

EMC Test Report

Project Number: 5226552**Offer Number:** SUW-202409007058**Report Number:** 5226552EMC02**Revision Level:** 1**Client:** OXOS Medical, Inc**Equipment Under Test:** W1 Wireless Charger
(part of K1 Cart, an accessory to MC2 System)**Model Number:** W1**Applicable Standards:** 47 CFR FCC Part 18

RSS-216, Issue 3 (September 2024)

RSS-GEN, Issue 5

FCC MP-5 (1986); ANSI C63.10:2020

Report issued on: 05 December 2024**Test Result:** Compliant

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 3212.01

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1 Summary of Test Results

Test	Classification	FCC Results	ISED Results
Radiated Emissions 9 kHz – 30 MHz	Consumer	Compliant	Compliant
Radiated Emissions 30 MHz – 1000 MHz	Consumer	Compliant	Compliant
Conducted AC Powerline Emissions (150 kHz – 30 MHz)	Consumer	Compliant	Compliant

1.1 *Modifications Required to Compliance*

None.

2 General Information

2.1 Client Information

Company Name: OXOS Medical, Inc.
Address: 1100 Peachtree Street NE, Suite 700
City, State, Zip, Country: Atlanta, GA 30309

2.2 Test Laboratory

Company Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
Type of lab: Testing Laboratory
Certificate Number: 3212.01

2.3 General Information of EUT

Equipment Under Test: Wireless Charger
EUT Model Number: W1
System Name: W1 is part of K1 Cart, an accessory to MC2 X-ray System
Serial Numbers: Emitter (E1) – SN 1283
Wired Charger (H1) – Lot 10146
Wireless Charger (W1) – Lot 10258
Hardware Versions: Emitter (E1) - Rev I
Wired Charger (H1) – Rev C
Wireless Charger (W1) – Rev D
Software Version: v4.0.0-alpha

Rated Voltage: 100-240Vac 50/60Hz
Test Voltage: 120Vac 60Hz

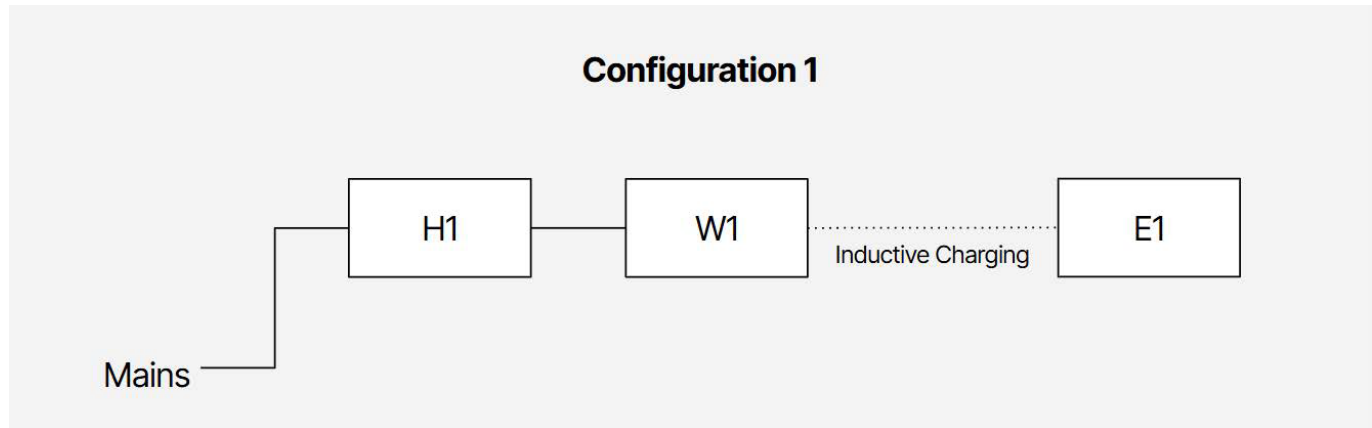
Sample Received Date: 05 September 2024
Dates of testing: 05-06 September 2024

2.4 Operating Modes and Conditions

The W1 Wireless Charger was tested as follows:

The Wireless Charger (W1) was powered by the Wired Charger (H1). The Emitter (E1) was connected to the Wireless Charger (W1). The Emitter (E1) was on and charging, but not emitting x-rays.

2.5 EUT Connection Block Diagram



2.6 System Components and Accessories

No.	Item	Description
1	Wireless Charger (REF: W1)	The Wireless Charger (optional accessory) provides wireless charging for the E1 Emitter. It may be assembled with the K1 Cart, or with the H1 Wired Charger.

2.7 Support Equipment

No.	Item	Description
1	Emitter (REF: E1)	The Emitter includes the operator control panel, x-ray tube, and computer vision cameras.
2	Wired Charger (REF: H1) (Qty 2)	The Wired Charger connects to power outlets to charge the Emitter or Cassette.

2.8 Cables and Electronics

No.	Type	Length	Designation
1	100 Watt USB-C PD Medical Desktop Power Supply Mfg: Phasium PN: MANGO100S-USB-PDB	3m	Wired Inverter Brick + Cable

3 Radiated Emissions

3.1 Test Result

Test Description	Classification	FCC Rule Part / ISSED Standard	Test Result
Radiated Emissions	Consumer (miscellaneous, non-ISM frequency, <500W)	FCC §18.305(b)	Compliant
		RSS-216 (5.3.3)	Compliant

3.2 Test Method

Exploratory scans were performed using the max hold function and incorporating a Peak detector using TILE! software. The final test data was measured using a Quasi-Peak detector. The receiver's resolution bandwidth was set to 200 Hz for measurements taken in the 9kHz to 150 kHz frequency range, 9 kHz for measurements taken in the 150 kHz to 30 MHz frequency range and 120 kHz for measurements taken in the 30 MHz to 1 GHz frequency range. For measurements below 30 MHz, a loop antenna was used, and measurements were made with the antenna positioned in coaxial, coplanar vertical and coplanar horizontal orientations. For measurements between 30 MHz and 1 GHz, a biconi-log antenna was used, and measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m (only for testing above 30 MHz) and the EUT was rotated 360° to find the maximum emitting point for each frequency. The radiated measurements were recorded and compared to the limits indicated below.

FCC Limits [from §18.305(b)]

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 25 × SQRT(power/500)	300 1300
	Any non-ISM frequency	Below 500 500 or more	15 15 × SQRT(power/500)	300 1300

The FCC Part 18 rules allow for testing to be performed at closer distances with the field strength limit adjusted using a 20 dB/decade correction factor.

The 15uV/m limit is first converted to log units using the equation $20 \cdot \log(x)$, which gives 23.5 dBuV/m. Then going from 300m to 3m would be two decades, so the 3m limit becomes $23.5 + 40 = 63.5$ dBuV/m. Also, the limit at 10m becomes 53.1 dBuV/m.

Alternatively, for frequencies below 30MHz, where the distance attenuation factor is actually greater than 20dB/dec, measurements may be made at multiple distances and extrapolation may be used to determine the field strength that would be expected at the 300m distance for which the limit is defined.

In this case, all emissions measured at the 3m distance met the 3m converted limit except for the Wireless Power Transfer (WPT) fundamental signal and its third harmonic. Therefore, those two signals were also measured at a 10m distance, and the field strength was extrapolated from these two measurements to derive the expected field strength at 300m for comparison to the 300m limit.

ISED Limits for 9 kHz to 30 MHz [from RSS-216 Table 3]

Frequency Range	Limits (dB μ A/m) Quasi-Peak at 3m	Limits (dB μ V/m) Quasi-Peak at 3m
9 to 70 kHz	69	120.5
70 to 150 kHz	69 to 39 *	120.5 to 90.5 *
150 kHz to 30 MHz	39 to 7 *	90.5 to 58.5 *

* Decreases linearly with the logarithm of the frequency.

Note: The dB μ V/m limits were derived from the dB μ A/m limits by adding a 51.5 dB conversion factor.

ISED Limits for 30 to 1000 MHz [from RSS-216 Table 5]

Frequency Range	Limits (dB μ V) Quasi-Peak at 10m
30 to 230 MHz	30
230 to 1000 MHz	37

3.3 Test Site

3m and 10m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions	9kHz–30MHz	30-1000MHz
Temperature:	23.36 °C	23.38 °C
Relative Humidity:	54.4 %	55.9 %
Atmospheric Pressure:	97.48 kPa	97.46 kPa

3.4 Test Equipment

9kHz – 30MHz @ 3m

Test End Date: 6-Sep-2024

Tester: ZH

Equipment	Model	Manufacturer	Asset	Cal Date	Cal Due Date
ANTENNA, LOOP, ACTIVE	6502	ETS LINDGREN	B085752	24-Mar-2024	24-Mar-2026
N to N RF Cable	EM-B810NM-276	ECHELON	23007	31-Mar-2024	31-Mar-2025
N-FEMALE TO N-MALE RF CABLE	EM-B810NMNF-118	ECHELON	23010	17-Apr-2024	17-Apr-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-118	TELEDYNE STORM MICROWAVE	20126	6-Feb-2024	6-Feb-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	15-Nov-2023	15-Nov-2024

9kHz – 30MHz @ 10m

Test End Date: 6-Sep-2024

Tester: ZH

Equipment	Model	Manufacturer	Asset	Cal Date	Cal Due Date
ANTENNA, LOOP, ACTIVE	6502	ETS LINDGREN	B085752	24-Mar-2024	24-Mar-2026
N to N RF Cable	EM-B810NM-276	ECHELON	24000	15-Jan-2024	15-Jan-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-354	TELEDYNE STORM MICROWAVE	20119	6-Feb-2024	6-Feb-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-118	TELEDYNE STORM MICROWAVE	20125	7-Aug-2024	7-Aug-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	3-Oct-2023	3-Oct-2024

Software: TILE! software profile “RSE 9k - 30M Active Red Loop 240909.til” dated 09 September 2024

30-1000MHz

Test End Date: 6-Sep-2024

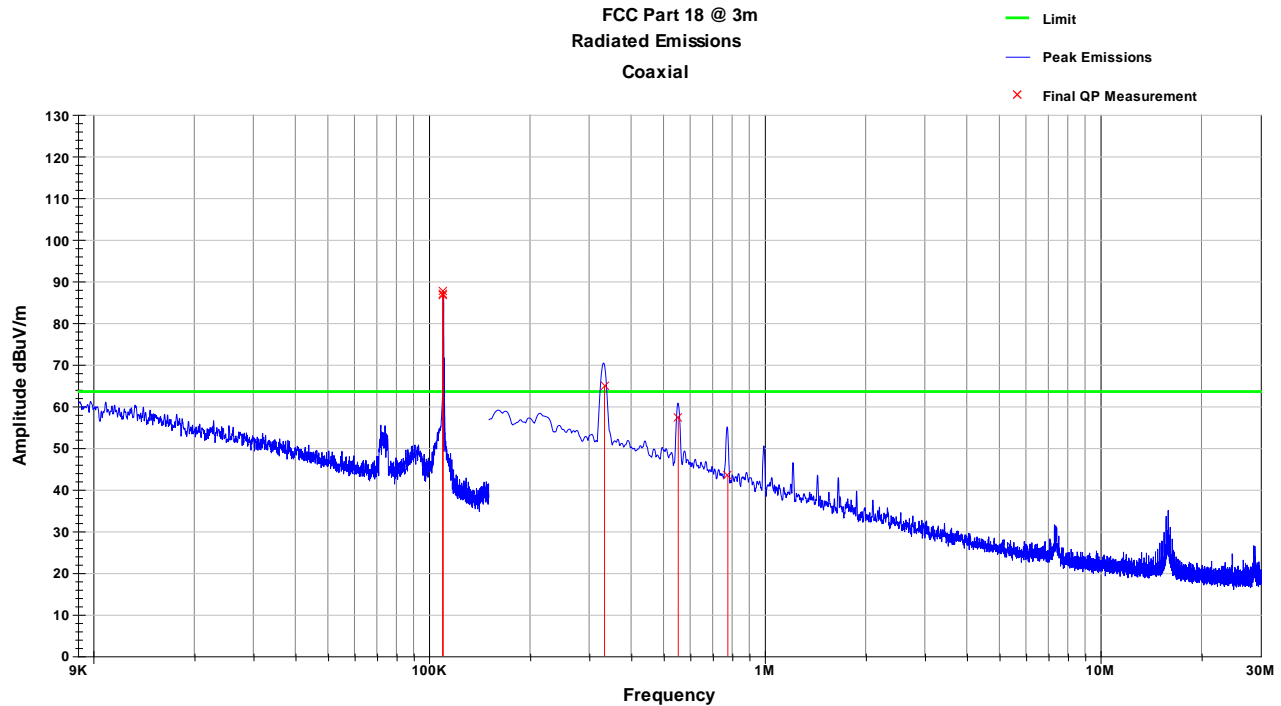
Tester: ZH

Equipment	Model	Manufacturer	Asset	Cal Date	Cal Due Date
ANTENNA, BILOG	JB6	SUNOL	B079690	19-Apr-2024	19-Apr-2026
N to N RF Cable	EM-B810NM-276	ECHELON	24000	15-Jan-2024	15-Jan-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-354	TELEDYNE STORM MICROWAVE	20119	6-Feb-2024	6-Feb-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-118	TELEDYNE STORM MICROWAVE	20125	7-Aug-2024	7-Aug-2025
RF CABLE RIGHT ANGLE NM TO NM, 0.01- 18GHZ	90-076-020	TELEDYNE STORM MICROWAVE	20133	20-Mar-2024	20-Mar-2025
LOW NOISE AMPLIFIER	ZKL-2+	MINI-CIRCUITS	B079817	7-Aug-2024	7-Aug-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	3-Oct-2023	3-Oct-2024

Software: TILE! software profile “RE 30-1000 MHz 10m TILE7 230713.til” dated 13 July 2023

3.5 Test Data – FCC Limits

Radiated Emissions Coaxial 9 kHz - 30 MHz – Peak Plot – at 3m distance

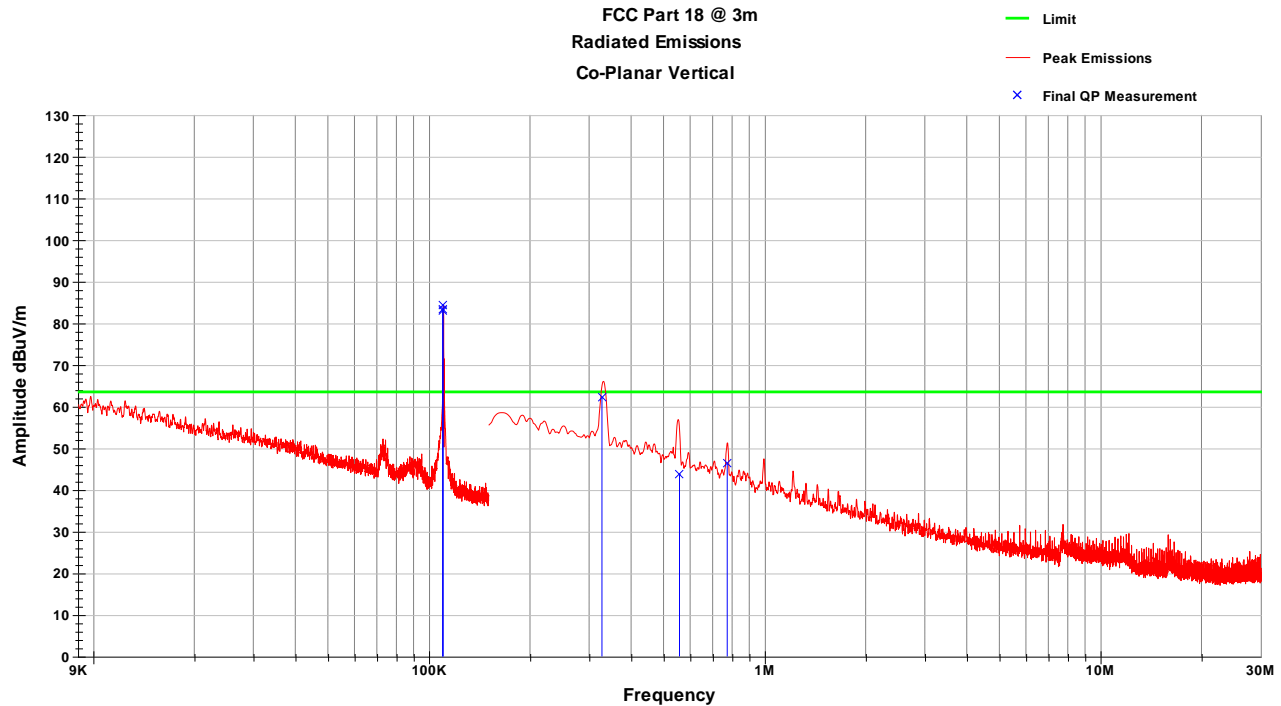


Radiated Emissions Co-Axial 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency MHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
0.11	74.7	185.0	100.0	11.9	0.0	86.6	63.5	23.1
0.11	75.0	43.0	100.0	11.9	0.0	86.9	63.5	23.4
0.11	75.8	185.0	100.0	11.9	0.0	87.7	63.5	24.2
0.33	53.2	50.0	100.0	11.7	0.0	64.9	63.5	1.4
0.55	45.6	67.0	100.0	11.7	0.0	57.3	63.5	-6.2
0.78	31.6	54.0	100.0	11.7	0.1	43.3	63.5	-20.2
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

Note: WPT fundamental and its third harmonic will be dealt with below using the extrapolation method.

Radiated Emissions Co-Planar Vertical 9 kHz - 30 MHz – Peak Plot – at 3m distance

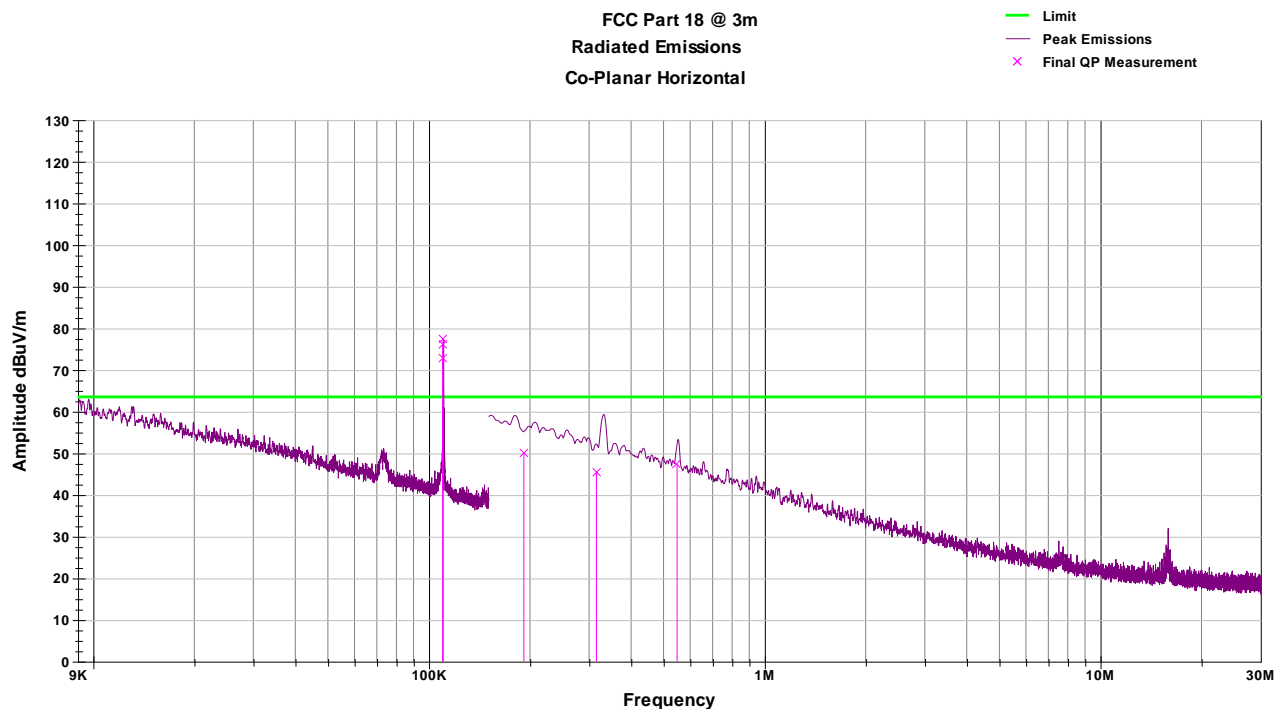


Radiated Emissions Co-Planar Vertical 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency MHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
0.11	71.1	97.0	100.0	11.9	0.0	82.9	63.5	19.4
0.11	71.5	101.0	100.0	11.9	0.0	83.4	63.5	19.9
0.11	72.6	107.0	100.0	11.9	0.0	84.5	63.5	21.0
0.33	50.5	142.0	100.0	11.7	0.0	62.2	63.5	-1.3
0.56	32.2	138.0	100.0	11.7	0.0	43.9	63.5	-19.6
0.77	34.6	-1.0	100.0	11.7	0.1	46.3	63.5	-17.2
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

Note: WPT fundamental will be dealt with below using the extrapolation method.

Radiated Emissions Co-Planar Horizontal 9 kHz - 30 MHz – Peak Plot – at 3m distance



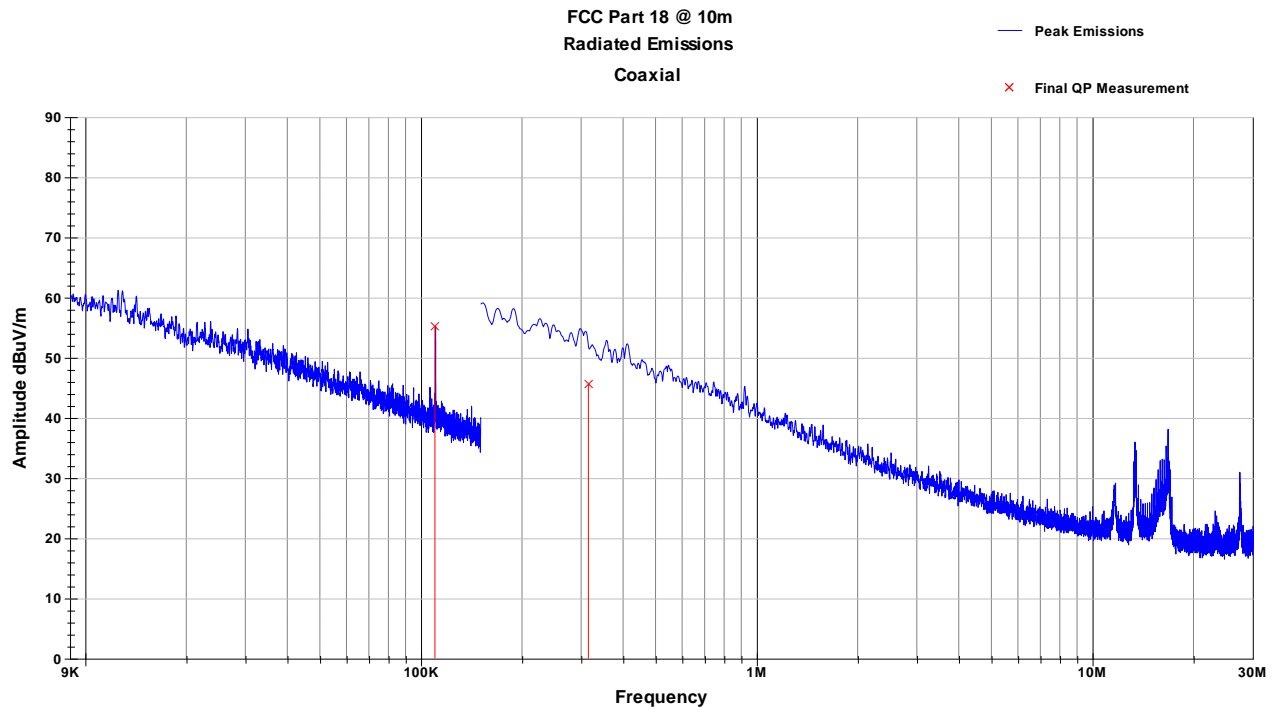
Radiated Emissions Co-Planar Horizontal 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency MHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
0.11	64.3	192.3	100.0	11.9	0.0	76.2	63.5	12.7
0.11	60.8	361.3	100.0	11.9	0.0	72.7	63.5	9.2
0.11	65.4	189.7	100.0	11.9	0.0	77.3	63.5	13.8
0.19	38.3	343.0	100.0	11.7	0.0	50.1	63.5	-13.4
0.32	33.8	150.0	100.0	11.7	0.0	45.5	63.5	-18.0
0.55	35.6	191.0	100.0	11.7	0.0	47.3	63.5	-16.2
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

Note: WPT fundamental will be dealt with below using the extrapolation method.

The Wireless Power Transfer (WPT) fundamental signal and its third harmonic produced the highest field strength at 3m when measured with a coaxial antenna, as shown in the preceding plots. Therefore, that was the measurement configuration used to take measurements at a 10m distance in order to extrapolate the field strength that would be seen at a 300m distance, which is where the limit is specified.

Radiated Emissions Coaxial 9 kHz - 30 MHz – Peak Plot – at 10m distance



Radiated Emissions Co-Axial 9 kHz - 30 MHz – Quasi-Peak Data at 3m and 10m distances

Frequency MHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Antenna Orientation	Measurement Distance
0.11	75.8	185.0	100.0	11.9	0.0	87.7	Co-Axial	3m
0.33	53.2	50.0	100.0	11.7	0.0	64.9	Co-Axial	3m
0.11	43.3	163.0	100.0	11.9	0.0	55.2	Co-Axial	10m
0.32	33.8	127.0	100.0	11.7	0.0	45.5	Co-Axial	10m
QP Value = Raw QP + AF + CL								

The quasi-peak values shown above taken at 3m and 10m distances were used to extrapolate the expected measurements at a 300m distance for comparison to the limit, as shown on the next pages.

Extrapolation calculations to 300m based on measurements taken at 3m and 10m distances

WPT Fundamental Extrapolation

3m measurement extrapolation based on 20 dB/dec (1/d)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	87.7	24266.1	24266.1	x	87.7	Reference data point (measured)
d2	10	55.2	575.4	7279.8	$x^*(d1/d2)$	77.2	Not steep enough (extrap > meas)
d3	300			242.7	$x^*(d1/d3)$	47.7	
3m measurement extrapolation based on 40 dB/dec (1/d ²)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	87.7	24266.1	24266.1	x	87.7	Reference data point (measured)
d2	10	55.2	575.4	2183.9	$x^*(d1/d2)^2$	66.8	Not steep enough (extrap > meas)
d3	300			2.4	$x^*(d1/d3)^2$	7.7	
3m measurement extrapolation based on 60 dB/dec (1/d ³)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	87.7	24266.1	24266.1	x	87.7	Reference data point (measured)
d2	10	55.2	575.4	655.2	$x^*(d1/d2)^3$	56.3	Not steep enough (extrap > meas)
d3	300			0.024	$x^*(d1/d3)^3$	-32.3	
Experiment to find match to 10m measured value (62.2 dB/dec)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	87.7	24266.1	24266.1	x	87.7	Reference data point (measured)
d2	10	55.2	575.4	575.4	$x^*(d1/d2)^{3.11}$	55.2	It's a match (1/d ^{3.11})
d3	300			0.015	$x^*(d1/d3)^{3.11}$	-36.6	Pass
			Limit (300m):	15		23.5	

WPT Third Harmonic Extrapolation

3m measurement extrapolation based on 20 dB/dec (1/d)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	64.9	1757.9	1757.9	x	64.9	Reference data point (measured)
d2	10	45.5	188.4	527.4	$x^*(d1/d2)$	54.4	Not steep enough (extrap > meas)
d3	300			17.6	$x^*(d1/d3)$	24.9	
3m measurement extrapolation based on 40 dB/dec (1/d ²)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	64.9	1757.9	1757.9	x	64.9	Reference data point (measured)
d2	10	45.5	188.4	158.2	$x^*(d1/d2)^2$	44.0	Too steep (extrap < meas)
d3	300			0.2	$x^*(d1/d3)^2$	-15.1	
Experiment to find match to 10m measured value (37.1 dB/dec)							
Measurement Distance		Measured Data		Extrapolated Data			Comments
Name	(m)	(dBuV/m)	(uV/m)	(uV/m)	Formula	(dBuV/m)	
d1	3	64.9	1757.9	1757.9	x	64.9	Reference data point (measured)
d2	10	45.5	188.4	188.4	$x^*(d1/d2)^{1.86}$	45.5	It's a match (1/d ^{1.86})
d3	300			0.34	$x^*(d1/d3)^{1.86}$	-9.3	Pass
			Limit (300m):	15		23.5	

The same extrapolation results can be obtained by using Equation (5) in clause 6.4.4.4 and Equation (8) in clause 6.4.4.7 in ANSI C63.10:2020, as given below.

Extrapolation factor:

where

$$N = 20 \frac{\log(E_1/E_2)}{\log(d_1/d_2)}$$

Equation (5)

E_1 is the field strength at the measurement distance closest to the radiating source, expressed in $\mu\text{V/m}$
 E_2 is the field strength at the measurement distance farthest from the radiating source, expressed in $\mu\text{V/m}$
 d_1 is the measurement distance closest to the radiating source
 d_2 is the measurement distance farthest from the radiating source
 N is the distance extrapolation factor in dB/decade of distance. The field strength at the limit distance shall then be calculated using the methods and formula described in 6.4.4.7.

Measurement Extrapolation:

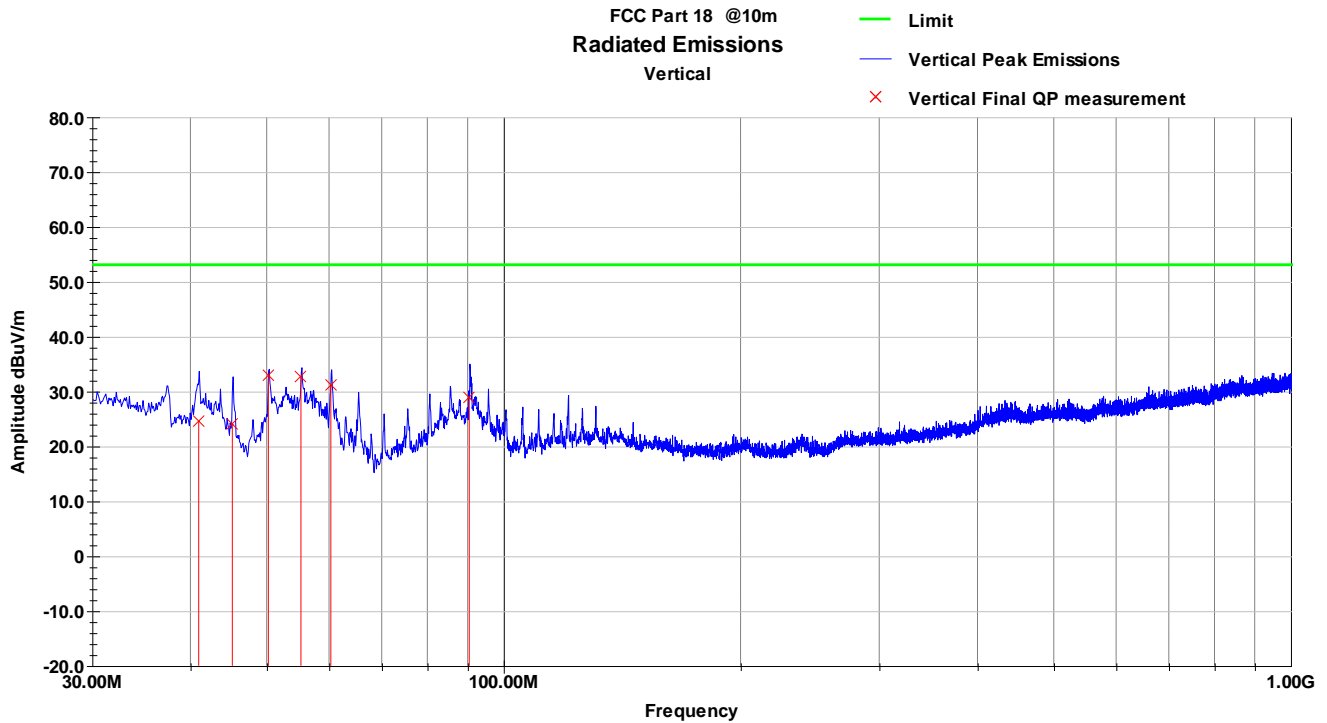
where

$$FS_{\text{limit}} = FS_{\text{max}} - N \log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

Equation (8)

N is the value in dB/decade of distance determined using 6.4.4.4 or 6.4.4.5
 FS_{limit} is the estimate of field strength at the limit distance, expressed in dBuV/m
 FS_{max} is the maximum value of field strength, expressed in dBuV/m, measured during the measurement of the points used for extrapolation
 d_{measure} is the distance of the measurement point of FS_{max} from the radiating source
 d_{limit} is the limit reference distance

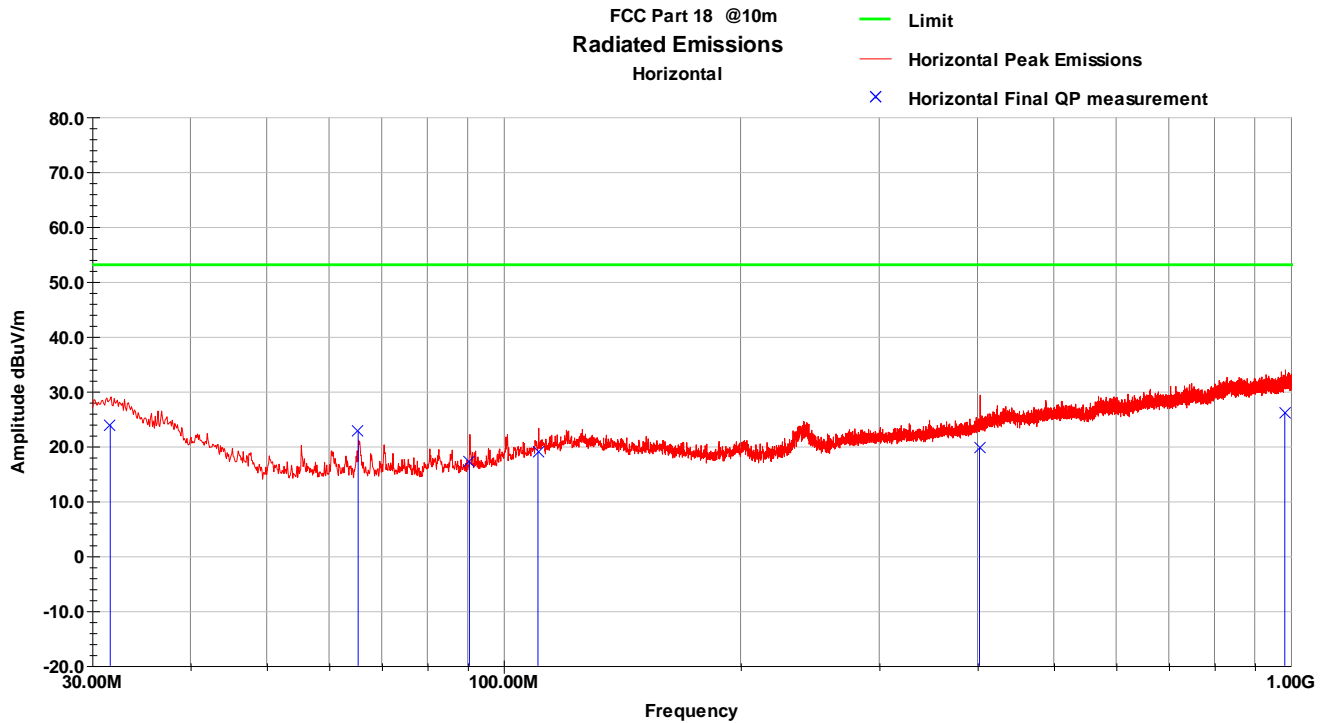
Vertical Radiated Emissions 30-1000 MHz – Peak Plot



Vertical Radiated Emissions 30-1000 MHz – Tabular Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.98	37.6	V	30.0	100.0	17.2	0.6	30.7	24.7	53.1	-28.4
45.22	39.9	V	51.0	274.0	14.3	0.6	30.7	24.1	53.1	-29.0
50.24	51.1	V	234.0	175.0	12.0	0.7	30.7	33.0	53.1	-20.1
55.27	51.6	V	359.0	172.0	11.1	0.7	30.7	32.7	53.1	-20.4
60.31	49.8	V	99.0	274.0	11.2	0.8	30.8	31.1	53.1	-22.0
90.42	46.3	V	278.0	100.0	12.1	1.0	30.6	28.9	53.1	-24.2
QP Value = Raw QP + AF + Loss - Amp										
Margin = QP Value - Limit										

Horizontal Radiated Emissions 30-1000 MHz – Peak Plot

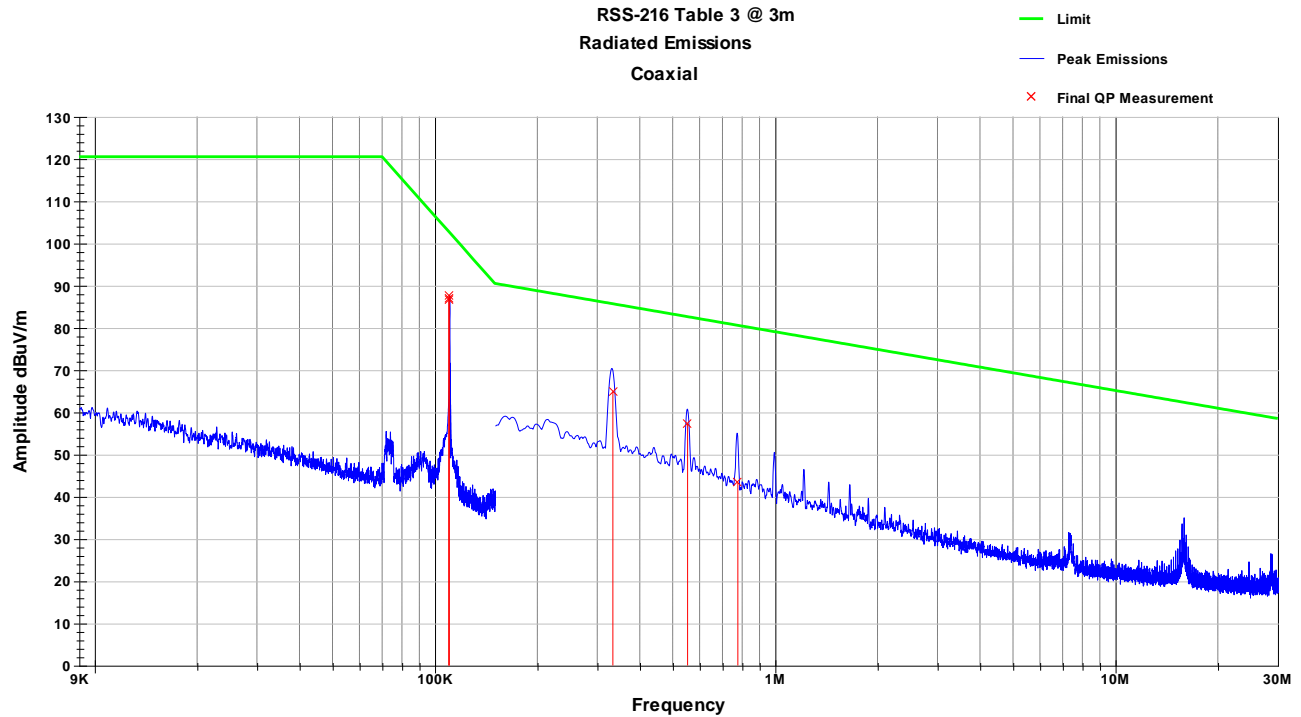


Horizontal Radiated Emissions 30-1000 MHz – Tabular Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
31.64	30.1	H	315.0	391.0	23.9	0.5	30.6	23.8	53.1	-29.3
65.35	40.9	H	0.0	391.0	11.7	0.8	30.8	22.7	53.1	-30.4
90.47	34.7	H	359.0	274.0	12.1	1.0	30.6	17.2	53.1	-35.8
110.56	32.0	H	120.0	359.0	16.5	1.1	30.6	19.0	53.1	-34.1
402.29	27.7	H	276.0	134.0	19.6	2.3	30.0	19.7	53.1	-33.4
982.94	24.6	H	270.0	357.0	26.9	3.3	28.7	26.1	53.1	-27.0
QP Value = Raw QP + AF + Loss - Amp										
Margin = QP Value - Limit										

3.6 Test Data – ISED Limits

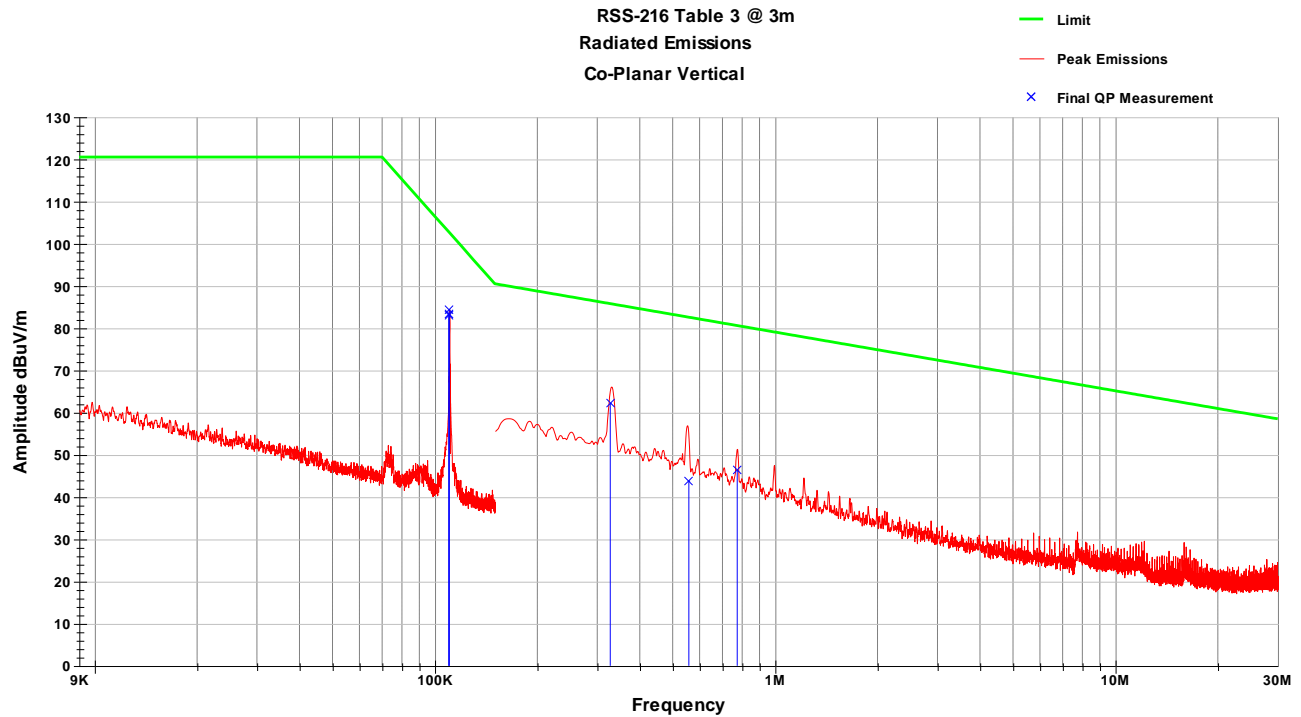
Radiated Emissions Coaxial 9 kHz - 30 MHz – Peak Plot – at 3m distance



Radiated Emissions Co-Axial 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency kHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
110	74.7	185.0	100.0	11.9	0.0	86.6	102.7	-16.1
110	75.0	43.0	100.0	11.9	0.0	86.9	102.7	-15.8
110	75.8	185.0	100.0	11.9	0.0	87.7	102.7	-15.0
334	53.2	50.0	100.0	11.7	0.0	64.9	85.7	-20.7
553	45.6	67.0	100.0	11.7	0.0	57.3	82.6	-25.3
777	31.6	54.0	100.0	11.7	0.1	43.3	80.6	-37.3
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

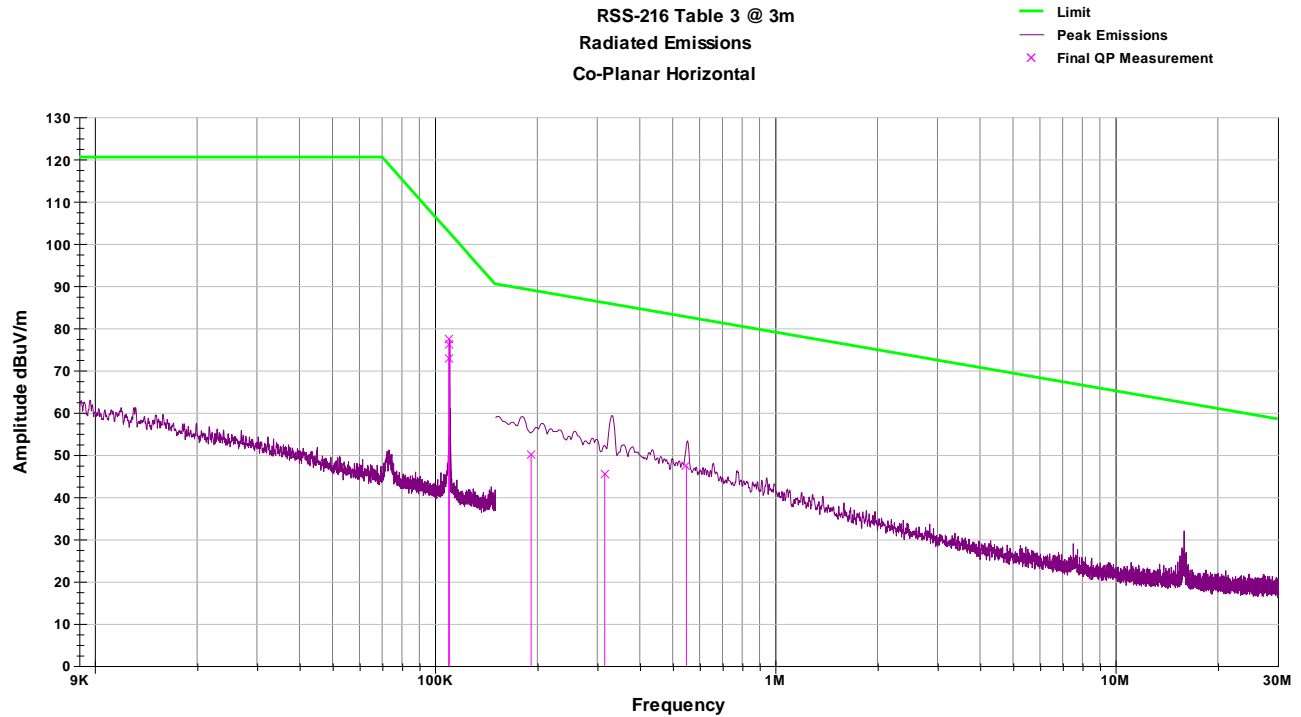
Radiated Emissions Co-Planar Vertical 9 kHz - 30 MHz – Peak Plot – at 3m distance



Radiated Emissions Co-Planar Vertical 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency kHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
110	71.1	97.0	100.0	11.9	0.0	82.9	102.7	-19.8
110	71.5	101.0	100.0	11.9	0.0	83.4	102.7	-19.4
110	72.6	107.0	100.0	11.9	0.0	84.5	102.7	-18.2
328	50.5	142.0	100.0	11.7	0.0	62.2	85.8	-23.5
557	32.2	138.0	100.0	11.7	0.0	43.9	82.6	-38.7
774	34.6	-1.0	100.0	11.7	0.1	46.3	80.6	-34.3
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

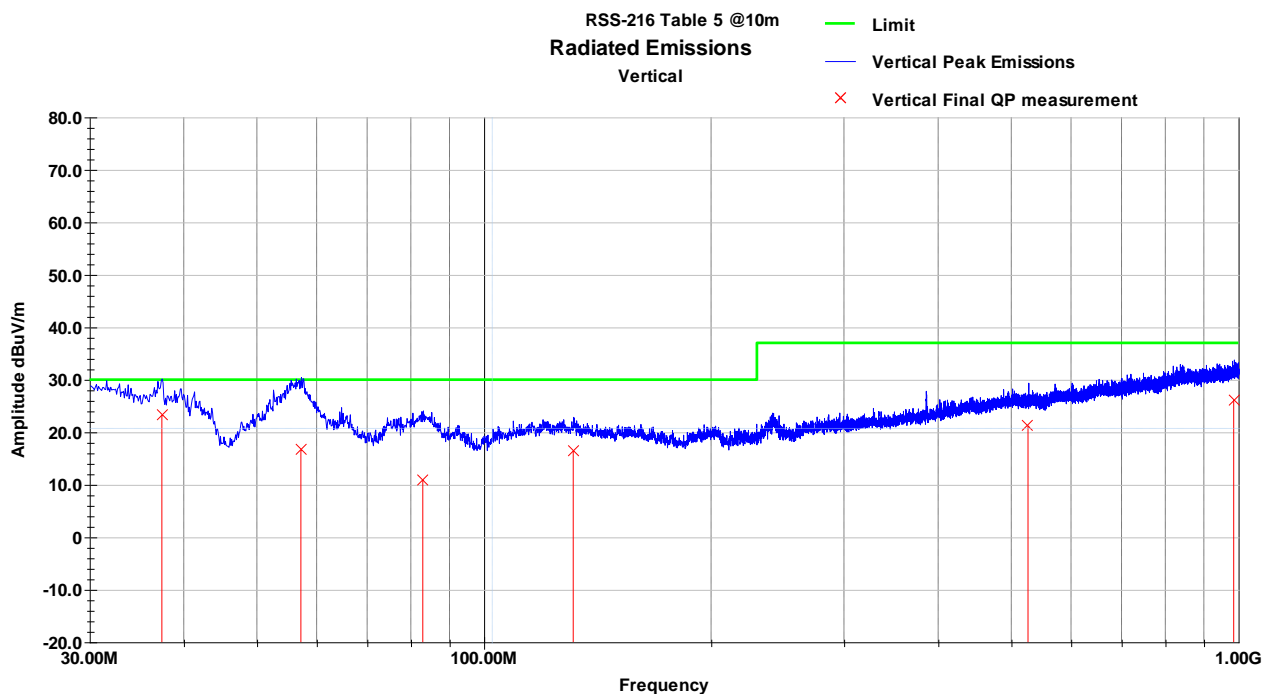
Radiated Emissions Co-Planar Horizontal 9 kHz - 30 MHz – Peak Plot – at 3m distance



Radiated Emissions Co-Planar Horizontal 9 kHz - 30 MHz – Tabular Data – at 3m distance

Frequency kHz	Raw QP dBuV	Azimuth degrees	Height cm	AF dB	CL dB	QP Value dBuV/m	Limit dBuV/m	Margin dB
110	64.3	192.3	100.0	11.9	0.0	76.2	102.7	-26.5
110	60.8	361.3	100.0	11.9	0.0	72.7	102.7	-30.0
110	65.4	189.7	100.0	11.9	0.0	77.3	102.7	-25.4
192	38.3	343.0	100.0	11.7	0.0	50.1	89.0	-39.0
316	33.8	150.0	100.0	11.7	0.0	45.5	86.0	-40.5
548	35.6	191.0	100.0	11.7	0.0	47.3	82.7	-35.4
QP Value = Raw QP + AF + CL								
Margin = QP Value - Limit								

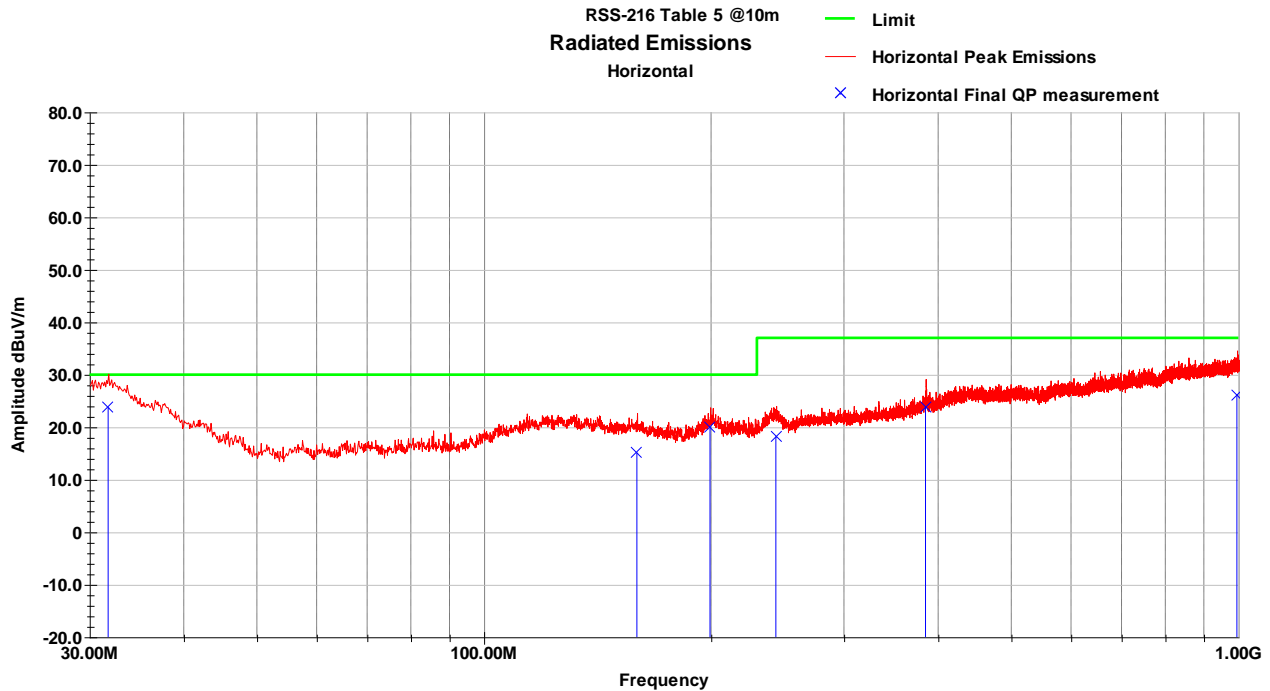
Vertical Radiated Emissions 30-1000 MHz – Peak Plot



Vertical Radiated Emissions 30-1000 MHz – Tabular Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
37.41	33.6	V	0.0	183.0	19.8	0.5	30.6	23.3	30.0	-6.7
57.18	35.5	V	90.0	177.0	11.1	0.7	30.8	16.6	30.0	-13.4
82.97	29.1	V	0.0	100.0	11.5	0.9	30.6	10.9	30.0	-19.1
131.31	28.3	V	180.0	324.0	17.6	1.2	30.6	16.5	30.0	-13.5
526.30	26.1	V	320.0	343.0	22.2	2.7	29.9	21.2	37.0	-15.8
985.81	24.6	V	234.0	227.0	26.9	3.3	28.7	26.1	37.0	-10.9
QP Value = Raw QP + AF + Loss - Amp										
Margin = QP Value - Limit										

Horizontal Radiated Emissions 30-1000 MHz – Peak Plot



Horizontal Radiated Emissions 30-1000 MHz – Tabular Data

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
31.76	30.0	H	21.0	251.0	23.8	0.5	30.6	23.7	30.0	-6.3
159.46	27.9	H	45.0	262.0	16.5	1.3	30.5	15.1	30.0	-14.9
199.36	32.7	H	0.0	381.0	16.0	1.6	30.3	20.0	30.0	-10.0
243.75	31.2	H	140.0	270.0	15.6	1.7	30.3	18.2	37.0	-18.8
384.87	32.4	H	341.0	204.0	19.2	2.3	30.1	23.9	37.0	-13.1
995.50	24.6	H	165.0	195.0	27.0	3.4	28.7	26.2	37.0	-10.8
QP Value = Raw QP + AF + Loss - Amp										
Margin = QP Value - Limit										

4 Conducted Emissions

4.1 Test Result

Test Description	Classification	FCC Rule Part / ISED Standard	Test Result
Conducted Emissions	Consumer	§18.307(b) RSS-216 (5.3.2)	Compliant

4.2 Test Method

With the receiver's Resolution Bandwidth (RBW) set to 9 kHz, exploratory scans were performed over the measuring frequency range (0.15MHz to 30MHz) using a max hold mode incorporating a Peak detector and using the TILE! software. The final test data was measured using a 9kHz RBW in conjunction with a Quasi-Peak detector and Average detector and compared against the limits indicated in the table below.

FCC Limits [from §18.307(b)]

Frequency Range	Limits (dBµV)
0.15 to 0.5 MHz	Quasi-Peak 66 to 56 / Average 56 to 46 *
0.5 to 5 MHz	Quasi-Peak 56 / Average 46
5 to 30 MHz	Quasi-Peak 60 / Average 50

* Decreases linearly with the logarithm of the frequency.

Note: The ISED limits in RSS-216 Table 2 are the same as the FCC limits above.

4.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.6 °C

Relative Humidity: 55.9 %

Atmospheric Pressure: 98.2 kPa

4.4 Test Equipment

Test End Date: 6-Sep-2024

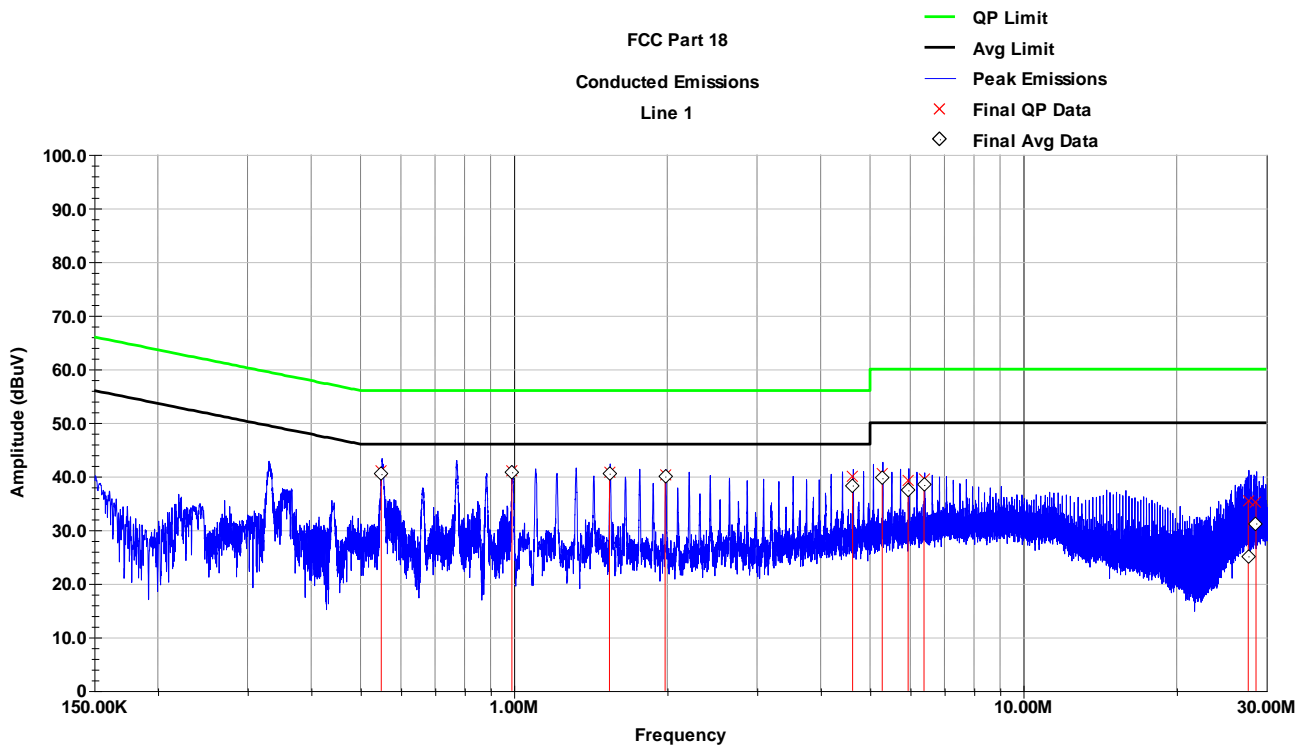
Tester: EW

Equipment	Model	Manufacturer	Asset	Cal Date	Cal Due Date
LINE IMPEDANCE STABILIZATION NETWORK	NNB 51	TESEQ	B085882	22-Apr-2024	22-Apr-2025
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	7-Aug-2024	7-Aug-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	3-Oct-2023	3-Oct-2024

Software: TILE! software profile "Conducted Emissions 240521.til" dated 21 May 2024

4.5 Test Data

Line 1 Conducted Emissions – Peak Plot



Line 1 Conducted Emissions – Tabular Data

Frequency MHz	LISN dB	CF dB	TL dB	Raw Avg dBuV	Final Avg dBuV	Avg Limit dBuV	Avg Margin dB	Raw QP dBuV	Final QP dBuV	QP Limit dBuV	QP Margin dB
0.549	9.8	0.00	0.0	30.7	40.4	46.0	-5.6	31.2	41.0	56.0	-15.0
0.991	9.8	0.00	0.0	31.0	40.8	46	-5.2	31.1	40.9	56.0	-15.1
1.54	9.8	0.00	0.0	30.7	40.5	46	-5.5	31.0	40.9	56.0	-15.1
1.981	9.8	0.00	0.0	30.2	40	46	-6	30.5	40.3	56.0	-15.7
4.622	9.8	0.00	0.0	28.4	38.3	46.0	-7.7	30.1	39.9	56.0	-16.1
5.284	9.8	0.10	0.0	29.8	39.7	50.0	-10.3	30.6	40.5	60.0	-19.5
5.941	9.8	0.10	0.0	27.5	37.4	50.0	-12.6	29.4	39.3	60.0	-20.7
6.384	9.8	0.10	0.0	28.5	38.4	50.0	-11.6	29.6	39.5	60.0	-20.5
27.633	10.0	0.10	0.0	15.0	25.1	50.0	-24.9	25.4	35.5	60.0	-24.5
28.616	10.0	0.10	0.0	21.1	31.2	50.0	-18.8	25.1	35.3	60.0	-24.7

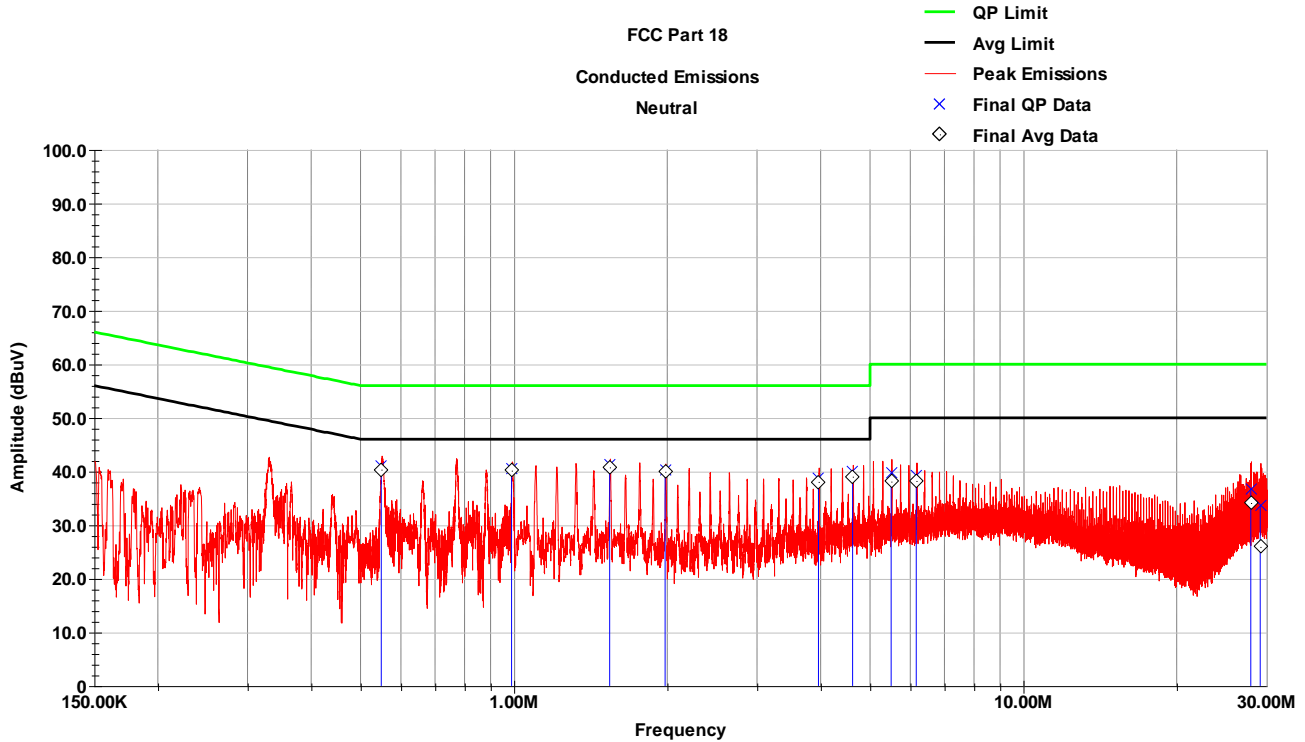
Final QP = Raw QP + LISN + CF + TL

QP Margin = Final QP - QP Limit

Final Avg = Raw Avg + LISN + CF + TL

Avg Margin = Final Avg - Avg Limit

Neutral Conducted Emissions – Peak Plot



Neutral Conducted Emissions – Tabular Data

Frequency MHz	LISN dB	CF dB	TL dB	Raw Avg dBUV	Final Avg dBUV	Avg Limit dBUV	Avg Margin dB	Raw QP dBUV	Final QP dBUV	QP Limit dBUV	QP Margin dB
0.549	9.8	0.00	0.0	30.6	40.4	46.0	-5.6	31.3	41.1	56.0	-14.9
0.989	9.8	0.00	0.0	30.4	40.2	46	-5.8	30.7	40.5	56.0	-15.5
1.541	9.8	0.00	0.0	31.0	40.8	46	-5.2	31.4	41.2	56.0	-14.8
1.98	9.8	0.00	0.0	30.1	40	46	-6	30.4	40.2	56.0	-15.8
3.962	9.8	0.00	0.0	28.2	38.1	46.0	-7.9	28.9	38.7	56.0	-17.3
4.622	9.8	0.00	0.0	29.2	39.0	46.0	-7.0	30.0	39.9	56.0	-16.1
5.502	9.8	0.10	0.0	28.2	38.1	50.0	-11.9	29.9	39.8	60.0	-20.2
6.162	9.8	0.10	0.0	28.3	38.3	50.0	-11.7	29.4	39.3	60.0	-20.7
27.956	10.1	0.10	0.0	24.0	34.1	50.0	-15.9	26.7	36.8	60.0	-23.2
29.175	10.1	0.10	0.0	15.8	25.9	50.0	-24.1	23.5	33.6	60.0	-26.4

Final QP = Raw QP + LISN + CF + TL

QP Margin = Final QP - QP Limit

Final Avg = Raw Avg + LISN + CF + TL

Avg Margin = Final Avg - Avg Limit

5 Measurement Uncertainty

Measurement uncertainty is not used to adjust the measurements to determine compliance.

Measurement uncertainty values in the table below comply with CISPR 16-4-2.

Measurement	Frequency Range	U_{CISPR} dB	Lab dB
Conducted disturbance at mains port using AMN	(150 kHz to 30 MHz)	3.4	2.5
Radiated disturbance (electric field strength in a SAC)	(30 MHz to 1000 MHz)	6.3	5.0
Radiated disturbance (electric field strength in a FAR)	(1 GHz to 6 GHz)	5.2	4.2
Radiated disturbance (electric field strength in a FAR)	(6 GHz to 18 GHz)	5.5	4.5

6 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	27 November 2024
1	<ul style="list-style-type: none"> - Corrected description of EUT in relation to MC2 system on title page and in section 2.3 - Corrected cable length and removed incorrect note in section 2.8 	05 December 2024