



Report Number:

R14176139-E10V3

Issue Date:

2022-04-01

FCC ID:

PY7-83262V

Electromagnetic Compatibility Test Report

For

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



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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: 2022-04-01

FCC ID: PY7-83262V

Sample Serial Number: QV77008XB8, QV770017B8

Applicable Standards: FCC 47 CFR PART 15 SUBPART B:2022

Date Test Item Received: 2022-01-13

Testing Start Date: 2022-02-18

Date Testing Complete: 2022-03-14

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.

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REPORT REVISION HISTORY

Revision Date	Revision Version	Description	Revised By	Revision Reviewed By
2022-03-16	V1	Initial Issue	B. Kiewra	M. Antola
2022-03-23	V2	Separated setup photos Added note regarding band coverage to section 3.5. Revised model in section 3.2.1	B. Kiewra	M. Antola
2022-03-31	V3	Added worst-case declaration to section 3.7	B. Kiewra	M. Antola
2022-04-01	V4	Added callbox note to section 3.5	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

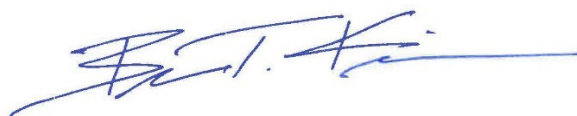
Approved & Released For

UL LLC. By:



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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	PY7-83262V	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 0.493 for idle sample and 0.428 for WWAN Rx sample.

3.3 Block Diagram:

Refer to setup exhibit R14176139-EP9V1 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 Y for both battery and power supply modes. Therefore all final radiated testing performed with the EUT in the Y orientation.

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	40882	
Test Date	2022-02-18	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	23.4 °C
Humidity	10 % to 90 %	44.8 %
	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

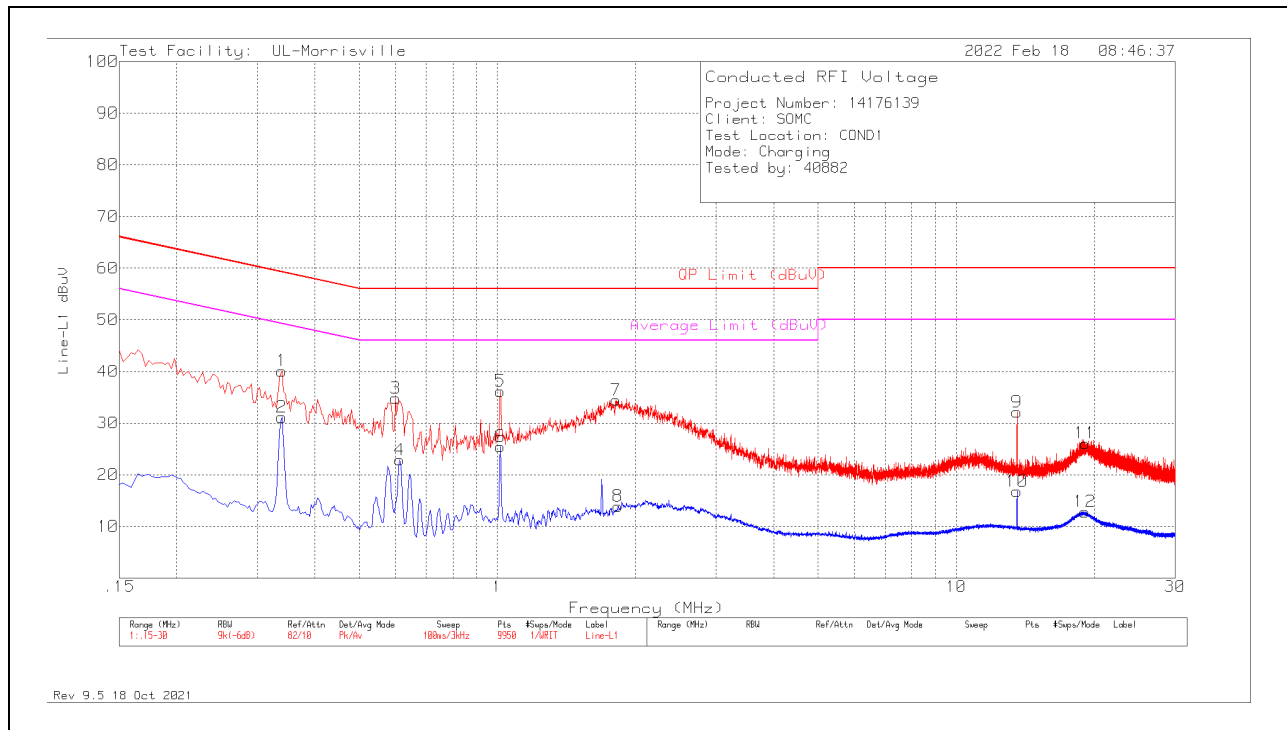
Power Interface #	EUT Configurations #	EUT Mode of Operation#
1	1	2
Supplementary information: None		

Refer to setup exhibit R14176139-EP9V1 for setup photos.

Conducted Emissions Test Equipment

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

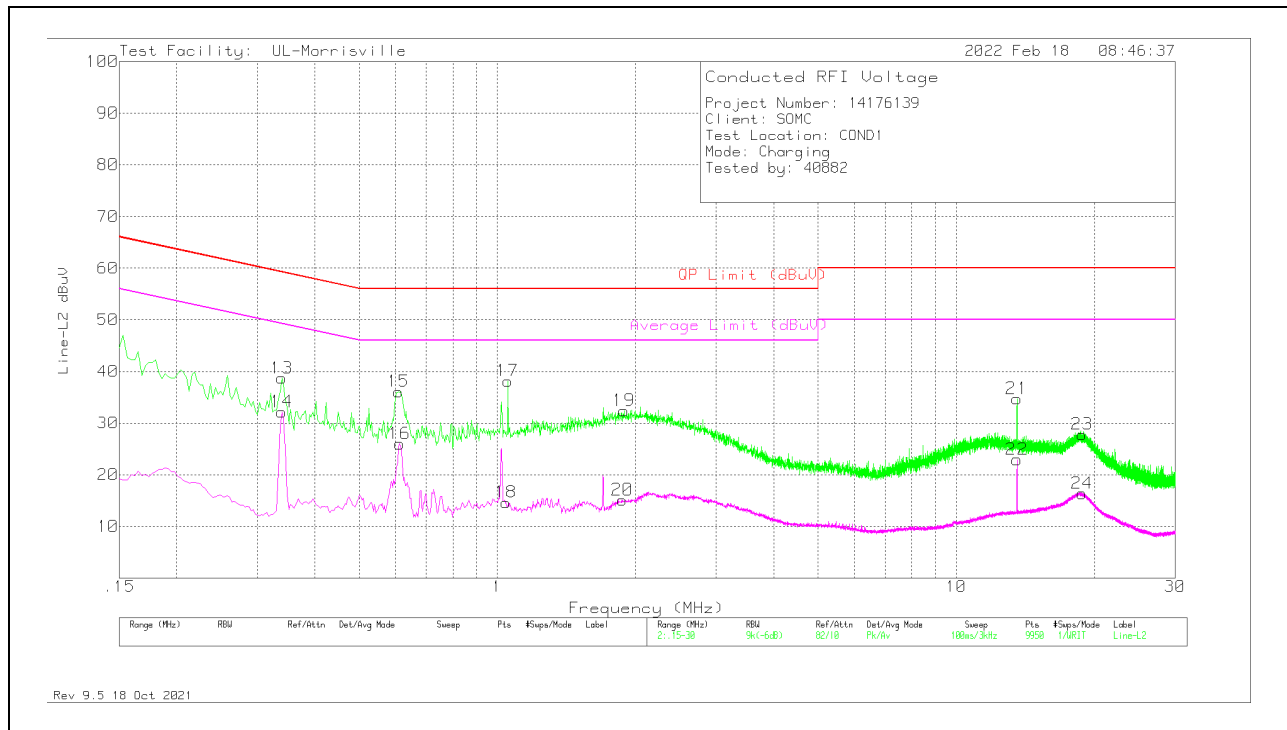
Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2021-04-05	2022-04-05
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer 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 (04 Mar 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	.339	30.22	Pk	.1	9.8	40.12	59.23	-19.11	-	-
2	.339	21.23	Av	.1	9.8	31.13	-	-	49.23	-18.1
3	.6	25.02	Pk	0	9.8	34.82	56	-21.18	-	-
4	.612	13.08	Av	0	9.8	22.88	-	-	46	-23.12
5	1.014	26.4	Pk	0	9.8	36.2	56	-19.8	-	-
6	1.014	15.66	Av	0	9.8	25.46	-	-	46	-20.54
7	1.812	24.63	Pk	0	9.8	34.43	56	-21.57	-	-
8	1.833	4.11	Av	0	9.8	13.91	-	-	46	-32.09
10	13.56	6.57	Av	.1	10.1	16.77	-	-	50	-33.23
9	13.563	21.91	Pk	.1	10.1	32.11	60	-27.89	-	-
12	19.068	2.53	Av	.2	10.1	12.83	-	-	50	-37.17
11	19.107	15.81	Pk	.2	10.1	26.11	60	-33.89	-	-

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)
13	.339	28.8	Pk	.1	9.8	38.7	59.23	-20.53	-	-
14	.339	22.28	Av	.1	9.8	32.18	-	-	49.23	-17.05
15	.609	26.29	Pk	0	9.8	36.09	56	-19.91	-	-
16	.612	16.21	Av	0	9.8	26.01	-	-	46	-19.99
18	1.044	4.86	Av	0	9.8	14.66	-	-	46	-31.34
17	1.053	28.36	Pk	0	9.8	38.16	56	-17.84	-	-
20	1.872	5.33	Av	0	9.8	15.13	-	-	46	-30.87
19	1.887	22.62	Pk	0	9.8	32.42	56	-23.58	-	-
21	13.56	24.53	Pk	.1	10.1	34.73	60	-25.27	-	-
22	13.56	12.75	Av	.1	10.1	22.95	-	-	50	-27.05
24	18.807	6.17	Av	.1	10.1	16.37	-	-	50	-33.63
23	18.81	17.61	Pk	.1	10.1	27.81	60	-32.19	-	-

Pk - Peak detector

Av - Average detection

4.2 Test Conditions and Results - RADIATED EMISSIONS

Test Engineer	85501/11993	
Test Date	2022-03-01 and 2022-03-14	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	21.4 – 24.7 °C
Humidity	10 % to 90 %	18-5 – 27.7%
	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 R14176139-EP9V1 for setup photos.

Radiated Emissions Test Equipment

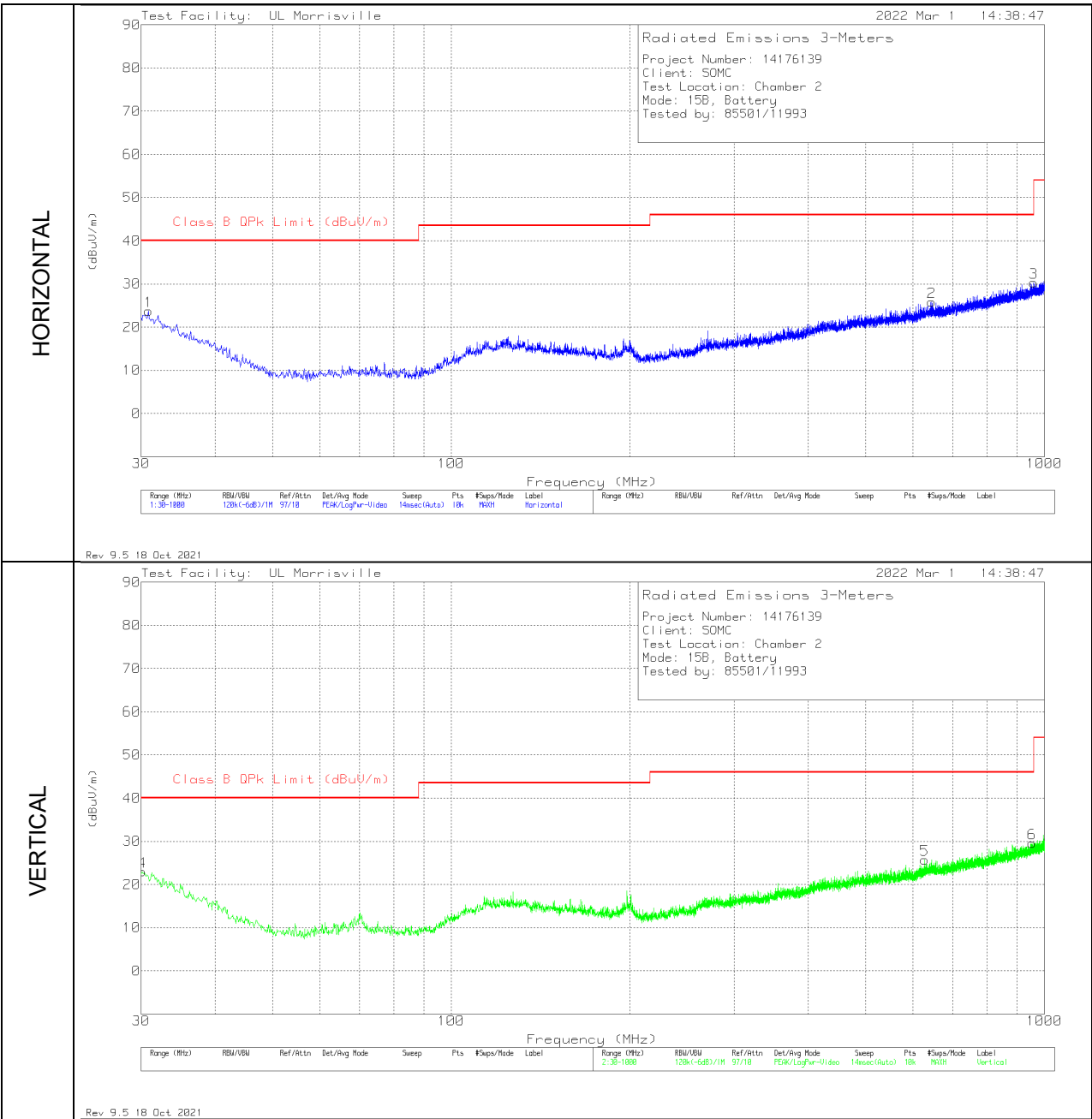
The following test and measurement equipment was utilized for the tests documented in this report:

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	2021-03-10	2022-03-10
SA0025	Spectrum Analyzer	Agilent	N9030A	2021-04-01	2022-04-01
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

RADIATED EMISSIONS 30 TO 1000 MHz - Battery

Radiated Emissions Graph



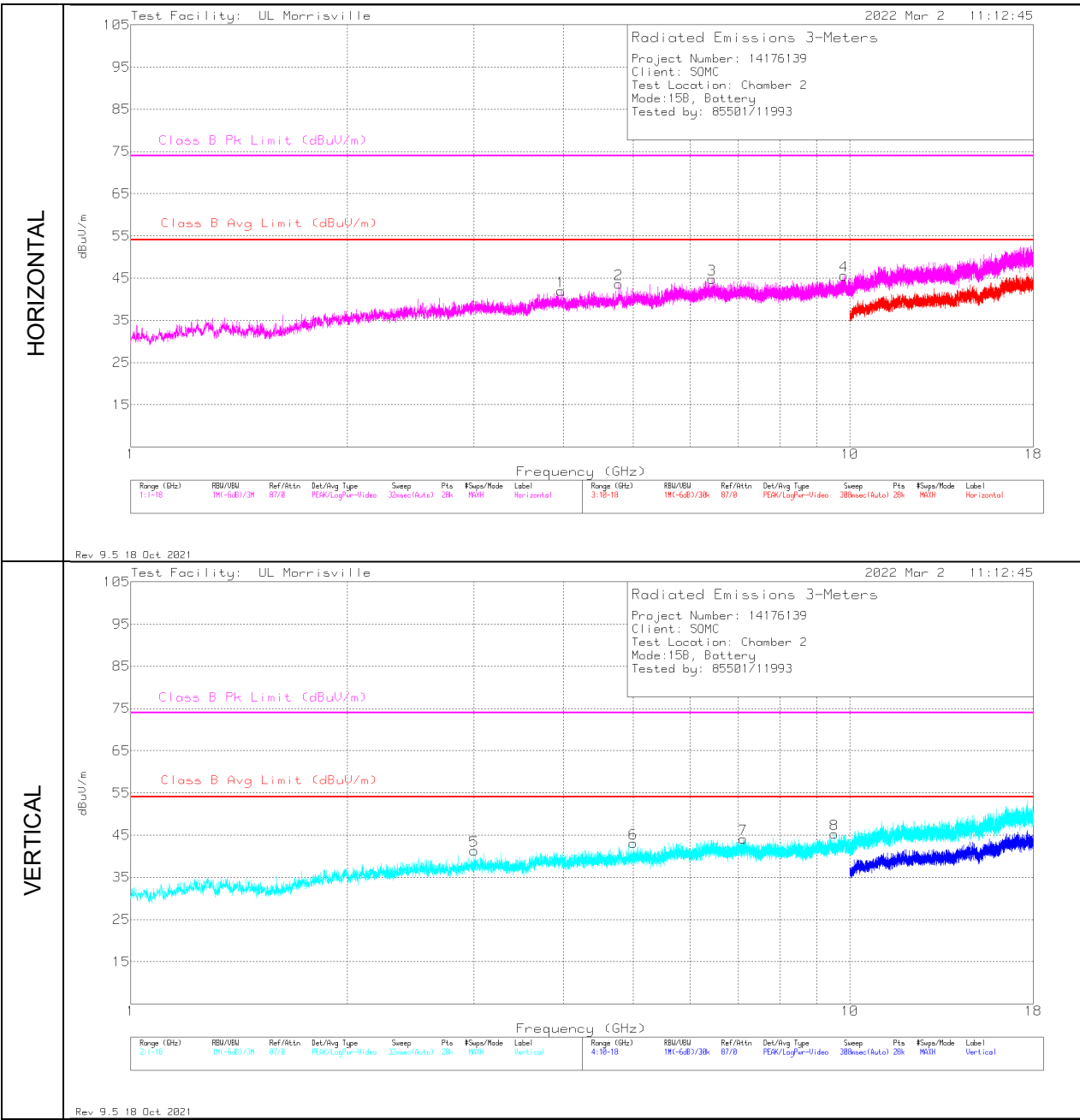
Radiated Emissions Data Points

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	30.097	27.69	Pk	26.7	-31.4	22.99	40	-17.01	0-360	199	V
1	30.873	28.96	Pk	26.3	-31.5	23.76	40	-16.24	0-360	199	H
5	628.781	27.38	Pk	25.6	-27.2	25.78	46.02	-20.24	0-360	101	V
2	646.144	26.86	Pk	25.9	-26.9	25.86	46.02	-20.16	0-360	199	H
6	952.664	25.45	Pk	28.9	-24.8	29.55	46.02	-16.47	0-360	199	V
3	959.066	25.86	Pk	29.1	-24.7	30.26	46.02	-15.76	0-360	399	H

Pk - Peak detector

RADIATED EMISSIONS 1000 TO 18,000 MHz – Battery

Radiated Emissions Graph



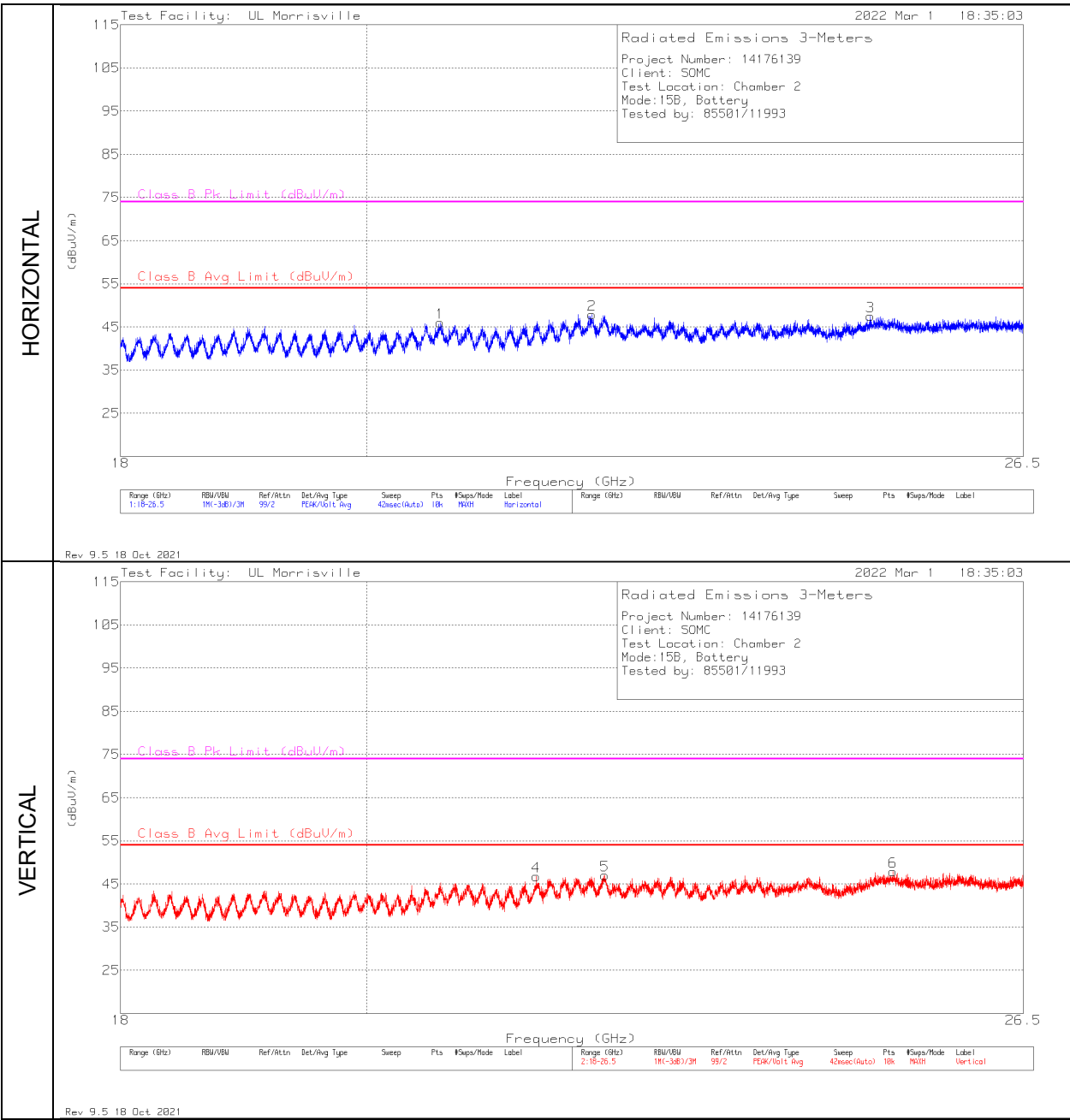
Radiated Emissions Data Points

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
5	3.00364	41.51	Pk	33.4	-33.6	41.31	54	-12.69	74	-32.69	0-360	200	V
1	3.96722	40.49	Pk	33.6	-32.1	41.99	54	-12.01	74	-32.01	0-360	200	H
2	4.77049	40.54	Pk	34.1	-31	43.64	54	-10.36	74	-30.36	0-360	200	H
6	4.9994	39.6	Pk	34.2	-30.7	43.1	54	-10.9	74	-30.9	0-360	200	V
3	6.43534	38.09	Pk	35.6	-28.9	44.79	54	-9.21	74	-29.21	0-360	101	H
7	7.10687	36.19	Pk	36	-28.1	44.09	54	-9.91	74	-29.91	0-360	101	V
8	9.51974	34.49	Pk	36.7	-25.9	45.29	54	-8.71	74	-28.71	0-360	101	V
4	9.81421	33.77	Pk	36.9	-25.1	45.57	54	-8.43	74	-28.43	0-360	200	H

Pk - Peak detector

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

Radiated Emissions Graph



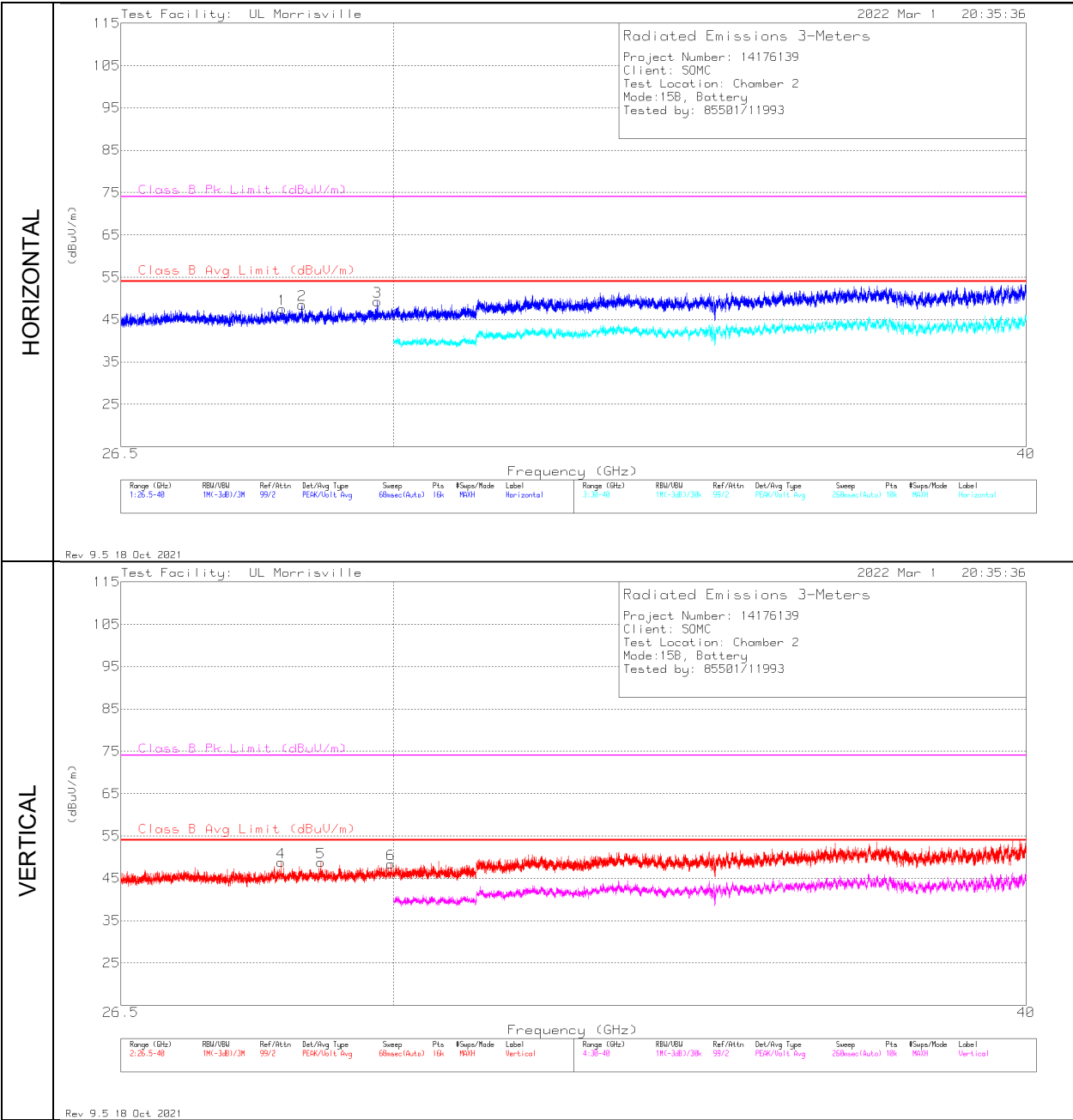
Radiated Emissions Data Points

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	20.64324	49.75	Pk	33.9	-37.7	45.95	54	-8.05	74	-28.05	0-360	149	H
4	21.5093	50.68	Pk	34.7	-38.6	46.78	54	-7.22	74	-27.22	0-360	299	V
2	22.0286	48.56	Pk	37	-37.7	47.86	54	-6.14	74	-26.14	0-360	100	H
5	22.15183	47.84	Pk	37	-37.8	47.04	54	-6.96	74	-26.96	0-360	250	V
3	24.82142	48.63	Pk	35.2	-36.3	47.53	54	-6.47	74	-26.47	0-360	250	H
6	25.06109	49.53	Pk	35.2	-36.9	47.83	54	-6.17	74	-26.17	0-360	101	V

Pk - Peak detector

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

Radiated Emissions Graph



Radiated Emissions Data Points

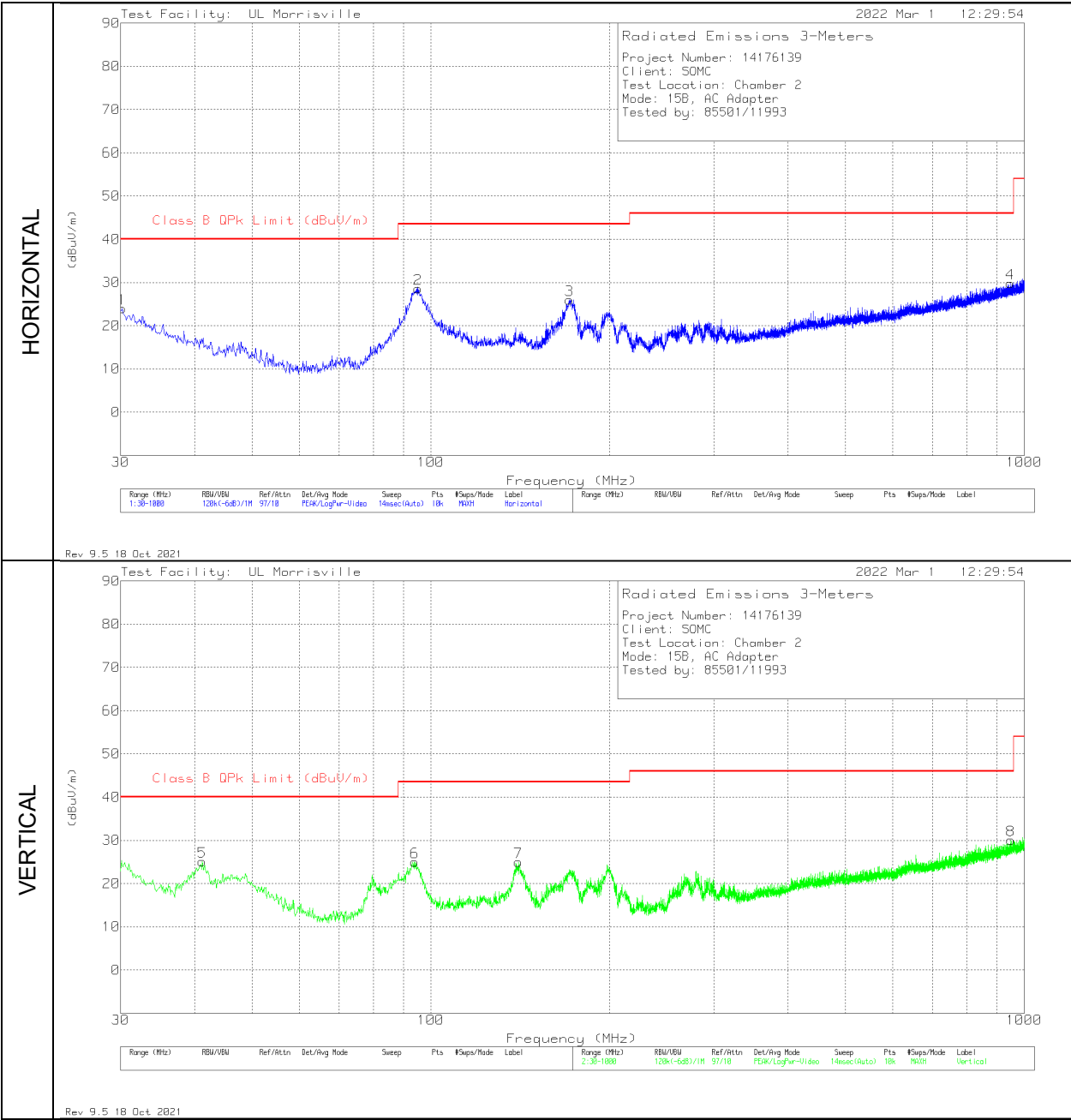
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	28.5043	46.61	Pk	36.3	-35.1	47.81	-	-	74	-26.19	78	171	V
	28.5043	36.64	Av	36.3	-35.1	37.84	54	-16.16	74	-36.16	78	171	V
1	28.51475	45.86	Pk	36.3	-34.6	47.56	54	-6.44	74	-26.44	0-360	100	H
2	28.77578	46.29	Pk	36.3	-34.3	48.29	-	-	74	-25.71	248	219	H
	28.77578	36.34	Av	36.3	-34.3	38.34	54	-15.66	74	-35.66	248	219	H
5	29.0224	46.6	Pk	36.2	-34	48.8	-	-	74	-25.2	290	139	V
	29.0224	36.54	Av	36.2	-34	38.74	54	-15.26	74	-35.26	290	139	V
3	29.77947	46.25	Pk	36.5	-34.1	48.65	-	-	74	-25.35	89	143	H
	29.77947	36.74	Av	36.5	-34.1	39.14	54	-14.86	74	-34.86	89	143	H
6	29.96682	43.8	Pk	36.7	-33.8	46.7	-	-	74	-27.3	340	272	V
	29.96682	37.78	Av	36.7	-33.8	40.68	54	-13.32	74	-33.32	340	272	V

Pk - Peak detector

Av - Average detection

RADIATED EMISSIONS 30 TO 1000 MHz – Power Supply

Radiated Emissions Graph



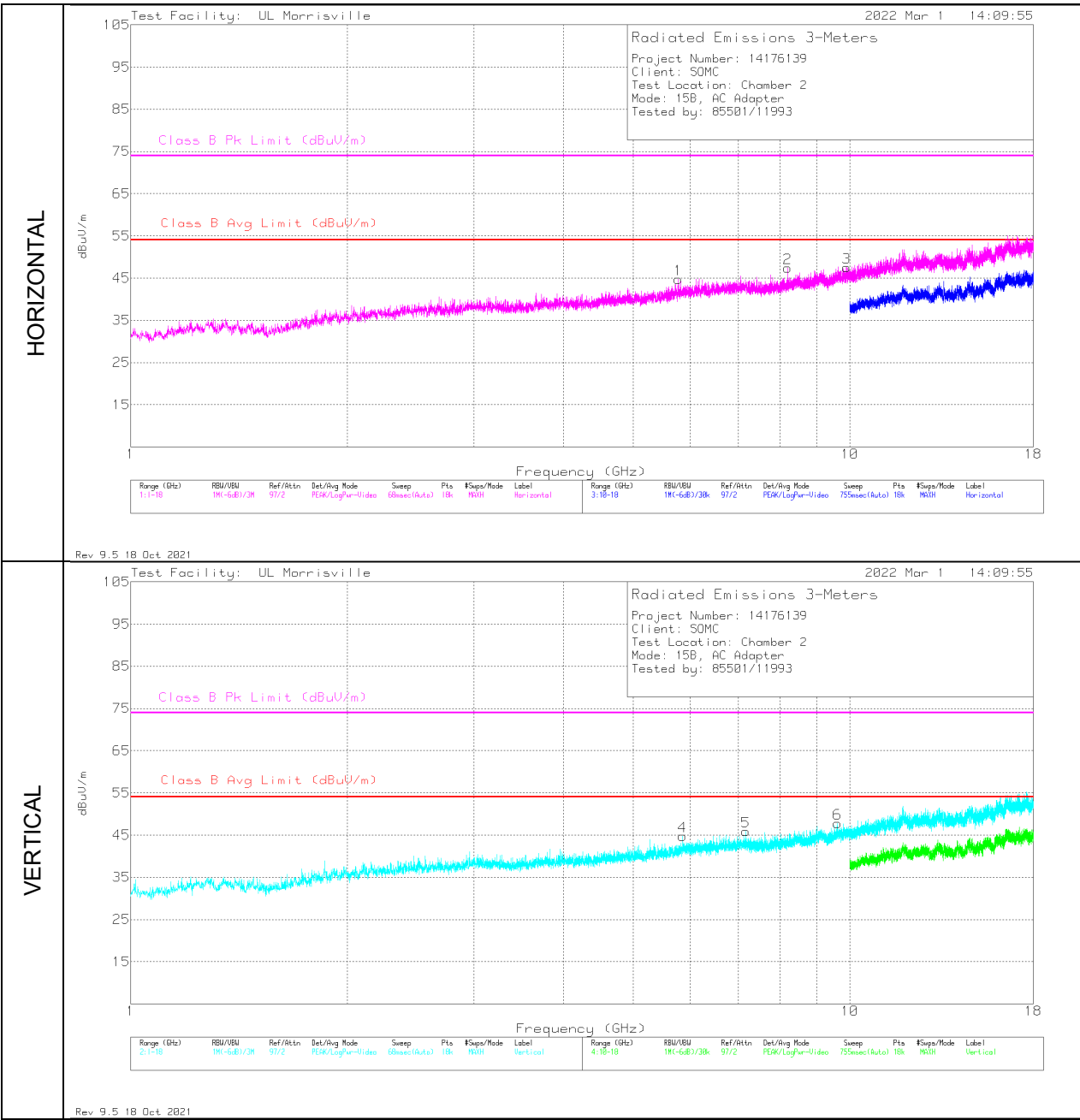
Radiated Emissions Data Points

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
1	30.194	28.65	Pk	26.7	-31.4	23.95	40	-16.05	0-360	299	H
5	41.155	37.5	Pk	18.9	-31.3	25.1	40	-14.9	0-360	99	V
6	93.923	41.12	Pk	14.6	-30.7	25.02	43.52	-18.5	0-360	99	V
2	95.184	44.3	Pk	15	-30.7	28.6	43.52	-14.92	0-360	299	H
7	140.483	35.88	Pk	19.1	-30	24.98	43.52	-18.54	0-360	99	V
3	171.135	37.73	Pk	17.9	-29.7	25.93	43.52	-17.59	0-360	199	H
4	946.553	25.77	Pk	28.8	-24.7	29.87	46.02	-16.15	0-360	399	H
8	948.978	25.77	Pk	28.9	-24.6	30.07	46.02	-15.95	0-360	99	V

Pk - Peak detector

RADIATED EMISSIONS 1000 TO 18,000 MHz – Power Supply

Radiated Emissions Graph



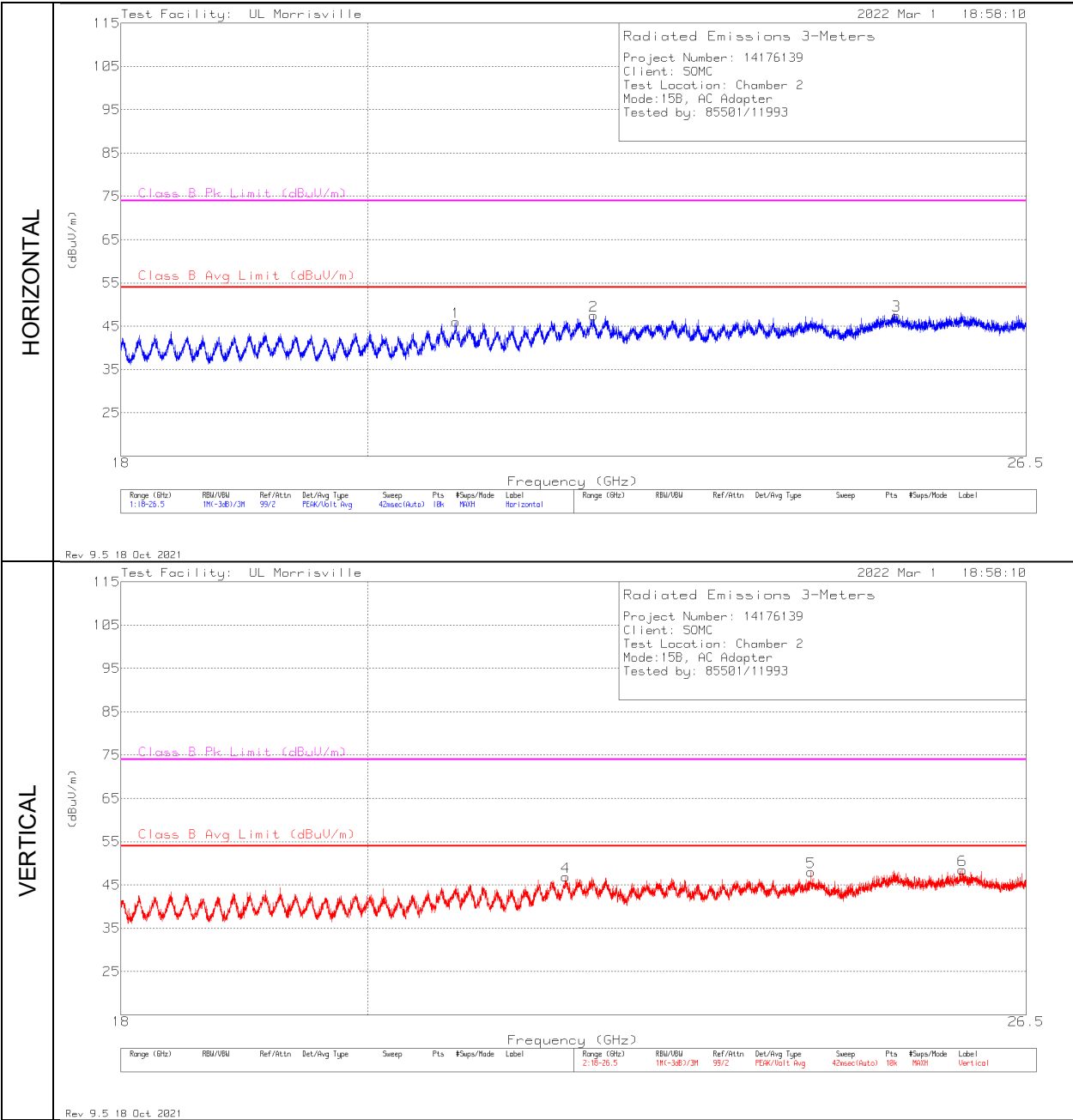
Radiated Emissions Data Points

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	5.76944	39.73	Pk	34.9	-29.9	44.73	54	-9.27	74	-29.27	0-360	101	H
4	5.8535	38.92	Pk	35.2	-29.4	44.72	54	-9.28	74	-29.28	0-360	200	V
5	7.16533	37.8	Pk	35.8	-27.7	45.9	54	-8.1	74	-28.1	0-360	200	V
2	8.191	38.61	Pk	35.8	-27	47.41	54	-6.59	74	-26.59	0-360	199	H
6	9.62183	37.04	Pk	36.9	-26.1	47.84	54	-6.16	74	-26.16	0-360	101	V
3	9.8995	36.16	Pk	36.8	-25.4	47.56	54	-6.44	74	-26.44	0-360	101	H

Pk - Peak detector

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

Radiated Emissions Graph



Radiated Emissions Data Points

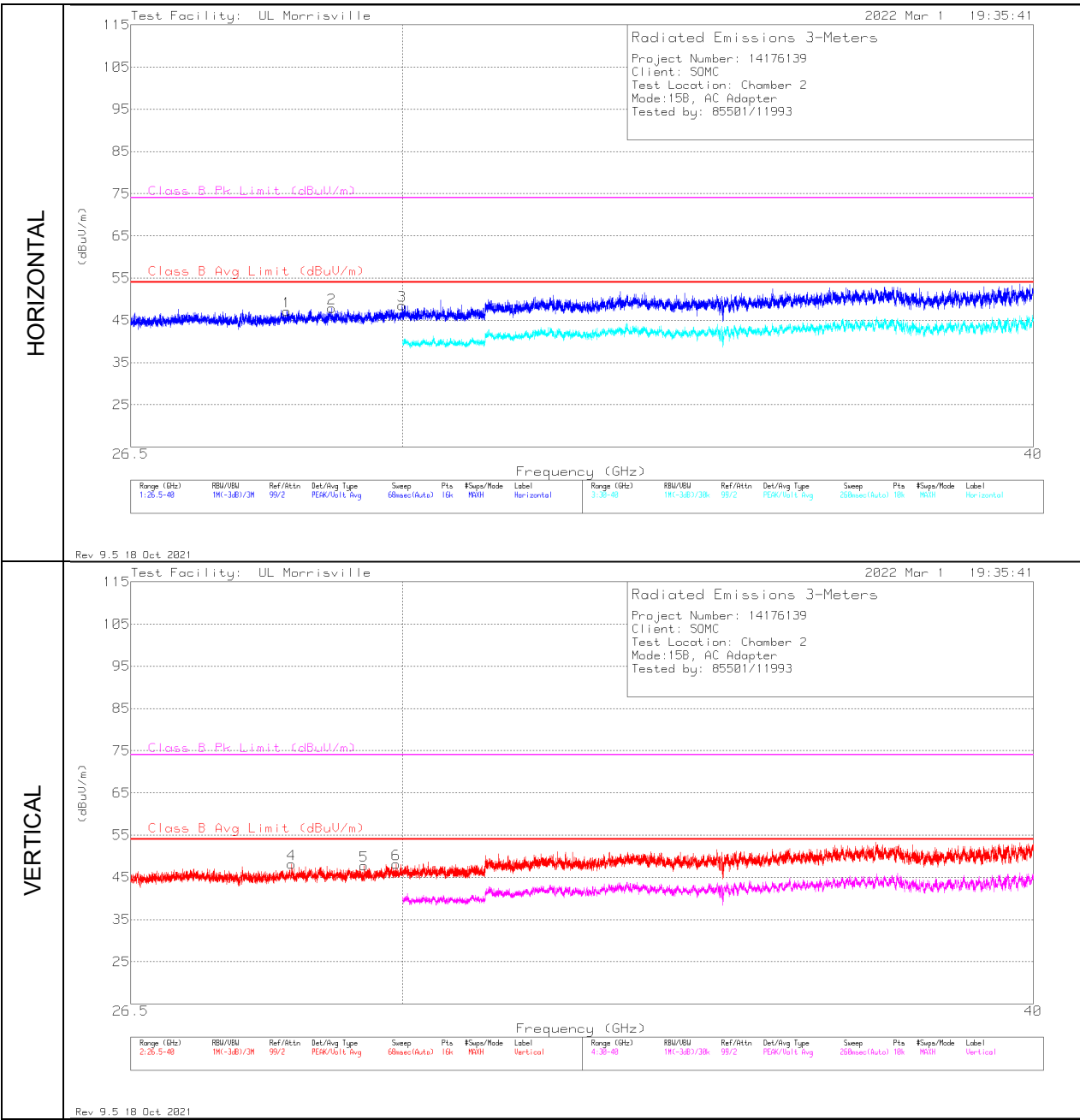
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0063 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	20.77157	49.65	Pk	34	-37.6	46.05	54	-7.95	74	-27.95	0-360	150	H
4	21.76852	49.33	Pk	35.7	-38.2	46.83	54	-7.17	74	-27.17	0-360	200	V
2	22.0286	48.23	Pk	37	-37.7	47.53	54	-6.47	74	-26.47	0-360	101	H
5	24.16912	47.16	Pk	34.9	-36.9	45.16	-	-	74	-28.84	360	377	V
	24.16912	39.59	Av	34.9	-36.9	37.59	54	-16.41	74	-36.41	360	377	V
3	25.07129	48.85	Pk	35.2	-36.5	47.55	54	-6.45	74	-26.45	0-360	101	H
6	25.78599	47.97	Pk	35.2	-36.2	46.97	-	-	74	-27.03	241	390	V
	25.78599	40.26	Av	35.2	-36.2	39.26	54	-14.74	74	-34.74	241	390	V

Pk - Peak detector

Av - Average detection

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

Radiated Emissions Graph



Radiated Emissions Data Points

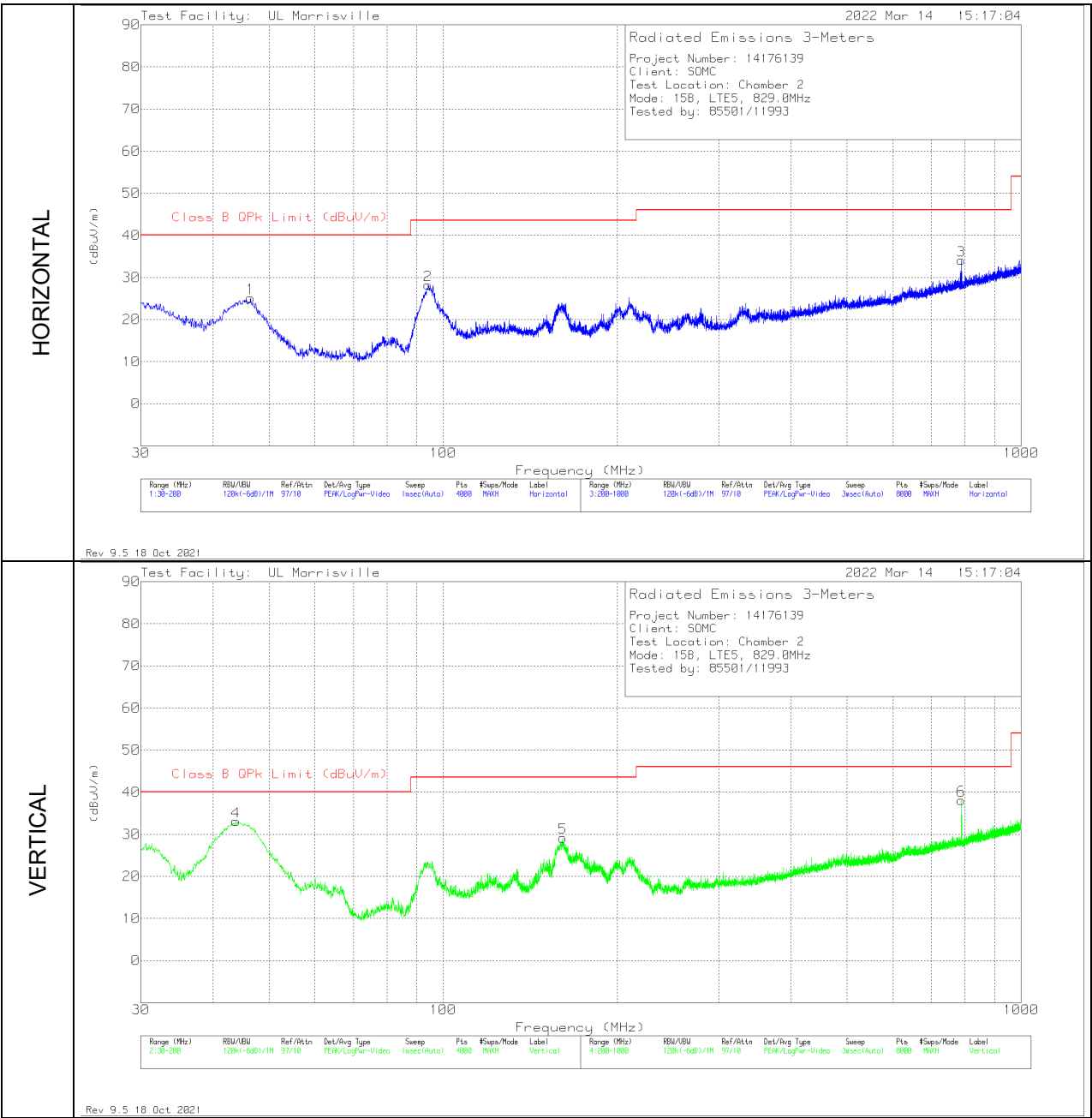
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	28.45316	45.71	Pk	36.3	-34.9	47.11	54	-6.89	74	-26.89	0-360	200	H
4	28.51846	46.5	Pk	36.3	-34.6	48.2	-	-	74	-25.8	241	144	V
	28.51846	36.94	Av	36.3	-34.6	38.64	54	-15.36	74	-35.36	241	144	V
2	29.04628	45.73	Pk	36.2	-34.1	47.83	54	-6.17	74	-26.17	0-360	300	H
5	29.4715	46.2	Pk	36.2	-34.6	47.8	54	-6.2	74	-26.2	0-360	101	V
6	29.9122	43.96	Pk	36.6	-34	46.56	-	-	74	-27.44	204	398	V
	29.9122	37.6	Av	36.6	-34	40.2	54	-13.8	74	-33.8	204	398	V
3	29.99011	46.43	Pk	36.7	-34.4	48.73	-	-	74	-25.27	133	180	H
	29.99011	37.07	Av	36.7	-34.4	39.37	54	-14.63	74	-34.63	133	180	H

Pk - Peak detector

Av - Average detection

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

Radiated Emissions Graph



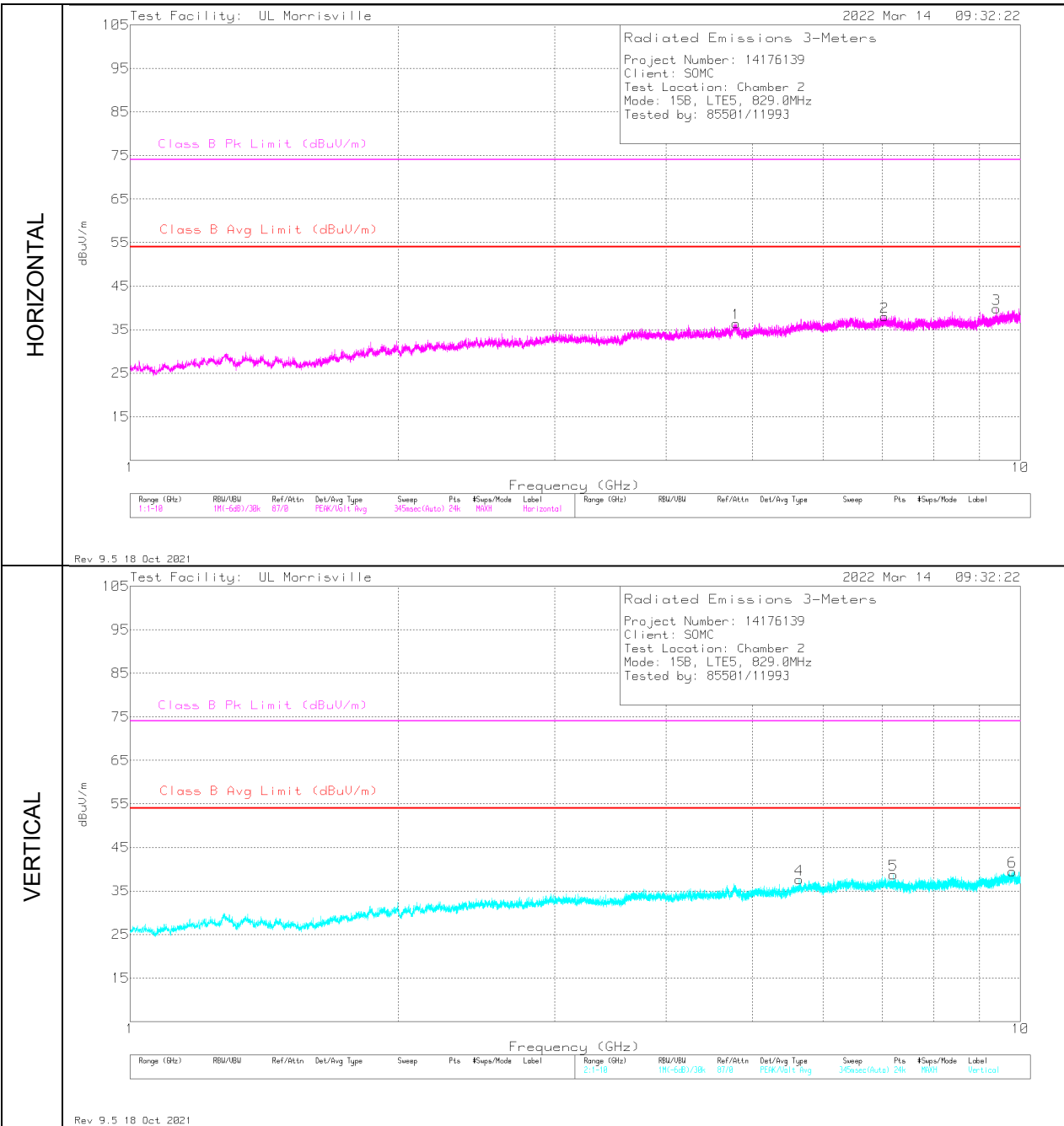
Radiated Emissions Data Points

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	43.8161	47.36	Pk	17	-31.3	33.06	40	-6.94	0-360	101	V
1	46.4518	40.84	Pk	15.5	-31.2	25.14	40	-14.86	0-360	398	H
2	94.1916	44.12	Pk	14.7	-30.6	28.22	43.52	-15.3	0-360	299	H
5	161.0189	40.66	Pk	18.4	-29.9	29.16	43.52	-14.36	0-360	101	V
3	788.5765	33.47	Pk	27.2	-26.6	34.07	46.02	-11.95	0-360	198	H
6	788.5765	37.5	Pk	27.2	-26.6	38.1	46.02	-7.92	0-360	299	V

Pk - Peak detector

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

Radiated Emissions Graph



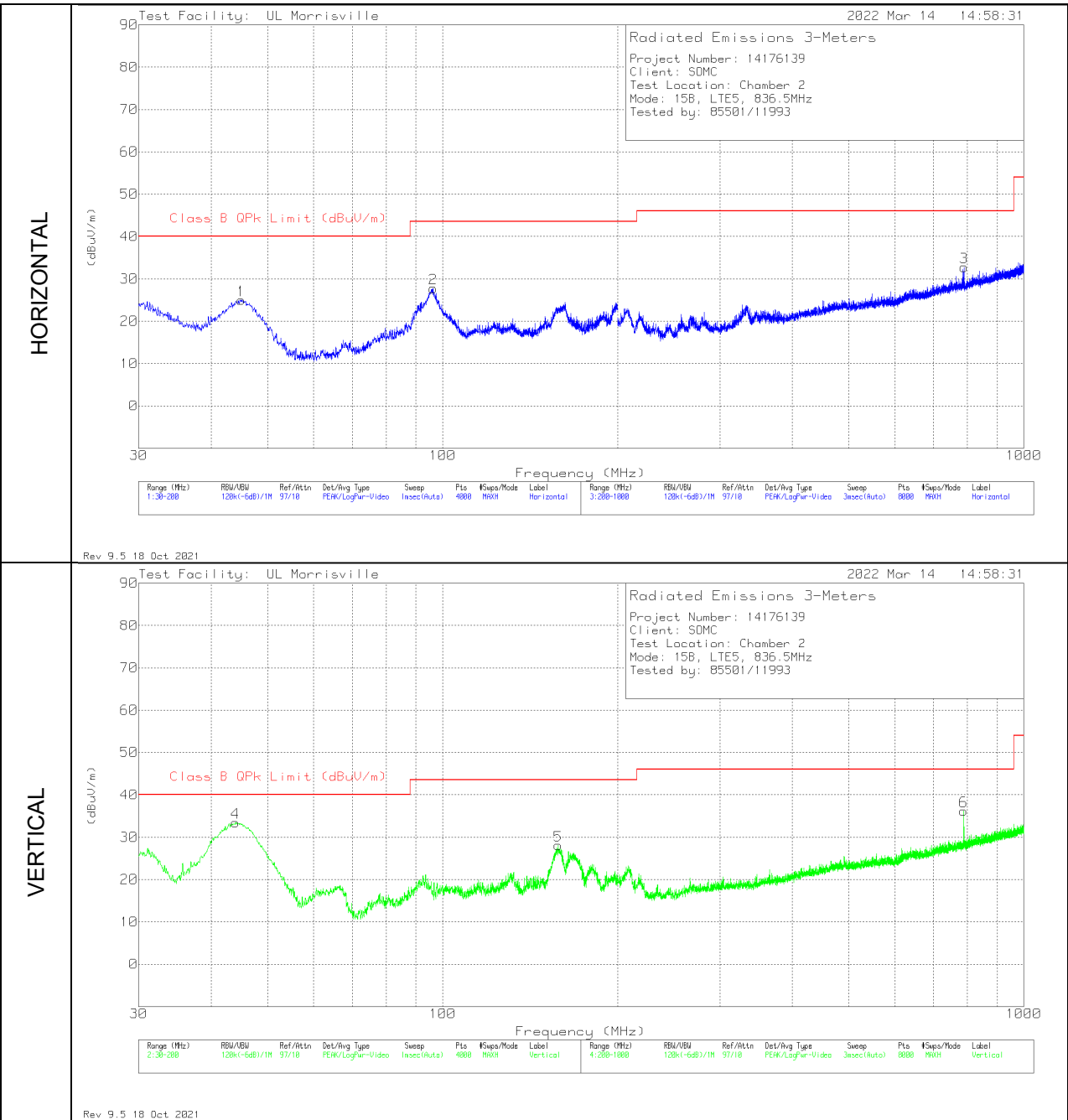
Radiated Emissions Data Points

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	4.79544	33.77	Pk	34.1	-31.4	36.47	54	-17.53	74	-37.53	0-360	200	H
4	5.64512	33.06	Pk	34.7	-30.1	37.66	54	-16.34	74	-36.34	0-360	200	V
2	7.04	29.88	Pk	35.8	-27.7	37.98	54	-16.02	74	-36.02	0-360	101	H
5	7.19936	30.57	Pk	35.8	-27.6	38.77	54	-15.23	74	-35.23	0-360	101	V
3	9.39931	28.89	Pk	36.7	-25.8	39.79	54	-14.21	74	-34.21	0-360	101	H
6	9.79902	28.1	Pk	36.9	-25.5	39.5	54	-14.5	74	-34.5	0-360	101	V

Pk - Peak detector

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

Radiated Emissions Graph



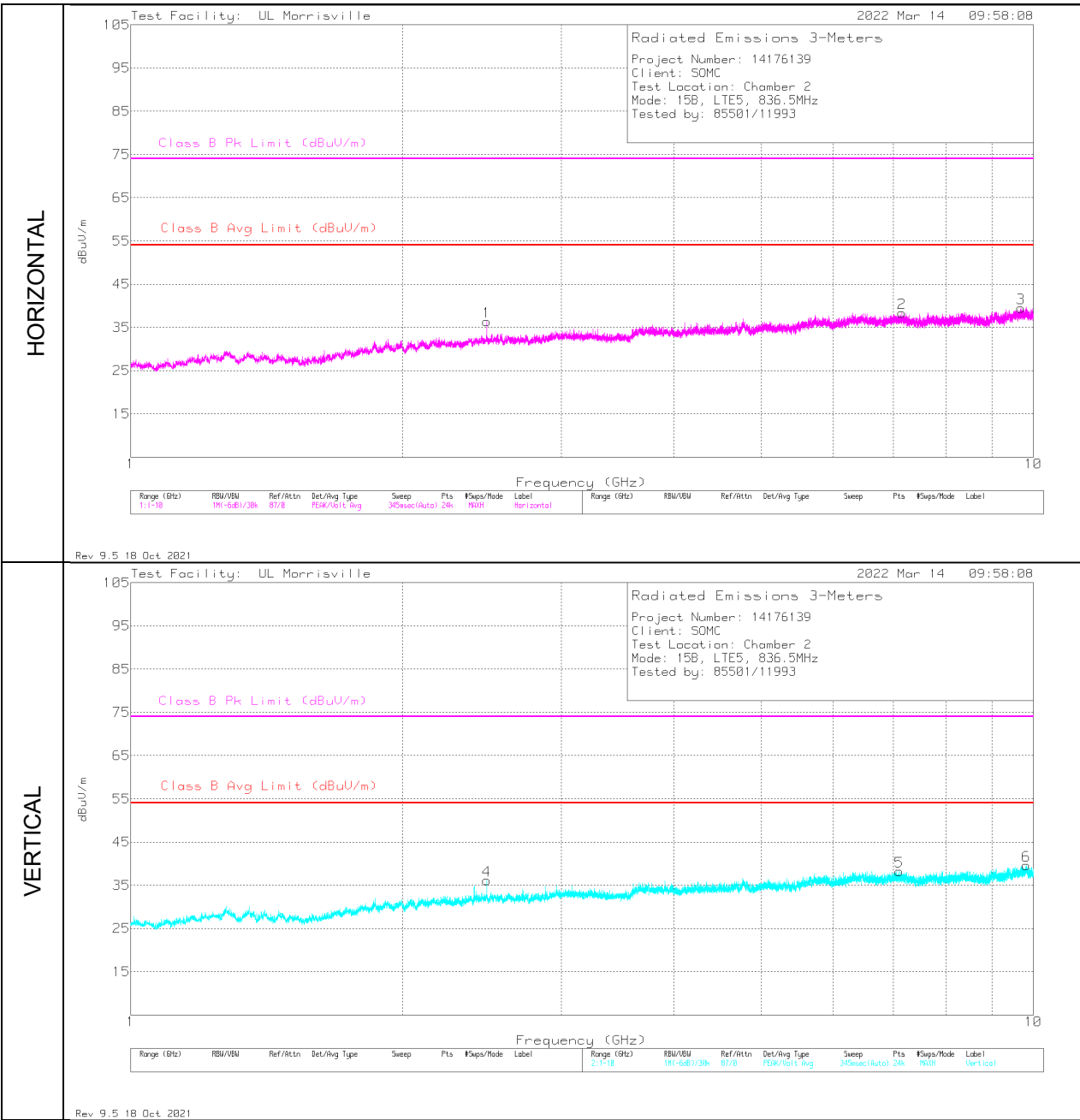
Radiated Emissions Data Points

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	44.0711	47.88	Pk	16.9	-31.3	33.48	40	-6.52	0-360	101	V
1	45.0914	39.99	Pk	16.2	-31.2	24.99	40	-15.01	0-360	398	H
2	96.4022	43.09	Pk	15.3	-30.6	27.79	43.52	-15.73	0-360	99	H
5	158.0006	39.58	Pk	18.4	-29.9	28.08	43.52	-15.44	0-360	101	V
6	788.5765	35.6	Pk	27.2	-26.6	36.2	46.02	-9.82	0-360	101	V
3	789.6766	32.17	Pk	27.2	-26.6	32.77	46.02	-13.25	0-360	299	H

Pk - Peak detector

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

Radiated Emissions Graph



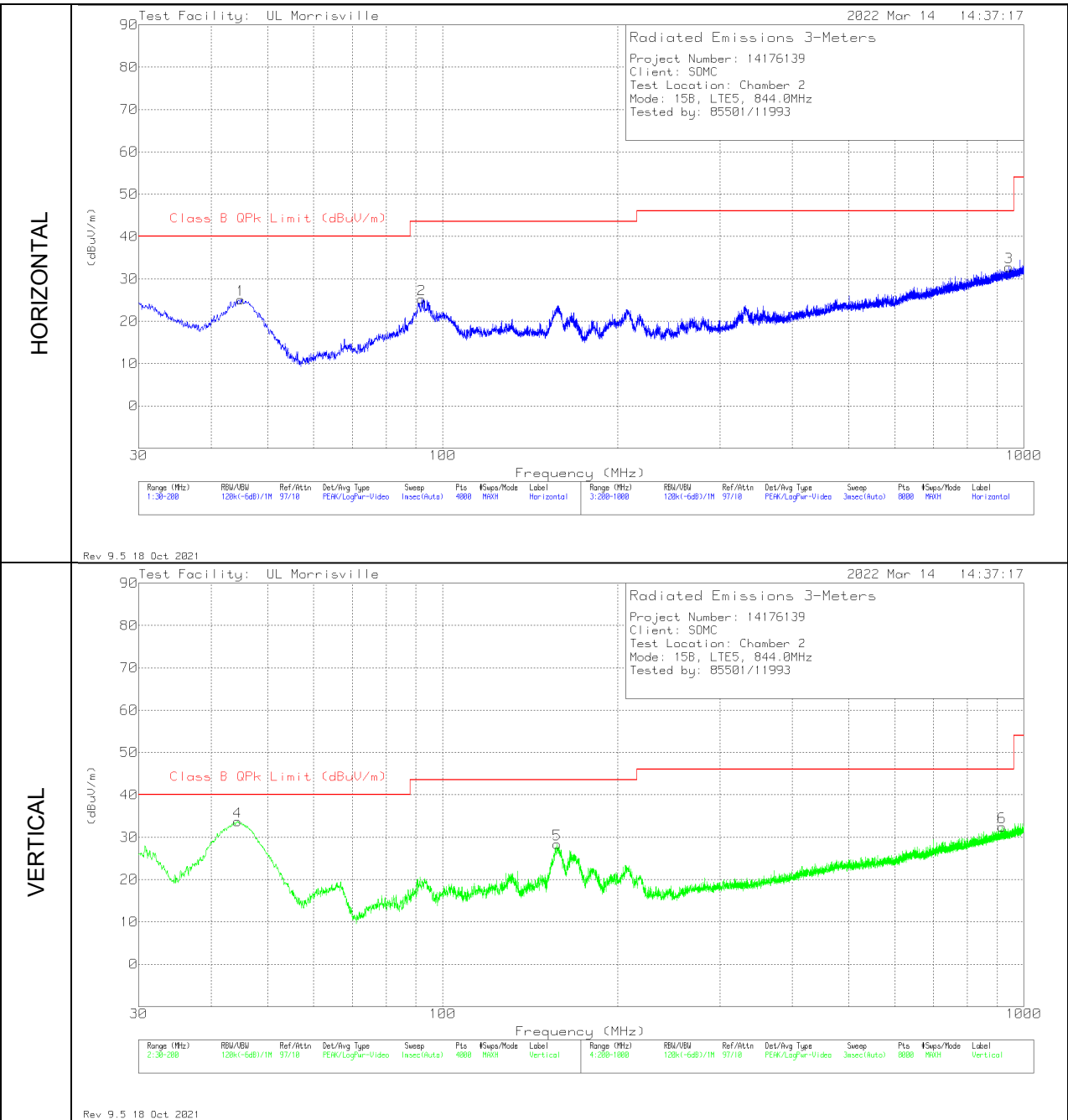
Radiated Emissions Data Points

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	2.48	37.52	Pk	32.6	-33.7	36.42	54	-17.58	74	-37.58	0-360	200	H
4	2.48	37.26	Pk	32.6	-33.7	36.16	54	-17.84	74	-37.84	0-360	200	V
5	7.10637	30.24	Pk	36	-28	38.24	54	-15.76	74	-35.76	0-360	200	V
2	7.15587	30.47	Pk	35.8	-27.9	38.37	54	-15.63	74	-35.63	0-360	200	H
3	9.69403	27.91	Pk	36.9	-25.3	39.51	54	-14.49	74	-34.49	0-360	101	H
6	9.8219	28.11	Pk	36.9	-25.4	39.61	54	-14.39	74	-34.39	0-360	101	V

Pk - Peak detector

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

Radiated Emissions Graph



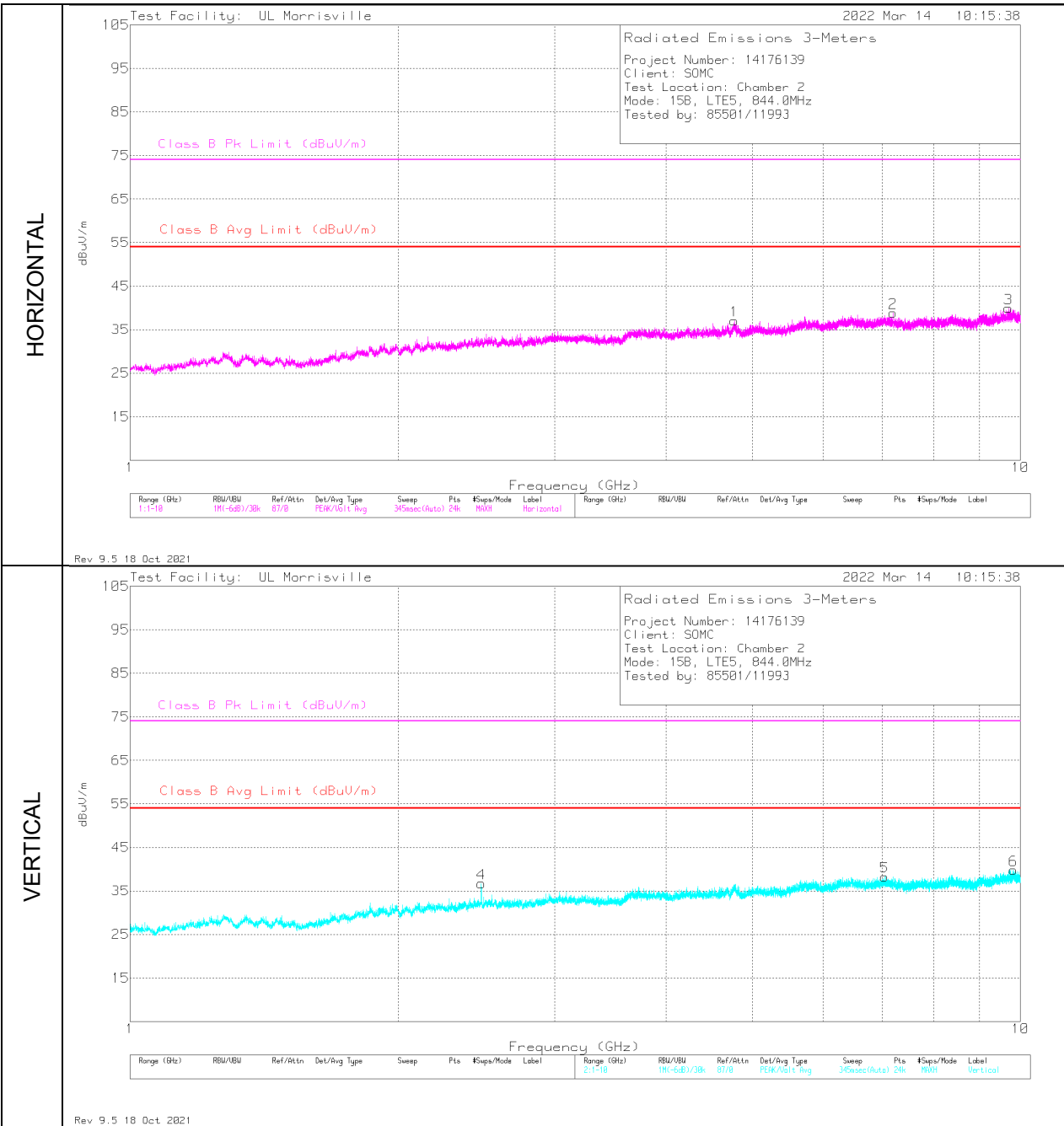
Radiated Emissions Data Points

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	44.4112	48.2	Pk	16.7	-31.2	33.7	40	-6.3	0-360	101	V
1	45.0064	40.02	Pk	16.3	-31.2	25.12	40	-14.88	0-360	398	H
2	92.0235	41.62	Pk	14.1	-30.5	25.22	43.52	-18.3	0-360	199	H
5	157.4055	39.66	Pk	18.5	-29.8	28.36	43.52	-15.16	0-360	101	V
6	917.9933	29.07	Pk	28.6	-25.2	32.47	46.02	-13.55	0-360	101	V
3	943.5967	28.88	Pk	28.7	-24.8	32.78	46.02	-13.24	0-360	199	H

Pk - Peak detector

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

Radiated Emissions Graph



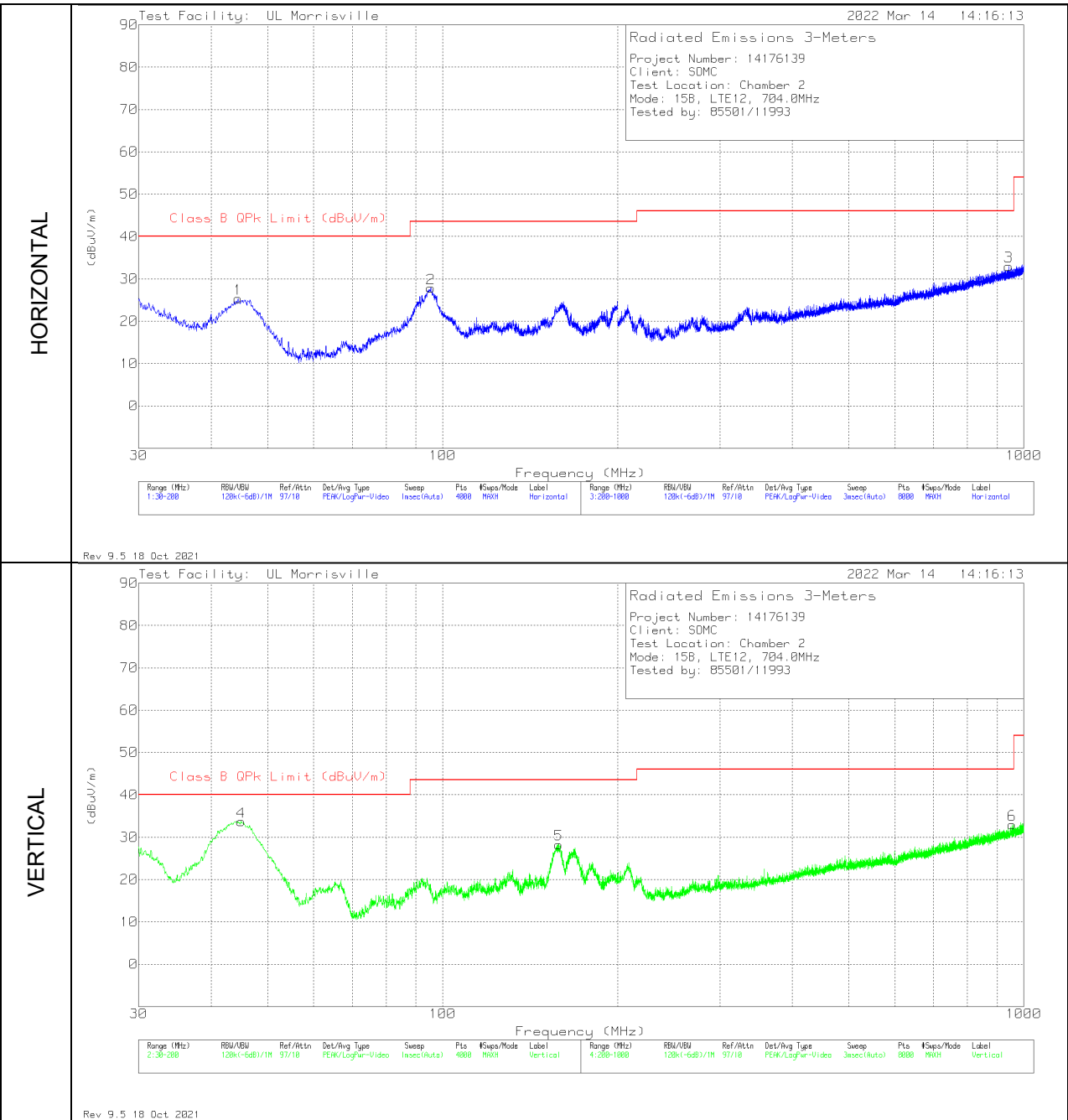
Radiated Emissions Data Points

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	2.48	37.82	Pk	32.6	-33.7	36.72	54	-17.28	74	-37.28	0-360	101	V
1	4.77106	34.08	Pk	34.1	-31.1	37.08	54	-16.92	74	-36.92	0-360	200	H
5	7.03588	30	Pk	35.8	-27.5	38.3	54	-15.7	74	-35.7	0-360	200	V
2	7.19411	30.27	Pk	35.8	-27.2	38.87	54	-15.13	74	-35.13	0-360	101	H
3	9.69553	28.13	Pk	36.9	-25.1	39.93	54	-14.07	74	-34.07	0-360	200	H
6	9.8174	27.92	Pk	36.9	-25	39.82	54	-14.18	74	-34.18	0-360	200	V

Pk - Peak detector

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

Radiated Emissions Graph



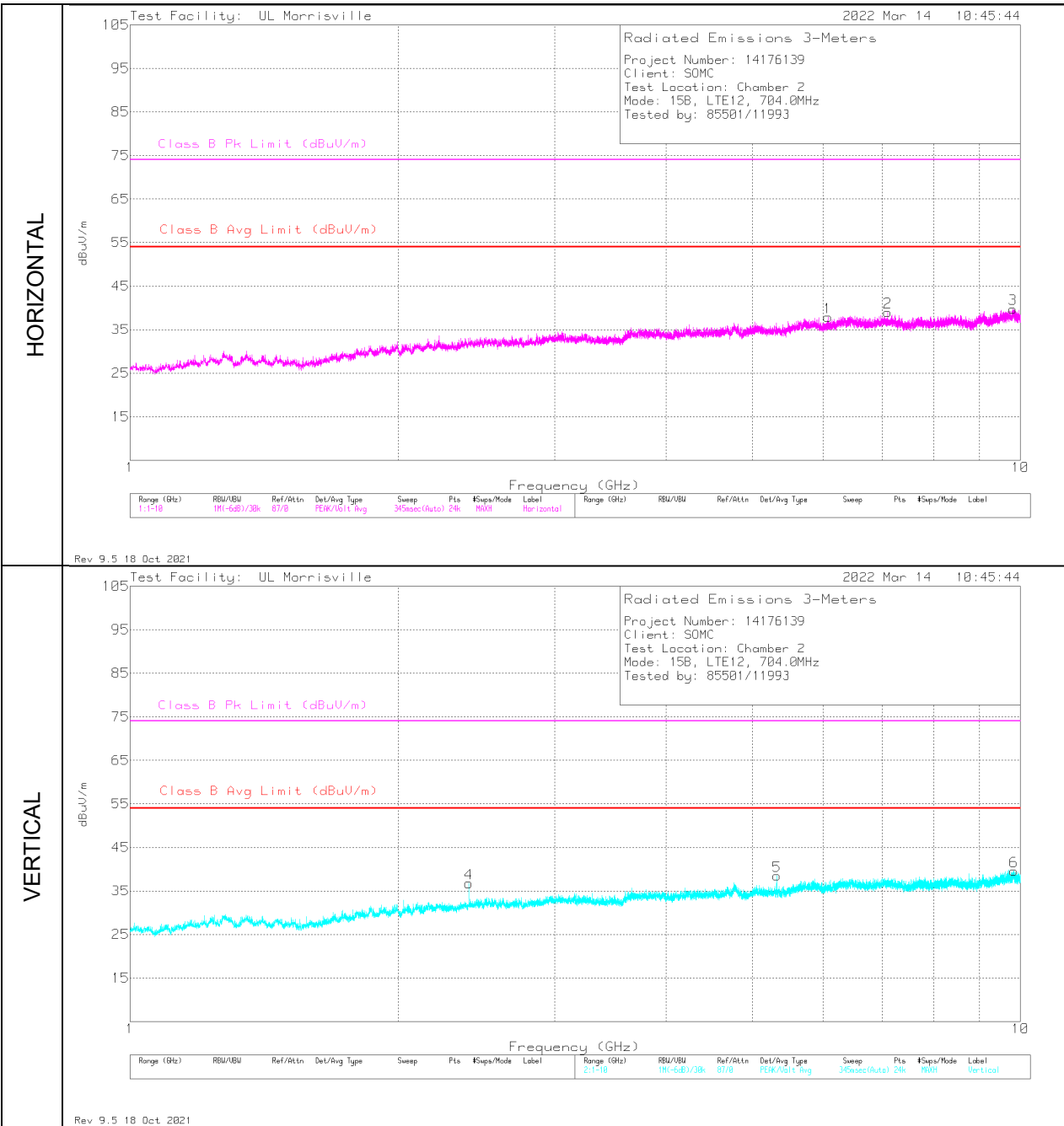
Radiated Emissions Data Points

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
1	44.4963	39.96	Pk	16.6	-31.2	25.36	40	-14.64	0-360	398	H
4	45.0276	48.57	Pk	16.3	-31.2	33.67	40	-6.33	0-360	101	V
2	95.5095	43.32	Pk	15.1	-30.6	27.82	43.52	-15.7	0-360	99	H
5	158.3407	39.67	Pk	18.4	-29.8	28.27	43.52	-15.25	0-360	101	V
3	941.9964	29.2	Pk	28.7	-24.9	33	46.02	-13.02	0-360	398	H
6	955.2982	28.67	Pk	29	-24.7	32.97	46.02	-13.05	0-360	101	V

Pk - Peak detector

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

Radiated Emissions Graph



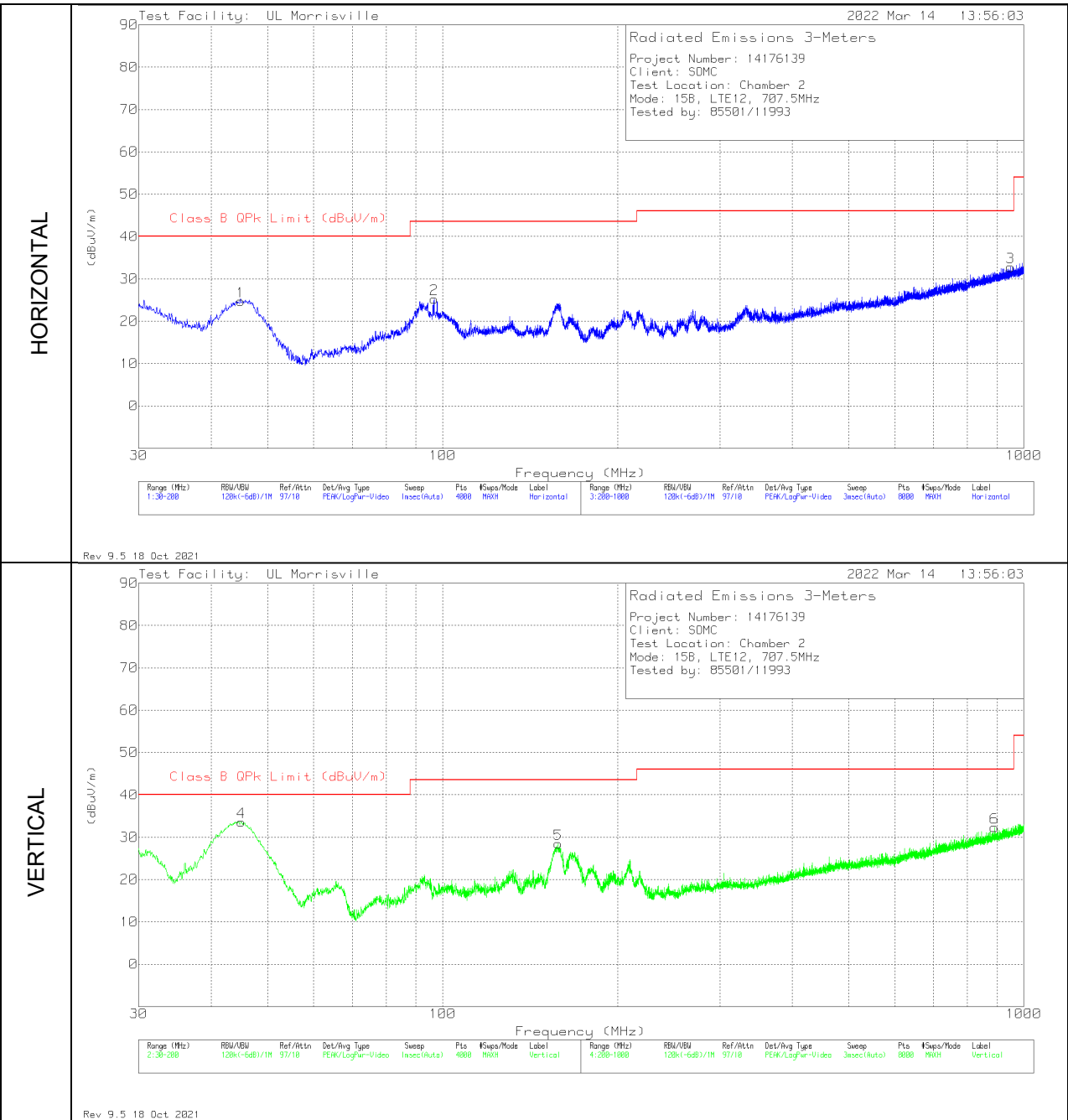
Radiated Emissions Data Points

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	2.40201	38.54	Pk	32.4	-34.2	36.74	54	-17.26	74	-37.26	0-360	200	V
5	5.32789	33.65	Pk	34.5	-29.7	38.45	54	-15.55	74	-35.55	0-360	200	V
1	6.08158	31.14	Pk	35.4	-28.7	37.84	54	-16.16	74	-36.16	0-360	199	H
2	7.09812	30.59	Pk	36	-27.6	38.99	54	-15.01	74	-35.01	0-360	199	H
3	9.8114	28.45	Pk	36.9	-25.6	39.75	54	-14.25	74	-34.25	0-360	101	H
6	9.83952	27.86	Pk	36.9	-25.2	39.56	54	-14.44	74	-34.44	0-360	200	V

Pk - Peak detector

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

Radiated Emissions Graph



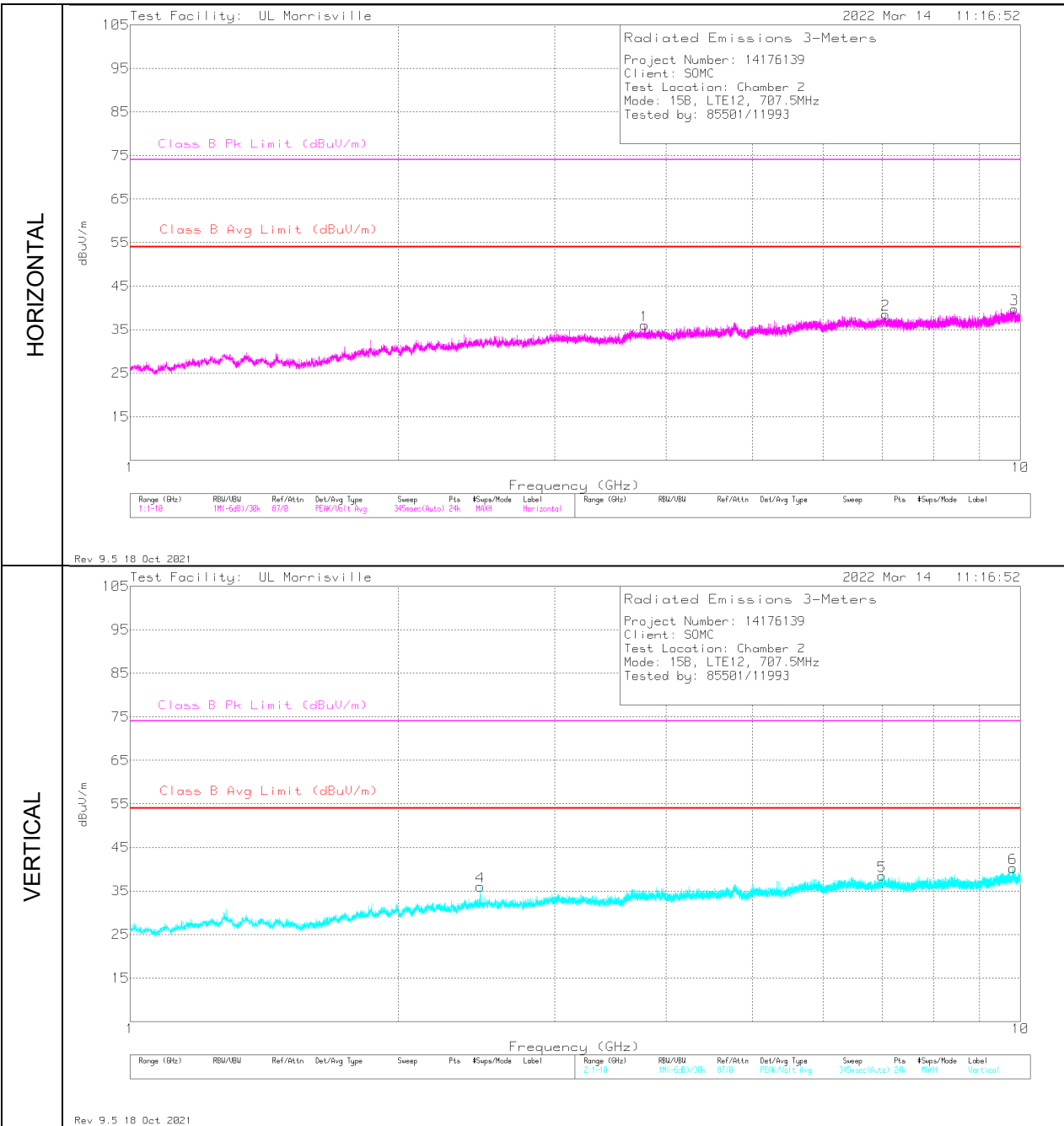
Radiated Emissions Data Points

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
1	44.9639	39.62	Pk	16.3	-31.2	24.72	40	-15.28	0-360	398	H
4	45.0489	48.48	Pk	16.3	-31.2	33.58	40	-6.42	0-360	101	V
2	96.7423	40.48	Pk	15.4	-30.6	25.28	43.52	-18.24	0-360	299	H
5	158.0856	39.86	Pk	18.4	-29.8	28.46	43.52	-15.06	0-360	101	V
6	890.3897	29.52	Pk	28.3	-25.5	32.32	46.02	-13.7	0-360	198	V
3	949.1974	28.58	Pk	28.9	-24.7	32.78	46.02	-13.24	0-360	101	H

Pk - Peak detector

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

Radiated Emissions Graph



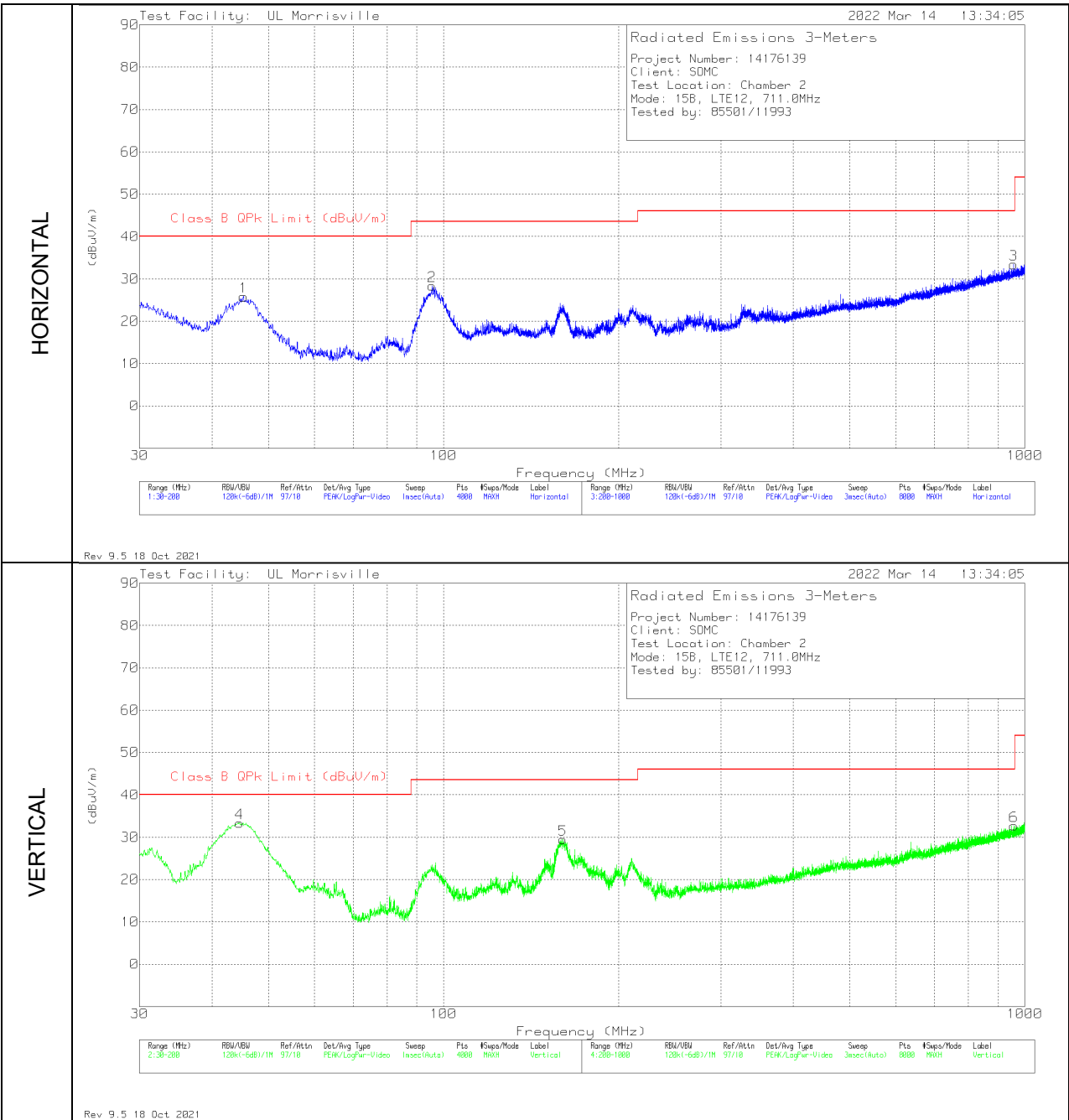
Radiated Emissions Data Points

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	2.47363	37.2	Pk	32.5	-33.7	36	54	-18	74	-38	0-360	101	V
1	3.78339	34.84	Pk	33.2	-32	36.04	54	-17.96	74	-37.96	0-360	200	H
5	6.9935	30.96	Pk	35.9	-28.4	38.46	54	-15.54	74	-35.54	0-360	101	V
2	7.05462	30.8	Pk	35.7	-28	38.5	54	-15.5	74	-35.5	0-360	200	H
6	9.80802	29.07	Pk	36.9	-25.7	40.27	54	-13.73	74	-33.73	0-360	200	V
3	9.85264	27.94	Pk	36.9	-25.1	39.74	54	-14.26	74	-34.26	0-360	200	H

Pk - Peak detector

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

Radiated Emissions Graph



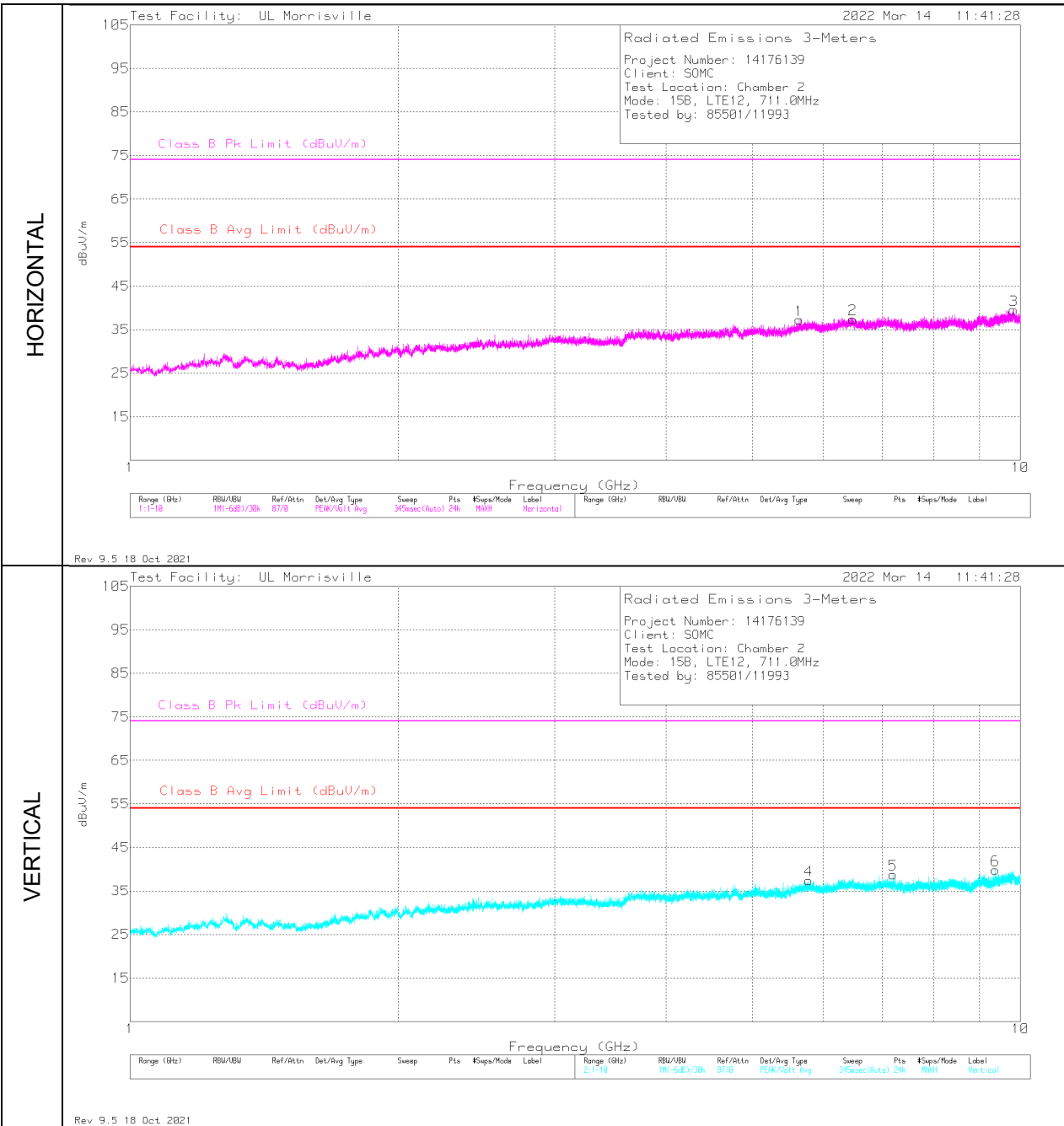
Radiated Emissions Data Points

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	44.6238	48.05	Pk	16.5	-31.2	33.35	40	-6.65	0-360	101	V
1	45.304	40.91	Pk	16.1	-31.2	25.81	40	-14.19	0-360	398	H
2	95.5945	43.85	Pk	15.1	-30.6	28.35	43.52	-15.17	0-360	299	H
5	160.5513	40.95	Pk	18.4	-29.9	29.45	43.52	-14.07	0-360	101	V
3	956.6984	28.9	Pk	29	-24.5	33.4	46.02	-12.62	0-360	299	H
6	958.0985	28.07	Pk	29.1	-24.5	32.67	46.02	-13.35	0-360	298	V

Pk - Peak detector

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

Radiated Emissions Graph



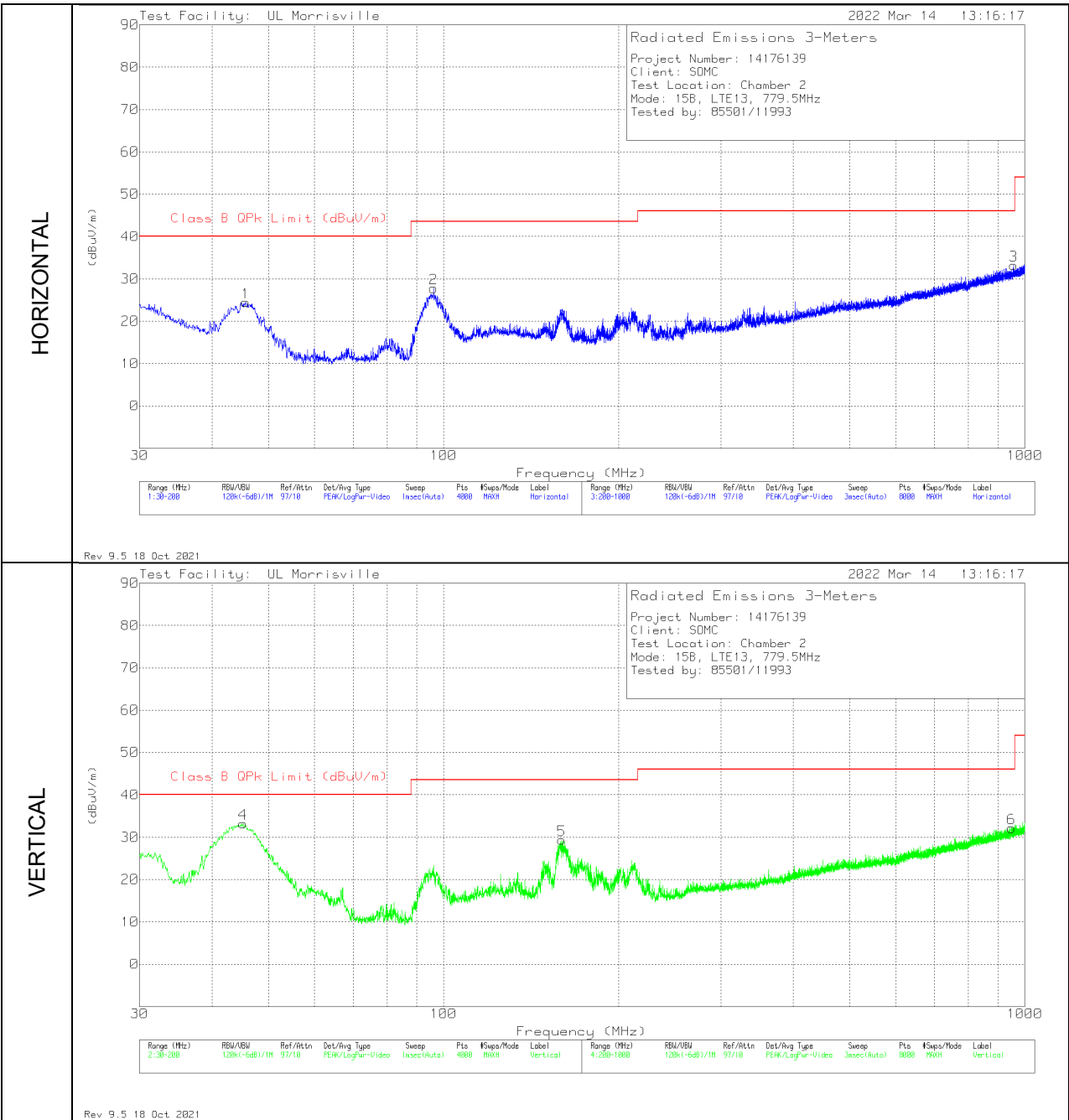
Radiated Emissions Data Points

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	5.64474	32.64	Pk	34.7	-30.1	37.24	54	-16.76	74	-36.76	0-360	101	H
4	5.7876	32.64	Pk	35	-30.2	37.44	54	-16.56	74	-36.56	0-360	200	V
2	6.4798	30.73	Pk	35.6	-28.9	37.43	54	-16.57	74	-36.57	0-360	199	H
5	7.19749	30.15	Pk	35.8	-27.2	38.75	54	-15.25	74	-35.25	0-360	101	V
6	9.37868	29.13	Pk	36.6	-25.9	39.83	54	-14.17	74	-34.17	0-360	101	V
3	9.82827	27.63	Pk	36.9	-25	39.53	54	-14.47	74	-34.47	0-360	101	H

Pk - Peak detector

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

Radiated Emissions Graph



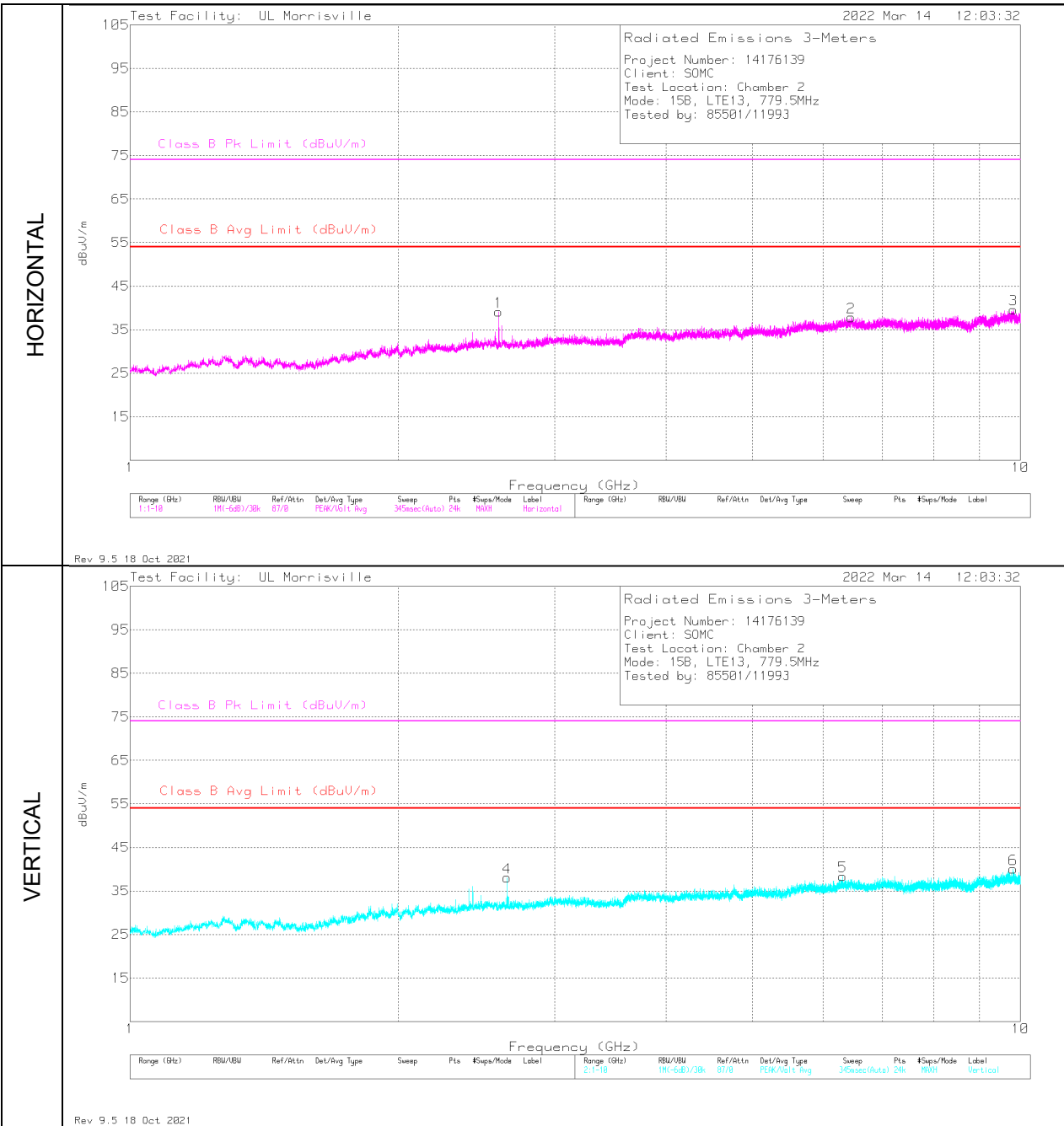
Radiated Emissions Data Points

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	45.2189	48.24	Pk	16.2	-31.2	33.24	40	-6.76	0-360	100	V
1	45.6866	39.76	Pk	15.9	-31.2	24.46	40	-15.54	0-360	399	H
2	96.1896	42.9	Pk	15.3	-30.4	27.8	43.52	-15.72	0-360	299	H
5	159.7861	40.65	Pk	18.4	-29.7	29.35	43.52	-14.17	0-360	100	V
6	948.6973	27.86	Pk	28.9	-24.6	32.16	46.02	-13.86	0-360	298	V
3	956.5983	28.81	Pk	29	-24.6	33.21	46.02	-12.81	0-360	399	H

Pk - Peak detector

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

Radiated Emissions Graph



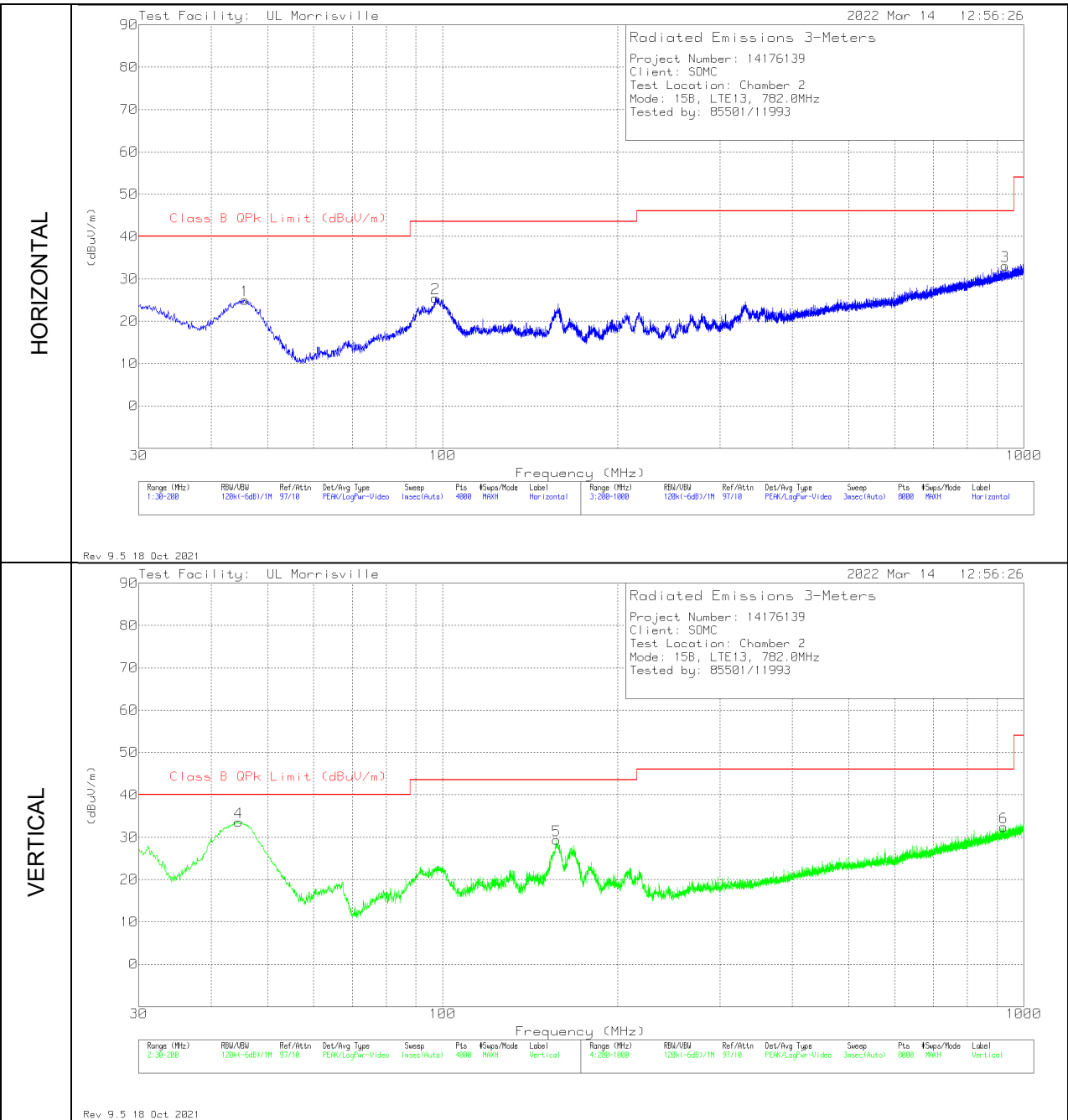
Radiated Emissions Data Points

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	2.59287	40.72	Pk	32.4	-34	39.12	54	-14.88	74	-34.88	0-360	200	H
4	2.65211	39.26	Pk	32.7	-33.9	38.06	54	-15.94	74	-35.94	0-360	200	V
5	6.31631	31.39	Pk	35.5	-28.5	38.39	54	-15.61	74	-35.61	0-360	101	V
2	6.45355	30.33	Pk	35.6	-28.1	37.83	54	-16.17	74	-36.17	0-360	101	H
6	9.8144	28.25	Pk	36.9	-25.1	40.05	54	-13.95	74	-33.95	0-360	200	V
3	9.82565	27.84	Pk	36.9	-25.1	39.64	54	-14.36	74	-34.36	0-360	101	H

Pk - Peak detector

RADIATED EMISSIONS 30 TO 1000 MHz – LTE B13 Rx 782.0MHz

Radiated Emissions Graph



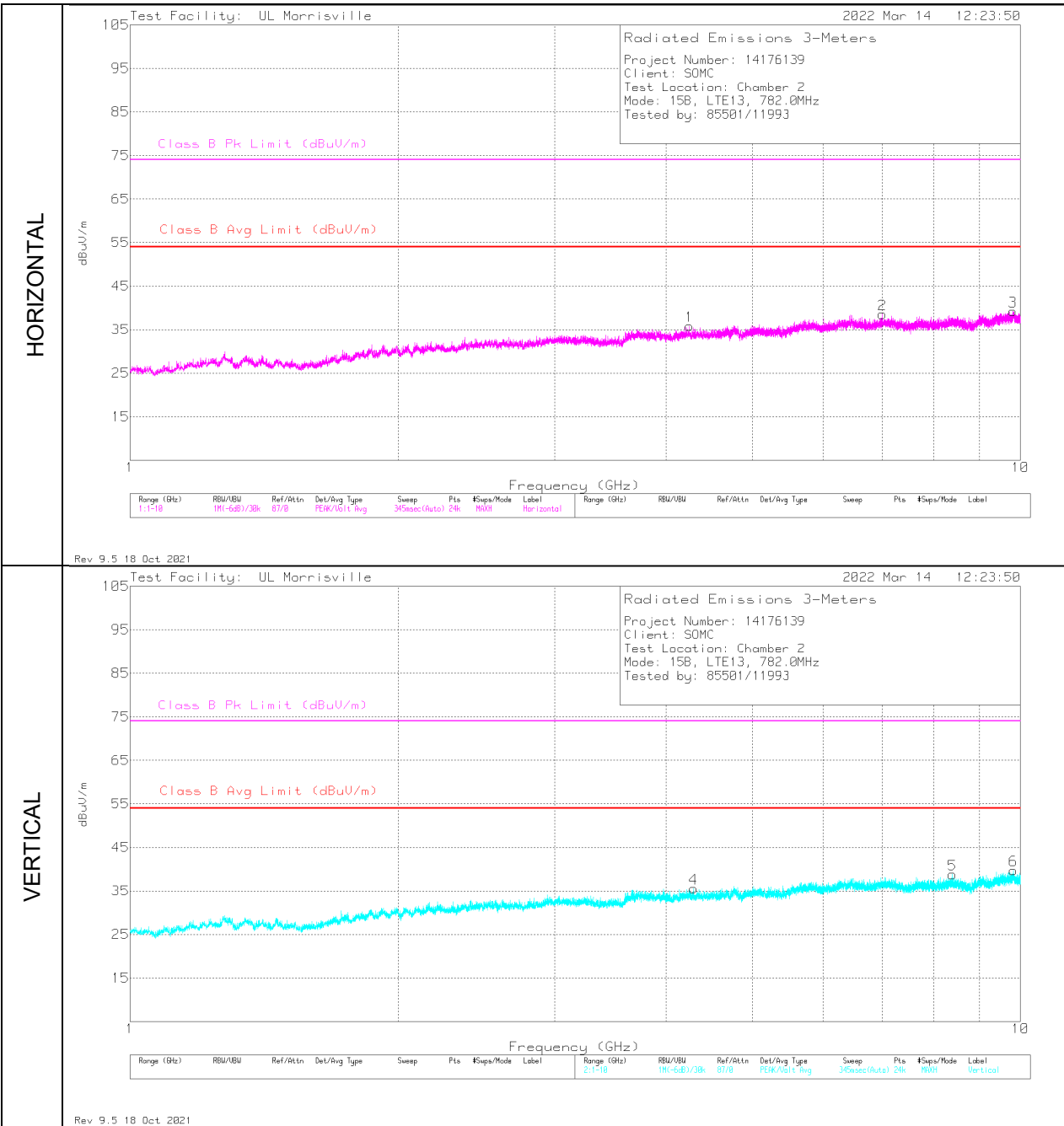
Radiated Emissions Data Points

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	44.5813	48.18	Pk	16.6	-31.2	33.58	40	-6.42	0-360	101	V
1	45.7291	40.32	Pk	15.9	-31.2	25.02	40	-14.98	0-360	399	H
2	97.2949	40.42	Pk	15.6	-30.5	25.52	43.52	-18	0-360	298	H
5	157.1504	40.75	Pk	18.5	-29.9	29.35	43.52	-14.17	0-360	101	V
6	924.0941	28.51	Pk	28.8	-24.9	32.41	46.02	-13.61	0-360	299	V
3	929.6948	29.41	Pk	28.7	-25	33.11	46.02	-12.91	0-360	398	H

Pk - Peak detector

RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B13 Rx 782.0MHz

Radiated Emissions Graph



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	4.24911	33.25	Pk	33.7	-31.1	35.85	54	-18.15	74	-38.15	0-360	200	H
4	4.2956	34.09	Pk	33.7	-32.2	35.59	54	-18.41	74	-38.41	0-360	101	V
2	6.99688	30.26	Pk	35.9	-27.6	38.56	54	-15.44	74	-35.44	0-360	200	H
5	8.38876	29.9	Pk	35.8	-26.9	38.8	54	-15.2	74	-35.2	0-360	200	V
3	9.81327	27.64	Pk	36.9	-25.3	39.24	54	-14.76	74	-34.76	0-360	200	H
6	9.81815	27.85	Pk	36.9	-25	39.75	54	-14.25	74	-34.25	0-360	200	V

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