

TEST REPORT

Report Number. : R14559969-E1

Applicant : Ademco Inc.
1985 Douglas Drive
Golden Valley, MN 55422-3922, USA

Model : TH6320WF2003

FCC ID : HS9-TH6220WF01

IC : 573R-TH6220WF01

EUT Description : Wi-Fi/BLE Enabled Wall-Mounted Thermostat

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C: 2022
ISED RSS-247 ISSUE 2: 2017
ISED RSS-GEN ISSUE 5 + A2: 2021

Date Of Issue:
2022-12-16

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-11-30	Initial Issue	Charles Moody
V2	2022-12-01	Updated Antenna Type Information	Charles Moody
V3	2022-12-15	Revised applicant address	Brian Kiewra
V4	2022-12-16	Updated Measuring Equipment	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Ademco Inc.
1985 Douglas Drive
Golden Valley, MN 55422-3922, USA

EUT DESCRIPTION: Wi-Fi/BLE Enabled Wall-Mounted Thermostat

MODEL: TH6320WF2003

SERIAL NUMBER: 001749, 001750

SAMPLE RECEIPT DATE: 2022-11-03

DATE TESTED: 2022-11-07 TO 2022-11-21

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

Prepared By:



Mike Antola
Staff Engineer
Consumer, Medical, and IT Segment
UL LLC

Charles Moody
Electrical Engineer
Consumer, Medical, and IT Segment
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	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	Complies	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power	Complies	None.
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD	Complies	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

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 v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A2, and RSS-247 Issue 2.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number 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 a wall-mounted thermostat integrated with a 2.4 WLAN and BLE radio. This report covers full emissions testing of the 2.4 WLAN radio.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2.4GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
1Tx			
2412 - 2462	802.11b	21.29	134.59
2412 - 2462	802.11g	24.73	297.17
2412 - 2462	802.11n HT20	23.34	215.77

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

Antenna 1: The radio utilizes a PIFA antenna, with a maximum gain of 1.86 dBi.

Antenna 2: The radio utilizes a PIFA antenna, with a maximum gain of 2.78 dBi.

The two antennas have diversity and the WLAN and BLE radios can transmit on either of the antennas. For antenna port conducted testing the SMA cable is connected directly after the output and before the RF SPDT switch so only one port needs to be tested. However, for radiated emissions both antennas need to be tested.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was RFT 1.8.10.1.

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 power spectral density 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. Radiated emissions were performed on 802.11b (CCK) and 802.11g (OFDM). 802.11n HT20 was omitted from radiated spurious emissions testing as 802.11g was found to be the worst case of the OFDM modulation types; however, band edge testing was still performed for 802.11n HT20.

The EUT is only meant to operate in one orientation. Therefore, all testing was done in this orientation.

Worst-case data rates as found by power measurements recorded by the lab are:

802.11b mode: 1 Mbps
 802.11g mode: 6 Mbps
 802.11n HT20mode: MCS3

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Power Supply	TRIAD	WAU24-1000	N/A	N/A
PC Controller	HP	14-dk1003dx	5CGO16B4XM	TX2-RTL8821CE

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Multi-Plug	1	Hardwire Connection	Power	<3m	Connects EUT to the AC Power Supply
2	Main	1	3.5mm Audio Jack	Serial Cable	<3m	USB to 3.5mm Audio Jack used for radio control only population not needed for radiated

TEST SETUP

The EUT is connected to a support laptop to configure the radio prior to emissions testings. However, for final emissions scans, the EUT was disconnected from the support laptop.

SETUP DIAGRAM

Please refer to R14559969-EP1 for setup diagrams

7. MEASUREMENT METHOD

On time and Duty Cycle: ANSI C63.10 subclause 11.6

6 dB BW: ANSI C63.10 Subclause -11.8.1 RBW \geq DTS BW

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3.

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11 and 6.10.4

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

General Radiated Spurious Emissions: ANSI C63.10-2013, Section 6.3 to 6.6.

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

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.
Common Equipment					
Conducted Room 1					
SA0026	Spectrum Analyzer	Keysight Technologies	N9030A	2022-08-02	2023-08-02
PWM005	RF Power Meter	Keysight Technologies	N1912A	2022-09-02	2024-09-02
PWS005	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2022-09-27	2023-09-27
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2022-07-20	2023-07-20
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
Additional Equipment used					
CBL099	Micro-Coax UTIFLEX Cable Assembly, Low Loss,40Ghz, 39.3", Connectors 2	Carlisle Interconnect Technologies	UFA147A-0-0180-200200	2022-01-24	2023-01-24
226560	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2022-05-03	2023-05-03

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	2022-07-20	2023-07-20
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2022-08-01	2023-08-01
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2022-08-03	2023-08-03
ATA222	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2022-04-05	2023-04-05
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Miscellaneous (if needed)					
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2022-09-12	2023-09-12

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2022-09-12	2023-09-12
30-1000 MHz					
AT0066	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB1	2022-03-01	2023-03-01
1-18 GHz					
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-05-11	2023-05-11
18-40 GHz					
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-626	2022-07-11	2023-07-11
Gain-Loss Chains					
C1-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2022-05-05	2023-05-05
C1-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-05	2023-05-05
C1-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-05	2023-05-05
C1-SAC04	Gain-loss string: 18-40GHz	Various	Various	2022-05-05	2023-05-05
Receiver & Software					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-04-14	2023-04-14
SA0026	Spectrum Analyzer	Agilent	N9030A	2022-08-02	2023-08-02
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
220929	Environmental Meter	Fisher Scientific	15-077-963 s/n 18474341	2022-10-05	2023-10-05

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	30-1000 MHz				
AT0081	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-12-08	2022-12-08
	Gain-Loss Chains				
C4-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-20	2023-05-20
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
21642	Environmental Meter	Fisher Scientific	15-077-963 (s/n 210701692)	2021-08-16	2023-08-16

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

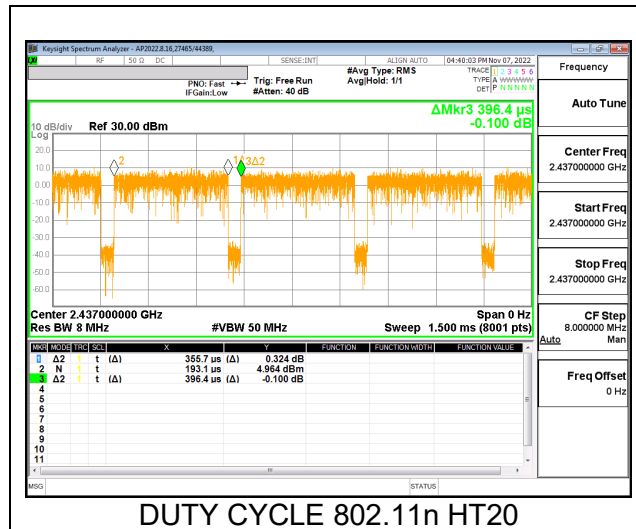
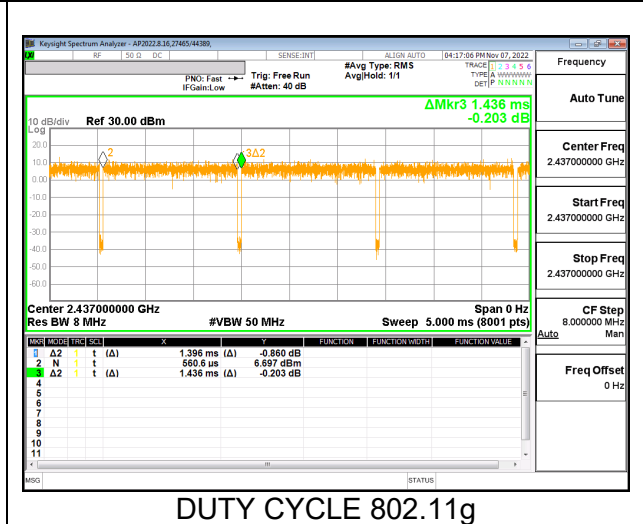
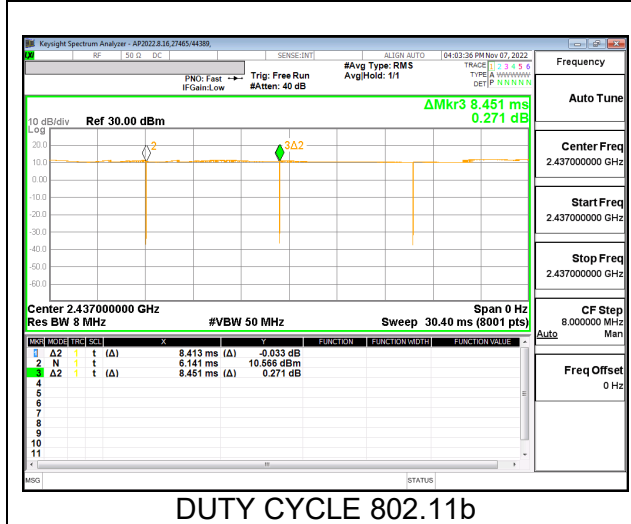
None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b 1TX	8.413	8.451	0.996	99.55	0.00	0.010
802.11g 1TX	1.396	1.436	0.972	97.21	0.25	0.716
802.11n HT20 1TX	0.356	0.396	0.897	89.73	0.94	2.811



9.2. 99% BANDWIDTH

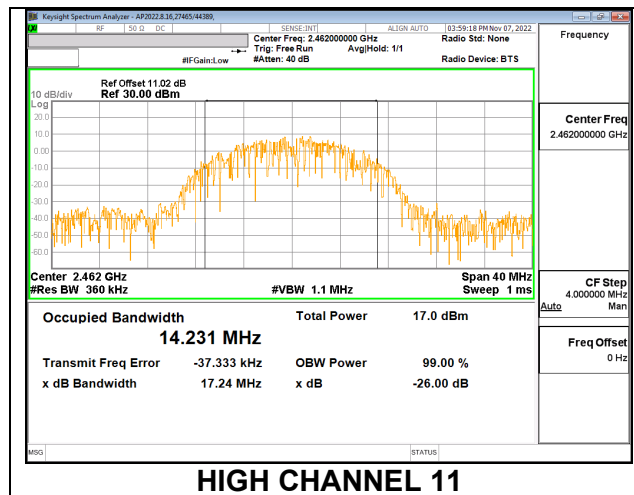
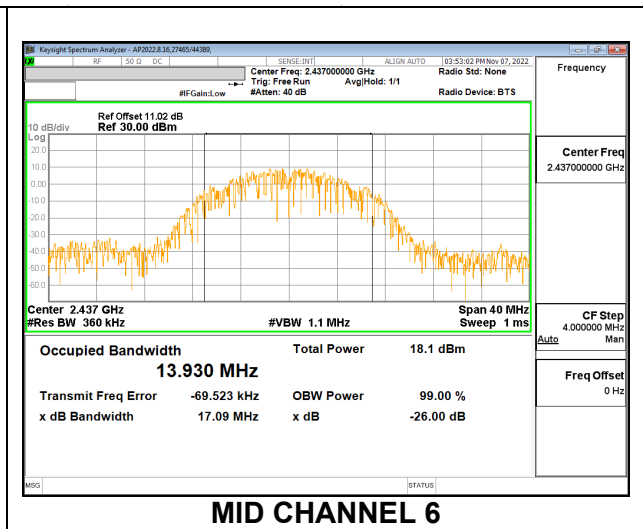
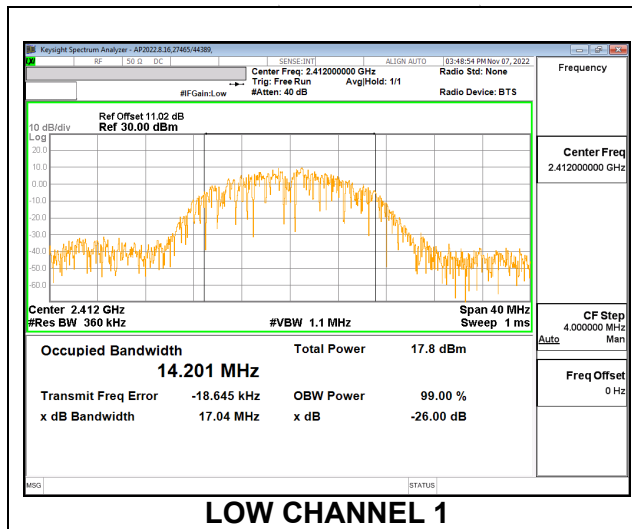
LIMITS

None; for reporting purposes only.

RESULTS

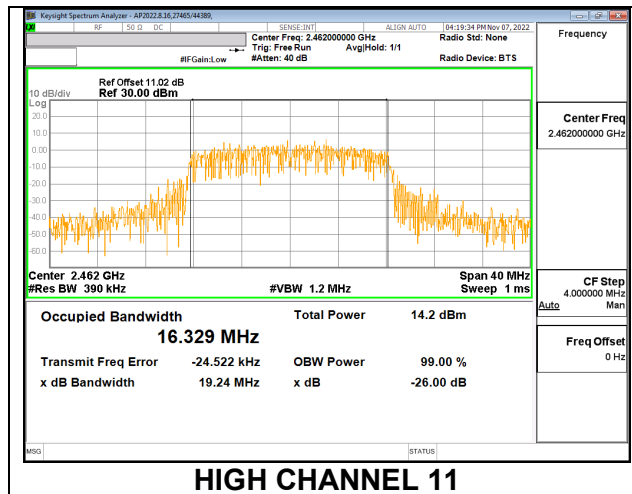
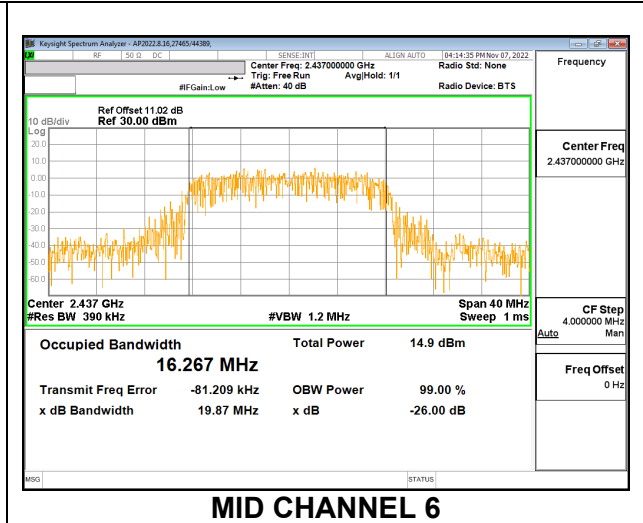
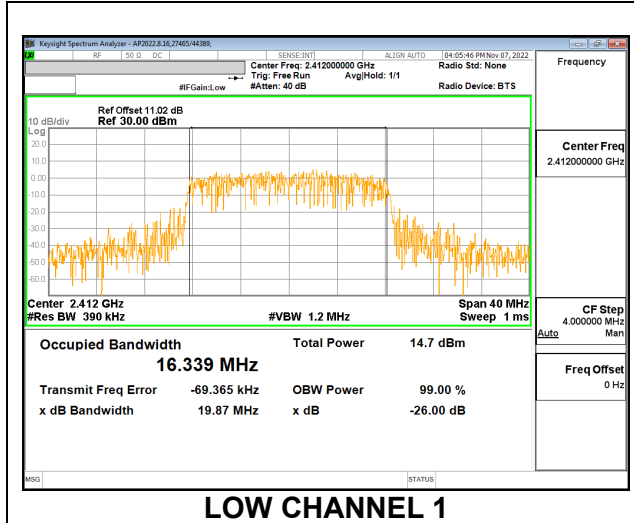
9.2.1. 802.11b MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.201
Middle	2437	13.930
High	2462	14.231



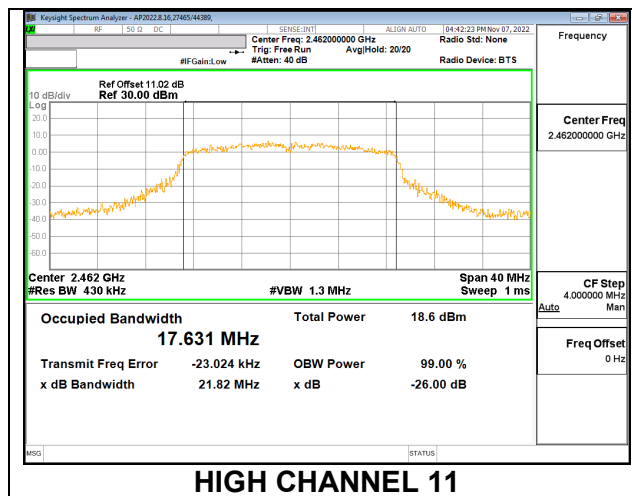
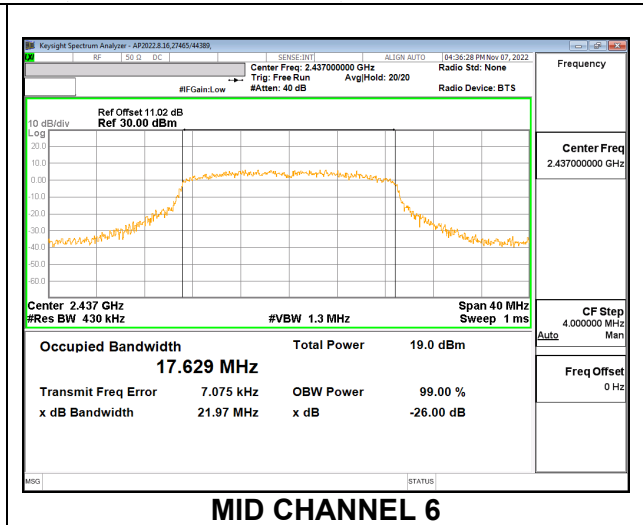
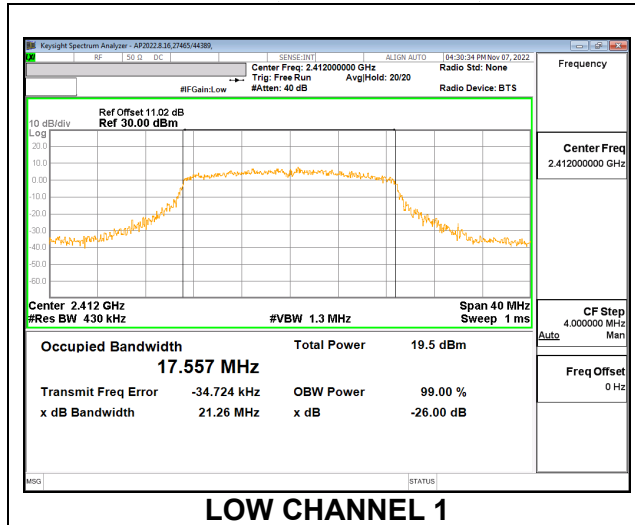
9.2.2. 802.11g MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.339
Middle	2437	16.267
High	2462	16.329



9.2.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.557
Middle	2437	17.629
High	2462	17.631



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

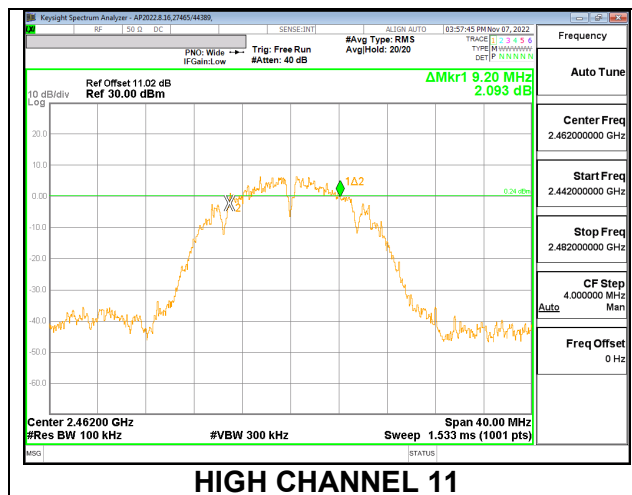
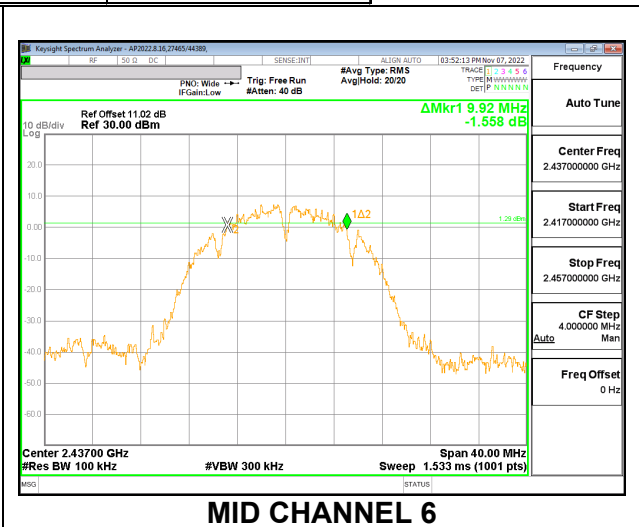
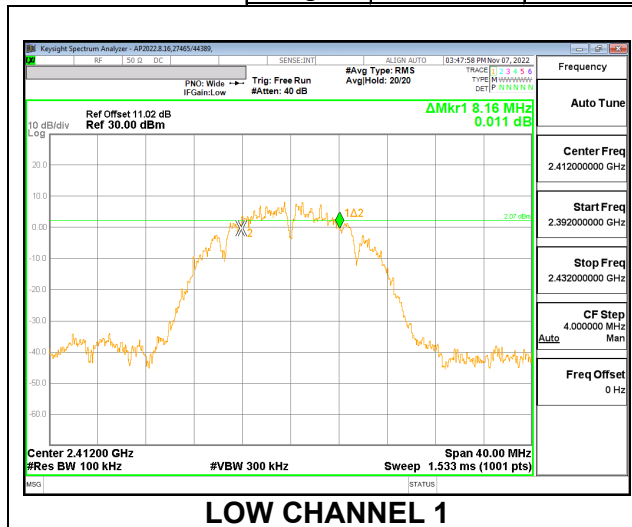
RSS-247 5.2 (a)

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

RESULTS

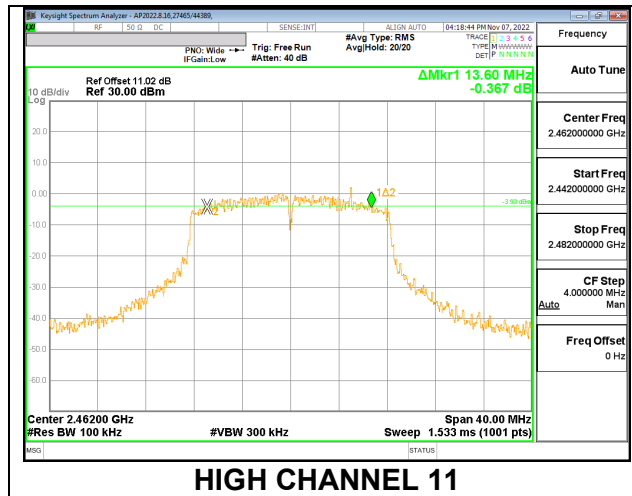
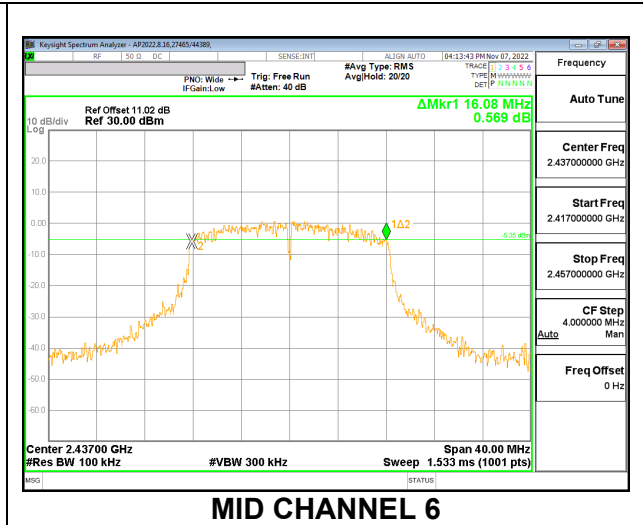
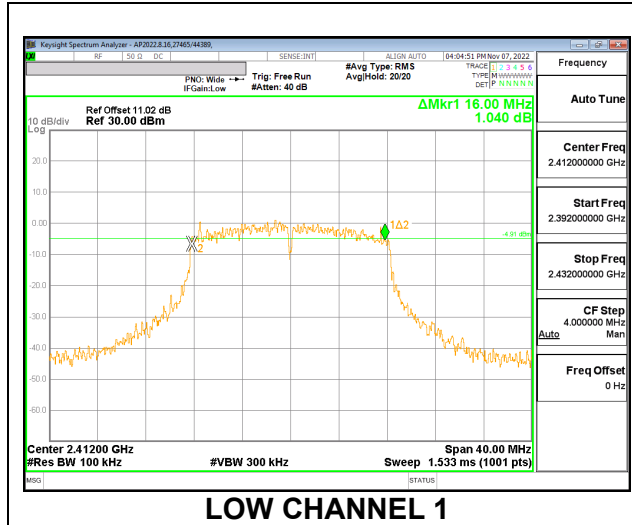
9.3.1. 802.11b MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.16	0.5
Mid	2437	9.92	0.5
High	2462	9.20	0.5



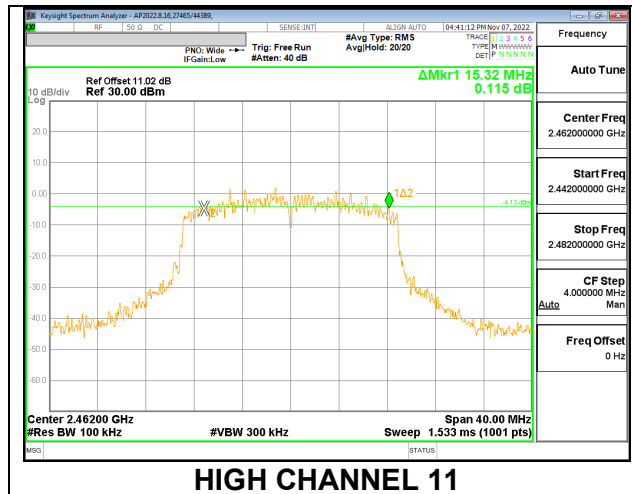
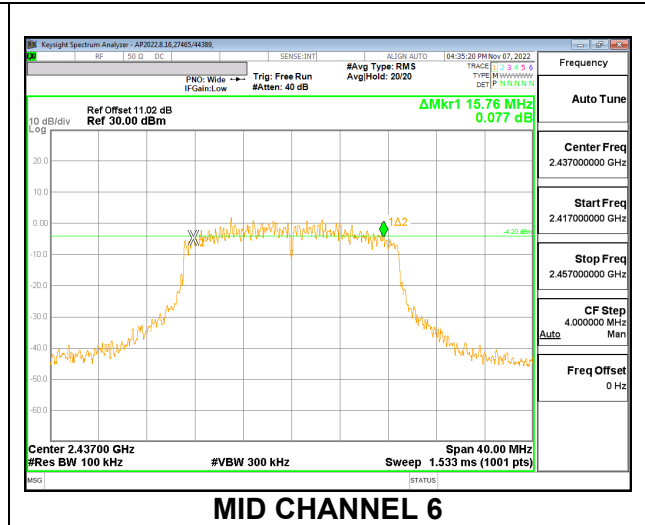
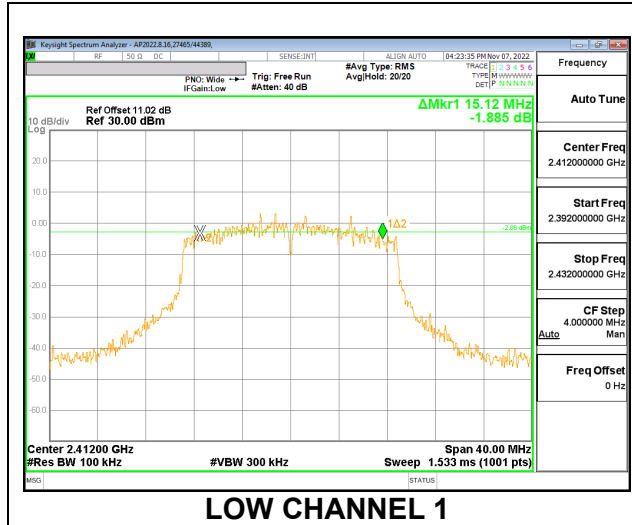
9.3.2. 802.11g MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.00	0.5
Mid	2437	16.08	0.5
High	2462	13.60	0.5



9.3.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.12	0.5
Mid	2437	15.76	0.5
High	2462	15.32	0.5



9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)
RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.685 dB (including 9.685 dB pad and 1 dB cable) was entered as an offset in the power meter.

RESULTS

9.4.1. 802.11b MODE

Tested By:	27465/44389
Date:	2022-11-07

Limits

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	20.50	30	-9.50
Mid	2437	21.29	30	-8.71
High	2462	20.56	30	-9.44

9.4.2. 802.11g MODE

Tested By:	27465/44389
Date:	2022-11-07

Limits

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	24.73	30	-5.27
Mid	2437	24.04	30	-5.96
High	2462	23.65	30	-6.35

9.4.3. 802.11n HT20 MODE

Tested By:	27465/44389
Date:	2022-11-07

Limits

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	23.34	30	-6.66
Mid	2437	23.07	30	-6.93
High	2462	23.04	30	-6.96

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a gated average power meter.

The cable assembly insertion loss of 10.685 dB (including 9.685 dB pad and 0.5 dB cable) was entered as an offset in the power meter.

RESULTS

9.5.1. 802.11b MODE

Test Engineer:	27465/44389
Test Date:	2022-11-07

Channel	Frequency (MHz)	AV Power (dBm)
Low	2412	18.11
Mid	2437	18.94
High	2462	18.21

9.5.2. 802.11g MODE

Test Engineer:	27465/44389
Test Date:	2022-11-07

Channel	Frequency (MHz)	AV Power (dBm)
Low	2412	14.05
Mid	2437	15.06
High	2462	14.32

9.5.3. 802.11n HT20 MODE

Test Engineer:	27465/44389
Test Date:	2022-11-07

Channel	Frequency (MHz)	AV Power (dBm)
Low	2412	13.38
Mid	2437	13.79
High	2462	13.71

9.6. POWER SPECTRAL DENSITY

LIMITS

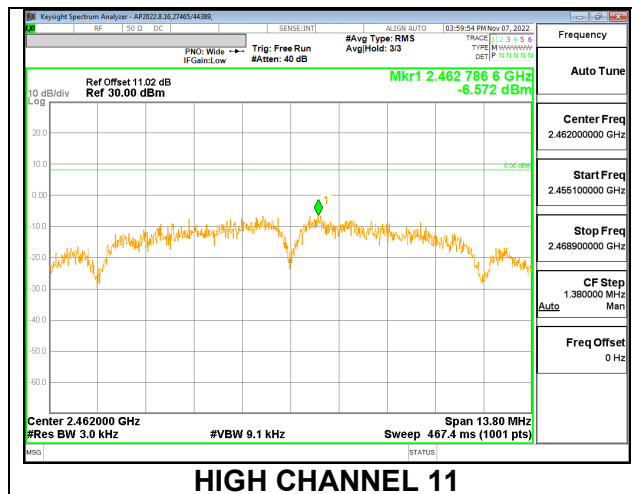
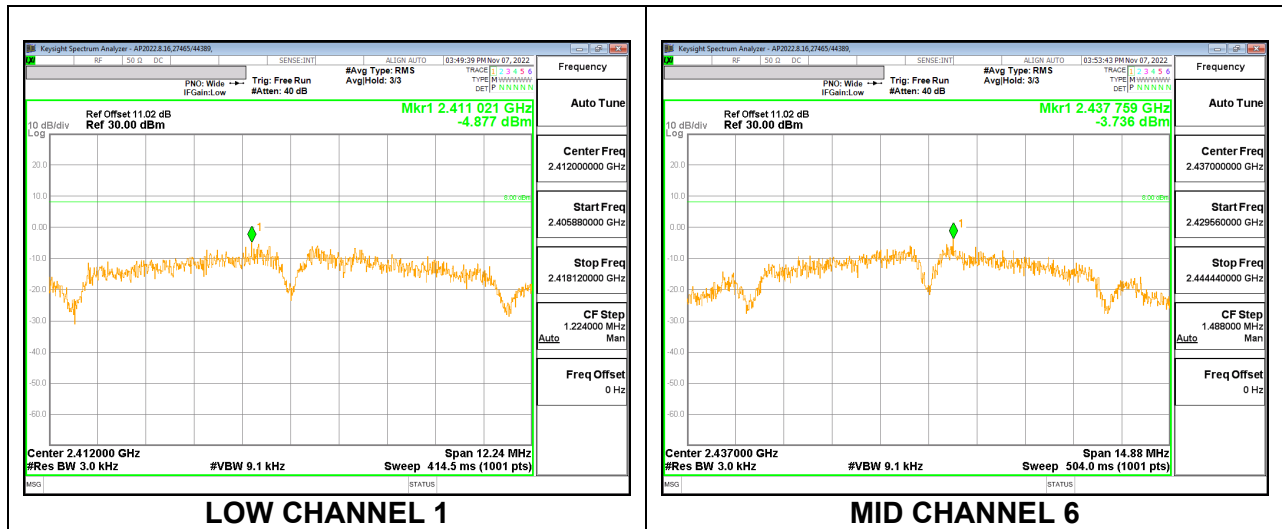
FCC §15.247 (e)
 RSS-247 (5.2) (b)

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

RESULTS

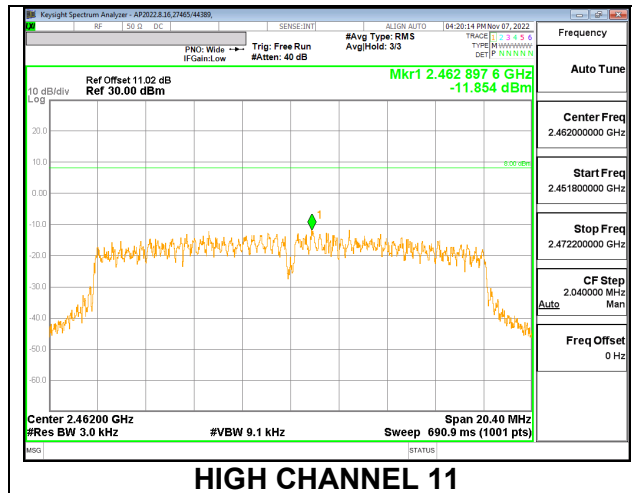
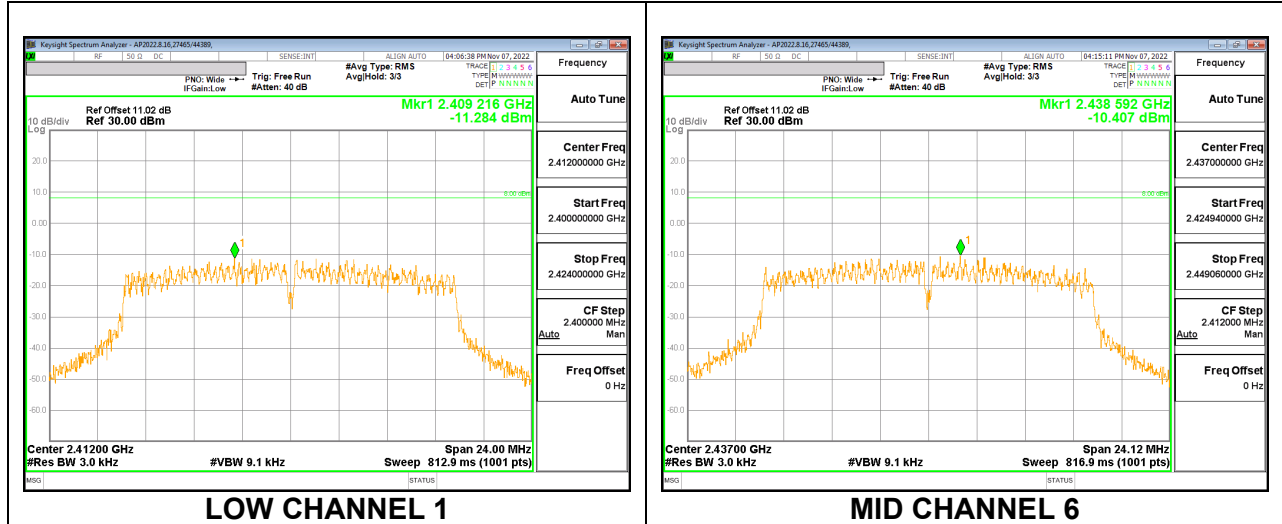
9.6.1. 802.11b MODE

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-4.877	8	-12.88
Middle	2437	-3.736	8	-11.74
High	2462	-6.572	8	-14.57



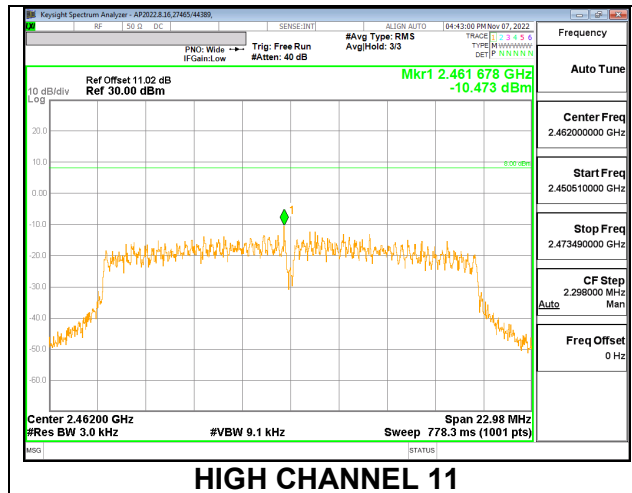
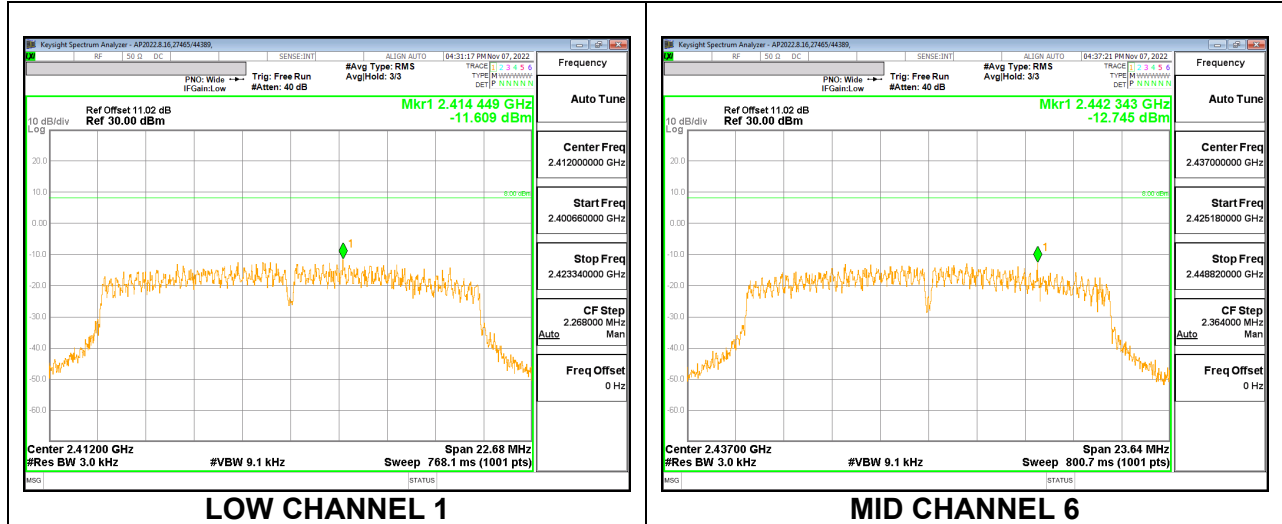
9.6.2. 802.11g MODE

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-11.284	8	-19.28
Middle	2437	-10.407	8	-18.41
High	2462	-11.854	8	-19.85



9.6.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-11.609	8	-19.61
Middle	2437	-12.745	8	-20.75
High	2462	-10.473	8	-18.47



9.7. CONDUCTED SPURIOUS EMISSIONS

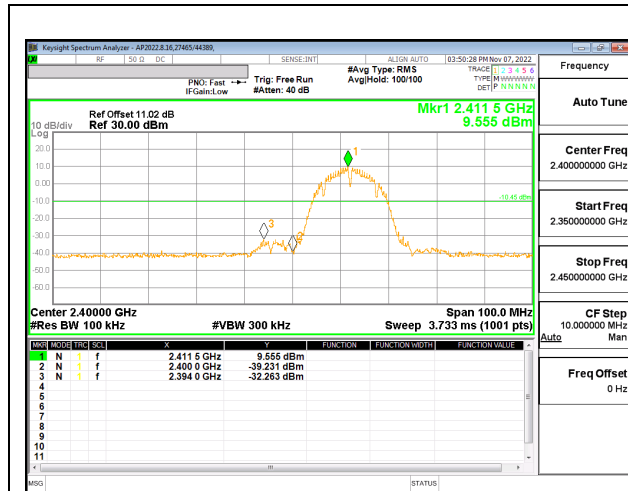
LIMITS

FCC §15.247 (d)
RSS-247 5.5

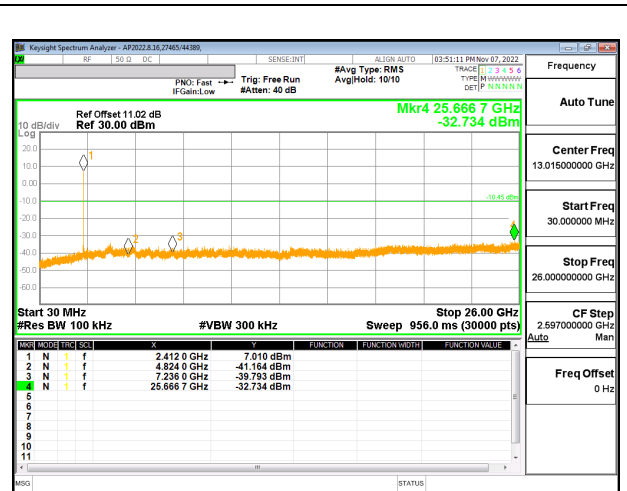
Output power was measured based on the use of peak measurement, therefore the required attenuation is 20 dBc.

RESULTS

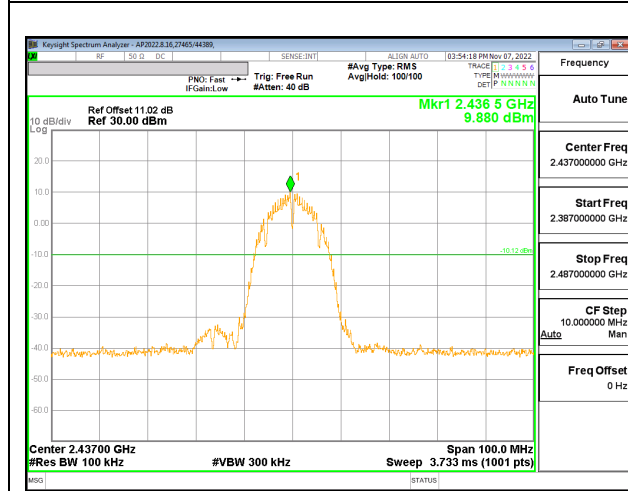
9.7.1. 802.11b MODE



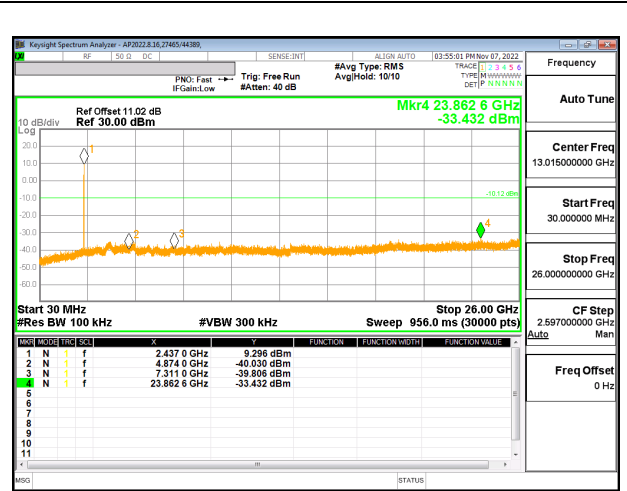
LOW CHANNEL 1 BANDEDGE



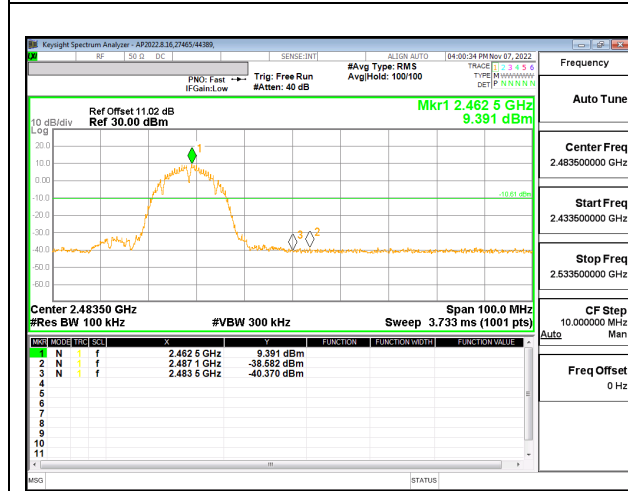
OUT-OF-BAND LOW CHANNEL 1



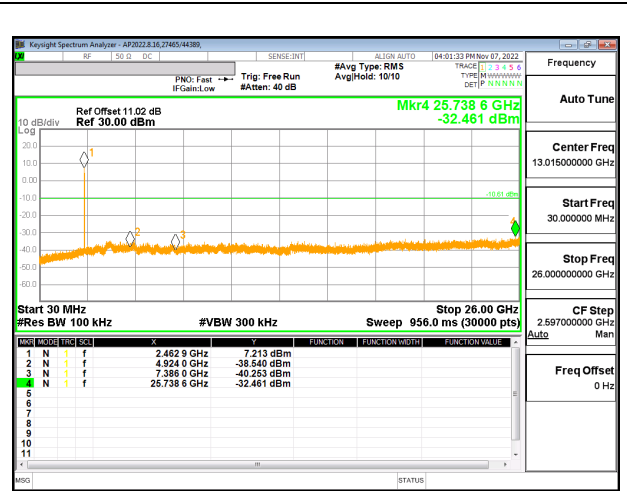
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

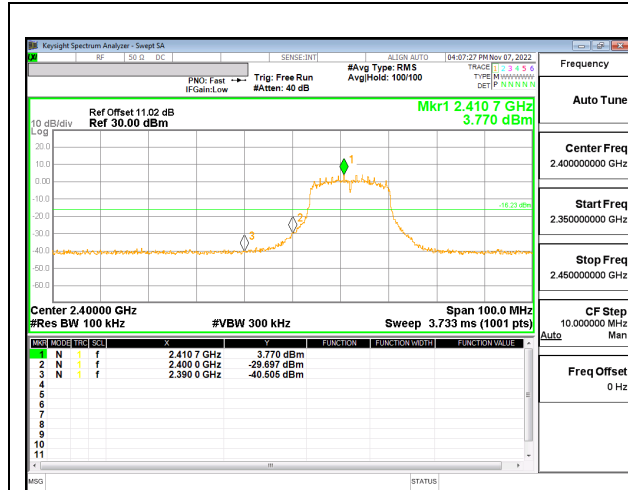


HIGH CHANNEL 11 BANDEDGE

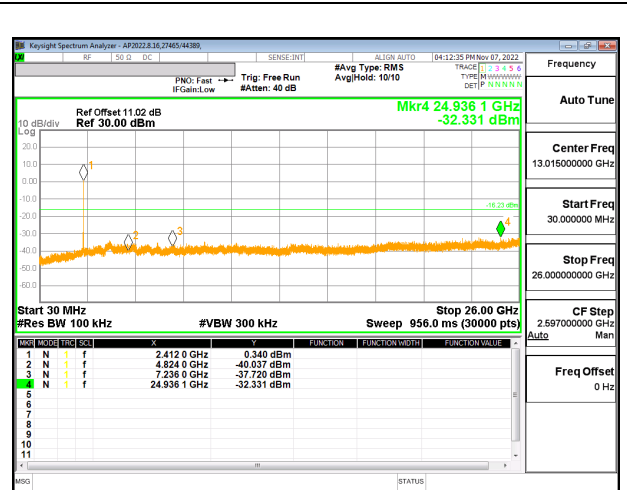


OUT-OF-BAND HIGH CHANNEL 11

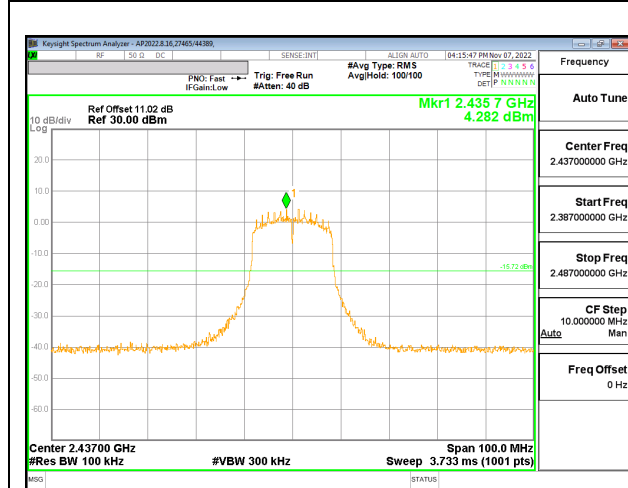
9.7.2. 802.11g MODE



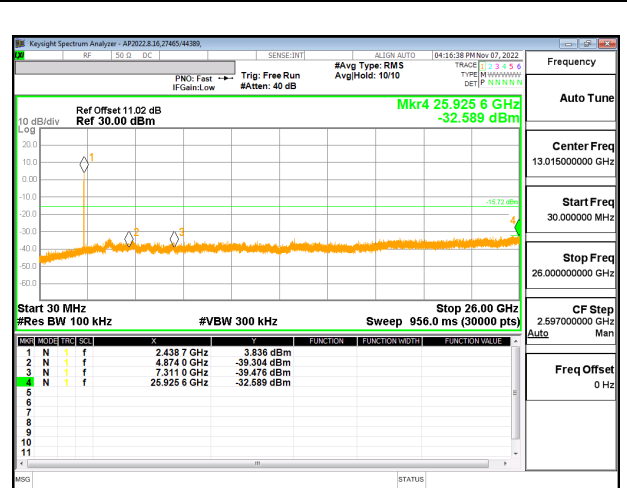
LOW CHANNEL 1 BANDEDGE



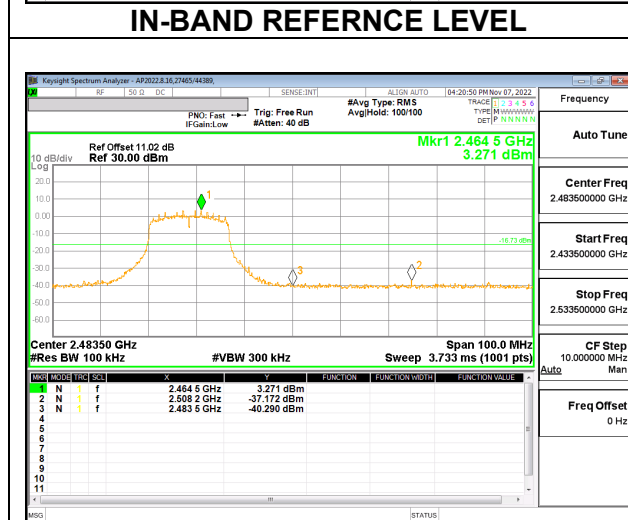
OUT-OF-BAND LOW CHANNEL 1



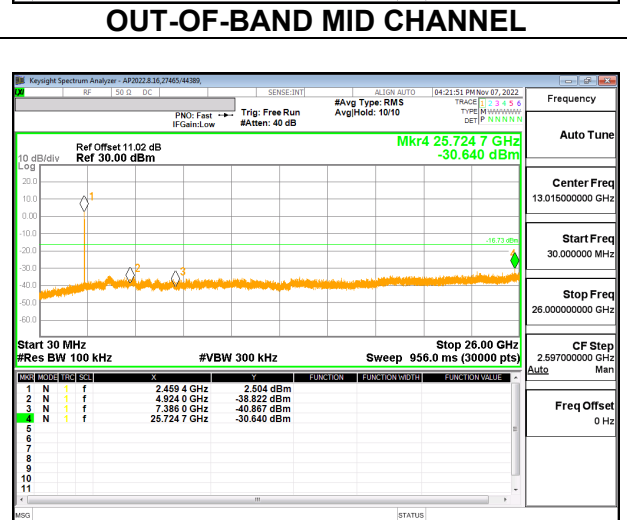
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

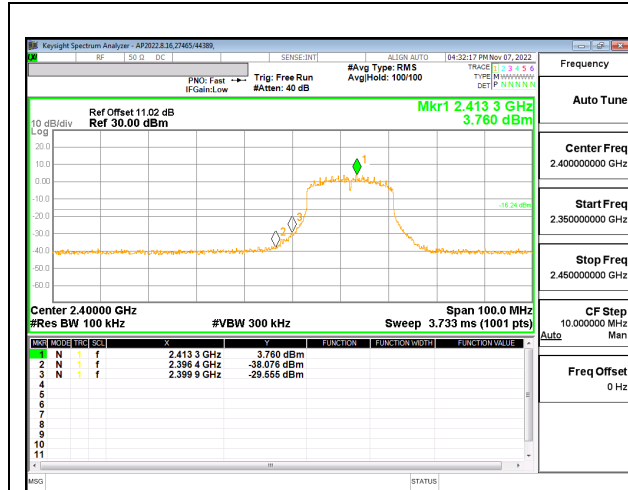


HIGH CHANNEL 11 BANDEDGE

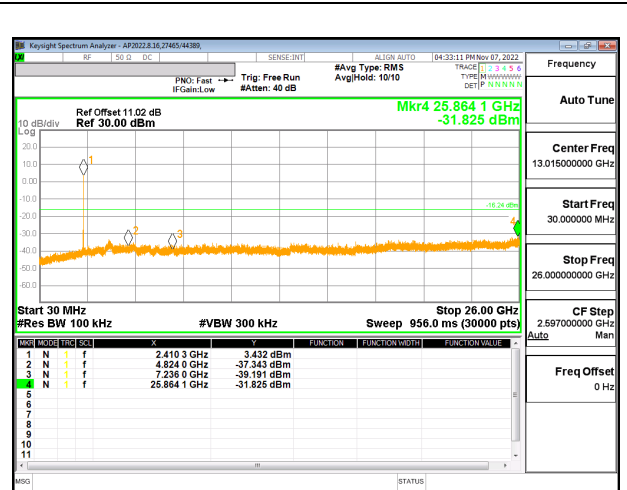


OUT-OF-BAND HIGH CHANNEL 11

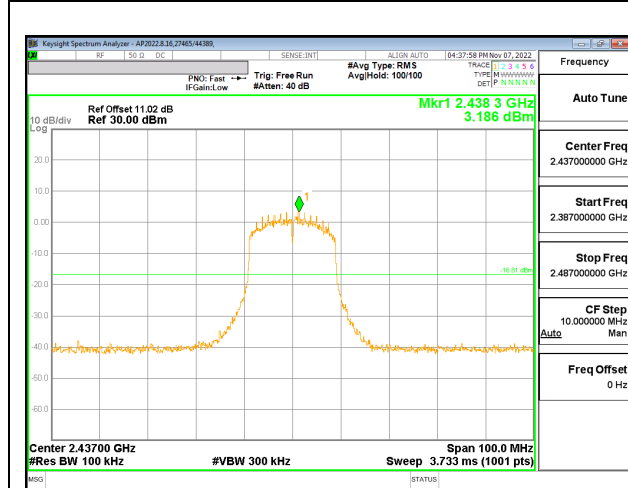
9.7.3. 802.11n HT20 MODE



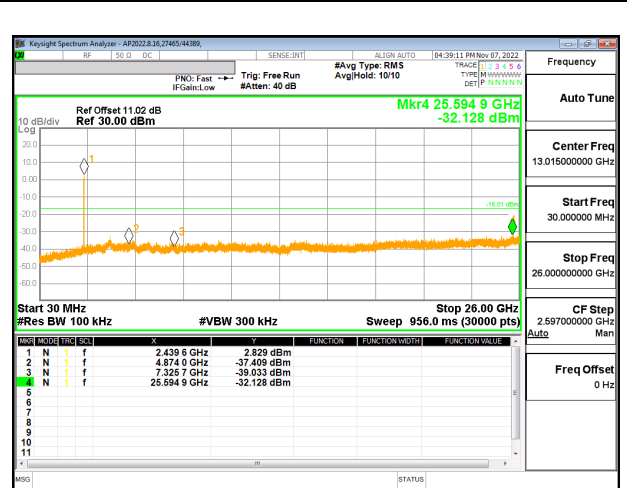
LOW CHANNEL 1 BANDEDGE



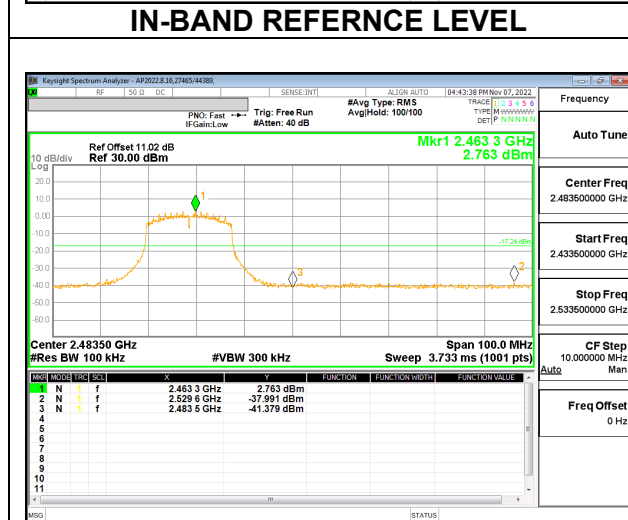
OUT-OF-BAND LOW CHANNEL 1



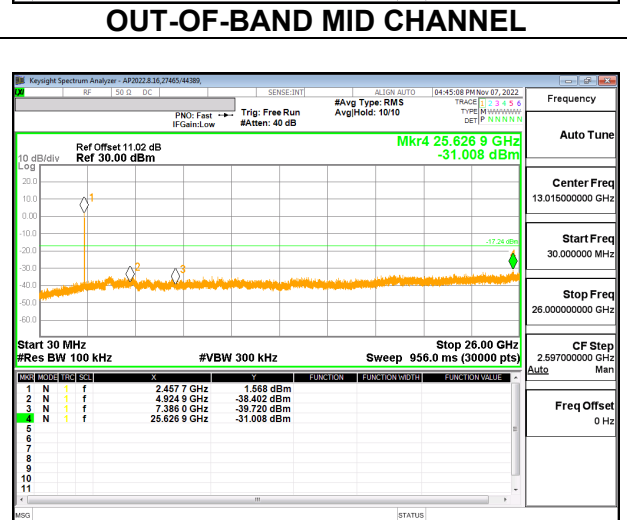
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 11

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

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	6.37/F(kHz) @ 30 m	-
1.705 - 30	.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 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. Linear Voltage Averaging was used.

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 power spectral density 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.

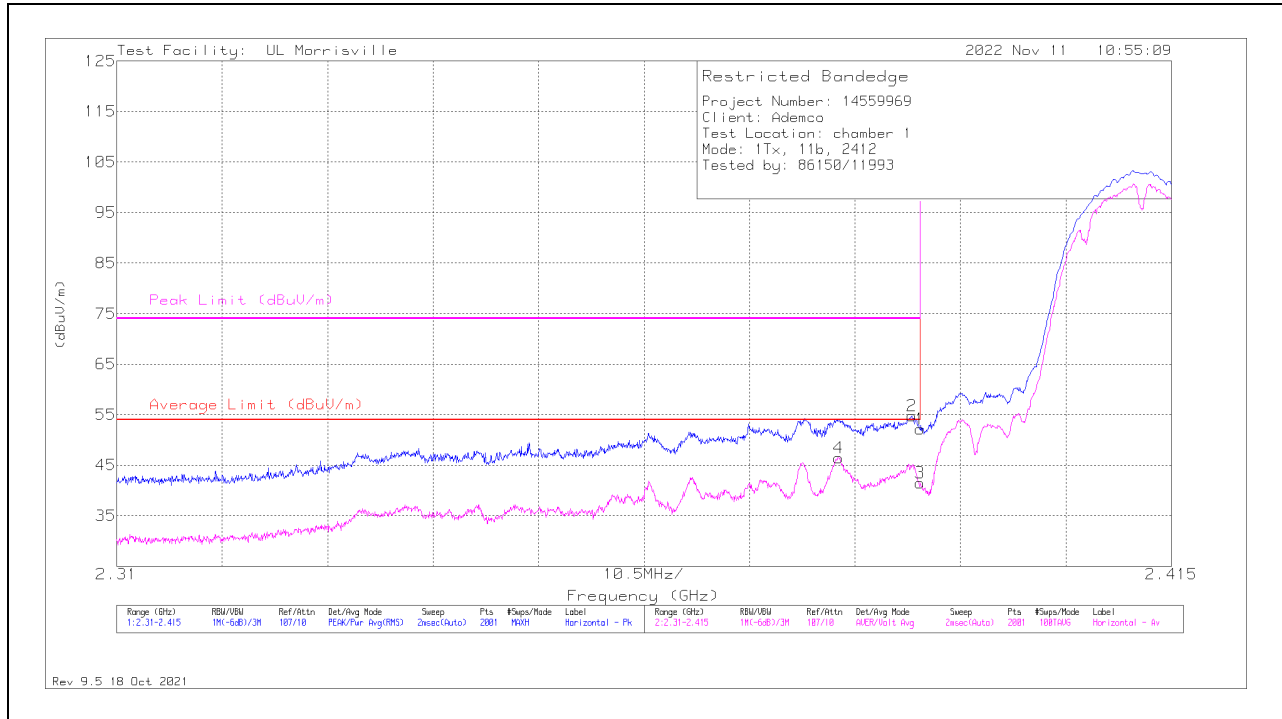
10.2. TRANSMITTER ABOVE 1 GHz

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

Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	44.98	Pk	32	-24.8	52.18	-	-	74	-21.82	139	216	H
2	** 2.38917	47.51	Pk	32	-24.7	54.81	-	-	74	-19.19	139	216	H
3	** 2.38996	34.22	ADV	32	-24.8	41.42	54	-12.58	-	-	139	216	H
4	** 2.38187	39.39	ADV	32	-24.9	46.49	54	-7.51	-	-	139	216	H

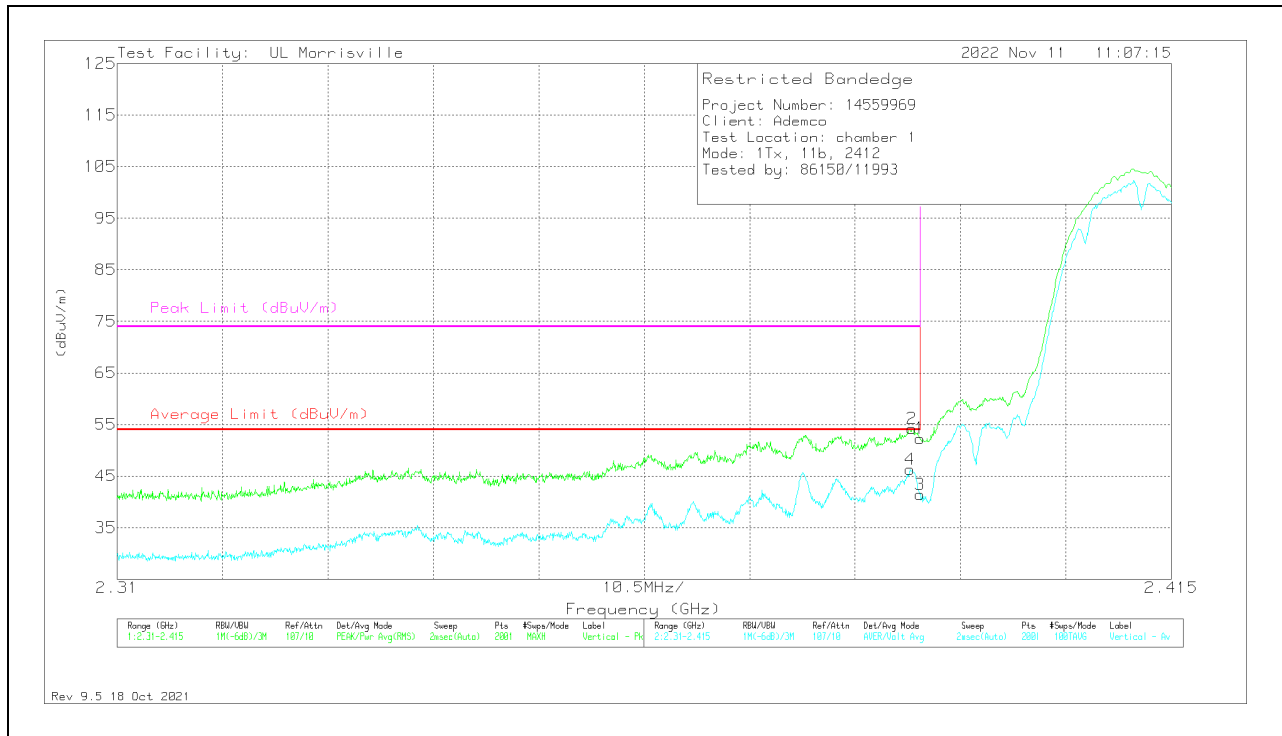
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

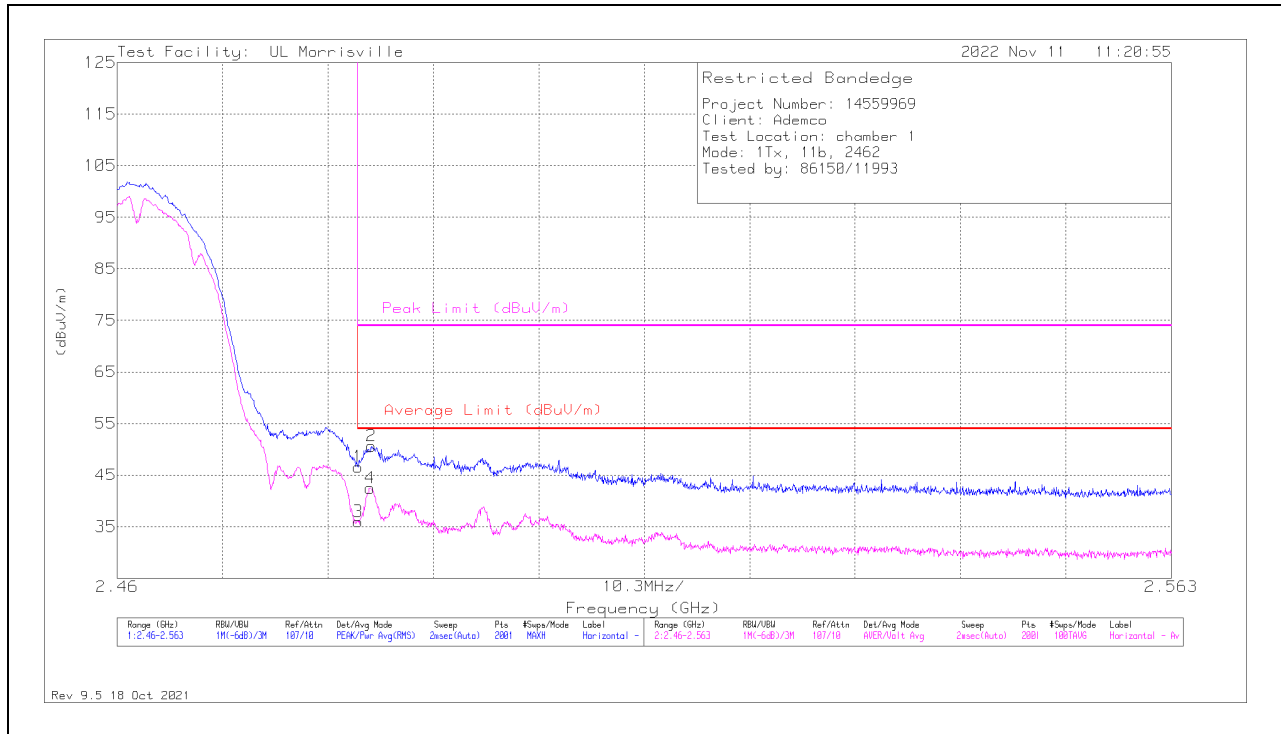


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	45.1	Pk	32	-24.8	52.3	-	-	74	-21.7	37	362	V
2	* ** 2.38917	46.91	Pk	32	-24.7	54.21	-	-	74	-19.79	37	362	V
3	* ** 2.38996	34.21	ADV	32	-24.8	41.41	54	-12.59	-	-	37	362	V
4	* ** 2.38896	39	ADV	32	-24.7	46.3	54	-7.7	-	-	37	362	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)

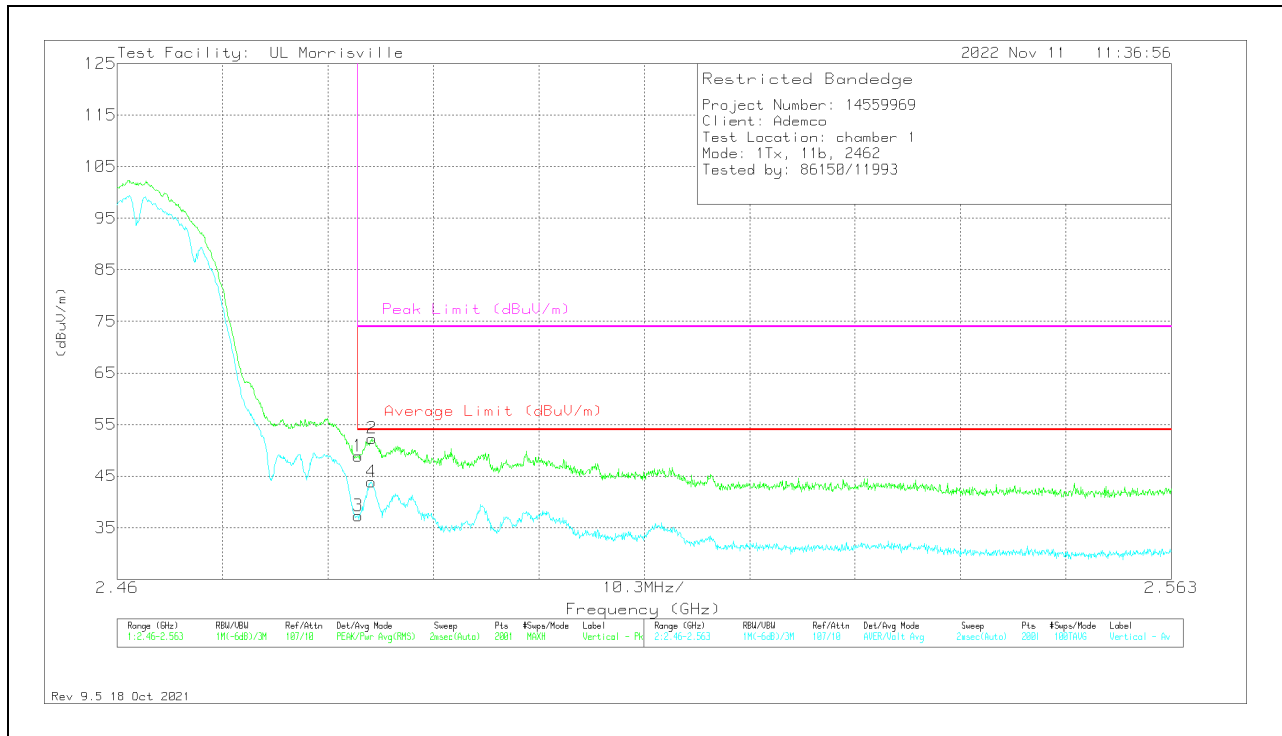
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	38.5	Pk	32.5	-24.4	46.6	-	-	74	-27.4	332	189	H
2	*** 2.48482	42.53	Pk	32.4	-24.3	50.63	-	-	74	-23.37	332	189	H
3	*** 2.48354	27.85	ADV	32.5	-24.4	35.95	54	-18.05	-	-	332	189	H
4	*** 2.48472	34.28	ADV	32.5	-24.3	42.48	54	-11.52	-	-	332	189	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	AT0072 (dB/m)	Gain/Loss (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	40.8	Pk	32.5	-24.4	48.9	-	-	74	-25.1	91	370	V
2	*** 2.48487	44.13	Pk	32.4	-24.2	52.33	-	-	74	-21.67	91	370	V
3	*** 2.48354	29.23	ADV	32.5	-24.4	37.33	54	-16.67	-	-	91	369	V
4	*** 2.48482	35.77	ADV	32.4	-24.3	43.87	54	-10.13	-	-	91	369	V

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

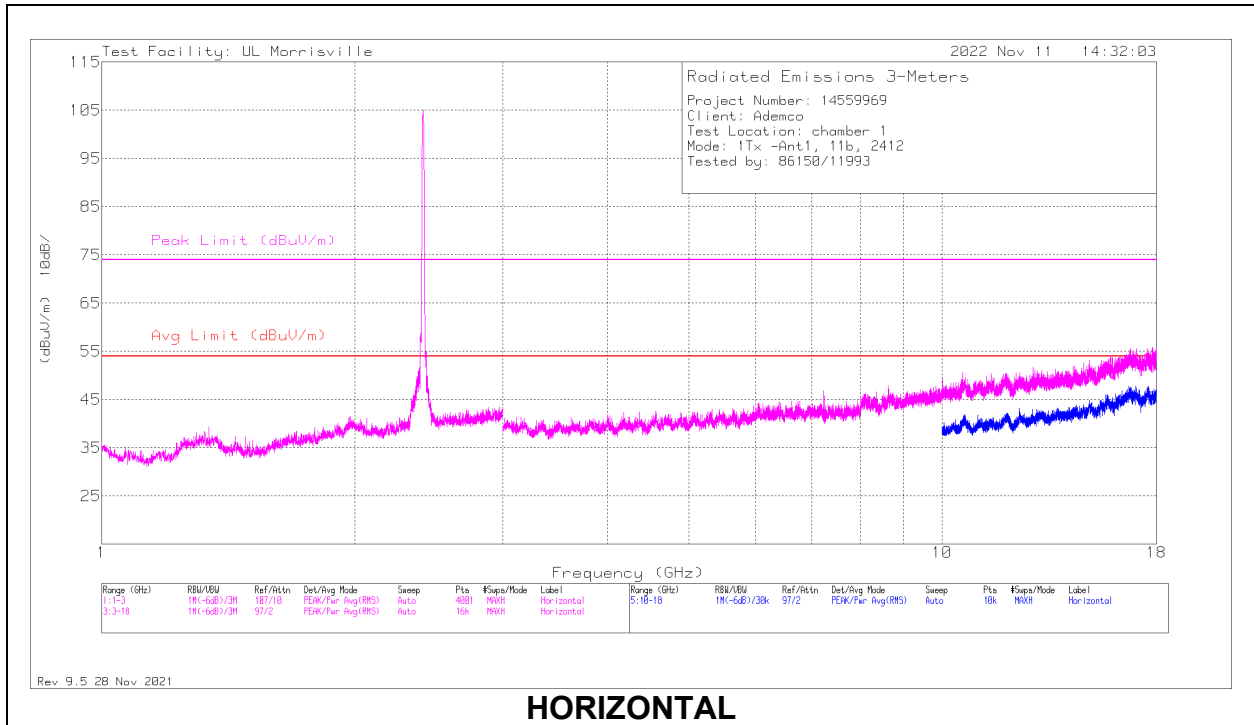
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

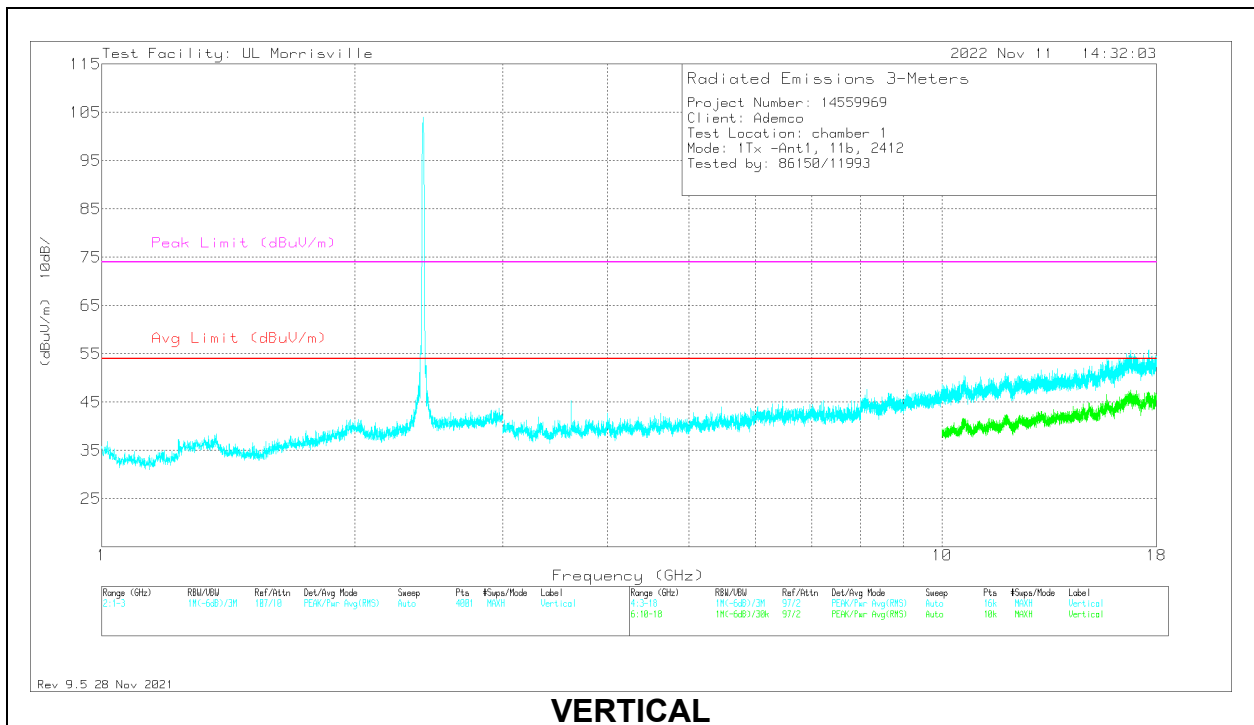
ADV – Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

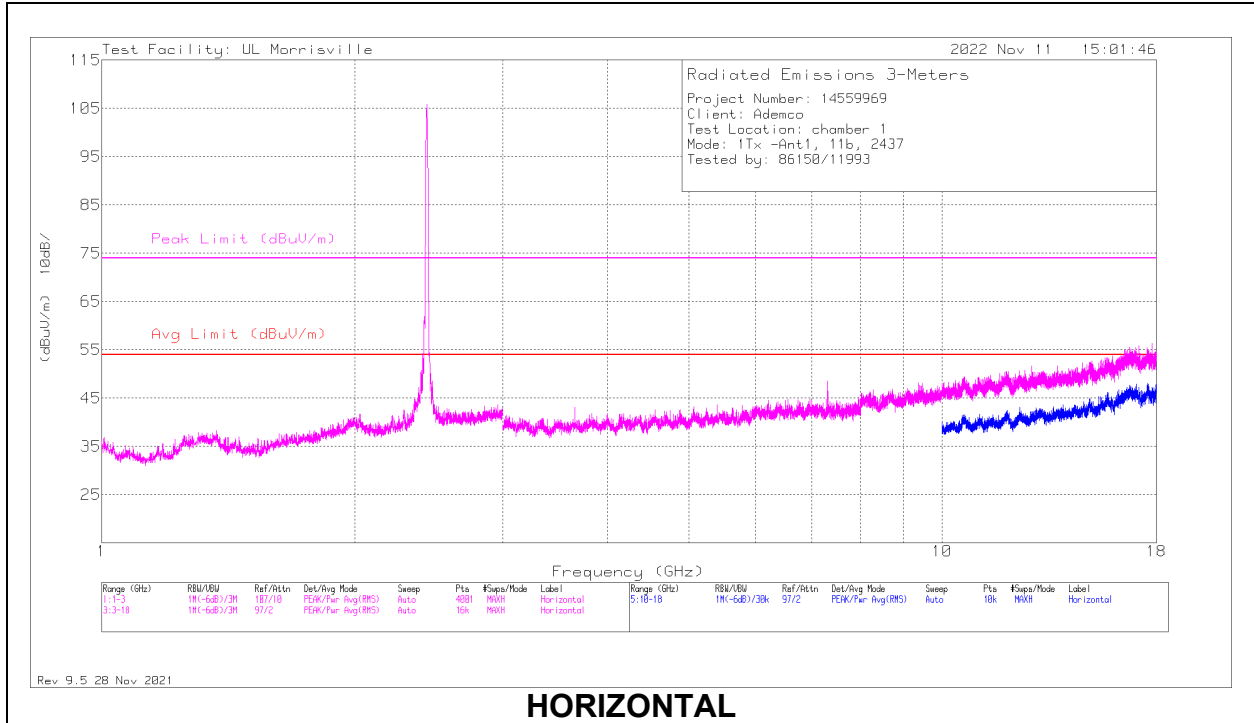
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.886	34.51	Pk	32.7	-23.9	43.31	54	-10.69	74	-30.69	0-360	101	H
5	* ** 2.7495	34.66	Pk	32.5	-24.2	42.96	54	-11.04	74	-31.04	0-360	200	V
2	* ** 3.61781	39.7	Pk	33	-31.4	41.3	54	-12.7	74	-32.7	0-360	200	H
4	* ** 9.49219	38.33	Pk	36.7	-28.1	46.93	54	-7.07	74	-27.07	0-360	200	H
6	* ** 3.61781	43.7	Pk	33	-31.4	45.3	54	-8.7	74	-28.7	0-360	200	V
8	* ** 8.14594	40.8	Pk	35.8	-28.9	47.7	54	-6.3	74	-26.3	0-360	200	V
3	7.23563	41.05	Pk	35.7	-29.9	46.85	-	-	-	-	0-360	200	H
7	7.23563	39.46	Pk	35.7	-29.9	45.26	-	-	-	-	0-360	101	V

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

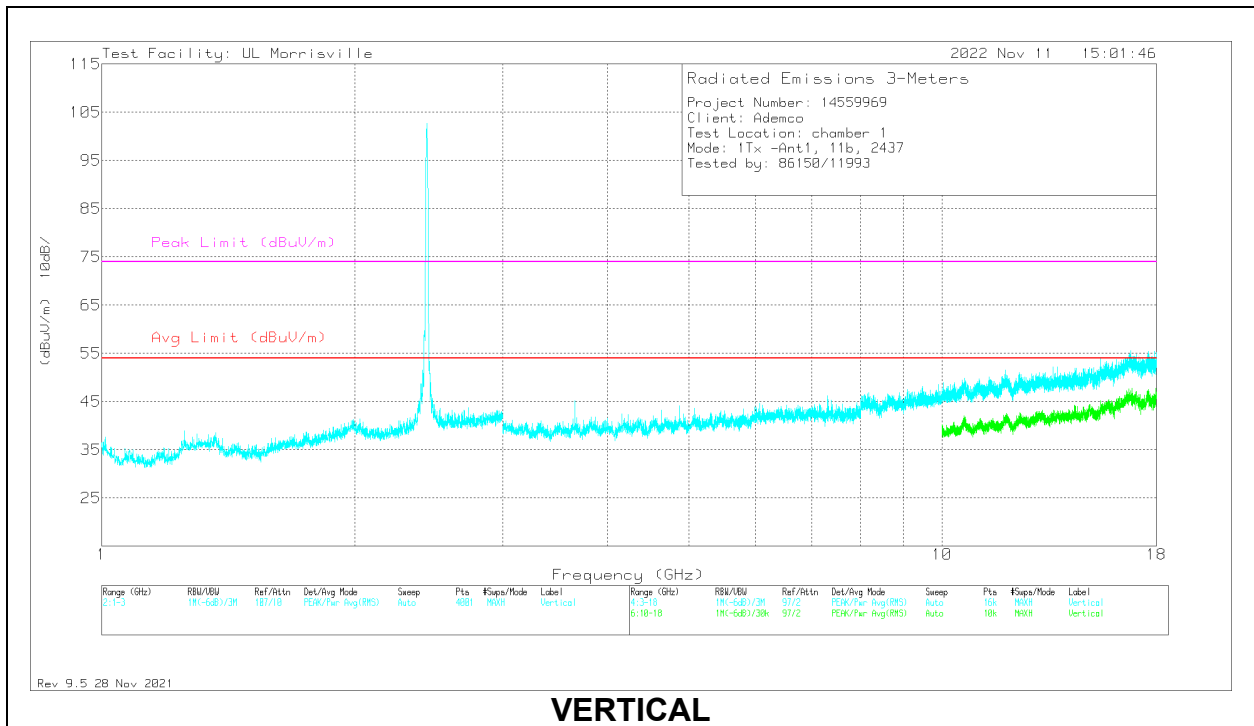
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.8535	34.83	Pk	32.5	-23.9	43.43	54	-10.57	74	-30.57	0-360	101	H
6	*** 2.729	35.15	Pk	32.5	-23.9	43.75	54	-10.25	74	-30.25	0-360	200	V
2	*** 3.65531	41.85	Pk	32.8	-31.5	43.15	54	-10.85	74	-30.85	0-360	200	H
3	*** 4.87594	40.23	Pk	34	-31.6	42.63	54	-11.37	74	-31.37	0-360	200	H
4	*** 7.311	45.14	PK2	35.6	-29.4	51.34	-	-	74	-22.66	287	105	H
	*** 7.31162	37.02	ADV	35.6	-29.4	43.22	54	-10.78	-	-	287	105	H
5	*** 9.37524	40.4	PK2	36.6	-28.2	48.8	-	-	74	-25.2	118	127	H
	*** 9.37478	27.96	ADV	36.6	-28.2	36.36	54	-17.64	-	-	118	127	H
7	*** 3.65531	43.89	Pk	32.8	-31.5	45.19	54	-8.81	74	-28.81	0-360	200	V
8	*** 4.87406	41.87	Pk	34	-31.7	44.17	54	-9.83	74	-29.83	0-360	200	V
9	*** 7.31156	40	Pk	35.6	-29.4	46.2	54	-7.8	74	-27.8	0-360	200	V
10	*** 9.48028	40.01	PK2	36.7	-28.3	48.41	-	-	74	-25.59	99	194	V
	*** 9.47988	27.8	ADV	36.7	-28.3	36.2	54	-17.8	-	-	99	194	V

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

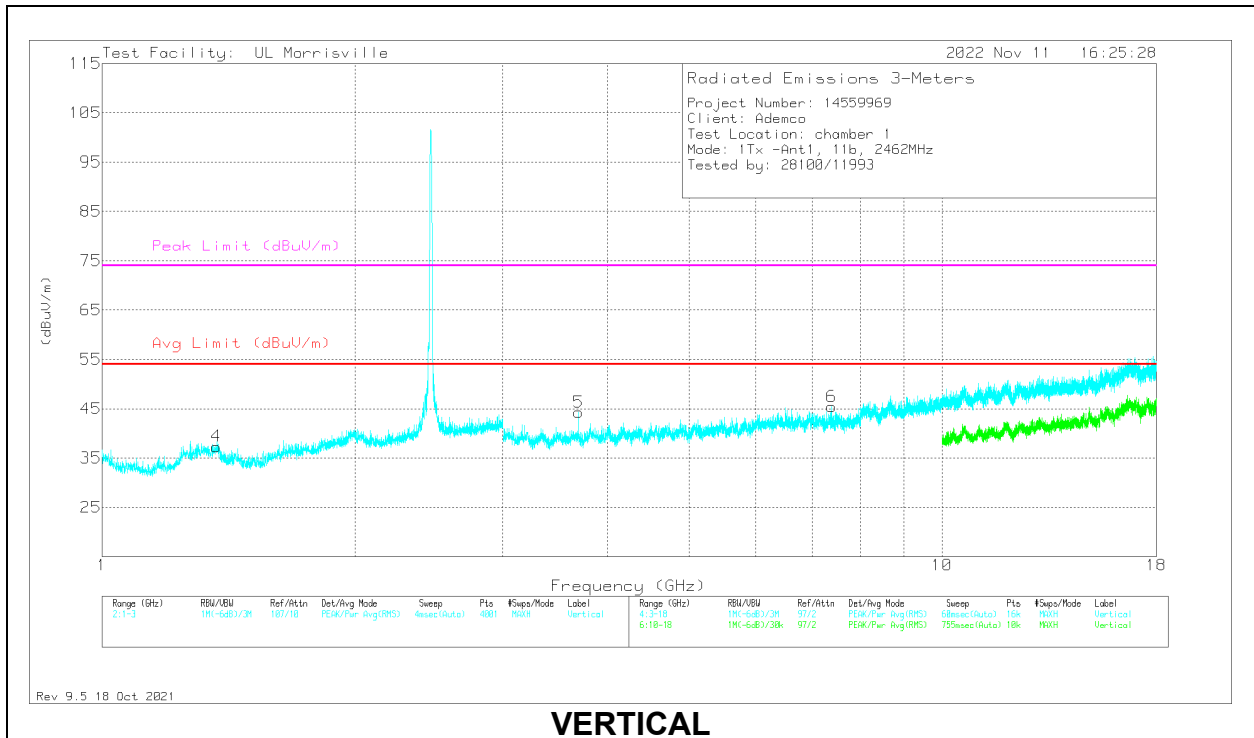
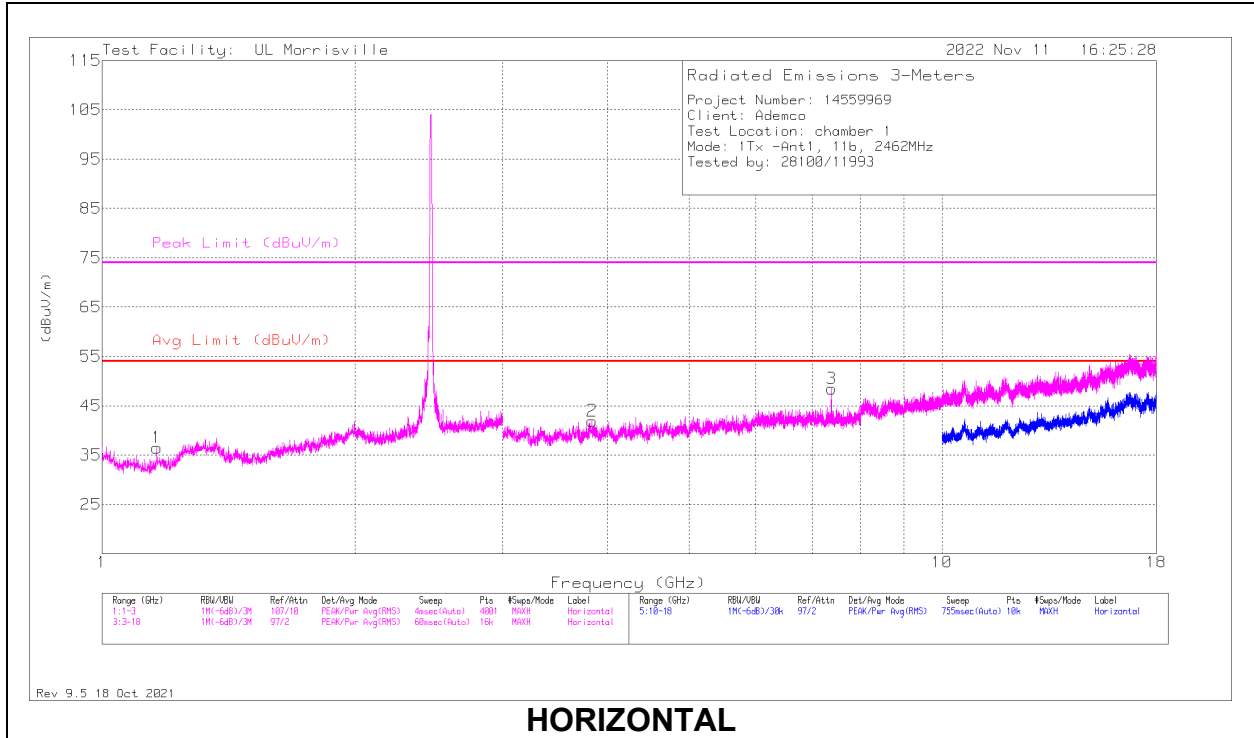
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.162	34.97	Pk	28.2	-26.7	36.47	54	-17.53	74	-37.53	0-360	101	H
4	* ** 1.367	33.45	Pk	29.4	-25.5	37.35	54	-16.65	74	-36.65	0-360	200	V
2	* ** 3.83156	40.6	Pk	33.4	-32.1	41.9	54	-12.1	74	-32.1	0-360	101	H
3	* ** 7.38582	43.93	PK2	35.6	-29.4	50.13	-	-	74	-23.87	305	251	H
	* ** 7.38669	35.41	ADV	35.6	-29.4	41.61	54	-12.39	-	-	305	251	H
5	* ** 3.69281	43.56	Pk	32.9	-32.2	44.26	54	-9.74	74	-29.74	0-360	200	V
6	* ** 7.3875	39.21	Pk	35.6	-29.4	45.41	54	-8.59	74	-28.59	0-360	200	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

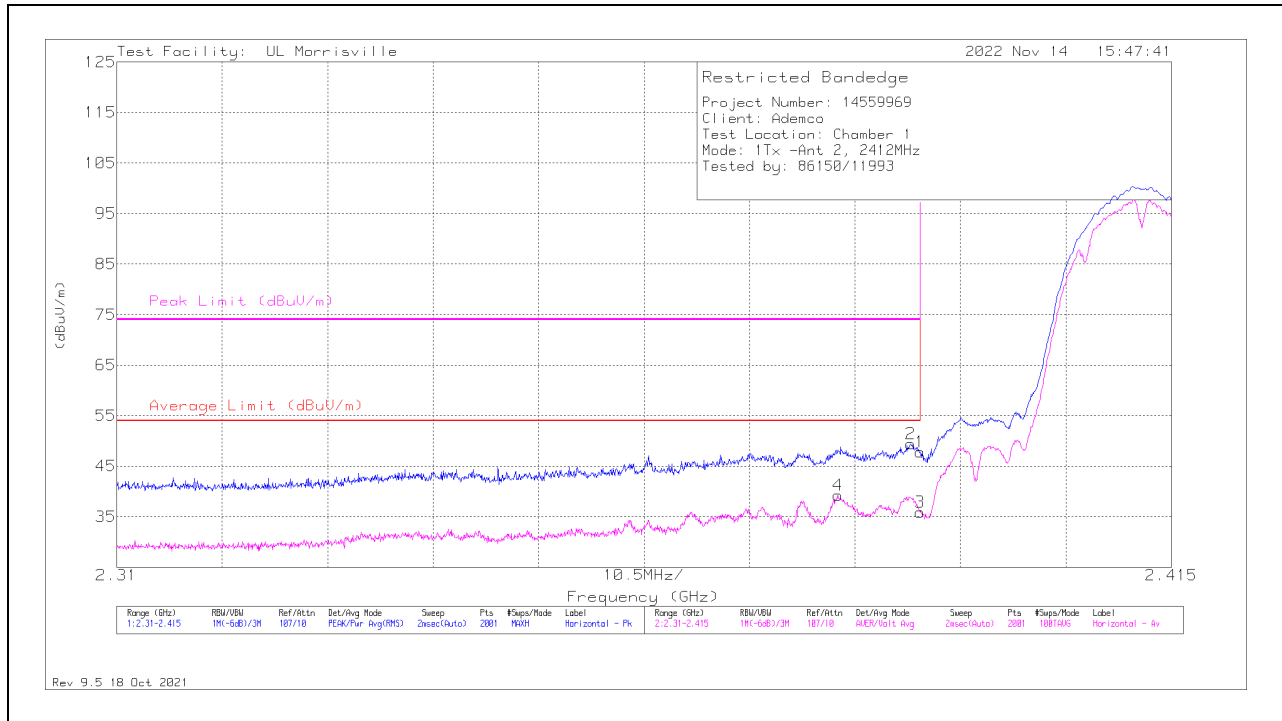
PK2 - Maximum Peak

ADV - Linear Voltage Average

Antenna 2

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	40.58	Pk	32	-24.8	47.78	-	-	74	-26.22	351	173	H
2	*** 2.38907	42.11	Pk	32	-24.7	49.41	-	-	74	-24.59	351	173	H
3	*** 2.38996	28.73	ADV	32	-24.8	35.93	54	-18.07	-	-	351	173	H
4	** 2.38182	32.15	ADV	32	-24.9	39.25	54	-14.75	-	-	351	173	H

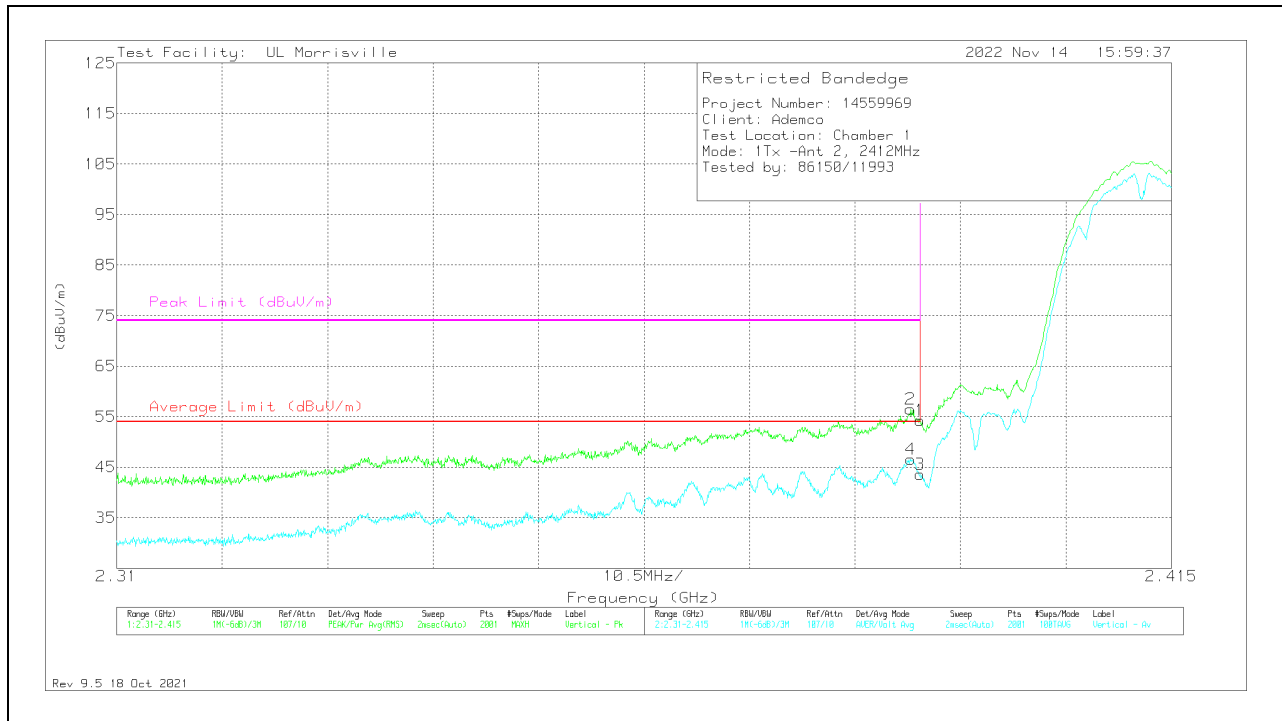
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	47.02	Pk	32	-24.8	54.22	-	-	74	-19.78	99	198	V
2	*** 2.38901	49.17	Pk	32	-24.7	56.47	-	-	74	-17.53	99	198	V
3	*** 2.38996	36.42	ADV	32	-24.8	43.62	54	-10.38	-	-	99	198	V
4	*** 2.38907	39.26	ADV	32	-24.7	46.56	54	-7.44	-	-	99	198	V

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

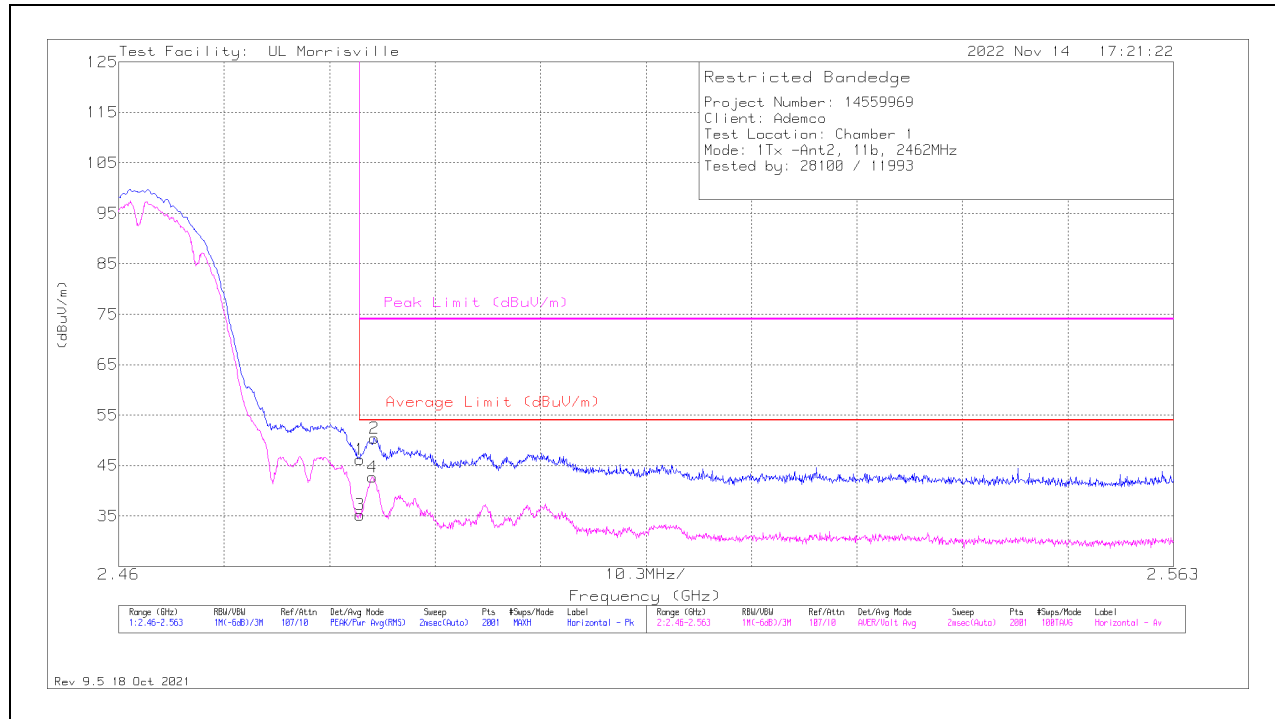
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

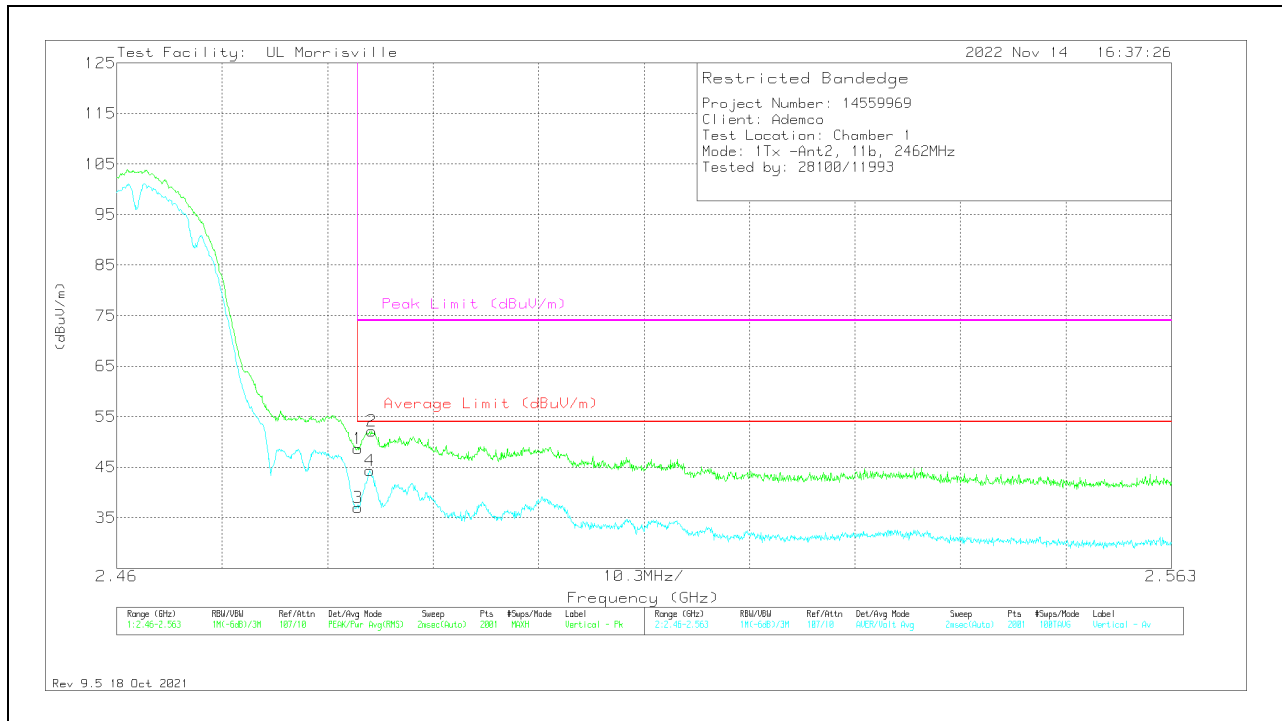
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	38.08	Pk	32.5	-24.4	46.18	-	-	74	-27.82	352	370	H
2	*** 2.48498	42.21	Pk	32.4	-24.2	50.41	-	-	74	-23.59	352	370	H
3	*** 2.48354	27.11	ADV	32.5	-24.4	35.21	54	-18.79	-	-	352	370	H
4	*** 2.48477	34.62	ADV	32.4	-24.3	42.72	54	-11.28	-	-	352	370	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	AT0072 (dB/m)	Gain/Loss (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	40.59	Pk	32.5	-24.4	48.69	-	-	74	-25.31	136	129	V
2	*** 2.48493	43.96	Pk	32.4	-24.2	52.16	-	-	74	-21.84	136	129	V
3	*** 2.48354	28.91	ADV	32.5	-24.4	37.01	54	-16.99	-	-	136	129	V
4	*** 2.48472	36.13	ADV	32.5	-24.3	44.33	54	-9.67	-	-	136	129	V

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

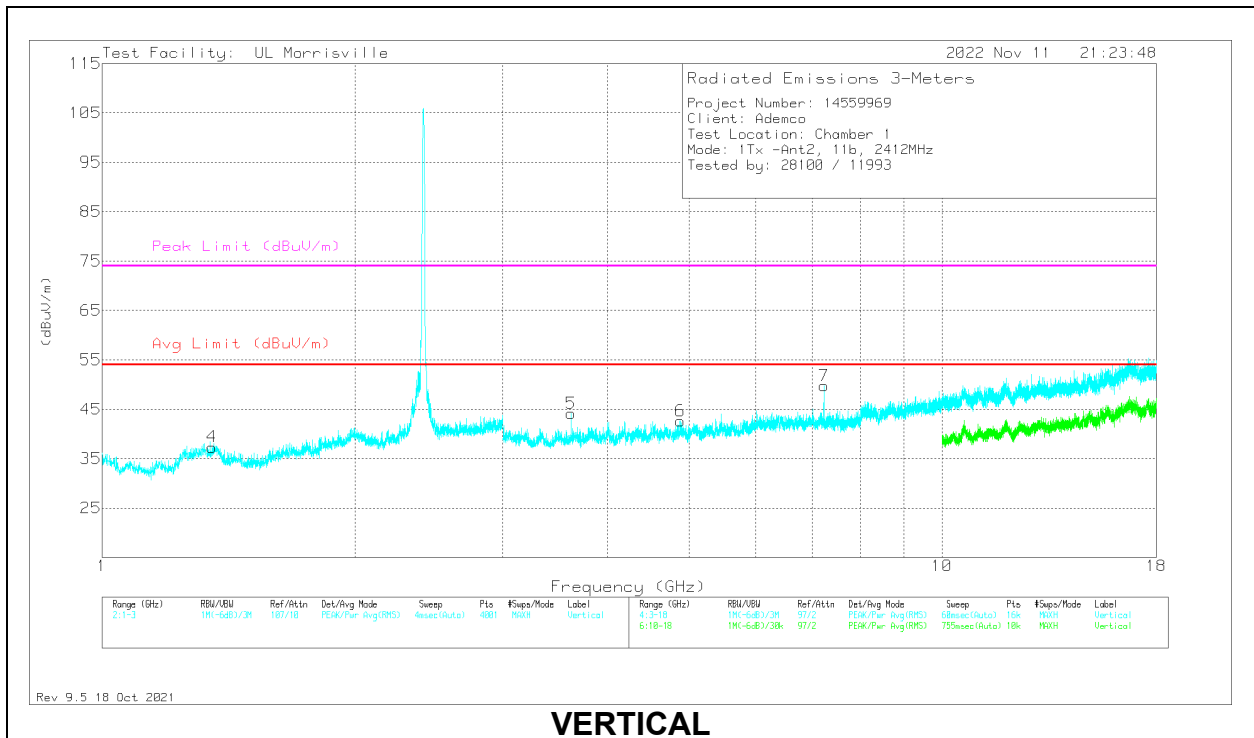
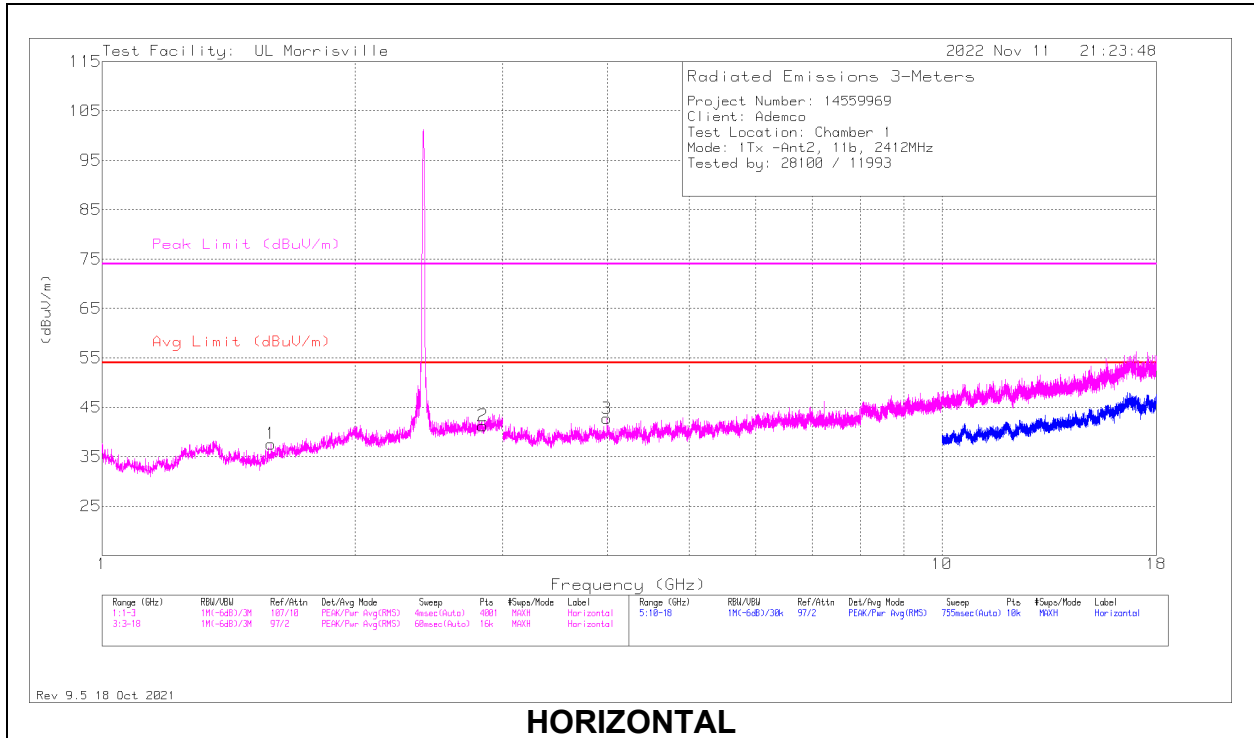
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



RADIATED EMISSIONS

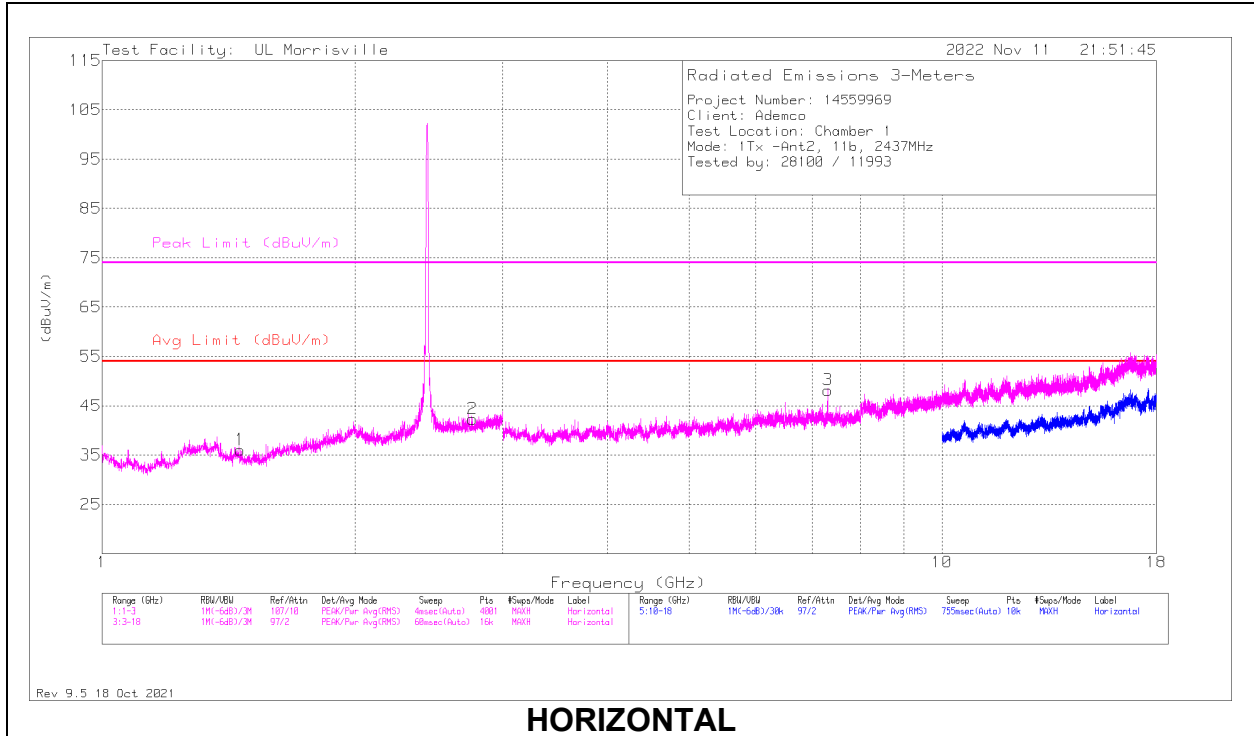
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.589	34.2	Pk	28.4	-25	37.6	54	-16.4	74	-36.4	0-360	200	H
2	* ** 2.8405	32.77	Pk	32.5	-24	41.27	54	-12.73	74	-32.73	0-360	101	H
4	* ** 1.351	33.44	Pk	29.6	-25.7	37.34	54	-16.66	74	-36.66	0-360	101	V
3	*** 3.99094	41.46	Pk	33.4	-32.1	42.76	54	-11.24	74	-31.24	0-360	200	H
5	*** 3.61781	42.55	Pk	33	-31.4	44.15	54	-9.85	74	-29.85	0-360	200	V
6	*** 4.88156	40.11	Pk	34	-31.5	42.61	54	-11.39	74	-31.39	0-360	101	V
7	7.23563	43.97	Pk	35.7	-29.9	49.77	-	-	-	-	0-360	200	V

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

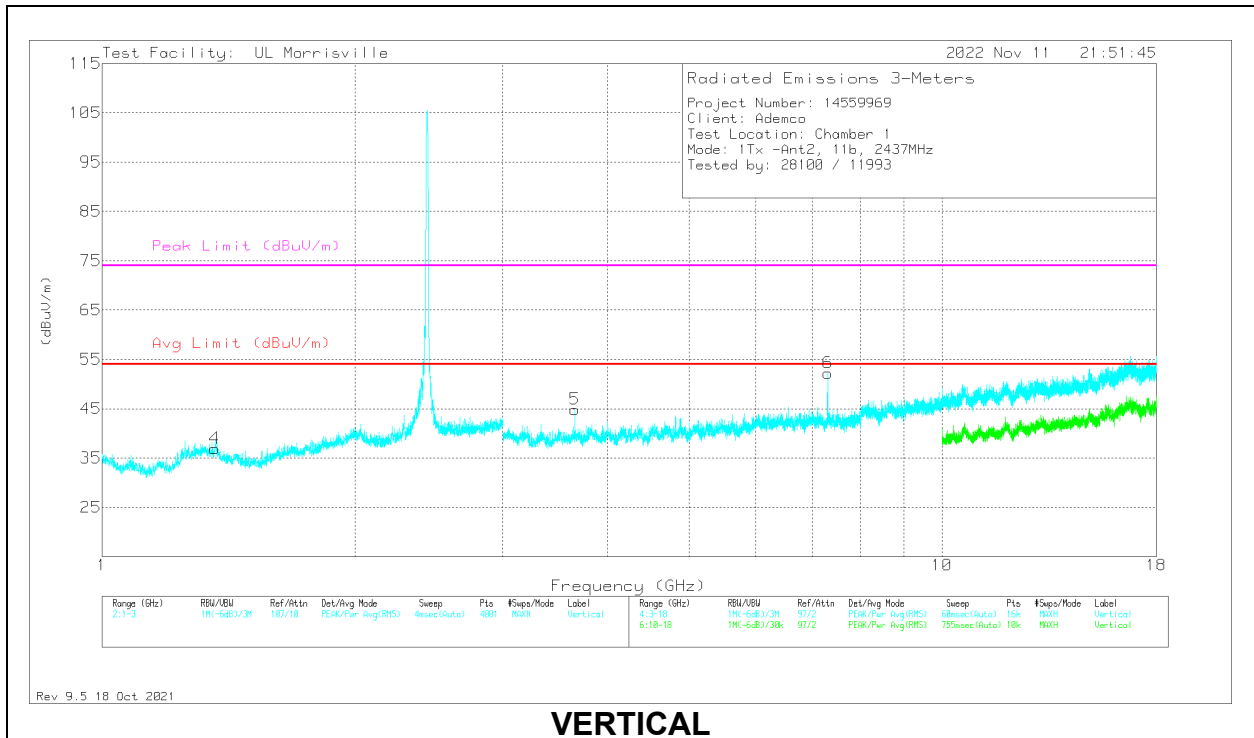
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.4595	32.84	Pk	28.5	-25.3	36.04	54	-17.96	74	-37.96	0-360	101	H
2	* ** 2.761	33.83	Pk	32.5	-24	42.33	54	-11.67	74	-31.67	0-360	101	H
4	* ** 1.3615	32.91	Pk	29.6	-25.6	36.91	54	-17.09	74	-37.09	0-360	200	V
3	* ** 7.30772	38.86	PK2	35.6	-29.5	44.96	54	-9.04	74	-29.04	44	154	H
	* ** 7.31117	26.63	ADV	35.6	-29.4	32.83	54	-21.17	-	-	44	154	H
5	* ** 3.65531	43.56	Pk	32.8	-31.5	44.86	54	-9.14	74	-29.14	0-360	200	V
6	* ** 7.31074	39.04	PK2	35.6	-29.4	45.24	54	-8.76	74	-28.76	167	353	V
	* ** 7.31086	26.42	ADV	35.6	-29.4	32.62	54	-21.38	-	-	167	353	V

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

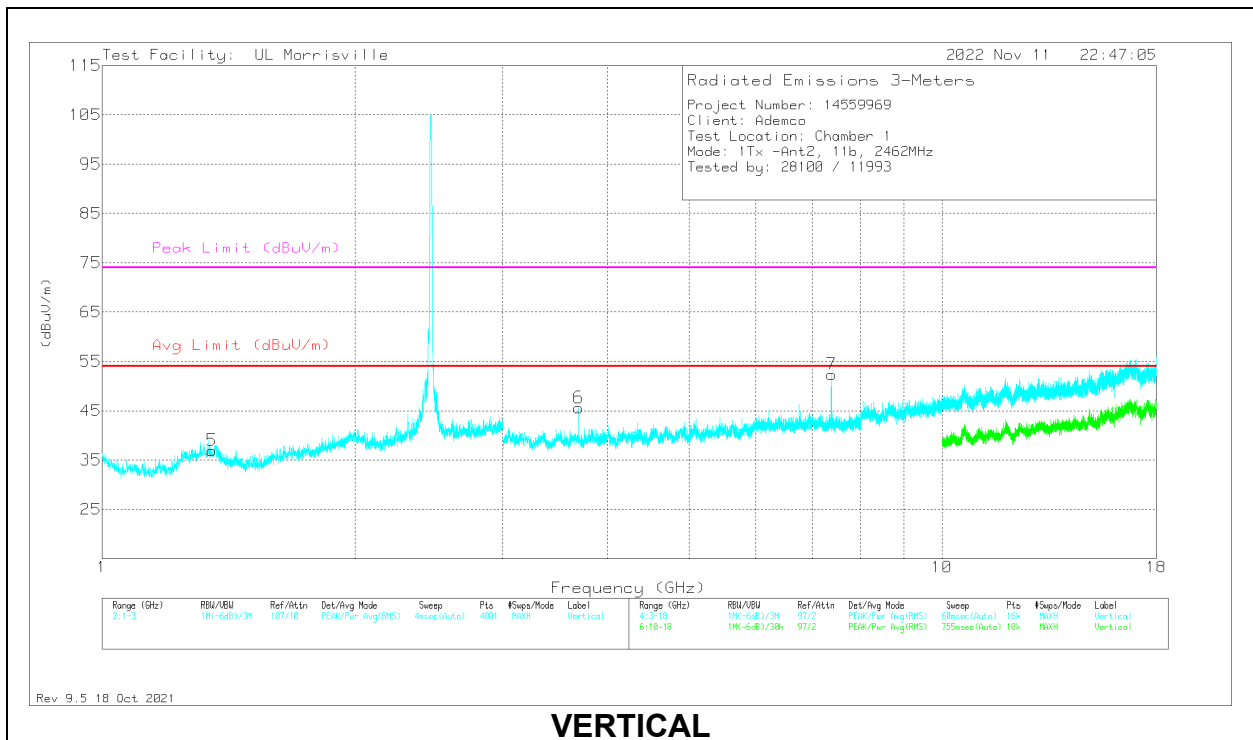
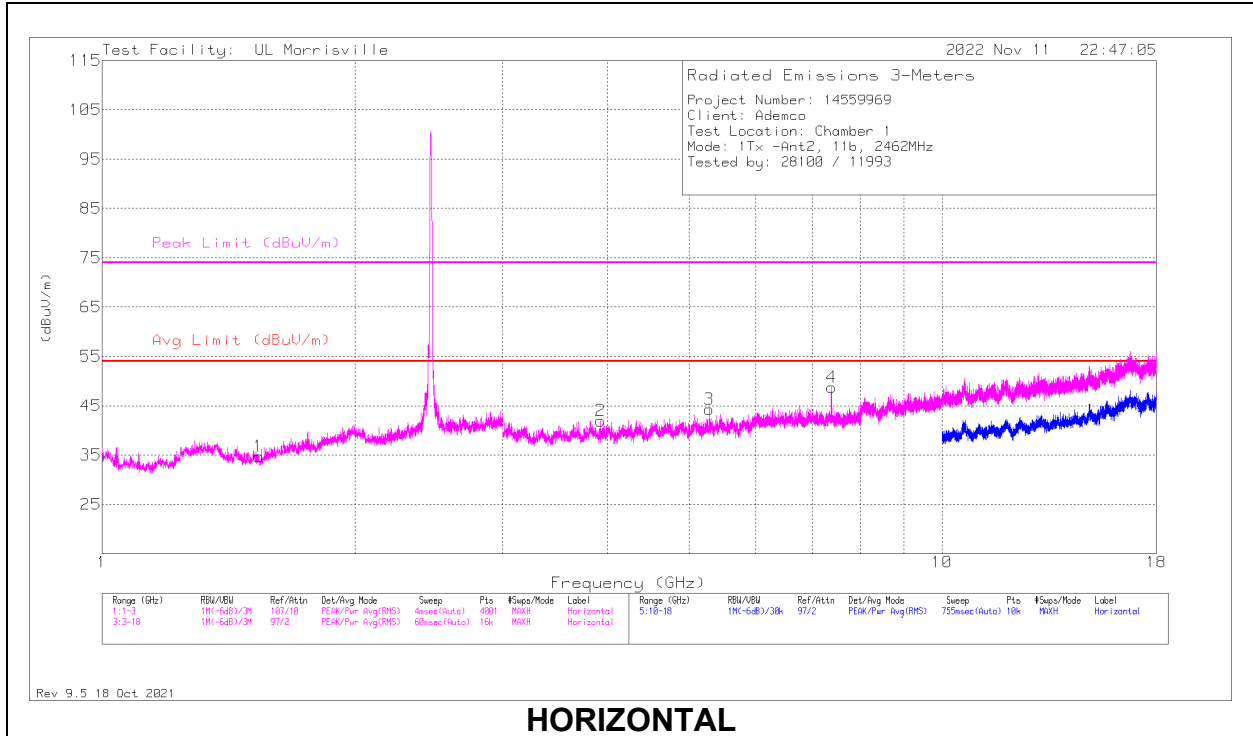
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.536	31.94	Pk	28	-25.2	34.74	54	-19.26	74	-39.26	0-360	101	H
5	* ** 1.351	33.02	Pk	29.6	-25.7	36.92	54	-17.08	74	-37.08	0-360	200	V
2	* ** 3.9225	40.36	Pk	33.4	-31.8	41.96	54	-12.04	74	-32.04	0-360	101	H
4	* ** 7.38586	46.17	PK2	35.6	-29.4	52.37	-	-	74	-21.63	186	103	H
	* ** 7.38662	38.97	ADV	35.6	-29.4	45.17	54	-8.83	-	-	186	103	H
6	* ** 3.69281	44.9	Pk	32.9	-32.2	45.6	54	-8.4	74	-28.4	0-360	200	V
7	* ** 7.38615	48.22	PK2	35.6	-29.4	54.42	-	-	74	-19.58	4	113	V
	* ** 7.38676	41.92	ADV	35.6	-29.4	48.12	54	-5.88	-	-	4	113	V
3	5.28375	42.18	Pk	34.4	-32.3	44.28	-	-	-	-	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

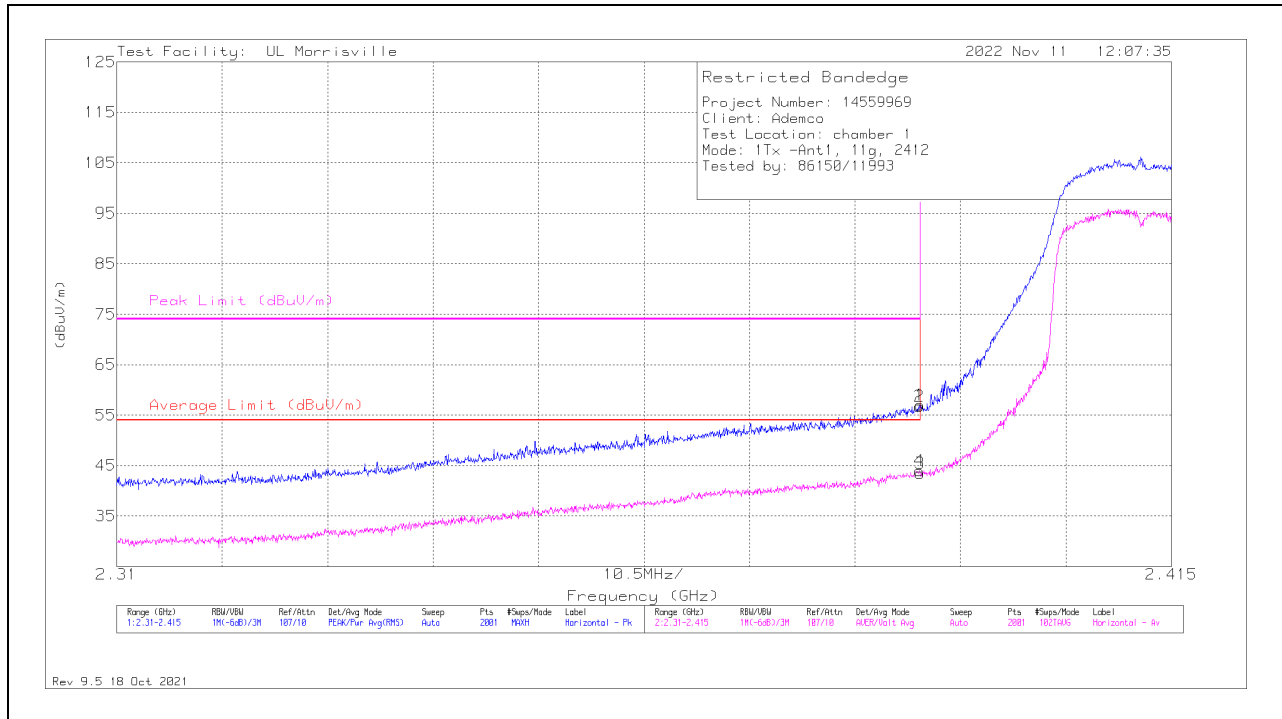
ADV - Linear Voltage Average

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

Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	49.83	Pk	32	-24.8	0	57.03	-	-	74	-16.97	139	185	H
2	* ** 2.38991	49.6	Pk	32	-24.8	0	56.8	-	-	74	-17.2	139	185	H
3	* ** 2.38996	35.96	ADV	32	-24.8	.25	43.41	54	-10.59	-	-	139	185	H
4	* ** 2.38991	36.54	ADV	32	-24.8	.25	43.99	54	-10.01	-	-	139	185	H

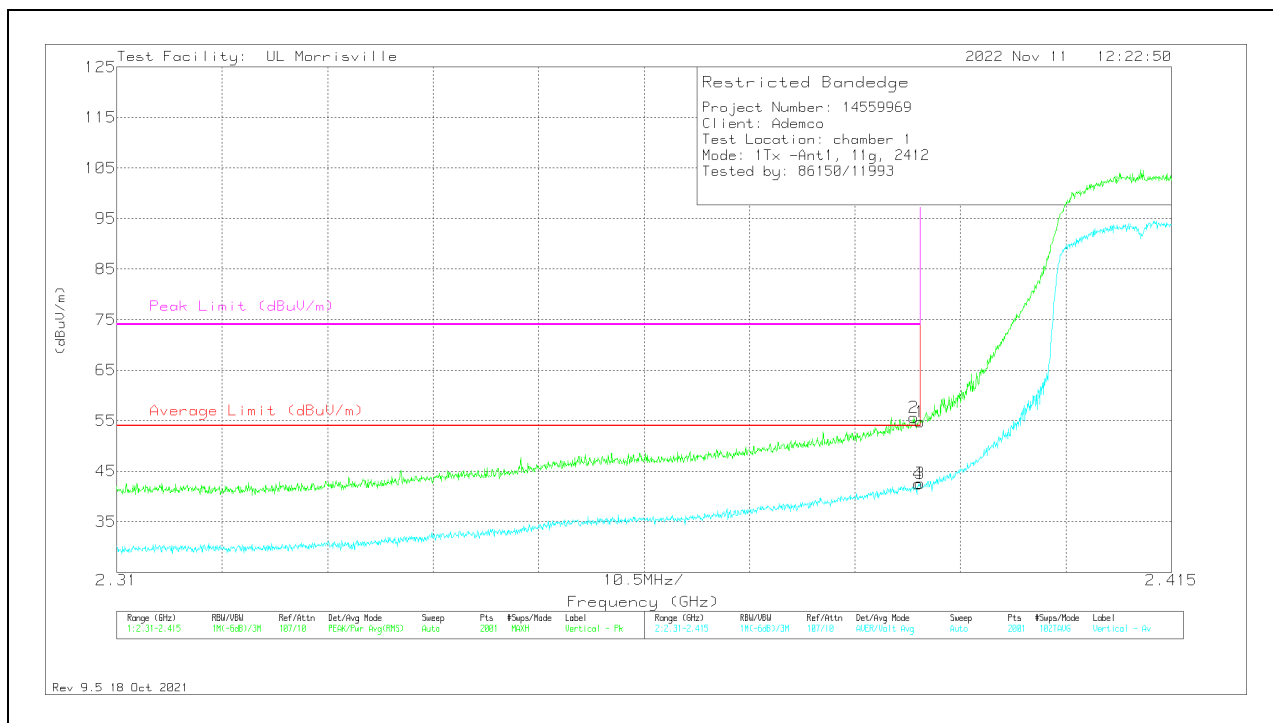
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	47.51	Pk	32	-24.8	0	54.71	-	-	74	-19.29	94	355	V
2	*** 2.38938	48.36	Pk	32	-24.7	0	55.66	-	-	74	-18.34	94	355	V
3	*** 2.38996	35.17	ADV	32	-24.8	.25	42.62	54	-11.38	-	-	94	354	V
4	*** 2.3898	35.03	ADV	32	-24.8	.25	42.48	54	-11.52	-	-	94	354	V

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

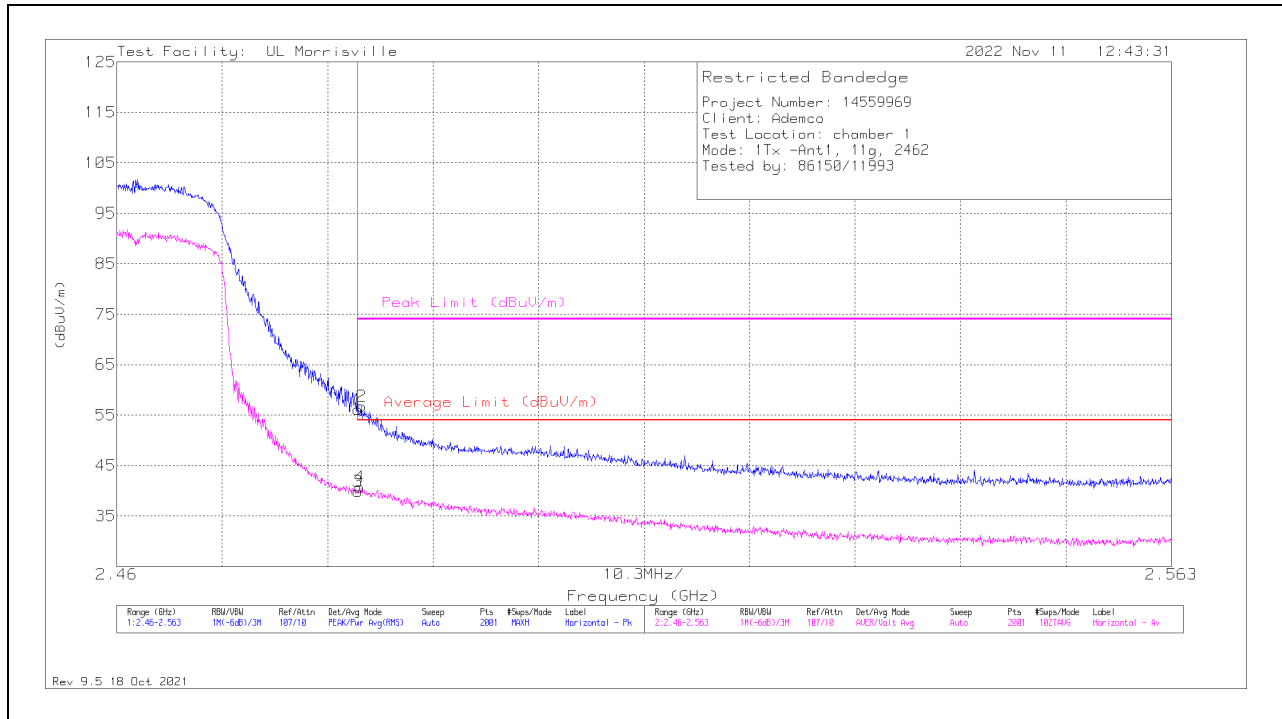
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	48.05	Pk	32.5	-24.4	0	56.15	-	-	74	-17.85	129	188	H
2	* ** 2.4839	48.69	Pk	32.5	-24.4	0	56.79	-	-	74	-17.21	129	188	H
3	* ** 2.48354	31.49	ADV	32.5	-24.4	.25	39.84	54	-14.16	-	-	129	188	H
4	* ** 2.48374	32.39	ADV	32.5	-24.4	.25	40.74	54	-13.26	-	-	129	188	H

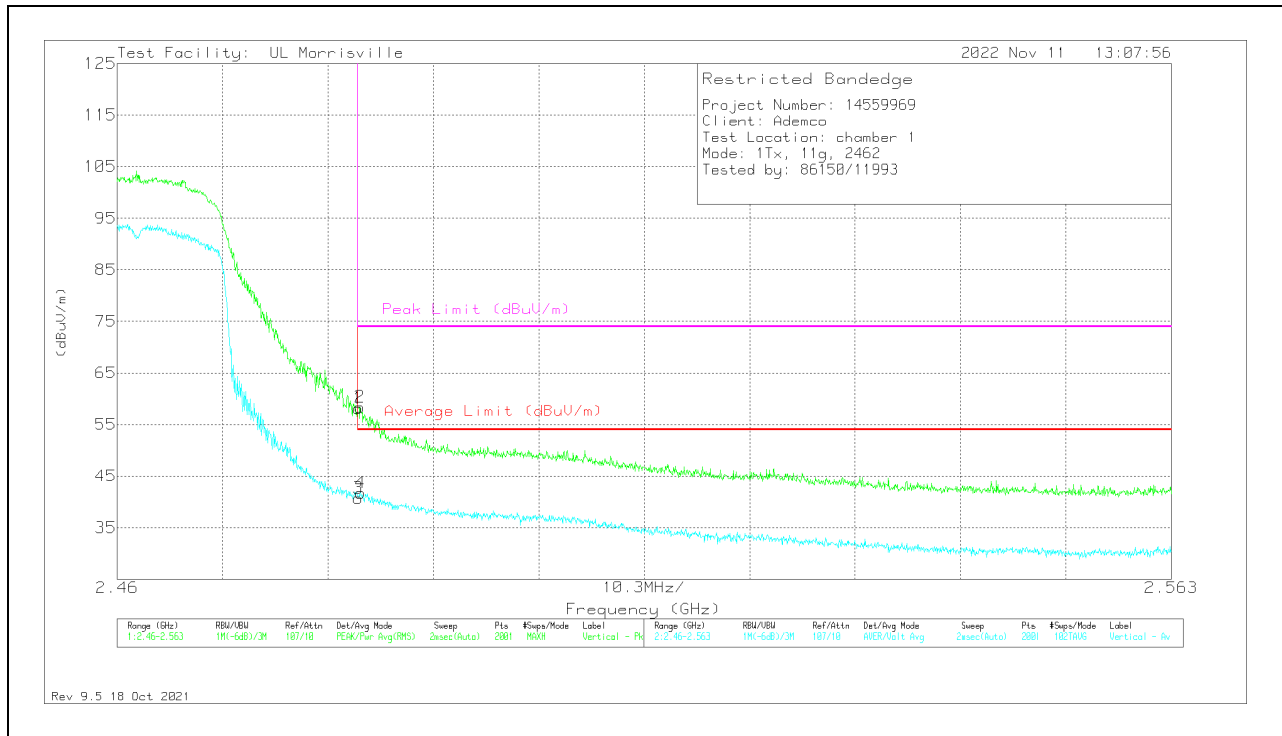
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

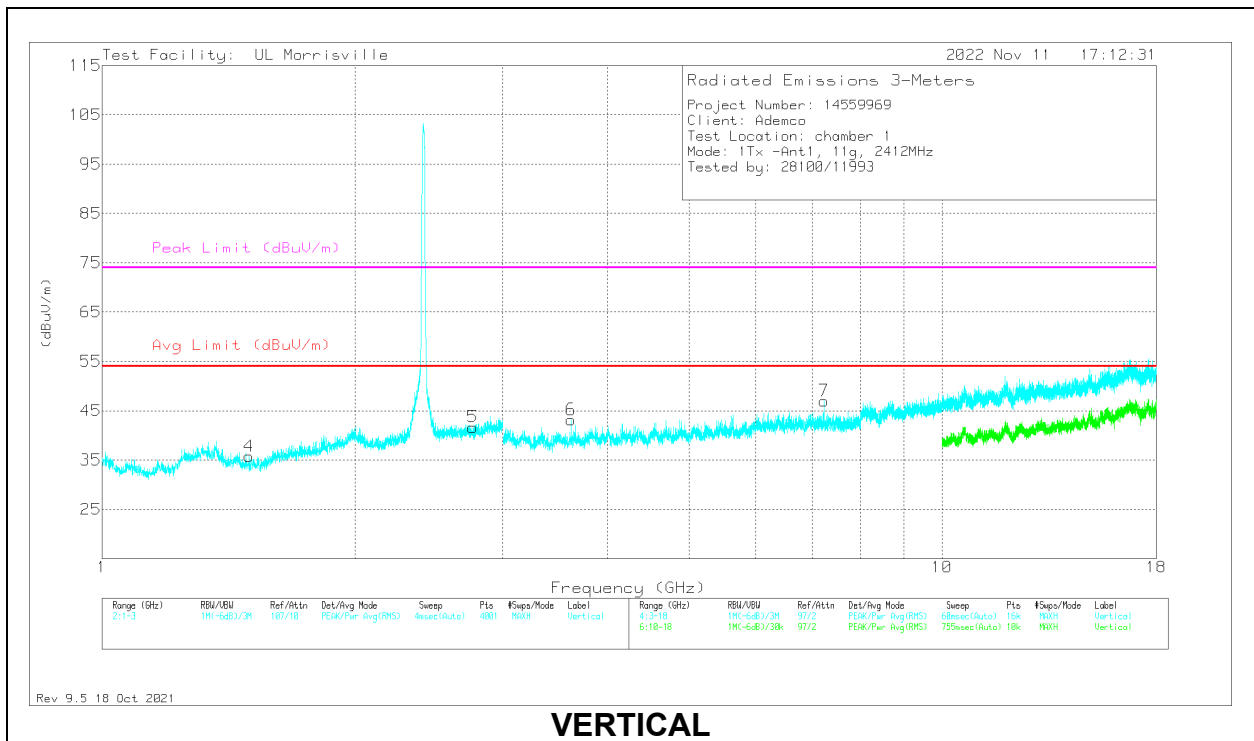
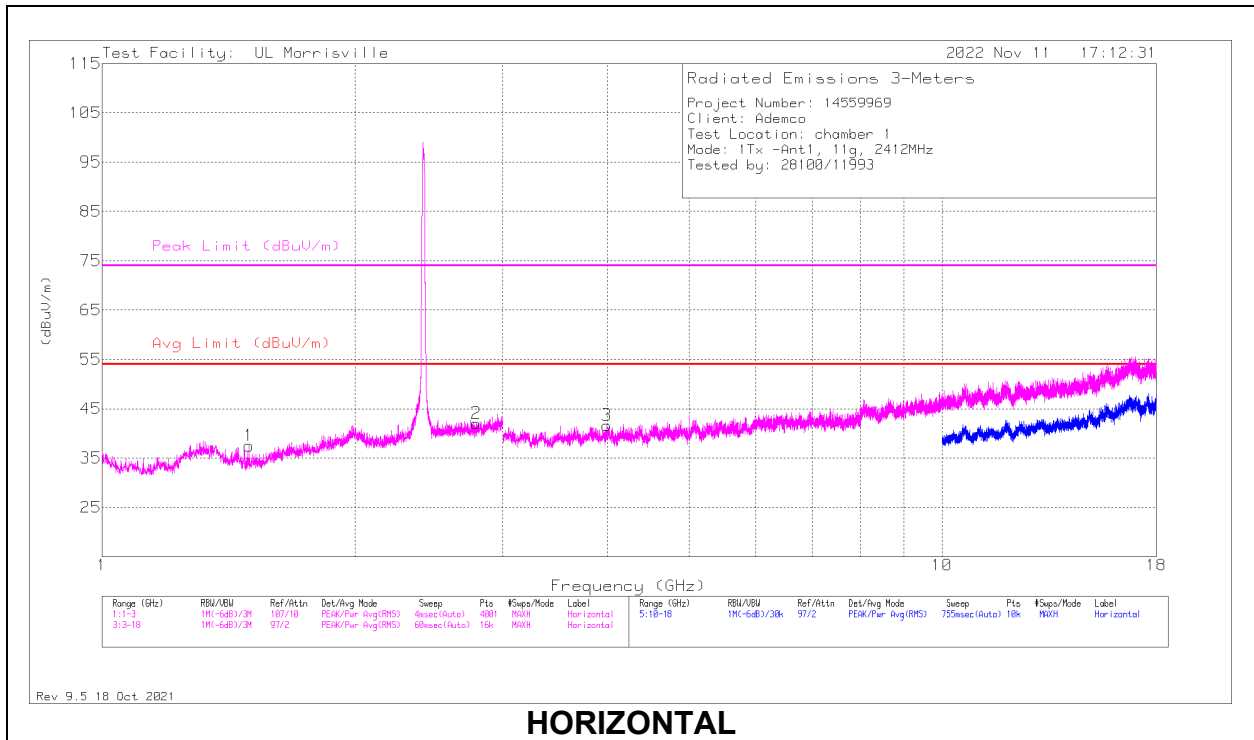


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	50.06	Pk	32.5	-24.4	0	58.16	-	-	74	-15.84	64	226	V
2	* ** 2.48374	50.29	Pk	32.5	-24.4	0	58.39	-	-	74	-15.61	64	226	V
3	* ** 2.48354	32.39	ADV	32.5	-24.4	.25	40.74	54	-13.26	-	-	64	226	V
4	* ** 2.48379	33.41	ADV	32.5	-24.4	.25	41.76	54	-12.24	-	-	64	226	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

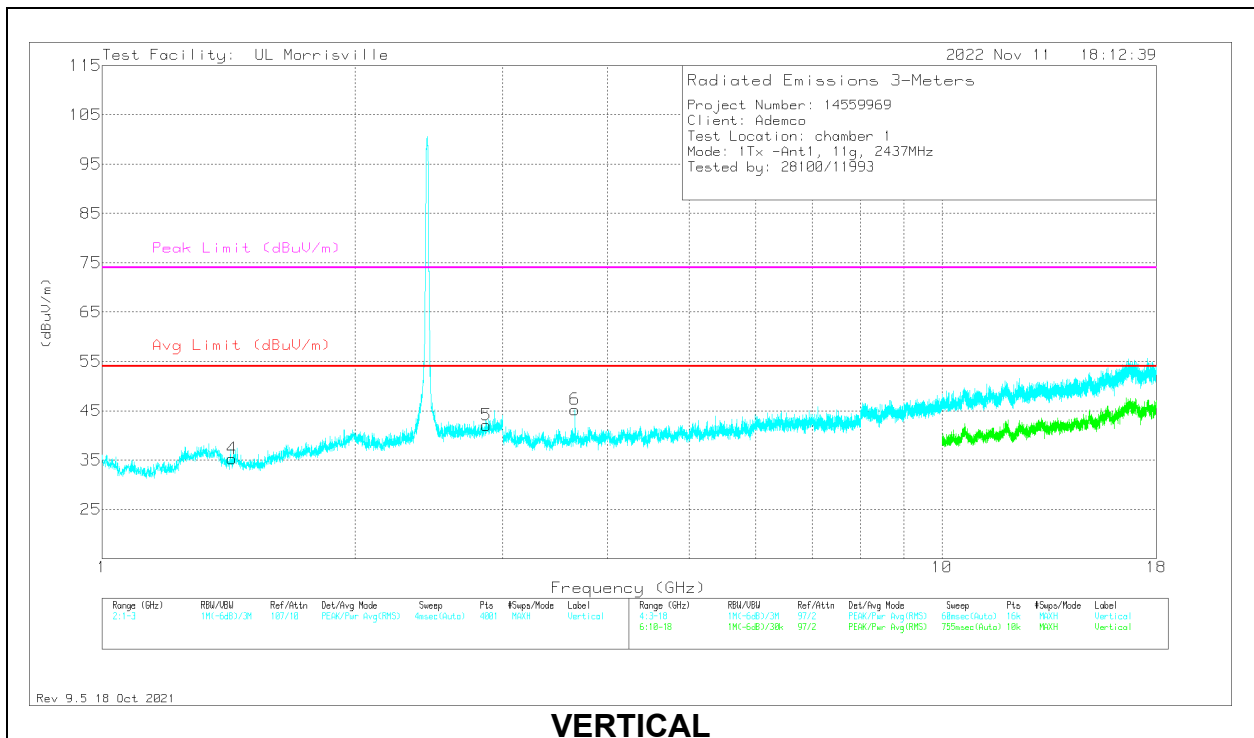
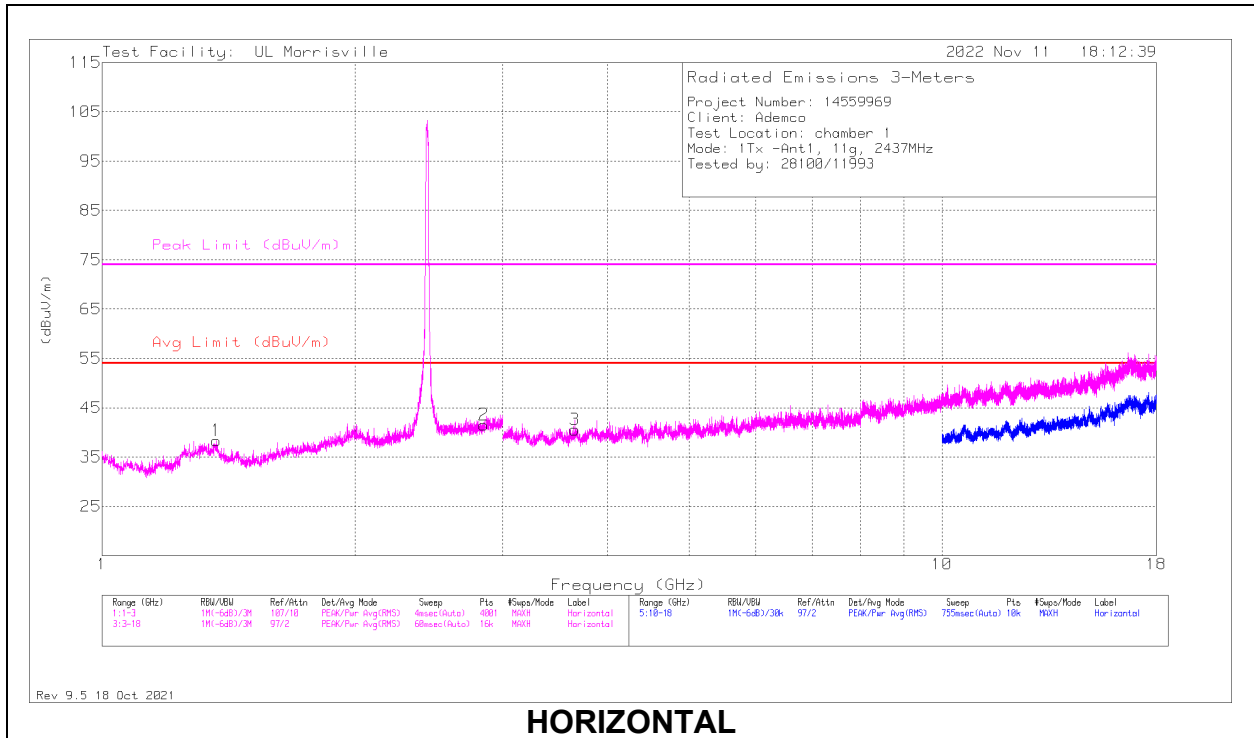
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.496	34.59	Pk	28.3	-25.4	37.49	54	-16.51	74	-36.51	0-360	200	H
2	* ** 2.791	33.51	Pk	32.6	-24.1	42.01	54	-11.99	74	-31.99	0-360	200	H
4	* ** 1.495	32.73	Pk	28.3	-25.3	35.73	54	-18.27	74	-38.27	0-360	101	V
5	* ** 2.763	33.28	Pk	32.5	-24.1	41.68	54	-12.32	74	-32.32	0-360	101	V
3	* ** 3.99094	40.33	Pk	33.4	-32.1	41.63	54	-12.37	74	-32.37	0-360	200	H
6	* ** 3.61781	41.55	Pk	33	-31.4	43.15	54	-10.85	74	-30.85	0-360	200	V
7	7.23563	41.19	Pk	35.7	-29.9	46.99	-	-	-	-	0-360	200	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



RADIATED EMISSIONS

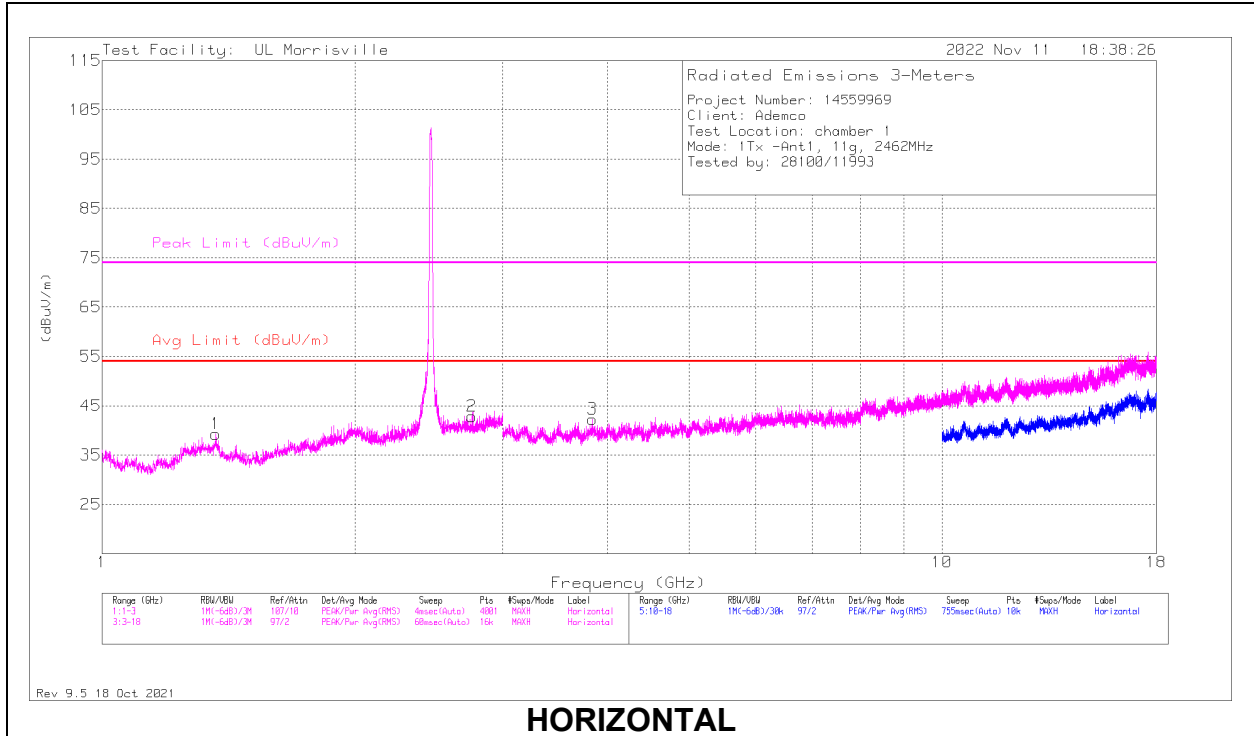
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 1.3675	34.42	Pk	29.4	-25.5	38.32	54	-15.68	74	-35.68	0-360	101	H
2	* ** 2.848	33.32	Pk	32.5	-24.3	41.52	54	-12.48	74	-32.48	0-360	200	H
5	* ** 2.867	33.18	Pk	32.6	-23.7	42.08	54	-11.92	74	-31.92	0-360	200	V
3	* ** 3.65625	39.26	Pk	32.8	-31.5	40.56	54	-13.44	74	-33.44	0-360	199	H
6	* ** 3.65531	43.95	Pk	32.8	-31.5	45.25	54	-8.75	74	-28.75	0-360	200	V
4	1.4275	32.27	Pk	28.7	-25.7	35.27	-	-	-	-	0-360	200	V

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

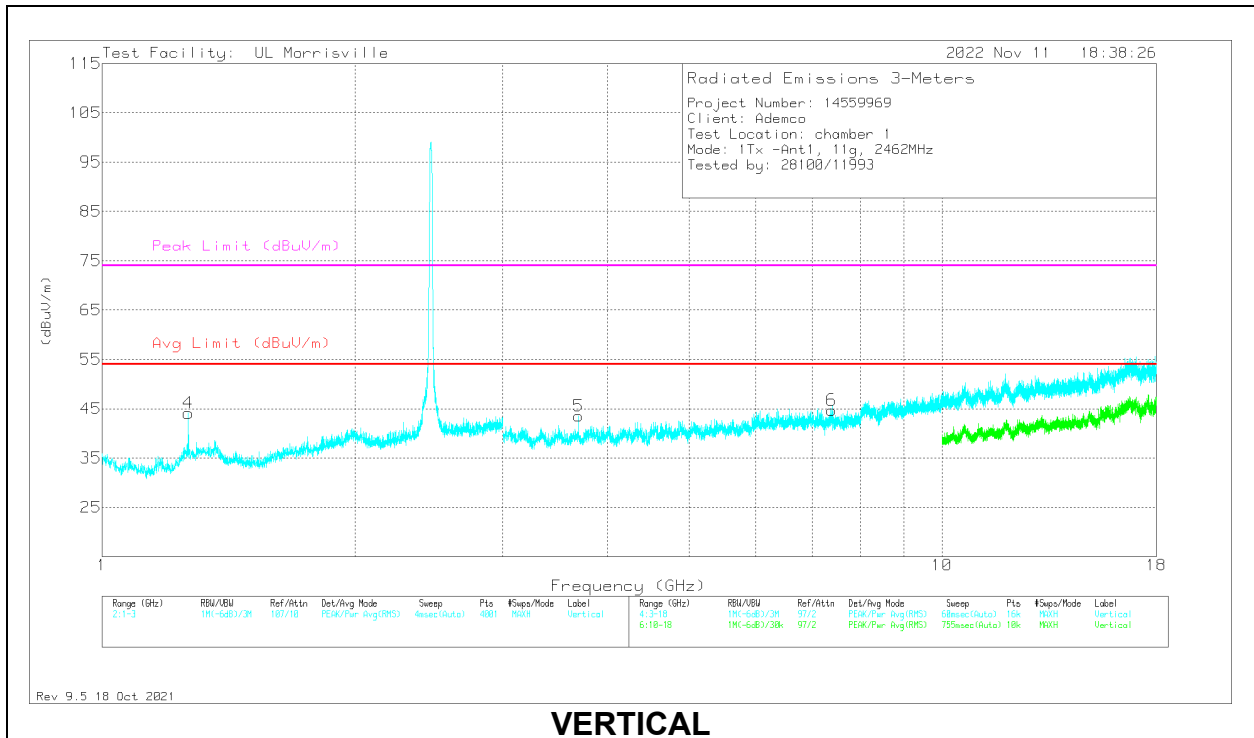
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 1.365	35.08	Pk	29.5	-25.3	39.28	54	-14.72	74	-34.72	0-360	101	H
2	*** 2.7555	34.15	Pk	32.5	-23.8	42.85	54	-11.15	74	-31.15	0-360	200	H
4	* 1.2665	40.41	Pk	29.7	-26	44.11	54	-9.89	74	-29.89	0-360	101	V
3	*** 3.83719	41.3	Pk	33.4	-32.4	42.3	54	-11.7	74	-31.7	0-360	200	H
5	*** 3.69281	42.83	Pk	32.9	-32.2	43.53	54	-10.47	74	-30.47	0-360	200	V
6	*** 7.38563	38.49	Pk	35.6	-29.4	44.69	54	-9.31	74	-29.31	0-360	101	V

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

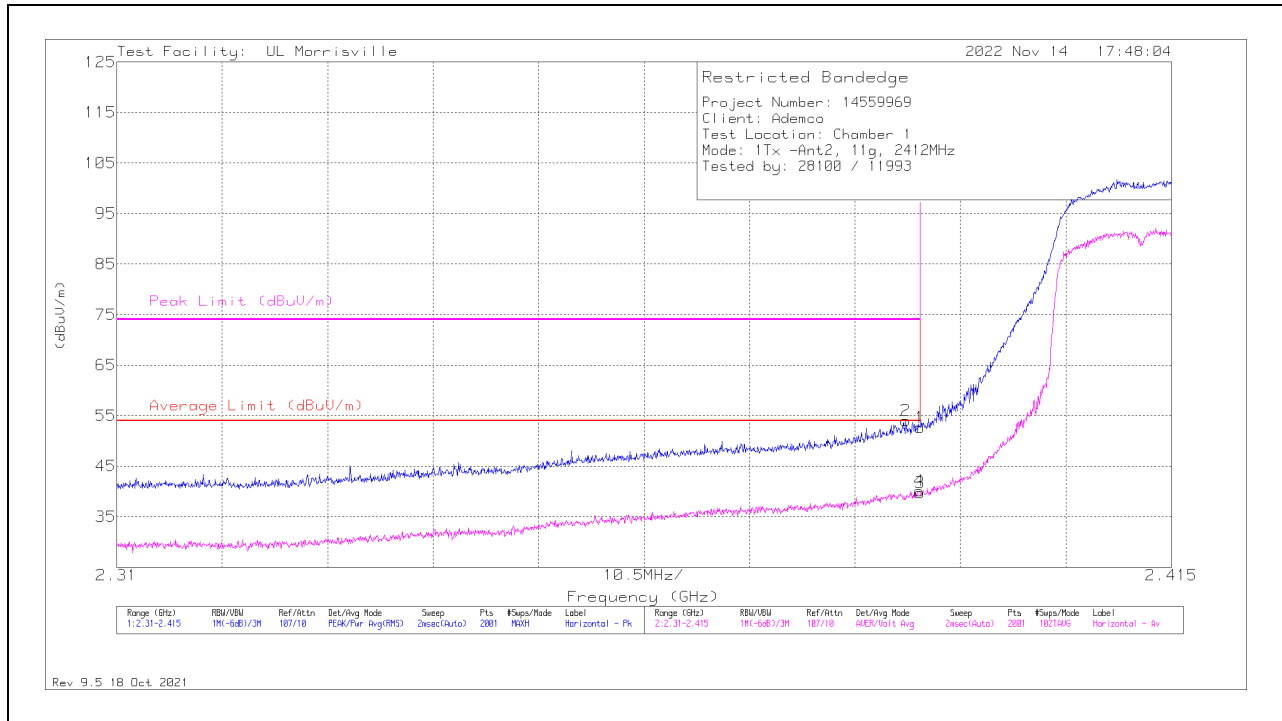
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

Antenna 2

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	45.47	Pk	32	-24.8	0	52.67	-	-	74	-21.33	353	109	H
2	* ** 2.38854	46.77	Pk	32	-24.7	0	54.07	-	-	74	-19.93	353	109	H
3	* ** 2.38996	32.57	ADV	32	-24.8	.25	40.02	54	-13.98	-	-	353	109	H
4	* ** 2.38991	32.93	ADV	32	-24.8	.25	40.138	54	-13.62	-	-	353	109	H

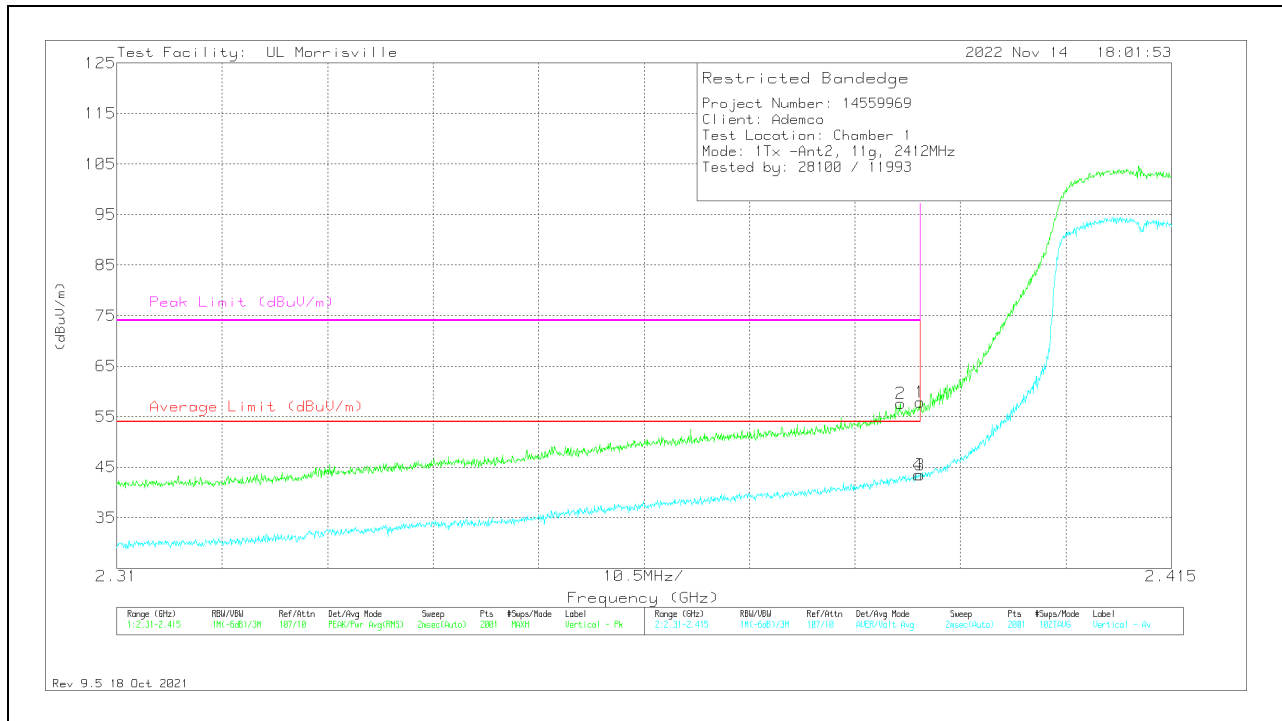
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	50.61	Pk	32	-24.8	0	57.81	-	-	74	-16.19	350	153	V
2	*** 2.38802	50.24	Pk	32	-24.6	0	57.64	-	-	74	-16.36	350	153	V
3	*** 2.38996	36.29	ADV	32	-24.8	.25	43.74	54	-10.26	-	-	350	153	V
4	*** 2.3898	36.24	ADV	32	-24.8	.25	43.69	54	-10.31	-	-	350	153	V

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

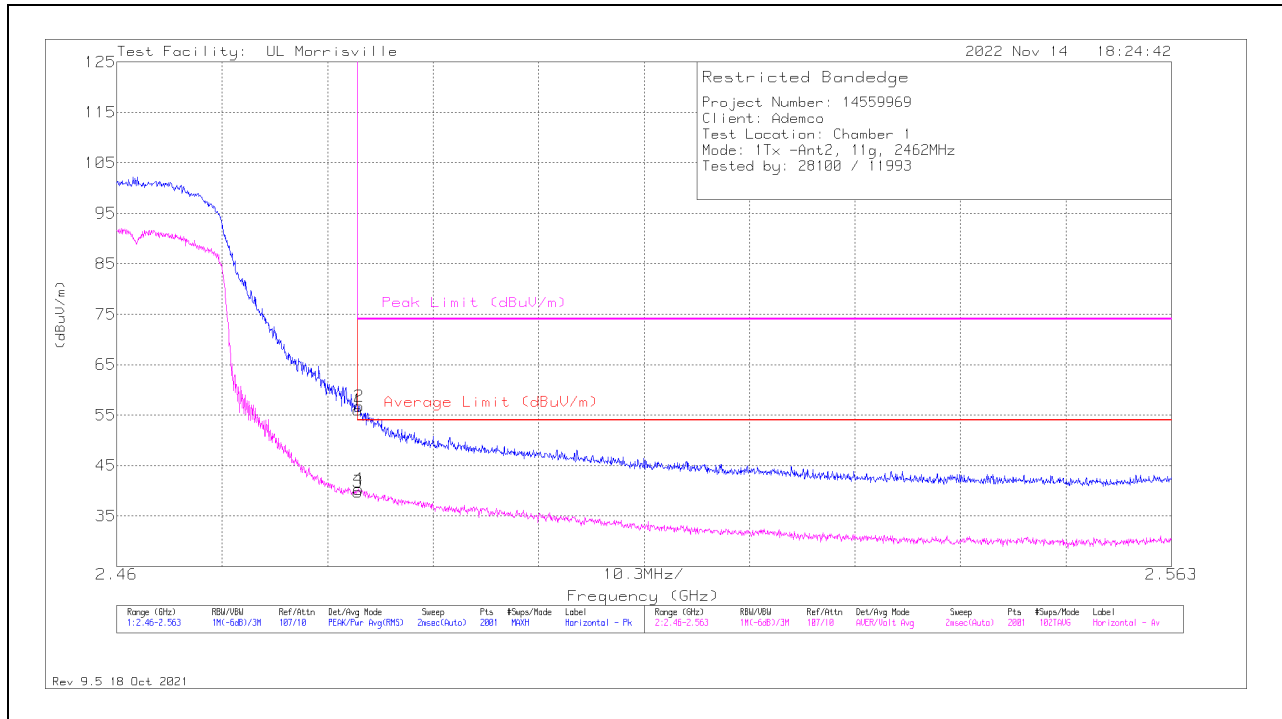
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	47.87	Pk	32.5	-24.4	0	55.97	-	-	74	-18.03	111	222	H
2	*** 2.48369	48.65	Pk	32.5	-24.4	0	56.75	-	-	74	-17.25	111	222	H
3	*** 2.48354	31.7	ADV	32.5	-24.4	.25	40.05	54	-13.95	-	-	111	222	H
4	*** 2.48364	32.2	ADV	32.5	-24.4	.25	40.55	54	-13.45	-	-	111	222	H

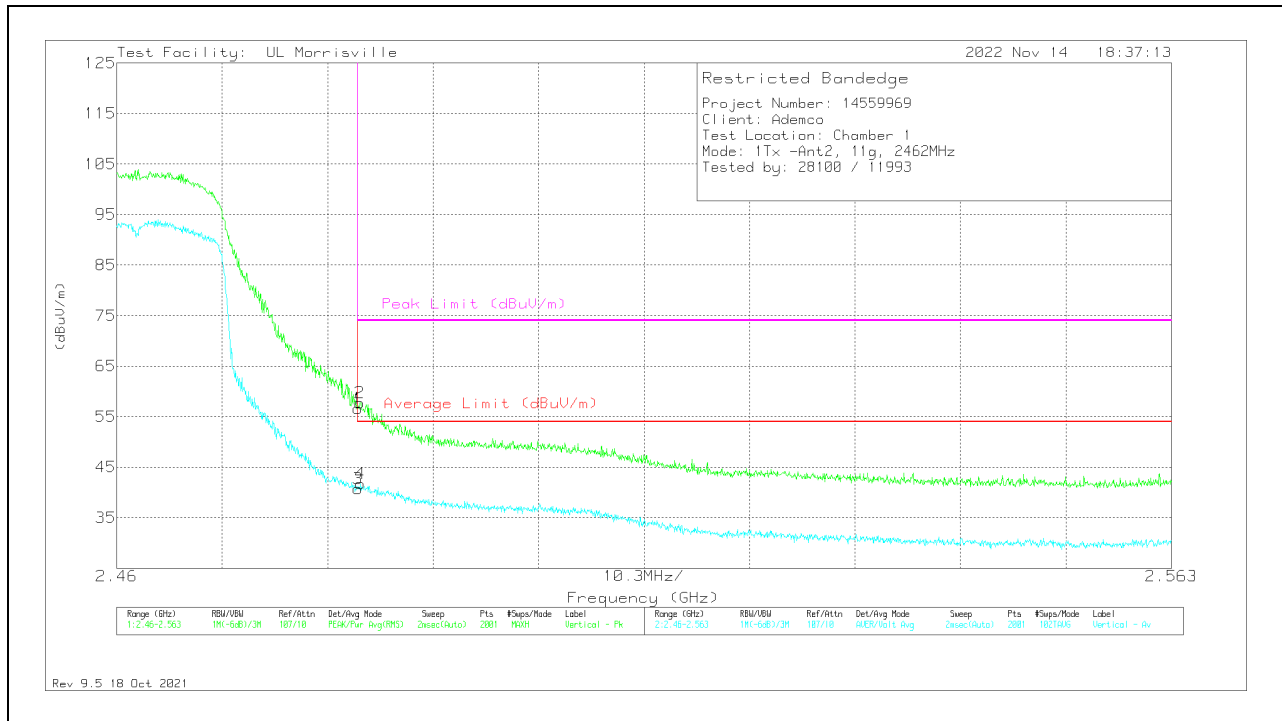
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	48.52	Pk	32.5	-24.4	0	56.62	-	-	74	-17.38	97	301	V
2	* ** 2.48374	49.69	Pk	32.5	-24.4	0	57.79	-	-	74	-16.21	97	301	V
3	* ** 2.48354	32.6	ADV	32.5	-24.4	.25	40.95	54	-13.05	-	-	97	301	V
4	* ** 2.48379	33.64	ADV	32.5	-24.4	.25	41.99	54	-12.01	-	-	97	301	V

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

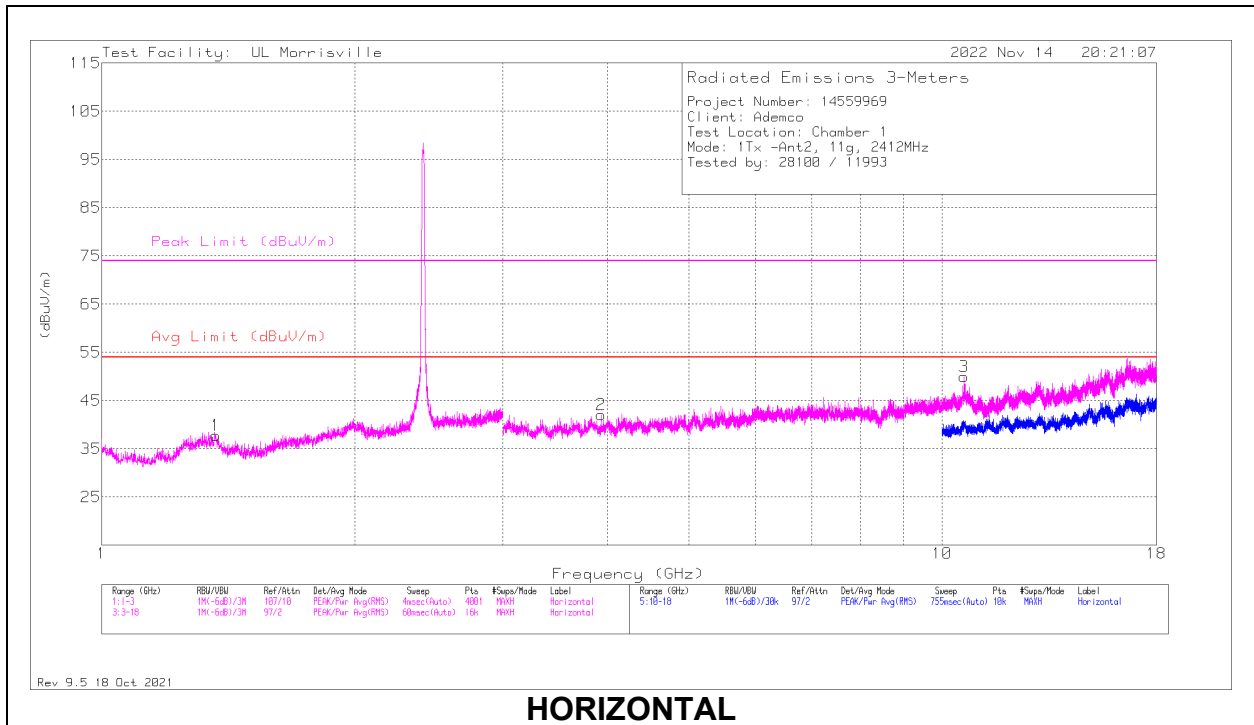
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

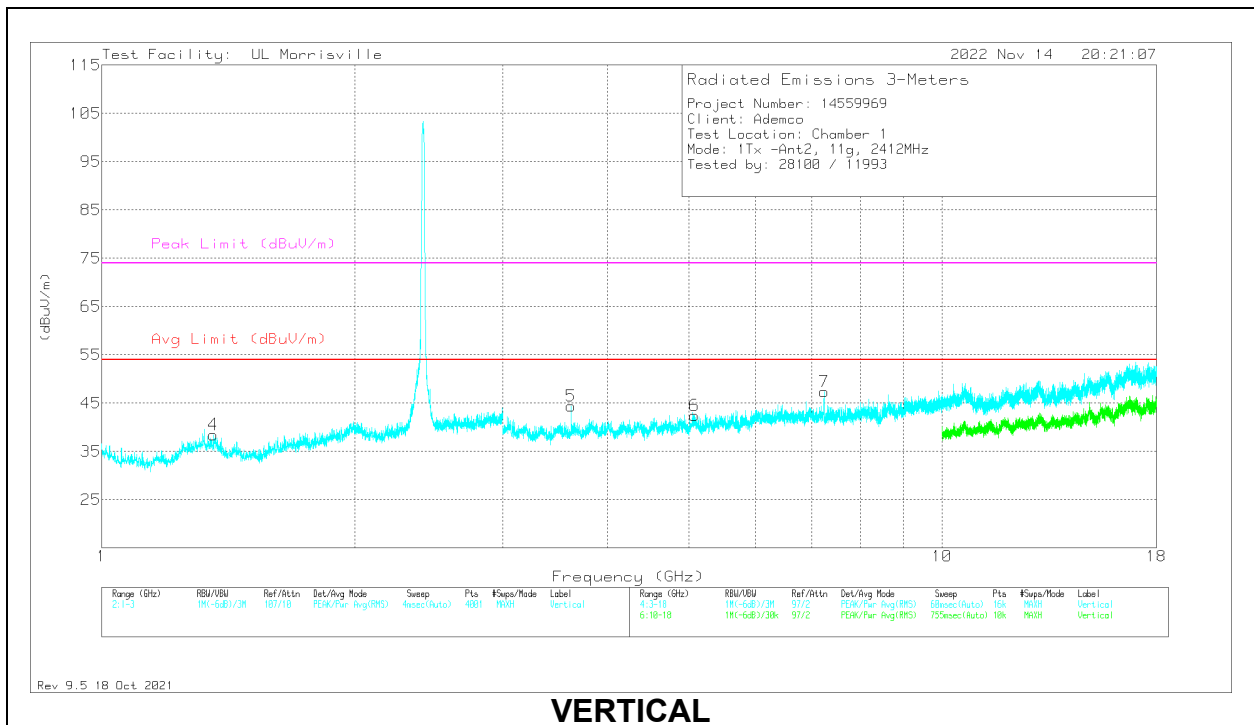
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	*** 1.366	33.66	Pk	29.5	-25.4	0	37.76	54	-16.24	74	-36.24	0-360	200	H
4	*** 1.3575	34.99	Pk	29.6	-26.1	0	38.49	54	-15.51	74	-35.51	0-360	101	V
2	*** 3.92813	40.46	Pk	33.4	-31.8	0	42.06	54	-11.94	74	-31.94	0-360	200	H
3	*** 10.62953	38.57	PK2	37.7	-24.8	0	51.47	-	-	74	-22.53	87	295	H
	*** 10.63135	26.02	ADV	37.7	-24.8	.25	39.17	54	-14.83	-	-	87	295	H
5	*** 3.61781	42.79	Pk	33	-31.4	0	44.39	54	-9.61	74	-29.61	0-360	101	V
6	*** 5.07656	39.84	Pk	34.2	-31.6	0	42.44	54	-11.56	74	-31.56	0-360	200	V
7	7.2375	41.81	Pk	35.7	-30.1	0	47.41	-	-	-	-	0-360	101	V

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

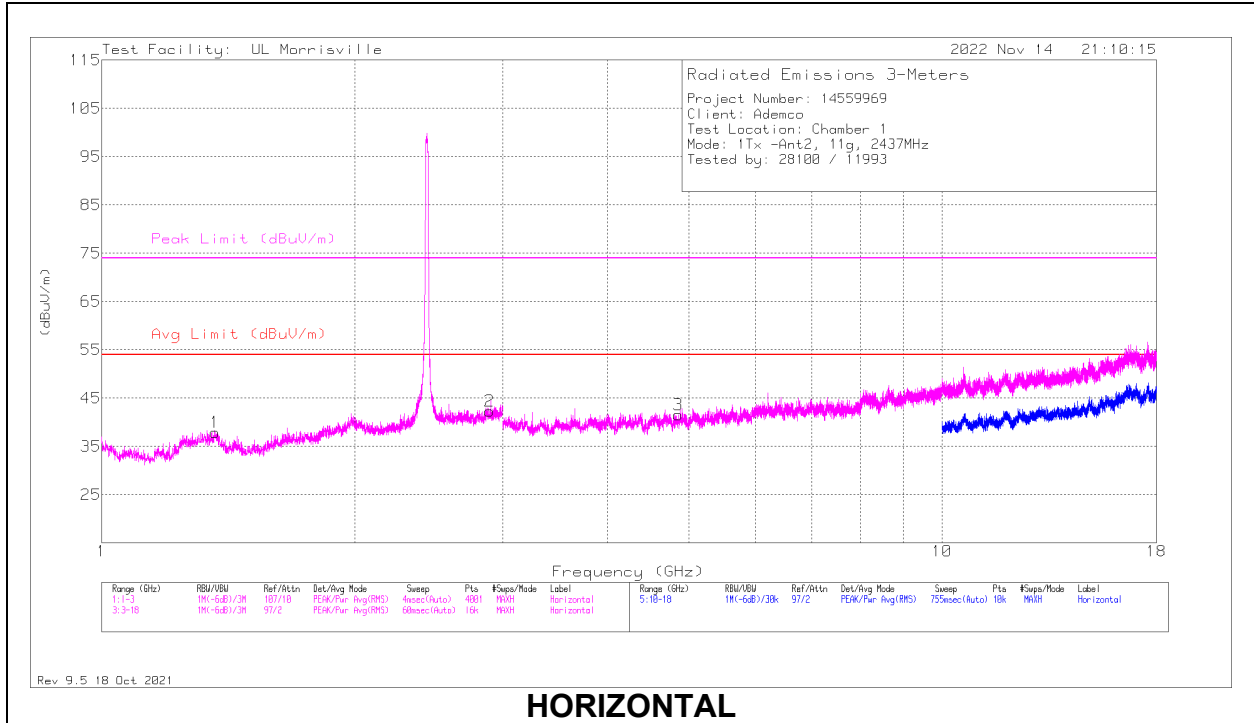
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

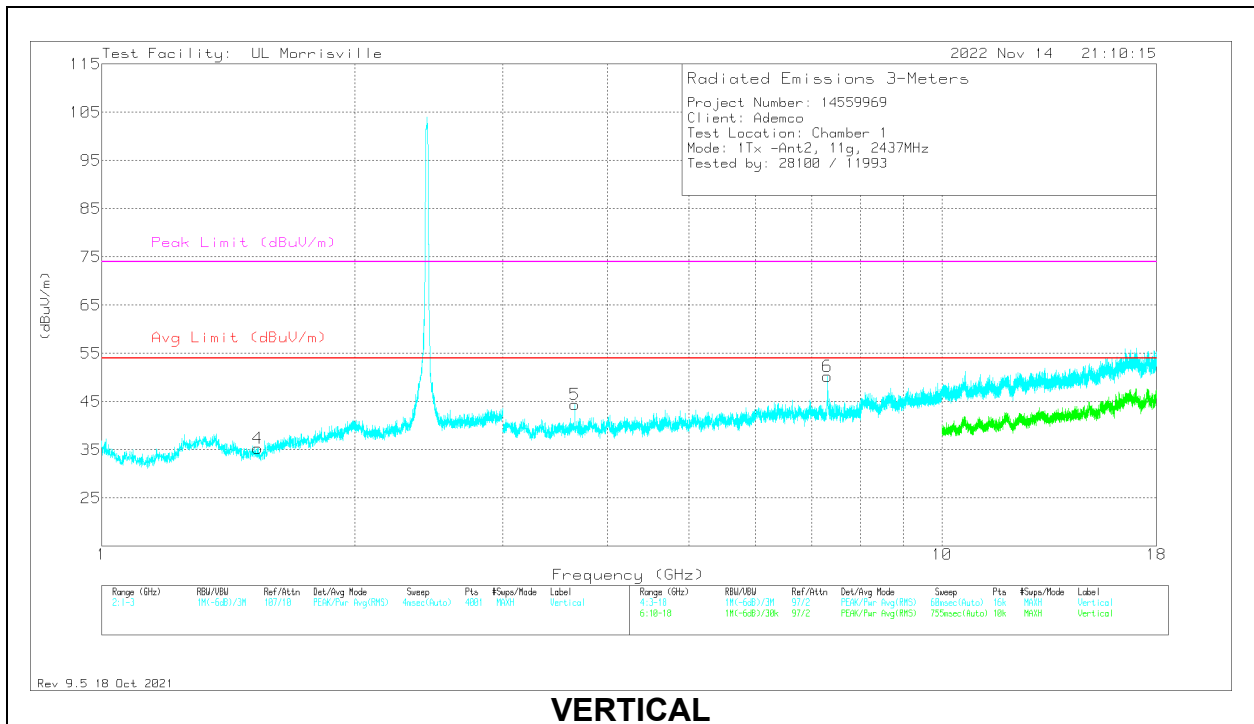
PK2 - Maximum Peak

ADV - Linear Voltage Average

MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	* ** 1.3645	33.69	Pk	29.5	-25.3	0	37.89	54	-16.11	74	-36.11	0-360	200	H
2	* ** 2.8925	33.31	Pk	32.7	-23.7	0	42.31	54	-11.69	74	-31.69	0-360	101	H
4	* ** 1.5335	32.41	Pk	28	-25.1	0	35.31	54	-18.69	74	-38.69	0-360	101	V
3	* ** 4.85625	39	Pk	34.1	-31.6	0	41.5	54	-12.5	74	-32.5	0-360	200	H
5	* ** 3.65531	43.13	Pk	32.8	-31.5	0	44.43	54	-9.57	74	-29.57	0-360	200	V
6	* ** 7.31248	46.67	PK2	35.6	-29.4	0	52.87	-	-	74	-21.13	318	115	V
	* ** 7.31101	35.51	ADV	35.6	-29.4	.25	41.96	54	-12.04	-	-	318	115	V

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

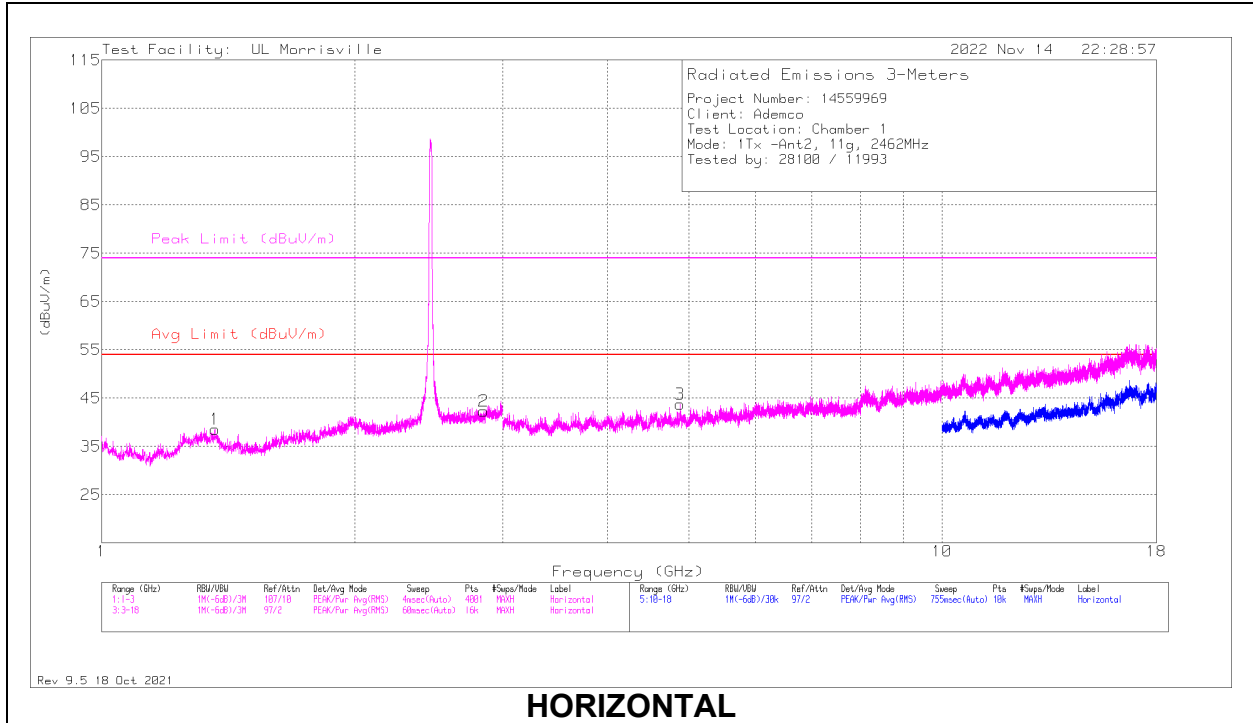
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

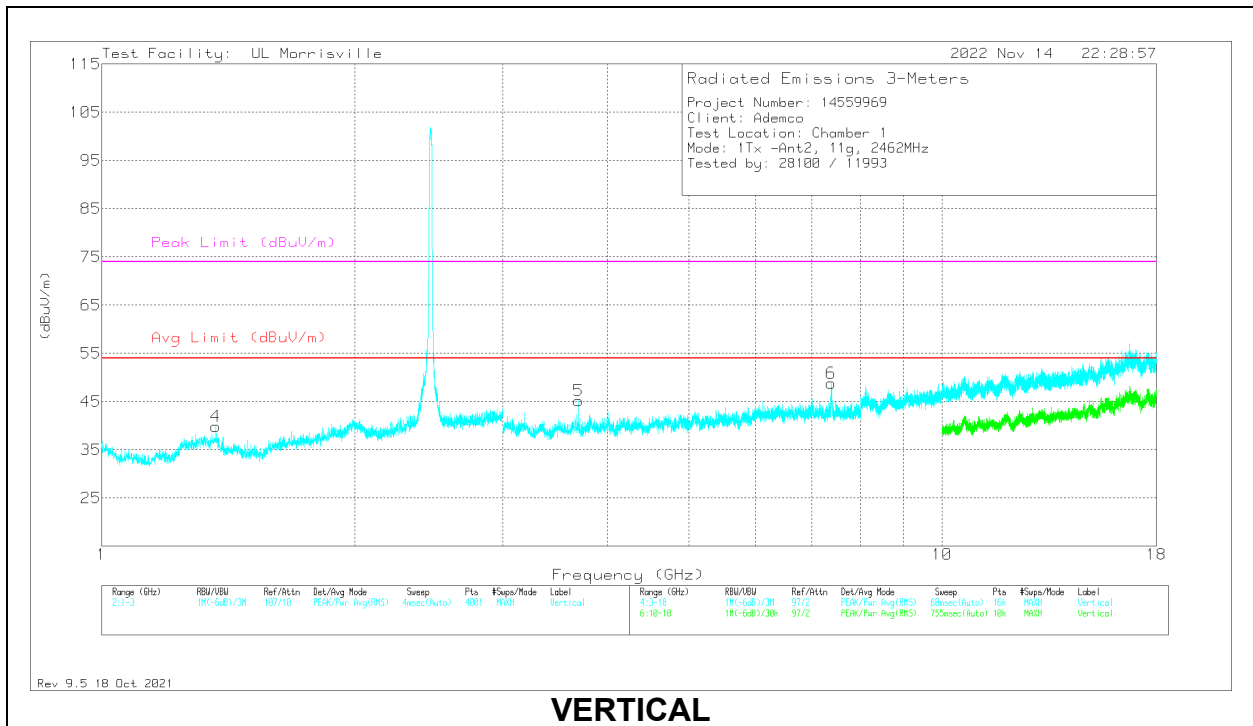
PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	*** 1.3635	34.51	Pk	29.5	-25.4	0	38.61	54	-15.39	74	-35.39	0-360	101	H
2	*** 2.848	34.13	Pk	32.5	-24.3	0	42.33	54	-11.67	74	-31.67	0-360	101	H
4	*** 1.3675	35.93	Pk	29.4	-25.5	0	39.83	54	-14.17	74	-34.17	0-360	200	V
3	*** 4.87875	41.18	Pk	34	-31.4	0	43.78	54	-10.22	74	-30.22	0-360	101	H
5	*** 3.69281	44.43	Pk	32.9	-32.2	0	45.13	54	-8.87	74	-28.87	0-360	200	V
6	*** 7.3875	46.14	PK2	35.6	-29.4	0	52.34	-	-	74	-21.66	315	103	V
	*** 7.38592	34.08	ADV	35.6	-29.4	.25	40.53	54	-13.47	-	-	315	103	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

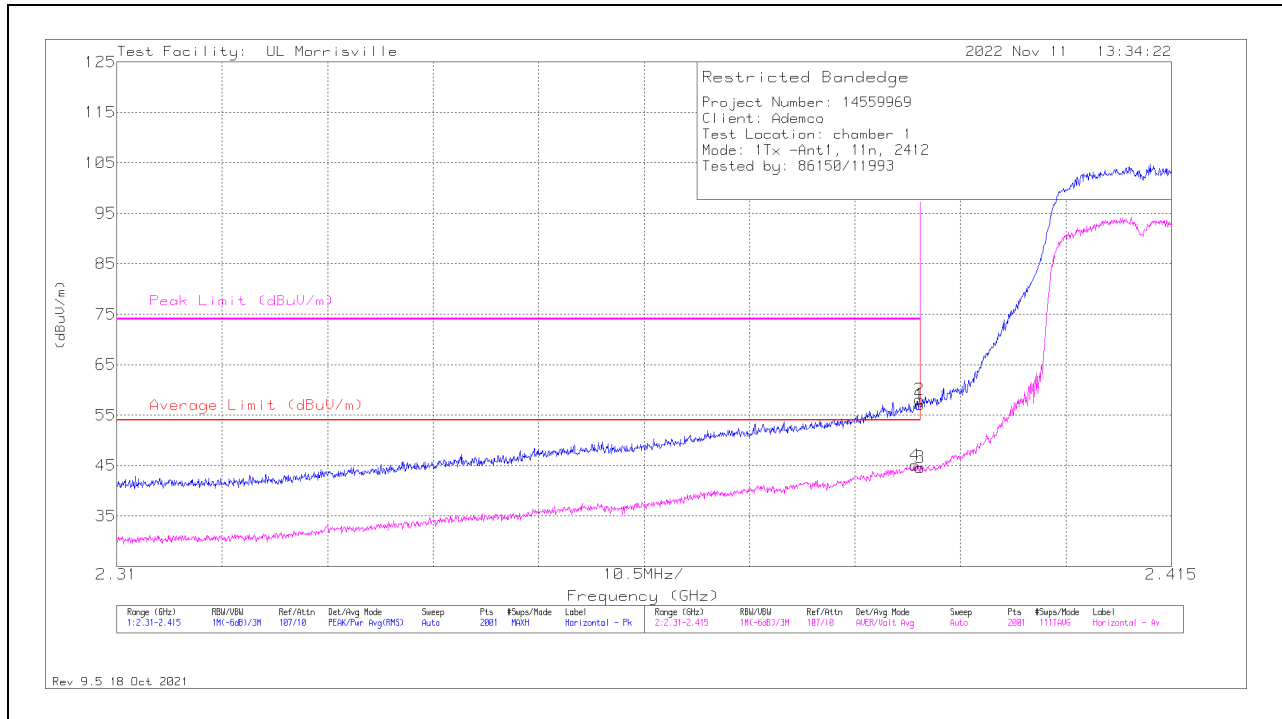
ADV - Linear Voltage Average

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

Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	49.92	Pk	32	-24.8	0	57.12	-	-	74	-16.88	322	230	H
2	* ** 2.38991	50.94	Pk	32	-24.8	0	58.14	-	-	74	-15.86	322	230	H
3	* ** 2.38996	36.5	ADV	32	-24.8	.94	44.64	54	-9.36	-	-	322	229	H
4	* ** 2.38949	36.93	ADV	32	-24.8	.94	45.07	54	-8.93	-	-	322	229	H

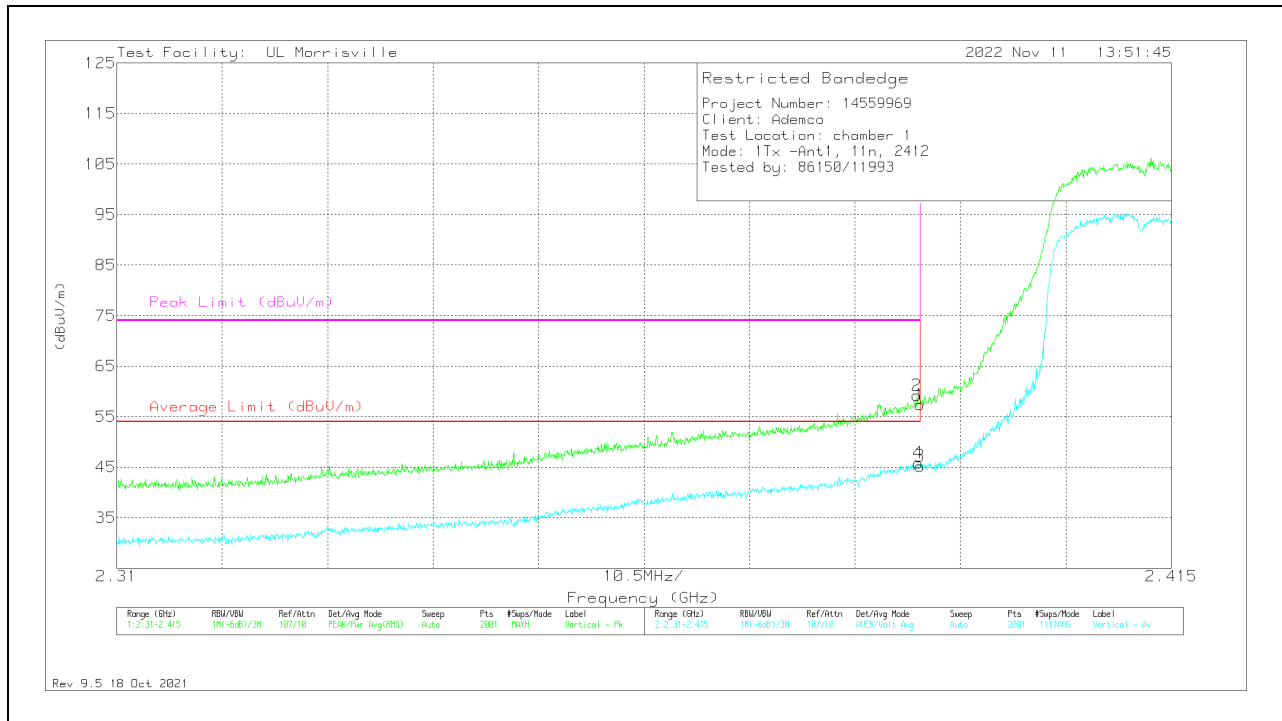
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT

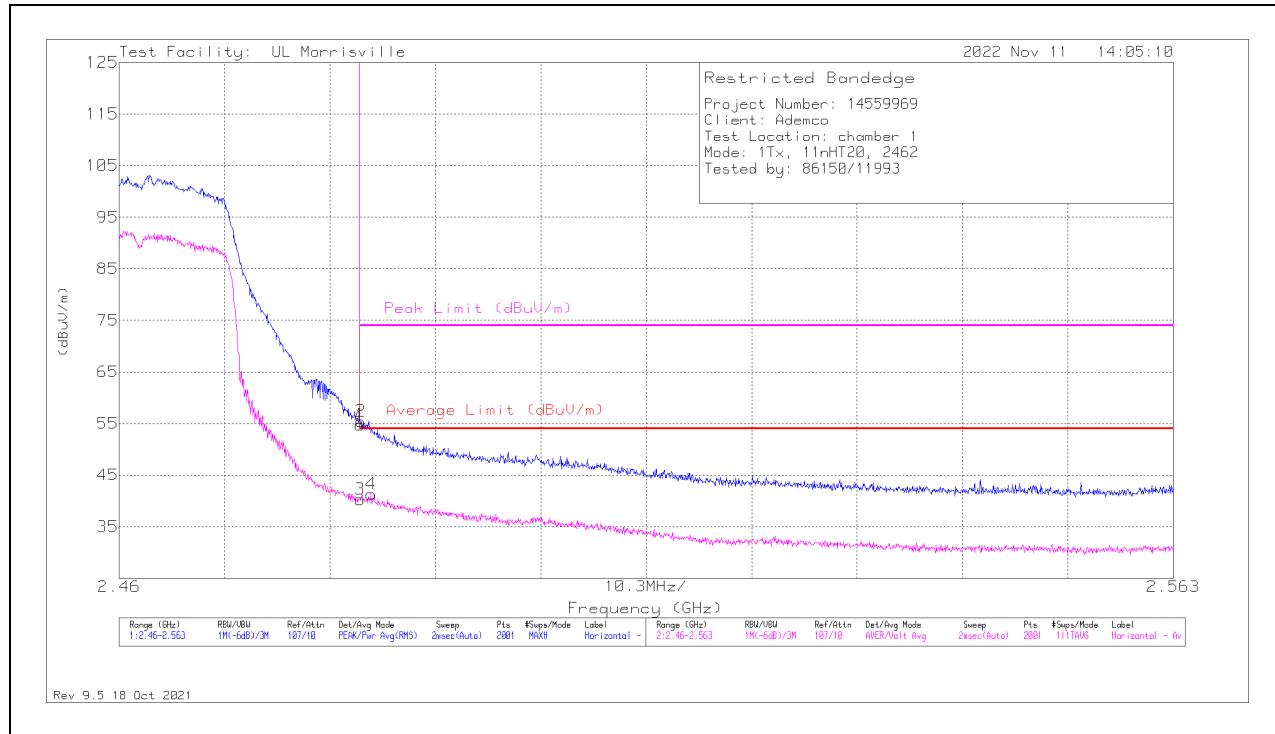


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	50.13	Pk	32	-24.8	0	57.33	-	-	74	-16.67	50	275	V
2	*** 2.3897	51.98	Pk	32	-24.8	0	59.18	-	-	74	-14.82	50	275	V
3	*** 2.38996	37.12	ADV	32	-24.8	.94	45.26	54	-8.74	-	-	50	275	V
4	*** 2.3898	37.74	ADV	32	-24.8	.94	45.88	54	-8.12	-	-	50	275	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)

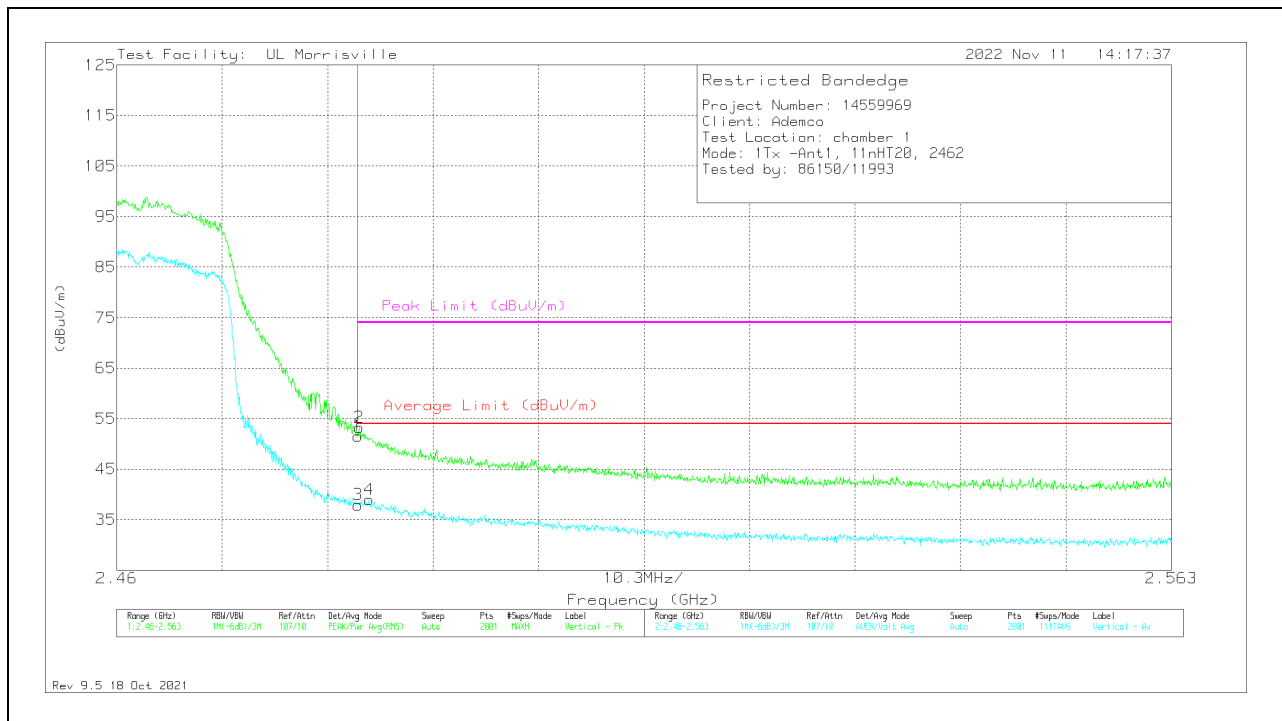
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	46.68	Pk	32.5	-24.4	0	54.78	-	-	74	-19.22	124	304	H
2	* ** 2.48359	47.35	Pk	32.5	-24.4	0	55.45	-	-	74	-18.55	124	304	H
3	* ** 2.48354	31.24	ADV	32.5	-24.4	.94	40.28	54	-13.72	-	-	124	304	H
4	* ** 2.48462	32.18	ADV	32.5	-24.3	.94	41.32	54	-12.68	-	-	124	304	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	AT0072 (dB/m)	Gain/Loss (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	43.42	Pk	32.5	-24.4	0	51.52	-	-	74	-22.48	101	170	V
2	* ** 2.48369	45.16	Pk	32.5	-24.4	0	53.26	-	-	74	-20.74	101	170	V
3	* ** 2.48354	28.9	ADV	32.5	-24.4	.94	37.94	54	-16.06	-	-	101	170	V
4	* ** 2.48467	29.89	ADV	32.5	-24.3	.94	39.03	54	-14.97	-	-	101	170	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

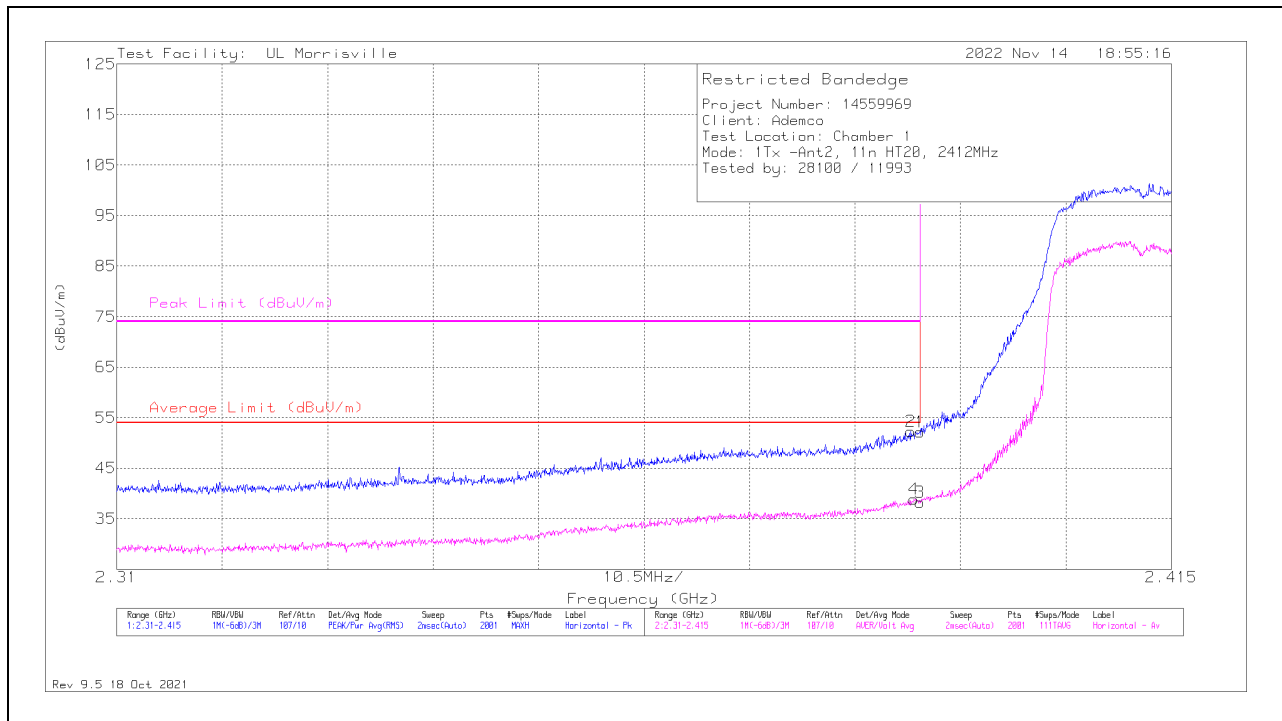
Pk - Peak detector

ADV - Linear Voltage Average

Antenna 2

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	45.01	Pk	32	-24.8	0	52.21	-	-	74	-21.79	186	332	H
2	* ** 2.38907	45.02	Pk	32	-24.7	0	52.32	-	-	74	-21.68	186	332	H
3	* ** 2.38996	31.08	ADV	32	-24.8	.94	39.22	54	-14.78	-	-	186	332	H
4	* ** 2.38938	31.62	ADV	32	-24.7	.94	39.86	54	-14.14	-	-	186	332	H

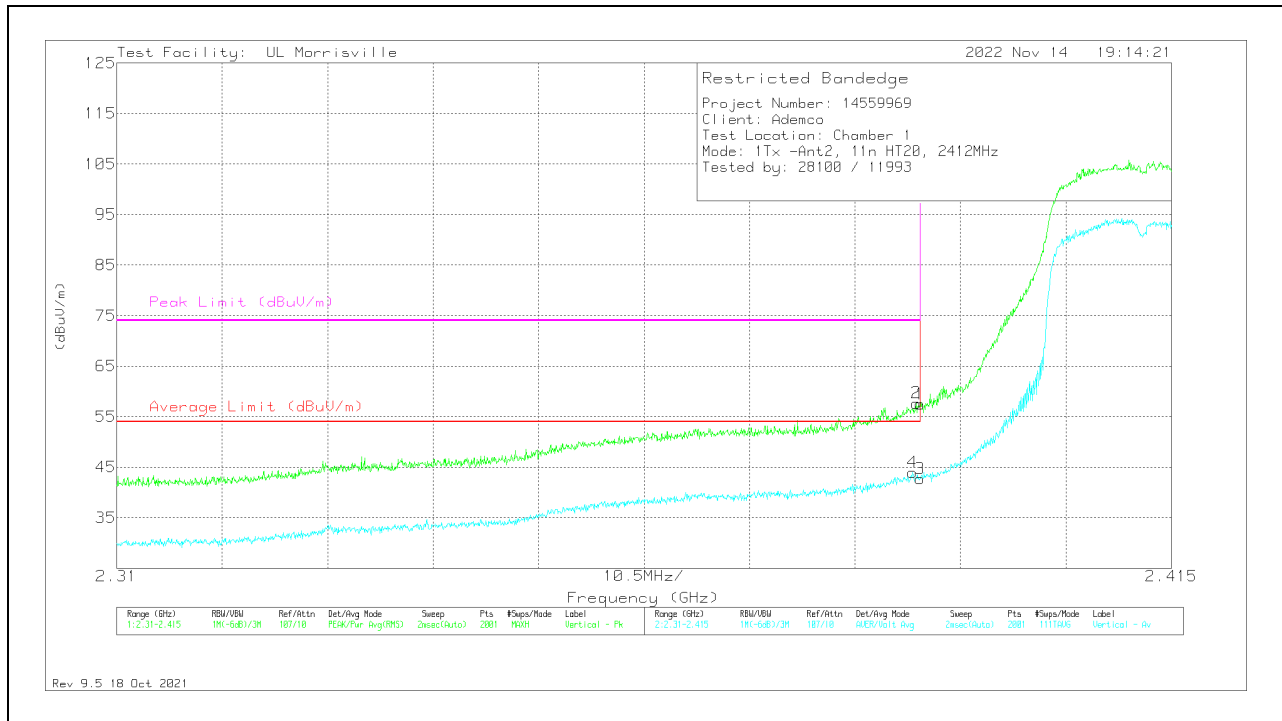
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	50.33	Pk	32	-24.8	0	57.53	-	-	74	-16.47	99	236	V
2	* ** 2.38959	50.48	Pk	32	-24.8	0	57.68	-	-	74	-16.32	99	236	V
3	* ** 2.38996	35.57	ADV	32	-24.8	.94	43.71	54	-10.29	-	-	99	236	V
4	* ** 2.38922	36.67	ADV	32	-24.7	.94	44.91	54	-9.09	-	-	99	236	V

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

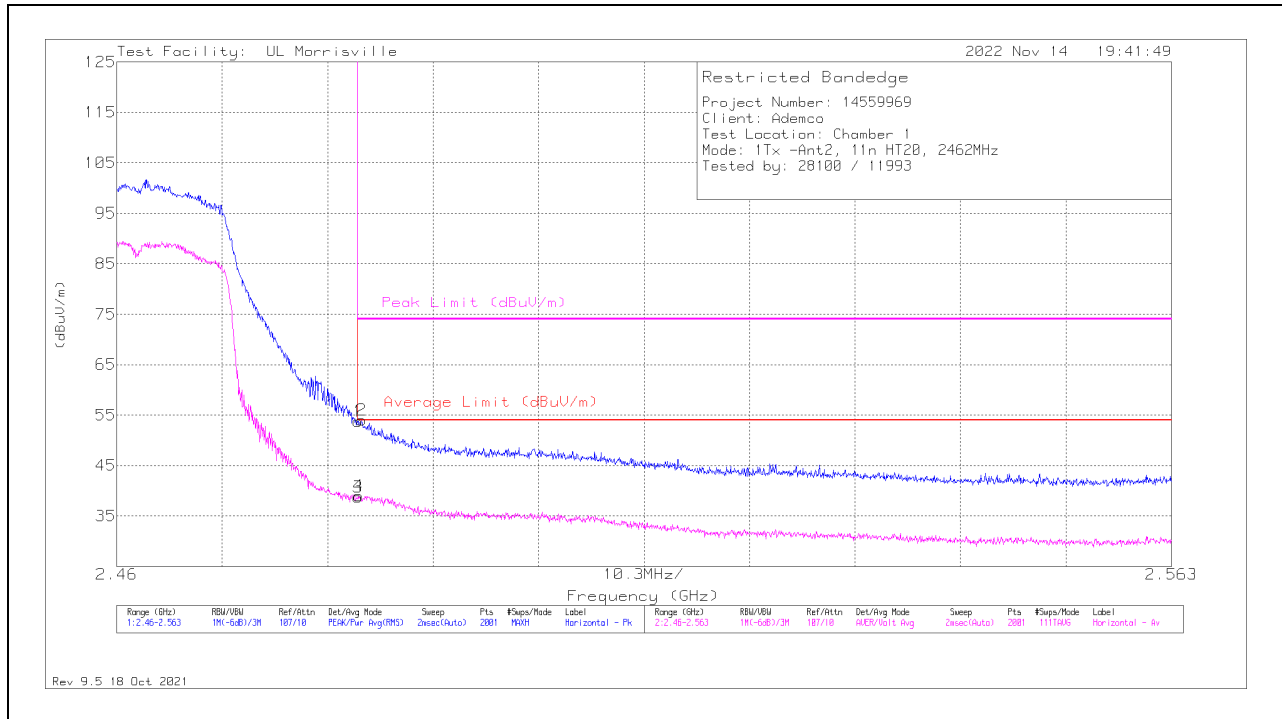
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	45.71	Pk	32.5	-24.4	0	53.81	-	-	74	-20.19	181	175	H
2	*** 2.48395	45.87	Pk	32.5	-24.4	0	53.97	-	-	74	-20.03	181	175	H
3	*** 2.48354	30.65	ADV	32.5	-24.4	.94	39.69	54	-14.31	-	-	181	175	H
4	*** 2.48364	30.86	ADV	32.5	-24.4	.94	39.9	54	-14.1	-	-	181	175	H

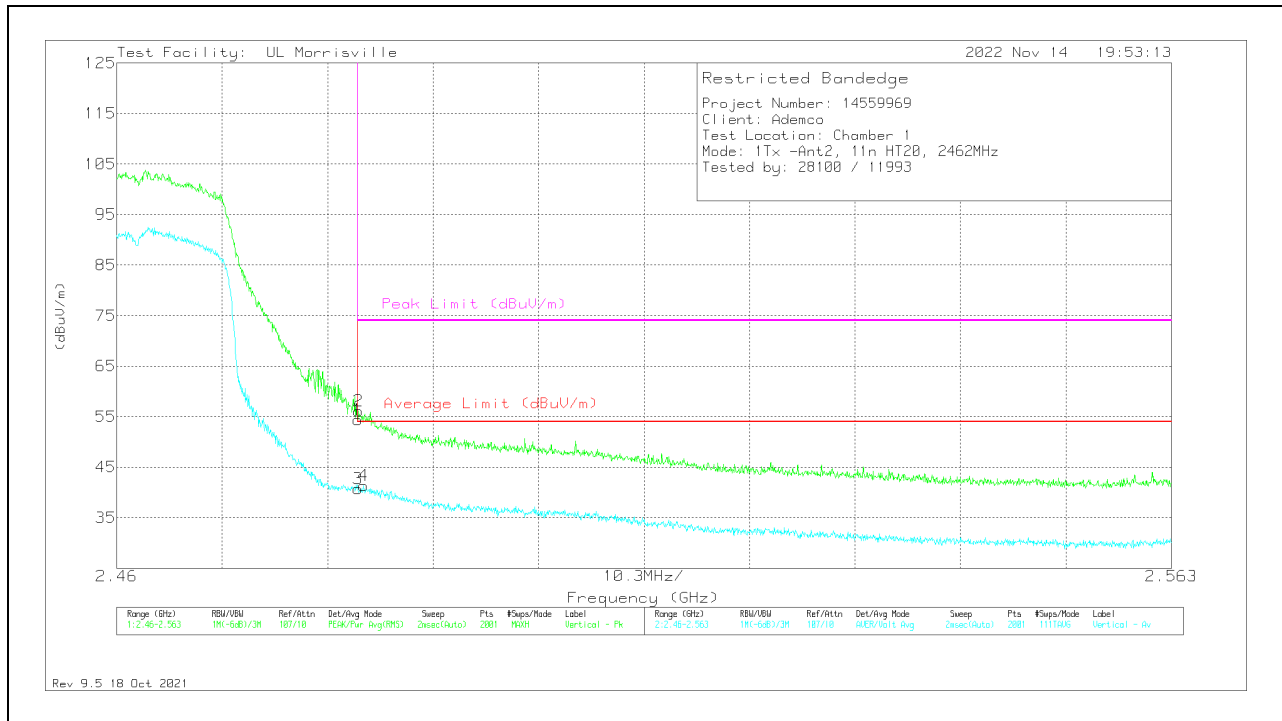
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (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	46.32	Pk	32.5	-24.4	0	54.42	-	-	74	-19.58	113	230	V
2	*** 2.48364	48	Pk	32.5	-24.4	0	56.1	-	-	74	-17.9	113	230	V
3	*** 2.48354	32.67	ADV	32.5	-24.4	.94	41.71	54	-12.29	-	-	113	230	V
4	*** 2.4841	33.15	ADV	32.5	-24.3	.94	42.29	54	-11.71	-	-	113	230	V

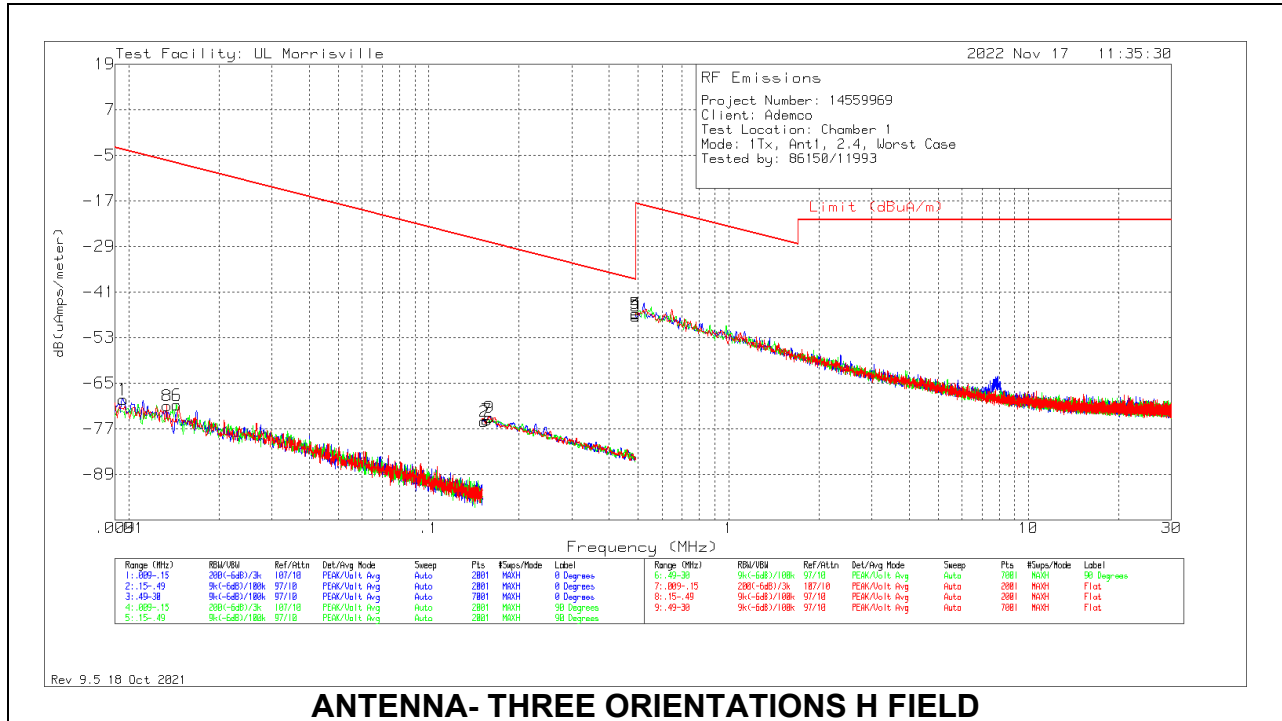
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 ** - indicates frequency in Taiwan NCC LP0002 Restricted Band
 Pk - Peak detector
 ADV - Linear Voltage Average

10.3. WORST CASE BELOW 30MHZ

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

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).

Antenna 1

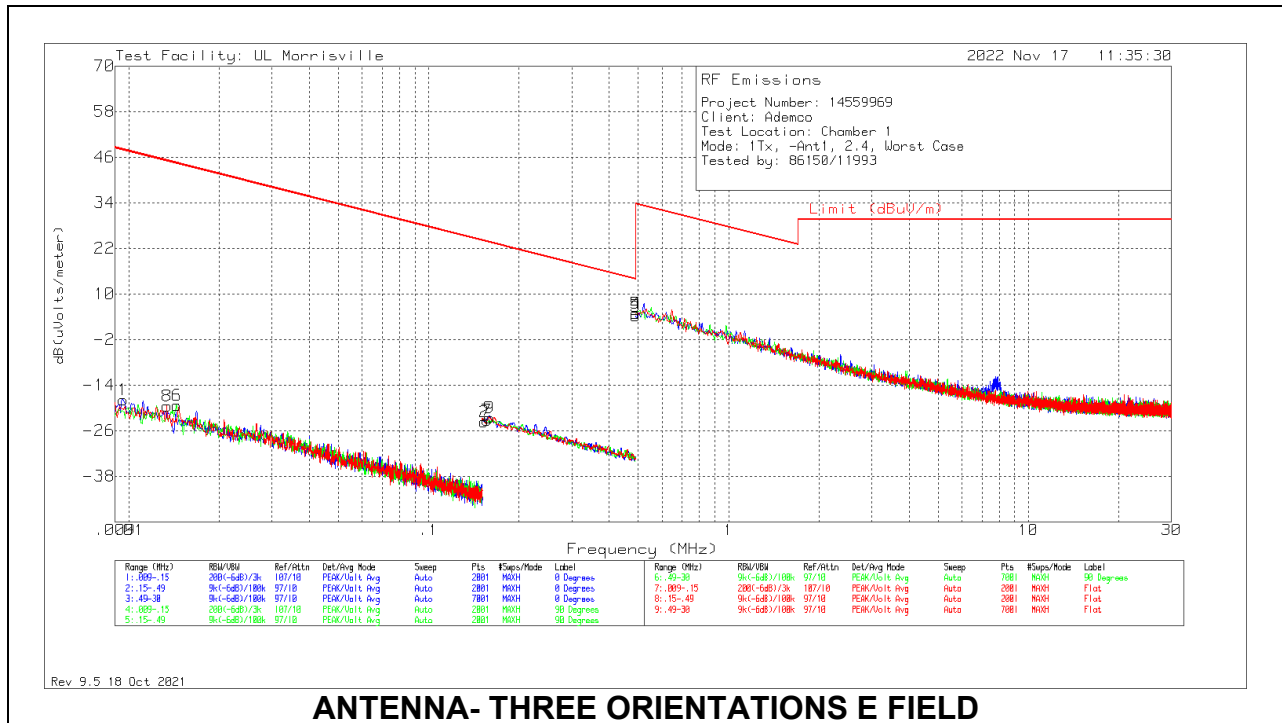


ANTENNA- THREE ORIENTATIONS H FIELD

Below 30MHz Data H FIELD

Marker	Frequency (MHz)	Meter Reading (dBuA)	Det	AT0079 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.00957	43.4	Pk	-32.9	.1	-80	-69.4	-3.51	16.49	-65.89	0-360	0 degs
8	.0134	43.51	Pk	-34.6	.1	-80	-70.99	-6.44	13.56	-64.55	0-360	Flat
6	.01447	44.15	Pk	-35.1	.1	-80	-70.85	-7.1	12.9	-63.75	0-360	90 degs
2	.15306	45.13	Pk	-40.4	.1	-80	-75.17	-27.59	-7.59	-47.58	0-360	0 degs
7	.15629	45.48	Pk	-40.4	.1	-80	-74.82	-27.77	-7.77	-47.05	0-360	90 degs
9	.15952	46.2	Pk	-40.4	.1	-80	-74.1	-27.95	-7.95	-46.15	0-360	Flat
3	.49	32.97	Pk	-40.5	.2	-40	-47.33	-37.7	-17.7	-9.63	0-360	0 degs
4	.49	33.6	Pk	-40.5	.2	-40	-46.7	-37.7	-17.7	-9	0-360	90 degs
5	.49	33.62	Pk	-40.5	.2	-40	-46.68	-37.7	-17.7	-8.98	0-360	Flat

Pk - Peak detector



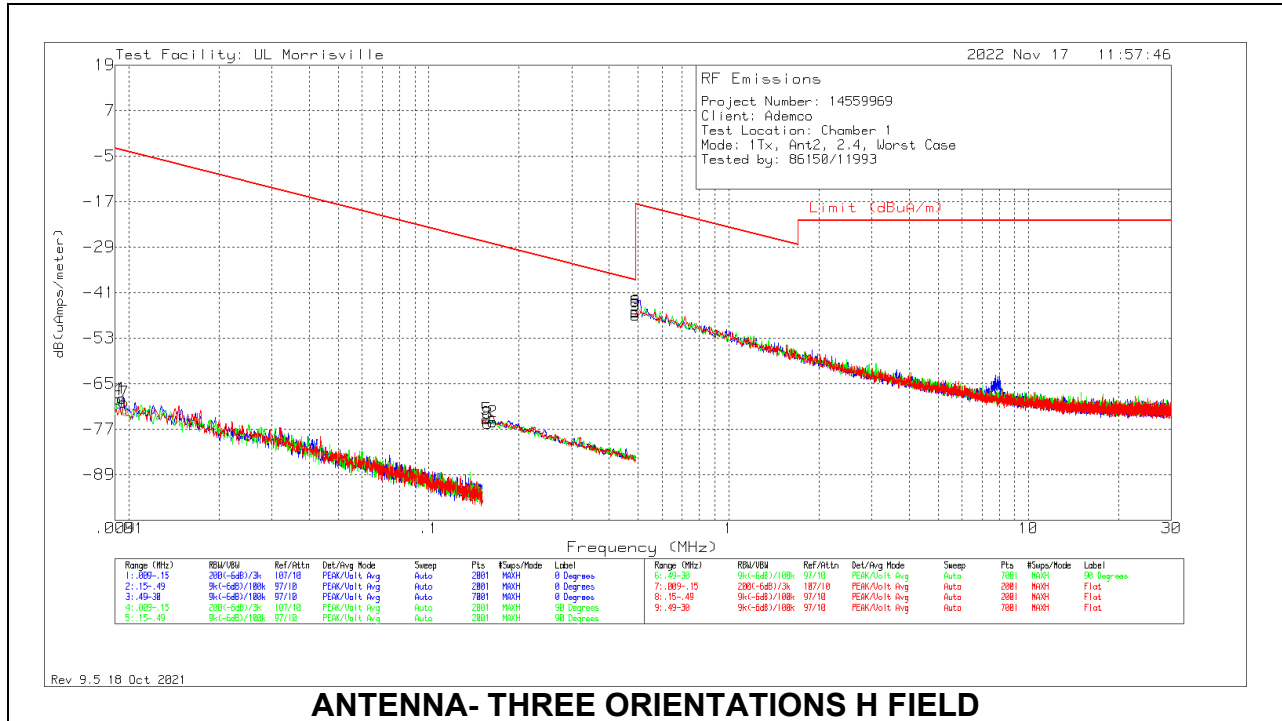
ANTENNA- THREE ORIENTATIONS E FIELD

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)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.00957	43.4	Pk	18.6	.1	-80	-17.9	47.99	67.99	-65.89	0-360	0 degs
8	.0134	43.51	Pk	16.9	.1	-80	-19.49	45.06	65.06	-64.55	0-360	Flat
6	.01447	44.15	Pk	16.4	.1	-80	-19.35	44.4	64.4	-63.75	0-360	90 degs
2	.15306	45.13	Pk	11.1	.1	-80	-23.67	23.91	43.91	-47.58	0-360	0 degs
7	.15629	45.48	Pk	11.1	.1	-80	-23.32	23.73	43.73	-47.05	0-360	90 degs
9	.15952	46.2	Pk	11.1	.1	-80	-22.6	23.55	43.55	-46.15	0-360	Flat
3	.49	32.97	Pk	11	.2	-40	4.17	13.8	33.8	-9.63	0-360	0 degs
4	.49	33.6	Pk	11	.2	-40	4.8	13.8	33.8	-9	0-360	90 degs
5	.49	33.62	Pk	11	.2	-40	4.82	13.8	33.8	-8.98	0-360	Flat

Pk - Peak detector

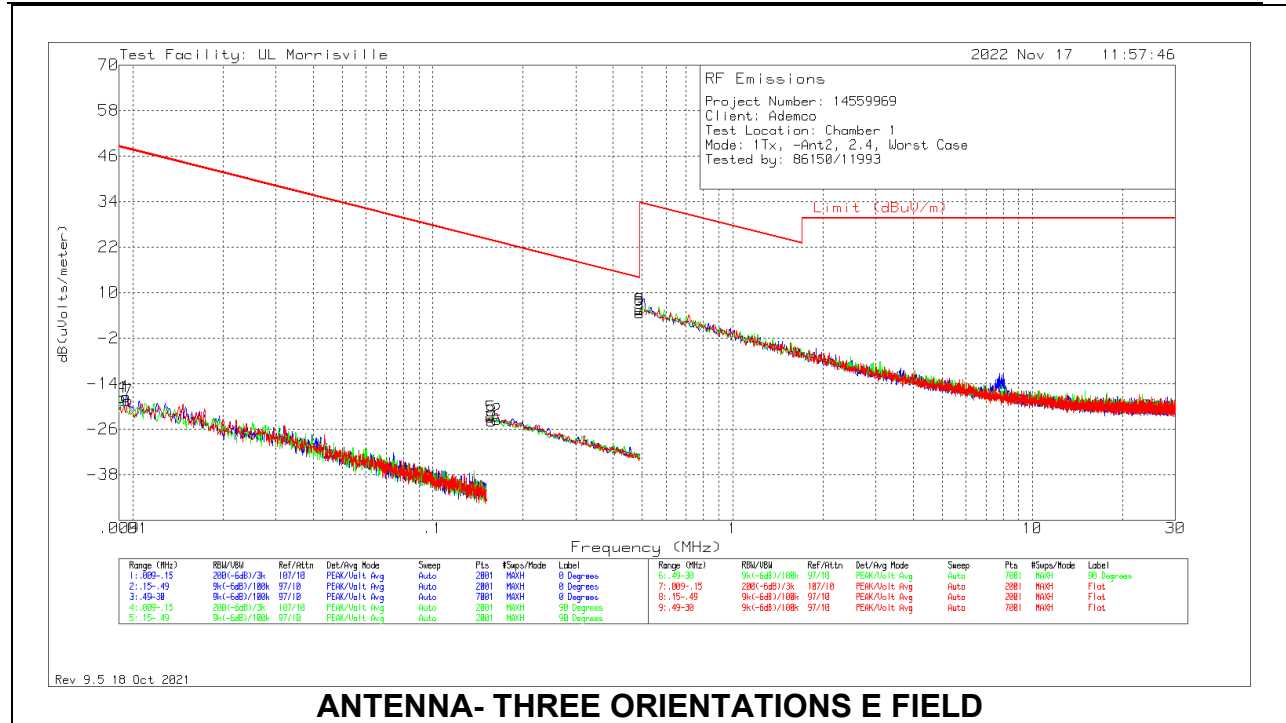
Antenna 2



Below 30MHz Data H FIELD

Marker	Frequency (MHz)	Meter Reading (dBuA)	Det	AT0079 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
4	.00914	43.4	Pk	-32.7	.1	-80	-69.2	-3.12	16.88	-66.08	0-360	90 degs
1	.0095	43.84	Pk	-32.9	.1	-80	-68.96	-3.45	16.55	-65.51	0-360	0 degs
7	.00964	42.84	Pk	-32.9	.1	-80	-69.96	-3.58	16.42	-66.38	0-360	Flat
5	.15612	45.9	Pk	-40.4	.1	-80	-74.4	-27.76	-7.76	-46.64	0-360	90 degs
8	.15731	44.84	Pk	-40.4	.1	-80	-75.46	-27.83	-7.83	-47.63	0-360	Flat
2	.16377	45.2	Pk	-40.4	.1	-80	-75.1	-28.18	-8.18	-46.92	0-360	0 degs
3	.49	33.35	Pk	-40.5	.2	-40	-46.95	-37.7	-17.7	-9.25	0-360	0 degs
6	.49	34.36	Pk	-40.5	.2	-40	-45.94	-37.7	-17.7	-8.24	0-360	90 degs
9	.49	34.2	Pk	-40.5	.2	-40	-46.1	-37.7	-17.7	-8.4	0-360	Flat

Pk - Peak detector



ANTENNA- THREE ORIENTATIONS E FIELD

Below 30MHz Data E FIELD

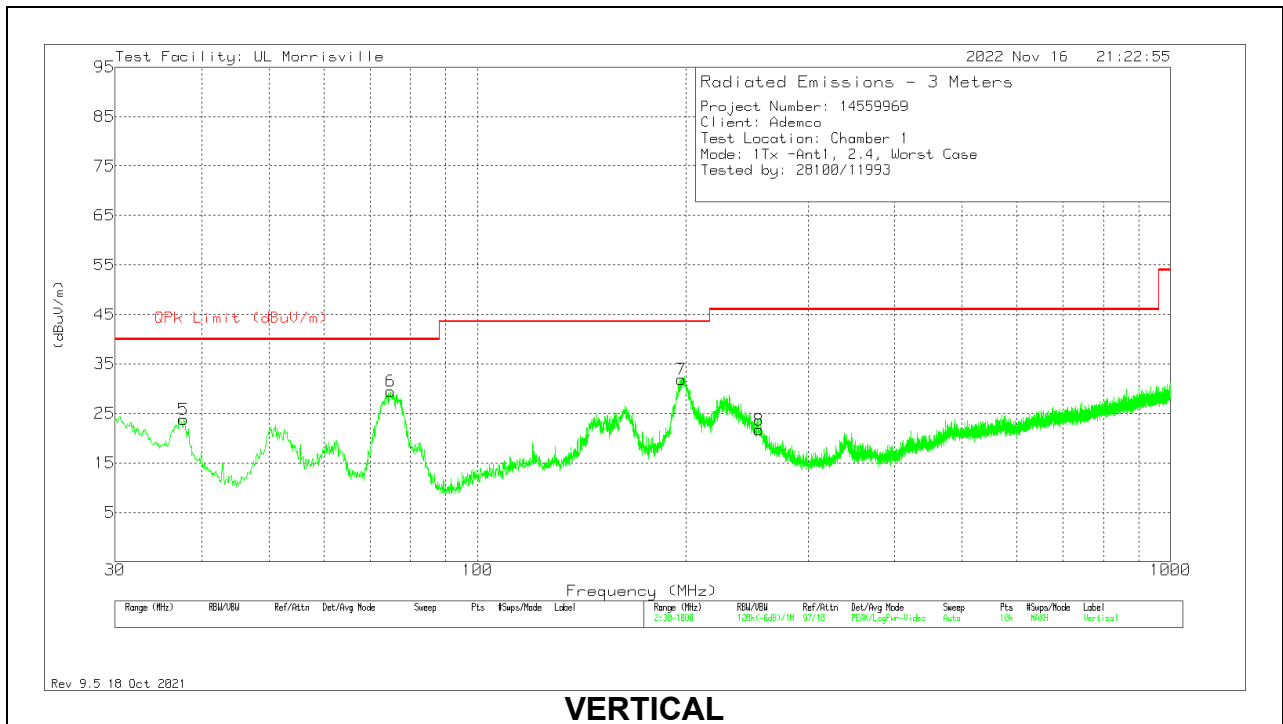
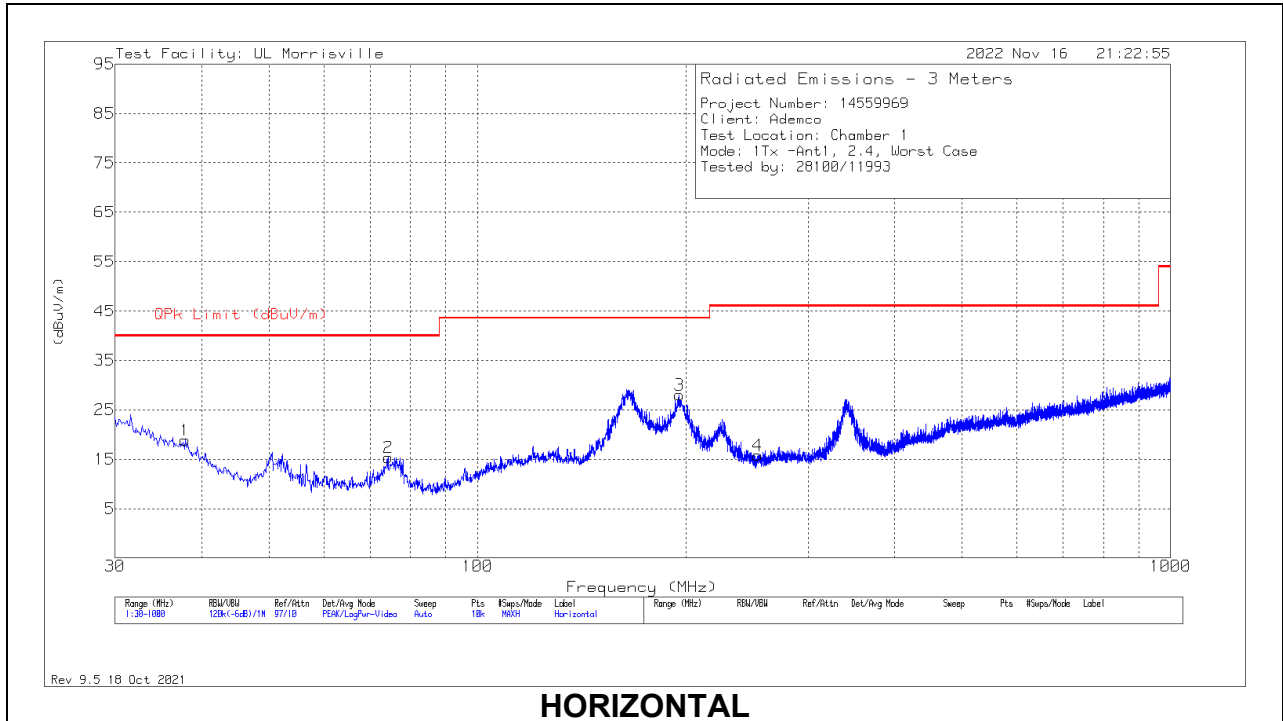
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
4	.00914	43.4	Pk	18.8	.1	-80	-17.7	48.38	68.38	-66.08	0-360	90 degs
1	.0095	43.84	Pk	18.6	.1	-80	-17.46	48.05	68.05	-65.51	0-360	0 degs
7	.00964	42.84	Pk	18.6	.1	-80	-18.46	47.92	67.92	-66.38	0-360	Flat
5	.15612	45.9	Pk	11.1	.1	-80	-22.9	23.74	43.74	-46.64	0-360	90 degs
8	.15731	44.84	Pk	11.1	.1	-80	-23.96	23.67	43.67	-47.63	0-360	Flat
2	.16377	45.2	Pk	11.1	.1	-80	-23.6	23.32	43.42	-46.92	0-360	0 degs
3	.49	33.35	Pk	11	.2	-40	4.55	13.8	33.8	-9.25	0-360	0 degs
6	.49	34.36	Pk	11	.2	-40	5.56	13.8	33.8	-8.24	0-360	90 degs
9	.49	34.2	Pk	11	.2	-40	5.4	13.8	33.8	-8.4	0-360	Flat

Pk - Peak detector

10.4. WORST CASE BELOW 1 GHZ

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

Antenna 1

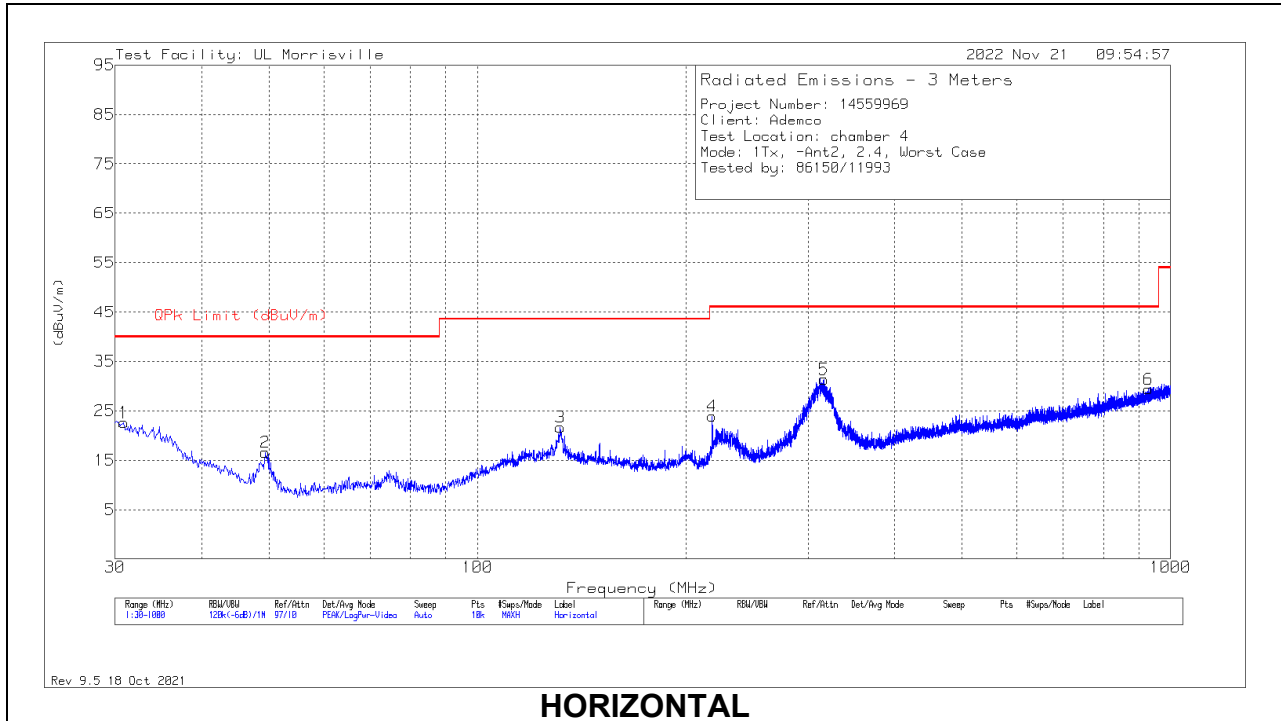


Below 1GHz Data

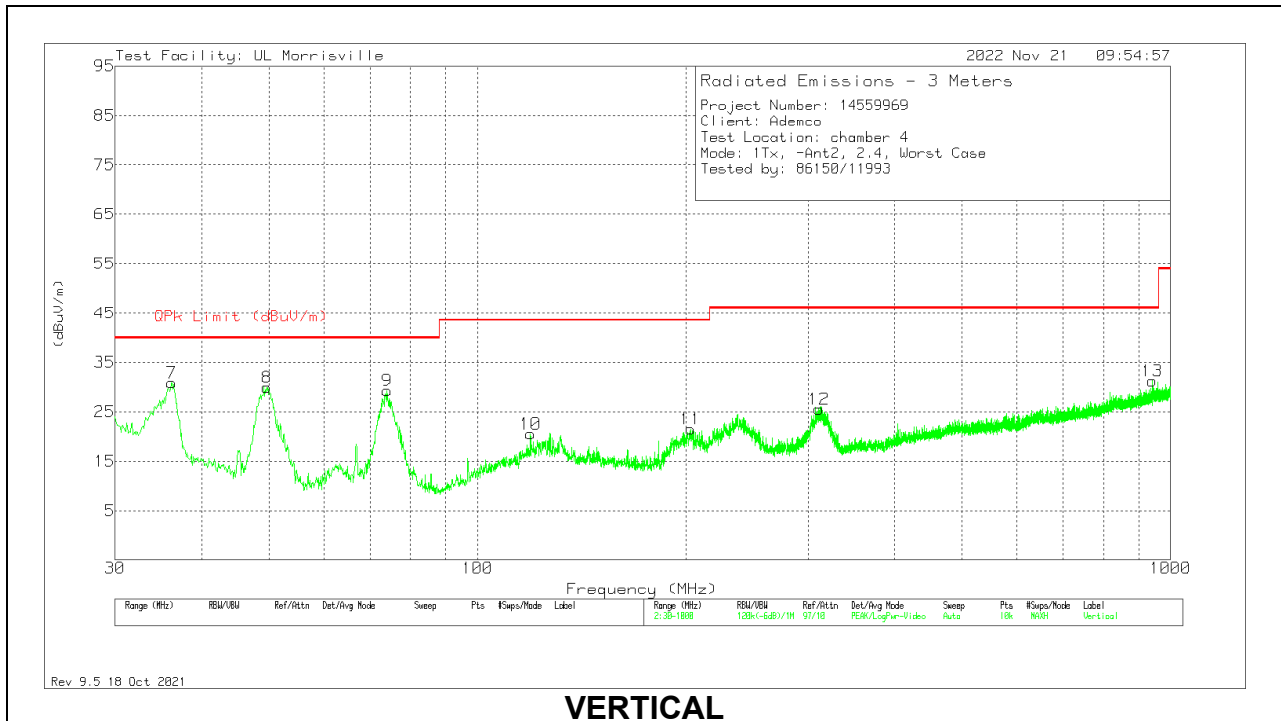
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 37.857	28.6	Pk	21.6	-31.3	18.9	40	-21.1	0-360	199	H
2	* ** 74.329	32.2	Pk	14.1	-30.9	15.4	40	-24.6	0-360	399	H
4	* ** 253.779	27.35	Pk	17.3	-28.9	15.75	46.02	-30.27	0-360	299	H
5	* ** 37.663	33.42	Pk	21.7	-31.3	23.82	40	-16.18	0-360	100	V
6	* ** 74.911	46.17	Pk	14.1	-30.8	29.47	40	-10.53	0-360	100	V
8	* ** 254.749	33.15	Pk	17.4	-28.9	21.65	46.02	-24.37	0-360	100	V
3	195.579	39.61	Pk	17.8	-29.4	28.01	-	-	0-360	199	H
7	196.937	43.19	Pk	18	-29.3	31.89	-	-	0-360	100	V

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

Antenna 2



HORIZONTAL



VERTICAL

Below 1GHz Data

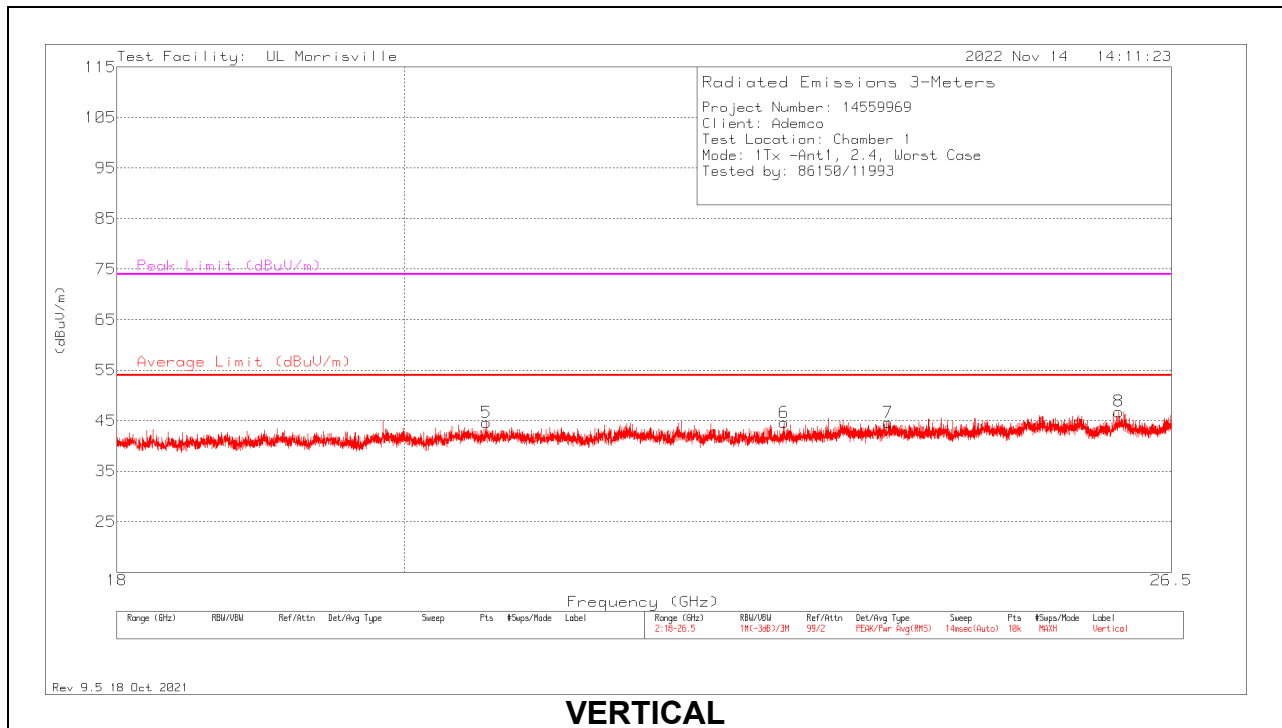
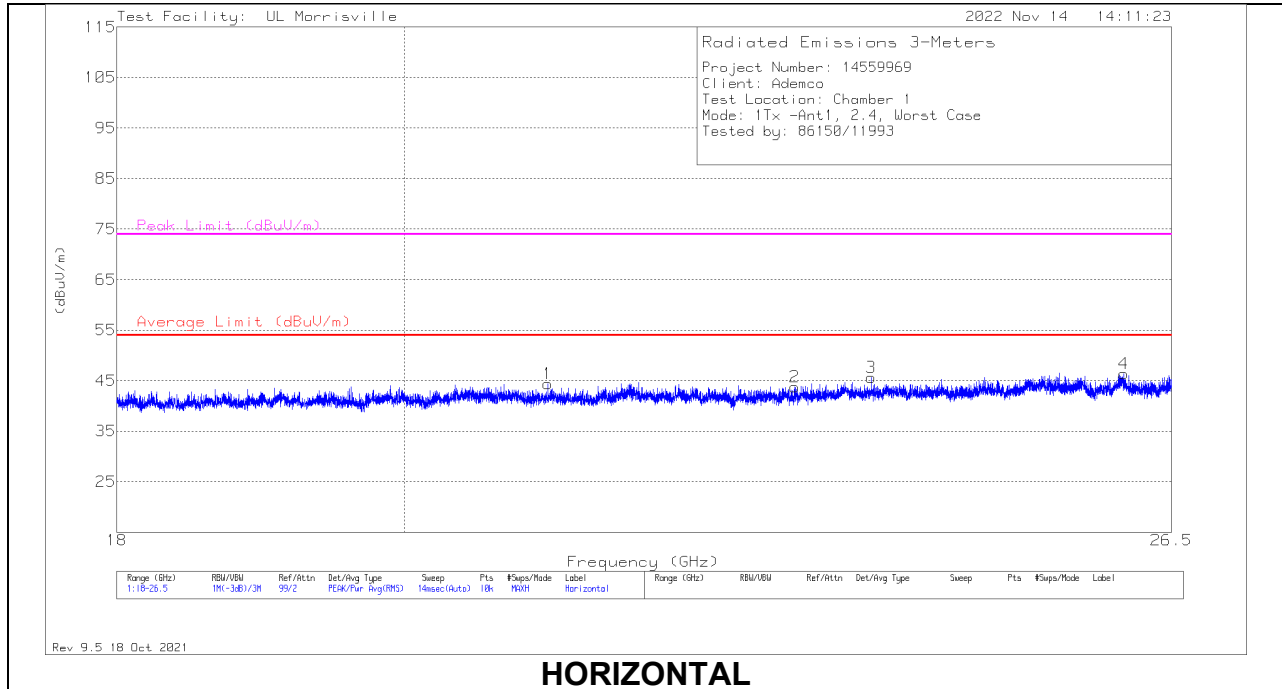
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.873	28.01	Pk	26.4	-31.8	22.61	40	-17.39	0-360	100	H
7	36.208	39.76	Pk	22.7	-31.6	30.86	40	-9.14	0-360	100	V
2	49.4	33.82	Pk	14.2	-31.4	16.62	40	-23.38	0-360	200	H
8	49.691	47.28	Pk	14.1	-31.4	29.98	40	-10.02	0-360	100	V
9	74.038	46.01	Pk	14.3	-31	29.31	40	-10.69	0-360	100	V
10	119.24	31.13	Pk	20	-30.6	20.53	43.52	-22.99	0-360	100	V
3	131.656	32.07	Pk	19.9	-30.3	21.67	43.52	-21.85	0-360	100	H
11	203.048	32.92	Pk	18.4	-29.8	21.52	43.52	-22	0-360	100	V
4	218.083	36.61	Pk	17	-29.7	23.91	46.02	-22.11	0-360	300	H
12	310.815	34.55	Pk	20.2	-29.2	25.55	46.02	-20.47	0-360	100	V
5	316.344	40.14	Pk	20.3	-29.1	31.34	46.02	-14.68	0-360	100	H
6	929.481	25.21	Pk	29.2	-25	29.41	46.02	-16.61	0-360	100	H
13	940.927	26.88	Pk	29.2	-24.8	31.28	46.02	-14.74	0-360	100	V

Pk - Peak detector

10.5. WORST CASE 18-26 GHZ

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

Antenna 1

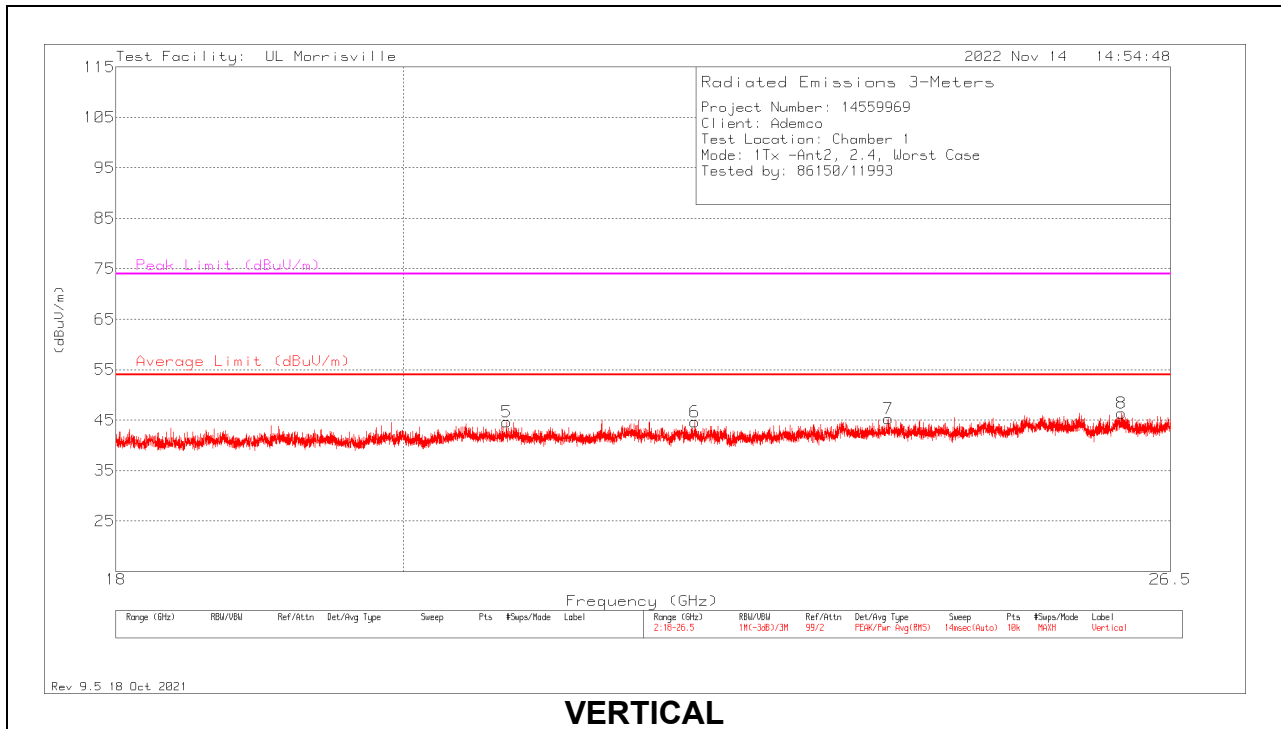
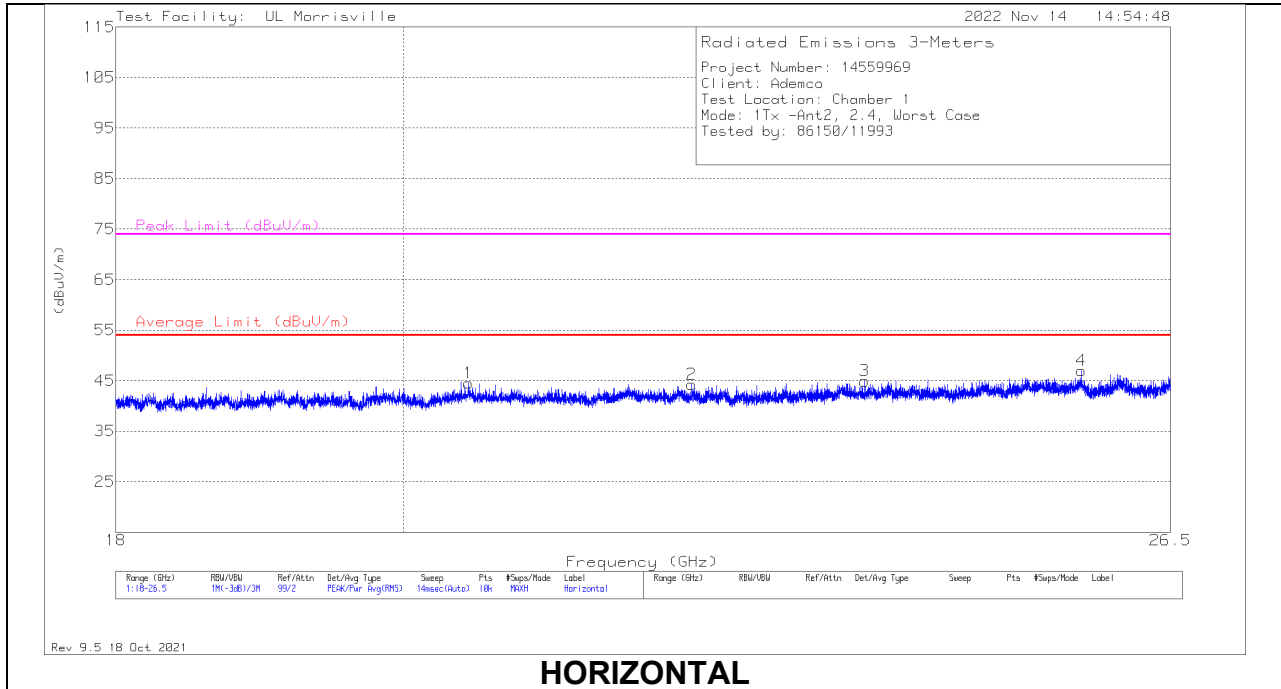


18 – 26GHz Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 21.08326	49.5	Pk	34.1	-39.2	44.4	54	-9.6	74	-29.6	0-360	101	H
2	* ** 23.08096	48.7	Pk	34.6	-39.5	43.8	54	-10.2	74	-30.2	0-360	149	H
3	* ** 23.73892	49.59	Pk	35.1	-39.1	45.59	54	-8.41	74	-28.41	0-360	101	H
5	* ** 20.61146	49.69	Pk	34.1	-39.1	44.69	54	-9.31	74	-29.31	0-360	101	V
6	* ** 22.98915	49.46	Pk	34.5	-39.3	44.66	54	-9.34	74	-29.34	0-360	101	V
7	* ** 23.88684	48.32	Pk	35	-38.7	44.62	54	-9.38	74	-29.38	0-360	250	V
8	25.9942	48.21	Pk	35.9	-37.3	46.81	-	-	-	-	0-360	200	V
4	26.04265	47.63	Pk	36	-37.3	46.33	-	-	-	-	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

Antenna 2



18 – 26GHz Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.48735	49.41	Pk	34.2	-39.1	44.51	54	-9.49	74	-29.49	0-360	199	H
2	* ** 22.23342	49.27	Pk	34.5	-39.5	44.27	54	-9.73	74	-29.73	0-360	249	H
3	* ** 23.69047	49.05	Pk	35.2	-39.3	44.95	54	-9.05	74	-29.05	0-360	249	H
5	* ** 20.77298	49.65	Pk	34	-39	44.65	54	-9.35	74	-29.35	0-360	151	V
6	* ** 22.25978	49.62	Pk	34.5	-39.5	44.62	54	-9.38	74	-29.38	0-360	101	V
7	* ** 23.89534	48.82	Pk	35	-38.6	45.22	54	-8.78	74	-28.78	0-360	200	V
4	25.64821	48.54	Pk	36	-37.6	46.94	-	-	-	-	0-360	199	H
8	26.0316	47.57	Pk	36	-37.2	46.37	-	-	-	-	0-360	251	V

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

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 C63.4.

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

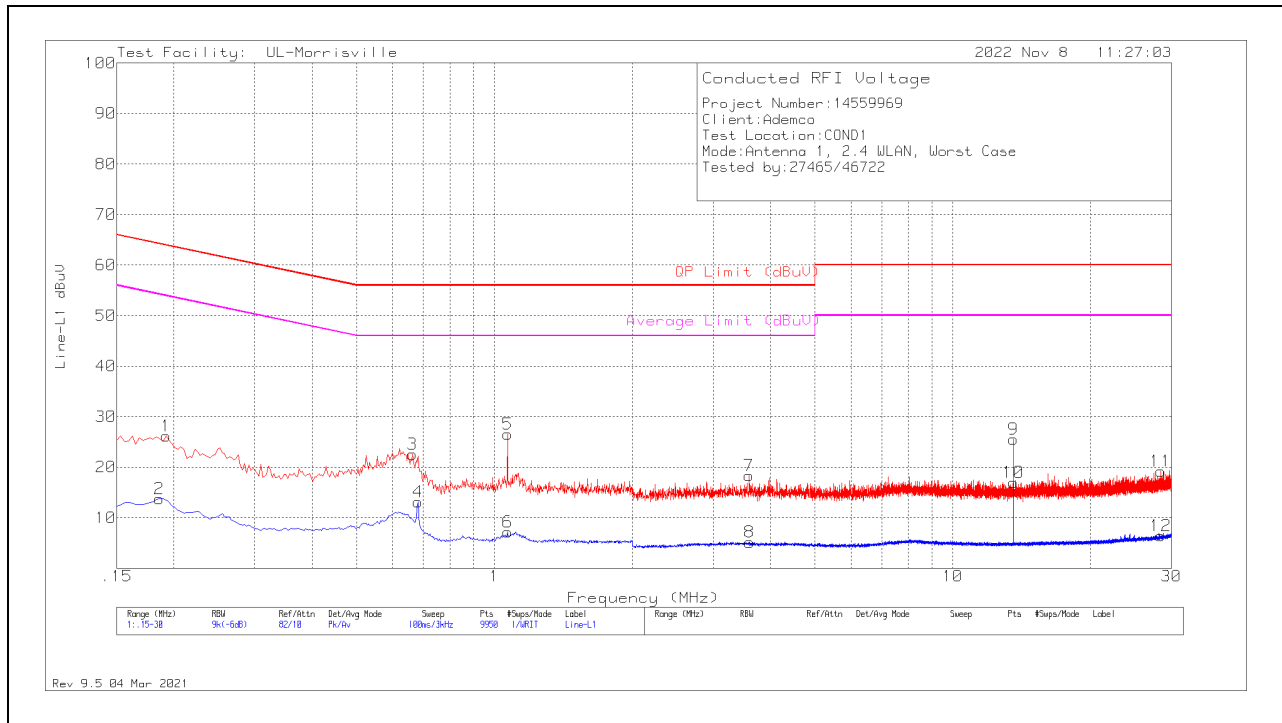
Line conducted data is recorded for both lines.

RESULTS

11.1.1. AC Power Line Norm

Antenna 1

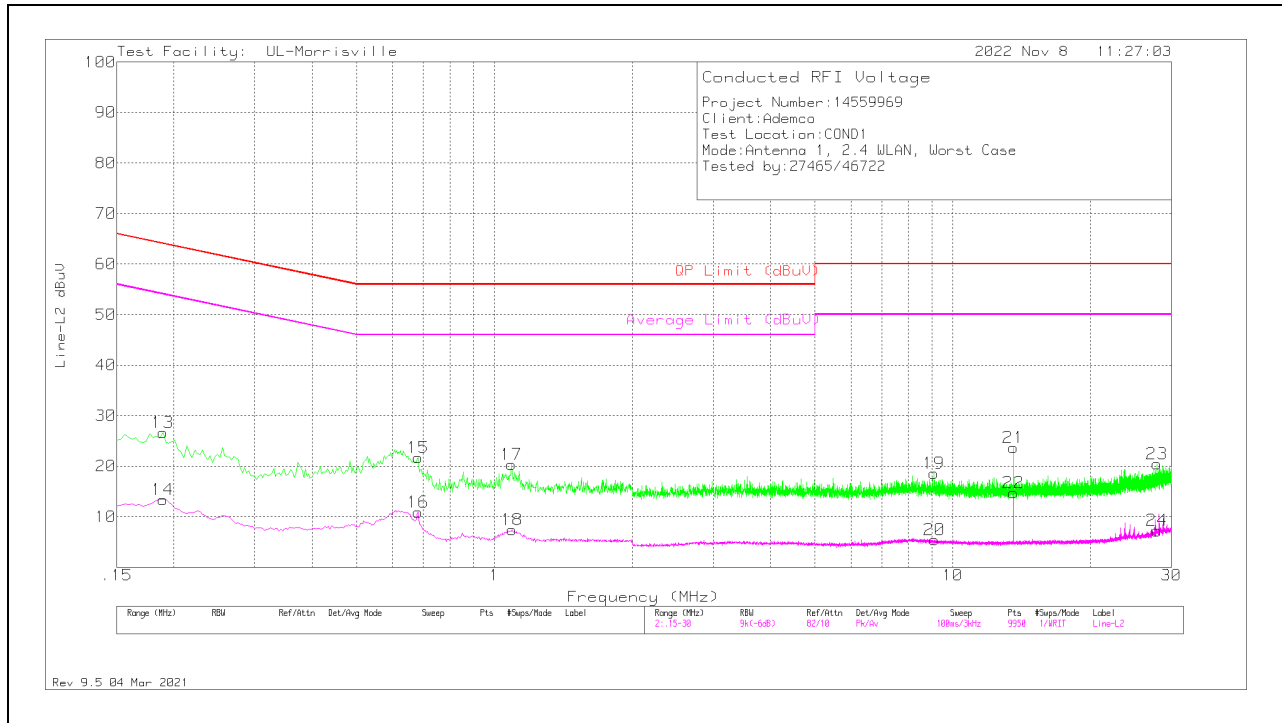
LINE 1 RESULTS



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)
1	.192	16.16	Pk	.2	9.8	26.16	63.95	-37.79	-	-
2	.186	3.78	Av	.2	9.8	13.78	-	-	54.21	-40.43
3	.663	12.79	Pk	0	9.8	22.59	56	-33.41	-	-
4	.681	3.27	Av	0	9.8	13.07	-	-	46	-32.93
5	1.068	16.7	Pk	0	9.8	26.5	56	-29.5	-	-
6	1.068	-2.62	Av	0	9.8	7.18	-	-	46	-38.82
7	3.591	8.45	Pk	0	9.9	18.35	56	-37.65	-	-
8	3.6	-4.78	Av	0	9.9	5.12	-	-	46	-40.88
9	13.56	15.43	Pk	.1	10	25.53	60	-34.47	-	-
10	13.56	6.83	Av	.1	10	16.93	-	-	50	-33.07
11	28.455	8.7	Pk	.3	10.2	19.2	60	-40.8	-	-
12	28.449	-4.11	Av	.3	10.2	6.39	-	-	50	-43.61

Pk - Peak detector
 Av - Average detection

LINE 2 RESULTS

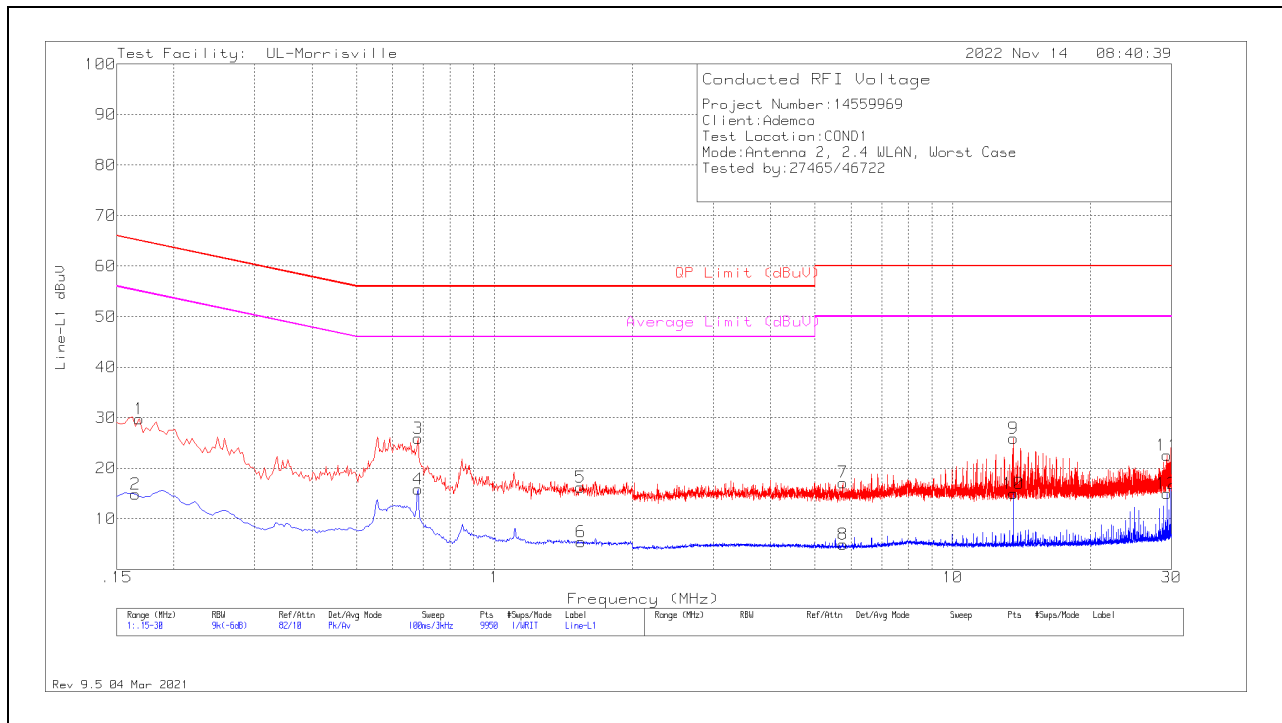


Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.189	16.68	Pk	.2	9.8	26.68	64.08	-37.4	-	-
14	.189	3.42	Av	.2	9.8	13.42	-	-	54.08	-40.66
15	.681	11.94	Pk	0	9.8	21.74	56	-34.26	-	-
16	.681	1.06	Av	0	9.8	10.86	-	-	46	-35.14
17	1.089	10.48	Pk	0	9.8	20.28	56	-35.72	-	-
18	1.092	-2.41	Av	0	9.8	7.39	-	-	46	-38.61
19	9.108	8.52	Pk	.1	10	18.62	60	-41.38	-	-
20	9.129	-4.68	Av	.1	10	5.42	-	-	50	-44.58
21	13.563	13.55	Pk	.1	10	23.65	60	-36.35	-	-
22	13.56	4.65	Av	.1	10	14.75	-	-	50	-35.25
23	27.921	9.92	Pk	.3	10.2	20.42	60	-39.58	-	-
24	27.936	-3.27	Av	.3	10.2	7.23	-	-	50	-42.77

Pk - Peak detector
 Av - Average detection

Antenna 2

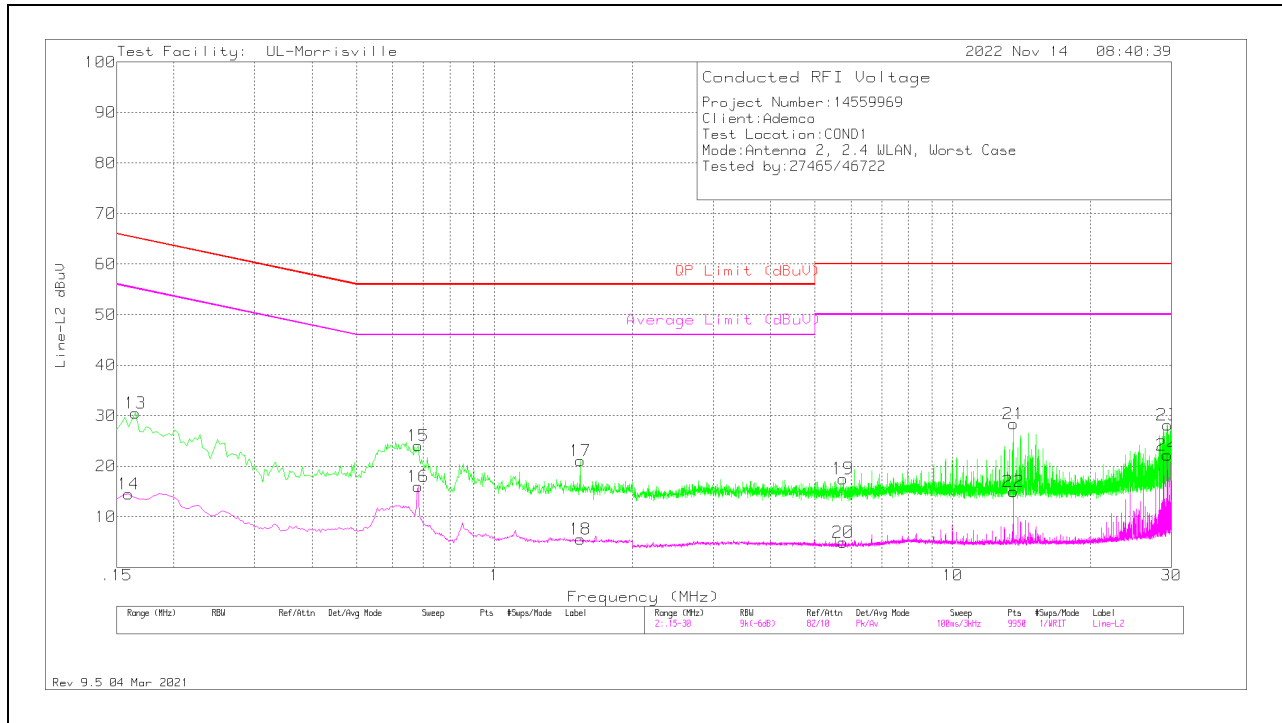
LINE 1 RESULTS



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)
1	.168	19.81	PK	.2	9.8	29.81	65.06	-35.25	-	-
2	.165	4.9	Av	.2	9.8	14.9	-	-	55.21	-40.31
3	.681	16.1	PK	0	9.8	25.9	56	-30.1	-	-
4	.681	6.04	Av	0	9.8	15.84	-	-	46	-30.16
5	1.539	6.47	PK	0	9.8	16.27	56	-39.73	-	-
6	1.545	-4.34	Av	0	9.8	5.46	-	-	46	-40.54
7	5.757	7.26	PK	0	9.9	17.16	60	-42.84	-	-
8	5.754	-4.97	Av	0	9.9	4.93	-	-	50	-45.07
9	13.56	15.77	PK	.1	10	25.87	60	-34.13	-	-
10	13.56	4.91	Av	.1	10	15.01	-	-	50	-34.99
11	29.373	12.04	PK	.3	10.2	22.54	60	-37.46	-	-
12	29.376	4.51	Av	.3	10.2	15.01	-	-	50	-34.99

Pk - Peak detector
 Av - Average detection

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)
13	.165	20.55	Pk	.2	9.8	30.55	65.21	-34.66	-	-
14	.159	4.51	Av	.2	9.8	14.51	-	-	55.52	-41.01
15	.681	14.2	Pk	0	9.8	24	56	-32	-	-
16	.681	6.15	Av	0	9.8	15.95	-	-	46	-30.05
17	1.539	11.24	Pk	0	9.8	21.04	56	-34.96	-	-
18	1.539	-4.25	Av	0	9.8	5.55	-	-	46	-40.45
19	5.766	7.63	Pk	0	9.9	17.53	60	-42.47	-	-
20	5.766	-4.93	Av	0	9.9	4.97	-	-	50	-45.03
21	13.56	18.27	Pk	.1	10	28.37	60	-31.63	-	-
22	13.56	4.88	Av	.1	10	14.98	-	-	50	-35.02
23	29.391	17.6	Pk	.3	10.2	28.1	60	-31.9	-	-
24	29.388	11.68	Av	.3	10.2	22.18	-	-	50	-27.82

Pk - Peak detector
 Av - Average detection

12. SETUP PHOTOS

Please refer to R14559969-EP1 for setup photos

END OF TEST REPORT