



TEST REPORT

Report Number. : R14176139-E7V1

Applicant : Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0076, Japan

FCC ID : PY7-83262V

EUT Description : GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2022-03-14

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2022-03-14	Initial Issue	Nikas Haydon

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0076, Japan

EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

SERIAL NUMBER: QV77008VB8

SAMPLE RECEIPT DATE: 2022-02-10

DATE TESTED: 2022-02-23 to 2022-03-07

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies

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

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

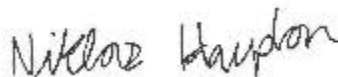
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Approved & Released For
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Prepared By:



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Staff Engineer
Consumer Technology Division
UL LLC.



Niklas Haydon
Operations Leader
Consumer Technology Division
UL LLC.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 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	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. 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.

4.2. 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.)

4.3. 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%.

4.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC. This test report covers WPT testing.

5.2. MAXIMUM OUTPUT POWER

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

Fundamental Frequency (KHz)	Configuration	Mode	E field (300m distance) FCC (dBuV/m)
110.75	1	Server: Charging Phone (parallel position)	-3.74
116.08	2	Server: Charging Phone (perpendicular position)	-8.26
127.69	3	Client	3.56

5.3. SOFTWARE AND FIRMWARE

The software version installed in the EUT during testing was 0.493.

5.4. WORST-CASE CONFIGURATION AND MODE

The EUT is a WPT charger operating from 110-148kHz. Testing on the EUT was performed in the following configurations:

Config	Mode	Descriptions
1	Server: Charging Phone (parallel position)	EUT charging phone in parallel position
2	Server: Charging Phone (perpendicular position)	EUT charging phone in perpendicular position
3	Client	Wireless charger charging EUT

For configuration 1 and 2, the following modes to determine worst-case were explored:

XYZ orientation

Client centered and offset

Client direct contact and separation

0-10%, 50%, 90%, 100% charge states

For configuration 3, the following modes to determine worst-case were explored:

Client centered and offset

Client direct contact and separation

0-10%, 50%, 90%, 100% charge states

For configuration 1, X-axis, offset, direct contact, and 0-10% was found to be worst-case, therefore all testing was performed in X-axis, offset, and 0-10%.

For configuration 2, X-axis, centered, direct contact, and 0-10% was found to be worst-case, therefore all testing was performed in X-axis and centered.

For configuration 3, separated, offset, and 0-10% was found to be worst-case, therefore all testing was performed separated and offset.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 300 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 D01.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Headphones	Sony	MDR-EX15AP	NA	NA
USB Cable	Sony	XQZ-UB1	NA	NA
AC Adapter	Sony	XQZ-UC1	1821W34209856	NA
Wireless Charger	Belkin	F7U050	26S10EH3914168	K7SF7U050
AC Adapter	Belkin	ADS-26FSG-12	NA	NA
Phone	Sony	NA	QV77007QB8	PY7-83262V
Phone	Sony	NA	QV77003RB8	PY7-83262V
Phone	Sony	NA	QV770083B8	PY7-83262V
Phone	Sony	NA	QV77008XB8	PY7-83262V
Phone	Sony	NA	QV770014B8	PY7-83262V

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB-C	Non-Shielded	<3m	Connected to power supply
2	3.5mm	1	3.5mm Audio	Non-Shielded	<1m	Connected to headphones

TEST SETUP

Test software on the EUT exercised the radio.

SETUP DIAGRAM

Please refer to R14176139-EP3 for setup diagrams.

6. 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 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	Gain-Loss Chains				
C4-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2021-05-07	2022-05-07
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
s/n 210701941	Environmental Meter	Fisher Scientific	15-077-963	2021-8-16	2023-08-16

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	30-1000 MHz				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-08-30	2022-08-30
	Gain-Loss Chains				
C2-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2021-07-09	2022-07-09
C2-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-07-09	2022-07-09
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

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
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2021-08-16	2022-08-16
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2021-08-17	2022-08-17
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
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (04 Mar 2021)		
	Miscellaneous (if needed)				
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2021-09-13	2022-09-13

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2021-04-01	2022-04-01
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
SOFTEMI	Antenna Port Software	UL	Version 2022.2.16	NA	NA

7. 20dB BANDWIDTH

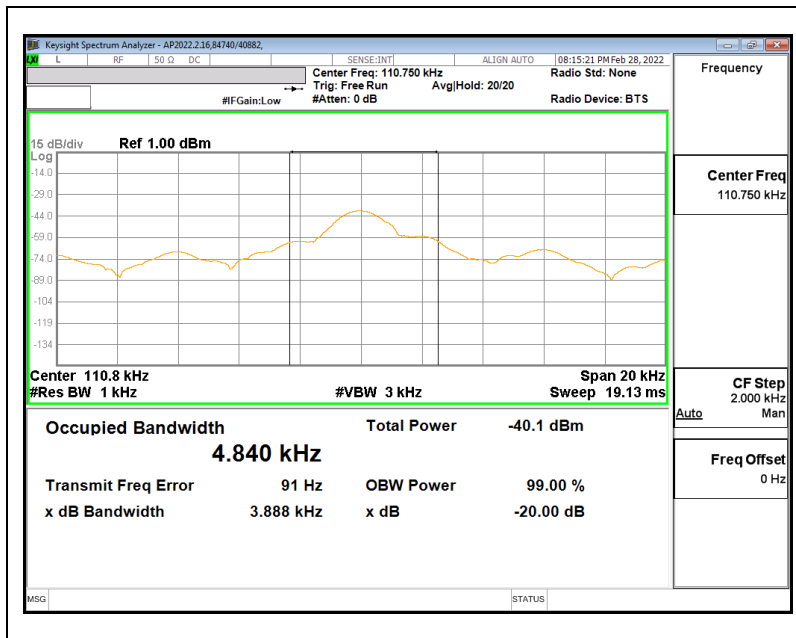
TEST PROCEDURE

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

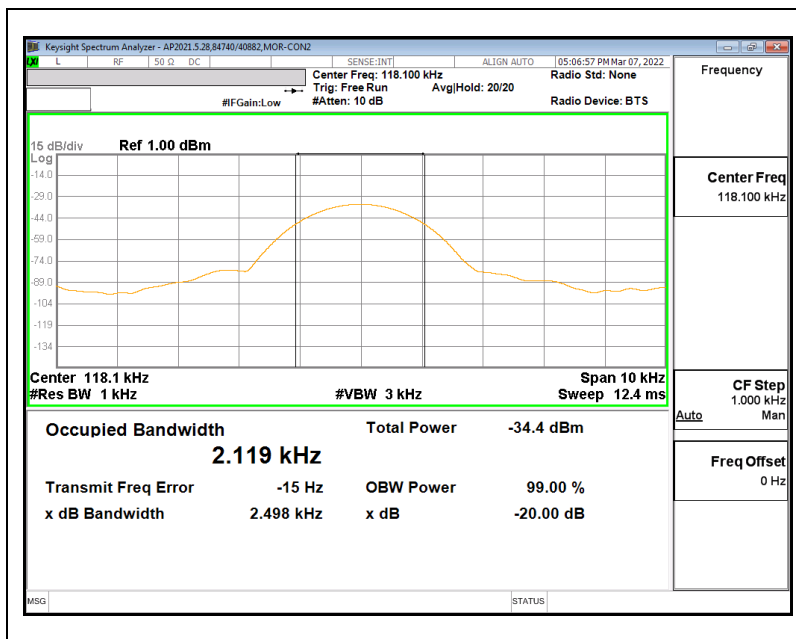
Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

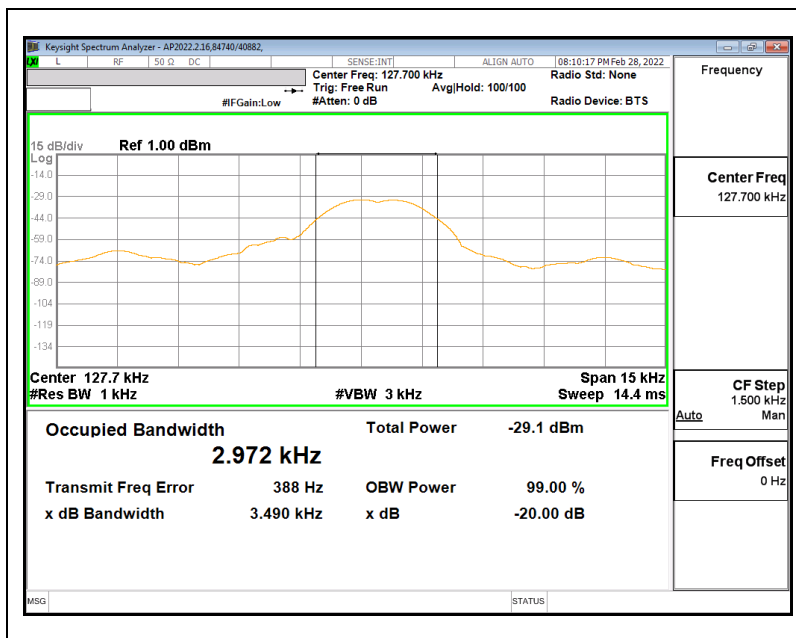
7.1.1. CONFIG 1



7.1.2. CONFIG 2



7.1.3. CONFIG 3



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.209 (a)

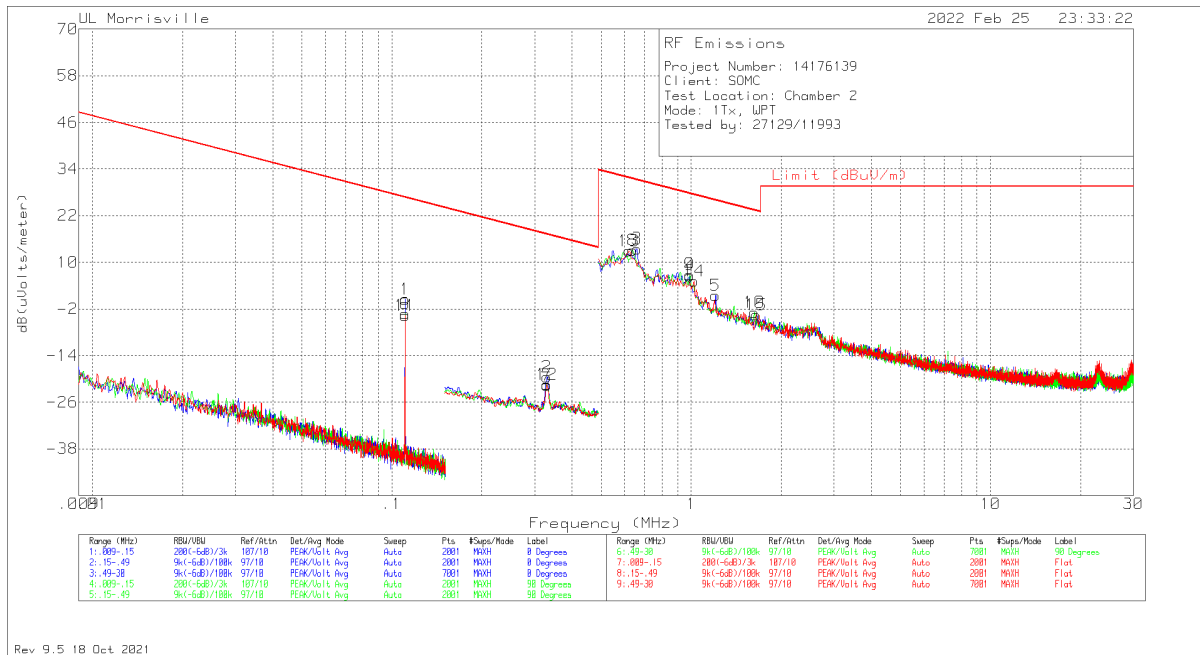
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

RESULTS

8.2. FCC TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{test distance} / \text{specification distance})$.

8.2.1. CONFIG 1

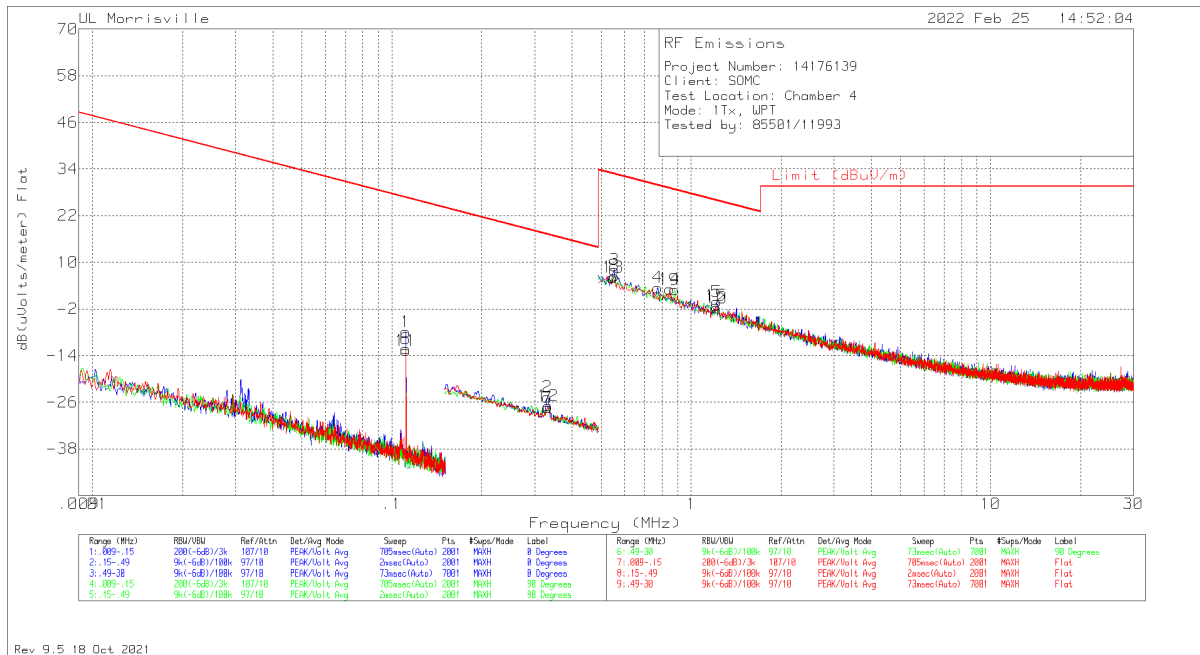


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/Avg Limit (dBuV/m)	Pk Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Loop Angle
1	.11075	64.76	Pk	11.4	.1	-80	-3.74	-	46.72	-50.46	252	0 degs
	.11075	64.61	Av	11.4	.1	-80	-3.89	26.72	-	-30.61	252	0 degs
6	.11074	48.42	Pk	11.4	.1	-80	-20.08	-	46.72	-66.8	252	90 degs
	.11074	47.72	Av	11.4	.1	-80	-20.78	26.72	-	-47.5	252	90 degs
11	.11075	59.59	Pk	11.4	.1	-80	-8.91	-	46.72	-55.63	275	Flat
	.11075	59.44	Av	11.4	.1	-80	-9.06	26.72	-	-35.78	275	Flat
7	.32884	47.13	Pk	11.2	.1	-80	-21.57	17.26	37.26	-38.83	0-360	90 degs
2	.32952	49.2	Pk	11.2	.1	-80	-19.5	17.25	37.25	-36.75	0-360	0 degs
12	.32952	47.24	Pk	11.2	.1	-80	-21.46	17.25	37.25	-38.71	0-360	Flat
13	.6207	41.47	Pk	11.2	.2	-40	12.87	31.75	-	-18.88	0-360	Flat
8	.63756	41.54	Pk	11.3	.2	-40	13.04	31.51	-	-18.47	0-360	90 degs
3	.65864	41.99	Pk	11.3	.2	-40	13.49	31.23	-	-17.74	0-360	0 degs
4	.98749	34.94	Pk	11.3	.2	-40	6.44	27.71	-	-21.27	0-360	0 degs
9	.98749	35.37	Pk	11.3	.2	-40	6.87	27.71	-	-20.84	0-360	90 degs
14	1.02122	33.69	Pk	11.3	.2	-40	5.19	27.42	-	-22.23	0-360	Flat
5	1.20672	29.95	Pk	11.3	.2	-40	1.45	25.97	-	-24.52	0-360	0 degs
10	1.6241	25.47	Pk	11.4	.2	-40	-2.93	23.39	-	-26.32	0-360	90 degs
15	1.6494	24.8	Pk	11.4	.2	-40	-3.6	23.26	-	-26.86	0-360	Flat

Pk - Peak detector
Av - Average detection

8.2.2. CONFIG 2

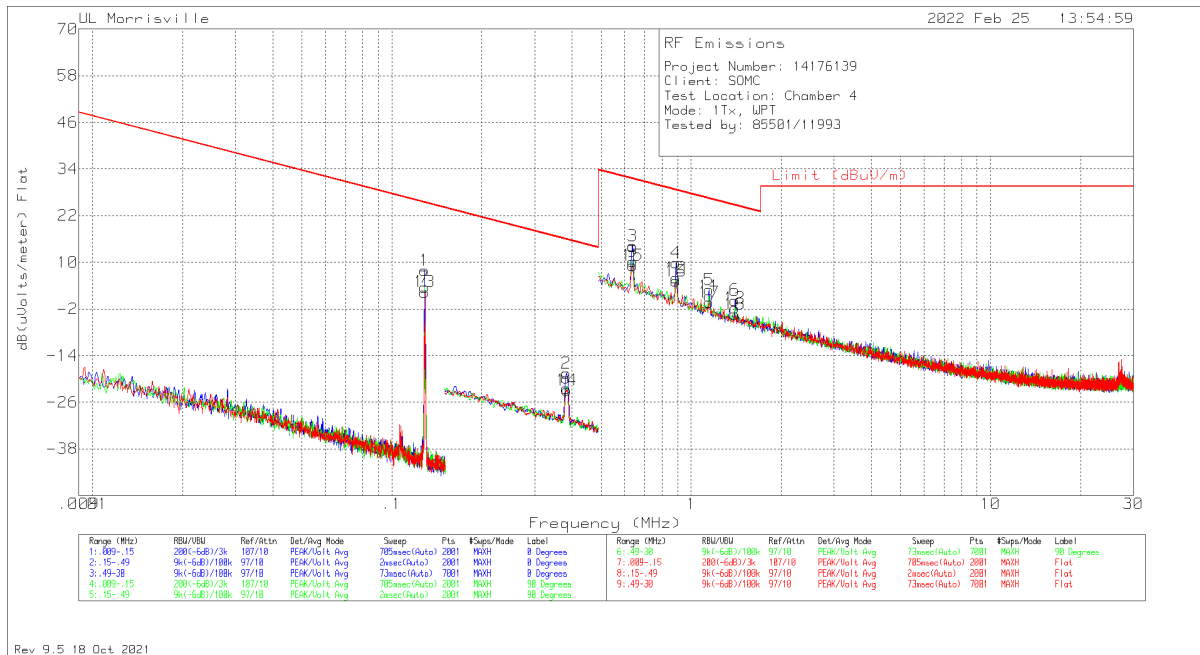


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/Avg Limit (dBuV/m)	Pk Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Loop Angle
1	.11608	60.34	Pk	11.3	.1	-80	-8.26	-	46.31	-54.57	333	0 degs
	.11608	60.21	Av	11.3	.1	-80	-8.39	26.31	-	-34.7	333	0 degs
6	.11115	56.61	Pk	11.4	.1	-80	-11.89	-	46.69	-58.58	53	90 degs
	.11115	56.48	Av	11.4	.1	-80	-12.02	26.69	-	-38.71	53	90 degs
11	.11075	56.06	Pk	11.4	.1	-80	-12.44	-	46.72	-59.16	332	Flat
	.11075	55.65	Av	11.4	.1	-80	-12.85	26.72	-	-39.57	332	Flat
7	.33122	41.31	Pk	11.2	.1	-80	-27.39	17.2	37.2	-44.59	0-360	90 degs
2	.33156	44.09	Pk	11.2	.1	-80	-24.61	17.19	37.19	-41.8	0-360	0 degs
12	.33241	41.73	Pk	11.2	.1	-80	-26.97	17.17	37.17	-44.14	0-360	Flat
13	.54902	34.79	Pk	11.2	.2	-40	6.19	32.81	-	-26.62	0-360	Flat
3	.55324	36.68	Pk	11.2	.2	-40	8.08	32.75	-	-24.67	0-360	0 degs
8	.55324	35.15	Pk	11.2	.2	-40	6.55	32.75	-	-26.2	0-360	90 degs
4	.77247	31.99	Pk	11.3	.2	-40	3.49	29.85	-	-26.36	0-360	0 degs
14	.84836	31.56	Pk	11.3	.2	-40	3.06	29.03	-	-25.97	0-360	Flat
9	.88209	31.42	Pk	11.3	.2	-40	2.92	28.69	-	-25.77	0-360	90 degs
15	1.21094	27.35	Pk	11.3	.2	-40	-1.15	25.94	-	-27.09	0-360	Flat
5	1.21515	28.4	Pk	11.3	.2	-40	-.1	25.91	-	-26.01	0-360	0 degs
10	1.21515	26.67	Pk	11.3	.2	-40	-1.83	25.91	-	-27.74	0-360	90 degs

Pk - Peak detector
Av - Average detection

8.2.3. CONFIG 3



DATA

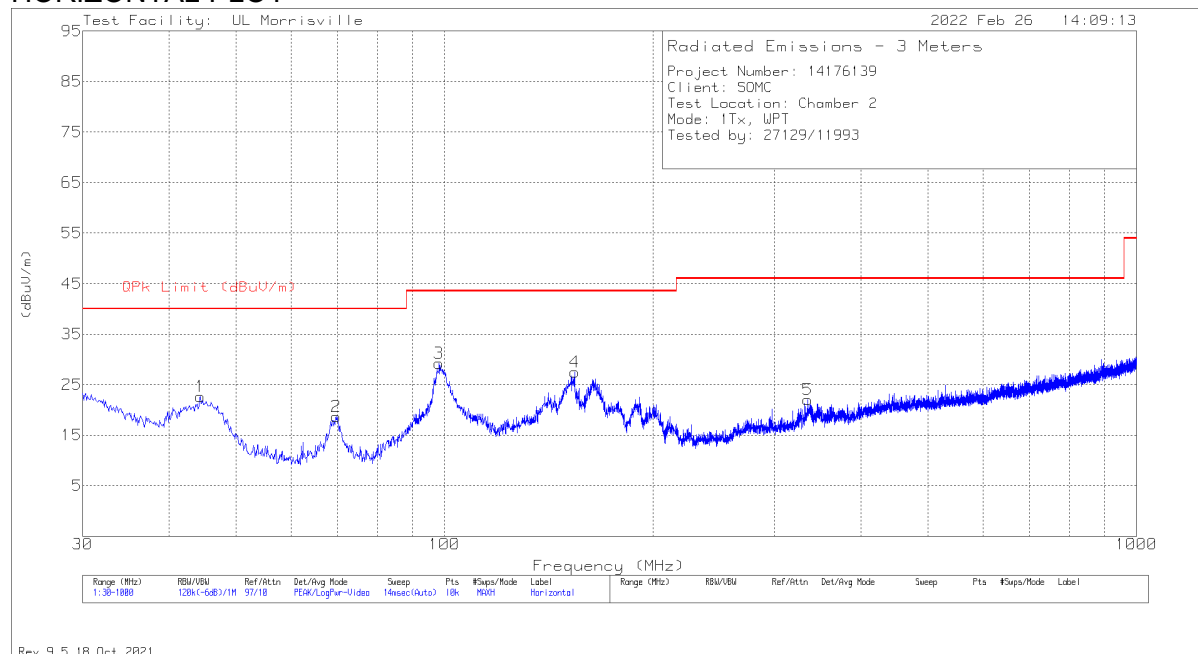
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/Avg Limit (dBuV/m)	Pk Limit (dBuV/m)	Worst-Case Margin (dB)	Azimuth (Degs)	Loop Angle
1	.12769	72.16	Pk	11.3	.1	-80	3.56	-	45.48	-41.92	0	0 degs
	.12769	72.05	Av	11.3	.1	-80	3.45	25.48	-	-22.03	0	0 degs
7	.1277	67.84	Pk	11.3	.1	-80	-.76	-	45.48	-46.24	76	90 degs
	.1277	67.77	Av	11.3	.1	-80	-.83	25.48	-	-26.31	76	90 degs
13	.1277	67.89	Pk	11.3	.1	-80	-.71	-	45.48	-46.19	356	Flat
	.1277	67.85	Av	11.3	.1	-80	-.75	25.48	-	-26.23	356	Flat
8	.38222	46.36	Pk	11.2	.1	-80	-22.34	15.96	35.96	-38.3	0-360	90 degs
2	.38282	50.14	Pk	11.2	.1	-80	-18.56	15.94	35.94	-34.5	0-360	0 degs
14	.38503	45.87	Pk	11.2	.1	-80	-22.83	15.89	35.89	-38.72	0-360	Flat
3	.63756	42.72	Pk	11.3	.2	-40	14.22	31.51	-	-17.29	0-360	0 degs
9	.63756	38.7	Pk	11.3	.2	-40	10.2	31.51	-	-21.31	0-360	90 degs
15	.63756	37.75	Pk	11.3	.2	-40	9.25	31.51	-	-22.26	0-360	Flat
4	.89052	38.35	Pk	11.3	.2	-40	9.85	28.61	-	-18.76	0-360	0 degs
10	.89052	34.47	Pk	11.3	.2	-40	5.97	28.61	-	-22.64	0-360	90 degs
16	.89052	33.67	Pk	11.3	.2	-40	5.17	28.61	-	-23.44	0-360	Flat
5	1.1477	31.44	Pk	11.3	.2	-40	2.94	26.41	-	-23.47	0-360	0 degs
11	1.1477	29.8	Pk	11.3	.2	-40	1.3	26.41	-	-25.11	0-360	90 degs
17	1.1477	28.18	Pk	11.3	.2	-40	-.32	26.41	-	-26.73	0-360	Flat
6	1.40066	28.66	Pk	11.3	.3	-40	.26	24.68	-	-24.42	0-360	0 degs
12	1.40066	26.71	Pk	11.3	.3	-40	-1.69	24.68	-	-26.37	0-360	90 degs
18	1.40066	25.07	Pk	11.3	.3	-40	-3.33	24.68	-	-28.01	0-360	Flat

Pk - Peak detector
Av - Average detection

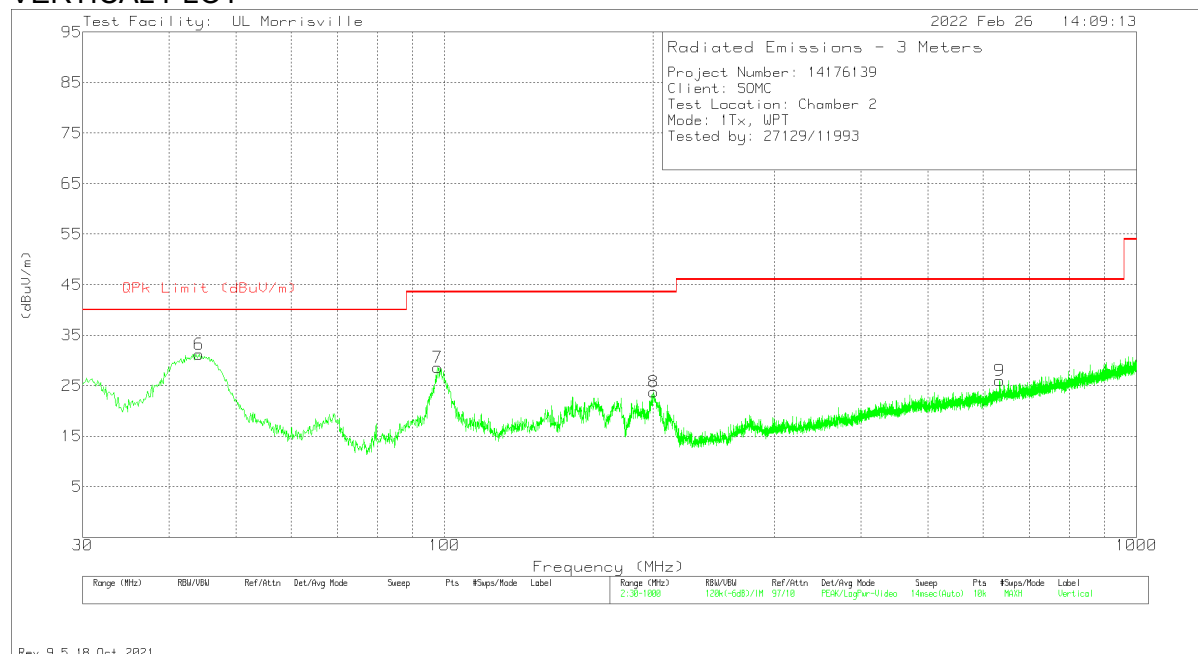
8.3. FCC TX SPURIOUS EMISSION 30 TO 1000 MHz

8.3.1. CONFIG 1

HORIZONTAL PLOT



VERTICAL PLOT



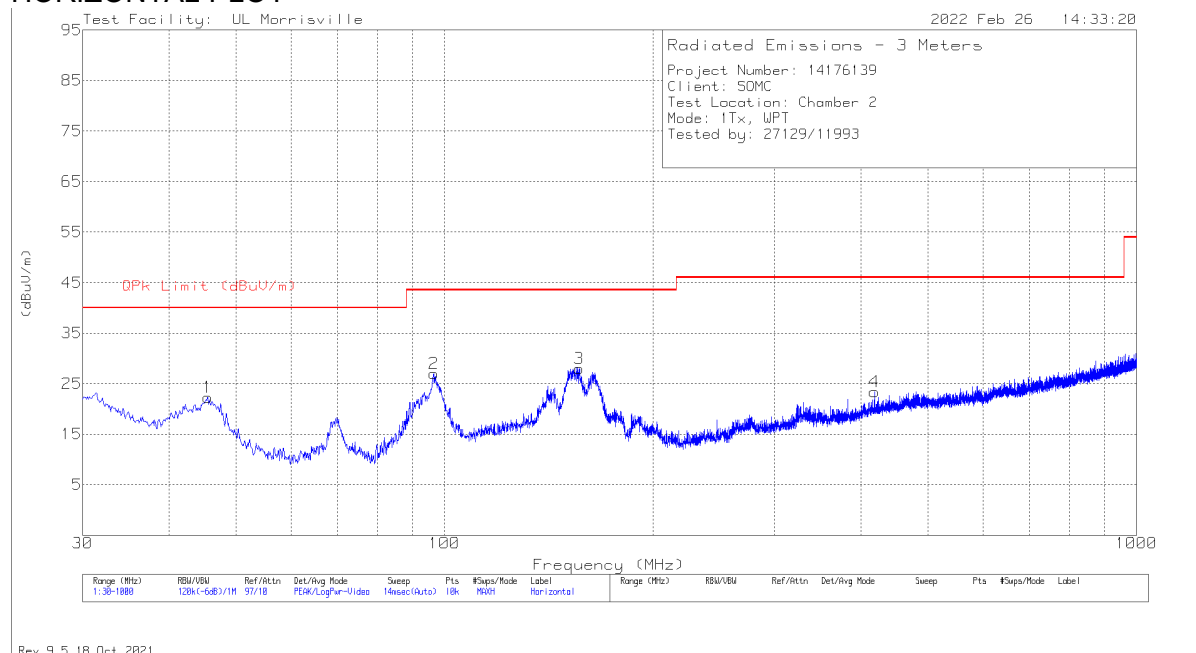
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	44.162	45.75	Pk	16.8	-31.3	31.25	40	-8.75	0-360	101	V
1	44.356	37.11	Pk	16.7	-31.2	22.61	40	-17.39	0-360	399	H
2	69.77	35.55	Pk	14.1	-31	18.65	40	-21.35	0-360	299	H
7	97.803	43.43	Pk	15.7	-30.5	28.63	43.52	-14.89	0-360	101	V
3	98.191	43.88	Pk	15.9	-30.6	29.18	43.52	-14.34	0-360	299	H
4	154.16	38.95	Pk	18.5	-30	27.45	43.52	-16.07	0-360	199	H
8	200.623	34.23	Pk	18.8	-29.3	23.73	43.52	-19.79	0-360	101	V
5	334.677	30.64	Pk	20	-28.6	22.04	46.02	-23.98	0-360	101	H
9	634.213	27.51	Pk	25.7	-27.2	26.01	46.02	-20.01	0-360	101	V

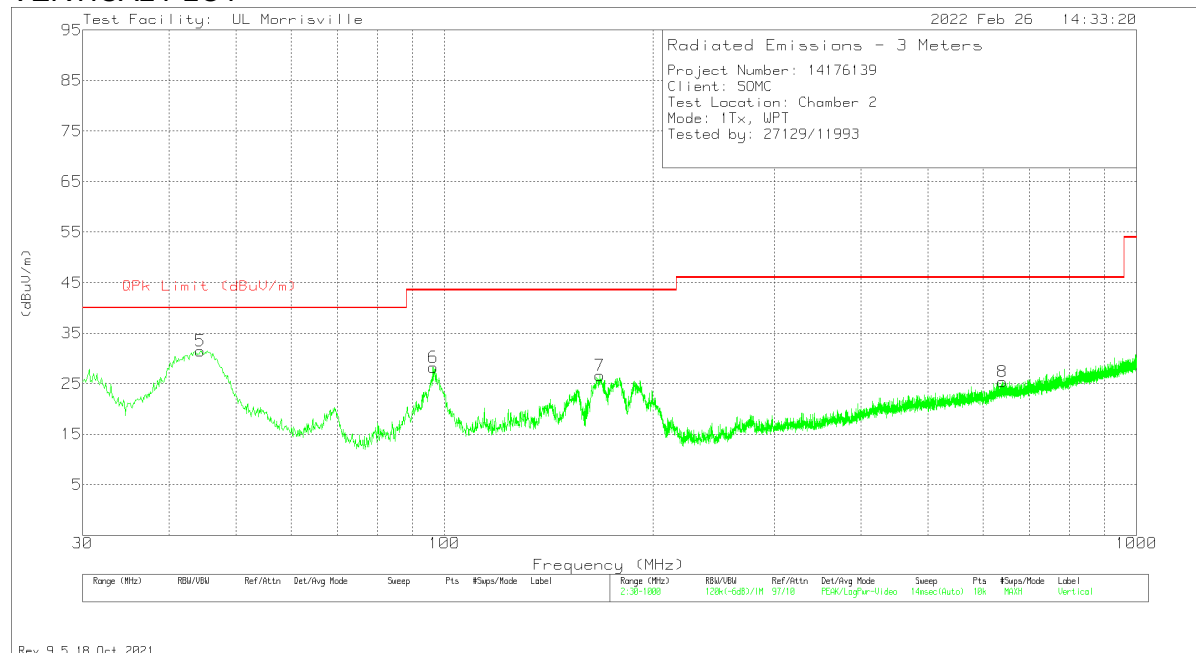
Pk - Peak detector

8.3.2. CONFIG 2

HORIZONTAL PLOT



VERTICAL PLOT



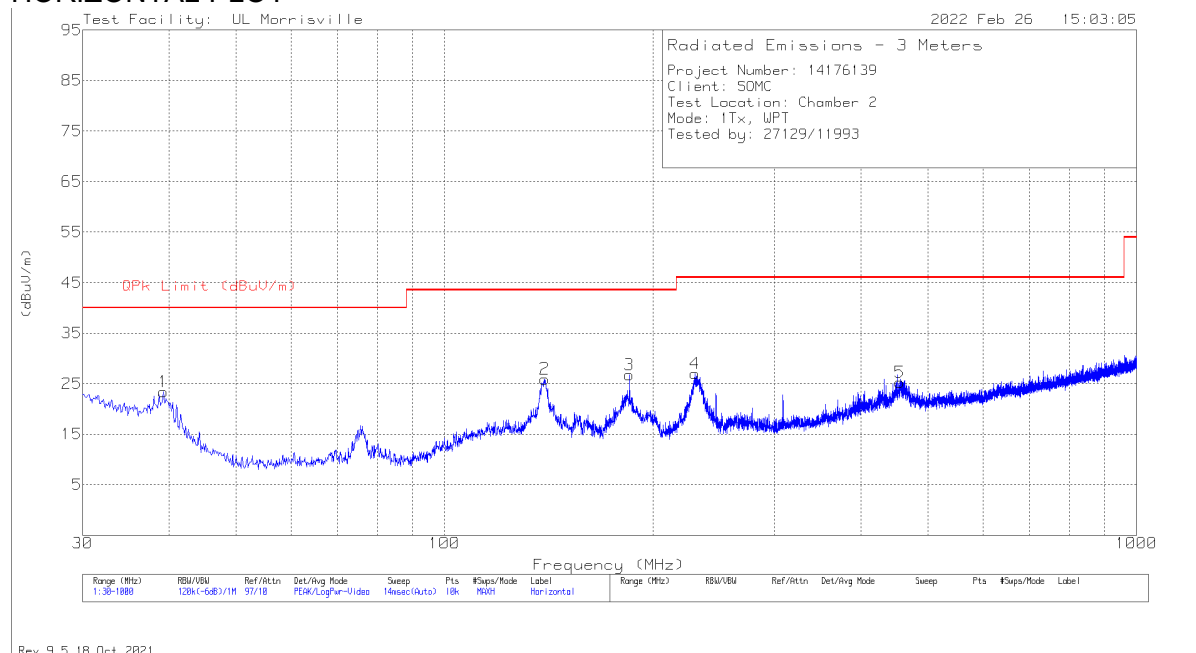
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	44.356	45.96	Pk	16.7	-31.2	31.46	40	-8.54	0-360	101	V
1	45.4715	37.46	Pk	16	-31.2	22.26	40	-17.74	0-360	399	H
6	96.251	43.49	Pk	15.3	-30.5	28.29	43.52	-15.23	0-360	101	V
2	96.445	42.3	Pk	15.3	-30.6	27	43.52	-16.52	0-360	299	H
3	156.682	39.3	Pk	18.5	-29.8	28	43.52	-15.52	0-360	199	H
7	167.837	38.42	Pk	18	-29.8	26.62	43.52	-16.9	0-360	101	V
4	418.097	29.21	Pk	22.3	-28.1	23.41	46.02	-22.61	0-360	99	H
8	640.421	26.83	Pk	25.8	-27.2	25.43	46.02	-20.59	0-360	199	V

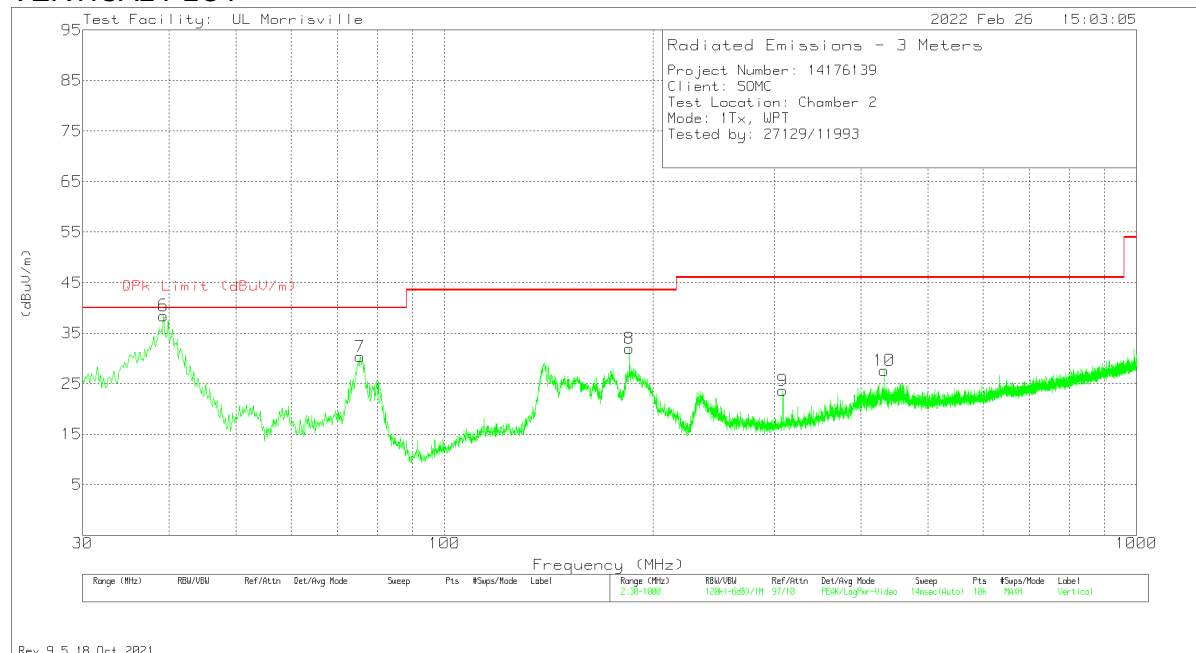
Pk - Peak detector

8.3.3. CONFIG 3

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	39.215	34.49	Pk	20.3	-31.4	23.39	40	-16.61	0-360	199	H
6	39.215	49.58	Pk	20.3	-31.4	38.48	-	-	0-360	101	V
	39.3363	46.34	Qp	20.3	-31.3	35.34	40	-4.66	2	102	V
7	75.493	47.16	Pk	14	-30.8	30.36	40	-9.64	0-360	101	V
2	139.513	36.84	Pk	19.1	-30	25.94	43.52	-17.58	0-360	199	H
3	185.006	39.15	Pk	17.2	-29.6	26.75	43.52	-16.77	0-360	99	H
8	185.006	44.34	Pk	17.2	-29.6	31.94	43.52	-11.58	0-360	101	V
4	230.208	39.1	Pk	17.1	-29.2	27	46.02	-19.02	0-360	99	H
9	308.39	32.72	Pk	19.7	-28.8	23.62	46.02	-22.4	0-360	199	V
10	431.774	33.32	Pk	22.6	-28.3	27.62	46.02	-18.4	0-360	101	V
5	455.054	30.21	Pk	23	-27.9	25.31	46.02	-20.71	0-360	99	H

Pk - Peak detector

Qp - Quasi-Peak detector

9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

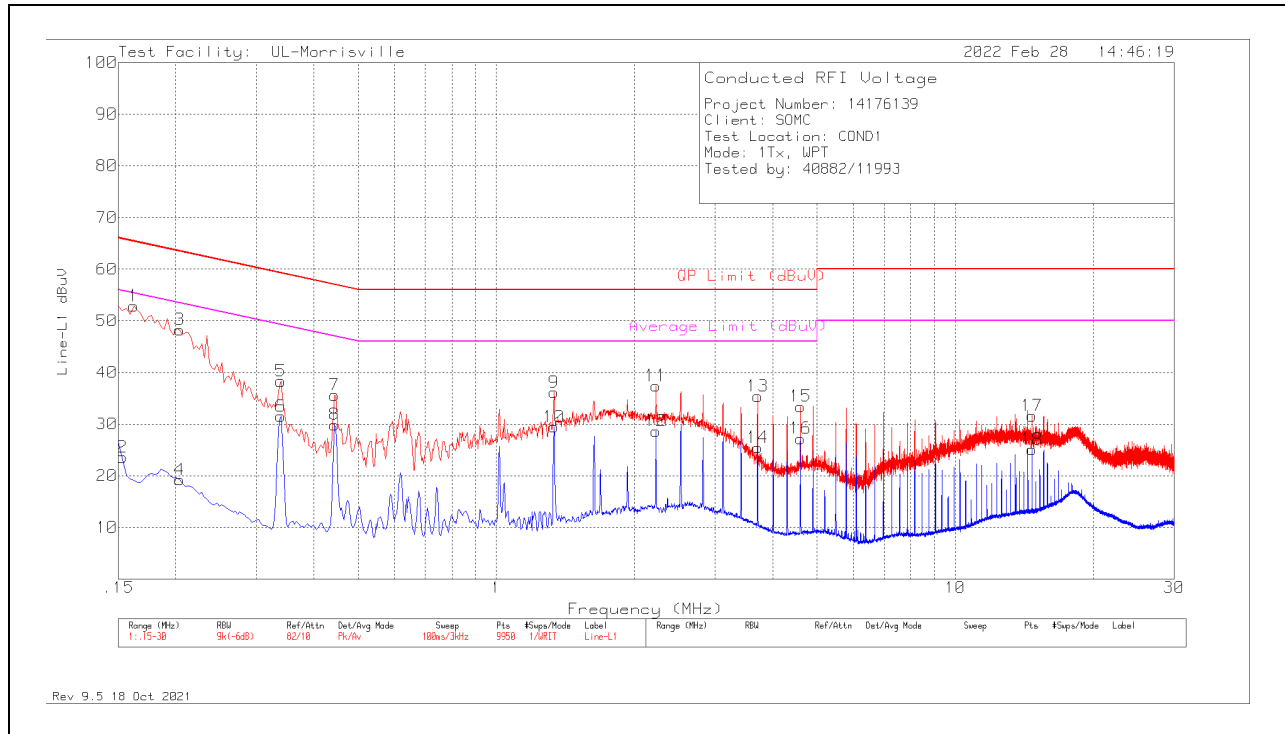
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

9.1.1. CONFIG 1

LINE 1 RESULTS



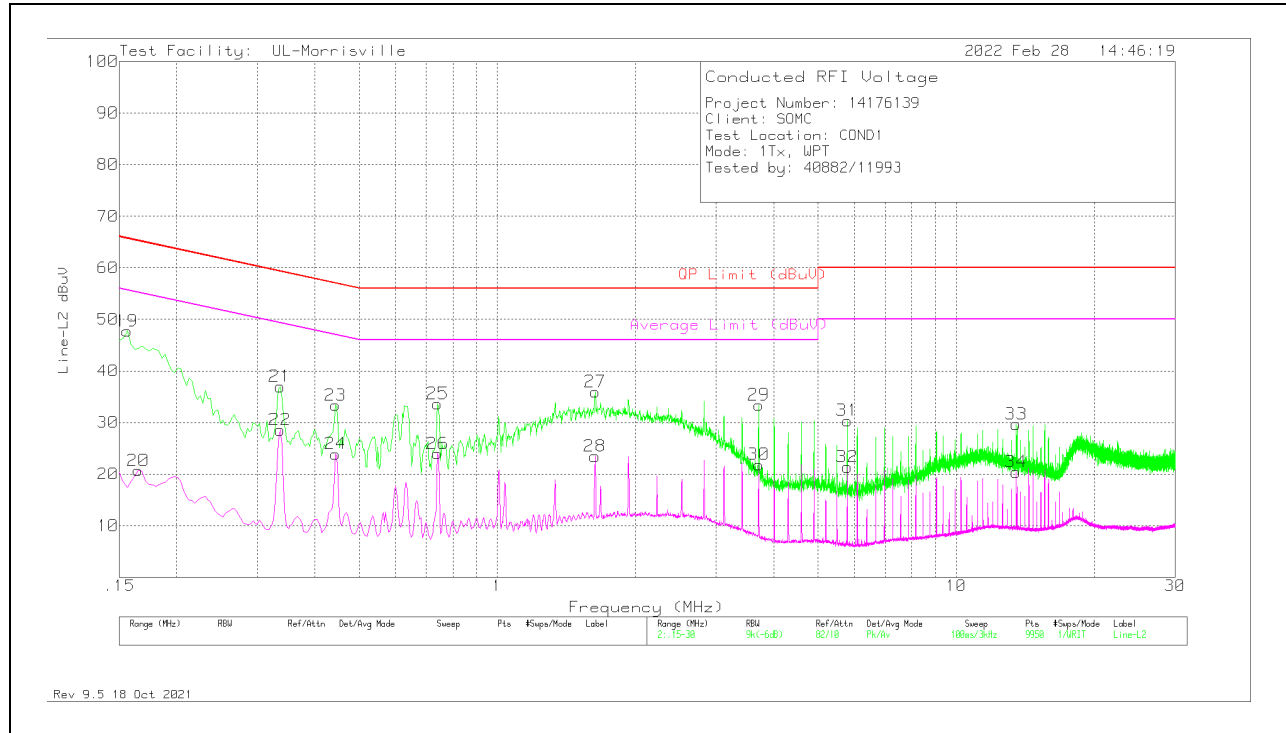
DATA

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	.153	13.58	Av	.2	9.8	23.58	-	-	55.84	-32.26
1	.162	42.86	Pk	.2	9.8	52.86	65.36	-12.5	-	-
3	.204	38.37	Pk	.1	9.8	48.27	63.45	-15.18	-	-
4	.204	9.33	Av	.1	9.8	19.23	-	-	53.45	-34.22
5	.339	28.42	Pk	.1	9.8	38.32	59.23	-20.91	-	-
6	.339	21.6	Av	.1	9.8	31.5	-	-	49.23	-17.73
7	.444	25.72	Pk	.1	9.8	35.62	56.99	-21.37	-	-
8	.444	19.99	Av	.1	9.8	29.89	-	-	46.99	-17.1
9	1.335	26.33	Pk	0	9.8	36.13	56	-19.87	-	-
10	1.335	19.66	Av	0	9.8	29.46	-	-	46	-16.54
11	2.226	27.62	Pk	0	9.8	37.42	56	-18.58	-	-
12	2.226	18.86	Av	0	9.8	28.66	-	-	46	-17.34
13	3.711	25.49	Pk	0	9.9	35.39	56	-20.61	-	-
14	3.711	15.55	Av	0	9.9	25.45	-	-	46	-20.55
15	4.599	23.51	Pk	0	9.9	33.41	56	-22.59	-	-
16	4.599	17.3	Av	0	9.9	27.2	-	-	46	-18.8
17	14.691	21.42	Pk	.1	10.1	31.62	60	-28.38	-	-
18	14.691	14.89	Av	.1	10.1	25.09	-	-	50	-24.91

Pk - Peak detector

Av - Average detection

LINE 2 RESULTS



DATA

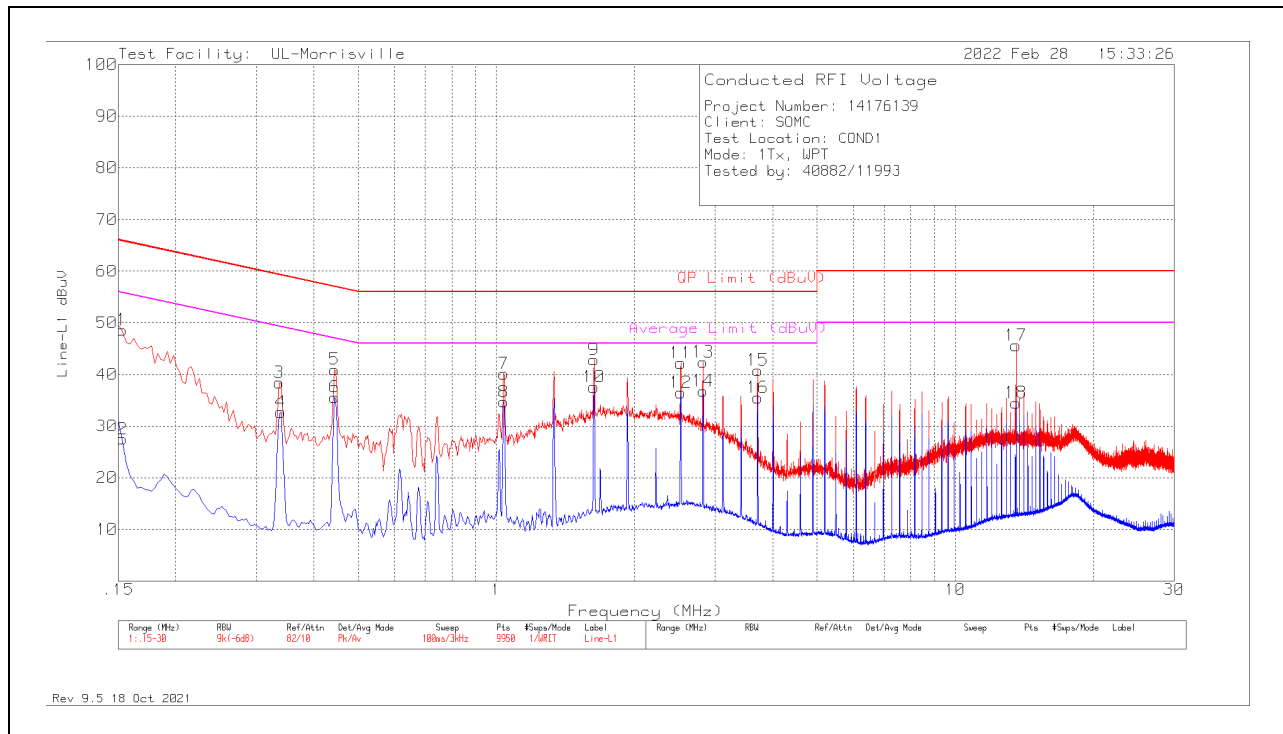
Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
19	.156	37.72	Pk	.2	9.8	47.72	65.67	-17.95	-	-
20	.165	10.68	Av	.2	9.8	20.68	-	-	55.21	-34.53
21	.336	27.06	Pk	.1	9.8	36.96	59.3	-22.34	-	-
22	.336	18.66	Av	.1	9.8	28.56	-	-	49.3	-20.74
23	.444	23.45	Pk	.1	9.8	33.35	56.99	-23.64	-	-
24	.444	14.02	Av	.1	9.8	23.92	-	-	46.99	-23.07
25	.741	23.83	Pk	0	9.8	33.63	56	-22.37	-	-
26	.741	14.17	Av	0	9.8	23.97	-	-	46	-22.03
28	1.632	13.64	Av	0	9.8	23.44	-	-	46	-22.56
27	1.635	26.16	Pk	0	9.8	35.96	56	-20.04	-	-
29	3.711	23.49	Pk	0	9.9	33.39	56	-22.61	-	-
30	3.711	11.94	Av	0	9.9	21.84	-	-	46	-24.16
31	5.787	20.47	Pk	0	9.9	30.37	60	-29.63	-	-
32	5.787	11.47	Av	0	9.9	21.37	-	-	50	-28.63
33	13.506	19.47	Pk	.1	10.1	29.67	60	-30.33	-	-
34	13.506	10.2	Av	.1	10.1	20.4	-	-	50	-29.6

Pk - Peak detector

Av - Average detection

9.1.2. CONFIG 2

LINE 1 RESULTS



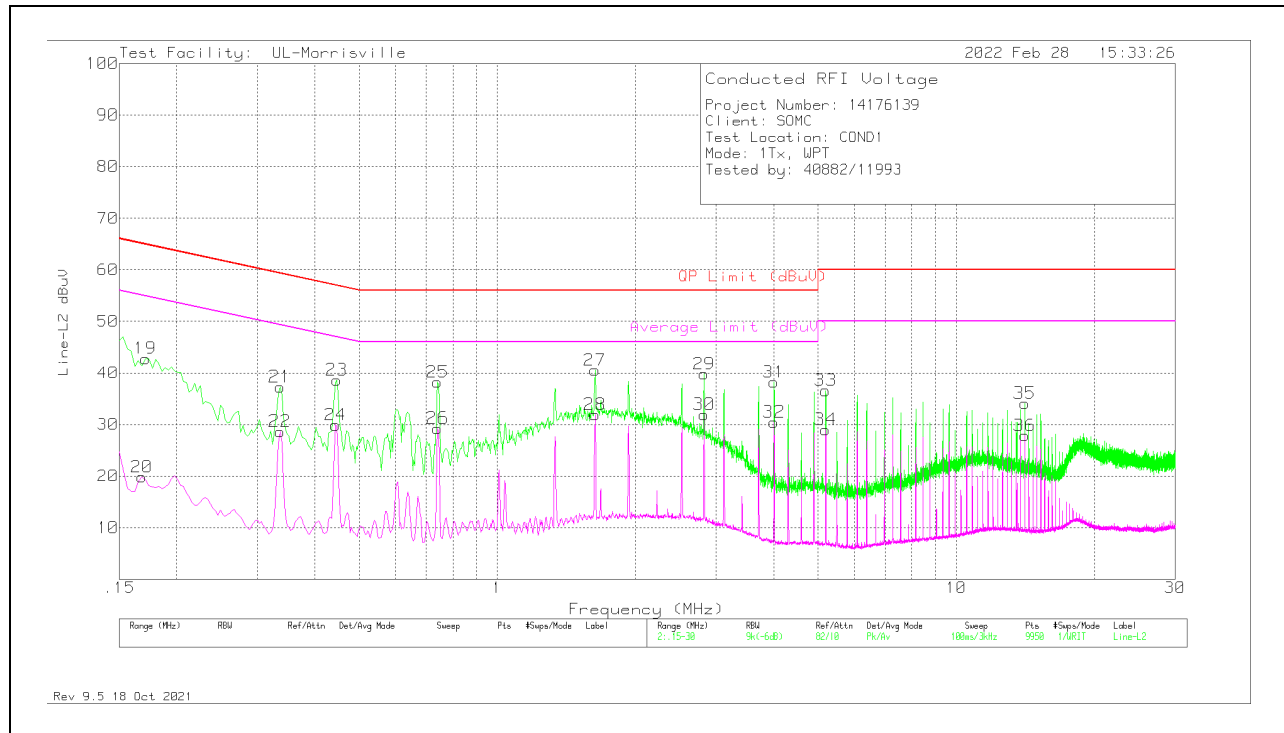
DATA

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	.153	38.62	Pk	.2	9.8	48.62	65.84	-17.22	-	-
2	.153	17.48	Av	.2	9.8	27.48	-	-	55.84	-28.36
3	.336	28.52	Pk	.1	9.8	38.42	59.3	-20.88	-	-
4	.339	22.81	Av	.1	9.8	32.71	-	-	49.23	-16.52
5	.444	31.07	Pk	.1	9.8	40.97	56.99	-16.02	-	-
6	.444	25.71	Av	.1	9.8	35.61	-	-	46.99	-11.38
7	1.038	30.34	Pk	0	9.8	40.14	56	-15.86	-	-
8	1.038	24.87	Av	0	9.8	34.67	-	-	46	-11.33
9	1.632	33.05	Pk	0	9.8	42.85	56	-13.15	-	-
10	1.632	27.78	Av	0	9.8	37.58	-	-	46	-8.42
11	2.523	32.4	Pk	0	9.8	42.2	56	-13.8	-	-
12	2.523	26.69	Av	0	9.8	36.49	-	-	46	-9.51
13	2.82	32.6	Pk	0	9.8	42.4	56	-13.6	-	-
14	2.82	26.98	Av	0	9.8	36.78	-	-	46	-9.22
15	3.711	30.92	Pk	0	9.9	40.82	56	-15.18	-	-
16	3.711	25.6	Av	0	9.9	35.5	-	-	46	-10.5
17	13.563	35.42	Pk	.1	10.1	45.62	60	-14.38	-	-
18	13.563	24.3	Av	.1	10.1	34.5	-	-	50	-15.5

Pk - Peak detector

Av - Average detection

LINE 2 RESULTS



DATA

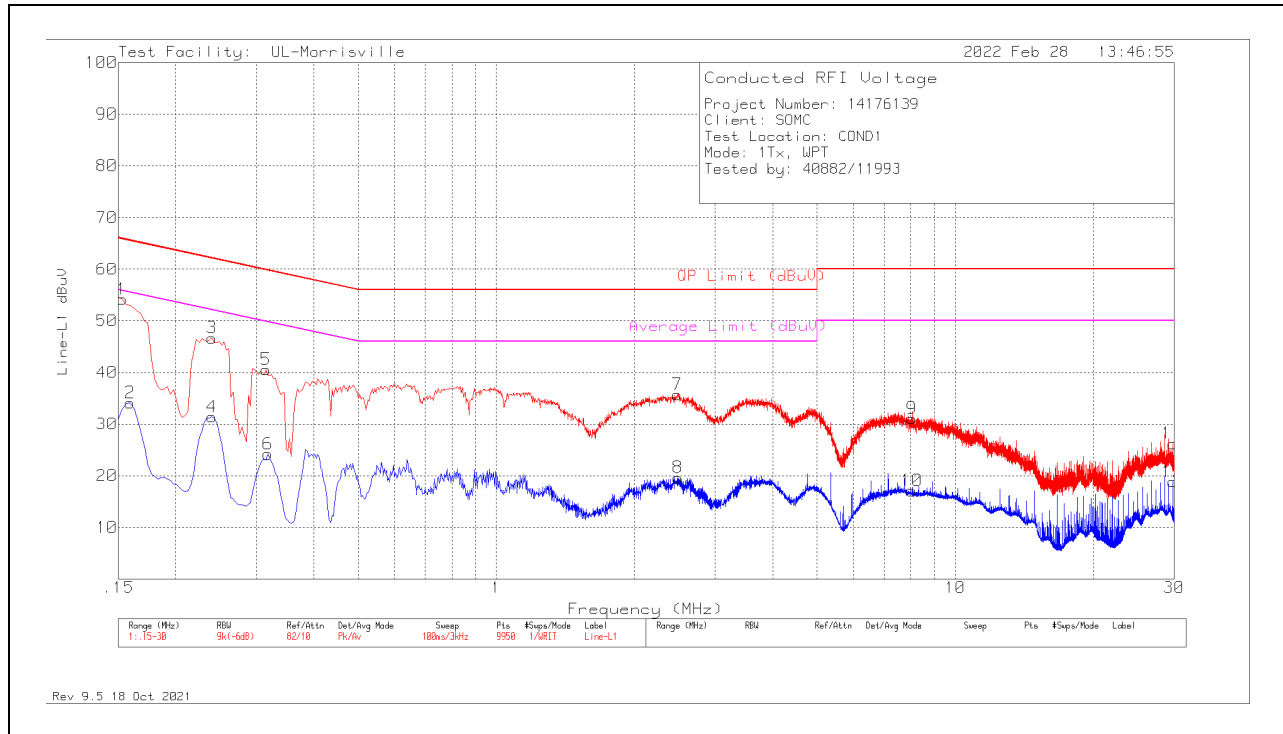
Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
20	.168	9.83	Av	.2	9.8	19.83	-	-	55.06	-35.23
19	.171	32.8	Pk	.2	9.8	42.8	64.91	-22.11	-	-
21	.336	27.4	Pk	.1	9.8	37.3	59.3	-22	-	-
22	.336	18.75	Av	.1	9.8	28.65	-	-	49.3	-20.65
24	.444	20.01	Av	.1	9.8	29.91	-	-	46.99	-17.08
23	.447	28.72	Pk	.1	9.8	38.62	56.93	-18.31	-	-
25	.741	28.42	Pk	0	9.8	38.22	56	-17.78	-	-
26	.741	19.46	Av	0	9.8	29.26	-	-	46	-16.74
27	1.632	30.73	Pk	0	9.8	40.53	56	-15.47	-	-
28	1.632	22.11	Av	0	9.8	31.91	-	-	46	-14.09
29	2.82	30.01	Pk	0	9.8	39.81	56	-16.19	-	-
30	2.82	22.13	Av	0	9.8	31.93	-	-	46	-14.07
31	4.008	28.33	Pk	0	9.9	38.23	56	-17.77	-	-
32	4.008	20.56	Av	0	9.9	30.46	-	-	46	-15.54
33	5.193	26.69	Pk	0	9.9	36.59	60	-23.41	-	-
34	5.193	19.11	Av	0	9.9	29.01	-	-	50	-20.99
35	14.097	23.9	Pk	.1	10.1	34.1	60	-25.9	-	-
36	14.097	17.67	Av	.1	10.1	27.87	-	-	50	-22.13

Pk - Peak detector

Av - Average detection

9.1.3. CONFIG 3

LINE 1 RESULTS



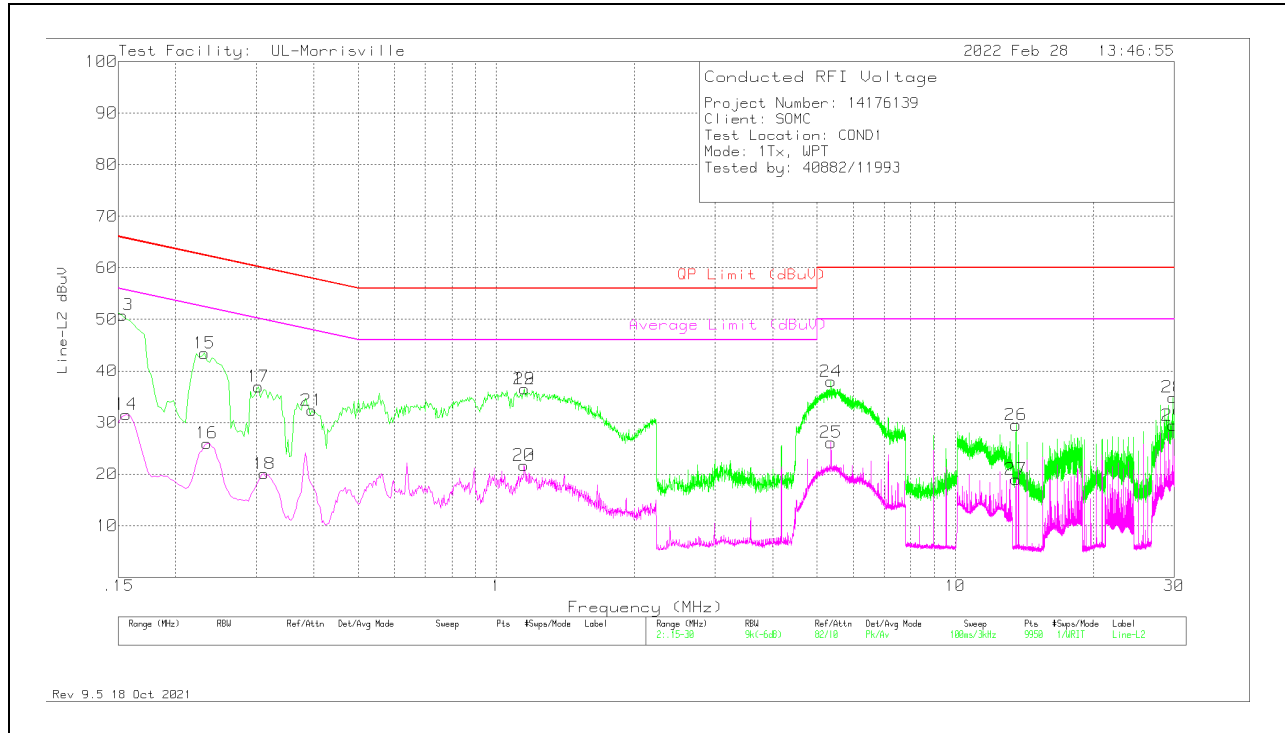
DATA

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	.153	44.17	Pk	.2	9.8	54.17	65.84	-11.67	-	-
2	.159	24.1	Av	.2	9.8	34.1	-	-	55.52	-21.42
3	.24	36.79	Pk	.1	9.8	46.69	62.1	-15.41	-	-
4	.24	21.49	Av	.1	9.8	31.39	-	-	52.1	-20.71
5	.315	30.65	Pk	.1	9.8	40.55	59.84	-19.29	-	-
6	.318	14.29	Av	.1	9.8	24.19	-	-	49.76	-25.57
7	2.481	25.91	Pk	0	9.8	35.71	56	-20.29	-	-
8	2.484	9.84	Av	0	9.8	19.64	-	-	46	-26.36
9	8.046	20.95	Pk	.1	10	31.05	60	-28.95	-	-
10	8.046	7.01	Av	.1	10	17.11	-	-	50	-32.89
12	29.769	8.26	Av	.3	10.3	18.86	-	-	50	-31.14
11	29.772	15.63	Pk	.3	10.3	26.23	60	-33.77	-	-

Pk - Peak detector

Av - Average detection

LINE 2 RESULTS



DATA

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	.153	40.83	Pk	.2	9.8	50.83	65.84	-15.01	-	-
14	.156	21.57	Av	.2	9.8	31.57	-	-	55.67	-24.1
15	.231	33.53	Pk	.1	9.8	43.43	62.41	-18.98	-	-
16	.234	16.08	Av	.1	9.8	25.98	-	-	52.31	-26.33
17	.303	27.06	Pk	.1	9.8	36.96	60.16	-23.2	-	-
18	.312	10.18	Av	.1	9.8	20.08	-	-	49.92	-29.84
21	.396	22.47	Pk	.1	9.8	32.37	57.94	-25.57	-	-
20	1.149	11.88	Av	0	9.8	21.68	-	-	46	-24.32
23	1.149	11.88	Av	0	9.8	21.68	-	-	46	-24.32
19	1.152	26.72	Pk	0	9.8	36.52	56	-19.48	-	-
22	1.152	26.72	Pk	0	9.8	36.52	56	-19.48	-	-
24	5.361	28.08	Pk	0	9.9	37.98	60	-22.02	-	-
25	5.361	16.22	Av	0	9.9	26.12	-	-	50	-23.88
26	13.56	19.34	Pk	.1	10.1	29.54	60	-30.46	-	-
27	13.56	8.79	Av	.1	10.1	18.99	-	-	50	-31.01
28	29.775	24.27	Pk	.3	10.3	34.87	60	-25.13	-	-
29	29.775	18.86	Av	.3	10.3	29.46	-	-	50	-20.54

Pk - Peak detector

Av - Average detection

10. SETUP PHOTOS

Please refer to R14176139-EP3 for setup photos.

END OF TEST REPORT