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

June 3, 2019

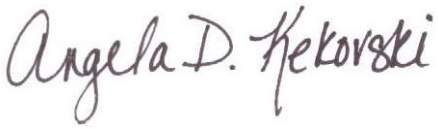
Eaton's Cooper Power Systems
910 Clopper Road, Suite 201S
Gaithersburg, MD 20878

Dear Steven Seymour,

Enclosed is the EMC Wireless test report for testing of the Eaton's Cooper Power Systems, RFW-201 as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), FCC Part 15 Subpart C for Intentional Radiators for the purpose of a Class II Permissive Change.

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.



Angela D. Kekovski
Documentation Department

Reference: (\Eaton's Cooper Power Systems\EMC92073-FCC247 Class II PC)

Electromagnetic Compatibility
Test Report

for the

Eaton's Cooper Power Systems
RFW-201

Tested under
the FCC Certification Rules
contained in
Title 47 of the CFR, Parts 15 Subpart C
15.247 for Intentional Radiators

MET Report: EMC92073-FCC247 Class II PC

June 3, 2019

Prepared For:

Eaton's Cooper Power Systems
910 Clopper Road, Suite 201S
Gaithersburg, MD 20878

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

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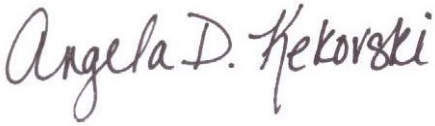
15.247 Subpart C for Intentional Radiators

Deepak Giri, Project Engineer
Electromagnetic Compatibility Lab



Angela D. Kekovski
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 the FCC Rules Part 15.247 under normal use and maintenance.

Benjamin Taylor,
Wireless Manager, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	June 3, 2019	Initial Issue.

Table of Contents

Executive Summary **1**
Purpose of Test 2
Executive Summary 2
Equipment Configuration **3**
Overview 4
References 5
Test Site 5
Measurement Uncertainty 5
Description of Test Sample 6
Equipment Configuration 8
Support Equipment 8
Mode of Operation 9
Modifications 9
Modifications to EUT 9
Modifications to Test Standard 9
Disposition of EUT 9
Electromagnetic Compatibility Criteria for Intentional Radiators **10**
§ 15.247(b) Peak Power Output 11
§ 15.247(d) RF Conducted Spurious Emissions Requirements 14
Duty Cycle Correction Factor 21
§ 15.247(d) Radiated Spurious Emissions Requirements 23
Test Equipment **35**

List of Tables

Table 1. Executive Summary of EMC Part 15.247 Testing for a CIIPC 2
Table 2. EUT Summary Table 4
Table 3. References 5
Table 4. Uncertainty Calculations Summary 5
Table 5. Equipment Configuration 8
Table 6. Support Equipment 8
Table 7. Restricted Bands of Operation 23
Table 8. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a) 24
Table 9. Radiated Spurious Emissions, Test Results 33
Table 10. Test Equipment List 36

List of Plots

Plot 1. Peak Power Output, Low Channel, 9.6 kbps 12
Plot 2. Peak Power Output, Mid Channel, 9.6 kbps 12
Plot 3. Peak Power Output, High Channel, 9.6 kbps 12
Plot 4. Peak Power Output, Low Channel, 76.8 kbps 13
Plot 5. Peak Power Output, Mid Channel, 76.8 kbps 13
Plot 6. Peak Power Output, High Channel, 76.8 kbps 13
Plot 7. Conducted Spurious Emissions, Low Channel, 9.6 kbps, 30 MHz – 1 GHz 15
Plot 8. Conducted Spurious Emissions, Low Channel, 9.6 kbps, 1 GHz – 10 GHz 15
Plot 9. Conducted Spurious Emissions, Mid Channel, 9.6 kbps, 30 MHz – 1 GHz 16
Plot 10. Conducted Spurious Emissions, Mid Channel, 9.6 kbps, 1 GHz – 10 GHz 16
Plot 11. Conducted Spurious Emissions, High Channel, 9.6 kbps, 30 MHz – 1 GHz 17
Plot 12. Conducted Spurious Emissions, High Channel, 9.6 kbps, 1 GHz – 10 GHz 17
Plot 13. Conducted Spurious Emissions, Low Channel, 76.8 kbps, 30 MHz – 1 GHz 18
Plot 14. Conducted Spurious Emissions, Low Channel, 76.8 kbps, 1 GHz – 10 GHz 18
Plot 15. Conducted Spurious Emissions, Mid Channel, 76.8 kbps, 30 MHz – 1 GHz 19
Plot 16. Conducted Spurious Emissions, Mid Channel, 76.8 kbps, 1 GHz – 10 GHz 19
Plot 17. Conducted Spurious Emissions, High Channel, 76.8 kbps, 30 MHz – 1 GHz 20
Plot 18. Conducted Spurious Emissions, High Channel, 76.8 kbps, 1 GHz – 10 GHz 20
Plot 19. Duty Cycle Correction Factor, On Time, 9.6 kbps 22
Plot 20. Duty Cycle Correction Factor, On Time, 76.8 kbps 22
Plot 21. Radiated Spurious Emissions, Low Channel, 9.6 kbps, Fundamental 25
Plot 22. Radiated Spurious Emissions, Low Channel, 9.6 kbps, 1 GHz – 10 GHz 25
Plot 23. Radiated Spurious Emissions, Mid Channel, 9.6 kbps, Fundamental 26
Plot 24. Radiated Spurious Emissions, Mid Channel, 9.6 kbps, 1 GHz – 10 GHz 26
Plot 25. Radiated Spurious Emissions, High Channel, 9.6 kbps, Fundamental 27
Plot 26. Radiated Spurious Emissions, High Channel, 9.6 kbps, 1 GHz – 10 GHz 27
Plot 27. Radiated Spurious Emissions, Low Channel, 76.8 kbps, Fundamental 28
Plot 28. Radiated Spurious Emissions, Low Channel, 76.8 kbps, 1 GHz – 10 GHz 28
Plot 29. Radiated Spurious Emissions, Mid Channel, 76.8 kbps, Fundamental 29
Plot 30. Radiated Spurious Emissions, Mid Channel, 76.8 kbps, 1 GHz – 10 GHz 29
Plot 31. Radiated Spurious Emissions, High Channel, 76.8 kbps, Fundamental 30
Plot 32. Radiated Spurious Emissions, High Channel, 76.8 kbps, 1 GHz – 10 GHz 30

List of Figures

Figure 1. Block Diagram of Test Configuration 6

List of Photographs

Photograph 1. EUT Photo, 1 7
Photograph 2. EUT Photo, 2 8
Photograph 3. Radiated Spurious Emissions, Test Setup, Below 1 GHz 34
Photograph 4. Radiated Spurious Emissions, Test Setup Above 1 GHz 34

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
NEBS	**N**etwork **E**quipment-**B**uilding **S**ystem
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 continued compliance of the Eaton's Cooper Power Systems RFW-201, with the requirements of Part 15, §15.247. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating continued compliance with Part 15, §15.247.

FCC Reference 47 CFR Part 15.247:2005	Description	Compliance
Title 47 of the CFR, Part 15 §15.247(b)	Peak Power Output	Compliant
Title 47 of the CFR, Part 15 §15.247(d); §15.209; §15.205	Radiated Spurious Emissions	Compliant
Title 47 of the CFR, Part 15 §15.247(d)	Spurious Conducted Emissions	Compliant

Table 1. Executive Summary of EMC Part 15.247 Testing for a CIIPC

II. Equipment Configuration

A. Overview

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform testing of the Eaton's Cooper Power Systems, RFW-201 for the purpose of a Class II Permissive Change.

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

Model(s) Tested:	RFW-201	
EUT Specifications:	Primary Power: 3.6 VDC	
	FCC ID: P9X-RFW201	
	Type of Modulations:	GFSK
	Equipment Code:	DSS
	Peak RF Output Power:	18.93 dBm
	EUT Frequency Ranges:	902.75 – 927.25 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	
Evaluated by:	Deepak Giri, Len Knight	
Report Date(s):	June 3, 2019	

Table 2. EUT Summary Table

B. References

KDB 5558074	DTS Measurement Guidance
CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
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

Table 3. References

C. Test Site

All testing was performed at Eurofins MET Labs, Inc., 914 W. 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 MET Laboratories.

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.32 dB	2	95%
RF Power Conducted Spurious Emissions	±2.25 dB	2	95%
RF Power Radiated Emissions	±3.01 dB	2	95%

Table 4. Uncertainty Calculations Summary

E. Description of Test Sample

The Eaton's Cooper Power Systems RFW-201, Equipment Under Test (EUT), is a wireless radio module, or Node, designed to be used in water metering products. The Node enables communication of metering data between the meter and a remotely located Gateway or Relay Node device using an RF-mesh network. The RFW-201 contains a 915 MHz radio that operates with a maximum output power of 0.1W.

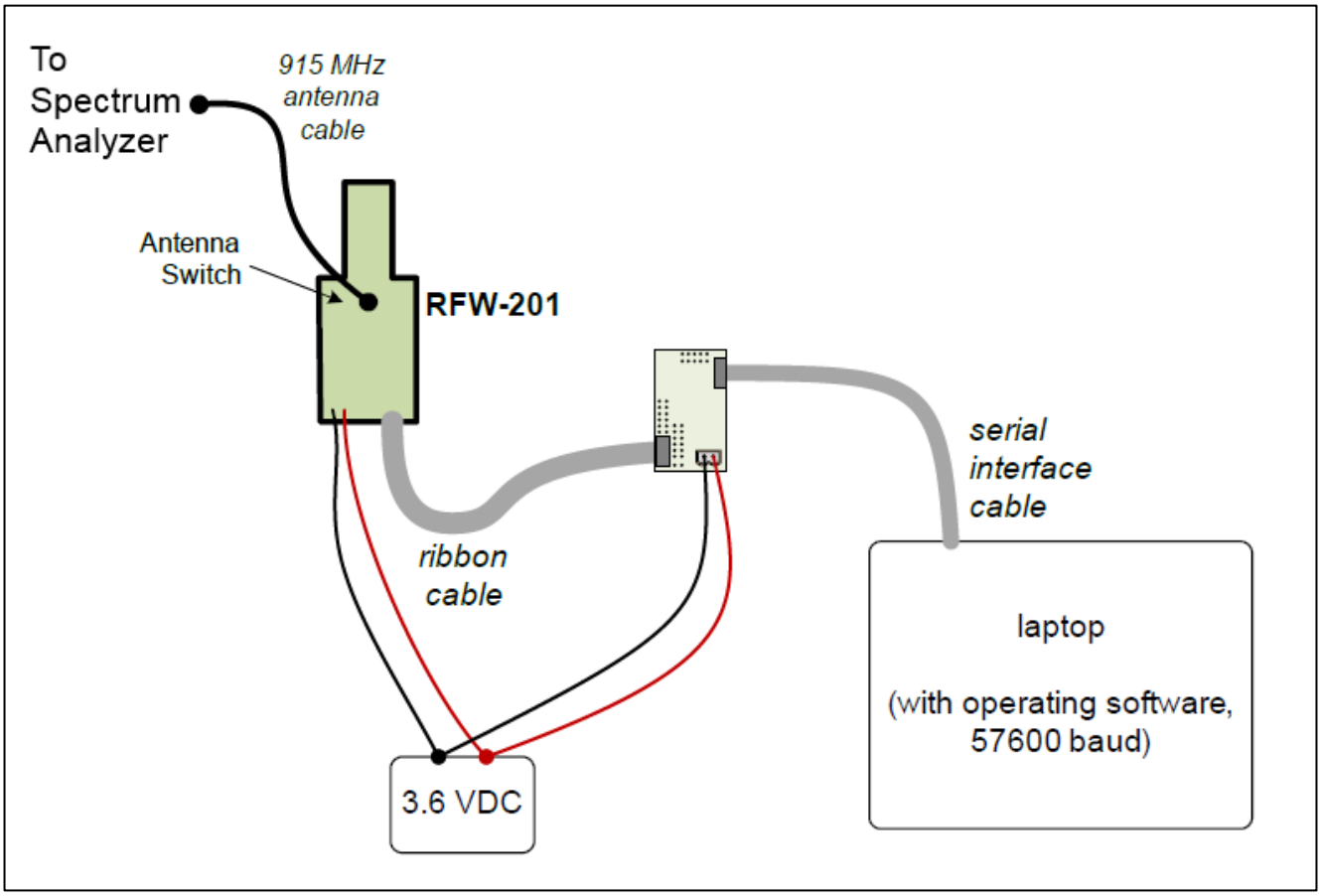
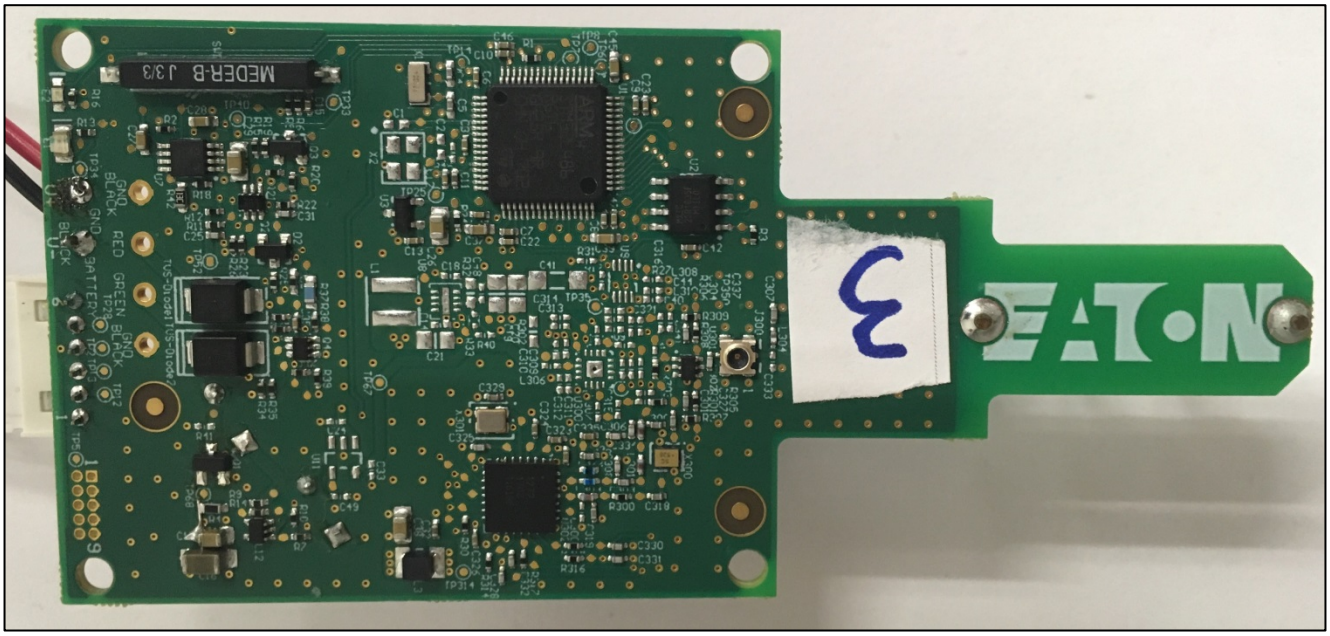


Figure 1. Block Diagram of Test Configuration

Photograph 1. EUT Photo, 1



Photograph 2. EUT Photo, 2

F. Equipment Configuration

The EUT was set up as outlined in Figure 1, Block Diagram of Test Setup.

Name / Description	Model Number	Part Number	Serial Number	Revision
RFW-201	RFW-201	--	48157880037	3

Table 5. Equipment Configuration

G. Support Equipment

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

Name / Description	Manufacturer	Model Number
debug dongle	Eaton	--
3.6 VDC power supply	MPJA	14601PS
laptop w/ operating software	--	--

Table 6. Support Equipment

H. Mode of Operation

Simulation of normal operation:
FHSS, Transmission data rates can be set using the operating software –9.6, 19.2, 38.4, and 76.8.

Test mode also available to transmit on a single channel.

I. 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.

J. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Eaton's Cooper Power Systems upon completion of testing.

III. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(b) Peak Power Output

Test Requirements: **§15.247(b)** The maximum peak conducted output power of the intentional radiator shall not exceed the following:

(2) Frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels.

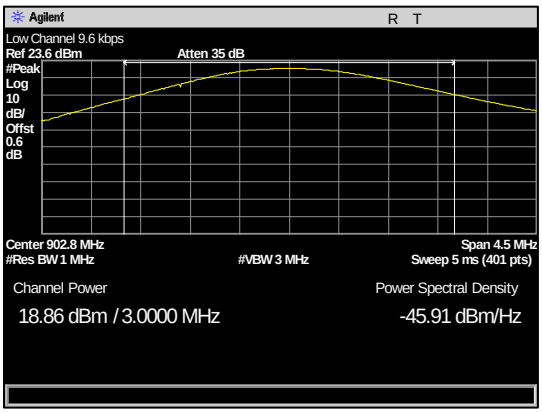
Test Procedure: The transmitter was connected directly to a calibrated spectrum analyzer by way of a u.fl evaluation port. The transmitter was measured at low, mid, and high frequencies at a baud rate of 9.6 kbps and 76.8 kbps.

Test Results: The EUT was found to be compliant with the Peak Power Output limits of **§15.247(b)**.

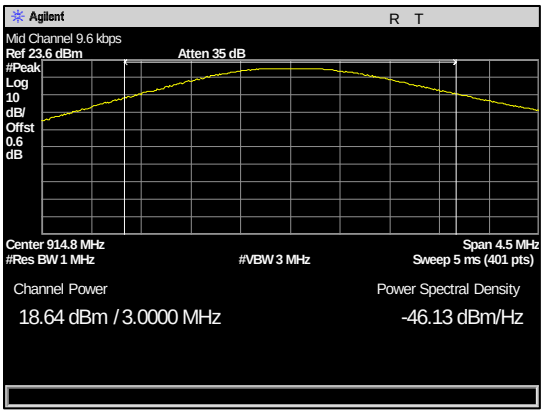
Test Engineer(s): Len Knight, Deepak Giri

Test Date(s): 05/16/2019

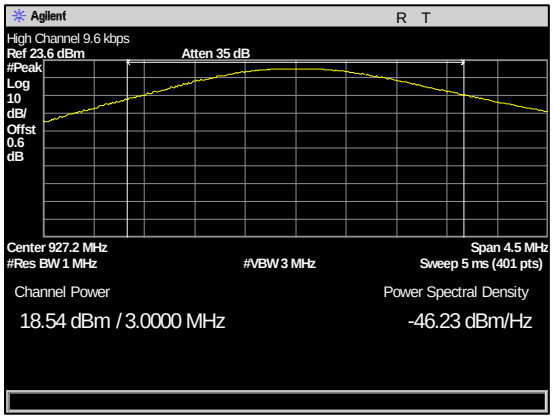
Peak Power Output Test Results



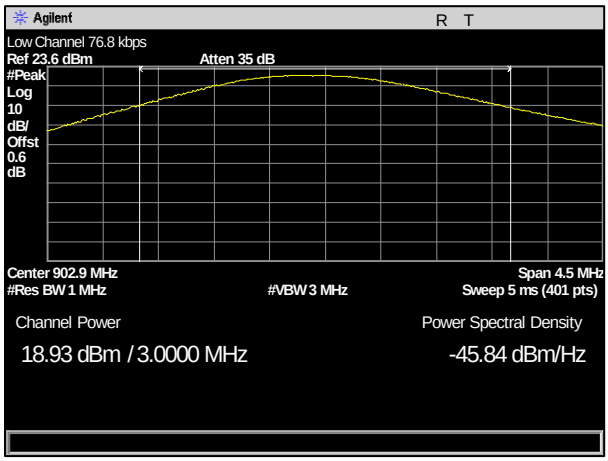
Plot 1. Peak Power Output, Low Channel, 9.6 kbps



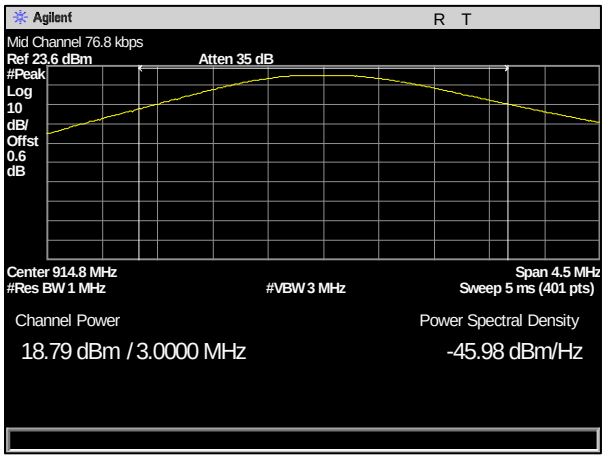
Plot 2. Peak Power Output, Mid Channel, 9.6 kbps



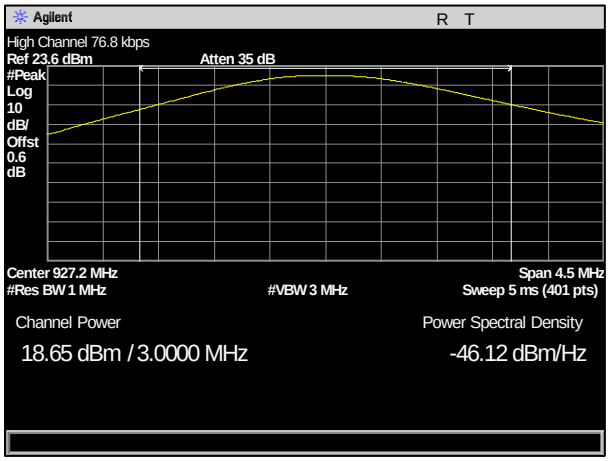
Plot 3. Peak Power Output, High Channel, 9.6 kbps



Plot 4. Peak Power Output, Low Channel, 76.8 kbps



Plot 5. Peak Power Output, Mid Channel, 76.8 kbps



Plot 6. Peak Power Output, High Channel, 76.8 kbps

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(d) RF Conducted Spurious Emissions Requirements

Test Requirement: **15.247(d)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Test Procedure: For intentional radiators with a digital device portion which operates below 10 GHz, the spectrum was investigated as per §15.33(a)(1) and §15.33(a)(4); i.e., the lowest RF signal generated or used in the device up to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

The transmitter was connected directly to a calibrated spectrum analyzer by way of a u.fl evaluation port. The transmitter was measured at low, mid, and high frequencies at a baud rate of 9.6 kbps and 76.8 kbps.

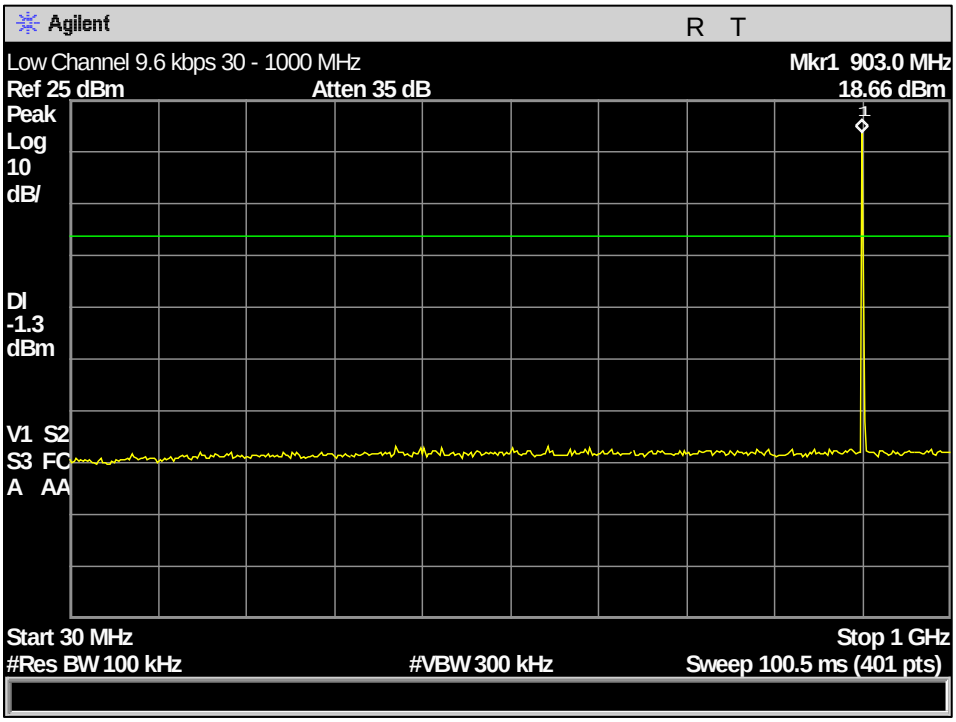
See following pages for detailed test results with RF Conducted Spurious Emissions.

Test Results: The EUT was found compliant with the Conducted Spurious Emission limits of **§15.247(d)**.

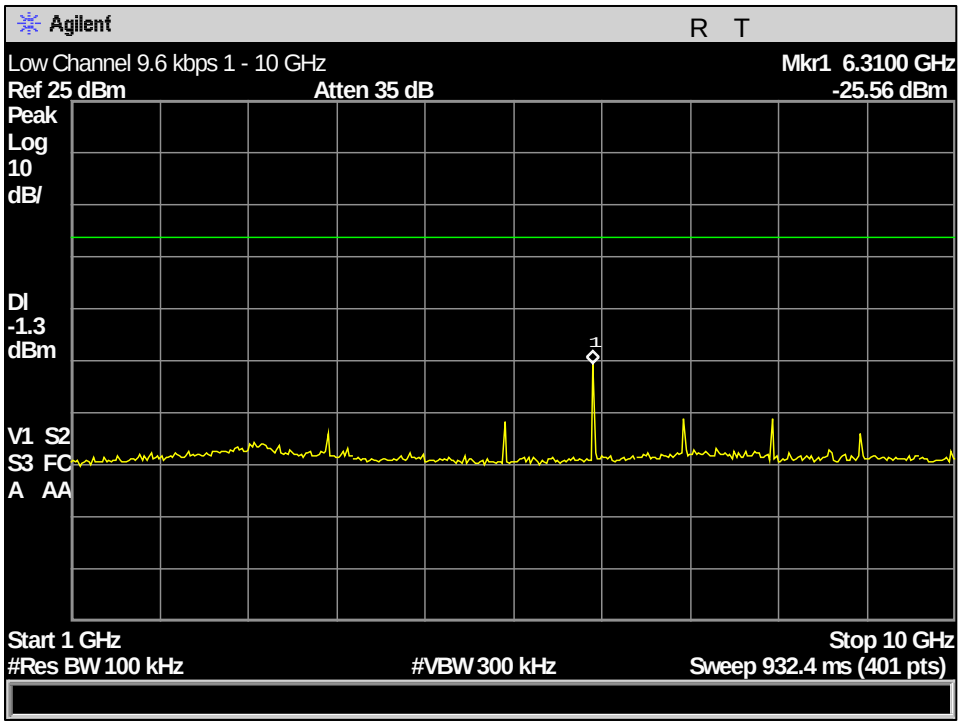
Test Engineer(s): Len Knight

Test Date(s): 05/16/2019

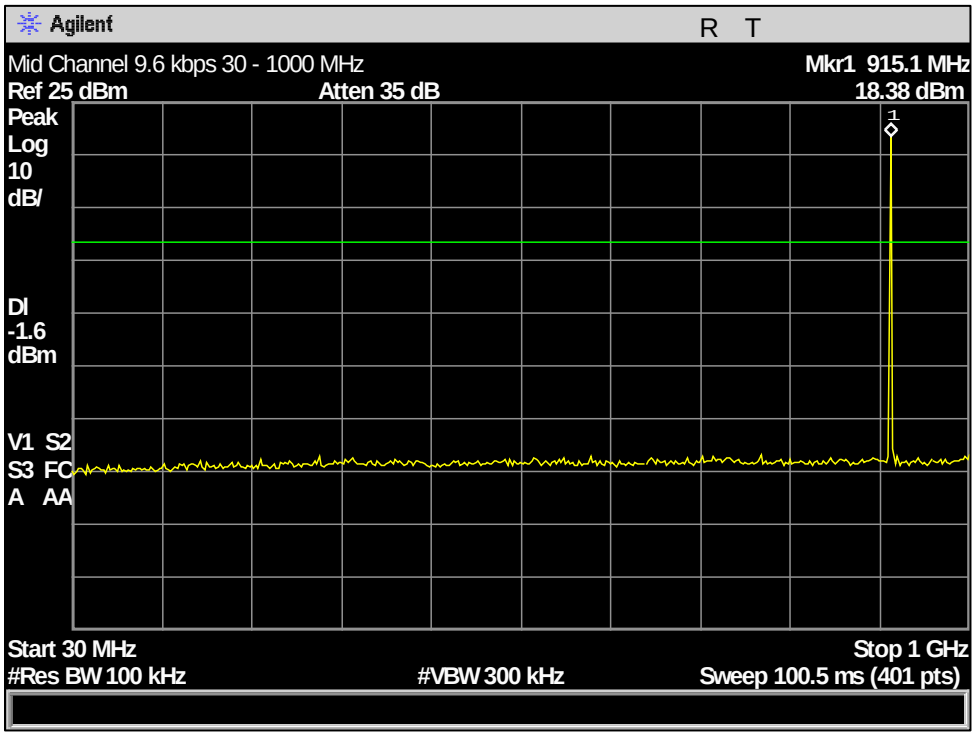
Conducted Spurious Emissions Test Results



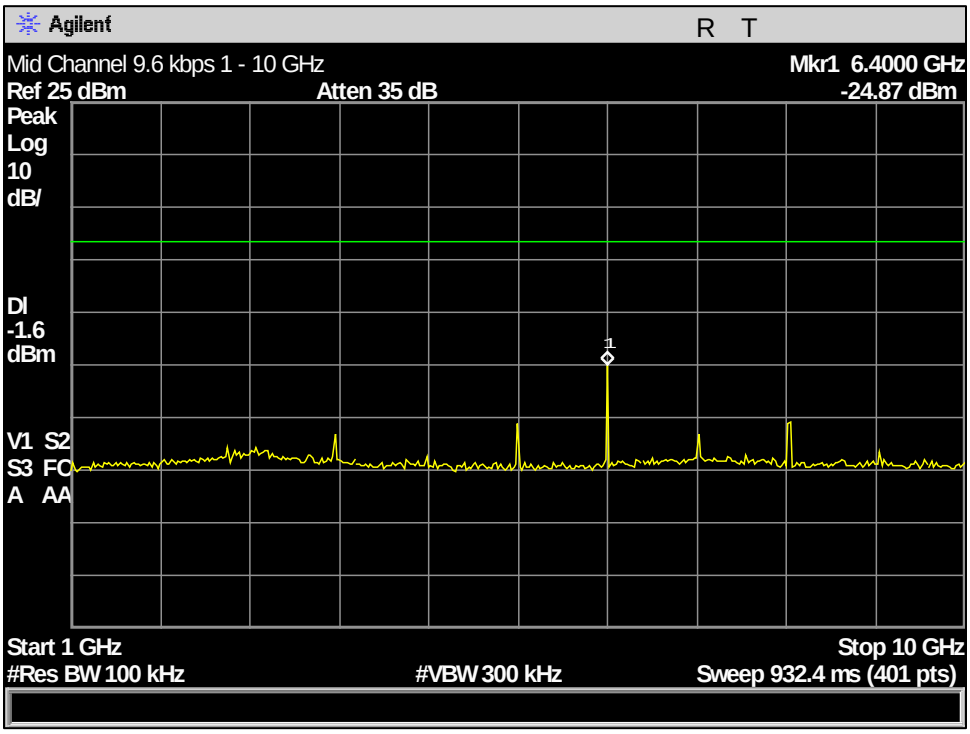
Plot 7. Conducted Spurious Emissions, Low Channel, 9.6 kbps, 30 MHz – 1 GHz



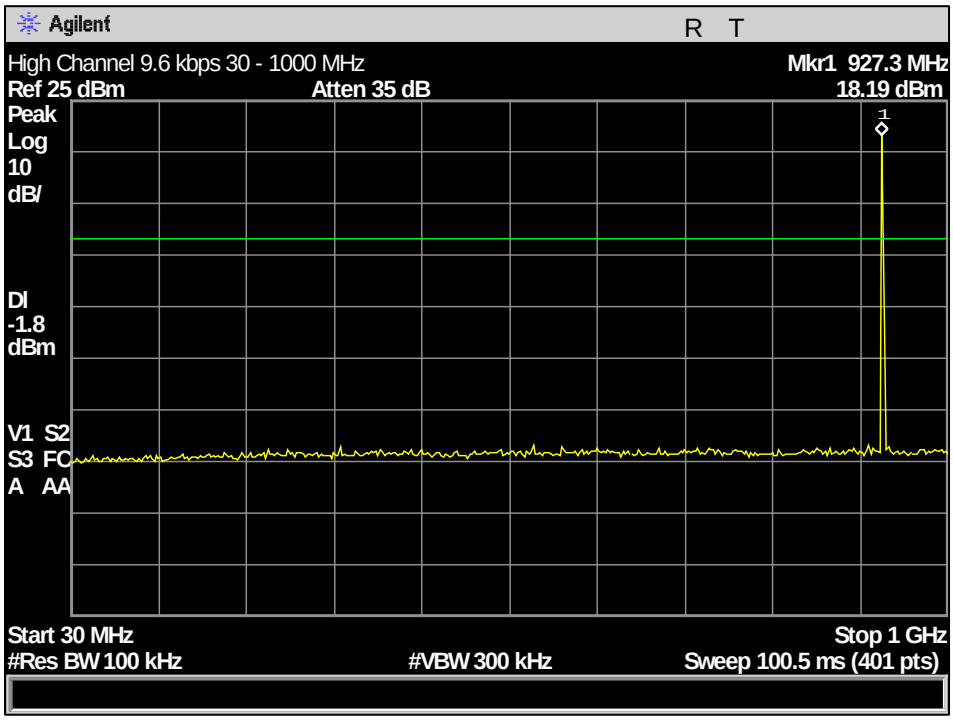
Plot 8. Conducted Spurious Emissions, Low Channel, 9.6 kbps, 1 GHz – 10 GHz



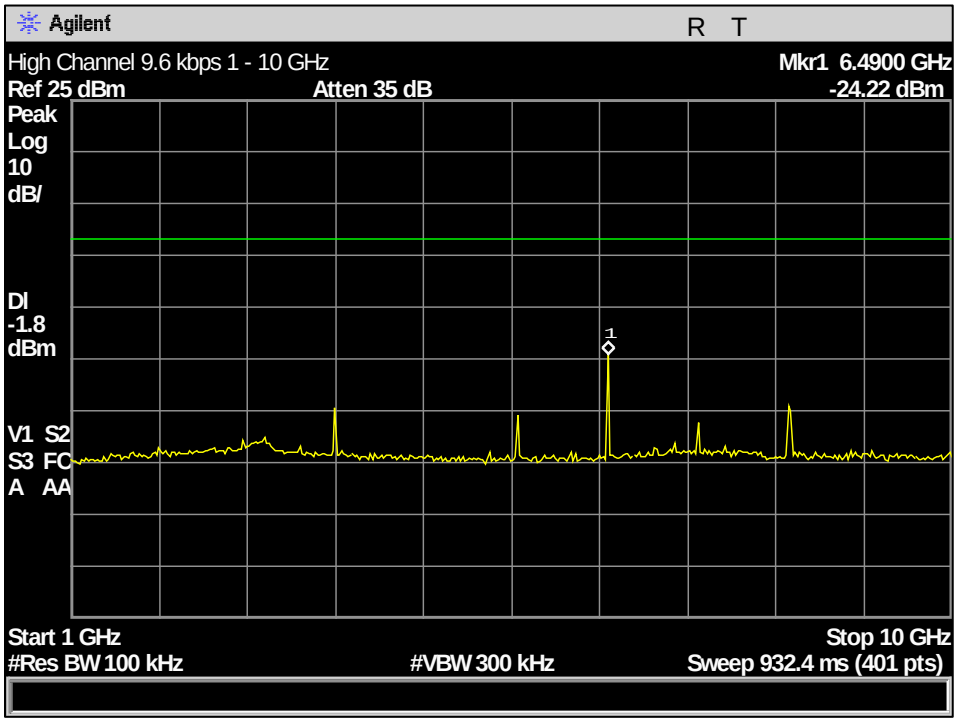
Plot 9. Conducted Spurious Emissions, Mid Channel, 9.6 kbps, 30 MHz – 1 GHz



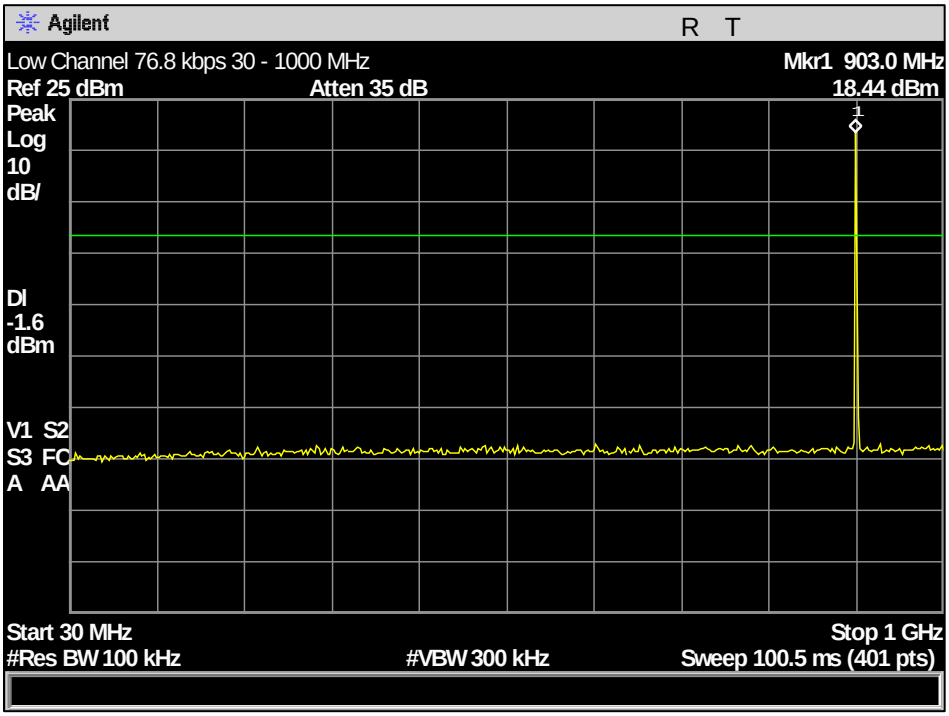
Plot 10. Conducted Spurious Emissions, Mid Channel, 9.6 kbps, 1 GHz – 10 GHz



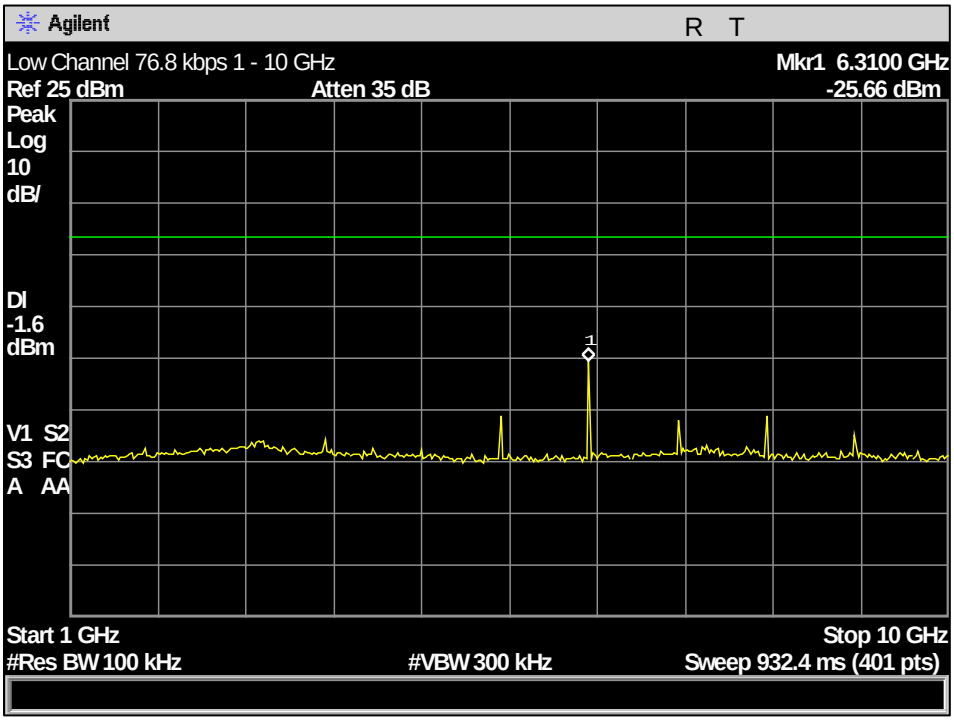
Plot 11. Conducted Spurious Emissions, High Channel, 9.6 kbps, 30 MHz – 1 GHz



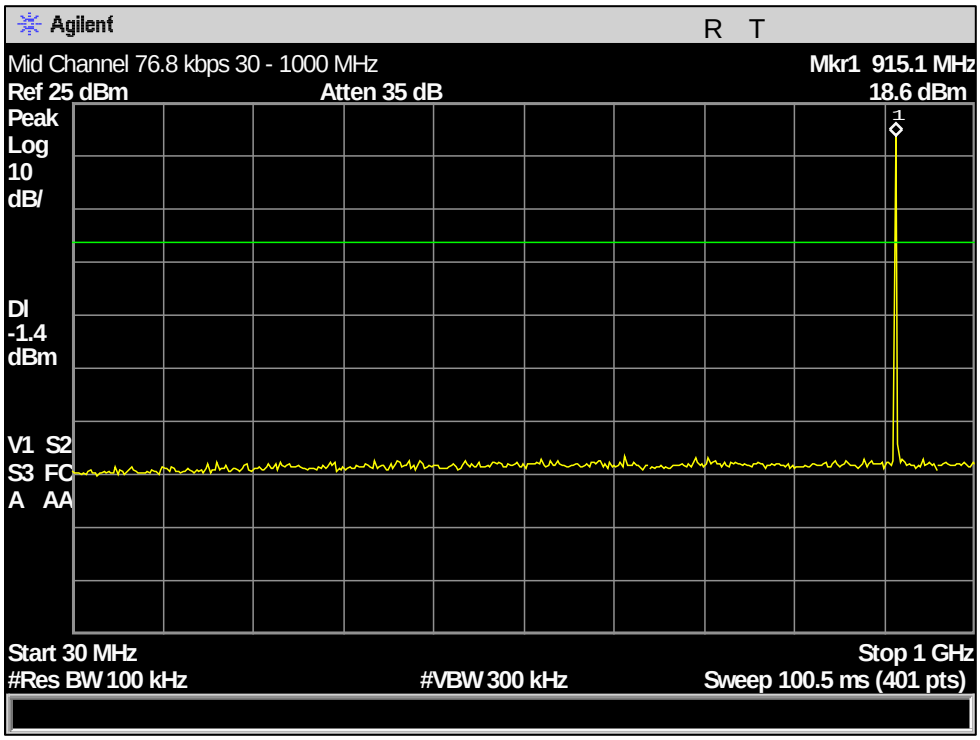
Plot 12. Conducted Spurious Emissions, High Channel, 9.6 kbps, 1 GHz – 10 GHz



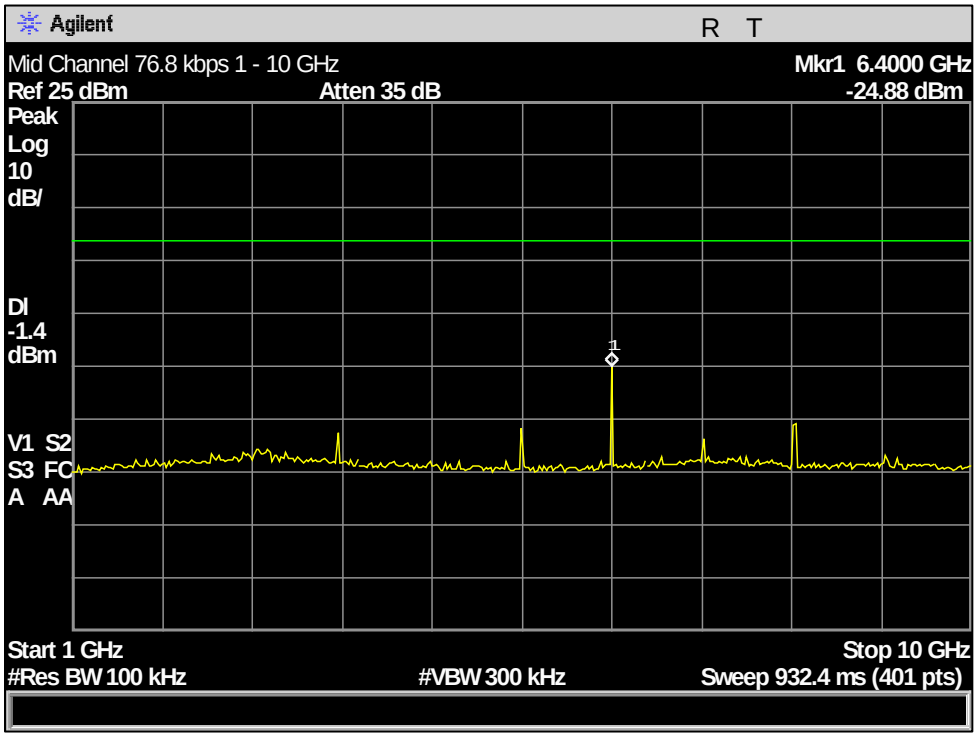
Plot 13. Conducted Spurious Emissions, Low Channel, 76.8 kbps, 30 MHz – 1 GHz



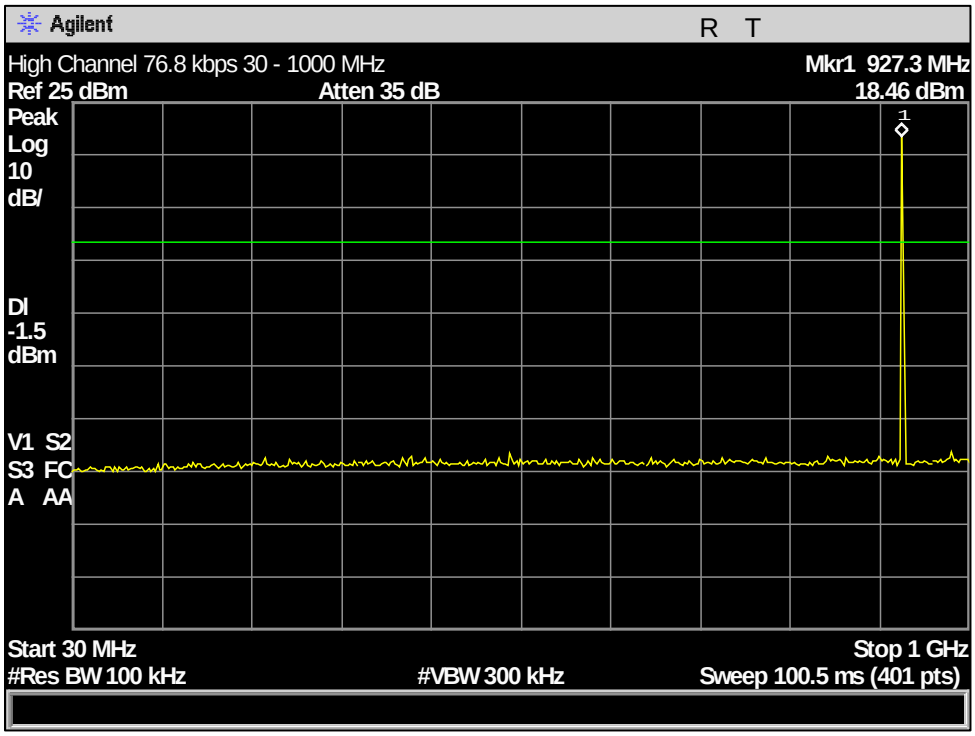
Plot 14. Conducted Spurious Emissions, Low Channel, 76.8 kbps, 1 GHz – 10 GHz



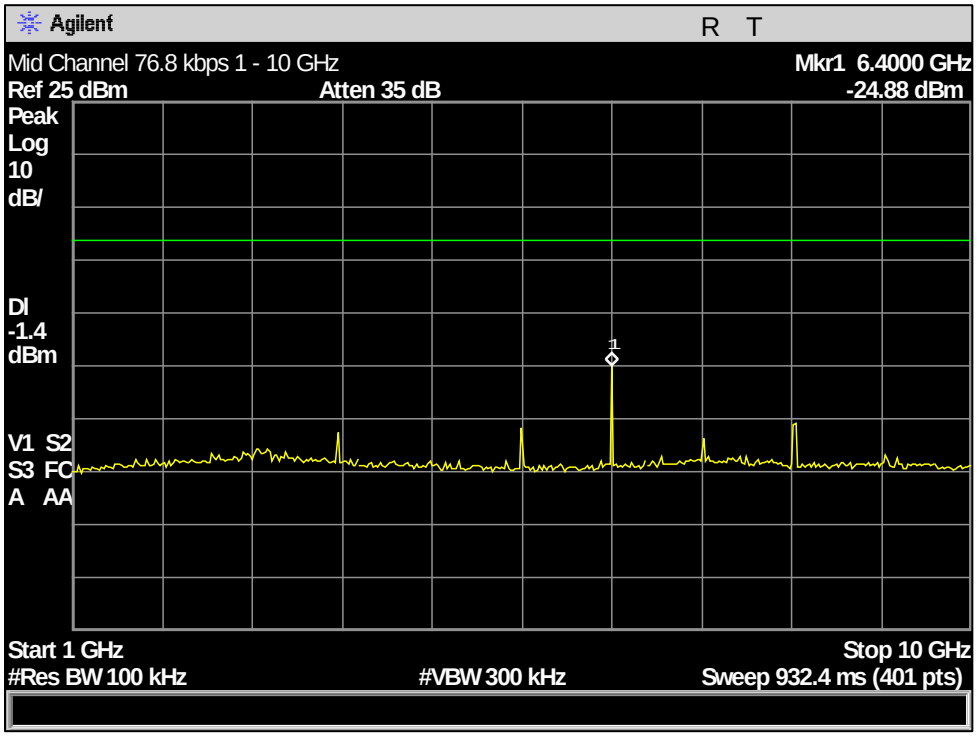
Plot 15. Conducted Spurious Emissions, Mid Channel, 76.8 kbps, 30 MHz – 1 GHz



Plot 16. Conducted Spurious Emissions, Mid Channel, 76.8 kbps, 1 GHz – 10 GHz



Plot 17. Conducted Spurious Emissions, High Channel, 76.8 kbps, 30 MHz – 1 GHz



Plot 18. Conducted Spurious Emissions, High Channel, 76.8 kbps, 1 GHz – 10 GHz

Electromagnetic Compatibility Criteria for Intentional Radiators

Duty Cycle Correction Factor

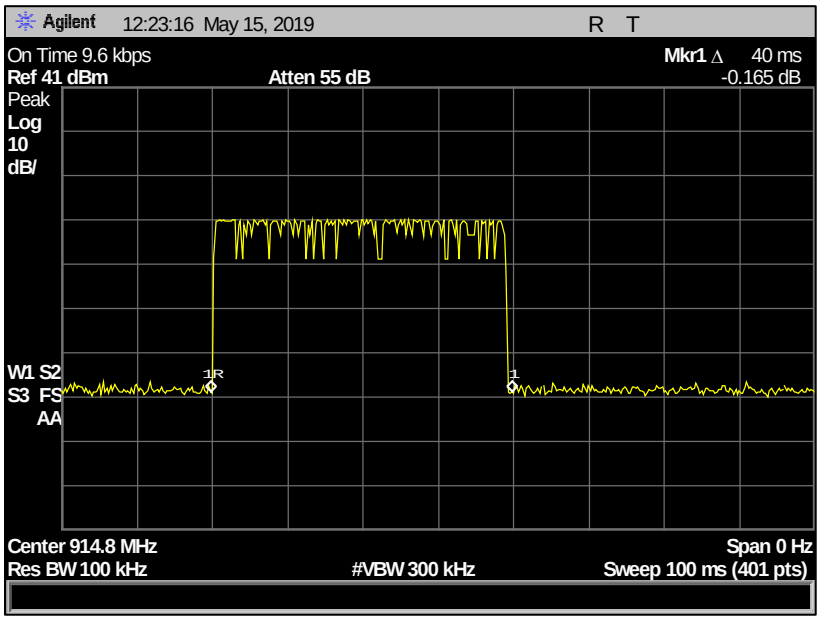
Measurement Requirement:

In accordance with FCC KDB 558074 D01 15.247 Measure Guidance v05r02:

The use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the unwanted emission limit is subject to an average field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement.

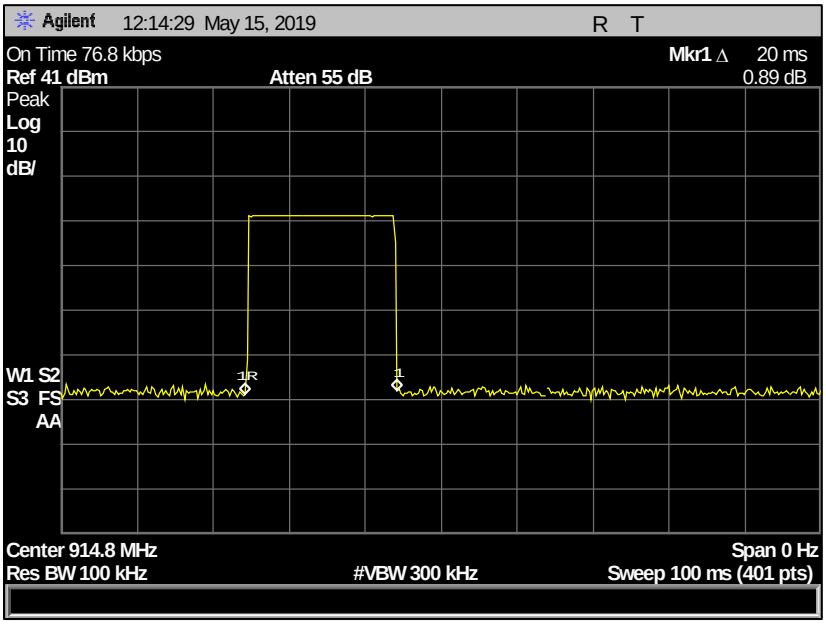
Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

The DCCF was calculated by measuring the on time for each band rate evaluated. The radio was set at each band rate and placed in a hopping mode consistent with normal operation.



Plot 19. Duty Cycle Correction Factor, On Time, 9.6 kbps

20 log (40/100)
20 log (0.4)
= -8 dB



Plot 20. Duty Cycle Correction Factor, On Time, 76.8 kbps

20 log (20/100)
20 log (0.2)
= -14 dB

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(d) Radiated Spurious Emissions Requirements

Test Requirements: **§15.247(d); §15.205:** Emissions outside the frequency band.

§15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a).

§15.205(a): Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090–0.110----------	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505----------	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905----------	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128----------	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775----------	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775----------	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218----------	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825----------	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225----------	123–138	2200–2300	14.47–14.5
8.291–8.294----------	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366----------	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675----------	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475----------	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293----------	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025----------	240–285	3345.8–3358 36.	43–36.5
12.57675–12.57725----------	322–335.4	3600–4400	([2])

Table 7. Restricted Bands of Operation

[1] Until February 1, 1999, this restricted band shall be 0.490 – 0.510 MHz.
[2] Above 38.6

Test Requirement(s): **§ 15.209 (a):** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 8.

Frequency (MHz)	§ 15.209(a),Radiated Emission Limits (dBµV) @ 3m
30 - 88	40.00
88 - 216	43.50
216 - 960	46.00
Above 960	54.00

Table 8. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a)

Test Procedure: For intentional radiators with a digital device portion which operates below 10 GHz, the spectrum was investigated as per §15.33(a)(1) and §15.33(a)(4); i.e., the lowest RF signal generated or used in the device up to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

The EUT was tested on the low, mid, and high channels at the baud rate of 9.6 kbps and 76.8 kbps.

First the fundamental was measured using a RBW of 100 kHz and a VBW of 300 kHz. The plots are a cumulative peak of both the horizontal and vertical polarities. A 20 dBc limit line was added. Then a cumulative peak plot was taken from 1 GHz to 10 GHz with the corresponding 20 dBc limit line.

Emissions which appeared in the restricted bands were remeasured with a RBW = 1 MHz and a VBW = 3 MHz, and a peak detector. Average values were calculated using a duty cycle correction factor. All the data is presented in tabular form.

In accordance with §15.35(b) the limit on the radio frequency emissions as measured using instrumentation with a peak detector function shall be 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

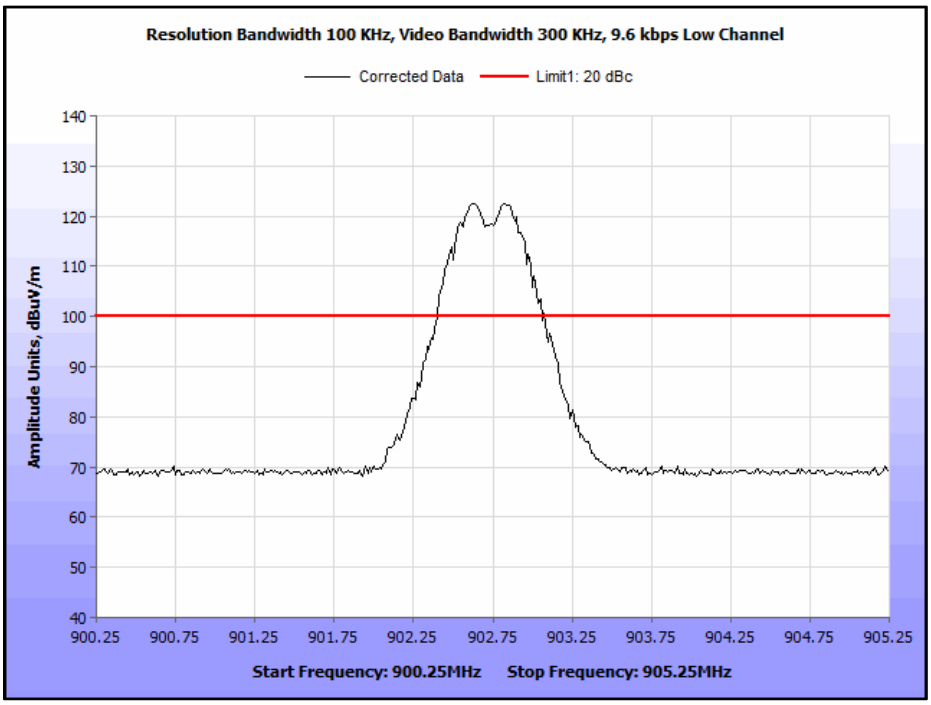
EUT Field Strength Final Amplitude = Raw Amplitude – Preamp gain + Antenna Factor + Cable Loss – Distance Correction Factor - DCCF

Test Results: The EUT was found compliant with the Radiated Spurious Emission limits of **§15.247(d)**.

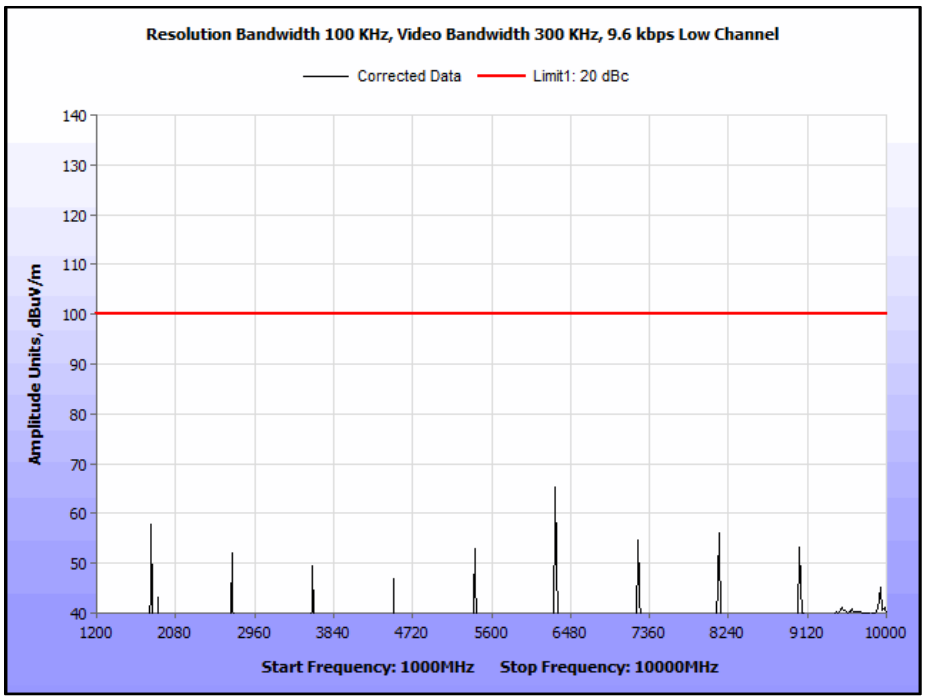
Test Engineer(s): Len Knight, Deepak Giri

Test Date(s): 05/09/2019 and 05/16/2019

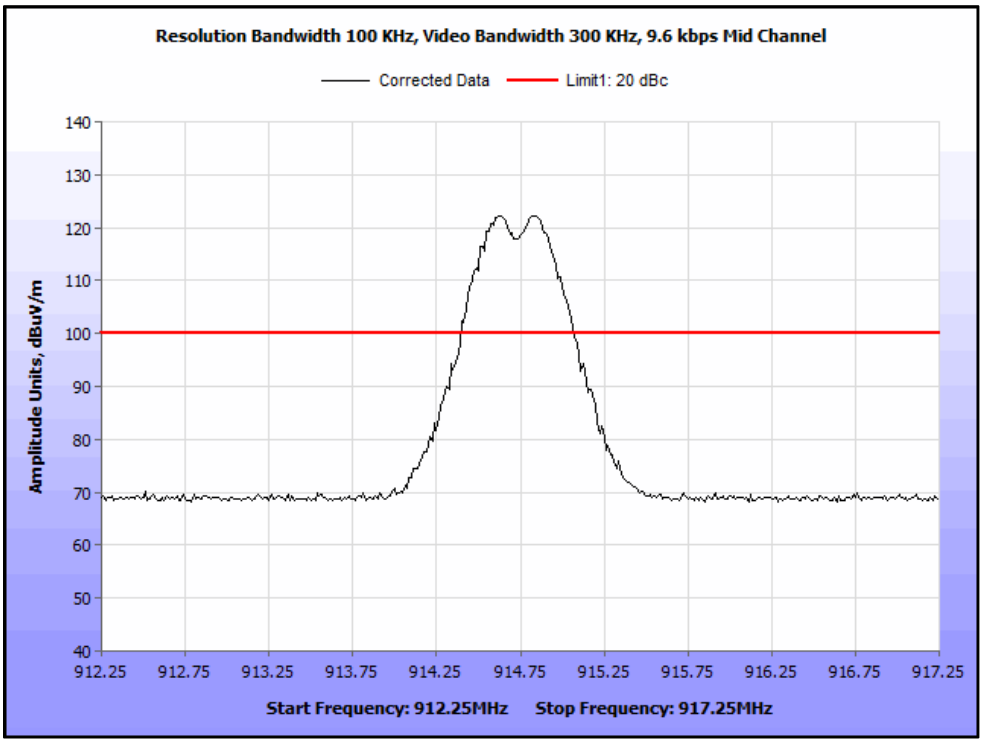
Radiated Spurious Emissions Test Results



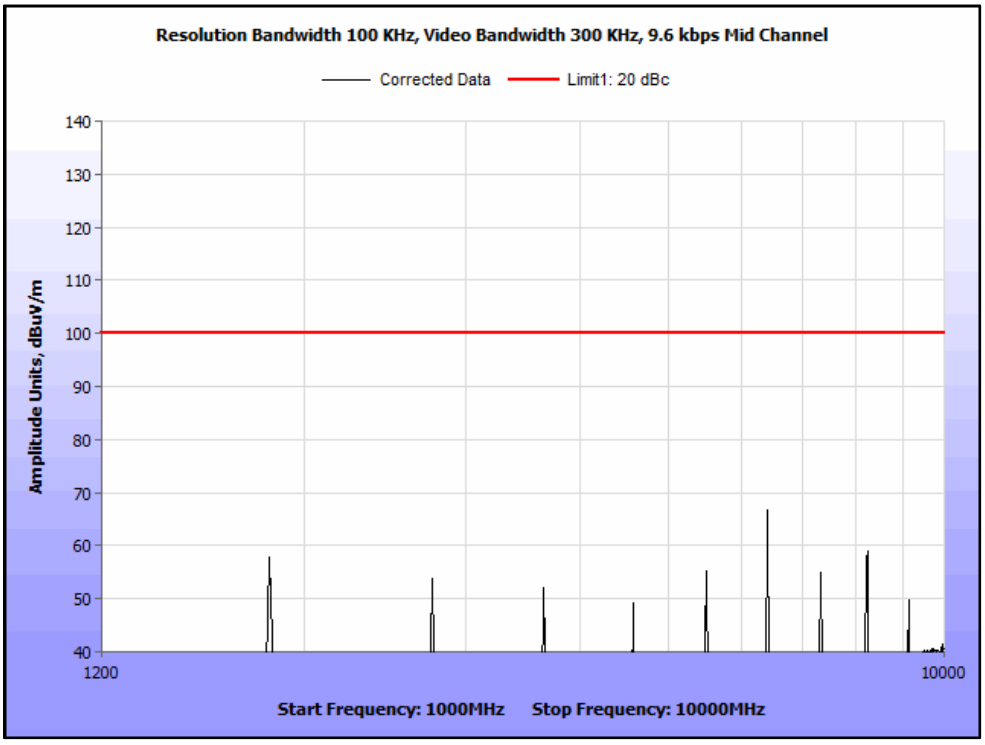
Plot 21. Radiated Spurious Emissions, Low Channel, 9.6 kbps, Fundamental



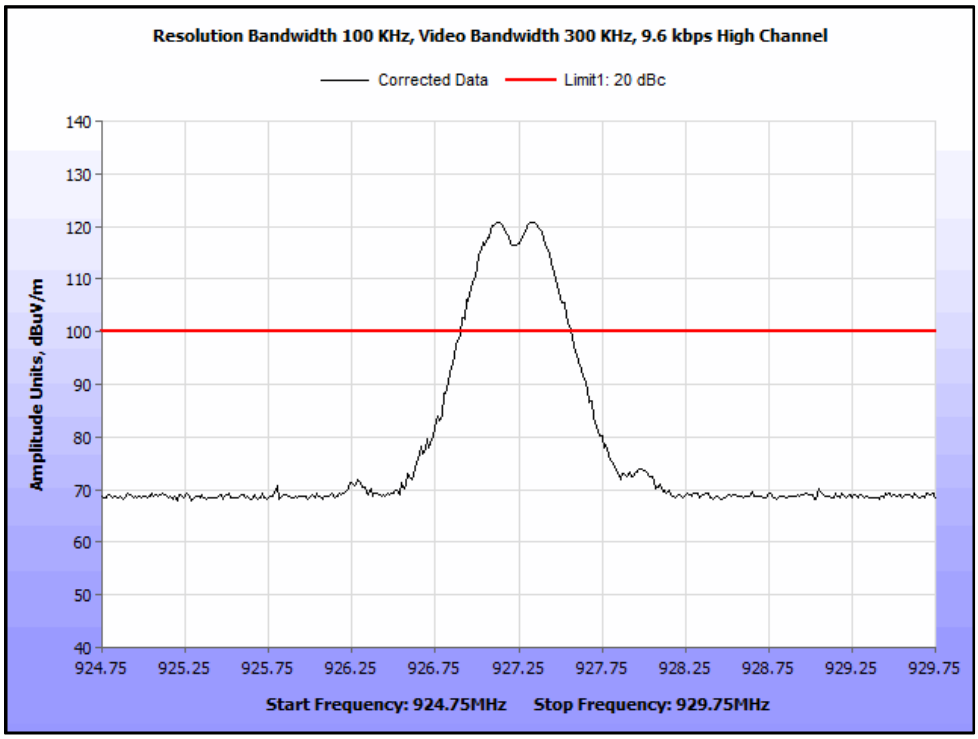
Plot 22. Radiated Spurious Emissions, Low Channel, 9.6 kbps, 1 GHz – 10 GHz



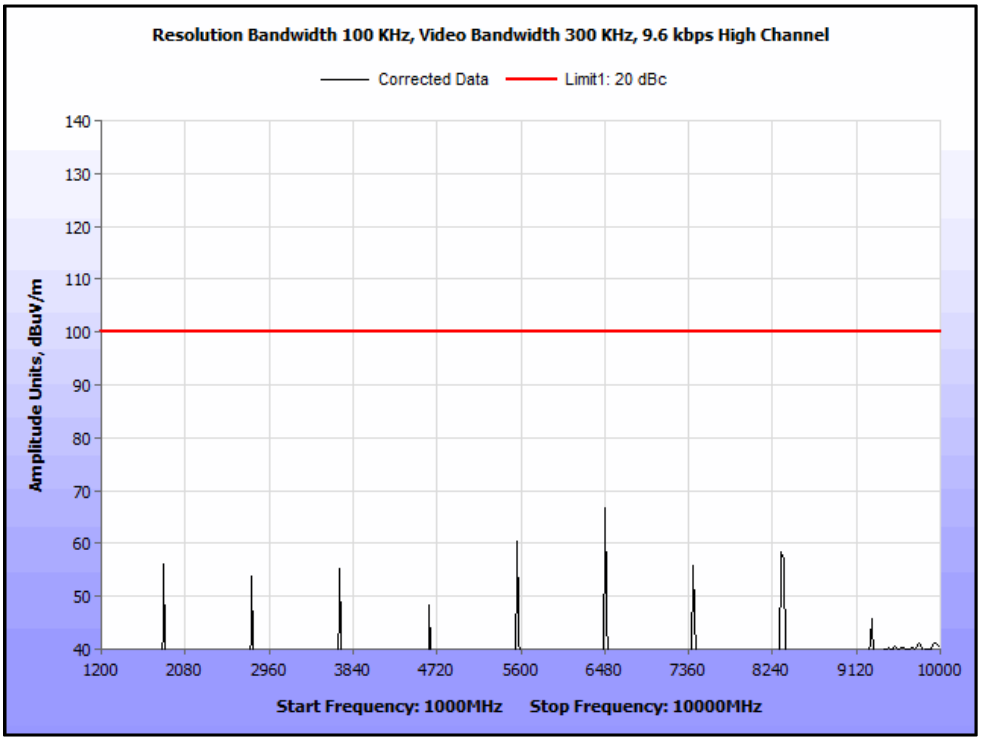
Plot 23. Radiated Spurious Emissions, Mid Channel, 9.6 kbps, Fundamental



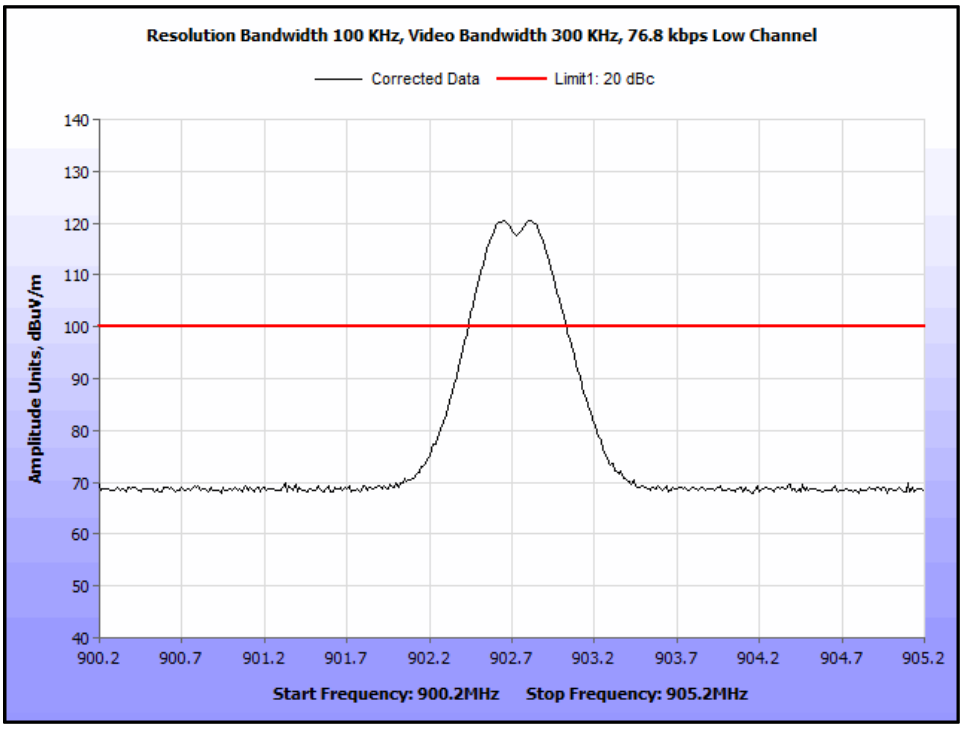
Plot 24. Radiated Spurious Emissions, Mid Channel, 9.6 kbps, 1 GHz – 10 GHz



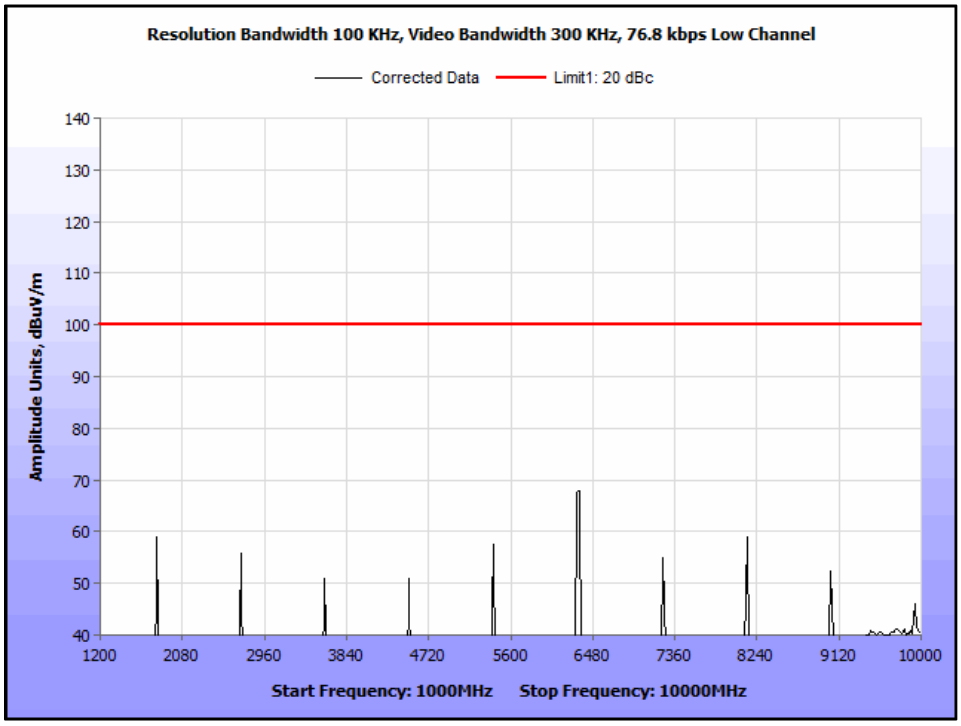
Plot 25. Radiated Spurious Emissions, High Channel, 9.6 kbps, Fundamental



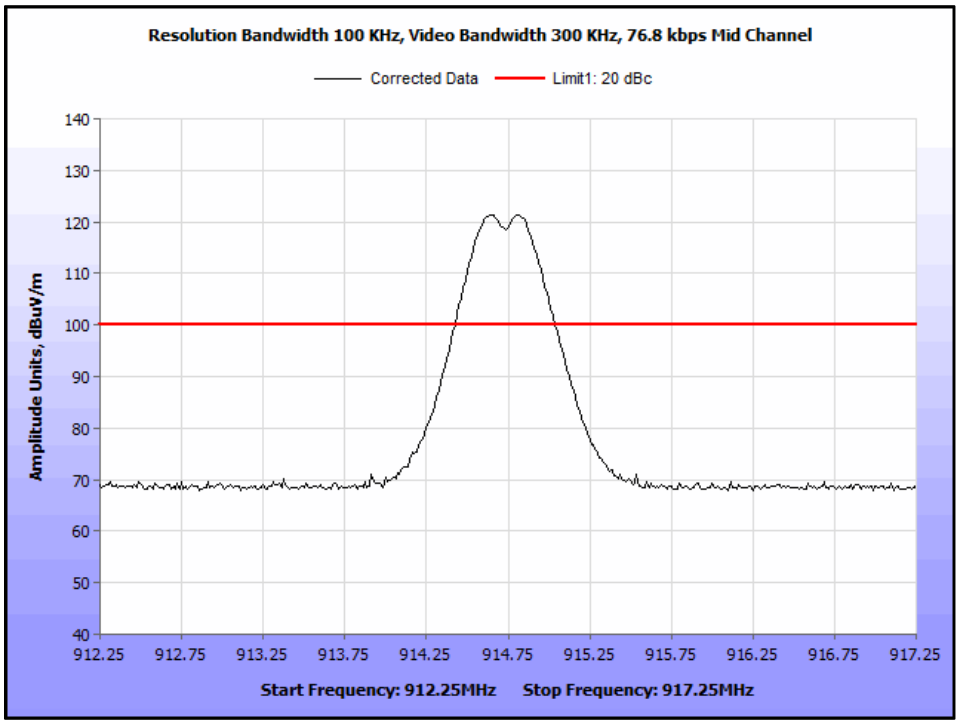
Plot 26. Radiated Spurious Emissions, High Channel, 9.6 kbps, 1 GHz – 10 GHz



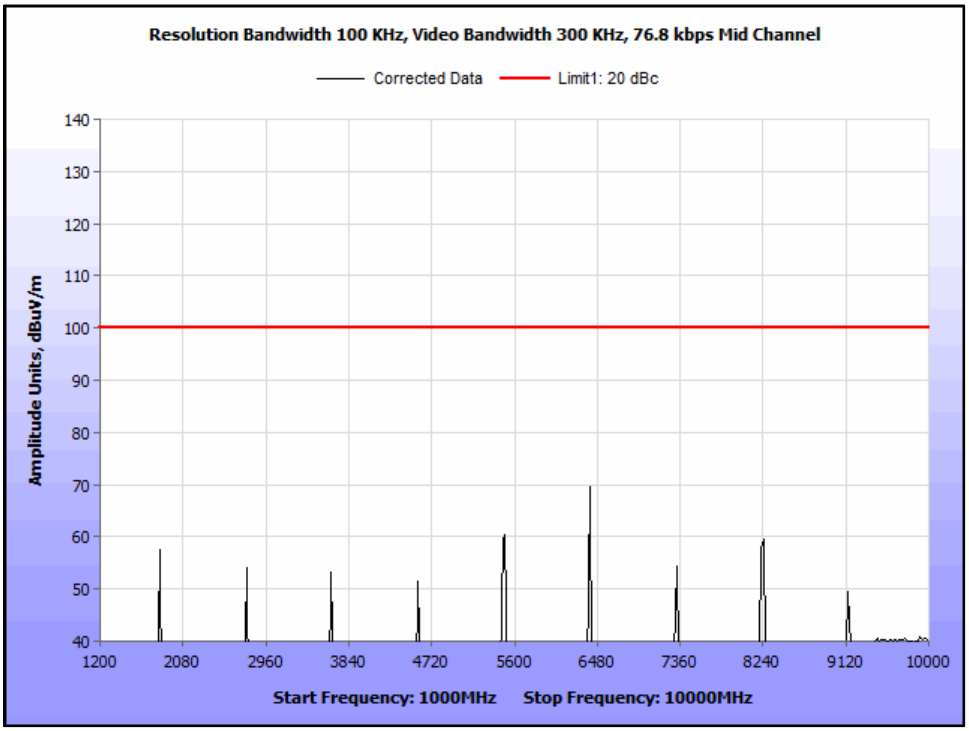
Plot 27. Radiated Spurious Emissions, Low Channel, 76.8 kbps, Fundamental



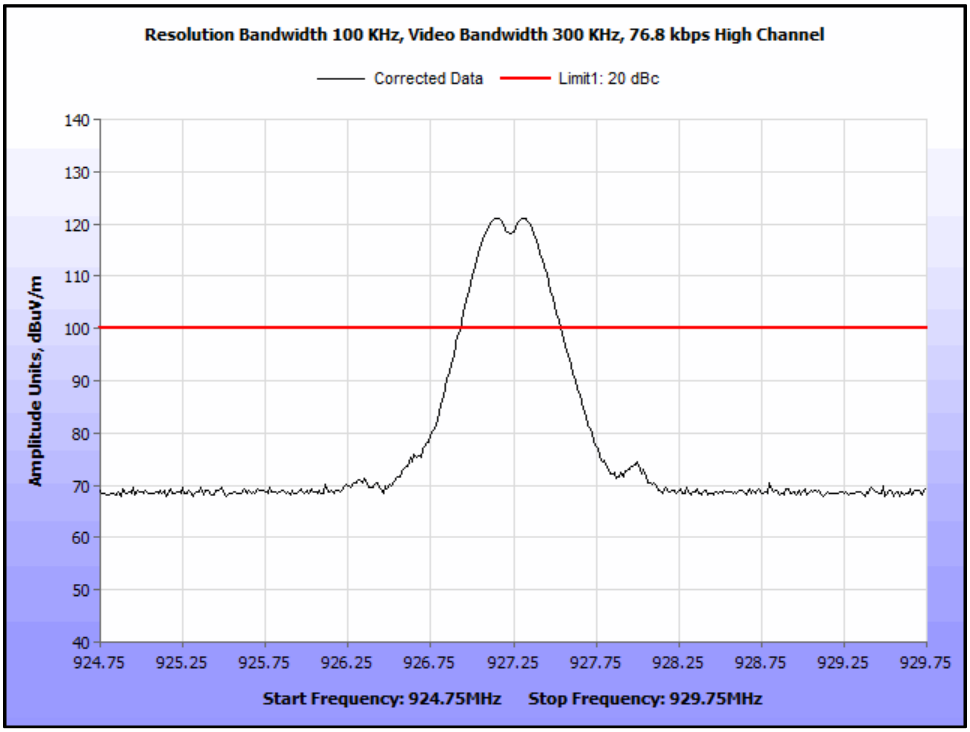
Plot 28. Radiated Spurious Emissions, Low Channel, 76.8 kbps, 1 GHz – 10 GHz



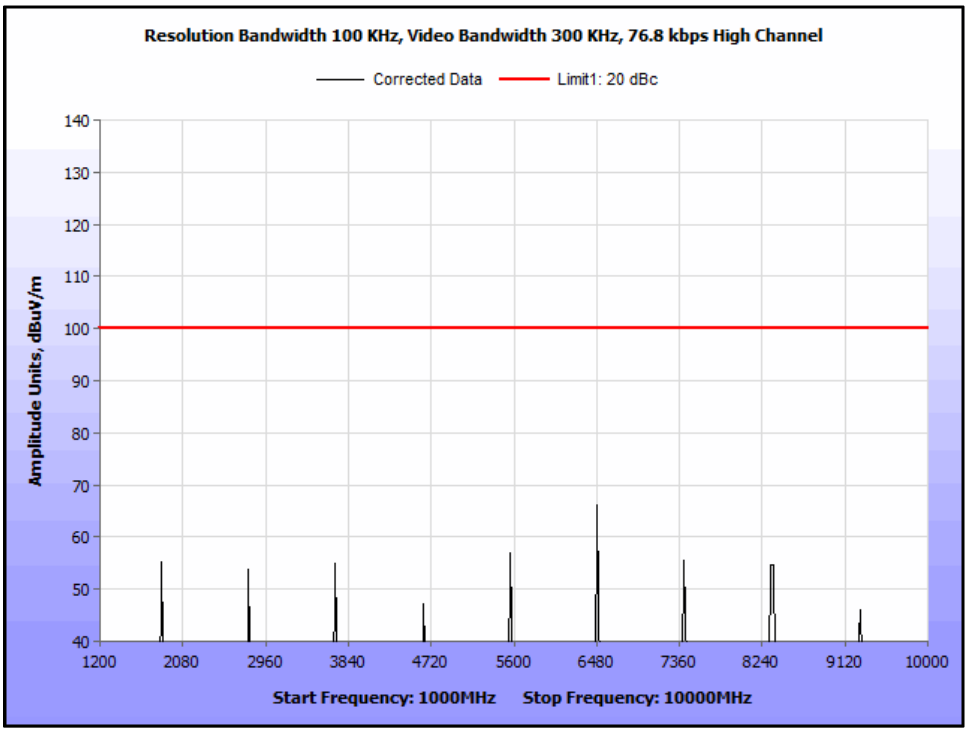
Plot 29. Radiated Spurious Emissions, Mid Channel, 76.8 kbps, Fundamental



Plot 30. Radiated Spurious Emissions, Mid Channel, 76.8 kbps, 1 GHz – 10 GHz



Plot 31. Radiated Spurious Emissions, High Channel, 76.8 kbps, Fundamental



Plot 32. Radiated Spurious Emissions, High Channel, 76.8 kbps, 1 GHz – 10 GHz

Channel	Baud Rate (kbps)	Frequency (MHz)	Polarity (H/V)	Uncorrected Peak (dBuV)	ACF (dB/m)	Cable Loss/Amp Gain (dB)	Distance Correction Factor (dB)	Corrected Peak (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	DCCF (dB)	Corrected Average (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)
High	76.8	2782	H	66.47	29.7	-34.53	-9.54	52.1	74	-21.9	-14	38.1	54	-15.9
High	76.8	2781	V	69.43	29.7	-34.53	-9.54	55.06	74	-18.94	-14	41.06	54	-12.94
Mid	76.8	2744	H	72.77	29.6	-34.36	-9.54	58.47	74	-15.53	-14	44.47	54	-9.53
Mid	76.8	2744	V	69.68	29.6	-34.36	-9.54	55.38	74	-18.62	-14	41.38	54	-12.62
Low	76.8	2708	H	62.73	29.6	-34.03	-9.54	48.76	74	-25.24	-14	34.76	54	-19.24
Low	76.8	2708	V	70.14	29.6	-34.03	-9.54	56.17	74	-17.83	-14	42.17	54	-11.83
High	9.6	2762	H	65.34	29.6	-34.6	-9.54	50.8	74	-23.2	-8	42.8	54	-11.2
High	9.6	2762	V	69.2	29.6	-34.6	-9.54	54.66	74	-19.34	-8	46.66	54	-7.34
Mid	9.6	2744	H	66.6	29.6	-34.3	-9.54	52.36	74	-21.64	-8	44.36	54	-9.64
Mid	9.6	2744	V	69.8	29.6	-34.3	-9.54	55.56	74	-18.44	-8	47.56	54	-6.44
Low	9.6	2708	H	68.58	29.6	-34	-9.54	54.64	74	-19.36	-8	46.64	54	-7.36
Low	9.6	2708	V	69.2	29.6	-34	-9.54	55.26	74	-18.74	-8	47.26	54	-6.74
High	76.8	3709	H	65.8	32.8	-33.3	-9.54	55.76	74	-18.24	-14	41.76	54	-12.24
High	76.8	3709	V	63.9	32.8	-33.3	-9.54	53.86	74	-20.14	-14	39.86	54	-14.14
Mid	76.8	3659	H	63.5	32.5	-33.2	-9.54	53.26	74	-20.74	-14	39.26	54	-14.74
Mid	76.8	3659	V	62.9	32.5	-33.2	-9.54	52.66	74	-21.34	-14	38.66	54	-15.34
Low	76.8	3611	H	61.5	32.3	-33.1	-9.54	51.16	74	-22.84	-14	37.16	54	-16.84
Low	76.8	3611	V	61.9	32.3	-33.1	-9.54	51.56	74	-22.44	-14	37.56	54	-16.44
High	9.6	3683	H	63.8	32.6	-33.2	-9.54	53.66	74	-20.34	-8	45.66	54	-8.34
High	9.6	3683	V	64.4	32.6	-33.2	-9.54	54.26	74	-19.74	-8	46.26	54	-7.74
Mid	9.6	3659	H	65.3	32.4	-33.2	-9.54	54.96	74	-19.04	-8	46.96	54	-7.04
Mid	9.6	3659	V	66.54	32.4	-33.2	-9.54	56.2	74	-17.8	-8	48.2	54	-5.8
Low	9.6	3610	H	62.3	32.1	-33.1	-9.54	51.76	74	-22.24	-8	43.76	54	-10.24

Channel	Baud Rate (kbps)	Frequency (MHz)	Polarity (H/V)	Uncorrected Peak (dBuV)	ACF (dB/m)	Cable Loss/Amp Gain (dB)	Distance Correction Factor (dB)	Corrected Peak (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	DCCF (dB)	Corrected Average (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)
Low	9.6	3611	V	61.5	32.1	-33.1	-9.54	50.96	74	-23.04	-8	42.96	54	-11.04
High	76.8	4635	H	62.1	33.3	-32.7	-9.54	53.16	74	-20.84	-14	39.16	54	-14.84
High	76.8	4635	V	59.1	33.3	-32.7	-9.54	50.16	74	-23.84	-14	36.16	54	-17.84
Mid	76.8	4573	H	62.7	33.1	-32.7	-9.54	53.56	74	-20.44	-14	39.56	54	-14.44
Mid	76.8	4574	V	60.3	33.1	-32.7	-9.54	51.16	74	-22.84	-14	37.16	54	-16.84
Low	76.8	4513	H	61.7	33	-32.8	-9.54	52.36	74	-21.64	-14	38.36	54	-15.64
Low	76.8	4514	V	58.1	33	-32.8	-9.54	48.76	74	-25.24	-14	34.76	54	-19.24
High	9.6	4604	H	61.8	33.1	-32.8	-9.54	52.56	74	-21.44	-8	44.56	54	-9.44
High	9.6	4603	V	59.3	33.1	-32.8	-9.54	50.06	74	-23.94	-8	42.06	54	-11.94
Mid	9.6	4574	H	61.1	33.1	-32.7	-9.54	51.96	74	-22.04	-8	43.96	54	-10.04
Mid	9.6	4573	V	61	33.1	-32.7	-9.54	51.86	74	-22.14	-8	43.86	54	-10.14
Low	9.6	4513	H	61.6	32.9	-32.8	-9.54	52.16	74	-21.84	-8	44.16	54	-9.84
Low	9.6	4514	V	60.5	32.9	-32.8	-9.54	51.06	74	-22.94	-8	43.06	54	-10.94
Low	76.8	5416	H	66.2	34.5	-31.8	-9.54	59.36	74	-14.64	-14	45.36	54	-8.64
Low	76.8	5416	V	62.1	34.5	-31.8	-9.54	55.26	74	-18.74	-14	41.26	54	-12.74
Low	9.6	5416	H	66.5	34.5	-31.8	-9.54	59.66	74	-14.34	-8	51.66	54	-2.34
Low	9.6	5416	V	60.5	34.5	-31.8	-9.54	53.66	74	-20.34	-8	45.66	54	-8.34
High	76.8	7418	H	61.1	37.4	-29.8	-9.54	59.16	74	-14.84	-14	45.16	54	-8.84
High	76.8	7418	V	58.5	37.4	-29.8	-9.54	56.56	74	-17.44	-14	42.56	54	-11.44
Mid	76.8	7318	H	60	37.4	-29.8	-9.54	58.06	74	-15.94	-14	44.06	54	-9.94
Mid	76.8	7318	V	60.8	37.4	-29.8	-9.54	58.86	74	-15.14	-14	44.86	54	-9.14
High	9.6	7417	H	58.2	37.4	-29.8	-9.54	56.26	74	-17.74	-8	48.26	54	-5.74
High	9.6	7417	V	58.5	37.4	-29.8	-9.54	56.56	74	-17.44	-8	48.56	54	-5.44

Channel	Baud Rate (kbps)	Frequency (MHz)	Polarity (H/V)	Uncorrected Peak (dBuV)	ACF (dB/m)	Cable Loss/Amp Gain (dB)	Distance Correction Factor (dB)	Corrected Peak (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	DCCF (dB)	Corrected Average (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)
Mid	9.6	7317	H	59	37.4	-29.7	-9.54	57.16	74	-16.84	-8	49.16	54	-4.84
Mid	9.6	7317	V	58.4	37.4	-29.7	-9.54	56.56	74	-17.44	-8	48.56	54	-5.44
High	76.8	8344	H	62.1	37.7	-29.1	-9.54	61.16	74	-12.84	-14	47.16	54	-6.84
High	76.8	8345	V	61	37.7	-29.1	-9.54	60.06	74	-13.94	-14	46.06	54	-7.94
Mid	76.8	8233	H	59.5	37.2	-29.2	-9.54	57.96	74	-16.04	-14	43.96	54	-10.04
Mid	76.8	8233	V	61.4	37.2	-29.2	-9.54	59.86	74	-14.14	-14	45.86	54	-8.14
Low	76.8	8125	H	59.7	37.1	-29.8	-9.54	57.46	74	-16.54	-14	43.46	54	-10.54
Low	76.8	8125	V	61.2	37.1	-29.8	-9.54	58.96	74	-15.04	-14	44.96	54	-9.04
High	9.6	8346	H	60.2	37.7	-29.1	-9.54	59.26	74	-14.74	-8	51.26	54	-2.74
High	9.6	8345	V	60.6	37.7	-29.1	-9.54	59.66	74	-14.34	-8	51.66	54	-2.34
Mid	9.6	8233	H	61.4	37.2	-29.2	-9.54	59.86	74	-14.14	-8	51.86	54	-2.14
Mid	9.6	8233	V	61.6	37.2	-29.2	-9.54	60.06	74	-13.94	-8	52.06	54	-1.94
Low	9.6	8123	H	58.5	37.1	-29.8	-9.54	56.26	74	-17.74	-8	48.26	54	-5.74
Low	9.6	8124	V	59.1	37.1	-29.8	-9.54	56.86	74	-17.14	-8	48.86	54	-5.14
Mid	76.8	9146	H	54.3	37.8	-29.2	-9.54	53.36	74	-20.64	-14	39.36	54	-14.64
Mid	76.8	9146	V	52.8	37.8	-29.2	-9.54	51.86	74	-22.14	-14	37.86	54	-16.14
Low	76.8	9028	H	51.5	37.9	-29.2	-9.54	50.66	74	-23.34	-14	36.66	54	-17.34
Low	76.8	9028	V	52.2	37.9	-29.2	-9.54	51.36	74	-22.64	-14	37.36	54	-16.64
Mid	9.6	9146	H	54.4	37.8	-29.2	-9.54	53.46	74	-20.54	-8	45.46	54	-8.54
Mid	9.6	9146	V	53.1	37.8	-29.2	-9.54	52.16	74	-21.84	-8	44.16	54	-9.84
Low	9.6	9026	H	50.9	37.9	-29.2	-9.54	50.06	74	-23.94	-8	42.06	54	-11.94
Low	9.6	9026	V	50.5	37.9	-29.2	-9.54	49.66	74	-24.34	-8	41.66	54	-12.34

Table 9. Radiated Spurious Emissions, Test Results

Radiated Spurious Emissions Test Setup

Photograph 3. Radiated Spurious Emissions, Test Setup, Below 1 GHz

Photograph 4. Radiated Spurious Emissions, Test Setup Above 1 GHz

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
1T4300	3M SEMI ANECHOIC CHAMBER	LINDGREN	N/A	2/19/2019	2/19/2020
1T4753	BICONILOG ANTENNA	SUNOL SCIENCES	JB6	8/30/2018	8/30/2019
1T4612	SPECTRUM ANALYZER	AGILENT	E4407B	5/15/2018	11/15/2019
1T2665	DOUBLE-RIDGE GUIDE ANTENNA	EMCO	3115	6/22/2017	6/22/2019
1T4149	HIGH FREQUENCY FULLY ANECHOIC CHAMBER	RAY PROOF	N/A	2/21/2019	2/21/2020
1T8743	PRE AMP	A.H. SYSTEMS, INC	PAM-0118P	SEE NOTE	

Table 10. Test Equipment List

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

End of Report

