



TEST REPORT

Report Number. : R13304840-E6

Applicant : ENEL X SRL
Viali Di Tor Di Quinto 45/47
Roma, RM 191
Italy

Model : JuiceBox 3.0

Contains FCC ID : 2A5OVLB1DX

Contains IC : 28561LB1DX

EUT Description : EV Charger

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5 + A1

Date Of Issue:

2022-12-19

Prepared by:

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-05-31	Initial Issue	Noah Bennett
V2	2022-11-18	Updated report for TCB Submission	Noah Bennett
V3	2022-12-19	Separated setup photos and diagram from report	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ENEL X SRL
Viali Di Tor Di Quinto 45/47
Roma, RM 191
Italy

EUT DESCRIPTION: EV Charger

MODEL: JuiceBox 3.0

SERIAL NUMBER: Non-Serialized

SAMPLE RECEIPT DATE: 2021-12-13

DATE TESTED: 2022-04-05 to 2022-05-27

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Refer to Section 2
ISED RSS-247 Issue 2	Refer to Section 2
ISED RSS-GEN Issue 5 + A2	Refer to Section 2

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. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL LLC. By:

Prepared By:



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Consumer Technology Division
UL LLC.

2. TEST RESULTS 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.

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	RSS-GEN 6.7	99% OBW	Not Performed	See Note 2.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW		
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		
See Comment		Average power	For Reporting purposes only	
15.247 (e)	RSS-247 5.2 (b)	PSD	Not Performed	
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Compliant	See Note 1.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Compliant	

Note 1: This test report covered the assessment of the original radio module installed in a new host under FCC KDB 996369 D04 Module Integration Guide v02 to verify continued compliance. It is the responsibility of the end product manufacturer to provide the original module reports to show full compliance to the FCC 15.247 and RSS-247 requirements.

Note 2: Power Matching was performed to match the EUT's Average Output Power with that of the original certification module. Therefore, power measurements were performed. Please see section 6.5 for power settings used, and section 9.2 for Average Power measurements.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05, KDB 414788 D01 Radiated Test Site v01r01, FCC KDB 996369 D04 Module Integration Guide v02 RSS-GEN Issue 5 + A1, and RSS-247 Issue 2.

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 checked="" type="checkbox"/>	Building 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

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 _{Lab}
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%.

5.4. SAMPLE CALCULATION

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 an Electric EV Charger, Model JuiceBox 3.0 with BLE/BT/2.4WLAN/RFID and WWAN capability.

This report only covers testing of the WLAN portion of the EUT.

6.2. MAXIMUM OUTPUT POWER

This test report covered the assessment of the original radio module installed in a new host under FCC KDB 996369 D04 Module Integration Guide v02 to verify continued compliance. It is the responsibility of the end product manufacturer to provide the original module reports to show full compliance to the FCC 15.247 and RSS-247 requirements.

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

Type	Antenna Gain (dBi)
Dipole	1.4

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was "FCC_scripts_Ver4".

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 with highest output power as worst-case scenario.

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

The EUT is intended to operate in only one orientation. Therefore, all final radiated testing was performed with the EUT in this orientation of operation.

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

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

The EUT was tested with different power settings than the original certification, but these power settings were matched to result in the same output power as the original certification. See Section 9.2 for Average power data used to power match original certification report. Power settings used are as follows:

802.11b mode: 23-Ch1, 20-Ch6 and CH11
802.11g mode: 17
802.11n HT20mode: 16-Ch1 and CH6, 17-Ch11

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T450	RTP0116PC0A2UQS	N/A
AC Adapter	Lenovo	ADLX65NCC2A	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Mains	1	Hardwired	Non-Shielded	<3m	Connects to AC Mains
2	EV Car Charger	1	Hardwired	Non-Shielded	<3m	Comes from EUT to charging port.

TEST SETUP

The EUT is configured via a test laptop before the tests. Test software exercised the radio card.

SETUP DIAGRAMS

Refer to document R13304840-EP2 for setup diagram.

7. MEASUREMENT METHOD

Duty cycle: ANSI C63.10 Subclause 11.6

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -6.10.5 and 11.12.1

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

Radiated Spurious Emissions: ANSI C63.10-2013 Section 6.3 – 6.6

8. TEST AND MEASUREMENT EQUIPMENT

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

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	2022-04-05	2023-04-05
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
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	2022-04-05	2023-04-05
PS216	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (04 Mar 2021)		

Test Equipment Used - Wireless Conducted Measurement Equipment – Power Spotcheck

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Common Equipment					
PWM003	RF Power Meter	Keysight Technologies	N1911A	2021-08-30	2022-08-30
PWS005	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	N1921A	2021-05-27	2022-05-07
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12

Note: Testing was done when equipment was in calibration only. Equipment out of calibration was either not used or used before calibration was due.

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	30-1000 MHz				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-08-30	2022-08-30
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	18-40 GHz				
AT0063	Horn Antenna, 18-26.5GHz	ARA	2021-11-04	2022-11-04	2021-11-04
	Gain-Loss Chains				
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
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27
PS216	AC Power Source	Elgar	CW2501M (s/n 1045A04231)	NA	NA
PS214	AC Power Source	Elgar	CW2501M (s/n 1523A02396)	NA	NA

9. ANTENNA PORT TEST RESULTS

9.1. DUTY CYCLE

Limits

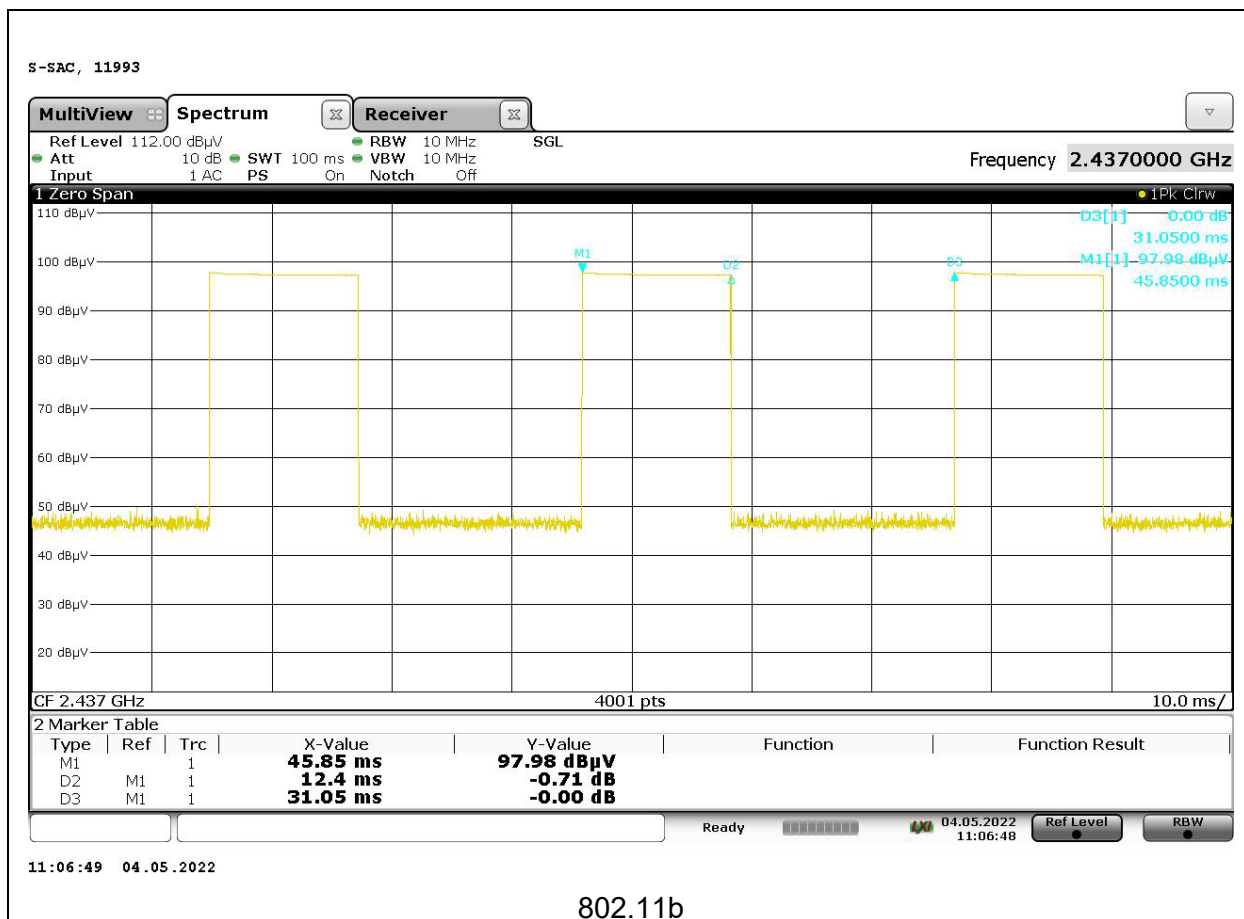
None – For Reporting Purposes Only.

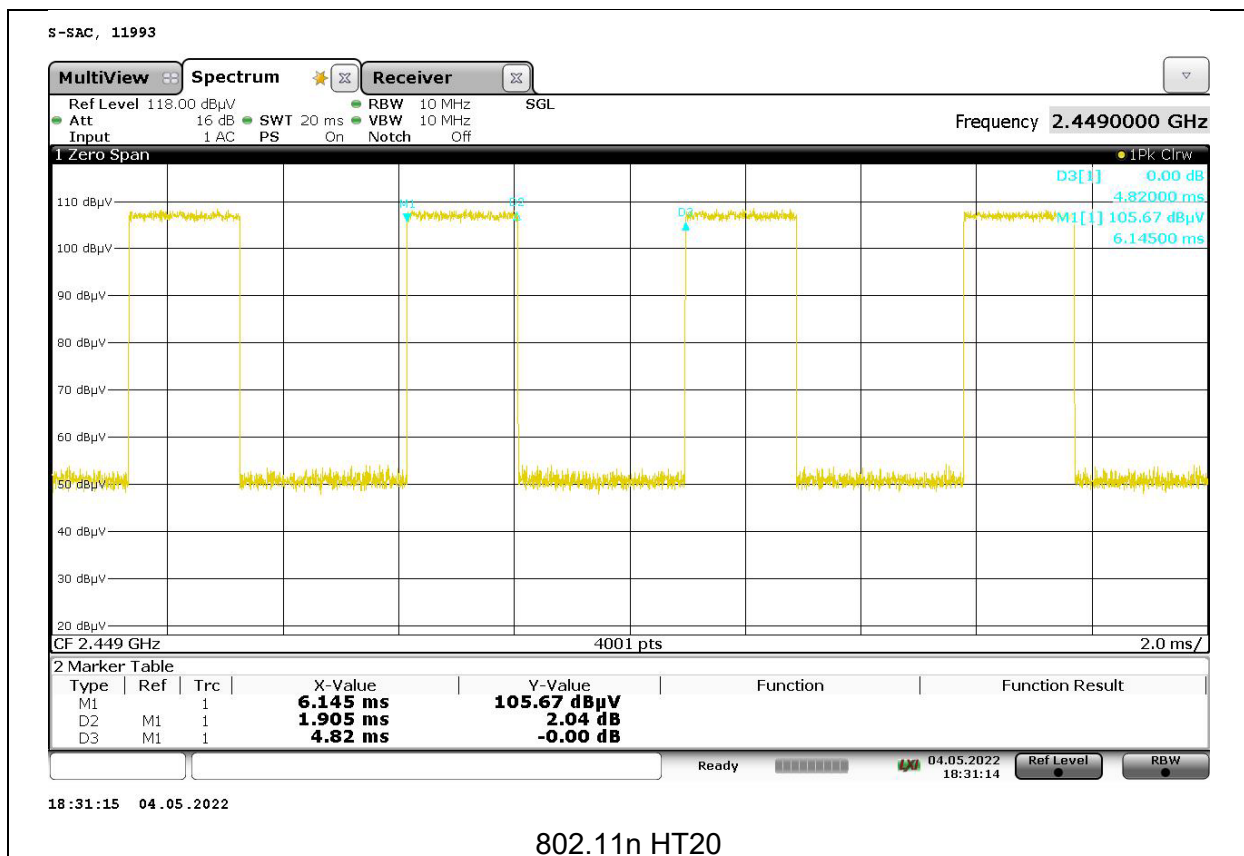
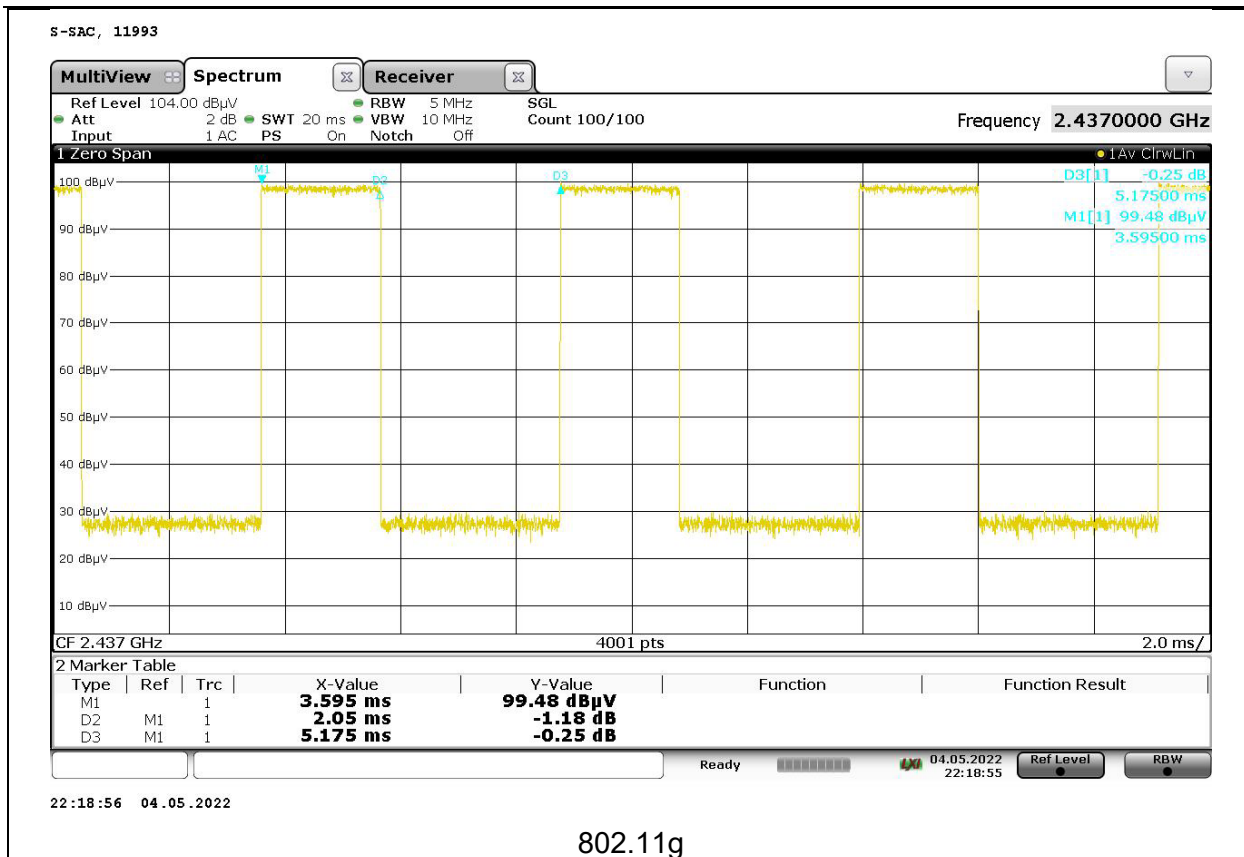
Test Procedure

On Time and Duty Cycle: ANSI C63.10-2013 Section 11.6

Mode	Tx on (msec)	Tx on + Tx off (msec)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11b	12.4	31.05	39.94	7.97
802.11g	2.05	5.175	39.61	8.04
802.11n HT20	1.905	4.82	39.52	8.06

Results





9.2. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using a SMA cable connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

RESULTS

9.2.1. 802.11b (1Mbps)

Chain 0

Tested By:	27465/40882
Date:	3/22/2022

Channel	Frequency (MHz)	AV power (dBm)
Low	2412	17.46
Middle	2437	17.27
High	2462	17.18

9.2.2. 802.11g (6Mbps)

Chain 0

Tested By:	27465/40882
Date:	3/22/2022

Channel	Frequency (MHz)	AV power (dBm)
Low	2412	13.84
Middle	2437	13.50
High	2462	13.27

9.2.3. 802.11nHT20 (MCS0)

Chain 0

Tested By:	27465/40882
Date:	4/27/2022

Channel	Frequency (MHz)	AV power (dBm)
Low	2412	12.50
Middle	2437	12.59
High	2462	12.71

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

RSS-GEN, Section 8.9 and 8.10

Frequency Range (MHz)	Field Strength Limit (uA/m) at 3 m	Field Strength Limit (dBuA/m) at 3 m
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
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 3MHz 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 Linear Voltage averaging measurements.

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

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

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

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.

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

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

NOTE: The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table), using the free space impedance of 377 Ohms.

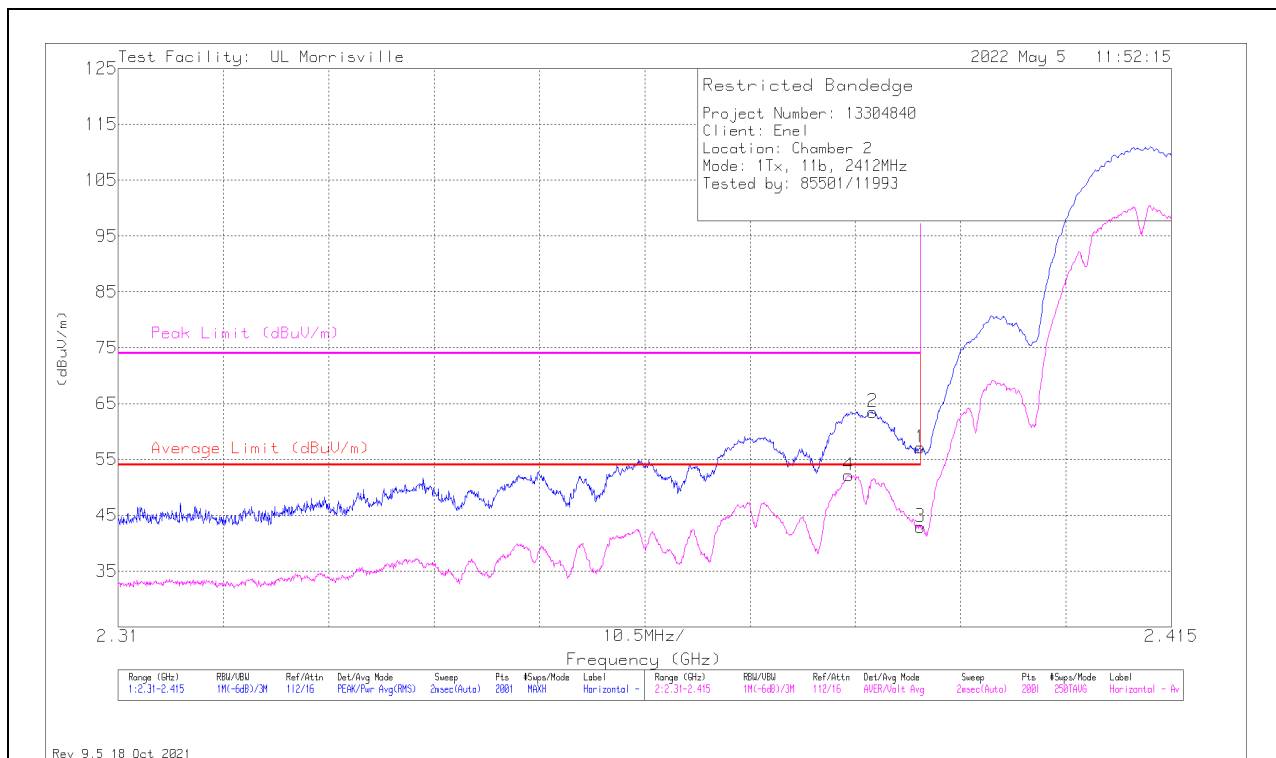
10.1. TRANSMITTER ABOVE 1 GHz

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

1TX Antenna 1 MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	49.24	Pk	32	-24.1	0	57.14	-	-	74	-16.86	219	187	H
2	*** 2.38523	55.51	Pk	32.1	-24.1	0	63.51	-	-	74	-10.49	219	187	H
3	*** 2.38996	27.05	ADV	32	-24.1	7.97	42.92	54	-11.08	-	-	219	187	H
4	*** 2.38282	36.17	ADV	32.1	-24.1	7.97	52.14	54	-1.86	-	-	219	187	H

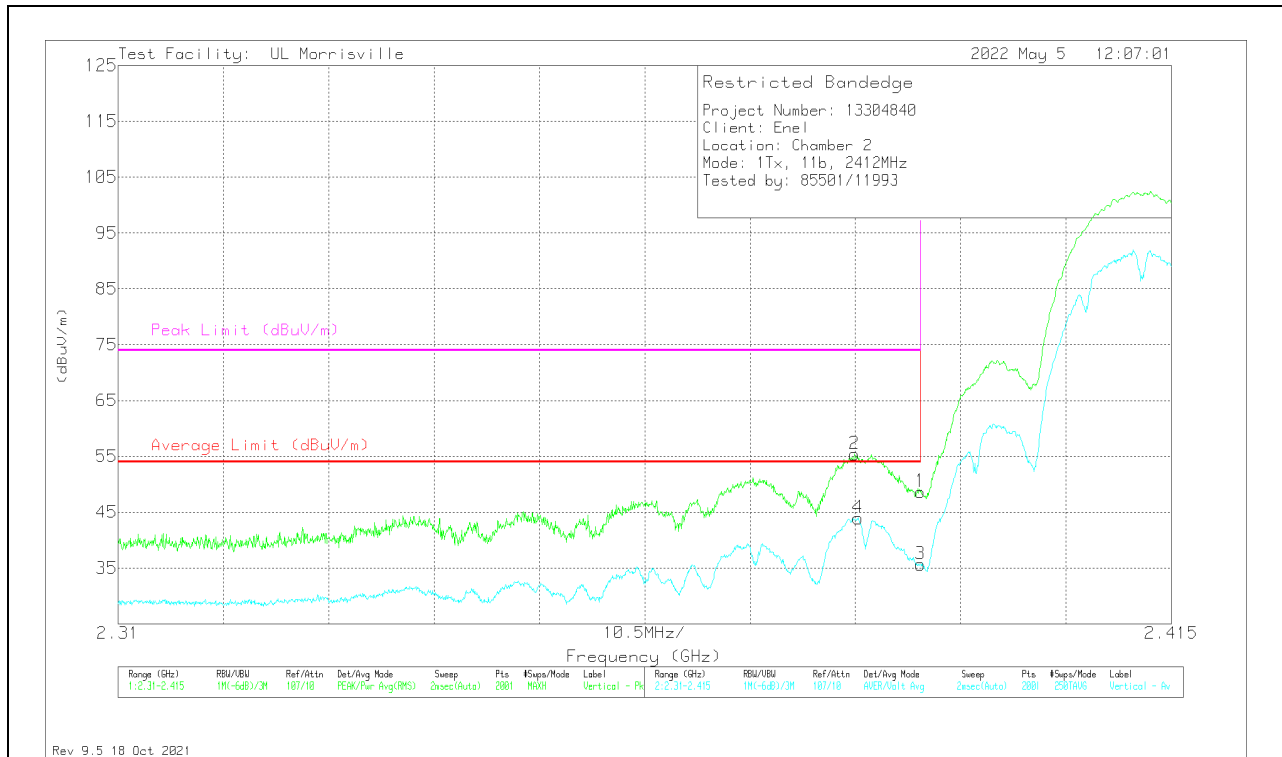
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

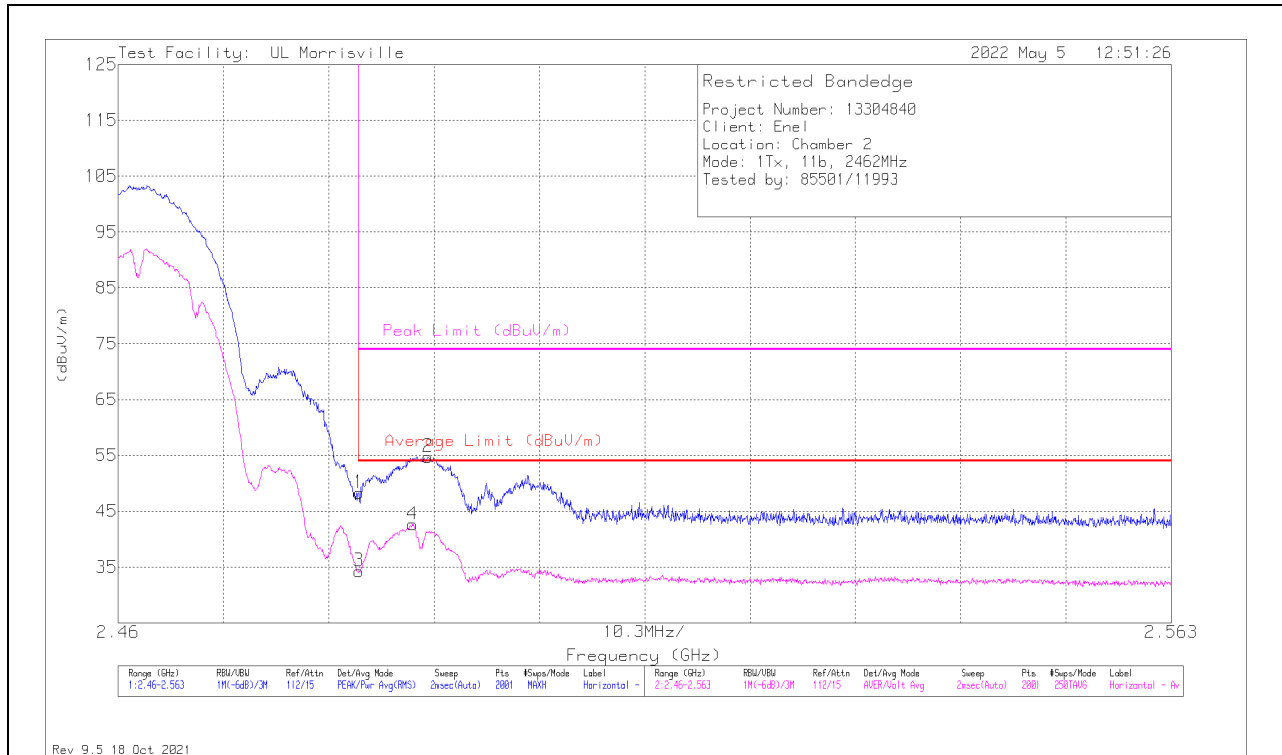


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	40.73	Pk	32	-24.1	0	48.63	-	-	74	-25.37	279	101	V
2	** 2.3834	47.39	Pk	32.1	-24.1	0	55.39	-	-	74	-18.61	279	101	V
3	*** 2.38996	19.79	ADV	32	-24.1	7.98	35.67	54	-18.33	-	-	279	101	V
4	** 2.38376	27.97	ADV	32.1	-24.1	7.98	43.95	54	-10.05	-	-	279	101	V

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

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	40.58	Pk	32.3	-24.6	0	48.28	-	-	74	-25.72	289	368	H
2	*** 2.49028	47.55	Pk	32.4	-25.2	0	54.75	-	-	74	-19.25	289	368	H
3	*** 2.48354	18.59	ADV	32.3	-24.6	7.98	34.27	54	-19.73	-	-	289	368	H
4	*** 2.48879	27.35	ADV	32.4	-25.1	7.98	42.63	54	-11.37	-	-	289	368	H

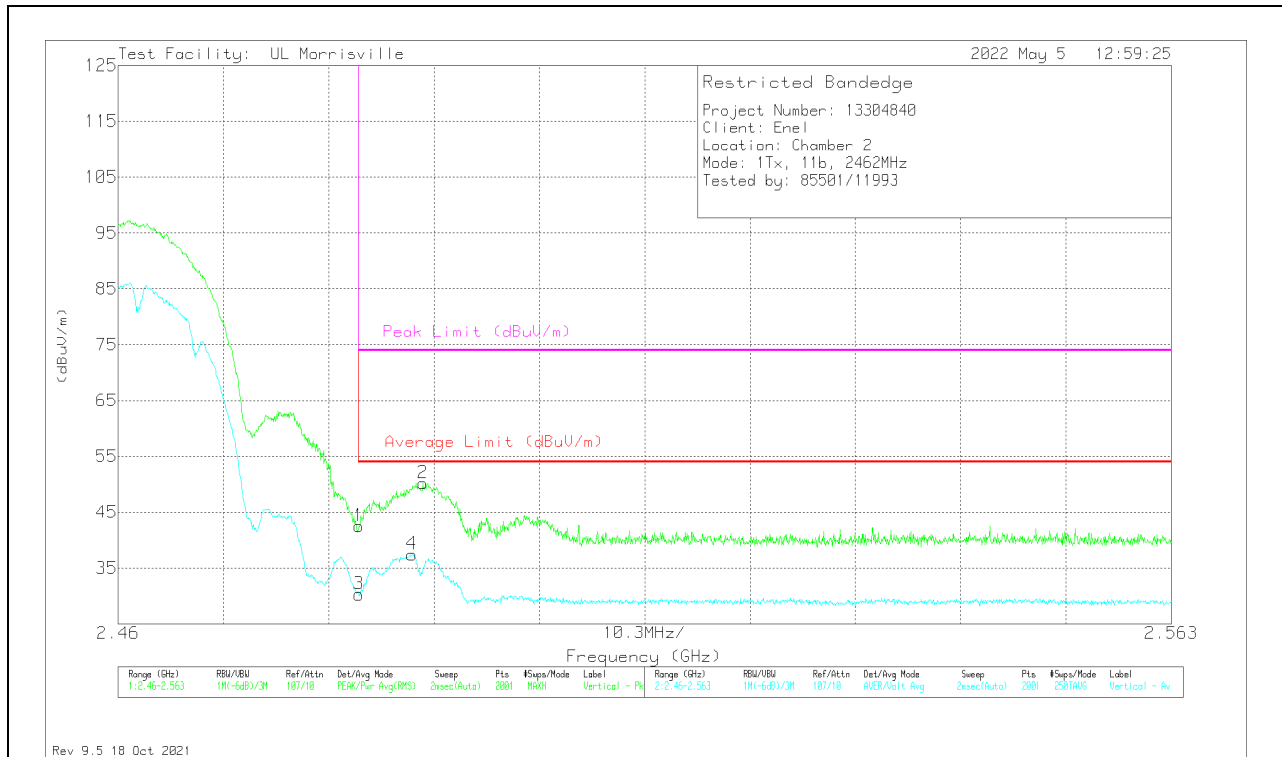
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

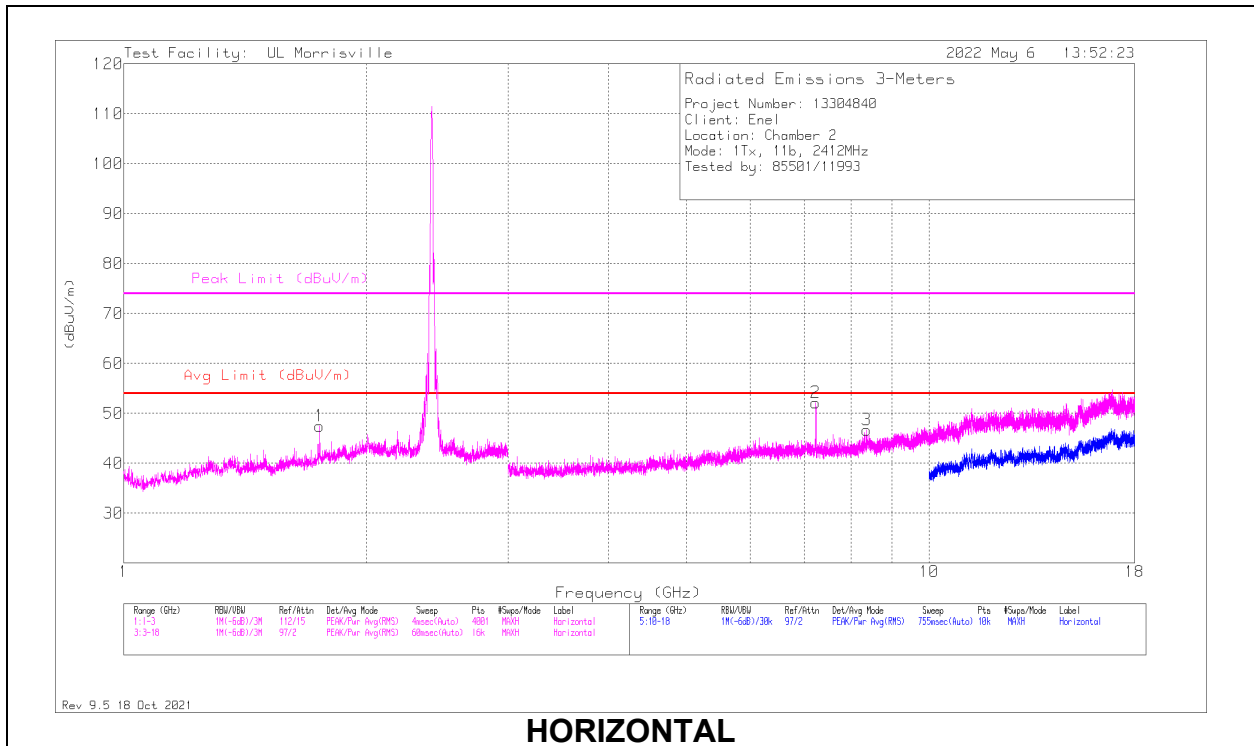


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	34.8	Pk	32.3	-24.6	0	42.5	-	-	74	-31.5	279	314	V
2	*** 2.48982	42.99	Pk	32.4	-25.2	0	50.19	-	-	74	-23.81	279	314	V
3	*** 2.48354	14.61	ADV	32.3	-24.6	7.98	30.29	54	-23.71	-	-	279	314	V
4	*** 2.48874	22.17	ADV	32.4	-25.1	7.98	37.45	54	-16.55	-	-	279	314	V

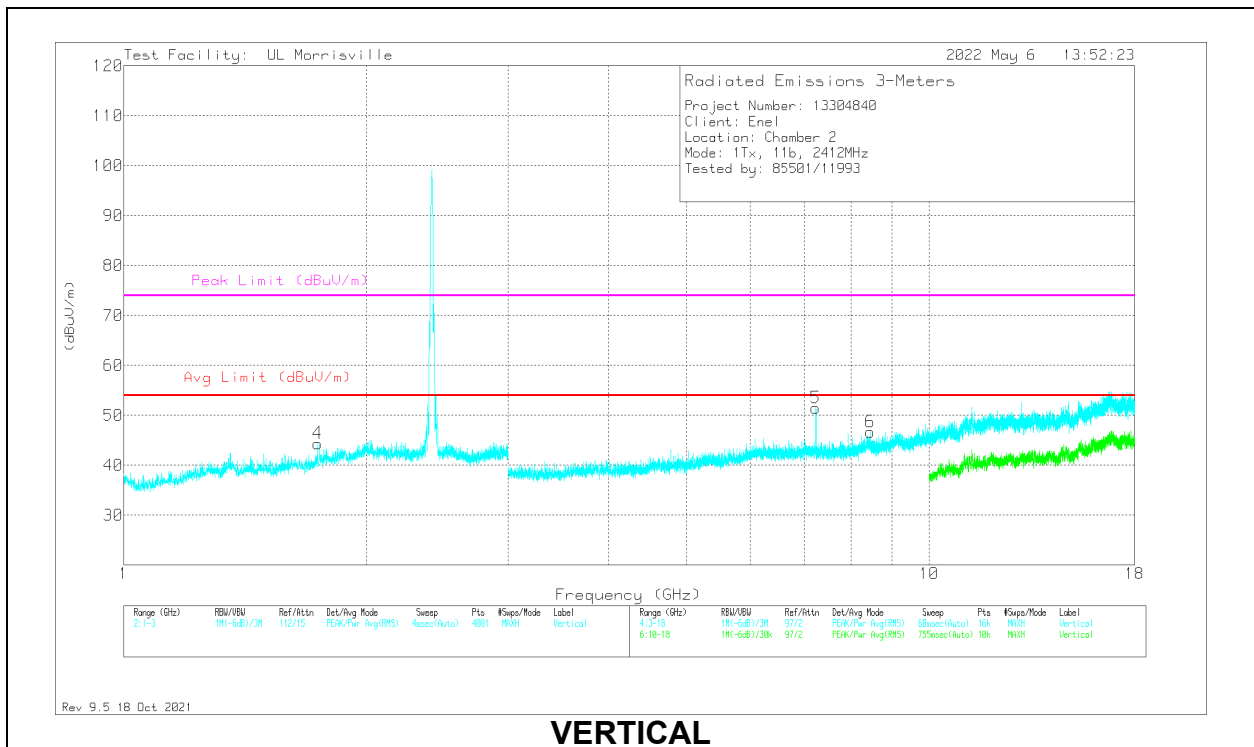
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 ** - indicates frequency in Taiwan NCC LP0002 Restricted Band
 Pk - Peak detector
 ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

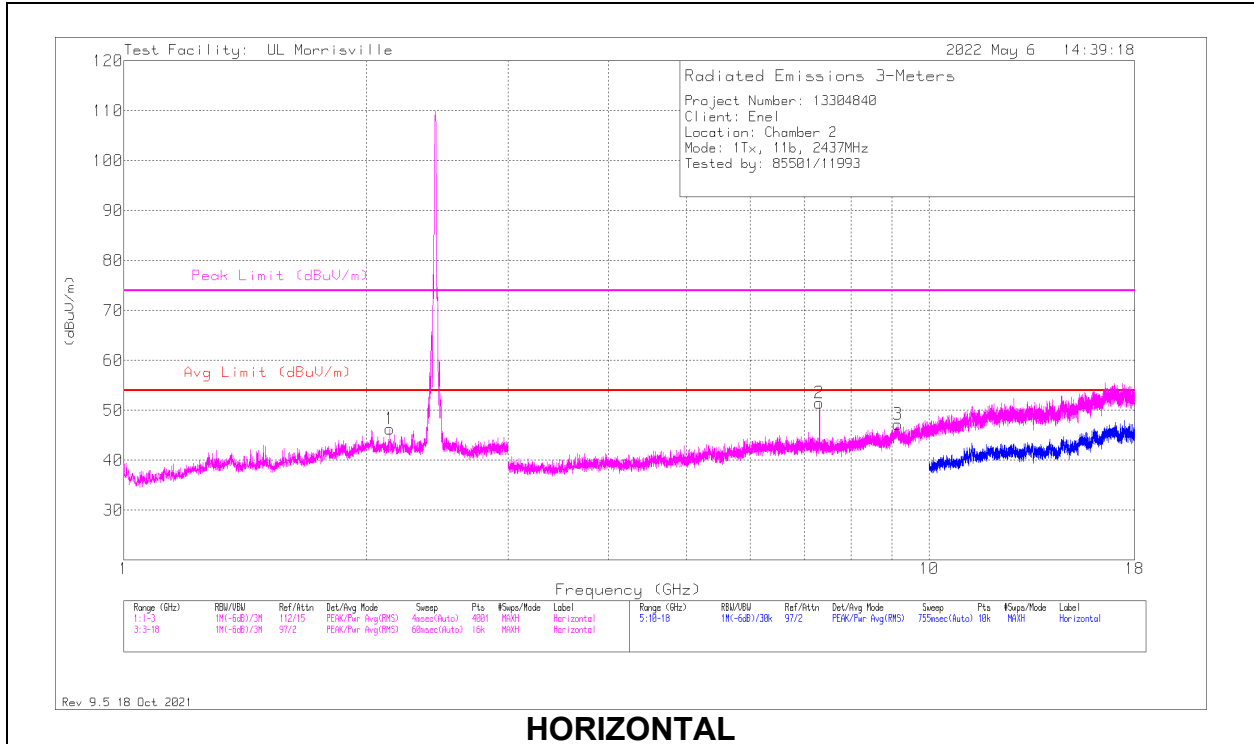
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	** 1.7505	40.5	Pk	29.4	-22.5	0	47.4	54	-6.6	74	-26.6	0-360	199	H
4	** 1.7415	37.7	Pk	29.3	-22.6	0	44.4	54	-9.6	74	-29.6	0-360	199	V
3	* ** 8.36625	37.3	Pk	35.8	-26.4	0	46.7	54	-7.3	74	-27.3	0-360	101	H
6	* ** 8.44688	37.34	Pk	35.8	-26.5	0	46.64	54	-7.36	74	-27.36	0-360	101	V
2	7.23563	43.94	Pk	35.6	-27.4	0	52.14	-	-	74	-21.86	0-360	101	H
5	7.23563	43.32	Pk	35.6	-27.4	0	51.52	-	-	74	-22.48	0-360	101	V

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

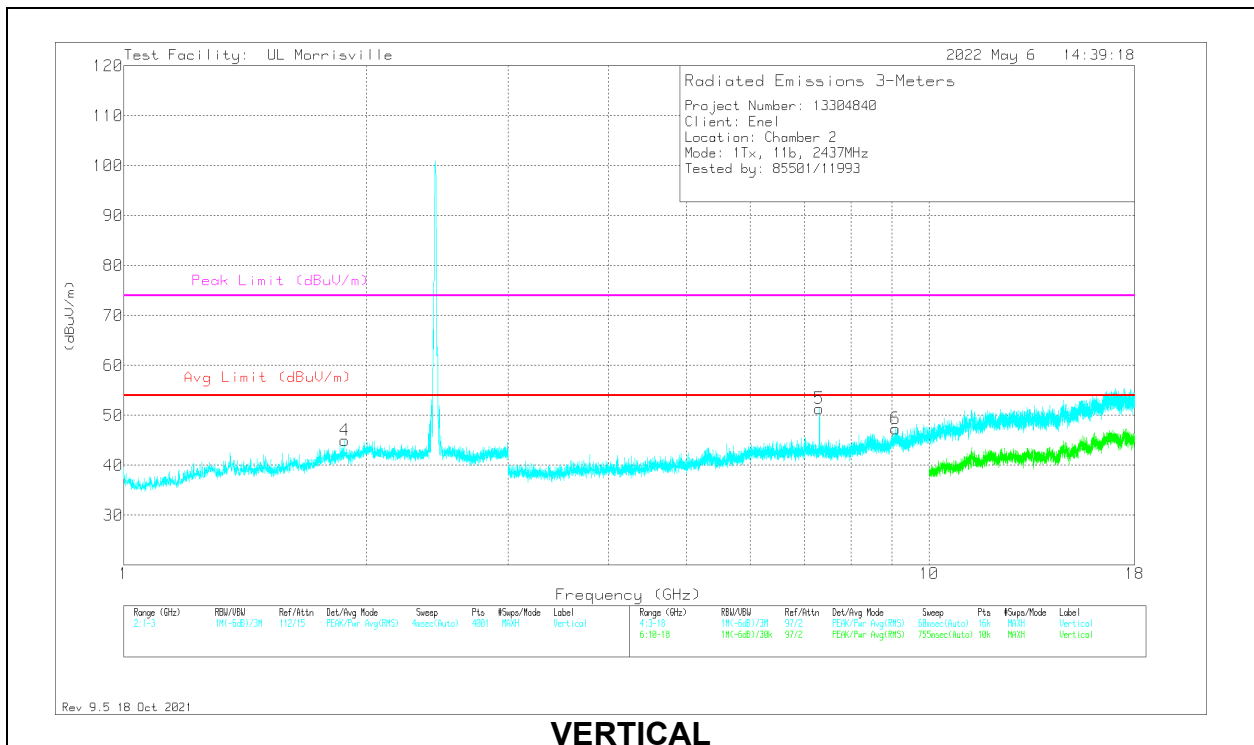
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	** 2.141	38.07	Pk	31.5	-23.3	0	46.27	54	-7.73	74	-27.73	0-360	199	H
4	1.881	36.86	Pk	30.6	-22.5	0	44.96	54	-9.04	74	-29.04	0-360	199	V
2	* ** 7.31132	44.81	PK2	35.6	-26.8	0	53.61	-	-	74	-20.39	319	135	H
	* ** 7.3111	32.71	ADV	35.6	-26.8	7.98	49.49	54	-4.51	-	-	319	135	H
5	* ** 7.31116	44.44	PK2	35.6	-26.8	0	53.24	-	-	74	-20.76	188	115	V
	* ** 7.31104	33.54	ADV	35.6	-26.8	7.98	50.32	54	-3.68	-	-	188	115	V
6	* ** 9.08813	36.67	Pk	36.1	-25.5	0	47.27	54	-6.73	74	-26.73	0-360	200	V
3	* ** 9.14813	36.64	Pk	36.3	-25.8	0	47.14	54	-6.86	74	-26.86	0-360	200	H

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

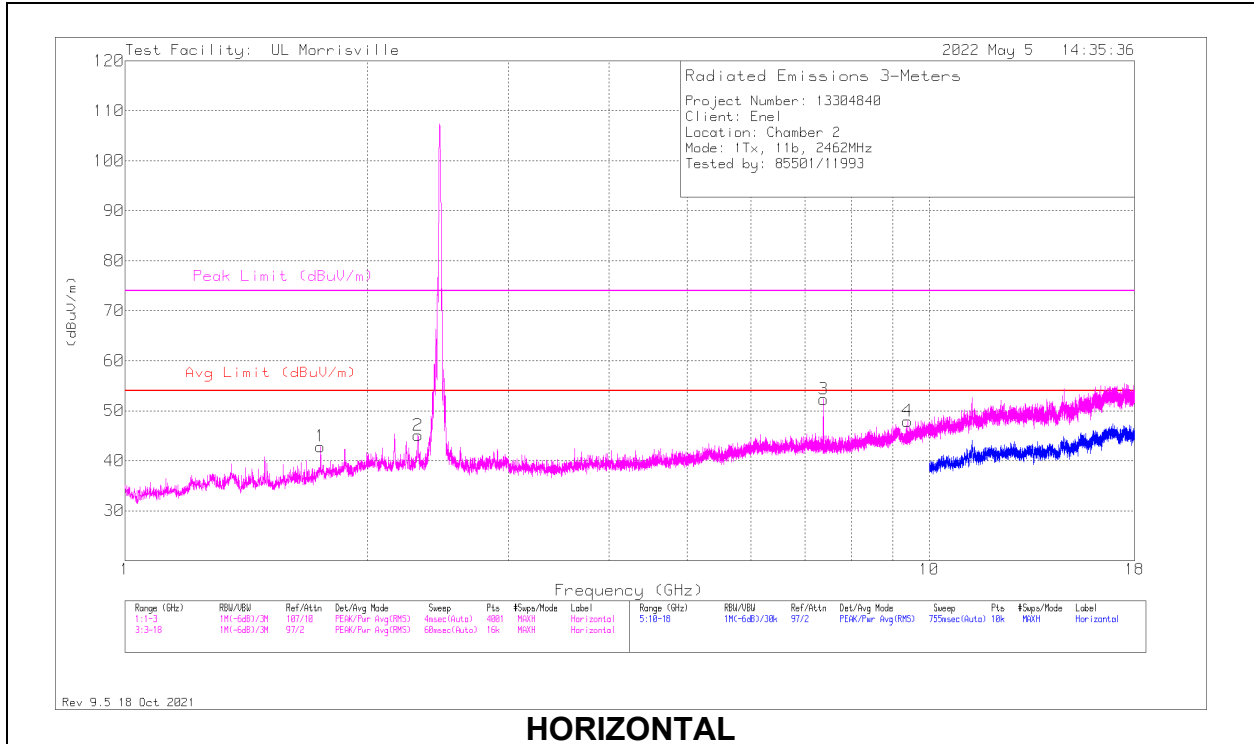
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

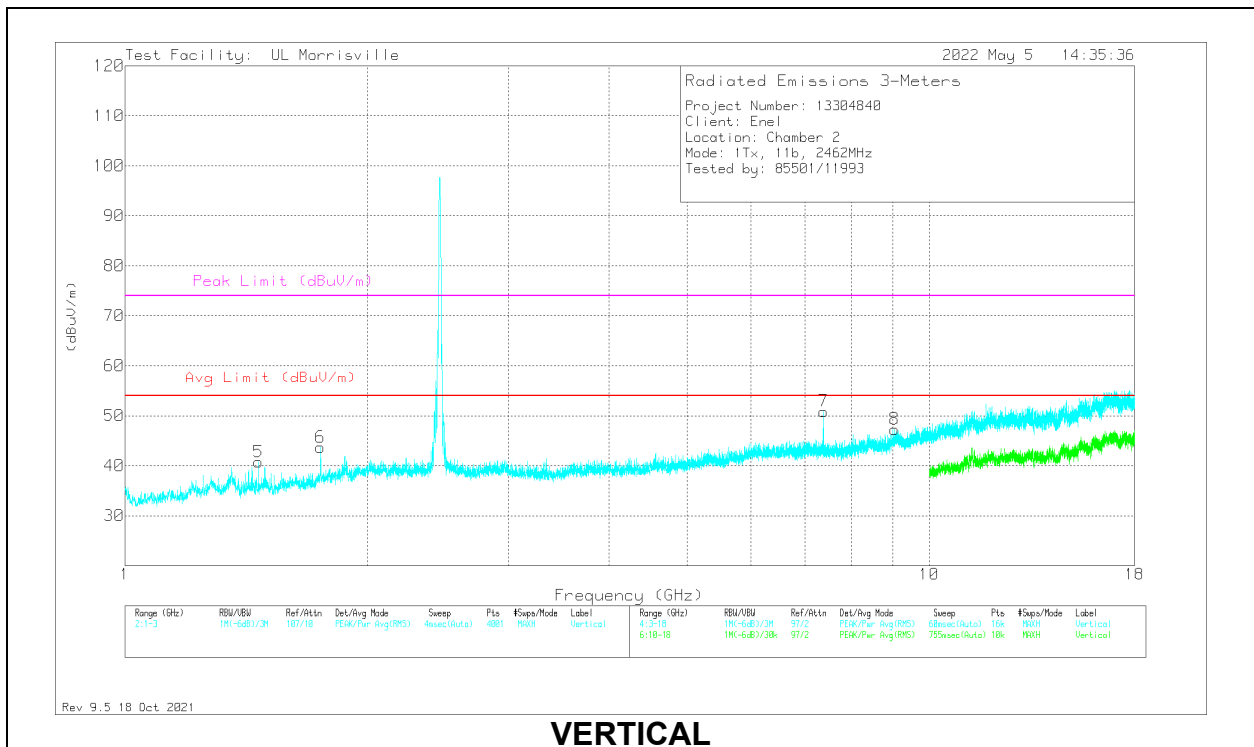
PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	** 1.75	35.95	Pk	29.4	-22.5	0	42.85	54	-11.15	74	-31.15	0-360	199	H
2	*** 2.3135	37.06	Pk	31.7	-23.7	0	45.06	54	-8.94	74	-28.94	0-360	101	H
5	*** 1.4645	35.74	Pk	28.2	-23.2	0	40.74	54	-13.26	74	-33.26	0-360	101	V
6	** 1.75	36.77	Pk	29.4	-22.5	0	43.67	54	-10.33	74	-30.33	0-360	199	V
3	*** 7.38639	46.13	PK2	35.6	-26.9	0	54.83	-	-	74	-19.17	312	151	H
	*** 7.38606	34.9	ADV	35.6	-26.9	7.98	51.58	54	-2.42	-	-	312	151	H
7	*** 7.38626	44.84	PK2	35.6	-26.9	0	53.54	-	-	74	-20.46	47	158	V
	*** 7.3861	33.74	ADV	35.6	-26.9	7.98	50.42	54	-3.58	-	-	47	158	V
8	*** 9.0525	36.98	Pk	36.1	-25.8	0	47.28	54	-6.72	74	-26.72	0-360	199	V
4	*** 9.39656	36.93	Pk	36.5	-25.5	0	47.93	54	-6.07	74	-26.07	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

PK2 - Maximum Peak

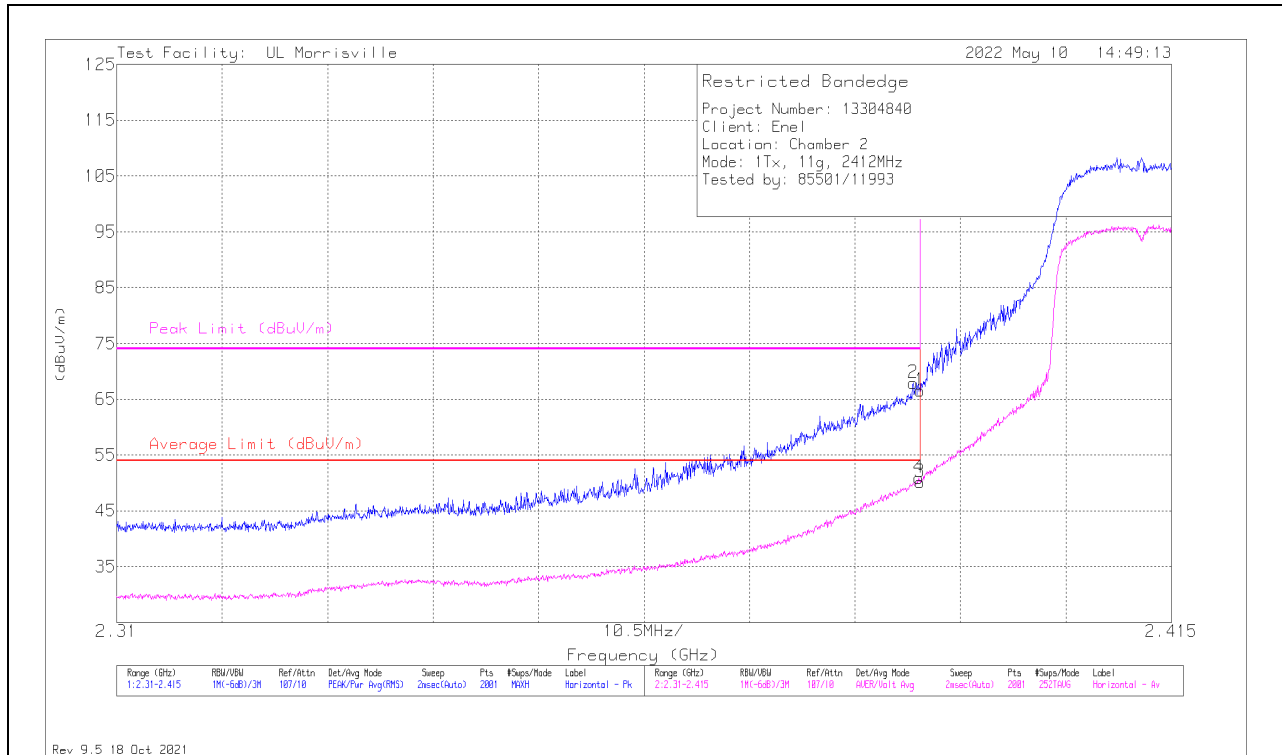
ADV - Linear Voltage Average

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

1TX Antenna 1 MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	58.62	Pk	32	-24.1	0	66.52	-	-	74	-7.48	201	341	H
2	*** 2.38928	60.03	Pk	32	-24.1	0	67.93	-	-	74	-6.07	201	341	H
3	*** 2.38996	34.27	ADV	32	-24.1	8.04	50.21	54	-3.79	-	-	201	341	H
4	*** 2.38985	34.97	ADV	32	-24.1	8.04	50.91	54	-3.09	-	-	201	341	H

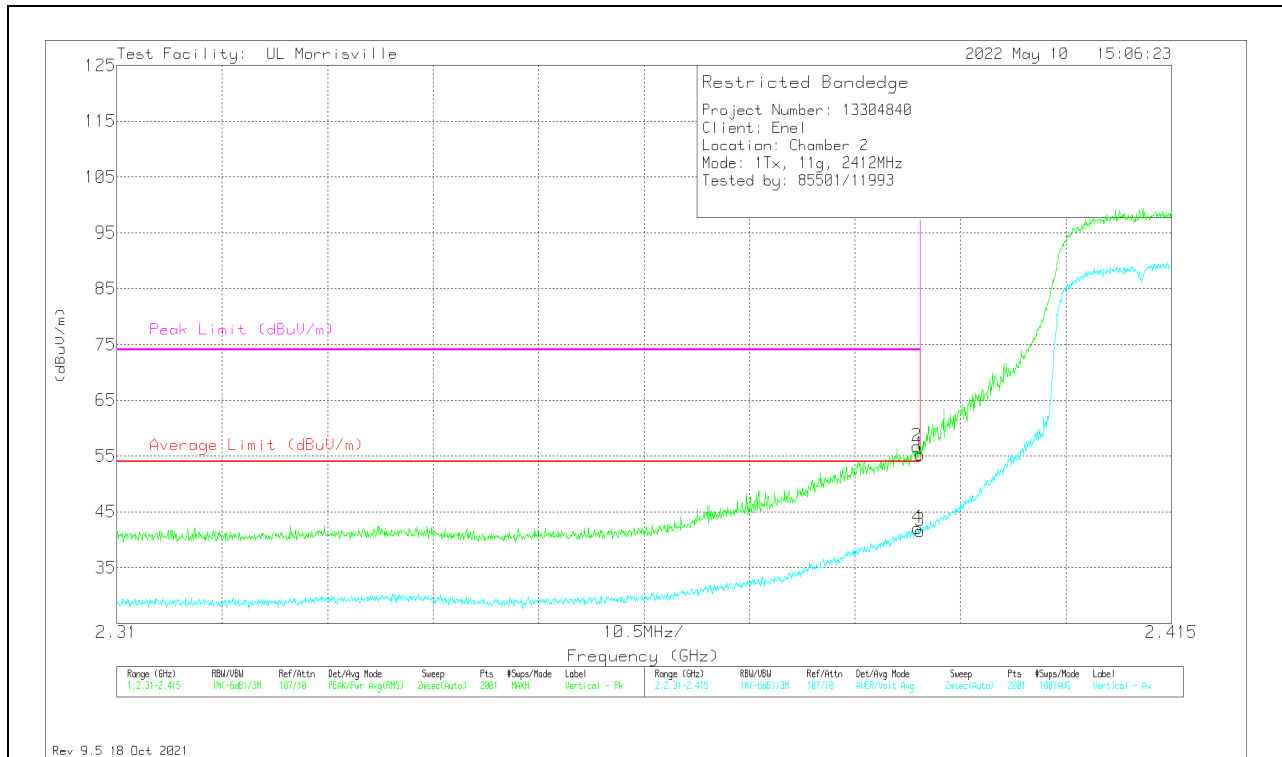
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

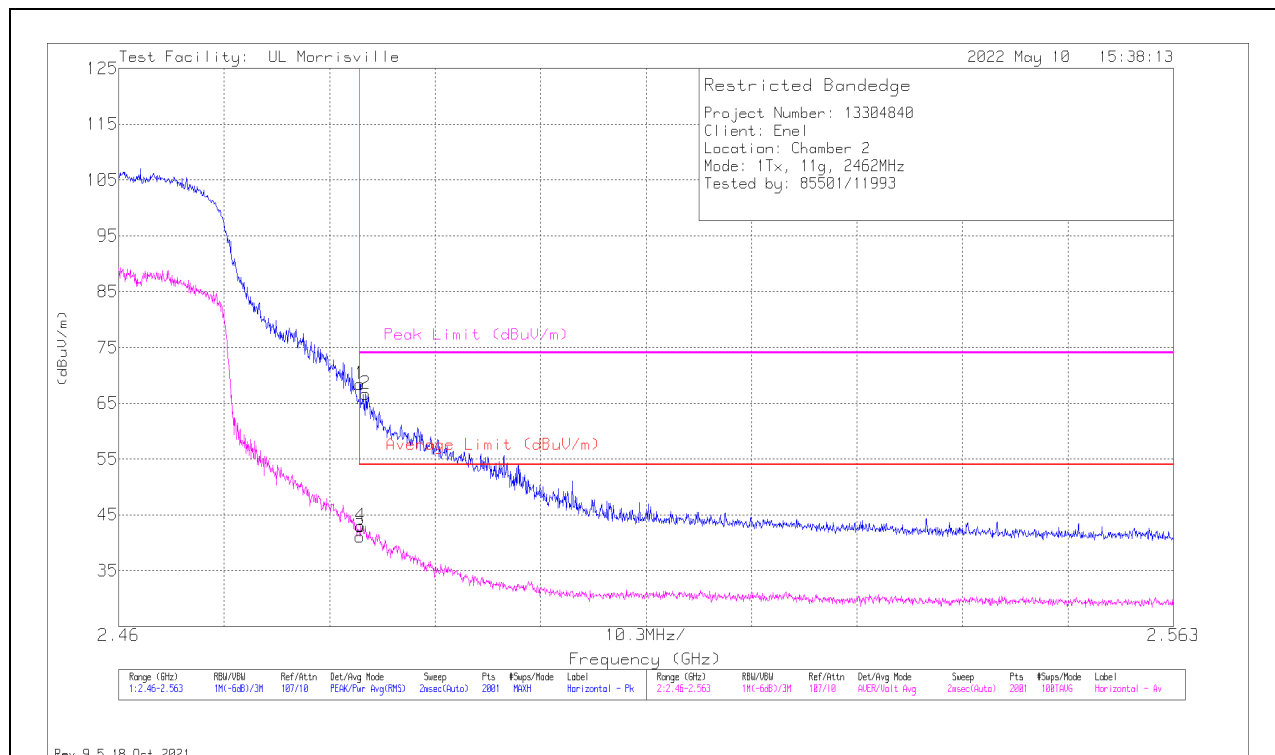


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	47.38	Pk	32	-24.1	0	55.28	-	-	74	-18.72	284	168	V
2	** 2.3897	48.84	Pk	32	-24.1	0	56.74	-	-	74	-17.26	284	168	V
3	*** 2.38996	25.68	ADV	32	-24.1	8.04	41.62	54	-12.38	-	-	284	168	V
4	*** 2.38975	26.2	ADV	32	-24.1	8.04	42.14	54	-11.86	-	-	284	168	V

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

BANDEDGE (HIGH CHANNEL, CH 11)

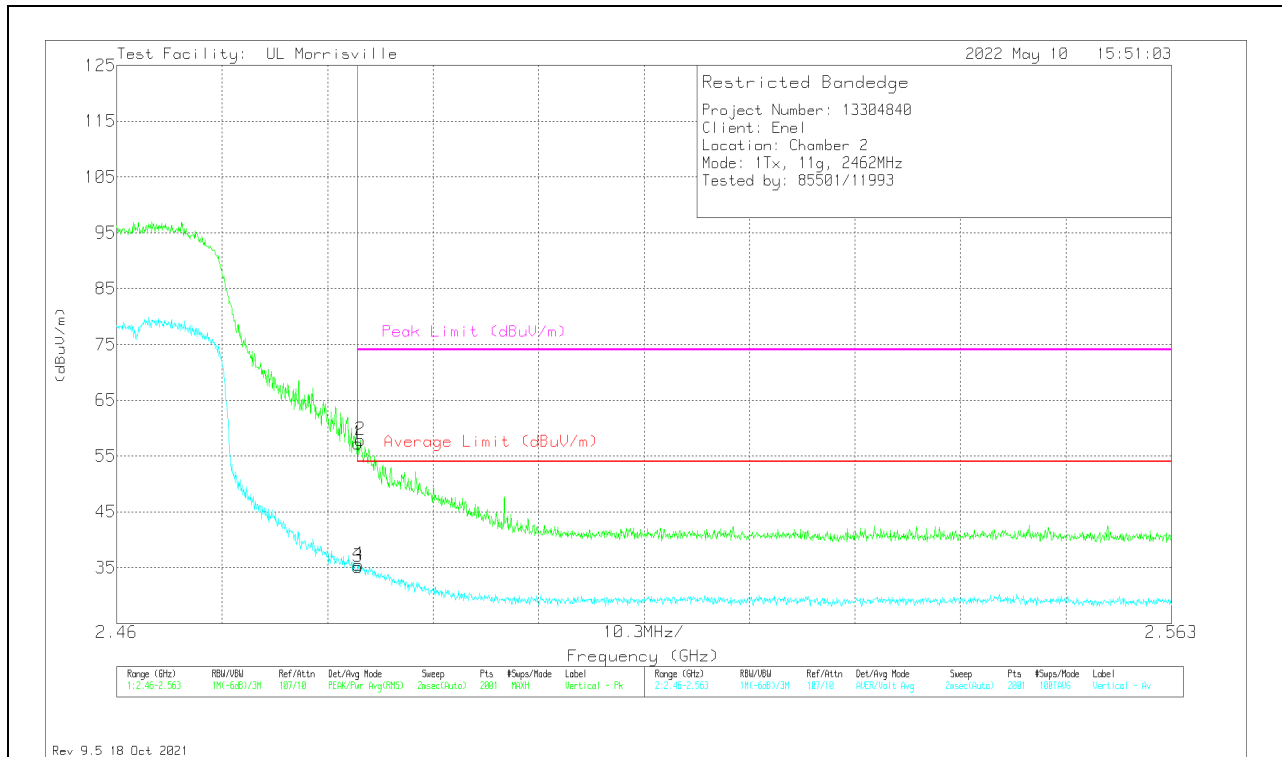
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	60.72	Pk	32.3	-24.6	0	68.42	-	-	74	-5.58	226	147	H
2	*** 2.4841	59.03	Pk	32.3	-24.7	0	66.63	-	-	74	-7.37	226	147	H
3	*** 2.48354	25.38	ADV	32.3	-24.6	8.04	41.12	54	-12.88	-	-	226	147	H
4	*** 2.48364	27.24	ADV	32.3	-24.6	8.04	42.98	54	-11.02	-	-	226	147	H

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

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	49.58	Pk	32.3	-24.6	0	57.28	-	-	74	-16.72	284	349	V
2	*** 2.48379	50.19	Pk	32.3	-24.6	0	57.89	-	-	74	-16.11	284	349	V
3	*** 2.48354	19.42	ADV	32.3	-24.6	8.04	35.16	54	-18.84	-	-	284	349	V
4	*** 2.48359	19.75	ADV	32.3	-24.6	8.04	35.49	54	-18.51	-	-	284	349	V

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

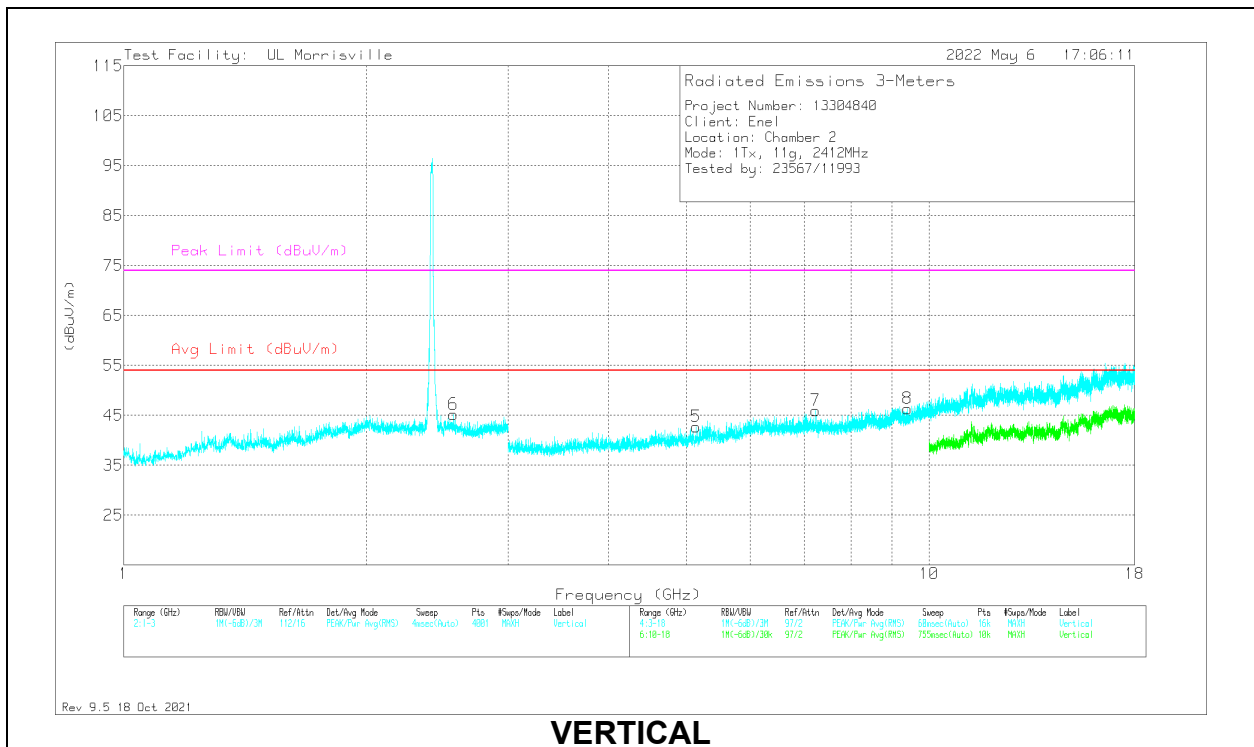
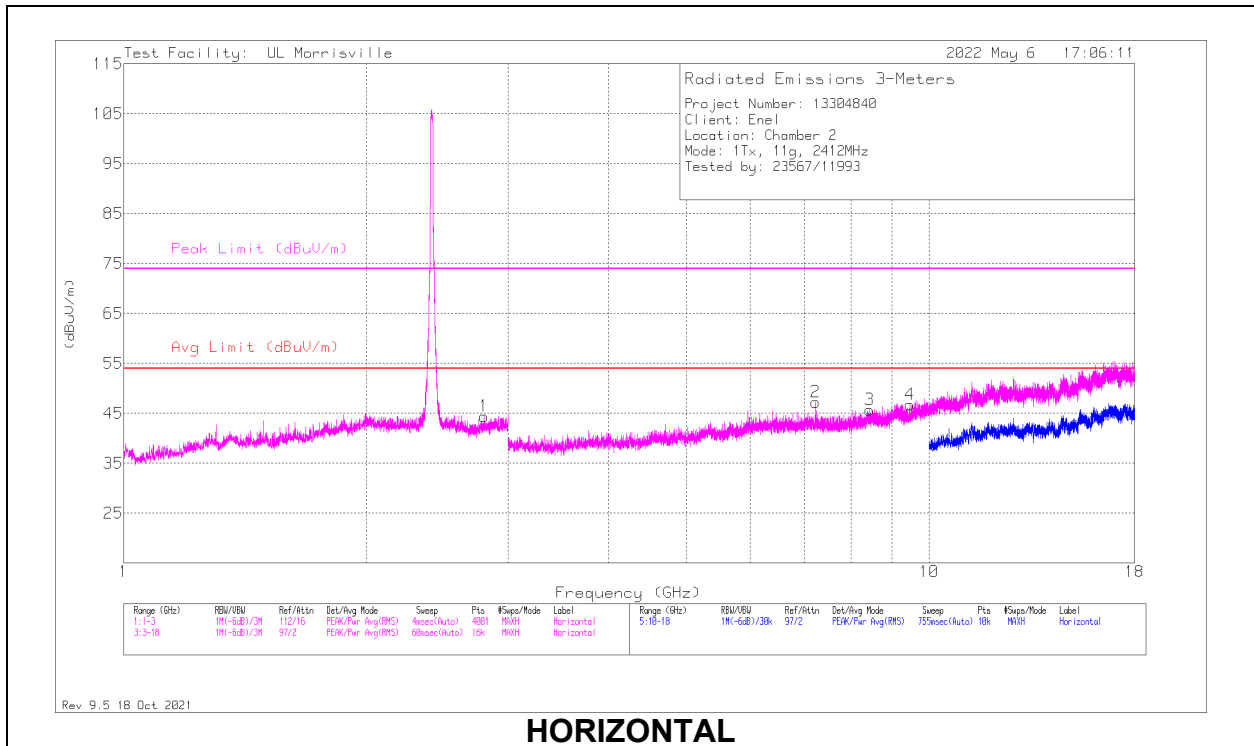
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

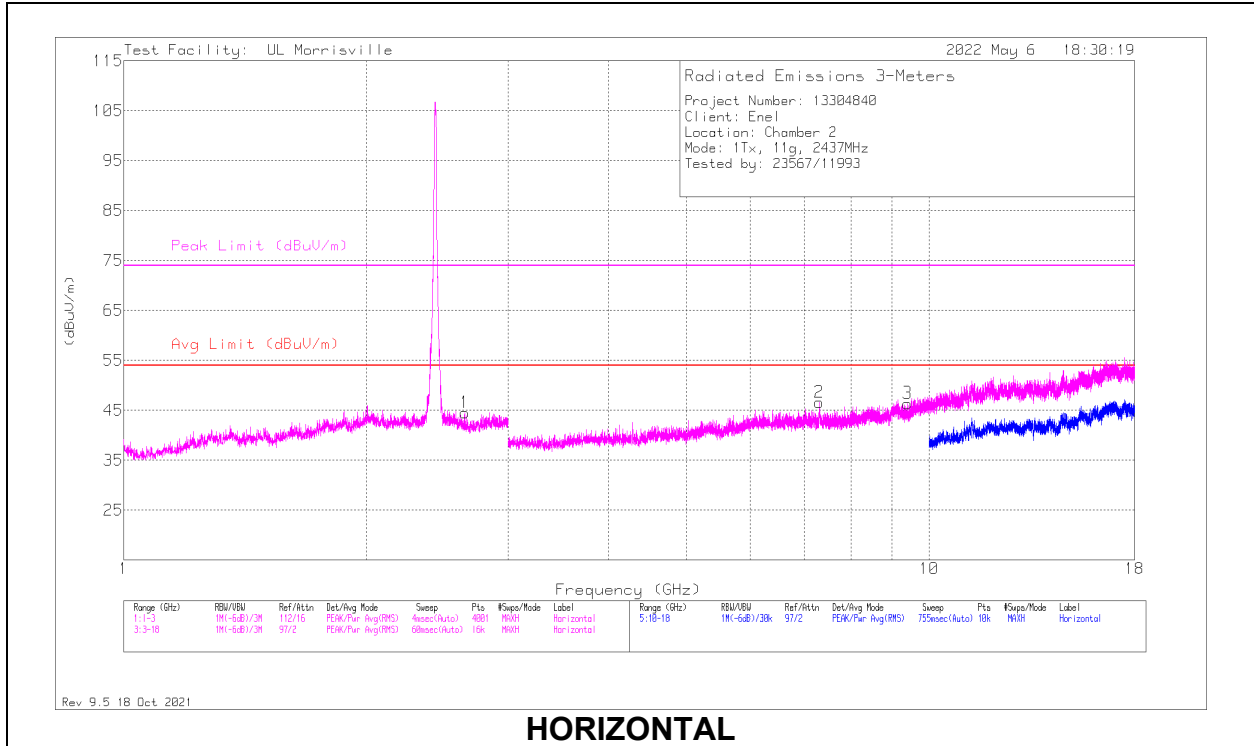
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	*** 8.44313	36.46	Pk	35.8	-26.5	45.76	54	-8.24	74	-28.24	0-360	101	H
4	*** 9.47156	35.99	Pk	36.6	-25.8	46.79	54	-7.21	74	-27.21	0-360	101	H
5	*** 5.13656	38.99	Pk	34.2	-30.5	42.69	54	-11.31	74	-31.31	0-360	200	V
8	*** 9.405	35.49	Pk	36.5	-25.6	46.39	54	-7.61	74	-27.61	0-360	200	V
2	7.23563	39.11	Pk	35.6	-27.4	47.31	54	-6.69	74	-26.69	0-360	101	H
7	7.23563	37.78	Pk	35.6	-27.4	45.98	54	-8.02	74	-28.02	0-360	101	V
1	* ** 2.8	37.96	Pk	32.3	-25.8	44.46	54	-9.54	74	-29.54	0-360	200	H
6	** 2.568	37.64	Pk	32.4	-24.8	45.24	54	-8.76	74	-28.76	0-360	101	V

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

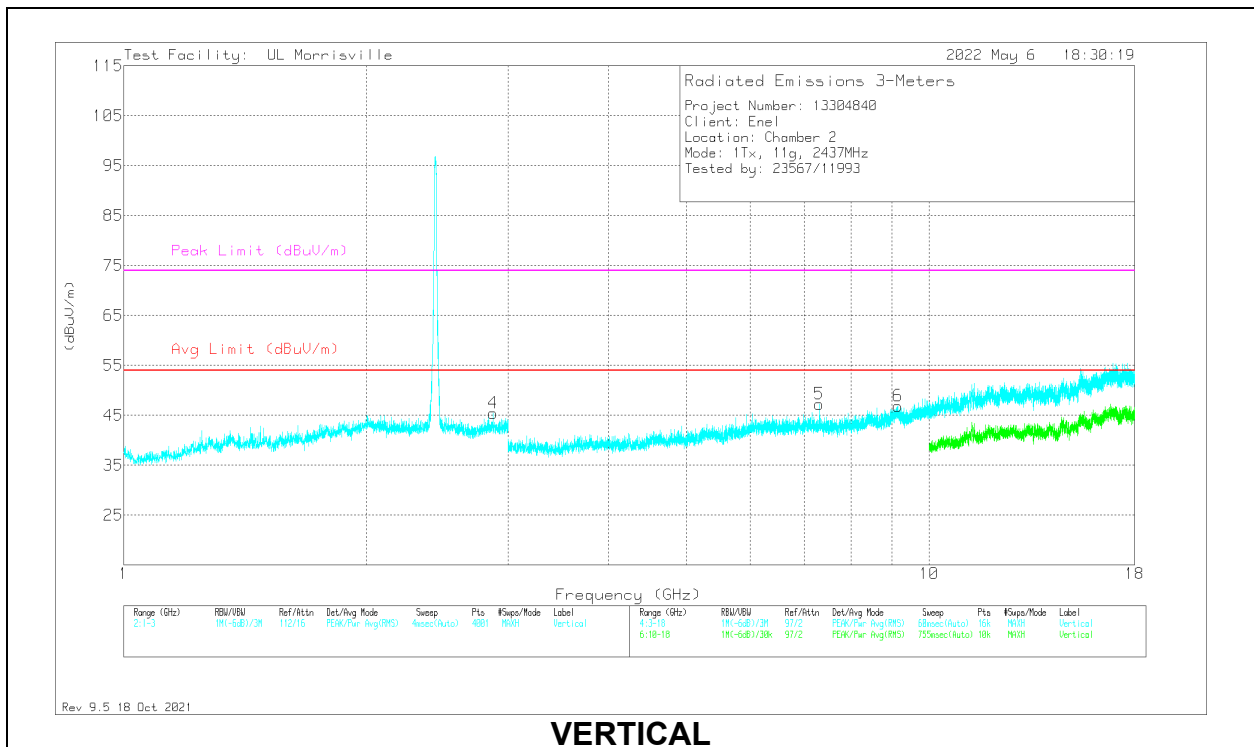
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

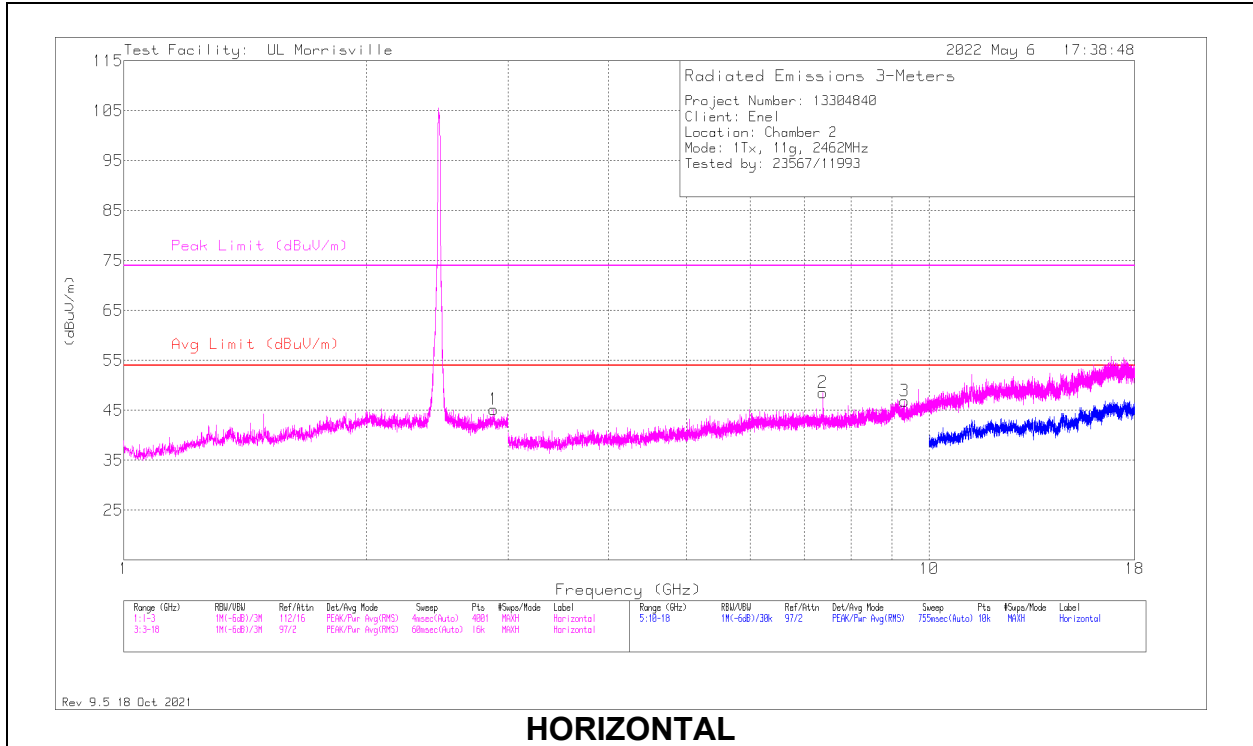
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 7.31063	37.76	Pk	35.6	-26.8	46.56	54	-7.44	74	-27.44	0-360	101	H
5	*** 7.31063	38.5	Pk	35.6	-26.8	47.3	54	-6.7	74	-26.7	0-360	101	V
6	*** 9.14625	36.41	Pk	36.2	-25.8	46.81	54	-7.19	74	-27.19	0-360	199	V
3	*** 9.39844	35.21	Pk	36.5	-25.3	46.41	54	-7.59	74	-27.59	0-360	199	H
1	** 2.65	37.91	Pk	32.1	-25.5	44.51	54	-9.49	74	-29.49	0-360	101	H
4	*** 2.873	39.03	Pk	32.4	-26	45.43	54	-8.57	74	-28.57	0-360	199	V

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

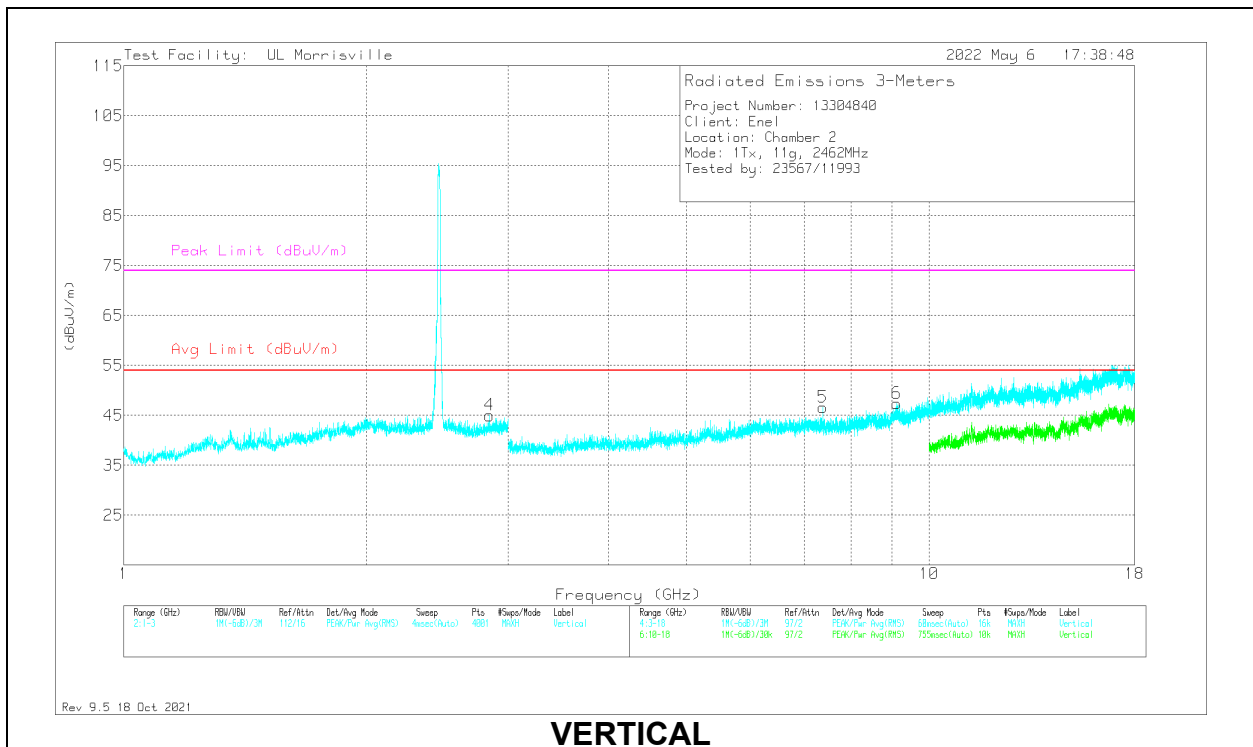
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 7.38636	44.28	PK2	35.6	-26.9	0	52.98	-	-	74	-21.02	336	193	H
	*** 7.38603	33.54	ADV	35.6	-26.9	8.04	50.28	54	-3.72	-	-	336	193	H
5	*** 7.38563	38.02	Pk	35.6	-27	0	46.62	54	-7.38	74	-27.38	0-360	101	V
6	*** 9.12375	36.64	Pk	36.2	-25.5	0	47.34	54	-6.66	74	-26.66	0-360	199	V
3	*** 9.31969	36.31	Pk	36.4	-25.9	0	46.81	54	-7.19	74	-27.19	0-360	101	H
1	*** 2.88	38.54	Pk	32.5	-25.8	0	45.24	54	-8.76	74	-28.76	0-360	199	H
4	*** 2.846	38.79	Pk	32.3	-26.1	0	44.99	54	-9.01	74	-29.01	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

PK2 - Maximum Peak

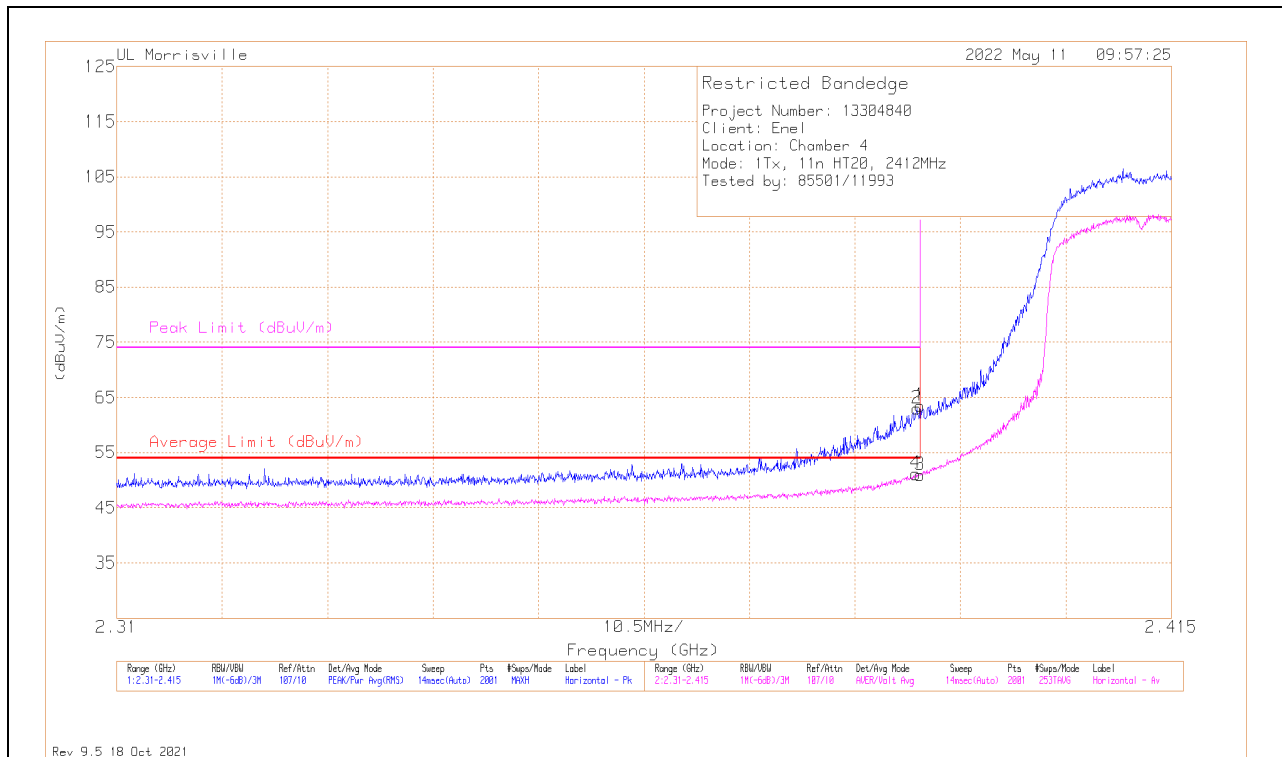
ADV - Linear Voltage Average

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

1TX Antenna 1 MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	45.43	Pk	31.9	-13.8	0	63.53	-	-	74	-10.47	208	146	H
2	*** 2.3897	44.88	Pk	31.9	-13.8	0	62.98	-	-	74	-11.02	208	146	H
3	*** 2.38996	24.79	ADV	31.9	-13.8	8.06	50.95	54	-3.05	-	-	208	146	H
4	*** 2.38954	24.97	ADV	31.9	-13.8	8.06	51.13	54	-2.87	-	-	208	146	H

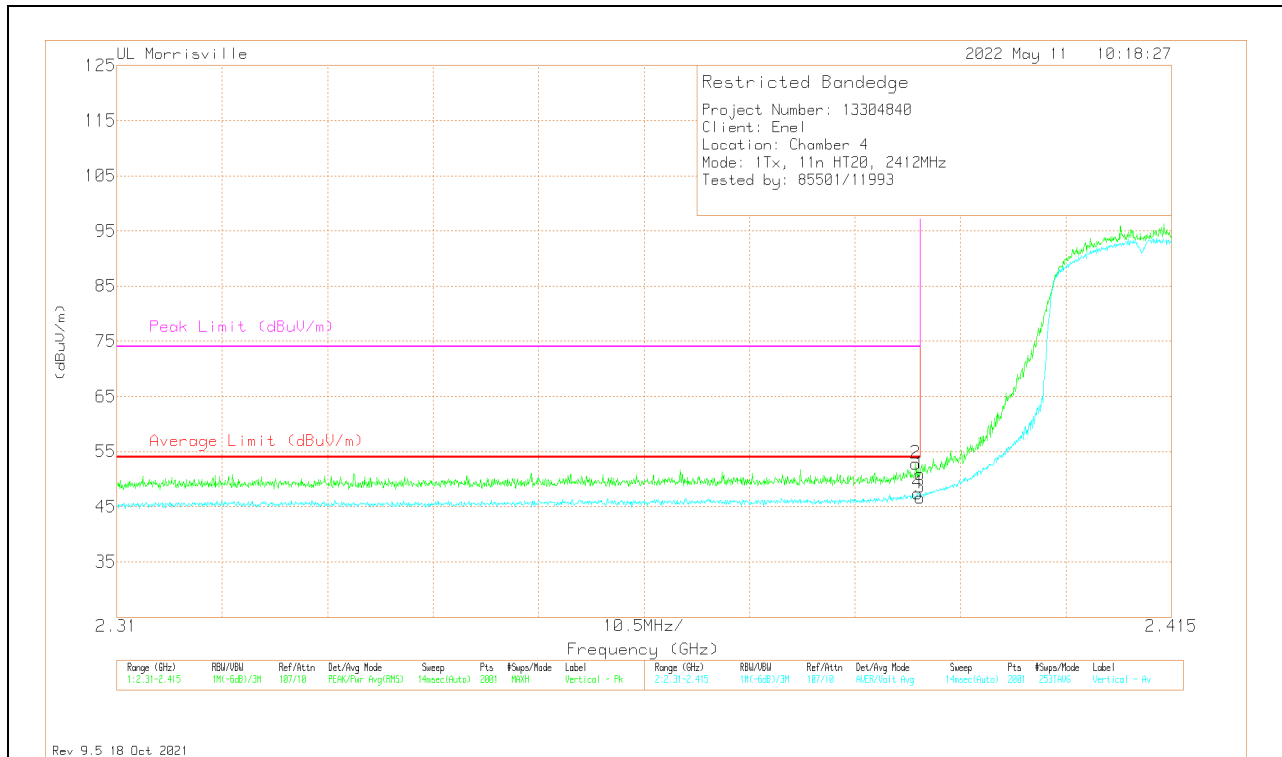
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

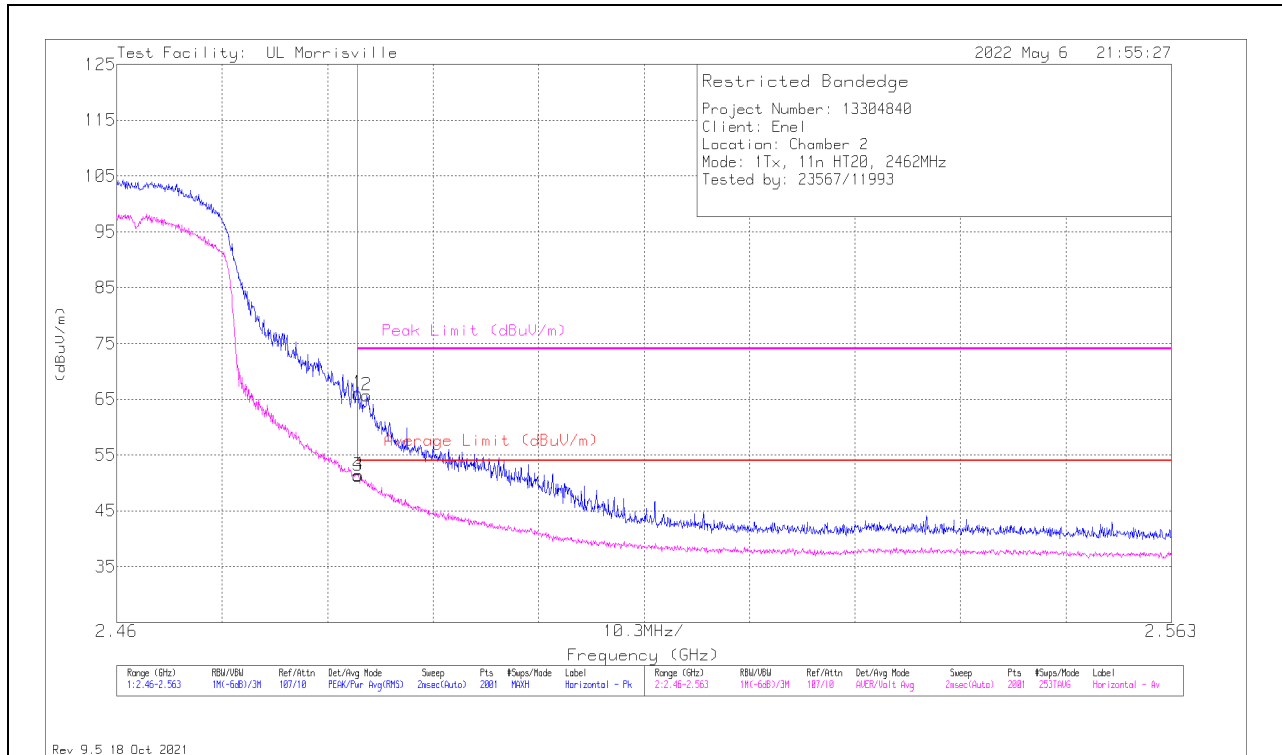


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	32.88	Pk	31.9	-13.8	0	50.98	-	-	74	-23.02	198	242	V
2	*** 2.38954	34.76	Pk	31.9	-13.8	0	52.86	-	-	74	-21.14	198	242	V
3	*** 2.38996	20.49	ADV	31.9	-13.8	8.06	46.65	54	-7.35	-	-	198	242	V
4	*** 2.38975	21.3	ADV	31.9	-13.8	8.06	47.46	54	-6.54	-	-	198	242	V

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

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	58.3	Pk	32.3	-24.6	0	66	-	-	74	-8	180	108	H
2	*** 2.48441	58.04	Pk	32.3	-24.7	0	65.64	-	-	74	-8.36	180	108	H
3	*** 2.48354	35.55	ADV	32.3	-24.6	8.06	51.31	54	-2.69	-	-	180	108	H
4	*** 2.48359	35.66	ADV	32.3	-24.6	8.06	51.42	54	-2.58	-	-	180	108	H

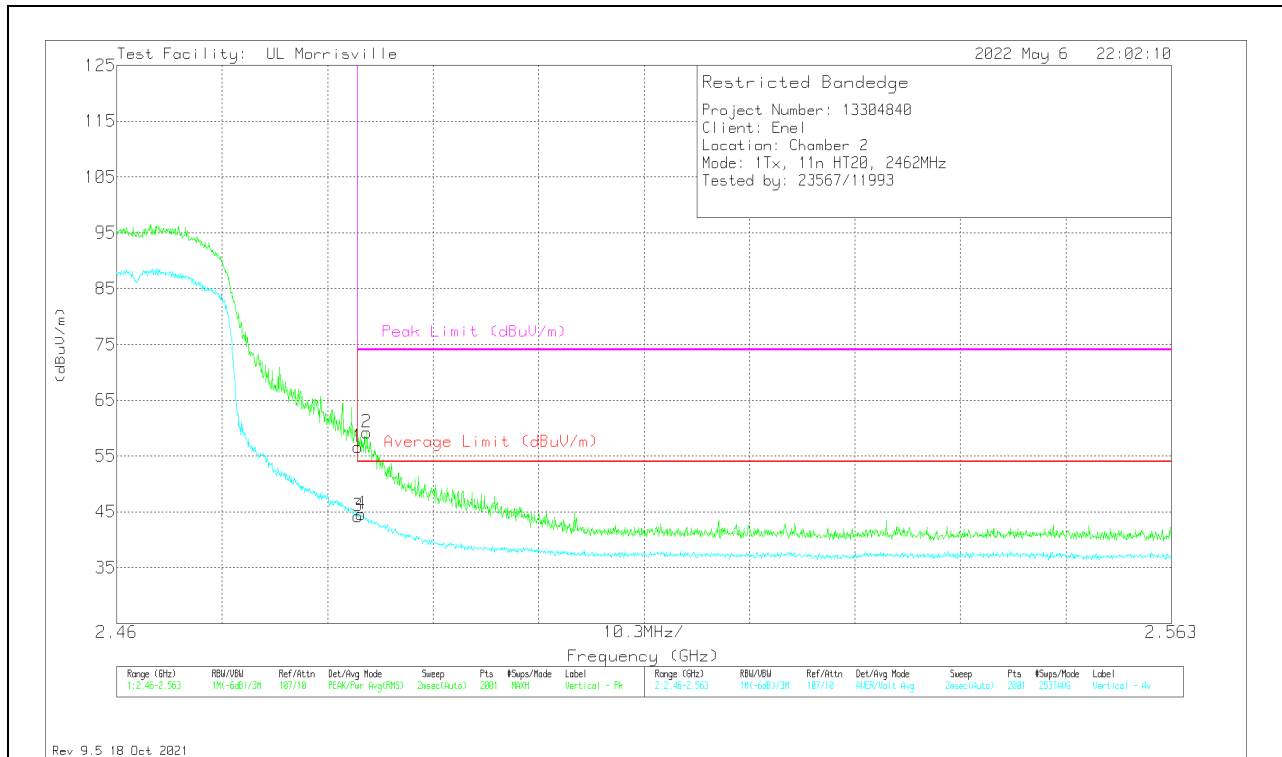
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

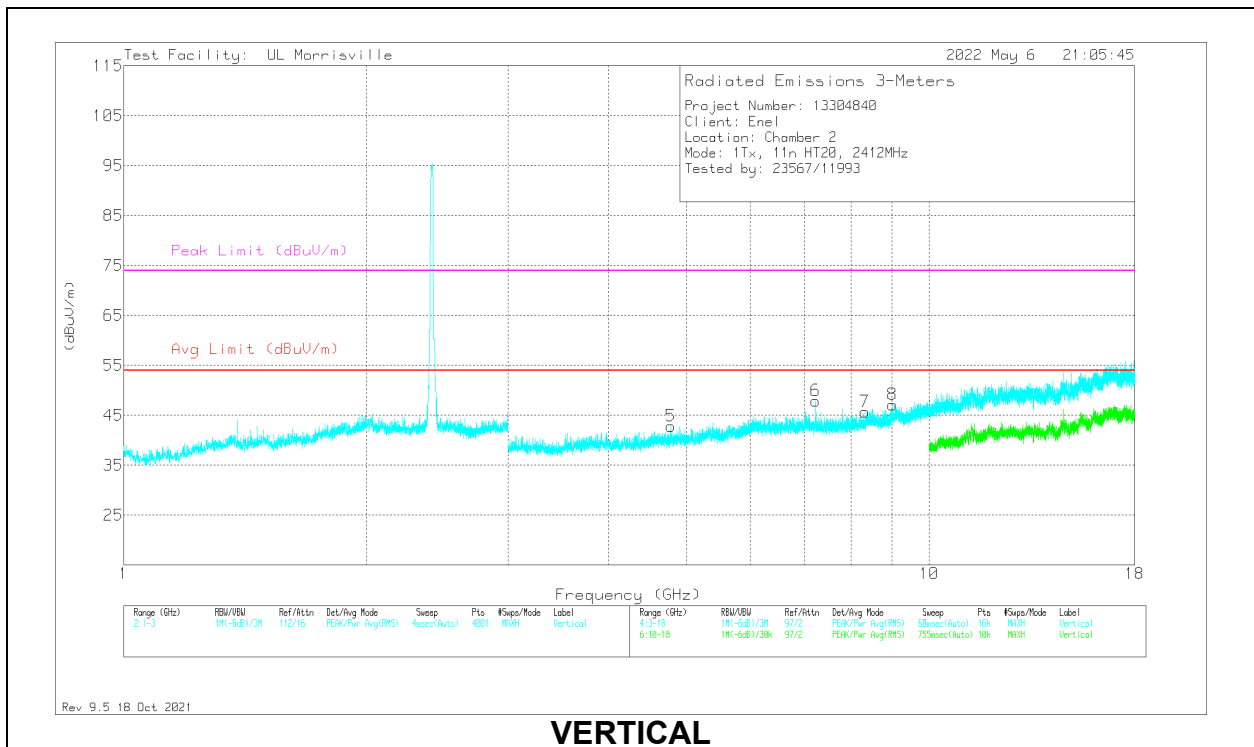
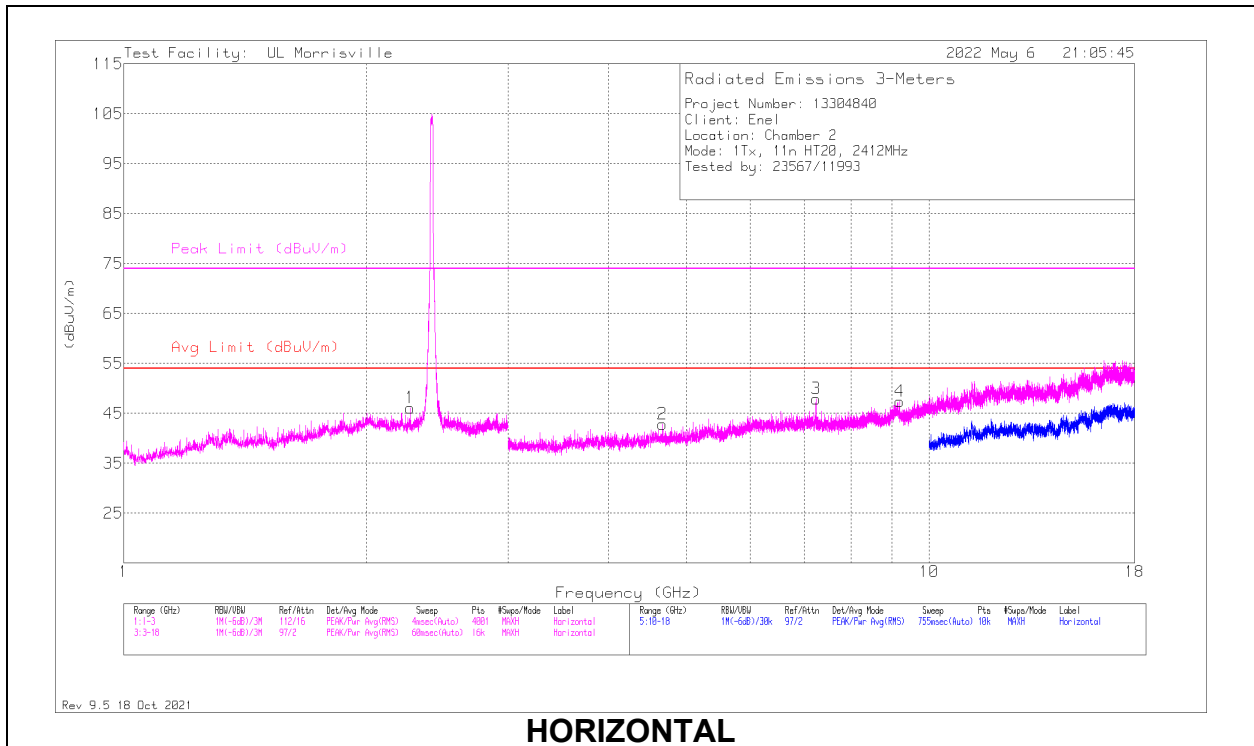


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	48.87	Pk	32.3	-24.6	0	56.57	-	-	74	-17.43	217	165	V
2	*** 2.48441	51.67	Pk	32.3	-24.7	0	59.27	-	-	74	-14.73	217	165	V
3	*** 2.48354	28.5	ADV	32.3	-24.6	8.06	44.26	54	-9.74	-	-	217	165	V
4	*** 2.48384	28.84	ADV	32.3	-24.6	8.06	44.6	54	-9.4	-	-	217	165	V

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

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

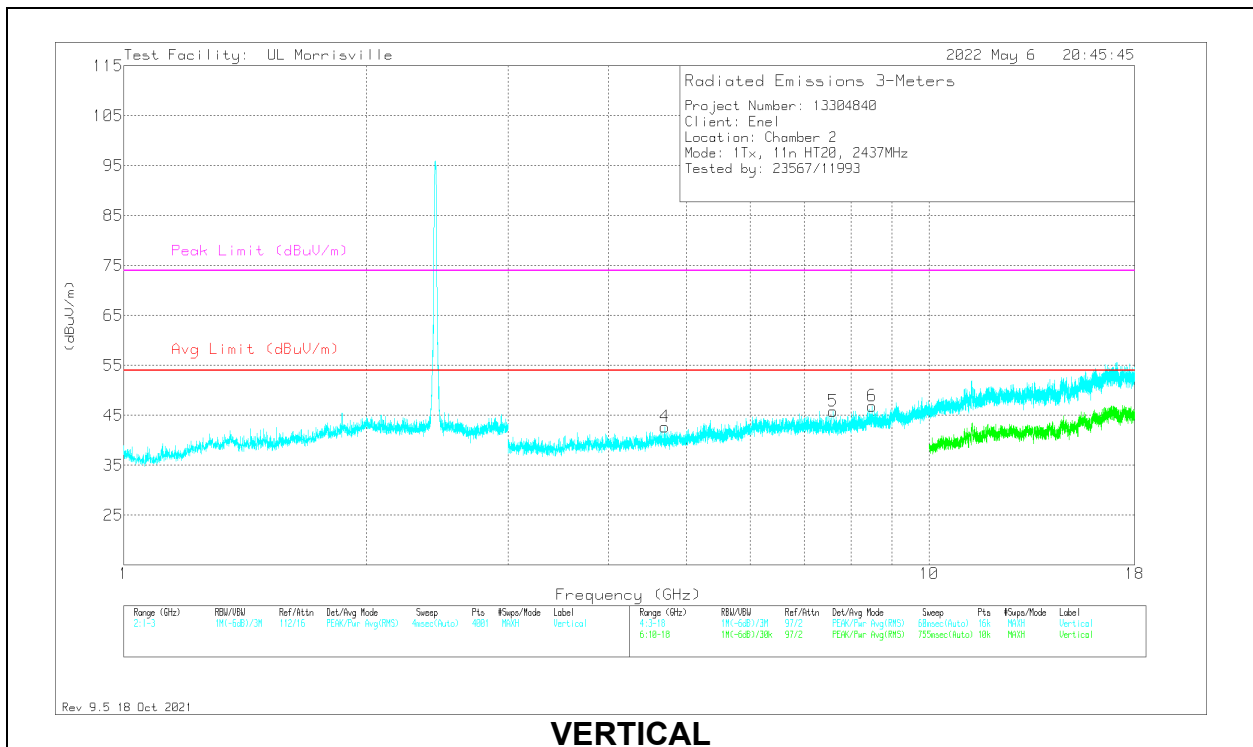
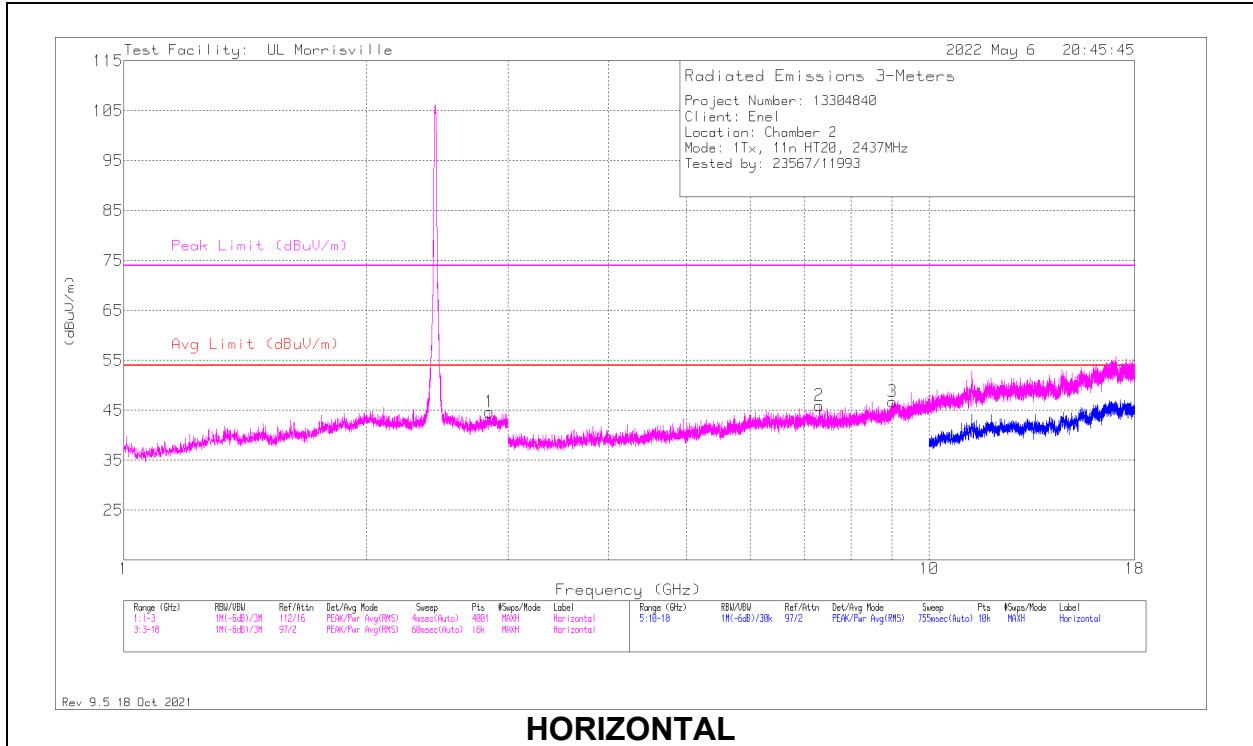
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 4.66781	39.74	Pk	34.2	-31.1	42.84	54	-11.16	74	-31.16	0-360	101	H
5	*** 4.77938	39.64	Pk	34	-30.8	42.84	54	-11.16	74	-31.16	0-360	101	V
7	*** 8.31938	36.41	Pk	35.8	-26.5	45.71	54	-8.29	74	-28.29	0-360	200	V
8	*** 9.01031	37.34	Pk	36	-26.2	47.14	54	-6.86	74	-26.86	0-360	101	V
4	*** 9.18938	36.55	Pk	36.3	-25.5	47.35	54	-6.65	74	-26.65	0-360	101	H
6	7.23563	39.74	Pk	35.6	-27.4	47.94	-	-	74	-26.06	0-360	101	V
3	7.24031	39.21	Pk	35.6	-26.9	47.91	-	-	74	-26.09	0-360	101	H
1	*** 2.2665	38.26	Pk	31.6	-23.8	46.06	54	-7.94	74	-27.94	0-360	199	H

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS

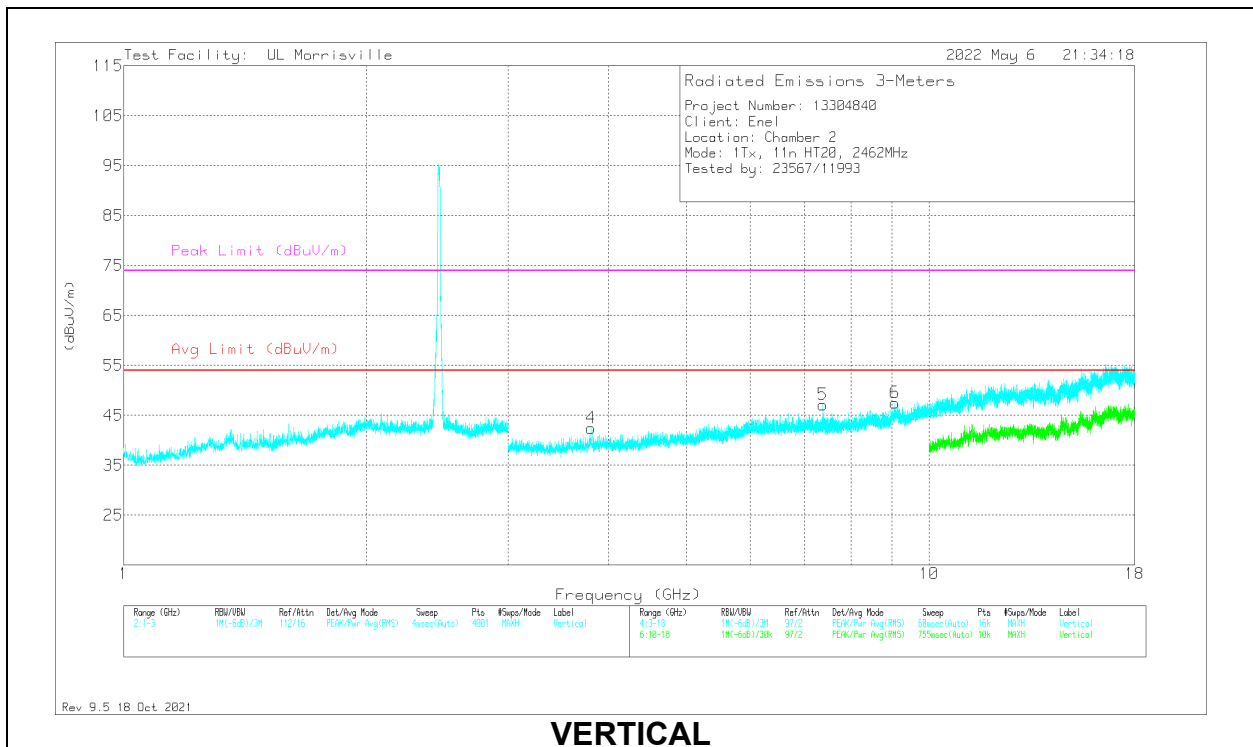
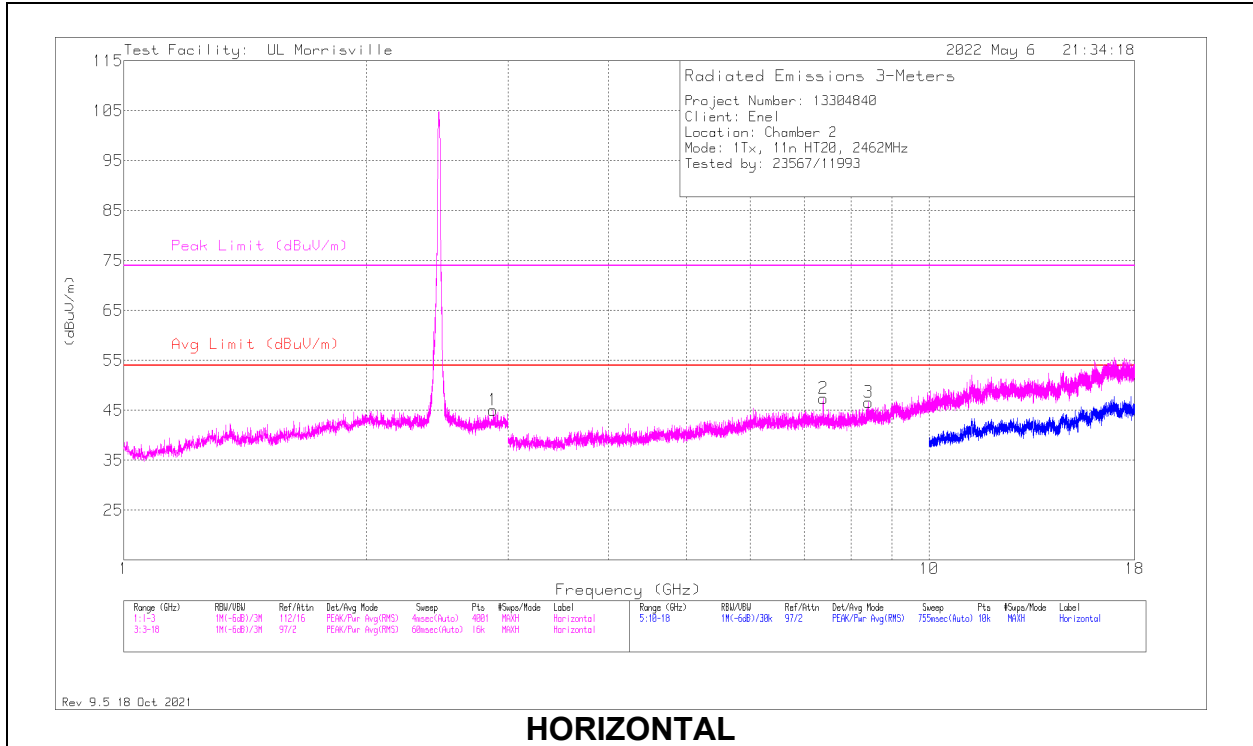


RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	*** 4.695	39.75	Pk	34.1	-31.1	42.75	54	-11.25	74	-31.25	0-360	101	V
2	*** 7.31063	37.2	Pk	35.6	-26.8	46	54	-8	74	-28	0-360	199	H
5	*** 7.59656	36.9	Pk	35.7	-26.8	45.8	54	-8.2	74	-28.2	0-360	101	V
6	*** 8.49375	37.27	Pk	35.9	-26.3	46.87	54	-7.13	74	-27.13	0-360	199	V
3	*** 9.01219	36.88	Pk	36	-26.1	46.78	54	-7.22	74	-27.22	0-360	199	H
1	*** 2.844	38.32	Pk	32.3	-25.9	44.72	54	-9.28	74	-29.28	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

HIGH CHANNEL, CH 11 RESULTS



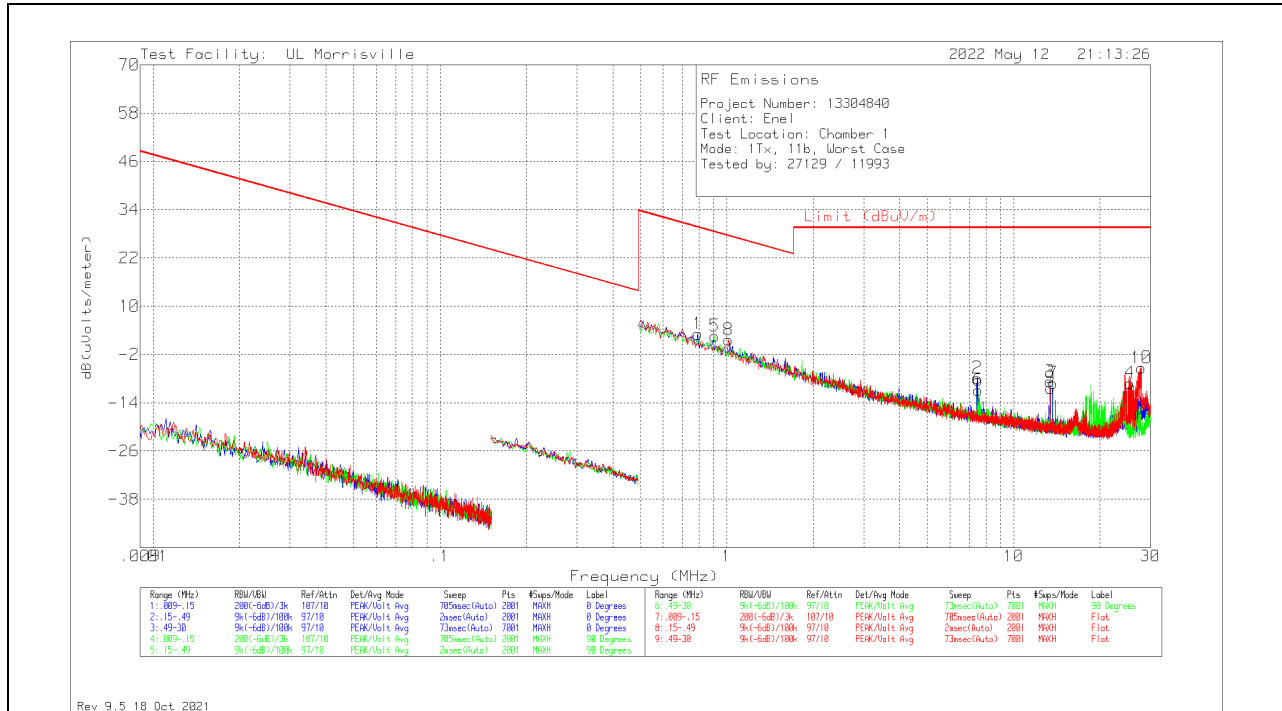
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	*** 3.80438	40.66	Pk	33.5	-31.7	42.46	54	-11.54	74	-31.54	0-360	101	V
5	*** 7.38563	38.55	Pk	35.6	-27	47.15	54	-6.85	74	-26.85	0-360	101	V
2	*** 7.38938	38.68	Pk	35.6	-26.9	47.38	54	-6.62	74	-26.62	0-360	199	H
3	*** 8.40375	37.53	Pk	35.8	-26.7	46.63	54	-7.37	74	-27.37	0-360	199	H
6	*** 9.06844	36.77	Pk	36.1	-25.4	47.47	54	-6.53	74	-26.53	0-360	199	V
1	*** 2.8765	38.51	Pk	32.4	-25.9	45.01	54	-8.99	74	-28.99	0-360	199	H

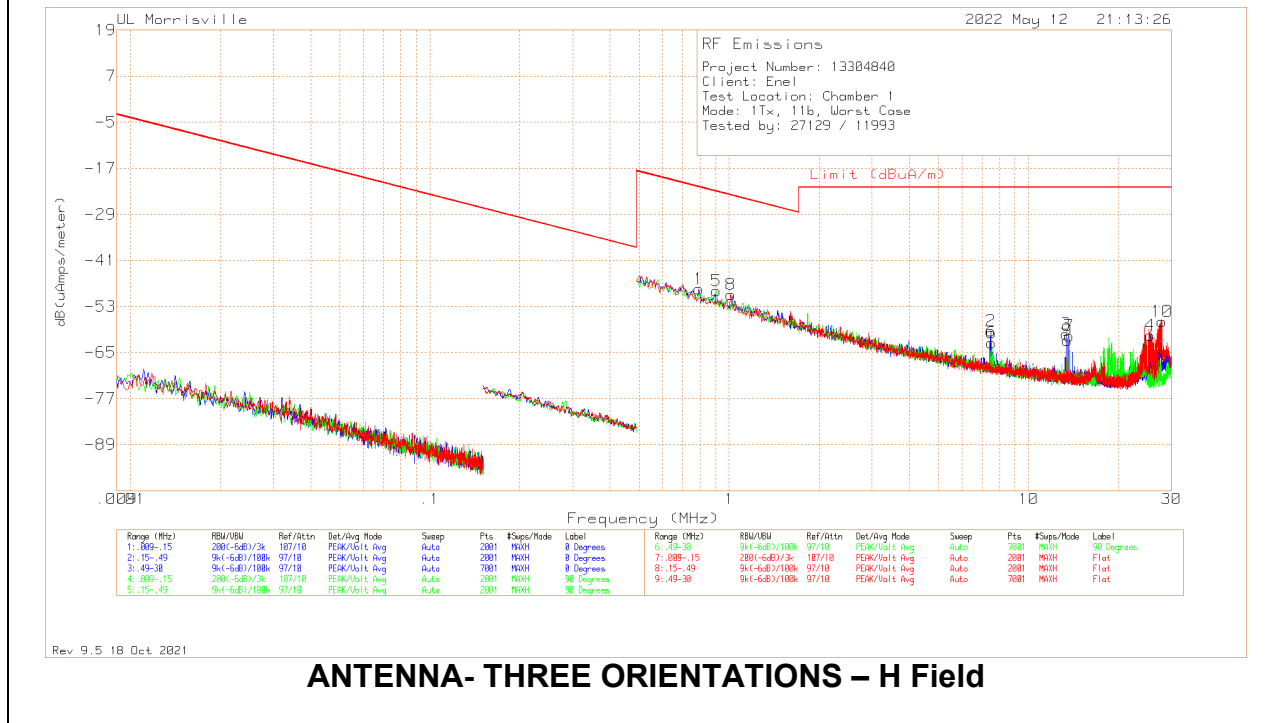
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 ** - indicates frequency in Taiwan NCC LP0002 Restricted Band
 Pk - Peak detector

10.2. WORST CASE BELOW 30MHZ

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



ANTENNA- THREE ORIENTATIONS – E Field



ANTENNA- THREE ORIENTATIONS – H Field

Below 30MHz Data E-Field

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.79355	31.64	Pk	11.3	.2	-40	3.14	29.61	-26.47	0-360	0 degs
5	.90738	31.08	Pk	11.3	.2	-40	2.58	28.45	-25.87	0-360	90 degs
8	1.01278	30.12	Pk	11.3	.2	-40	1.62	27.49	-25.87	0-360	Flat
2	7.4717	20.63	Pk	10.9	.6	-40	-7.87	29.54	-37.41	0-360	0 degs
6	7.52229	17.57	Pk	10.9	.6	-40	-10.93	29.54	-40.47	0-360	90 degs
3	13.36988	20.32	Pk	10.2	.8	-40	-8.68	29.54	-38.22	0-360	0 degs
9	13.4542	18.69	Pk	10.2	.8	-40	-10.31	29.54	-39.85	0-360	Flat
7	13.69451	19.87	Pk	10.2	.8	-40	-9.13	29.54	-38.67	0-360	90 degs
4	25.46137	21.22	Pk	8.6	1.1	-40	-9.08	29.54	-38.62	0-360	0 degs
10	27.86449	25.45	Pk	8.1	1.1	-40	-5.35	29.54	-34.89	0-360	Flat

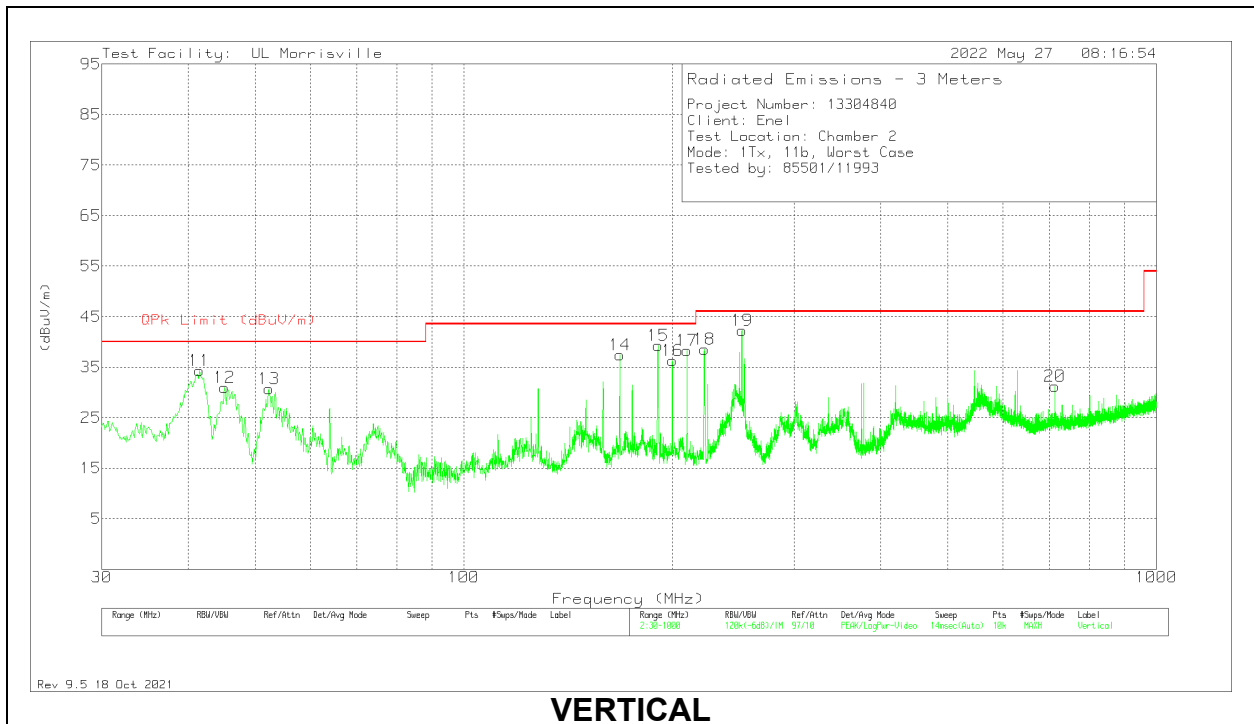
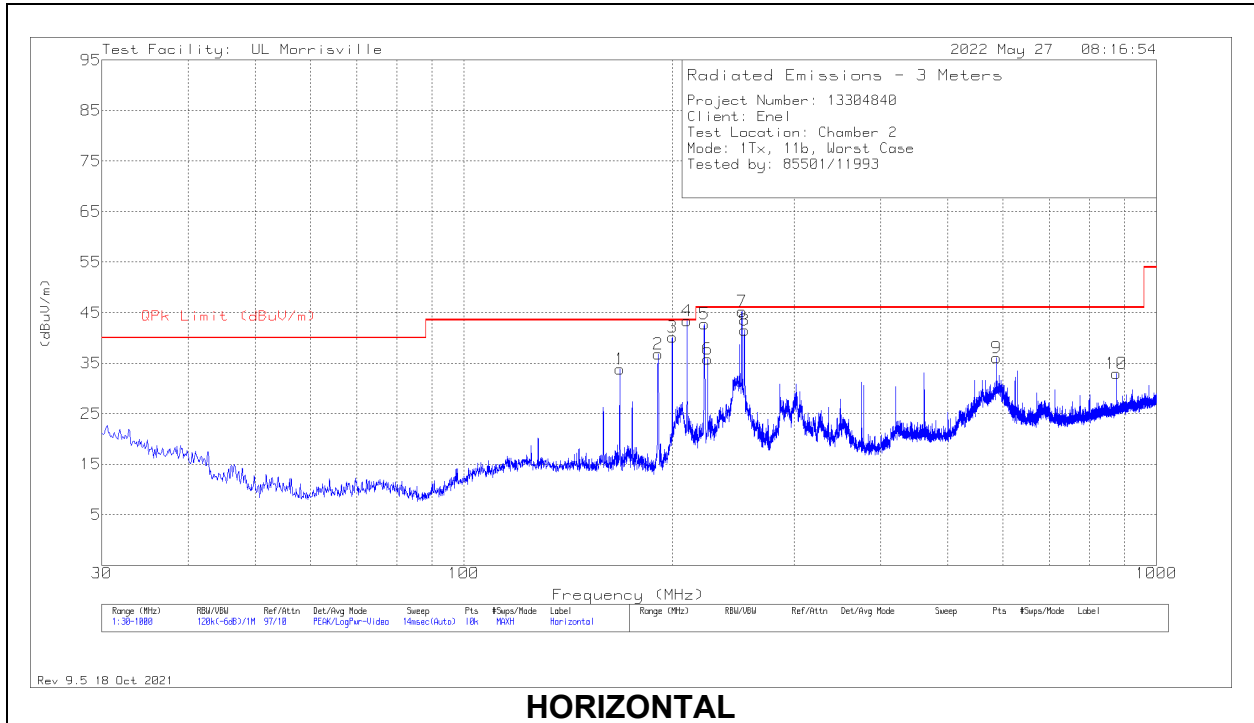
Below 30MHz Data H-Field

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.79355	31.64	Pk	-40.2	.2	-40	-48.36	-21.89	-26.47	0-360	0 degs
5	.90738	31.08	Pk	-40.2	.2	-40	-48.92	-23.05	-25.87	0-360	90 degs
8	1.01278	30.12	Pk	-40.2	.2	-40	-49.88	-24.01	-25.87	0-360	Flat
2	7.4717	20.63	Pk	-40.6	.6	-40	-59.37	-21.96	-37.41	0-360	0 degs
6	7.52229	17.57	Pk	-40.6	.6	-40	-62.43	-21.96	-40.47	0-360	90 degs
3	13.36988	20.32	Pk	-41.3	.8	-40	-60.18	-21.96	-38.22	0-360	0 degs
9	13.4542	18.69	Pk	-41.3	.8	-40	-61.81	-21.96	-39.85	0-360	Flat
7	13.69451	19.87	Pk	-41.3	.8	-40	-60.63	-21.96	-38.67	0-360	90 degs
4	25.46137	21.22	Pk	-42.9	1.1	-40	-60.58	-21.96	-38.62	0-360	0 degs
10	27.86449	25.45	Pk	-43.4	1.1	-40	-56.85	-21.96	-34.89	0-360	Flat

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 $40 \cdot \log(\text{test distance} / \text{specification distance})$.

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)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 168.031	45.6	Pk	18	-29.8	33.8	43.52	-9.72	0-360	199	H
7	* ** 252.0114	55.72	Qp	17.6	-29.2	44.12	46.02	-1.9	340	100	H
8	* ** 254.1536	48.46	Qp	17.6	-29.1	36.96	46.02	-9.06	160	102	H
10	** 875.161	30.63	Pk	28.1	-25.8	32.93	46.02	-13.09	0-360	101	H
14	* ** 168.031	49.26	Pk	18	-29.8	37.46	43.52	-6.06	0-360	299	V
19	* ** 252.0023	51.24	Qp	17.6	-29.2	39.64	46.02	-6.38	188	102	V
20	** 714.044	31.51	Pk	26.5	-26.8	31.21	46.02	-14.81	0-360	199	V
11	41.543	47.13	Pk	18.6	-31.4	34.33	-	-	0-360	101	V
12	45.132	46	Pk	16.2	-31.2	31	-	-	0-360	101	V
13	52.31	48.36	Pk	13.5	-31.1	30.76	-	-	0-360	101	V
2	190.632	48.57	Pk	17.6	-29.4	36.77	-	-	0-360	101	H
15	190.632	51.05	Pk	17.6	-29.4	39.25	-	-	0-360	199	V
3	200.041	50.53	Pk	18.9	-29.3	40.13	-	-	0-360	101	H
16	200.041	46.71	Pk	18.9	-29.3	36.31	-	-	0-360	199	V
17	209.935	51.27	Pk	16.4	-29.4	38.27	-	-	0-360	101	V
4	210.032	56.37	Pk	16.4	-29.4	43.37	-	-	0-360	101	H
5	222.448	55.4	Pk	16.8	-29.4	42.8	-	-	0-360	101	H
18	222.545	51.19	Pk	16.8	-29.4	38.59	-	-	0-360	101	V
6	224.97	48.22	Pk	16.8	-29.2	35.82	-	-	0-360	101	H
9	588.041	38.75	Pk	24.5	-27.2	36.05	-	-	0-360	101	H

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

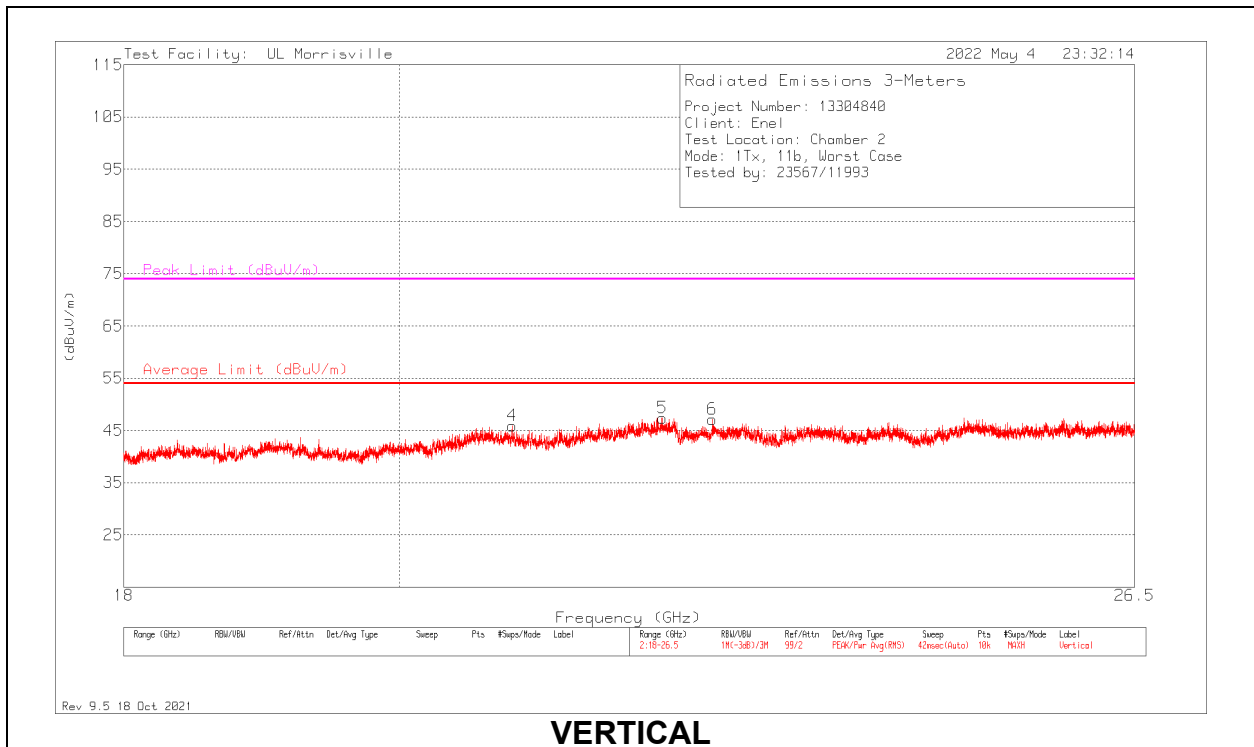
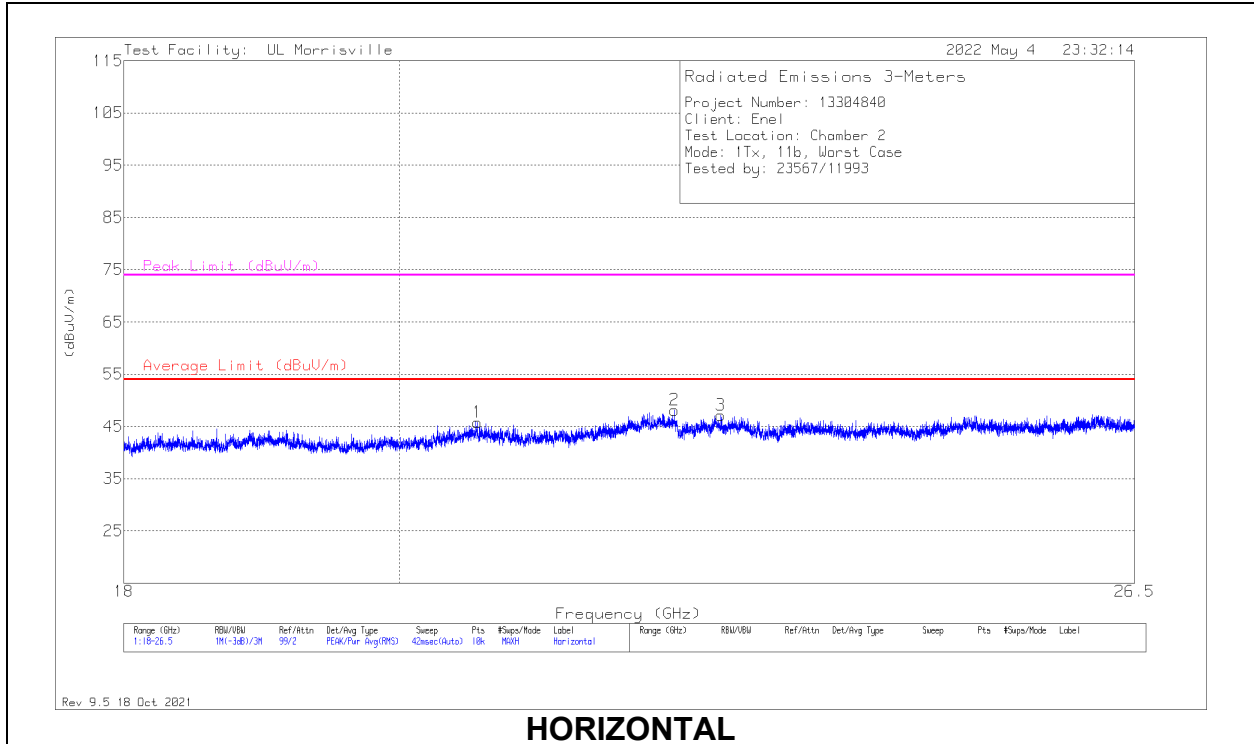
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

Qp - Quasi-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)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.60754	49.98	Pk	33.9	-38.1	0	45.78	54	-8.22	74	-28.22	0-360	299	H
2	* ** 22.225	48.65	PK2	36.8	-37.8	0	47.65	-	-	74	-26.35	238	324	H
	* ** 22.22502	35.69	ADV	36.8	-37.8	7.97	42.66	54	-11.34	-	-	238	324	H
3	* ** 22.62099	48.56	Pk	36.2	-37.6	0	47.16	54	-6.84	74	-26.84	0-360	249	H
4	* ** 20.88291	49.55	Pk	34.1	-37.8	0	45.85	54	-8.15	74	-28.15	0-360	151	V
5	* ** 22.11869	48.19	Pk	37	-37.8	0	47.39	54	-6.61	74	-26.61	0-360	299	V
6	* ** 22.54875	48.43	Pk	36.3	-37.6	0	47.13	54	-6.87	74	-26.87	0-360	299	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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.

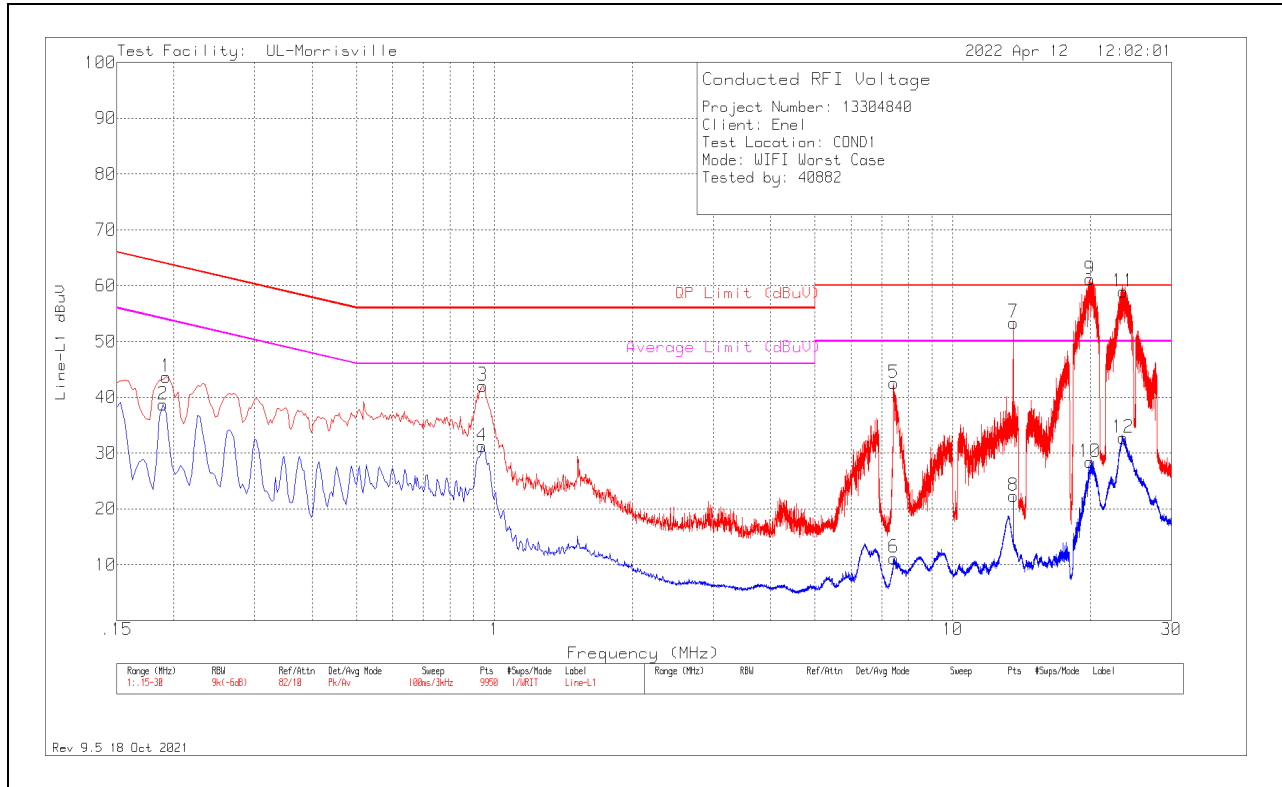
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1.1. AC Power Line Norm

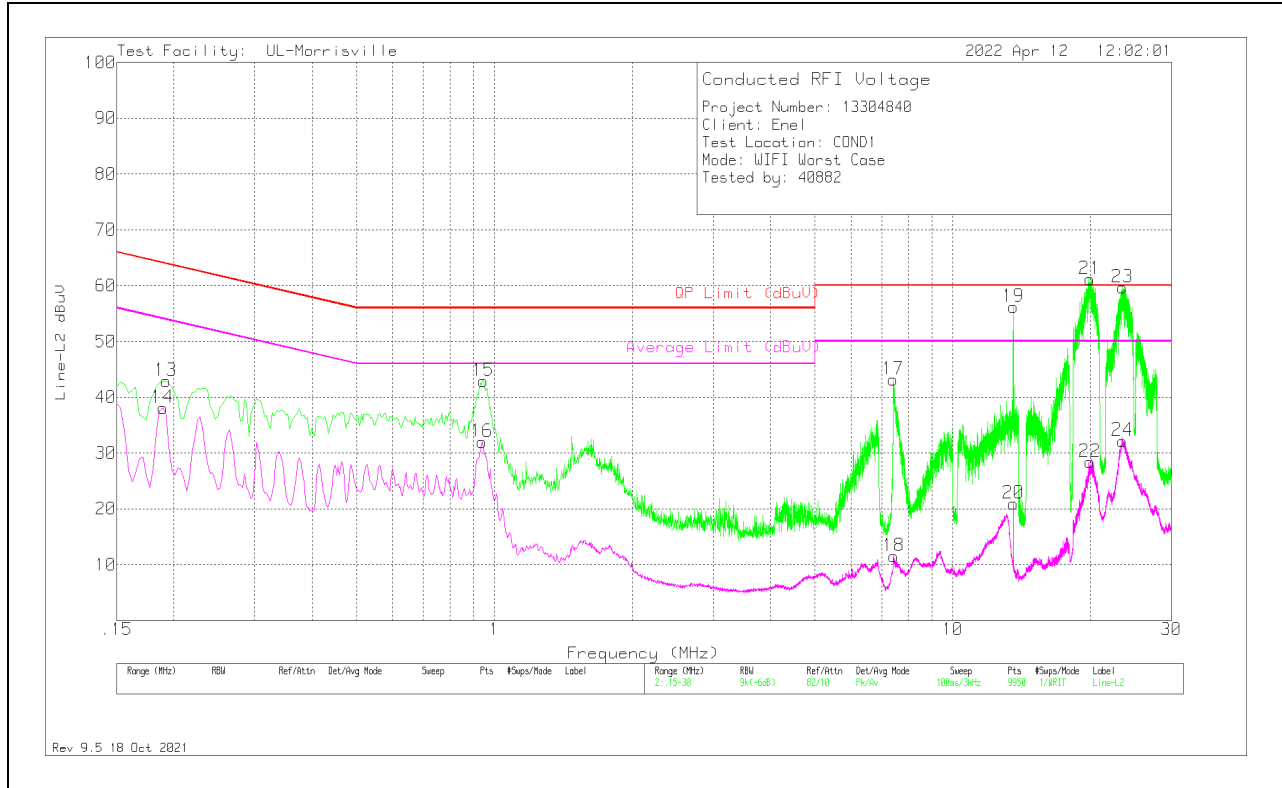
LINE 1 RESULTS



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	28.72	Av	.2	9.8	38.72	-	-	54.08	-15.36
1	.192	33.61	Pk	.2	9.8	43.61	63.95	-20.34	-	-
4	.939	21.45	Av	0	9.8	31.25	-	-	46	-14.75
3	.942	32.31	Pk	0	9.8	42.11	56	-13.89	-	-
5	7.443	32.5	Pk	.1	9.9	42.5	60	-17.5	-	-
6	7.443	1.2	Av	.1	9.9	11.2	-	-	50	-38.8
7	13.56	43.31	Pk	.1	10	53.41	60	-6.59	-	-
8	13.56	12.2	Av	.1	10	22.3	-	-	50	-27.7
9	19.9296	42.45	Qp	.2	10.1	52.75	60	-7.25	-	-
10	19.926	18.08	Av	.2	10.1	28.38	-	-	50	-21.62
12	23.538	22.32	Av	.2	10.2	32.72	-	-	50	-17.28
11	23.5375	34.29	Qp	.2	10.2	44.69	60	-15.31	-	-

Pk – Peak detector
 Qp – Quasi-peak detector
 Av – Average 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	28.06	Av	.2	9.8	38.06	-	-	54.08	-16.02
13	.192	32.93	Pk	.2	9.8	42.93	63.95	-21.02	-	-
16	.939	22.14	Av	0	9.8	31.94	-	-	46	-14.06
15	.945	33.17	Pk	0	9.8	42.97	56	-13.03	-	-
17	7.419	33.13	Pk	.1	9.9	43.13	60	-16.87	-	-
18	7.443	1.53	Av	.1	9.9	11.53	-	-	50	-38.47
19	13.561	20.38	Qp	.1	10	30.48	60	-29.52	-	-
20	13.56	10.79	Av	.1	10	20.89	-	-	50	-29.11
22	19.923	18.05	Av	.2	10.1	28.35	-	-	50	-21.65
21	19.9194	41.91	Qp	.2	10.1	52.21	60	-7.79	-	-
24	23.481	21.78	Av	.2	10.2	32.18	-	-	50	-17.82
23	23.506	33.34	Qp	.2	10.2	43.74	60	-16.26	-	-

Pk – Peak detector
 Qp – Quasi-peak detector
 Av – Average detector

12. SETUP PHOTOS

Refer to document R13304840-EP2 for setup photos.

END OF TEST REPORT