Report Number:	R15175160-E4
Issue Date:	2024-04-11
FCC ID:	PY7-27433F

Electromagnetic Compatibility Test Report

For

Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0075, Japan

TEST REPORT DETAILS

Tests Performed By:	UL LLC 12 LABORATORY DR. RESEARCH TRIANGLE PARK, NC 27709, U.S.A.
Tests Performed For:	Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0075, Japan
Issue Date:	2024-04-11
FCC ID:	PY7-27433F
Sample Serial Number:	QV7700AQLD, QV7700E3LD
Applicable Standards:	FCC 47 CFR PART 15 SUBPART B:2024
Date Test Item Received:	2024-02-19
Testing Start Date:	2024-04-04
Date Testing Complete:	2024-04-10
Overall Results:	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.

REPORT DIRECTORY

REPORT REVISION HISTORY

Revision Date	Revision Version	Description	Revised By	Revision Reviewed By
2024-04-11	V1	Initial Issue	N. Bennett	M. Antola

1.0 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4:2014.

1.1 Deviations from standard test methods

None

1.2 Device Modifications Necessary for Compliance

None

1.3 TEST RESULTS SUMMARY

This product is considered Class B

Requirement – Test	Result (Compliant / Non-Compliant)
CONDUCTED EMISSIONS	Compliant
RADIATED EMISSIONS	Compliant

Approved & Released
For UL LLC By:

Mike Antola
Staff Engineer
Consumer, Medical and IT Segment
UL LLC

Prepared By:

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Engineer Project Associate
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UL LLC

2.0 DECISION RULES AND MEASUREMENT UNCERTAINTY

2.1 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

2.2 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).

2.3 Measurement Uncertainty

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

PARAMETER	U_{lab}
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 db
Worst Case Radiated Disturbance, All ranges	6.01 db

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

2.4 Sample Calculation

RADIATED EMISSIONS
Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS
Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

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

3.0 GENERAL - Product Description

3.1 Equipment Description

GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

3.2 Device Configuration During Test

3.2.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Cell phone	Sony	PY7-27433F	None
AE	Headphones	Sony	MDR-EX15AP	None
AE	AC Adaptor	Sony	XQZ-UC1	SN: 3223W09206247
AE	Headphones	Sony	-	Used for PC peripheral setup
AE	Monitor	ViewSonic	VS15453	Used for PC peripheral setup
AE	Mouse	Logitech	M-U0026	Used for PC peripheral setup
AE	Laptop	Lenovo	Yoga 7 16IAP7	Used for PC peripheral setup
AE	USB Drive	Onn	USB 2.0 16GB	Used for PC peripheral setup
AE	Power Supply	Lenovo	ADLX65YCC2A	Used for PC peripheral setup
Note: **EUT** - Equipment Under Test, **AE** - Auxiliary/Associated Equipment, or **SIM** - Simulator (Not Subjected to Test)				

3.2.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	USB-C	DC	N	N	Connected to power supply/laptop
2	Audio	I/O	N	N	Connected to headphones
3	HDMI	I/O	N	N	Connected to monitor for PC Peripheral setup
4	Mains	I/O	N	N	Connected to PC Peripheral laptop power supply
5	USB	I/O	N	N	Connected to mouse for PC Peripheral setup
6	Audio	I/O	N	N	Connected to headphones for PC Peripheral setup
7	USB	I/O	N	N	Connected to USB Drive for PC Peripheral setup
*Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

3.2.3 EUT Highest Frequencies:

Frequency (MHz)	Description
5825	Highest Tx Frequency

3.2.4 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	100-240	-	-	50/60	Single	None
1	120Vac	-	-	60Hz	Single	AC Adaptor
2	4.28Vdc	-	-	DC	Single	Battery

3.2.5 Subassemblies

Description	Manufacturer	Model
None		

3.2.6 Manufacturer's Description of Model Differences

None.

3.2.7 Software and Firmware

The software installed during testing was 0.523.

3.3 Block Diagram

Refer to setup exhibit R15175160-EP4 for block diagram.

3.4 EUT Configurations

Configuration #	Description
1	Configured as tabletop equipment

3.5 EUT Operation Modes

Mode of Operation#	Description
1	Operating as intended on battery. Radio idle.
2	Operating as intended connected to AC Adaptor. Radio idle.
3	Operating as intended connected as PC Peripheral. Radio idle.
4	Operating as intended connected as PC Peripheral. Radio in Rx mode on worst-case supported LTE bands that transmit <960MHz.

3.6 Rationale for EUT Configurations

Configuration #	Description
1	EUT was investigated in three orientations, X, Y, and Z. It was determined that worst-case orientation for radiated testing was X for battery and Y for AC power adaptor and PC Peripheral modes.

3.7 Rationale for EUT Mode of Operation

Mode of Operation #	Description
1,2,3	EUT capable of operating on battery, connected to AC Adaptor, or connected as PC peripheral.
4	Through pretesting it was determined that worst-case band was LTE B12.Therefore all A1G WWAN Rx testing was done on LTE B12.

4.0 APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

4.1 Test Conditions and Results - MAINS TERMINAL - CONDUCTED EMISSIONS

Test Engineer	84740; 27669	
Test Date	2024-04-04 2024-04-05	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	24.4°C
Humidity	10 % to 90 %	24.1%
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains

Limits - Class B

Frequency (MHz)	Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Supplementary information: None

Conducted Emissions EUT Configuration Settings

Power Interface #	EUT Configurations #	EUT Mode of Operation#
1	1	2,3

Supplementary information: EUT S/N: QV7700AQLD was used for PC Peripheral, and QV7700E3LD was used for AC Adaptor.

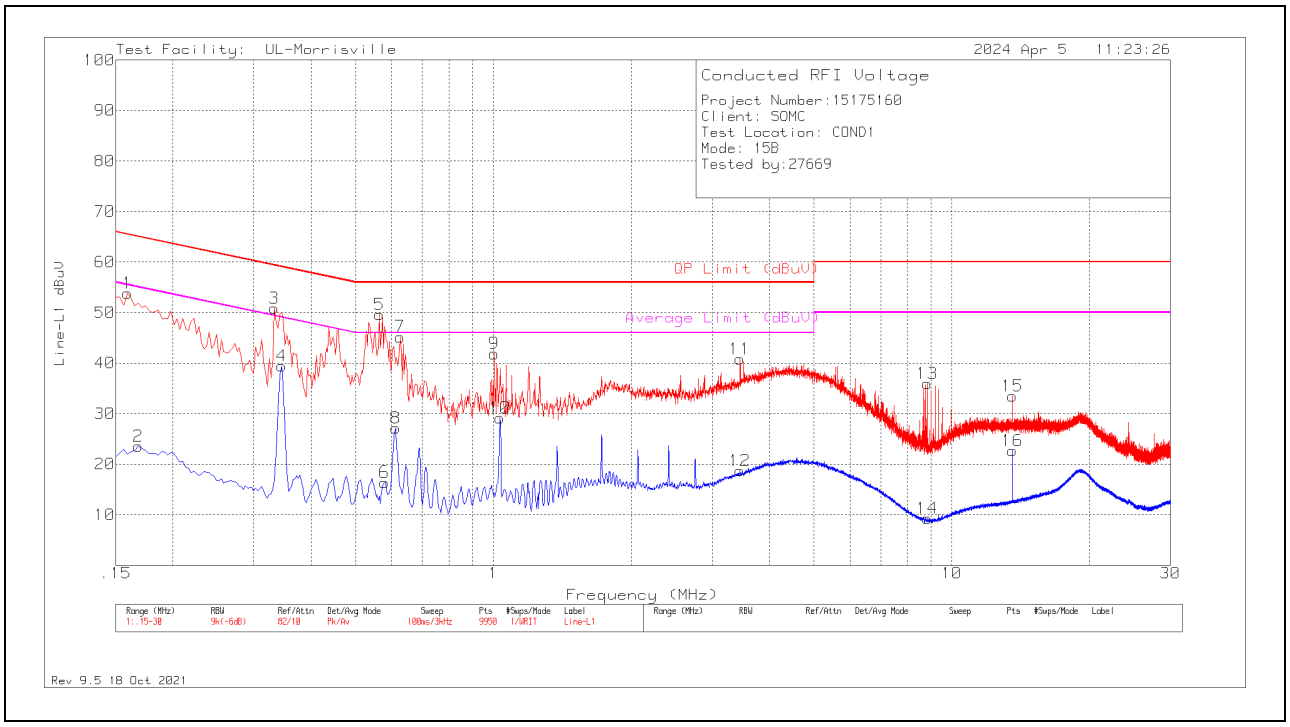
Refer to setup exhibit R15174160-EP4 for setup photos.

Conducted Emissions Test Equipment

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	2023-04-04	2024-04-04
PS214	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
91432	LISN, 50-ohm/50-uH, 2-conductor, 25A (For support gear only.)	Solar Electronics	8012-50-R-24-BNC		

Conducted Emissions Graph – AC Adaptor Line 1

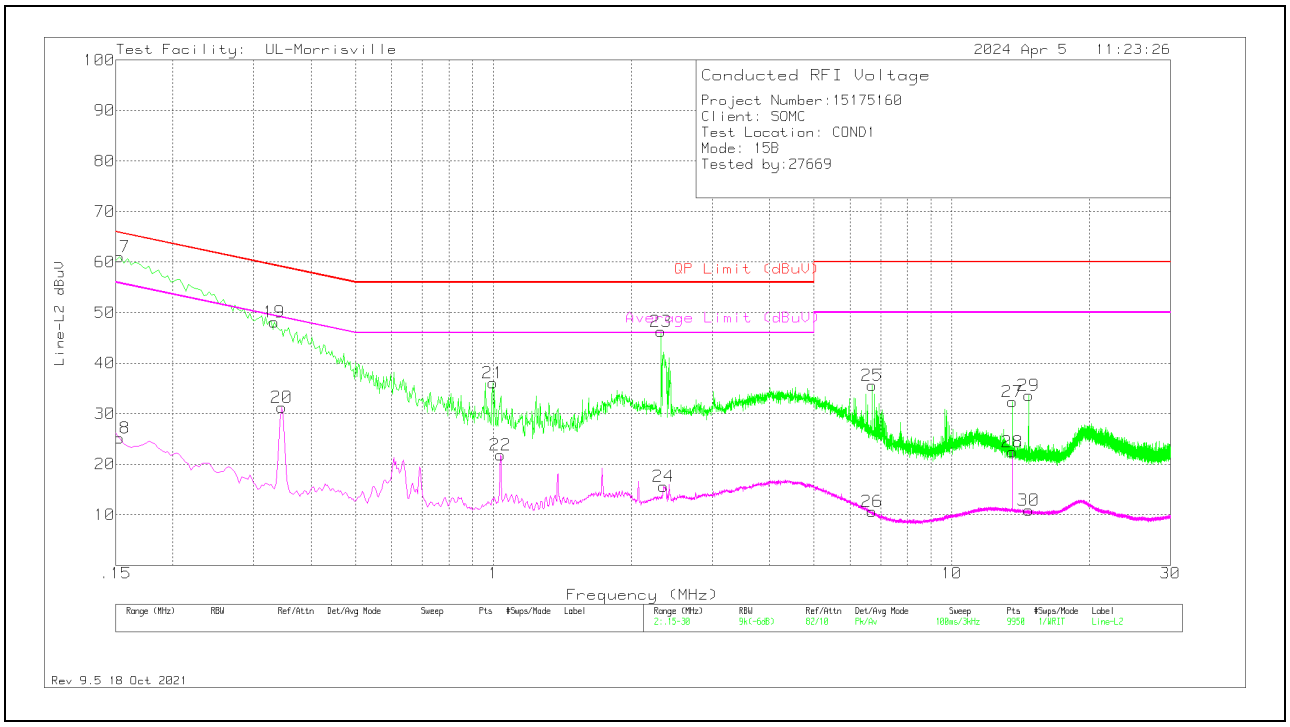


Conducted Emissions Data Points – AC Adaptor Line 1

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	.159	43.74	Pk	.3	9.8	53.84	65.52	-11.68	-	-
2	.168	13.47	Av	.3	9.8	23.57	-	-	55.06	-31.49
3	.333	40.92	Pk	.1	9.8	50.82	59.38	-8.56	-	-
4	.345	29.5	Av	.1	9.8	39.4	-	-	49.08	-9.68
5	.564	39.77	Pk	.1	9.8	49.67	56	-6.33	-	-
6	.579	6.51	Av	.1	9.8	16.41	-	-	46	-29.59
8	.612	17.21	Av	.1	9.8	27.11	-	-	46	-18.89
7	.627	35.32	Pk	.1	9.8	45.22	56	-10.78	-	-
9	1.005	31.97	Pk	.1	9.8	41.87	56	-14.13	-	-
10	1.032	19.26	Av	.1	9.8	29.16	-	-	46	-16.84
12	3.447	8.83	Av	.1	9.8	18.73	-	-	46	-27.27
11	3.453	30.86	Pk	.1	9.8	40.76	56	-15.24	-	-
13	8.853	25.83	Pk	.1	10	35.93	60	-24.07	-	-
14	8.853	-.82	Av	.1	10	9.28	-	-	50	-40.72
15	13.56	23.3	Pk	.2	10	33.5	60	-26.5	-	-
16	13.56	12.47	Av	.2	10	22.67	-	-	50	-27.33

Pk - Peak detector
Av - Average detection

Conducted Emissions Graph – AC Adaptor Line 2

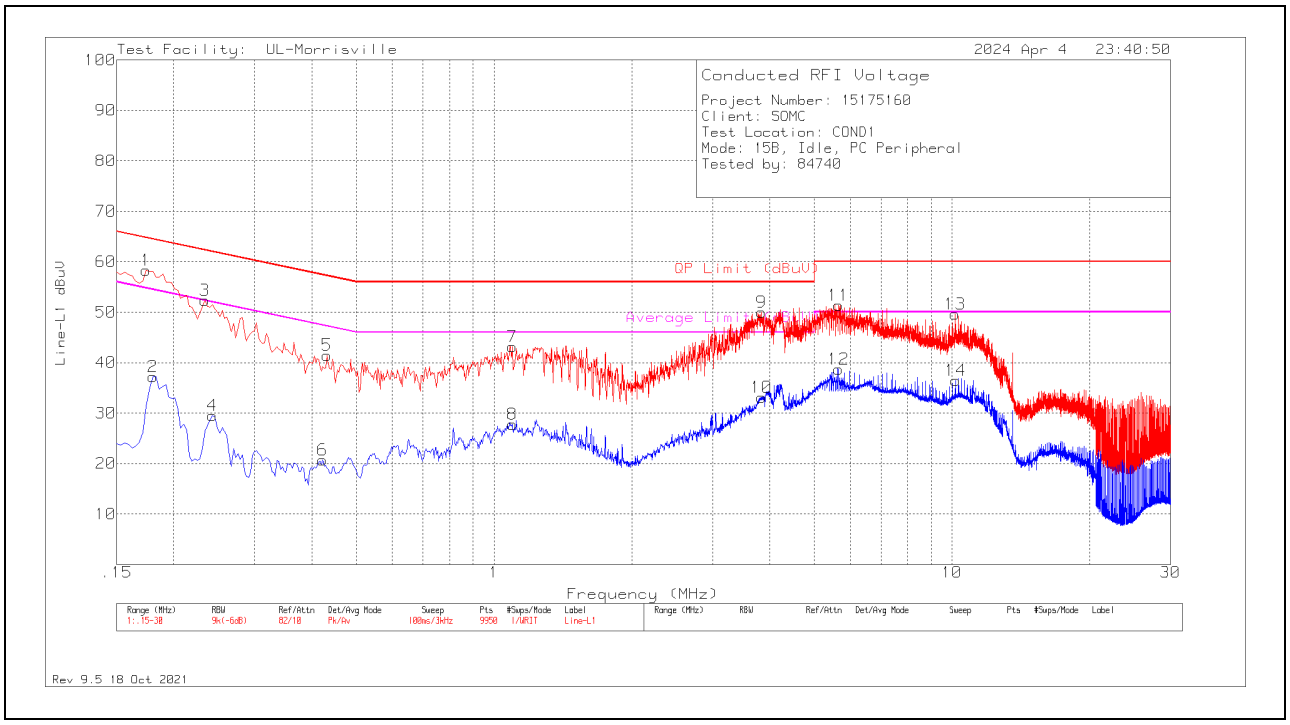


Conducted Emissions Data Points – AC Adaptor Line 2

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)
17	.15277	-10.19	Qp	.3	9.8	-.09	65.85	-65.94	-	-
18	.153	15.06	Av	.3	9.8	25.16	-	-	55.84	-30.68
19	.333	38.22	Pk	.1	9.8	48.12	59.38	-11.26	-	-
20	.345	21.33	Av	.1	9.8	31.23	-	-	49.08	-17.85
21	.999	26.19	Pk	.1	9.8	36.09	56	-19.91	-	-
22	1.035	11.9	Av	.1	9.8	21.8	-	-	46	-24.2
23	2.322	36.37	Pk	.1	9.8	46.27	56	-9.73	-	-
24	2.352	5.69	Av	.1	9.8	15.59	-	-	46	-30.41
25	6.699	25.58	Pk	.1	9.9	35.58	60	-24.42	-	-
26	6.699	.69	Av	.1	9.9	10.69	-	-	50	-39.31
27	13.563	22.22	Pk	.2	10	32.42	60	-27.58	-	-
28	13.563	12.28	Av	.2	10	22.48	-	-	50	-27.52
29	14.703	23.36	Pk	.2	10.1	33.66	60	-26.34	-	-
30	14.703	.6	Av	.2	10.1	10.9	-	-	50	-39.1

Pk - Peak detector
Av - Average detection

Conducted Emissions Graph – PC Peripheral Line 1

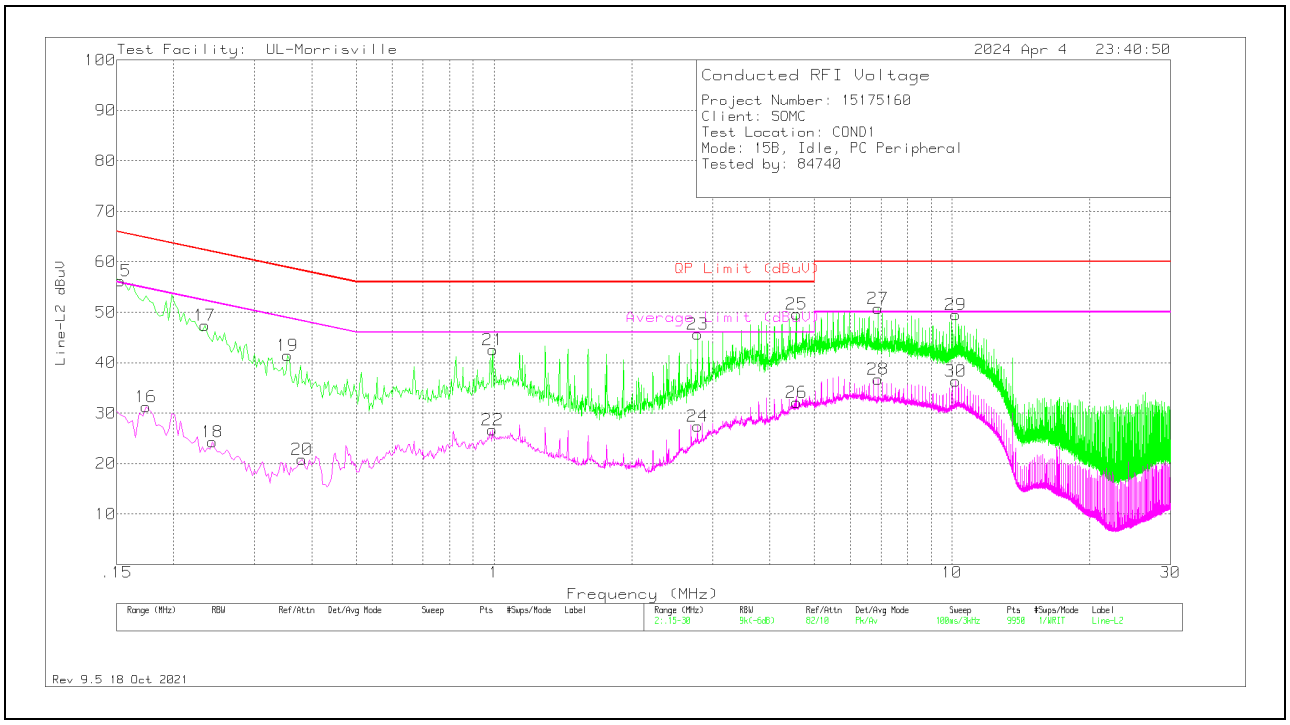


Conducted Emissions Data Points – PC Peripheral Line 1

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	.174	48.24	Pk	.3	9.8	58.34	64.77	-6.43	-	-
2	.18	27.14	Av	.3	9.8	37.24	-	-	54.49	-17.25
3	.234	42.39	Pk	.2	9.8	52.39	62.31	-9.92	-	-
4	.243	19.49	Av	.2	9.8	29.49	-	-	51.99	-22.5
5	.432	31.59	Pk	.1	9.8	41.49	57.21	-15.72	-	-
6	.423	10.78	Av	.1	9.8	20.68	-	-	47.39	-26.71
7	1.095	33.32	Pk	.1	9.8	43.22	56	-12.78	-	-
8	1.095	17.91	Av	.1	9.8	27.81	-	-	46	-18.19
9	3.83716	22.71	Qp	.1	9.9	32.71	56	-23.29	-	-
10	3.837	23.1	Av	.1	9.9	33.1	-	-	46	-12.9
11	5.652	41.34	Pk	.1	9.9	51.34	60	-8.66	-	-
12	5.652	28.66	Av	.1	9.9	38.66	-	-	50	-11.34
13	10.146	39.49	Pk	.1	10	49.59	60	-10.41	-	-
14	10.176	26.39	Av	.1	10	36.49	-	-	50	-13.51

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

Conducted Emissions Graph – PC Peripheral Line 2



Conducted Emissions Data Points – PC Peripheral Line 2

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	.153	46.08	Pk	.3	9.8	56.18	65.84	-9.66	-	-
16	.174	21.16	Av	.3	9.8	31.26	-	-	54.77	-23.51
17	.234	37.4	Pk	.2	9.8	47.4	62.31	-14.91	-	-
18	.243	14.33	Av	.2	9.8	24.33	-	-	51.99	-27.66
19	.354	31.52	Pk	.1	9.8	41.42	58.87	-17.45	-	-
20	.381	10.91	Av	.1	9.8	20.81	-	-	48.26	-27.45
21	.996	32.7	Pk	.1	9.8	42.6	56	-13.4	-	-
22	.993	16.76	Av	.1	9.8	26.66	-	-	46	-19.34
23	2.784	35.74	Pk	.1	9.8	45.64	56	-10.36	-	-
24	2.781	17.51	Av	.1	9.8	27.41	-	-	46	-18.59
25	4.578	39.66	Pk	.1	9.9	49.66	56	-6.34	-	-
26	4.578	22.11	Av	.1	9.9	32.11	-	-	46	-13.89
27	6.9	40.77	Pk	.1	9.9	50.77	60	-9.23	-	-
28	6.9	26.75	Av	.1	9.9	36.75	-	-	50	-13.25
29	10.176	39.36	Pk	.1	10	49.46	60	-10.54	-	-
30	10.176	26.25	Av	.1	10	36.35	-	-	50	-13.65

Pk - Peak detector
Av - Average detection

4.2 Test Conditions and Results - RADIATED EMISSIONS

Test Engineer	11993; 22797; 105193/22797; 105193/11993; 84740/11993; 85501	
Test Date	2024-04-04; 2024-04-10	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	23.5 to 25.8°C
Humidity	10 % to 90 %	23.7 to 50.0%
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30-40000MHz	3m

Limits - Class B

Frequency (MHz)	Limit (dBµV/m)	
30-88	40	NA
88-216	43.5	NA
216-960	46	NA
Above 960	54	NA
	Peak	Average
Above 1 GHz	74	54

Supplementary information: none.

Radiated Emissions EUT Configuration Settings

Power Interface #	EUT Configurations #	EUT Mode of Operation#
1,2	1	1,2,3,4

Supplementary information**:** All testing done with EUT SN: QV7700AQLD.

Refer to setup exhibit R15174160-EP4 for setup photos.

Radiated Emissions Test Equipment

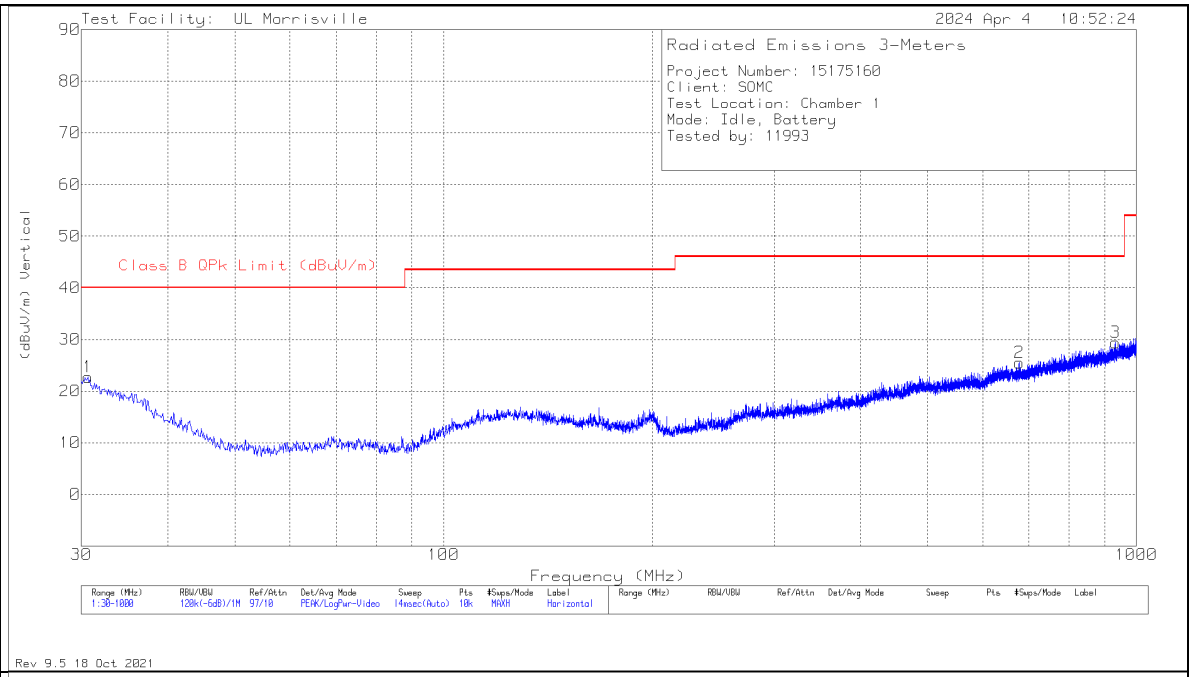
Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	30-1000 MHz				
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
	1-18 GHz				
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
204705	Horn Antenna, 26-40GHz	Com-Power	AH-640	2023-07-20	2025-07-20
	Gain-Loss Chains				
91976	Gain-loss string: 25-1000MHz	Various	Various	2023-05-16	2024-05-16
91979	Gain-loss string: 1-18GHz	Various	Various	2023-05-16	2024-05-16
135999	Gain-loss string: 18-40GHz	Various	Various	2023-05-16	2024-05-16
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-07-19	2024-07-19
81018	Spectrum Analyzer	Agilent	E4446A	2023-08-01	2024-08-01
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
213025	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2023-12-18	2024-12-18

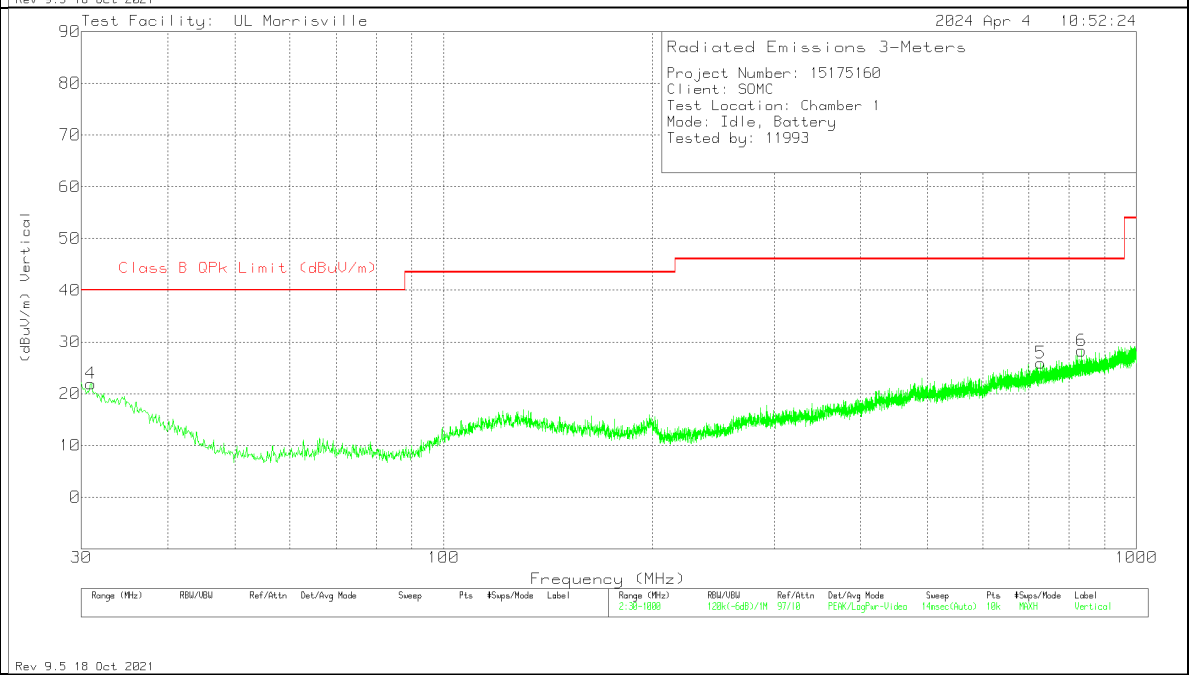
RADIATED EMISSIONS 30 TO 1000 MHz - Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

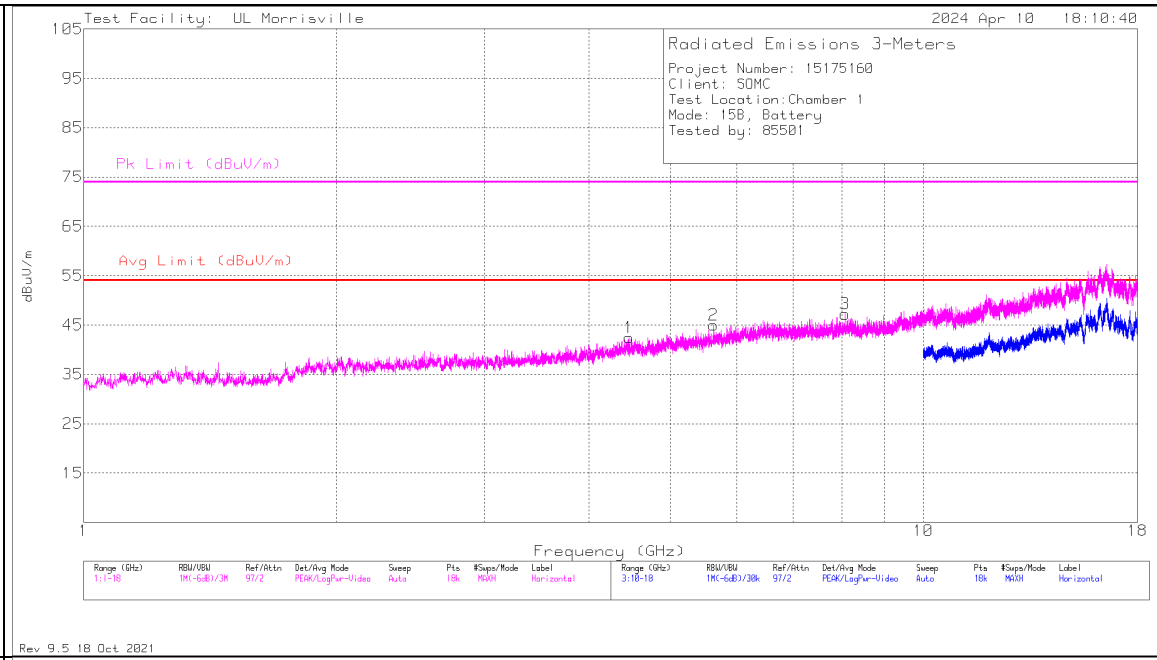
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.679	28	Pk	26.4	-31.7	22.7	40	-17.3	0-360	400	H
4	30.97	27.46	Pk	26.2	-31.7	21.96	40	-18.04	0-360	100	V
2	677.766	27.4	Pk	25.9	-27.8	25.5	46.02	-20.52	0-360	400	H
5	728.206	26.72	Pk	26.8	-27.6	25.92	46.02	-20.1	0-360	100	V
6	833.451	27.32	Pk	27.9	-26.9	28.32	46.02	-17.7	0-360	100	V
3	932.682	26.41	Pk	28.8	-25.8	29.41	46.02	-16.61	0-360	299	H

Pk - Peak detector

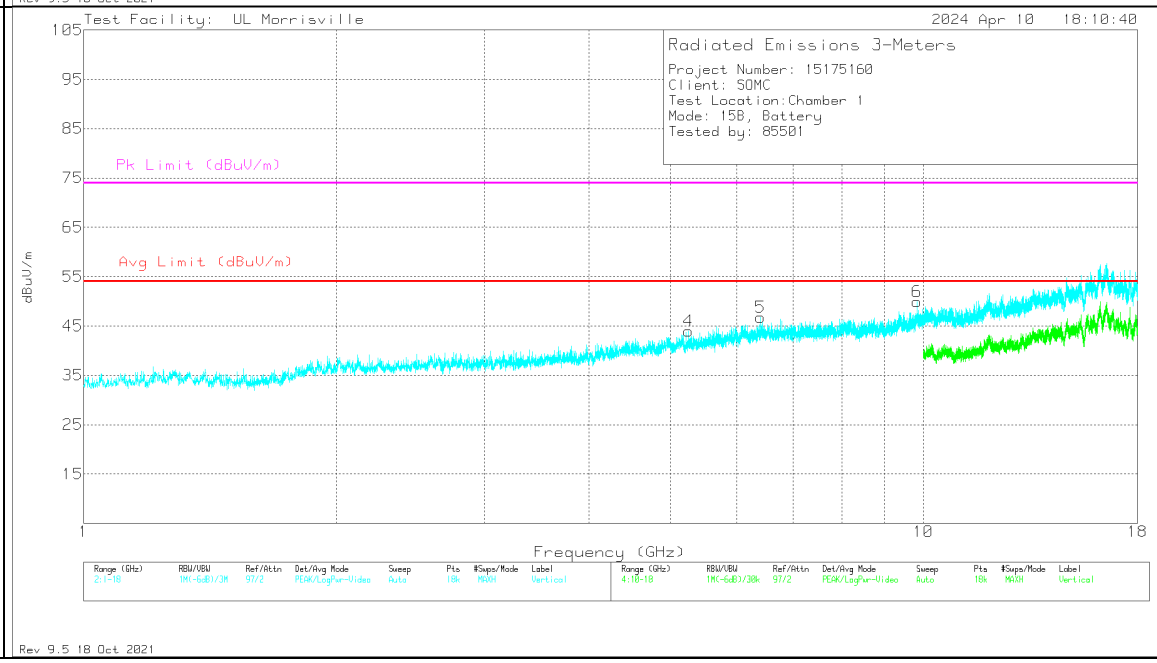
RADIATED EMISSIONS 1000 TO 18,000 MHz – Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

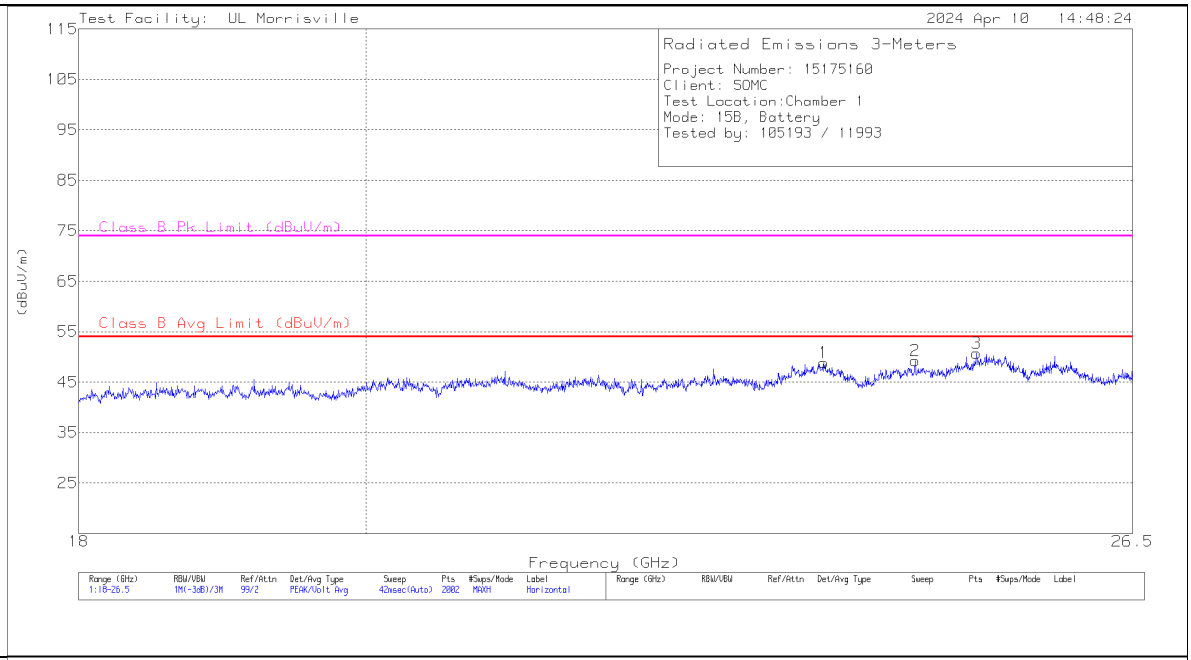
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	4.46328	40.06	Pk	33.9	-31.5	42.46	54	-11.54	74	-31.54	0-360	101	H
4	5.25755	40.07	Pk	34.3	-30.4	43.97	54	-10.03	74	-30.03	0-360	101	V
2	5.62778	40.83	Pk	34.6	-30.4	45.03	54	-8.97	74	-28.97	0-360	200	H
5	6.40128	39.74	Pk	35.7	-28.7	46.74	54	-7.26	74	-27.26	0-360	199	V
3	8.06633	38.42	Pk	35.9	-27.1	47.22	54	-6.78	74	-26.78	0-360	200	H
6	9.82491	37.7	Pk	37.2	-25	49.9	-	-	74	-24.1	89	214	V
	9.82568	26.02	Av	37.3	-25	38.32	54	-15.68	-	-	89	214	V

Pk - Peak detector
Av - Average detection

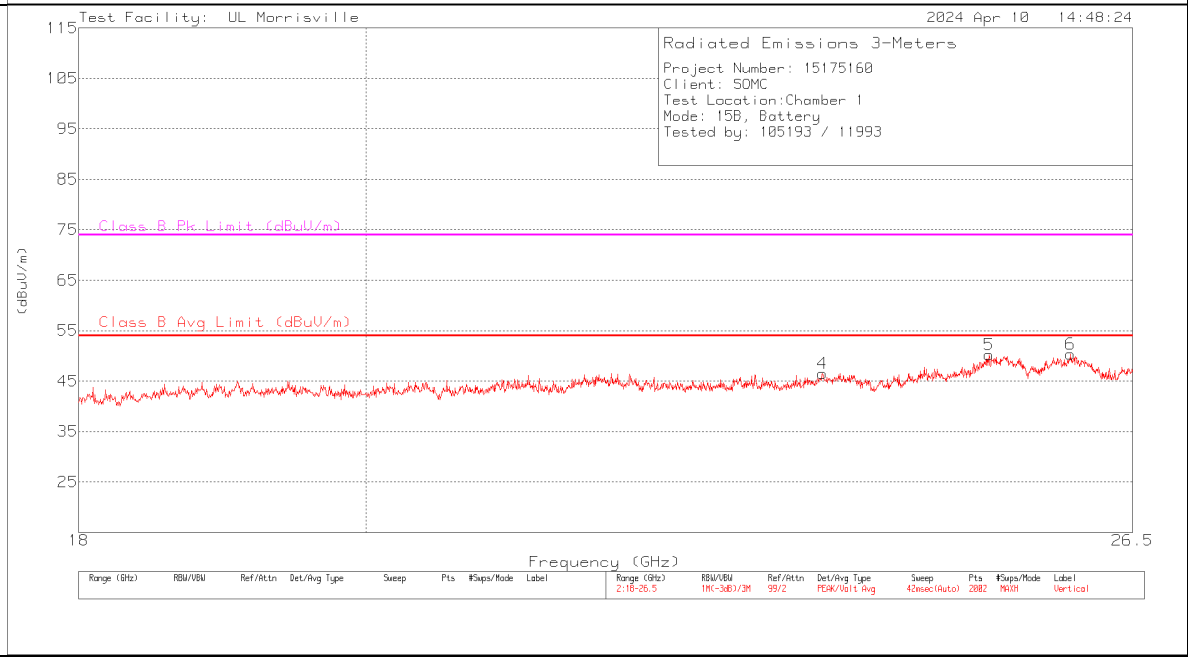
RADIATED EMISSIONS 18,000 TO 26,000 MHz – Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

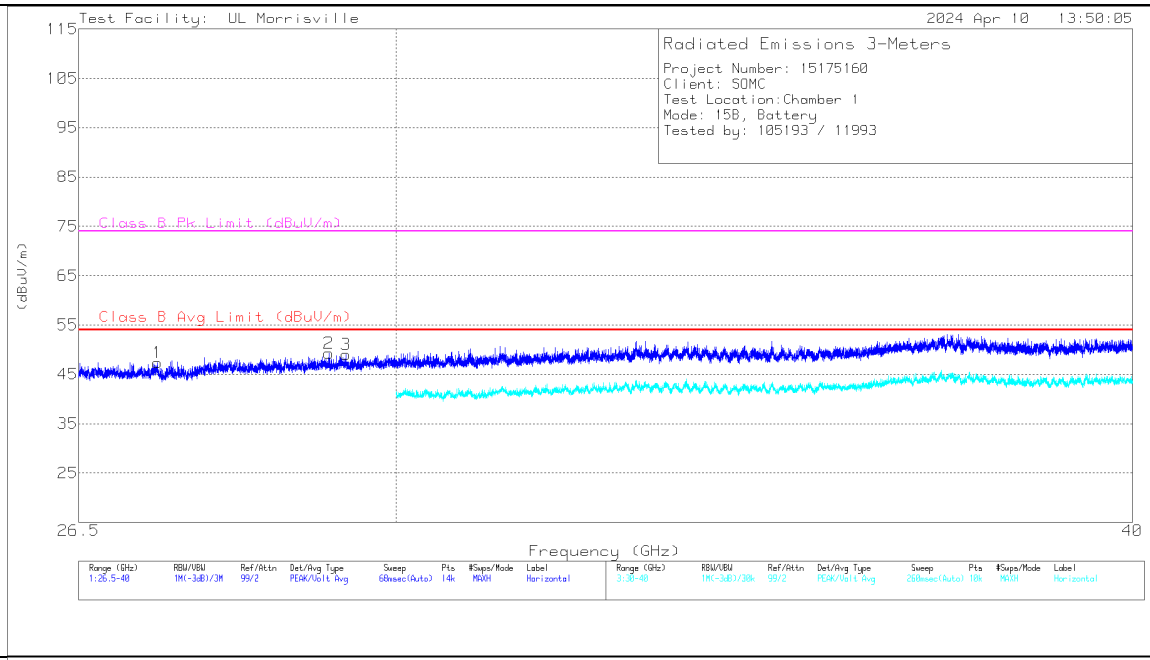
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	23.66269	48.14	Pk	34.5	-37.1	45.54	-	-	74	-28.46	38	166	H
	23.66269	40.97	Av	34.5	-37.1	38.37	54	-15.63	-	-	38	166	H
2	24.47283	47.29	Pk	34.5	-37	44.79	-	-	74	-29.21	284	166	H
	24.47283	38.66	Av	34.5	-37	36.16	54	-17.84	-	-	284	166	H
3	25.02708	47.94	Pk	35.4	-36.6	46.74	-	-	74	-27.26	17	196	H
	25.02708	39.52	Av	35.4	-36.6	38.32	54	-15.68	-	-	17	196	H
5	25.14225	47.5	Pk	35.6	-37	46.1	-	-	74	-27.9	38	233	V
	25.14225	39.97	Av	35.6	-37	38.57	54	-15.43	-	-	38	233	V
6	25.90685	47.74	Pk	35.3	-36.1	46.94	-	-	74	-27.06	57	298	V
	25.90685	39.89	Av	35.3	-36.1	39.09	54	-14.91	-	-	57	298	V
4	23.64968	49.25	Pk	34.6	-37.3	46.55	54	-7.45	74	-27.45	0-360	299	V

Pk - Peak detector
Av - Average detection

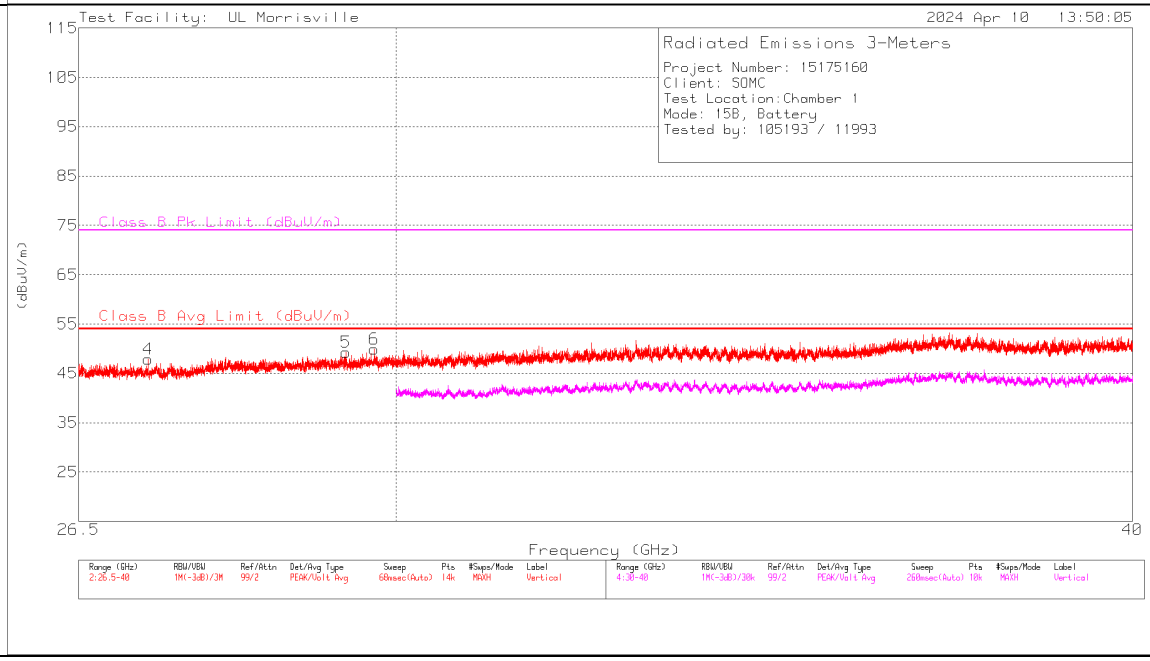
RADIATED EMISSIONS 26,000 TO 40,000 MHz – Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

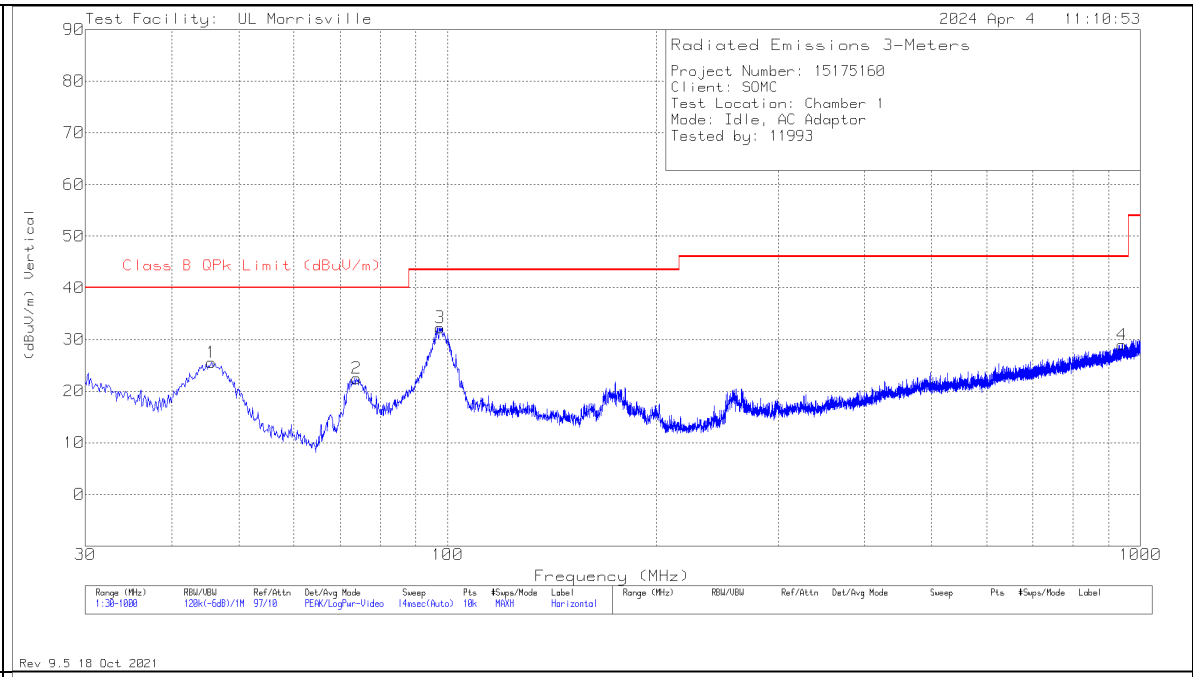
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	27.22991	47.64	Pk	36	-35.8	47.84	54	-6.16	74	-26.16	0-360	250	V
1	27.32826	47.01	Pk	36	-35.6	47.41	54	-6.59	74	-26.59	0-360	150	H
2	29.21961	45.86	Pk	36.3	-34.3	47.86	-	-	74	-26.14	349	309	H
	29.21961	38.07	Av	36.3	-34.3	40.07	54	-13.93	-	-	349	309	H
5	29.41826	45.68	Pk	36.3	-33.8	48.18	-	-	74	-25.82	22	158	V
	29.41826	37.51	Av	36.3	-33.8	40.01	54	-13.99	-	-	22	158	V
3	29.42111	44.86	Pk	36.3	-33.9	47.26	-	-	74	-26.74	177	147	H
	29.42111	37.62	Av	36.3	-33.9	40.02	54	-13.98	-	-	177	147	H
6	29.7437	45.59	Pk	36.6	-33.9	48.29	-	-	74	-25.71	65	365	V
	29.7437	38.37	Av	36.6	-33.9	41.07	54	-12.93	-	-	65	365	V

Pk - Peak detector
Av - Average detection

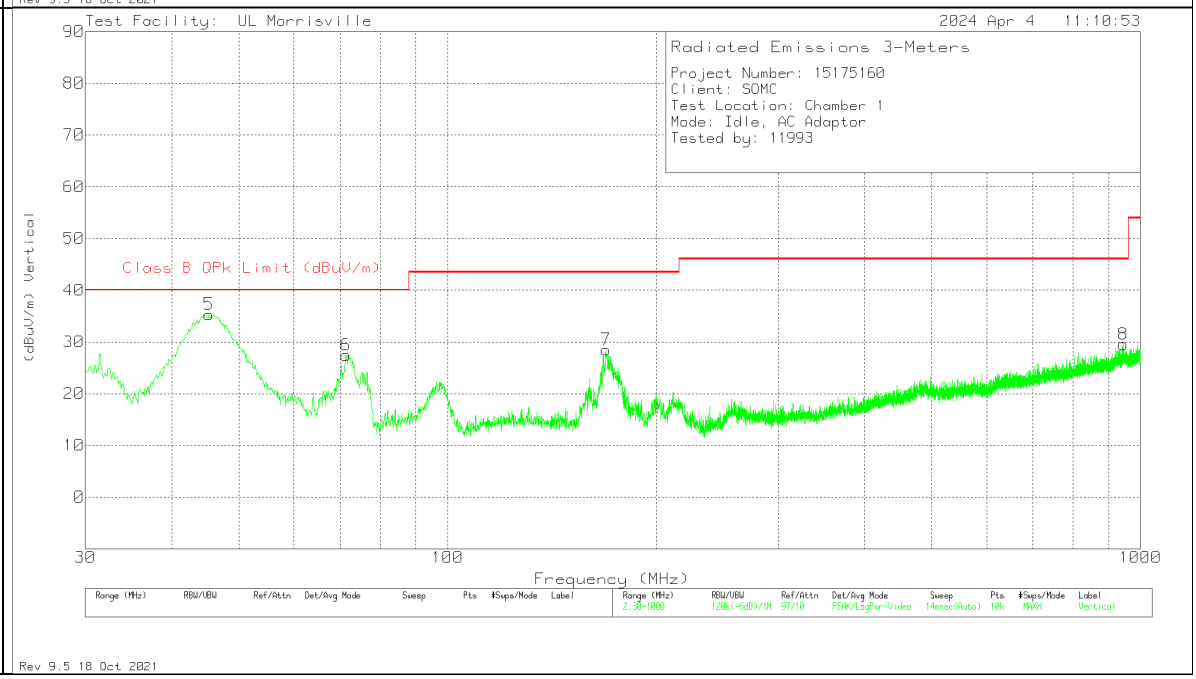
RADIATED EMISSIONS 30 TO 1000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

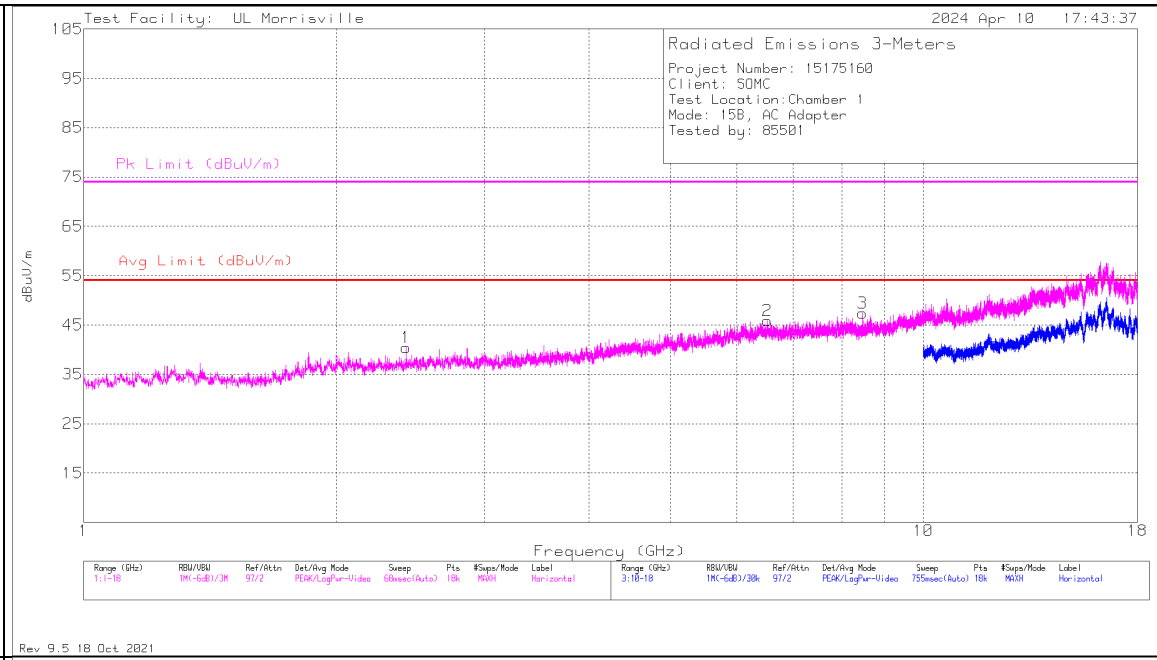
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	45.4462	48.96	Qp	15.9	-31.6	33.26	40	-6.74	44	100	V
1	45.617	41.22	Pk	15.9	-31.6	25.52	40	-14.48	0-360	399	H
6	71.322	44.15	Pk	14.5	-31.2	27.45	40	-12.55	0-360	100	V
2	73.941	39.15	Pk	14.5	-31.2	22.45	40	-17.55	0-360	200	H
3	97.609	47.06	Pk	16	-30.8	32.26	43.52	-11.26	0-360	299	H
7	169.292	40.78	Pk	18.1	-30.4	28.48	43.52	-15.04	0-360	100	V
4	940.345	25.84	Pk	28.9	-25.8	28.94	46.02	-17.08	0-360	399	H
8	945.486	26.53	Pk	28.9	-25.9	29.53	46.02	-16.49	0-360	100	V

Pk - Peak detector
Qp - Quasi-Peak detector

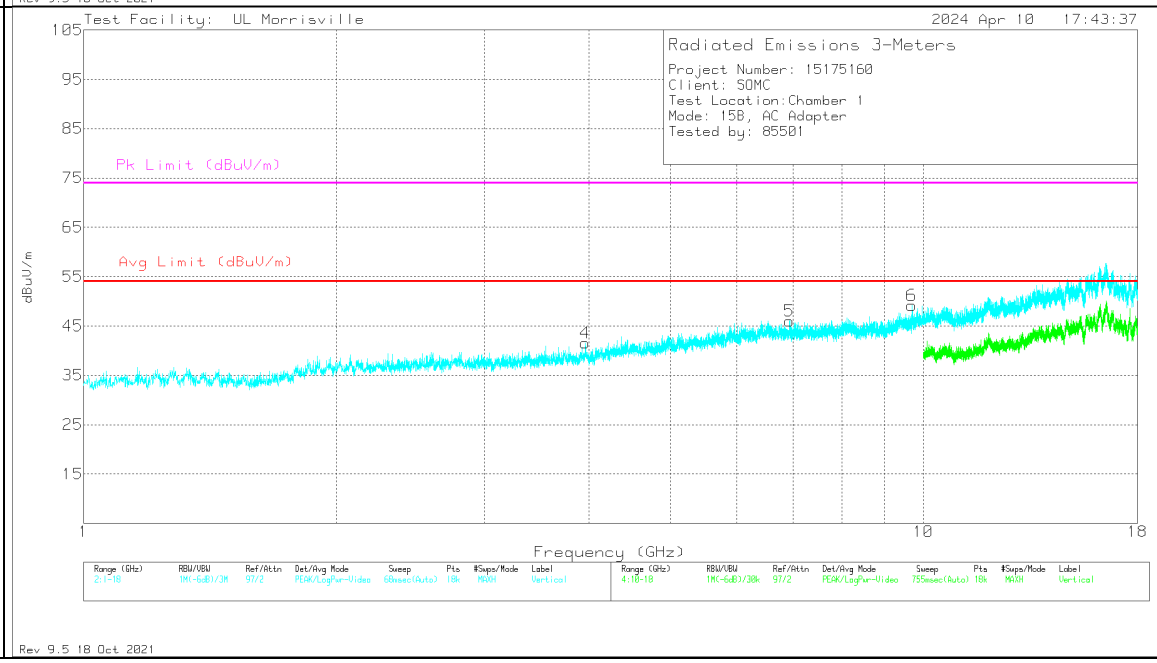
RADIATED EMISSIONS 1000 TO 18,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

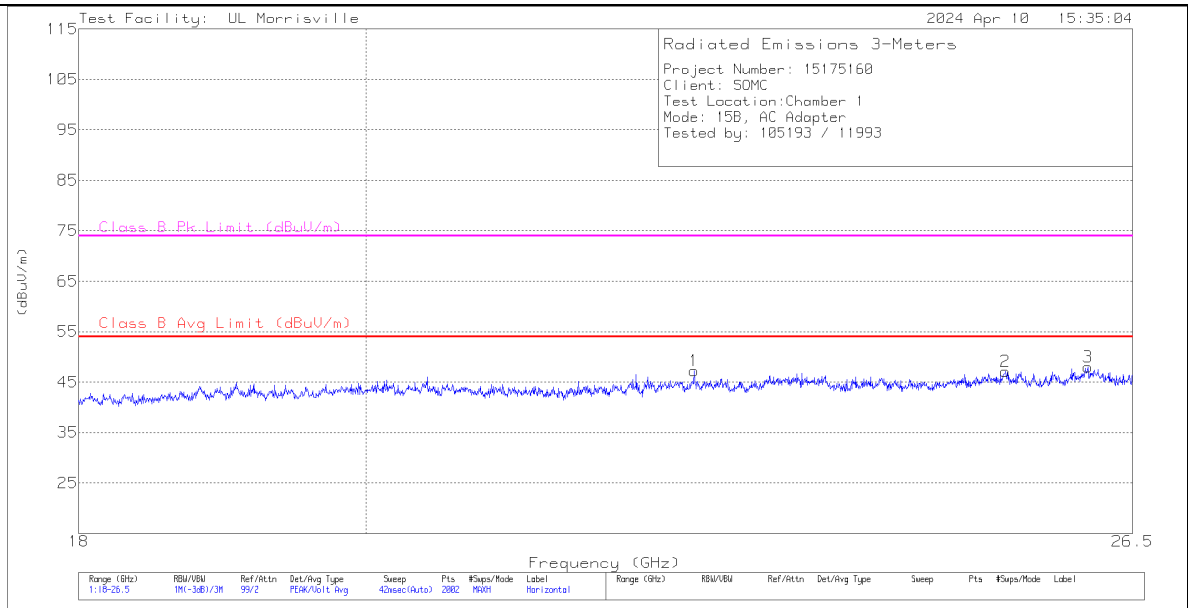
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.42044	42.41	Pk	32	-34	40.41	54	-13.59	74	-33.59	0-360	199	H
4	3.95989	40.5	Pk	32.9	-31.8	41.6	54	-12.4	74	-32.4	0-360	200	V
2	6.52122	38.7	Pk	35.6	-28.4	45.9	54	-8.1	74	-28.1	0-360	99	H
5	6.92828	38.47	Pk	35.4	-27.9	45.97	54	-8.03	74	-28.03	0-360	101	V
3	8.46866	38.35	Pk	35.8	-26.8	47.35	54	-6.65	74	-26.65	0-360	199	H
6	9.68887	36.9	Pk	36.8	-25.7	48	-	-	74	-26	238	170	V
	9.69123	25.28	Av	36.9	-25.6	36.58	54	-17.42	-	-	238	170	V

Pk - Peak detector
Av - Average detection

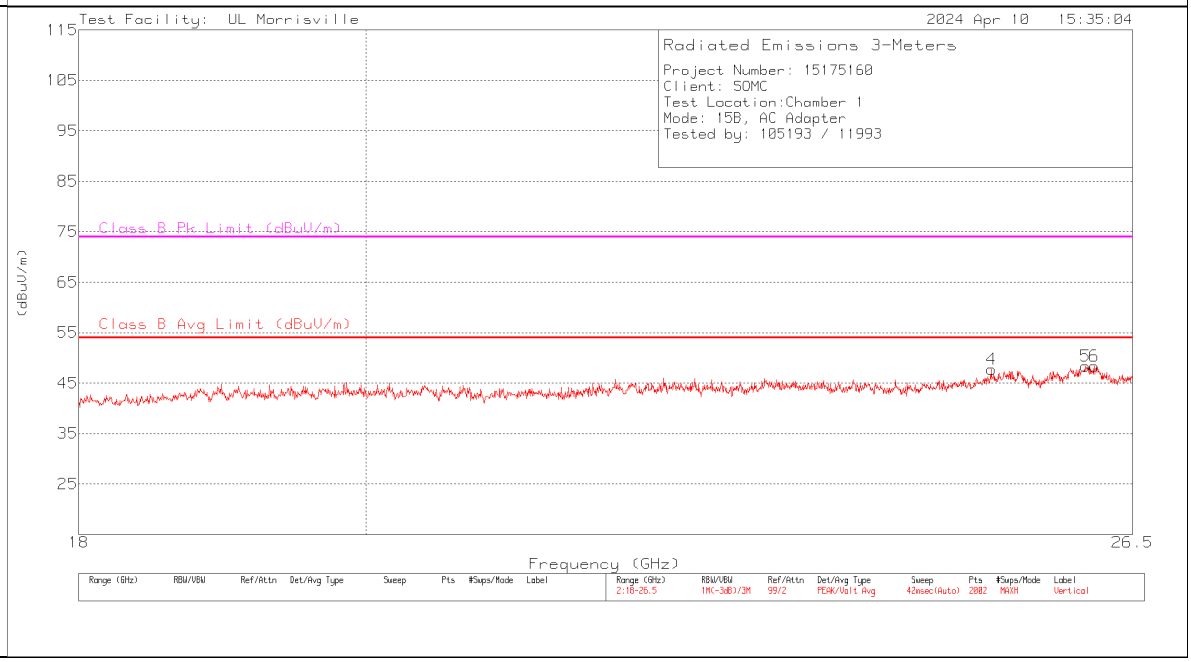
RADIATED EMISSIONS 18,000 TO 26,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

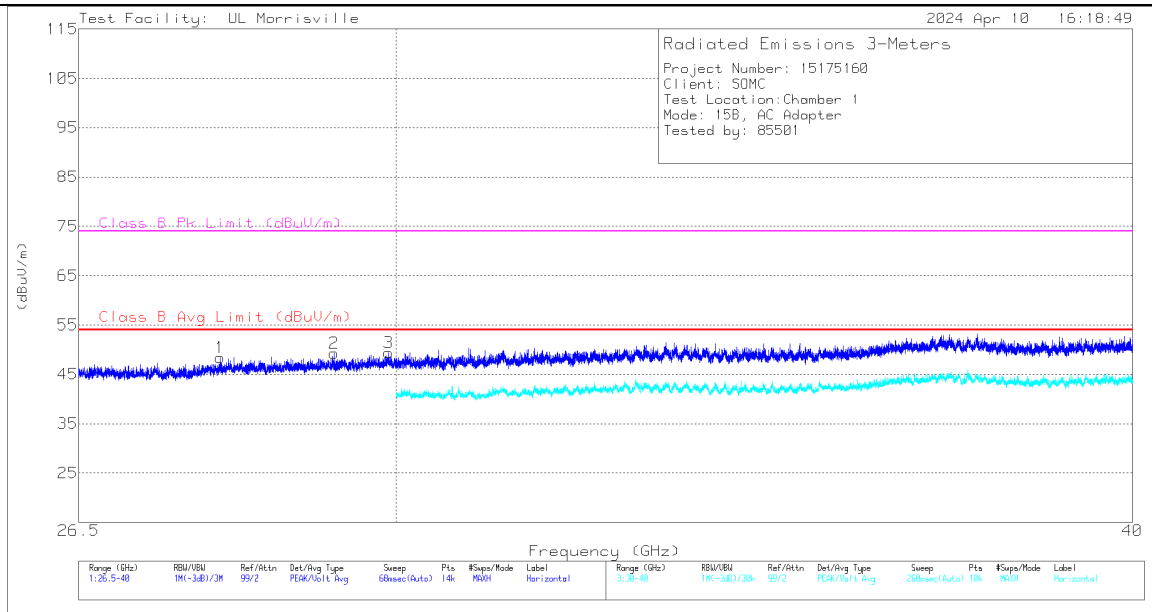
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	22.56222	50.69	Pk	34.3	-37.7	47.29	54	-6.71	74	-26.71	0-360	201	H
4	25.16192	49.04	Pk	35.6	-36.9	47.74	54	-6.26	74	-26.26	0-360	299	V
2	25.2936	48.06	Pk	35.7	-36.6	47.16	54	-6.84	74	-26.84	0-360	101	H
5	26.05085	47.16	Pk	35.2	-36	46.36	-	-	74	-27.64	73	106	V
	26.05085	40.27	Av	35.2	-36	39.47	54	-14.53	-	-	73	106	V
3	26.0725	48.29	Pk	35.2	-35.8	47.69	-	-	74	-26.31	199	243	H
	26.0725	40.69	Av	35.2	-35.8	40.09	54	-13.91	-	-	199	243	H
6	26.1318	46.42	Pk	35.2	-36.3	45.32	-	-	74	-28.68	80	217	V
	26.1318	40.04	Av	35.2	-36.3	38.94	54	-15.06	-	-	80	217	V

Pk - Peak detector
Av - Average detection

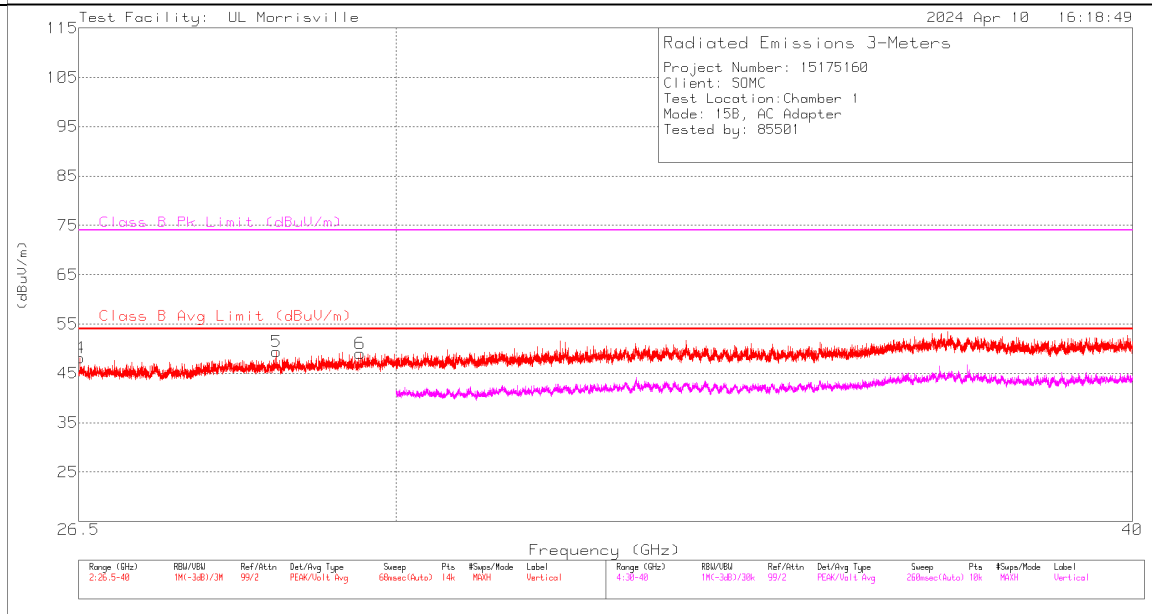
RADIATED EMISSIONS 26,000 TO 40,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

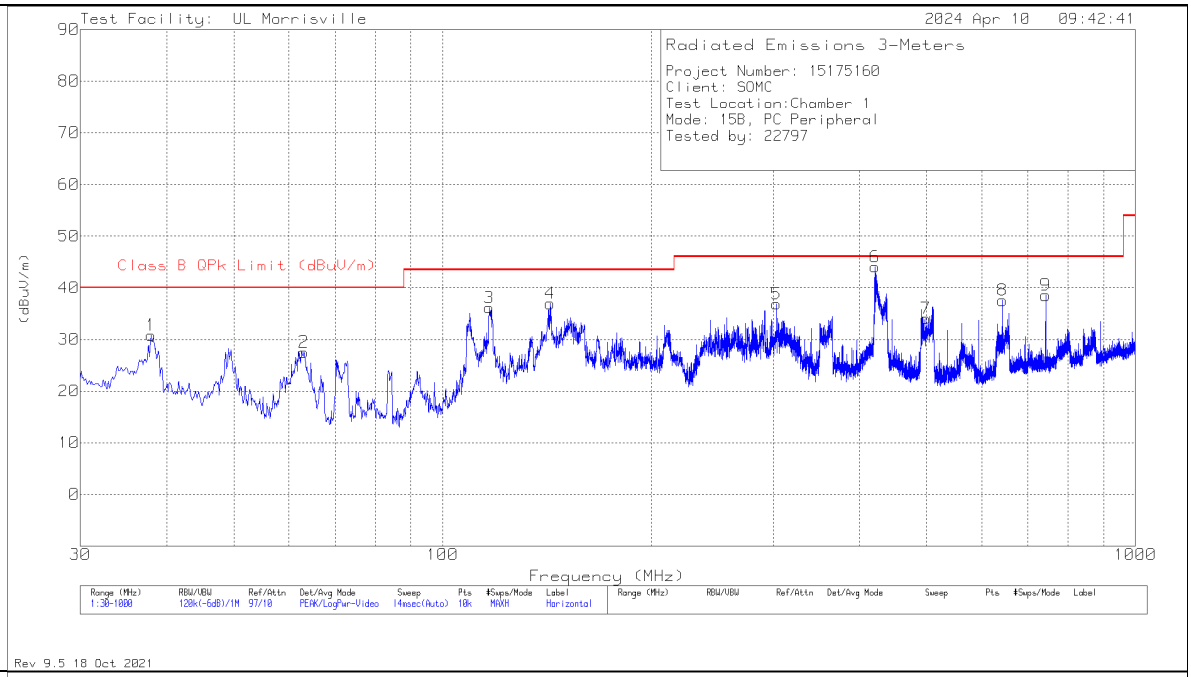
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	26.51381	49.66	Pk	36.2	-36.3	49.56	-	-	74	-24.44	339	186	V
	26.51352	38.19	Av	36.2	-36.3	38.09	54	-15.91	74	-35.91	339	186	V
1	28.00708	46.9	Pk	36.5	-34.7	48.7	-	-	74	-25.3	324	101	H
	28.00713	34.97	Av	36.5	-34.7	36.77	54	-17.23	74	-37.23	324	101	H
5	28.62909	46.65	Pk	36.3	-34.2	48.75	-	-	74	-25.25	335	397	V
	28.62731	34.84	Av	36.3	-34.2	36.94	54	-17.06	74	-37.06	335	397	V
2	29.28228	47.28	Pk	36.2	-34.1	49.38	-	-	74	-24.62	314	176	H
	29.28215	35.14	Av	36.2	-34.1	37.24	54	-16.76	74	-36.76	314	176	H
6	29.57775	47.53	Pk	36.4	-34.4	49.53	-	-	74	-24.47	355	262	V
	29.5787	35.35	Av	36.4	-34.4	37.35	54	-16.65	74	-36.65	355	262	V
3	29.91188	46.95	Pk	36.7	-33.8	49.85	-	-	74	-24.15	138	289	H
	29.91509	35.29	Av	36.7	-33.8	38.19	54	-15.81	74	-35.81	138	289	H

Pk - Peak detector
Av - Average detection

RADIATED EMISSIONS 30 TO 1000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL

Radiated Emissions Data Points

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10	36.4865	44.55	Qp	22.4	-31.6	35.35	40	-4.65	25	100	V
4	143.102	48.16	Pk	19.2	-30.4	36.96	43.52	-6.56	0-360	199	H
15	490.459	43.24	Pk	24	-28.4	38.84	46.02	-7.18	0-360	100	V
6	421.3063	45.3	Qp	22.3	-28.9	38.7	46.02	-7.32	65	100	H
3	116.815	47.24	Pk	19.7	-30.8	36.14	43.52	-7.38	0-360	300	H
9	742.562	39.15	Pk	27	-27.6	38.55	46.02	-7.47	0-360	100	H
8	643.525	39.47	Pk	25.9	-27.8	37.57	46.02	-8.45	0-360	100	H
11	70.227	47.91	Qp	14.5	-31.2	31.21	40	-8.79	283	185	V
5	303.346	46.45	Pk	19.7	-29.3	36.85	46.02	-9.17	0-360	100	H
1	37.954	41.3	Pk	21.2	-31.7	30.8	40	-9.2	0-360	300	H
18	802.411	35.66	Pk	27.6	-27.2	36.06	46.02	-9.96	0-360	100	V
17	594.055	39.06	Pk	24.3	-28	35.36	46.02	-10.66	0-360	100	V
14	422.7242	41.69	Qp	22.4	-28.8	35.29	46.02	-10.73	94	116	V
7	499.092	38.37	Pk	24	-28.3	34.07	46.02	-11.95	0-360	199	H
13	243.4	45.96	Pk	17.7	-29.7	33.96	46.02	-12.06	0-360	100	V
16	535.564	37.96	Pk	24.3	-28.4	33.86	46.02	-12.16	0-360	100	V
2	63.077	44.72	Pk	14.1	-31.3	27.52	40	-12.48	0-360	399	H
12	116.718	40.5	Pk	19.7	-30.8	29.4	43.52	-14.12	0-360	100	V

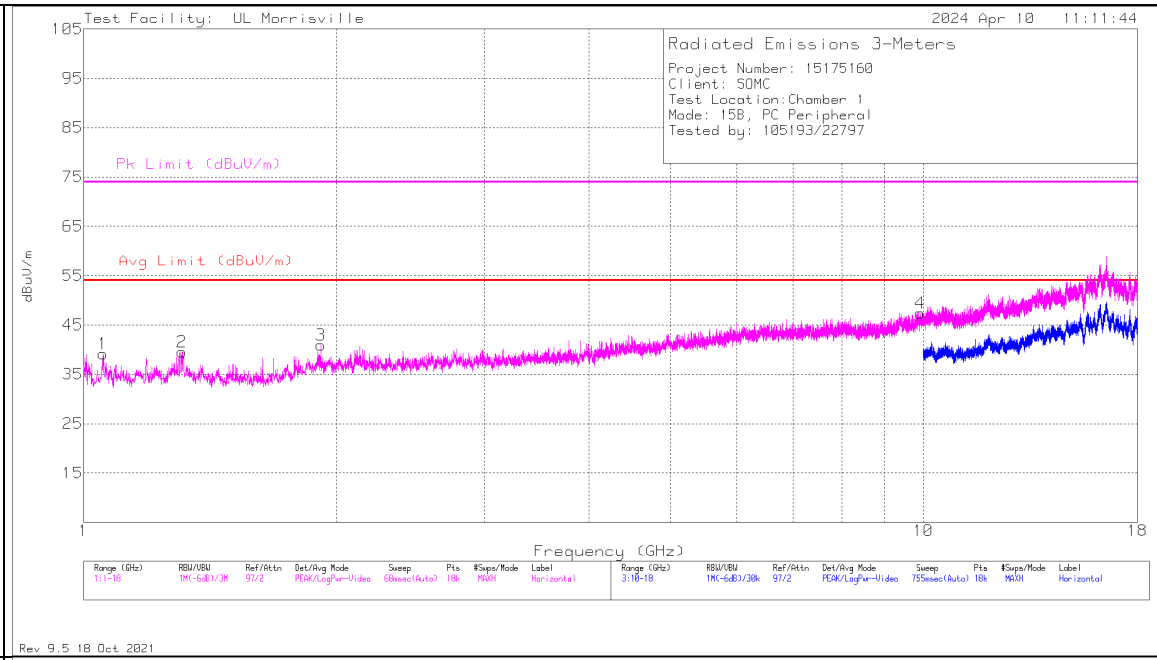
Pk - Peak detector

Qp - Quasi-Peak detector

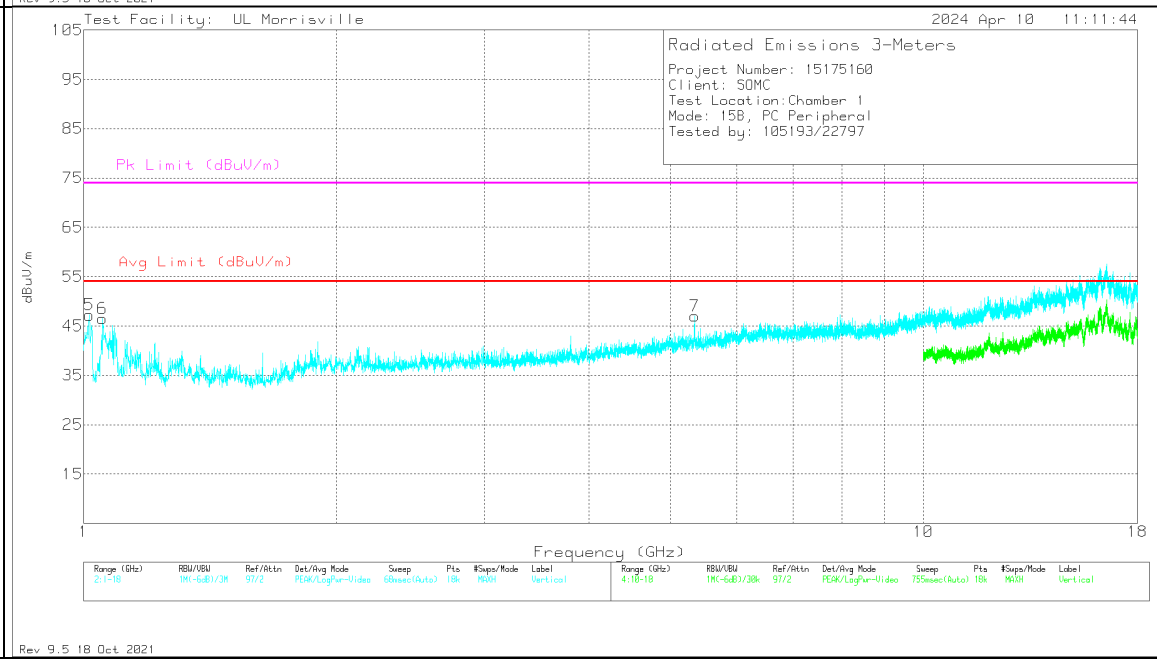
RADIATED EMISSIONS 1000 TO 18,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

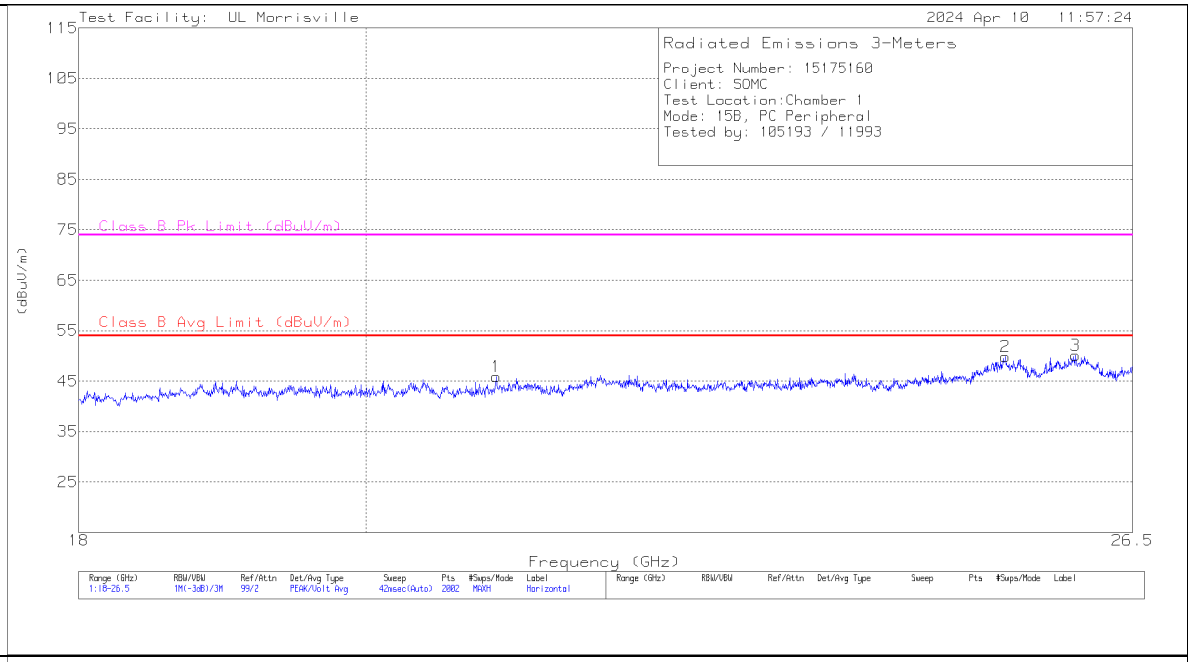
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	1.01511	54.72	Pk	27.8	-35.3	47.22	54	-6.78	74	-26.78	0-360	200	V
6	1.05289	54.16	Pk	27.6	-35.3	46.46	54	-7.54	74	-27.54	0-360	200	V
1	1.05478	46.91	Pk	27.6	-35.3	39.21	54	-14.79	74	-34.79	0-360	200	H
2	1.30883	45.27	Pk	29.1	-34.8	39.57	54	-14.43	74	-34.43	0-360	100	H
3	1.91611	44.3	Pk	31.3	-34.7	40.9	54	-13.1	74	-33.1	0-360	100	H
7	5.34539	42.74	Pk	34.3	-30	47.04	54	-6.96	74	-26.96	0-360	101	V
4	9.91933	35.25	Pk	37.4	-25.2	47.45	54	-6.55	74	-26.55	0-360	100	H

Pk - Peak detector

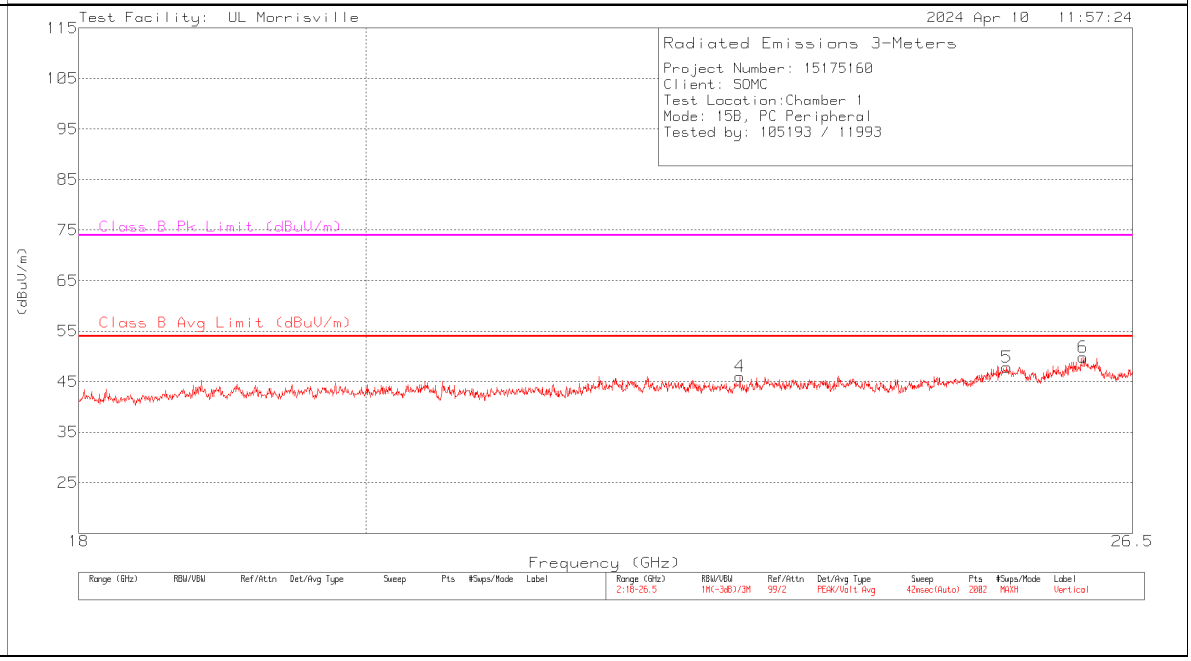
RADIATED EMISSIONS 18,000 TO 26,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

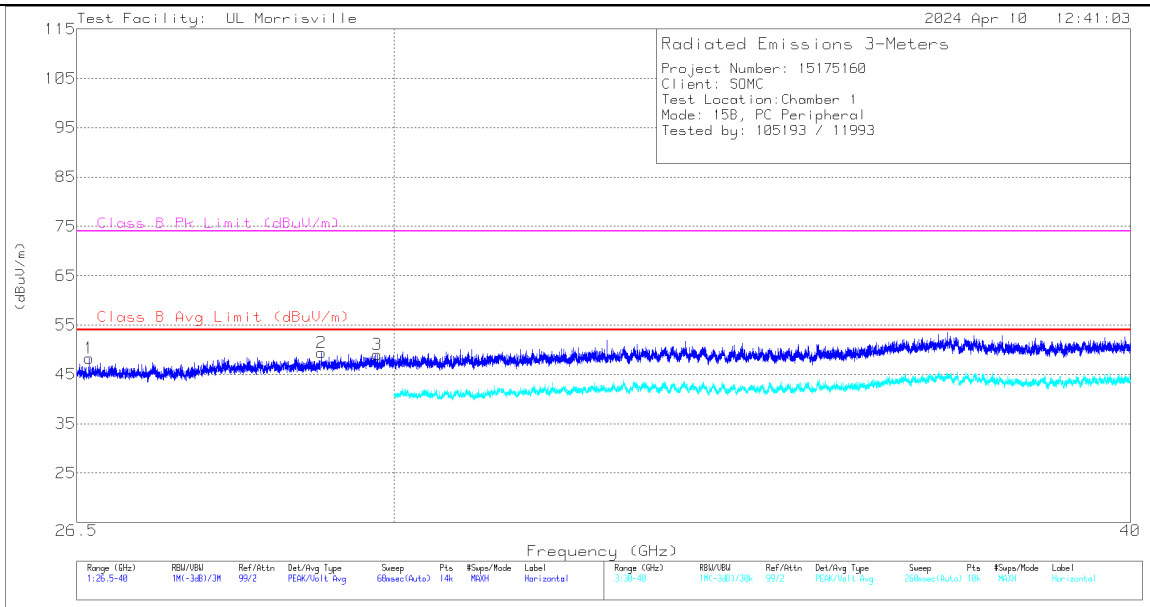
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	20.98201	50.3	Pk	33.6	-38	45.9	54	-8.1	74	-28.1	0-360	101	H
4	22.94453	49.36	Pk	34.1	-37.4	46.06	54	-7.94	74	-27.94	0-360	300	V
2	25.29509	48	Pk	35.7	-36.6	47.1	-	-	74	-26.9	307	108	H
	25.29509	40.55	Av	35.7	-36.6	39.65	54	-14.35	-	-	307	108	H
5	25.30635	48.72	Pk	35.7	-36.6	47.82	54	-6.18	74	-26.18	0-360	300	V
3	25.95267	46.76	Pk	35.3	-36.1	45.96	-	-	74	-28.04	336	264	H
	25.95267	39.63	Av	35.3	-36.1	38.83	54	-15.17	-	-	336	264	H
6	26.02438	46.97	Pk	35.3	-36.2	46.07	-	-	74	-27.93	211	235	V
	26.02438	39.67	Av	35.3	-36.2	38.77	54	-15.23	-	-	211	235	V

Pk - Peak detector
Av - Average detection

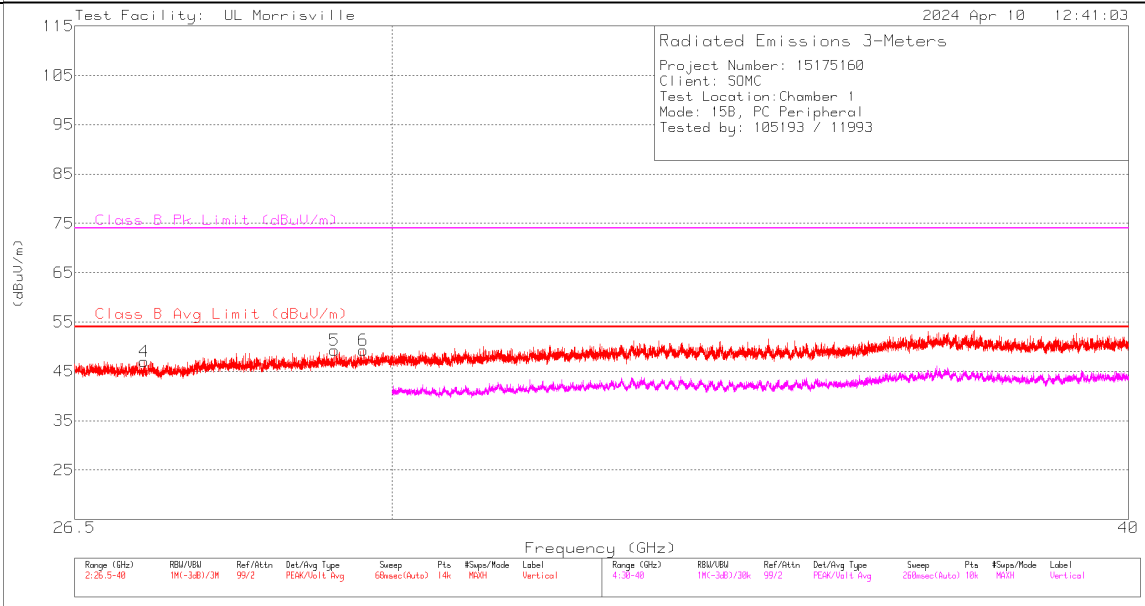
RADIATED EMISSIONS 26,000 TO 40,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

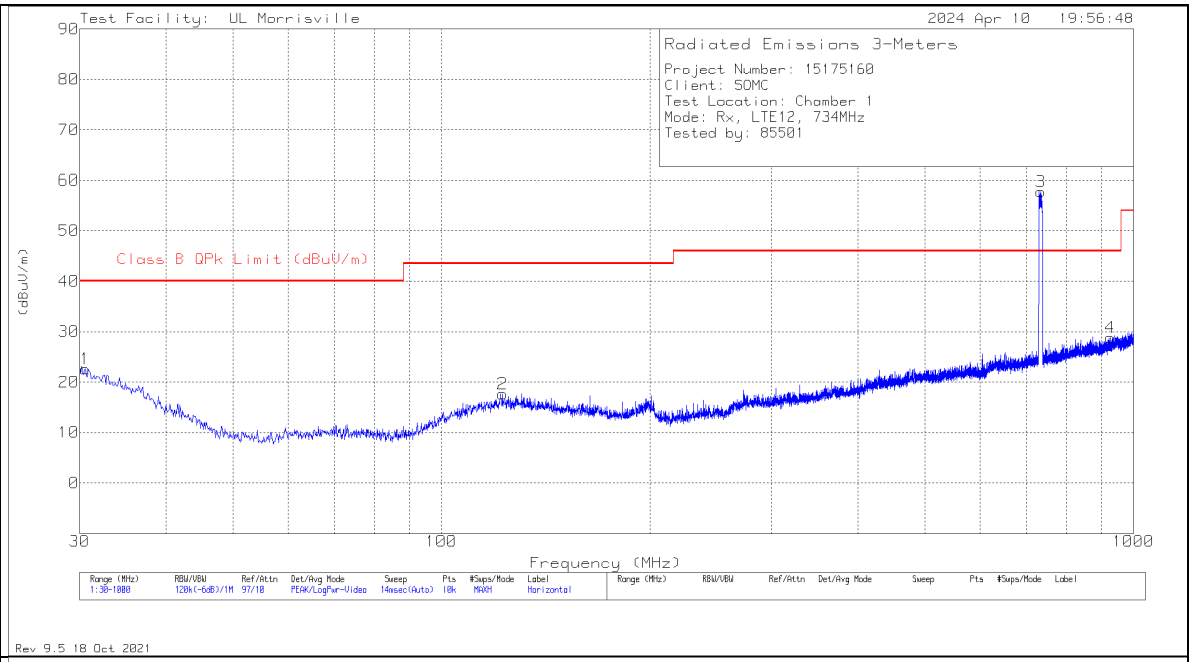
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	26.62875	45.98	Pk	36.1	-36.2	45.88	-	-	74	-28.12	205	345	H
	26.62875	39.05	Av	36.1	-36.2	38.95	54	-15.05	-	-	205	345	H
2	29.16109	44.96	Pk	36.3	-33.9	47.36	-	-	74	-26.64	14	229	H
	29.16109	37.39	Av	36.3	-33.9	39.79	54	-14.21	-	-	14	229	H
5	29.33258	45.3	Pk	36.2	-34.4	47.1	-	-	74	-26.9	288	121	V
	29.33258	38.34	Av	36.2	-34.4	40.14	54	-13.86	-	-	288	121	V
6	29.66232	45.08	Pk	36.6	-33.9	47.78	-	-	74	-26.22	80	283	V
	29.66232	37.49	Av	36.6	-33.9	40.19	54	-13.81	-	-	80	283	V
3	29.80246	46.08	Pk	36.5	-34	48.58	-	-	74	-25.42	84	215	H
	29.80246	37.22	Av	36.5	-34	39.72	54	-14.28	-	-	84	215	H
4	27.22702	46.65	Pk	36	-35.6	47.05	54	-6.95	74	-26.95	0-360	200	V

Pk - Peak detector
Av - Average detection

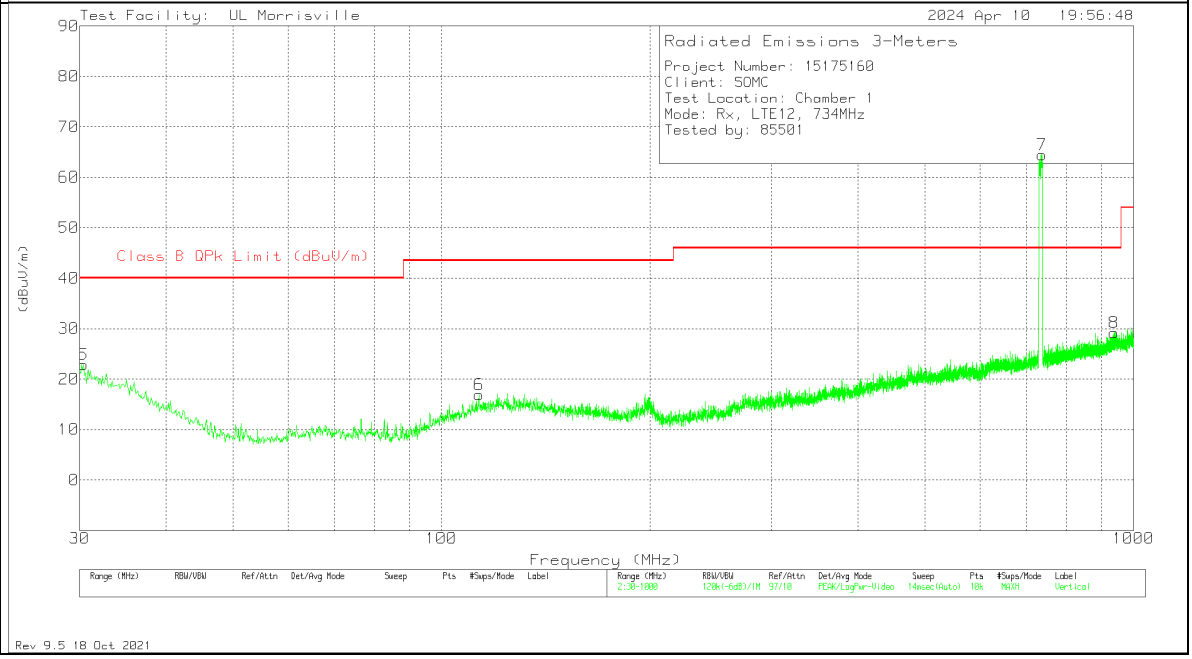
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 734MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

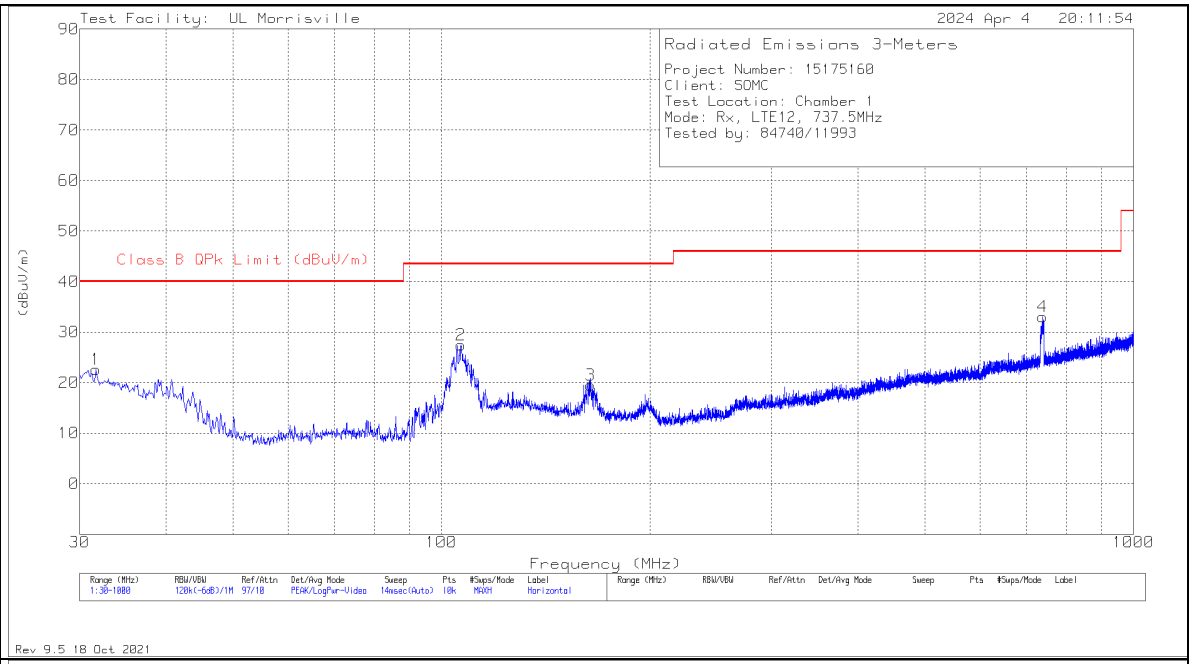
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	30.388	28.11	Pk	26.6	-31.8	22.91	40	-17.09	0-360	100	V
1	30.582	27.92	Pk	26.5	-31.8	22.62	40	-17.38	0-360	199	H
6	113.226	28.51	Pk	19.2	-30.8	16.91	43.52	-26.61	0-360	100	V
2	122.538	28.45	Pk	20	-30.8	17.65	43.52	-25.87	0-360	300	H
3	734.317 (DL)	58.31	Pk	27	-27.5	-	-	-	0-360	300	H
7	738.003 (DL)	65.11	Pk	27	-27.6	-	-	-	0-360	100	V
4	925.31	26.26	Pk	28.7	-26.1	28.86	46.02	-17.16	0-360	100	H
8	937.532	26.22	Pk	28.8	-25.8	29.22	46.02	-16.8	0-360	100	V

Pk - Peak detector
DL – Callbox Downlink

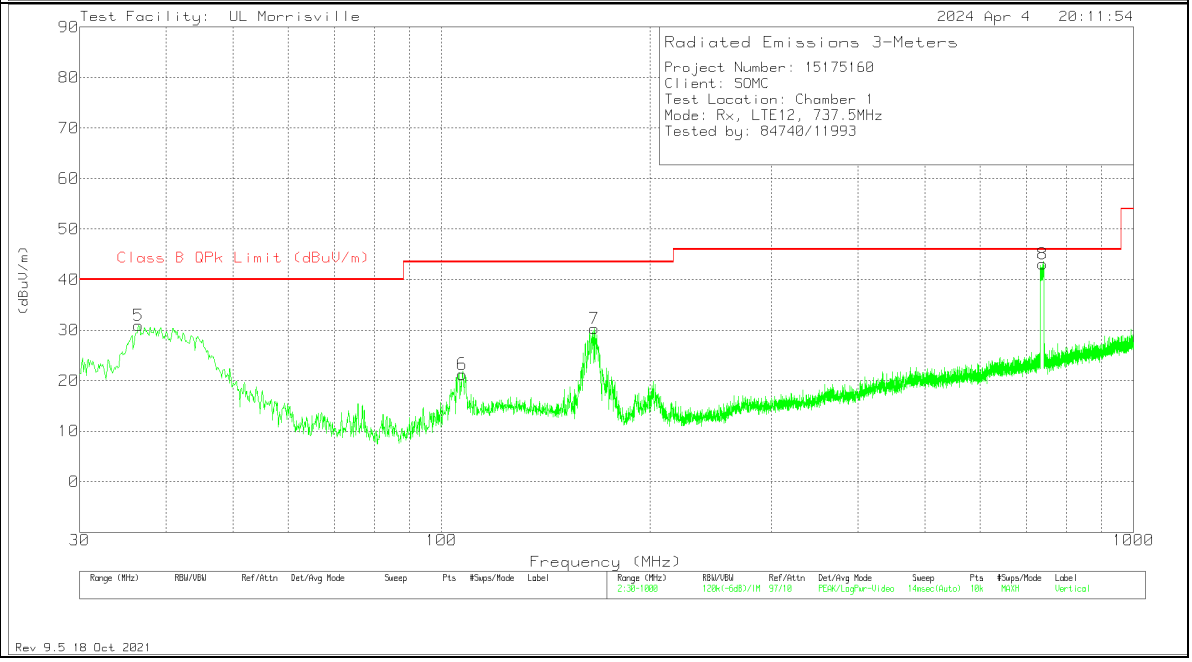
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 737.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

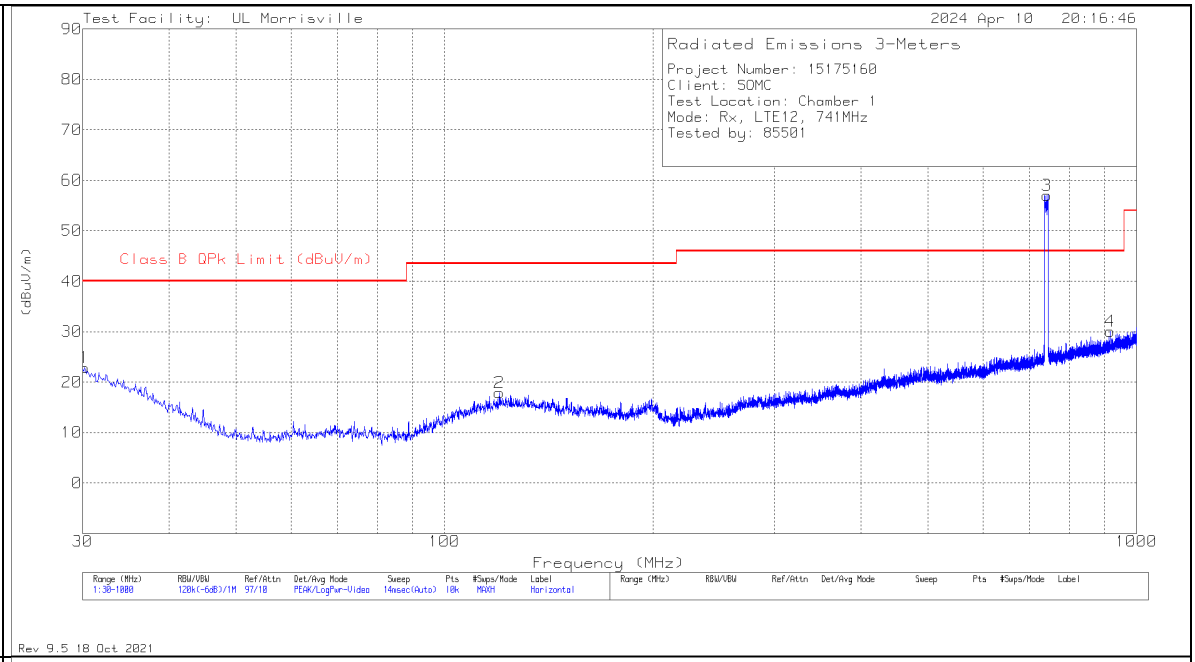
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.649	28.5	Pk	25.7	-31.6	22.6	40	-17.4	0-360	300	H
5	36.499	40.11	Pk	22.4	-31.6	30.91	40	-9.09	0-360	100	V
2	106.63	40.01	Pk	18.3	-30.8	27.51	43.52	-16.01	0-360	300	H
6	107.212	33.61	Pk	18.4	-30.7	21.31	43.52	-22.21	0-360	100	V
3	164.248	31.44	Pk	18.4	-30.3	19.54	43.52	-23.98	0-360	100	H
7	166.382	42.16	Pk	18.3	-30.2	30.26	43.52	-13.26	0-360	100	V
8 (DL)	738.973	43.62	Pk	27	-27.5	43.12	-	-	0-360	100	V
4 (DL)	739.458	33.49	Pk	27	-27.5	32.99	-	-	0-360	100	H

Pk - Peak detector
DL – Callbox Downlink

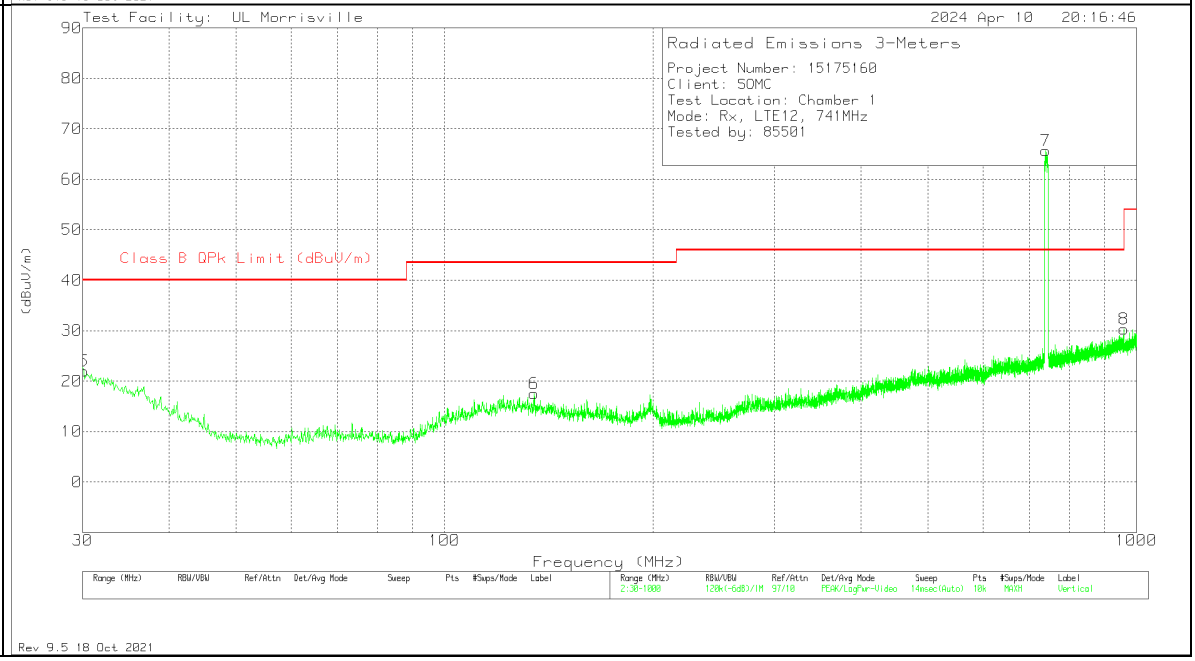
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 741MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

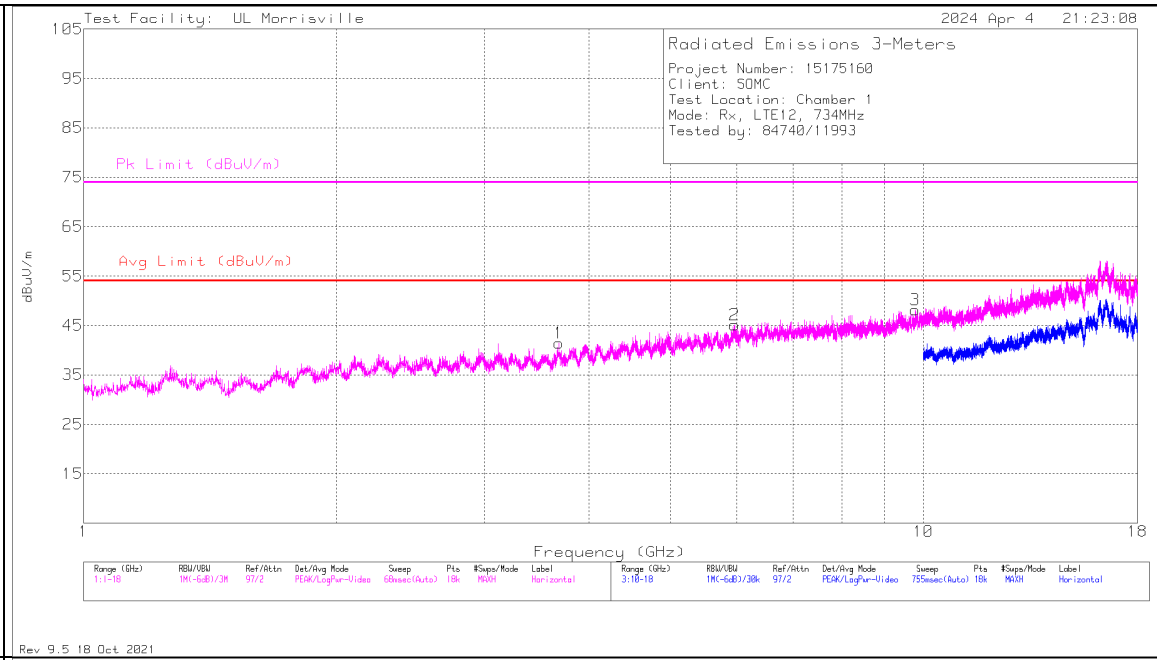
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	30.097	27	Pk	26.8	-31.8	22	40	-18	0-360	100	V
1	30.194	27.9	Pk	26.8	-31.8	22.9	40	-17.1	0-360	99	H
2	120.016	28.73	Pk	19.9	-30.7	17.93	43.52	-25.59	0-360	300	H
6	134.857	28.33	Pk	19.8	-30.6	17.53	43.52	-25.99	0-360	100	V
7(DL)	739.749	66.22	Pk	27	-27.5	-	-	-	0-360	100	V
3(DL)	742.95	57.51	Pk	27	-27.5	-	-	-	0-360	400	H
4	916.192	27.69	Pk	28.6	-26.2	30.09	46.02	-15.93	0-360	99	H
8	958.484	27.06	Pk	28.9	-25.7	30.26	46.02	-15.76	0-360	100	V

Pk - Peak detector
DL – Callbox Downlink

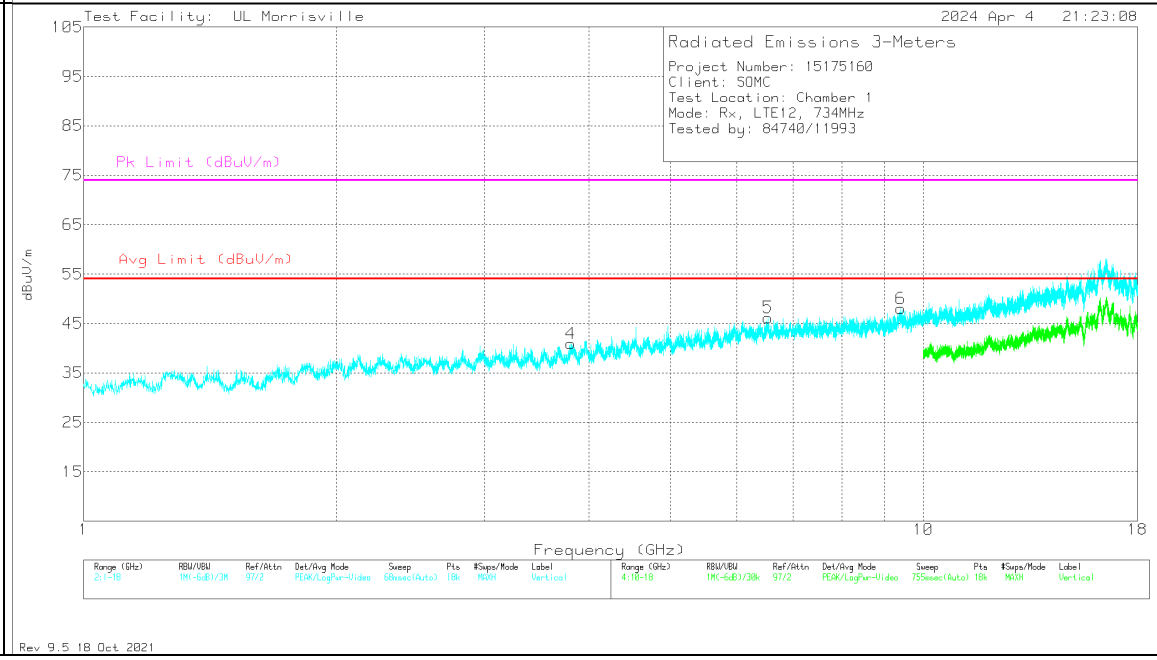
RADIATED EMISSIONS 1000 TO 18,000 MHz – LTE B12 Rx 734MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

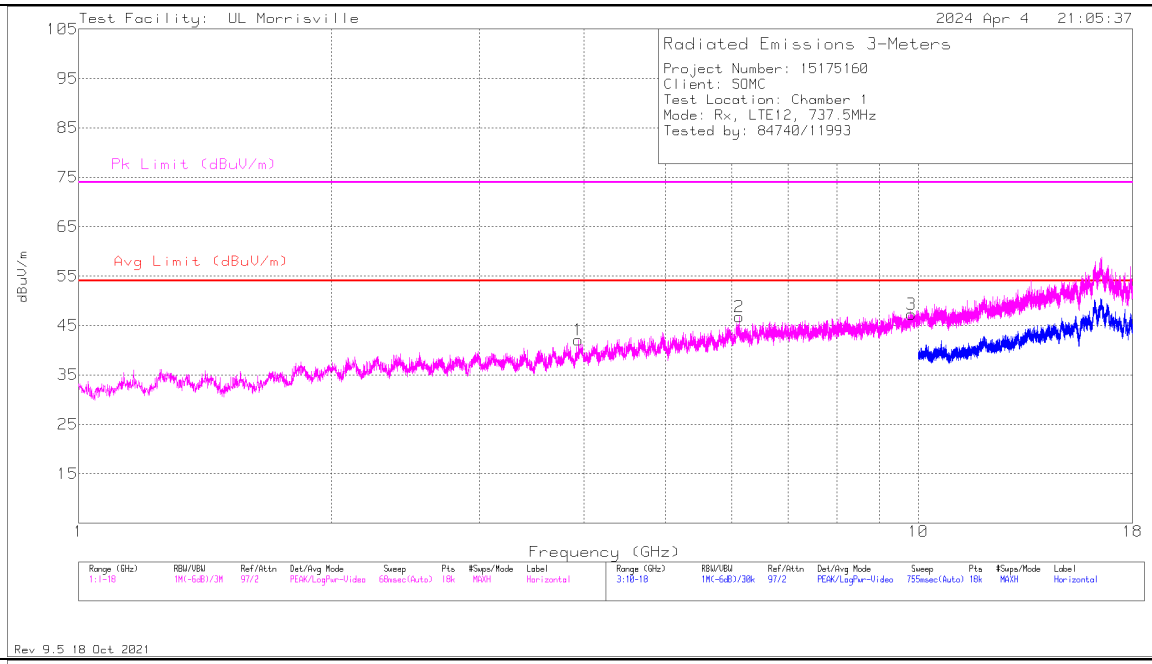
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.68317	40.76	Pk	33.2	-32.5	41.46	54	-12.54	74	-32.54	0-360	199	H
4	3.80405	40.08	Pk	33.4	-32.5	40.98	54	-13.02	74	-33.02	0-360	200	V
2	5.96022	39.55	Pk	35.2	-29.6	45.15	54	-8.85	74	-28.85	0-360	199	H
5	6.53633	39.3	Pk	35.6	-28.7	46.2	54	-7.8	74	-27.8	0-360	200	V
6	9.39819	39.28	Pk	36.4	-26	49.68	-	-	74	-24.32	38	378	V
	9.39819	25.35	Av	36.4	-26	35.75	54	-18.25	-	-	38	378	V
3	9.77895	38.09	Pk	37	-25.9	49.19	-	-	74	-24.81	305	236	H
	9.77895	24.26	Av	37	-25.9	35.36	54	-18.64	-	-	305	236	H

Pk - Peak detector
Av - Average detection

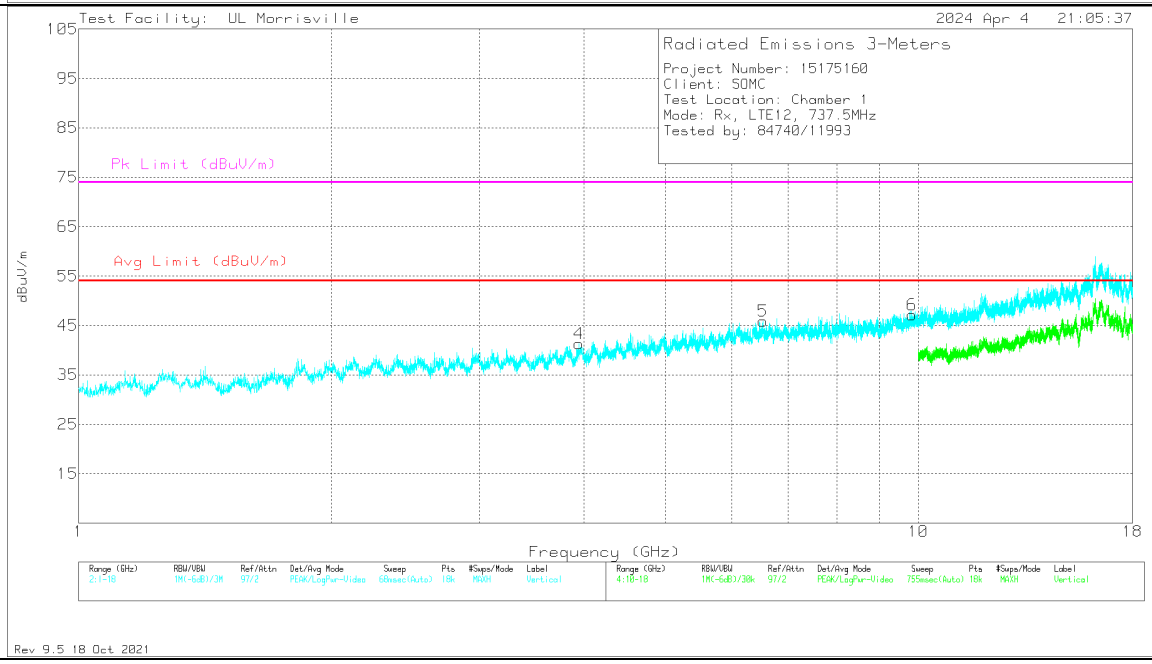
RADIATED EMISSIONS 1000 TO 18,000 MHz – LTE B12 Rx 737.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

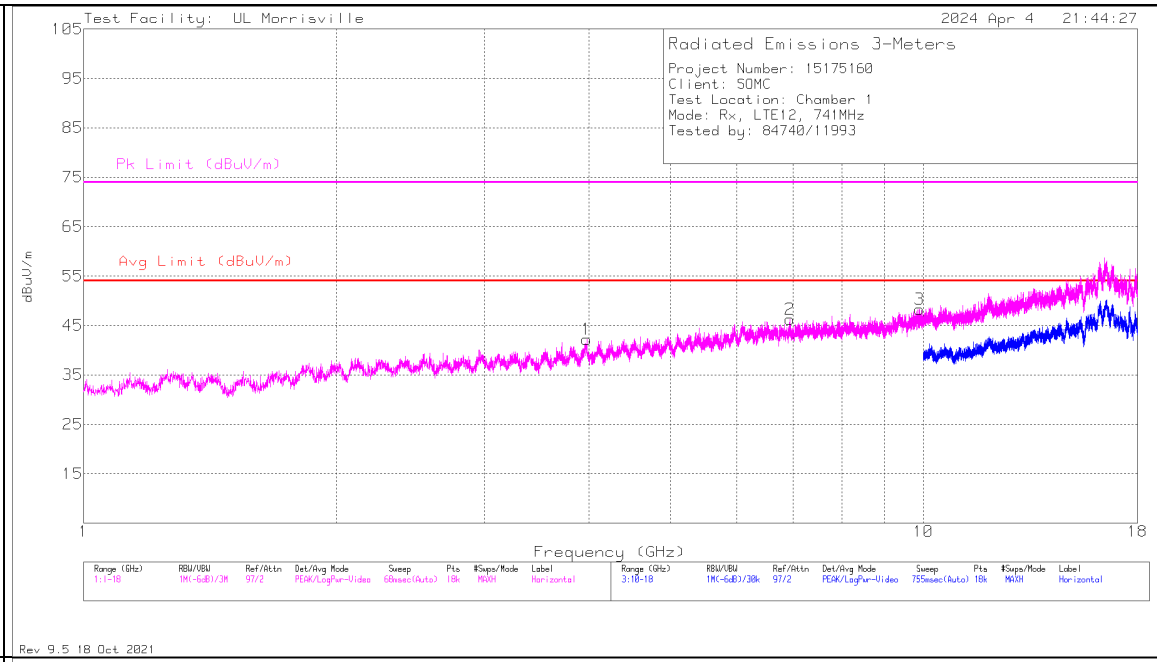
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.93722	40.72	Pk	33.4	-32	42.12	54	-11.88	74	-31.88	0-360	99	H
4	3.94572	39.91	Pk	33.4	-32	41.31	54	-12.69	74	-32.69	0-360	101	V
2	6.12125	40.59	Pk	35.3	-29.1	46.79	54	-7.21	74	-27.21	0-360	200	H
5	6.5335	38.87	Pk	35.6	-28.6	45.87	54	-8.13	74	-28.13	0-360	101	V
3	9.81638	35.34	Pk	37.1	-25.2	47.24	54	-6.76	74	-26.76	0-360	200	H
6	9.82866	34.95	Pk	37.1	-24.9	47.15	54	-6.85	74	-26.85	0-360	101	V

Pk - Peak detector
Av - Average detection

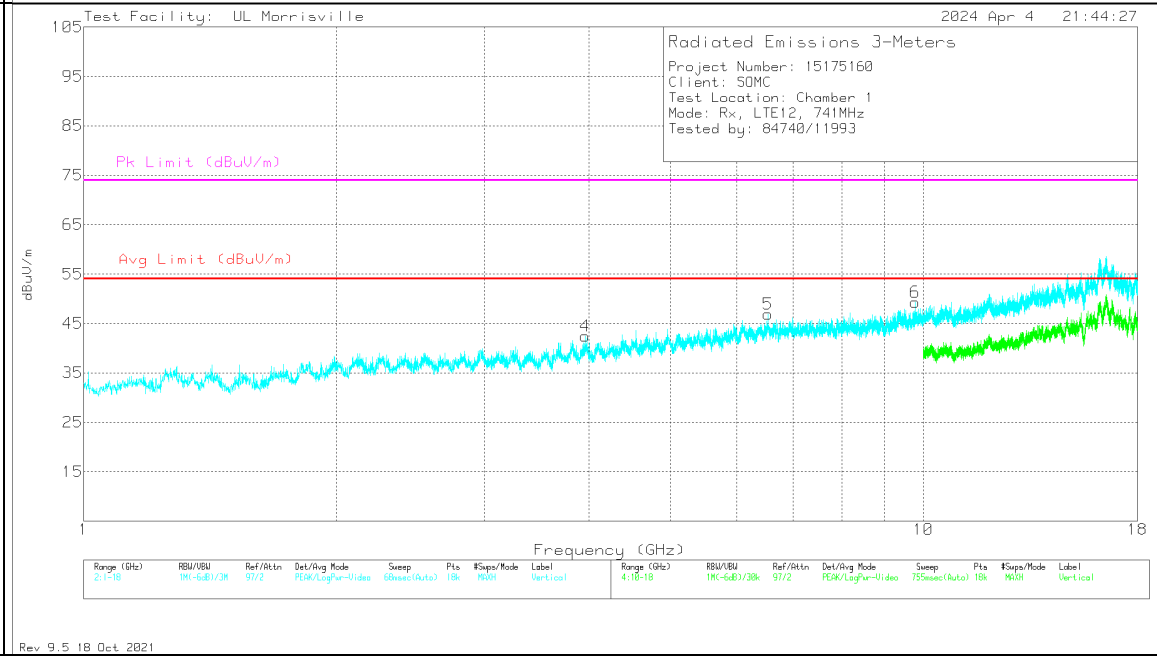
RADIATED EMISSIONS 1000 TO 18,000 MHz – LTE B12 Rx 741MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.95894	40.85	Pk	33.4	-31.8	42.45	54	-11.55	74	-31.55	0-360	101	V
1	3.97405	40.9	Pk	33.4	-32.1	42.2	54	-11.8	74	-31.8	0-360	101	H
5	6.52972	39.71	Pk	35.6	-28.4	46.91	54	-7.09	74	-27.09	0-360	101	V
2	6.93961	38.51	Pk	35.6	-27.9	46.21	54	-7.79	74	-27.79	0-360	200	H
6	9.78993	39.48	Pk	37	-25.1	51.38	-	-	74	-22.62	183	377	V
	9.78993	24	Av	37	-25.1	35.9	54	-18.1	-	-	183	377	V
3	9.90634	37.9	Pk	37.2	-25.8	49.3	-	-	74	-24.7	54	247	H
	9.90634	24.3	Av	37.2	-25.8	35.7	54	-18.3	-	-	54	247	H

Pk - Peak detector
Av - Average detection

Appendix A

Facilities, Accreditations and Authorizations

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	

END OF TEST REPORT