



TEST REPORT

Report Number. : R13682207-E1

Applicant : Acqua Di Parma SRL
Via Ripamonti, 99
Milano, MI, 20141, Italy

Model : Airound

FCC ID : 2AZ5A-62216

IC : 27348-62216

EUT Description : Smart Home Diffuser

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C: 2021
ISED RSS-210 ISSUE 10: 2019
ISED RSS-GEN ISSUE 5 + A2: 2021

Date Of Issue:
2021-06-08

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Revision History

Rev.	Issue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Acqua Di Parma SRL
Via Ripamonti, 99
Milano, MI, 20141, Italy

EUT DESCRIPTION: Smart Home Diffuser

MODEL: Airound

SERIAL NUMBER: 0A:00:00:1A and 0A:00:00:2C

SAMPLE RECEIPT DATE: 2021-01-13

DATE TESTED: 2021-04-17 to 2021-04-22

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C : 2021	Compliant
ISED RSS-210 Issue 10, Annex B.6	Compliant
ISED RSS-GEN Issue 5 + A1: 2019	Compliant

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

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

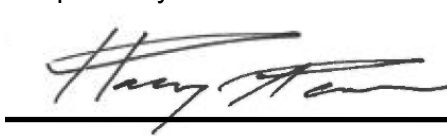
This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the U.S. government.

Approved & Released For
UL LLC. By:



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Prepared By:



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Laboratory Engineer
Consumer Technology Division
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2. TEST RESULTS SUMMARY

FCC Clause	ISED Clause	Requirement	Result	Comment
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
-	RSS-GEN 6.7	20dB BW	Reporting purposes only	None.
§15.225(e)	RSS-210 Annex B.6 (b)	Frequency Stability	Complies	None
§15.225(a)	RSS-210 Annex B.6 (a)(i)	Fundamental Field Strength	Complies	None
§15.225 (b-c) §15.209	RSS-210 Annex B.6 (a) (ii-iii) RSS-GEN 8.9	Radiated Emissions	Complies	Refer to section 10.2.3 for non-compliant data.
§15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

This report contains data provided by the applicant which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15: 2021, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A2: 2021, and RSS-210 Issue 10: 2019.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, cert. # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	703469
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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)
RF output power, radiated (SAC) < 180 MHz	6.18 dB
RF output power, radiated (SAC) >=180 MHz	3.23 dB
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)

$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$

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.

$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a smart home diffuser that supports 2.4 WLAN and RFID. This report covers RFID.

There are 2 independent RFID modules that are identical. The EUT is designed to allow only 1 RFID module to operate at any given time.

6.2. MAXIMUM ELECTRIC FIELD STRENGTH

Testing was performed at a distance of 3m. The transmitter has a maximum peak radiated magnetic field strength as follows:

RFID 1

The maximum E-field reading with 2 tags at 30m is 10.48 dBuV/m

The maximum E-field reading without tag at 30m is 10.47 dBuV/m

RFID 2

The maximum E-field reading with 2 tags at 30m is 7.29 dBuV/m

The maximum E-field reading without tag at 30m is 11.33 dBuV/m

6.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was ESP_RF_test_tool_v2.5.

6.4. WORST-CASE CONFIGURATION AND MODE

The EUT has 1 orientation, therefore all final radiated scans were performed with the EUT in the intended orientation.

Radiated spurious emissions below 1 GHz, were performed with and without tag. Each RFID module (RFID 1 and RFID 2), has the capability to read up to 2 tags at a time. Therefore, radiated spurious emissions were performed with EUT set to transmit without tag and 2 tags.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area 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
Laptop	Lenovo	L470	PF0ZV674	N/A
Laptop Charger	Lenovo	ADLX65NCC2A	11S45N0263Z1ZS9961BV0U	N/A
AC Adapter	GlobTek	GTM46101-1005-USB	NA	NA

I/O CABLES

Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	1	1	I/O	Ribbon Cable	< 1m	For configuration only.
2	1	1	USB-C	AC Mains	< 3m	Power supply
3	1	1	I/O	Battery Shunt	< 1m	Connects battery to EUT

TEST SETUP

Test software exercised the radio card.

SETUP DIAGRAM

Please refer to R13682207-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	2021-04-05	2022-04-05
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2020-06-26	2021-06-26
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2020-08-18	2021-08-18
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2020-08-18	2021-08-18
ATA222	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2021-04-05	2022-04-05
PS214	AC Power Source	Elgar	CW2501M (s/n 1523A02396)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (2021-03-04)		

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 2				
SA0026	Spectrum Analyzer	Keysight Technologies	N9030A	2020-07-16	2021-07-16
76023 (EC0225)	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2020-05-27	2021-05-27
HI0090 (PRE0191271)	Environmental Meter	Fisher Scientific	15-077-963	2020-06-26	2021-06-26
SOFTEMI	Antenna Port Software	UL	Version 2021.04.13		
	Additional Equipment used				
MM0168 (S/N MY54140090)	True RMS Multimeter	Agilent	U1232A	2020-08-19	2021-08-19
PS214	CW-AC Power Source	Ametek	CW2501	NA	NA

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	0.009-30MHz	(Loop Ant.)			
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2020-08-20	2021-08-20
	30-1000 MHz				
AT0075	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2020-10-27	2021-10-27
	Gain-Loss Chains				
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2020-07-10	2021-07-10
S-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2020-07-10	2021-07-10
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SOFTEMI	EMI Software	UL	Version 9.5 (2021-03-04)		
	Additional Equipment used				
s/n 200037635	Environmental Meter	Fisher Scientific	06-662-4	2020-01-22	2022-01-22

8. MEASUREMENT METHOD

20 dB Emission BW: ANSI C63.10 Section 6.9.2

99% Occupied BW: ANSI C63.10 Section 6.9.3

Frequency Tolerance: ANSI C63.10 Section 6.8

General Radiated Emissions: ANSI C63.10-2013 Section 6.3-6.5

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

9. OCCUPIED BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

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

RESULTS

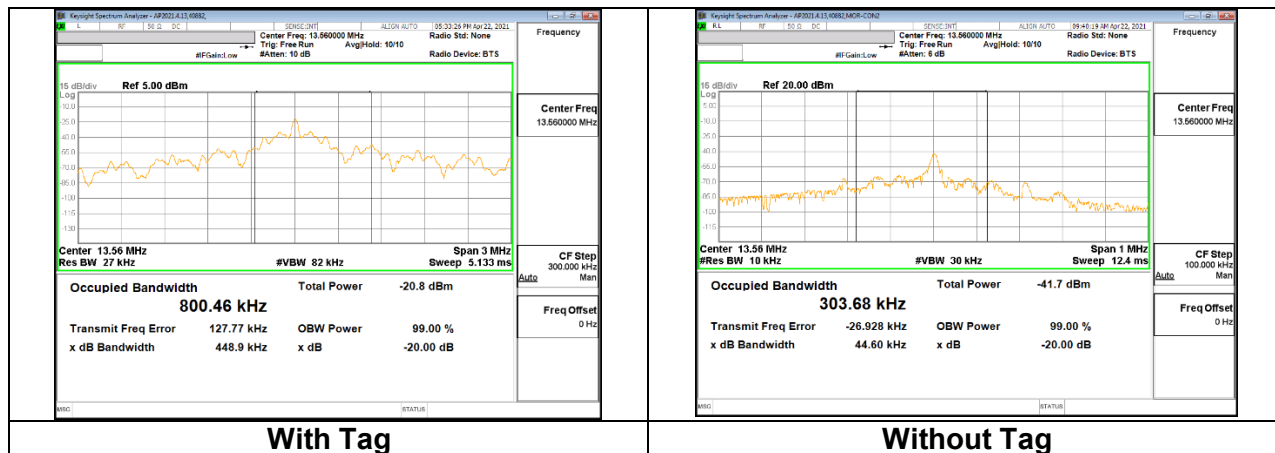
99% and 20dB BW- RFID 1

Mode	Frequency (MHz)	99% Bandwidth (Kz)	20dB Bandwidth (KHz)
With tag	13.56	800.46	434.4
Without Tag	13.56	303.68	272.0

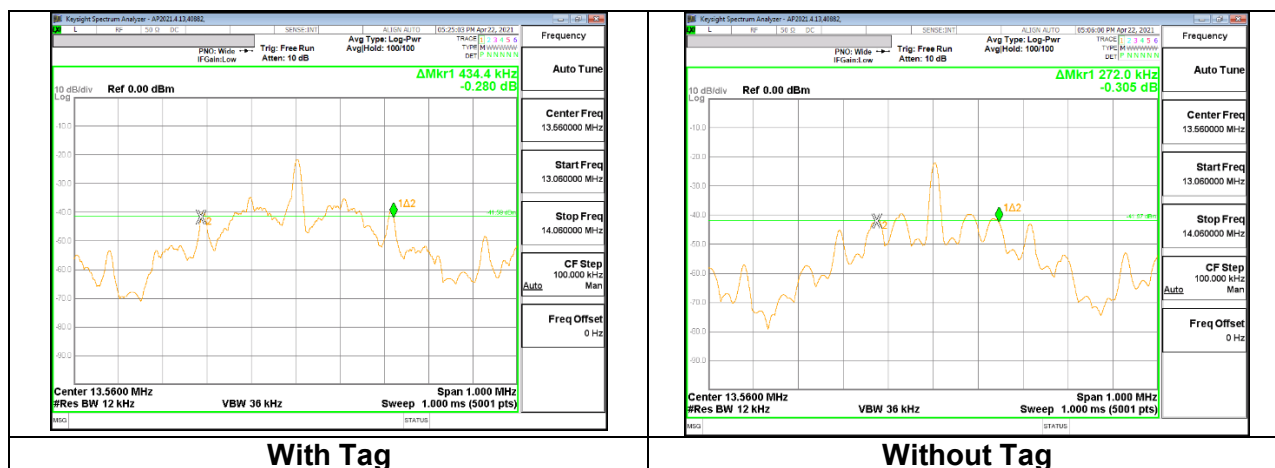
99% and 20dB BW- RFID 2

Mode	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
With tag	13.56	800.51	433.4
Without Tag	13.56	275.73	278.0

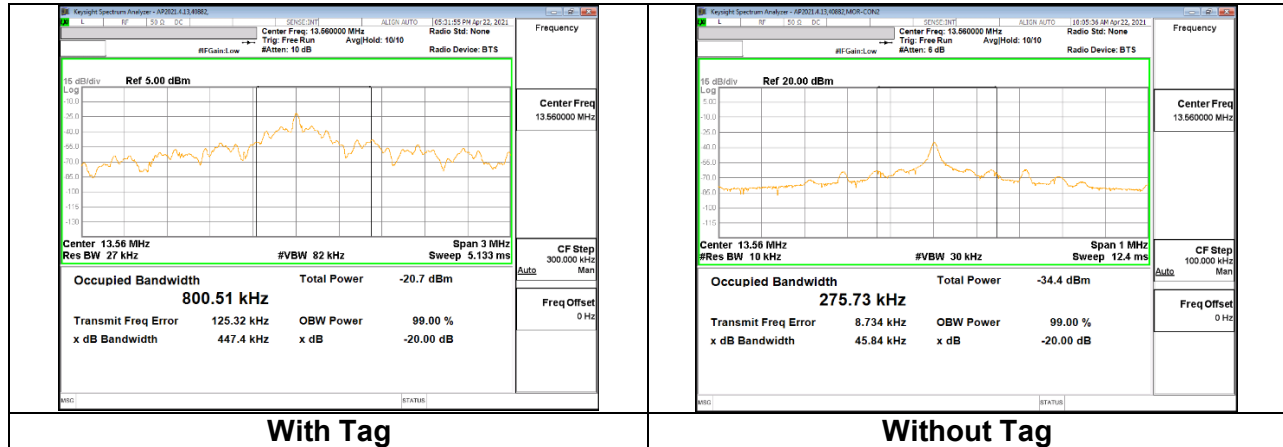
99% Bandwidth-RFID 1



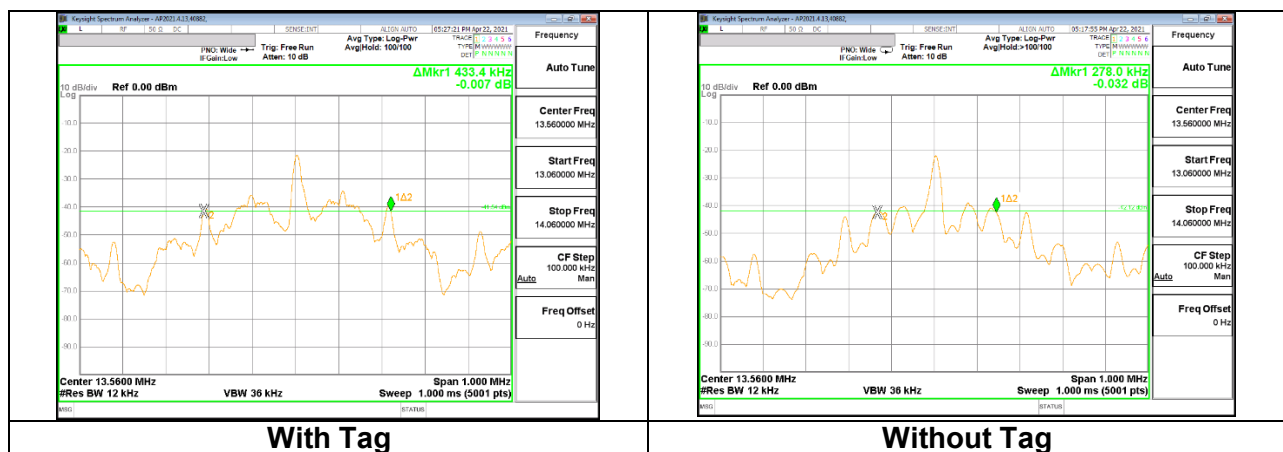
20 dB Bandwidth- RFID 1



99% Bandwidth-RFID 2



20 dB Bandwidth- RFID 2



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 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.

RSS-210 Annex B.6: Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

TEST PROCEDURE

ANSI 63.10:2013 Clause 6.8.1 and 6.8.2

RESULTS

RFID 1

Reference Frequency: EUT Channel 13.56 MHz @ 20°C 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)
120.00	50	13.5622950	-4.919	13.5623225	-6.947	13.5622538	-1.877	13.5622787	-3.720	± 100
120.00	40	13.5622435	-1.121	13.5622438	-1.139	13.5622442	-1.173	13.5622445	-1.191	± 100
120.00	30	13.5622400	-0.863	13.5622400	-0.863	13.5622403	-0.881	13.5622401	-0.872	± 100
120.00	20	13.5622283	0.000	13.5622216	0.494	13.5622150	0.981	13.5621951	2.448	± 100
120.00	10	13.5622175	0.796	13.5622175	0.796	13.5622200	0.612	13.5622195	0.649	± 100
120.00	0	13.5621850	3.193	13.5621775	3.746	13.5621900	2.824	13.5621875	3.009	± 100
120.00	-10	13.5621286	7.353	13.5621109	8.658	13.5621198	8.001	13.5621087	8.820	± 100
120.00	-20	13.5620910	10.125	13.5620821	10.782	13.5620821	10.782	13.5620799	10.944	± 100
138.00	20	13.5622061	1.637	13.5622128	1.143	13.5621906	2.780	13.5622017	1.962	± 100
102.00	20	13.5621751	3.923	13.5621751	3.923	13.5622106	1.305	13.5621929	2.611	± 100

TEST INFORMATION

Date: 2021-04-20

Project No: 13682207

Tester: 40882

RFID 2

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)
120.00	50	13.5622375	-11.246	13.5622250	-10.324	13.5622325	-10.878	13.5622340	-10.987	± 100
120.00	40	13.5621950	-8.112	13.5621965	-8.223	13.5622018	-8.611	13.5621954	-8.144	± 100
120.00	30	13.5622650	-13.274	13.5621975	-8.296	13.5622350	-11.062	13.5622583	-12.780	± 100
120.00	20	13.5620850	0.000	13.5621870	-7.522	13.5620880	-0.221	13.5620328	3.850	± 100
120.00	10	13.5622350	-11.062	13.5622350	-11.062	13.5622350	-11.062	13.5622345	-11.025	± 100
120.00	0	13.5622123	-9.384	13.5622123	-9.384	13.5622148	-9.569	13.5622148	-9.569	± 100
120.00	-10	13.5620738	0.830	13.5620713	1.014	13.5620700	1.106	13.5620738	0.830	± 100
120.00	-20	13.5622125	-9.403	13.5621700	-6.268	13.5622075	-9.034	13.5621750	-6.637	± 100
138.00	20	13.5620887	-0.269	13.5620967	-0.865	13.5620992	-1.049	13.5620989	-1.023	± 100
102.00	20	13.5620979	-0.948	13.5620898	-0.352	13.5620997	-1.082	13.5620787	0.465	± 100

TEST INFORMATION

Date: 2021-04-21
Project No: 13682207
Tester: 40882

11. RADIATED EMISSIONS TEST RESULTS

11.1. LIMITS AND PROCEDURE

LIMIT

§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)	Limits (uA/m) - ISSED Only	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	6.37/F (F in kHz)	300
0.490 – 1.705	24000 / F (kHz)	63.7/F (F in kHz)	30
1.705 – 30.0	30	0.08	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 field 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 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

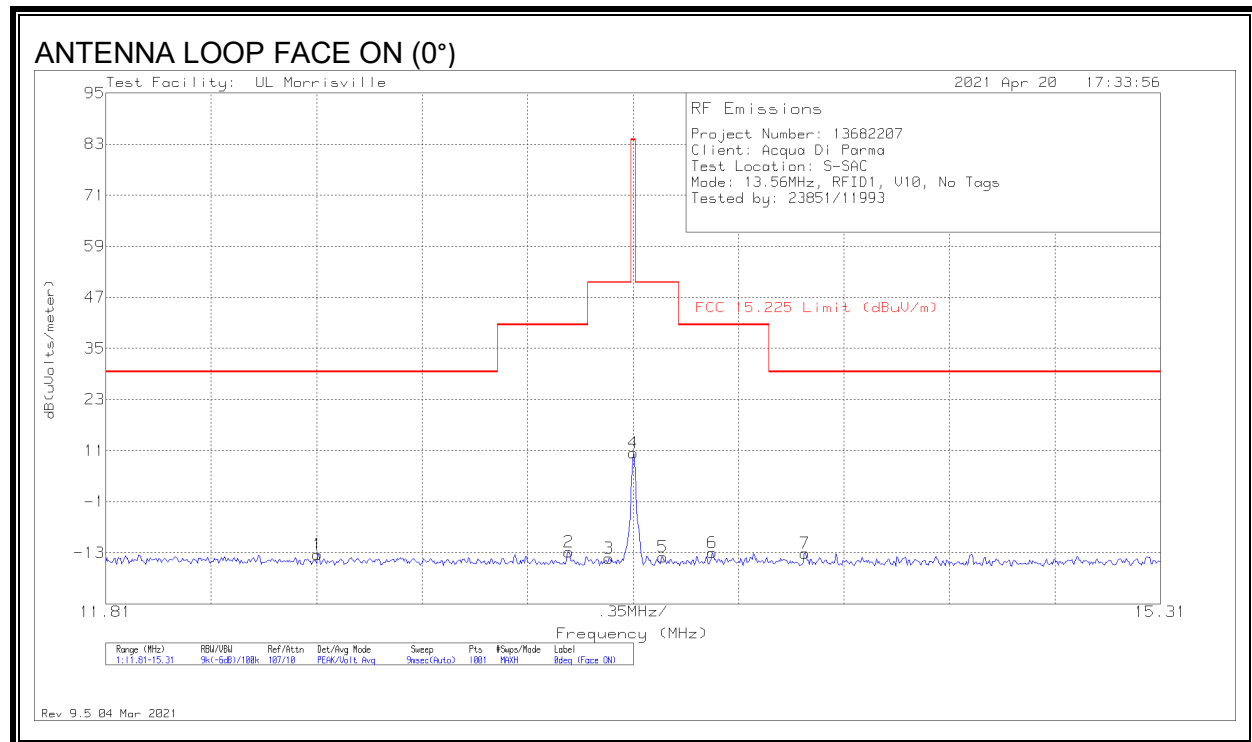
RESULTS

11.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.009 - 30 MHz)

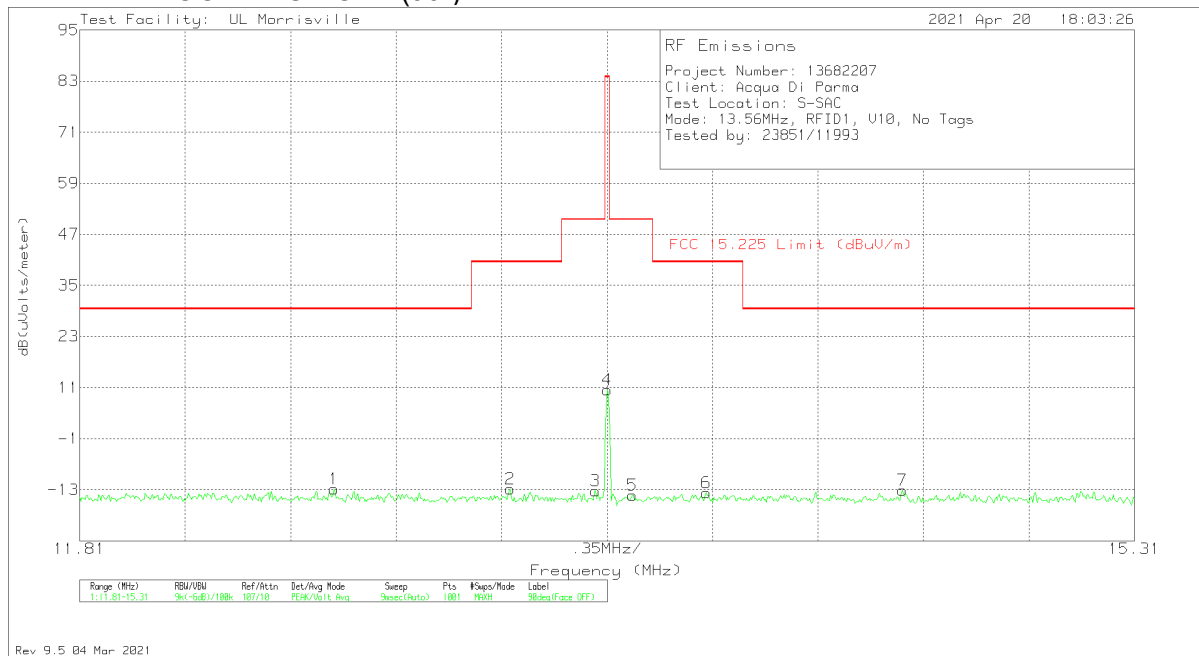
Note for below 30 MHz scans: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions 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 $40 \cdot \log(\text{test distance} / \text{specification distance})$.

11.2.1. RFID 1

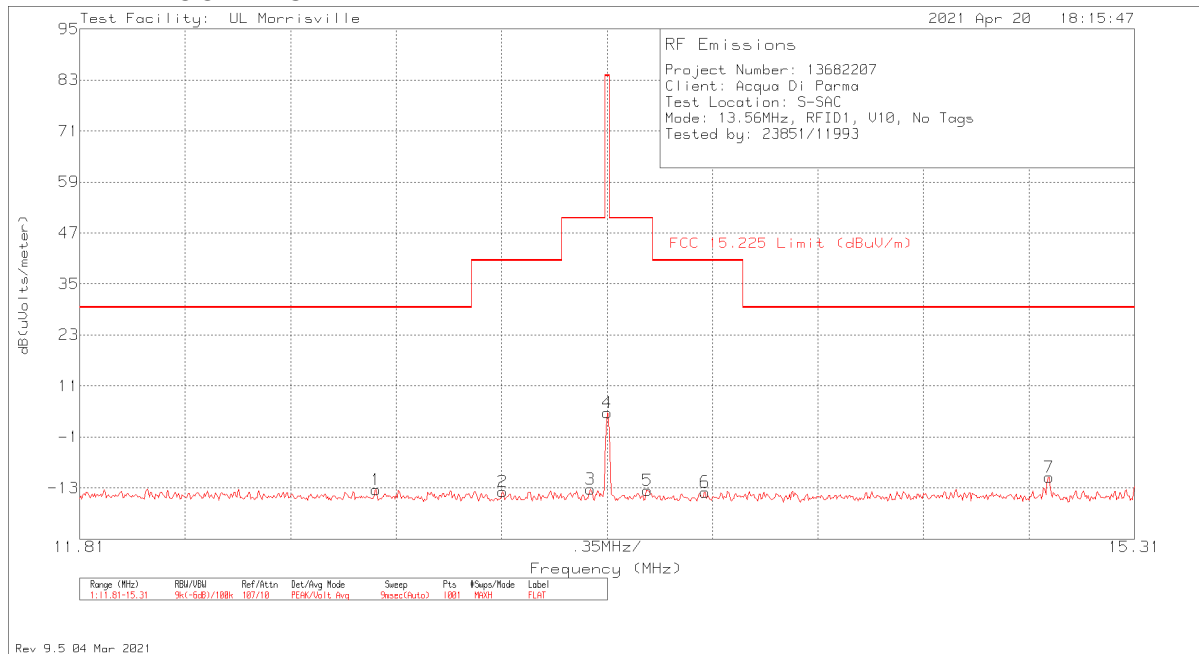
FUNDAMENTAL WITHOUT TAG



ANTENNA LOOP FACE OFF (90°)



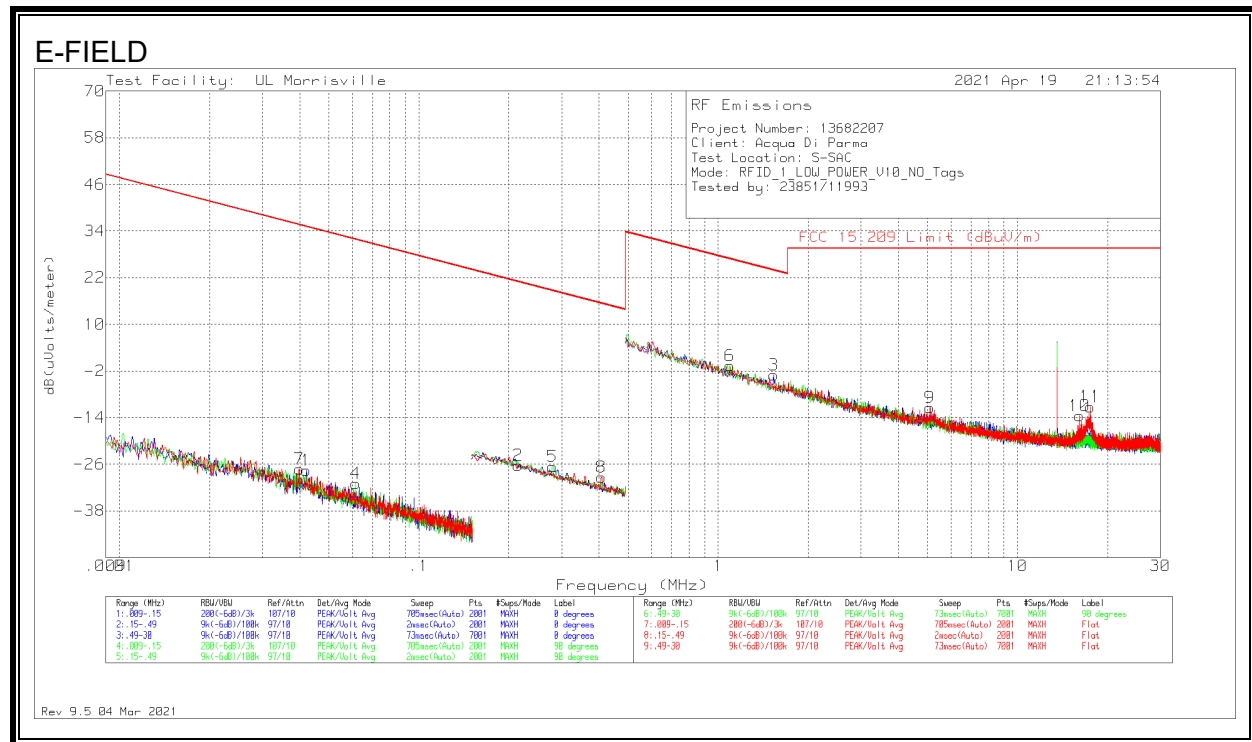
ANTENNA LOOP FACE FLAT



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
Face on (0°)										
1	12.5135	15.53	Pk	10.4	.7	-40	-13.37	29.5	-42.87	86
2	13.3465	16.11	Pk	10.4	.7	-40	-12.79	40.5	-53.29	86
3	13.4795	14.63	Pk	10.4	.7	-40	-14.27	50.5	-64.77	86
4	13.56	39.38	Pk	10.4	.7	-40	10.48	84	-73.52	86
5	13.658	14.93	Pk	10.4	.7	-40	-13.97	50.5	-64.47	86
6	13.8225	15.85	Pk	10.4	.7	-40	-13.05	40.5	-53.55	86
7	14.1305	15.82	Pk	10.4	.7	-40	-13.08	29.5	-42.58	86
Face off (90°)										
1	12.6535	16.12	Pk	10.4	.7	-40	-12.78	29.5	-42.28	347
2	13.238	16.02	Pk	10.4	.7	-40	-12.88	40.5	-53.38	347
3	13.5215	15.68	Pk	10.4	.7	-40	-13.22	50.5	-63.72	347
4	13.56	39.3	Pk	10.4	.7	-40	10.4	84	-73.6	347
5	13.644	14.59	Pk	10.4	.7	-40	-14.31	50.5	-64.81	347
6	13.889	15.22	Pk	10.4	.7	-40	-13.68	40.5	-54.18	347
7	14.54	15.82	Pk	10.4	.7	-40	-13.08	29.5	-42.58	347
Flat										
1	12.7935	15.41	Pk	10.4	.7	-40	-13.49	29.5	-42.99	261
2	13.2135	15.01	Pk	10.4	.7	-40	-13.89	40.5	-54.39	261
3	13.504	15.59	Pk	10.4	.7	-40	-13.31	50.5	-63.81	261
4	13.56	33.65	Pk	10.4	.7	-40	4.75	84	-79.25	261
5	13.693	15.32	Pk	10.4	.7	-40	-13.58	50.5	-64.08	261
6	13.8855	14.95	Pk	10.4	.7	-40	-13.95	40.5	-54.45	261
7	15.0265	18.3	Pk	10.4	.8	-40	-10.5	29.5	-40	261

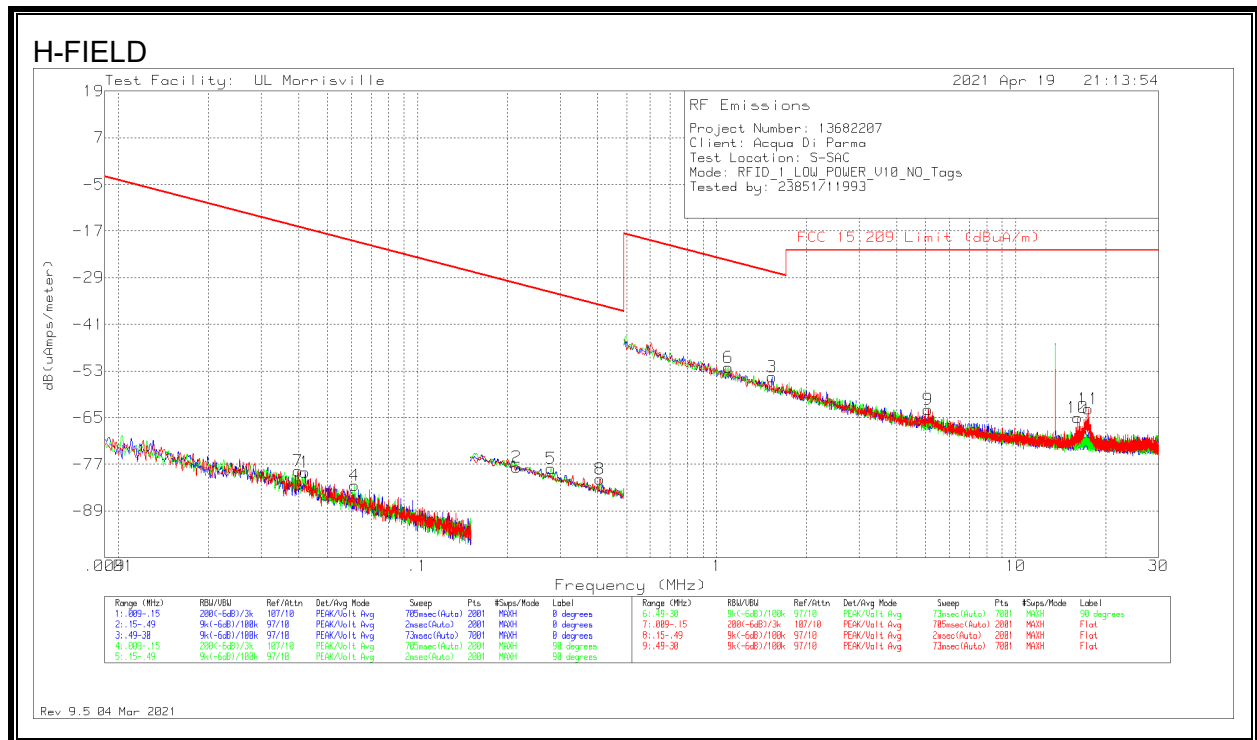
Pk - Peak detector

SPURIOUS EMISSIONS WITHOUT TAG



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/m)	FCC 15.209 AV/QP Limit (dBuV/m)	FCC 15.209 PK Limit (dBuV/m)	Worst-Case Margin (dB)	Antenna Position
1	.04209	40.24	Pk	12.1	.1	-80	-27.56	35.12	55.12	-62.68	Face On
2	.21477	42.84	Pk	10.8	.1	-80	-26.26	20.96	40.96	-47.22	Face On
3	1.53135	25.64	Pk	11.1	.2	-40	-3.06	23.9	-	-26.96	Face On
4	.06154	37.41	Pk	11.5	.1	-80	-30.99	31.82	51.82	-62.81	Face Off
5	.27954	42.66	Pk	10.7	.1	-80	-26.54	18.68	38.68	-45.22	Face Off
6	1.09289	28.13	Pk	11	.2	-40	-.67	26.83	-	-27.5	Face Off
7	.03981	40.36	Pk	12.3	.1	-80	-27.24	35.6	55.6	-62.84	Flat
8	.40747	40.01	Pk	10.6	.1	-80	-29.29	15.4	35.4	-44.69	Flat
9	5.1002	17.19	Pk	11	.4	-40	-11.41	29.54	-	-40.95	Flat
10	16.11028	15.37	Pk	10.3	.8	-40	-13.53	29.54	-	-43.07	Flat
11	17.51842	17.9	Pk	10.1	.8	-40	-11.2	29.54	-	-40.74	Flat

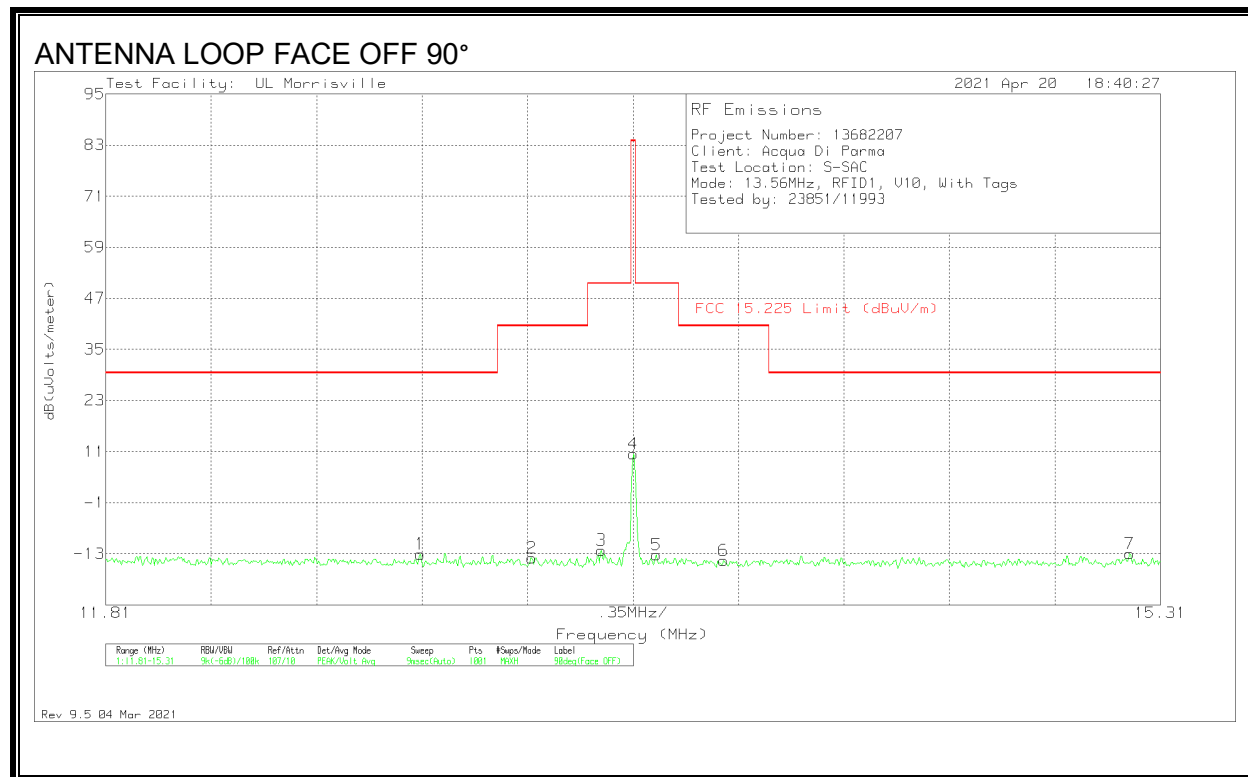
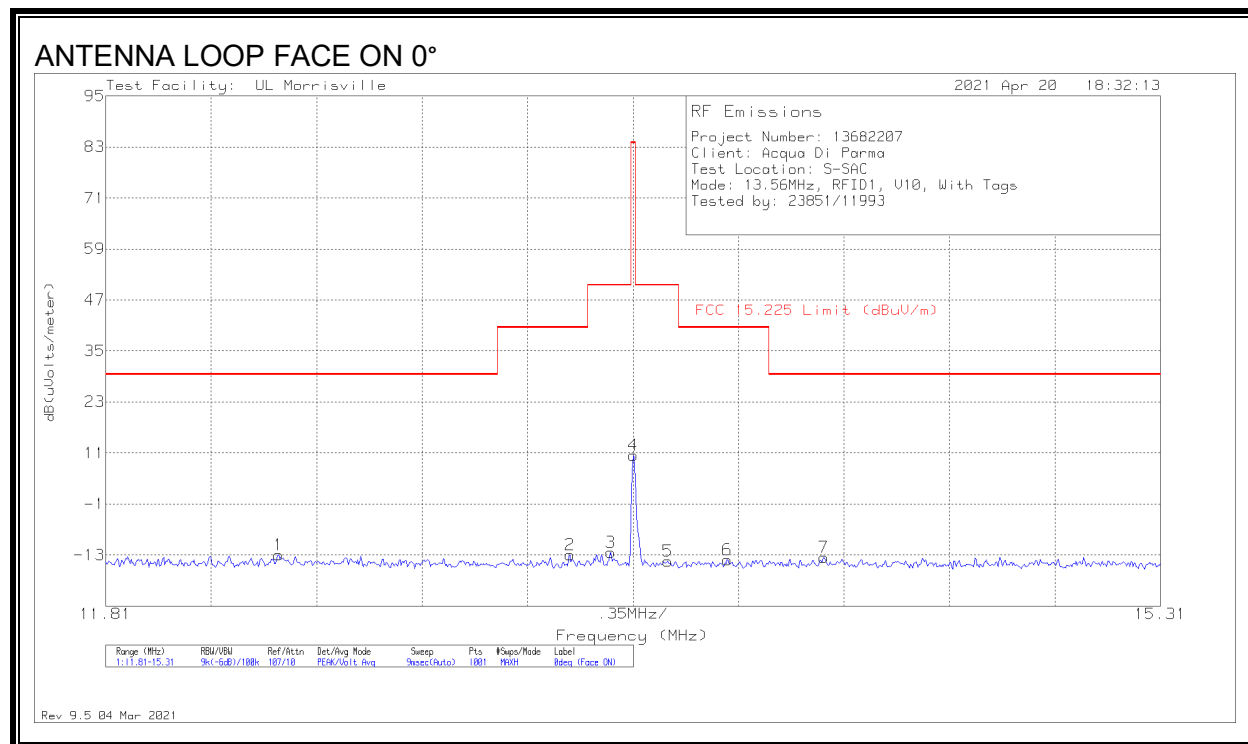
Pk - Peak detector

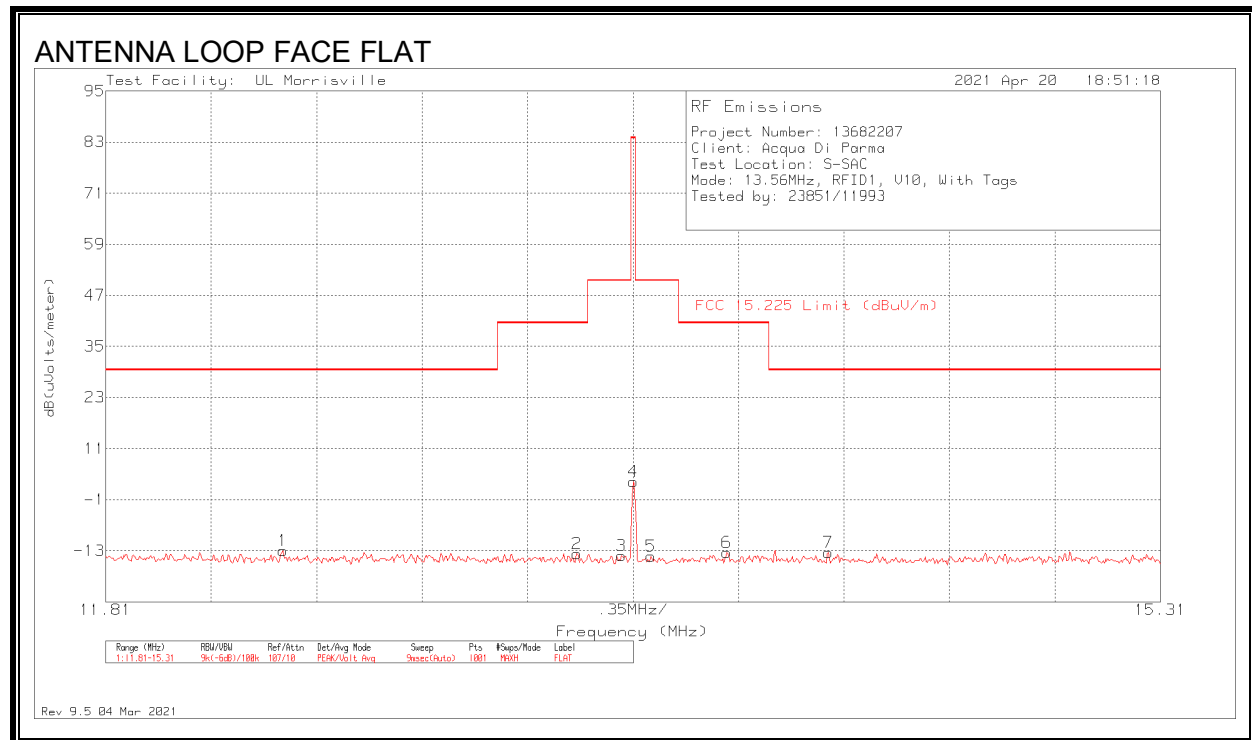


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uA/m)	RSS-GEN AV/QP Limit (dBuA/m)	RSS-GEN PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Antenna Position
1	.04209	40.24	Pk	-39.4	.1	-80	-79.06	-16.38	3.62	-62.68	0-360	Face On
2	.21477	42.84	Pk	-40.7	.1	-80	-77.76	-30.54	-10.54	-47.22	0-360	Face On
3	1.53135	25.64	Pk	-40.4	.2	-40	-54.56	-27.6	-	-26.96	0-360	Face On
4	.06154	37.41	Pk	-40	.1	-80	-82.49	-19.68	0.32	-62.81	0-360	Face Off
5	.27954	42.66	Pk	-40.8	.1	-80	-78.04	-32.82	-12.82	-45.22	0-360	Face Off
6	1.09289	28.13	Pk	-40.5	.2	-40	-52.17	-24.67	-	-27.5	0-360	Face Off
7	.03981	40.36	Pk	-39.2	.1	-80	-78.74	-15.9	4.1	-62.84	0-360	Flat
8	.40747	40.01	Pk	-40.9	.1	-80	-80.79	-36.1	-16.1	-44.69	0-360	Flat
9	5.1002	17.19	Pk	-40.5	.4	-40	-62.91	-21.96	-	-40.95	0-360	Flat
10	16.11028	15.37	Pk	-41.2	.8	-40	-65.03	-21.96	-	-43.07	0-360	Flat
11	17.51842	17.9	Pk	-41.4	.8	-40	-62.7	-21.96	-	-40.74	0-360	Flat

Pk - Peak detector

FUNDAMENTAL WITH 2 TAGS

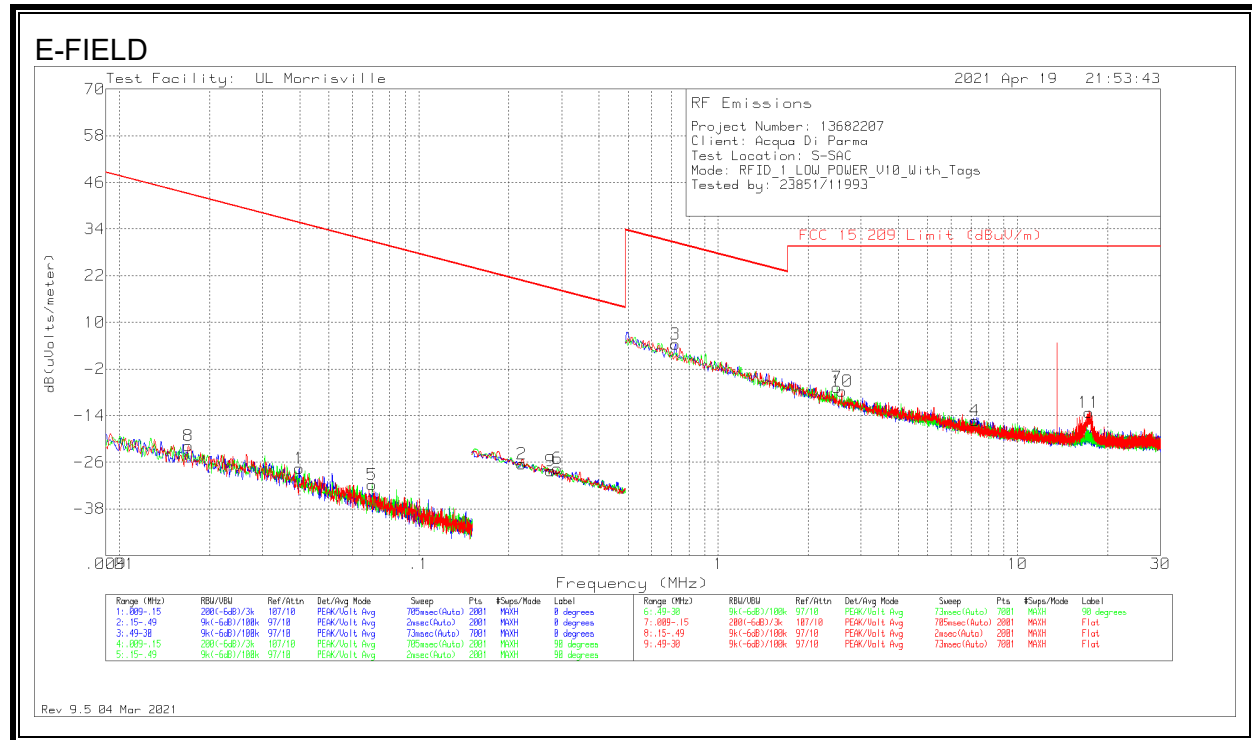




Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
Face On (0°)										
1	12.384	15.75	Pk	10.5	.7	-40	-13.05	29.5	-42.55	100
2	13.35	15.93	Pk	10.4	.7	-40	-12.97	40.5	-53.47	100
3	13.4865	16.51	Pk	10.4	.7	-40	-12.39	50.5	-62.89	100
4	13.56	39.37	Pk	10.4	.7	-40	10.47	84	-73.53	100
5	13.6755	14.49	Pk	10.4	.7	-40	-14.41	50.5	-64.91	100
6	13.87325	14.73	Pk	10.4	.7	-40	-14.17	40.5	-54.67	100
7	14.1935	15.36	Pk	10.4	.7	-40	-13.54	29.5	-43.04	100
Face Off (90°)										
1	12.853	15.84	Pk	10.4	.7	-40	-13.06	29.5	-42.56	22
2	13.224	14.92	Pk	10.4	.7	-40	-13.98	40.5	-54.48	22
3	13.455	16.72	Pk	10.4	.7	-40	-12.18	50.5	-62.68	22
4	13.56	39.36	Pk	10.4	.7	-40	10.46	84	-73.54	22
5	13.637	15.63	Pk	10.4	.7	-40	-13.27	50.5	-63.77	22
6	13.861	14.32	Pk	10.4	.7	-40	-14.58	40.5	-55.08	22
7	15.2085	15.85	Pk	10.4	.8	-40	-12.95	29.5	-42.45	22
Flat										
1	12.398	15.86	Pk	10.5	.7	-40	-12.94	29.5	-42.44	274
2	13.3745	15.17	Pk	10.4	.7	-40	-13.73	40.5	-54.23	274
3	13.5215	14.71	Pk	10.4	.7	-40	-14.19	50.5	-64.69	274
4	13.56	32.13	Pk	10.4	.7	-40	3.23	84	-80.77	274
5	13.6195	14.62	Pk	10.4	.7	-40	-14.28	50.5	-64.78	274
6	13.8715	15.44	Pk	10.4	.7	-40	-13.46	40.5	-53.96	274
7	14.2075	15.51	Pk	10.4	.7	-40	-13.39	29.5	-42.89	274

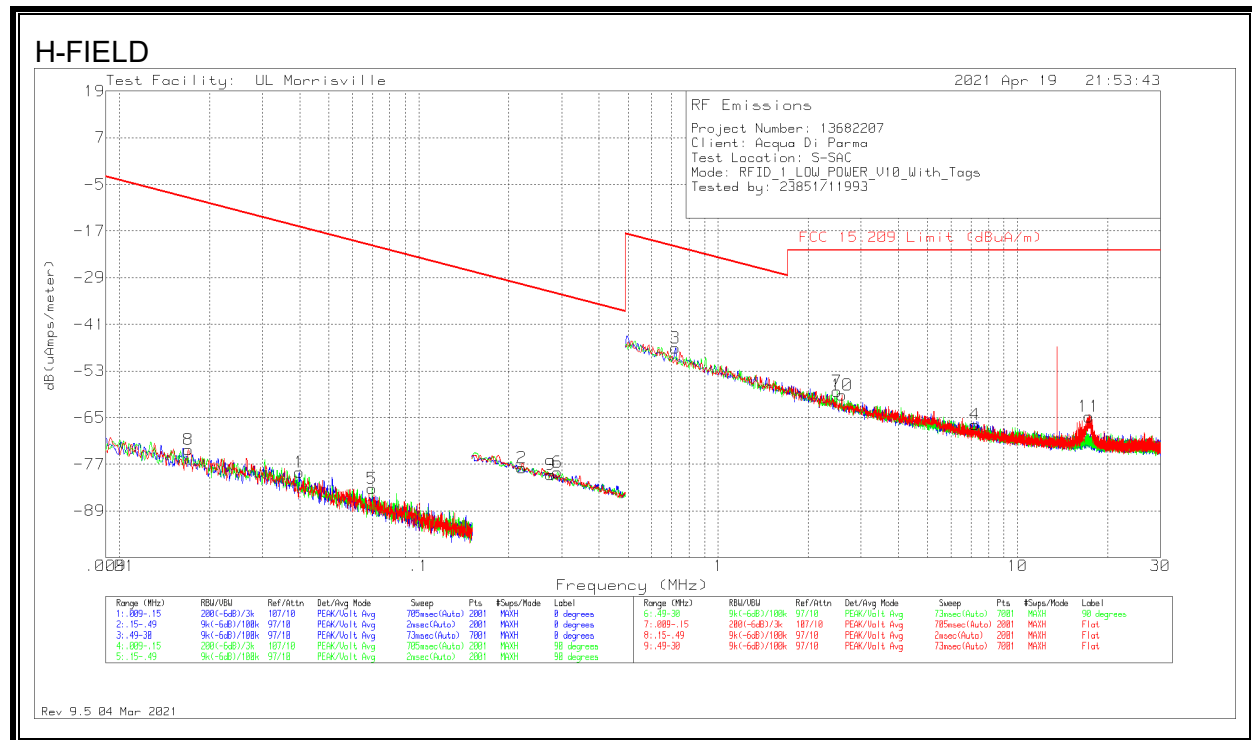
Pk - Peak detector

SPURIOUS EMISSIONS WITH 2 TAGS



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/m)	FCC 15.209 QP/AV Limit (dBuV/m)	FCC 15.209 PK Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.03981	39.99	Pk	12.3	.1	-80	-27.61	35.6	55.6	-63.21	0-360	Face On
2	.22072	42.73	Pk	10.8	.1	-80	-26.37	20.73	40.73	-47.1	0-360	Face On
3	.71766	33.42	Pk	10.8	.2	-40	4.42	30.49	-	-26.07	0-360	Face On
4	7.18922	13.35	Pk	10.8	.5	-40	-15.35	29.54	-	-44.89	0-360	Face Off
5	.06978	36.98	Pk	11.2	.1	-80	-31.72	30.73	50.73	-62.45	0-360	Face Off
6	.29085	41.57	Pk	10.7	.1	-80	-27.63	18.33	38.33	-45.96	0-360	Face Off
7	2.48838	21.87	Pk	11.1	.3	-40	-6.73	29.54	-	-36.27	0-360	Flat
8	.01702	43.09	Pk	15	.1	-80	-21.81	42.98	62.98	-64.79	0-360	Flat
9	.27563	40.93	Pk	10.7	.1	-80	-28.27	18.8	38.8	-47.07	0-360	Flat
10	2.59168	20.88	Pk	11.1	.3	-40	-7.72	29.54	-	-37.26	0-360	Flat
11	17.33714	15.73	Pk	10.2	.8	-40	-13.27	29.54	-	-42.81	0-360	Flat

Pk - Peak detector

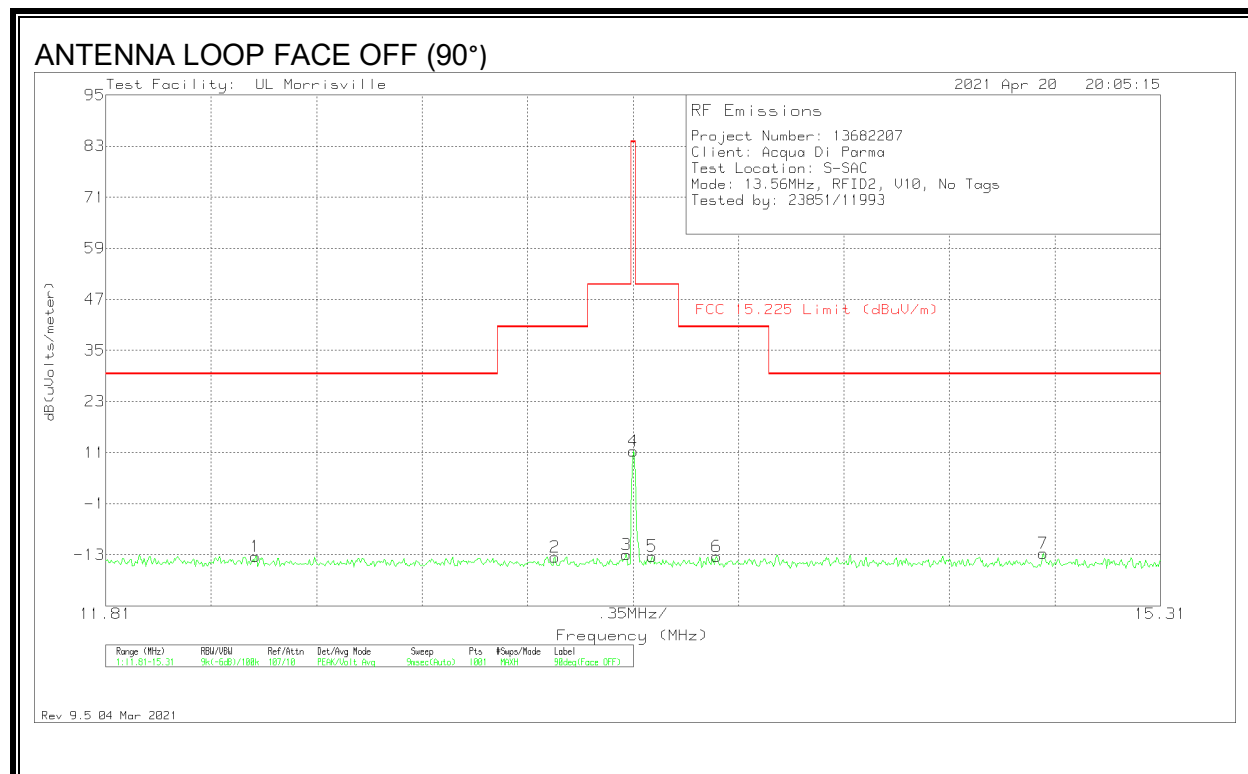
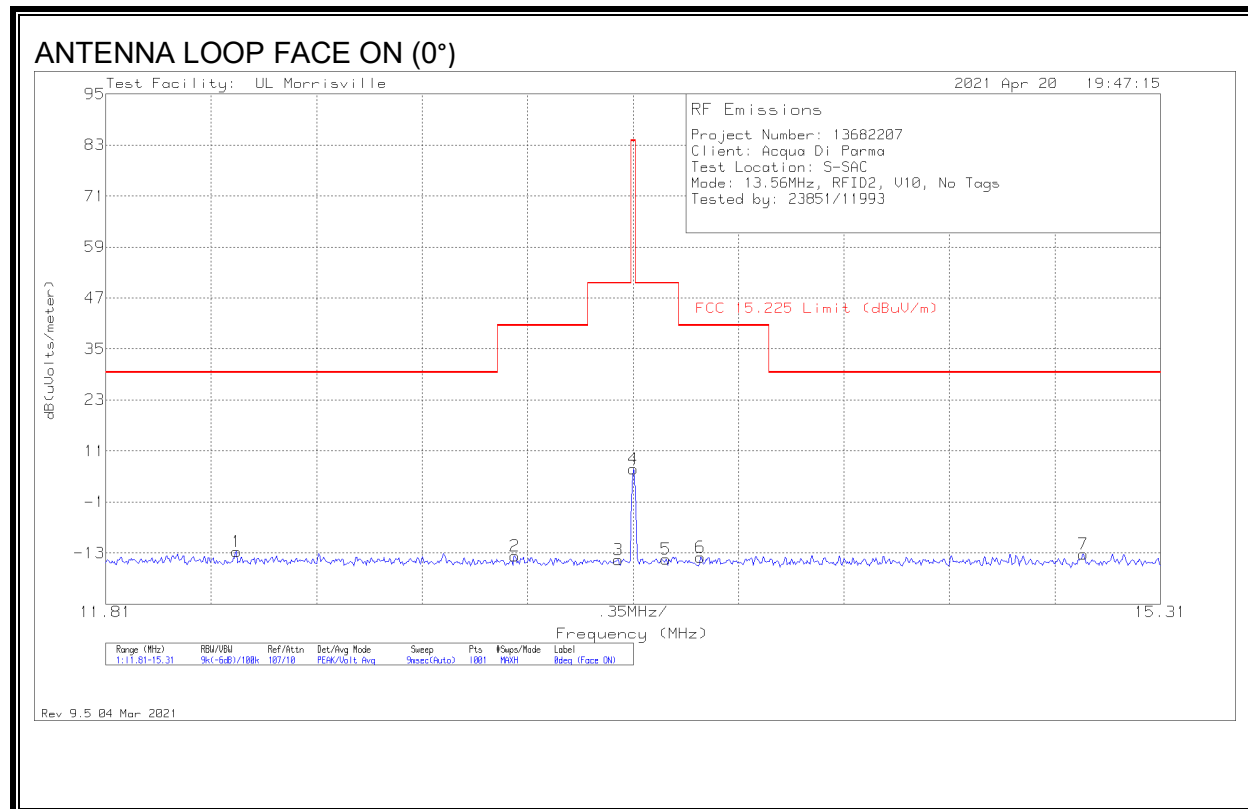


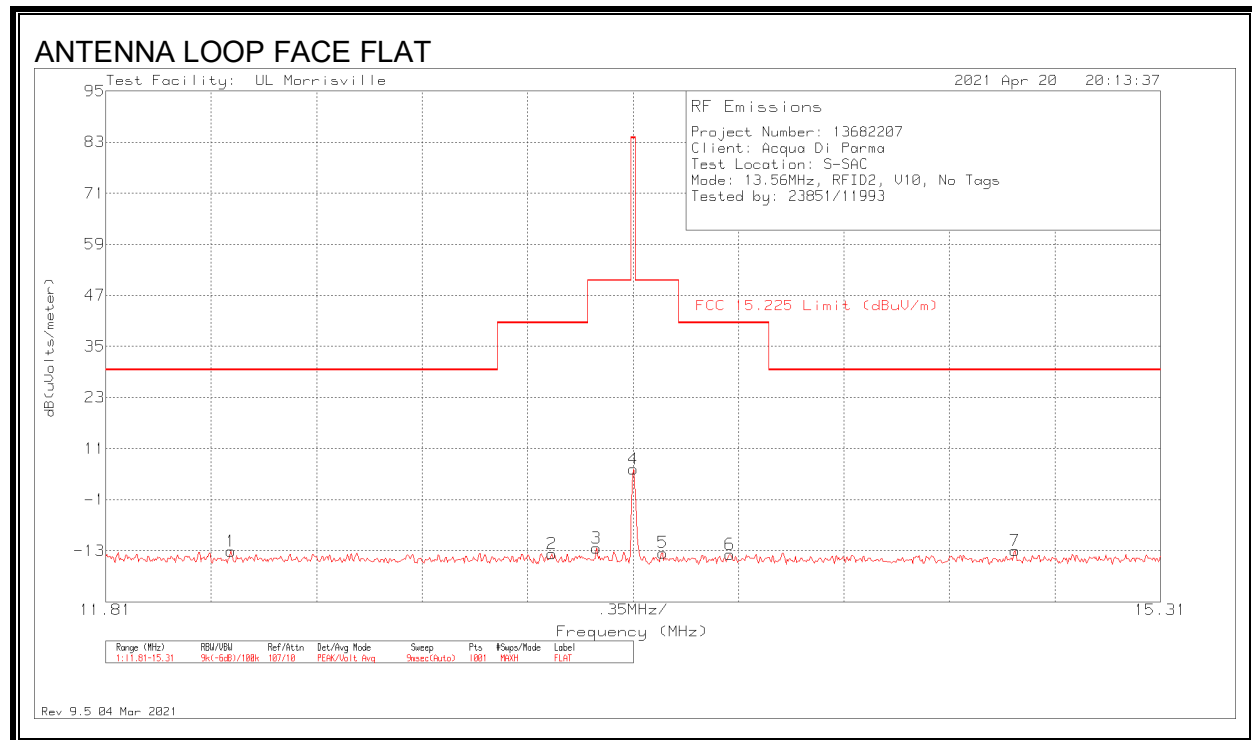
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uA/m)	RSS-GEN QP/AV Limit (dBuA/m)	RSS-GEN PK Limit (dBuA/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.03981	39.99	Pk	-39.2	.1	-80	-79.11	-15.9	4.1	-63.21	0-360	Face On
2	.22072	42.73	Pk	-40.7	.1	-80	-77.87	-30.77	-10.77	-47.1	0-360	Face On
3	.71766	33.42	Pk	-40.7	.2	-40	-47.08	-21.01	-	-26.07	0-360	Face On
4	7.18922	13.35	Pk	-40.7	.5	-40	-66.85	-21.96	-	-44.89	0-360	Face Off
5	.06978	36.98	Pk	-40.3	.1	-80	-83.22	-20.77	-0.77	-62.45	0-360	Face Off
6	.29085	41.57	Pk	-40.8	.1	-80	-79.13	-33.17	-13.17	-45.96	0-360	Face Off
7	2.48838	21.87	Pk	-40.4	.3	-40	-58.23	-21.96	-	-36.27	0-360	Flat
8	.01702	43.09	Pk	-36.5	.1	-80	-73.31	-8.52	11.48	-64.79	0-360	Flat
9	.27563	40.93	Pk	-40.8	.1	-80	-79.77	-32.7	-12.7	-47.07	0-360	Flat
10	2.59168	20.88	Pk	-40.4	.3	-40	-59.22	-21.96	-	-37.26	0-360	Flat
11	17.33714	15.73	Pk	-41.3	.8	-40	-64.77	-21.96	-	-42.81	0-360	Flat

Pk - Peak detector

11.2.2. RFID 2

FUNDAMENTAL WITHOUT TAG

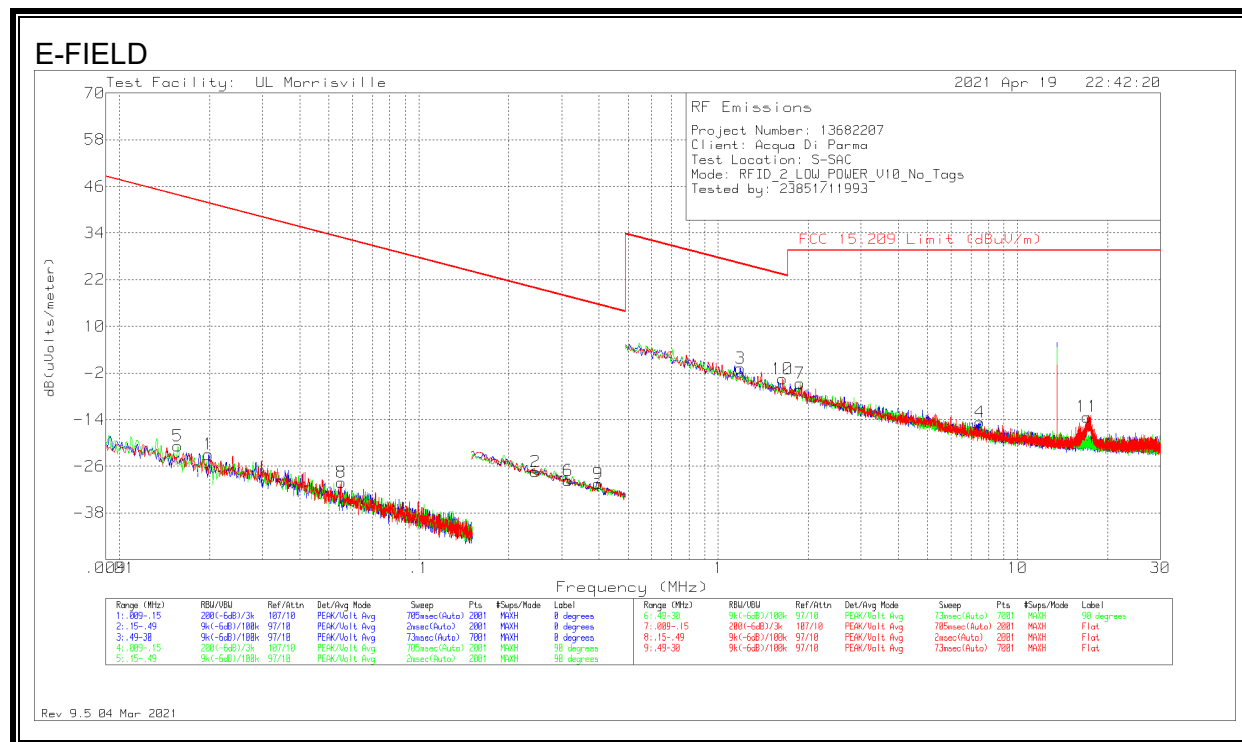




Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
Face On (0°)										
1	12.244	16.06	Pk	10.5	.7	-40	-12.74	29.5	-42.24	206
2	13.168	15.22	Pk	10.4	.7	-40	-13.68	40.5	-54.18	206
3	13.511	14.25	Pk	10.4	.7	-40	-14.65	50.5	-65.15	206
4	13.56	35.7	Pk	10.4	.7	-40	6.8	84	-77.2	206
5	13.6685	14.4	Pk	10.4	.7	-40	-14.5	50.5	-65	206
6	13.784	14.84	Pk	10.4	.7	-40	-14.06	40.5	-54.56	206
7	15.0545	15.57	Pk	10.4	.8	-40	-13.23	29.5	-42.73	206
Face Off (90°)										
1	12.307	15.41	Pk	10.5	.7	-40	-13.39	29.5	-42.89	139
2	13.301	15.31	Pk	10.4	.7	-40	-13.59	40.5	-54.09	139
3	13.539	15.89	Pk	10.4	.7	-40	-13.01	50.5	-63.51	139
4	13.56	40.23	Pk	10.4	.7	-40	11.33	84	-72.67	139
5	13.623	15.54	Pk	10.4	.7	-40	-13.36	50.5	-63.86	139
6	13.8365	15.53	Pk	10.4	.7	-40	-13.37	40.5	-53.87	139
7	14.9215	16.16	Pk	10.4	.8	-40	-12.64	29.5	-42.14	139
Flat										
1	12.2265	15.63	Pk	10.5	.7	-40	-13.17	29.5	-42.67	55
2	13.2905	15.19	Pk	10.4	.7	-40	-13.71	40.5	-54.21	55
3	13.4375	16.49	Pk	10.4	.7	-40	-12.41	50.5	-62.91	55
4	13.56	35.04	Pk	10.4	.7	-40	6.14	84	-77.86	55
5	13.658	15.4	Pk	10.4	.7	-40	-13.5	50.5	-64	55
6	13.882	15.07	Pk	10.4	.7	-40	-13.83	40.5	-54.33	55
7	14.827	15.75	Pk	10.4	.8	-40	-13.05	29.5	-42.55	55

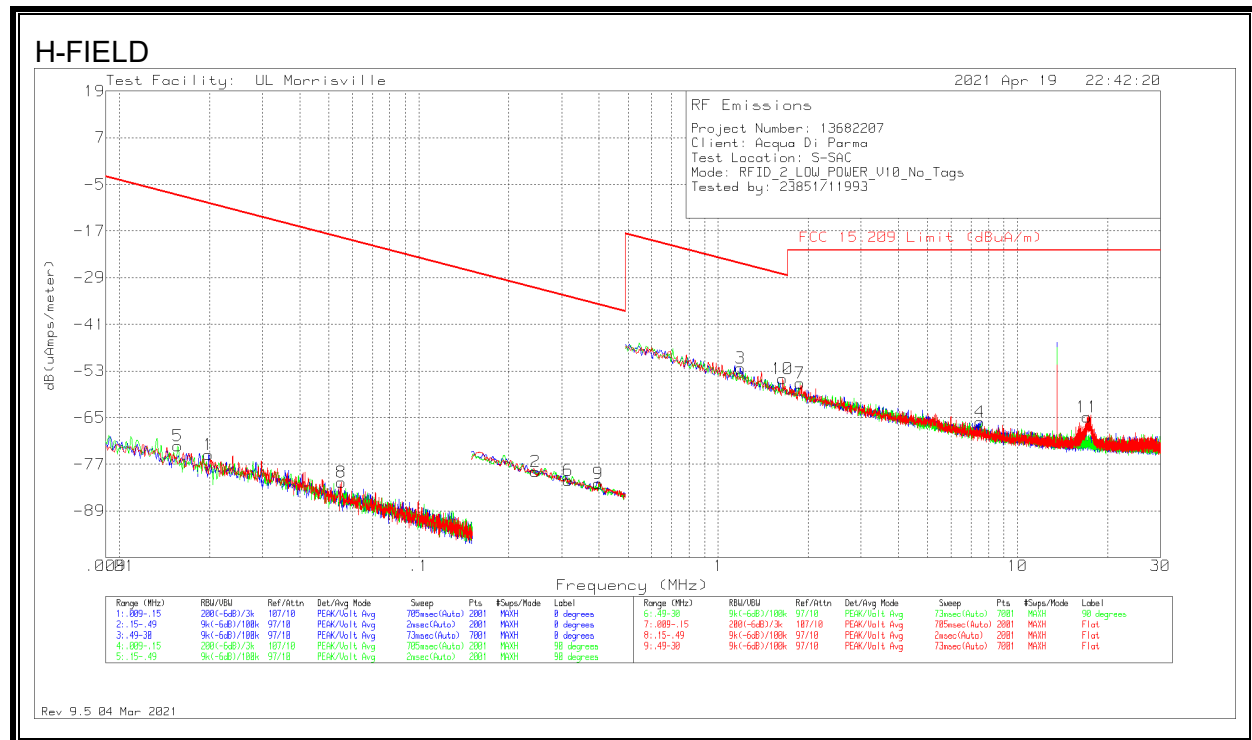
Pk - Peak detector

SPURIOUS EMISSIONS WITHOUT TAG



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/m)	FCC 15.209 QP/AV Limit (dBuV/m)	FCC 15.209 PK Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.01986	43.13	Pk	13.8	.1	-80	-22.97	41.64	61.64	-64.61	0-360	Face On
2	.24512	41.71	Pk	10.8	.1	-80	-27.39	19.82	39.82	-47.21	0-360	Face On
3	1.18564	28.02	Pk	11	.2	-40	-.78	26.13	-	-26.91	0-360	Face On
4	7.48434	14.2	Pk	10.7	.5	-40	-14.6	29.54	-	-44.14	0-360	Face Off
5	.01567	43.58	Pk	15.5	.1	-80	-20.82	43.7	63.7	-64.52	0-360	Face Off
6	.31541	39.57	Pk	10.7	.1	-80	-29.63	17.63	37.63	-47.26	0-360	Face Off
7	1.87285	23.93	Pk	11.1	.3	-40	-4.67	29.54	-	-34.21	0-360	Flat
8	.05508	38.26	Pk	11.5	.1	-80	-30.14	32.78	52.78	-62.92	0-360	Flat
9	.39837	38.85	Pk	10.6	.1	-80	-30.45	15.6	35.6	-46.05	0-360	Flat
10	1.64097	25.15	Pk	11.1	.2	-40	-3.55	23.3	-	-26.85	0-360	Flat
11	17.05888	15.71	Pk	10.2	.8	-40	-13.29	29.54	-	-42.83	0-360	Flat

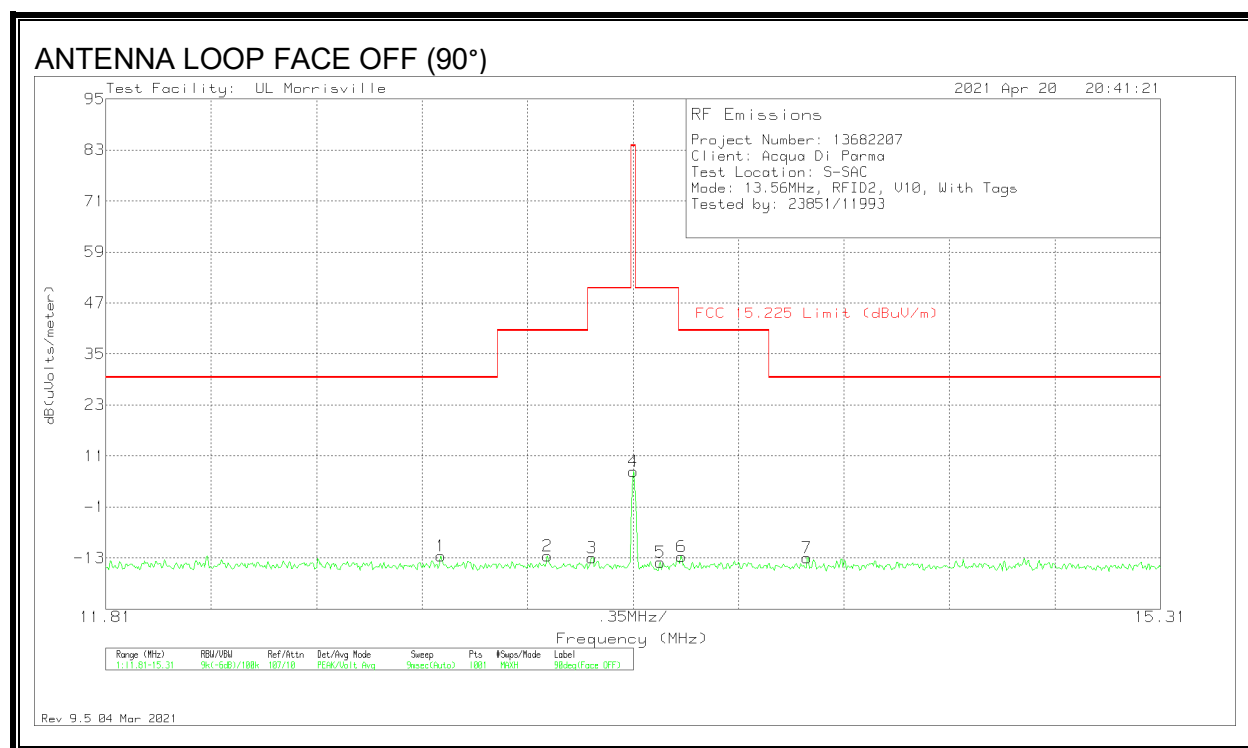
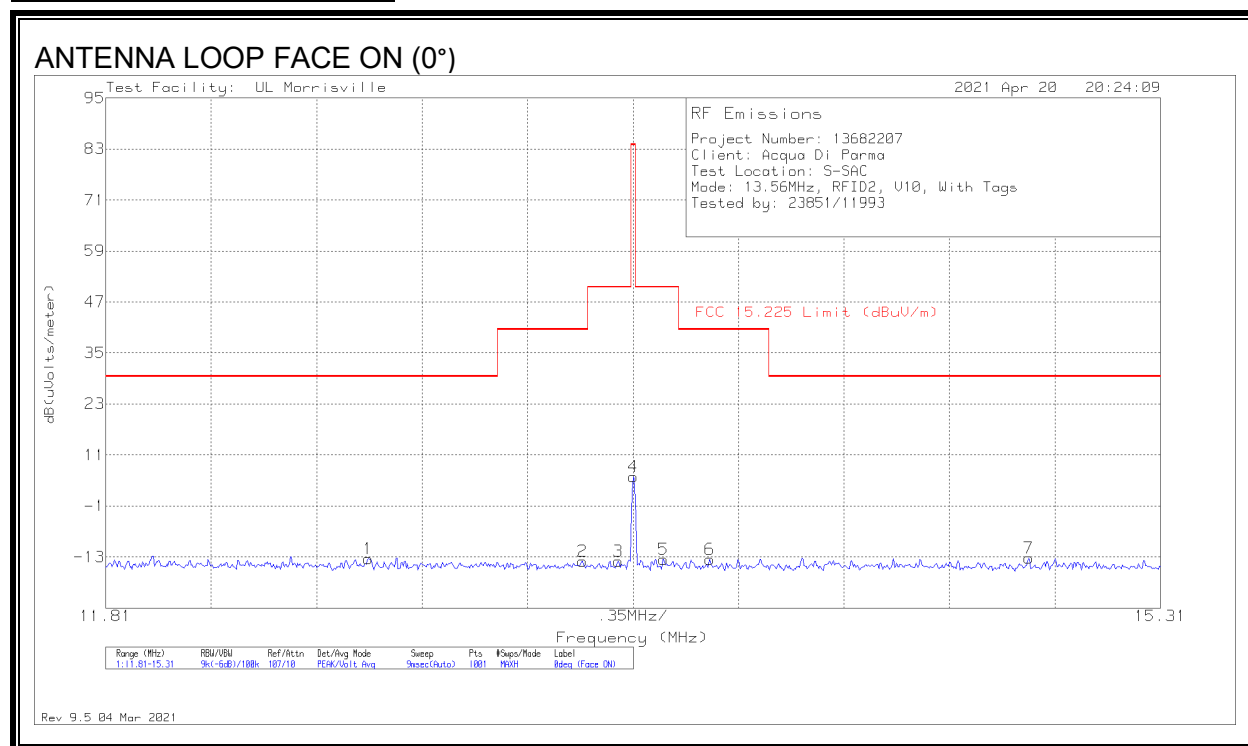
Pk - Peak detector

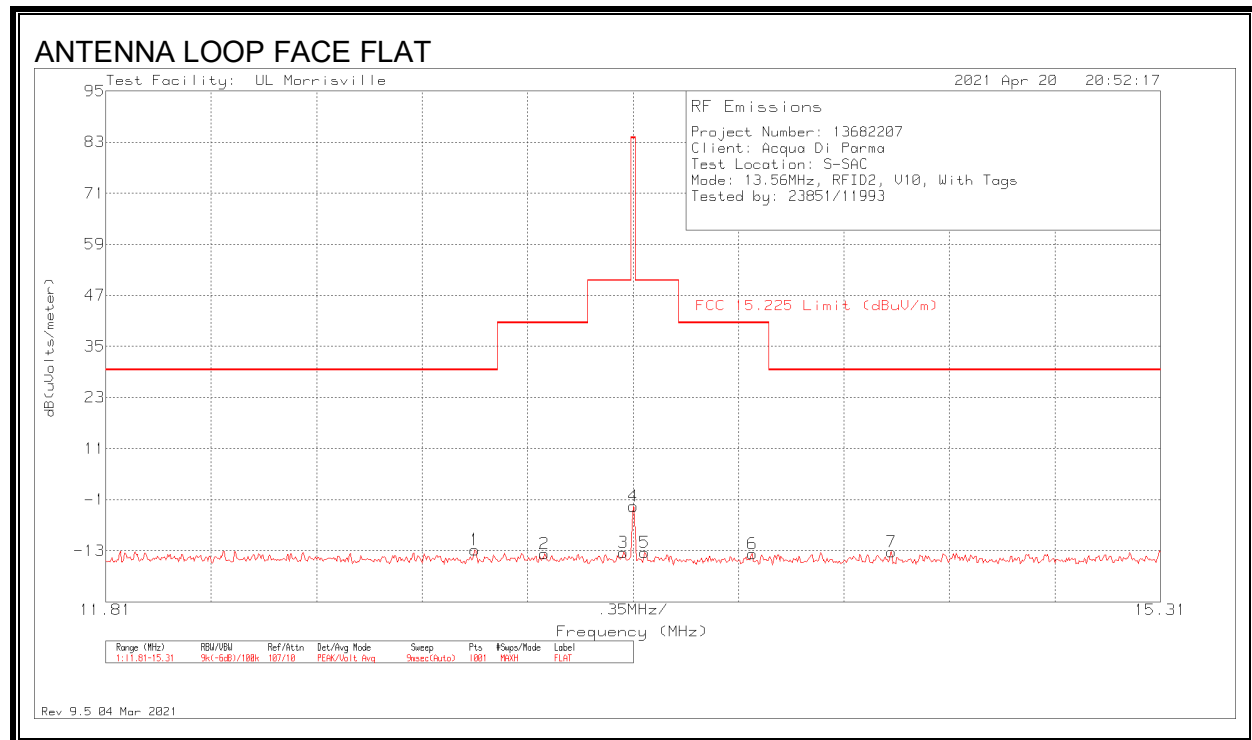


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uA/m)	RSS-GEN QP/AV Limit (dBuA/m)	RSS-GEN PK Limit (dBuA/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.01986	43.13	Pk	-37.7	.1	-80	-74.47	-9.86	10.14	-64.61	0-360	Face On
2	.24512	41.71	Pk	-40.7	.1	-80	-78.89	-31.68	-11.68	-47.21	0-360	Face On
3	1.18564	28.02	Pk	-40.5	.2	-40	-52.28	-25.37	-	-26.91	0-360	Face On
4	7.48434	14.2	Pk	-40.8	.5	-40	-66.1	-21.96	-	-44.14	0-360	Face Off
5	.01567	43.58	Pk	-36	.1	-80	-72.32	-7.8	12.2	-64.52	0-360	Face Off
6	.31541	39.57	Pk	-40.8	.1	-80	-81.13	-33.87	-13.87	-47.26	0-360	Face Off
7	1.87285	23.93	Pk	-40.4	.3	-40	-56.17	-21.96	-	-34.21	0-360	Flat
8	.05508	38.26	Pk	-40	.1	-80	-81.64	-18.72	1.28	-62.92	0-360	Flat
9	.39837	38.85	Pk	-40.9	.1	-80	-81.95	-35.9	-15.9	-46.05	0-360	Flat
10	1.64097	25.15	Pk	-40.4	.2	-40	-55.05	-28.2	-	-26.85	0-360	Flat
11	17.05888	15.71	Pk	-41.3	.8	-40	-64.79	-21.96	-	-42.83	0-360	Flat

Pk - Peak detector

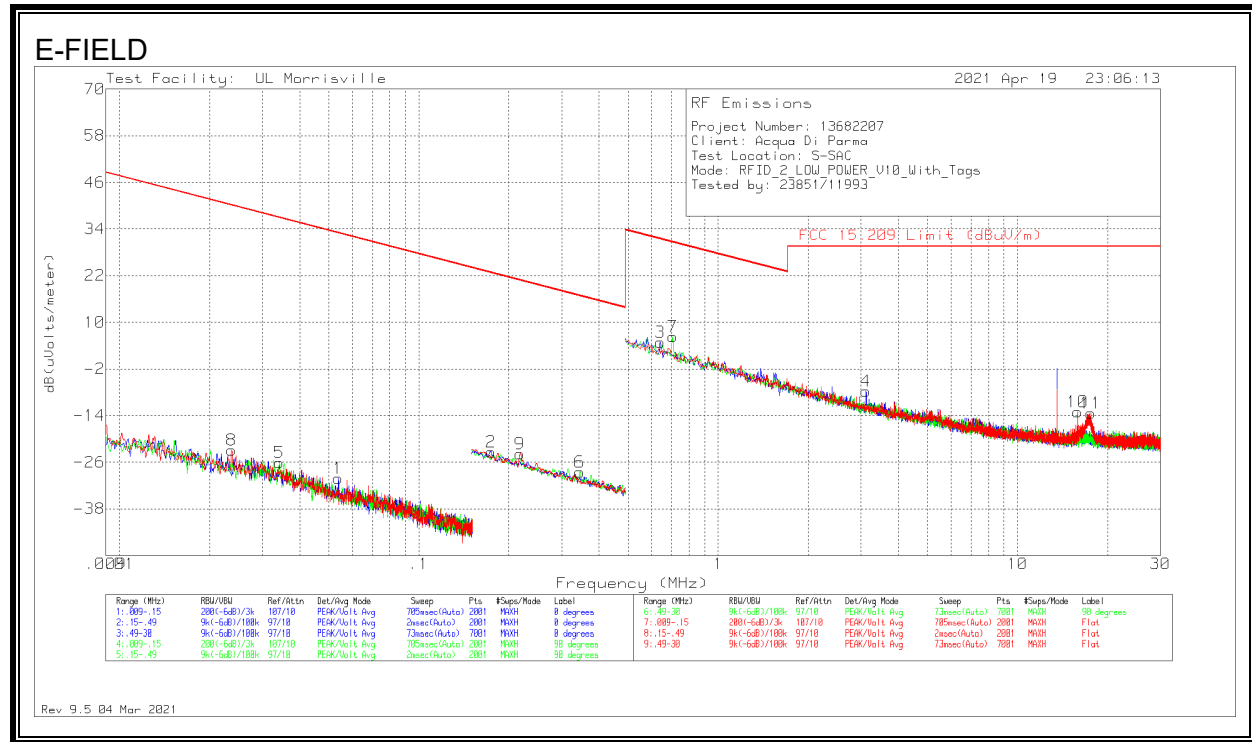
FUNDAMENTAL WITH 2 TAGS





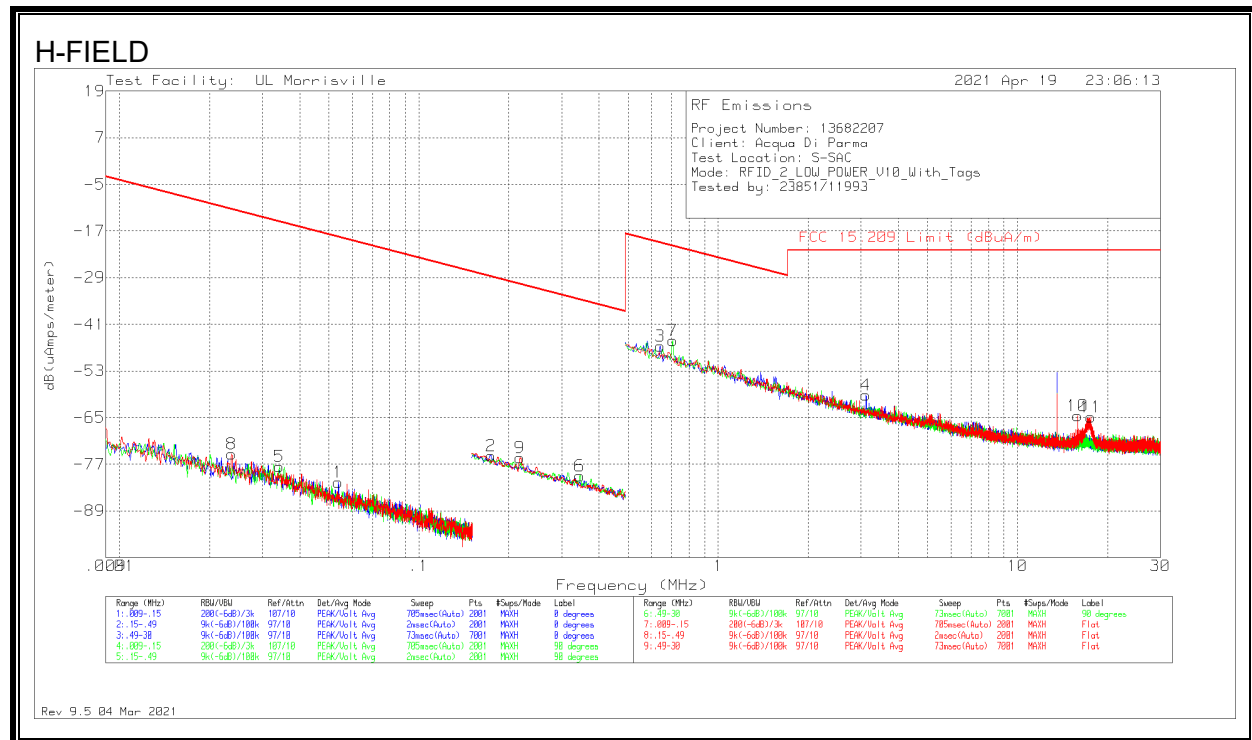
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
Face On (0°)										
1	12.6815	15.49	Pk	10.4	.7	-40	-13.41	29.5	-42.91	137
2	13.392	14.9	Pk	10.4	.7	-40	-14	40.5	-54.5	137
3	13.511	14.84	Pk	10.4	.7	-40	-14.06	50.5	-64.56	137
4	13.56	34.82	Pk	10.4	.7	-40	5.92	84	-78.08	137
5	13.6615	15.32	Pk	10.4	.7	-40	-13.58	50.5	-64.08	137
6	13.8155	15.34	Pk	10.4	.7	-40	-13.56	40.5	-54.06	137
7	14.8725	15.53	Pk	10.4	.8	-40	-13.27	29.5	-42.77	137
Face Off (90°)										
1	12.923	16.33	Pk	10.4	.7	-40	-12.57	29.5	-42.07	110
2	13.2765	16.4	Pk	10.4	.7	-40	-12.5	40.5	-53	110
3	13.4235	15.93	Pk	10.4	.7	-40	-12.97	50.5	-63.47	110
4	13.56	36.19	Pk	10.4	.7	-40	7.29	84	-76.71	110
5	13.651	14.84	Pk	10.4	.7	-40	-14.06	50.5	-64.56	110
6	13.721	16.22	Pk	10.4	.7	-40	-12.68	40.5	-53.18	110
7	14.1375	15.88	Pk	10.4	.7	-40	-13.02	29.5	-42.52	110
Flat										
1	13.035	16.13	Pk	10.4	.7	-40	-12.77	29.5	-42.27	358
2	13.266	15.17	Pk	10.4	.7	-40	-13.73	40.5	-54.23	358
3	13.5285	15.48	Pk	10.4	.7	-40	-13.42	50.5	-63.92	358
4	13.56	26.31	Pk	10.4	.7	-40	-2.59	84	-86.59	358
5	13.5985	15.41	Pk	10.4	.7	-40	-13.49	50.5	-63.99	358
6	13.9555	15.13	Pk	10.4	.7	-40	-13.77	40.5	-54.27	358
7	14.4175	15.64	Pk	10.4	.7	-40	-13.26	29.5	-42.76	358

SPURIOUS EMISSIONS WITH 2 TAGS



Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/m)	FCC 15.209 QP/AV Limit (dBUV/m)	FCC 15.209 PK Limit (dBUV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.05387	38.25	Pk	11.5	.1	-80	-30.15	32.98	52.98	-63.13	0-360	Face On
2	.17431	45.74	Pk	10.8	.1	-80	-23.36	22.78	42.78	-46.14	0-360	Face On
3	.64178	33.81	Pk	10.8	.2	-40	4.81	31.46	-	-26.65	0-360	Face On
4	3.11657	20.83	Pk	11.1	.3	-40	-7.77	29.54	-	-37.31	0-360	Face Off
5	.03421	40.9	Pk	12.9	.1	-80	-26.1	36.92	56.92	-63.02	0-360	Face Off
6	.34482	40.68	Pk	10.7	.1	-80	-28.52	16.85	36.85	-45.37	0-360	Face Off
7	.70502	35.36	Pk	10.8	.2	-40	6.36	30.64	-	-24.28	0-360	Flat
8	.0237	43.45	Pk	13.6	.1	-80	-22.85	40.11	60.11	-62.96	0-360	Flat
9	.21783	45.28	Pk	10.8	.1	-80	-23.82	20.84	40.84	-44.66	0-360	Flat
10	15.86154	15.89	Pk	10.3	.8	-40	-13.01	29.54	-	-42.55	0-360	Flat
11	17.52686	15.73	Pk	10.1	.8	-40	-13.37	29.54	-	-42.91	0-360	Flat

Pk - Peak detector

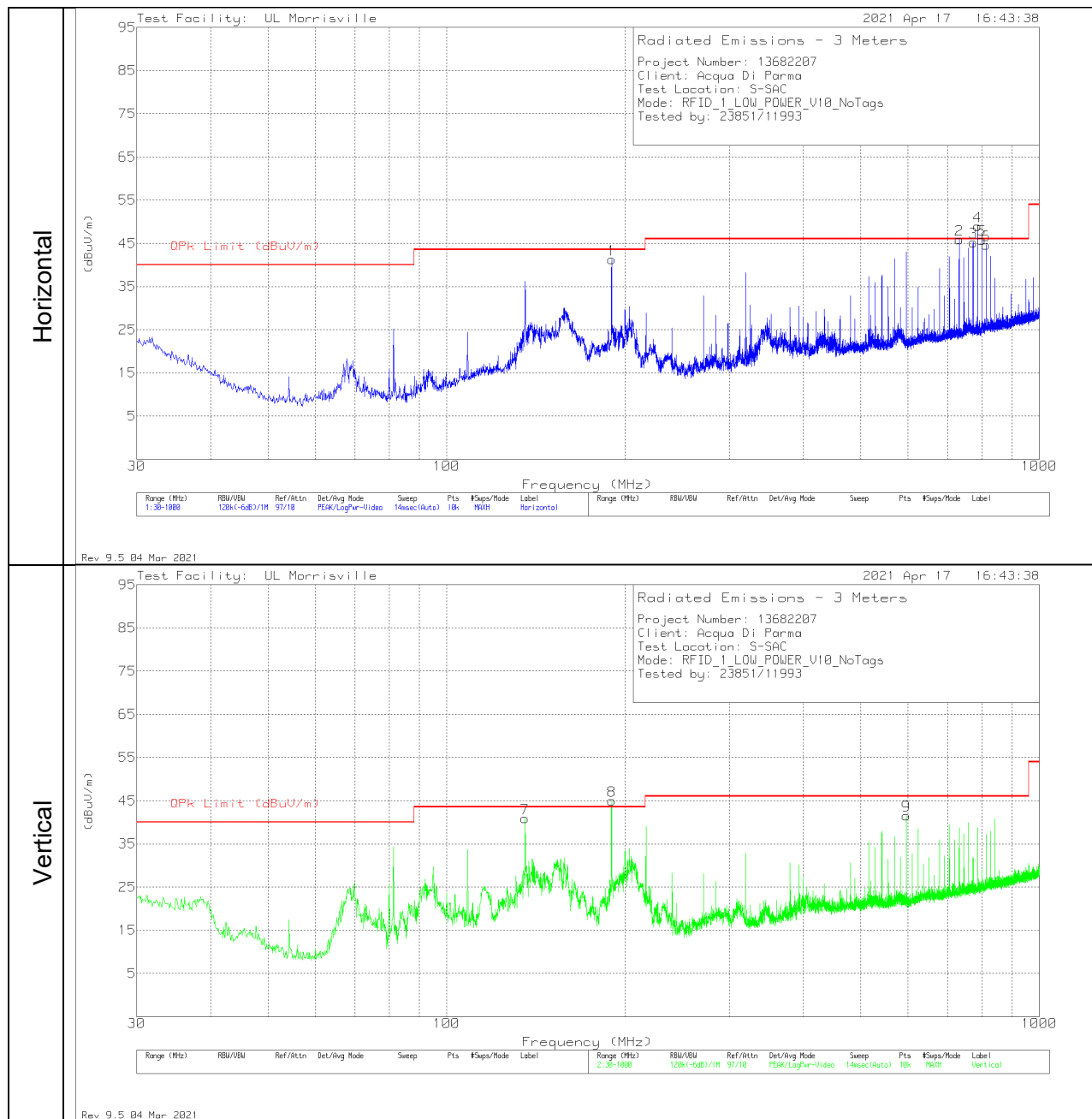


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uA/m)	RSS-GEN QP/AV Limit (dBuA/m)	RSS-GEN PK Limit (dBuA/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Antenna Position
1	.05387	38.25	Pk	-40	.1	-80	-81.65	-18.52	1.48	-63.13	0-360	Face On
2	.17431	45.74	Pk	-40.7	.1	-80	-74.86	-28.72	-8.72	-46.14	0-360	Face On
3	.64178	33.81	Pk	-40.7	.2	-40	-46.69	-20.04	-	-26.65	0-360	Face On
4	3.11657	20.83	Pk	-40.4	.3	-40	-59.27	-21.96	-	-37.31	0-360	Face Off
5	.03421	40.9	Pk	-38.6	.1	-80	-77.6	-14.58	5.42	-63.02	0-360	Face Off
6	.34482	40.68	Pk	-40.8	.1	-80	-80.02	-34.65	-14.65	-45.37	0-360	Face Off
7	.70502	35.36	Pk	-40.7	.2	-40	-45.14	-20.86	-	-24.28	0-360	Flat
8	.0237	43.45	Pk	-37.9	.1	-80	-74.35	-11.39	8.61	-62.96	0-360	Flat
9	.21783	45.28	Pk	-40.7	.1	-80	-75.32	-30.66	-10.66	-44.66	0-360	Flat
10	15.86154	15.89	Pk	-41.2	.8	-40	-64.51	-21.96	-	-42.55	0-360	Flat
11	17.52686	15.73	Pk	-41.4	.8	-40	-64.87	-21.96	-	-42.91	0-360	Flat

Pk - Peak detector

11.2.3. TX SPURIOUS EMISSIONS 30-1000 MHz

RFID 1 - WITHOUT TAG

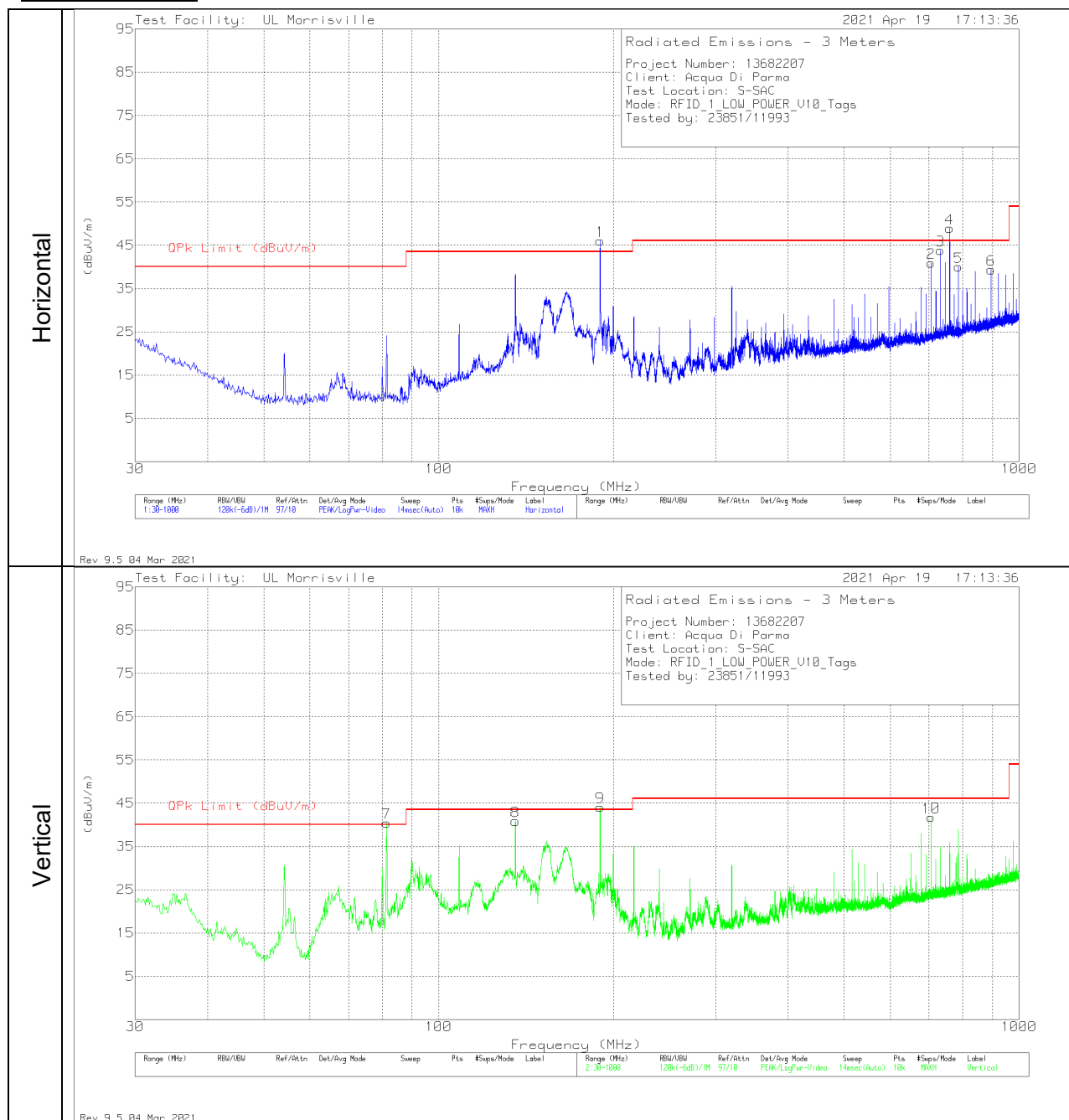


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	189.884	45.99	Qp	17.5	-29.7	33.79	43.52	-9.73	356	119	H
2	732.3584	40.28	Qp	26.7	-26.9	40.08	46.02	-5.94	208	143	H
3	773.0559	40.17	Qp	27.1	-26.7	40.57	46.02	-5.45	327	198	H
4	786.6209	41.26	Qp	27.3	-26.6	41.96	46.02	-4.06	15	178	H
5	800.1699	31.29	Qp	27.3	-26.4	32.19	46.02	-13.83	77	226	H
6	813.7202	40.45	Qp	27.7	-26.3	41.85	46.02	-4.17	50	167	H
7	135.6579	44.57	Qp	19.5	-30.2	33.87	43.52	-9.65	117	158	V
8	189.8861	49.45	Qp	17.5	-29.7	37.25	43.52	-6.27	94	116	V
9	596.7305	30.35	Qp	24.3	-27.6	27.05	46.02	-18.97	277	140	V

Qp - Quasi-Peak detector

RFID 1 – 2 TAGS



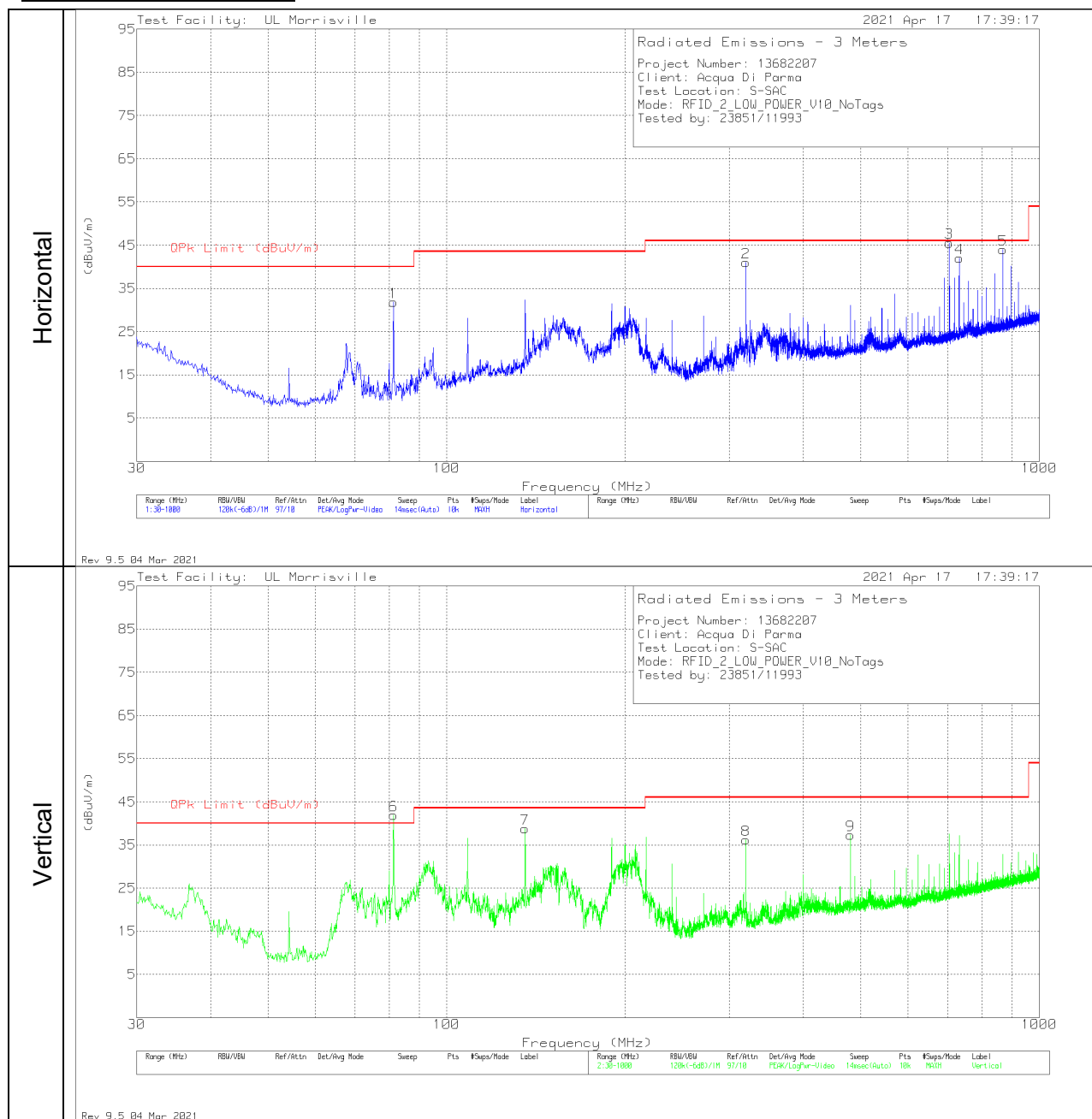
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	189.8729	50.39	Qp	17.5	-29.7	38.19	43.52	-5.33	176	182	H
2	705.237	41.49	Qp	26.5	-27.1	40.89	46.02	-5.13	294	272	H
3	732.362	41.49	Qp	26.7	-26.9	41.29	46.02	-4.73	288	225	H
4	759.4933	42.85	Qp	27	-26.7	43.15	46.02	-2.87	298	108	H
5	786.5987	37.43	Qp	27.3	-26.6	38.13	46.02	-7.89	70	187	H
6	895.143	36.6	Pk	28.4	-25.6	39.4	46.02	-6.62	0-360	100	H
7	81.3717	50.84	Qp	13.8	-30.8	33.84	40	-6.16	184	171	V
8	135.626	46.84	Qp	19.5	-30.2	36.14	43.52	-7.38	138	101	V
9	189.8668	53.45	Qp	17.5	-29.7	41.25	43.52	-2.27	71	106	V
10	705.2231	36.98	Qp	26.5	-27.1	36.38	46.02	-9.64	279	200	V

Pk - Peak detector

Qp - Quasi-Peak detector

RFID 2 – WITHOUT TAGS



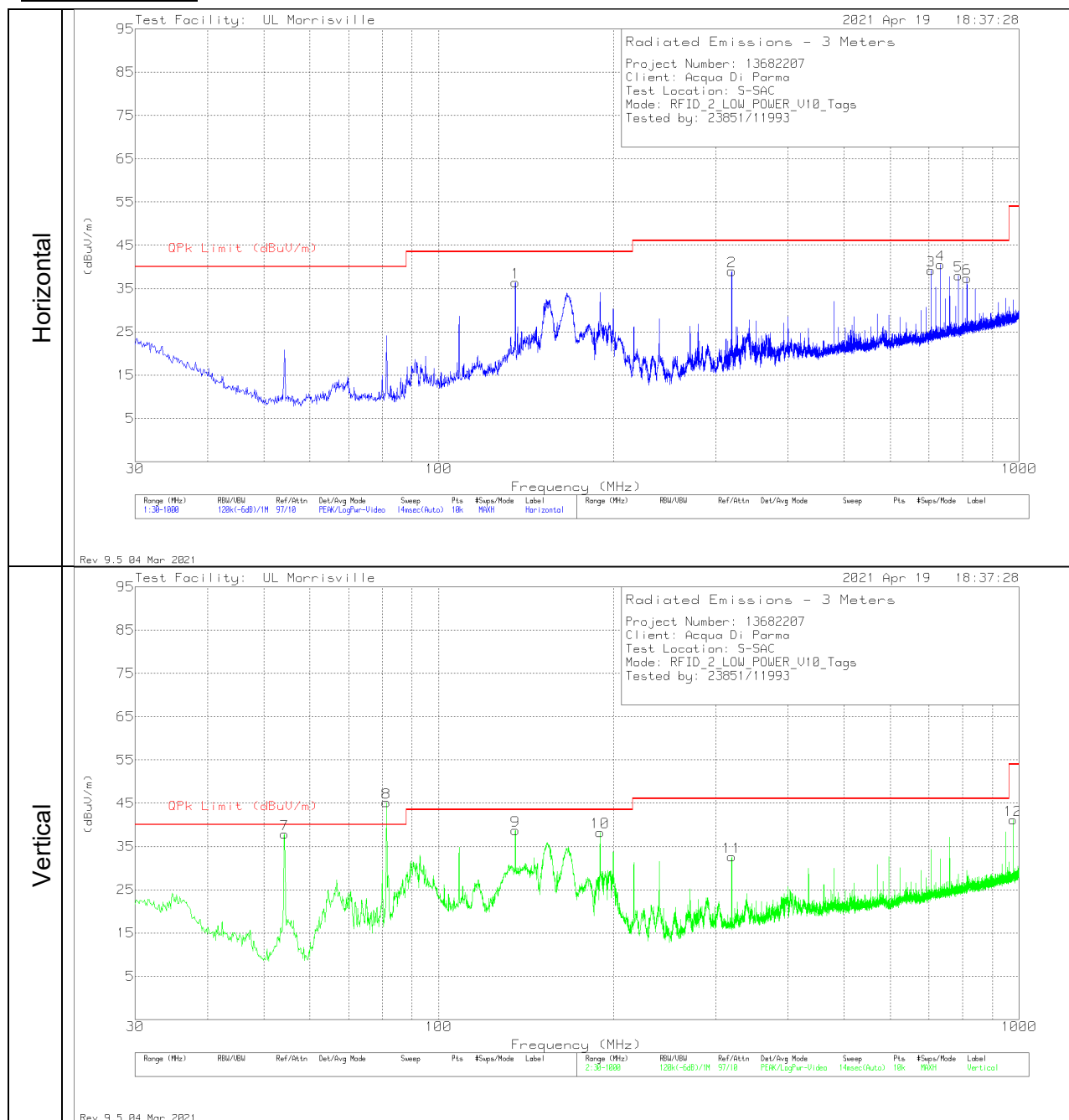
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	81.313	48.88	Pk	13.8	-30.8	31.88	40	-8.12	0-360	199	H
2	320.0079	45.32	Qp	20.1	-28.8	36.62	46.02	-9.4	159	132	H
3	705.2247	36.08	Qp	26.5	-27.1	35.48	46.02	-10.54	51	149	H
4	732.3523	37.17	Qp	26.7	-26.9	36.97	46.02	-9.05	332	118	H
5	867.9651	35.65	Qp	28.1	-25.9	37.85	46.02	-8.17	265	184	H
6	81.3751	53.33	Qp	13.8	-30.8	36.33	40	-3.67	230	108	V
7	135.6133	39.88	Qp	19.5	-30.2	29.18	43.52	-14.34	269	139	V
8	320.03	44.94	Pk	20.1	-28.8	36.24	46.02	-9.78	0-360	101	V
9	479.983	41.16	Pk	23.9	-27.8	37.26	46.02	-8.76	0-360	101	V

Pk - Peak detector

Qp - Quasi-Peak detector

RFID 2 – 2 TAGS



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	135.633	47.13	Pk	19.5	-30.2	36.43	43.52	-7.09	0-360	399	H
2	320.03	47.73	Pk	20.1	-28.8	39.03	46.02	-6.99	0-360	99	H
3	705.217	39.8	Pk	26.5	-27.1	39.2	46.02	-6.82	0-360	99	H
4	732.3457	31.37	Qp	26.7	-26.9	31.17	46.02	-14.85	299	238	H
5	786.6	37.27	Pk	27.3	-26.6	37.97	46.02	-8.05	0-360	99	H
6	813.76	35.96	Pk	27.7	-26.3	37.36	46.02	-8.66	0-360	99	H
7	54.2451	45.62	Qp	13.5	-31.2	27.92	40	-12.08	122	215	V
8	81.3601	56.64	Qp	13.8	-30.8	39.64	40	-.36	187	109	V
9	135.6024	44.65	Qp	19.5	-30.2	33.95	43.52	-9.57	89	111	V
10	189.9185	39	Qp	17.5	-29.7	26.8	43.52	-16.72	112	203	V
11	320.03	41.31	Pk	20.1	-28.8	32.61	46.02	-13.41	0-360	101	V
12	976.526	36.63	Pk	29.1	-24.6	41.13	53.97	-12.84	0-360	101	V

Pk - Peak detector

Qp - Quasi-Peak detector

12. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§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

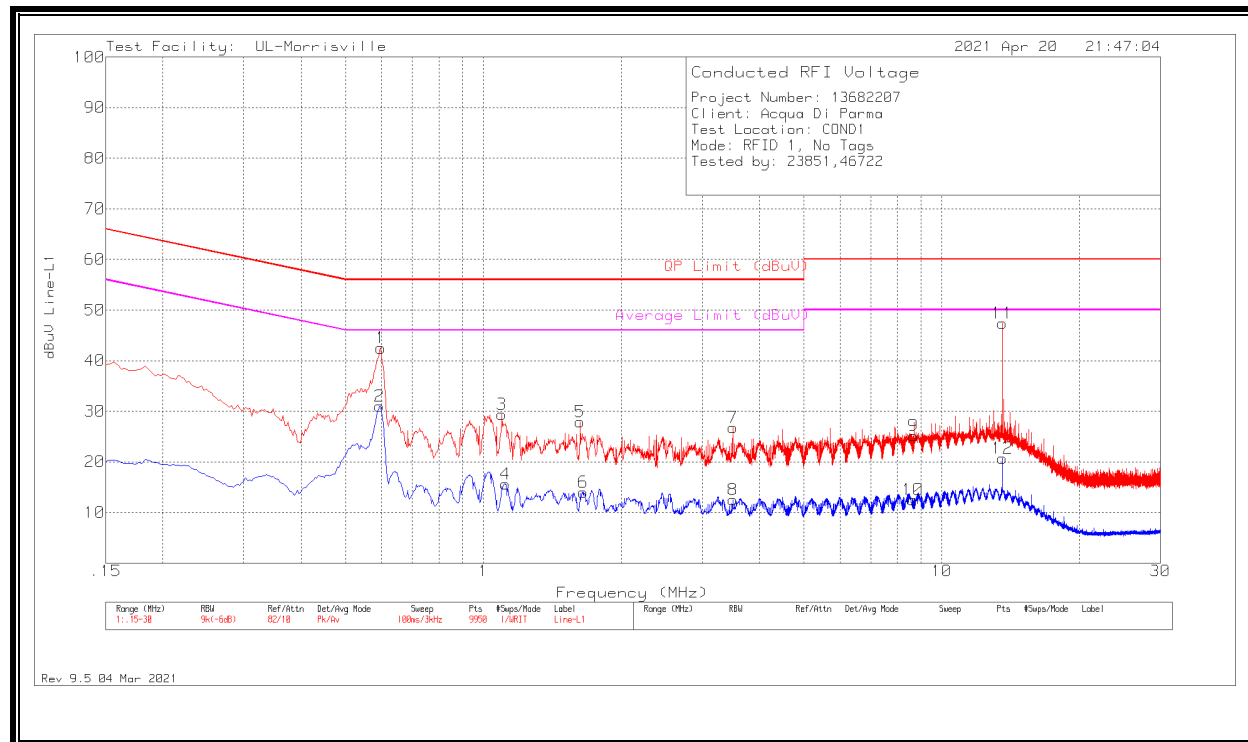
ANSI C63.10:2013

RESULTS

12.1. RFID 1

12.1.1. Without Tag

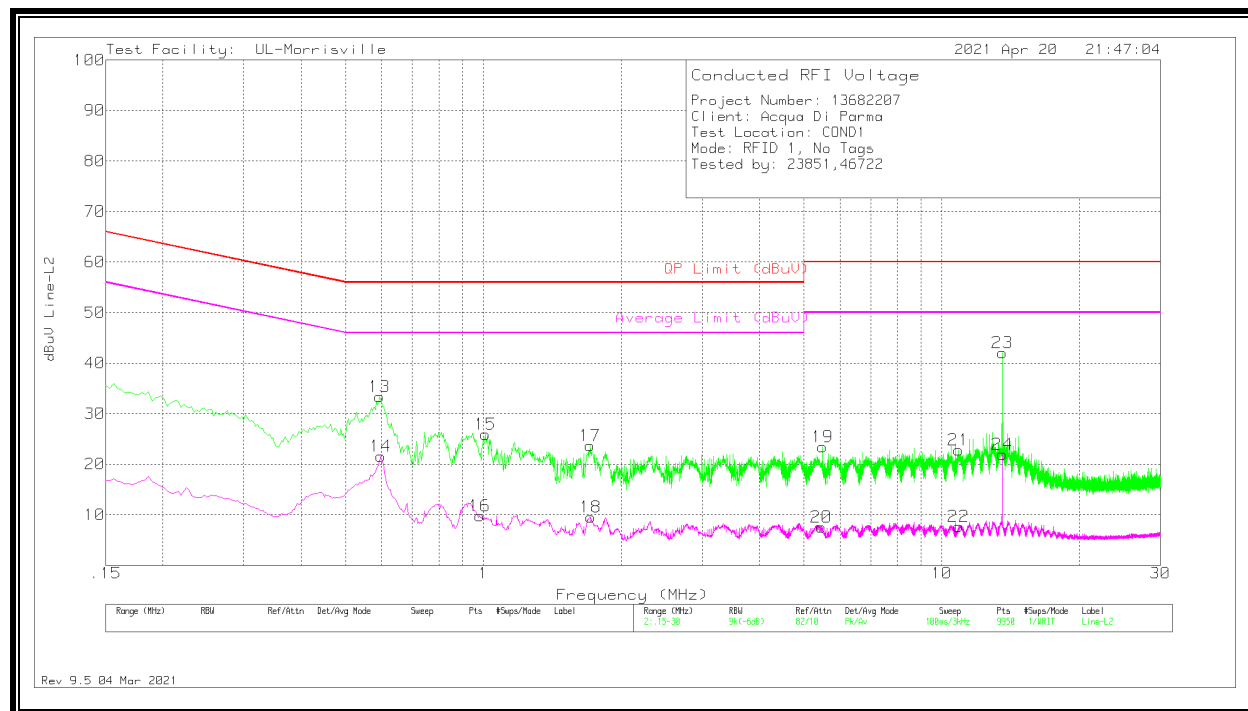
LINE 1 RESULTS



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)
2	.594	21.22	Av	0	9.8	31.02	-	-	46	-14.98
1	.597	32.69	Pk	0	9.8	42.49	56	-13.51	-	-
3	1.098	19.64	Pk	0	9.8	29.44	56	-26.56	-	-
4	1.116	5.86	Av	0	9.8	15.66	-	-	46	-30.34
5	1.626	18.12	Pk	0	9.8	27.92	56	-28.08	-	-
6	1.65	4.21	Av	0	9.8	14.01	-	-	46	-31.99
7	3.501	16.84	Pk	0	9.9	26.74	56	-29.26	-	-
8	3.501	2.58	Av	0	9.9	12.48	-	-	46	-33.52
10	8.64	2.45	Av	.1	10	12.55	-	-	50	-37.45
9	8.67	15.06	Pk	.1	10	25.16	60	-34.84	-	-
11	13.554	37.22	Pk	.1	10.1	47.42	60	-12.58	-	-
12	13.56	10.52	Av	.1	10.1	20.72	-	-	50	-29.28

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS

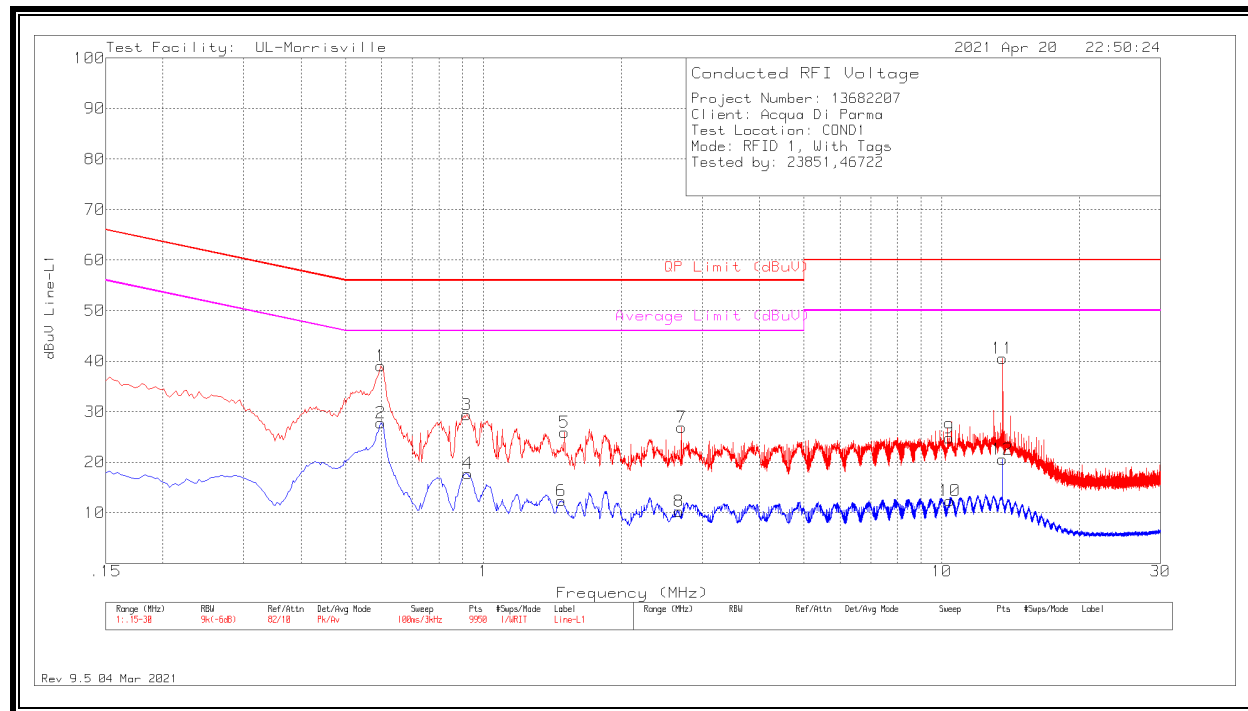


Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.594	23.58	Pk	0	9.8	33.38	56	-22.62	-	-
14	.597	11.78	Av	0	9.8	21.58	-	-	46	-24.42
16	.981	-.03	Av	0	9.8	9.77	-	-	46	-36.23
15	1.011	16.06	Pk	0	9.8	25.86	56	-30.14	-	-
17	1.71	13.87	Pk	0	9.8	23.67	56	-32.33	-	-
18	1.713	-.26	Av	0	9.8	9.54	-	-	46	-36.46
20	5.466	-2.42	Av	.1	9.9	7.58	-	-	50	-42.42
19	5.499	13.47	Pk	.1	9.9	23.47	60	-36.53	-	-
21	10.875	12.75	Pk	.1	10	22.85	60	-37.15	-	-
22	10.896	-2.47	Av	.1	10	7.63	-	-	50	-42.37
23	13.557	31.84	Pk	.1	10.1	42.04	60	-17.96	-	-
24	13.557	11.76	Av	.1	10.1	21.96	-	-	50	-28.04

Pk - Peak detector
Av - Average detection

12.1.2. With Tags

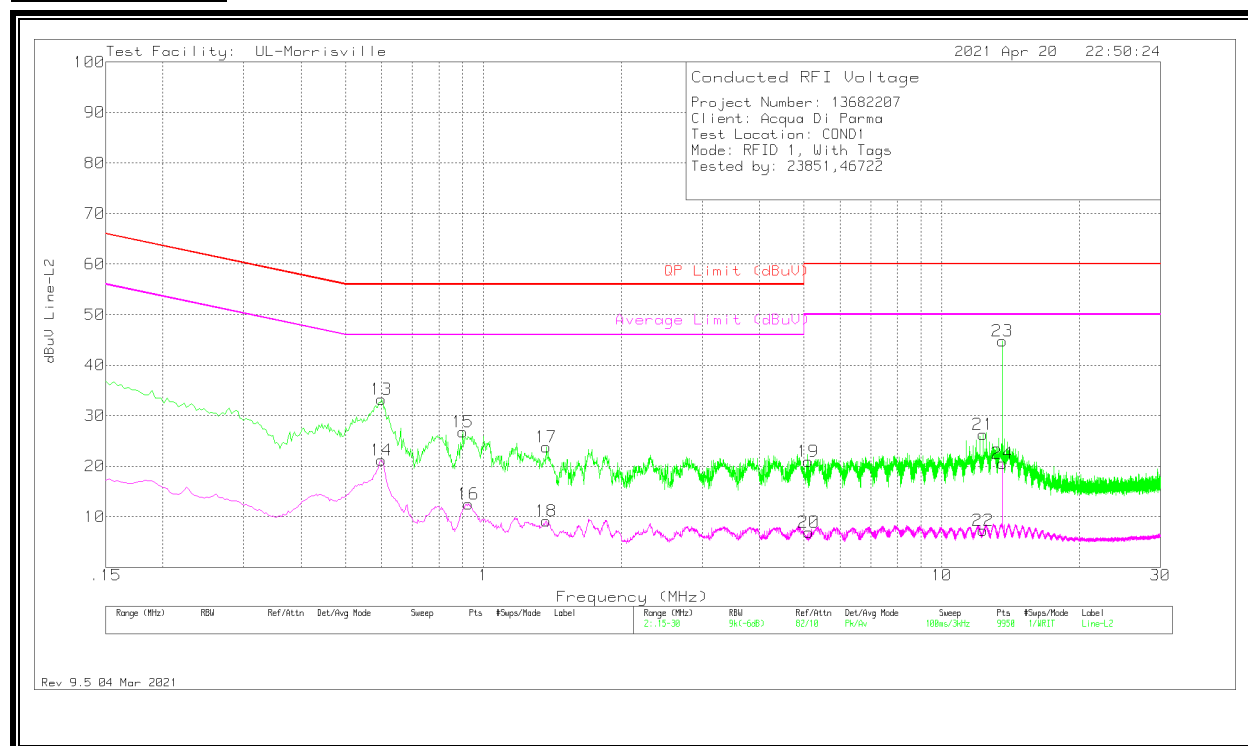
LINE 1 RESULTS



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	.597	29.24	Pk	0	9.8	39.04	56	-16.96	-	-
2	.597	18.01	Av	0	9.8	27.81	-	-	46	-18.19
3	.918	19.59	Pk	0	9.8	29.39	56	-26.61	-	-
4	.924	7.98	Av	0	9.8	17.78	-	-	46	-28.22
6	1.479	2.59	Av	0	9.8	12.39	-	-	46	-33.61
5	1.503	16.08	Pk	0	9.8	25.88	56	-30.12	-	-
8	2.673	.49	Av	0	9.8	10.29	-	-	46	-35.71
7	2.703	17.11	Pk	0	9.8	26.91	56	-29.09	-	-
9	10.371	14.75	Pk	.1	10	24.85	60	-35.15	-	-
10	10.41	2.3	Av	.1	10	12.4	-	-	50	-37.6
12	13.56	10.41	Av	.1	10.1	20.61	-	-	50	-29.39
11	13.572	30.4	Pk	.1	10.1	40.6	60	-19.4	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



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	.6	23.47	Pk	0	9.8	33.27	56	-22.73	-	-
14	.6	11.38	Av	0	9.8	21.18	-	-	46	-24.82
15	.903	16.94	Pk	0	9.8	26.74	56	-29.26	-	-
16	.927	2.67	Av	0	9.8	12.47	-	-	46	-33.53
17	1.371	14.05	Pk	0	9.8	23.85	56	-32.15	-	-
18	1.371	-.69	Av	0	9.8	9.11	-	-	46	-36.89
19	5.118	10.92	Pk	.1	9.9	20.92	60	-39.08	-	-
20	5.13	-3.11	Av	.1	9.9	6.89	-	-	50	-43.11
21	12.3	16.16	Pk	.1	10	26.26	60	-33.74	-	-
22	12.3	-2.84	Av	.1	10	7.26	-	-	50	-42.74
23	13.563	34.6	Pk	.1	10.1	44.8	60	-15.2	-	-
24	13.563	10.38	Av	.1	10.1	20.58	-	-	50	-29.42

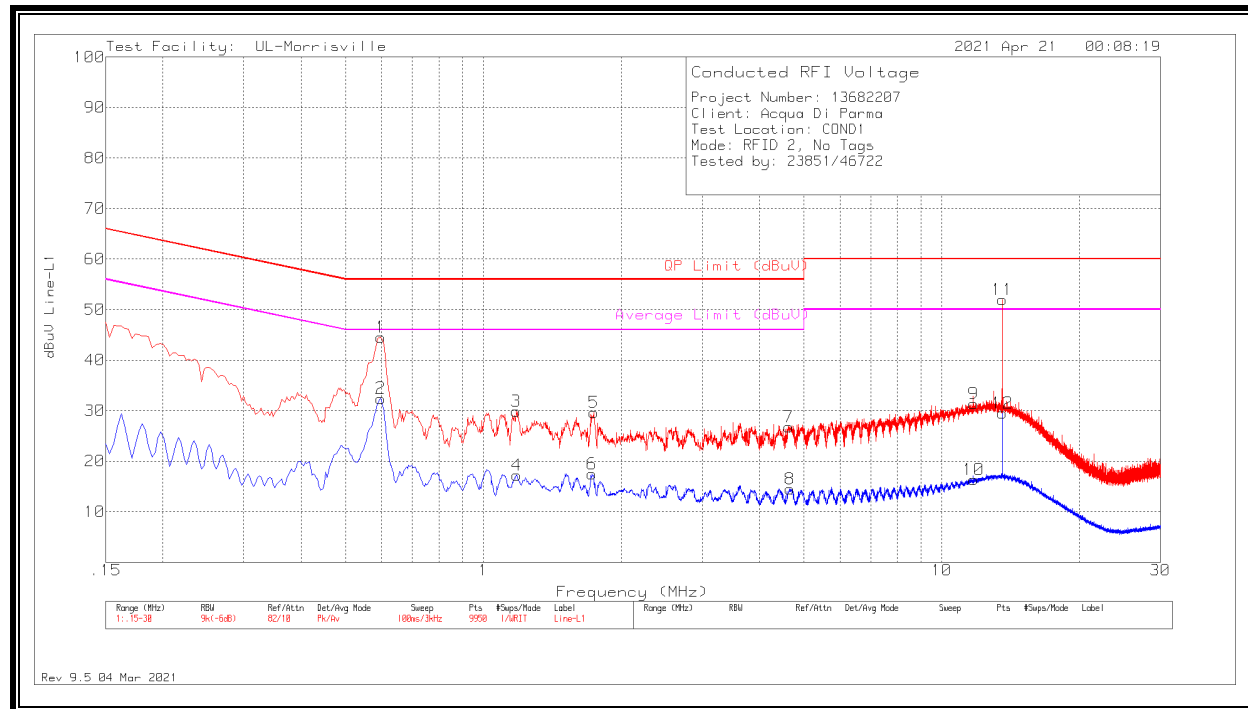
Pk - Peak detector

Av - Average detection

12.2. RFID 2

12.2.1. Without Tag

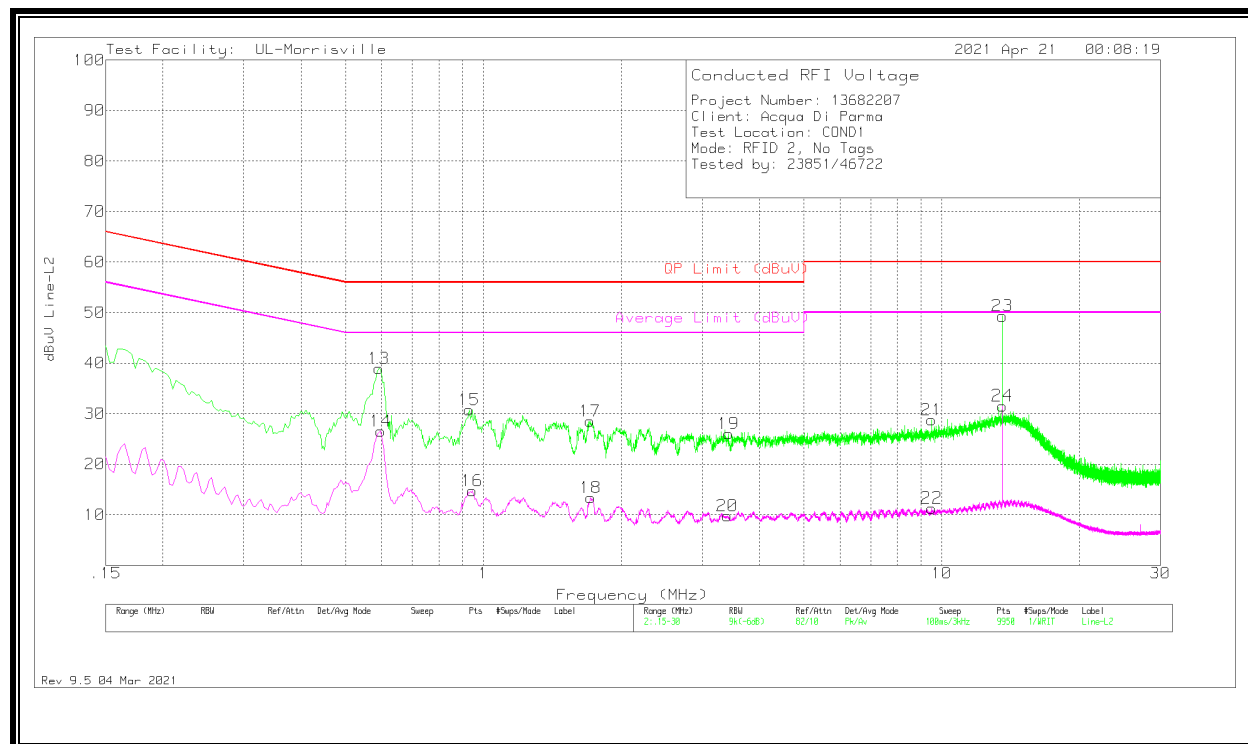
LINE 1 RESULTS



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	.597	34.72	Pk	0	9.8	44.52	56	-11.48	-	-
2	.597	22.63	Av	0	9.8	32.43	-	-	46	-13.57
3	1.179	20.03	Pk	0	9.8	29.83	56	-26.17	-	-
4	1.182	7.46	Av	0	9.8	17.26	-	-	46	-28.74
6	1.728	7.63	Av	0	9.8	17.43	-	-	46	-28.57
5	1.74	19.83	Pk	0	9.8	29.63	56	-26.37	-	-
7	4.641	16.9	Pk	0	9.9	26.8	56	-29.2	-	-
8	4.662	4.58	Av	0	9.9	14.48	-	-	46	-31.52
9	11.733	21.29	Pk	.1	10	31.39	60	-28.61	-	-
10	11.754	6.24	Av	.1	10	16.34	-	-	50	-33.66
11	13.557	41.75	Pk	.1	10.1	51.95	60	-8.05	-	-
12	13.557	19.31	Av	.1	10.1	29.51	-	-	50	-20.49

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

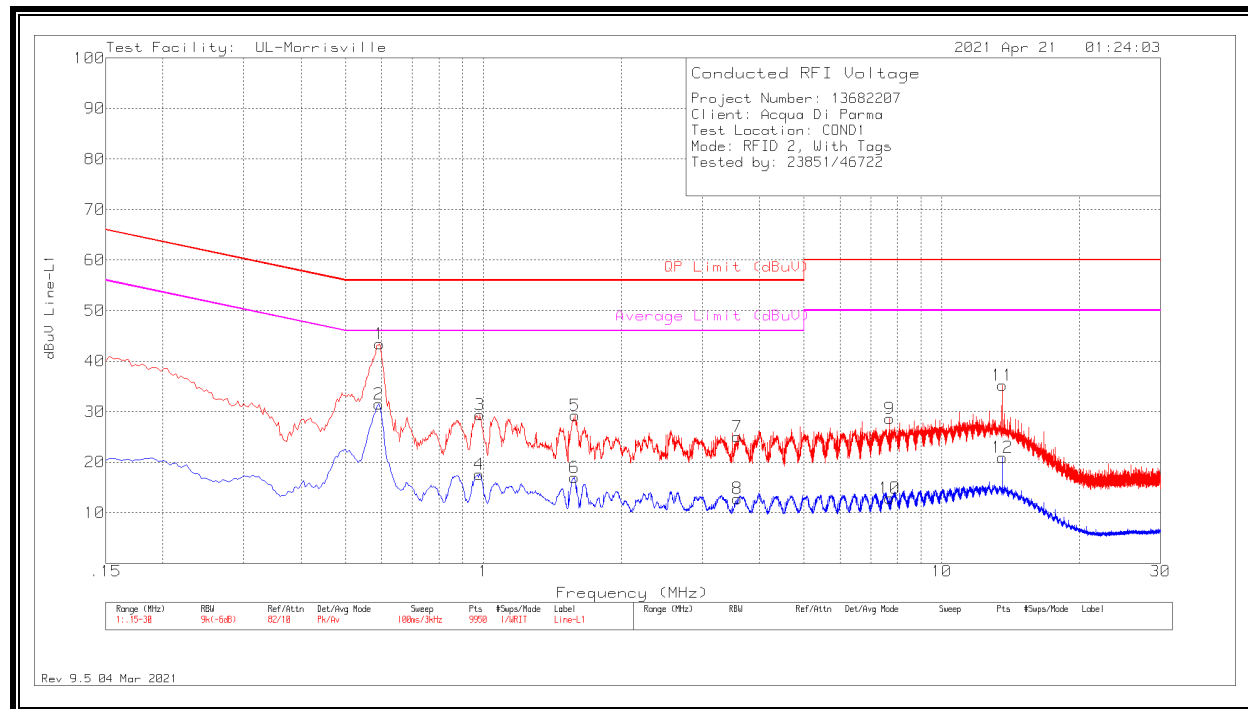
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.591	29.16	Pk	0	9.8	38.96	56	-17.04	-	-
14	.597	16.69	Av	0	9.8	26.49	-	-	46	-19.51
15	.93	21.01	Pk	0	9.8	30.81	56	-25.19	-	-
16	.945	4.95	Av	0	9.8	14.75	-	-	46	-31.25
17	1.71	18.7	Pk	0	9.8	28.5	56	-27.5	-	-
18	1.716	3.56	Av	0	9.8	13.36	-	-	46	-32.64
20	3.402	-.15	Av	0	9.9	9.75	-	-	46	-36.25
19	3.426	16.15	Pk	0	9.9	26.05	56	-29.95	-	-
21	9.501	18.64	Pk	.1	10	28.74	60	-31.26	-	-
22	9.501	1.22	Av	.1	10	11.32	-	-	50	-38.68
23	13.563	39.12	Pk	.1	10.1	49.32	60	-10.68	-	-
24	13.563	21.36	Av	.1	10.1	31.56	-	-	50	-18.44

Pk - Peak detector

Av - Average detection

12.2.2. With Tags

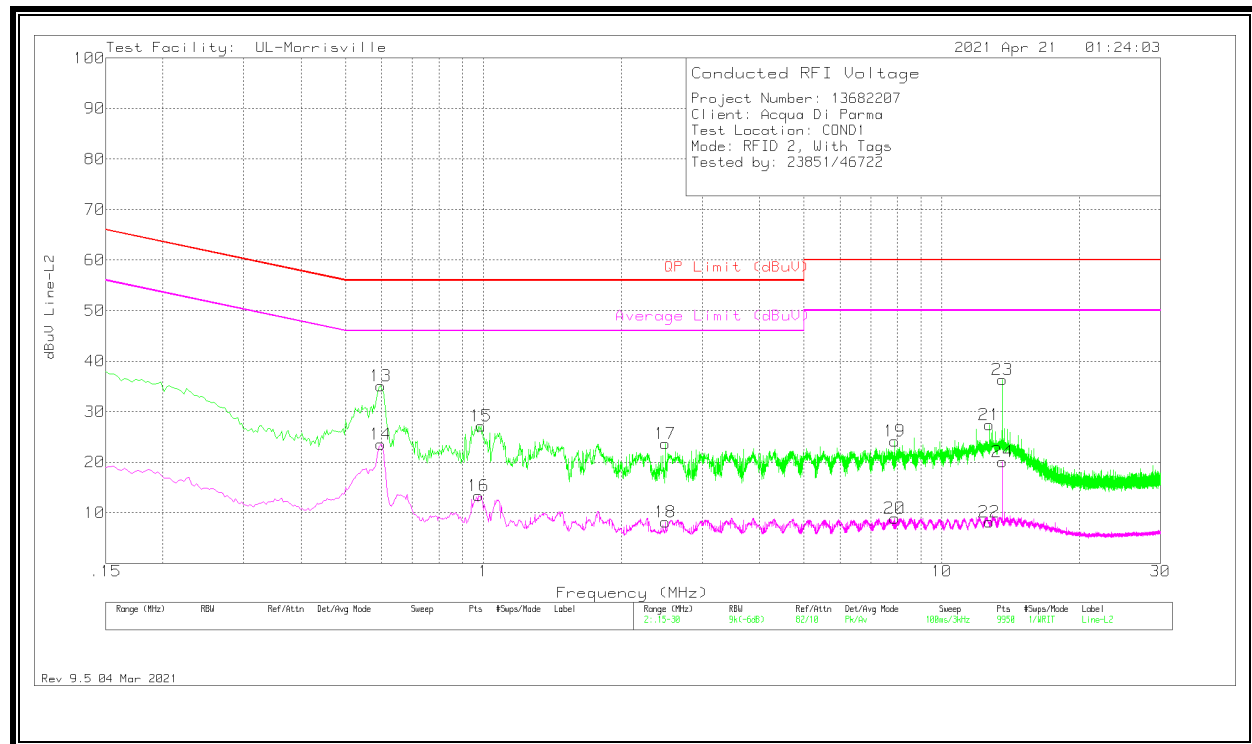
LINE 1 RESULTS



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)
2	.591	21.71	Av	0	9.8	31.51	-	-	46	-14.49
1	.594	33.6	Pk	0	9.8	43.4	56	-12.6	-	-
4	.978	7.85	Av	0	9.8	17.65	-	-	46	-28.35
3	.981	19.57	Pk	0	9.8	29.37	56	-26.63	-	-
6	1.578	7.16	Av	0	9.8	16.96	-	-	46	-29.04
5	1.587	19.52	Pk	0	9.8	29.32	56	-26.68	-	-
7	3.585	15.16	Pk	0	9.9	25.06	56	-30.94	-	-
8	3.585	2.91	Av	0	9.9	12.81	-	-	46	-33.19
9	7.698	18.49	Pk	.1	10	28.59	60	-31.41	-	-
10	7.698	2.73	Av	.1	10	12.83	-	-	50	-37.17
12	13.56	10.74	Av	.1	10.1	20.94	-	-	50	-29.06
11	13.581	24.98	Pk	.1	10.1	35.18	60	-24.82	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



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	.597	25.27	Pk	0	9.8	35.07	56	-20.93	-	-
14	.597	13.72	Av	0	9.8	23.52	-	-	46	-22.48
16	.975	3.53	Av	0	9.8	13.33	-	-	46	-32.67
15	.987	17.36	Pk	0	9.8	27.16	56	-28.84	-	-
17	2.496	13.84	Pk	0	9.8	23.64	56	-32.36	-	-
18	2.496	-1.64	Av	0	9.8	8.16	-	-	46	-37.84
19	7.899	14.04	Pk	.1	10	24.14	60	-35.86	-	-
20	7.899	-1.17	Av	.1	10	8.93	-	-	50	-41.07
21	12.696	17.17	Pk	.1	10.1	27.37	60	-32.63	-	-
22	12.696	-2.04	Av	.1	10.1	8.16	-	-	50	-41.84
23	13.56	26.18	Pk	.1	10.1	36.38	60	-23.62	-	-
24	13.56	9.82	Av	.1	10.1	20.02	-	-	50	-29.98

Pk - Peak detector
Av - Average detection

13. SETUP PHOTOS

Please refer to R13682207-EP1 for setup photos

END OF TEST REPORT