FCC PART 15 SUPPLIER'S DECLARATION OF CONFORMITY
TEST REPORT

for the

MC-MB-EVO

WLL REPORT# 19074-01 REV 1

Prepared for:

MICRORIDGE SYSTEMS, INC.

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Prepared By:

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Testing Certificate AT-1448

FCC Part 15 Supplier's Declaration of Conformity Test Report

for the

MicroRidge Systems, Inc.

MC-MB-EVO

WLL Report# 19074-01 Rev 1

March 10, 2025

Prepared by:

Ryan Mascaro
RF Test Engineer

Reviewed by:

Steven D. Koster
President

Abstract

This report has been prepared on behalf of MicroRidge Systems, Inc. to document compliance with the limits for a Class B digital device required under Part 15 of the Federal Communication Commission (FCC) Rules and Regulations and Telecommunications Policy ICES-003 Issue 7 of Innovation, Science and Economic Development (ISED) Canada. This Supplier's Declaration of Conformity test report documents the test configuration and test results for the MC-MB-EVO. The information provided within this report is only applicable to the device herein documented as the EUT.

Radiated testing was performed in the Free-space Anechoic Chamber Test-site (FACT) 3m chamber of Washington Laboratories, Ltd., located at 4840 Winchester Boulevard, Suite #5. Frederick, MD 21703.

Washington Laboratories, Ltd. has been accepted by the FCC and approved by ANAB under Testing Certificate AT-1448 as an independent FCC test laboratory. The Washington Laboratories, Ltd. ISED Canada number is 3035A.

The MicroRidge Systems, Inc. MC-MB-EVO complies with the limits for a Class B digital device under FCC Part 15 of the FCC Rules and Regulations and ICES-003 Issue 7 of Innovation, Science and Economic Development (ISED) Canada.

Revision History	Description of Change	Date
Rev 0	Initial Release	March 10, 2025
Rev 1	Corrected the FCC/ISED ID numbers and the unit Model name	March 14, 2025

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1 Introduction

1.1 Compliance Statement

The MicroRidge Systems, Inc. MC-MB-EVO complies with the limits for a Class B digital device under FCC Part 15 of the FCC Rules and Regulations and ICES-003 Issue 7 of Innovation, Science and Economic Development (ISED) Canada.

1.2 Test Scope

Tests for radiated and AC conducted emissions were performed. All measurements were performed in accordance with the 2014 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

1.3 Contract Information

Customer:	MicroRidge Systems, Inc.
Purchase Order Number:	Deposit Terms
Quotation Number:	74986

1.4 Testing and Support Personnel

Washington Laboratories, LTD:	Richard Quarcoo
Customer Representative:	Andy Duvall and Riley Tronson

1.5 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Frederick, MD. Site description and site attenuation data are on file at the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ANAB under Testing Certificate AT-1448 as an independent FCC test laboratory.

1.6 Deviations and Testing Sequence

There were no deviations to the requirements established in the specification.

1.6.1 Test Sequence

Table 1: Digital Device Testing and Result Summary

Test Name	Date Completed	Modifications Installed	Result
Radiated Emissions	1/16/2025	No	PASS
AC Conducted Emissions	1/14/2025	No	PASS

1.7 Testing Algorithm

The MC-MB-EVO is a host device containing an embedded 802.15.4 transceiver module. The embedded module is the uBlox NINA-B306 transceiver. The applicant is currently seeking a change in ID for the module. The desired FCC ID for the module is 2ACNQB1, which will fall under the applicant's grantee code. For this test report, the EUT was evaluated and tested for the following: power, bandwidth, bandedge, radiated spurious emissions, and AC powerline conducted emissions. The EUT device was also investigated for appearance, hardware changes, and approved transmitter antennas. The EUT was arranged on the test site to produce the worst-case emissions. Only the worst-case emissions are provided throughout this report.

2 Equipment Under Test

2.1 EUT Identification & Description

The results obtained relate only to the item(s) tested.

Table 2: EUT Device Summary

Manufacturer and Applicant:	MicroRidge Systems, Inc.
EUT Name:	MicroBase
EUT Model:	MC-MB-EVO
Contains Embedded Module	FCC ID: 2ACNQB1
	IC ID: 12298A-B1
FCC Rule Part:	§15, Subpart B
ISED Rule Part:	ICES-003, Issue 7
Equipment Emissions Class:	B
EUT Primary Power:	5VDC via USB interface (laptop or AC/DC wall-wart)
Software Version:	6.18
Hardware Version	BRD-MB-EVO
Testing Dates:	1/14/2025 to 1/16/2025
EUT Compliant:	Not Yet Determined, Pending Review

The MicroRidge Systems, Inc., MC-MB-EVO is a 2.4GHz transmitter device. The MC-MCIROBASE-EVO contains the uBlox NINA-B306 transceiver and processor chipset. This EUT device is intended to create an IEEE 802.15.4 low-power, short range, wireless connection to RM2.4 compatible transmitters. The secondary responsibility of the EUT is allow firmware updates for the RM2.4 transmitter.

2.2 Test Configuration

Table 3: EUT Configuration List

Description	Model	Part Number	Serial Number	Revision
MicroBase (EUT)	MC-MB-EVO	MC-MB-A-EVO	--	A

Table 4: EUT Cable Configuration

Port Identification	Connector Type	Cable Length	Shielded (Y/N)	Termination Point
--	--	--	--	--

Table 5: Support Equipment

Item	Model/Part Number	Serial Number
AC/DC Power Supply	USB wall-wart	--

* please note: the applicant has attested that the MicroBase is not provided/sold with the wall-wart power supply. The end-user shall provide the AC/DC power supply or laptop. For this report, the EUT was tested with a generic USB style wall-wart power supply.

2.3 References

ANSI C63.2 (1/2016) Specifications for Electromagnetic Noise and Field Strength Instrumentation

ANSI C63.4 (1/2014) American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

ANSI C63.10 (9/2020) American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

CIIPC Filing, FCC ID: XPYNINAB30, Granted on: 3/20/2019; Exhibit List retrieved from: https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=Y&application_id=lXhif6kDZbidnRcekQ9%2BfA%3D%3D&fcc_id=XPYNINAB30

2.4 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 (R2002) with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm\sqrt{\frac{a^2}{div_a{}^2} + \frac{b^2}{div_b{}^2} + \frac{c^2}{div_c{}^2} + ...}$$

Where:

uc	= standard uncertainty
a, b, c	= individual uncertainty elements
Diva, b, c	= the individual uncertainty element divisor based on the probability distribution
Divisor	= 1.732 for rectangular distribution
Divisor	= 2 for normal distribution
Divisor	= 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

Where

U = expanded uncertainty
k = coverage factor
k ≤ 2 for 95% coverage (ANSI/NCSL Z540-2 Annex G)
uc = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 6 below.

Table 6: Expanded Uncertainty List

Scope	Standard(s)	Expanded Uncertainty
Conducted Emissions	CISPR11, CISPR22, CISPR32, CISPR14, FCC Part 15	± 2.63 dB
Radiated Emissions	CISPR11, CISPR22, CISPR32, CISPR14, FCC Part 15	± 4.55 dB

3 Test Equipment

Table 7 shows a list of the test equipment used for data measurements, along with the calibration information.

Table 7: Test Equipment List

Test Name:	**Radiated Emissions**	Test Date: 1/15/2025 & 1/16/2025	
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
00823	AGILENT, N9010A	EXA SPECTRUM ANALYZER	6/21/2026
00644	SUNOL SCIENCES CORP.	BICONALOG ANTENNA	12/2/2026
00425	ARA, DRG-118/A	HORN ANTENNA	2/7/2025
00825	MTC, 1010-SMA	LOW LOSS COAXIAL CABLE	6/14/2025
00806	MINI-CIRCUITS	SMA COAXIAL CABLE	12/18/2025
00847	ASTROLABS, K48TG	SMA COAXIAL CABLE	6/20/2025
00065	HP, 8447D	RF PRE-AMPLIFIER	8/23/2025
00731	NARDA, 4779-3	3DB ATTENUATOR	6/20/2025
00066	HP, BZ-01002650	RF PRE-AMPLIFIER	8/21/2025

Test Name:	**AC Mains Conducted Emissions**	Test Date: 1/14/2025	
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
00823	AGILENT, N9010A	EXA SPECTRUM ANALYZER	6/21/2026
00053	HP, 11947A	TRANSIENT LIMITER	1/11/2026
00125	SOLAR, LISN	8028-50-TS-24-BNC	4/18/2025
00126	SOLAR, LISN	8028-50-TS-24-BNC	4/18/2025
00330	WLL, BNC CABLE	CE SITE 1 CABLE	6/25/2025

4 Test Results

4.1 AC Powerline Conducted Emissions

4.1.1 Requirements

Compliance Standard: FCC Part 15.107, Class B

FCC Compliance Limits				
Frequency Range	Class A		Class B	
	Quasi-peak	Average	Quasi-peak	Average
0.15 – 0.5 MHz	79 dBµV	66 dBµV	66 to 56 dBµV	56 to 46 dBµV
0.5 – 5 MHz	79 dBµV	66 dBµV	56 dBµV	46 dBµV
0.5 – 30 MHz	73 dBµV	60 dBµV	60 dBµV	50 dBµV

4.1.2 Test Procedure

The requirements of FCC Part 15 and ICES-003 call for the EUT to be placed on an 80cm-high non-conductive table above a ground plane. Power to the EUT was provided through a Solar Corporation 50 Ω/50 µH Line Impedance Stabilization Network bonded to a 3 X 2-meter ground plane. The LISN has its AC input supplied from a filtered AC power source. Power was supplied to the peripherals through a second LISN. The peripherals were placed on the table in accordance with ANSI C63.4. Power and data cables were moved about to obtain maximum emissions.

The 50 Ω output of the LISN was connected to the input of the spectrum analyzer and the emissions in the frequency range of 150 kHz to 30 MHz were measured. The detector function was set to quasi-peak, peak, or average as appropriate, and the resolution bandwidth during testing was at least 9 kHz, with all post-detector filtering no less than 10 times the resolution bandwidth. For average measurements, the post-detector filter was set to 10 Hz.

These emissions must meet the limits specified in §15.107 for quasi-peak and average measurements.

Environmental Conditions During AC Power Conducted Emissions Testing

Ambient Temperature:	20.5 °C
Relative Humidity:	49 %

4.1.3 Conducted Data Reduction and Reporting

The comparison between the Conducted emissions level and the FCC limit is calculated as shown in the following example:

Spectrum Analyzer Voltage: VdBµV(raw)
LISN Correction Factor: LISN dB
Cable Correction Factor: CF dB
Voltage: VdBµV = V dBµV (raw) + LISN dB + CF dB

4.1.4 Test Data

The EUT complies with the Class B Conducted Emissions requirements.

The EUT couples directly to the AC mains network via a USB charger wall-wart adapter.

The test sample transmits continuously when seated in the USB port and plugged into 120VAC, 60Hz.

Transmission on the low, center, and high channels have no impact on the results of this test.

The worst-case emission test data is provided below.

Table 8: AC Power Conducted Emissions Test Data

NEUTRAL										
Frequency (MHz)	**Level QP (dBµV)**	**Level AVG (dBµV)**	**Cable Loss (dB)**	**LISN Corr (dB)**	**Level QP Corr (dBµV)**	**Level Avg Corr (dBµV)**	**Limit QP (dBµV)**	**Limit AVG (dBµV)**	**Margin QP (dB)**	**Margin AVG (dB)**
0.153	50.4	25.8	10.0	0.6	61.0	36.4	65.8	55.8	-4.8	-16.4
0.170	48.8	24.6	10.0	0.6	59.4	35.1	65.0	55.0	-5.6	-19.8
0.198	46.5	22.9	10.0	0.5	57.0	33.4	63.7	53.7	-6.7	-20.3
0.215	43.5	21.5	10.0	0.5	54.0	32.0	63.0	53.0	-9.0	-21.0
0.288	39.3	17.8	10.0	0.4	49.8	28.3	60.6	50.6	-10.8	-22.3
0.337	35.8	16.1	10.0	0.4	46.2	26.5	59.3	49.3	-13.1	-22.8
PHASE / L1										
Frequency (MHz)	**Level QP (dBµV)**	**Level AVG (dBµV)**	**Cable Loss (dB)**	**LISN Corr (dB)**	**Level QP Corr (dBµV)**	**Level Avg Corr (dBµV)**	**Limit QP (dBµV)**	**Limit AVG (dBµV)**	**Margin QP (dB)**	**Margin AVG (dB)**
0.152	47.4	24.8	10.0	0.5	57.9	35.3	65.9	55.9	-8.0	-20.6
0.172	44.0	22.7	10.0	0.4	54.4	33.1	64.9	54.9	-10.5	-21.7
0.194	41.5	21.1	10.0	0.4	51.8	31.5	63.9	53.9	-12.0	-22.4
0.215	38.4	20.0	10.0	0.3	48.7	30.4	63.0	53.0	-14.3	-22.6
0.288	32.5	17.0	10.0	0.3	42.8	27.3	60.6	50.6	-17.8	-23.3
0.337	24.4	15.2	10.0	0.3	34.7	25.6	59.3	49.3	-24.6	-23.7

Figure 1: Conducted Emissions Test Configuration, Front View

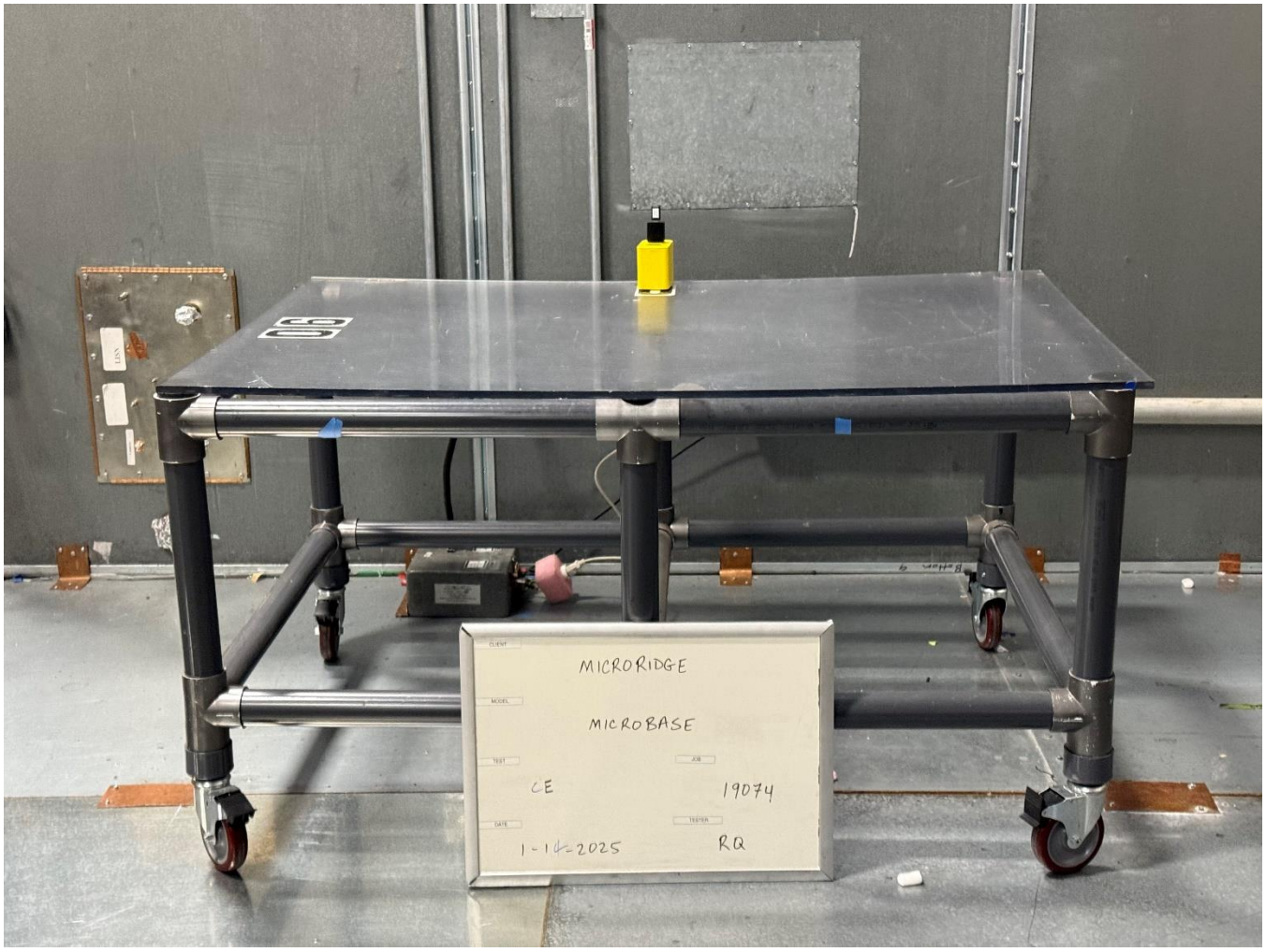
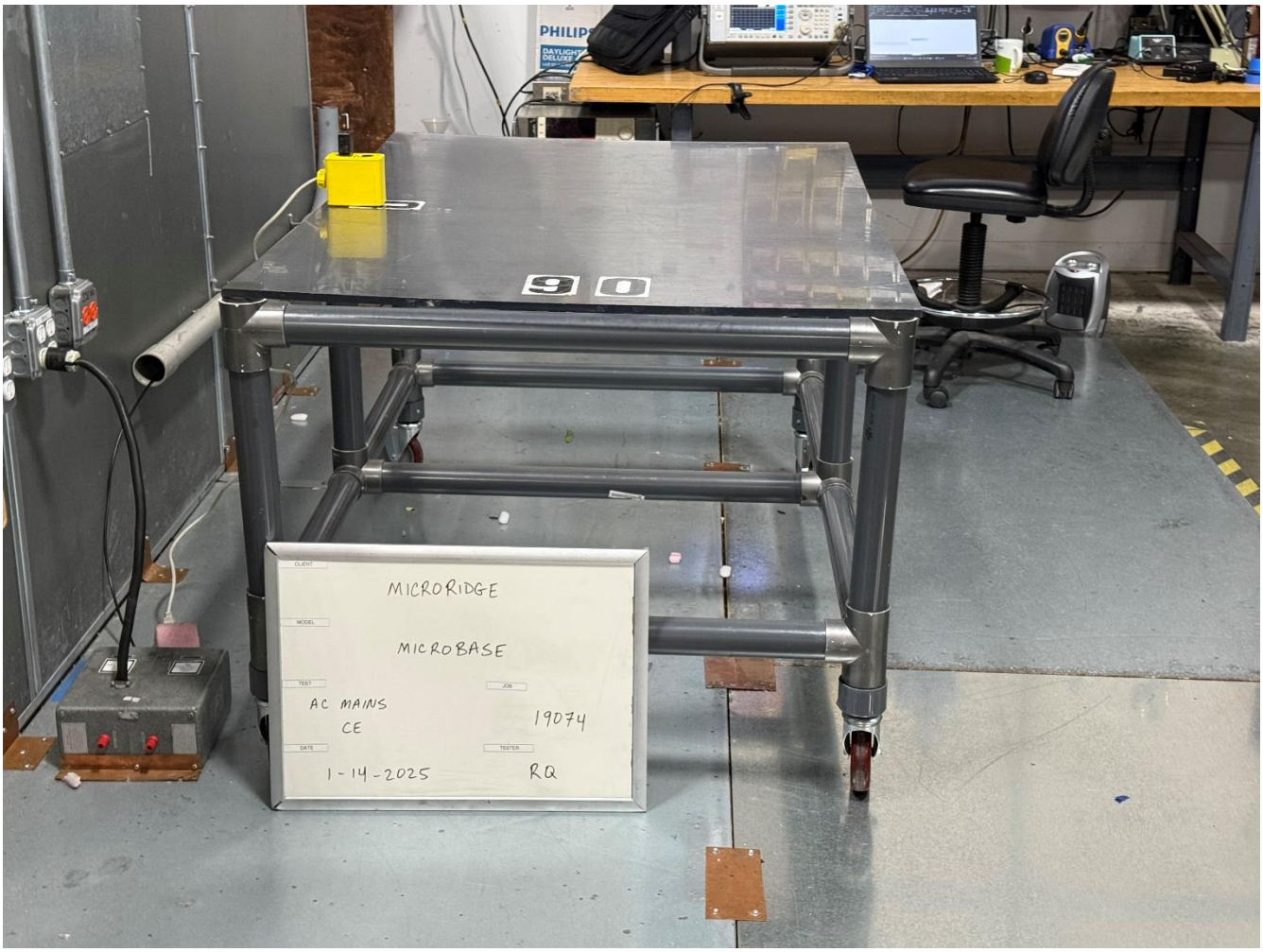


Figure 2: Conducted Emissions Test Configuration, Side View



4.2 Radiated Emissions

4.2.1 Requirements

Compliance Standard: FCC Part 15.109, Class B

FCC Compliance Limits		
Frequency Range	Limit (distance)	
	Class A (10 meter)	Class B (3 meter)
30 – 88 MHz	90 µV/m QP	100 µV/m QP
88 – 216 MHz	150 µV/m QP	150 µV/m QP
216 – 960 MHz	210 µV/m QP	200 µV/m QP
> 960 MHz	300 µV/m AVG	500 µV/m AVG

4.2.2 Test Procedure Summary

The requirements of FCC Part 15 and ICES-003 call for the EUT to be placed on an 80cm high, non-conductive motorized turntable for radiated testing at a 3m and/or 10m open air test site. All radiated emissions measured during this testing, were performed at a distance of 3-meters.

An initial pre-scan of the EUT was performed to identify any emissions that exceed, or come within 6dB of, the applicable limit. This pre-scan was performed a with the employment of a spectrum analyzer peak detector function. The highest amplitude (worst-case) emissions noted during the pre-scan were selected for final compliance measurements.

The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Broadband log periodic and double-ridged horn antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The output of the antenna was connected to the input of the spectrum analyzer and the emissions in the frequency range of 30 MHz to 12.5GHz were measured. The EUT peripherals were placed on the table in accordance with ANSI C63.4. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

The detector function was set to quasi-peak for measurements below 1 GHz. The measurement bandwidth of the spectrum analyzer system was set to at least 120 kHz, with all post-detector filtering no less than 10 times the measurement bandwidth. For measurements above 1 GHz, the average levels are recorded, using a measurement bandwidth of 1 MHz with a video bandwidth setting of 10 Hz, in the case of video averaging. Otherwise, an EMI AVG detector shall be employed.

Environmental Conditions During Radiated Emissions Testing

Ambient Temperature:	20.9 °C
Relative Humidity:	54 %

4.2.3 Radiated Data Reduction and Reporting

To convert the raw spectrum analyzer radiated data into a form that can be compared with the FCC limits, it is necessary to account for various calibration factors that are supplied with the antenna(s) and other measurement equipment. These factors include the antenna factor ((AF)(in dB/m)), cable loss factors ((CF)(in dB)), and the pre-amplifier gain [if applicable] ((G)(in dB)). These correction values are algebraically added to the raw Spectrum Analyzer Voltage (in dBµV) to obtain the corrected radiated electric field, which shall be the final corrected logarithm amplitude ((Corr. Meas.)(in dBµV/m)). This logarithm amplitude is then compared to the limit, which has been converted to a unit of log in dBµV/m.

Example:

Spectrum Analyzer Voltage:	VdBµV (SA)
Antenna Correction Factor:	AFdB/m
Cable Correction Factor:	CFdB
Pre-Amplifier Gain (if applicable):	GdB
Electric Field:	EdBµV/m = V dBµV (SA) + AFdB/m + CFdB - GdB
To convert from linear units of measure:	dBuV/m = 20LOG(uV/m)
To convert limits, based on $D_{Measure}$:	3m Limit = 10m Limit + 20LOG(10/3)

4.2.4 Test Data

The EUT complies with the Class B Radiated Emissions requirements.

The test sample transmits continuously when seated in the USB port and plugged into 120VAC, 60Hz.

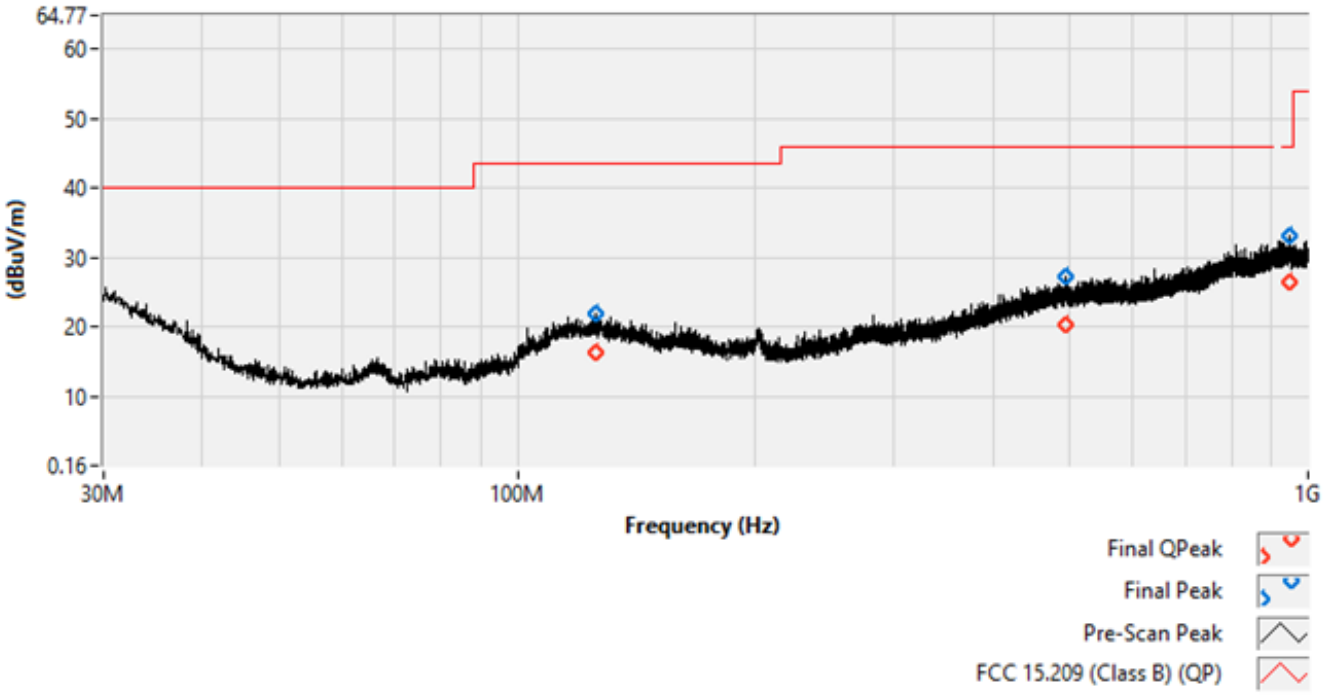
The test samples were programmed to dwell on the low, center, and high transmitter channels. All channels and were investigated for spurious emissions from 30MHz to 12.5GHz.

The worst-case emission test data is provided below.

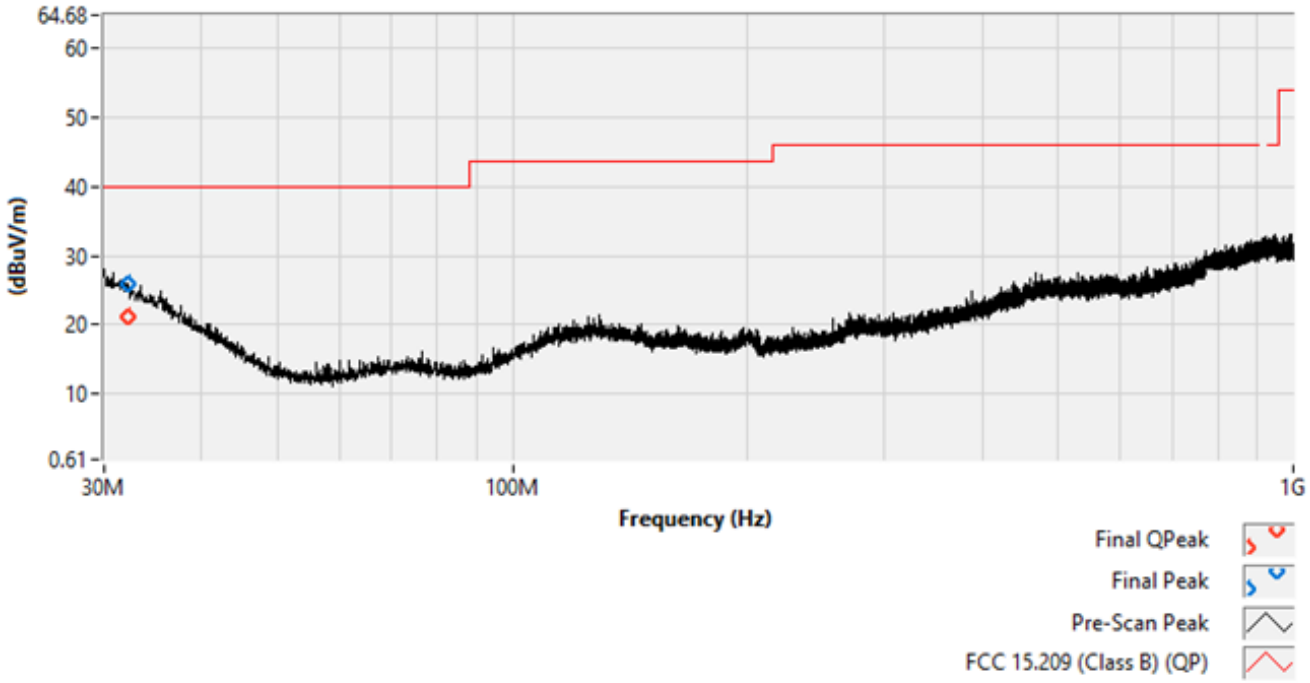
Table 9: Radiated Emissions Test Data, 30 MHz to 12.5 GHz

Frequency (MHz)	Detector	Corr. Meas (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Turn Table (deg)	Antenna (cm)
32.22	Peak	25.964	--	--	70	Horiz, 150
	QP	21.156	40	-18.844	70	Horiz, 150
125.53	Peak	22.067	--	--	70	Vert, 150
	QP	16.346	43.5	-27.154	70	Vert, 150
494.806	Peak	27.343	--	--	70	Vert, 150
	QP	20.313	46	-25.687	70	Vert, 115
949.603	Peak	33.093	--	--	70	Vert, 150
	QP	26.454	46	-19.546	70	Vert, 120
2405.0	Peak	89.489	TX	--	70	Vert, 120
2475.0	Peak	--	TX	--	70	Vert, 120
7461.0	Peak	58.585	74	-15.415	180	Horiz, 150
	Avg	42.578	54	-11.422	180	Horiz, 120
10891.0	Peak	62.058	74	-11.942	70	Vert, 120
	Avg	45.759	54	-8.241	70	Vert, 120
8094.0	Peak	55.914	74	-18.086	180	Horiz, 150
	Avg	42.554	54	-11.446	70	Horiz, 150
9543.0	Peak	56.571	74	-17.429	70	Vert, 150
	Avg	43.866	54	-10.134	70	Vert, 150

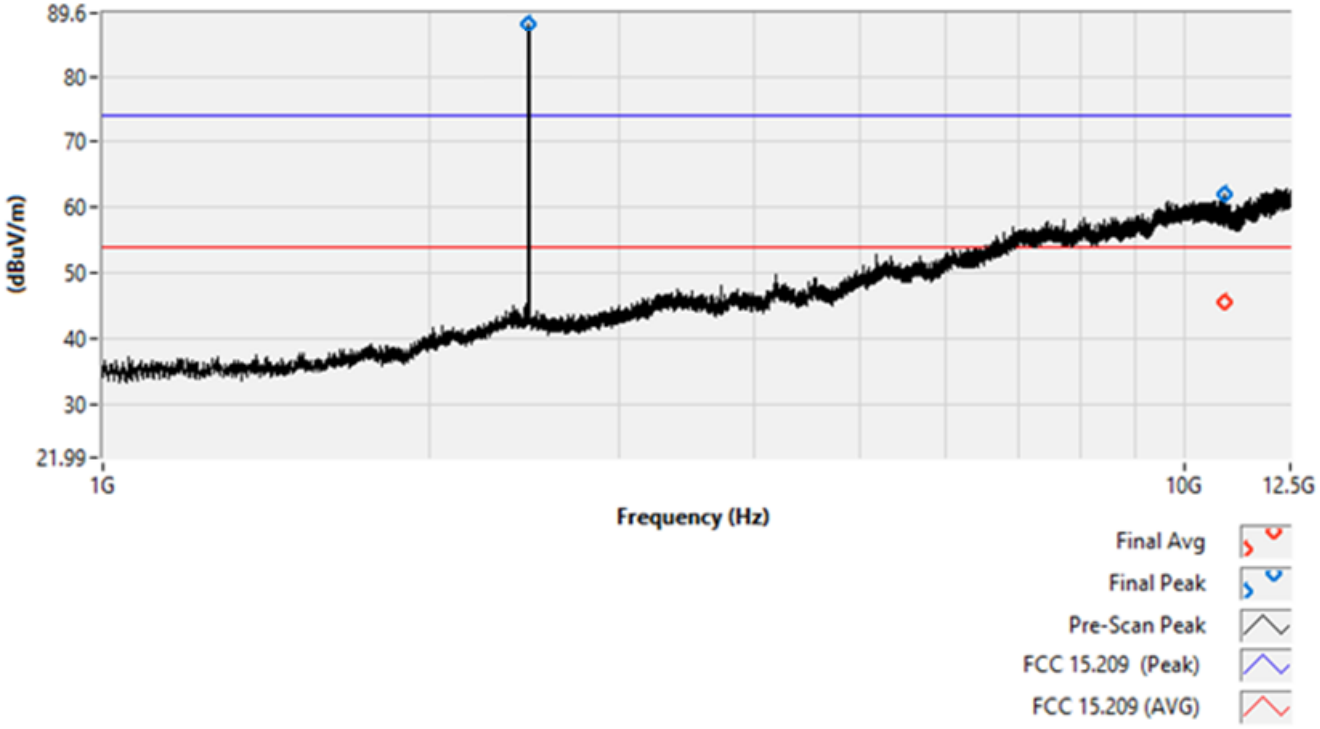
Pre-scan and Final Data (Vertical)



Pre-scan and Final Data (Horizontal)



Pre-scan and Final Data (Vertical)



Pre-scan and Final Data (Horizontal)

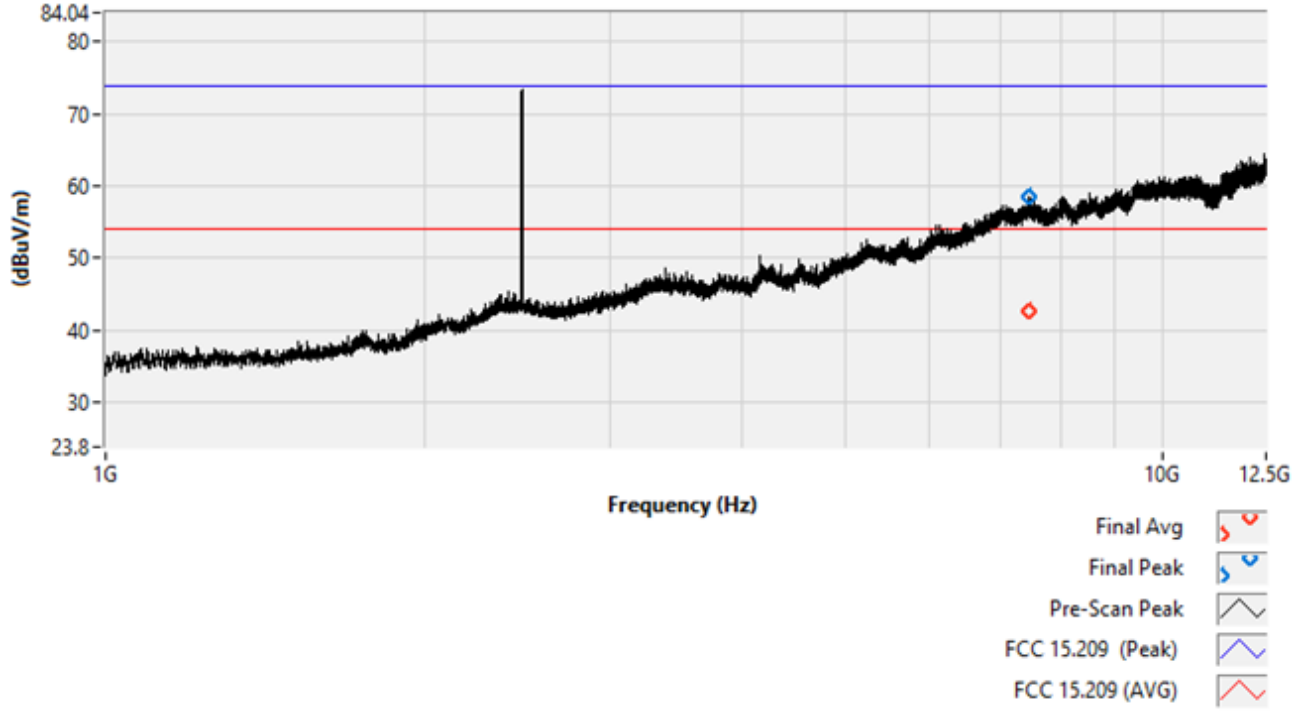


Figure 3: Radiated Emissions Test Configuration, 30MHz to 1GHz

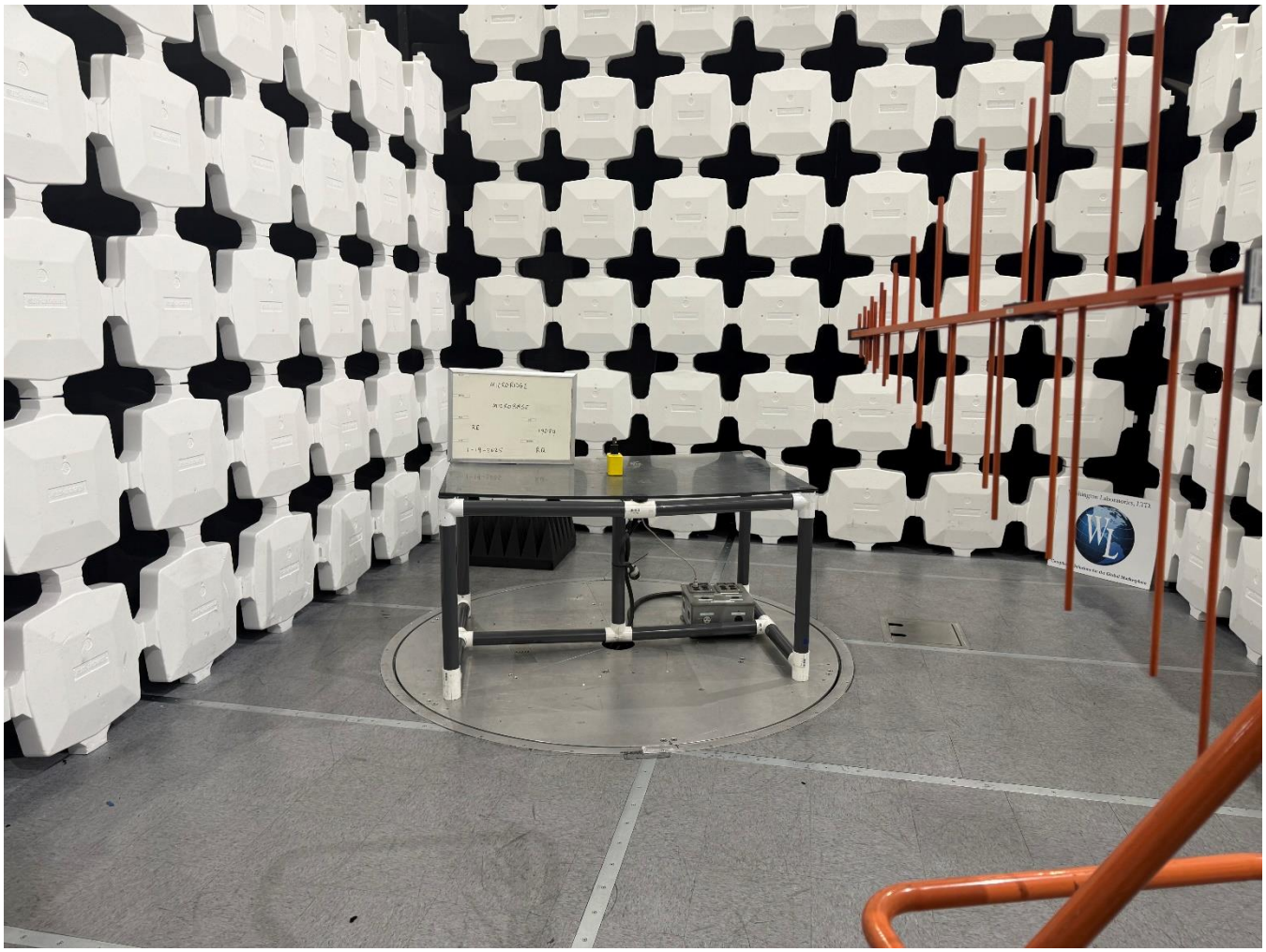
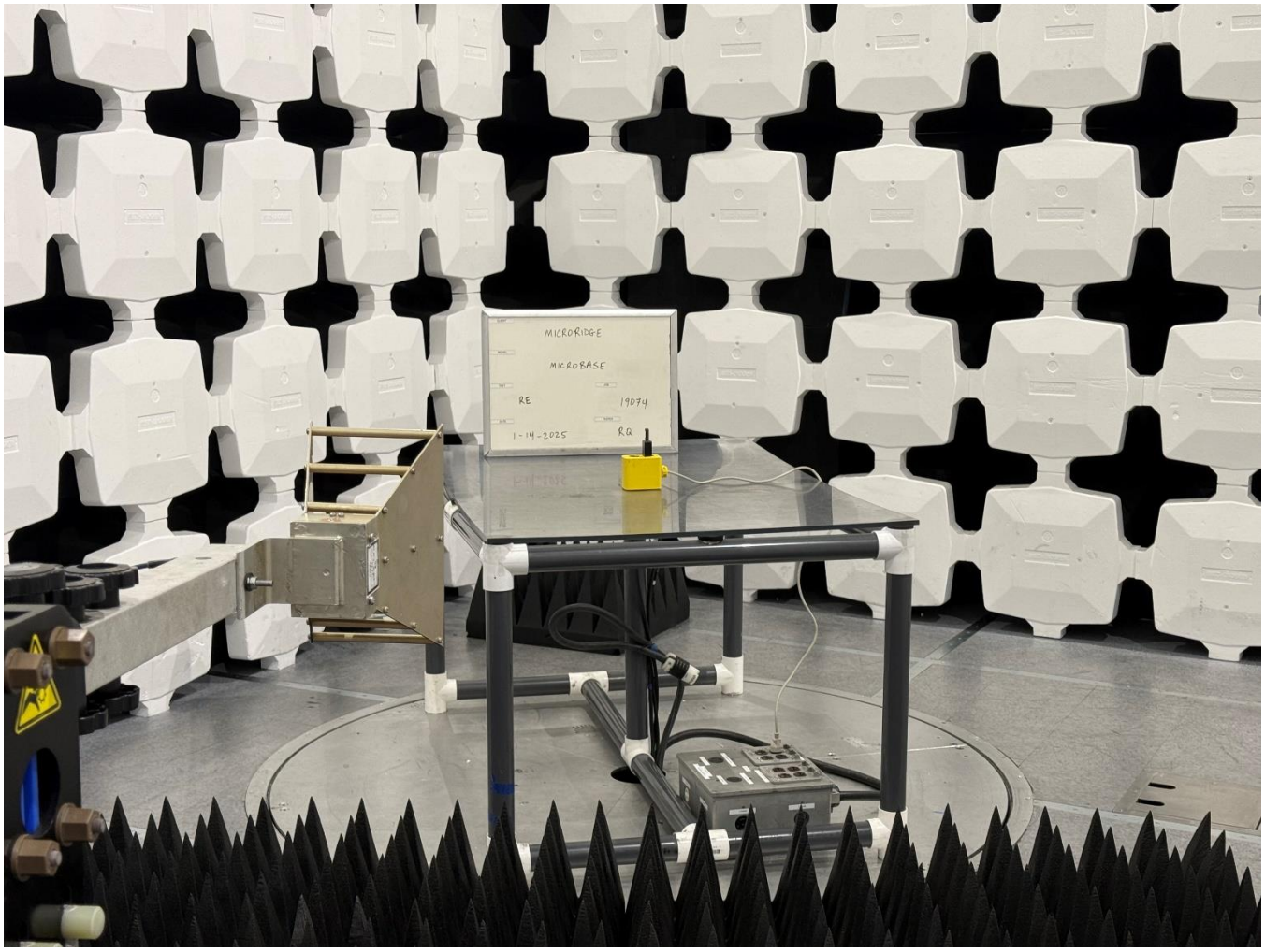


Figure 4: Radiated Emissions Test Configuration, 1GHz to 12.5GHz



4.3 Transmitter Power

4.3.1 Requirements

Compliance Standard: FCC Part 2.1043 and FCC KDB #178919 D01 Permissive Change Policy v06. For host devices that contain a pre-certified single modular transmitter:

A Class II permissive change is required if degradation occurs; if no degradation occurs a Class I permissive change is acceptable.

A Class II permissive change for a device with a decrease in output power, or with a different field strength, is allowed under the following conditions:

1) The maximum output power rating of the original authorization does not change.

2) There is no design change that increases or decreases the output power. A decrease in the power setting configuration is acceptable.

3) In no case, may a power limit be exceeded.

4.3.2 Test Procedure Summary

The EUT was evaluated in three orthogonal planes and rotated about its axis (x, y, z) to maximize the transmit signal. The position that produced the highest radiated power was maintained. The EUT was scanned continuously at every azimuth by rotating the turntable. For power and field strength of the ISM fundamental, a horn antenna was mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The output of the antenna was connected to the input of the spectrum analyzer. The detector function was set to Peak, the measurement bandwidth was set to at least 8MHz, and the video bandwidth was set to 50MHz. The span was set to at least 1.5 times the DTS bandwidth of the transmitter. The peak transmitter field strength was measured at 3-meters and the results are compared to the original filings for the embedded module.

4.3.3 Test Data

The test sample was programmed to dwell on the low channel of 2405MHz as this was the worst-case channel during the original certification of the module.

There appears to be significant degradation of the radiated field strength from the transmitter.

When compared to the CIIPC filing test data from 2019, the measured degradation is 13.5dB.
This is above the allowed degradation of 3dB. Recommend further investigation/justification as this result may not be acceptable to the FCC.

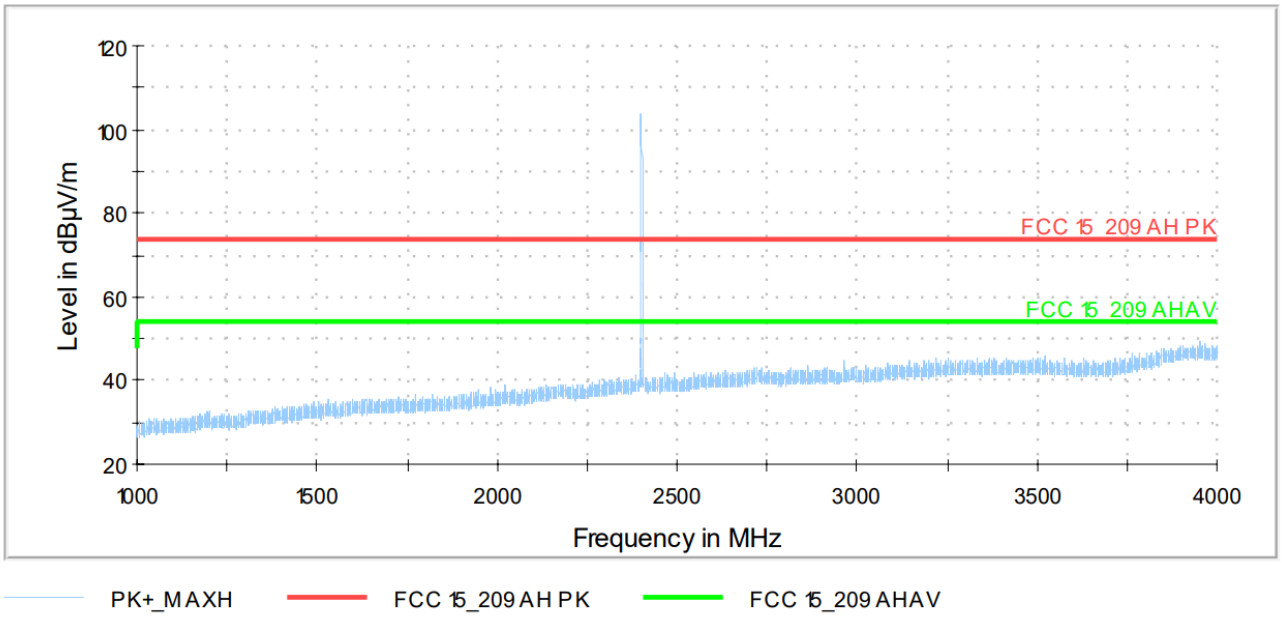
The final test data is provided below.

Table 10: Embedded Transmitter Fundamental Power (Radiated Field Strength)

TX Chan. (MHz)	SA Reading (dBuV)	Corr. Factors (dB/m)	Corr. FS @ 3m (dBuV/m)	Limit (dBuV/m)	Degradation (dB)
2405.0	53.4	36.1	89.5	103.0	-13.5

(testing from WLL on 1/15/2025)

Table 11: CIIPC OET Filing Test Data, Module Certification



(reference page 22/30 from TP #F190149E3)

WLL Comment: The CIIPC data appears to indicate a fundamental transmitter level of 103.0 dBuV/m.

4.4 DTS Bandwidth

4.4.1 Requirements

For a DTS transmitter operating in the 2.4GHz ISM band, FCC Rule Part 15.247(a)(2) and RSS-247, 5.2(a) require the minimum 6dB bandwidth be at least 500 kHz. The 99% BW shall also be recorded.

4.4.2 Test Procedure Summary

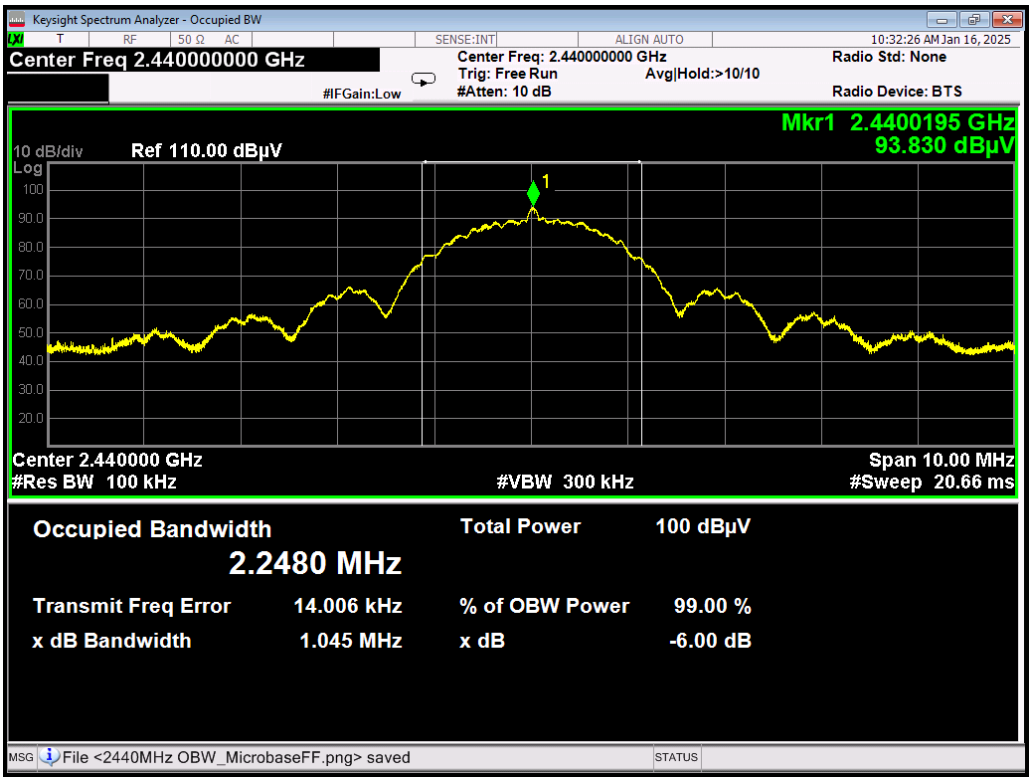
This measurement was performed radiated, at 3-meters, according to ANSI C63.10-2020, Clause 11.8.

This measurement is relative and does not demonstrate corrected power levels.

4.4.3 Test Data

The EUT test data is provided below. This result is satisfactory.

Figure 5: Transmitter Channel Occupied Bandwidth



4.5 Bandedge

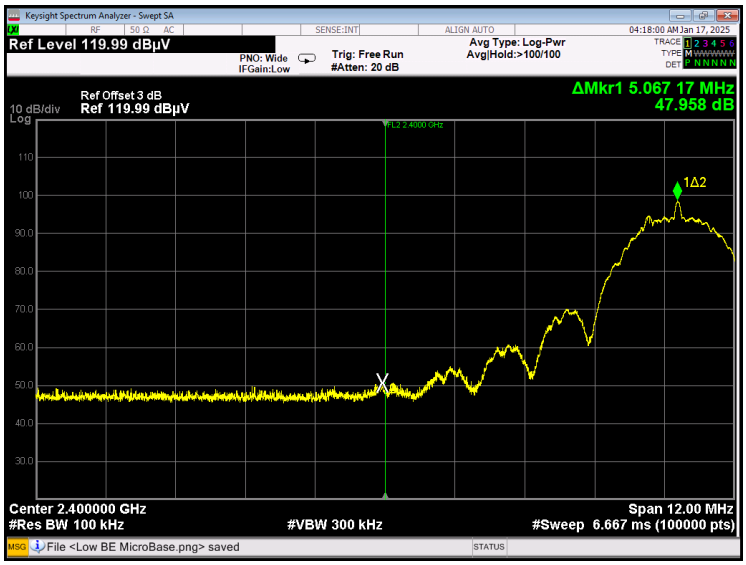
4.5.1 Requirements

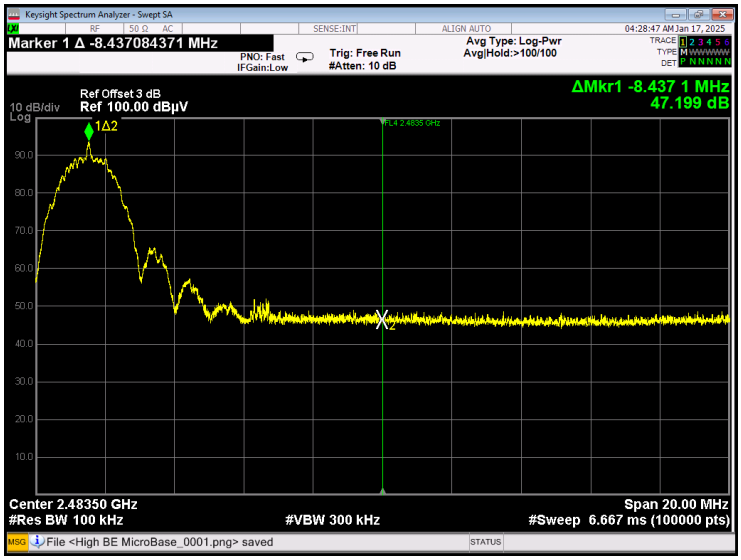
FCC Rule Part 15.247(d) and RSS-247, 5.5 require that in any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the unwanted radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

4.5.2 Test Data

The EUT test data is provided below. This result is satisfactory.

Figure 6: Low and High Channel Bandedge Plots





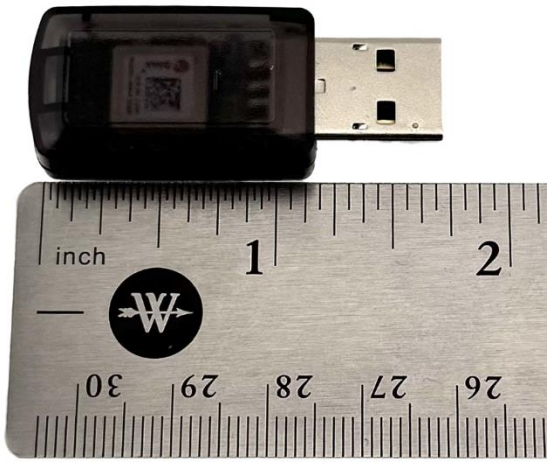
4.6 Hardware and Antennas

4.6.1 Requirements

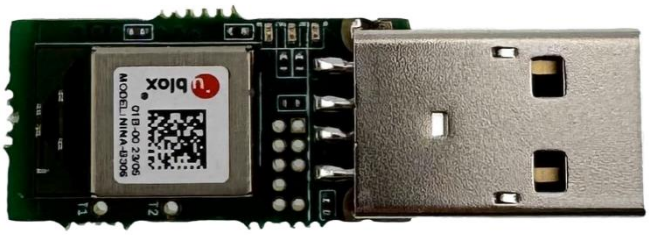
Compliance Standard: FCC Part 2.1043 and FCC KDB #178919 D01 Permissive Change Policy v06.

4.6.2 Photographs Provided by the Applicant (2025)

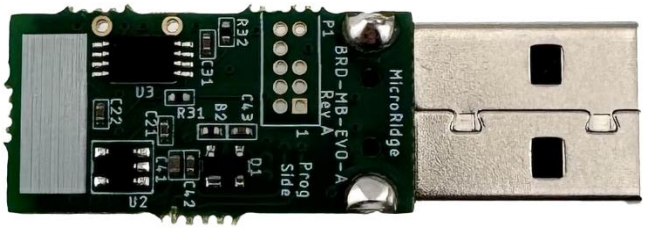
1. EUT Product with Enclosure



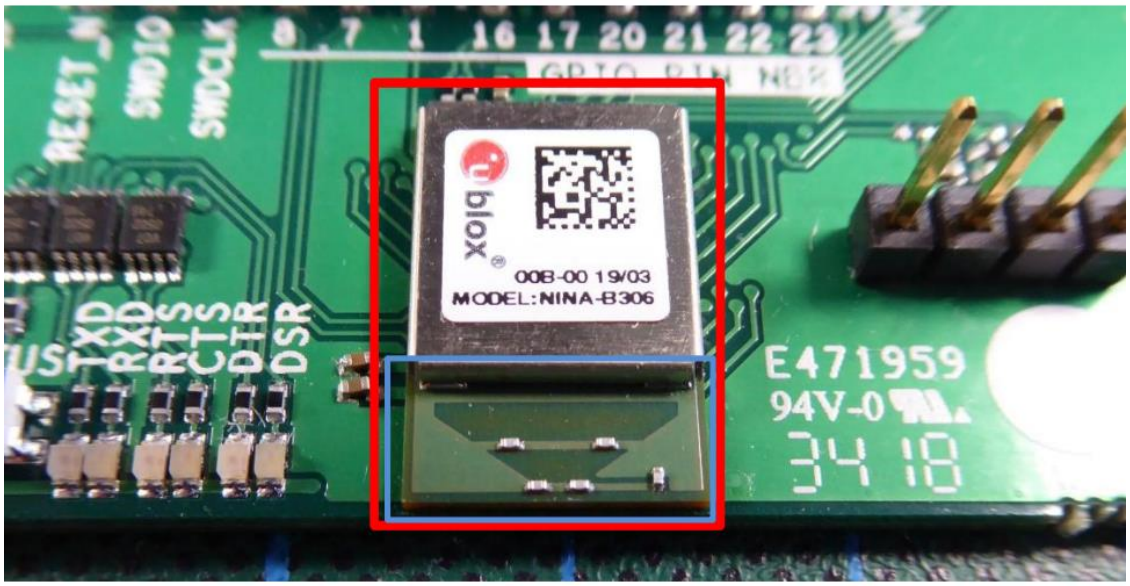
2. Enclosure Removed, Top View



3. Enclosure Removed, Bottom View



4.6.3 Photograph from the CIIPC Filing (2019)



NINA-B3x6 with internal antenna on not marketed eval board

WLL Comment: The EUT appears to employ the same module as certified. The transmitting antenna is an integrated PCB trace style antenna, approved under the 2019 CIIPC filing. The maximum gain of the antenna is +3.0 dBi.

5 Supplier's Declaration of Conformity

According to the Federal Communications Commission the conformity of a device to the requirements shall be certified by a Supplier's "Declaration of Conformity", issued by the party responsible for ensuring compliance. This declaration shall be included as a separate document or in the user's manual supplied with the product.

The compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

Identification of the product, e.g., name and model number. The identification, by name, address and telephone number, of the responsible party. The responsible party for a Declaration of Conformity must be located within the United States.

A statement that the product complies with Part 15 of the regulations. The following is an example of this statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

6 Marketing and Labeling Instructions

6.1 Part 15 Information to the user

For devices approved under Part 15, the user's manual or instruction manual for an intentional or unintentional radiator shall caution the user about changes or modifications to the device (Section 15.21). For Class A and Class B digital devices, information to the user is required to include the following statements (Section 15.105):

For a Class A digital device or peripheral, the instructions furnished to the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to complies with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For a Class B digital device or peripheral, the instructions furnished to the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to complies with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

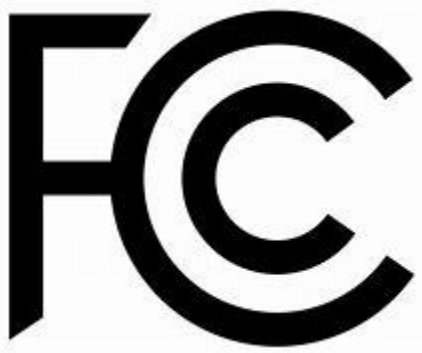
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help

When the device is so small or for such use that it is not practicable to place the statement specified above, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.

6.2 Labeling

The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase. "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

Devices authorized under the SDoC procedure have the option to use the FCC logo to indicate compliance with the FCC rules,12 and the logo may be included in the instruction materials or as part of an e-label.



The FCC logo shall only be used on a product that has been tested, evaluated, and found to be compliant in accordance with the SDoC procedures. The use of the FCC logo on the device does not mitigate the requirement to provide a means to uniquely identify the product or to provide the required compliance information statement. The FCC logo cannot be used on products that are exempt from an authorization by rule (e.g., Section 15.103 exempt devices, or Section 15.3 incidental radiators) unless the SDoC procedure has been fully applied for the product.

6.4 Marketing Requirements

The party responsible for ensuring compliance will be required to submit, upon request, documentation verifying compliance, including test reports, to the Commissions within 14 days of such a request. This 14-day period begins upon receipt of the request to the responsible party. The manufacturer is required to retain a record of all documentation for a period of two years after manufacturing is discontinued.

If changes to the original equipment are made, then these changes should be reviewed to ensure that they do not affect compliance with the technical standards. If the changes are determined to change the EMC characteristics of the device, then the device should be retested.

Please note that Washington Laboratories, Ltd. (WLL) operates as a contract-testing laboratory and provides test results to support the FCC declaration of conformity. However, under the current regulations, it is up to the party responsible for compliance to declare conformity to the standards.

7 Canadian Labeling Requirements

If your device is marketed in Canada, this report also shows compliance with the ISED Canada Interference-Causing Equipment Standard 003. A copy of this report must be retained by the manufacturer or importer for a period of at least five years.

You must also have the following notice with your device (in English and French):

ISED Canada ICES-003 Compliance Label:

CAN ICES-3 (*)/NMB-3(*)

* Insert either “A” or “B” but not both to identify the applicable Class of ITE.

This notice should be in the form of a label that is affixed to the unit. If you have insufficient space or some other restriction that does not allow a label to be affixed to the unit, the notice may be in the form of a statement in the user's manual.