Itron, Inc.

TEST REPORT FOR

SRR+RV50WWAN+WIFI+GPSRx
Models: CCU100B, CCU100B Repeater, CCU100RB & CCU100RB Repeater

Tested to The Following Standards:

FCC Part 15 Subpart C, Section: 15.247
(FHSS 902-928 MHz)

Report No.: 98384-15

Date of issue: May 25, 2016

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Itron, Inc.
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Liberty Lake, WA 99019

Representative: Jay Holcomb
Customer Reference Number: 96653

REPORT PREPARED BY:

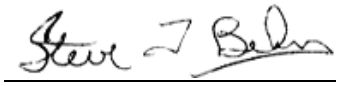
Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 98384

DATE OF EQUIPMENT RECEIPT: May 11, 2016
DATE(S) OF TESTING: May 11-13, 2016

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
22116 23rd Drive S.E., Suite A
Bothell, WA 98021-4413

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.02

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Bothell	US0081	SL2-IN-E-1145R	3082C-1	318736	A-0148

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.247 (FHSS 902-928MHz)

Test Procedure	Description	Modifications	Results
15.247(a)(1)(i)	Occupied Bandwidth	NA	NP
15.247(a)(1)	Carrier Separation	NA	NP
15.247(a)(1)(i)	Number of Hopping Channels	NA	NP
15.247(a)(1)(i)	Average Time of Occupancy	NA	NP
15.247(b)(2)	Output Power	NA	NP
15.247(d)	RF Conducted Emissions & Band Edge	NA	Pass
15.247(d)	Radiated Emissions & Band Edge	NA	NA
15.207	AC Conducted Emissions	NA	NP

NA = Not applicable.
NP = Not performed because CKC was not contracted to perform the required testing.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

The following model was tested by CKC Laboratories: **CCU100RB**

During previous testing it was found that the two devices with a cellular modem had a much worse emissions profile than without a cellular modem in the device. The difference between the repeater versions of these devices and the non-repeater versions is that the repeater versions do not have a cellular modem in them. Therefore, the manufacturer claims that any difference between the following devices without modem in them do not affect their EMC characteristics, and therefore meet the level of testing equivalent to the tested models: **CCU100B, CCU100B Repeater and CCU100RB Repeater**

For the CCU family, these have the same ISM transmitter as what was tested, except they have a Tx/Rx switch with more loss. So the CCUB tested would be worse case, less attenuation to the antenna. For the CCUA family, these have the identical ISM transmitter as what was tested. Therefore, the manufacturer claims that any difference between the following devices do not affect their EMC characteristics, and therefore meet the level of testing equivalent to the tested models:
CCU100, CCU100R, CCU100 Repeater, CCU100R Repeater, CCU100A, CCU100AR, CCU100A Repeater and CCU100AR Repeater

During testing numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
SRR+RV50WWAN+WIFI+GPSRx	Itron, Inc.	CCU100RB	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
High Gain V-Pol Omni	PC Tel	BOA9028	NA
External WWAN Antenna	Taoglas	OMB.6912.03F21	NA
GPS Antenna	Trimble	57861-00	213100611
Attenuator	Pasternack	7000-2	NA
Lightning Protector	iPolyPhaser	DSXL-ME	NA

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	Proprietary FHSS
Operating Frequency Range:	903-926.8MHz
Number of Hopping Channels:	120
Modulation Type(s):	16 Kbit/sec AM (OOK), 12.5 Kbit/sec FM (2GFSK), 37.5 Kbit/sec FM (2GFSK)
Maximum Duty Cycle:	23.5%
Number of TX Chains:	1
Antenna Type(s) and Gain:	Monopole, 6.15dBi (8.15dBi with 2dB attenuation) Note: The Manufacturer declares that a minimum of 2.0dB attenuation is always required when these units are using the 8.15dBi High Gain V-Pol Omni antenna.
Beamforming Type:	NA
Antenna Connection Type:	External Connector
Nominal Input Voltage:	100-250VAC, 50-60Hz
Firmware / Software used for Test:	10.02-06

FCC Part 15 Subpart C

15.247(d) Radiated Emissions & Band Edge

Test Setup/Conditions			
Test Location:	Bothell Lab C3	Test Engineer:	M. Atkinson
Test Method:	ANSI C63.10 (2013)	Test Date(s):	5/11/16 to 5/13/16
Configuration:	2		

Environmental Conditions			
Temperature (ºC)	21-25	Relative Humidity (%):	30-35

See data sheets for test setup and test equipment.

Test Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**98384**	Date:	5/13/2016
Test Type:	**Maximized Emissions**	Time:	12:38:56
Tested By:	Michael Atkinson	Sequence#:	21
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

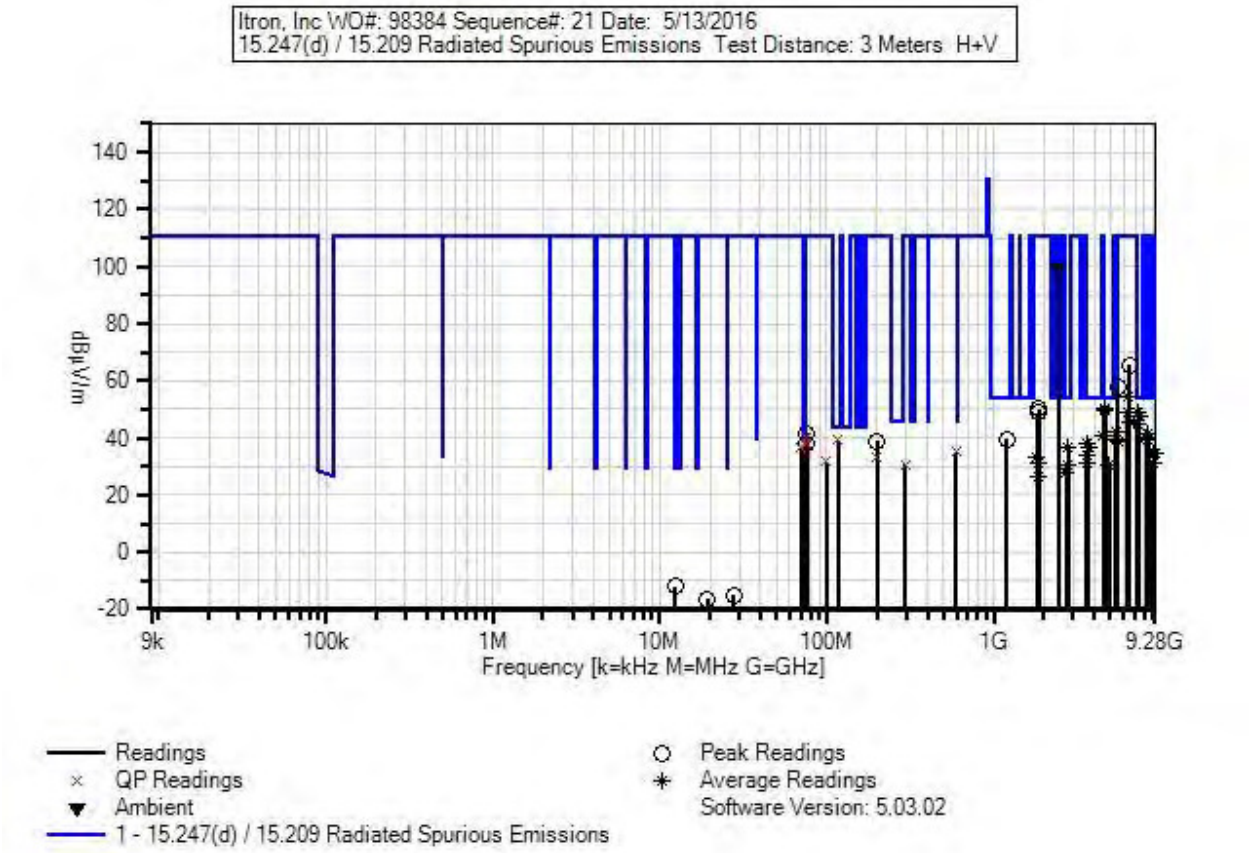
Temperature: 25°C
Humidity: 31%
Pressure: 102.1kPa

Frequency tested: 9kHz-13GHz
Firmware power setting: Max Power
EUT Firmware: 10.02-06
Modulation: AM

Antenna type: Monopole
Antenna Gain: 6.15 dBi (8.15dBi with 2dB attenuator)
Duty Cycle: Measured with 100% (end use limited to 23.5% duty)
Test Method: ANSI C63.10 (2013)

Setup: The EUT is a 900MHz range radio. EUT is transmitting continuously modulated. 900MHz antenna is connected using approximately 2.5m of 1/2inch Andrews Heliax FS14-50B cable, along with 2dB attenuator and lightning protector. The EUT antenna height set to stay within test volume boundaries. Both antenna polarities investigated, only worst case reported. The Power output validated to be within manufacturer tolerances.

Wifi transmitter on EUT marked as ambient, this is the fundamental from the integrated certified module in the EUT which is to be excluded from the measurement limits. All average data points marked Low, Mid, High have duty cycle correction applied (23.87%, -12.44dB).


Itron, Inc WO#: 98384 Sequence#: 21 Date: 5/13/2016
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters H+V
140
120
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
9.28G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.02

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	11/18/2015	11/18/2017
T2	ANP06540	Cable	Heliax	10/29/2015	10/29/2017
T3	ANP05305	Cable	ETSI-50T	2/15/2016	2/15/2018
T4	AN03540	Preamp	83017A	4/30/2015	4/30/2017
T5	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	8/12/2015	8/12/2017
T6	ANP06935	Cable	32026-29801-29801-18	3/11/2016	3/11/2018
T7	AN03170	High Pass Filter	HM1155-11SS	12/17/2015	12/17/2017
T8	AN02307	Preamp	8447D	2/15/2016	2/15/2018
T9	ANP05360	Cable	RG214	12/1/2014	12/1/2016
T10	ANP05963	Cable	RG-214	2/15/2016	2/15/2018
T11	AN01994	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T12	ANP05505	Attenuator	NAT-6	3/31/2016	3/31/2018
T13	ANP06219	Attenuator	768-10	4/12/2016	4/12/2018
T14	AN00052	Loop Antenna	6502	4/8/2016	4/8/2018
T15	ANDCCF	Test Data Adjustment		5/13/2016	5/13/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4574.920M	58.6	+0.0	+0.9	+4.2	-34.1	+0.0	50.2	54.0	-3.8	H+V
	Ave		+32.5	+0.5	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4574.920M	62.9	+0.0	+0.9	+4.2	-34.1	+0.0	66.9	54.0	+12.9	H+V
			+32.5	+0.5	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
3	4633.953M	58.2	+0.0	+0.9	+4.3	-34.1	+0.0	50.0	54.0	-4.0	H+V
	Ave		+32.6	+0.5	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4633.953M	65.0	+0.0	+0.9	+4.3	-34.1	+0.0	69.2	54.0	+15.2	H+V
			+32.6	+0.5	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

5	116.837M	38.0	+0.0	+0.1	+0.0	+0.0	+0.0	39.3	43.5	-4.2	H+V
	QP		+0.0	+0.0	+0.0	-27.6					
			+0.6	+1.2	+11.8	+6.1					
			+9.1	+0.0	+0.0						
^	116.800M	41.0	+0.0	+0.1	+0.8	+0.0	+0.0	41.9	43.5	-1.6	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
7	7320.070M	53.5	+0.0	+1.2	+4.7	-34.6	+0.0	49.1	54.0	-4.9	H+V
	Ave		+36.1	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7320.070M	61.5	+0.0	+1.2	+4.7	-34.6	+0.0	69.5	54.0	+15.5	H+V
			+36.1	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
9	7414.231M	51.2	+0.0	+1.3	+4.8	-34.7	+0.0	47.3	54.0	-6.7	H+V
	Ave		+36.5	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7414.231M	61.2	+0.0	+1.3	+4.8	-34.7	+0.0	69.7	54.0	+15.7	H+V
			+36.5	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
11	2440.000M	96.1	+0.0	+0.6	+2.9	+0.0	+0.0	99.6	110.7	-11.1	H+V
	Ambient		+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
12	5417.932M	49.4	+0.0	+1.0	+4.5	-34.2	+0.0	42.0	54.0	-12.0	H+V
	Ave		+33.1	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	5417.910M	56.4	+0.0	+1.0	+4.5	-34.2	+0.0	61.4	54.0	+7.4	H+V
			+33.1	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
14	8235.000M	45.0	+0.0	+1.3	+5.3	-35.1	+0.0	41.5	54.0	-12.5	H+V
	Ave		+36.7	+0.7	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8235.000M	53.7	+0.0	+1.3	+5.3	-35.1	+0.0	62.6	54.0	+8.6	H+V
			+36.7	+0.7	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
16	4515.020M	48.9	+0.0	+0.9	+4.2	-34.1	+0.0	40.5	54.0	-13.5	H+V
	Ave		+32.5	+0.5	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4515.020M	55.8	+0.0	+0.9	+4.2	-34.1	+0.0	59.8	54.0	+5.8	H+V
			+32.5	+0.5	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

18	8126.980M	43.5	+0.0	+1.3	+5.3	-35.1	+0.0	40.0	54.0	-14.0	H+V
	Ave		+36.7	+0.7	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8126.980M	49.6	+0.0	+1.3	+5.3	-35.1	+0.0	58.5	54.0	+4.5	H+V
			+36.7	+0.7	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
20	8341.179M	43.0	+0.0	+1.4	+5.4	-35.0	+0.0	39.7	54.0	-14.3	H+V
	Ave		+36.6	+0.7	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8341.180M	50.5	+0.0	+1.4	+5.4	-35.0	+0.0	59.6	54.0	+5.6	H+V
			+36.6	+0.7	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
22	1189.000M	47.9	+0.0	+0.4	+2.0	-36.6	+0.0	39.4	54.0	-14.6	H+V
			+24.2	+0.3	+1.2	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
23	3659.970M	49.8	+0.0	+0.7	+3.7	-34.2	+0.0	38.0	54.0	-16.0	H+V
	Ave		+29.9	+0.5	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
24	2780.222M	50.9	+0.0	+0.7	+3.0	-34.5	+0.0	37.0	54.0	-17.0	H+V
	Ave		+28.9	+0.4	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	2780.222M	57.6	+0.0	+0.7	+3.0	-34.5	+0.0	56.1	54.0	+2.1	H+V
			+28.9	+0.4	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
26	3707.290M	48.3	+0.0	+0.7	+3.8	-34.1	+0.0	36.9	54.0	-17.1	H+V
	Ave		+30.1	+0.5	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3707.200M	55.6	+0.0	+0.7	+3.8	-34.1	+0.0	56.6	54.0	+2.6	H+V
			+30.1	+0.5	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
28	9150.050M	36.0	+0.0	+1.4	+6.1	-34.7	+0.0	34.8	54.0	-19.2	H+V
	Ave		+37.7	+0.7	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9150.050M	44.6	+0.0	+1.4	+6.1	-34.7	+0.0	55.8	54.0	+1.8	H+V
			+37.7	+0.7	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

30	3611.915M	45.8	+0.0	+0.8	+3.6	-34.2	+0.0	33.8	54.0	-20.2	H+V
	Ave		+29.8	+0.4	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3611.915M	52.6	+0.0	+0.8	+3.6	-34.2	+0.0	53.0	54.0	-1.0	H+V
			+29.8	+0.4	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
32	3659.430M	43.1	+0.0	+0.7	+3.7	-34.2	+0.0	31.3	54.0	-22.7	H+V
	Ave		+29.9	+0.5	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3659.430M	57.3	+0.0	+0.7	+3.7	-34.2	+0.0	57.9	54.0	+3.9	H+V
			+29.9	+0.5	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
34	9029.894M	32.4	+0.0	+1.3	+6.0	-34.6	+0.0	31.2	54.0	-22.8	H+V
	Ave		+37.8	+0.7	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9029.894M	42.0	+0.0	+1.3	+6.0	-34.6	+0.0	53.2	54.0	-0.8	H+V
			+37.8	+0.7	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
36	4870.000M	25.9	+0.0	+0.9	+4.3	-34.2	+0.0	30.6	54.0	-23.4	H+V
	Ave		+32.7	+0.5	+0.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	4870.000M	49.9	+0.0	+0.9	+4.3	-34.2	+0.0	54.1	54.0	+0.1	H+V
			+32.7	+0.5	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
38	2745.090M	44.3	+0.0	+0.7	+3.0	-34.5	+0.0	30.3	54.0	-23.7	H+V
	Ave		+28.8	+0.4	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	2745.090M	52.3	+0.0	+0.7	+3.0	-34.5	+0.0	50.7	54.0	-3.3	H+V
			+28.8	+0.4	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
40	2709.020M	41.9	+0.0	+0.7	+3.0	-34.5	+0.0	27.7	54.0	-26.3	H+V
	Ave		+28.6	+0.4	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	2709.020M	54.0	+0.0	+0.7	+3.0	-34.5	+0.0	52.2	54.0	-1.8	H+V
			+28.6	+0.4	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

42	6490.000M	58.9	+0.0	+1.2	+4.6	-34.2	+0.0	65.5	110.7	-45.2	H+V
			+34.4	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
43	5563.000M	52.2	+0.0	+1.0	+4.5	-34.1	+0.0	57.6	110.7	-53.1	H+V
			+33.4	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
44	6404.804M	60.3	+0.0	+1.2	+4.7	-34.2	+0.0	54.8	110.7	-55.9	H+V
	Ave		+34.6	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	6404.804M	67.9	+0.0	+1.2	+4.7	-34.2	+0.0	74.8	110.7	-35.9	H+V
			+34.6	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
46	1855.000M	54.8	+0.0	+0.5	+2.5	-35.1	+0.0	50.0	110.7	-60.7	H+V
			+27.0	+0.3	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
47	1829.846M	53.8	+0.0	+0.5	+2.5	-35.1	+0.0	48.9	110.7	-61.8	H+V
			+26.9	+0.3	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
48	6320.950M	54.1	+0.0	+1.3	+4.7	-34.2	+0.0	48.9	110.7	-61.8	H+V
	Ave		+34.8	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	6320.950M	61.7	+0.0	+1.3	+4.7	-34.2	+0.0	68.9	110.7	-41.8	H+V
			+34.8	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
50	6487.358M	51.5	+0.0	+1.2	+4.6	-34.2	+0.0	45.7	110.7	-65.0	H+V
	Ave		+34.4	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
51	7223.950M	49.5	+0.0	+1.2	+4.6	-34.5	+0.0	44.8	110.7	-65.9	H+V
	Ave		+35.8	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7223.950M	57.1	+0.0	+1.2	+4.6	-34.5	+0.0	64.8	110.7	-45.9	H+V
			+35.8	+0.6	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
53	75.600M	45.3	+0.0	+0.1	+0.0	+0.0	+0.0	41.5	110.7	-69.2	H+V
			+0.0	+0.0	+0.0	-27.8					
			+0.5	+0.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						

54	75.431M	43.7	+0.0	+0.1	+0.0	+0.0	+0.0	39.9	110.7	-70.8	H+V
	QP		+0.0	+0.0	+0.0	-27.8					
			+0.5	+0.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						
55	5490.020M	46.7	+0.0	+1.0	+4.5	-34.1	+0.0	39.4	110.7	-71.3	H+V
	Ave		+33.1	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	5490.020M	52.6	+0.0	+1.0	+4.5	-34.1	+0.0	57.7	110.7	-53.0	H+V
			+33.1	+0.6	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
57	199.800M	38.5	+0.0	+0.2	+0.0	+0.0	+0.0	38.7	110.7	-72.0	H+V
			+0.0	+0.0	+0.0	-27.2					
			+0.8	+1.4	+9.7	+6.2					
			+9.1	+0.0	+0.0						
58	5560.902M	45.6	+0.0	+1.0	+4.5	-34.1	+0.0	38.6	110.7	-72.1	H+V
	Ave		+33.4	+0.6	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
59	75.420M	41.8	+0.0	+0.1	+0.0	+0.0	+0.0	38.0	110.7	-72.7	H+V
	QP		+0.0	+0.0	+0.0	-27.8					
			+0.5	+0.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						
60	75.600M	41.5	+0.0	+0.1	+0.0	+0.0	+0.0	37.7	110.7	-73.0	H+V
			+0.0	+0.0	+0.0	-27.8					
			+0.5	+0.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						
61	69.800M	40.0	+0.0	+0.1	+0.0	+0.0	+0.0	36.4	110.7	-74.3	H+V
	QP		+0.0	+0.0	+0.0	-27.8					
			+0.4	+0.7	+7.8	+6.1					
			+9.1	+0.0	+0.0						
^	69.800M	46.0	+0.0	+0.1	+0.0	+0.0	+0.0	42.4	110.7	-68.3	H+V
			+0.0	+0.0	+0.0	-27.8					
			+0.4	+0.7	+7.8	+6.1					
			+9.1	+0.0	+0.0						
63	592.600M	23.3	+0.0	+0.3	+0.0	+0.0	+0.0	35.0	110.7	-75.7	H+V
	QP		+0.0	+0.0	+0.0	-28.1					
			+1.6	+2.1	+20.5	+6.2					
			+9.1	+0.0	+0.0						
^	592.600M	36.4	+0.0	+0.3	+0.0	+0.0	+0.0	48.1	110.7	-62.6	H+V
			+0.0	+0.0	+0.0	-28.1					
			+1.6	+2.1	+20.5	+6.2					
			+9.1	+0.0	+0.0						

65	9268.036M	35.6	+0.0	+1.4	+6.2	-34.8	+0.0	34.3	110.7	-76.4	H+V
	Ave		+37.6	+0.7	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9268.036M	46.4	+0.0	+1.4	+6.2	-34.8	+0.0	57.5	110.7	-53.2	H+V
			+37.6	+0.7	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
67	200.016M	33.1	+0.0	+0.2	+0.0	+0.0	+0.0	33.3	110.7	-77.4	H+V
	QP		+0.0	+0.0	+0.0	-27.2					
			+0.8	+1.4	+9.7	+6.2					
			+9.1	+0.0	+0.0						
68	1805.820M	50.5	+0.0	+0.5	+2.5	-35.1	+0.0	33.1	110.7	-77.6	H+V
	Ave		+26.8	+0.3	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	1805.820M	58.1	+0.0	+0.5	+2.5	-35.1	+0.0	53.1	110.7	-57.6	H+V
			+26.8	+0.3	+0.0	+0.0			LOW		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
70	98.900M	32.3	+0.0	+0.1	+0.0	+0.0	+0.0	31.7	110.7	-79.0	H+V
	QP		+0.0	+0.0	+0.0	-27.7					
			+0.6	+1.1	+10.1	+6.1					
			+9.1	+0.0	+0.0						
^	98.900M	41.7	+0.0	+0.1	+0.0	+0.0	+0.0	41.1	110.7	-69.6	H+V
			+0.0	+0.0	+0.0	-27.7					
			+0.6	+1.1	+10.1	+6.1					
			+9.1	+0.0	+0.0						
72	1853.587M	48.7	+0.0	+0.5	+2.5	-35.1	+0.0	31.5	110.7	-79.2	H+V
	Ave		+27.0	+0.3	+0.0	+0.0			MID		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
73	295.800M	25.3	+0.0	+0.2	+0.0	+0.0	+0.0	30.5	110.7	-80.2	H+V
	QP		+0.0	+0.0	+0.0	-27.1					
			+1.0	+1.6	+14.2	+6.2					
			+9.1	+0.0	+0.0						
^	295.800M	30.0	+0.0	+0.2	+0.0	+0.0	+0.0	35.2	110.7	-75.5	H+V
			+0.0	+0.0	+0.0	-27.1					
			+1.0	+1.6	+14.2	+6.2					
			+9.1	+0.0	+0.0						
75	1853.636M	43.5	+0.0	+0.5	+2.5	-35.1	+0.0	26.3	110.7	-84.4	H+V
	Ave		+27.0	+0.3	+0.0	+0.0			HIGH		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
76	12.395M	18.9	+0.0	+0.0	+0.2	+0.0	-40.0	-12.0	110.7	-122.7	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+8.9	+0.0						
77	27.751M	18.3	+0.0	+0.0	+0.3	+0.0	-40.0	-15.1	110.7	-125.8	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+6.3	+0.0						

78	19.233M	15.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +8.3	+0.3 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	-40.0	-16.4	110.7	-127.1	H+V
79	16.294k	42.8	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +14.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	-80.0	-22.3	110.7	-133.0	H+V

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**98384**	Date:	5/13/2016
Test Type:	**Maximized Emissions**	Time:	12:32:16
Tested By:	Michael Atkinson	Sequence#:	22
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

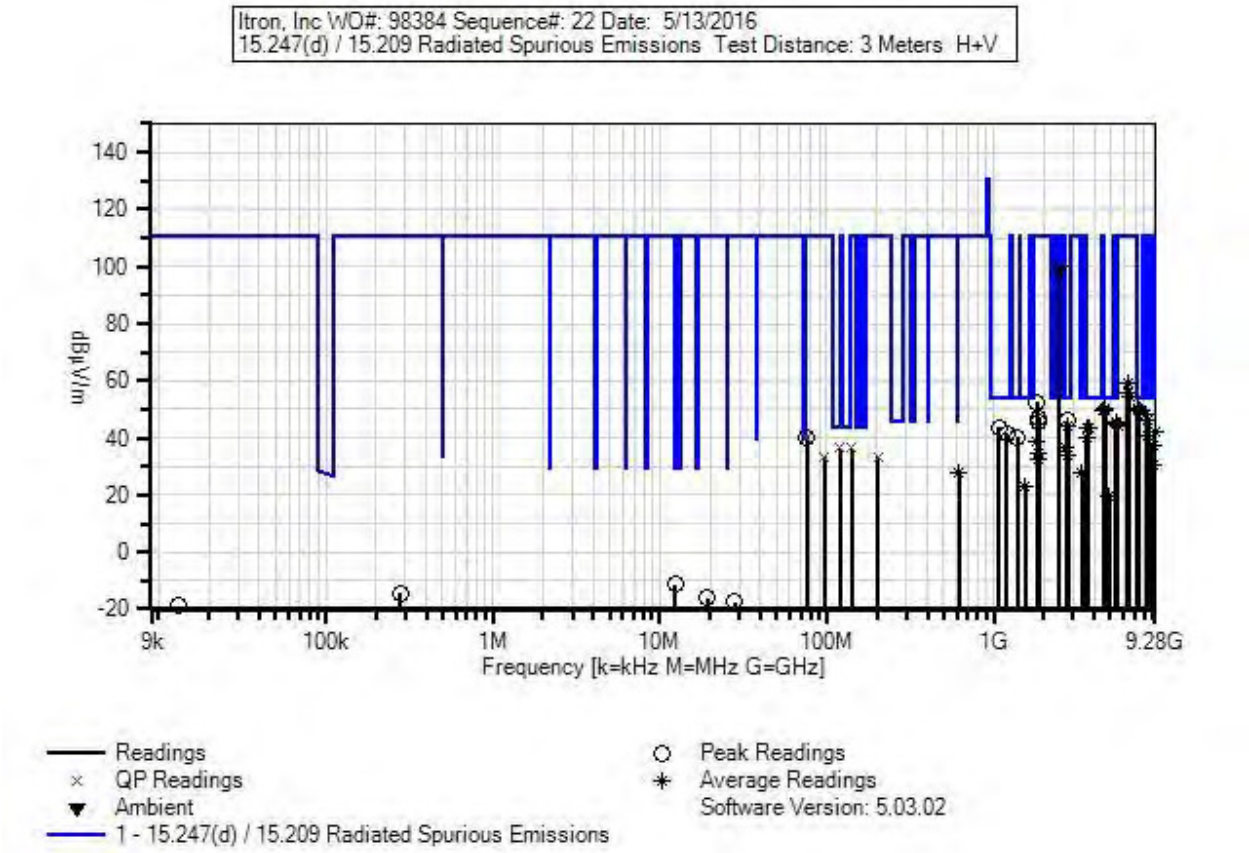
Temperature: 25°C
Humidity: 31%
Pressure: 102.1kPa

Frequency tested: 9kHz-13GHz
Firmware power setting: Max Power
EUT Firmware: 10.02-06
Modulation: FM

Antenna type: Monopole
Antenna Gain: 6.15 dBi (8.15dBi with 2dB attenuator
Duty Cycle: Measured with 100% (end use limited to 23.5% duty)
Test Method: ANSI C63.10 (2013)

Setup: EUT is a 900MHz range radio. EUT is transmitting continuously modulated. 900MHz antenna is connected using approximately 2.5m of 1/2inch Andrews Heliax FS14-50B cable, along with 2dB attenuator and lightning protector. EUT antenna height set to stay within test volume boundaries. Both antenna polarities investigated, as well as both FM12.7k and FM37.5k modulations investigated, only worst case reported. Power output validated to be within manufacturer tolerances.

Wifi transmitter on EUT marked as ambient, this is the fundamental from the integrated certified module in the EUT which is to be excluded from the measurement limits. All average data points marked Low, Mid, High have duty cycle correction applied (23.87%, -12.44dB).


Itron, Inc WO#: 98384 Sequence#: 22 Date: 5/13/2016
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters H+V
140
120
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
9.28G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.02

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	11/18/2015	11/18/2017
T2	ANP06540	Cable	Heliax	10/29/2015	10/29/2017
T3	ANP05305	Cable	ETSI-50T	2/15/2016	2/15/2018
T4	AN03540	Preamp	83017A	4/30/2015	4/30/2017
T5	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	8/12/2015	8/12/2017
T6	ANP06935	Cable	32026-29801-29801-18	3/11/2016	3/11/2018
T7	AN03170	High Pass Filter	HM1155-11SS	12/17/2015	12/17/2017
T8	ANP05963	Cable	RG-214	2/15/2016	2/15/2018
T9	ANP05360	Cable	RG214	12/1/2014	12/1/2016
T10	AN02307	Preamp	8447D	2/15/2016	2/15/2018
T11	AN01994	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T12	ANP05505	Attenuator	NAT-6	3/31/2016	3/31/2018
T13	ANP06219	Attenuator	768-10	4/12/2016	4/12/2018
T14	AN00052	Loop Antenna	6502	4/8/2016	4/8/2018
T15	ANDCCF	Test Data Adjustment		5/13/2016	5/13/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7320.189M	54.7	+0.0	+1.2	+4.7	-34.6	+0.0	50.3	54.0	-3.7	H+V
	Ave		+36.1	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7320.189M	58.4	+0.0	+1.2	+4.7	-34.6	+0.0	66.4	54.0	+12.4	H+V
			+36.1	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
3	4634.005M	58.3	+0.0	+0.9	+4.3	-34.1	+0.0	50.1	54.0	-3.9	H+V
	Ave		+32.6	+0.5	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4634.005M	62.1	+0.0	+0.9	+4.3	-34.1	+0.0	66.3	54.0	+12.3	H+V
			+32.6	+0.5	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

5	4514.855M	58.1	+0.0	+0.9	+4.2	-34.1	+0.0	49.7	54.0	-4.3	H+V
	Ave		+32.5	+0.5	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4514.855M	60.0	+0.0	+0.9	+4.2	-34.1	+0.0	64.0	54.0	+10.0	H+V
			+32.5	+0.5	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
7	4575.024M	57.9	+0.0	+0.9	+4.2	-34.1	+0.0	49.5	54.0	-4.5	H+V
	Ave		+32.5	+0.5	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4575.024M	59.1	+0.0	+0.9	+4.2	-34.1	+0.0	63.1	54.0	+9.1	H+V
			+32.5	+0.5	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
9	7414.358M	53.2	+0.0	+1.3	+4.8	-34.7	+0.0	49.3	54.0	-4.7	H+V
	Ave		+36.5	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7414.358M	55.1	+0.0	+1.3	+4.8	-34.7	+0.0	63.6	54.0	+9.6	H+V
			+36.5	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
11	8126.978M	51.6	+0.0	+1.3	+5.3	-35.1	+0.0	48.1	54.0	-5.9	H+V
	Ave		+36.7	+0.7	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8126.978M	54.5	+0.0	+1.3	+5.3	-35.1	+0.0	63.4	54.0	+9.4	H+V
			+36.7	+0.7	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
13	119.252M	35.0	+0.0	+0.1	+0.0	+0.0	+0.0	36.5	43.5	-7.0	H+V
	QP		+0.0	+0.0	+0.0	+1.2					
			+0.6	-27.6	+12.0	+6.1					
			+9.1	+0.0	+0.0						
^	119.200M	39.3	+0.0	+0.1	+0.0	+0.0	+0.0	40.8	43.5	-2.7	H+V
			+0.0	+0.0	+0.0	+1.2					
			+0.6	-27.6	+12.0	+6.1					
			+9.1	+0.0	+0.0						
15	2746.000M	47.5	+0.0	+0.7	+3.0	-34.5	+0.0	45.9	54.0	-8.1	H+V
			+28.8	+0.4	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

16	8344.000M	49.1	+0.0	+1.5	+5.4	-35.0	+0.0	45.9	54.0	-8.1	H+V
	Ave		+36.6	+0.7	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8344.000M	52.3	+0.0	+1.5	+5.4	-35.0	+0.0	61.5	54.0	+7.5	H+V
			+36.6	+0.7	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
18	5417.998M	53.2	+0.0	+1.0	+4.5	-34.2	+0.0	45.8	54.0	-8.2	H+V
	Ave		+33.1	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	5417.998M	58.3	+0.0	+1.0	+4.5	-34.2	+0.0	63.3	54.0	+9.3	H+V
			+33.1	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
20	2780.287M	58.4	+0.0	+0.7	+3.0	-34.5	+0.0	44.5	54.0	-9.5	H+V
	Ave		+28.9	+0.4	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	2780.280M	59.8	+0.0	+0.7	+3.0	-34.5	+0.0	58.3	54.0	+4.3	H+V
			+28.9	+0.4	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
22	1072.000M	45.4	+0.0	+0.4	+1.9	-37.2	+0.0	43.8	54.0	-10.2	H+V
			+24.2	+0.2	+8.9	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
23	3659.962M	55.4	+0.0	+0.7	+3.7	-34.2	+0.0	43.6	54.0	-10.4	H+V
	Ave		+29.9	+0.5	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3659.962M	56.0	+0.0	+0.7	+3.7	-34.2	+0.0	56.6	54.0	+2.6	H+V
			+29.9	+0.5	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
25	3707.290M	54.7	+0.0	+0.7	+3.8	-34.1	+0.0	43.3	54.0	-10.7	H+V
	Ave		+30.1	+0.5	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3707.290M	56.3	+0.0	+0.7	+3.8	-34.1	+0.0	57.3	54.0	+3.3	H+V
			+30.1	+0.5	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

27	2458.000M	101.3	+0.0	+0.6	+2.9	-34.5	+0.0	98.8	110.7	-11.9	H+V
	Ambient		+27.7	+0.4	+0.4	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
28	1189.000M	49.9	+0.0	+0.4	+2.0	-36.6	+0.0	41.4	54.0	-12.6	H+V
			+24.2	+0.3	+1.2	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
29	8235.033M	44.3	+0.0	+1.3	+5.3	-35.1	+0.0	40.8	54.0	-13.2	H+V
	Ave		+36.7	+0.7	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	8235.033M	46.4	+0.0	+1.3	+5.3	-35.1	+0.0	55.3	54.0	+1.3	H+V
			+36.7	+0.7	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
31	1378.000M	47.6	+0.0	+0.5	+2.2	-36.0	+0.0	40.1	54.0	-13.9	H+V
			+24.8	+0.3	+0.7	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
32	3611.987M	52.0	+0.0	+0.8	+3.6	-34.2	+0.0	40.0	54.0	-14.0	H+V
	Ave		+29.8	+0.4	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	3611.987M	54.6	+0.0	+0.8	+3.6	-34.2	+0.0	55.0	54.0	+1.0	H+V
			+29.8	+0.4	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
34	9029.919M	38.6	+0.0	+1.3	+6.0	-34.6	+0.0	37.4	54.0	-16.6	H+V
	Ave		+37.8	+0.7	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9029.919M	45.6	+0.0	+1.3	+6.0	-34.6	+0.0	56.8	54.0	+2.8	H+V
			+37.8	+0.7	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
36	2708.960M	50.6	+0.0	+0.7	+3.0	-34.5	+0.0	36.4	54.0	-17.6	H+V
	Ave		+28.6	+0.4	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	2708.960M	52.5	+0.0	+0.7	+3.0	-34.5	+0.0	50.7	54.0	-3.3	H+V
			+28.6	+0.4	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
38	2744.937M	47.9	+0.0	+0.7	+3.0	-34.5	+0.0	33.9	54.0	-20.1	H+V
	Ave		+28.8	+0.4	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						

39	9149.770M	31.9	+0.0	+1.4	+6.1	-34.7	+0.0	30.7	54.0	-23.3	H+V
	Ave		+37.7	+0.7	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9149.770M	40.4	+0.0	+1.4	+6.1	-34.7	+0.0	51.6	54.0	-2.4	H+V
			+37.7	+0.7	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
41	1549.000M	29.4	+0.0	+0.5	+2.3	-35.5	+0.0	23.0	54.0	-31.0	H+V
	Ave		+25.5	+0.3	+0.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	1549.000M	45.2	+0.0	+0.5	+2.3	-35.5	+0.0	38.8	54.0	-15.2	H+V
			+25.5	+0.3	+0.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
43	4870.684M	27.5	+0.0	+0.9	+4.3	-34.2	+0.0	19.3	54.0	-34.7	H+V
	Ave		+32.7	+0.5	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	4870.680M	54.7	+0.0	+0.9	+4.3	-34.2	+0.0	58.9	54.0	+4.9	H+V
			+32.7	+0.5	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
45	6319.000M	64.3	+0.0	+1.3	+4.7	-34.2	+0.0	59.1	110.7	-51.6	H+V
	Ave		+34.8	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	6319.000M	67.6	+0.0	+1.3	+4.7	-34.2	+0.0	74.8	110.7	-35.9	H+V
			+34.8	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
47	6405.001M	61.2	+0.0	+1.2	+4.7	-34.2	+0.0	55.7	110.7	-55.0	H+V
	Ave		+34.6	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	6405.001M	64.4	+0.0	+1.2	+4.7	-34.2	+0.0	71.3	110.7	-39.4	H+V
			+34.6	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
49	6487.565M	60.4	+0.0	+1.2	+4.6	-34.2	+0.0	54.6	110.7	-56.1	H+V
	Ave		+34.4	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	6487.565M	60.7	+0.0	+1.2	+4.6	-34.2	+0.0	67.3	110.7	-43.4	H+V
			+34.4	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

51	1810.000M	57.5	+0.0	+0.5	+2.5	-35.1	+0.0	52.5	110.7	-58.2	H+V
			+26.8	+0.3	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
52	7223.965M	54.0	+0.0	+1.2	+4.6	-34.5	+0.0	49.3	110.7	-61.4	H+V
	Ave		+35.8	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	7223.965M	57.8	+0.0	+1.2	+4.6	-34.5	+0.0	65.5	110.7	-45.2	H+V
			+35.8	+0.6	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
54	1855.000M	52.0	+0.0	+0.5	+2.5	-35.1	+0.0	47.2	110.7	-63.5	H+V
			+27.0	+0.3	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
55	1828.000M	50.8	+0.0	+0.5	+2.5	-35.1	+0.0	45.9	110.7	-64.8	H+V
			+26.9	+0.3	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
56	5490.006M	52.0	+0.0	+1.0	+4.5	-34.1	+0.0	44.7	110.7	-66.0	H+V
	Ave		+33.1	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	5490.006M	53.8	+0.0	+1.0	+4.5	-34.1	+0.0	58.9	110.7	-51.8	H+V
			+33.1	+0.6	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
58	5560.716M	51.0	+0.0	+1.0	+4.5	-34.1	+0.0	44.0	110.7	-66.7	H+V
	Ave		+33.4	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	5560.716M	53.3	+0.0	+1.0	+4.5	-34.1	+0.0	58.7	110.7	-52.0	H+V
			+33.4	+0.6	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
60	9267.892M	43.2	+0.0	+1.4	+6.2	-34.8	+0.0	41.9	110.7	-68.8	H+V
	Ave		+37.6	+0.7	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
^	9267.892M	48.0	+0.0	+1.4	+6.2	-34.8	+0.0	59.1	110.7	-51.6	H+V
			+37.6	+0.7	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

62	75.426M	44.1	+0.0	+0.1	+0.0	+0.0	+0.0	40.3	110.7	-70.4	H+V
	QP		+0.0	+0.0	+0.0	+0.8					
			+0.5	-27.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						
63	75.600M	43.9	+0.0	+0.1	+0.0	+0.0	+0.0	40.1	110.7	-70.6	H+V
			+0.0	+0.0	+0.0	+0.8					
			+0.5	-27.8	+7.4	+6.1					
			+9.1	+0.0	+0.0						
64	1806.041M	56.0	+0.0	+0.5	+2.5	-35.1	+0.0	38.6	110.7	-72.1	H+V
	Ave		+26.8	+0.3	+0.0	+0.0			Low		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
65	141.500M	34.9	+0.0	+0.1	+0.0	+0.0	+0.0	36.6	110.7	-74.1	H+V
	QP		+0.0	+0.0	+0.0	+1.3					
			+0.7	-27.5	+11.9	+6.1					
			+9.1	+0.0	+0.0						
^	141.500M	37.3	+0.0	+0.1	+0.0	+0.0	+0.0	39.0	110.7	-71.7	H+V
			+0.0	+0.0	+0.0	+1.3					
			+0.7	-27.5	+11.9	+6.1					
			+9.1	+0.0	+0.0						
67	1853.683M	51.6	+0.0	+0.5	+2.5	-35.1	+0.0	34.4	110.7	-76.3	H+V
	Ave		+27.0	+0.3	+0.0	+0.0			High		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						
68	203.600M	33.0	+0.0	+0.2	+0.0	+0.0	+0.0	33.5	110.7	-77.2	H+V
	QP		+0.0	+0.0	+0.0	+1.4					
			+0.8	-27.2	+10.0	+6.2					
			+9.1	+0.0	+0.0						
^	203.600M	35.8	+0.0	+0.2	+0.0	+0.0	+0.0	36.3	110.7	-74.4	H+V
			+0.0	+0.0	+0.0	+1.4					
			+0.8	-27.2	+10.0	+6.2					
			+9.1	+0.0	+0.0						
70	96.900M	34.2	+0.0	+0.1	+0.0	+0.0	+0.0	33.3	110.7	-77.4	H+V
	QP		+0.0	+0.0	+0.0	+1.1					
			+0.6	-27.7	+9.8	+6.1					
			+9.1	+0.0	+0.0						
^	96.900M	40.3	+0.0	+0.1	+0.0	+0.0	+0.0	39.4	110.7	-71.3	H+V
			+0.0	+0.0	+0.0	+1.1					
			+0.6	-27.7	+9.8	+6.1					
			+9.1	+0.0	+0.0						
72	1829.991M	49.7	+0.0	+0.5	+2.5	-35.1	+0.0	32.4	110.7	-78.3	H+V
	Ave		+26.9	+0.3	+0.0	+0.0			Mid		
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	-12.4						

73	3376.000M	27.6	+0.0	+0.8	+3.5	-34.3	+0.0	27.8	110.7	-82.9	H+V
	Ave		+29.5	+0.4	+0.3	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
^	3376.000M	47.7	+0.0	+0.8	+3.5	-34.3	+0.0	47.6	110.7	-63.1	H+V
			+29.5	+0.4	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
75	619.800M	15.4	+0.0	+0.3	+0.0	+0.0	+0.0	27.5	110.7	-83.2	H+V
	Ave		+0.0	+0.0	+0.0	+2.1					
			+1.6	-28.1	+20.9	+6.2					
			+9.1	+0.0	+0.0						
^	619.800M	29.9	+0.0	+0.3	+0.0	+0.0	+0.0	42.0	110.7	-68.7	H+V
			+0.0	+0.0	+0.0	+2.1					
			+1.6	-28.1	+20.9	+6.2					
			+9.1	+0.0	+0.0						
77	12.365M	19.5	+0.0	+0.0	+0.2	+0.0	-40.0	-11.4	110.7	-122.1	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+8.9	+0.0						
78	279.000k	56.1	+0.0	+0.0	+0.0	+0.0	-80.0	-14.3	110.7	-125.0	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+9.6	+0.0						
79	19.194M	15.2	+0.0	+0.0	+0.3	+0.0	-40.0	-16.2	110.7	-126.9	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+8.3	+0.0						
80	27.991M	16.0	+0.0	+0.0	+0.3	+0.0	-40.0	-17.5	110.7	-128.2	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+6.2	+0.0						
81	13.060k	45.2	+0.0	+0.0	+0.0	+0.0	-80.0	-18.8	110.7	-129.5	H+V
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+16.0	+0.0						

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA. 98021 • 1-800-500-4EMC		
Customer:	**Itron, Inc**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**98384**	Date:	5/16/2016
Test Type:	**Maximized Emissions**	Time:	11:14:46
Tested By:	Michael Atkinson	Sequence#:	24
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

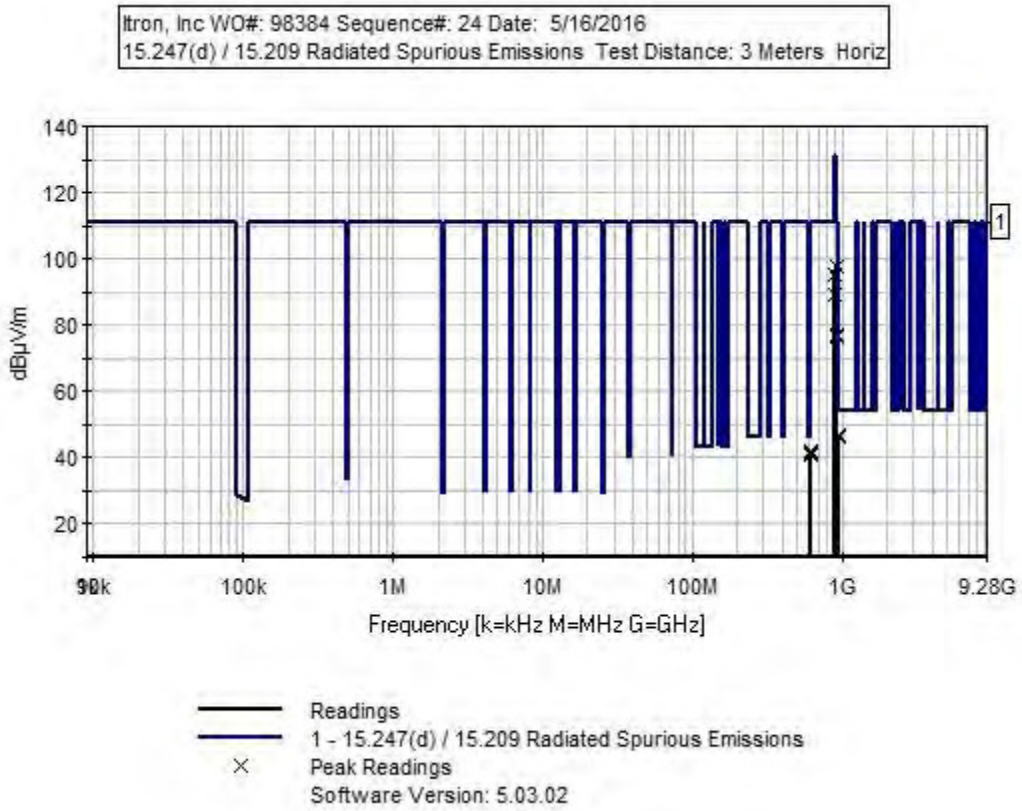
Temperature: 25°C
Humidity: 31%
Pressure: 102.1kPa

Frequency Range: Low (903MHz), High (926.8MHz)
Firmware power setting: Max Power
EUT Firmware: 10.02-06
Modulation: AM, FM37.5k, FM12.5k

Antenna type: Monopole
Antenna Gain: 6.15 dBi (8.15dBi with 2dB attenuator)

Duty Cycle: Measured with 100% (end use limited to 23.5% duty)

Test Method: ANSI C63.10 (2013)
Setup: The EUT is a 900MHz range radio. The EUT is transmitting continuously modulated. 900MHz antenna is connected using approximately 2.5m of 1/2inch Andrews Heliax FS14-50B cable, along with 2dB attenuator and lightning protector. The EUT antenna height set to stay within test volume boundaries. Both antenna polarities investigated, only worst case reported. Power output validated to be within manufacturer tolerances.


Itron, Inc WO#: 98384 Sequence#: 24 Date: 5/16/2016
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Horiz
140
120
100
80
60
40
20
dBµV/m
1
90k
100k
1M
10M
100M
1G
9.28G
Frequency [k=kHz M=MHz G=GHz]
Readings
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Software Version: 5.03.02

Test Equipment:

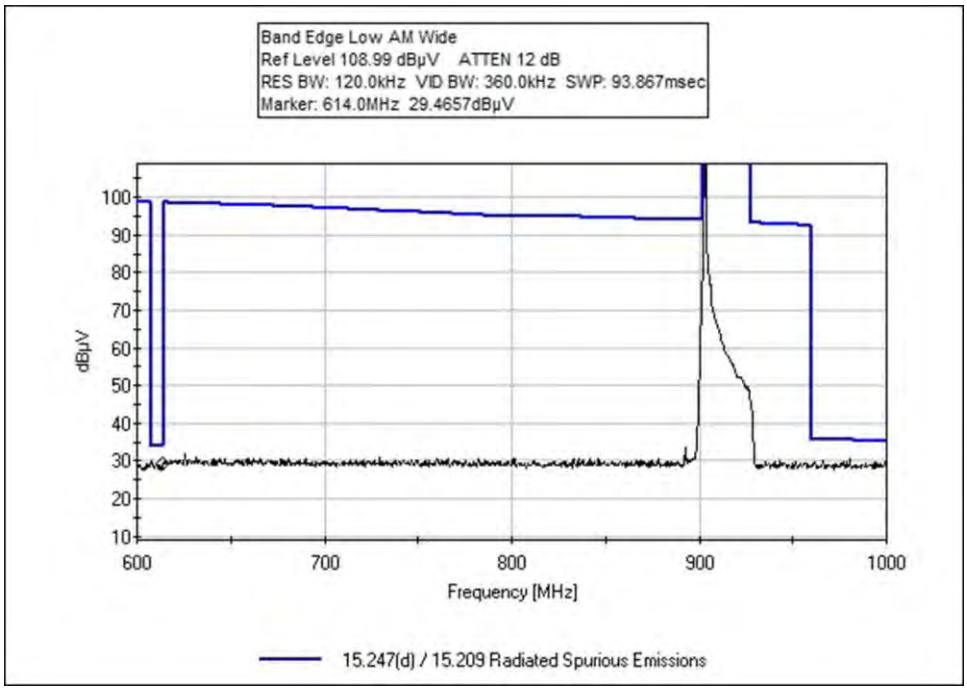
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02872	Spectrum Analyzer	E4440A	11/18/2015	11/18/2017
	ANP05747	Attenuator	PE7004-20	1/29/2016	1/29/2018
T2	ANP06540	Cable	Heliax	10/29/2015	10/29/2017
T3	ANP05963	Cable	RG-214	2/15/2016	2/15/2018
T4	ANP05360	Cable	RG214	12/1/2014	12/1/2016
T5	AN02307	Preamp	8447D	2/15/2016	2/15/2018
T6	AN01994	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T7	ANP05505	Attenuator	NAT-6	3/31/2016	3/31/2018
T8	ANP06219	Attenuator	768-10	4/12/2016	4/12/2018

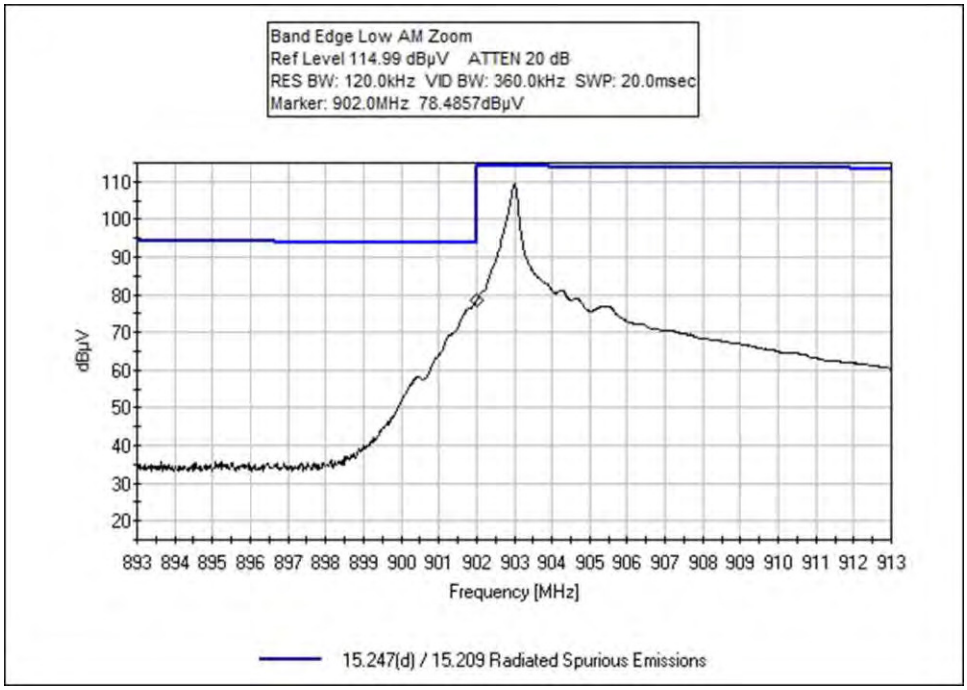
Measurement Data: Reading listed by order taken. Test Distance: 3 Meters

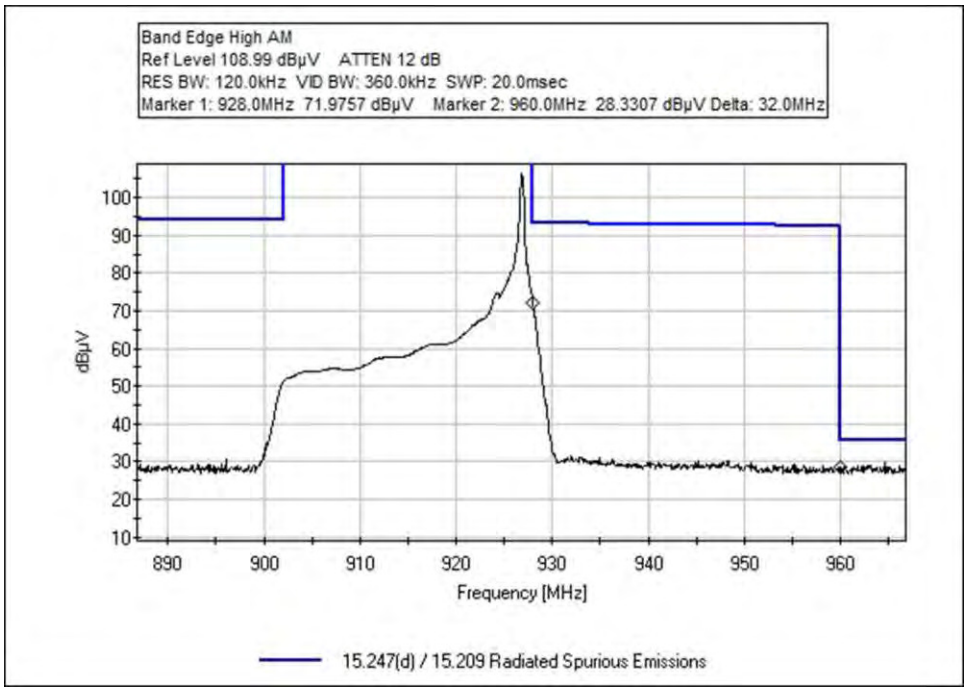
#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	614.000M	29.5	+0.0 -28.1	+0.3 +20.8	+2.1 +6.2	+1.6 +9.1	+0.0	41.5	46.0 AM	-4.5	H+V
2	902.000M	78.5	+0.0 -27.4	+0.3 +24.1	+2.4 +6.2	+2.0 +9.1	+0.0	95.2	110.7 AM	-15.5	H+V
3	902.000M	72.4	+0.0 -27.4	+0.3 +24.1	+2.4 +6.2	+2.0 +9.1	+0.0	89.1	110.7 FM 37.5k	-21.6	H+V
4	614.000M	29.1	+0.0 -28.1	+0.3 +20.8	+2.1 +6.2	+1.6 +9.1	+0.0	41.1	46.0 FM 37.5k	-4.9	H+V
5	902.000M	72.5	+0.0 -27.4	+0.3 +24.1	+2.4 +6.2	+2.0 +9.1	+0.0	89.2	110.7 FM 12.5k	-21.5	H+V
6	614.000M	30.3	+0.0 -28.1	+0.3 +20.8	+2.1 +6.2	+1.6 +9.1	+0.0	42.3	46.0 FM 12.5k	-3.7	H+V
7	928.000M	80.0	+0.0 -27.3	+0.4 +24.4	+2.4 +6.2	+2.1 +9.2	+0.0	97.4	110.7 AM	-13.3	H+V
8	960.000M	28.3	+0.0 -27.1	+0.4 +24.8	+2.5 +6.3	+2.1 +9.2	+0.0	46.5	54.0 AM	-7.5	H+V
9	928.000M	59.3	+0.0 -27.3	+0.4 +24.4	+2.4 +6.2	+2.1 +9.2	+0.0	76.7	110.7 FM 37.5k	-34.0	H+V
10	960.000M	28.7	+0.0 -27.1	+0.4 +24.8	+2.5 +6.3	+2.1 +9.2	+0.0	46.9	54.0 FM 37.5k	-7.1	H+V
11	928.000M	59.5	+0.0 -27.3	+0.4 +24.4	+2.4 +6.2	+2.1 +9.2	+0.0	76.9	110.7 FM 12.5k	-33.8	H+V
12	960.000M	28.6	+0.0 -27.1	+0.4 +24.8	+2.5 +6.3	+2.1 +9.2	+0.0	46.8	54.0 FM 12.5k	-7.2	H+V

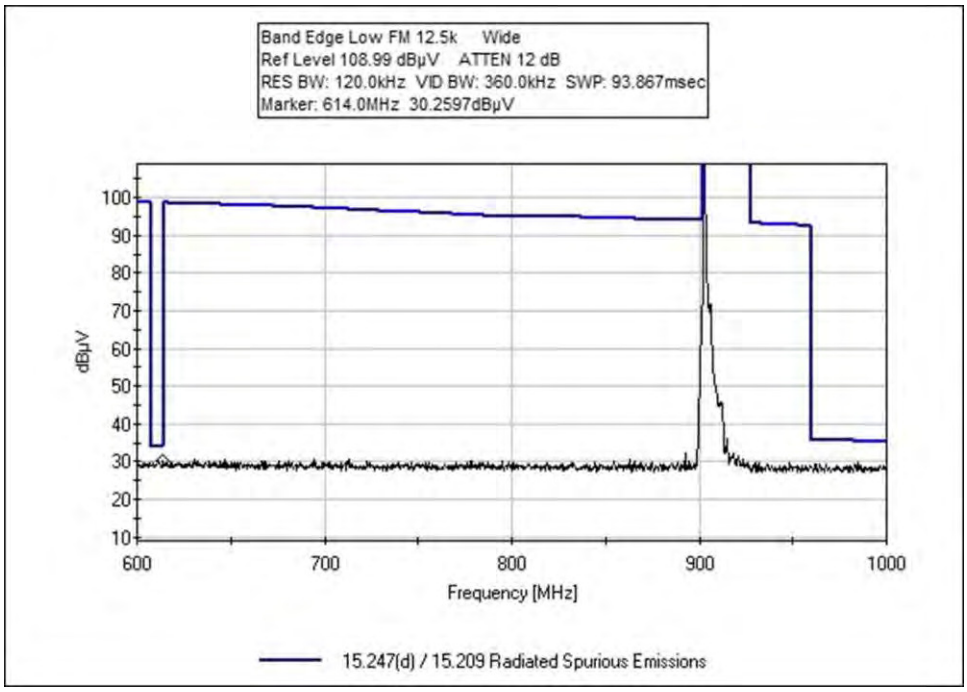
Band Edge Summary					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
614	AM	External Monopole	41.5	<46.0	Pass
902	AM	External Monopole	95.2	<110.7	Pass
928	AM	External Monopole	97.4	<110.7	Pass
960	AM	External Monopole	46.5	<54	Pass
614	FM12.5k	External Monopole	42.3	<46.0	Pass
902	FM12.5k	External Monopole	89.2	<110.7	Pass
928	FM12.5k	External Monopole	76.9	<110.7	Pass
960	FM12.5k	External Monopole	46.8	<54	Pass
614	FM37.5k	External Monopole	41.1	<46.0	Pass
902	FM37.5k	External Monopole	89.2	<110.7	Pass
928	FM37.5k	External Monopole	76.7	<110.7	Pass
960	FM37.5k	External Monopole	46.9	<54	Pass

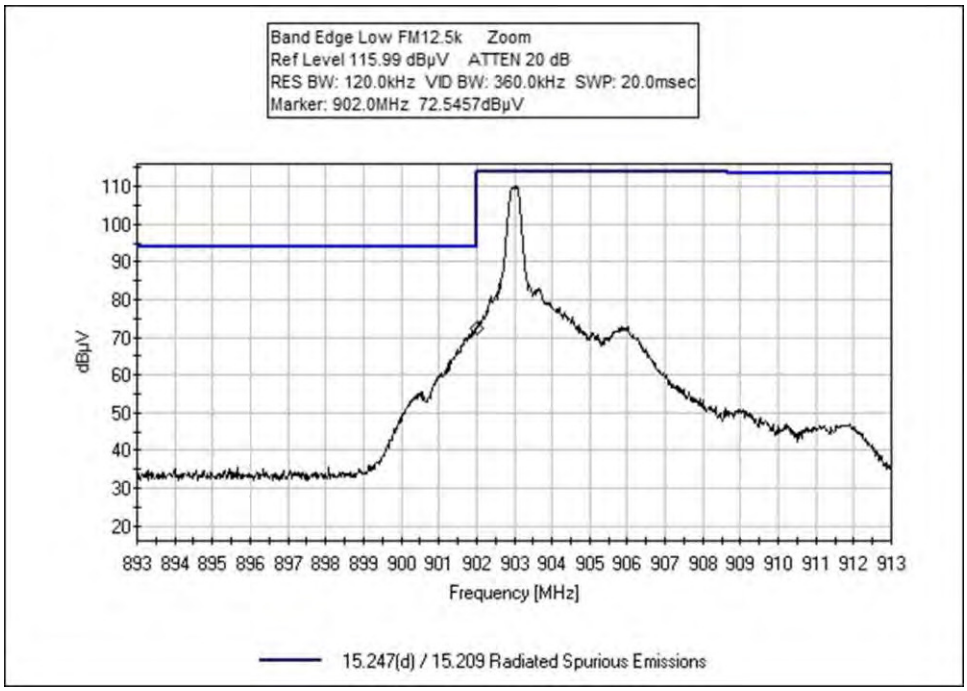
Band Edge Plots

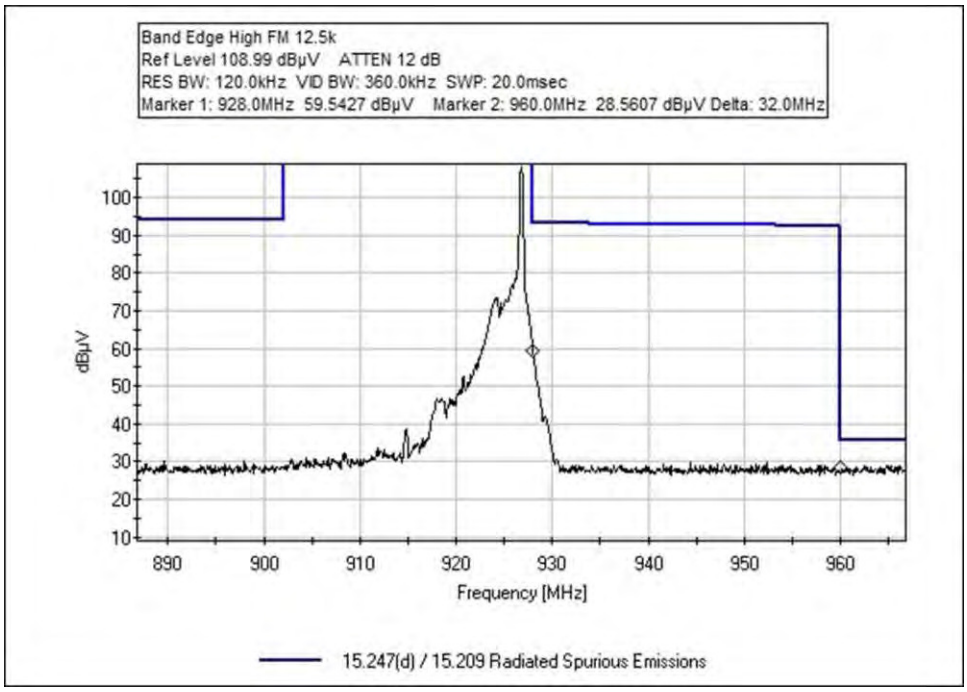


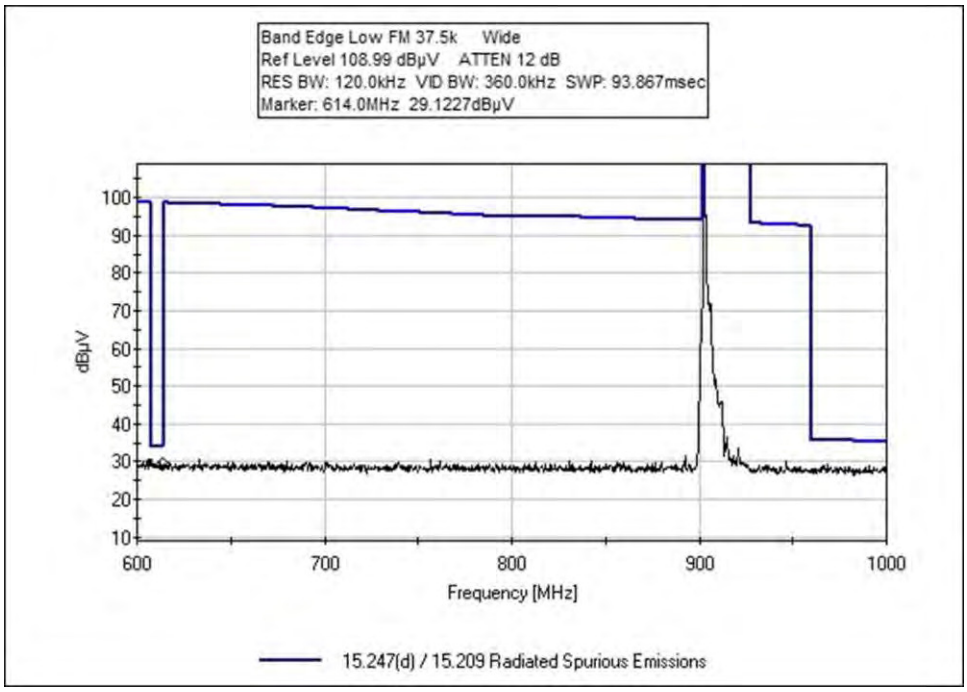


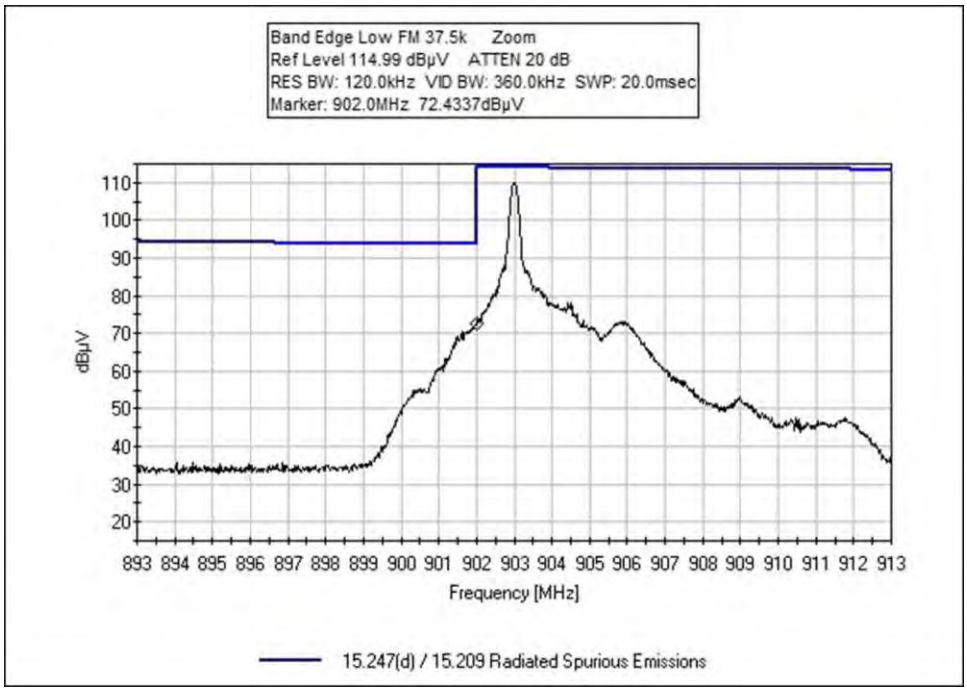

Band Edge High AM
Ref Level 108.99 dBµV ATTEN 12 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.0msec
Marker 1: 928.0MHz 71.9757 dBµV Marker 2: 960.0MHz 28.3307 dBµV Delta: 32.0MHz
dBµV
100
90
80
70
60
50
40
30
20
10
890
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

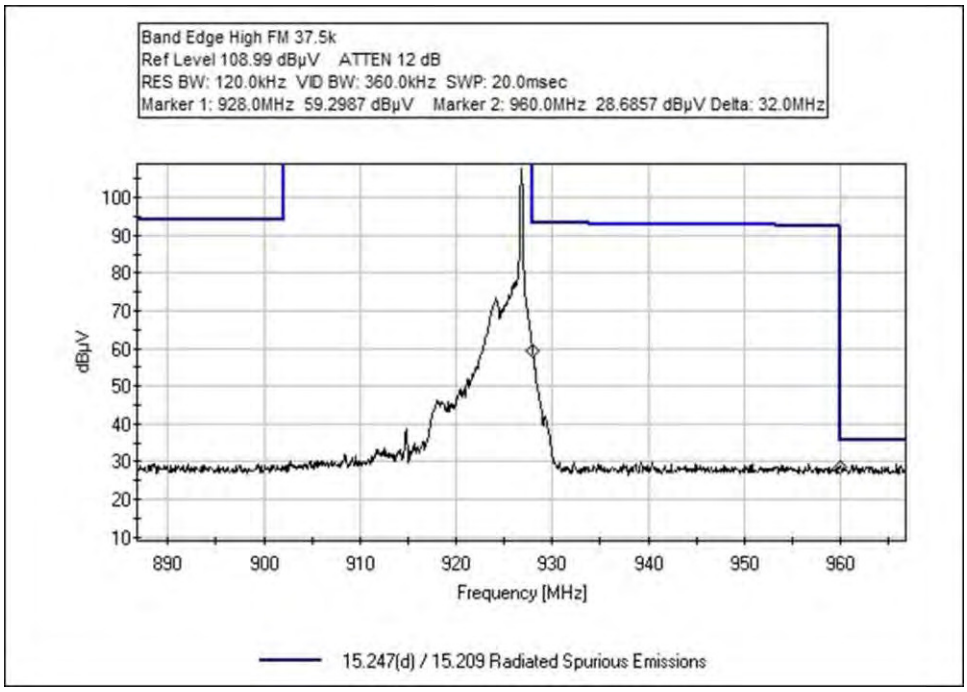

Band Edge Low FM 12.5k Wide
Ref Level 108.99 dBµV ATTEN 12 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 93.867msec
Marker: 614.0MHz 30.2597dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


Band Edge Low FM12.5k Zoom
Ref Level 115.99 dBµV ATTEN 20 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.0msec
Marker: 902.0MHz 72.5457dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


Band Edge High FM 12.5k
Ref Level 108.99 dBµV ATTEN 12 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.0msec
Marker 1: 928.0MHz 59.5427 dBµV Marker 2: 960.0MHz 28.5607 dBµV Delta: 32.0MHz
dBµV
100
90
80
70
60
50
40
30
20
10
890
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


Band Edge Low FM 37.5k Wide
Ref Level 108.99 dBµV ATTEN 12 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 93.867msec
Marker: 614.0MHz 29.1227dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


Band Edge Low FM 37.5k Zoom
Ref Level 114.99 dBµV ATTEN 20 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.0msec
Marker: 902.0MHz 72.4337dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


Band Edge High FM 37.5k
Ref Level 108.99 dBµV ATTEN 12 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.0msec
Marker 1: 928.0MHz 59.2987 dBµV Marker 2: 960.0MHz 28.6857 dBµV Delta: 32.0MHz
dBµV
100
90
80
70
60
50
40
30
20
10
890
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

15.35(c) Duty Cycle Correction Factor

Test Data Summary			
Antenna Port	**Operational Mode**	**Measured On Time (mS / P_{obs})**	**Calculated DCCF (dB)**
1	FM 37.5k (worst case)	0.2387	-12.44

Observation Period, P_{obs} is the duration of the pulse train or maximum 100mS

Measured results are calculated as follows:

$$On\ Time = \left(\sum_{Bursts} RF\ Burst\ On\ Time + \sum_{Control} Control\ Signal\ On\ time \right) \Bigg|_{P_{obs}\ (\max 100ms)}$$

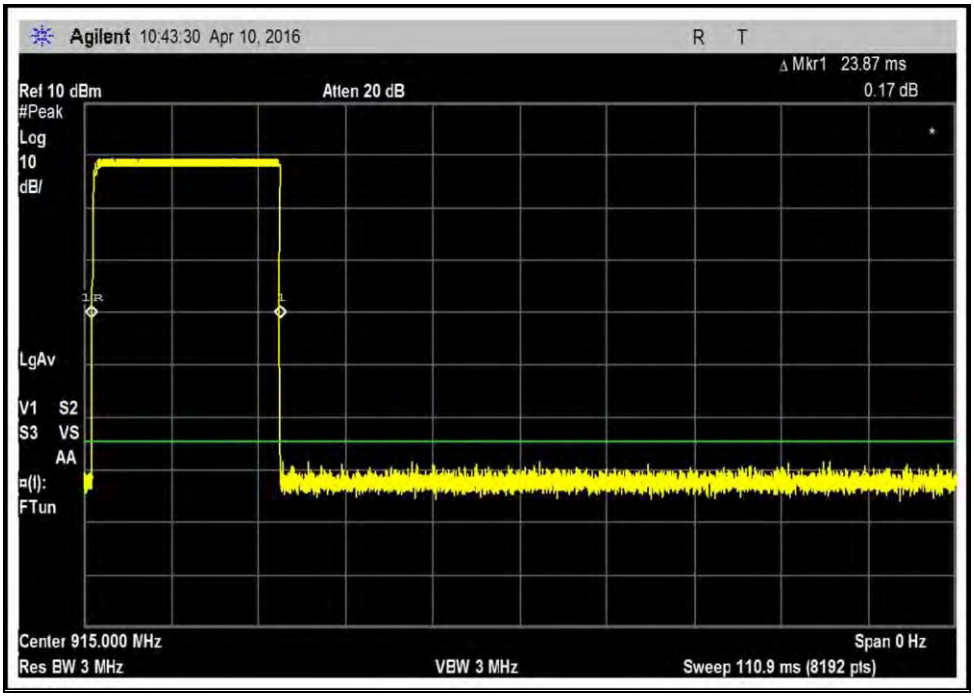
Measured Values:

Parameter	**Value**
Observation Period (P_{obs}):	100mS
Number of RF Bursts / P_{obs}:	1
On time of RF Burst:	23.87mS
Number of Control or other signals / P_{obs}:	0
On time of Control or other Signals:	0
Total Measured On Time:	23.87mS

Duty Cycle Correction Factor (DCCF) is calculated in accordance with ANSI C63.10:

$$DCCF = 20 \cdot Log\left(\frac{On\ Time}{P_{obs}}\right)$$

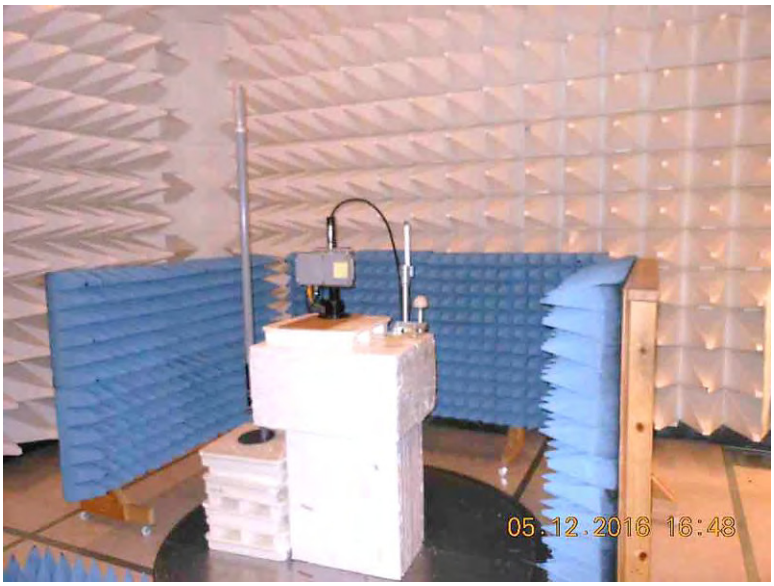
Duty Cycle Correction Factor Test Data



Test Setup Photo(s)

9kHz-1GHz

9kHz-1GHz



1-13GHz

Note: Photo below shows setup for preliminary measurements; final measurements were taken with cables >40cm off ground plane.

1-13GHz

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on the limit value subtracting the corrected measured value; a negative margin represents a measurement less than the limit while a positive margin represents a measurement exceeding the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.