



# TEST REPORT

**Report Number:** R14176139-E5fV2

**Applicant :** Sony Corporation  
1-7-1 Konan Minato-ku  
Tokyo, 108-0076, Japan

**FCC ID :** PY7-83262V

**EUT Description :** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS,  
WPT & NFC

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART E

**Date Of Issue:**

2022-03-25

**Prepared by:**

UL LLC.

12 Laboratory Dr.

Research Triangle Park, NC 27709 U.S.A.

TEL: (919) 549-1400



CERT #0751.06

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## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-03-16	Initial Issue	Noah Bennett
V2	2022-03-25	Harmonized all antenna descriptors to read as chain 0 and chain 1. Removed SU power Revised antenna gain table in section 9.3 to only display 5.8 gains.	Brian Kiewra

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Sony Corporation  
1-7-1 Konan Minato-ku  
Tokyo, 108-0076, Japan

**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

**SERIAL NUMBER:** QV77007QB8, QV77003RB8, QV770028AQ

**SAMPLE RECEIPT DATE:** 2022-01-13

**DATE TESTED:** 2022-02-09 to 2022-02-18

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	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.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released  
For UL LLC By:

Reviewed By:

Prepared By:



Michael Antola  
Staff Engineer  
Consumer Technology Division  
UL LLC

Brian Kiewra  
Project Engineer  
Consumer Technology Division  
UL LLC

Noah Bennett  
Engineer  
Consumer Technology Division  
UL LLC

## 2. TEST RESULT SUMMARY

This report contains data provided by the applicant which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

Note - This report pertains to the 802.11ax mode in the 5.8 GHz band requirements of the EUT.

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 12.2.
See Comment	26dB BW	Reporting purposes only	Per ANSI C63.10 Sections 6.9.2
15.407 (e)	6 dB BW	Pass	None.
15.407 (a) (3), (h) (1)	Output Power		
15.407 (a) (3)	PSD		
15.209, 15.205, 15.407 (b)	Radiated Emissions		
15.207	AC Mains Conducted Emissions		

## 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 905462 D06 v02
- FCC KDB 789033 D02 v02r01
- KDB 414788 D01 Radiated Test Site v01r01
- ANSI C63.10-2013

## 4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input type="checkbox"/>	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
<input checked="" type="checkbox"/>	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

## 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	U <sub>Lab</sub>
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
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	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

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

#### **RADIATED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### **MAINS CONDUCTED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

## 6. EQUIPMENT UNDER TEST

### 6.1. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC.  
 Note - This report pertains to the 802.11ax mode in the 5.8 GHz band requirements of the EUT.

### 6.2. MAXIMUM OUTPUT POWER

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

#### 5.8GHz BAND 802.11 ax MODE 2TX

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>5.8 GHz band, 2TX CDD</b>			
5745-5825	802.11ax HE20 OFDMA, 242-Tones	13.24	21.09
	802.11ax HE20 OFDMA, 106-Tones	13.34	21.58
	802.11ax HE20 OFDMA, 52-Tones	13.25	21.13
	802.11ax HE20 OFDMA, 26-Tones	11.31	13.52
5755-5795	802.11ax HE40 OFDMA, 484-Tones	13.36	21.68
5775	802.11ax HE80 OFDMA, 996-Tones	12.06	16.07

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:

The radio utilizes two loop antennas, with the following maximum gains:

Chain	Frequency Range (MHz)	Maximum Gain (dBi)
0	5725-5850	-3.8
1	5725-5850	-9.0

	Theory of Operation	Antenna	Manufacturer Tolerance	Block Diagram
Chain 0	WLAN Main/Bluetooth #1	WLAN Main/Bluetooth #1	Chain 0	WLAN Main/Bluetooth #1
Chain 1	WLAN Sub/Bluetooth #2	WLAN Sub/Bluetooth #2	Chain 1	WLAN Sub/Bluetooth #2

### 6.4. SOFTWARE AND FIRMWARE

The firmware version used during testing was 0.428.



## 6.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

Band edge was performed with the EUT set to transmit on low and high channels. Radiated spurious and harmonic emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the worst-case mode/channel based on power and PSD.

For this report, the worst-case Radiated Emissions from 1-18 GHz was found to be HE20 26T, HE20 106T and HE40 484T.

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

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

- 802.11ax HE20mode: MCS0 (Nss = 1)
- 802.11ax HE40mode: MCS0 (Nss = 1)
- 802.11ax HE80mode: MCS0 (Nss = 1)
- 802.11ax HE160mode: MCS0 (Nss = 1)

All testing performed in 2Tx mode (NSS=1), where power per chain is equivalent to the 1Tx power on each chain. This allows 2Tx testing to cover all 1Tx testing.

802.11ax modes were determined by the following:

- 802.11ax HE20 26T/52T, 106T, and 242T modes tested.
- 802.11ax HE40 484T mode tested. 26T, 52T, 106T, and 242T modes are covered by the HE 20MHz modes.
- 802.11ax HE80 996T mode tested. 26T, 52T, 106T, 242T, and 484T modes are covered by the HE20 and HE160 modes.
- 802.11ax HE160 484T, 996T, 2x996T modes tested. 26T, 52T, 106T, and 242T modes are covered by the HE 20MHz modes.

Preliminary Investigation scans were completed to compare Full RU Tone modes and Single User Tone modes. It was found that Full RU Tone modes were worst case over Single User in every instance. Therefore, only full tone was testing as it is representative of SU worst case scenario.

Worst-case modes for 6dB bandwidth:

802.11ax HE20 26T

Worst case modes for simultaneous transmission for unlicensed radios:

802.11ax HE20 5785MHz 26T/RU4 2Tx and BT GFSK 1Tx C0

802.11ax HE20 5785MHz 26T/RU4 2Tx and BT GFSK 1Tx C1

802.11ax HE20 5745MHz 26T/RU4 2Tx and 802.11ax HE20 26T/RU8 2Tx

## 6.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	14-dk1003dx	5CG016B4XM	TX2-RTL8821CE
NFC Tags	Hicarer	NTAG215	B091Z6NtN8	NA
Headphones	Sony	MDR-EX15AP	NA	NA
AC Adapter	Sony	XQZ-UC11-010-236-21	1821W34209742	NA
AC Adapter	Sony	XQZ-UC11-010-236-21	1821W34209856	NA
USB Cable Type C	Sony	XQZ-UB1	NA	NA

### I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB-C	Non-Shielded	<3m	Connected to Power Supply
2	3.5mm	1	3.5mm Audio	Non-Shielded	<1m	Connected to headphones

### TEST SETUP

The EUT is connected to a host laptop computer and configured via test software before the tests. Test software exercised the radio card.

### SETUP DIAGRAMS

Please refer to R14176139-EP2 for setup diagrams

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## 7. MEASUREMENT METHOD

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

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

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

Power Spectral Density: KDB 789033 D02 v02r01, Section F

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

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

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

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

## 8. TEST AND MEASUREMENT EQUIPMENT

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

### Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>Conducted Room 2</b>					
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2021-04-01	2022-04-01
PWM003	RF Power Meter	Keysight Technologies	N1911A	2021-08-30	2022-08-30
PWS006	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	N1921a	2021-12-17	2022-12-17
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2021.11.3	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2021.09.26	NA	NA
<b>Additional Equipment used</b>					
MM0167 (PRE0126458)	True RMS Multimeter	Agilent	U1232A	2021-08-17	2023-08-17

### Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>1-18 GHz</b>					
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-03-11	2022-03-11
<b>Gain-Loss Chains</b>					
C4-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-05-07	2022-05-07
<b>Receiver &amp; Software</b>					
SA0026	Spectrum Analyzer	Agilent	N9030A	2021-07-16	2022-07-16
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
210642	Environmental Meter	Fisher Scientific	210701942	2021-8-16	2023-08-16

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2021-04-05	2022-04-05
HI0091	Environmental Meter	Fisher Scientific	14-077-963	2021-07-21	2022-07-22
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2021-08-16	2022-08-16
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2021-08-17	2022-08-17
ATA222	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2021-04-05	2022-04-05
PS214	AC Power Source	Elgar	CW2501M (s/n 1523A02396)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (04 Mar 2021)		

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	<b>0.009-30MHz</b>				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	<b>30-1000 MHz</b>				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-08-30	2022-08-30
	<b>1-18 GHz</b>				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-05-03	2022-05-03
	<b>18-40 GHz</b>				
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
AT0061	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2021-11-04	2022-11-04
	<b>Gain-Loss Chains</b>				
C2-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2021-07-09	2022-07-09
C2-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-07-09	2022-07-09
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-07-09	2022-07-09
C2-SAC04	Gain-loss string: 18-40GHz	Various	Various	2021-07-09	2022-07-09
	<b>Receiver &amp; Software</b>				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SA0020	Spectrum Analyzer	Agilent	E4446A	2021-05-25	2022-05-25
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	<b>Additional Equipment used</b>				
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

## 9. ANTENNA PORT TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

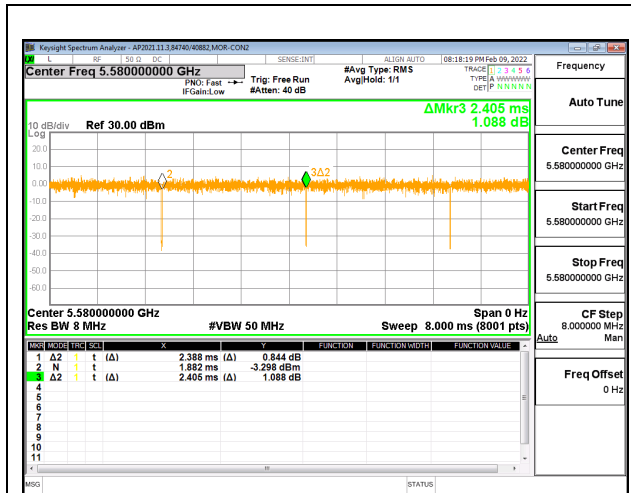
#### PROCEDURE

KDB 789033 D02 Zero-Span Spectrum Analyzer Method.

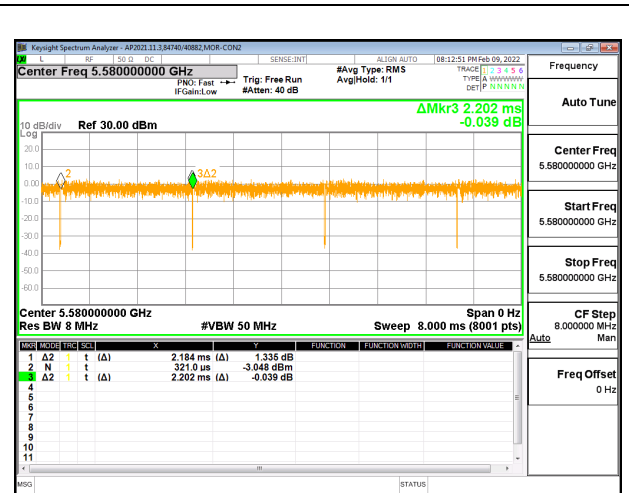
#### ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11ax HE20 OFDMA, RU size 242T	2.388	2.405	0.993	99.29%	0.00	0.010
802.11ax HE20 OFDMA, RU size 106T	2.184	2.202	0.992	99.18%	0.00	0.010
802.11ax HE20 OFDMA, RU size 52T	2.324	2.342	0.992	99.23%	0.00	0.010
802.11ax HE20 OFDMA, RU size 26T	2.328	2.346	0.992	99.23%	0.00	0.010
802.11ax HE40 OFDMA, RU size 484T	2.383	2.400	0.993	99.29%	0.00	0.010
802.11ax HE80 OFDMA, RU size 996T	2.418	2.435	0.993	99.30%	0.00	0.010
802.11ax HE160 OFDMA, RU size 2x996T	2.419	2.436	0.993	99.30%	0.00	0.010
802.11ax HE160 OFDMA, RU size 996T	2.419	2.436	0.993	99.30%	0.00	0.010
802.11ax HE160 OFDMA, RU size 484T	2.381	2.398	0.993	99.29%	0.00	0.010

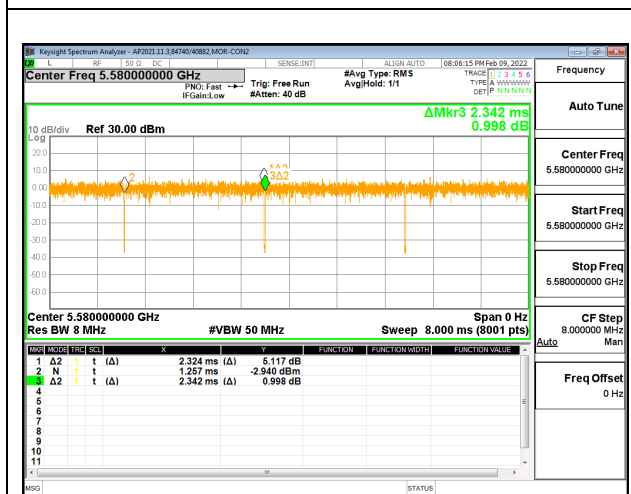
### DUTY CYCLE PLOTS



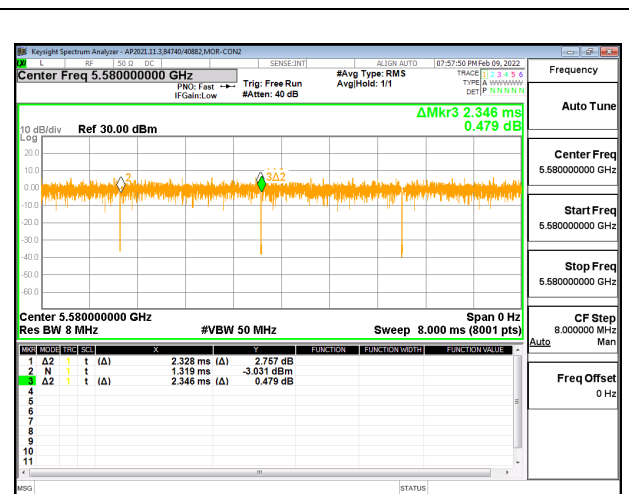
802.11ax HE20 OFDMA, RU size 242T MODE



802.11ax HE20 OFDMA, RU size 106T MODE



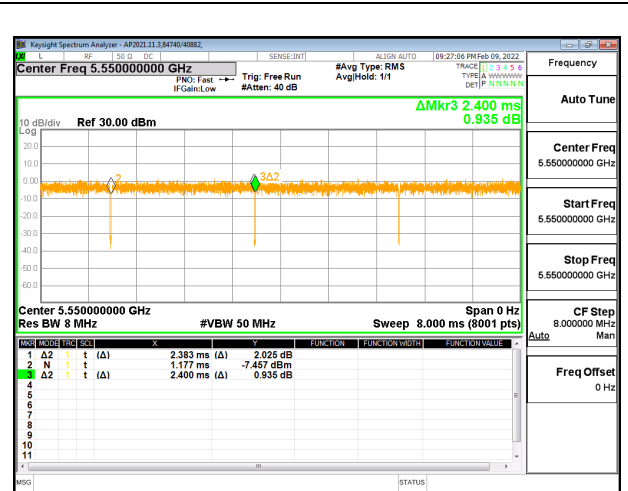
802.11ax HE20 OFDMA, RU size 52T MODE



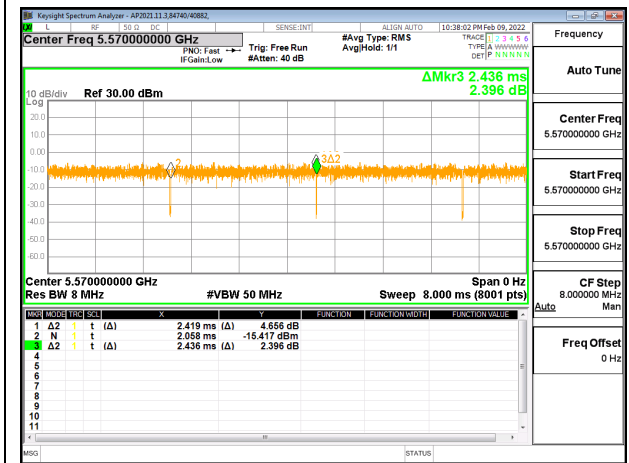
802.11ax HE20 OFDMA, RU size 26T MODE



802.11ax HE80 OFDMA, RU size 996T MODE



802.11ax HE40 OFDMA, RU size 484T MODE



802.11ax HE160 OFDMA, RU size 2x996T MODE



802.11ax HE160 OFDMA, RU size 996T MODE



802.11ax HE160 OFDMA, RU size 484T MODE

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## **9.2. 6 dB BANDWIDTH**

### **LIMITS**

FCC §15.407 (e)

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

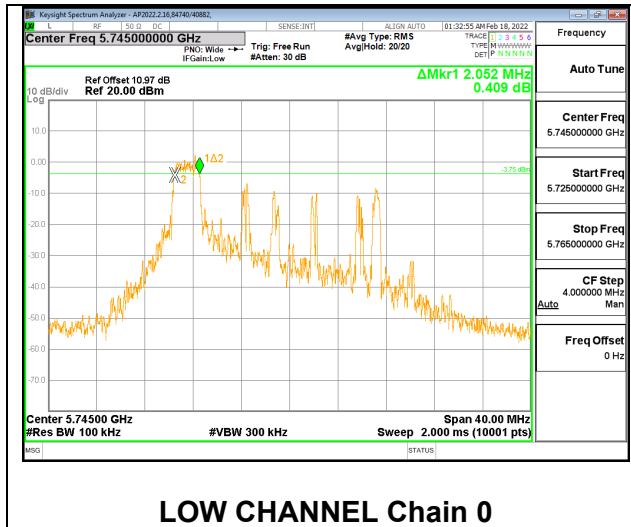
### **RESULTS**

### 9.2.1. 802.11ax HE20 MODE 2TX IN THE 5.8GHz BAND

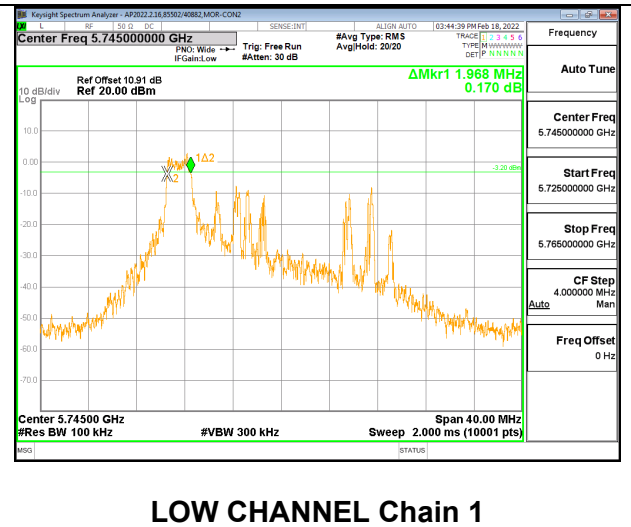
#### 2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	2.0520	1.9680	0.5

LOW



LOW CHANNEL Chain 0

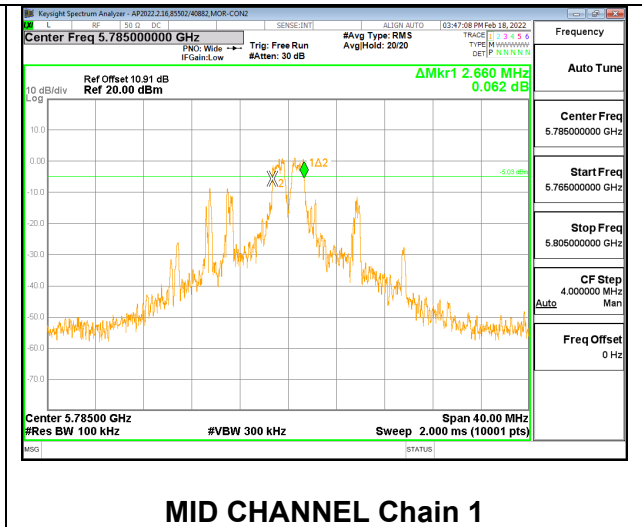
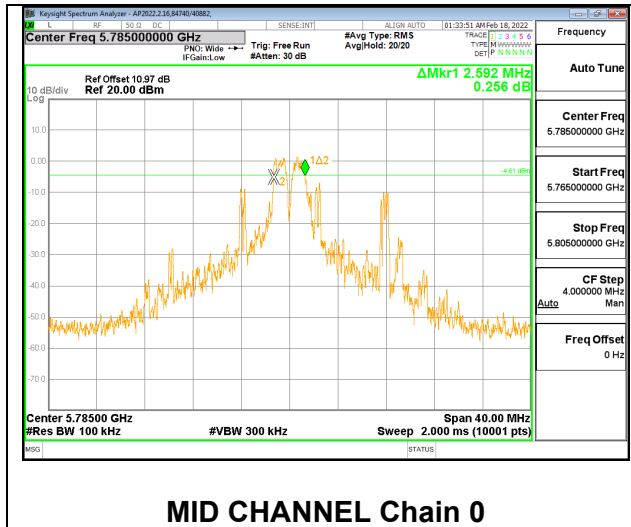


LOW CHANNEL Chain 1

**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 4**

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Mid	5785	2.5920	2.6600	0.5

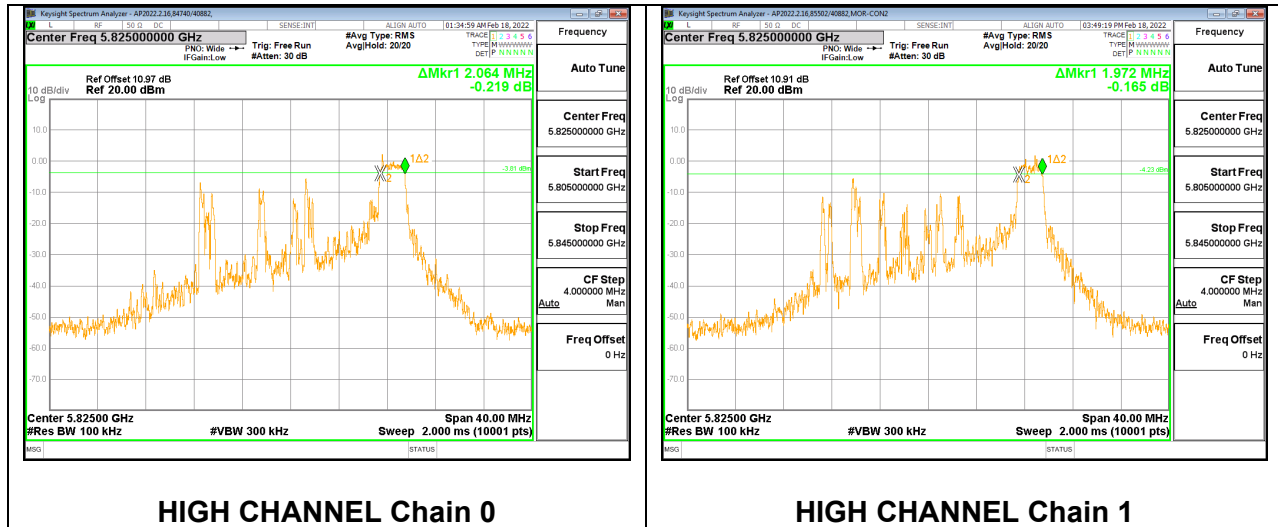
**MID**



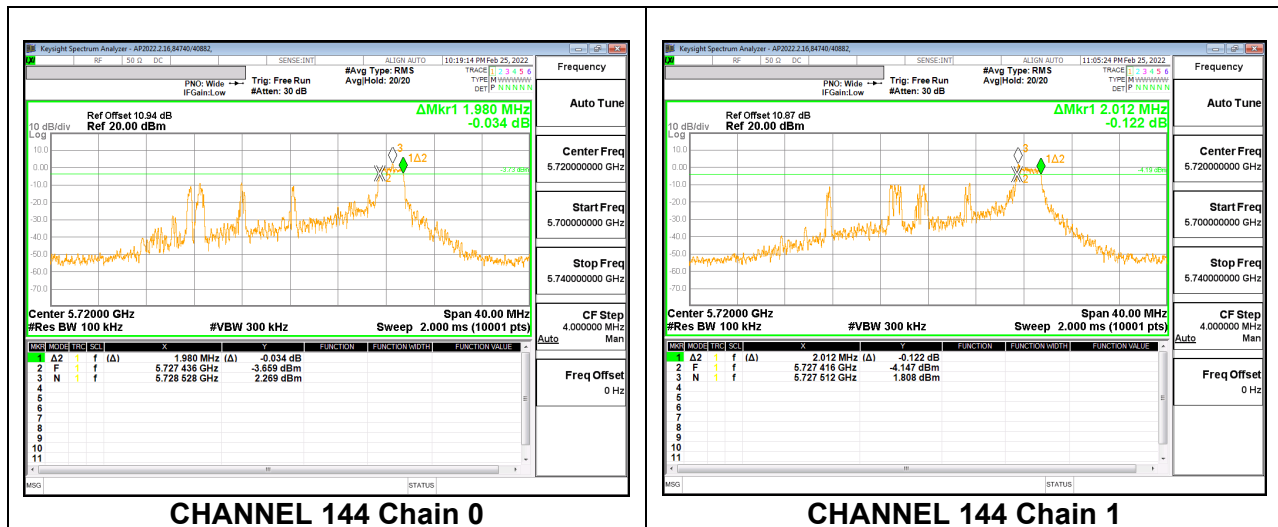
**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 8**

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
High	5825	2.064	1.972	0.5
144	5720	1.980	2.012	0.5

**HIGH**



**STRADDLE**



### 9.3. 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.

#### TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G).

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

#### DIRECTIONAL ANTENNA GAIN

For 2 TX:

Tx antennas are uncorrelated for power.

Tx antennas are correlated for 11n/ac/ax PSD.

The directional gains are as follows:

<b>Band (GHz)</b>	<b>Chain 0 Antenna Gain (dBi)</b>	<b>Chain 1 Antenna Gain (dBi)</b>	<b>Uncorrelated Chains Directional Gain (dBi)</b>	<b>Correlated Chains Directional Gain (dBi)</b>
5.8	-3.80	-9.00	-5.66	-3.01

#### RESULT

### 9.3.1. 802.11ax HE20 MODE 2TX IN THE 5.8GHz BAND

#### 2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 0

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

#### Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
Low	5745	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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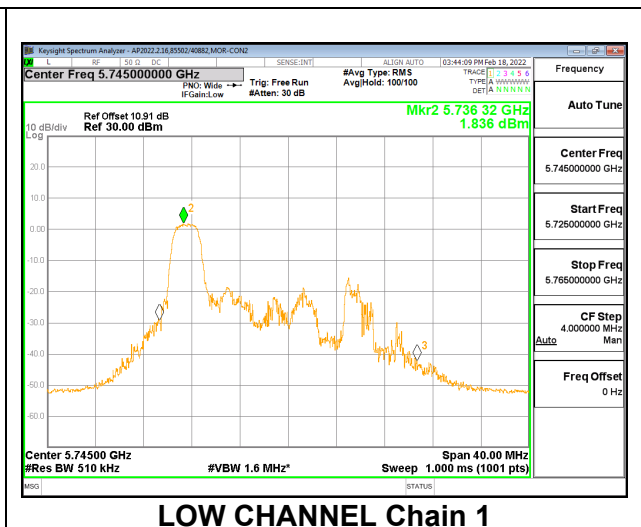
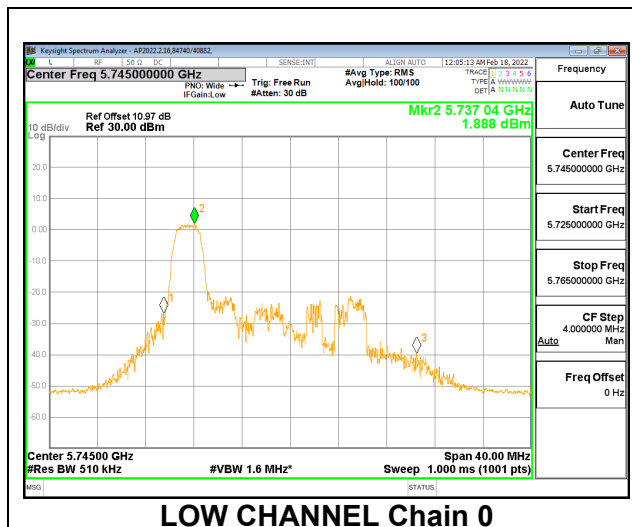
#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	8.16	8.19	11.19	30.00	-18.81

#### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5745	1.888	1.836	4.872	30.00	-25.13

**LOW**



**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 4**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
Mid	5785	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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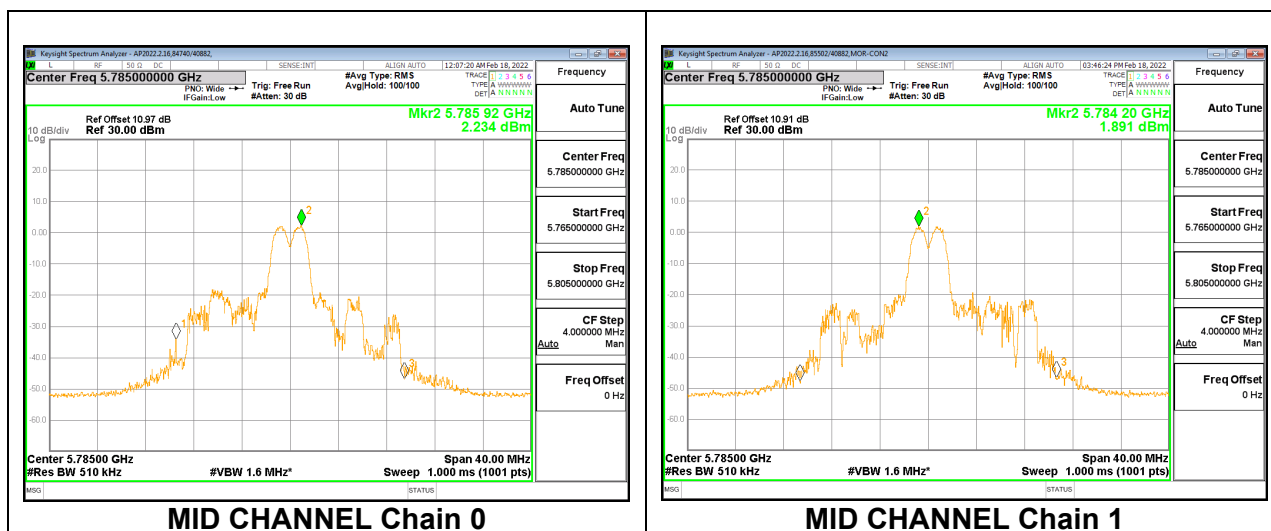
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5785	8.63	7.94	11.31	30.00	-18.69

**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Mid	5785	2.234	1.891	5.076	30.00	-24.92

**MID**



**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 26-Tones, RU Index 8**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
High	5825	-5.66	-3.01	30.00	30.00
144	5720	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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**Output Power Results**

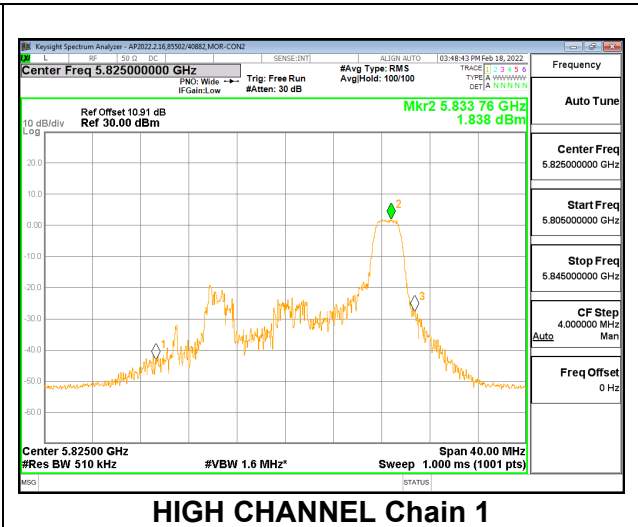
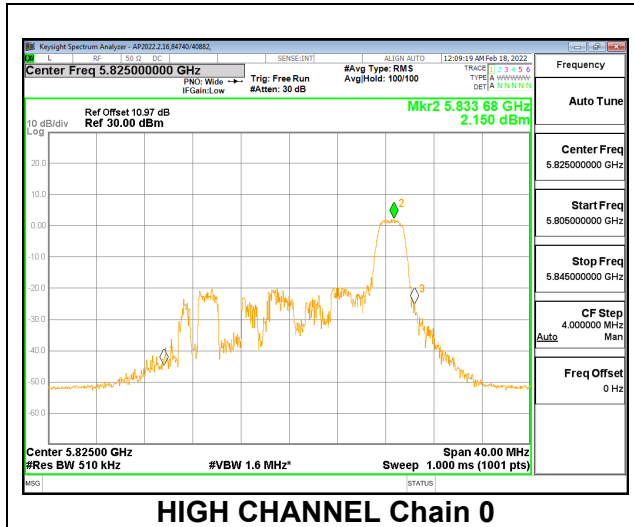
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5825	8.20	7.92	11.07	30.00	-18.93
144	5720	8.07	8.14	11.12	30.00	-18.88

**PSD Results**

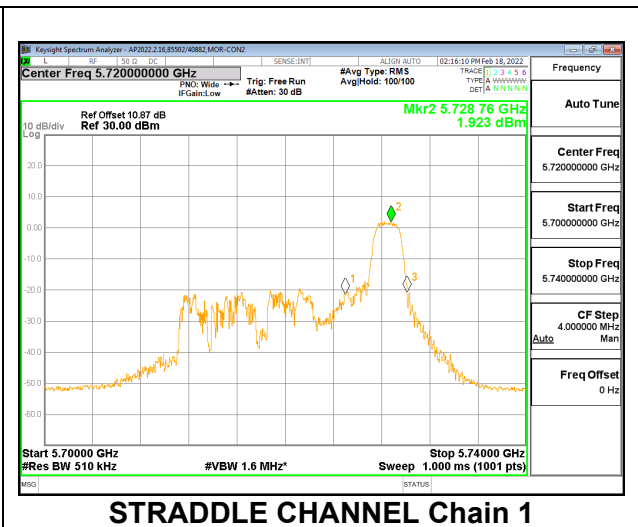
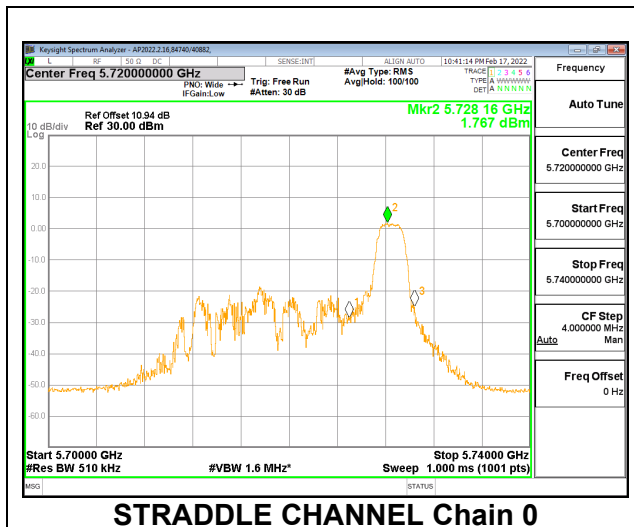
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
High	5825	2.150	1.838	5.007	30.00	-24.99
144	5720	1.767	1.923	4.856	30.00	-25.14



**HIGH**



**STRADDLE**



**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 52-Tones, RU Index 37**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
Low	5745	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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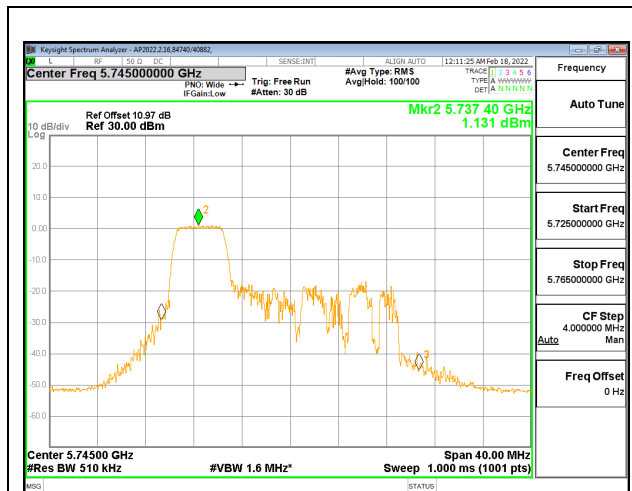
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	10.45	9.91	13.20	30.00	-16.80

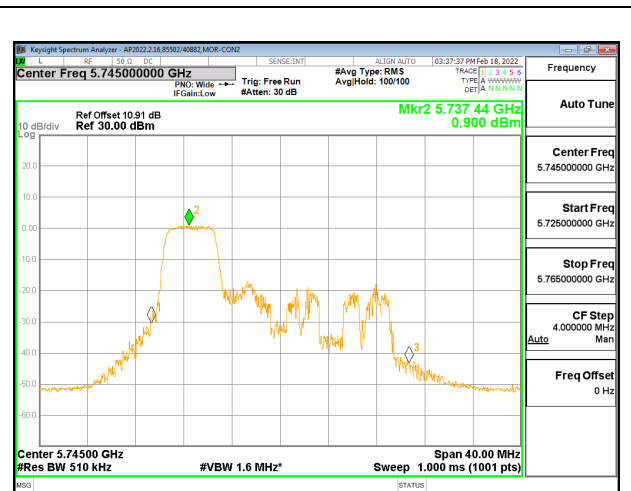
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5745	1.131	0.900	4.027	30.00	-25.97

**LOW**



**LOW CHANNEL Chain 0**



**LOW CHANNEL Chain 1**

**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 52-Tones, RU Index 38**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
Mid	5785	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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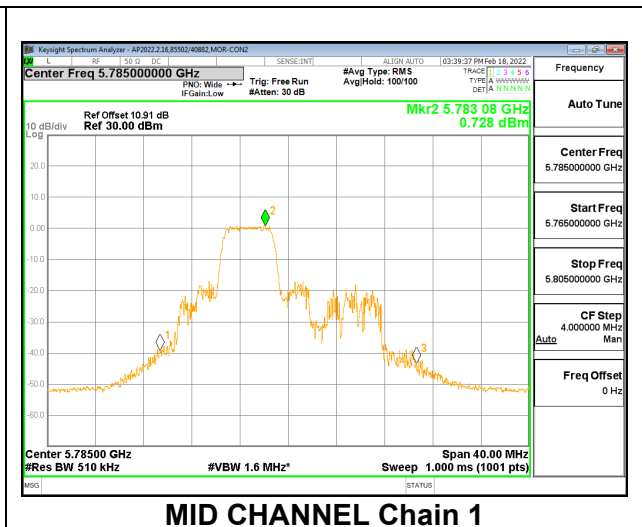
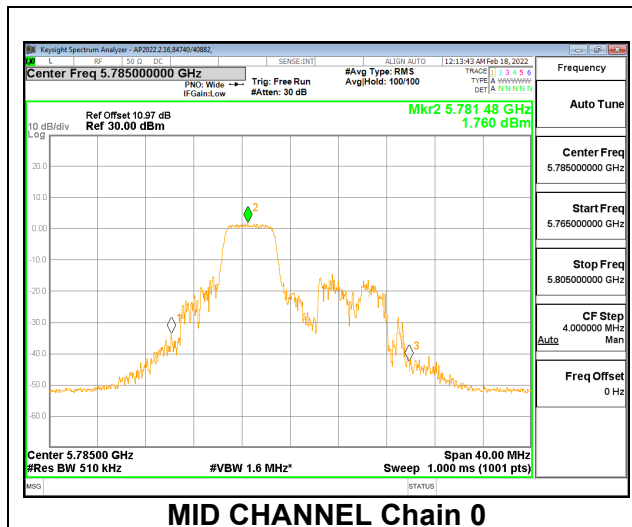
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5785	10.75	9.65	13.25	30.00	-16.75

**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Mid	5785	1.760	0.728	4.285	30.00	-25.72

**MID**



**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 52-Tones, RU Index 40**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
High	5825	-5.66	-3.01	30.00	30.00
144	5720	-5.66	-5.66	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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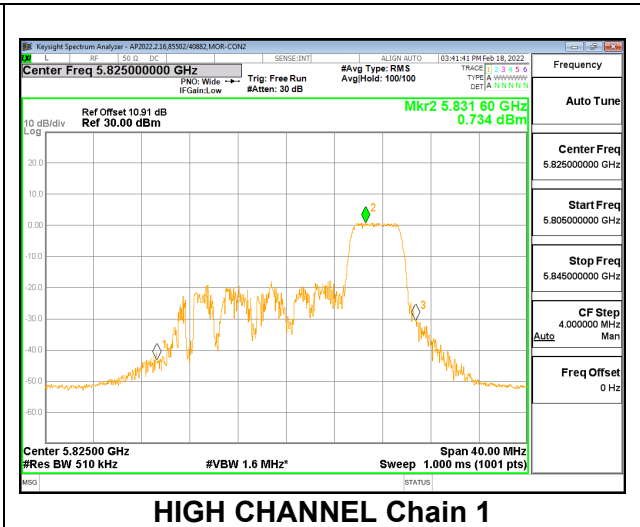
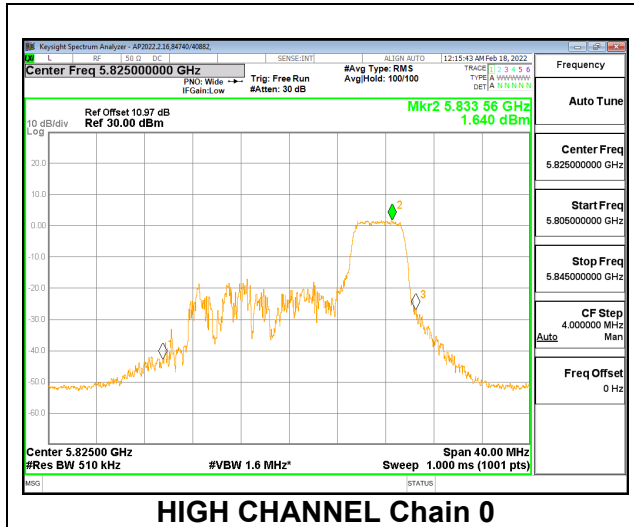
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5825	10.69	9.73	13.25	30.00	-16.75
144	5720	10.46	10.18	13.33	30.00	-16.67

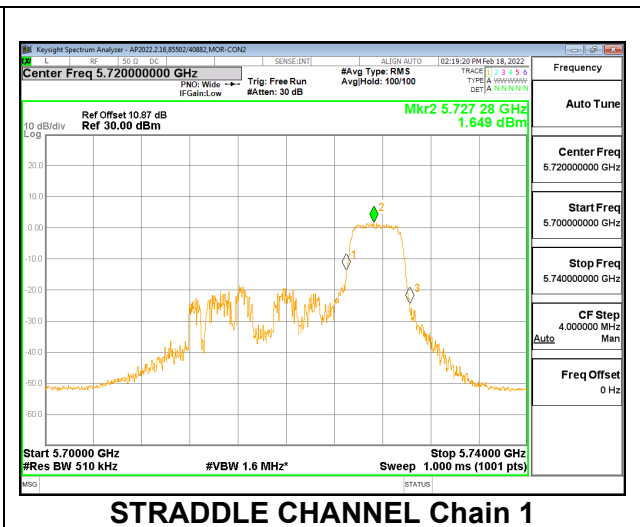
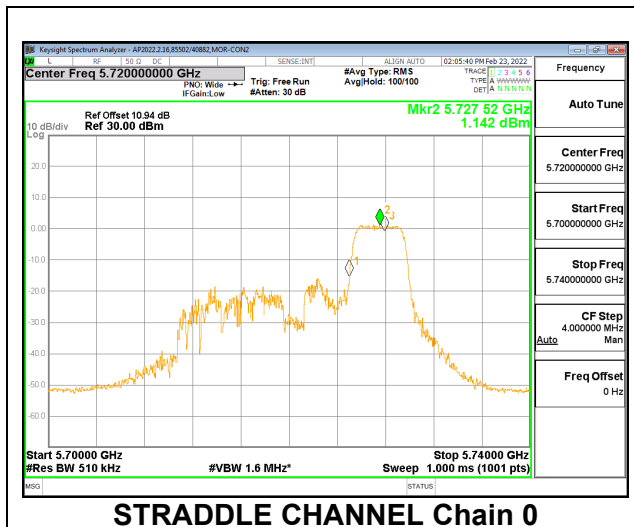
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
High	5825	1.640	0.734	4.221	30.00	-25.78
144	5720	1.142	1.169	4.166	30.00	-25.83

**HIGH**



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**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 106-Tones, RU Index 53**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5745	-5.66	-3.01	30.00	30.00
Mid	5785	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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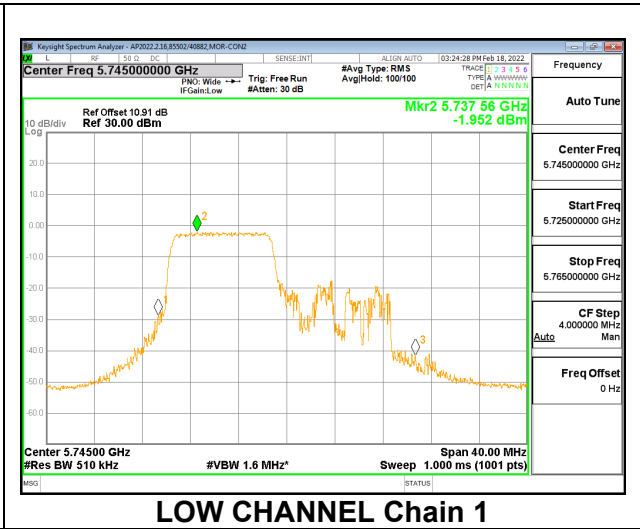
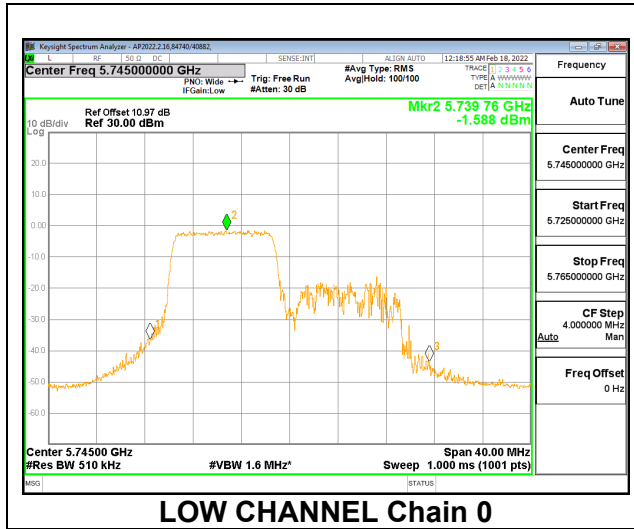
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	10.58	10.07	13.34	30.00	-16.66
Mid	5785	10.70	9.54	13.17	30.00	-16.83

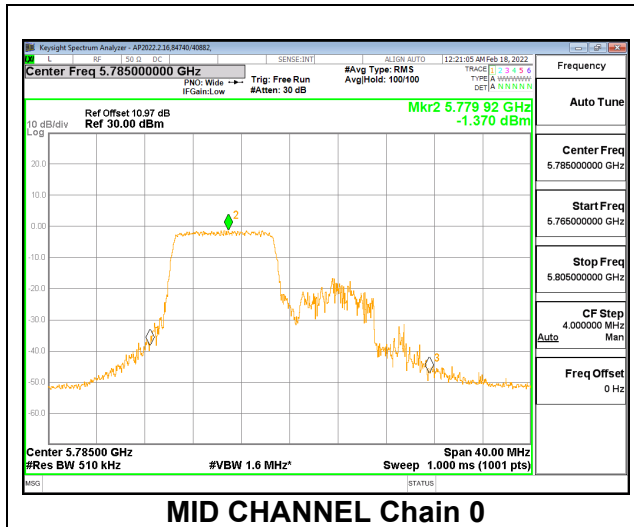
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/ 500KHz)	Chain 1 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	-1.588	-1.952	1.244	30.00	-28.76
Mid	5785	-1.370	-2.288	1.206	30.00	-28.79

LOW



MID



**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 106-Tones, RU Index 54**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
High	5825	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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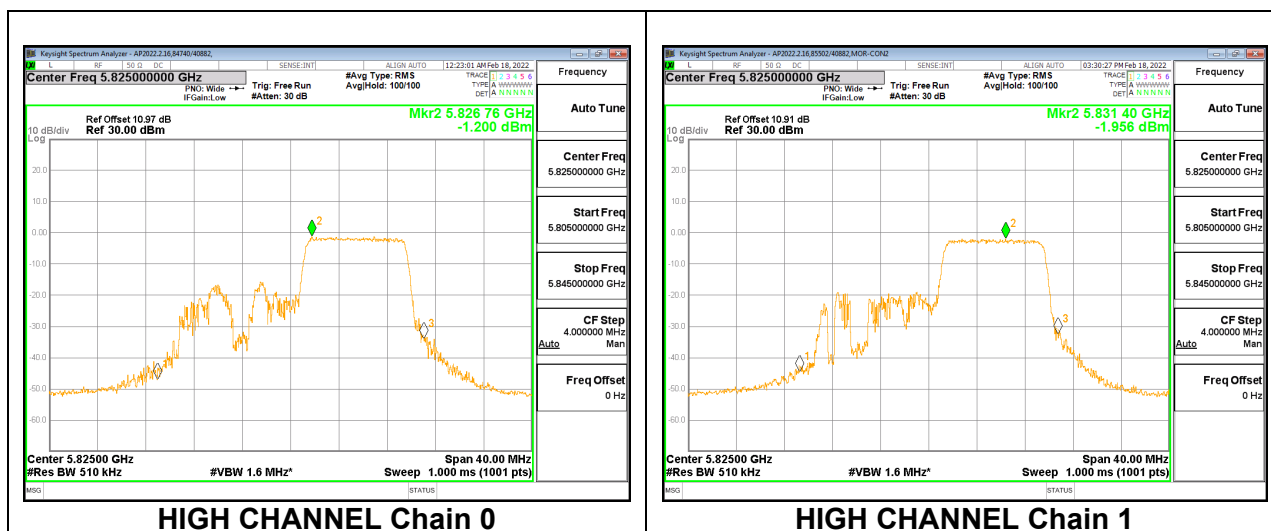
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5825	10.76	9.79	13.31	30.00	-16.69

**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
High	5825	-1.200	-1.956	1.449	30.00	-28.55

**HIGH**





**2TX Chain 0 + Chain 1 CDD OFDMA MODE: 242-Tones, RU Index 61**

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

**Antenna Gain and Limit**

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/500KHz)
Low	5745	-5.66	-3.01	30.00	30.00
Mid	5785	-5.66	-3.01	30.00	30.00
High	5825	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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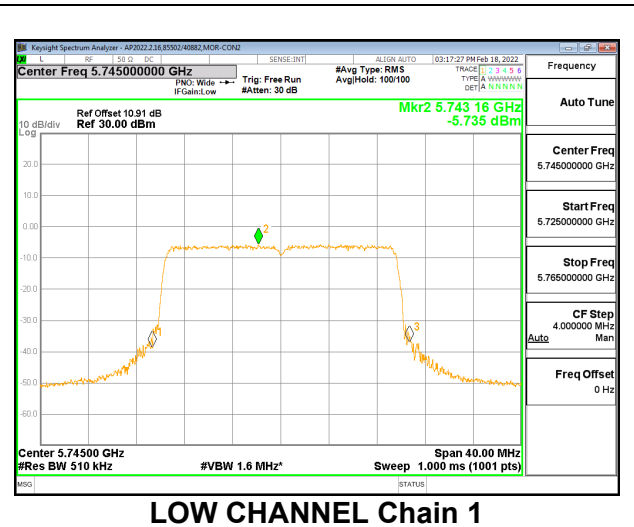
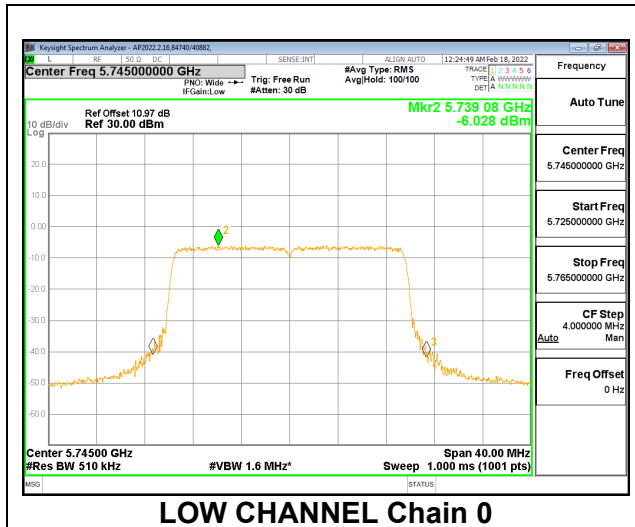
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	9.47	9.62	12.56	30.00	-17.44
Mid	5785	10.67	9.52	13.14	30.00	-16.86
High	5825	10.58	9.85	13.24	30.00	-16.76

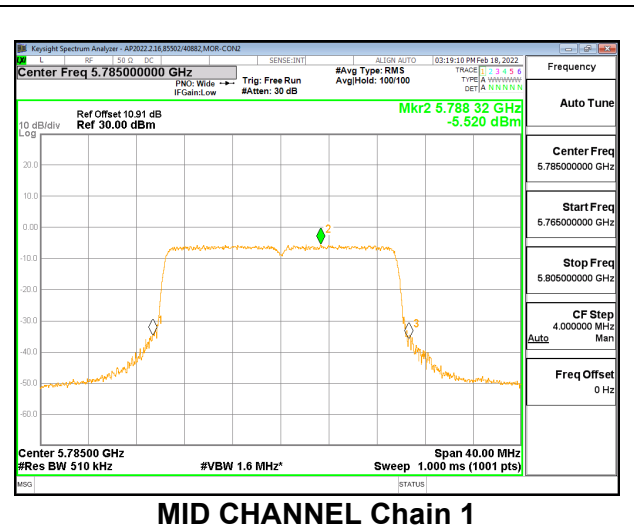
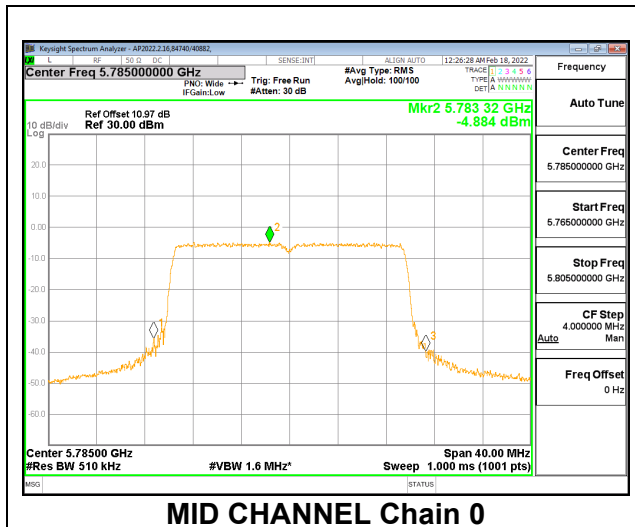
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5745	-6.028	-5.735	-2.869	30.00	-32.87
Mid	5785	-4.884	-5.520	-2.180	30.00	-32.18
High	5825	-4.702	-5.393	-2.023	30.00	-32.02

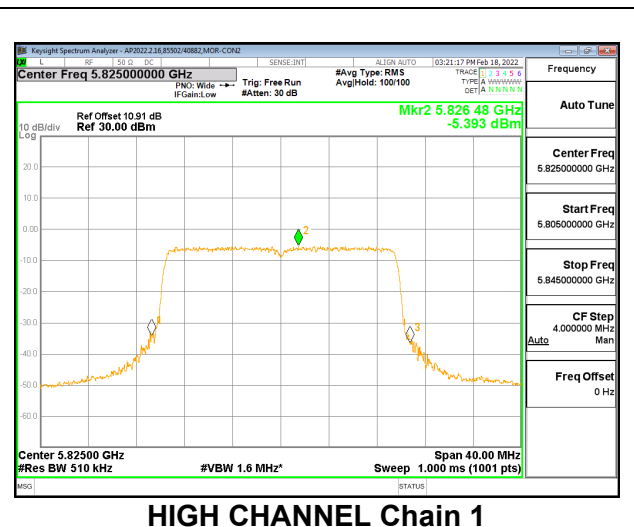
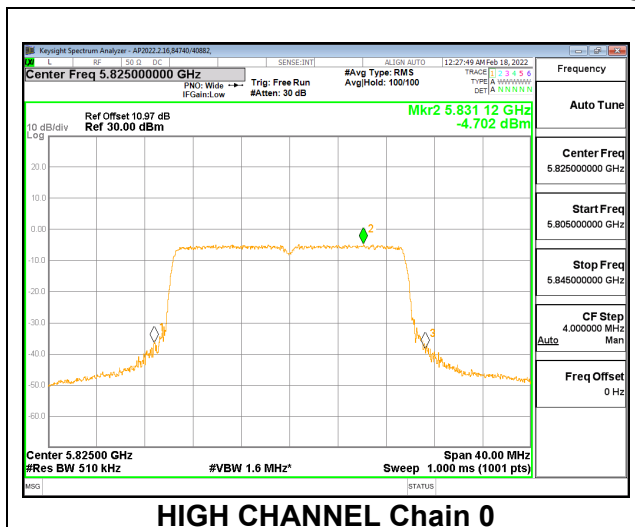
**LOW**



**MID**



**HIGH**



### 9.3.2. 802.11ax HE40 MODE 2TX IN THE 5.8GHz BAND

#### 2TX Chain 0 + Chain 1 CDD OFDMA MODE: 484-Tones, RU Index 65

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

#### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	FCC PSD Limit (dBm/500KHz)
Low	5755	-5.66	-3.01	30.00	30.00
High	5795	-5.66	-3.01	30.00	30.00
142	5710	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd Power &amp; PSD</b>
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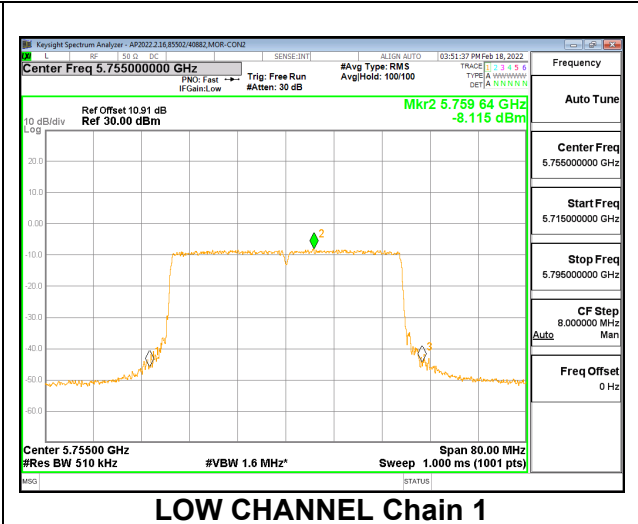
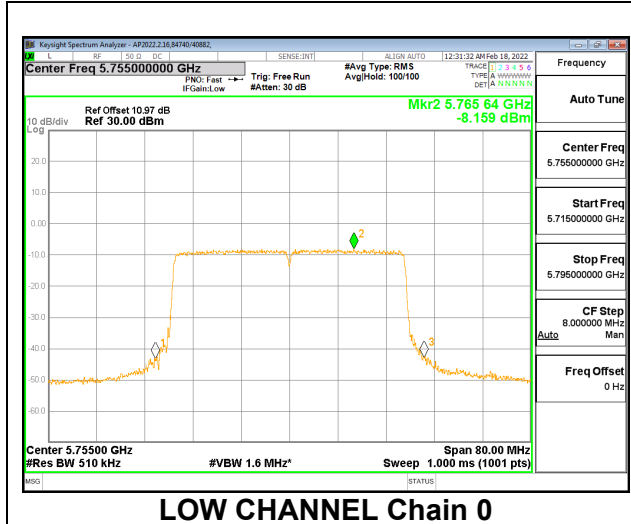
#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	10.64	10.04	13.36	30.00	-16.64
High	5795	10.41	9.57	13.02	30.00	-16.98
142	5710	10.60	10.30	13.46	30.00	-16.54

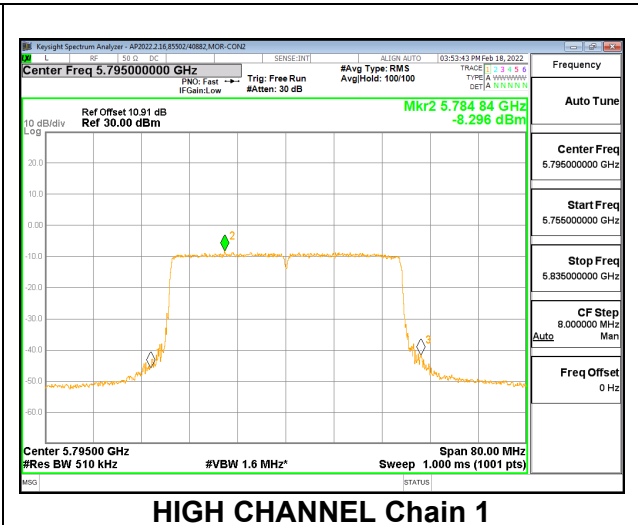
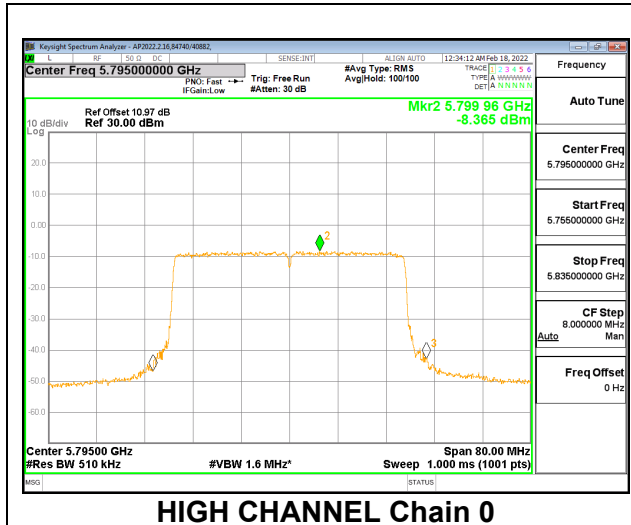
#### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/500KHz)	Chain 1 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5755	-8.16	-8.12	-5.13	30.00	-35.13
High	5795	-8.37	-8.30	-5.32	30.00	-35.32
142	5710	-8.44	-8.82	-5.62	30.00	-35.62

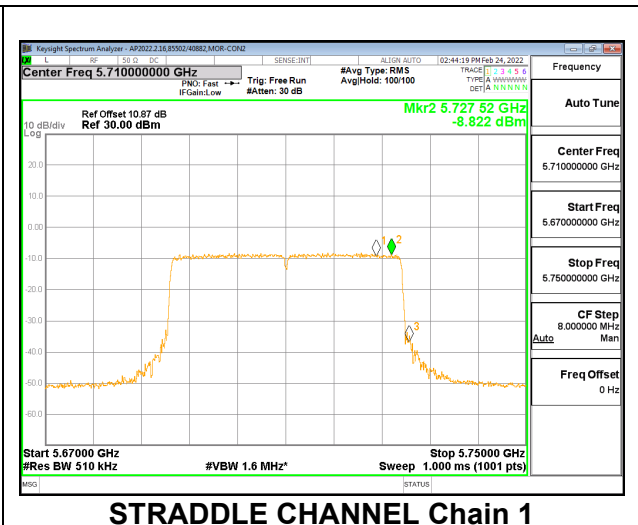
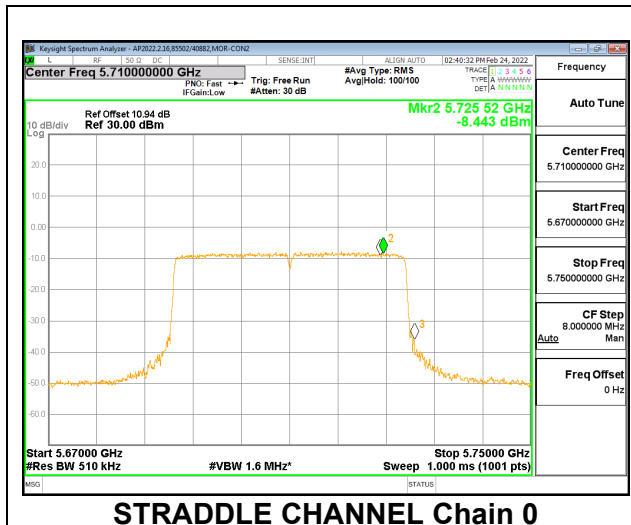
**LOW**



**HIGH**



**STRADDLE**



### 9.3.3. 802.11ax HE80 MODE 2TX IN THE 5.8GHz BAND

#### 2TX Chain 0 + Chain 1 CDD OFDMA MODE: 996-Tones, RU Index 67

<b>Test Engineer:</b>	84740/40882, 85502/40882
<b>Test Date:</b>	2022-02-17, 2022-02-18

#### Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	FCC PSD Limit (dBm/ 500KHz)
Mid	5775	-5.66	-3.01	30.00	30.00
138	5690	-5.66	-3.01	30.00	30.00

<b>Duty Cycle CF (dB)</b>	0.00	Included in Calculations of Corr'd Power & PSD
---------------------------	------	------------------------------------------------

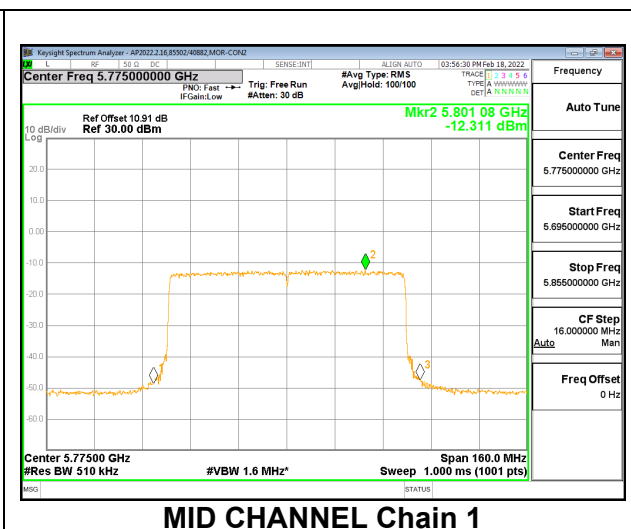
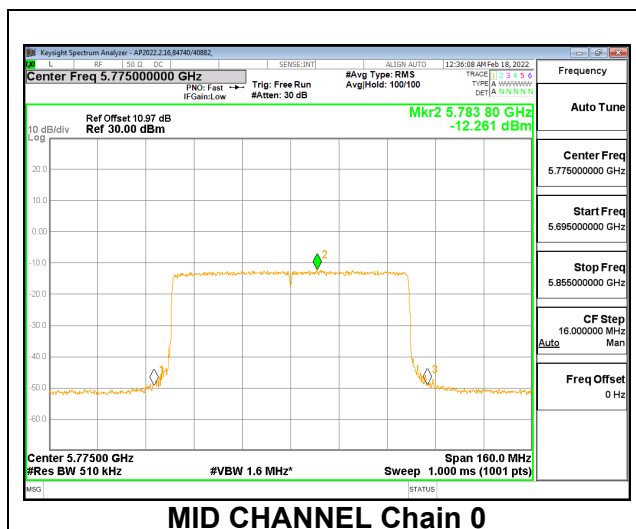
#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	9.27	8.81	12.06	30.00	-17.94
138	5690	10.64	10.27	13.47	30.00	-16.53

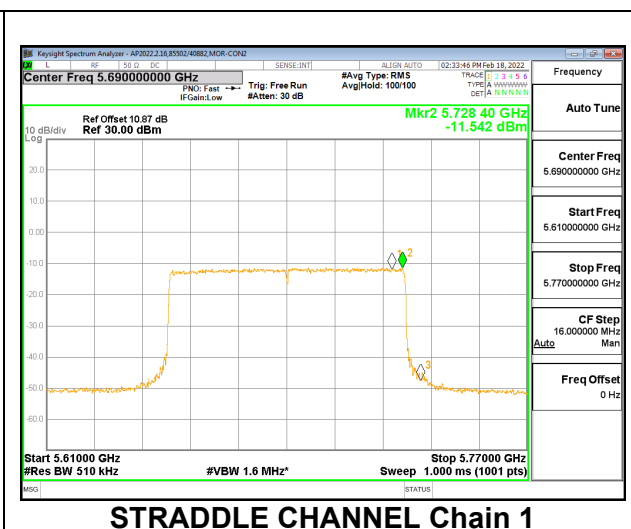
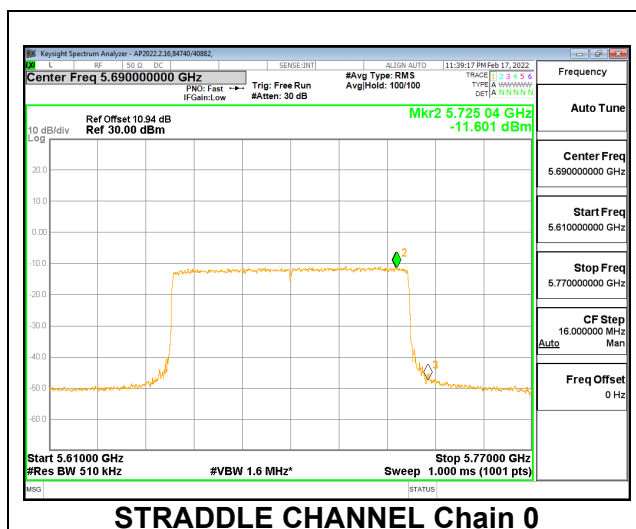
#### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm/ 500KHz)	Chain 1 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Mid	5775	-12.26	-12.31	-9.28	30.00	-39.28
138	5690	-11.60	-11.54	-8.56	30.00	-38.56

MID



STRADDLE



## 10. RADIATED TEST RESULTS

### LIMITS

FCC §15.205 and §15.209 -Restricted bands  
FCC §15.407(b)(4) -Un-Restricted bands

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

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 in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz 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.

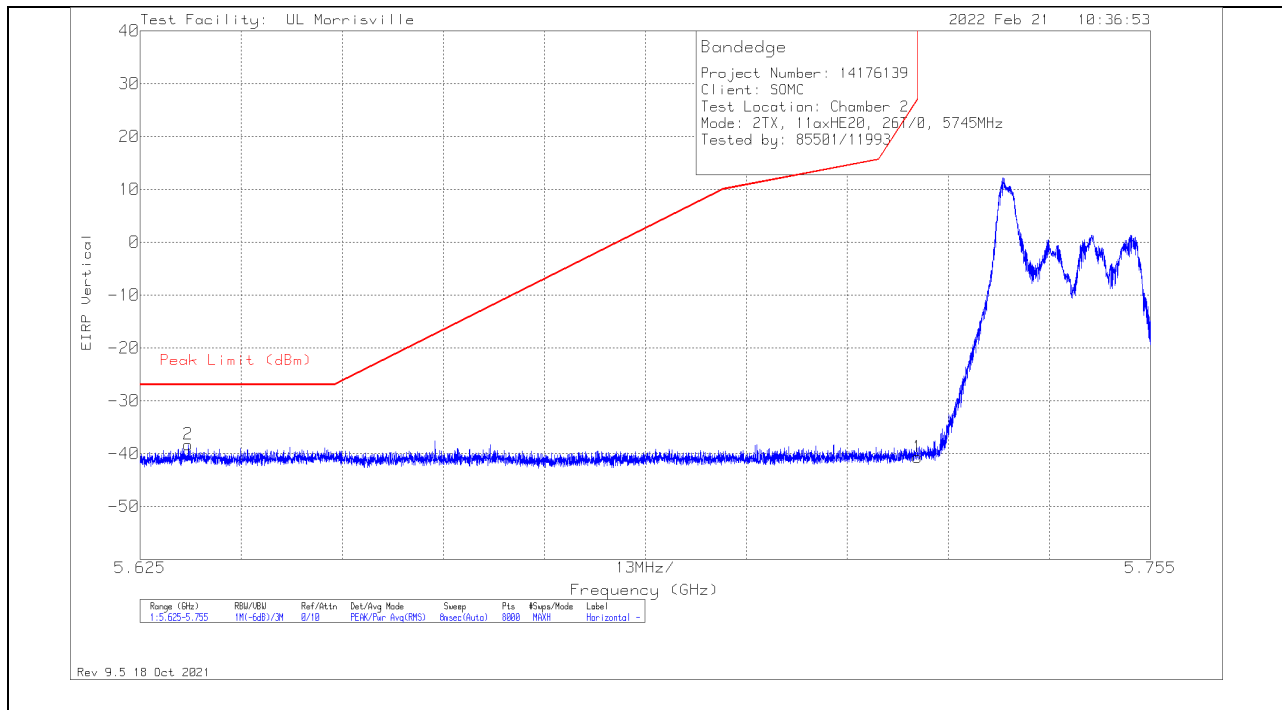
## 10.1. TRANSMITTER ABOVE 1 GHz

### 10.1.1. TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 5.8GHz BAND

**2TX Chain 0 + Chain 1 OFDMA MODE: 26-Tones, RU Index 0**

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.63121	-72.08	Pk	34.7	-22.7	11.8	10	-38.28	-27	-11.28	69	145	H
1	5.725	-74.66	Pk	34.8	-22.6	11.8	10	-40.66	27	-67.66	69	145	H

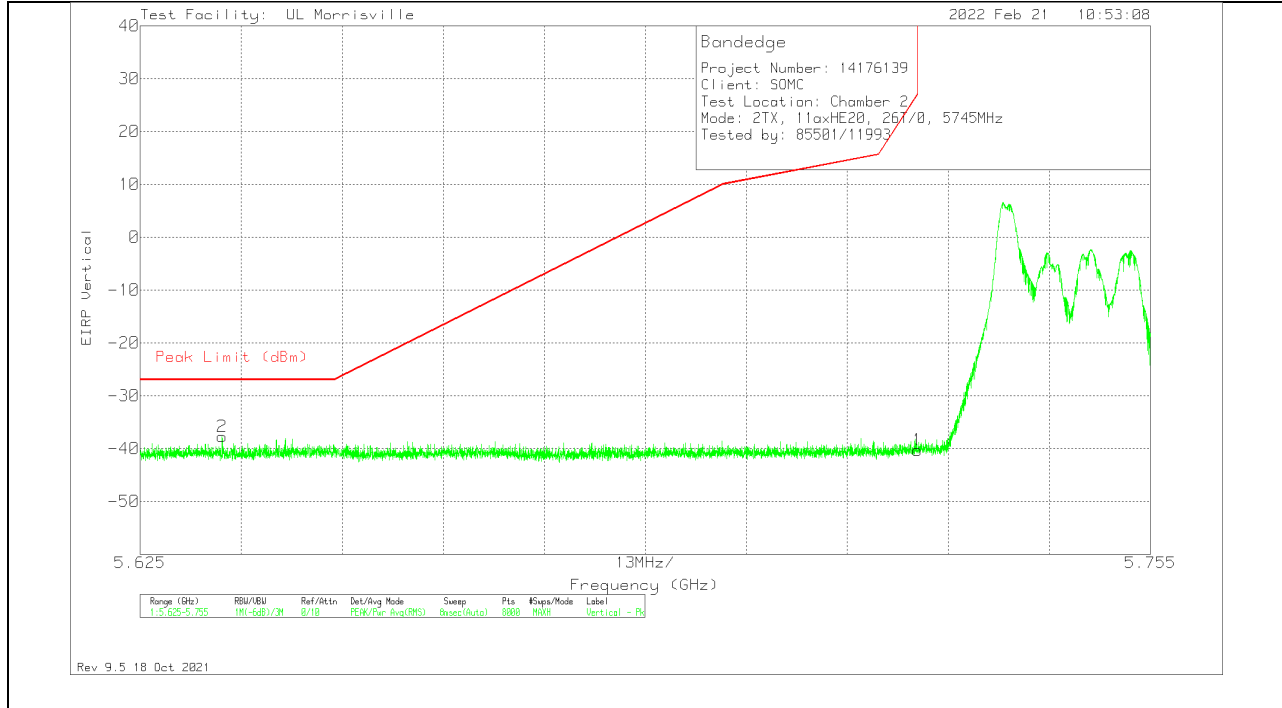
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector



**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.63555	-71.23	Pk	34.7	-23	11.8	10	-37.73	-27	-10.73	15	381	V
1	5.725	-74.3	PK	34.8	-22.6	11.8	10	-40.3	27	-67.3	15	381	V

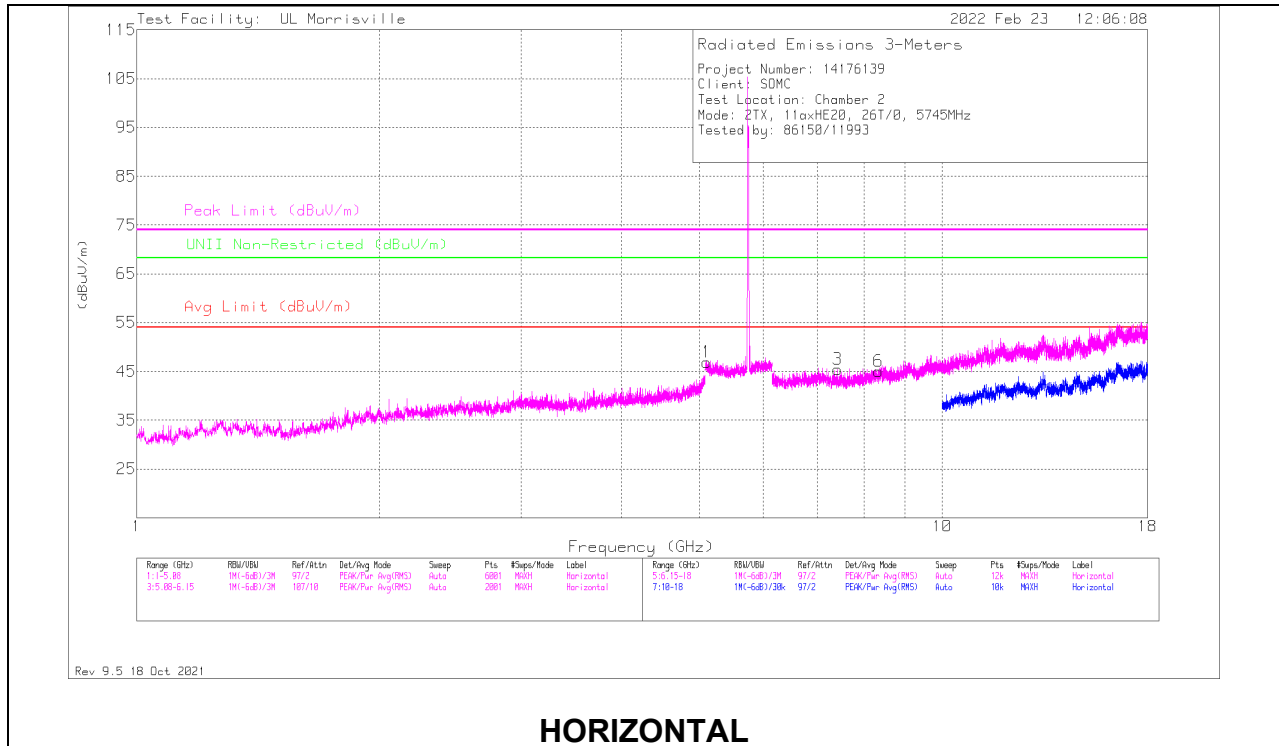
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

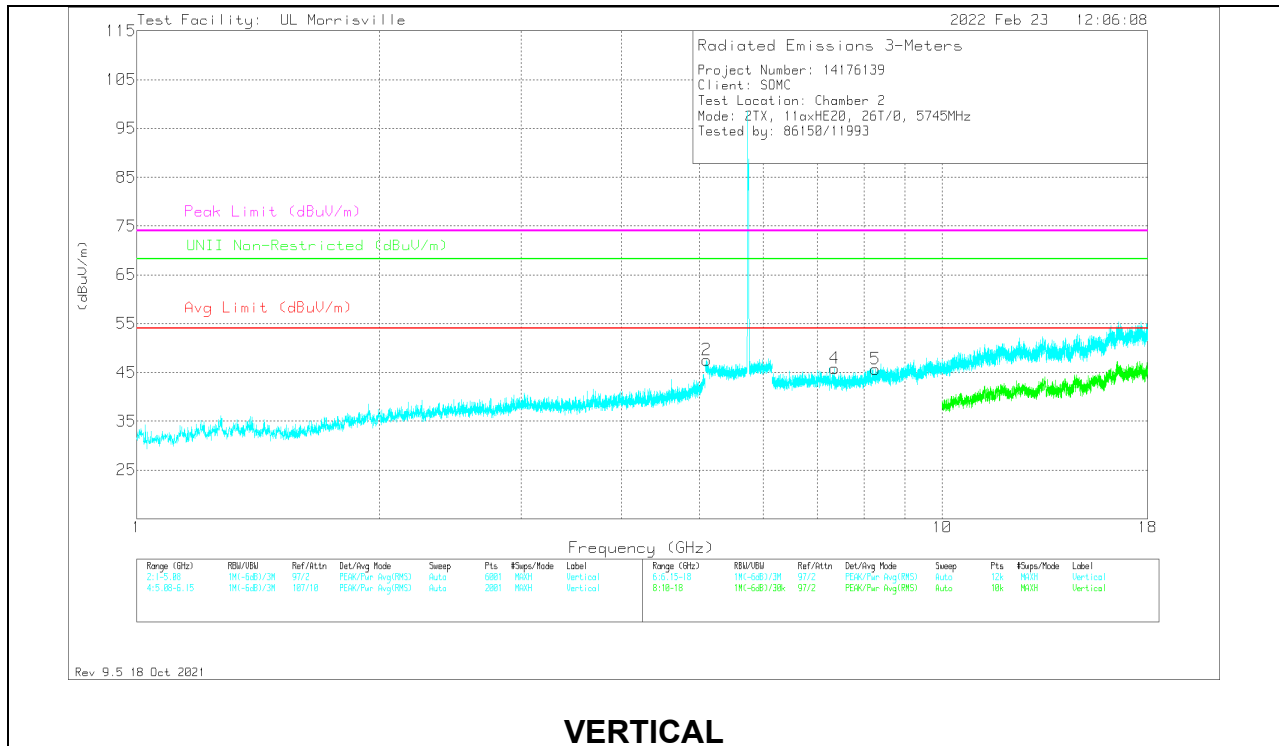
Pk - Peak detector

# HARMONICS AND SPURIOUS EMISSIONS

## LOW



## HORIZONTAL



## VERTICAL

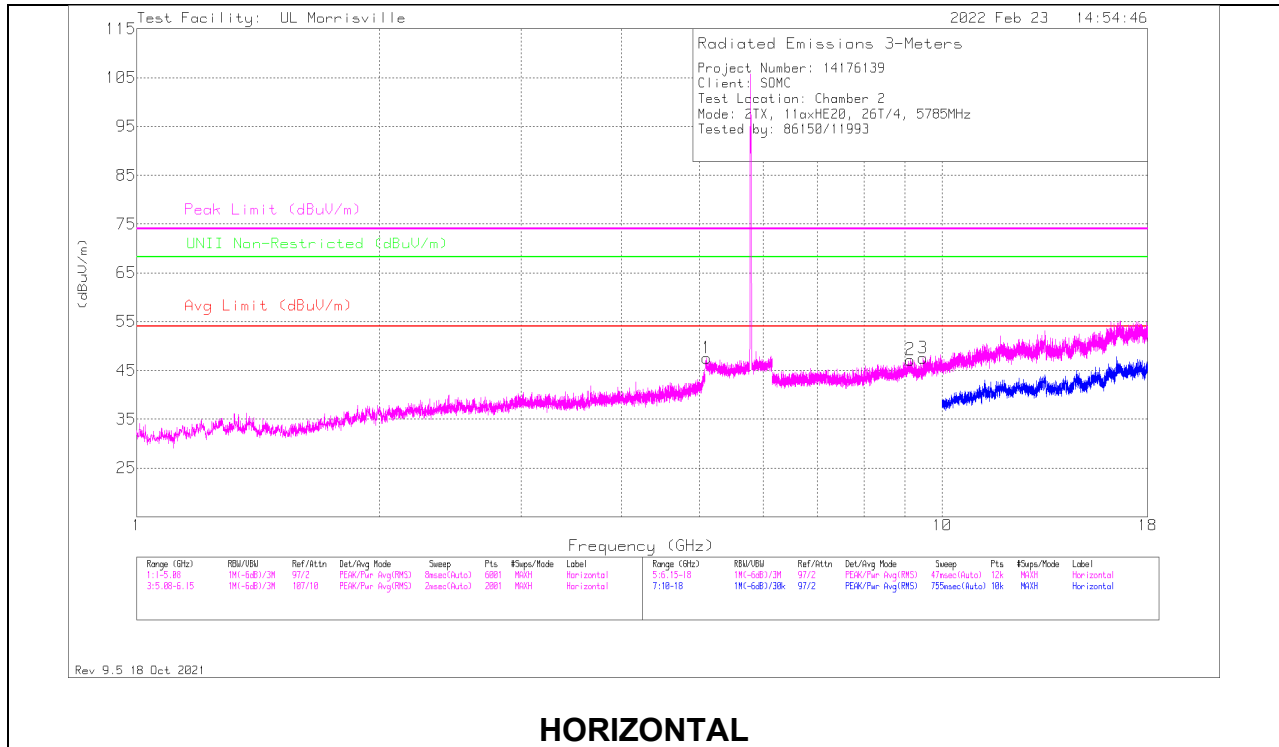
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* ** 7.41993	37.16	Pk	35.6	-27.3	45.46	54	-8.54	74	-28.54	-	-	0-360	200	H
6	* ** 8.34521	36.3	Pk	35.8	-27.1	45	54	-9	74	-29	-	-	0-360	200	H
4	* ** 7.35574	37.55	Pk	35.7	-27.5	45.75	54	-8.25	74	-28.25	-	-	0-360	200	V
5	* ** 8.26128	37.16	Pk	35.9	-27.4	45.66	54	-8.34	74	-28.34	-	-	0-360	101	V
1	* ** 5.0998	34.91	Pk	34.4	-22.4	46.91	54	-7.09	74	-27.09	-	-	0-360	101	H
2	* ** 5.10568	35.49	Pk	34.4	-22.3	47.59	54	-6.41	74	-26.41	-	-	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector

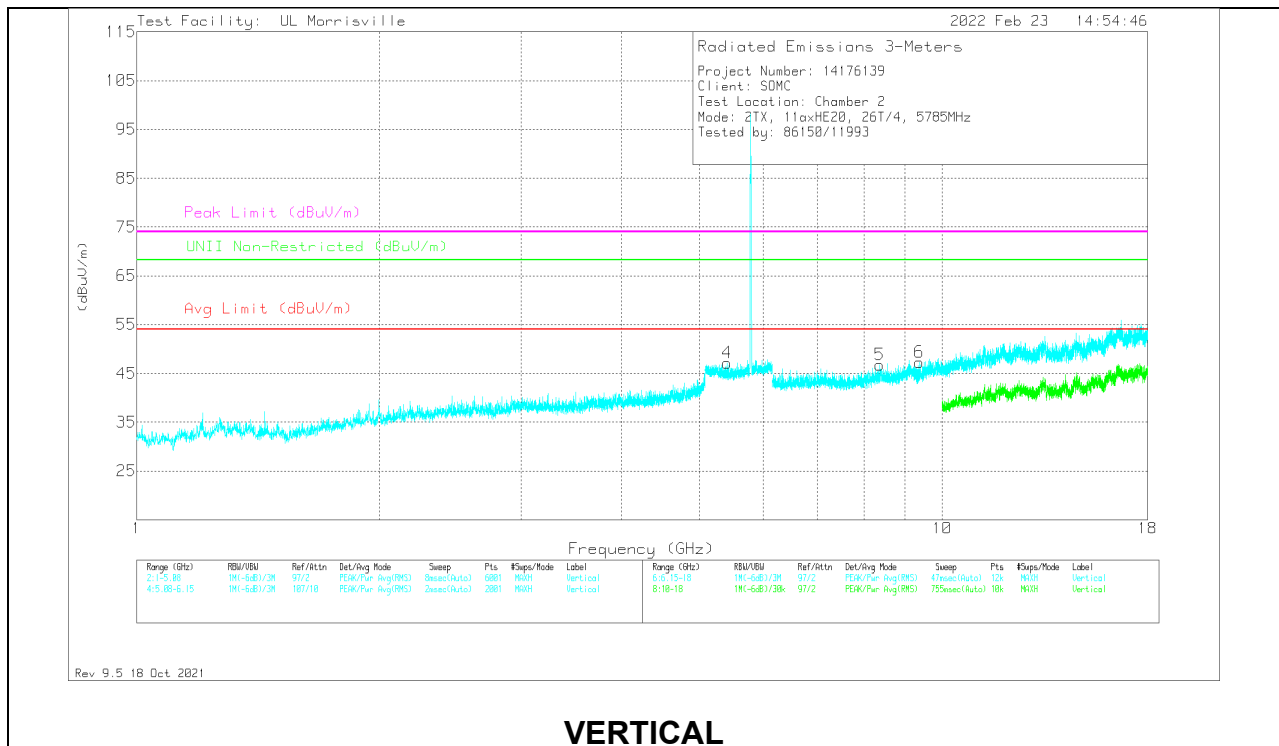
**2TX Chain 0 + Chain 1 OFDMA MODE: 26-Tones, RU Index 4**

**HARMONICS AND SPURIOUS EMISSIONS**

**MID**



**HORIZONTAL**



**VERTICAL**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr (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
2	* ** 9.1283	36.9	Pk	36.3	-26	47.2	54	-6.8	74	-26.8	-	-	0-360	101	H
3	* ** 9.47393	37.09	Pk	36.6	-26.1	47.59	54	-6.41	74	-26.41	-	-	0-360	200	H
5	* ** 8.36793	37.59	Pk	35.8	-26.7	46.69	54	-7.31	74	-27.31	-	-	0-360	101	V
6	* ** 9.37814	36.57	Pk	36.6	-25.9	47.27	54	-6.73	74	-26.73	-	-	0-360	200	V
1	* ** 5.10247	35.48	Pk	34.4	-22.4	47.48	54	-6.52	74	-26.52	-	-	0-360	101	H
4	* ** 5.41224	35.17	Pk	34.5	-22.5	47.17	54	-6.83	74	-26.83	-	-	0-360	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

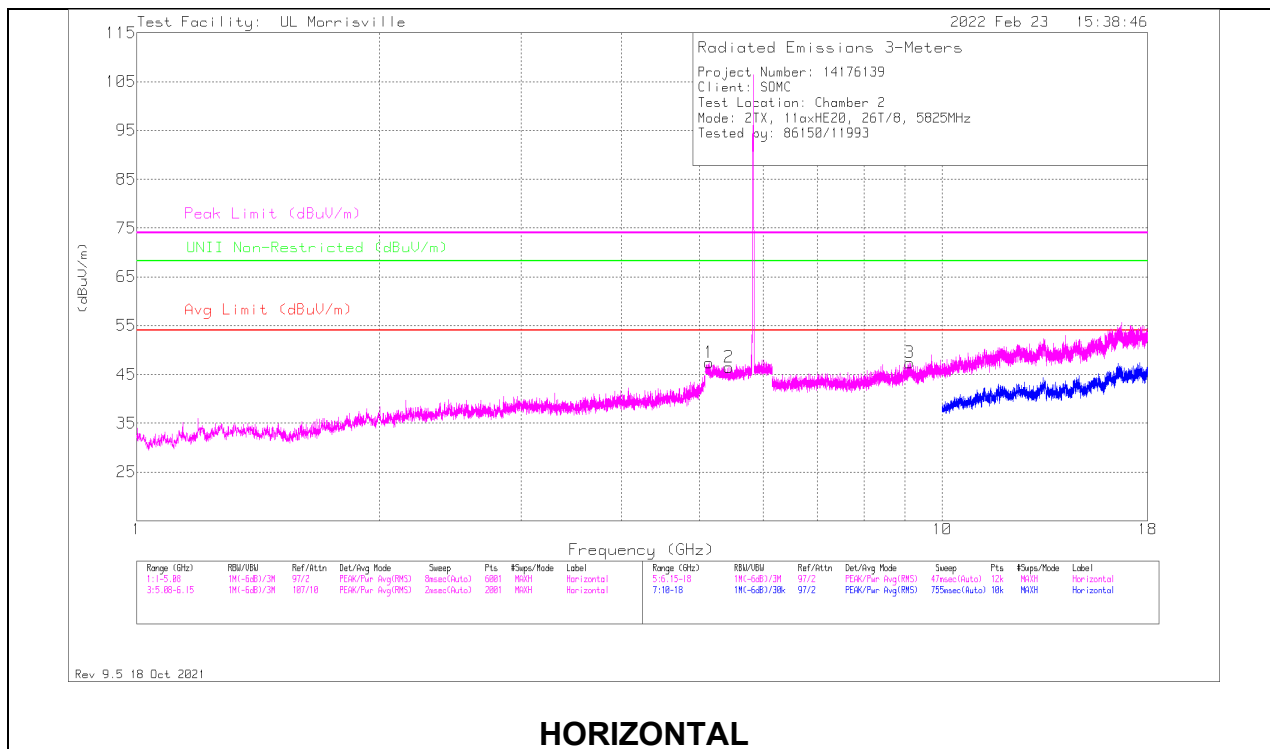
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

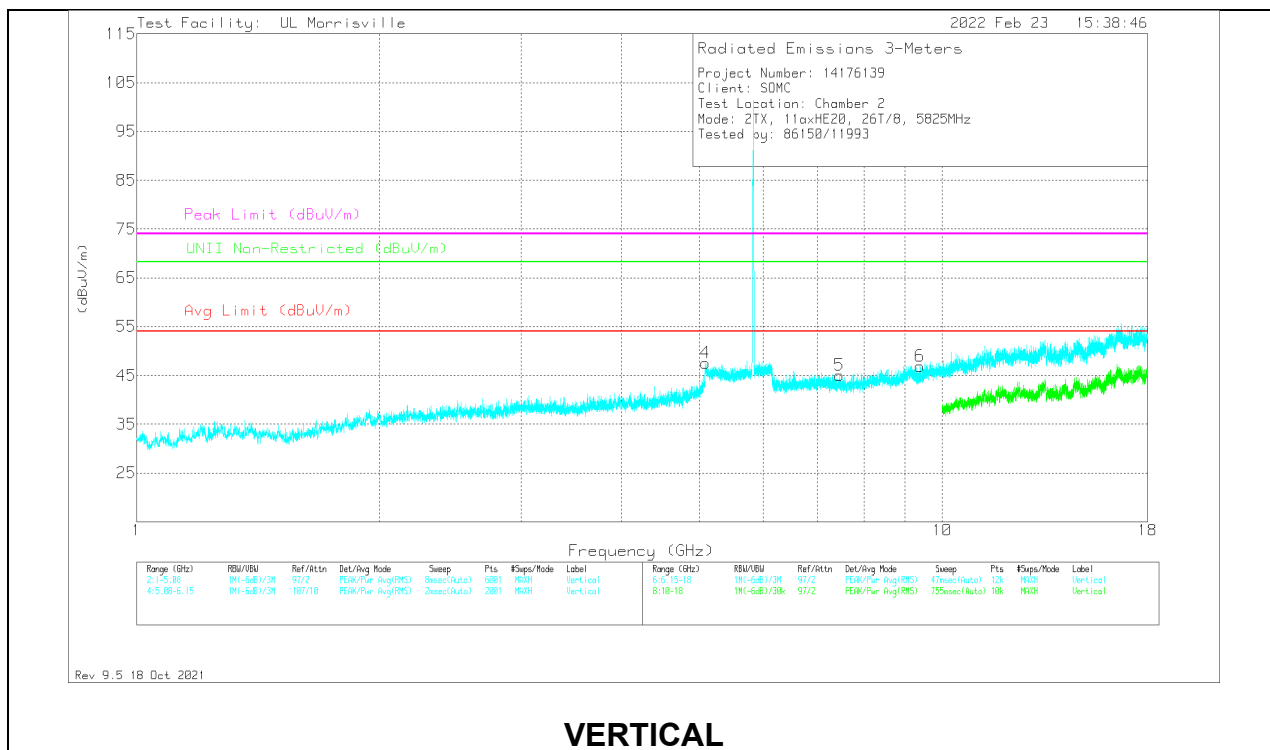
**2TX Chain 0 + Chain 1 OFDMA MODE: 26-Tones, RU Index 8**

**HARMONICS AND SPURIOUS EMISSIONS**

**HIGH**



**HORIZONTAL**



**VERTICAL**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr (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	* ** 9.11349	37.49	Pk	36.3	-26.4	47.39	54	-6.61	74	-26.61	-	-	0-360	199	H
5	* ** 7.45251	36.85	Pk	35.6	-27.4	45.05	54	-8.95	74	-28.95	-	-	0-360	200	V
6	* ** 9.38011	36.05	Pk	36.6	-25.8	46.85	54	-7.15	74	-27.15	-	-	0-360	200	V
4	* ** 5.08107	35.2	Pk	34.4	-22.1	47.5	54	-6.5	74	-26.5	-	-	0-360	199	V
1	* ** 5.13564	35.43	Pk	34.2	-22.2	47.43	54	-6.57	74	-26.57	-	-	0-360	101	H
2	* ** 5.43738	34.86	Pk	34.5	-22.9	46.46	54	-7.54	74	-27.54	-	-	0-360	101	H

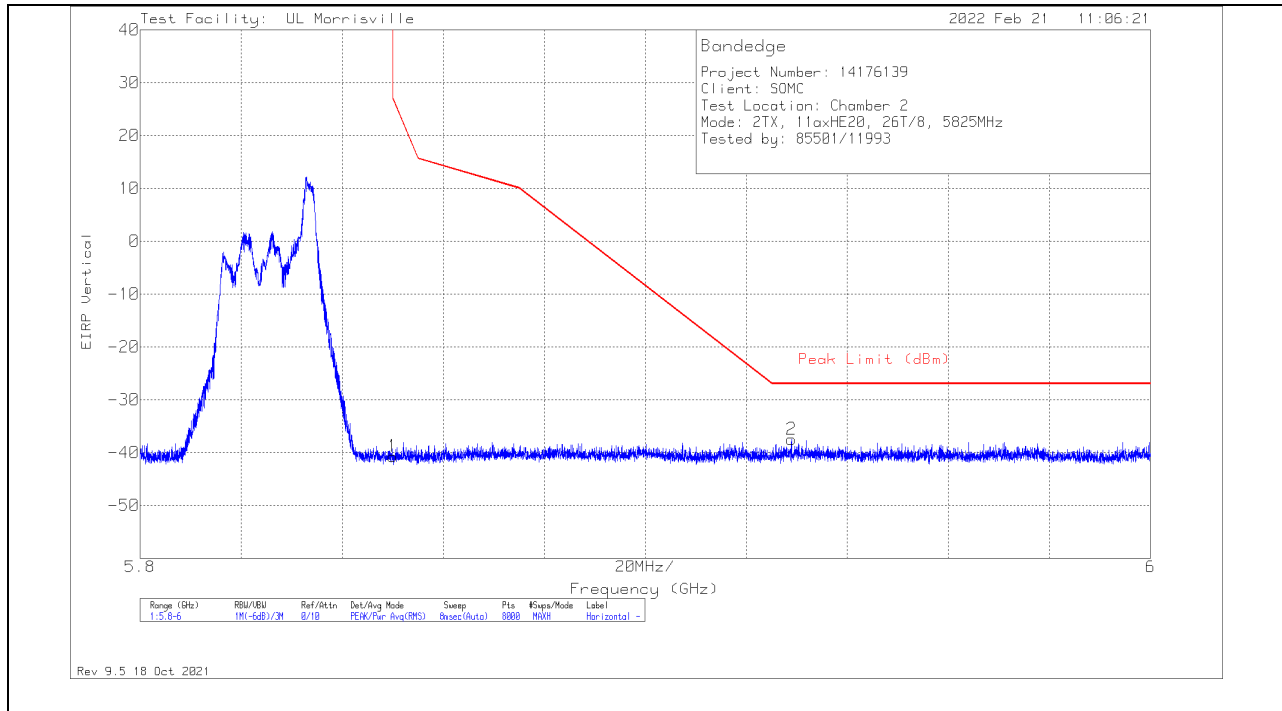
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**BANEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**

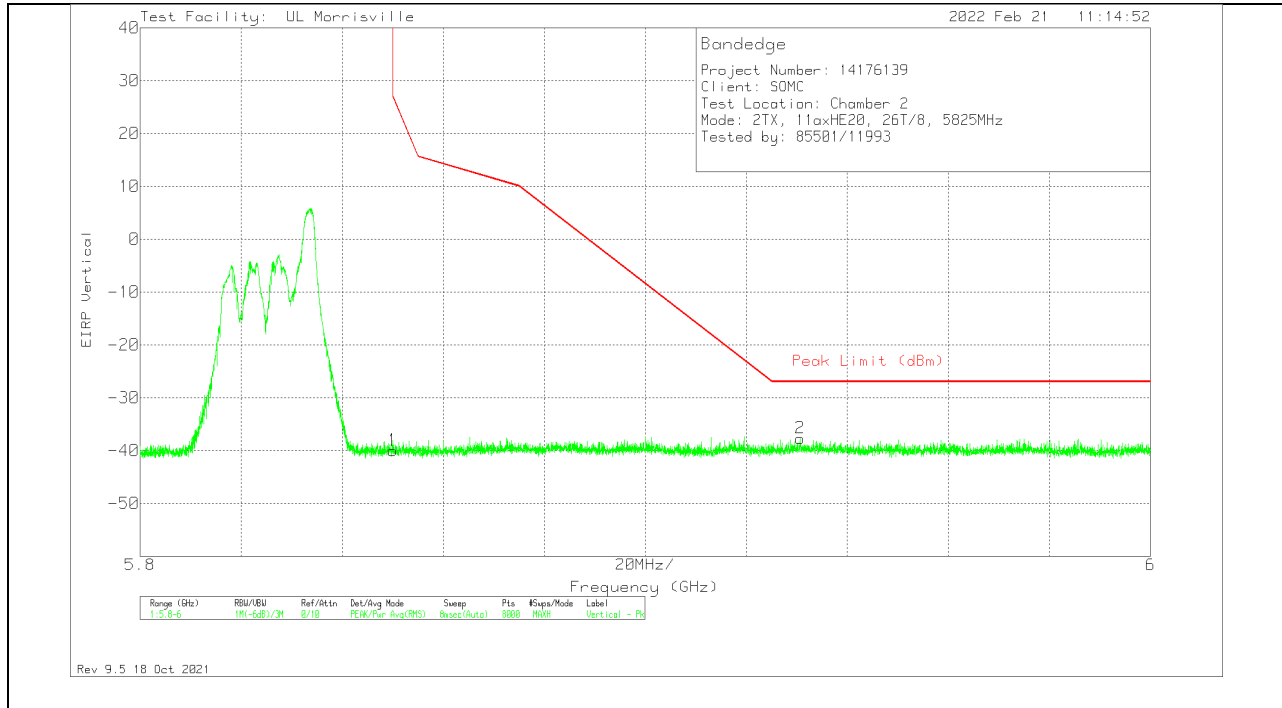


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.9	Pk	35.2	-22.8	11.8	10	-40.7	26.99	-67.69	73	103	H
2	5.92894	-72.08	Pk	35.2	-22.5	11.8	10.1	-37.48	-27	-10.48	73	103	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector



**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.2	Pk	35.2	-22.8	11.8	10	-40	26.99	-66.99	17	388	V
2	5.93069	-72.27	Pk	35.2	-22.5	11.8	10.1	-37.67	-27	-10.67	17	388	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

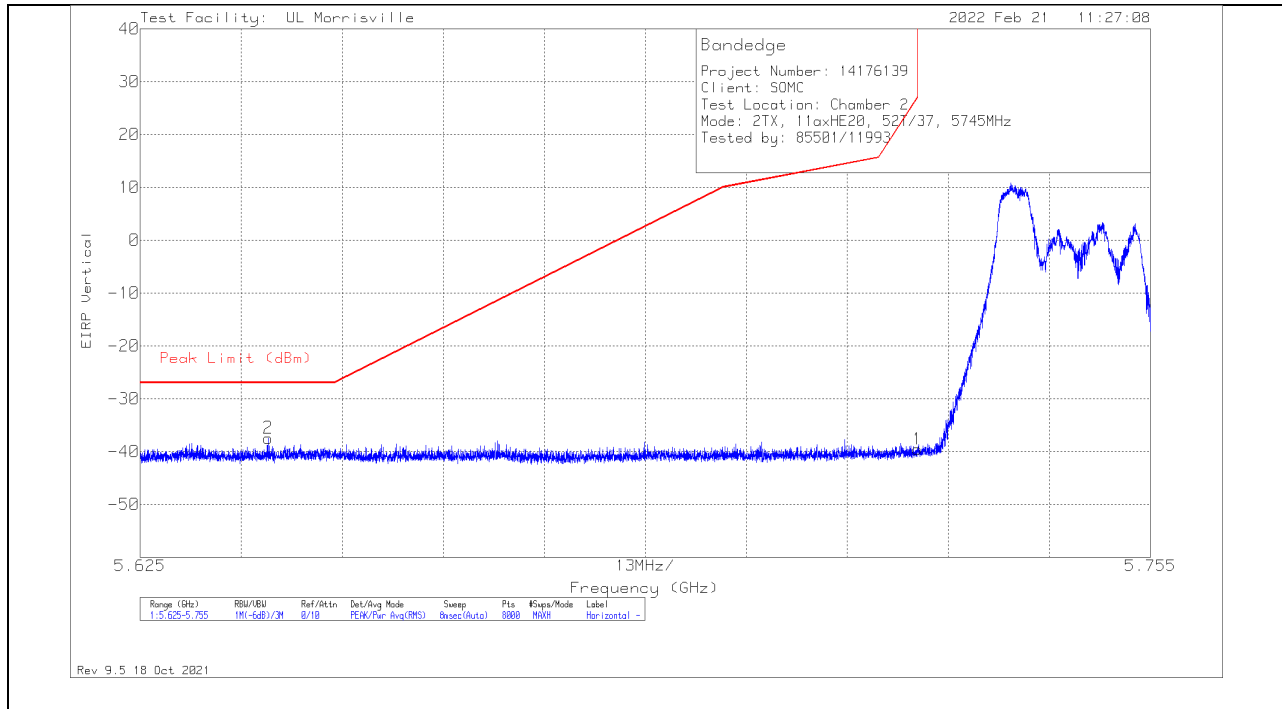
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**2TX Chain 0 + Chain 1 OFDMA MODE: 52-Tones, RU Index 37**

**BANDEDGE (LOW CHANNEL)**

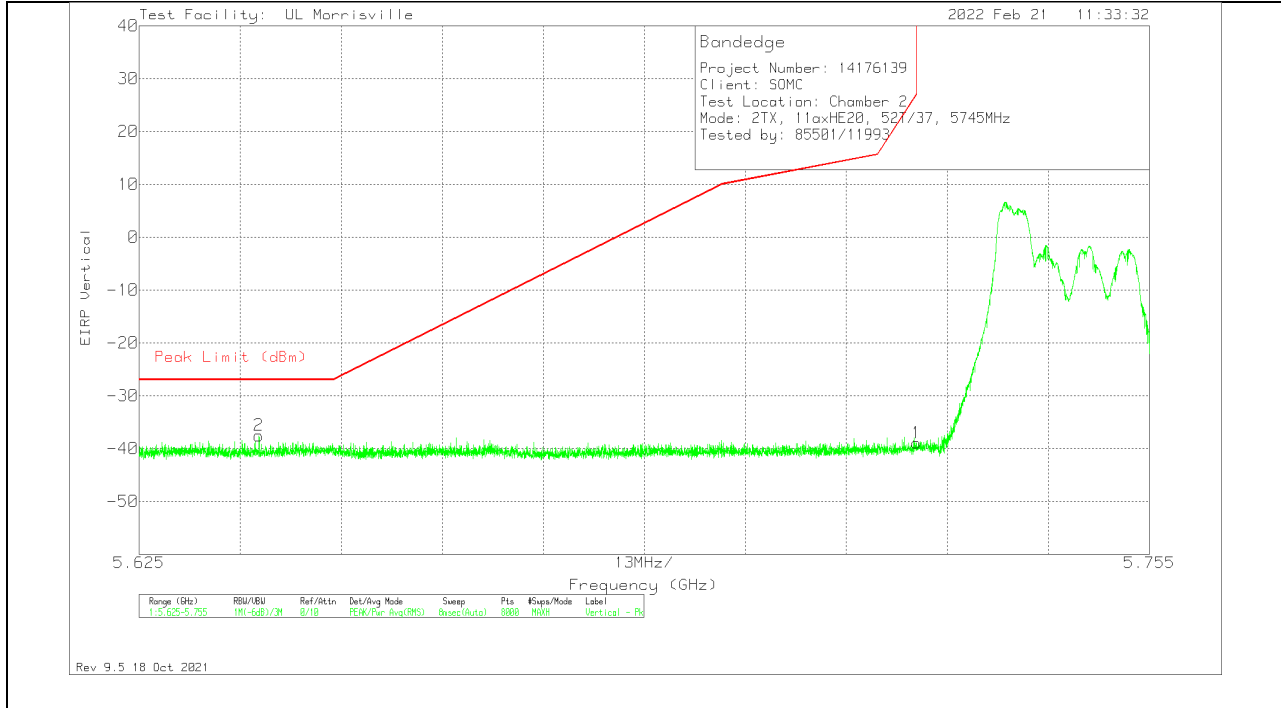
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64146	-71.06	Pk	34.7	-22.9	11.8	10	-37.46	-27	-10.46	84	152	H
1	5.725	-73.56	Pk	34.8	-22.6	11.8	10	-39.56	27	-66.56	84	152	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector

**VERTICAL RESULT**



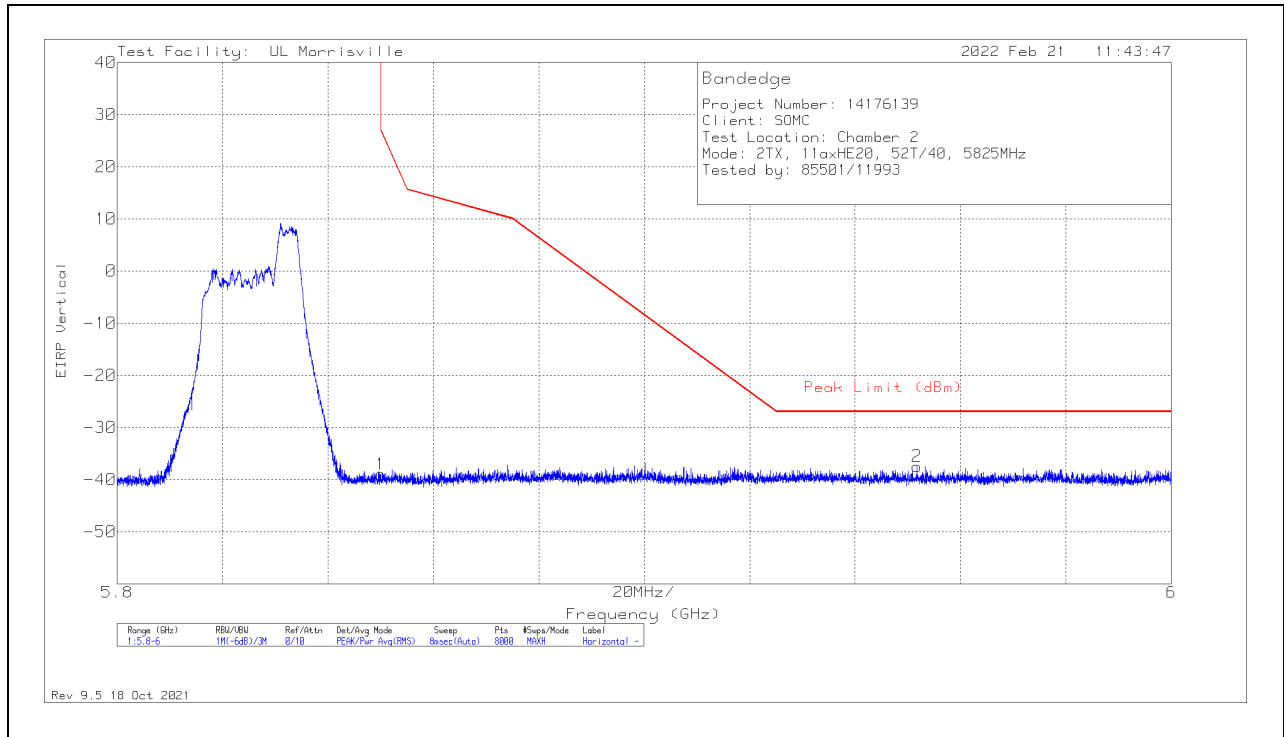
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64042	-71.14	Pk	34.7	-22.9	11.8	10	-37.54	-27	-10.54	196	304	V
1	5.725	-72.96	PK	34.8	-22.6	11.8	10	-38.96	27	-65.96	196	304	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector

**2TX Chain 0 + Chain 1 OFDMA MODE: 52-Tones, RU Index 40**

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**



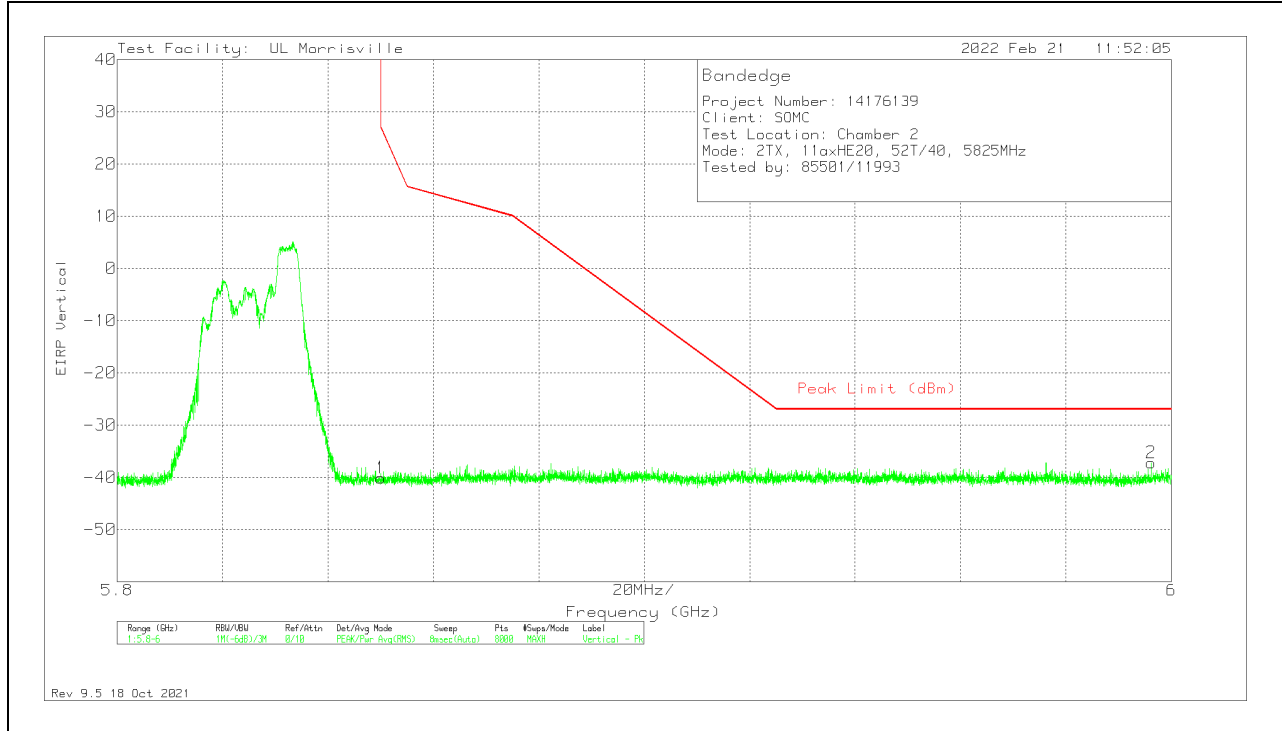
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-73.19	Pk	35.2	-22.8	11.8	10	-38.99	26.99	-65.98	78	326	H
2	5.95172	-71.77	Pk	35.2	-22.6	11.8	9.9	-37.47	-27	-10.47	78	326	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.33	Pk	35.2	-22.8	11.8	10	-40.13	26.99	-67.12	139	320	V
2	5.99617	-71.62	Pk	35.3	-22.7	11.8	10	-37.22	-27	-10.22	139	320	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

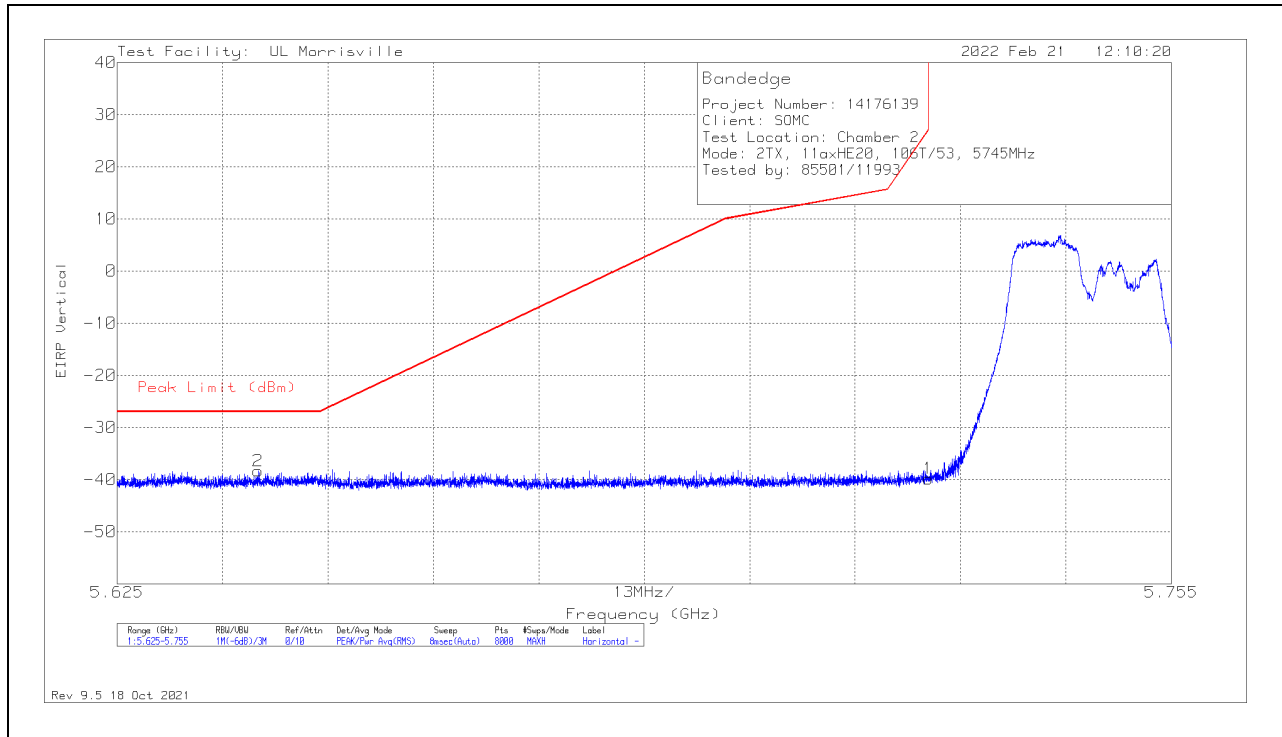
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**2TX Chain 0 + Chain 1 OFDMA MODE: 106-Tones, RU Index 53**

**BANDEDGE (LOW CHANNEL)**

**HORIZONTAL RESULT**



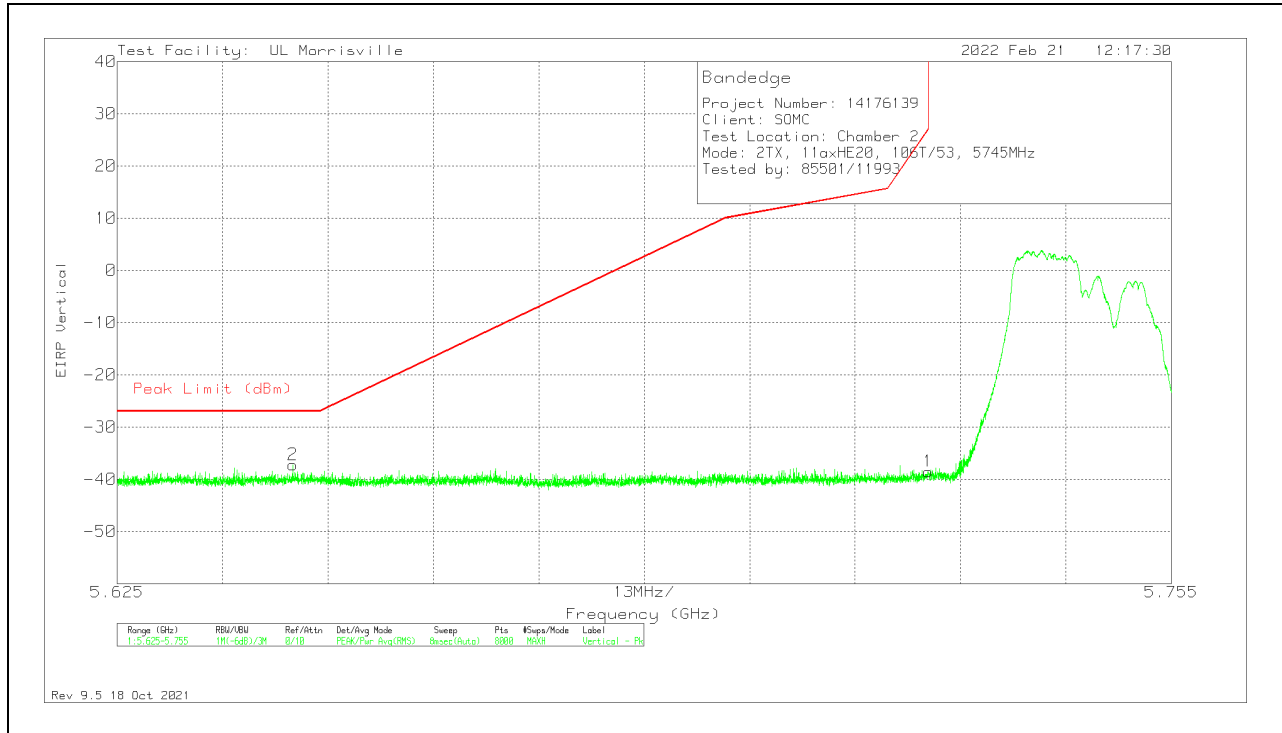
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64237	-72.05	Pk	34.7	-22.8	11.8	10	-38.35	-27	-11.35	93	137	H
1	5.725	-73.81	Pk	34.8	-22.6	11.8	10	-39.81	27	-66.81	93	137	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64666	-71.02	Pk	34.7	-22.7	11.8	10	-37.22	-27	-10.22	178	389	V
1	5.725	-72.52	Pk	34.8	-22.6	11.8	10	-38.52	27	-65.52	178	389	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

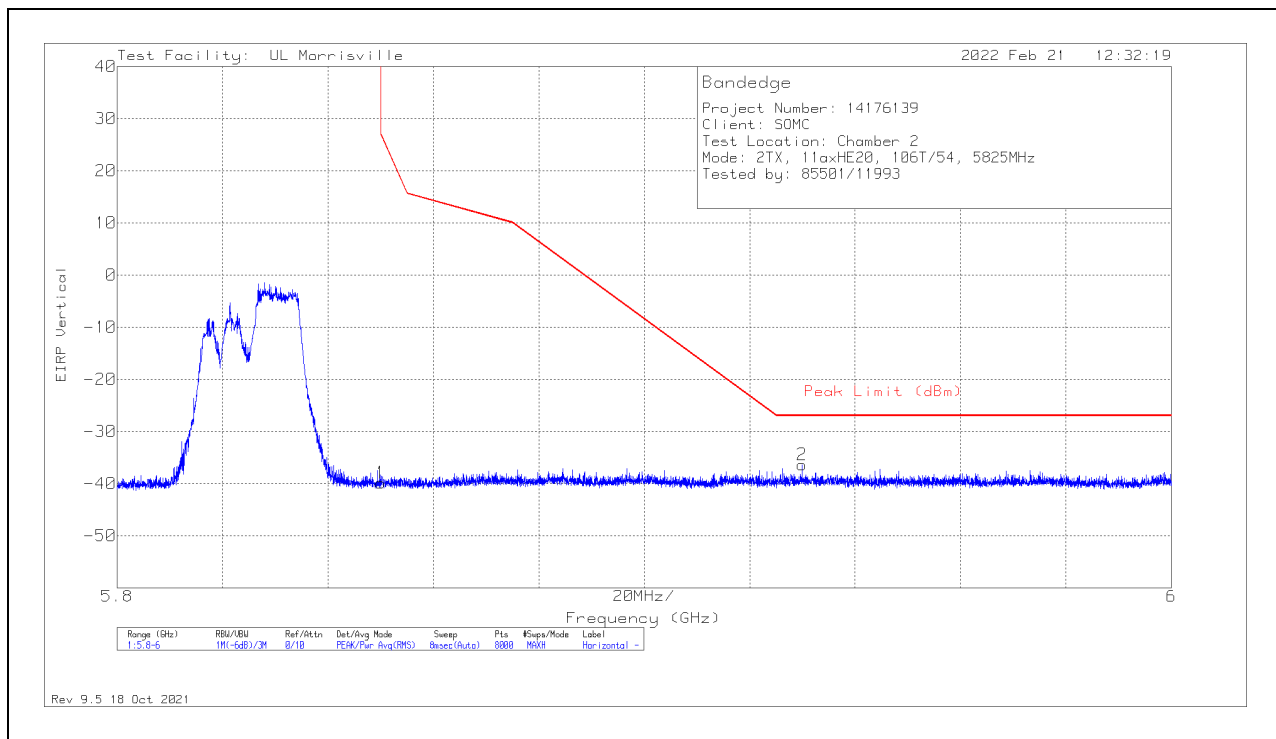
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**2TX Chain 0 + Chain 1 OFDMA MODE: 106-Tones, RU Index 54**

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.08	PK	35.2	-22.8	11.8	10	-39.88	26.99	-66.87	16	369	H
2	5.92992	-70.98	PK	35.2	-22.5	11.8	10.1	-36.38	-27	-9.38	16	369	H

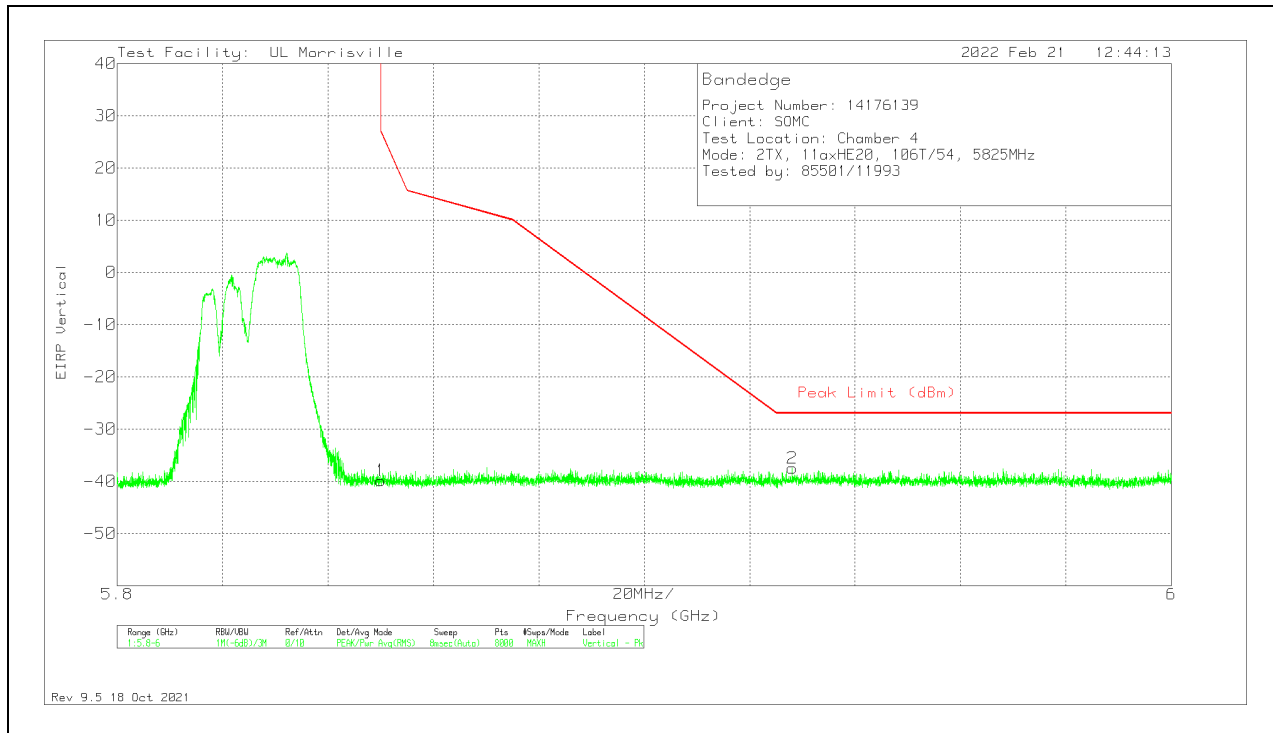
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector



**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.09	Pk	35.2	-22.8	11.8	10	-39.89	26.99	-66.88	14	368	V
2	5.92809	-71.99	Pk	35.2	-22.6	11.8	10.1	-37.49	-27	-10.49	14	368	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

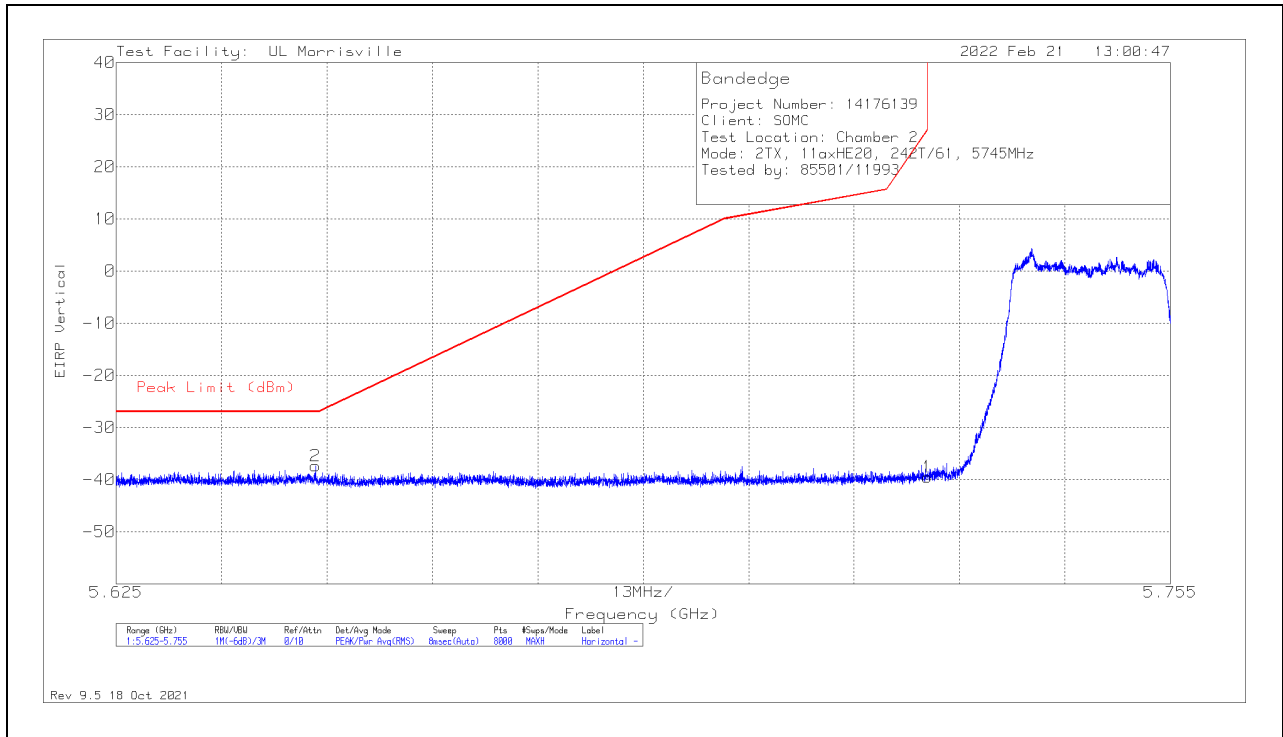
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**2TX Chain 0 + Chain 1 OFDMA MODE: 242-Tones, RU Index 61**

**BANDEDGE (LOW CHANNEL)**

**HORIZONTAL RESULT**



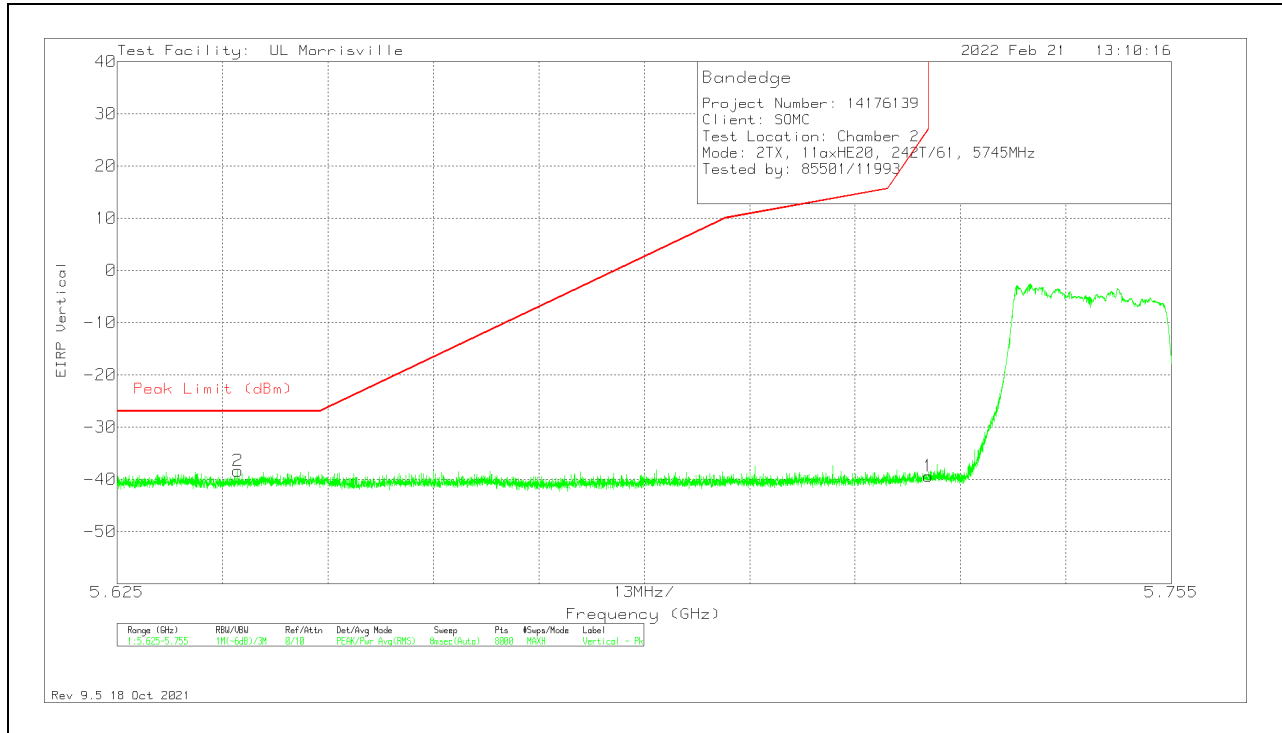
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64957	-71.39	Pk	34.7	-22.5	11.8	10	-37.39	-27	-10.39	87	229	H
1	5.725	-73.53	Pk	34.8	-22.6	11.8	10	-39.53	27	-66.53	87	229	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.63989	-71.97	Pk	34.7	-22.9	11.8	10	-38.37	-27	-11.37	25	388	V
1	5.725	-73.41	Pk	34.8	-22.6	11.8	10	-39.41	27	-66.41	25	388	V

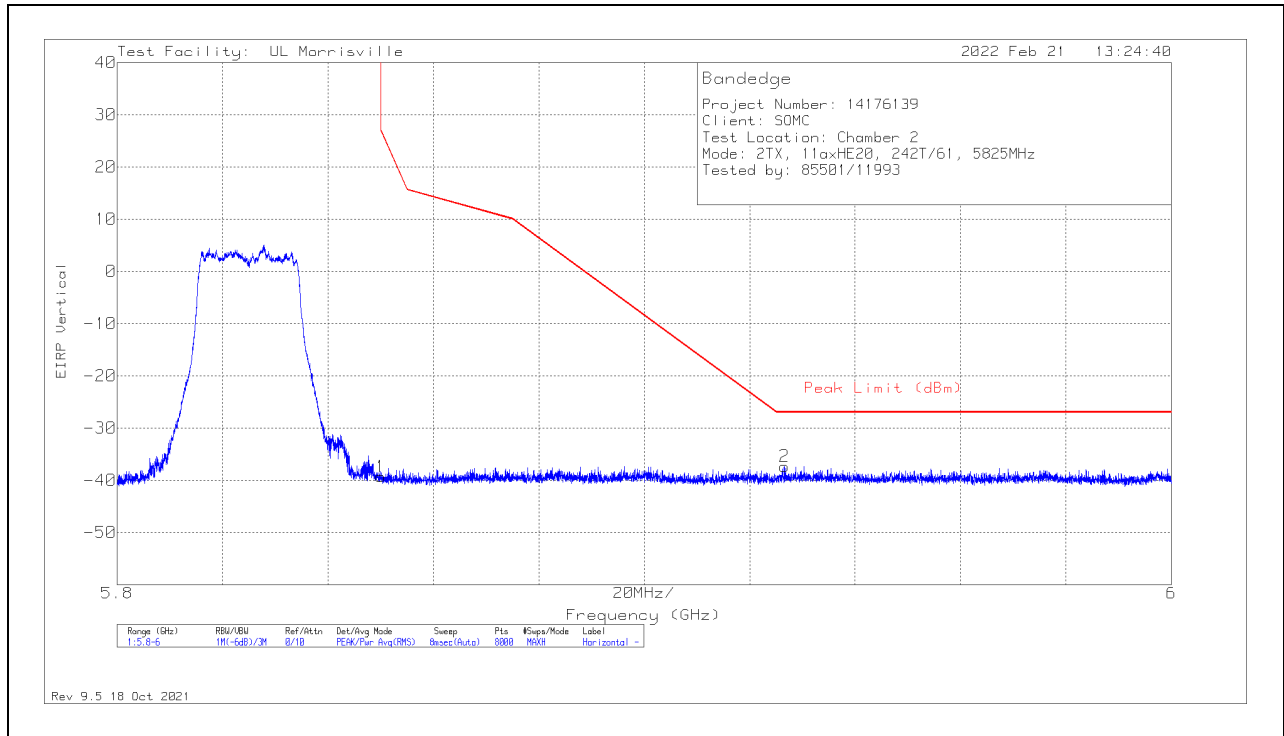
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**



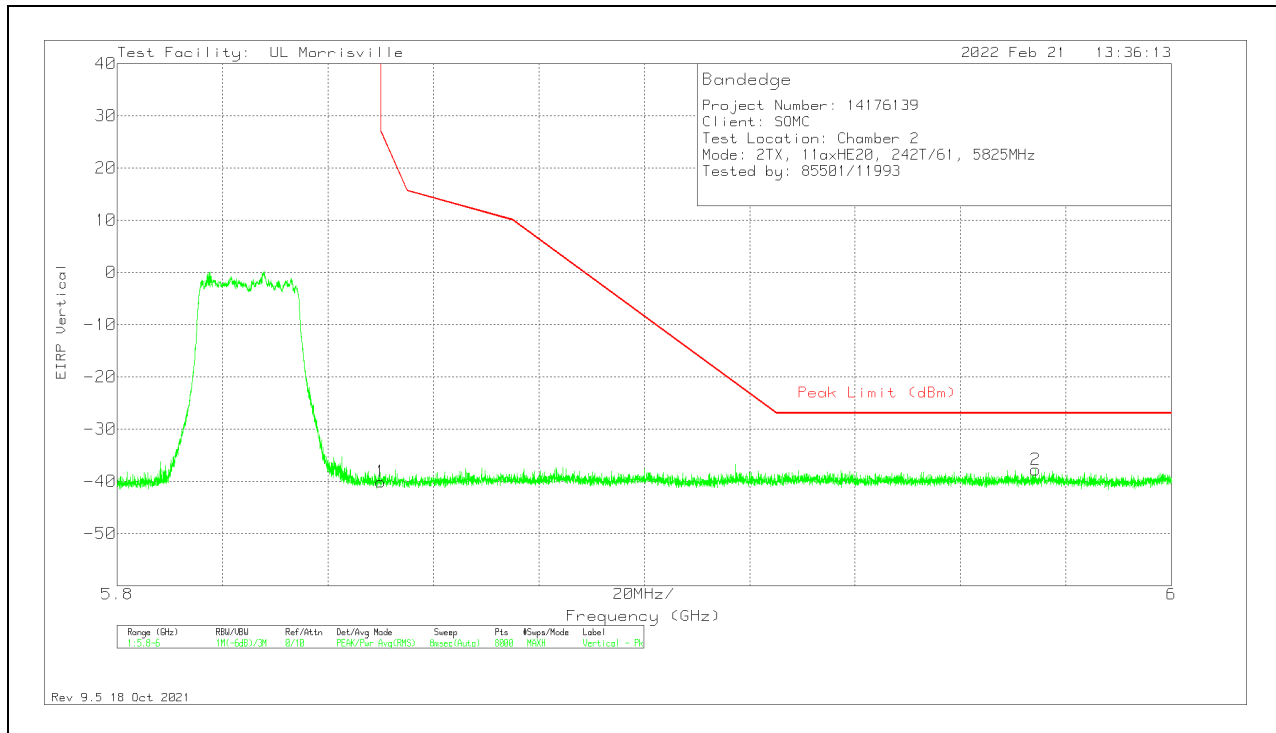
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-73.51	PK	35.2	-22.8	11.8	10	-39.31	26.99	-66.3	330	139	H
2	5.92657	-71.75	PK	35.2	-22.7	11.8	10.1	-37.35	-27	-10.35	330	139	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Pad (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-74.3	Pk	35.2	-22.8	11.8	10	-40.1	26.99	-67.09	28	391	V
2	5.97422	-72.27	Pk	35.3	-22.5	11.8	9.9	-37.77	-27	-10.77	28	391	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

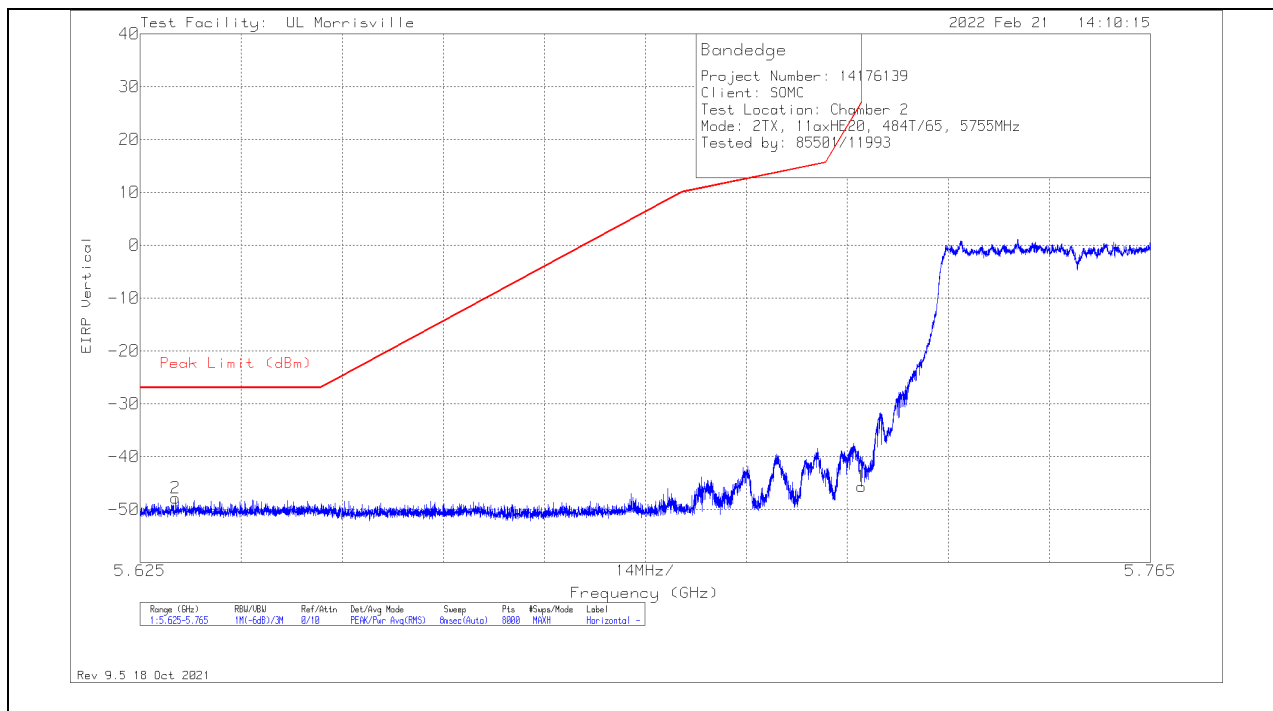
Pk - Peak detector

### 10.1.2. TX ABOVE 1 GHz 802.11ax HE40 MODE IN THE 5.8GHz BAND

#### 2TX Chain 0 + Chain 1 OFDMA MODE: 484-Tones, RU Index 65

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



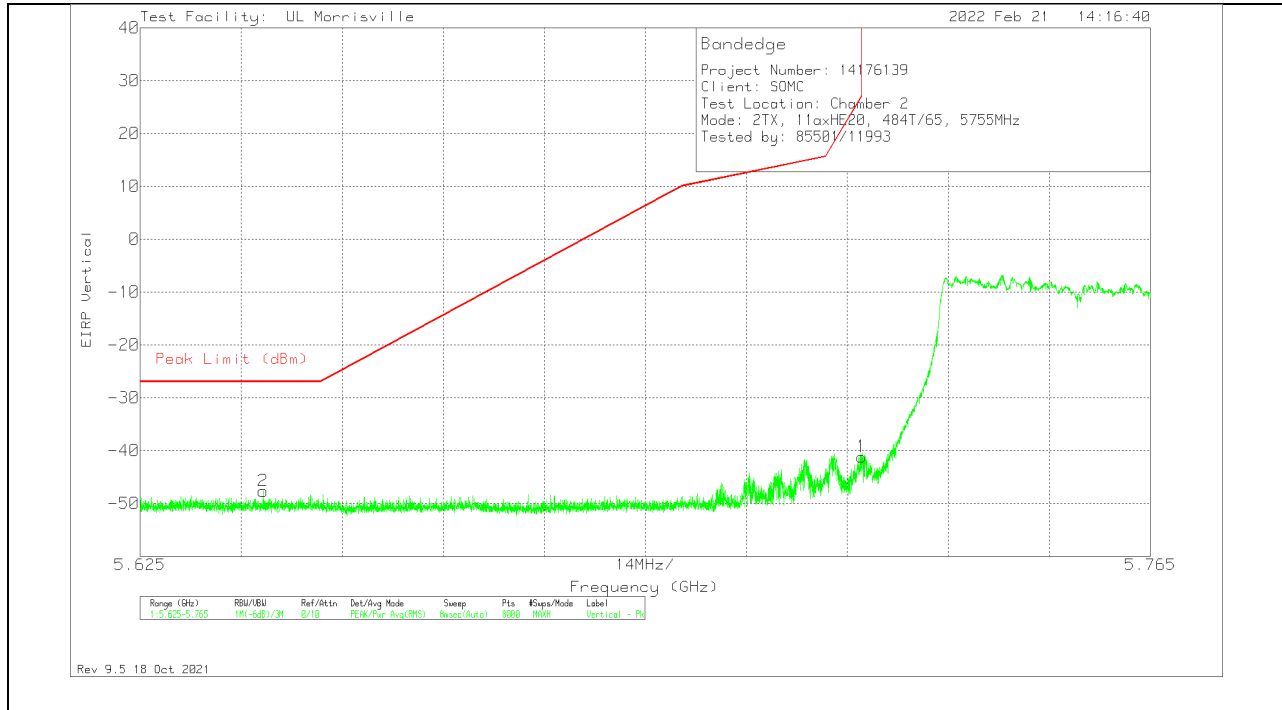
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.62994	-71.56	Pk	34.7	-22.8	11.8	-47.86	-27	-20.86	78	170	H
1	5.72499	-69.71	Pk	34.8	-22.6	11.8	-45.71	26.97	-72.68	78	170	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**VERTICAL RESULT**

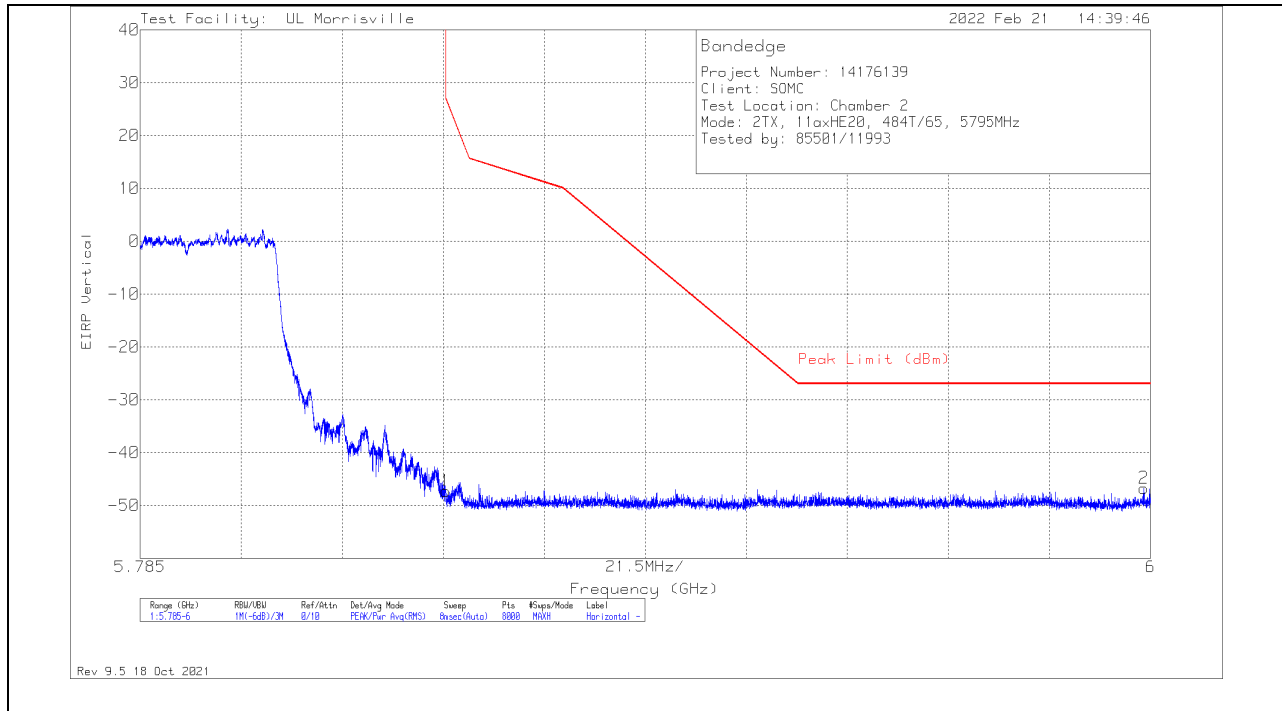


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64205	-71.36	Pk	34.7	-22.8	11.8	-47.66	-27	-20.66	226	339	V
1	5.72499	-65.18	Pk	34.8	-22.6	11.8	-41.18	26.97	-68.15	226	339	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**

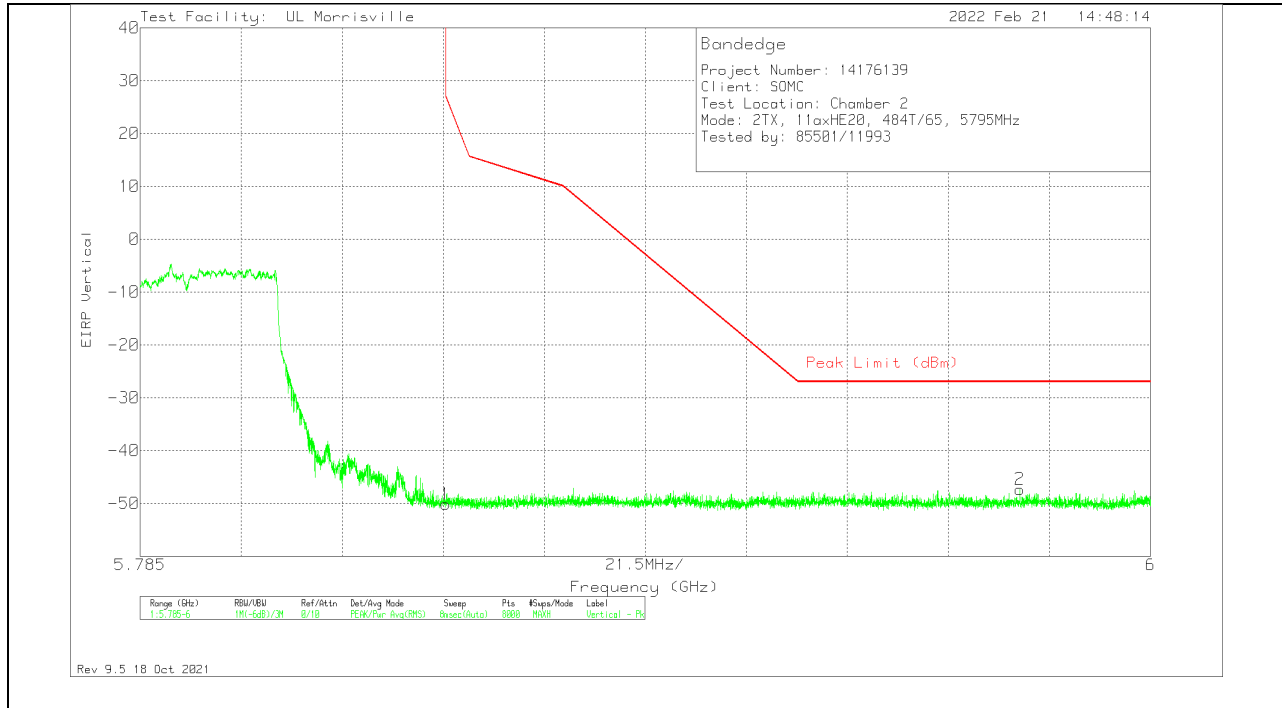


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-71.48	Pk	35.2	-22.8	11.8	-47.28	26.96	-74.24	330	122	H
2	5.99863	-71.35	Pk	35.3	-22.5	11.8	-46.75	-27	-19.75	330	122	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector



**VERTICAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-74.37	Pk	35.2	-22.8	11.8	-50.17	26.96	-77.13	59	378	V
2	5.97218	-71.93	Pk	35.3	-22.5	11.8	-47.33	-27	-20.33	59	378	V

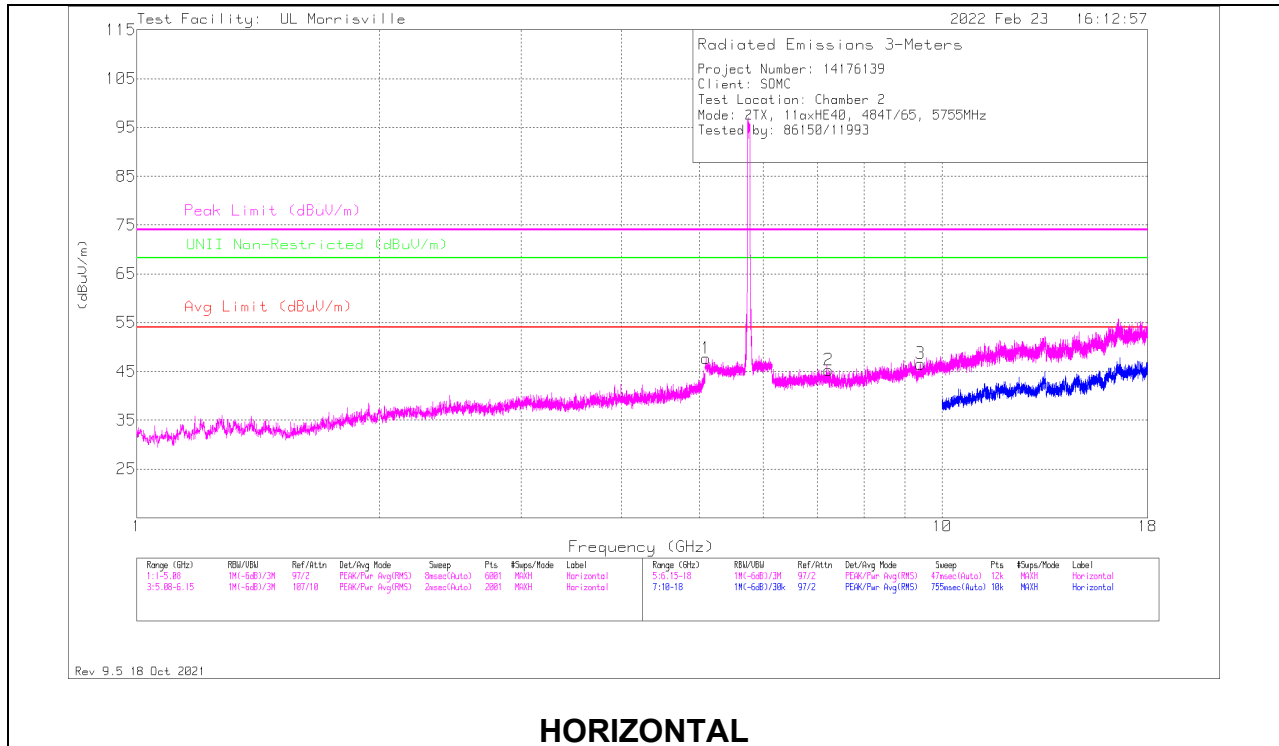
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

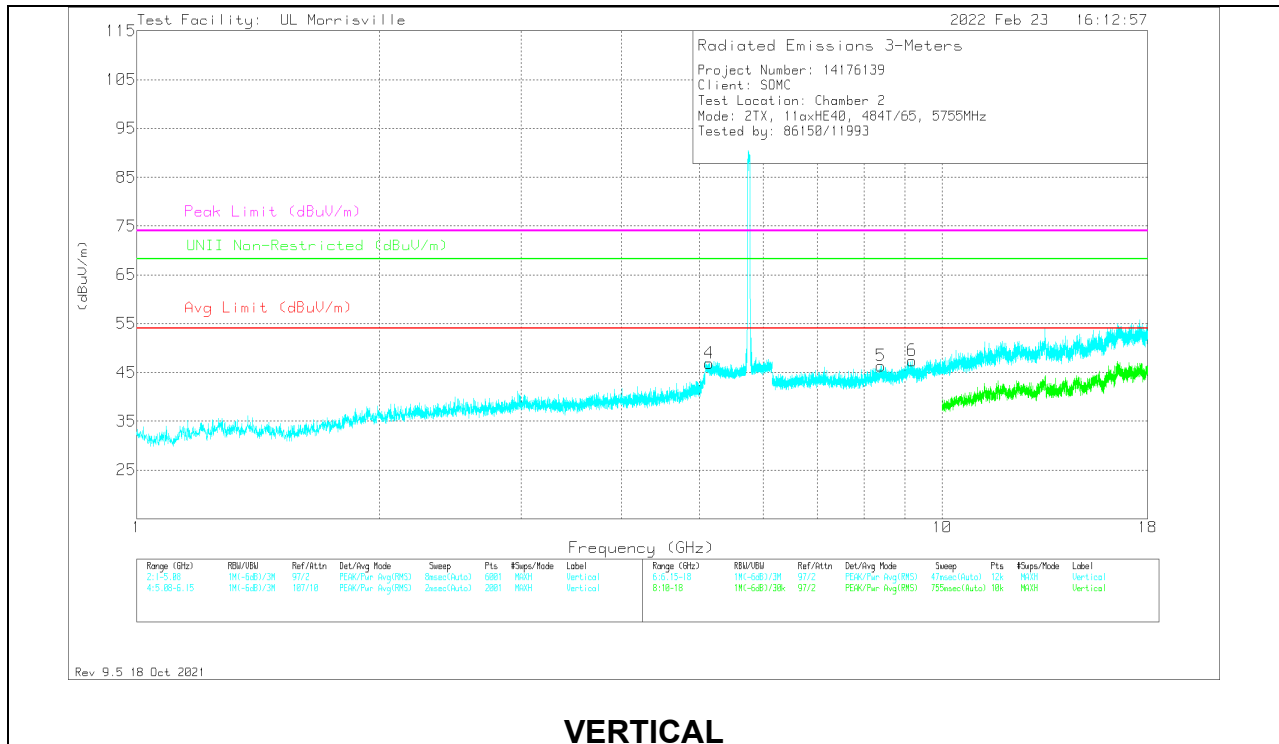
Pk - Peak detector

# HARMONICS AND SPURIOUS EMISSIONS

## LOW



## HORIZONTAL



## VERTICAL

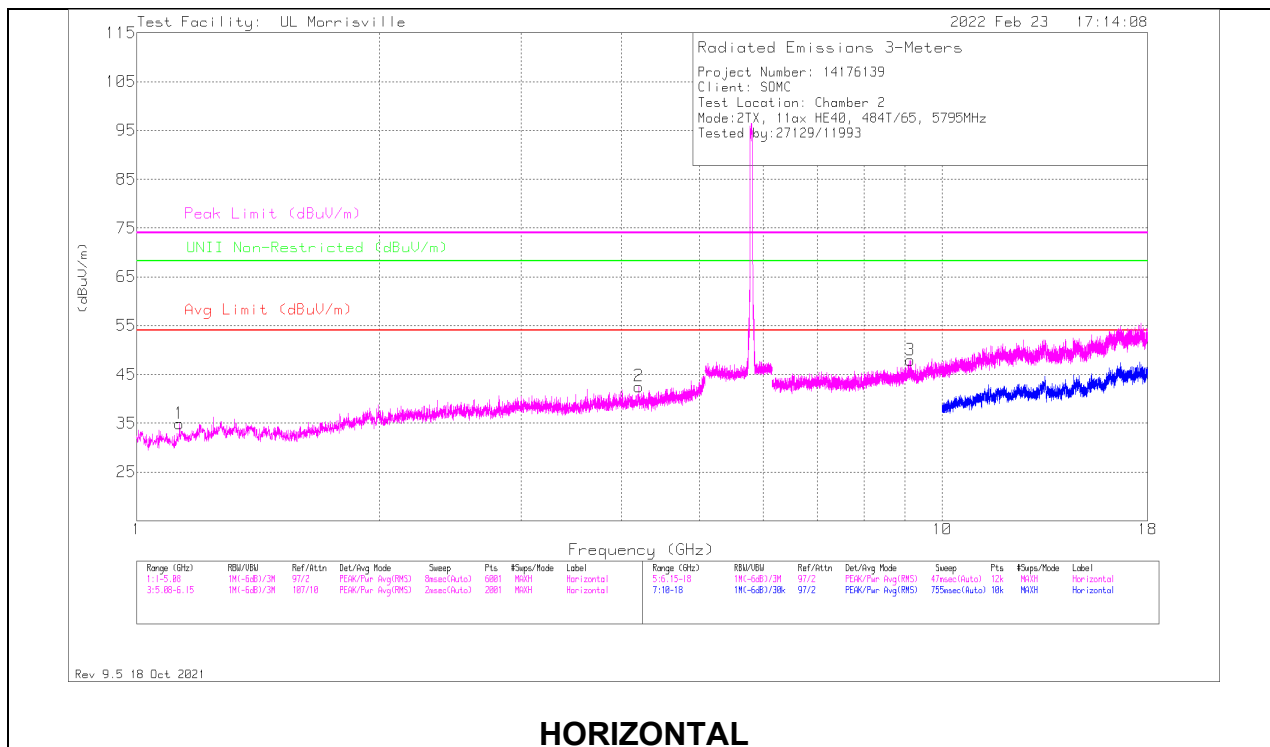
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* ** 9.39789	35.44	Pk	36.7	-25.6	46.54	54	-7.46	74	-27.46	-	-	0-360	101	H
5	* ** 8.39064	36.83	Pk	35.9	-26.4	46.33	54	-7.67	74	-27.67	-	-	0-360	200	V
6	* ** 9.1836	37.46	Pk	36.3	-26.4	47.36	54	-6.64	74	-26.64	-	-	0-360	200	V
2	7.23625	36.46	Pk	35.6	-26.8	45.26	54	-8.74	74	-28.74	68.2	-22.94	0-360	101	H
1	* ** 5.09659	35.61	Pk	34.4	-22.3	47.71	54	-6.29	74	-26.29	-	-	0-360	101	H
4	* ** 5.14153	34.92	Pk	34.1	-22.2	46.82	54	-7.18	74	-27.18	-	-	0-360	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

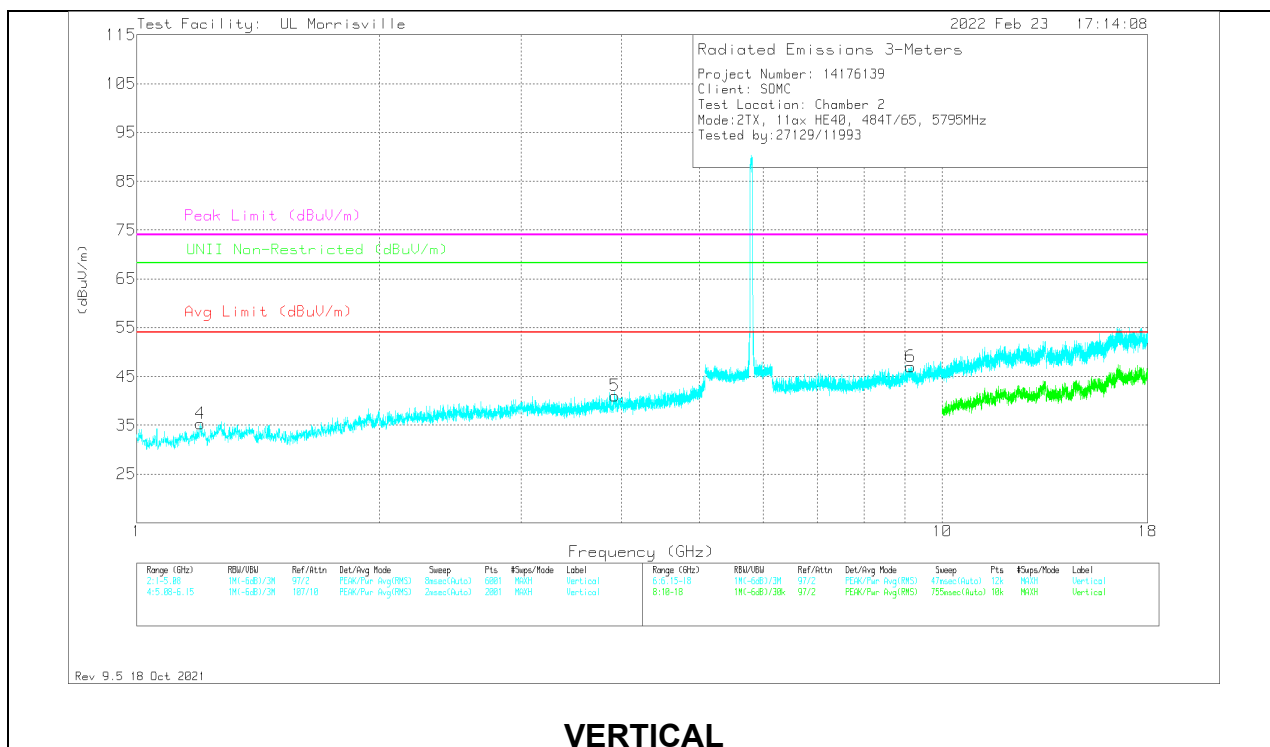
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**HIGH**



**HORIZONTAL**



**VERTICAL**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Fitr (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	*** 1.12988	41.85	Pk	28	-34.9	34.95	54	-19.05	74	-39.05	-	-	0-360	101	H
2	*** 4.20484	40.15	Pk	33.7	-31.3	42.55	54	-11.45	74	-31.45	-	-	0-360	199	H
4	*** 1.19856	41.25	Pk	28.9	-34.9	35.25	54	-18.75	74	-38.75	-	-	0-360	101	V
5	*** 3.92332	38.68	Pk	33.5	-31.2	40.98	54	-13.02	74	-33.02	-	-	0-360	199	V
3	*** 9.13916	37.69	Pk	36.3	-26	47.99	54	-6.01	74	-26.01	-	-	0-360	101	H
6	*** 9.14114	36.56	Pk	36.3	-25.9	46.96	54	-7.04	74	-27.04	-	-	0-360	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

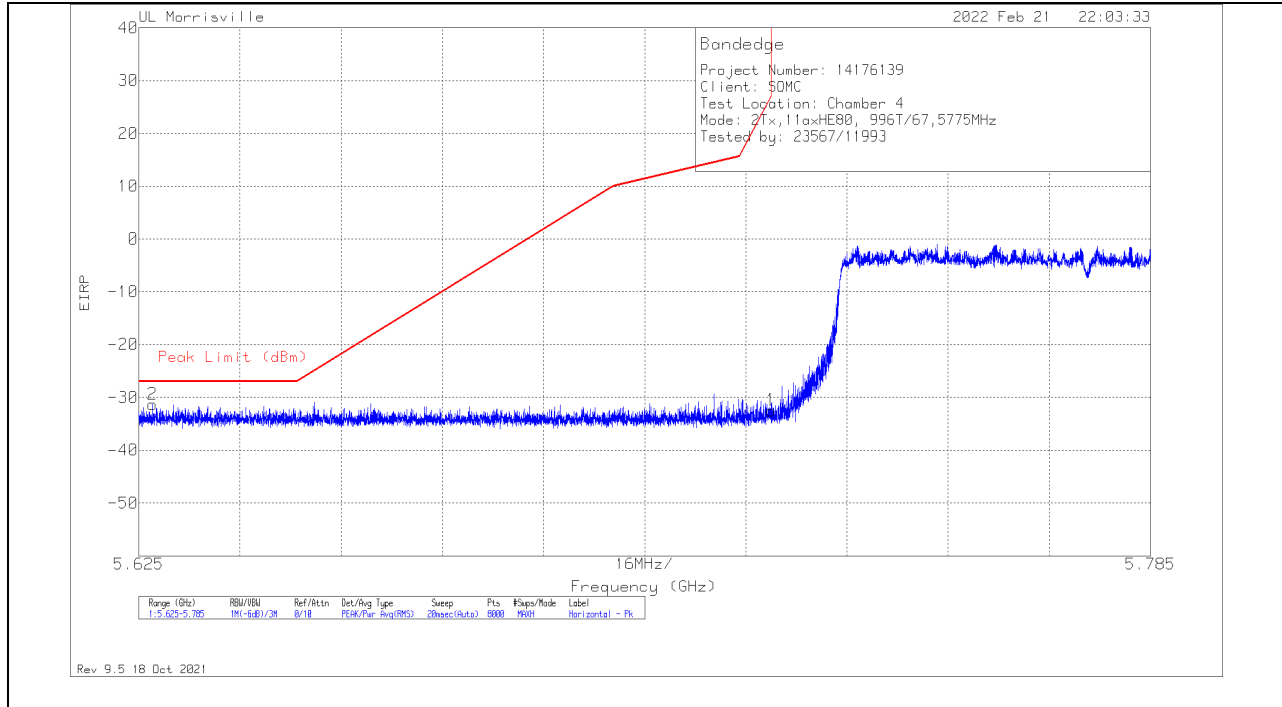
Pk - Peak detector

### 10.1.3. TX ABOVE 1 GHz 802.11ax HE80 MODE IN THE 5.8GHz BAND

**2TX Chain 0 + Chain 1 OFDMA MODE: 996-Tones, RU Index 67**

**BANDEDGE (CHANNEL 155 LOW EDGE)**

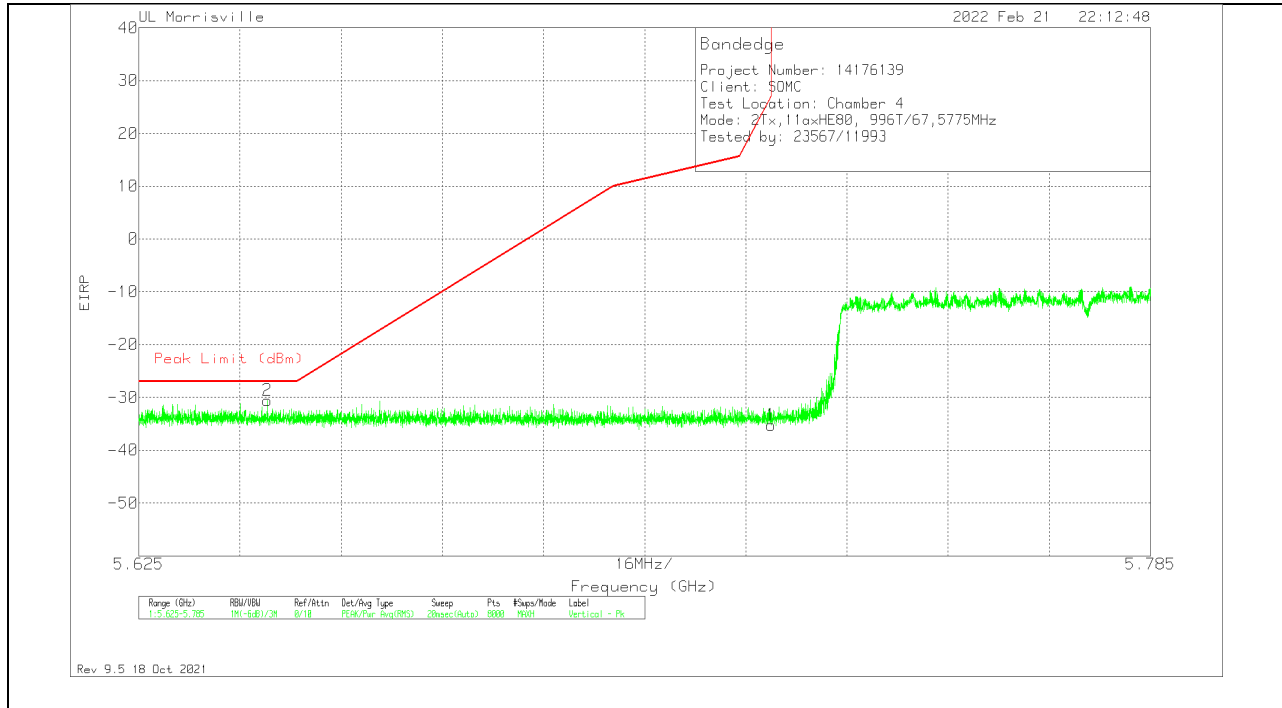
#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.62722	-68.07	Pk	34.4	-9.5	11.8	-31.37	-27	-4.37	71	127	H
1	5.725	-69.39	Pk	34.5	-9.4	11.8	-32.49	26.99	-59.48	71	127	H

Pk - Peak detector

**VERTICAL RESULT**

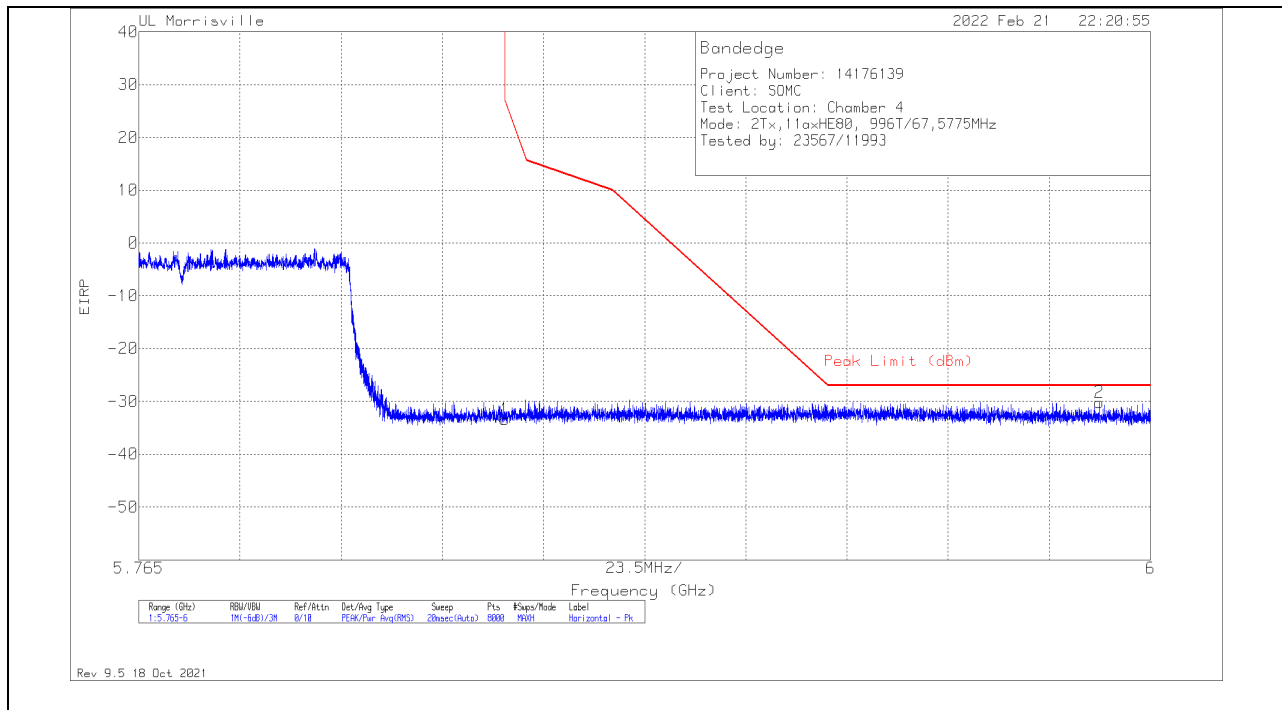


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.6453	-67.3	Pk	34.4	-9.5	11.8	-30.6	-27	-3.6	29	341	V
1	5.725	-72.1	Pk	34.5	-9.4	11.8	-35.2	26.99	-62.19	29	341	V

Pk - Peak detector

**BANDEDGE (CHANNEL 155 HIGH EDGE)**

**HORIZONTAL RESULT**

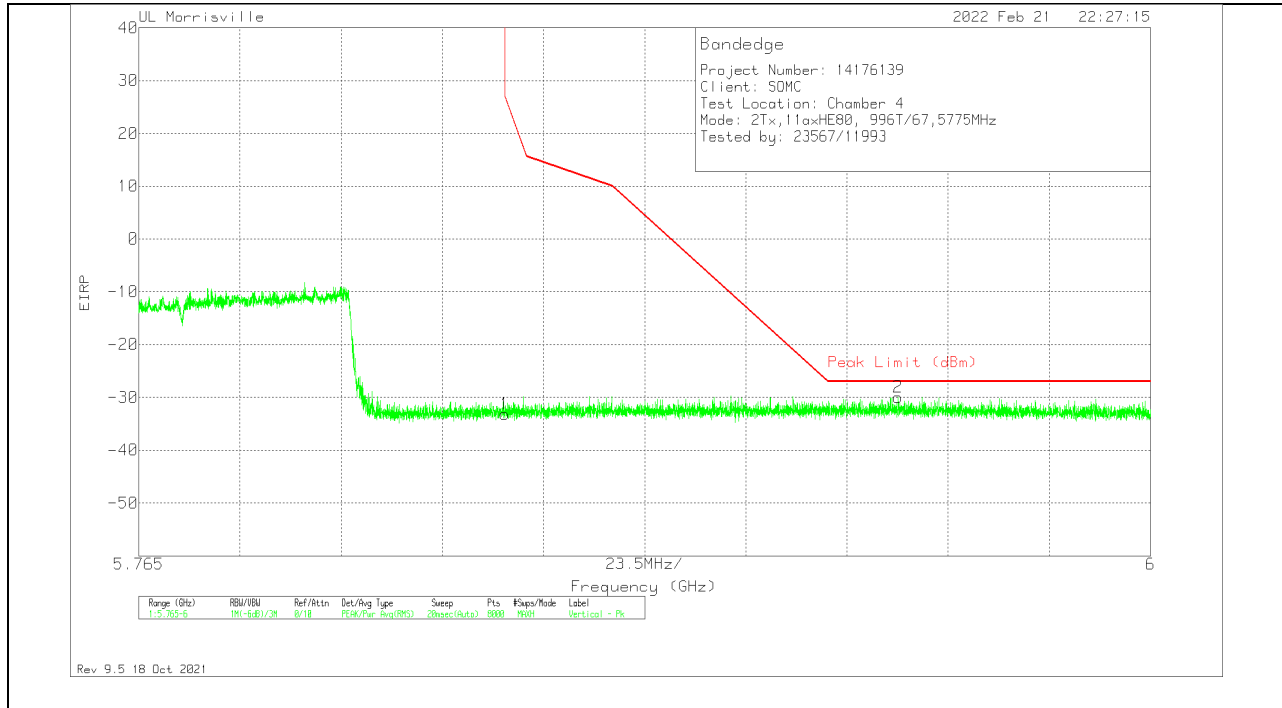


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-70.56	Pk	34.7	-9.4	11.8	-33.46	26.95	-60.41	72	128	H
2	5.9881	-67.76	Pk	35.1	-9.3	11.8	-30.16	-27	-3.16	72	128	H

Pk - Peak detector



**VERTICAL RESULT**



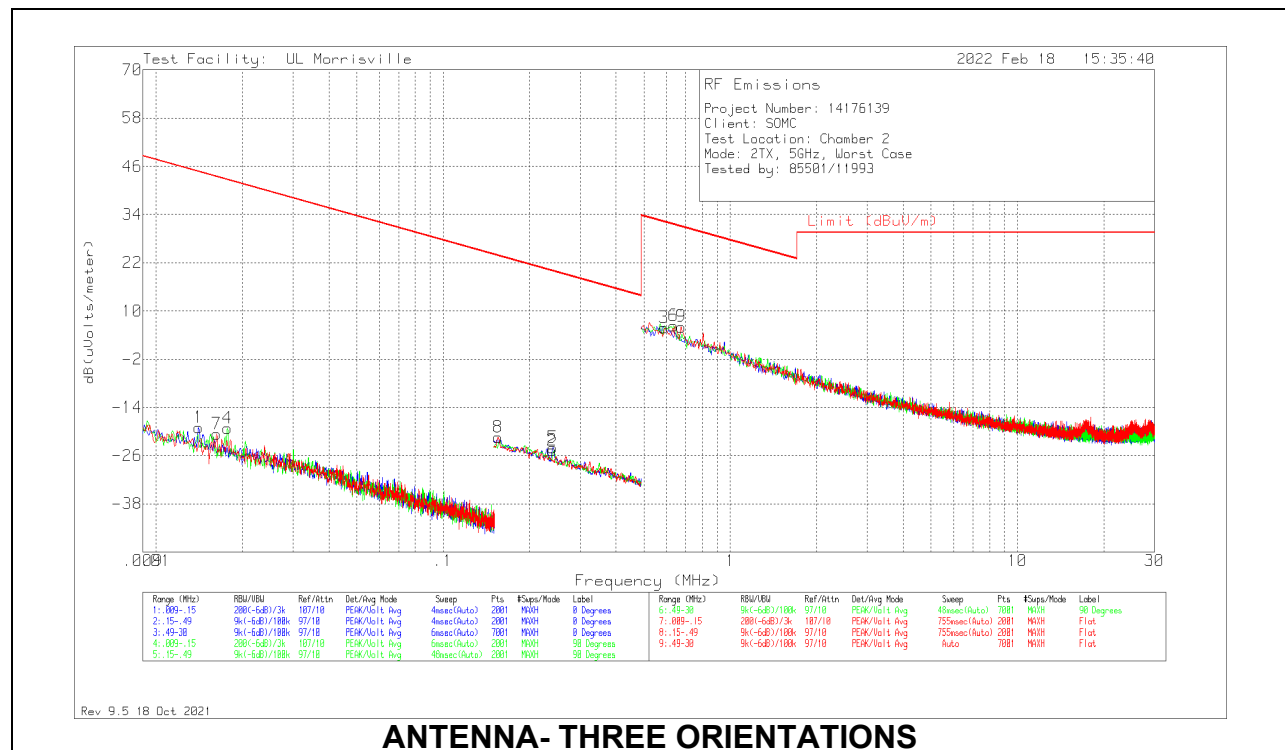
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85002	-70.29	Pk	34.7	-9.4	11.8	-33.19	26.95	-60.14	27	393	V
2	5.94139	-67.58	Pk	35	-9.2	11.8	-29.98	-27	-2.98	27	393	V

Pk - Peak detector

## 10.2. WORST CASE BELOW 30MHZ

Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40\*Log (test distance / specification distance).

### SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



### ANTENNA- THREE ORIENTATIONS

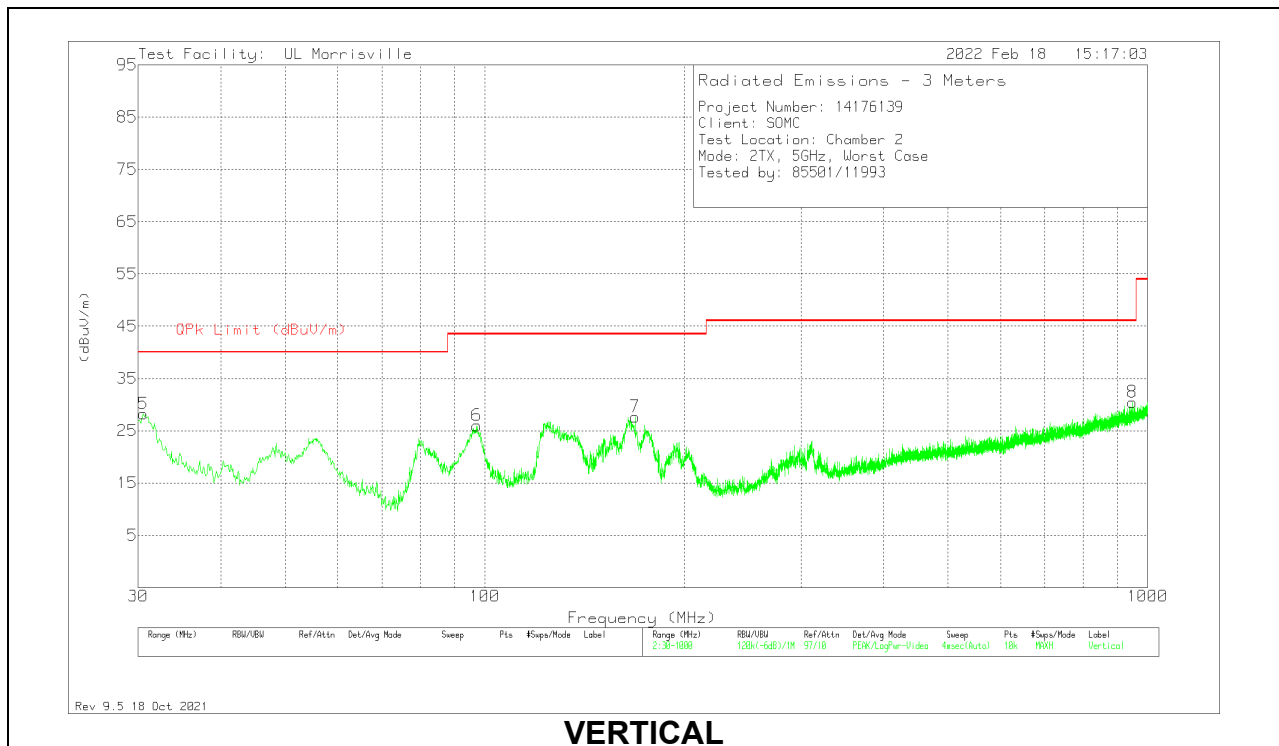
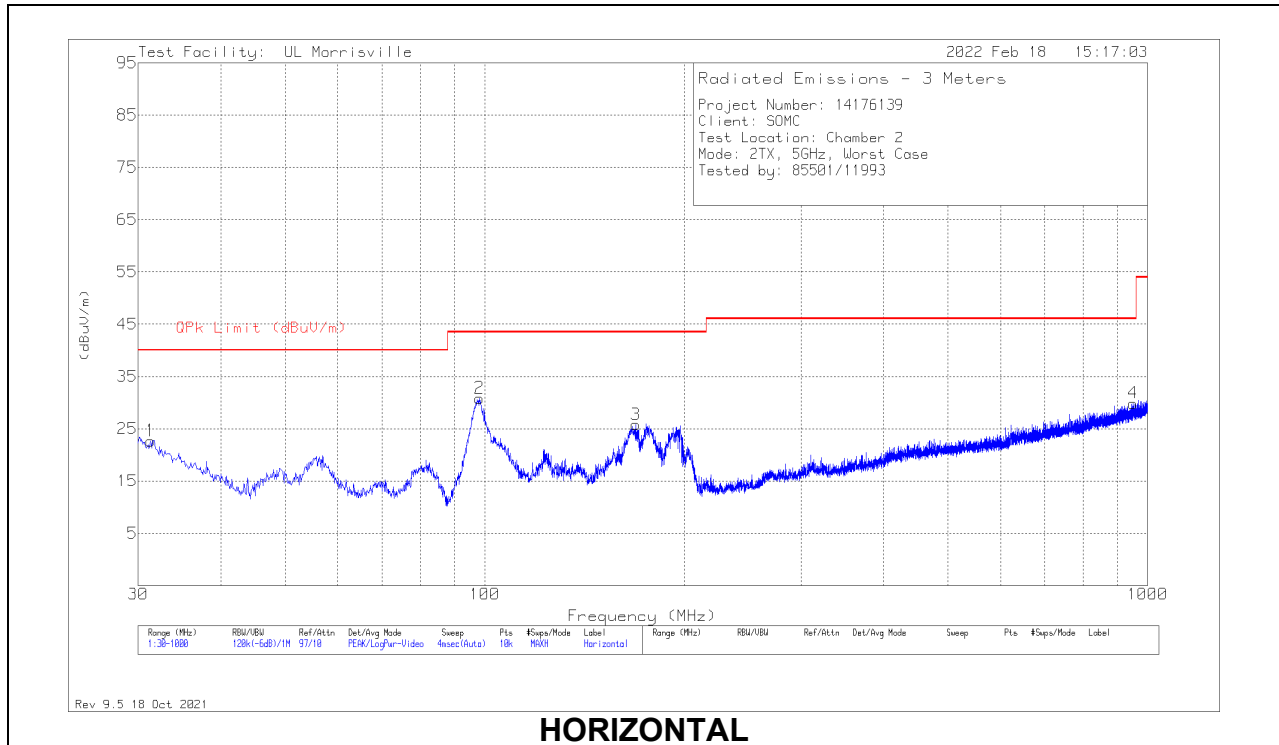
#### Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/Avg Limit (dBuV/m)	Pk Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Loop Angle
1	.01411	44.22	PK	16.6	.1	-80	-19.08	44.61	64.61	-63.69	0-360	0 degs
7	.01624	43.52	PK	15.7	.1	-80	-20.68	43.39	63.39	-64.07	0-360	Flat
4	.01773	45.63	PK	15.1	.1	-80	-19.17	42.63	62.63	-61.8	0-360	90 degs
8	.15519	47.19	PK	11.2	.1	-80	-21.51	23.79	43.79	-45.3	0-360	Flat
2	.23942	43.97	PK	11.2	.1	-80	-24.73	20.02	40.02	-44.75	0-360	0 degs
5	.24112	44.66	PK	11.2	.1	-80	-24.04	19.96	39.96	-44	0-360	0 degs
3	.58697	34.37	PK	11.2	.2	-40	5.77	32.23	-	-26.46	0-360	0 degs
6	.63334	34.83	PK	11.3	.2	-40	6.33	31.57	-	-25.24	0-360	90 degs
9	.6755	34.57	PK	11.3	.2	-40	6.07	31.01	-	-24.94	0-360	Flat

Pk - Peak detector

### 10.3. WORST CASE BELOW 1 GHZ

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



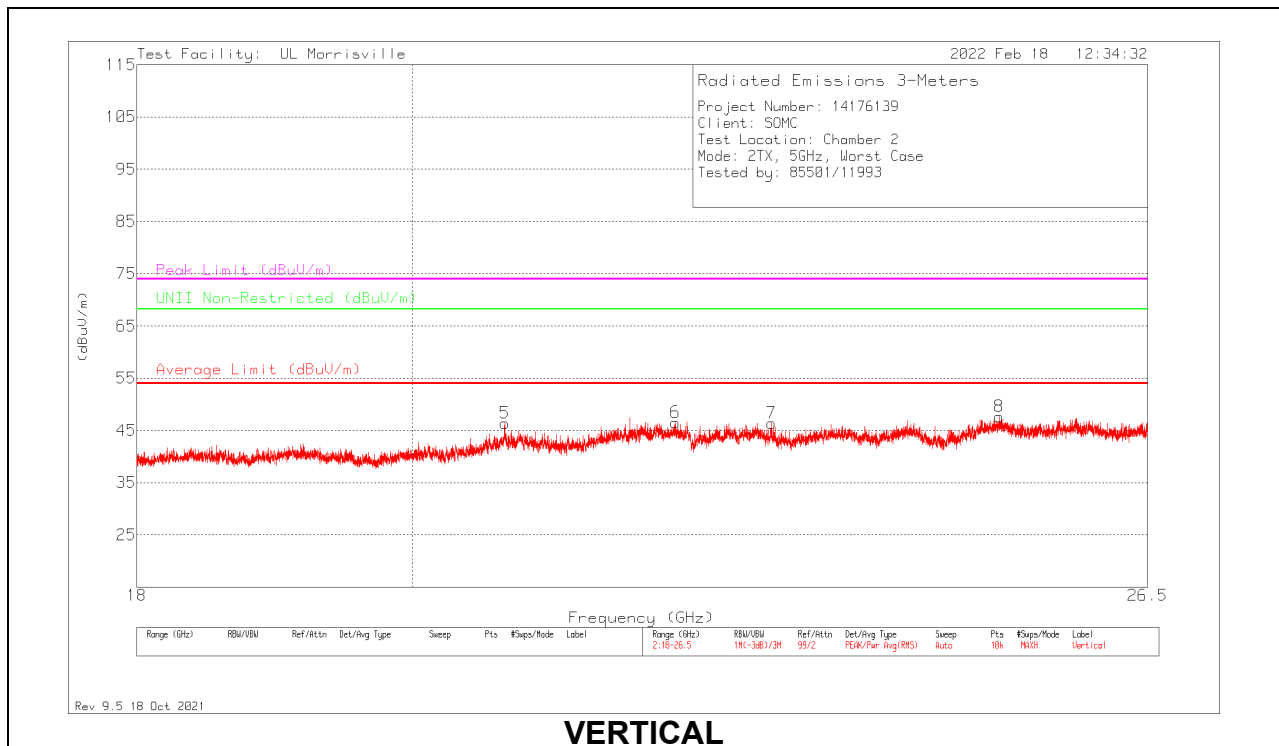
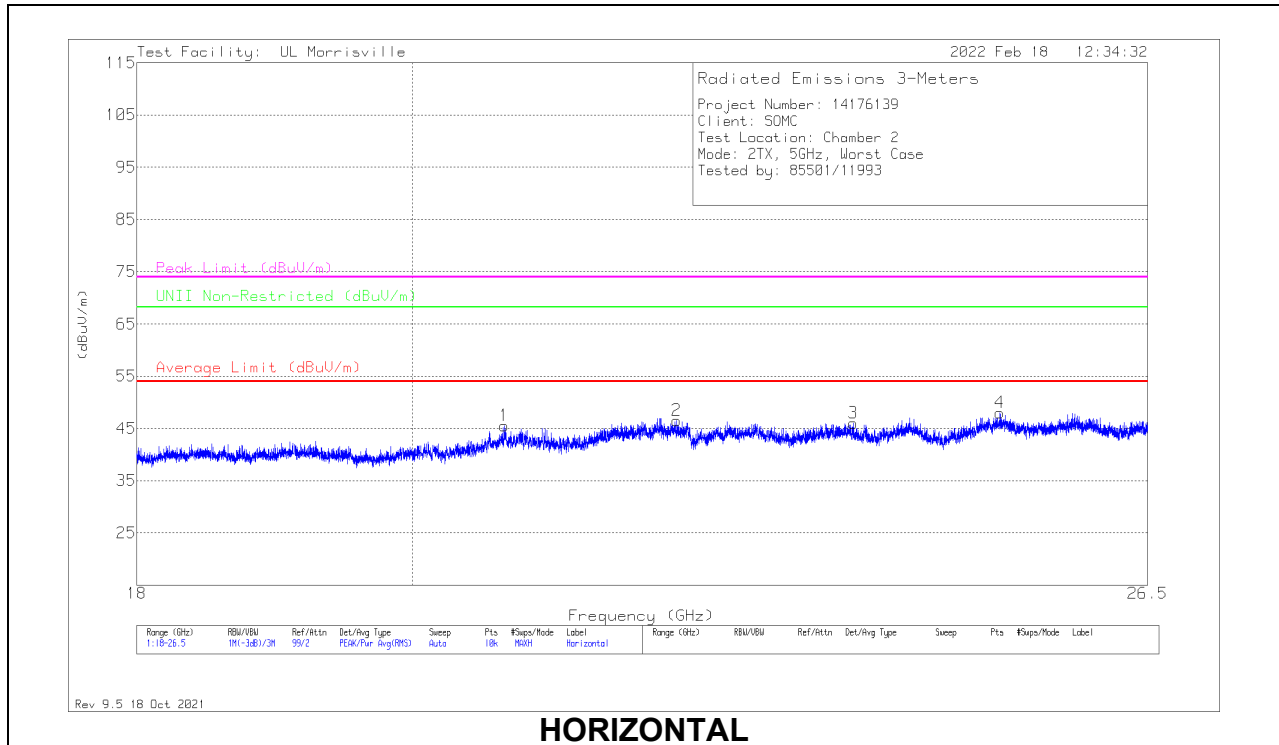
**Below 1GHz Data**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	30.582	33.03	Pk	26.5	-31.3	28.23	40	-11.77	0-360	101	V
1	31.358	28.05	Pk	25.9	-31.3	22.65	40	-17.35	0-360	399	H
6	97.318	40.79	Pk	15.6	-30.4	25.99	43.52	-17.53	0-360	199	V
2	98.288	45.43	Pk	15.9	-30.5	30.83	43.52	-12.69	0-360	299	H
7	168.613	39.26	Pk	18	-29.6	27.66	43.52	-15.86	0-360	101	V
3	169.001	37.37	Pk	18	-29.6	25.77	43.52	-17.75	0-360	199	H
8	948.202	26.14	Pk	28.8	-24.5	30.44	46.02	-15.58	0-360	101	V
4	951.2575	25.67	Pk	28.9	-24.7	29.87	46.02	-16.15	0-360	399	H

Pk - Peak detector

### 10.4. WORST CASE 18-26 GHZ

#### SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



**18 – 26GHz Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0063 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.71803	49.53	Pk	33.9	-37.9	0	45.53	54	-8.47	74	-28.47	-	-	0-360	200	H
2	* ** 22.13144	47.48	Pk	37	-38	0	46.48	54	-7.52	74	-27.52	-	-	0-360	300	H
3	* ** 23.67828	48.54	Pk	34.9	-37.4	0	46.04	54	-7.96	74	-27.96	-	-	0-360	101	H
5	* ** 20.72398	50.85	Pk	33.9	-38.4	0	46.35	54	-7.65	74	-27.65	-	-	0-360	200	V
6	* ** 22.12209	47.48	Pk	37	-38	0	46.48	54	-7.52	74	-27.52	-	-	0-360	200	V
7	* ** 22.95075	48.39	Pk	35.4	-37.4	0	46.39	54	-7.61	74	-27.61	-	-	0-360	101	V
8	25.0356	49.17	Pk	35.1	-36.6	0	47.67	54	-	74	-	68.2	-20.53	0-360	200	V
4	25.0441	49.31	Pk	35.2	-36.5	0	48.01	54	-	74	-	68.2	-20.19	0-360	101	H

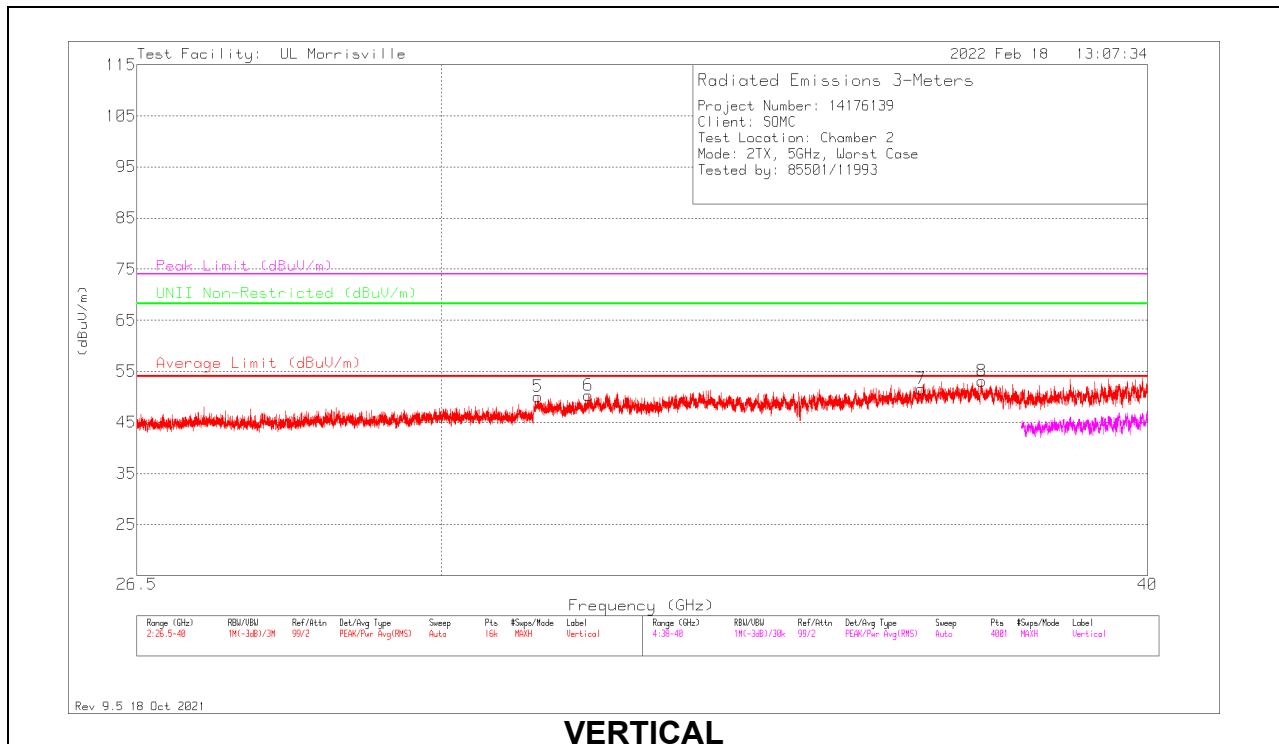
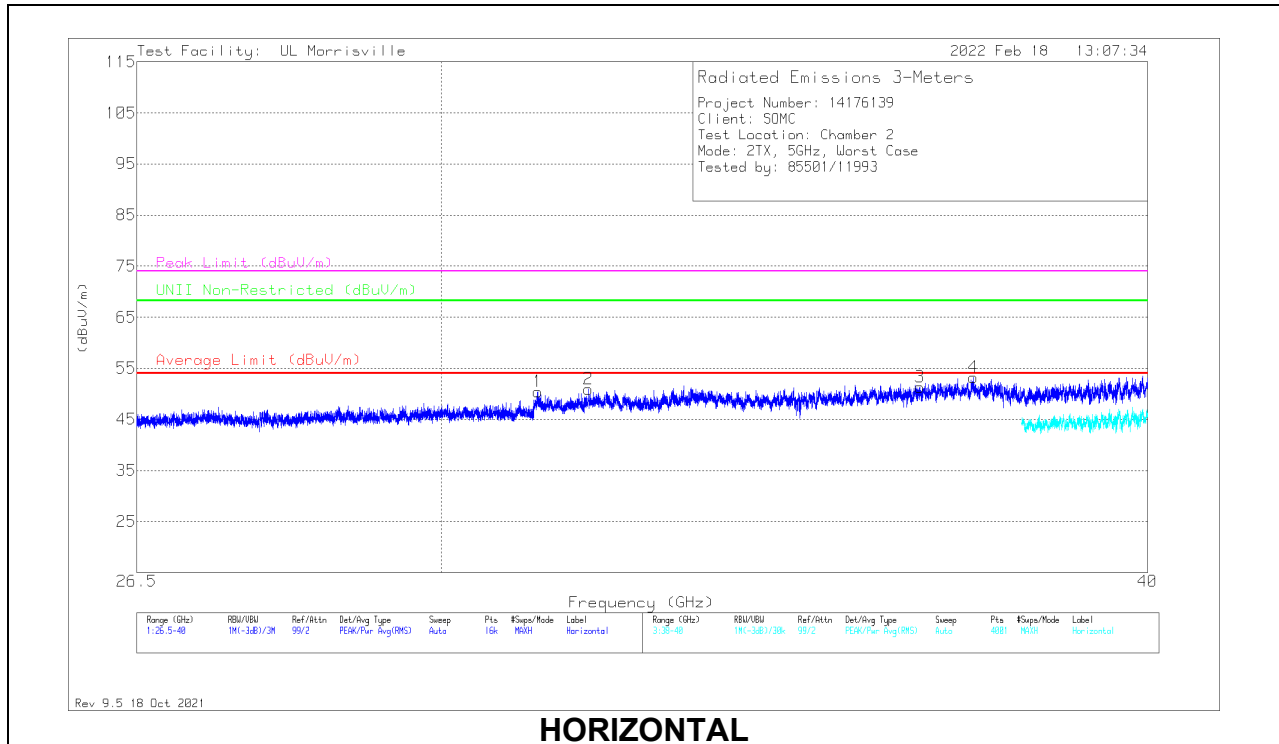
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

## 10.5. WORST CASE 26-40 GHZ

### SPURIOUS EMISSIONS 26-40 GHZ (WORST-CASE CONFIGURATION)



**26 – 40GHz Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 31.20161	47.72	PK-U	36.9	-33.5	0	51.12	54	-	74	-22.88	-	-	43	372	H
	* ** 31.20235	34.5	ADV	36.9	-33.5	0	37.9	54	-16.1	74	-	-	-	43	372	H
3	* ** 36.45664	50.53	PK-U	37.8	-35.8	0	52.53	54	-	74	-21.47	-	-	96	183	H
	* ** 36.45785	37.28	ADV	37.9	-35.7	0	39.48	54	-14.52	74	-	-	-	96	183	H
5	* ** 31.20322	48.05	PK-U	36.9	-33.5	0	51.45	54	-	74	-22.55	-	-	66	142	V
	* ** 31.20303	34.44	ADV	36.9	-33.5	0	37.84	54	-16.16	74	-	-	-	66	142	V
7	* ** 36.47447	50.62	PK-U	37.9	-36.4	0	52.12	54	-	74	-21.88	-	-	284	129	V
	* ** 36.47596	37.46	ADV	37.9	-36.5	0	38.86	54	-15.14	74	-	-	-	284	129	V
2	31.8474	47.22	PK-U	37	-33	0	51.22	-	-	74	-	68.2	-16.98	349	125	H
6	31.85045	47.51	PK-U	37	-32.8	0	51.71	-	-	74	-	68.2	-16.49	275	262	V
4	37.26202	51.39	PK-U	38.3	-36.3	0	53.39	-	-	74	-	68.2	-14.81	261	271	H
8	37.3856	51.9	PK-U	38.5	-36.3	0	54.1	-	-	74	-	68.2	-14.1	249	318	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

PK-U - Peak detector

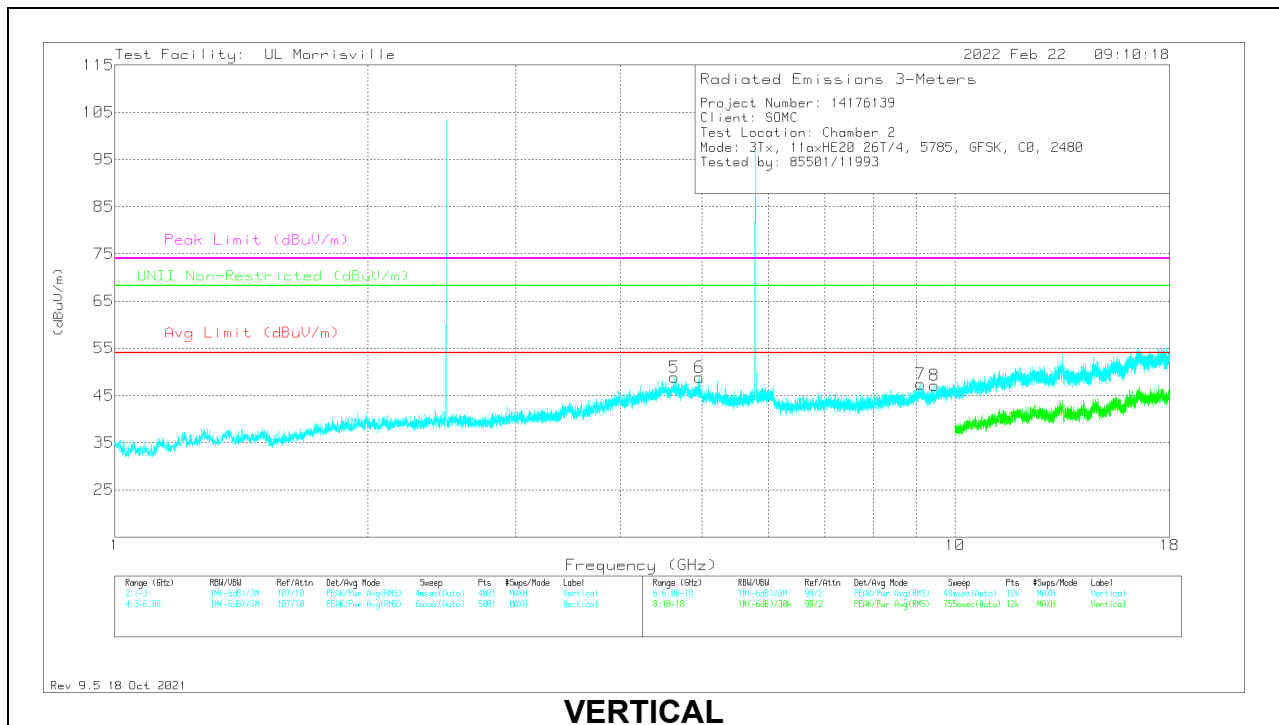
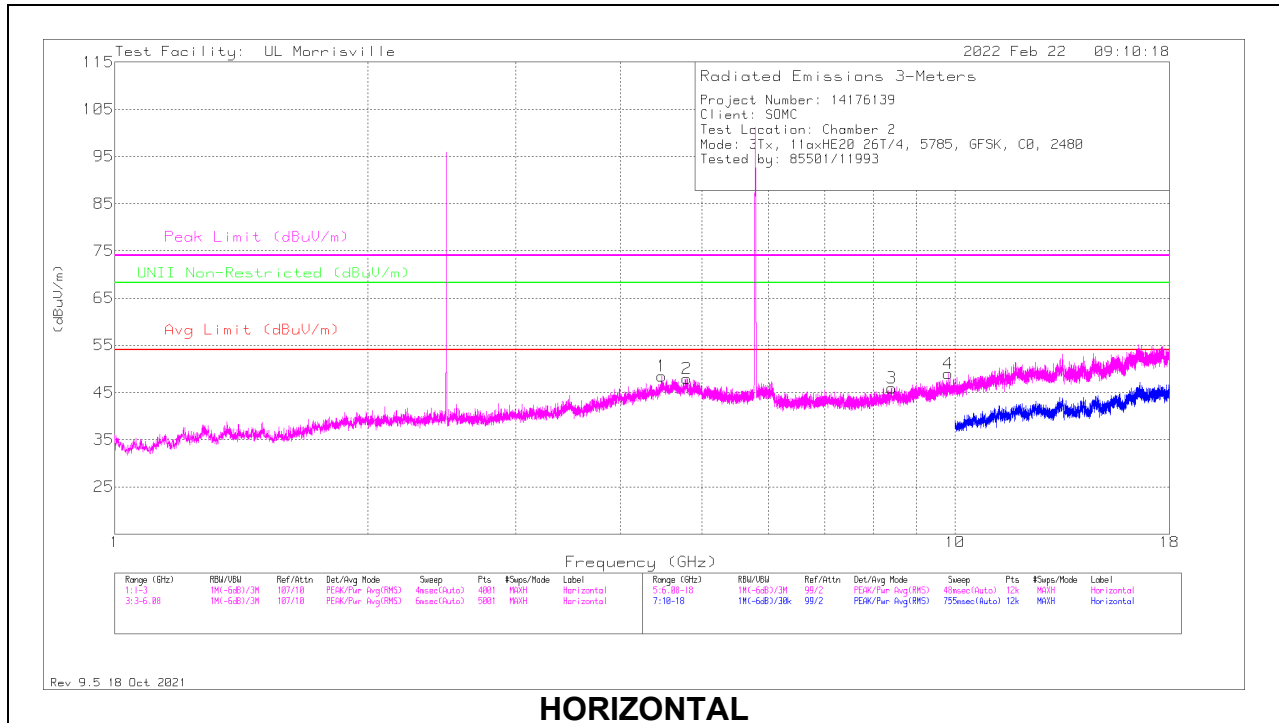
ADV – Voltage Average



## 10.6. Simultaneous Transmission

### 10.6.1. 2TX ABOVE 1 GHZ 802.11ax HE20 MODE IN THE 5.8GHZ BAND & 1TX BT GFSK MODE IN THE 2.4 GHZ BAND.

#### 802.11ax Chain 0 & Chain 1, Bluetooth GFSK Chain 0



**Radiated Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (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
2	*** 4.79626	34.86	Pk	34.1	-21	47.96	54	-6.04	74	-26.04	68.2	-20.24	0-360	199	H
5	*** 4.63559	35.47	PK-U	34.1	-20.6	48.97	-	-	74	-25.03	68.2	-19.23	50	342	V
	*** 4.63355	21.29	V1TV	34.1	-20.6	34.79	54	-19.21	-	-	-	-	50	342	V
6	*** 4.95967	41.17	PK-U	34	-21.5	53.67	-	-	74	-20.33	68.2	-14.53	85	236	V
	*** 4.95994	30.81	V1TV	34	-21.5	43.31	54	-10.69	-	-	-	-	85	236	V
1	4.48086	35.01	Pk	34	-20.6	48.41	-	-	-	-	68.2	-19.79	0-360	101	H
3	*** 8.40738	36.79	Pk	35.9	-26.7	45.99	54	-8.01	74	-28.01	68.2	-22.21	0-360	101	H
7	*** 9.09775	37.05	Pk	36.3	-26	47.35	54	-6.65	74	-26.65	68.2	-20.85	0-360	199	V
8	*** 9.44541	36.91	Pk	36.6	-26.4	47.11	54	-6.89	74	-26.89	68.2	-21.09	0-360	101	V
4	9.82288	37.71	Pk	36.9	-25.6	49.01	-	-	-	-	68.2	-19.19	0-360	101	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

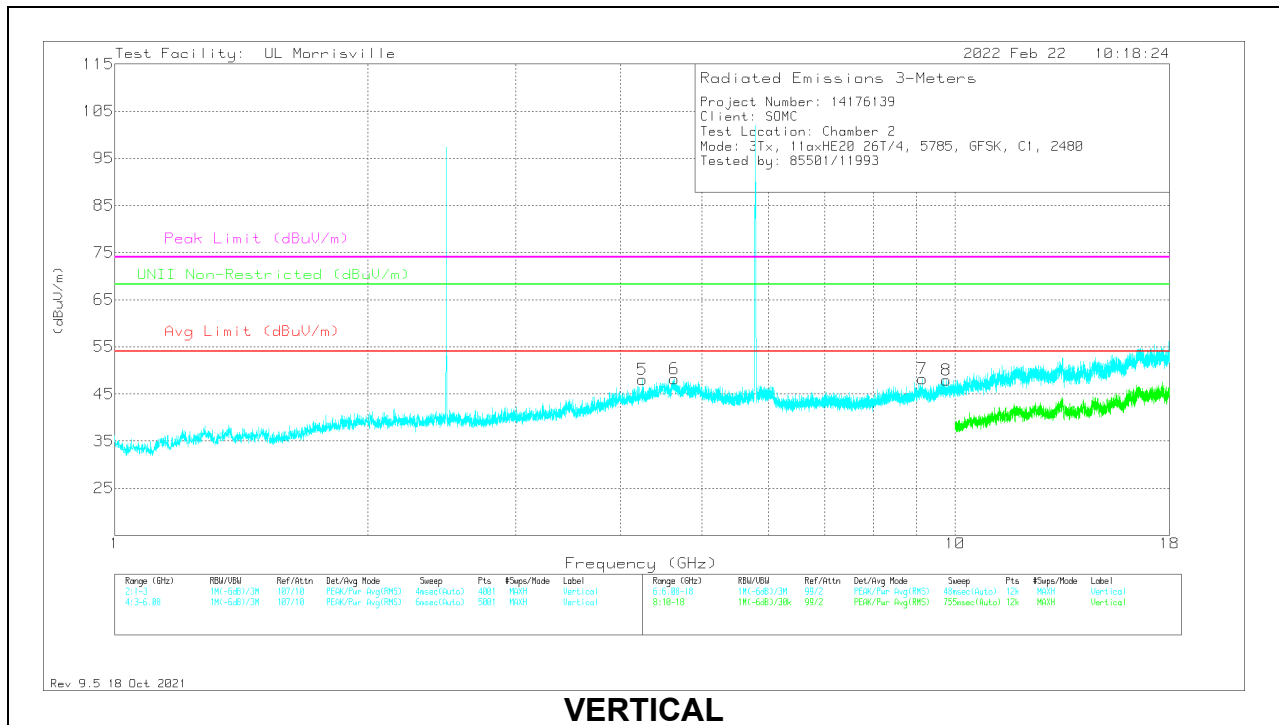
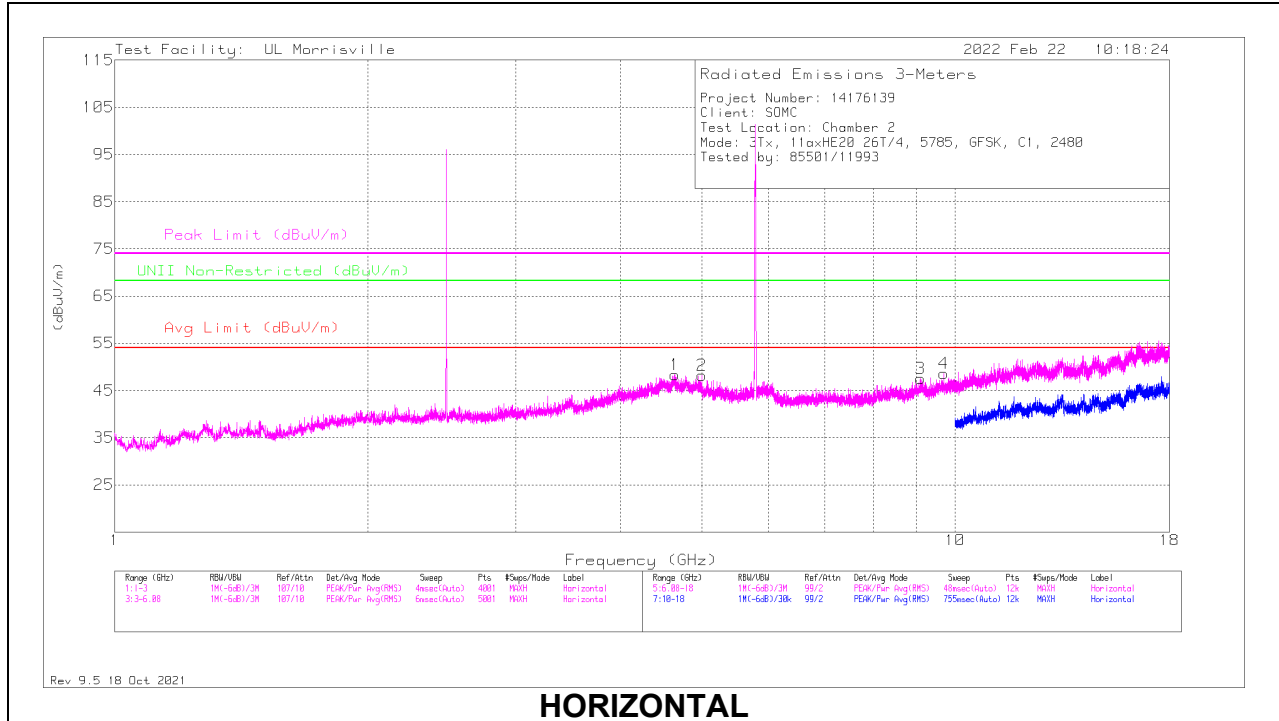
Pk - Peak detector

PK-U - U-NII: Maximum Peak

V1TV - U-NII: VB=1/Ton, Linear Voltage Average where: Ton is packet duration

### 10.6.2. 2TX ABOVE 1 GHZ 802.11ax HE20 MODE IN THE 5.8GHZ BAND & 1TX BT GFSK MODE IN THE 2.4 GHZ BAND.

#### 802.11ax Chain 0 & Chain 1, Bluetooth GFSK Chain 1



**Radiated Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (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	*** 4.64215	35.97	PK-U	34.1	-20.8	49.27	-	-	74	-24.73	68.2	-18.93	85	266	H
	*** 4.64121	21.36	V1TV	34.1	-20.8	34.66	54	-19.34	-	-	-	-	85	266	H
2	*** 4.99927	35.78	PK-U	34.2	-21.4	48.58	-	-	74	-25.42	68.2	-19.62	64	133	H
	*** 4.99999	21.61	V1TV	34.2	-21.5	34.31	54	-19.69	-	-	-	-	64	133	H
5	*** 4.24468	34.19	PK-U	33.7	-20.3	47.59	-	-	74	-26.41	68.2	-20.61	223	190	V
	*** 4.2474	20.1	V1TV	33.7	-20.1	33.7	54	-20.3	-	-	-	-	223	190	V
6	*** 4.63456	35.61	PK-U	34.1	-20.6	49.11	-	-	74	-24.89	68.2	-19.09	233	258	V
	*** 4.63749	21.31	V1TV	34.1	-20.5	34.91	54	-19.09	-	-	-	-	233	258	V
3	*** 9.10073	37.24	Pk	36.3	-26	47.54	54	-6.46	74	-26.46	68.2	-20.66	0-360	199	H
7	*** 9.15047	38.51	PK-U	36.3	-25.8	49.01	-	-	74	-24.99	68.2	-19.19	278	251	V
	*** 9.15156	23.63	V1TV	36.3	-25.5	34.43	54	-19.57	-	-	-	-	278	251	V
4	9.69474	36.77	Pk	36.9	-25.1	48.57	-	-	-	-	68.2	-19.63	0-360	199	H
8	9.77123	37.07	Pk	36.9	-26	47.97	-	-	-	-	68.2	-20.23	0-360	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

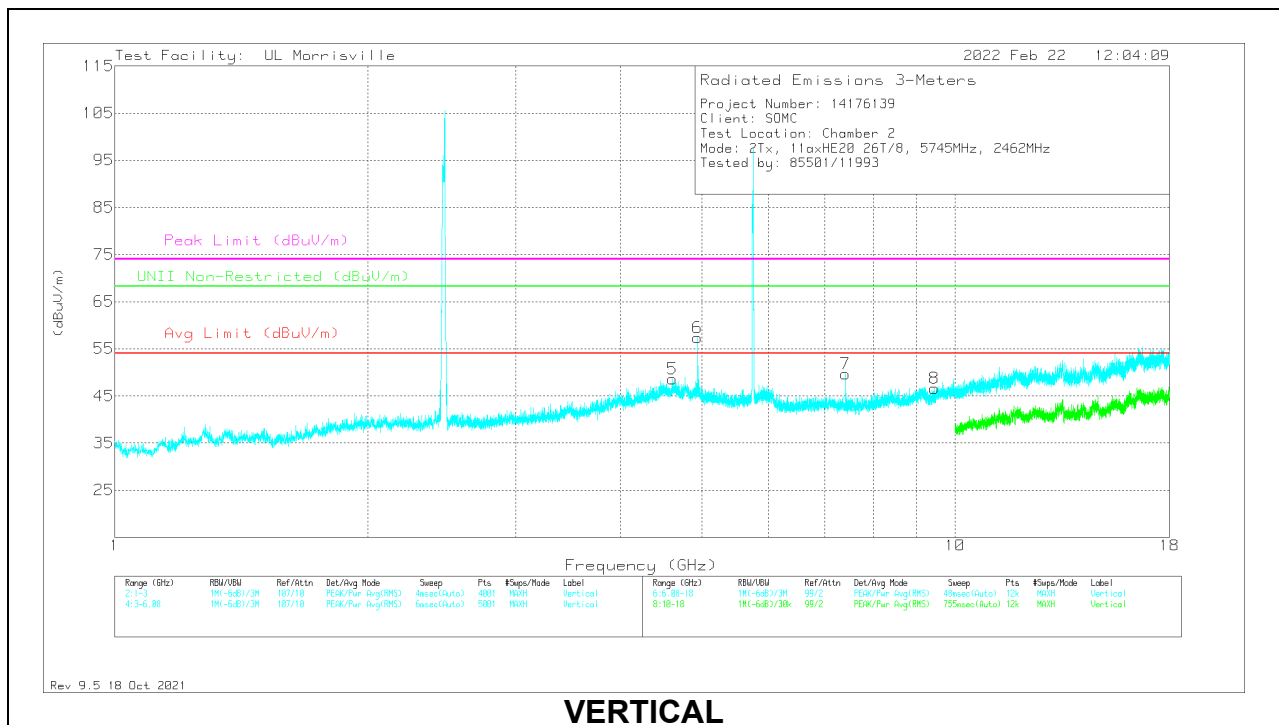
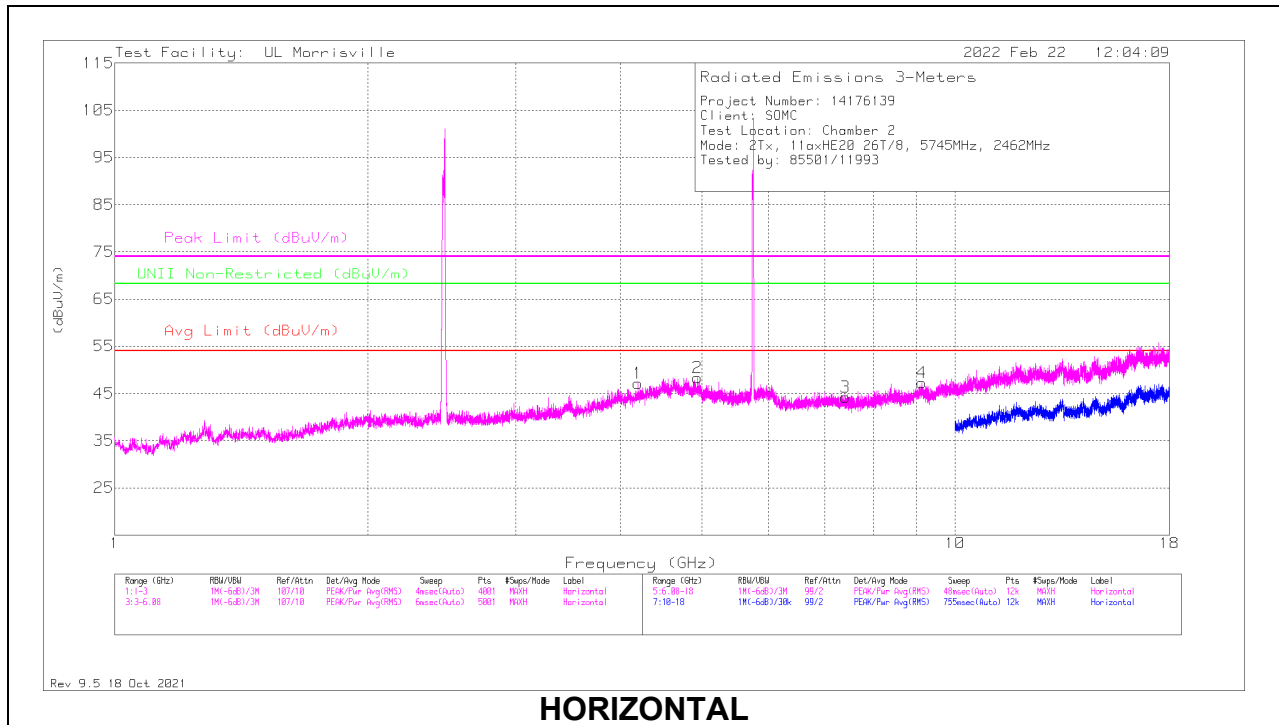
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK-U - U-NII: Maximum Peak

V1TV - U-NII: VB=1/Ton, Linear Voltage Average where: Ton is packet duration

### 10.6.3. 2TX ABOVE 1 GHZ 802.11ax HE20 MODE IN THE 5.8GHZ BAND & 1TX 802.11ax HE20 MODE IN THE 2.4 GHZ BAND.



**Radiated Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Pad (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	*** 4.19566	34.23	Pk	33.7	-20.8	47.13	54	-6.87	74	-26.87	68.2	-21.07	0-360	200	H
2	*** 4.94071	42.43	PK-U	34	-21.7	54.73	-	-	74	-19.27	68.2	-13.47	64	116	H
	*** 4.94096	27.66	ADV	34	-21.6	40.06	54	-13.94	-	-	-	-	64	116	H
5	*** 4.60928	35.16	PK-U	34.1	-20.6	48.66	-	-	74	-25.34	68.2	-19.54	190	127	V
	*** 4.60667	23.13	ADV	34.1	-20.7	36.53	54	-17.47	-	-	-	-	190	127	V
6	*** 4.93983	48.35	PK-U	34	-21.7	60.65	-	-	74	-13.35	68.2	-7.55	66	166	V
	*** 4.94063	33.11	ADV	34	-21.7	45.41	54	-8.59	-	-	-	-	66	166	V
3	*** 7.41007	36.55	Pk	35.7	-28	44.25	54	-9.75	74	-29.75	68.2	-23.95	0-360	199	H
7	*** 7.41078	48.02	PK-U	35.7	-27.9	55.82	-	-	74	-18.18	68.2	-12.38	21	254	V
	*** 7.411	32.03	ADV	35.7	-27.8	39.93	54	-14.07	-	-	-	-	21	254	V
4	*** 9.13251	36.94	Pk	36.3	-26	47.24	54	-6.76	74	-26.76	68.2	-20.96	0-360	101	H
8	*** 9.44939	36.64	Pk	36.6	-26.6	46.64	54	-7.36	74	-27.36	68.2	-21.56	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

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

\*Decreases with the logarithm of the frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

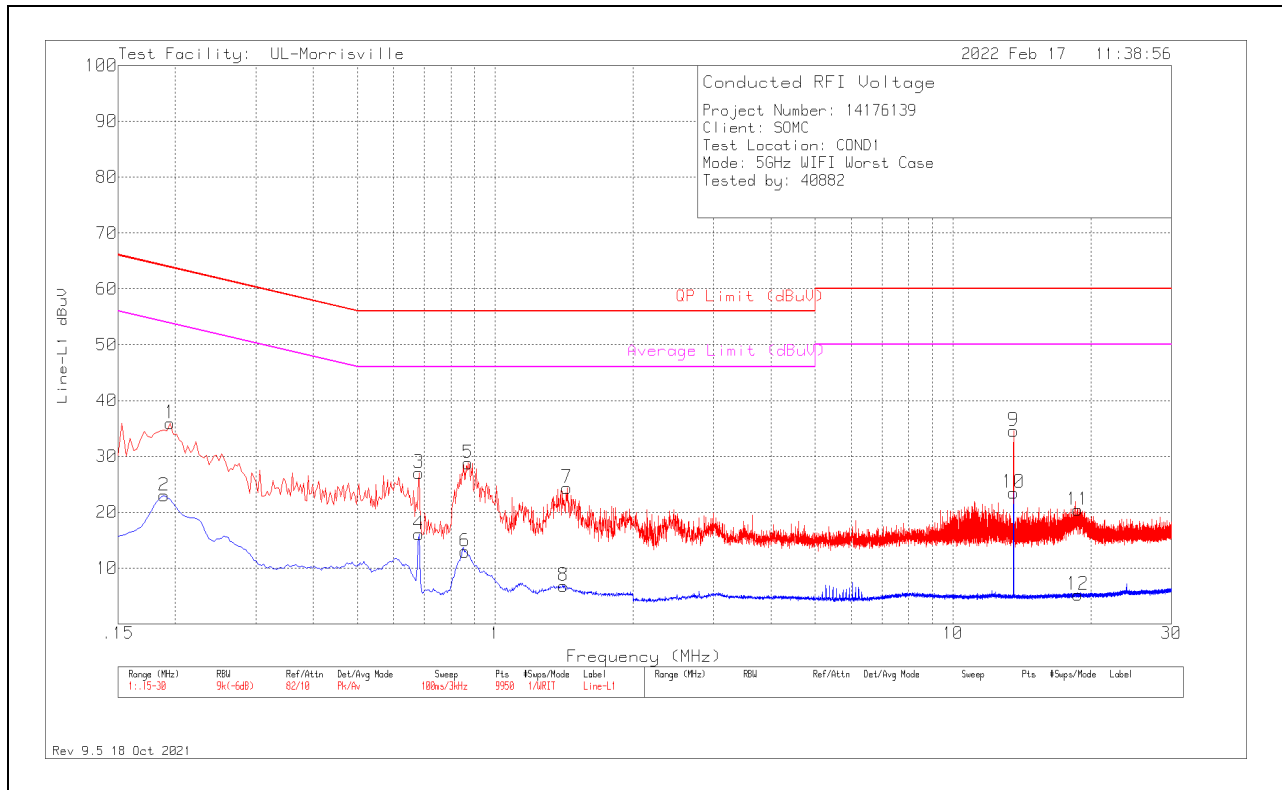
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

### RESULTS

### 11.1.1. AC Power Line Norm

### LINE 1 RESULTS

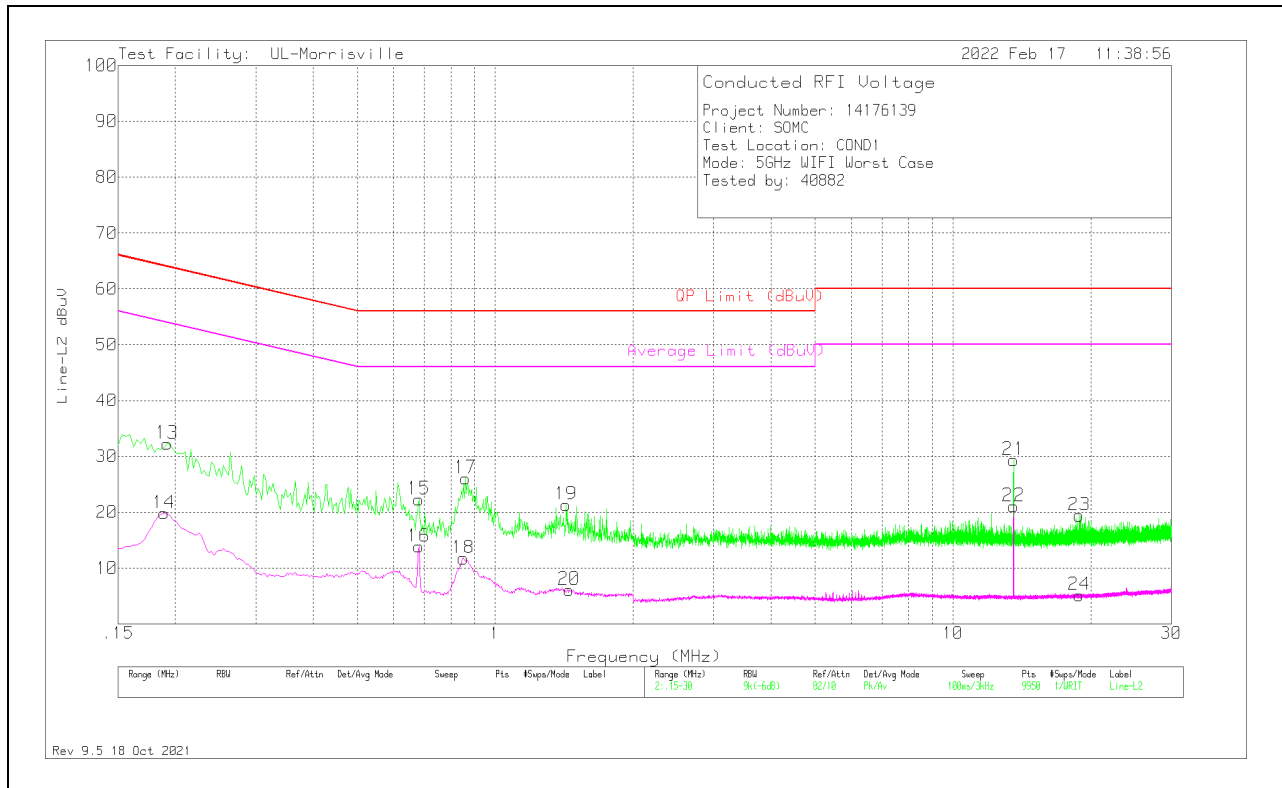


Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
2	.189	13	Av	.2	9.8	23	-	-	54.08	-31.08
1	.195	25.95	Pk	.2	9.8	35.95	63.82	-27.87	-	-
3	.681	17.27	Pk	0	9.8	27.07	56	-28.93	-	-
4	.681	6.29	Av	0	9.8	16.09	-	-	46	-29.91
6	.858	3.18	Av	0	9.8	12.98	-	-	46	-33.02
5	.873	19	Pk	0	9.8	28.8	56	-27.2	-	-
8	1.41	-2.97	Av	0	9.8	6.83	-	-	46	-39.17
7	1.434	14.57	Pk	0	9.8	24.37	56	-31.63	-	-
9	13.56	24.42	Pk	.1	10.1	34.62	60	-25.38	-	-
10	13.56	13.32	Av	.1	10.1	23.52	-	-	50	-26.48
11	18.741	10.22	Pk	.1	10.1	20.42	60	-39.58	-	-
12	18.741	-4.95	Av	.1	10.1	5.25	-	-	50	-44.75

Pk - Peak detector



### LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
14	.189	9.83	Av	.2	9.8	19.83	-	-	54.08	-34.25
13	.192	22.28	Pk	.2	9.8	32.28	63.95	-31.67	-	-
15	.681	12.51	Pk	0	9.8	22.31	56	-33.69	-	-
16	.681	4.06	Av	0	9.8	13.86	-	-	46	-32.14
18	.852	1.96	Av	0	9.8	11.76	-	-	46	-34.24
17	.861	16.28	Pk	0	9.8	26.08	56	-29.92	-	-
19	1.428	11.55	Pk	0	9.8	21.35	56	-34.65	-	-
20	1.449	-3.68	Av	0	9.8	6.12	-	-	46	-39.88
22	13.56	10.87	Av	.1	10.1	21.07	-	-	50	-28.93
21	13.563	19.16	Pk	.1	10.1	29.36	60	-30.64	-	-
23	18.876	9.24	Pk	.1	10.1	19.44	60	-40.56	-	-
24	18.879	-5.04	Av	.1	10.1	5.16	-	-	50	-44.84

Pk - Peak detector

## **12. SETUP PHOTOS:**

Please refer to R14176139-EP2 for setup photos.

**END OF TEST REPORT**