

TEST REPORT

Report Number: R15440806-E1

Applicant : RF IDEAS
425 N. Martingale Road
Suite 1680
Schaumburg, IL 60173, USA

Model : MD30L00

FCC ID : M9MMD30L00

IC : 6571A-MD30L00

EUT Description : Dual Band RFID Card Reader

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C: 2024
RSS-210 ISSUE 11: 2024
RSS-GEN ISSUE 5 + A1 + A2: 2021

Date Of Issue:

2024-11-05

Prepared by:

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-11-05	Initial Issue	Chandler Stanley

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:

RF IDEAS
425 N. Martingale Road, Suite 1680
Schaumburg, IL 60173, USA

EUT DESCRIPTION:

Dual Band RFID Card Reader

MODEL:

MD30L00

SERIAL NUMBER:

WLDA000109, WLDA000118, WLDA000157, WLDA000158,
WLSA000026, WLSA000027, WLSA000029

SAMPLE RECEIPT DATE:

2024-08-30

DATE TESTED:

2024-09-04 To 2024-10-17

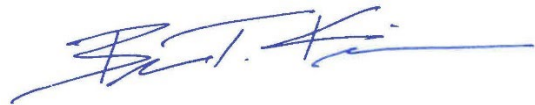
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C: 2024	Complies
ISED RSS-210 Issue 11: 2024	Complies
ISED RSS-GEN Issue 5 + A1 + A2: 2021	Complies

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:



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

Prepared By:



Chandler Stanley
Engineer
Consumer, Medical and IT Segment.
UL LLC.

2. TEST METHODOLOGY

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

- ANSI C63.10-2020
- FCC 47 CFR Part 2
- FCC 47 CFR Part 15C
- RSS-GEN Issue 5 + A1 + A2: 2021
- RSS-210 Issue 11: 2024
- KDB 174176

3. SUMMARY OF TEST RESULTS

This report contains data provided by the customer 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. RFID radio operational specifications (see section 6.4)

Requirement Description	Requirement Clause Number	Result	Remarks
Occupied Bandwidth	For Reporting Purposes Only	Passed	None.
Fundamental Measurements.	FCC §15.225 (a-d) FCC §15.209 (d)		
Tx Spurious Emissions	IC RSS-210, Annex B.6 IC RSS-GEN, Section 8.9 (Transmitter)		
Frequency Stability	FCC FCC §15.225 (e) RSS-210, Annex B.6		
AC Mains Line Conducted Emissions	FCC §15.207 IC RSS-GEN, Section 8.8		

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	U _{Lab}
Radio Frequency (Spectrum Analyzer)	419.38 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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a dual band RFID card reader capable of reading both 125 kHz and 13.56 MHz credentials and Legic Secure Segment credentials via Bluetooth communication. This report covers the full emissions testing of the 13.56MHz RFID radio.

6.2. MAXIMUM ELECTRIC FIELD STRENGTH

The transmitter has a maximum peak radiated electric field strength as follows:

Fundamental Frequency (MHz)	E-Field at 30-Meters (dBuV/m)
13.56	25.63

6.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was:
For USB: FW: WN5020600UPX7L0
For Serial: FW: WN5020600SPX7L0

6.4. WORST-CASE CONFIGURATION AND MODE

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

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Laptop	HP	Resolve 810	A000247
Laptop Charger	HP	PPP009L-E	WCNXA0C1R6WIVK
USB to RS232 Serial Adapter	Cables Unlimited	USB-2920	N/A
Badge 13.56MHz	RF IDEAS	N/A	996302030

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Hardwired	1	USB/Serial	Unshielded	>3m	Cable Splits to USB and Serial and Connects to Laptop.

SETUP DIAGRAM

Please refer to R15440806-EP1 for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2024-04-04	2025-04-04
248881	Environmental Meter	Control Company	06-662-4	2024-04-10	2026-04-10
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
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2024-08-01	2025-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-04
PS216	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

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
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2024-01-12	2025-01-12
248881	Environmental Meter	Control Company	06-662-4	2024-04-10	2026-04-10
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
Additional Equipment used					
CBL013	Micro-Coax UTiFLEX Cable Assembly, Low Loss	CARLISLE INTERCONNECT TECHNOLOGIES	UFB293C-0-2400-300300	2024-03-21	2025-03-21

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

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-01-24	2025-01-24
30-1000 MHz					
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91976	Gain-loss string: 25-1000MHz	Various	Various	2024-05-08	2025-05-08
Receiver & Software					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-03-05	2025-03-05
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

8. OCCUPIED BANDWIDTH

LIMITS

Reporting Purposes Only

TEST PROCEDURE

C63.10 6.9.2 and 6.9.3

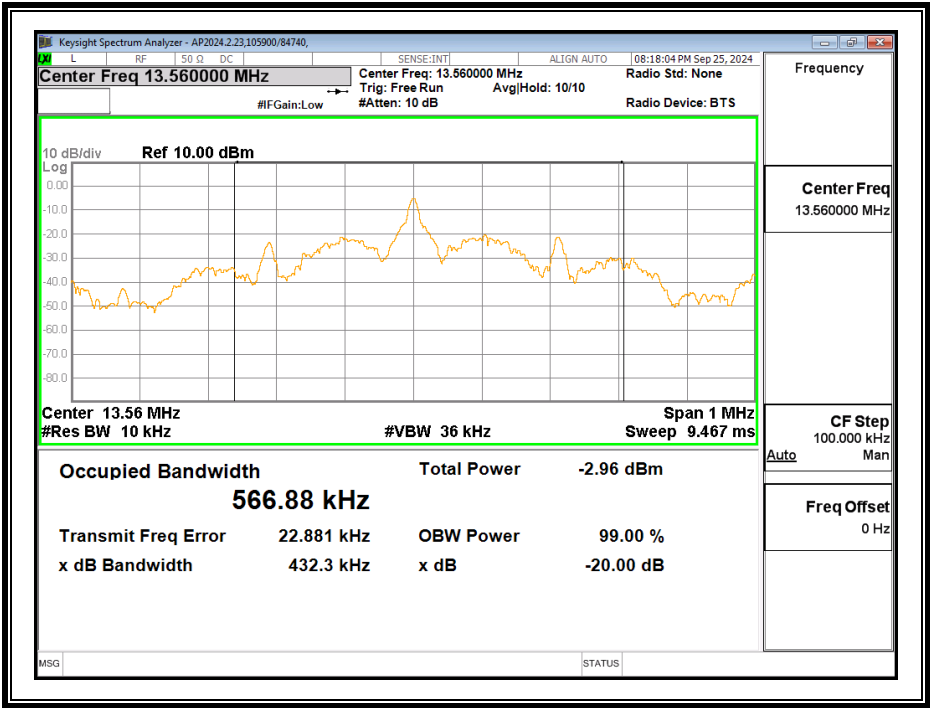
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1-5% of the 20dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

8.1. TAG ON

RESULTS

Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
13.56	0.4323	0.5669



Test Information

Test Date: 09/25/2024
Project: 15440806
Tested By: 105900/84740

8.2. TAG OFF

RESULTS

Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
13.56	0.4241	0.4259



Test Information

Test Date: 09/04/2024
Project: 15440806
Tested By: 105900/84740

9. RADIATED EMISSION TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.225

IC RSS-210, Annex B.6

IC RSS-GEN, Section 8.9 (Transmitter)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:

Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.10, 2020

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 9kHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

Note: For all Below 30MHz test data, 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 $40 \cdot \log(\text{test distance} / \text{specification distance})$

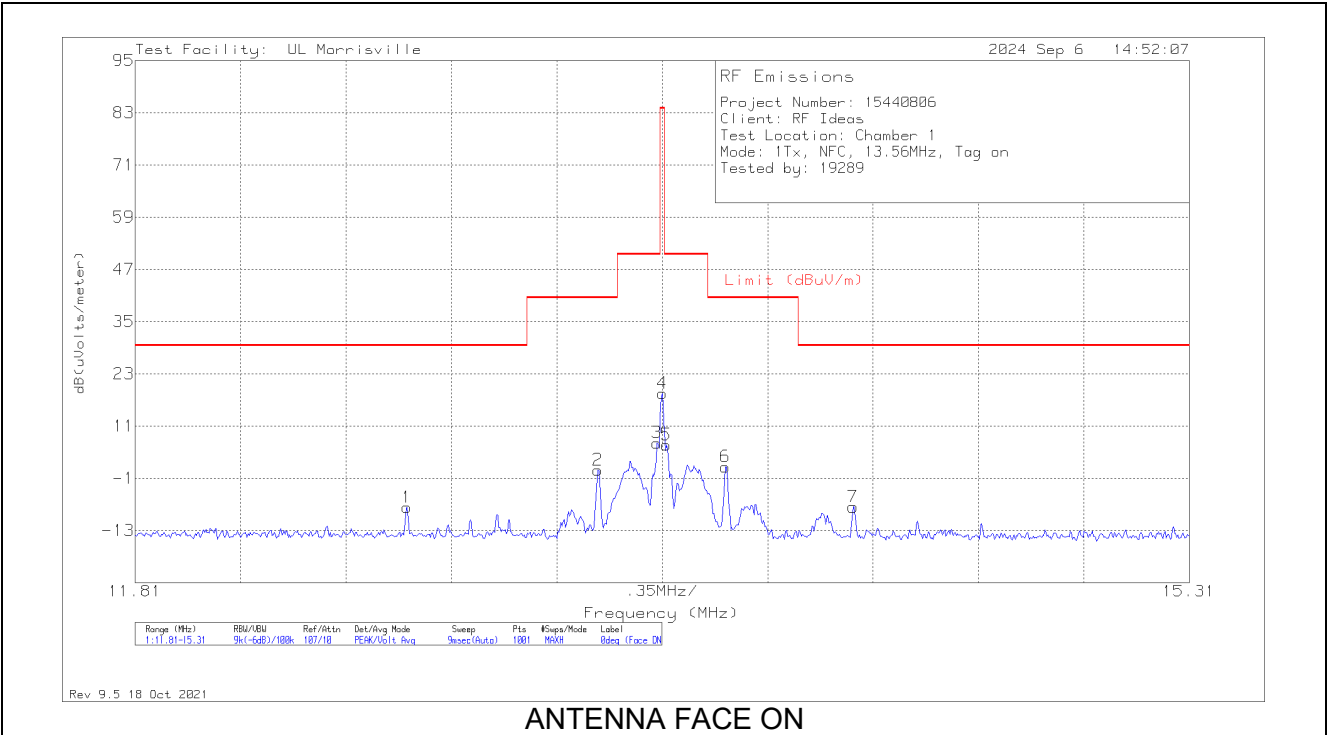
RESULTS

9.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (Below 30MHz)

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).

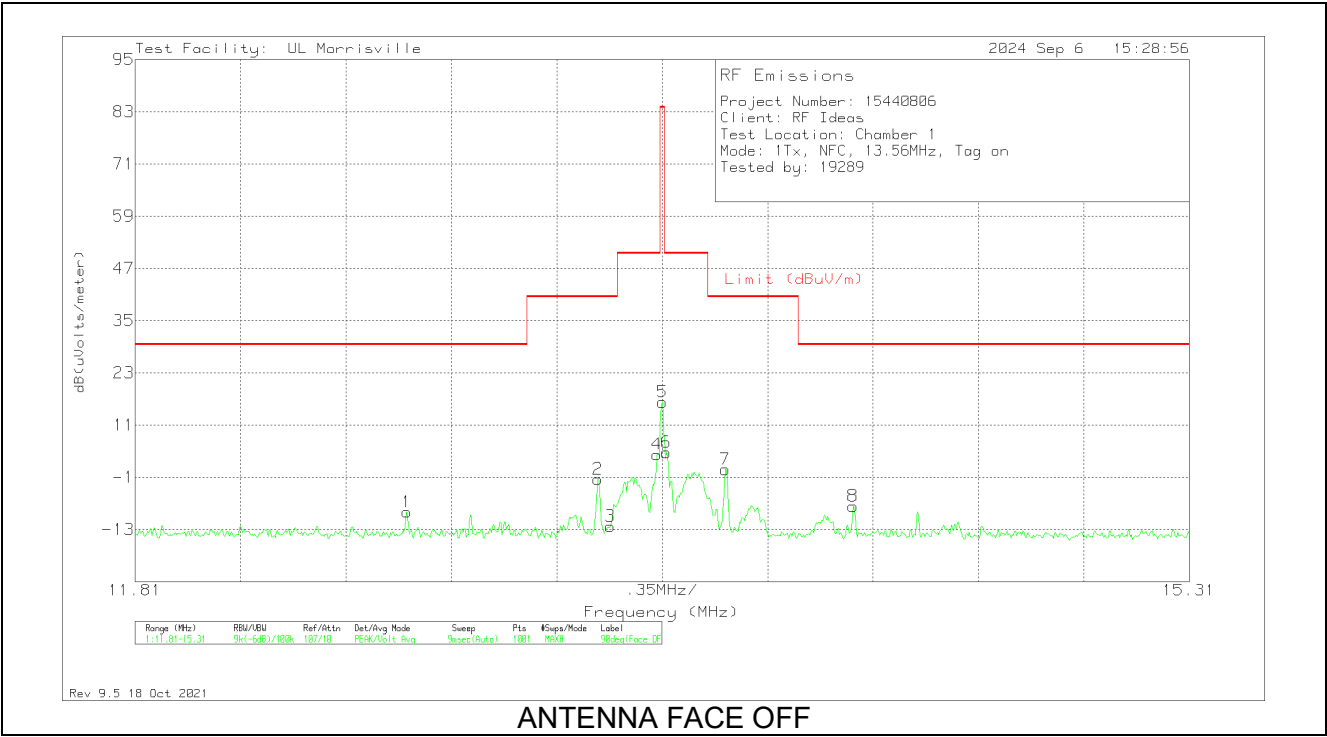
9.2.1. TAG ON

FUNDAMENTAL



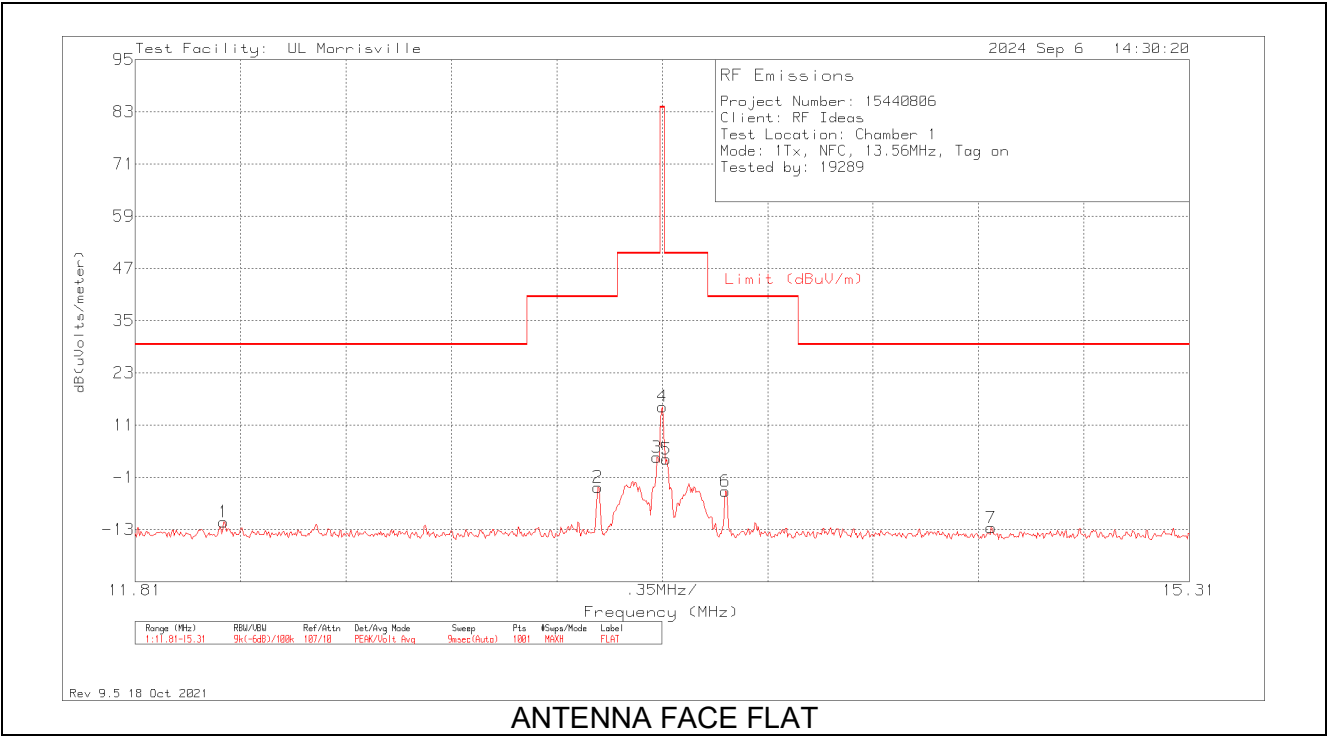
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.713	20.93	Pk	10.8	.6	-40	-7.67	29.5	-37.17	186	100	0 degs
2	13.3465	29.58	Pk	10.7	.6	-40	.88	40.5	-39.62	186	100	0 degs
3	13.5425	35.84	Pk	10.7	.6	-40	7.14	50.5	-43.36	186	100	0 degs
4	13.56	47.23	Pk	10.7	.6	-40	18.53	84	-65.47	186	100	0 degs
5	13.574	35.37	Pk	10.7	.6	-40	6.67	50.5	-43.83	186	100	0 degs
6	13.77	30.34	Pk	10.7	.6	-40	1.64	40.5	-38.86	186	100	0 degs
7	14.1935	21.13	Pk	10.7	.6	-40	-7.57	29.5	-37.07	186	100	0 degs

Pk - Peak detector



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.713	19.59	Pk	10.8	.6	-40	-9.01	29.5	-38.51	269	100	90 degs
2	13.3465	27.25	Pk	10.7	.6	-40	-1.45	40.5	-41.95	269	100	90 degs
3	13.3885	16.44	Pk	10.7	.6	-40	-12.26	40.5	-52.76	269	100	90 degs
4	13.5425	32.95	Pk	10.7	.6	-40	4.25	50.5	-46.25	269	100	90 degs
5	13.56	44.98	Pk	10.7	.6	-40	16.28	84	-67.72	269	100	90 degs
6	13.574	33.4	Pk	10.7	.6	-40	4.7	50.5	-45.8	269	100	90 degs
7	13.77	29.5	Pk	10.7	.6	-40	.8	40.5	-39.7	269	100	90 degs
8	14.1935	21.07	Pk	10.7	.6	-40	-7.63	29.5	-37.13	269	100	90 degs

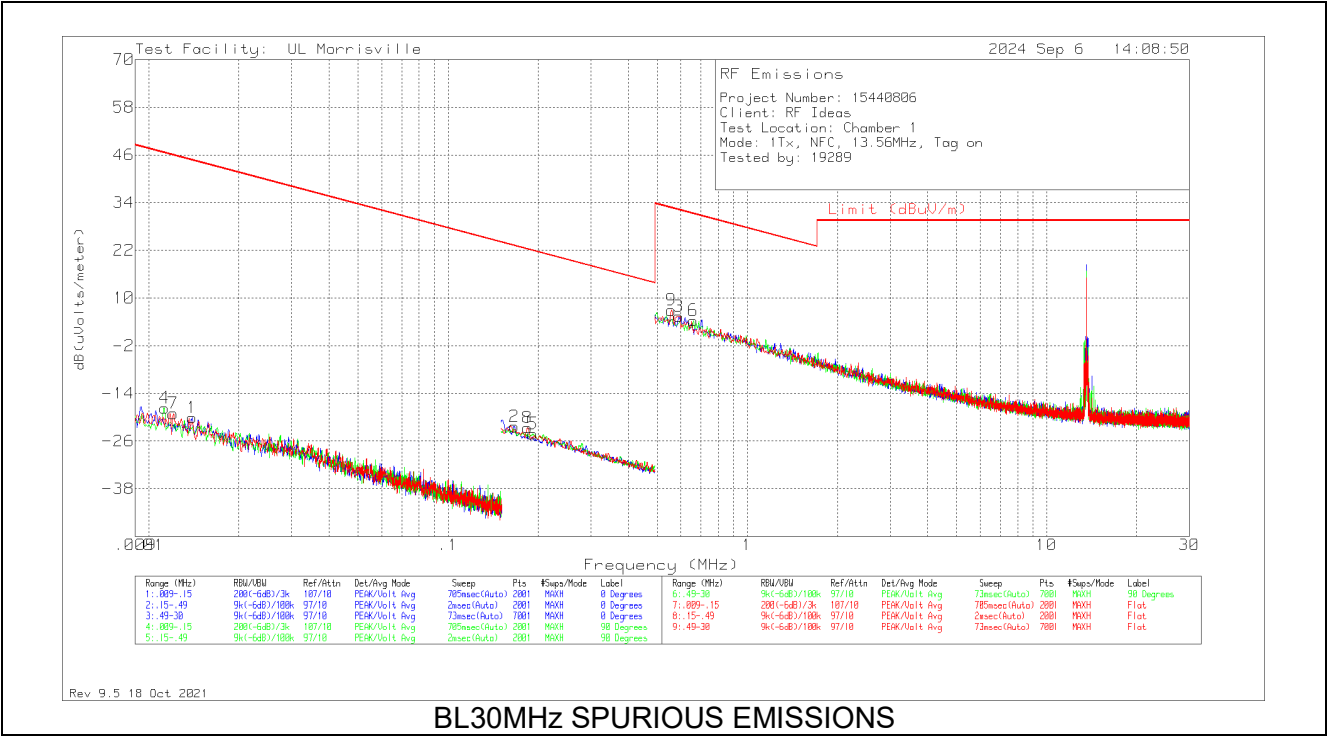
Pk - Peak detector



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.104	17.42	Pk	10.8	.5	-40	-11.28	29.5	-40.78	32	100	Flat
2	13.3465	25.38	Pk	10.7	.6	-40	-3.32	40.5	-43.82	32	100	Flat
3	13.5425	32.28	Pk	10.7	.6	-40	3.58	50.5	-46.92	32	100	Flat
4	13.56	43.94	Pk	10.7	.6	-40	15.24	84	-68.76	32	100	Flat
5	13.574	31.86	Pk	10.7	.6	-40	3.16	50.5	-47.34	32	100	Flat
6	13.77	24.46	Pk	10.7	.6	-40	-4.24	40.5	-44.74	32	100	Flat
7	14.652	16.1	Pk	10.7	.6	-40	-12.6	29.5	-42.1	32	100	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

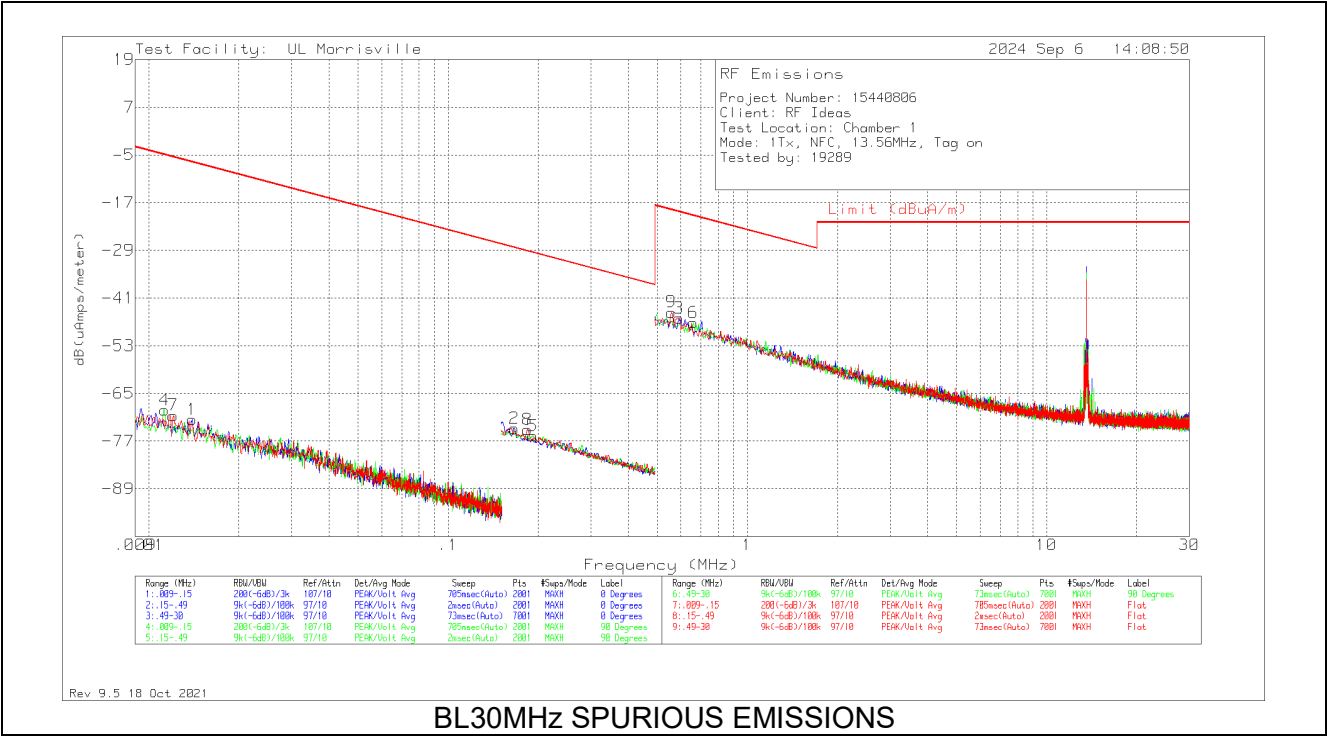


BL30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/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	.01127	44.31	Pk	17.9	.1	-80	-17.69	46.56	66.56	-64.25	0-360	90 degs
7	.01205	43.26	Pk	17.6	.1	-80	-19.04	45.98	65.98	-65.02	0-360	Flat
1	.01397	43.11	Pk	16.7	.1	-80	-20.09	44.7	64.7	-64.79	0-360	0 degs
2	.16632	46.46	Pk	11.1	.1	-80	-22.34	23.19	43.19	-45.53	0-360	0 degs
8	.18443	46.19	Pk	11.1	.1	-80	-22.61	22.29	42.29	-44.9	0-360	Flat
5	.19191	44.61	Pk	11.1	.1	-80	-24.19	21.94	41.94	-46.13	0-360	90 degs
9	.55746	35.73	Pk	11.1	.1	-40	6.93	32.68	-	-25.75	0-360	Flat
3	.59118	34.1	Pk	11.2	.1	-40	5.4	32.17	-	-26.77	0-360	0 degs
6	.65864	33.02	Pk	11.2	.1	-40	4.32	31.23	-	-26.91	0-360	90 degs

Pk - Peak detector

SPURIOUS EMISSION – H FIELD

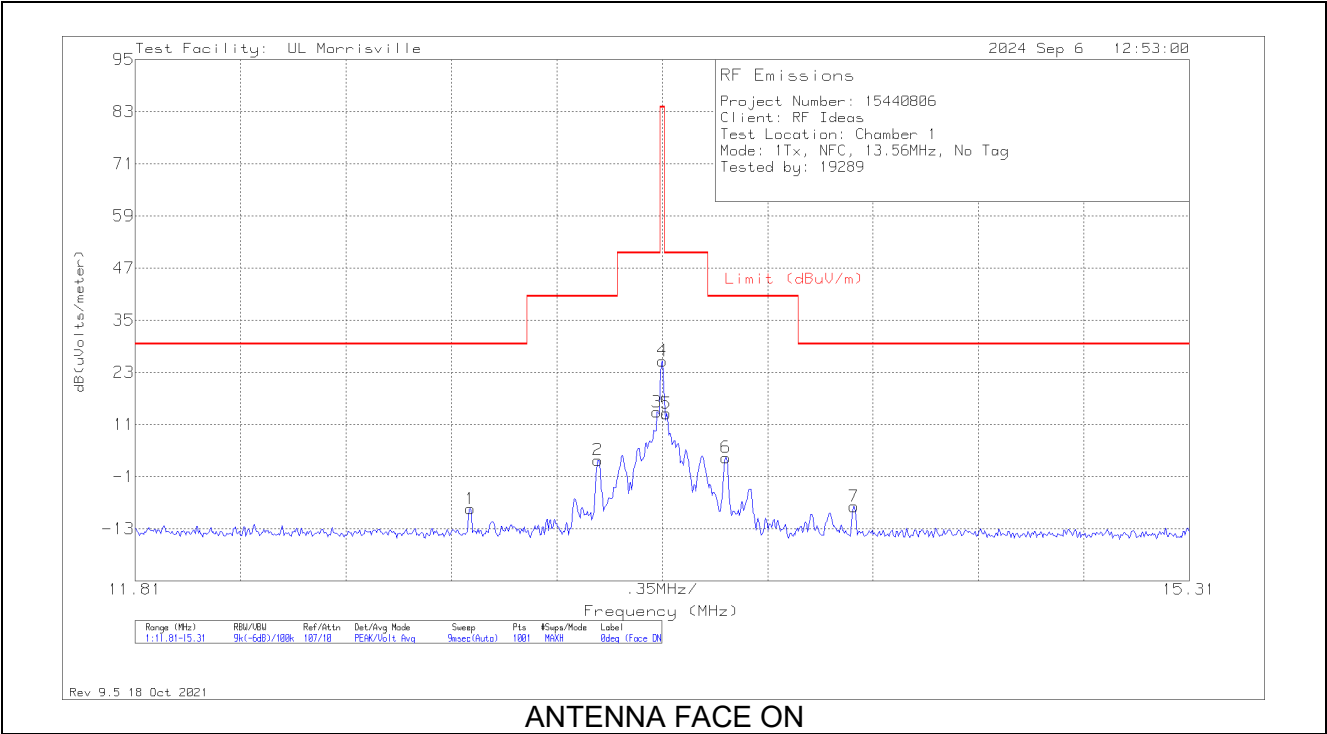


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
4	.01127	44.31	Pk	-33.6	.1	-80	-69.19	-4.94	15.06	-64.25	0-360	90 degs
7	.01205	43.26	Pk	-33.9	.1	-80	-70.54	-5.52	14.48	-65.02	0-360	Flat
1	.01397	43.11	Pk	-34.8	.1	-80	-71.59	-6.8	13.2	-64.79	0-360	0 degs
2	.16632	46.46	Pk	-40.4	.1	-80	-73.84	-28.31	-8.31	-45.53	0-360	0 degs
8	.18443	46.19	Pk	-40.4	.1	-80	-74.11	-29.21	-9.21	-44.9	0-360	Flat
5	.19191	44.61	Pk	-40.4	.1	-80	-75.69	-29.56	-9.56	-46.13	0-360	90 degs
9	.55746	35.73	Pk	-40.4	.1	-40	-44.57	-18.82	-	-25.75	0-360	Flat
3	.59118	34.1	Pk	-40.3	.1	-40	-46.1	-19.33	-	-26.77	0-360	0 degs
6	.65864	33.02	Pk	-40.3	.1	-40	-47.18	-20.27	-	-26.91	0-360	90 degs

Pk - Peak detector

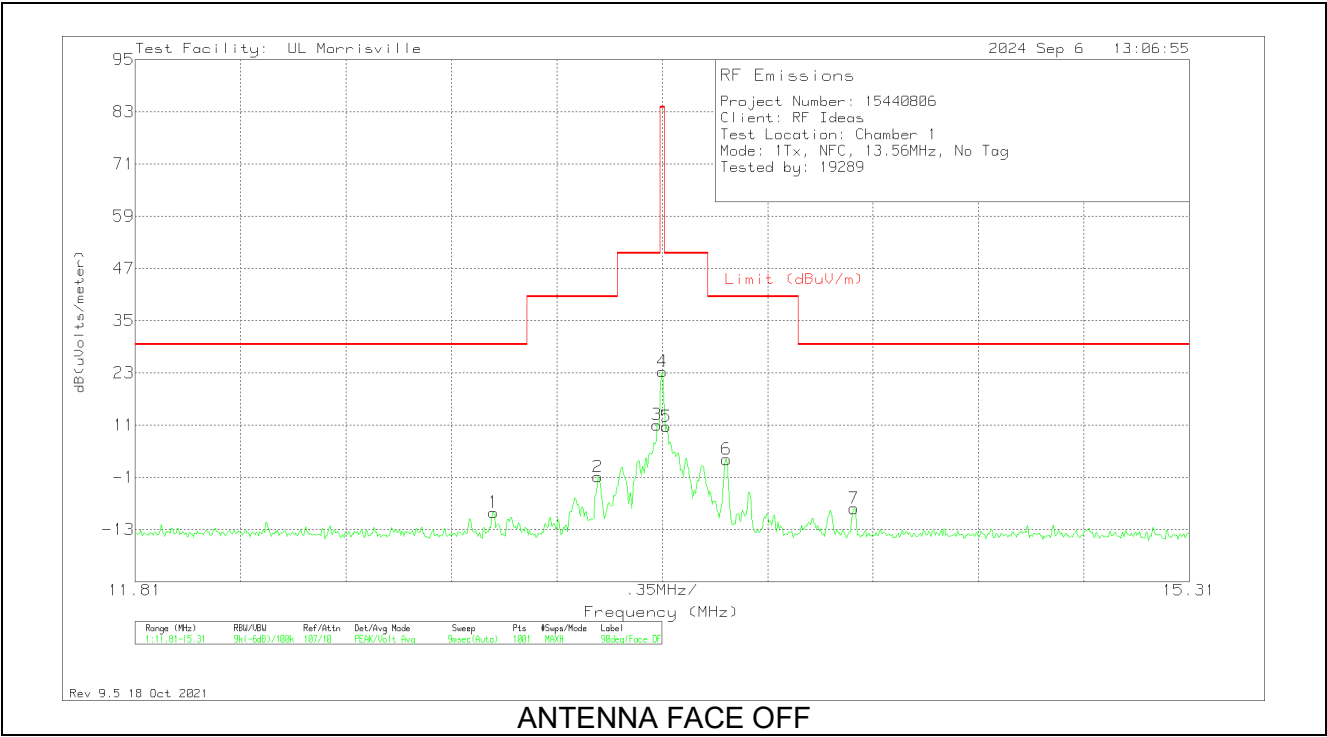
9.2.2. TAG OFF

FUNDAMENTAL



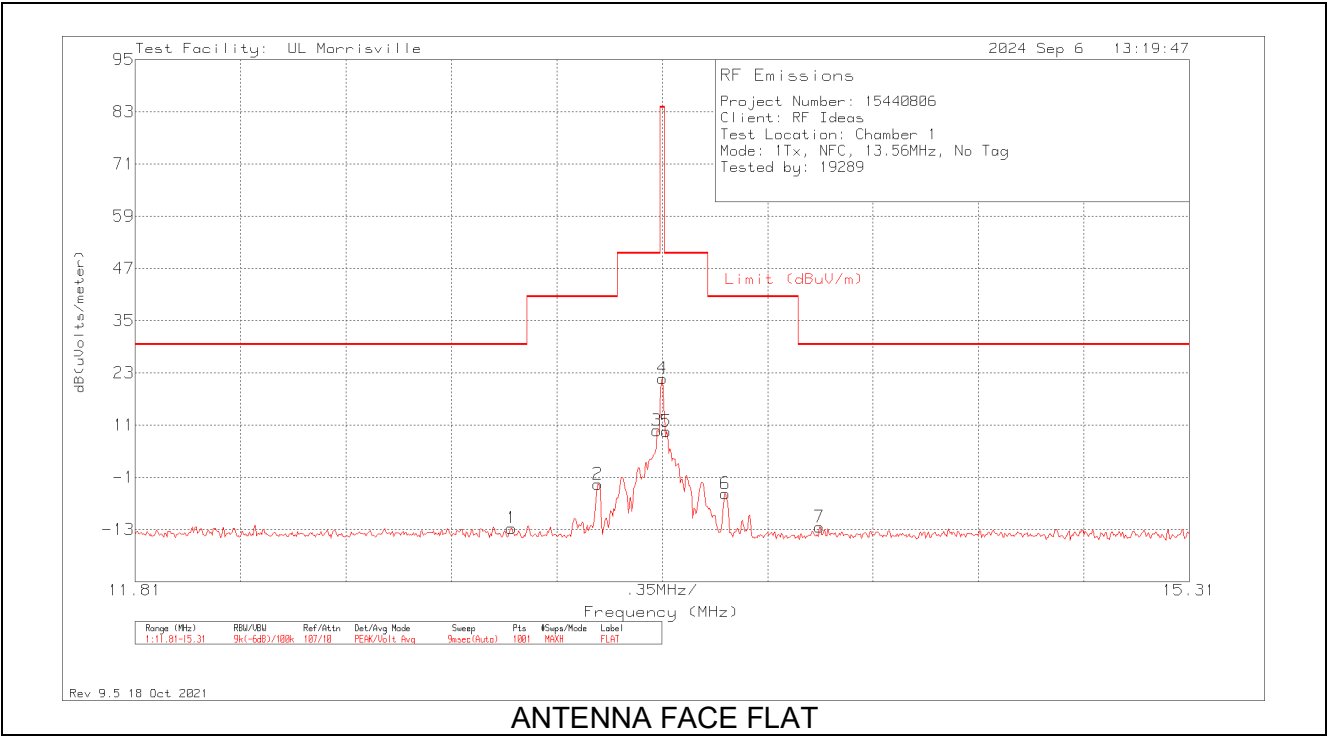
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.923	20.27	Pk	10.7	.6	-40	-8.43	29.5	-37.93	188	100	0 degs
2	13.3465	31.5	Pk	10.7	.6	-40	2.8	40.5	-37.7	188	100	0 degs
3	13.5425	42.55	Pk	10.7	.6	-40	13.85	50.5	-36.65	188	100	0 degs
4	13.56	54.33	Pk	10.7	.6	-40	25.63	84	-58.37	188	100	0 degs
5	13.574	42.24	Pk	10.7	.6	-40	13.54	50.5	-36.96	188	100	0 degs
6	13.77175	32.09	Pk	10.7	.6	-40	3.39	40.5	-37.11	188	100	0 degs
7	14.197	20.84	Pk	10.7	.6	-40	-7.86	29.5	-37.36	188	100	0 degs

Pk - Peak detector



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	13	19.63	Pk	10.7	.6	-40	-9.07	29.5	-38.57	255	100	90 degs
2	13.3465	27.82	Pk	10.7	.6	-40	-.88	40.5	-41.38	255	100	90 degs
3	13.5425	39.74	Pk	10.7	.6	-40	11.04	50.5	-39.46	255	100	90 degs
4	13.56	52	Pk	10.7	.6	-40	23.3	84	-60.7	255	100	90 degs
5	13.574	39.38	Pk	10.7	.6	-40	10.68	50.5	-39.82	255	100	90 degs
6	13.7735	31.81	Pk	10.7	.6	-40	3.11	40.5	-37.39	255	100	90 degs
7	14.197	20.55	Pk	10.7	.6	-40	-8.15	29.5	-37.65	255	100	90 degs

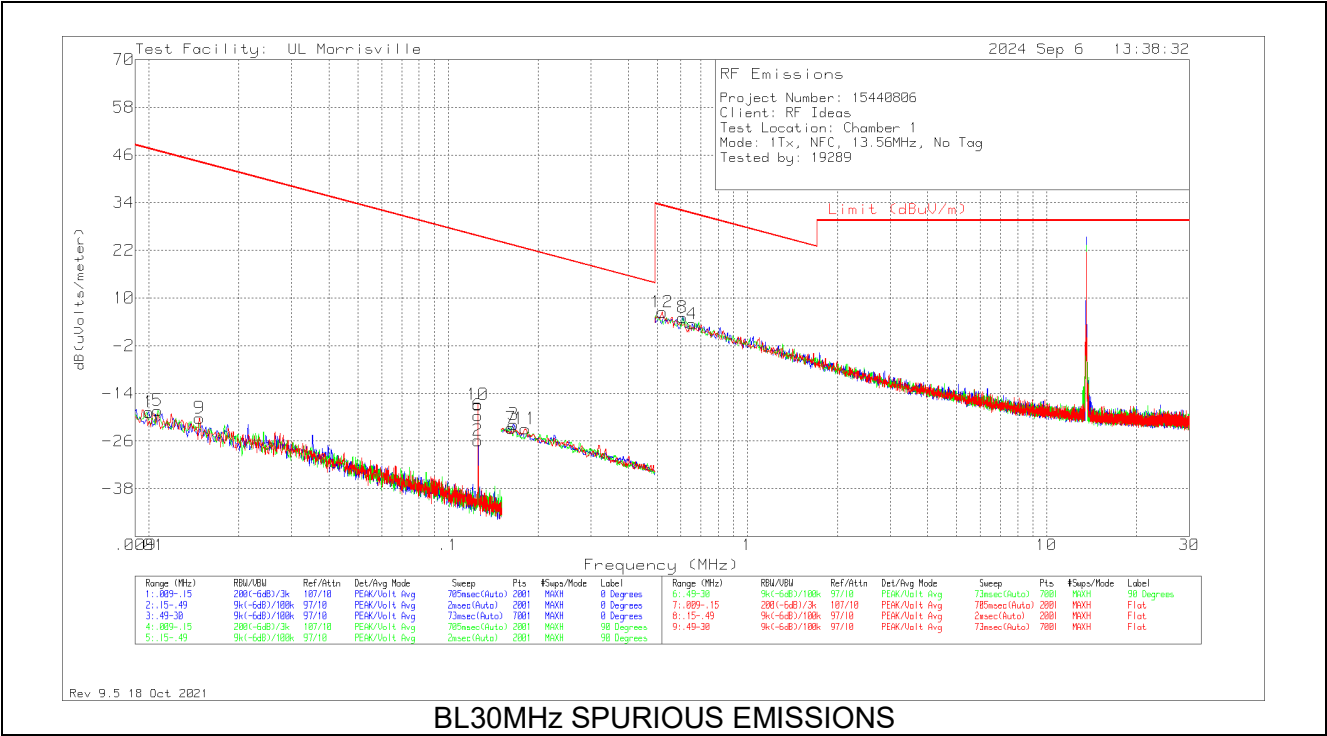
Pk - Peak detector



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	13.0595	16.03	Pk	10.7	.6	-40	-12.67	29.5	-42.17	33	100	Flat
2	13.3465	26.13	Pk	10.7	.6	-40	-2.57	40.5	-43.07	33	100	Flat
3	13.5425	38.46	Pk	10.7	.6	-40	9.76	50.5	-40.74	33	100	Flat
4	13.56	50.43	Pk	10.7	.6	-40	21.73	84	-62.27	33	100	Flat
5	13.574	38.29	Pk	10.7	.6	-40	9.59	50.5	-40.91	33	100	Flat
6	13.77	23.94	Pk	10.7	.6	-40	-4.76	40.5	-45.26	33	100	Flat
7	14.0815	16.31	Pk	10.7	.6	-40	-12.39	29.5	-41.89	33	100	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

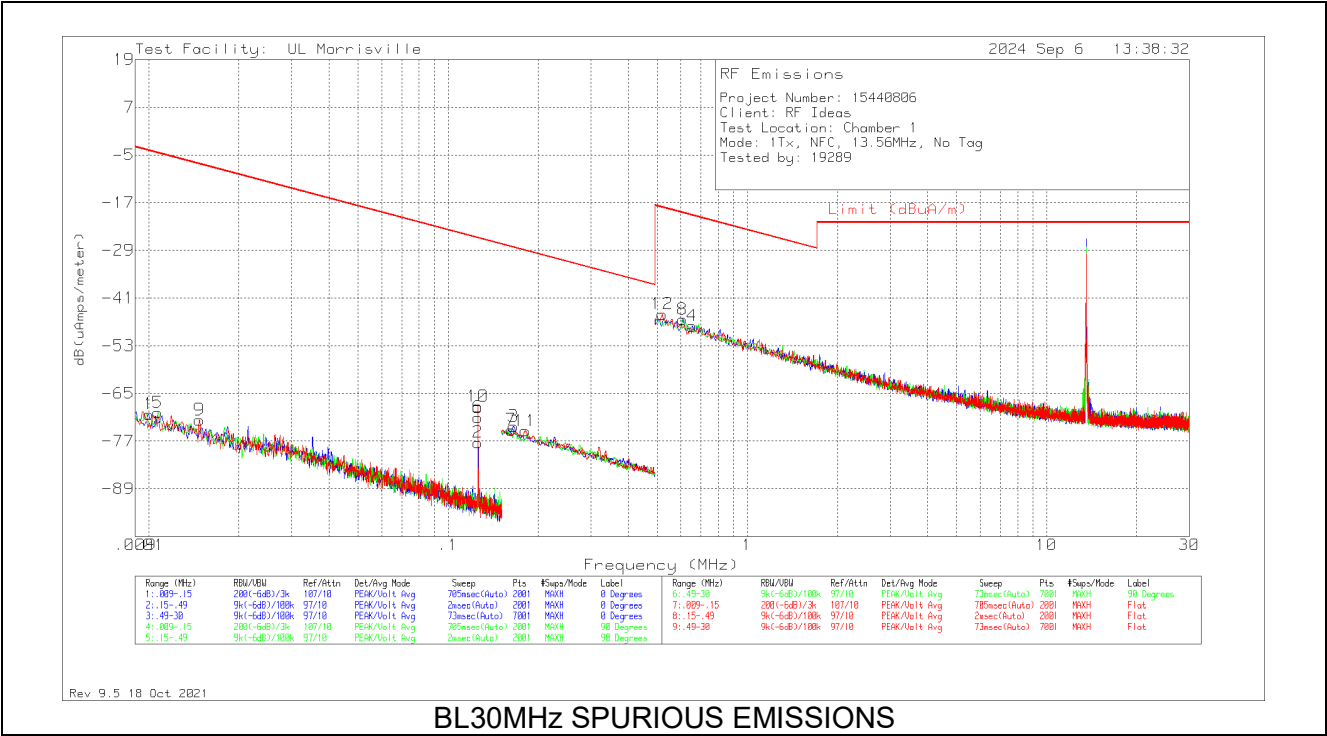


BL30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/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	.00999	42.68	Pk	18.5	.1	-80	-18.72	47.61	67.61	-66.33	0-360	0 degs
5	.0107	43.38	Pk	18.2	.1	-80	-18.32	47.01	67.01	-65.33	0-360	90 degs
9	.01475	43.4	Pk	16.3	.1	-80	-20.2	44.23	64.23	-64.43	0-360	Flat
6	.12587	49.27	Pk	11.1	.1	-80	-19.53	25.61	45.61	-45.14	0-360	90 degs
10	.12587	52.02	Pk	11.1	.1	-80	-16.78	25.61	45.61	-42.39	0-360	Flat
2	.12594	42.96	Pk	11.1	.1	-80	-25.84	25.6	45.6	-51.44	0-360	0 degs
7	.16224	46.13	Pk	11.1	.1	-80	-22.67	23.4	43.4	-46.07	0-360	90 degs
3	.16522	47.01	Pk	11.1	.1	-80	-21.79	23.24	43.24	-45.03	0-360	0 degs
11	.18103	45.89	Pk	11.1	.1	-80	-22.91	22.45	42.45	-45.36	0-360	Flat
12	.51951	35.25	Pk	11.1	.1	-40	6.45	33.29	-	-26.84	0-360	Flat
8	.60805	33.82	Pk	11.2	.1	-40	5.12	31.93	-	-26.81	0-360	90 degs
4	.65442	32.18	Pk	11.2	.1	-40	3.48	31.29	-	-27.81	0-360	0 degs

Pk - Peak detector

SPURIOUS EMISSION – H FIELD



BL30MHz SPURIOUS EMISSIONS

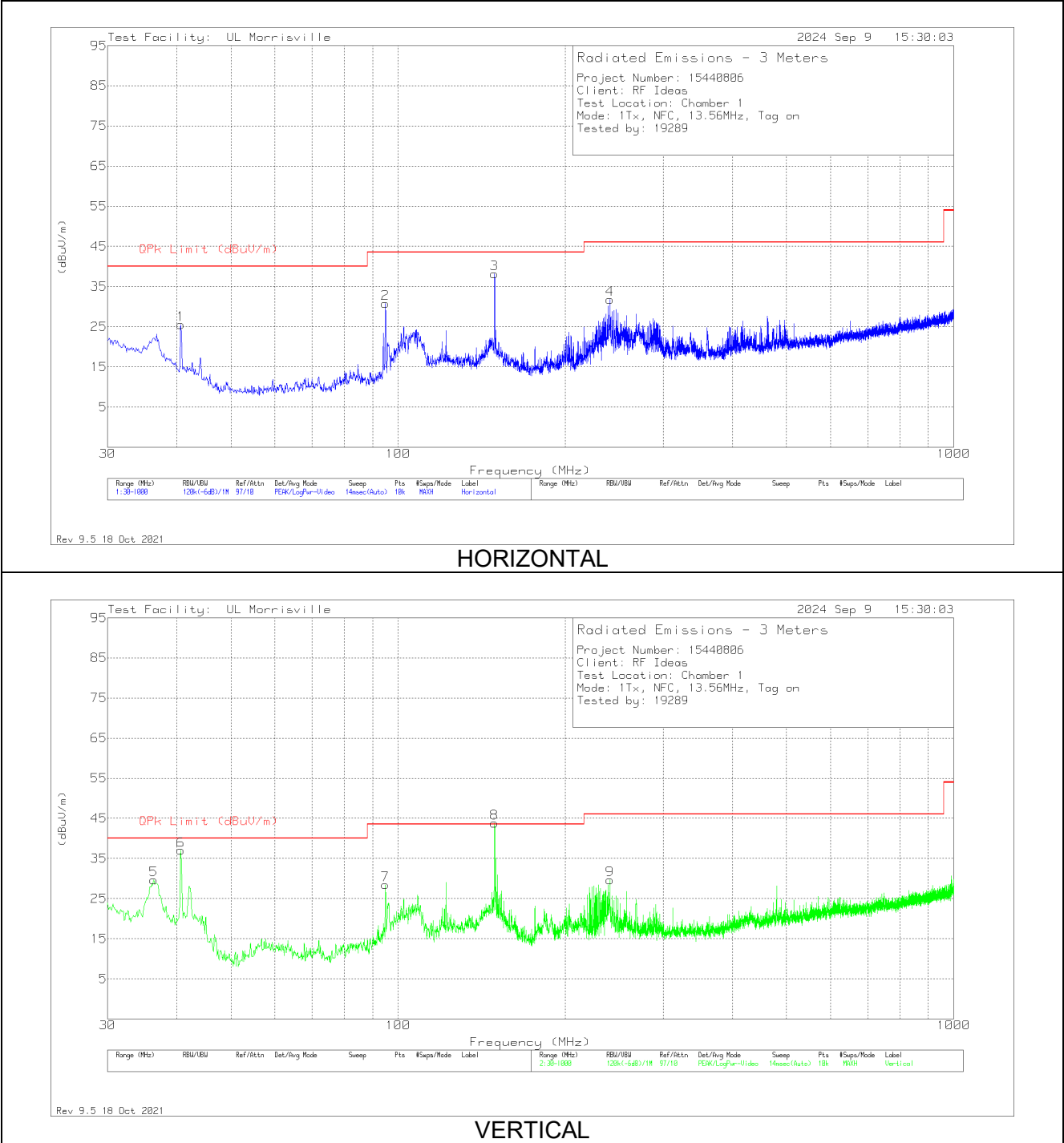
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.00999	42.68	Pk	-33	.1	-80	-70.22	-3.89	16.11	-66.33	0-360	0 degs
5	.0107	43.38	Pk	-33.3	.1	-80	-69.82	-4.49	15.51	-65.33	0-360	90 degs
9	.01475	43.4	Pk	-35.2	.1	-80	-71.7	-7.27	12.73	-64.43	0-360	Flat
6	.12587	49.27	Pk	-40.4	.1	-80	-71.03	-25.89	-5.89	-45.14	0-360	90 degs
10	.12587	52.02	Pk	-40.4	.1	-80	-68.28	-25.89	-5.89	-42.39	0-360	Flat
2	.12594	42.96	Pk	-40.4	.1	-80	-77.34	-25.9	-5.9	-51.44	0-360	0 degs
7	.16224	46.13	Pk	-40.4	.1	-80	-74.17	-28.1	-8.1	-46.07	0-360	90 degs
3	.16522	47.01	Pk	-40.4	.1	-80	-73.29	-28.26	-8.26	-45.03	0-360	0 degs
11	.18103	45.89	Pk	-40.4	.1	-80	-74.41	-29.05	-9.05	-45.36	0-360	Flat
12	.51951	35.25	Pk	-40.4	.1	-40	-45.05	-18.21	-	-26.84	0-360	Flat
8	.60805	33.82	Pk	-40.3	.1	-40	-46.38	-19.57	-	-26.81	0-360	90 degs
4	.65442	32.18	Pk	-40.3	.1	-40	-48.02	-20.21	-	-27.81	0-360	0 degs

Pk - Peak detector

9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

9.3.1. TAG ON

SPURIOUS EMISSION



Test Facility: UL Morrisville

2024 Sep 9 15:30:03

Radiated Emissions - 3 Meters

Project Number: 15440806

Client: RF Ideas

Test Location: Chamber 1

Mode: 1Tx, NFC, 13.56MHz, Tag on

Tested by: 19289

DATA

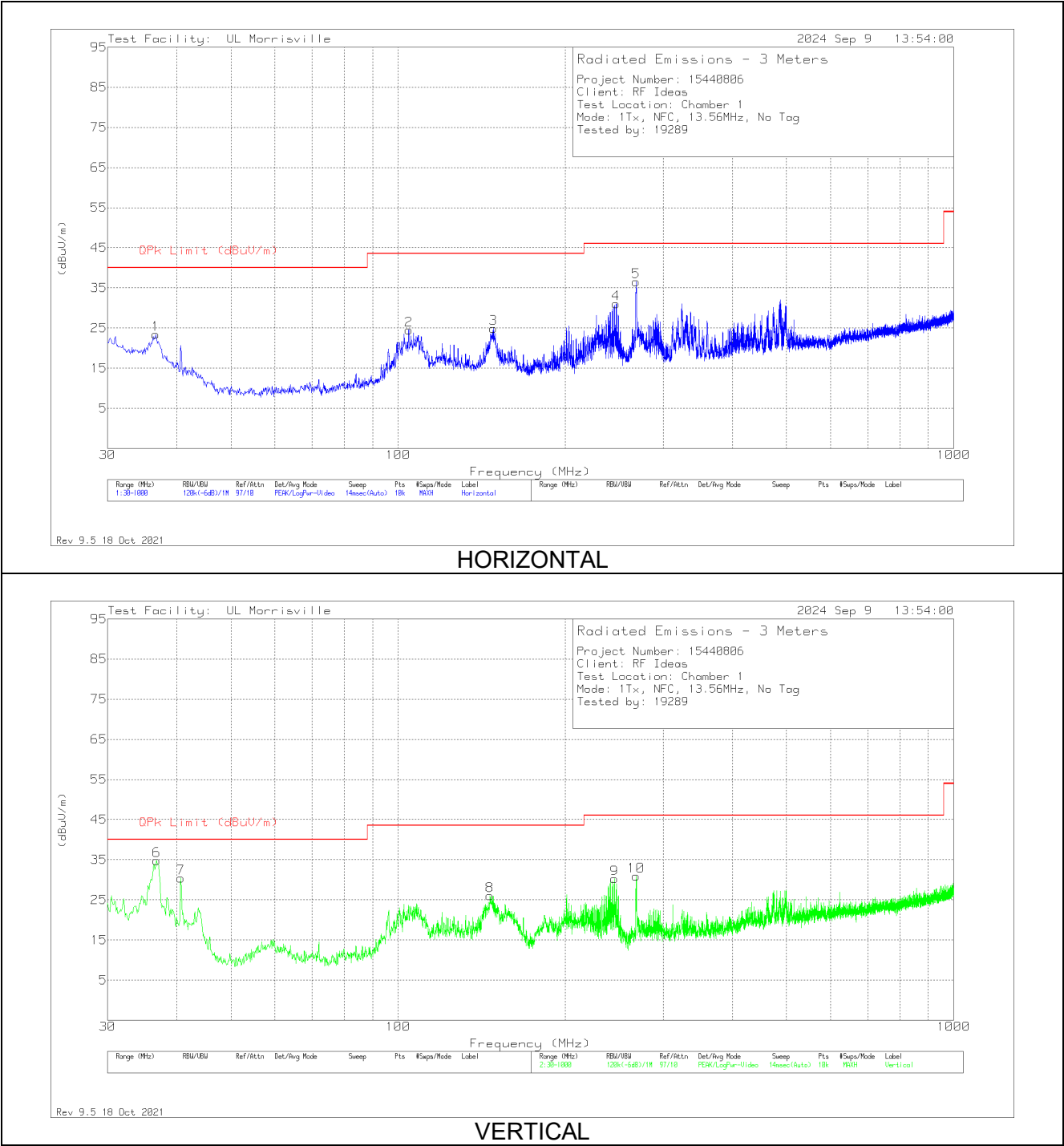
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	36.305	38.96	Pk	22.5	-31.8	29.66	40	-10.34	0-360	100	V
1	40.67	37.83	Pk	19.3	-31.6	25.53	40	-14.47	0-360	299	H
6	40.6748	48.62	Qp	19.3	-31.6	36.32	40	-3.68	322	106	V
2	94.893	46.55	Pk	15.2	-31	30.75	43.52	-12.77	0-360	299	H
7	94.893	44.27	Pk	15.2	-31	28.47	43.52	-15.05	0-360	100	V
3	149.15728	49.3	Qp	18.8	-30	38.1	43.52	-5.42	161	218	H
8	149.16491	54.56	Qp	18.8	-30	43.36	43.52	-.16	124	103	V
9	240.49	41.43	Pk	17.7	-29.5	29.63	46.02	-16.39	0-360	100	V
4	240.684	43.56	Pk	17.7	-29.5	31.76	46.02	-14.26	0-360	100	H

Pk - Peak detector

Qp - Quasi-Peak detector

9.3.2. TAG OFF

SPURIOUS EMISSION



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	36.596	33.16	Pk	22.3	-32	23.46	40	-16.54	0-360	299	H
6	36.3704	36.95	Qp	22.4	-31.8	27.55	40	-12.45	318	150	V
7	40.67	42.71	Pk	19.3	-31.6	30.41	40	-9.59	0-360	100	V
2	104.593	37.28	Pk	18	-30.8	24.48	43.52	-19.04	0-360	299	H
8	146.4	37.47	Pk	19	-30.4	26.07	43.52	-17.45	0-360	100	V
3	148.534	36.36	Pk	18.8	-30.2	24.96	43.52	-18.56	0-360	200	H
9	244.952	42.43	Pk	17.7	-29.9	30.23	46.02	-15.79	0-360	100	V
4	246.892	42.97	Pk	17.7	-29.6	31.07	46.02	-14.95	0-360	99	H
5	268.329	46.76	Pk	19.1	-29.3	36.56	46.02	-9.46	0-360	99	H
10	268.329	41.08	Pk	19.1	-29.3	30.88	46.02	-15.14	0-360	100	V

Pk - Peak detector

Qp - Quasi-Peak detector

10. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from the minimum to the maximum of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

IC RSS-210, Annex B.6

Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

TEST PROCEDURE

ANSI C63.10-2020 Clause 6.8

RESULTS

No non-compliance noted.

10.1. TAG ON

Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measured with Time Elapse								
(Vdc)	(°C)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
5.00	50	13.5599517	56.951	13.5599460	57.372	13.5599443	57.495	13.5599429	57.600	± 100
5.00	40	13.5600027	53.190	13.5599940	53.827	13.5599872	54.332	13.5599765	55.124	± 100
5.00	30	13.5600297	51.197	13.560027	51.402	13.5600237	51.640	13.5600190	51.983	± 100
5.00	20	13.5607239	0.000	13.5600628	48.757	13.5606863	2.773	13.5600680	48.375	± 100
5.00	10	13.5600095	52.687	13.5600456	50.024	13.5600533	49.457	13.5600938	46.473	± 100
5.00	0	13.5601022	45.848	13.5601179	44.690	13.5601301	43.795	13.5601331	43.574	± 100
5.00	-10	13.5601427	42.867	13.5601586	41.692	13.5601637	41.319	13.5601625	41.407	± 100
5.00	-20	13.5601734	40.598	13.5601754	40.454	13.5601729	40.634	13.5601732	40.612	± 100
4.40	20	13.5600324	50.998	13.5600364	50.705	13.5600447	50.094	13.5600401	50.429	± 100
6	20	13.56004457	50.101	13.56004178	50.307	13.56004045	50.405	13.56003188	51.037	± 100

Tested by: 105900/84740 and 104463/85502

Test date: 2024-09-25 and 2024-10-17

10.2. TAG OFF

Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measured with Time Elapse								
(Vdc)	(°C)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
5.00	50	13.5599634	3.973	13.5599615	4.112	13.5599606	4.176	13.5599595	4.259	± 100
5.00	40	13.5599850	2.382	13.5599817	2.623	13.5599803	2.729	13.5599785	2.859	± 100
5.00	30	13.5600143	0.221	13.5600070	0.758	13.5600054	0.874	13.5600039	0.987	± 100
5.00	20	13.5600173	0.000	13.5600110	0.462	13.5600099	0.544	13.5600092	0.598	± 100
5.00	10	13.5600144	0.216	13.5600165	0.055	13.5600203	-0.224	13.5600257	-0.622	± 100
5.00	0	13.5600538	-2.691	13.5600556	-2.828	13.5600584	-3.033	13.5600622	-3.310	± 100
5.00	-10	13.5600869	-5.135	13.5600867	-5.119	13.5600103	0.517	13.5600952	-5.743	± 100
5.00	-20	13.5601011	-6.181	13.5601029	-6.314	13.5601039	-6.386	13.5601052	-6.480	± 100
4.40	20	13.5600565	-2.892	13.5600522	-2.573	13.5600640	-3.447	13.5600540	-2.708	± 100
6	20	13.56006453	-3.484	13.56005287	-2.625	13.56005291	-2.628	13.56005056	-2.454	± 100

Tested by: 105900/84740 and 104463/85502
Test date: 2024-09-04 and 2024-10-17

11. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207

IC RSS-GEN, Section 8.8

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

TEST PROCEDURE

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

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

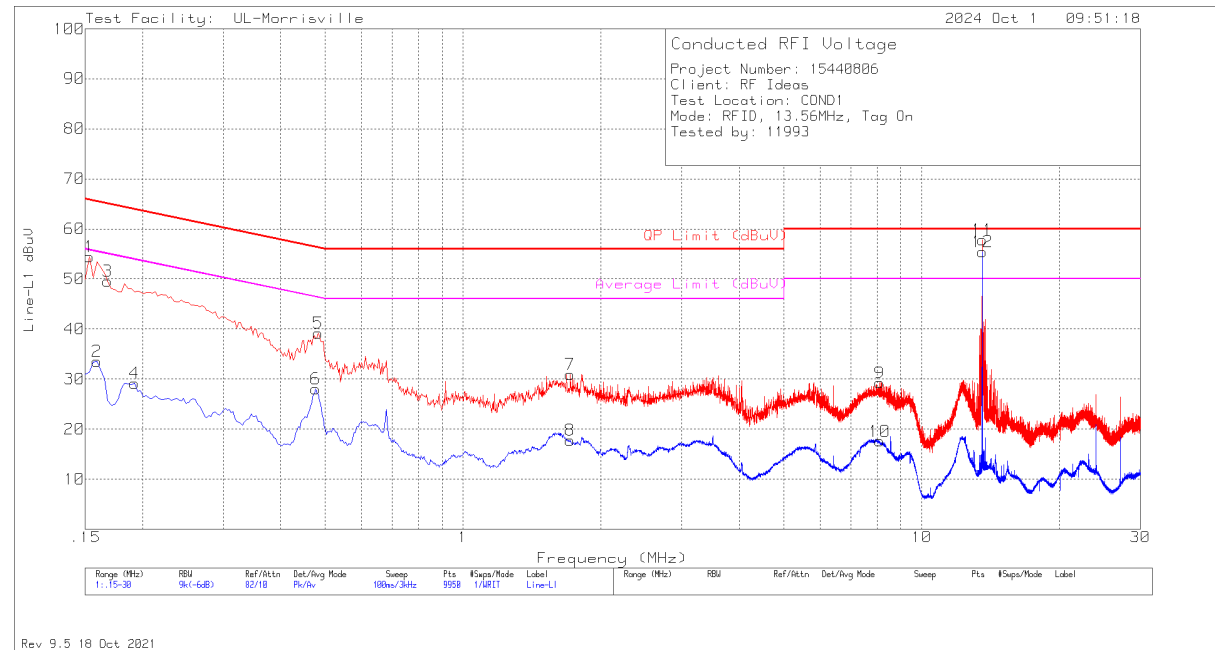
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

11.1.1. TAG ON

LINE 1 RESULTS



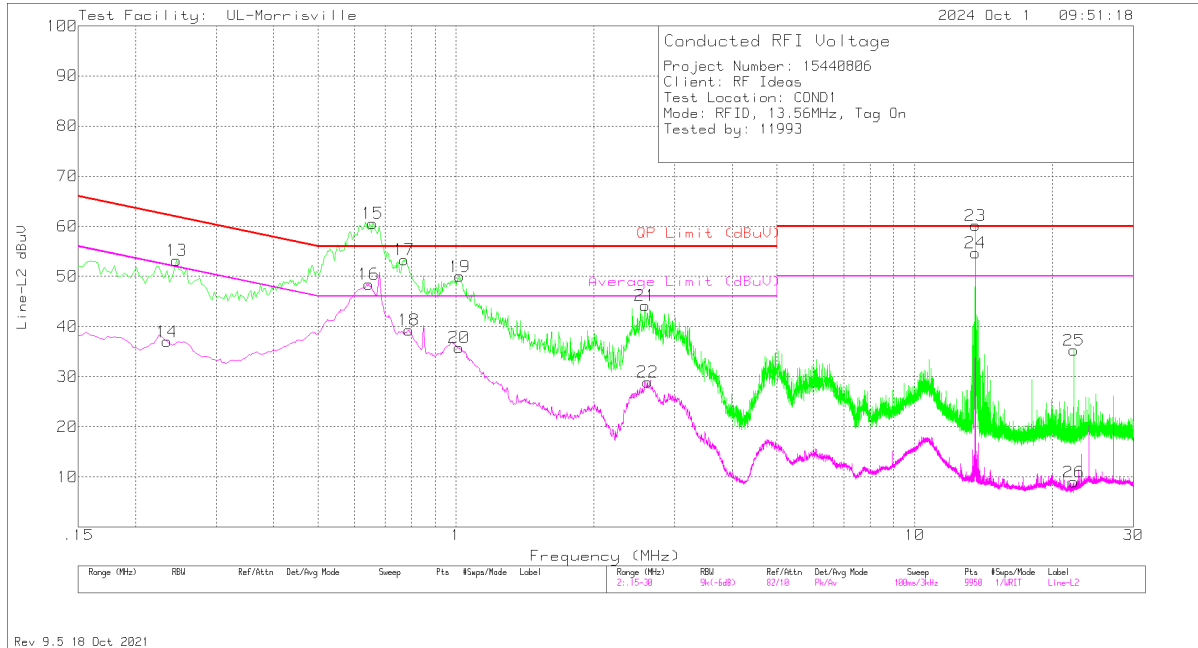
Emissions

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	.153	44.49	Pk	.2	9.8	54.49	65.84	-11.35	-	-
2	.159	23.49	Av	.2	9.8	33.49	-	-	55.52	-22.03
3	.168	39.54	Pk	.2	9.8	49.54	65.06	-15.52	-	-
4	.192	19.2	Av	.2	9.8	29.2	-	-	53.95	-24.75
6	.477	18.19	Av	0	9.8	27.99	-	-	46.39	-18.4
5	.483	29.36	Pk	0	9.8	39.16	56.29	-17.13	-	-
7	1.713	21.16	Pk	0	9.8	30.96	56	-25.04	-	-
8	1.713	8	Av	0	9.8	17.8	-	-	46	-28.2
9	8.109	19.13	Pk	.1	10	29.23	60	-30.77	-	-
10	8.109	7.48	Av	.1	10	17.58	-	-	50	-32.42
11	13.5604	46.93	Qp	.1	10	57.03	60	-2.97	-	-
12	13.5604	37.39	Ca	.1	10	47.49	-	-	50	-2.51

Pk - Peak detector
Av - Average detection
Qp - Quasi-Peak detector
Ca - CISPR average detection

NOTE* - Since the fundamental is over the limit, a terminated sample will be used to show compliance. Refer to section 11.1.3.

LINE 2 RESULTS



Emissions

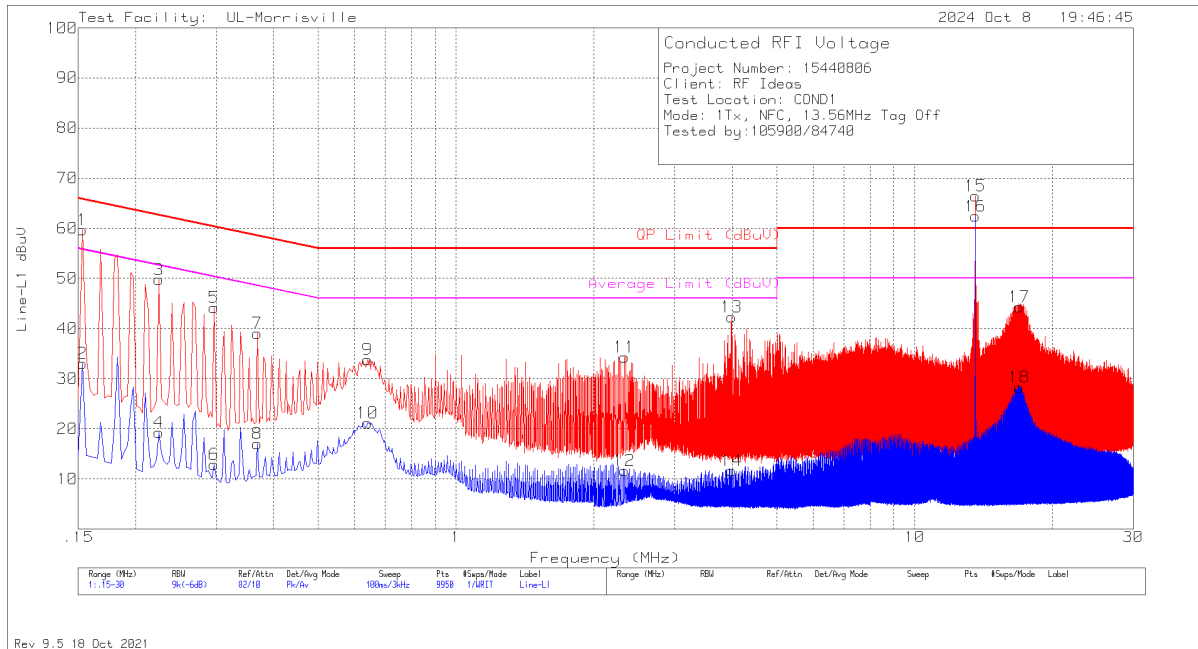
Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
14	.234	27.08	Av	.1	9.8	36.98	-	-	52.31	-15.33
13	.246	43.28	Pk	.1	9.8	53.18	61.89	-8.71	-	-
16	.63312	36.13	Ca	0	9.8	45.93	-	-	46	-0.07
15	.66557	43.37	Qp	0	9.8	53.17	56	-2.83	-	-
17	.7746	34.77	Qp	0	9.8	44.57	56	-11.43	-	-
18	.789	29.5	Av	0	9.8	39.3	-	-	46	-6.7
20	1.014	25.95	Av	0	9.8	35.75	-	-	46	-10.25
19	1.00798	32.66	Qp	0	9.8	42.46	56	-13.54	-	-
21	2.586	34.39	Pk	0	9.8	44.19	56	-11.81	-	-
22	2.616	19.07	Av	0	9.8	28.87	-	-	46	-17.13
23	13.5608	48.59	Qp	.1	10	58.69	60	-1.31	-	-
24	13.5608	47.35	Ca	.1	10	57.45	-	-	50	7.45
26	22.215	-1.55	Av	.3	10.2	8.95	-	-	50	-41.05
25	22.227	24.74	Pk	.3	10.2	35.24	60	-24.76	-	-

Pk - Peak detector
Av - Average detection
Qp - Quasi-Peak detector
Ca - CISPR average detection

NOTE* - Since the fundamental is over the limit, a terminated sample will be used to show compliance. Refer to section 11.1.3.

11.1.2. TAG OFF

LINE 1 RESULTS



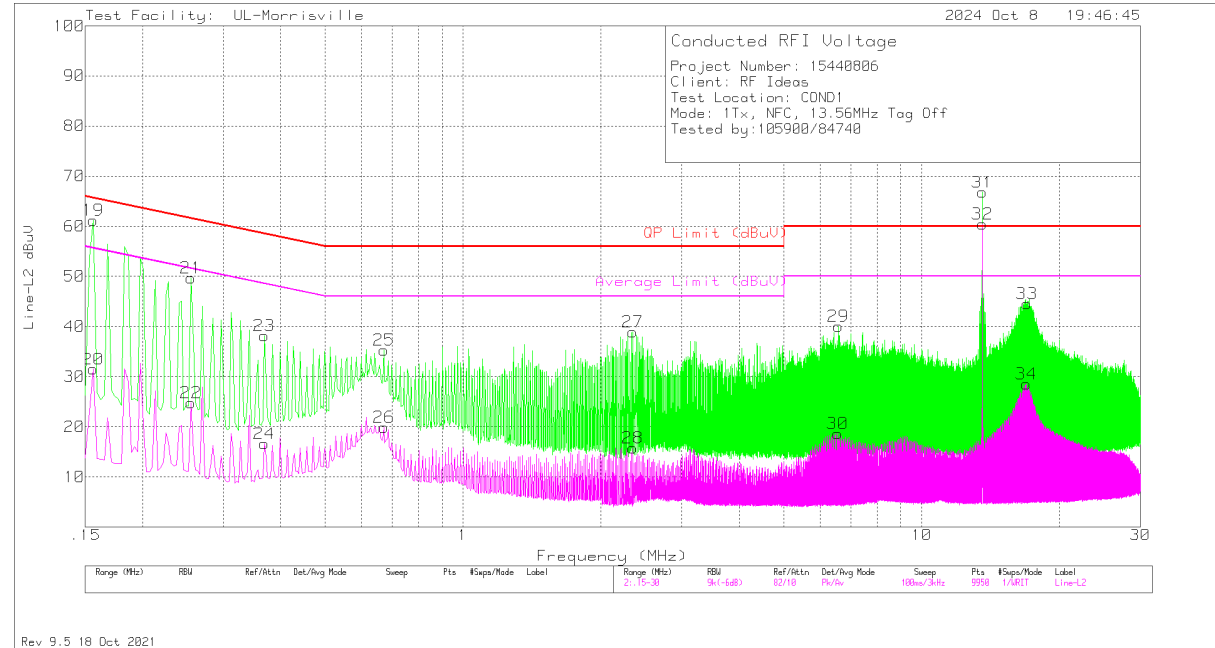
Emissions

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	.153	49.75	Pk	.2	9.8	59.75	65.84	-6.09	-	-
2	.153	23.07	Av	.2	9.8	33.07	-	-	55.84	-22.77
3	.225	39.85	Pk	.1	9.8	49.75	62.63	-12.88	-	-
4	.225	9.37	Av	.1	9.8	19.27	-	-	52.63	-33.36
5	.297	34.23	Pk	.1	9.8	44.13	60.33	-16.2	-	-
6	.297	2.96	Av	.1	9.8	12.86	-	-	50.33	-37.47
7	.369	29.12	Pk	.1	9.8	39.02	58.52	-19.5	-	-
8	.369	7.08	Av	.1	9.8	16.98	-	-	48.52	-31.54
9	.642	24	Pk	0	9.8	33.8	56	-22.2	-	-
10	.642	11.39	Av	0	9.8	21.19	-	-	46	-24.81
11	2.331	24.51	Pk	0	9.8	34.31	56	-21.69	-	-
12	2.331	1.8	Av	0	9.8	11.6	-	-	46	-34.4
13	3.993	32.37	Pk	0	9.9	42.27	56	-13.73	-	-
14	3.993	1.74	Av	0	9.9	11.64	-	-	46	-34.36
15	13.56079	53.33	Qp	.1	10	63.43	60	3.43	-	-
16	13.56079	54.4	Ca	.1	10	64.5	-	-	50	14.5
17	16.929	34.05	Pk	.2	10.1	44.35	60	-15.65	-	-
18	16.929	18.01	Av	.2	10.1	28.31	-	-	50	-21.69

Pk - Peak detector
Av - Average detection
Qp - Quasi-Peak detector
Ca - CISPR average detection

NOTE* - Since the fundamental is over the limit, a terminated sample will be used to show compliance. Refer to section 11.1.3.

LINE 2 RESULTS



Emissions

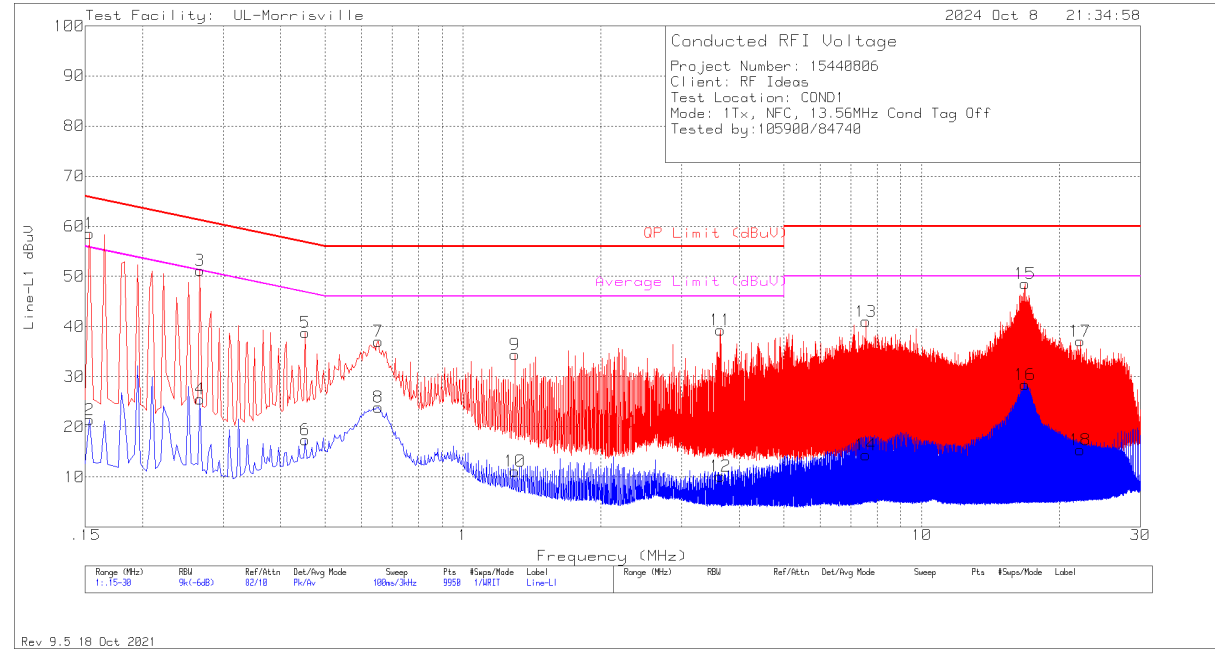
Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
.1607	34.69	Qp	.2	9.8	44.69	65.43	-20.74	-	-	.1607
20	.156	21.48	Av	.2	9.8	31.48	-	-	55.67	-24.19
21	.255	39.78	Pk	.1	9.8	49.68	61.59	-11.91	-	-
22	.255	14.85	Av	.1	9.8	24.75	-	-	51.59	-26.84
23	.369	28.32	Pk	.1	9.8	38.22	58.52	-20.3	-	-
24	.369	6.69	Av	.1	9.8	16.59	-	-	48.52	-31.93
25	.672	25.53	Pk	0	9.8	35.33	56	-20.67	-	-
26	.672	10.07	Av	0	9.8	19.87	-	-	46	-26.13
27	2.346	29.08	Pk	0	9.8	38.88	56	-17.12	-	-
28	2.346	5.95	Av	0	9.8	15.75	-	-	46	-30.25
30	6.561	8.68	Av	.1	9.9	18.68	-	-	50	-31.32
29	6.576	30.06	Pk	.1	9.9	40.06	60	-19.94	-	-
32	13.56054	53.55	Qp	.1	10	63.65	60	3.65	-	-
31	13.56054	55.29	Ca	.1	10	65.39	-	-	50	15.39
34	16.929	18.2	Av	.2	10.1	28.5	-	-	50	-21.5
33	16.971	34.26	Pk	.2	10.1	44.56	60	-15.44	-	-

Pk - Peak detector
Av - Average detection
Qp - Quasi-Peak detector
Ca - CISPR average detection

NOTE* - Since the fundamental is over the limit, a terminated sample will be used to show compliance. Refer to section 11.1.3.

11.1.3. **TERMINATED SAMPLE**

LINE 1 RESULTS

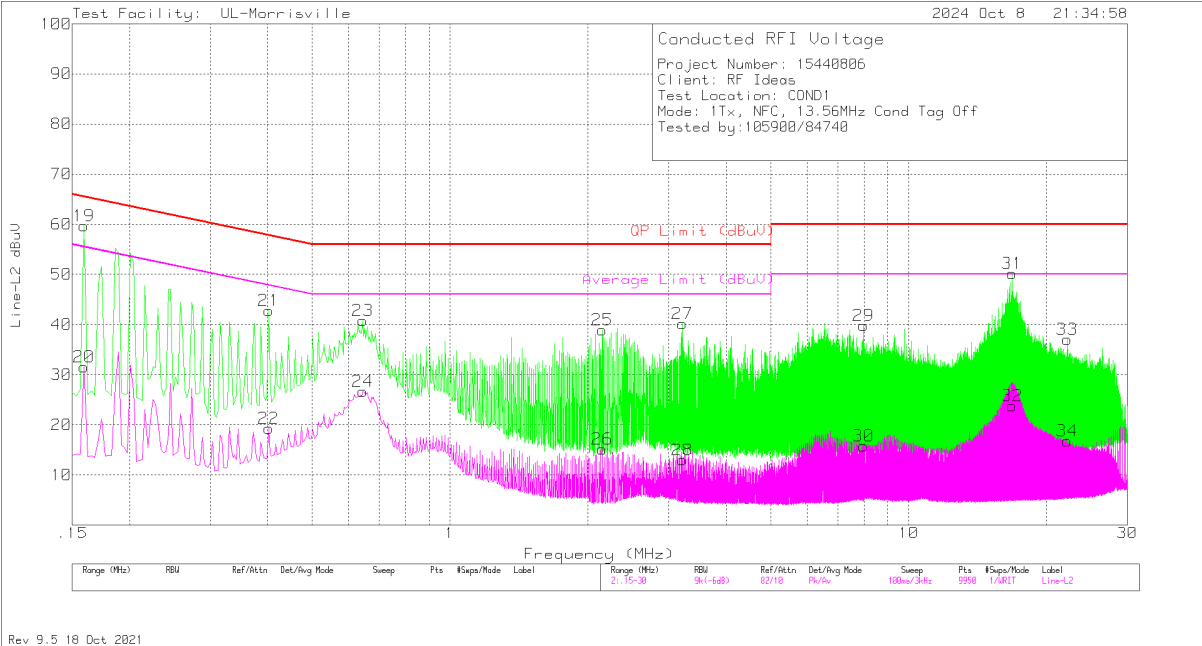


Emissions

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	.153	48.59	Pk	.2	9.8	58.59	65.84	-7.25	-	-
2	.153	11.35	Av	.2	9.8	21.35	-	-	55.84	-34.49
3	.267	41.32	Pk	.1	9.8	51.22	61.21	-9.99	-	-
4	.267	15.6	Av	.1	9.8	25.5	-	-	51.21	-25.71
5	.453	28.91	Pk	.1	9.8	38.81	56.82	-18.01	-	-
6	.453	7.51	Av	.1	9.8	17.41	-	-	46.82	-29.41
7	.654	27.21	Pk	0	9.8	37.01	56	-18.99	-	-
8	.654	14.06	Av	0	9.8	23.86	-	-	46	-22.14
9	1.299	24.58	Pk	0	9.8	34.38	56	-21.62	-	-
10	1.299	1.37	Av	0	9.8	11.17	-	-	46	-34.83
11	3.639	29.43	Pk	0	9.9	39.33	56	-16.67	-	-
12	3.639	.23	Av	0	9.9	10.13	-	-	46	-35.87
13	7.56	30.89	Pk	.1	10	40.99	60	-19.01	-	-
14	7.56	4.27	Av	.1	10	14.37	-	-	50	-35.63
15	16.821	38.22	Pk	.2	10.1	48.52	60	-11.48	-	-
16	16.821	18.07	Av	.2	10.1	28.37	-	-	50	-21.63
17	22.182	26.6	Pk	.3	10.2	37.1	60	-22.9	-	-
18	22.182	4.9	Av	.3	10.2	15.4	-	-	50	-34.6

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Emissions

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)
19	.16161	37.65	Qp	.2	9.8	47.65	65.38	-17.73	-	-
20	.159	21.57	Av	.2	9.8	31.57	-	-	55.52	-23.95
21	.402	32.93	Pk	.1	9.8	42.83	57.81	-14.98	-	-
22	.402	9.34	Av	.1	9.8	19.24	-	-	47.81	-28.57
23	.645	30.96	Pk	0	9.8	40.76	56	-15.24	-	-
24	.645	16.87	Av	0	9.8	26.67	-	-	46	-19.33
25	2.145	29.13	Pk	0	9.8	38.93	56	-17.07	-	-
26	2.145	5.39	Av	0	9.8	15.19	-	-	46	-30.81
27	3.216	30.42	Pk	0	9.8	40.22	56	-15.78	-	-
28	3.216	3.16	Av	0	9.8	12.96	-	-	46	-33.04
29	7.98	29.68	Pk	.1	10	39.78	60	-20.22	-	-
30	7.98	5.7	Av	.1	10	15.8	-	-	50	-34.2
31	16.836	39.92	Pk	.2	10.1	50.22	60	-9.78	-	-
32	16.836	13.47	Av	.2	10.1	23.77	-	-	50	-26.23
33	22.2	26.56	Pk	.3	10.2	37.06	60	-22.94	-	-
34	22.2	6.24	Av	.3	10.2	16.74	-	-	50	-33.26

Pk - Peak detector
Av - Average detection
Qp - Quasi-Peak detector

12. SETUP PHOTOS

Please refer to R15440806-EP1 for setup photos

END OF TEST REPORT