HEADQUARTERS: 914 WEST PATAPSCO AVENUE • BALTIMORE, MARYLAND 21230 • PHONE (410) 354-3300 • FAX (410) 354-3313

8/5/2024

HID Global Corporation (US)
6533 Flying Cloud Drive, Ste. 1000
Eden Prairie, MN 55344
USA

Dear Erik Ray,

Enclosed is the EMC test report for compliance testing of HID Global Corporation (US), HDP5000e, tested to the requirements of:

- FCC Part 15 Subpart C and RSS-210 Issue 10

Thank you for using the services of Eurofins E&E North America. If you have any questions regarding these results or if we can be of further service to you, please feel free to contact me.

Sincerely,

Nancy LaBrecque
Documentation Department
Eurofins Electrical and Electronic Testing NA, Inc.

Reference: WIRA130667 – FCC-IC-LF_R3

125kHz RFID
Test Report

for the

HID Global Corporation (US)
HDP5000e (Model: X002700)

Tested under the FCC and ISED Certification Rules for
FCC Part 15 Subpart C and RSS-210 Issue 10

Bryan Taylor, Wireless Team Lead
Electromagnetic Compatibility Lab

Nancy LaBrecque
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

Matthew Hinojosa
EMC Manager, Austin Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	4/25/2024	Initial Issue.
1	7/5/2024	Reviewer comments.
2	7/23/2024	Reviewer comments.
3	8/5/2024	Reviewer Comments.

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Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the HID Global Corporation (US) HDP5000e, with the requirements of FCC Part 15 Subpart C and RSS-210 Issue 10. In accordance with FCC Part 15 Subpart C and RSS-210 Issue 10, the following data is presented in support of the Certification of the HDP5000e. HID Global Corporation (US) should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the HDP5000e, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15C and RSS-210, in accordance with HID Global Corporation (US), under purchase order number 9HID0510R1. All tests were conducted using measurement procedures ANSI C63.4-2014 and C63.10-2013.

FCC Reference	ISED Reference	Description	Compliance
Part 15 §15.203	---	Antenna Requirement	Compliant
Part 15 §15.207(a)	RSS-Gen (8.8)	Conducted Emission Limits	Compliant
Part 15 §15.215	---	20dB Occupied Bandwidth	Compliant
---	RSS-Gen (6.7)	99% Occupied Bandwidth	Compliant
Part 15 §15.209	RSS-210 (7.2) RSS-Gen (8.9)	General Field Strength Limitations	Compliant

Table 1. Executive Summary

Equipment Configuration

A. Overview

Eurofins E&E North America was contracted by HID Global Corporation (US) to perform testing on the HDP5000e.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the HID Global Corporation (US) HDP5000e.

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

Product Name:	HDP5000e	
Model(s) Tested:	X002700	
Model(s) Covered:	X002700	
EUT Specifications:	Primary Power: 100 – 240VAC	
	Type of Modulation(s):	ASK
	Equipment Code:	DCD
	Maximum field Strength:	72.58dBuV/m
	Antenna Type:	loop
	EUT Frequency Ranges:	125kHz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35º C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Bryan Taylor and Sergio Gutierrez	
Test Date(s):	3/4/2024 to 3/8/2024	

Table 2. EUT Summary Table

B. References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
ANSI C63.4:2014	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ISO/IEC 17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
RSS-210 Issue 10: December 2019	Licence-Exempt Radio Apparatus: Category I Equipment
RSS-Gen Issue 5: April 2018	General Requirements for Compliance of Radio Apparatus

Table 3. References

C. Test Site

Eurofins MET Laboratories Inc. (Eurofins E&E North America) is part of the Eurofins Electrical & Electronics (E&E) global compliance network.

All testing was performed at Eurofins E&E North America, 13501 McCallen Pass, Austin, TX 78753. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

ISED Lab Info:
CAB Identifier: US0004
Company Number: 2043D

FCC Lab Info:
Designation Number: US1127

Radiated Emissions measurements were performed in a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories.

Correlation between semi-anechoic chamber and OATS:

Two calibrated Loop antennas were used on an OATS. One antenna was driven by a signal generator with a known power. The receive antenna was initially placed 1m away from the transmit antenna. The two antennas were placed parallel to each other. The receive antenna was in turn connected to a calibrated spectrum analyzer. The emissions were swept from 9 kHz to 30 MHz. The receive antenna was then rotated 90 degrees and measurements re-taken. Additional measurements were taken when the receive antenna was placed at 3meters.
This same setup was taken to inside the semi-anechoic chamber and the measurements repeated.

The data was used to correlate the semi-anechoic chamber and OATS.

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.97 dB	2	95%
RF Power Radiated Emissions	±2.95 dB	2	95%
Radiated Emissions, (30 MHz – 1 GHz)	±2.95 dB	2	95%
Radiated Emissions, (1 GHz – 18 GHz)	±3.54 dB	2	95%
Conducted Emission Voltage	±2.97 dB	2	95%

Table 4. Uncertainty Calculations Summary

E. Description of Test Sample

The HDP5000e, Model X002700 is a modular, high definition printer system designed to print and encode ID cards. The system can only use the following modules, there are no other configuration.

Configuration 2 (DVT3#4) = Single Input Hopper, Dual-Sided Printer, Flipper, Single Output Stacker. Encoders: Mag, OMNIKEY 5122, OMNIKEY 5127SI.

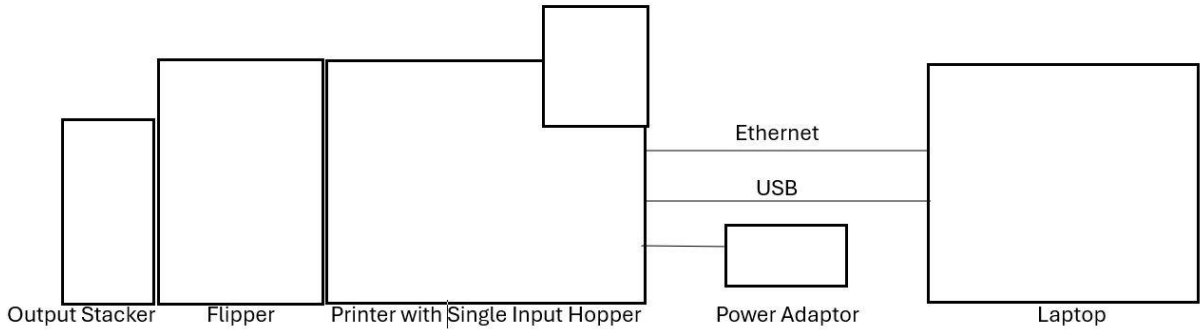


Figure 1. Block Diagram of Test Configuration

F. Equipment Configuration

The EUT was set up as outlined in Figure 1 above. A laptop was used to control the transmitters onboard and force them to transmit one at a time in order to measure their individual radio parameters. In normal operation the transmitters do not operate simultaneously.

G. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Name/Description	Manufacturer	Model Number	Serial Number	*Customer Supplied Calibration Data
Support Laptop	Dell	Lattitude	ErayRegsLaptop1	N.A.
Support Laptop	Dell	Lattitude	Compliance Lab PC	N.A.

Table 5. Support Equipment

H. Ports and Cabling Information

Port Name on EUT	Cable Desc. or reason for none	3 Meters or Longer	Length as tested (m)	Max Length (m)	Shielded?	Termination Box ID & Port Name
USB		No	2	2	Yes	Laptop
Ethernet		Yes	3	>3m	No	Laptop
Power		No	2	2	No	AC outlet

Table 6. Ports and Cabling Information

I. Mode of Operation

A laptop computer with a specific utility that allowed for controlling of each transmitter on board the HDP5000e was used during the testing. The following transmitters were tested:

Transmitter	Channel Frequencies Tested	Exercising Method
Film RFID	13.56MHz	Test commands via laptop computer
OMNIKEY 5122	13.56MHz	Test commands via laptop computer
OMNIKEY 5127SI	13.56MHz	Test commands via laptop computer
OMNIKEY 5127SI	125kHz	Test commands via laptop computer
Ribbon Rfid	13.56MHz	Test commands via laptop computer

Table 7. Transmitters Onboard

J. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

K. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to HID Global Corporation (US) upon completion of testing.

Antenna Requirements

§ 15.203 Antenna Requirement

Test Requirement: **§ 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The structure and application of the EUT were analyzed to determine compliance with Section 15.203 of the Rules. Section 15.203 states that the subject device must meet at least one of the following criteria:

a.) Antenna must be permanently attached to the unit.

b.) Antenna must use a unique type of connector to attach to the EUT.

c.) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

Test Results: The HDP5000e was compliant with this requirement. The antenna is permanently attached to the unit.

Test Engineer(s): Bryan Taylor

Test Date(s): 3/7/2024

Conducted Emissions

§ 15.207(a) Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dBμV)	
	Quasi-Peak	Average
* 0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

Table 8. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Note: *Decreases with the logarithm of the frequency.

RSS-GEN (8.8) AC Power-Line Conducted Emissions Limits

Test Requirement(s): **RSS-GEN (8.8):** Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in the below figure, as measured using a 50 µH / 50 Ω line impedance stabilization network (LISN). This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in the below figure shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Frequency (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
* 0.15-0.5	66 to 56	56 to 46[1]
0.5-5	56	46
5-30	60	50

Table 9. AC Power Line Conducted Emissions Limits

Note: *Decreases with the logarithm of the frequency.

Test Procedure: The EUT was placed on a 0.8 m-high non-conducting table above a ground plane. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω/50 µH Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.10-2013 "Procedures for Compliance Testing of Unlicensed Wireless Devices"*. The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50 µH LISN as the input transducer to an EMI receiver.

Test Results: The HDP5000e was compliant with this requirement.

Test Engineer(s): Sergio Gutierrez

Test Date(s): 03/08/2024

Conducted Emissions Voltage Test Setup

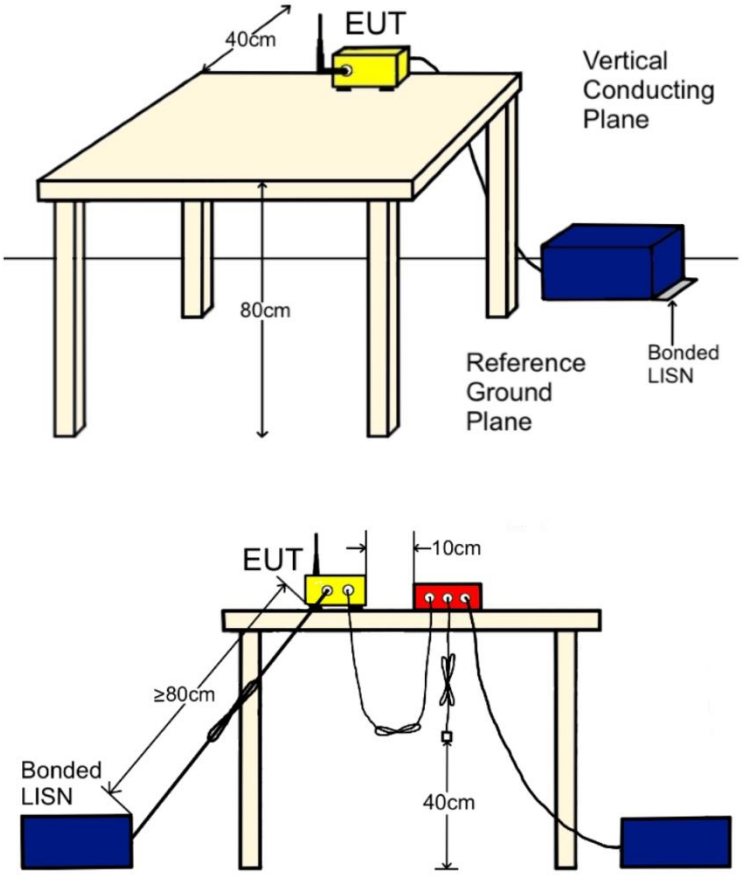
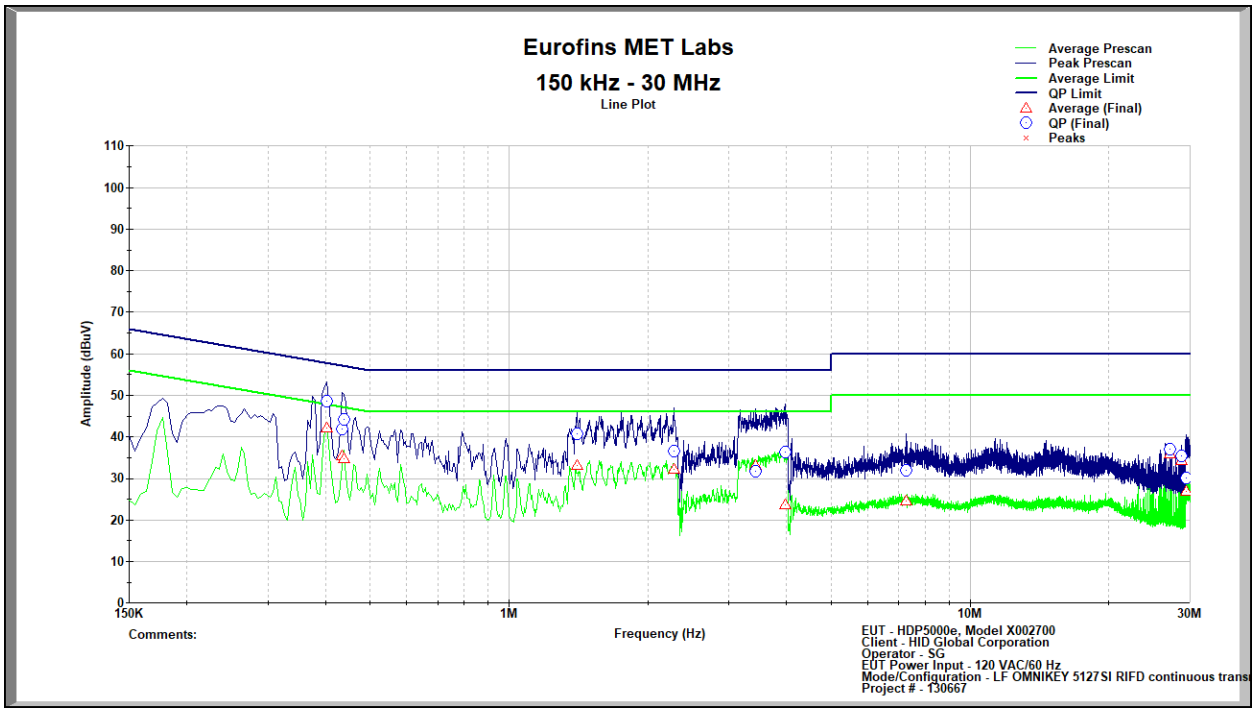


Figure 2. CEV Test Setup

Conducted Emissions Test Results

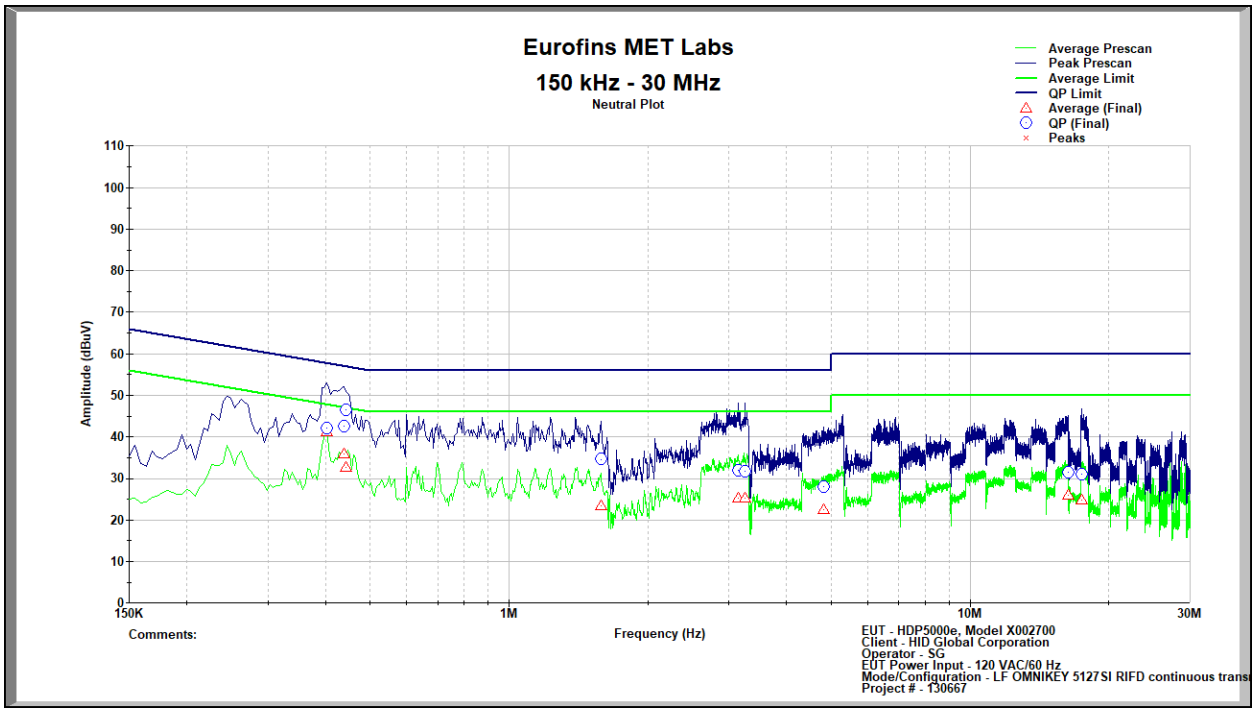


Conducted Emissions, Phase Test Results

Frequency (MHz)	Quasi-Peak (dBµV)	Quasi-Peak Limit (dBµV)	Quasi-Peak Margin (dB)	Average (dBµV)	Average Limit (dBµV)	Average Margin (dB)
0.402	48.589	58.800	10.211	42.079	48.800	6.721
0.433	41.839	57.900	16.061	35.466	47.900	12.434
0.438	44.191	57.771	13.581	34.666	47.771	13.106
1.405	40.735	56.000	15.265	33.153	46.000	12.847
2.279	36.589	56.000	19.411	32.199	46.000	13.801
3.428	31.701	56.000	24.299	33.203	46.000	12.797
3.967	36.337	56.000	19.663	23.710	46.000	22.290
7.263	31.909	60.000	28.091	24.503	50.000	25.497

Table 10. Conducted Emissions Phase, Test Results

Conducted Emissions Test Results



Conducted Emissions, Neutral, Test Results

Frequency (MHz)	Quasi-Peak (dBµV)	Quasi-Peak Limit (dBµV)	Quasi-Peak Margin (dB)	Average (dBµV)	Average Limit (dBµV)	Average Margin (dB)
0.402	42.027	58.800	16.773	41.230	48.800	7.570
0.438	42.522	57.771	15.249	35.862	47.771	11.909
0.443	46.524	57.643	11.119	32.545	47.643	15.098
1.581	34.614	56.000	21.386	23.434	46.000	22.566
3.148	31.912	56.000	24.088	25.353	46.000	20.647
3.252	31.663	56.000	24.337	25.253	46.000	20.747
4.822	28.133	56.000	27.867	22.569	46.000	23.431
16.340	31.558	60.000	28.442	25.843	50.000	24.157
17.500	30.964	60.000	29.036	24.880	50.000	25.120

Table 11. Conducted Emissions, Neutral, Test Results

Occupied Bandwidth Measurements

§ 15.215(c) 20 dB Occupied Bandwidth

Test Requirement(s): **§ 15.215 (c)** Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure: The transmitter was on and transmitting at the highest output power. The bandwidth of the fundamental frequency was measured with the spectrum analyzer. Per ANSI C63.10: 2020 the RBW should be between 1% and 5% of the occupied bandwidth.

Test Results: The HDP5000e was compliant with this requirement.

RSS-GEN (6.7) 99% Occupied Bandwidth

Test Requirements: The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

Test Procedure: The EUT was on and transmitting at the highest output power. The bandwidth of the fundamental frequency was measured with the spectrum analyzer. Per ANSI C63.10: 2020 the RBW should be between 1% and 5% of the occupied bandwidth.

Test Engineer(s): Bryan Taylor

Test Date(s): 3/6/2024

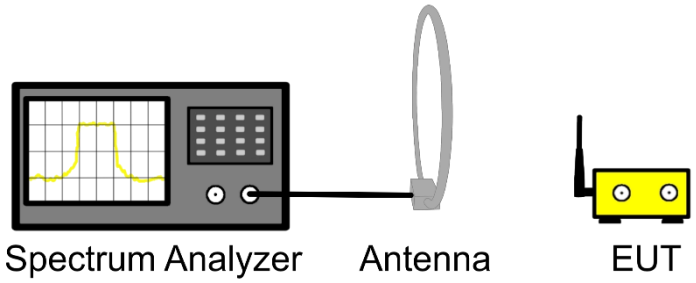
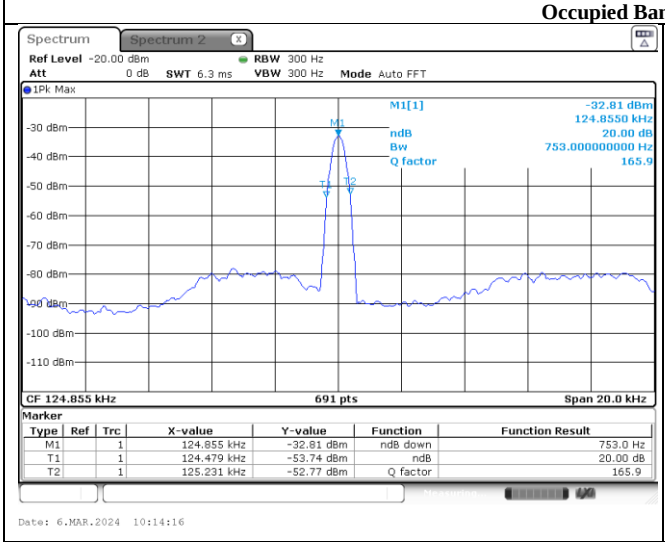


Figure 3. 20 dB Bandwidth and 99% Bandwidth Test Setup

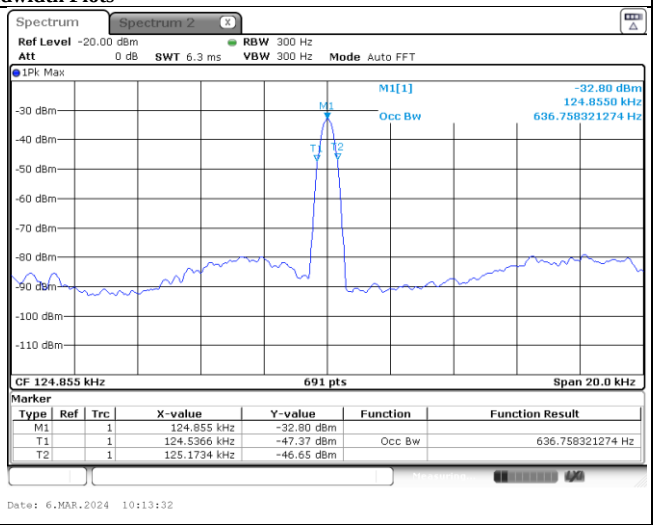
Transmitter	Center Frequency (kHz)	20 dB Bandwidth	99% Bandwidth
OMNIKEY 5127SI	125kHz	753Hz	636.7Hz

Table 12. Occupied Bandwidth Test Results

Occupied Bandwidth Plots



20dB Bandwidth



99% Bandwidth

Electromagnetic Compatibility Criteria for Intentional Radiators

Radiated Emissions Limits; General Requirements

Test Requirement(s):

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
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 (40dBuV/m) **	3
88-216	150 (43.5dBuV/m)**	3
216-960	200 (46.0dBuV/m)**	3
Above 960	500 (54.0dBuV/m)	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.		

(b) In the emission table above, the tighter limit applies at the band edges.

(c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other sections within this part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.

(d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

(e) The provisions in §§ 15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

(f) In accordance with § 15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in § 15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in § 15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in § 15.109 that are applicable to the incorporated digital device.

(g) Perimeter protection systems may operate in the 54–72 MHz and 76–88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

RSS-210 (7.2) General Field Strength Limits

Test Requirement(s): RSS-Gen includes the general field strength limits of unwanted emissions, where applicable, for transmitters and receivers operating in accordance with the provisions specified in this standard.

Unless otherwise indicated, unwanted emissions of transmitters and receivers are permitted to fall within the restricted frequency bands listed in RSS-Gen and the TV bands 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-602 MHz; however, fundamental emissions are prohibited in these bands, except where equipment operation is permitted in the applicable RSS.

RSS-Gen (8.9) Transmitter Emission Limits

Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5 – General field strength limits at frequencies above 30 MHz

Frequency (MHz)	Field strength (µV/m at 3 m)
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

Table 6 – General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement distance (m)
9 - 490 kHz[Note 1]	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Test Procedure:

The EUT was set to transmit and placed on a 0.8 m-high wooden stand inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.10: 2013 were used. For measurements below 30 MHz a loop antenna placed 3m away from the unit was used. For measurements above 30 MHz a biconalog antenna placed 10 m away from the unit was used. Measurements below 30 MHz were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations. Measurements above 30 MHz were conducted with the biconalog antenna in the vertical and horizontal polarizations. A peak detector was used to perform a pre-scan from 9 kHz to 10 times the fundamental frequency. Spurious emissions within 20 dB of the applicable limit were measured using a quasi-peak detector and recorded in the subsequent section. Peak emissions that were observed over the appliable limit were determined to be digital emissions subject to the requirements of FCC Part 15 Subpart B and ICES-003 subsection 6.2 for Class A devices.

The measurements made at 3 m with the loop antenna (below 30MHz) were then extrapolated to 30m or 300 m using the following correction factors which were applied to the limit.

40log (30/3) = 40 dB
40log (300/3) = 80 dB

The measurements made at 10 m with the biconilog antenna (above 30MHz) were then extrapolated to the 3m using the following correction factor which were applied to the limit.

20log (10/3) = 10.46 dB

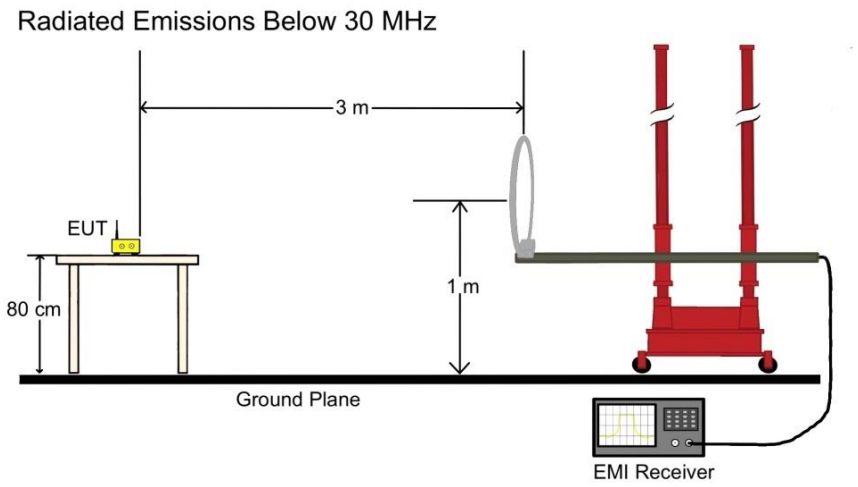


Figure 4: Radiated Emissions (Below 30MHz), Test Setup

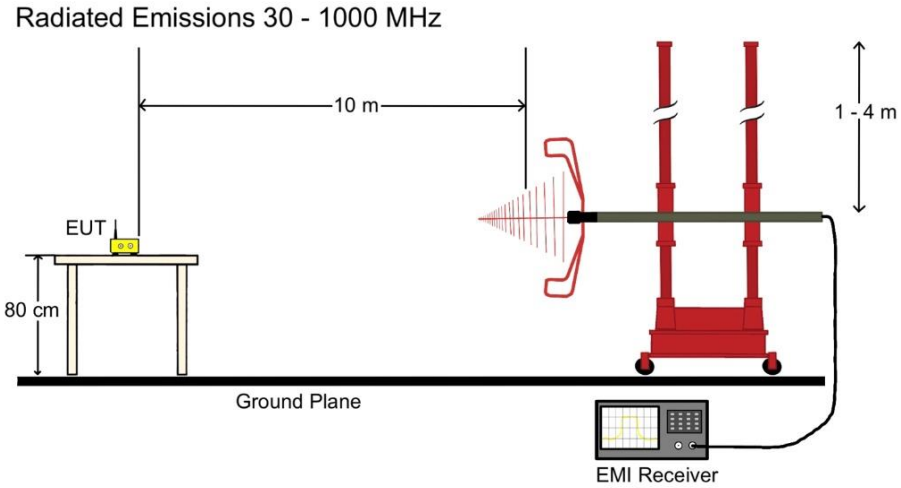


Figure 5. Radiated Emissions (Above 30MHz), Test Setup

Test Results: The HDP5000e was compliant with the general radiated emission limits.

Test Engineer(s): Sergio Gutierrez

Test Date(s): 3/8/2024

Frequency [MHz]	Peak Level [dBµV/m] [1]	Limit [dBµV/m]	Margin [dB]	Correction [dB] [2]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.087	39.38	108.79	69.40	11.70	H	81.5	1	0.200	Pass
0.087	41.24	108.77	67.53	11.70	V	125.7	1	0.200	Pass
0.125	72.58	105.67	33.09	11.31	H	46.4	1	0.200	Pass
0.125	67.77	105.67	37.90	11.31	V	336.7	1	0.200	Pass
1.142	42.69	66.44	23.75	11.74	V	127.8	1	9.000	Pass

Table 13. Radiated Spurious Emissions 9kHz – 30MHz

Frequency [MHz]	QPK Level [dBµV/m][1]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB] [2]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Comment
71.160	24.82	29.55	4.73	-13.90	V	306.5	1.88	120.000	Pass
75.720	23.68	29.55	5.87	-13.60	V	161	2.46	120.000	Pass
298.890	28.34	35.57	7.23	-5.66	H	258.9	2.8	120.000	Pass
300.030	32.58	35.57	2.99	-5.64	V	199.1	0.99	120.000	Pass
304.950	30.48	35.57	5.09	-5.22	H	243.2	2.8	120.000	Pass
310.770	31.38	35.57	4.19	-4.81	V	218.7	1.04	120.000	Pass

Table 14. Radiated Spurious Emissions Above 30MHz

[1] This corrected level includes the factor shown in the "correction" column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.
[2] This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m) or magnetic antenna factor in dB(S/m).

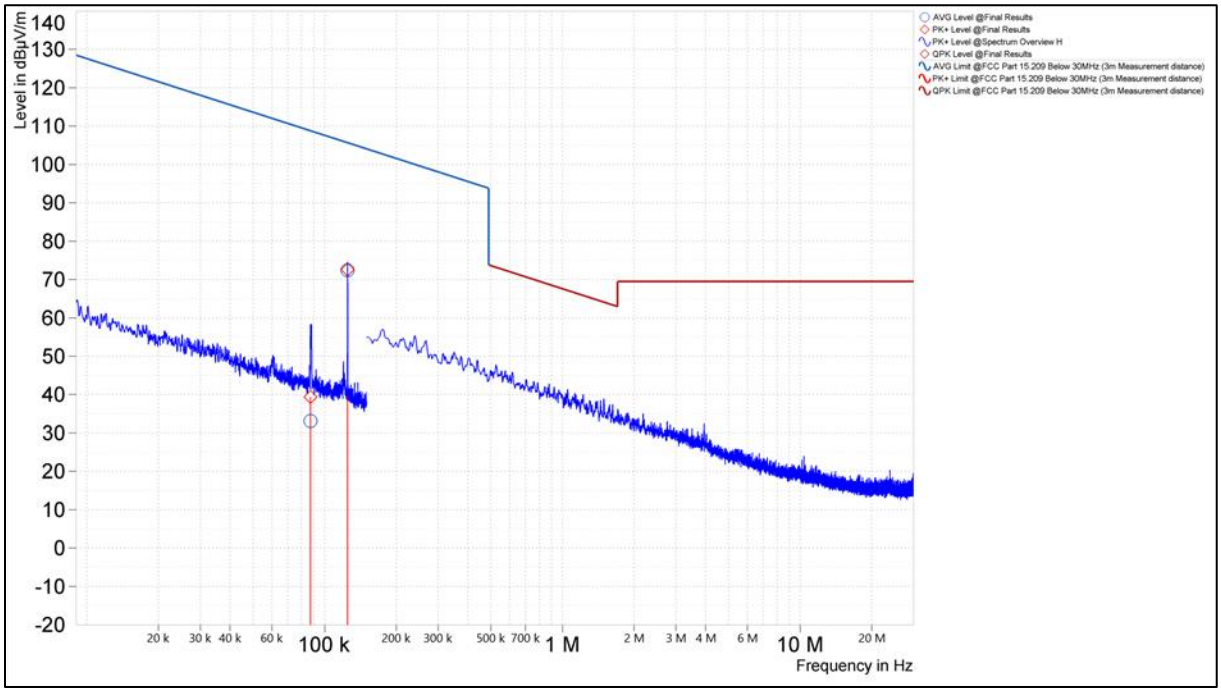


Figure 6. Spurious Emissions Below 30MHz, (Coplanar Loop[3])

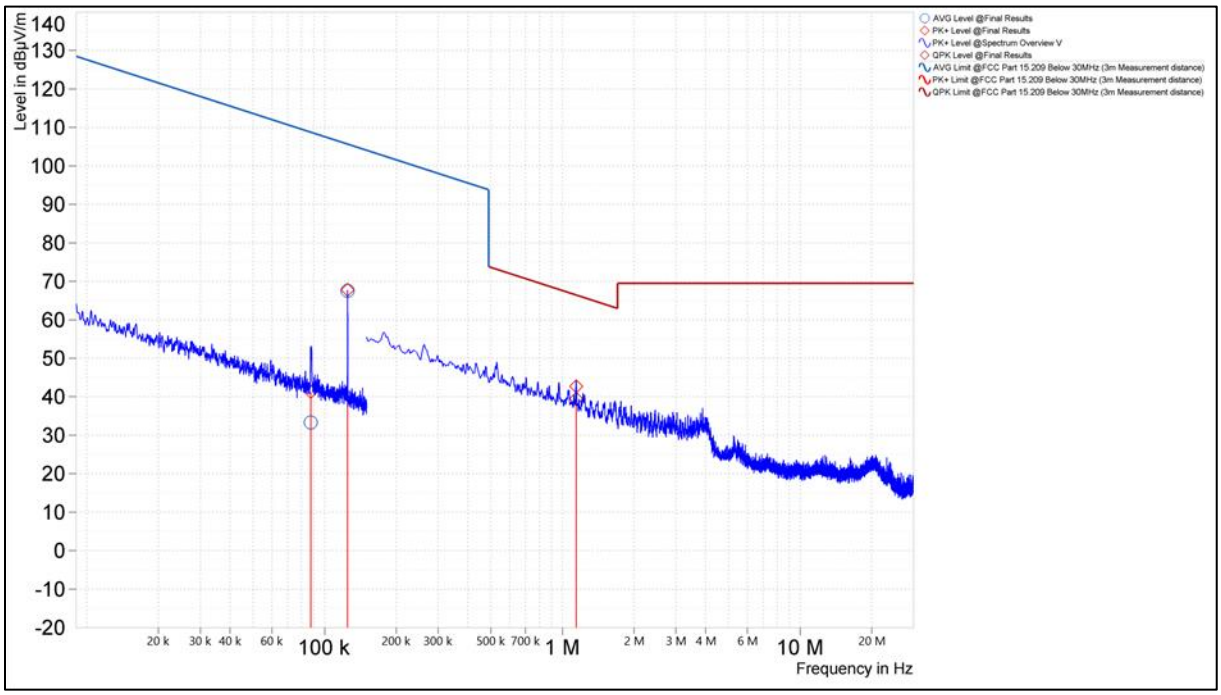


Figure 7. Spurious Emissions Below 30MHz, (Coaxial Loop[3])

[3] Note, the HDP5000e also includes a 13.56MHz RFID reader onboard. This signal shows up on the plots but does not indicate a failing result. The 13.56MHz fundamental was subjected to a different limit with results in a separate report.

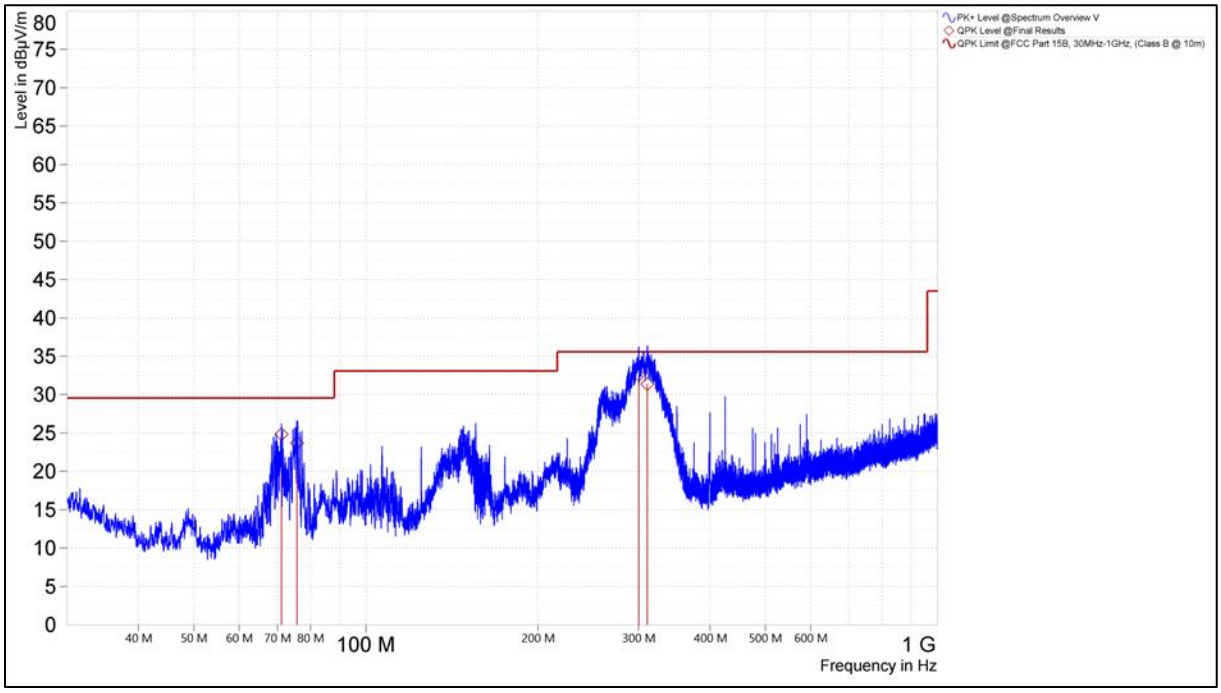


Figure 8. Spurious Emissions 30MHz – 1GHz, (Vertical Polarity)

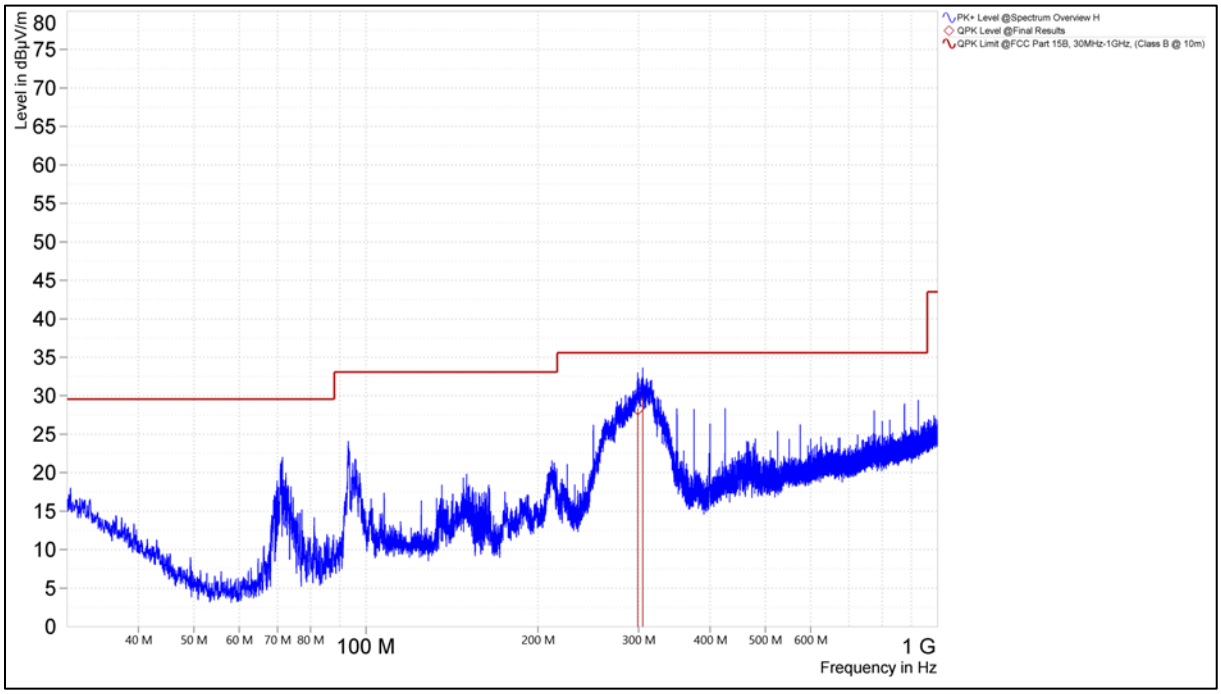


Figure 9. Spurious Emissions 30MHz – 1GHz, (Horizontal Polarity)

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2017.

MET Asset #	Description	Manufacturer	Model	Last Cal Date	Cal Due Date
1A1234	FSV Signal Analyzer	Rohde & Schwarz	FSV 40	1/23/2023	1/23/2025
1A1083	EMI Test Receiver	Rohde & Schwarz	ESU40	11/20/2023	11/20/2024
1A1176	Active Loop Antenna (9KHz-30MHz)	ETS-Lindgren	6502	7/13/2023	7/13/2024
1A1147	Bi-Log Antenna	Suno Sciences Corp	JB3	04/06/2023	04/06/2025
1A1065	EMI Receiver	Rohde & Schwarz	ESCI	8/4/2023	8/4/2024
1A1177	Pulse Limiter	Rohde & Schwarz	ESH3Z2	12/14/2023	12/14/2024
1A1122	LISN	TESEQ	NNB 51	09/21/2023	09/21/2024
1A1149	DC Milliohm Meter	GW INSTEK	GOM-802	09/24/2023	09/24/2024
1A1164	True-RMS Multimeter	Fluke	117	11/06/2023	11/06/2024
1A1225	Environmental Chamber	Espec	EXP-2H/New	5/16/2023	5/16/2024
1A1099	Generator	Com-Power	CGO-51000	See Note	
1A1044	Generator	Com-Power	CG-520	See Note	
1A1073	Multi Device Controller	ETS	2090	See Note	
1A1074	System Controller	Panasonic	WV-CU101	See Note	
1A1080	Multi-Device	ETS	2090	See Note	
1A1180	Preamplifier	Miteq	AMF-7D-01001800-22-10P	See Note	
3A3219	DC Power Supply	Topward	6303A	See Note	

Table 15. Test Equipment List

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.

End of Report