Report Number:	R14176151-E4V1
Issue Date:	2022-04-25
FCC ID:	PY7-34424G

Electromagnetic Compatibility Test Report

For

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

ACCREDITED
CERT #0751.06

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, 108-0076, Japan
Issue Date:	2022-04-25
FCC ID:	PY7-34424G
Sample Serial Number:	QV77009AC2, QV77001WC2
Applicable Standards:	FCC 47 CFR PART 15 SUBPART B:2022
Date Test Item Received:	2022-03-23
Testing Start Date:	2022-03-31
Date Testing Complete:	2022-04-11
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.

REPORT DIRECTORY

REPORT REVISION HISTORY

Revision Date	Revision Version	Description	Revised By	Revision Reviewed By
2022-04-25	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

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

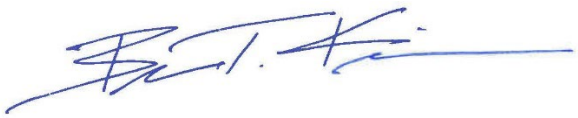
Requirement – Test	Result (Compliant / Non-Compliant)
CONDUCTED EMISSIONS	Compliant
RADIATED EMISSIONS	Compliant

Approved & Released For

UL LLC. By:

Michael Antola
Staff Engineer
Consumer Technology Division
UL LLC.

Prepared By:



Brian Kiewra
Project Engineer
Consumer Technology Division
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}	U_{Cispr}
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 db	3.4 db
Worst Case Radiated Disturbance, All ranges	6.01 db	6.3 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 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	PY7-34424G	None
AE	Headphones	Sony	MDR-EX15AP	None
AE	Power Supply	Sony	XQZ-UC11-010-236-21	None
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	Mains	DC	N	N	Connected to power supply
2	Audio	I/O	N	N	Connected to headphones
*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	Power Supply
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 0.1166 for idle sample and 0.1122 for WWAN Rx sample.

3.3 Block Diagram:

Refer to setup exhibit R14176151-EP4V1 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 power supply. Radio idle.
3	Operating as intended connected to power supply. Radio in Rx mode on supported LTE bands that transmit <960MHz. Note: LTE B5 covers GSM850 and WCDMA Band 5. LTE B12 covers LTE B17. Callbox was used to ensure that EUT was placed in Rx mode.

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 Z for power supply modes. Therefore all final radiated testing performed with the EUT in the X and Z orientations.

3.7 Rationale for EUT Mode of Operation

Mode of Operation #	Description
1,2,3	EUT capable of operating on battery or connected to a power supply. Operation on power supply is worst-case over operation as PC Peripheral.

4.0 APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

4.1 Test Conditions and Results - MAINS TERMINAL - CONDUCTED EMISSIONS

Test Engineer	84740	
Test Date	2022-04-04	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	24.0°C
Humidity	10 % to 90 %	25.6%
	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

Supplementary information: None

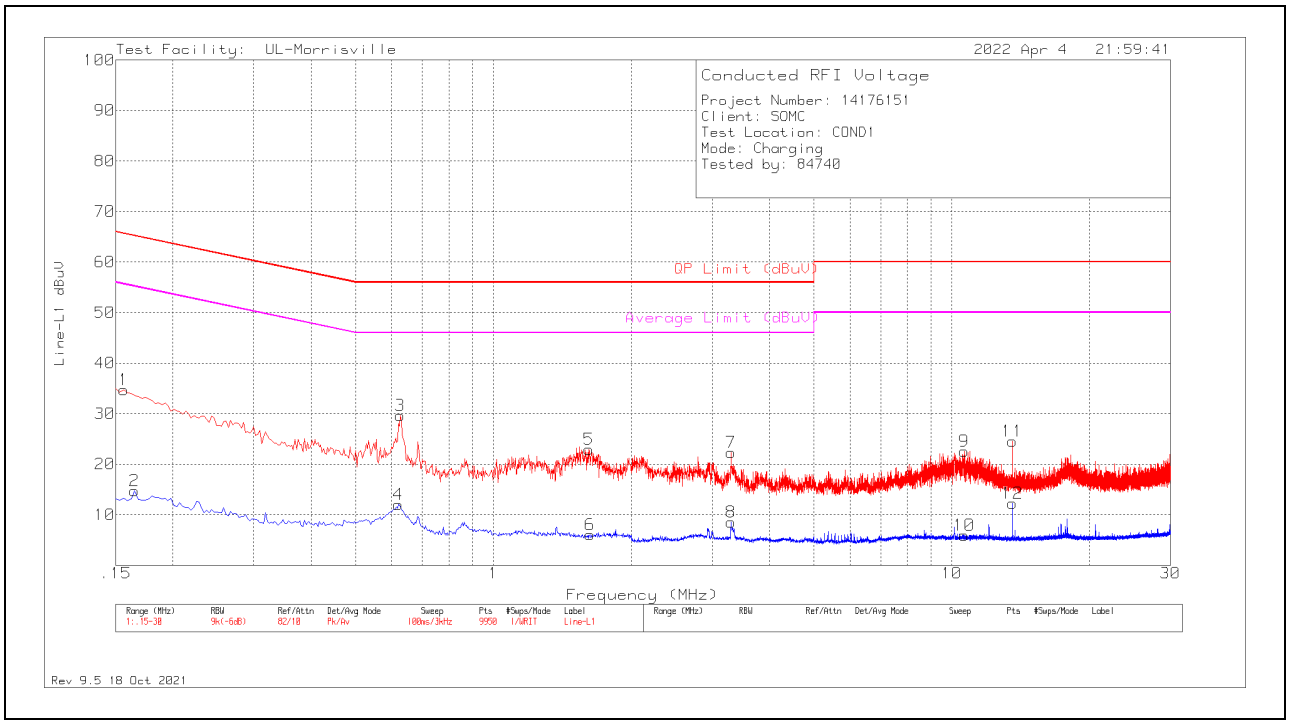
Refer to setup exhibit R14176151-EP4V1 for setup photos.

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	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
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2021-09-13	2022-09-13

Conducted Emissions Graph – Line 1

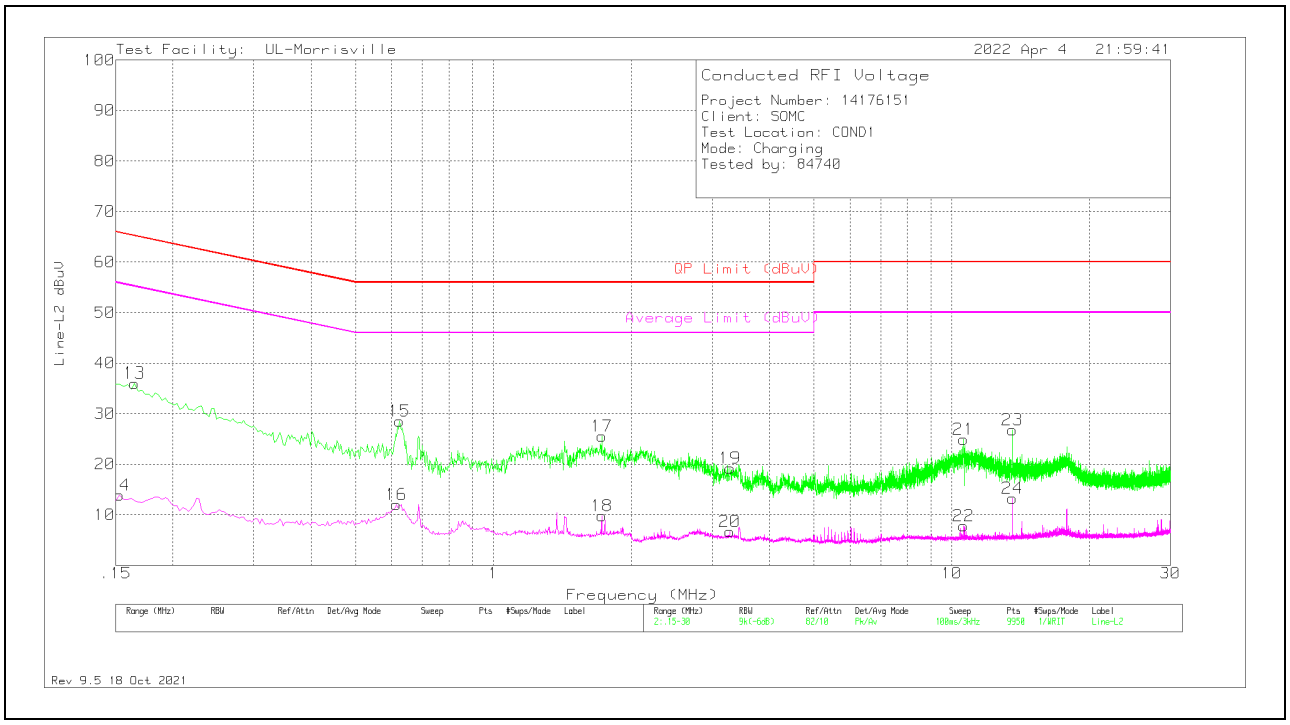


Conducted Emissions Data Points – Line 1

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	.156	24.73	Pk	.2	9.8	34.73	65.67	-30.94	-	-
2	.165	4.76	Av	.2	9.8	14.76	-	-	55.21	-40.45
4	.621	2.23	Av	0	9.8	12.03	-	-	46	-33.97
3	.627	19.8	Pk	0	9.8	29.6	56	-26.4	-	-
5	1.617	13.08	Pk	0	9.8	22.88	56	-33.12	-	-
6	1.623	-3.8	Av	0	9.8	6	-	-	46	-40
7	3.3	12.36	Pk	0	9.9	22.26	56	-33.74	-	-
8	3.3	-1.39	Av	0	9.9	8.51	-	-	46	-37.49
9	10.635	12.42	Pk	.1	10	22.52	60	-37.48	-	-
10	10.644	-4.17	Av	.1	10	5.93	-	-	50	-44.07
12	13.56	2.09	Av	.1	10.1	12.29	-	-	50	-37.71
11	13.563	14.4	Pk	.1	10.1	24.6	60	-35.4	-	-

Pk - Peak detector
Av - Average detection

Conducted Emissions Graph – Line 2



Conducted Emissions Data Points – Line 2

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)
14	.153	3.88	Av	.2	9.8	13.88	-	-	55.84	-41.96
13	.165	26.03	Pk	.2	9.8	36.03	65.21	-29.18	-	-
16	.615	2.21	Av	0	9.8	12.01	-	-	46	-33.99
15	.624	18.75	Pk	0	9.8	28.55	56	-27.45	-	-
17	1.725	15.75	Pk	0	9.8	25.55	56	-30.45	-	-
18	1.725	.01	Av	0	9.8	9.81	-	-	46	-36.19
20	3.279	-3.22	Av	0	9.9	6.68	-	-	46	-39.32
19	3.285	9.29	Pk	0	9.9	19.19	56	-36.81	-	-
21	10.614	14.85	Pk	.1	10	24.95	60	-35.05	-	-
22	10.626	-2.27	Av	.1	10	7.83	-	-	50	-42.17
23	13.56	16.6	Pk	.1	10.1	26.8	60	-33.2	-	-
24	13.56	3	Av	.1	10.1	13.2	-	-	50	-36.8

Pk - Peak detector
Av - Average detection

4.2 Test Conditions and Results - RADIATED EMISSIONS

Test Engineer	85501/11993, 27129/11993, 19289/11993	
Test Date	2022-03-31 to 2022-04-11	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	21.8 - 25.1°C
Humidity	10 % to 90 %	25.7 – 46.0%
	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

Supplementary information: None

Refer to setup exhibit R14176151-EP4V1 for setup photos.

Radiated Emissions Test 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 2)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
30-1000 MHz					
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-08-30	2022-08-30
1-18 GHz					
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-05-03	2022-05-03
18-40 GHz					
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
AT0061	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2021-11-04	2022-11-04
Gain-Loss Chains					
C2-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-07-09	2022-07-09
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-07-09	2022-07-09
C2-SAC04	Gain-loss string: 18-40GHz	Various	Various	2021-07-09	2022-07-09
Receiver & Software					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SA0020	Spectrum Analyzer	Agilent	E4446A	2021-05-25	2022-05-25
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
62621 16751	Wideband Radio Communications Tester	Anritsu	MT8821C	2021-10-11	2022-10-11
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

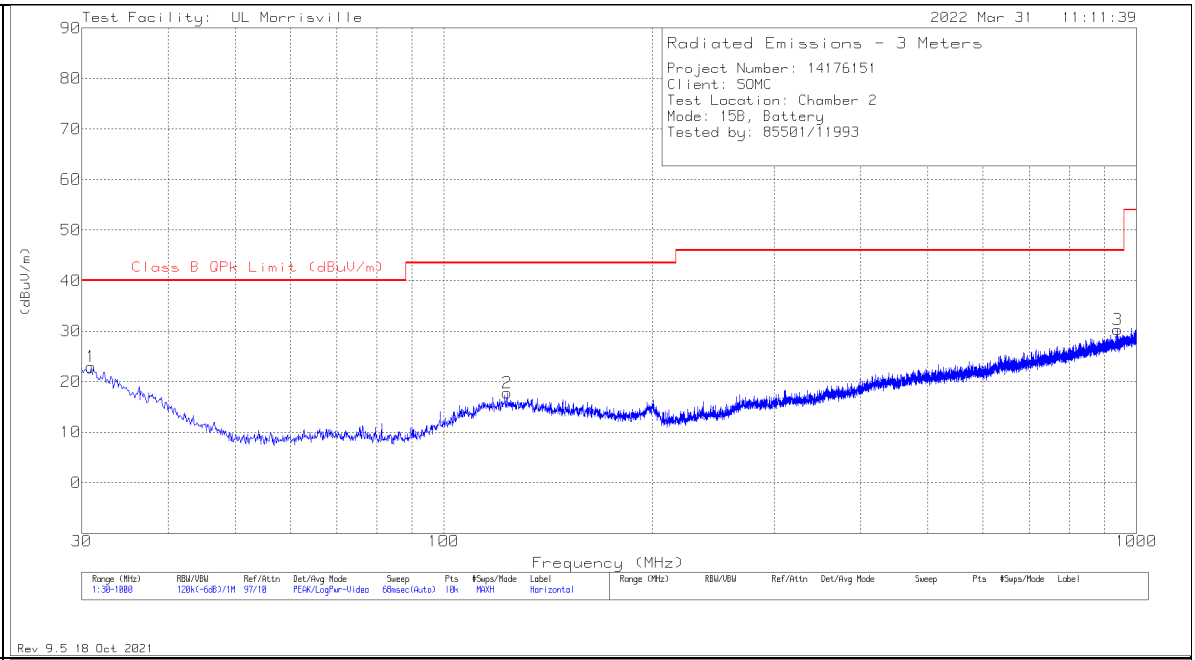
Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
30-1000 MHz					
AT0081	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-12-08	2022-12-08
1-18 GHz					
AT0069	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-06-29	2022-06-29
Gain-Loss Chains					
C4-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-05-07	2022-05-07
C4-SAC03	Gain-loss string: 1-18GHz	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					
62621 16751	Wideband Radio Communications Tester	Anritsu	MT8821C	2021-10-11	2022-10-11
s/n 210701941	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16

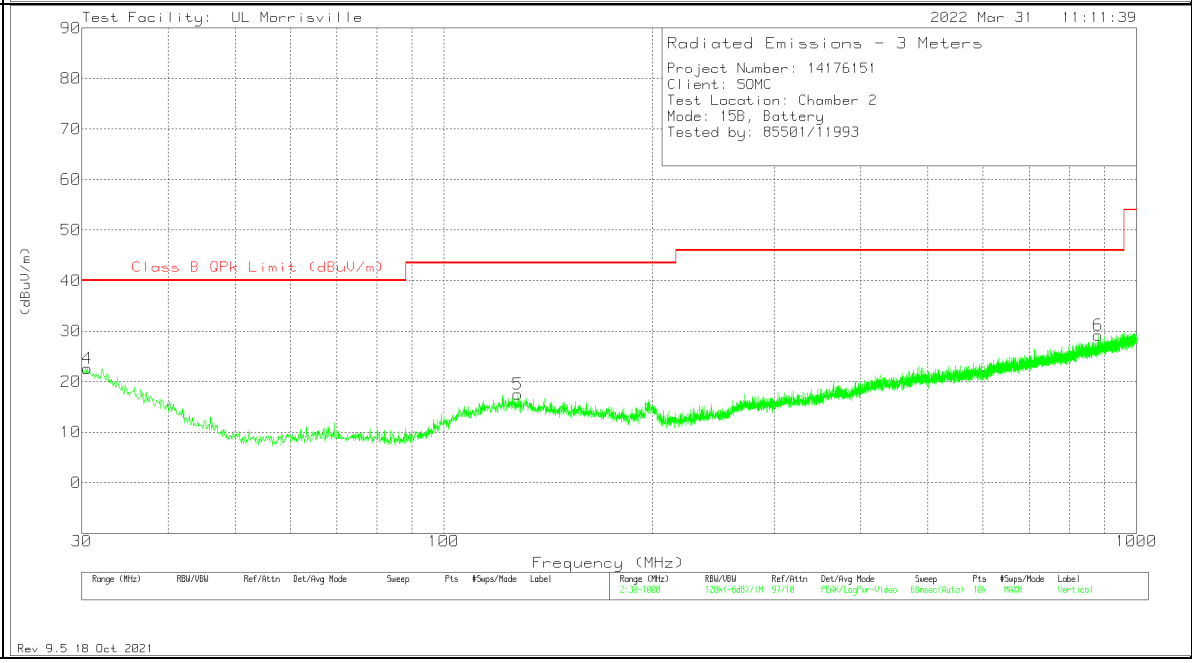
RADIATED EMISSIONS 30 TO 1000 MHz - Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

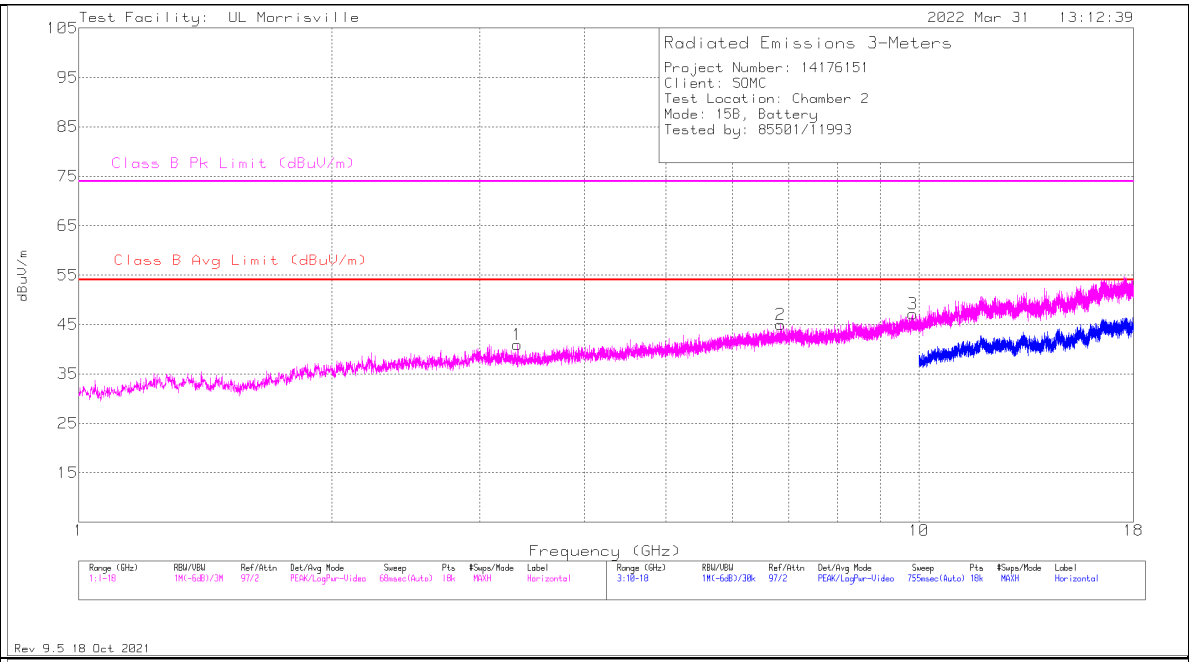
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	30.582	27.4	Pk	26.5	-31.3	22.6	40	-17.4	0-360	299	V
1	30.97	28.13	Pk	26.2	-31.4	22.93	40	-17.07	0-360	299	H
2	123.411	27.96	Pk	20	-30.2	17.76	43.52	-25.76	0-360	299	H
5	127.873	27.7	Pk	19.9	-30.1	17.5	43.52	-26.02	0-360	100	V
6	879.817	26.65	Pk	28.2	-25.7	29.15	46.02	-16.87	0-360	299	V
3	939.181	26.67	Pk	28.7	-25.1	30.27	46.02	-15.75	0-360	299	H

Pk - Peak detector

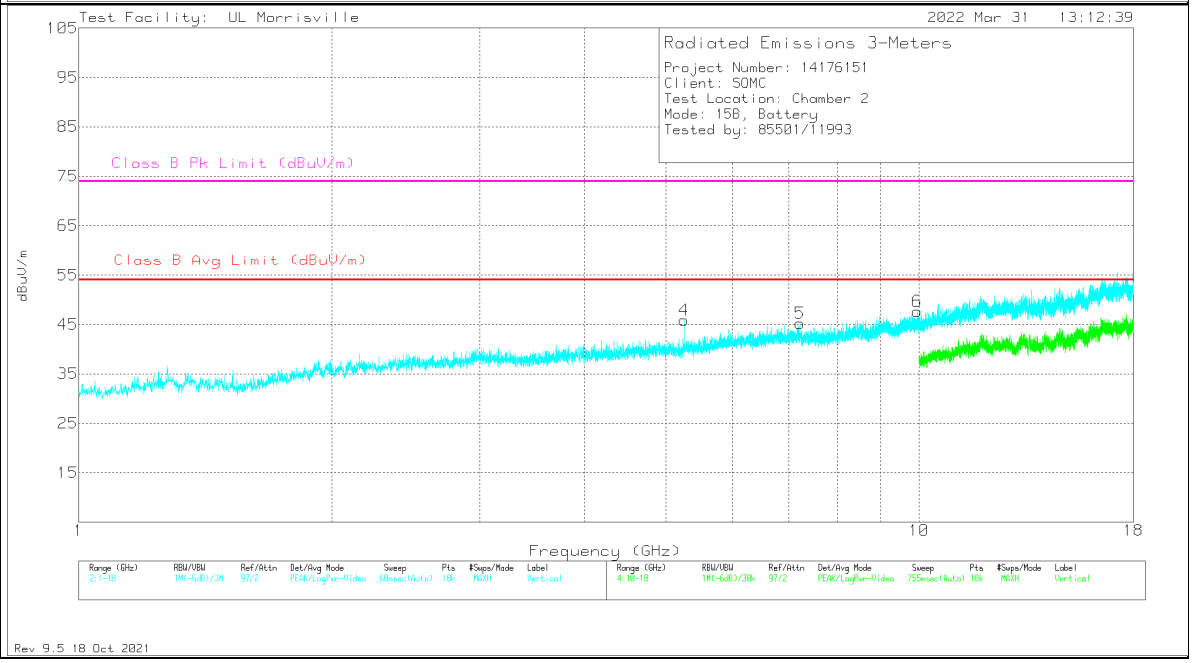
RADIATED EMISSIONS 1000 TO 18,000 MHz – Battery

Radiated Emissions Graph

HORIZONTAL



VERTICAL



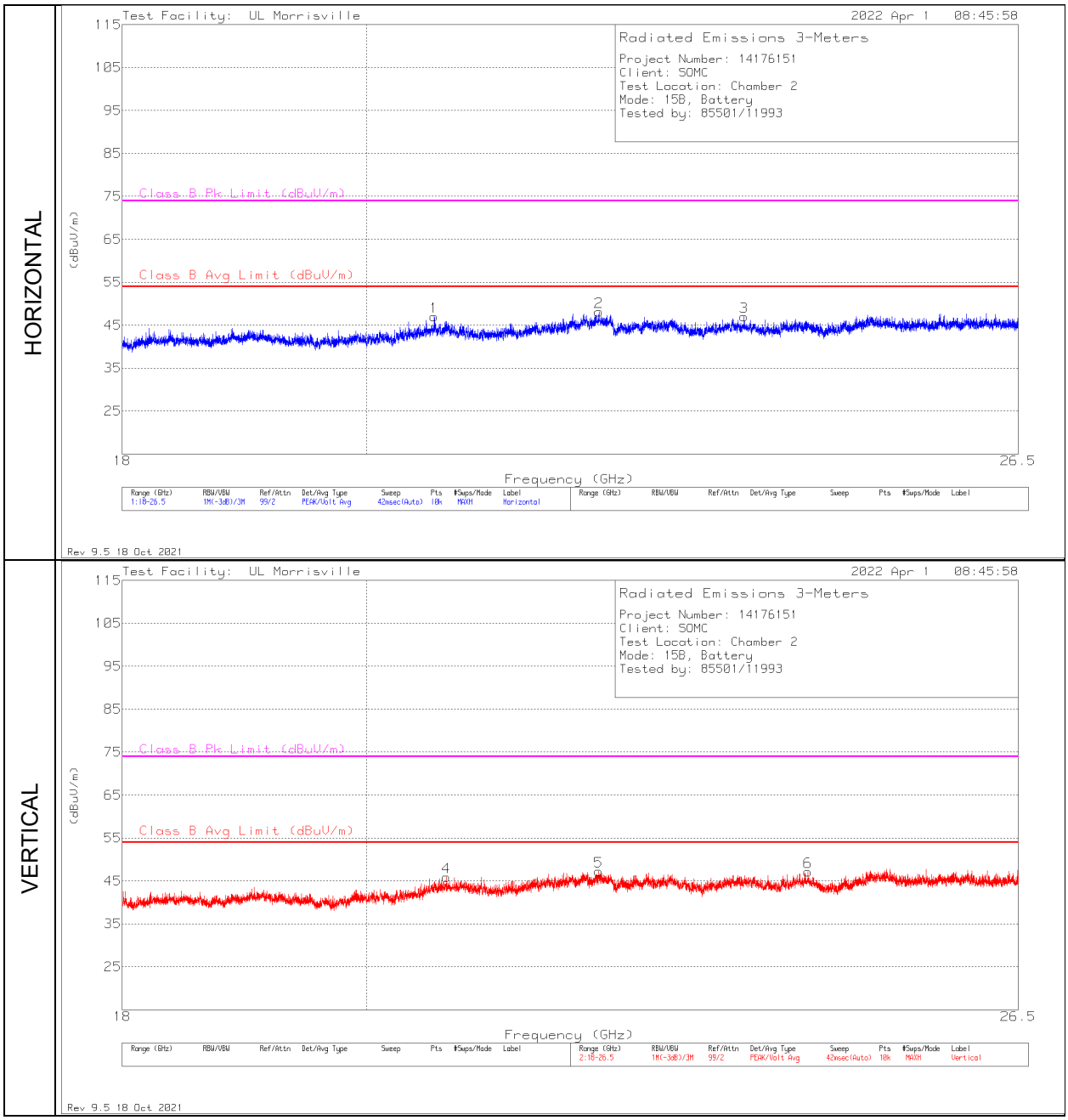
Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (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	3.32522	41.67	Pk	32.8	-33.5	40.97	54	-13.03	74	-33.03	0-360	101	H
4	5.25378	42.01	Pk	34.4	-30.5	45.91	54	-8.09	74	-28.09	0-360	200	V
2	6.83855	36.69	Pk	35.8	-27.5	44.99	54	-9.01	74	-29.01	0-360	200	H
5	7.22294	36.5	Pk	35.7	-27	45.2	54	-8.8	74	-28.8	0-360	200	V
3	9.82583	35.4	Pk	36.9	-25.1	47.2	54	-6.8	74	-26.8	0-360	200	H
6	9.95994	35.72	Pk	36.9	-25	47.62	54	-6.38	74	-26.38	0-360	101	V

Pk - Peak detector

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

Radiated Emissions Graph



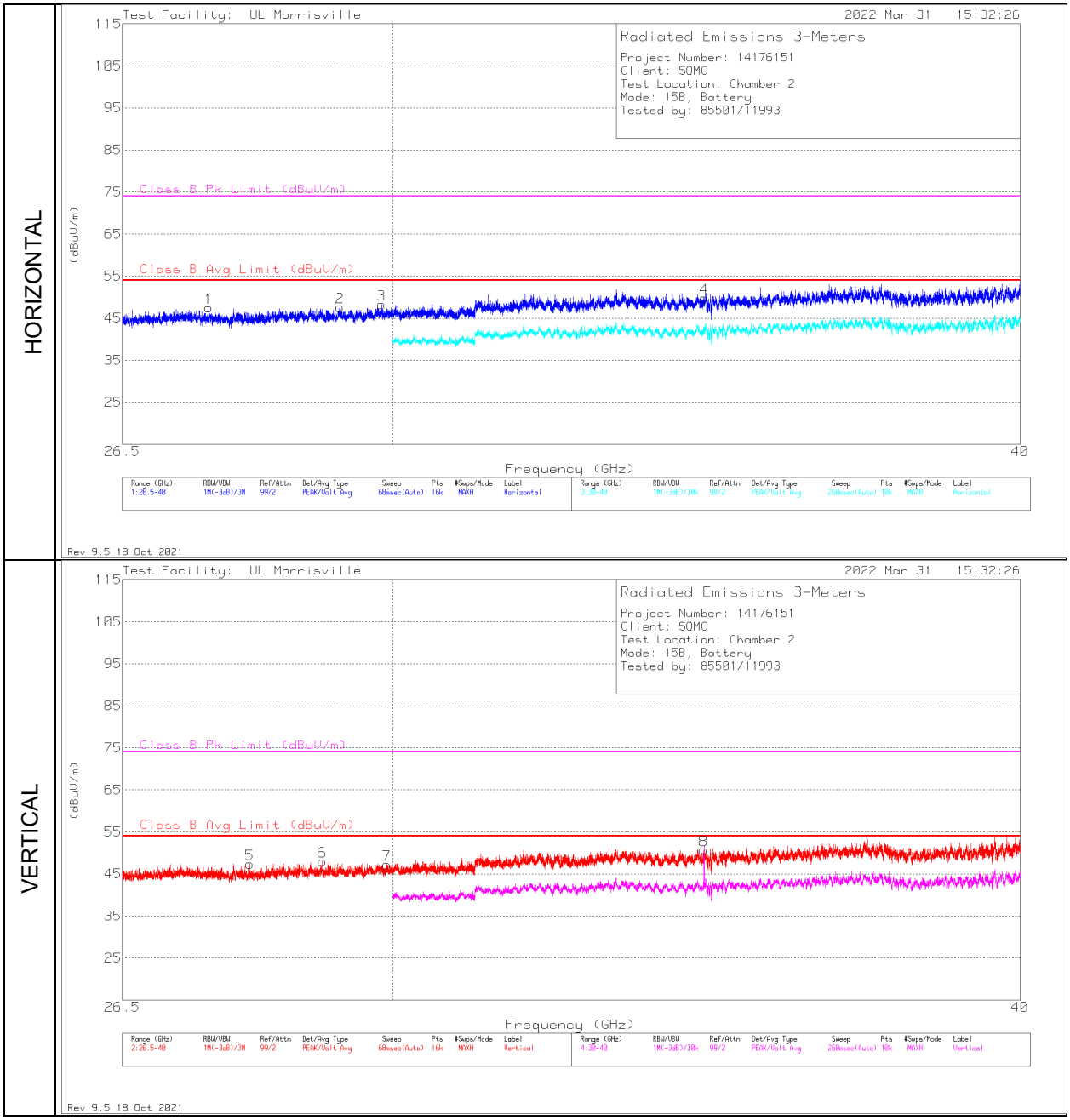
Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0063 (dB/m)	Amp/Cbl (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	20.59649	50.69	Pk	33.9	-37.6	46.99	54	-7.01	74	-27.01	0-360	199	H
4	20.70528	50.43	Pk	33.9	-38.4	45.93	54	-8.07	74	-28.07	0-360	101	V
5	22.11189	48.26	Pk	37	-38	47.26	54	-6.74	74	-26.74	0-360	300	V
2	22.11274	48.53	Pk	37	-38	47.53	-	-	74	-26.47	260	127	H
	22.11315	40.24	Av	37	-38	39.24	54	-14.76	-	-	260	127	H
3	23.544	48.91	Pk	35	-36.9	47.01	54	-6.99	74	-26.99	0-360	199	H
6	24.19843	49.26	Pk	34.9	-37	47.16	54	-6.84	74	-26.84	0-360	200	V

Pk - Peak detector
Av – Average detector

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

Radiated Emissions Graph



Radiated Emissions Data Points

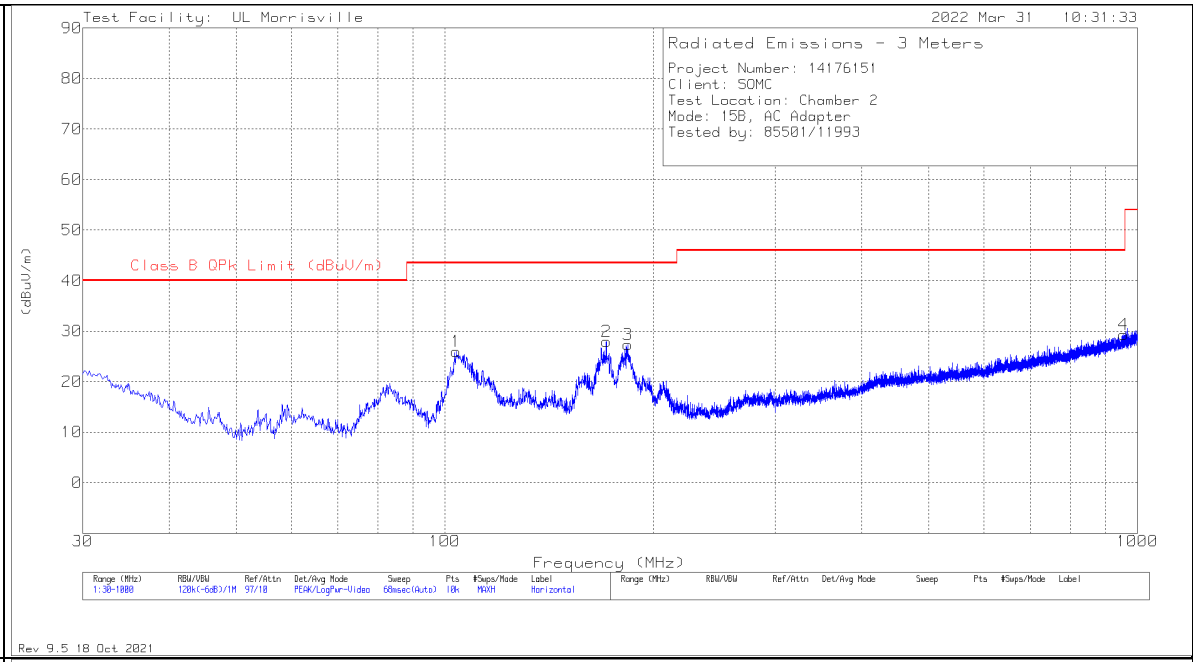
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.57234	47.29	Pk	35.9	-35.7	47.49	54	-6.51	74	-26.51	0-360	101	H
5	28.09712	46.42	Pk	36.1	-35.1	47.42	54	-6.58	74	-26.58	0-360	300	V
6	29.04712	45.78	Pk	36.2	-34	47.98	54	-6.02	74	-26.02	0-360	300	V
2	29.28336	45.68	Pk	36.3	-34.3	47.68	54	-6.32	74	-26.32	0-360	250	H
3	29.84206	46.42	Pk	36.6	-33.9	49.12	54	-4.88	74	-24.88	68	356	H
	29.8442	37.76	Av	36.6	-34	40.36	54	-13.64	74	-33.64	68	356	H
7	29.92119	44.5	Pk	36.7	-33.9	47.3	54	-6.7	74	-26.7	0-360	101	V
8	34.5953	48.56	Pk	38	-35	51.56	54	-2.44	74	-22.44	314	143	V
	34.5922	39.71	Av	38	-34.9	42.81	54	-11.19	74	-31.19	314	143	V
4	34.60601	47.5	Pk	38	-35.3	50.2	54	-3.8	74	-23.8	205	317	H
	34.60805	40.31	Av	38	-35	43.31	54	-10.69	74	-30.69	205	317	H

Pk - Peak detector
Av - Average detection

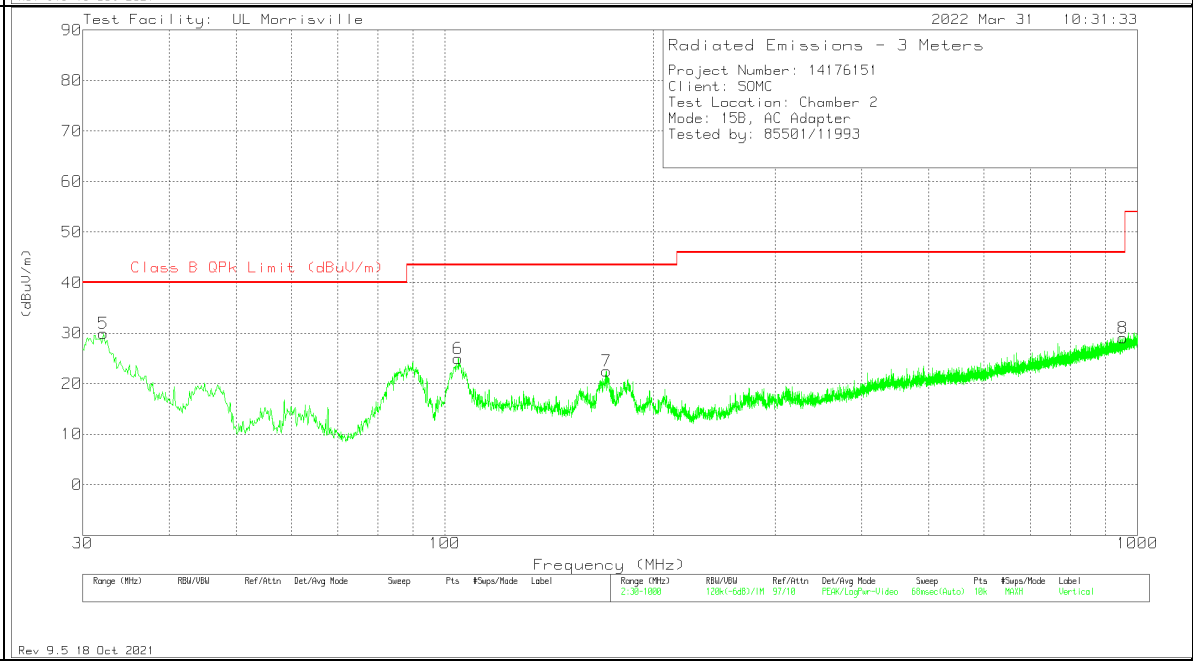
RADIATED EMISSIONS 30 TO 1000 MHz – Power Supply

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

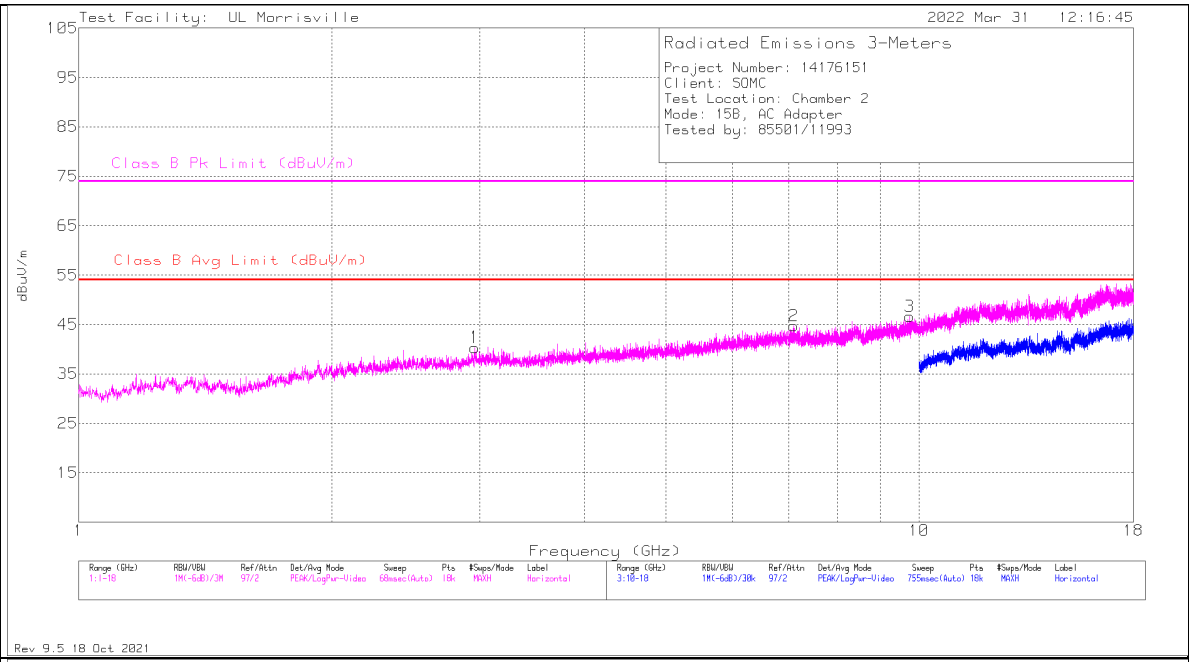
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	32.134	36.19	Pk	25.4	-31.6	29.99	40	-10.01	0-360	101	V
1	103.914	38.94	Pk	17.5	-30.5	25.94	43.52	-17.58	0-360	299	H
6	104.496	37.93	Pk	17.6	-30.5	25.03	43.52	-18.49	0-360	101	V
7	171.038	34.31	Pk	17.9	-29.7	22.51	43.52	-21.01	0-360	199	V
2	171.135	39.8	Pk	17.9	-29.7	28	43.52	-15.52	0-360	199	H
3	183.745	39.6	Pk	17.3	-29.6	27.3	43.52	-16.22	0-360	101	H
8	952.373	24.84	Pk	29	-24.8	29.04	46.02	-16.98	0-360	101	V
4	954.41	24.98	Pk	29	-24.7	29.28	46.02	-16.74	0-360	101	H

Pk - Peak detector

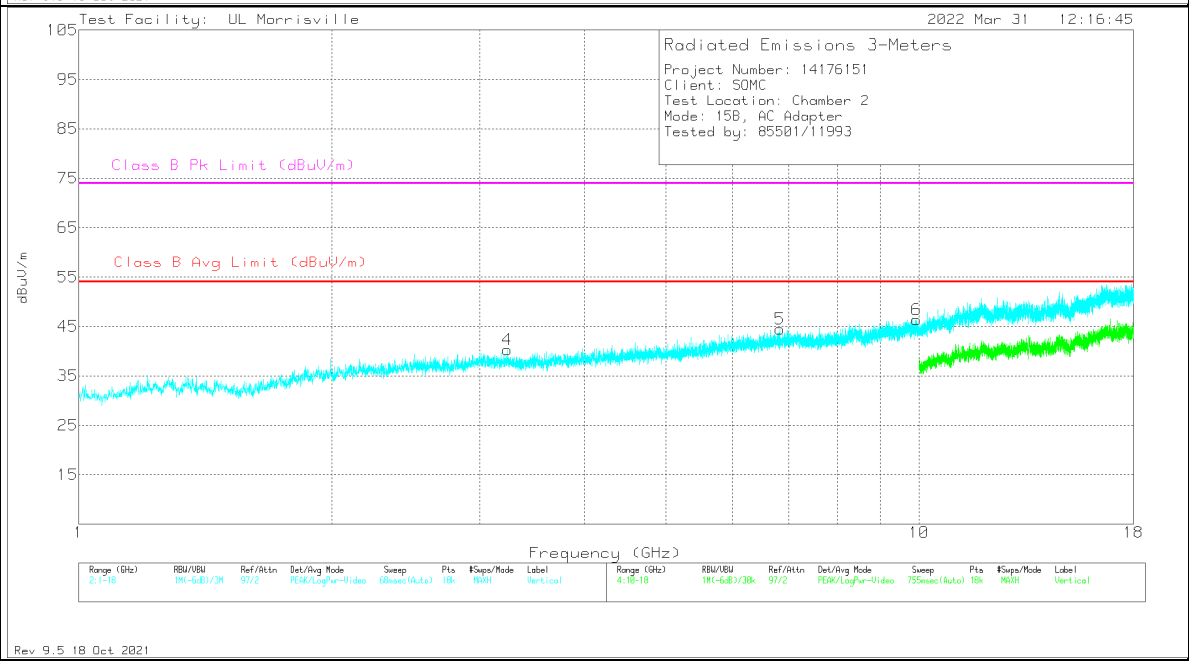
RADIATED EMISSIONS 1000 TO 18,000 MHz – Power Supply

Radiated Emissions Graph

HORIZONTAL



VERTICAL



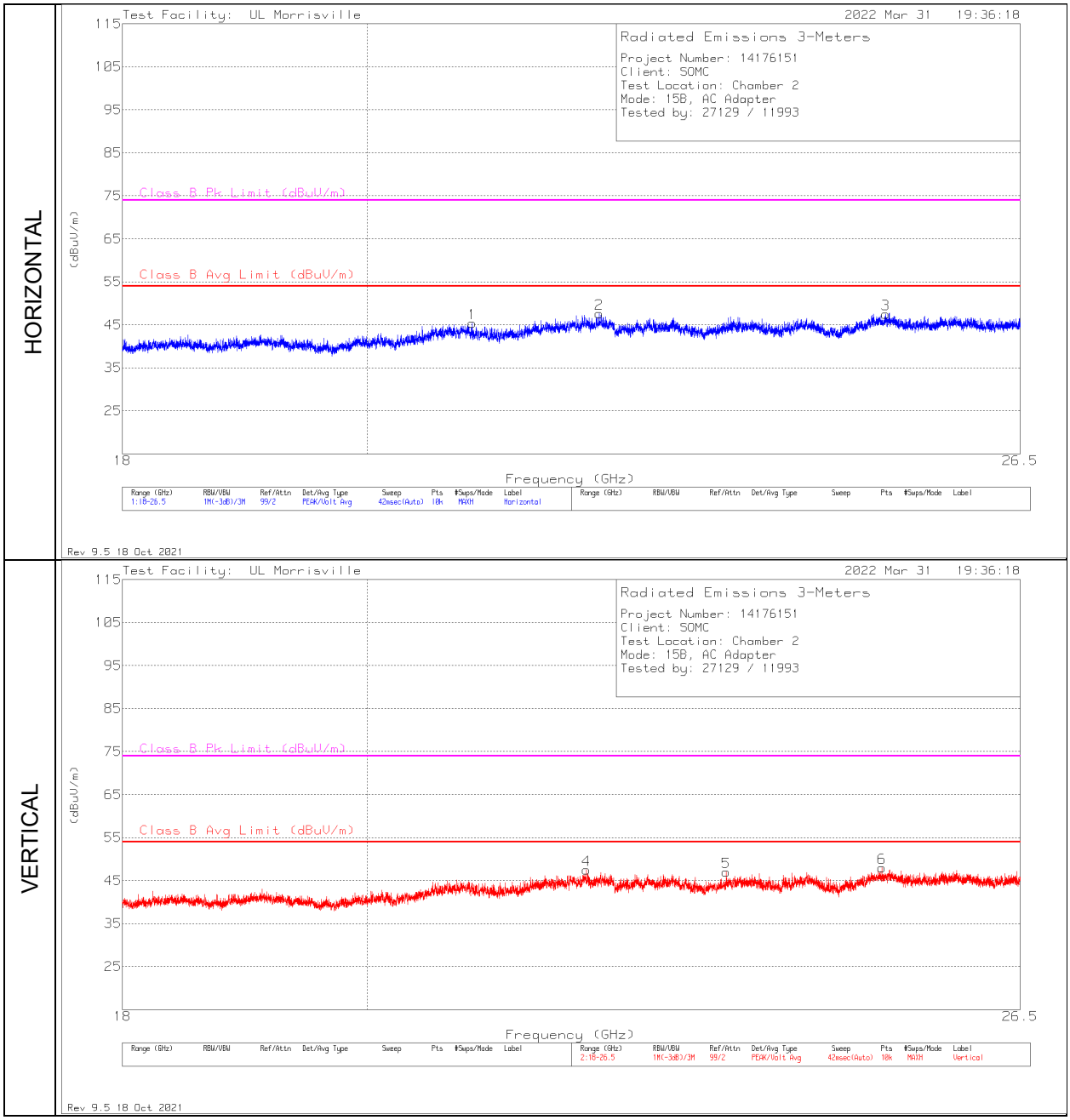
Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (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	2.96161	39.96	Pk	33.4	-33	40.36	54	-13.64	74	-33.64	0-360	199	H
4	3.23455	40.05	Pk	33.3	-33	40.35	54	-13.65	74	-33.65	0-360	199	V
5	6.82722	36.81	Pk	35.8	-28.1	44.51	54	-9.49	74	-29.49	0-360	199	V
2	7.09261	36.61	Pk	35.9	-27.8	44.71	54	-9.29	74	-29.29	0-360	199	H
3	9.755	35.83	Pk	36.8	-26	46.63	54	-7.37	74	-27.37	0-360	101	H
6	9.93161	35.05	Pk	36.9	-25.6	46.35	54	-7.65	74	-27.65	0-360	101	V

Pk - Peak detector

RADIATED EMISSIONS 18,000 TO 26,000 MHz – Power Supply

Radiated Emissions Graph



Radiated Emissions Data Points

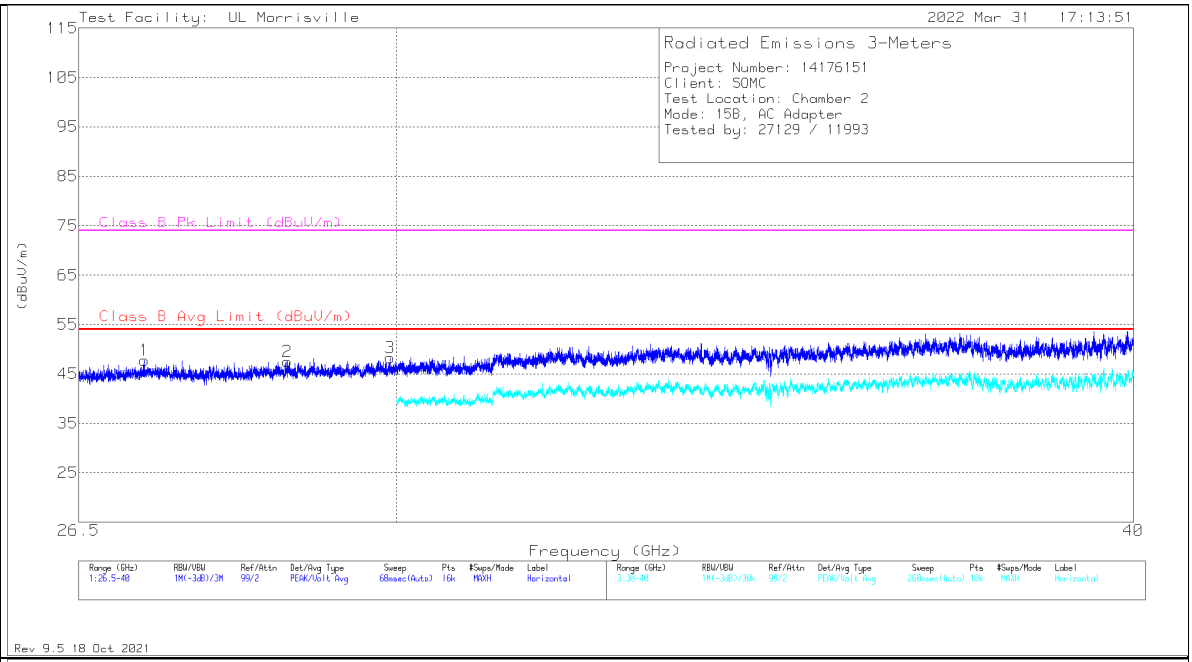
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0063 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	20.92711	49.33	Pk	34.1	-38.1	45.33	54	-8.67	74	-28.67	0-360	150	H
4	21.9844	48.84	Pk	36.9	-38.3	47.44	54	-6.56	74	-26.56	0-360	101	V
2	22.10509	48.76	Pk	37.1	-38.2	47.66	54	-6.34	74	-26.34	0-360	300	H
5	23.35021	49.21	Pk	35	-37.2	47.01	54	-6.99	74	-26.99	0-360	101	V
6	24.97015	49.59	Pk	35.1	-36.7	47.99	54	-6.01	74	-26.01	0-360	101	V
3	25.0084	49.2	Pk	35.1	-36.8	47.5	54	-6.5	74	-26.5	0-360	200	H

Pk - Peak detector
Av - Average detection

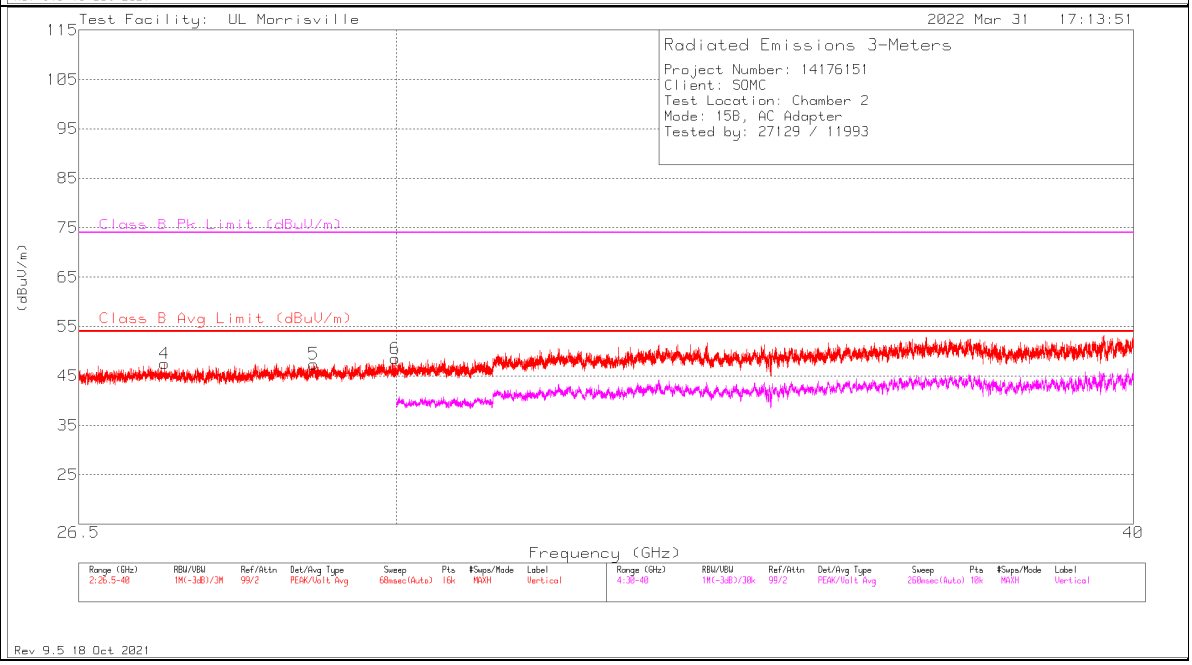
RADIATED EMISSIONS 26,000 TO 40,000 MHz – Power Supply

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

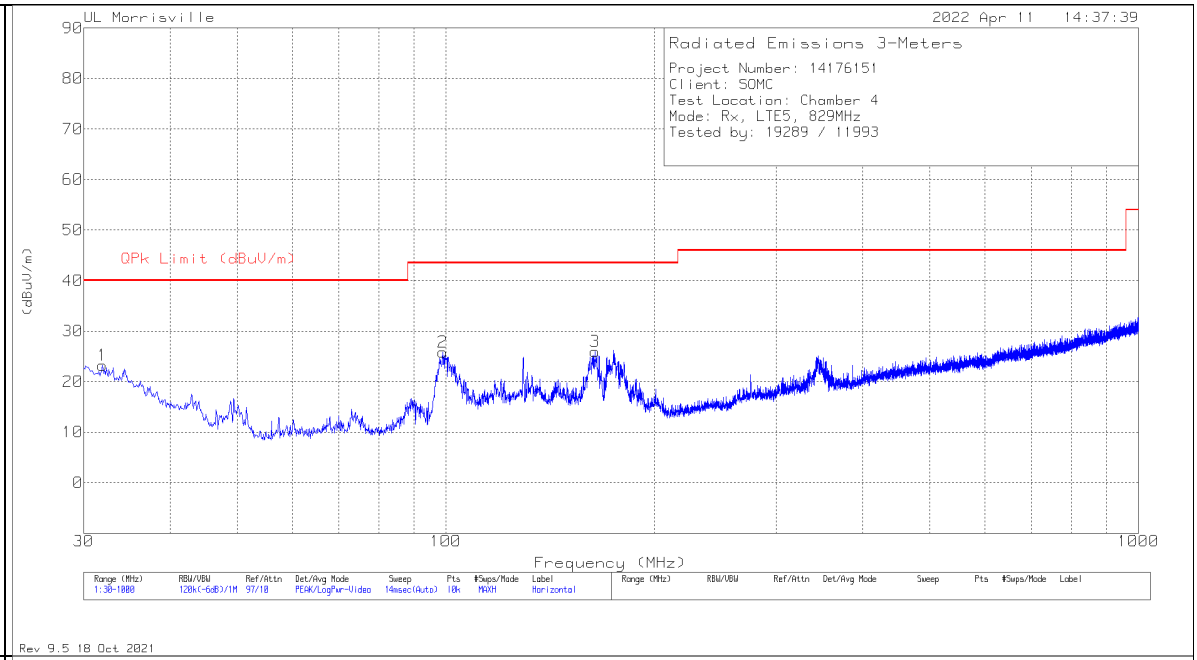
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.18677	46.93	Pk	36.2	-35.4	47.73	54	-6.27	74	-26.27	0-360	300	H
4	27.40529	46.65	Pk	36.1	-35.2	47.55	54	-6.45	74	-26.45	0-360	150	V
2	28.75098	45.56	Pk	36.3	-34.3	47.56	54	-6.44	74	-26.44	0-360	200	H
5	29.04628	45.34	Pk	36.2	-34.1	47.44	54	-6.56	74	-26.56	0-360	101	V
3	29.92023	42.14	Pk	36.6	-33.9	44.84	54	-9.16	74	-29.16	201	112	H
	29.92023	31.91	Av	36.6	-33.9	34.61	54	-19.39	74	-39.39	201	112	H
6	29.98677	40.92	Pk	36.7	-34.5	43.12	54	-10.88	74	-30.88	93	359	V
	29.98677	32.55	Av	36.7	-34.5	34.75	54	-19.25	74	-39.25	93	359	V

Pk - Peak detector
Av - Average detection

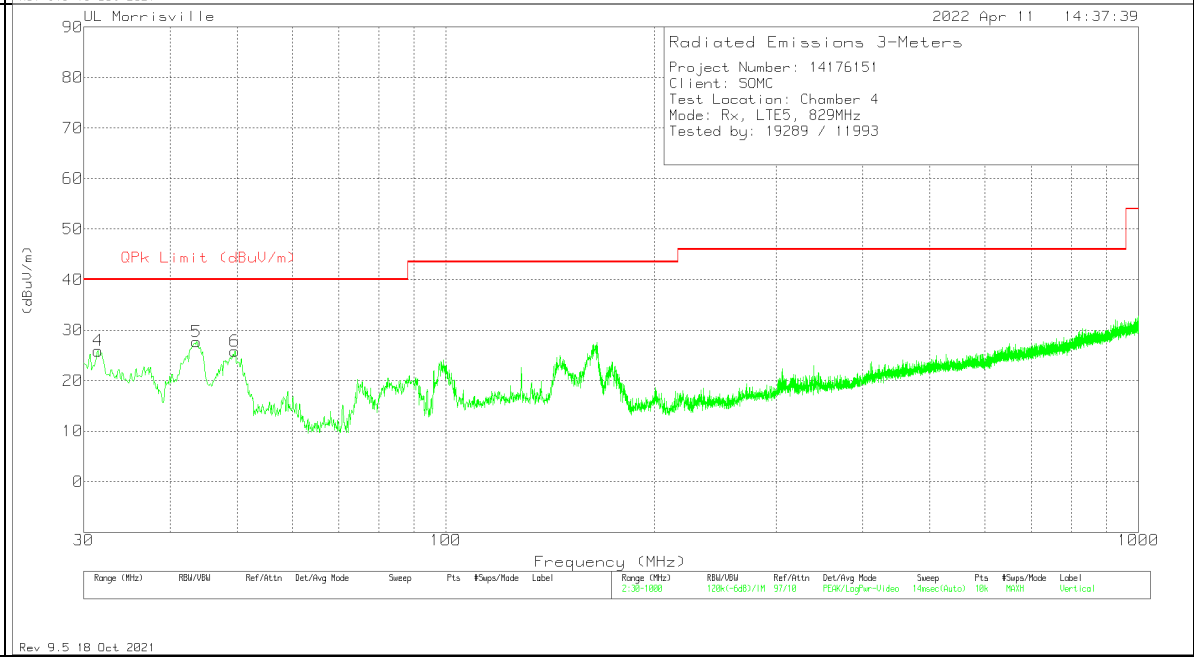
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 829.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

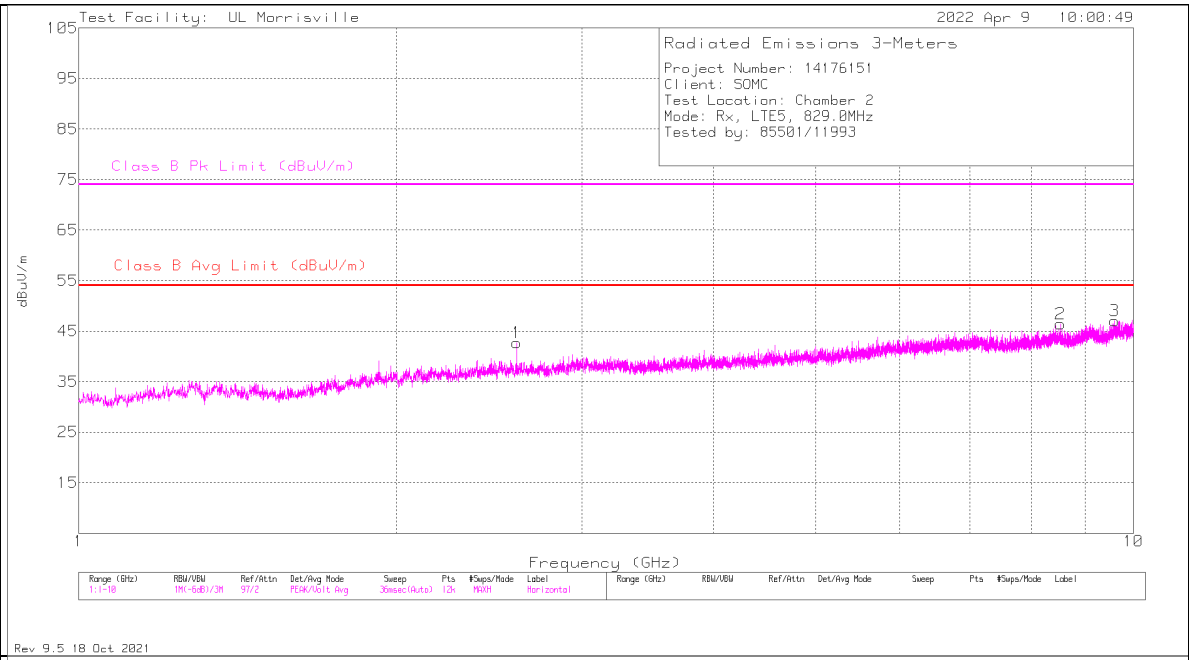
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.455	31.11	Pk	26.1	-31.3	25.91	40	-14.09	0-360	100	V
1	31.94	28.68	Pk	25.9	-31.3	23.28	40	-16.72	0-360	100	H
5	43.677	41.41	Pk	17.3	-31	27.71	40	-12.29	0-360	100	V
6	49.594	42.67	Pk	14.2	-31	25.87	40	-14.13	0-360	100	V
2	99.064	39.69	Pk	16.2	-30.1	25.79	43.52	-17.73	0-360	200	H
3	164.054	36.98	Pk	18.4	-29.4	25.98	43.52	-17.54	0-360	100	H

Pk - Peak detector

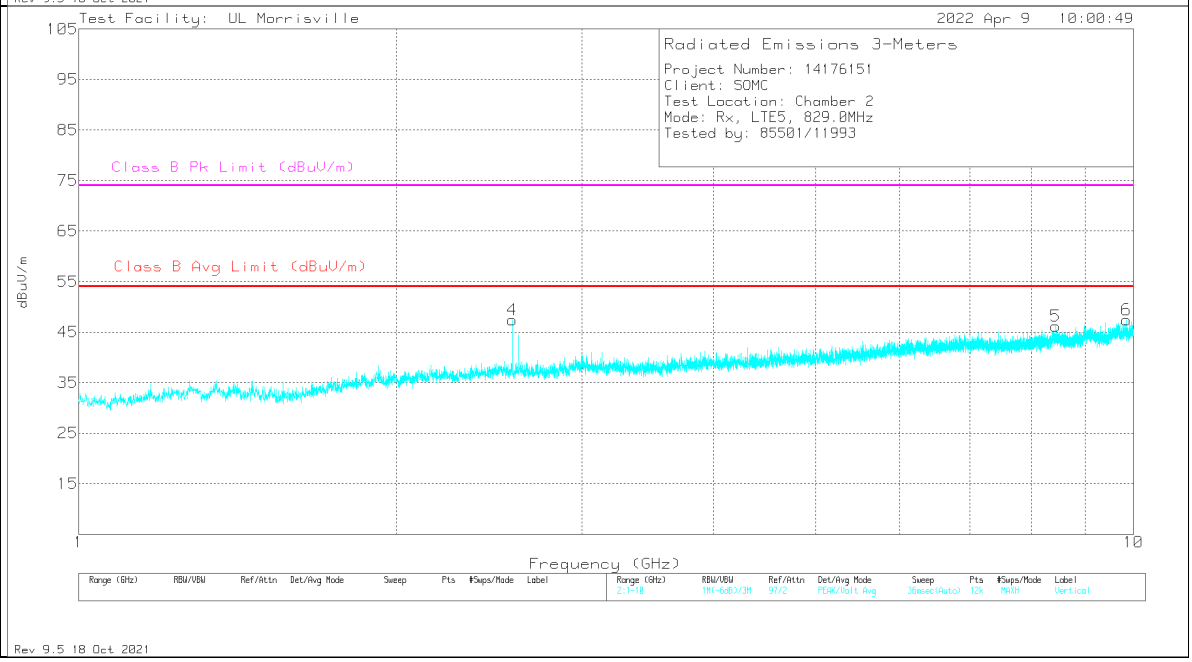
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 829.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

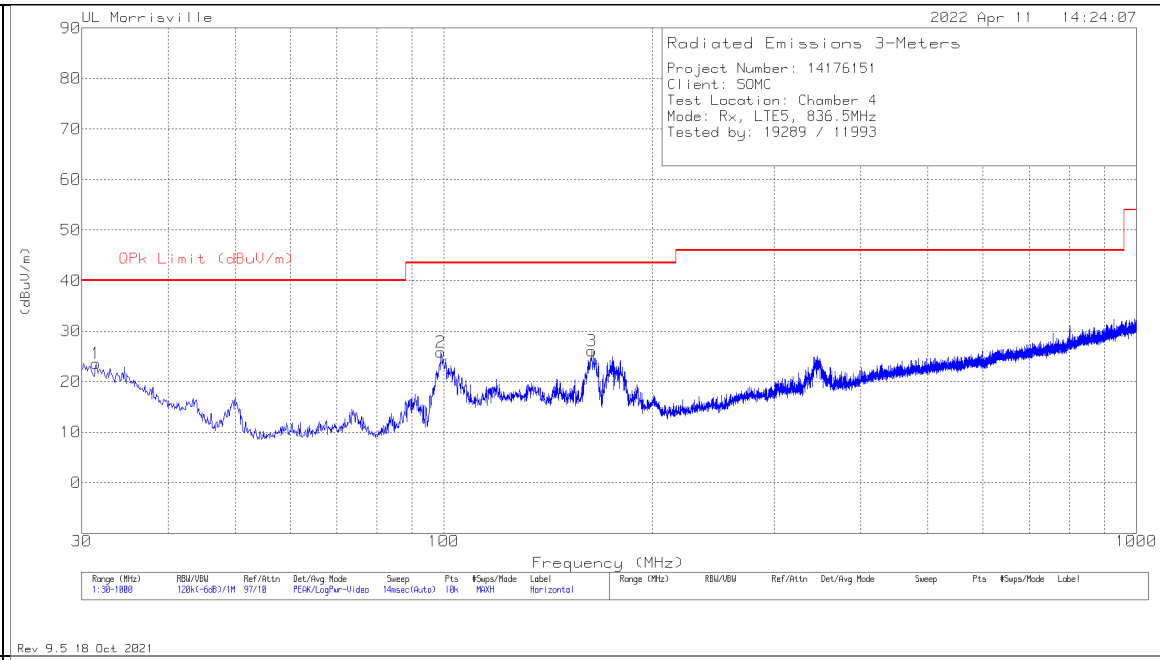
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.57725	48.6	Pk	32.6	-33.8	47.4	54	-6.6	74	-26.6	0-360	200	V
1	2.60275	44.1	Pk	32.5	-33.9	42.7	54	-11.3	74	-31.3	0-360	200	H
5	8.44225	37.29	Pk	35.9	-27	46.19	54	-7.81	74	-27.81	0-360	101	V
2	8.52625	37.74	Pk	35.9	-27.2	46.44	54	-7.56	74	-27.56	0-360	200	H
3	9.5965	35.97	Pk	36.9	-25.8	47.07	54	-6.93	74	-26.93	0-360	200	H
6	9.84475	36.25	Pk	36.9	-25.7	47.45	54	-6.55	74	-26.55	0-360	200	V

Pk - Peak detector

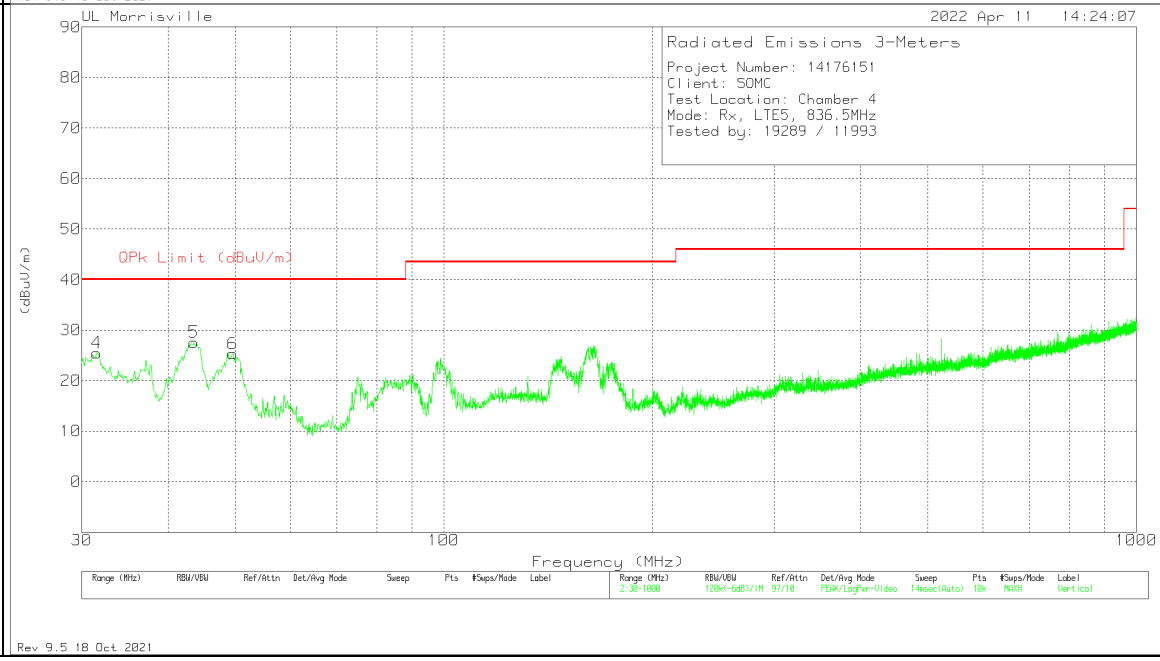
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 836.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

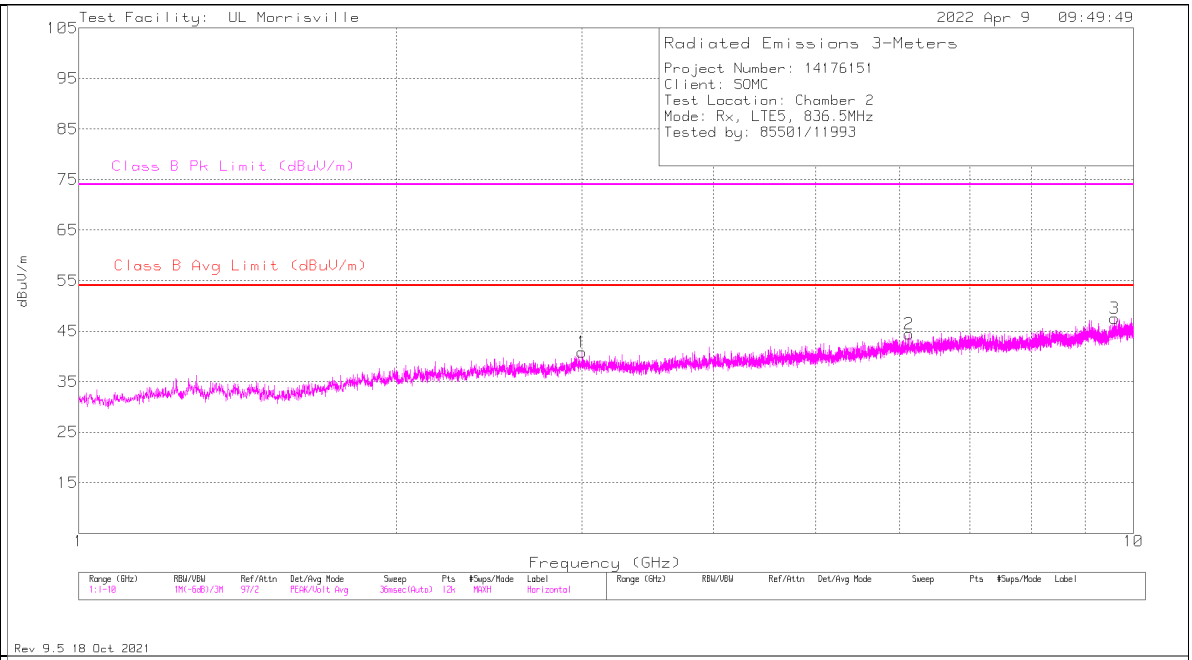
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.455	28.77	Pk	26.1	-31.3	23.57	40	-16.43	0-360	100	H
4	31.552	30.73	Pk	26.1	-31.3	25.53	40	-14.47	0-360	100	V
5	43.58	41.24	Pk	17.4	-31	27.64	40	-12.36	0-360	100	V
6	49.594	42.2	Pk	14.2	-31	25.4	40	-14.6	0-360	100	V
2	99.064	39.76	Pk	16.2	-30.1	25.86	43.52	-17.66	0-360	200	H
3	163.569	37.06	Pk	18.4	-29.4	26.06	43.52	-17.46	0-360	100	H

Pk - Peak detector

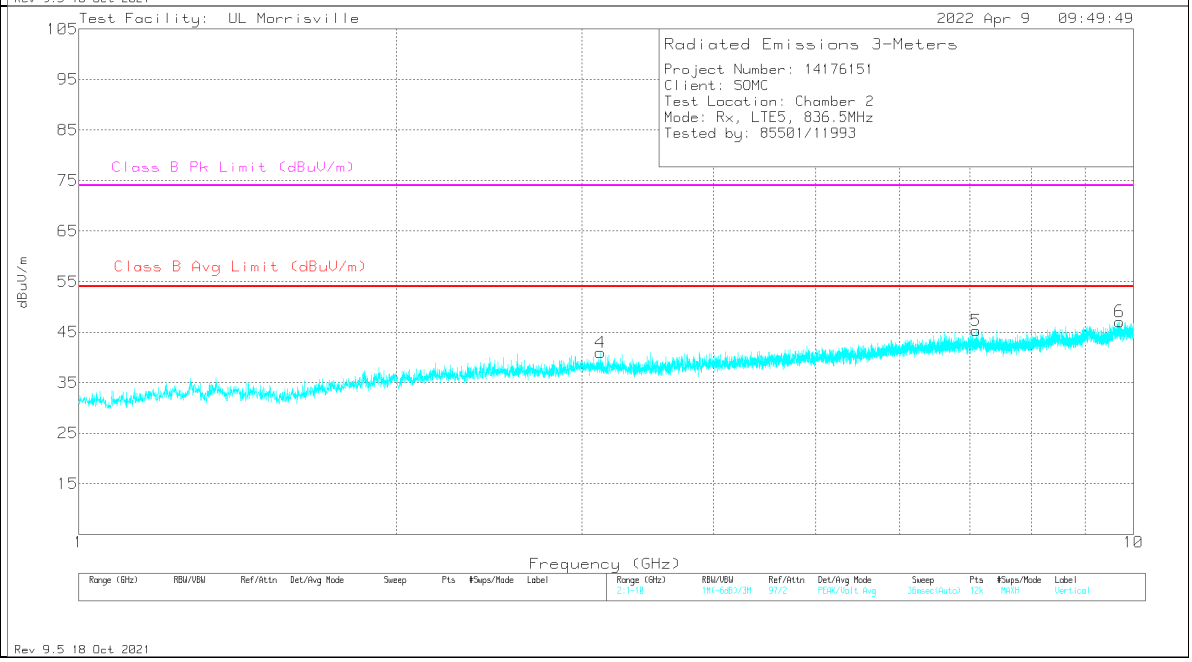
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 836.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

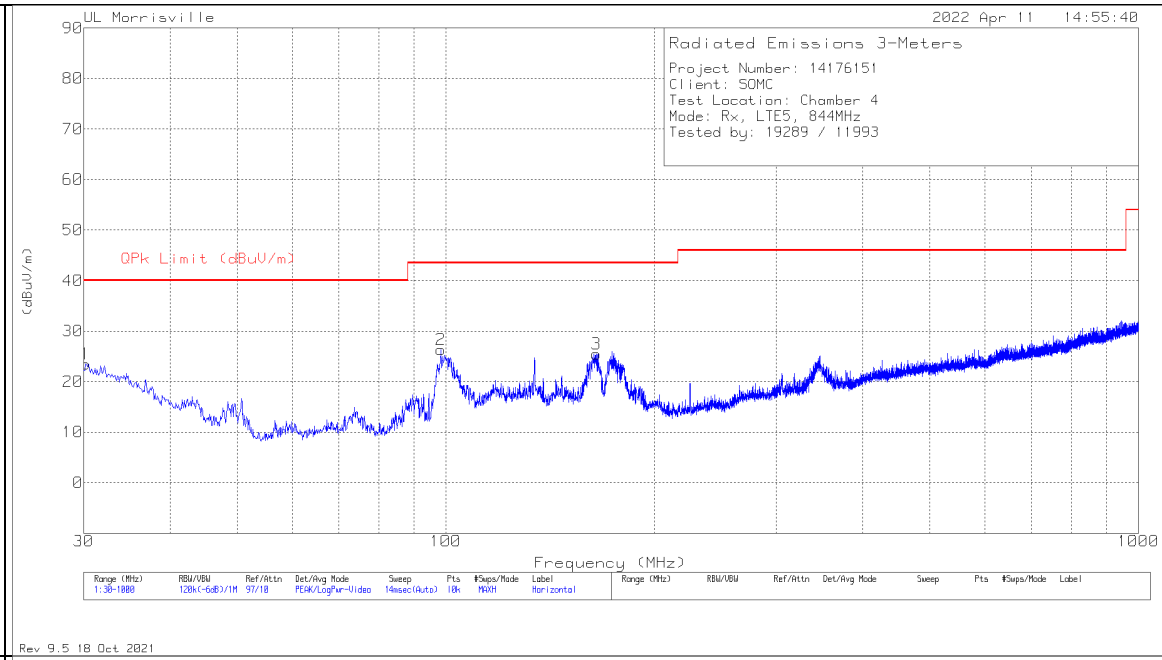
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.9995	41.05	Pk	33.4	-33.6	40.85	54	-13.15	74	-33.15	0-360	199	H
4	3.12325	41.11	Pk	33.2	-33.3	41.01	54	-12.99	74	-32.99	0-360	101	V
2	6.13	38.16	Pk	35.5	-29.2	44.46	54	-9.54	74	-29.54	0-360	101	H
5	7.0975	37.06	Pk	36	-27.7	45.36	54	-8.64	74	-28.64	0-360	199	V
3	9.59725	36.3	Pk	36.9	-25.7	47.5	54	-6.5	74	-26.5	0-360	101	H
6	9.7	35.81	Pk	36.8	-25.5	47.11	54	-6.89	74	-26.89	0-360	199	V

Pk - Peak detector

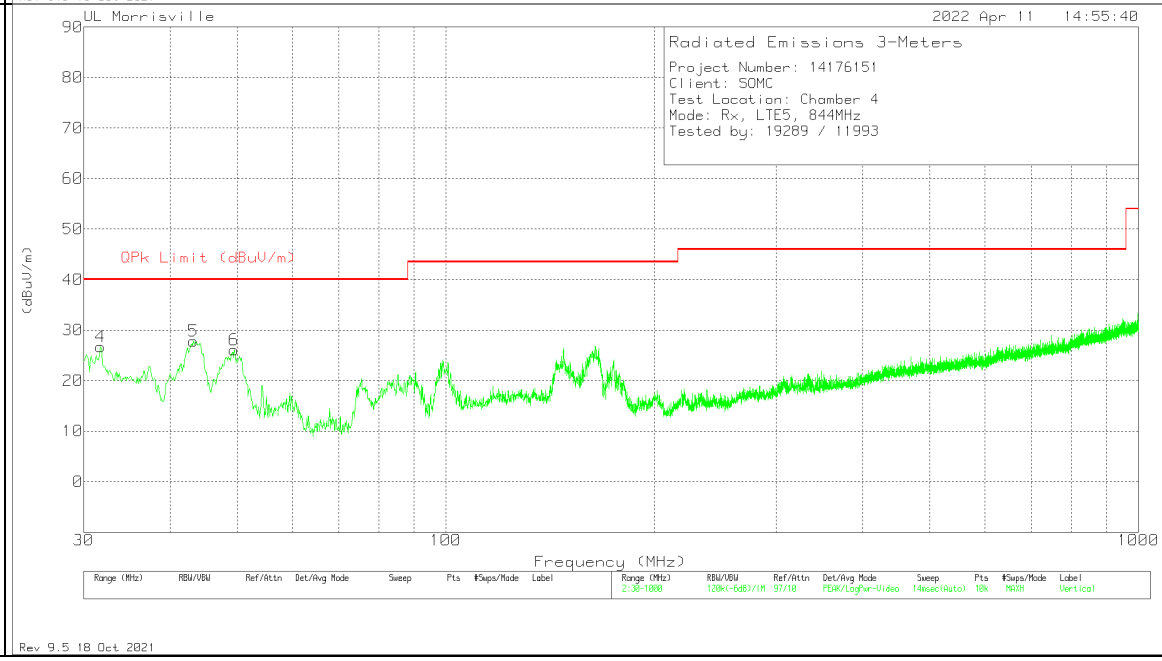
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 844.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

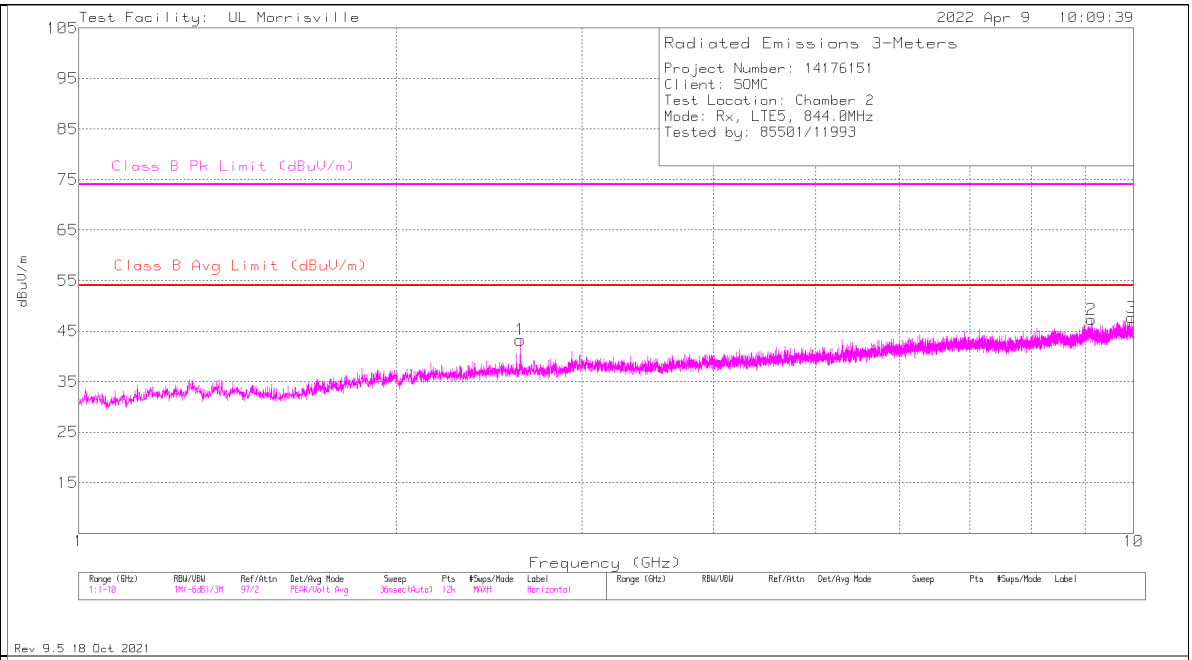
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.194	27.73	Pk	27.1	-31.3	23.53	40	-16.47	0-360	100	H
4	31.746	32	Pk	26	-31.3	26.7	40	-13.3	0-360	100	V
5	43.192	41.25	Pk	17.6	-31	27.85	40	-12.15	0-360	100	V
6	49.497	42.91	Pk	14.2	-31	26.11	40	-13.89	0-360	100	V
2	98.385	40.55	Pk	16	-30.2	26.35	43.52	-17.17	0-360	200	H
3	164.927	36.44	Pk	18.4	-29.4	25.44	43.52	-18.08	0-360	100	H

Pk - Peak detector

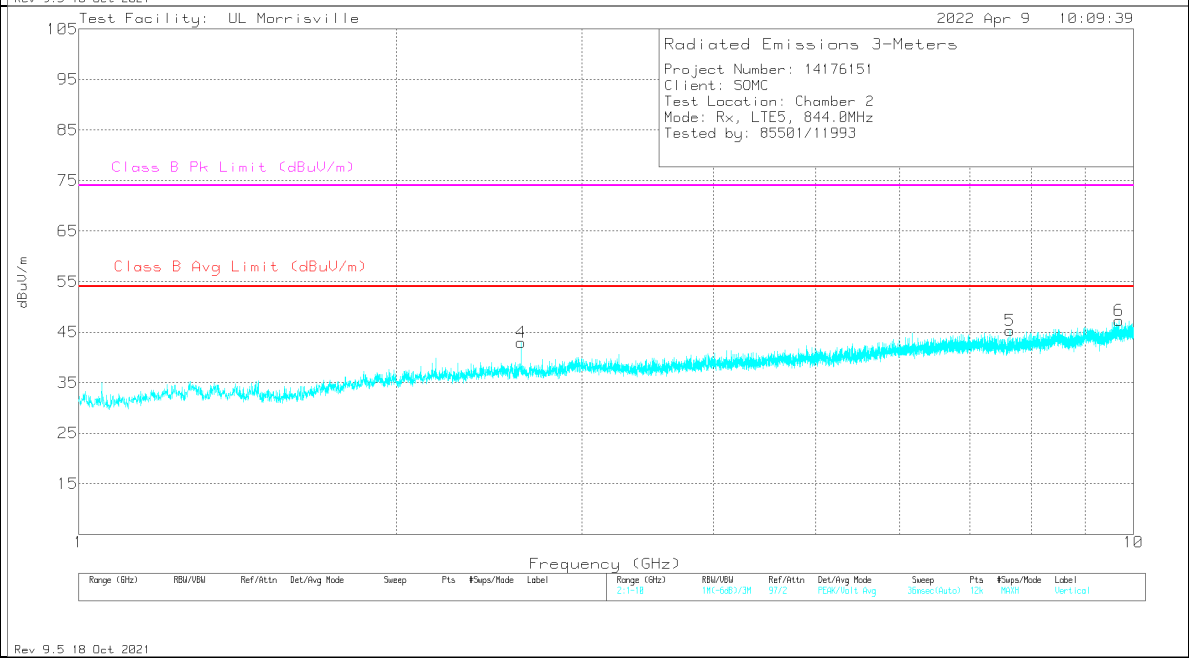
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 844.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

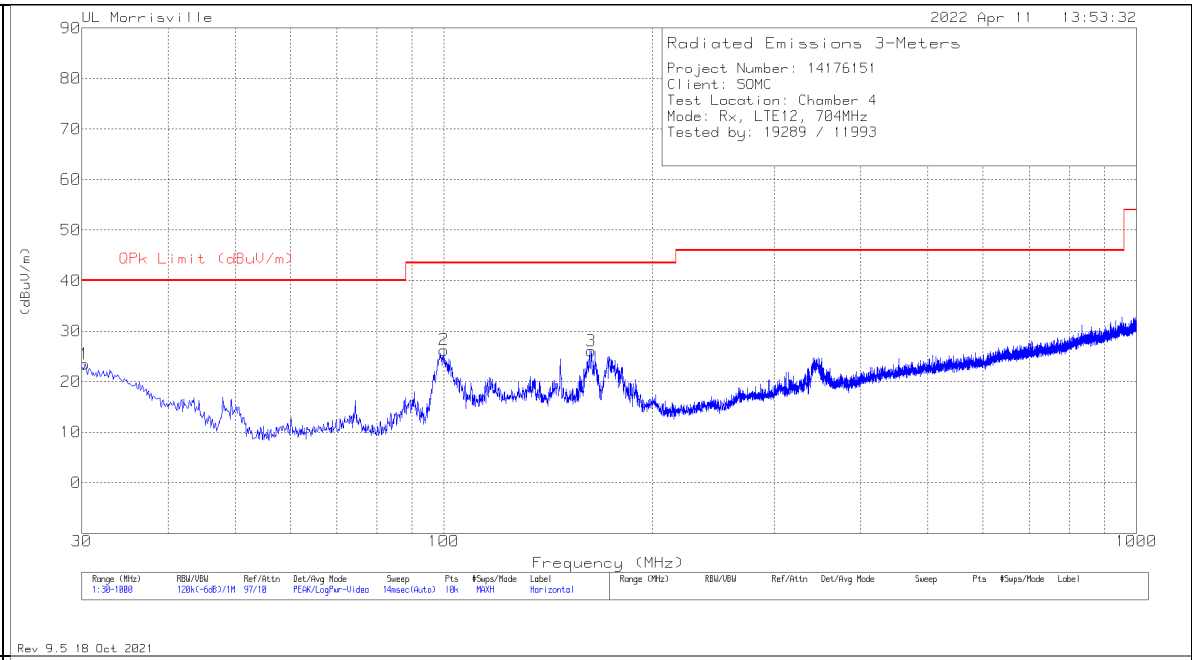
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.6215	44.37	Pk	32.6	-33.7	43.27	54	-10.73	74	-30.73	0-360	200	H
4	2.626	44.11	Pk	32.6	-33.7	43.01	54	-10.99	74	-30.99	0-360	101	V
5	7.63525	36.87	Pk	35.7	-27.2	45.37	54	-8.63	74	-28.63	0-360	101	V
2	9.12775	37.31	Pk	36.3	-26.3	47.31	54	-6.69	74	-26.69	0-360	200	H
6	9.6955	35.38	Pk	36.9	-25	47.28	54	-6.72	74	-26.72	0-360	200	V
3	9.9595	35.72	Pk	36.9	-24.9	47.72	54	-6.28	74	-26.28	0-360	200	H

Pk - Peak detector

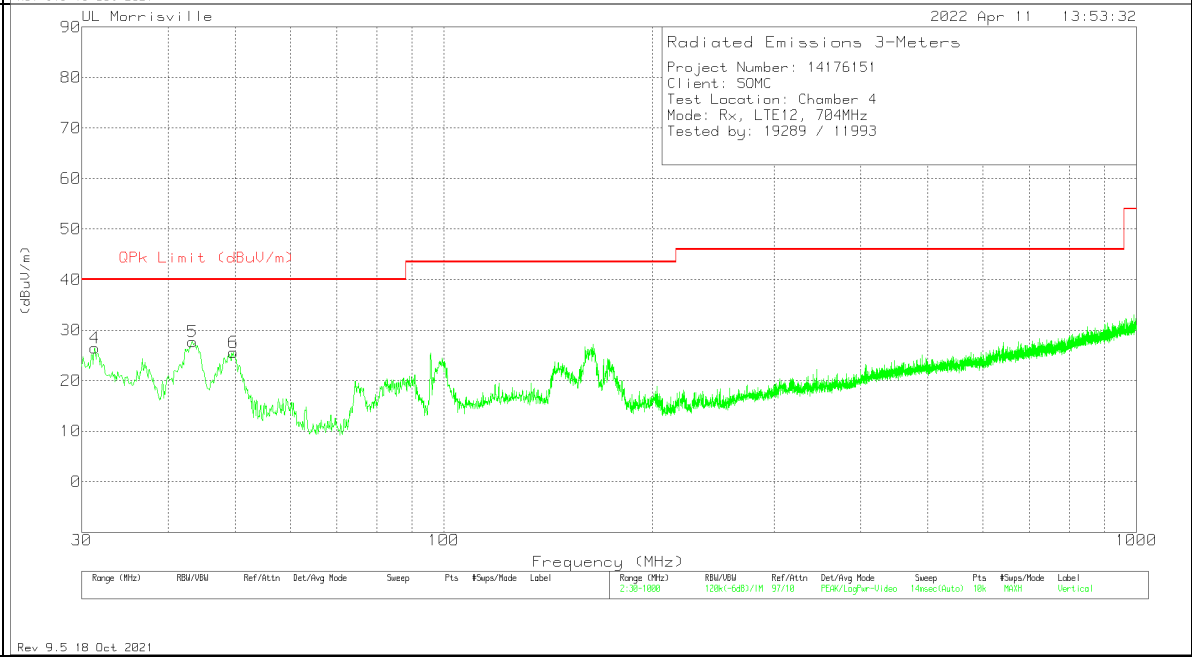
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 704.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

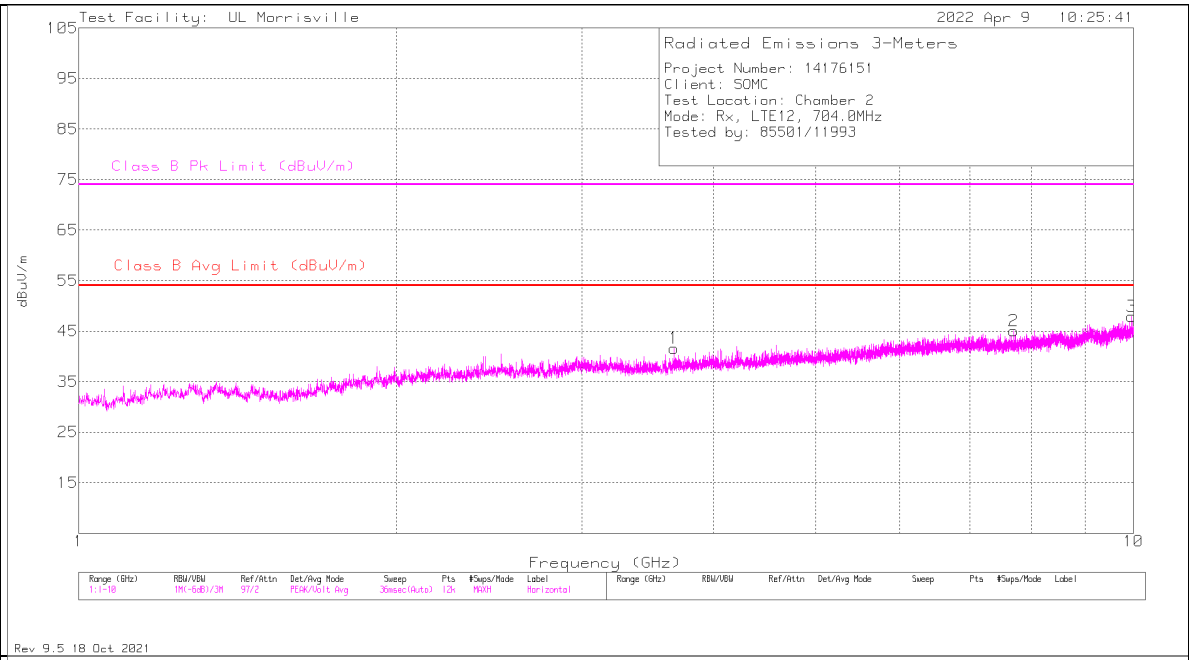
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.291	27.82	Pk	27	-31.3	23.52	40	-16.48	0-360	200	H
4	31.358	31.59	Pk	26.2	-31.3	26.49	40	-13.51	0-360	100	V
5	43.386	41.26	Pk	17.5	-31	27.76	40	-12.24	0-360	100	V
6	49.691	42.53	Pk	14.1	-31	25.63	40	-14.37	0-360	100	V
2	99.937	39.88	Pk	16.5	-30.1	26.28	43.52	-17.24	0-360	200	H
3	163.278	36.98	Pk	18.5	-29.4	26.08	43.52	-17.44	0-360	200	H

Pk - Peak detector

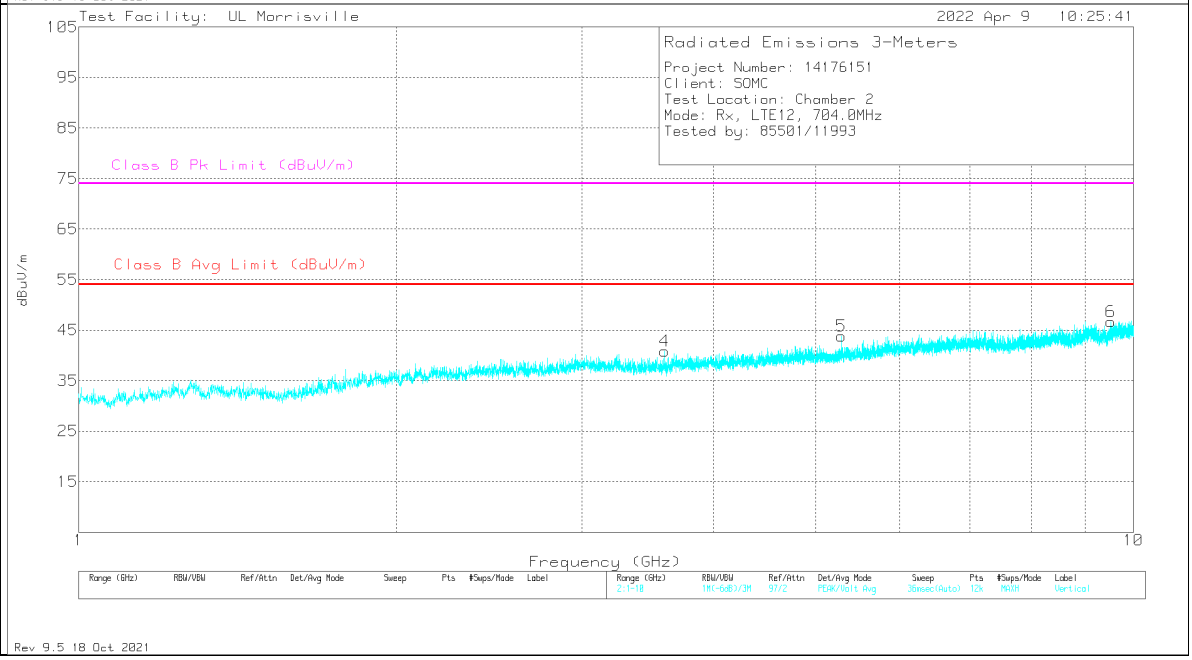
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 704.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

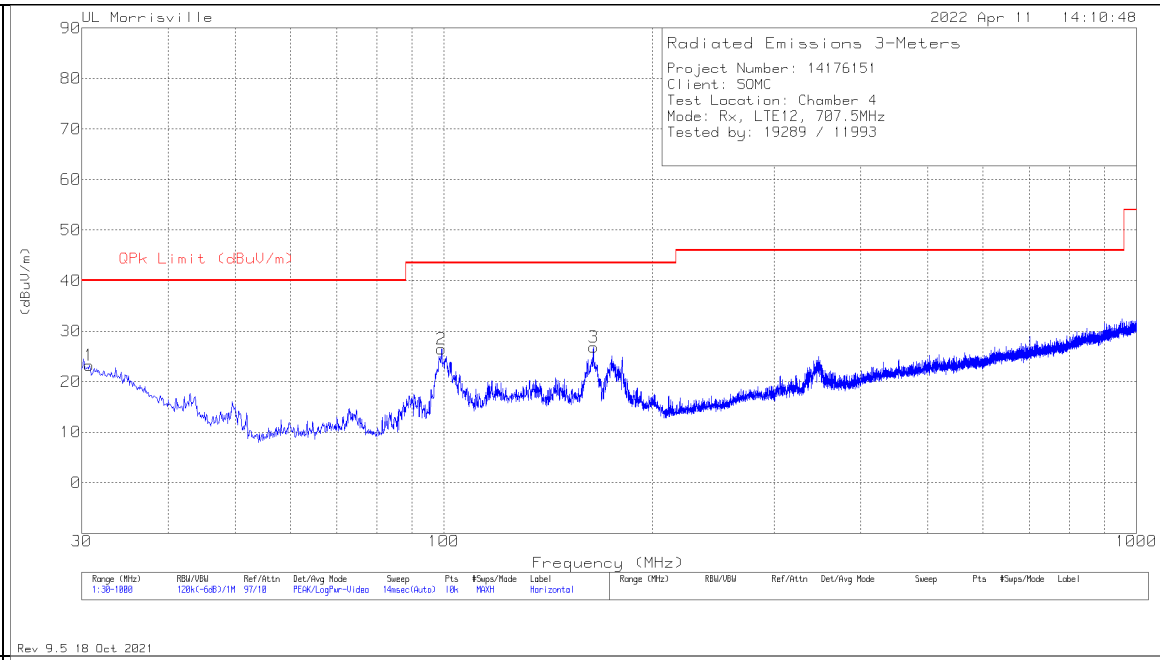
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.59575	40.54	Pk	33	-32.7	40.84	54	-13.16	74	-33.16	0-360	200	V
1	3.67	40.75	Pk	33.1	-32.2	41.65	54	-12.35	74	-32.35	0-360	101	H
5	5.28475	39.97	Pk	34.4	-30.5	43.87	54	-10.13	74	-30.13	0-360	200	V
2	7.70275	37.04	Pk	35.8	-27.8	45.04	54	-8.96	74	-28.96	0-360	101	H
6	9.5245	35.72	Pk	36.8	-25.8	46.72	54	-7.28	74	-27.28	0-360	200	V
3	9.96475	36.3	Pk	36.9	-25.3	47.9	54	-6.1	74	-26.1	0-360	101	H

Pk - Peak detector

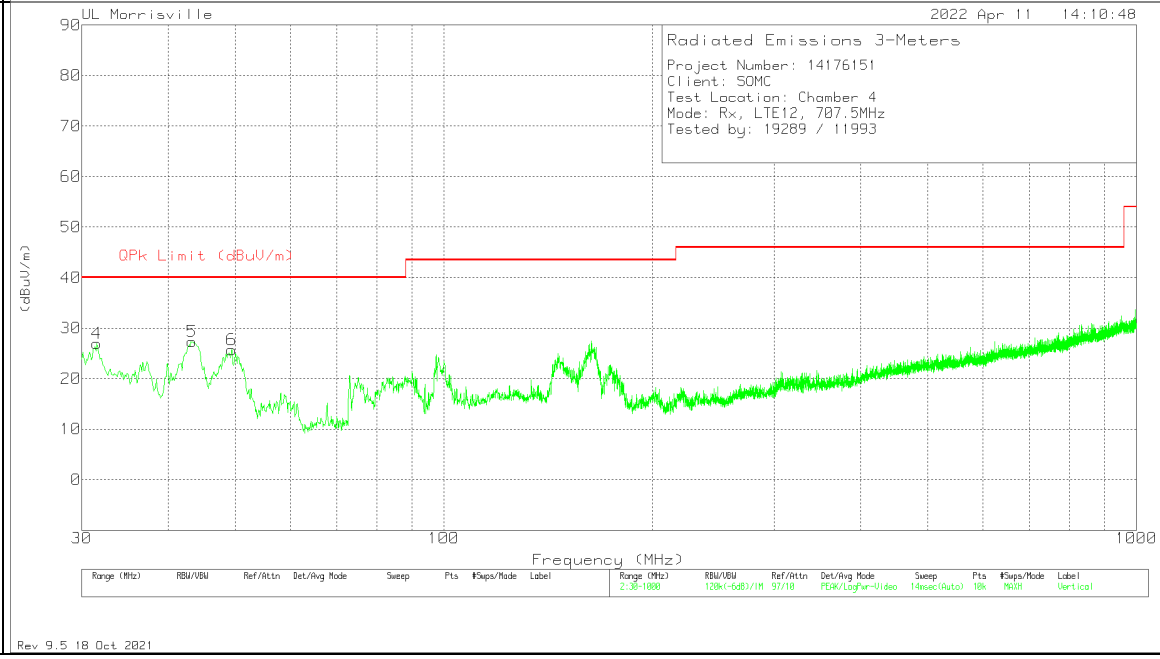
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 707.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

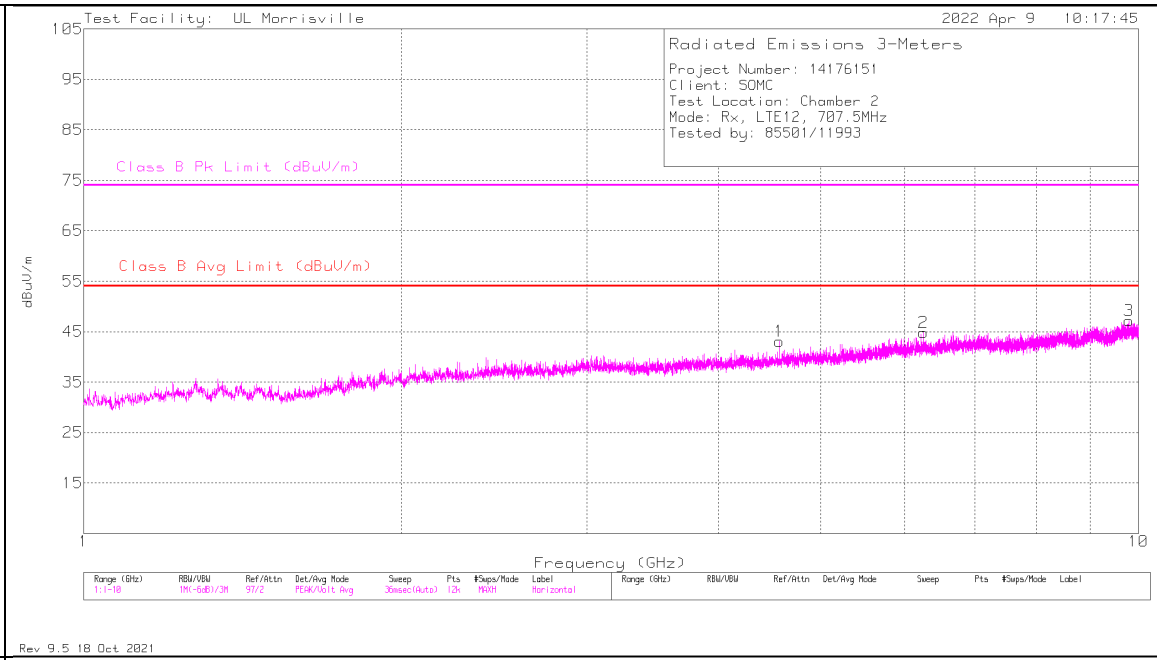
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.776	28.09	Pk	26.5	-31.3	23.29	40	-16.71	0-360	100	H
4	31.552	32.19	Pk	26.1	-31.3	26.99	40	-13.01	0-360	100	V
5	43.289	40.87	Pk	17.5	-31	27.37	40	-12.63	0-360	100	V
6	49.4	42.57	Pk	14.2	-31	25.77	40	-14.23	0-360	100	V
2	99.258	40.31	Pk	16.3	-30.1	26.51	43.52	-17.01	0-360	200	H
3	164.442	37.81	Pk	18.4	-29.4	26.81	43.52	-16.71	0-360	100	H

Pk - Peak detector

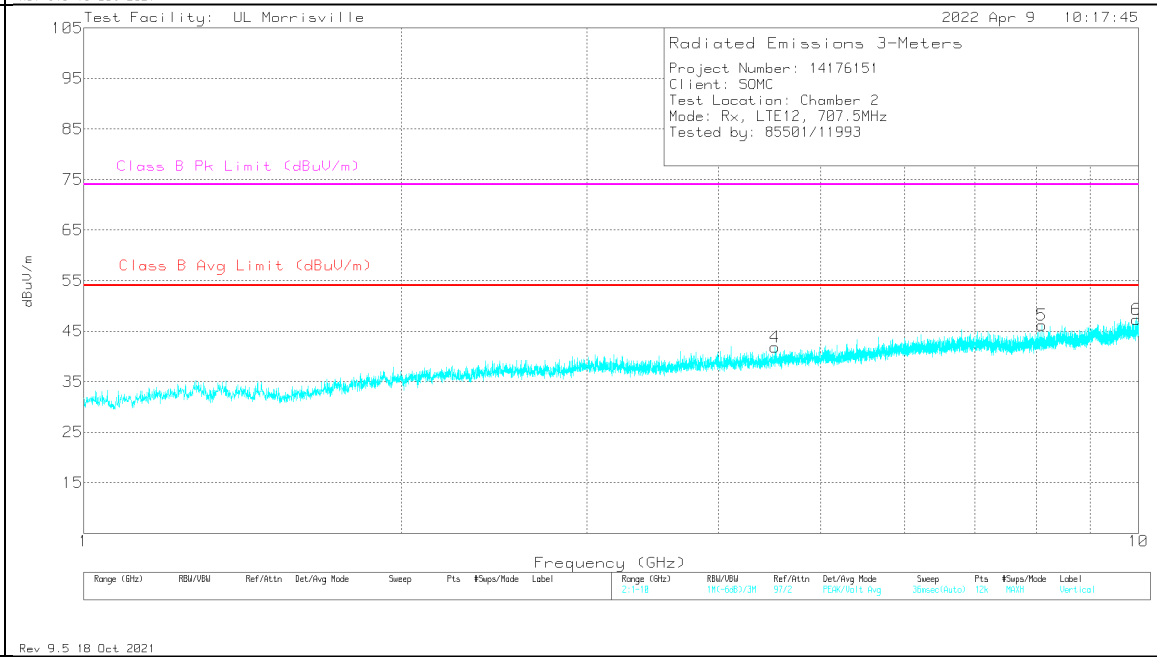
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 707.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

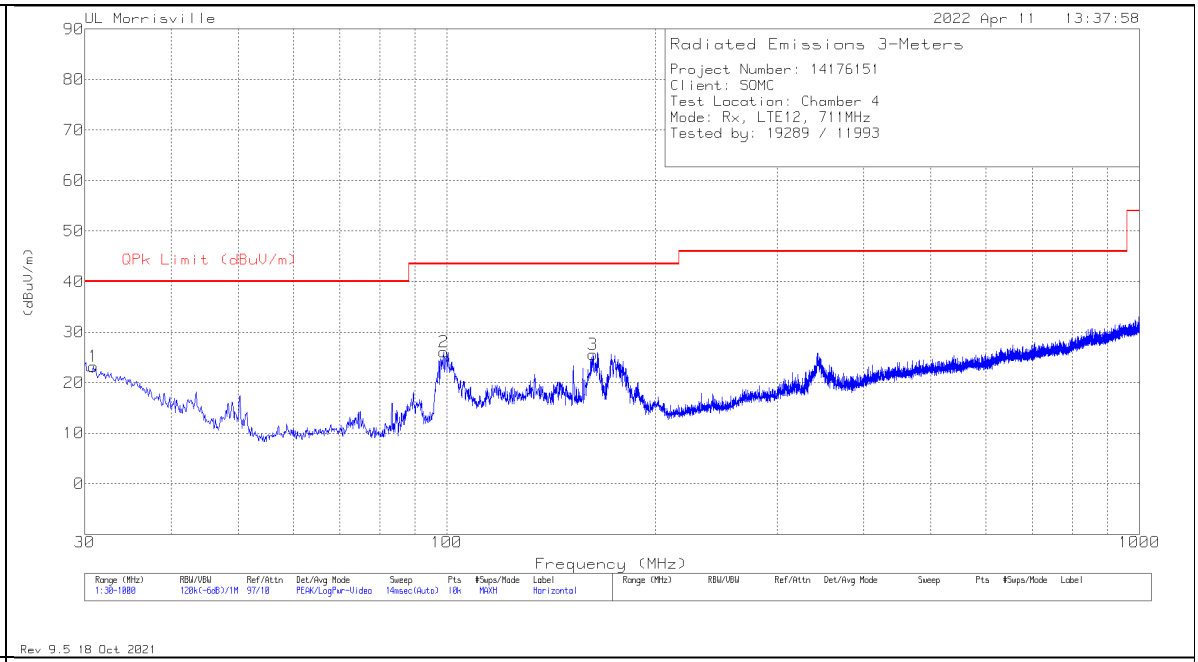
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	4.52125	39.98	Pk	34	-32.1	41.88	54	-12.12	74	-32.12	0-360	101	V
1	4.56625	40.29	Pk	34	-31.2	43.09	54	-10.91	74	-30.91	0-360	199	H
2	6.25525	38.26	Pk	35.6	-29	44.86	54	-9.14	74	-29.14	0-360	199	H
5	8.09875	37.2	Pk	35.9	-26.9	46.2	54	-7.8	74	-27.8	0-360	101	V
3	9.802	35.55	Pk	36.9	-25.3	47.15	54	-6.85	74	-26.85	0-360	199	H
6	9.9535	35.92	Pk	36.9	-25.5	47.32	54	-6.68	74	-26.68	0-360	199	V

Pk - Peak detector

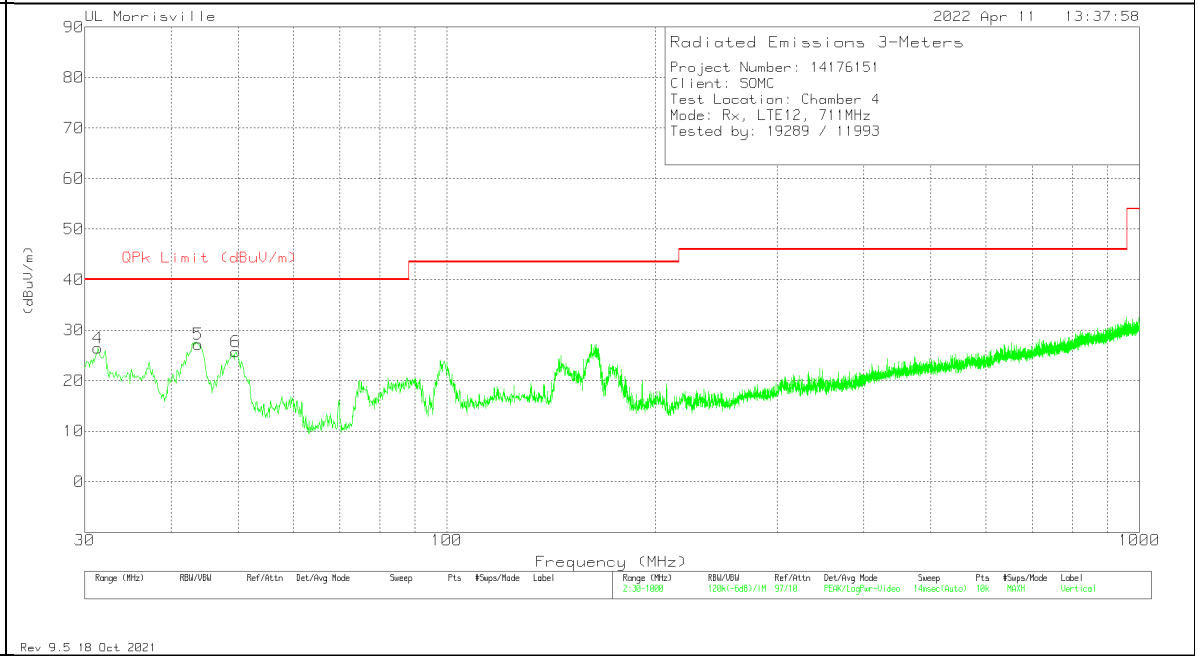
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 711.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

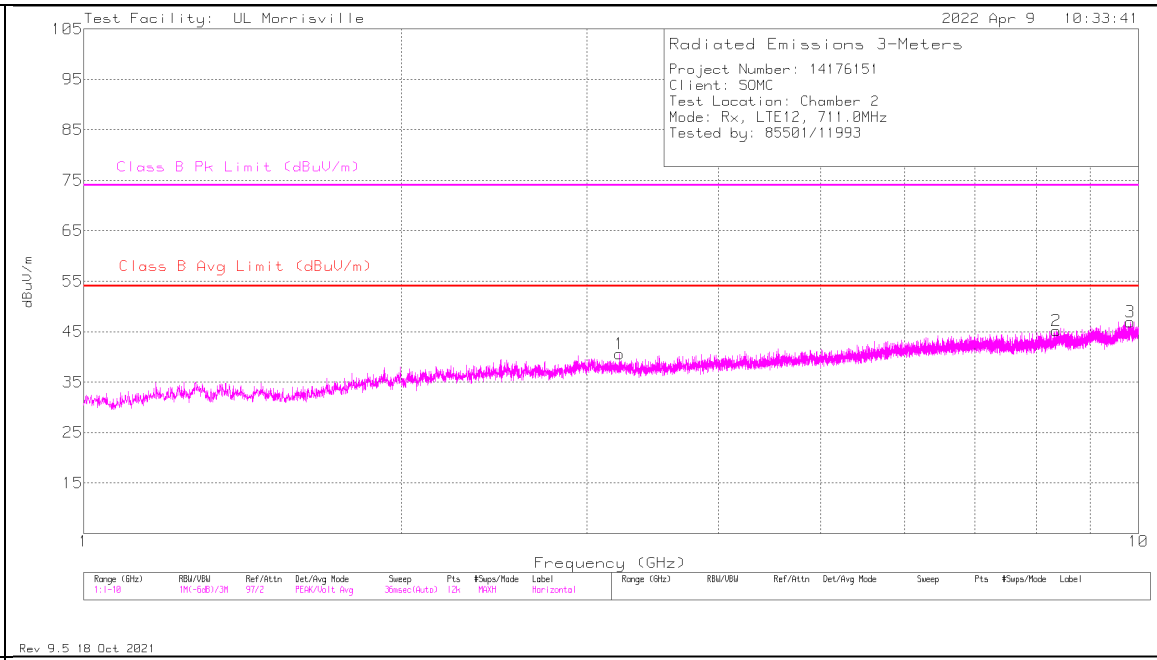
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.873	28.14	Pk	26.4	-31.3	23.24	40	-16.76	0-360	200	H
4	31.358	31.51	Pk	26.2	-31.3	26.41	40	-13.59	0-360	100	V
5	43.774	40.99	Pk	17.2	-31	27.19	40	-12.81	0-360	100	V
6	49.594	42.5	Pk	14.2	-31	25.7	40	-14.3	0-360	100	V
2	98.967	40.02	Pk	16.2	-30.1	26.12	43.52	-17.4	0-360	200	H
3	162.599	36.49	Pk	18.5	-29.4	25.59	43.52	-17.93	0-360	100	H

Pk - Peak detector

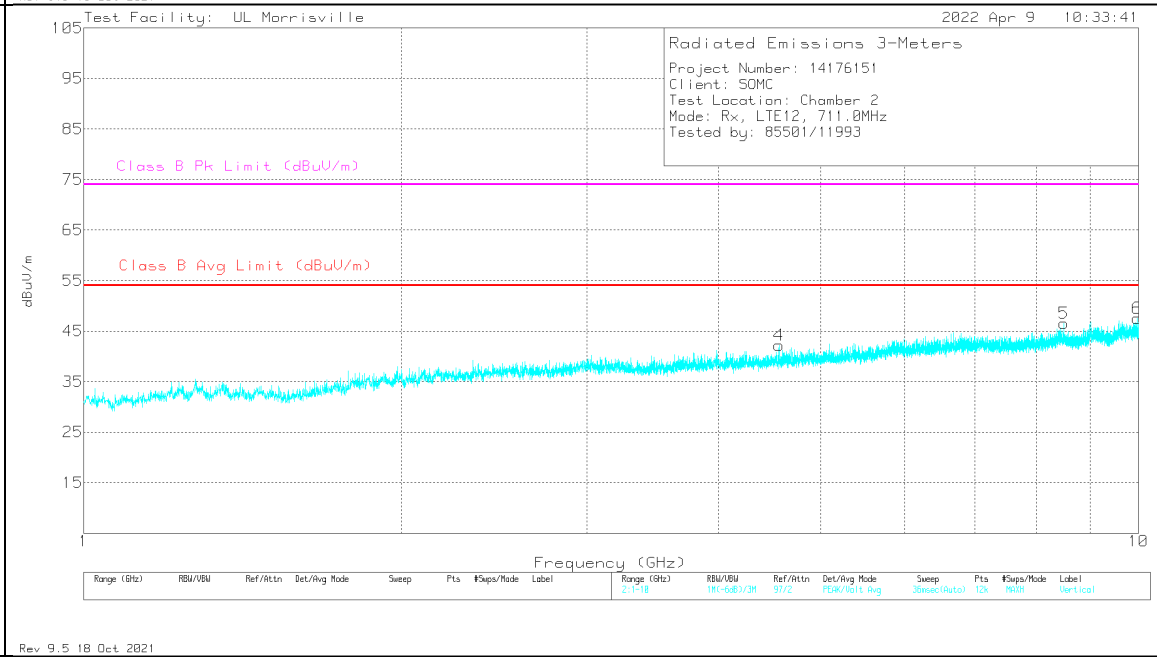
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 711.0MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

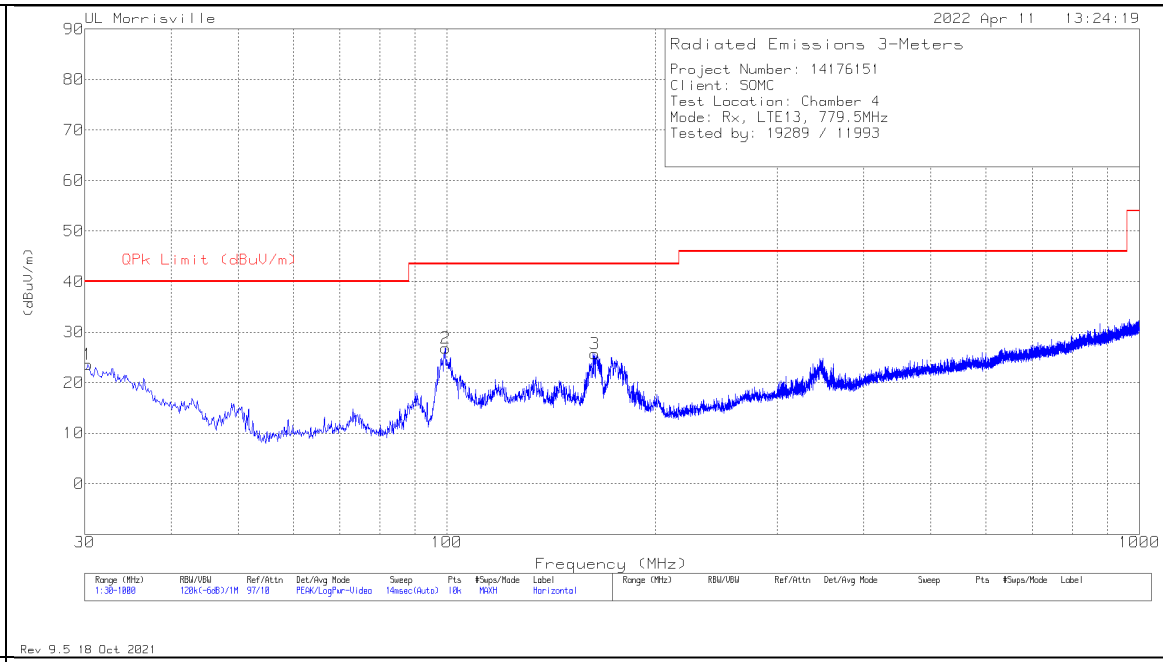
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.2215	40.44	Pk	33.3	-33.1	40.64	54	-13.36	74	-33.36	0-360	199	H
4	4.5625	39.78	Pk	34	-31.6	42.18	54	-11.82	74	-31.82	0-360	101	V
2	8.35825	36.4	Pk	35.8	-27	45.2	54	-8.8	74	-28.8	0-360	101	H
5	8.50075	37.71	Pk	36	-27.1	46.61	54	-7.39	74	-27.39	0-360	101	V
3	9.8185	34.96	Pk	36.9	-24.9	46.96	54	-7.04	74	-27.04	0-360	101	H
6	9.9745	36.08	Pk	37	-25.5	47.58	54	-6.42	74	-26.42	0-360	101	V

Pk - Peak detector

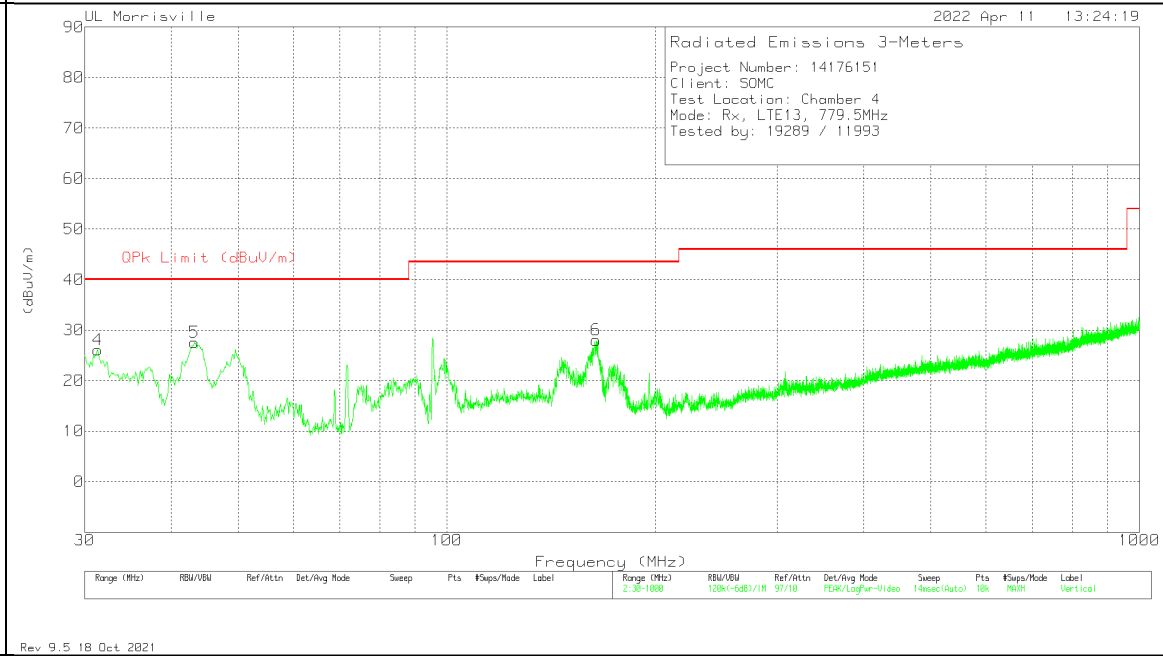
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B13 Rx 779.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

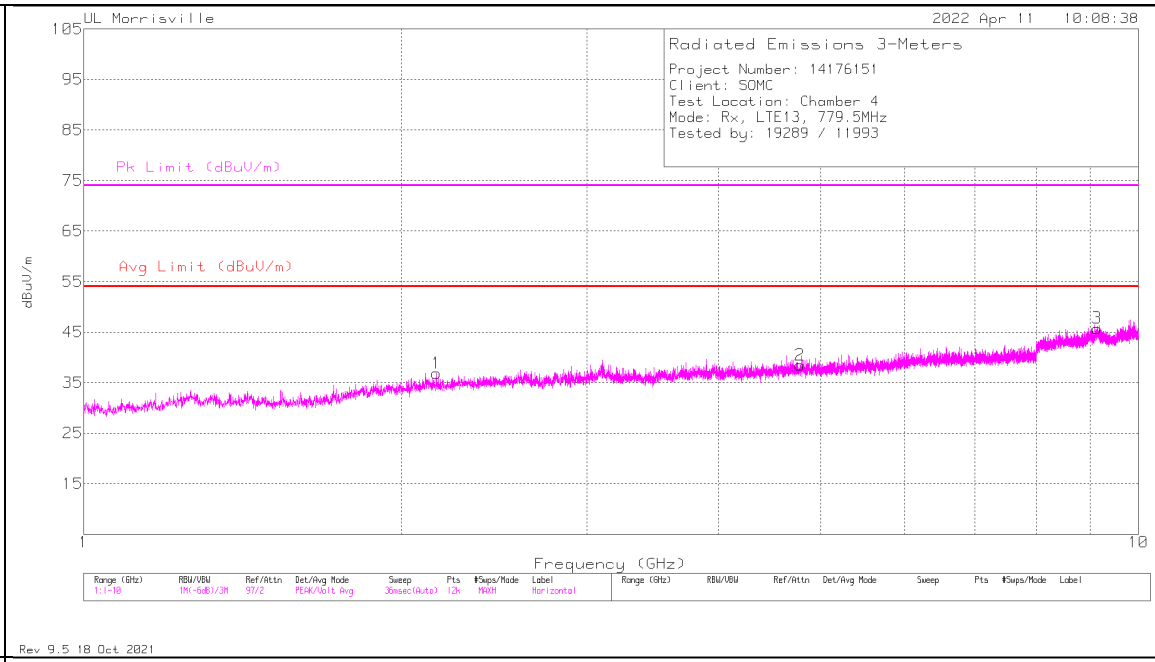
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.291	27.92	Pk	27	-31.3	23.62	40	-16.38	0-360	100	H
4	31.358	31.23	Pk	26.2	-31.3	26.13	40	-13.87	0-360	100	V
5	43.192	41.03	Pk	17.6	-31	27.63	40	-12.37	0-360	100	V
2	99.549	40.59	Pk	16.4	-30.1	26.89	43.52	-16.63	0-360	200	H
3	163.375	36.6	Pk	18.5	-29.4	25.7	43.52	-17.82	0-360	100	H
6	164.151	39.02	Pk	18.4	-29.4	28.02	43.52	-15.5	0-360	100	V

Pk - Peak detector

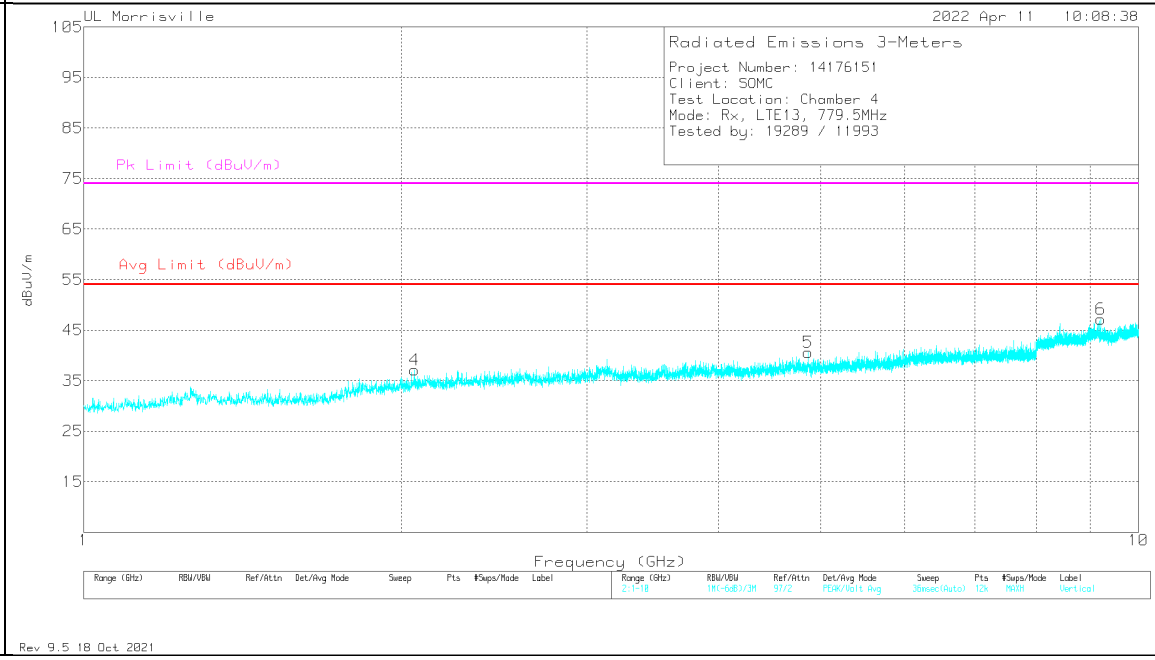
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B13 Rx 779.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

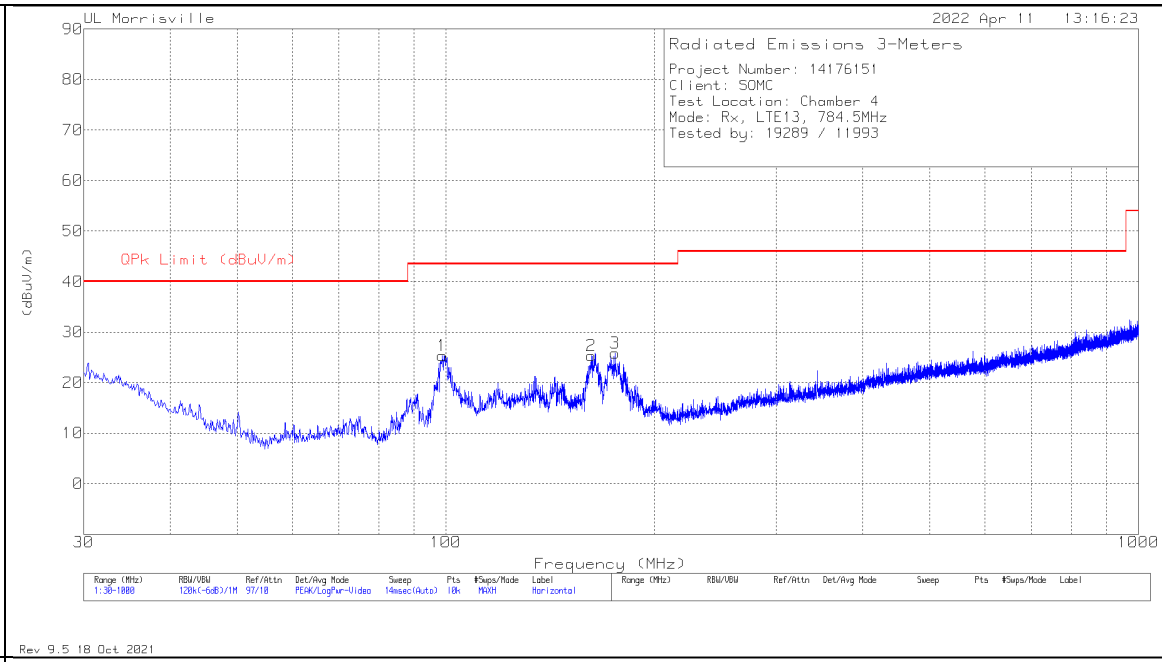
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.05825	42.38	Pk	31.4	-36.7	37.08	54	-16.92	74	-36.92	0-360	100	V
1	2.15875	42.01	Pk	31.6	-36.7	36.91	54	-17.09	74	-37.09	0-360	200	H
2	4.77925	37.13	Pk	34	-32.7	38.43	54	-15.57	74	-35.57	0-360	200	H
5	4.864	39.25	Pk	34	-32.6	40.65	54	-13.35	74	-33.35	0-360	100	V
3	9.1405	36.45	Pk	36.3	-27	45.75	54	-8.25	74	-28.25	0-360	200	H
6	9.214	37.82	Pk	36.3	-27	47.12	54	-6.88	74	-26.88	0-360	100	V

Pk - Peak detector

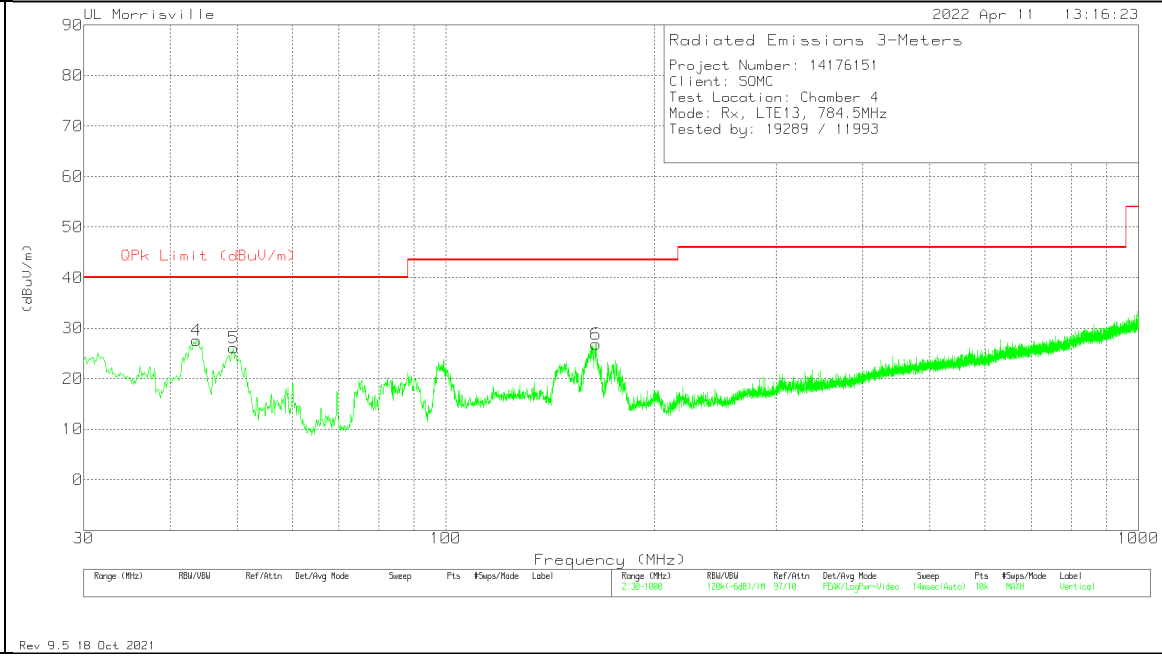
RADIATED EMISSIONS 30 TO 1000 MHz – LTE B13 Rx 784.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

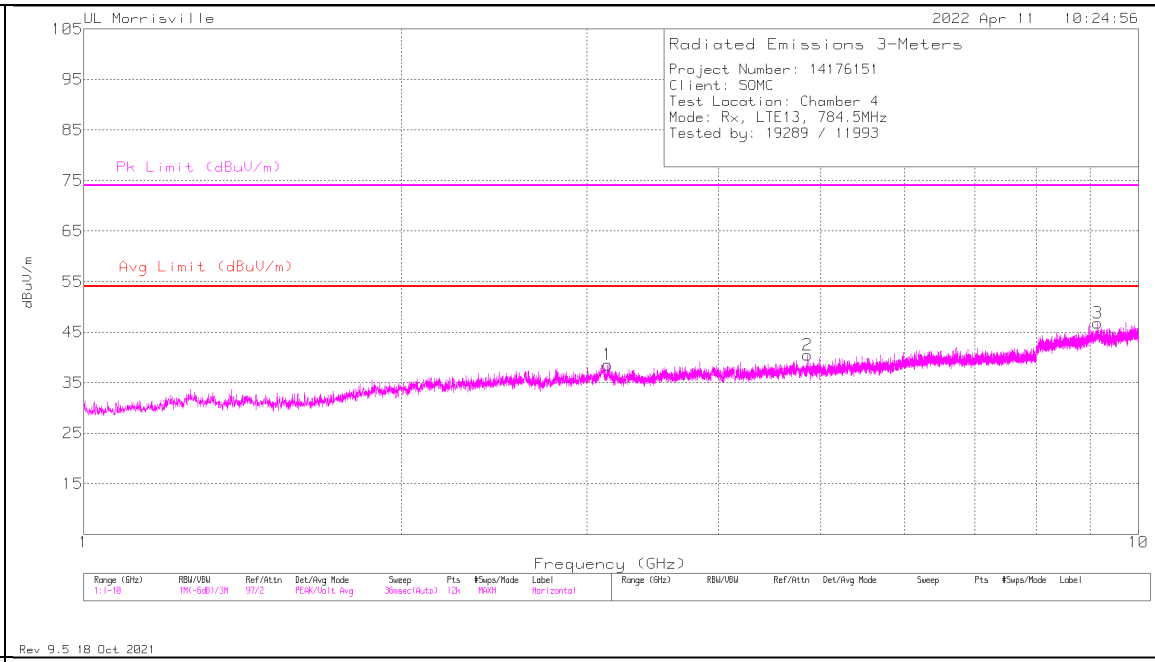
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	43.677	41.25	Pk	17.3	-31	27.55	40	-12.45	0-360	100	V
5	49.4	42.87	Pk	14.2	-31	26.07	40	-13.93	0-360	100	V
1	98.87	39.24	Pk	16.2	-30.1	25.34	43.52	-18.18	0-360	100	H
2	162.211	36.2	Pk	18.5	-29.4	25.3	43.52	-18.22	0-360	100	H
6	164.733	37.87	Pk	18.4	-29.4	26.87	43.52	-16.65	0-360	100	V
3	175.5	37.29	Pk	17.8	-29.3	25.79	43.52	-17.73	0-360	100	H

Pk - Peak detector

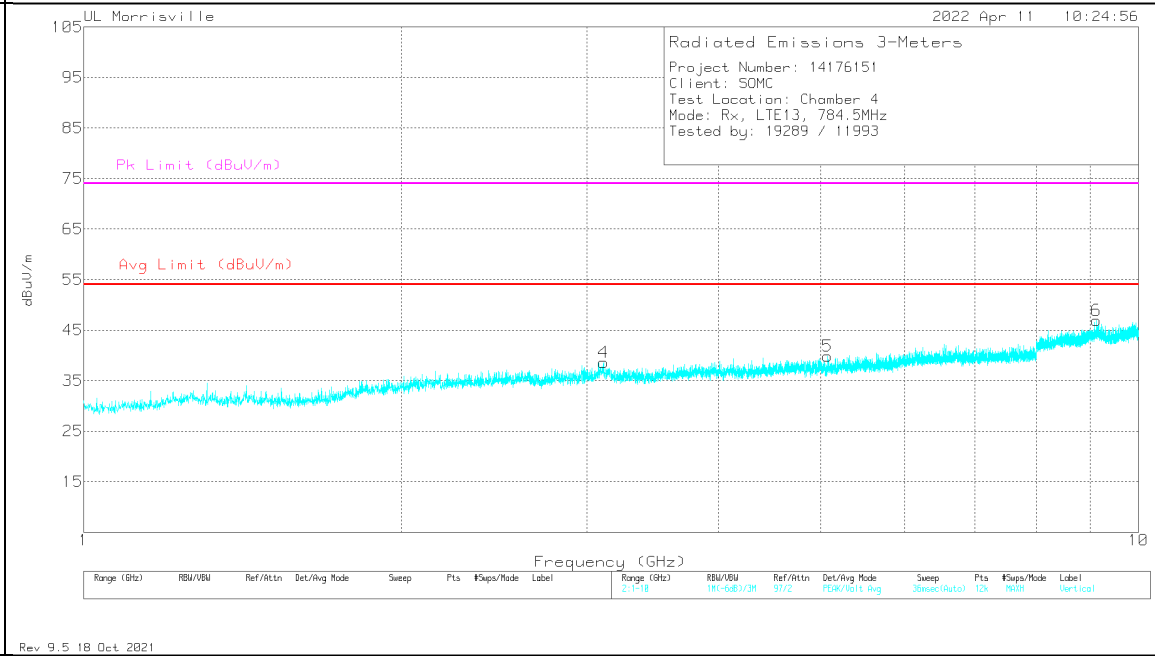
RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B13 Rx 784.5MHz

Radiated Emissions Graph

HORIZONTAL



VERTICAL



Radiated Emissions Data Points

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	3.1105	40.76	Pk	33.8	-36	38.56	54	-15.44	74	-35.44	0-360	200	V
1	3.139	41.05	Pk	33.5	-36	38.55	54	-15.45	74	-35.45	0-360	100	H
2	4.855	39.02	Pk	34	-32.6	40.42	54	-13.58	74	-33.58	0-360	100	H
5	5.0725	38.79	Pk	33.9	-32.8	39.89	54	-14.11	74	-34.11	0-360	200	V
6	9.12625	37.48	Pk	36.3	-26.9	46.88	54	-7.12	74	-27.12	0-360	200	V
3	9.1525	37.43	Pk	36.3	-26.9	46.83	54	-7.17	74	-27.17	0-360	100	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