



Testing Tomorrow's Technology

**47 CFR Part 18 Industrial Scientific and Medical Equipment
Subpart C Technical Standards,
Part 18.305, Field Strength Limits**

Permissive Change Report

for the

Sharp Corporation

High Speed Oven

Model: SWA3099MS

FCC ID: APYDMR0183

Test Dates: July 13, 2026

Issue Date: July 17, 2026

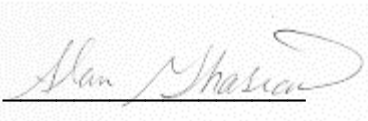
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PH: 770-740-0717 Fax: 770-740-1508
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I certify that I am authorized to sign for the manufacturer and that all of the statements in this report and in the exhibits attached hereto are true and correct to the best of my knowledge and belief:

US Tech (Agent responsible for test):

By: 

Name: Alan Ghasiani

Title: President – Consulting Engineer

Date: July 17, 2026



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1 General Information

Company Name	Sharp Corporation	
Company Address	Takumi-cho, Sakai-ku, Sakai City	
Family Name	None	
Model Name	SWA3099MS	
FCC ID:	APYDMR0183	
This report concerns (check one): ☐ Original Test Report ☒ Test Report Update ☐ C1PC ☒ C2PC ☐ C3PC	Report Prepared By: US Tech 3505 Francis Circle Alpharetta, GA 30004 FCC Lab Designation #: US5301 CANADA Lab Code: 9900A-1, CAB ID: US0031	
Equipment type: ☐ Commercial ☒ Residential Technical Specifications: Microwave Oven with Wi-Fi capabilities.		
☒ Disclaimer (check if applicable): Unless otherwise noted, the information presented in this section has been provided by the client and is assumed to be accurate and complete. All calculations, assessments, and conclusions herein are based on the client-supplied data. The testing laboratory has not independently verified this information and shall not be held responsible for any inaccuracies or omissions in the client-provided content.		
Summary of Test Results		
FCC Rule	Description of Test	Result
Part 18.305(b)	Field Strength Limits	PASS

1.1 Purpose of the Report

This report is prepared as a class two permissive change as a means of conveying test results and information concerning the suitability of this exact product for public distribution according to the FCC Rules and Regulations Part 18.305 and 18.307 and FCC Methods of Measurements of Radio Noise Emissions from Industrial, Scientific, and Medical Equipment (FCC/OST MP-5:1986).

The changes to the EUT are as follows:

- Removal of ferrite RFIL-A015WRZZ on AC lines L1 & L2 and replaced with single ferrite, E04RMX381913 (Seiwa Electric). L1 & L2 looped one turn within the ferrite.
- GND line looped one turn within ferrite RFIL-A015WRZZ.
- Added tubing to the HV wire and secured it with a wire hold, added a side trim support screw.

The changes to the equipment do not affect the basic functionality and intended use of the device. The cavity design and magnetron have not been altered and remain identical to the original design.

To ensure continued compliance with the product standard the product has been re-evaluated for compliance with Part 18 Subpart C Technical standards paragraph 18.305, Field Strength Limits. The test results are presented herein.

AC power line conducted emissions testing was not repeated as part of this evaluation. No changes were made to the AC power input circuitry, power supply, clocking, or other circuitry that could reasonably be expected to affect conducted emissions on the AC mains. Based on the nature of the modification and a review of the original compliance data, it was determined that repeating AC power line conducted emissions testing was not necessary.

1.2 Product Description

The Equipment under Test (EUT) is the Sharp Corporation model SWA3099MS High Speed Oven. This is a combination unit that incorporates a microwave oven with convection oven capabilities. This combination unit also has wireless capabilities and contains a certified Wi-Fi radio module. The EUT is rated to be 950 Watts. The input power is rated at 208-240 VAC, 60Hz two-phase. The EUT was tested at 100% microwave power setting.

The FCC ID for the Wi-Fi module contained within the device is FCC ID: RX3-BZ02.

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1.3 Related Submittal(s)/Grant(s)

The EUT is subject to the following FCC authorizations:

- a) Certification under FCC CFR 47:2007.
- b) Verification under Part 18.305 and 18.307 Subpart C, Consumer.

1.4 Test Methodology

The EUT was configured as shown in the block diagram and photographs herein. The sample was tested per FCC measurement Procedure MP-5, "Methods of Measurement of Radio Noise Emissions from Industrial, Scientific and Medical Equipment" (1986) as well as per CFR 47 part 18. Conducted and radiated emissions data were taken with the Test Receiver or Spectrum Analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. At frequencies above 1 GHz, the resolution bandwidth was increased to 1 MHz. The video bandwidth was three times more than resolution bandwidth on the spectrum analyzer. All measurements are peak unless stated otherwise. Interconnecting cables were manipulated as necessary to maximize emissions.

1.5 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and registered with the FCC under site designation number US5301. Additionally, this site has also been fully described and submitted to Industry Canada (IC), and has been approved under ISED site number 9900A-1.

US Tech currently is Accredited by the NIST NVLAP organization, Lab Code: 200162-0 and FCC Part 18 is in our Scope of Accreditation.

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1.6 Test Equipment

The following table details the test equipment used in the evaluation of this product.

Table 1. Test Equipment

INSTRUMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
Spectrum Analyzer	Agilent Technologies Inc	E4440A	MY45304803	9/04/2027 2 Years
Bicon Antenna	EMCO	3110B	9307-1431	2/24/2027 2 Year
Log Periodic	EMCO	3146	9110-3236	11/15/2026 2 Year
Horn Antenna	A. H. Systems	SAS-571	605	3/18/2027 2 Years
Preamp	Hewlett Packard	8449B	3008A00914	2/11/2027
Preamp	Hewlett-Packard	8447D	1937A01611	2/13/2027
RF Cable	US Tech	LMR400	None	3/12/2026
RF Cable	BRACKE M	RG188A	None	1/23/2026
RF Cable	Time Microwave Systems	LMR400	19424	3/7/2026
RF Cable	Time Microwave Systems	LMR400	None	4/3/2026
RF Cable	Harbour Industries	LL142	A13355-3036	7/17/2026
RF Cable	Pasternack	PE300-24	1226	7/7/2026
RF Cable	US Tech	LMR 400	None	7/7/2026
Filter - High Pass above 3 GHz	Microwave Circuits Inc.	H3R020G2	001DC9528	7/2/2025

Note: The calibration interval of the above test instruments is 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

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1.7 Characterization of Sample Tested

The sample used for testing was received on July 7, 2026 in good condition.

1.8 EUT Exercise Software

The EUT was programmed to perform at 100% power level. The test was performed using 700 mL or 1000 mL of tap water in a 150 mm diameter cylindrical glass vessel placed in the center of the oven.

1.9 Special Accessories

There were not special accessories required for this product testing.

1.10 Test Rationale

The EUT, cable and wiring arrangement, and mode of operation that produced the emissions with the highest levels relative to the applicable limits was selected for final measurements.

The interconnect cable(s) and/or power cord(s) were moved into various positions of the most likely configurations to maximize the emissions. In this case the placement of the cables had negligible effects. The test configuration photographs represent the final configuration used for testing.

1.11 Tested System Details

Table 2. EUT and Peripherals

PERIPHERAL/ MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	REMARKS	CABLES P/D
High Speed Oven (EUT)/ Sharp Corporation	SWA3099MS	Engineering Sample	FCC ID: APYDMR0183 Contains FCC ID: RX3-BZ02	P

U= unshielded S= shielded P= Power D= Data

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Table 3. Detail of I/O Cables Attached to EUT

DESCRIPTION OF CABLE	DETAILS OF CABLE			CABLE LENGTH
Power Cable	Manufacturer and Part Number			1.5 m
	CND			
	Shield Type	Shield Termination	Type of Backshell	
	C	NA	NA	

Shield Type

N/A = None
 F = Foil
 B = Braided
 2B = Double Braided
 CND = Could Not Determine
 C = Conduit

Shield Termination

N/A = None
 360 = 360°
 P = Pigtail/Drain Wire
 CND = Could Not Determine

Type of Backshell

N/A = Not Applicable
 PS = Plastic Shielded
 PU = Plastic Unshielded
 MS = Metal Shielded
 MU = Metal Unshielded

1.12 Configuration of Tested System



Figure 1. Block Diagram of Test Configuration

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Equipment Modifications

No modifications were made to the EUT in order for it to meet the requirements.

1.14 Test Results

Radiated emissions testing was conducted and compared to 18.305 (a) and (b) limits. The worst-case radiated emission in the frequency range 30 MHz to 25 GHz was 5.75 dB below the limit at 14743.00 MHz; all other radiated emissions were at least 6.29 dB below the limit.

1.15 Measurement Uncertainty

Radiated Emissions:

For the measurement distance of 3 m, the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.40 dB.

For a measurement Distance of 3 m, the measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ± 5.19 dB.

For a measurement Distance of 3 m, the measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna (above 1 GHz) is ± 5.08 dB.

2 Emissions Data, Radiated (47 CFR 18.301, 18.303, 18.305)

2.3 Test Site Description, Radiated Emissions

The radiated emissions disturbance measurement facility consists of a 8.5 meter long by 5.5 meter wide and 5.6-meter-high shielded semi anechoic EMC Chamber. The chamber is lined with ferrite core and RF absorbers. The quiet zone is 2.0 meter.

The test facility layout is shown in the figure below. A remotely controlled 2.0 m diameter flush-mounted turntable is provided for rotating (through at least 360 degrees) the EUT. A nonconductive table, 1.5 m long by 1.0 m wide by 0.8 m high is used in conjunction with the turntable for tabletop equipment. Electrical service for the EUT is provided through openings at the center of the turntable.

Provision for receiving antenna power and data wires is provided by junction boxes place at the parameter of the chamber. The receive antenna mast is remotely controlled and can be varied in height from 1 m to 4 m.

Power and data cables for the radiated disturbance measurement facility are run through PVC tubing under the raised floor or are laid directly upon the ground plane.

Radiated emissions were evaluated based on 47 CFR 18.309 and MP-5 (1986). During testing the EUT was tested up to the 10th harmonic or the highest detectable emission.

The load used for frequency measurement was 1000 ml of water in the beaker located in the center of the oven. For radiation on second and third harmonic two loads, one of 700 ml and one of 300 ml of water was used. Each load was tested both with the beaker located in the center of the oven and with it in the right front corner.

Note: During spurious emissions testing both the microwave oven and Wi-Fi radio were on and transmitting as normally intended. The results above show no increase in spurious emissions due to intermodulation effects or other effects as a result of having both radios operating simultaneously. The results do not warrant additional testing beyond the above test.

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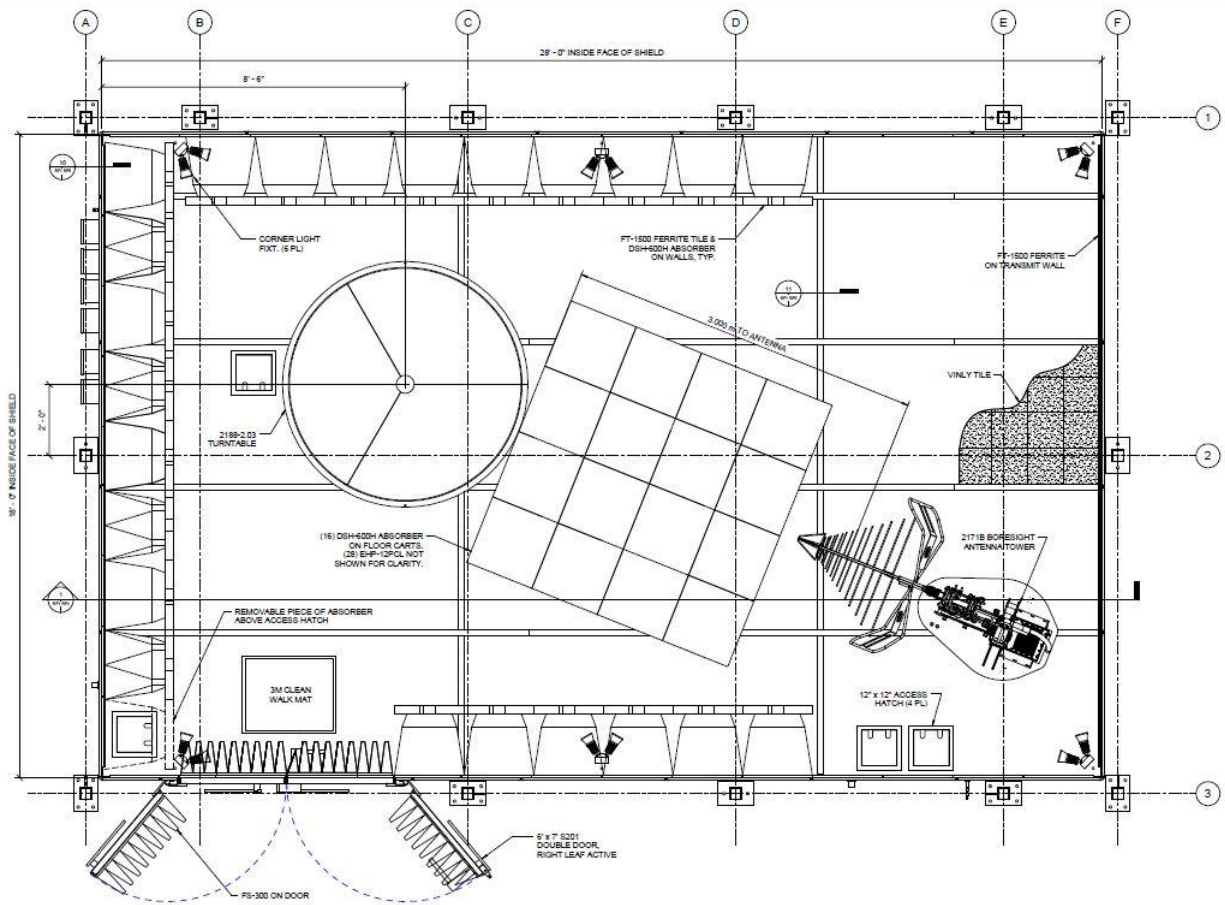


Figure 2. Radiated Emissions Disturbance Measurement Facility Diagram

2.4 Radiated Emissions Test Data

2.4.1 Part 18 ISM Test Limits and Calculations

Per 47 CFR 18.301 the ISM equipment may be operated on any frequency above 9 kHz except as indicated in 47 CFR 18.303. The field strength limit per 47 CFR 18.305 for ISM equipment operating on a frequency specified in 47 CFR 18.301 is permitted unlimited radiated energy in the band specified for that frequency. The field strength levels of emissions which lie outside the bands specified in 47 CFR 18.301 must not exceed the limits detailed in CFR 18.305, unless otherwise indicated.

Per the table in 18.301, the frequency 2450 MHz $\pm$ 50MHz is allowed unlimited radiated energy. The EUT fundamental frequency is stated to be 2450 MHz.

The field strength levels of emissions which lie outside the bands specified in 18.301, unless otherwise indicated, shall not exceed the following:

Any type of equipment unless otherwise specified that operate above 500 watts:

$$25 \frac{\mu V}{m} * \sqrt{\frac{Power\ W}{500\ W}} @ 300\ m.$$

Therefore, the limit converted to dBuV/m is:

$$20 * \log_{10} \left(25 * \sqrt{\frac{EUT\ Power}{500\ W}} \right) + 20 * \log_{10} \frac{300\ m}{test\ distance\ (m)}$$

The measured EUT power P, is 950 Watts as rated and tested by the manufacturer. This value was used in the calculation of the limit for this test.

Limit at 10 meters is:

$$20 * \log_{10} \left(25 * \sqrt{\frac{950\ W}{500\ W}} \right) + 20 * \log_{10} \frac{300\ m}{10\ m} = 60.28\ dBuV/m$$

Limit at 3 meters is:

$$20 * \log_{10} \left(25 * \sqrt{\frac{950\ W}{500\ W}} \right) + 20 * \log_{10} \frac{300\ m}{3\ m} = 70.74\ dBuV/m$$

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2.4.2 General Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + CF - AG$$

where FS = Field Strength

RA = Receiver Amplitude (dBuV)

CF = Correction Factor (Antenna Factor & Cable Loss) (dB/m)

AG = Amplifier Gain

Assuming a receiver reading of 100 dBuV and a correction factor of 11.8 dB/m, the following calculation would apply:

$$FS \text{ (dBuV/m)} = 100 \text{ dBuV} + 11.8 \text{ dB/m} = 111.8 \text{ dBuV/m}$$

2.4.3 Radiated Emissions Test Results

Table 4. Radiated Emissions Data 30 MHz to 1 GHz

Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Average Limits (dBuV/m)	Application Test Distance/ Polarization	Margin (dB)	Detector Used
63.12	53.08	-13.47	39.62	68.0	3m./HORZ	28.3	PK
98.89	54.67	-13.36	41.31	68.0	3m./HORZ	26.6	PK
200.00	56.86	-10.98	45.88	68.0	3m./HORZ	22.1	PK
682.17	51.97	-0.31	51.66	68.0	3m./HORZ	16.3	PK
949.10	35.40	2.06	37.46	68.0	3m./HORZ	30.5	PK
63.12	51.19	-14.27	36.93	68.0	3m./VERT	31.0	PK
105.19	55.40	-12.13	43.27	68.0	3m./VERT	24.7	PK
200.00	49.82	-11.18	38.63	68.0	3m./VERT	29.3	PK
208.85	50.31	-11.30	39.01	68.0	3m./VERT	28.9	PK
669.32	54.30	-0.99	53.31	68.0	3m./VERT	14.6	PK
902.31	37.11	0.42	37.53	68.0	3m./VERT	30.4	PK
All other emissions were at least 20 dB below the limit							

Test Date: July 13, 2026

Tested by

Signature: Ian Charboneau

Name: Ian Charboneau

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Table 5. Radiated Emissions Data 1 GHz to 25 GHz

Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP (dB/m)	Results (dBuV/m)	Average Limits (dBuV/m)	Application Test Distance/ Polarization	Margin (dB)	Detector Used
2287.00	32.70	14.46	47.16	68.0	3.00m./HORZ	20.8	AVG
2360.00	37.88	15.34	53.22	68.0	3.00m./HORZ	14.7	AVG
2723.00	31.15	16.70	47.85	68.0	3.00m./HORZ	20.1	AVG
4912.00	41.72	2.24	43.96	68.0	3.00m./HORZ	24.0	AVG
7318.00	25.83	7.30	33.13	68.0	3.00m./HORZ	34.8	AVG
8590.00	40.74	7.69	48.43	68.0	3.00m./HORZ	19.5	AVG
17193.00	28.15	18.43	46.58	68.0	3.00m./HORZ	21.4	AVG
2290.00	32.07	14.53	46.60	68.0	3.00m./VERT	21.4	AVG
2299.00	32.31	14.54	46.85	68.0	3.00m./VERT	21.1	AVG
2398.00	50.63	15.59	66.22	68.0	3.00m./VERT	1.7	AVG
2715.00	31.50	16.56	48.06	68.0	3.00m./VERT	19.9	PK
4866.00	34.29	1.73	36.02	68.0	3.00m./VERT	31.9	AVG
8603.00	41.95	7.76	49.71	68.0	3.00m./VERT	18.2	AVG
14758.00	24.73	15.38	40.11	68.0	3.00m./VERT	27.8	AVG

Test Date: July 13, 2026

Tested by

Signature: 

Name: Ian Charboneau

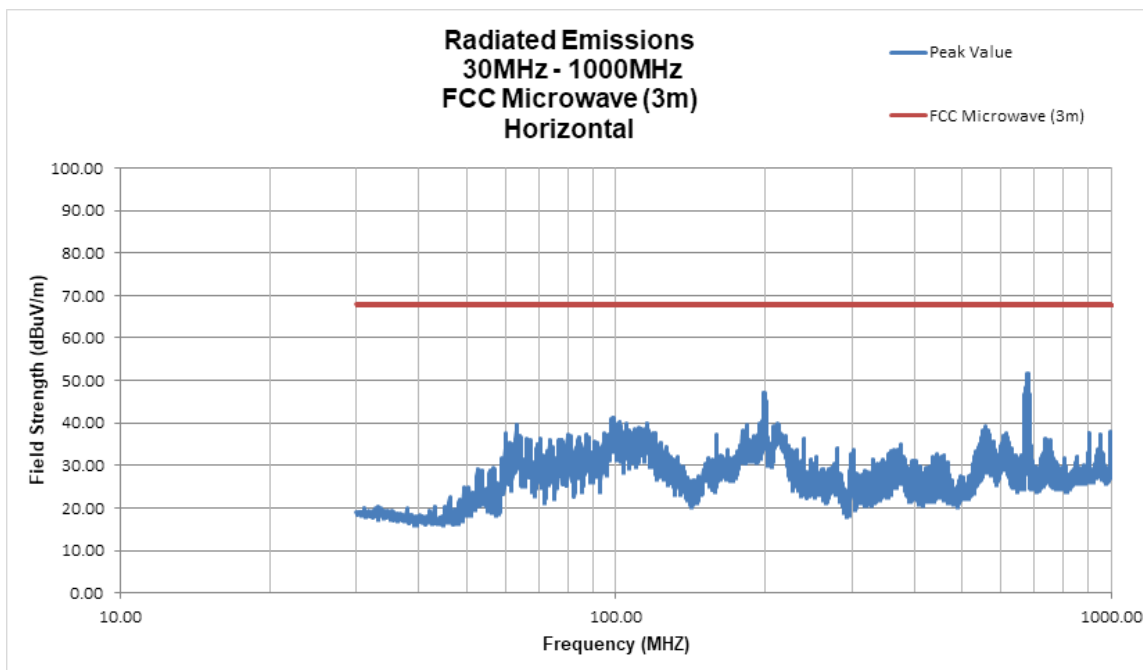


Figure 3. Radiated Emissions Below 30-1000 MHz Horizontal

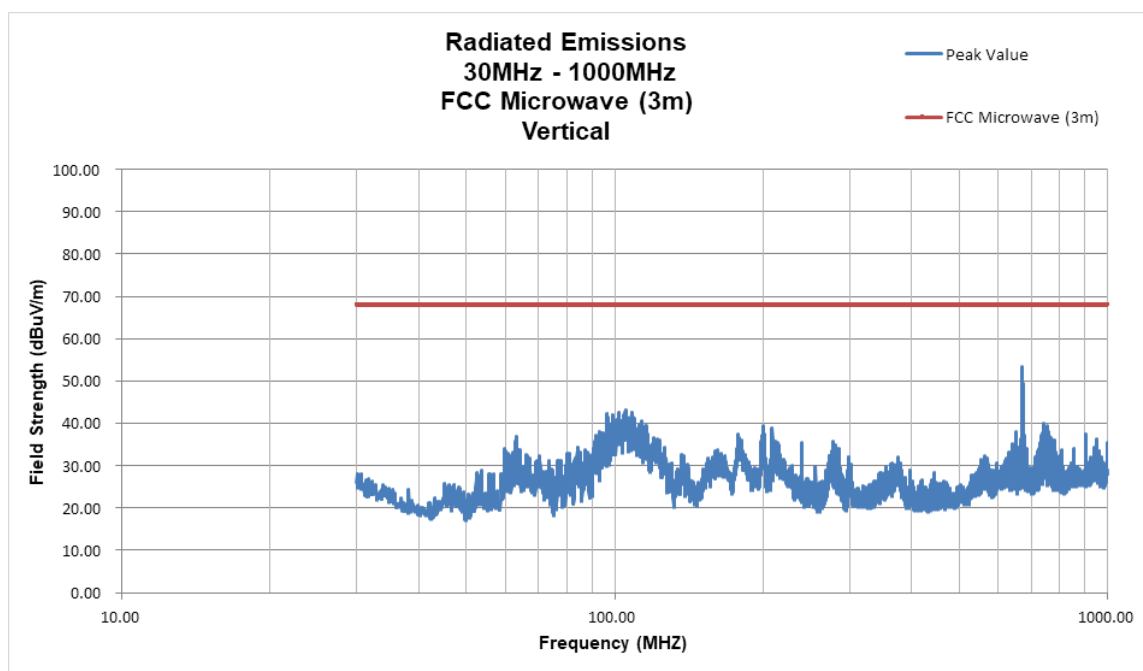


Figure 4. Radiated Emissions Below 30-1000 MHz Vertical

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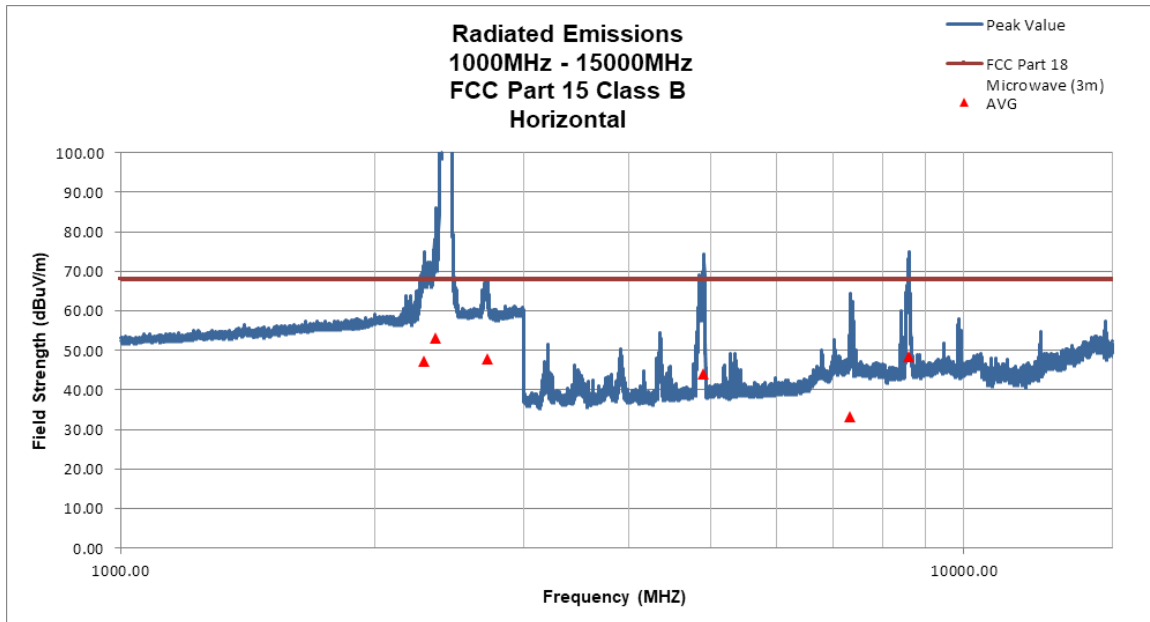


Figure 5. Radiated Emissions Above 1 GHz Horizontal

Note: Measurements were made over the frequency range of 1 GHz to 25 GHz.

Note: All other emissions were more than 20 dB from the limit.

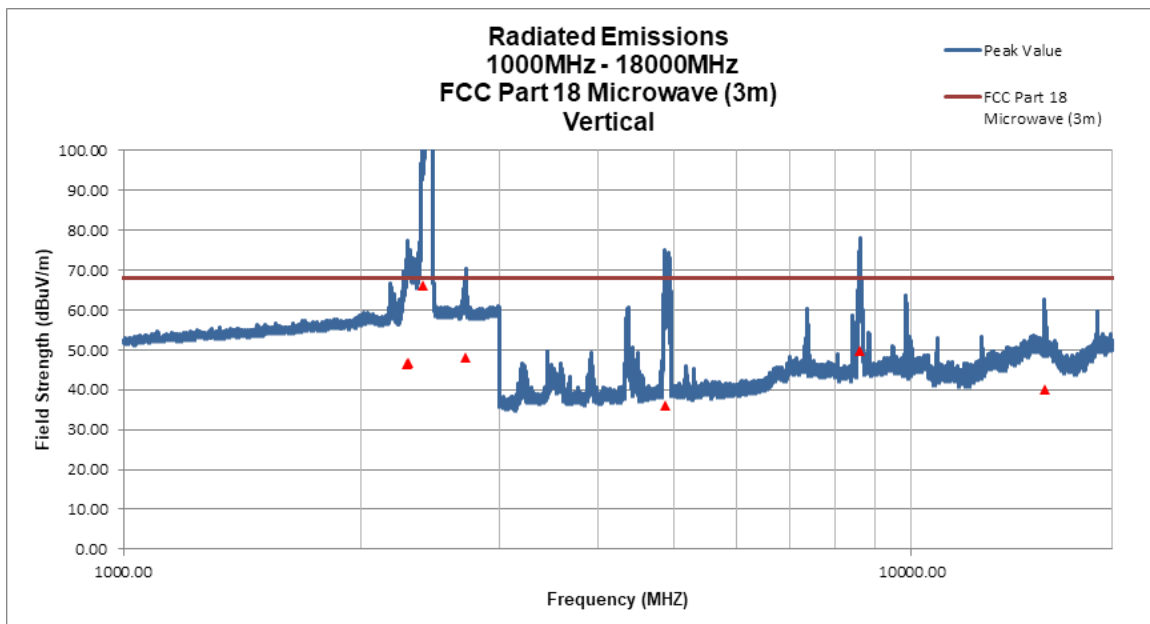


Figure 6. Radiated Emissions Above 1 GHz Vertical

Note: Measurements were made over the frequency range of 1 GHz to 25 GHz.

Note: All other emissions were more than 20 dB from the limit.

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3 Emissions Test Configuration Photographs



Figure 7. Photograph of Radiated Emissions Test Configuration, Close-Up

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Figure 8. Photograph of Radiated Emissions Test Configuration, 30 - 200 MHz



Figure 9. Photograph of Radiated Emissions Test Configuration, 200 - 1000 MHz

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Figure 10. Photograph of Radiated Emissions Test Configuration, 1 - 25 GHz

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4 Test Results

The EUT meets the Technical Requirements of CFR 47 Part 18 Industrial Scientific and Medical Equipment, Subpart C Technical Standards, Part 18.305, Field Strength Limits and Part 18.307, Conducted limits and meets the criteria.

END TEST REPORT