



Solutions

TEST REPORT

Report Number. : R15038662-E1

Applicant : Stryker Instruments
1941 Stryker Way
Portage, MI 49002, U.S.A

Model : 5500-050-000

FCC ID : Q9R-5500050000

IC : 4919A-5500050000

EUT Description : SONOPET IQ Console

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C: 2024
ISED RSS-210 ISSUE 10: 2019
ISED RSS-GEN ISSUE 5 + A1 + A2: 2021

Date Of Issue:
2024-10-30

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REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2024-06-24	Initial Issue	Noah Bennett
V2	2024-06-26	TCB Feedback Round 1 -Added clarification to section 8.1	Noah Bennett
V3	2024-07-10	Updated Serial Number	Noah Bennett
V4	2024-10-30	Updated section 6.5 I/O Cables. TCB Feedback Round 2 -Added Radio Off information to section 9.1 & 9.2. -Corrected antenna factors of E & H Field plots.	Noah Bennett

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Stryker Instruments
1941 Stryker Way
Portage, MI 49002, U.S.A.

EUT DESCRIPTION: SONOPET IQ Console

MODEL: 5500-050-000

SERIAL NUMBER: 2321510039

SAMPLE RECEIPT DATE: 2024-04-03 to 2024-04-29

DATE TESTED: 2024-05-08 to 2024-05-16

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C : 2024	See Section 2
ISED RSS-210 Issue 10, Annex B: 2019	See Section 2
ISED RSS-GEN Issue 5 + A1 + A2: 2021	See Section 2

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

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

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

Approved & Released For
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Prepared By:

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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.
§15.215(c)	-	20dB BW	Reporting purposes only	ANSI C63.10 Section 6.9.2
§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-d) §15.209	RSS-210 Annex B.6 (a) (ii-iv) RSS-GEN 8.9	Radiated Emissions	Complies	None
§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. The following is info obtained by the customer:

1. Firmware and Software Version (section 6.3)
2. Intended Orientation of Operation (section 6.4)

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2020, KDB 174176, FCC 47 CFR Part 2, FCC 47 CFR Part 15, RSS-GEN Issue 5 + A1 + A2, and RSS-210 Issue 10.

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
<input checked="" type="checkbox"/>	Building 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374
<input type="checkbox"/>	Building 12 Laboratory Dr RTP, NC 27709, U.S.A		2180C	

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2.
(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dB_{UV}/m) = Measured Voltage (dB_{UV}) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
 $36.5 \text{ dB}_{UV} + 18.7 \text{ dB}/\text{m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dB}_{UV}/\text{m}$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dB_{UV}) = Measured Voltage (dB_{UV}) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
 $36.5 \text{ dB}_{UV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dB}_{UV}$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT, Sonopet iQ Ultrasonic Aspirator System, is used for surgical procedures in which the fragmentation, emulsification, and aspiration of soft and hard tissue is desirable. The SONOPET iQ houses an RFID radio and this report covers full emissions testing from the RFID radio.

6.2. MAXIMUM ELECTRIC FIELD STRENGTH

Testing was performed at a distance of 3m. A **-40** dB Distance correction factor was applied to calculate the max E-Field reading at 30m. The transmitter has a maximum peak radiated magnetic field strength as follows:

Tag Configuration	Mode	Max Peak Radiated E-Field (dBuV/m) @ 30m
Cassette	Tag On	0.03
	Tag Off	0.86
Hand Piece	Tag On	6.6
	Tag Off	8.94

6.3. SOFTWARE AND FIRMWARE

The firmware installed on the EUT for testing is as follows: P/N 0590-550-400 v2.0.3

6.4. WORST-CASE CONFIGURATION AND MODE

The EUT has 2 tag configurations, with 2 modes each, for a total of 4 test modes. These test modes are:

Tag Configuration	Mode	Description
Cassette	Tag On	Cassette inserted and Matched Antenna Port (Dummy Load) used.
	Tag Off	Cassette left out of EUT. Matched Antenna Port (Dummy Load) used.
Hand Piece	Tag On	Cassette left out of EUT and "tag" portion inserted into the handpiece.
	Tag Off	Cassette left out of EUT and "tag" portion removed from the handpiece.

Testing was performed with the Cassette and with the Handpiece individually acting as the tag for the RFID radio. For the Cassette testing, the EUT was the SONOPET IQ unit itself and it was centered on the turn table for testing. Per manufacturer declaration, the SONOPET IQ is only intended to operate in one orthogonal orientation. Therefore, all emissions testing of the cassette was performed with the EUT in that orientation.

For the Handpiece testing, the handpiece, (5500-255-000) explored in three orthogonal orientations, X, Y and Z. It was determined that the worst-case testing configuration was the Z orientation. Therefore, all final testing was performed with the EUT configured in this orientation.

Note: For spurious emissions with the Cassette Tag On/Off, and AC Lines, a board with the hand piece antenna port terminated was used.

The EUT is intended to operate with either the Cassette or Hand Piece, with no Sim Tx capabilities.

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Cassette	Stryker Instruments	5500-572-000	N/A	N/A
Foot Switch	Stryker Instruments	5500-007-000	2033700209	N/A
Hand piece	Stryker Instruments	5500-255-000	2228416853	N/A
Hand controller	Stryker Instruments	5500-402-000	2003100069	N/A
USB Flash Drive (with LED)	N/A	N/A	N/A	N/A
Hand Piece Tip	Stryker Instruments	5912-002-043	N/A	N/A
Ethernet to fiber-optic converter	Pontis	N/A	4682203209	N/A
Matched Antenna Port (Dummy Load)	Stryker Instruments	Built per Stryker Document D0000288131	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
0	IEC C14	1	AC Mains	Unshielded	<3m	Used to connect EUT to AC Mains
1	Ethernet	1	RJ45	Unshielded	>3m	Connects to Fiber Optic Converter for Port Population
2	Foot Switch Port	1	8-Pin	Shielded	>3m	Connects to Foot Switch for Port Population
3	Hand Controller Port	1	8-Pin	Shielded	>3m	Connects to hand controller for port population.
4	Motor Port	1	9-Pin + COAX	9-pin: Shielded COAX: Shielded	>3m	Used to connect Hand Piece Assembly to EUT. *Terminated into internal dummy load

TEST SETUP

The EUT is connected to all of the support equipment and left connected throughout the duration of the testing in order to populate all necessary ports. The Radio was set to transmit at max power via customer firmware.

*Note: For spurious emissions with the Cassette Tag On/Off, and AC Lines, a board with the hand piece antenna port terminated was used.

SETUP DIAGRAM

Please refer to R15038662-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 - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer/Brand	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				
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
	Gain-Loss Chains				
91974	Gain-loss string: 0.009-30MHz	Various	Various	2023-09-18	2024-09-18
91976	Gain-loss string: 25-1000MHz	Various	Various	2023-09-18	2024-09-18
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-07-19	2024-07-19
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

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 2				
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-14	2024-06-14
238710	Environmental Meter	Fisher Scientific	15-077-963	2023-06-27	2024-06-27
76023	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2024-01-12	2025-01-12
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
	Cables				
CBL105	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFB-197C-0-0160-300300	2024-03-01	2025-03-01

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
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2023-07-31	2024-07-31
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2023-08-01	2024-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-04
236853	AC Power Source	California Instruments	AST3001	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Miscellaneous (if needed)				
84681	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2024-04-04	2025-04-04

8. ANTENNA PORT TEST RESULTS

8.1. OCCUPIED BANDWIDTH AND 20dB BANDWIDTH

LIMITS

Occupied Bandwidth: None; for reporting purposes only.

RSS-Gen Issue 5+A1+A2: 2021 Section 6.7

20dB Bandwidth:

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.

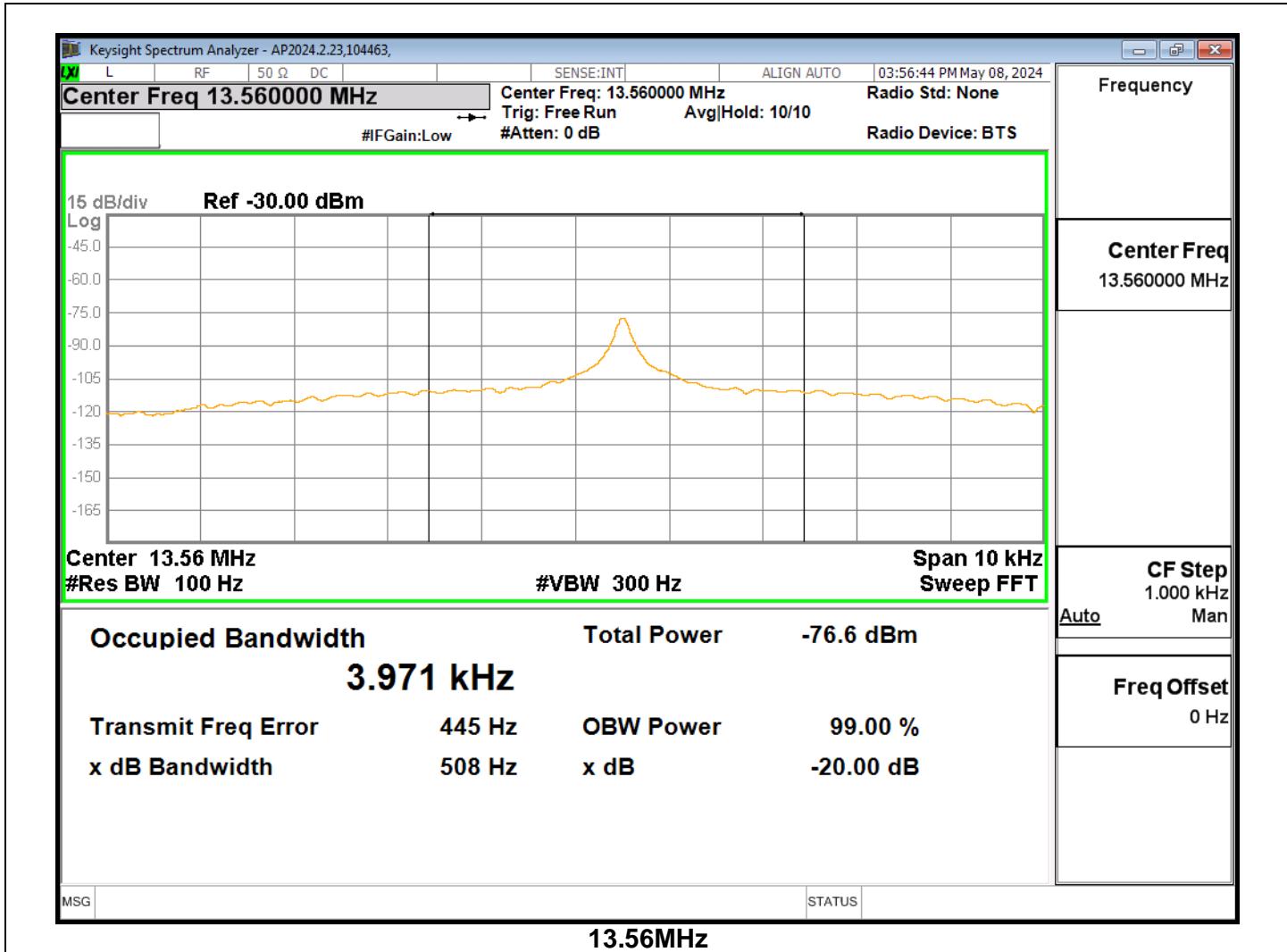
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1-5% of the EBW. 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

Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (Hz)
13.56	3.971	508



Note: Because the measured signal is CW or CW-like, adjusting the RBW per C63.10 would not be practical, since the measured bandwidth would always follow the RBW.

9. RADIATED EMISSION TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.225
ISED RSS-210, Annex B.6
ISED 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 (μ V/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:

$$\text{Limit (dBuV/m)} = 20 \log \text{limit (uV/m)}$$

§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.

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

TEST PROCEDURE

ANSI C63.10, 2020

Note: 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. C63.10:2020 Section 5.5, states that the frequency range of measurements for unlicensed wireless devices operating below 10GHz shall be measured up to the 10th harmonic of the fundamental, or up to 40GHz, whichever is lower.

$$F_c = 13.56\text{MHz} * 10 = 135.6\text{MHz}$$

Per 15.209 (f), measurements were made above the 10th harmonic in accordance with 15.33 (a) due to the incorporation of a digital device. The digital device is classified as a Class A device. Therefore, all measurements above the 10th harmonic were compared to 15.109(b) Class A limits.

Frequency of Emission (MHz)	Field Strength Limits ($\mu\text{V/m}$) @ 10m	Field Strength Limits (dB $\mu\text{V/m}$) @ 10m
30 – 88	90	39.08
88 - 216	150	43.52
216 – 960	210	46.44
Above 960	300	49.54

RESULTS

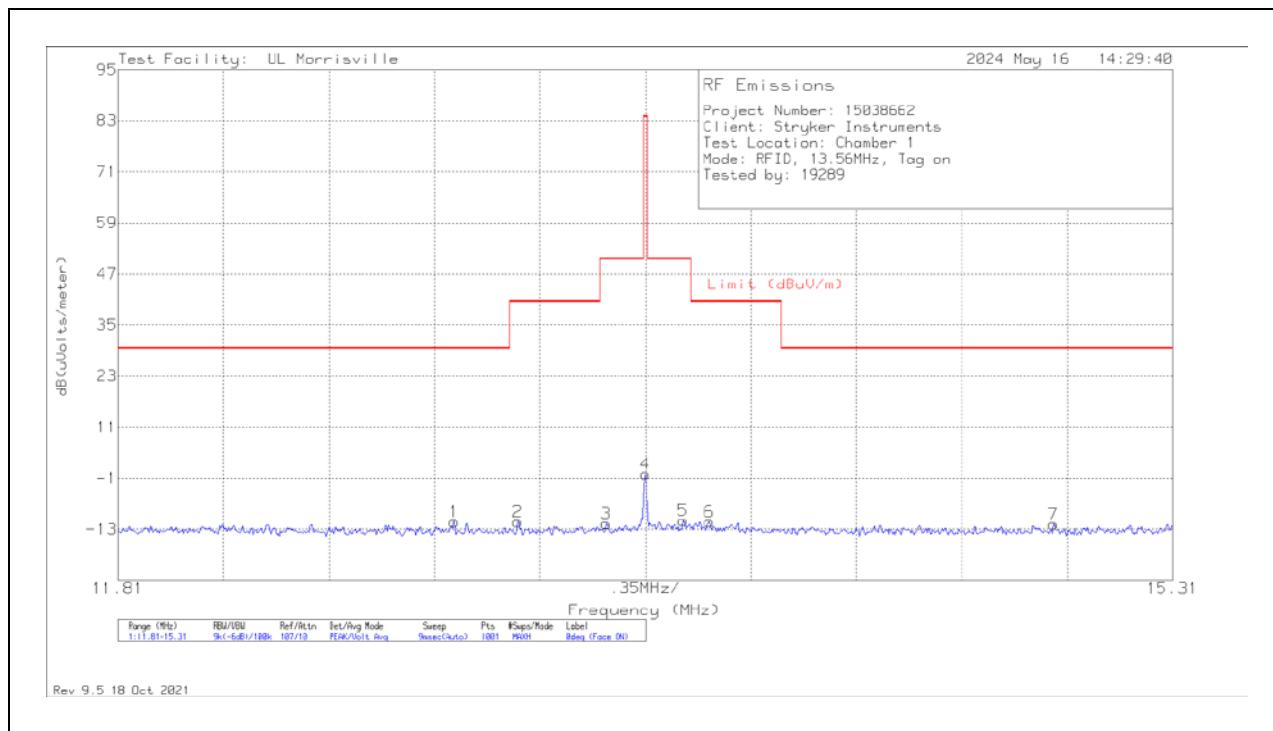
9.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.009 - 30 MHz)

9.1.1. FUNDAMENTAL RESULTS

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 (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).

9.1.1.1. Cassette Tag On

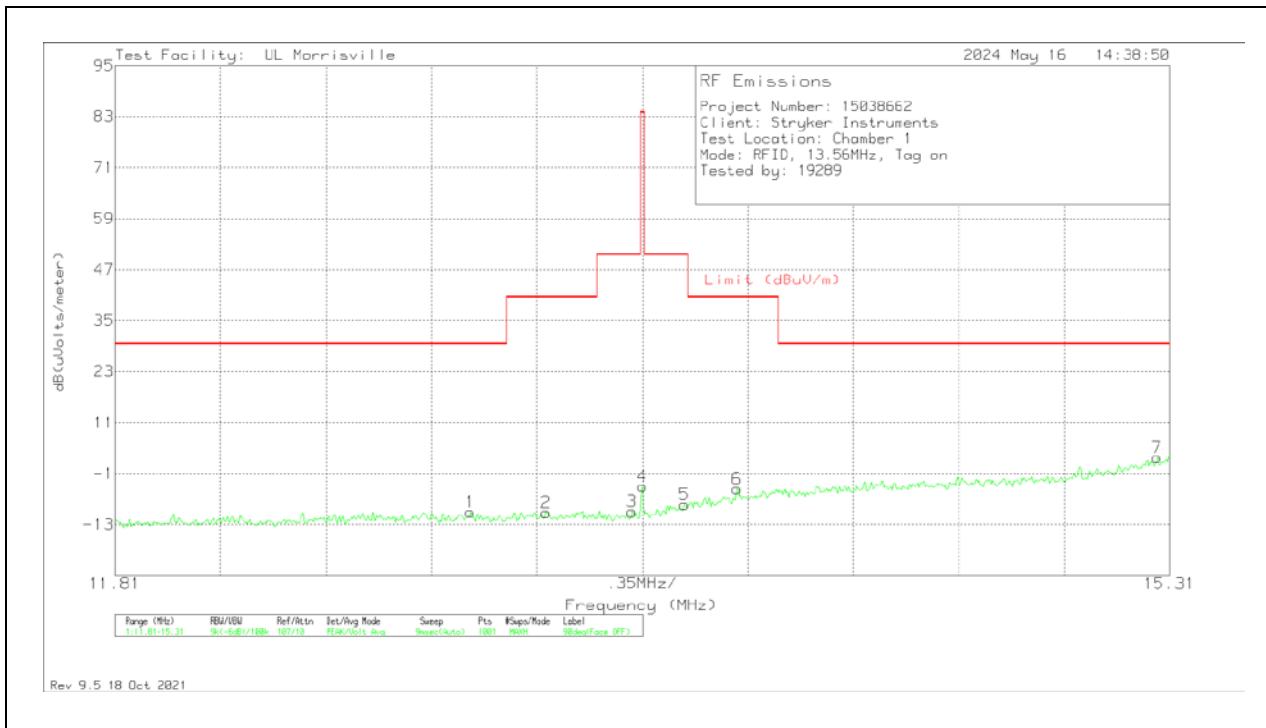
FUNDAMENTAL – Face On, 0 Deg



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)	Loop Angle
1	12.9265	17.51	Pk	10.7	.6	-40	-11.19	29.5	-40.69	55	0 degs
2	13.1365	17.43	Pk	10.7	.6	-40	-11.27	40.5	-51.77	55	0 degs
3	13.4305	17	Pk	10.7	.6	-40	-11.7	50.5	-62.2	55	0 degs
4	13.56	28.73	Pk	10.7	.6	-40	.03	84	-83.97	55	0 degs
5	13.686	17.72	Pk	10.7	.6	-40	-10.98	50.5	-61.48	55	0 degs
6	13.7735	17.53	Pk	10.7	.6	-40	-11.17	40.5	-51.67	55	0 degs
7	14.9145	16.98	Pk	10.6	.6	-40	-11.82	29.5	-41.32	55	0 degs

Pk - Peak detector

FUNDAMENTAL – Face Off, 90 Deg

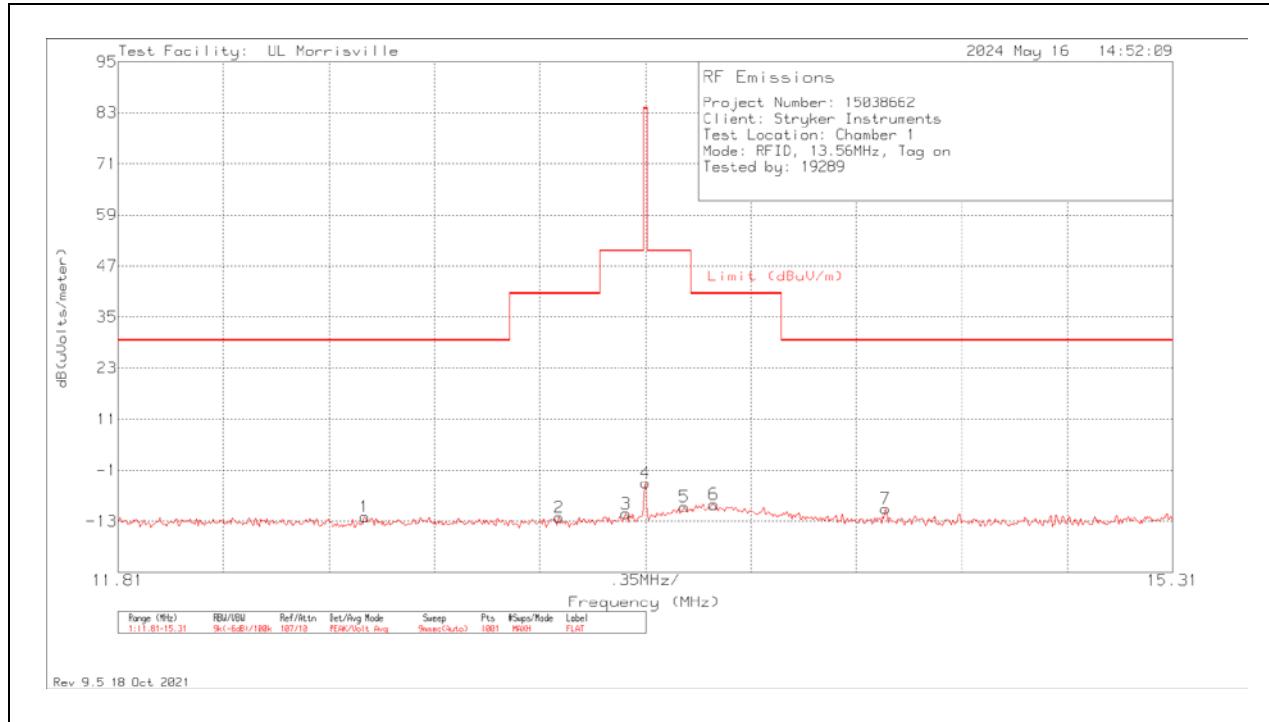


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	12.9895	18.7	Pk	10.7	.6	-40	-10	29.5	-39.5	127	90 degs
2	13.2415	18.58	Pk	10.7	.6	-40	-10.12	40.5	-50.62	127	90 degs
3	13.525	18.74	Pk	10.7	.6	-40	-9.96	50.5	-60.46	127	90 degs
4	13.56	24.64	Pk	10.7	.6	-40	-4.06	84	-88.06	127	90 degs
5	13.7	20.47	Pk	10.7	.6	-40	-8.23	50.5	-58.73	127	90 degs
6	13.875	24.07	Pk	10.7	.6	-40	-4.63	40.5	-45.13	127	90 degs
7*	15.268	31.64	Pk	10.6	.6	-40	2.84	29.5	-26.66	127	90 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

FUNDAMENTAL – Horizontal, Flat



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)	Loop Angle
1	12.629	16.66	Pk	10.8	.6	-40	-11.94	29.5	-41.44	306	Flat
2	13.273	16.58	Pk	10.7	.6	-40	-12.12	40.5	-52.62	306	Flat
3	13.497	17.47	Pk	10.7	.6	-40	-11.23	50.5	-61.73	306	Flat
4	13.56	24.76	Pk	10.7	.6	-40	-3.94	84	-87.94	306	Flat
5	13.6895	19.12	Pk	10.7	.6	-40	-9.58	50.5	-60.08	306	Flat
6	13.7875	19.74	Pk	10.7	.6	-40	-8.96	40.5	-49.46	306	Flat
7	14.358	18.67	Pk	10.7	.6	-40	-10.03	29.5	-39.53	306	Flat

Pk - Peak detector

9.1.1.2. Cassette Tag Off

FUNDAMENTAL – Face On, 0 Deg

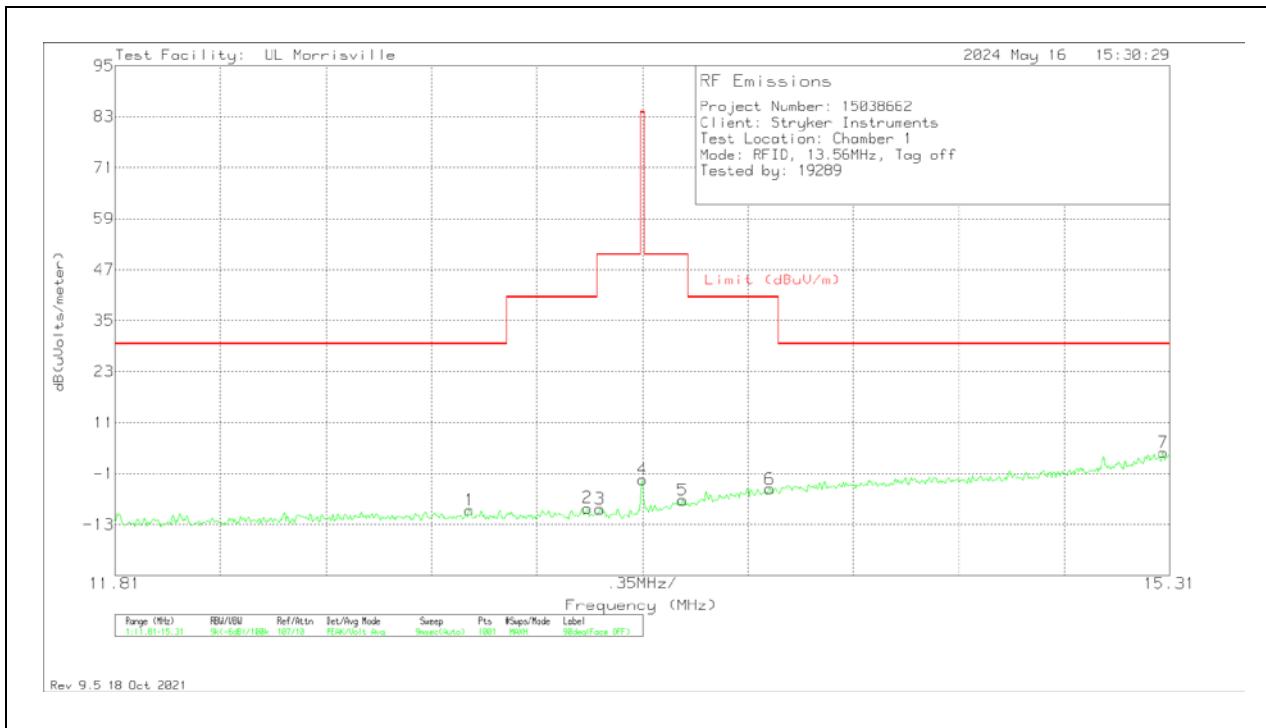


Rev. 9.5 18 Oct 2021

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)	Loop Angle
1	12.447	17.61	Pk	10.8	.5	-40	-11.09	29.5	-40.59	75	0 degs
2	13.336	16.95	Pk	10.7	.6	-40	-11.75	40.5	-52.25	75	0 degs
3	13.476	17.91	Pk	10.7	.6	-40	-10.79	50.5	-61.29	75	0 degs
4	13.56	29.56	Pk	10.7	.6	-40	.86	84	-83.14	75	0 degs
5	13.679	17.24	Pk	10.7	.6	-40	-11.46	50.5	-61.96	75	0 degs
6	13.721	19.13	Pk	10.7	.6	-40	-9.57	40.5	-50.07	75	0 degs
7	15.2225	19.02	Pk	10.6	.6	-40	-9.78	29.5	-39.28	75	0 degs

Pk - Peak detector

FUNDAMENTAL – Face Off, 90 Deg

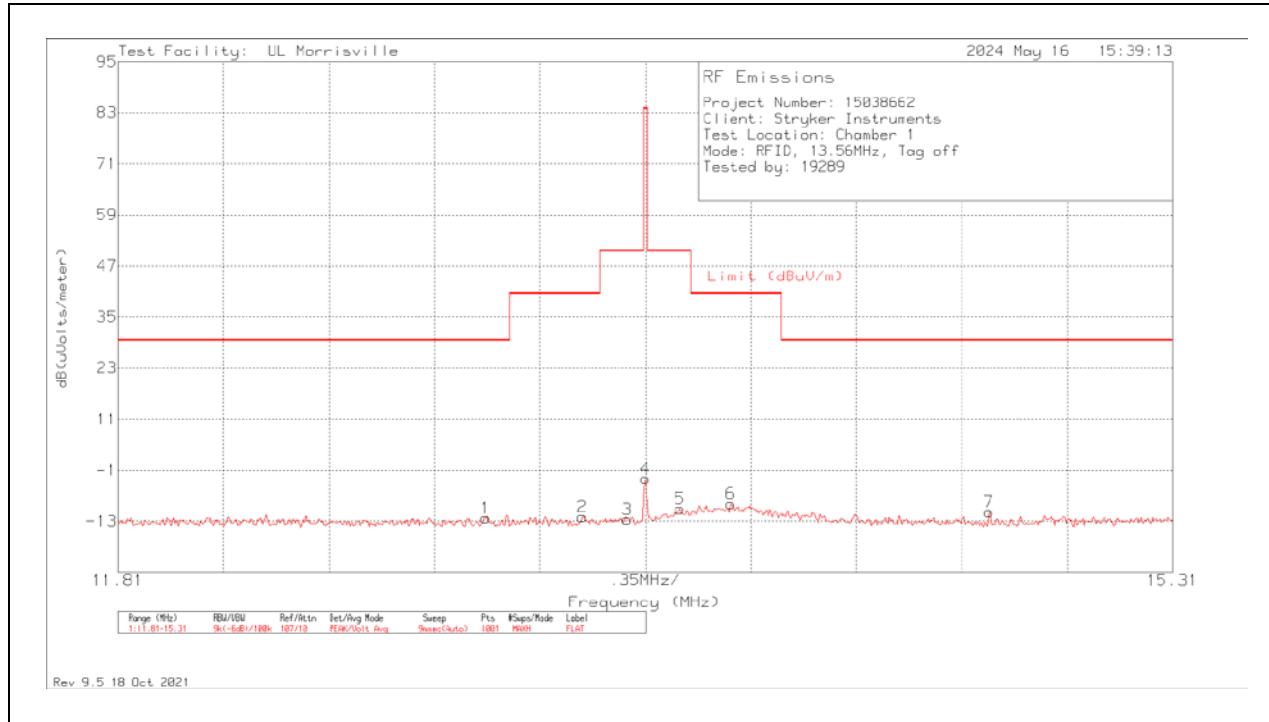


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	12.986	19.16	Pk	10.7	.6	-40	-9.54	29.5	-39.04	189	90 degs
2	13.378	19.62	Pk	10.7	.6	-40	-9.08	40.5	-49.58	189	90 degs
3	13.42	19.45	Pk	10.7	.6	-40	-9.25	50.5	-59.75	189	90 degs
4	13.56	26.39	Pk	10.7	.6	-40	-2.31	84	-86.31	189	90 degs
5	13.693	21.47	Pk	10.7	.6	-40	-7.23	50.5	-57.73	189	90 degs
6	13.9835	24.11	Pk	10.7	.6	-40	-4.59	40.5	-45.09	189	90 degs
7*	15.289	32.75	Pk	10.6	.6	-40	3.95	29.5	-25.55	189	90 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

FUNDAMENTAL – Horizontal, Flat

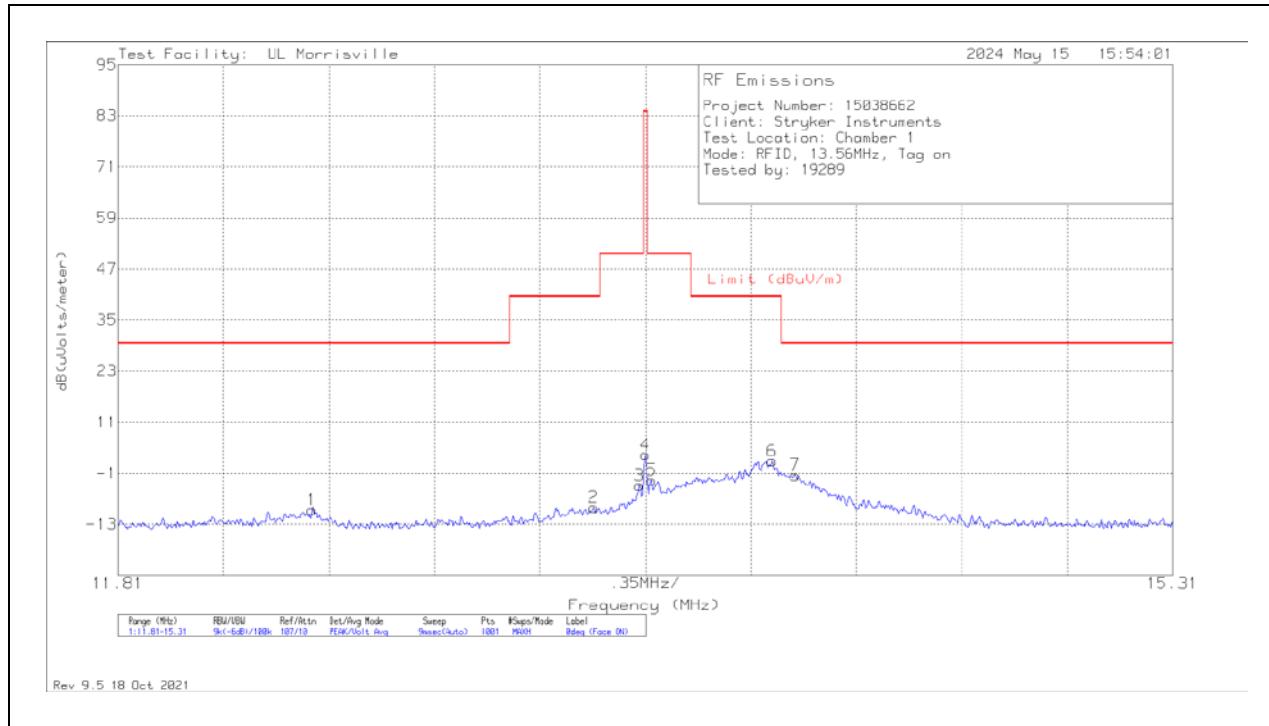


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	13.0315	16.48	Pk	10.7	.6	-40	-12.22	29.5	-41.72	306	Flat
2	13.35	16.69	Pk	10.7	.6	-40	-12.01	40.5	-52.51	306	Flat
3	13.5005	16.11	Pk	10.7	.6	-40	-12.59	50.5	-63.09	306	Flat
4	13.56	25.76	Pk	10.7	.6	-40	-2.94	84	-86.94	306	Flat
5	13.6755	18.63	Pk	10.7	.6	-40	-10.07	50.5	-60.57	306	Flat
6	13.8435	19.85	Pk	10.7	.6	-40	-8.85	40.5	-49.35	306	Flat
7	14.701	17.99	Pk	10.7	.6	-40	-10.71	29.5	-40.21	306	Flat

Pk - Peak detector

9.1.1.3. Hand Piece Tag On

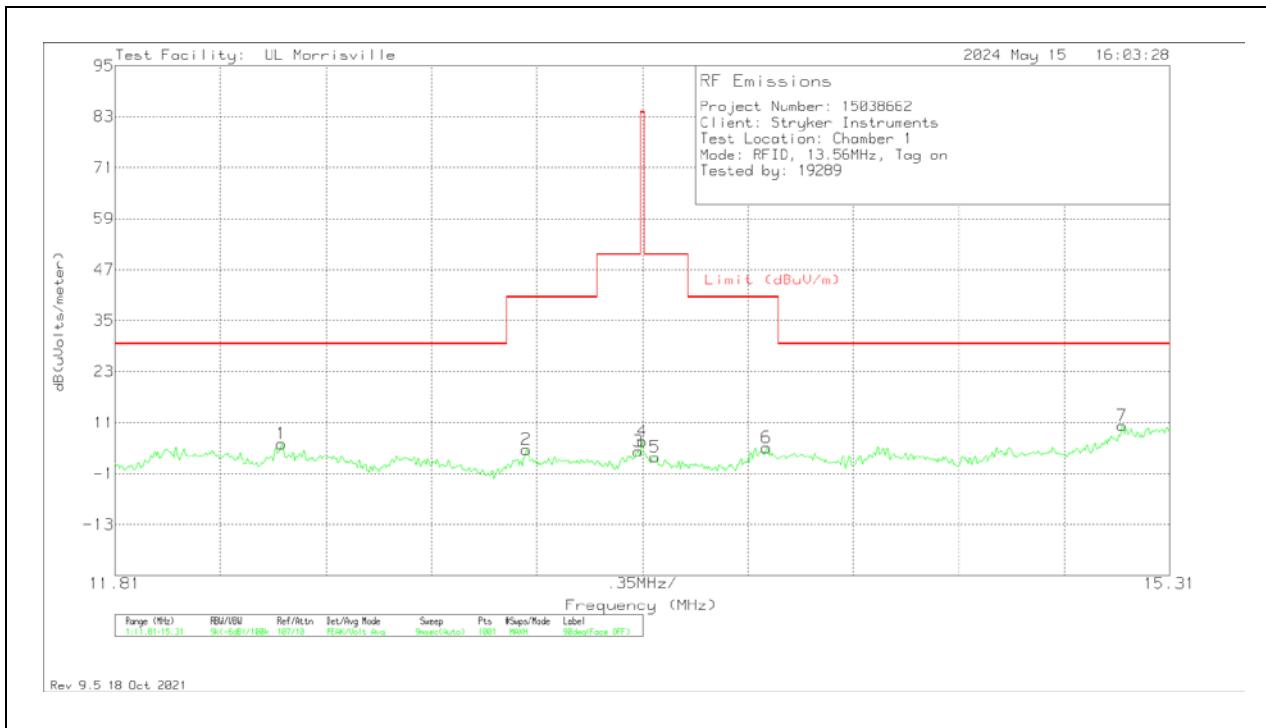
FUNDAMENTAL – Face On, 0 Deg



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)	Loop Angle
1	12.454	19.14	Pk	10.8	.5	-40	-9.56	29.5	-39.06	14	0 degs
2	13.3885	19.7	Pk	10.7	.6	-40	-9	40.5	-49.5	14	0 degs
3	13.54075	24.82	Pk	10.7	.6	-40	-3.88	50.5	-54.38	14	0 degs
4	13.56	32.13	Pk	10.7	.6	-40	3.43	84	-80.57	14	0 degs
5	13.581	26.1	Pk	10.7	.6	-40	-2.6	50.5	-53.1	14	0 degs
6	13.98	30.55	Pk	10.7	.6	-40	1.85	40.5	-38.65	14	0 degs
7	14.057	27.28	Pk	10.7	.6	-40	-1.42	29.5	-30.92	14	0 degs

Pk - Peak detector

FUNDAMENTAL – Face Off, 90 Deg

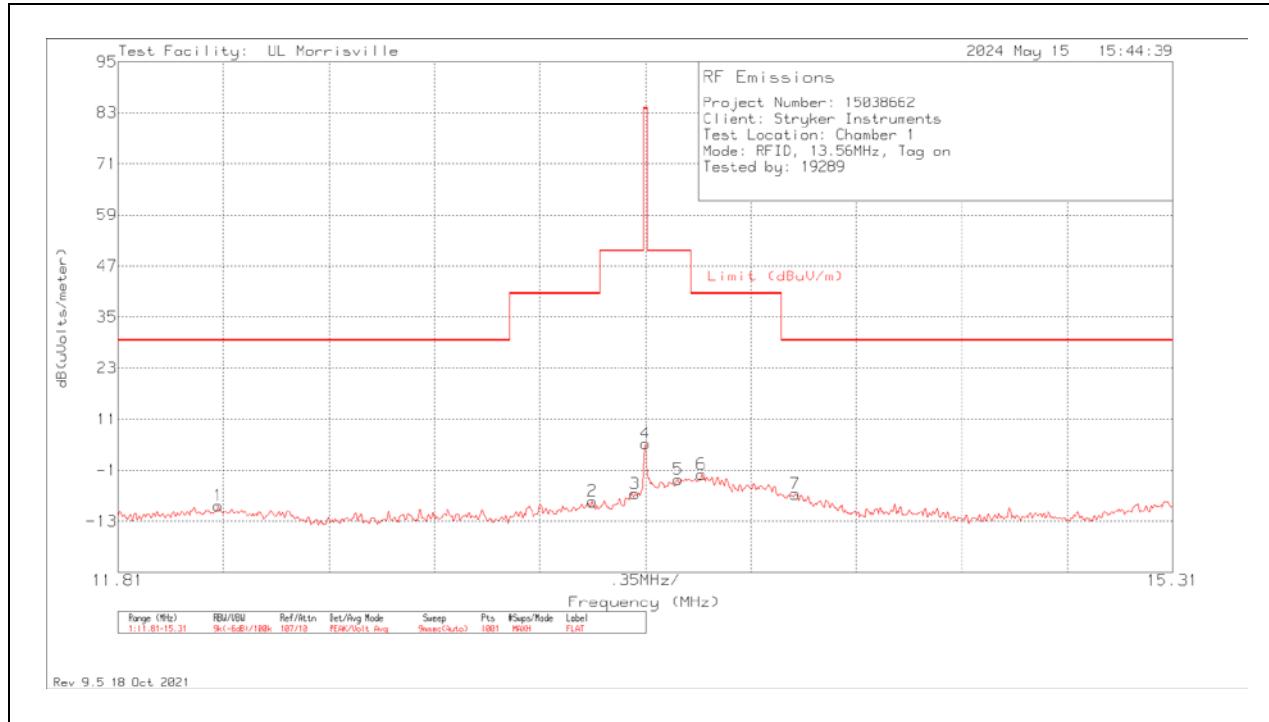


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	12.363	34.77	Pk	10.8	.5	-40	6.07	29.5	-23.43	173	90 degs
2	13.175	33.42	Pk	10.7	.6	-40	4.72	40.5	-35.78	173	90 degs
3	13.546	33.02	Pk	10.7	.6	-40	4.32	50.5	-46.18	173	90 degs
4	13.56	35.3	Pk	10.7	.6	-40	6.6	84	-77.4	173	90 degs
5	13.602	31.69	Pk	10.7	.6	-40	2.99	50.5	-47.51	173	90 degs
6	13.973	33.89	Pk	10.7	.6	-40	5.19	40.5	-35.31	173	90 degs
7*	15.1525	39.12	Pk	10.6	.6	-40	10.32	29.5	-19.18	173	90 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

FUNDAMENTAL – Horizontal, Flat

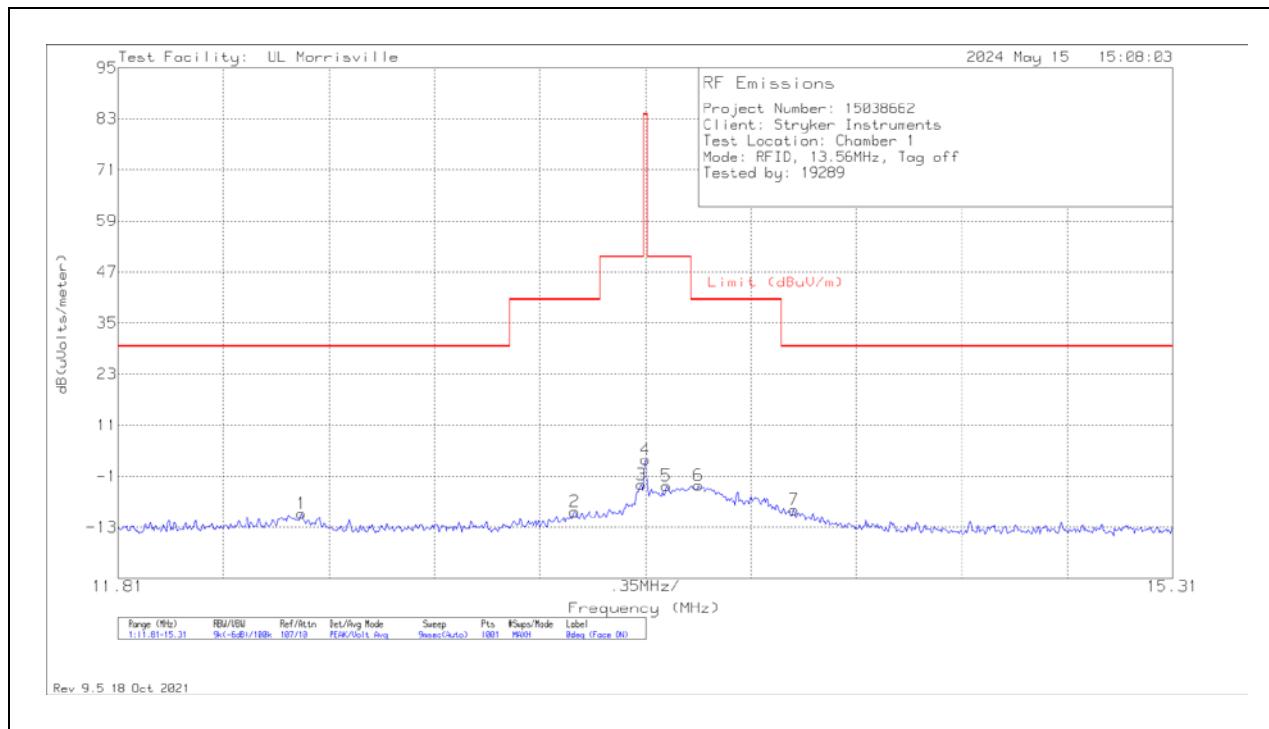


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	12.1425	19.42	Pk	10.8	.5	-40	-9.28	29.5	-38.78	121	Flat
2	13.385	20.36	Pk	10.7	.6	-40	-8.34	40.5	-48.84	121	Flat
3	13.525	22.17	Pk	10.7	.6	-40	-6.53	50.5	-57.03	121	Flat
4	13.56	34	Pk	10.7	.6	-40	5.3	84	-78.7	121	Flat
5	13.6685	25.52	Pk	10.7	.6	-40	-3.18	50.5	-53.68	121	Flat
6	13.7455	26.77	Pk	10.7	.6	-40	-1.93	40.5	-42.43	121	Flat
7	14.057	22.13	Pk	10.7	.6	-40	-6.57	29.5	-36.07	121	Flat

Pk - Peak detector

9.1.1.4. Hand Piece Tag Off

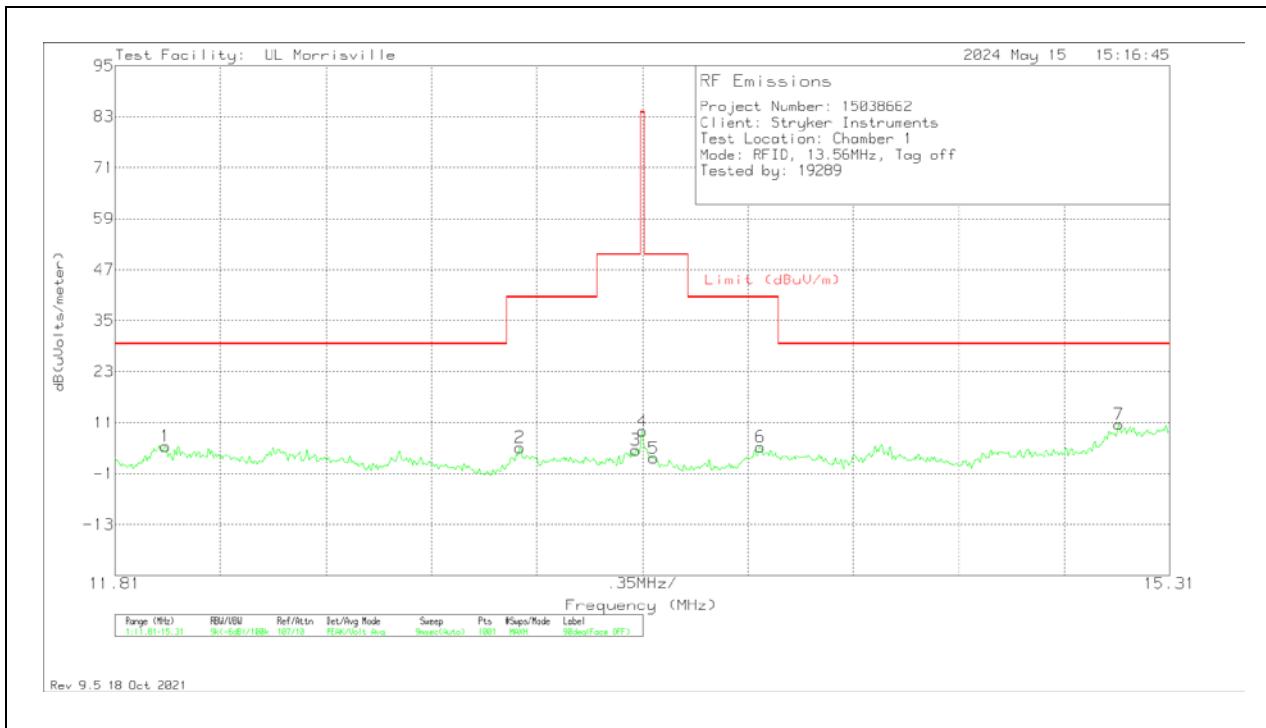
FUNDAMENTAL – Face On, 0 Deg



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)	Loop Angle
1	12.419	18.89	Pk	10.8	.5	-40	-9.81	29.5	-39.31	22	0 degs
2	13.3255	19.42	Pk	10.7	.6	-40	-9.28	40.5	-49.78	22	0 degs
3	13.546	25.76	Pk	10.7	.6	-40	-2.94	50.5	-53.44	22	0 degs
4	13.56	31.68	Pk	10.7	.6	-40	2.98	84	-81.02	22	0 degs
5	13.63	25.51	Pk	10.7	.6	-40	-3.19	50.5	-53.69	22	0 degs
6	13.735	25.56	Pk	10.7	.6	-40	-3.14	40.5	-43.64	22	0 degs
7	14.0535	19.84	Pk	10.7	.6	-40	-8.86	29.5	-38.36	22	0 degs

Pk - Peak detector

FUNDAMENTAL – Face Off, 90 Deg

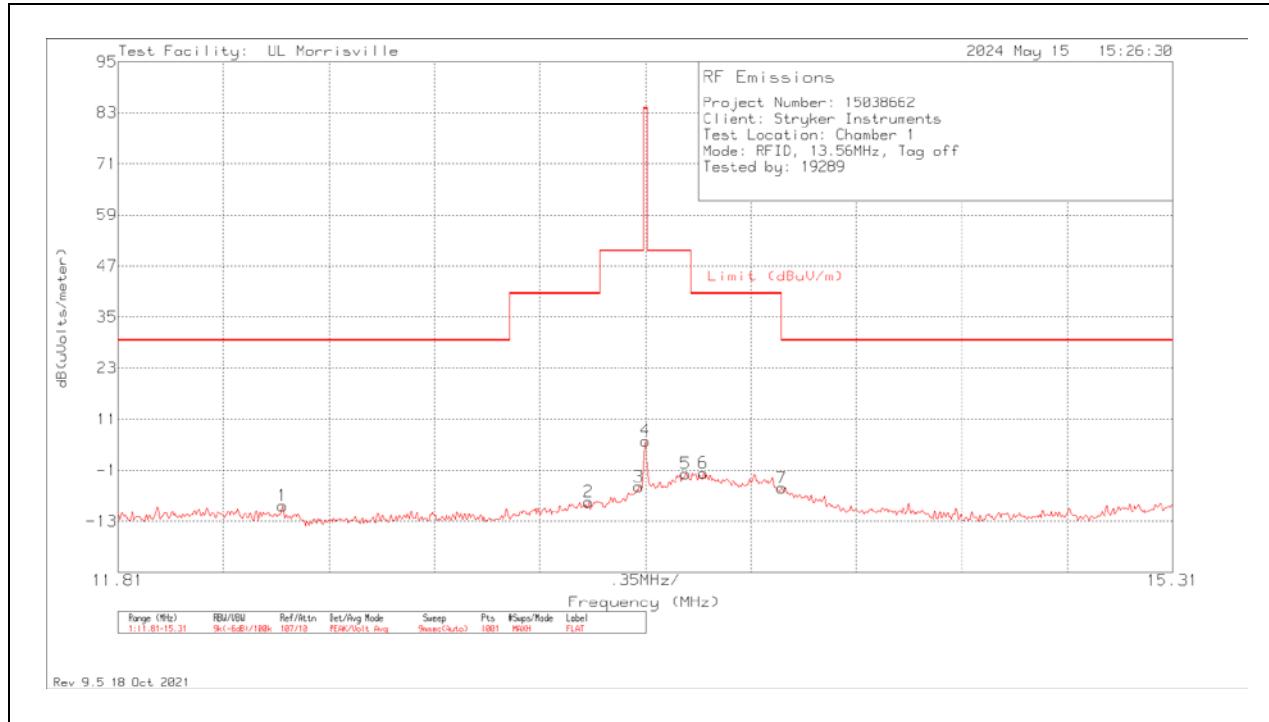


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	11.978	34.14	Pk	10.8	.5	-40	5.44	29.5	-24.06	177	90 degs
2	13.154	33.78	Pk	10.7	.6	-40	5.08	40.5	-35.42	177	90 degs
3	13.539	33.3	Pk	10.7	.6	-40	4.6	50.5	-45.9	177	90 degs
4	13.56	37.64	Pk	10.7	.6	-40	8.94	84	-75.06	177	90 degs
5	13.5985	31.39	Pk	10.7	.6	-40	2.69	50.5	-47.81	177	90 degs
6	13.952	34.03	Pk	10.7	.6	-40	5.33	40.5	-35.17	177	90 degs
7*	15.142	39.37	Pk	10.6	.6	-40	10.57	29.5	-18.93	177	90 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

FUNDAMENTAL – Horizontal, Flat



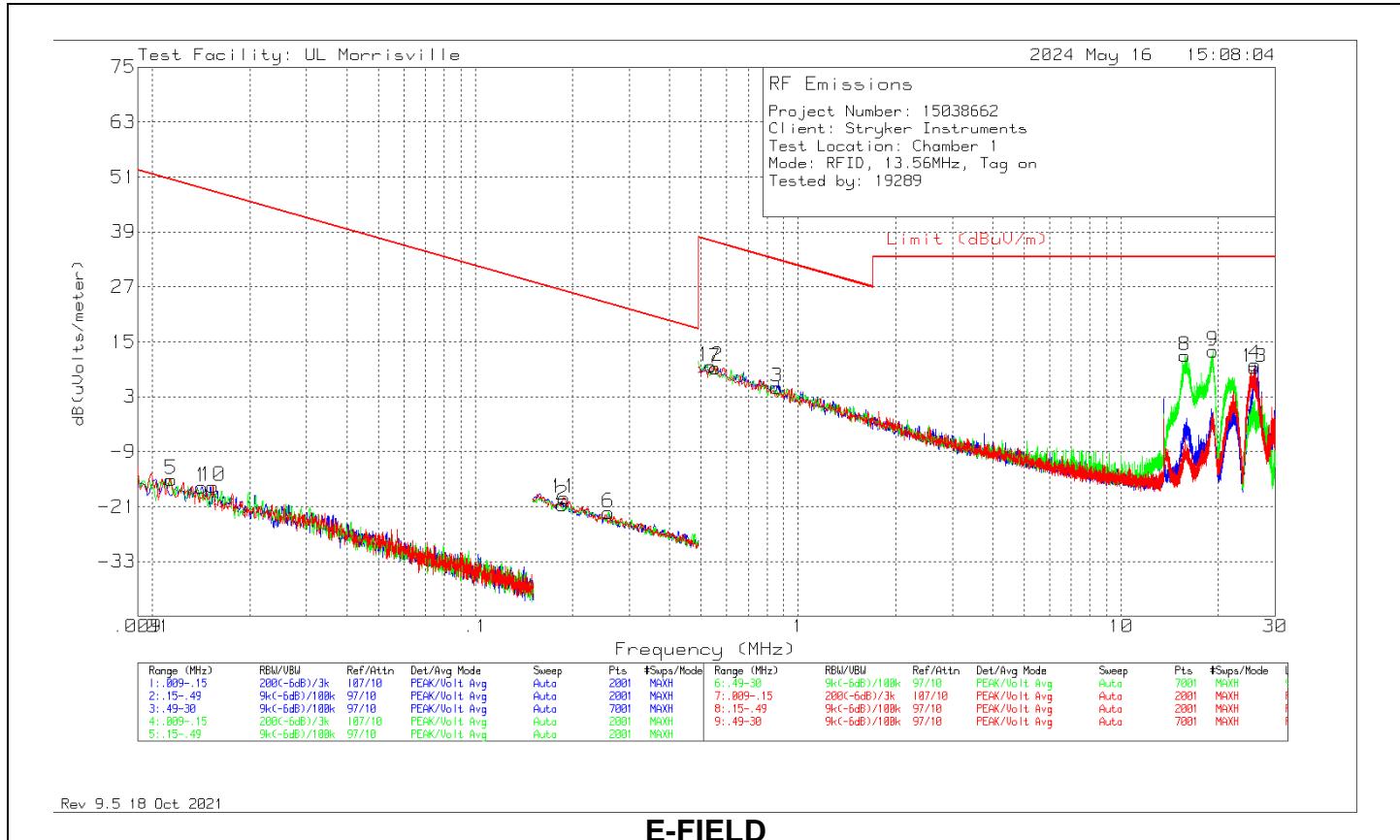
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	12.356	19.38	Pk	10.8	.5	-40	-9.32	29.5	-38.82	70	Flat
2	13.371	20.33	Pk	10.7	.6	-40	-8.37	40.5	-48.87	70	Flat
3	13.539	23.87	Pk	10.7	.6	-40	-4.83	50.5	-55.33	70	Flat
4	13.56	34.65	Pk	10.7	.6	-40	5.95	84	-78.05	70	Flat
5	13.69475	26.85	Pk	10.7	.6	-40	-1.85	50.5	-52.35	70	Flat
6	13.7525	27.12	Pk	10.7	.6	-40	-1.58	40.5	-42.08	70	Flat
7	14.0115	23.51	Pk	10.7	.6	-40	-5.19	29.5	-34.69	70	Flat

Pk - Peak detector

9.2. SPURIOUS EMISSION RESULTS

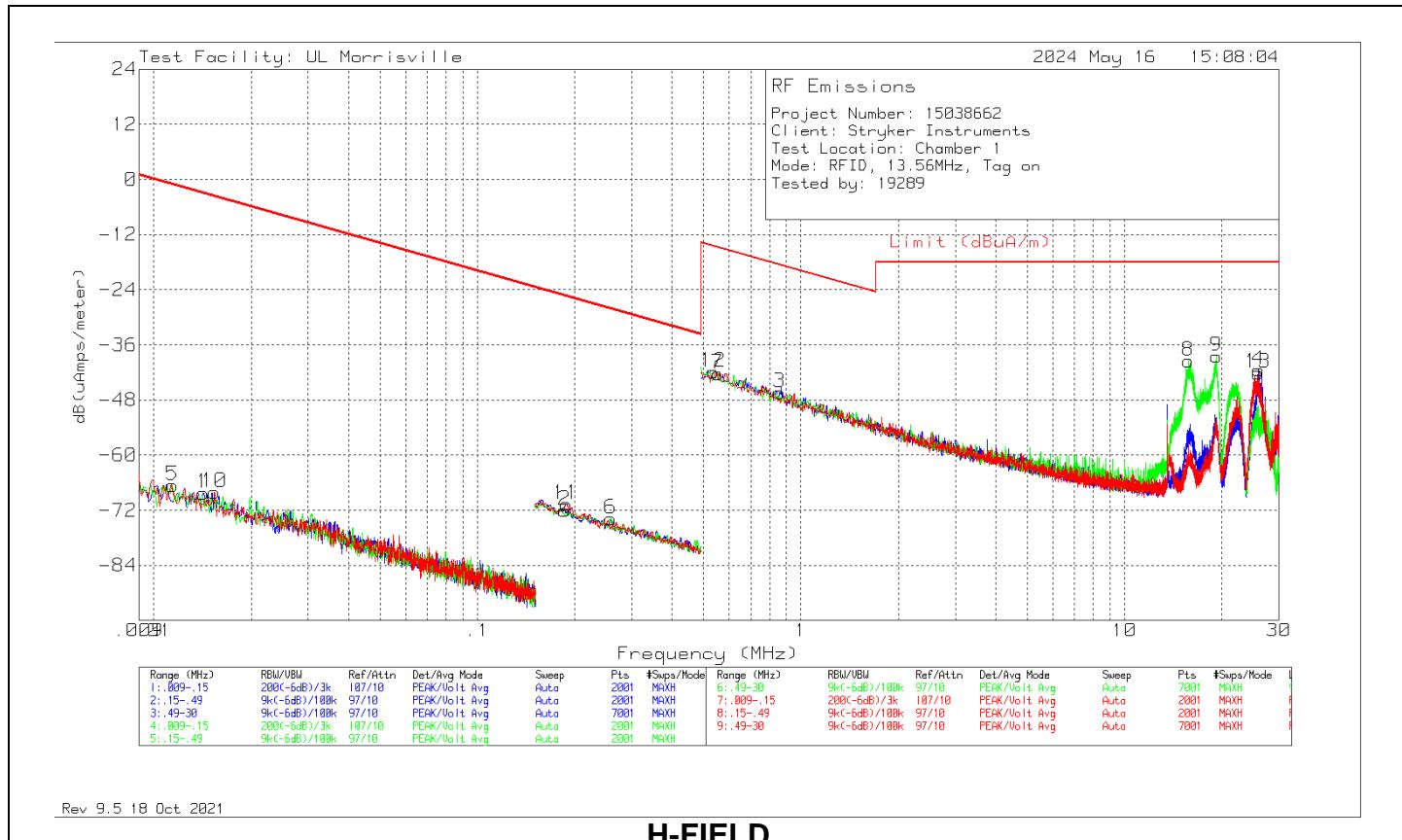
Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance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

9.2.1.1. Cassette Tag On



Marker	Frequency (MHz)	Meter Reading (dB _U V)	Det	135144 (dB _U V/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uV/meter)	Limit (dB _U V/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	0.01418	42.61	PK	16.6	0.1	-80	-20.69	44.57	-65.26	0-360	0 degs
2	0.18621	44.27	PK	11.1	0.1	-80	-24.53	22.2	-46.73	0-360	0 degs
3	0.8589	29.9	PK	11.1	0.1	-40	1.1	28.93	-27.83	0-360	0 degs
4	26.00102	36.07	PK	9.2	0.8	-40	6.07	29.54	-23.47	0-360	0 degs
5	0.01141	43.01	PK	17.8	0.1	-80	-19.09	46.46	-65.55	0-360	90 degs
6	0.25855	42.53	PK	11.1	0.1	-80	-26.27	19.35	-45.62	0-360	90 degs
7	0.55324	34.08	PK	11.1	0.1	-40	5.28	32.75	-27.47	0-360	90 degs
8	15.76035	36.77	PK	10.6	0.6	-40	7.97	29.54	-21.57	0-360	90 degs
9	19.23012	38.03	PK	10.3	0.7	-40	9.03	29.54	-20.51	0-360	90 degs
10	0.01539	43.33	PK	16	0.1	-80	-20.57	43.86	-64.43	0-360	Flat
11	0.188	45.67	PK	11.1	0.1	-80	-23.13	22.12	-45.25	0-360	Flat
12	0.53638	34.43	PK	11.1	0.1	-40	5.63	33.01	-27.38	0-360	Flat
13	25.88297	35.38	PK	9.2	0.8	-40	5.38	29.54	-24.16	0-360	Flat

Pk - Peak detector

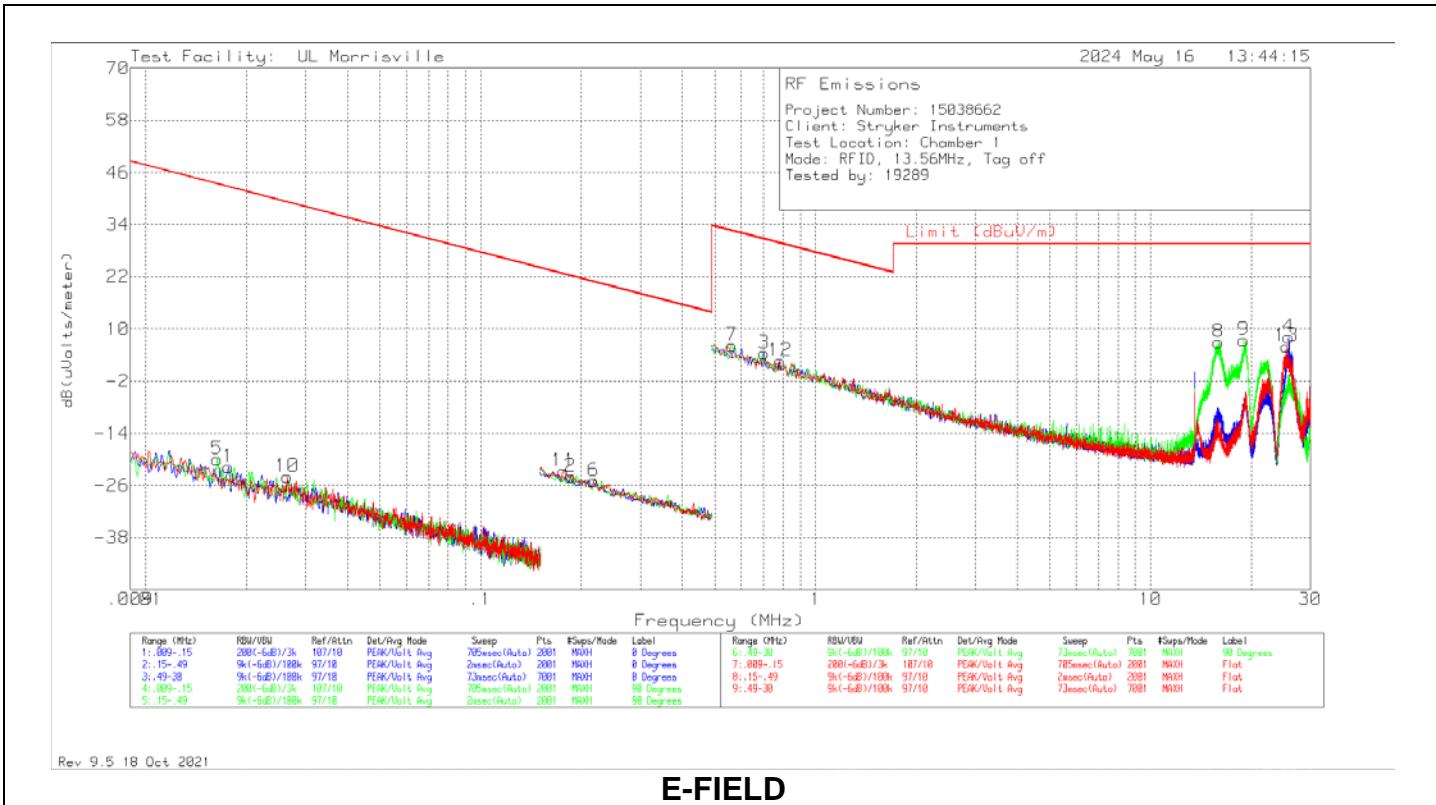


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuA/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	0.01418	42.61	Pk	-34.9	0.1	-80	-72.19	-6.93	-65.26	0-360	0 degs
2	0.18621	44.27	Pk	-40.4	0.1	-80	-76.03	-29.3	-46.73	0-360	0 degs
3	0.8589	29.9	Pk	-40.4	0.1	-40	-50.4	-22.57	-27.83	0-360	0 degs
4	26.00102	36.07	Pk	-42.3	0.8	-40	-45.43	-21.96	-23.47	0-360	0 degs
5	0.01141	43.01	Pk	-33.7	0.1	-80	-70.59	-5.04	-65.55	0-360	90 degs
6	0.25855	42.53	Pk	-40.4	0.1	-80	-77.77	-32.15	-45.62	0-360	90 degs
7	0.55324	34.08	Pk	-40.4	0.1	-40	-46.22	-18.75	-27.47	0-360	90 degs
8	15.76035	36.77	Pk	-40.9	0.6	-40	-43.53	-21.96	-21.57	0-360	90 degs
9	19.23012	38.03	Pk	-41.2	0.7	-40	-42.47	-21.96	-20.51	0-360	90 degs
10	0.01539	43.33	Pk	-35.5	0.1	-80	-72.07	-7.64	-64.43	0-360	Flat
11	0.188	45.67	Pk	-40.4	0.1	-80	-74.63	-29.38	-45.25	0-360	Flat
12	0.53638	34.43	Pk	-40.4	0.1	-40	-45.87	-18.49	-27.38	0-360	Flat
13	25.88297	35.38	Pk	-42.3	0.8	-40	-46.12	-21.96	-24.16	0-360	Flat

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at Markers 4, 8, 9 and 14 of the above scan are EMC/Digital related, and not caused by the transceiver.

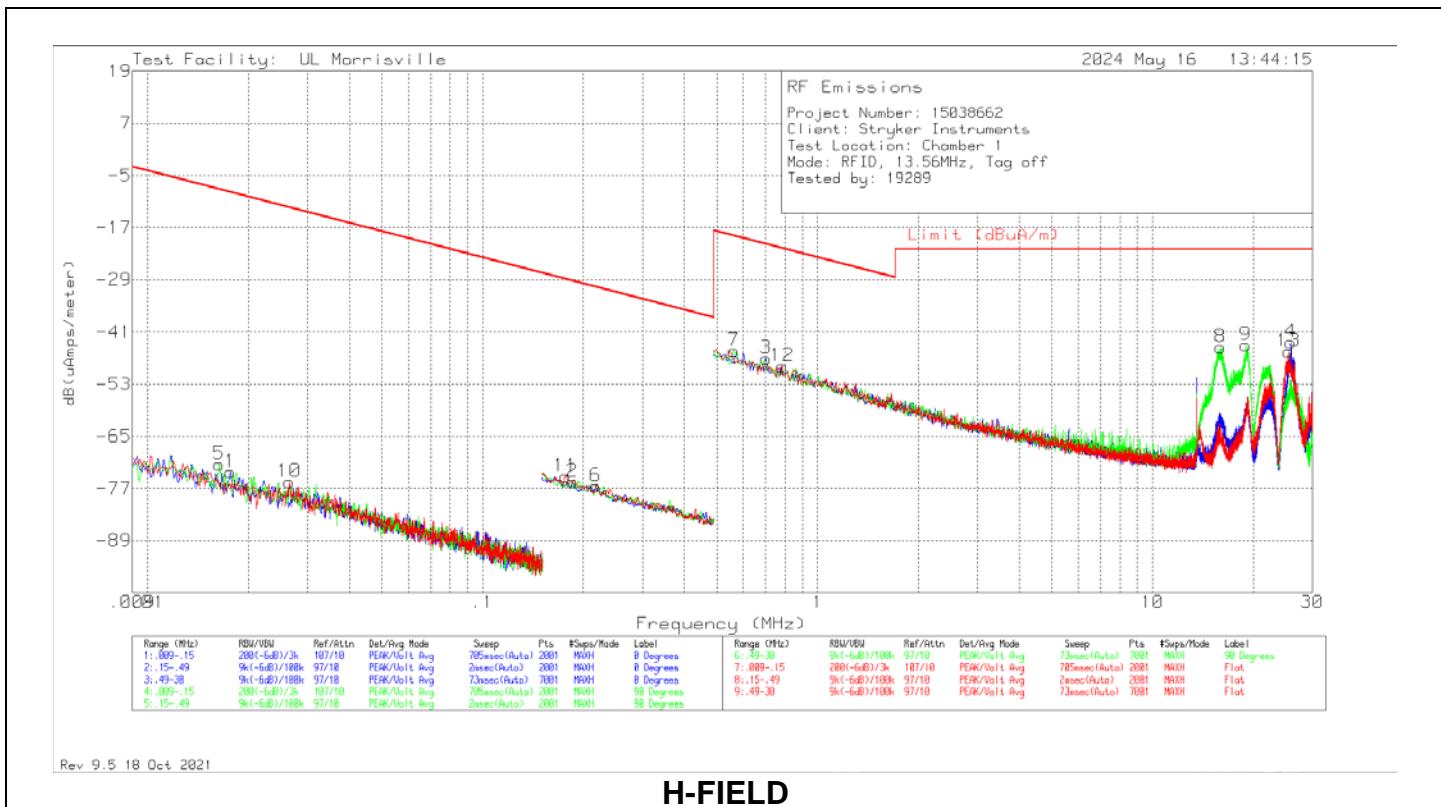
9.2.1.2. Cassette Tag Off



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)	Loop Angle
5	.01638	44.35	Pk	15.6	.1	-80	-19.95	43.32	-63.27	0-360	90 degs
1	.01766	43.15	Pk	15	.1	-80	-21.75	42.66	-64.41	0-360	0 degs
10	.02654	42.29	Pk	13.6	.1	-80	-24.01	39.13	-63.14	0-360	Flat
11	.17695	46.12	Pk	11.1	.1	-80	-22.68	22.65	-45.33	0-360	Flat
2	.18536	44.72	Pk	11.1	.1	-80	-24.08	22.24	-46.32	0-360	0 degs
6	.21732	43.88	Pk	11.1	.1	-80	-24.92	20.86	-45.78	0-360	90 degs
7	.56167	34.9	Pk	11.1	.1	-40	6.1	32.61	-26.51	0-360	90 degs
3	.7008	33.11	Pk	11.2	.1	-40	4.41	30.69	-26.28	0-360	0 degs
12	.78512	31.45	Pk	11.1	.1	-40	2.65	29.71	-27.06	0-360	Flat
8	15.93321	35.83	Pk	10.5	.6	-40	6.93	29.54	-22.61	0-360	90 degs
9	18.96451	36.51	Pk	10.3	.7	-40	7.51	29.54	-22.03	0-360	90 degs
13	25.51196	35.76	Pk	9.4	.8	-40	5.96	29.54	-23.58	0-360	Flat
4	25.87875	38.03	Pk	9.2	.8	-40	8.03	29.54	-21.51	0-360	0 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at Markers 4, 8, 9 and 14 of the above scan are EMC/Digital related, and not caused by the transceiver.

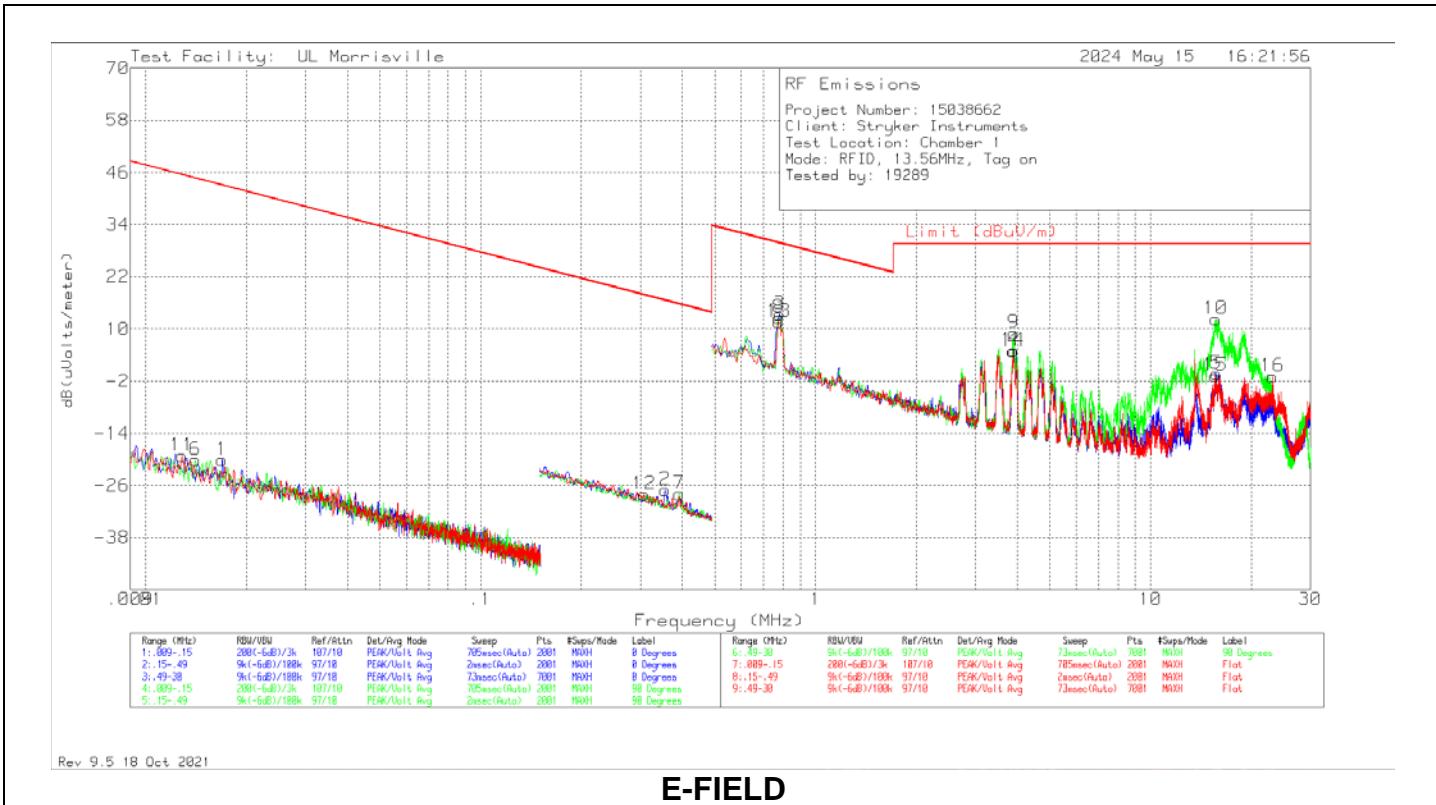


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuA/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
5	.01638	44.35	Pk	-35.9	.1	-80	-71.45	-8.18	-63.27	0-360	90 degs
1	.01766	43.15	Pk	-36.5	.1	-80	-73.25	-8.84	-64.41	0-360	0 degs
10	.02654	42.29	Pk	-37.9	.1	-80	-75.51	-12.37	-63.14	0-360	Flat
11	.17695	46.12	Pk	-40.4	.1	-80	-74.18	-28.85	-45.33	0-360	Flat
2	.18536	44.72	Pk	-40.4	.1	-80	-75.58	-29.26	-46.32	0-360	0 degs
6	.21732	43.88	Pk	-40.4	.1	-80	-76.42	-30.64	-45.78	0-360	90 degs
7	.56167	34.9	Pk	-40.4	.1	-40	-45.4	-18.89	-26.51	0-360	90 degs
3	.7008	33.11	Pk	-40.3	.1	-40	-47.09	-20.81	-26.28	0-360	0 degs
12	.78512	31.45	Pk	-40.4	.1	-40	-48.85	-21.79	-27.06	0-360	Flat
8	15.93321	35.83	Pk	-41	.6	-40	-44.57	-21.96	-22.61	0-360	90 degs
9	18.96451	36.51	Pk	-41.2	.7	-40	-43.99	-21.96	-22.03	0-360	90 degs
13	25.51196	35.76	Pk	-42.1	.8	-40	-45.54	-21.96	-23.58	0-360	Flat
4	25.87875	38.03	Pk	-42.3	.8	-40	-43.47	-21.96	-21.51	0-360	0 degs

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at Markers 4, 8, 9 and 14 of the above scan are EMC/Digital related, and not caused by the transceiver.

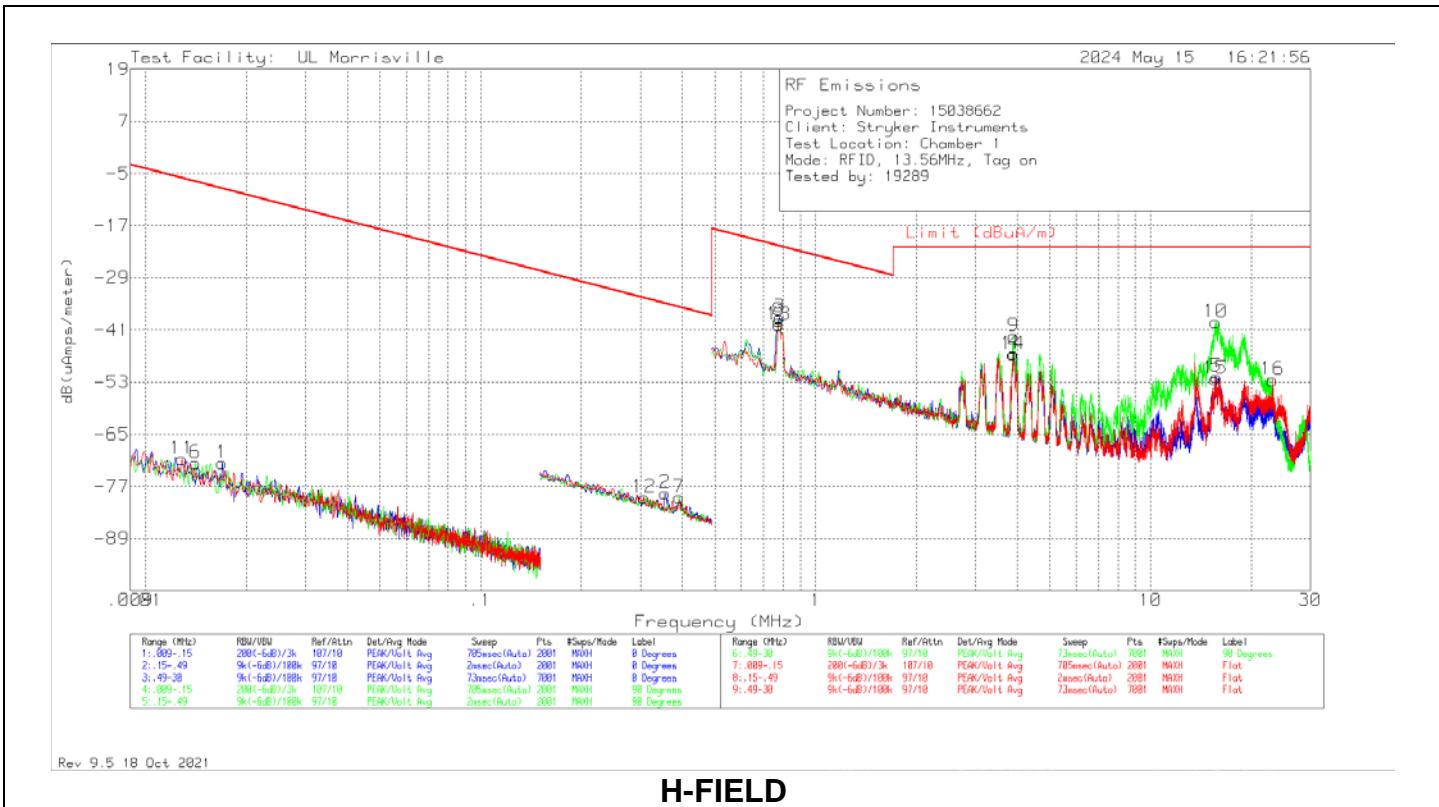
9.2.1.3. Hand Piece Tag On



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)	Loop Angle
1	.01695	44.5	Pk	15.3	.1	-80	-20.1	43.02	-63.12	0-360	0 degs
2	.35579	41.87	Pk	11	.1	-80	-27.03	16.58	-43.61	0-360	0 degs
3*	.7809	42.24	Pk	11.1	.1	-40	13.44	29.75	-16.31	0-360	0 degs
4	3.89653	33.25	Pk	11.5	.3	-40	5.05	29.54	-24.49	0-360	0 degs
5	15.73506	28.48	Pk	10.6	.6	-40	-.32	29.54	-29.86	0-360	0 degs
6	.01411	43.1	Pk	16.6	.1	-80	-20.2	44.61	-64.81	0-360	90 degs
7	.39174	41.03	Pk	10.9	.1	-80	-27.97	15.74	-43.71	0-360	90 degs
8*	.77669	41.35	Pk	11.1	.1	-40	12.55	29.8	-17.25	0-360	90 degs
9*	3.90496	37.22	Pk	11.5	.3	-40	9.02	29.54	-20.52	0-360	90 degs
10*	15.6676	41.12	Pk	10.6	.6	-40	12.32	29.54	-17.22	0-360	90 degs
11	.01283	43.49	Pk	17.2	.1	-80	-19.21	45.44	-64.65	0-360	Flat
12	.30759	40.71	Pk	11.1	.1	-80	-28.09	17.84	-45.93	0-360	Flat
13*	.77669	40.49	Pk	11.1	.1	-40	11.69	29.8	-18.11	0-360	Flat
14*	3.87966	33.14	Pk	11.5	.3	-40	4.94	29.54	-24.6	0-360	Flat
15	15.60858	28.07	Pk	10.6	.6	-40	-.73	29.54	-30.27	0-360	Flat
16	23.10462	28.49	Pk	9.7	.8	-40	-1.01	29.54	-30.55	0-360	Flat

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

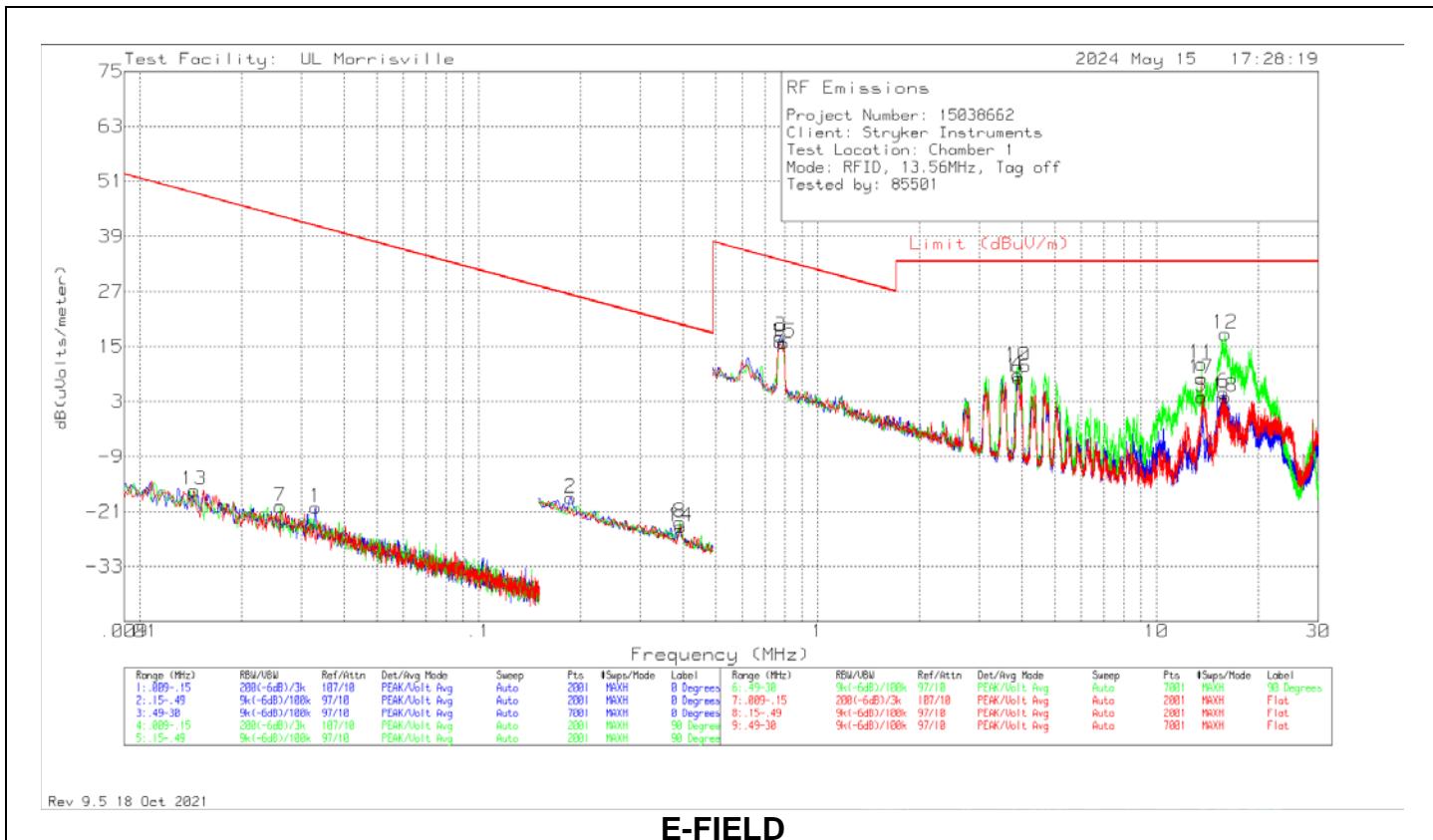


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuA/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
11	.01283	43.49	Pk	-34.3	.1	-80	-70.71	-6.06	-64.65	0-360	Flat
6	.01411	43.1	Pk	-34.9	.1	-80	-71.7	-6.89	-64.81	0-360	90 degs
1	.01695	44.5	Pk	-36.2	.1	-80	-71.6	-8.48	-63.12	0-360	0 degs
12	.30759	40.71	Pk	-40.4	.1	-80	-79.59	-33.66	-45.93	0-360	Flat
2	.35579	41.87	Pk	-40.5	.1	-80	-78.53	-34.92	-43.61	0-360	0 degs
7	.39174	41.03	Pk	-40.6	.1	-80	-79.47	-35.76	-43.71	0-360	90 degs
8*	.77669	41.35	Pk	-40.4	.1	-40	-38.95	-21.7	-17.25	0-360	90 degs
13*	.77669	40.49	Pk	-40.4	.1	-40	-39.81	-21.7	-18.11	0-360	Flat
3*	.7809	42.24	Pk	-40.4	.1	-40	-38.06	-21.75	-16.31	0-360	0 degs
14*	3.87966	33.14	Pk	-40	.3	-40	-46.56	-21.96	-24.6	0-360	Flat
4	3.89653	33.25	Pk	-40	.3	-40	-46.45	-21.96	-24.49	0-360	0 degs
9*	3.90496	37.22	Pk	-40	.3	-40	-42.48	-21.96	-20.52	0-360	90 degs
15	15.60858	28.07	Pk	-40.9	.6	-40	-52.23	-21.96	-30.27	0-360	Flat
10*	15.6676	41.12	Pk	-40.9	.6	-40	-39.18	-21.96	-17.22	0-360	90 degs
5	15.73506	28.48	Pk	-40.9	.6	-40	-51.82	-21.96	-29.86	0-360	0 degs
16	23.10462	28.49	Pk	-41.8	.8	-40	-52.51	-21.96	-30.55	0-360	Flat

Pk - Peak detector

Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the above markers of the above scan are EMC/Digital related, and not caused by the transceiver.

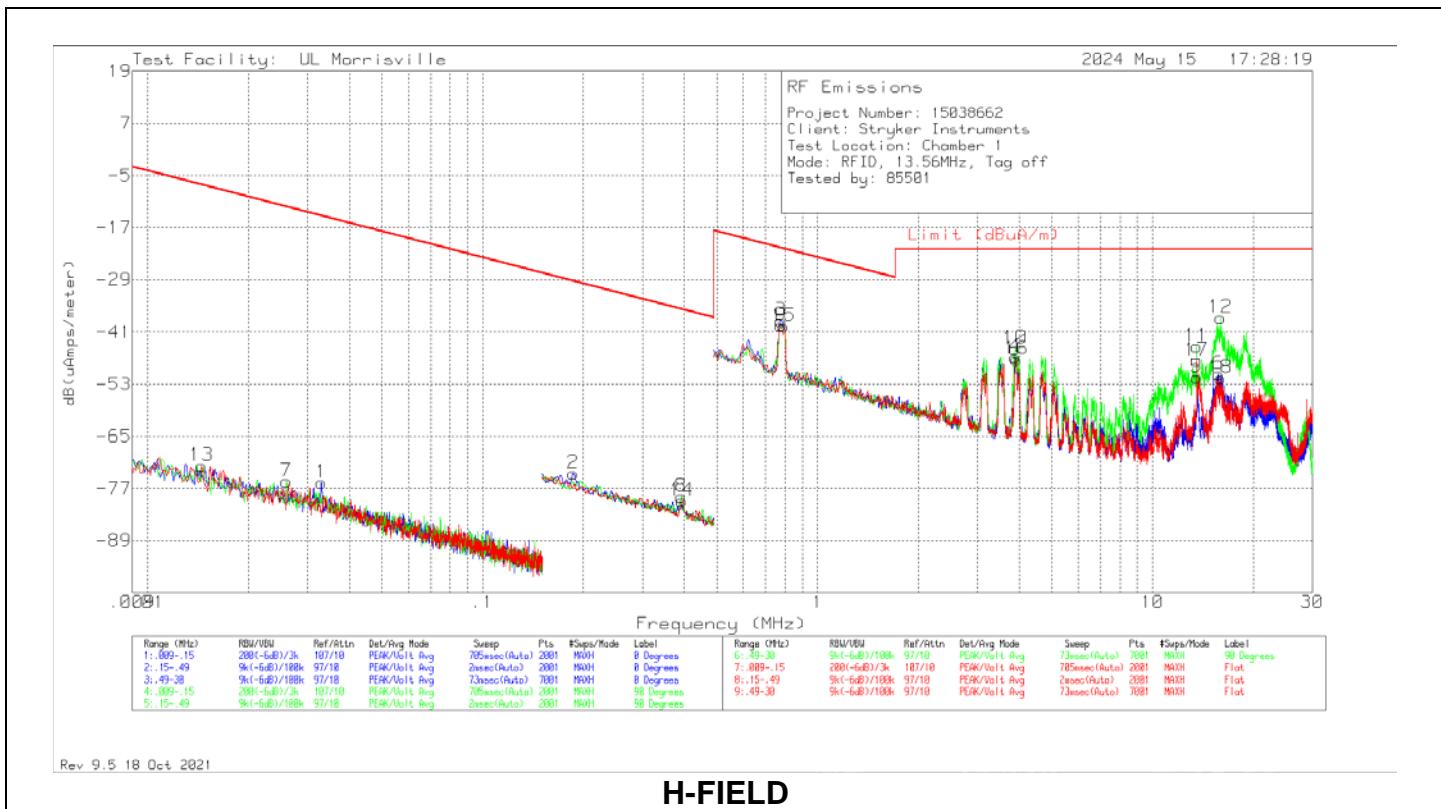
9.2.1.4. Hand Piece Tag Off



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)	Loop Angle
13	0.01447	43.04	Pk	16.5	0.1	-80	-20.36	44.4	-64.76	0-360	Flat
7	0.02597	42.31	Pk	13.7	0.1	-80	-23.89	39.32	-63.21	0-360	90 degs
1	0.033	42.56	Pk	13.2	0.1	-80	-24.14	37.23	-61.37	0-360	0 degs
2	0.18672	46.68	Pk	11.1	0.1	-80	-22.12	22.18	-44.3	0-360	0 degs
8	0.39251	41.58	Pk	10.9	0.1	-80	-27.42	15.73	-43.15	0-360	90 degs
14	0.39404	40.69	Pk	10.9	0.1	-80	-28.31	15.69	-44	0-360	Flat
3*	0.77669	41.95	Pk	11.1	0.1	-40	13.15	29.8	-16.65	0-360	0 degs
9*	0.77669	40.79	Pk	11.1	0.1	-40	11.99	29.8	-17.81	0-360	90 degs
15*	0.79355	40.58	Pk	11.1	0.1	-40	11.78	29.61	-17.83	0-360	Flat
4*	3.89231	32.95	Pk	11.5	0.3	-40	4.75	29.54	-24.79	0-360	0 degs
10*	3.89442	34.89	Pk	11.5	0.3	-40	6.69	29.54	-22.85	0-360	90 degs
16*	3.92182	32.39	Pk	11.5	0.3	-40	4.19	29.54	-25.35	0-360	Flat
5	13.5596	28.68	Pk	10.7	0.6	-40	-0.02	29.54	-29.56	0-360	0 degs
11	13.5596	35.88	Pk	10.7	0.6	-40	7.18	29.54	-22.36	0-360	90 degs
17	13.5596	32.68	Pk	10.7	0.6	-40	3.98	29.54	-25.56	0-360	Flat
6*	15.75192	29.7	Pk	10.6	0.6	-40	0.9	29.54	-28.64	0-360	0 degs
12*	15.93742	42.64	Pk	10.5	0.6	-40	13.74	29.54	-15.8	0-360	90 degs
18*	15.94586	28.83	Pk	10.5	0.6	-40	-0.07	29.54	-29.61	0-360	Flat

Pk - Peak detector

*Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the indicated markers of the above scan are EMC/Digital related, and not caused by the transceiver.



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
13	.01447	43.04	Pk	-35	.1	-80	-71.86	-7.1	-64.76	0-360	Flat
7	.02597	42.31	Pk	-37.8	.1	-80	-75.39	-12.18	-63.21	0-360	90 degs
1	.033	42.56	Pk	-38.3	.1	-80	-75.64	-14.27	-61.37	0-360	0 degs
2	.18672	46.68	Pk	-40.4	.1	-80	-73.62	-29.32	-44.3	0-360	0 degs
8	.39251	41.58	Pk	-40.6	.1	-80	-78.92	-35.77	-43.15	0-360	90 degs
14	.39404	40.69	Pk	-40.6	.1	-80	-79.81	-35.81	-44	0-360	Flat
3*	.77669	41.95	Pk	-40.4	.1	-40	-38.35	-21.7	-16.65	0-360	0 degs
9*	.77669	40.79	Pk	-40.4	.1	-40	-39.51	-21.7	-17.81	0-360	90 degs
15*	.79355	40.58	Pk	-40.4	.1	-40	-39.72	-21.89	-17.83	0-360	Flat
4*	3.89231	32.95	Pk	-40	.3	-40	-46.75	-21.96	-24.79	0-360	0 degs
10*	3.89442	34.89	Pk	-40	.3	-40	-44.81	-21.96	-22.85	0-360	90 degs
16*	3.92182	32.39	Pk	-40	.3	-40	-47.31	-21.96	-25.35	0-360	Flat
5	13.5596	28.68	Pk	-40.8	.6	-40	-51.52	-21.96	-29.56	0-360	0 degs
11	13.5596	35.88	Pk	-40.8	.6	-40	-44.32	-21.96	-22.36	0-360	90 degs
17	13.5596	32.68	Pk	-40.8	.6	-40	-47.52	-21.96	-25.56	0-360	Flat
6*	15.75192	29.7	Pk	-40.9	.6	-40	-50.6	-21.96	-28.64	0-360	0 degs
12*	15.93742	42.64	Pk	-41	.6	-40	-37.76	-21.96	-15.8	0-360	90 degs
18*	15.94586	28.83	Pk	-41	.6	-40	-51.57	-21.96	-29.61	0-360	Flat

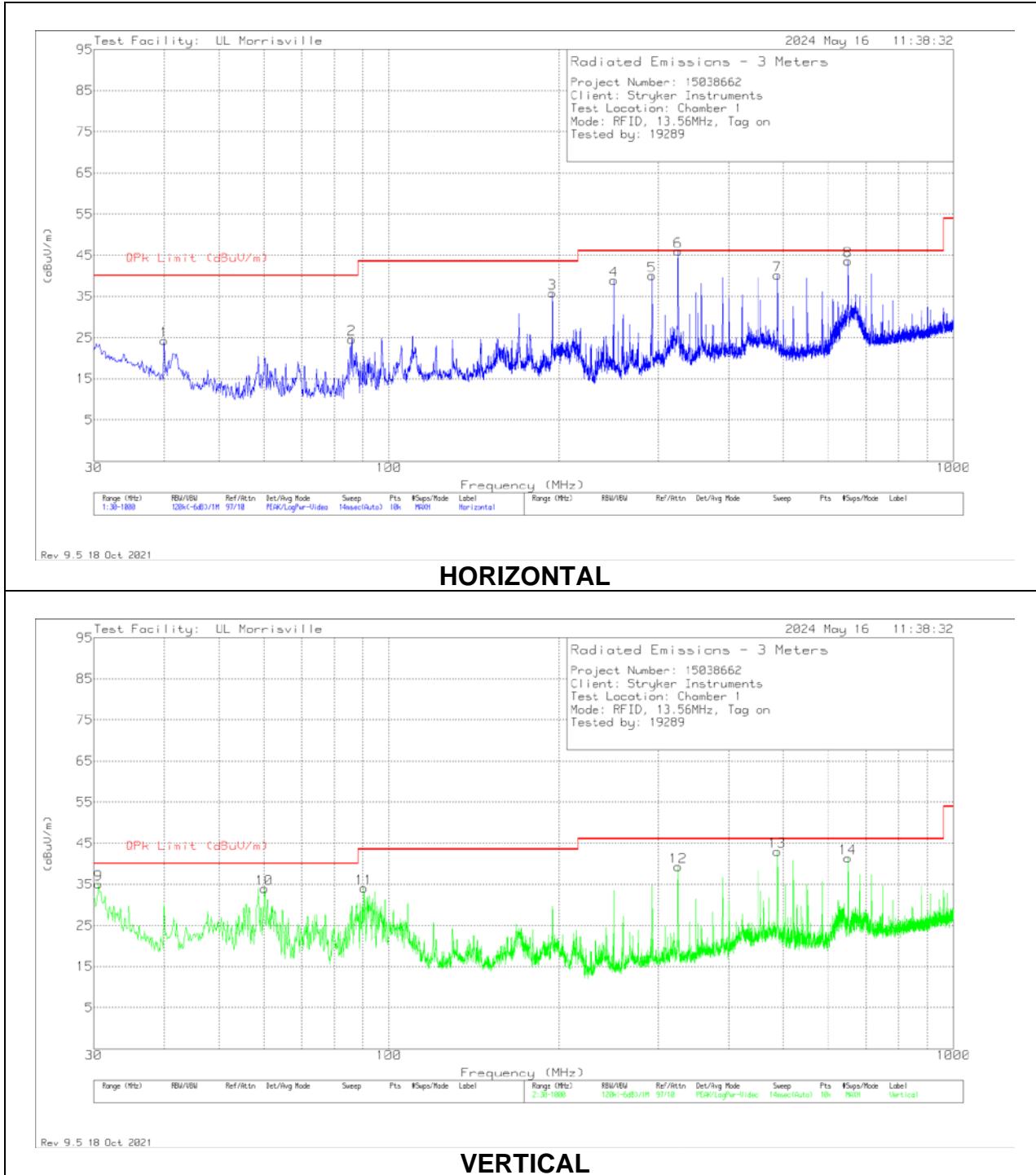
Pk - Peak detector

*Note: A supplemental "Radio Off" scan in which customer provided software was installed to disable the RFID Transceiver on the EUT, but keep the digital components operating as intended, was performed to show that the spurious emissions at the indicated markers of the above scan are EMC/Digital related, and not caused by the transceiver.

9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

9.3.1. SPURIOUS EMISSION RESULTS

9.3.1.1. Cassette Tag On



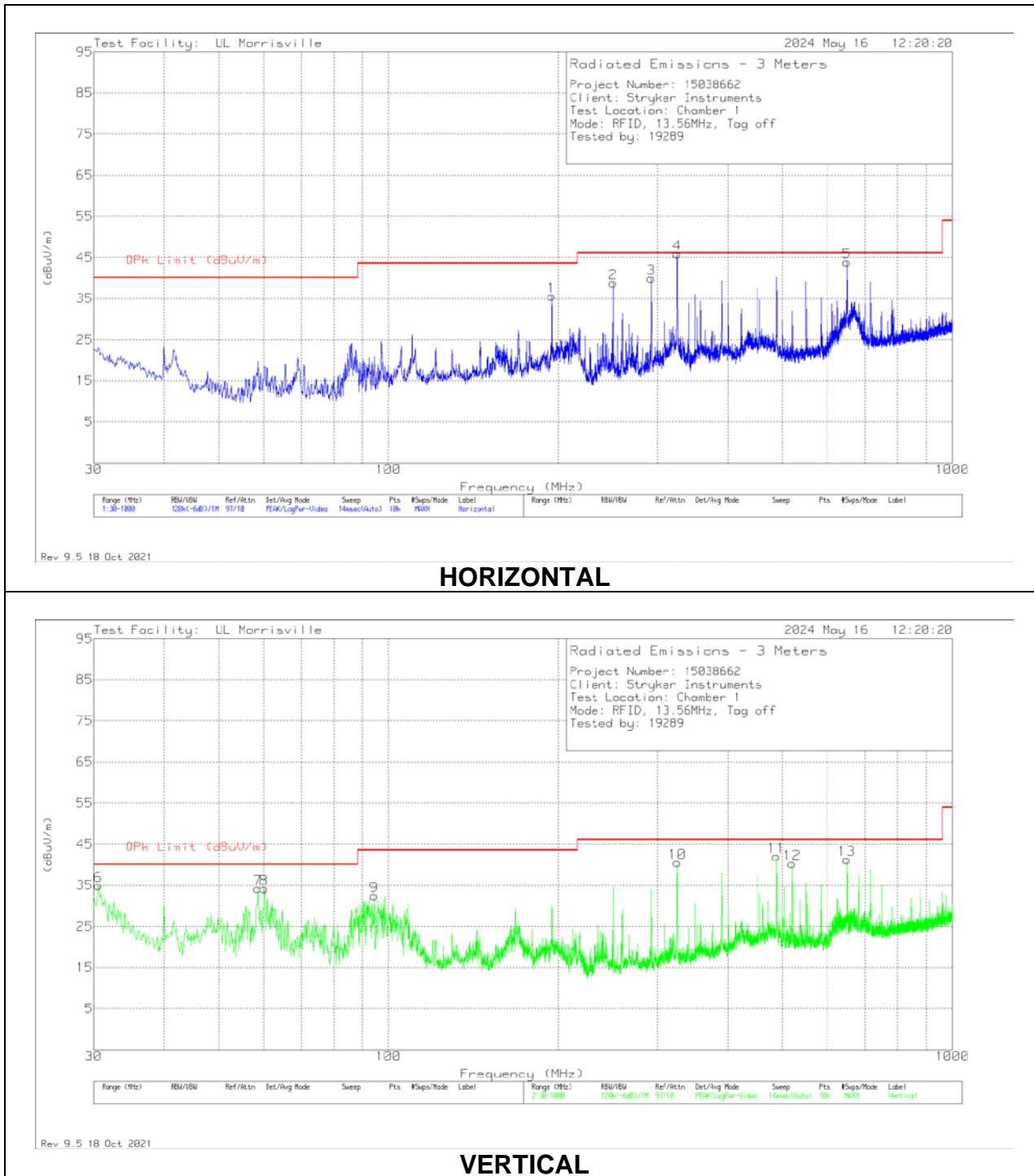
Marker	Frequency	Meter	Det	90628 (dB/m)	Gain/Loss (dB)	Class A Distance Correction Factor (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m) 15.209(a)	QPk Limit (dBuV/m) 15.109(b)	Margin	Azimuth	Height	Polarity
9	30.62516	38.93	Qp	26.4	-31.8	0	33.53	40	-	-6.47	44	109	V
1	39.991	36.21	Pk	19.8	-31.7	0	24.31	40	-	-15.69	0-360	399	H
10	60.21501	50.12	Qp	14	-31.6	0	32.52	40	-	-7.48	24	111	V
2	85.969	42.24	Pk	13.5	-31.1	0	24.64	40	-	-15.36	0-360	399	H
11	90.334	51.12	Pk	14	-31	0	34.12	43.52	-	-9.40	0-360	100	V
3	194.997	47.92	Pk	18.5	-30.6	-10.5	25.36	-	43.52	-18.16	0-360	100	H
4	249.996	51.47	Pk	17.7	-30.3	-10.5	28.41	-	46.44	-18.03	0-360	100	H
5	292.482	50.58	Pk	19.5	-30.1	-10.5	29.52	-	46.44	-16.92	0-360	100	H
6	324.977	54.92	Pk	20	-28.9	-10.5	35.56	-	46.44	-10.88	0-360	100	H
12	324.977	48.2	Pk	20	-28.9	-10.5	28.84	-	46.44	-17.60	0-360	100	V
7	487.452	44.59	Pk	24	-28.4	-10.5	29.73	-	46.44	-16.71	0-360	200	H
13	487.549	47.36	Pk	24	-28.4	-10.5	32.50	-	46.44	-13.94	0-360	100	V
8	650.024	45.59	Pk	25.9	-27.9	-10.5	33.13	-	46.44	-13.31	0-360	200	H
14	650.024	43.36	Pk	25.9	-27.9	-10.5	30.90	-	46.44	-15.54	0-360	100	V

Pk - Peak detector

Qp - Quasi-Peak detector

Note – Per 15.209 (f), measurements were made above the 10th harmonic in accordance with 15.33 (a) due to the incorporation of a digital device. The digital device is classified as Class A. Therefore, all measurements above the 10th harmonic were compared to 15.109(b) Class A limits.

9.3.1.2. Cassette Tag Off



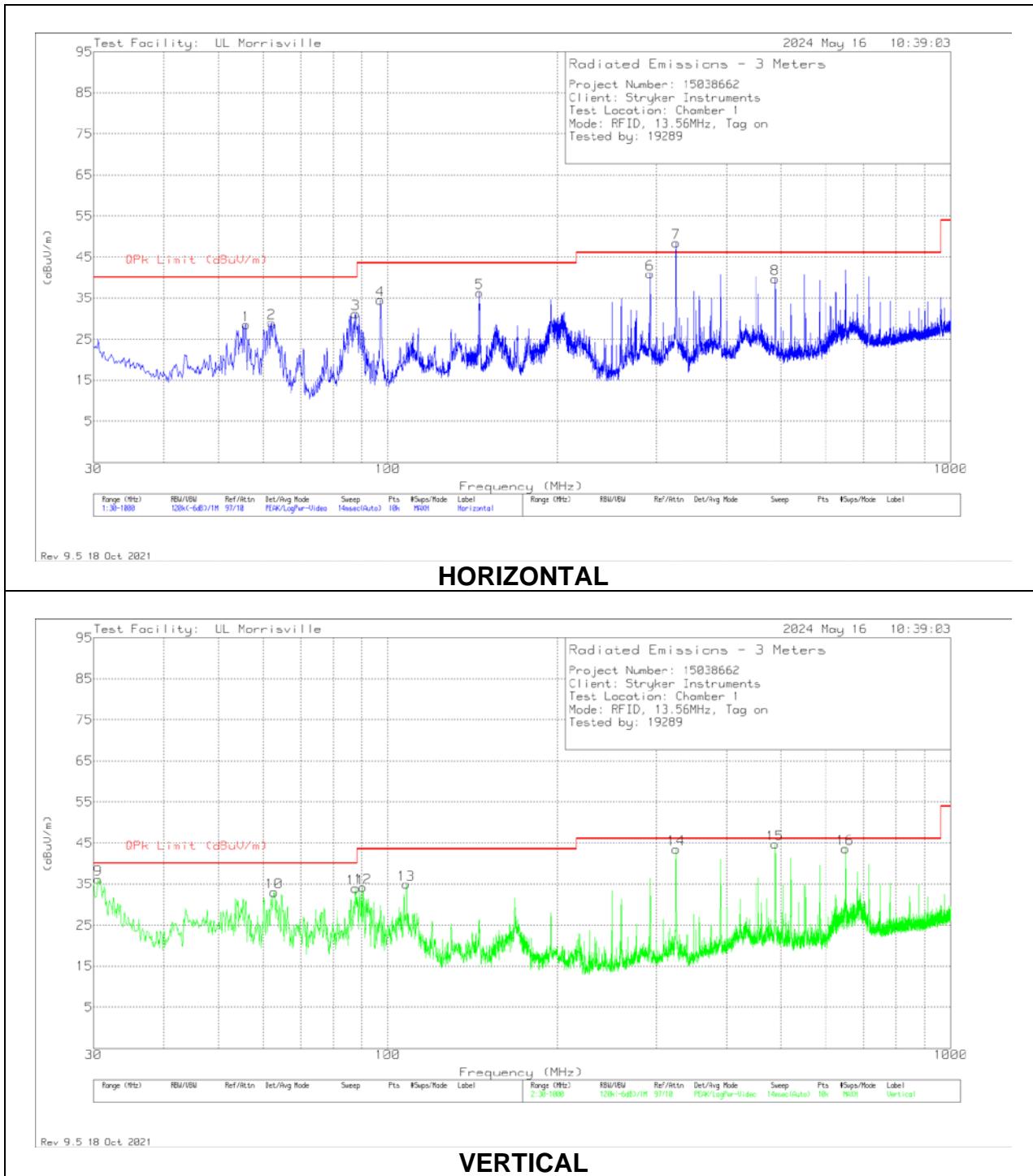
Marker	Frequency	Meter	Det	90628 (dB/m)	Gain/Loss (dB)	Class A Distance Correction Factor (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m) 15.209(a)	QPk Limit (dBuV/m) 15.109(b)	Margin	Azimuth	Height	Polarity
6	30.63283	39.05	Qp	26.4	-31.8	0	33.65	40	-	-6.35	355	109	V
7	58.70385	49.75	Qp	13.8	-31.4	0	32.15	40	-	-7.85	69	102	V
8	60.22878	50.57	Qp	14	-31.6	0	32.97	40	-	-7.03	20	107	V
9	94.408	48.25	Pk	15.1	-30.9	0	32.45	43.52	-	-11.07	0-360	100	V
1	194.997	47.71	Pk	18.5	-30.6	-10.5	25.15	-		25.15	0-360	99	H
2	249.996	51.38	Pk	17.7	-30.3	-10.5	28.32	-	46.44	-18.12	0-360	99	H
3	292.482	50.46	Pk	19.5	-30.1	-10.5	29.40	-	46.44	-17.04	0-360	99	H
4	325.074	54.81	Pk	20	-28.9	-10.5	35.45	-	46.44	-10.99	0-360	99	H
10	325.074	49.38	Pk	20	-28.9	-10.5	30.02	-	46.44	-16.42	0-360	100	V
11	487.355	46.4	Pk	24	-28.4	-10.5	31.54	-	46.44	-14.90	0-360	100	V
12	520.044	45.52	Pk	23.9	-29.1	-10.5	29.86	-	46.44	-16.58	0-360	100	V
13	650.024	43.26	Pk	25.9	-27.9	-10.5	30.80	-	46.44	-15.64	0-360	100	V
5	650.121	45.89	Pk	25.9	-27.9	-10.5	33.43	-	46.44	-13.01	0-360	200	H

Pk - Peak detector

Qp - Quasi-Peak detector

Note – Per 15.209 (f), measurements were made above the 10th harmonic in accordance with 15.33 (a) due to the incorporation of a digital device. The digital device is classified as Class A. Therefore, all measurements above the 10th harmonic were compared to 15.109(b) Class A limits.

9.3.1.3. Hand Piece Tag On



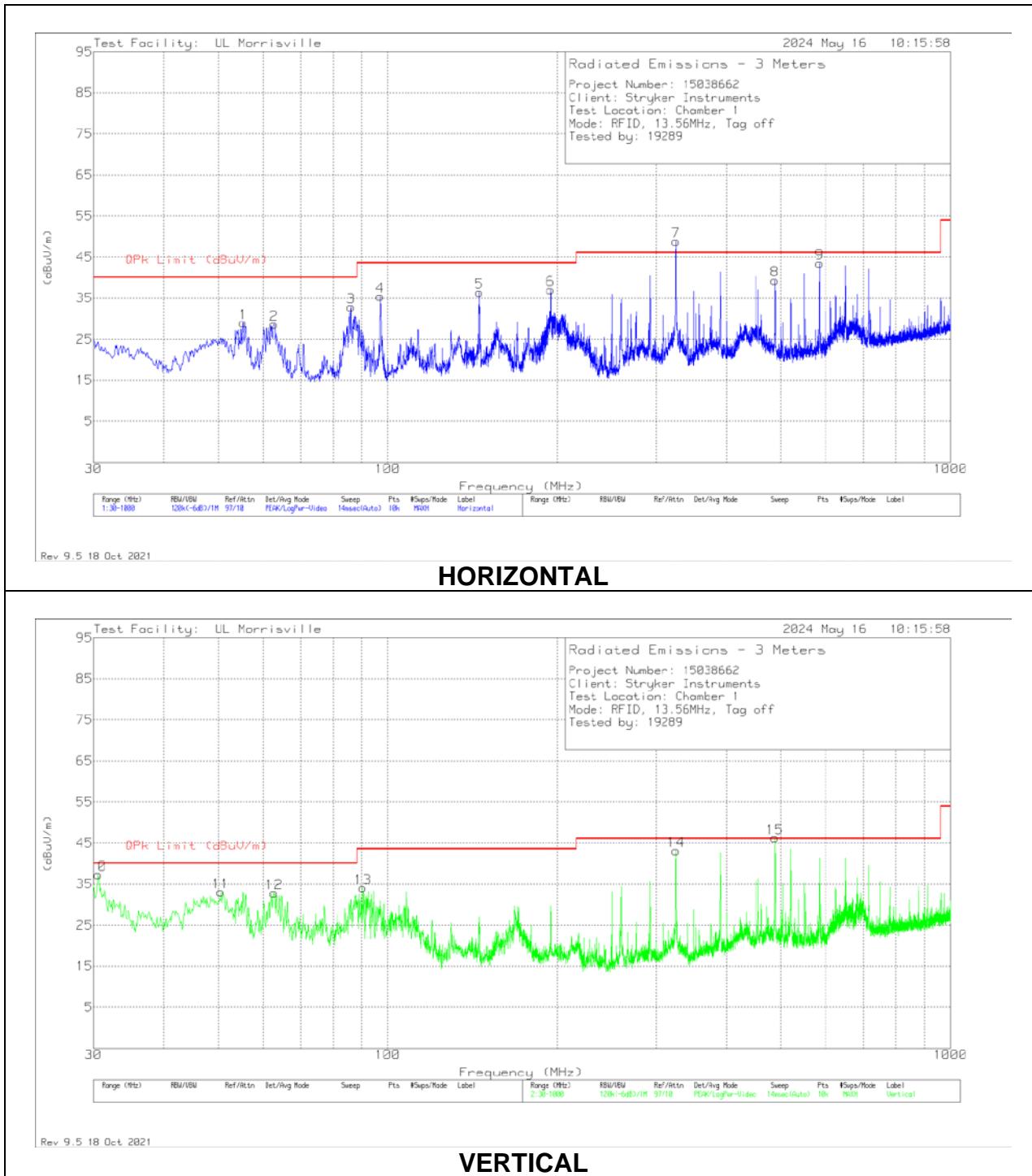
Marker	Frequency	Meter	Det	90628 (dB/m)	Gain/Loss (dB)	Class A Distance Correction Factor (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m) 15.209(a)	QPk Limit (dBuV/m) 15.109(b)	Margin	Azimuth	Height	Polarity
9	30.59782	39.81	Qp	26.4	-31.8	0	34.41	40	-	-5.59	291	111	V
1	55.996	46.34	Pk	13.6	-31.4	0	28.54	40	-	-11.46	0-360	400	H
2	62.204	46.59	Pk	14.1	-31.7	0	28.99	40	-	-11.01	0-360	299	H
10	62.786	50.12	Pk	14.1	-31.2	0	33.02	40	-	-6.98	0-360	100	V
3	87.618	49.13	Pk	13.7	-31.6	0	31.23	40	-	-8.77	0-360	199	H
11	87.62619	48.63	Qp	13.7	-31.6	0	30.73	40	-	-9.27	299	116	V
12	90.334	51.18	Pk	14	-31	0	34.18	43.52	-	-9.34	0-360	100	V
4	96.93	49.71	Pk	15.9	-31.1	0	34.51	43.52	-	-9.01	0-360	299	H
13	107.891	47.26	Pk	18.5	-30.8	0	34.96	43.52	-	-8.56	0-360	100	V
5	145.527	47.89	Pk	19	-30.6	-10.5	25.83	-	43.52	-17.69	0-360	199	H
6	292.482	51.46	Pk	19.5	-30.1	-10.5	30.40	-	46.44	-16.04	0-360	99	H
7	324.977	57.34	Pk	20	-28.9	-10.5	37.98	-	46.44	-8.46	0-360	99	H
14	324.977	52.42	Pk	20	-28.9	-10.5	33.06	-	46.44	-13.38	0-360	100	V
8	487.549	44.12	Pk	24	-28.4	-10.5	29.26	-	46.44	-17.18	0-360	199	H
15	487.549	49.18	Pk	24	-28.4	-10.5	34.32	-	46.44	-12.12	0-360	100	V
16	650.024	45.58	Pk	25.9	-27.9	-10.5	33.12	-	46.44	-13.32	0-360	100	V

Pk - Peak detector

Qp - Quasi-Peak detector

Note – Per 15.209 (f), measurements were made above the 10th harmonic in accordance with 15.33 (a) due to the incorporation of a digital device. The digital device is classified as Class A. Therefore, all measurements above the 10th harmonic were compared to 15.109(b) Class A limits.

9.3.1.4. Hand Piece Tag Off



Marker	Frequency	Meter	Det	90628 (dB/m)	Gain/Loss (dB)	Class A Distance Correction Factor (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m) 15.209(a)	QPk Limit (dBuV/m) 15.109(b)	Margin	Azimuth	Height	Polarity
10	30.62755	40.44	Qp	26.4	-31.8	0	35.04	40	-	-4.96	73	113	V
11	50.467	50.58	Pk	13.9	-31.4	0	33.08	40	-	-6.92	0-360	100	V
1	55.317	46.61	Pk	13.6	-31.2	0	29.01	40	-	-10.99	0-360	399	H
2	62.786	45.69	Pk	14.1	-31.2	0	28.59	40	-	-11.41	0-360	399	H
12	62.786	49.92	Pk	14.1	-31.2	0	32.82	40	-	-7.18	0-360	100	V
3	86.066	50.42	Pk	13.5	-31.1	0	32.82	40	-	-7.18	0-360	199	H
13	90.334	51.11	Pk	14	-31	0	34.11	43.52	-	-9.41	0-360	100	V
4	96.93	50.63	Pk	15.9	-31.1	0	35.43	43.52	-	-8.09	0-360	199	H
5	145.527	48.04	Pk	19	-30.6	-10.5	25.98	-	43.52	-17.54	0-360	199	H
6	194.997	49.19	Pk	18.5	-30.6	-10.5	26.63	-	43.52	-16.89	0-360	100	H
7	325.074	57.77	Pk	20	-28.9	-10.5	38.41	-	46.44	-8.03	0-360	100	H
14	325.074	52.02	Pk	20	-28.9	-10.5	32.66	-	46.44	-13.78	0-360	100	V
8	487.549	43.75	Pk	24	-28.4	-10.5	28.89	-	46.44	-17.55	0-360	100	H
15	487.549	50.61	Pk	24	-28.4	-10.5	35.75	-	46.44	-10.69	0-360	100	V
9	585.034	47.4	Pk	24.5	-28.4	-10.5	33.04	-	46.44	-13.40	0-360	199	H

Pk - Peak detector

Qp - Quasi-Peak detector

Note – Per 15.209 (f), measurements were made above the 10th harmonic in accordance with 15.33 (a) due to the incorporation of a digital device. The digital device is classified as Class A. Therefore, all measurements above the 10th harmonic were compared to 15.109(b) Class A limits.

10. FREQUENCY STABILITY

LIMIT

FCC §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.

ISED 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. WORST CASE

Reference Frequency: EUT Channel 13.56 MHz @ 20°C										
		Frequency Deviation Measured with Time Elapse								
Power Supply	Envir. Temp	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
120.00	50	13.5604137	3.687	13.5604133	3.715	13.5604128	3.752	13.5604124	3.779	± 100
120.00	40	13.5604256	2.806	13.5604265	2.742	13.5604322	2.321	13.5604322	2.317	± 100
120.00	30	13.5604556	0.594	13.5604565	0.531	13.5604573	0.470	13.5604579	0.424	± 100
120.00	20	13.5604637	0.000	13.5604624	0.090	13.5604620	0.125	13.5604612	0.179	± 100
120.00	10	13.5605040	-2.978	13.5605061	-3.132	13.5605086	-3.315	13.5605146	-3.756	± 100
120.00	0	13.5605276	-4.718	13.5605277	-4.720	13.5605277	-4.725	13.5605278	-4.727	± 100
120.00	-10	13.5605272	-4.683	13.5605263	-4.618	13.5605255	-4.559	13.5605248	-4.508	± 100
120.00	-20	13.5604978	-2.515	13.5604963	-2.408	13.5604954	-2.343	13.5604936	-2.209	± 100
102.00	20	13.5605210	-4.229	13.5605210	-4.229	13.5605206	-4.200	13.5605198	-4.141	± 100
138	20	13.5605220	-4.303	13.5605148	-3.772	13.5605188	-4.067	13.5605210	-4.229	± 100

Tested by: 104463/85502

Test date: 2024-05-08

11. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207
ISED 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 C63.10:2020

Testing was performed on a terminated and non-terminated sample as per KDB 174176. Testing shows that emissions not related to the fundamental, are compliant when the antenna is attached, and all emissions are compliant when the antenna is terminated.

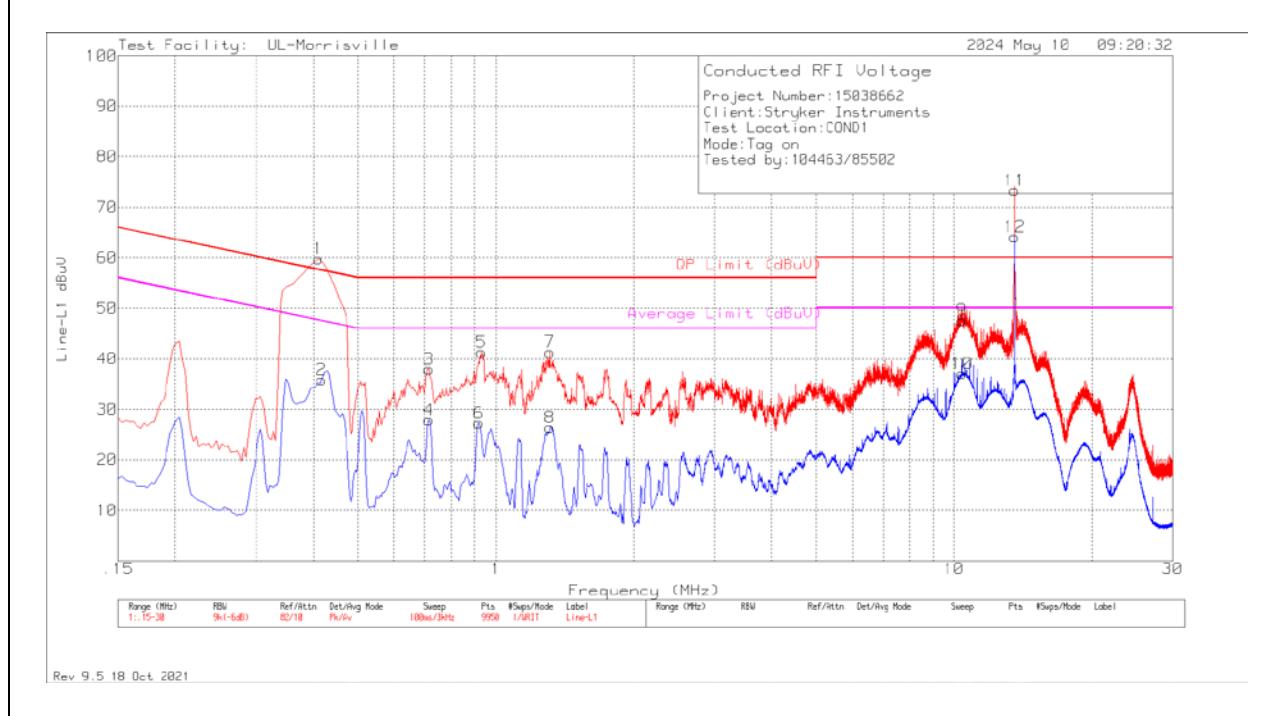
RESULTS

No non-compliance noted:

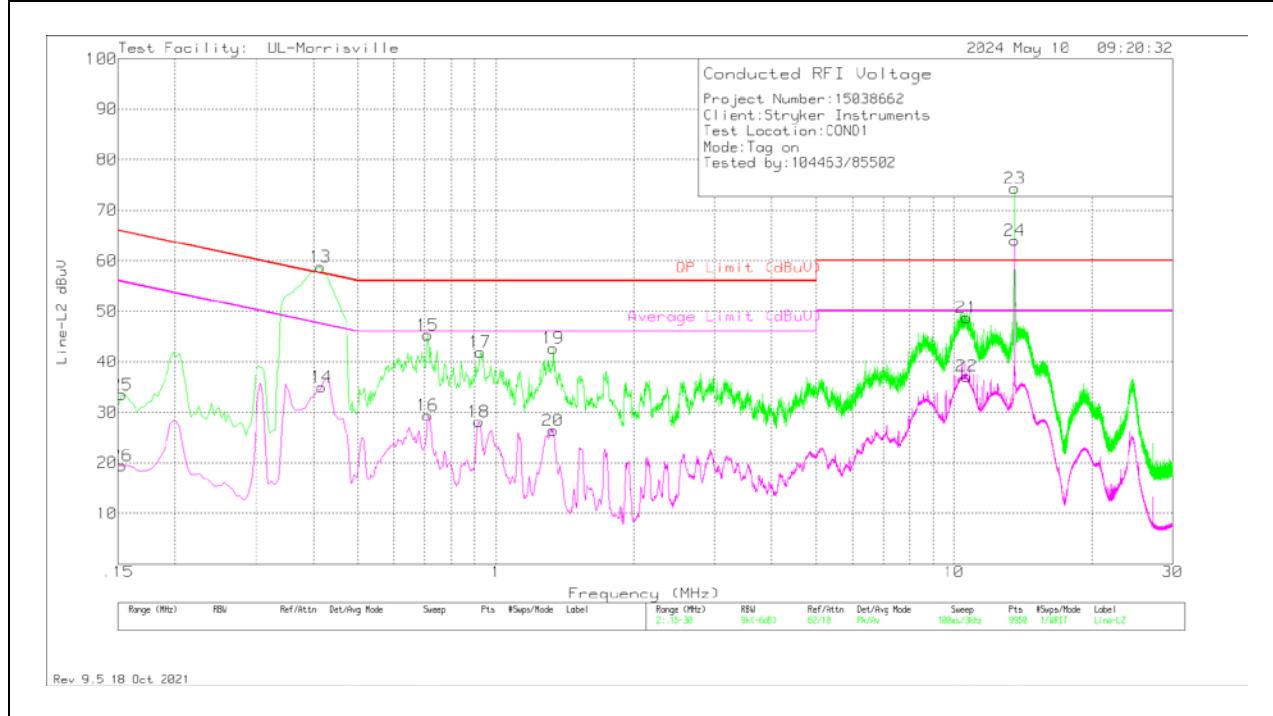
11.1. NORMAL OPERATION

11.1.1. WORST CASE

LINE 1 RESULTS



LINE 2 RESULTS



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.411	46.52	Qp	.1	9.8	56.42	57.63	-1.21	-	-
	.411	25.3	Ca	.1	9.8	35.2	-	-	47.63	-12.43
2	.417	25.92	Av	.1	9.8	35.82	-	-	47.51	-11.69
3	.714	28.07	Pk	.1	9.8	37.97	56	-18.03	-	-
4	.714	17.95	Av	.1	9.8	27.85	-	-	46	-18.15
6	.918	17.35	Av	.1	9.8	27.25	-	-	46	-18.75
5	.93	31.4	Pk	.1	9.8	41.3	56	-14.7	-	-
7	1.311	31.47	Pk	.1	9.8	41.37	56	-14.63	-	-
8	1.314	16.53	Av	.1	9.8	26.43	-	-	46	-19.57
10	10.41	26.96	Av	.1	10	37.06	-	-	50	-12.94
9	10.422	37.49	Pk	.1	10	47.59	60	-12.41	-	-
11*	13.563	63.19	Pk	.2	10	73.39	60	-	-	-
12*	13.563	53.95	Av	.2	10	64.15	-	-	50	-

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)
25	.153	23.41	Pk	.3	9.8	33.51	65.84	-32.33	-	-
26	.153	9.4	Av	.3	9.8	19.5	-	-	55.84	-36.34
13	.4118	45.77	Qp	.1	9.8	55.67	57.61	-1.94	-	-
	.4118	24.74	Ca	.1	9.8	34.64	-	-	47.61	-12.97
15	.711	35.36	Pk	.1	9.8	45.26	56	-10.74	-	-
16	.711	19.54	Av	.1	9.8	29.44	-	-	46	-16.56
18	.918	18.21	Av	.1	9.8	28.11	-	-	46	-17.89
17	.924	32.01	Pk	.1	9.8	41.91	56	-14.09	-	-
20	1.332	16.48	Av	.1	9.8	26.38	-	-	46	-19.62
19	1.335	32.83	Pk	.1	9.8	42.73	56	-13.27	-	-
22	10.644	27.05	Av	.1	10	37.15	-	-	50	-12.85
21	10.653	38.71	Pk	.1	10	48.81	60	-11.19	-	-
23*	13.56	64.09	Pk	.2	10	74.29	60	-	-	-
24*	13.56	53.88	Av	.2	10	64.08	-	-	50	-

Pk - Peak detector

Av - Average detection

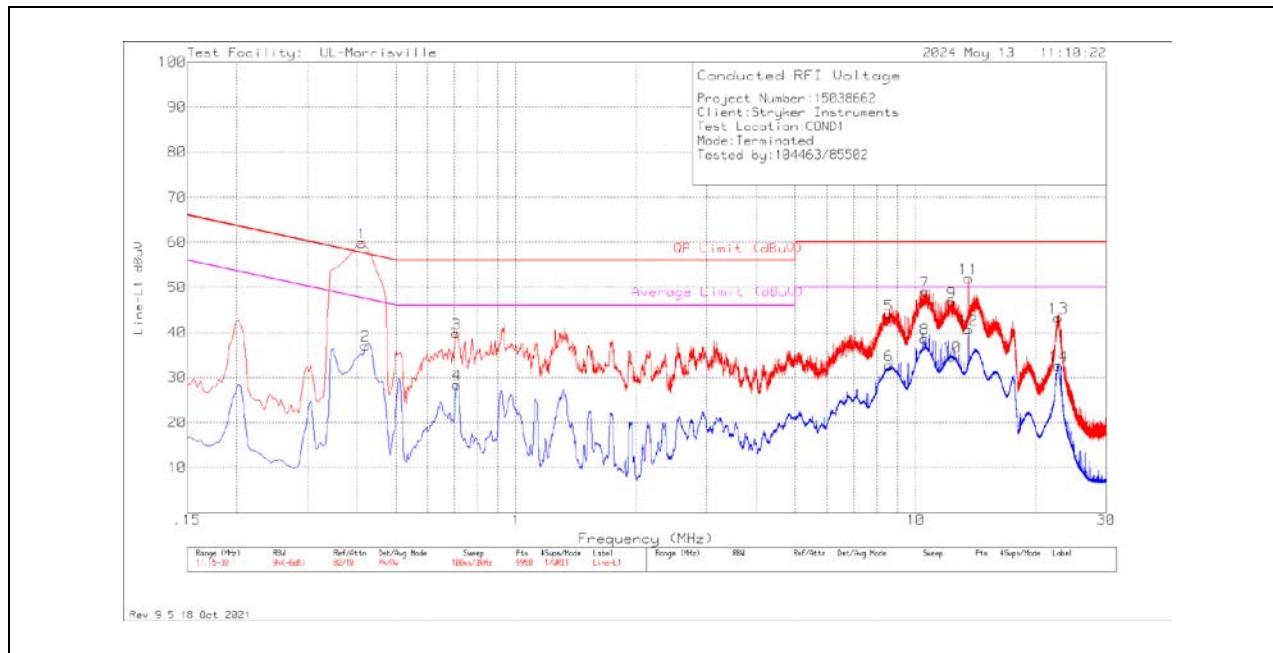
Qp - Quasi-Peak detector

*- Fundamental

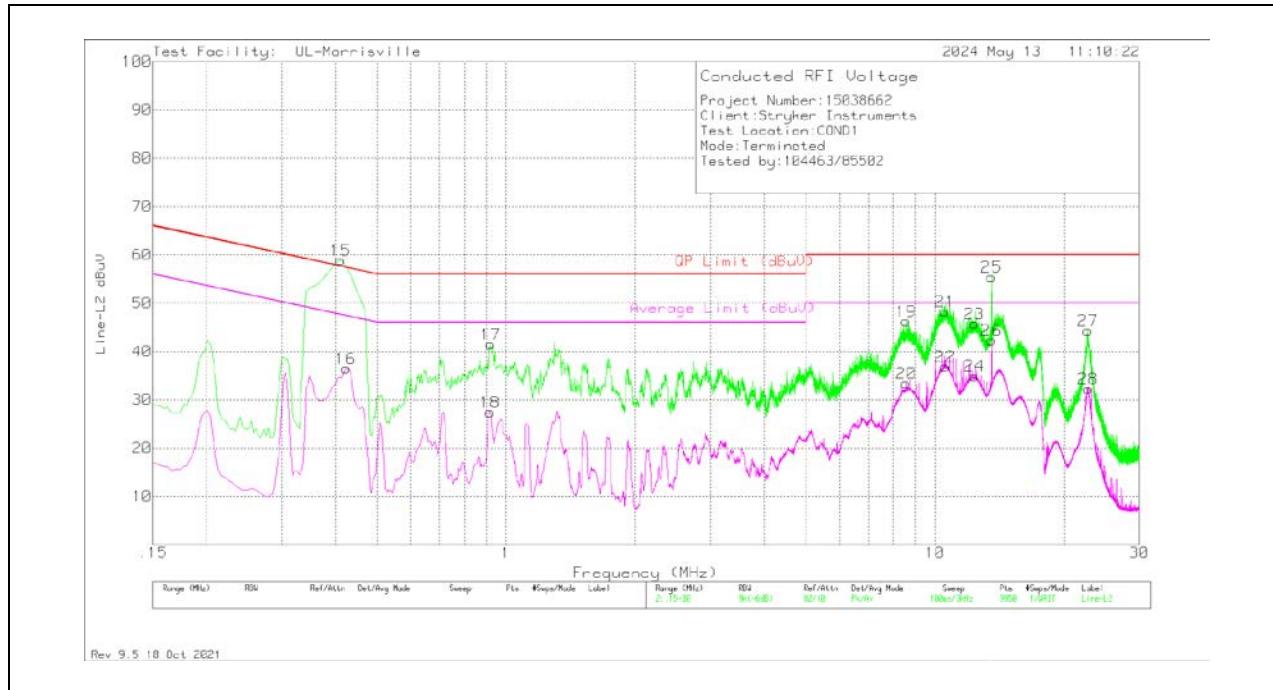
11.2. NORMAL OPERATION WITH ANTENNA PORT TERMINATED

11.2.1. WORST CASE

LINE 1 RESULTS



LINE 2 RESULTS



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.4092	46.61	Qp	.1	9.8	56.51	57.66	-1.15	-	-
2	.42	27.16	Av	.1	9.8	37.06	-	-	47.45	-10.39
3	.708	29.91	Pk	.1	9.8	39.81	56	-16.19	-	-
4	.711	18.5	Av	.1	9.8	28.4	-	-	46	-17.6
5	8.565	33.84	Pk	.1	10	43.94	60	-16.06	-	-
6	8.574	22.6	Av	.1	10	32.7	-	-	50	-17.3
8	10.539	28.53	Av	.1	10	38.63	-	-	50	-11.37
7	10.557	38.95	Pk	.1	10	49.05	60	-10.95	-	-
9	12.321	36.66	Pk	.1	10	46.76	60	-13.24	-	-
10	12.321	24.54	Av	.1	10	34.64	-	-	50	-15.36
11	13.56	41.74	Pk	.2	10	51.94	60	-8.06	-	-
12	13.563	30.47	Av	.2	10	40.67	-	-	50	-9.33
13	22.746	32.86	Pk	.2	10.2	43.26	60	-16.74	-	-
14	22.752	22.18	Av	.2	10.2	32.58	-	-	50	-17.42

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
15	.408	45.83	Qp	.1	9.8	55.73	57.69	-1.96	-	-
16	.423	26.6	Av	.1	9.8	36.5	-	-	47.39	-10.89
18	.918	17.57	Av	.1	9.8	27.47	-	-	46	-18.53
17	.921	31.59	Pk	.1	9.8	41.49	56	-14.51	-	-
19	8.571	36.16	Pk	.1	10	46.26	60	-13.74	-	-
20	8.577	23.37	Av	.1	10	33.47	-	-	50	-16.53
21	10.56	38.22	Pk	.1	10	48.32	60	-11.68	-	-
22	10.566	26.76	Av	.1	10	36.86	-	-	50	-13.14
23	12.351	35.67	Pk	.1	10	45.77	60	-14.23	-	-
24	12.369	24.89	Av	.1	10	34.99	-	-	50	-15.01
25	13.56072	41.13	Qp	.2	10	51.33	60	-8.67	-	-
26	13.563	32.15	Av	.2	10	42.35	-	-	50	-7.65
27	22.755	33.94	Pk	.2	10.2	44.34	60	-15.66	-	-
28	22.764	21.9	Av	.2	10.2	32.3	-	-	50	-17.7

Pk - Peak detector

Qp - Quasi-Peak detector

Av - Average detection

*- Fundamental

12. SETUP PHOTOS

Please refer to R15038662-EP1 for setup photos

END OF TEST REPORT