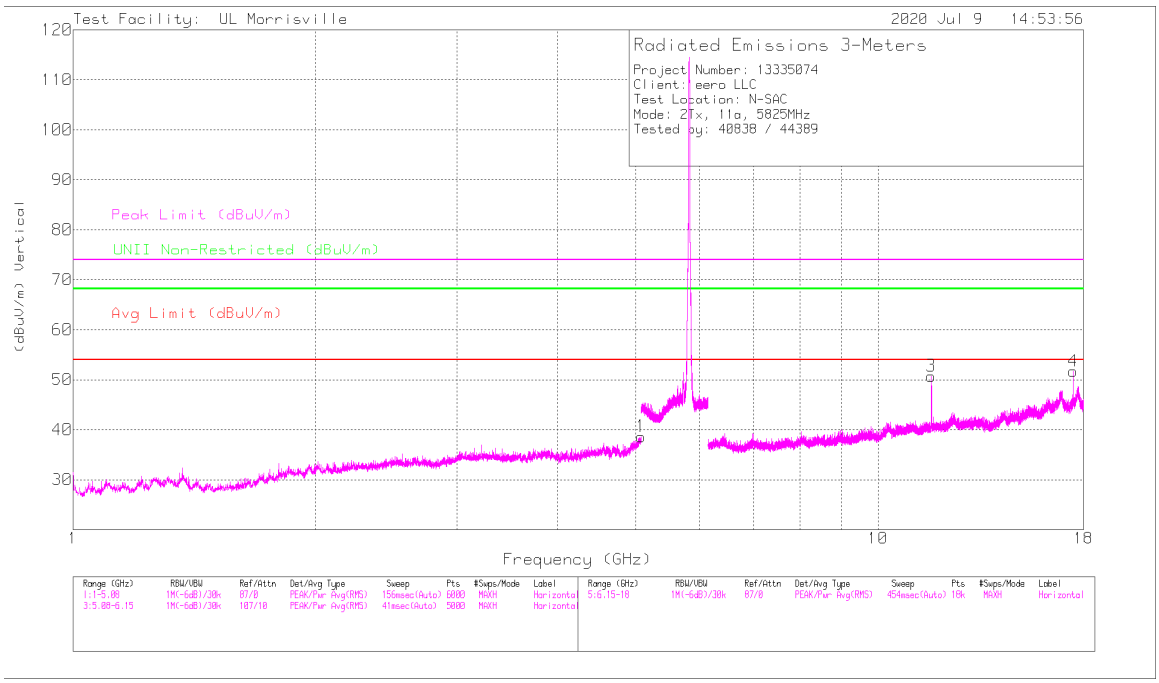
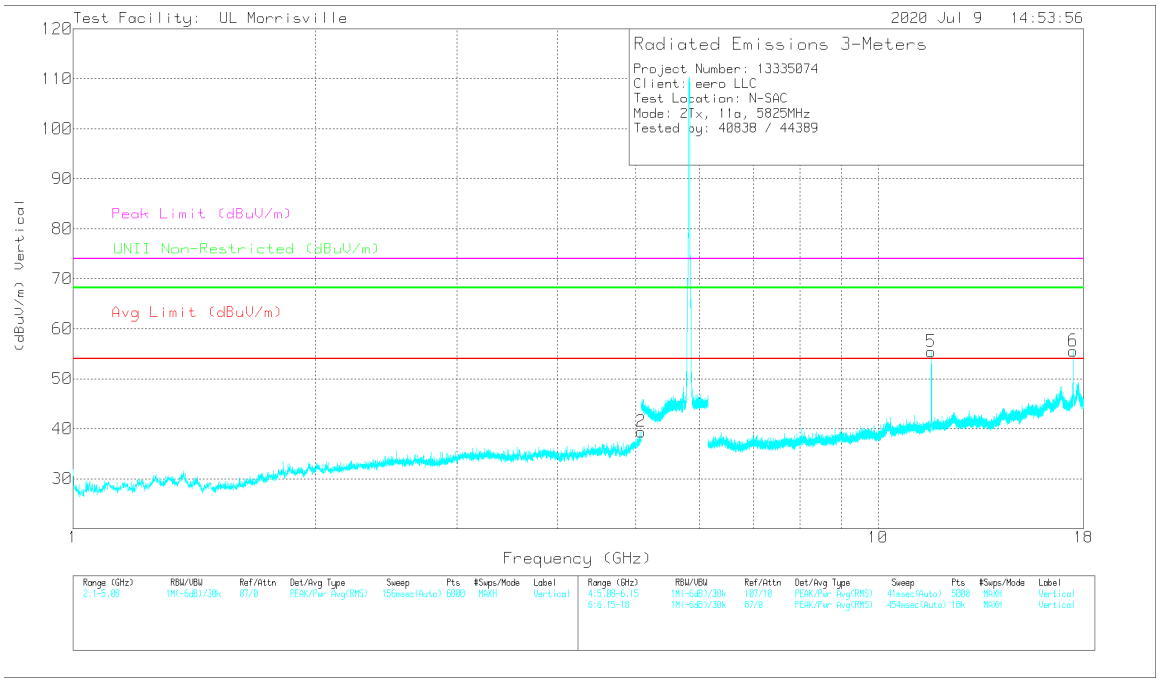
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.07723	39.67	PK-U	34.2	-29.3	0	44.57	-	-	74	-29.43	-	-	207	146	H
	* ** 5.07751	27.31	ADV	34.2	-29.2	1.08	33.39	54	-20.61	-	-	-	-	207	146	H
2	* ** 5.07964	39.96	PK-U	34.3	-29.1	0	45.16	-	-	74	-28.84	-	-	252	210	V
	* ** 5.07611	27.35	ADV	34.2	-29.3	1.08	33.33	54	-20.67	-	-	-	-	252	210	V
3	* ** 11.64852	48.32	PK-U	38.4	-25.8	0	60.92	-	-	74	-13.08	-	-	126	368	H
	* ** 11.64821	35.41	ADV	38.4	-25.8	1.08	49.09	54	-4.91	-	-	-	-	126	368	H
5	* ** 11.6506	47.47	PK-U	38.4	-25.8	0	60.07	-	-	74	-13.93	-	-	158	228	V
	* ** 11.65017	34.04	ADV	38.4	-25.8	1.08	47.72	54	-6.28	-	-	-	-	158	228	V
4	17.46901	46.91	PK-U	41.7	-23.2	0	65.41	-	-	-	-	68.2	-2.79	344	381	H
6	17.46908	47.15	PK-U	41.7	-23.2	0	65.65	-	-	-	-	68.2	-2.55	40	375	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average
Pk - Peak detector

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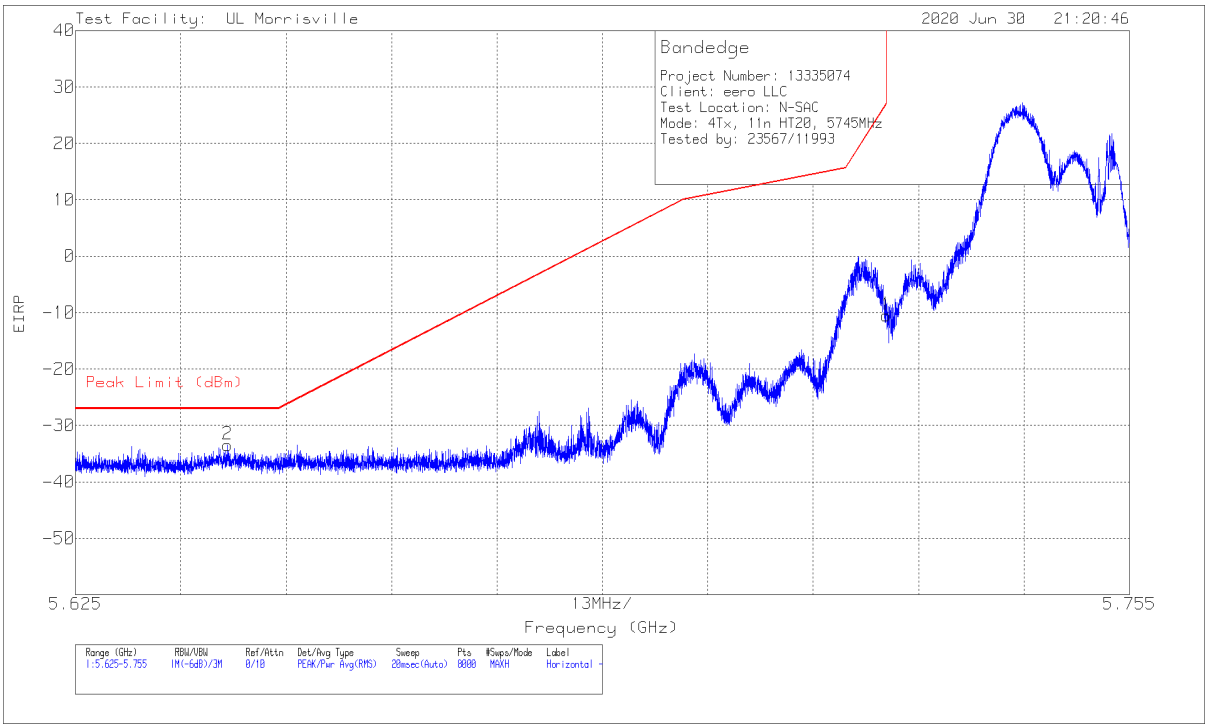
10.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64377	-67.92	Pk	34.7	-22	11.8	10	-33.42	-27	-6.42	23	209	H
1	5.725	-45.07	Pk	34.6	-21.8	11.8	10	-10.47	27	-37.47	23	209	H

Pk - Peak detector

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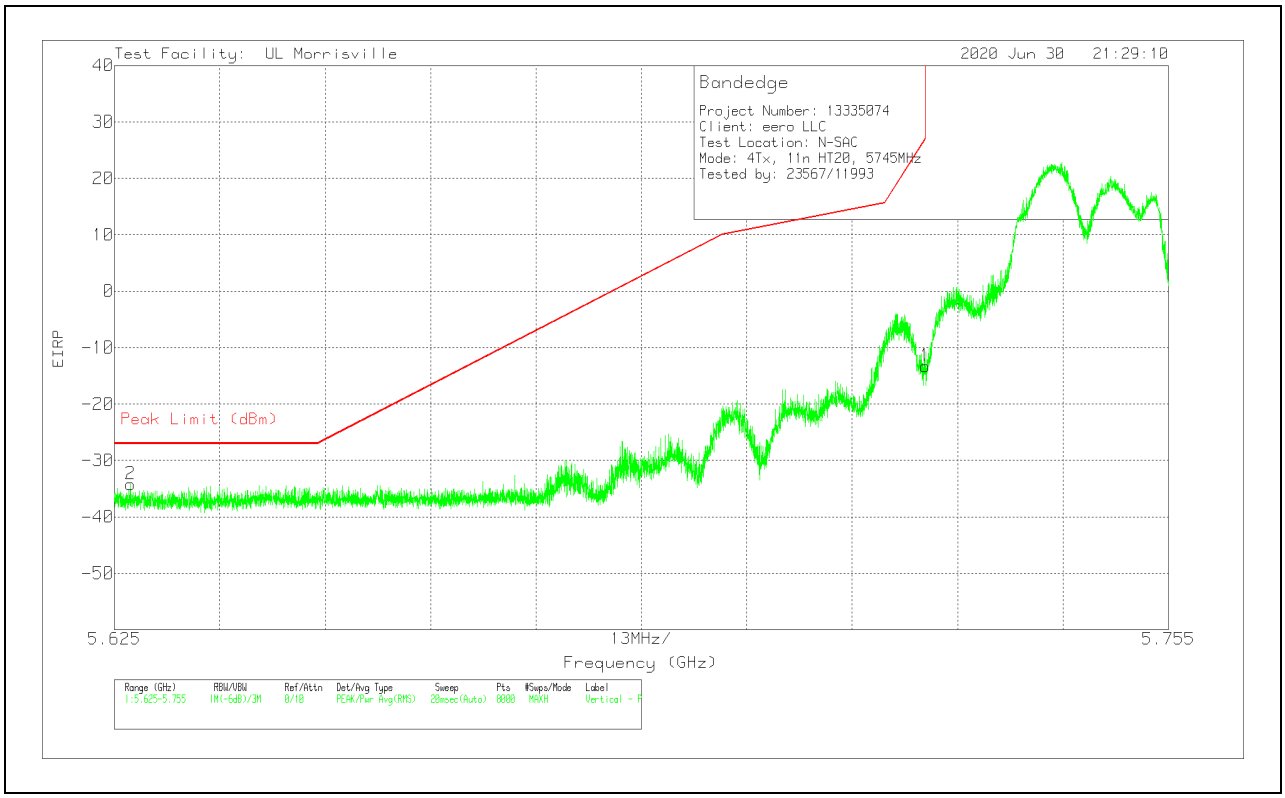
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.62697	-68.59	Pk	34.6	-22	11.8	10	-34.19	-27	-7.19	109	321	V
1	5.725	-47.94	Pk	34.6	-21.8	11.8	10	-13.34	27	-40.34	109	321	V

Pk - Peak detector

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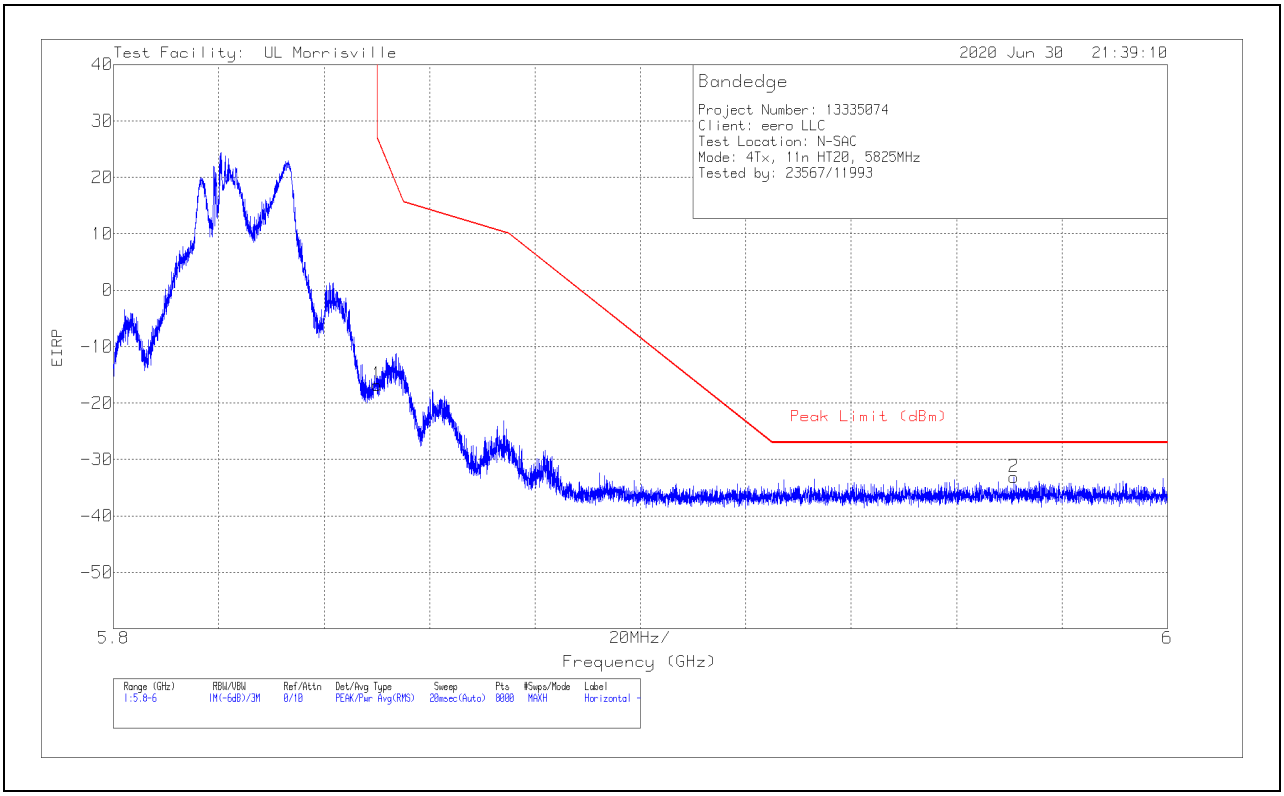
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-51.97	Pk	34.8	-21.4	11.8	10	-16.77	26.99	-43.76	64	294	H
2	5.9709	-69.24	Pk	35	-20.7	11.8	10	-33.14	-27	-6.14	64	294	H

Pk - Peak detector

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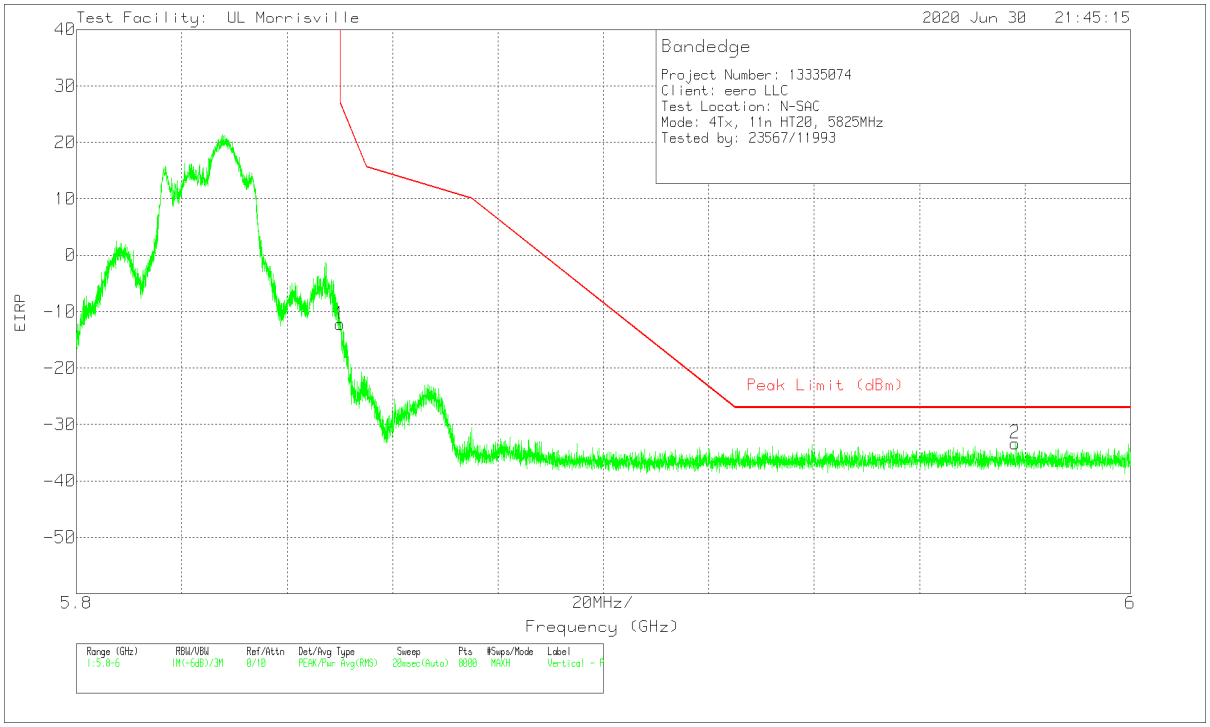
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-47.41	Pk	34.8	-21.4	11.8	10	-12.21	26.99	-39.2	13	294	V
2	5.97815	-69.43	Pk	35.1	-20.8	11.8	10	-33.33	-27	-6.33	13	294	V

Pk - Peak detector

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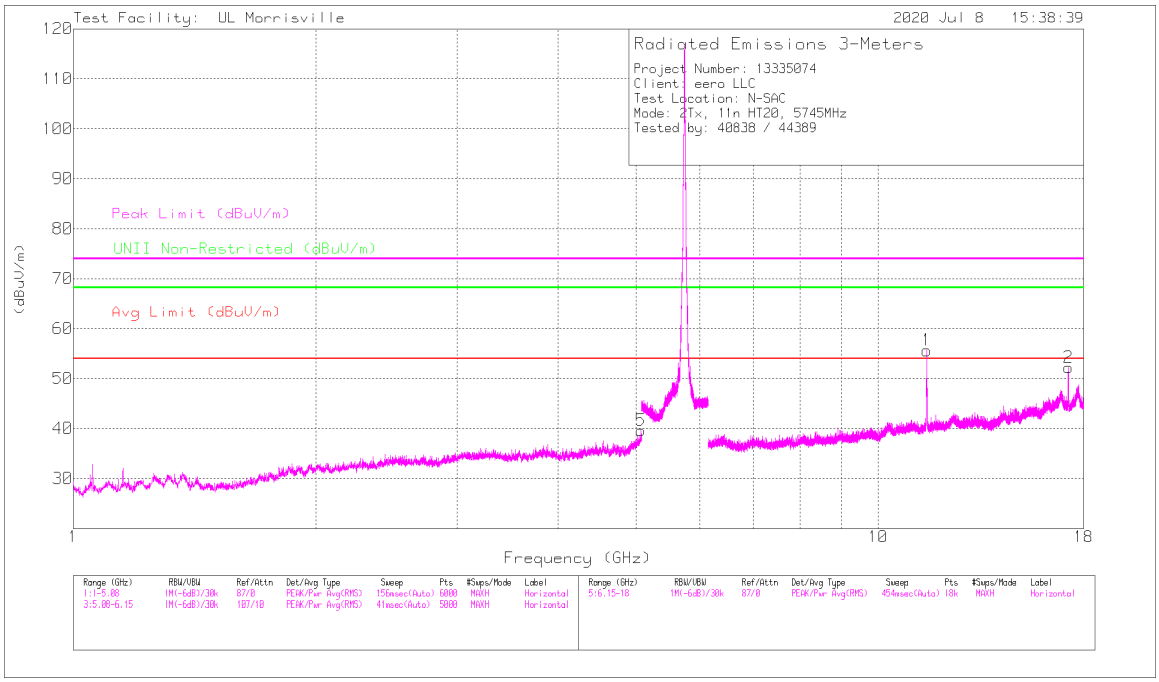
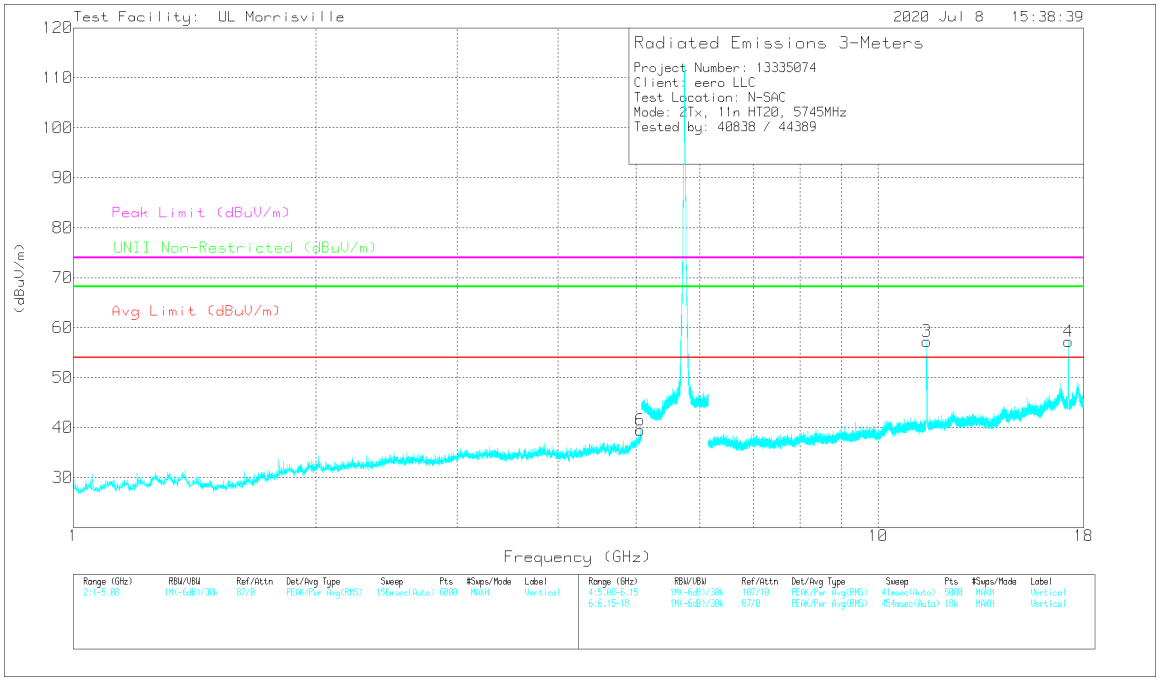
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* ** 5.07222	40.4	PK-U	34.2	-29.6	0	45	-	-	74	-29	-	-	338	109	H
	* ** 5.06943	27.47	ADV	34.2	-29.8	.67	32.54	54	-21.46	-	-	-	-	338	109	H
6	* ** 5.06382	40.6	PK-U	34.2	-30.1	0	44.7	-	-	74	-29.3	-	-	9	389	V
	* ** 5.0654	27.87	ADV	34.2	-30	.67	32.74	54	-21.26	-	-	-	-	9	389	V
1	* ** 11.48784	49.51	PK-U	38.1	-24.6	0	63.01	-	-	74	-10.99	-	-	46	117	H
	* ** 11.48733	37.97	ADV	38.1	-24.6	.67	52.14	54	-1.86	-	-	-	-	46	117	H
3	* ** 11.4879	50.81	PK-U	38.1	-24.6	0	64.31	-	-	74	-9.69	-	-	175	136	V
	* ** 11.48756	39.24	ADV	38.1	-24.6	.67	53.41	54	-.59	-	-	-	-	175	136	V
4	17.23356	47.75	PK-U	41.3	-24.5	0	64.55	-	-	-	-	68.2	-3.65	50	236	V
2	17.23357	45.56	PK-U	41.3	-24.5	0	62.36	-	-	-	-	68.2	-5.84	158	393	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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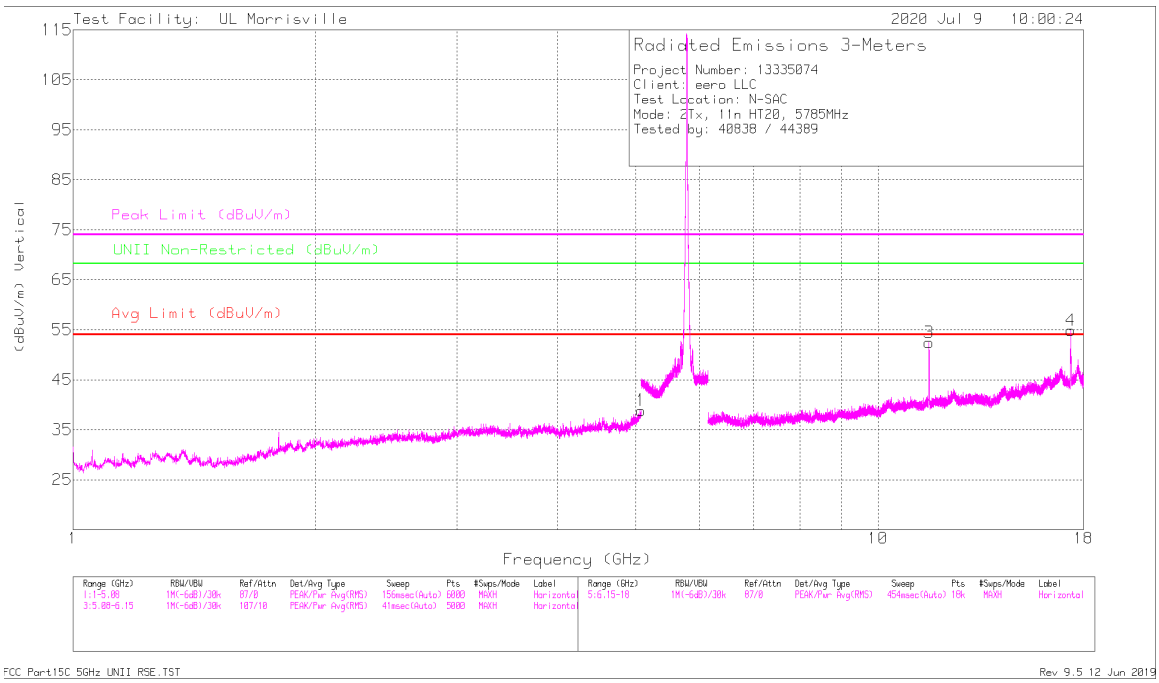
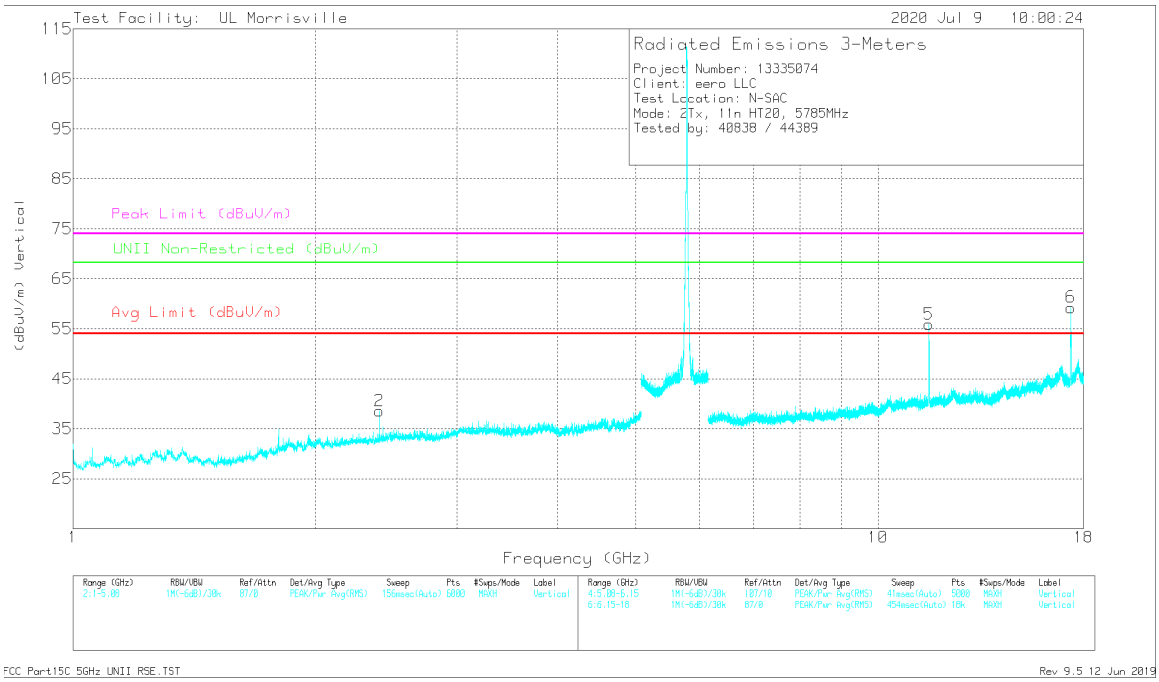
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.07894	41.19	PK-U	34.3	-29.1	0	46.39	-	-	74	-27.61	-	-	110	230	H
	* ** 5.07854	27.54	ADV	34.2	-29.2	.67	33.21	54	-20.79	-	-	-	-	110	230	H
3	* ** 11.57094	46.29	PK-U	38.2	-25.7	0	58.79	-	-	74	-15.21	-	-	35	124	H
	* ** 11.57013	33.97	ADV	38.2	-25.7	.67	47.14	54	-6.86	-	-	-	-	35	124	H
5	* ** 11.57119	48.35	PK-U	38.2	-25.7	0	60.85	-	-	74	-13.15	-	-	253	262	V
	* ** 11.57063	34.23	ADV	38.2	-25.7	.67	47.4	54	-6.6	-	-	-	-	253	262	V
2	2.4018	45.72	PK-U	31.9	-33.6	0	44.02	-	-	-	-	68.2	-24.18	280	226	V
4	17.35113	46.19	PK-U	41.5	-24.5	0	63.19	-	-	-	-	68.2	-5.01	277	112	H
6	17.36064	48.37	PK-U	41.4	-24.4	0	65.37	-	-	-	-	68.2	-2.83	74	215	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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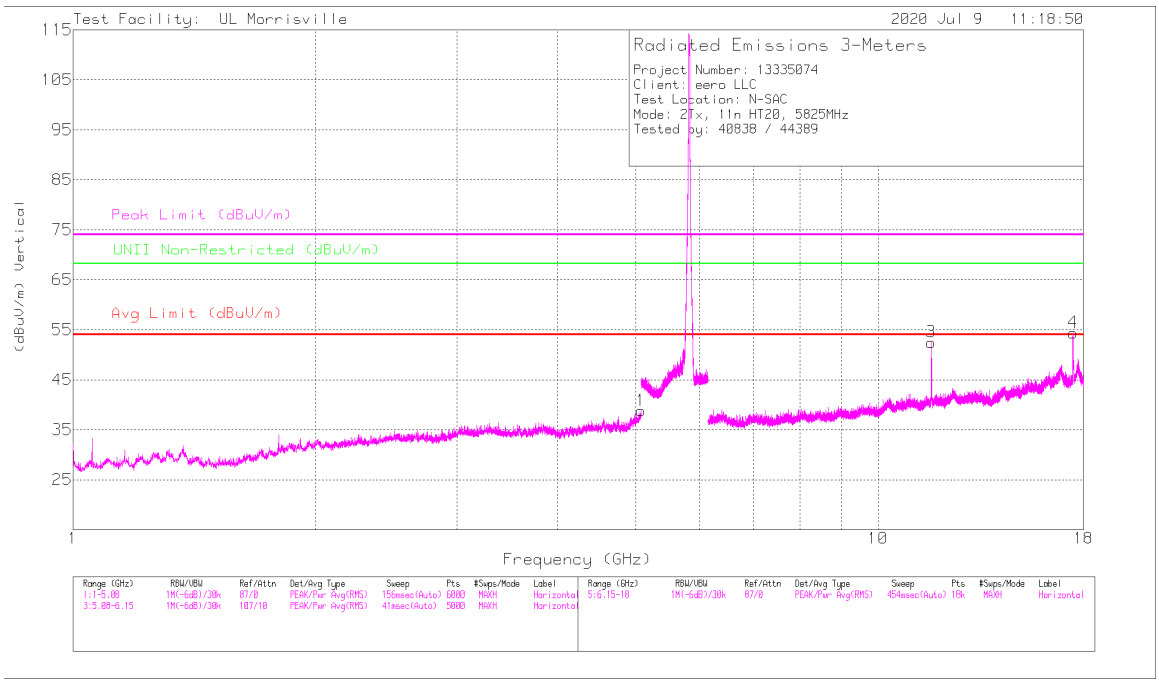
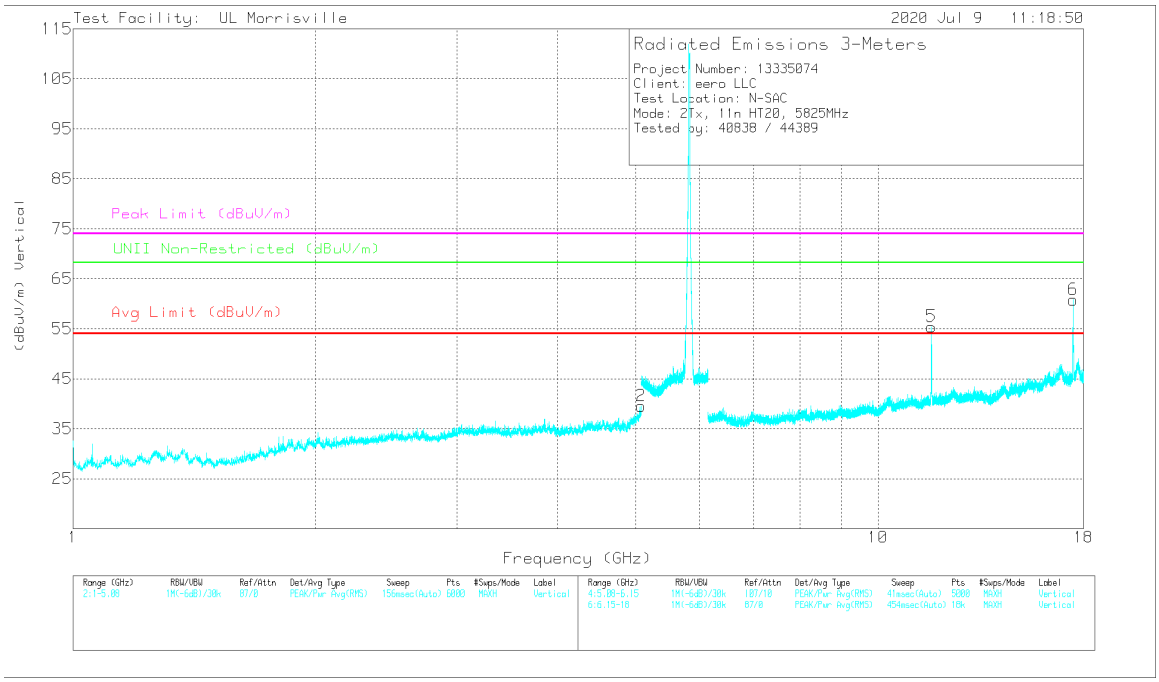
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.07923	40.6	PK-U	34.3	-29.1	0	45.8	-	-	74	-28.2	-	-	95	160	H
	* ** 5.0781	27.51	ADV	34.2	-29.2	.67	33.18	54	-20.82	-	-	-	-	95	160	H
2	* ** 5.07655	40.05	PK-U	34.2	-29.3	0	44.95	-	-	74	-29.05	-	-	332	221	V
	* ** 5.07601	27.54	ADV	34.2	-29.3	.67	33.11	54	-20.89	-	-	-	-	332	221	V
3	* ** 11.64888	45.7	PK-U	38.4	-25.8	0	58.3	-	-	74	-15.7	-	-	39	107	H
	* ** 11.65025	32.37	ADV	38.4	-25.8	.67	45.64	54	-8.36	-	-	-	-	39	107	H
5	* ** 11.65124	49.34	PK-U	38.4	-25.8	0	61.94	-	-	74	-12.06	-	-	258	250	V
	* ** 11.6508	34.5	ADV	38.4	-25.8	.67	47.77	54	-6.23	-	-	-	-	258	250	V
4	17.47506	46.55	PK-U	41.7	-23.4	0	64.85	-	-	-	-	68.2	-3.35	268	114	H
6	17.47753	48.07	PK-U	41.6	-23.5	0	66.17	-	-	-	-	68.2	-2.03	24	113	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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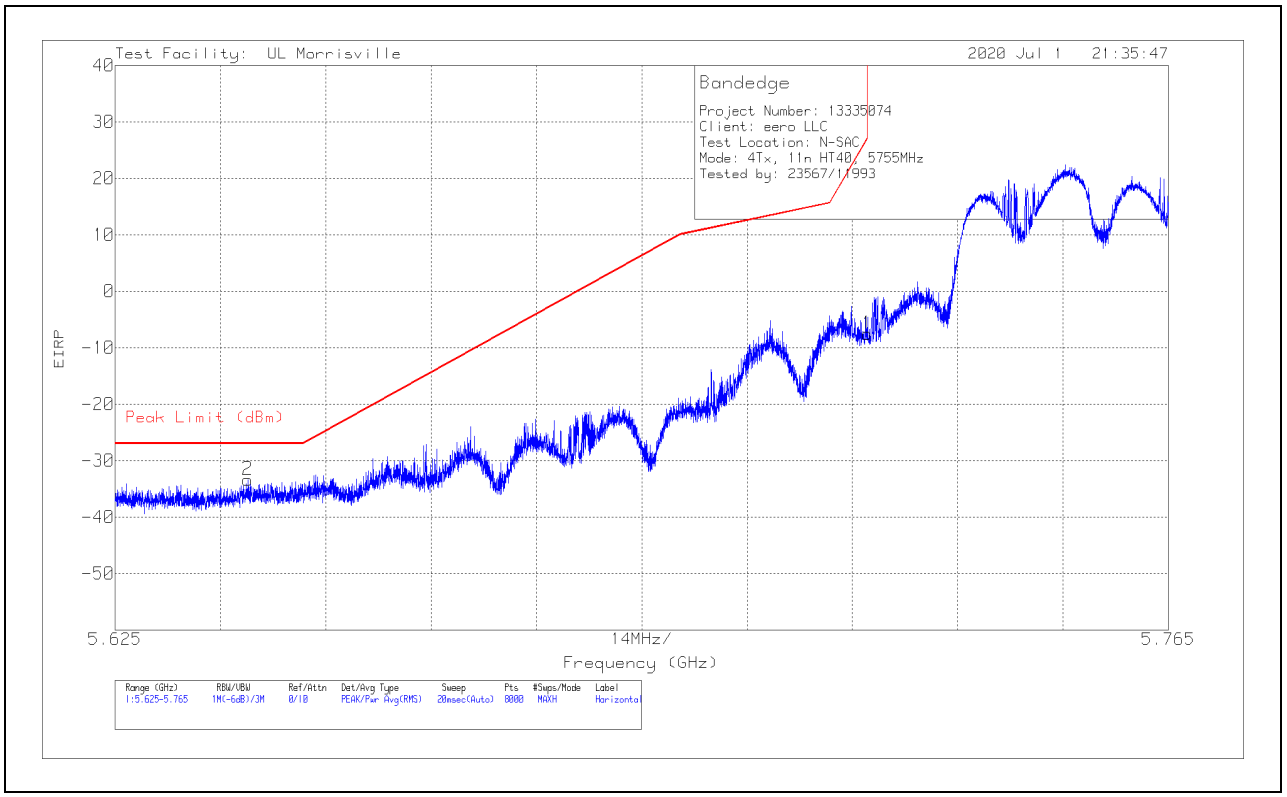
10.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64263	-67.76	Pk	34.6	-22	11.8	10	-33.36	-27	-6.36	75	221	H
1	5.72499	-42.14	Pk	34.6	-21.8	11.8	10	-7.54	26.97	-34.51	75	221	H

Pk - Peak detector

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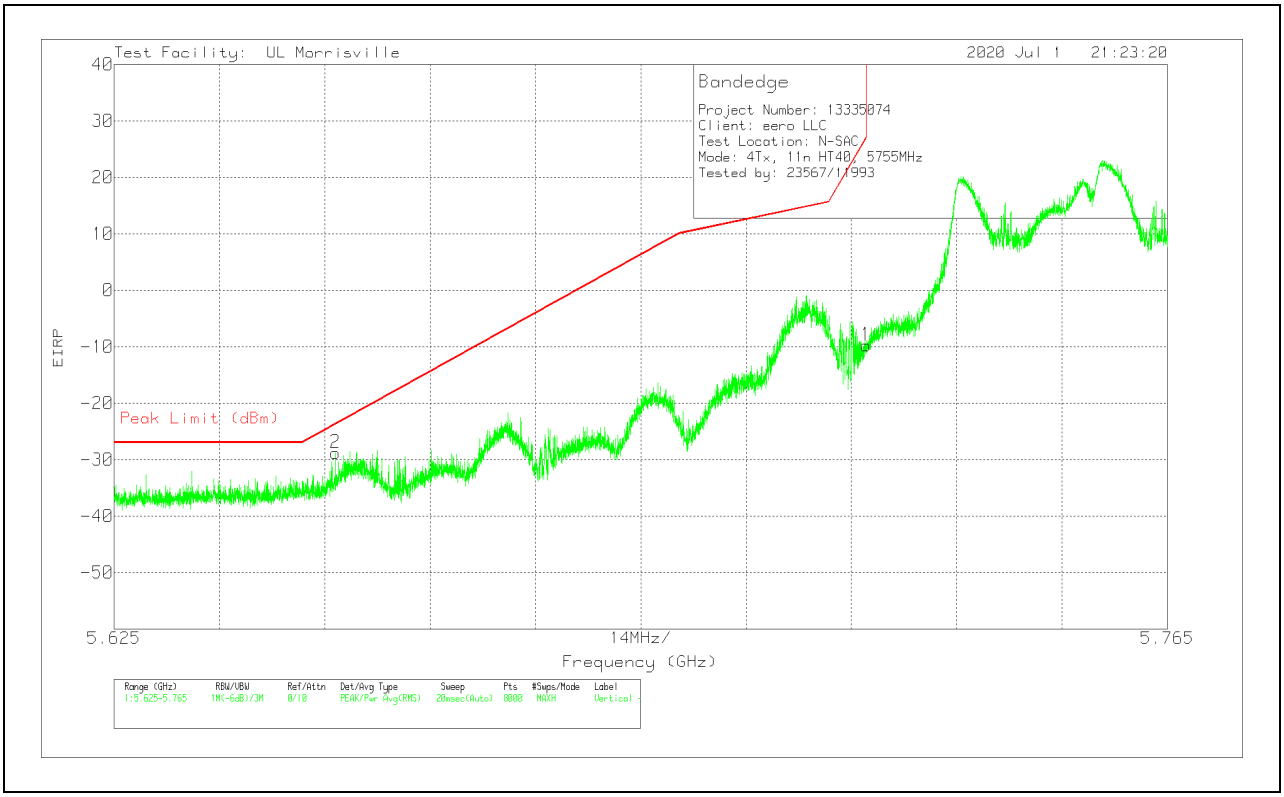
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.65444	-63.39	Pk	34.6	-21.8	11.8	10	-28.79	-23.72	-5.07	127	279	V
1	5.72499	-44.36	Pk	34.6	-21.8	11.8	10	-9.76	26.97	-36.73	127	279	V

Pk - Peak detector

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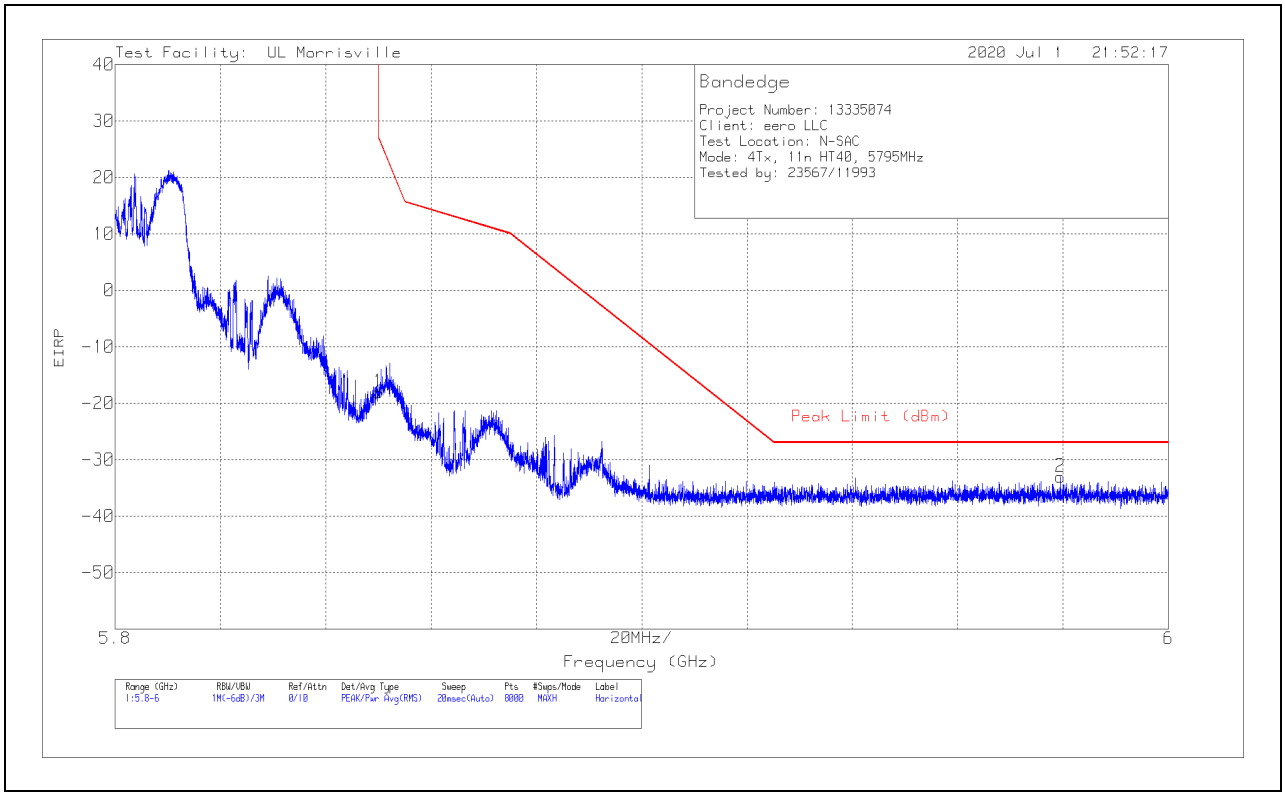
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-53.23	Pk	34.8	-21.4	11.8	10	-18.03	26.99	-45.02	70	316	H
2	5.97952	-69.11	Pk	35.1	-20.8	11.8	10	-33.01	-27	-6.01	70	316	H

Pk - Peak detector

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VERTICAL RESULT

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-52.54	Pk	34.8	-21.4	11.8	10	-17.34	26.99	-44.33	96	238	V
2	5.97807	-69.43	Pk	35.1	-20.8	11.8	10	-33.33	-27	-6.33	96	238	V

Pk - Peak detector

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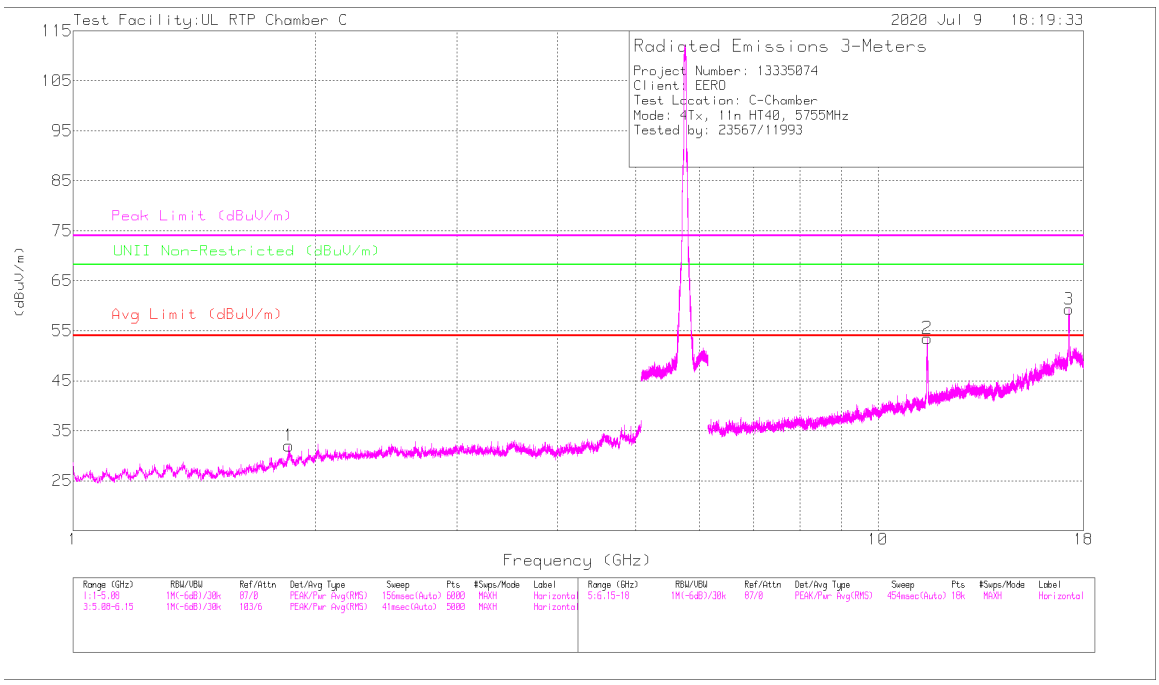
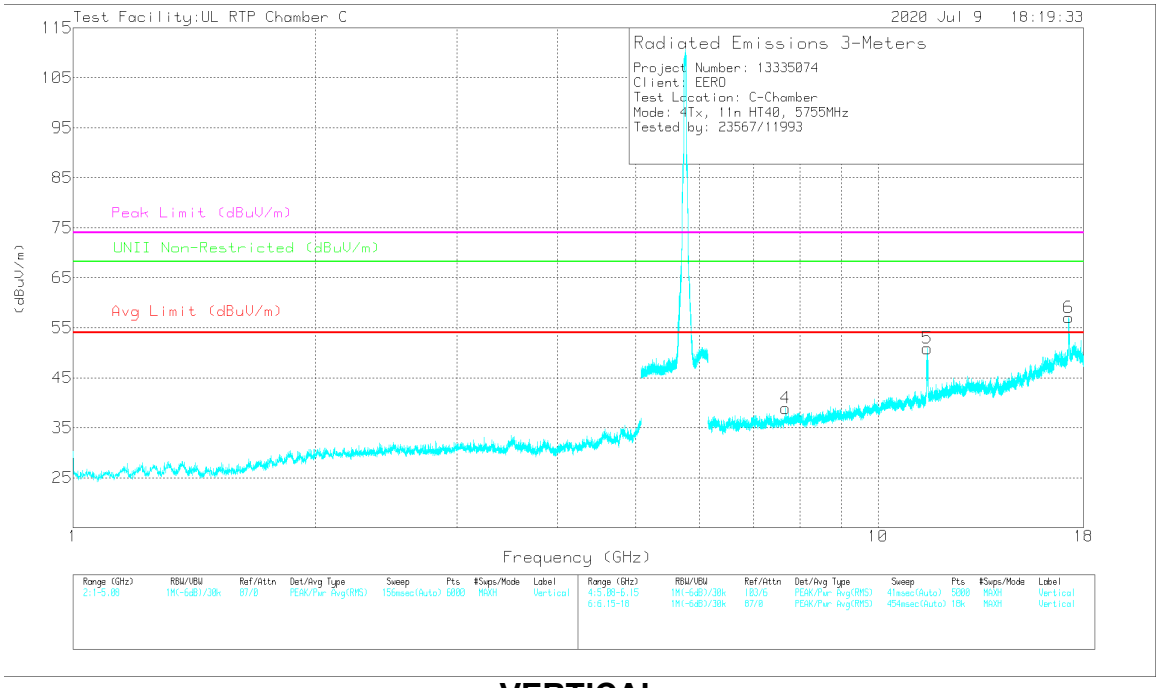
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	** 1.8556	60.46	PK-U	30.9	-53.7	0	37.66	-	-	-	-	68.2	-30.54	143	312	H
	** 1.8551	47.78	ADV	30.9	-53.7	.42	25.4	-	-	-	-	-	-	143	312	H
2	* ** 11.51311	67.47	PK-U	38.2	-41.8	0	63.87	-	-	74	-10.13	-	-	132	213	H
	* ** 11.51396	55.02	ADV	38.2	-41.8	.42	51.84	54	-2.16	-	-	-	-	132	213	H
4	* ** 7.67861	54.41	PK-U	35.9	-45.8	0	44.51	-	-	74	-29.49	-	-	90	270	V
	* ** 7.67841	41.14	ADV	35.9	-45.7	.42	31.76	54	-22.24	-	-	-	-	90	270	V
5	* ** 11.51292	60.81	PK-U	38.2	-41.8	0	57.21	-	-	74	-16.79	-	-	55	226	V
	* ** 11.51319	47.64	ADV	38.2	-41.8	.42	44.46	54	-9.54	-	-	-	-	55	226	V
6	17.24982	60.37	PK-U	41.8	-36.4	0	65.77	-	-	-	-	68.2	-2.43	101	225	V
3	17.26125	62.99	PK-U	41.7	-36.5	0	68.19	-	-	-	-	68.2	-.01	156	210	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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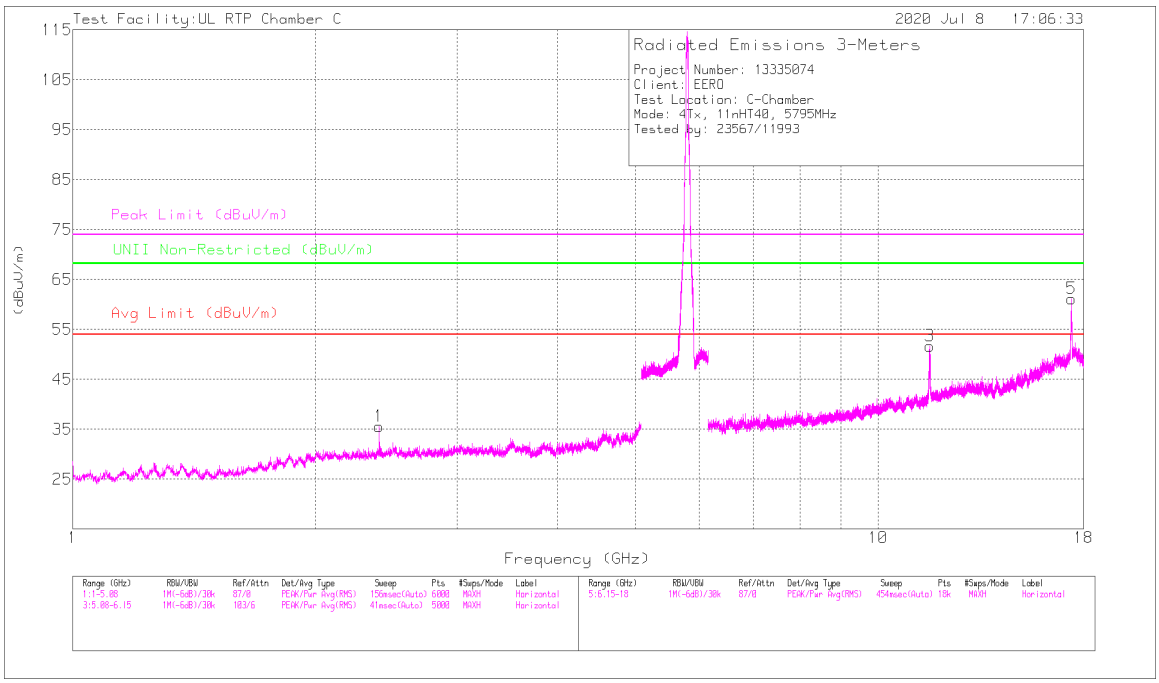
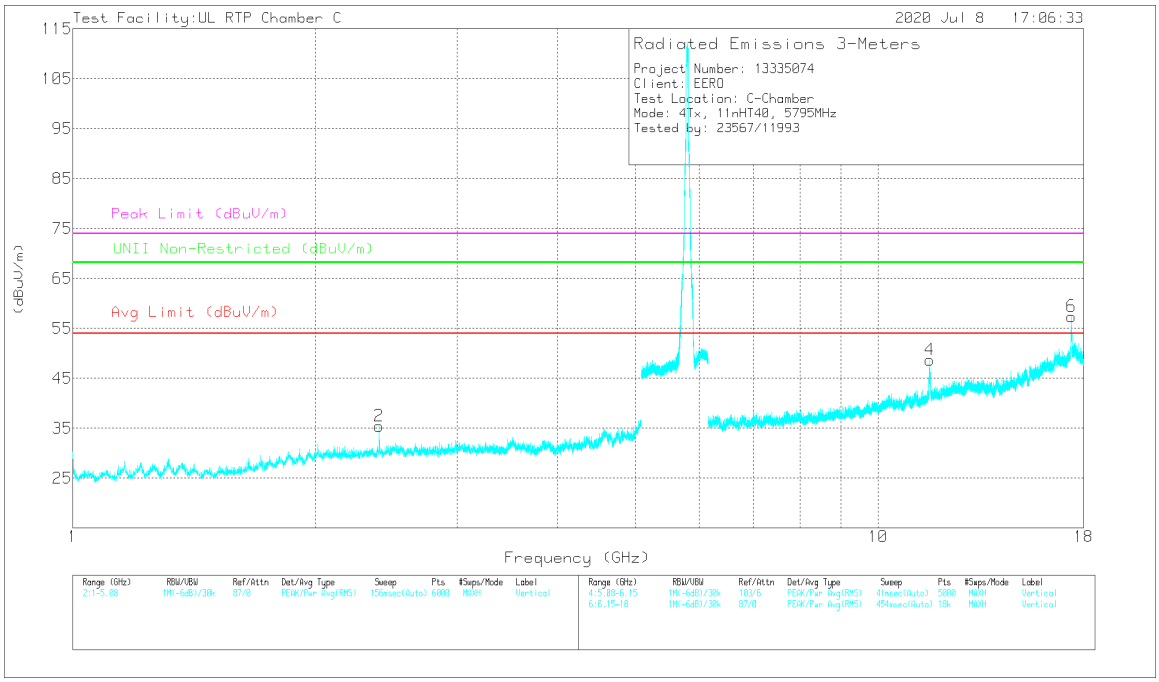
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* ** 11.59177	59.73	PK-U	38.3	-41.9	0	56.13	-	-	74	-17.87	-	-	134	130	H
	* ** 11.59181	46.82	ADV	38.3	-41.9	.42	43.64	54	-10.36	-	-	-	-	134	130	H
4	* ** 11.59131	57.15	PK-U	38.3	-41.9	0	53.55	-	-	74	-20.45	-	-	329	102	V
	* ** 11.59127	44.03	ADV	38.3	-41.9	.42	40.85	54	-13.15	-	-	-	-	329	102	V
1	2.40173	68.14	PK-U	32.1	-52.7	0	47.54	-	-	-	-	68.2	-20.66	149	107	H
2	2.40213	66.82	PK-U	32.1	-52.7	0	46.22	-	-	-	-	68.2	-21.98	174	156	V
5	17.37882	58.45	PK-U	41.6	-35.1	0	64.95	-	-	-	-	68.2	-3.25	226	390	H
6	17.38025	57.46	PK-U	41.6	-35.2	0	63.86	-	-	-	-	68.2	-4.34	96	354	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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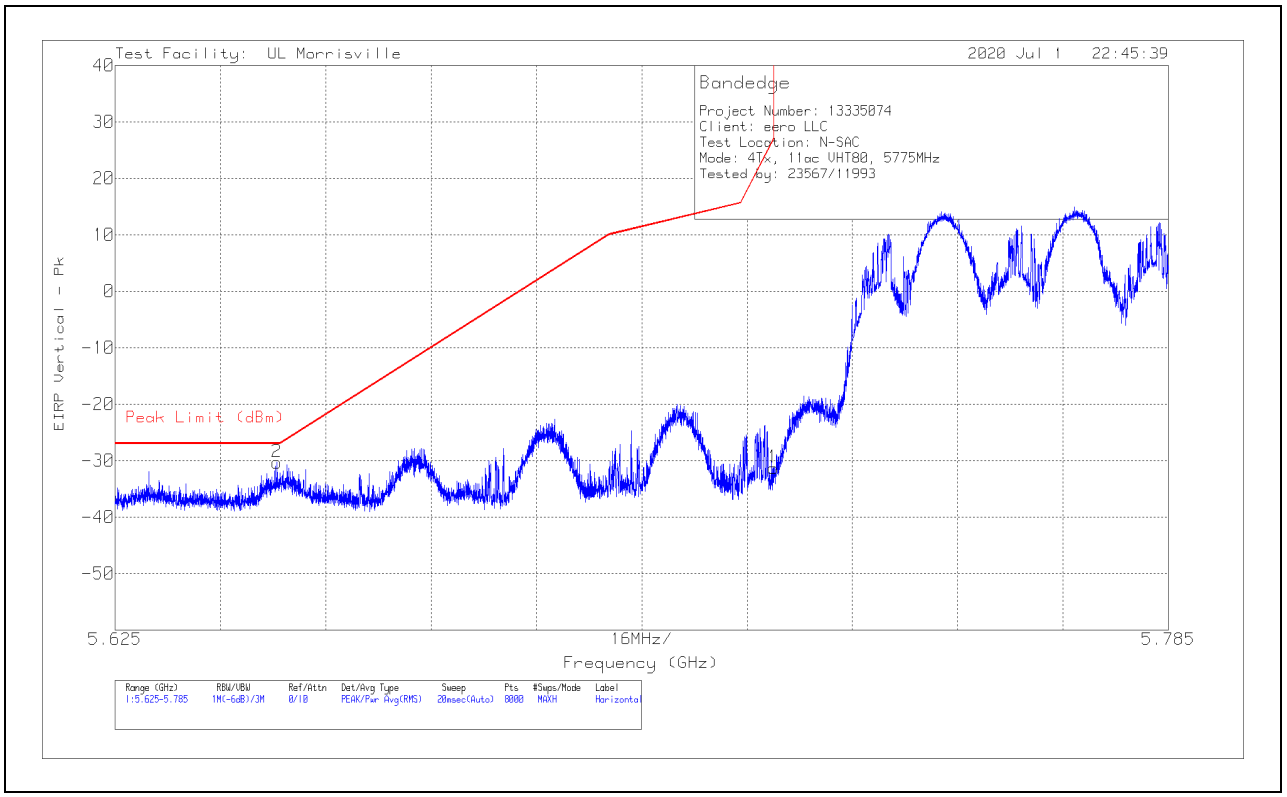
10.1.4. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

4TX Antenna 1 + Antenna 2 + Antenna 3 + Antenna 4 CDD MODE

BANDEDGE (CHANNEL 155 LOW EDGE)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.6496	-64.81	Pk	34.6	-21.9	11.8	10	-30.31	-27	-3.31	65	208	H
1	5.725	-65.89	Pk	34.6	-21.8	11.8	10	-31.29	26.99	-58.28	65	208	H

Pk - Peak detector

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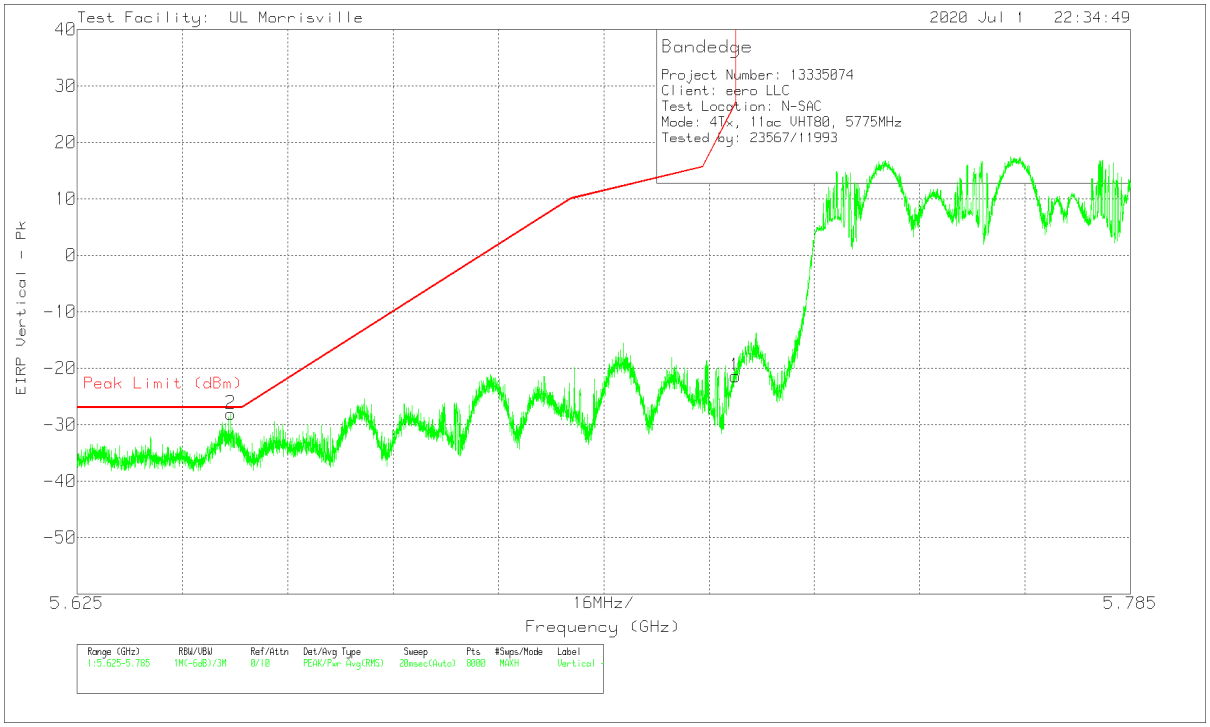
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.6483	-62.58	Pk	34.6	-21.9	11.8	10	-28.08	-27	-1.08	96	246	V
1	5.725	-55.99	Pk	34.6	-21.8	11.8	10	-21.39	26.99	-48.38	96	246	V

Pk - Peak detector

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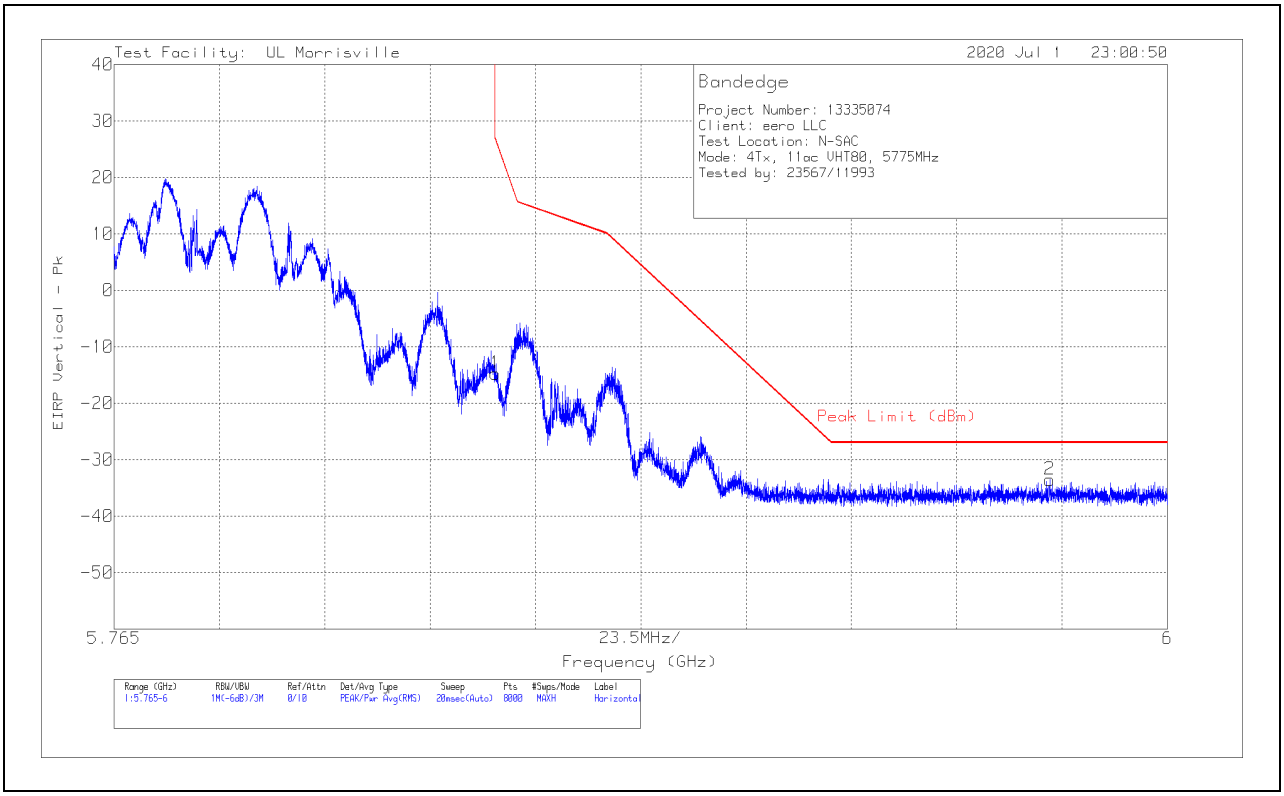
BANDEDGE (CHANNEL 155 HIGH EDGE)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-49.95	Pk	34.8	-21.4	11.8	10	-14.75	26.95	-41.7	156	244	H
2	5.97374	-69.65	Pk	35	-20.7	11.8	10	-33.55	-27	-6.55	156	244	H

Pk - Peak detector

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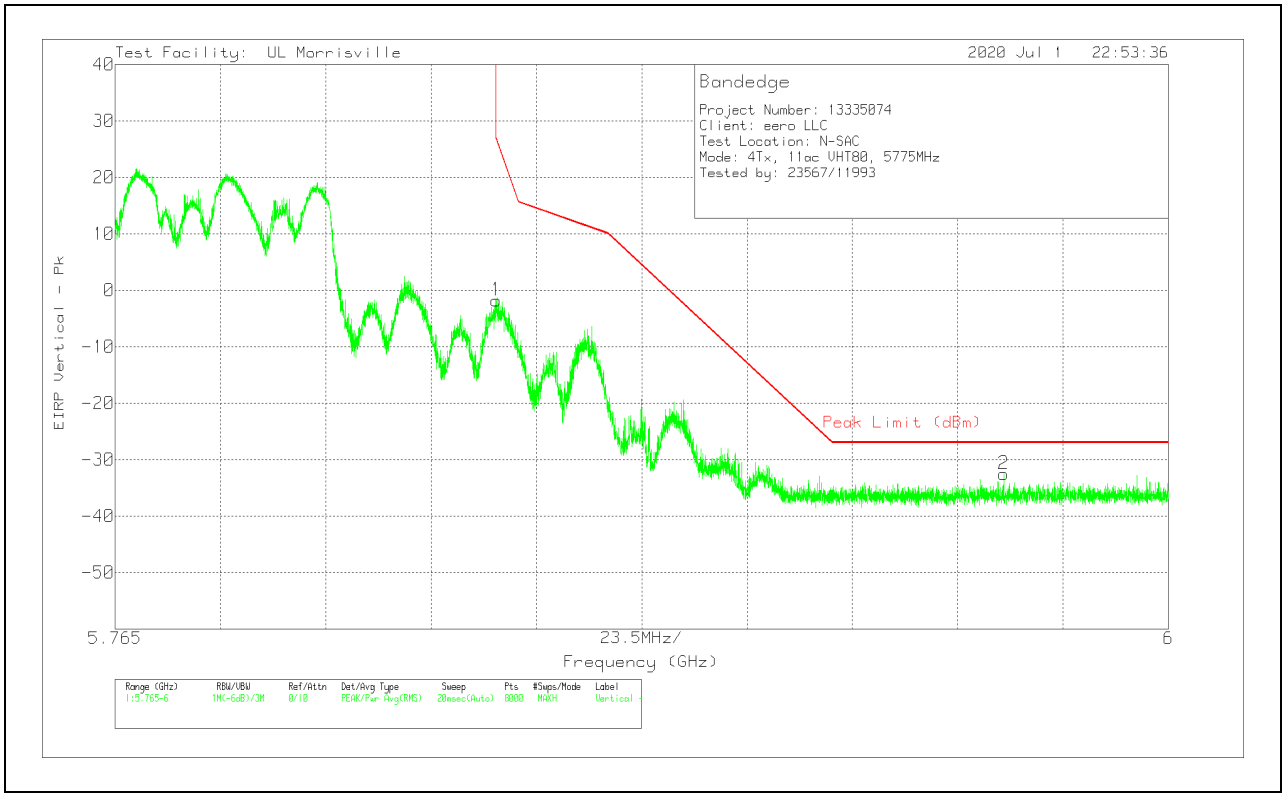
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 dB(/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-36.99	Pk	34.8	-21.4	11.8	10	-1.79	26.95	-28.74	161	212	V
2	5.96325	-68.64	Pk	35.1	-20.8	11.8	10	-32.54	-27	-5.54	161	212	V

Pk - Peak detector

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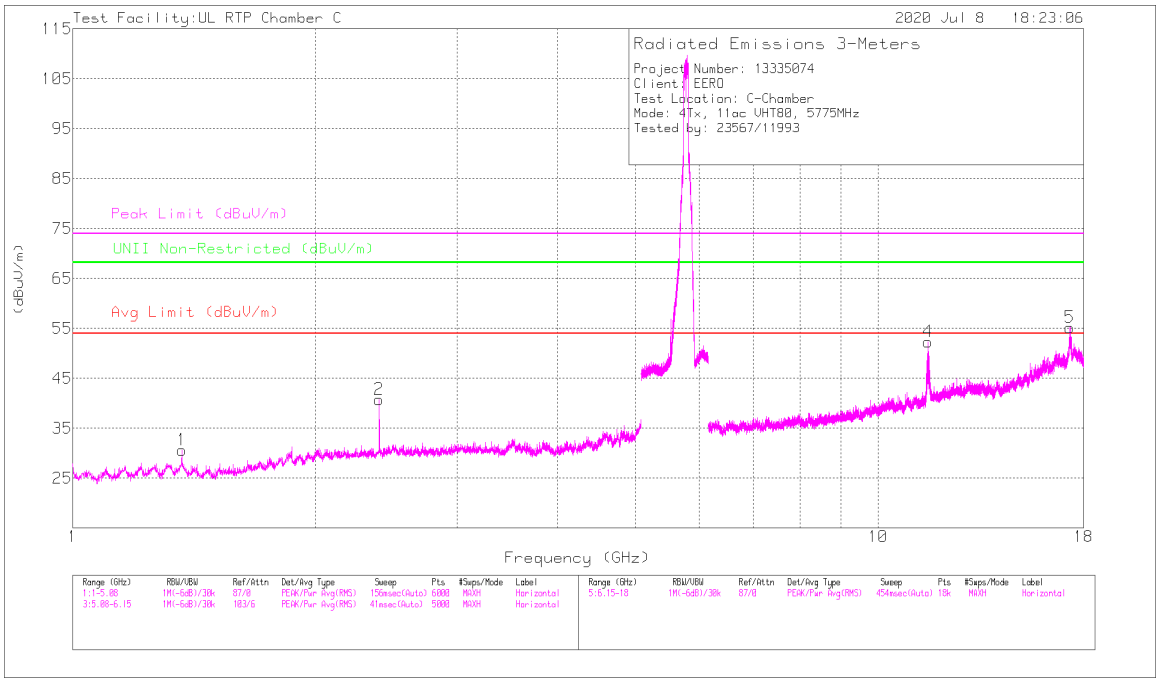
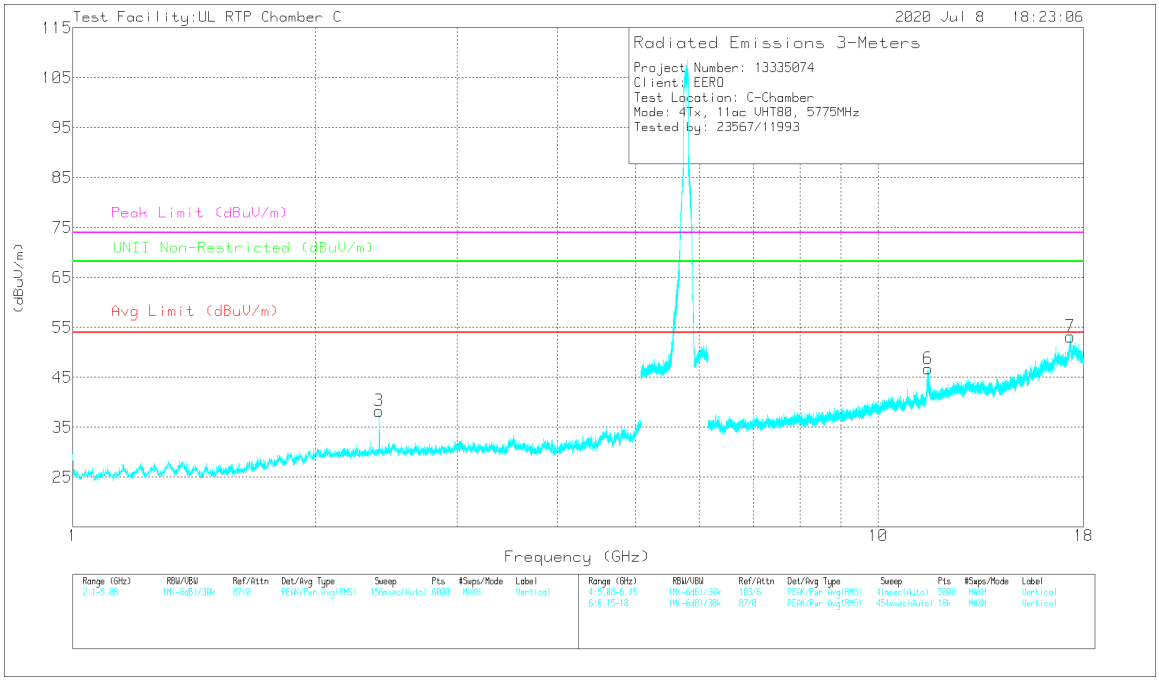
HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0062 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.36651	63.72	PK-U	28.7	-54.8	0	37.62	-	-	74	-36.38	-	-	167	210	H
	* ** 1.36801	48.14	ADV	28.7	-54.8	.38	22.42	54	-31.58	-	-	-	-	167	210	H
4	* ** 11.53324	62.7	PK-U	38.2	-41.8	0	59.1	-	-	74	-14.9	-	-	143	222	H
	* ** 11.53359	49.24	ADV	38.2	-41.8	.38	46.02	54	-7.98	-	-	-	-	143	222	H
6	* ** 11.5401	57.82	PK-U	38.2	-41.7	0	54.32	-	-	74	-19.68	-	-	242	315	V
	* ** 11.5403	43.59	ADV	38.2	-41.7	.38	40.47	54	-13.53	-	-	-	-	242	315	V
3	2.40139	57.93	PK-U	32.1	-52.7	0	37.33	-	-	-	-	68.2	-30.87	62	102	V
2	2.40387	59.03	PK-U	32.1	-52.7	0	38.43	-	-	-	-	68.2	-29.77	197	297	H
5	17.30203	56.2	PK-U	41.7	-35.3	0	62.6	-	-	-	-	68.2	-5.6	154	321	H
7	17.32971	52.87	PK-U	41.7	-34.4	0	60.17	-	-	-	-	68.2	-8.03	154	283	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
PK-U - Maximum Peak
ADV - Linear Voltage Average

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11. SETUP PHOTOS

Please refer to R13335074-EP1 for setup photos.

END OF TEST REPORT

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