

TEST REPORT

Report Number. : R15701621-E1b

Applicant : HID Global Corporation
611 Center Ridge Dr
Austin, TX 78753 USA

Model : 20KV2

FCC ID : JQ6-SIGNO20KV2

IC : 2236B-SIGNO20KV2

EUT Description : Smartcard Reader

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 3
ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:

2025-06-24

Prepared by:

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-05-30	Initial Issue	Noah Bennett
V2	2025-06-24	Revised Typos and Revised Worst-Case Statement in Section 6.5	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: HID Global Corporation
611 Center Ridge Dr
Austin, TX 78753 USA

EUT DESCRIPTION: Smartcard Reader

MODEL: 20KV2

SERIAL NUMBER: FL0P0U00N0WO20KTKF8087

SAMPLE RECEIPT DATE: 2025-03-10

DATE TESTED: 2025-03-11 thru 2025-03-24

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 3	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

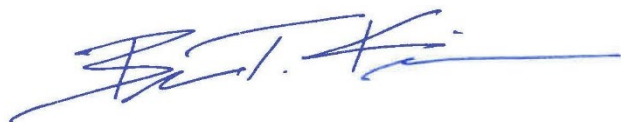
UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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

Approved & Released
For UL LLC By:

Prepared By:



Brian Kiewra
Project Engineer
Consumer, Medical and IT Segment
UL LLC



Noah Bennett
Engineer Project Associate
Consumer, Medical and IT Segment
UL LLC

2. TEST RESULTS SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for correctly integrating customer-provided data with measurements performed by UL LLC.

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

- 1) Antenna gain and type (section 6.3)
- 2) Cable loss (section 9)
- 3) Supported Data-Rates and Power Settings. Orientation of Operation (Section 6.5)
- 4) Software, Firmware and Hardware Versions of EUT (section 6.4)

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	Compliant	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		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	Compliant	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC CFR 47 Part 2,
- FCC CFR 47 Part 15,
- ANSI C63.10-2020,
- KDB 558074 D01 15.247 Meas Guidance v05r02,
- KDB 414788 D01 Radiated Test Site v01r01,
- RSS-GEN Issue 5 + A1 + A2,
- RSS-247 Issue 3

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

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	UNCERTAINTY
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%
Time	3.39%

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

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT, The Signo Reader is a smartcard reader typically installed near doorway as part of physical access system, to control access to that door. A user will approach the door and present a BLE or RFID credentials to the reader with intention of entering the door. The reader will read the credential and send its data to a connected access control panel, which determine whether or not grant the user access to the door.

The EUT supports the following technologies:

Wireless technologies	Frequency Band(s)	Operating mode(s)
NFC	13.56MHz	Type A 106, 212, 424 & 848 Kbps
	125KHz	4 Kbps
Bluetooth	2.4 GHz	LE 1 & 2 Mbps
Notes: 1) The EUT operated in a 1x1 SISO mode. 2) The EUT only supports 1 types of NFC tag.		

This report covers the full 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	-0.43	0.906

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

Chain	Designation in Documentation	Frequency Range (MHz)	Maximum Gain (dBi)
0	Inverted F	2402 – 2482	1.05

6.4. SOFTWARE AND FIRMWARE

EUT FW Version: 10.1

EUT HW Version: Rev H

6.5. WORST-CASE CONFIGURATION AND MODE

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

The EUT is meant to be powered via an auxiliary device (access controller) that does not come with the product. Therefore, for AC Lines, the scan was run using a DC power supply as representative. Additionally, 2 Configurations of power cables, (1) "Pigtail" and (2) "Terminal" were investigated. It was found that (2) "Terminal" was worst-case. Therefore, testing was done using that cable.

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

The EUT is only meant to be installed in one orientation, during normal operation. Therefore, radiated tested was done in this orientation only.

Technology	Test Type	Mode/Data-Rate	Channel	Power Setting
BLE	Antenna Port & Radiated Data	1Mbps & 2Mbps	37 (2402MHz) 17 (2440MHz) 39 (2480MHz)	Pset 0 (Default)

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	Yoga 7 16IAP7	PF49WDF9	-

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Barrel	Unshielded	<3m	Used to connect EUT to DC Power Supply.
2	UART	1	Serial-USB	Unshielded	<5m	Program EUT

TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card. The laptop was removed from the chamber for testing.

SETUP DIAGRAMS

Please refer to R15701621-EP1b for setup diagrams

7. MEASUREMENT METHOD

6 dB BW: ANSI C63.10 Subclause -11.8.2

Occupied BW (99%): ANSI C63.10 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)

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

Radiated emissions restricted & unrestricted frequency bands: ANSI C63.10 Subclause -11.12.1 and 6.10.5, 6.3 to 6.6.

AC Power-line conducted emissions: ANSI C63.10, Section 6.2.

8. TEST AND MEASUREMENT EQUIPMENT

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

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
	Gain-Loss Chains				
91975	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-10	2025-05-10
136042	Gain-loss string: 18-40GHz	Various	Various	2024-05-10	2025-05-10
	Receiver & Software				
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	30-1000 MHz				
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
	1-18 GHz				
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
	Gain-Loss Chains				
207639	Gain-loss string: 25-1000MHz	Various	Various	2024-05-22	2025-05-22
207640	Gain-loss string: 1-18GHz	Various	Various	2024-05-22	2025-05-22
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-04-16	2025-04-16
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

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	2024-08-01	2025-08-01
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
91212	True RMS Multimeter	Agilent	U1232A	2024-08-01	2025-08-01
76022	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2024.2.23	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
70374	EMI Test Receiver	ROHDE & SCHWARZ	ESC17	2024-07-30	2025-07-30
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2024-04-04	2025-04-04
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-30
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2024-08-01	2025-08-01
PS216	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

Test Equipment Used - Wireless Conducted Attenuators, Cables, and Couplers

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Attenuators/Cables				
246811	SMA Coaxial 10dB Attenuator	CentricRF	C18S2-20	2024-08-17	2025-08-17
CBL105	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFB-197C-0-0160-300300	2025-03-07	2026-03-07

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

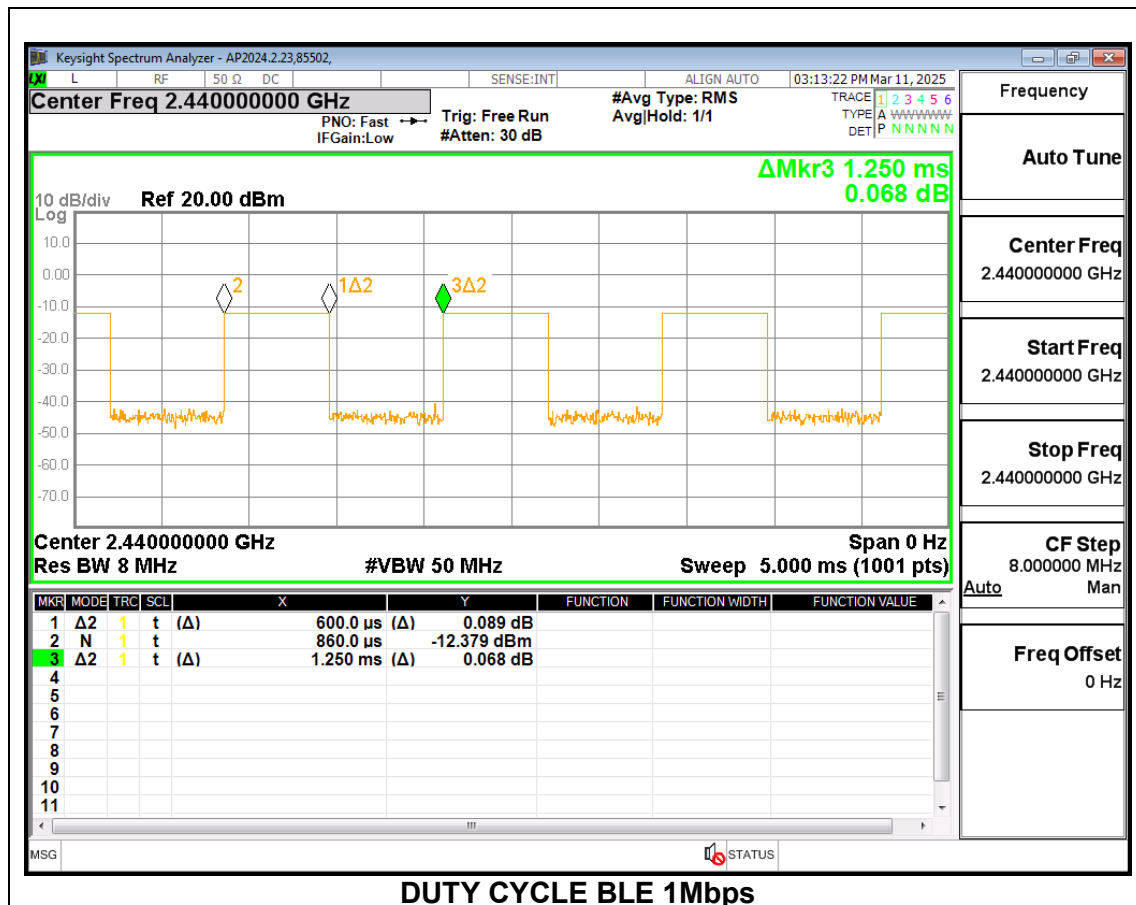
PROCEDURE

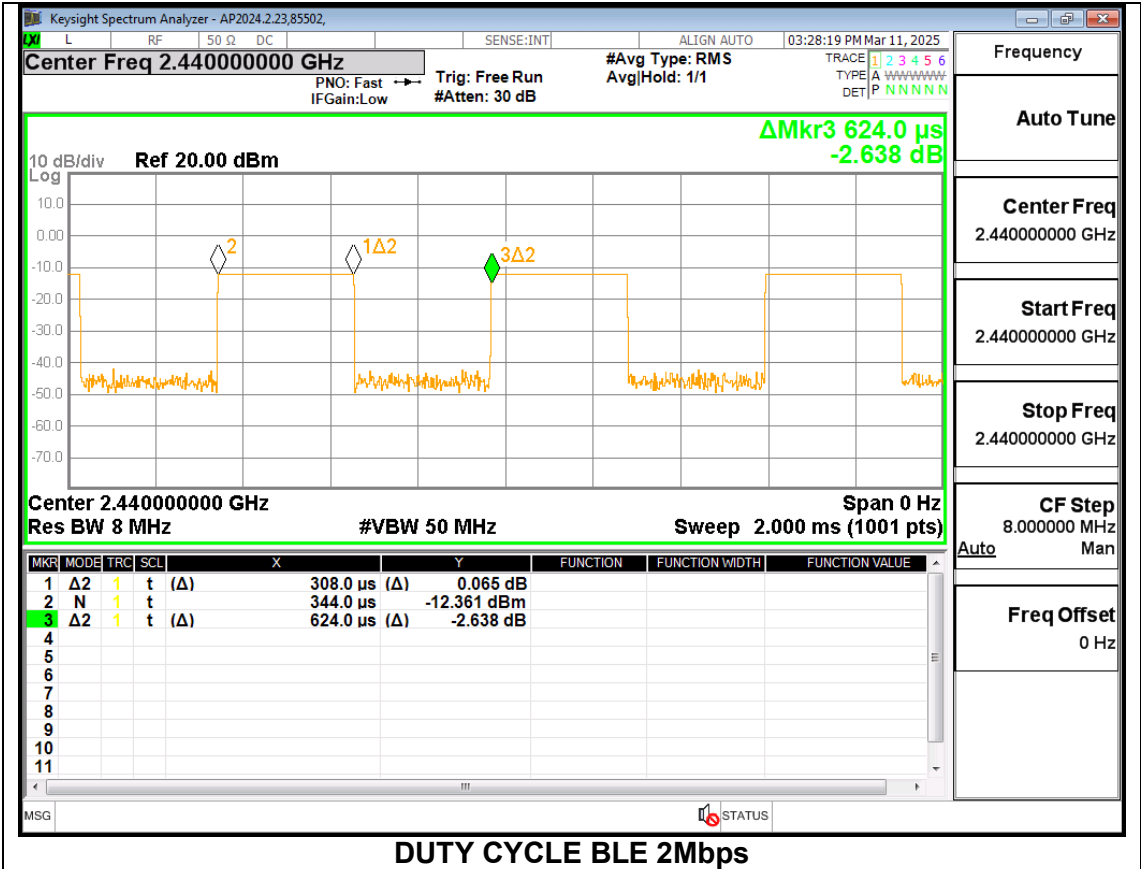
KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
BLE 1Mbps	0.600	1.250	0.480	48.00%	6.38	1.667
BLE 2Mbps	0.308	0.624	0.494	49.36%	6.13	3.247

DUTY CYCLE PLOTS





9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. BLE (1Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0568
Middle	2440	1.0558
High	2480	1.0557



9.2.1. BLE (2Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	2.0559
Middle	2440	2.0624
High	2480	2.0698



9.3. 6 dB BANDWIDTH

LIMITS

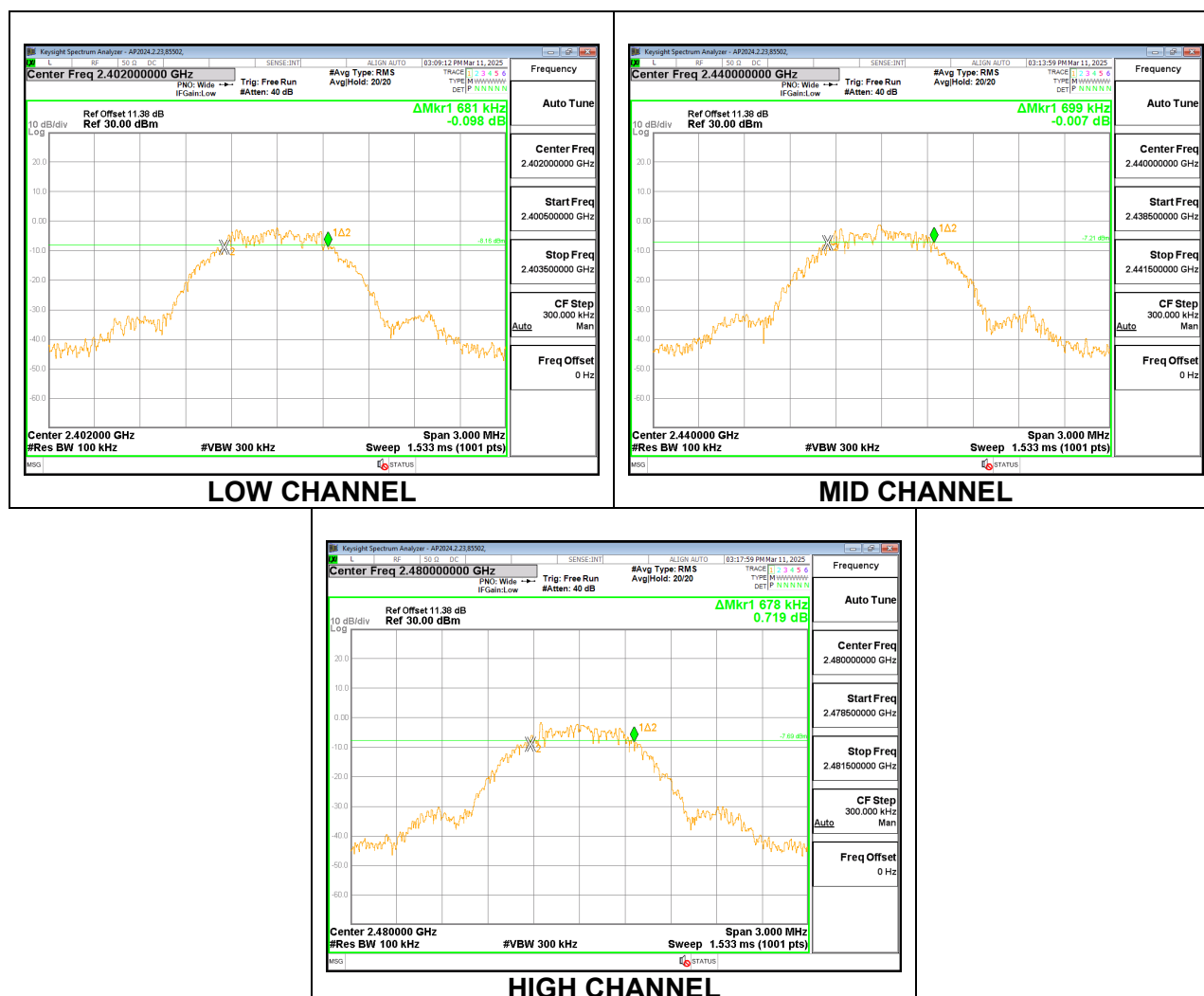
FCC §15.247 (a) (2)
RSS-247 5.2 (a)

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

RESULTS

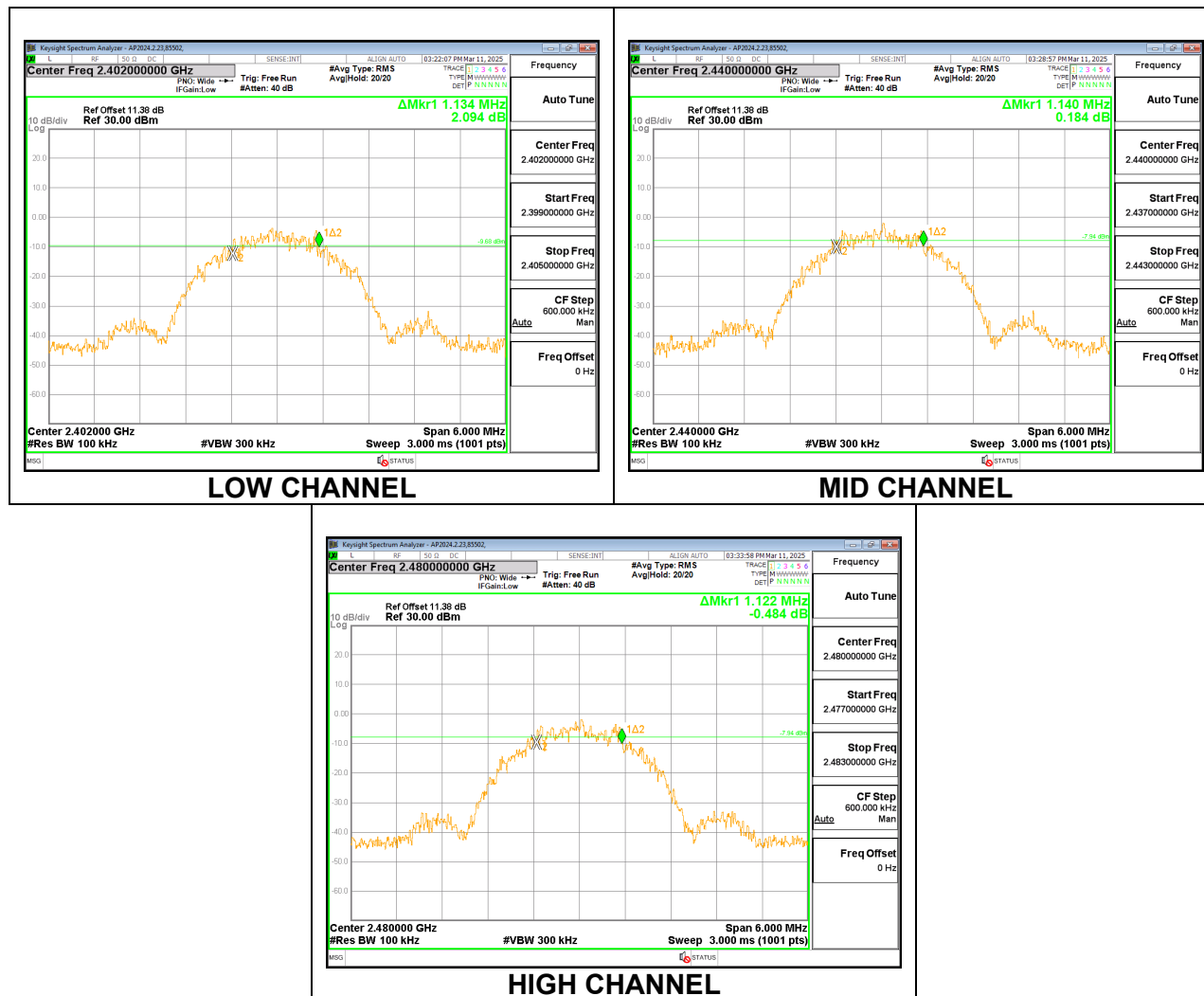
9.3.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6810	0.5
Middle	2440	0.6990	0.5
High	2480	0.6780	0.5



9.3.1. BLE (2Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	1.1340	0.5
Middle	2440	1.1400	0.5
High	2480	1.1220	0.5



9.4. PEAK & AVERAGE POWER

LIMITS

Peak Power:
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.

Avg Power is for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter for Peak and Gated Average power measurements. .

The EUT cable assembly insertion loss of 1.22 dB 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 output power was read directly from power meter.

PEAK POWER RESULTS

9.4.1. BLE (1Mbps)

Tested By:	85502
Date:	3/11/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-1.12	30	-31.120
Middle	2440	-0.79	30	-30.790
High	2480	-0.43	30	-30.430

9.4.2. BLE (2Mbps)

Tested By:	85502
Date:	3/11/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-1.09	30	-31.090
Middle	2440	-0.77	30	-30.770
High	2480	-0.45	30	-30.450

AVG POWER RESULTS

9.4.3. BLE (1Mbps)

Tested By:	85502
Date:	3/11/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	-1.46
Middle	2440	-1.14
High	2480	-0.77

9.4.4. BLE (2Mbps)

Tested By:	85502
Date:	3/11/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	-1.43
Middle	2440	-1.13
High	2480	-0.76

9.5. POWER SPECTRAL DENSITY

LIMITS

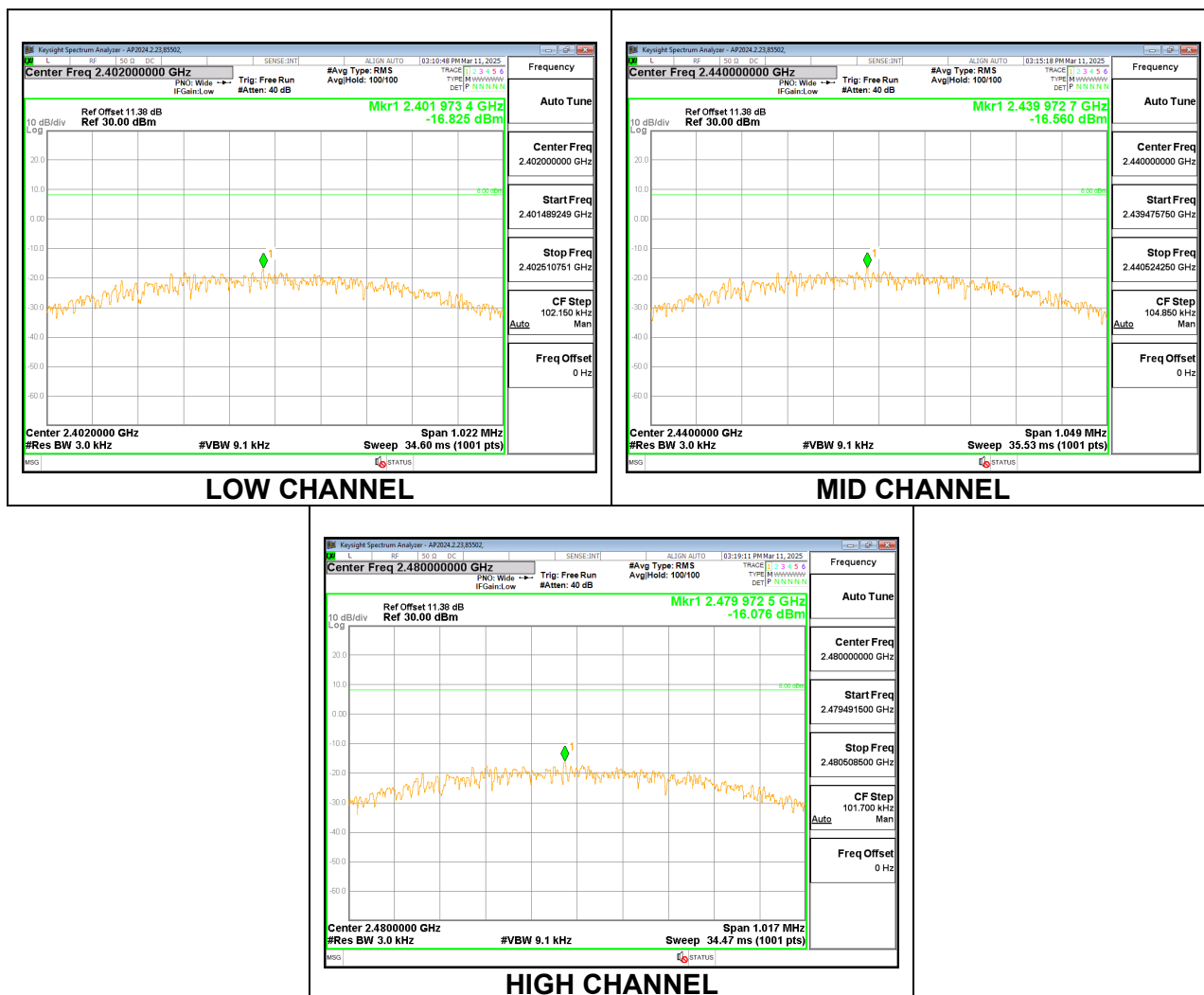
FCC §15.247 (e)
RSS-247 (5.2) (b)

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

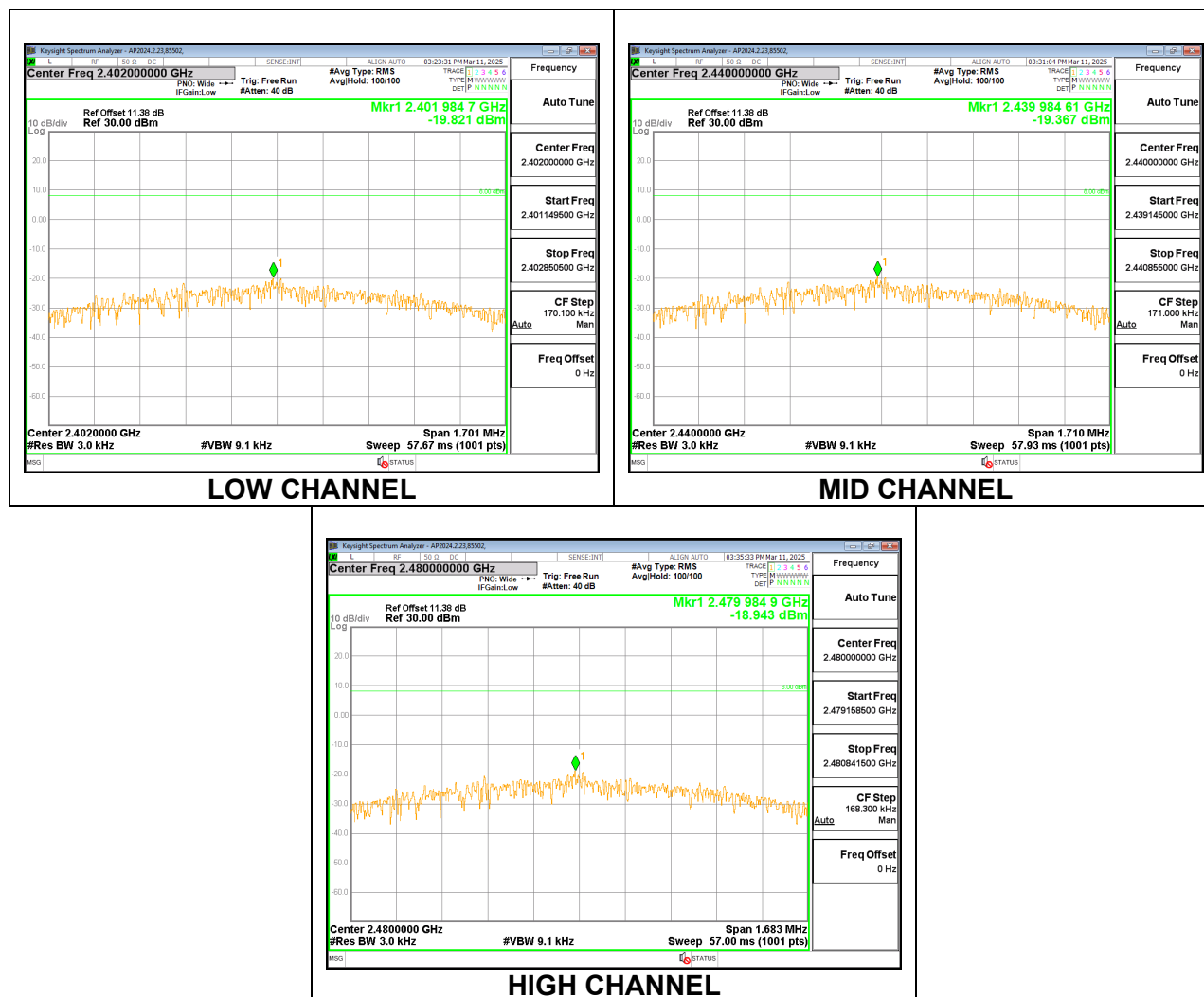
9.5.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-16.825	8	-24.83
Middle	2440	-16.560	8	-24.56
High	2480	-16.078	8	-24.08



9.5.1. BLE (2Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-19.821	8	-27.82
Middle	2440	-19.367	8	-27.37
High	2480	-18.943	8	-26.94



9.6. CONDUCTED SPURIOUS EMISSIONS

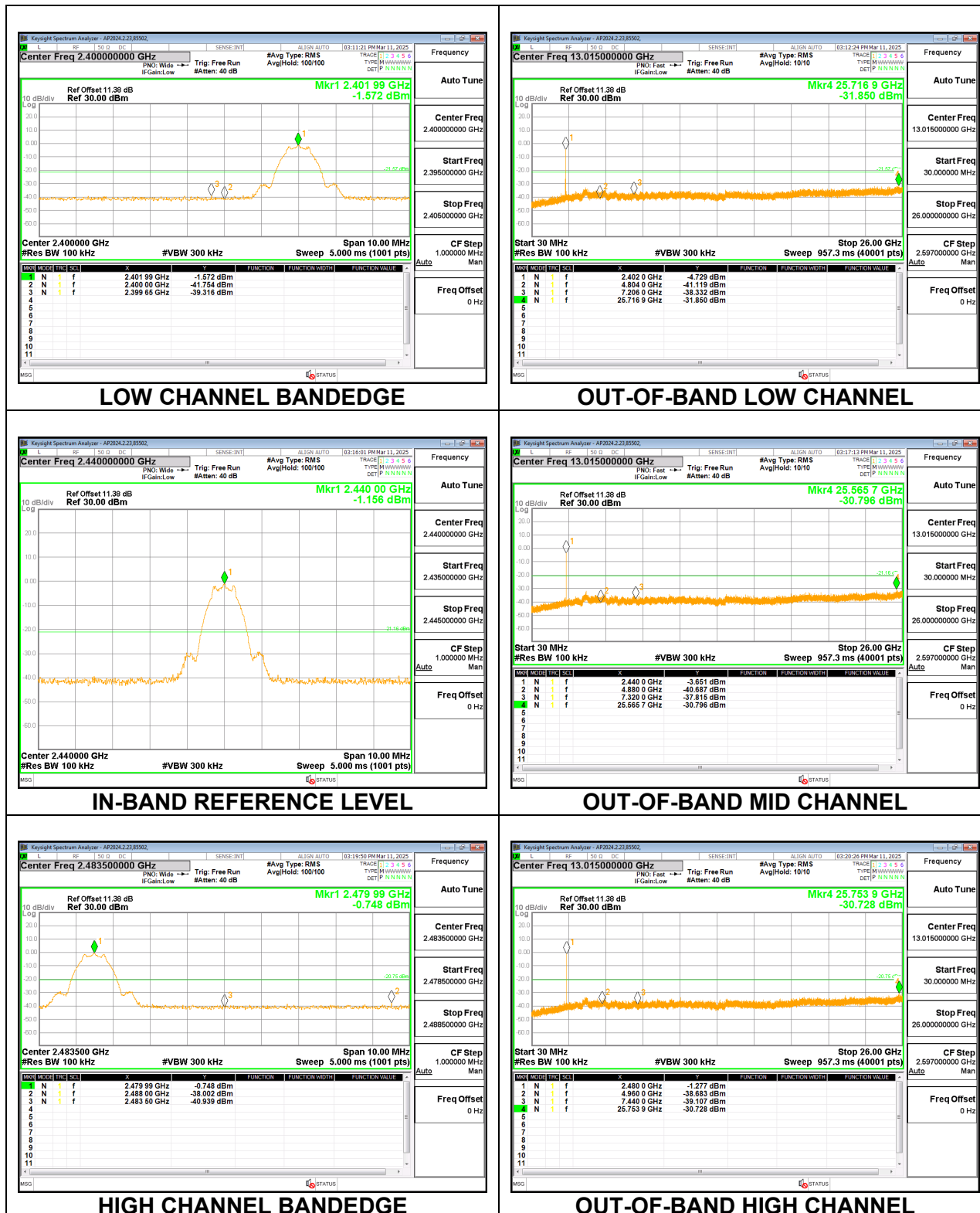
LIMITS

FCC §15.247 (d)
RSS-247 5.5

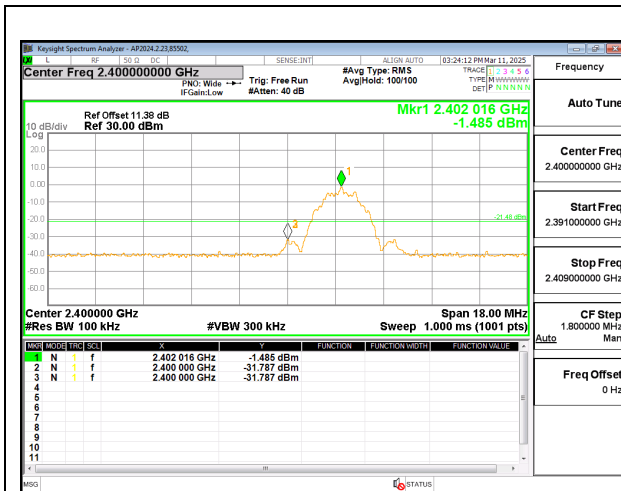
Output power was measured based on the use of peak measurements, so the required attenuation is -20 dBc.

RESULTS

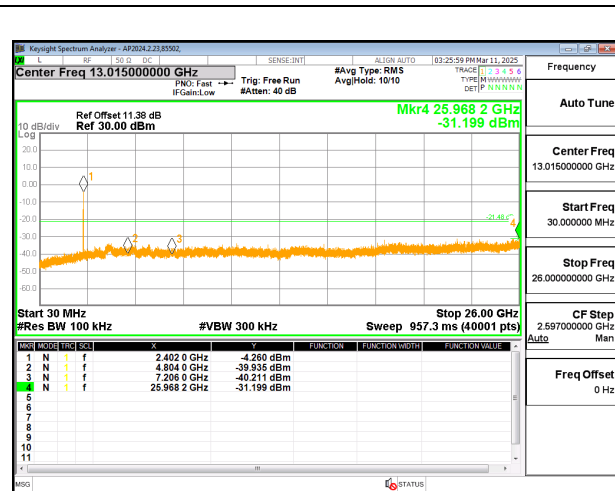
9.6.1. BLE (1Mbps)



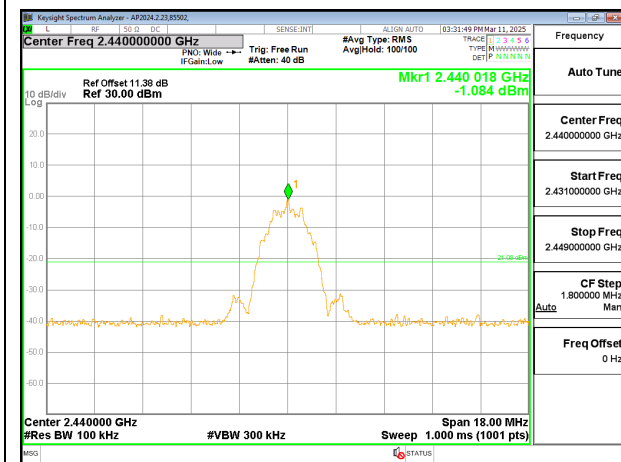
9.6.1. BLE (2Mbps)



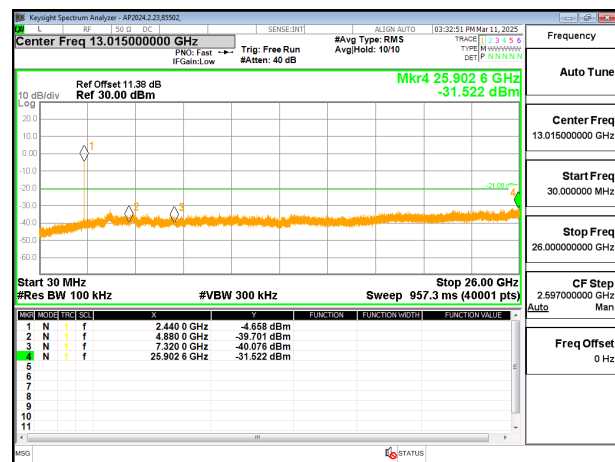
LOW CHANNEL BANDEDGE



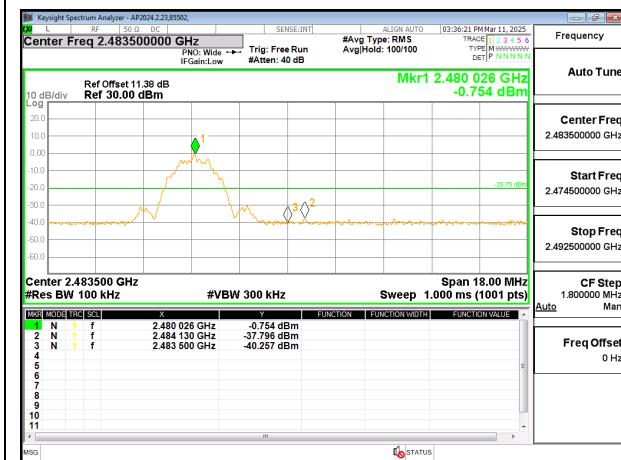
OUT-OF-BAND LOW CHANNEL



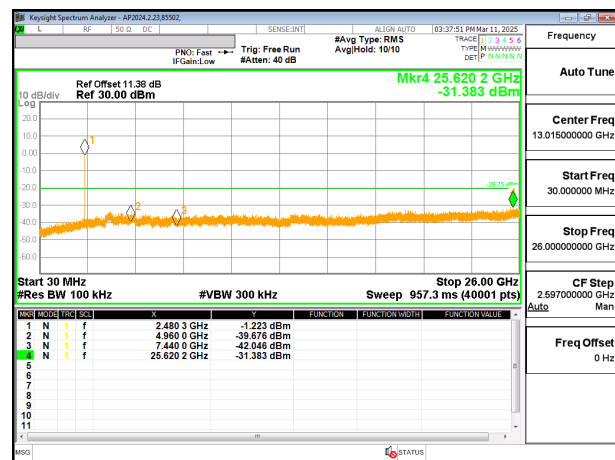
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

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 (kHz)	Field Strength Limit (uA/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3MHz for peak measurements. For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for 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 output power was tested.

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

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

Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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

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

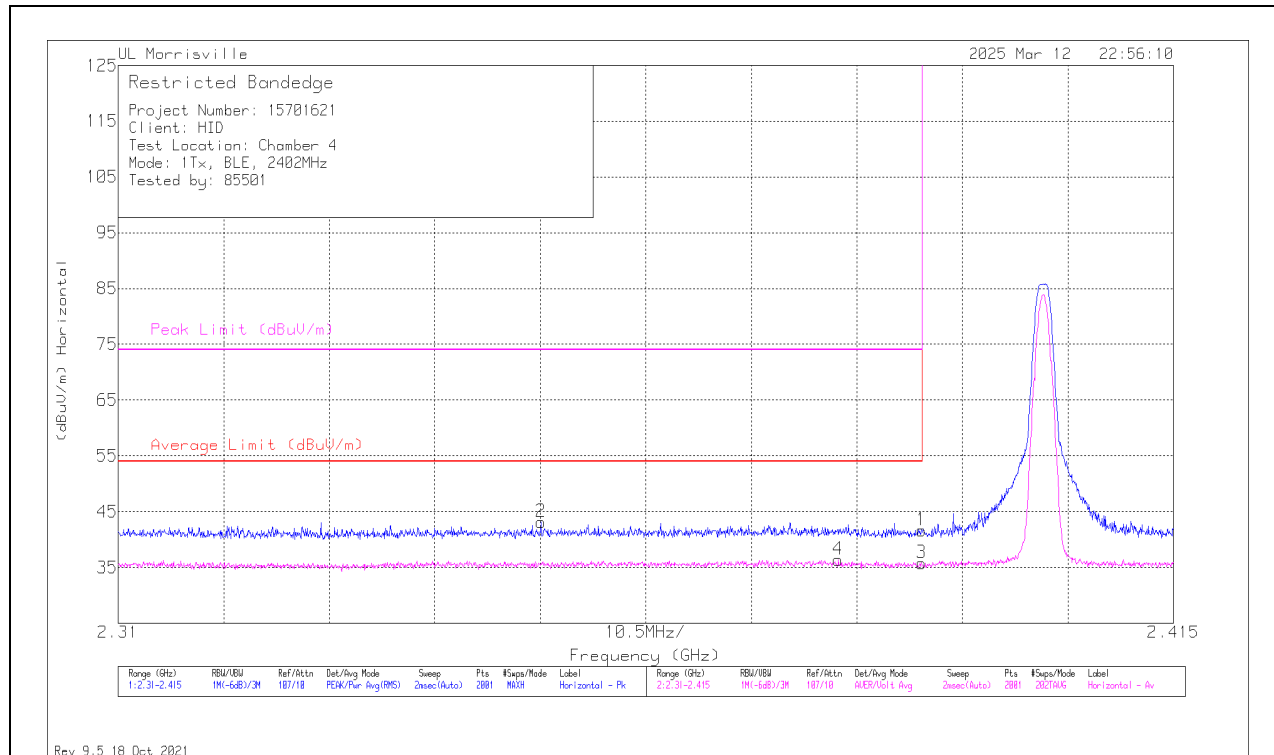
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BLE (1Mbps)

Antenna 1

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	32.86	Pk	32	-23.2	0	41.66	-	-	74	-32.34	59	188	H
2	* ** 2.35211	34.36	Pk	31.8	-23	0	43.16	-	-	74	-30.84	59	188	H
3	* ** 2.38996	20.79	ADV	32	-23.2	6.38	35.97	54	-18.03	-	-	59	188	H
4	* ** 2.38166	21.31	ADV	32	-23.1	6.38	36.59	54	-17.41	-	-	59	188	H

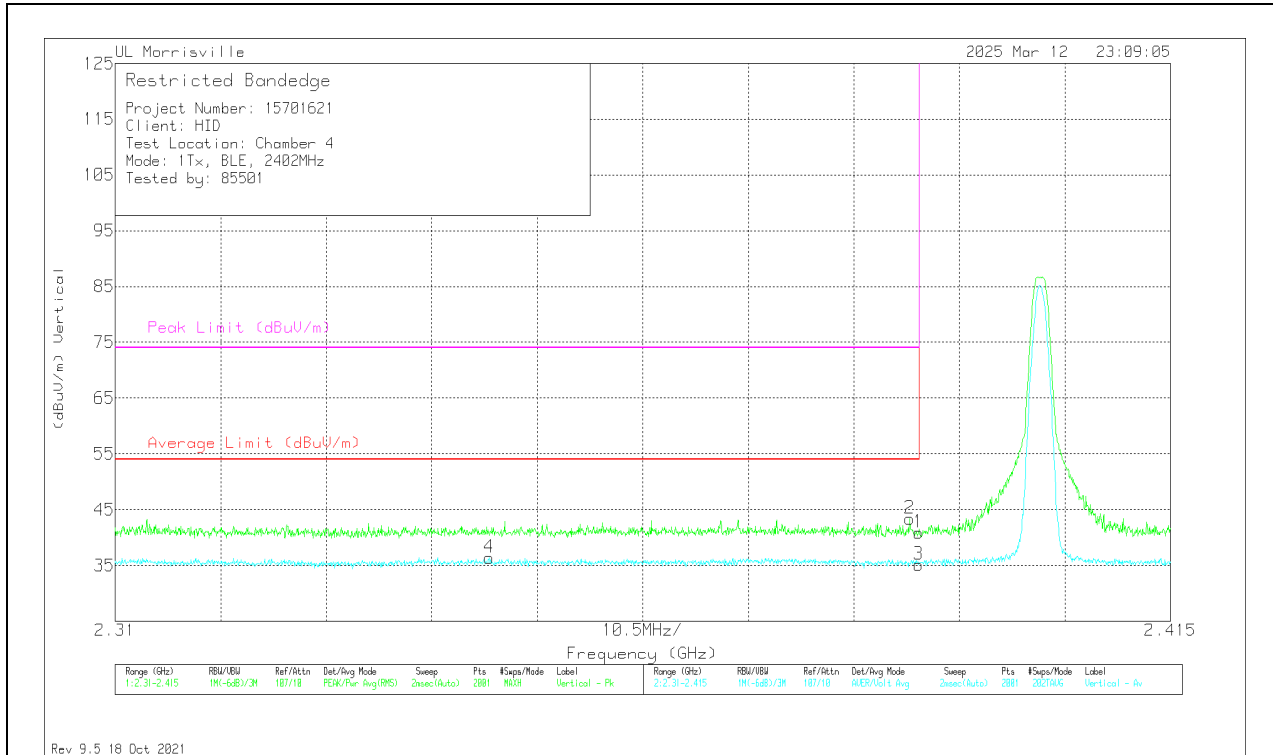
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	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	32.11	Pk	32	-23.2	0	40.91	-	-	74	-33.09	76	297	V
2	* ** 2.38907	34.63	Pk	32	-23.2	0	43.43	-	-	74	-30.57	76	297	V
3	* ** 2.38996	20.23	ADV	32	-23.2	6.38	35.41	54	-18.59	-	-	76	297	V
4	* ** 2.34722	21.34	ADV	31.8	-22.9	6.38	36.62	54	-17.38	-	-	76	297	V

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

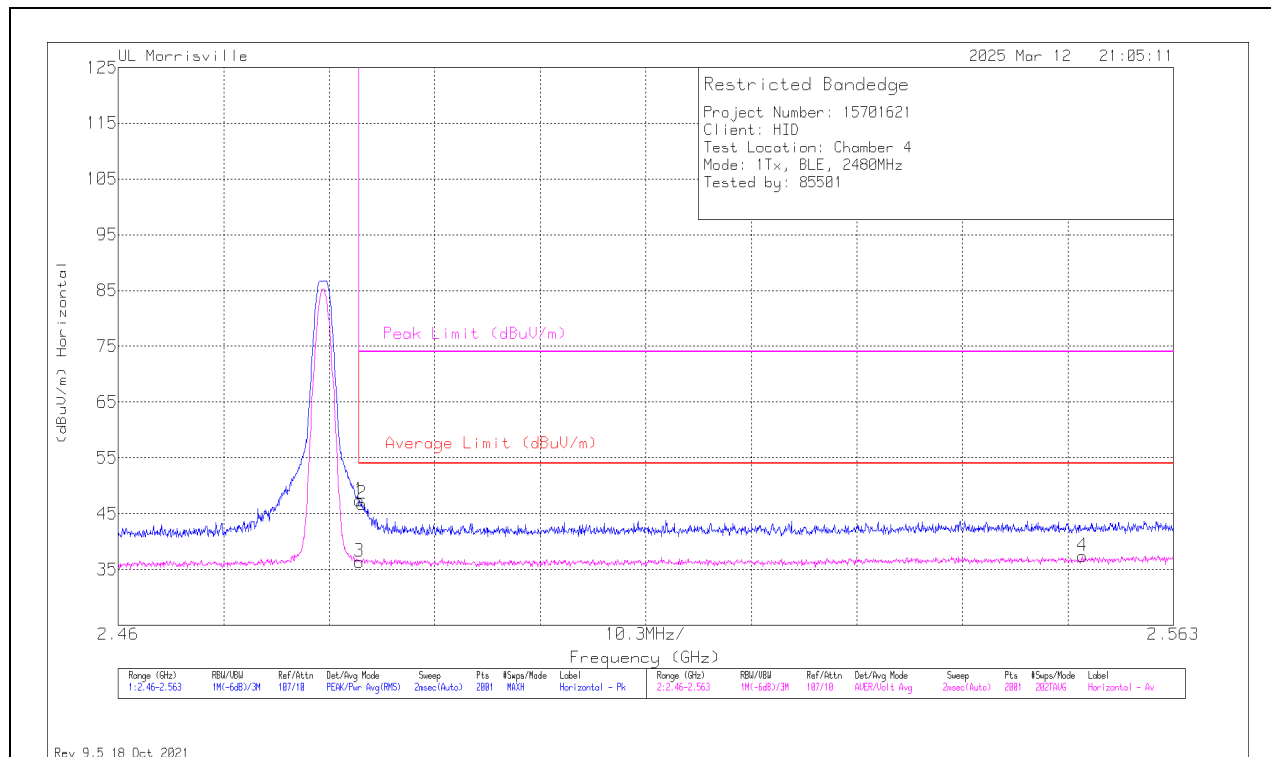
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL)

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	37.85	Pk	32.3	-22.8	0	47.35	-	-	74	-26.65	169	272	H
2	* ** 2.48379	37.24	Pk	32.3	-22.8	0	46.74	-	-	74	-27.26	169	272	H
3	* ** 2.48354	20.79	ADV	32.3	-22.8	6.38	36.67	54	-17.33	-	-	169	272	H
4	** 2.55414	21.46	ADV	32.4	-22.6	6.38	37.64	54	-16.36	-	-	169	272	H

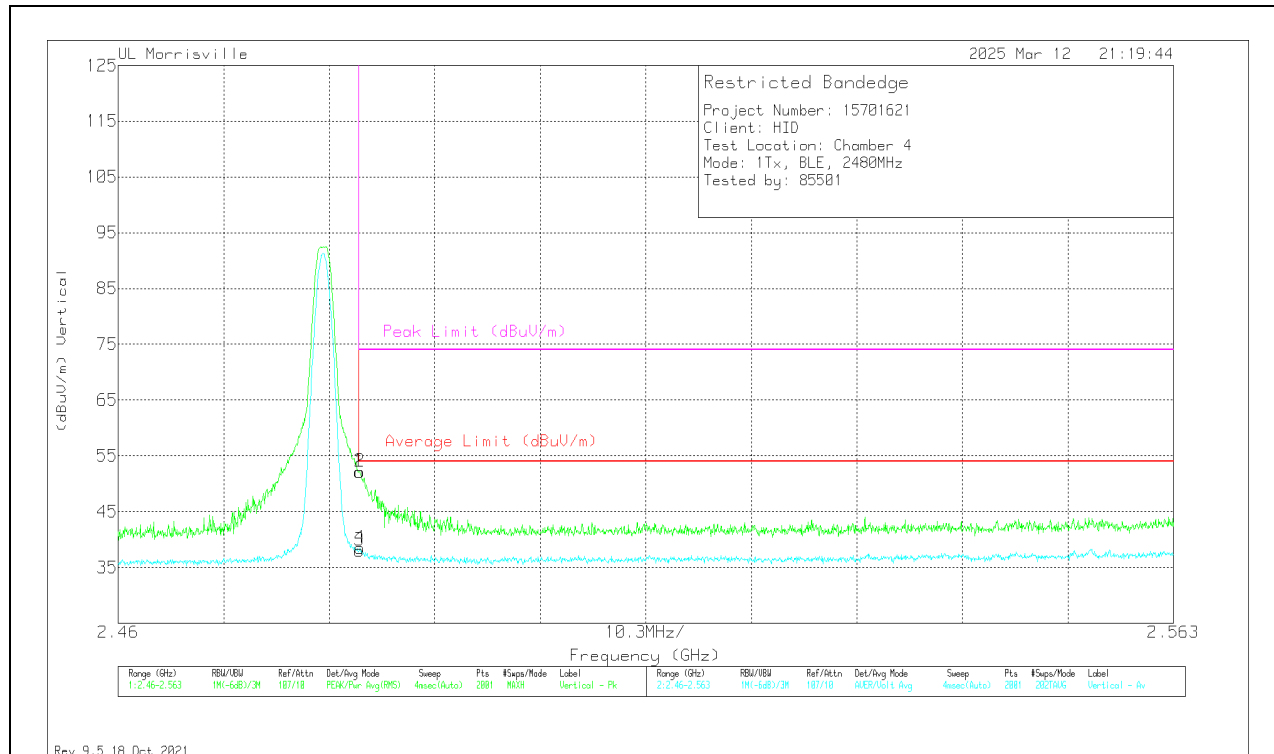
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	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	42.68	Pk	32.3	-22.8	0	52.18	-	-	74	-21.82	76	372	V
2	* ** 2.48359	42.69	Pk	32.3	-22.8	0	52.19	-	-	74	-21.81	76	372	V
3	* ** 2.48354	22.38	ADV	32.3	-22.8	6.38	38.26	54	-15.75	-	-	76	372	V
4	* ** 2.48359	22.83	ADV	32.3	-22.8	6.38	38.71	54	-15.29	-	-	76	372	V

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

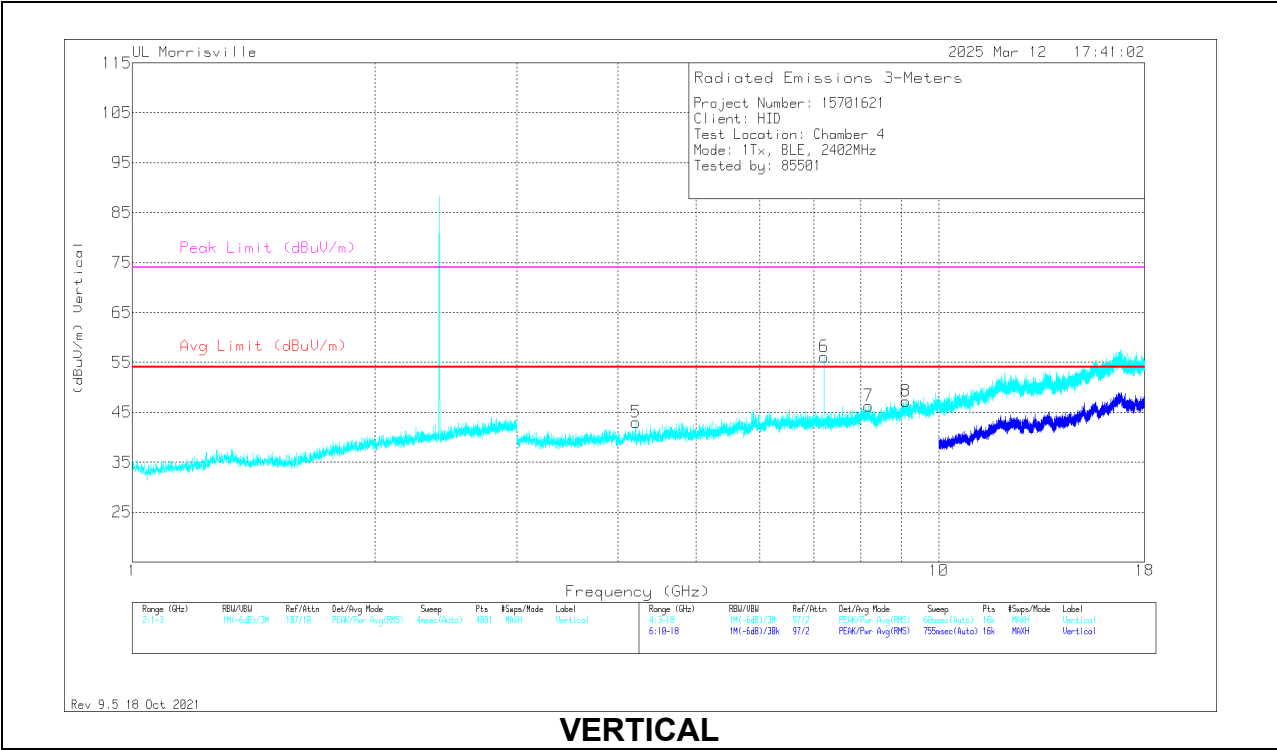
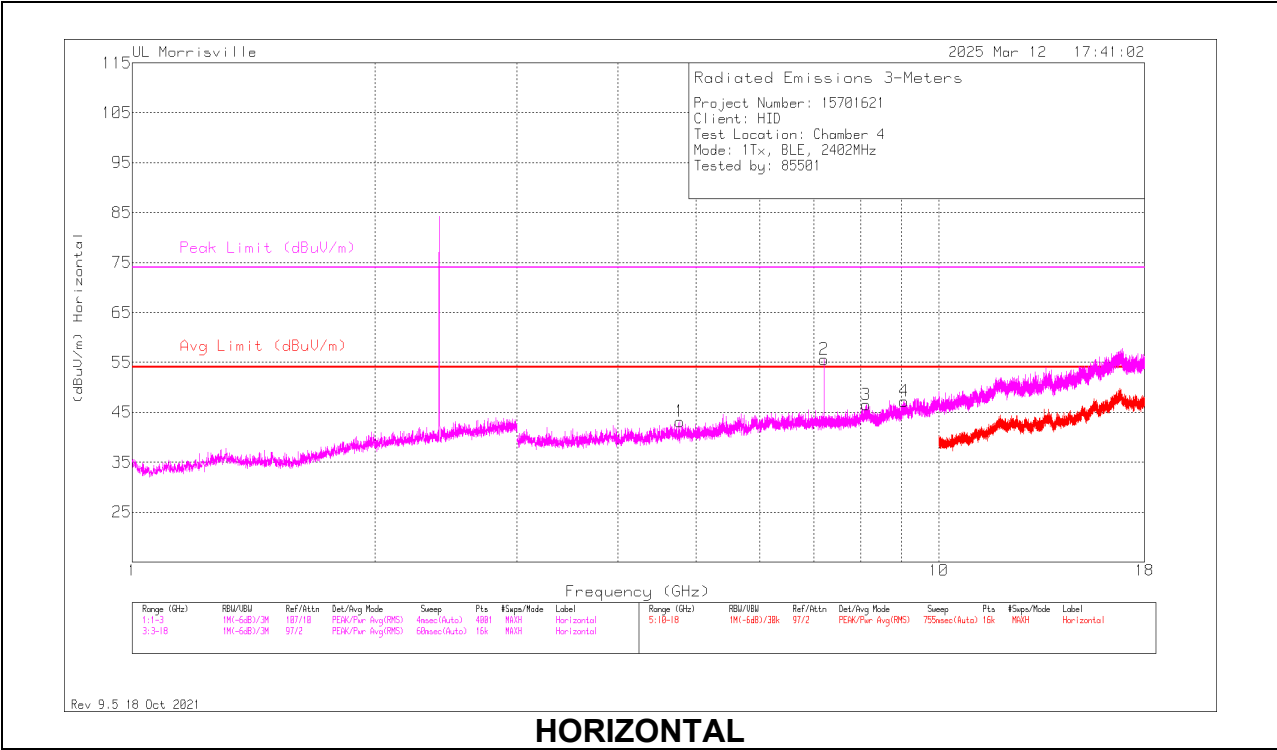
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

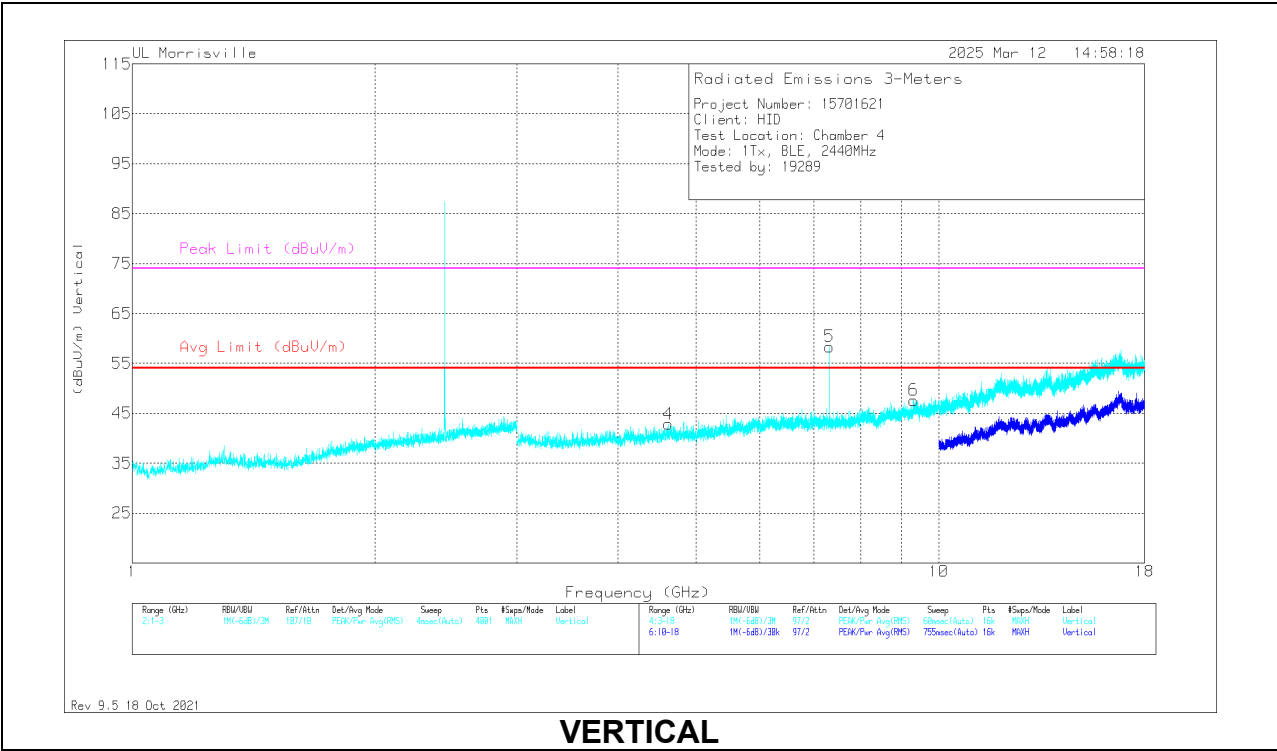
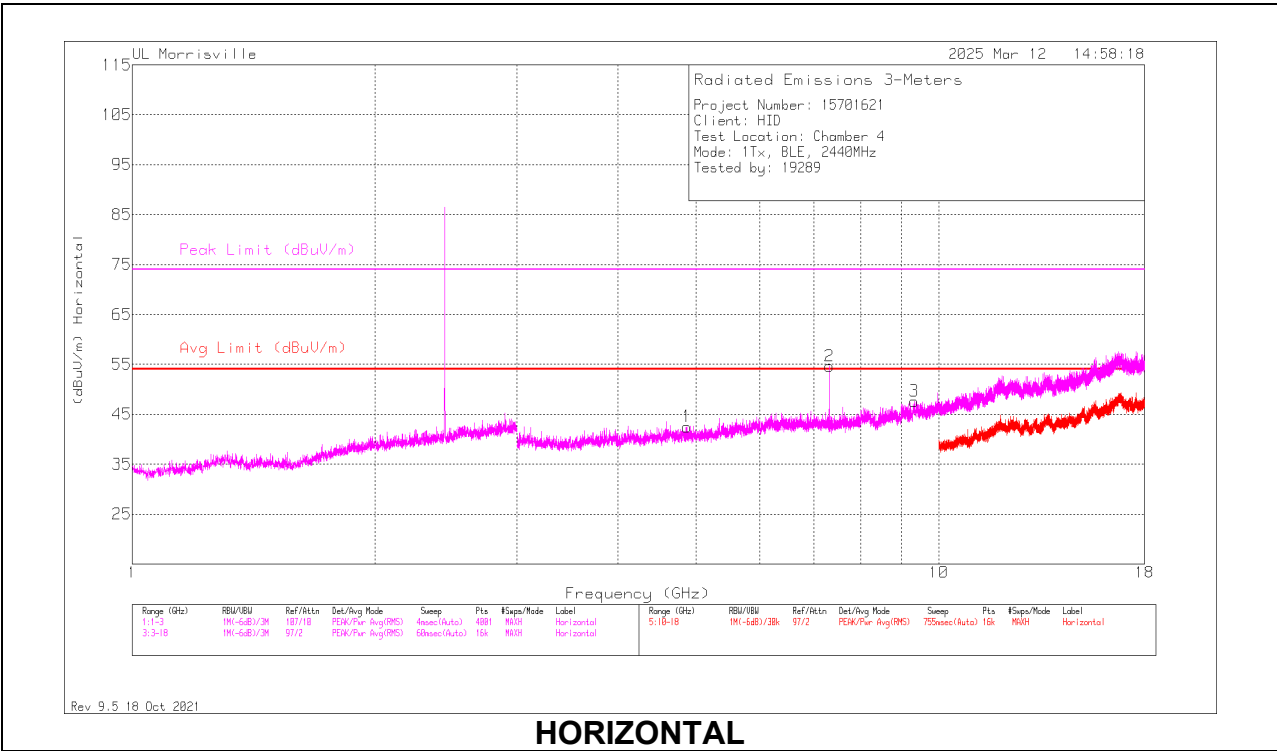
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.77563	40.2	Pk	34.1	-31.2	43.1	54	-10.9	74	-30.9	0-360	100	H
3	* ** 8.12344	37.48	Pk	35.8	-26.8	46.48	54	-7.52	74	-27.52	0-360	100	H
4	* ** 9.05625	35.18	Pk	36.2	-24.2	47.18	54	-6.82	74	-26.82	0-360	100	H
5	* ** 4.21406	40.71	Pk	33.4	-31.1	43.01	54	-10.99	74	-30.99	0-360	200	V
7	* ** 8.1825	36.72	Pk	35.8	-26.2	46.32	54	-7.68	74	-27.68	0-360	200	V
8	* ** 9.105	35.39	Pk	36.3	-24.5	47.19	54	-6.81	74	-26.81	0-360	200	V
2	7.20563	47.71	Pk	35.6	-27.7	55.61	-	-	-	-	0-360	100	H
6	7.20563	48.22	Pk	35.6	-27.7	56.12	-	-	-	-	0-360	200	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL RESULTS



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	* ** 4.87031	39.81	Pk	34.1	-31.4	0	42.51	54	-11.49	74	-31.49	0-360	100	H
2	* ** 7.32071	49.14	PK2	35.6	-27.7	0	57.04	-	-	74	-16.96	75	100	H
	* ** 7.31948	37.9	ADV	35.6	-27.7	6.38	52.18	54	-1.82	-	-	75	100	H
3	* ** 9.33281	35.18	Pk	36.5	-24.1	0	47.58	54	-6.42	74	-26.42	0-360	100	H
4	* ** 4.62094	40.11	Pk	34.1	-31.4	0	42.81	54	-11.19	74	-31.19	0-360	200	V
5	* ** 7.31919	50.86	PK2	35.6	-27.7	0	58.76	-	-	74	-15.24	14	206	V
	* ** 7.31935	39.18	ADV	35.6	-27.7	6.38	53.46	54	-5.4	-	-	14	206	V
6	* ** 9.31406	35.83	Pk	36.4	-24.6	0	47.63	54	-6.37	74	-26.37	0-360	200	V

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

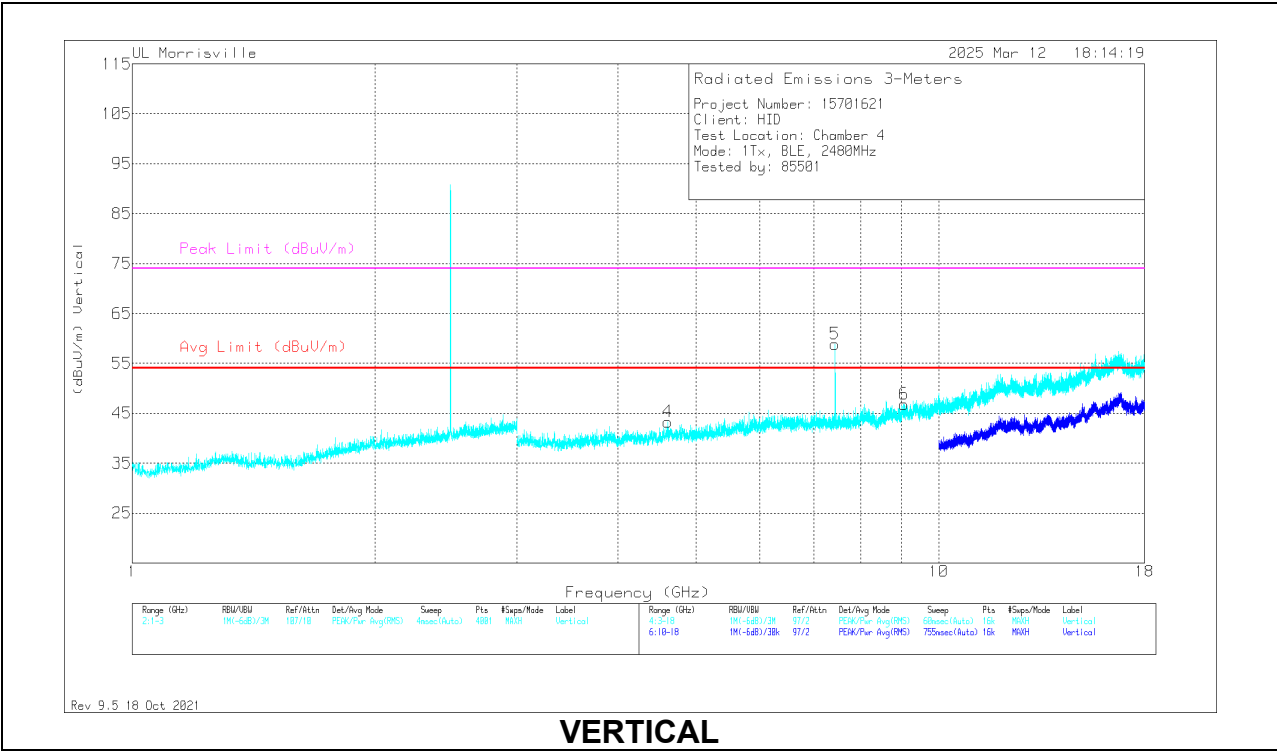
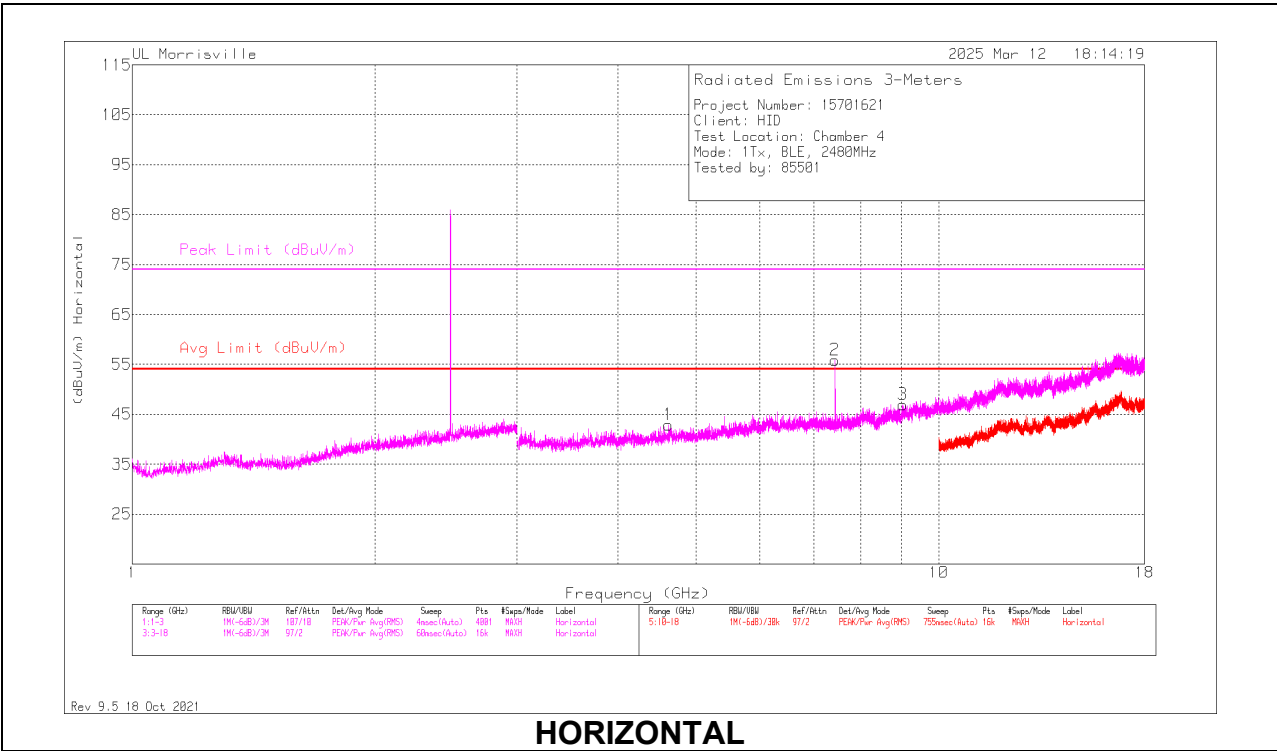
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL RESULTS



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)	Polarit y
1	* ** 4.61906	40.29	Pk	34.1	-31.5	0	42.89	54	-11.11	74	-31.11	0-360	100	H
2	* ** 7.43922	50.17	PK2	35.7	-27.9	0	57.97	-	-	74	-16.03	49	116	H
	* ** 7.43944	38.38	ADV	35.7	-27.9	6.38	52.56	54	-1.44	-	-	49	116	H
3	* ** 9.03375	35.15	Pk	36.2	-24.4	0	46.95	54	-7.05	74	-27.05	0-360	100	H
4	* ** 4.61344	40.73	Pk	34.1	-31.6	0	43.23	54	-10.77	74	-30.77	0-360	200	V
5	* ** 7.43926	49.93	PK2	35.7	-27.9	0	57.73	-	-	74	-16.27	235	195	V
	* ** 7.43933	38.01	ADV	35.7	-27.9	6.38	52.19	54	-1.81	-	-	235	195	V
6	* ** 9.05906	34.93	Pk	36.2	-24.3	0	46.83	54	-7.17	74	-27.17	0-360	200	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

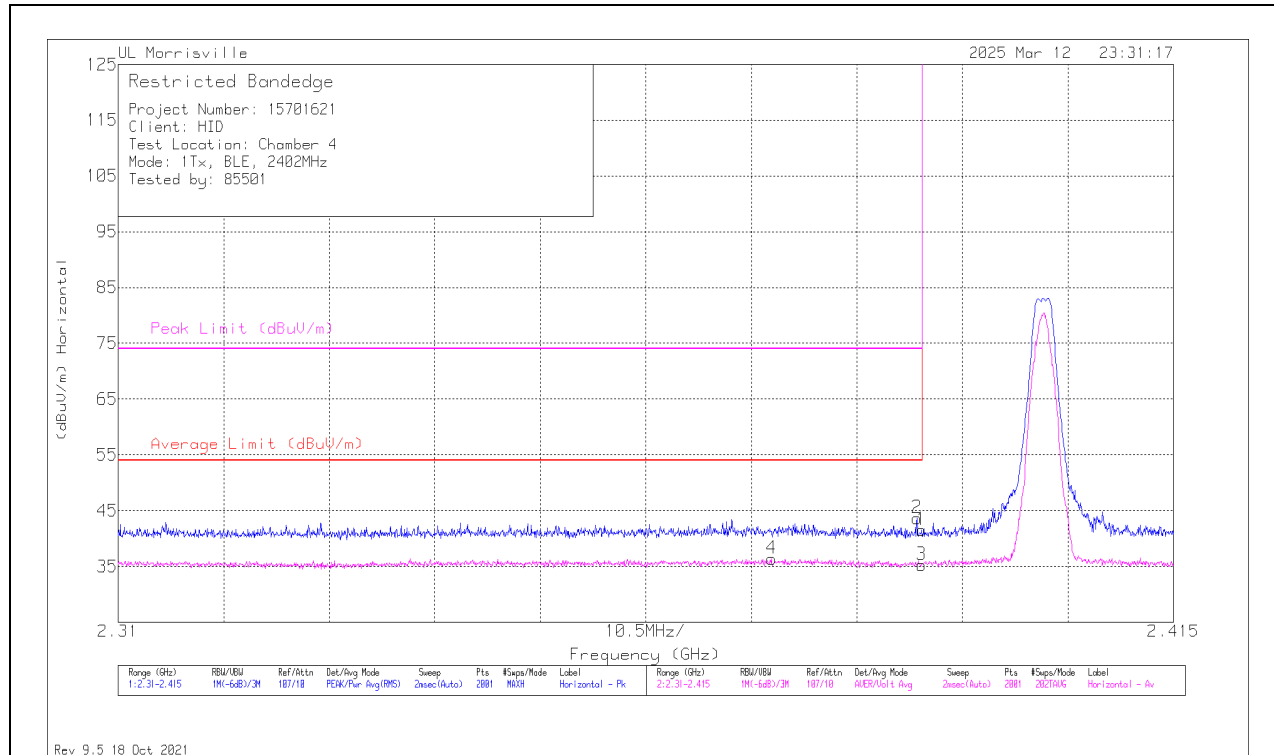
ADV - Linear Voltage Average

10.1.2. BLE (2Mbps)

Antenna 1

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	32.7	Pk	32	-23.2	0	41.5	-	-	74	-32.5	142	267	H
2	* ** 2.38949	34.87	Pk	32	-23.2	0	43.67	-	-	74	-30.33	142	267	H
3	* ** 2.38996	20.36	ADV	32	-23.2	6.13	35.29	54	-18.71	-	-	142	267	H
4	* ** 2.375	21.25	ADV	31.9	-22.9	6.13	36.38	54	-17.62	-	-	142	267	H

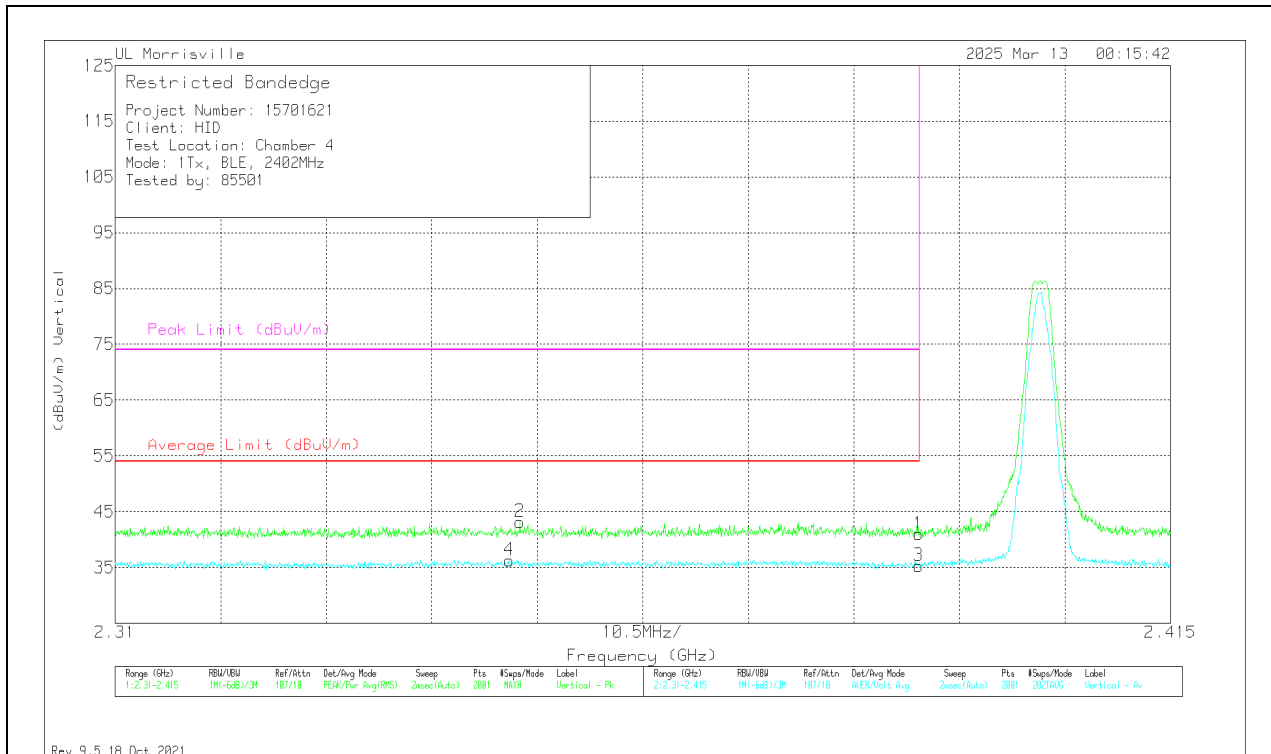
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	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	32.16	Pk	32	-23.2	0	40.96	-	-	74	-33.04	51	391	V
2	* ** 2.35027	34.31	Pk	31.8	-23	0	43.11	-	-	74	-30.89	51	391	V
3	* ** 2.38996	20.32	ADV	32	-23.2	6.13	35.25	54	-18.75	-	-	51	391	V
4	* ** 2.34922	21.35	ADV	31.8	-23	6.13	36.28	54	-17.72	-	-	51	391	V

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

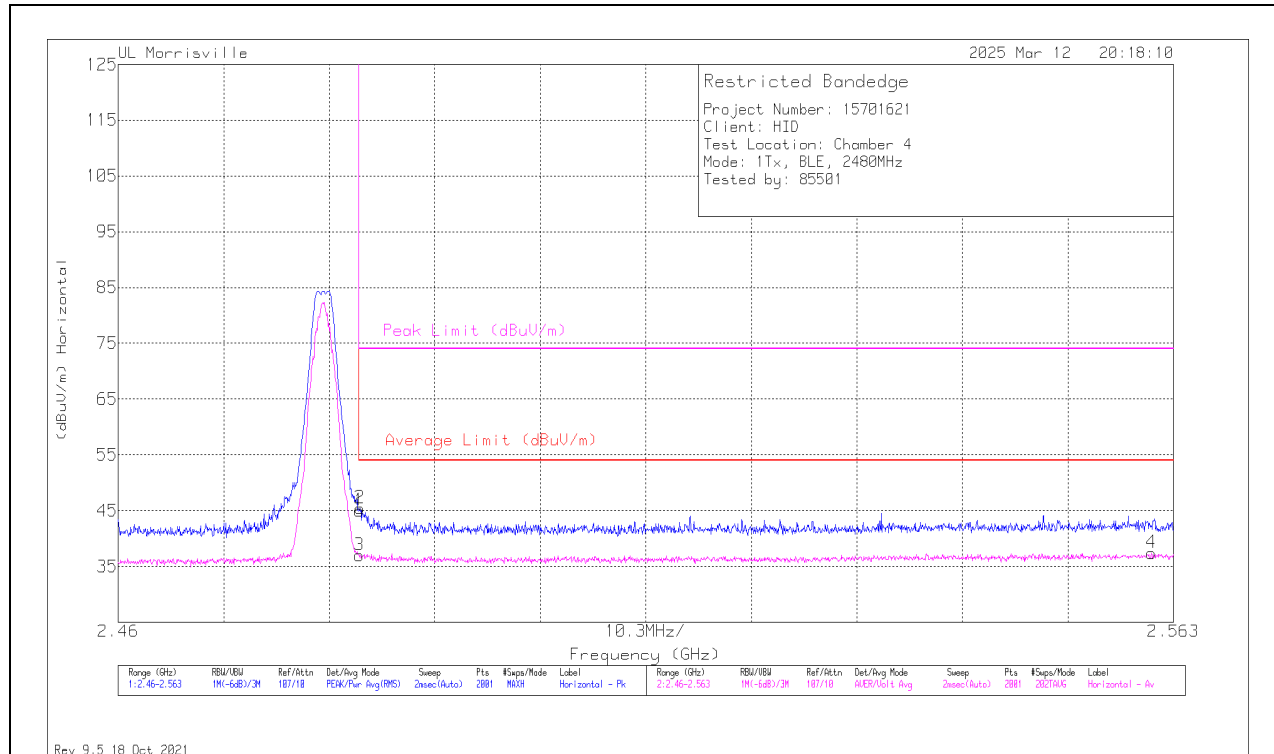
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL)

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	35.46	Pk	32.3	-22.8	0	44.96	-	-	74	-29.04	353	161	H
2	* ** 2.48359	35.95	Pk	32.3	-22.8	0	45.45	-	-	74	-28.55	353	161	H
3	* ** 2.48354	21.32	ADV	32.3	-22.8	6.13	36.95	54	-17.05	-	-	353	161	H
4	** 2.56084	21.27	ADV	32.5	-22.5	6.13	37.4	54	-16.6	-	-	353	161	H

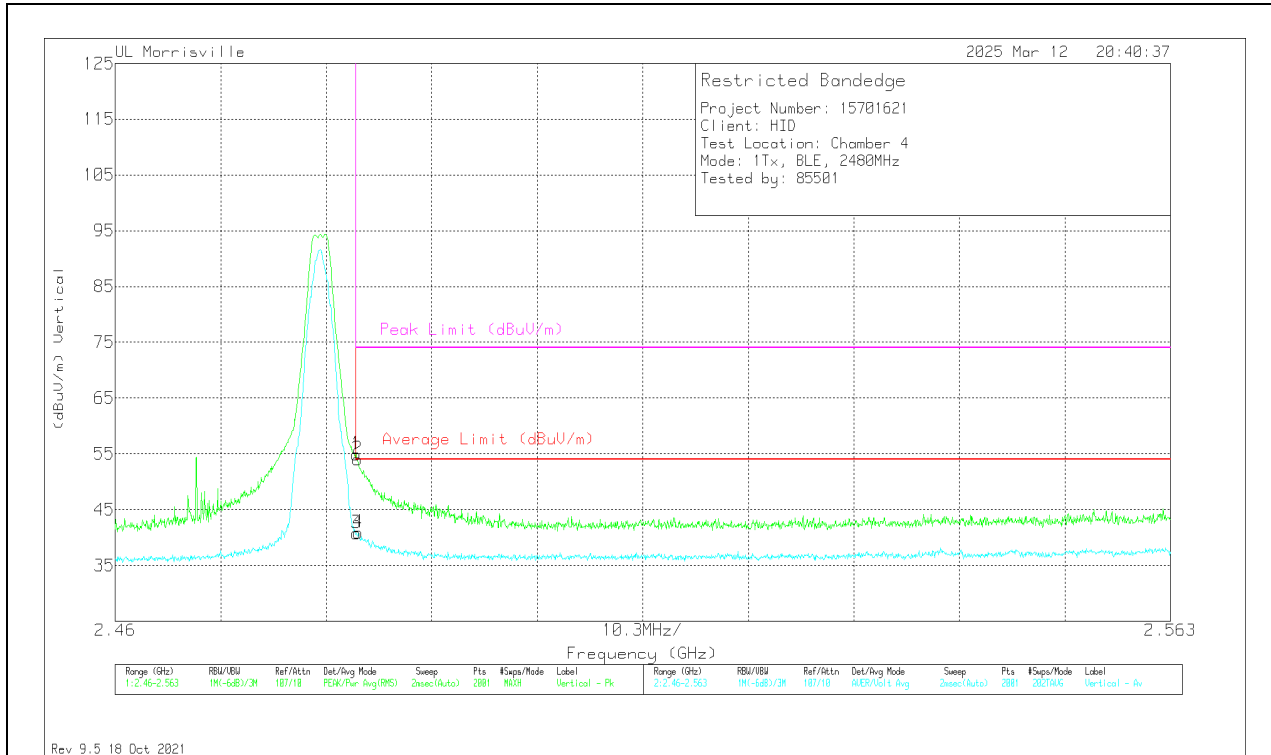
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	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	45.37	Pk	32.3	-22.8	0	54.87	-	-	74	-19.13	107	363	V
2	* ** 2.48364	44.5	Pk	32.3	-22.8	0	54	-	-	74	-20	107	363	V
3	* ** 2.48354	25.18	ADV	32.3	-22.8	6.13	40.81	54	-13.19	-	-	107	363	V
4	* ** 2.48374	25.21	ADV	32.3	-22.8	6.13	40.84	54	-13.16	-	-	107	363	V

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

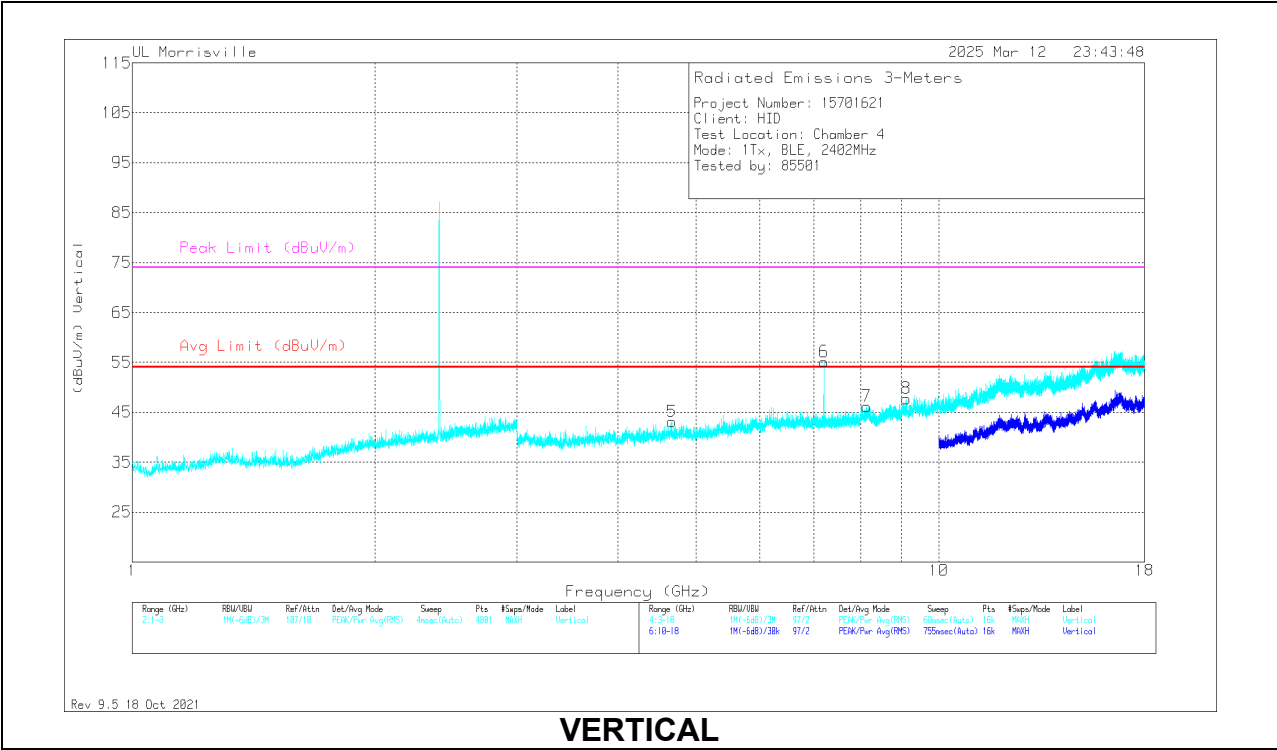
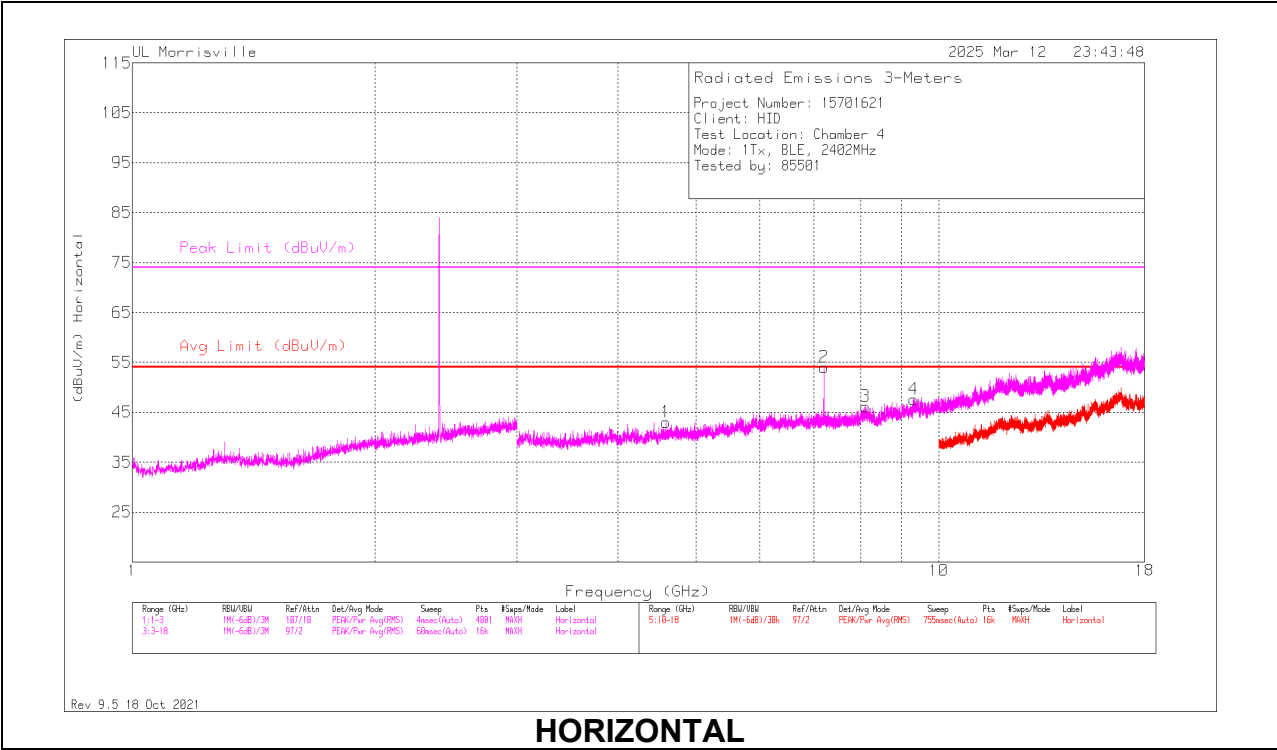
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

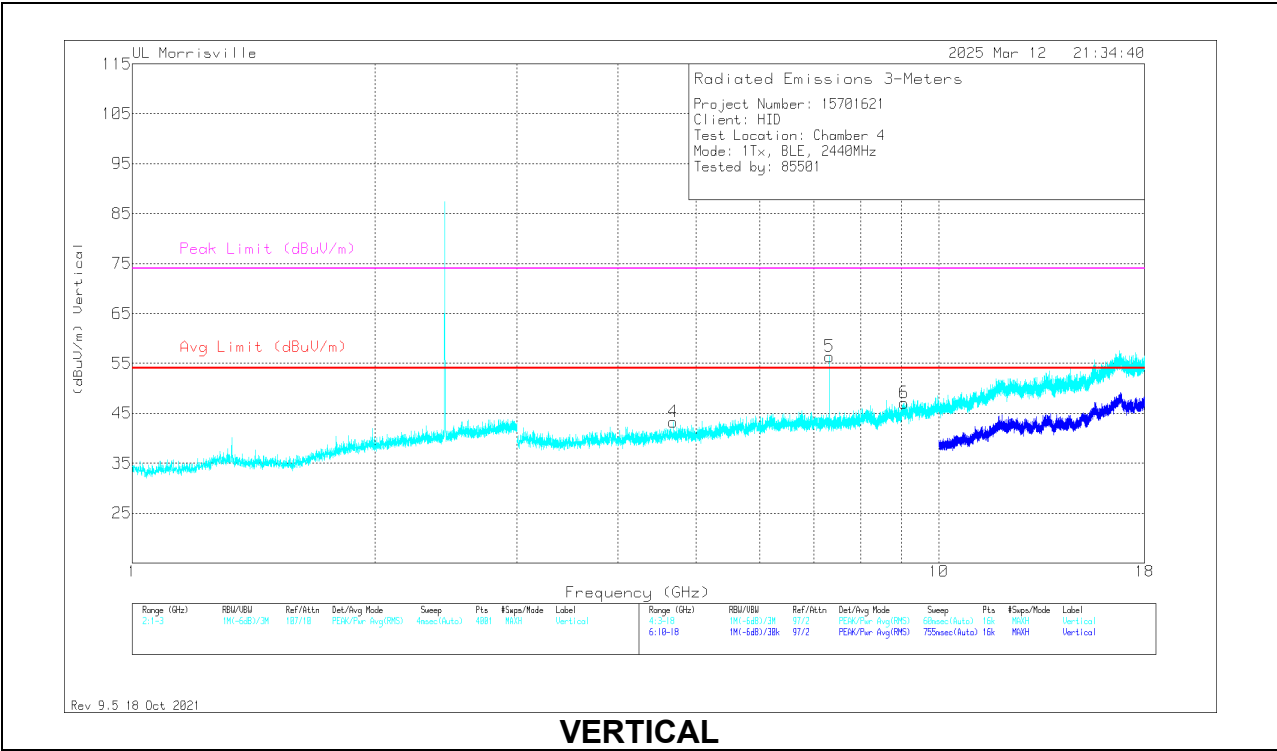
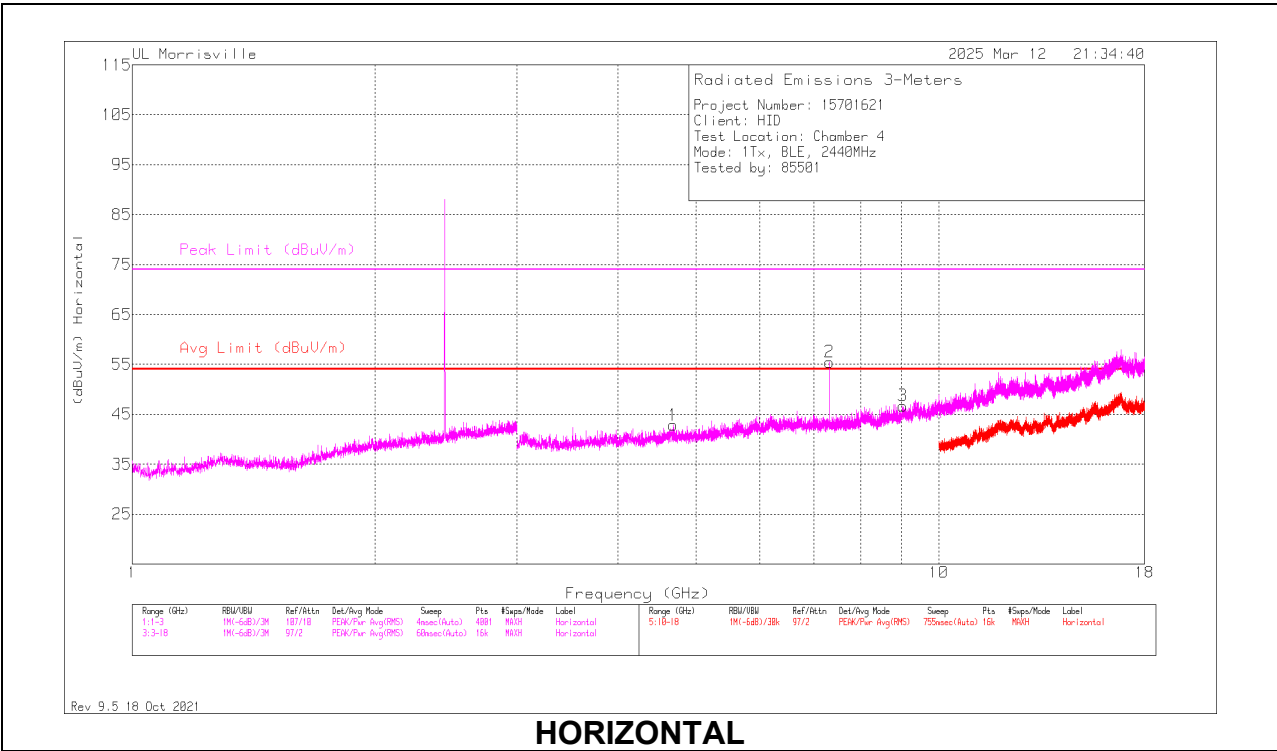
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.59	40.27	Pk	34.1	-31.4	42.97	54	-11.03	74	-31.03	0-360	100	H
3	* ** 8.11969	37.02	Pk	35.8	-26.7	46.12	54	-7.88	74	-27.88	0-360	100	H
4	* ** 9.31125	35.89	Pk	36.4	-24.7	47.59	54	-6.41	74	-26.41	0-360	100	H
5	*** 4.66594	40.08	Pk	34.1	-31.1	43.08	54	-10.92	74	-30.92	0-360	200	V
7	* ** 8.14031	37.36	Pk	35.8	-27	46.16	54	-7.84	74	-27.84	0-360	200	V
8	* ** 9.12563	36.11	Pk	36.3	-24.7	47.71	54	-6.29	74	-26.29	0-360	200	V
6	7.20469	47.21	Pk	35.6	-27.7	55.11	-	-	-	-	0-360	200	V
2	7.2075	46.18	Pk	35.6	-27.8	53.98	-	-	-	-	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

MID CHANNEL RESULTS



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)	Polarit y
1	* ** 4.68844	39.61	Pk	34.1	-30.9	0	42.81	54	-11.19	74	-31.19	0-360	100	H
2	* ** 7.31992	49.91	PK2	35.6	-27.7	0	57.81	-	-	74	-16.19	51	107	H
	* ** 7.32121	37.84	ADV	35.6	-27.7	6.13	51.87	54	-2.13	-	-	51	107	H
3	* ** 9.01969	34.68	Pk	36.2	-24.2	0	46.68	54	-7.32	74	-27.32	0-360	100	H
4	* ** 4.68375	40.07	Pk	34.1	-30.9	0	43.27	54	-10.73	74	-30.73	0-360	200	V
5	* ** 7.31987	50.24	PK2	35.6	-27.7	0	58.14	-	-	74	-15.86	237	197	V
	* ** 7.3212	37.18	ADV	35.6	-27.7	6.13	51.21	54	-2.79	-	-	237	197	V
6	* ** 9.05625	35.1	Pk	36.2	-24.2	0	47.1	54	-6.9	74	-26.9	0-360	200	V

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

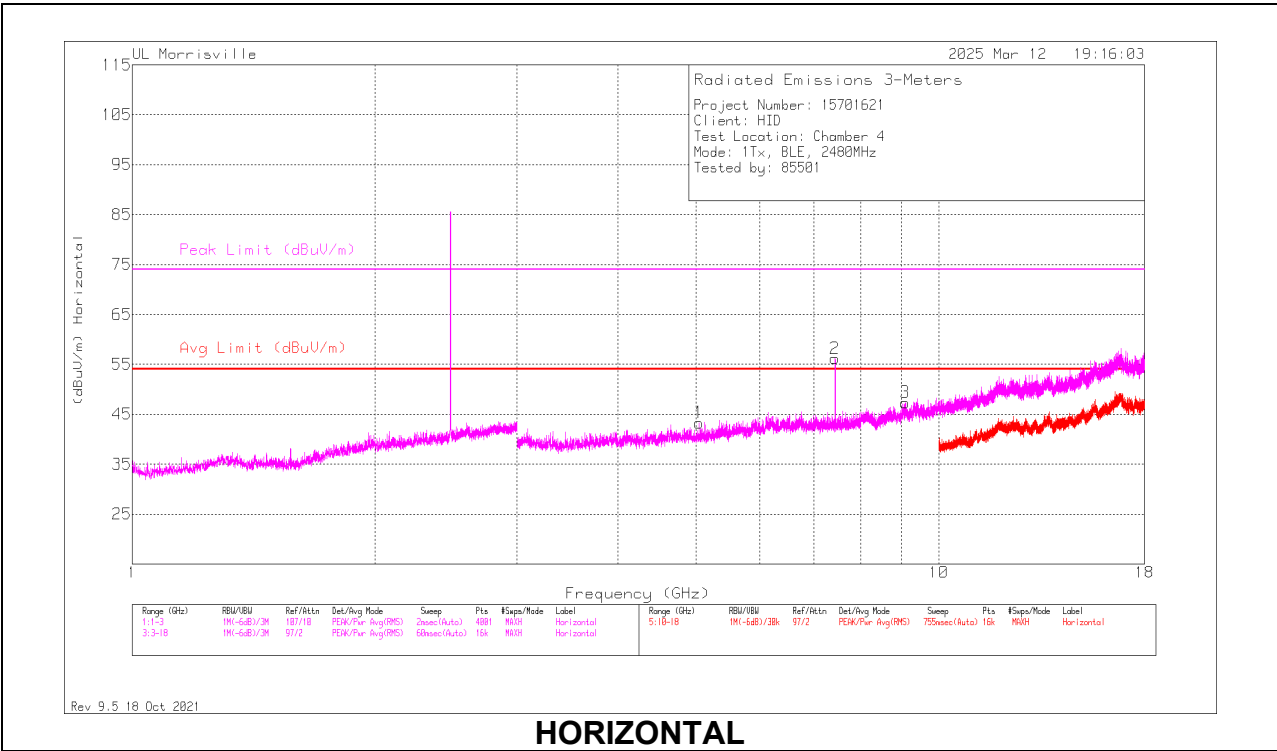
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

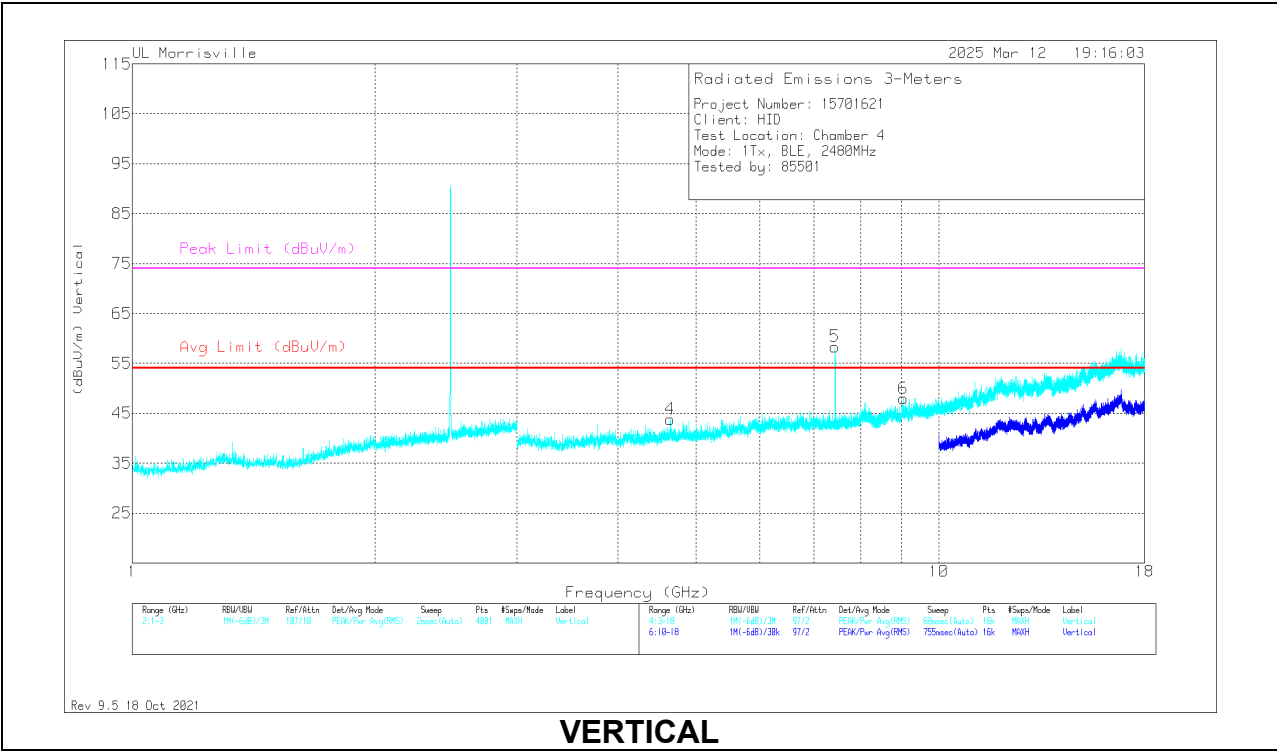
PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

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	* ** 5.0475	40.71	Pk	34.1	-31.5	0	43.31	54	-10.69	74	-30.69	0-360	100	H
2	* ** 7.43989	50.4	PK2	35.7	-27.9	0	58.2	-	-	74	-15.8	54	116	H
	* ** 7.44122	37.92	ADV	35.7	-27.9	6.13	51.85	54	-2.15	-	-	54	116	H
3	* ** 9.08531	35.71	Pk	36.3	-24.7	0	47.31	54	-6.69	74	-26.69	0-360	100	H
4	* ** 4.64906	40.44	Pk	34.1	-30.7	0	43.84	54	-10.16	74	-30.16	0-360	200	V
5	* ** 7.43845	49.79	PK2	35.7	-27.9	0	57.59	-	-	74	-16.41	236	195	V
	* ** 7.43886	36.32	ADV	35.7	-27.9	6.13	50.25	54	-3.75	-	-	236	195	V
6	* ** 9.04031	35.82	Pk	36.2	-24.1	0	47.92	54	-6.08	74	-26.08	0-360	200	V

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

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

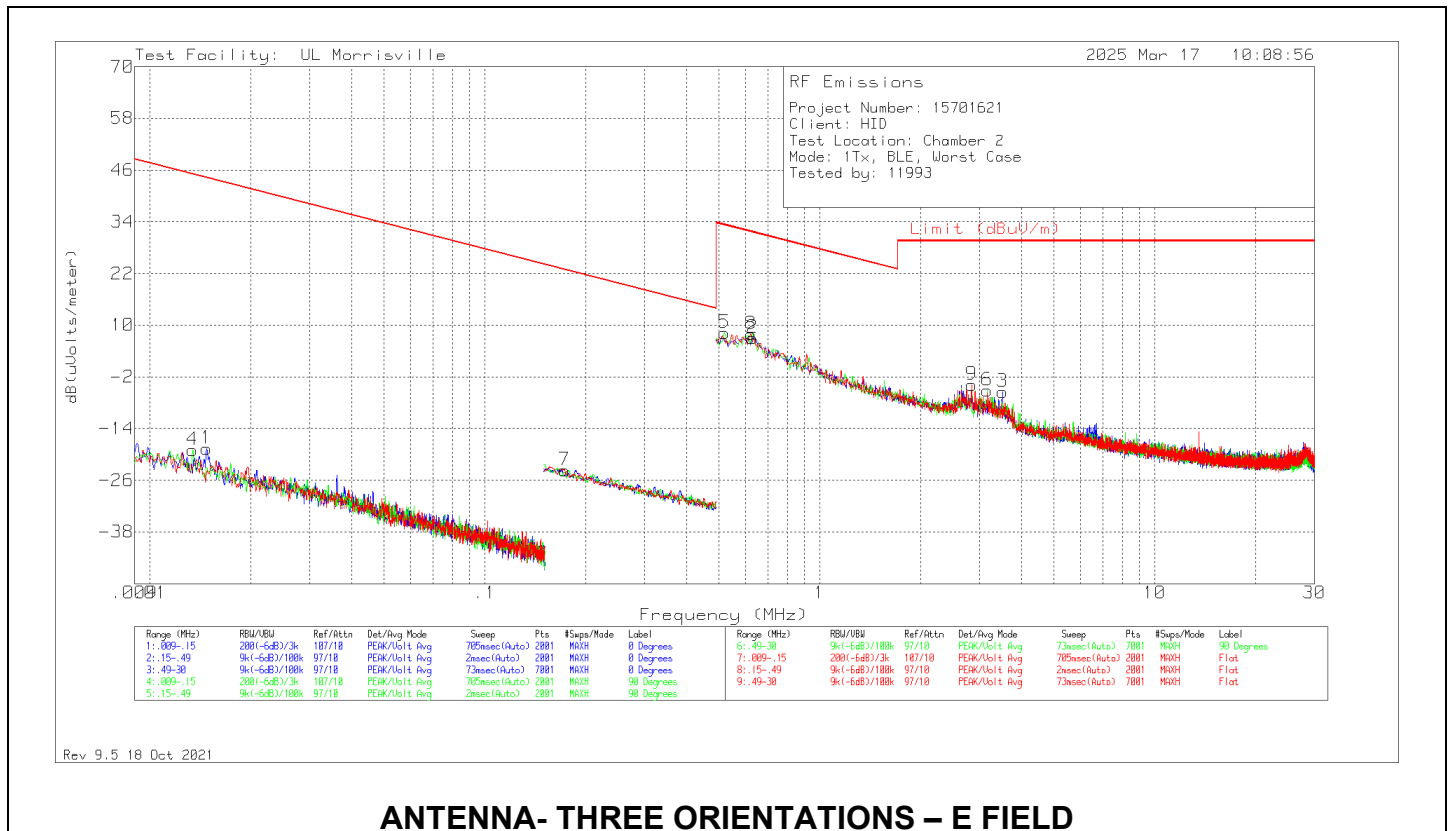
PK2 - Maximum Peak

ADV - Linear Voltage Average

10.2. 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 $40 \cdot \log(\text{test distance} / \text{specification distance})$.

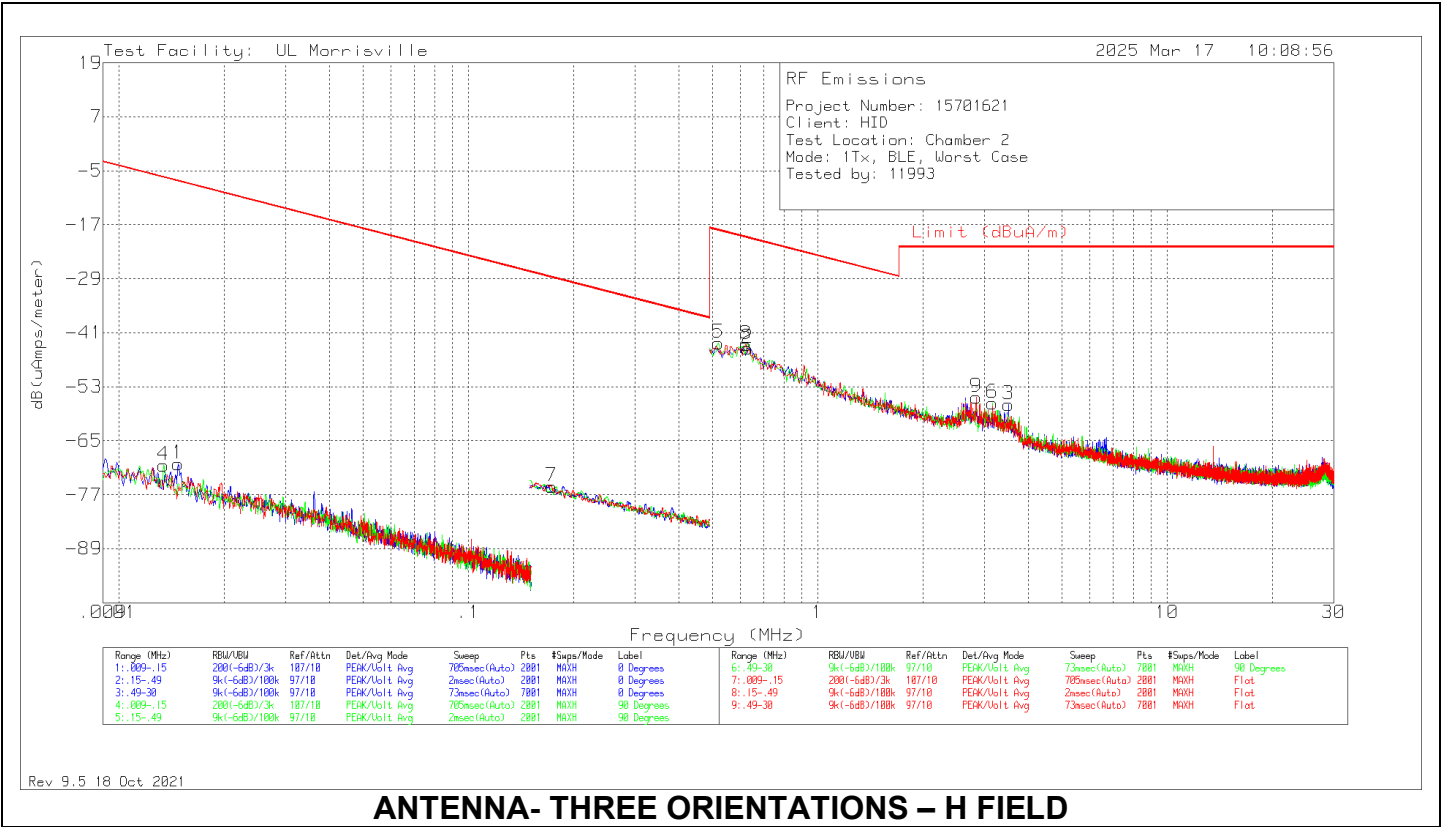


ANTENNA- THREE ORIENTATIONS – E FIELD

Below 30MHz Data

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
4	.0134	44.21	Pk	16.7	.1	-80	-18.99	45.06	65.06	-64.05	0-360	90 degs
1	.01475	45.02	Pk	16.2	.1	-80	-18.68	44.23	64.23	-62.91	0-360	0 degs
7	.17312	45.22	Pk	11	.1	-80	-23.68	22.84	42.84	-46.52	0-360	Flat
5	.51951	37.15	Pk	11	.1	-40	8.25	33.29	-	-25.04	0-360	90 degs
8	.62491	36.84	Pk	11	.1	-40	7.94	31.69	-	-23.75	0-360	Flat
2	.62913	35.98	Pk	11	.1	-40	7.08	31.63	-	-24.55	0-360	0 degs
9	2.84253	24.82	Pk	11.1	.2	-40	-3.88	29.54	-	-33.42	0-360	Flat
6	3.16294	23.47	Pk	11.1	.3	-40	-5.13	29.54	-	-34.67	0-360	90 degs
3	3.51287	23.27	Pk	11	.3	-40	-5.43	29.54	-	-34.97	0-360	0 degs

Pk - Peak detector



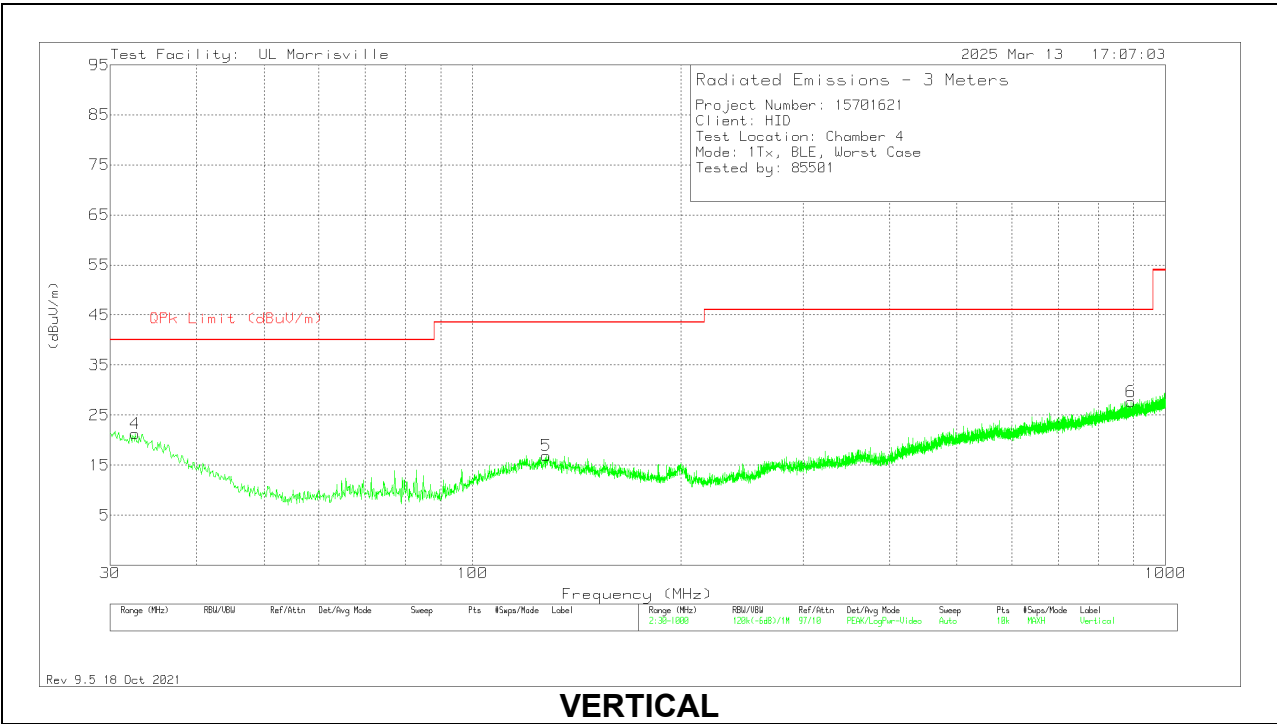
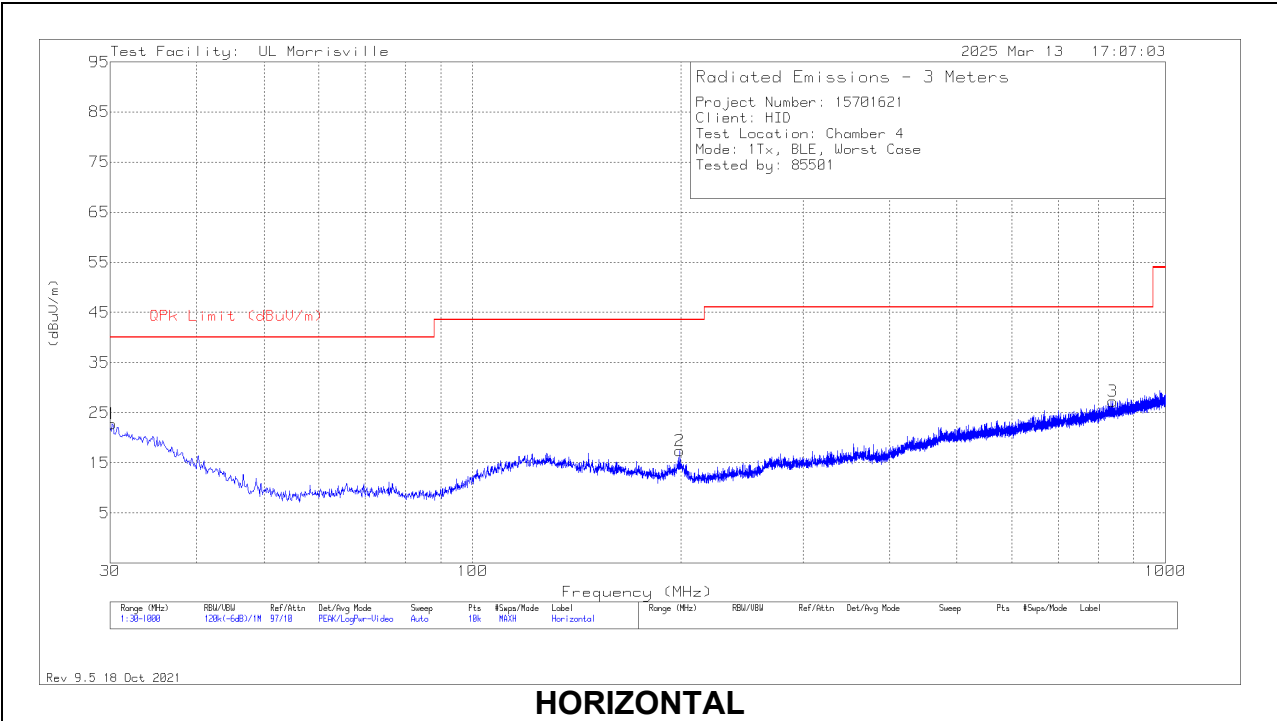
ANTENNA- THREE ORIENTATIONS – H FIELD

Below 30MHz Data H-FIELD

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
4	.0134	44.21	Pk	-34.8	.1	-80	-70.49	-6.44	13.56	-64.05	0-360	90 degs
1	.01475	45.02	Pk	-35.3	.1	-80	-70.18	-7.27	12.73	-62.91	0-360	0 degs
7	.17312	45.22	Pk	-40.5	.1	-80	-75.18	-28.66	-8.66	-46.52	0-360	Flat
5	.51951	37.15	Pk	-40.5	.1	-40	-43.25	-18.21	-	-25.04	0-360	90 degs
8	.62491	36.84	Pk	-40.5	.1	-40	-43.56	-19.81	-	-23.75	0-360	Flat
2	.62913	35.98	Pk	-40.5	.1	-40	-44.42	-19.87	-	-24.55	0-360	0 degs
9	2.84253	24.82	Pk	-40.4	.2	-40	-55.38	-21.96	-	-33.42	0-360	Flat
6	3.16294	23.47	Pk	-40.4	.3	-40	-56.63	-21.96	-	-34.67	0-360	90 degs
3	3.51287	23.27	Pk	-40.5	.3	-40	-56.93	-21.96	-	-34.97	0-360	0 degs

10.3. WORST CASE BELOW 1 GHZ

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

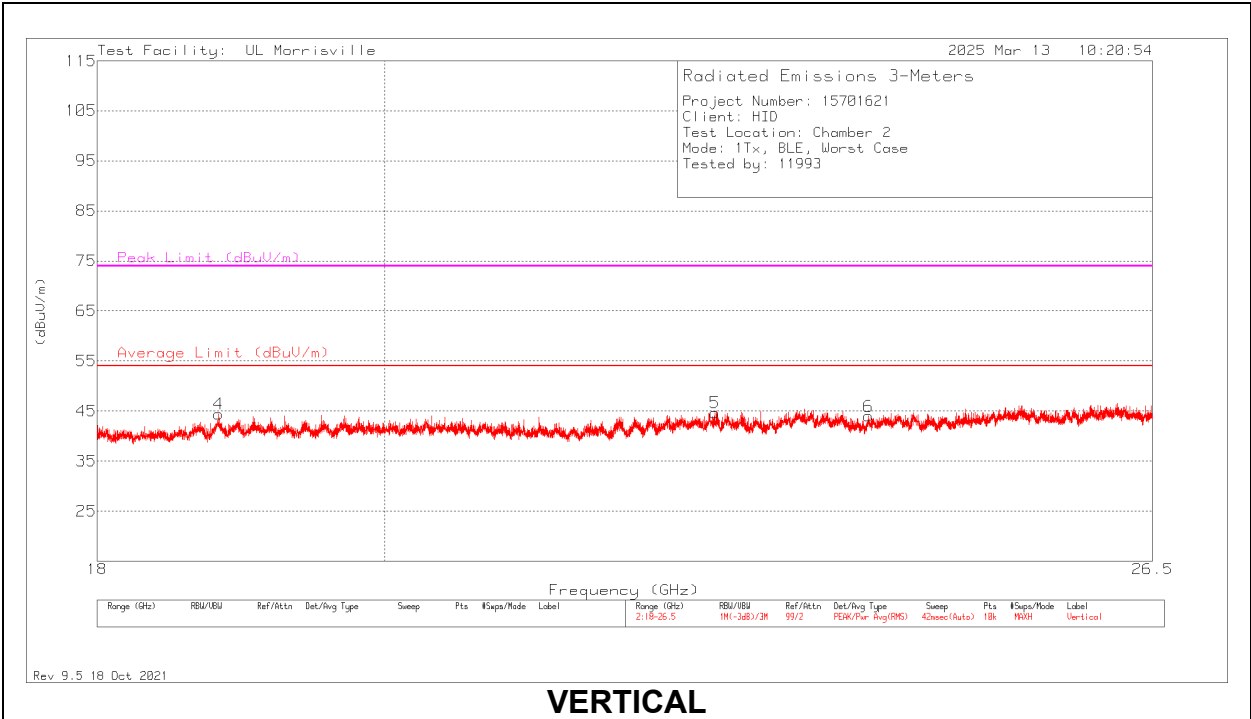
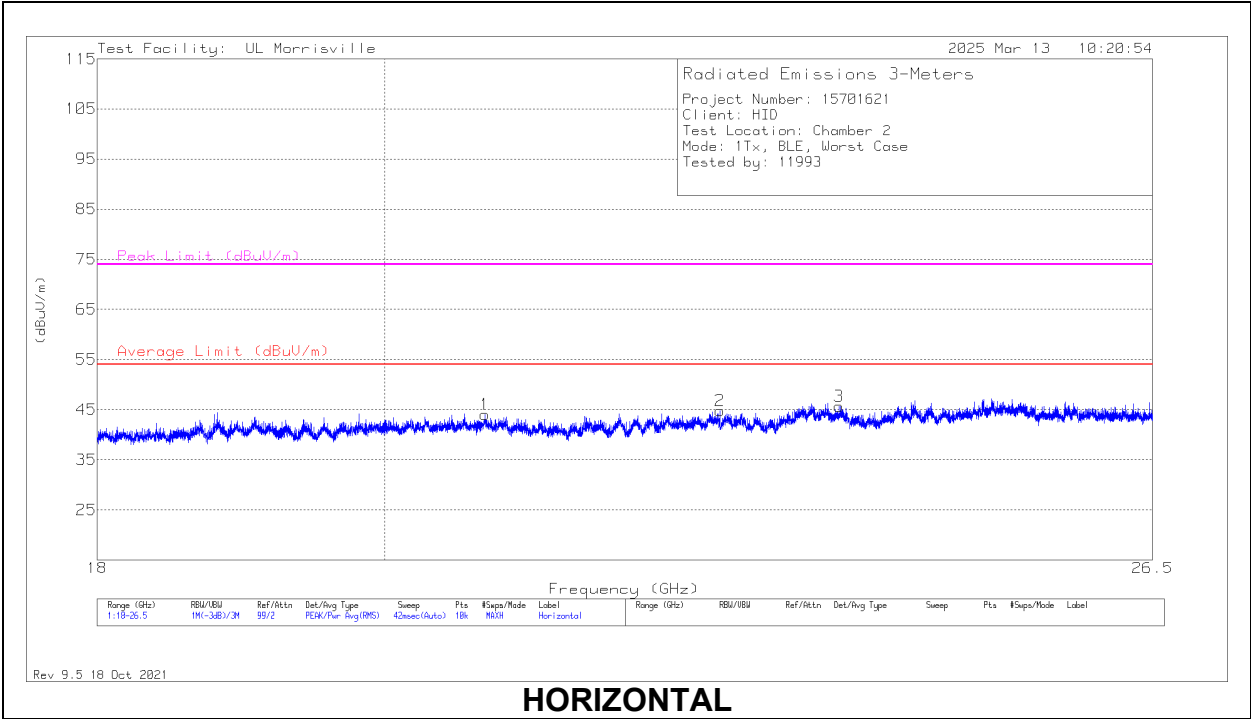


Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.194	28.04	Pk	26.8	-32.1	22.74	40	-17.26	0-360	100	H
4	32.619	28.23	Pk	25.1	-32.1	21.23	40	-18.77	0-360	200	V
5	127.679	28.1	Pk	20	-31.2	16.9	43.52	-26.62	0-360	100	V
2	199.265	29.29	Pk	18.9	-30.8	17.39	43.52	-26.13	0-360	100	H
3	838.592	27.39	Pk	27.7	-27.8	27.29	46.02	-18.73	0-360	100	H
6	890.875	26.93	Pk	28.1	-27.4	27.63	46.02	-18.39	0-360	100	V

Pk - Peak detector

10.1. WORST CASE SPURIOUS 18-26 GHZ



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	* ** 20.74863	47.84	Pk	33.5	-37.3	44.04	54	-9.96	74	-29.96	0-360	199	H
2	* ** 22.61419	48.34	Pk	34.3	-37.9	44.74	54	-9.26	74	-29.26	0-360	249	H
3	* ** 23.62389	48.6	Pk	34.6	-37.5	45.7	54	-8.3	74	-28.3	0-360	101	H
4	* ** 18.82102	48.79	Pk	33.4	-37.8	44.39	54	-9.61	74	-29.61	0-360	200	V
5	* ** 22.57424	47.86	Pk	34.3	-37.5	44.66	54	-9.34	74	-29.34	0-360	250	V
6	* ** 23.88311	46.37	Pk	34.4	-36.8	43.97	54	-10.03	74	-30.03	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

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
RSS-Gen 8.8

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

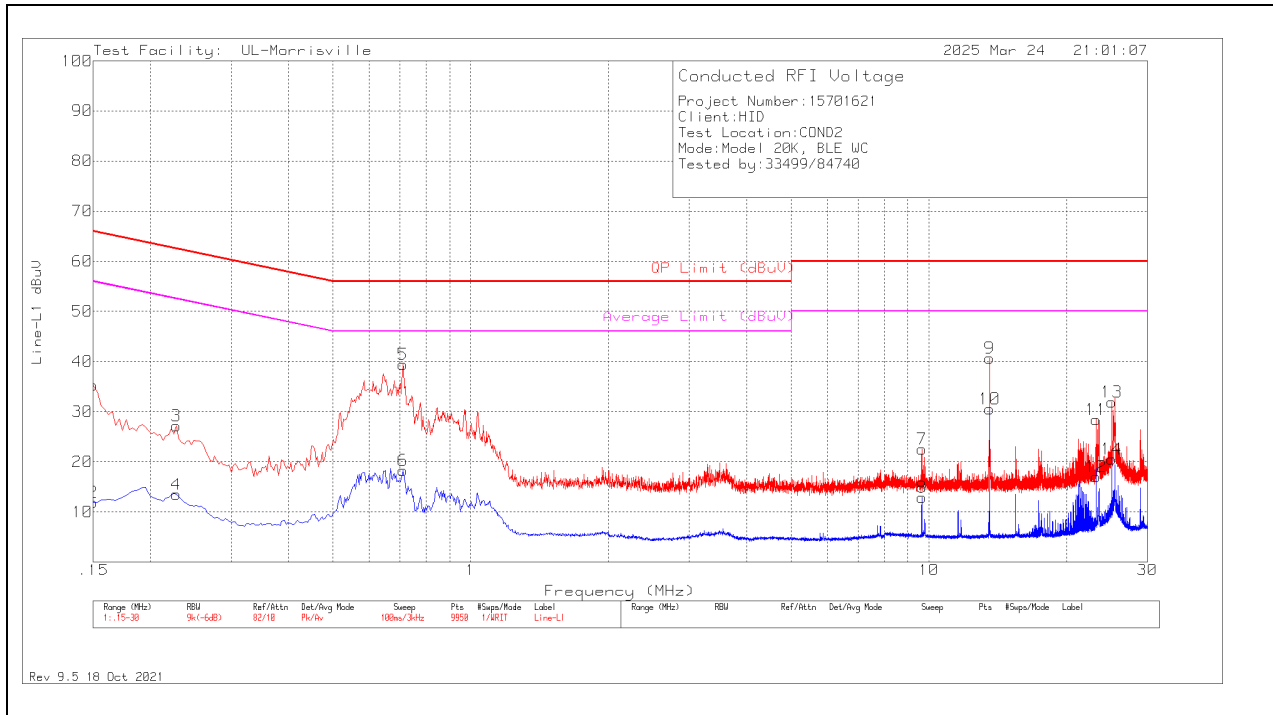
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

RESULTS

11.1.1. AC Power Line

LINE 1 RESULTS



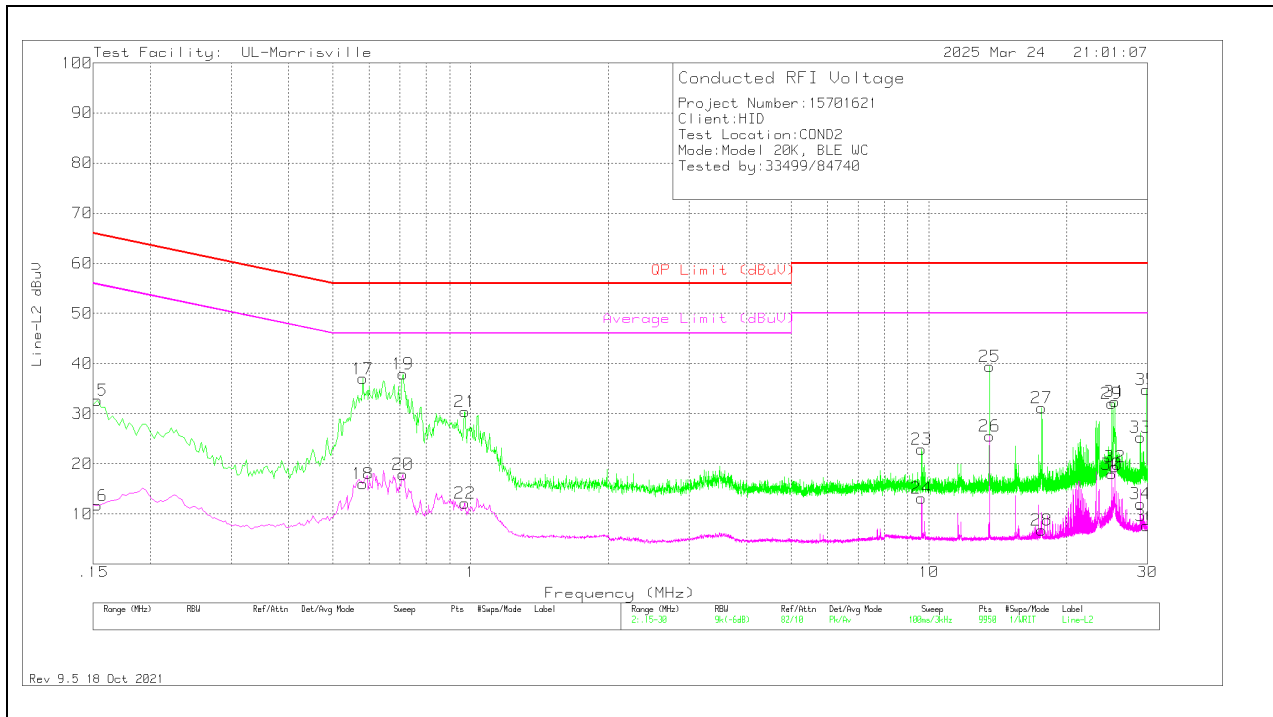
Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.15	25.13	Pk	.3	9.8	35.23	66	-30.77	-	-
2	.15	1.77	Av	.3	9.8	11.87	-	-	56	-44.13
3	.228	17.23	Pk	.1	9.8	27.13	62.52	-35.39	-	-
4	.228	3.56	Av	.1	9.8	13.46	-	-	52.52	-39.06
5	.711	29.66	Pk	0	9.8	39.46	56	-16.54	-	-
6	.711	8.42	Av	0	9.8	18.22	-	-	46	-27.78
7	9.651	12.46	Pk	.1	10	22.56	60	-37.44	-	-
8	9.651	2.75	Av	.1	10	12.85	-	-	50	-37.15
9*	13.56	30.62	Pk	.1	10	40.72	60	-19.28	-	-
10*	13.56	20.48	Av	.1	10	30.58	-	-	50	-19.42
11	23.163	17.89	Pk	.3	10.2	28.39	60	-31.61	-	-
12	23.163	6.48	Av	.3	10.2	16.98	-	-	50	-33.02
13	25.086	21.35	Pk	.4	10.2	31.95	60	-28.05	-	-
14	25.086	9.92	Av	.4	10.2	20.52	-	-	50	-29.48

Pk - Peak detector

Av - Average detection

* - Indicates 13.56MHz from control room badge reader.

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
15	.153	22.68	Pk	.2	9.8	32.68	65.84	-33.16	-	-
16	.153	1.69	Av	.2	9.8	11.69	-	-	55.84	-44.15
17	.582	27.18	Pk	0	9.8	36.98	56	-19.02	-	-
18	.582	6.17	Av	0	9.8	15.97	-	-	46	-30.03
19	.711	28.16	Pk	0	9.8	37.96	56	-18.04	-	-
20	.711	8.13	Av	0	9.8	17.93	-	-	46	-28.07
21	.972	20.65	Pk	0	9.8	30.45	56	-25.55	-	-
22	.972	2.34	Av	0	9.8	12.14	-	-	46	-33.86
23	9.645	12.83	Pk	.1	10	22.93	60	-37.07	-	-
24	9.645	3.02	Av	.1	10	13.12	-	-	50	-36.88
25*	13.563	29.33	Pk	.1	10	39.43	60	-20.57	-	-
26*	13.563	15.42	Av	.1	10	25.52	-	-	50	-24.48
27	17.643	20.88	Pk	.2	10.1	31.18	60	-28.82	-	-
28	17.643	-3.58	Av	.2	10.1	6.72	-	-	50	-43.28
29	25.089	21.39	Pk	.4	10.2	31.99	60	-28.01	-	-
30	25.089	7.35	Av	.4	10.2	17.95	-	-	50	-32.05
31	25.461	21.82	Pk	.4	10.2	32.42	60	-27.58	-	-
32	25.461	8.78	Av	.4	10.2	19.38	-	-	50	-30.62
33	28.932	14.57	Pk	.5	10.2	25.27	60	-34.73	-	-
34	28.932	1.3	Av	.5	10.2	12	-	-	50	-38
35	29.814	24.09	Pk	.5	10.2	34.79	60	-25.21	-	-
36	29.814	-3.06	Av	.5	10.2	7.64	-	-	50	-42.36

Pk - Peak detector

Av - Average detection

* - Indicates 13.56MHz from control room badge reader.

12. SETUP PHOTOS

Please refer to R15701621-EP1b for setup photos

END OF TEST REPORT