



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

FOR

IQbuds 2 PRO Hearing Aids

MODEL NUMBER: NU320

REPORT NUMBER: R13976514-E4

FCC ID:

2AKMG-NU320L

2AKMG-NU320R

ISSUE DATE: 2021-11-18

Prepared for

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2021-10-25	Initial Issue	Cristian Melara
V2	2021-11-10	Updated I/O Cables table	Cristian Melara
V3	2021-11-18	Added non-Tx 9-30MHz scans in Section 9.3	Cristian Melara

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST RESULTS SUMMARY	6
3. TEST METHODOLOY	7
4. FACILITIES AND ACCREDITATION	7
5. DECISION RULES AND MEASUREMENT UNCERTAINTY	7
5.1. METROLOGICAL TRACEABILITY	7
5.2. DECISION RULES	7
5.3. MEASUREMENT UNCERTAINTY	8
5.4. SAMPLE CALCULATION	8
6. EQUIPMENT UNDER TEST	9
6.1. DESCRIPTION OF EUT	9
6.2. MAXIMUM PEAK RADIATED E-FIELD STRENGTH	9
6.3. DESCRIPTION OF AVAILABLE ANTENNAS	9
6.4. SOFTWARE AND FIRMWARE	9
6.5. WORST-CASE CONFIGURATION AND MODE	10
6.6. MODIFICATIONS	10
6.7. DESCRIPTION OF TEST SETUP	10
7. TEST AND MEASUREMENT EQUIPMENT	12
8. OCCUPIED BANDWIDTH	14
8.1. NFM1 MODE	15
9. RADIATED EMISSION TEST RESULTS	16
9.1. LIMITS AND PROCEDURE	16
9.2. TX SPURIOUS EMISSION 9kHz TO 30 MHz Earbuds Only	17
9.3. TX SPURIOUS EMISSION 9kHz TO 30 MHz Charging Case	18
9.4. TX SPURIOUS EMISSION 9kHz TO 30 MHz NON TX MODE	19
9.5. TX SPURIOUS EMISSION 30 TO 1000 MHz Earbuds Only	21
9.6. TX SPURIOUS EMISSION 30 TO 1000 MHz Charging Case	23
10. AC MAINS LINE CONDUCTED EMISSIONS	25
11. SETUP PHOTOS	28
END OF TEST REPORT	29

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Nuheara Limited
190 Aberdeen Street
Northbridge, WA 6003, Australia

EUT DESCRIPTION: IQbuds 2 PRO Hearing Aids

MODEL: NU320

SERIAL NUMBER: PC2132S10800, PC2132S107K0

DATE RECEIVED: 2021-09-09

DATE TESTED: 2021-09-21 to 2021-11-18

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies

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

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

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.

Approved & Released For
UL LLC By:

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2. TEST RESULTS SUMMARY

FCC Clause	Requirement	Result	Comment
2.1049	Occupied Bandwidth	Complies	None.
15.209, 15.205	Radiated Emissions	Complies	None.
15.207	AC Mains Conducted Emissions	Complies	None.

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.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and KDB 414788 D01 Radiated Test Site v01r01.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Drive, Research Triangle Park, North Carolina, USA and 2800 Perimeter Park Dr., Suite B, Morrisville, North Carolina, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

UL LLC is accredited 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
<input type="checkbox"/>	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	703469
<input checked="" type="checkbox"/>	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560	US0067	27265	703469

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. 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.

5.2. 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.)

5.3. 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 Loop, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Occupied Bandwidth	1.22 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable} \\ &\text{Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Final Voltage (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor} \\ &\text{(dB)} + \text{LISN Insertion Loss.} \\ 36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} &= 46.6 \text{ dBuV} \end{aligned}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a pair hearing aids with BT/BLE and NFMI radios. This report covers the NFMI radio only in both the left earbud and the right earbud.

6.2. MAXIMUM PEAK RADIATED E-FIELD STRENGTH

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

Fundamental Frequency (MHz)	Mode	E-Field, 30m Distance (dBuV/m)
10.6	NFMI Earbuds Only	-23
10.6	NFMI Charging Case	-21.98

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an inductor antenna, ISE Magnet antenna.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was Version 1.0.0

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT is a pair of hearing aids. The following modes were investigated:

Mode	Descriptions
Eabuds only	Both earbuds tested at the same time
Earbuds in case with no power adapter	Both earbuds placed in charging case

The fundamental was investigated in three orthogonal orientations X,Y,Z for both the charging case and earbuds. It was determined that Y orientation was worst-case orientation for the earbuds; therefore, all final radiated testing was performed in Y orientation for the earbuds. It was also determined that Z orientation was worst-case orientation for the charging case; therefore, all final radiated testing was performed in Z orientation for the charging case.

6.6. MODIFICATIONS

No modifications were made during testing.

6.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Lenovo	Lenovo	Yoga12	SL10G59251
AC Adapter	Lenovo	ADLX45NCC3A	080-513-0880
Laptop	HP	14-dk1xxx	5CG016B4XM
Charging Case	Nuheara Limited	NU320	PC2132S107K0
Charging Case	Nuheara Limited	NU320	PC2132S10800

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	I/O	1	USB-C	Shielded	<3m	Used for powering charging case only

TEST SETUP

A test laptop with test software connected to the EUT exercised the radio card.

SETUP DIAGRAMS

Please refer to R13976514-EP2 for setup diagrams.

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber) and Antenna Port Conducted Emissions Test Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	0.009-30MHz (Radiated)				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
	30-1000 MHz (Radiated)				
AT0075	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2020-10-27	2021-10-27
	Gain-Loss Chains (Radiated)				
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2021-07-09	2022-07-09
S-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-07-09	2022-07-09
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SA0026	Spectrum Analyzer (OBW)	Agilent	N9030A	2021-07-26	2022-07-26
SOFTEMI	EMI Software	UL	Version 9.5 (24 Jun 2021)		
SOFTEMI	Antenna Port Software (OBW)	UL	Version 2021.08.11		
	Additional Equipment used				
9911-4442	Near Field Probe	EMCO	7405	NA	NA
HI0095	Environmental Meter	Fisher Scientific	06-662-4	2020-01-21	2022-01-21

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

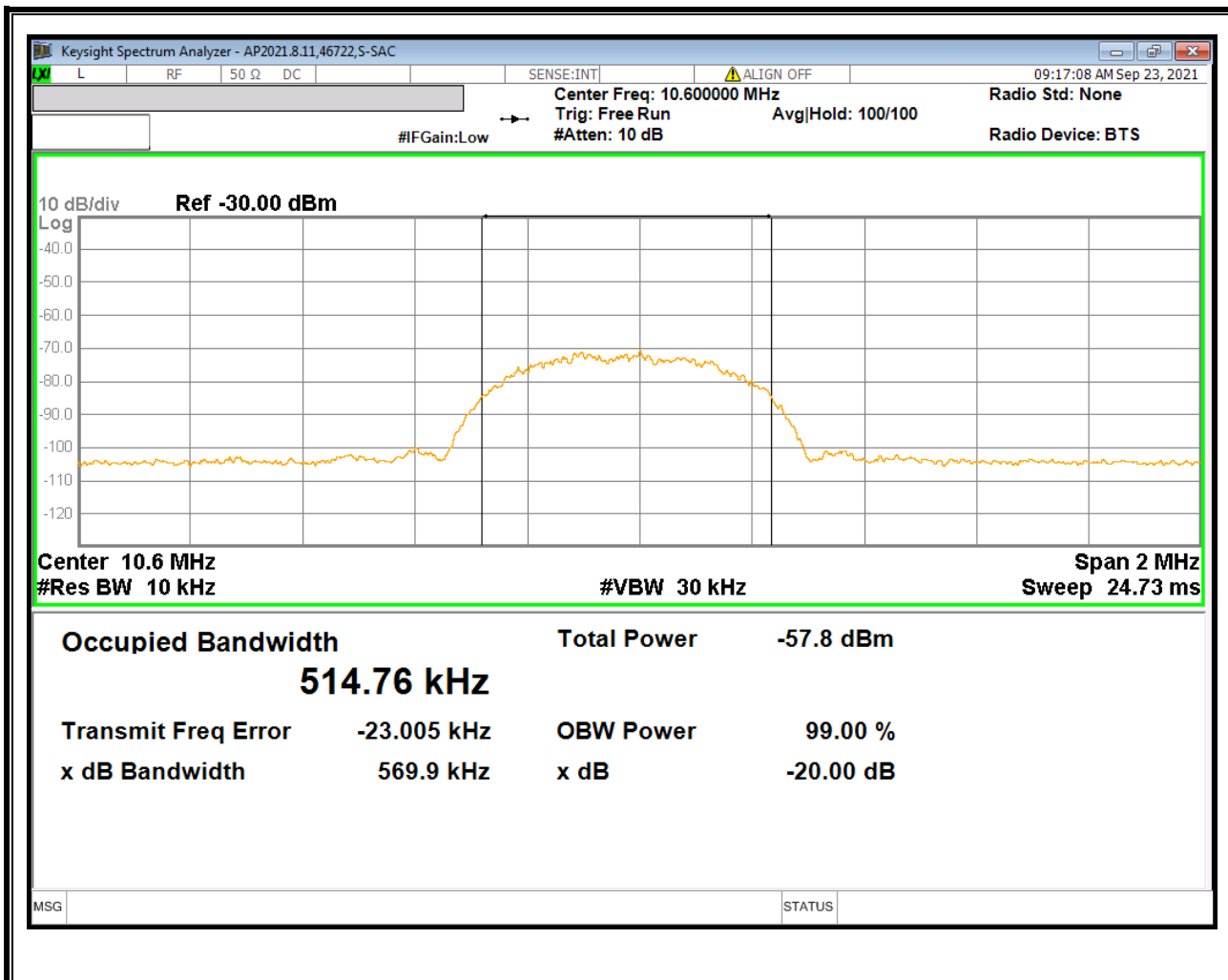
Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2021-04-05	2022-04-05
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer 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
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (04 Mar 2021)		

8. OCCUPIED BANDWIDTH

TEST PROCEDURE

The transmitter output is measured by a near field probe. The RBW shall be in the range of 1% to 5% of the actual occupied bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

8.1. NFMI MODE



TEST INFORMATION

Test Date: 46722
 Tested By: 2021-09-23

9. RADIATED EMISSION TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3

Note: The lower limit shall apply at the transition frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

Resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9-150kHz range. Peak detection is used unless otherwise noted as quasi-peak.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

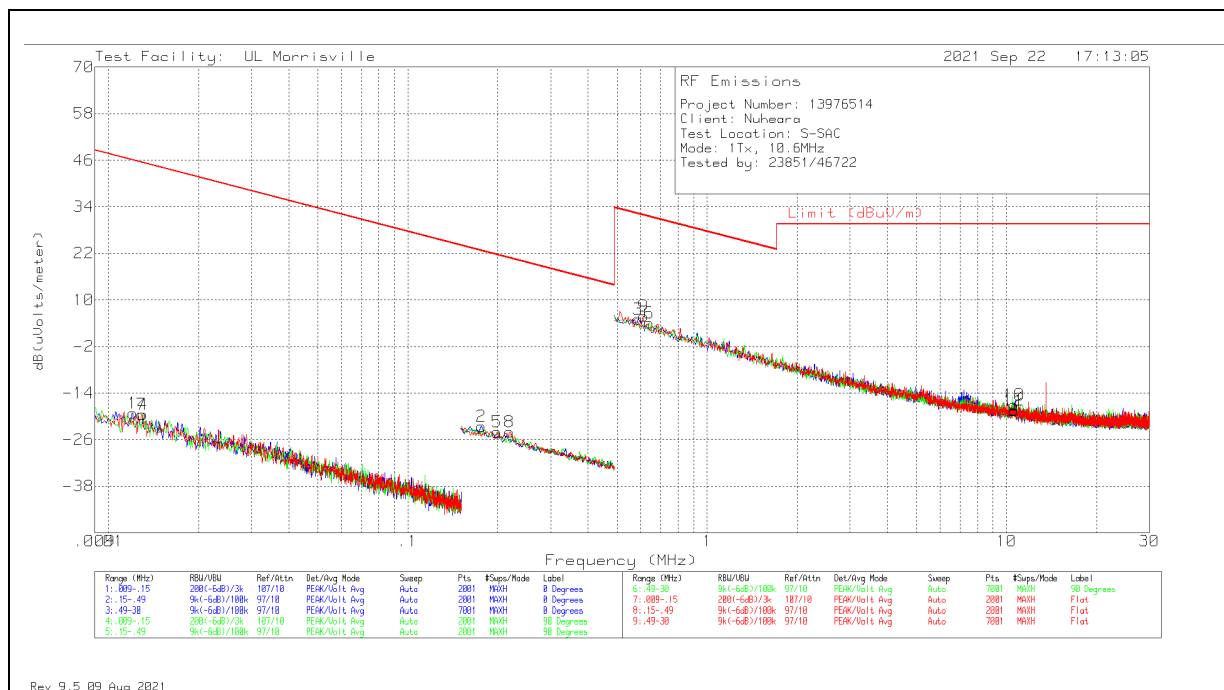
Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

KDB 414788 Open Field Site (OFS) and Chamber Correlation Justification

OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

9.2. TX SPURIOUS EMISSION 9kHz TO 30 MHz Earbuds Only

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



DATA

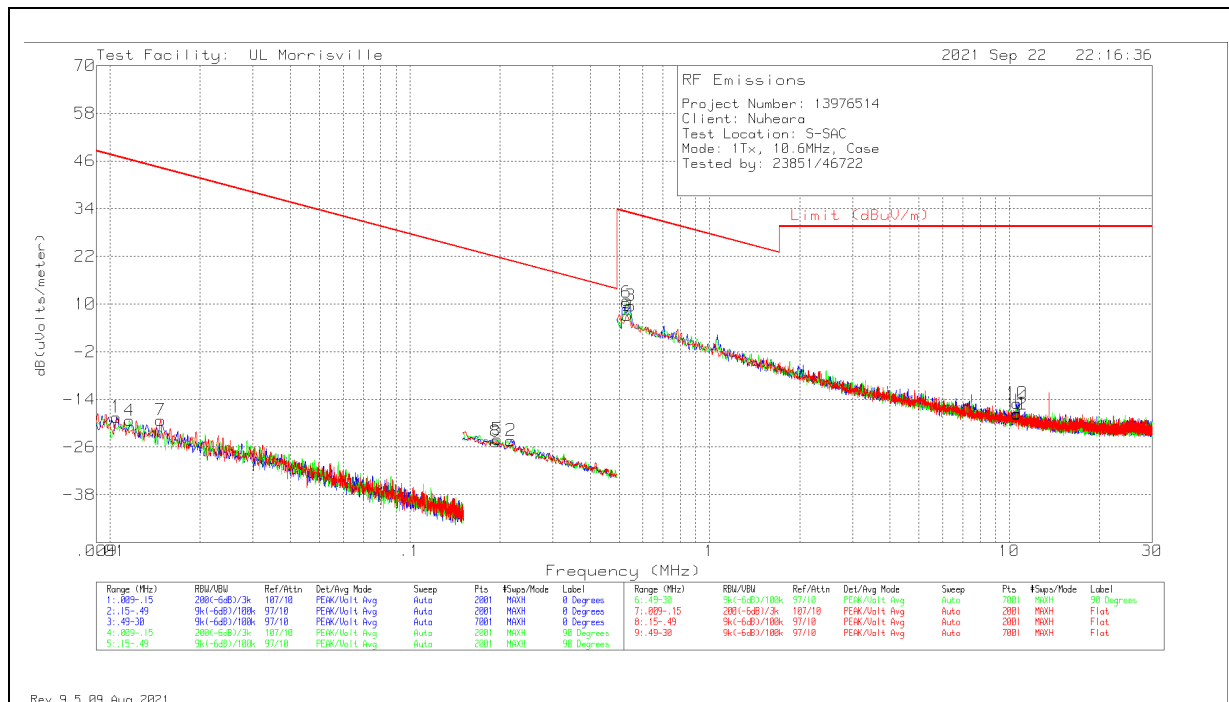
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 Avg/QP Limit (dBuV/m)	FCC 15.209 Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.01205	43.19	Pk	17.5	.1	-80	-19.21	45.98	65.98	-65.19	0-360	Face On
2	.17576	46.06	Pk	11.2	.1	-80	-22.64	22.71	42.71	-45.35	0-360	Face On
3	.58697	33.65	Pk	11.2	.2	-40	5.05	32.23	-	-27.18	0-360	Face On
4	.01305	43.23	Pk	17.1	.1	-80	-19.57	45.29	65.29	-64.86	0-360	Face Off
5	.19879	44.6	Pk	11.2	.1	-80	-24.1	21.64	41.64	-45.74	0-360	Face Off
6	.64178	32.57	Pk	11.3	.2	-40	4.07	31.46	-	-27.39	0-360	Face Off
7	.01291	43.23	Pk	17.2	.1	-80	-19.47	45.39	65.39	-64.86	0-360	Flat
8	.21885	44.64	Pk	11.2	.1	-80	-24.06	20.8	40.8	-44.86	0-360	Flat
9	.61226	34.41	Pk	11.2	.2	-40	5.81	31.87	-	-26.06	0-360	Flat
10	10.5859	5.9	Qp	10.5	.6	-40	-23	29.54	-	-52.54	81	Face On
11	10.5853	4.98	Qp	10.5	.6	-40	-23.92	29.54	-	-53.46	166	Face Off
12	10.6001	3.64	Qp	10.5	.6	-40	-25.26	29.54	-	-54.8	48	Flat

Pk - Peak detector

Emissions in this scan are noise floor or digital emissions from the EUT. Refer to Section 9.3 for non-transmission plots.

9.3. TX SPURIOUS EMISSION 9kHz TO 30 MHz Charging Case

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



DATA

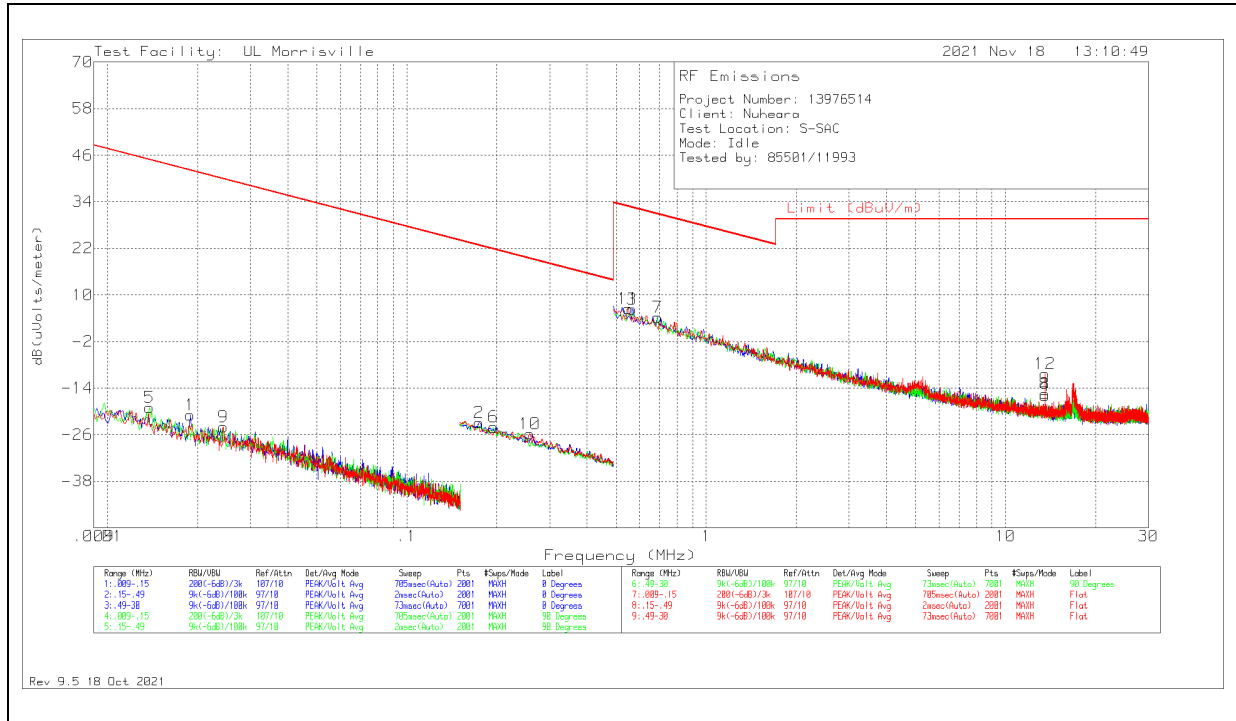
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 Avg/QP Limit (dBuV/m)	FCC 15.209 Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.01049	43.25	Pk	18.2	.1	-80	-18.45	47.19	67.19	-65.64	0-360	Face On
2	.21758	44.37	Pk	11.2	.1	-80	-24.33	20.85	40.85	-45.18	0-360	Face On
3	.54481	38.2	Pk	11.2	.2	-40	9.6	32.88	-	-23.28	0-360	Face On
4	.01163	42.9	Pk	17.7	.1	-80	-19.3	46.3	66.3	-65.6	0-360	Face Off
5	.19641	44.71	Pk	11.2	.1	-80	-23.99	21.74	41.74	-45.73	0-360	Face Off
6	.52794	39.09	Pk	11.2	.1	-40	10.39	33.15	-	-22.76	0-360	Face Off
7	.01475	44.28	Pk	16.4	.1	-80	-19.22	44.23	64.23	-63.45	0-360	Flat
8	.19301	44.12	Pk	11.2	.1	-80	-24.58	21.89	41.89	-46.47	0-360	Flat
9	.53216	35.81	Pk	11.2	.1	-40	7.11	33.08	-	-25.97	0-360	Flat
10	10.6079	6.92	Qp	10.5	.6	-40	-21.98	29.54	-	-51.52	212	Face On
11	10.6025	5.12	Qp	10.5	.6	-40	-23.78	29.54	-	-53.32	290	Face Off
12	10.6023	4.22	Qp	10.5	.6	-40	-24.68	29.54	-	-54.22	190	Flat

Pk - Peak detector
 Qp - Quasi-Peak detector

Emissions in this scan are noise floor or digital emissions from the EUT. Refer to Section 9.3 for non-transmission plots.

9.4. TX SPURIOUS EMISSION 9kHz TO 30 MHz NON TX MODE

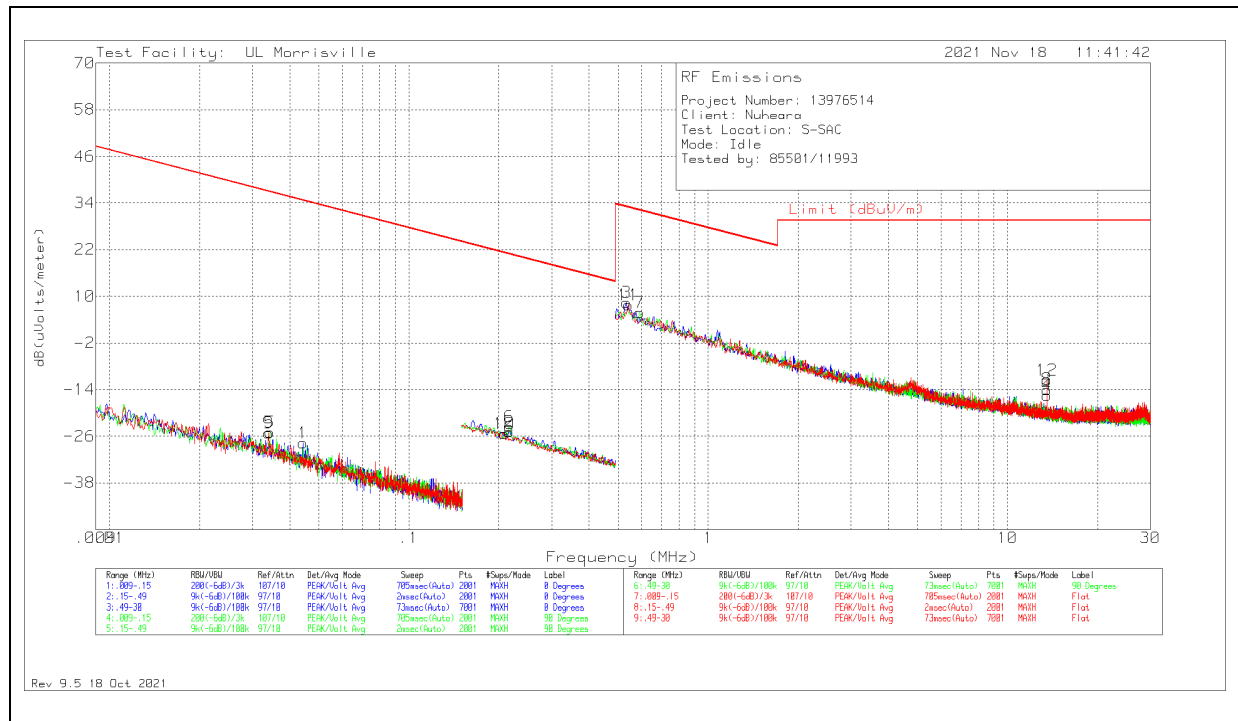
Earbuds Only



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
5	.01383	44.02	Pk	16.8	.1	-80	-19.08	44.79	64.79	-63.87	0-360	400	90 degs
1	.01894	44.32	Pk	14.6	.1	-80	-20.98	42.06	62.06	-63.04	0-360	400	0 degs
9	.02441	42.07	Pk	13.8	.1	-80	-24.03	39.85	59.85	-63.88	0-360	400	Flat
2	.17431	45.85	Pk	11.2	.1	-80	-22.85	22.78	42.78	-45.63	0-360	400	0 degs
6	.19471	44.6	Pk	11.2	.1	-80	-24.1	21.82	41.82	-45.92	0-360	400	90 degs
10	.2571	42.9	Pk	11.2	.1	-80	-25.8	19.4	39.4	-45.2	0-360	400	Flat
11	.54902	35.05	Pk	11.2	.2	-40	6.45	32.81	-	-26.36	0-360	400	Flat
3	.56589	34.97	Pk	11.2	.2	-40	6.37	32.55	-	-26.18	0-360	400	0 degs
7	.68815	32.67	Pk	11.3	.2	-40	4.17	30.85	-	-26.68	0-360	400	90 degs
4	13.5596	13.08	Pk	10.2	.7	-40	-16.02	29.54	-	-45.56	0-360	400	0 degs
8	13.5596	13.6	Pk	10.2	.7	-40	-15.5	29.54	-	-45.04	0-360	400	90 degs
12	13.5596	18.73	Pk	10.2	.7	-40	-10.37	29.54	-	-39.91	0-360	400	Flat

Pk - Peak detector

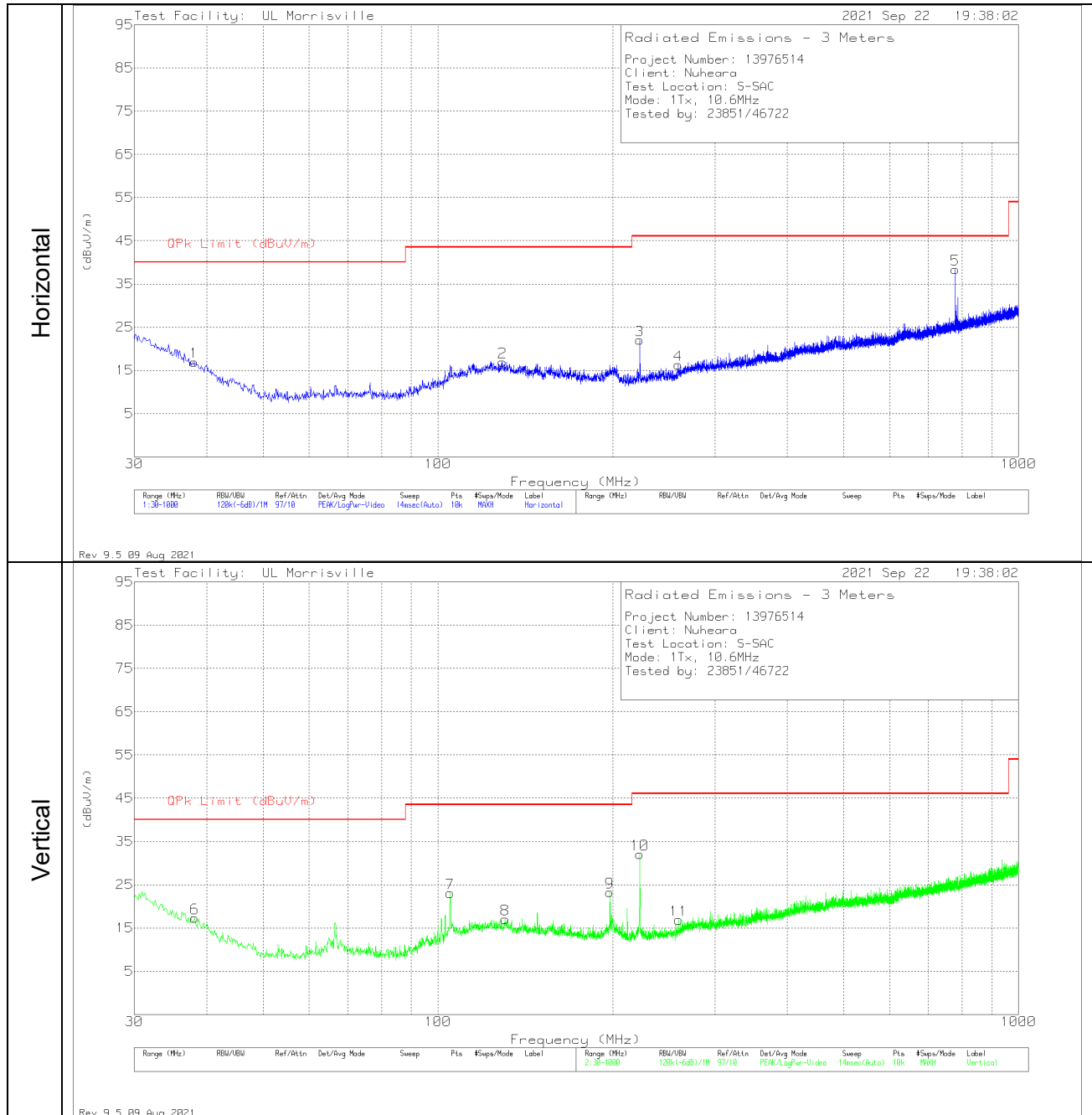
Earbuds in Case



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
9	.03399	41.69	Pk	13	.1	-80	-25.21	36.98	56.98	-62.19	0-360	100	Flat
5	.03435	41.89	Pk	13	.1	-80	-25.01	36.89	56.89	-61.9	0-360	100	90 degs
1	.04436	39.94	Pk	12.2	.1	-80	-27.76	34.67	54.67	-62.43	0-360	100	0 degs
10	.20848	43.37	Pk	11.2	.1	-80	-25.33	21.22	41.22	-46.55	0-360	100	Flat
6	.21664	45.12	Pk	11.2	.1	-80	-23.58	20.89	40.89	-44.47	0-360	100	90 degs
2	.21673	43.91	Pk	11.2	.1	-80	-24.79	20.89	40.89	-45.68	0-360	100	0 degs
3	.53216	37.08	Pk	11.2	.1	-40	8.38	33.08	-	-24.7	0-360	100	0 degs
11	.54059	36.43	Pk	11.2	.1	-40	7.73	32.95	-	-25.22	0-360	100	Flat
7	.59118	34.38	Pk	11.2	.2	-40	5.78	32.17	-	-26.39	0-360	100	90 degs
4	13.5596	13.61	Pk	10.2	.7	-40	-15.49	29.54	-	-45.03	0-360	100	0 degs
8	13.5596	15.16	Pk	10.2	.7	-40	-13.94	29.54	-	-43.48	0-360	100	90 degs
12	13.5596	17.47	Pk	10.2	.7	-40	-11.63	29.54	-	-41.17	0-360	100	Flat

Pk - Peak detector

9.5. TX SPURIOUS EMISSION 30 TO 1000 MHz Earbuds Only



DATA

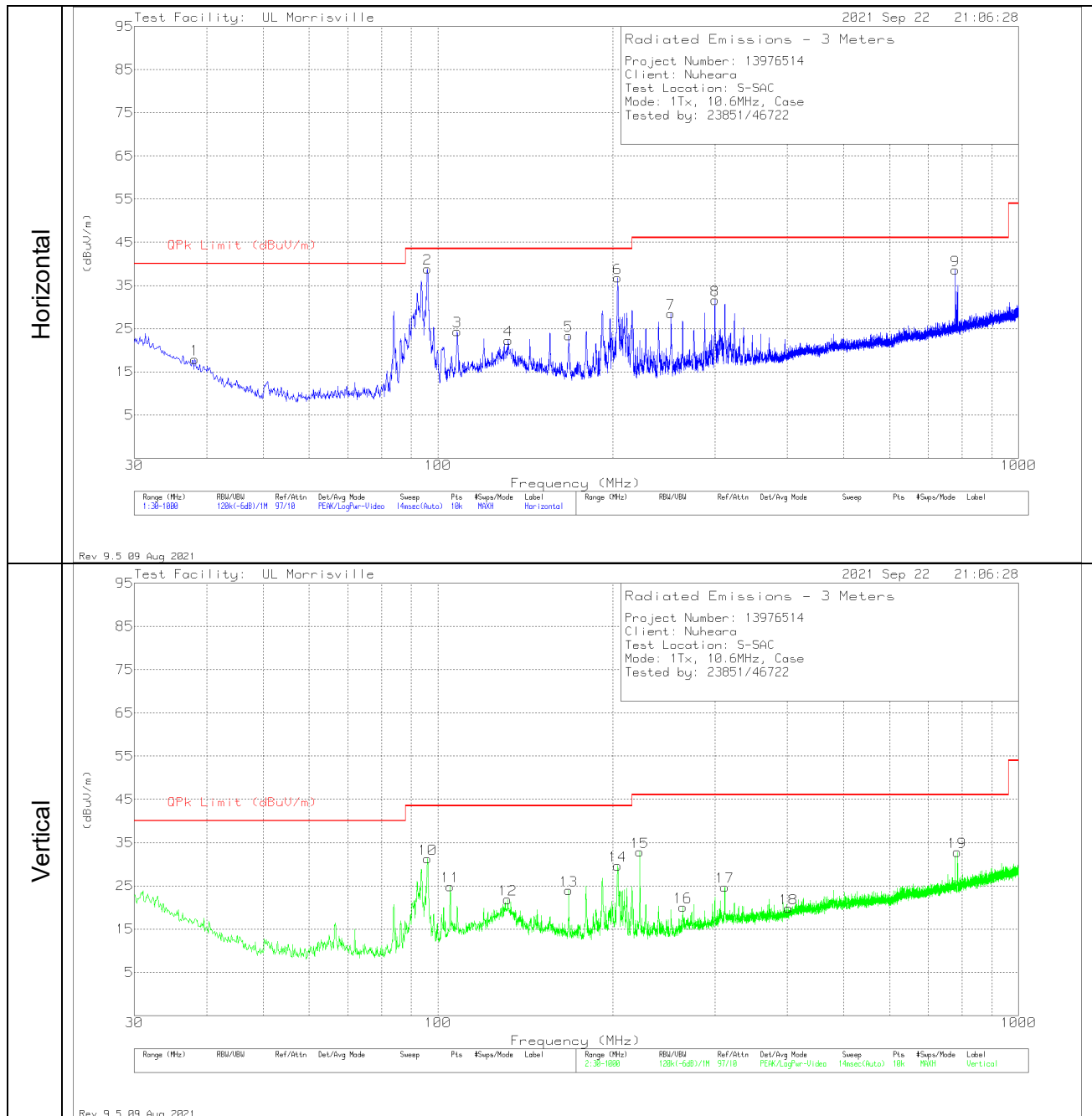
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 38.051	26.97	Pk	21.3	-31.3	16.97	40	-23.03	0-360	299	H
2	* ** 129.231	27.22	Pk	20	-30.3	16.92	43.52	-26.6	0-360	199	H
4	* ** 259.405	27.38	Pk	17.9	-29	16.28	46.02	-29.74	0-360	99	H
5	** 777.967	37.67	Pk	27.2	-26.5	38.37	46.02	-7.65	0-360	99	H
6	* ** 38.148	27.41	Pk	21.2	-31.3	17.31	40	-22.69	0-360	299	V
8	* ** 130.589	27.35	Pk	19.9	-30.2	17.05	43.52	-26.47	0-360	299	V
11	* ** 259.89	27.86	Pk	18	-29	16.86	46.02	-29.16	0-360	101	V
7	105.078	35.57	Pk	17.8	-30.3	23.07	-	-	0-360	199	V
9	197.81	34.15	Pk	18.6	-29.5	23.25	-	-	0-360	101	V
3	222.739	34.52	Pk	17	-29.5	22.02	-	-	0-360	199	H
10	222.739	44.53	Pk	17	-29.5	32.03	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

9.6. TX SPURIOUS EMISSION 30 TO 1000 MHz Charging Case



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0075 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	** 38.148	28.01	Pk	21.2	-31.3	17.91	40	-22.09	0-360	101	H
4	** 132.238	32.43	Pk	19.8	-29.9	22.33	43.52	-21.19	0-360	199	H
5	** 168.031	34.89	Pk	18.1	-29.6	23.39	43.52	-20.13	0-360	199	H
7	** 252.033	40.09	Pk	17.5	-29.1	28.49	46.02	-17.53	0-360	101	H
9	** 778.161	37.87	Pk	27.2	-26.5	38.57	46.02	-7.45	0-360	199	H
12	** 131.947	32.15	Pk	19.8	-30.1	21.85	43.52	-21.67	0-360	101	V
13	** 168.031	35.46	Pk	18.1	-29.6	23.96	43.52	-19.56	0-360	101	V
16	** 264.158	30.52	Pk	18.6	-29	20.12	46.02	-25.9	0-360	199	V
18	** 401.704	26.33	Pk	21.8	-28.3	19.83	46.02	-26.19	0-360	199	V
19	** 784.175	31.81	Pk	27.3	-26.3	32.81	46.02	-13.21	0-360	299	V
2	95.96	53.59	Pk	16	-30.7	38.89	-	-	0-360	199	H
10	96.057	45.86	Pk	16	-30.6	31.26	-	-	0-360	299	V
11	105.078	37.38	Pk	17.8	-30.3	24.88	-	-	0-360	101	V
3	107.988	36.3	Pk	18.4	-30.3	24.4	-	-	0-360	299	H
6	204.018	48.26	Pk	17.9	-29.4	36.76	-	-	0-360	399	H
14	204.018	41.15	Pk	17.9	-29.4	29.65	-	-	0-360	101	V
15	222.739	45.34	Pk	17	-29.5	32.84	-	-	0-360	101	V
8	300.048	40.91	Pk	19.5	-28.8	31.61	-	-	0-360	101	H
17	312.076	33.46	Pk	19.9	-28.6	24.76	-	-	0-360	199	V

Pk - Peak detector

Qp - Quasi-Peak detector

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

10. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)

Frequency of emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

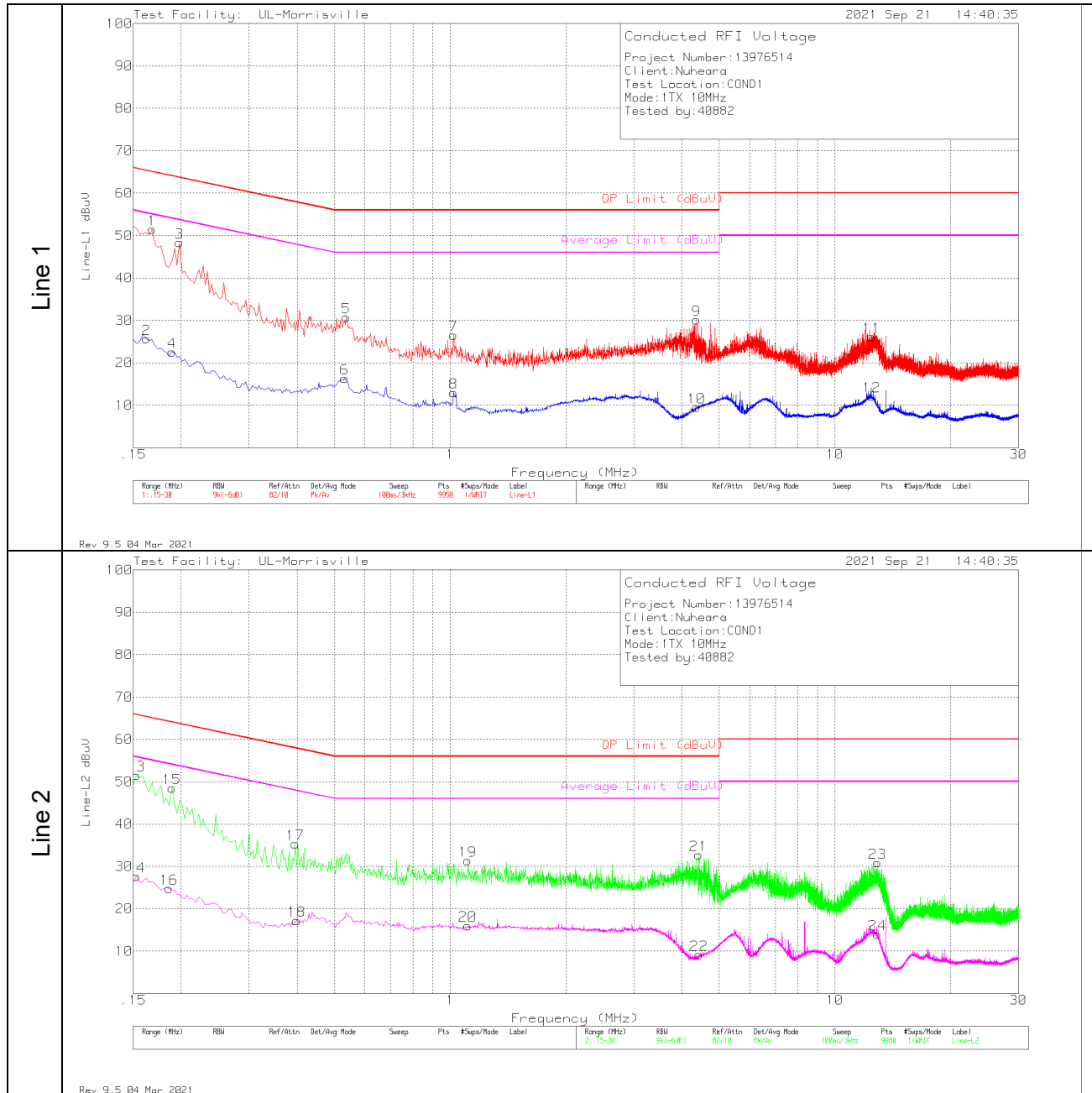
TEST PROCEDURE

ANSI C63.10

RESULTS

No non-compliance noted: None.

CHARGING CASE RESULTS



DATA

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN_wc_VCF	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
2	.162	15.67	Av	.2	9.8	25.67	-	-	55.36	-29.69
1	.168	41.5	Pk	.2	9.8	51.5	65.06	-13.56	-	-
4	.189	12.61	Av	.2	9.8	22.61	-	-	54.08	-31.47
3	.198	38.4	Pk	.2	9.8	48.4	63.69	-15.29	-	-
6	.531	6.57	Av	0	9.8	16.37	-	-	46	-29.63
5	.537	21	Pk	0	9.8	30.8	56	-25.2	-	-
7	1.02	16.76	Pk	0	9.8	26.56	56	-29.44	-	-
8	1.02	3.23	Av	0	9.8	13.03	-	-	46	-32.97
9	4.368	20.21	Pk	0	9.9	30.11	56	-25.89	-	-
10	4.368	-.4	Av	0	9.9	9.5	-	-	46	-36.5
12	12.45	2.03	Av	.1	10	12.13	-	-	50	-37.87
11	12.453	16.1	Pk	.1	10	26.2	60	-33.8	-	-

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

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN_wc_VCF	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.153	41.55	Pk	.2	9.8	51.55	65.84	-14.29	-	-
14	.153	17.64	Av	.2	9.8	27.64	-	-	55.84	-28.2
16	.186	14.85	Av	.2	9.8	24.85	-	-	54.21	-29.36
15	.189	38.54	Pk	.2	9.8	48.54	64.08	-15.54	-	-
17	.396	25.47	Pk	.1	9.8	35.37	57.94	-22.57	-	-
18	.399	7.34	Av	.1	9.8	17.24	-	-	47.87	-30.63
19	1.11	21.63	Pk	0	9.8	31.43	56	-24.57	-	-
20	1.11	6.24	Av	0	9.8	16.04	-	-	46	-29.96
21	4.428	22.83	Pk	0	9.9	32.73	56	-23.27	-	-
22	4.431	-.77	Av	0	9.9	9.13	-	-	46	-36.87
23	12.888	20.64	Pk	.1	10.1	30.84	60	-29.16	-	-
24	12.894	3.77	Av	.1	10.1	13.97	-	-	50	-36.03

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

11. SETUP PHOTOS

Please refer to R13976514-EP2 for setup photos.

END OF TEST REPORT