Report Number:	R15110020-E4
Issue Date:	2024-03-14
FCC ID:	PY7-13187R

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:	2024-03-14
FCC ID:	PY7-13187R
Sample Serial Number:	QV7700P4LQ, QV770077LQ
Applicable Standards:	FCC 47 CFR PART 15 SUBPART B:2024
Date Test Item Received:	2023-01-26
Testing Start Date:	2024-03-07
Date Testing Complete:	2024-03-13
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
2024-03-14	V1	Initial Issue	B. Kiewra	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:

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

Prepared By:

Brian Kiewra
Project Engineer
Consumer, Medical and IT Segment
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	PY7-13187R	None
AE	Headphones	Sony	MDR-EX15AP	None
AE	AC Adaptor	Sony	Type: AC-0540-JP	SN: 3223W09206247
AE	Headphones	Sony	-	Used for PC peripheral setup
AE	Monitor	ViewSonic	VS15453	Used for PC peripheral setup
AE	Mouse	Amazon Basics	MSU0939	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 0.220.

3.3 Block Diagram

Refer to setup exhibit R15110020-EP5 for block diagram.

3.4 EUT Configurations

Configuration #	Description
1	Configured as table top 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 to AC Adaptor . 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 Y for battery and X 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 B5.Therefore all WWAN Rx testing was done on LTE B5.

4.0 APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

4.1 Test Conditions and Results - MAINS TERMINAL - CONDUCTED EMISSIONS

Test Engineer	11993	
Test Date	2024-03-13	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	24.7°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: QV770077LQ was used.

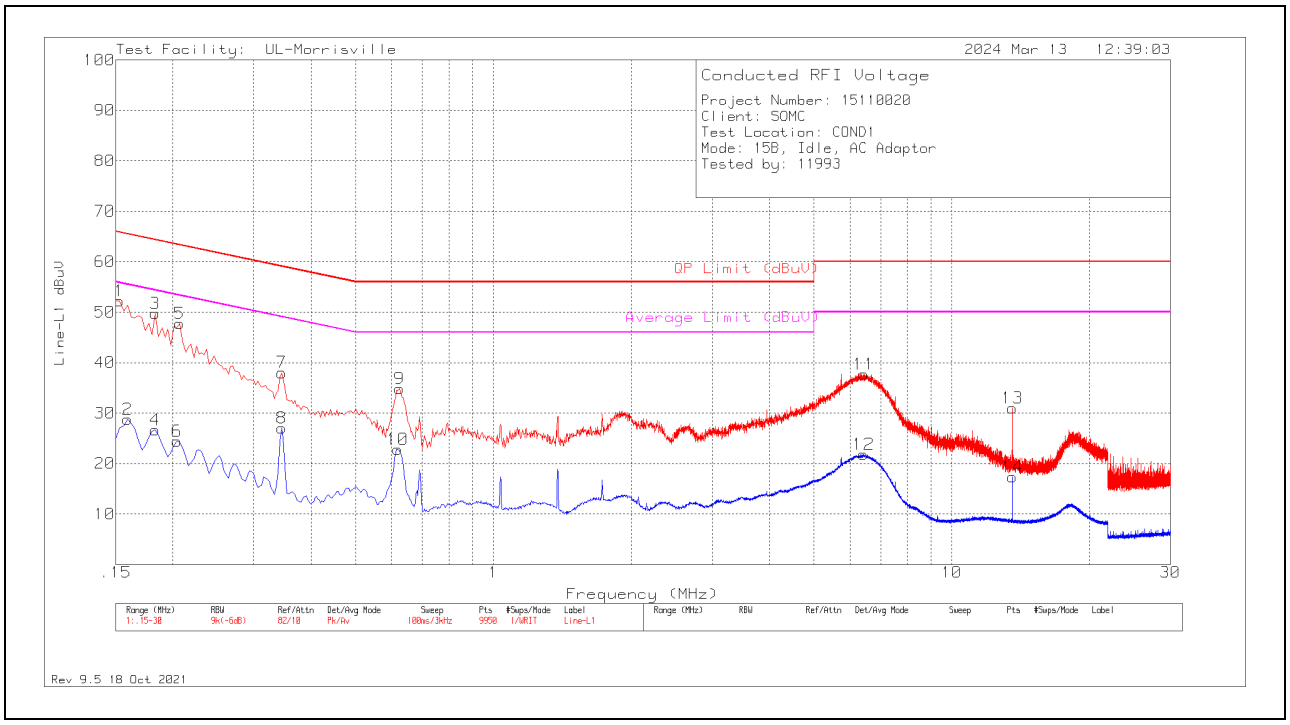
Refer to setup exhibit R15110020-EP5 for setup photos.

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	2023-04-04	2024-04-04
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

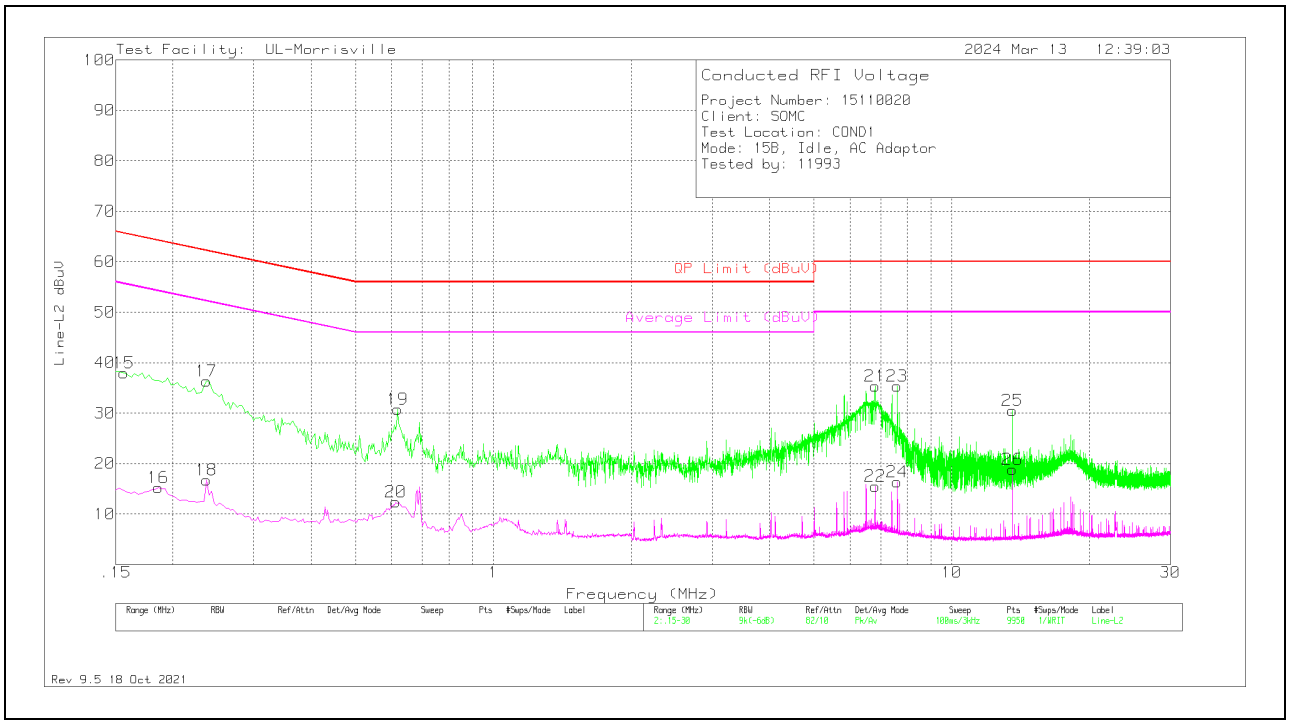


Conducted Emissions Data Points – AC Adaptor Line 1

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	.153	42.15	Pk	.3	9.8	52.25	65.84	-13.59	-	-
2	.159	18.64	Av	.3	9.8	28.74	-	-	55.52	-26.78
3	.183	39.7	Pk	.3	9.8	49.8	64.35	-14.55	-	-
4	.183	16.56	Av	.3	9.8	26.66	-	-	54.35	-27.69
6	.204	14.43	Av	.2	9.8	24.43	-	-	53.45	-29.02
5	.207	37.82	Pk	.2	9.8	47.82	63.32	-15.5	-	-
7	.345	28.12	Pk	.1	9.8	38.02	59.08	-21.06	-	-
8	.345	17.18	Av	.1	9.8	27.08	-	-	49.08	-22
10	.618	12.88	Av	.1	9.8	22.78	-	-	46	-23.22
9	.624	24.91	Pk	.1	9.8	34.81	56	-21.19	-	-
12	6.423	11.79	Av	.1	9.9	21.79	-	-	50	-28.21
11	6.441	27.68	Pk	.1	9.9	37.68	60	-22.32	-	-
13	13.56	20.83	Pk	.2	10	31.03	60	-28.97	-	-
14	13.563	7.17	Av	.2	10	17.37	-	-	50	-32.63

Pk - Peak detector
Av - Average detection

Conducted Emissions Graph – AC Adaptor Line 2

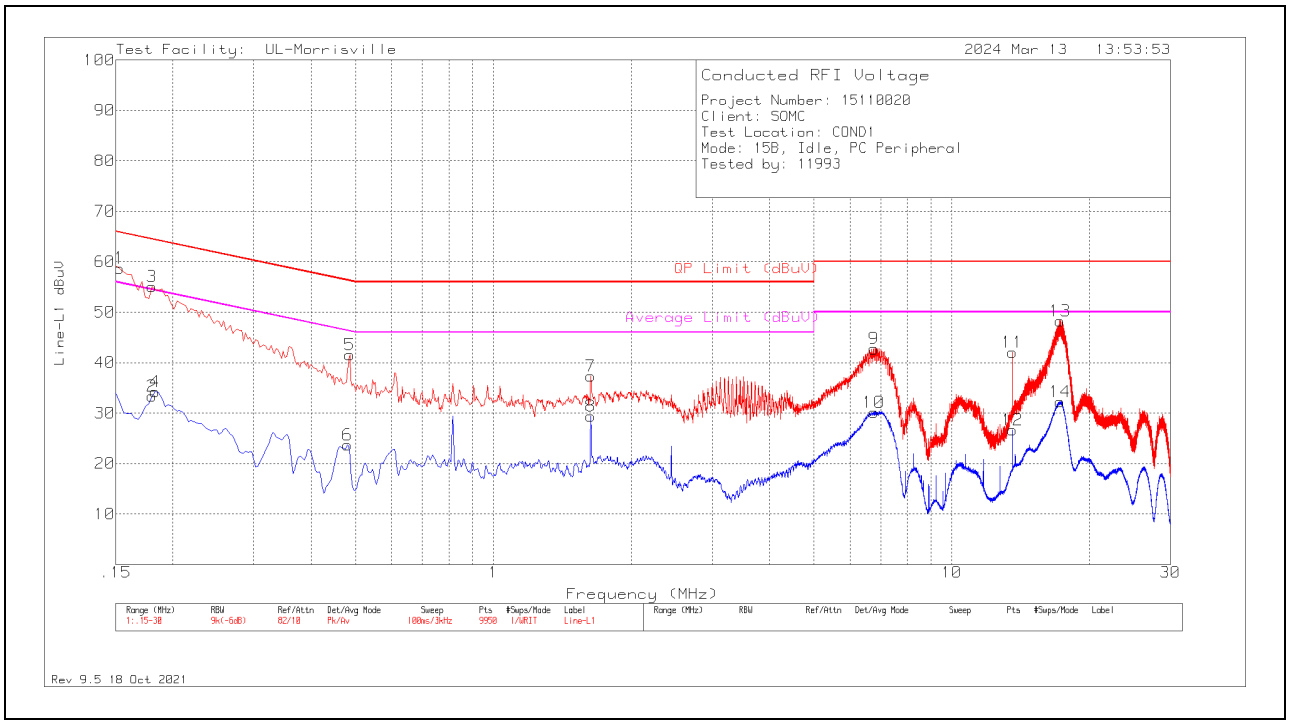


Conducted Emissions Data Points – AC Adaptor Line 2

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)**
15	.156	27.85	Pk	.3	9.8	37.95	65.67	-27.72	-	-
16	.186	5.23	Av	.2	9.8	15.23	-	-	54.21	-38.98
17	.237	26.38	Pk	.2	9.8	36.38	62.2	-25.82	-	-
18	.237	6.71	Av	.2	9.8	16.71	-	-	52.2	-35.49
20	.612	2.45	Av	.1	9.8	12.35	-	-	46	-33.65
19	.618	20.9	Pk	.1	9.8	30.8	56	-25.2	-	-
21	6.804	25.37	Pk	.1	9.9	35.37	60	-24.63	-	-
22	6.804	5.54	Av	.1	9.9	15.54	-	-	50	-34.46
23	7.608	25.24	Pk	.1	10	35.34	60	-24.66	-	-
24	7.608	6.27	Av	.1	10	16.37	-	-	50	-33.63
26	13.56	8.67	Av	.2	10	18.87	-	-	50	-31.13
25	13.563	20.26	Pk	.2	10	30.46	60	-29.54	-	-

Pk - Peak detector
Av - Average detection

Conducted Emissions Graph – PC Peripheral Line 1

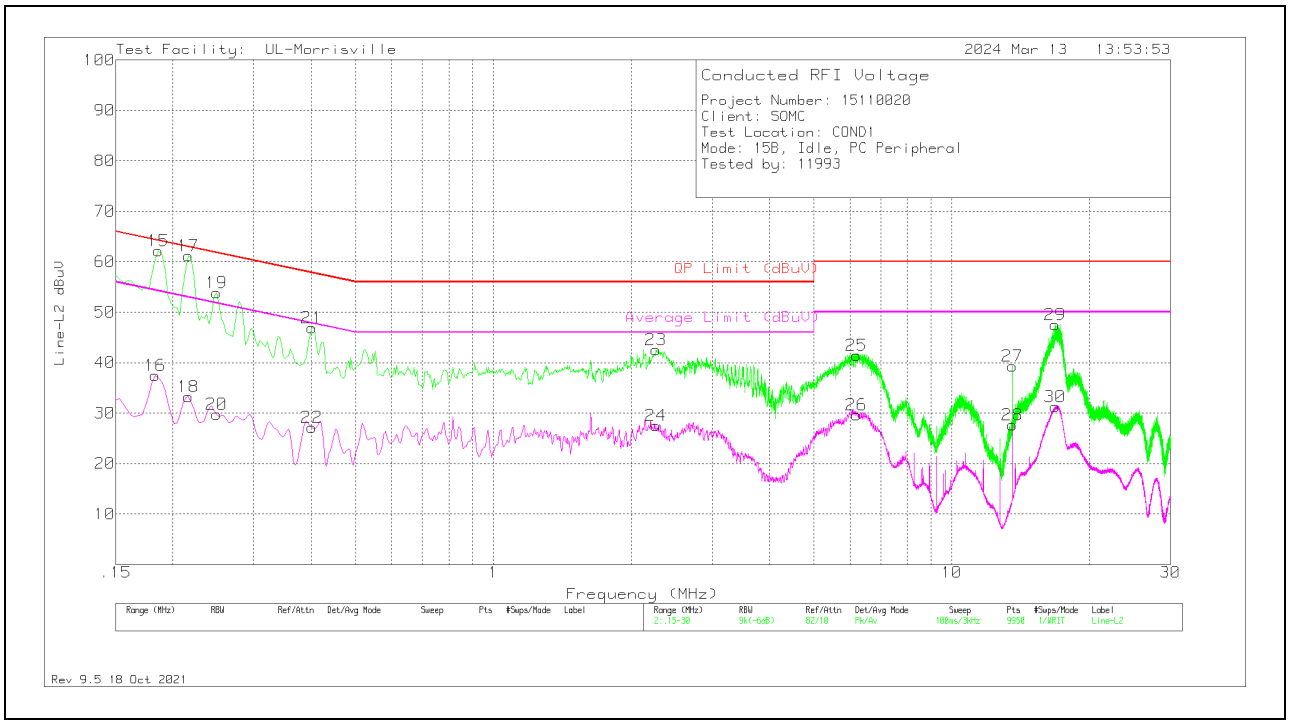


Conducted Emissions Data Points – PC Peripheral Line 1

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	.153	48.65	Pk	.3	9.8	58.75	65.84	-7.09	-	-
2	.18	23.25	Av	.3	9.8	33.35	-	-	54.49	-21.14
3	.18	45.03	Pk	.3	9.8	55.13	64.49	-9.36	-	-
4	.183	24.12	Av	.3	9.8	34.22	-	-	54.35	-20.13
6	.48	13.73	Av	.1	9.8	23.63	-	-	46.34	-22.71
5	.486	31.64	Pk	.1	9.8	41.54	56.24	-14.7	-	-
7	1.632	27.47	Pk	.1	9.8	37.37	56	-18.63	-	-
8	1.632	19.44	Av	.1	9.8	29.34	-	-	46	-16.66
9	6.756	32.74	Pk	.1	9.9	42.74	60	-17.26	-	-
10	6.756	20.17	Av	.1	9.9	30.17	-	-	50	-19.83
12	13.56	16.45	Av	.2	10	26.65	-	-	50	-23.35
11	13.563	31.84	Pk	.2	10	42.04	60	-17.96	-	-
13	17.247	37.95	Pk	.2	10.1	48.25	60	-11.75	-	-
14	17.25	21.91	Av	.2	10.1	32.21	-	-	50	-17.79

Pk - Peak detector
Av - Average detection

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)**
16	.183	27.33	Av	.3	9.8	37.43	-	-	54.35	-16.92
15	.186	35.61	Qp	.2	9.8	45.61	64.21	-18.6	-	-
17	.19915	34.07	Qp	.2	9.8	44.07	63.65	-19.58	-	-
18	.216	23.22	Av	.2	9.8	33.22	-	-	52.97	-19.75
19	.249	43.8	Pk	.2	9.8	53.8	61.79	-7.99	-	-
20	.249	19.76	Av	.2	9.8	29.76	-	-	51.79	-22.03
21	.402	37	Pk	.1	9.8	46.9	57.81	-10.91	-	-
22	.402	17.25	Av	.1	9.8	27.15	-	-	47.81	-20.66
23	2.262	32.64	Pk	.1	9.8	42.54	56	-13.46	-	-
24	2.262	17.63	Av	.1	9.8	27.53	-	-	46	-18.47
25	6.198	31.45	Pk	.1	9.9	41.45	60	-18.55	-	-
26	6.198	19.59	Av	.1	9.9	29.59	-	-	50	-20.41
28	13.56	17.4	Av	.2	10	27.6	-	-	50	-22.4
27	13.563	29.17	Pk	.2	10	39.37	60	-20.63	-	-
29	16.809	37.25	Pk	.2	10.1	47.55	60	-12.45	-	-
30	16.812	20.99	Av	.2	10.1	31.29	-	-	50	-18.71

Pk - Peak detector
Av - Average detection

4.2 Test Conditions and Results - RADIATED EMISSIONS

Test Engineer	11993	
Test Date	2024-03-07 to 2024-03-08	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	23.0 to 23.6°C
Humidity	10 % to 90 %	37.6 to 49.4%
	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: QV7700P4LQ

Refer to setup exhibit R15110020-EP5 for setup photos.

Radiated Emissions Test Equipment

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

Equipment 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					
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-04-06	2024-04-06
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
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
208720	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2024-01-16	2025-01-16

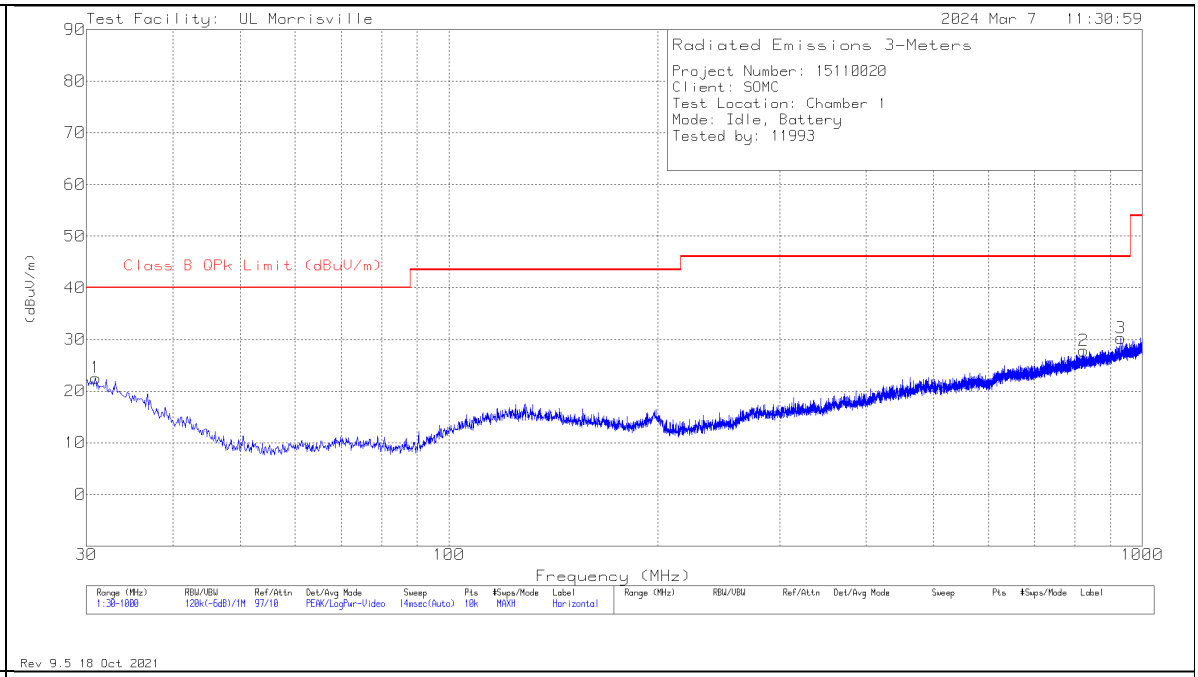
Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
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					
225795	Gain-loss string: 18-40GHz	Various	Various	2023-05-17	2024-05-17
Receiver & Software					
81018	Spectrum Analyzer	Agilent	E4446A	2023-08-01	2024-08-01
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

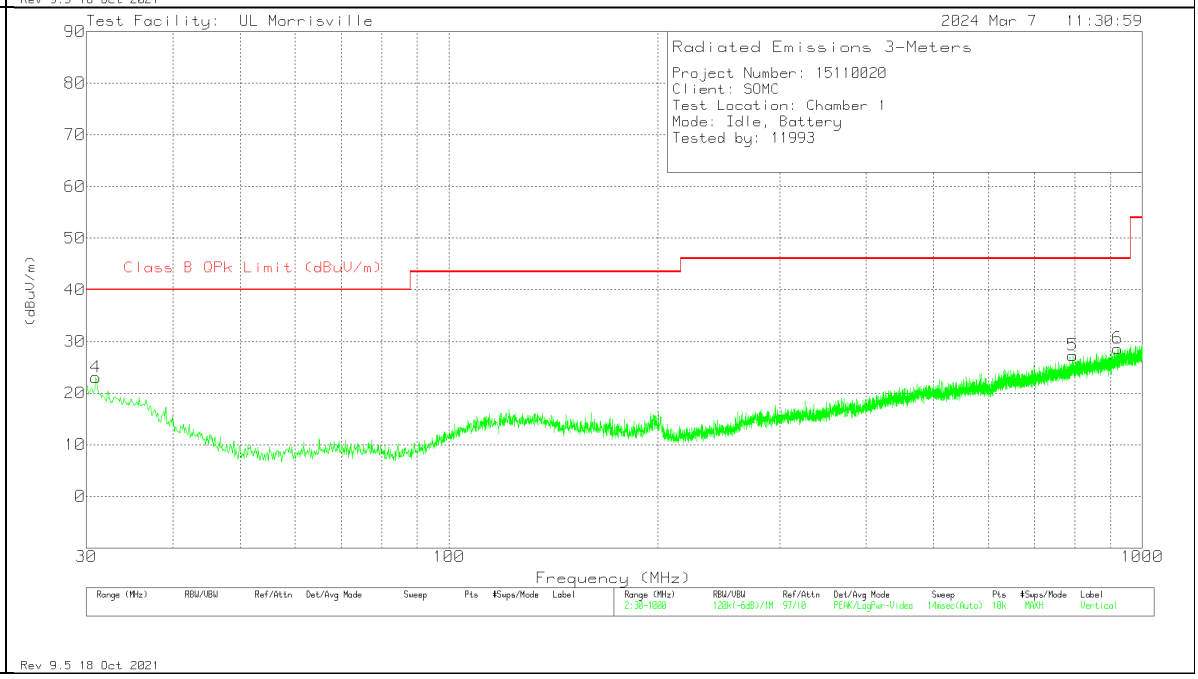
RADIATED EMISSIONS 30 TO 1000 MHz - Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

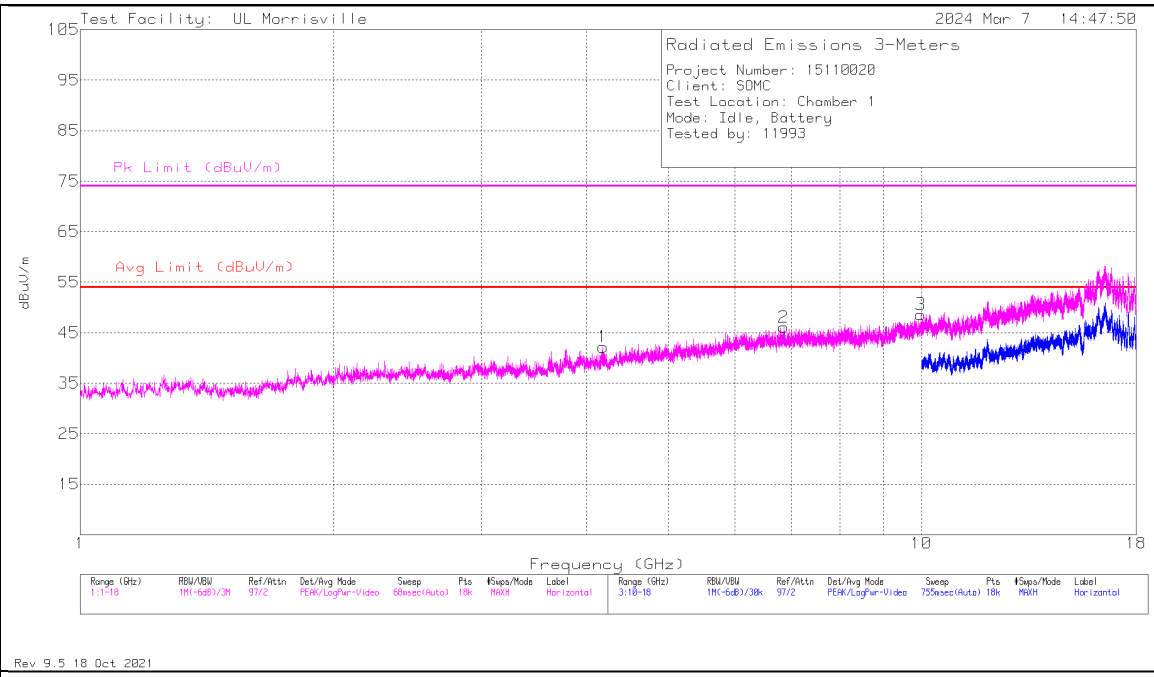
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.97	28.07	Pk	26.2	-31.7	22.57	40	-17.43	0-360	99	H
4	30.97	28.56	Pk	26.2	-31.7	23.06	40	-16.94	0-360	100	V
5	793.778	27.01	Pk	27.5	-27.2	27.31	46.02	-18.71	0-360	100	V
2	823.848	27.13	Pk	27.9	-27.2	27.83	46.02	-18.19	0-360	99	H
6	921.4785	26.06	Pk	28.6	-26	28.66	46.02	-17.36	0-360	100	V
3	930.936	27.45	Pk	28.8	-26	30.25	46.02	-15.77	0-360	300	H

Pk - Peak detector

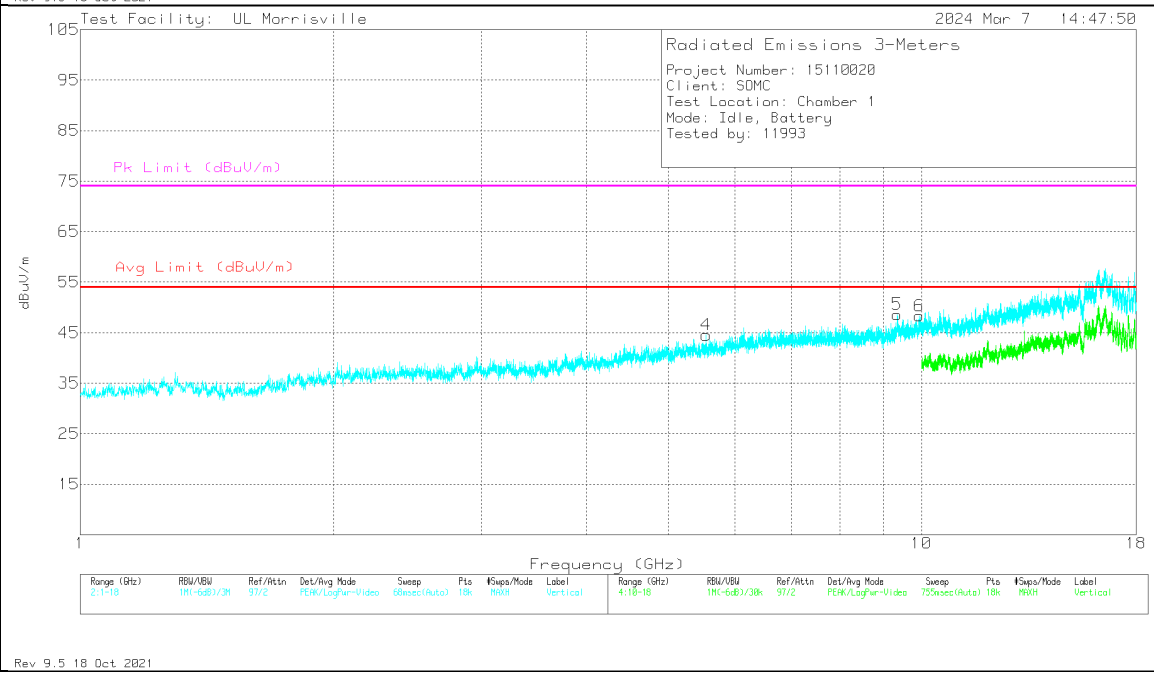
RADIATED EMISSIONS 1000 TO 18,000 MHz – Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



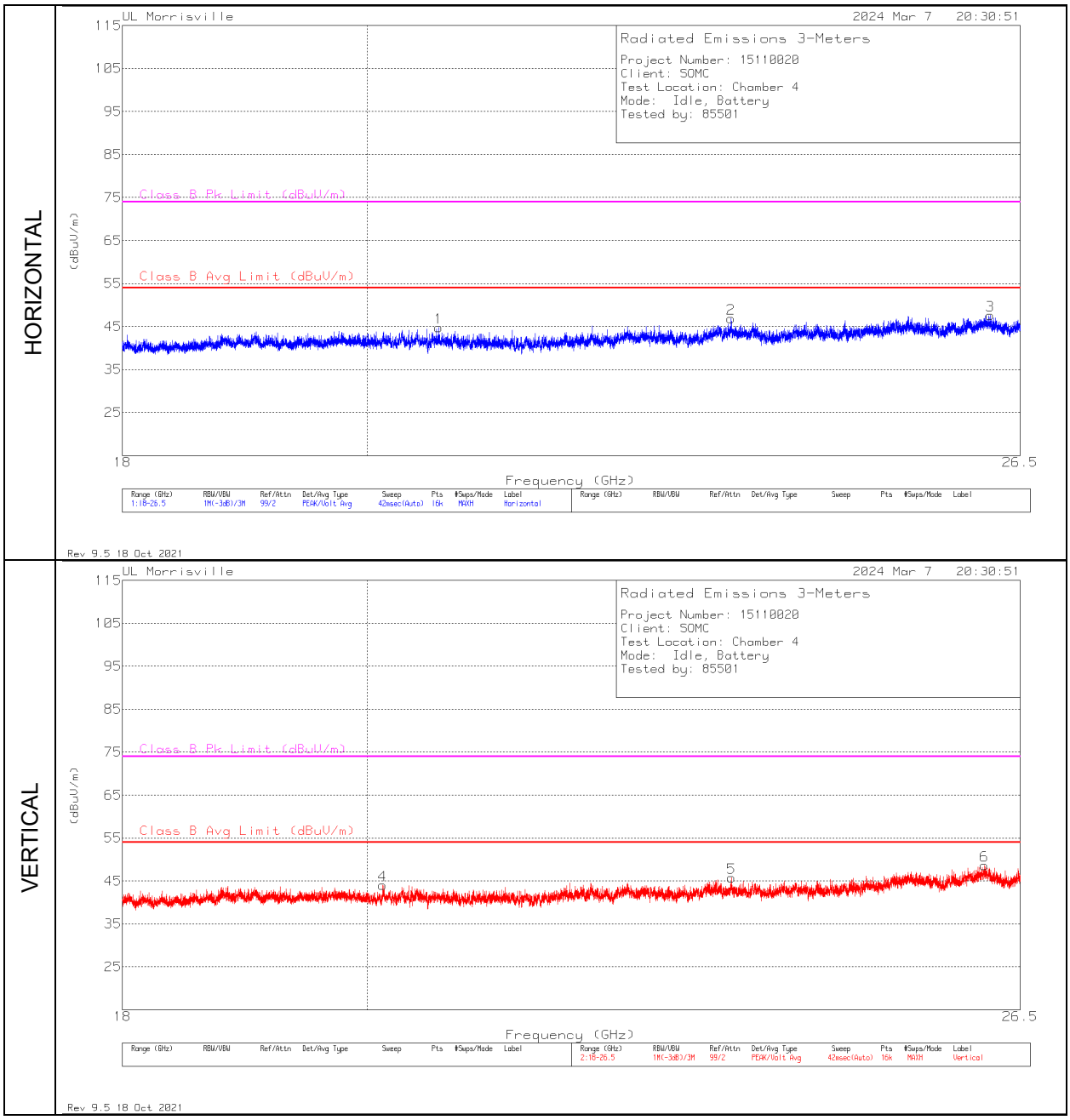
Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	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	4.18278	40.28	Pk	33.4	-31.5	42.18	54	-11.82	74	-31.82	0-360	200	H
4	5.5475	40.24	Pk	34.4	-30.1	44.54	54	-9.46	74	-29.46	0-360	101	V
2	6.85839	38.48	Pk	35.6	-28	46.08	54	-7.92	74	-27.92	0-360	101	H
5	9.35304	39.12	Pk	36.3	-25.7	49.72	-	-	74	-24.28	106	267	V
	9.35304	25.33	Av	36.3	-25.7	35.93	54	-18.07	-	-	106	267	V
6	9.93801	37.13	Pk	37.3	-25.8	48.63	-	-	74	-25.37	4	388	V
	9.93801	23.73	Av	37.3	-25.8	35.23	54	-18.77	-	-	4	388	V
3	9.98191	37.07	Pk	37.4	-25	49.47	-	-	74	-24.53	223	373	H
	9.98191	23.73	Av	37.4	-25	36.13	54	-17.87	-	-	223	373	H

Pk - Peak detector
Av - Average detection

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

Radiated Emissions Graph



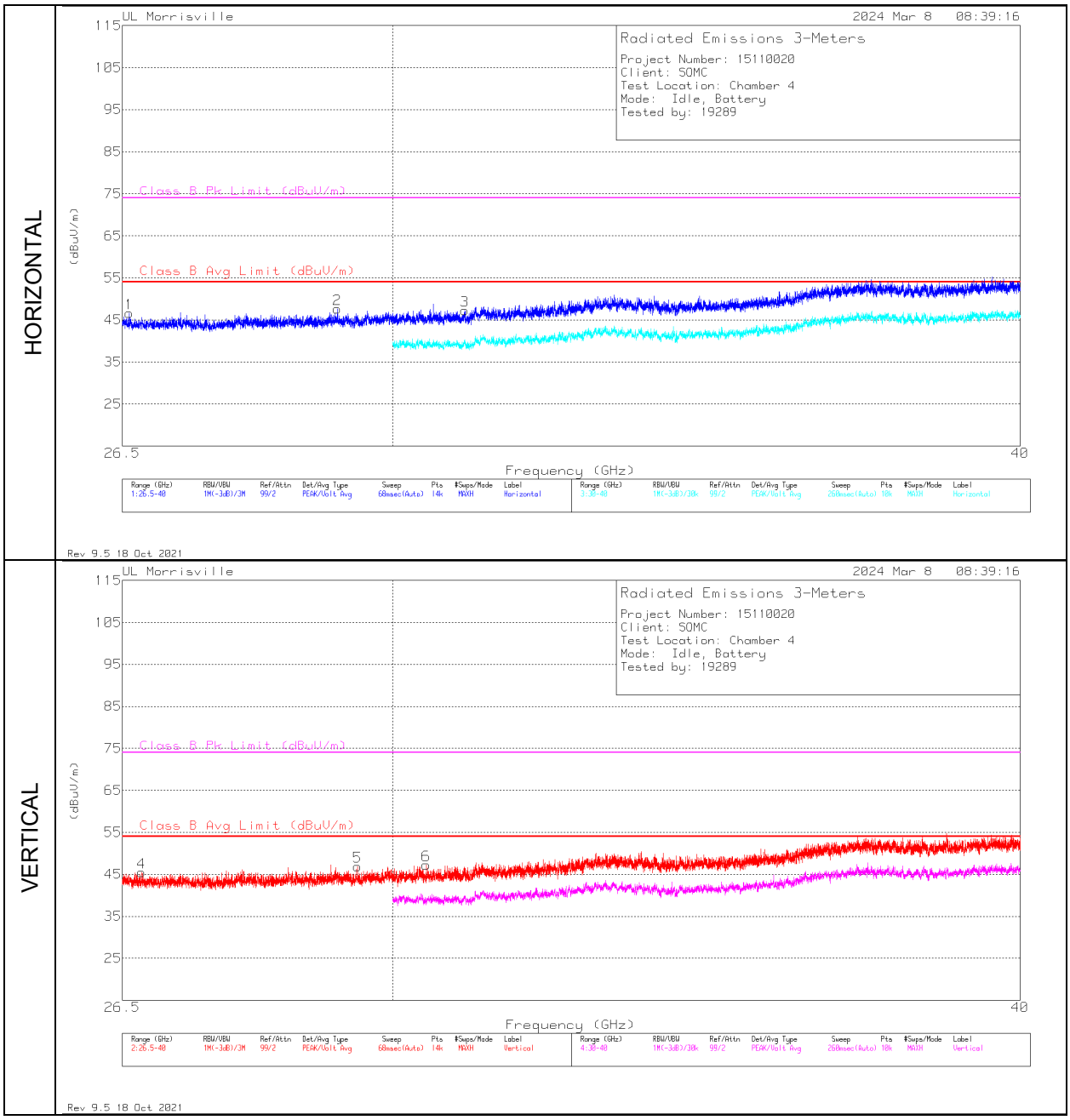
Radiated Emissions Data Points

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
4	20.13762	49.89	Pk	33.5	-39.4	43.99	54	-10.01	74	-30.01	0-360	300	V
1	20.62846	50.41	Pk	33.7	-39.4	44.71	54	-9.29	74	-29.29	0-360	100	H
2	23.39876	49.59	Pk	34.6	-37.3	46.89	54	-7.11	74	-27.11	0-360	100	H
5	23.40195	48.27	Pk	34.6	-37.1	45.77	54	-8.23	74	-28.23	0-360	300	V
6	26.09855	35.2	Av	35.2	-34.2	36.2	54	-17.8	-	-	284	327	V
	26.09874	48.08	Pk	35.2	-34.2	49.08	-	-	74	-24.92	284	327	V
3	26.16002	46.55	Pk	35.3	-34.2	47.65	54	-6.35	74	-26.35	0-360	250	H

Pk - Peak detector
Av - Average detection

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

Radiated Emissions Graph



Radiated Emissions Data Points

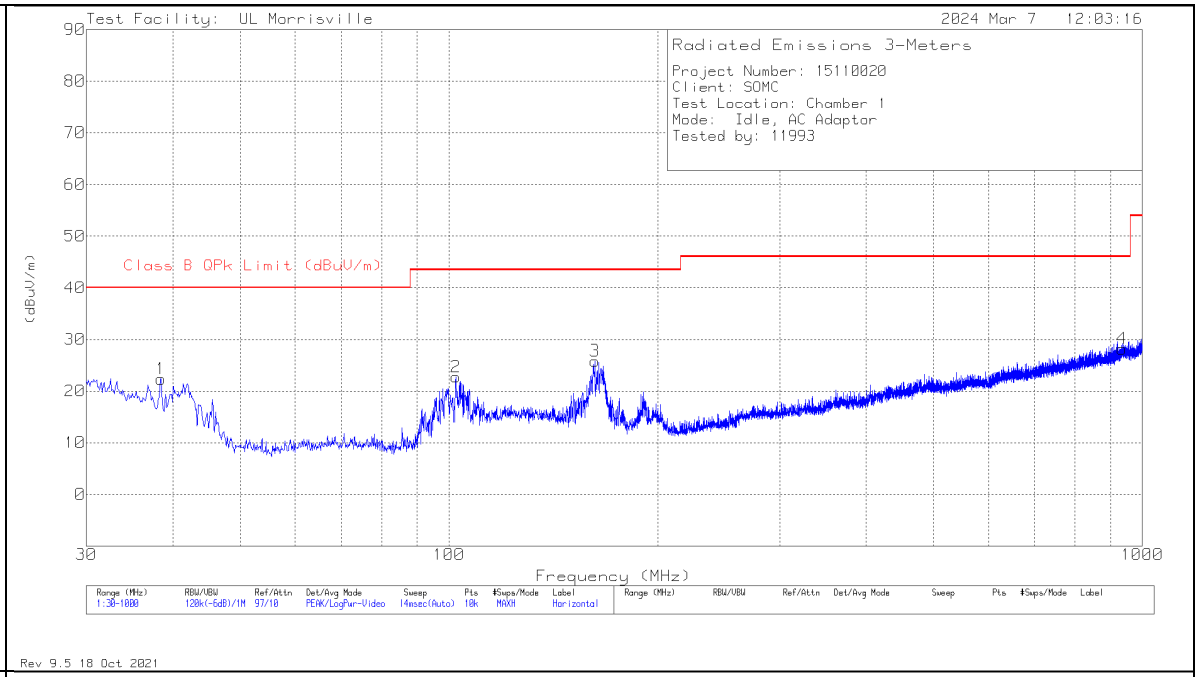
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	26.58678	44.92	Pk	36.1	-34.4	46.62	54	-7.38	74	-27.38	0-360	200	H
4	26.7343	42.26	Pk	36.2	-33	45.46	54	-8.54	74	-28.54	0-360	300	V
2	29.24802	42.58	Pk	36.3	-31.3	47.58	54	-6.42	74	-26.42	0-360	250	H
5	29.51896	42.53	Pk	36.2	-31.8	46.93	54	-7.07	74	-27.07	0-360	300	V
6	30.461	42.66	Pk	36.7	-32.1	47.26	54	-6.74	74	-26.74	0-360	300	V
3	31.00386	41.53	Pk	36.8	-31.1	47.23	54	-6.77	74	-26.77	0-360	150	H

Pk - Peak detector

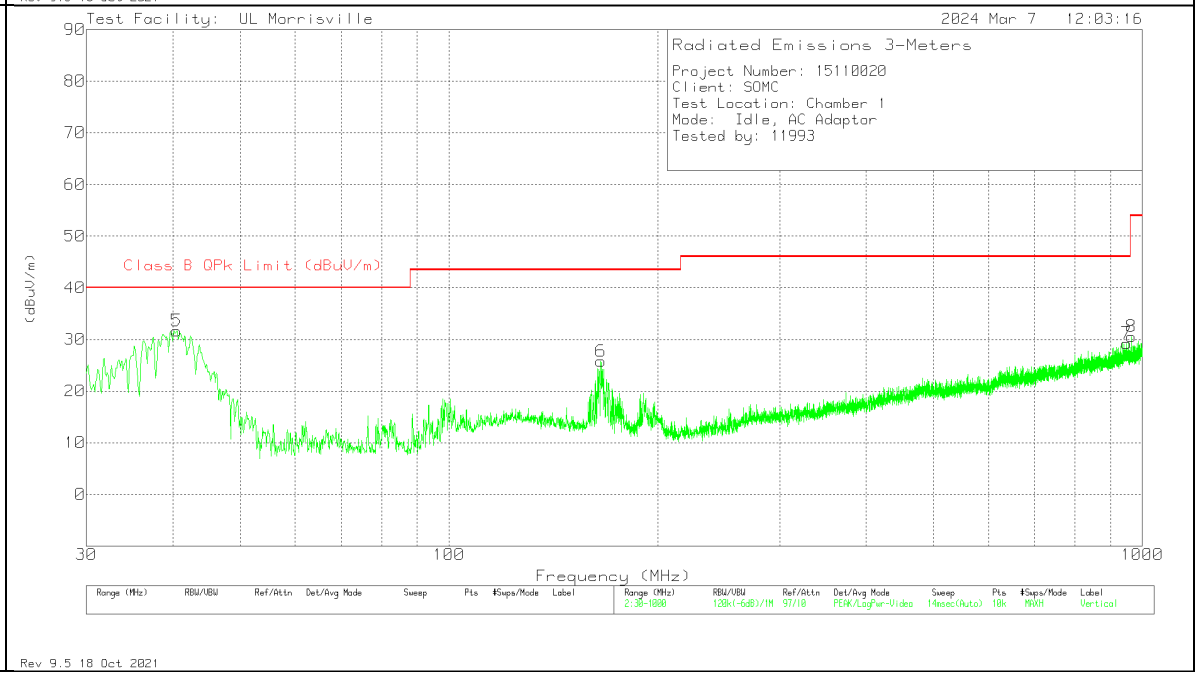
RADIATED EMISSIONS 30 TO 1000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

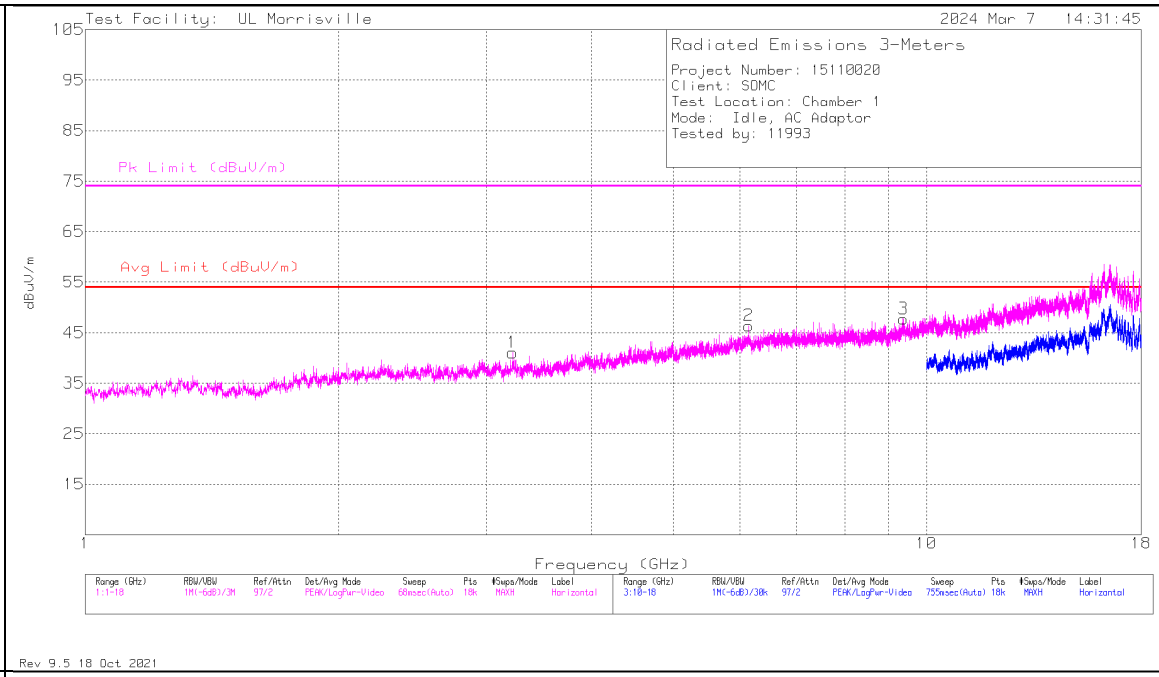
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	38.439	33.05	Pk	20.9	-31.6	22.35	40	-17.65	0-360	300	H
5	40.476	43.69	Pk	19.5	-31.5	31.69	40	-8.31	0-360	100	V
2	102.362	36.44	Pk	17.4	-31.1	22.74	43.52	-20.78	0-360	300	H
3	162.405	37.6	Pk	18.5	-30.3	25.8	43.52	-17.72	0-360	199	H
6	165.703	37.77	Pk	18.3	-30.3	25.77	43.52	-17.75	0-360	100	V
4	935.204	25.18	Pk	28.8	-25.8	28.18	46.02	-17.84	0-360	100	H
7	949.754	25.95	Pk	28.9	-25.6	29.25	46.02	-16.77	0-360	100	V
8	965.565	27.06	Pk	29	-25.5	30.56	53.97	-23.41	0-360	100	V

Pk - Peak detector

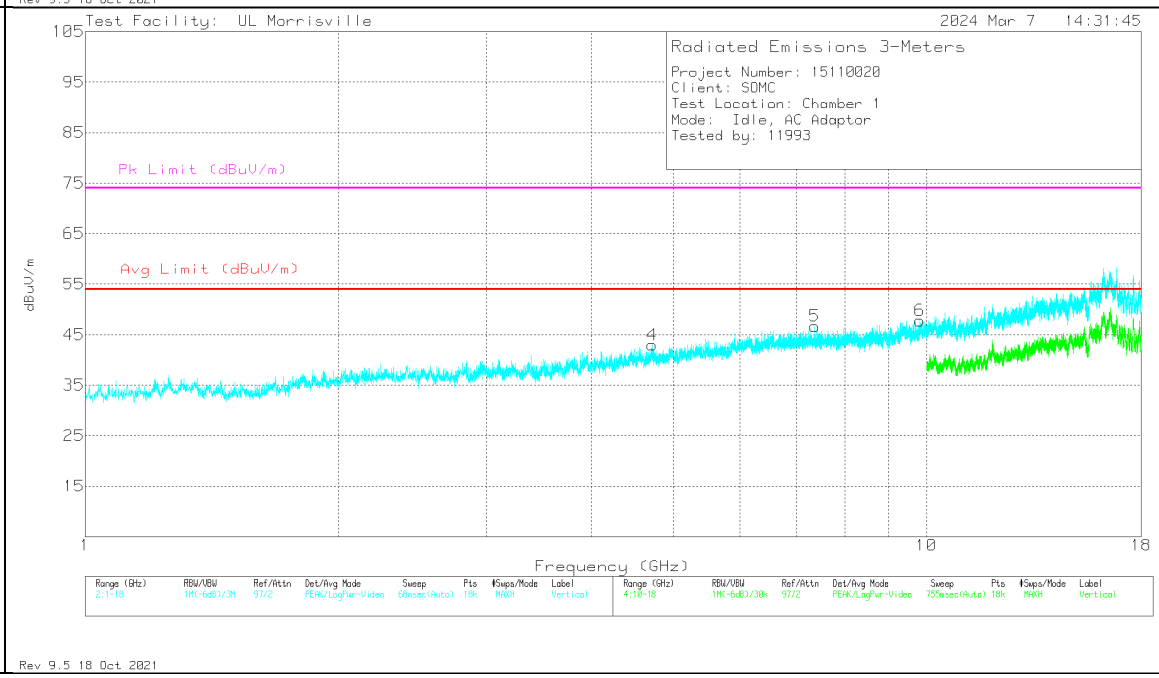
RADIATED EMISSIONS 1000 TO 18,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

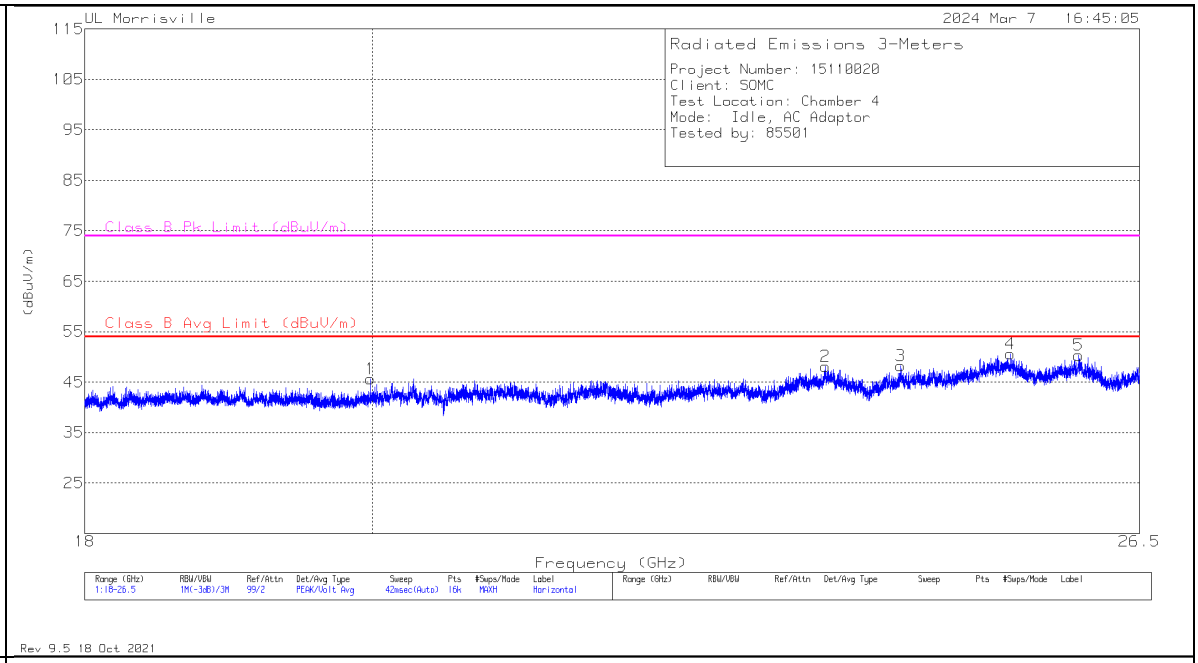
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.22039	41.35	Pk	32.9	-33.2	41.05	54	-12.95	74	-32.95	0-360	200	H
4	4.72016	39.85	Pk	34.1	-31	42.95	54	-11.05	74	-31.05	0-360	101	V
2	6.14628	40.39	Pk	35.3	-29.3	46.39	54	-7.61	74	-27.61	0-360	200	H
5	7.3665	38.46	Pk	35.7	-27.5	46.66	54	-7.34	74	-27.34	0-360	200	V
3	9.38288	37.33	Pk	36.4	-26	47.73	54	-6.27	74	-26.27	0-360	101	H
6	9.82394	35.69	Pk	37.1	-25	47.79	54	-6.21	74	-26.21	0-360	101	V

Pk - Peak detector

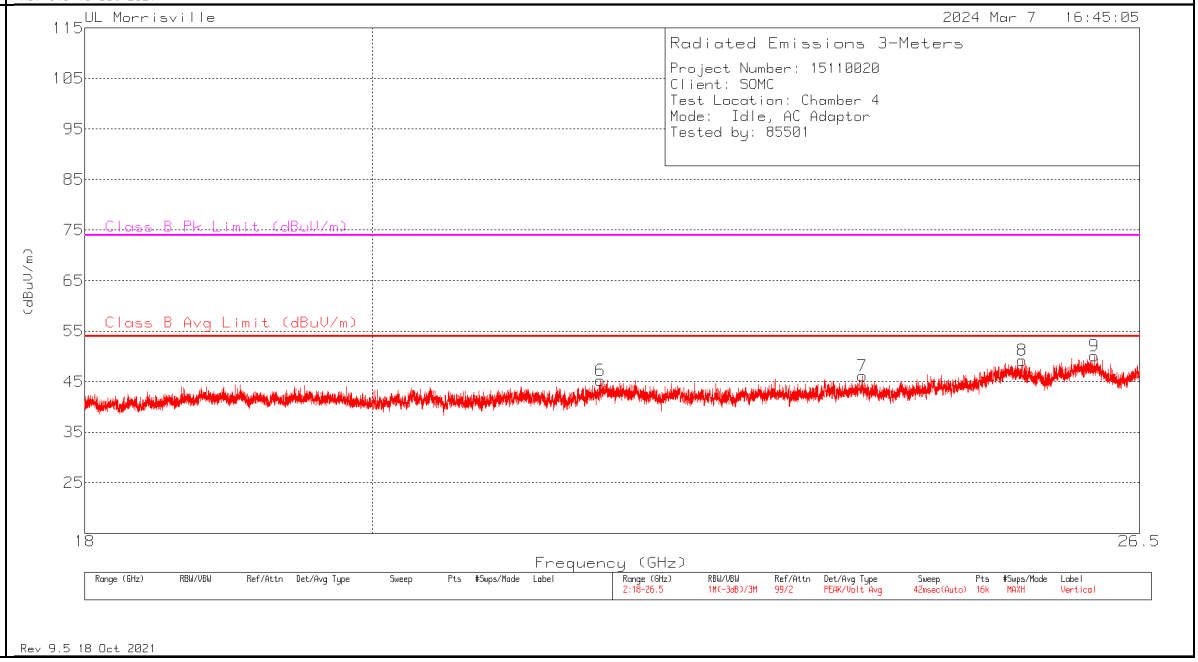
RADIATED EMISSIONS 18,000 TO 26,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

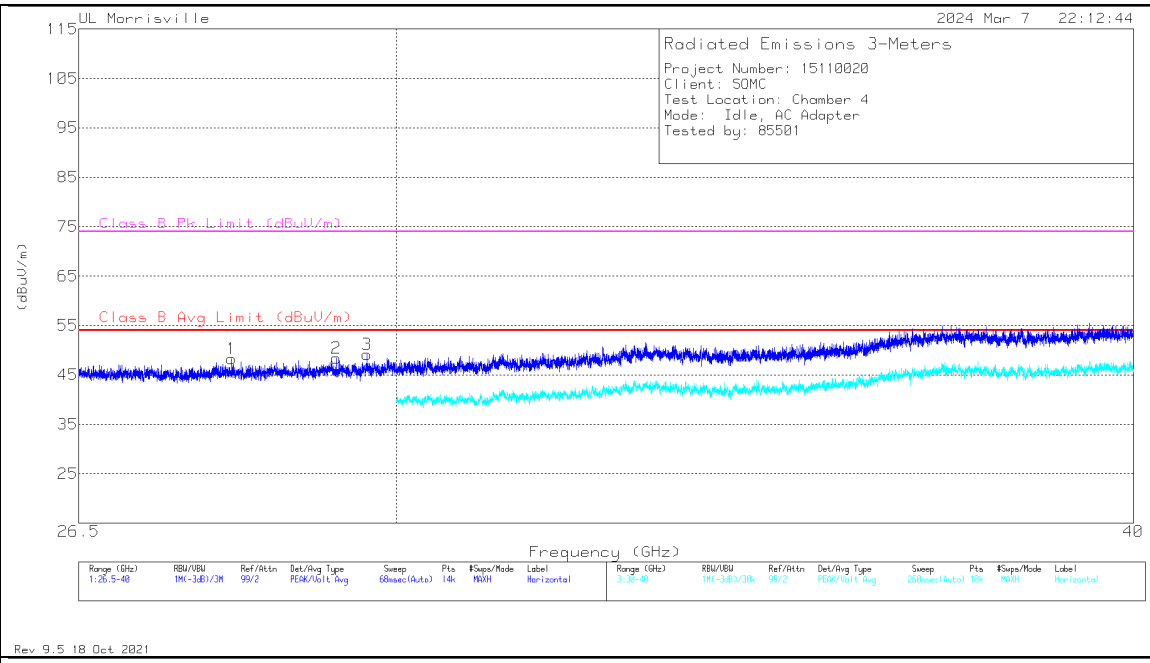
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.98941	52.04	Pk	33.4	-39.8	45.64	54	-8.36	74	-28.36	0-360	100	H
6	21.74774	50.51	Pk	34	-39.2	45.31	54	-8.69	74	-28.69	0-360	300	V
2	23.61873	49.12	Pk	34.6	-36.7	47.02	-	-	74	-26.98	190	180	H
	23.61874	37.02	Av	34.6	-36.7	34.92	54	-19.08	-	-	190	180	H
7	23.94007	47.97	Pk	34.4	-36.2	46.17	54	-7.83	74	-27.83	0-360	200	V
3	24.27718	46.79	Pk	34.5	-36.2	45.09	-	-	74	-28.91	152	363	H
	24.27972	34.92	Av	34.5	-35.8	33.62	54	-20.38	-	-	152	363	H
4	25.27463	48.03	Pk	35.7	-34.8	48.93	-	-	74	-25.07	105	233	H
	25.27635	36.06	Av	35.7	-34.8	36.96	54	-17.04	-	-	105	233	H
8	25.38533	46.13	Pk	35.6	-34.7	47.03	-	-	74	-26.97	69	393	V
	25.3861	34.25	Av	35.6	-34.8	35.05	54	-18.95	-	-	69	393	V
5	25.91814	46.42	Pk	35.3	-34.1	47.62	-	-	74	-26.38	210	262	H
	25.91768	34.68	Av	35.3	-34.1	35.88	54	-18.12	74	-38.12	210	262	H
9	26.06441	46.24	Pk	35.2	-34	47.44	-	-	74	-26.56	78	144	V
	26.064	34.65	Av	35.2	-34	35.85	54	-18.15	-	-	78	144	V

Pk - Peak detector
Av - Average detection

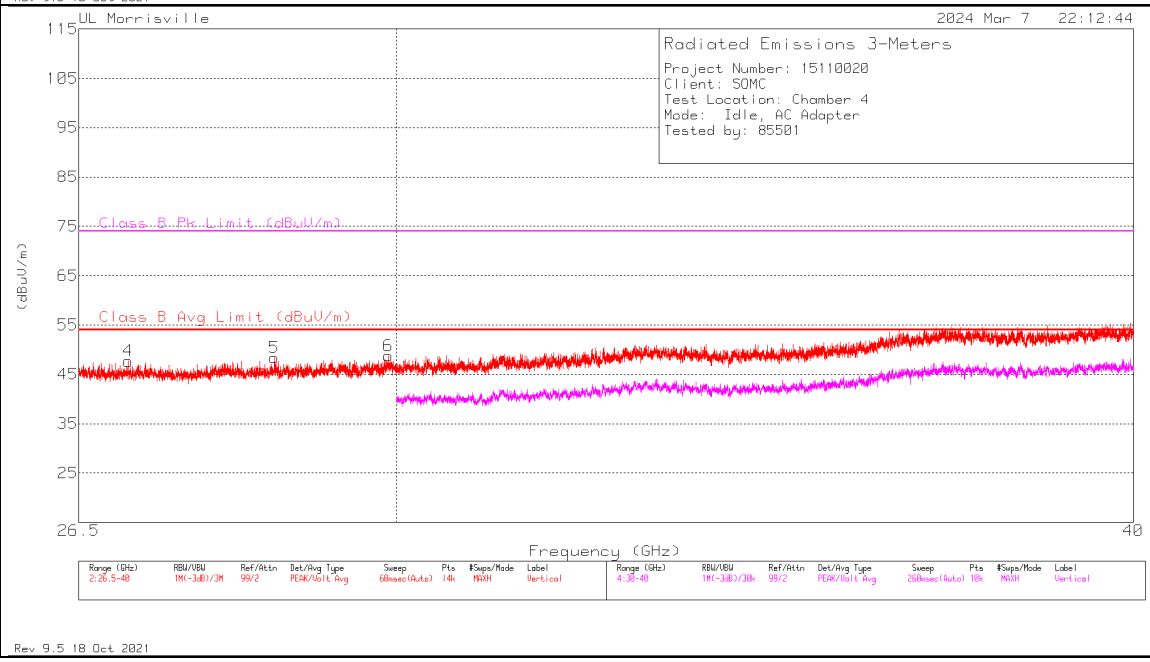
RADIATED EMISSIONS 26,000 TO 40,000 MHz – AC Adaptor

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

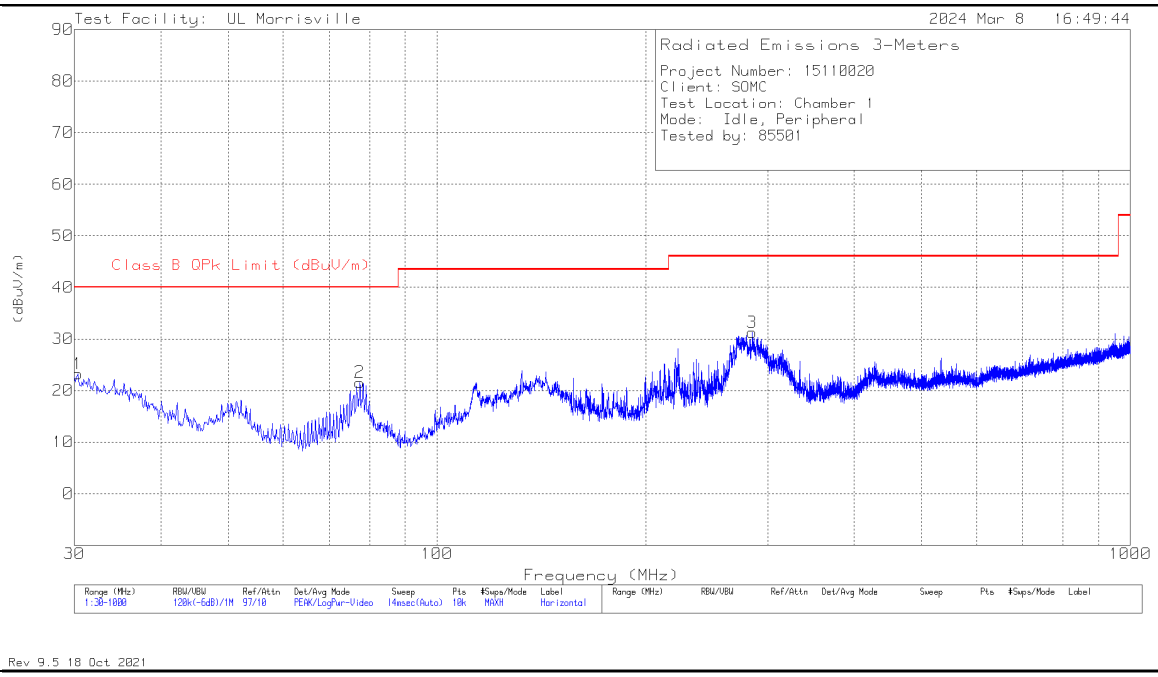
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	27.01489	44.5	Pk	36.1	-32.9	47.7	54	-6.3	74	-26.3	0-360	300	V
1	28.1307	43.74	Pk	36.5	-32.9	47.34	-	-	74	-26.66	184	164	H
	28.1306	32.32	Av	36.5	-32.9	35.92	54	-18.08	-	-	184	164	H
5	28.60252	44.38	Pk	36.3	-31.6	49.08	-	-	74	-24.92	229	341	V
	28.60254	32.26	Av	36.3	-31.6	36.96	54	-17.04	-	-	229	341	V
2	29.29748	44.43	Pk	36.2	-32.4	48.23	-	-	74	-25.77	189	143	H
	29.29746	31.79	Av	36.2	-32.4	35.59	54	-18.41	-	-	189	143	H
3	29.65492	43.71	Pk	36.6	-31.2	49.11	-	-	74	-24.89	0-360	250	H
6	29.90498	44.72	Pk	36.7	-31.3	50.12	-	-	74	-23.88	271	294	V
	29.90702	32.44	Av	36.7	-31.2	37.94	54	-16.06	-	-	271	294	V

Pk - Peak detector
Av - Average detection

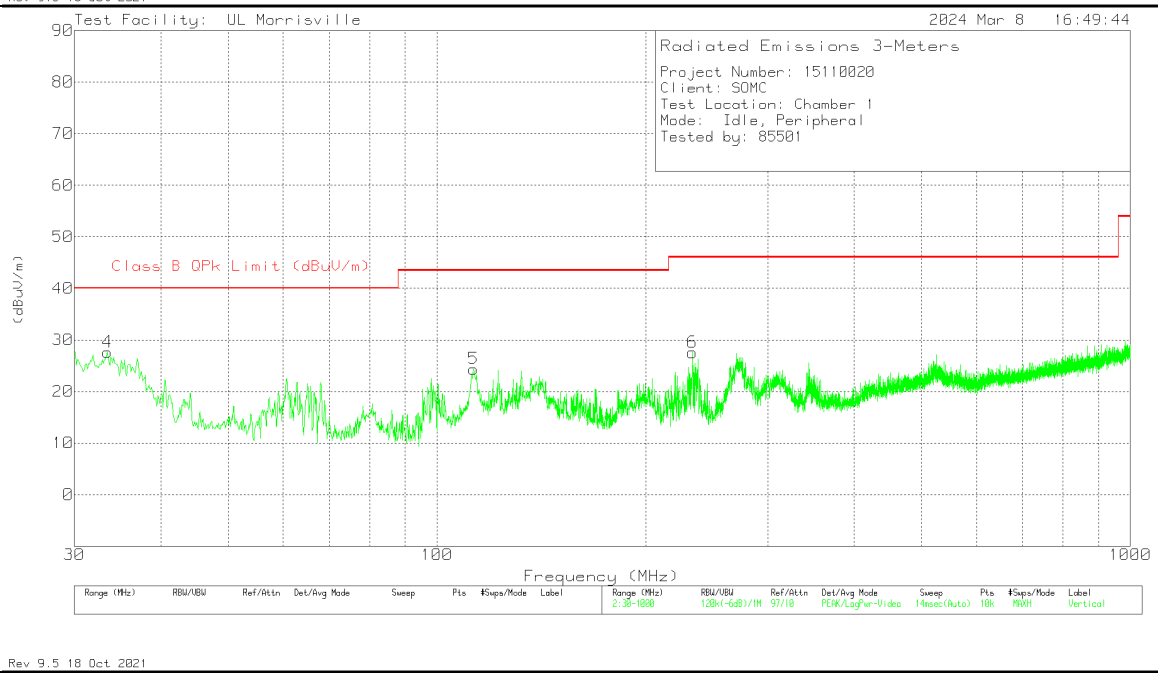
RADIATED EMISSIONS 30 TO 1000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

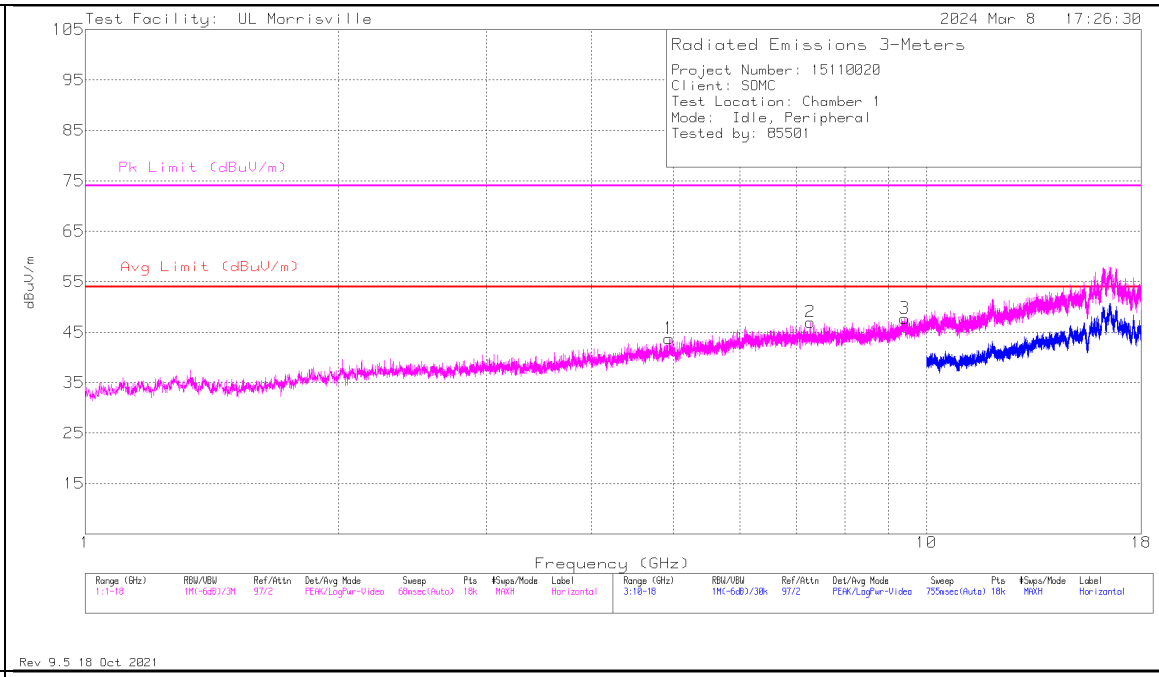
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.388	28.41	Pk	26.6	-31.8	23.21	40	-16.79	0-360	99	H
4	33.492	34.84	Pk	24.5	-31.7	27.64	40	-12.36	0-360	100	V
2	77.433	38.58	Pk	14.3	-31.3	21.58	40	-18.42	0-360	200	H
5	112.935	36.09	Pk	19.2	-30.9	24.39	43.52	-19.13	0-360	100	V
6	233.797	40.18	Pk	17.4	-30	27.58	46.02	-18.44	0-360	100	V
3	285.11	41.16	Pk	19.5	-29.4	31.26	46.02	-14.76	0-360	99	H

Pk - Peak detector

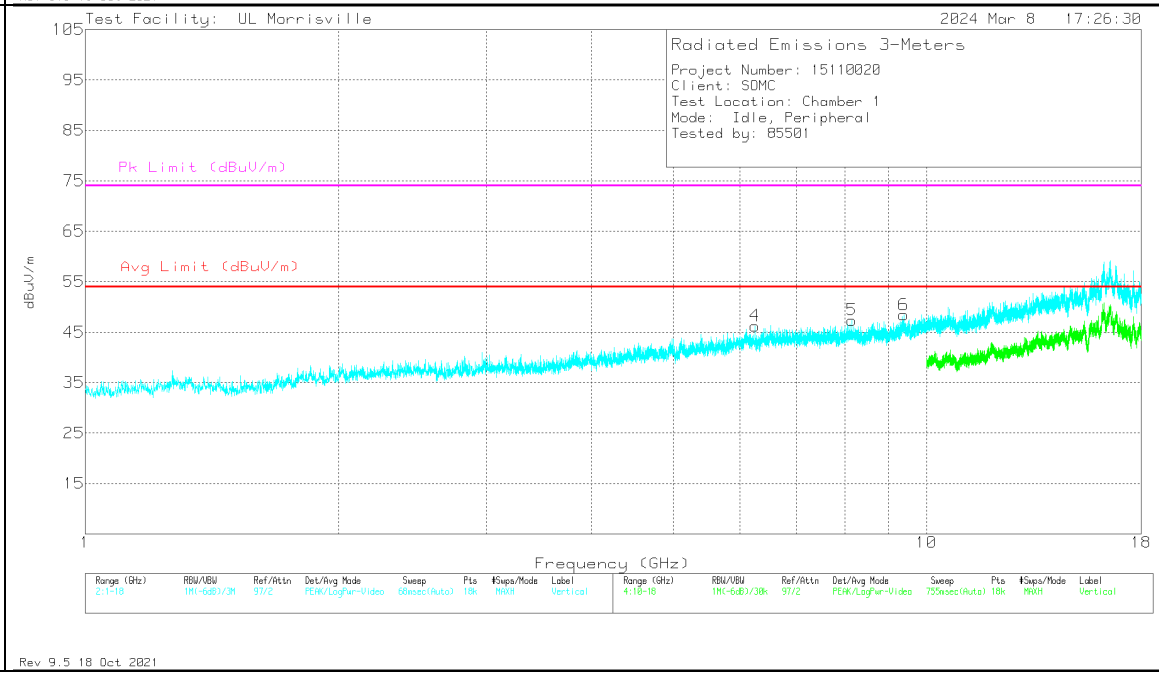
RADIATED EMISSIONS 1000 TO 18,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

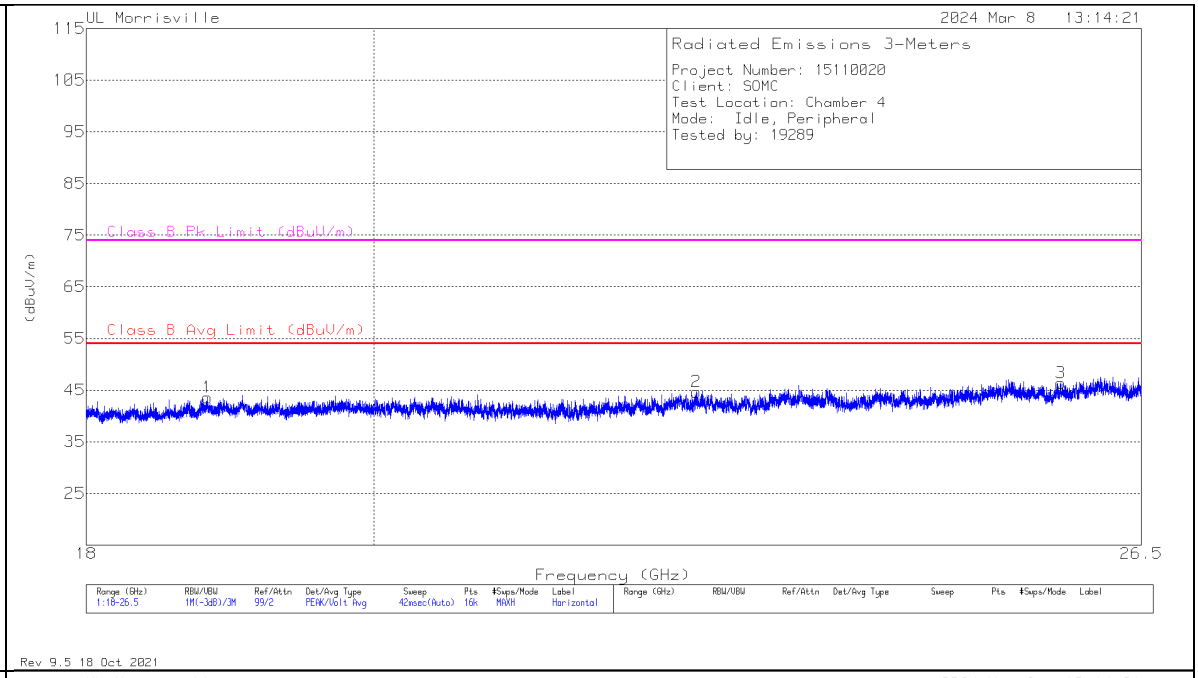
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	4.944	40.66	Pk	34	-30.9	43.76	54	-10.24	74	-30.24	0-360	200	H
4	6.25583	40.15	Pk	35.4	-29.3	46.25	54	-7.75	74	-27.75	0-360	200	V
2	7.27866	38.92	Pk	35.6	-27.5	47.02	54	-6.98	74	-26.98	0-360	200	H
5	8.15133	38.29	Pk	35.8	-26.7	47.39	54	-6.61	74	-26.61	0-360	101	V
6	9.39485	39.54	Pk	36.4	-26.1	49.84	-	-	74	-24.16	353	225	V
	9.39485	25.64	Av	36.4	-26.1	35.94	54	-18.06	-	-	353	225	V
3	9.42255	37.25	Pk	36.4	-25.9	47.75	54	-6.25	74	-26.25	0-360	200	H

Pk - Peak detector
Av - Average detection

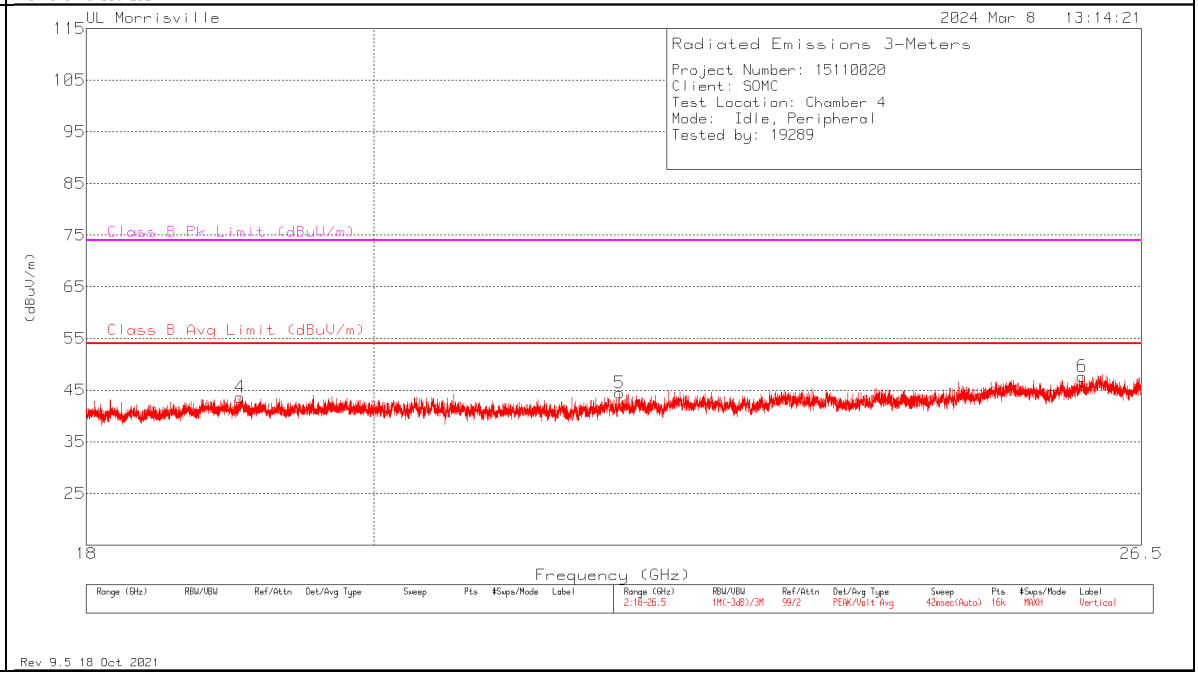
RADIATED EMISSIONS 18,000 TO 26,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

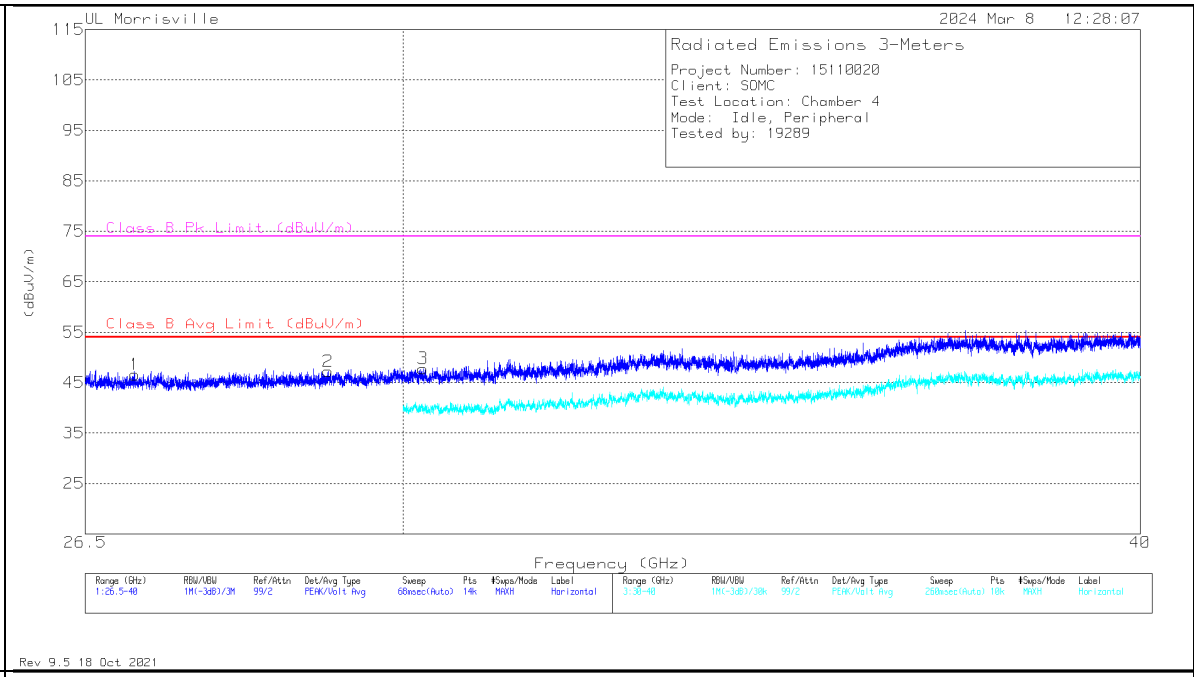
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204704 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	18.81861	49.76	Pk	33.4	-39.6	43.56	54	-10.44	74	-30.44	0-360	200	H
4	19.04331	50.12	Pk	33.6	-40.1	43.62	54	-10.38	74	-30.38	0-360	300	V
5	21.88904	49.27	Pk	34.2	-39	44.47	54	-9.53	74	-29.53	0-360	300	V
2	22.51216	49.06	Pk	34.2	-38.6	44.66	54	-9.34	74	-29.34	0-360	100	H
3	25.72761	44.76	Pk	35.4	-33.8	46.36	54	-7.64	74	-27.64	0-360	100	H
6	25.93054	46.17	Pk	35.3	-33.8	47.67	54	-6.33	74	-26.33	0-360	250	V

Pk - Peak detector

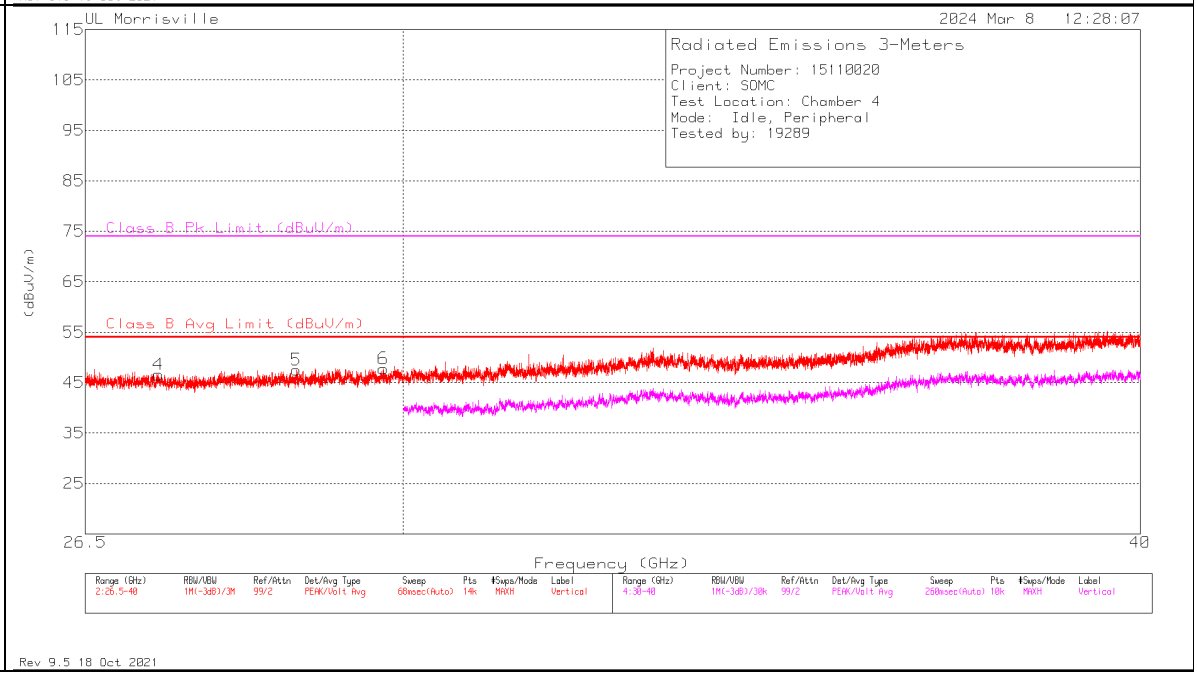
RADIATED EMISSIONS 26,000 TO 40,000 MHz – PC Peripheral

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

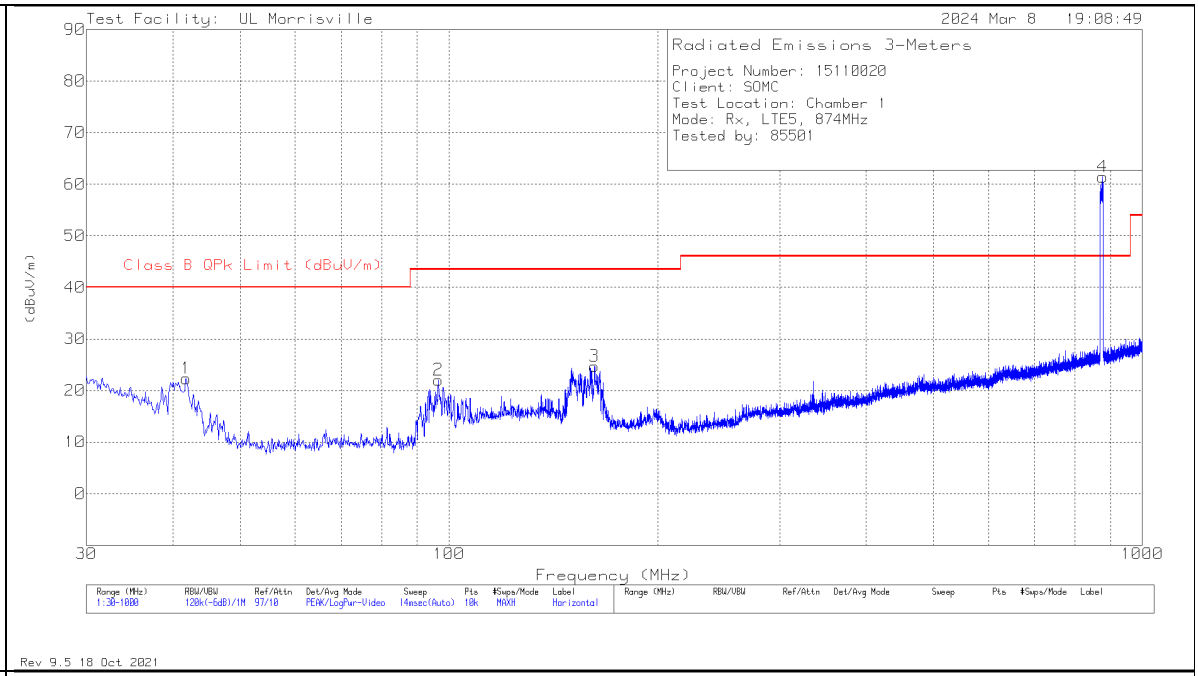
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	204705 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.01682	43.78	Pk	36.1	-33.3	46.58	54	-7.42	74	-27.42	0-360	200	H
4	27.26655	43.68	Pk	36	-33.1	46.58	54	-7.42	74	-27.42	0-360	150	V
5	28.77748	43.81	Pk	36.1	-32.4	47.51	54	-6.49	74	-26.49	0-360	300	V
2	29.13328	42.62	Pk	36.4	-31.8	47.22	54	-6.78	74	-26.78	0-360	200	H
6	29.76966	42.75	Pk	36.6	-31.6	47.75	54	-6.25	74	-26.25	0-360	300	V
3	30.23345	42.58	Pk	37	-31.8	47.78	54	-6.22	74	-26.22	0-360	250	H

Pk - Peak detector

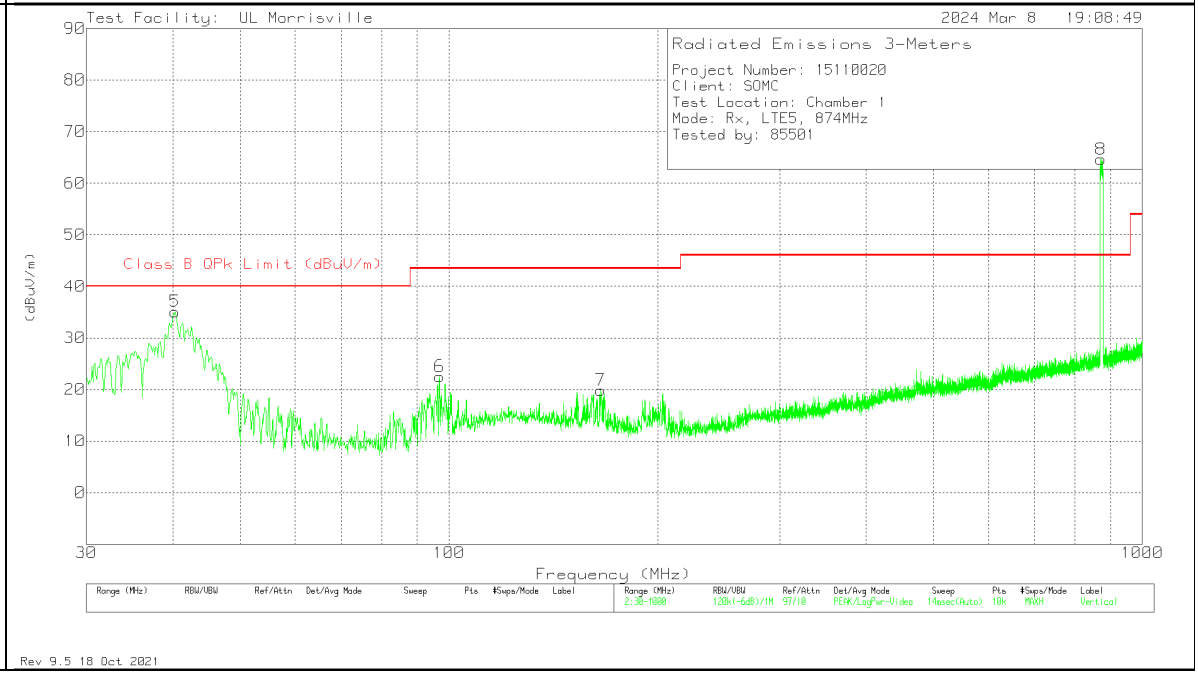
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 874MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

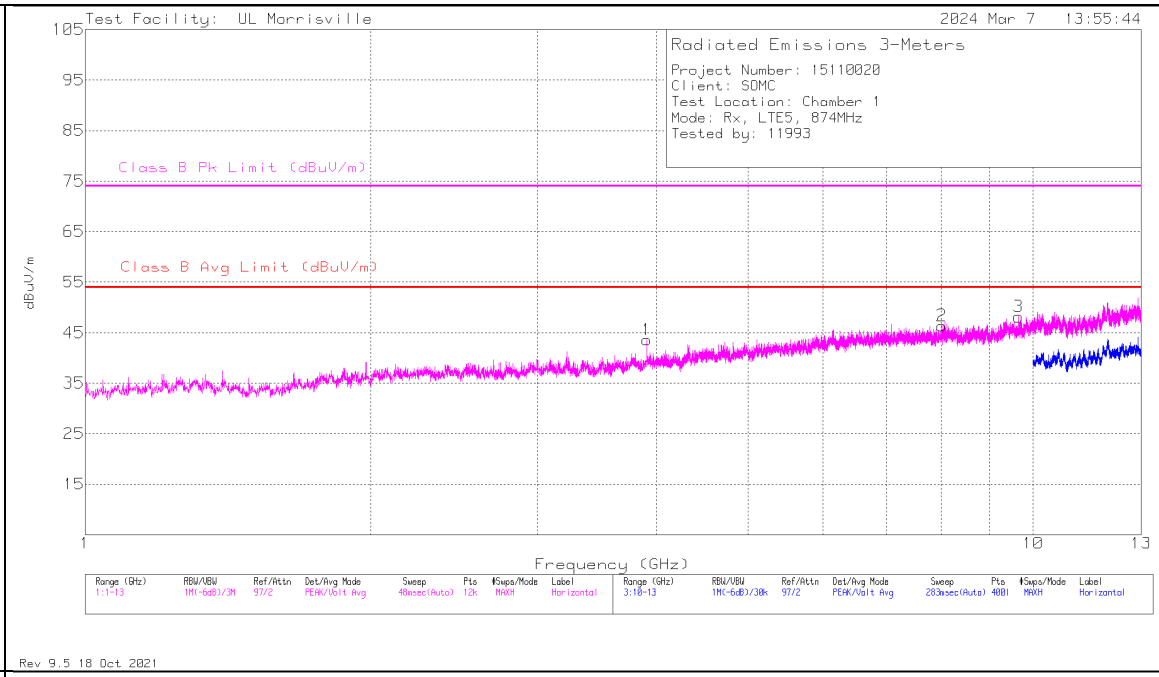
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	40.09786	47.8	Pk	19.7	-31.5	36	40	-4	268	112	V
1	41.834	35.33	Pk	18.5	-31.5	22.33	40	-17.67	0-360	200	H
2	96.542	37.06	Pk	15.8	-30.8	22.06	43.52	-21.46	0-360	200	H
6	96.93	37.61	Pk	15.9	-31	22.51	43.52	-21.01	0-360	100	V
3	162.211	36.53	Pk	18.5	-30.3	24.73	43.52	-18.79	0-360	200	H
7	165.606	31.87	Pk	18.3	-30.3	19.87	43.52	-23.65	0-360	100	V
8	871.9115 (DL)	63.04	Pk	28.2	-26.6	-	-	-	0-360	100	V
4	877.295 (DL)	59.84	Pk	28.2	-26.6	-	-	-	0-360	99	H

Pk - Peak detector
DL – Callbox Downlink

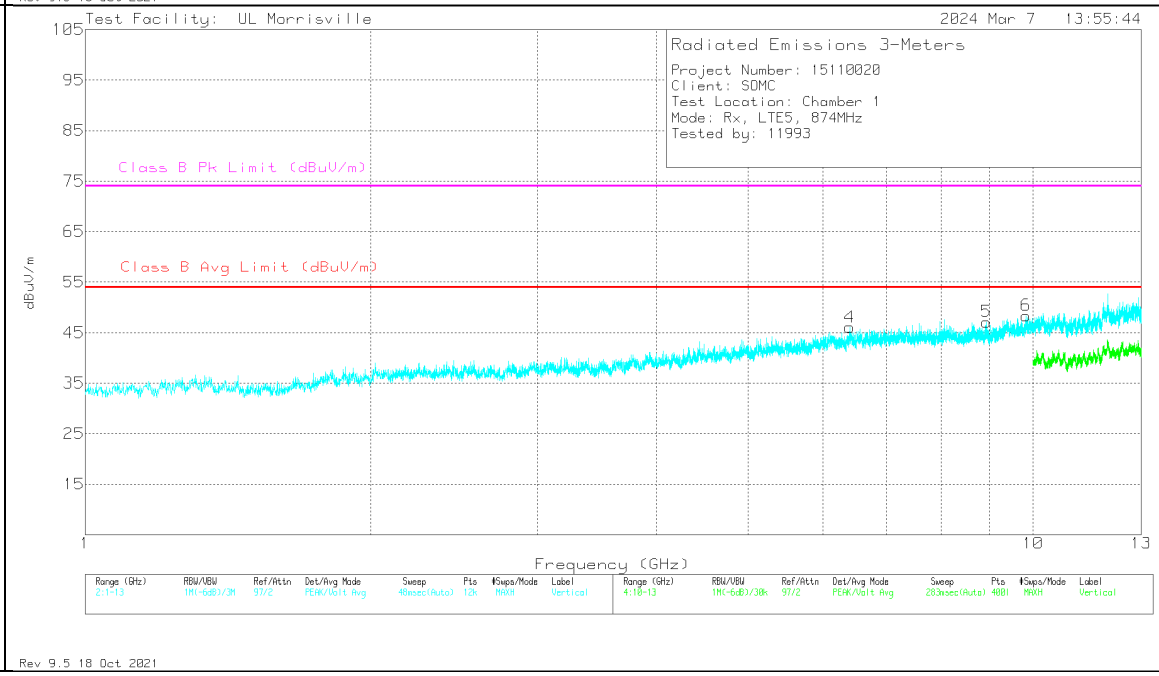
RADIATED EMISSIONS 1000 TO 13,000 MHz – LTE B5 Rx 874.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

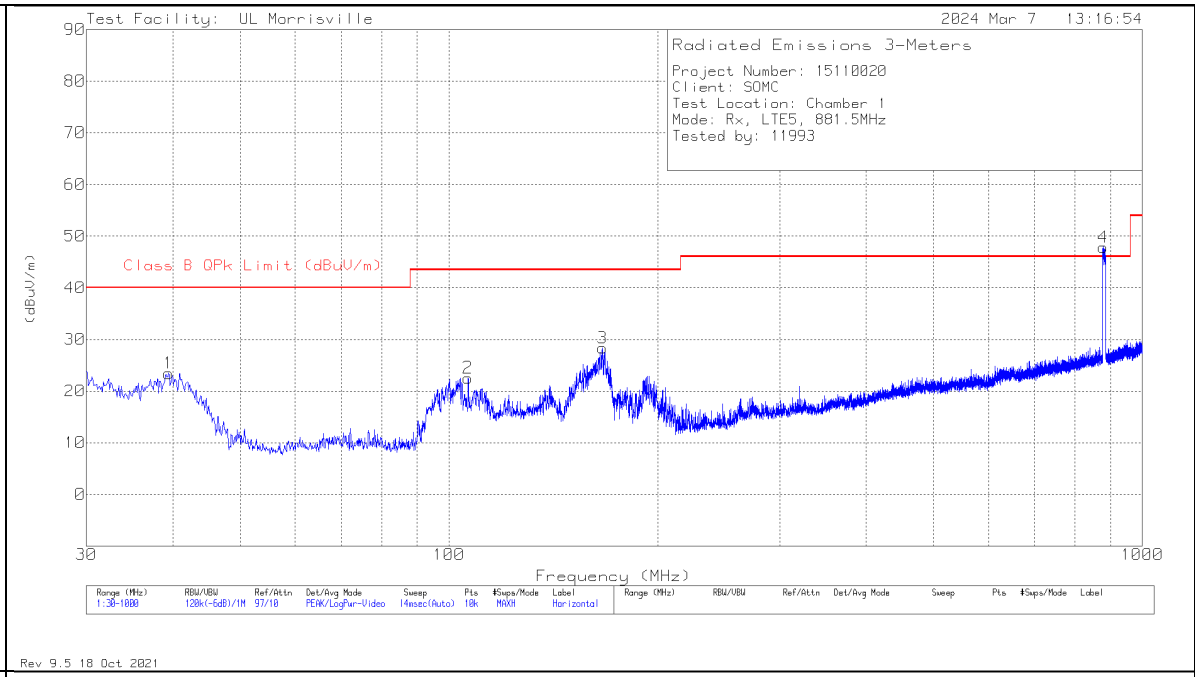
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.911	42.17	Pk	33.4	-32	43.57	54	-10.43	74	-30.43	0-360	200	H
4	6.403	39.36	Pk	35.4	-28.7	46.06	54	-7.94	74	-27.94	0-360	101	V
2	8.011	37.75	Pk	35.8	-27.2	46.35	54	-7.65	74	-27.65	0-360	200	H
5	8.927	38.04	Pk	35.9	-26.8	47.14	54	-6.86	74	-26.86	0-360	101	V
3	9.64881	37.36	Pk	36.7	-25.7	48.36	-	-	74	-25.64	130	162	H
	9.64881	23.97	Av	36.7	-25.7	34.97	54	-19.03	-	-	130	162	H
6	9.82612	37.38	Pk	37.1	-25	49.48	-	-	74	-24.52	132	139	V
	9.82612	23.94	Av	37.1	-25	36.04	54	-17.96	-	-	132	139	V

Pk - Peak detector
Av - Average detection

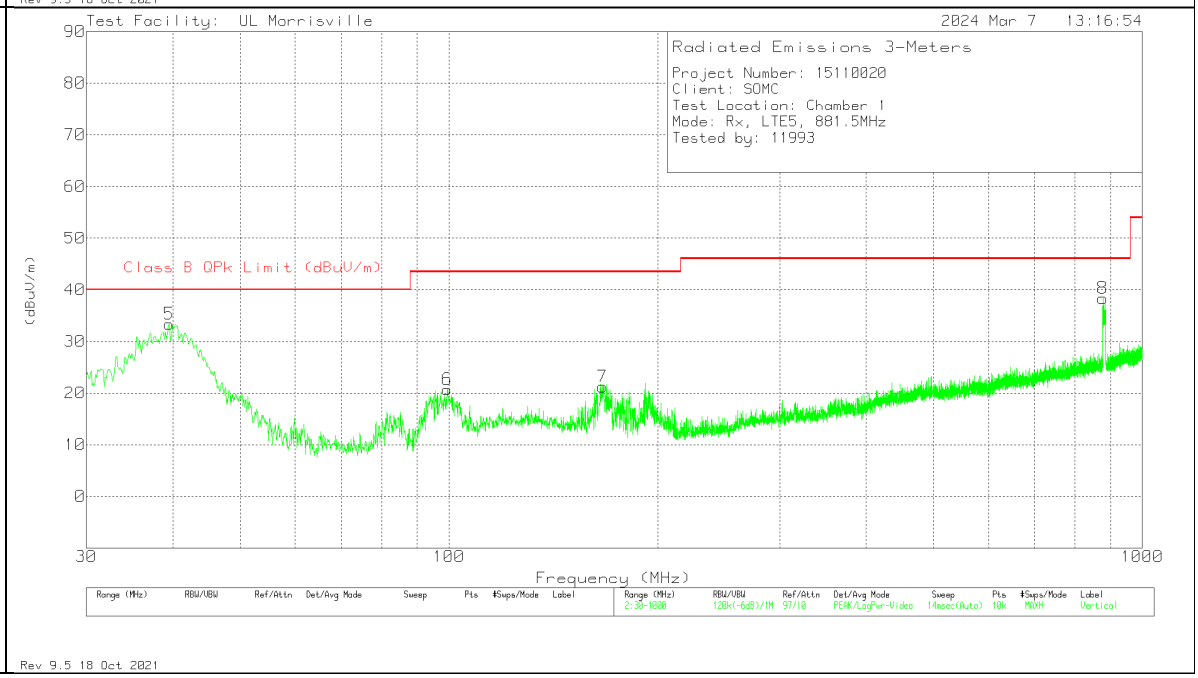
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 881.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

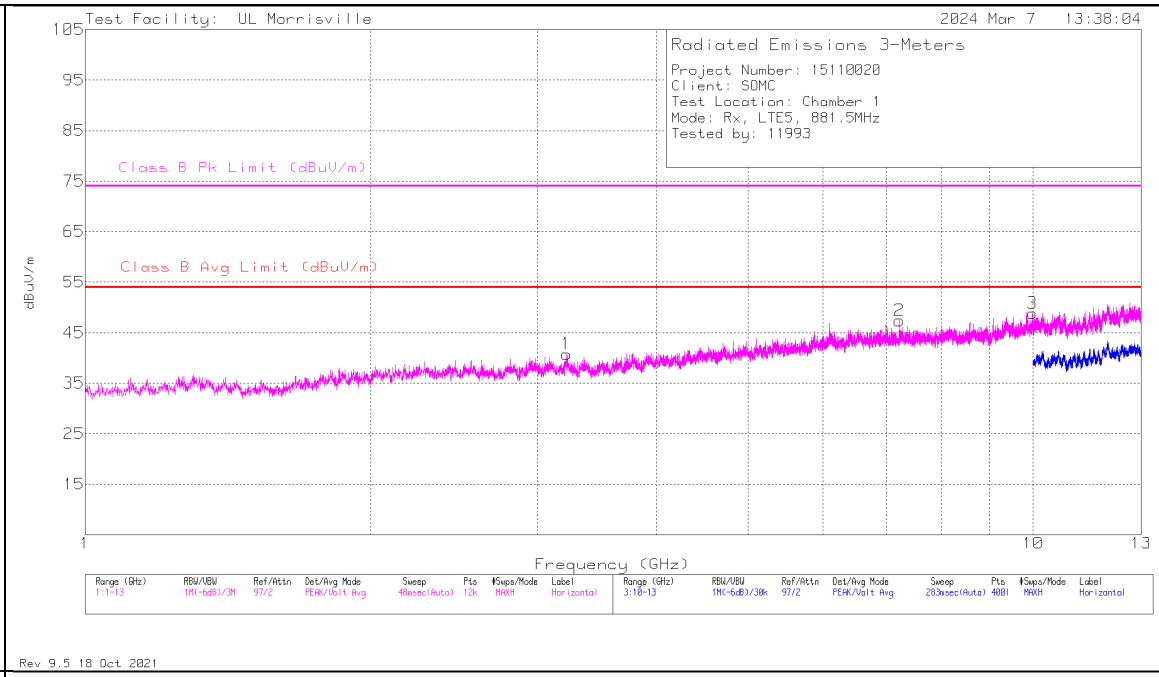
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	39.409	34.73	Pk	20.2	-31.5	23.43	40	-16.57	0-360	299	H
5	39.506	44.76	Pk	20.1	-31.5	33.36	40	-6.64	0-360	100	V
6	99.452	35.01	Pk	16.5	-30.8	20.71	43.52	-22.81	0-360	100	V
2	106.63	35.03	Pk	18.3	-30.8	22.53	43.52	-20.99	0-360	299	H
3	166.479	40.23	Pk	18.3	-30.2	28.33	43.52	-15.19	0-360	200	H
7	166.673	33.24	Pk	18.3	-30.3	21.24	43.52	-22.28	0-360	100	V
8 (DL)	877.489	36.86	Pk	28.2	-26.7	38.36	-	-	0-360	100	V
4 (DL)	878.168	46.14	Pk	28.2	-26.5	47.84	-	-	0-360	99	H

Pk - Peak detector
DL – Callbox Downlink

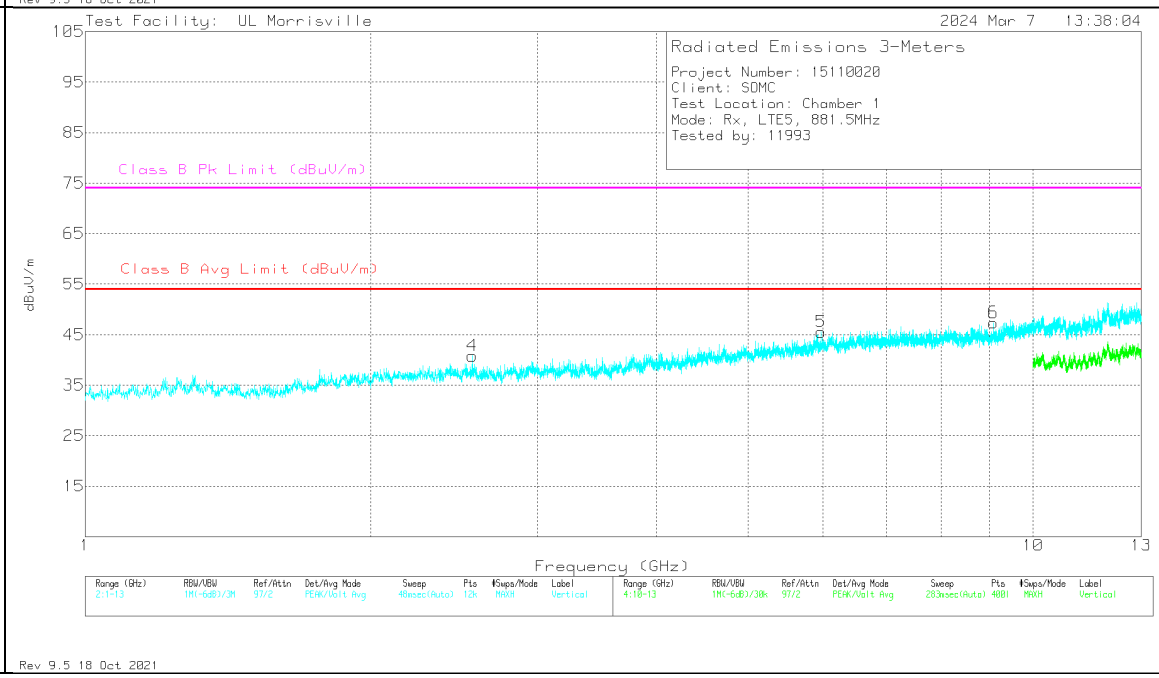
RADIATED EMISSIONS 1000 TO 13,000 MHz – LTE B5 Rx 881.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

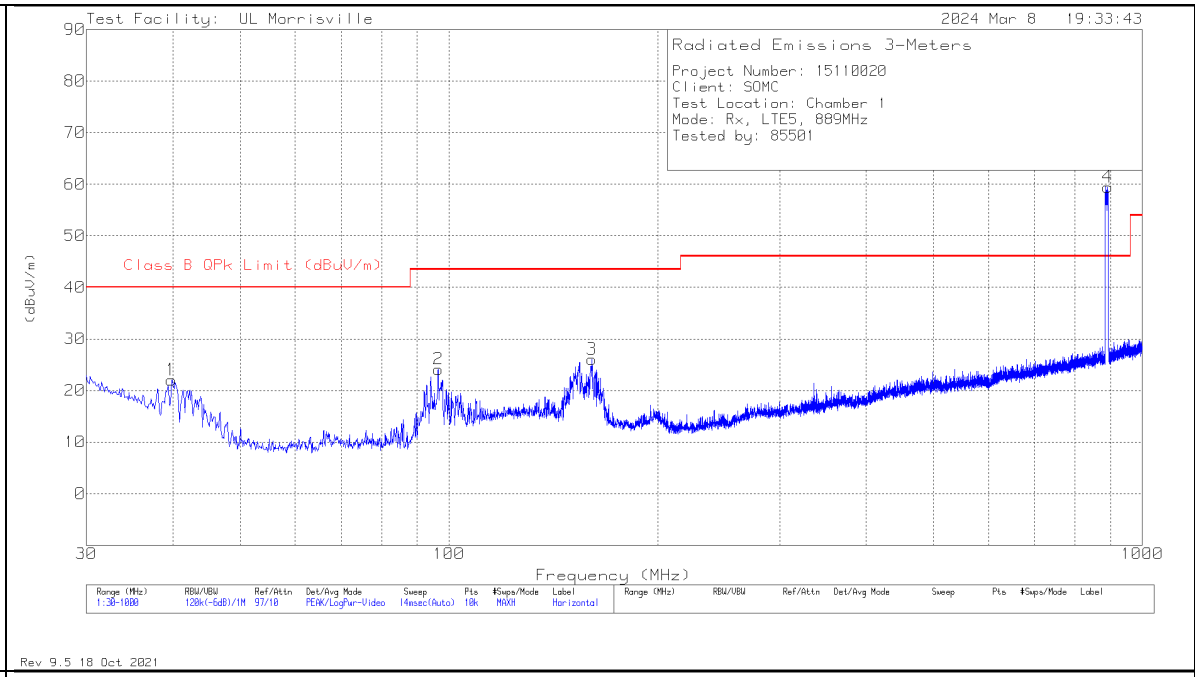
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.56	42.42	Pk	32.3	-33.9	40.82	54	-13.18	74	-33.18	0-360	101	V
1	3.219	41.06	Pk	32.9	-33.2	40.76	54	-13.24	74	-33.24	0-360	100	H
5	5.973	39.94	Pk	35.2	-29.6	45.54	54	-8.46	74	-28.46	0-360	200	V
2	7.224	39.01	Pk	35.6	-27.2	47.41	54	-6.59	74	-26.59	0-360	199	H
6	9.079	37.37	Pk	36	-26	47.37	54	-6.63	74	-26.63	0-360	101	V
3	9.97606	36.92	Pk	37.4	-25	49.32	-	-	74	-24.68	19	211	H
	9.97606	23.85	Av	37.4	-25	36.25	54	-17.75	-	-	19	211	H

Pk - Peak detector
Av - Average detection

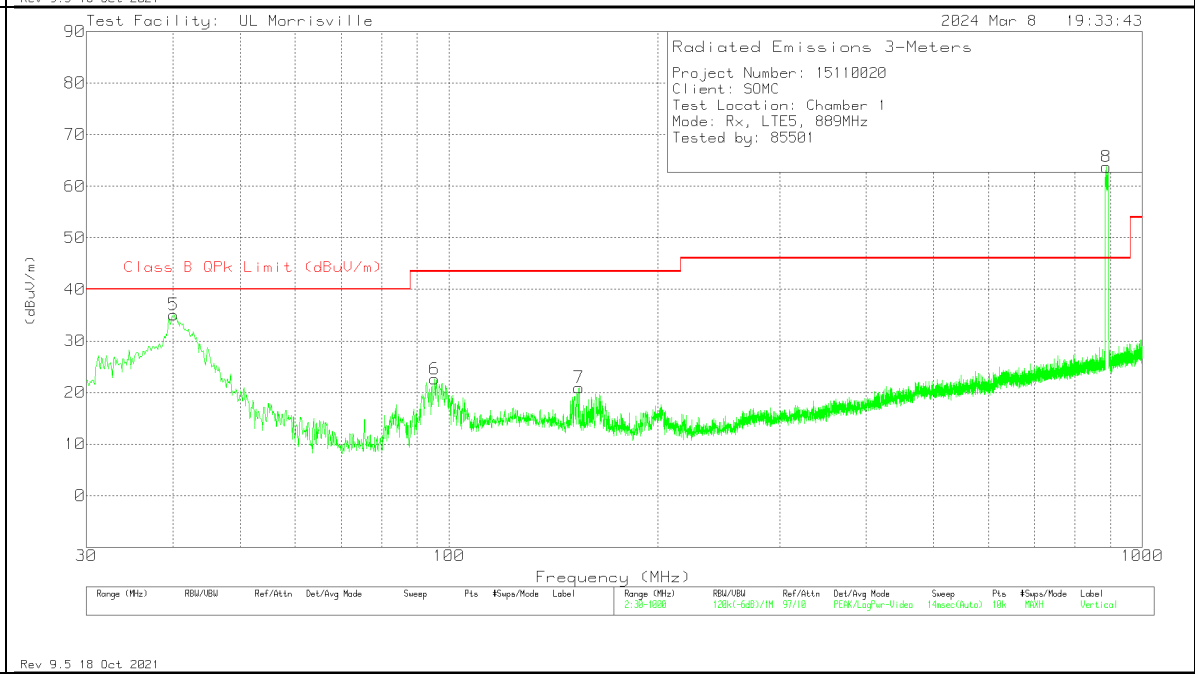
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 889.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

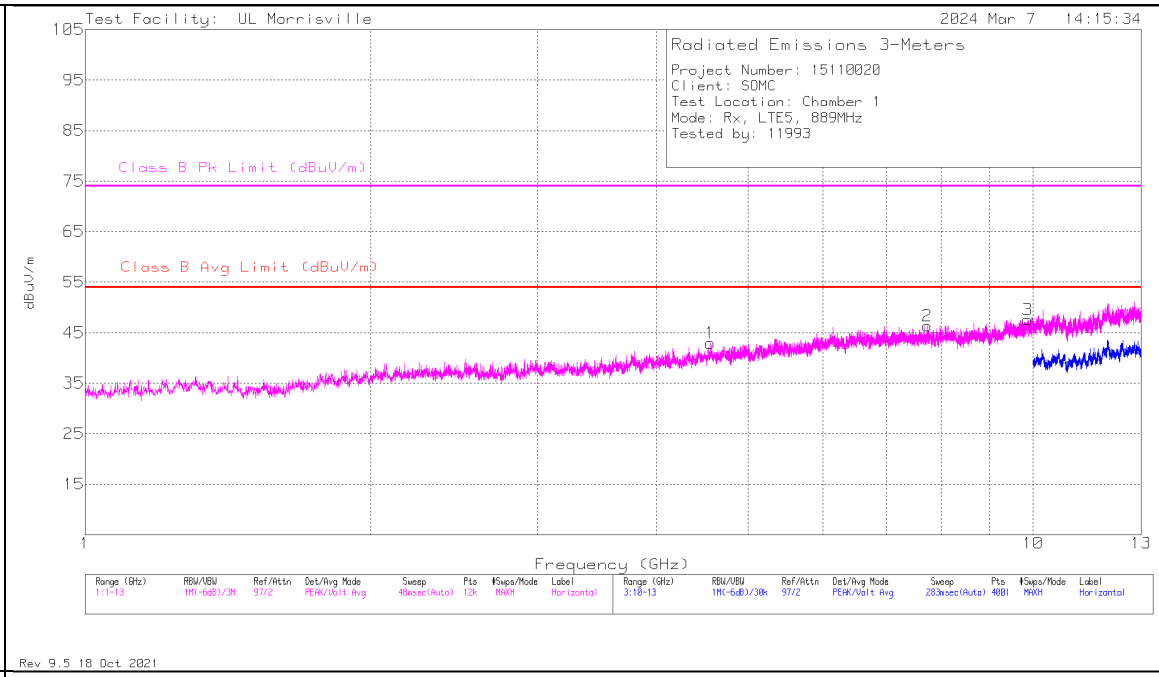
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	39.797	33.76	Pk	19.9	-31.6	22.06	40	-17.94	0-360	300	H
5	39.92257	47.87	Pk	19.8	-31.6	36.07	40	-3.93	232	111	V
6	95.378	38.13	Pk	15.4	-30.9	22.63	43.52	-20.89	0-360	100	V
2	96.542	39.14	Pk	15.8	-30.8	24.14	43.52	-19.38	0-360	300	H
7	154.063	32.83	Pk	18.6	-30.5	20.93	43.52	-22.59	0-360	100	V
3	160.853	37.77	Pk	18.6	-30.3	26.07	43.52	-17.45	0-360	199	H
8	887.286 (DL)	61.76	Pk	28.2	-26.2	-	-	-	0-360	100	V
4	892.039 (DL)	57.76	Pk	28.2	-26.5	-	-	-	0-360	99	H

Pk - Peak detector
DL – Callbox Downlink

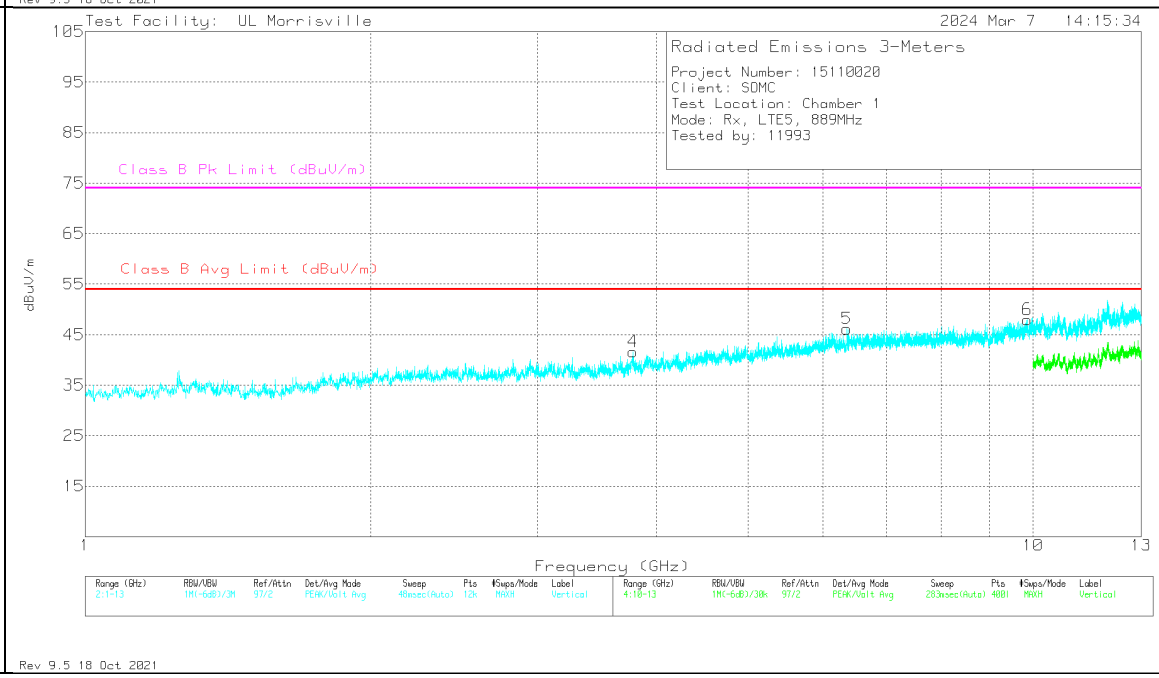
RADIATED EMISSIONS 1000 TO 13,000 MHz – LTE B5 Rx 889.0MHz

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	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.782	40.62	Pk	33.4	-32.4	41.62	54	-12.38	74	-32.38	0-360	101	V
1	4.563	40.42	Pk	34.1	-31.6	42.92	54	-11.08	74	-31.08	0-360	200	H
5	6.358	39.66	Pk	35.5	-29	46.16	54	-7.84	74	-27.84	0-360	200	V
2	7.735	37.61	Pk	35.8	-27.1	46.31	54	-7.69	74	-27.69	0-360	200	H
6	9.86	36.26	Pk	37.1	-25.4	47.96	54	-6.04	74	-26.04	0-360	200	V
3	9.865	35.68	Pk	37.1	-25.2	47.58	54	-6.42	74	-26.42	0-360	200	H

Pk - Peak detector

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