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

May 16, 2019

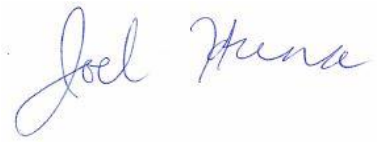
Polycom Inc.
6001 America Center Drive
San Jose, CA 95002

Dear Tony Griffiths,

Enclosed is the EMC Wireless test report for compliance testing of the Polycom Inc., P011 as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Title 47 of the CFR, Part 15.407, Subpart E (UNII 1).

Thank you for using the services of Eurofins MET Labs, Inc. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
EUROFINS MET LABS, INC.



Joel Huna
Documentation Department

Reference: (\Polycom Inc.\ EMCA102119-FCC407 UNII 1 Rev. 2)

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Electromagnetic Compatibility Criteria
Test Report

for the

Polycom Inc.
Model P011

Tested under
The FCC Certification Rules
contained in
Title 47 of the CFR
15.407 Subpart E

MET Report: EMCA102119-FCC407 UNII 1 Rev. 2

May 16, 2019

Prepared For:

Polycom Inc.
6001 America Center Drive
San Jose, CA 95002

Prepared By:
Eurofins MET Labs, Inc.
914 W. Patapsco Ave.
Baltimore, MD 21230

Electromagnetic Compatibility Criteria
Test Report

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Model P011

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15.407 Subpart E

Giuliano Messina, Project Engineer
Electromagnetic Compatibility Lab

Joel Huna
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. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Parts 15B, 15.407, of the FCC Rules under normal use and maintenance.

Jonathan Tavira,
Wireless Manager, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	April 29, 2019	Initial Issue.
1	May 2, 2019	Max power correction.

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List of Terms and Abbreviations

AC	**A**lternating **C**urrent
ACF	**A**ntenna **C**orrection **F**actor
Cal	**Cal**ibration
d	**M**easurement **D**istance
dB	**D**eci**b**els
dBµA	**D**eci**b**els above one **micro**amp
dBµV	**D**eci**b**els above one **micro**volt
dBµA/m	**D**eci**b**els above one **micro**amp **per m**eter
dBµV/m	**D**eci**b**els above one **micro**volt **per m**eter
DC	**D**irect **C**urrent
E	**E**lectric Field
DSL	**D**igital **S**ubscriber **L**ine
ESD	**E**lectro**s**tatic **D**ischarge
EUT	**E**quipment **U**nder **T**est
f	**F**requency
FCC	**F**ederal **C**ommunications **C**ommission
GRP	**G**round **R**eference **P**lane
H	Magnetic Field
HCP	**H**orizontal **C**oupling **P**lane
Hz	**H**er**z**
IEC	**I**nternational **E**lectrotechnical **C**ommission
kHz	**K**ilo**h**er**z**
kPa	**K**ilo**pa**scal
kV	**K**ilo**v**olt
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
MHz	**M**ega**h**ertz
µH	**Micro**henry
µ	**Micro**farad
µs	**Micros**econds
PRF	**P**ulse **R**epetition **F**requency
RF	**R**adio **F**requency
RMS	**R**oot-**M**ean-**S**quare
TWT	**T**raveling **W**ave **T**ube
V/m	**V**olts **per m**eter
VCP	**V**ertical **C**oupling **P**lane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Polycom Inc. P011, with the requirements of Part 15, §15.407. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect. In accordance with §2.1033, the following data is presented in support of the Certification of the P011. Polycom Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the P011, 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 15, §15.407, in accordance with Polycom Inc., purchase order number 6090003000. All tests were conducted using measurement procedure ANSI C63.4-2014.

FCC Reference	Description	Results
§15.203	Antenna Requirement	Compliant
§15.403(i)	26dB Occupied Bandwidth	Compliant
§15.407 (a)(1)	Maximum Conducted Output Power	Compliant
§15.407 (a)(1)	Maximum Power Spectral Density	Compliant
§15.407 (b)(1)& (6 - 7)	Undesirable Emissions	Compliant
§15.407(b)(6)	Conducted Emission Limits	Compliant
§15.407(a.1 iv)	Max EIRP and Max EIRP > 30° from horizon	Compliant – See Conducted Transmitter Output Power Section.
§15.407(f)	RF Exposure	Compliant
§15.407(g)	Frequency Stability	Compliant

Table 1. Executive Summary of EMC Part 15.407 ComplianceTesting

II. Equipment Configuration

A. Overview

Eurofins MET Labs, Inc. was contracted by Polycom Inc. to perform testing on the P011, under Polycom Inc.'s purchase order number 6090003000.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Polycom Inc. P011.

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

Model(s) Tested:	P011	
Model(s) Covered:	P011	
EUT Specifications:	Primary Power: 120VAC	
	FCC ID: M72-P011	
	Type of Modulations:	OFDM
	Equipment Code:	NII
	Max. RF Output Power:	16.771 dBm
	EUT Frequency Ranges:	5150 – 5250 MHz
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	
Type of Filing:	Original	
Evaluated by:	Giuliano Messina	
Report Date(s):	May 16, 2019	

Table 2. EUT Summary

B. References

CFR 47, Part 15, Subpart E	Unlicensed National Information Infrastructure Devices (UNII)
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 17025:2005	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
789033 D02 General UNII Test Procedures New Rules v02	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

Table 3. References

C. Test Site

All testing was performed at Eurofins MET Labs, Inc., 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.

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 Eurofins MET Labs.

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%

Table 4. Uncertainty Calculations Summary

E. Description of Test Sample

The Polycom Inc. P011, Equipment Under Test (EUT), is a video CODEC with Wi-Fi and Bluetooth functions. It is intended to be used in enterprise environments.

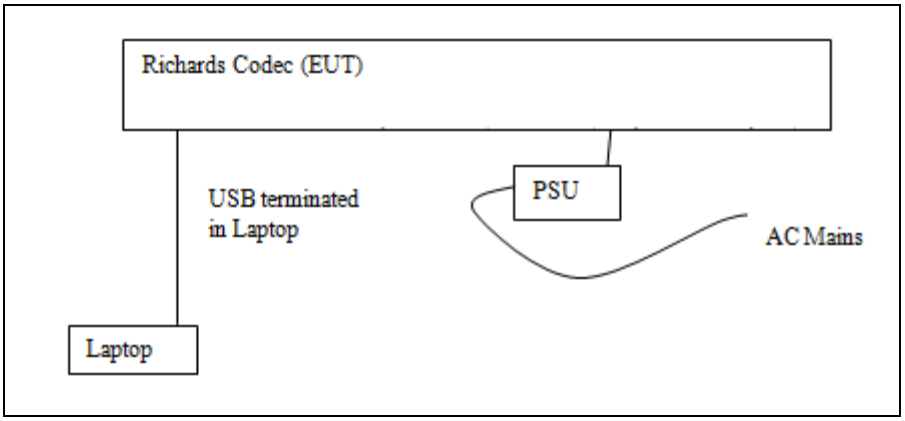


Figure 1. Block Diagram of Test Configuration

F. Equipment Configuration

All cards, racks, etc., incorporated as part of the EUT is included in the following list.

Ref. ID	Name / Description	Model Number	Part Number	Serial Number	Revision
1	P011 CODEC	--	2201-85340-001	8219024D0080F2	--

Table 5. Equipment Configuration

G. Support Equipment

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

Ref. ID	Name / Description	Manufacturer	Model Number	Customer Supplied Calibration Data
1	PSU	Sparkle FSP180-AWAN3	9NA1804503	--
2	Laptop	ASUS	X200M	--

Table 6. Support Equipment

H. Ports and Cabling Information

Ref. ID	Port name on EUT	Cable Description or reason for no cable	Qty	Length as tested (m)	Max Length (m)	Shielded ? (Y/N)	Termination Box ID & Port Name
1	DC In	--	1	--	--	N	DC In
2	USB Type C	USB	1	--	--	--	Control system from laptop

Table 7. Ports and Cabling Information

I. Mode of Operation

The support laptop provided a direct means of controlling transmitter parameters.

Note: Unless otherwise stated or shown, all tests were performed at worst-case modulation and data rates.

J. Method of Monitoring EUT Operation

A spectrum analyzer was used to confirm proper transmitter operation.

K. 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.

L. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Polycom Inc. upon completion of testing.

III. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 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.

Results: The EUT as tested is compliant the criteria of §15.203. The antenna is not accessible by the end user.

Test Engineer(s): Giuliano Messina

Test Date(s): February 18, 2019

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15. 403(i) 26dB Bandwidth

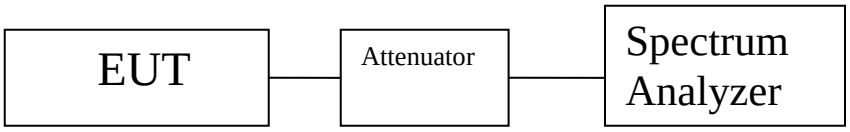
Test Requirements: **§ 15.403(i):** For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Procedure: The transmitter was set to low, mid, and high operating frequencies at the highest output power and connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using a RBW approximately equal to 1% of the total emission bandwidth, VBW > RBW. The 26 dB Bandwidth was measured and recorded.

Test Results The 26 dB Bandwidth was compliant with the requirements of this section.

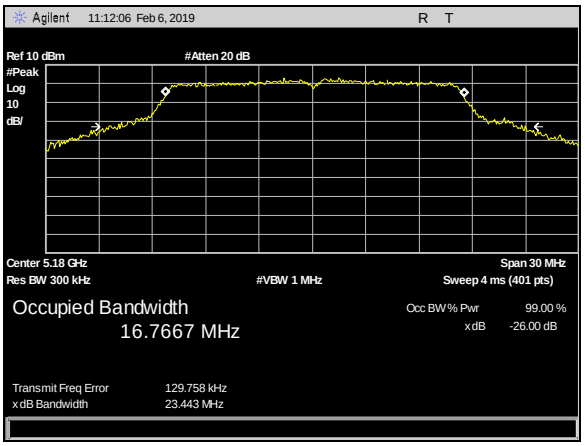
Test Engineer(s): Giuliano Messina

Test Date(s): February 15, 2019

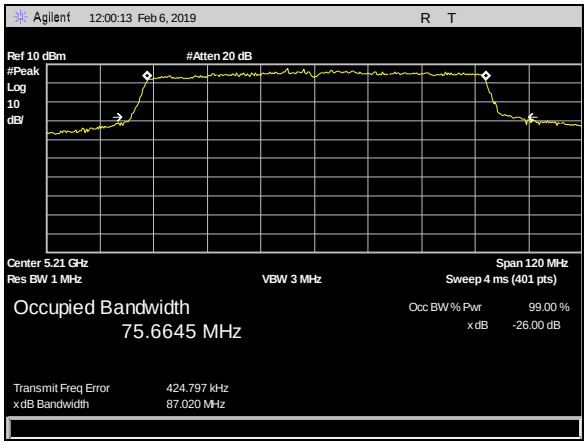


Mode	Freq (MHz)	-26dB Chain 1 (MHz)	99% Chain 1 (MHz)	-26dB Chain 2 (MHz)	99% Chain 2 (MHz)
802.11a	5180	23.443	16.77	23.583	16.84
802.11a	5200	23.513	16.88	23.756	16.91
802.11a	5240	24.543	16.88	23.545	16.86
802.11n 20	5180	25.02	17.93	25.411	17.97
802.11n 20	5200	24.461	18	24.782	18.03
802.11n 20	5240	24.917	17.97	24.268	18.01
802.11ac 20	5180	22.57	17.96	23.307	18.01
802.11ac 20	5200	28.972	18.28	30.698	18.53
802.11ac 20	5240	31.417	18.26	24.893	18.11
802.11n 40	5190	41.285	36.08	42.918	36.44
802.11n 40	5230	41.42	36.15	41.281	36.14
802.11ac 40	5190	43.114	36.38	74.548	40.79
802.11ac 40	5230	65.543	37.24	60.873	36.73
802.11ac 80	5210	87.02	75.66	84.456	75.6

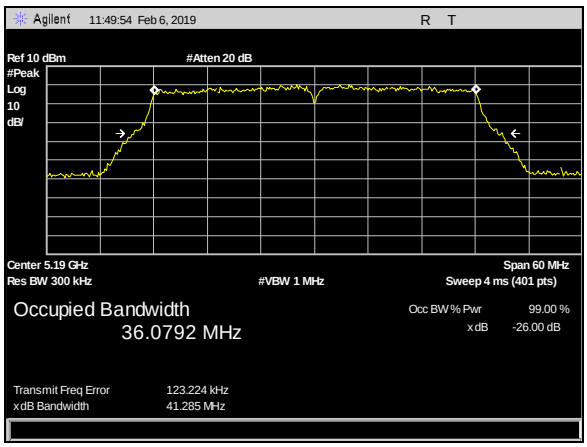
Table 8. 26 dB Bandwidth, Test Results



Plot 1. 26dB Occupied Bandwidth, 802.11a, 5180, 23.443MHz



Plot 2. 26dB Occupied Bandwidth, 802.11ac 80, 5210, 87.02MHz



Plot 3. 26dB Occupied Bandwidth, 802.11n 40, 5190, 41.285MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§15. 407(a)(1) Maximum Conducted Output Power

Test Requirements:

§15.407(a)(1)(i): For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(1)(ii): For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(1)(iii): For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

§15.407(a)(1)(iv): For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

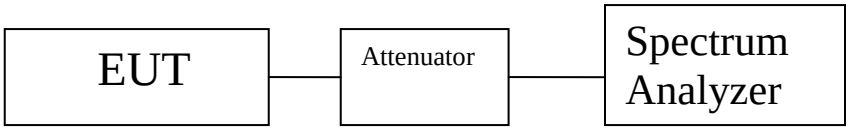
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure: The EUT was connected to a spectrum analyzer through a cable and attenuator. Measurements were taken with the EUT set to transmit continuously on its low, mid, and high channels. Its power was measured according to measurement method SA-1, as described in 789033 D02 General UNII Test Procedures v02.

Test Results: The EUT as tested is compliant with the requirements of this section.

Test Engineer(s): Giuliano Messina

Test Date(s): February 12, 2019



Mode	Freq (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Combined power (dBm)
802.11a	5180	13.53	13.81	16.68256
802.11a	5200	13.57	13.31	16.45225
802.11a	5240	13.4	13.91	16.67278
802.11n 20	5180	13.45	13.63	16.55123
802.11n 20	5200	13.54	13.4	16.48086
802.11n 20	5240	13.38	13.91	16.66338
802.11ac 20	5180	13.62	13.6	16.62031
802.11ac 20	5200	13.84	13.68	16.77104
802.11ac 20	5240	13.6	13.42	16.52123
802.11n 40	5190	12.57	13.96	16.33067
802.11n 40	5230	13.4	13.22	16.32123
802.11ac 40	5190	13.22	13.01	16.12657
802.11ac 40	5230	13.26	13.27	16.2753
802.11ac 80	5210	13.49	13.69	16.60145

Table 9. Conducted Output Power, Test Results

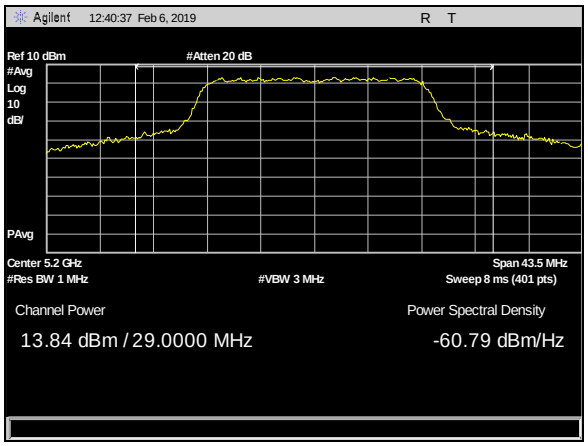
Max Conducted Output Power, combined =

10 * log (10^(Ant1dBm/10) + 10^(Ant2dBm))

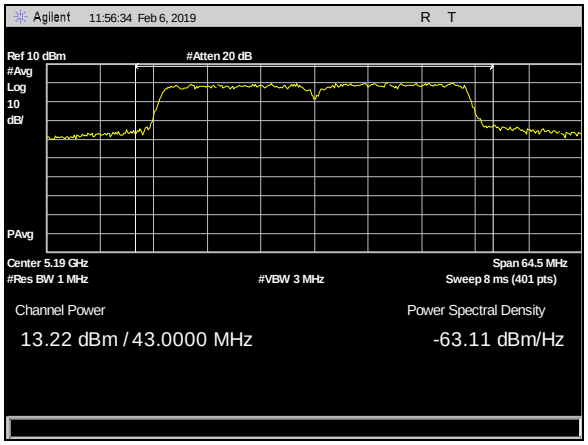
Max Conducted Output Power, combined = 16.771 dBm

EIRP calculation:		Ant gain = 3 dBi	
Mode	Freq (MHz)	Chain 1 (dBm)	Chain 2 (dBm)
802.11ac 20	5200	13.84	13.68
EIRP each =		16.84	16.68
EIRP Total = 19.77103674			

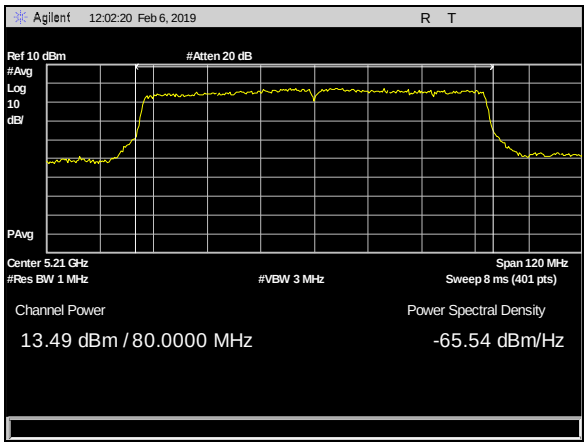
Table 10. EIRP Calculation



Plot 4. Output Power, 802.11ac 20, 5200, 13.84MHz



Plot 5. Output Power, 802.11ac 40, 5190, 13.22MHz



Plot 6. Output Power, 802.11ac 80, 5210, 13.49MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§15.407(a)(1) Maximum Power Spectral Density

Test Requirements:

§15.407(a)(1)(i): In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(1)(ii): In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407(a)(1)(iii): In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

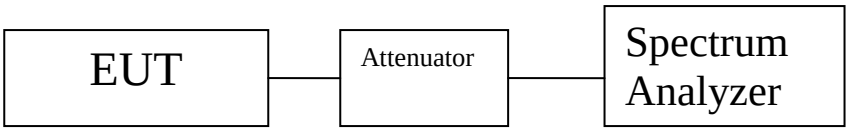
§15.407(a)(1)(iv): In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure: The EUT was connected to a spectrum analyzer through a cable and attenuator. Measurements were taken with the EUT set to transmit continuously on its low, mid, and high channels. Its power was measured according KDB 789033 D02 General UNII Test Procedures v02.

Test Results: The EUT as tested is compliant with the requirements of this section.

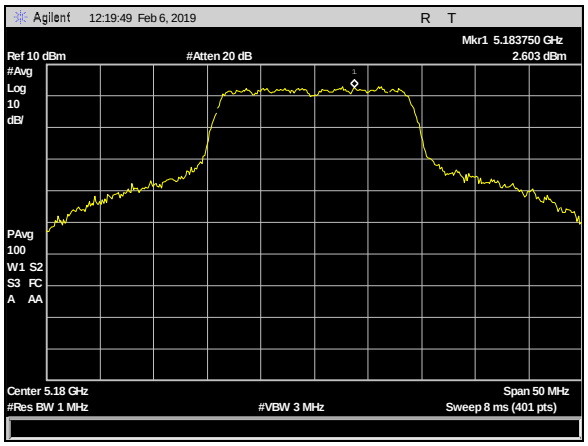
Test Engineer(s): Giuliano Messina

Test Date(s): February 15, 2019

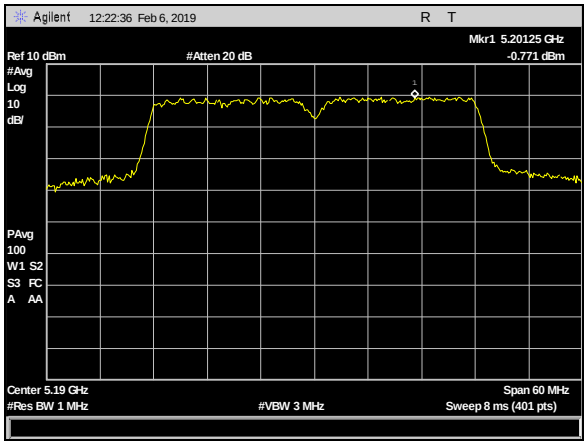


Mode	Freq (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Combined PSD (dBm)
802.11a	5180	3.079	3.356	6.230008
802.11a	5200	3.43	2.859	6.164177
802.11a	5240	2.996	3.816	6.435625
802.11n 20	5180	2.809	3.062	5.947642
802.11n 20	5200	2.434	2.834	5.648904
802.11n 20	5240	2.587	3.213	5.921569
802.11ac 20	5180	2.603	2.351	5.489127
802.11ac 20	5200	2.591	1.964	5.299105
802.11ac 20	5240	2.434	2.152	5.305588
802.11n 40	5190	-0.848	-0.375	2.405236
802.11n 40	5230	-0.113	0.725	3.336481
802.11ac 40	5190	-0.771	-0.442	2.406915
802.11ac 40	5230	-1.018	-0.879	2.062356
802.11ac 80	5210	-3.311	-2.859	-0.06882

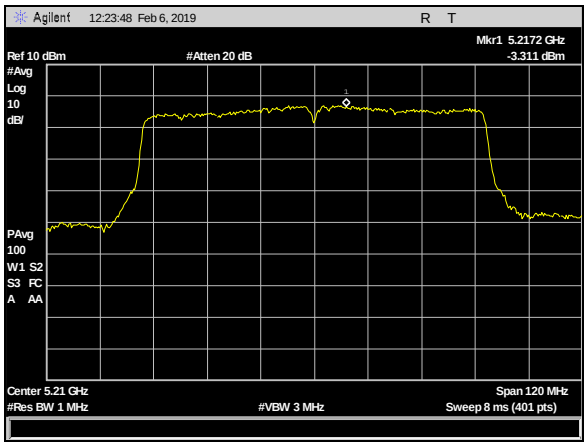
Table 11. Power Spectral Density, Test Results



Plot 7. Power Spectral Density 802.11ac 20, 5180, 2.603MHz



Plot 8. Power Spectral Density 802.11ac 40, 5190, -0.771MHz



Plot 9. Power Spectral Density 802.11ac 80, 5210, -3.311MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§15.407(b)(1) & (6 – 7) Undesirable Emissions

Test Requirements:

§ 15.407(b)(1): For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

§ 15.407(b)(6): Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.

§ 15.407(b)(7): The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Test Procedure:

The EUT was placed on a non-conducting table on a turntable in a chamber. To find the maximum emission the EUT was set to transmit on low, mid, and high channels. Additionally, the turntable was rotated 360 degrees, the EUT was oriented through its three orthogonal axes, and the receive antenna height was varied in order to maximize emissions.

For frequencies from 30 MHz to 1 GHz, measurements were first made using a peak detector with a 100 kHz resolution bandwidth. Emissions which exceeded the limits were re-measured using a quasi-peak detector with a 120 kHz resolution bandwidth.

Above 1 GHz, measurements were made pursuant the method described in FCC KDB 789033 D02 General UNII Test Procedure New Rules v02. The equation, **EIRP= E + 20 log D – 104.77** was used to convert field strength to EIRP (**E** = field strength (dBµV/m) and **D** = Reference measurement distance**).**

For emissions above 1 GHz and in restricted bands, measurements of the field strength were made with a peak detector and an average detector and compared with the limits of 15.209.

As an alternative, according to FCC KDB 789033 D02 General UNII Test Procedure New Rules v02, all emissions above 1 GHz that comply with the peak and average limits of 15.209 satisfy the requirements of unwanted emissions in 15.407.

Test Results:

For below 1 GHz, the EUT was compliant with the requirements of this section.

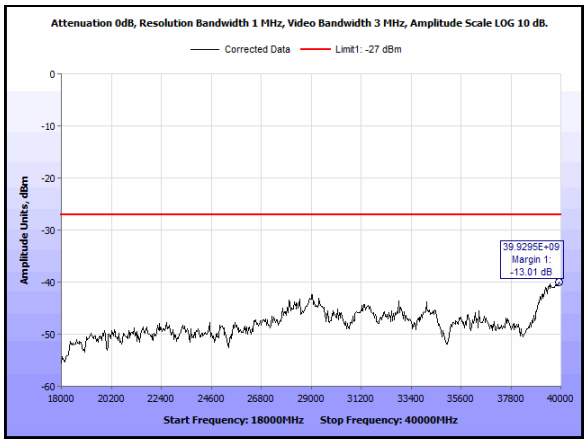
For above 1 GHz, the EUT was compliant with the requirements of this section.

Test Engineer(s):

Giuliano Messina

Test Date(s):

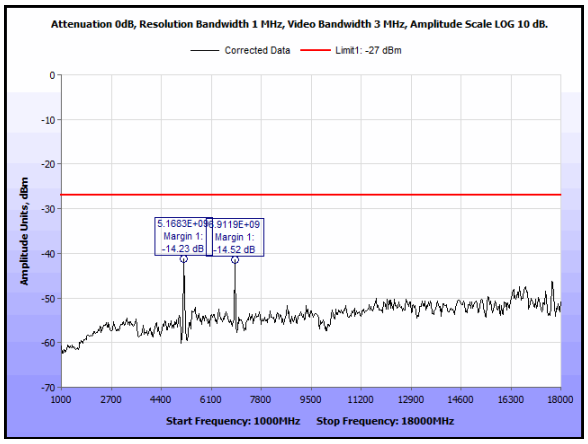
March 1, 2019



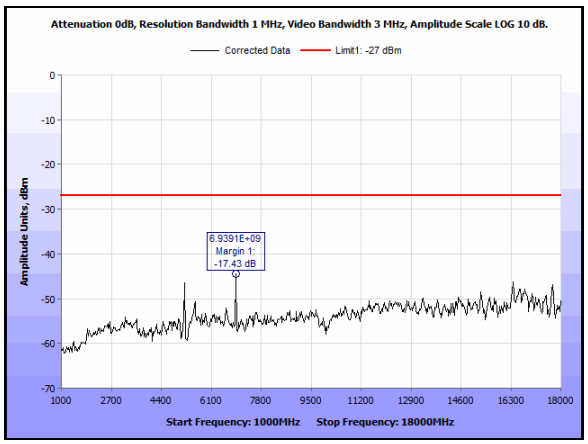
Plot 10. Radiated Emissions, 18-40GHz

Note: The above plot represents all measurements above 18GHz, as none had any measurable spurious emissions above noise floor.

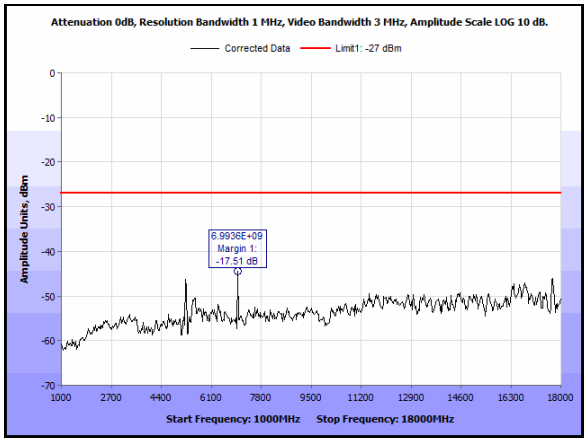
Spurious Emissions, 1-18GHz



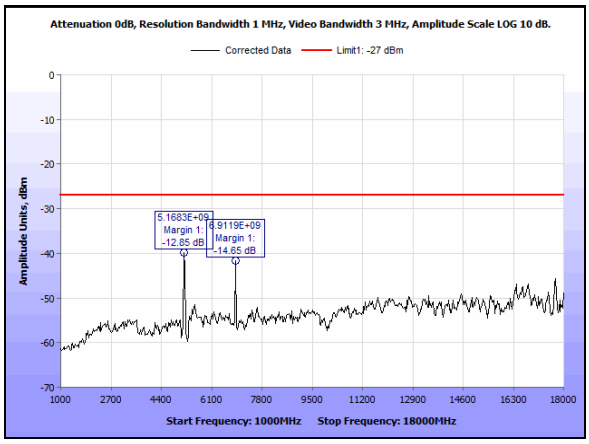
Plot 11. Radiated Emissions, 802.11a, 5180 - 1-18GHz



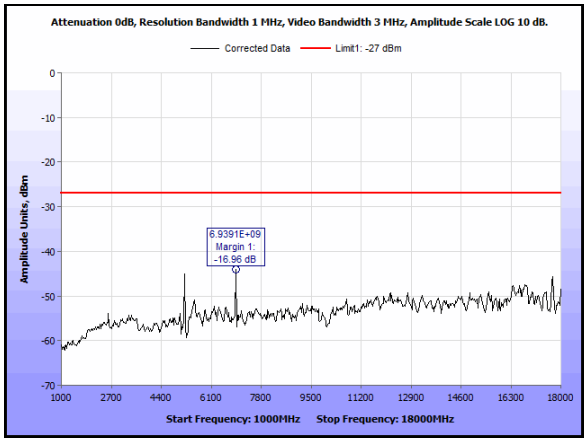
Plot 12. Radiated Emissions, 802.11a, 5200, 1-18GHz



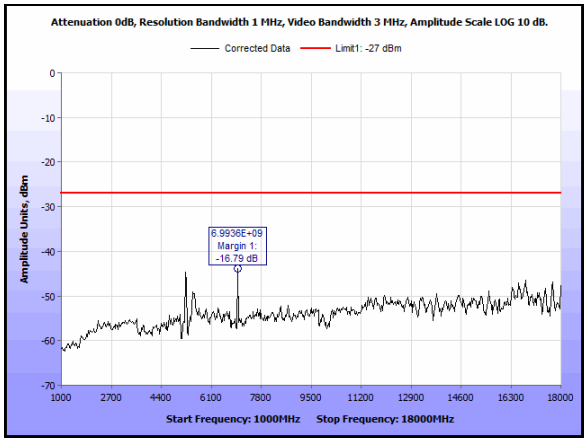
Plot 13. Radiated Emissions, 802.11a, 5240, 1-18GHz



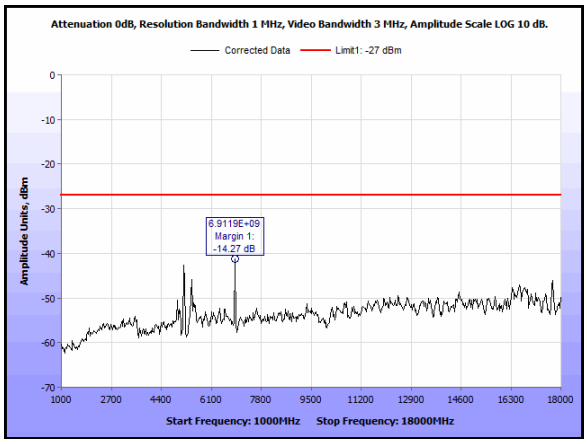
Plot 14. Radiated Emissions, 802.11ac 20, 5180 , 1-18GHz



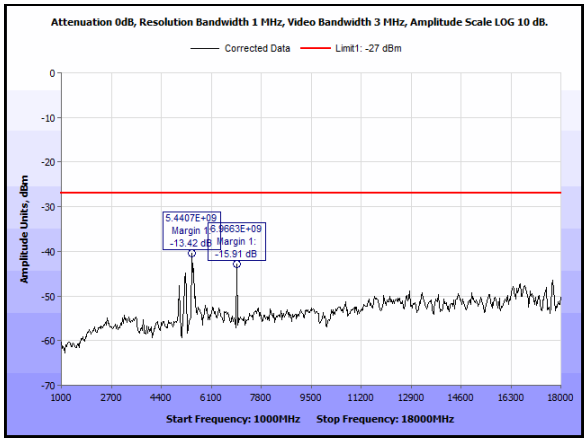
Plot 15. Radiated Emissions, 802.11ac 20, 5200 - 1-18GHz



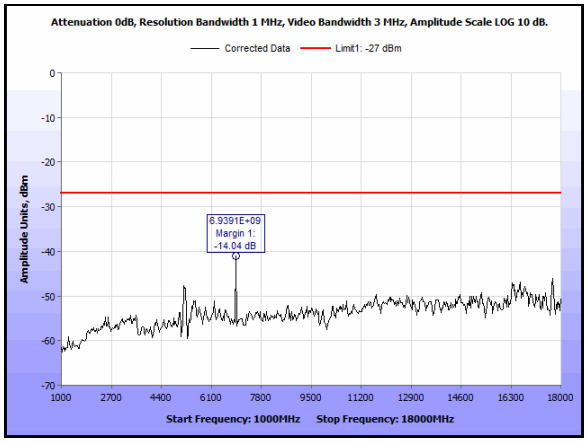
Plot 16. Radiated Emissions, 802.11ac 20, 5240 - 1-18GHz



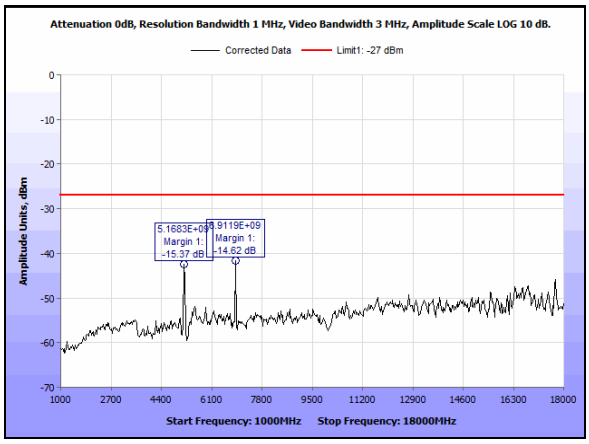
Plot 17. Radiated Emissions, 802.11ac 40, 5190 - 1-18GHz



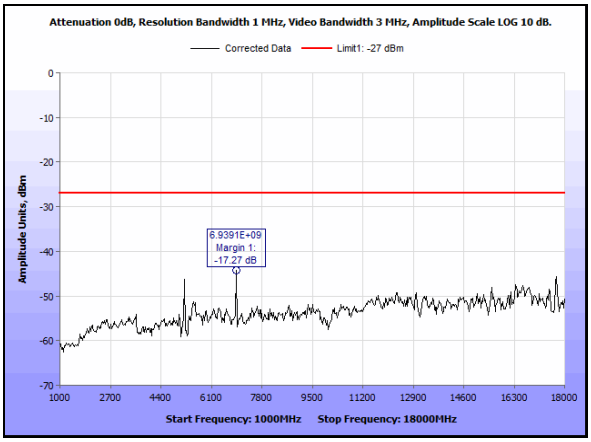
Plot 18. Radiated Emissions, 802.11ac 40, 5230, 1-18GHz



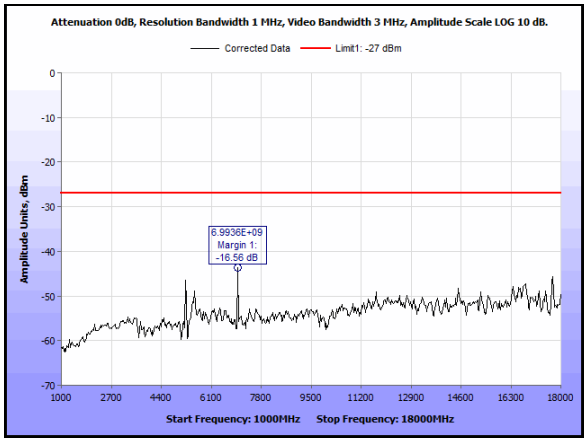
Plot 19. Radiated Emissions, 802.11ac 80, 5210, 1-18GHz



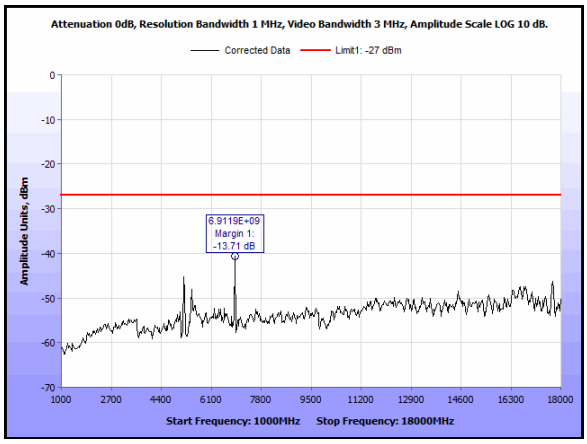
Plot 20. Radiated Emissions, 802.11n 20, 5180, 1-18GHz



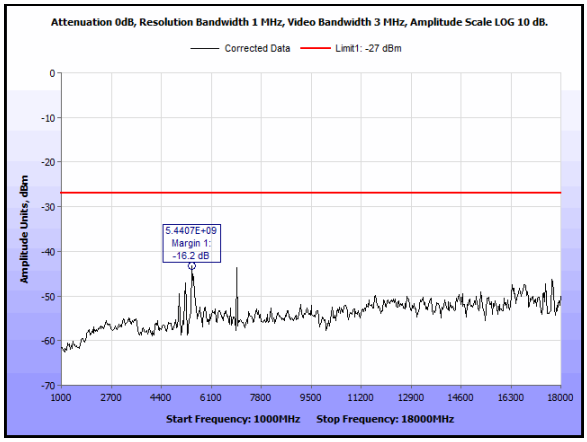
Plot 21. Radiated Emissions, 802.11n 20, 5200, 1-18GHz



Plot 22. Radiated Emissions, 802.11n 20, 5240, 1-18GHz



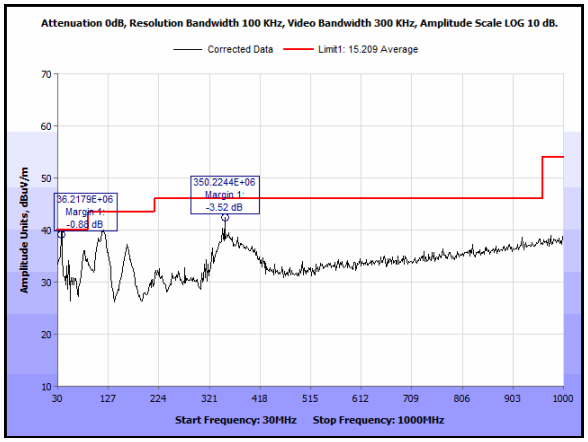
Plot 23. Radiated Emissions, 802.11n 40, 5190, 1-18GHz



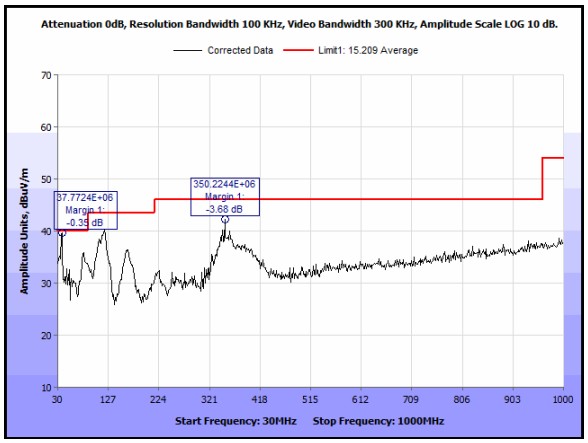
Plot 24. Radiated Emissions, 802.11n 40, 5230, 1-18GHz

Spurious Emissions, 30-1000 MHz

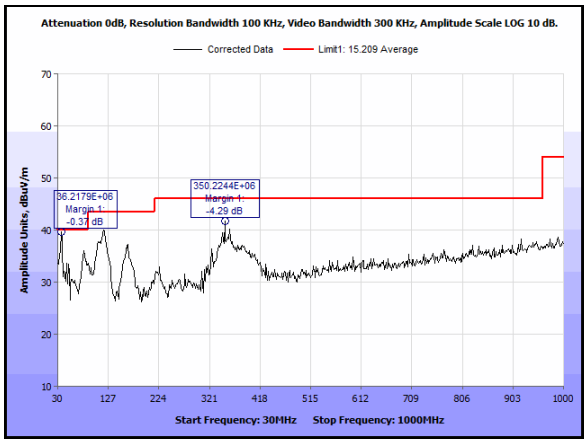
Note: One plot is shown below per mode, as variations in channel did not have any measurable effect in this frequency range.



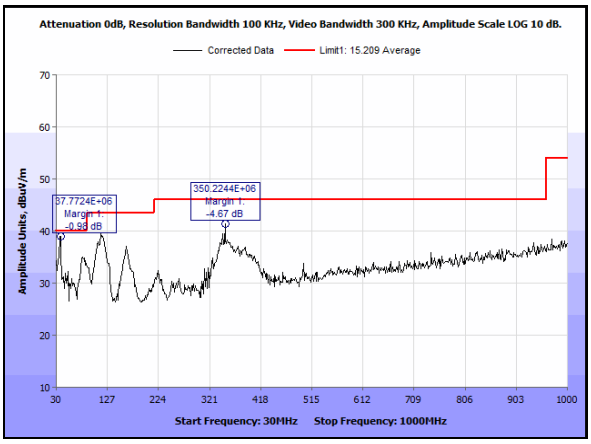
Plot 25. Radiated Emissions, 802.11a, 30-1000MHz



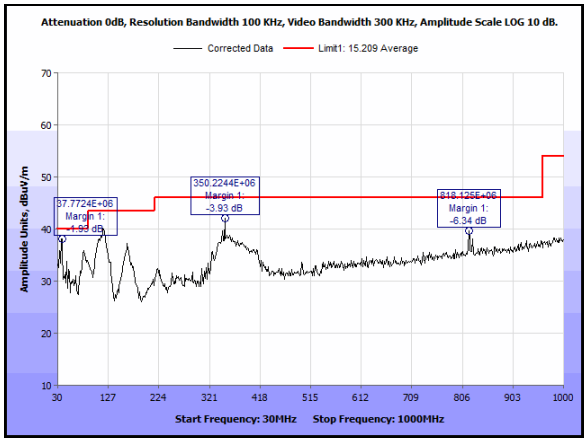
Plot 26. Radiated Emissions, 802.11ac 20, 30-1000MHz



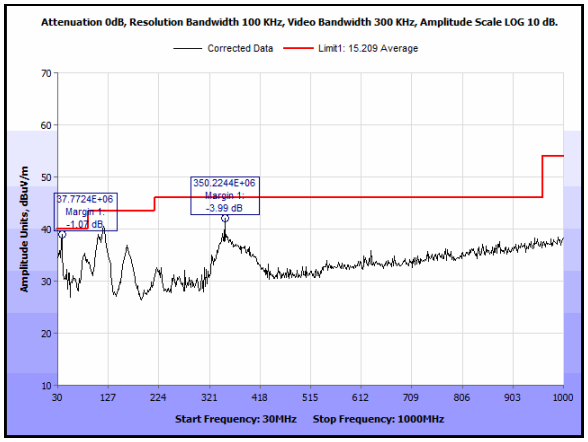
Plot 27. Radiated Emissions, 802.11ac 40, 30-1000MHz



Plot 28. Radiated Emissions, 802.11ac 80, 30-1000MHz

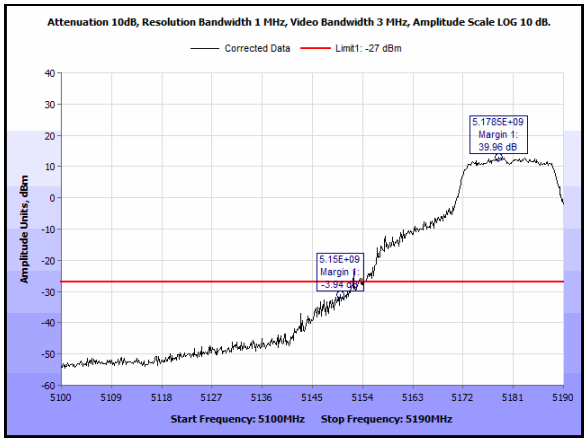


Plot 29. Radiated Emissions, 802.11n 20, 30-1000MHz

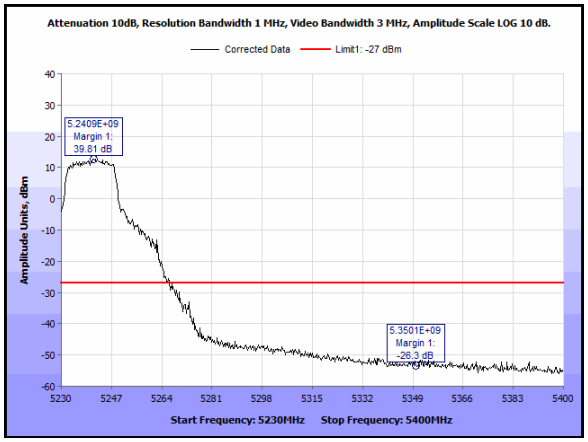


Plot 30. Radiated Emissions, 802.11n 40, 30-1000MHz

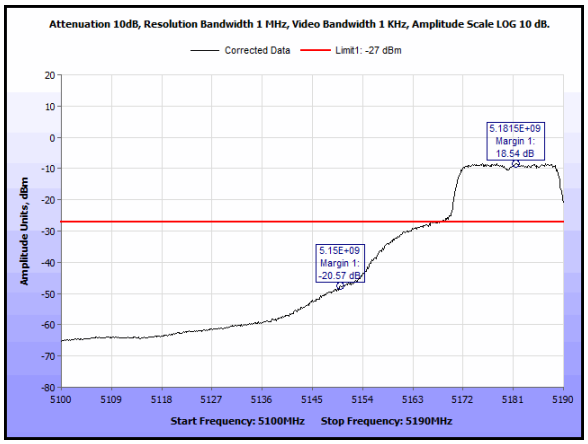
Bandedge



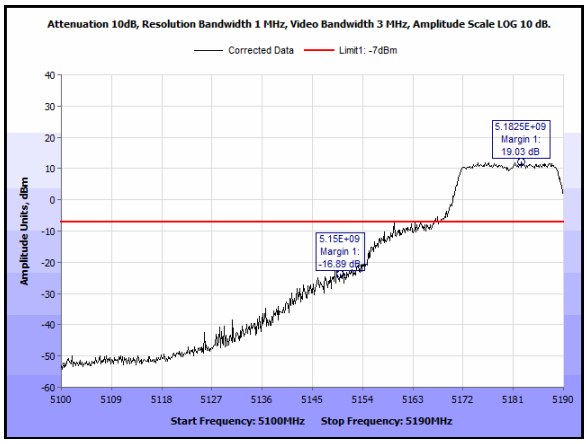
Plot 31. Radiated Emissions, 802.11a, 5180, Bandedge Low



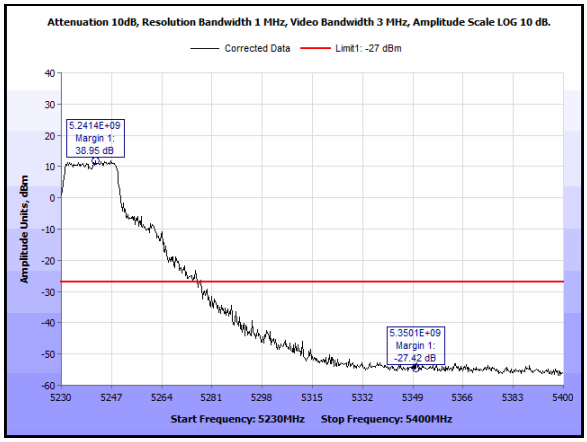
Plot 32. Radiated Emissions, 802.11a, 5240, Bandedge High



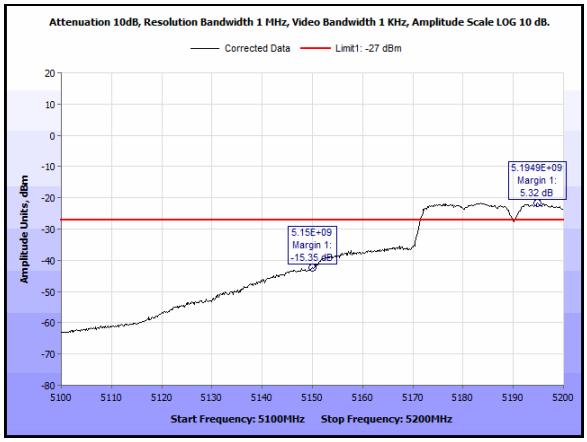
Plot 33. Radiated Emissions, 802.11ac 20, 5180, Bandedge Low, Average



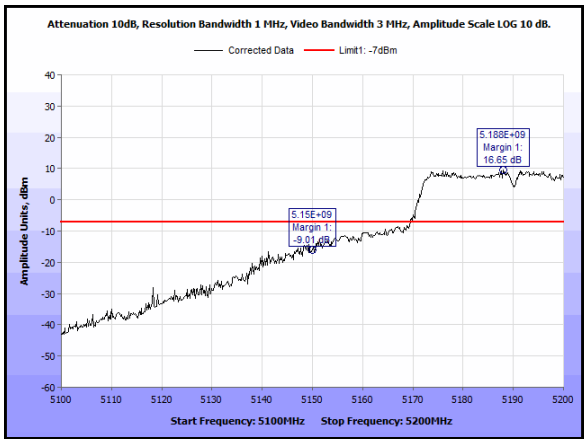
Plot 34. Radiated Emissions, 802.11ac 20, 5180, Bandedge Low, Peak



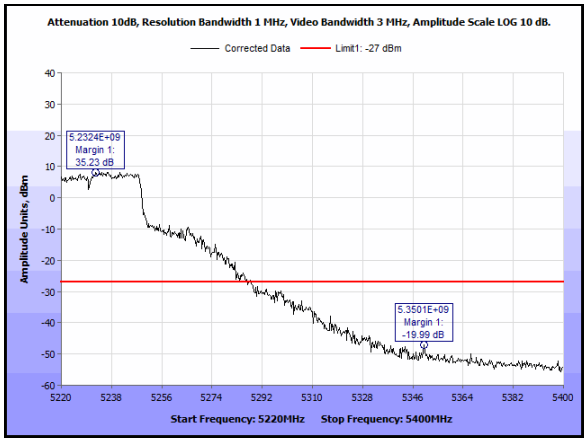
Plot 35. Radiated Emissions, 802.11ac 20, 5240, Bandedge High



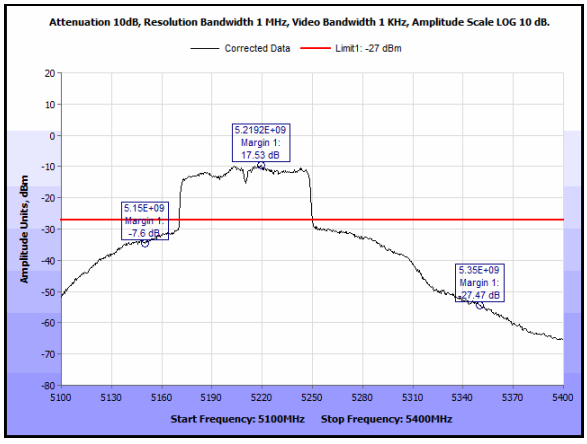
Plot 36. Radiated Emissions, 802.11ac 40, 5190, Bandedge Low, Average



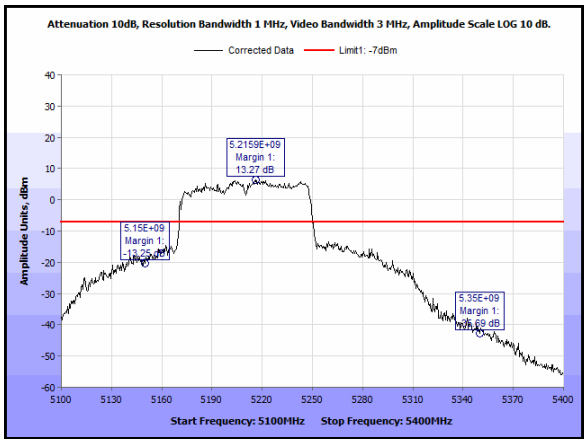
Plot 37. Radiated Emissions, 802.11ac 40, 5190, Bandedge Low, Peak



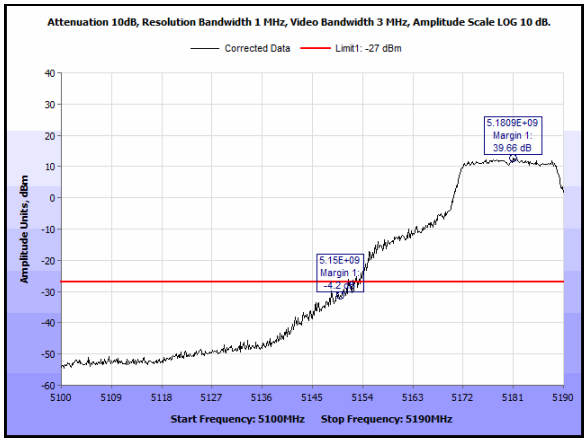
Plot 38. Radiated Emissions, 802.11ac 40, 5230, Bandedge High



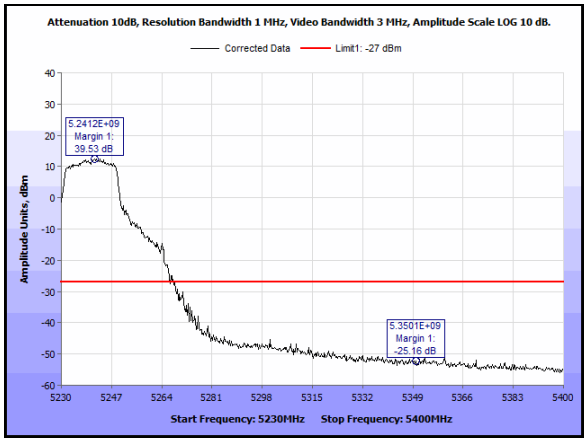
Plot 39. Radiated Emissions, 802.11ac 80, 5210, Bandedge, Average



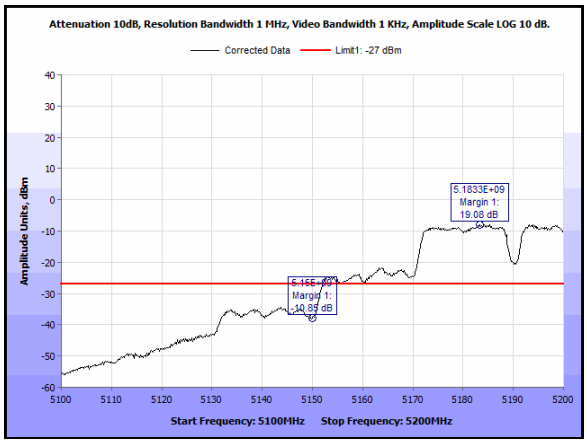
Plot 40. Radiated Emissions, 802.11ac 80, 5210, Bandedge, Peak



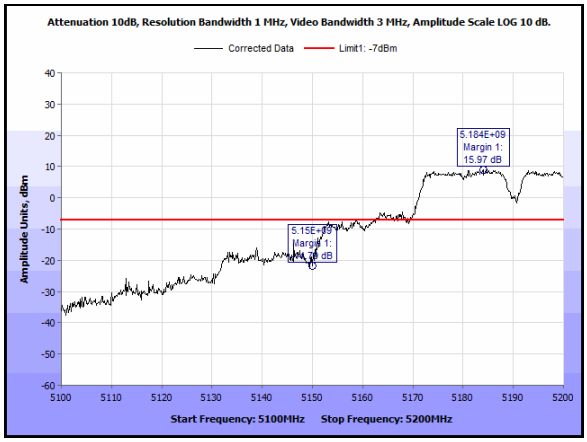
Plot 41. Radiated Emissions, 802.11n 20, 5180, Bandedge Low



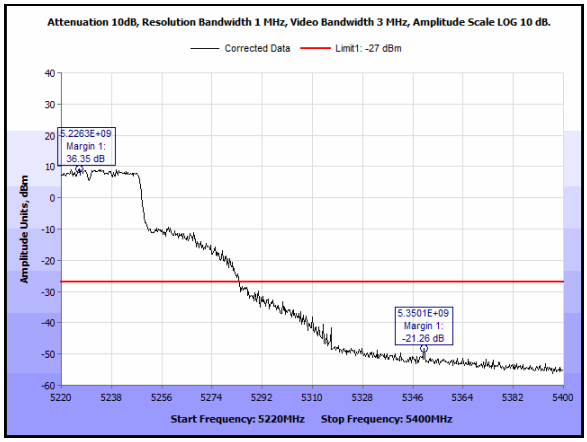
Plot 42. Radiated Emissions, 802.11n 20, 5240, Bandedge High



Plot 43. Radiated Emissions, 802.11n 40, 5190, Bandedge Low, Average



Plot 44. Radiated Emissions, 802.11n 40, 5190, Bandedge Low, Peak



Plot 45. Radiated Emissions, 802.11n 40, 5230, Bandedge High

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(b)(6) Conducted Emissions

Test Requirement(s): **§ 15.407 (b)(6):** Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

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

Test Procedure: The EUT was placed on a non-metallic 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 C63.4-2014 "Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz"*. Scans were performed with the transmitter on.

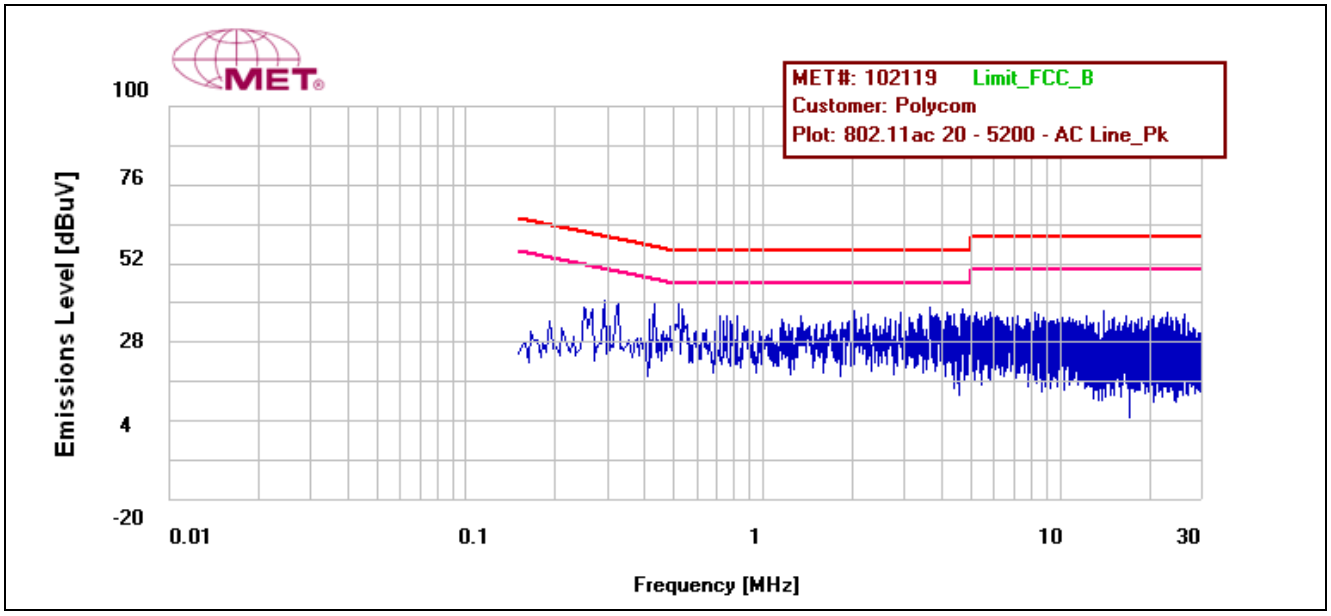
Test Results: The EUT was compliant with requirements of this section.

Test Engineer(s): Giuliano Messina

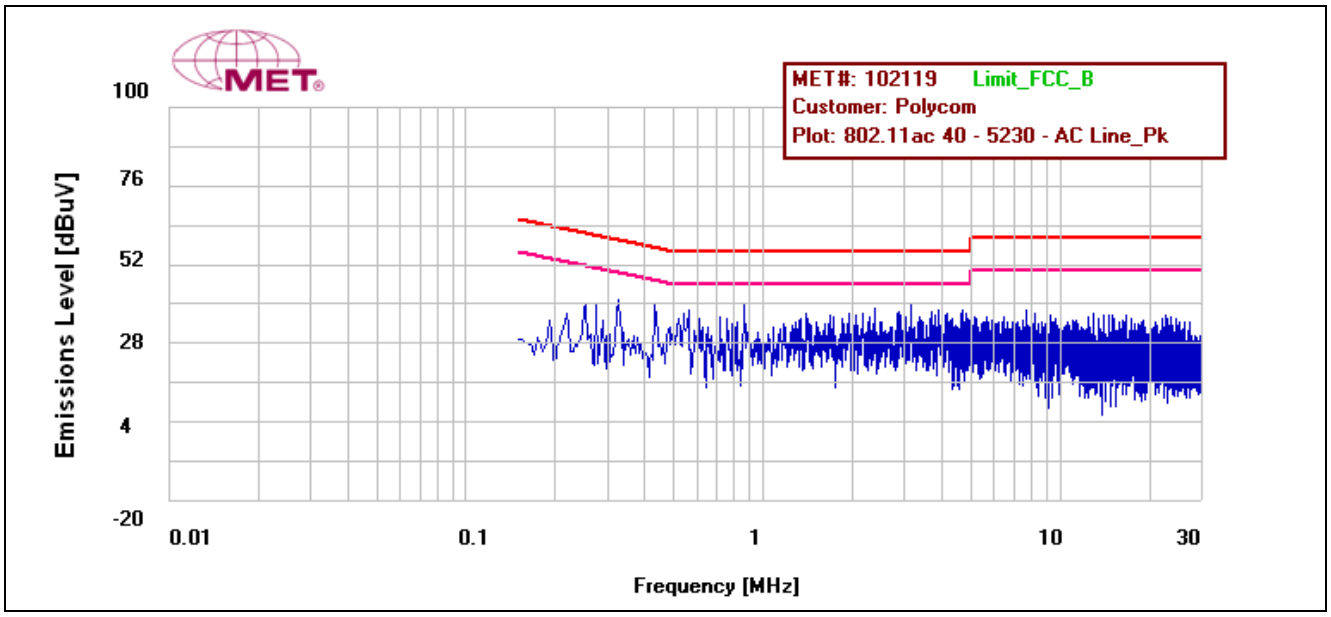
Test Date(s): 2/19/19

Line	Freq (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
802.11ac 20 - 5200 - AC Line	0.302	39.2	60.204	-21.004	Pass	24.6	50.204	-25.604	Pass
802.11ac 20 - 5200 - AC Line	0.294	39	60.426	-21.426	Pass	25.1	50.426	-25.326	Pass
802.11ac 20 - 5200 - AC Line	0.522	35.4	56	-20.6	Pass	30.2	46	-15.8	Pass
802.11ac 20 - 5200 - AC Line	0.326	40.2	59.57	-19.37	Pass	33.1	49.57	-16.47	Pass
802.11ac 20 - 5200 - AC Line	0.430	39.5	57.277	-17.777	Pass	33	47.277	-14.277	Pass
802.11ac 20 - 5200 - AC Line	3.670	35.6	56	-20.4	Pass	29.4	46	-16.6	Pass
802.11ac 40 - 5230 - AC Line	0.326	40.8	59.57	-18.77	Pass	34.5	49.57	-15.07	Pass
802.11ac 40 - 5230 - AC Line	0.870	40.1	56	-15.9	Pass	33.3	46	-12.7	Pass
802.11ac 40 - 5230 - AC Line	0.302	39.4	60.204	-20.804	Pass	24.6	50.204	-25.604	Pass
802.11ac 40 - 5230 - AC Line	0.274	38.3	61.009	-22.709	Pass	27.1	51.009	-23.909	Pass
802.11ac 40 - 5230 - AC Line	0.434	40	57.2	-17.2	Pass	33.8	47.2	-13.4	Pass
802.11ac 40 - 5230 - AC Line	3.162	35.2	56	-20.8	Pass	28.4	46	-17.6	Pass
802.11ac 80 - 5210 - AC Line	0.866	40	56	-16	Pass	33.2	46	-12.8	Pass
802.11ac 80 - 5210 - AC Line	0.306	39.3	60.095	-20.795	Pass	24.5	50.095	-25.595	Pass
802.11ac 80 - 5210 - AC Line	0.326	40.3	59.57	-19.27	Pass	33.6	49.57	-15.97	Pass
802.11ac 80 - 5210 - AC Line	22.654	36.1	60	-23.9	Pass	33.6	50	-16.4	Pass
802.11ac 80 - 5210 - AC Line	0.250	38.3	61.769	-23.469	Pass	37.3	51.769	-14.469	Pass
802.11ac 80 - 5210 - AC Line	5.626	33.3	60	-26.7	Pass	27.5	50	-22.5	Pass

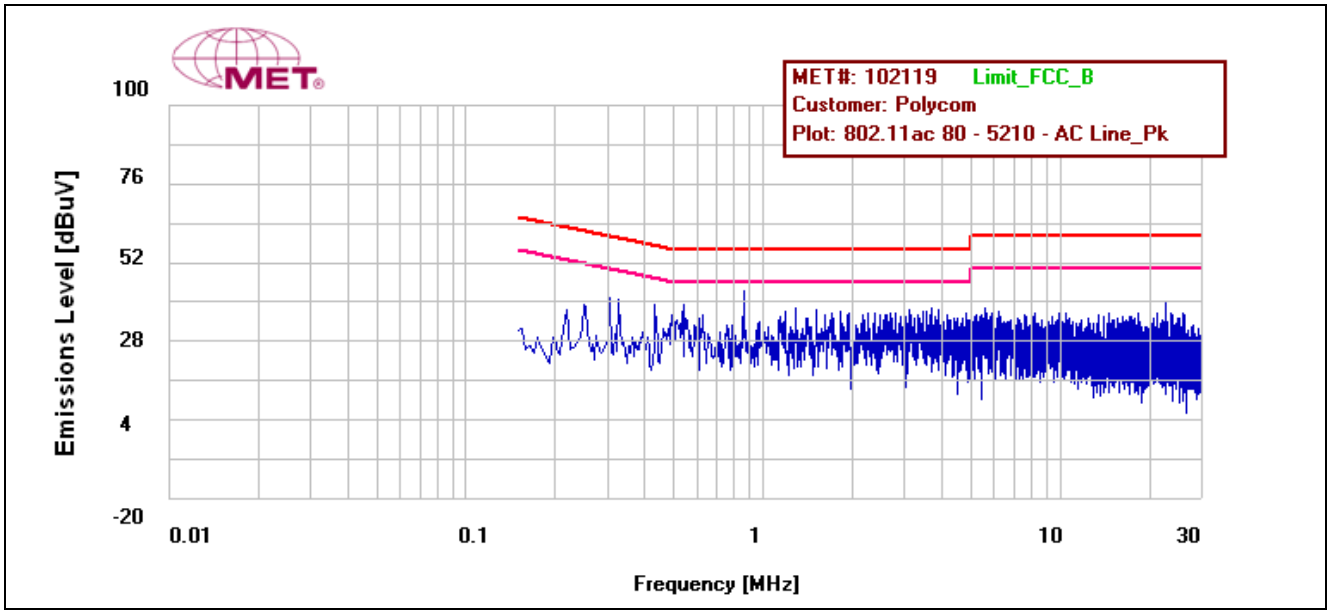
Table 13. Conducted Emissions Voltage, Test Results, Phase Line



Plot 46. Conducted Emissions Voltage, Phase Line, 802.11ac 20 MHz, 5200 MHz



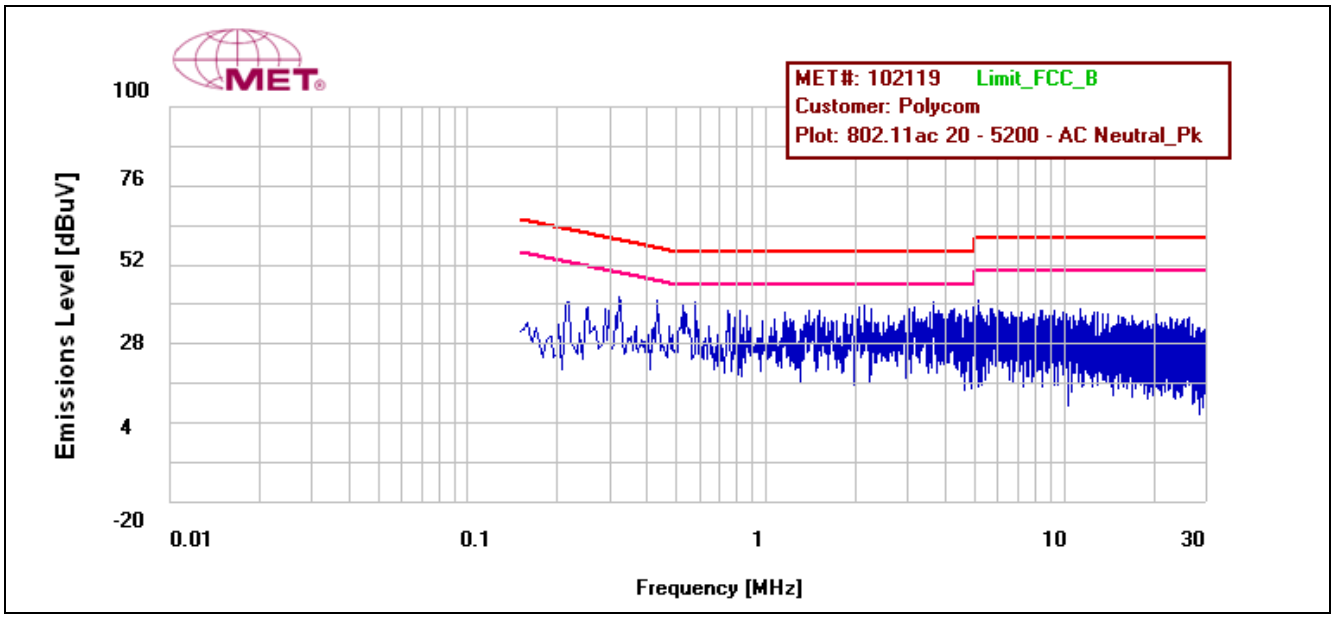
Plot 47. Conducted Emissions Voltage, Phase Line, 802.11ac 40 MHz, 5230 MHz



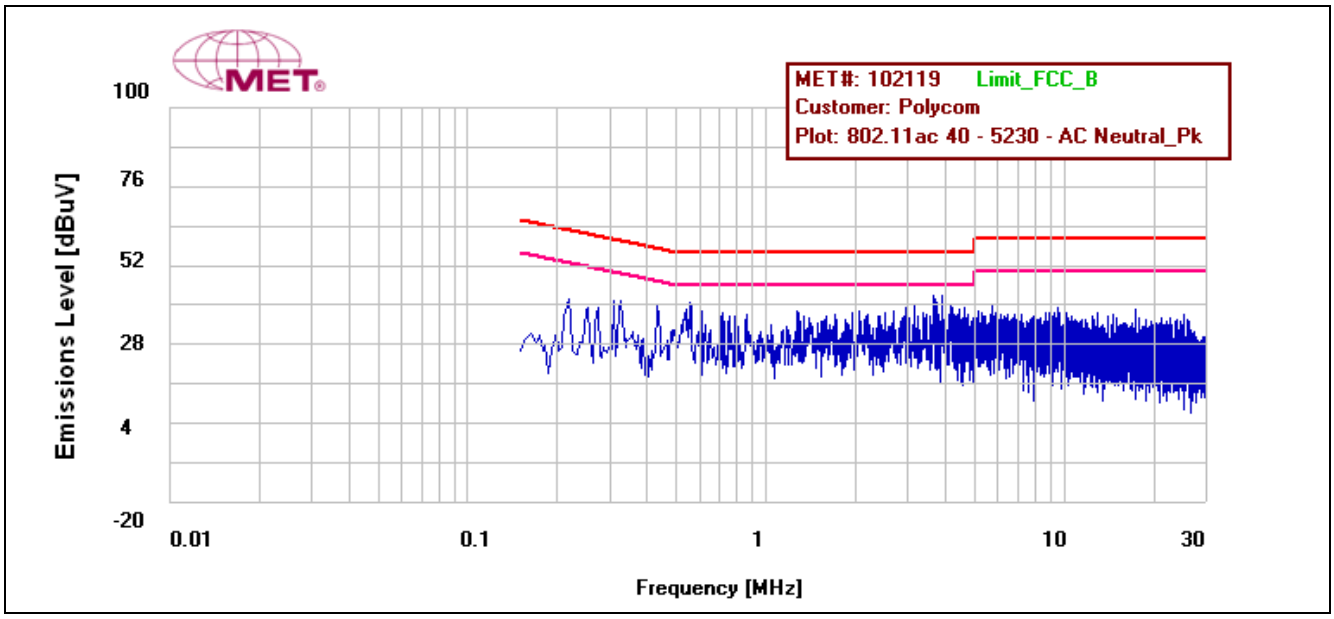
Plot 48. Conducted Emissions Voltage, Phase Line, 802.11ac 80 MHz, 5210 MHz

Line	Freq (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
802.11ac 20 - 5200 - AC Neutral	0.322	40.6	59.672	-19.072	Pass	33.9	49.672	-15.772	Pass
802.11ac 20 - 5200 - AC Neutral	0.430	39.4	57.277	-17.877	Pass	33.1	47.277	-14.177	Pass
802.11ac 20 - 5200 - AC Neutral	5.186	35.8	60	-24.2	Pass	28.4	50	-21.6	Pass
802.11ac 20 - 5200 - AC Neutral	0.582	37.6	56	-18.4	Pass	23.4	46	-22.6	Pass
802.11ac 20 - 5200 - AC Neutral	0.218	40.4	62.903	-22.503	Pass	33.7	52.903	-19.203	Pass
802.11ac 20 - 5200 - AC Neutral	3.682	37.8	56	-18.2	Pass	31.3	46	-14.7	Pass
802.11ac 40 - 5230 - AC Neutral	3.682	37.8	56	-18.2	Pass	31.4	46	-14.6	Pass
802.11ac 40 - 5230 - AC Neutral	3.914	37.2	56	-18.8	Pass	30.8	46	-15.2	Pass
802.11ac 40 - 5230 - AC Neutral	0.218	40.9	62.903	-22.003	Pass	34.3	52.903	-18.603	Pass
802.11ac 40 - 5230 - AC Neutral	0.326	40.9	59.57	-18.67	Pass	34.7	49.57	-14.87	Pass
802.11ac 40 - 5230 - AC Neutral	0.310	39.6	59.987	-20.387	Pass	25	49.987	-24.987	Pass
802.11ac 40 - 5230 - AC Neutral	0.554	37.2	56	-18.8	Pass	31.7	46	-14.3	Pass
802.11ac 80 - 5210 - AC Neutral	2.930	37.1	56	-18.9	Pass	27.6	46	-18.4	Pass
802.11ac 80 - 5210 - AC Neutral	2.278	37.6	56	-18.4	Pass	28.4	46	-17.6	Pass
802.11ac 80 - 5210 - AC Neutral	0.326	40.5	59.57	-19.07	Pass	33.6	49.57	-15.97	Pass
802.11ac 80 - 5210 - AC Neutral	1.302	38.5	56	-17.5	Pass	29.4	46	-16.6	Pass
802.11ac 80 - 5210 - AC Neutral	0.862	40.7	56	-15.3	Pass	33.5	46	-12.5	Pass
802.11ac 80 - 5210 - AC Neutral	0.434	40.1	57.2	-17.1	Pass	32.9	47.2	-14.3	Pass

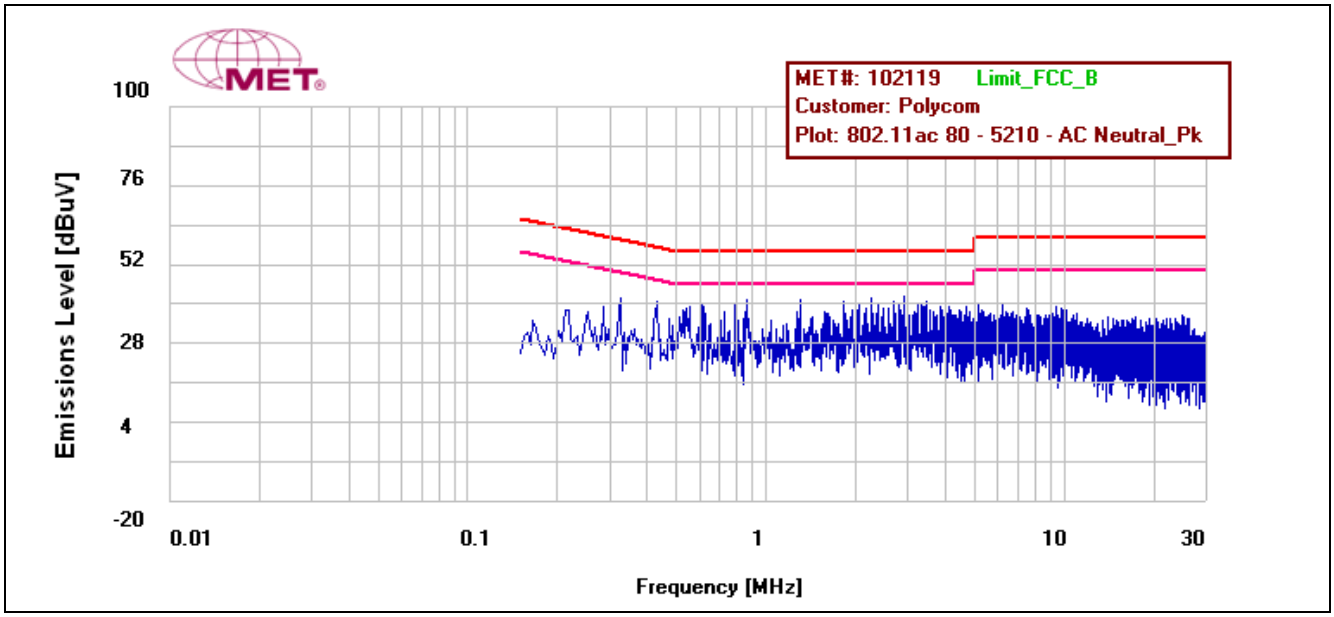
Table 14. Conducted Emissions Voltage, Test Results, Neutral Line



Plot 49. Conducted Emissions Voltage, Neutral Line, 802.11ac 20 MHz, 5200 MHz



Plot 50. Conducted Emissions Voltage, Neutral Line, 802.11ac 40 MHz, 5230 MHz



Plot 51. Conducted Emissions Voltage, Neutral Line, 802.11ac 80 MHz, 5210 MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(f) Maximum Permissible Exposure

Test Requirement(s): **§15.407(f):** U-NII devices are subject to the radio frequency radiation exposure requirements specified in §1.1307(b), §2.1091 and §2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment.

RF Exposure Requirements: **§1.1307(b)(1) and §1.1307(b)(2):** Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

RF Radiation Exposure Limit: **§1.1310:** As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter.

MPE Limit: EUT's operating frequencies @ 5150-5250 MHz; **Limit for Uncontrolled exposure: 1 mW/cm^2 or 10 W/m^2**

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R^2 \quad \text{or} \quad R = \sqrt{(PG / 4\pi S)}$$

where, S = Power Density (mW/cm^2)
P = Power Input to antenna (mW)
G = Antenna Gain (numeric value)
R = Distance (cm)

Test Results:

FCC									
Frequency (MHz)	**Con. Pwr. (dBm)**	**Con. Pwr. (mW)**	**Ant. Gain (dBi)**	**Ant. Gain numeric**	**Pwr. Density (mW/cm^2)**	**Limit (mW/cm^2)**	**Margin**	**Distance (cm)**	**Result**
5200	16.771	47.544	3	1.995	0.01887	1	0.98113	20	Pass

The safe distance where Power Density is less than the MPE Limit listed above was found to be 20 cm.

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(g) Frequency Stability

Test Requirements: Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Test Results: The EUT was compliant with the requirements of this section. TX emission is maintained within the band of operation under all conditions of normal operation.

IV. Test Equipment

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2005.

Test Equipment				Test Date(s):	Jan-Feb, 2019
MET Asset #	**Nomenclature**	**Manufacturer**	**Model**	**Last Cal Date**	**Cal Due Date**
1A1065	EMI RECEIVER	ROHDE & SCHWARZ	ESCI	3/23/2018	3/23/2019
1A1119	TEST AREA	CUSTOM MADE	N/A	SEE NOTE	
1A1122	LISN	TESEQ	NNB 51	7/18/2018	7/18/2019
1A1149	MILLIOHM METER	GW INSTEK	GOM-802	4/20/2018	4/20/2019
1A1079	CONDUCTED COMB GENERATOR	COM-POWER CORP	CGC-255	SEE NOTE	
1A1087	PULSE LIMITER	ROHDE & SCHWARZ	ESH3Z2	4/4/2018	4/4/2019
1A1105	ISN	FISCHER CUSTOM	F-071115-1057-1-09	1/11/2019	1/11/2020
1A1184	SPECTRUM ANALYZER	AGILENT	E4407B	4/20/2018	4/20/2019
1A1083	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESU40	10/17/2018	10/17/2019
1A1106	10M CHAMBER (FCC)	ETS	SEMI-ANECHOIC	SEE NOTE	
1A1050	BILOG ANTENNA (30MHZ TO 1GHZ)	SCHAFFNER	CBL 6112D	8/29/2018	2/29/2020
1A1050-A	ATTENUATOR	FAIRVIEW MICROWAVE	SA6N5WA-04	8/29/2018	2/29/2020
1A1047	HORN ANTENNA	ETS	3117	10/30/2018	4/30/2020
1A1161	DRG HORN ANTENNA	ETS	3116C-PA	10/9/2018	4/9/2020
1A1099	GENERATOR	COM-POWER CORP	CGO-51000	SEE NOTE	
1A1088	PRE-AMP	ROHDE & SCHWARZ	TS-PR1	SEE NOTE	
1A1180	PRE-AMP	MITEQ	AMF-7D-01001800-22-10P	SEE NOTE	
1A1044	GENERATOR	COM-POWER CORP	CG-520	SEE NOTE	
1A1073	MULTI DEVICE CONTROLLER	ETS EMCO	2090	SEE NOTE	
1A1074	SYSTEM CONTROLLER	PANASONIC	WV-CU101	SEE NOTE	
1A1080	MULTI DEVICE CONTROLLER	ETS EMCO	2090	SEE NOTE	

Table 15. Test Equipment List

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

V. Certification & User's Manual Information

Certification & User's Manual Information

M. Certification Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart I — Marketing of Radio frequency devices:

§ 2.801 Radio-frequency device defined.

As used in this part, a radio-frequency device is any device which in its operation is capable of Emitting radio-frequency energy by radiation, conduction, or other means. Radio- frequency devices include, but are not limited to:

(a) The various types of radio communication transmitting devices described throughout this chapter.

(b) The incidental, unintentional and intentional radiators defined in Part 15 of this chapter.

(c) The industrial, scientific, and medical equipment described in Part 18 of this chapter.

(d) Any part or component thereof which in use emits radio-frequency energy by radiation, conduction, or other means.

§ 2.803 Marketing of radio frequency devices prior to equipment authorization.

(a) Except as provided elsewhere in this chapter, no person shall sell or lease, or offer for sale or lease (including advertising for sale or lease), or import, ship or distribute for the purpose of selling or leasing or offering for sale or lease, any radio frequency device unless:

(1) In the case of a device subject to certification, such device has been authorized by the Commission in accordance with the rules in this chapter and is properly identified and labeled as required by §2.925 and other relevant sections in this chapter; or

(2) In the case of a device that is not required to have a grant of equipment authorization issued by the Commission, but which must comply with the specified technical standards prior to use, such device also complies with all applicable administrative (including verification of the equipment or authorization under a Declaration of Conformity, where required), technical, labeling and identification requirements specified in this chapter.

(d) Notwithstanding the provisions of paragraph (a) of this section, the offer for sale solely to business, commercial, industrial, scientific or medical users (but not an offer for sale to other parties or to end users located in a residential environment) of a radio frequency device that is in the conceptual, developmental, design or pre-production stage is permitted prior to equipment authorization or, for devices not subject to the equipment authorization requirements, prior to a determination of compliance with the applicable technical requirements *provided* that the prospective buyer is advised in writing at the time of the offer for sale that the equipment is subject to the FCC rules and that the equipment will comply with the appropriate rules before delivery to the buyer or to centers of distribution.

(e)(1) Notwithstanding the provisions of paragraph (a) of this section, prior to equipment authorization or determination of compliance with the applicable technical requirements any radio frequency device may be operated, but not marketed, for the following purposes and under the following conditions:

(i) Compliance testing;

(ii) Demonstrations at a trade show provided the notice contained in paragraph (c) of this section is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iii) Demonstrations at an exhibition conducted at a business, commercial, industrial, scientific or medical location, but excluding locations in a residential environment, provided the notice contained in paragraphs (c) or (d) of this section, as appropriate, is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iv) Evaluation of product performance and determination of customer acceptability, provided such operation takes place at the manufacturer's facilities during developmental, design or pre-production states; or

(v) Evaluation of product performance and determination of customer acceptability where customer acceptability of a radio frequency device cannot be determined at the manufacturer's facilities because of size or unique capability of the device, provided the device is operated at a business, commercial, industrial, scientific or medical user's site, but not at a residential site, during the development, design or pre-production stages.

(e)(2) For the purpose of paragraphs (e)(1)(iv) and (e)(1)(v) of this section, the term *manufacturer's facilities* includes the facilities of the party responsible for compliance with the regulations and the manufacturer's premises, as well as the facilities of other entities working under the authorization of the responsible party in connection with the development and manufacture, but not the marketing, of the equipment.

(f) For radio frequency devices subject to verification and sold solely to business, commercial, industrial, scientific and medical users (excluding products sold to other parties or for operation in a residential environment), parties responsible for verification of the devices shall have the option of ensuring compliance with the applicable technical specifications of this chapter at each end user's location after installation, provided that the purchase or lease agreement includes a proviso that such a determination of compliance be made and is the responsibility of the party responsible for verification of the equipment.

Certification & User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart J — Equipment Authorization Procedures:

§ 2.901 Basis and Purpose

(a) In order to carry out its responsibilities under the Communications Act and the various treaties and international regulations, and in order to promote efficient use of the radio spectrum, the Commission has developed technical standards for radio frequency equipment and parts or components thereof. The technical standards applicable to individual types of equipment are found in that part of the rules governing the service wherein the equipment is to be operated.[1] *In addition to the technical standards provided, the rules governing the service may require that such equipment be verified by the manufacturer or importer*, be authorized under a Declaration of Conformity, or receive an equipment authorization from the Commission by one of the following procedures: certification or registration.

(b) The following sections describe the verification procedure, the procedure for a Declaration of Conformity, and the procedures to be followed in obtaining certification from the Commission and the conditions attendant to such a grant.

§ 2.907 Certification.

(a) Certification is an equipment authorization issued by the Commission, based on representation and test data submitted by the applicant.

(b) Certification attaches to all units subsequently marketed by the grantee which are identical (see Section 2.908) to the sample tested except for permissive changes or other variations authorized by the Commission pursuant to Section 2.1043.

[1] In this case, the equipment is subject to the rules of Part 15. More specifically, the equipment falls under Subpart B (of Part 15), which deals with unintentional radiators.

Certification & User's Manual Information

§ 2.948 Description of measurement facilities.

(a) Each party making measurements of equipment that is subject to an equipment authorization under Part 15 or Part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.

(1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.

(i) If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for the verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.

(ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.

(2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current.

Certification & User's Manual Information

Label and User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart A — General:

§ 15.19 Labeling requirements.

(a) In addition to the requirements in Part 2 of this chapter, a device subject to certification or verification shall be labeled as follows:

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73 of this chapter, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.

(3) All other devices shall bear the following statement in a conspicuous location on the device:

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.

(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

§ 15.21 Information to user.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Verification & User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart B — Unintentional Radiators:

§ 15.105 Information to the user.

(a) For a Class A digital device or peripheral, the instructions furnished 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 comply 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 own expense.

(b) For a Class B digital device or peripheral, the instructions furnished 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 comply 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 when the equipment is operated in a residential 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. 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.

