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

January 21, 2020

Amimon
26 Zarhin St, POBox 2308
Raanana,4366250, Israel

Dear Gabi Nocham,

Enclosed is the EMC Wireless test report for compliance testing of the Amimon, AMN41012 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
Technical Writer

Reference: (\Amimon\ EMC101258B-FCC407 UNII 1 Rev. 6)

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Electromagnetic Compatibility Criteria
Test Report

for the

Amimon
Model AMN41012

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

MET Report: EMC101258B-FCC407 UNII 1 Rev. 6

January 21, 2020

Prepared For:

Amimon
26 Zarhin St, POBox 2308
Raanana,4366250, Israel

Prepared By:
Eurofins MET Labs, Inc.
914 West Patapsco Avenue,
Baltimore MD 21230

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Donald Salguero, 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 15.407 of the FCC Rules under normal use and maintenance.

Benjamin Taylor,
Wireless Manager, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	April 10, 2019	Initial Issue.
1	June 7, 2019	Customer Requested Changes
2	July 17, 2019	Updated Output Power and Power Spectral Density Sections
3	September 16, 2019	TCB Comments
4	December 16, 2019	TCB Comments
5	January 9, 2020	TCB Comments – Duty Cycle
6	January 21, 2020	TCB Comments

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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 Amimon AMN41012, 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 AMN41012. Amimon should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the AMN41012, 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 Amimon, purchase order number 18000496. All tests were conducted using measurement procedure ANSI C63.10-2013.

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)(i)	EIRP above 30 degrees elevation	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(f)	RF Exposure	Compliant

Table 1. Executive Summary of EMC Part 15.407 ComplianceTesting

II. Equipment Configuration

A. Overview

Eurofins MET Labs, Inc. was contracted by Amimon to perform testing on the AMN41012, under Amimon's purchase order number 18000496.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Amimon AMN41012.

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

Model(s) Tested:	AMN41012	
Model(s) Covered:	AMN41012	
EUT Specifications:	Primary Power: 5 VDC, module only	
	FCC ID: VQSAMN41012	
	Type of Modulations:	OFDM, 64QAM, 16QAM
	Equipment Code:	NII
	Max. RF Output Power:	23.855 dBm
	EUT Frequency Ranges:	5190-5230MHz
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:	Donald Salguero	
Report Date(s):	January 9, 2020	

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 17025:2017	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 v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
662911 D01 Multiple Transmitter Output v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band

Table 3. References

C. Test Site

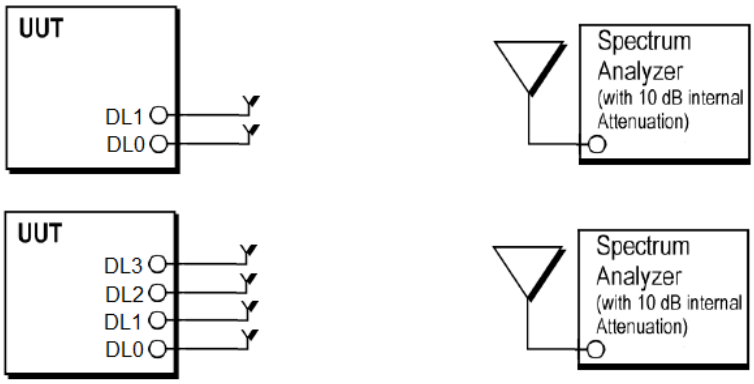
All testing was performed at Eurofins MET Labs, Inc., 914 West Patapsco Avenue, Baltimore MD 21230. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a 3 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. Description of Test Sample

The Amimon AMN41012, Equipment Under Test (EUT), is a wireless HD Video system at 5GHz with zero-latency. It consists of 2 companion devices:
VSU- Video Source Unit
VDU – Video Display Unit.
VSU receives a Video signal from an external source and up-mixes it using a proprietary protocol to 5GHz similar to IEEE802.11 a/n.

Radiated Emmissions (as modules)



Conducted Emmissions

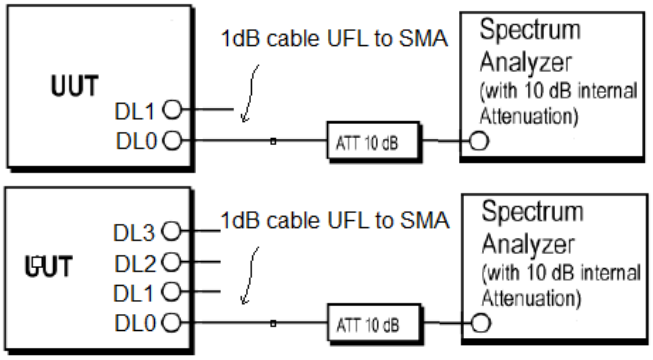


Figure 1. Block Diagram of Test Configuration

E. Equipment Configuration

The EUT was set up as outlined in Figure 1, Block Diagram of Test Setup. All cards, racks, etc., incorporated as part of the EUT is included in the following list.

Ref. ID	Slot #	Name / Description	Model Number	Part Number	Serial Number	Rev. #
AMN41012		Draco TX (2 or 4 TX ports)	AMN41012			
WSS002		2dBi omni dipole Antenna	WSS002			
RFDPA151 300		5dBi omni dipole Antenna	RFDPA151300			

Table 4. Equipment Configuration

Tested configurations:

MIMO 2x2 with 2dBi antennas
MIMO 2x2 with 5dBi antennas
MIMO 4x4 with 2dBi antennas
MIMO 4x4 with 5dBi antennas

F. 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
	1dB cable UFL to RP-SMA			
	5V AC adapter			
	HDMI cables			
	Draco Tx Balcony			
	Draco Rx Balcony			
	Video generator			
	screen			
	12V AC adapter			
	USB cables (long and short)			
	Debug board TX			
	Debug board RX			
	Laptop			
	SMA to RP-SMA adapters			
The 'Customer Supplied Calibration Data' column will be marked as either not applicable, not available, or will contain the calibration date supplied by the customer.				

Table 5. Support Equipment

G. 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	J5, J6	UFL connectors for RF ports 2 TX configuration	2				
1	J5, J6, J3, J4	UFL connectors for RF ports 4 TX configuration	4				
2	J2	Board to board interface connector (to balcony)					
3	J1	Debug connector					
4		Balcony board connecting to J2					
5		UFL to RP-SMA cables	2 or 4	10cm		yes	
6		Debug board connecting to J1					

Table 6. Ports and Cabling Information

H. Mode of Operation

The devices can be set to TechMode and the RF signal is simulated internally or for the VSU, a video source can be used when an additional digital board is used.
The VSU has a duty cycle slightly lower than 98%.
For radiated emissions the devices will be tested as modules.
For conducted measurements and DFS it is suggested to use with the balcony board to enable use of video and ease of testing.
TECH mode is enabled by simple GUI provided by AMIMON's 'AppCom' Tool or TechTool.
The tool enables setting the EUT to Transmit or Receive modes. It controls the center channel frequency, the operating channel bandwidth, and the TX channel power.
A complete description of operation is detailed in 'How to use AppCom Regulation control.doc' file

I. Method of Monitoring EUT Operation

Feedback from the debug window can provide information on device performance
All other parameters will be measured by RF equipment

J. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

K. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Amimon 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. EUT uses a unique type connector.

Name / Description	Model Number
2dBi omni dipole Antenna	WSS002
5dBi omni dipole Antenna	RFDPA151300

Table 7. Antenna List

Test Engineer(s): Donald Salguero

Test Date(s): March 6, 2019

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15. 403(i) 26dB Bandwidth

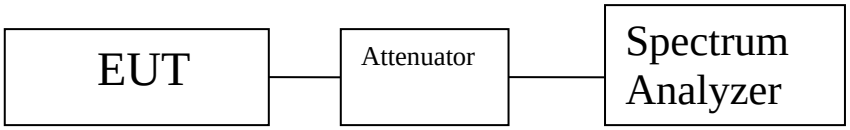
Test Requirements: **§ 15.403(i):** For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of 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.

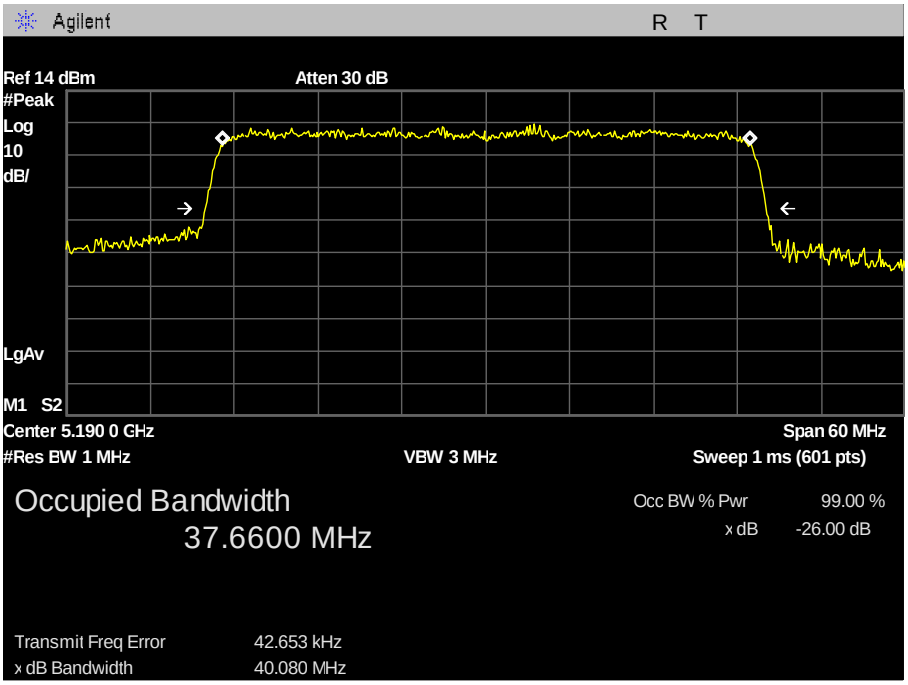
Test Engineer(s): Donald Salguero

Test Date(s): December 18, 2018

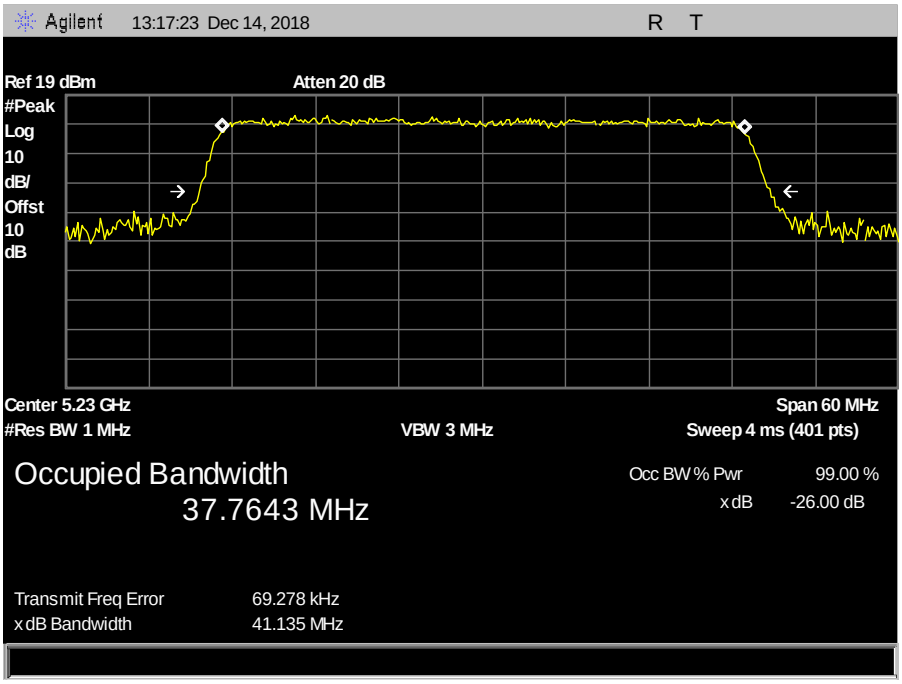


Center Frequency	Chain	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	c0	40.080	37.6600
	c1	40.977	37.7787
	c2	40.940	37.7410
	c3	40.955	37.6837
5230	c0	41.135	37.7643
	c1	40.986	37.7555
	c2	41.061	37.7588
	c3	40.832	37.6750

Table 8. Occupied Bandwidth, Test Results



Plot 1. 26 dB Occupied Bandwidth, 40 MHz, 5190 MHz, j3



Plot 2. 26 dB Occupied Bandwidth, 40 MHz, 5230 MHz, j3

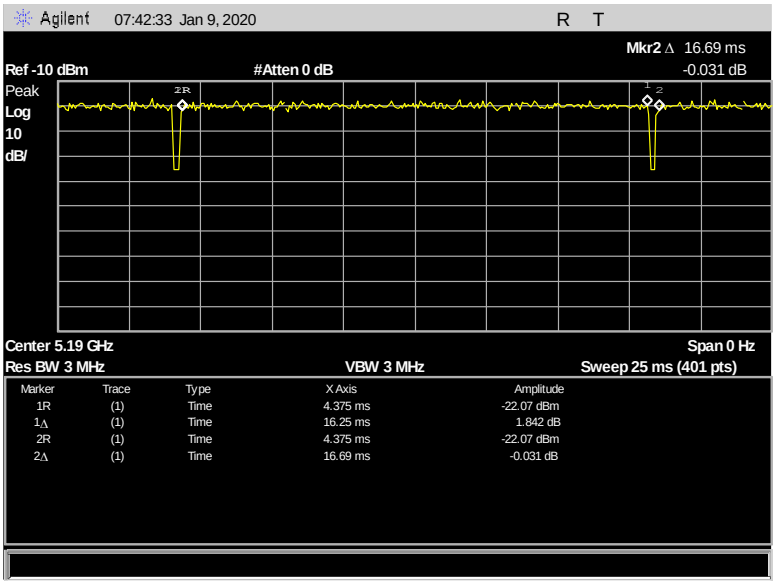
Electromagnetic Compatibility Criteria for Intentional Radiators
Duty Cycle

Test Procedure: The EUT was connected to a spectrum analyzer and was ran at maximum achievable duty cycle for all modes. The duty cycle was measured in accordance with section 12.2 of ANSI C63.10-2013.

Test Engineer: Donald Salguero

Test Date: January 9, 2019

Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	DCCF (dB)	1/T Minimum VBW (Hz)
40MHz	16.25	16.69	97.36	0.11	62



Plot 3. Duty Cycle

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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

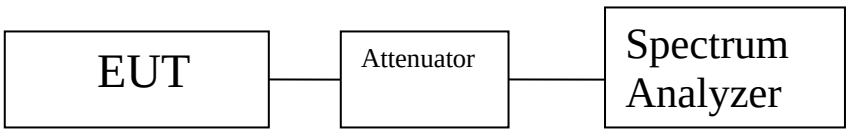
(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the 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.

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. The multiple outputs are un-correlated. Its power was measured according to measurement method SA-2, as described in 789033 D02 General UNII Test Procedures v02r01.

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

Test Engineer(s): Donald Salguero

Test Date(s): January 2, 2019



Center Frequency (MHz)	Port 1	Port 2	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)
5190	16.86	17.18	20.033	0.11	2	20.143	30	-9.857
5230	20.73	20.74	23.745	0.11	2	23.855	30	-6.145

Table 9. Conducted Power, MIMO 2x2 - 2dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Conducted Power (dB)	Limit (dBm)	Margin (dB)
5190	15.95	16.19	19.082	0.11	5	19.192	30	-10.808
5230	18.37	18.58	21.487	0.11	5	21.597	30	-8.403

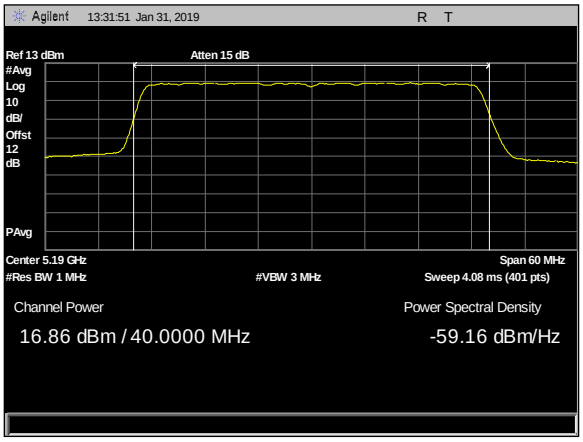
Table 10. Conducted Power, MIMO 2x2 - 5dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Port 3	Port 4	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Cond. Power (dBm)	Limit (dBm)	Margin (dB)
5190	14.93	14.98	15.23	16.08	21.351	0.11	2	21.461	30	-8.539
5230	16.79	16.88	16.92	17.87	23.159	0.11	2	23.269	30	-6.731

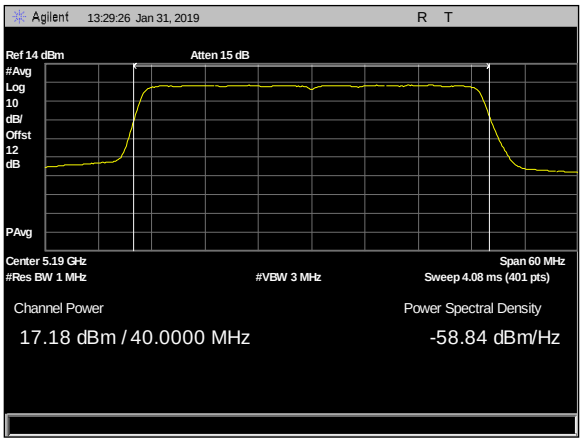
Table 11. Conducted Power, MIMO 4x4 - 2dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Port 3	Port 4	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Cond. Power (dBm)	Limit (dBm)	Margin (dB)
5190	13.48	13.77	13.79	14.68	19.975	0.11	5	20.085	30	-9.915
5230	15.19	15.49	15.4	15.84	21.507	0.11	5	21.617	30	-8.383

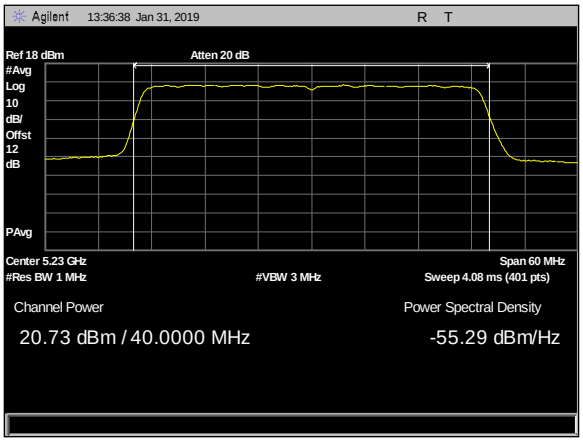
Table 12. Conducted Power, MIMO 4x4 - 5dBi Configuration, Test Results



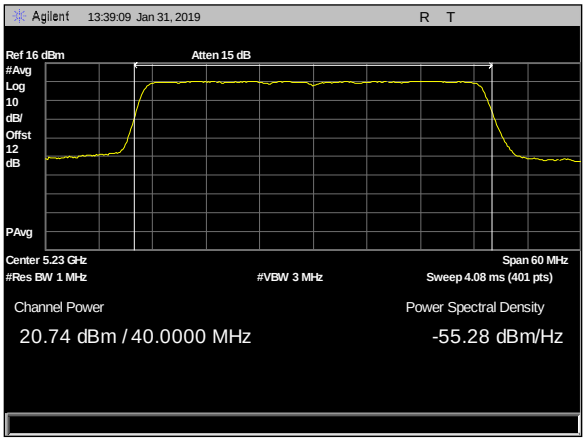
Plot 4. Output Power, 2dBi, 2x2, 5190MHz, c1



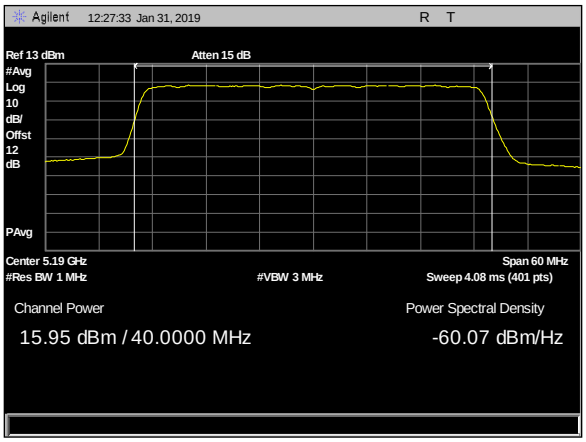
Plot 5. Output Power, 2dBi- 2x2, 5190MHz, c2



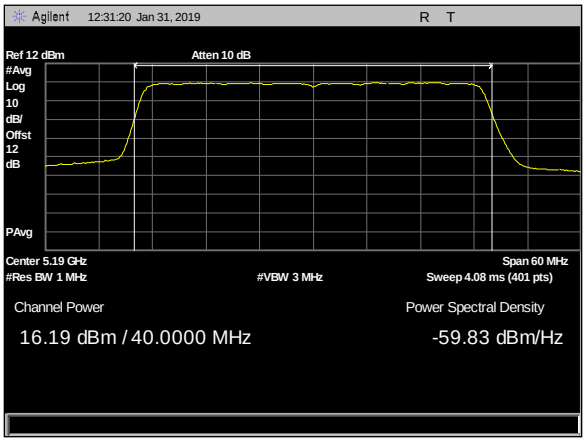
Plot 6. Output Power,2dBi- 2x2, 5230MHz, c1



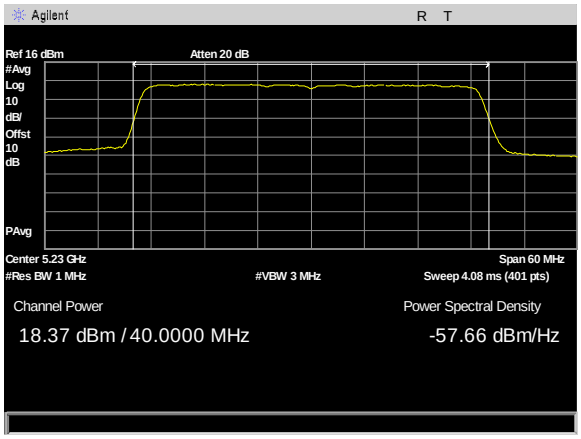
Plot 7. Output Power,2dBi- 2x2, 5230MHz, c2



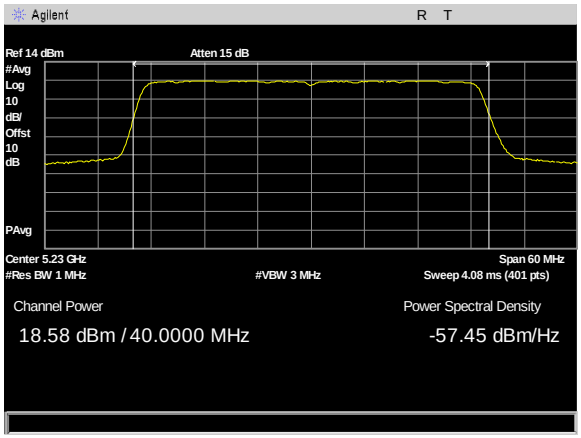
Plot 8. Output Power,5dBi- 2x2, 5190MHz, c1



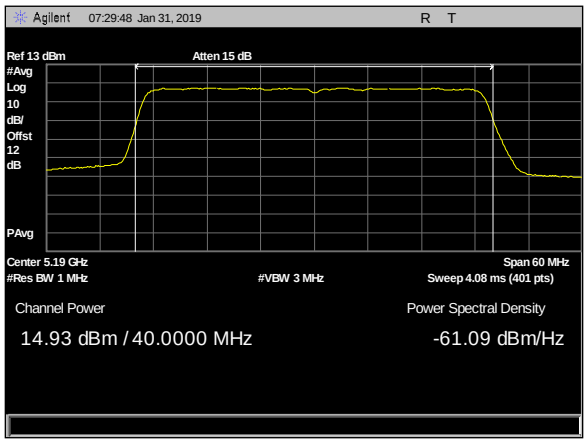
Plot 9. Output Power,5dBi- 2x2, 5190MHz, c2



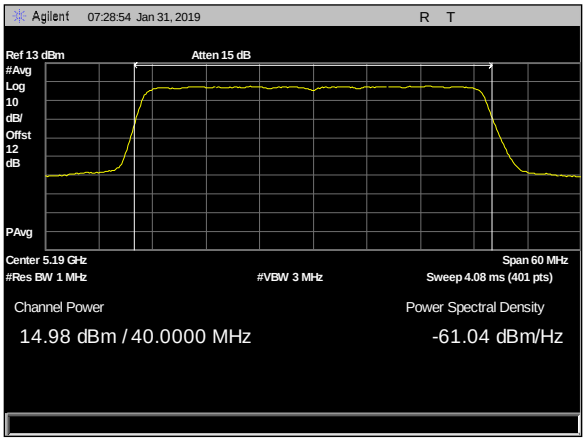
Plot 10. Output Power,5dBi- 2x2, 5230MHz, c1



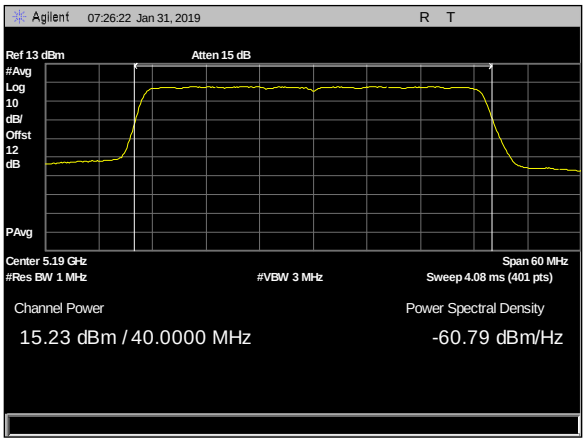
Plot 11. Output Power,5dBi- 2x2, 5230MHz, c2



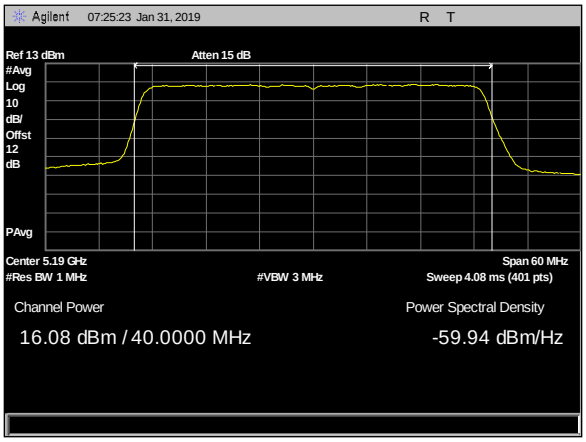
Plot 12. Output Power, 2dBi, 4x4, 5190MHz, c1



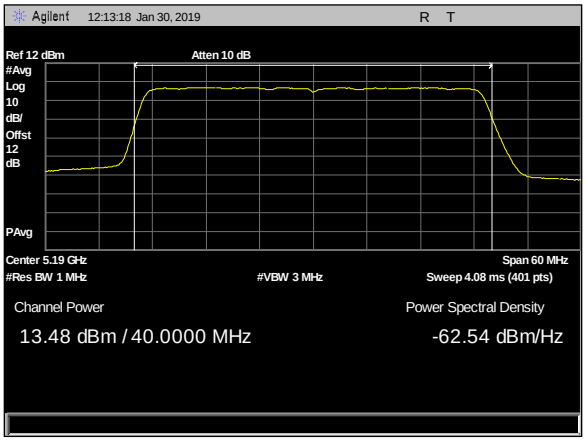
Plot 13. Output Power, 2dBi, 4x4, 5190MHz, c2



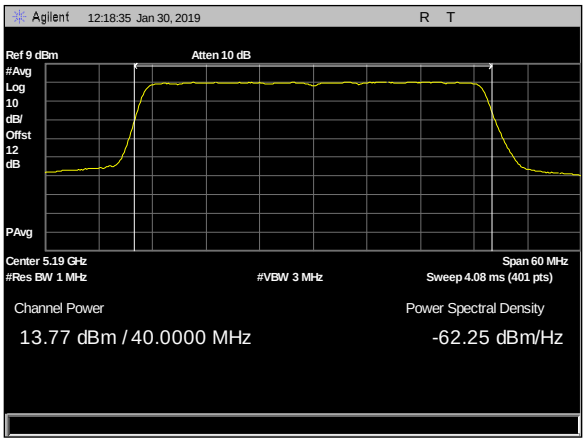
Plot 14. Output Power, 2dBi, 4x4, 5190MHz, c3



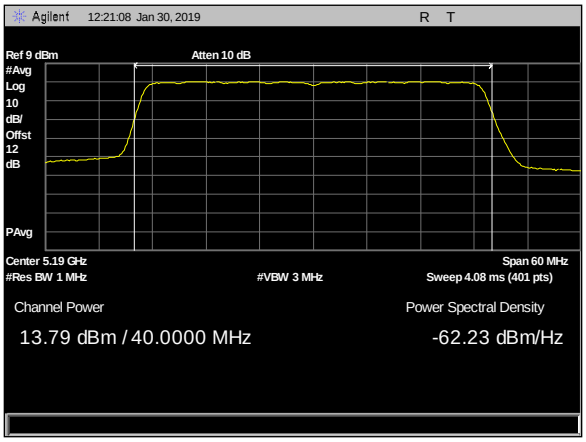
Plot 15. Output Power, 2dBi, 4x4, 5190MHz, c4



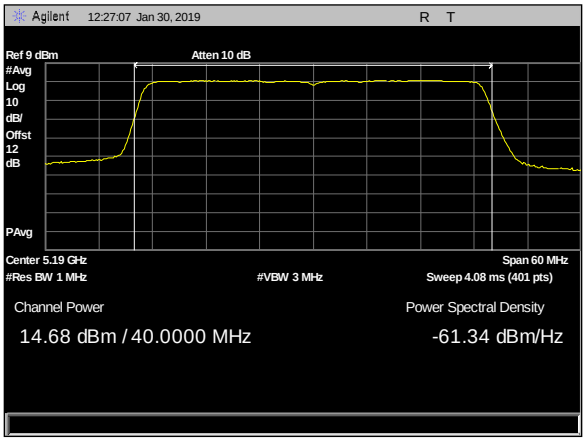
Plot 16. Output Power, 5 dBi, 4x4, 5190MHz, c1



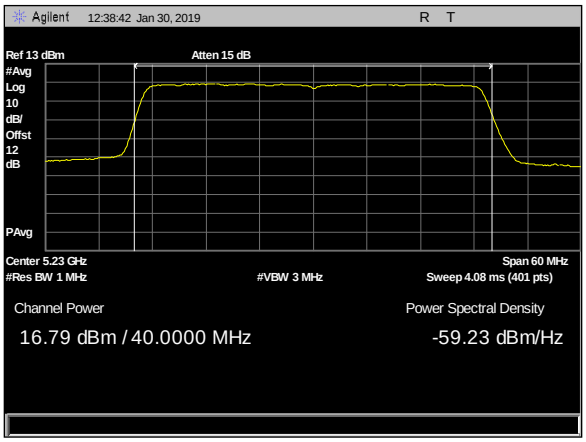
Plot 17. Output Power, 5 dBi, 4x4, 5190MHz, c2



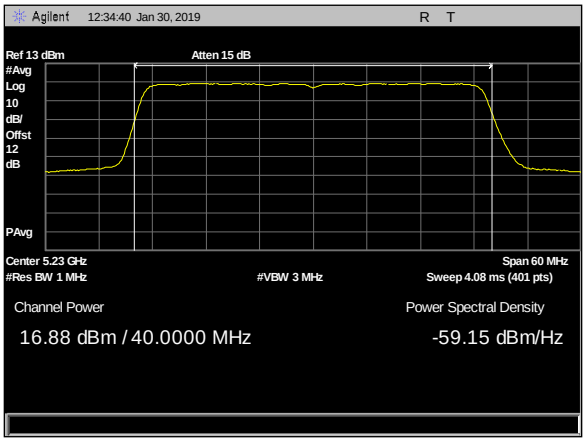
Plot 18. Output Power, 5 dBi, 4x4, 5190MHz, c3



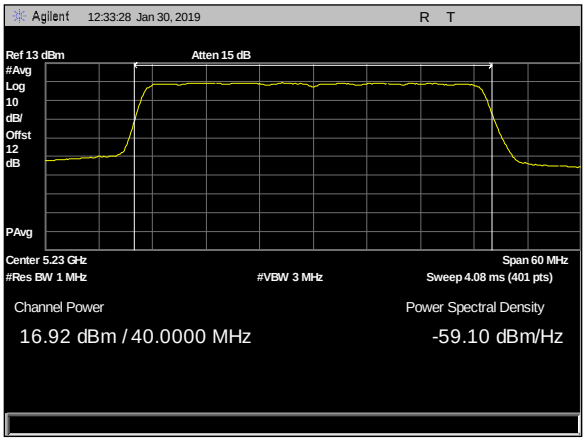
Plot 19. Output Power, 5 dBi, 4x4, 5190MHz, c4



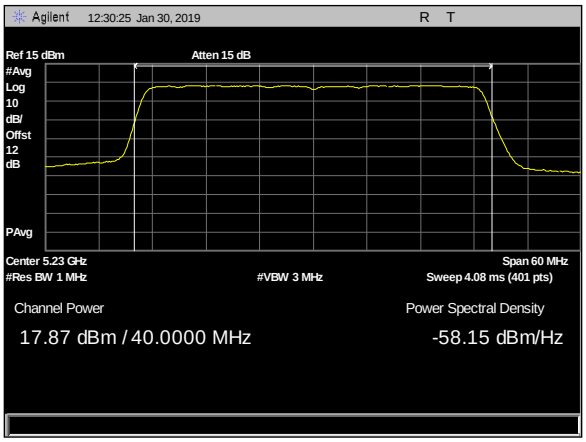
Plot 20. Output Power, 2 dBi , 4x4, 5230MHz, c1



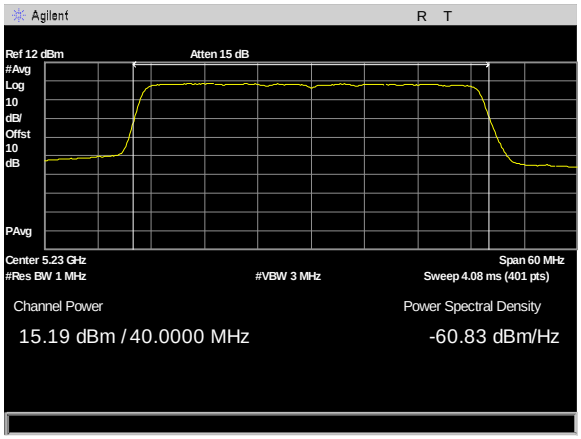
Plot 21. Output Power, 2 dBi , 4x4, 5230MHz, c2



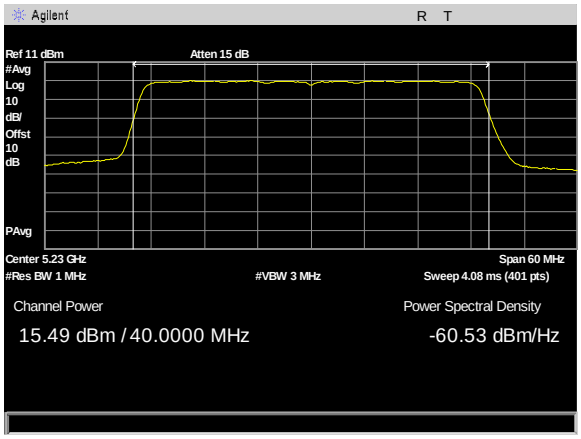
Plot 22. Output Power, 2 dBi, 4x4, 5230MHz, c3



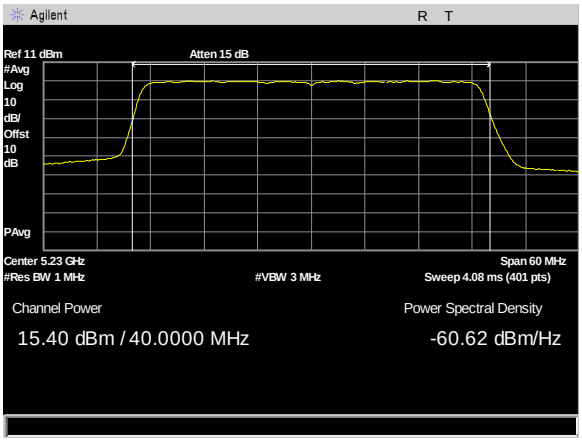
Plot 23. Output Power, 2 dBi, 4x4, 5230MHz, c4



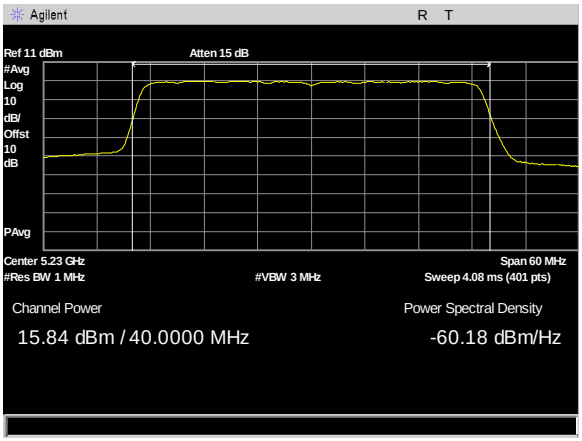
Plot 24. Output Power, 5 dBi, 4x4, 5230MHz, c1



Plot 25. Output Power, 5 dBi, 4x4, 5230MHz, c2



Plot 26. Output Power, 5 dBi, 4x4, 5230MHz, c3



Plot 27. Output Power, 5 dBi, 4x4, 5230MHz, c4

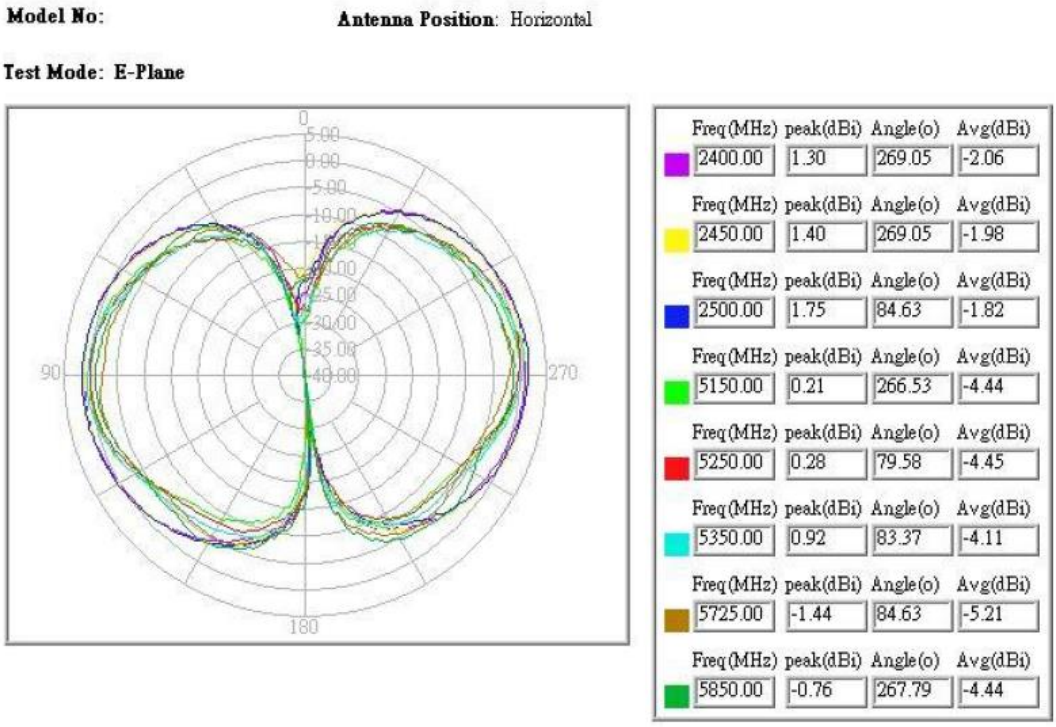


Figure 2. 2dBi Gain Antenna: Elevation Antenna Pattern

Maximun Conducted Power for 2dBi configuration: 23.855 dBm @ 5230MHz
Approximate gain at elevation ≥ 30° from Peak Gain: -4dBi
EIRP = 23.855 dBm – 4 dBi = 19.855 dBm
EIRP limit at elevation ≥ 30° = 21 dBm

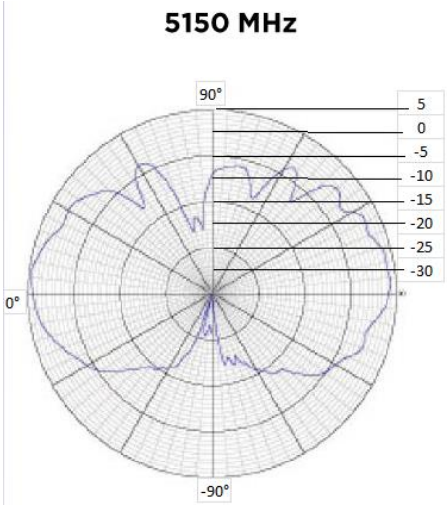


Figure 3. 5dBi Gain Antenna: Elevation Antenna Pattern

Maximun Conducted Power for 5dBi configuration: 21.617dBm @ 5230MHz
Approximate gain at elevation ≥ 30° from Peak Gain: -1dBi
EIRP = 21.617 dBm – 1 dBi = 20.617 dBm
EIRP limit at elevation ≥ 30° = 21 dBm

Electromagnetic Compatibility Criteria for Intentional Radiators

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

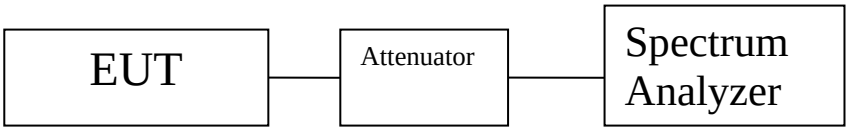
Test Requirements: **§15.407(a)(1)(i):** In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced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

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. Multiple outputs are completely un-correlated. Its power was measured according KDB 789033 D02 method SA-2, General UNII Test Procedures v02r01.

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

Test Engineer(s): Donald Salguero

Test Date(s): January 2, 2019



Center Frequency (MHz)	Port 1	Port 2	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Cond. PSD (dBm)	Limit (dBm)	Margin (dB)
5190	2.227	2.47	5.36	0.11	2	5.47	17	-11.53
5230	6.356	6.326	9.351	0.11	2	9.461	17	-7.539

Table 13. Conducted Power Spectral Density, MIMO 2x2 - 2dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Cond. PSD (dBm)	Limit (dBm)	Margin (dB)
5190	1.355	1.513	4.445	0.11	5	4.555	17	-12.445
5230	3.656	3.665	6.671	0.11	5	6.781	17	-10.219

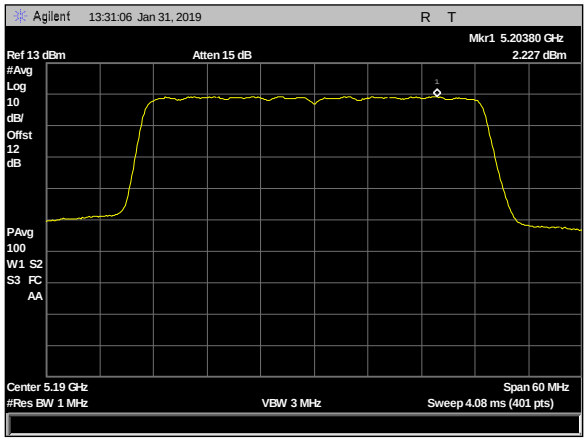
Table 14. Conducted Power Spectral Density, MIMO 2x2 - 5dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Port 3	Port 4	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Duty Cycle (dB)	Limit (dBm)	Margin (dB)
5190	0.156	0.621	0.617	2.208	6.995	0.11	2	7.105	17	-9.895
5230	2.119	1.963	2.418	2.852	8.372	0.11	2	8.482	17	-8.518

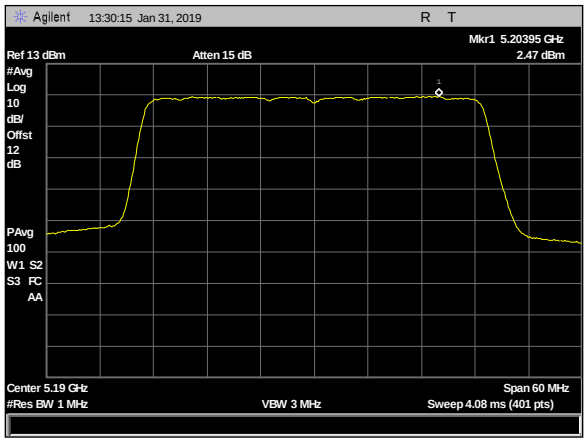
Table 15. Conducted Power Spectral Density, MIMO 4x4 - 2dBi Configuration, Test Results

Center Frequency (MHz)	Port 1	Port 2	Port 3	Port 4	Sum (dBm)	Duty Cycle (dB)	Gain (dBi)	Duty Cycle (dB)	Limit (dBm)	Margin (dB)
5190	-1.28	-0.677	-1.031	-0.219	5.237	0.11	5	5.347	17	-11.653
5230	0.607	0.862	0.979	0.95	6.873	0.11	5	6.983	17	-10.017

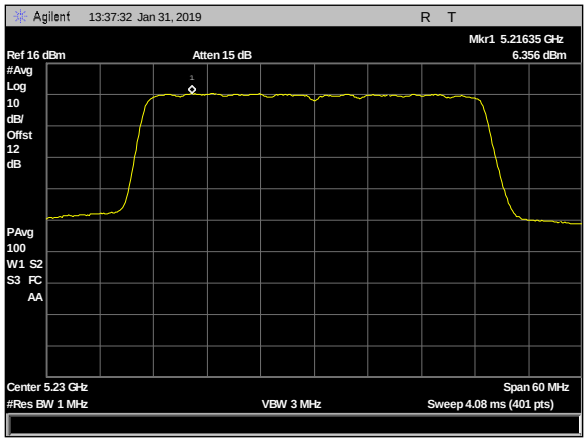
Table 16. Conducted Power Spectral Density, MIMO 4x4 - 5dBi Configuration, Test Results



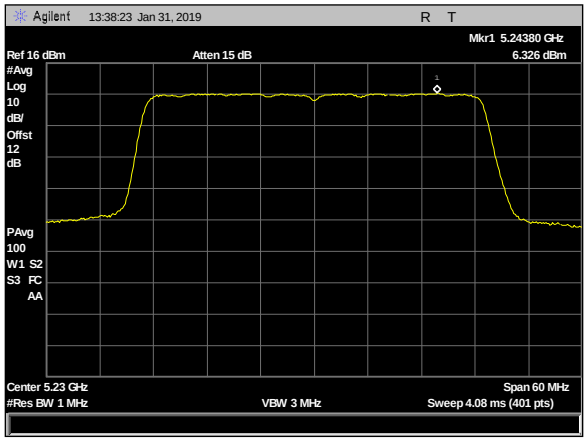
Plot 28. Power Spectral Density, 2dBi- 2x2 - 5190MHz - c1



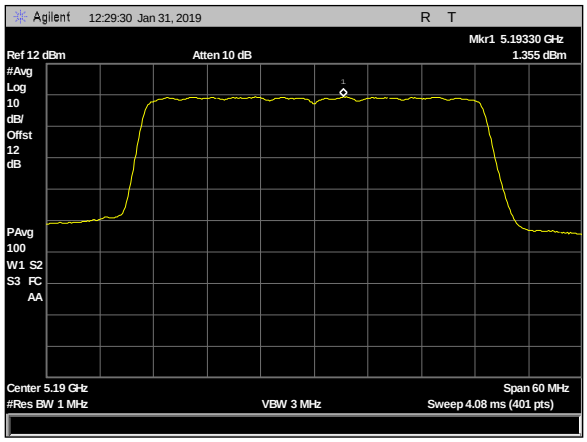
Plot 29. Power Spectral Density, 2dBi- 2x2 - 5190MHz - c2



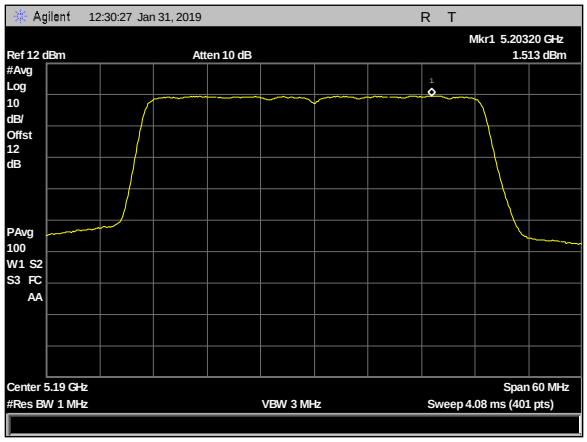
Plot 30. Power Spectral Density, 2dBi- 2x2 - 5230MHz - c1



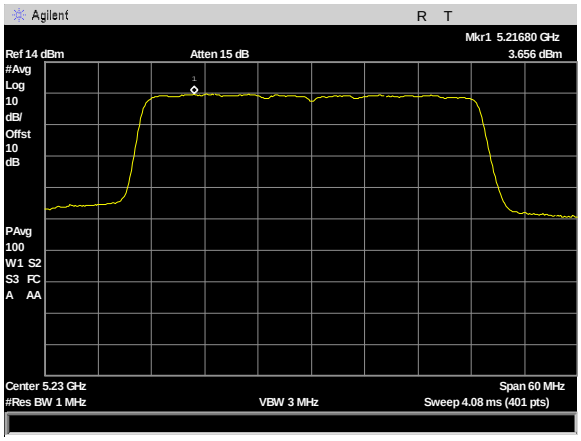
Plot 31. Power Spectral Density, 2dBi- 2x2 - 5230MHz - c2



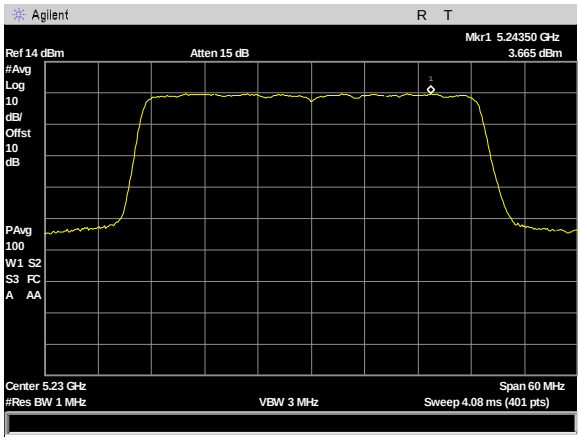
Plot 32. Power Spectral Density, 5dBi- 2x2 - 5190MHz - c1



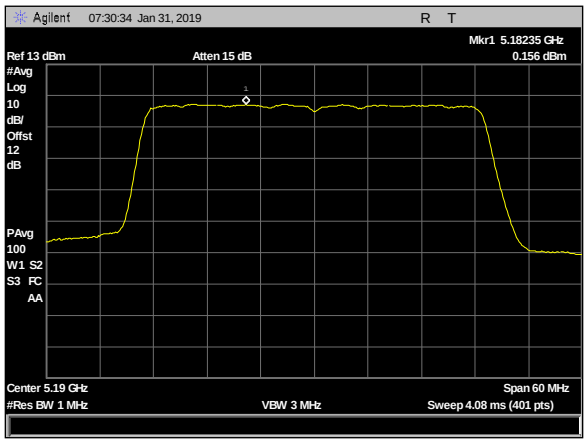
Plot 33. Power Spectral Density, 5dBi - 2x2 - 5190MHz - c2



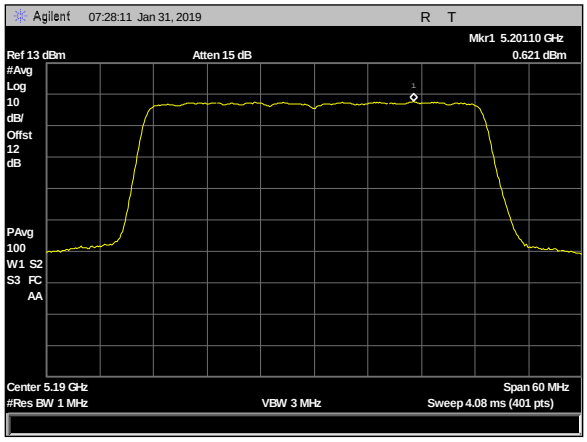
Plot 34. Power Spectral Density, 5dBi - 2x2 - 5230MHz - c1



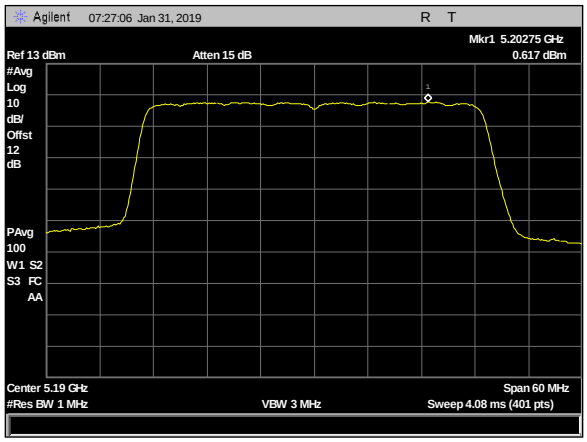
Plot 35. Power Spectral Density, 5dBi - 2x2 - 5230MHz - c2



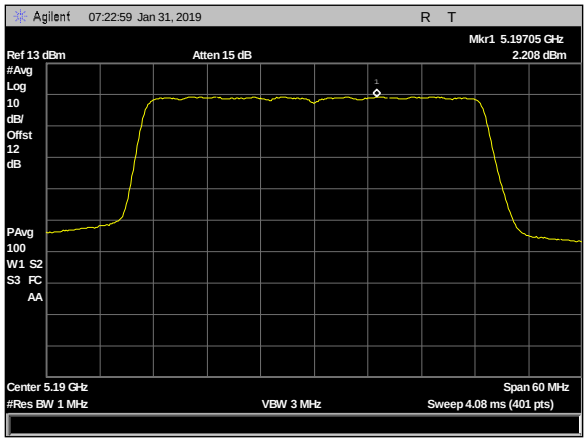
Plot 36. Power Spectral Density, 2dBi - 4x4 - 5190MHz - c1



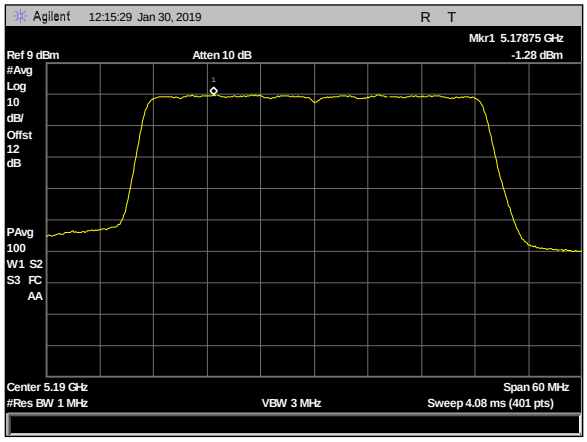
Plot 37. Power Spectral Density, 2dBi - 4x4 - 5190MHz - c2



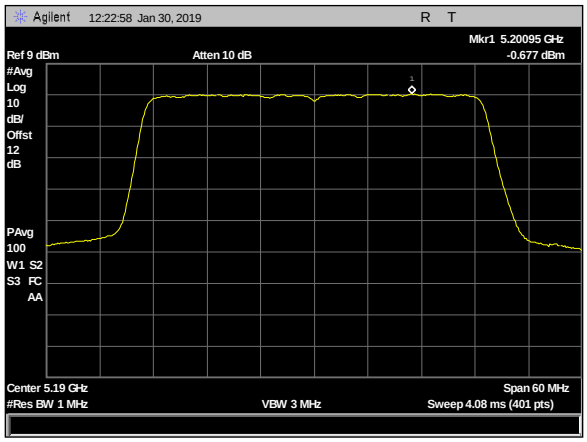
Plot 38. Power Spectral Density, 2dBi - 4x4 - 5190MHz - c3



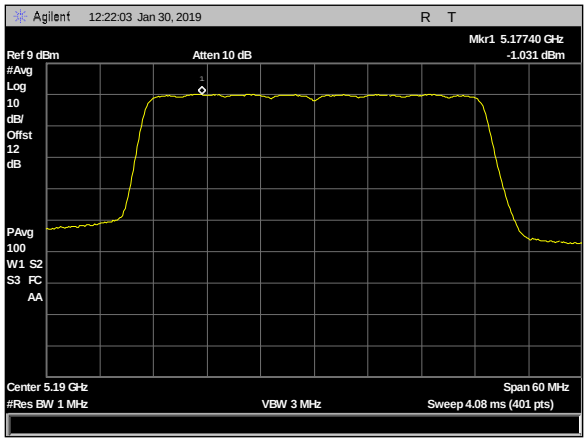
Plot 39. Power Spectral Density, 2dBi - 4x4 - 5190MHz - c4



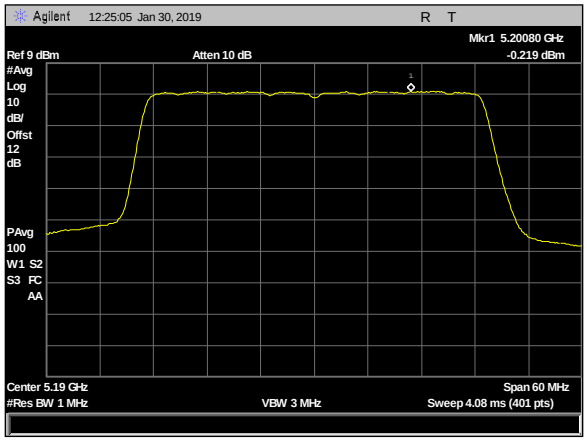
Plot 40. Power Spectral Density, 5dBi 4x4 - 5190MHz - c1



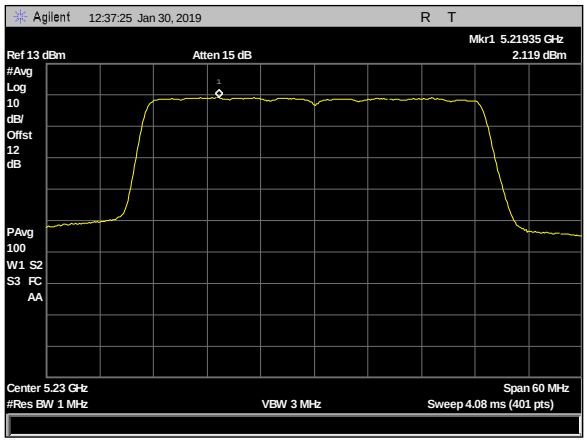
Plot 41. Power Spectral Density, 5dBi 4x4 - 5190MHz - c2



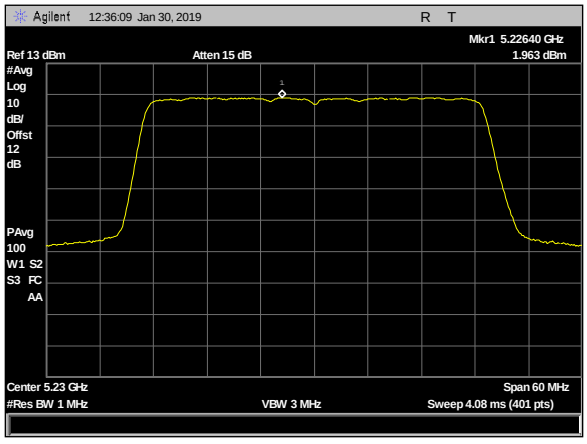
Plot 42. Power Spectral Density, 5dBi 4x4 - 5190MHz - c3



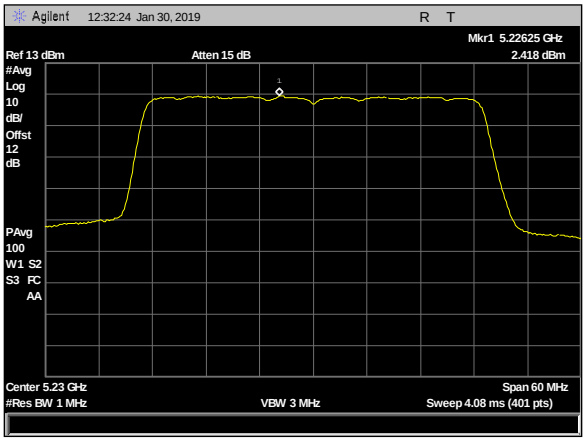
Plot 43. Power Spectral Density, 5dBi 4x4 - 5190MHz - c4



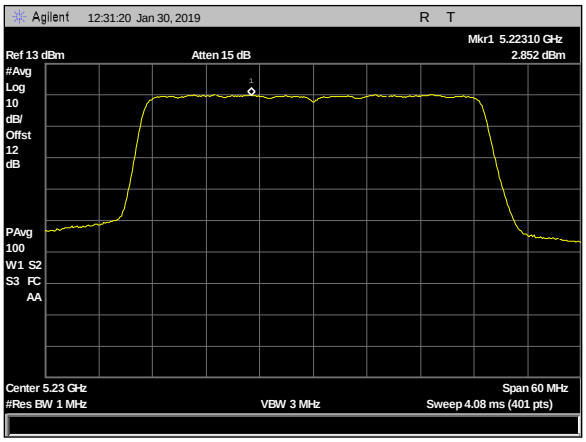
Plot 44. Power Spectral Density, 2dBi, 4x4 - 5230MHz - c1



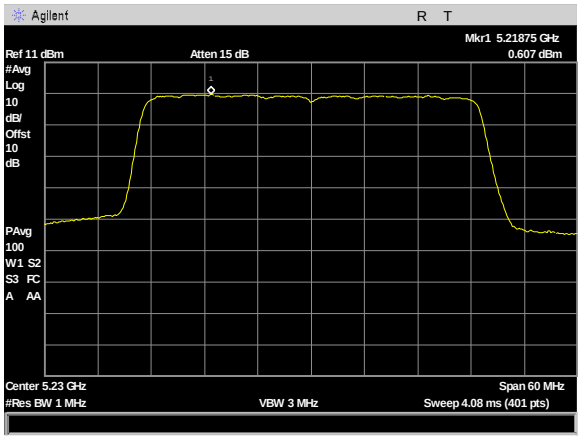
Plot 45. Power Spectral Density, 2dBi, 4x4 - 5230MHz - c2



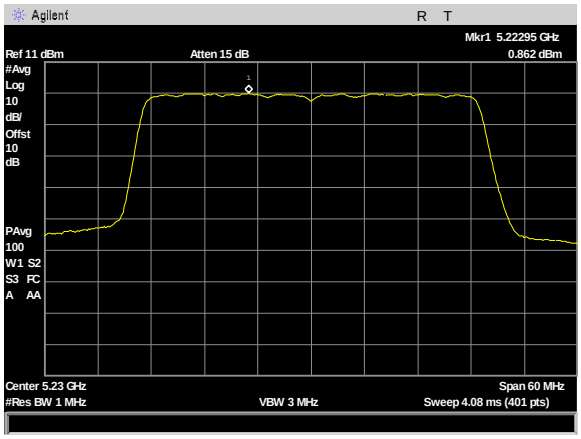
Plot 46. Power Spectral Density, 2dBi, 4x4 - 5230MHz - c3



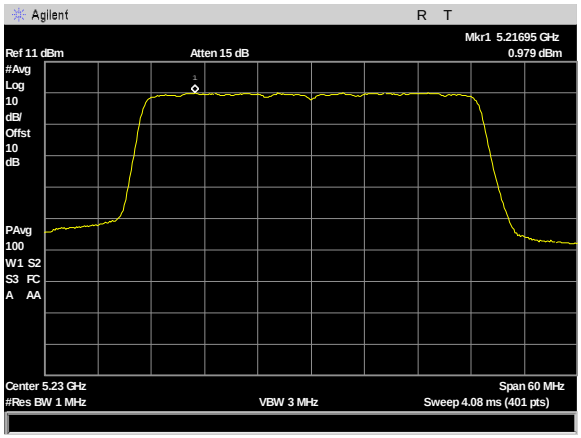
Plot 47. Power Spectral Density, 2dBi, 4x4 - 5230MHz - c4



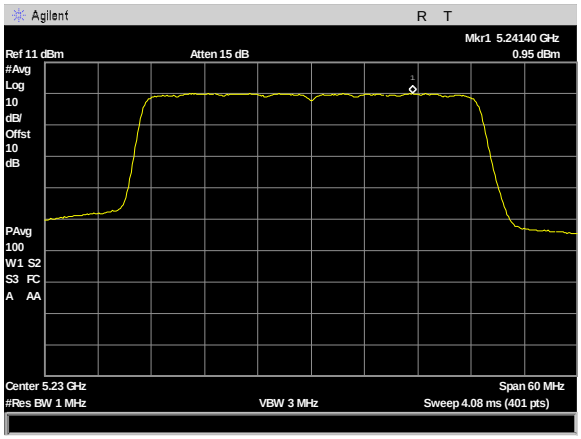
Plot 48. Power Spectral Density, 5dBi, 4x4 - 5230MHz - c1



Plot 49. Power Spectral Density, 5dBi, 4x4 - 5230MHz - c2



Plot 50. Power Spectral Density, 5dBi, 4x4 - 5230MHz - c3



Plot 51. Power Spectral Density, 5dBi, 4x4 - 5230MHz - c4

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 stand 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.

For unwanted emissions that fall outside restricted bands above 1 GHz, measurements were made pursuant the method described in FCC KDB 789033 D02 General UNII Test Procedure New Rules v02r01. The equation, **EIRP= E + 20 log D – 104.8** 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.

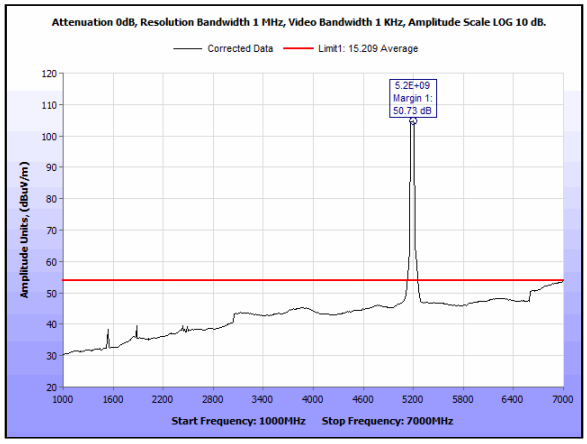
Test Results:

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

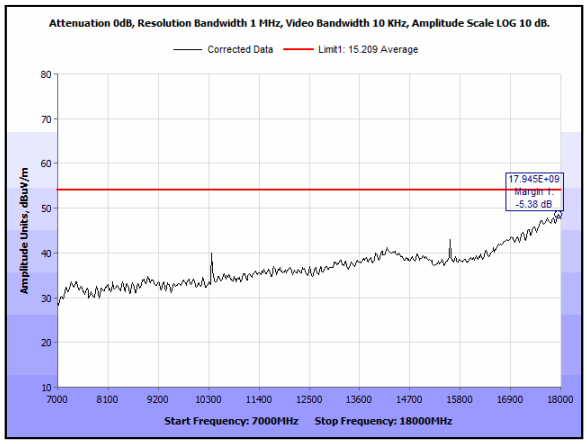
For above 1 GHz, the EUT was compliant with the requirements of this section. Only noise was observed above 18GHz, noise level was 6dB below applicable limit.

Test Engineer(s): Donald Salguero

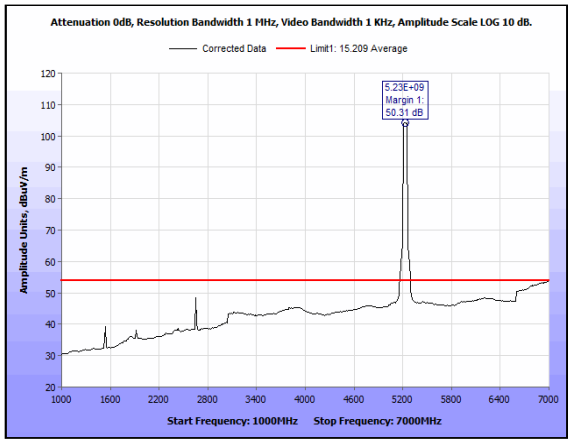
Test Date(s): March 6, 2019



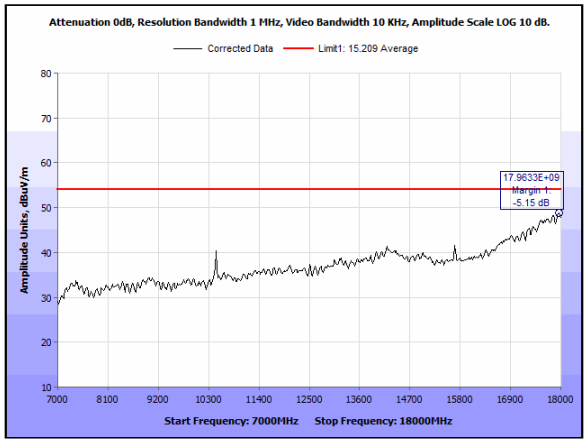
Plot 52. Radiated Emissions, Average, 2x2, 5dBi, 5190, 1-7GHz



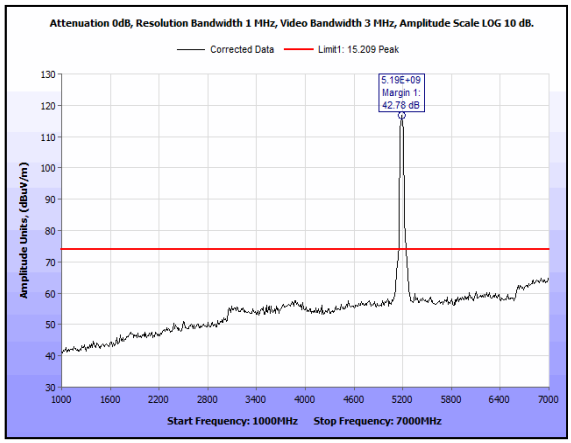
Plot 53. Radiated Emissions, Average, 2x2, 5dBi, 5190, 7-18GHz



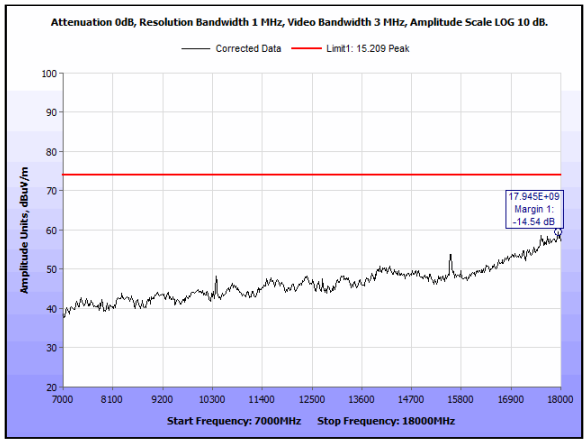
Plot 54. Radiated Emissions, Average, 2x2, 5dBi, 5230, 1-7GHz



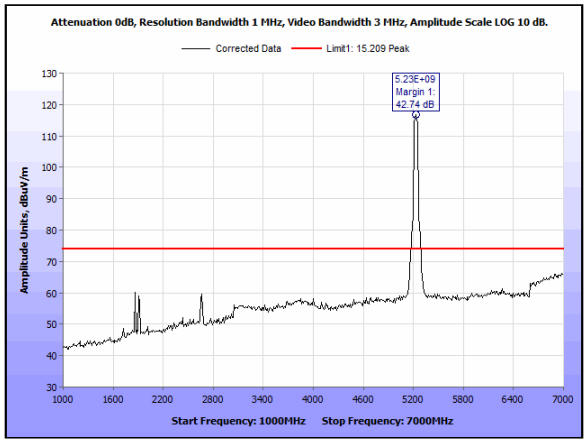
Plot 55. Radiated Emissions, Average, 2x2, 5dBi, 5230, 7-18GHz



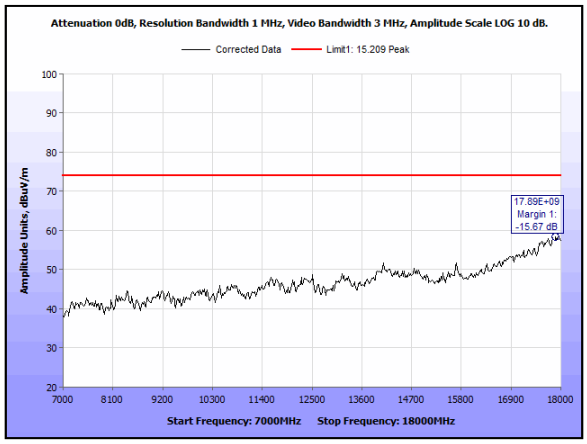
Plot 56. Radiated Emissions, Peak, 2x2, 5dBi, 5190, 1-7GHz



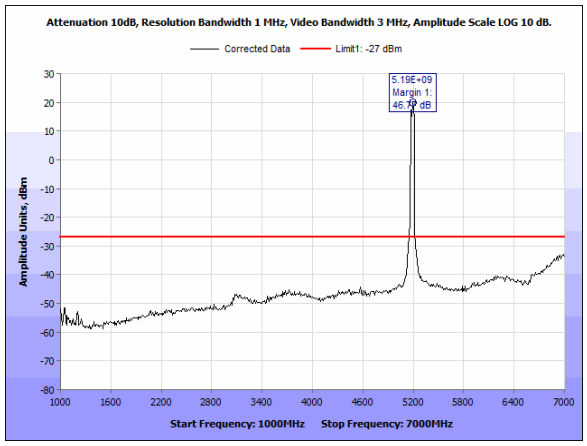
Plot 57. Radiated Emissions, Peak, 2x2, 5dBi, 5190, 7-18GHz



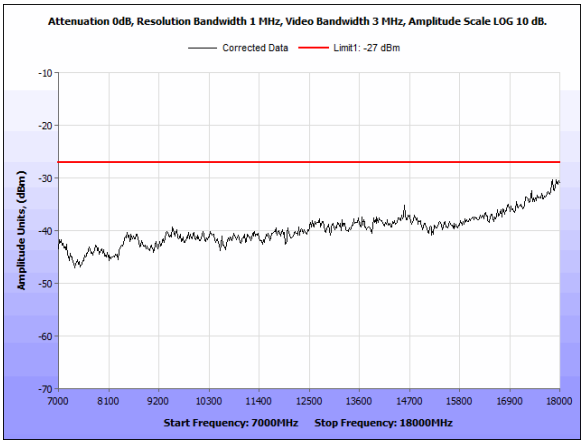
Plot 58. Radiated Emissions, Peak, 2x2, 5dBi, 5230, 1-7GHz



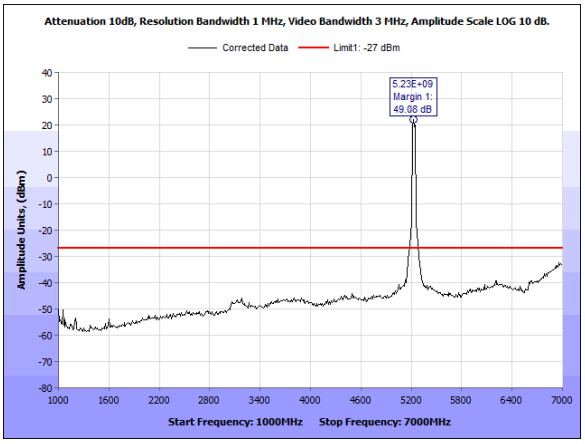
Plot 59. Radiated Emissions, Peak, 2x2, 5dBi, 5230, 7-18GHz



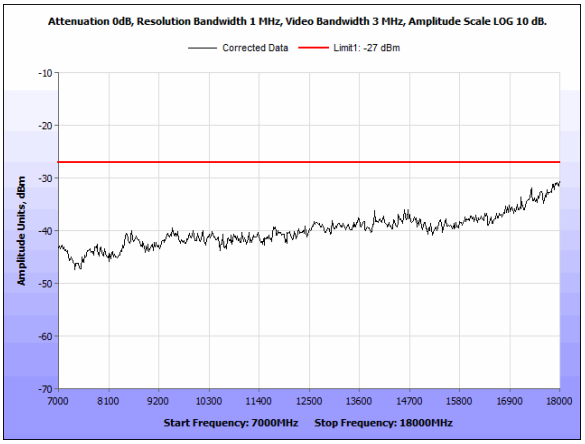
Plot 60. Radiated Emissions, -27dBm, 2x2, 5dBi, 5190, 1-7GHz



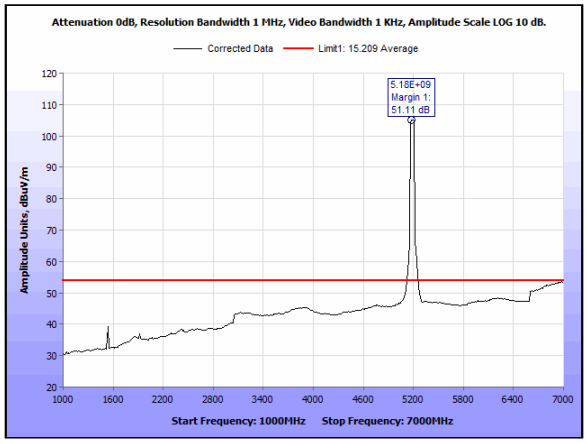
Plot 61. Radiated Emissions, -27dBm, 2x2, 5dBi, 5190, 7-18GHz



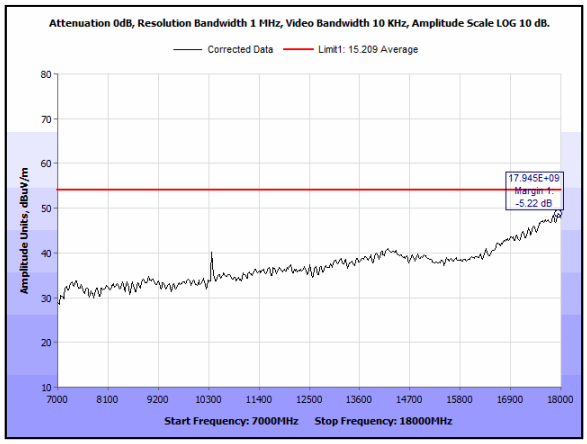
Plot 62. Radiated Emissions, -27dBm, 2x2, 5dBi, 5230, 1-7GHz



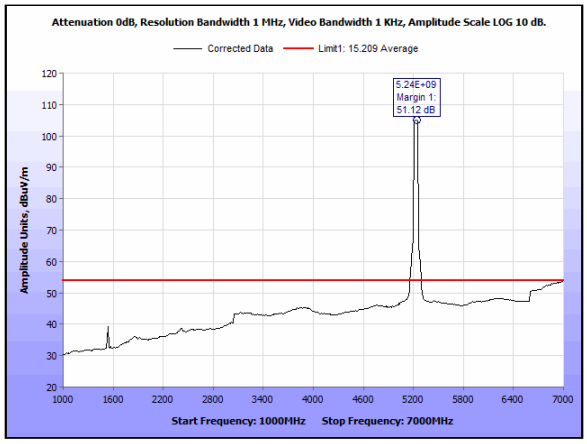
Plot 63. Radiated Emissions, -27dBm, 2x2, 5dBi, 5230, 7-18GHz



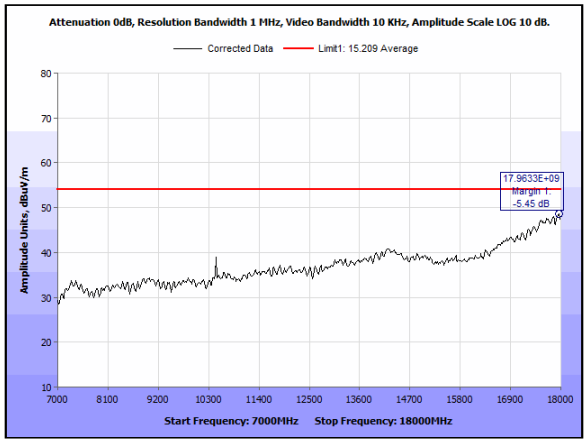
Plot 64. Radiated Emissions, Average, 4x4, 5dBi, 5190, 1-7GHz



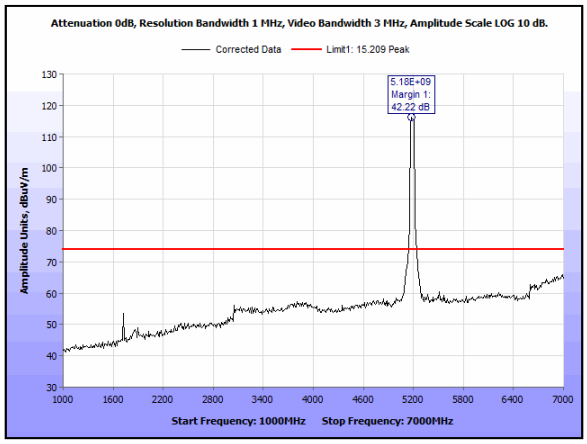
Plot 65. Radiated Emissions, Average, 4x4, 5dBi, 5190, 7-18GHz



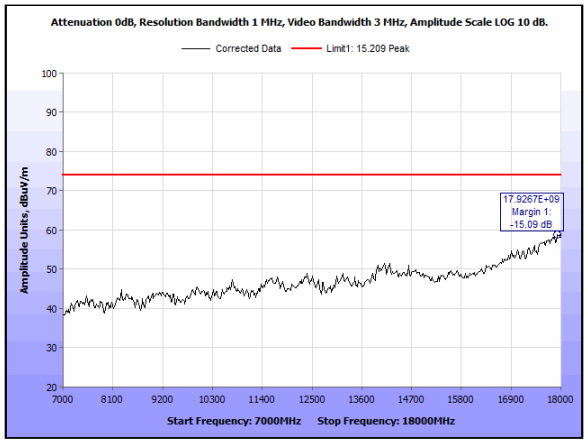
Plot 66. Radiated Emissions, Average, 4x4, 5dBi, 5230, 1-7GHz



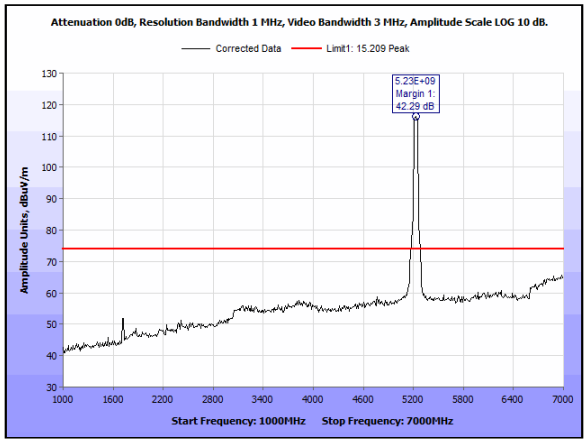
Plot 67. Radiated Emissions, Average, 4x4, 5dBi, 5230, 7-18GHz



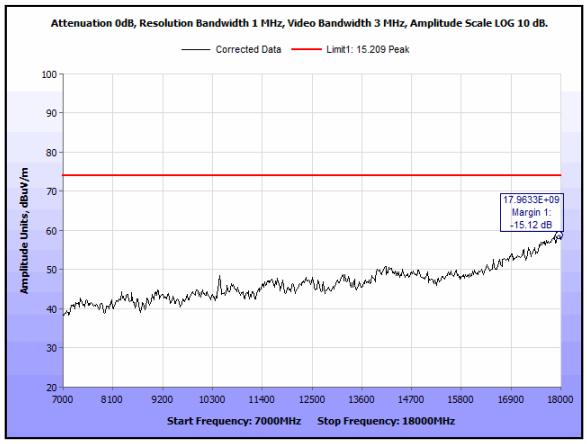
Plot 68. Radiated Emissions, Peak, 4x4, 5dBi, 5190, 1-7GHz



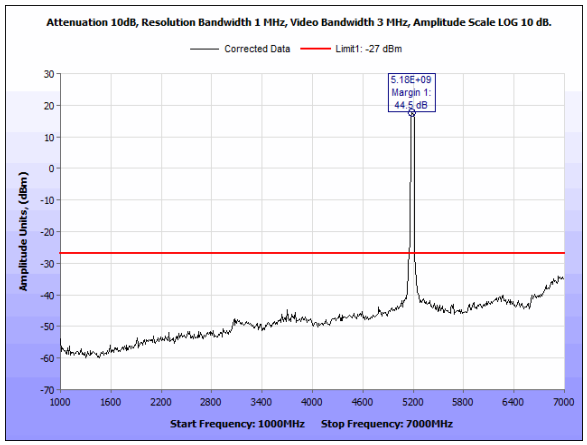
Plot 69. Radiated Emissions, Peak, 4x4, 5dBi, 5190, 7-18GHz



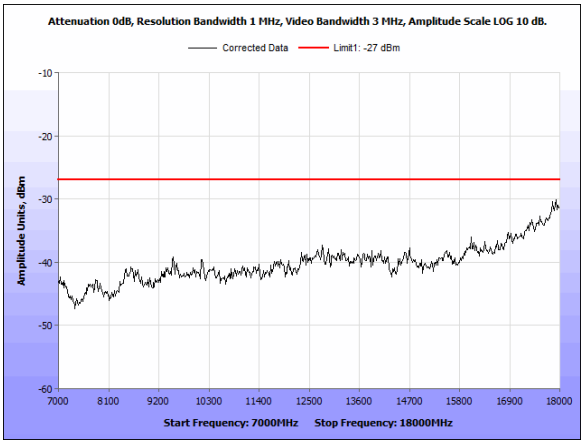
Plot 70. Radiated Emissions, Peak, 4x4, 5dBi, 5230, 1-7GHz



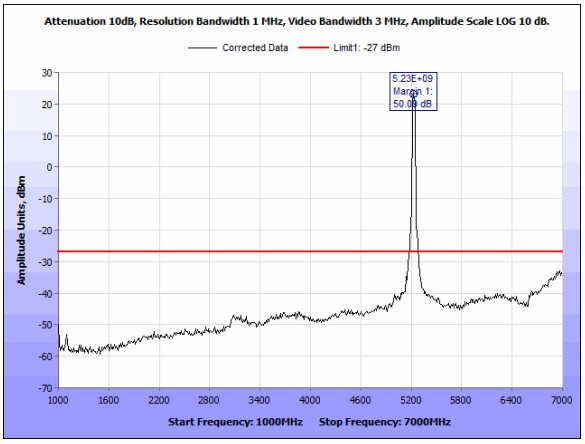
Plot 71. Radiated Emissions, Peak, 4x4, 5dBi, 5230, 7-18GHz



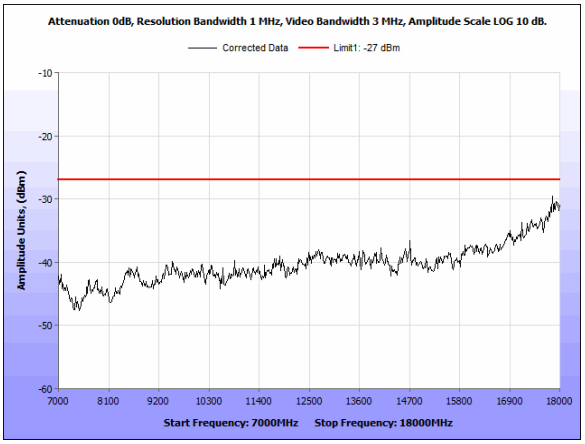
Plot 72. Radiated Emissions, -27dBm, 4x4, 5dBi, 5190, 1-7GHz



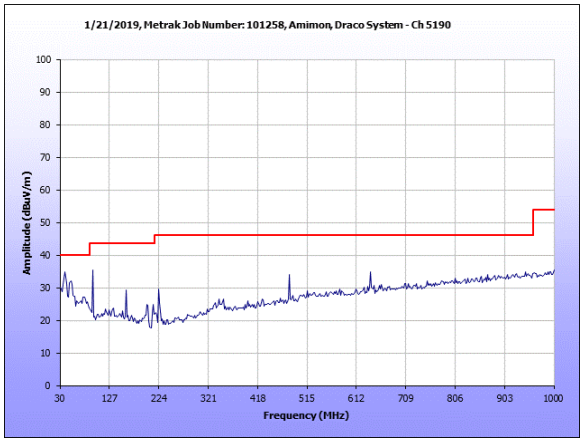
Plot 73. Radiated Emissions, -27dBm, 4x4, 5dBi, 5190, 7-18GHz



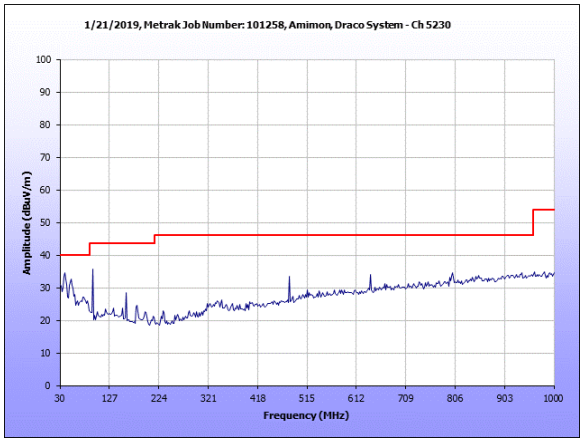
Plot 74. Radiated Emissions, -27dBm, 4x4, 5dBi, 5230, 1-7GHz



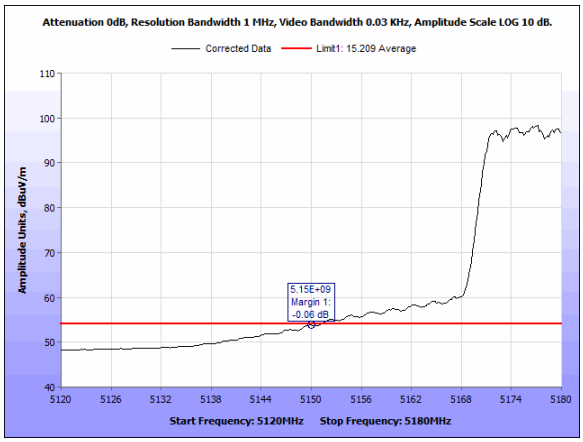
Plot 75. Radiated Emissions, -27dBm, 4x4, 5dBi, 5230, 7-18GHz



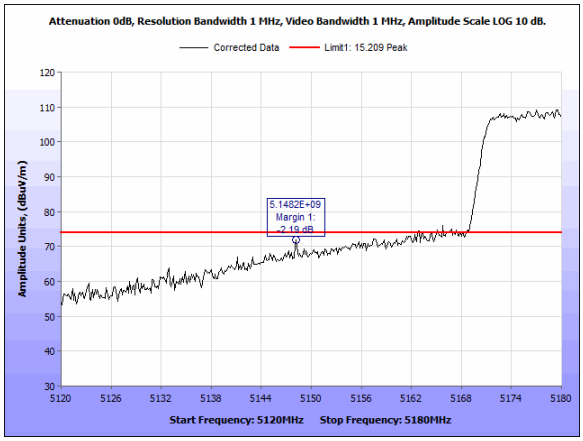
Plot 76. Radiated Emissions, 5190, Worst Case, 30-1000MHz



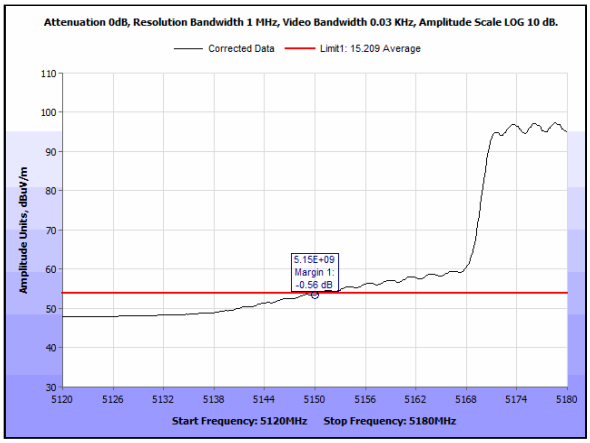
Plot 77. Radiated Emissions, 5230, Worst Case, 30-1000MHz



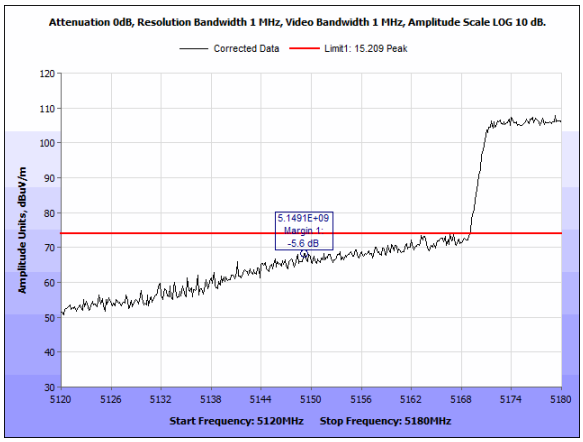
Plot 78. Radiated Bandedge, Average, 5150, BW40M, CF5190MHz, 2x2, 5dBi



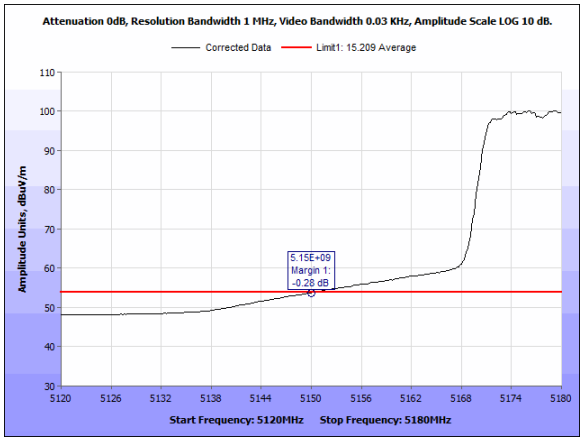
Plot 79. Radiated Bandedge, Peak, 5150, BW40M, CF5190MHz, 2x2, 5dBi



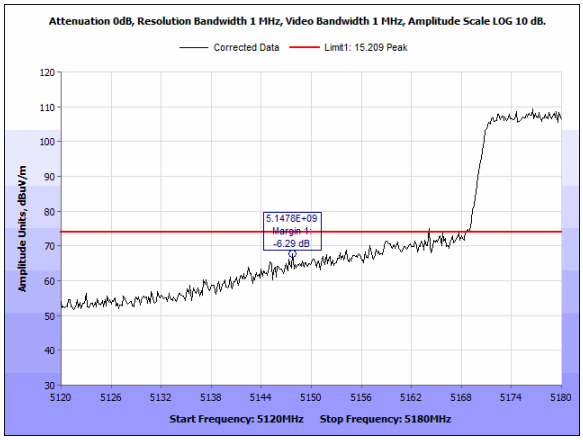
Plot 80. Radiated Bandedge, Average, 5150, BW40M, CF5190MHz, 2x2, 2dBi



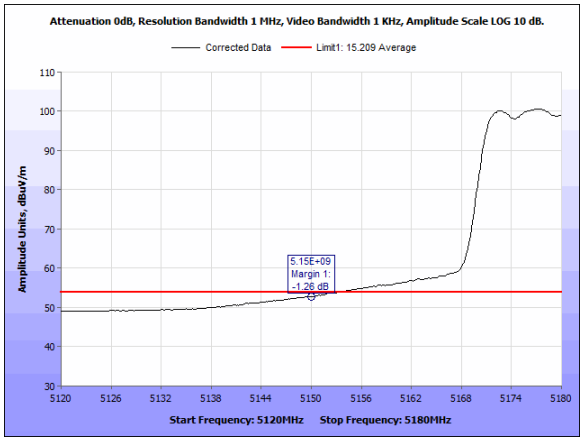
Plot 81. Radiated Bandedge, Peak, 5150, BW40M, CF5190MHz, 2x2, 2dBi



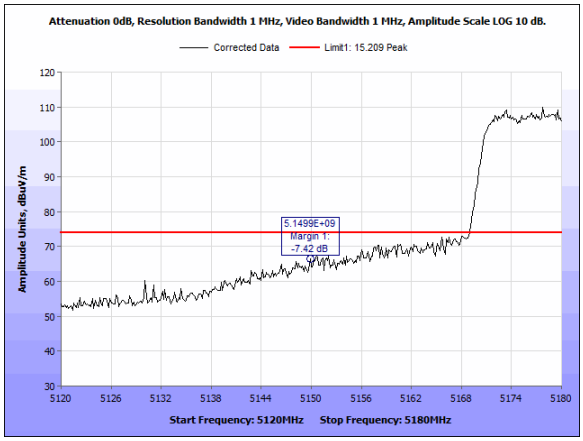
Plot 82. Radiated Bandedge, Average, 5150, BW40M, CF5190MHz, 4x4, 2dBi



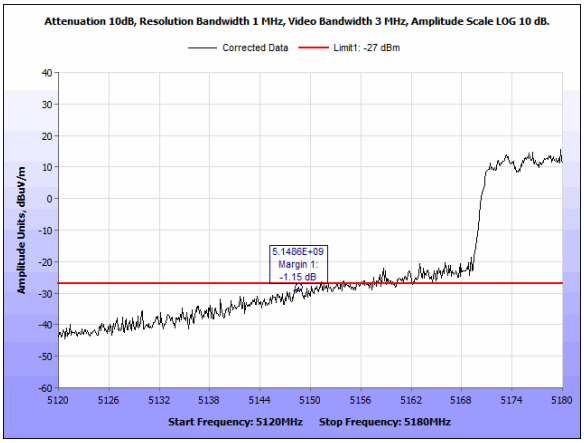
Plot 83. Radiated Bandedge, Peak, 5150, BW40M, CF5190MHz, 4x4, 2dBi



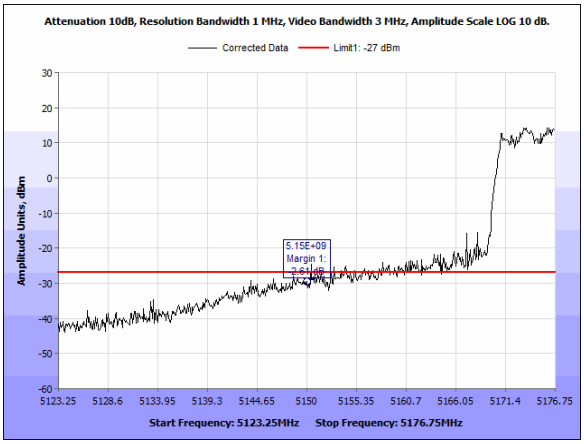
Plot 84. Radiated Bandedge, Average, 5150, BW40M, CF5190MHz, 4x4, 5dBi



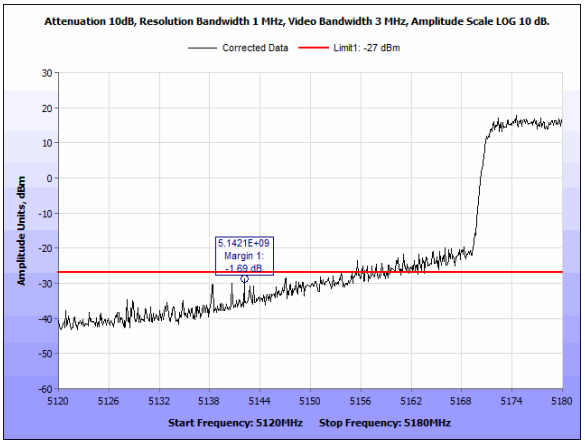
Plot 85. Radiated Bandedge, Peak, 5150, BW40M, CF5190MHz, 4x4, 5dBi



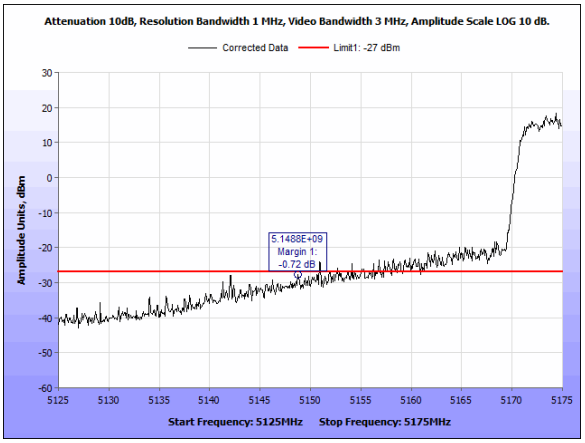
Plot 86. Radiated Bandedge, -27dBm, 5150, BW40M, CF5190MHz, 2x2, 5dBi



Plot 87. Radiated Bandedge, -27dBm, 5150, BW40M, CF5190MHz, 2x2, 2dBi



Plot 88. Radiated Bandedge, -27dBm, 5150, BW40M, CF5190MHz, 4x4, 2dBi



Plot 89. Radiated Bandedge, -27dBm, 5150, BW40M, CF5190MHz, 4x4, 5dBi

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- 0.45	66 – 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

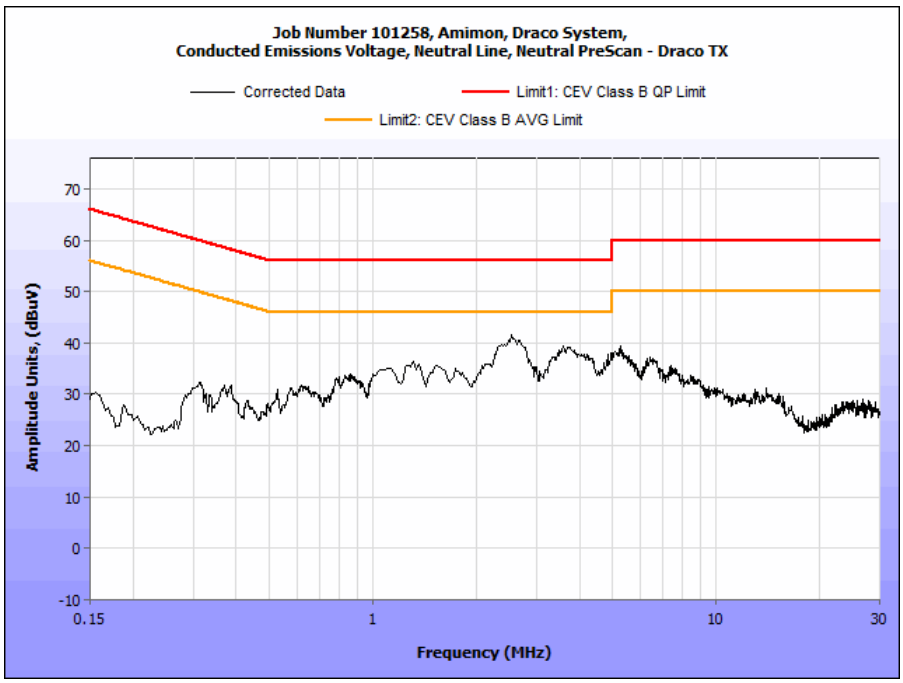
Table 17. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Test Procedure: The EUT was placed on a non-metallic table inside a screen room. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω/50 μH Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.10-2013*

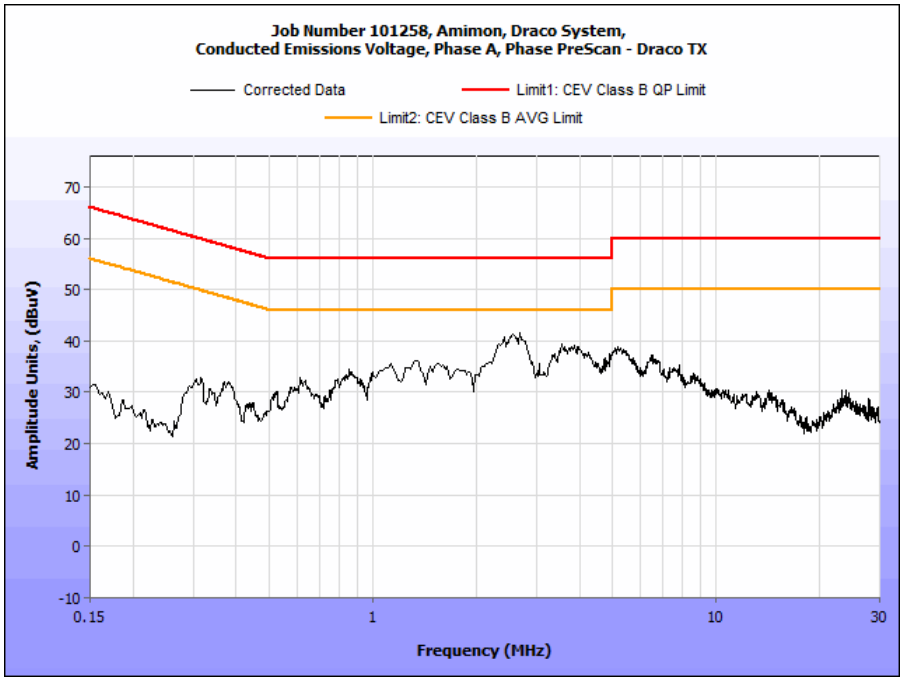
Test Results: The EUT was compliant with requirements of this section.

Test Engineer(s): Donald Salguero

Test Date(s): March 6, 2019



Plot 90. Conducted Emissions, Neutral Prescan



Plot 91. Conducted Emissions, Phase Prescan

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**

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**
5230	23.855	242.941	2	1.585	0.0766	1	0.9234	20	Pass
5230	21.617	145.111	5	3.162	0.09129	1	0.90871	20	Pass

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

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 17025:2017.

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1T4409	EMI Receiver	Rohde & Schwarz	ESIB7	01/04/2019	01/04/2021
1T2948	LISN	Solar Electronics Company	8028-50-TS-24-BNC	8/31/2018	2/29/2020
1T2947	LISN	Solar Electronics Company	8028-50-TS-24-BNC	8/31/2018	2/29/2020
1T4771	PSA Spectrum Analyzer	Agilent Technologies	E4446A	5/16/2018	12/16/2019
1T4503	Shielded Room	Universal Shielding Corp	N/A	Not Required	
1T4905	Horn Antenna	Com-Power	AH-118	5/7/2019	11/7/2020
1T4576	Antenna, Active Horn	Com-Power	AHA-118	5/8/2019	11/8/2020
1T4414	Microwave Pre-Amplifier	A.H. Systems, Inc.	PAM-0118	Func Verify	
1T4753	Antenna - Bilog	Sunol Sciences	JB6	08/30/2018	02/29/2020
1T4300B	Semi-Anechoic 3m Chamber sVSWR	EMC TEST SYSTEMS	NONE	6/30/2019	12/30/2020
1T4300	SEMI-ANECHOIC CHAMBER (NSA)	EMC TEST SYSTEMS	NONE	6/30/2019	6/30/2020
1T4612	Spectrum Analyzer	Agilent Technologies	E4407B	5/15/2018	12/15/2019
1T4829	Spectrum Analyzer	Agilent Technologies	E4407B	09/28/2018	03/28/2020
1T4745	Antenna, Horn	ETS-Lindgren	3116	11/27/2018	5/27/2020
1T4752	Pre-Amplifier	Miteq	JS44-18004000-35-8P	Func. Verify	
1T8743	Preamplifier	A.H. Systems, Inc.	PAM-0118P	Func. Verify	

Table 18. 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

L. 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.

