EMISSIONS TEST REPORT FOR A LOW POWER TRANSMITTER

I. GENERAL INFORMATION

Requirement: FCC
Test Requirements: FCC Part 15
Applicant: Intelleflex Corp
2465 Augustine Drive, Suite 102
Santa Clara, CA 95054

FCC ID: VBLMMR6500
IC: 7151A-MMR6500
Model No.: MMR6500

II. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

The Intelleflex MMR6500 is a 902-928 MHz FHSS RFID reader. The module supports two standard RFID modulation protocols, C1C2 and C3.

III. TEST DATES AND TEST LOCATION

Testing was performed various times between 6 – 19 May and 2 July 2010.

All Testing was performed at

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538

T.N. Cokenias 3 July 2010
EMC Consultant/Agent for Intelleflex Corporation

15.203 Antenna connector requirement

The EUT uses an external antenna with a unique antenna connector.

Antenna description	Mfr.	Model No.	Gain
yagi	Intelelflex	n/a	6 dBi

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-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.

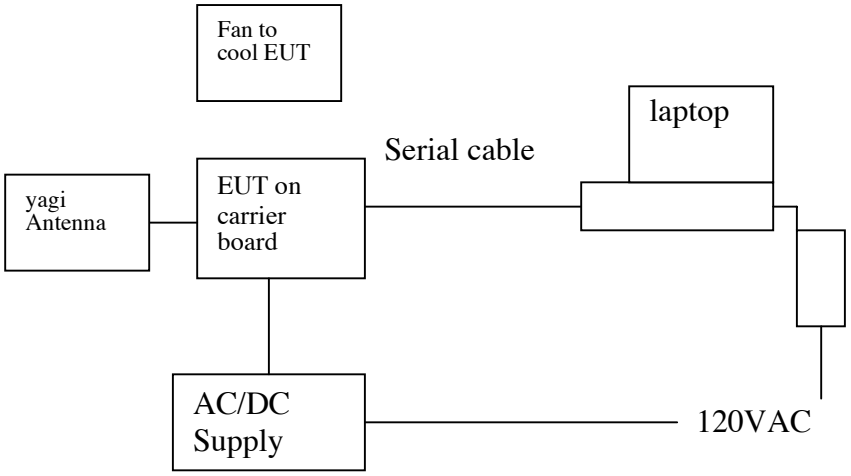
For each modulation type, tests were performed at three frequencies:

Channel 0 (LOW) – 902.75 MHz
Channel 26 (MID) - 915.75 MHz
Channel 49 (HIGH) – 927.25 MHz

Test Equipment

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	08/24/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	07/06/10
Antenna, Horn, 18 GHz	EMCO	3115	C00945	07/29/10
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	08/04/10
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N/A	C.N.R.
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/24/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01171	07/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	7/6/2010
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/06/10
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	11/05/10
DC Power Sup[ply	HP	E3601A	N02844	C.N.R

Test Set-up Diagram



Support Equipment

Equipment	Mfr	Model	Asset No.
EUT AC/DC adapter	V-Infinity	3A-211DN06	ETS060330UTC-P5P-SZ
Laptop PC	IBM	T2648	T2648-BU2 S/N 78-WXDRA
PC AC/DC adapter	CBK (IBM)	02K6746	11S02K67 46Z20083974 REV: 07

IV. TEST RESULTS

Radiated Test Set-up, 30 MHz-9.3 GHz

Test requirement: 15.205, 15.207, 15.247

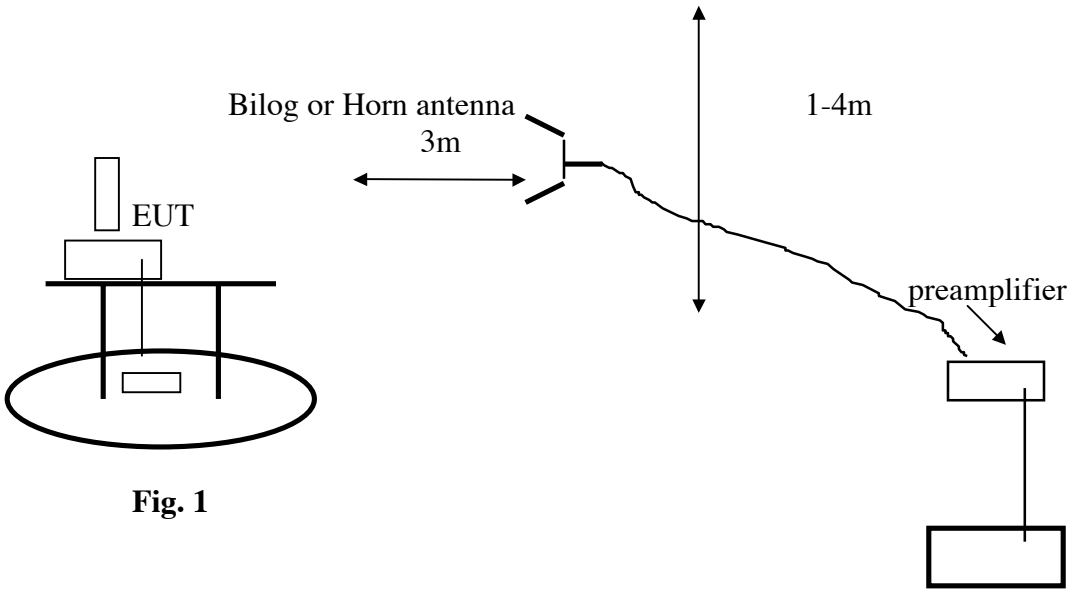


Fig. 1

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 10^{th} 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. Pre-scan data showed X orientation in setup photographs as worst case configuration for emissions. 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

Radiated Emissions Above 1 GHz: C1C2 Operation

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Intelliflex
Project #: 10U13208
Date: 05/06/10
Test Engineer: Doug Anderson
Model: INTE04
EUT: RF ID Module Reader
Configuration: EUT with Support Equipment
Mode: Continuous Tx 128kHZ BW / C1G2 Modulation

Test Equipment:

Horn 1-18GHz: T73; S/N: 6717 @3m
Pre-amplifer 1-26GHz: T144 Miteq 3008A00931
Pre-amplifer 26-40GHz:
Horn > 18GHz:
FCC 15.205

Hi Frequency Cables
3' cable 22807700: 3' cable 22807700
12' cable 22807600: 12' cable 22807600
20' cable 22807500: 20' cable 22807500
HPF: HPF_1.5GHz
Reject Filter:

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

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)
Low Channel (902.7 MHz) / C1G2 Modulation															
2.708	3.0	64.0	39.8	29.1	4.1	-37.4	0.0	0.6	60.3	36.1	74	54	-13.7	-17.9	V (Tx=4)
3.611	3.0	55.3	37.7	31.4	4.8	-36.9	0.0	0.6	55.2	37.6	74	54	-18.8	-16.4	V (Tx=4)
4.514	3.0	57.4	32.2	32.8	5.6	-36.5	0.0	0.6	59.7	34.6	74	54	-14.3	-19.4	V (Tx=4)
5.416	3.0	49.1	44.3	33.8	6.2	-36.3	0.0	0.5	53.4	48.6	74	54	-20.6	-5.4	V (Tx=4)
8.124	3.0	44.6	30.3	36.4	7.7	-36.2	0.0	0.7	53.2	38.9	74	54	-20.8	-15.1	V (Tx=4)
2.708	3.0	54.5	36.4	29.1	4.1	-37.4	0.0	0.6	50.9	32.8	74	54	-23.1	-21.2	H (Tx=4)
3.611	3.0	50.9	34.8	31.4	4.8	-36.9	0.0	0.6	50.8	34.7	74	54	-23.2	-19.3	H (Tx=4)
4.514	3.0	51.8	36.6	32.8	5.6	-36.5	0.0	0.6	54.1	38.9	74	54	-19.9	-15.1	H (Tx=4)
5.416	3.0	43.3	28.9	33.8	6.2	-36.3	0.0	0.5	47.5	33.2	74	54	-26.5	-20.8	H (Tx=4)
8.124	3.0	44.9	30.5	36.4	7.7	-36.2	0.0	0.7	53.5	39.1	74	54	-20.5	-14.9	H (Tx=4)
Mid Channel (915.75 MHz) / C1G2 Modulation															
2.747	3.0	57.2	37.8	29.2	4.1	-37.4	0.0	0.6	53.7	34.3	74	54	-20.3	-19.7	V (Tx=4)
3.663	3.0	48.0	33.6	31.5	4.9	-36.9	0.0	0.6	48.1	33.7	74	54	-25.9	-20.3	V (Tx=4)
4.579	3.0	50.0	30.8	32.8	5.6	-36.5	0.0	0.6	52.5	33.3	74	54	-21.5	-20.7	V (Tx=4)
8.242	3.0	43.7	29.2	36.5	7.8	-36.3	0.0	0.7	52.4	37.9	74	54	-21.6	-16.1	V (Tx=4)
2.747	3.0	59.0	39.9	29.2	4.1	-37.4	0.0	0.6	55.5	36.4	74	54	-18.5	-17.6	H (Tx=4)
3.663	3.0	58.0	38.0	31.5	4.9	-36.9	0.0	0.6	58.1	38.1	74	54	-15.9	-15.9	H (Tx=4)
4.579	3.0	48.9	31.3	32.8	5.6	-36.5	0.0	0.6	51.4	33.8	74	54	-22.6	-20.2	H (Tx=4)
8.242	3.0	44.2	32.3	36.5	7.8	-36.3	0.0	0.7	52.9	41.0	74	54	-21.1	-13.0	H (Tx=4)
High Channel (927.25 MHz) / C1G2 Modulation															
2.782	3.0	55.9	37.0	29.4	4.2	-37.4	0.0	0.6	52.6	33.7	74	54	-21.4	-20.3	V (Tx=4)
3.790	3.0	58.0	37.7	31.8	5.0	-36.8	0.0	0.6	58.6	38.3	74	54	-15.4	-15.7	V (Tx=4)
4.636	3.0	53.9	34.9	32.9	5.7	-36.5	0.0	0.6	56.5	37.5	74	54	-17.5	-16.5	V (Tx=4)
2.782	3.0	53.6	35.6	29.4	4.2	-37.4	0.0	0.6	50.3	32.3	74	54	-23.7	-21.7	H (Tx=4)
3.790	3.0	53.1	35.3	31.8	5.0	-36.8	0.0	0.6	53.7	35.9	74	54	-20.3	-18.1	H (Tx=4)
4.636	3.0	52.4	34.7	32.9	5.7	-36.5	0.0	0.6	55.0	37.3	74	54	-19.0	-16.7	H (Tx=4)

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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		

Radiated Emissions Above 1 GHz: C3 Operation

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Intelliflex
Project #: 10U13208
Date: 05/06/10
Test Engineer: Doug Anderson
Model: INTE04
EUT: RF ID Module Reader
Configuration: EUT with Support Equipment
Mode: Continuous Tx 128kHZ BW / C3 Modulation

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Pre-amplifer 26-40GHz:
Horn > 18GHz:

FCC 15.205

Hi Frequency Cables

3' cable 22807700: 3' cable 22807700
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HPF: HPF_1.5GHz
Reject Filter:

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

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)
Low Channel (902.7 MHz) / C3 Modulation															
2.708	3.0	62.9	46.8	29.1	4.1	-37.4	0.0	0.6	59.2	43.1	74	54	-14.8	-10.9	V (Tx=4)
3.611	3.0	53.9	42.8	31.4	4.8	-36.9	0.0	0.6	53.8	42.7	74	54	-20.2	-11.3	V (Tx=4)
4.514	3.0	56.9	47.9	32.8	5.6	-36.5	0.0	0.6	59.3	50.3	74	54	-14.7	-3.7	V (Tx=4)
5.416	3.0	49.0	36.7	33.8	6.2	-36.3	0.0	0.5	53.2	40.9	74	54	-20.8	-13.1	V (Tx=4)
8.124	3.0	44.4	31.1	36.4	7.7	-36.2	0.0	0.7	53.0	39.7	74	54	-21.0	-14.3	V (Tx=4)
2.708	3.0	55.8	41.2	29.1	4.1	-37.4	0.0	0.6	52.1	37.6	74	54	-21.9	-16.4	H (Tx=4)
3.611	3.0	50.3	38.1	31.4	4.8	-36.9	0.0	0.6	50.2	38.0	74	54	-23.8	-16.0	H (Tx=4)
4.514	3.0	51.1	38.0	32.8	5.6	-36.5	0.0	0.6	53.4	40.3	74	54	-20.6	-13.7	H (Tx=4)
5.416	3.0	42.7	31.1	33.8	6.2	-36.3	0.0	0.5	47.0	35.3	74	54	-27.0	-18.7	H (Tx=4)
8.124	3.0	44.5	32.8	36.4	7.7	-36.2	0.0	0.7	53.1	41.4	74	54	-20.9	-12.6	H (Tx=4)
Mid Channel (915.75 MHz) / C3 Modulation															
2.747	3.0	62.9	46.8	29.2	4.1	-37.4	0.0	0.6	59.4	43.4	74	54	-14.6	-10.6	V (Tx=4)
3.663	3.0	53.0	39.8	31.5	4.9	-36.9	0.0	0.6	53.1	39.9	74	54	-20.9	-14.1	V (Tx=4)
4.579	3.0	53.7	40.9	32.8	5.6	-36.5	0.0	0.6	56.1	43.4	74	54	-17.9	-10.6	V (Tx=4)
7.326	3.0	43.3	30.1	35.3	7.3	-36.2	0.0	0.6	50.3	37.1	74	54	-23.7	-16.9	V (Tx=4)
8.242	3.0	42.9	30.9	36.5	7.8	-36.3	0.0	0.7	51.6	39.7	74	54	-22.4	-14.3	V (Tx=4)
2.747	3.0	58.0	45.3	29.2	4.1	-37.4	0.0	0.6	54.6	41.8	74	54	-19.4	-12.2	H (Tx=4)
3.663	3.0	48.3	36.3	31.5	4.9	-36.9	0.0	0.6	48.4	36.4	74	54	-25.6	-17.6	H (Tx=4)
4.579	3.0	48.0	35.3	32.8	5.6	-36.5	0.0	0.6	50.5	37.8	74	54	-23.5	-16.2	H (Tx=4)
8.242	3.0	44.2	32.1	36.5	7.8	-36.3	0.0	0.7	52.9	40.8	74	54	-21.1	-13.2	H (Tx=4)
High Channel (927.25 MHz) / C3 Modulation															
2.782	3.0	60.2	41.5	29.4	4.2	-37.4	0.0	0.6	56.9	38.1	74	54	-17.1	-15.9	V (Tx=4)
3.790	3.0	57.0	43.1	31.8	5.0	-36.8	0.0	0.6	57.6	43.7	74	54	-16.4	-10.3	V (Tx=4)
4.636	3.0	51.0	38.3	32.9	5.7	-36.5	0.0	0.6	53.6	40.8	74	54	-20.4	-13.2	V (Tx=4)
2.782	3.0	53.2	40.2	29.4	4.2	-37.4	0.0	0.6	49.9	36.9	74	54	-24.1	-17.1	H (Tx=4)
3.790	3.0	50.8	38.1	31.8	5.0	-36.8	0.0	0.6	51.4	38.7	74	54	-22.6	-15.3	H (Tx=4)
4.636	3.0	49.6	37.1	32.9	5.7	-36.5	0.0	0.6	52.2	39.7	74	54	-21.8	-14.3	H (Tx=4)

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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		

Radiated Emissions Below 1 GHZ: C1C2 Protocol

Low Channel, Horizontal (Worst Case Polarity)

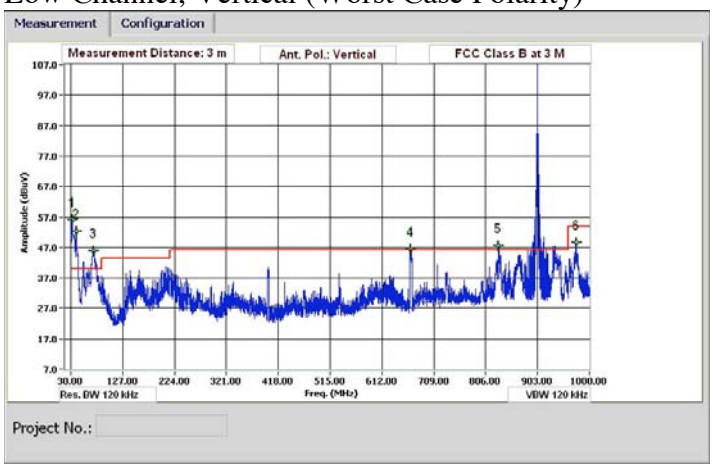
Mid Channel, Horizontal (Worst Case Polarity)

High Channel, Horizontal (Worst Case Polarity)

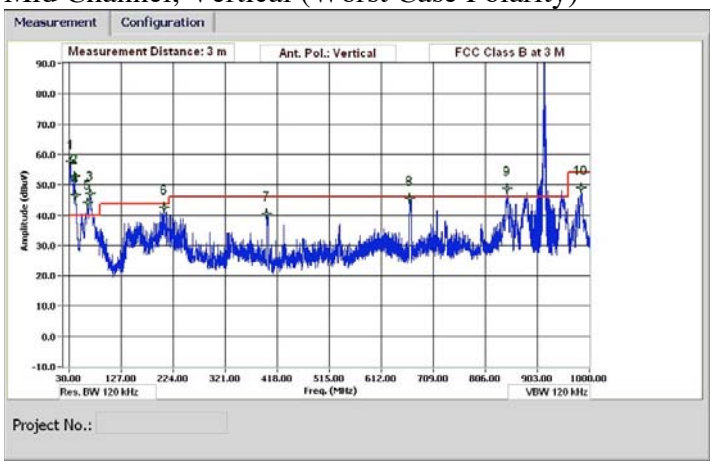
Note: Emissions over class B limit line are from test fixture or are TX emissions more than -20dBc below fundamental

Radiated Emissions Below 1 GHZ: C3 Protocol

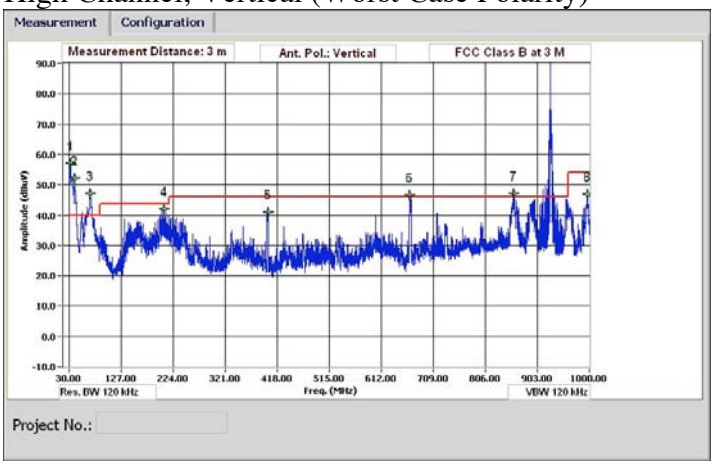
Low Channel, Vertical (Worst Case Polarity)



Mid Channel, Vertical (Worst Case Polarity)



High Channel, Vertical (Worst Case Polarity)



Note: Emissions over class B limit line are from test fixture or are TX emissions more than -20dBc below fundamental

C1C2 Transmitter Emissions Below 1 GHz

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Doug Anderson
Date: 05/10/10
Project #: 10U13208
Company: Intelliflex
EUT Description: RF ID Card Reader
EUT M/N: INTE04
Test Target: FCC Class B
Mode Oper: Various

f	Measurement Frequency	Amp	Preamp Gain
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Filter	Filter Insert Loss
AF	Antenna Factor	Corr.	Calculated Field Strength
CL	Cable Loss	Limit	Field Strength Limit

Margin — Margin vs. Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Run 1: Continuous Tx / C1G2 / Low Ch. / Vertical													
75.267	3.0	54.3	8.1	0.7	28.3	0.0	0.0	34.8	40.0	-5.2	V	P	
152.867	3.0	51.3	12.8	1.0	27.8	0.0	0.0	37.4	43.5	-6.1	V	P	
188.433	3.0	53.1	11.2	1.1	27.4	0.0	0.0	38.0	43.5	-5.5	V	P	
207.833	3.0	54.6	11.9	1.2	27.4	0.0	0.0	40.3	43.5	-3.2	V	P	
665.350	3.0	48.8	18.8	2.3	28.5	0.0	0.0	41.3	46.0	-4.7	V	P	
715.467	3.0	44.1	19.2	2.4	28.5	0.0	0.0	37.3	46.0	-8.7	V	P	
Run 2: Continuous Tx / C1G2 / Low Ch. / Horizontal													
33.233	3.0	50.7	18.4	0.5	28.4	0.0	0.0	41.2	40.0	1.2	H	P	Support equipment
33.233	3.0	46.4	18.4	0.5	28.4	0.0	0.0	36.9	40.0	-3.1	H	QP	
191.667	3.0	60.4	11.4	1.1	27.4	0.0	0.0	45.5	43.5	2.0	H	P	Support equipment
211.067	3.0	62.2	11.9	1.2	27.4	0.0	0.0	47.9	43.5	4.4	H	P	Support equipment
219.150	3.0	61.7	11.9	1.2	27.4	0.0	0.0	47.4	46.0	1.4	H	P	Support equipment
230.467	3.0	60.2	11.8	1.3	27.4	0.0	0.0	45.9	46.0	-0.1	H	P	
600.683	3.0	47.6	18.5	2.2	28.6	0.0	0.0	39.6	46.0	-6.4	H	P	
707.383	3.0	51.5	19.1	2.4	28.5	0.0	0.0	44.5	46.0	-1.5	H	P	
799.533	3.0	50.4	20.9	2.5	28.2	0.0	0.0	45.6	46.0	-0.4	H	P	
843.183	3.0	50.3	21.4	2.6	28.1	0.0	0.0	46.3	46.0	0.3	H	P	More than -20 dBc
938.567	3.0	49.7	22.3	2.8	27.8	0.0	0.0	47.1	46.0	1.1	H	P	More than -20 dBc
Run 3: Continuous Tx / C1G2 / Mid Ch. / Horizontal													
31.617	3.0	49.8	19.2	0.5	28.4	0.0	0.0	41.1	40.0	1.1	H	P	Support equipment
156.100	3.0	54.7	13.0	1.0	27.7	0.0	0.0	41.0	43.5	-2.5	H	P	
191.667	3.0	60.3	11.4	1.1	27.4	0.0	0.0	45.4	43.5	1.9	H	P	Support equipment
211.067	3.0	62.1	11.9	1.2	27.4	0.0	0.0	47.8	43.5	4.3	H	P	Support equipment
227.233	3.0	61.7	11.9	1.3	27.4	0.0	0.0	47.4	46.0	1.4	H	P	Support equipment
696.067	3.0	52.1	18.9	2.4	28.5	0.0	0.0	44.8	46.0	-1.2	H	P	
799.533	3.0	48.9	20.9	2.5	28.2	0.0	0.0	44.1	46.0	-1.9	H	P	
864.200	3.0	49.4	21.6	2.7	28.0	0.0	0.0	45.7	46.0	-0.3	H	P	
936.950	3.0	49.4	22.3	2.8	27.8	0.0	0.0	46.8	46.0	0.8	H	P	More than -20 dBc
Run 4: Continuous Tx / C1G2 / Mid Ch. / Vertical													
89.817	3.0	54.5	7.4	0.8	28.3	0.0	0.0	34.4	43.5	-9.1	V	P	
157.717	3.0	50.6	13.1	1.1	27.7	0.0	0.0	37.0	43.5	-6.5	V	P	
215.917	3.0	54.6	11.9	1.2	27.4	0.0	0.0	40.3	43.5	-3.2	V	P	
665.350	3.0	48.0	18.8	2.3	28.5	0.0	0.0	40.5	46.0	-5.5	V	P	
715.467	3.0	42.9	19.2	2.4	28.5	0.0	0.0	36.1	46.0	-9.9	V	P	
825.400	3.0	42.1	21.2	2.6	28.1	0.0	0.0	37.7	46.0	-8.3	V	P	
Run 5: Continuous Tx / C1G2 / High Ch. / Vertical													
88.200	3.0	54.8	7.4	0.8	28.3	0.0	0.0	34.7	43.5	-8.8	V	P	
156.100	3.0	50.3	13.0	1.0	27.7	0.0	0.0	36.6	43.5	-6.9	V	P	
215.917	3.0	54.6	11.9	1.2	27.4	0.0	0.0	40.4	43.5	-3.1	V	P	
600.683	3.0	44.6	18.5	2.2	28.6	0.0	0.0	36.6	46.0	-9.4	V	P	
666.967	3.0	47.9	18.8	2.3	28.5	0.0	0.0	40.5	46.0	-5.5	V	P	
715.467	3.0	42.6	19.2	2.4	28.5	0.0	0.0	35.8	46.0	-10.2	V	P	
920.783	3.0	48.4	22.2	2.8	27.8	0.0	0.0	45.6	46.0	-0.4	V	P	
932.100	3.0	47.5	22.3	2.8	27.8	0.0	0.0	44.8	46.0	-1.2	V	P	
Run 6: Continuous Tx / C1G2 / High Ch. / Horizontal													
31.617	3.0	48.0	19.2	0.5	28.4	0.0	0.0	39.3	40.0	-0.7	H	P	
47.783	3.0	51.8	10.4	0.6	28.3	0.0	0.0	34.5	40.0	-5.5	H	P	
199.750	3.0	59.3	11.9	1.2	27.4	0.0	0.0	45.0	43.5	1.5	H	P	Support equipment
219.150	3.0	64.3	11.9	1.2	27.4	0.0	0.0	50.0	46.0	4.0	H	P	Support equipment
222.383	3.0	62.9	11.9	1.2	27.4	0.0	0.0	48.6	46.0	2.6	H	P	Support equipment
230.467	3.0	60.5	11.8	1.3	27.4	0.0	0.0	46.2	46.0	0.2	H	P	Support equipment
707.383	3.0	50.6	19.1	2.4	28.5	0.0	0.0	43.6	46.0	-2.4	H	P	
723.550	3.0	50.8	19.4	2.4	28.5	0.0	0.0	44.2	46.0	-1.8	H	P	
885.217	3.0	50.4	21.9	2.7	27.9	0.0	0.0	47.1	46.0	1.1	H	P	More than -20 dBc
899.767	3.0	50.0	22.1	2.7	27.9	0.0	0.0	47.0	46.0	1.0	H	P	More than -20 dBc
941.800	3.0	50.3	22.3	2.8	27.7	0.0	0.0	47.6	46.0	1.6	H	P	More than -20 dBc

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

C3 Transmitter Emissions Below 1 GHz

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: **Thanh Nguyen**
Date: **05/10/10**
Project #: **10U13208**
Company: **IntellFlex**
EUT Description: **FHSS RFID Module**
EUT M/N: **TBD**
Test Target:
Mode Oper: **Condituous TX C3 mode**

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Channel 0													
31.680	3.0	65.2	19.2	0.5	28.4	0.0	0.0	56.5	40.0	16.5	H	P	Support equipment
68.402	3.0	58.7	8.2	0.7	28.3	0.0	0.0	39.3	40.0	-0.7	H	P	
207.007	3.0	61.6	11.9	1.2	27.4	0.0	0.0	47.3	43.5	3.8	H	P	Support Equpment
399.375	3.0	52.6	15.0	1.7	28.0	0.0	0.0	41.4	46.0	-4.6	H	P	
691.707	3.0	50.1	18.9	2.4	28.5	0.0	0.0	42.8	46.0	-3.2	H	P	
972.159	3.0	49.9	22.5	2.9	27.7	0.0	0.0	47.6	54.0	-6.4	H	P	
32.520	3.0	65.3	18.8	0.5	28.4	0.0	0.0	56.2	40.0	16.2	V	P	Support Equipment
40.200	3.0	66.9	13.2	0.6	28.4	0.0	0.0	52.3	40.0	12.3	V	P	Support Equipment
73.082	3.0	65.3	8.2	0.7	28.3	0.0	0.0	45.8	40.0	5.8	V	P	Support Equipment
665.546	3.0	53.2	18.8	2.3	28.5	0.0	0.0	45.7	46.0	-0.3	V	P	
830.433	3.0	51.7	21.2	2.6	28.1	0.0	0.0	47.4	46.0	1.4	V	P	More than -20 dBc
975.039	3.0	50.8	22.5	2.9	27.7	0.0	0.0	48.5	54.0	-5.5	V	P	
Channel 26													
32.280	3.0	66.5	18.9	0.5	28.4	0.0	0.0	57.5	40.0	17.5	V	P	Support equipment
40.320	3.0	67.4	13.2	0.6	28.4	0.0	0.0	52.8	40.0	12.8	V	P	Support equipment
41.760	3.0	61.7	12.8	0.6	28.4	0.0	0.0	46.7	40.0	6.7	V	P	Support equipment
64.441	3.0	63.8	8.1	0.7	28.3	0.0	0.0	44.3	40.0	4.3	V	P	Support equipment
69.722	3.0	66.4	8.2	0.7	28.3	0.0	0.0	47.0	40.0	7.0	V	P	Support equipment
207.007	3.0	56.7	11.9	1.2	27.4	0.0	0.0	42.4	43.5	-1.1	V	P	
398.775	3.0	51.5	15.0	1.7	28.0	0.0	0.0	40.3	46.0	-5.7	V	P	
665.546	3.0	52.9	18.8	2.3	28.5	0.0	0.0	45.4	46.0	-0.6	V	P	
846.754	3.0	52.6	21.4	2.6	28.0	0.0	0.0	48.7	46.0	2.7	V	P	More than -20 dBc
984.999	3.0	51.1	22.6	2.9	27.6	0.0	0.0	49.0	54.0	-5.0	V	P	
32.160	3.0	65.5	18.9	0.5	28.4	0.0	0.0	56.5	40.0	16.5	H	P	Support equipment
207.007	3.0	61.6	11.9	1.2	27.4	0.0	0.0	47.3	43.5	3.8	H	P	Support equipment
399.375	3.0	52.6	15.0	1.7	28.0	0.0	0.0	41.4	46.0	-4.6	H	P	
691.707	3.0	50.1	18.9	2.4	28.5	0.0	0.0	42.8	46.0	-3.2	H	P	
842.914	3.0	52.6	21.4	2.6	28.1	0.0	0.0	48.5	46.0	2.5	H	P	More than -20 dBc
972.159	3.0	49.9	22.5	2.9	27.7	0.0	0.0	47.6	54.0	-6.4	H	P	
Channel 49													
32.280	3.0	66.1	18.9	0.5	28.4	0.0	0.0	57.0	40.0	17.0	V	P	Support equipment
40.560	3.0	66.7	13.1	0.6	28.4	0.0	0.0	52.1	40.0	12.1	V	P	Support equipment
69.362	3.0	66.4	8.2	0.7	28.3	0.0	0.0	47.0	40.0	7.0	V	P	Support equipment
206.887	3.0	56.2	11.9	1.2	27.4	0.0	0.0	41.9	43.5	-1.6	V	P	
400.575	3.0	52.2	15.0	1.7	28.0	0.0	0.0	41.0	46.0	-5.0	V	P	
665.786	3.0	54.1	18.8	2.3	28.5	0.0	0.0	46.6	46.0	0.6	V	P	More than -20 dBc
859.354	3.0	51.0	21.6	2.7	28.0	0.0	0.0	47.2	46.0	1.2	V	P	More than -20 dBc
996.400	3.0	48.9	22.7	2.9	27.6	0.0	0.0	46.8	54.0	-7.2	V	P	
31.560	3.0	64.2	19.2	0.5	28.4	0.0	0.0	55.5	40.0	15.5	H	P	Support equipment
141.005	3.0	57.9	13.1	1.0	27.9	0.0	0.0	44.1	43.5	0.6	H	P	Support equipment
210.847	3.0	60.1	11.9	1.2	27.4	0.0	0.0	45.8	43.5	2.3	H	P	Support equipment
400.095	3.0	52.9	15.0	1.7	28.0	0.0	0.0	41.6	46.0	-4.4	H	P	
857.434	3.0	49.8	21.6	2.7	28.0	0.0	0.0	46.0	46.0	0.0	H	P	More than -20 dBc
995.200	3.0	48.4	22.7	2.9	27.6	0.0	0.0	46.4	54.0	-7.6	H	P	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

20 dB Bandwidth

Test Requirement: 15.247(a)1(i)

LIMIT

Maximum allowed 20 dB BW is 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to approximately 5% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

RESULTS

No non-compliance noted:

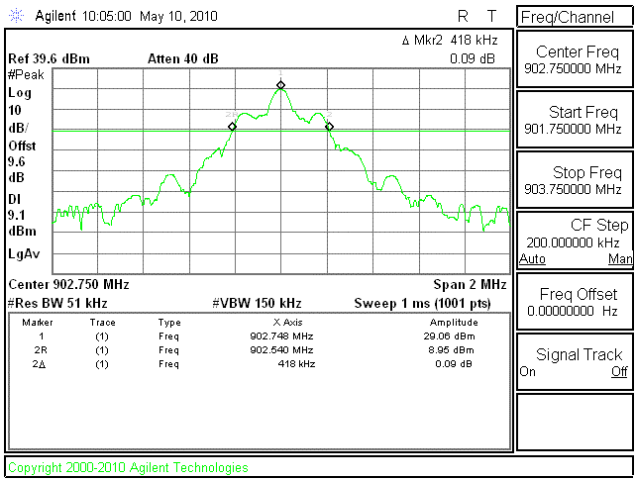
C1C2 TX mode

Channel	Frequency, MHz	-20 dB Occ. BW
Low	902.75	418 kHz
Mid	915.75	420 kHz
High	927.25	424 kHz

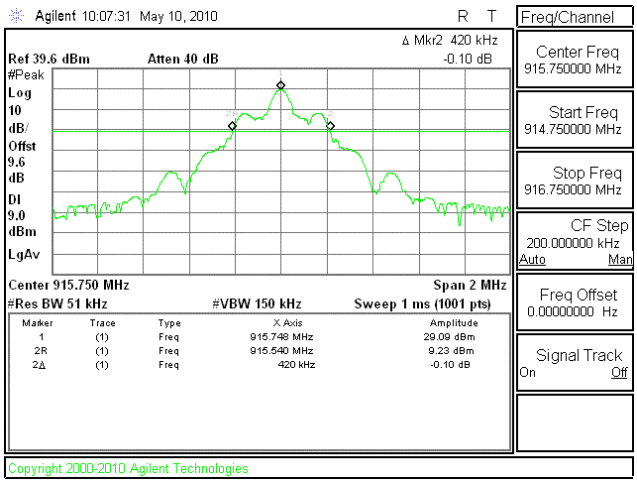
C3 TX mode

Channel	Frequency, MHz	-20 dB Occ. BW
Low	902.75	370 kHz
Mid	915.75	370 kHz
High	927,25	367 kHz

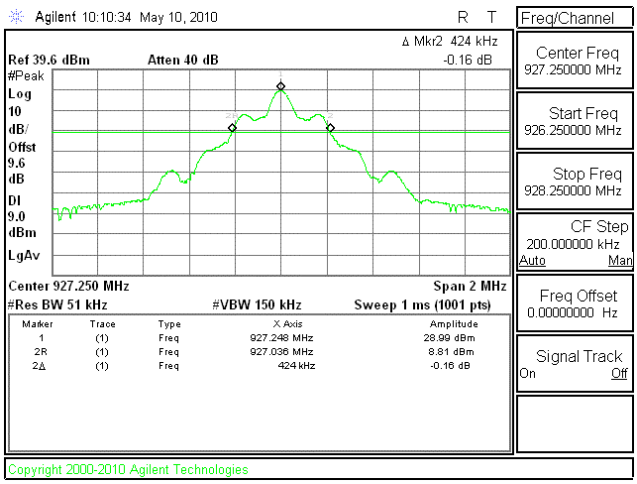
20 dB BANDWIDTH C1C2 LOW CHANNEL



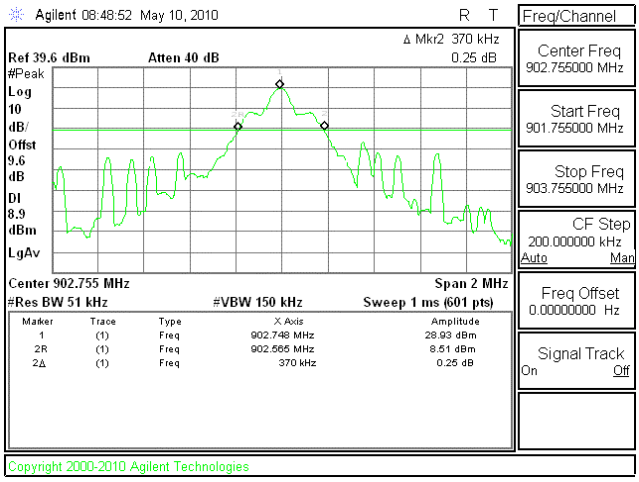
20 dB BANDWIDTH C1C2 MID CHANNEL



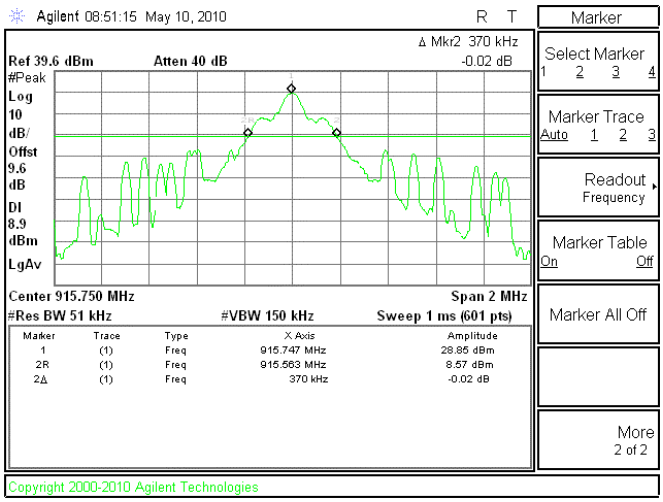
20 dB BANDWIDTH C1C2 HIGH CHANNEL



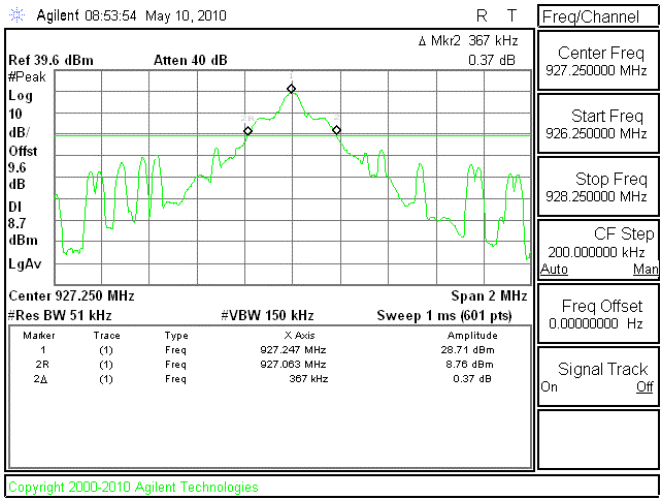
20 dB BANDWIDTH C3 LOW CHANNEL



20 dB BANDWIDTH C3 MID CHANNEL



20 dB BANDWIDTH C3 HIGH CHANNEL



99% Occupied Bandwidth

Test requirement: Industry Canada RSS-Gen Sec. 4.6.1

Note: The spectrum analyzer OCC BW function was activated to measure the 99% BW, however, it appeared that the EUT modulation was a challenge to built-in measurement routine. The -20dB occupied bandwidth measurement was more repeatable and is closer to what one would expect for the occupied bandwidth for this type of modulation, and would likely be more conservative (i.e., larger BW) than what the 99% measurement routine would indicate.

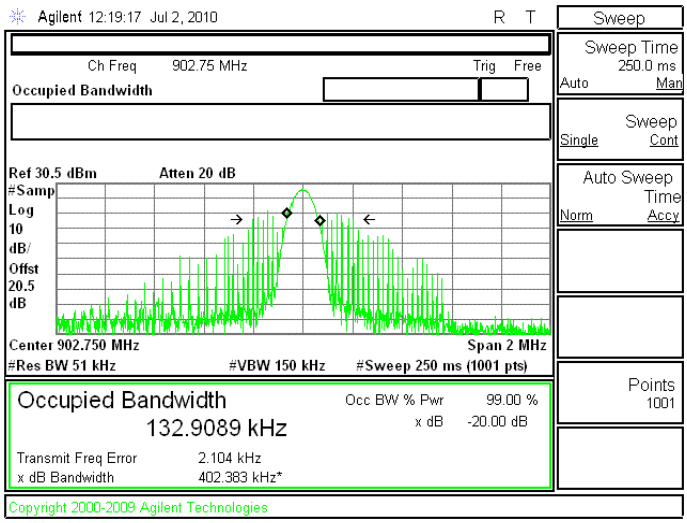
C1C2 TX mode

Channel	Frequency, MHz	99% Occ. BW
Low	902.75	132.9 kHz
Mid	915.75	122 kHz
High	927.25	119.7 kHz

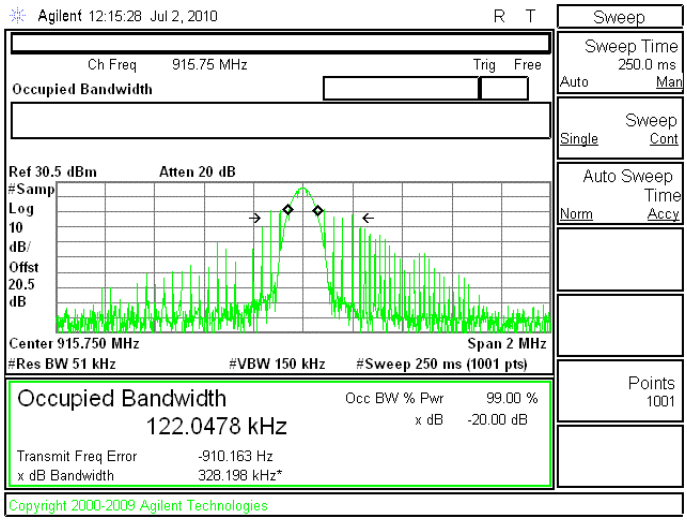
C3 TX mode

Channel	Frequency, MHz	99% Occ. BW
Low	902.75	156.9 kHz
Mid	915.75	219.1 kHz
High	927,25	245.7 kHz

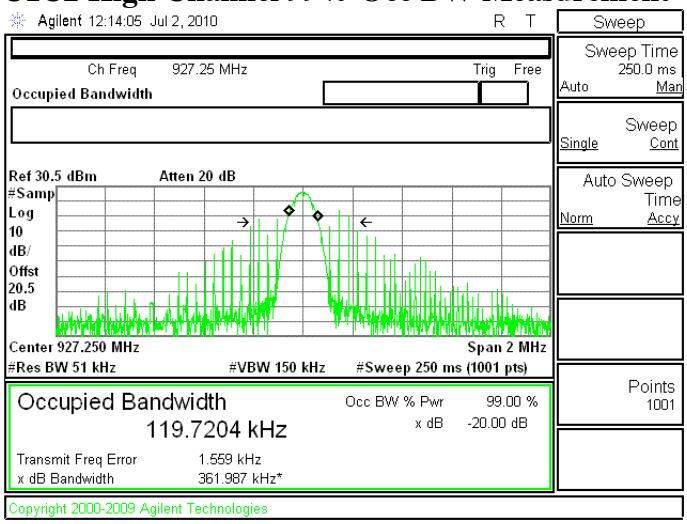
C1C2 Low Channel 99% Occ BW Measurement



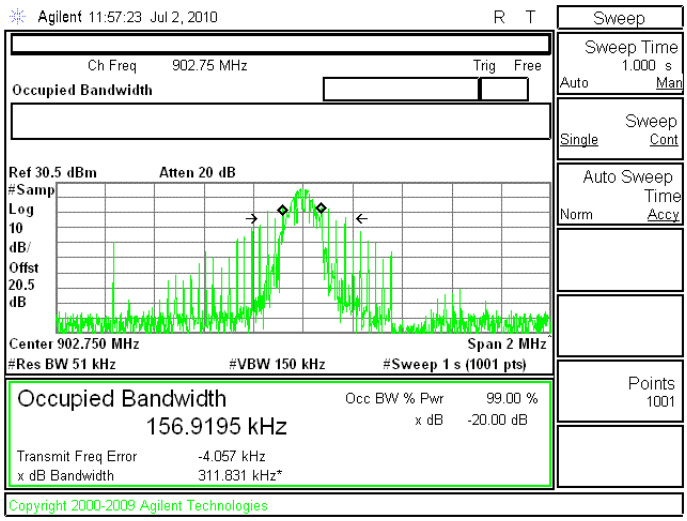
C1C2 Mid Channel 99% Occ BW Measurement



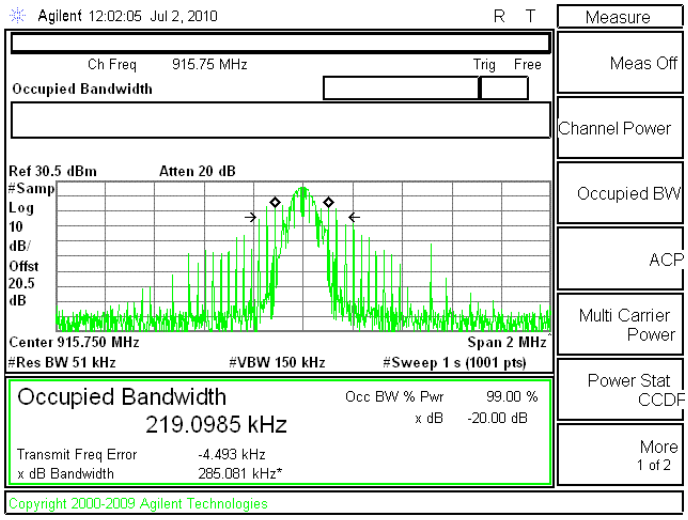
C1C2 High Channel 99% Occ BW Measurement



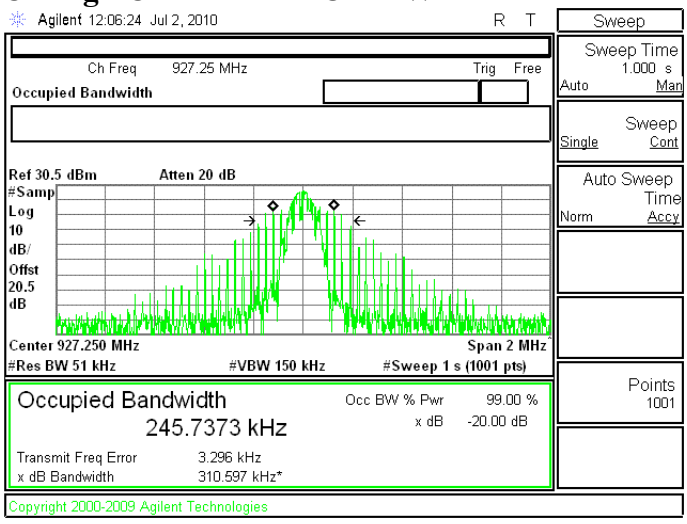
C3 Low Channel 99% Occ BW Measurement



C3 Mid Channel 99% Occ BW Measurement



C3 High Channel 99% Occ BW Measurement



HOPPING FREQUENCY SEPARATION

Test requirement: 15.247(a)1

LIMIT

§15.247 (a) (1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

TEST PROCEDURE

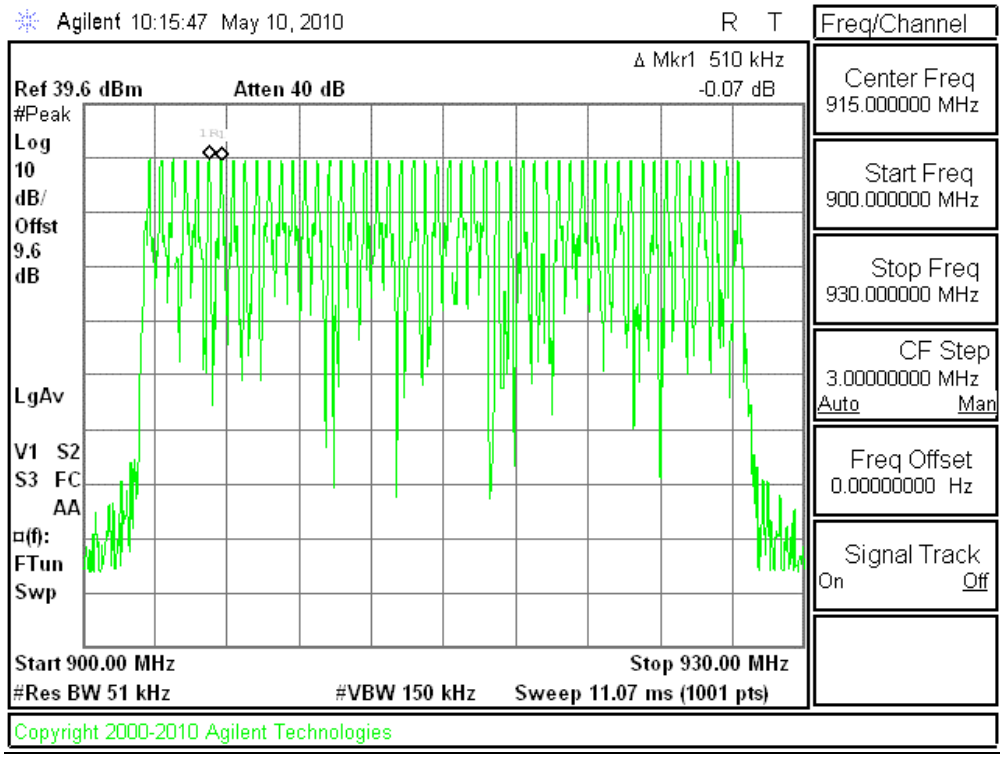
The transmitter output is connected to a spectrum analyzer. The RBW is set to 10 kHz and the VBW is set to 30 kHz. The sweep time is coupled.

RESULTS

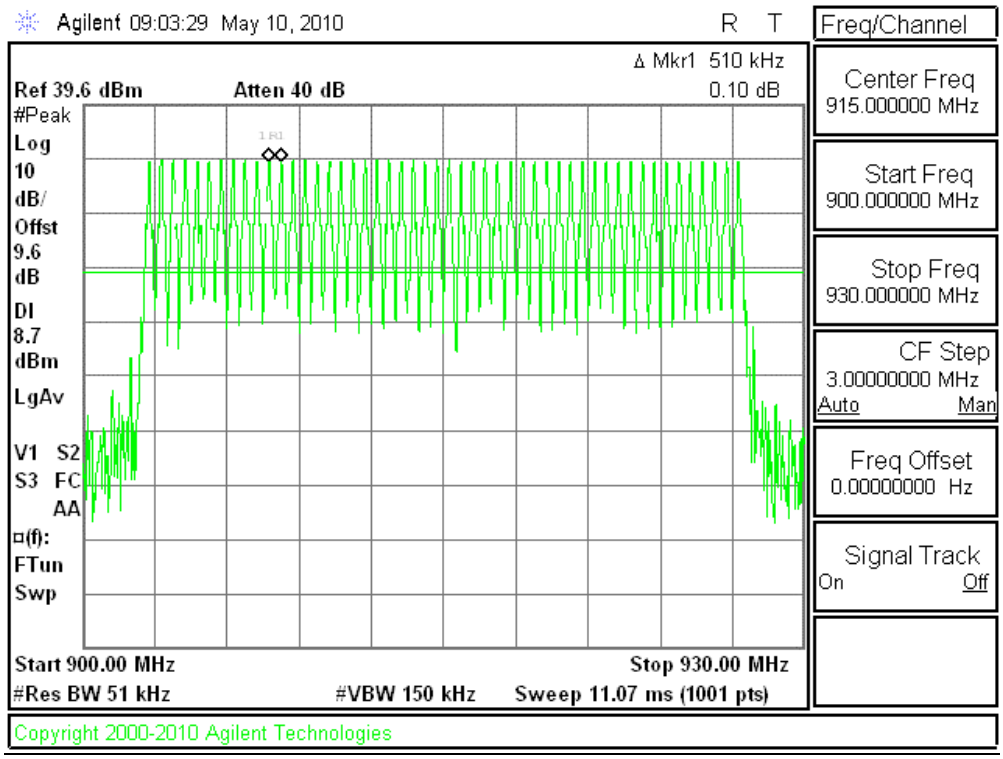
No non-compliance noted:

The separation is 510 KHz, which is larger than the 20 dB hopping channel bandwidth.

HOPPING FREQUENCY SEPARATION C1C2 TX Mode



HOPPING FREQUENCY SEPARATION C3 TX Mode



NUMBER OF HOPPING CHANNELS

Test requirement: 15.247(a)1(i)

LIMIT

§15.247 (a) (1) (i) For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

TEST PROCEDURE

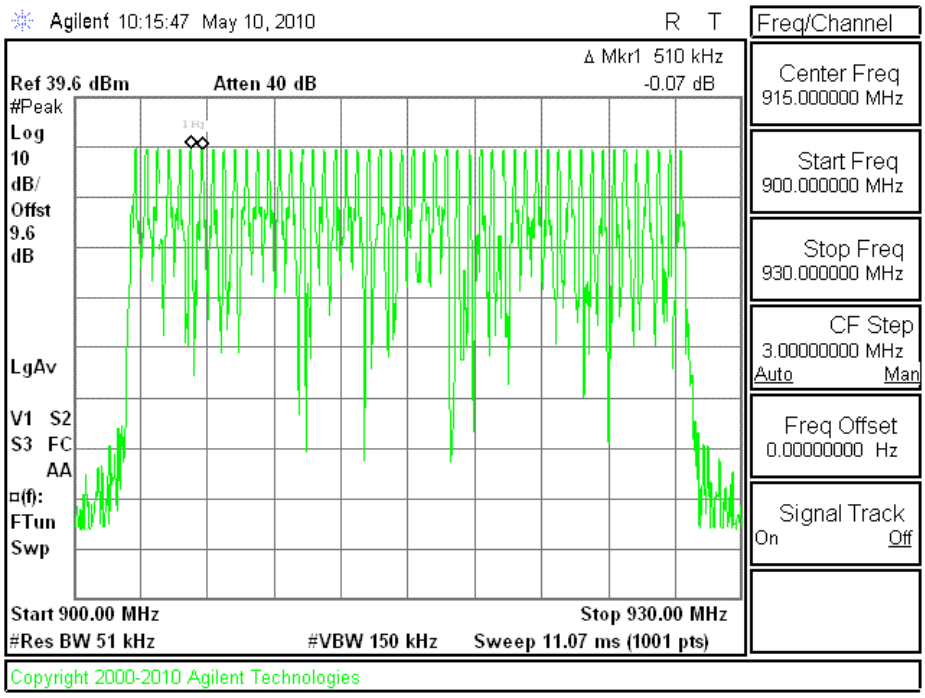
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to 3 % of the span. The analyzer is set to Max Hold.

RESULTS

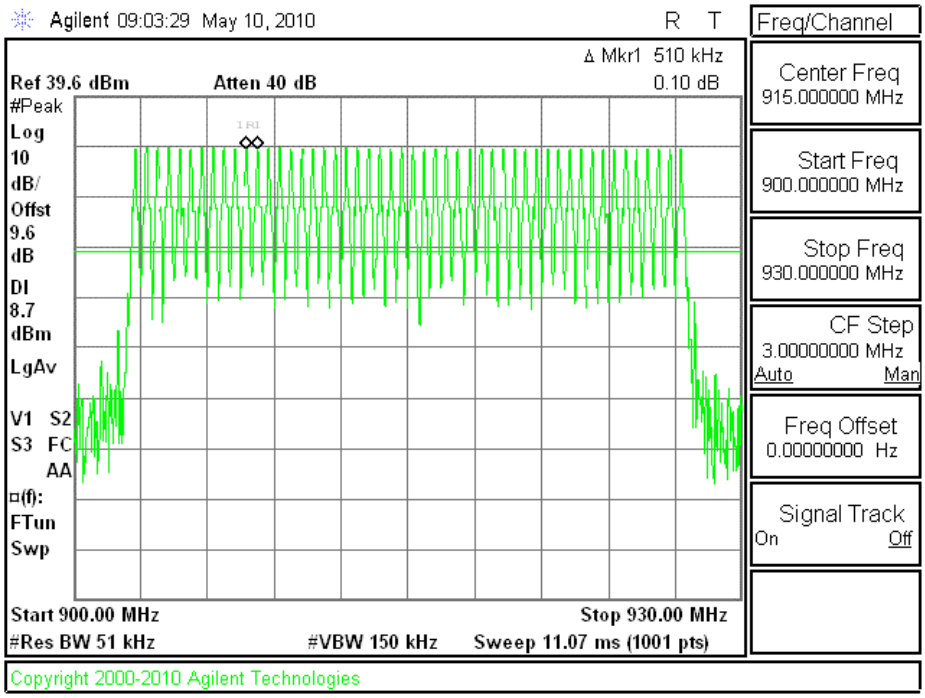
No non-compliance noted:

50 Channels observed, 902.75– 927.25 MHz. Refer to spectrum analyzer plots below.

NUMBER OF HOPPING CHANNELS C1C2 Modulation



NUMBER OF HOPPING CHANNELS C3 Modulation



AVERAGE TIME OF OCCUPANCY

Test requirement: 15.247(a)1(i)

LIMIT

§15.247 (a) (1) (i) For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 20 second scan, to enable resolution of each occurrence.

RESULTS

No non-compliance noted:

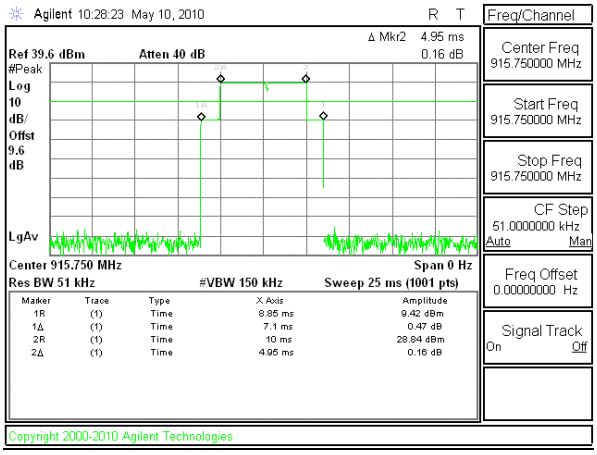
The on time for each pulse is 90 msec.

At a given frequency there is one pulse in 20 seconds.

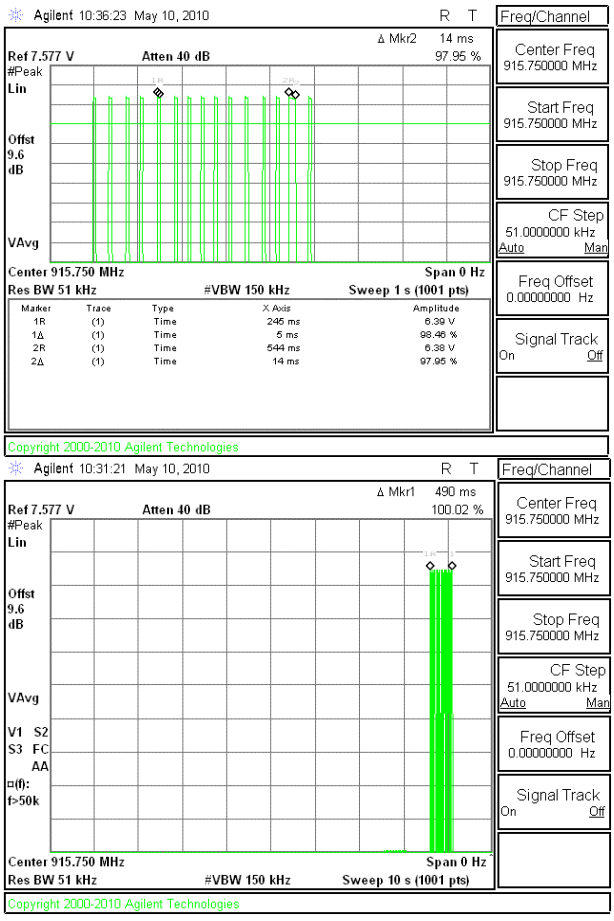
Therefore, the average time of occupancy in the specified 20-second period is 90 msec.

Limit: Not to exceed 400 msec.

PULSE WIDTH C1C2 Modulation : 7.1 msec

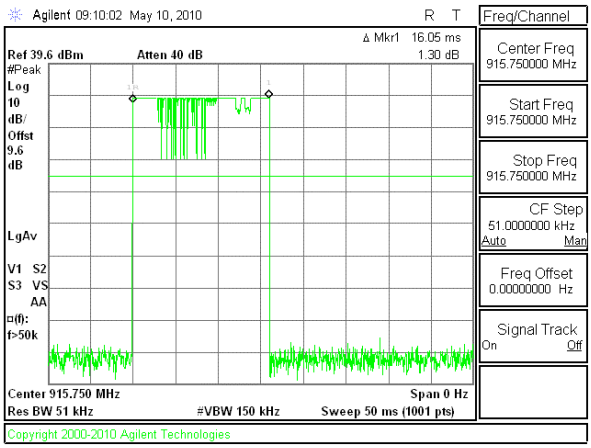


NUMBER OF PULSES IN 10 SECOND OBSERVATION PERIOD C1C2 Modulation

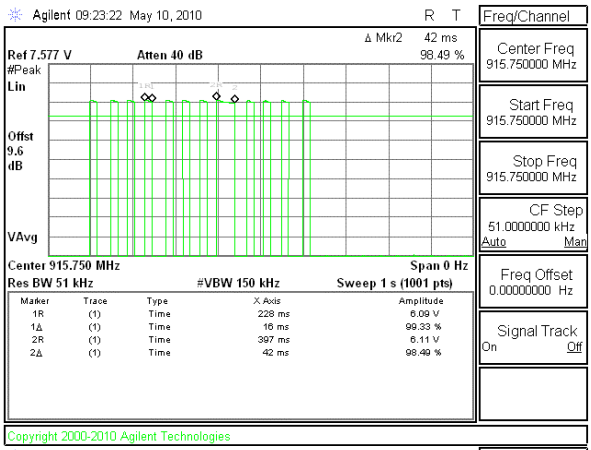


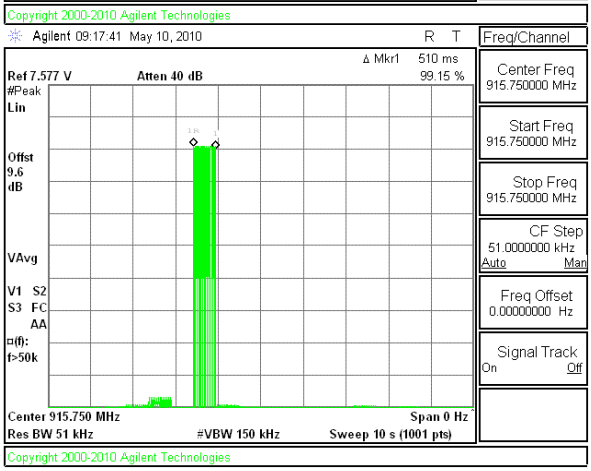
7.1 msec/pulse x 16 pulses/490 msec burst = 113.6 msec in 10 seconds total
Meets 0.4 second occupancy/10 seconds limit.

PULSE WIDTH C1C2 Modulation : 16 msec



NUMBER OF PULSES IN 10 SECOND OBSERVATION PERIOD C3 Modulation





16 msec/pulse x 11 pulses/burst + 42 msec pulse = 218 msec total in 10 seconds
Meets 0.4 second occupancy/10 seconds limit.

PEAK OUTPUT POWER

Test requirement:

15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:
§15.247 (b) (2) For frequency hopping systems operating in the 902-928 MHz band, employing at least 50 hopping channels: 1 watt; and employing less than 50 hopping channels, but at least 25 hopping channels: 0.25 watt.
§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 6 dBi, therefore the power limit is 30 dBm.

TEST PROCEDURE

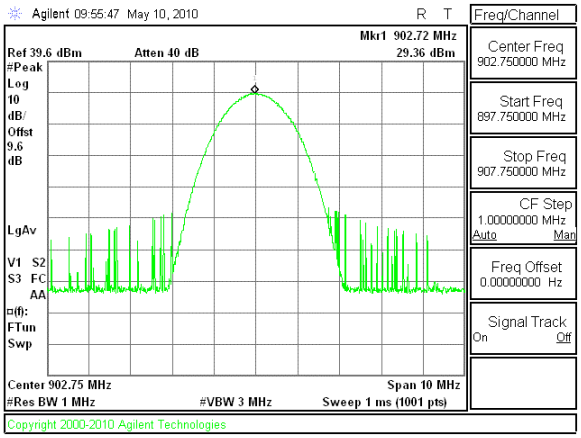
The transmitter output is connected to a spectrum analyzer and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

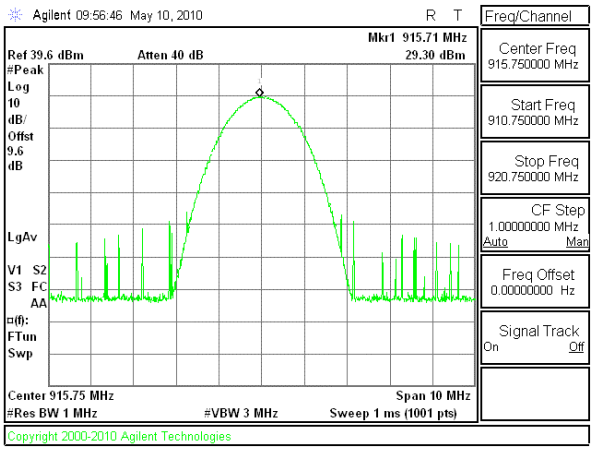
No non-compliance noted:

Channel	Frequency	P out C1C2	Pout C3
Low	902.75	29.36	29.22
Mid	915.75	29.30	29.26
High	927.25	29.22	29.07

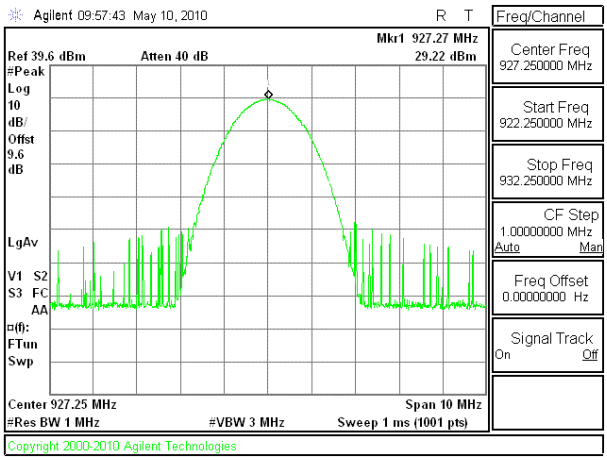
OUTPUT POWER LOW CHANNEL C1C2



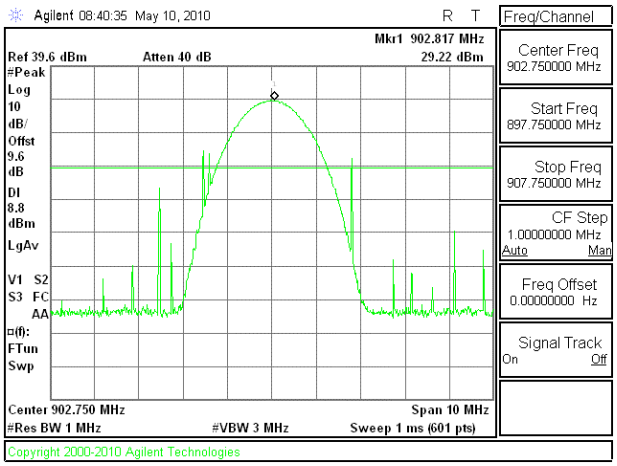
OUTPUT POWER MID CHANNEL C1C2



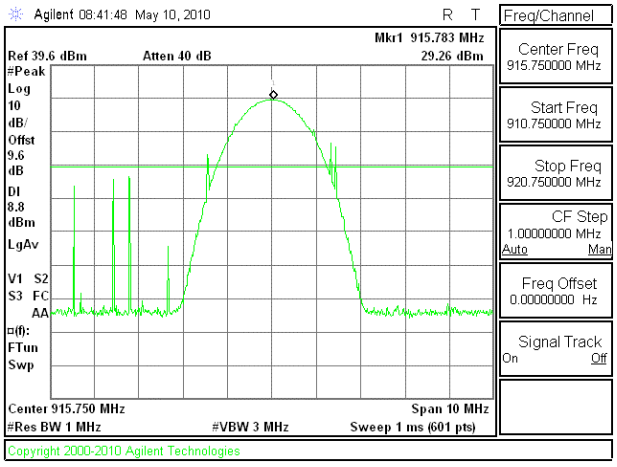
OUTPUT POWER HIGH CHANNEL C1C2



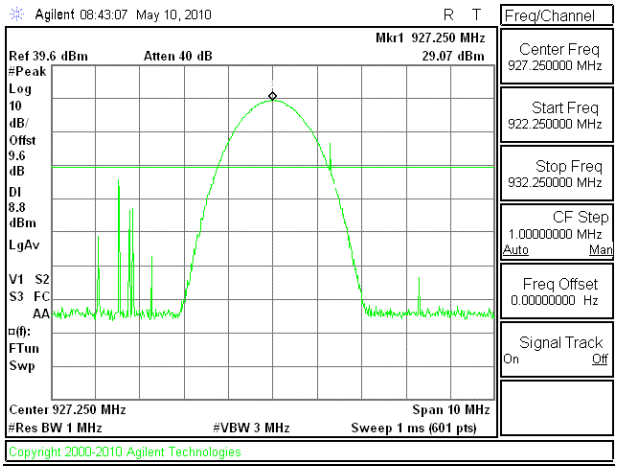
OUTPUT POWER LOW CHANNEL C3



OUTPUT POWER MID CHANNEL C3



OUTPUT POWER HIGH CHANNEL C3



MAXIMUM PERMISSIBLE EXPOSURE

Test requirement: 1.1307

LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$E = \sqrt{(30 * P * G) / d}$

and

$S = E ^ 2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$d = \sqrt{((30 * P * G) / (3770 * S))}$

Changing to units of Power to mW and Distance to cm, using:

P (mW) = P (W) / 1000 and
d (cm) =100 * d (m)

yields

$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$
$d = 0.282 * \sqrt{(P * G / S)}$

where

d = distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power Density in mW/cm^2

Substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

$d = 0.282 * 10 ^ ((P + G) / 20) / \sqrt{S}$ Equation (1)

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.

LIMITS

From §1.1310 Table 1 (B), S = 0.6 mW/cm^2

RESULTS

For worst case output power = 29.36 dBm (C1C2 Low channel):

Max RF Power P, dBm	TX Antenna G, dBi	MPE distance cm	S, mW/cm@ at 20 cm
29.36	6.00	21.3	0.68

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

CONDUCTED SPURIOUS EMISSIONS

Test requirement: 15.247(d)

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

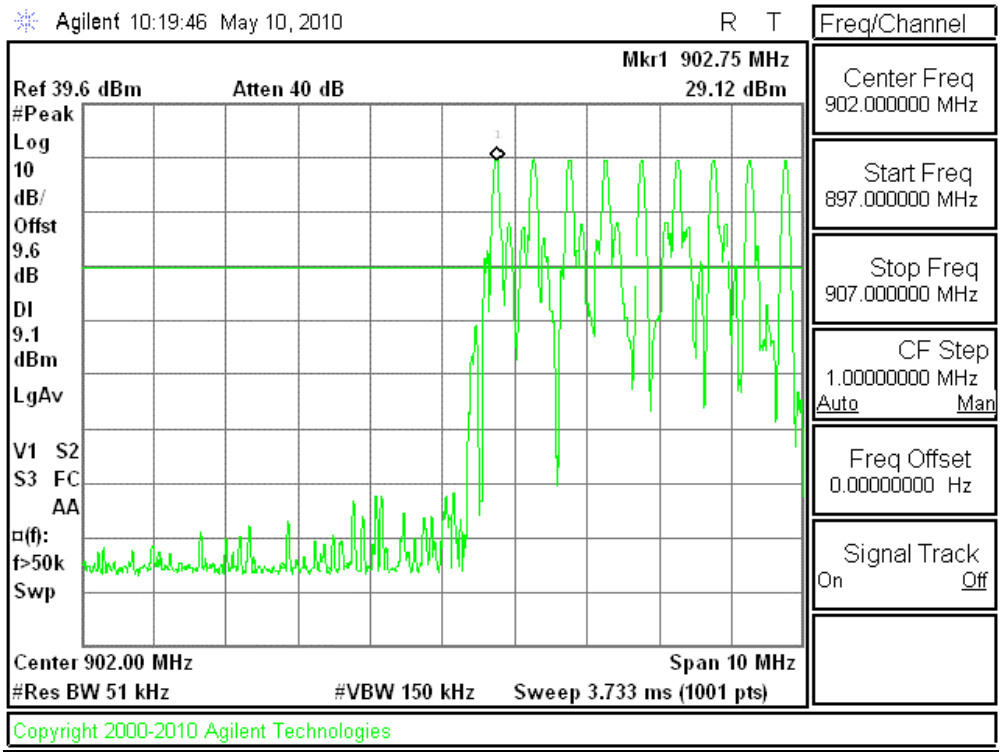
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

The spectrum from 30 MHz to 10 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

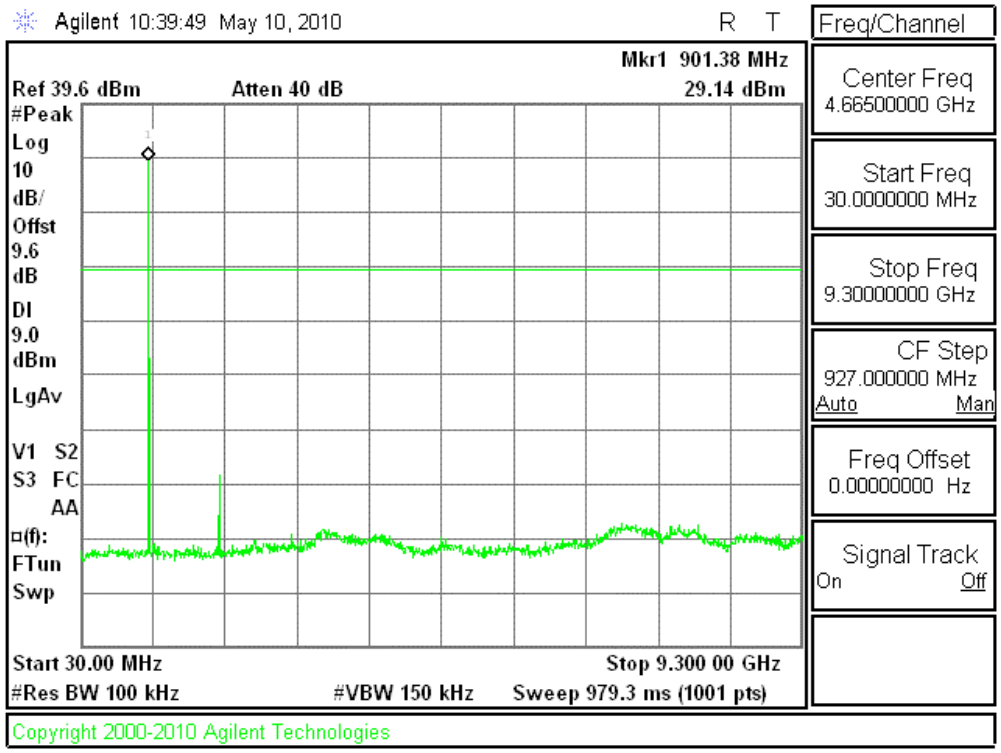
RESULTS

No non-compliance noted:

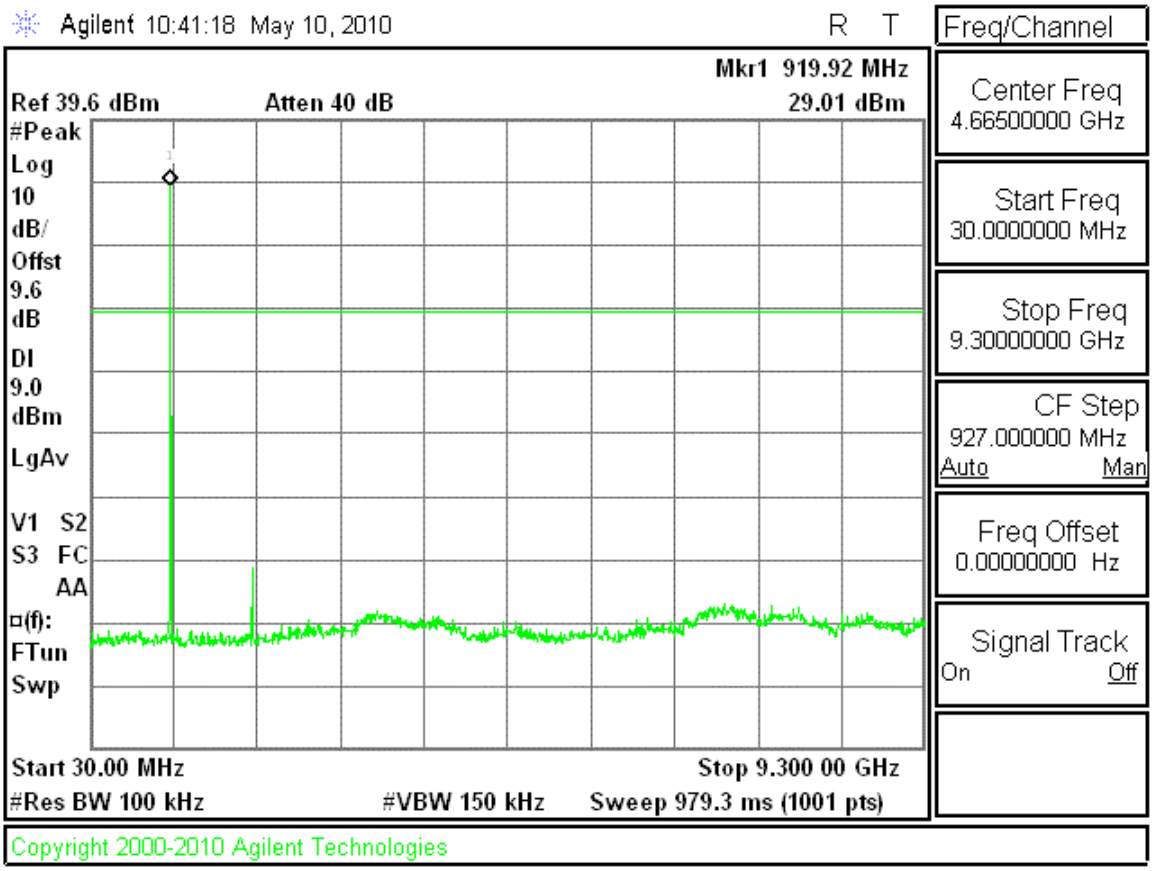
SPURIOUS EMISSIONS, LOW CHANNEL, HOPPING, C1C2



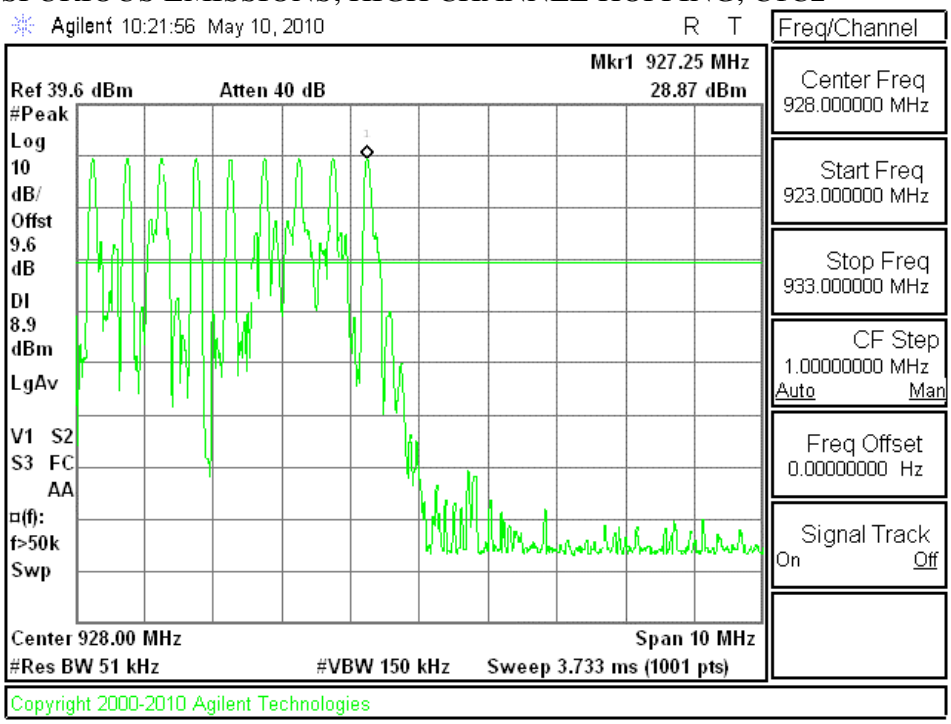
SPURIOUS EMISSIONS, LOW CHANNEL C1C2



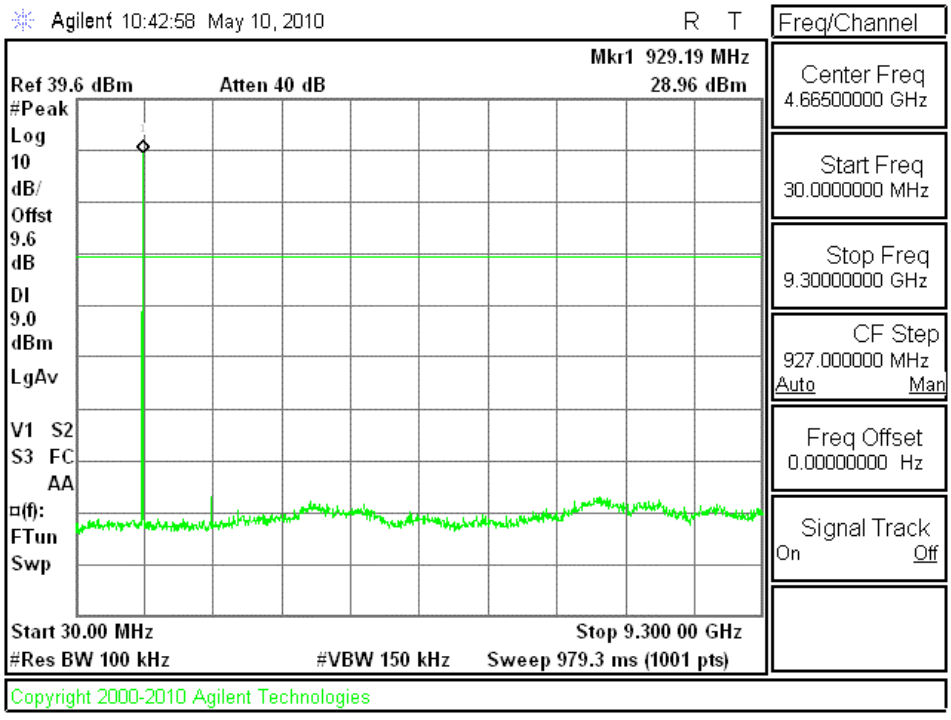
SPURIOUS EMISSIONS, MID CHANNEL C1C2



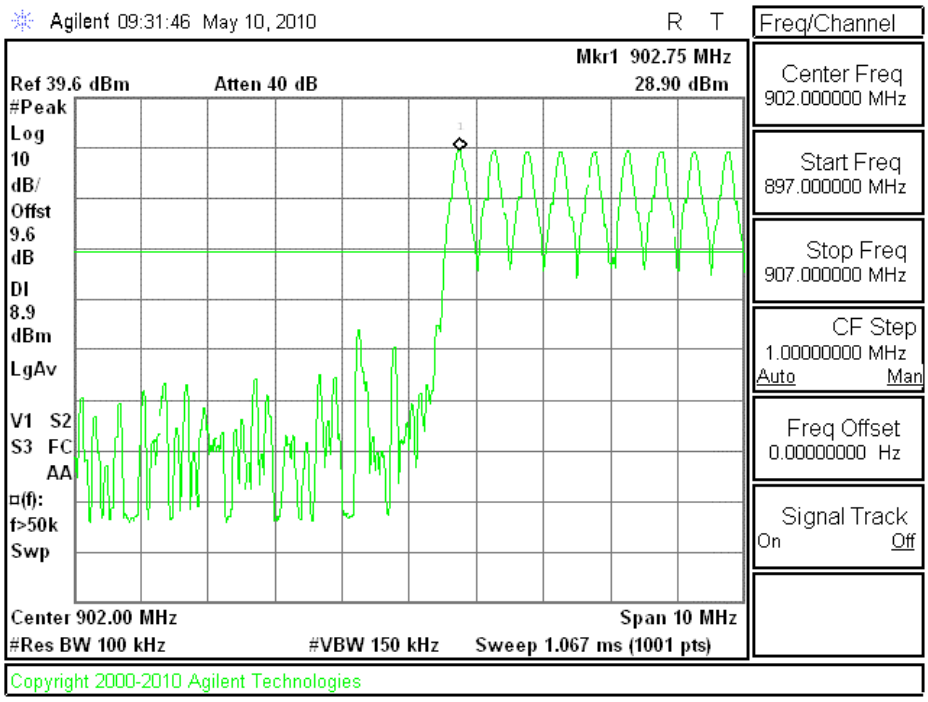
SPURIOUS EMISSIONS, HIGH CHANNEL HOPPING, C1C2



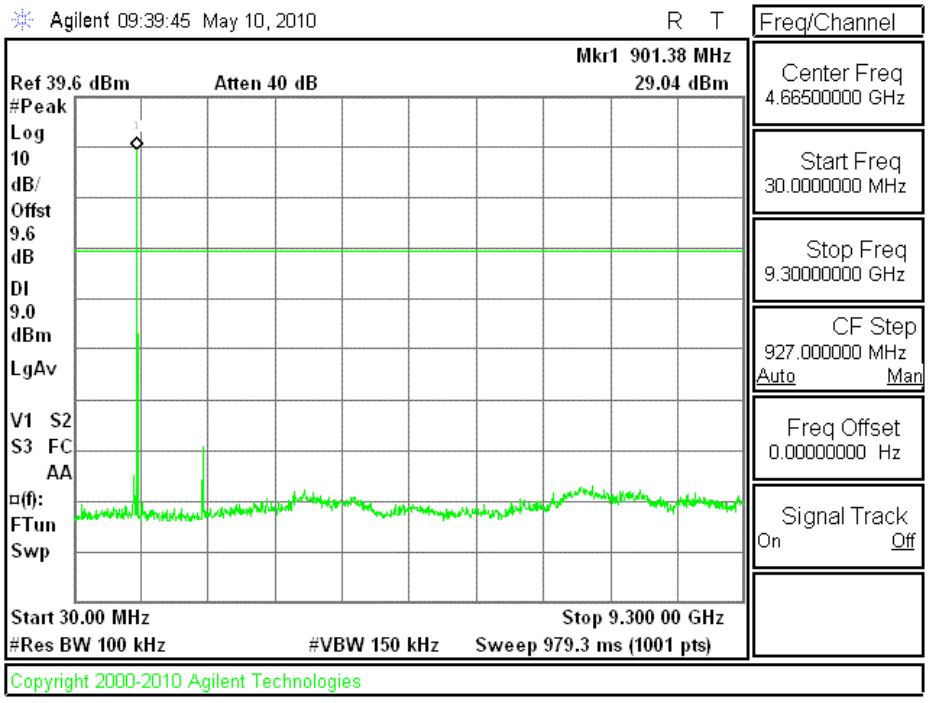
SPURIOUS EMISSIONS, HIGH CHANNEL C1C2



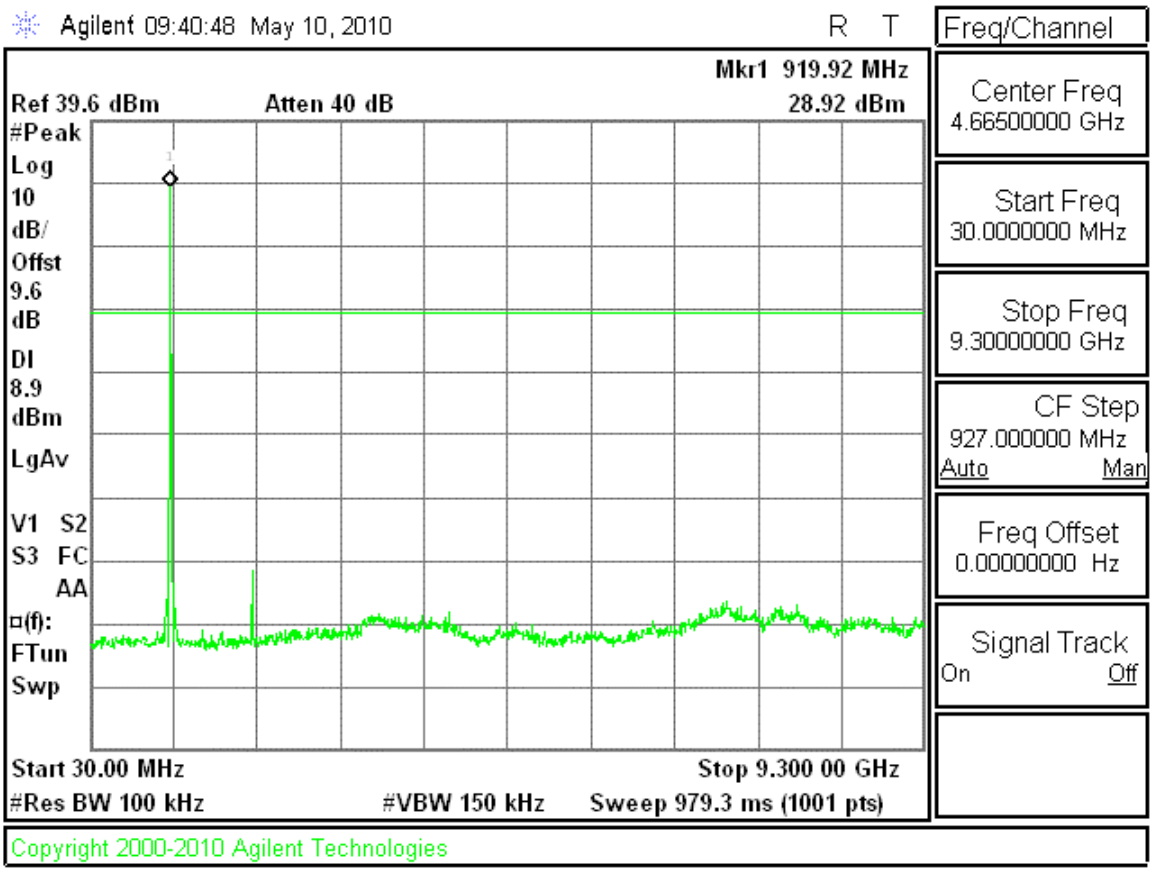
SPURIOUS EMISSIONS, LOW CHANNEL HOPPING C3



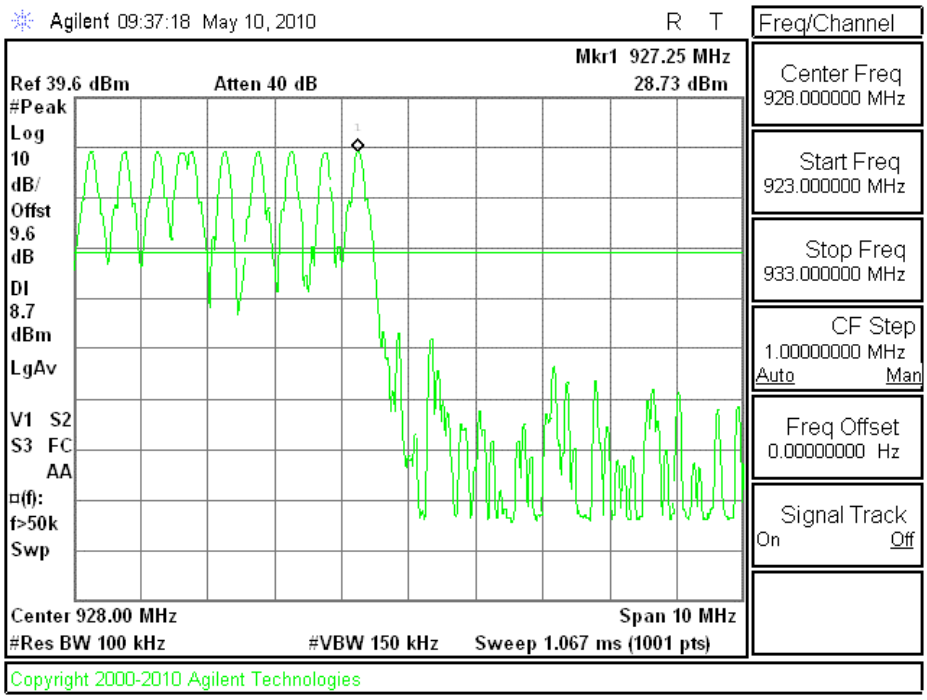
SPURIOUS EMISSIONS, LOW CHANNEL C3



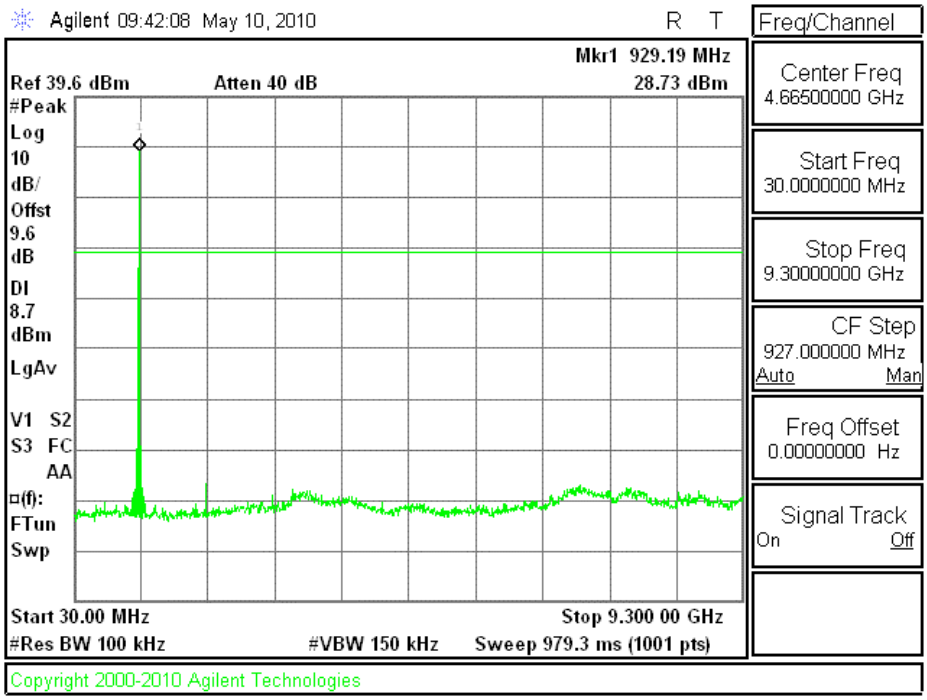
SPURIOUS EMISSIONS, MID CHANNELC3



SPURIOUS EMISSIONS, HIGH CHANNEL, HOPPING C3



SPURIOUS EMISSIONS, HIGH CHANNELC3



POWERLINE CONDUCTED EMISSIONS

Test requirement:

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

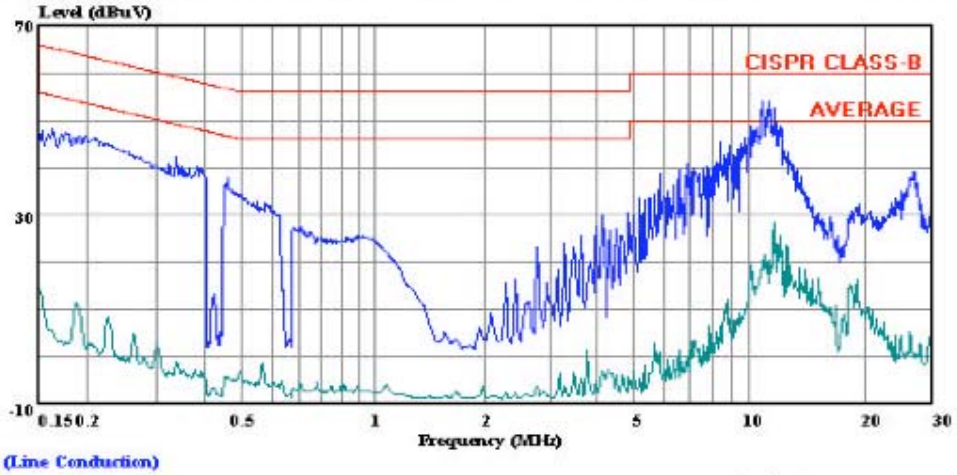
RESULTS

No non-compliance noted:

C1C2 LINE 1 RESULTS

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

Data#: 35 File#: 10U13208LC.EMI Date: 05-10-2010 Time: 12:02:38



(Line Conduction)

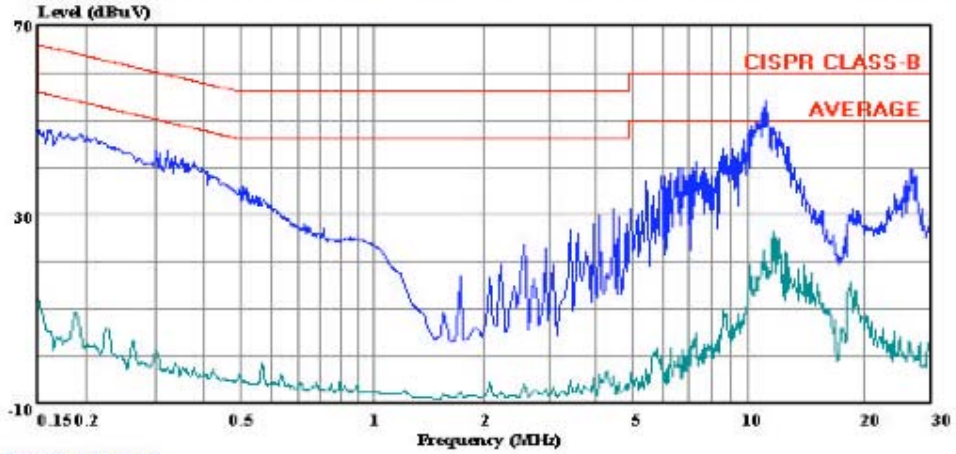
Trace: 33 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 10U13208
Company: : Intelliflex
EUT Description:: RF ID Reader
Configuration: : EUT with Support PC / HP DC Supply
Mode: : C1G2 Modulation / Low Channel (902.7MHz)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L1: Peak (Blue); Average (Green)

C1C2 LINE 2 RESULTS

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

Data#: 42 File#: 10U13208LC.EMI Date: 05-10-2010 Time: 12:12:47



(Line Conduction)

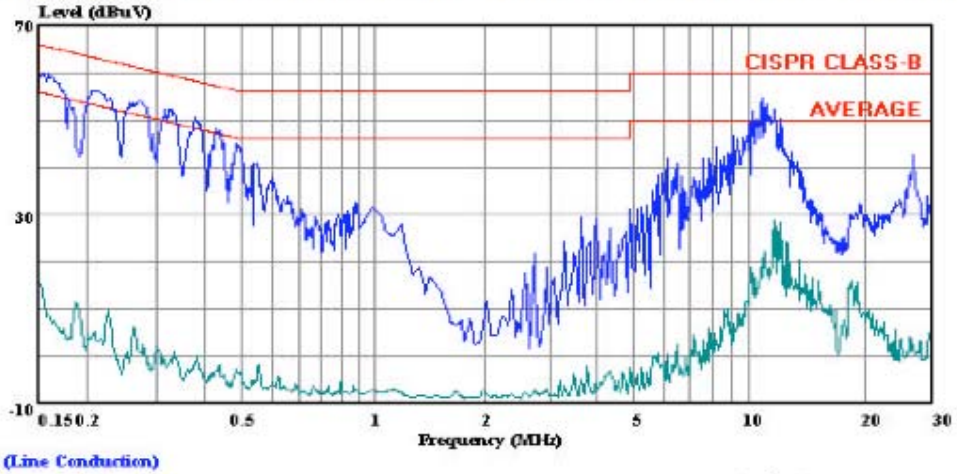
Trace: 40 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 10U13208
Company: : Intelliflex
EUT Description:: RF ID Reader
Configuration: : EUT with Support PC / HP DC Supply
Mode: : C1G2 Modulation / Low Channel (902.7MHz)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L2: Peak (Blue); Average (Green)

C3 LINE 1 RESULTS

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

Data#: 21 File#: 10U13208LC.EMI Date: 05-10-2010 Time: 11:44:30



(Line Conduction)

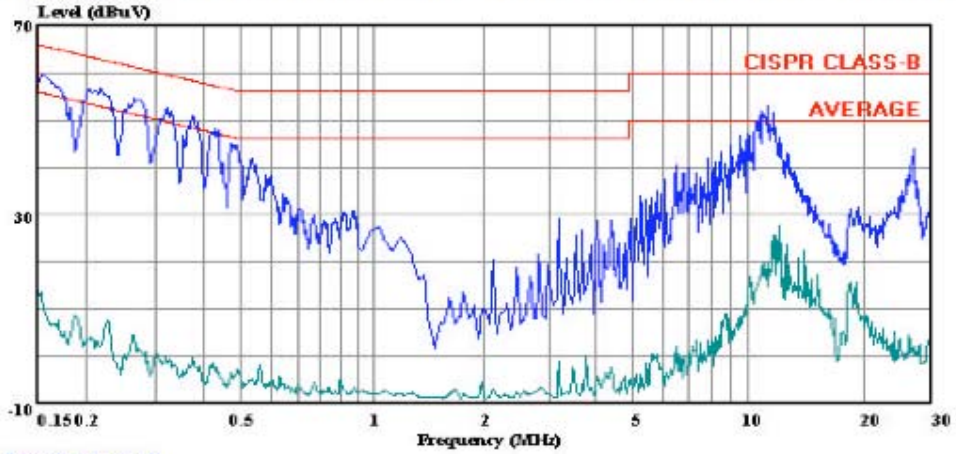
Trace: 19 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 10U13208
Company: : Intelliflex
EUT Description:: RF ID Reader
Configuration: : EUT with Support PC / HP DC Supply
Mode: : C3 Modulation / Low Channel (902.7MHz)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L1: Peak (Blue); Average (Green)

C1C2 Low Channel LINE 2 RESULTS

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

Data#: 28 File#: 10U13208LC.EMI Date: 05-10-2010 Time: 11:53:44



Trace: 26 Ref Trace:

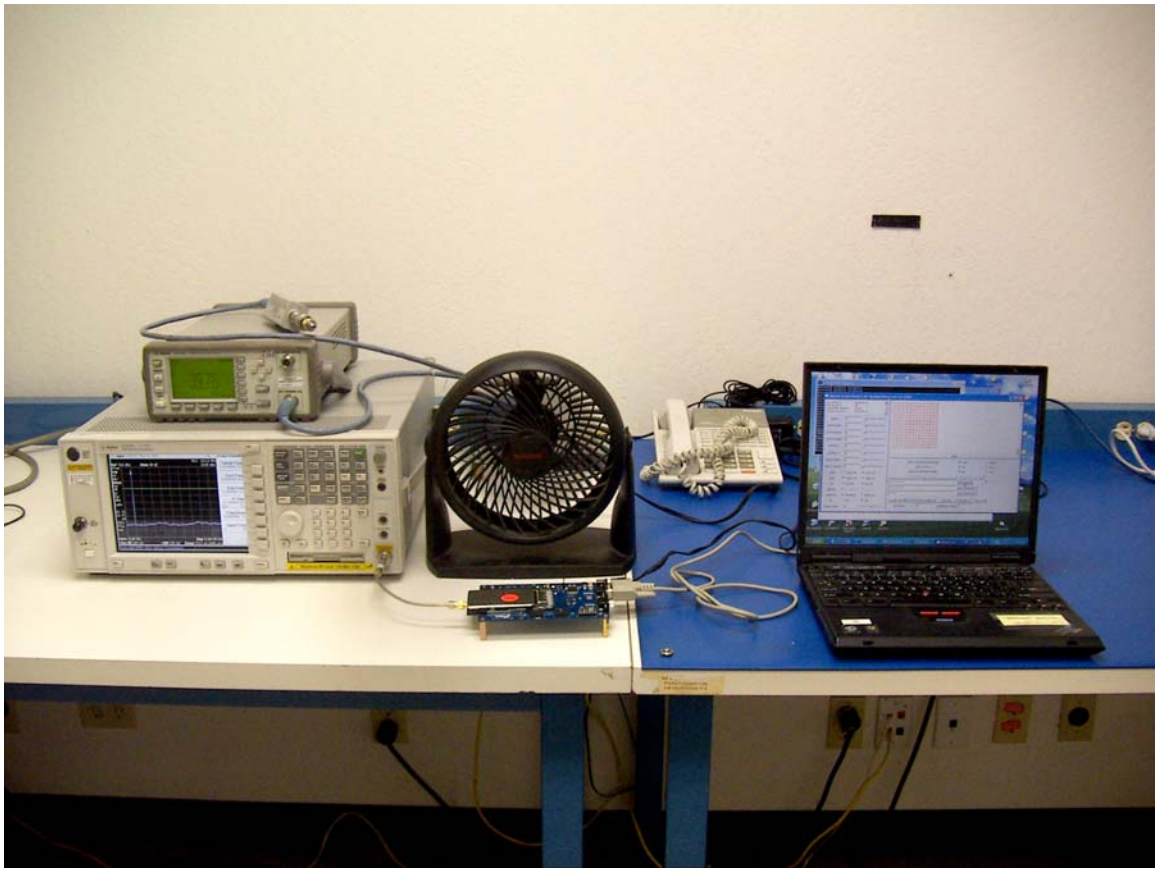
Condition: CISPR CLASS-B
Test Operator: : Doug Anderson
Project #: : 10U13208
Company: : Intelliflex
EUT Description:: RF ID Reader
Configuration: : EUT with Support PC / HP DC Supply
Mode: : C3 Modulation / Low Channel (902.7MHz)
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: L2: Peak (Blue); Average (Green)

RECEIVER EMISSIONS

The EUT does not have a receive-only mode. When tags are being read, the transmitter is on constantly to power the tag. The transmitter spurious emissions meet all restricted band emissions limits, as shown above, and therefore the receive mode is also compliant with the limits on restricted bands.

SETUP PHOTOS

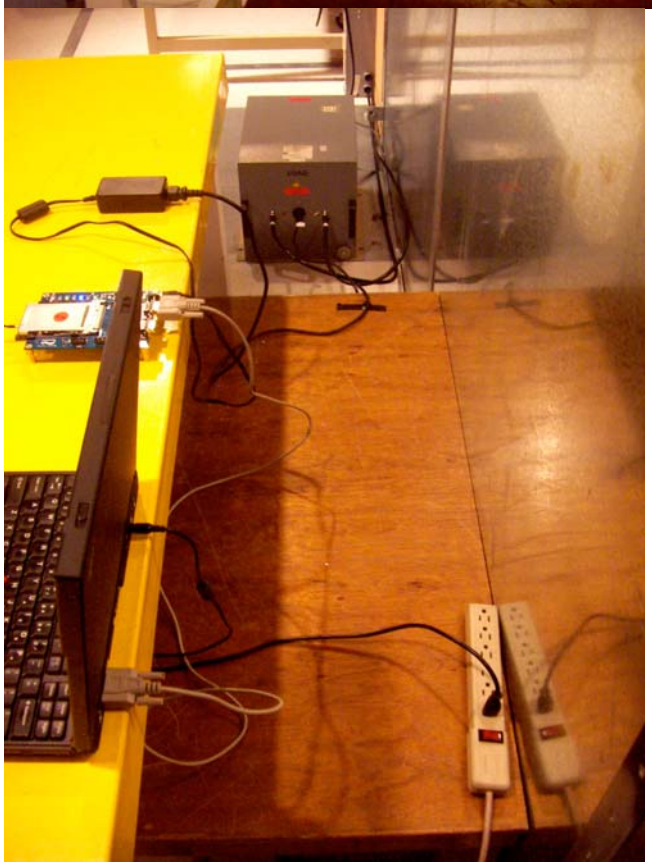
TX ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



TX RADIATED RF MEASUREMENT SETUP

NOTE: EUT placed in worst-case orientation for emissions (X-orientation)

TX POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



END OF REPORT

Report Revision History

Revision No.	Revision Description	Pages Revised	Revised by	Date
-	Original Issue		T. Cokenias	07/03/2010