TEST REPORT

Report Number : R14826084-E1

Applicant	:	Abbott Diabetics Care Inc. 1360 South Loop Rd Alameda, CA 94502, United States
Model	:	44600
FCC ID	:	QXS-LINBS1
EUT Description	:	Lingo Biosensor
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C: 2023

Date Of Issue:
2023-10-26

Prepared by:
UL LLC
12 Laboratory Drive
RTP, NC 27709 U.S.A.
TEL: (919) 549-1400

ACCREDITED
CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2023-10-26	Initial Issue	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Abbott Diabetics Care Inc.
1360 South Loop Rd
Alameda, CA 94502, United States

EUT DESCRIPTION: Lingo Biosensor

MODEL: 44600

SERIAL NUMBER: E07A006F94E73F3C, E07A006F94E73F42 (radiated)
E07A006F94E7430F (conducted)

SAMPLE RECEIPT DATE: 2023-09-28, 2023-10-03

DATE TESTED: 2023-10-04 TO 2023-10-11

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C: 2023	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
UL LLC. By:

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Project Engineer
Consumer, Medical and IT Segment
UL LLC

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 (See section 6.3)
2.) Supported data rates (See section 6.5)

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
15.247 (a) (2)	6dB BW	Complies	None.
15.247 (b) (3)	Output Power	Complies	None.
See Comment	Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD	Complies	None.
15.247 (d)	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	Radiated Emissions	Complies	None.
15.207	AC Mains Conducted Emissions	Not Performed	EUT is Battery Powered

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, and KDB 414788 D01 Radiated Test Site v01r01.

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: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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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

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a Lingo Biosensor with a BLE Radio. This report covers the full emissions testing of the BLE radio.

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)
2402 - 2480	BLE	-0.97	0.80

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

The radio utilizes a PCB Loop antenna, with a maximum gain of -10.86 dBi.

6.4. SOFTWARE AND FIRMWARE

The EUT software installed during testing was 6.0.5.40

The test utility software used during testing was PTU Gen 4 v1.0.0.21.

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 and high channels as well as mid channel for radiated emissions between 1GHz and 18GHz.

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

The EUT only supports data rates of 1Mbps. Therefore, all testing was done at this data rate.

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	HP	14-dq1039wm	5CD941FN5J	TX2-RTL8822CE
AC Adapter	HP	TPN-CA14	WHGRE0ANJCRFS4	N/A
Transceiver EVM Board (Support PCB)	Texas Instruments	TRF7960 EMV Rev A	N/A	N/A
Battery Pack	N/A	N/A	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Power	1	Solder	Conductive	< 1m	Used to connect EUT to battery pack
1	USB	1	USB A Extension Cord	Shielded	< 1m	Used from Laptop to EVM board.

TEST SETUP

The EUT is placed on the EVM board in order to configure the radio prior to testing. For radiated testing, the EUT is removed from the board and tested without the use of any additional support equipment. The conducted sample uses a battery pack powered by a AA battery to power the unit. The radiated sample has it's own internal battery and therefore was tested on its own.

SETUP DIAGRAMS

Please refer to R14826084-EP1 for setup diagrams

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7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10, Section 11.6 : Zero-Span Spectrum Analyzer Method.

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 -11.9.2.3.1 Method PKPM1 Peak-reading power meter
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 1				
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2023-08-02	2024-08-02
134477	RF Power Meter	Keysight Technologies	N1912A	2023-08-04	2024-08-04
135124	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2023-07-12	2024-07-31
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
	Common Equipment				
	Attenuators				
226565	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2023-02-16	2024-02-16

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
135144	Active Loop Antenna	ETS-Lindgren	6502	2023-01-17	2024-01-17
	30-1000 MHz				
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2023-01-06	2024-01-06
	1-18 GHz				
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
	Gain-Loss Chains				
207638	Gain-loss string: 0.009-30MHz	Various	Various	2023-09-18	2024-09-18
207639	Gain-loss string: 25-1000MHz	Various	Various	2023-09-18	2024-09-18
207640	Gain-loss string: 1-18GHz	Various	Various	2023-05-17	2024-05-17
225795	Gain-loss string: 18-40GHz	Various	Various	2023-05-17	2024-05-17
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-04-10	2024-04-10
90416	Spectrum Analyzer	Keysight	N9030A	2023-06-09	2024-06-30
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200540	Environmental Meter	Fisher Scientific	15-077-963	2022-10-05	2023-10-31

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

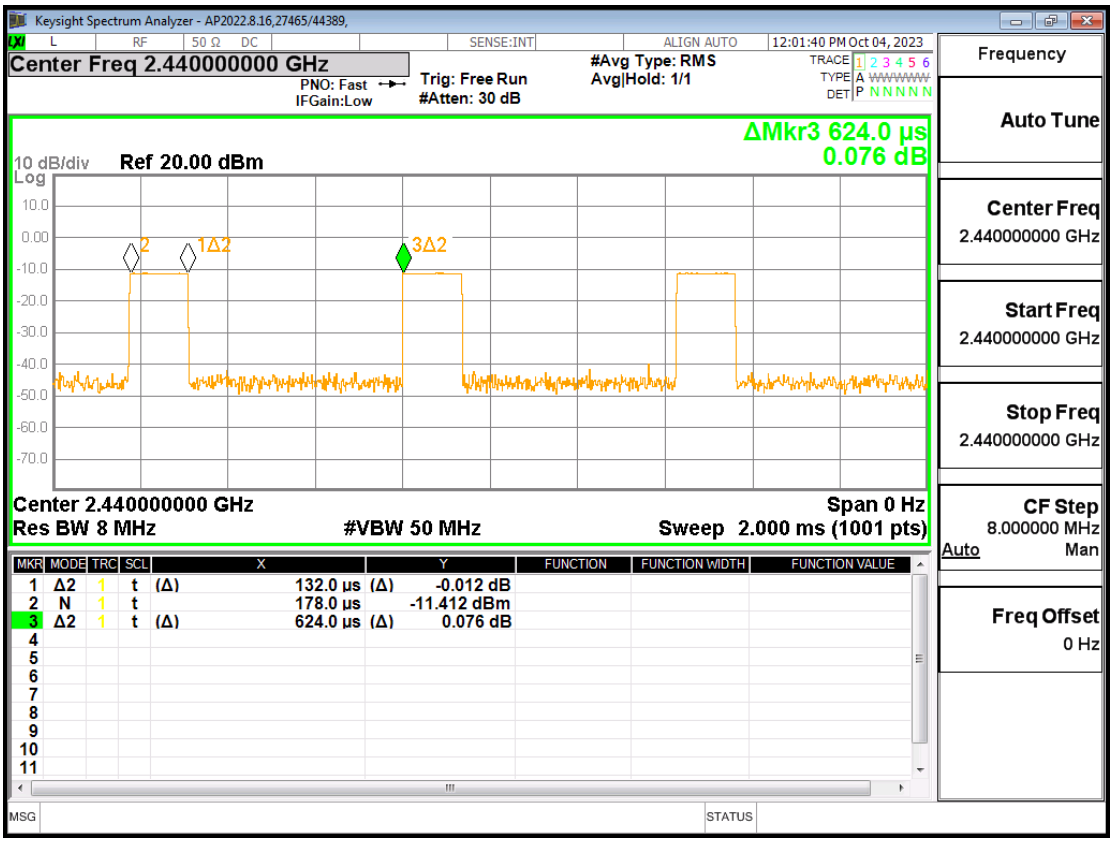
PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
2.4GHz Band					
BLE	0.132	0.624	0.212	21.15	13.5

DUTY CYCLE PLOTS



DUTY CYCLE BLE – 1Mbps

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9.2. 6 dB BANDWIDTH

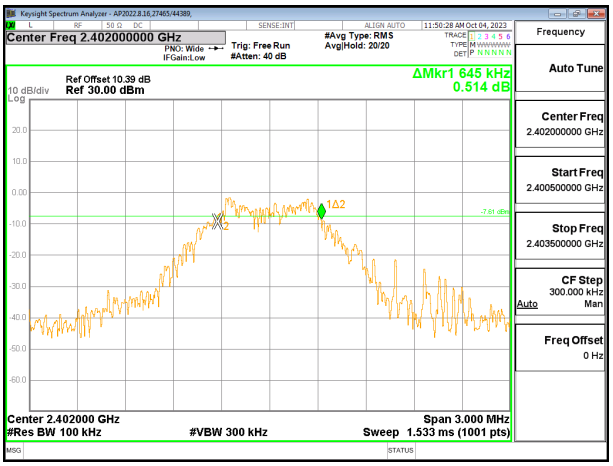
LIMITS

FCC §15.247 (a) (2)
The minimum 6 dB bandwidth shall be at least 500 kHz.

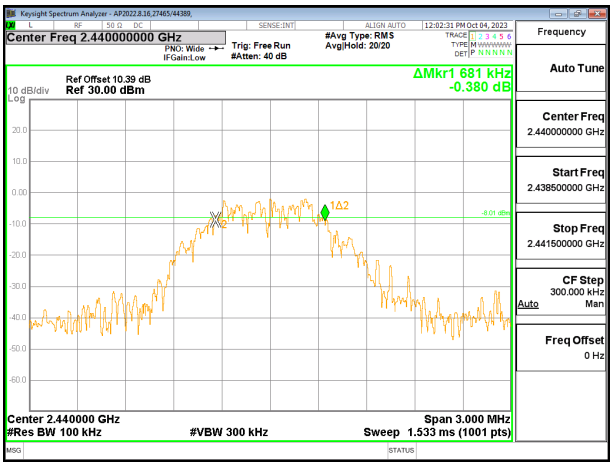
RESULTS

9.2.1. BLE (1Mbps)

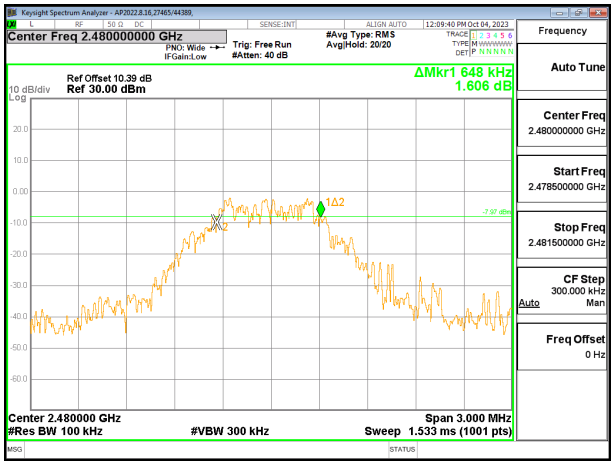
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.645	0.5
Middle	2440	0.681	0.5
High	2480	0.648	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

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 10.39 dB (including 9.68 dB pad and 0.71 EUT cable) was entered as an offset in the power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Peak output power was read directly from the power meter.

RESULTS

9.3.1. BLE (1Mbps)

Tested By:	27465/44389
Date:	2023-10-04

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-0.97	30	-30.97
Middle	2440	-0.99	30	-30.99
High	2480	-1.10	30	-31.10

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9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.39 dB (including 9.68 dB pad and 0.71 EUT cable) was entered as an offset in the power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

RESULTS

9.4.1. BLE (1Mbps)

Tested By:	27465/44389
Date:	2023-10-04

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	-1.37
Middle	2440	-1.38
High	2480	-1.50

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9.5. POWER SPECTRAL DENSITY

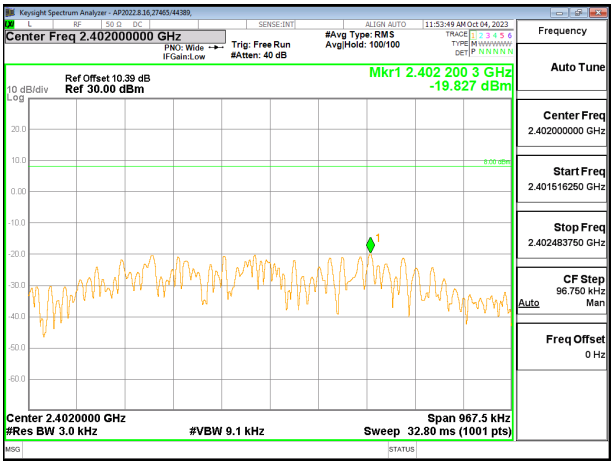
LIMITS
FCC §15.247 (e)

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.

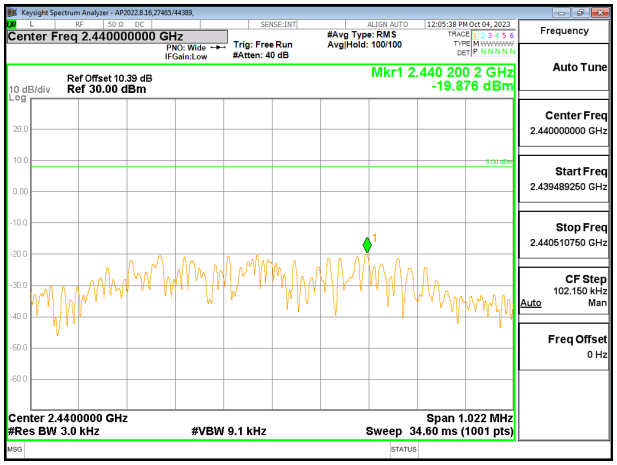
RESULTS

9.5.1. BLE (1Mbps)

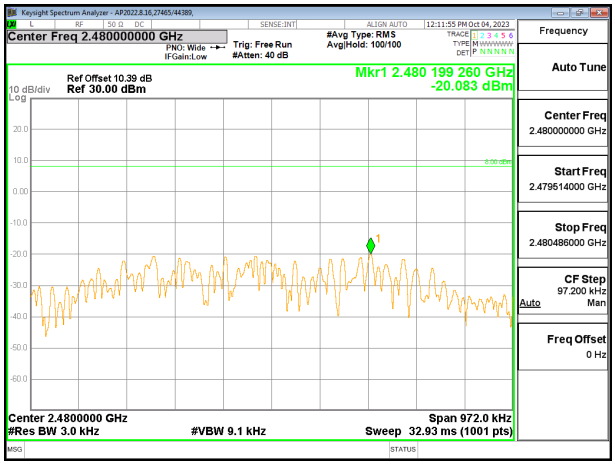
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-19.827	8	-27.83
Middle	2440	-19.876	8	-27.88
High	2480	-20.083	8	-28.08



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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

RESULTS

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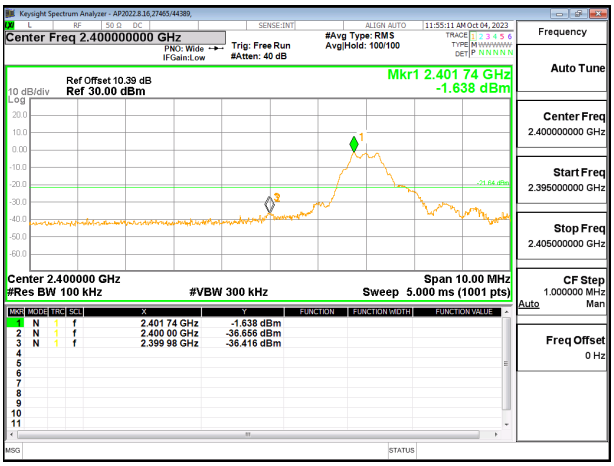
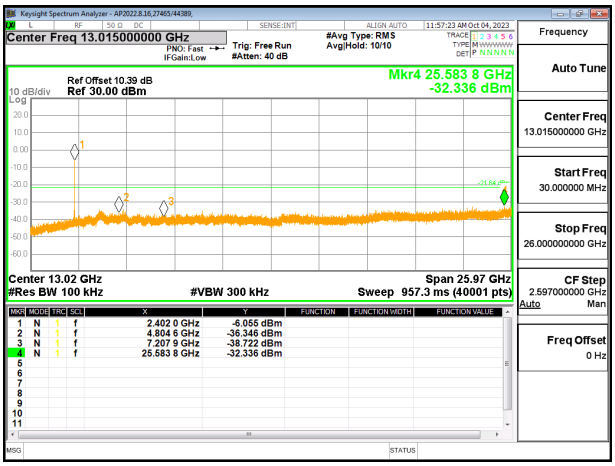
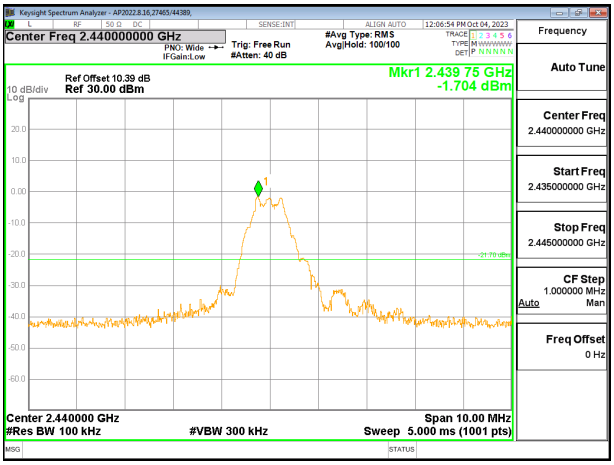
9.6.1. BLE (1Mbps)



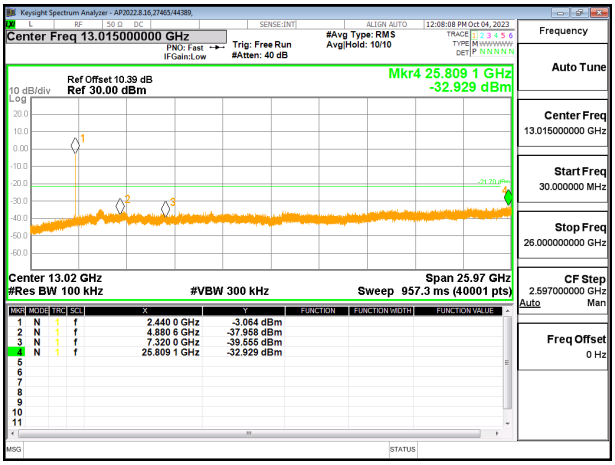
LOW CHANNEL BANDEDGE



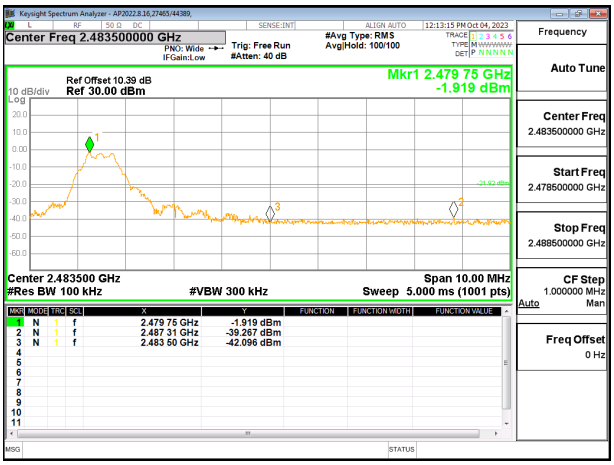
OUT-OF-BAND LOW CHANNEL



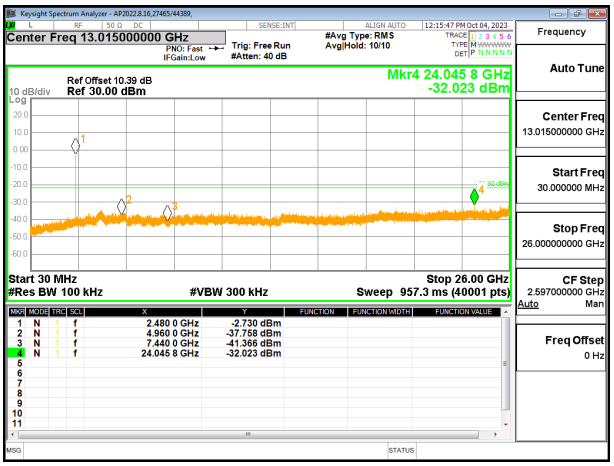
IN-BAND REFERENCE LEVEL



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

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).

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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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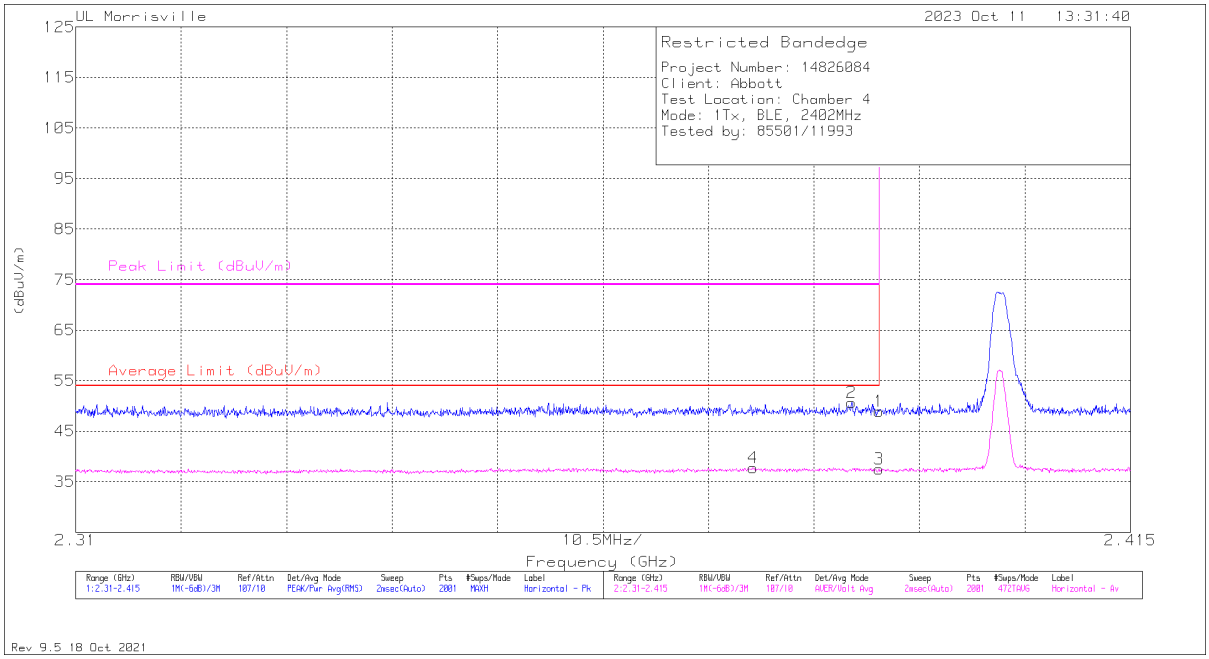
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. BLE (1Mbps)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	30.08	Pk	32	-13.2	0	48.88	-	-	74	-25.12	16	119	H
2	* ** 2.38723	31.81	Pk	32	-13.1	0	50.71	-	-	74	-23.29	16	119	H
3	* ** 2.38996	5.18	ADV	32	-13.2	13.5	37.48	54	-16.52	-	-	16	119	H
4	* ** 2.37741	5.5	ADV	32	-13.2	13.5	37.8	54	-16.2	-	-	16	119	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

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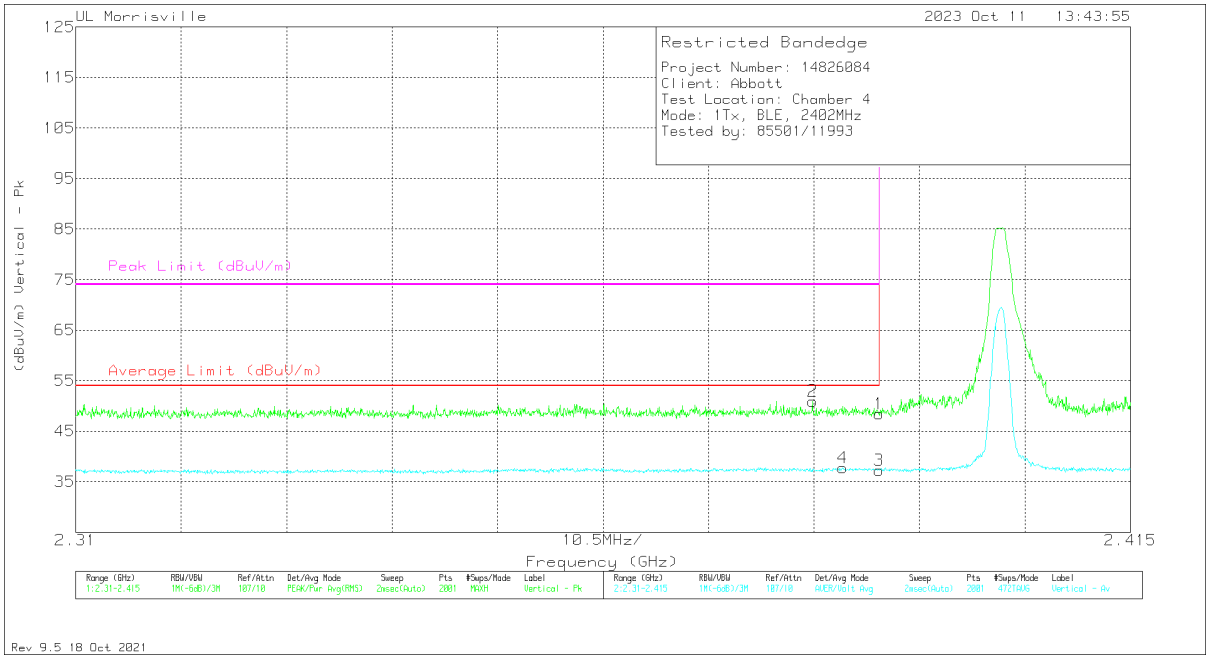
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	29.65	Pk	32	-13.2	0	48.45	-	-	74	-25.55	33	174	V
2	* ** 2.38334	32.27	Pk	32	-13.3	0	50.97	-	-	74	-23.03	33	174	V
3	* ** 2.38996	4.92	ADV	32	-13.2	13.5	37.22	54	-16.78	-	-	33	174	V
4	* ** 2.38639	5.37	ADV	32	-13.1	13.5	37.77	54	-16.23	-	-	33	174	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

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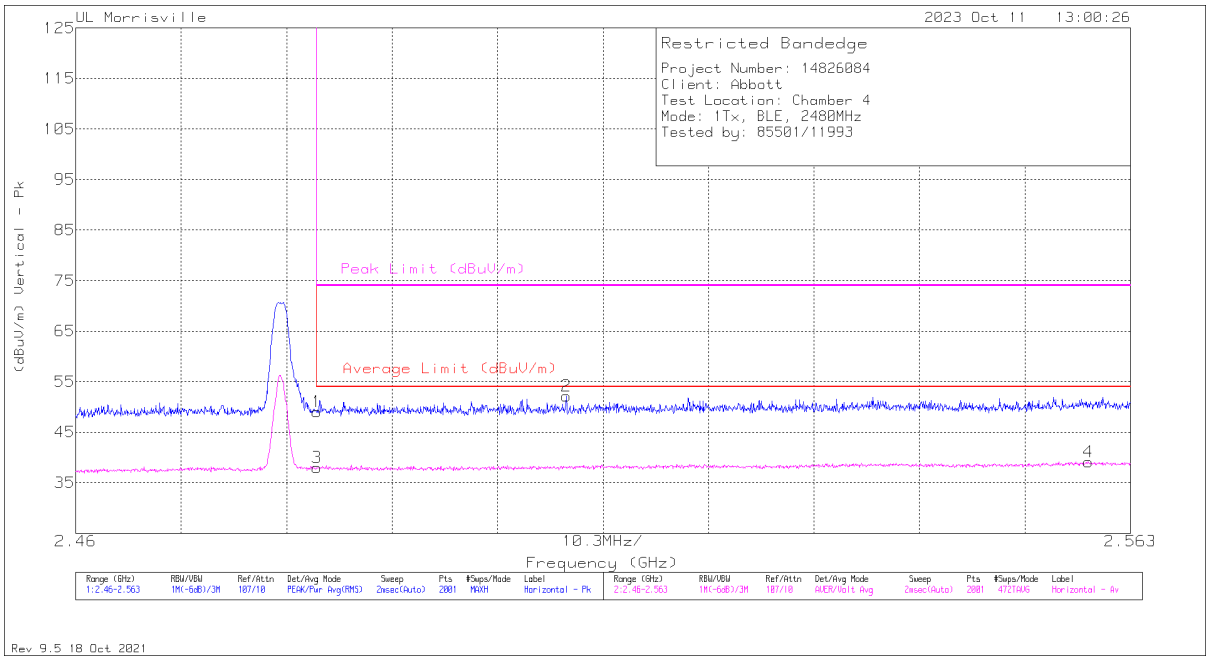
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	29.63	Pk	32.3	-12.9	0	49.03	-	-	74	-24.97	58	116	H
2	** 2.5079	32.73	Pk	32.3	-12.9	0	52.13	-	-	74	-21.87	58	116	H
3	* ** 2.48354	5.05	ADV	32.3	-12.9	13.5	37.95	54	-16.05	-	-	58	116	H
4	** 2.55888	5.83	ADV	32.5	-12.7	13.5	39.13	54	-14.87	-	-	58	116	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

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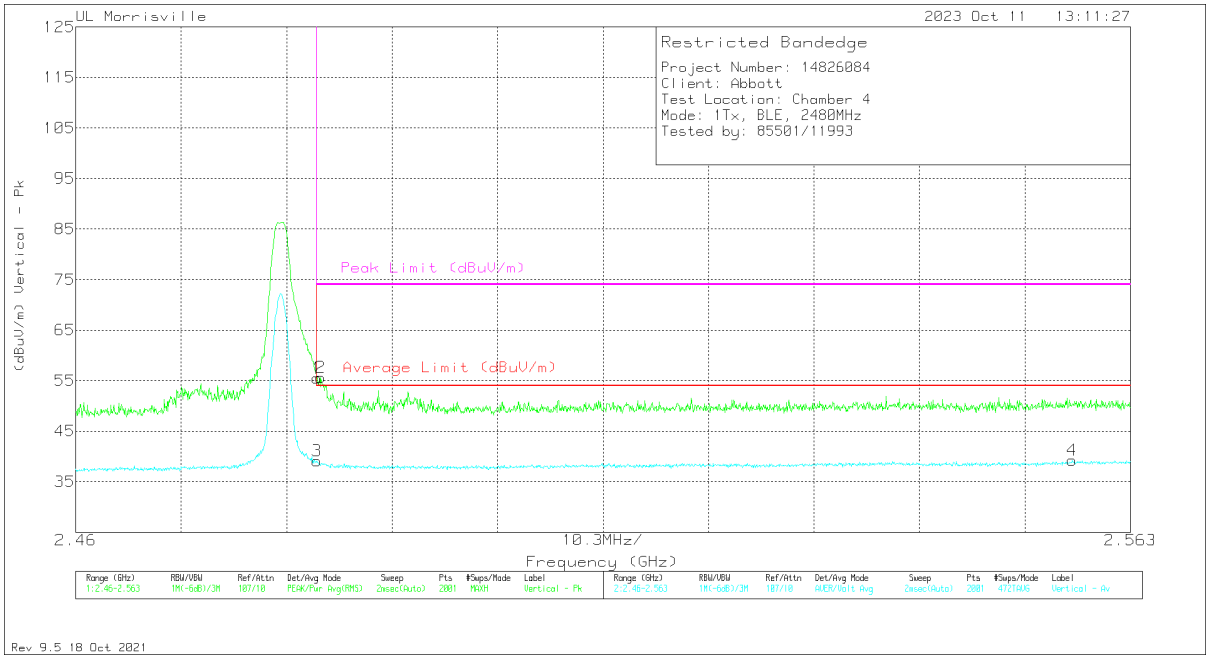
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	36.1	Pk	32.3	-12.9	0	55.5	-	-	74	-18.5	221	101	V
2	* ** 2.48395	36.19	Pk	32.3	-12.9	0	55.59	-	-	74	-18.41	221	101	V
3	* ** 2.48354	6.22	ADV	32.3	-12.9	13.5	39.12	54	-14.88	-	-	221	100	V
4	** 2.55734	5.89	ADV	32.5	-12.7	13.5	39.19	54	-14.81	-	-	221	100	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

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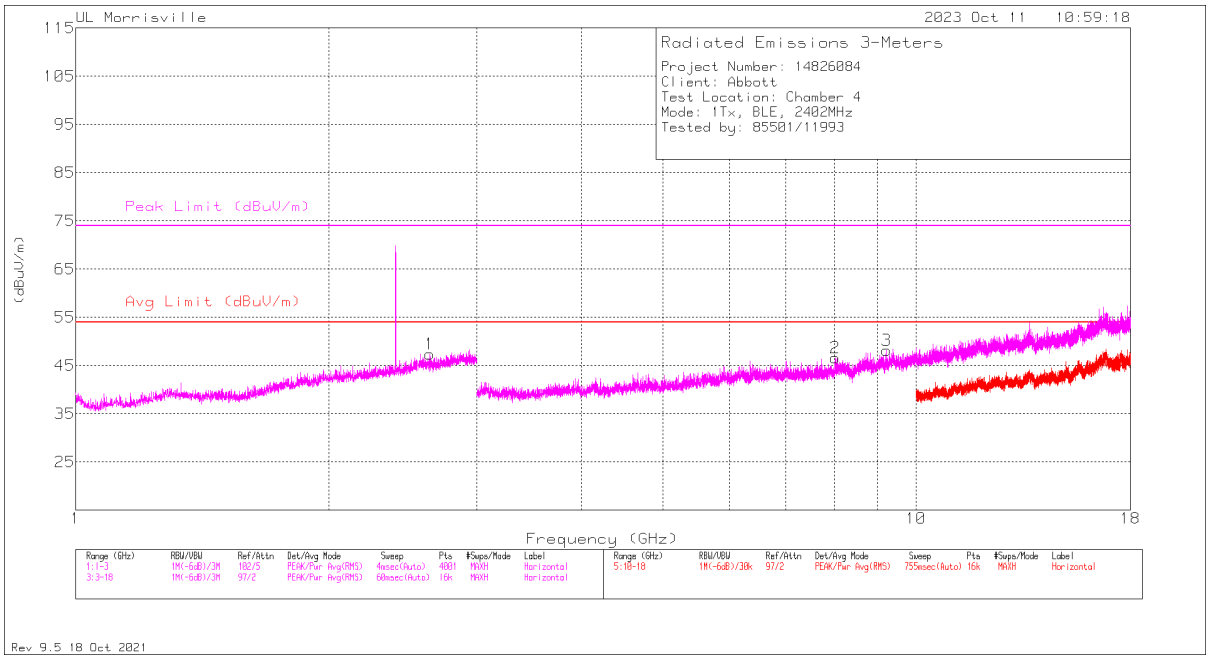
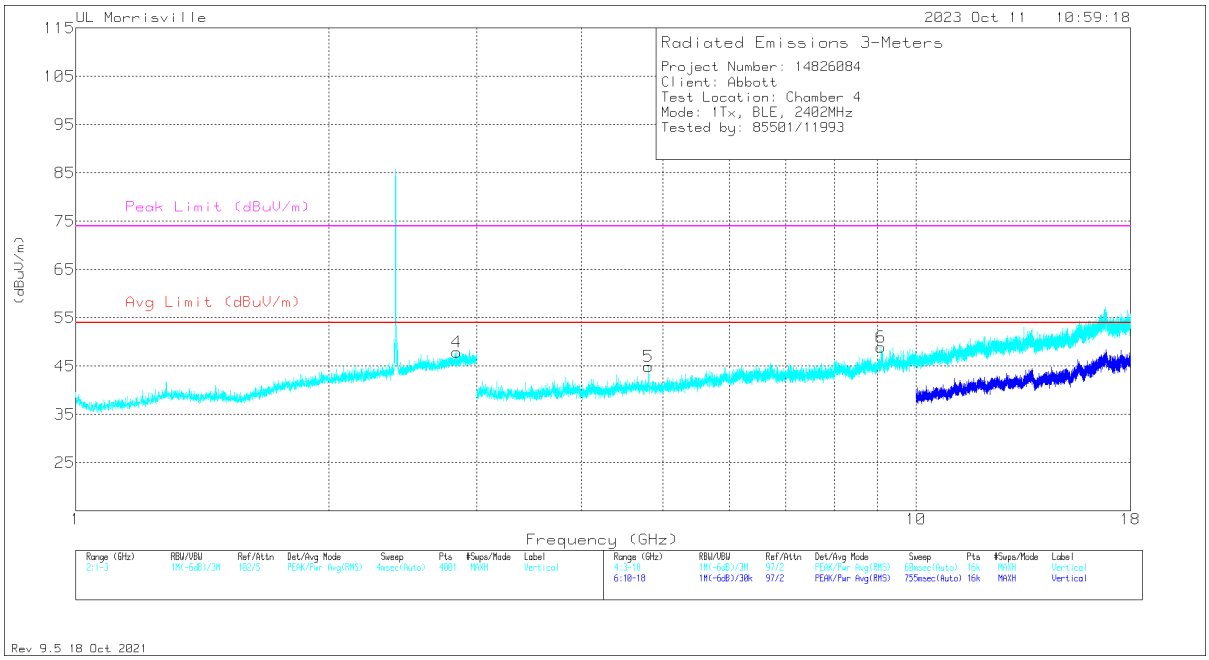
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	** 2.637	27.69	Pk	32.4	-12.7	0	47.39	54	-6.61	74	-26.61	0-360	100	H
4	* ** 2.8415	27.86	Pk	32.3	-12.2	0	47.96	54	-6.04	74	-26.04	0-360	200	V
5	* ** 4.80375	42.55	Pk	34.1	-31.7	0	44.95	54	-9.05	74	-29.05	0-360	200	V
6	* ** 9.08612	36.79	PK2	36.3	-25.1	0	47.99	-	-	74	-26.01	261	332	V
	* ** 9.08586	23.73	ADV	36.3	-25	13.5	48.53	54	-5.47	-	-	261	332	V
2	8.0175	38.06	Pk	35.8	-27.2	0	-	-	-	-	-	0-360	100	H
3	9.22125	37.48	Pk	36.4	-25.7	0	-	-	-	-	-	0-360	100	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

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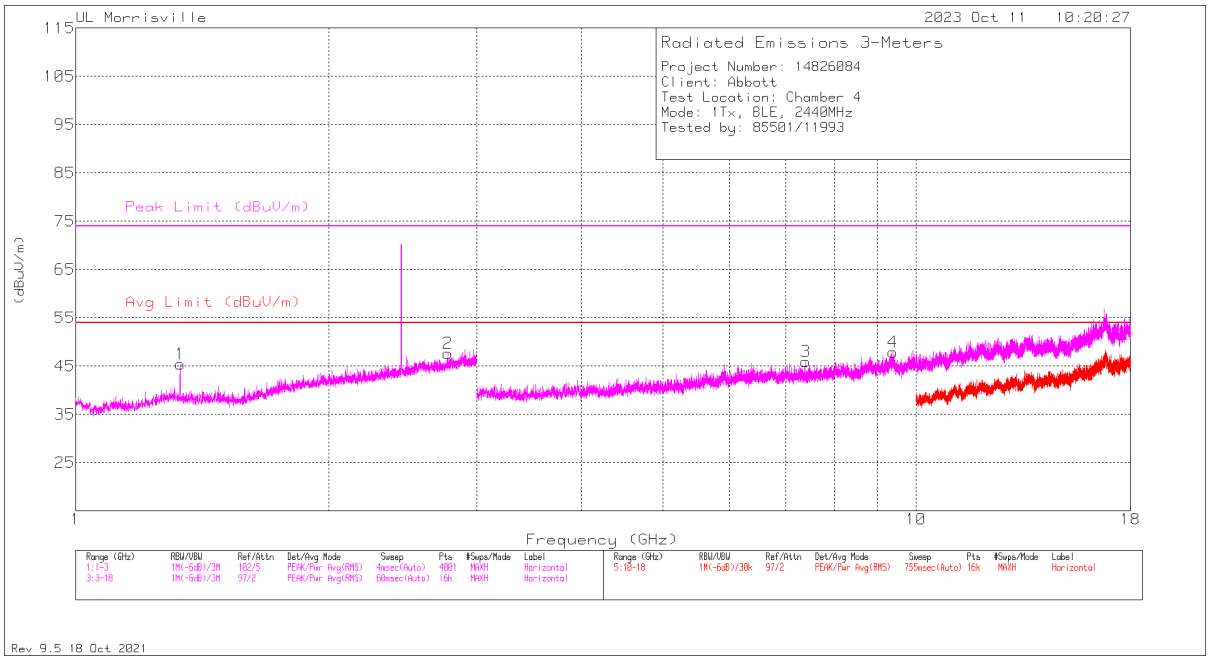
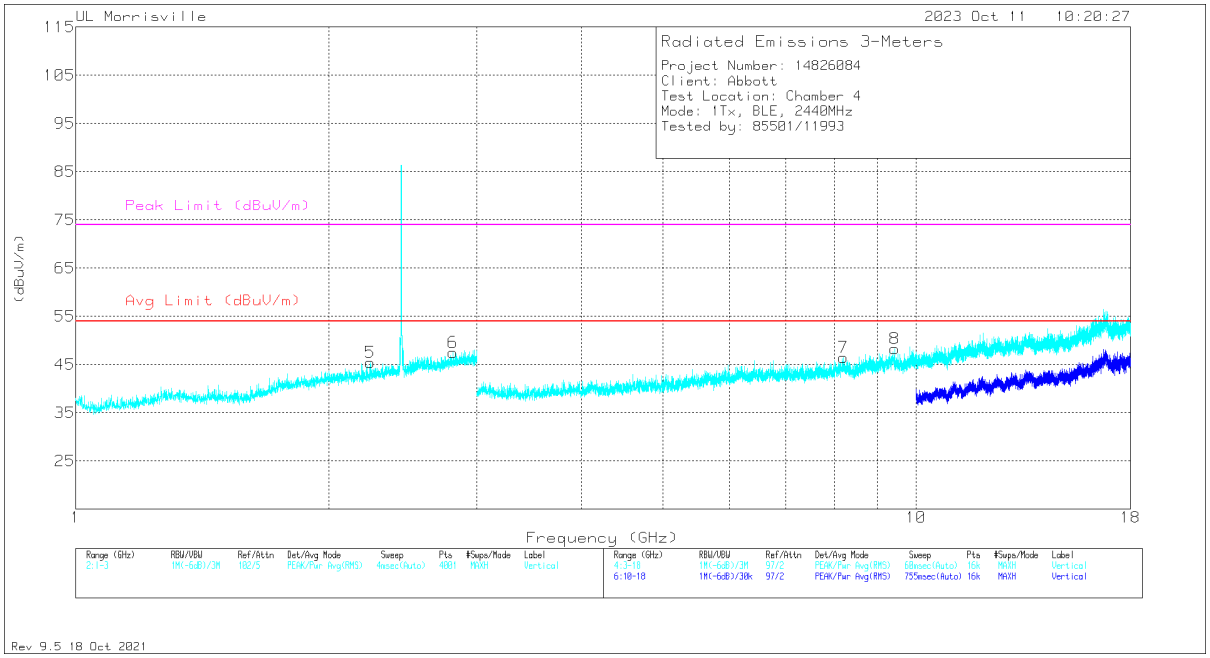
MID CHANNEL RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	* ** 1.331	31.1	Pk	29	-14.7	0	45.4	54	-8.6	74	-28.6	0-360	100	H
2	* ** 2.7715	27.64	Pk	32.5	-12.5	0	47.64	54	-6.36	74	-26.36	0-360	100	H
5	* ** 2.243	26.96	Pk	31.8	-13.3	0	45.46	54	-8.54	74	-28.54	0-360	200	V
6	* ** 2.8125	27.22	Pk	32.5	-12.2	0	47.52	54	-6.48	74	-26.48	0-360	200	V
3	* ** 7.39219	38.14	Pk	35.6	-27.8	0	45.94	54	-8.06	74	-28.06	0-360	100	H
4	* ** 9.38531	36.42	Pk	36.6	-25.1	0	47.92	54	-6.08	74	-26.08	0-360	100	H
7	* ** 8.20125	37.58	Pk	35.8	-26.9	0	46.48	54	-7.52	74	-27.52	0-360	200	V
8	* ** 9.44221	36.88	PK2	36.7	-25.4	0	48.18	-	-	74	-25.82	16	246	V
	* ** 9.44232	24	ADV	36.7	-25.4	13.5	48.8	54	-5.2	-	-	16	246	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

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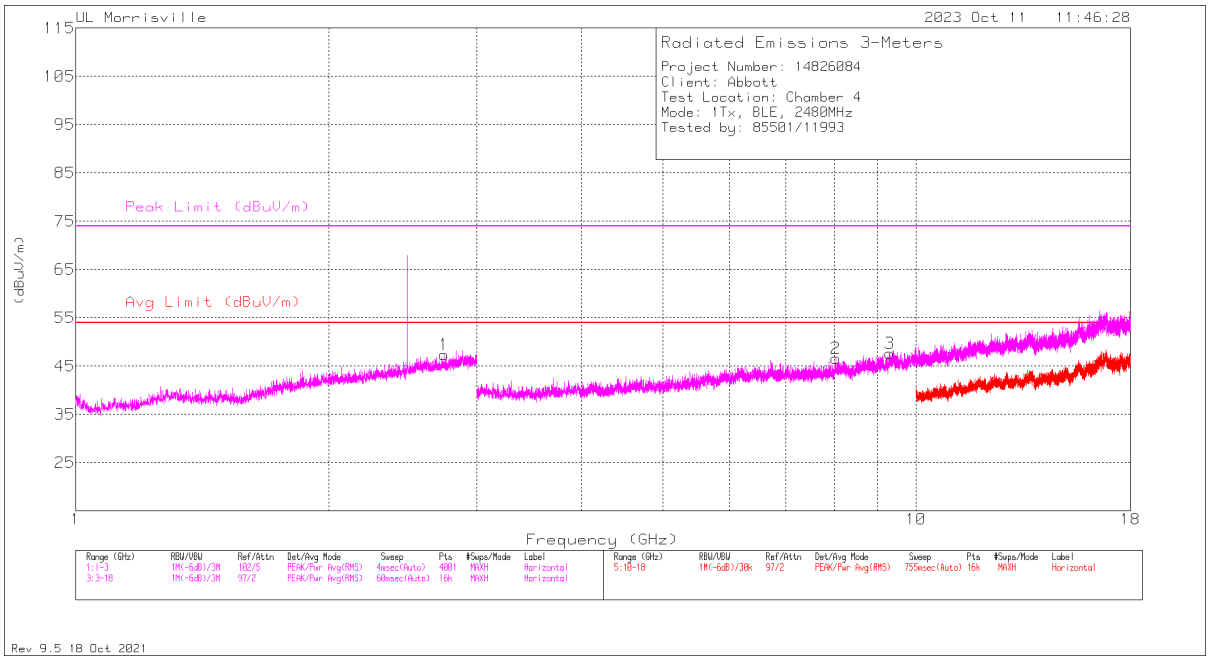
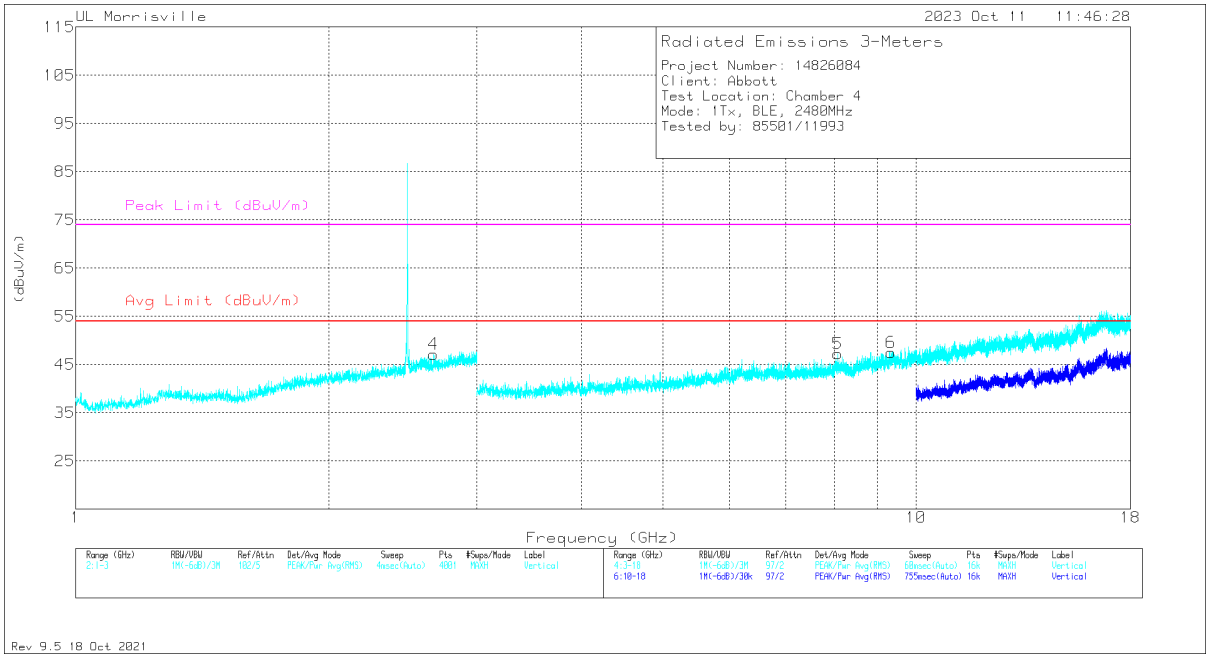
HIGH CHANNEL RESULTS



HORIZONTAL



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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (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	* ** 2.743	27.36	Pk	32.5	-12.5	47.36	54	-6.64	74	-26.64	0-360	100	H
4	* ** 2.6675	27.19	Pk	32.4	-12.4	47.19	54	-6.81	74	-26.81	0-360	200	V
3	* ** 9.31125	36.21	Pk	36.4	-25	47.61	54	-6.39	74	-26.39	0-360	100	H
5	* ** 8.07094	38.75	Pk	35.8	-27.3	47.25	54	-6.75	74	-26.75	0-360	200	V
6	* ** 9.33844	36.01	Pk	36.5	-25	47.51	54	-6.49	74	-26.49	0-360	200	V
2	8.02313	38.02	Pk	35.8	-27.2	46.62	54	-7.38	74	-27.38	0-360	100	H

* - 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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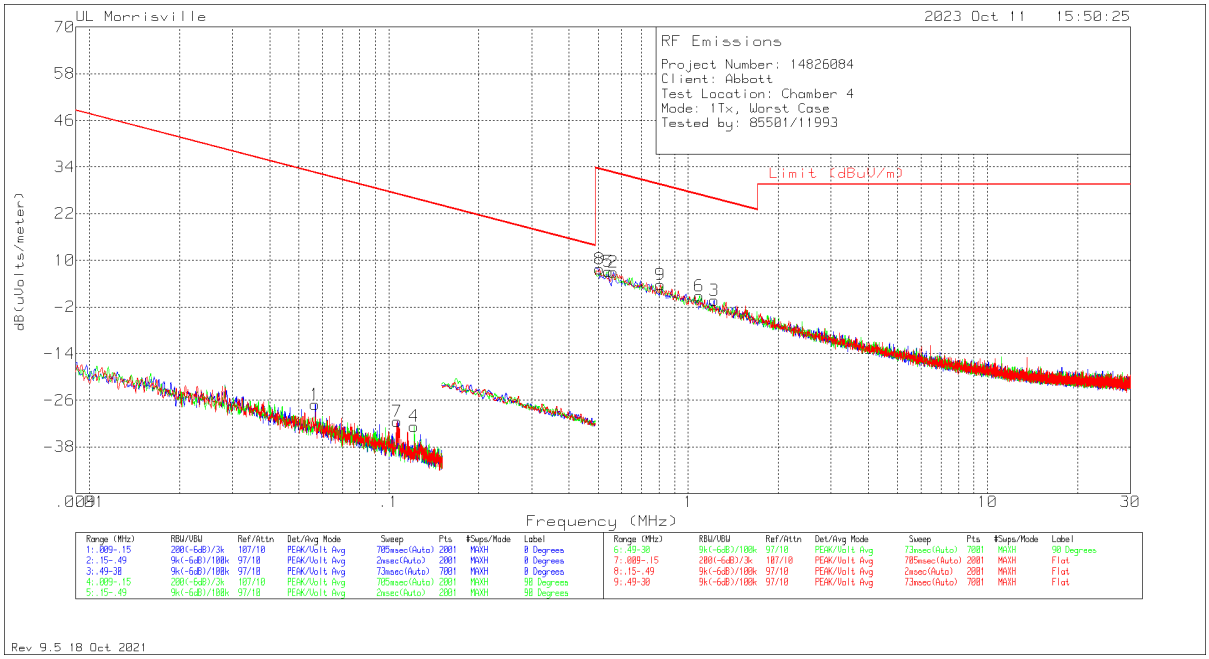
10.3. WORST CASE BELOW 30MHZ

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- THREE ORIENTATIONS E FIELD

Below 30MHz Data E FIELD

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (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	.05678	40.37	Pk	12.5	0	-80	-27.13	32.52	52.52	-59.65	0-360	0 degs
7	.10641	36.37	Pk	12.2	0	-80	-31.43	27.06	-	-58.49	0-360	Flat
4	.12161	35.14	Pk	12.2	0	-80	-32.66	25.91	45.91	-58.57	0-360	90 degs
8	.50686	35.4	Pk	12.2	.1	-40	7.7	33.51	-	-25.81	0-360	Flat
5	.54059	34.8	Pk	12.2	.1	-40	7.1	32.95	-	-25.85	0-360	90 degs
2	.56167	34.69	Pk	12.2	.1	-40	6.99	32.61	-	-25.62	0-360	0 degs
9	.8062	31.4	Pk	12.2	.1	-40	3.7	29.48	-	-25.78	0-360	Flat
6	1.08867	28.52	Pk	12.2	.1	-40	.82	26.87	-	-26.05	0-360	90 degs
3	1.21937	27.36	Pk	12.2	.1	-40	-.34	25.88	-	-26.22	0-360	0 degs

Pk - Peak detector

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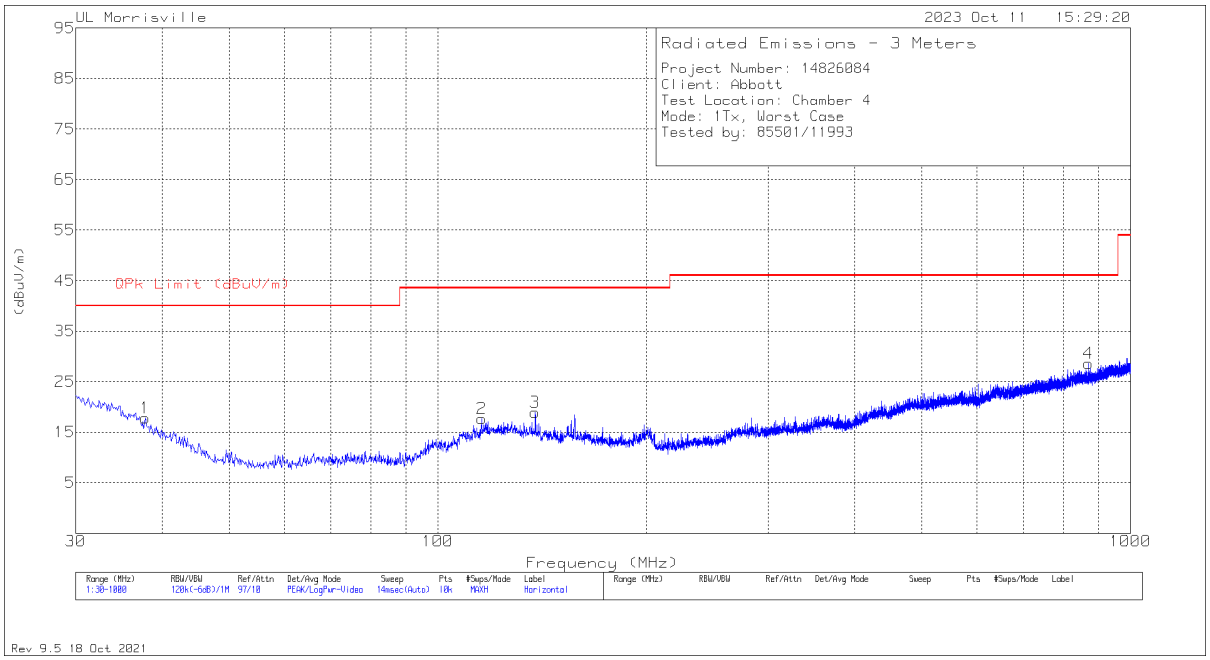
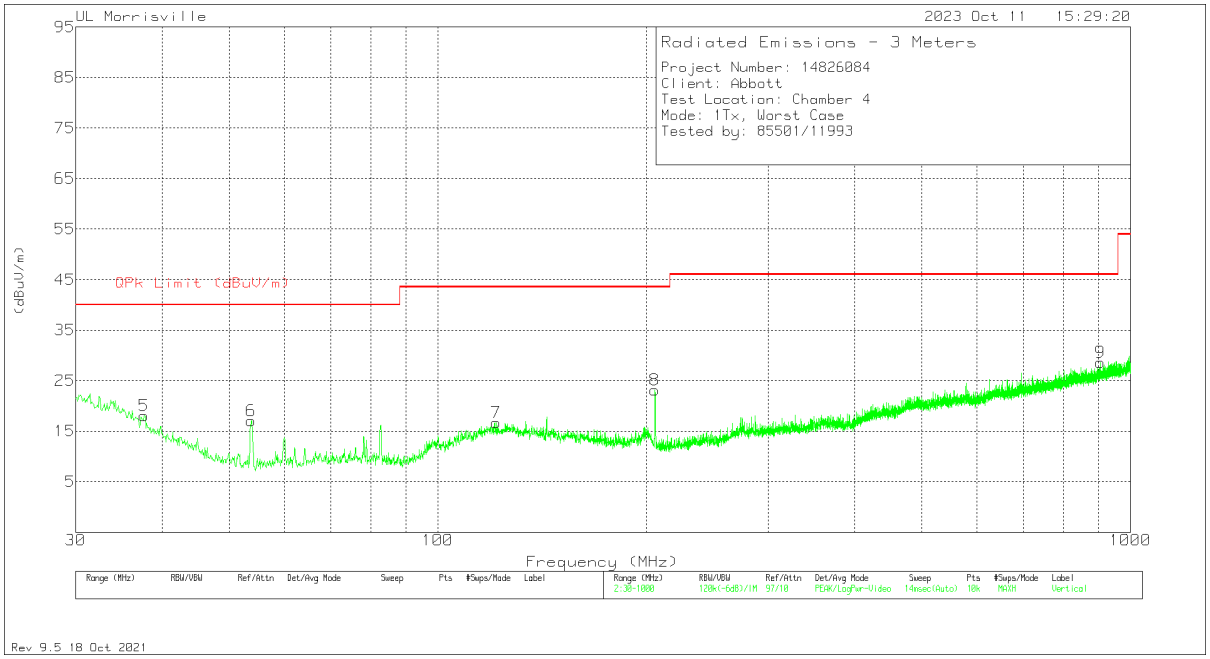
10.4. WORST CASE BELOW 1 GHZ

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



HORIZONTAL



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Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 37.76	28.54	Pk	21.4	-32.1	17.84	40	-22.16	0-360	300	H
2	* ** 115.651	29.46	Pk	19.6	-31.4	17.66	43.52	-25.86	0-360	100	H
4	** 868.953	28.31	Pk	28	-27.7	28.61	46.02	-17.41	0-360	100	H
5	* ** 37.663	28.65	Pk	21.5	-32.1	18.05	40	-21.95	0-360	100	V
7	* ** 121.471	28	Pk	20	-31.3	16.7	43.52	-26.82	0-360	100	V
9	** 905.134	27.42	Pk	28.4	-27.2	28.62	46.02	-17.4	0-360	100	V
6	53.765	35.47	Pk	13.5	-31.9	17.07	40	-22.93	0-360	100	V
3	138.252	30.91	Pk	19.2	-31.2	18.91	43.52	-24.61	0-360	100	H
8	205.861	36.82	Pk	17.1	-30.8	23.12	43.52	-20.4	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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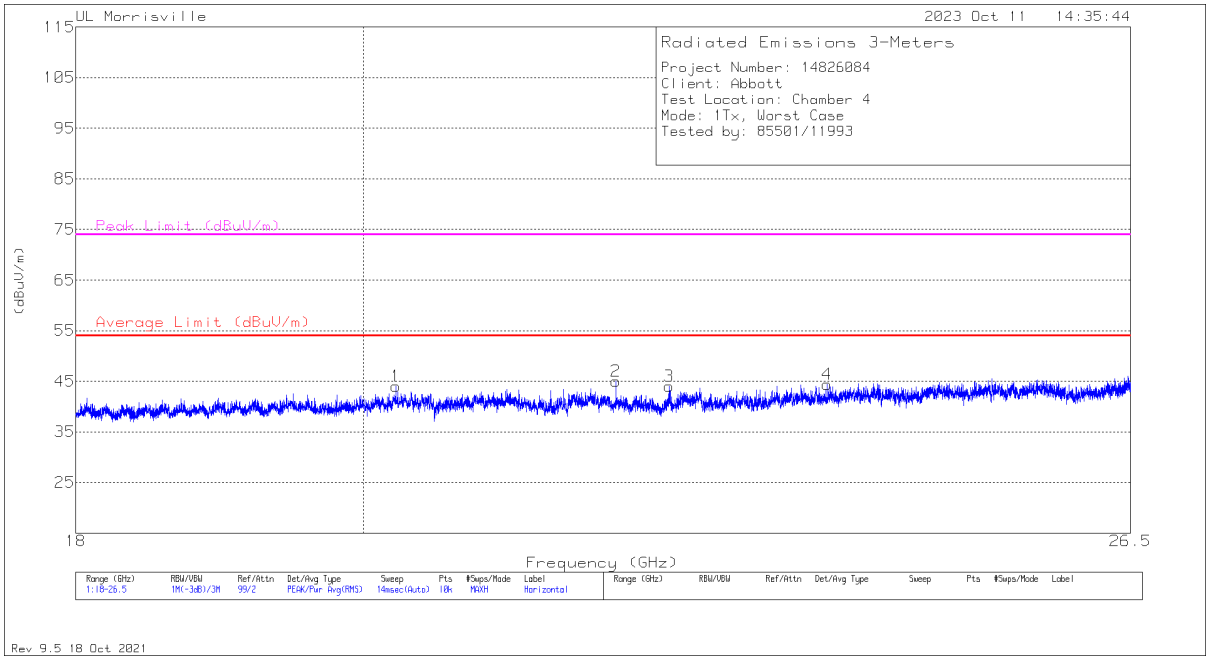
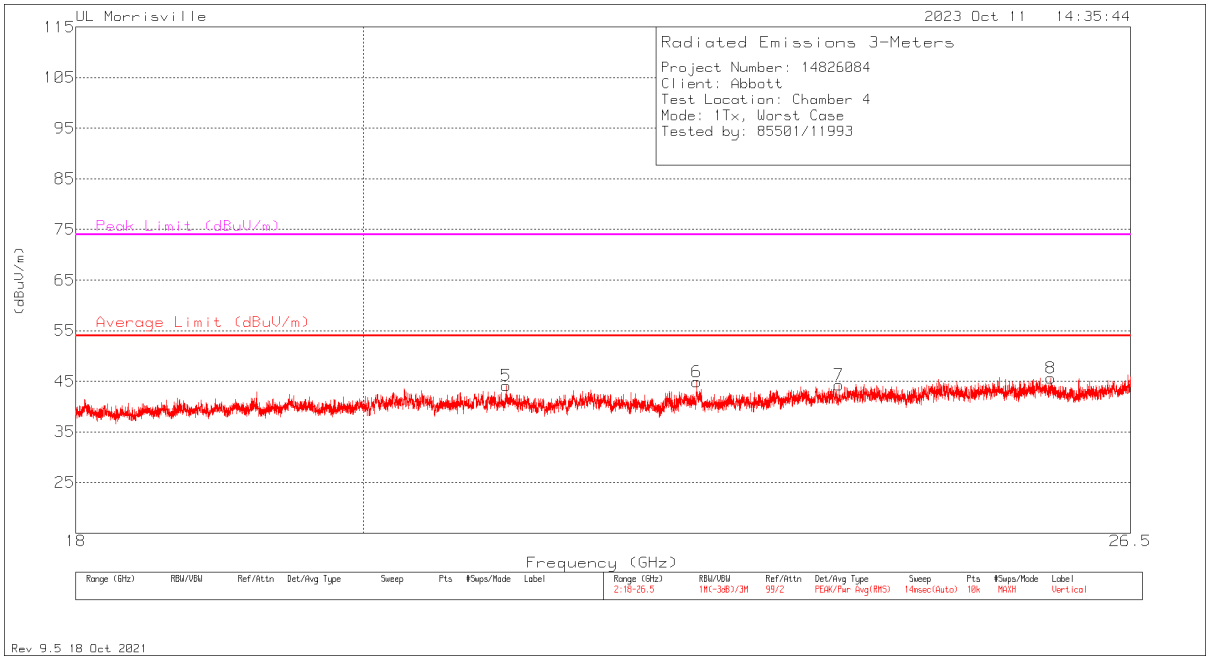
10.5. WORST CASE 18-26 GHZ

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



HORIZONTAL



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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	* ** 20.24337	49.56	Pk	33.5	-39	44.06	54	-9.94	74	-29.94	0-360	100	H
3	* ** 22.37794	47.55	Pk	34.1	-37.6	44.05	54	-9.95	74	-29.95	0-360	150	H
4	* ** 23.71087	47.15	Pk	34.5	-37.3	44.35	54	-9.65	74	-29.65	0-360	250	H
5	* ** 21.07646	49.64	Pk	33.7	-39.2	44.14	54	-9.86	74	-29.86	0-360	300	V
6	* ** 22.60321	48.86	Pk	34.3	-38.3	44.86	54	-9.14	74	-29.14	0-360	250	V
7	* ** 23.81288	47.51	Pk	34.4	-37.6	44.31	54	-9.69	74	-29.69	0-360	150	V
2	21.94439	49.77	Pk	34.2	-39	-	-	-	-	-	0-360	100	H
8	25.74002	44.33	Pk	35.4	-34.1	-	-	-	-	-	0-360	300	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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11. SETUP PHOTOS

Please refer to R14826084-EP1 for setup photos

END OF TEST REPORT

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