

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/10/2010
 Test Type: **Maximized Emissions** Time: 13:27:41
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 14
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamplifier	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 - 1000 MHz
 Temp: 24° C
 Humidity: 45%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 903 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

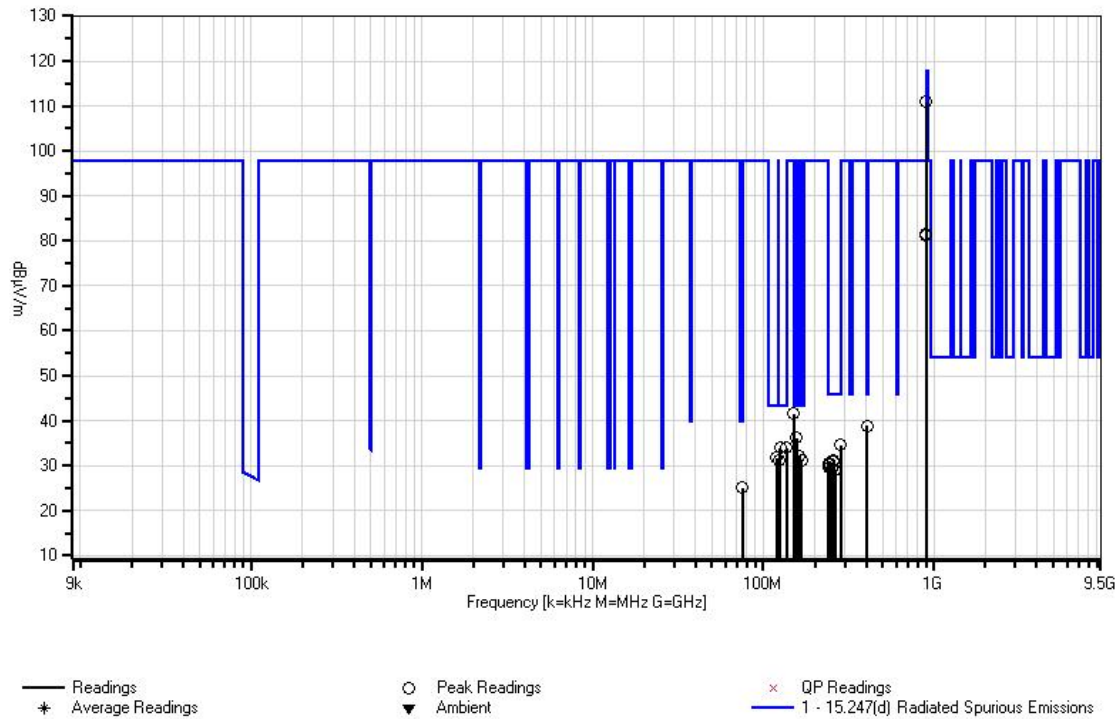
Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	150.002M	56.2	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 360	41.6	43.5	-1.9	Verti 130
2	903.035M	111.9	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 360	110.9	117.7	-6.8	Verti 130
3	403.936M	47.8	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	38.8	46.0	-7.2	Verti 130

4	156.849M	51.2	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	36.2	43.5	-7.3	Verti 130
5	125.618M	48.7	+12.4 +0.2	+0.8	-28.8	+0.7	+0.0 360	34.0	43.5	-9.5	Verti 130
6	136.669M	48.8	+12.1 +0.3	+0.8	-28.8	+0.7	+0.0 360	33.9	43.5	-9.6	Verti 130
7	163.095M	47.7	+11.1 +0.3	+0.9	-28.6	+0.8	+0.0 360	32.2	43.5	-11.3	Verti 130
8	282.735M	47.0	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	34.5	46.0	-11.5	Verti 130
9	120.092M	47.8	+11.1 +0.2	+0.8	-28.8	+0.7	+0.0 360	31.8	43.5	-11.7	Verti 130
10	123.095M	46.3	+11.9 +0.2	+0.8	-28.8	+0.7	+0.0 360	31.1	43.5	-12.4	Verti 130
11	167.900M	47.2	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0 360	31.1	43.5	-12.4	Verti 130
12	256.909M	44.1	+12.8 +0.4	+1.1	-28.2	+1.0	+0.0 360	31.2	46.0	-14.8	Verti 130
13	75.187M	44.9	+7.8 +0.2	+0.6	-28.9	+0.5	+0.0 360	25.1	40.0	-14.9	Verti 130
14	254.507M	43.6	+12.8 +0.4	+1.1	-28.2	+1.0	+0.0 360	30.7	46.0	-15.3	Verti 130
15	241.894M	43.9	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	30.4	46.0	-15.6	Verti 130
16	242.495M	43.7	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	30.2	46.0	-15.8	Verti 130
17	901.998M	82.6	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 330	81.6	97.7 Bandedge	-16.1	Verti 230
18	240.813M	43.2	+12.1 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.6	46.0	-16.4	Verti 130
19	241.414M	43.1	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.6	46.0	-16.4	Verti 130
20	902.000M	82.2	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 330	81.2	97.7 Bandedge	-16.5	Verti 230
21	251.624M	42.4	+12.7 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.4	46.0	-16.6	Verti 130
22	262.074M	41.9	+12.9 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.1	46.0	-16.9	Verti 130

CKC Laboratories, Inc. Date: 8/10/2010 Time: 13:27:41 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 14 Ext ATTN: 0 dB



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Customer: **Itron, Inc.**
 Specification: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/10/2010
 Test Type: **Maximized Emissions** Time: 11:22:30
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 12
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamplifier	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 - 1000 MHz
 Temp: 24° C
 Humidity: 45%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 915 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

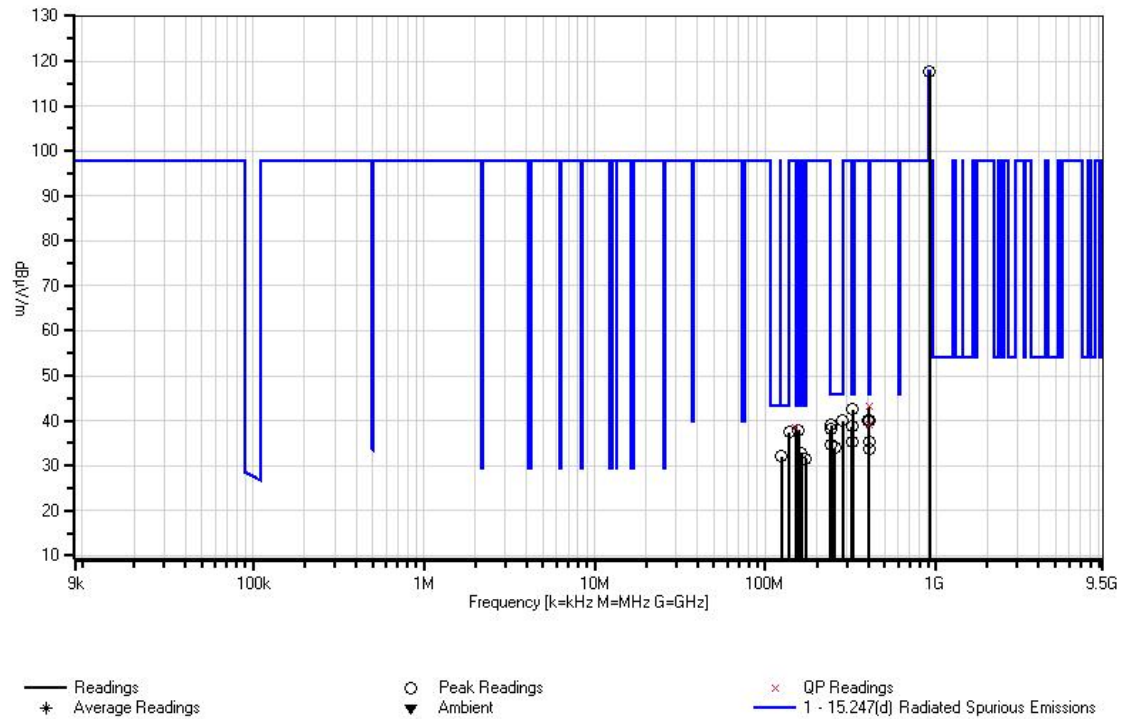
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Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	915.047M	118.4	+23.3 +0.8	+2.3	-29.1	+1.9	+0.0	117.6	117.7 TX frequency.	-0.1	Horiz 130
2	403.212M	52.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	43.1	46.0	-2.9	Horiz 175
	QP						190				
^	403.150M	59.5	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	50.5	46.0	+4.5	Horiz 175
							190				

4	323.215M	53.5	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0	42.5	46.0	-3.5	Horiz 130
5	149.984M QP	53.2	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 330	38.6	43.5	-4.9	Horiz 200
^	149.907M	56.5	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 330	41.9	43.5	-1.6	Horiz 200
^	150.002M	54.9	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	40.3	43.5	-3.2	Horiz 130
8	156.849M	52.9	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.9	43.5	-5.6	Horiz 130
9	405.137M	49.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	40.2	46.0	-5.8	Horiz 130
10	402.134M	49.1	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	40.0	46.0	-6.0	Horiz 130
11	284.897M	52.3	+13.3 +0.4	+1.1	-28.2	+1.0	+0.0	39.9	46.0	-6.1	Horiz 130
12	137.990M	52.2	+12.1 +0.3	+0.8	-28.7	+0.7	+0.0	37.4	43.5	-6.1	Horiz 130
13	242.615M	52.4	+12.3 +0.4	+1.1	-28.2	+1.0	+0.0	39.0	46.0	-7.0	Horiz 130
14	403.799M QP	48.0	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 195	39.0	46.0	-7.0	Horiz 175
^	403.820M	59.0	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 195	50.0	46.0	+4.0	Horiz 175
^	403.816M	54.8	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	45.8	46.0	-0.2	Horiz 130
17	322.495M	49.9	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0	38.7	46.0	-7.3	Horiz 130
18	240.933M	51.6	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	38.1	46.0	-7.9	Horiz 130
19	162.255M	48.3	+11.2 +0.3	+0.9	-28.6	+0.8	+0.0	32.9	43.5	-10.6	Horiz 130
20	323.816M	46.4	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0	35.4	46.0	-10.6	Horiz 130
21	406.098M	44.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	35.2	46.0	-10.8	Horiz 130
22	240.212M	48.3	+12.1 +0.4	+1.1	-28.2	+1.0	+0.0	34.7	46.0	-11.3	Horiz 130
23	123.696M	47.0	+12.1 +0.2	+0.8	-28.8	+0.7	+0.0	32.0	43.5	-11.5	Horiz 130
24	255.468M	46.9	+12.8 +0.4	+1.1	-28.2	+1.0	+0.0	34.0	46.0	-12.0	Horiz 130
25	172.104M	47.9	+10.1 +0.3	+0.9	-28.5	+0.8	+0.0	31.5	43.5	-12.0	Horiz 130
26	406.338M	42.9	+16.5 +0.5	+1.5	-28.9	+1.3	+0.0	33.8	46.0	-12.2	Horiz 130

CKC Laboratories, Inc. Date: 8/10/2010 Time: 11:22:30 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 12 Ext ATTN: 0 dB



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Customer: **Itron, Inc.**
 Specification: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/10/2010
 Test Type: **Maximized Emissions** Time: 10:58:12
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 11
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamplifier	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
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H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 - 1000 MHz
 Temp: 24° C
 Humidity: 45%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 915 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
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 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

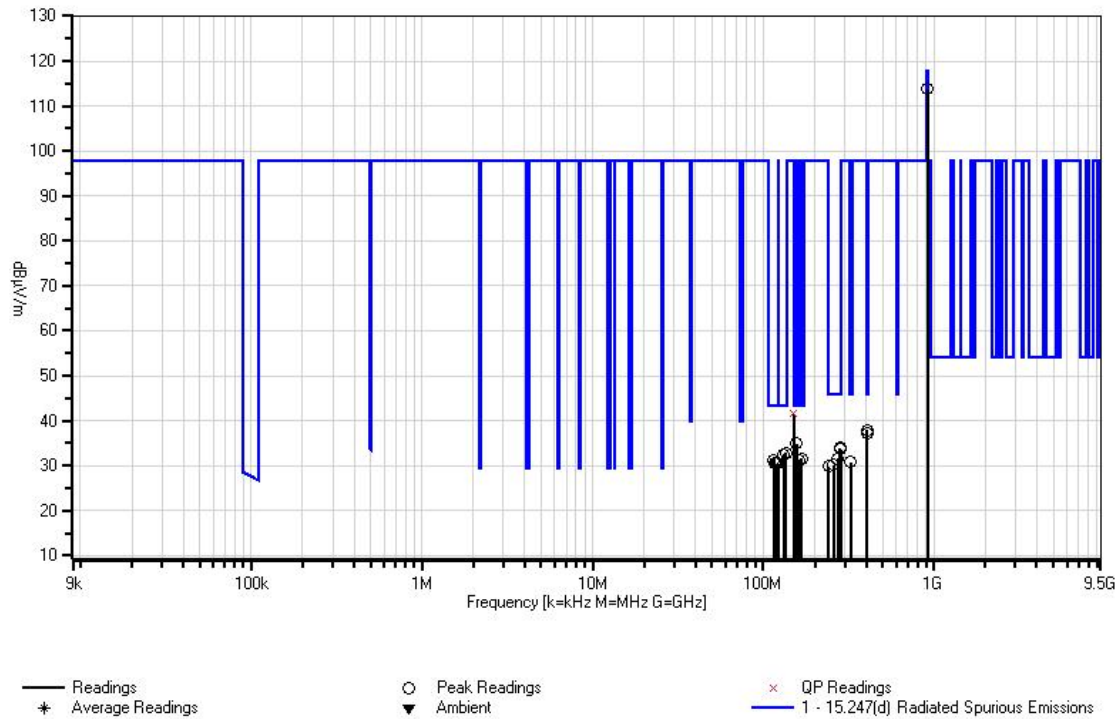
Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	149.941M	56.1	+12.1	+0.9	-28.7	+0.8	+0.0	41.5	43.5	-2.0	Verti
	QP		+0.3				210				100
^	149.953M	59.4	+12.1	+0.9	-28.7	+0.8	+0.0	44.8	43.5	+1.3	Verti
			+0.3				210				100
^	150.002M	56.7	+12.1	+0.9	-28.7	+0.8	+0.0	42.1	43.5	-1.4	Verti
			+0.3				360				130

4	915.047M	114.5	+23.3 +0.8	+2.3	-29.1	+1.9	+0.0 360	113.7	117.7	-4.0	Verti 130
5	403.696M	46.9	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	37.9	46.0	-8.1	Verti 130
6	156.729M	49.9	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	34.9	43.5	-8.6	Verti 130
7	404.657M	46.3	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	37.3	46.0	-8.7	Verti 130
8	135.228M	47.7	+12.1 +0.3	+0.8	-28.8	+0.7	+0.0 360	32.8	43.5	-10.7	Verti 130
9	132.104M	47.3	+12.2 +0.3	+0.8	-28.8	+0.7	+0.0 360	32.5	43.5	-11.0	Verti 130
10	168.140M	47.7	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0 360	31.6	43.5	-11.9	Verti 130
11	281.894M	46.4	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	33.9	46.0	-12.1	Verti 130
12	115.408M	47.7	+10.9 +0.2	+0.7	-28.8	+0.6	+0.0 360	31.3	43.5	-12.2	Verti 130
13	283.576M	46.1	+13.3 +0.4	+1.1	-28.2	+1.0	+0.0 360	33.7	46.0	-12.3	Verti 130
14	162.014M	46.6	+11.2 +0.3	+0.9	-28.6	+0.8	+0.0 360	31.2	43.5	-12.3	Verti 130
15	117.089M	46.8	+11.0 +0.2	+0.7	-28.8	+0.6	+0.0 360	30.5	43.5	-13.0	Verti 130
16	119.252M	46.4	+11.1 +0.2	+0.8	-28.8	+0.7	+0.0 360	30.4	43.5	-13.1	Verti 130
17	121.534M	46.0	+11.5 +0.2	+0.8	-28.8	+0.7	+0.0 360	30.4	43.5	-13.1	Verti 130
18	119.972M	46.4	+11.1 +0.2	+0.8	-28.8	+0.7	+0.0 360	30.4	43.5	-13.1	Verti 130
19	272.284M	44.2	+13.1 +0.4	+1.1	-28.2	+1.0	+0.0 360	31.6	46.0	-14.4	Verti 130
20	323.335M	41.8	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0 360	30.8	46.0	-15.2	Verti 130
21	256.909M	43.1	+12.8 +0.4	+1.1	-28.2	+1.0	+0.0 360	30.2	46.0	-15.8	Verti 130
22	242.014M	43.3	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.8	46.0	-16.2	Verti 130

CKC Laboratories, Inc. Date: 8/10/2010 Time: 10:58:12 Itron, Inc. WO#: 90893
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 Work Order #: **90893** Date: 8/10/2010
 Test Type: **Maximized Emissions** Time: 12:58:47
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS antenna)** Sequence#: 13
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
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T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

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External WWAN Antenna	Laird Technologies	FG821/18503	40353

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 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

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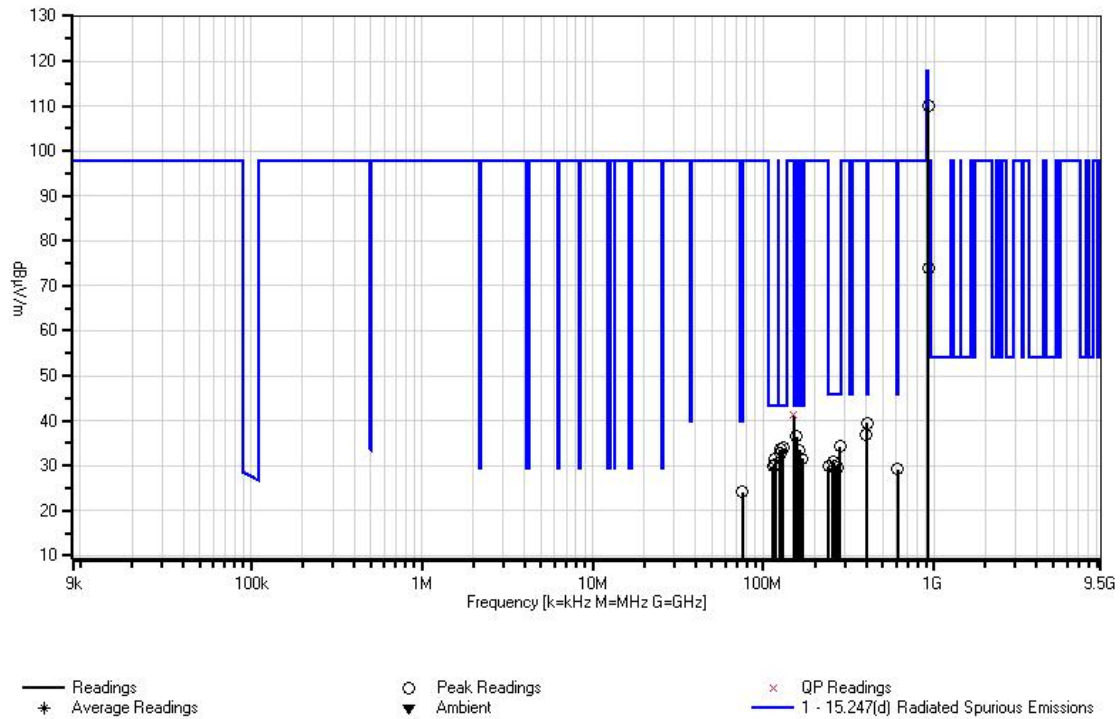
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Test Distance: 3 Meters

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	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	149.902M	55.8	+12.1	+0.9	-28.7	+0.8	+0.0	41.2	43.5	-2.3	Verti
	QP		+0.3				224				100
^	150.002M	59.0	+12.1	+0.9	-28.7	+0.8	+0.0	44.4	43.5	+0.9	Verti
			+0.3				224				100
^	150.002M	56.9	+12.1	+0.9	-28.7	+0.8	+0.0	42.3	43.5	-1.2	Verti
			+0.3				360				130

4	403.696M	48.5	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	39.5	46.0	-6.5	Verti 130
5	156.729M	51.4	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	36.4	43.5	-7.1	Verti 130
6	926.818M	110.4	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 360	110.0	117.7	-7.7	Verti 130
7	401.413M	45.9	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 360	36.8	46.0	-9.2	Verti 130
8	129.942M	48.6	+12.3 +0.3	+0.8	-28.8	+0.7	+0.0 360	33.9	43.5	-9.6	Verti 130
9	125.378M	48.4	+12.4 +0.2	+0.8	-28.8	+0.7	+0.0 360	33.7	43.5	-9.8	Verti 130
10	162.255M	48.9	+11.2 +0.3	+0.9	-28.6	+0.8	+0.0 360	33.5	43.5	-10.0	Verti 130
11	126.459M	47.5	+12.4 +0.3	+0.8	-28.8	+0.7	+0.0 360	32.9	43.5	-10.6	Verti 130
12	281.293M	46.7	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	34.2	46.0	-11.8	Verti 130
13	168.501M	47.6	+10.5 +0.3	+0.9	-28.5	+0.8	+0.0 360	31.6	43.5	-11.9	Verti 130
14	117.450M	47.9	+11.0 +0.2	+0.7	-28.8	+0.6	+0.0 360	31.6	43.5	-11.9	Verti 130
15	116.489M	46.5	+11.0 +0.2	+0.7	-28.8	+0.6	+0.0 360	30.2	43.5	-13.3	Verti 130
16	114.447M	46.2	+10.9 +0.2	+0.7	-28.8	+0.6	+0.0 360	29.8	43.5	-13.7	Verti 130
17	256.429M	43.6	+12.8 +0.4	+1.1	-28.2	+1.0	+0.0 360	30.7	46.0	-15.3	Verti 130
18	75.187M	44.0	+7.8 +0.2	+0.6	-28.9	+0.5	+0.0 360	24.2	40.0	-15.8	Verti 130
19	242.134M	43.3	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.8	46.0	-16.2	Verti 130
20	261.714M	42.6	+12.9 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.8	46.0	-16.2	Verti 130
21	270.242M	42.3	+13.0 +0.4	+1.1	-28.2	+1.0	+0.0 360	29.6	46.0	-16.4	Verti 130
22	611.383M	34.7	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 360	29.2	46.0	-16.8	Verti 130
23	928.018M	74.3	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 31	73.9	97.7 Bandedge	-23.8	Verti 230
24	928.000M	74.3	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 224	73.9	97.7 Bandedge	-23.8	Verti 100

CKC Laboratories, Inc. Date: 8/10/2010 Time: 12:58:47 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 13 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/10/2010
 Test Type: **Maximized Emissions** Time: 14:27:30
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 16
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamplifier	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 - 1000 MHz
 Temp: 24° C
 Humidity: 45%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 926.8 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

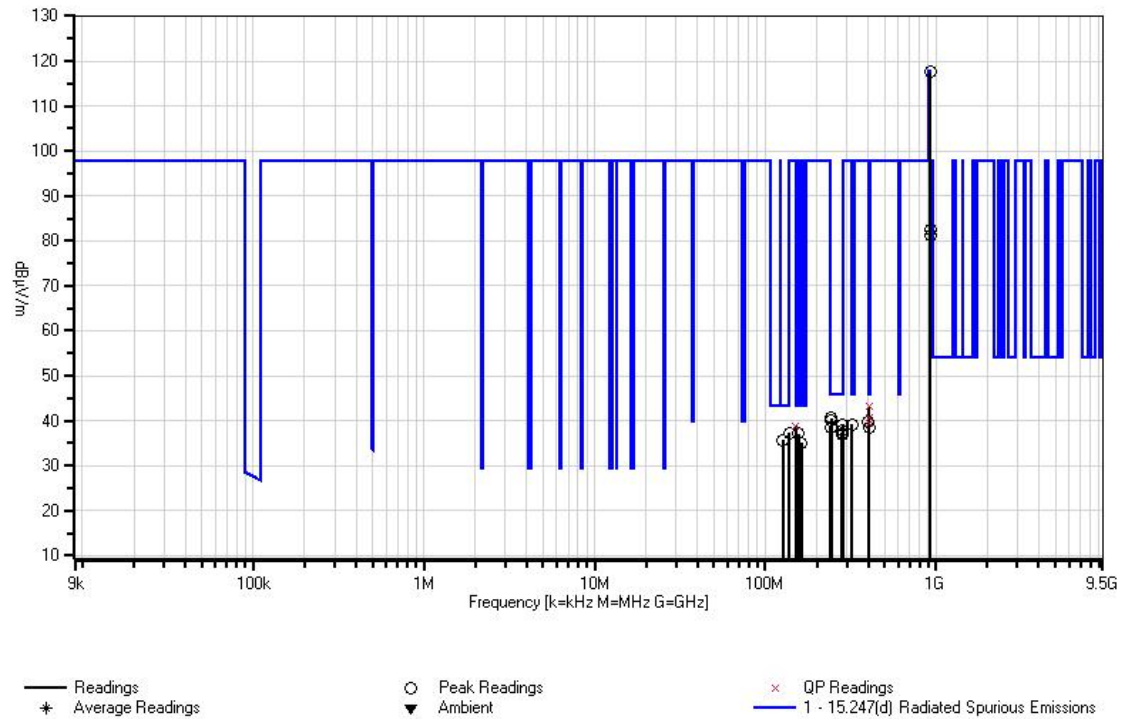
Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	926.818M	117.9	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 360	117.5	117.7 TX frequency.	-0.2	Horiz 130
2	403.198M	52.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 173	43.2	46.0	-2.8	Horiz 190
^	403.193M	59.3	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 173	50.3	46.0	+4.3	Horiz 190

4	149.911M	53.4	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	38.8	43.5	-4.7	Horiz 210
^	149.981M	56.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	42.0	43.5	-1.5	Horiz 210
^	150.002M	53.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 360	39.0	43.5	-4.5	Horiz 130
7	403.862M	49.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 175	40.6	46.0	-5.4	Horiz 181
^	403.896M	59.7	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 175	50.7	46.0	+4.7	Horiz 181
^	403.936M	55.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	46.4	46.0	+0.4	Horiz 130
10	242.615M	54.0	+12.3 +0.4	+1.1	-28.2	+1.0	+0.0 360	40.6	46.0	-5.4	Horiz 130
11	242.855M	53.4	+12.3 +0.4	+1.1	-28.2	+1.0	+0.0 360	40.0	46.0	-6.0	Horiz 130
12	137.630M	52.1	+12.1 +0.3	+0.8	-28.7	+0.7	+0.0 360	37.3	43.5	-6.2	Horiz 130
13	156.849M	52.1	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	37.1	43.5	-6.4	Horiz 130
14	402.254M	48.7	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 360	39.6	46.0	-6.4	Horiz 130
15	404.088M	48.3	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	39.3	46.0	-6.7	Horiz 174
^	404.118M	59.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	50.2	46.0	+4.2	Horiz 174
^	404.176M	55.0	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	46.0	46.0	+0.0	Horiz 130
18	322.254M	50.4	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0 360	39.2	46.0	-6.8	Horiz 130
19	284.537M	51.4	+13.3 +0.4	+1.1	-28.2	+1.0	+0.0 360	39.0	46.0	-7.0	Horiz 130
20	240.693M	52.2	+12.1 +0.4	+1.1	-28.2	+1.0	+0.0 360	38.6	46.0	-7.4	Horiz 130
21	405.137M	47.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	38.6	46.0	-7.4	Horiz 130
22	126.098M	50.3	+12.4 +0.3	+0.8	-28.8	+0.7	+0.0 360	35.7	43.5	-7.8	Horiz 130
23	282.855M	50.3	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	37.8	46.0	-8.2	Horiz 130
24	162.014M	50.5	+11.2 +0.3	+0.9	-28.6	+0.8	+0.0 360	35.1	43.5	-8.4	Horiz 130
25	280.212M	49.8	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	37.3	46.0	-8.7	Horiz 130
26	282.014M	49.5	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	37.0	46.0	-9.0	Horiz 130
27	280.453M	49.5	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	37.0	46.0	-9.0	Horiz 130
28	928.031M	83.0	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 280	82.6	97.7 Bandedge	-15.1	Horiz 110
29	928.000M	81.5	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 280	81.1	97.7 Bandedge	-16.6	Horiz 110

CKC Laboratories, Inc. Date: 8/10/2010 Time: 14:27:30 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 16 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 11:51:45
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 23
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamp	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 24° C
 Humidity: 44%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 903 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

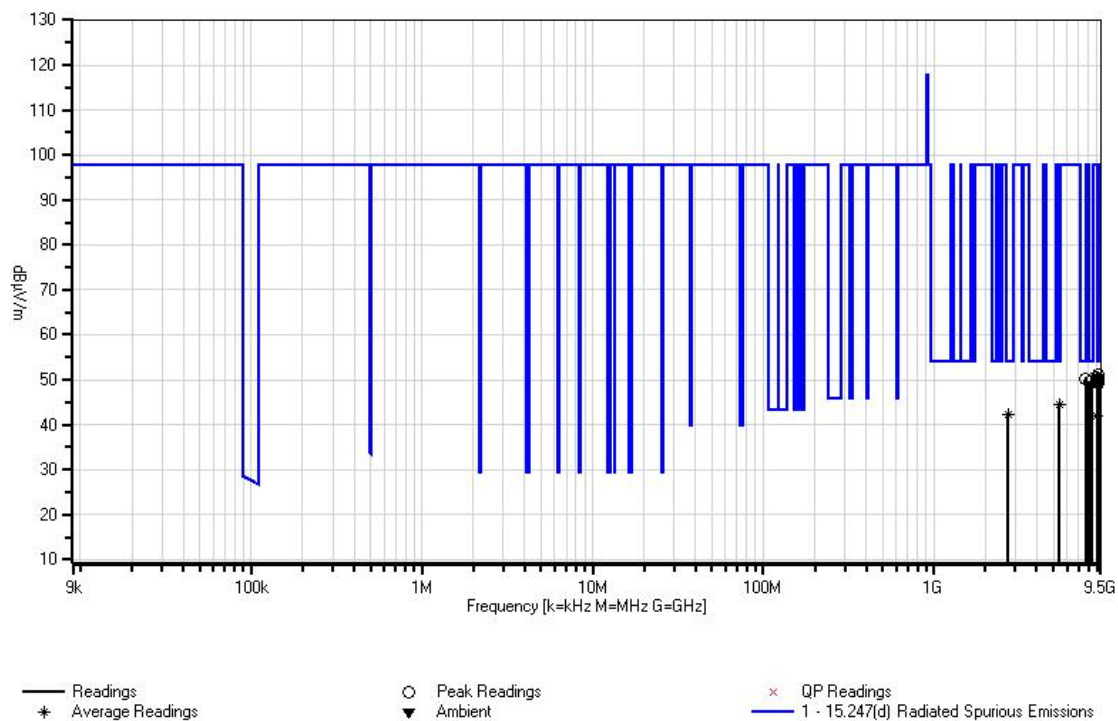
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9184.368M	33.9	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	51.1	54.0	-2.9	Horiz 100
2	9039.536M	33.9	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.4	54.0	-3.6	Horiz 100
3	7724.718M	33.5	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.3	54.0	-3.7	Horiz 100
4	8460.453M	33.6	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.3	54.0	-3.7	Horiz 100
5	9190.208M	32.8	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
6	9180.572M	32.8	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
7	9138.232M	32.9	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
8	8224.217M	33.5	+36.0 -34.7	+0.7 +5.5	+0.4 +2.7	+5.6 +0.0	+0.0 360	49.7	54.0	-4.3	Horiz 100
9	9168.308M	32.3	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.6	54.0	-4.4	Horiz 100
10	9035.156M	33.2	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	49.6	54.0	-4.4	Horiz 100
11	9155.752M	32.4	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	49.5	54.0	-4.5	Horiz 100
12	9163.636M	32.3	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.5	54.0	-4.5	Horiz 100
13	8126.119M	33.3	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0 360	49.4	54.0	-4.6	Horiz 100
14	9140.860M	32.4	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	49.4	54.0	-4.6	Horiz 100
15	9164.512M	32.2	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.4	54.0	-4.6	Horiz 100
16	9094.724M	32.6	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0 360	49.4	54.0	-4.6	Horiz 100
17	9160.716M	32.1	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	49.2	54.0	-4.8	Horiz 100
18	5418.020M Ave	31.3	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0	44.4	54.0	-9.6	Horiz 184
^	5417.983M	40.7	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0	53.8	54.0	-0.2	Horiz 184
^	5417.983M	40.5	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 360	53.6	54.0	-0.4	Horiz 100
21	2709.004M Ave	50.8	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 -14.0	+0.0 110	42.1	54.0	-11.9	Horiz 180
^	2709.004M	58.9	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 +0.0	+0.0 110	64.2	54.0	+10.2	Horiz 180
^	2709.004M	58.0	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 +0.0	+0.0 360	63.3	54.0	+9.3	Horiz 100

24	9030.000M	25.4	+36.6	+0.2	+0.3	+5.3	+0.0	41.8	54.0	-12.2	Horiz
	Ave		-34.3	+5.7	+2.6	+0.0	310				180
^	9030.000M	37.0	+36.6	+0.2	+0.3	+5.3	+0.0	53.4	54.0	-0.6	Horiz
			-34.3	+5.7	+2.6	+0.0	310				180
^	9030.000M	34.0	+36.6	+0.2	+0.3	+5.3	+0.0	50.4	54.0	-3.6	Horiz
			-34.3	+5.7	+2.6	+0.0	360				100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 11:51:45 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 23 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 11:19:47
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 22
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 24° C
 Humidity: 44%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 903 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

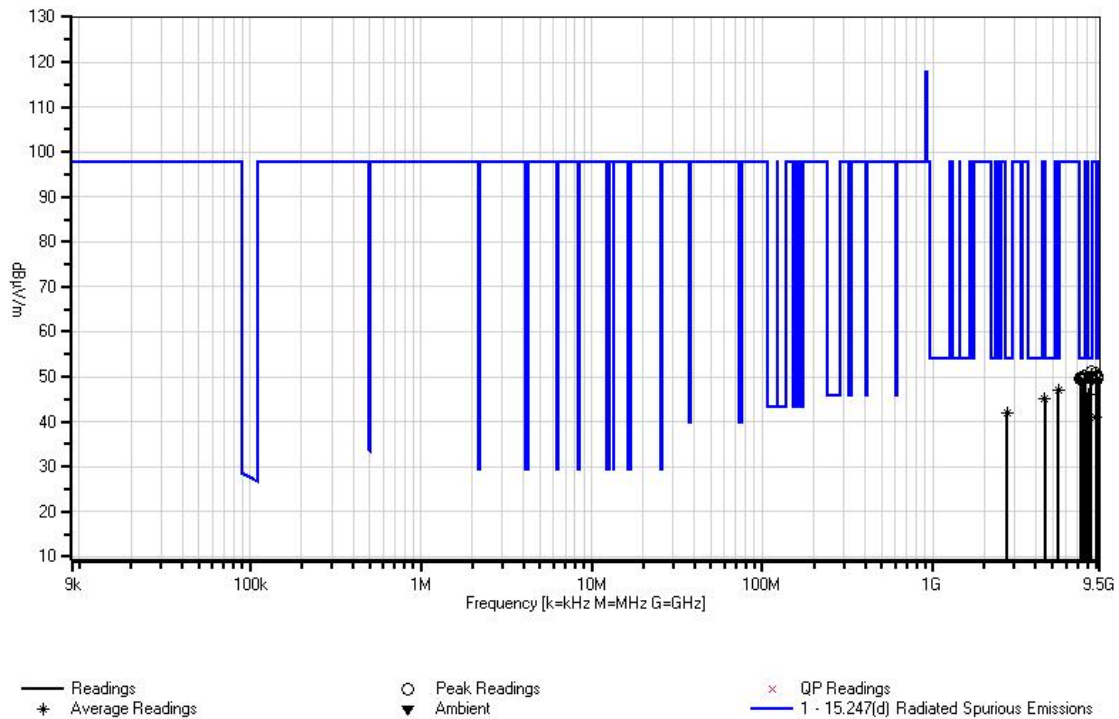
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	8409.402M	34.6	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.3 +0.0	+0.0 360	51.0	54.0	-3.0	Verti 100
2	9054.428M	34.1	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.7	54.0	-3.3	Verti 100
3	7692.686M	33.4	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	50.1	54.0	-3.9	Verti 100
4	9155.752M	33.0	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.1	54.0	-3.9	Verti 100
5	7361.355M	34.3	+36.1 -34.6	+0.3 +5.2	+0.5 +2.3	+5.9 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
6	9199.552M	32.7	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
7	8402.395M	33.4	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.3 +0.0	+0.0 360	49.8	54.0	-4.2	Verti 100
8	9096.476M	33.1	+36.5 -34.3	+0.3 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0 360	49.8	54.0	-4.2	Verti 100
9	7529.523M	33.7	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	49.7	54.0	-4.3	Verti 100
10	7312.306M	33.7	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 360	49.5	54.0	-4.5	Verti 100
11	8414.407M	33.1	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.3 +0.0	+0.0 360	49.5	54.0	-4.5	Verti 100
12	7508.502M	33.3	+36.2 -34.6	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	49.4	54.0	-4.6	Verti 100
13	7431.425M	33.5	+36.2 -34.6	+0.3 +5.3	+0.4 +2.3	+6.0 +0.0	+0.0 360	49.4	54.0	-4.6	Verti 100
14	7654.648M	33.0	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.1 +0.0	+0.0 360	49.4	54.0	-4.6	Verti 100
15	9100.564M	32.6	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0 360	49.4	54.0	-4.6	Verti 100
16	7667.661M	33.0	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.1 +0.0	+0.0 360	49.4	54.0	-4.6	Verti 100
17	5418.035M Ave	33.8	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 65	46.9	54.0	-7.1	Verti 125
^	5418.049M	42.9	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 65	56.0	54.0	+2.0	Verti 125
^	5418.049M	39.5	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 360	52.6	54.0	-1.4	Verti 100
20	8127.031M Ave	30.1	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0 360	46.2	54.0	-7.8	Verti 100
^	8127.031M	39.9	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0 360	56.0	54.0	+2.0	Verti 100
^	8127.031M	38.2	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0 360	54.3	54.0	+0.3	Verti 100
23	4515.016M Ave	34.2	+32.6 -33.9	+0.2 +4.1	+0.4 +1.9	+5.6 +0.0	+0.0 356	45.1	54.0	-8.9	Verti 100

^	4514.988M	42.7	+32.6	+0.2	+0.4	+5.6	+0.0	53.6	54.0	-0.4	Verti
			-33.9	+4.1	+1.9	+0.0	356				100
^	4514.988M	42.0	+32.6	+0.2	+0.4	+5.6	+0.0	52.9	54.0	-1.1	Verti
			-33.9	+4.1	+1.9	+0.0	360				100
26	2709.024M	50.7	+28.4	+0.4	+0.3	+6.0	+0.0	42.0	54.0	-12.0	Verti
	Ave		-34.3	+3.0	+1.5	-14.0	360		Duty Cycle Correction applied (-14 dB).		105
^	2709.024M	59.2	+28.4	+0.4	+0.3	+6.0	+0.0	64.5	54.0	+10.5	Verti
			-34.3	+3.0	+1.5	+0.0	360				105
^	2709.024M	57.5	+28.4	+0.4	+0.3	+6.0	+0.0	62.8	54.0	+8.8	Verti
			-34.3	+3.0	+1.5	+0.0	360				100
29	9030.022M	24.5	+36.6	+0.2	+0.3	+5.3	+0.0	40.9	54.0	-13.1	Verti
	Ave		-34.3	+5.7	+2.6	+0.0	25				130
^	9030.050M	36.6	+36.6	+0.2	+0.3	+5.3	+0.0	53.0	54.0	-1.0	Verti
			-34.3	+5.7	+2.6	+0.0	25				130

CKC Laboratories, Inc. Date: 8/11/2010 Time: 11:19:47 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 22 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 13:56:45
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 25
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 24°C
 Humidity: 44%
 Pressure: 102.1 kPa

FHSS radio transmitting on 903 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

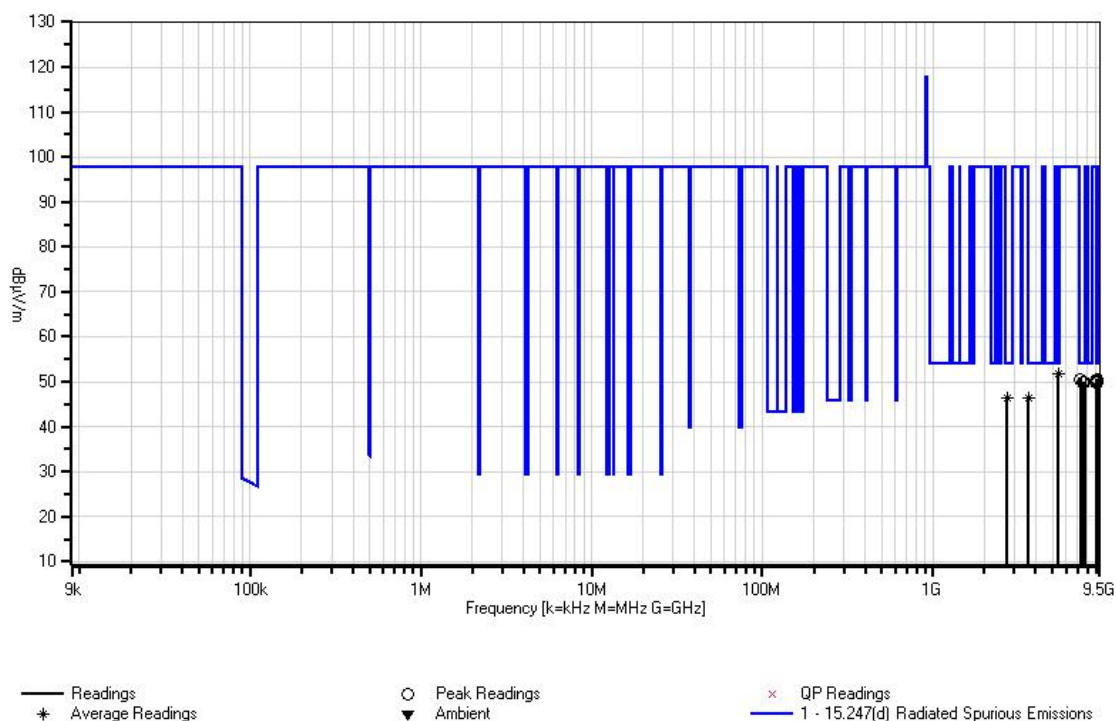
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	5418.004M Ave	38.8	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 120	51.9	54.0	-2.1	Horiz 115
^	5418.004M	44.8	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 120	57.9	54.0	+3.9	Horiz 115
^	5418.004M	40.8	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 360	53.9	54.0	-0.1	Horiz 100
4	7304.298M	34.8	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
5	9137.064M	33.6	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
6	9150.788M	33.5	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
7	9179.988M	33.1	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.3	54.0	-3.7	Horiz 100
8	9030.192M	33.8	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
9	9196.632M	32.8	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
10	7727.721M	33.2	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
11	9188.164M	32.7	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
12	7533.527M	34.0	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
13	7703.697M	33.3	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
14	7715.709M	33.2	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
15	9041.872M	33.4	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
16	9175.900M	32.6	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
17	9105.820M	33.0	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0 360	49.8	54.0	-4.2	Horiz 100
18	9080.416M	33.1	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0 360	49.8	54.0	-4.2	Horiz 100
19	9199.260M	32.5	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	49.8	54.0	-4.2	Horiz 100
20	9182.908M	32.6	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.8	54.0	-4.2	Horiz 100
21	2709.021M Ave	55.1	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 -14.0	+0.0 95	46.4	54.0 Duty Cycle Correction Factor Applied (-14 dB).	-7.6	Horiz 135
^	2709.021M	58.5	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 +0.0	+0.0 95	63.8	54.0	+9.8	Horiz 135

^	2709.021M	58.4	+28.4	+0.4	+0.3	+6.0	+0.0	63.7	54.0	+9.7	Horiz
			-34.3	+3.0	+1.5	+0.0	360				100
24	3612.030M	37.6	+30.6	+0.5	+0.3	+5.9	+0.0	46.3	54.0	-7.7	Horiz
	Ave		-33.9	+3.6	+1.7	+0.0	60				100
^	3612.030M	43.2	+30.6	+0.5	+0.3	+5.9	+0.0	51.9	54.0	-2.1	Horiz
			-33.9	+3.6	+1.7	+0.0	60				100
^	3612.030M	41.8	+30.6	+0.5	+0.3	+5.9	+0.0	50.5	54.0	-3.5	Horiz
			-33.9	+3.6	+1.7	+0.0	360				100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 13:56:45 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 25 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 13:34:31
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 24
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 24° C
 Humidity: 44%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 903 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

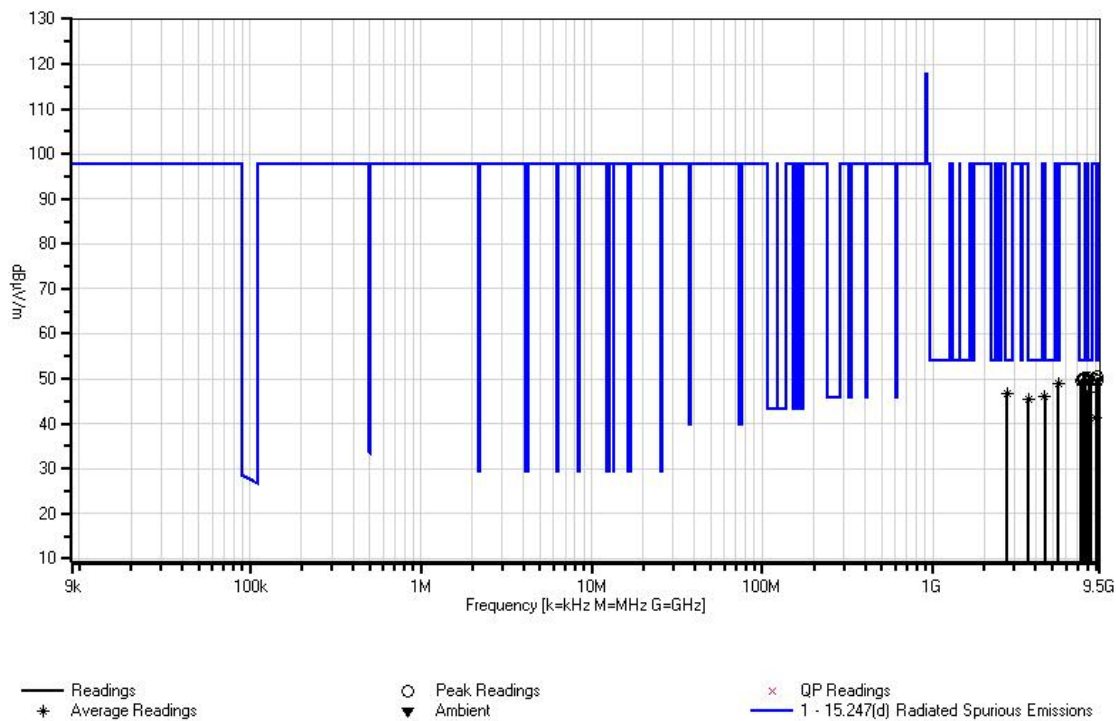
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9152.248M	33.3	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0	50.4	54.0	-3.6	Verti 100
2	7748.742M	33.3	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.5 +0.0	+0.0	50.2	54.0	-3.8	Verti 100
3	8224.217M	33.9	+36.0 -34.7	+0.7 +5.5	+0.4 +2.7	+5.6 +0.0	+0.0	50.1	54.0	-3.9	Verti 100
4	7527.521M	34.0	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0	50.0	54.0	-4.0	Verti 100
5	7486.480M	33.8	+36.2 -34.6	+0.4 +5.4	+0.4 +2.4	+5.9 +0.0	+0.0	49.9	54.0	-4.1	Verti 100
6	7718.712M	33.1	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0	49.9	54.0	-4.1	Verti 100
7	9044.500M	33.4	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	49.9	54.0	-4.1	Verti 100
8	9078.372M	32.9	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0	49.6	54.0	-4.4	Verti 100
9	8376.369M	33.2	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.2 +0.0	+0.0	49.5	54.0	-4.5	Verti 100
10	7378.372M	33.5	+36.1 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0	49.5	54.0	-4.5	Verti 100
11	9055.596M	32.9	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	49.5	54.0	-4.5	Verti 100
12	9106.696M	32.7	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0	49.5	54.0	-4.5	Verti 100
13	9088.592M	32.7	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0	49.5	54.0	-4.5	Verti 100
14	9094.140M	32.6	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0	49.4	54.0	-4.6	Verti 100
15	5418.000M	35.8	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 5	48.9	54.0	-5.1	Verti 110
^	5418.000M	43.1	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0 5	56.2	54.0	+2.2	Verti 110
^	5418.000M	40.3	+33.9 -33.9	+0.1 +4.6	+0.5 +2.1	+5.8 +0.0	+0.0	53.4	54.0	-0.6	Verti 100
18	8126.617M	30.8	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0	46.9	54.0	-7.1	Verti 100
^	8126.617M	41.2	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0	57.3	54.0	+3.3	Verti 100
^	8126.617M	37.4	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0	53.5	54.0	-0.5	Verti 100
21	2709.021M	55.3	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 -14.0	+0.0	46.6	54.0 Duty Cycle Correction applied (-14 dB).	-7.4	Verti 100
^	2709.021M	58.2	+28.4 -34.3	+0.4 +3.0	+0.3 +1.5	+6.0 +0.0	+0.0	63.5	54.0	+9.5	Verti 100

^	2709.021M	57.2	+28.4	+0.4	+0.3	+6.0	+0.0	62.5	54.0	+8.5	Verti
			-34.3	+3.0	+1.5	+0.0					100
24	4514.955M	35.1	+32.6	+0.2	+0.4	+5.6	+0.0	46.0	54.0	-8.0	Verti
	Ave		-33.9	+4.1	+1.9	+0.0	65				105
^	4514.955M	43.3	+32.6	+0.2	+0.4	+5.6	+0.0	54.2	54.0	+0.2	Verti
			-33.9	+4.1	+1.9	+0.0	65				105
^	4514.955M	40.8	+32.6	+0.2	+0.4	+5.6	+0.0	51.7	54.0	-2.3	Verti
			-33.9	+4.1	+1.9	+0.0					100
27	3612.013M	36.7	+30.6	+0.5	+0.3	+5.9	+0.0	45.4	54.0	-8.6	Verti
	Ave		-33.9	+3.6	+1.7	+0.0	125				165
^	3612.013M	42.5	+30.6	+0.5	+0.3	+5.9	+0.0	51.2	54.0	-2.8	Verti
			-33.9	+3.6	+1.7	+0.0	125				165
^	3612.013M	41.0	+30.6	+0.5	+0.3	+5.9	+0.0	49.7	54.0	-4.3	Verti
			-33.9	+3.6	+1.7	+0.0					100
30	9030.502M	25.0	+36.6	+0.2	+0.3	+5.3	+0.0	41.4	54.0	-12.6	Verti
	Ave		-34.3	+5.7	+2.6	+0.0	350				100
^	9030.560M	36.7	+36.6	+0.2	+0.3	+5.3	+0.0	53.1	54.0	-0.9	Verti
			-34.3	+5.7	+2.6	+0.0	350				100
^	9030.560M	34.0	+36.6	+0.2	+0.3	+5.3	+0.0	50.4	54.0	-3.6	Verti
			-34.3	+5.7	+2.6	+0.0					100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 13:34:31 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 24 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 15:20:37
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 27
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 25° C
 Humidity: 40%
 Pressure: 102.0 kPa
 FHSS radio transmitting on 915 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

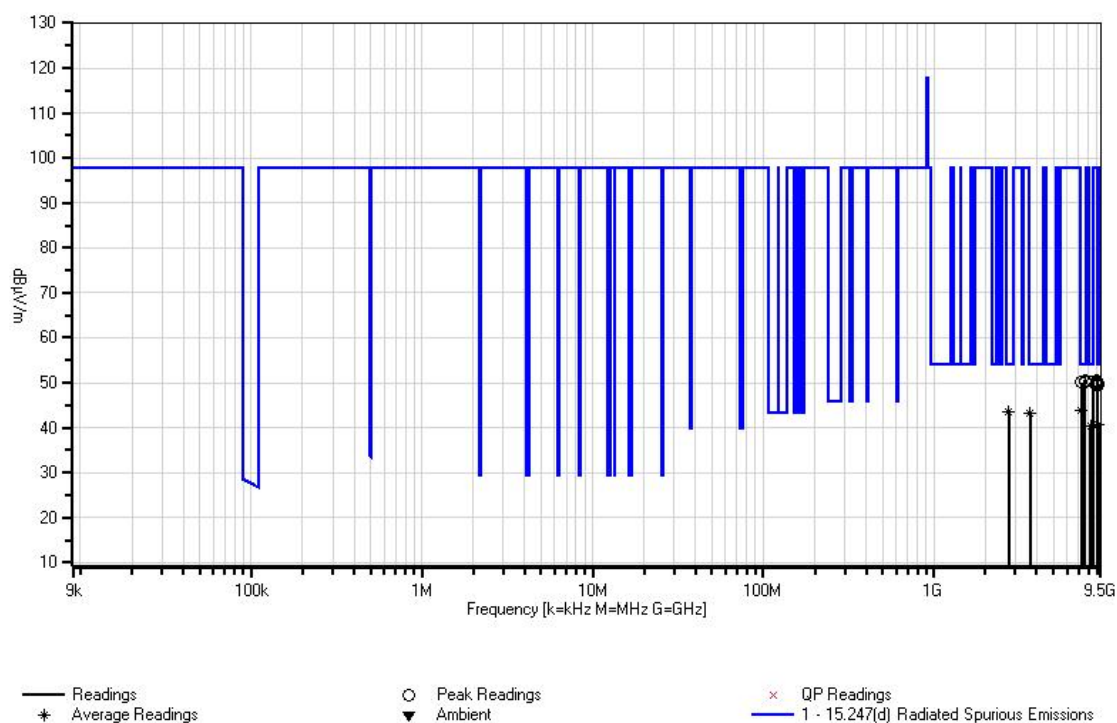
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9021.140M	34.0	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0	50.5	54.0	-3.5	Horiz 100
2	7680.674M	34.0	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.2 +0.0	+0.0	50.5	54.0	-3.5	Horiz 100
3	7676.670M	34.0	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.2 +0.0	+0.0	50.5	54.0	-3.5	Horiz 100
4	7669.663M	33.7	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.2 +0.0	+0.0	50.2	54.0	-3.8	Horiz 100
5	9048.880M	33.7	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	50.2	54.0	-3.8	Horiz 100
6	7306.300M	34.3	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0	50.1	54.0	-3.9	Horiz 100
7	8496.489M	33.4	+35.8 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0	50.1	54.0	-3.9	Horiz 100
8	9101.440M	33.0	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0	49.8	54.0	-4.2	Horiz 100
9	9036.616M	33.4	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0	49.8	54.0	-4.2	Horiz 100
10	9068.444M	33.1	+36.5 -34.3	+0.3 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0	49.7	54.0	-4.3	Horiz 100
11	9106.696M	32.9	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0	49.7	54.0	-4.3	Horiz 100
12	9027.272M	33.1	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0	49.6	54.0	-4.4	Horiz 100
13	9047.128M	33.1	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	49.6	54.0	-4.4	Horiz 100
14	7320.026M Ave	28.1	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 353	43.9	54.0	-10.1	Horiz 100
^	7320.049M	38.4	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 353	54.2	54.0	+0.2	Horiz 100
^	7320.049M	35.6	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0	51.4	54.0	-2.6	Horiz 100
17	2745.012M Ave	52.2	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 -14.0	+0.0 88	43.7	54.0 Duty Cycle Correction applied (-14 dB).	-10.3	Horiz 100
^	2745.012M	60.3	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 88	65.8	54.0	+11.8	Horiz 100
19	3660.019M Ave	34.1	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 15	43.3	54.0	-10.7	Horiz 100
^	3660.012M	43.7	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 15	52.9	54.0	-1.1	Horiz 100
^	3660.012M	41.0	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0	50.2	54.0	-3.8	Horiz 100
22	9150.046M Ave	23.7	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 350	40.8	54.0	-13.2	Horiz 240

^	9150.046M	36.9	+36.5	+0.3	+0.3	+5.8	+0.0	54.0	54.0	+0.0	Horiz
			-34.2	+5.7	+2.7	+0.0	350				240
^	9150.046M	33.1	+36.5	+0.3	+0.3	+5.8	+0.0	50.2	54.0	-3.8	Horiz
			-34.2	+5.7	+2.7	+0.0					100
25	8235.011M	24.4	+36.0	+0.6	+0.4	+5.6	+0.0	40.4	54.0	-13.6	Horiz
	Ave		-34.7	+5.5	+2.6	+0.0	75				190
^	8234.936M	36.1	+36.0	+0.6	+0.4	+5.6	+0.0	52.1	54.0	-1.9	Horiz
			-34.7	+5.5	+2.6	+0.0	75				190
^	8234.936M	33.5	+36.0	+0.6	+0.4	+5.6	+0.0	49.5	54.0	-4.5	Horiz
			-34.7	+5.5	+2.6	+0.0					100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 15:20:37 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 27 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 14:36:56
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 26
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 25° C
 Humidity: 40%
 Pressure: 102.0 kPa
 FHSS radio transmitting on 915 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

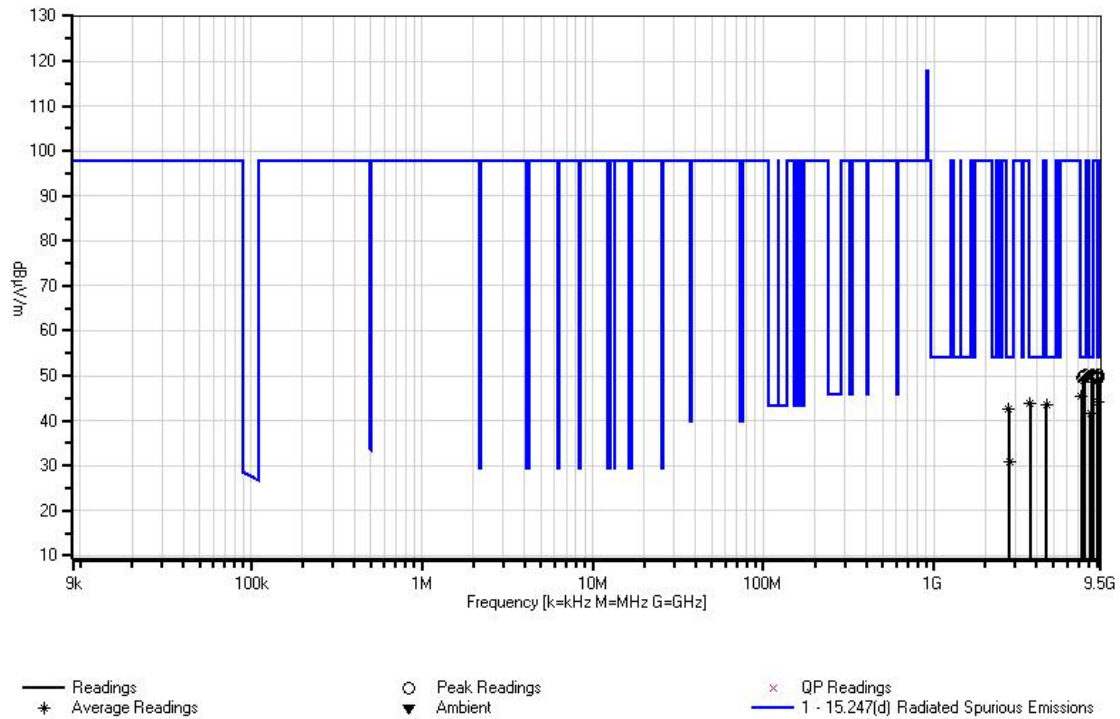
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	7689.683M	33.6	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0	50.3	54.0	-3.7	Verti 100
2	9140.276M	33.3	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0	50.3	54.0	-3.7	Verti 100
3	7654.648M	33.8	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.1 +0.0	+0.0	50.2	54.0	-3.8	Verti 100
4	8460.453M	33.5	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0	50.2	54.0	-3.8	Verti 100
5	8339.332M	33.7	+36.0 -34.7	+0.5 +5.5	+0.4 +2.5	+6.1 +0.0	+0.0	50.0	54.0	-4.0	Verti 100
6	7516.510M	33.9	+36.2 -34.6	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0	50.0	54.0	-4.0	Verti 100
7	9042.456M	33.3	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	49.8	54.0	-4.2	Verti 100
8	9033.112M	33.3	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0	49.7	54.0	-4.3	Verti 100
9	9170.644M	32.4	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0	49.7	54.0	-4.3	Verti 100
10	7437.431M	33.6	+36.2 -34.6	+0.3 +5.3	+0.4 +2.4	+6.0 +0.0	+0.0	49.6	54.0	-4.4	Verti 100
11	8470.463M	32.8	+35.9 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0	49.6	54.0	-4.4	Verti 100
12	9045.376M	33.1	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0	49.6	54.0	-4.4	Verti 100
13	8396.389M	33.0	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.3 +0.0	+0.0	49.4	54.0	-4.6	Verti 100
14	7320.030M Ave	29.7	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 360	45.5	54.0	-8.5	Verti 103
^	7320.030M	39.6	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0 360	55.4	54.0	+1.4	Verti 103
^	7320.030M	38.2	+36.1 -34.6	+0.3 +5.2	+0.5 +2.4	+5.9 +0.0	+0.0	54.0	54.0	+0.0	Verti 100
17	9150.010M Ave	27.0	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 20	44.1	54.0	-9.9	Verti 130
^	9150.052M	37.8	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 20	54.9	54.0	+0.9	Verti 130
^	9149.912M	35.3	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0	52.4	54.0	-1.6	Verti 100
20	3659.993M Ave	34.5	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 5	43.7	54.0	-10.3	Verti 115
^	3660.033M	43.2	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 5	52.4	54.0	-1.6	Verti 115
^	3660.033M	41.3	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0	50.5	54.0	-3.5	Verti 100
23	4575.008M Ave	32.4	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0 345	43.5	54.0	-10.5	Verti 100

^ 4575.008M	41.8	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0 345	52.9	54.0	-1.1	Verti 100
^ 4575.008M	39.6	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0	50.7	54.0	-3.3	Verti 100
26 2744.991M Ave	51.1	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 -14.0	+0.0 60	42.6	54.0 Duty Cycle Correction applied (-14 dB).	-11.4	Verti 100
^ 2744.991M	65.2	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0	70.7	54.0	+16.7	Verti 100
^ 2744.991M	60.6	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 60	66.1	54.0	+12.1	Verti 100
29 8235.024M Ave	25.7	+36.0 -34.7	+0.6 +5.5	+0.4 +2.6	+5.6 +0.0	+0.0 115	41.7	54.0	-12.3	Verti 100
^ 8235.024M	36.9	+36.0 -34.7	+0.6 +5.5	+0.4 +2.6	+5.6 +0.0	+0.0 115	52.9	54.0	-1.1	Verti 100
^ 8235.024M	35.4	+36.0 -34.7	+0.6 +5.5	+0.4 +2.6	+5.6 +0.0	+0.0	51.4	54.0	-2.6	Verti 100
32 2756.256M Ave	25.2	+28.5 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 148	30.9	54.0	-23.1	Verti 140
^ 2756.261M	51.5	+28.5 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 148	57.2	54.0	+3.2	Verti 140
^ 2756.261M	45.2	+28.5 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0	50.9	54.0	-3.1	Verti 100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 14:36:56 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 26 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 16:34:55
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 29
 Manufacturer: Itron, Inc Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 25° C
 Humidity: 38%
 Pressure: 102.0 kPa
 FHSS radio transmitting on 915 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

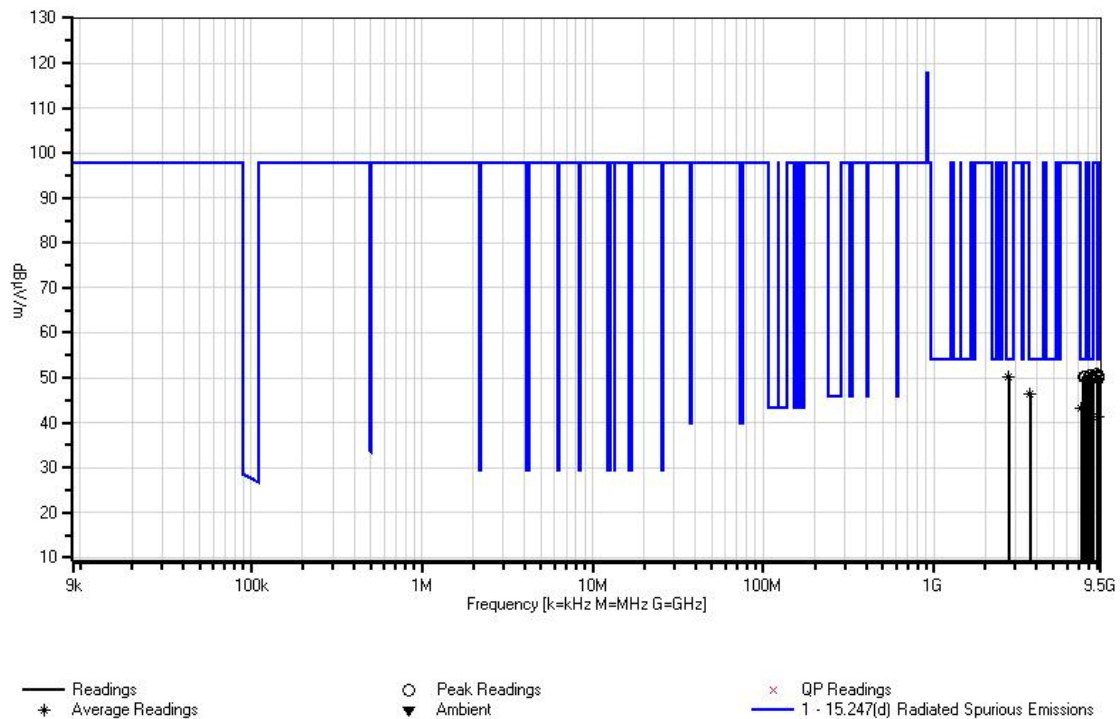
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9044.792M	34.3	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.8	54.0	-3.2	Horiz 100
2	9184.076M	33.3	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.5	54.0	-3.5	Horiz 100
3	8361.354M	34.2	+35.9 -34.7	+0.5 +5.6	+0.4 +2.5	+6.1 +0.0	+0.0 360	50.5	54.0	-3.5	Horiz 100
4	9094.432M	33.6	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0 360	50.4	54.0	-3.6	Horiz 100
5	8077.070M	34.2	+36.2 -34.7	+0.5 +5.5	+0.4 +2.5	+5.8 +0.0	+0.0 360	50.4	54.0	-3.6	Horiz 100
6	9179.988M	33.1	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.3	54.0	-3.7	Horiz 100
7	7521.515M	34.3	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	50.3	54.0	-3.7	Horiz 100
8	9078.956M	33.5	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
9	2745.006M Ave	58.6	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 -14.0	+0.0 82	50.1	54.0 Duty Cycle Correction applied (-14 dB).	-3.9	Horiz 145
^	2745.044M	60.7	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 82	66.2	54.0	+12.2	Horiz 145
^	2745.044M	58.9	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 360	64.4	54.0	+10.4	Horiz 100
12	7701.695M	33.4	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
13	7481.475M	34.0	+36.2 -34.6	+0.4 +5.4	+0.4 +2.4	+5.9 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
14	9197.800M	32.8	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
15	8464.457M	33.4	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
16	8484.477M	33.2	+35.9 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
17	9154.876M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
18	9166.848M	32.7	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
19	9188.748M	32.6	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
20	3660.025M Ave	37.2	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 11	46.4	54.0	-7.6	Horiz 100
^	3660.025M	44.1	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 11	53.3	54.0	-0.7	Horiz 100
^	3660.025M	41.2	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 360	50.4	54.0	-3.6	Horiz 100

23	7319.748M	27.5	+36.1	+0.3	+0.5	+5.9	+0.0	43.3	54.0	-10.7	Horiz
	Ave		-34.6	+5.2	+2.4	+0.0	350				100
^	7319.748M	37.8	+36.1	+0.3	+0.5	+5.9	+0.0	53.6	54.0	-0.4	Horiz
			-34.6	+5.2	+2.4	+0.0	350				100
^	7319.748M	35.9	+36.1	+0.3	+0.5	+5.9	+0.0	51.7	54.0	-2.3	Horiz
			-34.6	+5.2	+2.4	+0.0	360				100
26	9150.513M	24.1	+36.5	+0.3	+0.3	+5.8	+0.0	41.2	54.0	-12.8	Horiz
	Ave		-34.2	+5.7	+2.7	+0.0	322				140
^	9150.513M	35.9	+36.5	+0.3	+0.3	+5.8	+0.0	53.0	54.0	-1.0	Horiz
			-34.2	+5.7	+2.7	+0.0	322				140
^	9150.513M	34.1	+36.5	+0.3	+0.3	+5.8	+0.0	51.2	54.0	-2.8	Horiz
			-34.2	+5.7	+2.7	+0.0	360				100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 16:34:55 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 29 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/11/2010
 Test Type: **Maximized Emissions** Time: 15:59:38
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 28
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 25° C
 Humidity: 40%
 Pressure: 102.0 kPa
 FHSS radio transmitting on 915 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

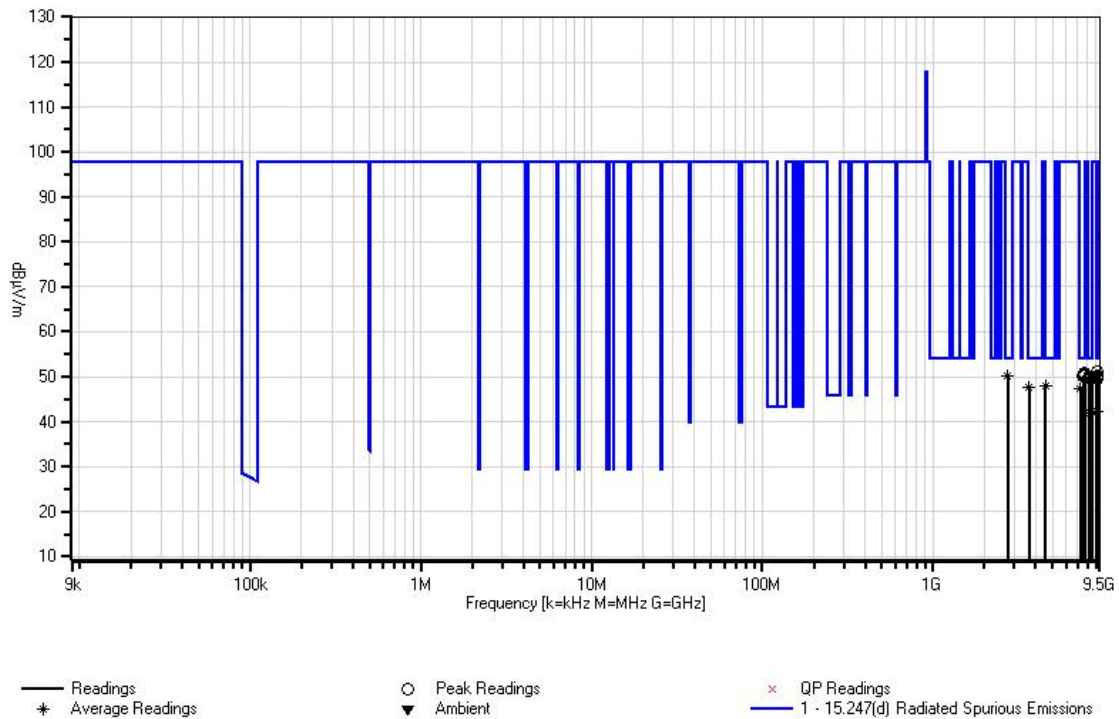
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	9148.452M	34.0	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	51.1	54.0	-2.9	Verti 100
2	7700.694M	34.1	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	50.8	54.0	-3.2	Verti 100
3	7729.723M	33.7	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.5 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
4	7749.743M	33.7	+36.2 -34.6	+0.4 +5.4	+0.5 +2.4	+6.6 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
5	9106.696M	33.4	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
6	7587.581M	34.3	+36.2 -34.9	+0.4 +5.4	+0.4 +2.6	+5.8 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
7	2745.005M Ave	58.6	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 -14.0	+0.0 66	50.1	54.0 Duty Cycle correction applied (- 14 dB).	-3.9	Verti 105
^	2745.021M	61.1	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 360	66.6	54.0	+12.6	Verti 100
^	2745.021M	60.7	+28.5 -34.3	+0.4 +3.1	+0.3 +1.5	+6.0 +0.0	+0.0 66	66.2	54.0	+12.2	Verti 105
10	7716.710M	33.3	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.1	54.0	-3.9	Verti 100
11	8371.364M	33.7	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.2 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
12	9144.948M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
13	9192.544M	32.7	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
14	8220.213M	33.7	+36.0 -34.7	+0.7 +5.5	+0.4 +2.7	+5.6 +0.0	+0.0 360	49.9	54.0	-4.1	Verti 100
15	8471.464M	33.1	+35.9 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	49.9	54.0	-4.1	Verti 100
16	8491.484M	33.1	+35.8 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	49.8	54.0	-4.2	Verti 100
17	9189.040M	32.4	+36.4 -34.2	+0.4 +5.7	+0.3 +2.7	+6.0 +0.0	+0.0 360	49.7	54.0	-4.3	Verti 100
18	4575.013M Ave	36.9	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0 356	48.0	54.0	-6.0	Verti 100
^	4575.013M	42.5	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0 356	53.6	54.0	-0.4	Verti 100
^	4575.013M	40.0	+32.6 -33.8	+0.2 +4.1	+0.4 +1.9	+5.7 +0.0	+0.0 360	51.1	54.0	-2.9	Verti 100
21	3660.015M Ave	38.6	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 4	47.8	54.0	-6.2	Verti 100
^	3660.015M	44.0	+30.8 -33.8	+0.6 +3.6	+0.3 +1.8	+5.9 +0.0	+0.0 4	53.2	54.0	-0.8	Verti 100

^	3660.015M	41.7	+30.8	+0.6	+0.3	+5.9	+0.0	50.9	54.0	-3.1	Verti
			-33.8	+3.6	+1.8	+0.0	360				100
24	7320.324M	31.4	+36.1	+0.3	+0.5	+5.9	+0.0	47.2	54.0	-6.8	Verti
	Ave		-34.6	+5.2	+2.4	+0.0	360				104
^	7320.382M	40.4	+36.1	+0.3	+0.5	+5.9	+0.0	56.2	54.0	+2.2	Verti
			-34.6	+5.2	+2.4	+0.0	360				104
^	7320.314M	38.4	+36.1	+0.3	+0.5	+5.9	+0.0	54.2	54.0	+0.2	Verti
			-34.6	+5.2	+2.4	+0.0	360				100
27	9150.484M	25.1	+36.5	+0.3	+0.3	+5.8	+0.0	42.2	54.0	-11.8	Verti
	Ave		-34.2	+5.7	+2.7	+0.0	16				150
^	9150.529M	36.7	+36.5	+0.3	+0.3	+5.8	+0.0	53.8	54.0	-0.2	Verti
			-34.2	+5.7	+2.7	+0.0	16				150
^	9150.496M	35.1	+36.5	+0.3	+0.3	+5.8	+0.0	52.2	54.0	-1.8	Verti
			-34.2	+5.7	+2.7	+0.0	360				100
30	8235.439M	25.8	+36.0	+0.6	+0.4	+5.6	+0.0	41.8	54.0	-12.2	Verti
	Ave		-34.7	+5.5	+2.6	+0.0	125				110
^	8235.439M	36.8	+36.0	+0.6	+0.4	+5.6	+0.0	52.8	54.0	-1.2	Verti
			-34.7	+5.5	+2.6	+0.0	125				110
^	8235.439M	33.9	+36.0	+0.6	+0.4	+5.6	+0.0	49.9	54.0	-4.1	Verti
			-34.7	+5.5	+2.6	+0.0	360				100

CKC Laboratories, Inc. Date: 8/11/2010 Time: 15:59:38 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 28 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/12/2010
 Test Type: **Maximized Emissions** Time: 06:55:18
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 32
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 23° C
 Humidity: 45%
 Pressure: 102.2 kPa
 FHSS radio transmitting on 926.8 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

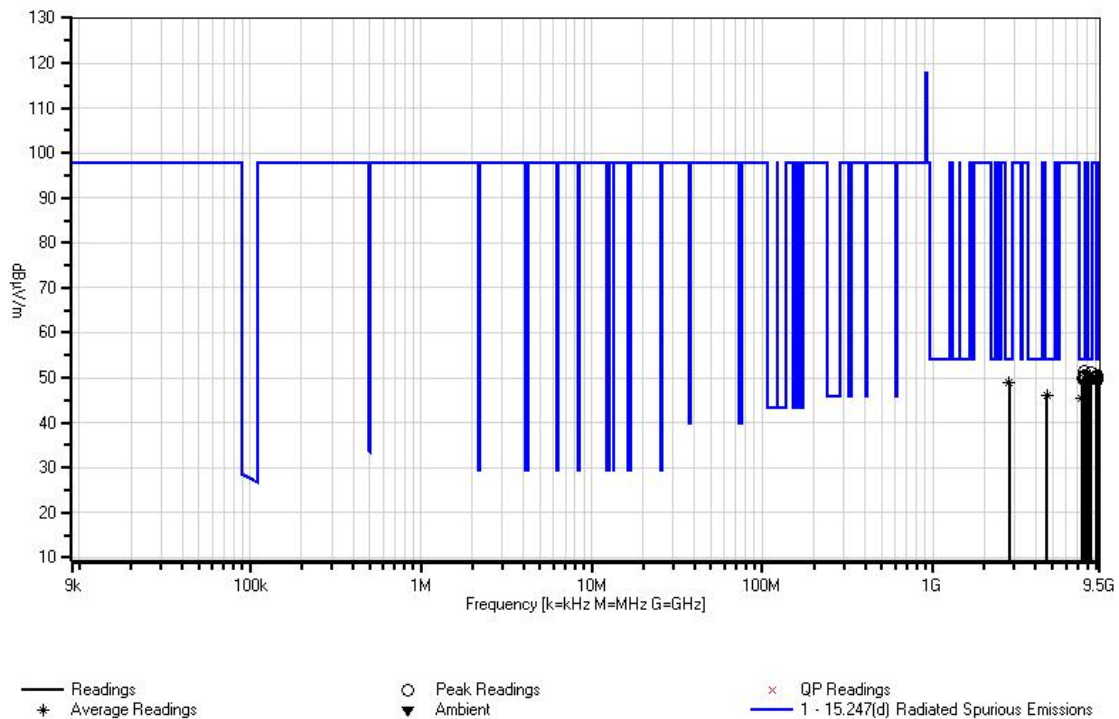
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	7693.687M	34.6	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	51.3	54.0	-2.7	Horiz 100
2	8460.453M	34.5	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	51.2	54.0	-2.8	Horiz 100
3	9170.644M	33.3	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
4	7709.703M	33.7	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.5	54.0	-3.5	Horiz 100
5	9138.524M	33.2	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
6	9135.896M	33.3	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.7 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
7	9149.912M	33.1	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
8	9160.716M	33.1	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
9	9158.964M	33.1	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
10	7717.711M	33.4	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.4 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
11	9014.424M	33.7	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	50.2	54.0	-3.8	Horiz 100
12	9035.740M	33.6	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
13	9039.536M	33.5	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
14	8081.074M	33.8	+36.1 -34.7	+0.5 +5.5	+0.4 +2.5	+5.8 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
15	7526.520M	33.8	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	49.8	54.0	-4.2	Horiz 100
16	7647.641M	33.4	+36.2 -34.8	+0.4 +5.4	+0.5 +2.6	+6.0 +0.0	+0.0 360	49.7	54.0	-4.3	Horiz 100
17	9130.056M	32.7	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.7 +0.0	+0.0 360	49.6	54.0	-4.4	Horiz 100
18	2780.412M Ave	57.0	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 -14.0	+0.0 85	48.8	54.0 Duty Cycle Correction applied (-14 dB).	-5.2	Horiz 100
^	2780.412M	58.7	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 85	64.5	54.0	+10.5	Horiz 100
20	4633.995M Ave	34.8	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 130	46.1	54.0	-7.9	Horiz 145
^	4633.995M	42.2	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 130	53.5	54.0	-0.5	Horiz 145
^	4633.995M	40.0	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 360	51.3	54.0	-2.7	Horiz 100

23	7414.075M	29.2	+36.2	+0.4	+0.5	+6.0	+0.0	45.3	54.0	-8.7	Horiz
	Ave		-34.6	+5.3	+2.3	+0.0	130				136
^	7414.075M	38.8	+36.2	+0.4	+0.5	+6.0	+0.0	54.9	54.0	+0.9	Horiz
			-34.6	+5.3	+2.3	+0.0	130				136
^	7414.075M	36.2	+36.2	+0.4	+0.5	+6.0	+0.0	52.3	54.0	-1.7	Horiz
			-34.6	+5.3	+2.3	+0.0	360				100

CKC Laboratories, Inc. Date: 8/12/2010 Time: 06:55:18 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 32 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/12/2010
 Test Type: **Maximized Emissions** Time: 06:22:06
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 31
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 23° C
 Humidity: 45%
 Pressure: 102.2 kPa
 FHSS radio transmitting on 926.8 MHz; FM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

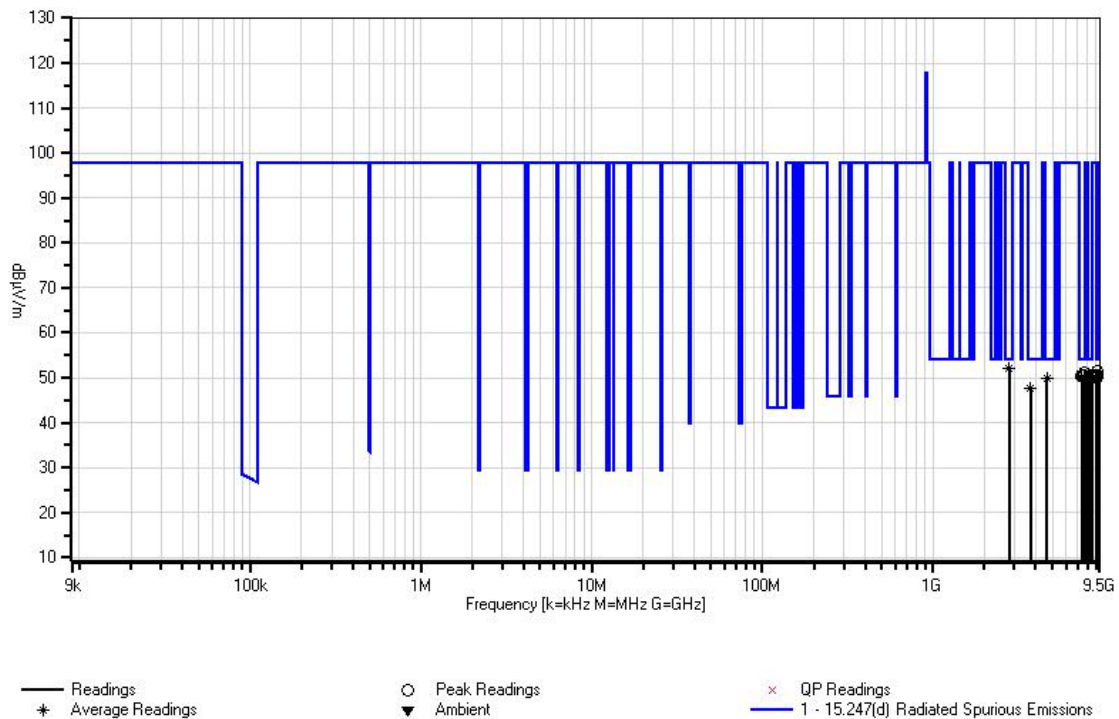
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	2780.415M Ave	60.3	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 -14.0	+0.0 68	52.1	54.0 Duty Cycle Correction applied (-14 dB).	-1.9	Verti 105
^	2780.415M	61.9	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 68	67.7	54.0	+13.7	Verti 105
^	2780.415M	61.6	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 360	67.4	54.0	+13.4	Verti 100
4	9154.584M	34.5	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	51.6	54.0	-2.4	Verti 100
5	9146.700M	34.2	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	51.3	54.0	-2.7	Verti 100
6	7700.694M	34.3	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	51.0	54.0	-3.0	Verti 100
7	7447.441M	34.6	+36.2 -34.6	+0.3 +5.3	+0.4 +2.4	+6.0 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
8	7574.568M	34.6	+36.2 -34.8	+0.4 +5.4	+0.4 +2.6	+5.8 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
9	7669.663M	34.1	+36.2 -34.7	+0.4 +5.4	+0.5 +2.5	+6.2 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
10	9136.772M	33.6	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.7 +0.0	+0.0 360	50.5	54.0	-3.5	Verti 100
11	9034.864M	34.1	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	50.5	54.0	-3.5	Verti 100
12	8494.487M	33.8	+35.8 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.5	54.0	-3.5	Verti 100
13	9029.608M	34.1	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.3 +0.0	+0.0 360	50.5	54.0	-3.5	Verti 100
14	9140.568M	33.4	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.4	54.0	-3.6	Verti 100
15	9141.736M	33.4	+36.5 -34.2	+0.2 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.4	54.0	-3.6	Verti 100
16	8078.071M	34.1	+36.2 -34.7	+0.5 +5.5	+0.4 +2.5	+5.8 +0.0	+0.0 360	50.3	54.0	-3.7	Verti 100
17	8464.457M	33.6	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.3	54.0	-3.7	Verti 100
18	9050.340M	33.7	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
19	9057.056M	33.6	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
20	7414.605M Ave	33.9	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 356	50.0	54.0	-4.0	Verti 176
^	7414.605M	42.0	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 356	58.1	54.0	+4.1	Verti 176
^	7414.605M	38.1	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 360	54.2	54.0	+0.2	Verti 100

23	4634.011M	38.5	+32.7	+0.2	+0.4	+5.7	+0.0	49.8	54.0	-4.2	Verti
	Ave		-33.8	+4.2	+1.9	+0.0	332				150
^	4634.011M	43.8	+32.7	+0.2	+0.4	+5.7	+0.0	55.1	54.0	+1.1	Verti
			-33.8	+4.2	+1.9	+0.0	332				150
^	4634.011M	42.0	+32.7	+0.2	+0.4	+5.7	+0.0	53.3	54.0	-0.7	Verti
			-33.8	+4.2	+1.9	+0.0	360				100
26	3707.184M	38.3	+30.9	+0.6	+0.3	+5.9	+0.0	47.7	54.0	-6.3	Verti
	Ave		-33.8	+3.7	+1.8	+0.0	5				100
^	3707.184M	44.2	+30.9	+0.6	+0.3	+5.9	+0.0	53.6	54.0	-0.4	Verti
			-33.8	+3.7	+1.8	+0.0	5				100
^	3707.184M	43.0	+30.9	+0.6	+0.3	+5.9	+0.0	52.4	54.0	-1.6	Verti
			-33.8	+3.7	+1.8	+0.0	360				100

CKC Laboratories, Inc. Date: 8/12/2010 Time: 06:22:06 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 31 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/12/2010
 Test Type: **Maximized Emissions** Time: 08:17:43
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 34
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 23° C
 Humidity: 45%
 Pressure: 102.2 kPa
 FHSS radio transmitting on 926.8 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

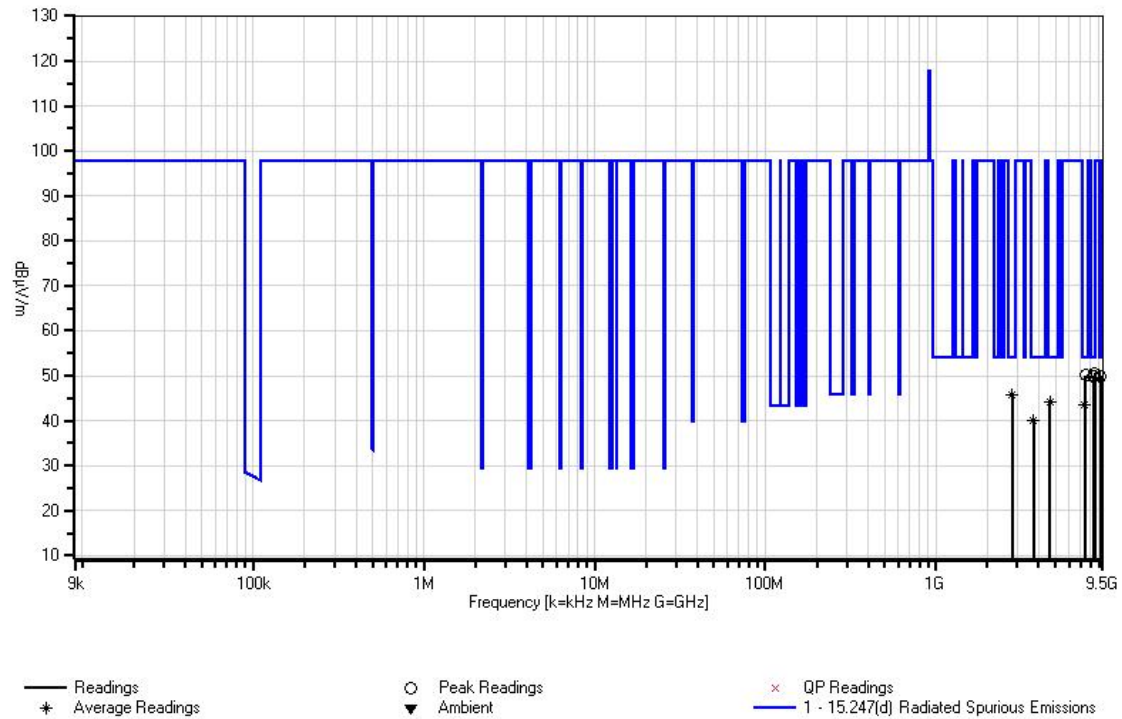
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	8491.484M	33.9	+35.8 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
2	7526.520M	34.1	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	50.1	54.0	-3.9	Horiz 100
3	9149.328M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
4	9151.372M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
5	9152.832M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Horiz 100
6	9166.556M	32.6	+36.5 -34.2	+0.4 +5.7	+0.3 +2.7	+5.9 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
7	8315.308M	33.7	+36.0 -34.7	+0.5 +5.5	+0.4 +2.5	+6.0 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
8	8385.378M	33.6	+35.9 -34.7	+0.5 +5.6	+0.4 +2.4	+6.2 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
9	8466.459M	33.2	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	49.9	54.0	-4.1	Horiz 100
10	2780.402M Ave	54.1	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 -14.0	+0.0 95	45.9	54.0 Duty Cycle Correction applied (-14 dB).	-8.1	Horiz 114
^	2780.402M	61.0	+28.6 -34.3	+0.5 +3.1	+0.3 +1.6	+6.0 +0.0	+0.0 95	66.8	54.0	+12.8	Horiz 114
12	4634.025M Ave	33.0	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 345	44.3	54.0	-9.7	Horiz 100
^	4634.050M	42.1	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 345	53.4	54.0	-0.6	Horiz 100
^	4634.050M	39.8	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 360	51.1	54.0	-2.9	Horiz 100
15	7414.422M Ave	27.4	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 32	43.5	54.0	-10.5	Horiz 116
^	7414.408M	38.1	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 32	54.2	54.0	+0.2	Horiz 116
^	7414.408M	34.5	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 360	50.6	54.0	-3.4	Horiz 100
18	3707.207M Ave	30.8	+30.9 -33.8	+0.6 +3.7	+0.3 +1.8	+5.9 +0.0	+0.0 7	40.2	54.0	-13.8	Horiz 100
^	3707.198M	41.3	+30.9 -33.8	+0.6 +3.7	+0.3 +1.8	+5.9 +0.0	+0.0 7	50.7	54.0	-3.3	Horiz 100

CKC Laboratories, Inc. Date: 8/12/2010 Time: 08:17:43 Itron, Inc. WO#: 90893
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 34 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90893** Date: 8/12/2010
 Test Type: **Maximized Emissions** Time: 07:43:43
 Equipment: **(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)** Sequence#: 33
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100R
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T2	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012
T3	AN03123	Cable	32026-2-29801-12	10/23/2009	10/23/2011
T4	ANP05513	Attenuator	BW-S6W2	10/12/2009	10/12/2011
T5	AN01271	Preamplifier	83017A	9/17/2009	9/17/2011
T6	ANP05542	Cable	Heliac	10/23/2009	10/23/2011
T7	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011
T8	ANCOR-WO90893-20100811	Duty Cycle Correction Factor		8/11/2010	8/11/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
(SRR+WWAN+WIFI+GPS RX External WWAN & GPS Antenna)*	Itron, Inc	CCU100R	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 1 - 9.3 GHz
 Temp: 23° C
 Humidity: 45%
 Pressure: 102.2 kPa
 FHSS radio transmitting on 926.8 MHz; AM modulation.
 Wi-Fi and Cell radios are in RX only mode.
 Main power supply cable has Laird ferrite 28A2432-0A2.
 Cell modem power cable has Laird ferrite 28A0392-0A2.

Ext Attn: 0 dB

Measurement Data:

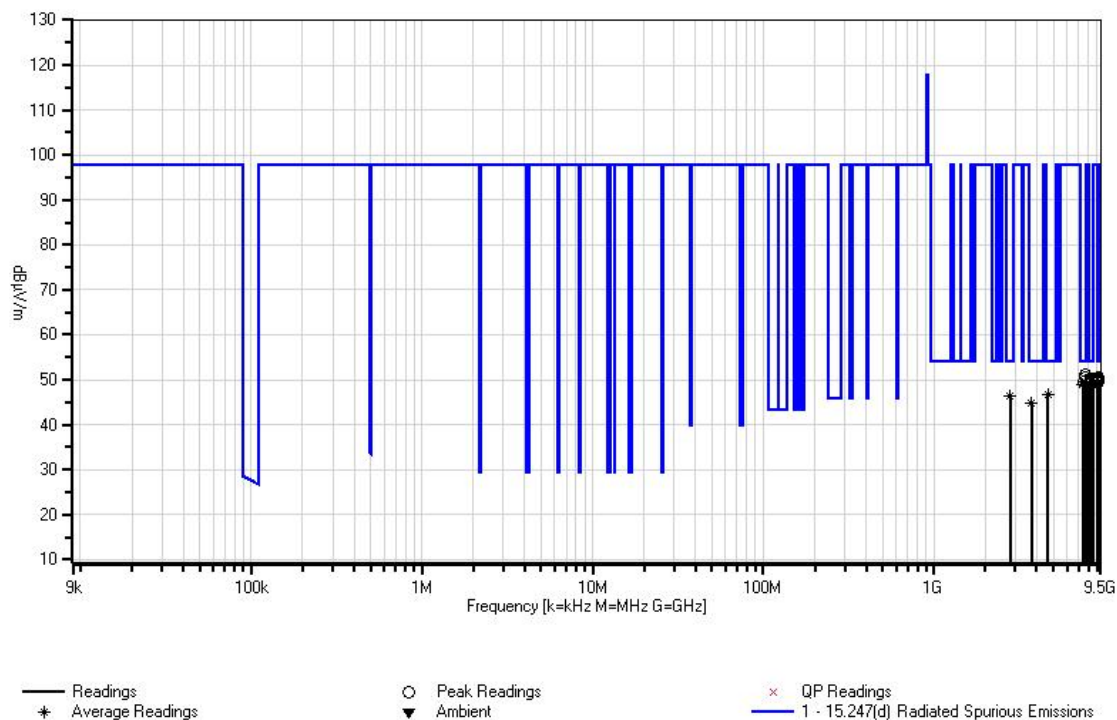
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 T8 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	7703.697M	34.5	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	51.2	54.0	-2.8	Verti 100
2	7693.687M	33.9	+36.2 -34.6	+0.4 +5.4	+0.5 +2.5	+6.3 +0.0	+0.0 360	50.6	54.0	-3.4	Verti 100
3	9096.768M	33.8	+36.5 -34.3	+0.3 +5.7	+0.3 +2.6	+5.6 +0.0	+0.0 360	50.5	54.0	-3.5	Verti 100
4	8484.477M	33.4	+35.9 -34.6	+0.5 +5.6	+0.4 +2.5	+6.5 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
5	9076.328M	33.5	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0 360	50.2	54.0	-3.8	Verti 100
6	8459.452M	33.5	+35.9 -34.6	+0.4 +5.6	+0.4 +2.5	+6.4 +0.0	+0.0 360	50.1	54.0	-3.9	Verti 100
7	9142.612M	32.9	+36.5 -34.2	+0.3 +5.7	+0.3 +2.7	+5.8 +0.0	+0.0 360	50.0	54.0	-4.0	Verti 100
8	9044.208M	33.4	+36.6 -34.3	+0.2 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	49.9	54.0	-4.1	Verti 100
9	8340.333M	33.6	+36.0 -34.7	+0.5 +5.5	+0.4 +2.5	+6.1 +0.0	+0.0 360	49.9	54.0	-4.1	Verti 100
10	9074.868M	33.1	+36.5 -34.3	+0.4 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0 360	49.8	54.0	-4.2	Verti 100
11	9104.360M	33.0	+36.5 -34.3	+0.3 +5.7	+0.3 +2.7	+5.6 +0.0	+0.0 360	49.8	54.0	-4.2	Verti 100
12	7497.491M	33.5	+36.2 -34.6	+0.4 +5.4	+0.4 +2.4	+5.9 +0.0	+0.0 360	49.6	54.0	-4.4	Verti 100
13	7538.532M	33.6	+36.2 -34.7	+0.3 +5.4	+0.4 +2.5	+5.9 +0.0	+0.0 360	49.6	54.0	-4.4	Verti 100
14	8110.103M	33.4	+36.1 -34.7	+0.5 +5.5	+0.4 +2.6	+5.7 +0.0	+0.0 360	49.5	54.0	-4.5	Verti 100
15	9050.924M	32.9	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.4 +0.0	+0.0 360	49.5	54.0	-4.5	Verti 100
16	9065.816M	32.8	+36.6 -34.3	+0.3 +5.7	+0.3 +2.6	+5.5 +0.0	+0.0 360	49.5	54.0	-4.5	Verti 100
17	7414.416M Ave	32.7	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 356	48.8	54.0	-5.2	Verti 195
^	7414.373M	41.8	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 356	57.9	54.0	+3.9	Verti 195
^	7414.408M	37.3	+36.2 -34.6	+0.4 +5.3	+0.5 +2.3	+6.0 +0.0	+0.0 360	53.4	54.0	-0.6	Verti 100
20	4634.016M Ave	35.3	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 325	46.6	54.0	-7.4	Verti 140
^	4633.922M	43.6	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 325	54.9	54.0	+0.9	Verti 140
^	4633.922M	41.0	+32.7 -33.8	+0.2 +4.2	+0.4 +1.9	+5.7 +0.0	+0.0 360	52.3	54.0	-1.7	Verti 100

23	2780.426M	54.5	+28.6	+0.5	+0.3	+6.0	+0.0	46.3	54.0	-7.7	Verti
	Ave		-34.3	+3.1	+1.6	-14.0	67		Duty Cycle Correction applied (-14 dB).		124
^	2780.426M	61.4	+28.6	+0.5	+0.3	+6.0	+0.0	67.2	54.0	+13.2	Verti
			-34.3	+3.1	+1.6	+0.0	67				124
^	2780.426M	59.8	+28.6	+0.5	+0.3	+6.0	+0.0	65.6	54.0	+11.6	Verti
			-34.3	+3.1	+1.6	+0.0	360				100
26	3707.222M	35.4	+30.9	+0.6	+0.3	+5.9	+0.0	44.8	54.0	-9.2	Verti
	Ave		-33.8	+3.7	+1.8	+0.0	5				100
^	3707.222M	43.8	+30.9	+0.6	+0.3	+5.9	+0.0	53.2	54.0	-0.8	Verti
			-33.8	+3.7	+1.8	+0.0	5				100
^	3707.222M	42.0	+30.9	+0.6	+0.3	+5.9	+0.0	51.4	54.0	-2.6	Verti
			-33.8	+3.7	+1.8	+0.0	360				100

CKC Laboratories, Inc. Date: 8/12/2010 Time: 07:43:43 Itron, Inc. WO#: 90893
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 33 Ext ATTN: 0 dB



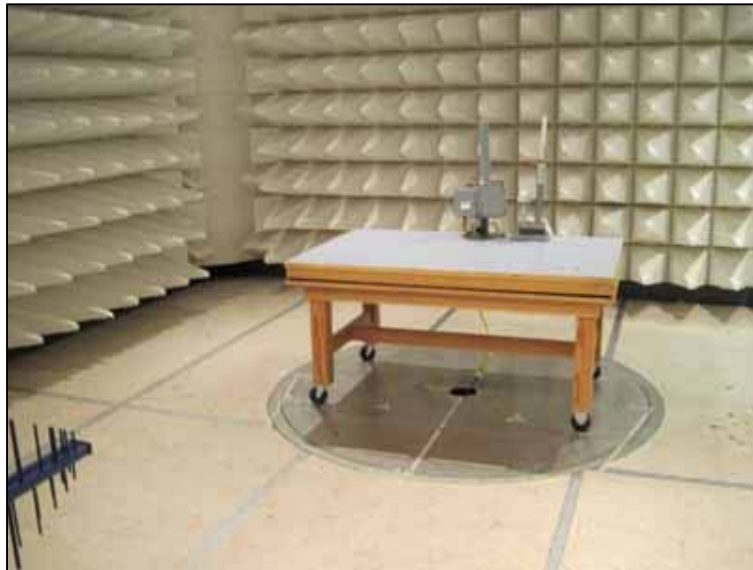
Test Setup Photos



CCU100 30MHz- 1GHz



CCU100 1GHz -9.3GHz



CCU100R 30MHz -1GHz



CCU100R 1GHz-9.3GHz

RSS-210 VERSION 7

99% Bandwidth

Test Set up

The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable. For this testing, all models (CCU100, CCU100-Repeater, CCU100R, and CCU100R-Repeater) are identical.

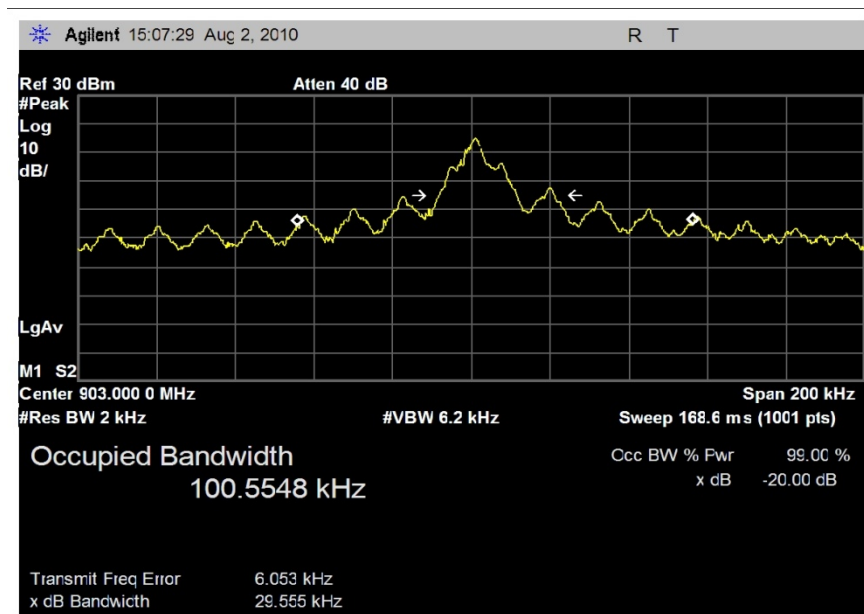
Engineer Name: J. Gilbert

Test Equipment				
Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121

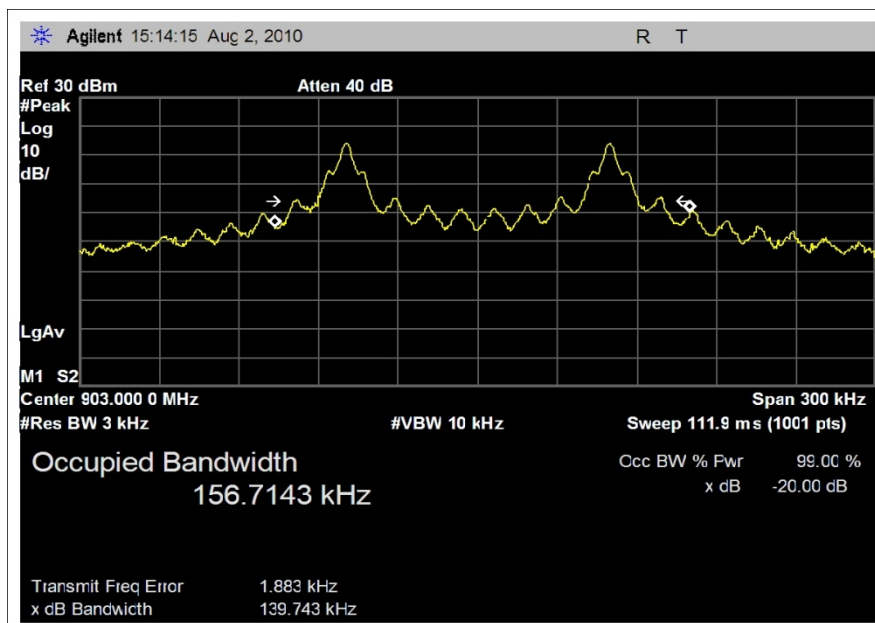
Test Data

903 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	100.55 kHz	156.71 kHz	65.17 kHz
915 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	103.16 kHz	161.42 kHz	68.18 kHz
926.8 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	118.43 kHz	156.13 kHz	60.21 kHz

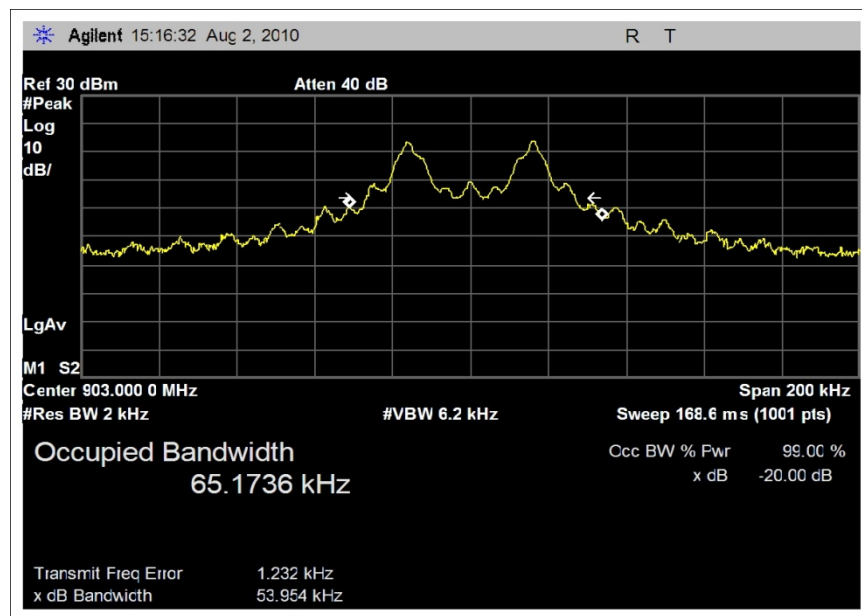
Requirement: The transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.



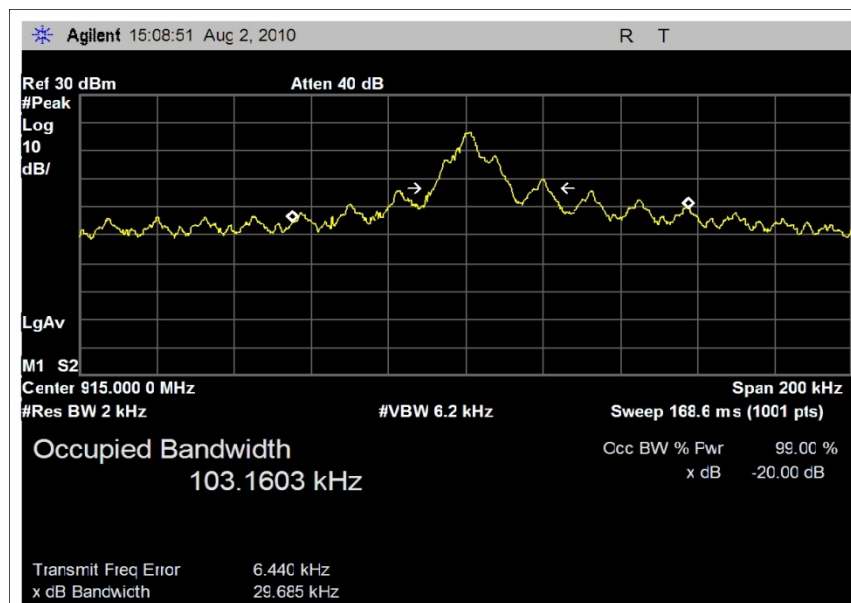
903-AM



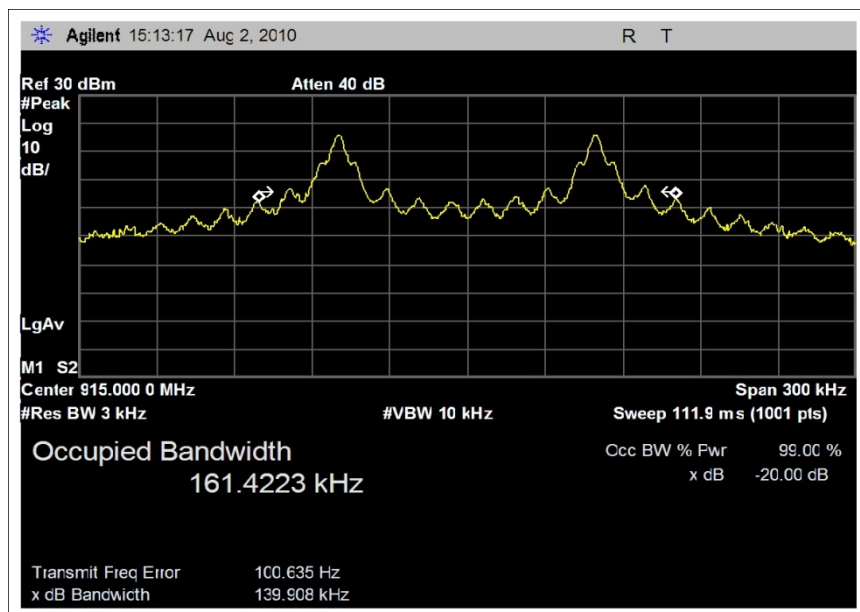
903-FM-12.5



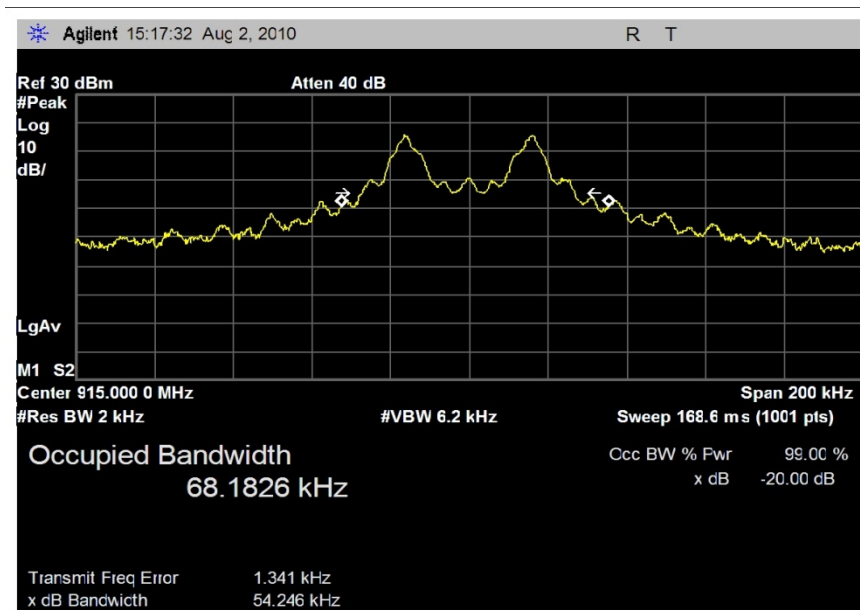
903-FM-37.5



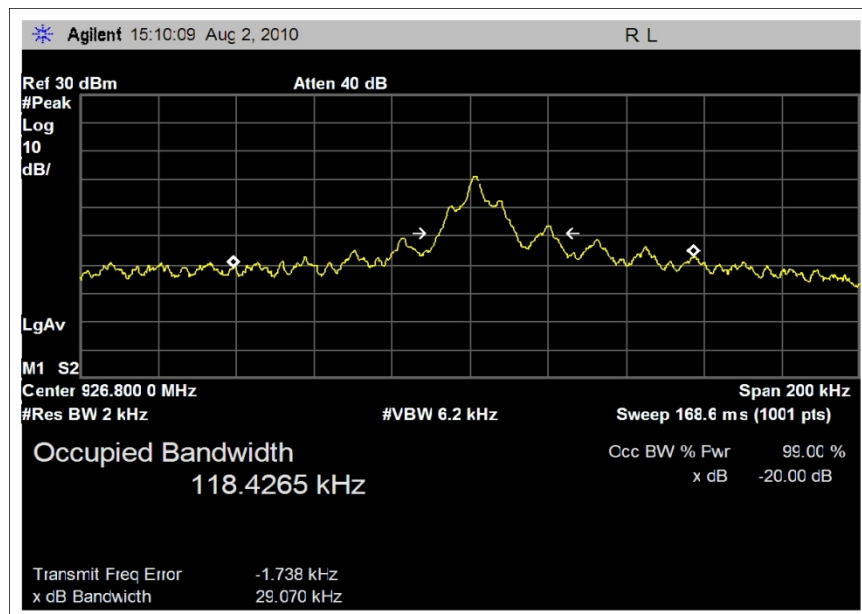
915-AM



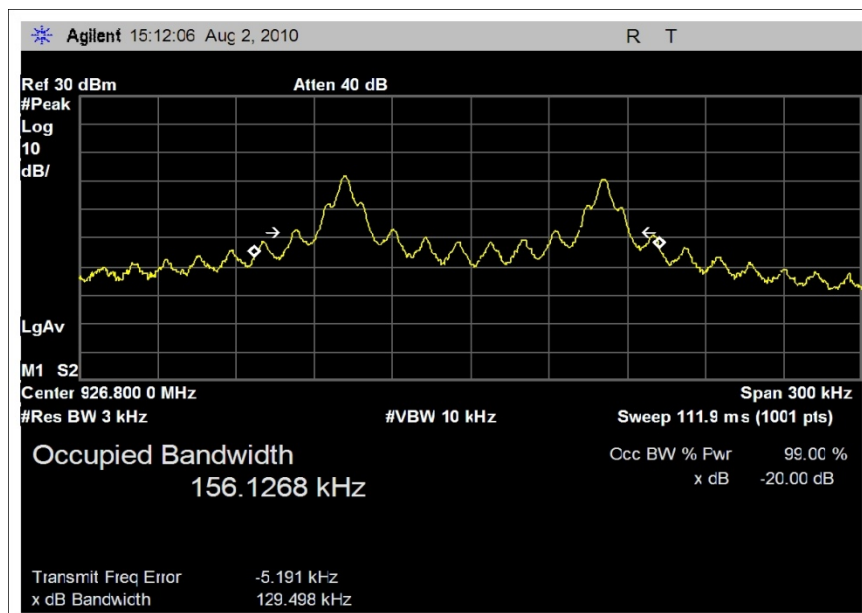
915-FM-12.5



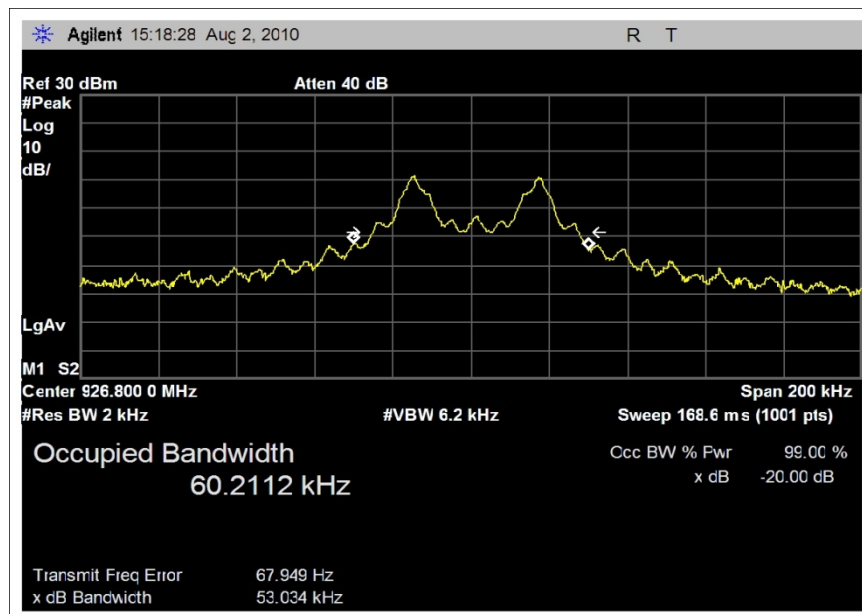
915-FM-37.5



926.8-AM



926.8-FM-12.5



926.8-FM-37.5

Test Setup Photos



99% BANDWIDTH

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

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 dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/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. 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. A 10 dB attenuator is used, but it is figured in EMITest as a transducer, just like the cables and LISN. 10 dB of external attenuation is not manually inserted into the correction factor section of the PSA.

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 "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. 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/receiver readings recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients 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

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. 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.