

EMISSIONS TEST REPORT FOR A LOW POWER TRANSMITTER

I. GENERAL INFORMATION

Requirement: FCC
Test Requirements: FCC Part 15

Applicant: Silver Spring Networks
575 Broadway Street
Redwood City, CA 94063

FCC ID: OWS-NIC508
Model No.: 174-000084

II. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

The Silver Spring Networks (SSN) model 174-000084 is a radio module for electric power meter communications use. The board incorporates a 900 MHz frequency hopping i210 Mesh radio, a 900 MHz Zigbee Home area Network (HAN) radio, and a 2.4GHz HAN radio.

III. TEST DATES AND TEST LOCATION

Testing was performed on various dates between 15 August – 31 October 2008. Radiated emissions, 900 MHz and 2.4 GHz antenna conducted power, 2.4 GHz antenna conducted spurious, and AC line conducted emissions tests were performed at:

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538

All other antenna port conducted tests were performed at Silver Spring Networks.



T.N. Cokenias
EMC Consultant/Agent for Silver Spring Networks

20 Nov 2008

15.203 Antenna connector requirement

The EUT uses a custom permanently attached integral antenna, a special sheet metal antenna manufactured by Silver Spring Networks for electric meters

Antenna description	Mfr.	Model No.	Gain
Built-in sheet metal electric meter	SSN	n/a	2.4 dBi at 915 MHz 1.5 dBi at 2.4 GHz

NOTE: Although all three radios share the same antenna, only one radio at a time is operating, either in receive or transmit mode.

TEST PROCEDURES

All tests were performed in accordance with the applicable procedures called out in the following documents, unless otherwise noted:

FCC 47CFR15

RSS-210 Issue 7: Low power license exempt radio frequency devices (July 2007)

RSS-Gen, Issue 2:

RSS-212: Test Facilities and Test Methods for Radio Equipment

ANSI C63.4 – 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

For each radio, tests were performed at three frequencies:

900 MHz HAN Radio

Channel 1 (LOW) – 906.25 MHz

Channel 5 (MID) – 914.25 MHz

Channel 10 (HIGH) – 924.3 MHz

2.4 GHz HAN Radio

Channel 11 (LOW) – 2405.8 MHz

Channel 18 (MID) – 2440.8 MHz

Channel 26 (HIGH) – 2480.9 MHz

900 MHz FHSS

Channel 0 (LOW) – 902.3 MHz

Channel 42 (MID) -914.9 MHz

Channel 82 (HIFH) – 926.9 MHz

Test Equipment

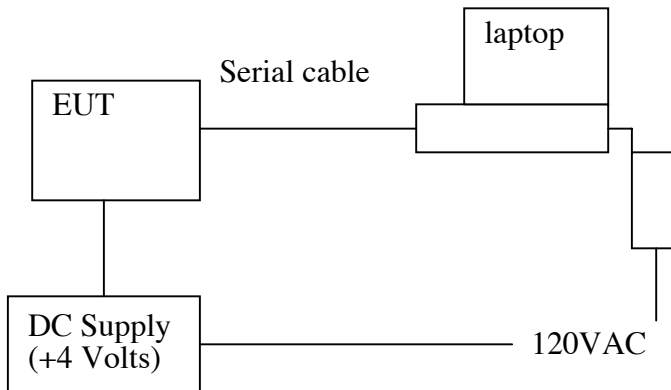
Compliance Certification Services:

Equipment	Mfr	Model	Asset No.	Cal Due
Spectrum analyzer (radiated emissions 2.4GHz Pout, spurs)	Agilent	E4446A	C01159	10/27/08
EMI Receiver	HP	8542E	C00967	09/10/09
Bilog antenna	Sunol Sciences	JBI	C01016	09/28/08
Pre-amplifier	Agilent	HP8447D	C00885	03/31/09
Horn antenna	EMCO	3115	C00872	03/31/09
Pre-amplifier	Agilent	HP 8449B	C00749	09/27/08
EMI Receiver	R & S	ESHS-20	827129/006	01/27/09
LISN	FCC	LISN50/250-25-2	2023	09/27/08

Silver Spring Networks:

Equipment	Mfr	Model	Asset No.	Cal Date
Spectrum analyzer	Agilent	E44053	1077004	06/29/08

Test Set-up Diagram



Support Equipment

Equipment	Mfr	Model	Asset No.
DC Power Supply	Agilent	E3610A	2844
Laptop PC	Dell	PP01L	TW-0791UH1280-OC9-6558
AC/DC adapter	CUI Inc.	DSA-60W-20	2607HB

900 MHz HAN Spread Spectrum Radio

TEST RESULTS

Radiated Test Set-up, 30MHz - 10 GHz

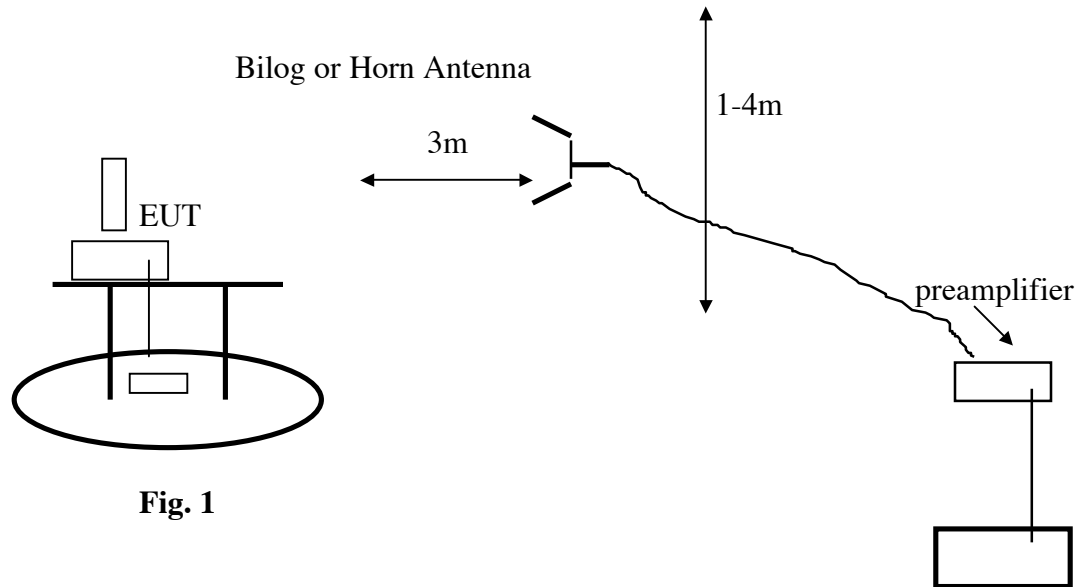


Fig. 1

Test Procedures

Radiated emissions generated by the transmitter portion of the EUT were measured.

1. The EUT was placed on a wooden table resting on a turntable on the test site. The search antenna was placed 3m from the EUT. The EUT antenna was mounted in the with the EUT TX antenna pointed directly to the search antenna.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.
3. Emissions were investigated to the 10th harmonic of the fundamental.
4. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

Test Results: Worst-case results are presented. Refer to data sheets below. Restricted band emissions meet 54 dBuV/m. Other undesired emissions from the transmitter meet the -20 dBc requirement in 15.247(d).

15.205 Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505 (1)	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		

15.209 General Field Strength Limits

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

900 MHz HAN Radiated Spurious, Low Channel

High Frequency Measurement																	
Compliance Certification Services, Morgan Hill Open Field Site																	
Company:		Silver Spring Network															
Project #:		08U11890															
Date:		8/15/08															
Test Engineer:		Thanh Nguyen															
Configuration:		EUT at Y position															
Mode:		Transmit DSSS															
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz								
T73; S/N: 6717 @3m			T144 Miteq 3008A00931														
Hi Frequency Cables																	
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz		
						Gordon 203134001			HPF_1.5GHz								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
Power Setting atmx 0x05-0xe (-24 dBm)																	
Low CH 906.253 MHz AFS 107=1																	
2.718	3.0	47.98	43.63	29.2	8.6	-37.4	0.0	0.6	49.0	44.6	74	54	-25.0	-9.4	V		
3.625	3.0	45.23	39.94	31.6	9.6	-36.9	0.0	0.6	50.1	44.9	74	54	-23.9	-9.1	V		
4.531	3.0	40.89	28.40	33.0	10.6	-36.5	0.0	0.6	48.6	36.1	74	54	-25.4	-17.9	V		
5.438	3.0	41.03	30.31	33.8	11.2	-36.3	0.0	0.5	50.2	39.5	74	54	-23.8	-14.5	V		
8.156	3.0	41.36	29.36	35.5	13.1	-36.3	0.0	0.7	54.4	42.4	74	54	-19.6	-11.6	V		
9.063	3.0	39.79	28.15	36.5	13.6	-36.7	0.0	0.7	53.9	42.2	74	54	-20.1	-11.8	Noise floor		
2.718	3.0	47.96	43.83	29.2	8.6	-37.4	0.0	0.6	48.9	44.8	74	54	-25.1	-9.2	H		
3.625	3.0	45.12	35.55	31.6	9.6	-36.9	0.0	0.6	50.0	40.5	74	54	-24.0	-13.5	H		
4.531	3.0	42.08	32.17	33.0	10.6	-36.5	0.0	0.6	49.8	39.9	74	54	-24.2	-14.1	H		
5.438	3.0	44.88	37.92	33.8	11.2	-36.3	0.0	0.5	54.1	47.1	74	54	-19.9	-6.9	H		
8.156	3.0	43.89	36.00	35.5	13.1	-36.3	0.0	0.7	56.9	49.1	74	54	-17.1	-4.9	H		
9.063	3.0	40.45	27.97	36.5	13.6	-36.7	0.0	0.7	54.5	42.1	74	54	-19.5	-11.9	Noise floor		
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit				
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit				
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit				
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit				
CL	Cable Loss					HPF	High Pass Filter										

900 MHz HAN Radiated Spurious, Mid Channel

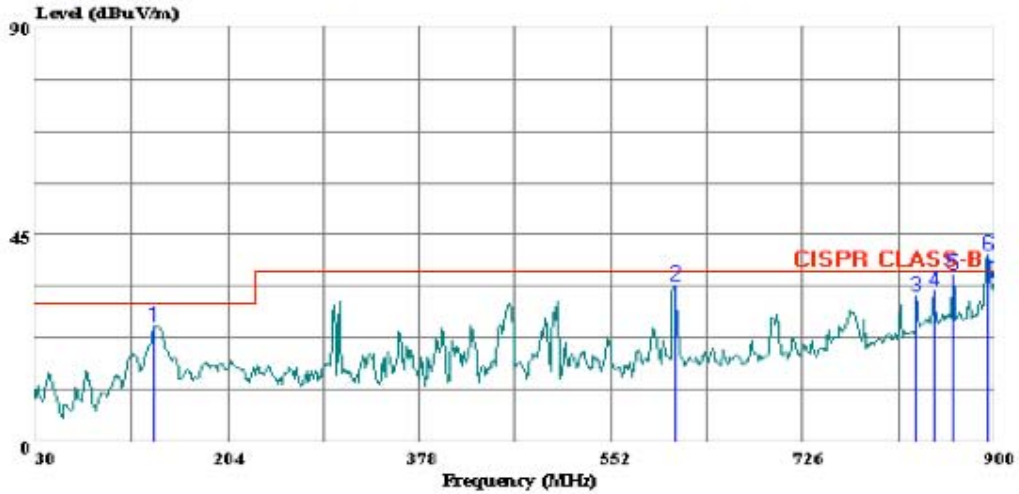
High Frequency Measurement																																													
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Configuration:		EUT at Y position																																											
Mode:		Transmit DSSS Mid Channel 914.25 MHz																																											
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Power Setting atmx 0x05=0xe0 (-24 dBm)																																													
Mid CH 914.25 MHz ATS 107= 5																																													
2.743	3.0	45.25	39.52	29.3	8.7	-37.4	0.0	0.6	46.3	40.6	74	54	-27.7	-13.4	V																														
3.657	3.0	42.07	31.07	31.7	9.7	-36.9	0.0	0.6	47.1	36.1	74	54	-26.9	-17.9	V																														
4.571	3.0	40.89	28.40	33.1	10.7	-36.5	0.0	0.6	48.7	36.2	74	54	-25.3	-17.8	V																														
5.438	3.0	41.59	30.68	33.8	11.2	-36.3	0.0	0.5	50.8	39.9	74	54	-23.2	-14.1	V																														
7.314	3.0	42.35	29.67	35.0	12.7	-36.2	0.0	0.6	54.4	41.7	74	54	-19.6	-12.3	V																														
8.228	3.0	41.97	30.70	35.6	13.1	-36.3	0.0	0.7	55.1	43.8	74	54	-18.9	-10.2	V																														
9.142	3.0	40.08	27.89	36.5	13.6	-36.7	0.0	0.7	54.2	42.1	74	54	-19.8	-11.9	Noise floor																														
2.743	3.0	48.72	45.01	29.3	8.7	-37.4	0.0	0.6	49.8	46.1	74	54	-24.2	-7.9	H																														
3.657	3.0	43.35	35.59	31.7	9.7	-36.9	0.0	0.6	48.4	40.6	74	54	-25.6	-13.4	H																														
4.571	3.0	40.99	28.83	33.1	10.7	-36.5	0.0	0.6	48.8	36.6	74	54	-25.2	-17.4	H																														
5.438	3.0	43.58	35.90	33.8	11.2	-36.3	0.0	0.5	52.8	45.1	74	54	-21.2	-8.9	H																														
7.314	3.0	41.99	30.38	35.0	12.7	-36.2	0.0	0.6	54.0	42.4	74	54	-20.0	-11.6	H																														
8.228	3.0	44.77	36.69	35.6	13.1	-36.3	0.0	0.7	57.9	49.8	74	54	-16.1	-4.2	H																														
9.142	3.0	40.67	27.96	36.5	13.6	-36.7	0.0	0.7	54.8	42.1	74	54	-19.2	-11.9	Noise floor																														
<table border="0"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>																f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit	Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit	Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit	AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit	CL	Cable Loss	HPF	High Pass Filter		
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Radiated Emissions 30-1000 MHz



Compliance Certification Services
 47173 Benicia Street
 Fremont, CA 94538
 Tel: (510) 771-1000
 Fax: (510) 661-0888

Data#: 8 File#: 08U11890.EMI Date: 08-22-2008 Time: 09:51:05



Trace: 7

Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration: : EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

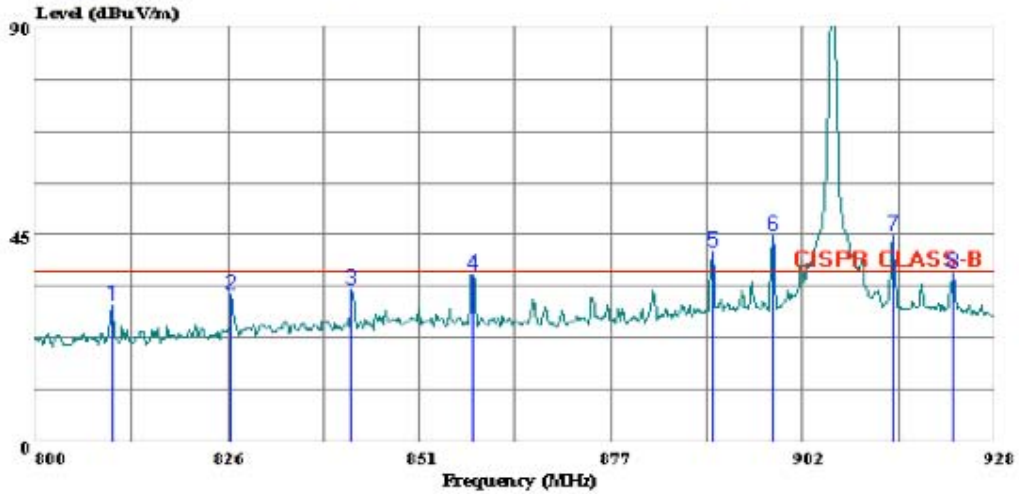
Page: 1

	Read	Read	Limit	Over		
	Freq	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	137.880	42.97	-17.92	25.05	30.00	-4.95 Peak
2	610.290	42.11	-8.30	33.81	37.00	-3.19 Peak
3	829.530	35.33	-3.89	31.44	37.00	-5.56 Peak
4	845.190	36.28	-3.60	32.68	37.00	-4.32 Peak
5	862.590	39.31	-3.16	36.15	37.00	-0.85 Peak
6 *	894.780	43.04	-2.40	40.64	37.00	3.64 Peak
7	900.000	37.14	-2.29	34.85	37.00	-2.15 Peak



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Data#: 16 File#: 08U11890.EMI Date: 08-22-2008 Time: 10:22:03



Trace: 15

Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration:: EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

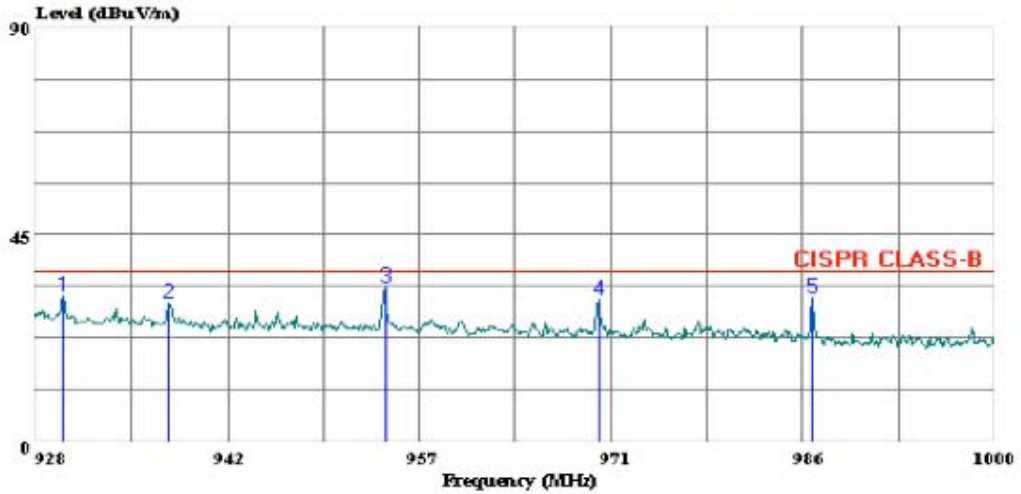
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	Read Freq	Read Level	Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	810.112	33.98	-4.31	29.67	37.00	-7.33	Peak
2	826.112	35.77	-3.96	31.81	37.00	-5.19	Peak
3	842.112	36.73	-3.63	33.10	37.00	-3.90	Peak
4	858.240	39.31	-3.23	36.08	37.00	-0.92	Peak
5 *	890.496	43.68	-2.51	41.17	37.00	4.17	Peak
6 *	898.432	47.13	-2.32	44.81	37.00	7.81	Peak
7 *	914.432	46.91	-2.05	44.86	37.00	7.86	Peak
8	922.496	38.36	-1.82	36.54	37.00	-0.46	Peak



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Data#: 10 File#: 08U11890.EMI Date: 08-22-2008 Time: 10:01:02



Trace: 9

Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration:: EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

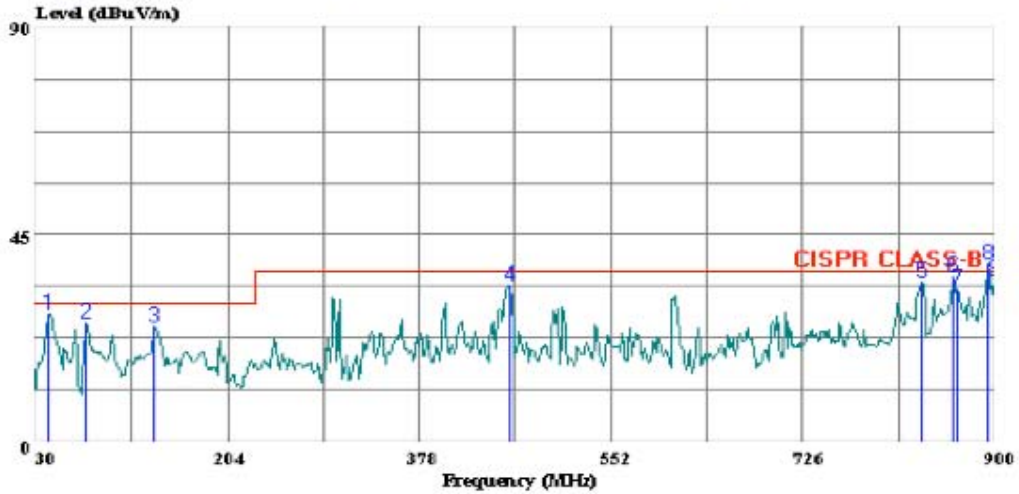
Page: 1

	Read Freq	Read Level	Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	929.944	33.19	-1.65	31.54	37.00	-5.46	Peak
2	938.008	31.39	-1.54	29.85	37.00	-7.15	Peak
3	954.208	34.71	-1.20	33.51	37.00	-3.49	Peak
4	970.264	31.85	-0.92	30.93	37.00	-6.07	Peak
5	986.248	31.55	-0.56	31.00	37.00	-6.00	Peak



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Data#: 6 File#: 08U11890.EMI Date: 08-22-2008 Time: 09:38:16



Trace: 5

Ref Trace:

Condition: CISPR CLASS-B VERTICAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration:: EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

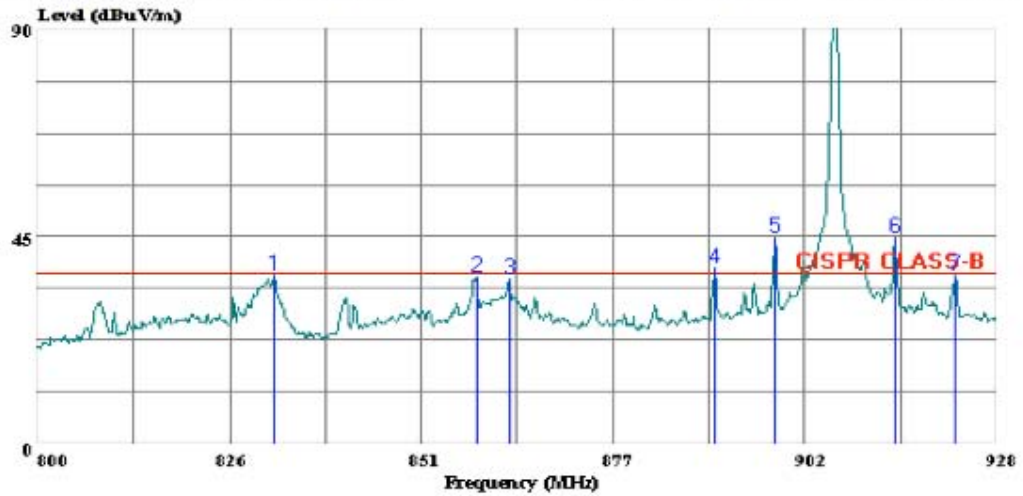
Page: 1

	Read Freq	Read Level	Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	42.180	47.35	-19.82	27.54	30.00	-2.47	Peak
2	75.240	49.10	-23.57	25.53	30.00	-4.47	Peak
3	137.880	42.76	-17.92	24.84	30.00	-5.16	Peak
4	459.780	44.85	-10.96	33.89	37.00	-3.11	Peak
5	833.880	38.44	-3.75	34.69	37.00	-2.31	Peak
6	862.590	39.14	-3.16	35.98	37.00	-1.02	Peak
7	866.940	36.00	-3.03	32.97	37.00	-4.03	Peak
8 *	894.780	40.97	-2.40	38.57	37.00	1.57	Peak
9	900.000	37.39	-2.29	35.10	37.00	-1.90	Peak



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Data#: 14 File#: 08U11890.EMI Date: 08-22-2008 Time: 10:15:33



Trace: 13

Ref Trace:

Condition: CISPR CLASS-B VERTICAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration:: EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

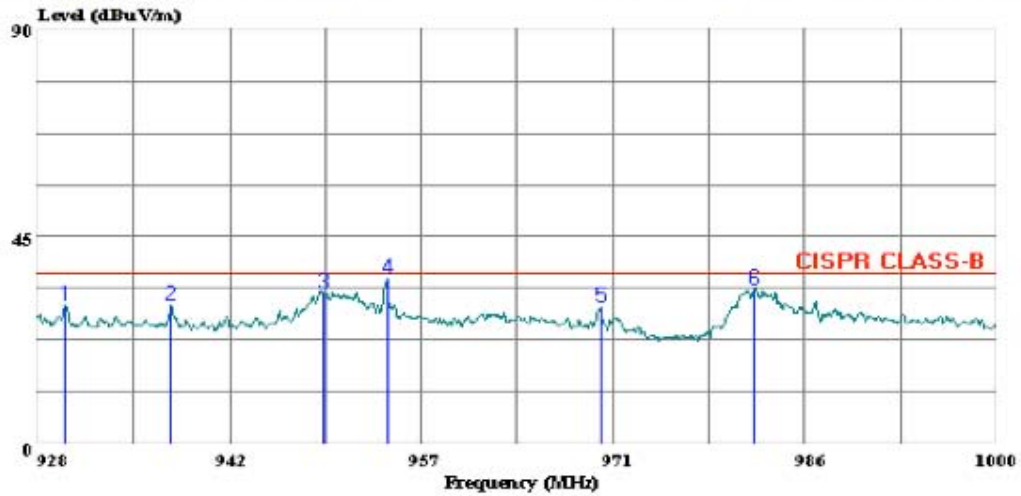
Page: 1

	Read Freq	Read Level	Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	831.616	40.59	-3.80	36.79	37.00	-0.21	Peak
2	858.496	39.38	-3.23	36.15	37.00	-0.85	Peak
3	862.976	39.11	-3.12	35.99	37.00	-1.01	Peak
4 *	890.496	40.72	-2.51	38.21	37.00	1.21	Peak
5 *	898.432	47.19	-2.32	44.86	37.00	7.86	Peak
6 *	914.432	46.88	-2.05	44.83	37.00	7.83	Peak
7	922.496	38.50	-1.82	36.68	37.00	-0.32	Peak



Compliance Certification Services
 47173 Benicia Street
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 Fax: (510) 661-0888

Data#: 12 File#: 08U11890.EMI Date: 08-22-2008 Time: 10:08:01



Trace: 11

Ref Trace:

Condition: CISPR CLASS-B VERTICAL
 Test Operator:: William Zhuang
 Project #: : 08U11890
 Company: : Silver Spring
 Configuration:: EUT with Laptop
 Mode : : Tx, 802.15.4 Ch.1, Max Power
 Target: : CISPR Class B

Page: 1

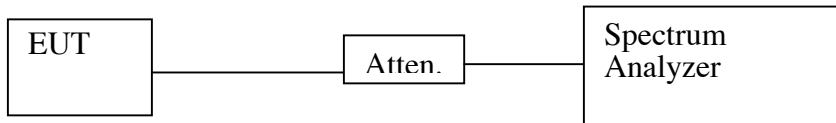
	Read Freq	Read Level	Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	930.016	31.67	-1.65	30.03	37.00	-6.97	Peak
2	938.008	31.59	-1.54	30.05	37.00	-6.95	Peak
3	949.384	34.07	-1.34	32.73	37.00	-4.27	Peak
4	954.208	36.99	-1.20	35.79	37.00	-1.21	Peak
5	970.264	30.55	-0.92	29.63	37.00	-7.37	Peak
6	981.856	34.21	-0.66	33.54	37.00	-3.46	Peak

6dB Bandwidth for DTS

Test Requirement: FCC: 15.247 (a) 2

IC: RSS-210 Sec. 6.2.2(o)(iv)

Test Set-up



Test Procedures

A coaxial cable was attached to the radio antenna port Murata connector. The cable's SMA connector was connected to the spectrum analyzer. The EUT transmission was continuous at the LOW channel. While the transmitter broadcast a steady stream of digital data, the analyzer OCCUPIED BW function was activated to the 99% BW, and the DELTA MARKER function was used to measure the 6 dB BW.

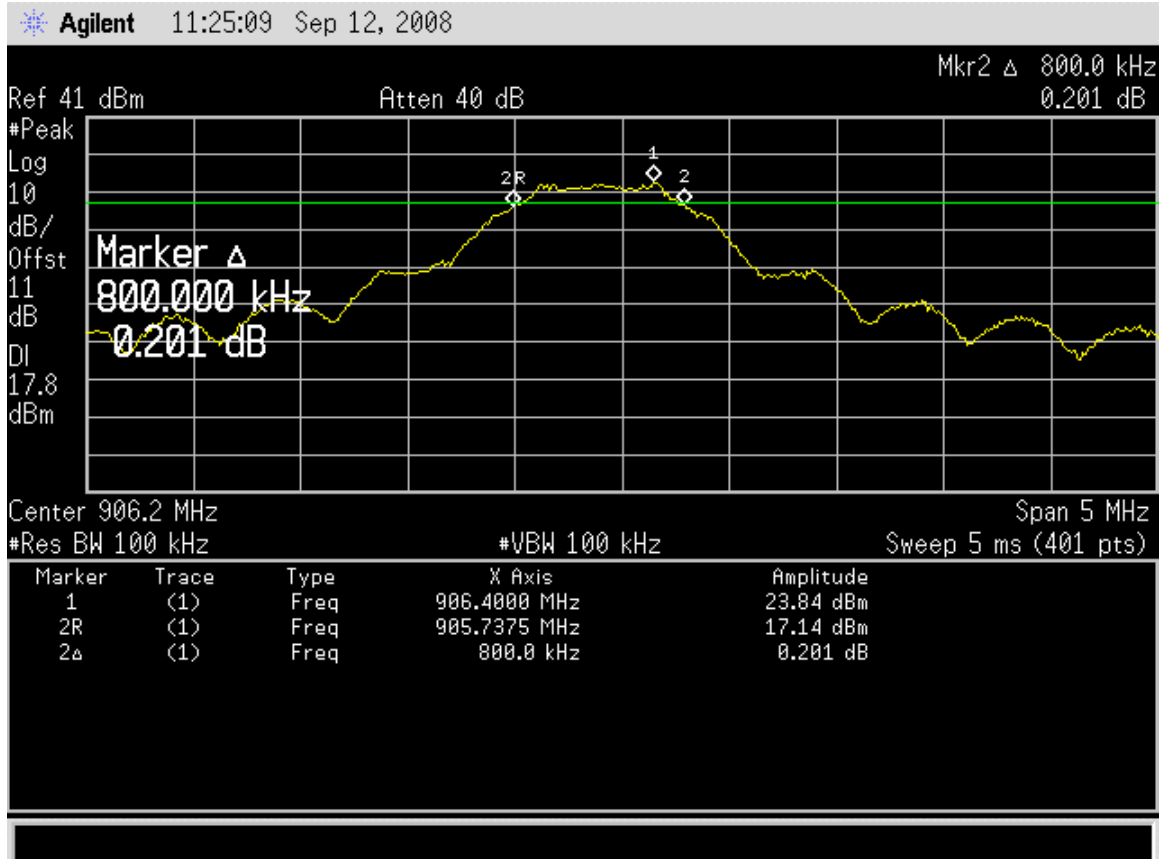
Test was repeated for MID and HIGH channels.

Test Results. No non-compliance noted. Refer to data sheets below.

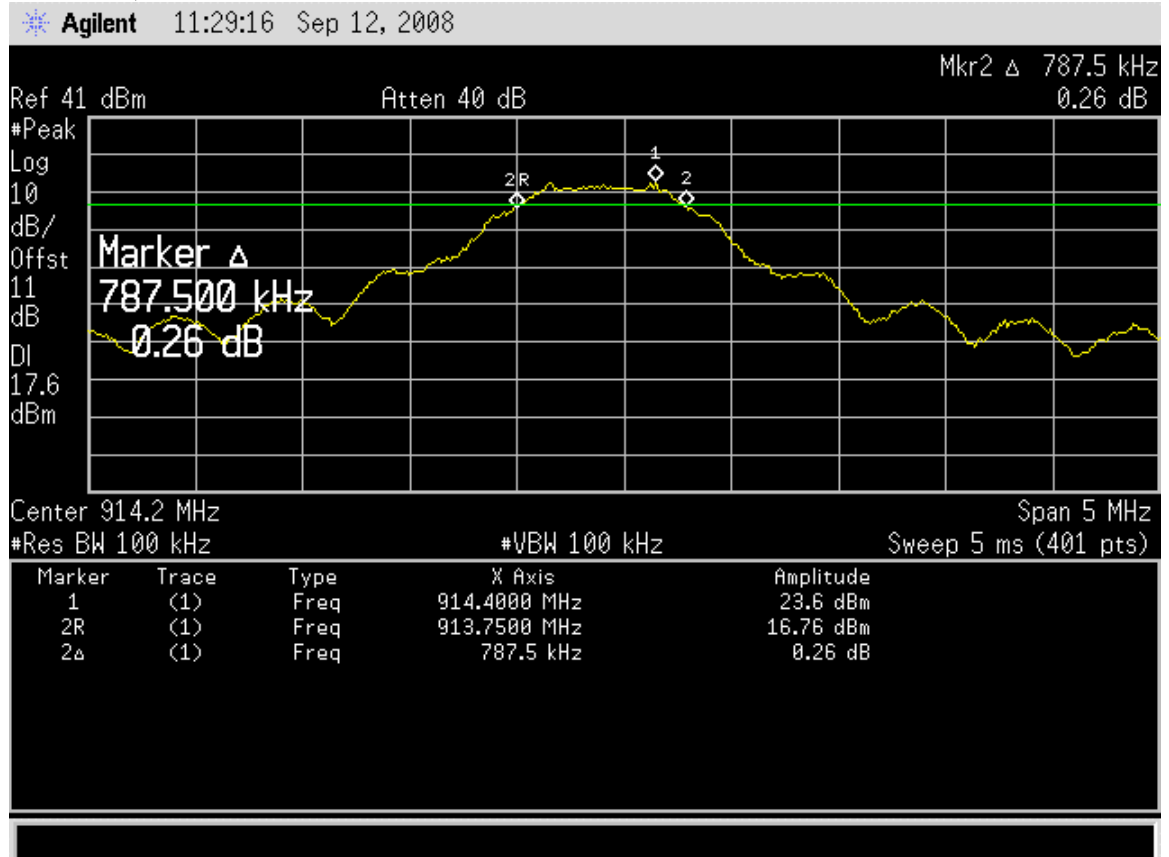
Minimum 6 dB BW: 787 kHz

Minimum Required: 500 kHz

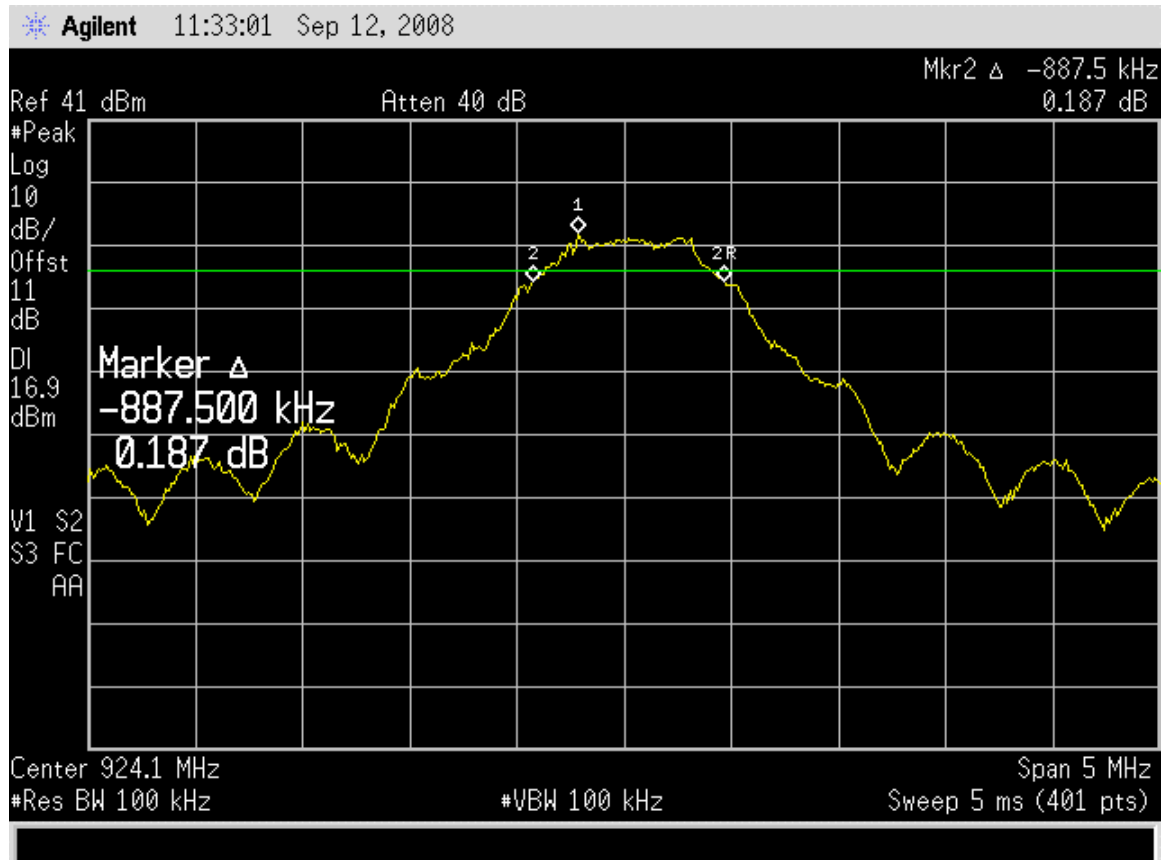
6dB Bandwidth LOW Channel



6 dB BW, MID Channel

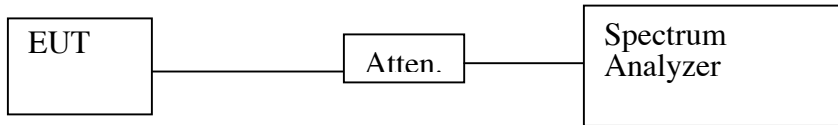


6 dB BW, HIGH Channel



99% Bandwidth

Test Setup



Limit

None: for reporting purposes only.

Test Procedure

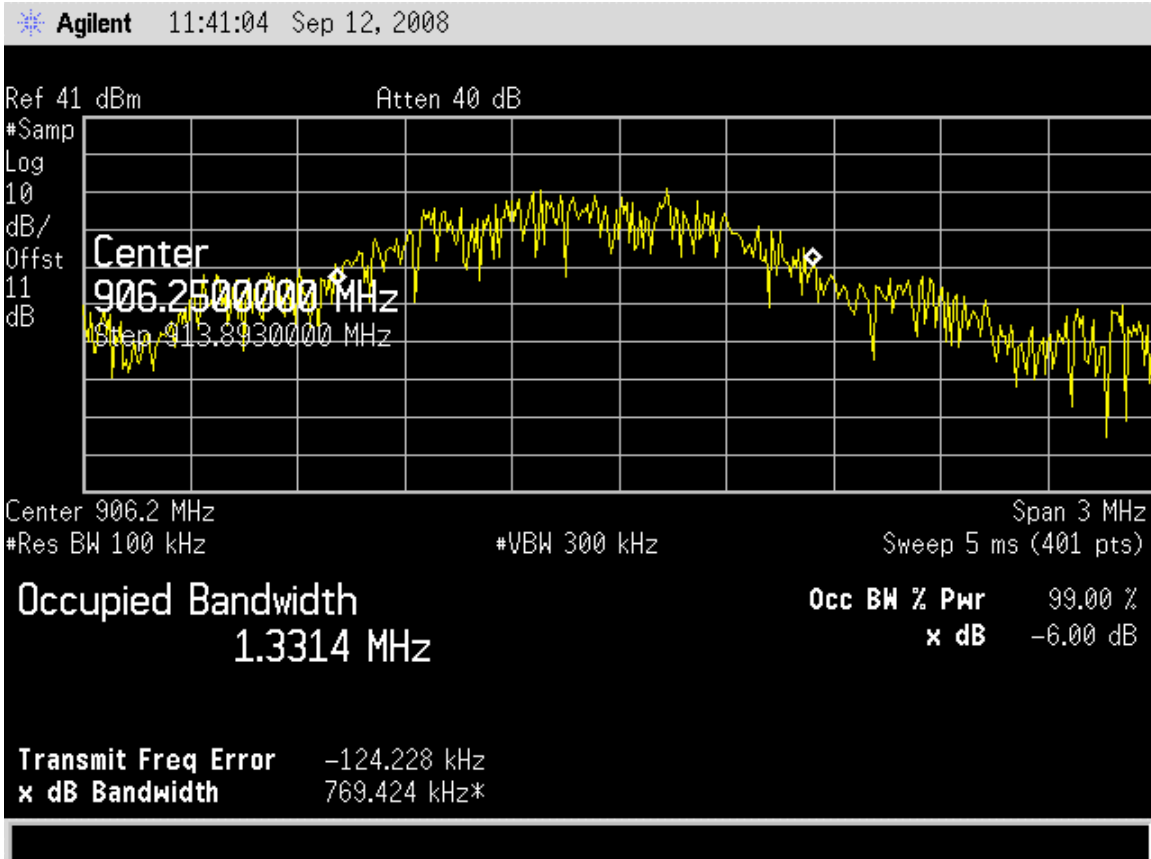
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal OCCUPIED BW function was utilized.

Test Results

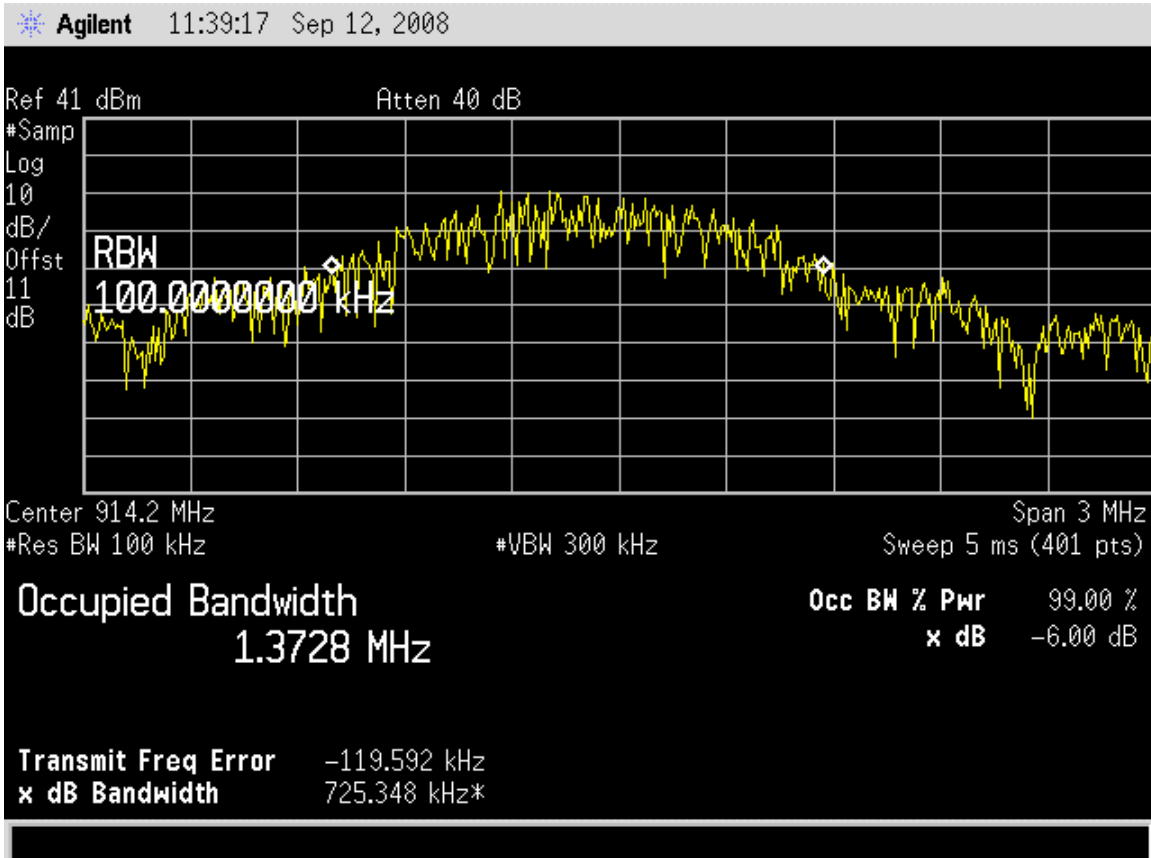
Refer to spectrum analyzer charts below. 99% bandwidth approximately 1.41 MHz

Emission Designator: 1M41G1D

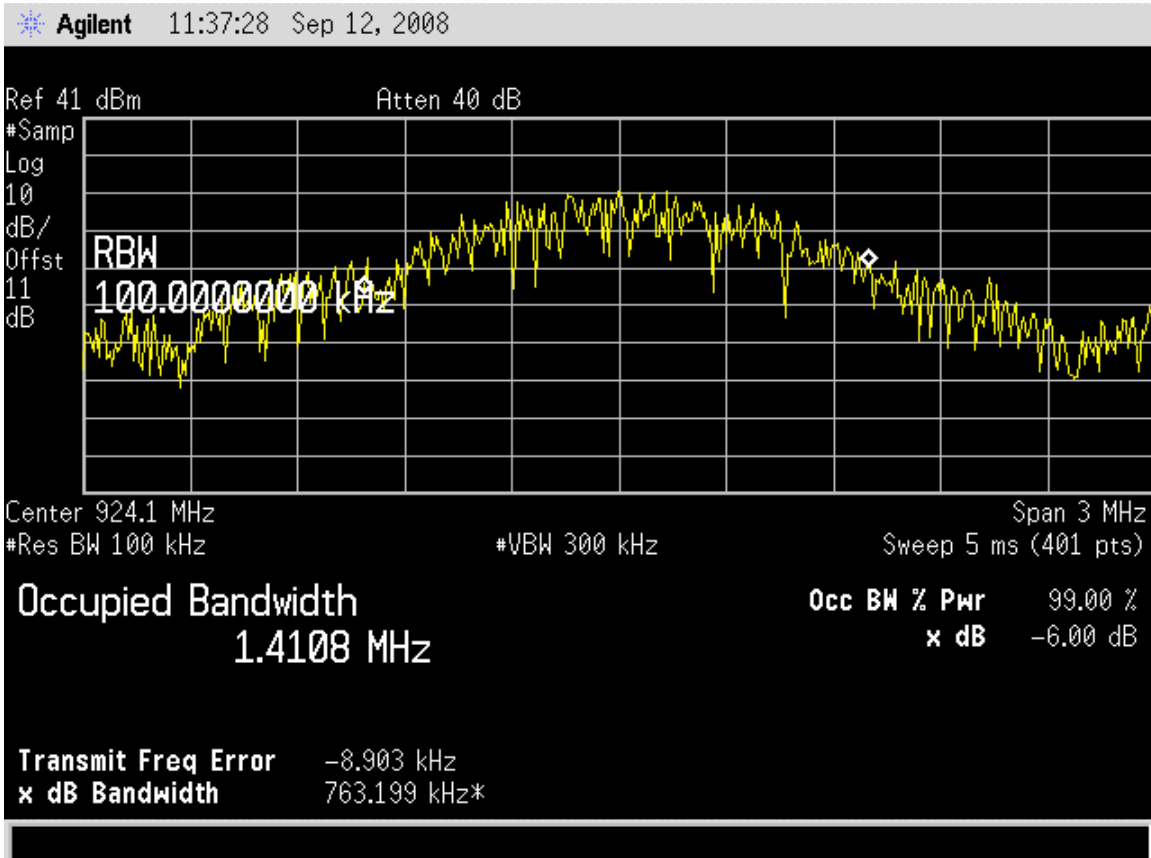
99% Bandwidth LOW Channel



99% Bandwidth MID Channel



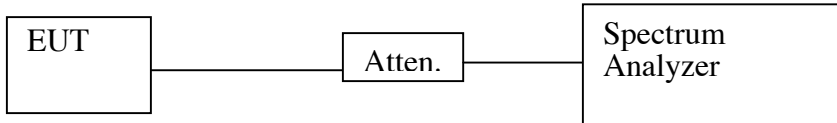
99% Bandwidth HIGH Channel



RF Power Output

Test Requirement: FCC: 15.247(b)
IC: RSS-210 Sec. 6.2.2(o)(iv)

Test Setup



Test Procedures

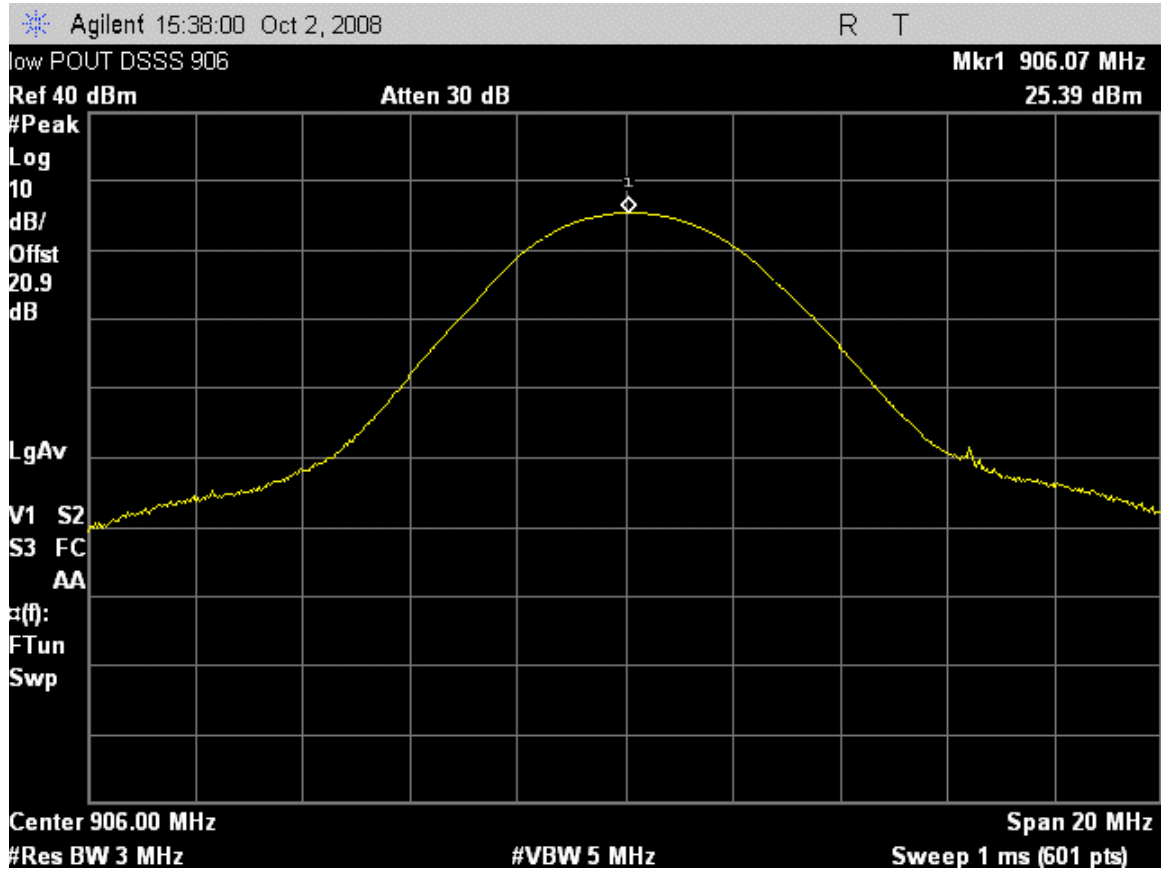
1. The EUT was configured on a test bench. RBW was set to a value higher than the 2.5 MHz 99% band width: RBW=3 MHz, VBW=8 MHz
2. The spectrum analyzer detector was set to PEAK and the highest value was recorded using the analyzer PEAK SEARCH function.

Test Results

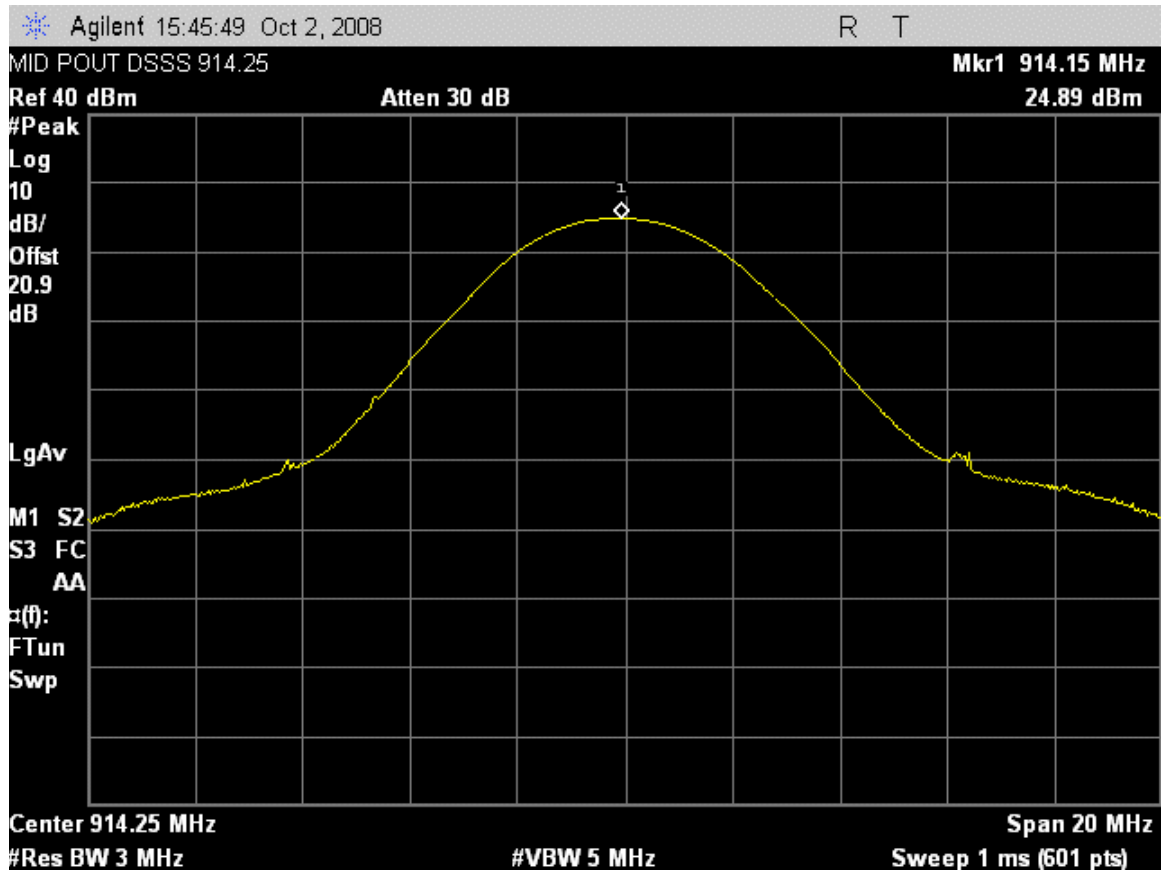
Refer to spectrum analyzer graphs. Reference level offset corrects for external attenuation and cable loss.

Channel	Frequency, MHz	Output Power, dBm	Output Power, Watts
Low	906.07	25.39	0.346
Mid	914.15	24.89	0.308
High	924.07	24.39	0.275

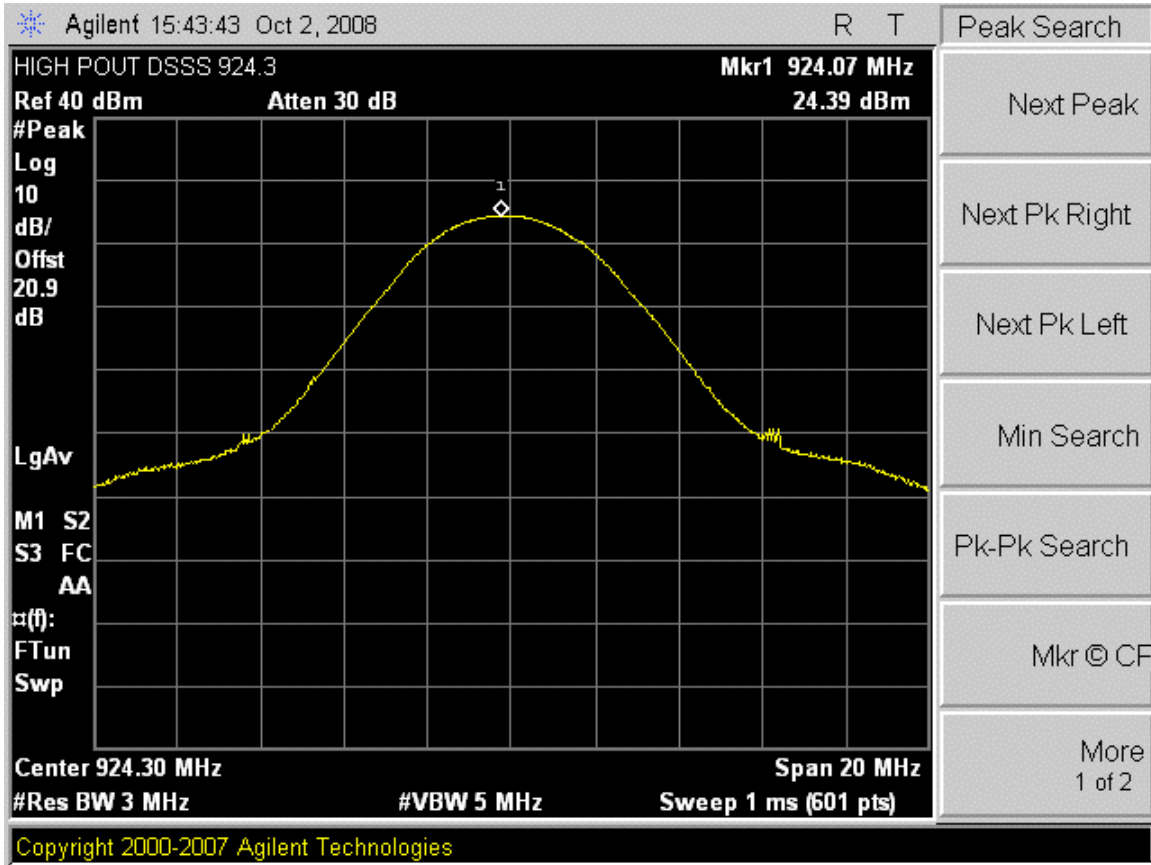
Peak Output Power LOW Channel



Peak Output Power MID Channel



Peak Output Power HIGH Channel

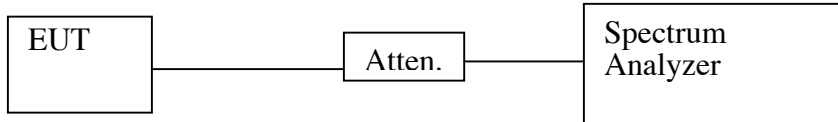


Spurious Emissions, Conducted

Test Requirement: FCC: 15.247(d)

IC: RSS-210 Sec. 6.2.2(o)(e1)

Test Setup



Test Procedure

1. The EUT was configured on a test bench. The cable was connected between the EUT antenna port and the spectrum analyzer input port.

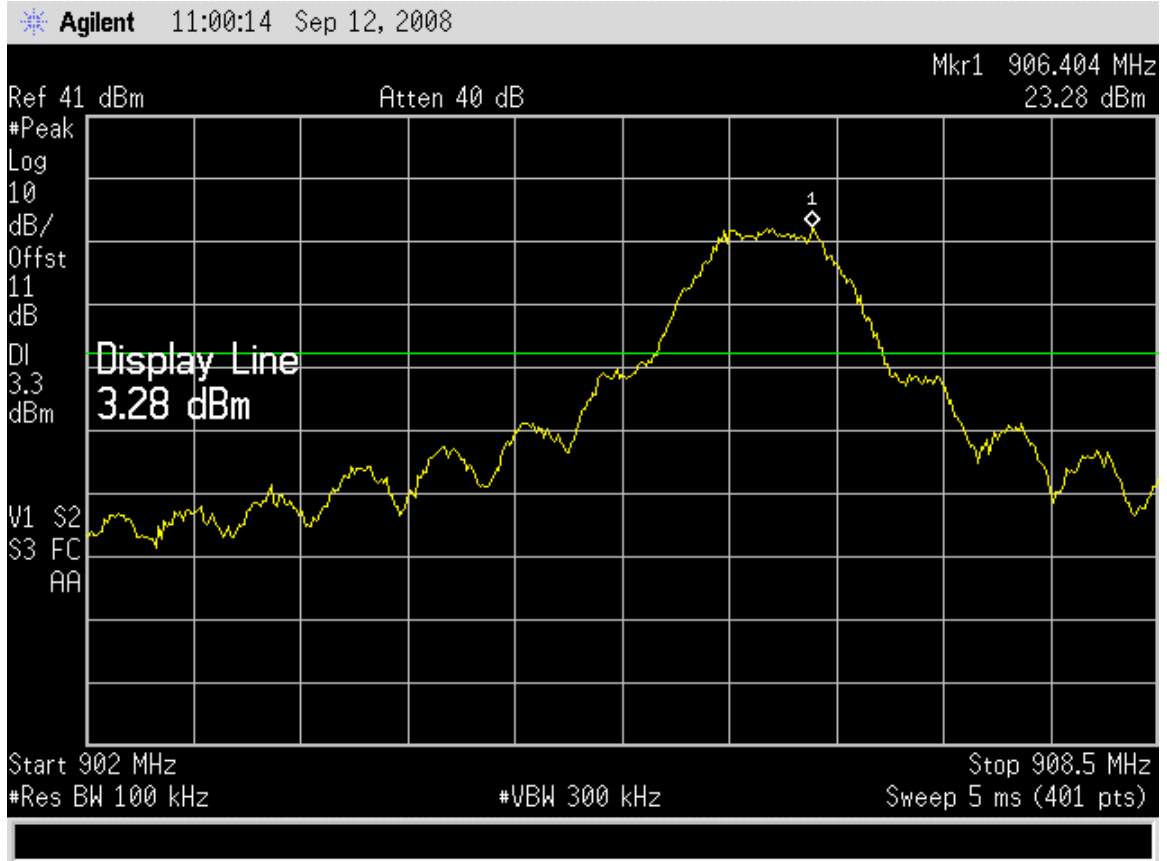
Spectrum analyzer RES BW was set to 100 kHz. While the transmitter broadcast a steady stream of digital data, the analyzer MAX HOLD function was used to capture the envelope of the transmission.

Readings were taken out to 10fo.

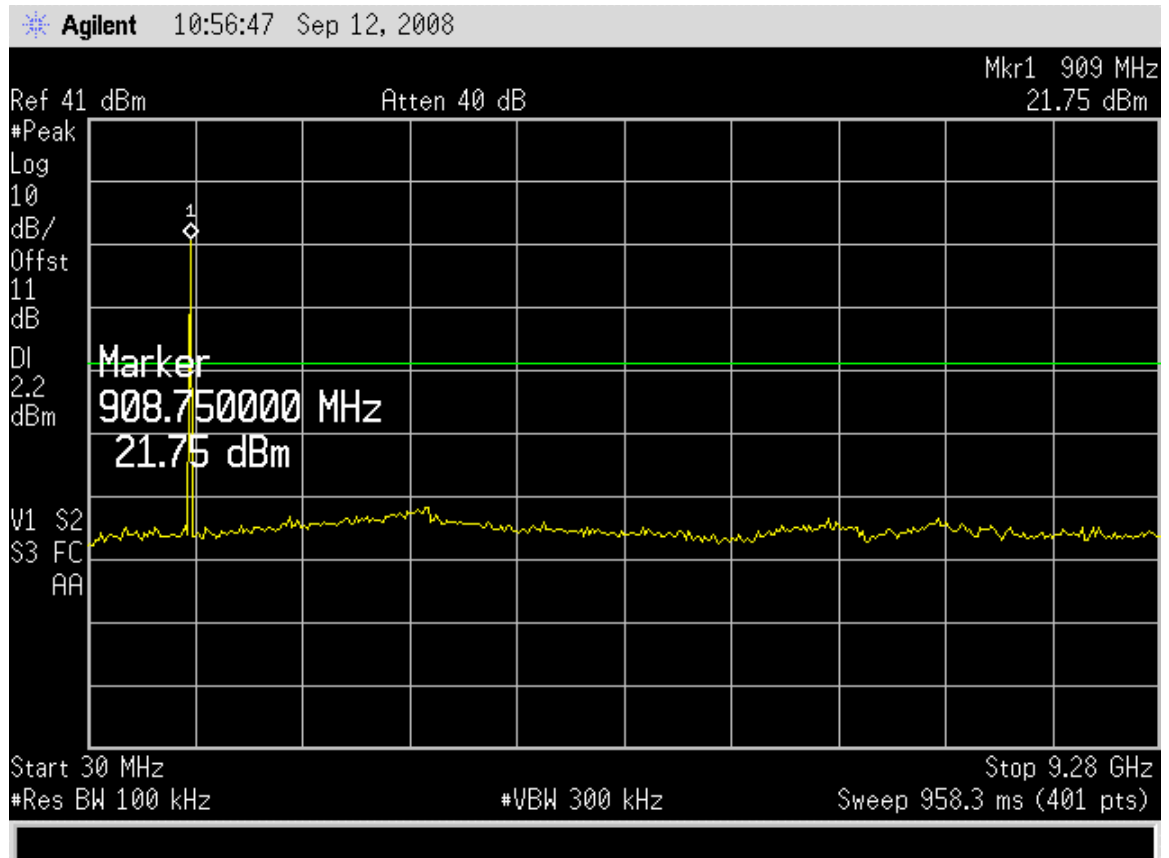
Test Results

Refer to spectrum analyzer plots. Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules.

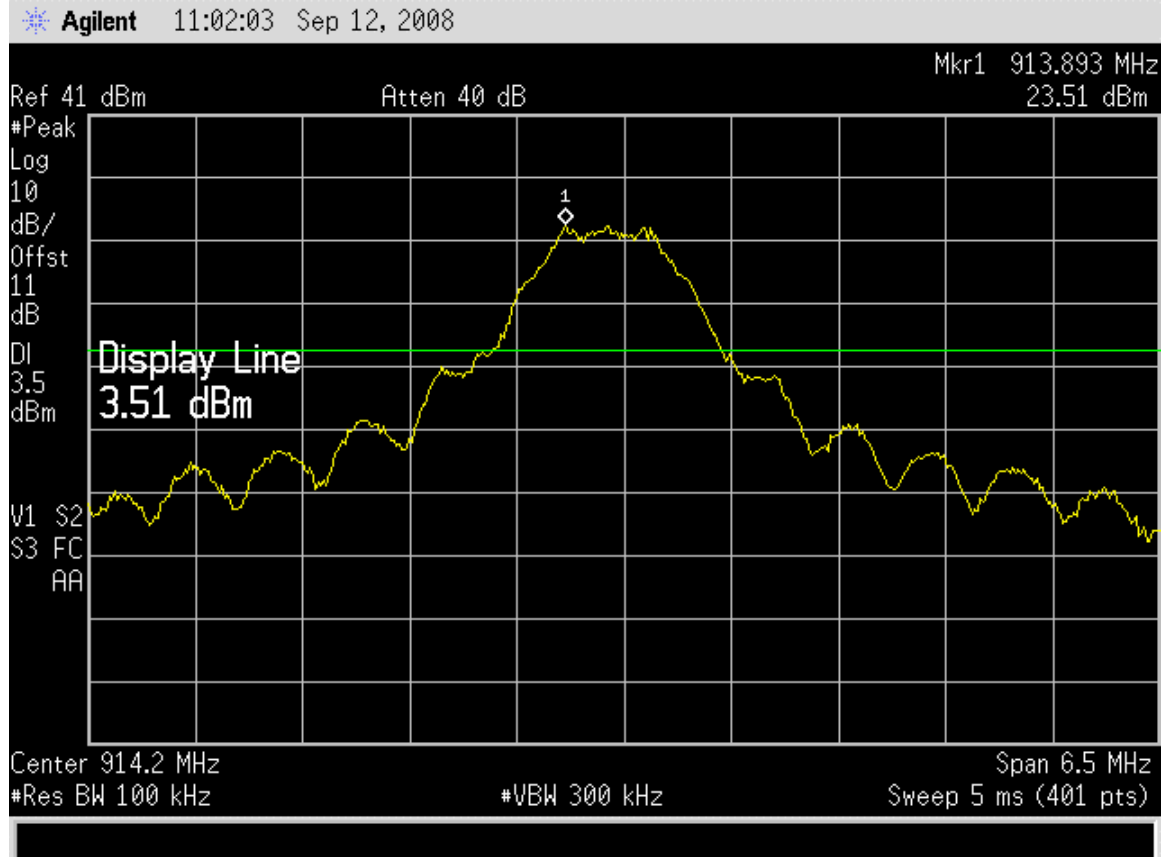
Lower band edge, -20 dBc, LOW Channel



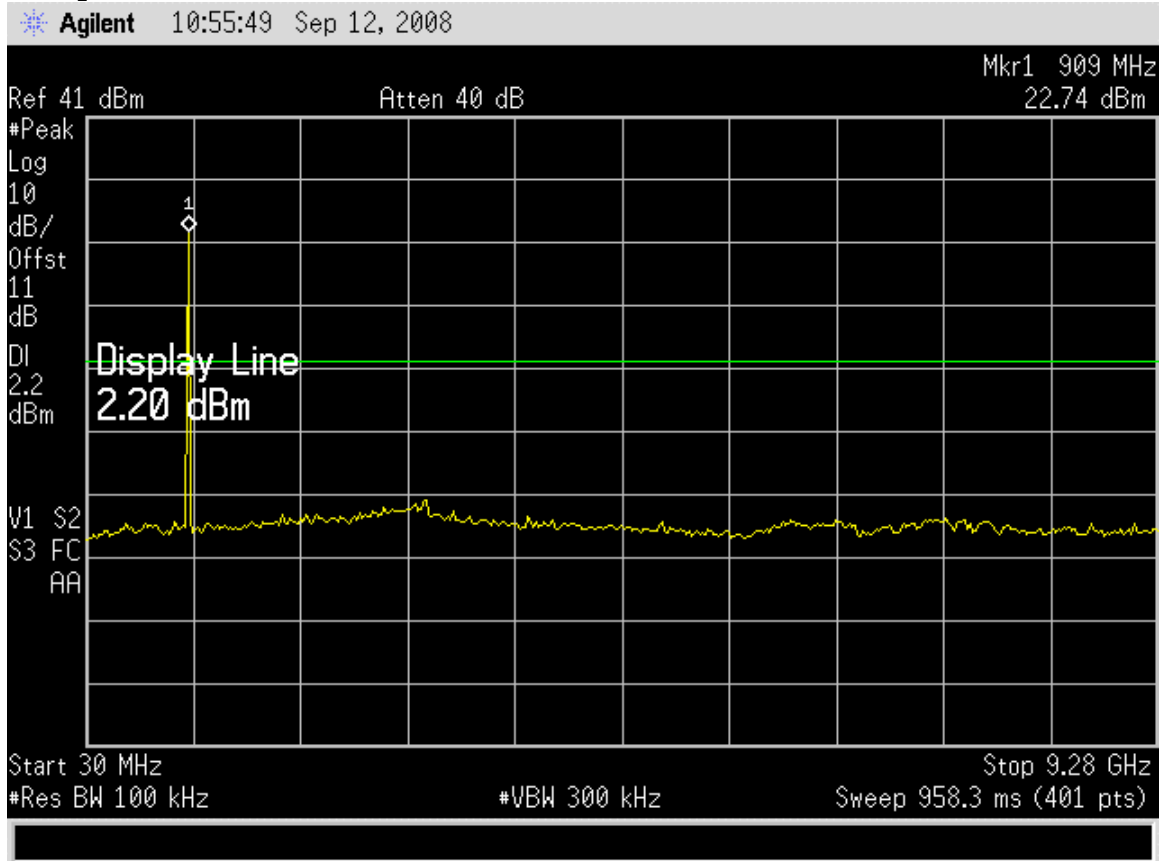
TX Spurious Emissions LOW Channel



-20 dBc MID Channel Reference



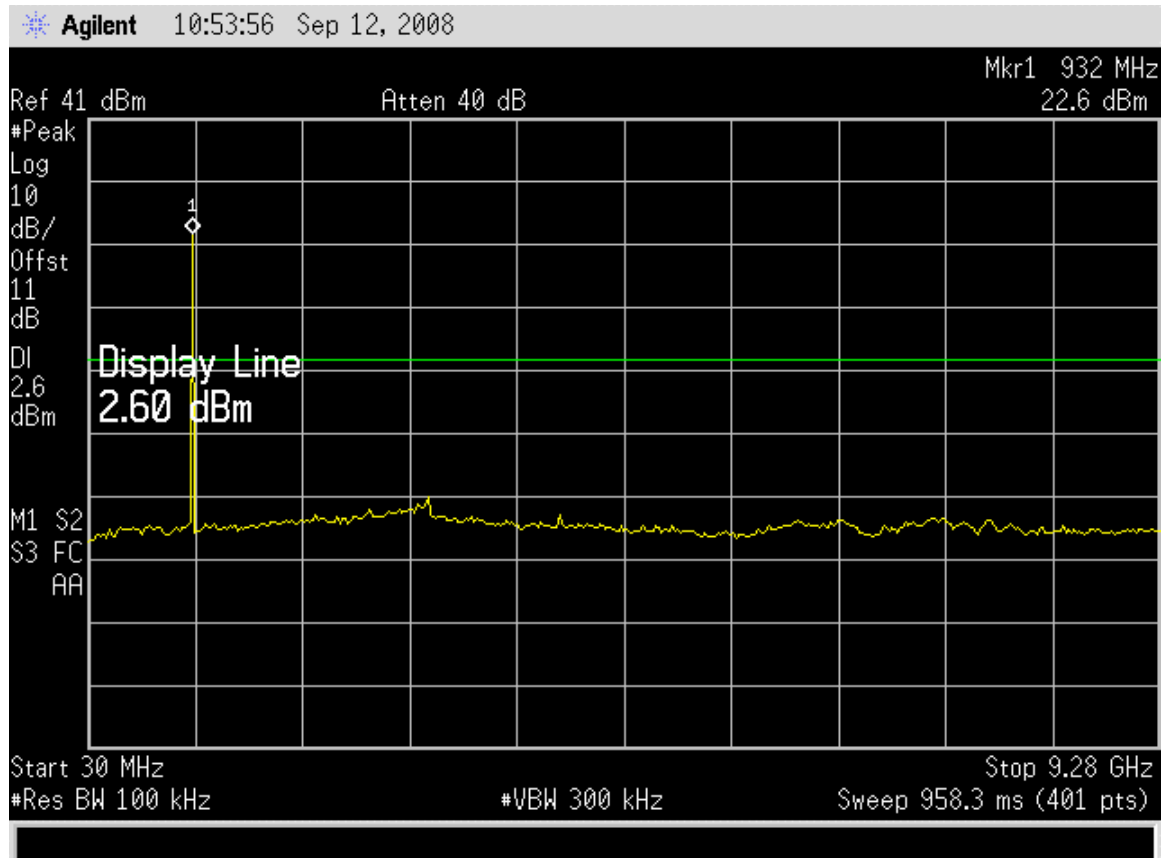
TX Spurious, MID Channel



Upper band edge, -20 dBc HIGH Channel



TX Spurious, HIGH Channel

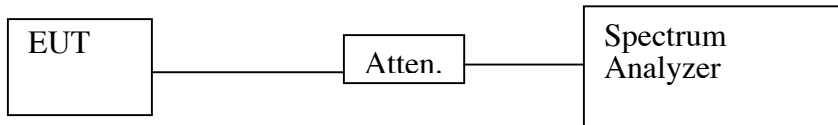


Power Spectral Density

Test Requirement: 15.247(e)

RSS-210 Sec. 6.2.2(o)(iv)

Test Setup



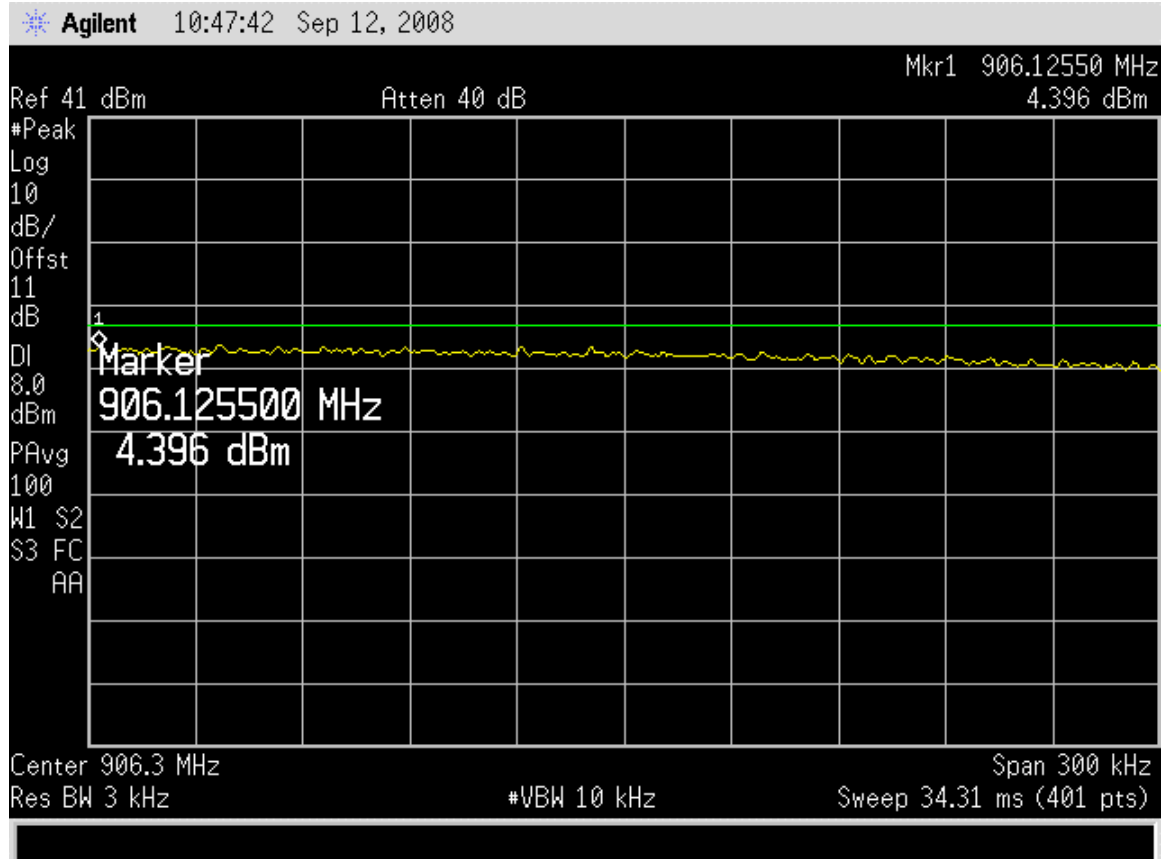
Test Procedure

1. Determine frequency at which maximum emission occurs during pre-scan.
2. Reduce SPAN to 300 kHz, while adjusting tuning frequency so that peak remains at center of screen.
3. Set RES BW = 3 kHz, VID BW = 10 kHz, SWEEP = 100 sec.
4. Record highest reading and compare to 8 dBm limit.

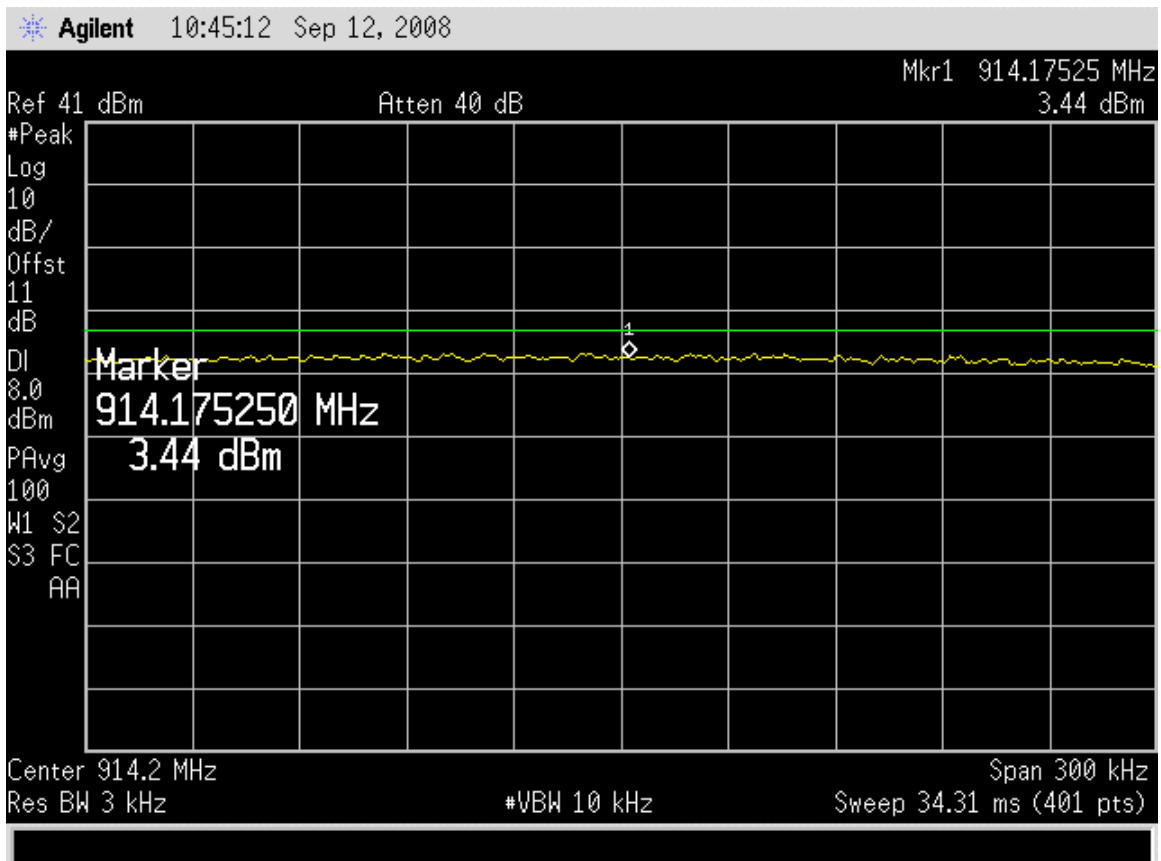
Test Results

Maximum PSD was 4.4 dBm. Refer to attached spectrum analyzer chart.

Power Spectral Density LOW Channel



Power Spectral Density MID Channel



Power Spectral Density HIGH Channel

