Itron, Inc.

REVISED TEST REPORT TO 105540-2

Water Endpoint
Models: RIVAWA & RIVAWRA

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.247
(FHSS 902-928MHz)

Report No.: 105540-2A

Date of issue: July 16, 2021

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 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.

Test Certificate # 803.01

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Itron, Inc.
2111 N. Molter Road
Liberty Lake, WA 99019

Representative: Jay Holcomb
Customer Reference Number: 239227

REPORT PREPARED BY:

Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 105540

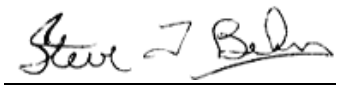
DATE OF EQUIPMENT RECEIPT: June 3, 2021
DATE(S) OF TESTING: June 3 and 7, 2021

Revision History

Original: Testing of the Water Endpoint, Models: RIVAWA & RIVAWRA to FCC Part 15 Subpart C Section(s) 15.247 (FHSS 902-928MHz.
Revision A: To add clarification for the antenna gain measurement to the General Product Table.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the equipment provided by the client, 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.
Canyon Park
22116 23rd Drive S.E., Suite A
Bothell, WA 98021

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.19

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Canada	Japan
Canyon Park, Bothell, WA	US0103	US1024	3082C	A-0136
Brea, CA	US0103	US1024	3082D	A-0136
Fremont, CA	US0103	US1024	3082B	A-0136
Mariposa, CA	US0103	US1024	3082A	A-0136

*CKC's list of NIST designated countries can be found at: https://standards.gov/cabs/designations.html

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	PASS
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	PASS
15.247(d)	RF Conducted Emissions & Band Edge	NA	NA1
15.247(d)	Radiated Emissions & Band Edge	NA	PASS
15.207	AC Conducted Emissions	NA	NA2

NA = Not Applicable
NA1 = Not applicable because EUT has an integral antenna. Temporary antenna port provided for Occupied Bandwidth and Power measurements only.
NA2 = Not applicable because the EUT is battery powered.
NP = CKC Laboratories is not contracted to perform test.

ISO/IEC 17025 Decision Rule
The declaration of pass or fail herein is based upon assessment to the specification(s) listed above, including where applicable, assessment of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of 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)

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 1 (Conducted Unit)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-cond

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 2 (Remote 4 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWRA	105540-RMT4

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 3 (Remote 2 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWRA	105540-RMT2

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 4 (Pit 2 Port, 4 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT42

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 5 (Pit 2 Port, 2 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT22

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 6 (Pit 3 Port, Internal Antenna, 4 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT43

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 7 (Pit 3 Port, Internal Antenna, 2 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT23

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA

Configuration 8 (Pit 3 Port, Plastic Lid Antenna, 4 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT43

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA
Antenna	Itron, Inc.	CFG-0900-003	12194430

Configuration 9 (Pit 3 Port, Plastic Lid Antenna, 2 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT23

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA
Antenna	Itron, Inc.	CFG-0900-003	12194430

Configuration 10 (Pit 3 Port, Metal Lid Antenna, 4 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT43

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA
Antenna	Itron, Inc.	CFG-0900-003	12194430
Ground Plane	Itron, Inc.	4ft	NA

Configuration 11 (Pit 3 Port, Metal Lid Antenna, 2 Battery)

Equipment Tested:

Device	Manufacturer	Model #	S/N
Water Endpoint	Itron, Inc.	RIVAWA	105540-PIT23

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	HP	14-dq1033cl	NA
AC Adapter (for Laptop)	HP	L25296-002	NA
USB to Serial Adapter	Itron, Inc.	RIVAWA-cable	NA
Antenna	Itron, Inc.	CFG-0900-003	12194430
Ground Plane	Itron, Inc.	4ft	NA

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	Proprietary FHSS
Operating Frequency Range:	902.3 to 926.9MHz
Number of Hopping Channels:	83
Receiver Bandwidth and Synchronization:	The manufacturer declares the receiver input bandwidth matches the transmit channel bandwidth and shifts frequencies in synchronization with the transmitter.
Modulation Type(s):	100kbps GFSK (testing new modulation for an existing channel plan)
Maximum Duty Cycle:	Tested assuming 100% as worst case
Number of TX Chains:	2 (only 1 TX chain used at a time)
Antenna Type(s) and Gain:	5.2 dBi, Integral Omni Antenna 2.5 dBi, External Omni Antenna
Antenna Gain Clarification	The gain values listed in this report were calculated at time of test by measurements collected by the test lab. The test lab collected Radiated and RF Conducted fundamental values, and from these values the manufacturer calculated antenna gain values. This same procedure was performed on previous reports and for the original filing. The antenna design has not changed since the original filing, and with measurement and part tolerances from EUT sample to sample, the measured gain values may vary from the original filing.
Beamforming Type:	NA
Antenna Connection Type:	Internal or Proprietary External
Nominal Input Voltage:	6VDC Battery Only
Firmware / Software used for Test:	CLI Tool v2.0.1.24 CSL v 16.05.0

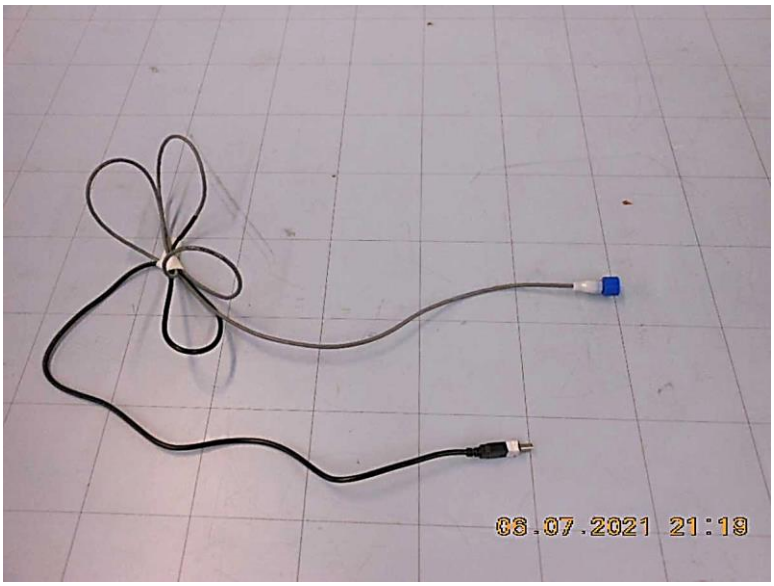
EUT Photo(s)

Support Equipment Photo(s)

External Antenna

Ground Plane

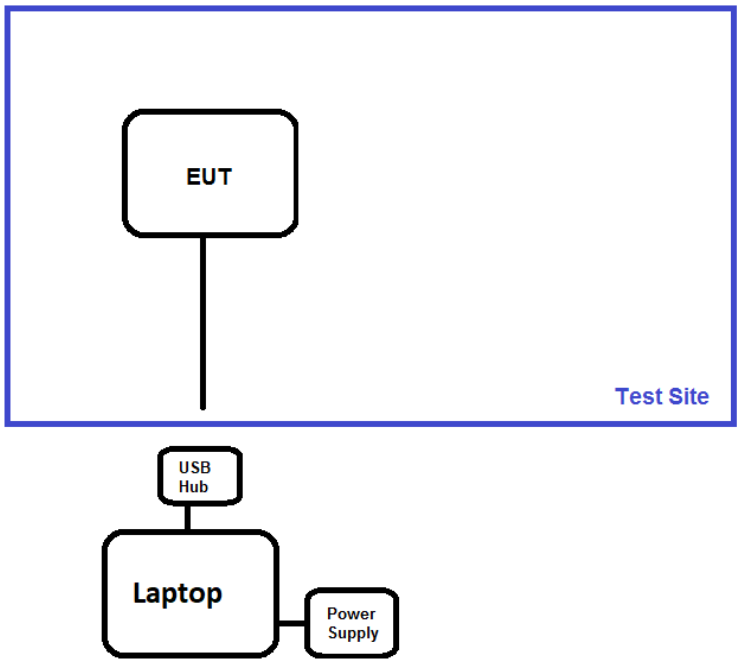
Laptop & USB Hub



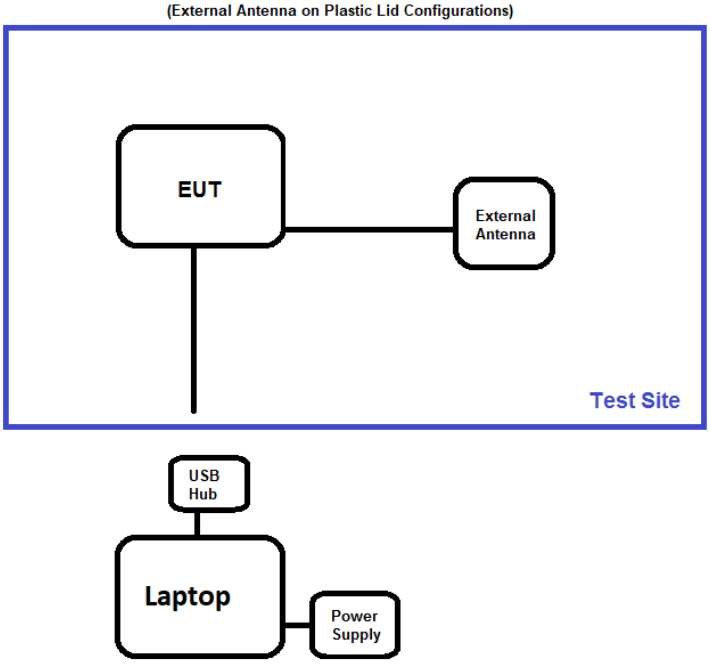
Serial Cable

Block Diagram of Test Setup(s)

Test Setup Block Diagram
(Internal Antenna Configurations)

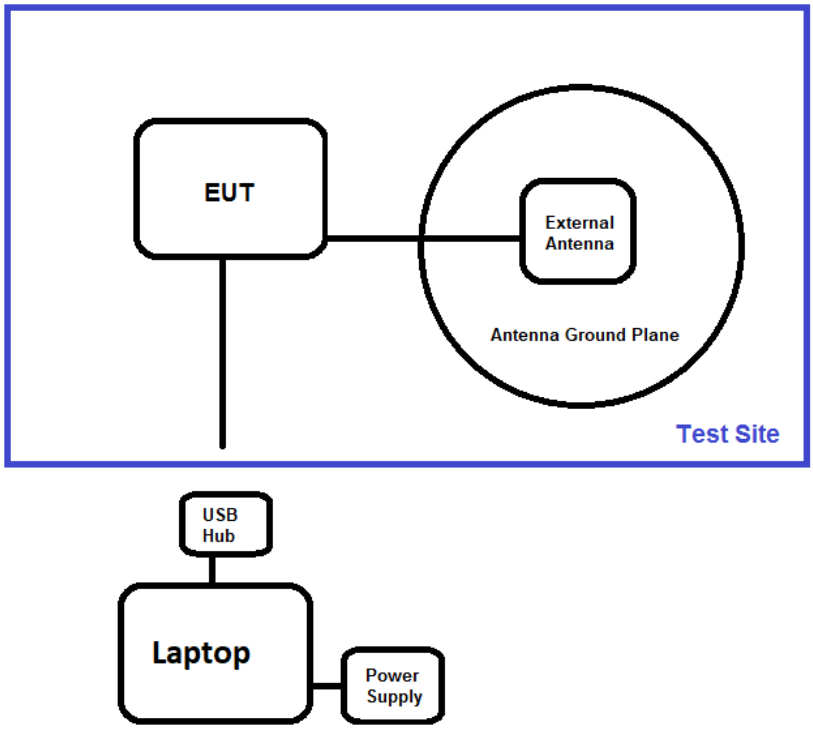


Test Setup Block Diagram
(External Antenna on Plastic Lid Configurations)



Test Setup Block Diagram

(External Antenna on Metal Lid Configurations)



FCC Part 15 Subpart C

15.247(a) Transmitter Characteristics

Test Setup/Conditions			
Test Location:	Bothell Lab Bench	Test Engineer:	M. Atkinson
Test Method:	ANSI C63.10 (2013)	Test Date(s):	6/3/2021
Configuration:	1		
Test Setup:	EUT has temporary antenna connector attached. EUT directly connected to spectrum analyzer through appropriate cables and attenuators. EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx.		

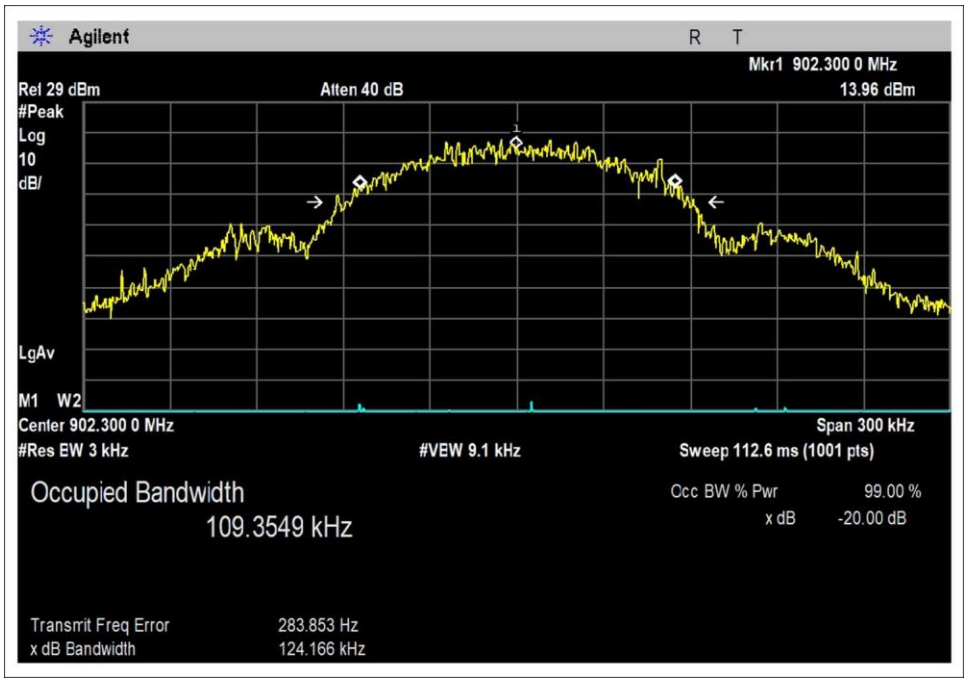
Environmental Conditions			
Temperature (ºC)	24	Relative Humidity (%):	46

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
02673	Spectrum Analyzer	Agilent	E4446A	2/3/2021	2/3/2023
P07745	Attenuator	Pasternack	PE7004-6	2/11/2021	2/11/2023
P06011	Cable	Andrew	Heliax	8/7/2020	8/7/2022

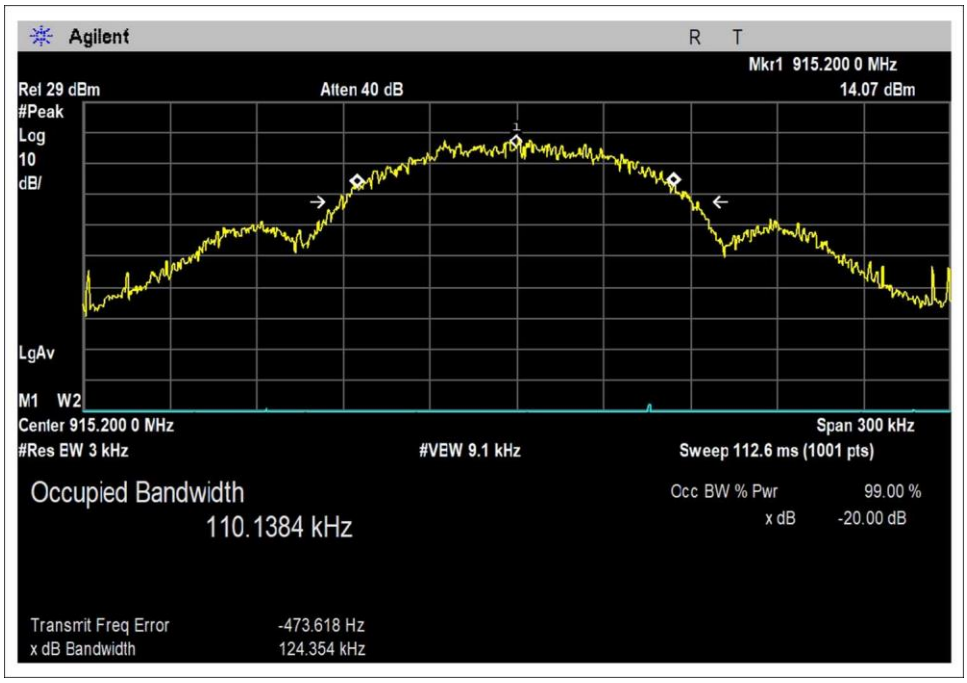
15.247(a)(1) 20 dB Bandwidth

Test Data Summary					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
902.3	1	GFSK 100kbps	124.166	≤500	Pass
915.2	1	GFSK 100kbps	124.354	≤500	Pass
926.9	1	GFSK 100kbps	125.275	≤500	Pass

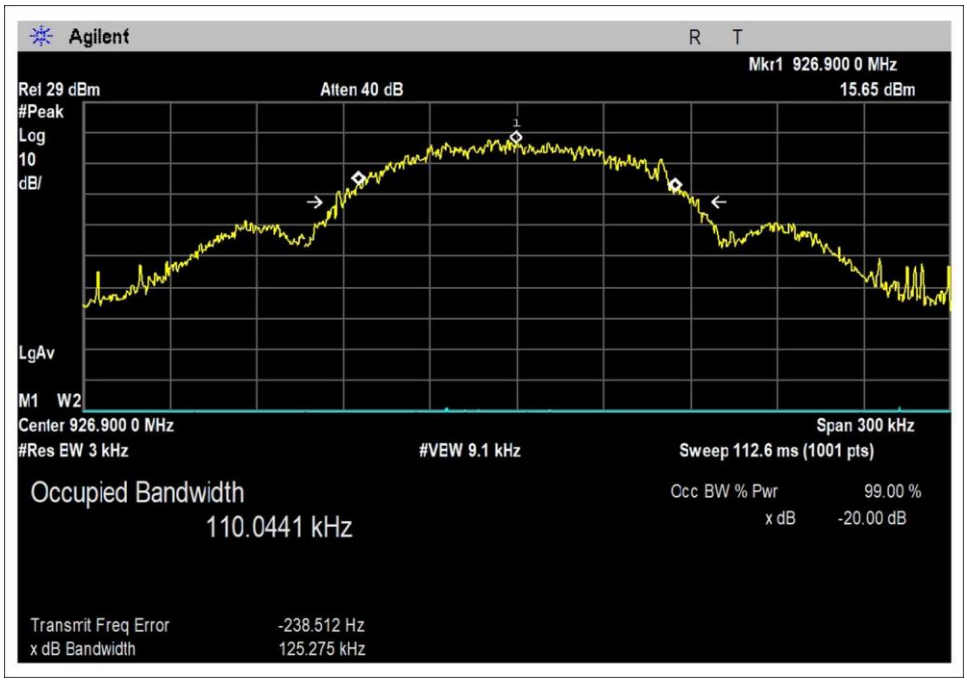
Plot(s)



Low Channel



Middle Channel



High Channel

Test Setup Photo(s)

15.247(b)(2) Output Power

Test Data Summary - Voltage Variations

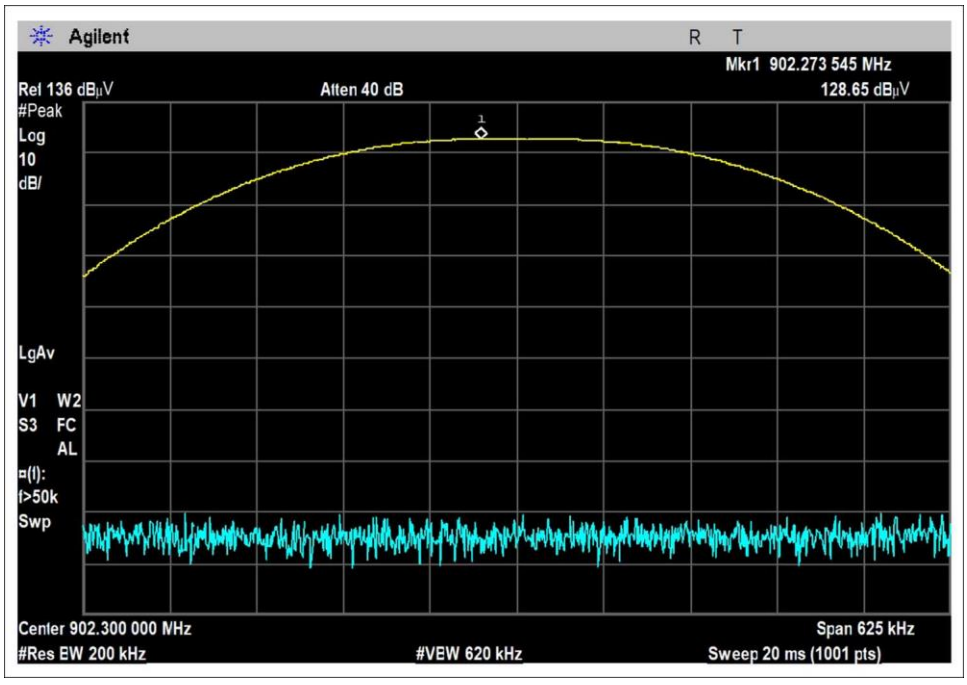
This equipment is battery powered. Power output tests were performed using a fresh battery.

Test Data Summary - RF Conducted Measurement

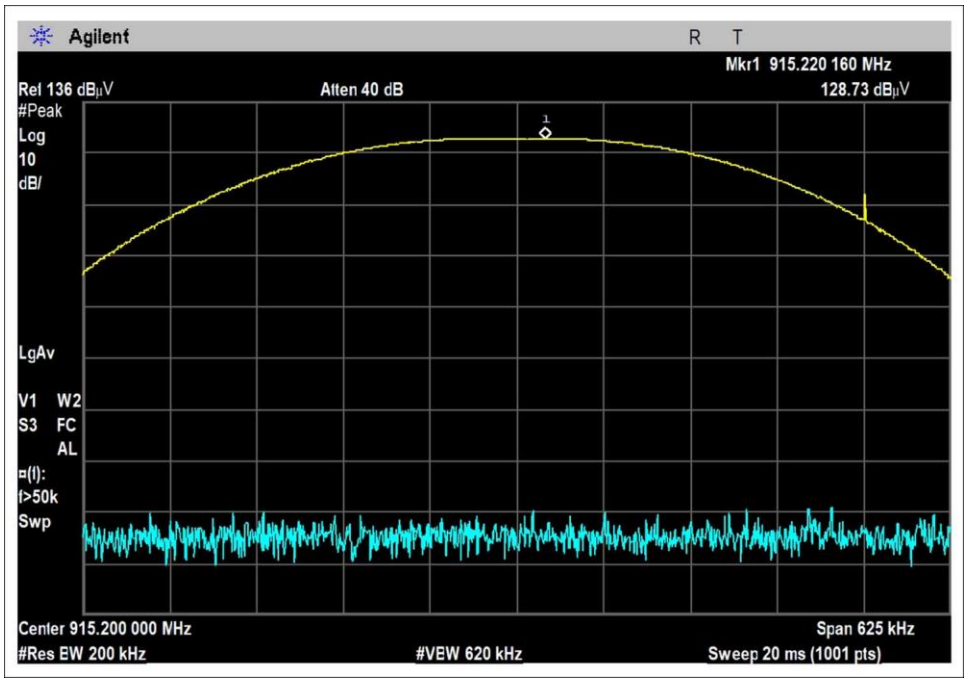
$$Limit = \begin{cases} 30dBm\ Conducted/36dBm\ EIRP \mid \geq 50\ Channels \\ 24dBm\ Conducted/30dBm\ EIRP \mid < 50\ Channels\ (\min 25) \end{cases}$$

Frequency (MHz)	Modulation	Ant. Type / Gain (dBi)	Measured (dBm)	Limit (dBm)	Results
902.3	GFSK 100kbps	Integral (5.2dBi), External (2.5dBi)	27.9	≤30	Pass
915.2	GFSK 100kbps	Integral (5.2dBi), External (2.5dBi)	28.0	≤30	Pass
926.9	GFSK 100kbps	Integral (5.2dBi), External (2.5dBi)	28.1	≤30	Pass

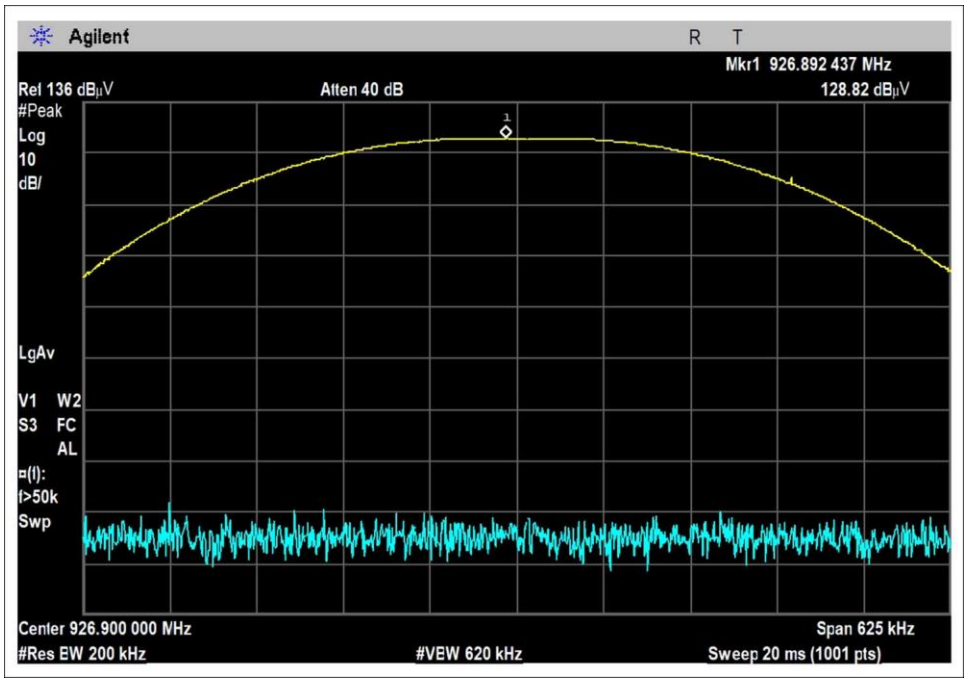
Plots



Low Channel



Middle Channel



High Channel

Test Setup / Conditions / Data

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(b) Power Output (902-928 MHz FHSS >50 Channels)**		
Work Order #:	**105540**	Date:	6/3/2021
Test Type:	**Conducted Emissions**	Time:	17:33:05
Tested By:	Michael Atkinson	Sequence#:	4
Software:	EMITest 5.03.19		Battery

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

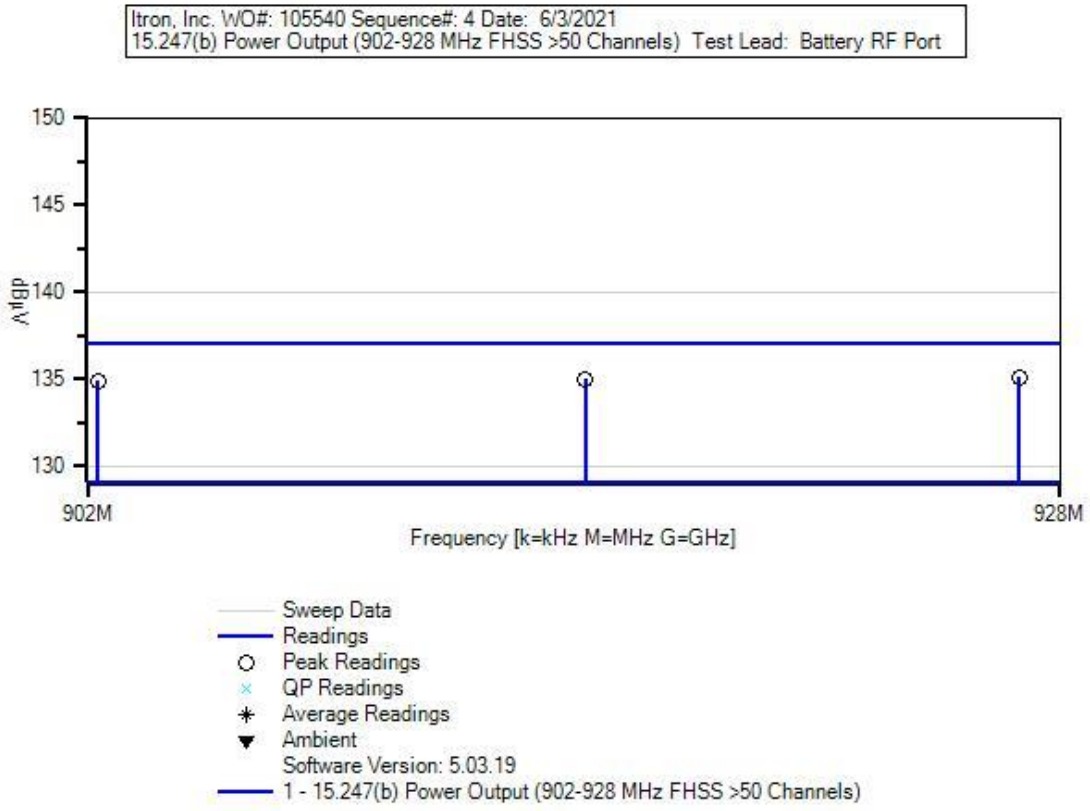
Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

EUT has temporary antenna connector attached. EUT directly connected to spectrum analyzer through appropriate cables and attenuators. EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. EUT has a fresh battery installed.

Test Environment Conditions:
Temperature: 24°C
Relative Humidity: 46%

Test Method: ANSI C63.10 (2013)



Test Equipment:

ID	Asset	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/3/2021	2/3/2023
T1	ANP07745	Attenuator	PE7004-6	2/11/2021	2/11/2023
T2	ANP06011	Cable	Heliax	8/7/2020	8/7/2022

Measurement Data: Reading listed by margin. Test Lead: RF Port

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	926.892M	128.8	+5.8	+0.5			+0.0	135.1	137.0	-1.9	RF Po
2	915.220M	128.7	+5.8	+0.5			+0.0	135.0	137.0	-2.0	RF Po
3	902.274M	128.6	+5.8	+0.5			+0.0	134.9	137.0	-2.1	RF Po

Test Setup Photo(s)

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105334**	Date:	6/7/2021
Test Type:	**Radiated Scan**	Time:	18:07:58
Tested By:	Michael Atkinson	Sequence#:	1
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2 and 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2 and 3			

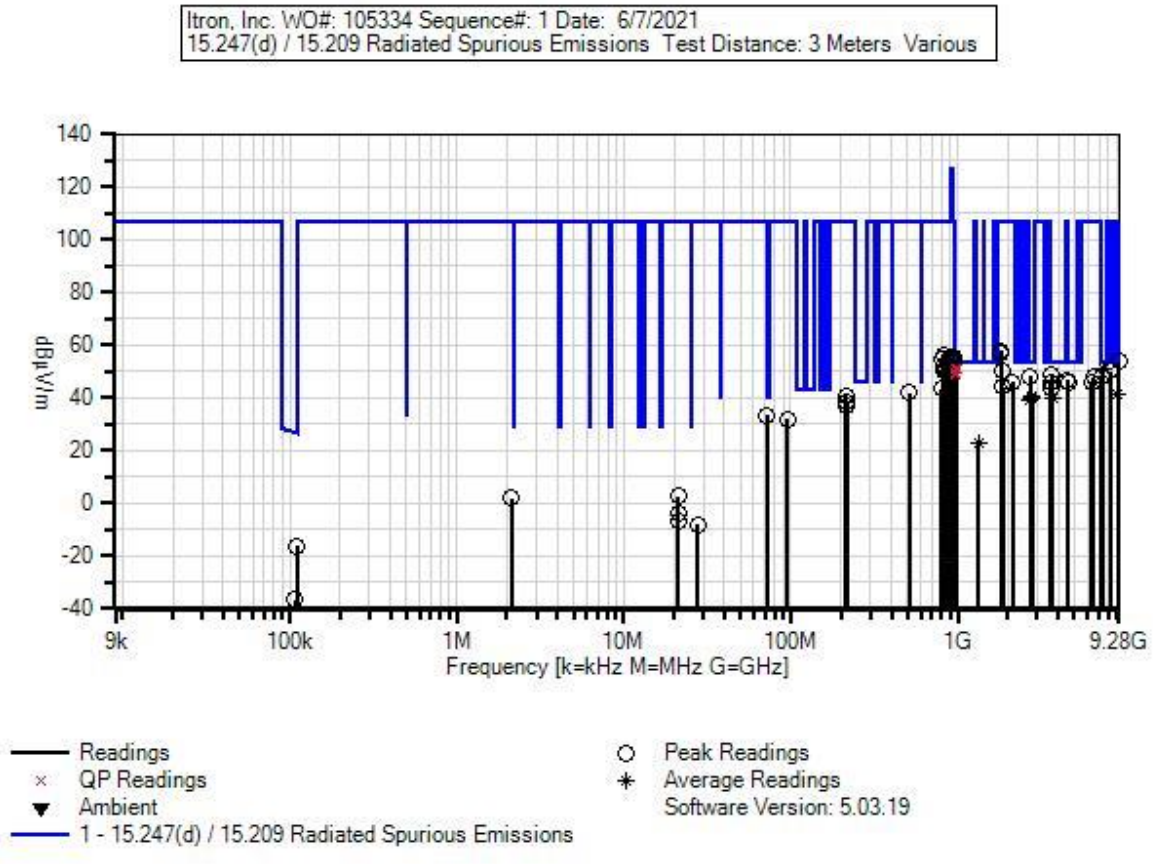
Test Conditions / Notes:

Frequency Range: 9kHz to 10GHz

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated above 30MHz, 3 orthogonal axes investigated below 30MHz, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	ANP05275	Attenuator	1W	3/26/2020	3/26/2022
T6	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T7	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022
T8	AN03540	Preamp	83017A	5/14/2021	5/14/2023
T9	ANP07505	Cable	CLU40-KMKM-02.00F	1/26/2021	1/26/2023
T10	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T11	AN03170	High Pass Filter	HM1155-11SS	10/23/2019	10/23/2021
T12	ANP06515	Cable	Heliax	7/1/2020	7/1/2022

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

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11	T12					
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	993.200M	16.1	+0.0	+0.4	+1.5	+2.3	+0.0	51.2	54.0	-2.8	Vert
	QP		+6.1	+24.8	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
^	993.200M	17.0	+0.0	+0.4	+1.5	+2.3	+0.0	52.1	54.0	-1.9	Vert
			+6.1	+24.8	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
3	980.315M	16.2	+0.0	+0.4	+1.5	+2.3	+0.0	51.1	54.0	-2.9	Vert
	QP		+6.1	+24.6	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
^	980.400M	19.5	+0.0	+0.4	+1.5	+2.3	+0.0	54.4	54.0	+0.4	Vert
			+6.1	+24.6	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
5	978.800M	15.9	+0.0	+0.4	+1.5	+2.3	+0.0	50.8	54.0	-3.2	Vert
	QP		+6.1	+24.6	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
^	978.800M	17.0	+0.0	+0.4	+1.5	+2.3	+0.0	51.9	54.0	-2.1	Vert
			+6.1	+24.6	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
7	7415.200M	40.7	+0.0	+1.5	+0.0	+0.0	+0.0	50.8	54.0	-3.2	Horiz
	Ave		+0.0	+0.0	+0.0	-34.9			926.9		
			+0.5	+37.1	+0.6	+5.3					
^	7415.200M	41.8	+0.0	+1.5	+0.0	+0.0	+0.0	51.9	54.0	-2.1	Horiz
			+0.0	+0.0	+0.0	-34.9			926.9		
			+0.5	+37.1	+0.6	+5.3					
9	8120.645M	40.2	+0.0	+1.3	+0.0	+0.0	+0.0	50.0	54.0	-4.0	Horiz
			+0.0	+0.0	+0.0	-35.1			902.3		
			+0.5	+37.0	+0.8	+5.3					
10	967.200M	15.4	+0.0	+0.4	+1.5	+2.2	+0.0	50.0	54.0	-4.0	Vert
	QP		+6.1	+24.4	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
^	967.200M	19.4	+0.0	+0.4	+1.5	+2.2	+0.0	54.0	54.0	+0.0	Vert
			+6.1	+24.4	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
12	3660.930M	47.4	+0.0	+0.9	+0.0	+0.0	+0.0	49.2	54.0	-4.8	Horiz
			+0.0	+0.0	+0.0	-33.8			915.2		
			+0.3	+30.5	+0.5	+3.4					
13	978.907M	14.3	+0.0	+0.4	+1.5	+2.3	+0.0	49.2	54.0	-4.8	Vert
	QP		+6.1	+24.6	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
14	2707.010M	49.7	+0.0	+0.7	+0.0	+0.0	+0.0	48.2	54.0	-5.8	Vert
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
15	4511.555M	43.0	+0.0	+0.9	+0.0	+0.0	+0.0	46.7	54.0	-7.3	Horiz
			+0.0	+0.0	+0.0	-33.6			902.3		
			+0.3	+31.8	+0.6	+3.7					

16	4576.130M	42.3	+0.0	+0.9	+0.0	+0.0	+0.0	46.2	54.0	-7.8	Horiz
			+0.0	+0.0	+0.0	-33.6			915.2		
			+0.3	+31.9	+0.6	+3.8					
17	3609.240M	44.4	+0.0	+0.8	+0.0	+0.0	+0.0	45.9	54.0	-8.1	Horiz
			+0.0	+0.0	+0.0	-33.8			902.3		
			+0.3	+30.3	+0.5	+3.4					
18	3609.235M	42.0	+0.0	+0.8	+0.0	+0.0	+0.0	43.5	54.0	-10.5	Vert
			+0.0	+0.0	+0.0	-33.8			902.3		
			+0.3	+30.3	+0.5	+3.4					
19	9152.125M	30.2	+0.0	+1.5	+0.0	+0.0	+0.0	41.6	54.0	-12.4	Horiz
	Ave		+0.0	+0.0	+0.0	-34.4			915.2		
			+0.5	+37.5	+0.5	+5.8					
^	9152.125M	41.4	+0.0	+1.5	+0.0	+0.0	+0.0	52.8	54.0	-1.2	Horiz
			+0.0	+0.0	+0.0	-34.4			915.2		
			+0.5	+37.5	+0.5	+5.8					
21	2780.750M	42.2	+0.0	+0.7	+0.0	+0.0	+0.0	40.9	54.0	-13.1	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
^	2780.750M	54.9	+0.0	+0.7	+0.0	+0.0	+0.0	53.6	54.0	-0.4	Horiz
			+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
23	3707.600M	38.1	+0.0	+0.9	+0.0	+0.0	+0.0	40.1	54.0	-13.9	Horiz
	Ave		+0.0	+0.0	+0.0	-33.8			926.9		
			+0.3	+30.6	+0.5	+3.5					
^	3707.545M	48.4	+0.0	+0.9	+0.0	+0.0	+0.0	50.4	54.0	-3.6	Horiz
			+0.0	+0.0	+0.0	-33.8			926.9		
			+0.3	+30.6	+0.5	+3.5					
25	2745.635M	41.2	+0.0	+0.7	+0.0	+0.0	+0.0	39.8	54.0	-14.2	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			915.2		
			+0.3	+28.4	+0.4	+2.9					
^	2745.635M	53.0	+0.0	+0.7	+0.0	+0.0	+0.0	51.6	54.0	-2.4	Horiz
			+0.0	+0.0	+0.0	-34.1			915.2		
			+0.3	+28.4	+0.4	+2.9					
27	2706.940M	40.8	+0.0	+0.7	+0.0	+0.0	+0.0	39.3	54.0	-14.7	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
^	2706.940M	53.3	+0.0	+0.7	+0.0	+0.0	+0.0	51.8	54.0	-2.2	Horiz
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
29	1329.600M	30.0	+0.0	+0.4	+0.0	+0.0	+0.0	23.0	54.0	-31.0	Vert
	Ave		+0.0	+0.0	+0.0	-35.6					
			+0.2	+25.2	+0.8	+2.0					
30	110.000k	54.4	+0.0	+0.0	+0.0	+0.0	-80.0	-16.1	26.8	-42.9	Para
			+0.0	+0.0	+9.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
31	1804.565M	63.0	+0.0	+0.5	+0.0	+0.0	+0.0	58.0	107.0	-49.0	Horiz
			+0.0	+0.0	+0.0	-34.7			902.3		
			+0.3	+26.1	+0.5	+2.3					
32	1804.580M	62.0	+0.0	+0.5	+0.0	+0.0	+0.0	57.0	107.0	-50.0	Vert
			+0.0	+0.0	+0.0	-34.7			902.3		
			+0.3	+26.1	+0.5	+2.3					

33	828.800M	23.6	+0.0 +6.1 +0.0	+0.3 +22.8 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	56.1	107.0 915.2	-50.9	Vert
34	941.200M	21.5	+0.0 +6.1 +0.0	+0.4 +24.0 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	55.7	107.0 915.2	-51.3	Vert
35	928.400M	21.5	+0.0 +6.1 +0.0	+0.4 +23.8 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	55.5	107.0 902.3	-51.5	Vert
36	889.200M	22.1	+0.0 +6.1 +0.0	+0.3 +23.3 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	55.3	107.0 915.2	-51.7	Vert
37	901.000M	21.8	+0.0 +6.1 +0.0	+0.3 +23.4 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	55.1	107.0 926.9	-51.9	Vert
38	811.200M	22.6	+0.0 +6.1 +0.0	+0.3 +22.6 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	54.9	107.0 915.2	-52.1	Vert
39	952.800M	20.2	+0.0 +6.1 +0.0	+0.4 +24.2 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	54.6	107.0 926.9	-52.4	Vert
40	954.200M	19.7	+0.0 +6.1 +0.0	+0.4 +24.2 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	54.1	107.0 902.3	-52.9	Vert
41	9268.985M	42.4	+0.0 +0.0 +0.5	+1.5 +0.0 +37.6	+0.0 +0.0 +0.5	+0.0 -34.2 +5.7	+0.0	54.0	107.0 926.9	-53.0	Horiz
42	875.000M	20.7	+0.0 +6.1 +0.0	+0.3 +23.2 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	53.7	107.0 926.9	-53.3	Vert
43	876.400M	19.8	+0.0 +6.1 +0.0	+0.3 +23.2 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	52.8	107.0 902.3	-54.2	Vert
44	824.400M	20.0	+0.0 +6.1 +0.0	+0.3 +22.7 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	52.4	107.0 902.3	-54.6	Vert
45	850.400M	19.2	+0.0 +6.1 +0.0	+0.3 +23.0 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	52.0	107.0 902.3	-55.0	Vert
46	849.000M	17.9	+0.0 +6.1 +0.0	+0.3 +23.0 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	50.7	107.0 926.9	-56.3	Vert
47	823.000M	18.1	+0.0 +6.1 +0.0	+0.3 +22.7 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	50.5	107.0 926.9	-56.5	Vert
48	1830.400M	55.0	+0.0 +0.0 +0.3	+0.5 +0.0 +26.3	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	50.2	107.0 915.2	-56.8	Horiz
49	7218.285M	39.7	+0.0 +0.0 +0.5	+1.1 +0.0 +36.5	+0.0 +0.0 +0.4	+0.0 -34.9 +5.1	+0.0	48.4	107.0 902.3	-58.6	Horiz

50	6488.300M	39.8	+0.0	+1.2	+0.0	+0.0	+0.0	47.9	107.0	-59.1	Horiz
			+0.0	+0.0	+0.0	-34.0			926.9		
			+0.5	+34.5	+0.5	+5.4					
51	2125.000M	48.7	+0.0	+0.6	+0.0	+0.0	+0.0	46.0	107.0	-61.0	Horiz
			+0.0	+0.0	+0.0	-34.5					
			+0.3	+27.8	+0.5	+2.6					
52	6316.035M	38.2	+0.0	+1.0	+0.0	+0.0	+0.0	45.7	107.0	-61.3	Horiz
			+0.0	+0.0	+0.0	-34.0			902.3		
			+0.3	+34.6	+0.5	+5.1					
53	1853.880M	48.8	+0.0	+0.5	+0.0	+0.0	+0.0	44.2	107.0	-62.8	Horiz
			+0.0	+0.0	+0.0	-34.7			926.9		
			+0.3	+26.5	+0.4	+2.4					
54	796.920M	11.5	+0.0	+0.3	+1.4	+1.9	+0.0	43.7	107.0	-63.3	Vert
			+6.1	+22.5	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
55	107.500k	34.0	+0.0	+0.0	+0.0	+0.0	-80.0	-36.5	27.0	-63.5	Para
			+0.0	+0.0	+9.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
56	509.710M	14.9	+0.0	+0.3	+1.1	+1.5	+0.0	42.1	107.0	-64.9	Vert
			+6.1	+18.2	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
57	212.490M	23.1	+0.0	+0.2	+0.7	+0.9	+0.0	41.1	107.0	-65.9	Horiz
			+6.1	+10.1	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
58	215.570M	20.4	+0.0	+0.2	+0.7	+0.9	+0.0	38.6	107.0	-68.4	Vert
			+6.1	+10.3	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
59	216.340M	18.8	+0.0	+0.2	+0.7	+0.9	+0.0	37.1	107.0	-69.9	Vert
			+6.1	+10.4	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
60	72.350M	20.1	+0.0	+0.1	+0.4	+0.5	+0.0	33.6	107.0	-73.4	Vert
			+6.0	+6.5	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
61	95.450M	15.3	+0.0	+0.1	+0.5	+0.6	+0.0	32.2	107.0	-74.8	Horiz
			+6.0	+9.7	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
62	21.039M	35.2	+0.0	+0.1	+0.2	+0.0	-40.0	2.6	107.0	-104.4	Groun
			+0.0	+0.0	+7.1	+0.0					
			+0.0	+0.0	+0.0	+0.0					
63	2.131M	32.5	+0.0	+0.0	+0.1	+0.0	-40.0	2.1	107.0	-104.9	Para
			+0.0	+0.0	+9.5	+0.0					
			+0.0	+0.0	+0.0	+0.0					
64	21.213M	29.1	+0.0	+0.1	+0.2	+0.0	-40.0	-3.5	107.0	-110.5	Para
			+0.0	+0.0	+7.1	+0.0					
			+0.0	+0.0	+0.0	+0.0					
65	21.213M	26.0	+0.0	+0.1	+0.2	+0.0	-40.0	-6.6	107.0	-113.6	Perp
			+0.0	+0.0	+7.1	+0.0					
			+0.0	+0.0	+0.0	+0.0					
66	27.593M	26.5	+0.0	+0.1	+0.3	+0.0	-40.0	-7.8	107.0	-114.8	Para
			+0.0	+0.0	+5.3	+0.0					
			+0.0	+0.0	+0.0	+0.0					

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105334**	Date:	6/7/2021
Test Type:	**Radiated Scan**	Time:	18:21:41
Tested By:	Michael Atkinson	Sequence#:	2
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4, 5, 6, and 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4, 5, 6, and 7			

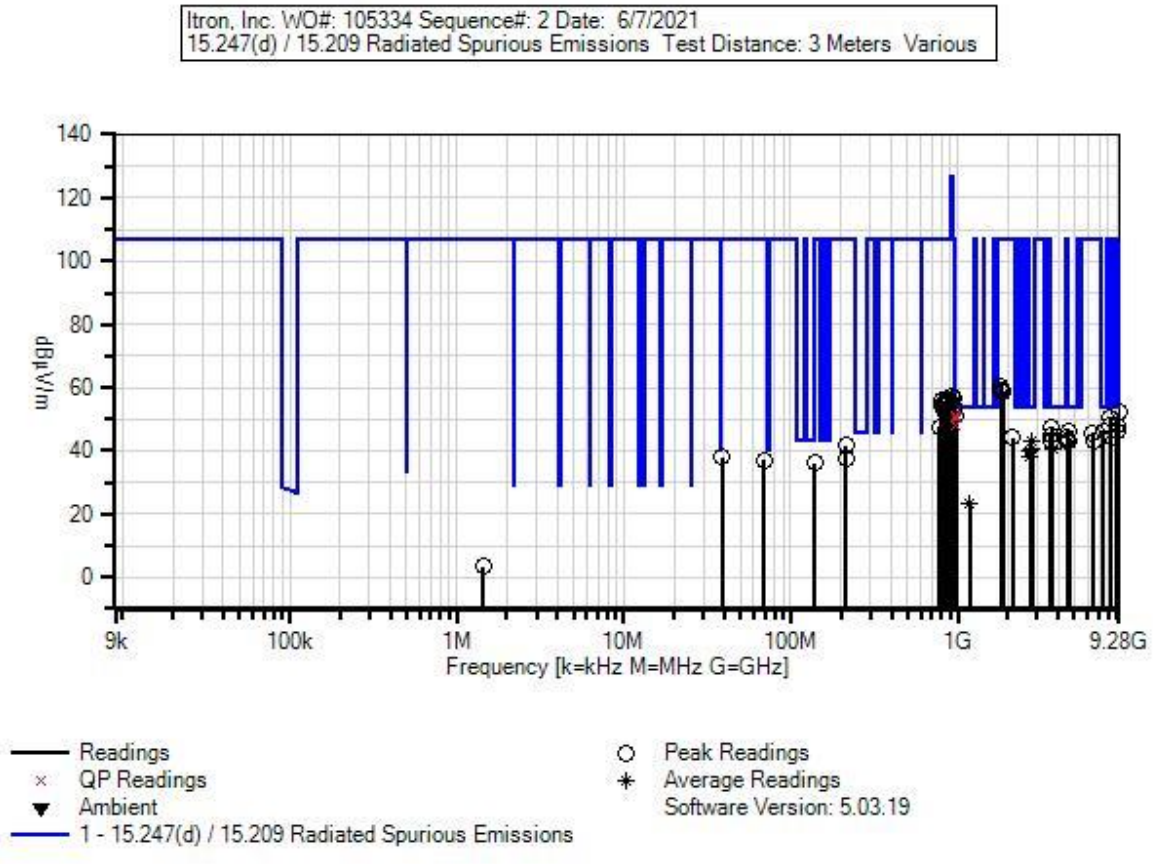
Test Conditions / Notes:

Frequency Range: 9kHz to 10GHz

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit internal antenna investigated, 4 battery and 2 battery versions of EUT investigated, 2 and 3 port version of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated above 30MHz, 3 orthogonal axes investigated below 30MHz, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	ANP05275	Attenuator	1W	3/26/2020	3/26/2022
T6	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T7	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022
T8	AN03540	Preamp	83017A	5/14/2021	5/14/2023
T9	ANP07505	Cable	CLU40-KMKM-02.00F	1/26/2021	1/26/2023
T10	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T11	AN03170	High Pass Filter	HM1155-11SS	10/23/2019	10/23/2021
T12	ANP06515	Cable	Heliax	7/1/2020	7/1/2022

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	967.200M	16.4	+0.0	+0.4	+1.5	+2.2	+0.0	51.0	54.0	-3.0	Vert
	QP		+6.1	+24.4	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
^	967.200M	18.1	+0.0	+0.4	+1.5	+2.2	+0.0	52.7	54.0	-1.3	Vert
			+6.1	+24.4	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
3	978.800M	16.0	+0.0	+0.4	+1.5	+2.3	+0.0	50.9	54.0	-3.1	Vert
			+6.1	+24.6	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
4	993.200M	15.5	+0.0	+0.4	+1.5	+2.3	+0.0	50.6	54.0	-3.4	Vert
	QP		+6.1	+24.8	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
^	993.200M	18.0	+0.0	+0.4	+1.5	+2.3	+0.0	53.1	54.0	-0.9	Vert
			+6.1	+24.8	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
6	980.301M	15.4	+0.0	+0.4	+1.5	+2.3	+0.0	50.3	54.0	-3.7	Vert
	QP		+6.1	+24.6	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
^	980.300M	20.1	+0.0	+0.4	+1.5	+2.3	+0.0	55.0	54.0	+1.0	Vert
			+6.1	+24.6	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
8	8120.705M	40.5	+0.0	+1.3	+0.0	+0.0	+0.0	50.3	54.0	-3.7	Horiz
			+0.0	+0.0	+0.0	-35.1			902.3		
			+0.5	+37.0	+0.8	+5.3					
9	9023.005M	37.2	+0.0	+1.4	+0.0	+0.0	+0.0	48.3	54.0	-5.7	Horiz
			+0.0	+0.0	+0.0	-34.7			902.3		
			+0.5	+37.5	+0.5	+5.9					
10	978.907M	13.4	+0.0	+0.4	+1.5	+2.3	+0.0	48.3	54.0	-5.7	Vert
	QP		+6.1	+24.6	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
11	9152.155M	36.5	+0.0	+1.5	+0.0	+0.0	+0.0	47.9	54.0	-6.1	Horiz
			+0.0	+0.0	+0.0	-34.4			915.2		
			+0.5	+37.5	+0.5	+5.8					
12	8120.720M	38.0	+0.0	+1.3	+0.0	+0.0	+0.0	47.8	54.0	-6.2	Vert
			+0.0	+0.0	+0.0	-35.1			902.3		
			+0.5	+37.0	+0.8	+5.3					
13	3660.900M	45.5	+0.0	+0.9	+0.0	+0.0	+0.0	47.3	54.0	-6.7	Horiz
			+0.0	+0.0	+0.0	-33.8			915.2		
			+0.3	+30.5	+0.5	+3.4					
14	4576.000M	42.6	+0.0	+0.9	+0.0	+0.0	+0.0	46.5	54.0	-7.5	Horiz
			+0.0	+0.0	+0.0	-33.6			915.2		
			+0.3	+31.9	+0.6	+3.8					
15	7415.205M	36.2	+0.0	+1.5	+0.0	+0.0	+0.0	46.3	54.0	-7.7	Horiz
			+0.0	+0.0	+0.0	-34.9			926.9		
			+0.5	+37.1	+0.6	+5.3					

16	9023.105M	35.0	+0.0	+1.4	+0.0	+0.0	+0.0	46.1	54.0	-7.9	Vert
			+0.0	+0.0	+0.0	-34.7			902.3		
			+0.5	+37.5	+0.5	+5.9					
17	3609.290M	43.6	+0.0	+0.8	+0.0	+0.0	+0.0	45.1	54.0	-8.9	Horiz
			+0.0	+0.0	+0.0	-33.8			902.3		
			+0.3	+30.3	+0.5	+3.4					
18	8236.955M	34.3	+0.0	+1.7	+0.0	+0.0	+0.0	44.6	54.0	-9.4	Horiz
			+0.0	+0.0	+0.0	-34.9			915.2		
			+0.3	+37.0	+0.9	+5.3					
19	4511.590M	40.9	+0.0	+0.9	+0.0	+0.0	+0.0	44.6	54.0	-9.4	Horiz
			+0.0	+0.0	+0.0	-33.6			902.3		
			+0.3	+31.8	+0.6	+3.7					
20	4634.505M	39.3	+0.0	+0.9	+0.0	+0.0	+0.0	43.4	54.0	-10.6	Horiz
			+0.0	+0.0	+0.0	-33.6			926.9		
			+0.3	+32.1	+0.6	+3.8					
21	3609.220M	41.8	+0.0	+0.8	+0.0	+0.0	+0.0	43.3	54.0	-10.7	Vert
			+0.0	+0.0	+0.0	-33.8			902.3		
			+0.3	+30.3	+0.5	+3.4					
22	4511.520M	39.6	+0.0	+0.9	+0.0	+0.0	+0.0	43.3	54.0	-10.7	Vert
			+0.0	+0.0	+0.0	-33.6			902.3		
			+0.3	+31.8	+0.6	+3.7					
23	2745.700M	44.5	+0.0	+0.7	+0.0	+0.0	+0.0	43.1	54.0	-10.9	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			915.2		
			+0.3	+28.4	+0.4	+2.9					
^	2745.700M	53.9	+0.0	+0.7	+0.0	+0.0	+0.0	52.5	54.0	-1.5	Horiz
			+0.0	+0.0	+0.0	-34.1			915.2		
			+0.3	+28.4	+0.4	+2.9					
25	2780.660M	42.1	+0.0	+0.7	+0.0	+0.0	+0.0	40.8	54.0	-13.2	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
^	2780.660M	53.2	+0.0	+0.7	+0.0	+0.0	+0.0	51.9	54.0	-2.1	Horiz
			+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
27	3707.560M	38.5	+0.0	+0.9	+0.0	+0.0	+0.0	40.5	54.0	-13.5	Horiz
	Ave		+0.0	+0.0	+0.0	-33.8			926.9		
			+0.3	+30.6	+0.5	+3.5					
^	3707.605M	47.7	+0.0	+0.9	+0.0	+0.0	+0.0	49.7	54.0	-4.3	Horiz
			+0.0	+0.0	+0.0	-33.8			926.9		
			+0.3	+30.6	+0.5	+3.5					
29	2706.905M	41.3	+0.0	+0.7	+0.0	+0.0	+0.0	39.8	54.0	-14.2	Horiz
	Ave		+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
^	2706.995M	52.4	+0.0	+0.7	+0.0	+0.0	+0.0	50.9	54.0	-3.1	Horiz
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
31	2706.900M	39.4	+0.0	+0.7	+0.0	+0.0	+0.0	37.9	54.0	-16.1	Vert
	Ave		+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
^	2706.915M	50.9	+0.0	+0.7	+0.0	+0.0	+0.0	49.4	54.0	-4.6	Vert
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					

33	1171.000M Ave	30.9	+0.0 +0.0 +0.2	+0.4 +0.0 +24.9	+0.0 +0.0 +1.2	+0.0 -36.2 +1.8	+0.0	23.2	54.0	-30.8	Vert
34	1804.600M	65.6	+0.0 +0.0 +0.3	+0.5 +0.0 +26.1	+0.0 +0.0 +0.5	+0.0 -34.7 +2.3	+0.0	60.6	107.0 902.3	-46.4	Vert
35	1830.400M	64.0	+0.0 +0.0 +0.3	+0.5 +0.0 +26.3	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	59.2	107.0 915.2	-47.8	Horiz
36	1804.535M	64.0	+0.0 +0.0 +0.3	+0.5 +0.0 +26.1	+0.0 +0.0 +0.5	+0.0 -34.7 +2.3	+0.0	59.0	107.0 902.3	-48.0	Horiz
37	1853.850M	63.1	+0.0 +0.0 +0.3	+0.5 +0.0 +26.5	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	58.5	107.0 926.9	-48.5	Horiz
38	928.400M	23.3	+0.0 +6.1 +0.0	+0.4 +23.8 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	57.3	107.0 902.3	-49.7	Vert
39	954.400M	22.1	+0.0 +6.1 +0.0	+0.4 +24.2 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	56.5	107.0 902.3	-50.5	Vert
40	941.200M	22.2	+0.0 +6.1 +0.0	+0.4 +24.0 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	56.4	107.0 915.2	-50.6	Vert
41	798.100M	24.0	+0.0 +6.1 +0.0	+0.3 +22.5 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	56.2	107.0	-50.8	Vert
42	850.200M	23.2	+0.0 +6.1 +0.0	+0.3 +23.0 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	56.0	107.0 902.3	-51.0	Vert
43	900.800M	22.5	+0.0 +6.1 +0.0	+0.3 +23.4 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	55.8	107.0 926.9	-51.2	Vert
44	876.200M	22.6	+0.0 +6.1 +0.0	+0.3 +23.2 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	55.6	107.0 902.3	-51.4	Vert
45	889.200M	22.4	+0.0 +6.1 +0.0	+0.3 +23.3 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	55.6	107.0 915.2	-51.4	Vert
46	837.200M	22.8	+0.0 +6.1 +0.0	+0.3 +22.8 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	55.4	107.0 915.2	-51.6	Vert
47	863.200M	22.3	+0.0 +6.1 +0.0	+0.3 +23.1 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	55.2	107.0 915.2	-51.8	Vert
48	824.400M	22.7	+0.0 +6.1 +0.0	+0.3 +22.7 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	55.1	107.0 902.3	-51.9	Vert
49	849.000M	22.3	+0.0 +6.1 +0.0	+0.3 +23.0 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	55.1	107.0 926.9	-51.9	Vert

50	811.200M	22.1	+0.0 +6.1 +0.0	+0.3 +22.6 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	54.4	107.0 915.2	-52.6	Vert
51	953.000M	19.6	+0.0 +6.1 +0.0	+0.4 +24.2 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	54.0	107.0 926.9	-53.0	Vert
52	874.800M	20.3	+0.0 +6.1 +0.0	+0.3 +23.2 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	53.3	107.0 926.9	-53.7	Vert
53	822.800M	20.5	+0.0 +6.1 +0.0	+0.3 +22.7 +0.0	+1.4 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	52.9	107.0 926.9	-54.1	Vert
54	9269.005M	40.5	+0.0 +0.0 +0.5	+1.5 +0.0 +37.6	+0.0 +0.0 +0.5	+0.0 -34.2 +5.7	+0.0	52.1	107.0 926.9	-54.9	Horiz
55	772.100M	15.9	+0.0 +6.1 +0.0	+0.3 +22.1 +0.0	+1.3 +0.0 +0.0	+1.9 +0.0 +0.0	+0.0	47.6	107.0	-59.4	Vert
56	6406.535M	37.8	+0.0 +0.0 +0.4	+1.1 +0.0 +34.6	+0.0 +0.0 +0.5	+0.0 -34.0 +5.3	+0.0	45.7	107.0 915.2	-61.3	Horiz
57	2134.000M	46.9	+0.0 +0.0 +0.3	+0.6 +0.0 +27.8	+0.0 +0.0 +0.4	+0.0 -34.5 +2.6	+0.0	44.1	107.0	-62.9	Horiz
58	6488.305M	35.3	+0.0 +0.0 +0.5	+1.2 +0.0 +34.5	+0.0 +0.0 +0.5	+0.0 -34.0 +5.4	+0.0	43.4	107.0 926.9	-63.6	Horiz
59	213.900M	23.5	+0.0 +6.1 +0.0	+0.2 +10.2 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0	41.6	107.0	-65.4	Horiz
60	38.700M	17.9	+0.0 +6.0 +0.0	+0.1 +13.5 +0.0	+0.3 +0.0 +0.0	+0.3 +0.0 +0.0	+0.0	38.1	107.0	-68.9	Vert
61	213.900M	19.7	+0.0 +6.1 +0.0	+0.2 +10.2 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0	37.8	107.0	-69.2	Vert
62	68.700M	24.0	+0.0 +6.0 +0.0	+0.1 +6.2 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+0.0	37.2	107.0	-69.8	Vert
63	138.900M	17.1	+0.0 +6.0 +0.0	+0.1 +11.7 +0.0	+0.5 +0.0 +0.0	+0.7 +0.0 +0.0	+0.0	36.1	107.0	-70.9	Vert
64	1.435M	33.7	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +9.6 +0.0	+0.0 +0.0 +0.0	-40.0	3.4	107.0	-103.6	Para
65	28.115M	24.0	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.3 +5.0 +0.0	+0.0 +0.0 +0.0	-40.0	-10.6	107.0	-117.6	Groun
66	24.084M	21.3	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.3 +6.6 +0.0	+0.0 +0.0 +0.0	-40.0	-11.7	107.0	-118.7	Perp

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105334**	Date:	6/7/2021
Test Type:	**Radiated Scan**	Time:	18:54:52
Tested By:	Michael Atkinson	Sequence#:	3
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 8 and 9			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 8 and 9			

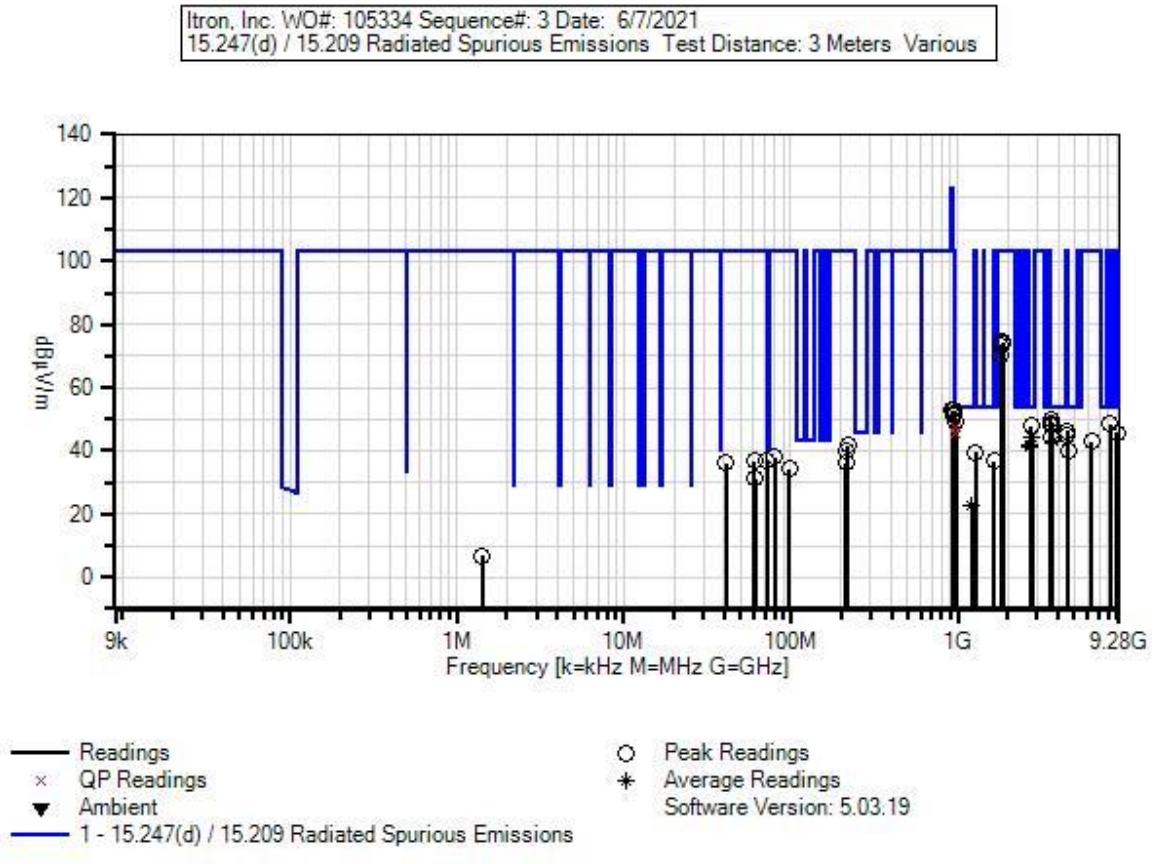
Test Conditions / Notes:

Frequency Range: 9kHz to 10GHz

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit with plastic lid configuration investigated (external antenna without antenna ground plane), 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated above 30MHz, 3 orthogonal axes investigated below 30MHz, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T1	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T2	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T3	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T4	ANP05275	Attenuator	1W	3/26/2020	3/26/2022
T5	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T6	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022
T7	AN03540	Preamp	83017A	5/14/2021	5/14/2023
T8	ANP07505	Cable	CLU40-KMKM-02.00F	1/26/2021	1/26/2023
T9	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T10	AN03170	High Pass Filter	HM1155-11SS	10/23/2019	10/23/2021
T11	ANP06515	Cable	Heliax	7/1/2020	7/1/2022

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	3609.305M	48.6	+0.8 +0.0 +30.3	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0 +0.3	+0.0	50.1	54.0 902.3	-3.9	Vert
2	978.200M	14.6	+0.4 +24.6 +0.0	+1.5 +0.0 +0.0	+2.3 +0.0 +0.0	+6.1 +0.0	+0.0	49.5	54.0 926.9	-4.5	Vert
3	3660.655M	47.0	+0.9 +0.0 +30.5	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0 +0.3	+0.0	48.8	54.0 915.2	-5.2	Vert
4	8120.765M	38.8	+1.3 +0.0 +37.0	+0.0 +0.0 +0.8	+0.0 -35.1 +5.3	+0.0 +0.5	+0.0	48.6	54.0 902.3	-5.4	Horiz
5	3660.755M	46.3	+0.9 +0.0 +30.5	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0 +0.3	+0.0	48.1	54.0 915.2	-5.9	Horiz
6	2745.515M	49.3	+0.7 +0.0 +28.4	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0 +0.3	+0.0	47.9	54.0 915.2	-6.1	Horiz
7	967.206M QP	12.8	+0.4 +24.4 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+6.1 +0.0	+0.0	47.4	54.0 915.2	-6.6	Vert
^	967.200M	14.5	+0.4 +24.4 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+6.1 +0.0	+0.0	49.1	54.0 915.2	-4.9	Vert
9	4511.565M	42.5	+0.9 +0.0 +31.8	+0.0 +0.0 +0.6	+0.0 -33.6 +3.7	+0.0 +0.3	+0.0	46.2	54.0 902.3	-7.8	Horiz
10	9023.065M	34.5	+1.4 +0.0 +37.5	+0.0 +0.0 +0.5	+0.0 -34.7 +5.9	+0.0 +0.5	+0.0	45.6	54.0 902.3	-8.4	Horiz
11	978.890M QP	10.5	+0.4 +24.6 +0.0	+1.5 +0.0 +0.0	+2.3 +0.0 +0.0	+6.1 +0.0	+0.0	45.4	54.0 926.9	-8.6	Vert
12	4511.605M	41.4	+0.9 +0.0 +31.8	+0.0 +0.0 +0.6	+0.0 -33.6 +3.7	+0.0 +0.3	+0.0	45.1	54.0 902.3	-8.9	Vert
13	2780.715M Ave	45.9	+0.7 +0.0 +28.5	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0 +0.3	+0.0	44.6	54.0 926.9	-9.4	Vert
^	2780.790M	56.8	+0.7 +0.0 +28.5	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0 +0.3	+0.0	55.5	54.0 926.9	+1.5	Vert
15	3609.325M	43.0	+0.8 +0.0 +30.3	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0 +0.3	+0.0	44.5	54.0 902.3	-9.5	Horiz

16	3707.724M	41.0	+0.9	+0.0	+0.0	+0.0	+0.0	43.0	54.0	-11.0	Horiz
	Ave		+0.0	+0.0	-33.8	+0.3			926.9		
			+30.6	+0.5	+3.5						
^	3707.742M	52.7	+0.9	+0.0	+0.0	+0.0	+0.0	54.7	54.0	+0.7	Horiz
			+0.0	+0.0	-33.8	+0.3			926.9		
			+30.6	+0.5	+3.5						
18	2707.025M	43.1	+0.7	+0.0	+0.0	+0.0	+0.0	41.6	54.0	-12.4	Horiz
	Ave		+0.0	+0.0	-34.1	+0.3			902.3		
			+28.3	+0.4	+2.9						
^	2707.025M	54.7	+0.7	+0.0	+0.0	+0.0	+0.0	53.2	54.0	-0.8	Horiz
			+0.0	+0.0	-34.1	+0.3			902.3		
			+28.3	+0.4	+2.9						
20	2706.930M	43.0	+0.7	+0.0	+0.0	+0.0	+0.0	41.5	54.0	-12.5	Vert
	Ave		+0.0	+0.0	-34.1	+0.3			902.3		
			+28.3	+0.4	+2.9						
^	2706.930M	54.6	+0.7	+0.0	+0.0	+0.0	+0.0	53.1	54.0	-0.9	Vert
			+0.0	+0.0	-34.1	+0.3			902.3		
			+28.3	+0.4	+2.9						
22	4575.855M	36.4	+0.9	+0.0	+0.0	+0.0	+0.0	40.3	54.0	-13.7	Vert
			+0.0	+0.0	-33.6	+0.3			915.2		
			+31.9	+0.6	+3.8						
23	1853.760M	79.1	+0.5	+0.0	+0.0	+0.0	+0.0	74.5	103.0	-28.5	Vert
			+0.0	+0.0	-34.7	+0.3			926.9		
			+26.5	+0.4	+2.4						
24	1830.445M	78.6	+0.5	+0.0	+0.0	+0.0	+0.0	73.8	103.0	-29.2	Horiz
			+0.0	+0.0	-34.7	+0.3			915.2		
			+26.3	+0.4	+2.4						
25	1804.630M	78.6	+0.5	+0.0	+0.0	+0.0	+0.0	73.6	103.0	-29.4	Vert
			+0.0	+0.0	-34.7	+0.3			902.3		
			+26.1	+0.5	+2.3						
26	1216.000M	29.8	+0.4	+0.0	+0.0	+0.0	+0.0	22.4	54.0	-31.6	Vert
	Ave		+0.0	+0.0	-36.0	+0.2					
			+25.1	+1.0	+1.9						
27	1804.600M	75.3	+0.5	+0.0	+0.0	+0.0	+0.0	70.3	103.0	-32.7	Horiz
			+0.0	+0.0	-34.7	+0.3			902.3		
			+26.1	+0.5	+2.3						
28	928.200M	18.9	+0.4	+1.5	+2.2	+6.1	+0.0	52.9	103.0	-50.1	Vert
			+23.8	+0.0	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0						
29	952.800M	18.4	+0.4	+1.5	+2.2	+6.1	+0.0	52.8	103.0	-50.2	Vert
			+24.2	+0.0	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0						
30	941.200M	17.4	+0.4	+1.5	+2.2	+6.1	+0.0	51.6	103.0	-51.4	Vert
			+24.0	+0.0	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0						
31	954.200M	17.0	+0.4	+1.5	+2.2	+6.1	+0.0	51.4	103.0	-51.6	Vert
			+24.2	+0.0	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0						
32	6316.165M	35.5	+1.0	+0.0	+0.0	+0.0	+0.0	43.0	103.0	-60.0	Horiz
			+0.0	+0.0	-34.0	+0.3			902.3		
			+34.6	+0.5	+5.1						

33	220.190M	23.1	+0.2 +10.7 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+6.1 +0.0	+0.0	41.7	103.0	-61.3	Horiz
34	216.340M	22.0	+0.2 +10.4 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+6.1 +0.0	+0.0	40.3	103.0	-62.7	Horiz
35	1270.000M	46.8	+0.4 +0.0 +25.2	+0.0 +0.0 +0.8	+0.0 -35.8 +1.9	+0.0 +0.2	+0.0	39.5	103.0	-63.5	Vert
36	80.050M	23.8	+0.1 +7.2 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+6.0 +0.0	+0.0	38.0	103.0	-65.0	Vert
37	72.350M	23.7	+0.1 +6.5 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+6.0 +0.0	+0.0	37.2	103.0	-65.8	Vert
38	60.030M	24.4	+0.1 +5.6 +0.0	+0.4 +0.0 +0.0	+0.4 +0.0 +0.0	+6.0 +0.0	+0.0	36.9	103.0	-66.1	Vert
39	1657.000M	42.8	+0.5 +0.0 +25.4	+0.0 +0.0 +0.5	+0.0 -34.9 +2.2	+0.0 +0.3	+0.0	36.8	103.0	-66.2	Vert
40	40.780M	17.0	+0.1 +12.5 +0.0	+0.3 +0.0 +0.0	+0.3 +0.0 +0.0	+6.0 +0.0	+0.0	36.2	103.0	-66.8	Vert
41	212.490M	18.2	+0.2 +10.1 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+6.1 +0.0	+0.0	36.2	103.0	-66.8	Vert
42	97.760M	16.9	+0.1 +10.1 +0.0	+0.5 +0.0 +0.0	+0.6 +0.0 +0.0	+6.0 +0.0	+0.0	34.2	103.0	-68.8	Vert
43	61.570M	18.6	+0.1 +5.7 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+6.0 +0.0	+0.0	31.3	103.0	-71.7	Horiz
44	1.415M	37.0	+0.0 +0.0 +0.0	+0.1 +9.6 +0.0	+0.0 +0.0 +0.0	+0.0 +0.0	-40.0	6.7	103.0	-96.3	Para
45	27.124M	21.3	+0.1 +0.0 +0.0	+0.3 +5.5 +0.0	+0.0 +0.0 +0.0	+0.0 +0.0	-40.0	-12.8	103.0	-115.8	Para

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105334**	Date:	6/7/2021
Test Type:	**Radiated Scan**	Time:	19:09:40
Tested By:	Michael Atkinson	Sequence#:	4
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 10 and 11			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 10 and 11			

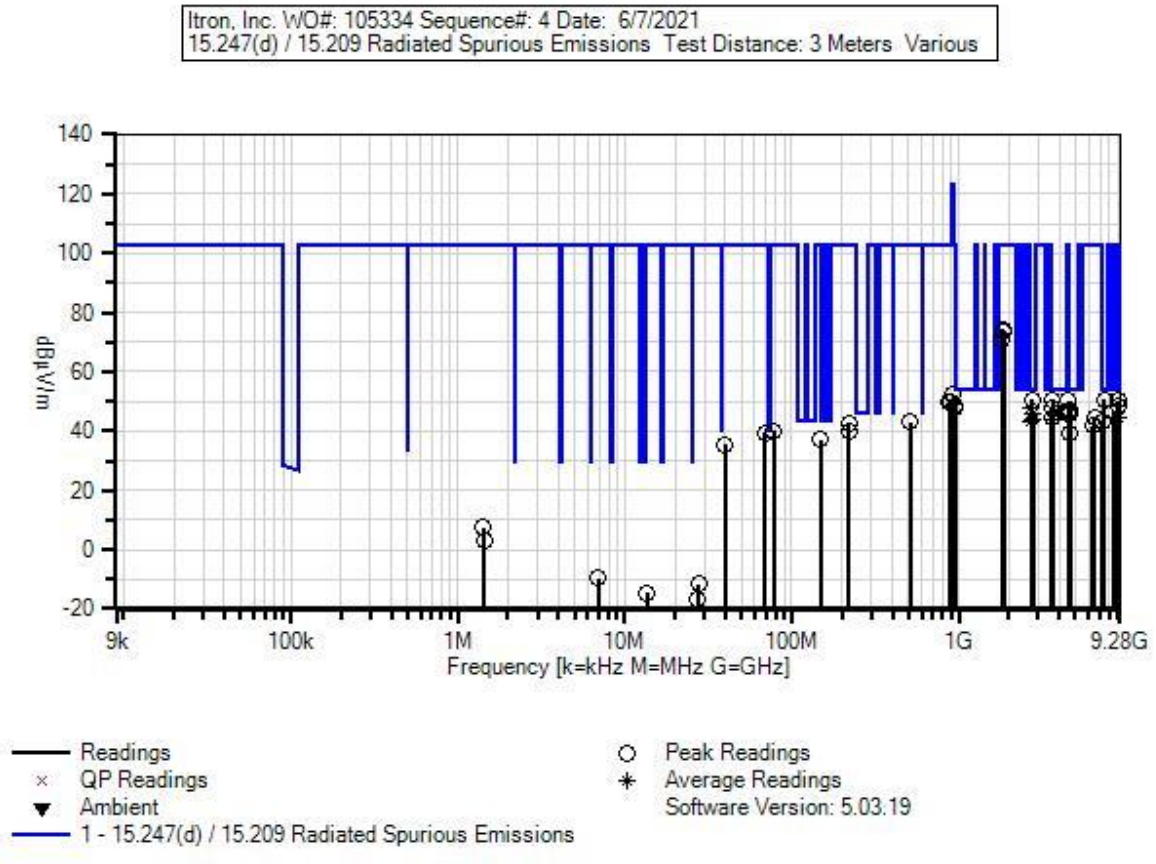
Test Conditions / Notes:

Frequency Range: 9kHz to 10GHz

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit with metal lid configuration investigated (external antenna with ground plane), 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated above 30MHz, 3 orthogonal axes investigated below 30MHz, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	ANP05275	Attenuator	1W	3/26/2020	3/26/2022
T6	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T7	AN00052	Loop Antenna	6502	5/4/2020	5/4/2022
T8	AN03540	Preamp	83017A	5/14/2021	5/14/2023
T9	ANP07505	Cable	CLU40-KMKM-02.00F	1/26/2021	1/26/2023
T10	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T11	AN03170	High Pass Filter	HM1155-11SS	10/23/2019	10/23/2021
T12	ANP06515	Cable	Heliax	7/1/2020	7/1/2022

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8 T12	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2745.735M	52.0	+0.0 +0.0 +0.3	+0.7 +0.0 +28.4	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0	50.6	54.0 915.2	-3.4	Horiz
2	7415.135M	40.4	+0.0 +0.0 +0.5	+1.5 +0.0 +37.1	+0.0 +0.0 +0.6	+0.0 -34.9 +5.3	+0.0	50.5	54.0 926.9	-3.5	Vert
3	4511.600M	46.7	+0.0 +0.0 +0.3	+0.9 +0.0 +31.8	+0.0 +0.0 +0.6	+0.0 -33.6 +3.7	+0.0	50.4	54.0 902.3	-3.6	Horiz
4	2745.575M	51.7	+0.0 +0.0 +0.3	+0.7 +0.0 +28.4	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0	50.3	54.0 915.2	-3.7	Vert
5	3660.775M	48.5	+0.0 +0.0 +0.3	+0.9 +0.0 +30.5	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0	50.3	54.0 915.2	-3.7	Vert
6	9023.100M	39.1	+0.0 +0.0 +0.5	+1.4 +0.0 +37.5	+0.0 +0.0 +0.5	+0.0 -34.7 +5.9	+0.0	50.2	54.0 902.3	-3.8	Horiz
7	9022.820M	37.5	+0.0 +0.0 +0.5	+1.4 +0.0 +37.5	+0.0 +0.0 +0.5	+0.0 -34.7 +5.9	+0.0	48.6	54.0 902.3	-5.4	Vert
8	3660.890M	45.8	+0.0 +0.0 +0.3	+0.9 +0.0 +30.5	+0.0 +0.0 +0.5	+0.0 -33.8 +3.4	+0.0	47.6	54.0 915.2	-6.4	Horiz
9	2706.970M Ave	44.2	+0.0 +0.0 +0.0	+0.7 +0.0 +0.0	+2.6 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	47.5	54.0 902.3	-6.5	Horiz
^	2706.970M	54.1	+0.0 +0.0 +0.3	+0.7 +0.0 +28.3	+0.0 +0.0 +0.4	+0.0 -34.1 +2.9	+0.0	52.6	54.0 902.3	-1.4	Horiz
11	4634.495M	43.1	+0.0 +0.0 +0.3	+0.9 +0.0 +32.1	+0.0 +0.0 +0.6	+0.0 -33.6 +3.8	+0.0	47.2	54.0 926.9	-6.8	Horiz
12	3707.600M Ave	45.8	+0.0 +0.0 +0.3	+0.9 +0.0 +30.6	+0.0 +0.0 +0.5	+0.0 -33.8 +3.5	+0.0	46.7	54.0 926.9	-7.3	Vert
^	3707.565M	55.9	+0.0 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.0	56.8	54.0 926.9	+2.8	Vert
14	8342.035M	36.1	+0.0 +0.0 +0.4	+1.7 +0.0 +37.0	+0.0 +0.0 +0.8	+0.0 -34.9 +5.3	+0.0	46.4	54.0 926.9	-7.6	Vert
15	4575.975M	42.5	+0.0 +0.0 +0.3	+0.9 +0.0 +31.9	+0.0 +0.0 +0.6	+0.0 -33.6 +3.8	+0.0	46.4	54.0 915.2	-7.6	Vert

16	4511.630M	42.4	+0.0	+0.9	+0.0	+0.0	+0.0	46.1	54.0	-7.9	Vert
			+0.0	+0.0	+0.0	-33.6			902.3		
			+0.3	+31.8	+0.6	+3.7					
17	3707.675M	42.1	+0.0	+0.9	+3.1	+0.0	+0.0	46.1	54.0	-7.9	Horiz
	Ave		+0.0	+0.0	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
^	3707.675M	51.3	+0.0	+0.9	+0.0	+0.0	+0.0	53.3	54.0	-0.7	Horiz
			+0.0	+0.0	+0.0	-33.8			926.9		
			+0.3	+30.6	+0.5	+3.5					
19	4576.090M	42.1	+0.0	+0.9	+0.0	+0.0	+0.0	46.0	54.0	-8.0	Horiz
			+0.0	+0.0	+0.0	-33.6			915.2		
			+0.3	+31.9	+0.6	+3.8					
20	2780.775M	42.5	+0.0	+0.7	+2.6	+0.0	+0.0	45.8	54.0	-8.2	Horiz
	Ave		+0.0	+0.0	+0.0	+0.0			926.9		
			+0.0	+0.0	+0.0	+0.0					
^	2780.775M	53.7	+0.0	+0.7	+0.0	+0.0	+0.0	52.4	54.0	-1.6	Horiz
			+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
22	9152.065M	39.5	+0.0	+1.5	+3.8	+0.0	+0.0	44.8	54.0	-9.2	Vert
	Ave		+0.0	+0.0	+0.0	+0.0			915.2		
			+0.0	+0.0	+0.0	+0.0					
^	9152.065M	39.8	+0.0	+1.5	+0.0	+0.0	+0.0	51.2	54.0	-2.8	Vert
			+0.0	+0.0	+0.0	-34.4			915.2		
			+0.5	+37.5	+0.5	+5.8					
24	3609.140M	44.0	+0.0	+0.8	+0.0	+0.0	+0.0	44.8	54.0	-9.2	Horiz
			+0.0	+0.0	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
25	2780.700M	45.4	+0.0	+0.7	+0.0	+0.0	+0.0	44.1	54.0	-9.9	Vert
	Ave		+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
^	2780.710M	55.4	+0.0	+0.7	+0.0	+0.0	+0.0	54.1	54.0	+0.1	Vert
			+0.0	+0.0	+0.0	-34.1			926.9		
			+0.3	+28.5	+0.4	+2.9					
27	3609.330M	40.2	+0.0	+0.8	+3.1	+0.0	+0.0	44.1	54.0	-9.9	Vert
	Ave		+0.0	+0.0	+0.0	+0.0			902.3		
			+0.0	+0.0	+0.0	+0.0					
^	3609.330M	49.9	+0.0	+0.8	+0.0	+0.0	+0.0	51.4	54.0	-2.6	Vert
			+0.0	+0.0	+0.0	-33.8			902.3		
			+0.3	+30.3	+0.5	+3.4					
29	2706.940M	45.0	+0.0	+0.7	+0.0	+0.0	+0.0	43.5	54.0	-10.5	Vert
	Ave		+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
^	2706.940M	55.3	+0.0	+0.7	+0.0	+0.0	+0.0	53.8	54.0	-0.2	Vert
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
^	2706.920M	51.4	+0.0	+0.7	+0.0	+0.0	+0.0	49.9	54.0	-4.1	Vert
			+0.0	+0.0	+0.0	-34.1			902.3		
			+0.3	+28.3	+0.4	+2.9					
32	4634.465M	35.4	+0.0	+0.9	+0.0	+0.0	+0.0	39.5	54.0	-14.5	Vert
			+0.0	+0.0	+0.0	-33.6			926.9		
			+0.3	+32.1	+0.6	+3.8					

33	1830.360M	79.2	+0.0 +0.0 +0.3	+0.5 +0.0 +26.3	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	74.4	103.0 915.2	-28.6	Vert
34	1830.365M	78.5	+0.0 +0.0 +0.3	+0.5 +0.0 +26.3	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	73.7	103.0 915.2	-29.3	Horiz
35	1853.890M	78.1	+0.0 +0.0 +0.3	+0.5 +0.0 +26.5	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	73.5	103.0 926.9	-29.5	Horiz
36	1853.810M	77.8	+0.0 +0.0 +0.3	+0.5 +0.0 +26.5	+0.0 +0.0 +0.4	+0.0 -34.7 +2.4	+0.0	73.2	103.0 926.9	-29.8	Vert
37	1804.690M	76.2	+0.0 +0.0 +0.3	+0.5 +0.0 +26.1	+0.0 +0.0 +0.5	+0.0 -34.7 +2.3	+0.0	71.2	103.0 902.3	-31.8	Vert
38	1804.670M	76.1	+0.0 +0.0 +0.3	+0.5 +0.0 +26.1	+0.0 +0.0 +0.5	+0.0 -34.7 +2.3	+0.0	71.1	103.0 902.3	-31.9	Horiz
39	928.200M	18.4	+0.0 +6.1 +0.0	+0.4 +23.8 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	52.4	103.0 902.3	-50.6	Vert
40	900.800M	16.4	+0.0 +6.1 +0.0	+0.3 +23.4 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	49.7	103.0 926.9	-53.3	Vert
41	876.400M	16.5	+0.0 +6.1 +0.0	+0.3 +23.2 +0.0	+1.4 +0.0 +0.0	+2.0 +0.0 +0.0	+0.0	49.5	103.0 902.3	-53.5	Vert
42	889.200M	16.3	+0.0 +6.1 +0.0	+0.3 +23.3 +0.0	+1.4 +0.0 +0.0	+2.1 +0.0 +0.0	+0.0	49.5	103.0 915.2	-53.5	Vert
43	941.200M	14.4	+0.0 +6.1 +0.0	+0.4 +24.0 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	48.6	103.0 915.2	-54.4	Vert
44	951.200M	13.5	+0.0 +6.1 +0.0	+0.4 +24.2 +0.0	+1.5 +0.0 +0.0	+2.2 +0.0 +0.0	+0.0	47.9	103.0 926.9	-55.1	Vert
45	6488.265M	36.3	+0.0 +0.0 +0.5	+1.2 +0.0 +34.5	+0.0 +0.0 +0.5	+0.0 -34.0 +5.4	+0.0	44.4	103.0 926.9	-58.6	Vert
46	7218.530M	34.6	+0.0 +0.0 +0.5	+1.1 +0.0 +36.5	+0.0 +0.0 +0.4	+0.0 -34.9 +5.1	+0.0	43.3	103.0 902.3	-59.7	Vert
47	509.710M	15.9	+0.0 +6.1 +0.0	+0.3 +18.2 +0.0	+1.1 +0.0 +0.0	+1.5 +0.0 +0.0	+0.0	43.1	103.0	-59.9	Vert
48	219.420M	24.2	+0.0 +6.1 +0.0	+0.2 +10.6 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0	42.7	103.0	-60.3	Horiz
49	6316.200M	34.2	+0.0 +0.0 +0.3	+1.0 +0.0 +34.6	+0.0 +0.0 +0.5	+0.0 -34.0 +5.1	+0.0	41.7	103.0 902.3	-61.3	Horiz

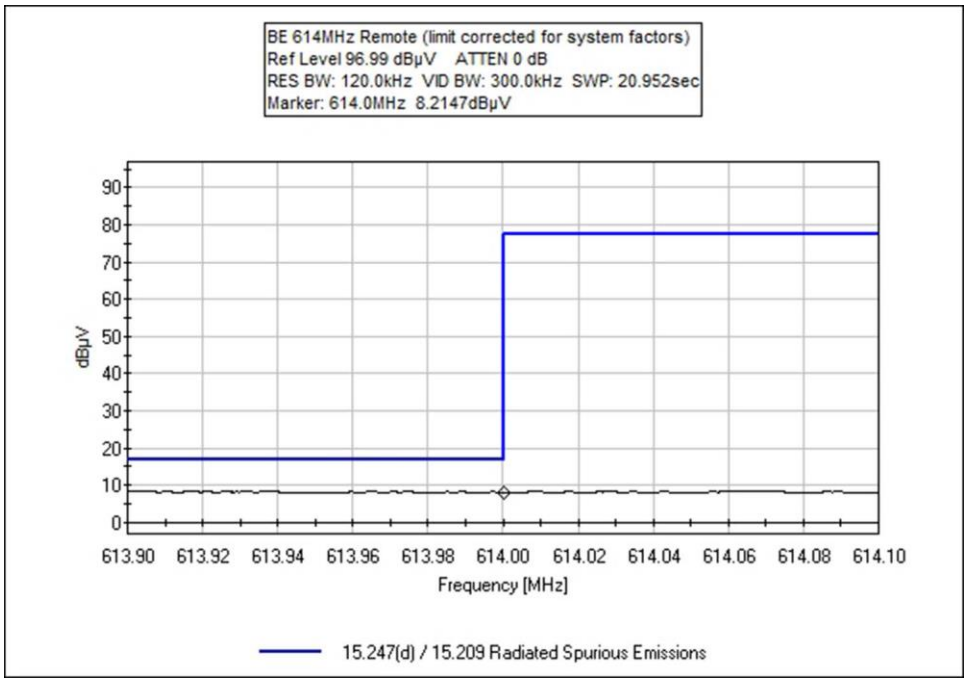
50	77.740M	26.0	+0.0 +6.0 +0.0	+0.1 +7.0 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+0.0	40.0	103.0	-63.0	Vert
51	218.650M	21.3	+0.0 +6.1 +0.0	+0.2 +10.5 +0.0	+0.7 +0.0 +0.0	+0.9 +0.0 +0.0	+0.0	39.7	103.0	-63.3	Vert
52	69.270M	26.0	+0.0 +6.0 +0.0	+0.1 +6.3 +0.0	+0.4 +0.0 +0.0	+0.5 +0.0 +0.0	+0.0	39.3	103.0	-63.7	Vert
53	147.810M	18.1	+0.0 +6.0 +0.0	+0.2 +11.4 +0.0	+0.6 +0.0 +0.0	+0.7 +0.0 +0.0	+0.0	37.0	103.0	-66.0	Vert
54	40.010M	16.0	+0.0 +6.0 +0.0	+0.1 +12.9 +0.0	+0.3 +0.0 +0.0	+0.3 +0.0 +0.0	+0.0	35.6	103.0	-67.4	Vert
55	1.415M	37.9	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +9.6 +0.0	+0.0 +0.0 +0.0	-40.0	7.6	103.0	-95.4	Perp
56	1.444M	33.6	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +9.6 +0.0	+0.0 +0.0 +0.0	-40.0	3.3	103.0	-99.7	Para
57	6.906M	21.0	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +9.3 +0.0	+0.0 +0.0 +0.0	-40.0	-9.6	103.0	-112.6	Para
58	27.792M	22.8	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.3 +5.2 +0.0	+0.0 +0.0 +0.0	-40.0	-11.6	103.0	-114.6	Groun
59	13.674M	16.0	+0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.2 +9.3 +0.0	+0.0 +0.0 +0.0	-40.0	-14.5	103.0	-117.5	Perp
60	27.211M	17.2	+0.0 +0.0 +0.0	+0.1 +0.0 +0.0	+0.3 +5.4 +0.0	+0.0 +0.0 +0.0	-40.0	-17.0	103.0	-120.0	Para

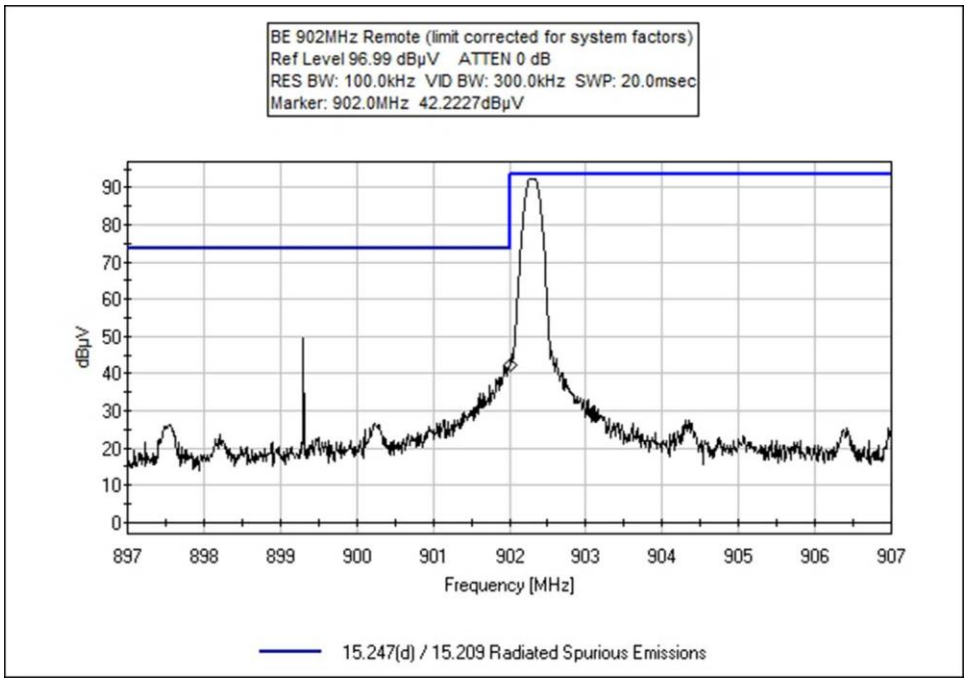
Band Edge

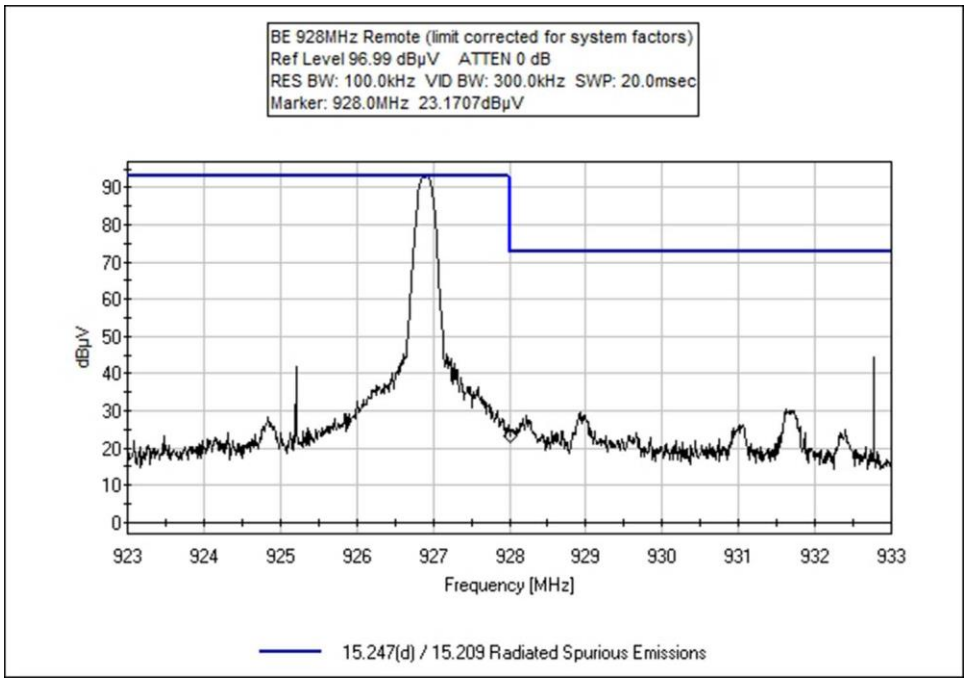
Band Edge Summary					
Operating Mode: Single Channel (Low and High)					
Frequency (MHz)	**Modulation**	**Ant. Type / Configuration**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
614	100kbps GFSK	Internal Antenna - Remote	37.5	<46	Pass
902	100kbps GFSK	Internal Antenna - Remote	75.5	<107	Pass
928	100kbps GFSK	Internal Antenna - Remote	57.2	< 107	Pass
960	100kbps GFSK	Internal Antenna - Remote	42.8	<54	Pass
614	100kbps GFSK	Internal Antenna - Pit	37.5	<46	Pass
902	100kbps GFSK	Internal Antenna - Pit	75.3	<107	Pass
928	100kbps GFSK	Internal Antenna - Pit	57.0	< 107	Pass
960	100kbps GFSK	Internal Antenna - Pit	42.8	<54	Pass
614	100kbps GFSK	External Antenna – Pit on Plastic Lid	37.6	<46	Pass
902	100kbps GFSK	External Antenna – Pit on Plastic Lid	71.4	<103	Pass
928	100kbps GFSK	External Antenna – Pit on Plastic Lid	56.6	< 103	Pass
960	100kbps GFSK	External Antenna – Pit on Plastic Lid	42.8	<54	Pass
614	100kbps GFSK	External Antenna – Pit on Metal Lid	37.5	<46	Pass
902	100kbps GFSK	External Antenna – Pit on Metal Lid	73.3	<103	Pass
928	100kbps GFSK	External Antenna – Pit on Metal Lid	56.6	< 103	Pass
960	100kbps GFSK	External Antenna – Pit on Metal Lid	42.8	<54	Pass

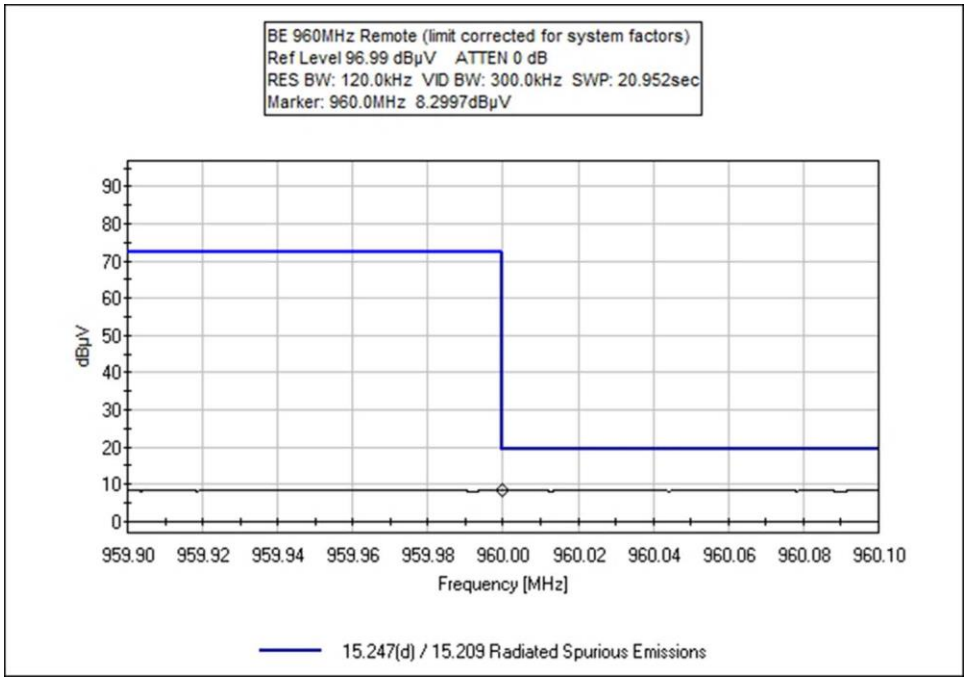
Band Edge Summary					
Operating Mode: Hopping					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
614	100kbps GFSK Hopping	Internal Antenna - Remote	37.6	<46	Pass
902	100kbps GFSK Hopping	Internal Antenna - Remote	70.8	<107	Pass
928	100kbps GFSK Hopping	Internal Antenna - Remote	58.8	< 107	Pass
960	100kbps GFSK Hopping	Internal Antenna - Remote	43.0	<54	Pass
614	100kbps GFSK	Internal Antenna - Pit	37.5	<46	Pass
902	100kbps GFSK	Internal Antenna - Pit	77.7	<107	Pass
928	100kbps GFSK	Internal Antenna - Pit	60.8	< 107	Pass
960	100kbps GFSK	Internal Antenna - Pit	42.9	<54	Pass
614	100kbps GFSK	External Antenna – Pit on Plastic Lid	37.6	<46	Pass
902	100kbps GFSK	External Antenna – Pit on Plastic Lid	71.7	<103	Pass
928	100kbps GFSK	External Antenna – Pit on Plastic Lid	56.9	< 103	Pass
960	100kbps GFSK	External Antenna – Pit on Plastic Lid	42.7	<54	Pass
614	100kbps GFSK	External Antenna – Pit on Metal Lid	37.5	<46	Pass
902	100kbps GFSK	External Antenna – Pit on Metal Lid	68.2	<103	Pass
928	100kbps GFSK	External Antenna – Pit on Metal Lid	54.6	< 103	Pass
960	100kbps GFSK	External Antenna – Pit on Metal Lid	42.8	<54	Pass

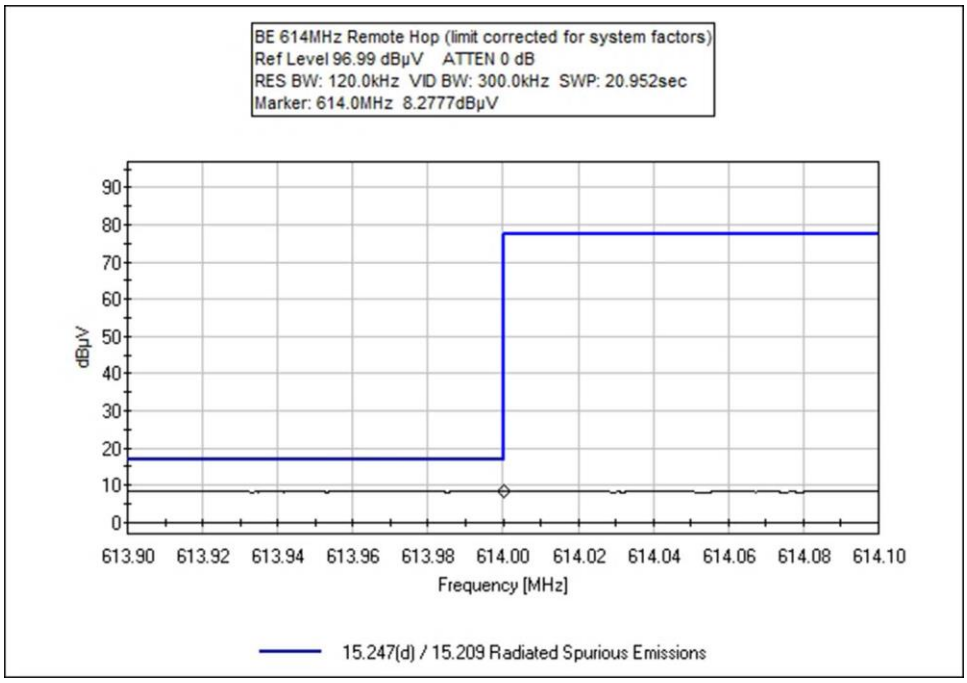
Configurations 2 and 3 Band Edge Plots

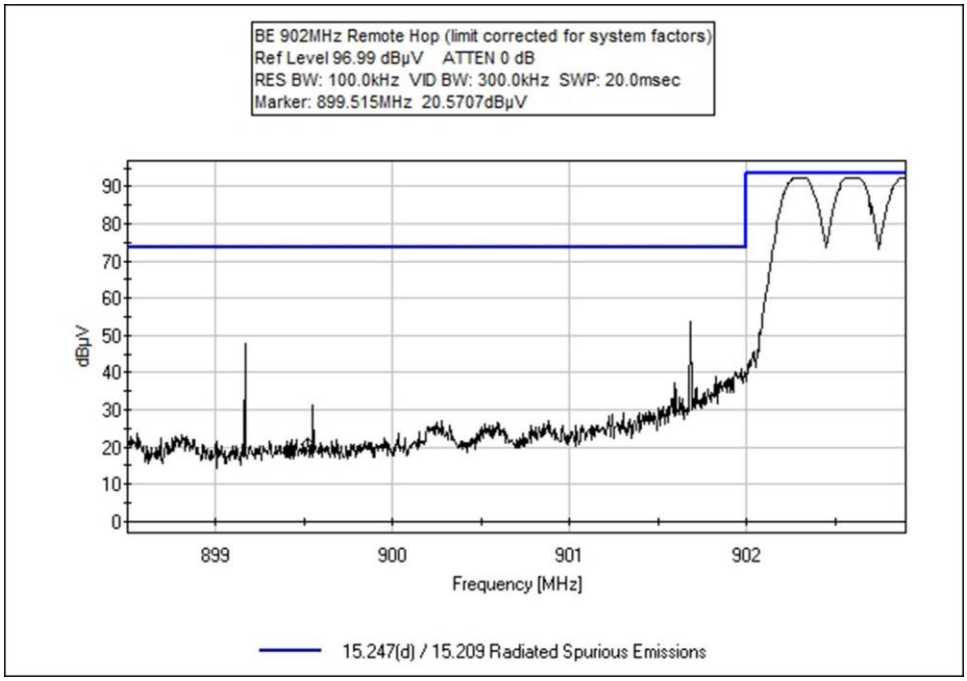


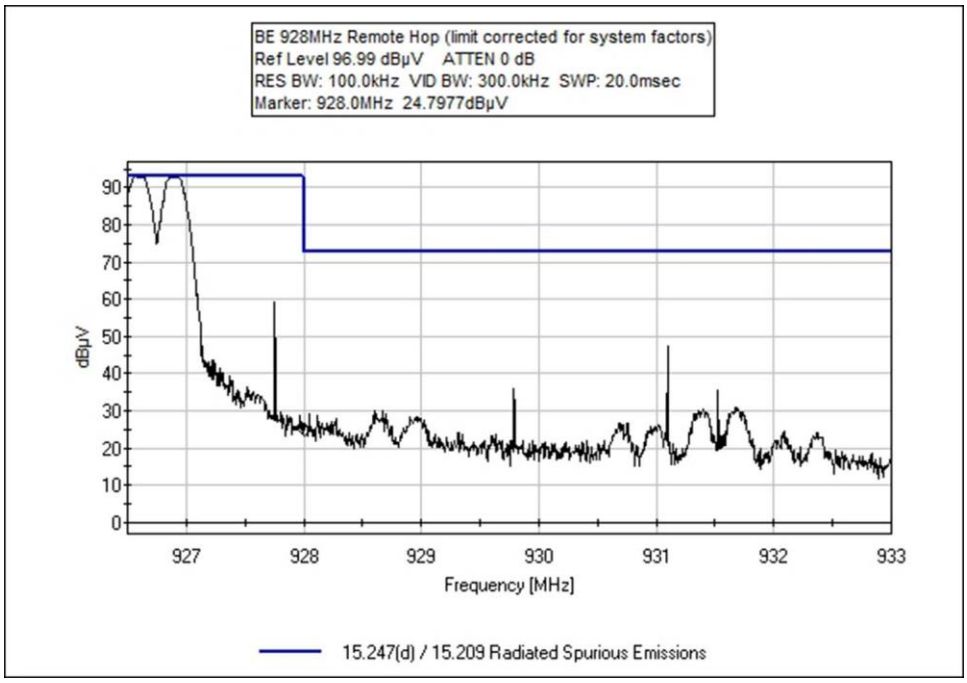


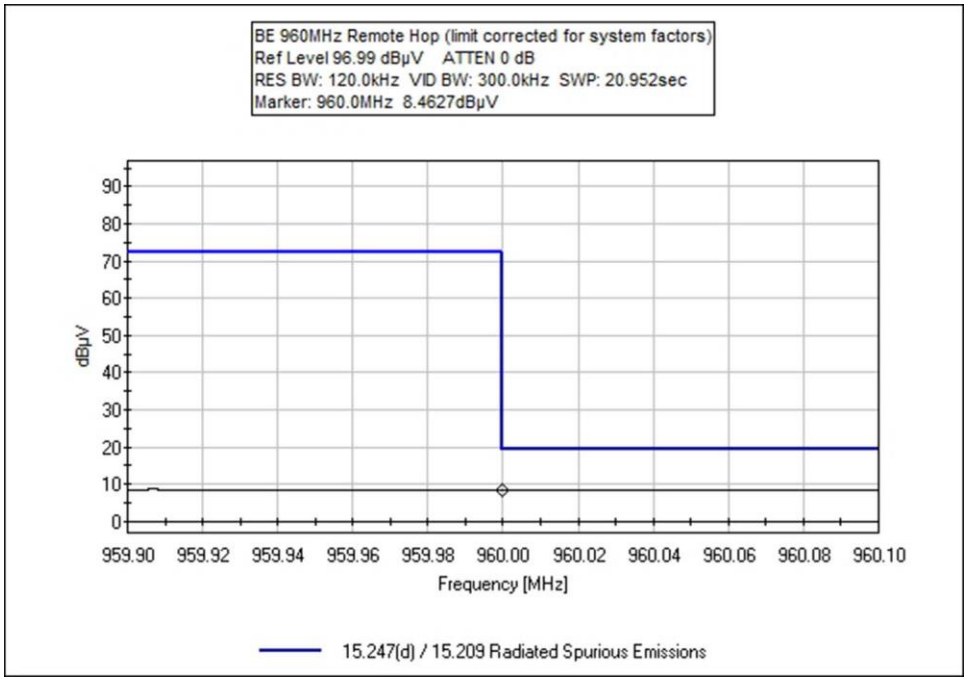

BE 928MHz Remote (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 23.1707dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
923
924
925
926
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 960MHz Remote (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.2997dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

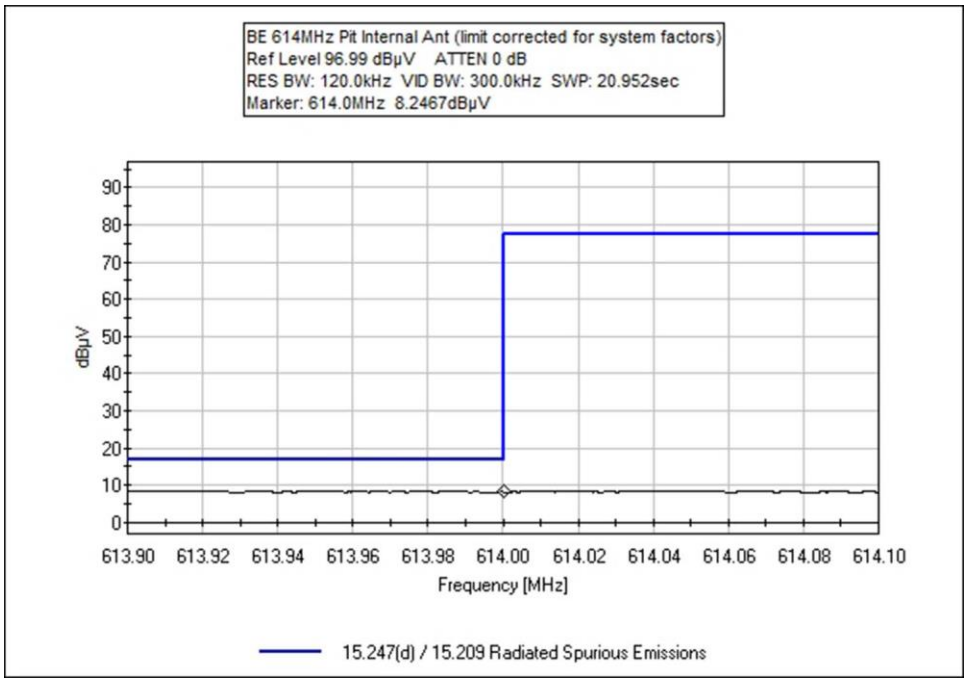

BE 614MHz Remote Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 614.0MHz 8.2777dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
613.90 613.92 613.94 613.96 613.98 614.00 614.02 614.04 614.06 614.08 614.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

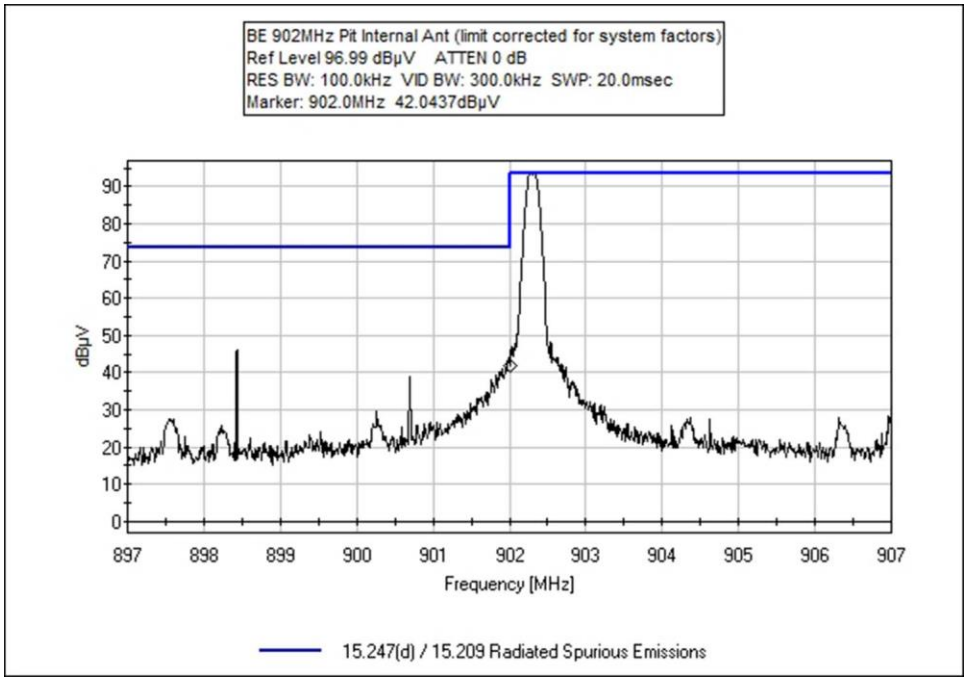

BE 902MHz Remote Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 899.515MHz 20.5707dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
899 900 901 902
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

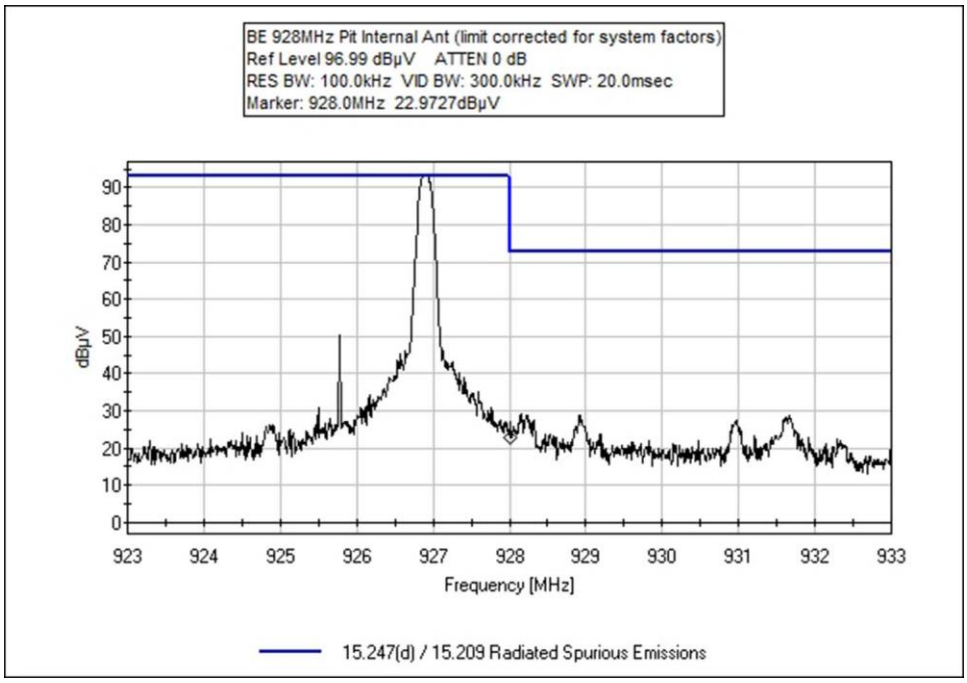

BE 928MHz Remote Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 24.7977dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

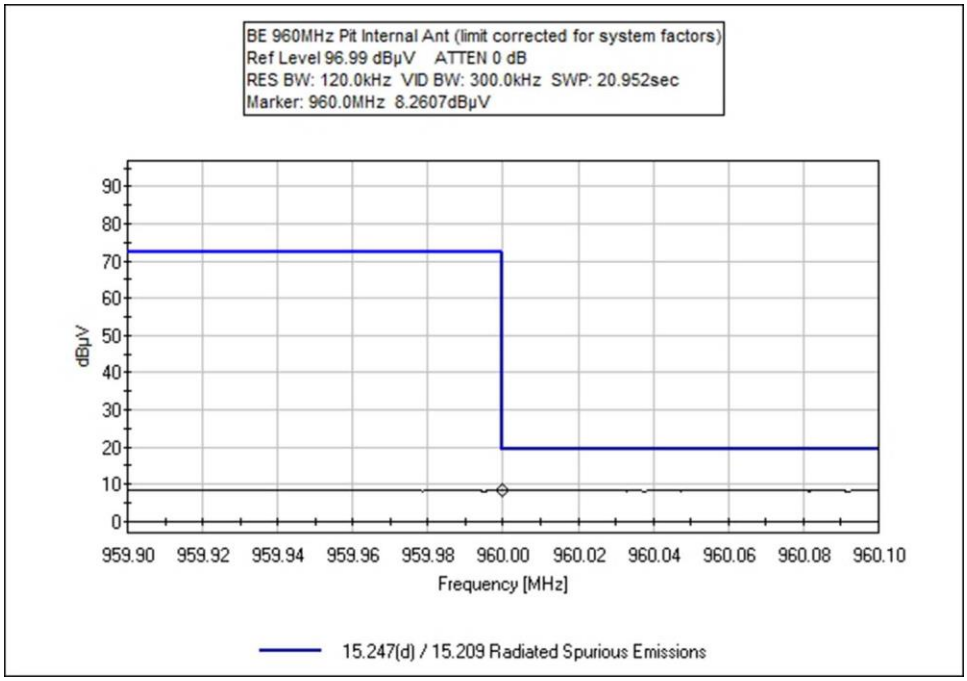

BE 960MHz Remote Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.4627dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

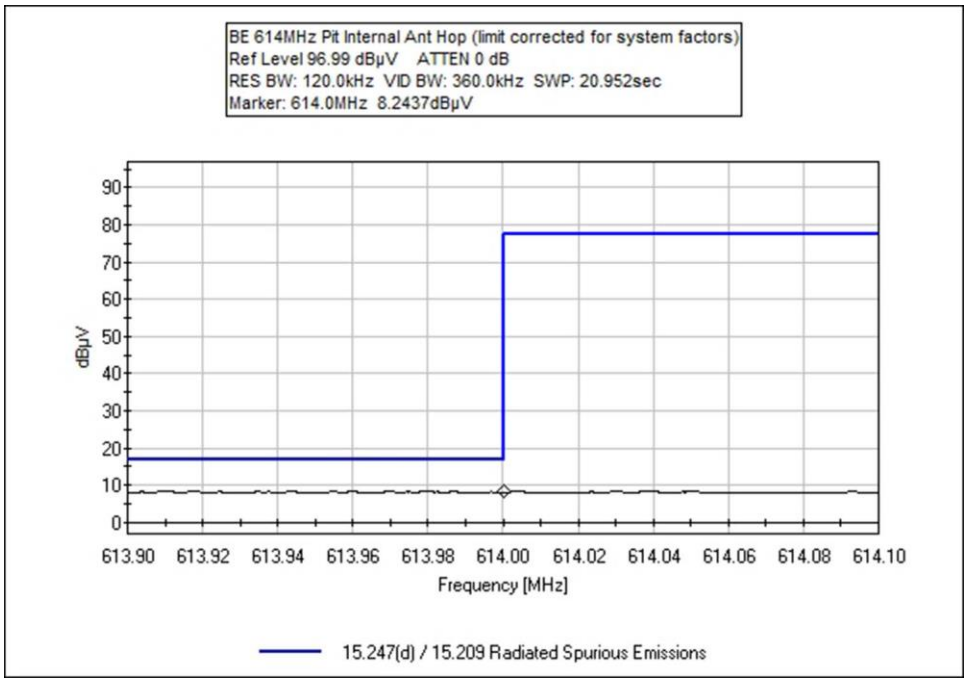
Configurations 4, 5, 6, and 7 Band Edge Plots

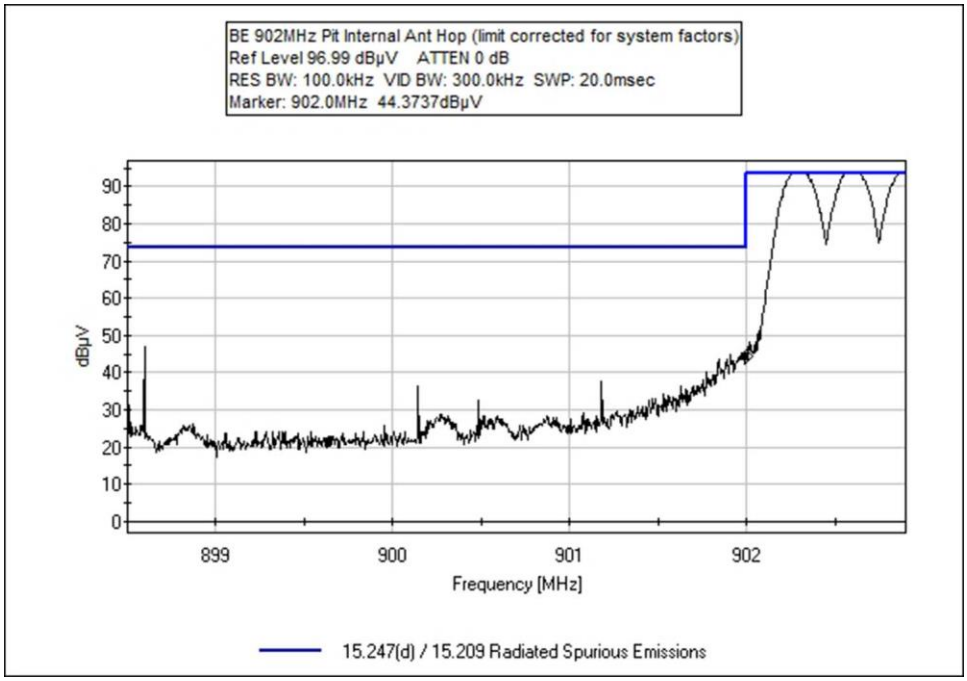


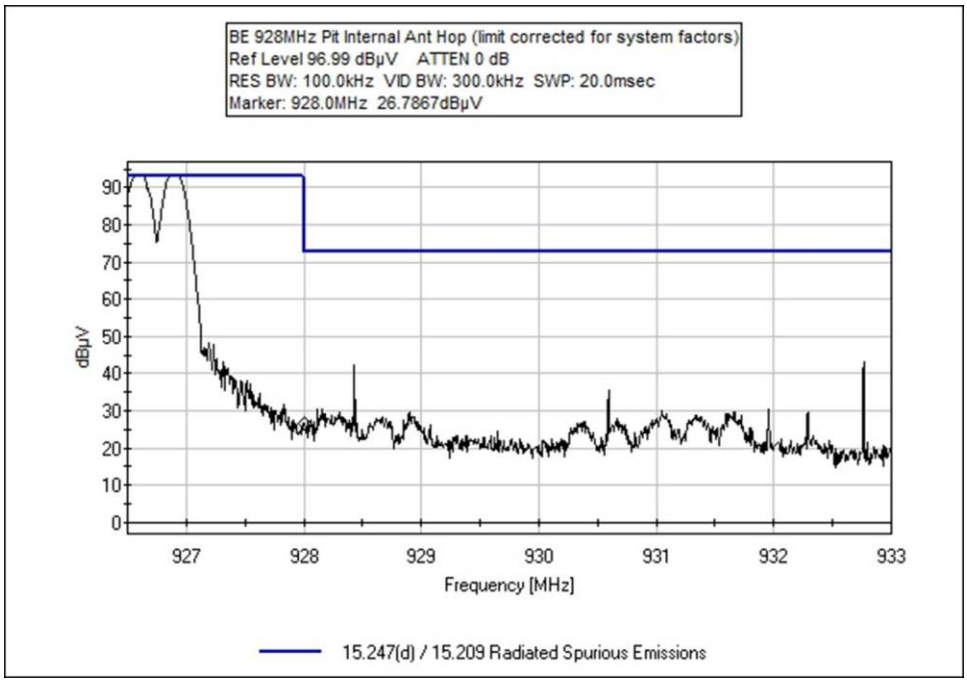


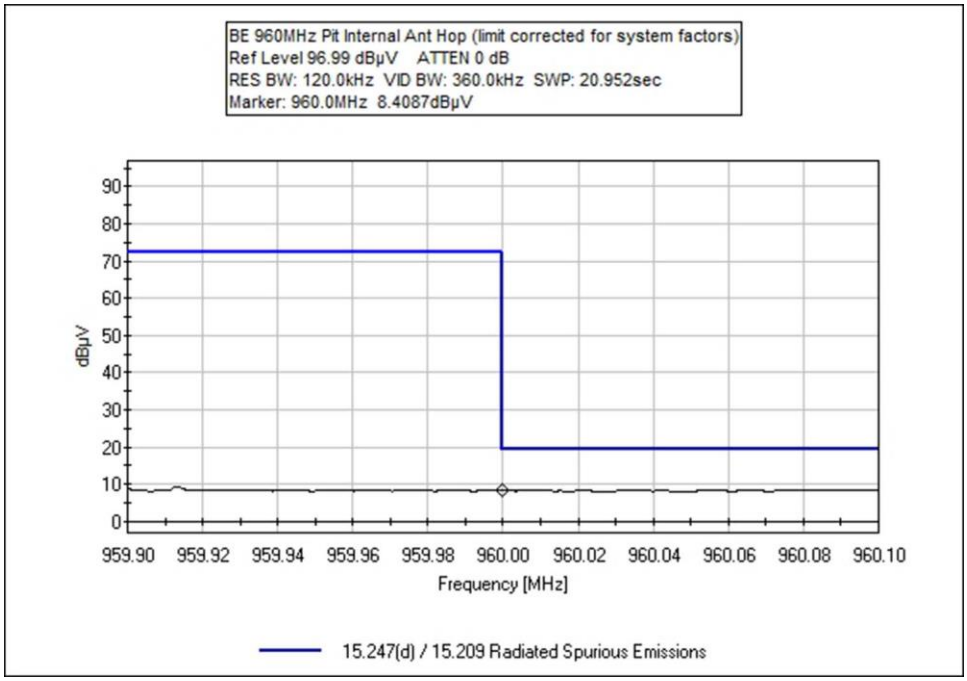

BE 928MHz Pit Internal Ant (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 22.9727dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 960MHz Pit Internal Ant (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.2607dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

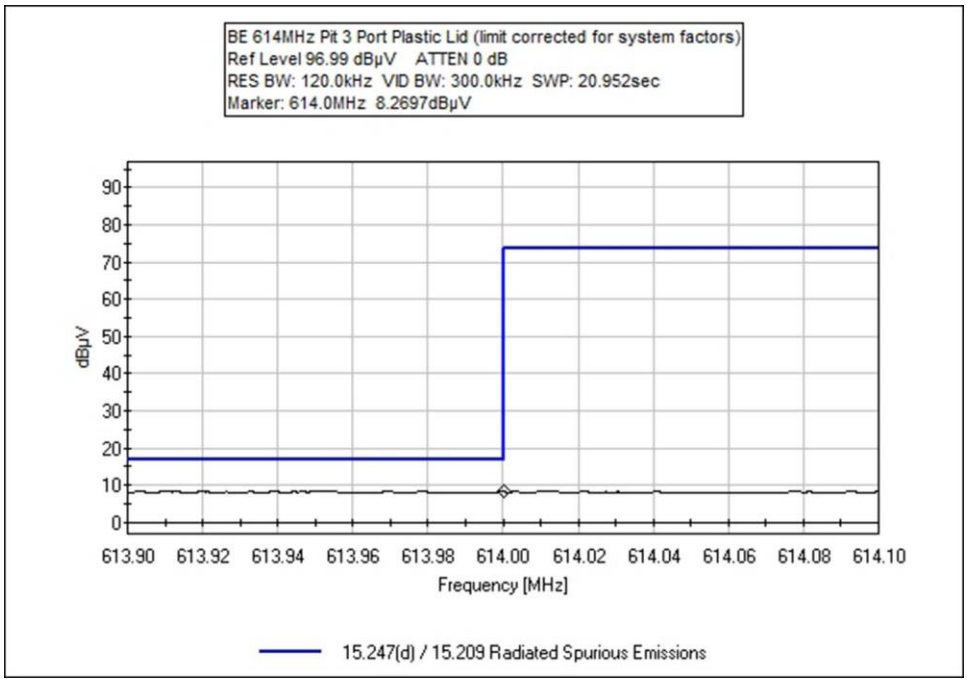

BE 614MHz Pit Internal Ant Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.952sec
Marker: 614.0MHz 8.2437dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
613.90 613.92 613.94 613.96 613.98 614.00 614.02 614.04 614.06 614.08 614.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

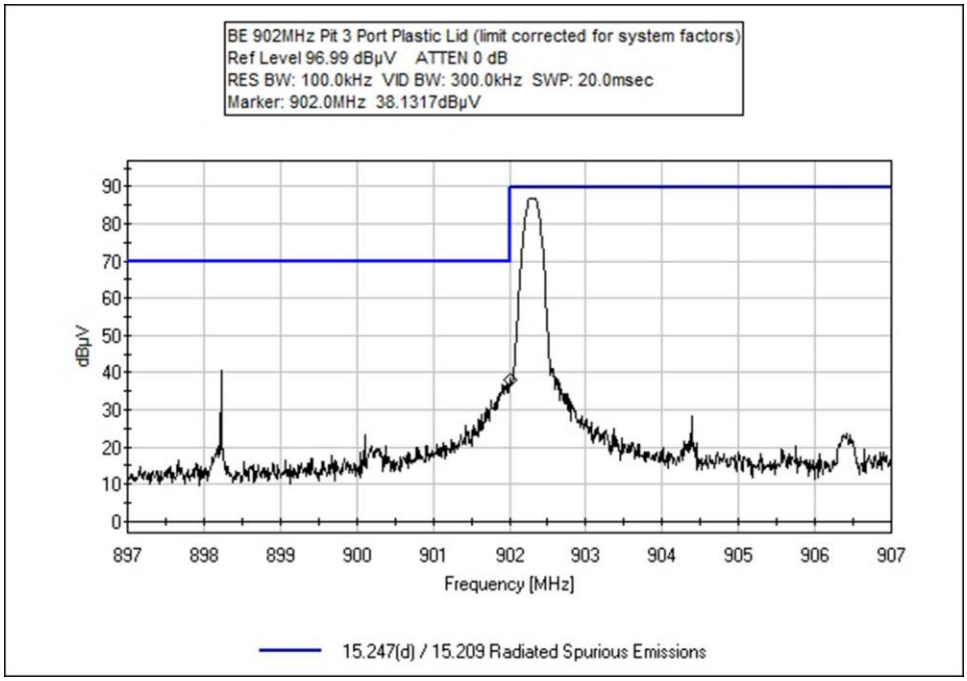

BE 902MHz Pit Internal Ant Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 44.3737dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
899 900 901 902
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

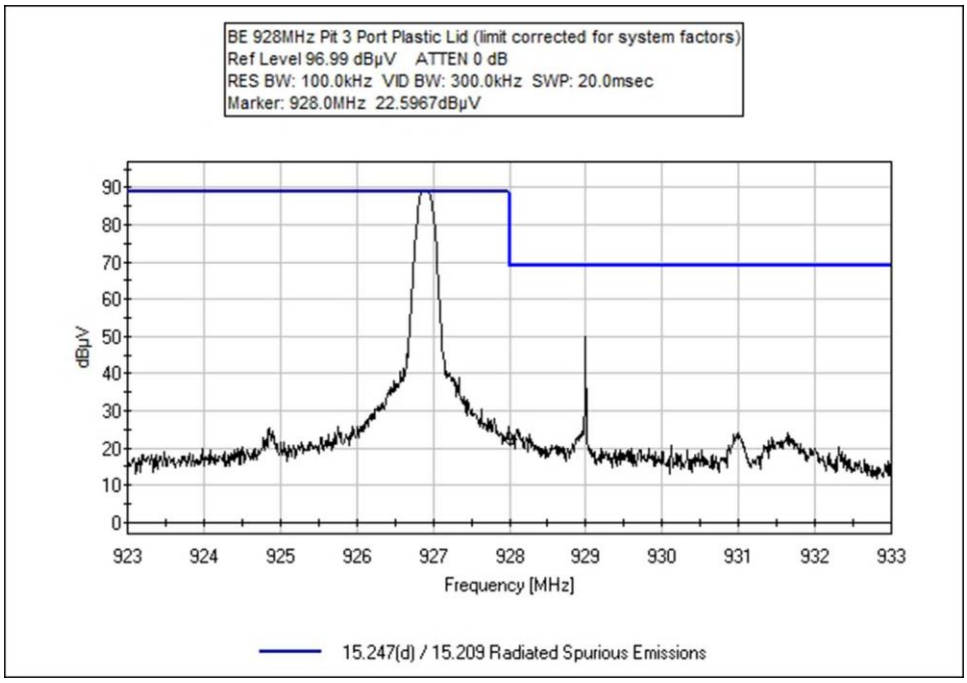

BE 928MHz Pit Internal Ant Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 26.7867dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

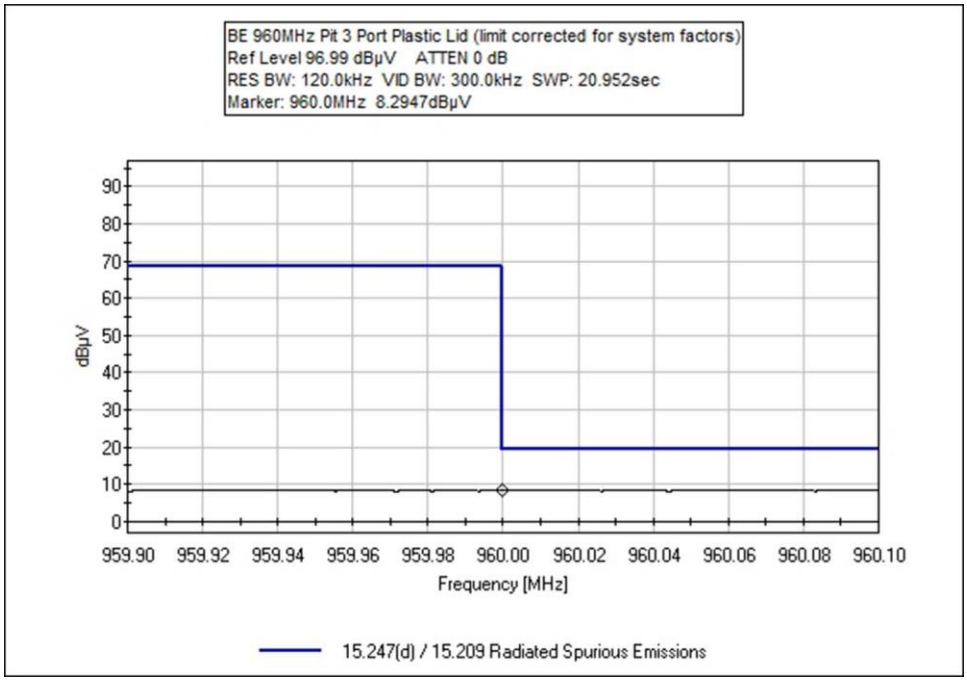

BE 960MHz Pit Internal Ant Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 360.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.4087dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

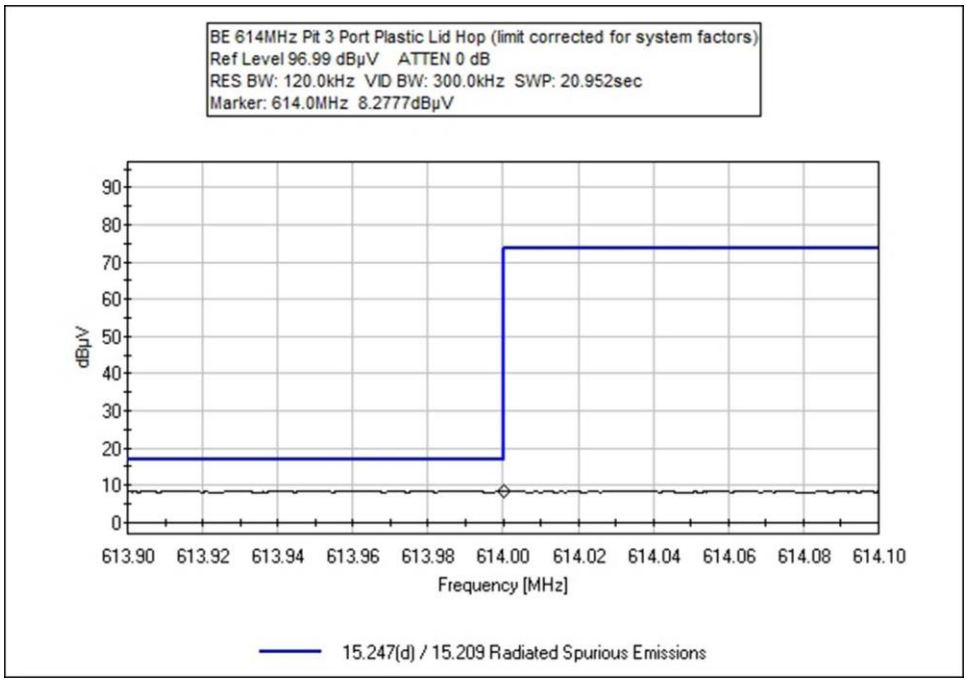
Configurations 8 and 9 Band Edge Plots

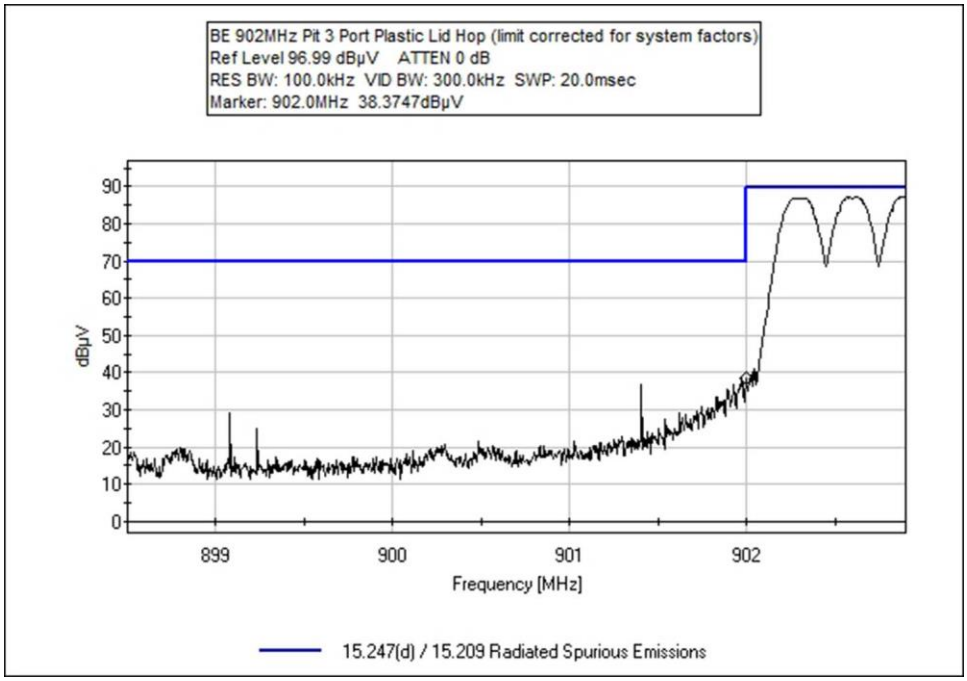


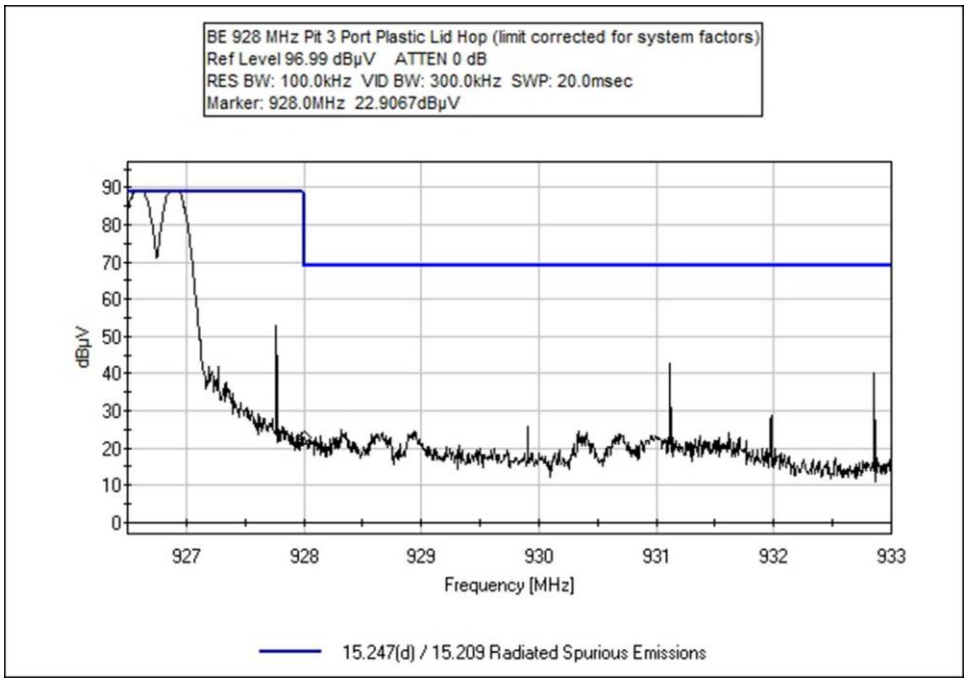


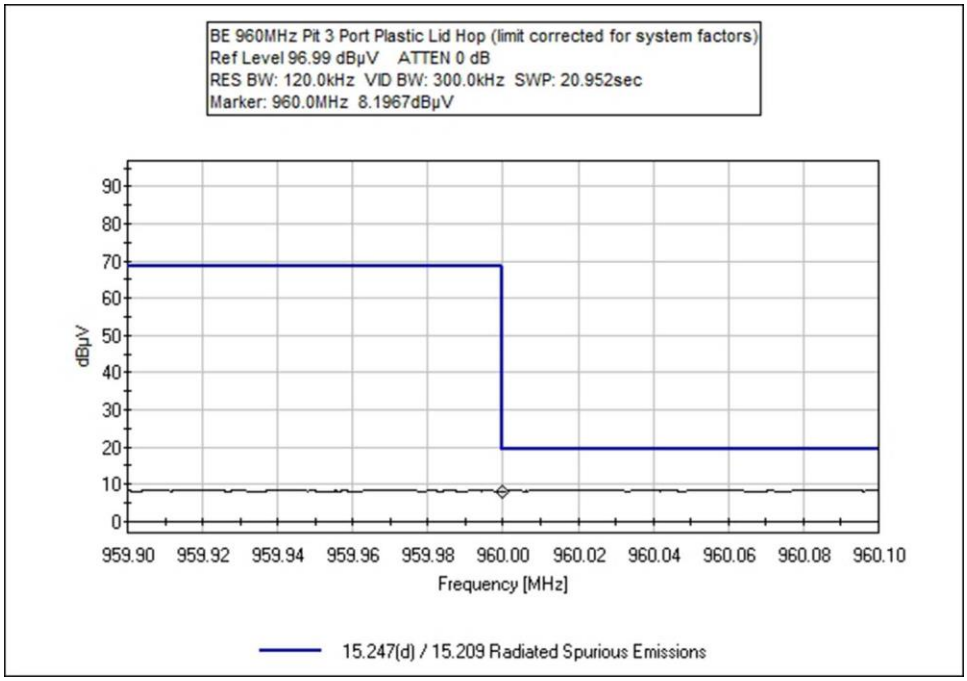

BE 928MHz Pit 3 Port Plastic Lid (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 22.5967dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
923
924
925
926
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 960MHz Pit 3 Port Plastic Lid (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.2947dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

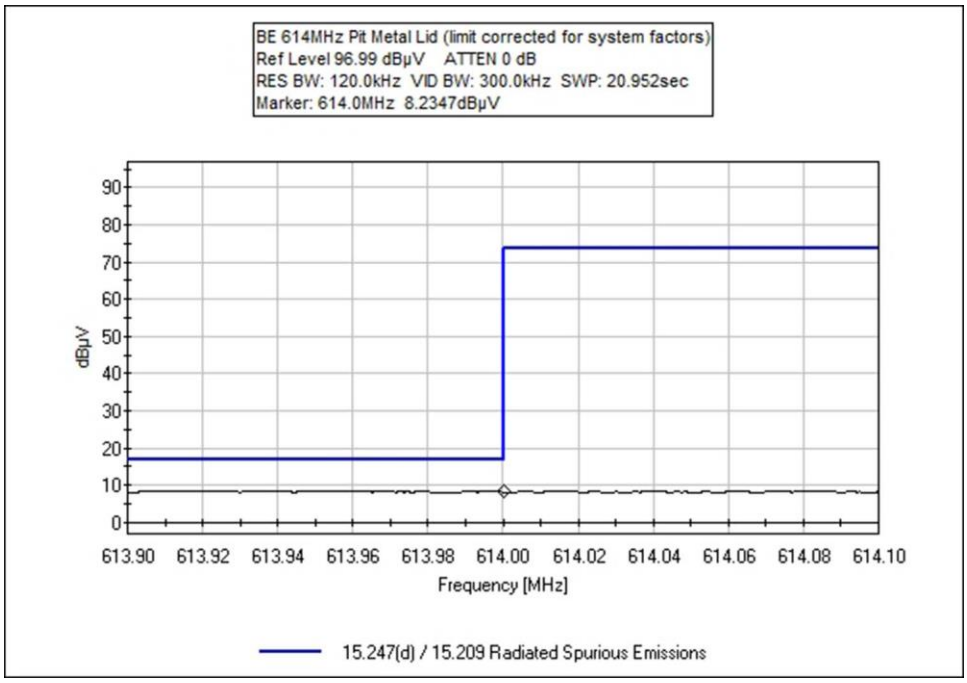

BE 614MHz Pit 3 Port Plastic Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 614.0MHz 8.2777dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
613.90 613.92 613.94 613.96 613.98 614.00 614.02 614.04 614.06 614.08 614.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

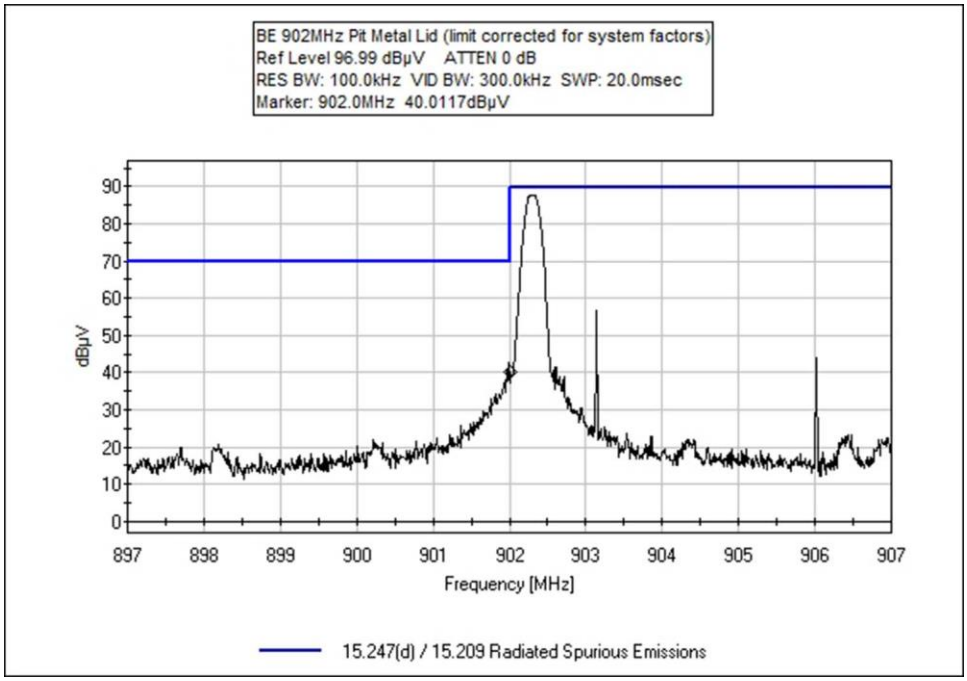

BE 902MHz Pit 3 Port Plastic Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 38.3747dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
899 900 901 902
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

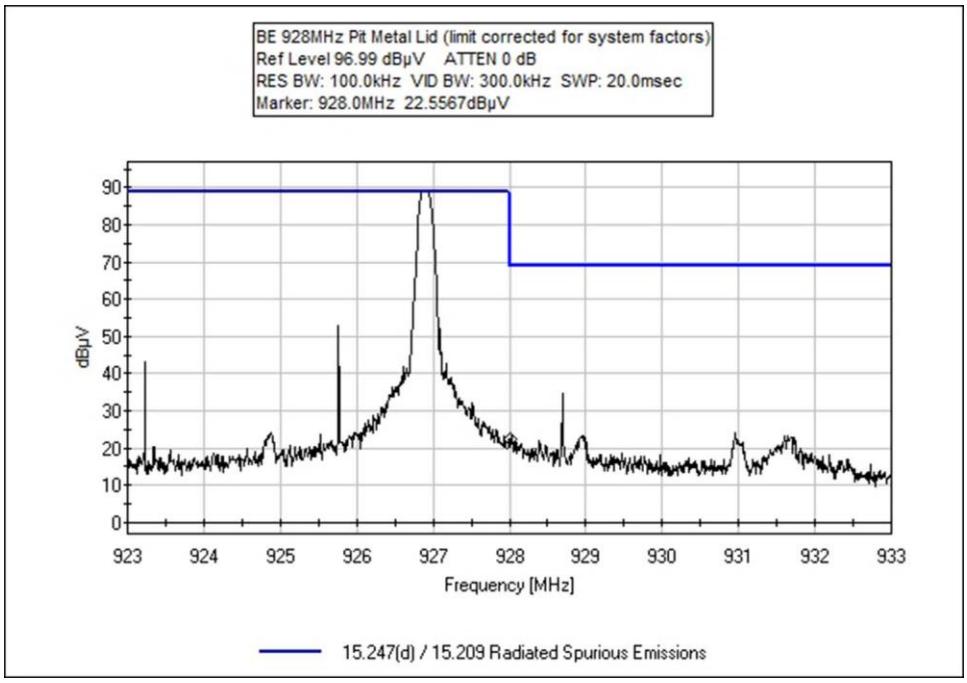

BE 928 MHz Pit 3 Port Plastic Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 22.9067dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

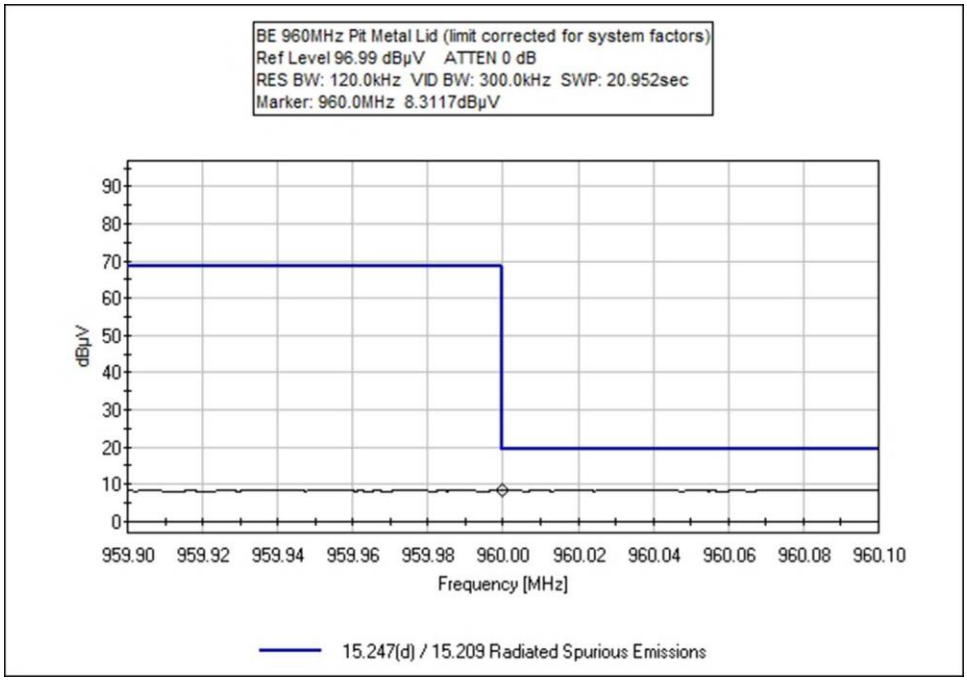

BE 960MHz Pit 3 Port Plastic Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.1967dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

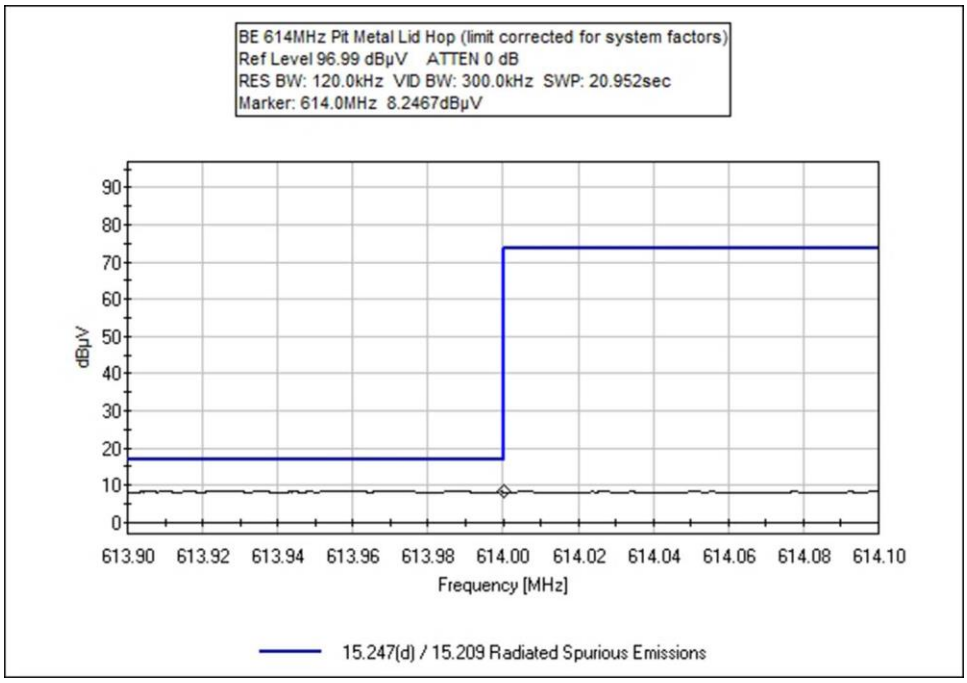
Configurations 10 and 11 Band Edge Plots

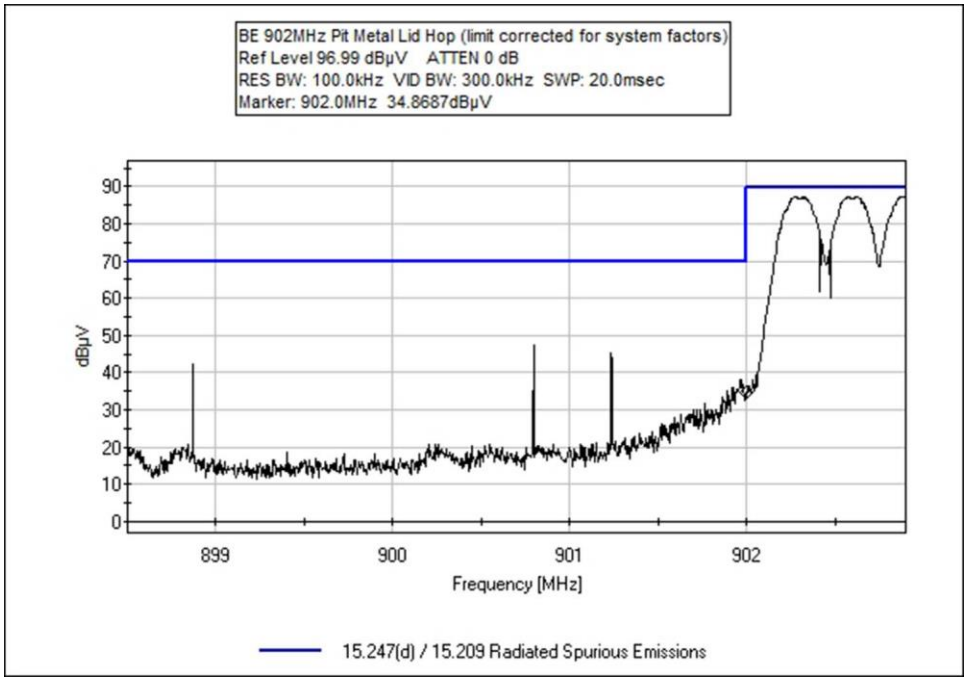


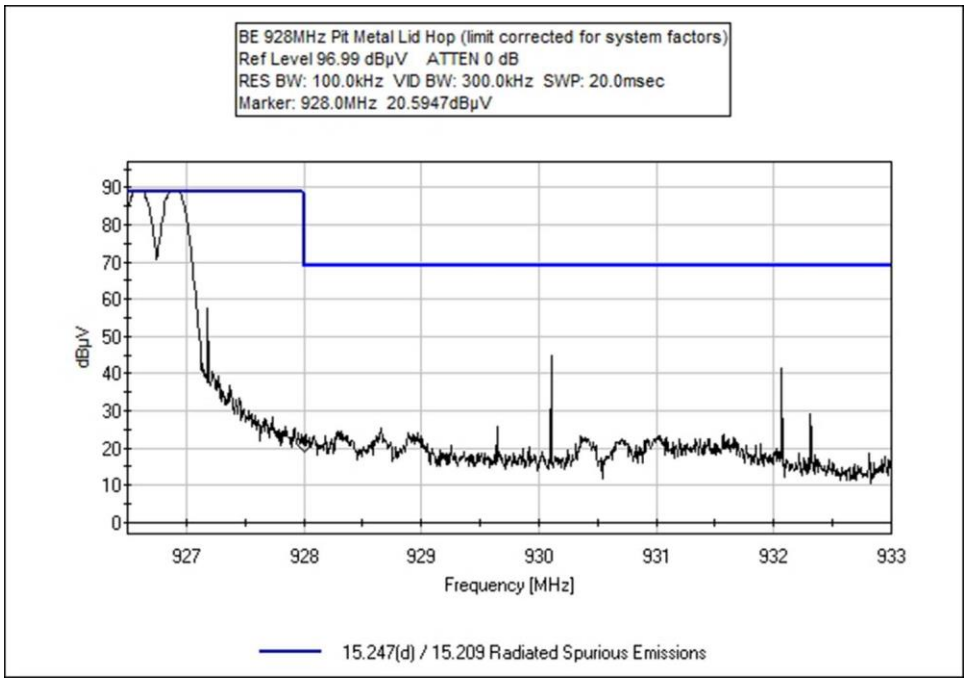


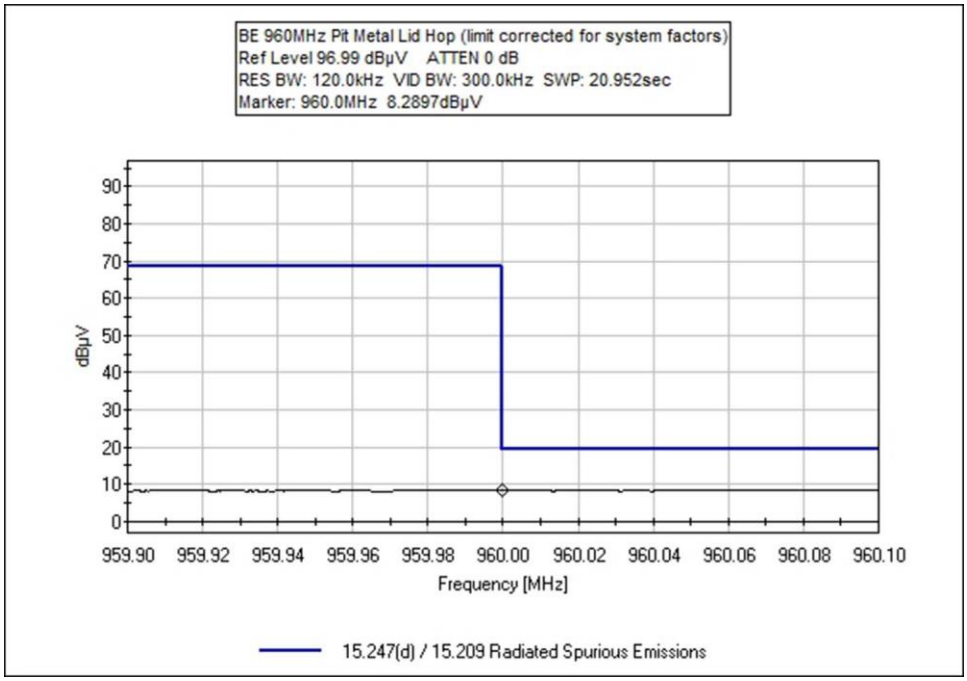

BE 928MHz Pit Metal Lid (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 22.5567dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
923
924
925
926
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 960MHz Pit Metal Lid (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.3117dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 614MHz Pit Metal Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 614.0MHz 8.2467dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
613.90 613.92 613.94 613.96 613.98 614.00 614.02 614.04 614.06 614.08 614.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 902MHz Pit Metal Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 34.8687dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
899 900 901 902
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 928MHz Pit Metal Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 20.5947dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


BE 960MHz Pit Metal Lid Hop (limit corrected for system factors)
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 120.0kHz VID BW: 300.0kHz SWP: 20.952sec
Marker: 960.0MHz 8.2897dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
959.90
959.92
959.94
959.96
959.98
960.00
960.02
960.04
960.06
960.08
960.10
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105540**	Date:	6/3/2021
Test Type:	**Radiated Scan**	Time:	20:30:25
Tested By:	Michael Atkinson	Sequence#:	1
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2 and 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2 and 3			

Test Conditions / Notes:

Frequency: Band Edge

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T6	ANP05275	Attenuator	1W	3/26/2020	3/26/2022

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	614.000M	8.3	+0.0	+0.3	+1.2	+1.7	+0.0	37.6	46.0	-8.4	Vert
	QP		+20.0	+6.1					hop		
2	614.000M	8.2	+0.0	+0.3	+1.2	+1.7	+0.0	37.5	46.0	-8.5	Vert
	QP		+20.0	+6.1							
3	960.000M	8.5	+0.0	+0.4	+1.5	+2.2	+0.0	43.0	54.0	-11.0	Vert
	QP		+24.3	+6.1					hop		
4	960.000M	8.3	+0.0	+0.4	+1.5	+2.2	+0.0	42.8	54.0	-11.2	Vert
	QP		+24.3	+6.1							
5	902.000M	42.2	+0.0	+0.3	+1.4	+2.1	+0.0	75.5	107.0	-31.5	Vert
			+23.4	+6.1							
6	902.000M	37.5	+0.0	+0.3	+1.4	+2.1	+0.0	70.8	107.0	-36.2	Vert
			+23.4	+6.1					hop		
7	928.000M	24.8	+0.0	+0.4	+1.5	+2.2	+0.0	58.8	107.0	-48.2	Vert
			+23.8	+6.1					hop		
8	928.000M	23.2	+0.0	+0.4	+1.5	+2.2	+0.0	57.2	107.0	-49.8	Vert
			+23.8	+6.1							

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105540**	Date:	6/3/2021
Test Type:	**Radiated Scan**	Time:	21:45:58
Tested By:	Michael Atkinson	Sequence#:	2
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4, 5, 6, and 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4, 5, 6, and 7			

Test Conditions / Notes:

Frequency: Band Edge

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit internal antenna investigated, 4 battery and 2 battery versions of EUT investigated, 2 and 3 port version of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T6	ANP05275	Attenuator	1W	3/26/2020	3/26/2022

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	614.000M	8.2	+0.0	+0.3	+1.2	+1.7	+0.0	37.5	46.0	-8.5	Vert
	QP		+20.0	+6.1					hop		
2	614.000M	8.2	+0.0	+0.3	+1.2	+1.7	+0.0	37.5	46.0	-8.5	Vert
	QP		+20.0	+6.1							
3	960.000M	8.4	+0.0	+0.4	+1.5	+2.2	+0.0	42.9	54.0	-11.1	Vert
	QP		+24.3	+6.1					hop		
4	960.000M	8.3	+0.0	+0.4	+1.5	+2.2	+0.0	42.8	54.0	-11.2	Vert
	QP		+24.3	+6.1							
5	902.000M	44.4	+0.0	+0.3	+1.4	+2.1	+0.0	77.7	107.0	-29.3	Vert
			+23.4	+6.1					hop		
6	902.000M	42.0	+0.0	+0.3	+1.4	+2.1	+0.0	75.3	107.0	-31.7	Vert
			+23.4	+6.1							
7	928.000M	26.8	+0.0	+0.4	+1.5	+2.2	+0.0	60.8	107.0	-46.2	Vert
			+23.8	+6.1					hop		
8	928.000M	23.0	+0.0	+0.4	+1.5	+2.2	+0.0	57.0	107.0	-50.0	Vert
			+23.8	+6.1							

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105540**	Date:	6/3/2021
Test Type:	**Radiated Scan**	Time:	21:25:38
Tested By:	Michael Atkinson	Sequence#:	3
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 8 and 9			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 8 and 9			

Test Conditions / Notes:

Frequency: Band Edge

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit with plastic lid configuration investigated (external antenna without antenna ground plane), 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T6	ANP05275	Attenuator	1W	3/26/2020	3/26/2022

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	614.000M QP	8.3	+0.0 +20.0	+0.3 +6.1	+1.2	+1.7	+0.0	37.6	46.0 hop	-8.4	Vert
2	614.000M QP	8.3	+0.0 +20.0	+0.3 +6.1	+1.2	+1.7	+0.0	37.6	46.0	-8.4	Vert
3	960.000M QP	8.3	+0.0 +24.3	+0.4 +6.1	+1.5	+2.2	+0.0	42.8	54.0	-11.2	Vert
4	960.000M QP	8.2	+0.0 +24.3	+0.4 +6.1	+1.5	+2.2	+0.0	42.7	54.0 hop	-11.3	Vert
5	902.000M	38.4	+0.0 +23.4	+0.3 +6.1	+1.4	+2.1	+0.0	71.7	103.0 hop	-31.3	Vert
6	902.000M	38.1	+0.0 +23.4	+0.3 +6.1	+1.4	+2.1	+0.0	71.4	103.0	-31.6	Vert
7	928.000M	22.9	+0.0 +23.8	+0.4 +6.1	+1.5	+2.2	+0.0	56.9	103.0 hop	-46.1	Vert
8	928.000M	22.6	+0.0 +23.8	+0.4 +6.1	+1.5	+2.2	+0.0	56.6	103.0	-46.4	Vert

Test Location:	CKC Laboratories • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • 1-800-500-4EMC (4362)		
Customer:	**Itron, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**105540**	Date:	6/3/2021
Test Type:	**Radiated Scan**	Time:	21:06:12
Tested By:	Michael Atkinson	Sequence#:	4
Software:	EMITest 5.03.19		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 10 and 11			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 10 and 11			

Test Conditions / Notes:

Frequency: Band Edge

Setup: EUT is connected to support laptop via serial to USB adapter, the laptop is running Command Line Interface Tool software to turn on Tx. Pit unit with metal lid configuration investigated (external antenna with antenna ground plane), 4 battery and 2 battery versions of EUT investigated, worst case reported. Horizontal and vertical antenna polarities investigated, worst case reported. Fresh battery installed.

Test Environment Conditions:
Temperature: 23°C to 26°C
Relative Humidity: 40% to 45%

Test Method: ANSI C63.10 (2013)

Test Equipment:

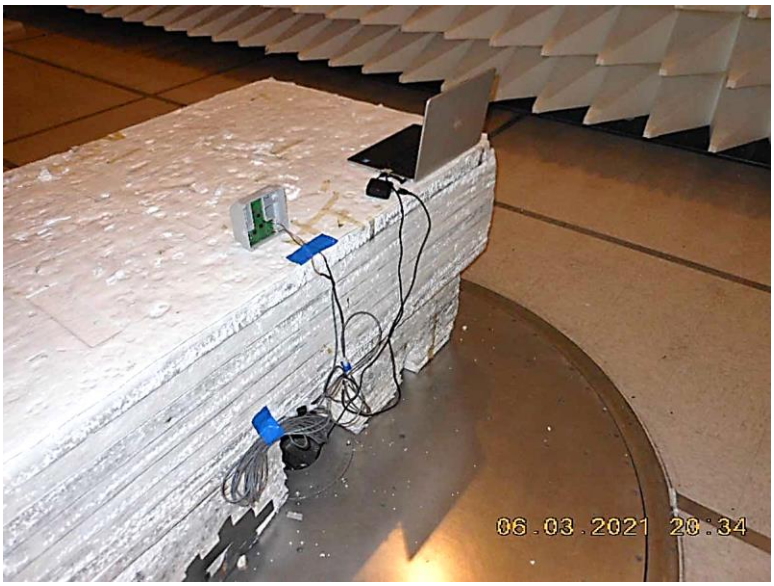
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	3/12/2020	3/12/2022
T2	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T3	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T4	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T5	AN01995	Biconilog Antenna	CBL6111C	4/14/2020	4/14/2022
T6	ANP05275	Attenuator	1W	3/26/2020	3/26/2022

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	614.000M QP	8.2	+0.0 +20.0	+0.3 +6.1	+1.2	+1.7	+0.0	37.5	46.0 hop	-8.5	Vert
2	614.000M QP	8.2	+0.0 +20.0	+0.3 +6.1	+1.2	+1.7	+0.0	37.5	46.0	-8.5	Vert
3	960.000M QP	8.3	+0.0 +24.3	+0.4 +6.1	+1.5	+2.2	+0.0	42.8	54.0	-11.2	Vert
4	960.000M QP	8.3	+0.0 +24.3	+0.4 +6.1	+1.5	+2.2	+0.0	42.8	54.0 hop	-11.2	Vert
5	902.000M	40.0	+0.0 +23.4	+0.3 +6.1	+1.4	+2.1	+0.0	73.3	103.0	-29.7	Vert
6	902.000M	34.9	+0.0 +23.4	+0.3 +6.1	+1.4	+2.1	+0.0	68.2	103.0 hop	-34.8	Vert
7	928.000M	22.6	+0.0 +23.8	+0.4 +6.1	+1.5	+2.2	+0.0	56.6	103.0	-46.4	Vert
8	928.000M	20.6	+0.0 +23.8	+0.4 +6.1	+1.5	+2.2	+0.0	54.6	103.0 hop	-48.4	Vert

Test Setup Photo(s)

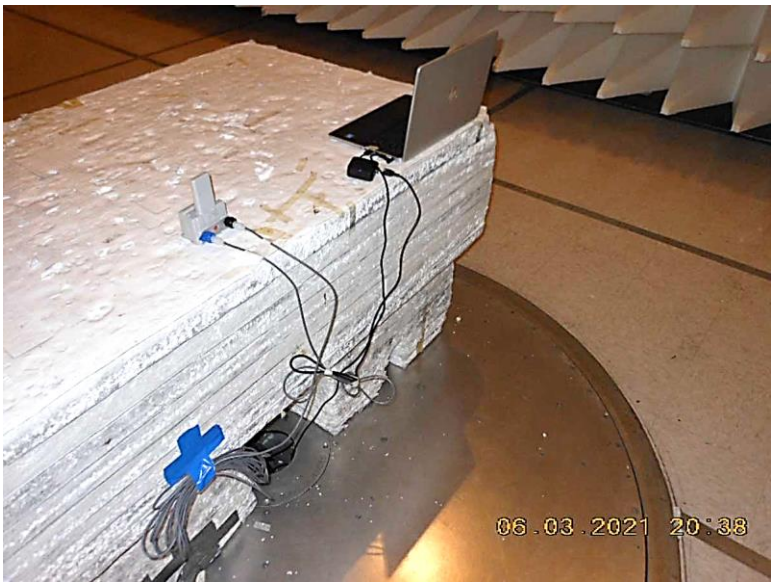
Configurations 2 and 3



Below 1GHz

Above 1GHz

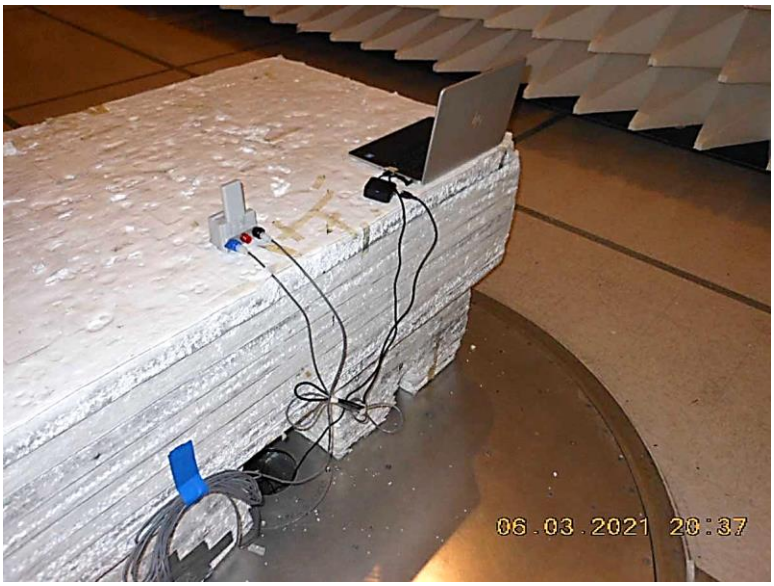
Configurations 4 and 5



Below 1GHz

Above 1GHz

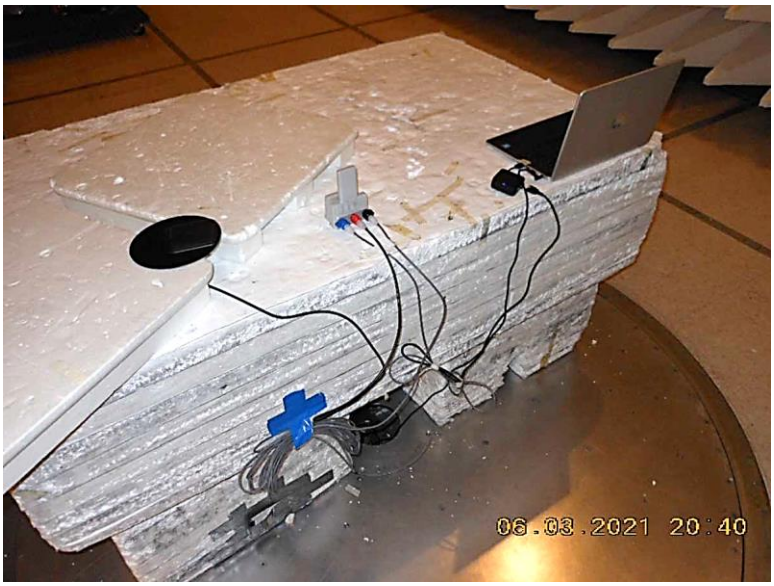
Configurations 6 and 7



Below 1GHz

Above 1GHz

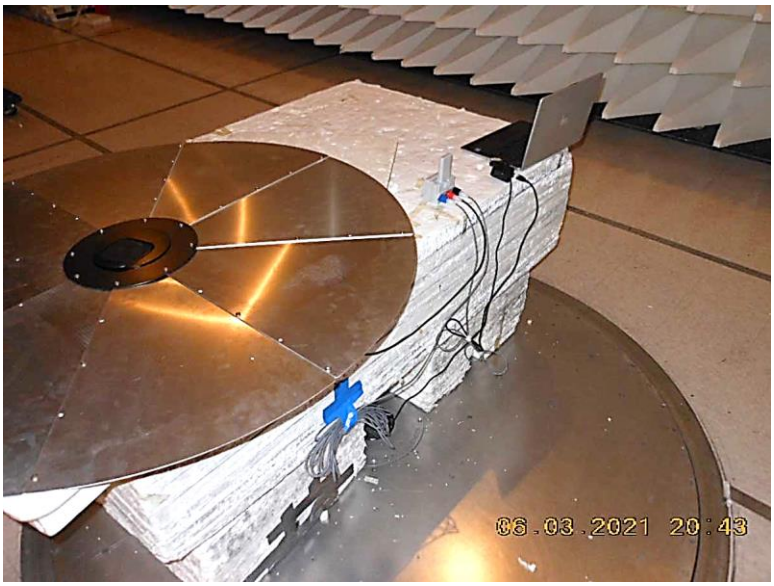
Configurations 8 and 9



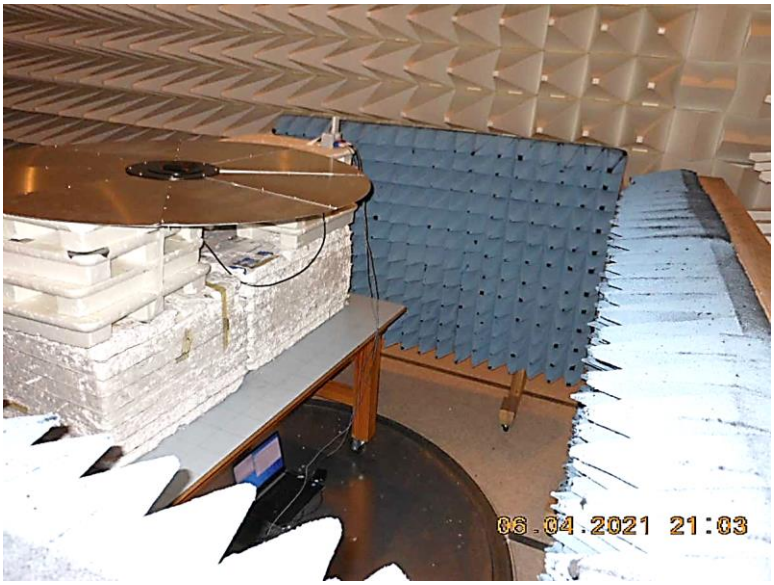
Below 1GHz

Above 1GHz

Configurations 10 and 11



Below 1GHz



Above 1GHz

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

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

Uncertainties reported are worst case for all CKC Laboratories' sites and 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 subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than 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.