Itron, Inc.

TEST REPORT FOR

Mobile Collection Device, DCU-5310

Tested To The Following Standards:

FCC Part 15 Subpart C Section 15.207 & 15.209 / 15.247
and
RSS-210 Issue 8

Report No.: 93174-6

Date of issue: May 25, 2012

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.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:	**REPORT PREPARED BY:**
Itron, Inc. 2111 N. Molter Road Liberty Lake, WA 99019	Joyce Walker CKC Laboratories, Inc. 5046 Sierra Pines Drive Mariposa, CA 95338
REPRESENTATIVE: Jay Holcomb Customer Reference Number:	Project Number: 93174
DATE OF EQUIPMENT RECEIPT:	May 15, 2012
DATE(S) OF TESTING:	May 15 - 16, 2012

DRAFT

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

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Bothell	US0081	SL2-IN-E-1145R	3082C-1	318736	R-2296 C-2506 T-1489 G-284

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C & RSS-210 Issue 8

Description	Test Procedure/Method	Results
Time of Occupancy	FCC Part 15 Subpart C Section 15.247(a)(1)(i) RSS-210 Section A8.1(c)	Pass
Peak Power (902-928 MHz)	FCC Part 15 Subpart C Section 15.247(b)(2) RSS-210 Section A8.4(1)	Pass
Radiated Spurious Emissions	FCC Part 15 Subpart C Section 15.247(d) RSS-210	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
Partial testing per customer requirements.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Mobile Collection Device
Manuf: Itron, Inc.
Model: DCU-5310
Serial: 74005504

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

DC power supply
Manuf: HQ Power
Model: PS5005U
Serial: None

Laptop
Manuf: General Dynamics
Model: GoBook XR-1
Serial: None

Antenna element
Manuf: Max Rad
Model: MSE-0122-002
Serial: None

Roof mount base
Manuf: Max Rad
Model: CBA-0334-001
Serial: None

Side Looker Antenna (right)
Manuf: Max Rad
Model: MSE-0233-001
Serial: None

Side Looker Antenna (left)
Manuf: Max Rad
Model: MSE-0233-001
Serial: None

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

FCC §15.247(a)(1)(i) / RSS-210 §A8.1 Time of Occupancy

Engineer Name: A. del Angel

Test Conditions / Setup

EUT has its frequency hopping function enabled. The following spectrum analyzer settings were used:

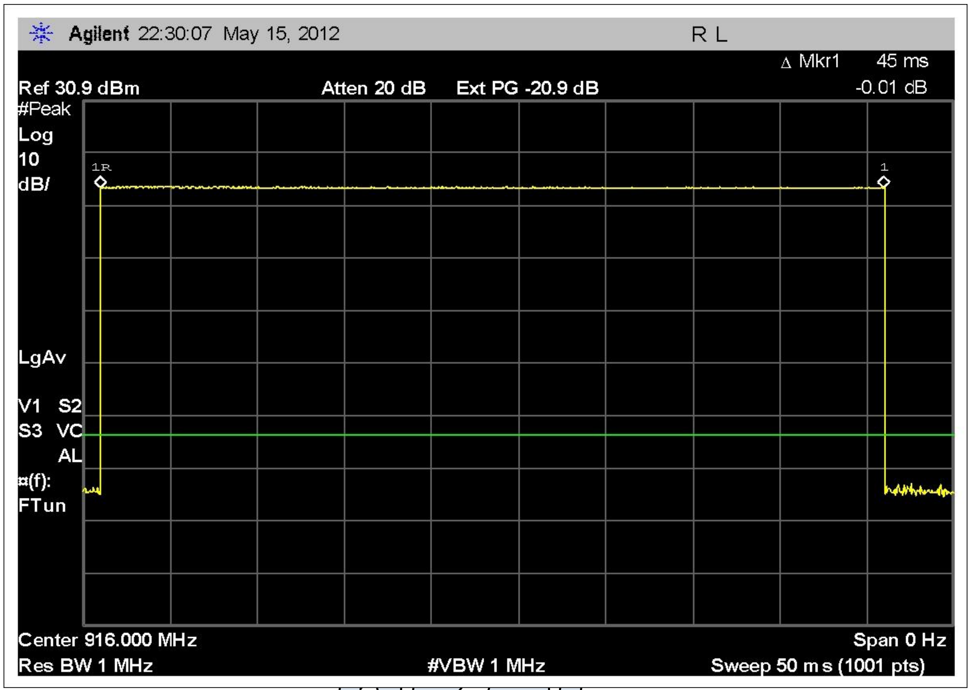
Span = Zero span, centered on the hopping channel
RBW = 1MHz
VBW ≥ RBW
Sweep = as necessary to capture the entire transmission time per hopping channel
Detector function = Peak
Trace = MAX hold.

Each transmission is *45ms.* Each transmission takes place on one of the 80 different channels in a pseudo-random sequence. The algorithm that determines the pseudo-random hop sequence does not allow the device to transmit on the same channel more than 6 times in a 20 second period. The maximum possible occupancy time on any one frequency is 270 mS or 6 times within a 20 second period.

Test Equipment

Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
P06131	Attenuator	18N20W-20	Inmet	8/18/2011	8/18/2013
02871	Spectrum Analyzer	E4440A	Agilent	4/22/2011	4/22/2013

Test Data



Transmission Time

Test Setup Photos

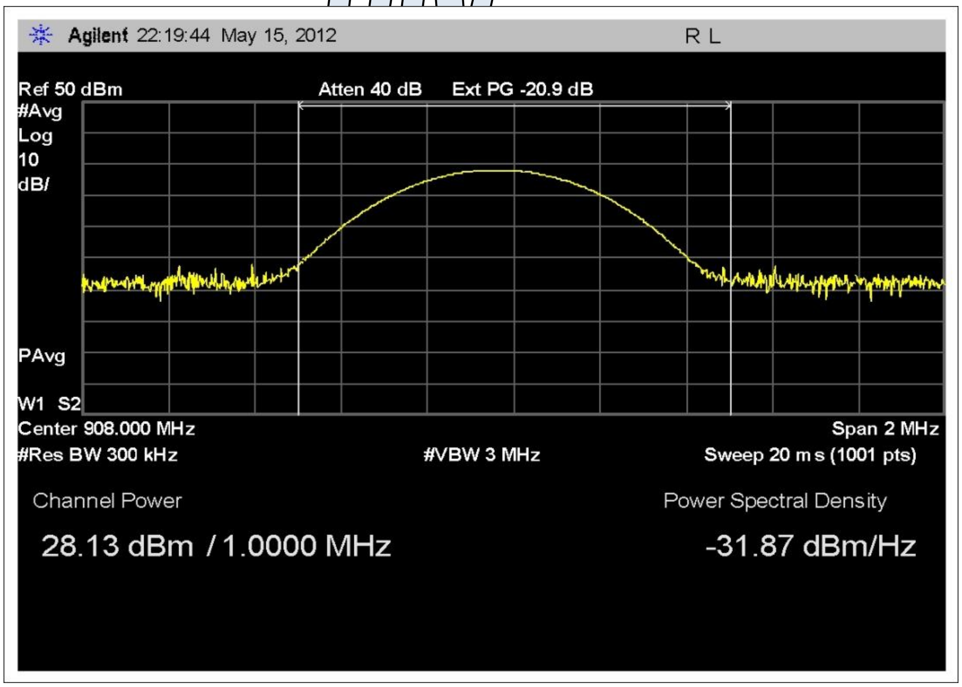
FCC §15.247(b)(2) / RSS-210 §8A(1) Peak Power

Engineer Name: A. del Angel

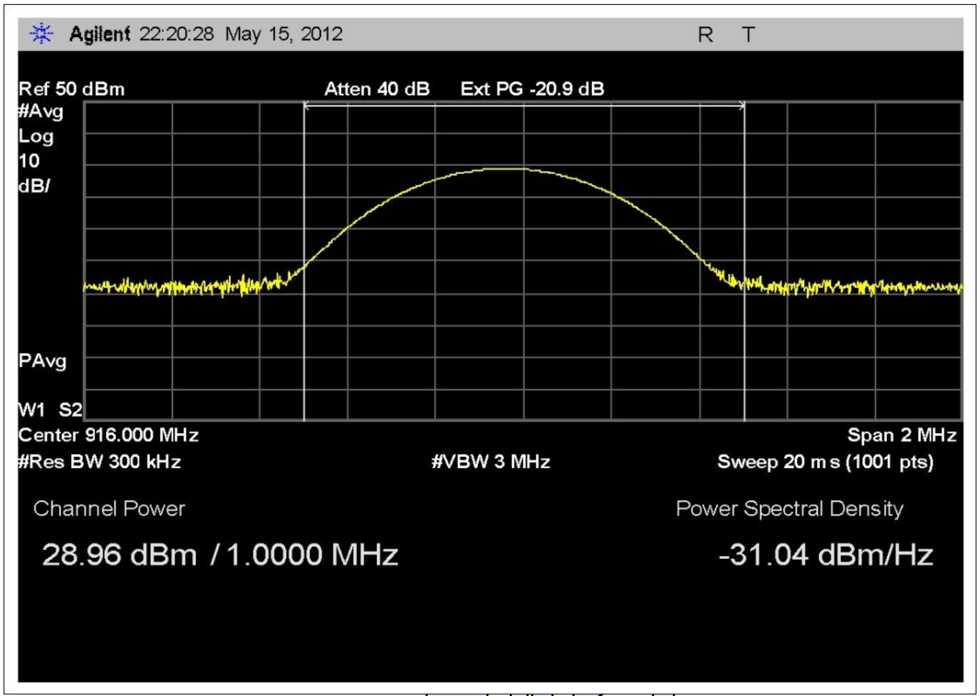
Test Conditions / Setup
The following spectrum analyzer settings were used: Span = 5x the 20dB BW, centered on the lowest, middle, and highest channel RBW > 20dB BW of the emission being measured VBW ≥ RBW Sweep = AUTO Detector function = Peak Trace = MAX hold Note: Cable and attenuator loss of 20.9dB was taken into account.

Test Results

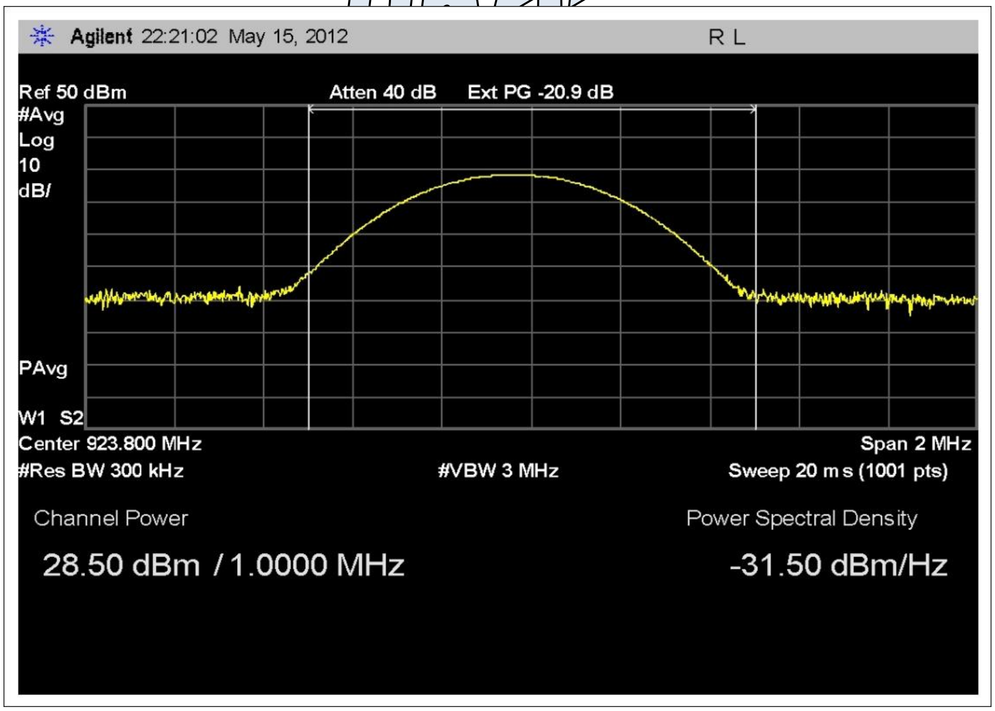
Frequency (MHz)	Output Power (dBm)	Output Power (Watts)
908	**28.13**	**0.650**
916	**28.96**	**0.787**
923.8	**28.5**	**0.707**



Low


Agilent 22:20:28 May 15, 2012
R T
Ref 50 dBm
Atten 40 dB
Ext PG -20.9 dB
#Avg
Log
10
dB/
PAvg
W1 S2
Center 916.000 MHz
Span 2 MHz
#Res BW 300 kHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
Power Spectral Density
28.96 dBm / 1.0000 MHz
-31.04 dBm/Hz

Middle


Agilent 22:21:02 May 15, 2012
R L
Ref 50 dBm
Atten 40 dB
Ext PG -20.9 dB
#Avg
Log
10
dB/
PAvg
W1 S2
Center 923.800 MHz
Span 2 MHz
#Res BW 300 kHz
#VBW 3 MHz
Sweep 20 ms (1001 pts)
Channel Power
Power Spectral Density
28.50 dBm / 1.0000 MHz
-31.50 dBm/Hz

High

Test Setup Photo

FCC §15.247(d) / RSS-210 Radiated Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **93174** Date: 5/16/2012
Test Type: **Maximized Emissions** Time: 12:46:11
Equipment: **Mobile Collection Device** Sequence#: 1
Manufacturer: Itron, Inc. Tested By: Armando Del Angel
Model: DCU-5310
S/N: 74005504

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01271	Preamp	83017A	8/18/2011	8/18/2013
T2	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	10/19/2011	10/19/2013
T3	AN03123	Cable	32026-2-29801-12	10/14/2011	10/14/2013
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05542	Cable	Heliax	9/27/2011	9/27/2013
T6	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T7	AN03170	High Pass Filter	HM1155-11SS	9/6/2011	9/6/2013
T8	AN01316	Preamp	8447D	4/3/2012	4/3/2014
T9	AN01993	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T10	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T11	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T12	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012
T13	ANWO93174	Duty Cycle Correction Factor		5/16/2012	5/16/2014
T14	ANP06130	Attenuator	18N20W-10	8/18/2011	8/18/2013

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Collection Device*	Itron, Inc.	DCU-5310	74005504

Support Devices:

Function	Manufacturer	Model #	S/N
DC power supply	HQ Power	PS5005U	
Laptop	General Dynamics	GoBook XR-1	
Antenna element	Max Rad	MSE-0122-002	
Roof mount base	Max Rad	CBA-0334-001	
Side Looker antenna (right)	Max Rad	MSE-0233-001	
Side Looker antenna (left)	Max Rad	MSE-0233-001	

Test Conditions / Notes:

Temp: 24°C
Humidity: 33%
Pressure: 102.4kPa
Frequency: 9kHz - 10GHz

EUT is located on the center of the test table, 80cm above the ground plane. The Main antenna port is connected to a monopole antenna which is mounted on a metal counter poise which measures 1.32m in diameter. This counter poise is suspended 40cm over the test table by two Styrofoam blocks. EUT is connected to a laptop which is also on the test table.

Duty Cycle Correction Factor of -6.93dB will be applied.
DCCF = 20 x Log(TX on / 100ms)
RBW/VBW = 100kHz on non-restricted bands
RBW/VBW = CISPR Bandwidth on restricted bands.

Ext Attn: 0 dB

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

#	Freq MHz	Rdng dBµV	T1 T5 T9 T13 dB	T2 T6 T10 T14 dB	T3 T7 T11 dB	T4 T8 T12 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	923.800M Ambient	118.5	+0.0 +0.0 +23.3 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 56	118.0	118.0 Fundamental Readings	+0.0	Vert 213
2	916.000M Ambient	118.5	+0.0 +0.0 +23.2 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 180	117.9	118.0 Fundamental Readings	-0.1	Vert 216
3	908.055M Ambient	118.5	+0.0 +0.0 +23.1 +0.0	+0.0 +0.0 +1.9 +0.0	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 70	117.6	118.0 Fundamental Readings	-0.4	Vert 202
4	916.000M Ambient	114.4	+0.0 +0.0 +23.2 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 131	113.8	118.0 Fundamental Readings	-4.2	Horiz 99
5	2723.786M	57.3	-33.9 +3.1 +0.0 -6.9	+27.2 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 112	49.2	54.0 Low Channel	-4.8	Horiz 121
6	908.055M Ambient	113.9	+0.0 +0.0 +23.1 +0.0	+0.0 +0.0 +1.9 +0.0	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 190	113.0	118.0 Fundamental Readings	-5.0	Horiz 202
7	923.800M Ambient	111.8	+0.0 +0.0 +23.3 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 163	111.3	118.0 Fundamental Readings	-6.7	Horiz 99

8	7328.532M	44.1	-34.6 +4.8 +0.0 -6.9	+35.9 +0.0 +0.0 +0.0	+0.5 +0.2 +0.0	+3.2 +0.0 +0.0	+0.0 130	47.2	54.0 Mid Channel	-6.8	Vert 99
9	2723.790M	54.9	-33.9 +3.1 +0.0 -6.9	+27.2 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 116	46.8	54.0 Low Channel	-7.2	Vert 156
10	2747.876M	54.0	-33.9 +3.2 +0.0 -6.9	+27.3 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 149	46.1	54.0 Mid Channel	-7.9	Vert 105
11	7264.620M	42.7	-34.5 +4.8 +0.0 -6.9	+35.7 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+3.2 +0.0 +0.0	+0.0 182	45.8	54.0 Low Channel	-8.2	Horiz 149
12	7327.778M	42.5	-34.6 +4.8 +0.0 -6.9	+35.9 +0.0 +0.0 +0.0	+0.5 +0.2 +0.0	+3.2 +0.0 +0.0	+0.0 187	45.6	54.0 Mid Channel	-8.4	Horiz 135
13	7263.552M	41.8	-34.5 +4.8 +0.0 -6.9	+35.7 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+3.2 +0.0 +0.0	+0.0 145	44.9	54.0 Low Channel	-9.1	Vert 121
14	4579.565M	47.8	-33.5 +3.6 +0.0 -6.9	+31.4 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 177	44.9	54.0 Mid Channel	-9.1	Horiz 179
15	2747.831M	52.5	-33.9 +3.2 +0.0 -6.9	+27.3 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 198	44.6	54.0 Mid Channel	-9.4	Horiz 99
16	7390.428M	40.8	-34.5 +4.9 +0.0 -6.9	+36.0 +0.0 +0.0 +0.0	+0.6 +0.2 +0.0	+3.3 +0.0 +0.0	+0.0 172	44.4	54.0 High Channel	-9.6	Horiz 149
17	4619.064M	46.8	-33.5 +3.6 +0.0 -6.9	+31.5 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 137	44.0	54.0 High Channel	-10.0	Vert 128
18	8172.000M	38.7	-34.6 +5.6 +0.0 -6.9	+36.1 +0.0 +0.0 +0.0	+0.8 +0.2 +0.0	+4.0 +0.0 +0.0	+0.0 185	43.9	54.0 Low Channel	-10.1	Horiz 129
19	7390.428M	40.0	-34.5 +4.9 +0.0 -6.9	+36.0 +0.0 +0.0 +0.0	+0.6 +0.2 +0.0	+3.3 +0.0 +0.0	+0.0 225	43.6	54.0 High Channel	-10.4	Vert 107
20	8171.905M	37.9	-34.6 +5.6 +0.0 -6.9	+36.1 +0.0 +0.0 +0.0	+0.8 +0.2 +0.0	+4.0 +0.0 +0.0	+0.0 183	43.1	54.0 Low Channel	-10.9	Vert 179

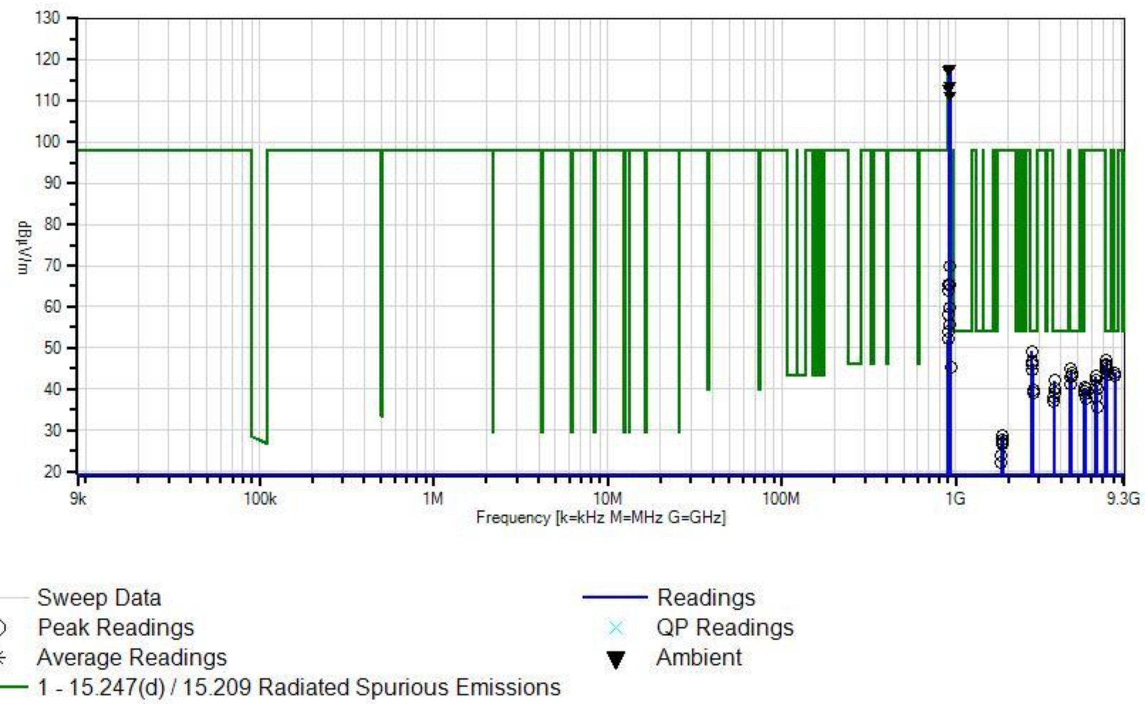
21	4619.000M	45.8	-33.5 +3.6 +0.0 -6.9	+31.5 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 141	43.0	54.0 High Channel	-11.0	Horiz 155
22	4539.695M	45.8	-33.4 +3.5 +0.0 -6.9	+31.3 +0.0 +0.0 +0.0	+0.2 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 183	42.9	54.0 Low Channel	-11.1	Vert 233
23	4580.000M	45.6	-33.5 +3.6 +0.0 -6.9	+31.4 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 206	42.7	54.0 Mid Channel	-11.3	Vert 106
24	3663.840M	46.9	-33.6 +3.6 +0.0 -6.9	+29.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 205	42.0	54.0 Mid Channel	-12.0	Vert 105
25	4540.244M	43.9	-33.4 +3.5 +0.0 -6.9	+31.3 +0.0 +0.0 +0.0	+0.2 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 191	41.0	54.0 Low Channel	-13.0	Horiz 118
26	5448.294M	40.0	-33.5 +4.5 +0.0 -6.9	+33.2 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.3 +0.0 +0.0	+0.0 180	40.3	54.0 Low Channel	-13.7	Horiz 193
27	3695.027M	45.1	-33.6 +3.6 +0.0 -6.9	+29.5 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 145	40.3	54.0 High Channel	-13.7	Horiz 189
28	3695.434M	44.8	-33.6 +3.6 +0.0 -6.9	+29.6 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 199	40.1	54.0 High Channel	-13.9	Vert 101
29	2771.074M	47.7	-33.9 +3.2 +0.0 -6.9	+27.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 168	39.9	54.0 High Channel	-14.1	Vert 101
30	2771.697M	47.0	-33.9 +3.2 +0.0 -6.9	+27.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 195	39.2	54.0 High Channel	-14.8	Horiz 123
31	3663.975M	44.0	-33.6 +3.6 +0.0 -6.9	+29.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 136	39.1	54.0 Mid Channel	-14.9	Horiz 99
32	5447.775M	38.3	-33.5 +4.5 +0.0 -6.9	+33.2 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.3 +0.0 +0.0	+0.0 178	38.6	54.0 Low Channel	-15.4	Vert 144
33	3632.026M	43.0	-33.6 +3.5 +0.0 -6.9	+29.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 182	37.9	54.0 Low Channel	-16.1	Horiz 199

34	3631.744M	42.2	-33.6 +3.5 +0.0 -6.9	+29.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 172	37.1	54.0 Low Channel	-16.9	Vert 177
35	896.100M	49.6	+0.0 +0.0 +23.0 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	52.0	98.0 Low Channel	-46.0	Vert 171
36	920.050M	66.8	+0.0 +0.0 +23.3 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	69.7	118.0 Low Channel	-48.3	Vert 171
37	927.950M	62.4	+0.0 +0.0 +23.4 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	65.4	118.0 Mid Channel	-52.6	Vert 151
38	911.741M	62.6	+0.0 +0.0 +23.2 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 81	65.3	118.0 High Channel	-52.7	Vert 175
39	935.810M	42.1	+0.0 +0.0 +23.5 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 50	45.2	98.0 High Channel	-52.8	Vert 166
40	904.050M	61.6	+0.0 +0.0 +23.1 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	64.1	118.0 Mid Channel	-53.9	Vert 151
41	6356.432M	40.5	-34.0 +5.4 +0.0 -6.9	+34.5 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 165	43.2	98.0 Low Channel	-54.8	Horiz 144
42	6355.712M	39.6	-34.0 +5.4 +0.0 -6.9	+34.5 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 167	42.3	98.0 Low Channel	-55.7	Vert 170
43	6411.713M	38.3	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 165	40.8	98.0 Mid Channel	-57.2	Horiz 145
44	6466.318M	37.6	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+2.8 +0.0 +0.0	+0.0 158	40.0	98.0 High Channel	-58.0	Vert 121
45	5543.147M	39.7	-33.6 +4.3 +0.0 -6.9	+33.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 208	40.0	98.0 High Channel	-58.0	Vert 99
46	920.050M	56.8	+0.0 +0.0 +23.3 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	59.7	118.0 Low Channel	-58.3	Horiz 173

47	5496.000M	39.0	-33.5 +4.4 +0.0 -6.9	+33.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 44	39.4	98.0 Mid Channel	-58.6	Vert 103
48	6412.440M	35.6	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 58	38.1	98.0 Mid Channel	-59.9	Vert 99
49	911.747M	55.3	+0.0 +0.0 +23.2 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 351	58.0	118.0 High Channel	-60.0	Horiz 163
50	5543.147M	37.3	-33.6 +4.3 +0.0 -6.9	+33.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 207	37.6	98.0 High Channel	-60.4	Horiz 121
51	6466.318M	33.2	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+2.8 +0.0 +0.0	+0.0 185	35.6	98.0 High Channel	-62.4	Horiz 134
52	927.950M	52.6	+0.0 +0.0 +23.4 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	55.6	118.0 Mid Channel	-62.4	Horiz 171
53	904.050M	51.6	+0.0 +0.0 +23.1 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	54.1	118.0 Mid Channel	-63.9	Horiz 171
54	1847.740M	40.7	-34.6 +2.5 +0.0 -6.9	+25.1 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 111	28.8	98.0 High Channel	-69.2	Vert 105
55	1831.911M	39.9	-34.6 +2.5 +0.0 -6.9	+24.9 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 78	27.8	98.0 Mid Channel	-70.2	Vert 99
56	1847.720M	38.9	-34.6 +2.5 +0.0 -6.9	+25.1 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 203	27.0	98.0 High Channel	-71.0	Horiz 99
57	1832.115M	38.6	-34.6 +2.5 +0.0 -6.9	+24.9 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 206	26.5	98.0 Mid Channel	-71.5	Horiz 99
58	1815.936M	36.1	-34.6 +2.5 +0.0 -6.9	+24.8 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 143	23.9	98.0 Low Channel	-74.1	Vert 155
59	1815.896M	34.4	-34.6 +2.5 +0.0 -6.9	+24.8 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 147	22.2	98.0 Low Channel	-75.8	Horiz 119

60	13.325M	33.5	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-3.8	98.0 Low Channel	-101.8	Perpe 100
61	13.318M	33.5	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-3.8	98.0 High Channel	-101.8	Perpe 100
62	13.321M	33.2	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-4.1	98.0 Mid Channel	-102.1	Perpe 100
63	13.325M	22.9	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-14.4	98.0 Low Channel	-112.4	Paral 100
64	13.321M	22.6	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-14.7	98.0 High Channel	-112.7	Paral 100
65	13.322M	22.4	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-14.9	98.0 Mid Channel	-112.9	Paral 100

CKC Laboratories, Inc. Date: 5/16/2012 Time: 12:46:11 Itron, Inc. WO#: 93174
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Perpendicular Sequence#: 1 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**
Specification: **RSS-210 - 8 Radiated Spurious Emissions**
Work Order #: **93174**
Test Type: **Maximized Emissions**
Equipment: **Mobile Collection Device**
Manufacturer: Itron, Inc.
Model: DCU-5310
S/N: 74005504

Date: 5/16/2012
Time: 12:46:11
Sequence#: 1
Tested By: Armando Del Angel

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01271	Preamp	83017A	8/18/2011	8/18/2013
T2	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	10/19/2011	10/19/2013
T3	AN03123	Cable	32026-2-29801-12	10/14/2011	10/14/2013
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05542	Cable	Heliax	9/27/2011	9/27/2013
T6	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T7	AN03170	High Pass Filter	HM1155-11SS	9/6/2011	9/6/2013
T8	AN01316	Preamp	8447D	4/3/2012	4/3/2014
T9	AN01993	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T10	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T11	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T12	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012
T13	ANWO93174	Duty Cycle Correction Factor		5/16/2012	5/16/2014
T14	ANP06130	Attenuator	18N20W-10	8/18/2011	8/18/2013

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Collection Device*	Itron, Inc.	DCU-5310	74005504

Support Devices:

Function	Manufacturer	Model #	S/N
DC power supply	HQ Power	PS5005U	
Laptop	General Dynamics	GoBook XR-1	
Antenna element	Max Rad	MSE-0122-002	
Roof mount base	Max Rad	CBA-0334-001	
Side Looker antenna (right)	Max Rad	MSE-0233-001	
Side Looker antenna (left)	Max Rad	MSE-0233-001	

Test Conditions / Notes:

Temp: 24°C
Humidity: 33%
Pressure: 102.4kPa
Frequency: 9kHz - 10GHz

EUT is located on the center of the test table, 80cm above the ground plane. The Main antenna port is connected to a monopole antenna which is mounted on a metal counter poise which measures 1.32m in diameter. This counter poise is suspended 40cm over the test table by two Styrofoam blocks. EUT is connected to a laptop which is also on the test table.

Duty Cycle Correction Factor of -6.93dB will be applied.
DCCF = 20 x Log(TX on / 100ms)
RBW/VBW = 100kHz on non-restricted bands
RBW/VBW = CISPR Bandwidth on restricted bands.

Ext Attn: 0 dB

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

#	Freq MHz	Rdng dBμV	T1 T5 T9 T13 dB	T2 T6 T10 T14 dB	T3 T7 T11 dB	T4 T8 T12 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	923.800M Ambient	118.5	+0.0 +0.0 +23.3 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 56	118.0	118.0 Fundamental Readings	+0.0	Vert 213
2	916.000M Ambient	118.5	+0.0 +0.0 +23.2 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 180	117.9	118.0 Fundamental Readings	-0.1	Vert 216
3	908.055M Ambient	118.5	+0.0 +0.0 +23.1 +0.0	+0.0 +0.0 +1.9 +0.0	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 70	117.6	118.0 Fundamental Readings	-0.4	Vert 202
4	916.000M Ambient	114.4	+0.0 +0.0 +23.2 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 131	113.8	118.0 Fundamental Readings	-4.2	Horiz 99
5	2723.786M	57.3	-33.9 +3.1 +0.0 -6.9	+27.2 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 112	49.2	54.0 Low Channel	-4.8	Horiz 121
6	908.055M Ambient	113.9	+0.0 +0.0 +23.1 +0.0	+0.0 +0.0 +1.9 +0.0	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 190	113.0	118.0 Fundamental Readings	-5.0	Horiz 202
7	923.800M Ambient	111.8	+0.0 +0.0 +23.3 +0.0	+0.0 +0.0 +2.0 +0.0	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 163	111.3	118.0 Fundamental Readings	-6.7	Horiz 99

8	7328.532M	44.1	-34.6 +4.8 +0.0 -6.9	+35.9 +0.0 +0.0 +0.0	+0.5 +0.2 +0.0	+3.2 +0.0 +0.0	+0.0 130	47.2	54.0 Mid Channel	-6.8	Vert 99
9	2723.790M	54.9	-33.9 +3.1 +0.0 -6.9	+27.2 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 116	46.8	54.0 Low Channel	-7.2	Vert 156
10	2747.876M	54.0	-33.9 +3.2 +0.0 -6.9	+27.3 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 149	46.1	54.0 Mid Channel	-7.9	Vert 105
11	7264.620M	42.7	-34.5 +4.8 +0.0 -6.9	+35.7 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+3.2 +0.0 +0.0	+0.0 182	45.8	54.0 Low Channel	-8.2	Horiz 149
12	7327.778M	42.5	-34.6 +4.8 +0.0 -6.9	+35.9 +0.0 +0.0 +0.0	+0.5 +0.2 +0.0	+3.2 +0.0 +0.0	+0.0 187	45.6	54.0 Mid Channel	-8.4	Horiz 135
13	7263.552M	41.8	-34.5 +4.8 +0.0 -6.9	+35.7 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+3.2 +0.0 +0.0	+0.0 145	44.9	54.0 Low Channel	-9.1	Vert 121
14	4579.565M	47.8	-33.5 +3.6 +0.0 -6.9	+31.4 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 177	44.9	54.0 Mid Channel	-9.1	Horiz 179
15	2747.831M	52.5	-33.9 +3.2 +0.0 -6.9	+27.3 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 198	44.6	54.0 Mid Channel	-9.4	Horiz 99
16	7390.428M	40.8	-34.5 +4.9 +0.0 -6.9	+36.0 +0.0 +0.0 +0.0	+0.6 +0.2 +0.0	+3.3 +0.0 +0.0	+0.0 172	44.4	54.0 High Channel	-9.6	Horiz 149
17	4619.064M	46.8	-33.5 +3.6 +0.0 -6.9	+31.5 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 137	44.0	54.0 High Channel	-10.0	Vert 128
18	8172.000M	38.7	-34.6 +5.6 +0.0 -6.9	+36.1 +0.0 +0.0 +0.0	+0.8 +0.2 +0.0	+4.0 +0.0 +0.0	+0.0 185	43.9	54.0 Low Channel	-10.1	Horiz 129
19	7390.428M	40.0	-34.5 +4.9 +0.0 -6.9	+36.0 +0.0 +0.0 +0.0	+0.6 +0.2 +0.0	+3.3 +0.0 +0.0	+0.0 225	43.6	54.0 High Channel	-10.4	Vert 107
20	8171.905M	37.9	-34.6 +5.6 +0.0 -6.9	+36.1 +0.0 +0.0 +0.0	+0.8 +0.2 +0.0	+4.0 +0.0 +0.0	+0.0 183	43.1	54.0 Low Channel	-10.9	Vert 179

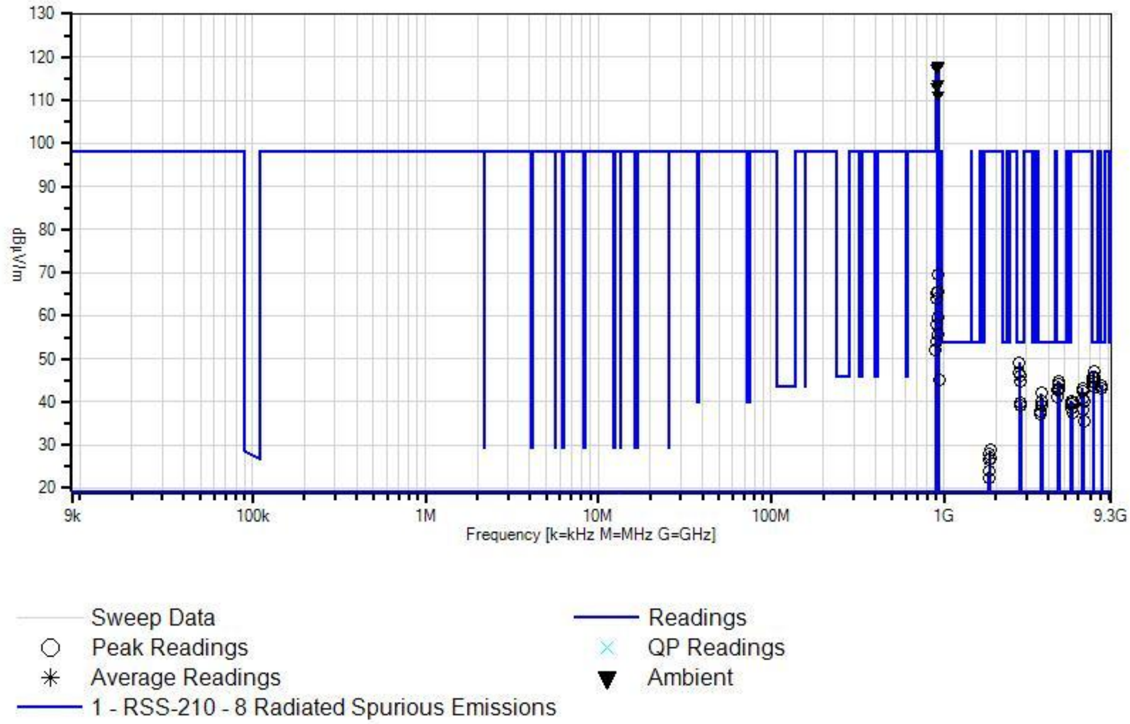
21	4619.000M	45.8	-33.5 +3.6 +0.0 -6.9	+31.5 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 141	43.0	54.0 High Channel	-11.0	Horiz 155
22	4539.695M	45.8	-33.4 +3.5 +0.0 -6.9	+31.3 +0.0 +0.0 +0.0	+0.2 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 183	42.9	54.0 Low Channel	-11.1	Vert 233
23	4580.000M	45.6	-33.5 +3.6 +0.0 -6.9	+31.4 +0.0 +0.0 +0.0	+0.1 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 206	42.7	54.0 Mid Channel	-11.3	Vert 106
24	3663.840M	46.9	-33.6 +3.6 +0.0 -6.9	+29.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 205	42.0	54.0 Mid Channel	-12.0	Vert 105
25	4540.244M	43.9	-33.4 +3.5 +0.0 -6.9	+31.3 +0.0 +0.0 +0.0	+0.2 +0.3 +0.0	+2.1 +0.0 +0.0	+0.0 191	41.0	54.0 Low Channel	-13.0	Horiz 118
26	5448.294M	40.0	-33.5 +4.5 +0.0 -6.9	+33.2 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.3 +0.0 +0.0	+0.0 180	40.3	54.0 Low Channel	-13.7	Horiz 193
27	3695.027M	45.1	-33.6 +3.6 +0.0 -6.9	+29.5 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 145	40.3	54.0 High Channel	-13.7	Horiz 189
28	3695.434M	44.8	-33.6 +3.6 +0.0 -6.9	+29.6 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 199	40.1	54.0 High Channel	-13.9	Vert 101
29	2771.074M	47.7	-33.9 +3.2 +0.0 -6.9	+27.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 168	39.9	54.0 High Channel	-14.1	Vert 101
30	2771.697M	47.0	-33.9 +3.2 +0.0 -6.9	+27.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+1.6 +0.0 +0.0	+0.0 195	39.2	54.0 High Channel	-14.8	Horiz 123
31	3663.975M	44.0	-33.6 +3.6 +0.0 -6.9	+29.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 136	39.1	54.0 Mid Channel	-14.9	Horiz 99
32	5447.775M	38.3	-33.5 +4.5 +0.0 -6.9	+33.2 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.3 +0.0 +0.0	+0.0 178	38.6	54.0 Low Channel	-15.4	Vert 144
33	3632.026M	43.0	-33.6 +3.5 +0.0 -6.9	+29.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 182	37.9	54.0 Low Channel	-16.1	Horiz 199

34	3631.744M	42.2	-33.6 +3.5 +0.0 -6.9	+29.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+1.9 +0.0 +0.0	+0.0 172	37.1	54.0 Low Channel	-16.9	Vert 177
35	896.100M	49.6	+0.0 +0.0 +23.0 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	52.0	98.0 Low Channel	-46.0	Vert 171
36	920.050M	66.8	+0.0 +0.0 +23.3 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	69.7	118.0 Low Channel	-48.3	Vert 171
37	927.950M	62.4	+0.0 +0.0 +23.4 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	65.4	118.0 Mid Channel	-52.6	Vert 151
38	911.741M	62.6	+0.0 +0.0 +23.2 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 81	65.3	118.0 High Channel	-52.7	Vert 175
39	935.810M	42.1	+0.0 +0.0 +23.5 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 50	45.2	98.0 High Channel	-52.8	Vert 166
40	904.050M	61.6	+0.0 +0.0 +23.1 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	64.1	118.0 Mid Channel	-53.9	Vert 151
41	6356.432M	40.5	-34.0 +5.4 +0.0 -6.9	+34.5 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 165	43.2	98.0 Low Channel	-54.8	Horiz 144
42	6355.712M	39.6	-34.0 +5.4 +0.0 -6.9	+34.5 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 167	42.3	98.0 Low Channel	-55.7	Vert 170
43	6411.713M	38.3	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 165	40.8	98.0 Mid Channel	-57.2	Horiz 145
44	6466.318M	37.6	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+2.8 +0.0 +0.0	+0.0 158	40.0	98.0 High Channel	-58.0	Vert 121
45	5543.147M	39.7	-33.6 +4.3 +0.0 -6.9	+33.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 208	40.0	98.0 High Channel	-58.0	Vert 99
46	920.050M	56.8	+0.0 +0.0 +23.3 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	59.7	118.0 Low Channel	-58.3	Horiz 173

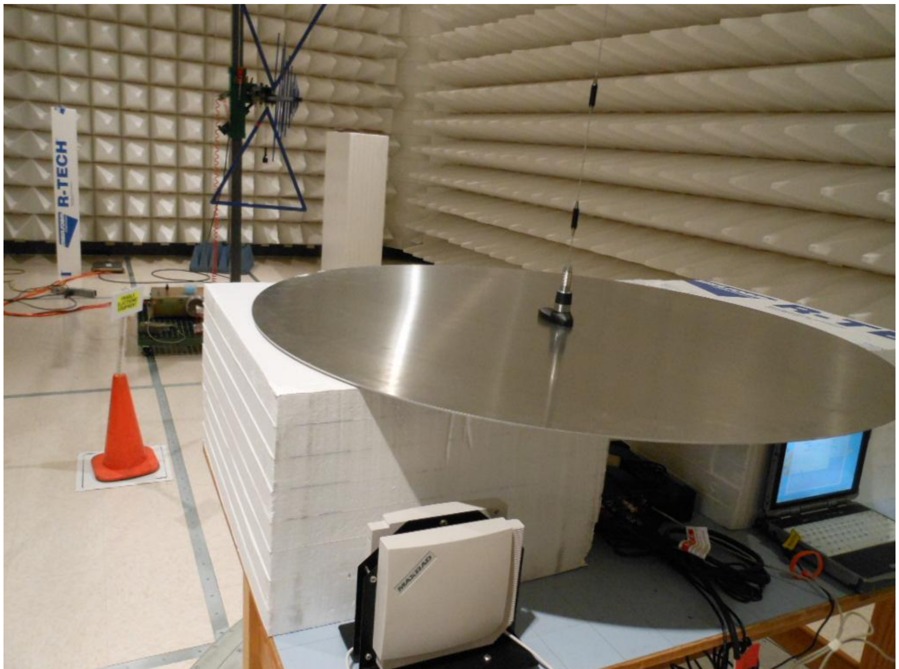
47	5496.000M	39.0	-33.5 +4.4 +0.0 -6.9	+33.3 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 44	39.4	98.0 Mid Channel	-58.6	Vert 103
48	6412.440M	35.6	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.4 +0.0	+2.8 +0.0 +0.0	+0.0 58	38.1	98.0 Mid Channel	-59.9	Vert 99
49	911.747M	55.3	+0.0 +0.0 +23.2 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 351	58.0	118.0 High Channel	-60.0	Horiz 163
50	5543.147M	37.3	-33.6 +4.3 +0.0 -6.9	+33.4 +0.0 +0.0 +0.0	+0.4 +0.3 +0.0	+2.4 +0.0 +0.0	+0.0 207	37.6	98.0 High Channel	-60.4	Horiz 121
51	6466.318M	33.2	-34.0 +5.3 +0.0 -6.9	+34.4 +0.0 +0.0 +0.0	+0.5 +0.3 +0.0	+2.8 +0.0 +0.0	+0.0 185	35.6	98.0 High Channel	-62.4	Horiz 134
52	927.950M	52.6	+0.0 +0.0 +23.4 -6.9	+0.0 +0.0 +2.0 +10.3	+0.0 +0.0 +2.3	+0.9 -29.0 +0.0	+0.0 360	55.6	118.0 Mid Channel	-62.4	Horiz 171
53	904.050M	51.6	+0.0 +0.0 +23.1 -6.9	+0.0 +0.0 +1.9 +10.3	+0.0 +0.0 +2.3	+0.9 -29.1 +0.0	+0.0 360	54.1	118.0 Mid Channel	-63.9	Horiz 171
54	1847.740M	40.7	-34.6 +2.5 +0.0 -6.9	+25.1 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 111	28.8	98.0 High Channel	-69.2	Vert 105
55	1831.911M	39.9	-34.6 +2.5 +0.0 -6.9	+24.9 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 78	27.8	98.0 Mid Channel	-70.2	Vert 99
56	1847.720M	38.9	-34.6 +2.5 +0.0 -6.9	+25.1 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 203	27.0	98.0 High Channel	-71.0	Horiz 99
57	1832.115M	38.6	-34.6 +2.5 +0.0 -6.9	+24.9 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 206	26.5	98.0 Mid Channel	-71.5	Horiz 99
58	1815.936M	36.1	-34.6 +2.5 +0.0 -6.9	+24.8 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 143	23.9	98.0 Low Channel	-74.1	Vert 155
59	1815.896M	34.4	-34.6 +2.5 +0.0 -6.9	+24.8 +0.0 +0.0 +0.0	+0.3 +0.4 +0.0	+1.3 +0.0 +0.0	+0.0 147	22.2	98.0 Low Channel	-75.8	Horiz 119

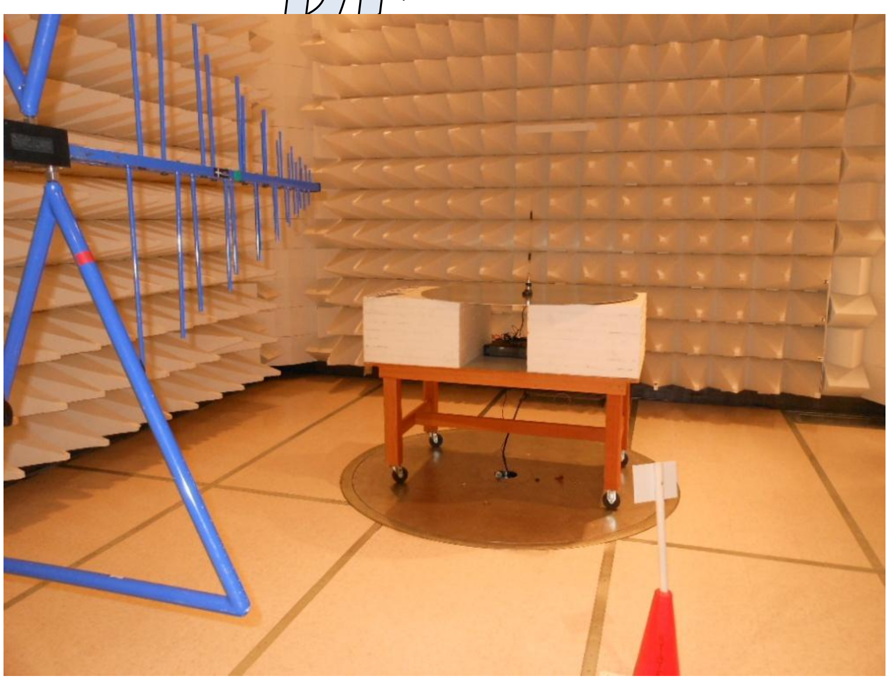
60	13.325M	33.5	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-3.8	98.0 Low Channel	-101.8	Perpe 100
61	13.318M	33.5	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-3.8	98.0 High Channel	-101.8	Perpe 100
62	13.321M	33.2	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-4.1	98.0 Mid Channel	-102.1	Perpe 100
63	13.325M	22.9	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-14.4	98.0 Low Channel	-112.4	Paral 100
64	13.321M	22.6	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0	-14.7	98.0 High Channel	-112.7	Paral 100
65	13.322M	22.4	+0.0 +0.2 +0.0 -6.9	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0	+0.1 +0.0 +9.3	-40.0 360	-14.9	98.0 Mid Channel	-112.9	Paral 100

CKC Laboratories, Inc. Date: 5/16/2012 Time: 12:46:11 Itron, Inc. WO#: 93174
RSS-210 - 8 Radiated Spurious Emissions Test Distance: 3 Meters Perpendicular Sequence#: 1 Ext ATTN: 0 dB



Test Setup Photos





SUPPLEMENTAL INFORMATION

Measurement Uncertainty

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

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. 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.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	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	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 carrot (“^”) 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.