FCC Part 15.247 Certification Application

Industrie Canada RSS210 Certification Application

EMI Test Report

on
RF Module.
Model: 340-040102

FCC ID: OWS-NIC503
IC ID: 5975A-NIC503

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Report #: SSN03

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General Information

Unit(s) Under Test: I210B 900MHz RF Module
Model(s): 340-040102

Product Description: "902 MHz AMI RF Module"

FCC ID: OWS-NIC503
IC ID: 5975A-NIC503

Tested For: Silver Spring Networks
2755 Campus Drive
Suite 205
San Mateo, CA 94403

Tested At: (Radiated Emissions)
Elliott Laboratories
41039 Boyce Road
Fremont, CA 94538

(RF Conducted tests)
Silver Spring Networks
2755 Campus Drive
Suite 205
San Mateo, CA 94403

Tested By: Rafael Veralas, Test Engineer, Elliott Labs
David Waitt, (Independent Consultant)

Tested To: FCC CFR 47, Part 15.247, 900MHz FHSS

Test Date: July 2007

Requested Certifications: FCC Part 15 Subpart C certification
IC RSS-210 / Issue 7 Certification

Report Revision: A (Initial Version, 17 Aug 2007)

Detailed Product Information

The i210B RF board is a 900MHz FHSS module that SilverSpring intends to incorporate into its wireless utility power meters.

Number of hopping channels:	83
Operating Frequency Range:	902.3 MHz to 926.9 MHz
Channel spacing:	300kHz
RF Power Output:	30 dBm Max
Antenna Gain:	Approx 2.5 dBi
Antenna Type:	Single, Integral, Inverted ‘F’
Operating Voltage:	3.6 VDC @ approx 1.2 A (Max RF Xmit)
DUT:	Engineering prototype, equivalent to mass produced items
Modifications:	No modifications were made during the certification testing of the device.

Test Results Summary

This report presents the results of the tests that verify compliance with FCC Part 15.247 and

A brief results summary of all the in this report is below.

Part 15 Paragraph	RSS-210, Issue 6 Paragraph	Test	Results
15.247(b)(2)	A8.4(1)	Maximum Power	29.78 dBm Max 0.9506 W
15.247(a)(1)(i)	A8.1(3)	20dB Bandwidth	157.5 kHz Min
15.247(d)	A8.5	Out of Band Spurious Emissions	
15.205	2.6	Radiated Emissions in Restricted bands	3.9 dB in spec min @ 8232.5MHz (Restricted Band)
15.247(a)(1)(i)	A8.1(2)	Number of hopping channels	83
15.247(a)(1)(i)	A8.1(2)	Channel Spacing	300kHz

Test Facilities

All radiated emissions testing for 15.247 (15.205) were performed at:

Elliott Laboratories
41039 Boyce Road
Fremont, CA 94538
Testing was conducted in accordance with ANSI C63.4 (2003)

General:
Pursuant to section 2.948 of the Rules, construction, calibration, and equipment data for chamber 1 has been filed with the Commission.

The FCC recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Within the chamber, ambient levels are well below this requirement. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent FCC requirements.

Antenna, Antenna Mast and Turntable
The Horn antennas that are use to measure radiated emissions above 1000MHz are amounted on a non-conductive antenna mast equipped with a motor drive to vary the antenna height.

ANSI C63.4 specifies that the test height above the ground plane shall be 80cm unless the equipment is intended to be floor mounted. During the radiated emissions tests the equipment is positioned on a motorized turntable in conformance with the most recent ANSI requirements.

Equipment Lists

Instrument Calibration

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles.

The following test equipment was used to perform the testing

Elliott Test Equipment

Manufacturer	Description	Model #	Asset #	Cal Due
Agilent	Spectrum Analyzer	E4440A	1770	11 aug 2007
EMCO	Horn Antenna	3115	868	24 apr 2008
HP	Pre Amp	3449B	263	16 Mar 2008
	RF Cable, 5M RF Cable, 1M			15 Nov 2008 11 Sep 2008

Silver Spring Test Equipment:

Manufacturer	Description	Model #	Asset #	Cal Due
Agilent	Spectrum Analyzer	E4440A	Tech Rental & Services Asset 1034444	2 Feb 2008
HP	Power Supply	E3610	-----	No Cal Reqd

Test Methods

Unless otherwise noted in the specific test procedure, tests are performed at a low, middle and high channel band used by the device.. Unless otherwise noted, all testing was performed on these channels / frequencies.

902 - 928 MHz Band	
Channel	Freq(MHz)
Low	902.3
Mid	915.4
High	926.9

The device was running special diagnostic software to allow it to transmit random data on a particular channel indefinitely. This diagnostic software allowed the frequency hopping function to be disabled or enabled as tested required.

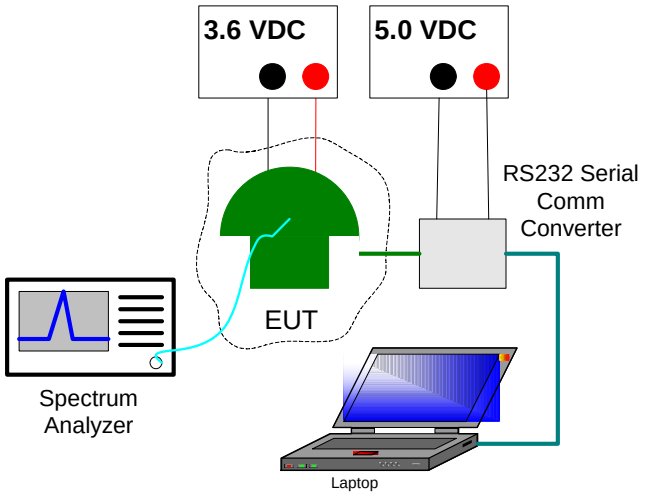
The diagnostic software also allowed variation of the RF transmit power. The maximum power setting that allowed compliance with the radiated emissions requirements (determined during testing) will be programmed into the configuration firmware of the module. This will ensure compliance with the FCC / IC radiated emissions requirements.

The tests listed below are performed using the basic “conducted” test setup shown below unless otherwise noted

Part 15	Test
15.247(b)(2)	RF Transmit power
15.247(a)(1)(i)	Bandwidth
15.247(a)(1)(i)	Number of hopping channels
15.247(a)(1)	Channel Spacing
15.247(a)(1)(i)	Time on channel

Basic Conducted RF Bench Test Setup

The bench top RF test setu0p is shown to the right. Unless otherwise noted, the support equipment for the bench tests is listed below.



Support Equipment				
Description	Model number	FCC ID or SN	Manufacturer	Power Cable
Laptop	Satellite	DOC	Toshiba	Laptop PS, unshielded
Serial Comm Converter	None	None	Silver Spring Networks	Ribbon cable , RS232 D9 cable
AC Adapter Power Supply	DMS050500-PSP-IC	None	CUI INC	Unshielded pair
Bench Top Power supply	E3610A	None	HP	Clip leads

Test Results

Detailed test procedures and test results are contained in the following sections. In cases where the test setup differs from the "Conducted RF Bench Top" test setup shown earlier, the test setup is also presented within that section of the test report.

Test Conditions			
Temperature	23C	**Humidity:**	Approx 75%
ATM pressure	1020 mBar	**Grounding:**	None
Tested By	David Waitt	**Date of Test:**	July 2007
Test Reference	Refer to individual test results		
Tested Freq Range	Test dependent		
Test Voltage	3.60 VDC		
Modifications	No modifications were made to the unit during the compliance testing		

Maximum RF Power Output at Antenna Terminals

Specifications:

FCC Specification: Paragraph: 15.247(b)(2)
IC Specification: RSS-210/6, A8.4(1)

Procedure:

The test was configured as shown in the RF conducted bench top test setup. The unit was sequentially tuned to the test channels (Low, Mid and High) and configured to transmit random data (100% duty cycle). The RF transmit power was then measured on the spectrum analyzer.

Given that the channel BW is approximately 300KHz, the RBW and VBW was set to encompass the entire bandwidth of the channel and thus measure the total channel power. The RBW and VBW were set as follows:
RBW 1MHz
VBW 3 MHz

Results:

Measured RF power levels are below.

	Power (dBm)	Power (mW)	(**APPROX** Max EIRP) Assume 2.5 dBi
LOW	29.69	931.1	32.19
MID	29.76	946.2	32.26
HIGH	29.78	950.6	32.28

20 dB Bandwidth

Specifications

FCC Specification: Paragraph 15.247(a)(1)(i)
IC Specification: RSS-210 / 6 A8.1(3)

Procedure:

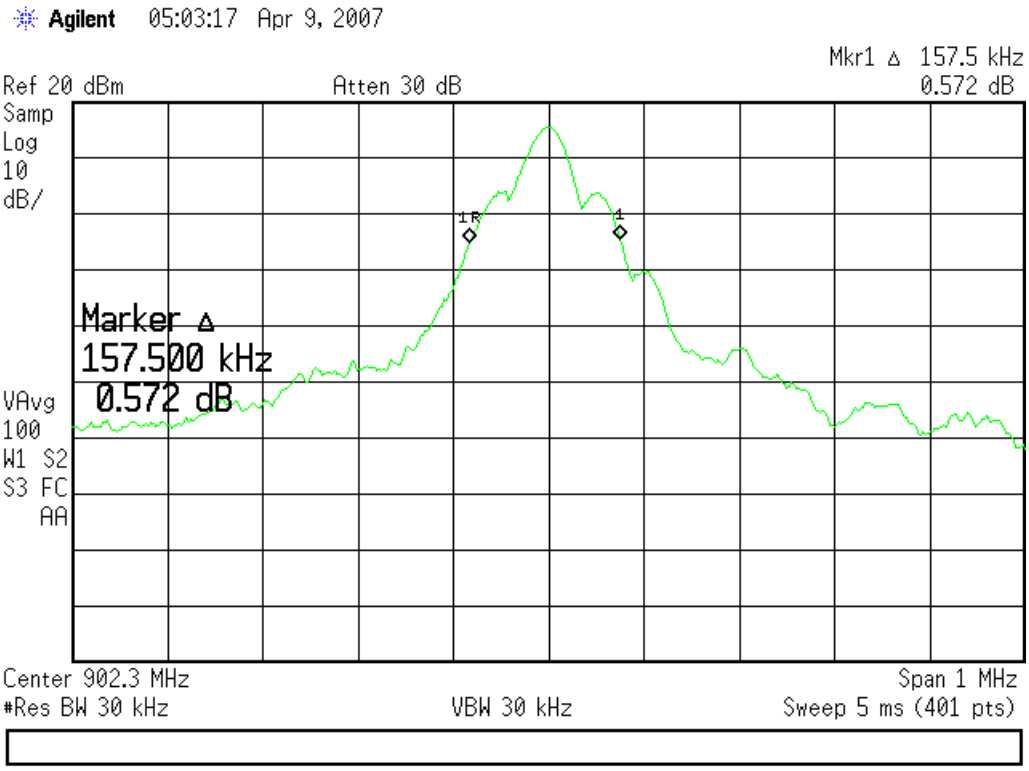
The 20 dB bandwidth was measured on the low middle and high channels of the 900 MHz band using the conducted RF test setup. The spectrum analyzer was configured for MAX HOLD and the trace allowed to stabilize. A peak search was performed and the then "Delta-Marker" used to locate the points at –20dB below the peak.

The bandwidth test was performed at the power settings that will be used in the final system.

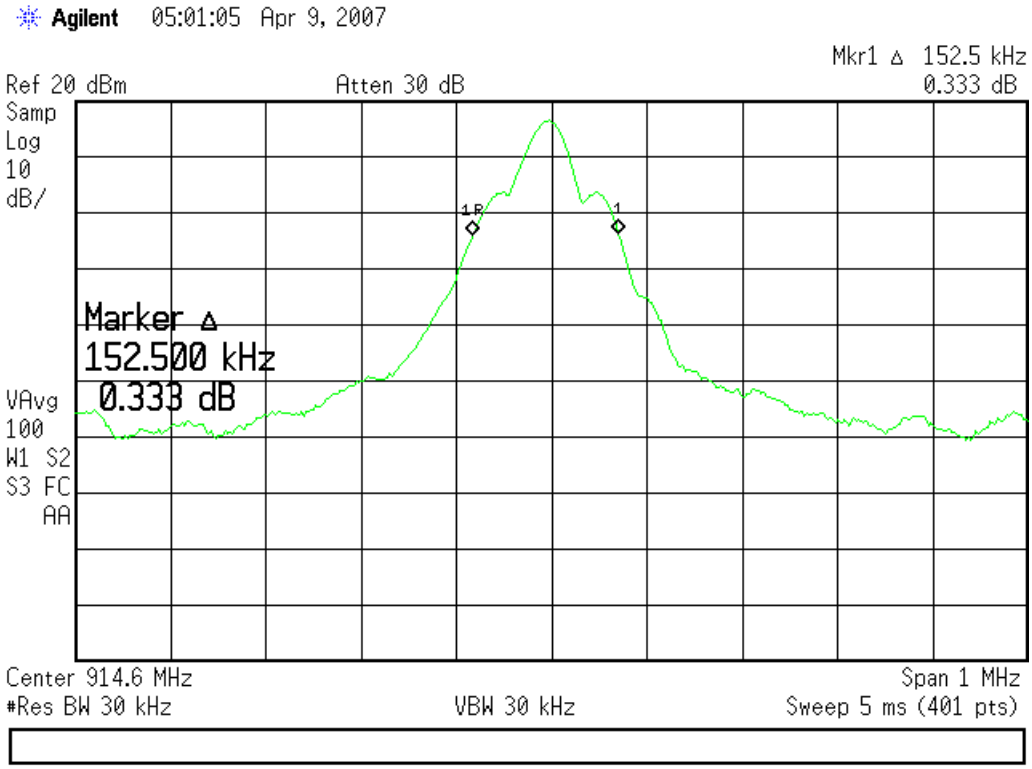
Results:

	20 dB BW (kHz)	Spec (kHz)	Delta (kHz)
LOW	**157.5**	500	342.5
MID	**152.5**	500	347.5
HIGH	**147.5**	500	352.5

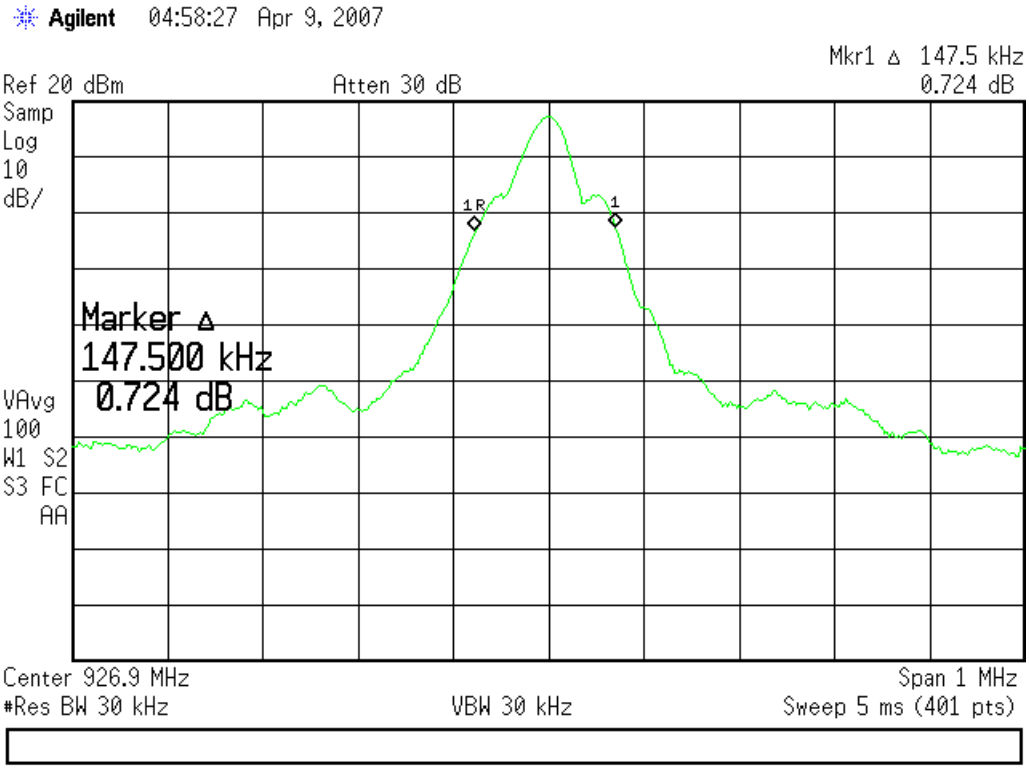
20 dB BW, LOW Channel



20 dB BW, MID Channel



20 dB BW, HIGH channel



900MHz Band Edge

Specifications:

FCC Specification: Paragraph 15.247(d)
IC Specification: RSS-210/6 A8.5

Procedure:

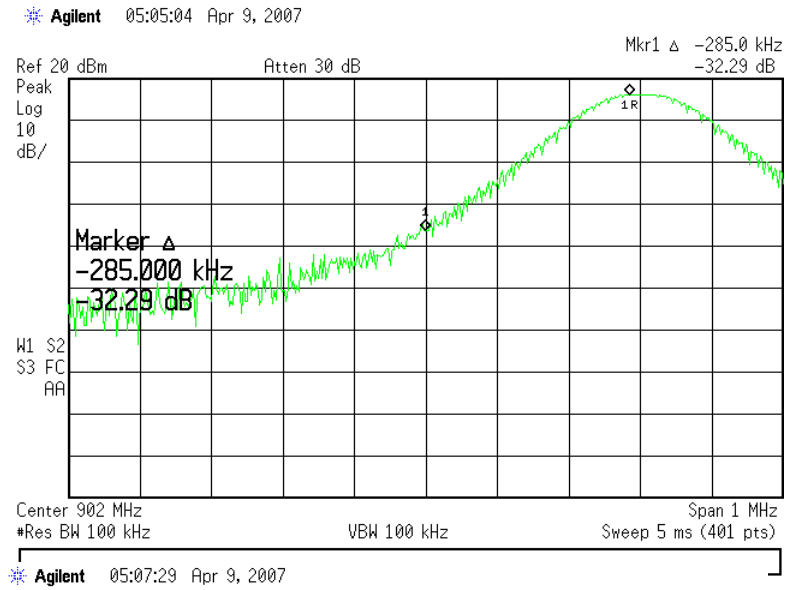
The test setup was configured as shown in the conducted test setup. The UUT was configured to continuously transmit random data on the low, and then the high test channel. The span of the analyzer was centered on the 902 and 928 MHz band edge respectively.

The RBW & VBW were set to 100 kHz. The trace was allowed to stabilize then a Peak-search and a marker delta measurement to the band edge was performed to verify that the RF power at the band edge was at least 20 dB below the peak of the fundamental level.

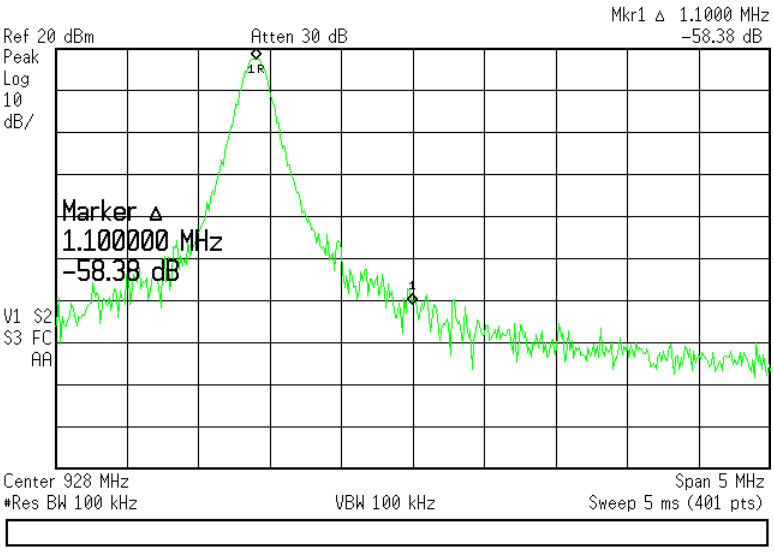
Results:

Level at 902 MHz: -32.29dBc Spec -20 dBc Min
Level at 928 MHz: -58.38dBc Spec -20 dBc Min

902 MHz Bandedge



928 MHz Bandedge



Radiated Emissions in Restricted Bands & Out of Band Radiated Emissions

Specifications:

FCC Specification: Paragraph 15.247(d)
IC Specification: RSS-210 / 6 Sec 2.6

Procedure:

This test was conducted inside a semi-anechoic chamber at Elliott Labs. The unit was placed on a rotating wooden table 80cm above the ground plane. A Horn antenna was secured to a mast 3 meter away. The unit was tested at each of the Low, Mid and High channels. The UUT was running in the diagnostic mode and set to transmit at maximum on each of the channels in turn. The test equipment was configured as shown below.

The EUT was rotated 360 degrees and the height of the antenna adjusted from 1 to 4 meters above the ground plane to determine the maximum level of the emission. The level of the harmonic emission was measured in two modes, “Peak” and “Average” .

The spectrum analyzer reading made by the test software and the appropriate correction factors (antenna factor, cable loss,...) were then applied by the test lab’s software to obtain a final corrected measurement.

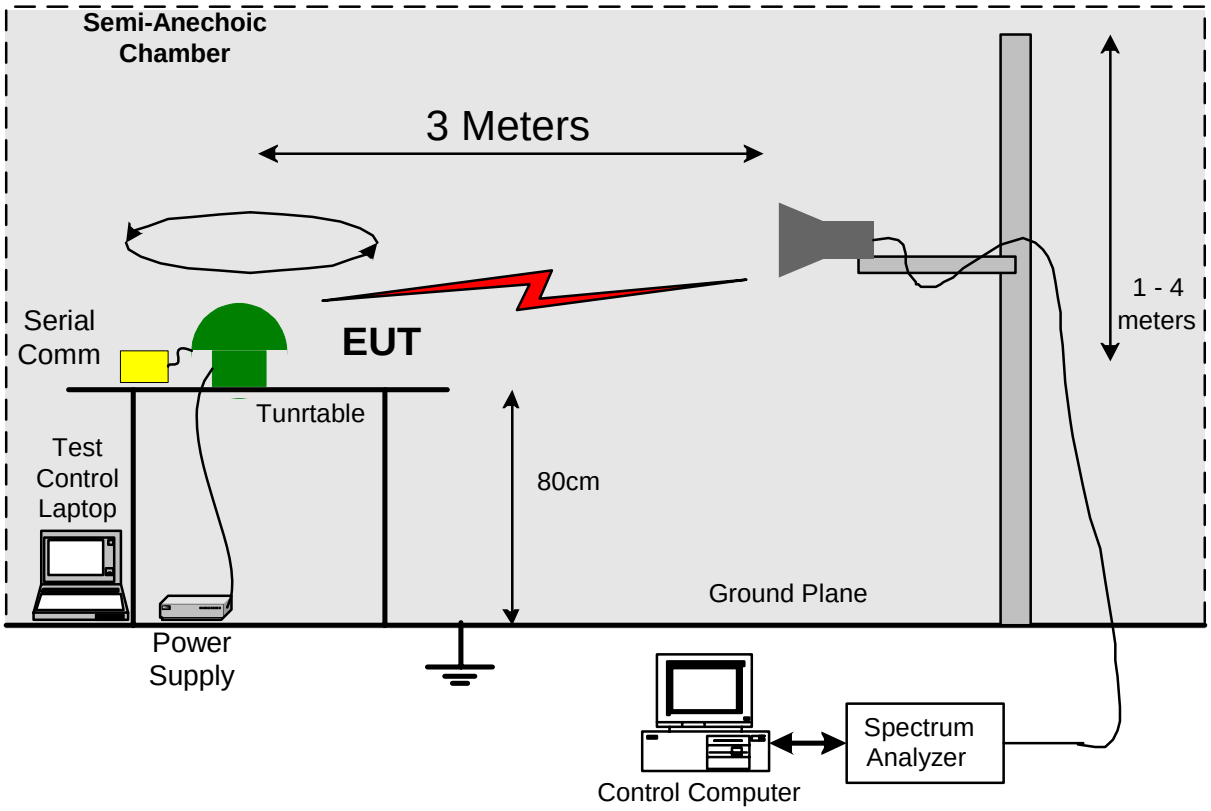
Preliminary emission scans were performed on the EUT in three orthogonal planes It was determined that the horizontal plane was the worst case. The final radiated emissions data was recorded with the EUT being horizontal. This procedure was performed for all of the channels outlined in the Test Methods section of this report.

The band up to 10 GHz was examined. The table below indicates the harmonics that fall within restricted bands.

CHAN	FUND	2	3	4	5	6	7	8	9	10
LOW	902.3	1804.6	2706.9	3609.2	4511.5	5413.8	6316.1	7218.4	8120.7	9023.0
MID	915.4	1830.8	2746.2	3661.6	4577.0	5492.4	6407.8	7323.2	8238.6	9154.0
HIGH	926.7	1853.4	2780.1	3706.8	4633.5	5560.2	6486.9	7413.6	8340.3	9267.0

15.205 Harmonic test tables

*NOTE: **RED** indicates a harmonic that falls within a restricted band and is subject to 15.205. The harmonics in Green are NOT in restricted bands and are subject to 15.209*



Radiated Emissions in Restricted Bands Test Setup

Support Equipment				
Description	Model number	FCC ID or SN	Manufacturer	Power Cable
Laptop	A20	DOC	IBM	Laptop PS, unshielded
Serial Comm Converter	None	None	Silver Spring Networks	Ribbon cable , RS232 D9 cable
AC Adapter Power Supply	DMS050500-PSP-IC	None	CUI INC	Unshielded pair
Bench Top Power supply	E3610A	None	HP	Clip leads

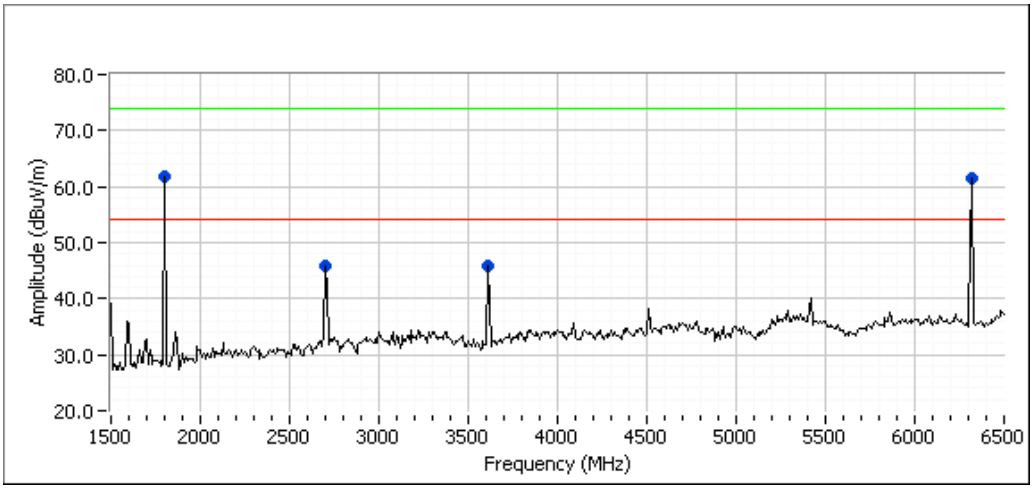
Test Conditions			
Temperature	22 C	Humidity:	63%
ATM pressure	29.97 in	Grounding:	None
Tested By	Rafael Veralas, Elliott	Date of Test:	July 2007
Test Reference	FCC Part 15.205 IC Paragraph RSS210, 6.2.3 (c)		
Setup Method	ANSI C63.4		
Tested Range	1 GHz to 10GHz		
Test Voltage	3.6 VDC		
Modifications	No modifications were made to the unit		

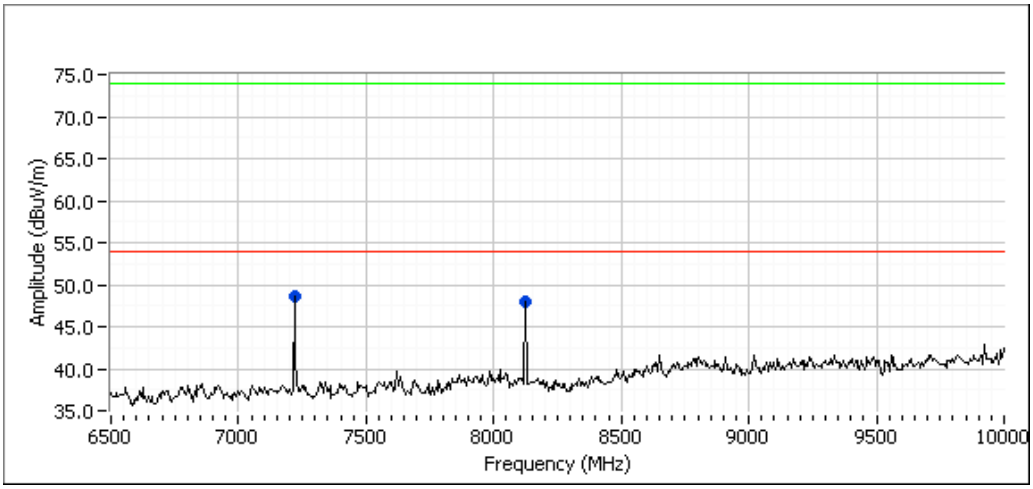
***NOTES**: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.*

Restricted Band Peak Measurements: RBW = VBW = 1 MHz
Restricted Band Average Measurements: RBW =1MHz and VBW=10 Hz.
All other measurements, RBW = 1MHz and VBW = 3MHz, video averaging on (100 samples).

Results:

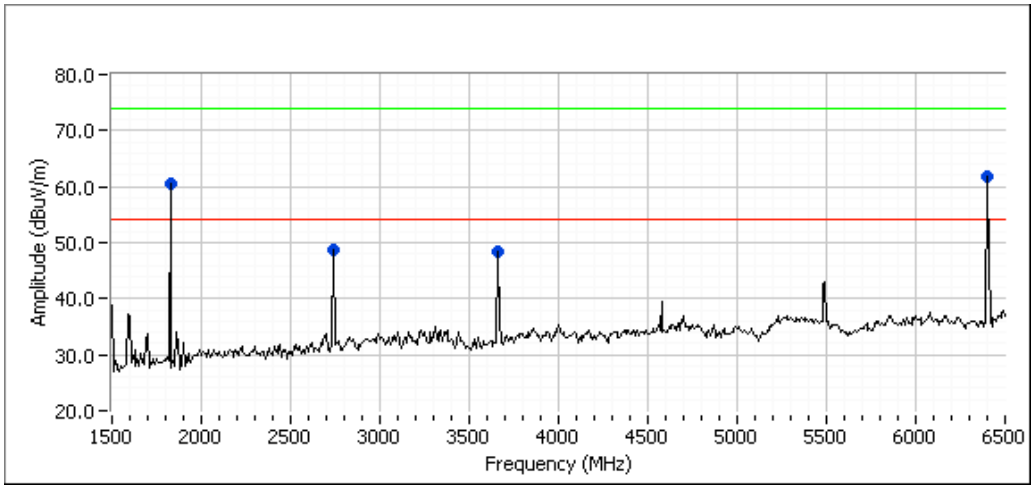
LOW channel

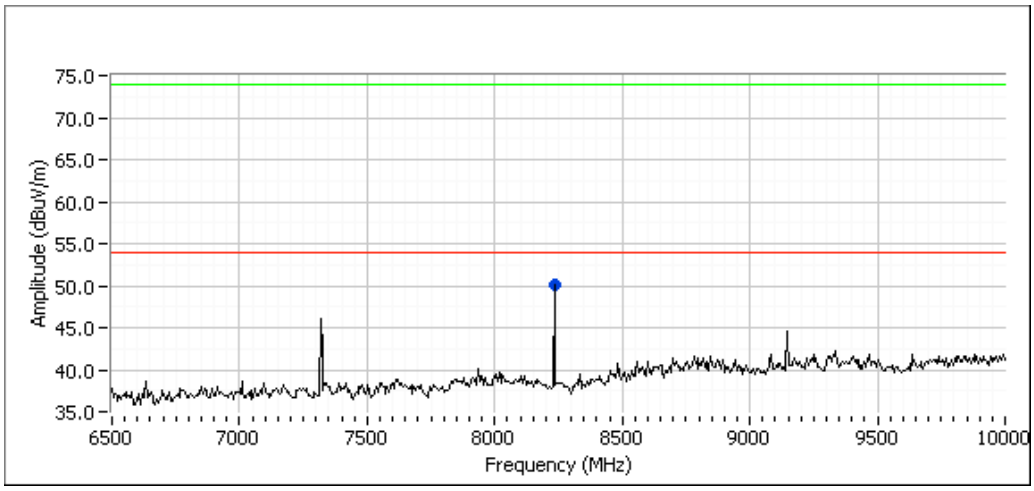




Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz								
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
902.308	118.8	V	-	-	PK	299	1.0	RB = VB = 100kHz
902.308	124.3	H	-	-	PK	331	2.2	RB = VB = 100kHz

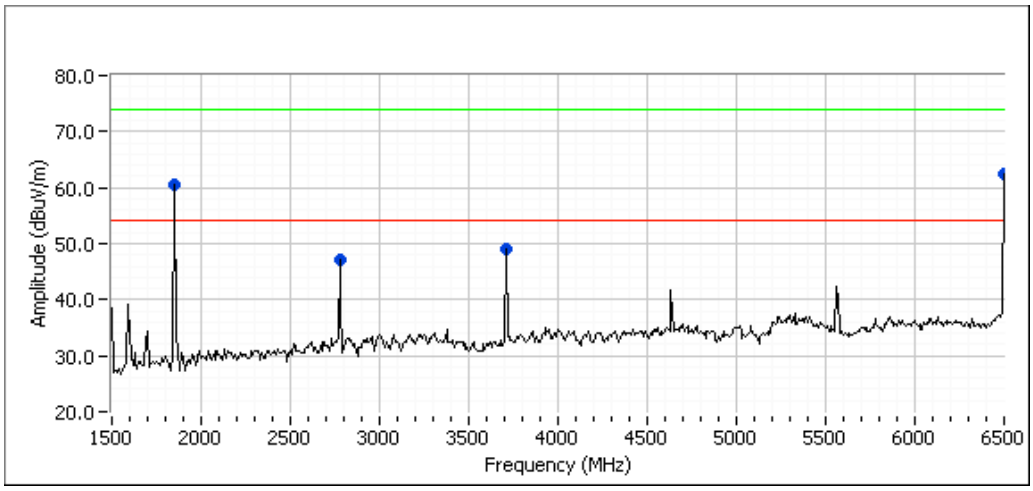
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7217.500	48.7	V	54.0	-5.3	Peak	113	1.9	
8121.670	48.0	V	54.0	-6.0	Peak	343	1.3	
2700.000	46.0	H	54.0	-8.0	Peak	158	1.9	
3608.330	45.9	V	54.0	-8.1	Peak	169	1.6	
6316.050	62.4	V	104.3	-41.9	PK	280	1.3	Non-restricted
1804.620	61.8	V	104.3	-42.5	PK	203	1.6	Non-restricted

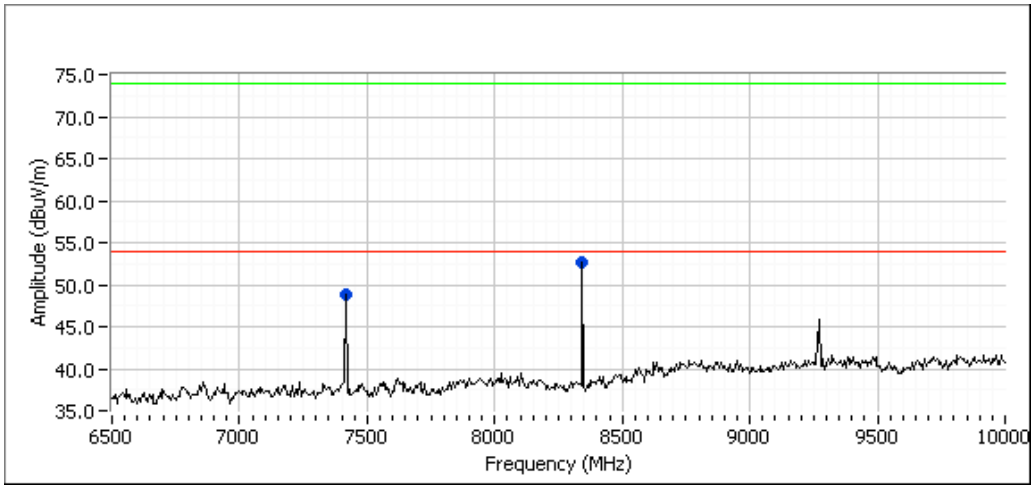




Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz								
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
914.604	118.1	V	-	-	PK	296	1.0	RB = VB = 100kHz
914.604	124.7	H	-	-	PK	329	2.0	RB = VB = 100kHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
8232.500	50.1	V	54.0	-3.9	Peak	341	1.3	
2741.670	48.7	H	54.0	-5.3	Peak	159	1.9	
3658.330	48.4	V	54.0	-5.6	Peak	334	1.3	
6402.190	63.6	V	104.7	-41.1	PK	280	1.4	Non-restricted
1829.210	61.5	V	104.7	-43.2	PK	168	1.9	Non-restricted





Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
926.907	120.0	V	-	-	PK	47	1.3	RB = VB = 100kHz
926.907	124.4	H	-	-	PK	320	2.1	RB = VB = 100kHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
8341.770	50.1	V	54.0	-3.9	AVG	80	1.3	
3708.330	48.9	H	54.0	-5.1	Peak	40	1.6	
7415.830	48.8	V	54.0	-5.2	Peak	277	1.3	
2775.000	47.1	H	54.0	-6.9	Peak	158	1.6	
8341.770	53.8	V	74.0	-20.2	PK	80	1.3	
6488.050	61.8	V	104.4	-42.6	PK	285	1.3	
1853.810	60.5	V	104.4	-43.9	PK	165	1.9	

Number of Hopping Channels

Specifications:

FCC Specification: Paragraph 15.247(a)(1)(i)
IC Specification: RSS-210 / 6 A8.1(2)

Procedure:

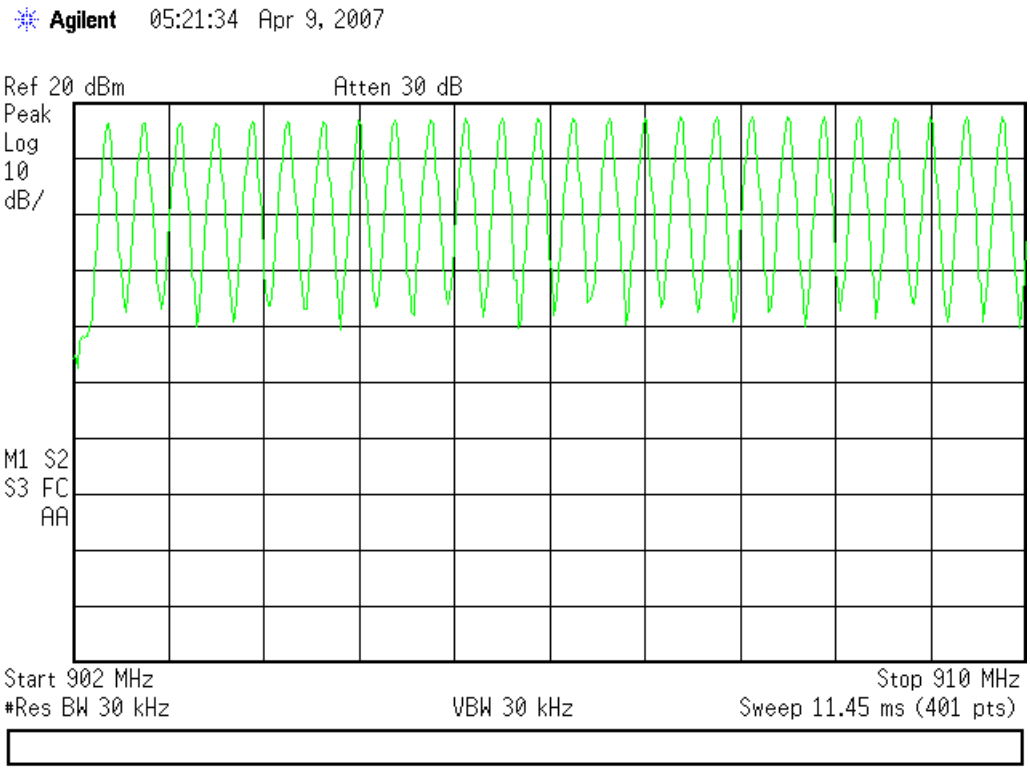
The test setup is as shown in the Conducted RF bench setup. The EUT was configured to hop sequentially through all of its channels. (This is not possible with the normal operating code). The spectrum analyzer was set to MAX HOLD to capture the number of hopping channels. The entire 902 - 928 MHz band was examined in three sub-bands. 902 - 910 MHz, 910 - 920MHz and 920 - 928 MHz. The results are below.

Results:

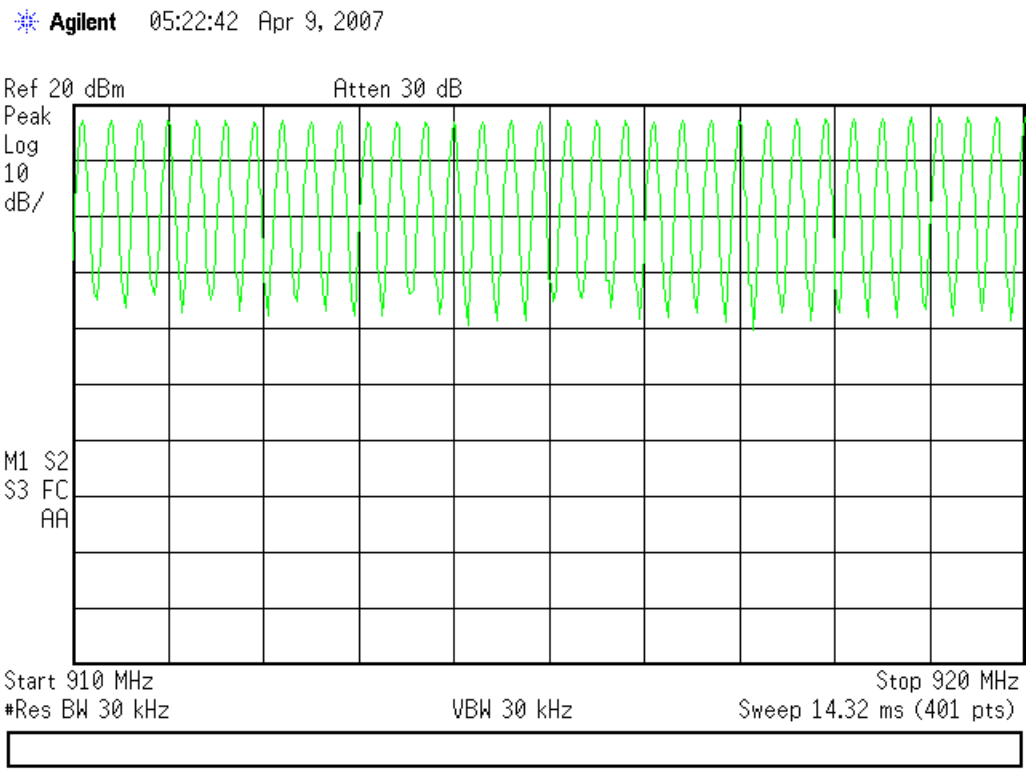
All 83 hopping channels were recorded.

From (MHz)	to (MHz)	Num of Channels
902	910	26
910	920	33
920	928	24
	TOTAL	**83**

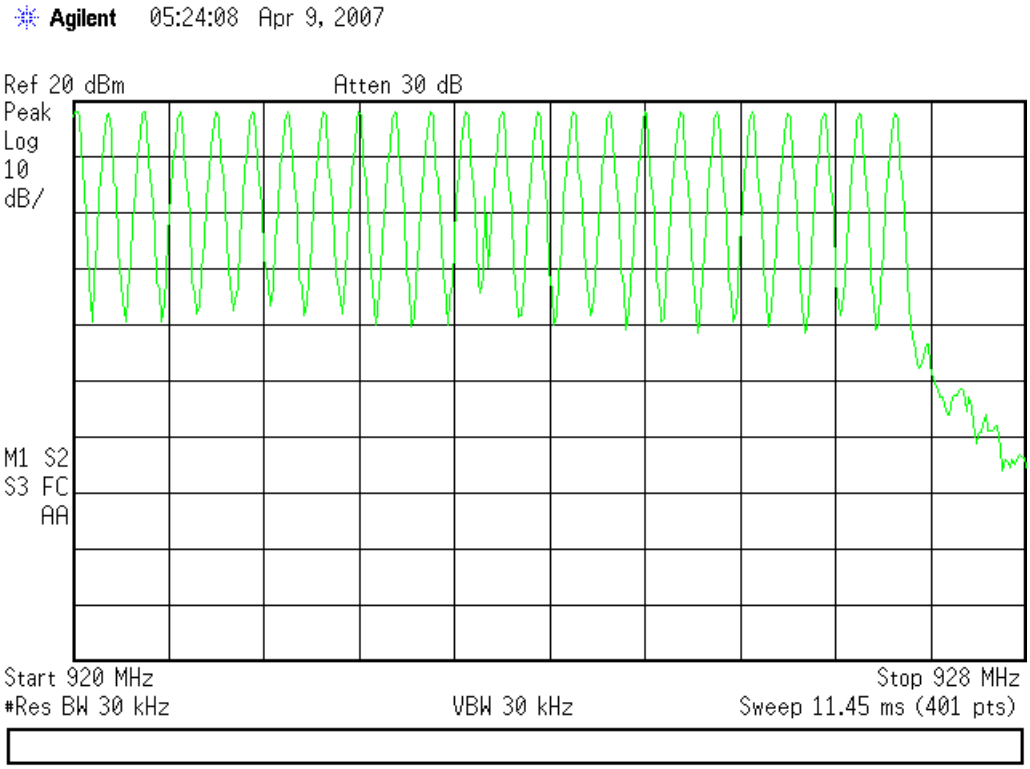
902 - 910 MHz (26 Chan)



910 - 920 MHz (33Chan)



920 - 928 MHz (24Chan)



Channel Spacing

Specifications:

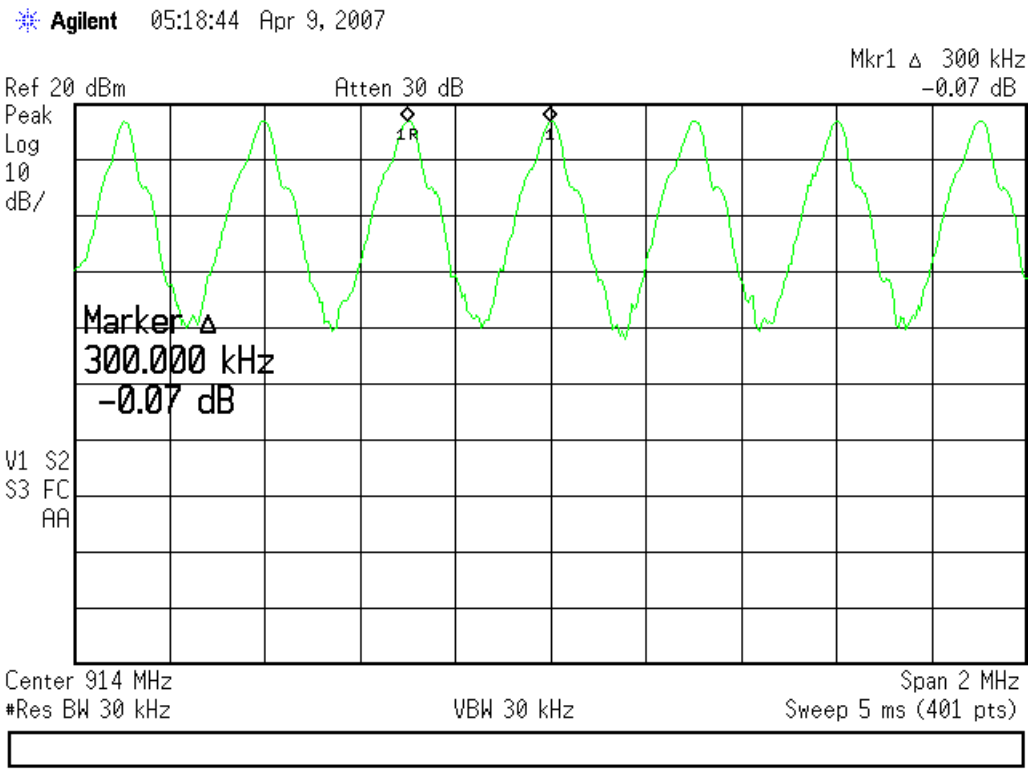
FCC Specification: Paragraph 15.247(a)(1)
IC Specification: RSS-210 / 6 A8.1(2)

Procedure:

The test setup is as shown in the Conducted RF bench setup. The EUT was configured to hop sequentially through all of its channels. (This is not possible with the normal operating code). The spectrum analyzer was set to MAX HOLD to capture a few of the sequential channel frequencies. The spectrum analyzer markers were used to determine the channel spacing. The results are below.

Results:

Channel spacing was measured at **300kHz**. The specification requires that the channel spacing be greater than the measured 20 dB BW. The 20 dB BW was measured at a maximum of 157.5 kHz.



Channel Dwell Time

Specifications:

FCC Specification: Paragraph 15.247(a)(1)
IC Specification: RSS-210 / 6 A8.1(2)

Procedure:

A communications link was established with the EUT. Random data packets were transmitted ove the link at a fixed packet size. Two packets lengths were investigated. The MAX size packet and the MIN size packet that the system utilizes. The long packet maximizes the time on channel for each “hit” but at the same time reduces the number of “hits” due to the fact that ti takes longer to traverse through the complete hopping sequence.
Conversely, with the minimum size packet, the time on channel for each :hit: is minimized, however the complete hopping sequence is traversed faster, resulting on more hits on that channel.

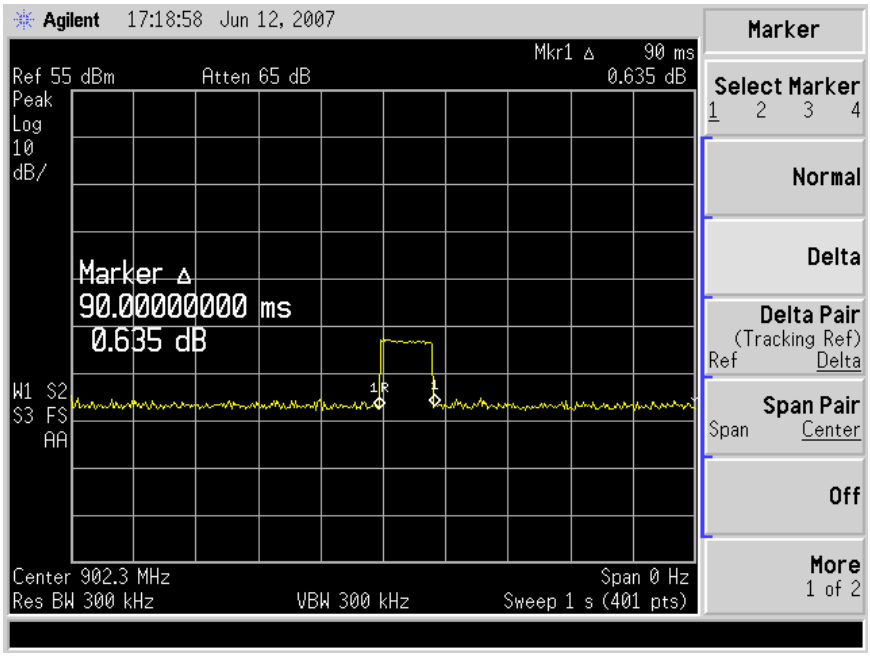
After determining the transmission time for each packet, The LOW, MID and HIGH channel were monitored with the spectrum analyzer on zero span and set to a 20S sweep time. RBW was set to 30 kHz to prevent hits on adjacent channels appearing as hits on the test channel (recall, there is a 300kHz channel spacing)

Results:

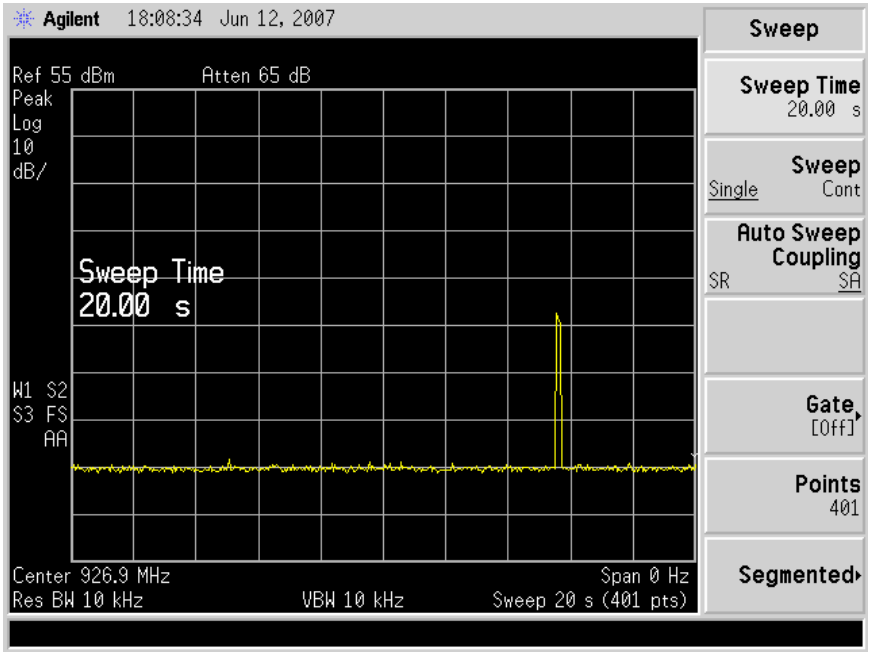
As expected there were more hits with the minimum packet size than the maximum packet size. The table blow summarizes the results. Plots follow.

	Time On Channel per 20 S (mS)				
Channel	Long Packet	Short Packet	Limit	Margin, Long	Margin, Short
High	90	21.6	400	310	378.4
Mid	180	21.6	400	220	378.4
Low	180	21.6	400	220	378.4

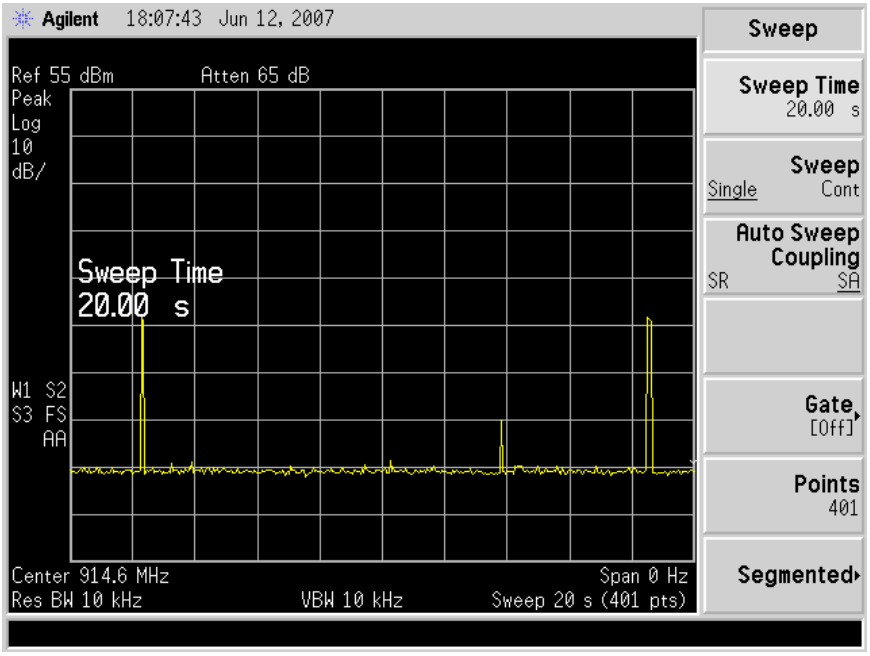
1. Long packet – packet length: 1024 bytes
Transmission time per burst: 90mS



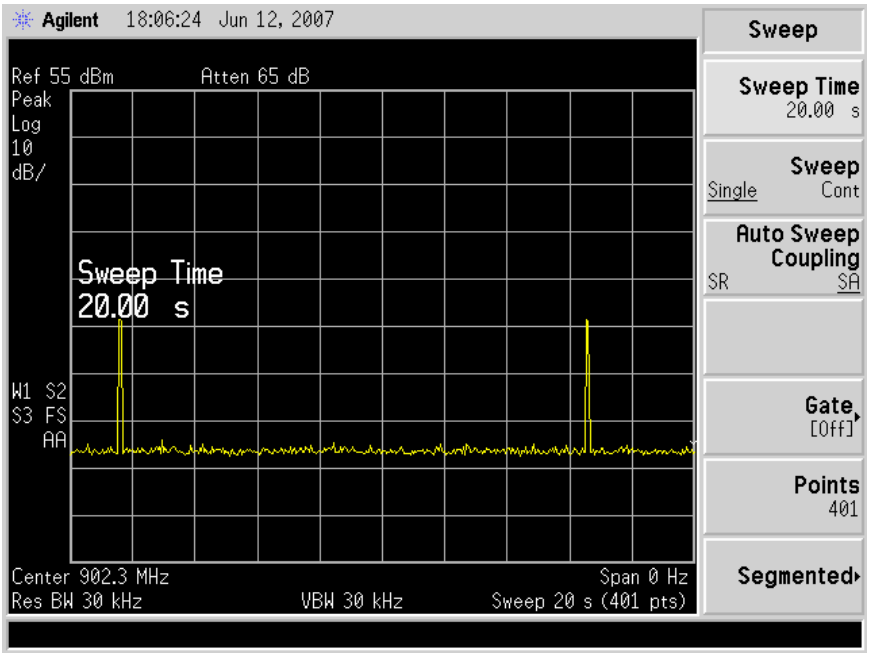
High channel 926.9MHz:
Dwell time per 20s: 90mS



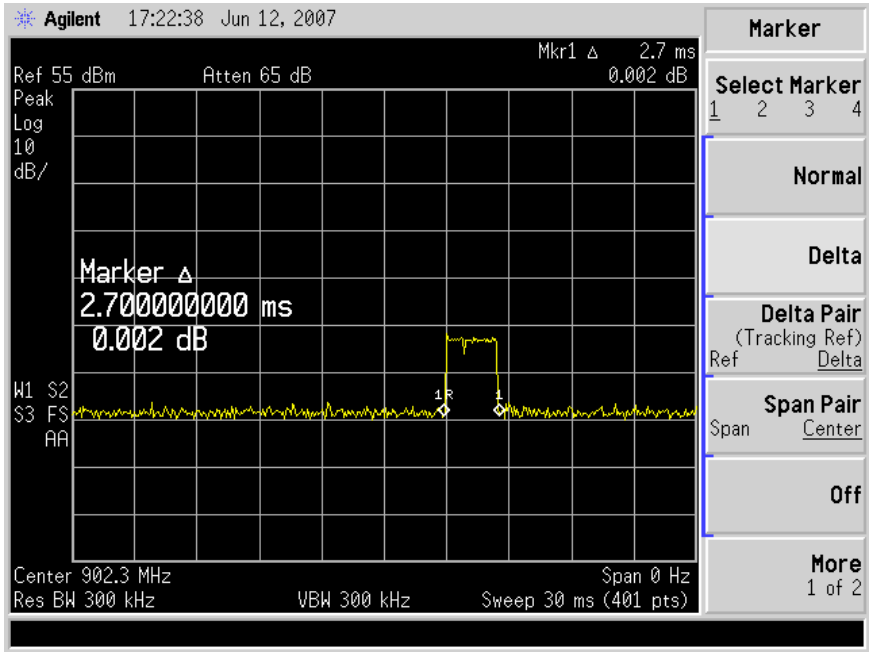
Mid channel: 914.6MHz
Dwell time per 20s: 180mS



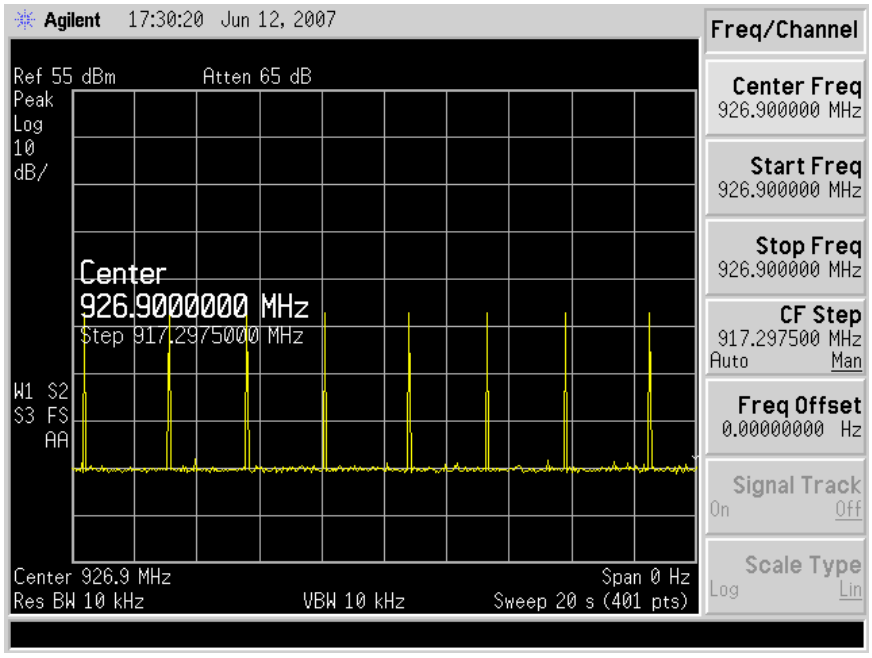
Low channel: 902.3MHz
Dwell time per 20s: 180mS



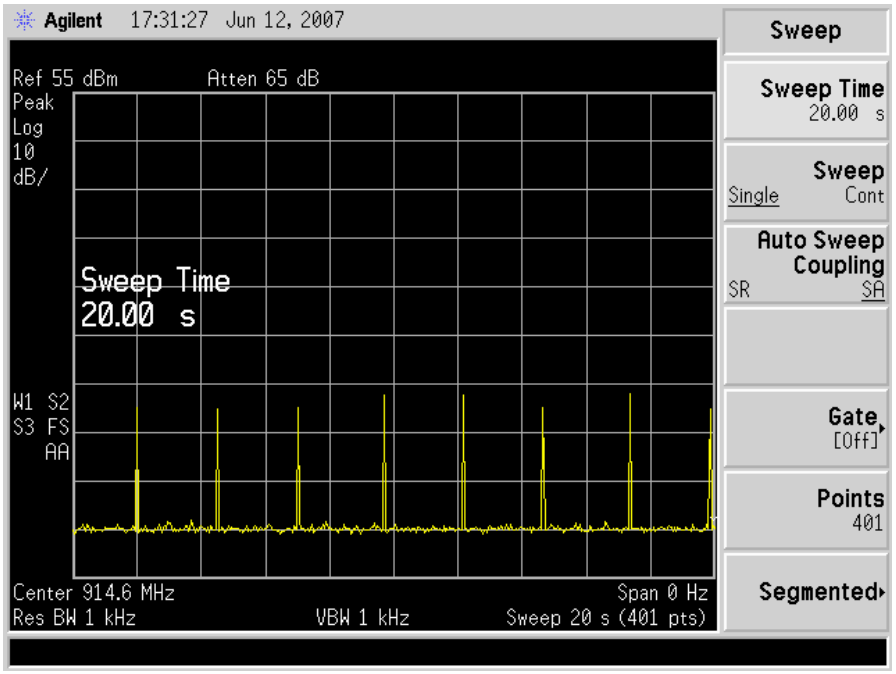
2. Short packet – packet length: 10 bytes
Transmission time per burst: 2.7mS



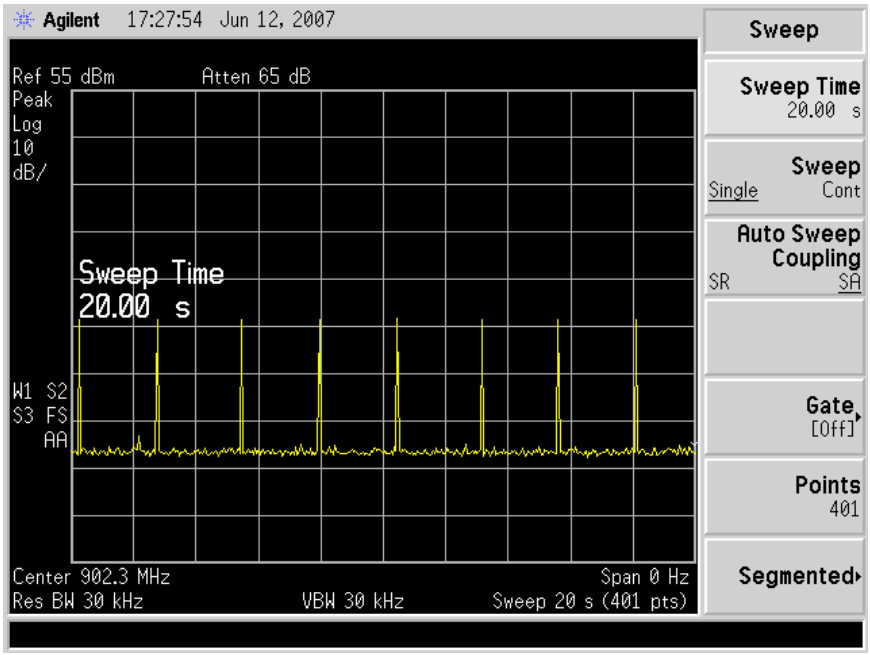
High channel 926.9MHz:
Dwell time per 20s: 21.6mS



Mid channel: 914.6MHz
Dwell time per 20s: 21.6mS



Low channel: 902.3MHz
Dwell time per 20s: 21.6mS



30MHz - 1 GHz Spurious Radiated Emissions

Specification:

Specification: EN55022

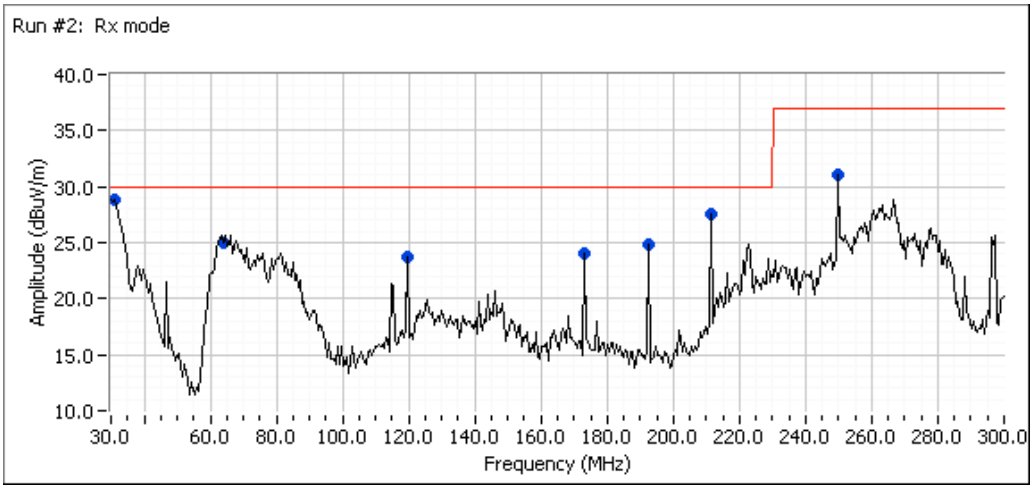
Procedure:

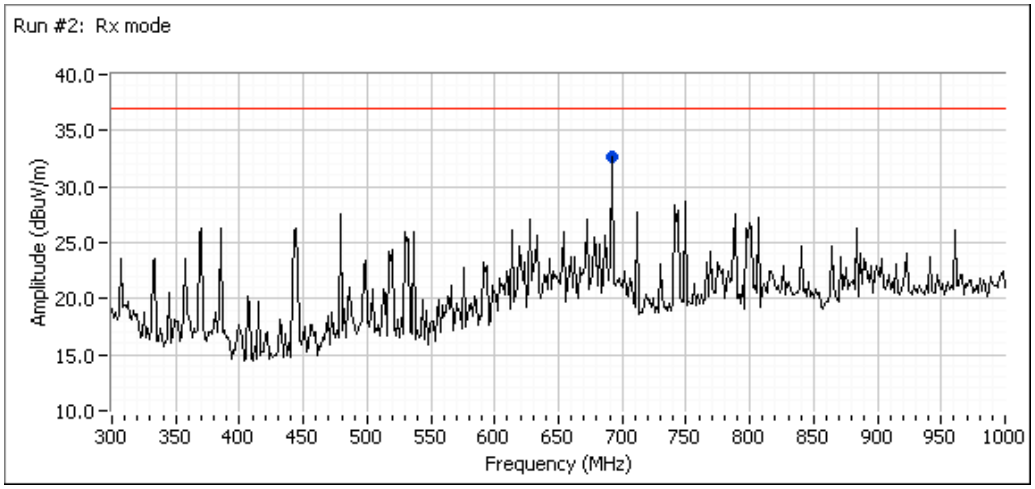
The unit was tested to EN55022, Class B, at a measurement distance of 10M. The EUT was tested in both RCV and XMIT modes. The frequency range of 30 to 1000 MHz was scanned. The test was configured as required (Detector, BW,…) by CISPR 16 as required by EN55022.

Results: (RCV mode)

The unit was set to receive only mode. Preliminary emissions were checked in all three orthogonal planes, the worst case results are presented. The units was tested in Receive mode and transmit mode

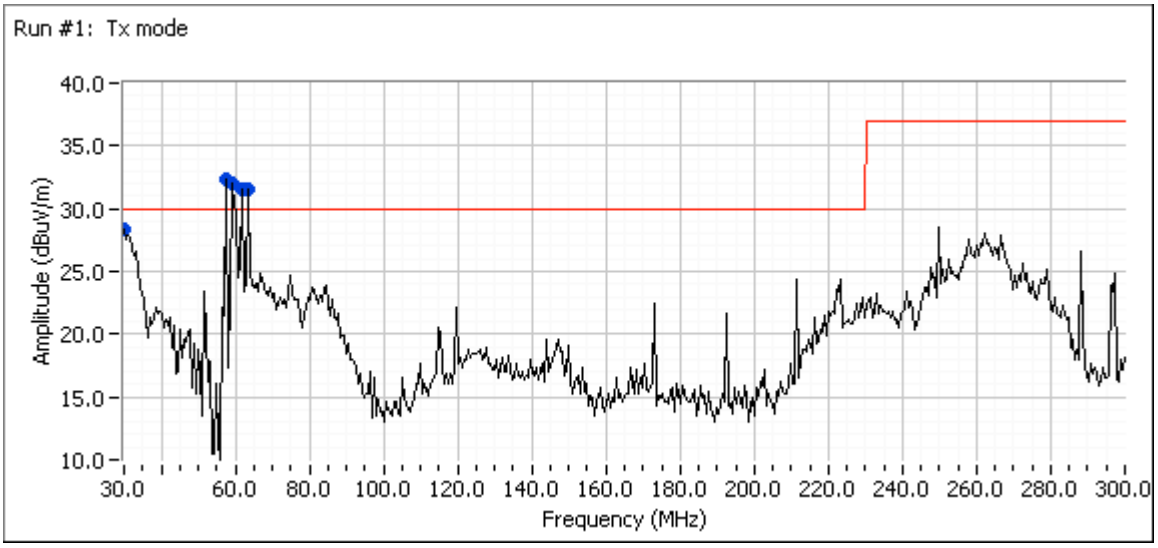
Frequency	Level	Pol	EN55022 B		Detector	Azimuth	Height
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters
211.203	28.2	H	30.0	-1.8	QP	171	4.0
691.202	32.8	H	37.0	-4.2	QP	288	1.0
249.606	31.0	H	37.0	-6.0	QP	140	4.0
192.005	23.8	H	30.0	-6.2	QP	107	4.0
172.805	23.4	H	30.0	-6.6	QP	99	3.5
30.451	23.0	V	30.0	-7.0	QP	232	1.0
120.007	20.4	V	30.0	-9.6	QP	160	1.0
64.249	19.8	V	30.0	-10.2	QP	200	2.5

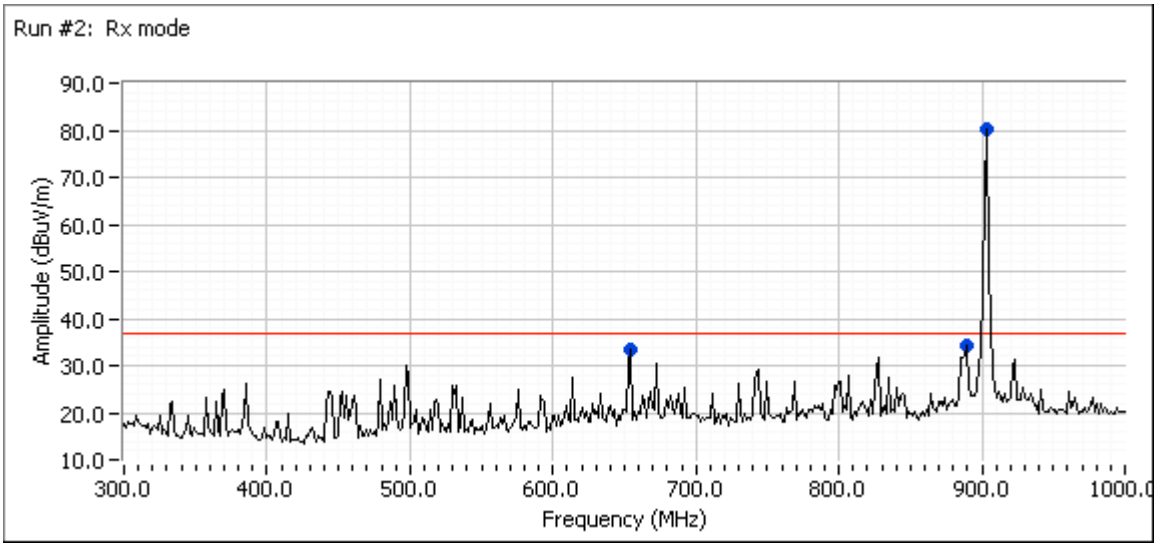




Results: (XMIT mode)

Frequency	Level	Pol	EN55022 B		Detector	Azimuth	Height
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters
652.804	33.0	H	37.0	-4.0	QP	234	1.0
30.351	23.3	V	30.0	-6.7	QP	26	1.0
62.977	19.9	V	30.0	-10.1	QP	36	1.5
62.529	17.9	V	30.0	-12.1	QP	48	3.0
59.775	14.7	V	30.0	-15.3	QP	100	1.5
58.084	10.2	V	30.0	-19.8	QP	177	1.0
890.175	16.7	V	37.0	-20.3	QP	203	3.5





AC Line Conducted Emissions

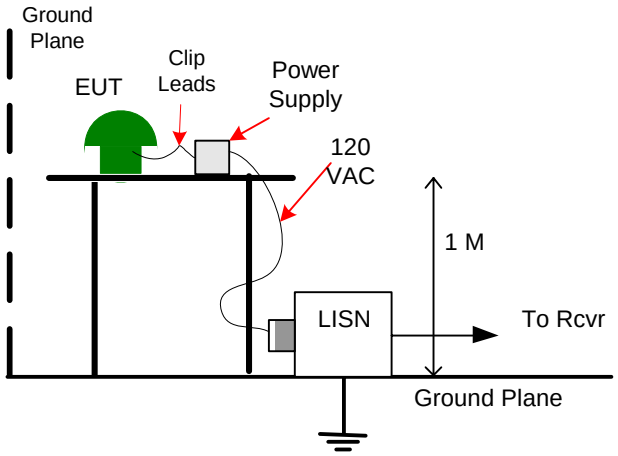
Specification:

CISPR 22

Procedure:

The test was set up according to the guidelines set forth in EN55022:1998 and FCC Part 2 for AC Line Conducted Emissions. The measurement used a LISN line on each AC line and an EMI receiver. A peak scan was made over the measurement frequency range (150 kHz to 30 MHz). The highest peaks were then marked and re-measured and quasi-peaked and averaged.

The test was configured as shown below. The product was tested with a generic power supply running on 120 VAC @ 60 Hz. The power supply provides 3.6 VDC to the EUT. The EUT was configured to transmit in order to draw the maximum current from the power supply. This results in the worst case conducted emissions.



Results:

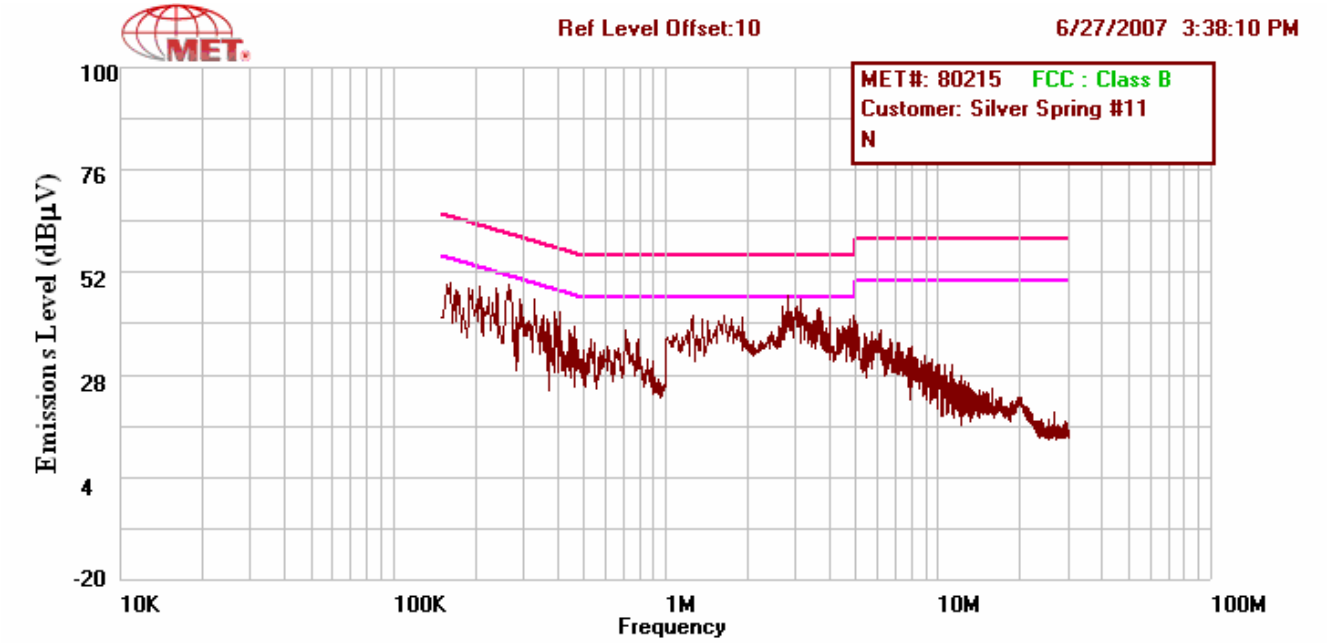
AC line Conducted Emissions, The results are presented on the following pages. The test was performed at MET labs in Union City California as part of the ANSI testing required for utility power meters. The unit was directly powered with AC into the on board AC/DC switching supply on the I210B board.

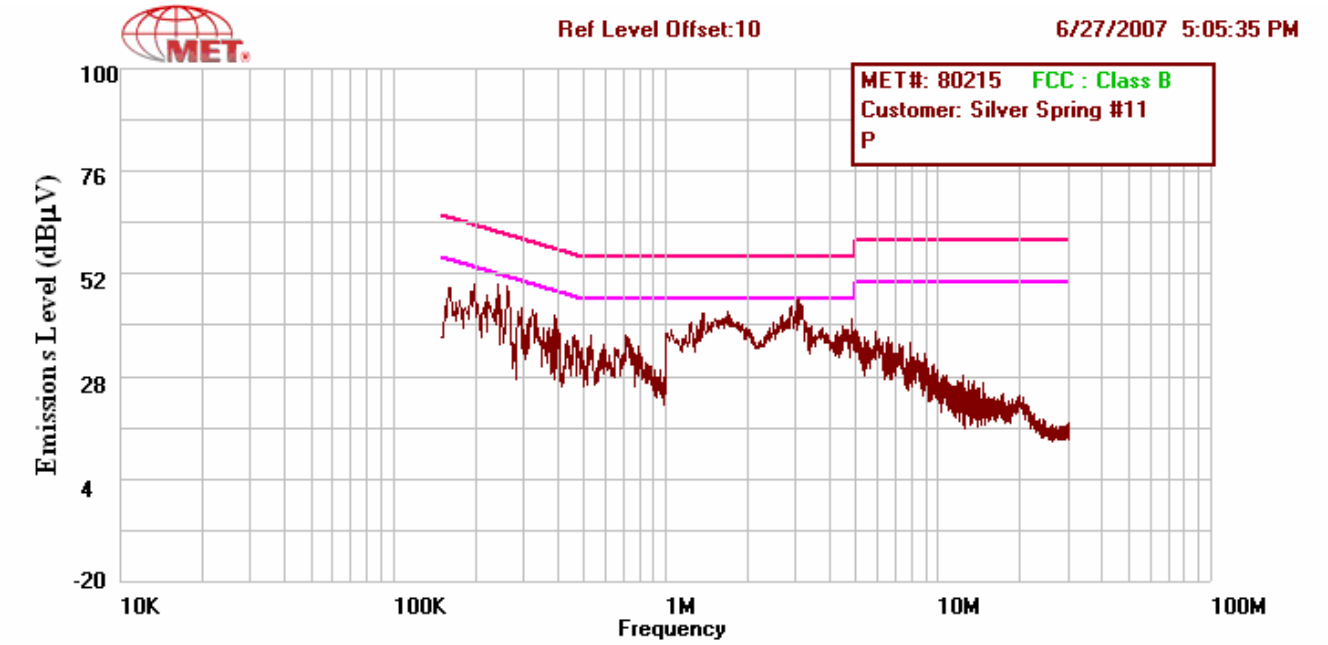
Conducted Emissions Voltage

Test Date	06/27/2007	Temperature	
Engineer	LX	Humidity	
Customer	Silver Spring Network	A. Pressure	
MET#	80215	Mode	
EUT	Meter Form 2S Unit 11	Doors	
Limit/Class	FCC / B	Modifications?	
Highest Clock	19.2 MHz	Setup V./Date	
Start Frequency	150KHz	Setup Picture	
Stop Frequency	30MHz	Pass Date	

Line	Freq (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass	Notes
N	.252	48.72	61.703	-12.983	Pass	32.2	51.703	-19.503	Pass	
N	.4145	41.85	57.581	-15.731	Pass	24.08	47.581	-23.501	Pass	
N	.535	44.98	56	-11.02	Pass	31.61	46	-14.39	Pass	
N	3.147	35.41	56	-20.59	Pass	20.31	46	-25.69	Pass	
N	.729	41.35	56	-14.65	Pass	34.2	46	-11.8	Pass	
N	4.698	30.35	56	-25.65	Pass	19.75	46	-26.25	Pass	
P	.1759	55.36	64.681	-9.321	Pass	34.27	54.681	-20.411	Pass	
P	.219	50.96	62.865	-11.905	Pass	29.62	52.865	-23.245	Pass	
P	.2666	53.39	61.236	-7.846	Pass	32.6	51.236	-18.636	Pass	
P	.306575	47.07	60.079	-13.009	Pass	26.45	50.079	-23.629	Pass	
P	3.1265	35.34	56	-20.66	Pass	21.51	46	-24.49	Pass	
P	1.505	33.54	56	-22.46	Pass	23.67	46	-22.33	Pass	

“N” means Neutral and “P” means Phase


Ref Level Offset:10
6/27/2007 3:38:10 PM
MET#: 80215 FCC : Class B
Customer: Silver Spring #11
N
Emissions Level (dBµV)
100
76
52
28
4
-20
10K
100K
1M
10M
100M
Frequency


Ref Level Offset:10
6/27/2007 5:05:35 PM
MET#: 80215 FCC : Class B
Customer: Silver Spring #11
P
Emissions Level (dBµV)
100
76
52
28
4
-20
10K
100K
1M
10M
100M
Frequency