TEST REPORT

Report Number. : R14753336-E1

Applicant	:	BECKMAN COULTER INC. 250 SOUTH KRAEMER BOULEVARD MS C1NW01 BREA, CA 92821-6232, USA
Model	:	PAT700
FCC ID	:	2AOSQM1RFID23
IC	:	23864-M1RFID23
EUT Description	:	TOC ANALYZER
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C: 2023 RSS-210 ISSUE 10: 2019 RSS-GEN ISSUE 5 + A1 + A2: 2021

Date Of Issue:
2024-08-09

Prepared by:
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ACCREDITED
CERT #0751.06

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2023-10-16	Initial Issue	Noah Bennett
V2	2024-01-25	TCB Feedback Round 1 -Added Summary of Test Results section. -Clarified section 6.4 -Removed non-applicable notes from section 8	Noah Bennett
V3	2024-08-09	Added Missing I/O cable	Noah Bennett

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BECKMAN COULTER INC.
250 SOUTH KRAEMER BOULEVARD MS C1NW01
BREA, CA 92821-6232, USA

EUT DESCRIPTION: TOC ANALYZER

MODEL: PAT700

SERIAL NUMBER: N/A

SAMPLE RECEIPT DATE: 2023-07-07

DATE TESTED: 2023-07-19 to 2023-08-14

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C: 2023	Complies
ISED RSS-210 Issue 10: 2019	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:

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UL LLC.

2. TEST METHODOLOGY

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

- ANSI C63.10-2013
- FCC 47 CFR Part 2
- FCC 47 CFR Part 15C
- RSS-GEN Issue 5 + A1 + A2: 2021
- RSS-210 Issue 10: 2019

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 similarities (see section 6.4)
2. Intended EUT orientation (see section 6.4)
3. RFID radio operational specifications (see section 6.4)

Requirement Description	Requirement Clause Number	Result	Remarks
Occupied Bandwidth	FCC §15.215 (c) RSS-Gen 6.7	Passed	None.
Fundamental Measurements.	FCC §15.225 (a-d) FCC §15.209 (d) IC RSS-210, Annex B.6 IC RSS-GEN, Section 8.9 (Transmitter)		
Tx Spurious Emissions			
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 the ANATEL PAT700 that detects the Total Organic Carbon concentration in a water sample. The EUT has an RFID radio on the accessory bottle, and bottle receptacle. There are 4 independently operated RFID radios and bottles. Only 1 RFID radio can read a bottle at a time, I.E the EUT cannot transmit on more than one radio simultaneously.

6.2. MAXIMUM ELECTRIC FIELD STRENGTH

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

Fundamental Frequency (MHz)	E-Field (dBuV/m)
13.56	-7.55

6.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 0.0.30.0. Unix OS Ver: 5.4.142.0

6.4. WORST-CASE CONFIGURATION AND MODE

The EUT has 4 independent RFID radios with 4 accessory bottles. Per client declaration, each RFID radio and bottle are electrically identical, and operate at the same power. To find the worst-case configuration, the fundamental of each RFID radio with its associated bottle was measured and compared. It was found that radio 4 with bottle 4 was the worst-case. Therefore, all testing in this report was done on this RFID radio and bottle only.

Per client declaration, the EUT is only meant to operate as tabletop equipment in one orientation. Therefore, the EUT was tested in said orientation.

Per client declaration, only 1 RFID radio can read a bottle at a time, I.E, Simultaneous transmission is not supported on the EUT.

The EUT was tested while connected to AC mains and operating as intended.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Router	Linksys	BEFSR41	C2124038797	N/A
Flash Drive	PNY	16GB	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	3 Pin	Shielded	<3m	Connected to AC Mains
2	Digital In/Out	3	5 Pin	Shielded	<3m	Terminated into resistor bank.
3	Ethernet	1	RJ45	Shielded	<3m	Connected to Router underneath ground plane.
4	RS-232 Data	1	RS232	Shielded	<3m	Terminated into resistor bank.
5	Printer/Cal	1	9 pin	Shielded	<3m	Terminated into resistor bank.
6	USB	1	USB	Shielded	<3m	Connected to USB Flash Drive.
7	4-20mA	1	8	Shielded	<3m	Terminated into dummy load.

TEST SETUP

The EUT is configured to transmit at max power during the test. The accessory bottle was installed, and the radio was set to read the accessory bottle.

SETUP DIAGRAM

Please refer to R14753336-EP1 for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

Notes

For tests involving equipment listed above that has a calibration due date during the testing period, the testing was completed before said due date.

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
	Conducted Room 1				
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-14	2024-06-14
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2023-01-20	2024-01-20
210642	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16
MM0169	True RMS Multimeter	Agilent	U1232A	2022-08-03	2023-08-03
PS214	CW-AC Power Source	Ametek	CW2501	NA	NA
92852	CW-AC Power Source	Ametek	CW2501	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA

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	2023-04-04	2024-04-04
SN: 181474341	Environmental Meter	Fisher Scientific	15-077-963	2022-10-05	2023-10-05
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2022-08-01	2023-08-01
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2022-08-03	2023-08-03
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2023-04-04	2024-04-04
MM0169	True RMS Multimeter	Keysight Technologies	U1232A	2022-08-03	2023-08-03
92852	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Miscellaneous (if needed)				
LISN008	LISN, 50-ohm/50-uH, 2-conductor, 25A (For support gear only.)	Solar Electronics	8012-50-R-24-BNC	NA	NA

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
	Gain-Loss Chains				
207638	Gain-loss string: 0.009-30MHz	Various	Various	2023-05-17	2024-05-17
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-04-10	2024-04-10
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
21642	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16

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	2023-01-17	2024-01-17
	30-1000 MHz				
159203	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2023-01-23	2024-01-23
	Gain-Loss Chains				
91974	Gain-loss string: 0.009-30MHz	Various	Various	2023-05-16	2024-05-16
91976	Gain-loss string: 25-1000MHz	Various	Various	2023-05-16	2024-05-16
	Receiver & Software				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-02-02	2024-02-02
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200539	Environmental Meter	Fisher Scientific	15-077-963	2022-10-05	2023-10-05
PS216	AC Power Source	Elgar	CW2501M	NA	NA
HPF008	High Pass Filter (30MHz)	Pasternack	PE8717	2023-02-15	2024-02-15

8. OCCUPIED BANDWIDTH

LIMITS

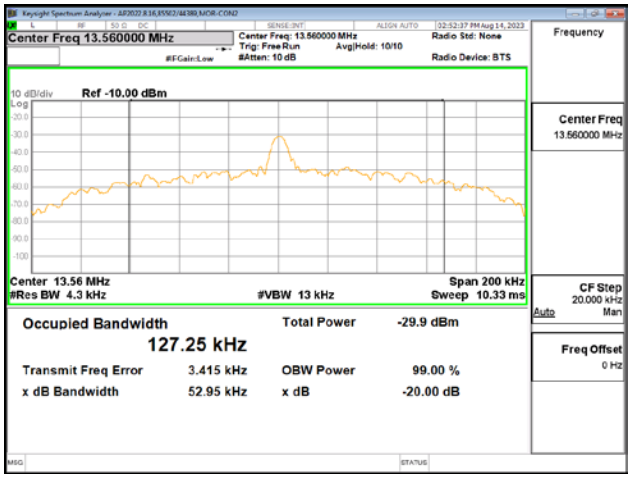
FCC §15.215 (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

TEST PROCEDURE

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



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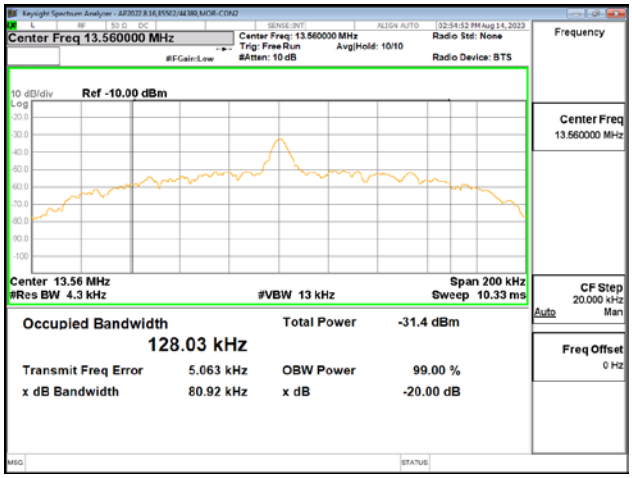

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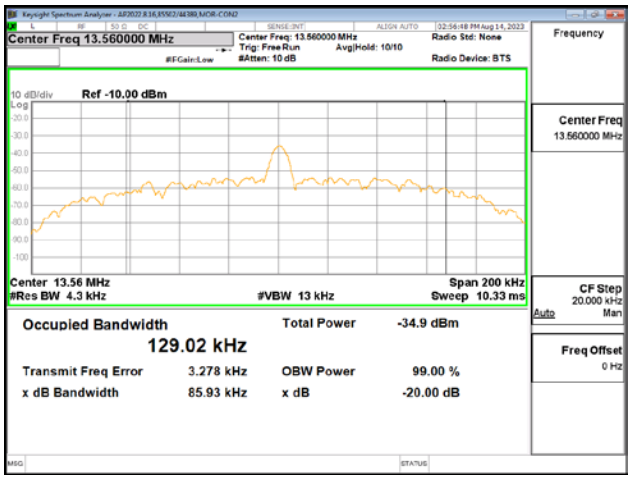

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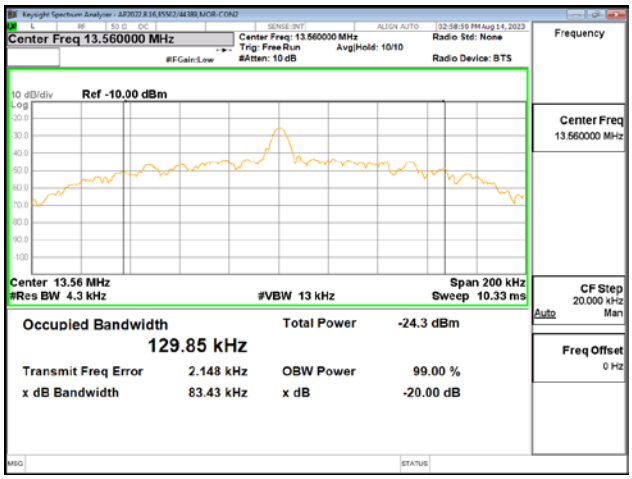
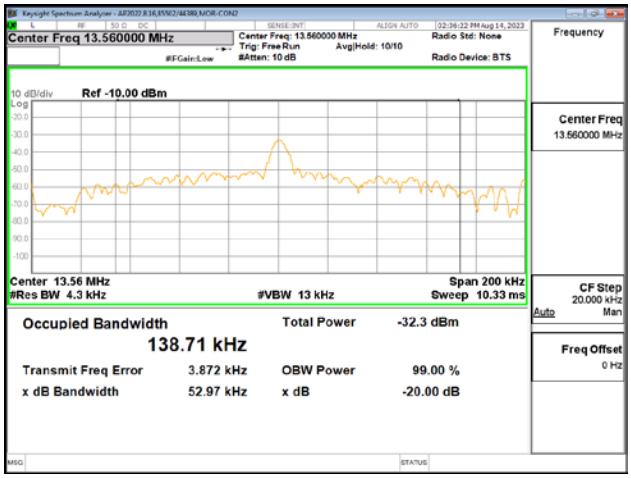


SLOT 4

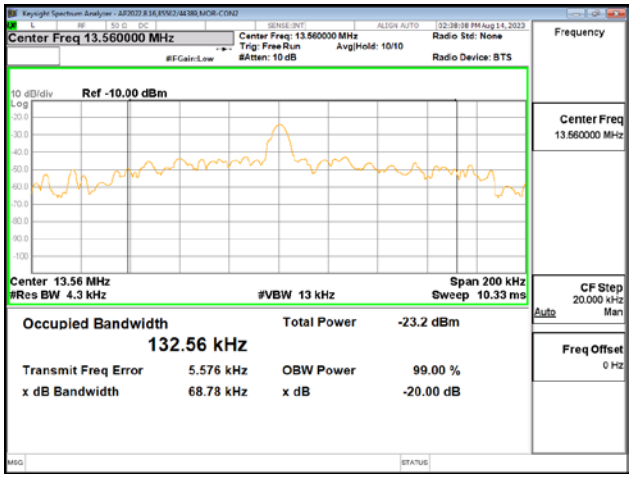
Tag On

Bottle Number	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
1	13.56	127.25	52.95
2	13.56	128.03	80.92
3	13.56	129.02	85.93
4	13.56	129.85	83.43

8.2. Tag Off



SLOT 1



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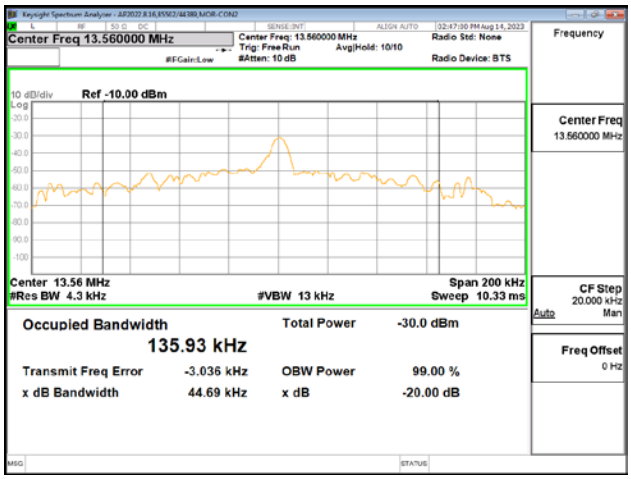
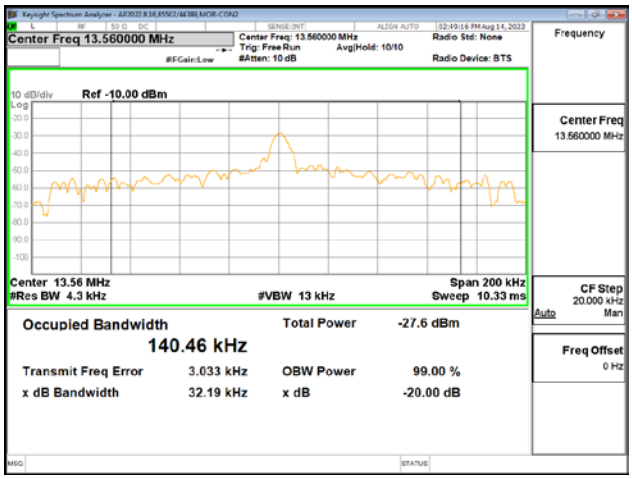


SLOT 3



SLOT 4

Tag Off

Bottle Number	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
1	13.56	138.71	52.97
2	13.56	132.56	68.78
3	13.56	135.93	44.69
4	13.56	140.46	32.19

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, 2013

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.

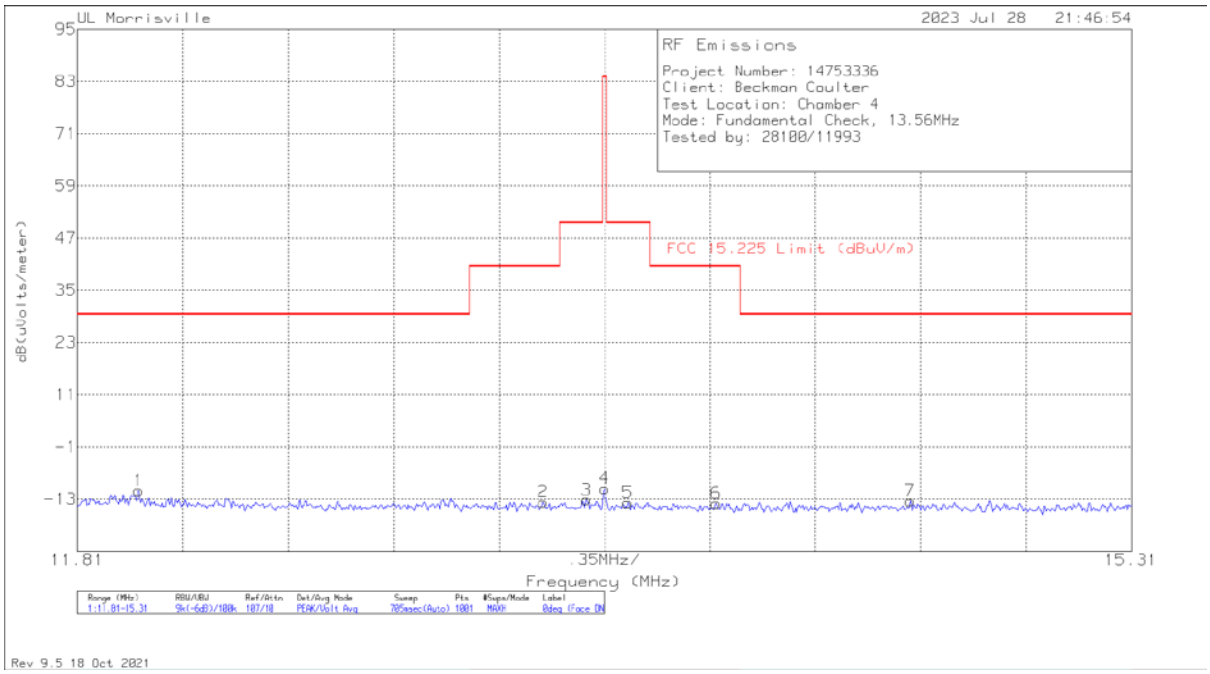
Note: For all Below 30MHz test data, all measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious 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*Log (test distance / specification distance)

RESULTS

9.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (Below 30MHz)

9.2.1. Tag On

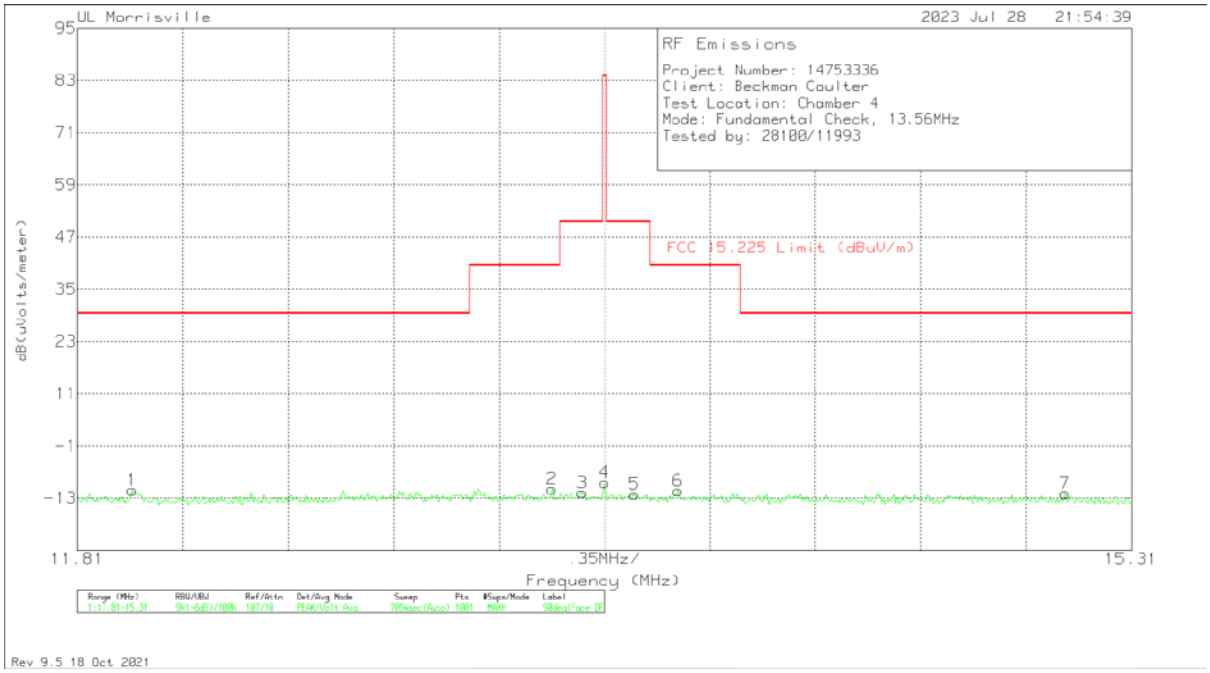
FUNDAMENTAL



ANTENNA FACE ON

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.013	17.36	Pk	10.8	.8	-40	-11.04	29.5	-40.54	5	100	0 degs
2	13.357	14.82	Pk	10.6	.9	-40	-13.68	40.5	-54.18	5	100	0 degs
3	13.5005	15.3	Pk	10.6	.9	-40	-13.2	50.5	-63.7	5	100	0 degs
4	13.56	17.98	Pk	10.6	.9	-40	-10.52	84	-94.52	5	100	0 degs
5	13.637	14.65	Pk	10.6	.9	-40	-13.85	50.5	-64.35	5	100	0 degs
6	13.931	14.62	Pk	10.5	.9	-40	-13.98	40.5	-54.48	5	100	0 degs
7	14.575	15.15	Pk	10.5	.9	-40	-13.45	29.5	-42.95	5	100	0 degs

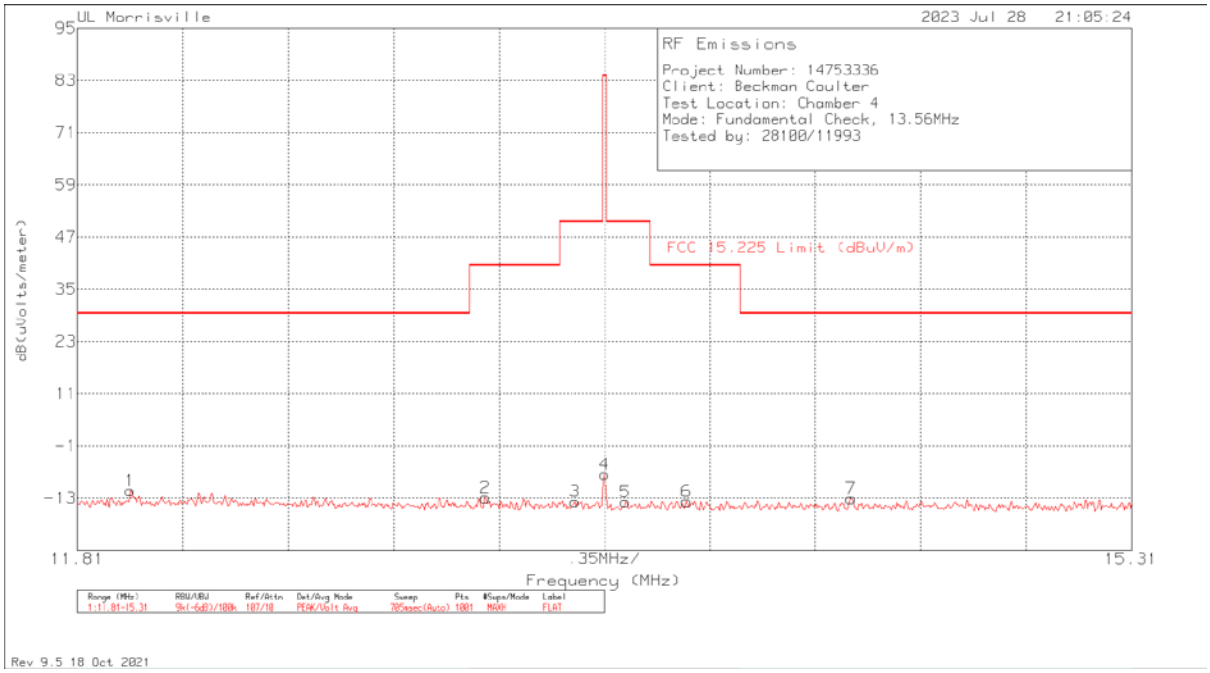
Pk - Peak detector



ANTENNA FACE OFF

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	11.992	17.26	Pk	10.8	.8	-40	-11.14	29.5	-40.64	20	100	90 degs
2	13.385	17.62	Pk	10.6	.9	-40	-10.88	40.5	-51.38	20	100	90 degs
3	13.4865	16.78	Pk	10.6	.9	-40	-11.72	50.5	-62.22	20	100	90 degs
4	13.56	19.13	Pk	10.6	.9	-40	-9.37	84	-93.37	20	100	90 degs
5	13.658	16.4	Pk	10.6	.9	-40	-12.1	50.5	-62.6	20	100	90 degs
6	13.805	17.28	Pk	10.5	.9	-40	-11.32	40.5	-51.82	20	100	90 degs
7	15.0895	16.79	Pk	10.4	.9	-40	-11.91	29.5	-41.41	20	100	90 degs

Pk - Peak detector

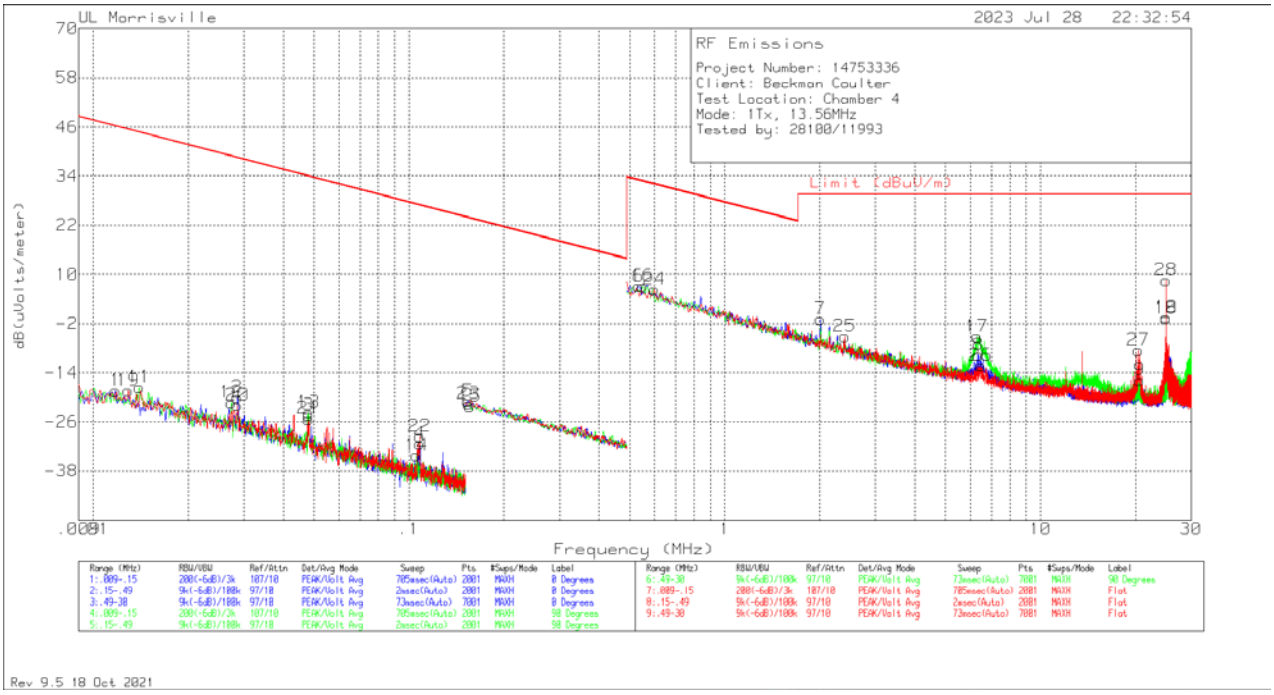


ANTENNA FACE FLAT

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	11.985	17.09	Pk	10.8	.8	-40	-11.31	29.5	-40.81	35	100	Flat
2	13.1645	15.56	Pk	10.6	.9	-40	-12.94	40.5	-53.44	35	100	Flat
3	13.462	14.68	Pk	10.6	.9	-40	-13.82	50.5	-64.32	35	100	Flat
4	13.56	20.95	Pk	10.6	.9	-40	-7.55	84	-91.55	35	100	Flat
5	13.63	14.61	Pk	10.6	.9	-40	-13.89	50.5	-64.39	35	100	Flat
6	13.833	14.81	Pk	10.5	.9	-40	-13.79	40.5	-54.29	35	100	Flat
7	14.379	15.47	Pk	10.5	.9	-40	-13.13	29.5	-42.63	35	100	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

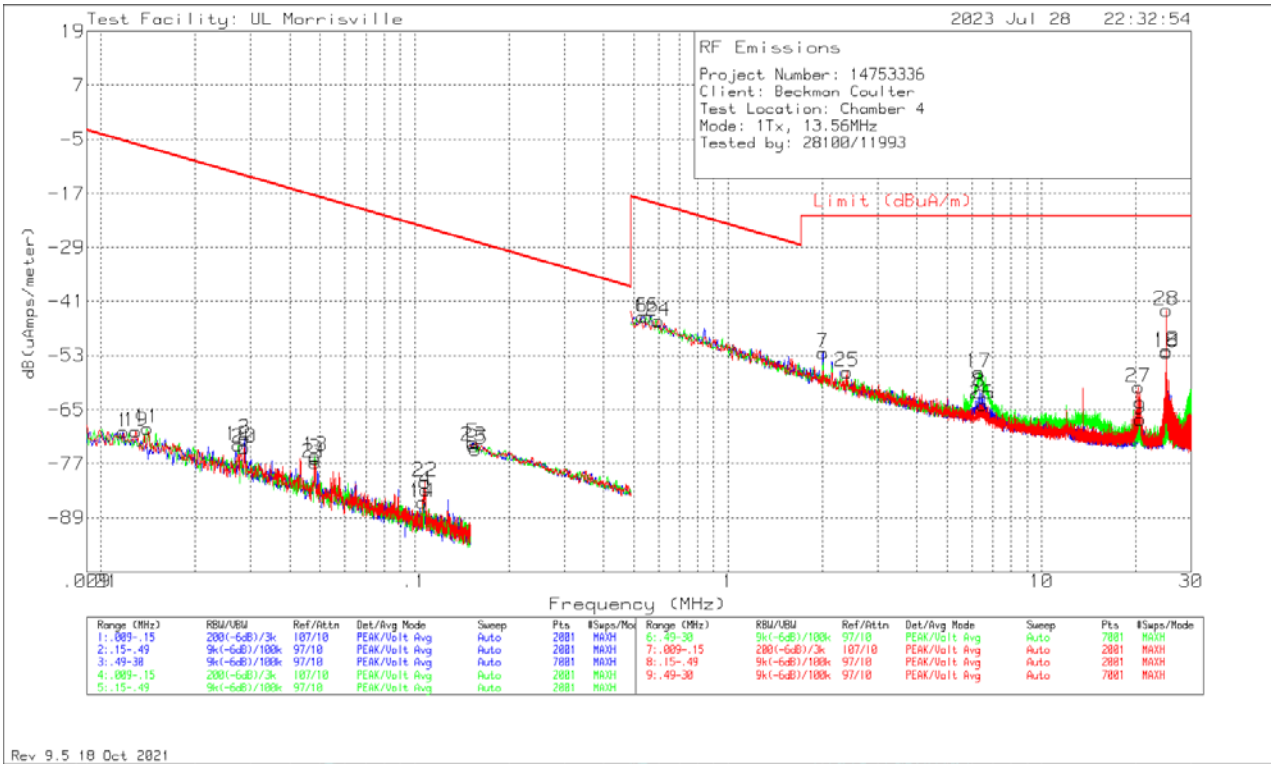


BL30MHz SPURIOUS EMISSIONS

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)	Qp/Av Margin (dB)	Pk Limit (dBuV/m)	Azimuth (Degs)	Loop Angle
1	.01177	42.95	Pk	18.5	.1	-80	-18.45	46.19	-64.64	66.19	0-360	0 degs
19	.01291	43.56	Pk	18	.1	-80	-18.34	45.39	-63.73	65.39	0-360	Flat
11	.01404	44.76	Pk	17.5	.1	-80	-17.64	44.66	-62.3	64.66	0-360	90 degs
12	.02739	44.25	Pk	14.3	.1	-80	-21.35	38.85	-60.2	58.85	0-360	90 degs
2	.02867	45.74	Pk	14.2	.1	-80	-19.96	38.46	-58.42	58.46	0-360	0 degs
20	.02867	43.74	Pk	14.2	.1	-80	-21.96	38.46	-60.42	58.46	0-360	Flat
3	.04819	42.83	Pk	12.7	.1	-80	-24.37	33.94	-58.31	53.94	0-360	0 degs
13	.04819	43.44	Pk	12.7	.1	-80	-23.76	33.94	-57.7	53.94	0-360	90 degs
21	.04819	41.97	Pk	12.7	.1	-80	-25.23	33.94	-59.17	53.94	0-360	Flat
14	.10584	33.58	Pk	12.2	.1	-80	-34.12	27.11	-61.23	-	0-360	90 degs
22	.10805	38.15	Pk	12.2	.1	-80	-29.55	26.93	-56.48	-	0-360	Flat
4	.1084	36.37	Pk	12.2	.1	-80	-31.33	26.9	-58.23	-	0-360	0 degs
5	.15383	46.8	Pk	12.2	.1	-80	-20.9	23.86	-44.76	43.86	0-360	0 degs
23	.15459	46.08	Pk	12.2	.1	-80	-21.62	23.82	-45.44	43.82	0-360	Flat
15	.15629	45.38	Pk	12.2	.1	-80	-22.32	23.73	-46.05	43.73	0-360	90 degs
6	.53216	34.74	Pk	12.2	.2	-40	7.14	33.08	-25.94	-	0-360	0 degs
16	.54902	34.65	Pk	12.2	.2	-40	7.05	32.81	-25.76	-	0-360	90 degs
24	.59962	33.84	Pk	12.2	.2	-40	6.24	32.05	-25.81	-	0-360	Flat
7	2.00776	26.53	Pk	12.3	.3	-40	-.87	29.54	-30.41	-	0-360	0 degs
25	2.39563	22.28	Pk	12.3	.3	-40	-5.12	29.54	-34.66	-	0-360	Flat
17	6.30386	22.6	Pk	11.6	.6	-40	-5.2	29.54	-34.74	-	0-360	90 degs
8	6.34181	18.19	Pk	11.6	.6	-40	-9.61	29.54	-39.15	-	0-360	0 degs
26	6.47883	15.5	Pk	11.6	.6	-40	-12.3	29.54	-41.84	-	0-360	Flat
27	20.37266	20.68	Pk	9.7	1.1	-40	-8.52	29.54	-38.06	-	0-360	Flat
9	20.6214	13.48	Pk	9.7	1.1	-40	-15.72	29.54	-45.26	-	0-360	0 degs
10	25.00604	29.5	Pk	8.9	1.2	-40	-.4	29.54	-29.94	-	0-360	0 degs
18	25.00604	29.08	Pk	8.9	1.2	-40	-.82	29.54	-30.36	-	0-360	90 degs
28	25.00604	38.44	Pk	8.9	1.2	-40	8.54	29.54	-21	-	0-360	Flat

Pk – Peak Detector Note: Only Qp/Av Margin reported as worst-case.

SPURIOUS EMISSION – H FIELD



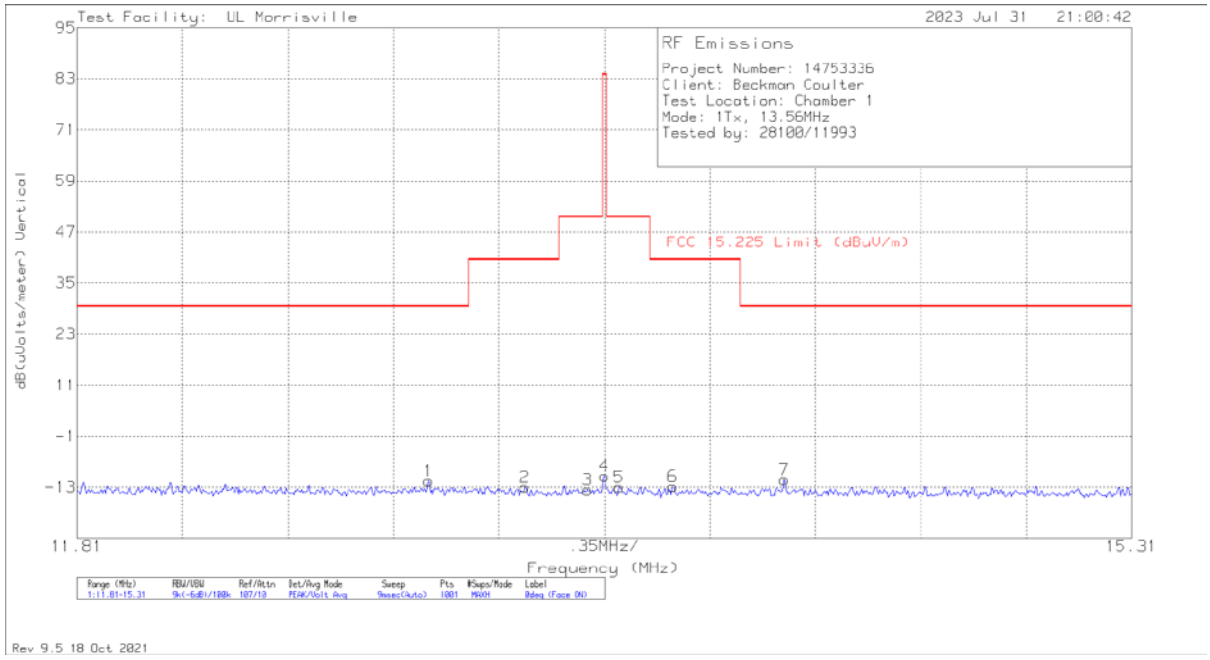
BL30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Qp/Av Limit (dBuA/m)	Margin (dB)	Pk Limit (dBuV/m)	Azimuth (Degs)	Loop Angle
1	.01177	42.95	Pk	-33	.1	-80	-69.95	-5.31	-64.64	14.69	0-360	0 degs
19	.01291	43.56	Pk	-33.5	.1	-80	-69.84	-6.11	-63.73	13.89	0-360	Flat
11	.01404	44.76	Pk	-34	.1	-80	-69.14	-6.84	-62.3	13.16	0-360	90 degs
12	.02739	44.25	Pk	-37.2	.1	-80	-72.85	-12.65	-60.2	7.35	0-360	90 degs
2	.02867	45.74	Pk	-37.3	.1	-80	-71.46	-13.04	-58.42	6.96	0-360	0 degs
20	.02867	43.74	Pk	-37.3	.1	-80	-73.46	-13.04	-60.42	6.96	0-360	Flat
3	.04819	42.83	Pk	-38.8	.1	-80	-75.87	-17.56	-58.31	2.44	0-360	0 degs
13	.04819	43.44	Pk	-38.8	.1	-80	-75.26	-17.56	-57.7	2.44	0-360	90 degs
21	.04819	41.97	Pk	-38.8	.1	-80	-76.73	-17.56	-59.17	2.44	0-360	Flat
14	.10584	33.58	Pk	-39.3	.1	-80	-85.62	-24.39	-61.23	-	0-360	90 degs
22	.10805	38.15	Pk	-39.3	.1	-80	-81.05	-24.57	-56.48	-	0-360	Flat
4	.1084	36.37	Pk	-39.3	.1	-80	-82.83	-24.6	-58.23	-	0-360	0 degs
5	.15383	46.8	Pk	-39.3	.1	-80	-72.4	-27.64	-44.76	-7.64	0-360	0 degs
23	.15459	46.08	Pk	-39.3	.1	-80	-73.12	-27.68	-45.44	-7.68	0-360	Flat
15	.15629	45.38	Pk	-39.3	.1	-80	-73.82	-27.77	-46.05	-7.77	0-360	90 degs
6	.53216	34.74	Pk	-39.3	.2	-40	-44.36	-18.42	-25.94	-	0-360	0 degs
16	.54902	34.65	Pk	-39.3	.2	-40	-44.45	-18.69	-25.76	-	0-360	90 degs
24	.59962	33.84	Pk	-39.3	.2	-40	-45.26	-19.45	-25.81	-	0-360	Flat
7	2.00776	26.53	Pk	-39.2	.3	-40	-52.37	-21.96	-30.41	-	0-360	0 degs
25	2.39563	22.28	Pk	-39.2	.3	-40	-56.62	-21.96	-34.66	-	0-360	Flat
17	6.30386	22.6	Pk	-39.9	.6	-40	-56.7	-21.96	-34.74	-	0-360	90 degs
8	6.34181	18.19	Pk	-39.9	.6	-40	-61.11	-21.96	-39.15	-	0-360	0 degs
26	6.47883	15.5	Pk	-39.9	.6	-40	-63.8	-21.96	-41.84	-	0-360	Flat
27	20.37266	20.68	Pk	-41.8	1.1	-40	-60.02	-21.96	-38.06	-	0-360	Flat
9	20.6214	13.48	Pk	-41.8	1.1	-40	-67.22	-21.96	-45.26	-	0-360	0 degs
10	25.00604	29.5	Pk	-42.6	1.2	-40	-51.9	-21.96	-29.94	-	0-360	0 degs
18	25.00604	29.08	Pk	-42.6	1.2	-40	-52.32	-21.96	-30.36	-	0-360	90 degs
28	25.00604	38.44	Pk	-42.6	1.2	-40	-42.96	-21.96	-21	-	0-360	Flat

Pk – Peak Detector
Note: Only Qp/Av Margin reported as worst-case.

9.2.2. Tag Off

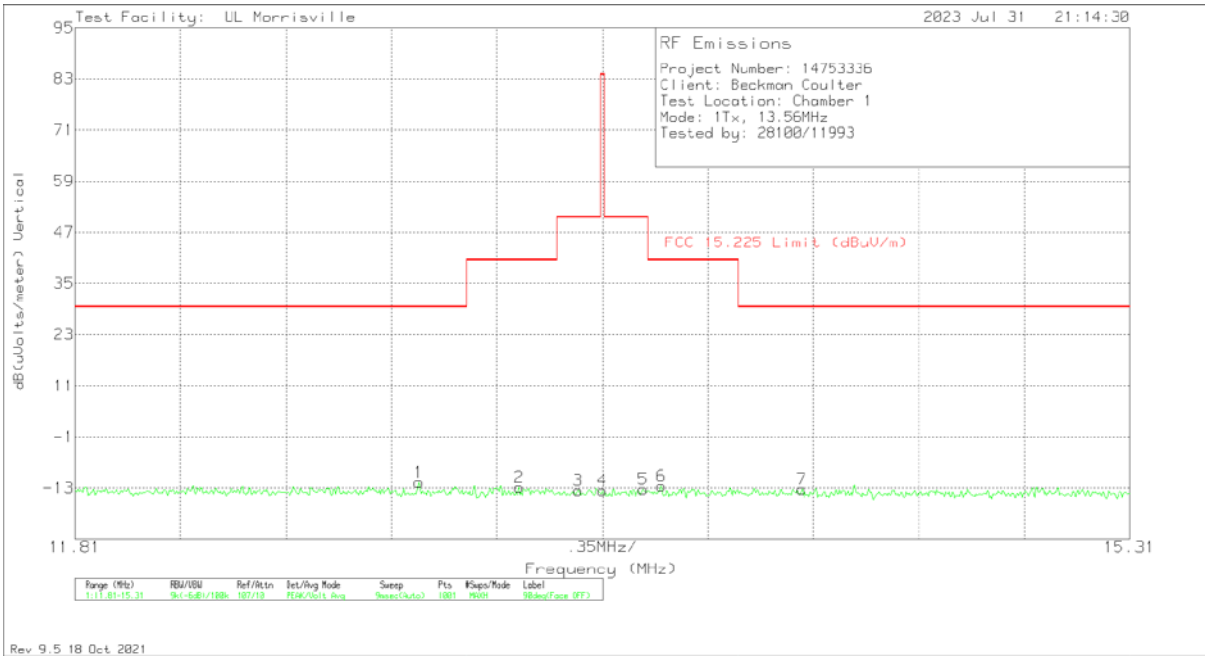
FUNDAMENTAL



ANTENNA FACE ON

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.9755	17.06	Pk	10.6	.8	-40	-11.54	29.5	-41.04	119	100	0 degs
2	13.2975	15.6	Pk	10.6	.8	-40	-13	40.5	-53.5	119	100	0 degs
3	13.504	15.05	Pk	10.6	.8	-40	-13.55	50.5	-64.05	119	100	0 degs
4	13.56	18.26	Pk	10.6	.8	-40	-10.34	84	-94.34	119	100	0 degs
5	13.609	15.59	Pk	10.6	.8	-40	-13.01	50.5	-63.51	119	100	0 degs
6	13.7875	15.93	Pk	10.5	.8	-40	-12.77	40.5	-53.27	119	100	0 degs
7	14.1585	17.49	Pk	10.5	.8	-40	-11.21	29.5	-40.71	119	100	0 degs

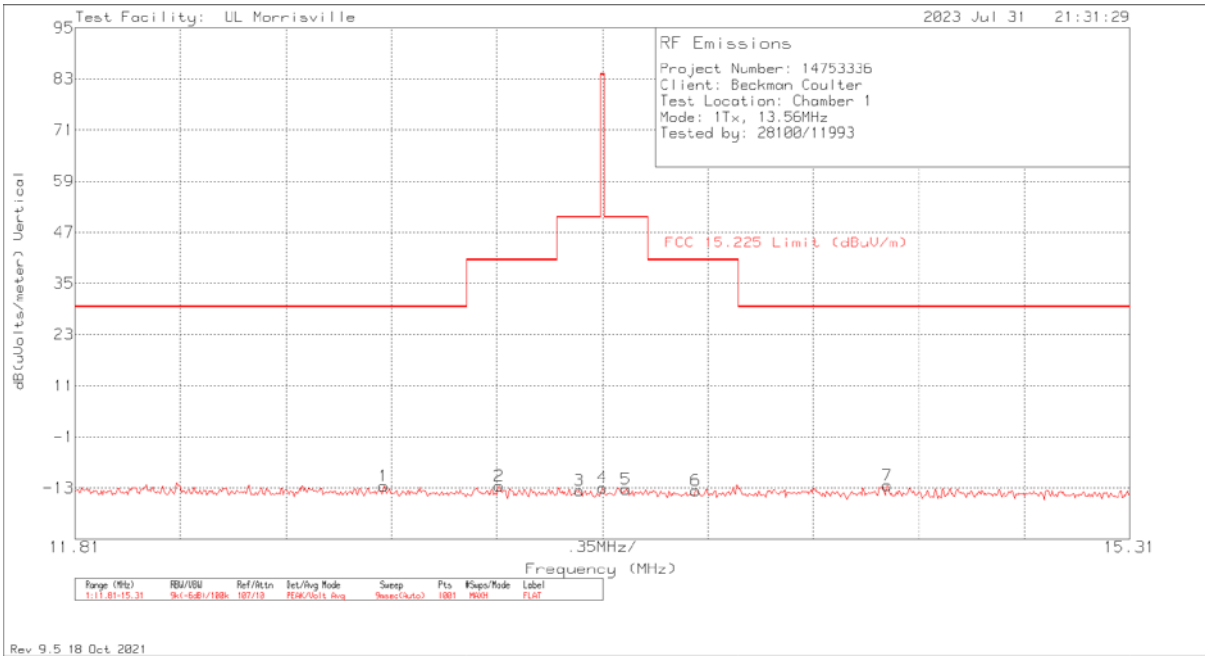
Pk - Peak detector



ANTENNA FACE OFF

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.951	16.88	Pk	10.6	.8	-40	-11.72	29.5	-41.22	326	100	90 degs
2	13.2835	15.73	Pk	10.6	.8	-40	-12.87	40.5	-53.37	326	100	90 degs
3	13.4795	15.08	Pk	10.6	.8	-40	-13.52	50.5	-64.02	326	100	90 degs
4	13.56	14.98	Pk	10.6	.8	-40	-13.62	84	-97.62	326	100	90 degs
5	13.6965	15.3	Pk	10.6	.8	-40	-13.3	50.5	-63.8	326	100	90 degs
6	13.756	16.1	Pk	10.5	.8	-40	-12.6	40.5	-53.1	326	100	90 degs
7	14.2215	15.46	Pk	10.5	.8	-40	-13.24	29.5	-42.74	326	100	90 degs

Pk - Peak detector

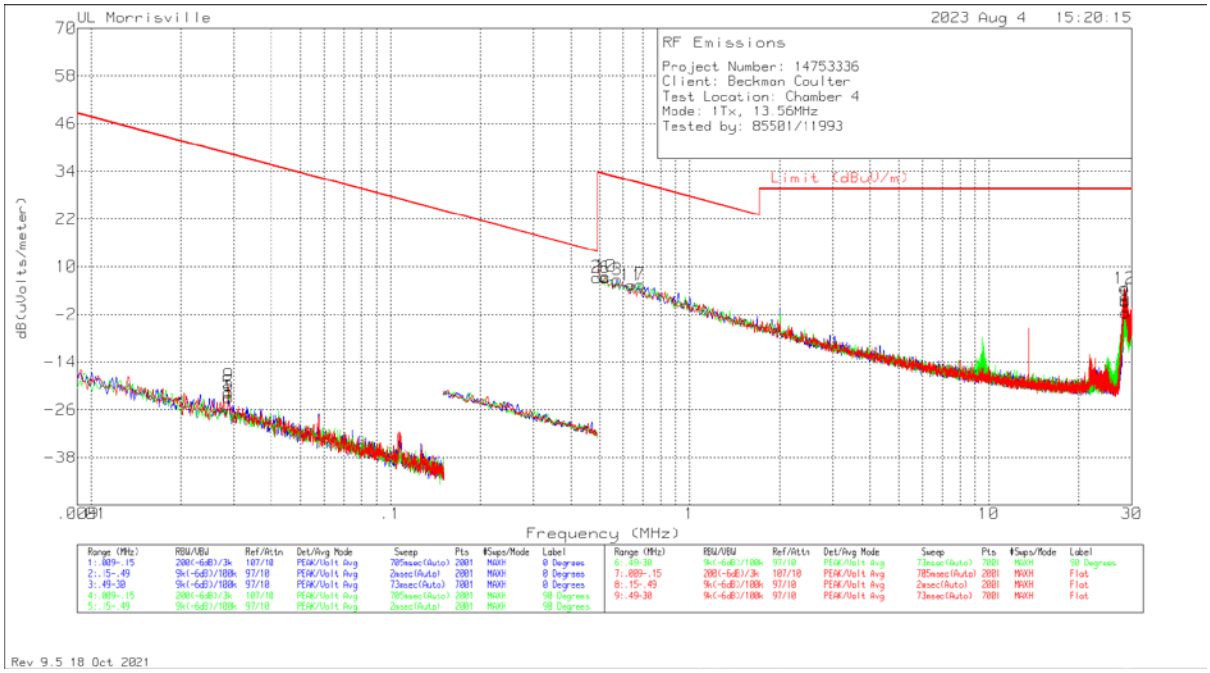


ANTENNA FACE FLAT

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.8355	16.06	Pk	10.7	.7	-40	-12.54	29.5	-42.04	326	100	Flat
2	13.217	16.11	Pk	10.6	.8	-40	-12.49	40.5	-52.99	326	100	Flat
3	13.483	14.97	Pk	10.6	.8	-40	-13.63	50.5	-64.13	326	100	Flat
4	13.56	15.69	Pk	10.6	.8	-40	-12.91	84	-96.91	326	100	Flat
5	13.637	15.37	Pk	10.6	.8	-40	-13.23	50.5	-63.73	326	100	Flat
6	13.8715	15.18	Pk	10.5	.8	-40	-13.52	40.5	-54.02	326	100	Flat
7	14.505	16.25	Pk	10.5	.8	-40	-12.45	29.5	-41.95	326	100	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

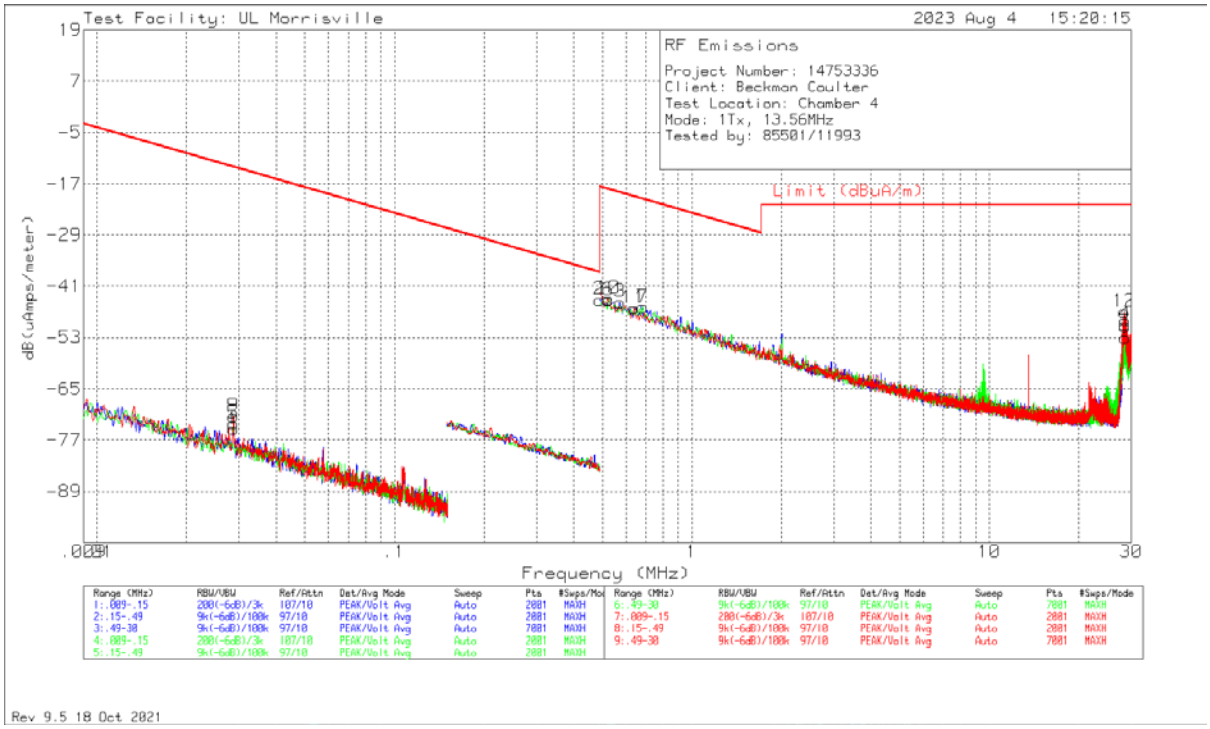


BL30MHz SPURIOUS EMISSIONS

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)	Margin (dB)	Pk Limit (dBuV/m)	Azimuth (Degs)	Loop Angle
1	0.02874	42.86	Pk	14.2	0.1	-80	-22.84	38.44	-61.28	58.44	0-360	0 degs
5	0.02874	44.05	Pk	14.2	0.1	-80	-21.65	38.44	-60.09	58.44	0-360	90 degs
9	0.02881	45.84	Pk	14.2	0.1	-80	-19.86	38.41	-58.27	58.41	0-360	Flat
2	0.49	34.96	Pk	12.2	0.2	-40	7.36	13.8	-6.44	33.8	0-360	0 degs
6	0.52373	34.9	Pk	12.2	0.2	-40	7.3	33.22	-25.92	-	0-360	90 degs
10	0.52373	35.16	Pk	12.2	0.2	-40	7.56	33.22	-25.66	-	0-360	Flat
3	0.57432	34.41	Pk	12.2	0.2	-40	6.81	32.42	-25.61	-	0-360	0 degs
11	0.63756	32.97	Pk	12.2	0.2	-40	5.37	31.51	-26.14	-	0-360	Flat
7	0.68394	33.21	Pk	12.2	0.2	-40	5.61	30.9	-25.29	-	0-360	90 degs
12	28.46316	35.37	Pk	7.9	1.3	-40	4.57	29.54	-24.97	-	0-360	Flat
4	28.58542	32.4	Pk	7.9	1.3	-40	1.6	29.54	-27.94	-	0-360	0 degs
8	28.58964	29.31	Pk	7.9	1.3	-40	-1.49	29.54	-31.03	-	0-360	90 degs

Pk – Peak Detector
Note: Only Qp/Av Margin reported as worst-case.

SPURIOUS EMISSION – H FIELD



BL30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Qp/Av Limit (dBuA/m)	Qp/Av Margin (dB)	Pk Limit (dBuA/m)	Azimuth (Degs)	Loop Angle
1	0.02874	42.86	Pk	-37.3	0.1	-80	-74.34	-13.06	-61.28	6.94	0-360	0 degs
5	0.02874	44.05	Pk	-37.3	0.1	-80	-73.15	-13.06	-60.09	6.94	0-360	90 degs
9	0.02881	45.84	Pk	-37.3	0.1	-80	-71.36	-13.09	-58.27	6.91	0-360	Flat
2	0.49	34.96	Pk	-39.3	0.2	-40	-44.14	-37.7	-6.44	-17.7	0-360	0 degs
6	0.52373	34.9	Pk	-39.3	0.2	-40	-44.2	-18.28	-25.92	-	0-360	90 degs
10	0.52373	35.16	Pk	-39.3	0.2	-40	-43.94	-18.28	-25.66	-	0-360	Flat
3	0.57432	34.41	Pk	-39.3	0.2	-40	-44.69	-19.08	-25.61	-	0-360	0 degs
11	0.63756	32.97	Pk	-39.3	0.2	-40	-46.13	-19.99	-26.14	-	0-360	Flat
7	0.68394	33.21	Pk	-39.3	0.2	-40	-45.89	-20.6	-25.29	-	0-360	90 degs
12	28.46316	35.37	Pk	-43.6	1.3	-40	-46.93	-21.96	-24.97	-	0-360	Flat
4	28.58542	32.4	Pk	-43.6	1.3	-40	-49.9	-21.96	-27.94	-	0-360	0 degs
8	28.58964	29.31	Pk	-43.6	1.3	-40	-52.99	-21.96	-31.03	-	0-360	90 degs

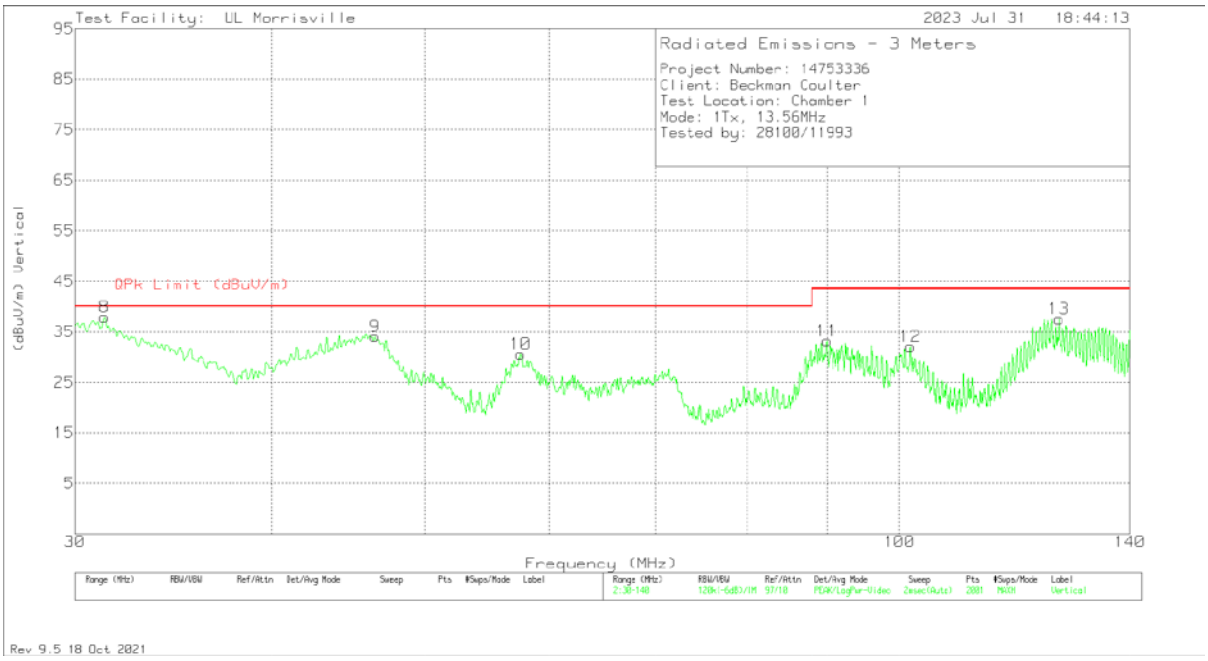
Pk – Peak Detector
Note: Only Qp/Av Margin reported as worst-case.

9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

9.3.1. Tag On

SPURIOUS EMISSION

HORIZONTAL



VERTICAL

DATA

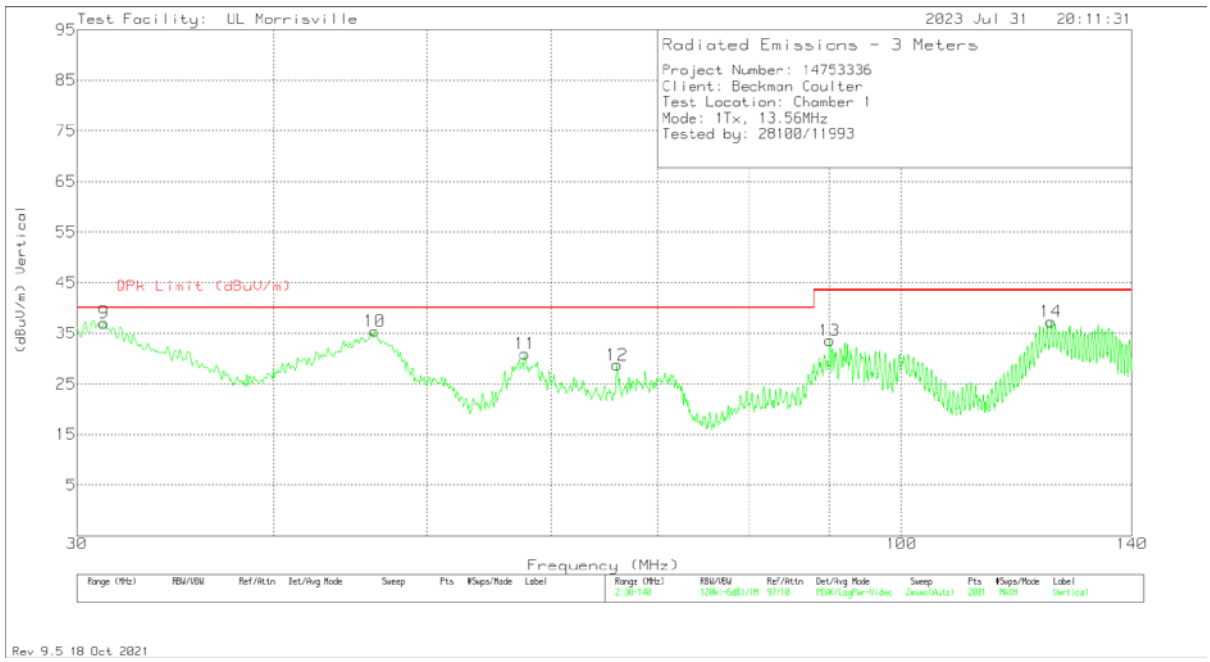
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	159203 (dB/m)	Gain/Loss (dB)	Filter (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	31.3248	40.38	Qp	26.3	-31.8	.5	35.38	40	-4.62	3	102	V
1	32.145	31.02	Pk	25.7	-31.7	.5	25.52	40	-14.48	0-360	399	H
2	37.865	38.53	Pk	21.4	-31.6	.4	28.73	40	-11.27	0-360	100	H
9	46.407	46.16	Qp	15.6	-31.5	.4	30.66	40	-9.34	272	129	V
3	46.83	40.4	Pk	15.4	-31.5	.4	24.7	40	-15.3	0-360	399	H
10	57.5	48.19	Pk	13.3	-31.4	.5	30.59	40	-9.41	0-360	98	V
4	66.025	40.44	Pk	13.9	-31.3	.5	23.54	40	-16.46	0-360	199	H
11	89.95	49.88	Pk	13.9	-31	.4	33.18	43.52	-10.34	0-360	98	V
5	91.93	50.3	Pk	14.3	-31	.4	34	43.52	-9.52	0-360	199	H
12	101.61	45.72	Pk	16.8	-30.9	.5	32.12	43.52	-11.4	0-360	199	V
6	103.645	47.58	Pk	17.3	-30.9	.5	34.48	43.52	-9.04	0-360	299	H
13	126.4596	44.55	Qp	19.9	-30.7	.6	34.35	43.52	-9.17	126	102	V
7	138.625	48.27	Pk	19.1	-30.6	.6	37.37	43.52	-6.15	0-360	199	H

Pk - Peak detector
Qp - Quasi-Peak detector

9.3.2. Tag Off

SPURIOUS EMISSION

HORIZONTAL



VERTICAL

DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	159203 (dB/m)	Gain/Loss (dB)	Filter (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.99	30.53	Pk	26.5	-31.8	.6	25.83	40	-14.17	0-360	199	H
9	30.9865	39.89	Qp	26.5	-31.8	.6	35.19	40	-4.81	16	106	V
10	46.4419	46.22	Qp	15.6	-31.5	.4	30.72	40	-9.28	318	124	V
2	46.39	40.77	Pk	15.6	-31.5	.4	25.27	40	-14.73	0-360	399	H
11	57.72	48.53	Pk	13.3	-31.4	.5	30.93	40	-9.07	0-360	98	V
3	57.83	40.63	Pk	13.3	-31.4	.5	23.03	40	-16.97	0-360	399	H
12	66.025	45.65	Pk	13.9	-31.3	.5	28.75	40	-11.25	0-360	98	V
4	66.685	40.22	Pk	14	-31.3	.4	23.32	40	-16.68	0-360	199	H
5	79.06	39.03	Pk	13.7	-31.1	.4	22.03	40	-17.97	0-360	399	H
13	90.06	50.25	Pk	13.9	-31	.4	33.55	43.52	-9.97	0-360	98	V
6	93.525	50.62	Pk	14.7	-31	.4	34.72	43.52	-8.8	0-360	199	H
14	124.435	47.43	Pk	20	-30.7	.6	37.33	43.52	-6.19	0-360	98	V
7	130.595	45.67	Pk	19.7	-30.6	.6	35.37	43.52	-8.15	0-360	199	H
8	139.67	46.82	Pk	19.1	-30.6	.6	35.92	43.52	-7.6	0-360	199	H

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 ±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 85% to 115% 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 ±0.01% (±100 ppm).

TEST PROCEDURE

ANSI C63.10-2013 Clause 6.8

RESULTS

No non-compliance noted.

10.1. WITH TAG

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
120.00	50	13.5604129	2.083	13.5603973	3.236	13.5603875	3.955	13.5603799	4.517	± 100
120.00	40	13.5603736	4.978	13.5603731	5.015	13.5603725	5.061	13.5603724	5.070	± 100
120.00	30	13.5603733	5.006	13.5603740	4.950	13.5603750	4.876	13.5603774	4.701	± 100
120.00	***20***	***13.5604411***	***0.000***	***13.5604376***	***0.258***	***13.5604369***	***0.313***	***13.5604359***	***0.387***	***± 100***
120.00	10	13.5603863	4.047	13.5603891	3.835	13.5603938	3.494	13.5604011	2.950	± 100
120.00	0	13.5604409	0.018	13.5604320	0.673	13.5604338	0.544	13.5604393	0.138	± 100
120.00	-10	13.5604575	-1.208	13.5604653	-1.779	13.5604701	-2.139	13.5604785	-2.756	± 100
120.00	-20	13.5604903	-3.623	13.5604936	-3.872	13.5605043	-4.655	13.5605101	-5.088	± 100
102.00	20	13.5604723	-2.295	13.5604664	-1.862	13.5604630	-1.613	13.5604589	-1.309	± 100
138	20	13.5604586	-1.291	13.5604575	-1.208	13.5604565	-1.134	13.5604553	-1.042	± 100

Tested by: 84740/44389
Test date: 2023-07-19

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 50µH/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 (dBµV)	
	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.

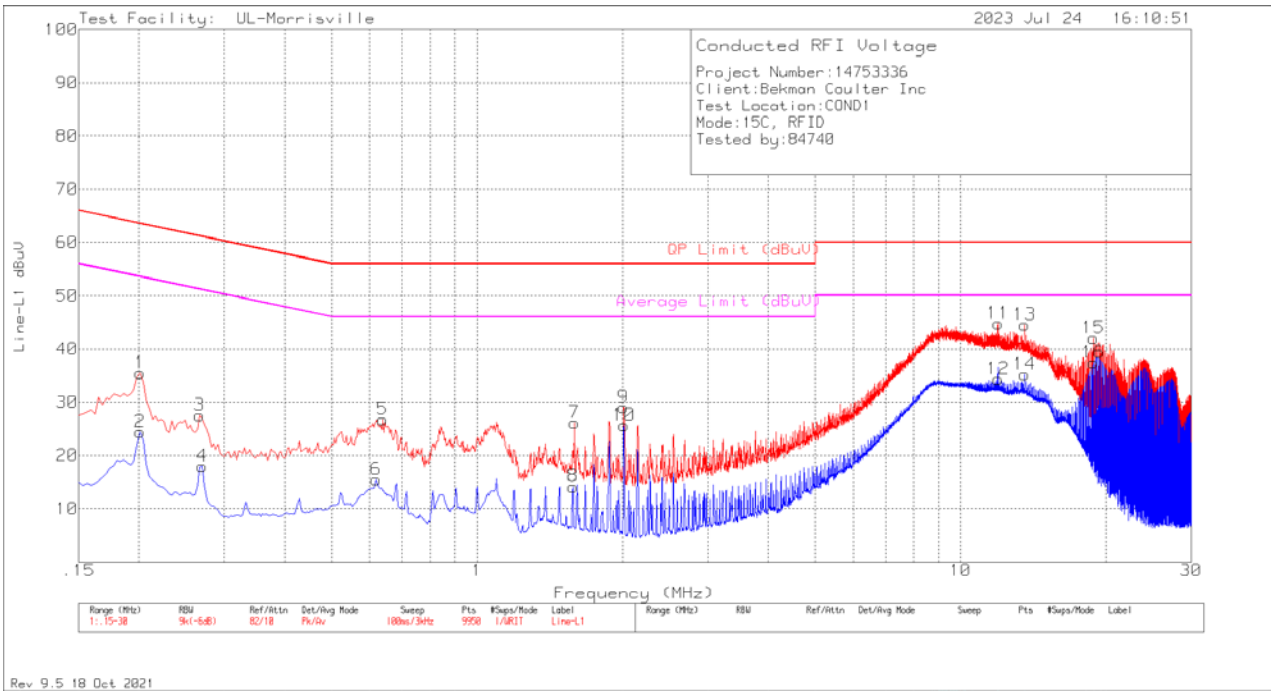
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

11.1.1. TAG On

LINE 1 RESULTS

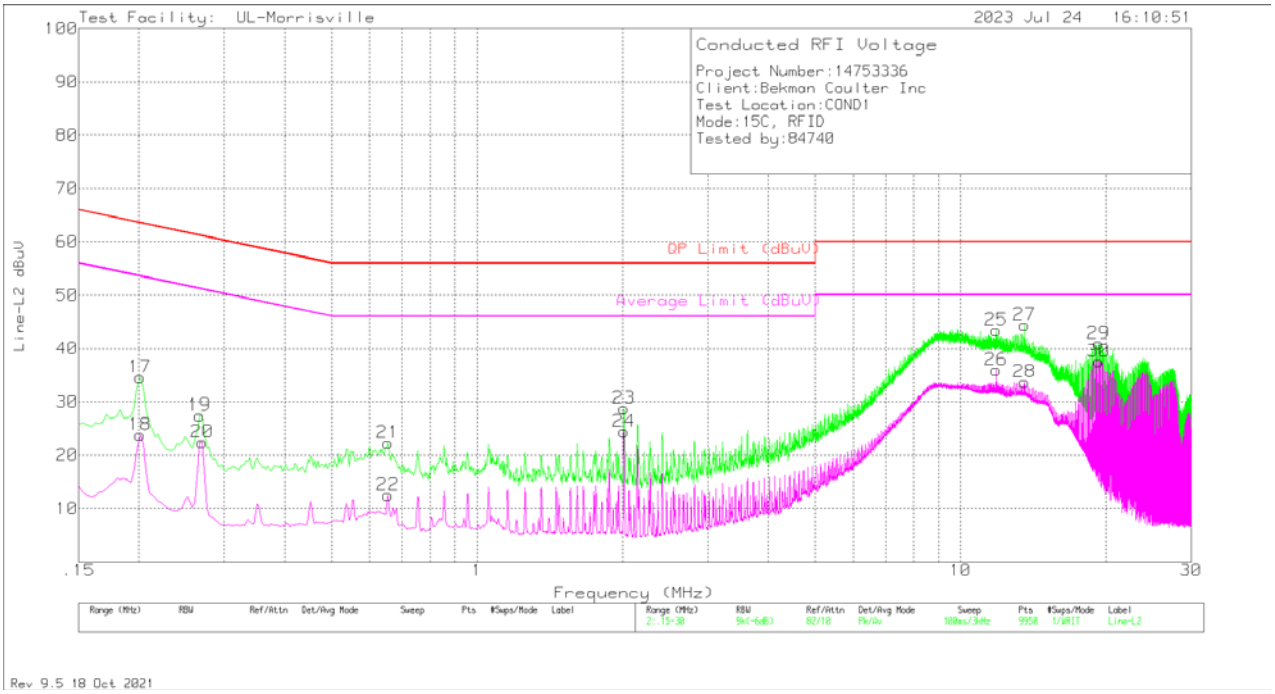


Emissions

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.201	25.58	Pk	.1	9.8	35.48	63.57	-28.09	-	-
2	.201	14.47	Av	.1	9.8	24.37	-	-	53.57	-29.2
3	.267	17.6	Pk	.1	9.8	27.5	61.21	-33.71	-	-
4	.27	8.06	Av	.1	9.8	17.96	-	-	51.12	-33.16
5	.639	17.02	Pk	0	9.8	26.82	56	-29.18	-	-
6	.618	5.66	Av	0	9.8	15.46	-	-	46	-30.54
7	1.59	16.41	Pk	0	9.8	26.21	56	-29.79	-	-
8	1.578	4.38	Av	0	9.8	14.18	-	-	46	-31.82
9	2.01	19.23	Pk	0	9.8	29.03	56	-26.97	-	-
10	2.013	15.81	Av	0	9.8	25.61	-	-	46	-20.39
11	11.949	34.72	Pk	.1	10	44.82	60	-15.18	-	-
12	11.949	24.25	Av	.1	10	34.35	-	-	50	-15.65
13	13.563	34.43	Pk	.1	10	44.53	60	-15.47	-	-
14	13.563	25.14	Av	.1	10	35.24	-	-	50	-14.76
15	18.84	31.81	Pk	.1	10.1	42.01	60	-17.99	-	-
16	18.84	27.24	Av	.1	10.1	37.44	-	-	50	-12.56

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Emissions

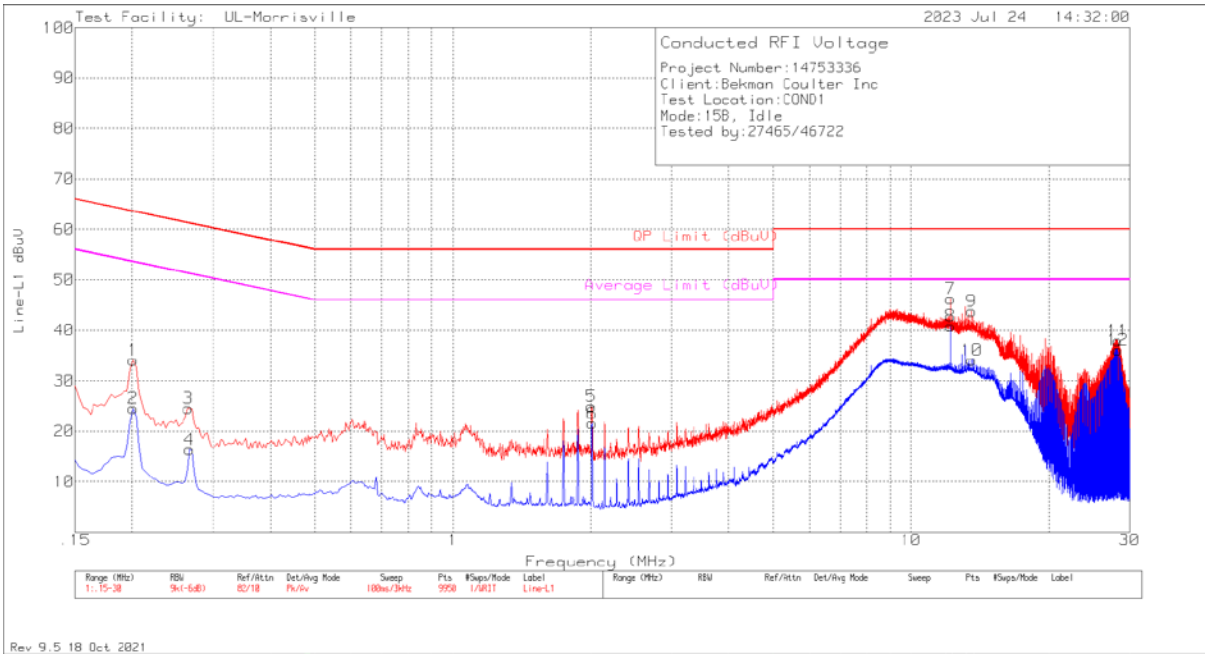
Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
17	.201	24.69	Pk	.1	9.8	34.59	63.57	-28.98	-	-
18	.201	13.91	Av	.1	9.8	23.81	-	-	53.57	-29.76
19	.267	17.56	Pk	.1	9.8	27.46	61.21	-33.75	-	-
20	.27	12.57	Av	.1	9.8	22.47	-	-	51.12	-28.65
21	.654	12.48	Pk	0	9.8	22.28	56	-33.72	-	-
22	.654	2.71	Av	0	9.8	12.51	-	-	46	-33.49
23	2.013	18.96	Pk	0	9.8	28.76	56	-27.24	-	-
24	2.013	14.64	Av	0	9.8	24.44	-	-	46	-21.56
25	11.844	33.36	Pk	.1	10	43.46	60	-16.54	-	-
26	11.844	25.84	Av	.1	10	35.94	-	-	50	-14.06
27	13.56	34.32	Pk	.1	10	44.42	60	-15.58	-	-
28	13.56	23.61	Av	.1	10	33.71	-	-	50	-16.29
29	19.29	30.61	Pk	.2	10.1	40.91	60	-19.09	-	-
30	19.293	27.23	Av	.2	10.1	37.53	-	-	50	-12.47

Pk - Peak detector

Av - Average detection

11.1.2. TAG Off

LINE 1 RESULTS

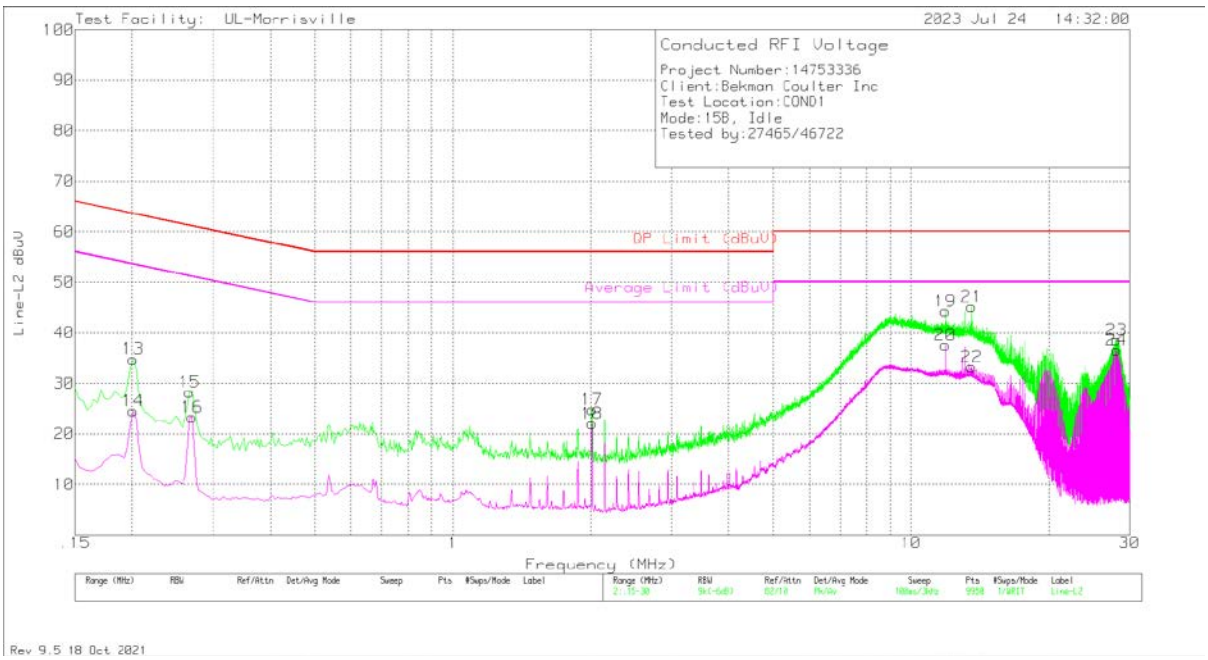


Emissions

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.201	24.18	Pk	.1	9.8	34.08	63.57	-29.49	-	-
2	.201	14.64	Av	.1	9.8	24.54	-	-	53.57	-29.03
3	.2655	14.59	Pk	.1	9.8	24.49	61.26	-36.77	-	-
4	.267	6.47	Av	.1	9.8	16.37	-	-	51.21	-34.84
5	2.01	15.16	Pk	0	9.8	24.96	56	-31.04	-	-
6	2.013	11.75	Av	0	9.8	21.55	-	-	46	-24.45
7	12.189	36.21	Pk	.1	10	46.31	60	-13.69	-	-
8	12.189	30.77	Av	.1	10	40.87	-	-	50	-9.13
9	13.563	33.7	Pk	.1	10	43.8	60	-16.2	-	-
10	13.56	24.03	Av	.1	10	34.13	-	-	50	-15.87
11	28.293	27.47	Pk	.3	10.2	37.97	60	-22.03	-	-
12	28.293	25.59	Av	.3	10.2	36.09	-	-	50	-13.91

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Emissions

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.201	24.89	Pk	.1	9.8	34.79	63.57	-28.78	-	-
14	.201	14.67	Av	.1	9.8	24.57	-	-	53.57	-29
15	.267	18.39	Pk	.1	9.8	28.29	61.21	-32.92	-	-
16	.27	13.46	Av	.1	9.8	23.36	-	-	51.12	-27.76
17	2.013	14.95	Pk	0	9.8	24.75	56	-31.25	-	-
18	2.013	12.32	Av	0	9.8	22.12	-	-	46	-23.88
19	11.88	34.14	Pk	.1	10	44.24	60	-15.76	-	-
20	11.88	27.53	Av	.1	10	37.63	-	-	50	-12.37
21	13.56	35.05	Pk	.1	10	45.15	60	-14.85	-	-
22	13.56	23.14	Av	.1	10	33.24	-	-	50	-16.76
23	28.083	28.08	Pk	.3	10.2	38.58	60	-21.42	-	-
24	28.083	26.09	Av	.3	10.2	36.59	-	-	50	-13.41

Pk - Peak detector

Av - Average detection

12. SETUP PHOTOS

Please refer to R14753336-EP1 for setup photos

END OF TEST REPORT