RHEIN TECH LABORATORIES, INC.

Engineering Solutions & Electromagnetic Compatibility Services

FCC & ISED
Class 2 Permissive Change

Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501

Models: XL-200P, XL-185P, XL-150P

FCC ID: OWDTR-0145-E
IC: 3636B-0145

February 6, 2023

Standards Referenced for this Report	
Part 2: 2021	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 15: 2021	Radio Frequency Devices
Part 90: 2021	Private Land Portable Radio Services
ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
RSS-119 Issue 12	Land Mobile and Fixed Radio Transmitters and Receivers 27.41 to 960.0 MHz

Report Prepared By: Daniel W. Baltzell

Document Number: 2020157

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from the standards referenced above.

Signature: 

Date: February 6, 2023

Typed/Printed Name: Desmond A. Fraser

Position: President

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANAB.
Refer to certificate and scope of accreditation AT-1445.

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1 General Information

The following Class 2 Permissive Change Report is prepared on behalf of **Harris Corporation** in accordance with the FCC and ISED rules and regulations. The Equipment Under Test (EUT) was the **XL-200P (International).**

All measurements contained in this application were conducted in accordance with the applicable sections of FCC Rules and Regulations CFR 47 Parts 2, 15, 22, 74, 80 and 90, and ISED RSS-119. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

1.1 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc. 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170.

ISED CAB ID: US0079, Company Number: 2956A

1.2 Related Submittal(s)/Grant(s)

This Class 2 Permissive Change Report is required due to the need to replace obsolete parts and to update filters to support SKU reduction.

2 Tested System Details

The test sample was received on August 23, 2022. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

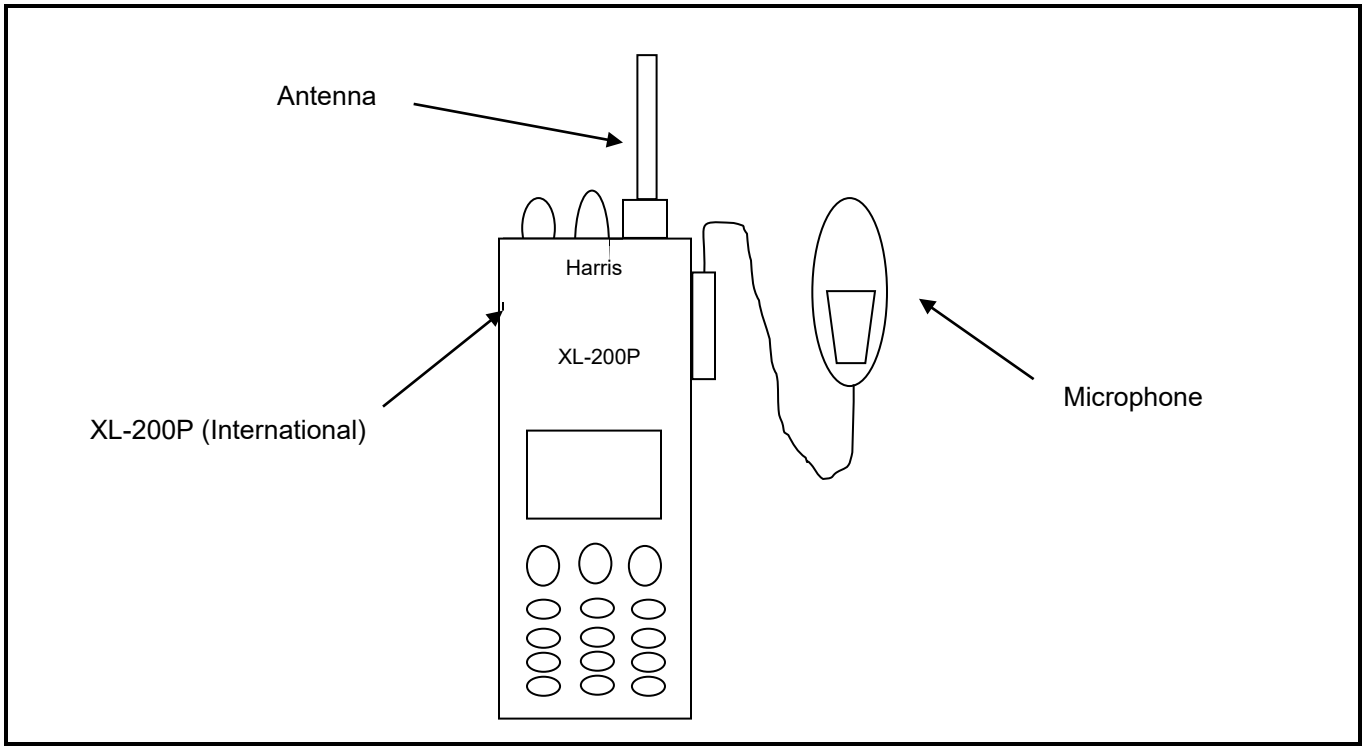
Table 2-1: Equipment Under Test (EUT)

Part	Manufacturer	Model	Serial Number	FCC ID / IC ID	RTL Bar Code
Radio	Harris Corporation	XL-200P (International)	A40336000029	OWDTR-0145-E/ 3636B-0145	24158
Antenna Full Spectrum LMR	Harris Corporation	14035-4000-01	N/A	N/A	24160

Table 2-2: Auxiliary Equipment

Part	Manufacturer	Model	Part Number	FCC ID / IC ID	RTL Bar Code
Li-Ion Rechargeable Battery	L3Harris Corporation	14035-4010 rev	009833	N/A	23103
Handset	L3Harris Corporation	EM105	N/A	N/A	21563

Figure 2-1: Configuration of Tested System



2.1 EUT Exercise Description

The EUT was supplied with the ability to change LMR, LTE, Bluetooth, and Wi-Fi frequencies for testing radiated emissions and collocation of various frequencies. Note that the EUT can utilize the following modularly approved transceivers. Simultaneous transmissions were tested for both EMC and SAR.

Texas Instruments Inc.
FCC ID: Z64-WL18DBMOD
IC: 451I-WL18DBMOD

Sierra Wireless Inc.
FCC ID: N7NEM75S
IC: 2417C-EM75S

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. EUT software version XLP_R14C04.0192 allows the tester to enable continuous transmit during testing.

The carrier was also checked to verify that information was being transmitted. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

The EUT was configured for testing in a manner simulating a typical end-user configuration. All circuitry, clocks, and oscillators were powered, and all functions were active. Applicable I/O ports to be cabled or loaded included Ethernet and data programming cables. For testing purposes, the EUT was programmed using a generic programming board.

3 FCC Part 2.1046(a): RF Power Output: Conducted; ISED RSS-119 4.1: Transmitter Output Power

3.1 Test Procedure

ANSI C63.26, section 5.2

The EUT was connected to a coaxial attenuator having a 50 Ω load impedance.

3.2 Test Data

Table 3-1: RF Conducted Output Power – Measured

Frequency (MHz)	Power (dBm)	Power (W)
138.0125	37.8	6.1
156.8000	38.2	6.7
173.9875	38.2	6.6
378.0125	37.0	5.0
406.1125	37.1	5.1
418.0125	37.2	5.3
429.9875	37.1	5.1
450.0125	37.3	5.4
459.9750	37.2	5.3
469.9875	37.4	5.5
521.9875	37.2	5.2
769.0125	34.3	2.7
774.9875	34.2	2.7
799.0125	34.3	2.7
804.9875	34.3	2.7
806.0125	34.9	3.1
815.0000	35.0	3.1
823.9875	35.0	3.2
851.0125	34.9	3.1
860.0000	35.0	3.1
868.9875	35.0	3.1

Notes: Data presented is for analog mode. All other modes were investigated and found to have equivalent power within measurement tolerances.

Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ±0.8 dB

Results: Pass

Table 3-2: Test Equipment Used For Testing RF Power Output – Conducted

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	12/01/2024
901724	Rosenberger	48-40-34	40 dB 100W Attenuator	CJ8921	11/22/2023

Test Personnel:

Daniel W. Baltzell		February 1, 2023
EMC Test Engineer	Signature	Date of Test

4 FCC Part 2.1053(a): Field Strength of Spurious Radiation; Part 90.543: Out of Band Emissions Limit; RSS-119 5.5, 5.8: Transmitter Unwanted Emissions

4.1 Test Procedure

ANSI 63.26, section 5.5.

The device uses digital modulation modulated to its maximum extent using a pseudo-random data sequence.

The spurious emissions levels were measured, and the device under test was replaced by a substitution antenna connected to a signal generator. This signal generator level was then corrected by subtracting the cable loss from the substitution antenna to the signal generator, and the gain of the antenna (dBi) was added to achieve the EIRP level, then converted from the corrected signal generator level (dBm) to dBc,and compared to the limit.

For emissions in the 1559-1610 band, Part 90.543(f) states: “For operations in the 763–775 MHz and 793–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.”

4.2 Test Data

Table 4-1: Field Strength of Spurious Radiation – 138.0125 MHz

Conducted Power 37.8 dBm; 6.0 W; Limit=50+10LogP=57.8 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
276.0250	44.9	-34.3	0.4	-0.1	72.6	-14.8
414.0375	49.5	-25.2	0.5	-0.4	63.9	-6.1
552.0500	27.6	-46.7	0.5	-0.7	85.8	-28.0
690.0625	18.3	-56.0	0.6	-0.9	95.3	-37.5
828.0750	18.0	-53.3	0.6	-1.4	93.2	-35.4
966.0875	14.8	-55.8	0.7	-0.9	95.2	-37.3
1104.1000	7.5	-64.7	0.7	4.6	98.6	-40.8
1242.1125	6.7	-64.4	0.8	4.9	98.1	-40.3
1380.1250	-12.0	-82.8	0.8	5.8	115.6	-57.8

Table 4-2: Field Strength of Spurious Radiation – 156.800 MHz

Conducted Power 37.6 dBm; 5.8 W; Limit=50+10LogP=57.6 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
313.6000	46.5	-32.6	0.4	-0.6	71.3	-13.7
470.4000	54.5	-20.6	0.5	-0.5	59.2	-1.6
627.2000	30.1	-41.9	0.5	-0.8	80.9	-23.3
784.0000	32.1	-37.6	0.6	-1.4	77.2	-19.6
940.8000	19.9	-49.2	0.7	-1.0	88.5	-30.9
1097.6000	16.5	-55.7	0.7	4.6	89.4	-31.8
1254.4000	19.6	-51.4	0.8	4.9	84.8	-27.2
1411.2000	-8.5	-80.0	0.8	6.0	112.4	-54.8
1568.0000	-7.0	-77.6	0.9	6.7	109.4	-51.8

Table 4-3: Field Strength of Spurious Radiation – 173.9875 MHz

Conducted Power 38.3 dBm; 6.8 W; Limit=50+10LogP=58.3 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
347.9750	56.9	-22.0	0.4	-0.5	61.2	-2.9
521.9625	55.0	-21.9	0.5	-0.6	61.4	-3.0
695.9500	32.0	-38.0	0.6	-0.9	77.8	-19.5
869.9375	37.2	-32.4	0.6	-1.4	72.7	-14.4
1043.9250	-1.0	-72.9	0.7	4.5	107.4	-49.1
1217.9125	5.3	-65.9	0.8	4.8	100.2	-41.9
1391.9000	-15.4	-86.3	0.8	5.9	119.5	-61.2
1565.8875	10.1	-60.5	0.9	6.7	93.0	-34.7
1739.8750	-12.6	-81.0	0.9	6.5	113.7	-55.4

Table 4-4: Field Strength of Spurious Radiation – 378.0125 MHz

Conducted Power 37.5 d8Bm; 5.6 W; Limit=50+10LogP=57.5 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
756.0250	45.1	-24.7	0.6	-1.3	64.0	-6.6
1134.0375	35.6	-36.2	0.7	4.7	69.7	-12.3
1512.0500	6.8	-63.5	0.9	6.5	95.3	-37.9
1890.0625	6.7	-59.9	1.0	6.3	92.0	-34.6
2268.0750	18.4	-59.3	1.1	7.2	90.7	-33.2
2646.0875	21.3	-56.1	1.2	7.6	87.2	-29.7
3024.1000	16.0	-60.9	1.3	7.3	92.4	-34.9
3402.1125	14.0	-62.0	1.4	7.6	93.3	-35.8
3780.1250	6.0	-68.8	1.5	7.0	100.7	-43.3

Table 4-5: Field Strength of Spurious Radiation – 406.1125 MHz

Conducted Power 36.9 dBm; 4.9 W; Limit=50+10LogP=56.9 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
812.2250	48.5	-24.2	0.6	-1.5	63.2	-6.3
1218.3375	45.6	-26.2	0.7	4.8	59.1	-2.1
1624.4500	28.7	-41.8	0.9	6.7	72.9	-16.0
2030.5625	27.5	-38.7	1.0	6.7	70.0	-13.0
2436.6750	29.3	-48.5	1.1	7.3	79.2	-22.3
2842.7875	33.0	-44.4	1.2	7.8	74.7	-17.8
3248.9000	20.1	-56.8	1.3	7.1	88.0	-31.0
3655.0125	12.6	-63.4	1.4	7.4	94.4	-37.4
4061.1250	9.2	-65.6	1.5	7.8	96.2	-39.2

Table 4-6: Field Strength of Spurious Radiation – 418.0125 MHz

Conducted Power 37.0 dBm; 5.0 W; Limit=50+10LogP=57.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
836.0250	50.2	-19.6	0.6	-1.4	58.6	-1.7
1254.0375	44.6	-27.2	0.8	4.9	60.0	-3.0
1672.0500	25.4	-44.9	0.9	6.5	76.3	-19.3
2090.0625	33.5	-32.7	1.0	6.4	64.4	-7.4
2508.0750	29.5	-48.2	1.2	7.4	79.0	-22.0
2926.0875	33.0	-44.4	1.3	7.6	75.0	-18.0
3344.1000	22.2	-54.7	1.4	7.3	85.8	-28.8
3762.1125	10.7	-65.5	1.5	7.0	96.9	-39.9
4180.1250	4.0	-70.8	1.6	8.4	101.0	-44.0

Table 4-7: Field Strength of Spurious Radiation – 429.9875 MHz

Conducted Power 37.0 dBm; 5.0 W; Limit=50+10LogP=57.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
859.9750	50.2	-19.4	0.6	-1.4	58.4	-1.4
1289.9625	37.9	-33.4	0.8	5.1	66.1	-9.1
1719.9500	27.6	-40.4	0.9	6.4	71.9	-14.9
2149.9375	38.1	-39.4	1.1	6.6	70.9	-13.9
2579.9250	31.4	-45.8	1.2	7.4	76.6	-19.6
3009.9125	30.7	-46.2	1.3	7.3	77.2	-20.2
3439.9000	25.1	-50.8	1.4	7.6	81.6	-24.6
3869.8875	13.3	-61.5	1.5	7.0	93.1	-36.0
4299.8750	5.2	-65.1	1.6	8.7	95.0	-37.9

Table 4-8: Field Strength of Spurious Radiation – 450.0125 MHz

Conducted Power 37.0 dBm; 5.0 W; Limit=50+10LogP=57.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
900.0250	49.6	-20.0	0.6	-0.4	58.1	-1.1
1350.0375	39.4	-31.7	0.8	-1.2	70.8	-13.7
1800.0500	37.2	-31.0	0.9	5.6	63.4	-6.4
2250.0625	34.9	-42.8	1.1	6.7	74.2	-17.2
2700.0750	32.1	-45.6	1.2	7.1	76.8	-19.7
3150.0875	29.3	-46.7	1.3	7.7	77.4	-20.3
3600.1000	23.5	-52.2	1.4	7.1	83.6	-26.6
4050.1125	16.4	-53.3	1.5	7.6	84.3	-27.2
4500.1250	22.2	-48.4	1.6	7.8	79.3	-22.3

Table 4-9: Field Strength of Spurious Radiation – 459.9750 MHz

Conducted Power 36.9 dBm; 4.9 W; Limit=50+10LogP=56.9 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
919.9500	47.8	-21.5	0.6	-1.2	60.2	-3.3
1379.9250	41.9	-29.5	0.8	5.8	61.4	-4.5
1839.9000	37.6	-29.5	1.0	6.5	60.9	-4.0
2299.8750	31.5	-46.4	1.1	7.3	77.1	-20.2
2759.8500	33.4	-44.3	1.2	7.8	74.6	-17.7
3219.8250	29.1	-46.4	1.3	7.1	77.6	-20.7
3679.8000	20.7	-54.6	1.5	7.3	85.7	-28.8
4139.7750	10.4	-59.4	1.6	8.2	89.7	-32.7
4599.7500	11.8	-59.3	1.7	8.9	89.0	-32.1

Table 4-10: Field Strength of Spurious Radiation – 469.9875 MHz

Conducted Power 37.0 dBm; 5.0 W; Limit=50+10LogP=57.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
939.9750	47.4	-21.7	0.7	-1.0	60.4	-3.4
1409.9625	31.8	-39.2	0.8	6.0	71.0	-14.0
1879.9500	26.4	-39.9	1.0	6.3	71.5	-14.5
2349.9375	26.9	-50.8	1.1	7.3	81.6	-24.6
2819.9250	21.5	-55.9	1.2	7.9	86.2	-29.3
3289.9125	16.4	-59.4	1.4	7.1	90.6	-33.7
3759.9000	6.1	-68.8	1.5	7.0	100.2	-43.2
4229.8875	9.6	-60.8	1.6	8.6	90.8	-33.8
4699.8750	18.1	-52.7	1.7	9.0	82.4	-25.4

Table 4-11: Field Strength of Spurious Radiation – 521.9875 MHz

Conducted Power 37.5 dBm; 5.7 W; Limit=50+10LogP=57.5 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1043.9750	31.2	-41.2	0.7	4.5	75.0	-17.4
1565.9625	14.6	-56.0	0.9	6.7	87.8	-30.2
2087.9500	14.8	-62.8	1.0	6.4	95.0	-37.5
2609.9375	16.8	-60.6	1.2	7.5	91.9	-34.3
3131.9250	1.1	-75.0	1.3	7.1	106.8	-49.3
3653.9125	3.9	-71.8	1.5	7.4	103.4	-45.9
4175.9000	9.6	-60.2	1.6	8.4	90.9	-33.4
4697.8875	7.9	-62.8	1.7	9.0	93.1	-35.5
5219.8750	10.8	-59.0	1.8	8.6	89.7	-32.1

Table 4-12: Field Strength of Spurious Radiation – 769.0125 MHz

Conducted Power 34.0 dBm; 2.5 W; Limit=50+10LogP=54.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1538.0250	19.0	-51.3	0.9	6.6	79.6	-25.6
2307.0375	29.0	-48.9	1.1	7.3	76.7	-22.7
3076.0500	12.2	-64.0	1.3	7.1	92.2	-38.2
3845.0625	12.5	-62.3	1.5	7.0	90.9	-36.8
4614.0750	13.3	-57.7	1.7	8.9	84.5	-30.5
5383.0875	14.2	-55.7	1.8	8.5	83.0	-29.0
6152.1000	5.0	-64.4	1.9	9.2	91.2	-37.2
6921.1125	-3.5	-72.0	2.0	9.5	98.6	-44.5
7690.1250	-7.5	-75.2	2.1	9.2	102.1	-48.1

Table 4-13: Field Strength of Spurious Radiation – 774.9875 MHz

Conducted Power 34.1 dBm; 2.6 W; Limit=50+10LogP=54.1 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1549.9750	17.9	-52.4	0.9	6.6	80.8	-26.7
2324.9625	28.8	-49.1	1.1	7.3	77.0	-22.9
3099.9500	12.0	-64.1	1.3	7.1	92.5	-38.3
3874.9375	11.7	-63.1	1.5	7.0	91.8	-37.7
4649.9250	9.1	-62.0	1.7	8.9	88.9	-34.7
5424.9125	14.0	-55.8	1.8	8.5	83.2	-29.1
6199.9000	6.0	-63.4	1.9	9.1	90.4	-36.2
6974.8875	-6.3	-75.1	2.0	9.5	101.7	-47.6
7749.8750	-7.1	-74.7	2.1	9.3	101.6	-47.5

Table 4-14: Field Strength of Spurious Radiation – 799.0125 MHz

Conducted Power 34.0 dBm; 2.5 W; Limit=50+10LogP=54.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1598.0250	11.6	-58.8	0.9	6.8	86.9	-32.9
2397.0375	24.5	-53.4	1.1	7.3	81.2	-27.2
3196.0500	12.2	-63.5	1.3	7.0	91.8	-37.8
3995.0625	12.5	-62.0	1.5	7.5	90.1	-36.0
4794.0750	9.2	-61.2	1.7	8.9	88.0	-34.0
5593.0875	0.9	-68.8	1.8	8.7	95.9	-41.9
6392.1000	-0.4	-69.8	1.9	9.5	96.2	-42.2
7191.1125	-11.8	-79.8	2.0	9.2	106.7	-52.7
7990.1250	-5.2	-72.3	2.1	9.2	99.2	-45.2

Table 4-15: Field Strength of Spurious Radiation – 804.9875 MHz

Conducted Power 34.0 dBm; 2.5 W; Limit=50+10LogP=54.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1609.9750	21.4	-49.0	0.9	6.7	77.1	-23.1
2414.9625	27.1	-50.8	1.1	7.3	78.6	-24.6
3219.9500	14.8	-60.7	1.3	7.1	89.0	-35.0
4024.9375	5.2	-64.5	1.5	7.6	92.4	-38.4
4829.9250	4.7	-66.1	1.7	8.9	92.9	-38.9
5634.9125	2.7	-67.1	1.8	8.8	94.1	-40.1
6439.9000	1.4	-68.0	2.0	9.6	94.3	-40.3
7244.8875	-10.7	-78.6	2.1	9.0	105.7	-51.7
8049.8750	-7.5	-74.5	2.1	9.2	101.4	-47.4

Table 4-16: Field Strength of Spurious Radiation – 806.0125 MHz

Conducted Power 34.7 dBm; 2.9 W; Limit=50+10LogP=54.7 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1612.0250	16.6	-53.7	0.9	6.7	82.5	-27.9
2418.0375	26.9	-51.0	1.1	7.3	79.5	-24.8
3224.0500	15.7	-59.8	1.3	7.1	88.8	-34.1
4030.0625	9.4	-60.3	1.5	7.7	88.8	-34.2
4836.0750	1.7	-68.9	1.7	8.9	96.4	-41.7
5642.0875	7.7	-62.0	1.8	8.8	89.7	-35.0
6448.1000	5.6	-63.8	2.0	9.7	90.8	-36.1
7254.1125	-3.0	-70.8	2.1	8.9	98.6	-43.9
8060.1250	-6.9	-73.9	2.1	9.2	101.5	-46.8

Table 4-17: Field Strength of Spurious Radiation – 815.0000 MHz

Conducted Power 34.0 dBm; 2.5 W; Limit=50+10LogP=54.0 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1630.0000	13.5	-56.5	0.9	6.7	84.7	-30.7
2445.0000	26.6	-51.2	1.1	7.3	79.0	-25.0
3260.0000	17.7	-58.0	1.4	7.1	86.3	-32.3
4075.0000	12.9	-56.9	1.5	7.9	84.6	-30.5
4890.0000	18.5	-51.9	1.7	8.8	78.8	-24.8
5705.0000	5.4	-64.4	1.8	9.0	91.3	-37.3
6520.0000	16.4	-53.2	2.0	9.7	79.4	-25.4
7335.0000	7.8	-59.6	2.1	8.7	87.0	-33.0
8150.0000	-1.6	-68.4	2.2	9.3	95.3	-41.3

Table 4-18: Field Strength of Spurious Radiation – 823.9875 MHz

Conducted Power 34.7 dBm; 2.9 W; Limit=50+10LogP=54.7 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1647.9750	14.4	-55.1	0.9	6.6	84.1	-29.4
2471.9625	20.7	-57.0	1.1	7.4	85.5	-30.8
3295.9500	19.4	-56.4	1.4	7.1	85.3	-30.7
4119.9375	24.1	-45.9	1.6	8.1	74.0	-19.3
4943.9250	37.3	-32.9	1.7	8.8	60.5	-5.8
5767.9125	14.1	-55.5	1.9	9.3	82.8	-28.1
6591.9000	20.2	-49.1	2.0	9.7	76.1	-21.4
7415.8875	23.1	-44.4	2.1	8.7	72.4	-17.8
8239.8750	6.4	-56.3	2.2	9.3	83.8	-29.1

Table 4-19: Field Strength of Spurious Radiation – 851.0125 MHz

Conducted Power 34.6 dBm; 2.9 W; Limit=50+10LogP=54.6 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1702.0250	22.5	-45.4	0.9	6.4	74.6	-19.9
2553.0375	27.0	-50.3	1.2	7.4	78.7	-24.1
3404.0500	27.3	-48.7	1.4	7.6	77.2	-22.5
4255.0625	19.9	-50.4	1.6	8.6	78.0	-23.4
5106.0750	30.3	-39.5	1.7	8.7	67.2	-12.5
5957.0875	20.8	-49.0	1.9	9.6	75.9	-21.3
6808.1000	9.9	-58.9	2.0	9.5	86.1	-31.4
7659.1125	9.3	-58.3	2.1	9.2	85.9	-31.2
8510.1250	0.8	-62.0	2.2	9.4	89.4	-34.8

Table 4-20: Field Strength of Spurious Radiation – 860.0000 MHz

Conducted Power 34.7 dBm; 3.0 W; Limit=50+10LogP=54.7 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1720.0000	27.9	-40.1	0.9	6.4	69.3	-14.6
2580.0000	27.0	-50.2	1.2	7.4	78.7	-24.0
3440.0000	20.7	-55.2	1.4	7.6	83.8	-29.0
4300.0000	19.0	-51.6	1.6	8.7	79.2	-24.4
5160.0000	20.8	-48.6	1.8	8.6	76.4	-21.7
6020.0000	19.7	-50.0	1.9	9.4	77.2	-22.4
6880.0000	16.2	-52.5	2.0	9.5	79.8	-25.1
7740.0000	11.9	-55.7	2.1	9.3	83.2	-28.5
8600.0000	0.0	-62.4	2.2	9.6	89.8	-35.0

Table 4-21: Field Strength of Spurious Radiation – 868.9875 MHz

Conducted Power 34.7 dBm; 2.9 W; Limit=50+10LogP=54.7 dBc

Frequency (MHz)	Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Normalized Gain (dBi)	Corrected Signal Generator Level (dBc)	Margin (dB)
1737.9750	16.0	-52.1	0.9	6.5	81.2	-26.5
2606.9625	27.4	-49.9	1.2	7.4	78.3	-23.6
3475.9500	19.2	-56.8	1.4	7.6	85.3	-30.6
4344.9375	15.5	-54.9	1.6	8.8	82.4	-27.7
5213.9250	13.6	-56.2	1.8	8.6	84.0	-29.4
6082.9125	13.5	-56.1	1.9	9.3	83.4	-28.7
6951.9000	13.5	-55.2	2.0	9.5	82.4	-27.7
7820.8875	-1.6	-69.0	2.1	9.3	96.5	-41.8
8689.8750	-3.0	-65.5	2.2	9.5	92.9	-38.2

Table 4-22: Part 90.543(f): Out of Band Emissions Limit

Fundamental Frequency (MHz)	Second Harmonic Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Substitution Antenna Gain (dBi)	Corrected Signal Generator Level (dBW)	Limit (dBW)	Margin (dB)
799.0125	1598.0250	11.6	-58.8	0.9	6.8	-82.9	-70	-12.9
804.9875	1609.9750	21.4	-49.0	0.9	6.7	-73.2	-70	-3.2

Table 4-23: FCC Unintentional Digital/RX Emissions

Frequency (MHz)	Analyzer Level (dBuV)	Site Correction Factor (dB/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
31.557	-4.4	20.8	16.4	40.0	-23.6
37.935	-0.7	17.2	16.5	40.0	-23.5
44.218	-0.4	14.0	13.6	40.0	-26.4
69.952	-0.5	12.3	11.8	40.0	-28.2
181.175	-11.9	16.1	4.2	43.5	-39.3
189.796	9.6	17.0	26.6	43.5	-16.9
298.557	-13.9	19.8	5.9	46.0	-40.1
354.647	-15.8	22.2	6.4	46.0	-39.6
423.141	-15.4	24.0	8.6	46.0	-37.4
512.821	-2.2	25.7	23.5	46.0	-22.5

Measurement uncertainties shown for these tests are expanded uncertainties expressed at the 95% confidence level using a coverage factor K=2. Measurement uncertainty: ±4.6 dB

Note: Radiated emissions were investigated with the modules collocated and transmitting simultaneously with the LMR, Bluetooth, Wi-Fi, and LTE transceivers. No non-compliant emissions were found; per FCC guidance, no data is being reported.

Table 4-24: Test Equipment Used For Testing Field Strength of Spurious Radiation and Unintentional Emissions

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900878	Rhein Tech Laboratories	AM3-1197-0005	3-meter antenna mast	OATS1	N/A
901729	Insulated Wire Inc.	KPS-1503-3150-KPR	SMK RF Cables 20’	NA	12/06/2022
901775	Micro coax	UFA2019	SMA RF Cables 36”	NA	05/02/2023
901242	Rhein Tech Laboratories	WRT-000-0003	Wood rotating table	N/A	N/A
901669	ETS-Lindgren	3142E	Biconilog Antenna (30 MHz – 6000 MHz)	00166065	07/11/2025
900321	EMCO	3161-03	Horn Antenna (4.0 - 8.2 GHz)	9508-1020	08/05/2024
900323	EMCO	3160-07	Horn Antenna (8.2 - 12.4 GHz)	9605-1054	08/05/2024
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	08/05/2024
900323	EMCO	3160-7	Horn Antennas (8.2 – 12.4 GHz)	9605-1054	08/05/2024
901582	Rohde & Schwarz	1167.0000.02	Signal Generator	101903	05/23/2024
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	12/01/2024
901128	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	11/28/2023
901132	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	11/28/2023
901129	Par Electronics	118-174 (25W)	VHF Notch Filter	N/A	11/28/2023
901131	Par Electronics	118-174 (25W)	VHF Notch Filter	N/A	11/28/2023
901133	Par Electronics	400-512 (25W)	UHF Notch Filter	N/A	11/28/2023
901135	Par Electronics	400-512 (25W)	UHF Notch Filter	N/A	11/28/2023
901262	ETS	3160-9	Double ridged Guide Antenna (1 - 18 GHz)	6748	02/08/2025

Test Personnel:

Daniel W. Baltzell		October 24, 2022
Test Engineer	Signature	Date of Tests

5 Conclusion

The data in this measurement report shows that RF conducted fundamental emissions, harmonic emissions levels and intermodulation frequencies for collocation testing were passing for the Harris Corporation XL-200P (International), FCC ID: OWDTR-0145-E, IC: 3636B-0145.