TEST REPORT

Report Number: R14558575-E1

Applicant	:	Ademco Inc. 2 Corporate Center Dr. Melville, NY 11747, U.S.A.
Model	:	RF6CTA
FCC ID	:	CFS8DL6CTA
IC	:	573F-6CTA
EUT Description	:	Temperature Sensor
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:
2023-02-27

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

CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-11-30	Initial Issue	Charles Moody
V2	2023-02-16	Updated Conducted Equipment and Client Provided Information	Charles Moody
V3	2023-02-27	Updated Duty Cycle Correction Factor Statement	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Ademco Inc.
2 Corporate Center Dr.
Melville, NY 11747, U.S.A.

EUT DESCRIPTION: Temperature Sensor

MODEL: RF6CTA

SERIAL NUMBER: Non-Serialized

SAMPLE RECEIPT DATE: 2022-10-28

DATE TESTED: 2022-10-28 TO 2022-11-08

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, or any agency of the U.S. government.

Approved & Released For
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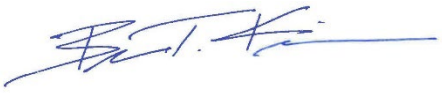

Brian Kiewra
Project Engineer
Consumer, Medical, and IT Segment
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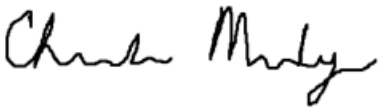
Prepared By:



Charles Moody
Electrical Engineer
Consumer, Medical, and IT Segment
UL LLC

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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.

Below is a list of the data provided by the customer:

1.) Antenna gain and type (see section 6.3)
2.) Cable loss (see sections 9.4 and 9.5)

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 (a)	RSS-Gen 8.8	AC Power Lines Conducted Measurements	Not Performed	EUT is battery powered and AC Lines testing is not required

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
☒	Building 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

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5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	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:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

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

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a battery powered RF6 temperature sensor that contains a 2.4 GHz IEEE 802.15.4 radio. This report covers full emissions testing on the 2.4 GHz radio. The radio operates from 2405 to 2475 MHz.

6.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2405-2475	Zigbee	19.51	89.33

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 PCB antenna, with a maximum gain of 1.01 dBi.

Antenna 2: The radio utilizes a PCB antenna, with a maximum gain of 4.68 dBi

6.4. SOFTWARE AND FIRMWARE

The firmware installed on the EUT to allow for control of the radio card was FW 6.3.3.

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz and above 18GHz 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 channel at it's only data rate.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation for both Antenna 1 and Antenna 2; therefore, all final radiated testing was performed with the EUT in X orientation.

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
None.				

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
None.						

TEST SETUP

The EUT is controlled using built-in switches which allows the lab to select the transmitting channel and antenna. Only the EUT was present in the chamber for final emissions testing.

SETUP DIAGRAMS

Please refer to R14558575-EP1 for setup diagrams

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7. MEASUREMENT METHOD

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

6 dB BW: ANSI C63.10 Subclause -11.8.1

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

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8. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
	Conducted Room 2				
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2022-05-02	2023-05-02
PWM005	RF Power Meter	Keysight Technologies	N1912A	2022-09-02	2024-09-02
PWS002	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2022-09-27	2023-09-27
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2022-07-20	2023-07-20
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
	Attenuators				
226551	SMA Coaxial 20dB Attenuator 25MHz-18GHz	CentricRF	C18S2-20	2022-05-03	2023-05-03

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	Gain-Loss Chains				
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-10	2023-05-10
	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				
220929	Environmental Meter	Fisher Scientific	15-077-963 s/n 181474409	2022-10-05	2023-10-05

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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				
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
	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				
200929	Environmental Meter	Fisher Scientific	15-077-963 s/n 18474341	2022-10-05	2023-10-05

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

9.1.1. Antenna 1

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						
802.15.4	100.0	100.0	1.000	100.00%	0.00	0.010

*Note: The operational duty cycle, as stated in the filing, will be 6.976%. Using KDB 558074 D01 Answer 3 (a), a duty cycle correction will be subtracted from the Peak reading to derive an Average reading. See calculation below.

Duty Cycle Correction Factor = 20*log(1/DC) = 20*log(1/0.06976) = 23.1dB

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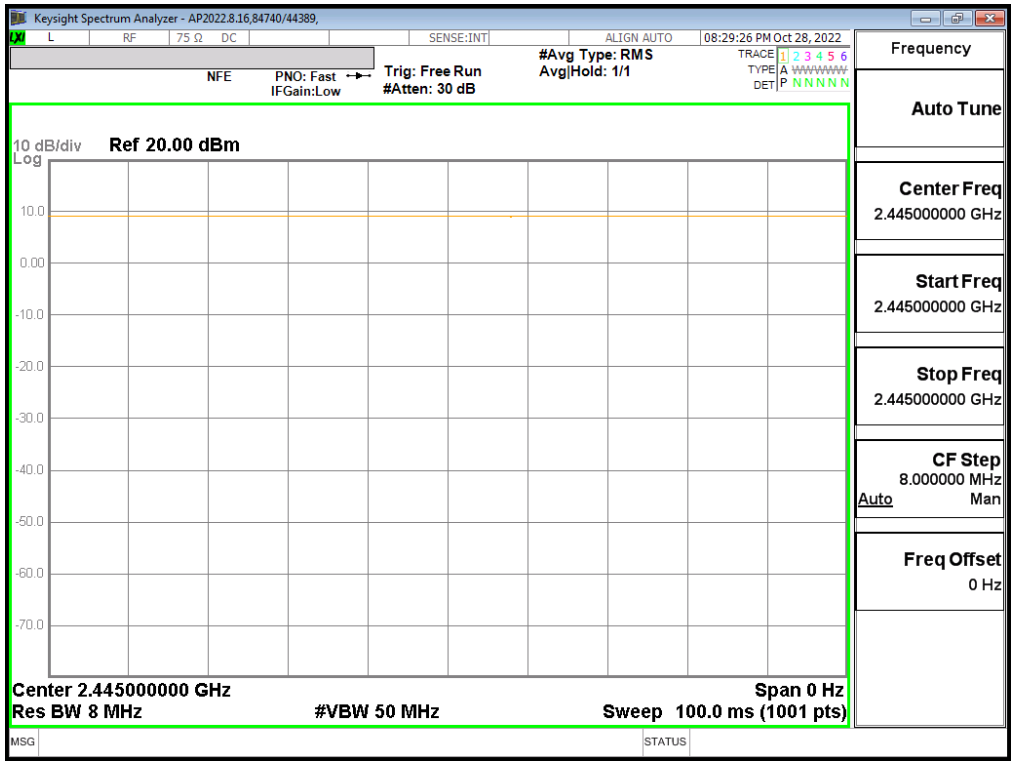
DUTY CYCLE PLOTS



DUTY CYCLE 802.15.4

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9.1.2. Antenna 2

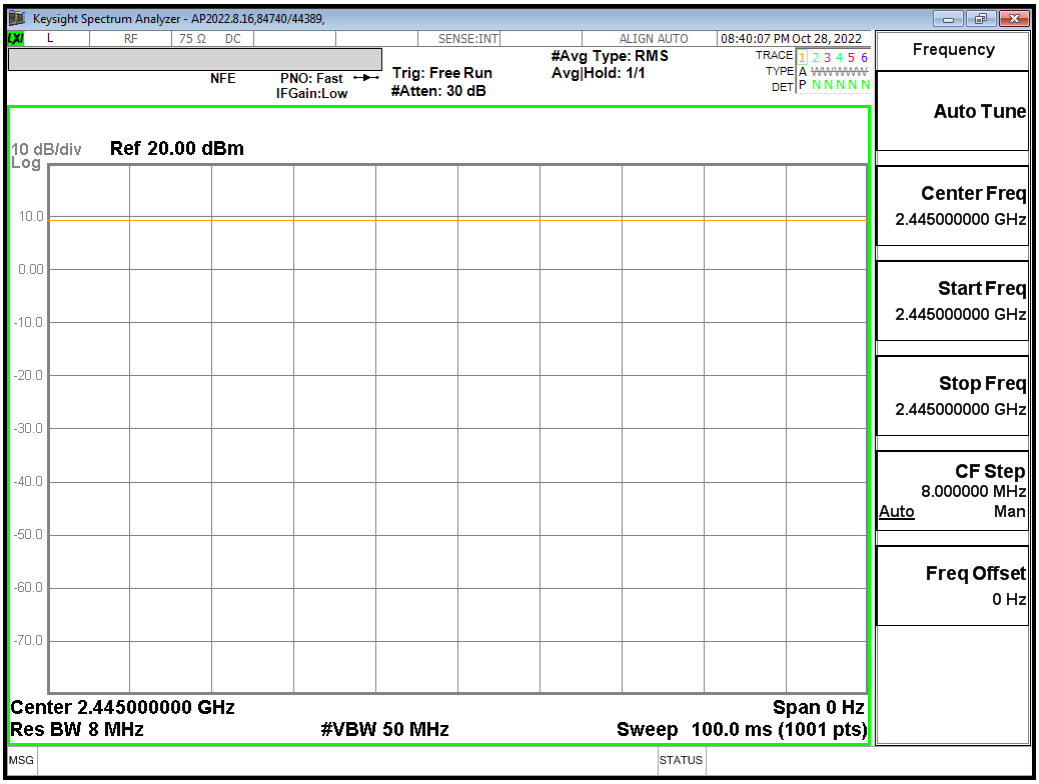
ON TIME AND DUTY CYCLE RESULTS

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						
802.15.4	100.0	100.0	1.000	100.00%	0.00	0.010

*Note: The operational duty cycle, as stated in original filing, will be 6.976%. Using KDB 558074 D01 Answer 3 (a), a duty cycle correction will be subtracted from the Peak reading to derive an Average reading. See calculation below.

Duty Cycle Correction Factor = 20*log(1/DC) = 20*log(1/0.06976) = 23.1dB

DUTY CYCLE PLOTS



DUTY CYCLE 802.15.4

9.2. 99% BANDWIDTH

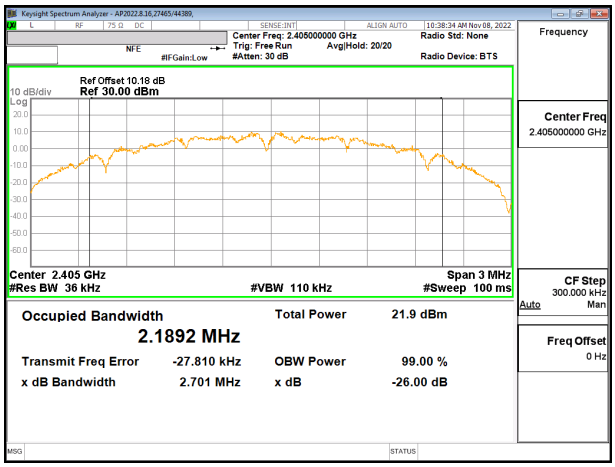
LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. Antenna 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2405	2.1892
Middle	2445	2.2070
High	2475	2.2138



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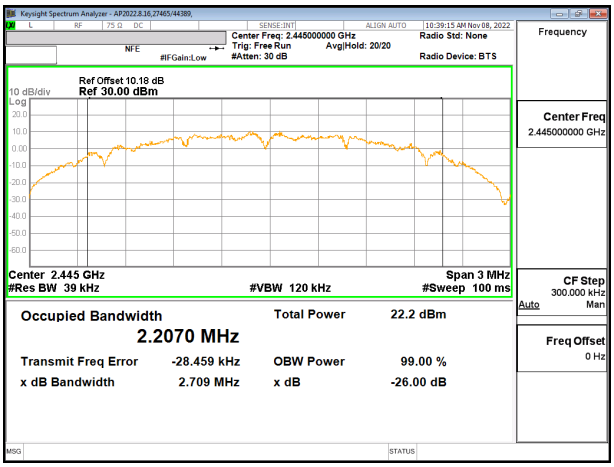
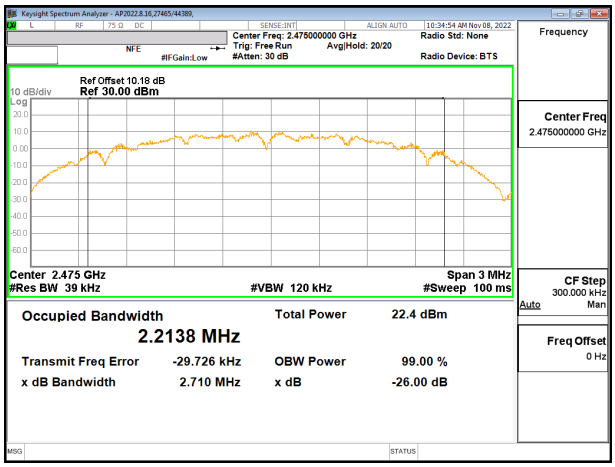


MID CHANNEL



HIGH CHANNEL

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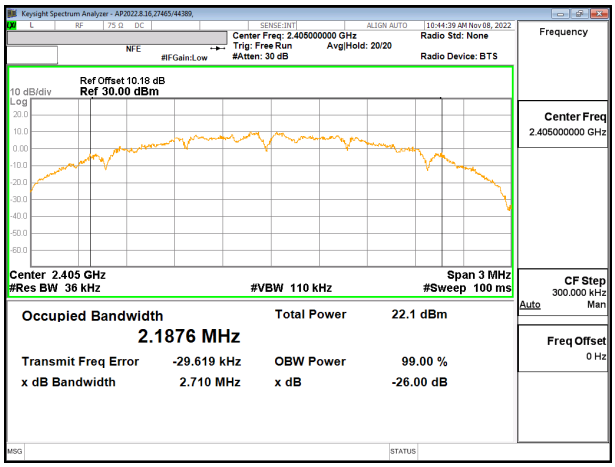
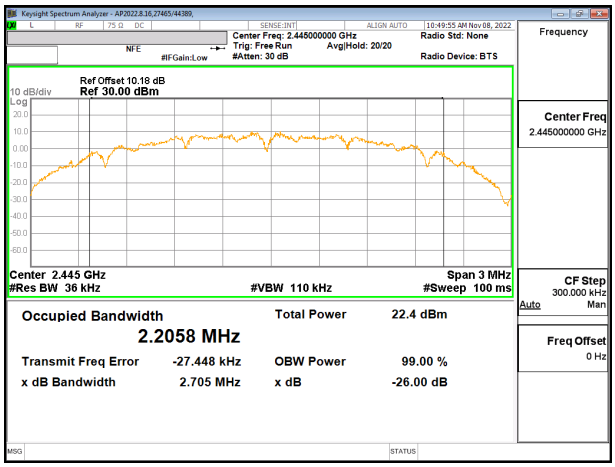
9.2.2. Antenna 2

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2405	2.1876
Middle	2445	2.2058
High	2475	2.2130



LOW CHANNEL



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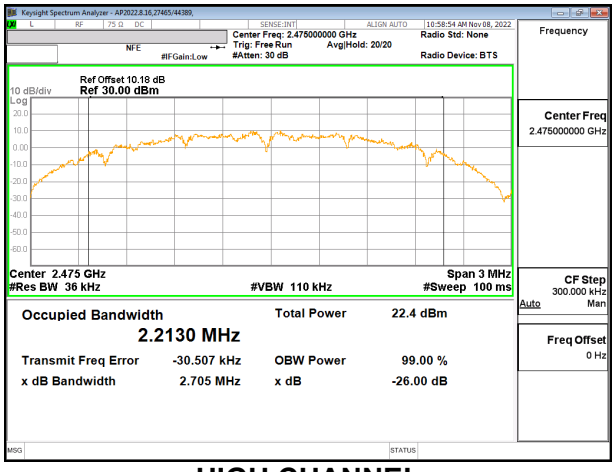


HIGH CHANNEL

9.3. 6 dB BANDWIDTH

LIMITS

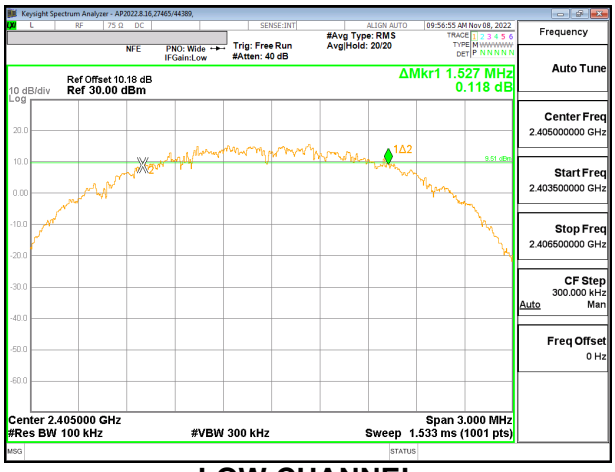
FCC §15.247 (a) (2)
RSS-247 5.2 (a)

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

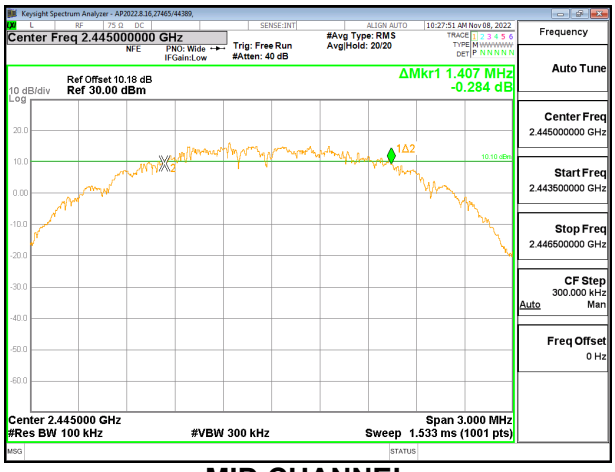
RESULTS

9.3.1. Antenna 1

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2405	1.527	0.5
Middle	2445	1.407	0.5
High	2475	1.521	0.5



LOW CHANNEL



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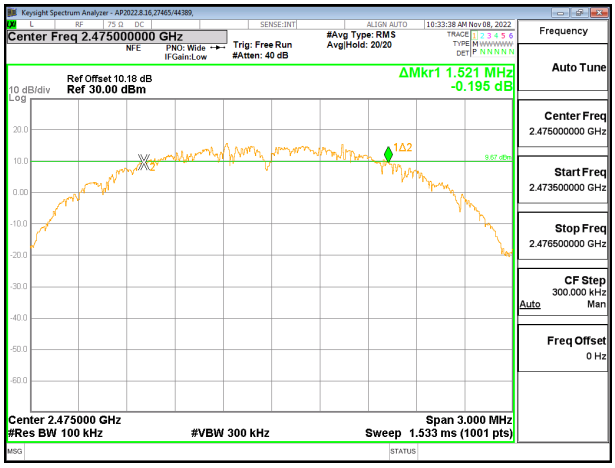

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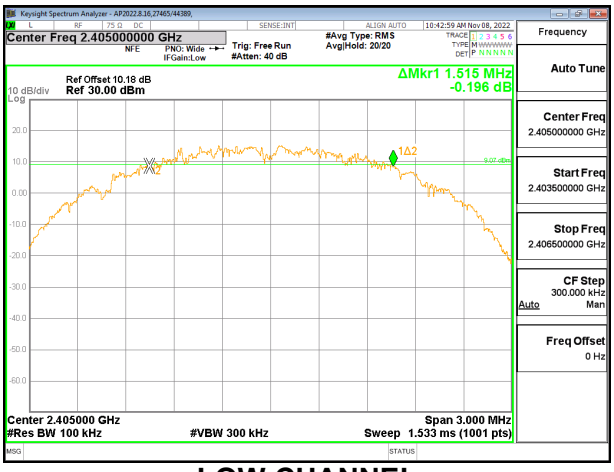
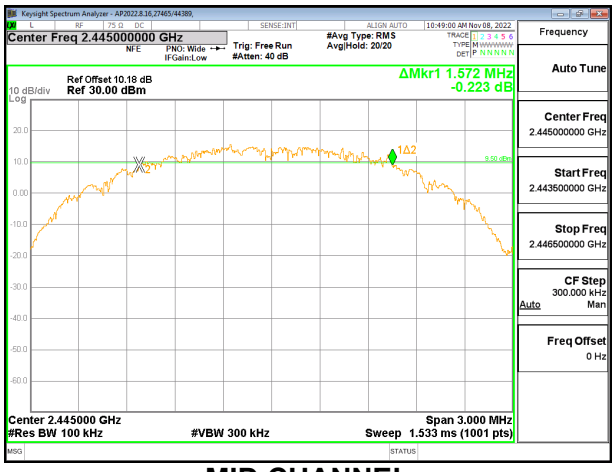
9.3.2. Antenna 2

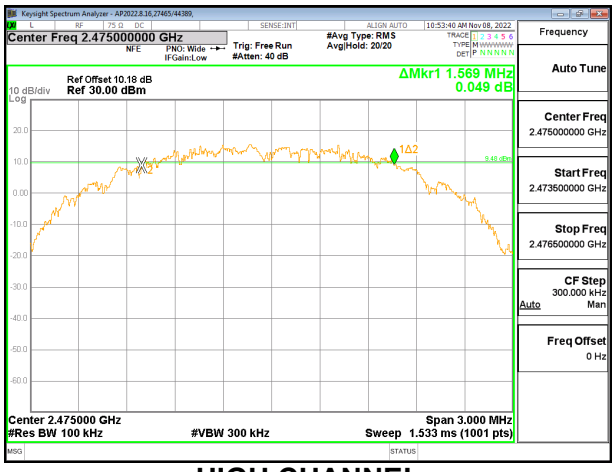
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2405	1.515	0.5
Middle	2445	1.572	0.5
High	2475	1.569	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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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 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE
The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.29 dB (including 9.79 dB pad and 0.5 dB cable) was entered as an offset in the power meter.

RESULTS

9.4.1. Antenna 1

Tested By:	84740/44389
Date:	2022-10-28

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2405	18.81	30	-11.190
Middle	2445	19.14	30	-10.860
High	2475	19.28	30	-10.720

9.4.2. Antenna 2

Tested By:	84740/44389
Date:	2022-10-28

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2405	19.18	30	-10.820
Middle	2445	19.32	30	-10.680
High	2475	19.51	30	-10.490

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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 10.29 dB (including 9.79 dB pad and 0.5 dB cable) was entered as an offset in the power meter.

RESULTS

9.5.1. Antenna 1

Tested By:	84740/44389
Date:	2022-10-28

Channel	Frequency (MHz)	AV power (dBm)
Low	2405	18.71
Middle	2445	19.05
High	2475	19.17

9.5.2. Antenna 2

Tested By:	84740/44389
Date:	2022-10-28

Channel	Frequency (MHz)	AV power (dBm)
Low	2405	19.08
Middle	2445	19.22
High	2475	19.42

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9.6. POWER SPECTRAL DENSITY

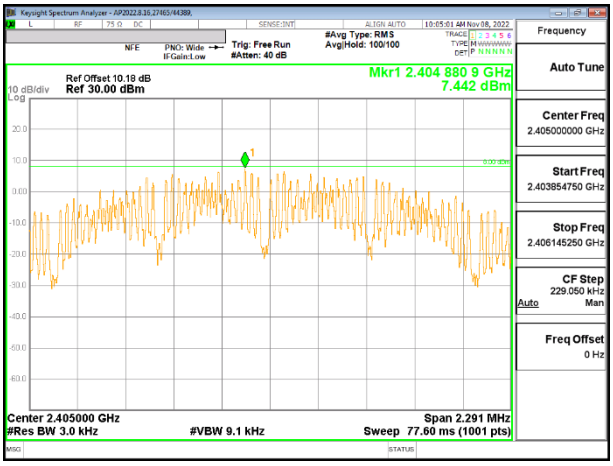
LIMITS

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.

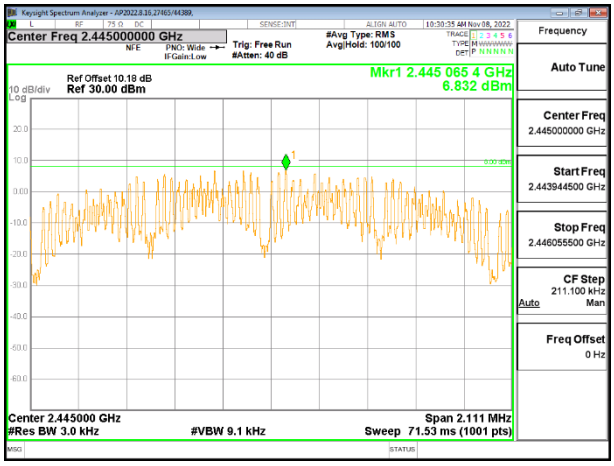
RESULTS

9.6.1. Antenna 1

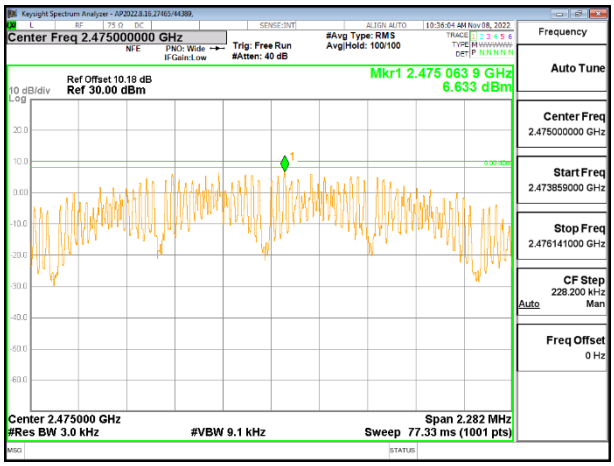
	(MHz)	(dBm/3kHz)	(dBm/3kHz)	(dB)
Low	2405	7.442	8	-0.56
Middle	2445	6.832	8	-1.17
High	2475	6.633	8	-1.37



LOW CHANNEL



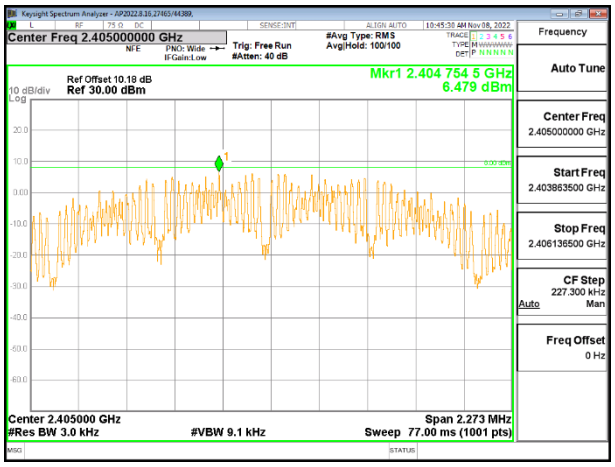
MID CHANNEL



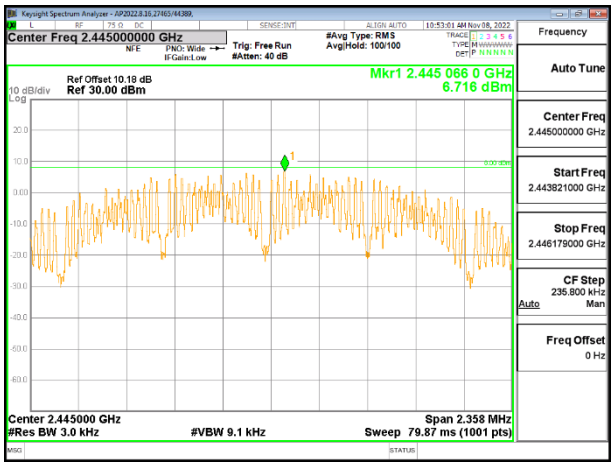
HIGH CHANNEL

9.6.2. Antenna 2

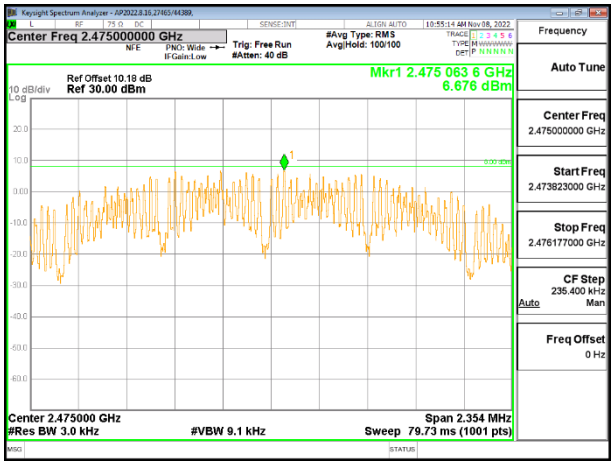
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2405	6.479	8	-1.52
Middle	2445	6.716	8	-1.28
High	2475	6.676	8	-1.32



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)
RSS-247 5.5

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

RESULTS

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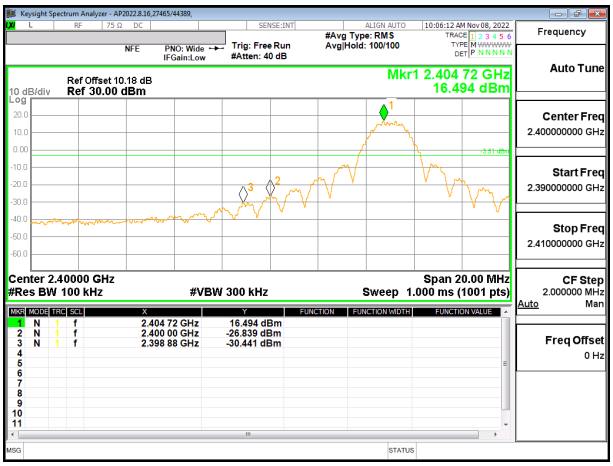
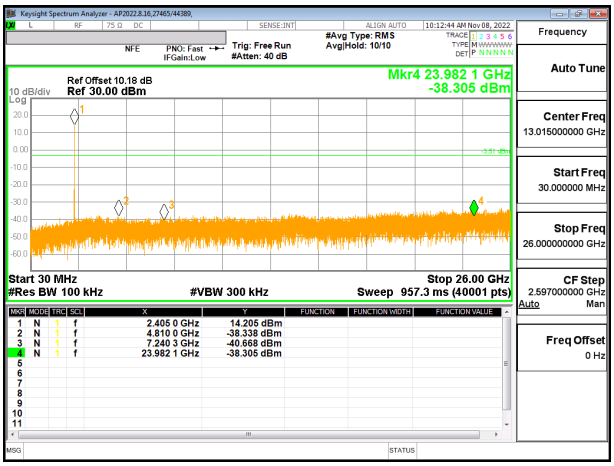
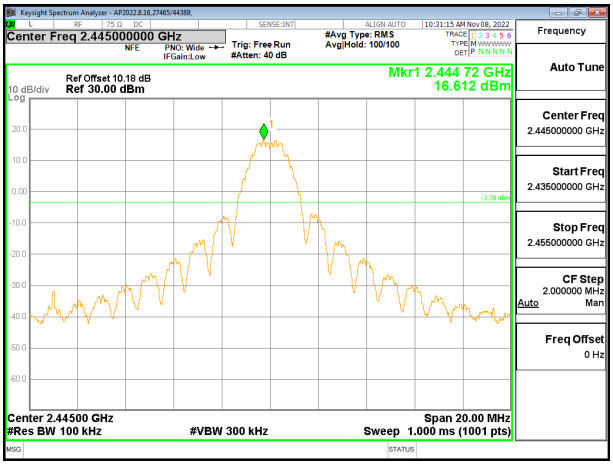
9.7.1. Antenna 1



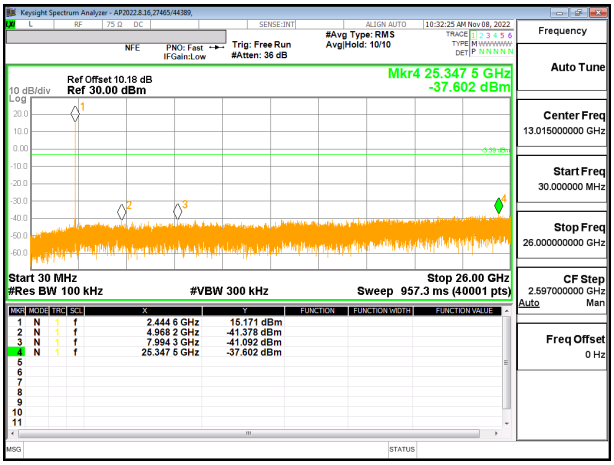
LOW CHANNEL BANDEDGE



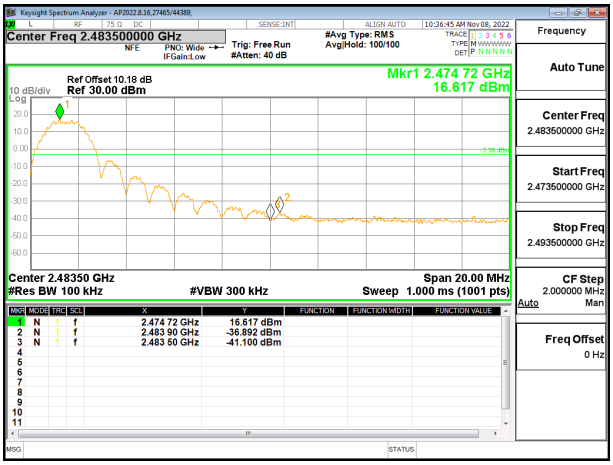
OUT-OF-BAND LOW CHANNEL



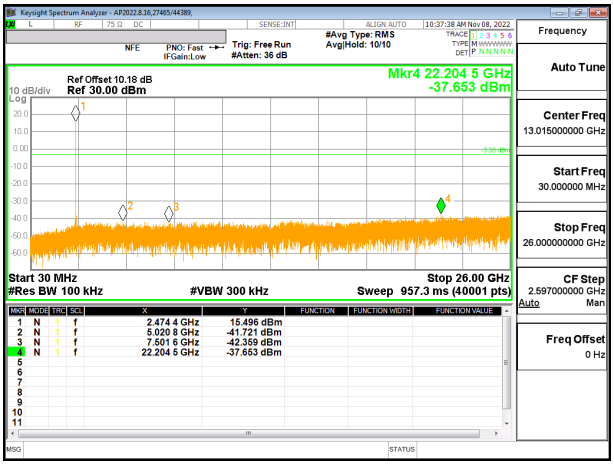
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

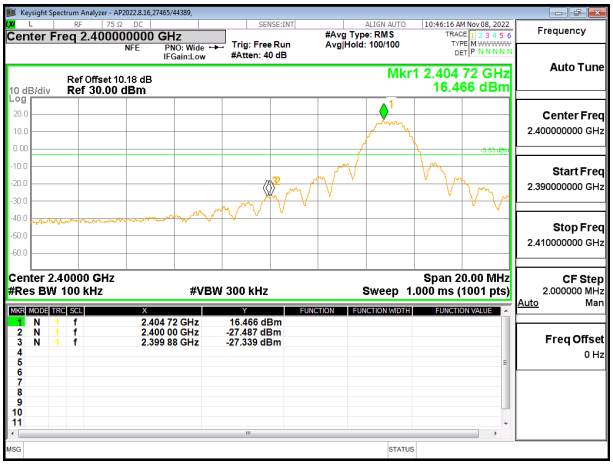


HIGH CHANNEL BANDEDGE

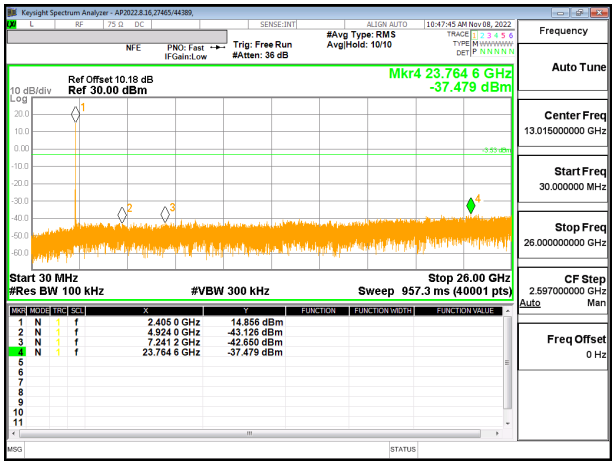


OUT-OF-BAND HIGH CHANNEL

9.7.2. Antenna 2

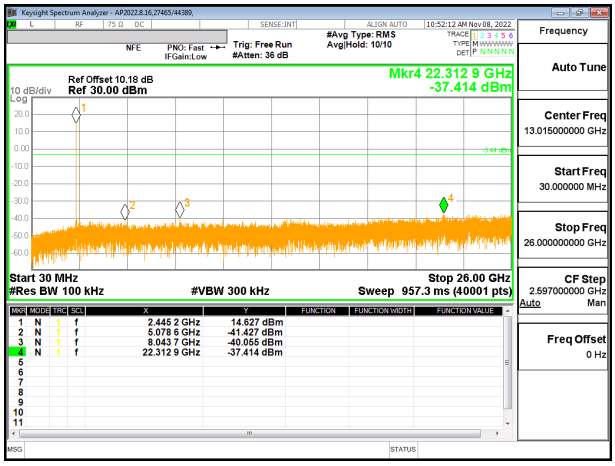


LOW CHANNEL BANDEDGE

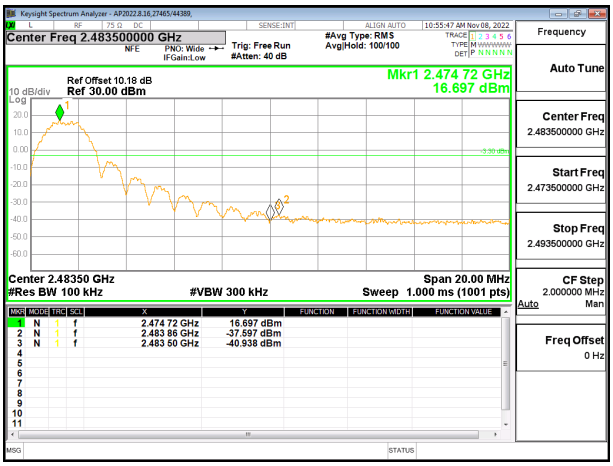


OUT-OF-BAND LOW CHANNEL

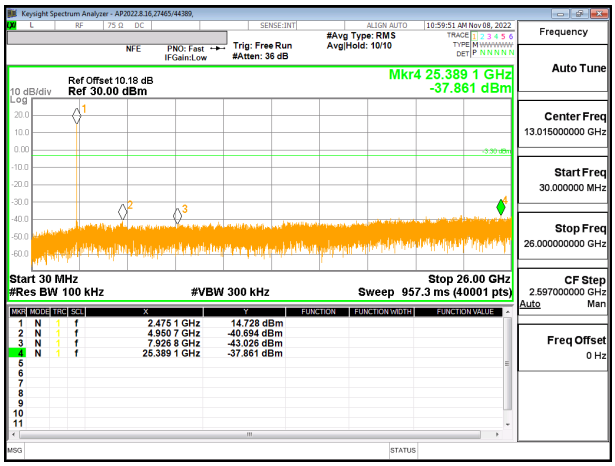
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

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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.

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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. AV measurements were calculated as a PK measurement. The 23.1 dB duty cycle correction value was subtracted from the peak measurement as stated in section 9.1 based on the 6.976% duty cycle.

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.

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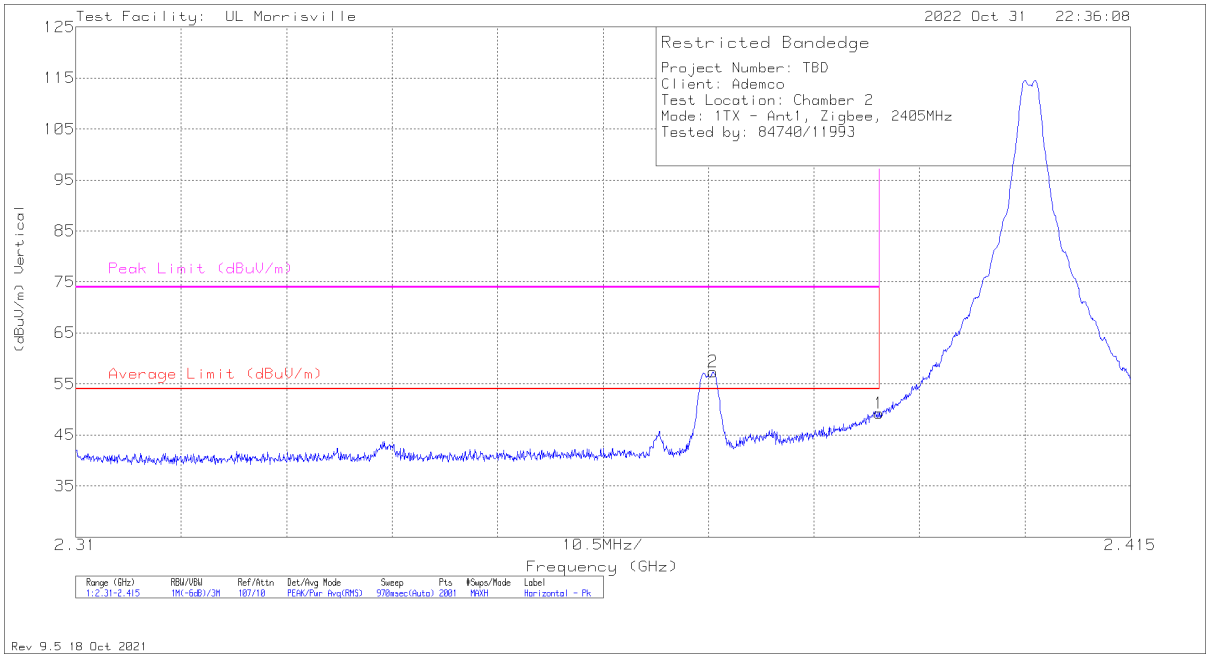
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. ZigBee

Antenna 1

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	41.09	Pk	32	-23.8	-	49.29	-	-	74	-24.71	7	159	H
	* ** 2.38996	41.09	Pk	32	-23.8	-23.1	26.19	54	-27.81	-	-	7	159	H
2	* ** 2.37347	49.42	Pk	32	-24	-	57.42	-	-	74	-16.58	7	159	H
	* ** 2.37347	49.42	Pk	32	-24	-23.1	34.32	54	-19.68	-	-	7	159	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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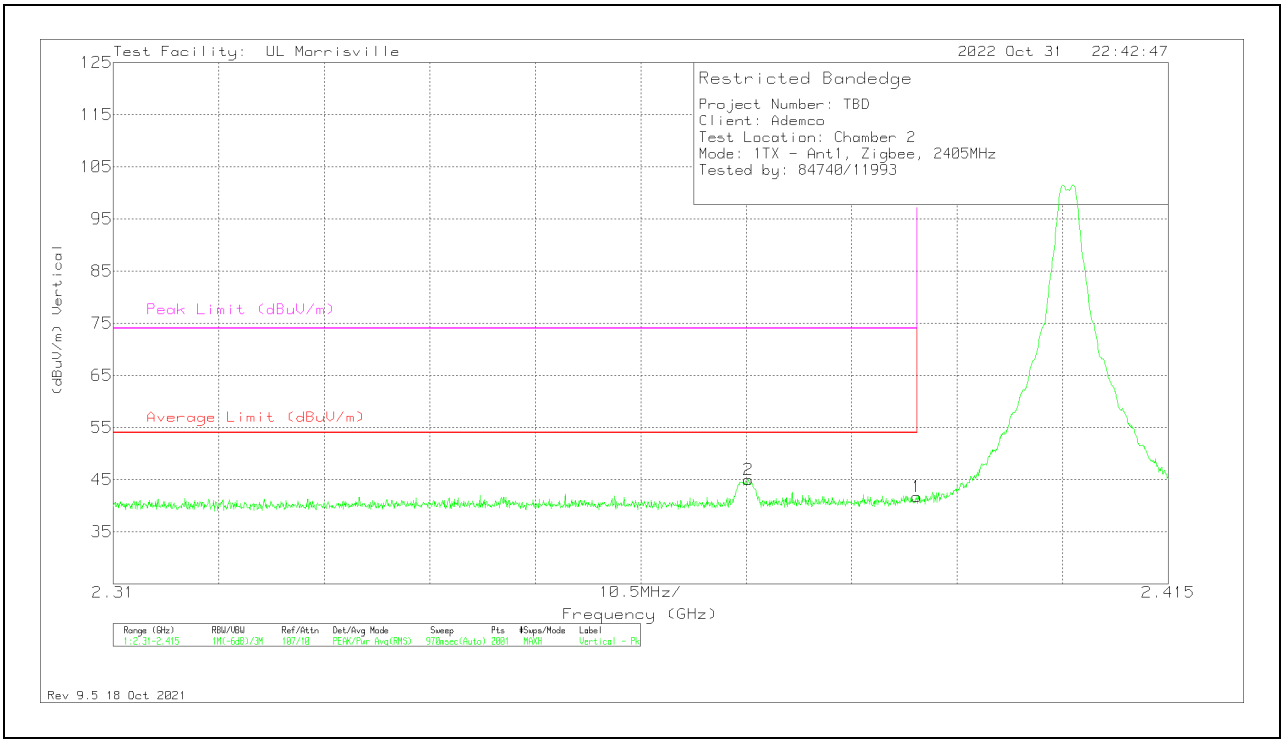
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	33.51	Pk	32	-23.8	-	41.71	-	-	74	-32.29	150	327	V
	* ** 2.38996	33.51	Pk	32	-23.8	-23.1	18.61	54	-35.39	-	-	150	327	V
2	* ** 2.37321	36.96	Pk	32	-24	-	44.96	-	-	74	-29.04	150	327	V
	* ** 2.37321	36.96	Pk	32	-24	-23.1	21.86	54	-32.14	-	-	150	327	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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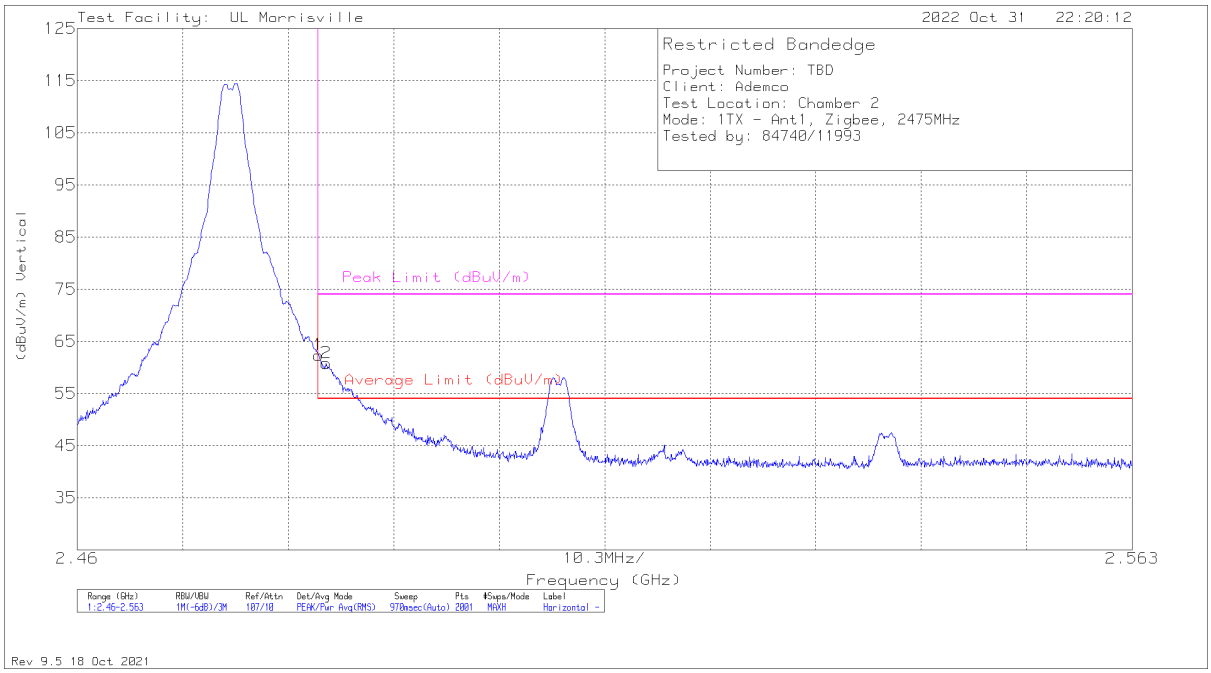
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	54.39	Pk	32.3	-24.3	-	62.39	-	-	74	-11.61	3	147	H
	* ** 2.48354	54.39	Pk	32.3	-24.3	-23.1	39.29	54	-14.71	-	-	3	147	H
2	* ** 2.48431	52.93	Pk	32.3	-24.4	-	60.83	-	-	74	-13.17	3	147	H
	* ** 2.48431	52.93	Pk	32.3	-24.4	-23.1	37.73	54	-16.27	-	-	3	147	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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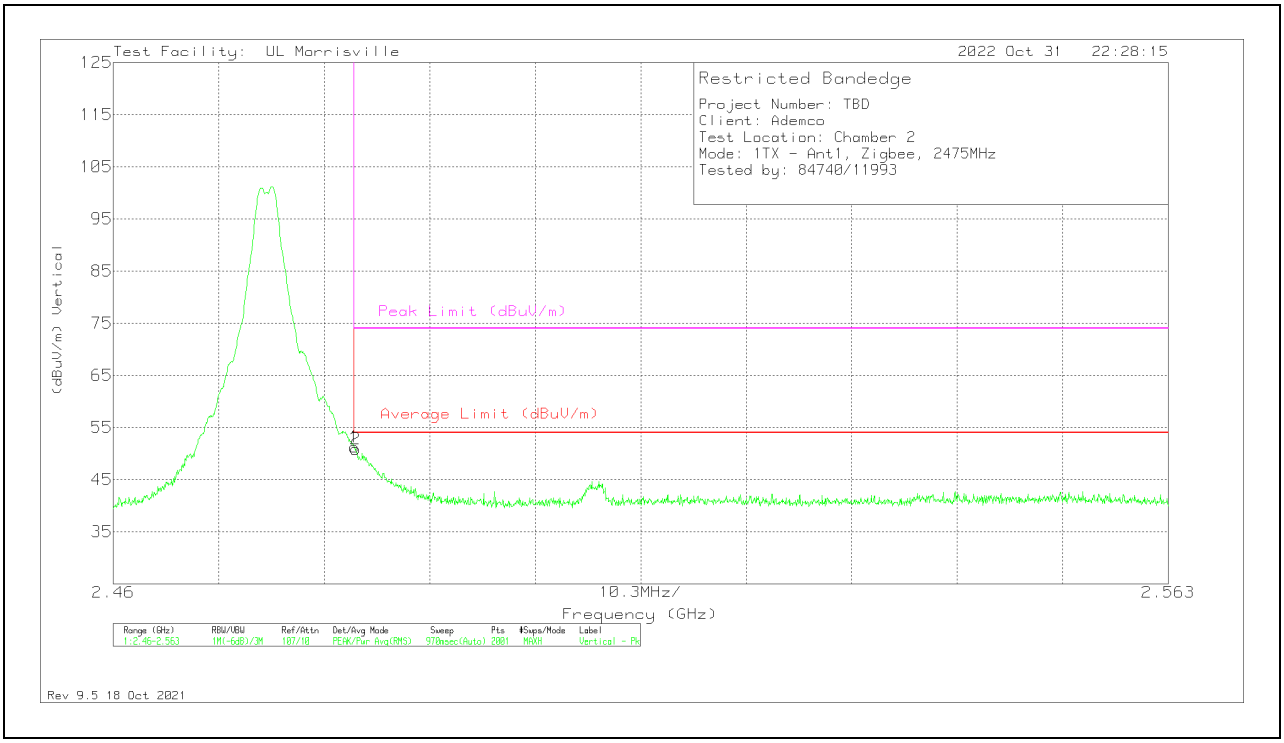
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	43.23	Pk	32.3	-24.3	-	51.23	-	-	74	-22.77	147	355	V
	* ** 2.48354	43.23	Pk	32.3	-24.3	-23.1	28.13	54	-25.87	-	-	147	355	V
2	* ** 2.48369	42.85	Pk	32.3	-24.3	-	50.85	-	-	74	-23.15	147	355	V
	* ** 2.48369	42.85	Pk	32.3	-24.3	-23.1	27.75	54	-26.25	-	-	147	355	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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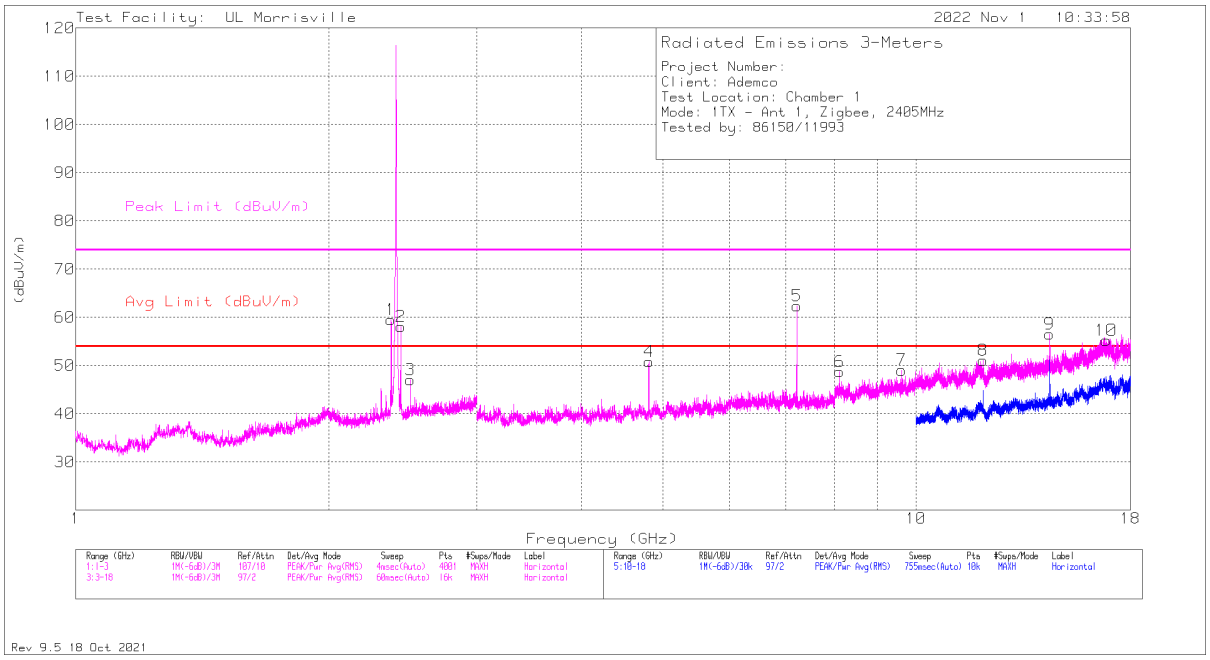
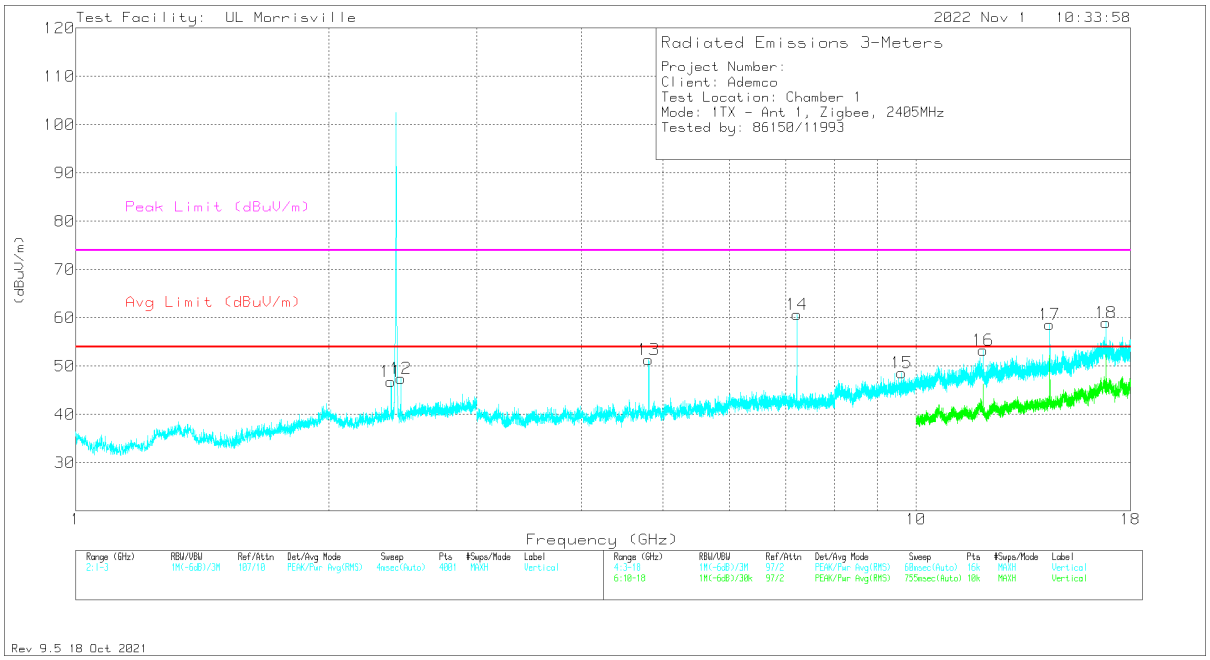
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	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	* ** 2.37353	52.99	PK2	32	-24.8	-	60.19	-	-	74	-13.81	111	104	H
	* ** 2.37353	52.99	PK2	32	-24.8	-23.1	37.09	54	-16.91	-	-	111	104	H
3	** 2.502	38.99	Pk	32.5	-24.4	-	47.09	-	-	-	-	0-360	101	H
11	* ** 2.3725	39.56	Pk	32	-24.8	-	46.76	54	-7.24	74	-27.24	0-360	101	V
4	* ** 4.80884	50.09	PK2	34.1	-32	-	52.19	-	-	74	-21.81	179	104	H
	* ** 4.80884	50.09	PK2	34.1	-32	-23.1	29.09	54	-24.91	-	-	179	104	H
6	* ** 8.11052	41.44	PK2	35.8	-29.2	-	48.04	-	-	74	-25.96	102	186	H
	* ** 8.11052	41.44	PK2	35.8	-29.2	-23.1	24.94	54	-29.06	-	-	102	186	H
8	* ** 12.02242	41.29	PK2	38.7	-25.7	-	54.29	-	-	74	-19.71	228	111	H
	* ** 12.02242	41.29	PK2	38.7	-25.7	-23.1	31.19	54	-22.81	-	-	228	111	H
13	* ** 4.80898	50.68	PK2	34.1	-32	-	52.78	-	-	74	-21.22	287	110	V
	* ** 4.80898	50.68	PK2	34.1	-32	-23.1	29.68	54	-24.32	-	-	287	110	V
16	* ** 12.02722	42.92	PK2	38.7	-26.2	-	55.42	-	-	74	-18.58	52	101	V
	* ** 12.02722	42.92	PK2	38.7	-26.2	-23.1	32.32	54	-21.68	-	-	52	101	V
2	2.4375	50.53	Pk	32.2	-24.6	-	58.13	-	-	-	-	0-360	101	H
12	2.4375	39.81	Pk	32.2	-24.6	-	47.41	-	-	-	-	0-360	101	V
5	7.21313	56.83	Pk	35.7	-30.2	-	62.33	-	-	-	-	0-360	101	H
14	7.21594	55.01	Pk	35.7	-30	-	60.71	-	-	-	-	0-360	101	V
7	9.61781	40.68	Pk	36.8	-28.4	-	49.08	-	-	-	-	0-360	101	H
15	9.61875	40.28	Pk	36.8	-28.4	-	48.68	-	-	-	-	0-360	101	V
17	14.43281	46.08	Pk	39.3	-26.8	-	58.58	-	-	-	-	0-360	101	V
9	14.43375	43.8	Pk	39.3	-26.6	-	56.5	-	-	-	-	0-360	101	H
18	16.83844	41.83	Pk	41.9	-24.7	-	59.03	-	-	-	-	0-360	101	V
10	16.84688	36.82	Pk	41.9	-23.5	-	55.22	-	-	-	-	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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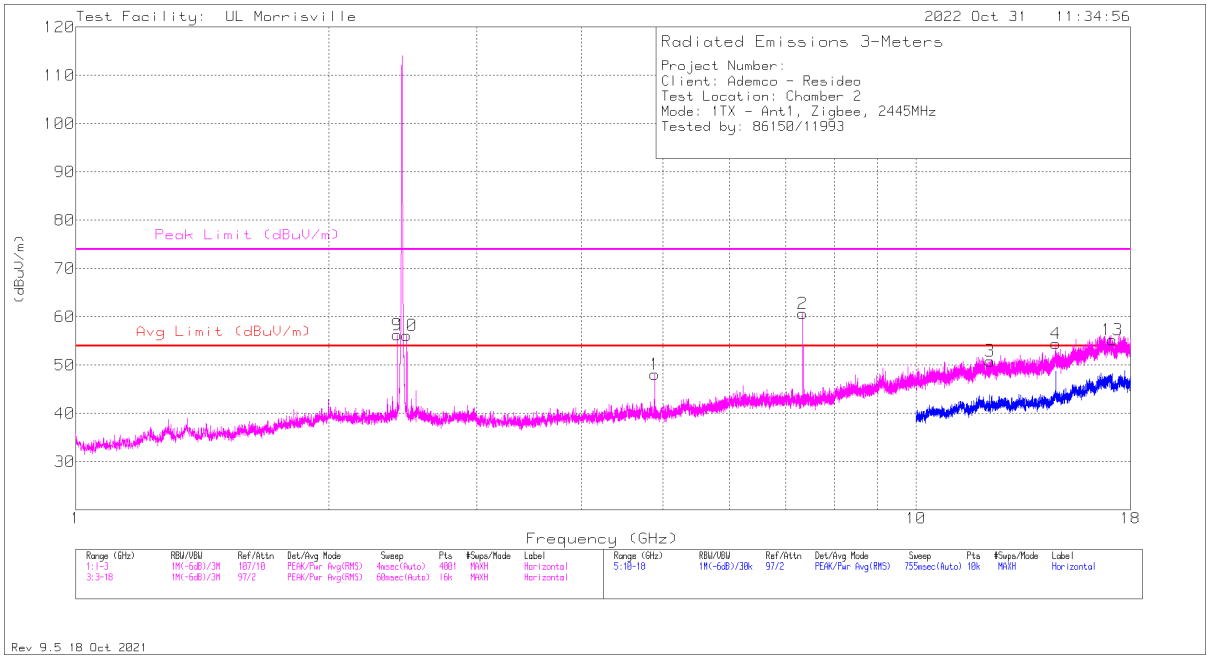
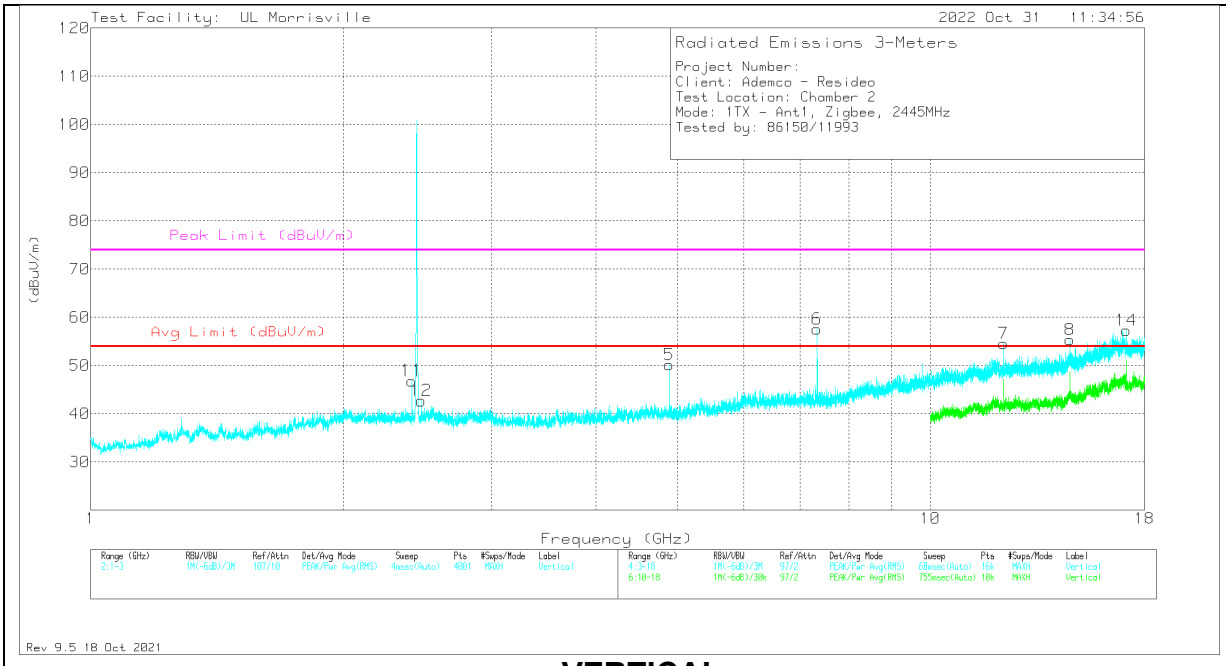
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	* ** 4.89084	46.54	PK2	33.9	-30.5	-	49.94	-	-	74	-24.06	324	118	H
	* ** 4.89084	46.54	PK2	33.9	-30.5	-23.1	26.84	54	-27.16	-	-	324	118	H
2	* ** 7.33338	53.09	PK2	35.6	-27.4	-	61.29	-	-	74	-12.71	49	103	H
	* ** 7.33338	53.09	PK2	35.6	-27.4	-23.1	38.19	54	-15.81	-	-	49	103	H
3	* ** 12.24218	36.47	PK2	38.9	-23.8	-	51.57	-	-	74	-22.43	21	256	H
	* ** 12.24218	36.47	PK2	38.9	-23.8	-23.1	28.47	54	-25.53	-	-	21	256	H
5	* ** 4.88891	48.72	PK2	33.9	-30.5	-	52.12	-	-	74	-21.88	355	101	V
	* ** 4.88891	48.72	PK2	33.9	-30.5	-23.1	29.02	54	-24.98	-	-	355	101	V
6	* ** 7.33647	51.42	PK2	35.6	-27.6	-	59.42	-	-	74	-14.58	94	101	V
	* ** 7.33647	51.42	PK2	35.6	-27.6	-23.1	36.32	54	-17.68	-	-	94	101	V
7	* ** 12.22219	42.17	PK2	38.8	-23.8	-	57.17	-	-	74	-16.83	312	105	V
	* ** 12.22219	42.17	PK2	38.8	-23.8	-23.1	34.07	54	-19.93	-	-	312	105	V
9	2.413	48.74	Pk	32	-24.5	-	56.24	-	-	-	-	0-360	101	H
11	2.413	39.37	Pk	32	-24.5	-	46.87	-	-	-	-	0-360	199	V
12	2.4765	35.02	Pk	32.3	-24.6	-	42.72	-	-	-	-	0-360	199	V
10	2.477	48.32	Pk	32.3	-24.5	-	56.12	-	-	-	-	0-360	101	H
4	14.66719	37.98	Pk	39.5	-23	-	54.48	-	-	-	-	0-360	101	H
8	14.67375	38.68	Pk	39.5	-22.8	-	55.38	-	-	-	-	0-360	101	V
14	17.11875	37.8	Pk	41.4	-21.9	-	57.3	-	-	-	-	0-360	101	V
13	17.12344	35.34	Pk	41.4	-21.5	-	55.24	-	-	-	-	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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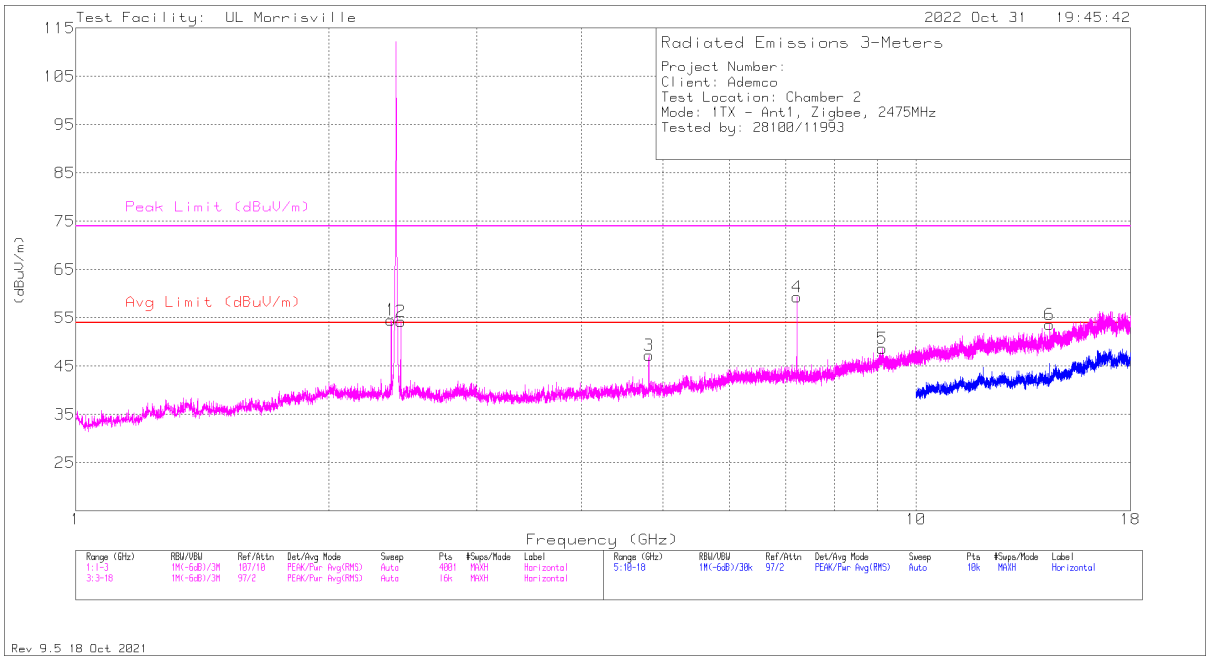
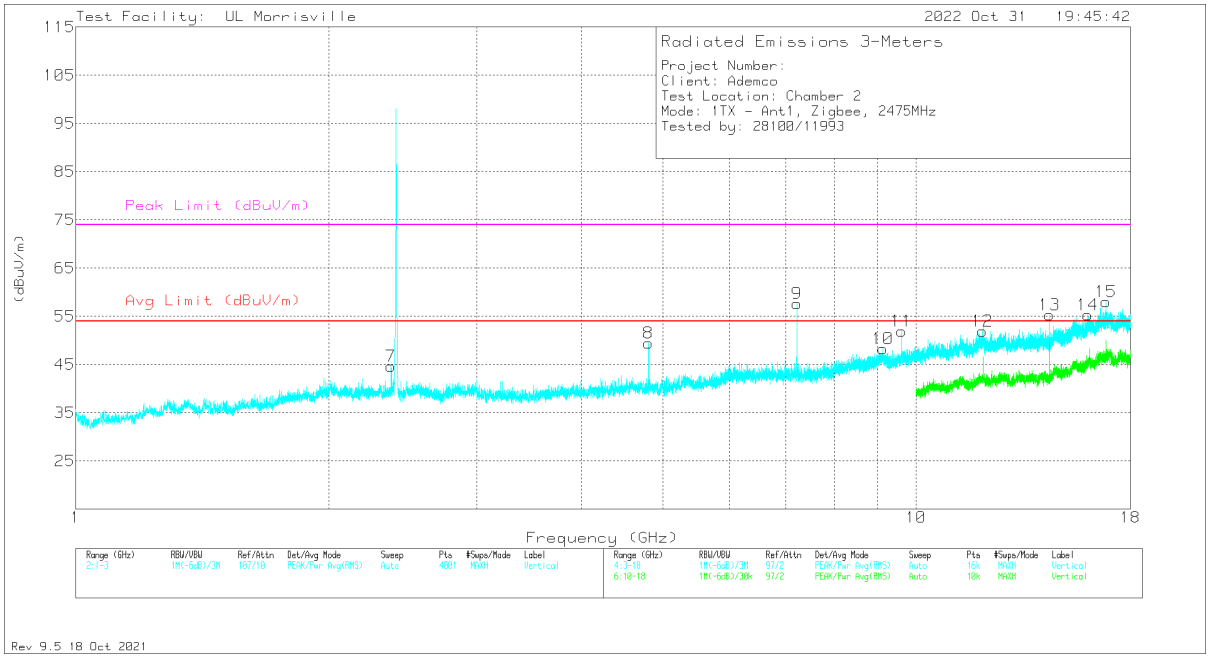
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL LLC
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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	* ** 2.37318	34.65	PK2	32	-24	-	42.65	-	-	74	-31.35	320	284	H
	* ** 2.37318	34.65	PK2	32	-24	-23.1	19.55	54	-34.45	-	-	320	284	H
7	* ** 2.373	36.68	Pk	32	-24	-	44.68	54	-9.32	74	-29.32	0-360	101	V
3	* ** 4.81031	43.84	Pk	34	-30.6	-	47.24	54	-6.76	74	-26.76	0-360	101	H
5	* ** 9.11197	38.49	PK2	36.2	-25.5	-	49.19	-	-	74	-24.81	85	215	H
	* ** 9.11197	38.49	PK2	36.2	-25.5	-23.1	26.09	54	-27.91	-	-	85	215	H
8	* ** 4.80836	39.93	PK2	34	-30.7	-	43.23	-	-	74	-30.77	167	323	V
	* ** 4.80836	39.93	PK2	34	-30.7	-23.1	20.13	54	-33.87	-	-	167	323	V
10	* ** 9.13233	38.16	PK2	36.2	-25	-	49.36	-	-	74	-24.64	308	257	V
	* ** 9.13233	38.16	PK2	36.2	-25	-23.1	26.26	54	-27.74	-	-	308	257	V
12	* ** 11.99969	36.53	PK2	38.6	-23.3	-	51.83	-	-	74	-22.17	4	259	V
	* ** 11.99969	36.53	PK2	38.6	-23.3	-23.1	28.73	54	-25.27	-	-	4	259	V
14	* ** 16.02025	37.9	PK2	40.8	-23.3	-	55.4	-	-	74	-18.6	104	396	V
	* ** 16.02025	37.9	PK2	40.8	-23.3	-23.1	32.3	-	-	74	-18.6	104	396	V
2	2.4375	46.66	Pk	32.1	-24.5	-	54.26	-	-	-	-	0-360	101	H
4	7.21594	51.4	Pk	35.6	-27.7	-	59.3	-	-	-	-	0-360	101	H
9	7.21688	49.73	Pk	35.6	-27.7	-	57.63	-	-	-	-	0-360	101	V
11	9.61781	40.78	Pk	36.7	-25.5	-	51.98	-	-	-	-	0-360	101	V
6	14.42719	38.37	Pk	39.2	-24	-	53.57	-	-	-	-	0-360	101	H
13	14.43281	40.35	Pk	39.2	-24.2	-	55.35	-	-	-	-	0-360	101	V
15	16.83844	38.21	Pk	41.9	-22.1	-	58.01	-	-	-	-	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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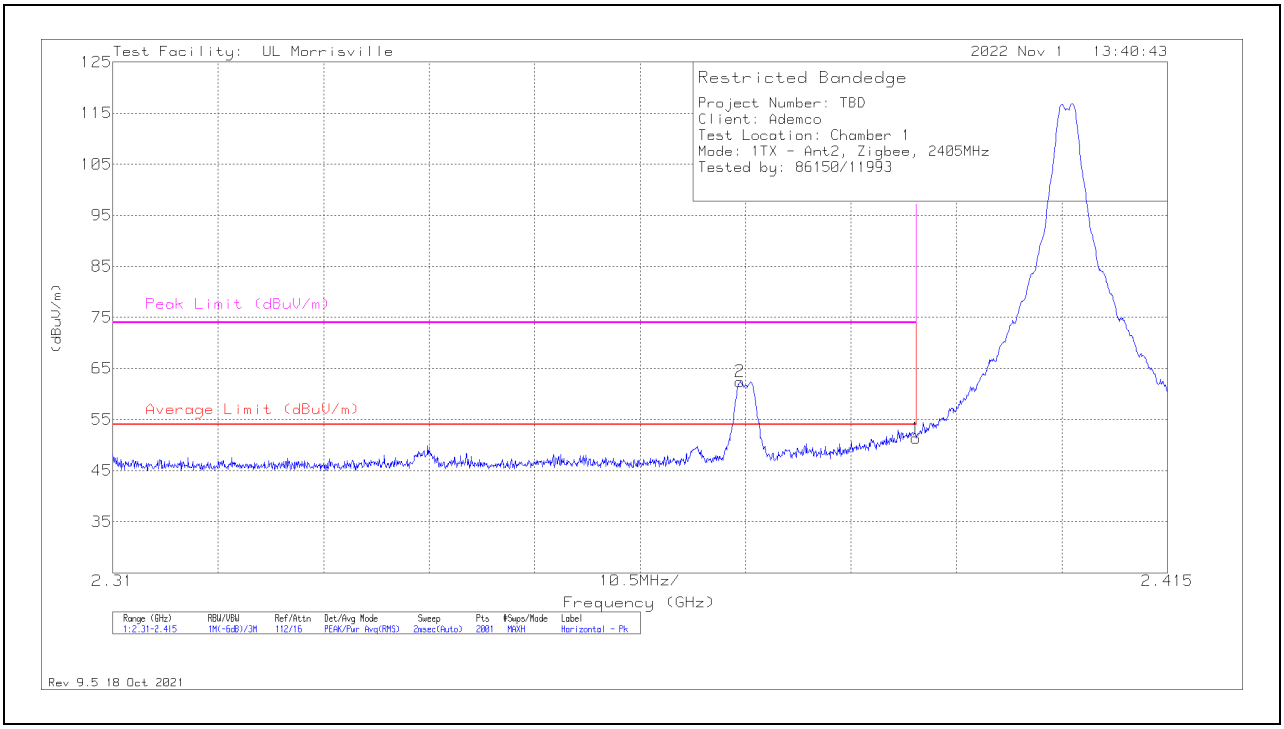
Antenna 2

BANDEDGE (LOW CHANNEL)

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	44.18	Pk	32	-24.8	-	51.38	-	-	74	-22.62	188	101	H
	* ** 2.38996	44.18	Pk	32	-24.8	-23.1	28.28	54	-25.72	-	-	188	101	H
2	* ** 2.37248	55.26	Pk	32	-24.8	-	62.46	-	-	74	-11.54	188	101	H
	* ** 2.37248	55.26	Pk	32	-24.8	-23.1	39.36	54	-14.64	-	-	188	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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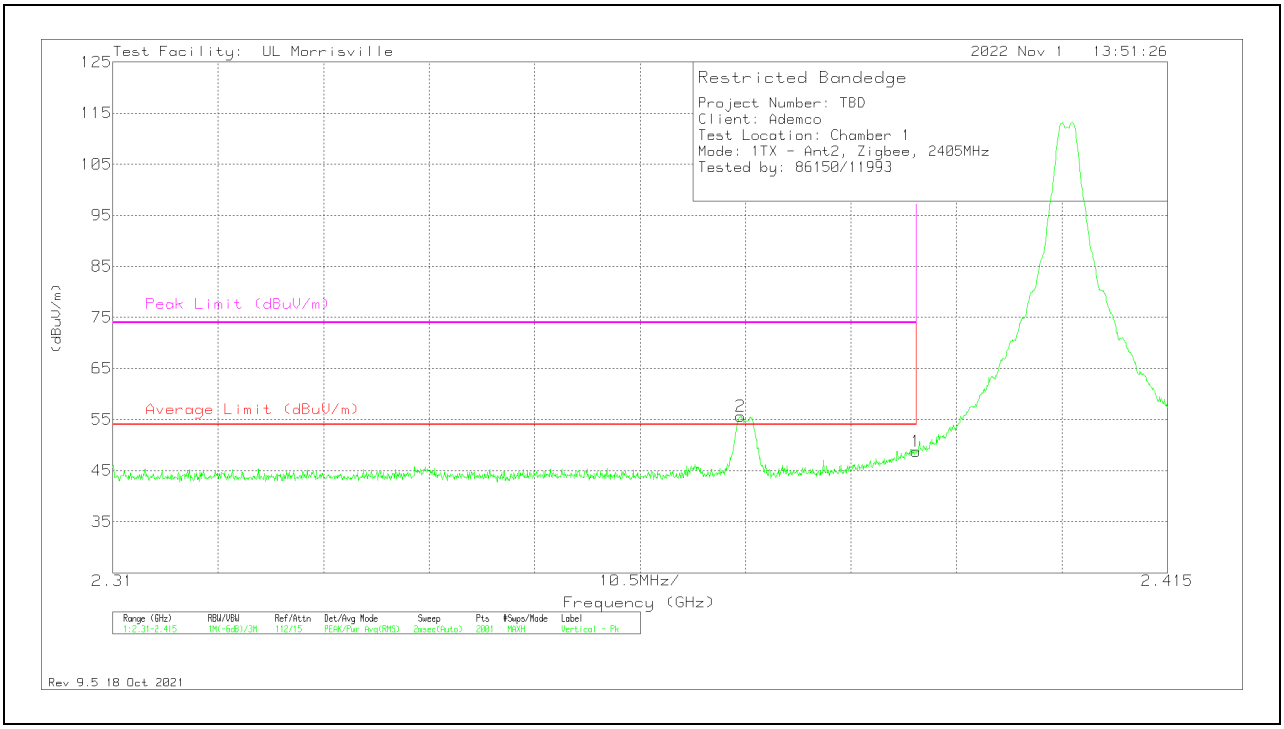
VERTICAL RESULT



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	41.61	Pk	32	-24.8	-	48.81	-	-	74	-25.19	228	398	V
	* ** 2.38996	41.61	Pk	32	-24.8	-23.1	25.71	54	-28.29	-	-	228	398	V
2	* ** 2.37253	48.5	Pk	32	-24.8	-	55.7	-	-	74	-18.3	228	398	V
	* ** 2.37253	48.5	Pk	32	-24.8	-23.1	32.6	54	-21.4	-	-	228	398	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
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Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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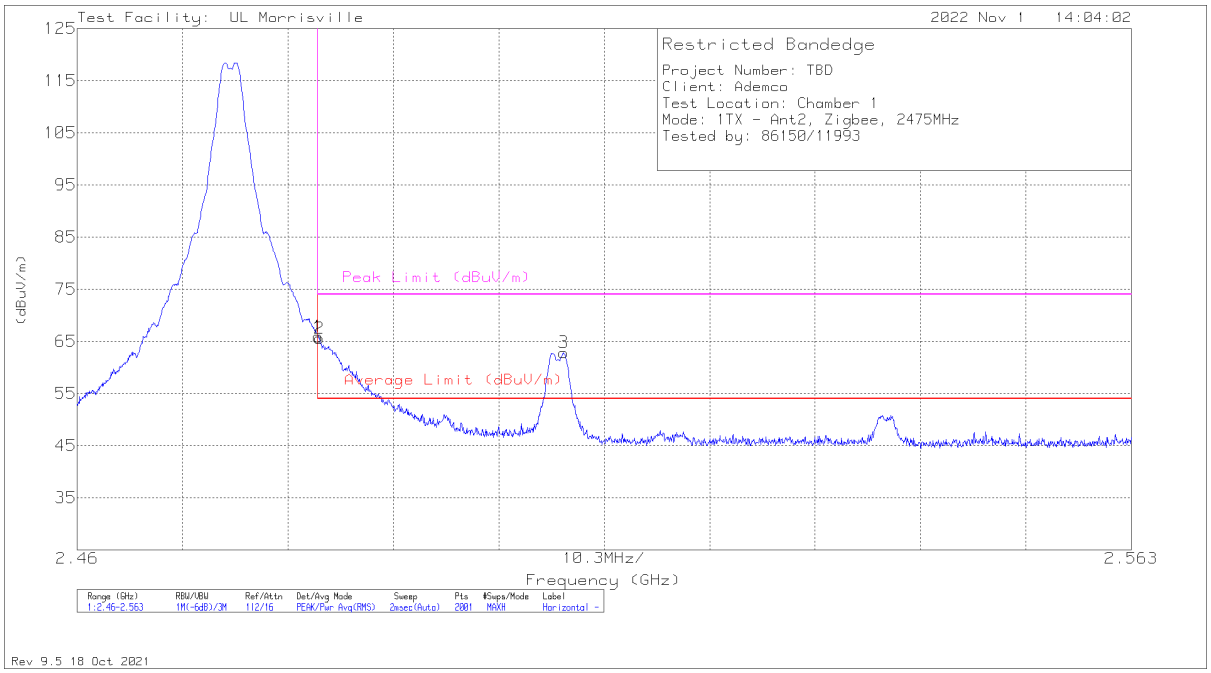
BANDEDGE (HIGH CHANNEL)

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	57.81	Pk	32.5	-24.4	-	65.91	-	-	74	-8.09	4	135	H
	* ** 2.48354	57.81	Pk	32.5	-24.4	-23.1	42.81	54	-11.19	-	-	4	135	H
2	* ** 2.48369	57.47	Pk	32.5	-24.4	-	65.57	-	-	74	-8.43	4	135	H
	* ** 2.48369	57.47	Pk	32.5	-24.4	-23.1	42.47	54	-11.53	-	-	4	135	H
3	** 2.50753	54.74	Pk	32.5	-24.4	-	62.84	-	-	74	-11.16	4	135	H
	** 2.50753	54.74	Pk	32.5	-24.4	-23.1	39.74	54	-14.26	-	-	4	135	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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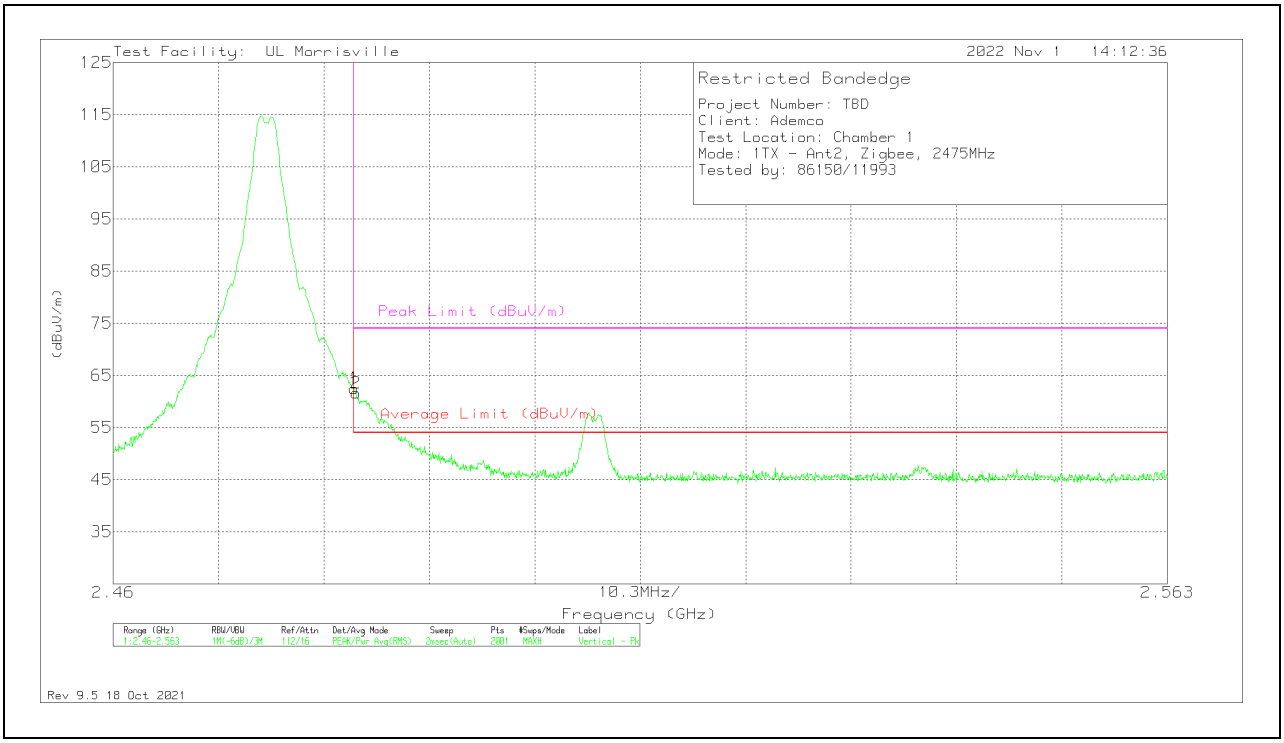
VERTICAL RESULT



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	54.4	Pk	32.5	-24.4	-	62.5	-	-	74	-11.5	52	365	V
	* ** 2.48354	54.4	Pk	32.5	-24.4	-23.1	39.4	54	-14.6	-	-	52	365	V
2	* ** 2.48374	53.48	Pk	32.5	-24.4	-	61.58	-	-	74	-12.42	52	365	V
	* ** 2.48374	53.48	Pk	32.5	-24.4	-23.1	38.48	54	-15.52	-	-	52	365	V

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Pk - Peak detector
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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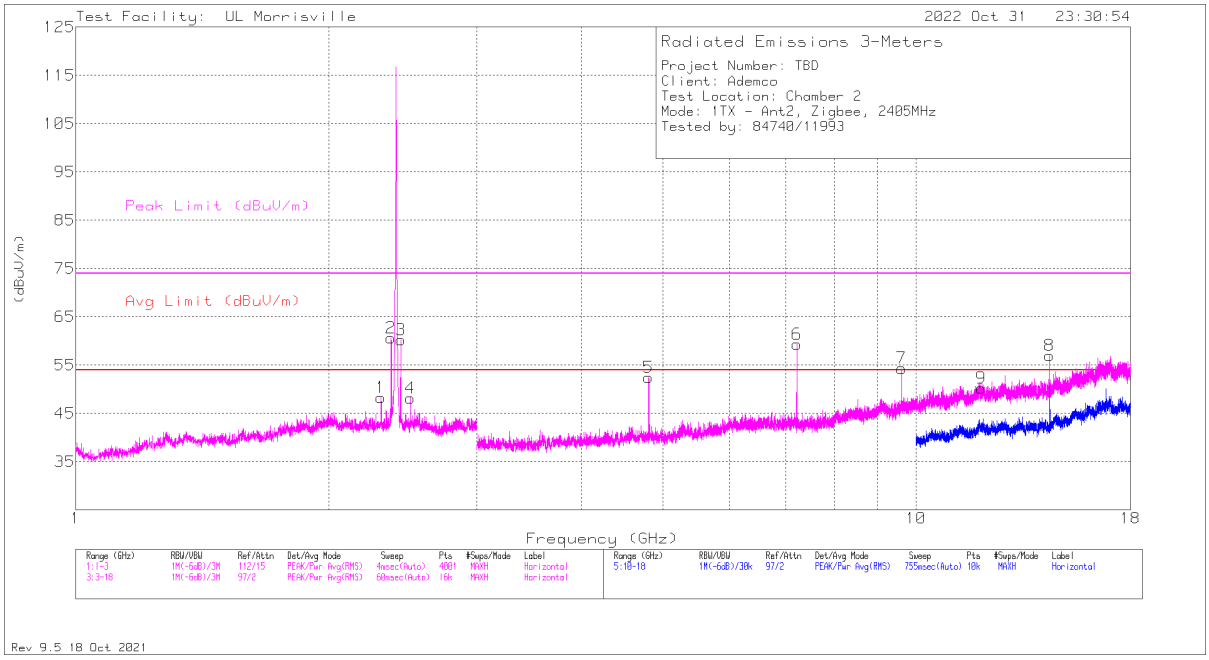
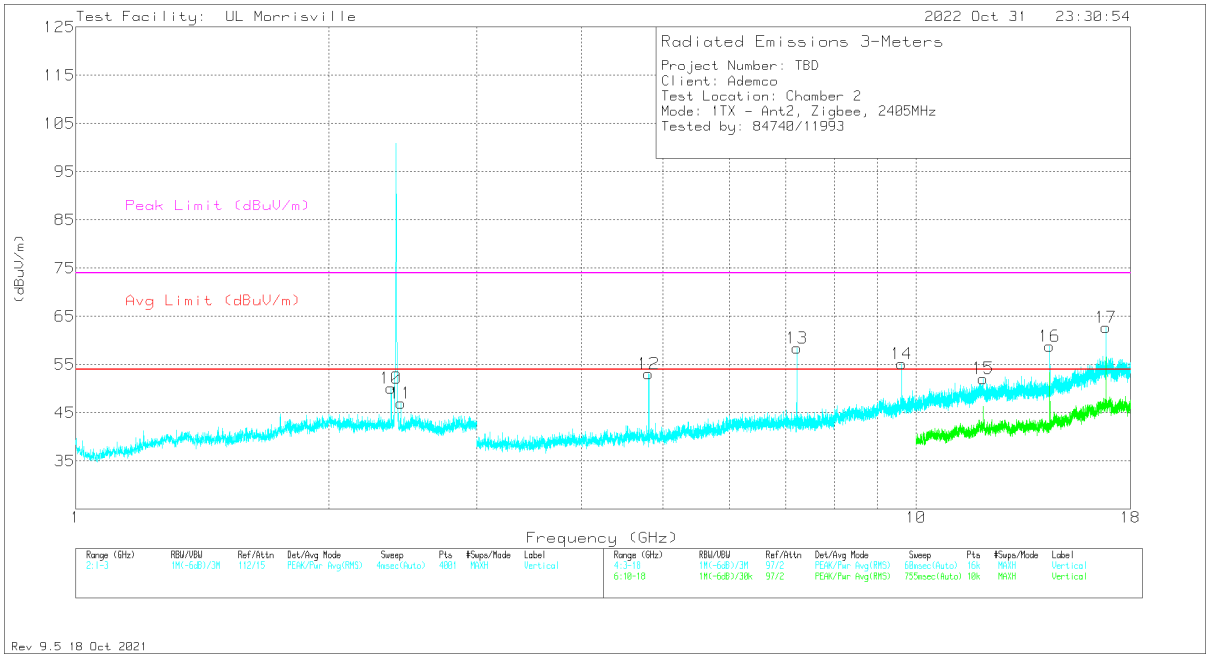
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL LLC
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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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
2	* ** 2.37259	53.9	PK2	32	-24	-	61.9	-	-	74	-12.1	255	138	H
	* ** 2.37259	53.9	PK2	32	-24	-23.1	38.8	54	-15.2	-	-	255	138	H
4	** 2.50157	43.43	PK2	32.4	-24.8	-	51.03	-	-	74	-22.97	273	107	H
	** 2.50157	43.43	PK2	32.4	-24.8	-23.1	27.93	54	-26.07	-	-	273	107	H
10	* ** 2.3735	49.46	PK2	32	-24	-	57.46	-	-	74	-16.54	304	380	V
	* ** 2.3735	49.46	PK2	32	-24	-23.1	34.36	54	-19.64	-	-	304	380	V
5	* ** 4.80879	49.71	PK2	34	-30.7	-	53.01	-	-	74	-20.99	72	107	H
	* ** 4.80879	49.71	PK2	34	-30.7	-23.1	29.91	54	-24.09	-	-	72	107	H
9	* ** 11.96839	36.67	PK2	38.6	-23.1	-	52.17	-	-	74	-21.83	309	164	H
	* ** 11.96839	36.67	PK2	38.6	-23.1	-23.1	29.07	54	-24.93	-	-	309	164	H
12	* ** 4.80902	50	PK2	34	-30.7	-	53.3	-	-	74	-20.7	168	119	V
	* ** 4.80902	50	PK2	34	-30.7	-23.1	30.2	54	-23.8	-	-	168	119	V
15	* ** 12.02239	39.46	PK2	38.6	-22.4	-	55.66	-	-	74	-18.34	306	106	V
	* ** 12.02239	39.46	PK2	38.6	-22.4	-23.1	32.56	54	-21.44	-	-	306	106	V
1	2.3095	40.29	Pk	31.7	-23.7	-	48.29	-	-	-	-	0-360	101	H
3	2.437	52.62	Pk	32.1	-24.5	-	60.22	-	-	-	-	0-360	101	H
11	2.437	39.43	Pk	32.1	-24.5	-	47.03	-	-	-	-	0-360	101	V
6	7.21594	51.44	Pk	35.6	-27.7	-	59.34	-	-	-	-	0-360	101	H
13	7.21594	50.5	Pk	35.6	-27.7	-	58.4	-	-	-	-	0-360	101	V
7	9.61781	43.14	Pk	36.7	-25.5	-	54.34	-	-	-	-	0-360	101	H
14	9.62156	43.98	Pk	36.7	-25.5	-	55.18	-	-	-	-	0-360	101	V
16	14.42719	43.58	Pk	39.2	-24	-	58.78	-	-	-	-	0-360	101	V
8	14.43281	41.97	Pk	39.2	-24.2	-	56.97	-	-	-	-	0-360	101	H
17	16.83844	42.86	Pk	41.9	-22.1	-	62.66	-	-	-	-	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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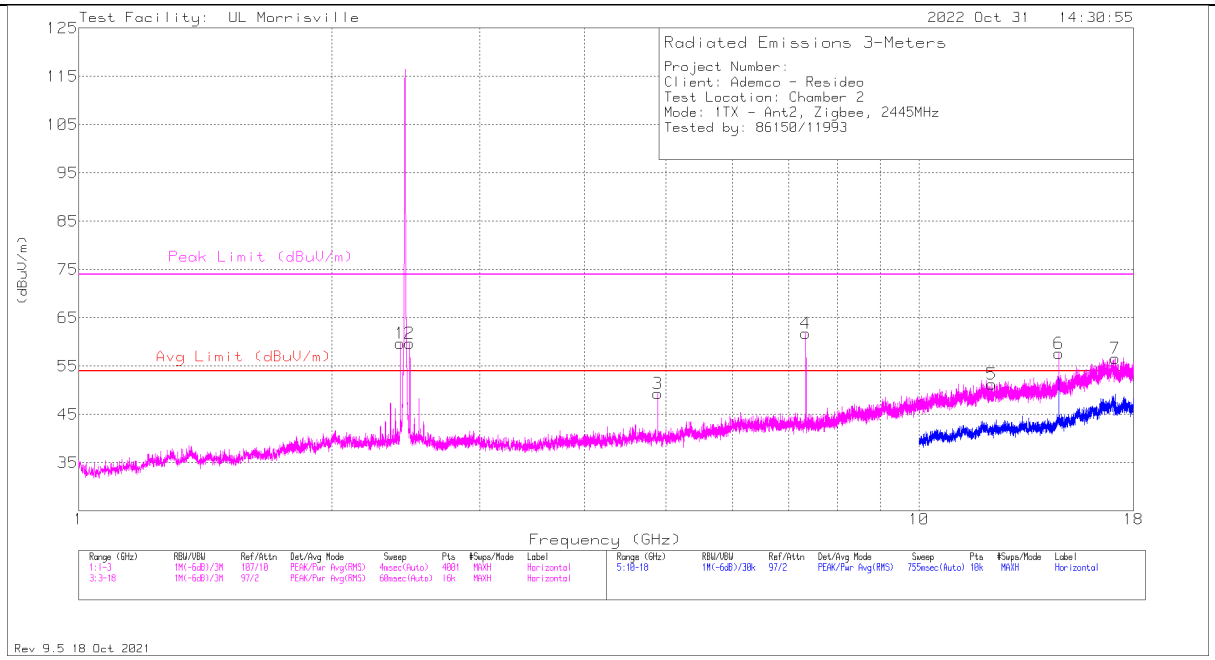
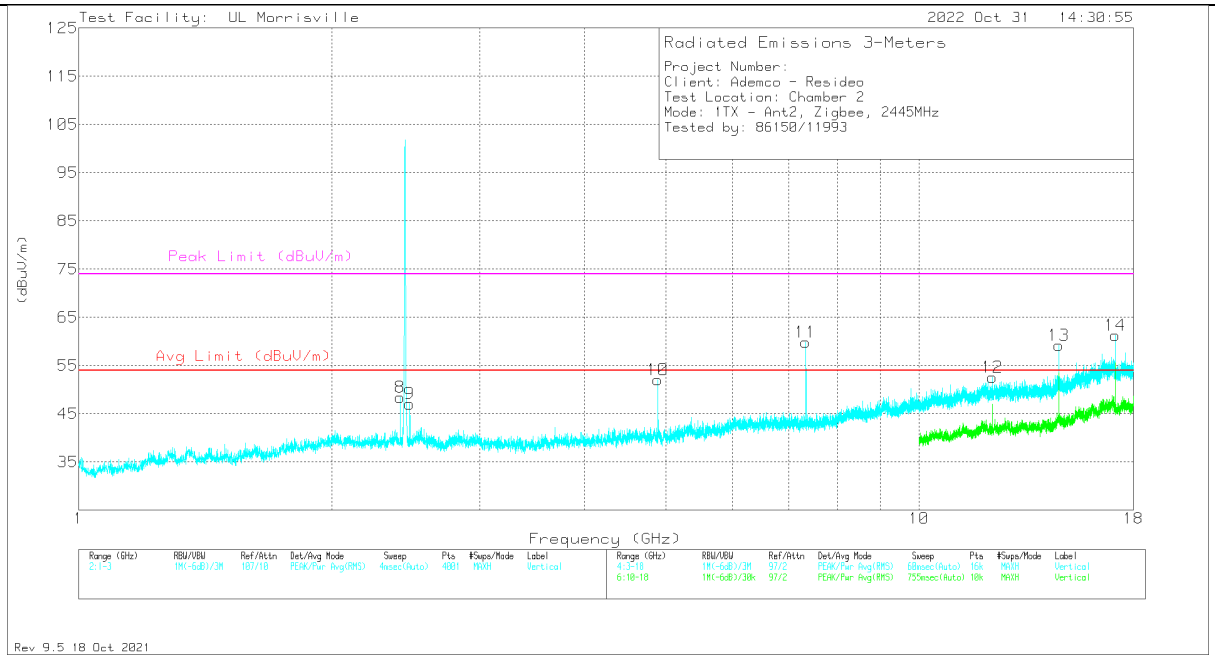
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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
3	* ** 4.89087	48.95	PK2	33.9	-30.5	-	52.35	-	-	74	-21.65	18	106	H
	* ** 4.89087	48.95	PK2	33.9	-30.5	-23.1	29.25	54	-24.75	-	-	18	106	H
4	* ** 7.33645	54.29	PK2	35.6	-27.6	-	62.29	-	-	74	-11.71	226	104	H
	* ** 7.33645	54.29	PK2	35.6	-27.6	-23.1	39.19	54	-14.81	-	-	226	104	H
5	* ** 12.21229	36.71	PK2	38.8	-23.8	-	51.71	-	-	74	-22.29	29	168	H
	* ** 12.21229	36.71	PK2	38.8	-23.8	-23.1	28.61	54	-25.39	-	-	29	168	H
10	* ** 4.89095	49.57	PK2	33.9	-30.5	-	52.97	-	-	74	-21.03	169	105	V
	* ** 4.89095	49.57	PK2	33.9	-30.5	-23.1	29.87	54	-24.13	-	-	169	105	V
11	* ** 7.33343	52.61	PK2	35.6	-27.4	-	60.81	-	-	74	-13.19	269	102	V
	* ** 7.33343	52.61	PK2	35.6	-27.4	-23.1	37.71	54	-16.29	-	-	269	102	V
12	* ** 12.22226	40.38	PK2	38.8	-23.8	-	55.38	-	-	74	-18.62	143	115	V
	* ** 12.22226	40.38	PK2	38.8	-23.8	-23.1	32.28	54	-21.72	-	-	143	115	V
8	2.41275	40.87	Pk	32	-24.5	-	48.37	-	-	-	-	0-360	200	V
1	2.413	52.18	Pk	32	-24.5	-	59.68	-	-	-	-	0-360	101	H
2	2.477	51.89	Pk	32.3	-24.5	-	59.69	-	-	-	-	0-360	101	H
9	2.4775	39.27	Pk	32.3	-24.5	-	47.07	-	-	-	-	0-360	200	V
13	14.67281	42.46	Pk	39.5	-22.8	-	59.16	-	-	-	-	0-360	101	V
6	14.67375	41	Pk	39.5	-22.8	-	57.7	-	-	-	-	0-360	101	H
14	17.11969	41.66	Pk	41.4	-21.8	-	61.26	-	-	-	-	0-360	101	V
7	17.1225	36.79	Pk	41.4	-21.6	-	56.59	-	-	-	-	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
PK2 - Maximum Peak
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

UL LLC
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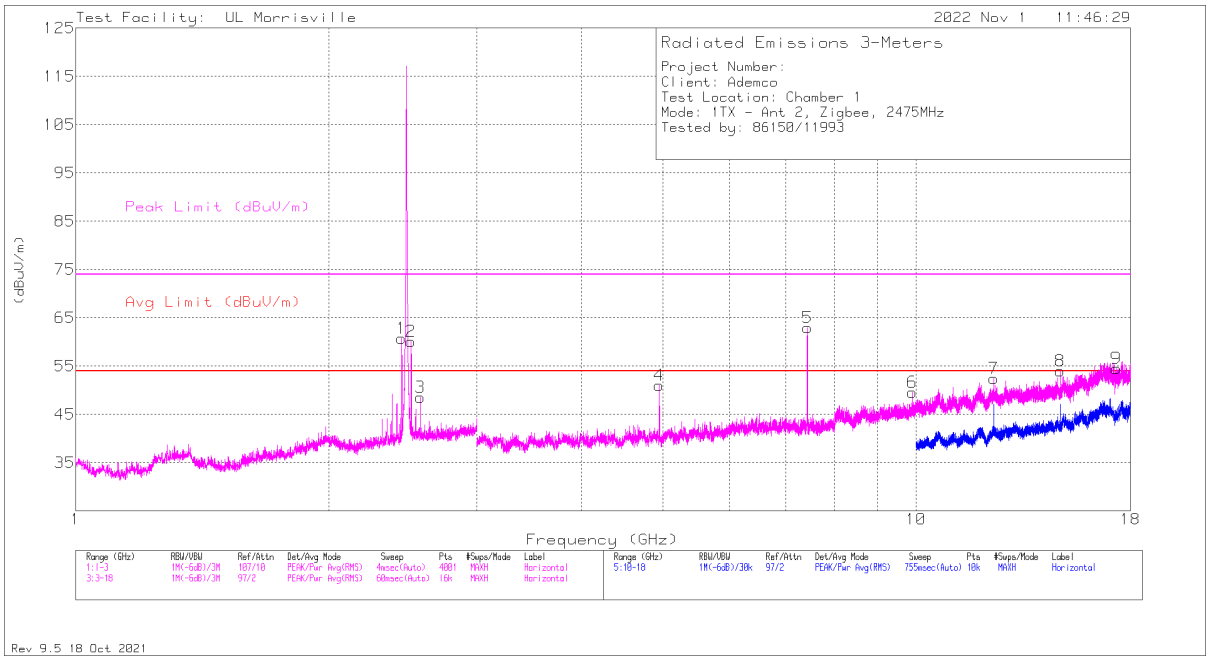
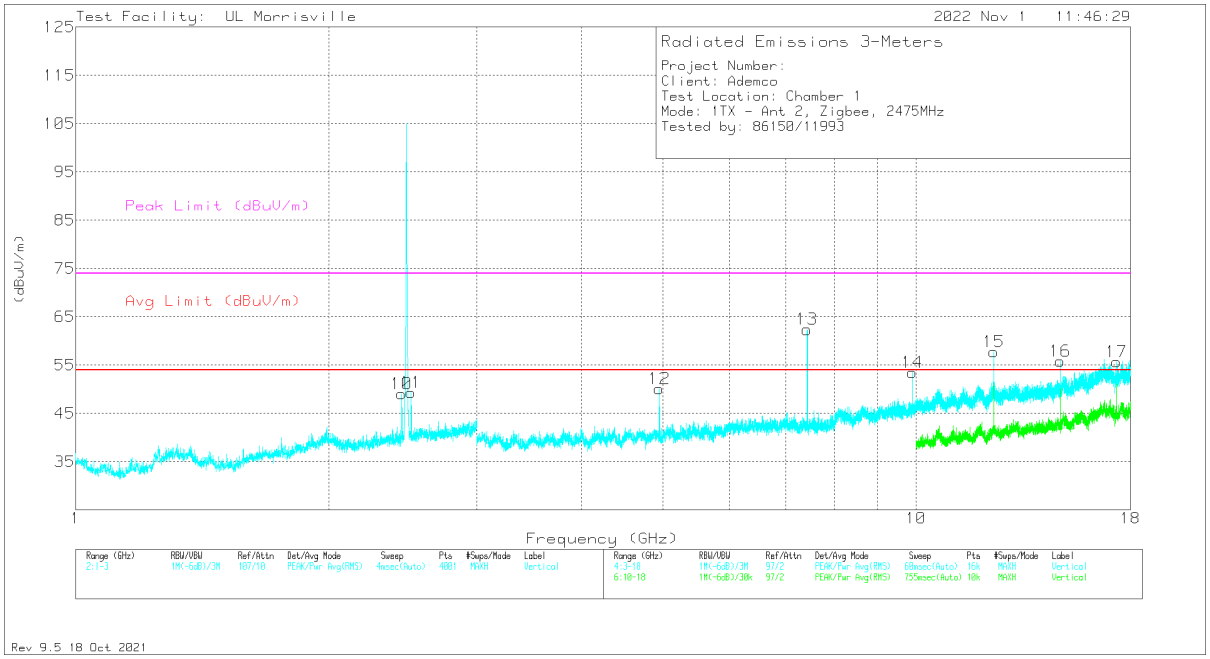
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL LLC
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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
2	** 2.5065	51.97	Pk	32.5	-24.3	-	60.17	-	-	-	-	0-360	200	H
3	** 2.5715	40.67	Pk	32.6	-24.7	-	48.57	-	-	-	-	0-360	101	H
11	** 2.5065	41.13	Pk	32.5	-24.3	-	49.33	-	-	-	-	0-360	200	V
4	* ** 4.94887	50.72	PK2	34	-32.3	-	52.42	-	-	74	-21.58	310	117	H
	* ** 4.94887	50.72	PK2	34	-32.3	-23.1	29.32	54	-24.68	-	-	310	117	H
5	* ** 7.42638	57.14	PK2	35.6	-28.9	-	63.84	-	-	74	-10.16	161	101	H
	* ** 7.42638	57.14	PK2	35.6	-28.9	-23.1	40.74	54	-13.26	-	-	161	101	H
7	* ** 12.3723	42.88	PK2	38.9	-26.2	-	55.58	-	-	74	-18.42	23	108	H
	* ** 12.3723	42.88	PK2	38.9	-26.2	-23.1	32.48	54	-21.52	-	-	23	108	H
12	* ** 4.94908	50.29	PK2	34	-32.3	-	51.99	-	-	74	-22.01	85	104	V
	* ** 4.94908	50.29	PK2	34	-32.3	-23.1	28.89	54	-25.11	-	-	85	104	V
13	* ** 7.42342	56.96	PK2	35.6	-29.4	-	63.16	-	-	74	-10.84	252	101	V
	* ** 7.42342	56.96	PK2	35.6	-29.4	-23.1	40.06	54	-13.94	-	-	252	101	V
15	* ** 12.37207	47.09	PK2	38.9	-26.1	-	59.89	-	-	74	-14.11	65	113	V
	* ** 12.37207	47.09	PK2	38.9	-26.1	-23.1	36.79	54	-17.21	-	-	65	113	V
10	2.44275	41.44	Pk	32.2	-24.6	-	49.04	-	-	-	-	0-360	101	V
1	2.4435	53.11	Pk	32.2	-24.6	-	60.71	-	-	-	-	0-360	101	H
6	9.89813	40.42	Pk	37	-27.8	-	49.62	-	-	-	-	0-360	101	H
14	9.89813	44.33	Pk	37	-27.8	-	53.53	-	-	-	-	0-360	101	V
8	14.84625	41.89	Pk	39.6	-27.5	-	53.99	-	-	-	-	0-360	101	H
16	14.84719	43.96	Pk	39.6	-27.7	-	55.86	-	-	-	-	0-360	101	V
9	17.31656	37.07	Pk	41.2	-23.7	-	54.57	-	-	-	-	0-360	101	H
17	17.32219	38.37	Pk	41.1	-23.8	-	55.67	-	-	-	-	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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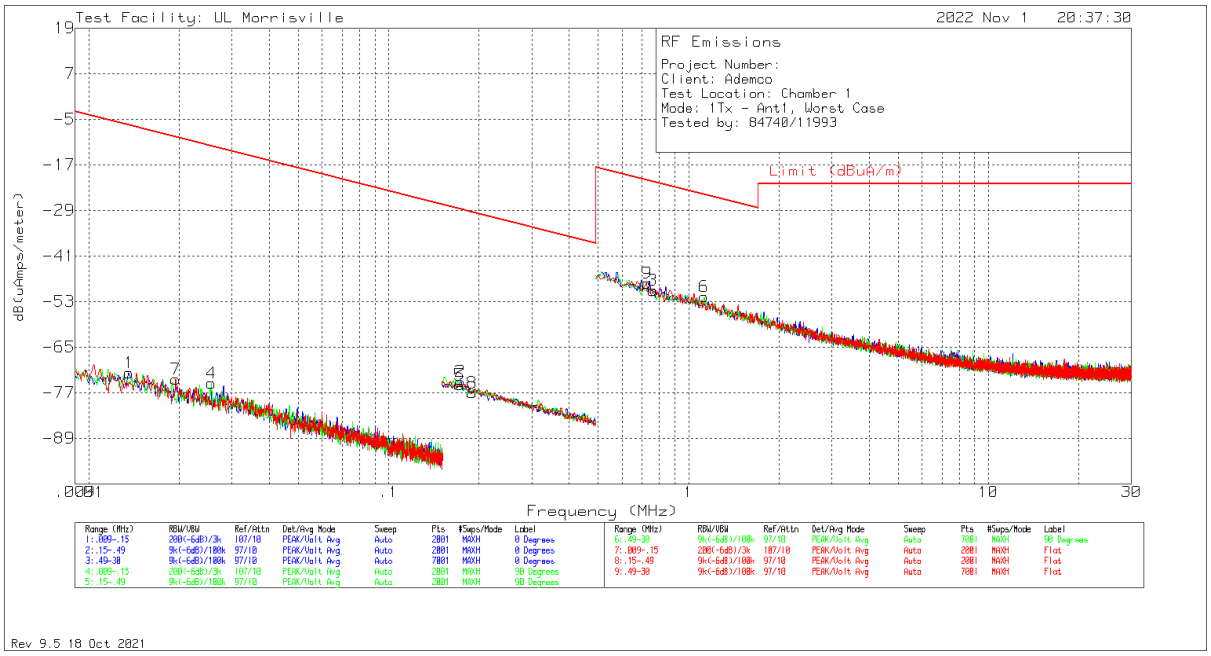
10.3. WORST CASE BELOW 30MHZ

Antenna 1

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- 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)	Height (cm)	Loop Angle
1	.01362	42.77	Pk	-34.7	.1	-80	-71.83	-6.58	13.42	-65.25	0-360	402	0 degs
7	.01951	43.78	Pk	-37.4	.1	-80	-73.52	-9.7	10.3	-63.82	0-360	402	Flat
4	.02561	43.16	Pk	-37.8	.1	-80	-74.54	-12.06	7.94	-62.48	0-360	402	90 degs
5	.17227	45.28	Pk	-40.4	.1	-80	-75.02	-28.62	-8.62	-46.4	0-360	402	90 degs
2	.17355	46.23	Pk	-40.4	.1	-80	-74.07	-28.68	-8.68	-45.39	0-360	402	0 degs
8	.18978	43.21	Pk	-40.4	.1	-80	-77.09	-29.46	-9.46	-47.63	0-360	402	Flat
9	.7261	32.05	Pk	-40.4	.2	-40	-48.15	-21.12	-	-27.03	0-360	402	Flat
3	.75982	30.16	Pk	-40.4	.2	-40	-50.04	-21.51	-	-28.53	0-360	402	0 degs
6	1.12662	28.15	Pk	-40.1	.2	-40	-51.75	-24.93	-	-26.82	0-360	402	90 degs

Pk - Peak detector

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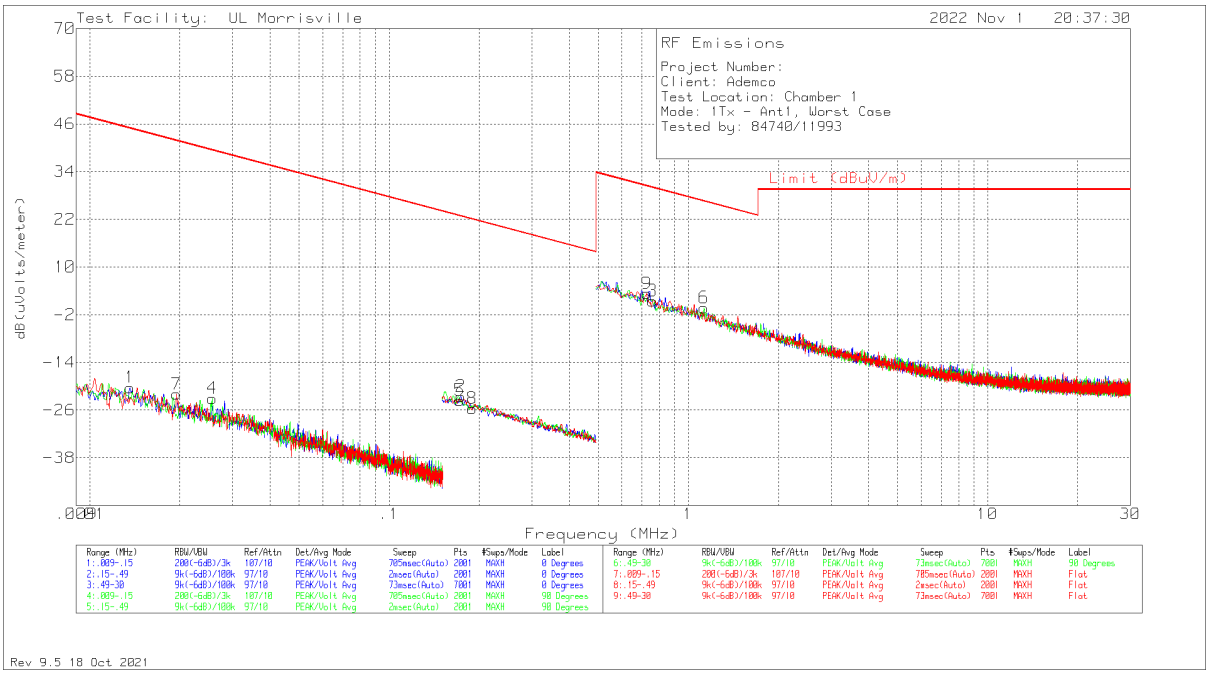


ANTENNA- THREE ORIENTATIONS E FIELD

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)	Height (cm)	Loop Angle
1	.01362	42.77	Pk	16.8	.1	-80	-20.33	44.92	64.92	-65.25	0-360	402	0 degs
2	.17355	46.23	Pk	11.1	.1	-80	-22.57	22.82	42.82	-45.39	0-360	402	0 degs
3	.75982	30.16	Pk	11.1	.2	-40	1.46	29.99	-	-28.53	0-360	402	0 degs
4	.02561	43.16	Pk	13.7	.1	-80	-23.04	39.44	59.44	-62.48	0-360	402	90 degs
5	.17227	45.28	Pk	11.1	.1	-80	-23.52	22.88	42.88	-46.4	0-360	402	90 degs
6	1.12662	28.15	Pk	11.4	.2	-40	-.25	26.57	-	-26.82	0-360	402	90 degs
7	.01951	43.78	Pk	14.1	.1	-80	-22.02	41.8	61.8	-63.82	0-360	402	Flat
8	.18978	43.21	Pk	11.1	.1	-80	-25.59	22.04	42.04	-47.63	0-360	402	Flat
9	.7261	32.05	Pk	11.1	.2	-40	3.35	30.38	-	-27.03	0-360	402	Flat

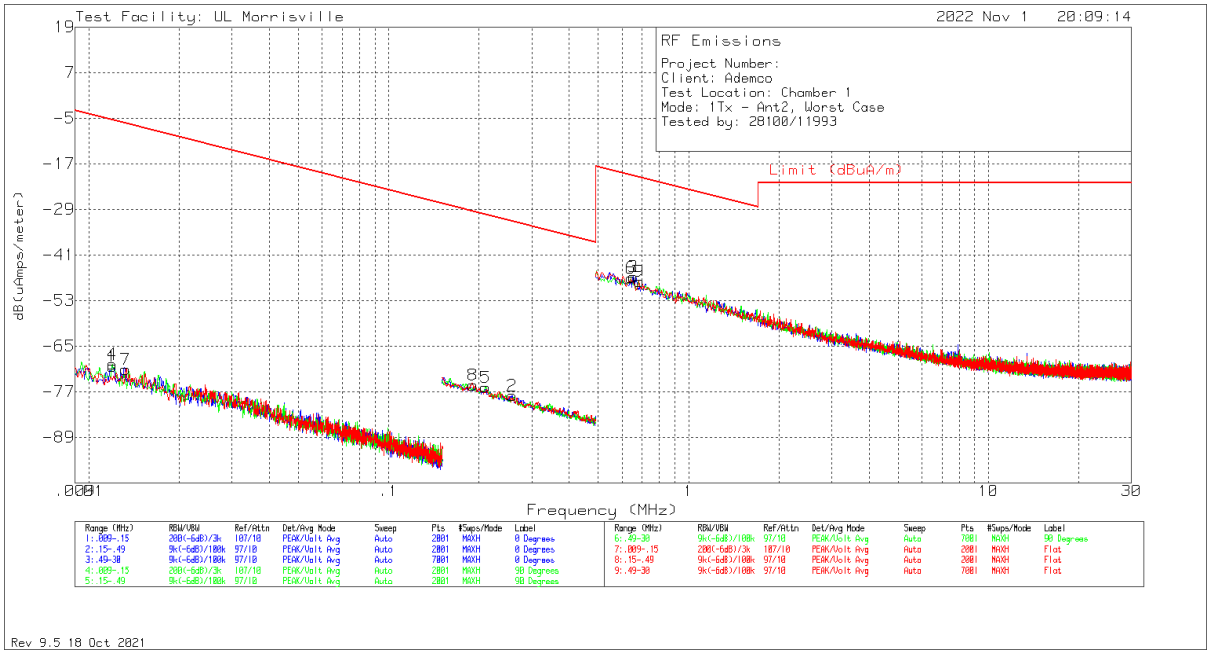
Pk - Peak detector

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919) 549-1400

Antenna 2

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- 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)	Height (cm)	Loop Angle
1	.01198	43.59	Pk	-34	.1	-80	-70.31	-5.47	14.53	-64.84	0-360	402	0 degs
4	.01198	44.07	Pk	-34	.1	-80	-69.83	-5.47	14.53	-64.36	0-360	402	90 degs
7	.01326	43.38	Pk	-34.6	.1	-80	-71.12	-6.35	13.65	-64.77	0-360	402	Flat
8	.1908	45.02	Pk	-40.4	.1	-80	-75.28	-29.51	-9.51	-45.77	0-360	402	Flat
5	.21052	44.44	Pk	-40.4	.1	-80	-75.86	-30.36	-10.36	-45.5	0-360	402	90 degs
2	.25821	42.3	Pk	-40.5	.1	-80	-78.1	-32.14	-12.14	-45.96	0-360	402	0 degs
6	.64178	33.11	Pk	-40.4	.2	-40	-47.09	-20.04	-	-27.05	0-360	402	90 degs
3	.65442	33.45	Pk	-40.4	.2	-40	-46.75	-20.21	-	-26.54	0-360	402	0 degs
9	.68394	32.26	Pk	-40.4	.2	-40	-47.94	-20.6	-	-27.34	0-360	402	Flat

Pk - Peak detector

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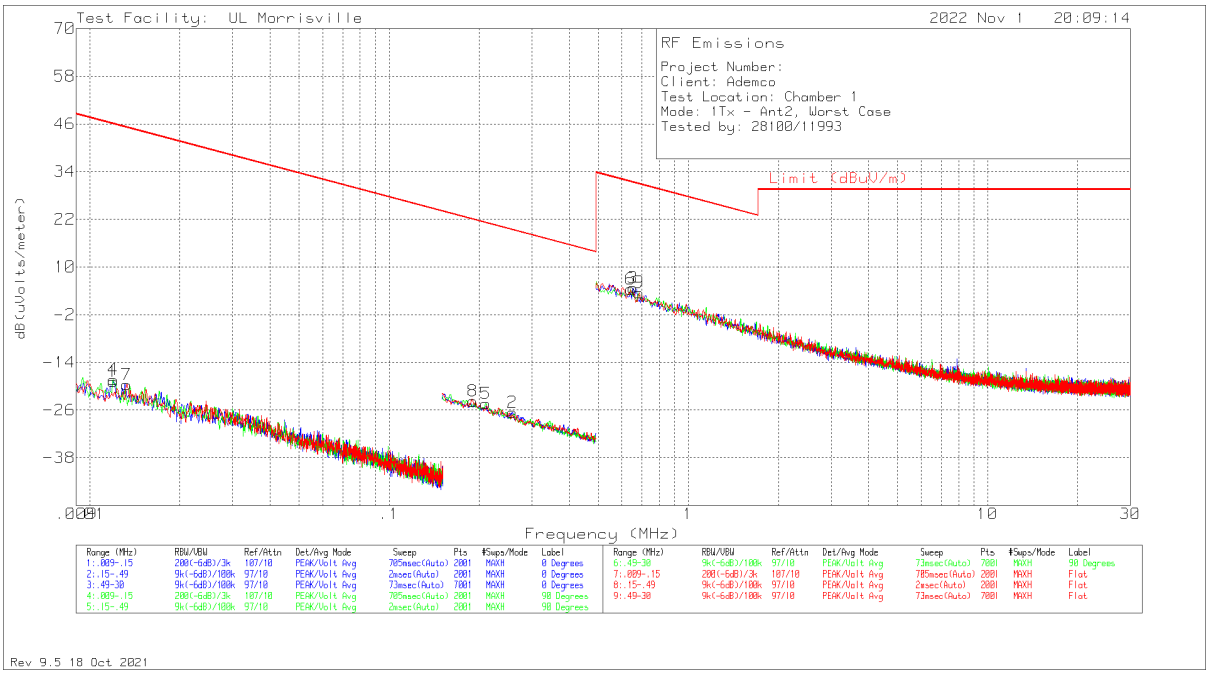

ANTENNA- THREE ORIENTATIONS E FIELD

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)	Height (cm)	Loop Angle
1	.01198	43.59	Pk	17.5	.1	-80	-18.81	46.03	66.03	-64.84	0-360	402	0 degs
2	.25821	42.3	Pk	11	.1	-80	-26.6	19.36	39.36	-45.96	0-360	402	0 degs
3	.65442	33.45	Pk	11.1	.2	-40	4.75	31.29	-	-26.54	0-360	402	0 degs
4	.01198	44.07	Pk	17.5	.1	-80	-18.33	46.03	66.03	-64.36	0-360	402	90 degs
5	.21052	44.44	Pk	11.1	.1	-80	-24.36	21.14	41.14	-45.5	0-360	402	90 degs
6	.64178	33.11	Pk	11.1	.2	-40	4.41	31.46	-	-27.05	0-360	402	90 degs
7	.01326	43.38	Pk	16.9	.1	-80	-19.62	45.15	65.15	-64.77	0-360	402	Flat
8	.1908	45.02	Pk	11.1	.1	-80	-23.78	21.99	41.99	-45.77	0-360	402	Flat
9	.68394	32.26	Pk	11.1	.2	-40	3.56	30.9	-	-27.34	0-360	402	Flat

Pk - Peak detector

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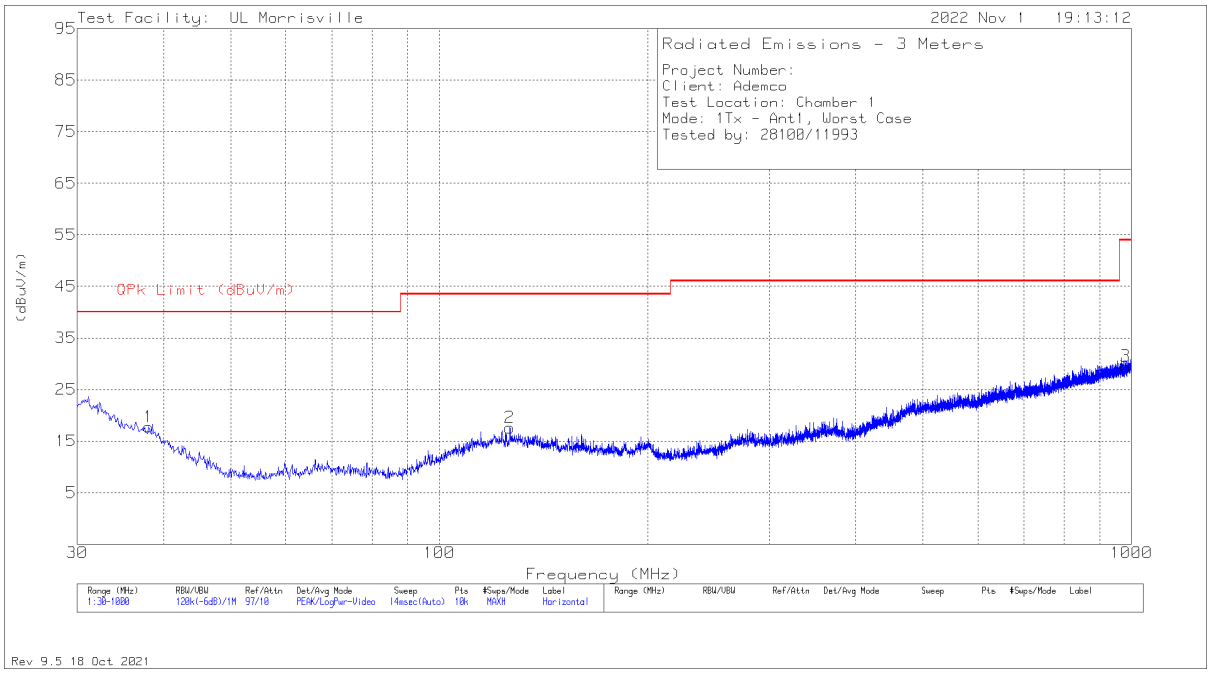
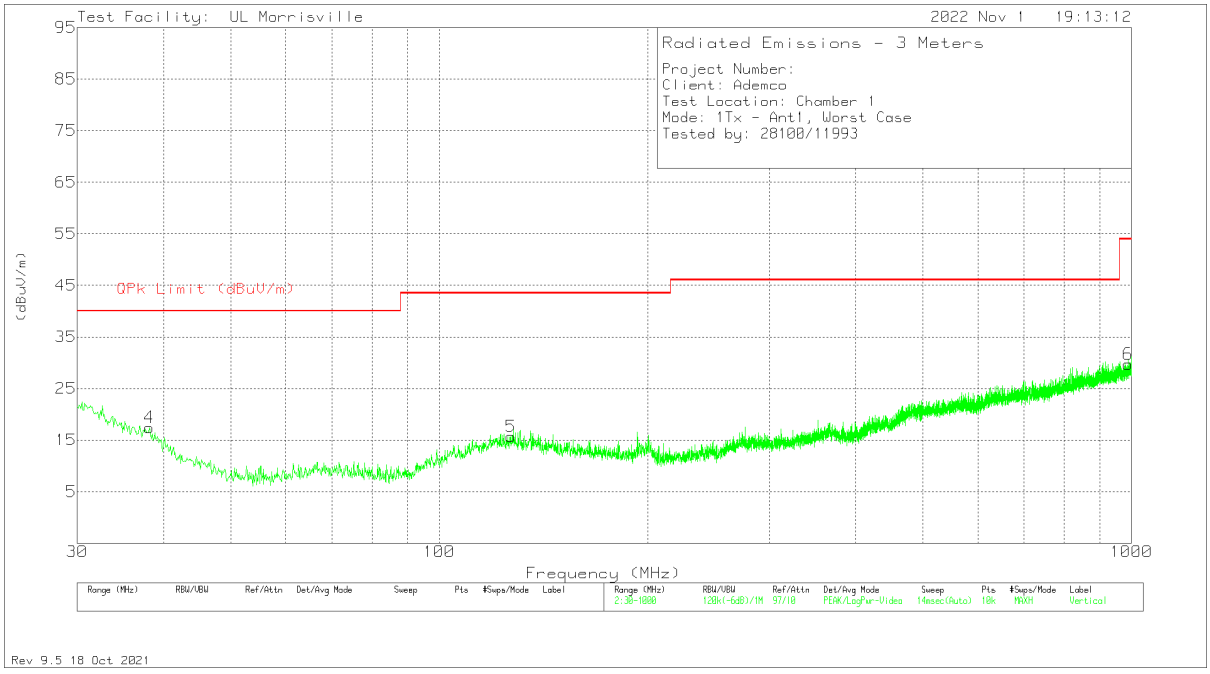
10.4. WORST CASE BELOW 1 GHZ

Antenna 1

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



HORIZONTAL



VERTICAL

Below 1GHz Data

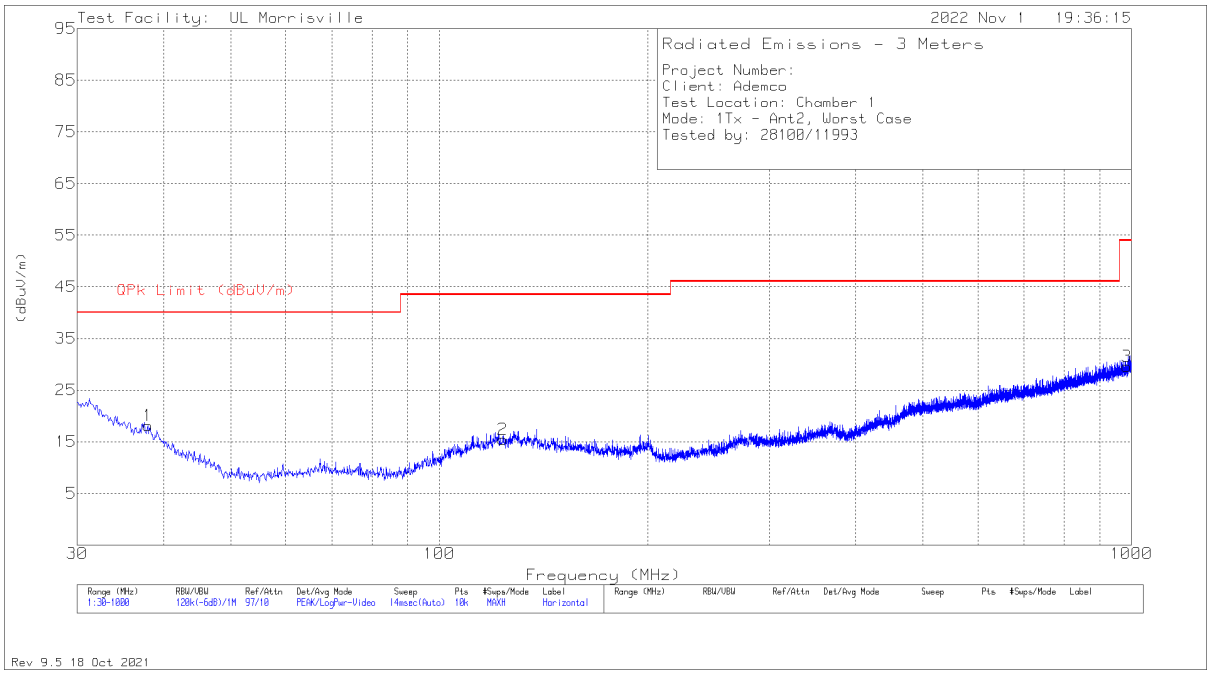
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 38.051	27.55	Pk	21.5	-31.3	17.75	40	-22.25	0-360	299	H
2	* ** 126.515	28.2	Pk	19.6	-30.2	17.6	43.52	-25.92	0-360	399	H
3	* ** 980.988	24.28	Pk	28.8	-23.6	29.48	53.97	-24.49	0-360	100	H
4	* ** 38.148	27.32	Pk	21.4	-31.3	17.42	40	-22.58	0-360	100	V
5	* ** 126.903	26.26	Pk	19.6	-30.2	15.66	43.52	-27.86	0-360	100	V
6	* ** 989.427	24.21	Pk	29	-23.5	29.71	53.97	-24.26	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

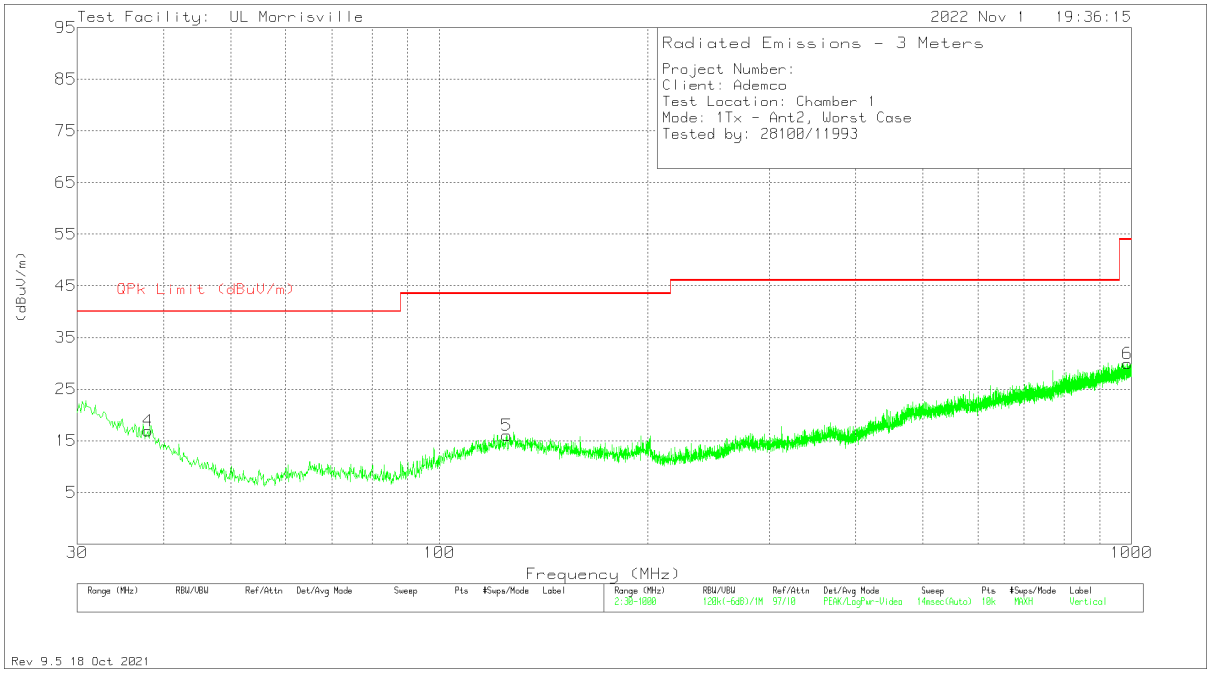
UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919) 549-1400

Antenna 2

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



HORIZONTAL



VERTICAL

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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	* ** 37.954	27.91	Pk	21.5	-31.3	18.11	40	-21.89	0-360	399	H
2	* ** 123.508	26.05	Pk	19.6	-30.2	15.45	43.52	-28.07	0-360	100	H
3	* ** 985.547	24.45	Pk	28.9	-23.8	29.55	53.97	-24.42	0-360	199	H
4	* ** 37.954	26.68	Pk	21.5	-31.3	16.88	40	-23.12	0-360	100	V
5	* ** 125.254	26.65	Pk	19.6	-30.2	16.05	43.52	-27.47	0-360	100	V
6	* ** 987.584	24.64	Pk	28.9	-23.6	29.94	53.97	-24.03	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

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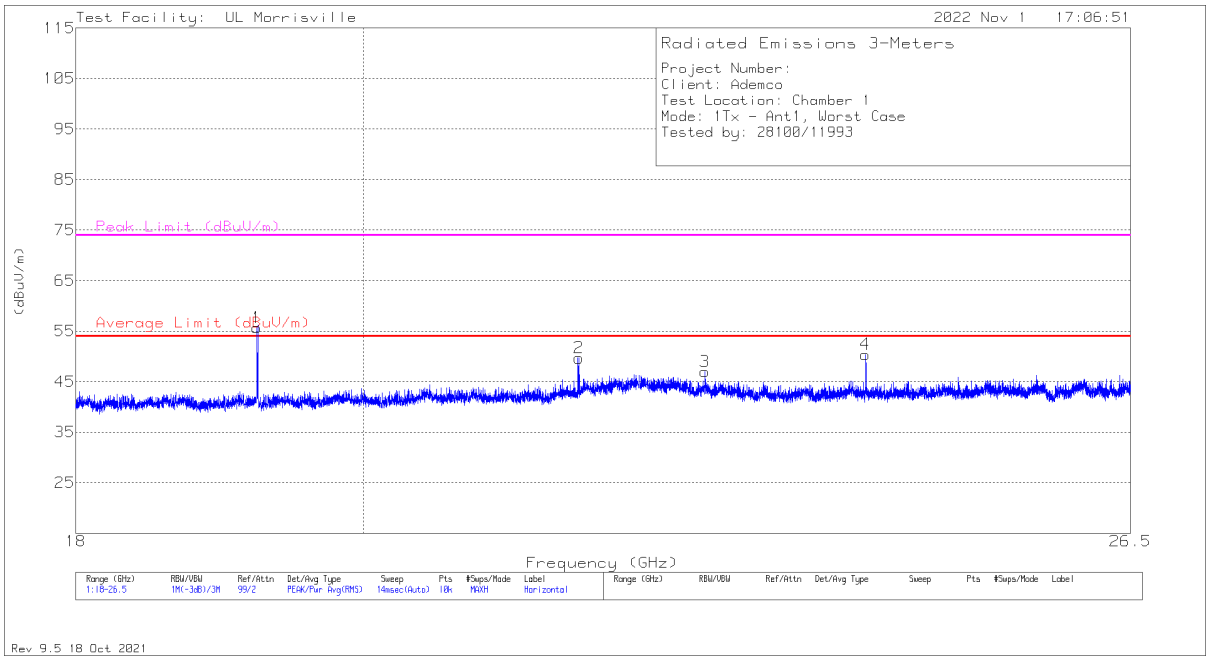
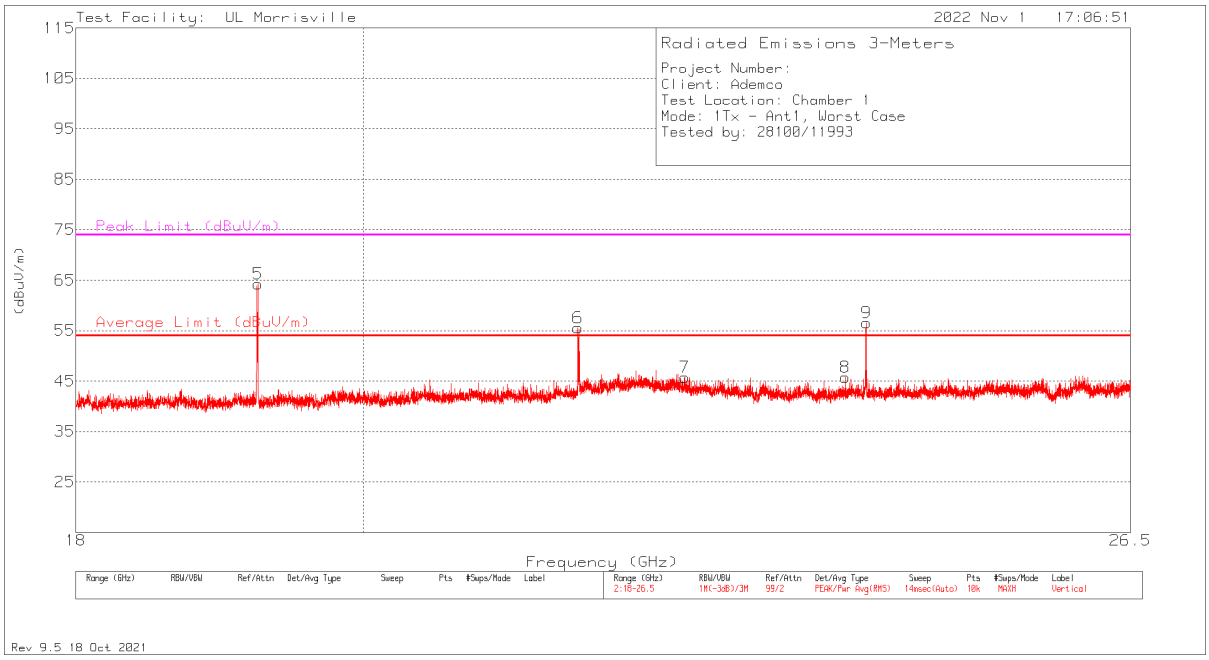
10.5. WORST CASE 18-26 GHZ

Antenna 1

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



HORIZONTAL



VERTICAL

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18 – 26GHz Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (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	* ** 19.23571	59.88	PK2	33.4	-39.3	-	53.98	-	-	74	-20.02	117	101	H
	* ** 19.23571	59.88	PK2	33.4	-39.3	-23.1	30.88	54	-23.12	-	-	117	101	H
3	* ** 22.67207	50.07	Pk	36.1	-39.2	-	46.97	54	-7.03	74	-27.03	0-360	200	H
5	* ** 19.24372	71.24	PK2	33.4	-39.3	-	65.34	-	-	74	-8.66	355	114	V
	* ** 19.24372	71.24	PK2	33.4	-39.3	-23.1	42.24	54	-11.76	-	-	355	114	V
7	* ** 22.5029	48.74	Pk	36.4	-39.4	-	45.74	54	-8.26	74	-28.26	0-360	251	V
8	* ** 23.87069	49.74	Pk	34.9	-38.9	-	45.74	54	-8.26	74	-28.26	0-360	150	V
6	21.64006	59.51	Pk	35.1	-39	-	55.61	-	-	-	-	0-360	101	V
2	21.64856	53.37	Pk	35.2	-38.9	-	49.67	-	-	-	-	0-360	250	H
4	24.04495	54.31	Pk	35	-38.9	-	50.41	-	-	-	-	0-360	101	H
9	24.05516	60.51	Pk	35	-38.9	-	56.61	-	-	-	-	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
PK2 - Maximum Peak
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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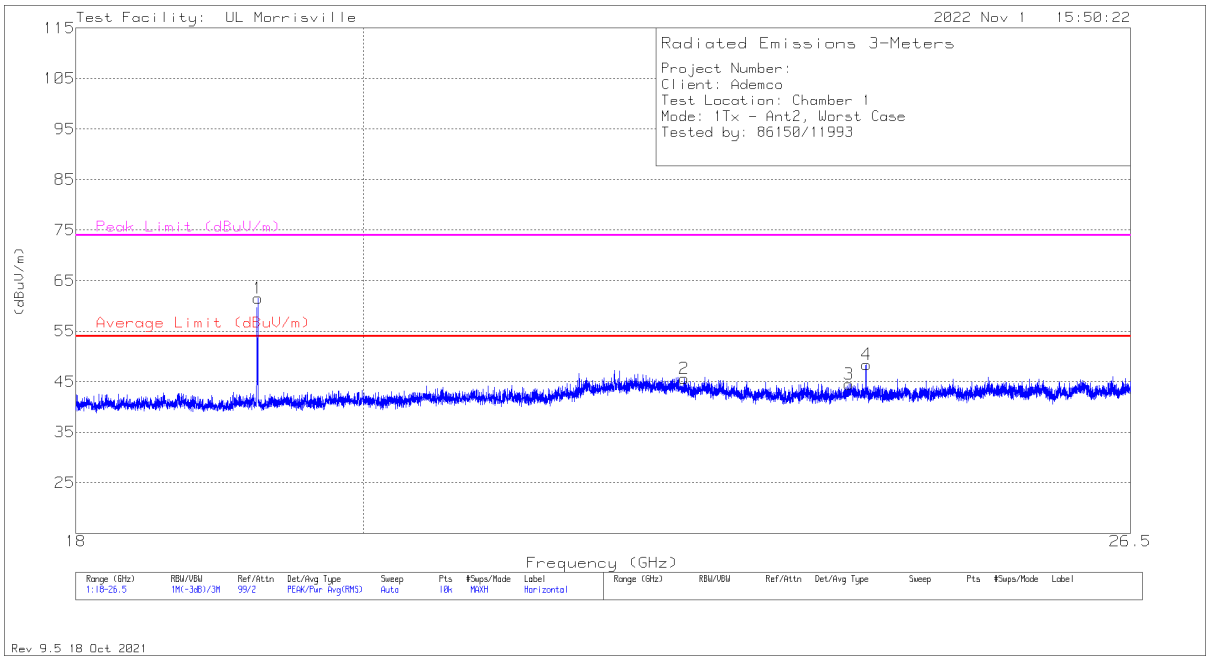
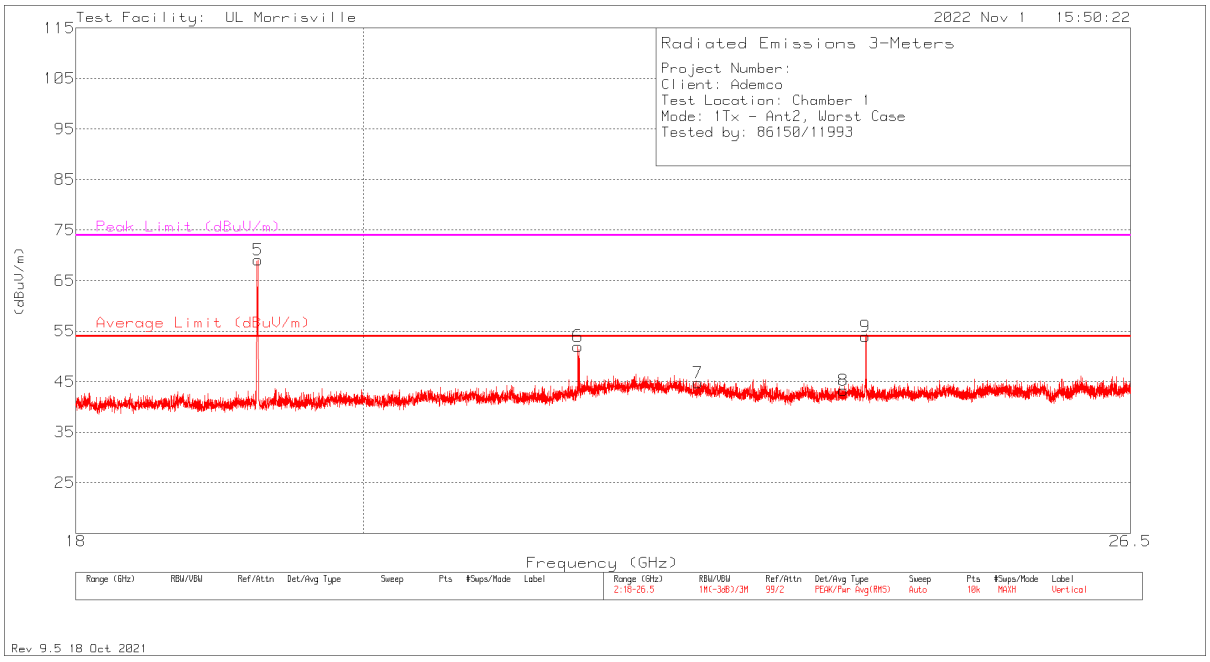
Antenna 2

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



HORIZONTAL



VERTICAL

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919) 549-1400

18 – 26GHz Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (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	* ** 19.24415	68.29	PK2	33.4	-39.3		62.39	-	-	74	-11.61	127	101	H
	* ** 19.24415	68.29	PK2	33.4	-39.3	-23.1	39.29	54	-14.71	-	-	127	101	H
2	* ** 22.4995	48.58	Pk	36.4	-39.4		45.58	-	-	74	-28.42	0-360	149	H
3	* ** 23.90129	48.24	Pk	34.9	-38.6		44.54	-	-	74	-29.46	0-360	299	H
5	* ** 19.2442	75.95	PK2	33.4	-39.3		70.05	-	-	74	-3.95	356	114	V
	* ** 19.2442	75.95	PK2	33.4	-39.3	-23.1	46.95	54	-7.05	-	-	356	114	V
7	* ** 22.61426	47.93	Pk	36.2	-39.4		44.73	-	-	74	-29.27	0-360	200	V
8	* ** 23.85369	47.4	Pk	34.9	-39		43.3	-	-	74	-30.7	0-360	299	V
6	21.64006	55.92	Pk	35.1	-39		52.02	-	-	-	-	0-360	200	V
9	24.04495	57.8	Pk	35	-38.9		53.9	-	-	-	-	0-360	101	V
4	24.05516	52.32	Pk	35	-38.9		48.42	-	-	-	-	0-360	250	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
Note: Average reading is calculated by subtracting the 23.1 dB duty cycle correction (based on declared duty cycle of 6.976%) from the Peak measurement.

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11. SETUP PHOTOS

Please refer to R14558575-EP1 for setup photos

END OF TEST REPORT

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