LS RESEARCH, LLC
WIRELESS PRODUCT DEVELOPMENT
ACCREDITED
Testing Cert. 1255.01
W66 N220 Commerce Court ● Cedarburg, WI 53012
Phone: 262.375.4400 ● Fax: 262.375.4248
www.lsr.com

TEST REPORT # 310229
LSR Job #: C-967

Compliance Testing of:
EMI Model THM5421R1005

Test Date(s):
August 5, 6, 11-13, 16-20, 25, 2010

Prepared For:
Honeywell
Attn: Dave Mulhouse
1985 Douglas Drive North
Golden Valley, MN 55422

In accordance with:
Federal Communications Commission (FCC)
Part 15, Subpart C, Section 15.247
Industry Canada (IC) RSS 210 Annex 8
Frequency Hopping Spread Spectrum (FHSS) Operating in the Frequency Band 902 to 928 MHz

This Test Report is issued under the Authority of:

Signature: Thomas T. Smith Date: 08/25/2010

Test Report Reviewed by:	Tested by:
Signature: Thomas T. Smith Date: 08/25/10	Peter Feilen, EMC Engineer. Signature: Peter Feilen Date: 08/25/10

7$%/(#2)#&217(176

EXHIBIT 1. INTRODUCTION

1.1 - Scope

References:	FCC Part 15, Subpart C, Section 15.247 and 15.209 FCC Part 2, Section 2.1043 paragraph (b)1. RSS GEN and RSS 210 Annex 8
Title:	FCC : Telecommunication – Code of Federal Regulations, CFR 47, Part 15. IC : Low-power License-exempt Radio-communication Devices (All Frequency Bands): Category I Equipment
Purpose of Test:	To gain FCC and IC Certification Authorization for Low-Power License-Exempt Transmitters.
Test Procedures:	Both conducted and radiated emissions measurements were conducted in accordance with American National Standards Institute ANSI C63.4 – 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.
Environmental Classification:	Commercial, Industrial or Business Residential

1.2 – Normative References

Publication	Year	Title
47 CFR, Parts 0-15 (FCC)	2007-10	Code of Federal Regulations - Telecommunications
RSS 210 Annex 8	2007 June	Low-power License-exempt Radio-communication Devices (All Frequency Bands): Category I Equipment
ANSI C63.4	2009	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.
CISPR 16-1-1	2006-03 A1: 2006-09 A2: 2007-07	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus.
CISPR 16-2-1	2003 A1: 2004-04 A2: 2007-07	Specification for radio disturbance and immunity measuring apparatus and methods. Part 201: Conducted disturbance measurement.
FCC Public Notice DA 00-75	2000	Part 15 Unlicensed Modular Transmitter Approval

1.3 - LS Research, LLC Test Facility

LS Research, LLC is accredited by A2LA (American Association for Laboratory Accreditation) to conform to ISO/IEC 17025, 2005 "General Requirements for the Competence of Calibration and Testing Laboratories".

LS Research, LLC's scope of accreditation includes all test methods listed herein, unless otherwise noted. A copy of the accreditation may be accessed on our web site: www.lsr.com. Accreditation status can be verified at A2LA's web site: www.a2la2.net.

1.4 – Location of Testing

All testing was performed at the following location utilizing the facilities listed below, unless otherwise noted.

LS Research, LLC
W66 N220 Commerce Court
Cedarburg, Wisconsin, 53012 USA,

List of Facilities Located at LS Research, LLC:

Compact Chamber
Semi-Anechoic Chamber
Open Area Test Site (OATS)

1.5 – Test Equipment Utilized

A complete list of equipment utilized in testing is provided in Appendix A of this test report. Calibration dates are indicated in Appendix A. All test equipment is calibrated in accordance with A2LA standards.

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1 – Client Information

Manufacturer Name:	Honeywell
Address:	1985 Douglas Drive North, Golden Valley, MN 55422
Contact Name:	Dave Mulhouse

2.2 - Equipment Under Test (EUT) Information

The following information has been supplied by the applicant.

Product Name:	EIM
Model Number:	THM5421R1005
Serial Number:	Engineering Unit

2.3 - Associated Antenna Description

There are two antennas per EUT. One antenna is vertically polarized, the other horizontally polarized. Both are “L” PCB antenna. The gain of the horizontally polarized antenna is 8.71 dBi and the gain of the vertically polarized antenna is 7.89 dBi.

2.4 - EUT'S Technical Specifications

EUT Frequency Range (in MHz)	902.9 – 926.4 MHz
Radiated RF Power in Watts	0.0811 W (Horizontal Antenna) 0.0707 W (Vertical Antenna)
Conducted Output Power (in dBm)	10.60 dBm (903 MHz)
Field Strength at 3 meters	114.32 dBuV/m (926 MHz, Horizontal Antenna) 113.72 dBuV/m (903 MHz, Vertical Antenna)
Occupied Bandwidth (99% BW)	86.5kHz (914.6 MHz)
Type of Modulation	FSK
Emission Designator	86K5F1D
EIRP (in mW)	81.1 mW (Horizontal Antenna) 70.7mW (Vertical Antenna)
Transmitter Spurious (worst case) at 3 meters	58.7 dBuV/m (901.99 MHz)
Receiver Spurious (worst case) at 1 meters	45.4 dBuV/m (8550.00 MHz)
Receiver Sensitivity	-108.38 dBm (903MHz)
Frequency Tolerance %, Hz, ppm	Better than 100 ppm
Microprocessor Model # (if applicable)	MSP430F5526
Antenna Information	
Detachable/non-detachable	Non-detachable
Type	PCB
Gain (in dBi)	8.71 dBi max
EUT will be operated under FCC Rule Part(s)	15.247
EUT will be operated under RSS Rule Part(s)	210 Annex 8
Modular Filing	☐ Yes ☒ No
Portable or Mobile?	Portable

RF Technical Information:

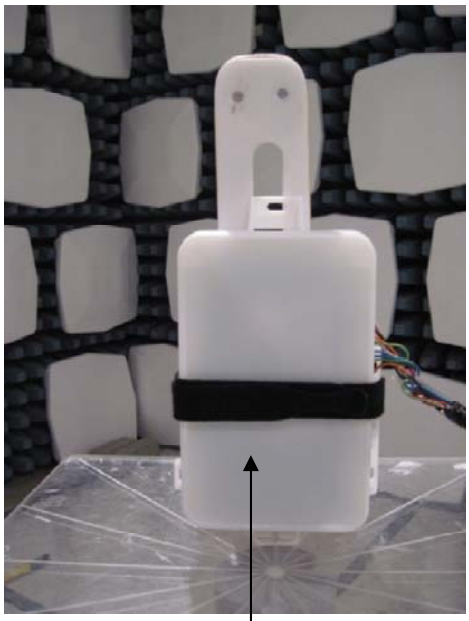
Type of Evaluation (check one)		SAR Evaluation: Device Used in the Vicinity of the Human Head
		SAR Evaluation: Body-worn Device
	X	RF Evaluation

If RF Evaluation checked above, test engineer to complete the following:

Evaluated against exposure limits: ☒ General Public Use ☐ Controlled Use
Duty Cycle used in evaluation: 100 %
Standard used for evaluation: OET 65
Measurement Distance: 20 cm
RF Value: 0.190 ☐ ☐ V/m ☐ A/m ☒ W/m^2
☐ Measured ☐ Computed ☒ Calculated

2.5 - Product Description

PHOTO



EUT inside of housing. Shown strapped to a test fixture to demonstrate common use position of the EUT.

EUT with housing cover removed. The markings of “A” and “B” designate the unique antennas (Horiztonal and Vertical Antenna respectively). Wiring shown leads to a load bank, representing relays which would be tied to the EUT in normal operation.

EXHIBIT 3. EUT OPERATING CONDITIONS & CONFIGURATIONS DURING TESTS

3.1 - Climate Test Conditions

Temperature:	22-24 °C
Humidity:	46-50 % R.H.
Pressure:	86-106 kPa

3.2 - Applicability & Summary Of EMC Emission Test Results

FCC and IC Paragraph	Test Requirements	Compliance (Yes/No)
FCC : 15.207 IC : RSS GEN sect. 7.2.2	Power Line Conducted Emissions Measurements	Yes
FCC : 15.247 (a)(1)(i) IC : RSS 210 A8.1 (a)	20 dB Bandwidth	Yes
FCC : 15.247(b) & 1.1310 IC : RSS 210 A8.4	Maximum Output Power	Yes
FCC : 15.247(i), 1.1307, 1.1310, 2.1091 & 2.1093 IC : RSS 102	RF Exposure Limit	Yes
FCC :15.247(c) IC : RSS 210 A8.5	RF Conducted Spurious Emissions at the Transmitter Antenna Terminal	Yes
FCC:15.247 (a)(1)(i) IC: RSS 210 (b)	Carrier Frequency Separation	Yes
FCC:15.247 (a)(1)(i),(ii),(iii) IC: RSS 210 (c),(d),(e)	Number of hopping channels	Yes
FCC:15.247 (a)(1)(i),(ii),(iii) IC: RSS 210 (c),(d),(e)	Time of occupancy (Dwell Time)	Yes
FCC : 15.247(c), 15.209 & 15.205 IC : RSS 210 A8.2(b), section 2.2, 2.6 and 2.7	Transmitter Radiated Emissions	Yes

3.3 - Modifications Inocorporated In The EUT For Compliance Purposes

☒ None ☐ Yes (explain below)

3.4 - Deviations & Exclusions From Test Specifications

☒ None ☐ Yes (explain below)

EXHIBIT 4. DECLARATION OF CONFORMITY

The EUT was found to MEET the requirements as described within the specification of FCC Title 47, CFR Part 15.247, and Industry Canada RSS-210, Issue 7 (2007), Section Annex 8 (section A8.1) for a Frequency Hopping Spread Spectrum (FHSS) Transmitter.

Note: If some emissions are seen to be within 3 dB of their respective limits; as these levels are within the tolerances of the test equipment and site employed, there is a possibility that this unit, or a similar unit selected out of production may not meet the required limit specification if tested by another agency.

LS Research, LLC certifies that the data contained herein was taken under conditions that meet or exceed the requirements of the test specifications. The results in this Test Report apply only to the item(s) tested on the above-specified dates. Any modifications made to the EUT subsequent to the indicated test date(s) will invalidate the data herein, and void this certification.

EXHIBIT 5. RADIATED EMISSIONS TEST

5.1 - Test Setup

The test setup was assembled in accordance with Title 47, CFR FCC Part 15, RSS GEN and ANSI C63.4-2003. The EUT was placed on an 80cm high non-conductive pedestal, centered on a flush mounted 2-meter diameter turntable inside a 3 meter Semi-Anechoic, FCC listed Chamber. The EUT was operated in continuous modulated transmit mode for final testing using power as provided by a bench DC supply. 3 separate units were provided for testing on 3 different channels.

The applicable limits apply at a 3 meter distance. Measurements above 4 GHz were performed at a 1.0 meter separation distance. The calculations to determine these limits are detailed in the following pages. Please refer to Appendix A for a complete list of test equipment. The test sample was operated on one of three (3) standard channels: low (903.0 MHz), middle (914.6 MHz) and high (926.4 MHz) to comply with FCC Part 15.35. The channels and operating modes were set using a programming button built into the EUT

5.2 - Test Procedure

Radiated RF measurements were performed on the EUT in a 3 meter Semi-Anechoic, FCC listed Chamber. The frequency range from 30 MHz to 10000 MHz was scanned and investigated. The radiated RF emission levels were manually noted at the various fixed degree settings of azimuth on the turntable and antenna height. The EUT was placed on a non-conductive pedestal in the 3 meter Semi-Anechoic Chamber, with the antenna mast placed such that the antenna was 3 meters from the EUT. A Bi-conical Antenna was used to measure emissions from 30 MHz to 300 MHz, and a Log Periodic Antenna was used to measure emissions from 300 MHz to 1000 MHz A Double-Ridged Waveguide Horn Antenna was used from 1 GHz to 10 GHz. The maximum radiated RF emissions were found by raising and lowering the antenna between 1 and 4 meters in height, using both horizontal and vertical antenna polarities.

The EUT was rotated along three orthogonal axes during the investigations to find the highest emission levels.

5.3 - Test Equipment Utilized

A list of the test equipment and antennas utilized for the Radiated Emissions test can be found in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. All calibrations of the antennas used were performed at an IEC/ISO 17025 accredited calibration laboratory, traceable to the SI standard. In addition, the Connecting Cables were measured for losses using a calibrated Signal Generator and an EMI Receiver. The resulting correction factors and the cable loss factors from these calibrations were entered into the EMI Receiver database. As a result, the data taken from the EMI Receiver accounts for the antenna correction factor as well as cable loss or other corrections, and can therefore be entered into the database as a corrected meter reading. The EMI Receiver was operated with resolution bandwidths as prescribed in ANSI C63.4.

5.4 - Test Results

The EUT was found to **MEET** the Radiated Emissions requirements of Title 47 CFR, FCC Part 15.247 and Canada RSS-210, Issue 7 (2007), Annex 8 for a FHSS transmitter. The frequencies with significant RF signal strength were recorded and plotted as shown in the Data Charts and Graphs.

5.5 - Calculation of Radiated Emissions Limits

The maximum peak output power of an intentional radiator in the 902 to 928 MHz band, as specified in Title 47 CFR 15.247 and RSS 210 is 1 Watt. The harmonic and spurious RF emissions, as measured in any 100 kHz bandwidth, as specified in 15.247 (d) and RSS 210 A8.5, shall be at least 20 dB below the measured power of the desired signal, and must also meet the requirements described in 15.205(c) for FCC and section 2.2, 2.6 and 2.7 of RSS 210 for IC.

The following table depicts the general radiated emission limits above 30 MHz. These limits are obtained from Title 47 CFR, Part 15.209, for radiated emissions measurements. These limits were applied to any signals found in the 15.205 restricted bands. The mentioned limits correspond to those limits listed in RSS 210 section 2.7.

Frequency (MHz)	3 m Limit μV/m	3 m Limit (dBμV/m)	1 m Limit (dBμV/m)
30-88	100	40.0	-
88-216	150	43.5	-
216-960	200	46.0	-
960-24,000	500	54.0	63.5

Sample conversion of field strength (μV/m to dBμV/m):
dBμV/m = 20 $\log_{10}$ (100)= 40 dBμV/m (from 30-88 MHz)

For measurements made at 1.0 meter, a 9.5 dB correction has been invoked.

960 MHz to 10,000 MHz
500μV/m or 54.0 dB/μV/m at 3 meters
54.0 + 9.5 = 63.5 dB/μV/m at 1 meter

For measurements made at 0.3 meter, a 20 dB correction has been invoked.

960 MHz to 10,000 MHz
500μV/m or 54.0 dB/μV/m at 3 meters
54.0 + 20 = 74 dB/μV/m at 0.3 meters

5.6 - Radiated Emissions Test Data Chart

Frequency Range Inspected: 30 MHz to 10000 MHz

Manufacturer:	Honeywell					
Date(s) of Test:	August 5, 6, 16, 17, 25, 2010					
Project Engineer:	Peter Feilen					
Test Engineer(s):	Peter Feilen					
Voltage:	24 VAC					
Operation Mode:	modulated mode					
Environmental Conditions in the Lab:	Temperature: 22-23 °C Relative Humidity: 46-48 %					
EUT Power:	X	Single Phase 24 VAC		3 Phase ___VAC		
		Battery		Other: Bench DC Supply		
EUT Placement:	X	80cm non-conductive table		10cm Spacers		
EUT Test Location:	X	3 Meter Semi-Anechoic FCC Listed Chamber		3/10m OATS		
Measurements:		Pre-Compliance		Preliminary	X	Final
Detectors Used:	X	Peak	X	Quasi-Peak	X	Average

The following table depicts the level of significant spurious radiated RF emissions found for either antenna (other than the fundamentals and its harmonics):

Frequency (MHz)	Ant./EUT Polarity	Height (meters)	Azimuth (degrees)	Measured EFI (dBμV/m)	Limit (dBμV/m)	Margin (dB)
877.00	H/V	1.00	0	36.6	46.0	5.4
952.40	V/V	1.48	180	39.1	46.0	6.9
939.36	V/V	1.14	186	35.7	46.0	10.3
939.40	H/V	1.27	192	38.9	46.0	7.1
952.42	H/V	1.29	188	40.7	46.0	5.3
993.32	V/V	1.00	0	29.5	46.0	16.5
974.33	H/V	1.00	0	29.7	46.0	16.2
210.97	H/H	1.00	0	16.5	43.0	26.5
901.99	V/TT	1.00	0	58.7	94.3[3]	35.6
1978.15	H/V	1.00	0	42.4	54.0	11.6
3446.71	V/V	1.00	0	48.5	94.3[3]	45.8
3162.98	H/V	1.00	0	48.2	94.3[3]	46.1

Note:

1. H: Horizontal, V: Vertical, F: Flat.
2. Present on all channels.
3. Limit presented as -20 dBc from fundamental of operating frequency during testing

The following table depicts the level of radiated Fundamental emissions seen:

ANTENNA A:

Frequency (MHz)	Ant./EUT Polarity	Height (meters)	Azimuth (degrees)	Measured EFI (dBμV/m)	Limit (dBμV/m)	Margin (dB)
903.0	H/F	1.00	207	114.32	125.23	10.91
914.6	H/F	1.14	263	113.91	125.23	11.32
926.4	H/F	1.00	222	114.01	125.23	11.22

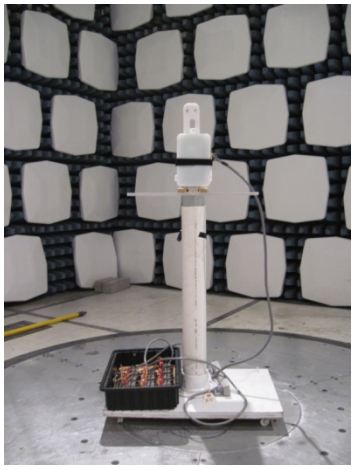
ANTENNA B:

Frequency (MHz)	Ant./EUT Polarity	Height (meters)	Azimuth (degrees)	Measured EFI (dBμV/m)	Limit (dBμV/m)	Margin (dB)
903.0	H/F	1.00	221	113.72	125.23	11.51
914.6	H/F	1.00	221	113.27	125.23	11.96
926.4	H/F	1.59	220	112.08	125.23	13.15

Note:
1. V: Vertical, F: Flat, S: Side.

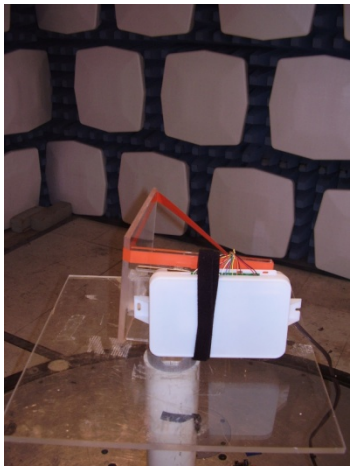
5.7 - Test Setup Photo(s) – Radiated Emissions Test

Vertical Orientation



Flat Orientation

Side Orientation



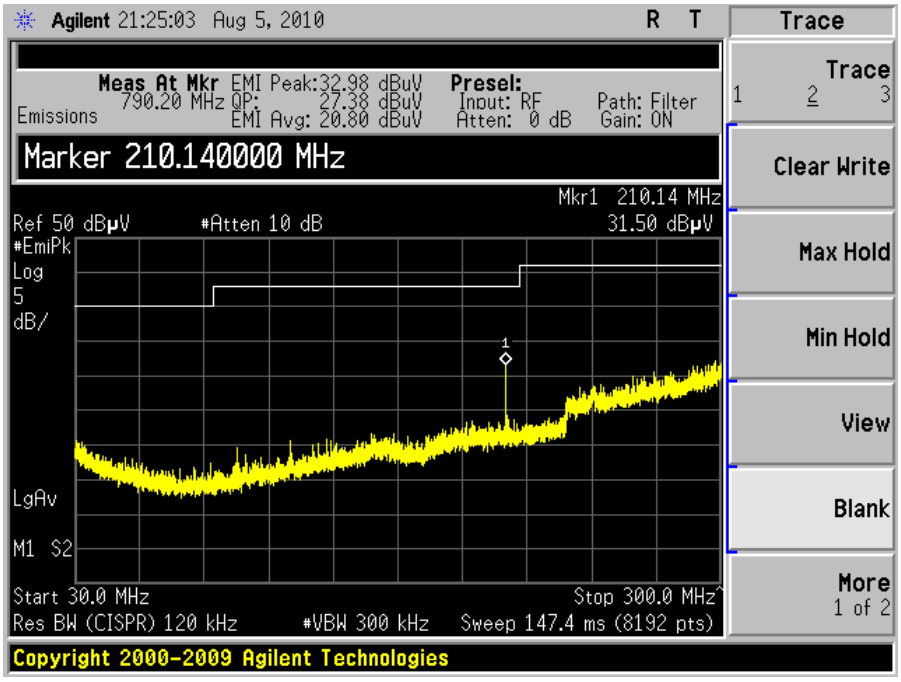
5.8 - Screen Captures - Radiated Emissions Test

These screen captures represent Peak Emissions. For radiated emission measurements, a Quasi-Peak detector function is utilized when measuring frequencies below 1 GHz, and a video averaged Peak detector function is utilized when measuring frequencies above 1 GHz.

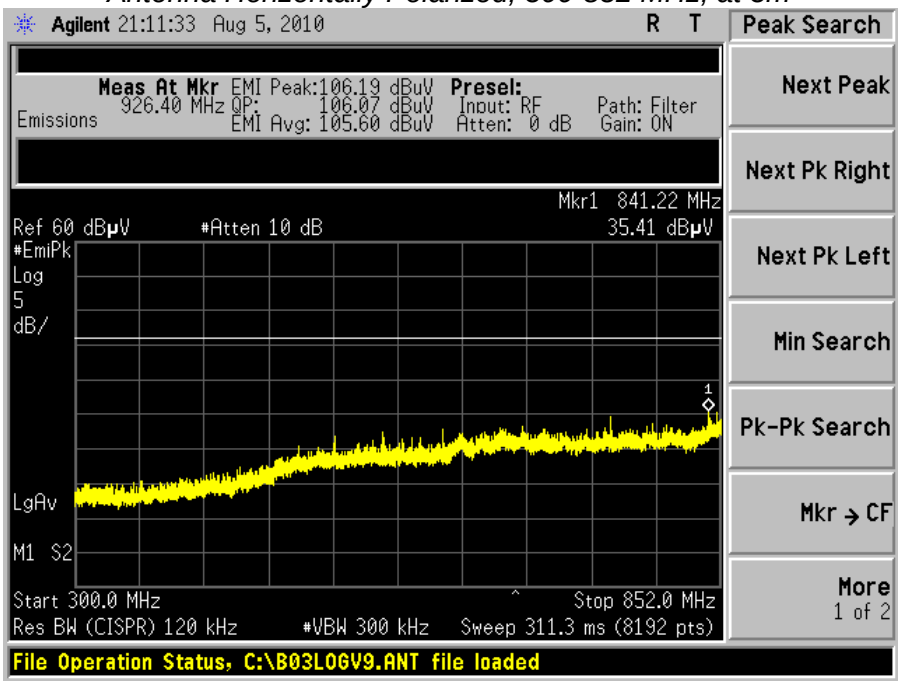
The signature scans shown here are from worst-case emissions, as measured on channels 903 MHz, 914.6 MHz, or 926.4 MHz, with the sense antenna both in vertical and horizontal polarity for worst case presentations.

HORIZONTAL EUT ANTENNA, FLAT EUT POSITION

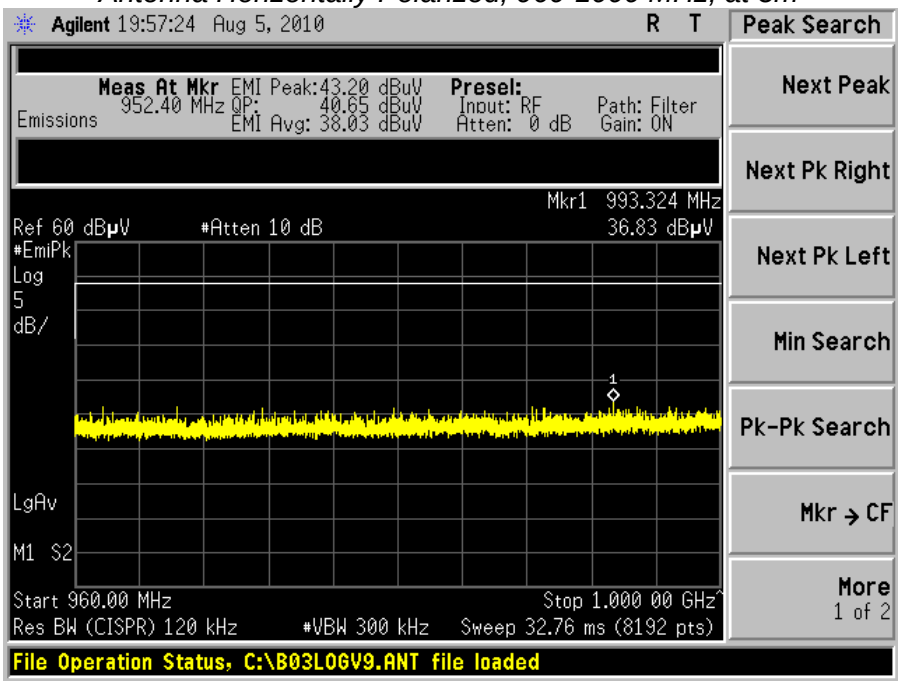
Sense Antenna Horizontally Polarized, 30-300 MHz, at 3m



Antenna Horizontally Polarized, 300-852 MHz, at 3m

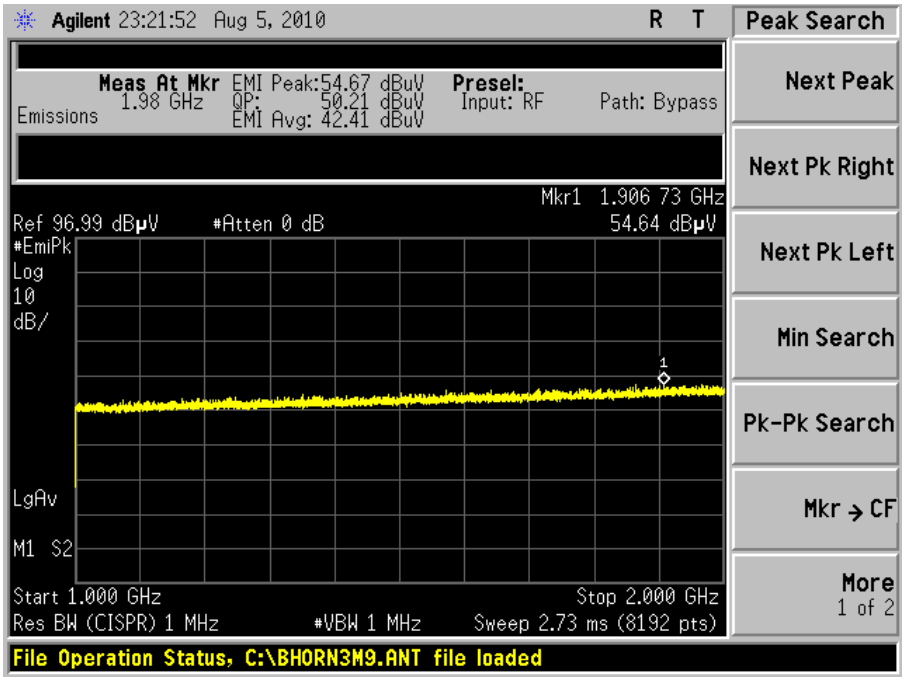


Antenna Horizontally Polarized, 960-1000 MHz, at 3m

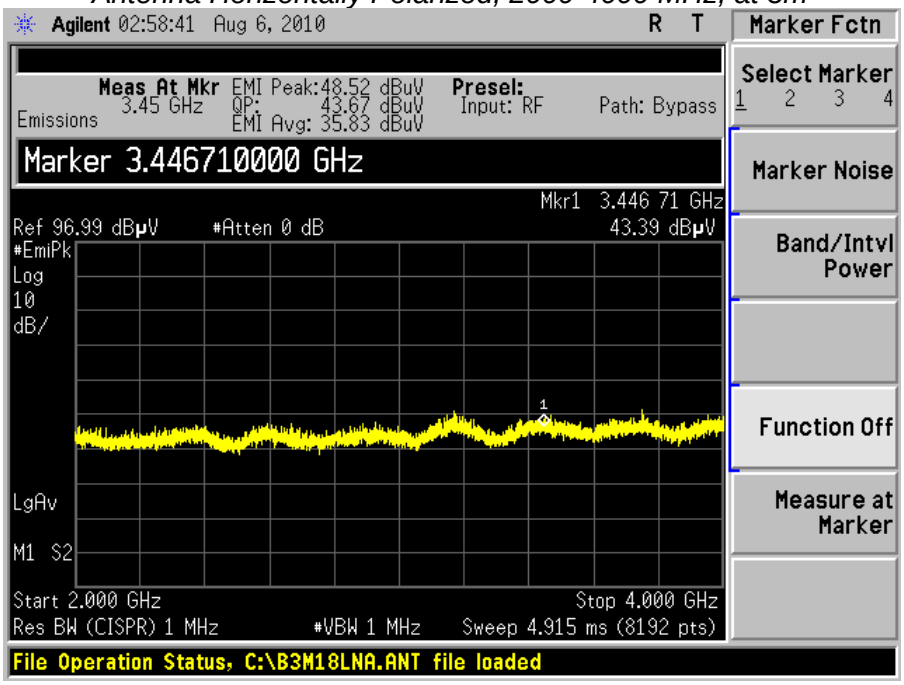


Note: The frequency range 852-902 MHz and 928-960 MHz is in the Band-edge section (Exhibit 8).

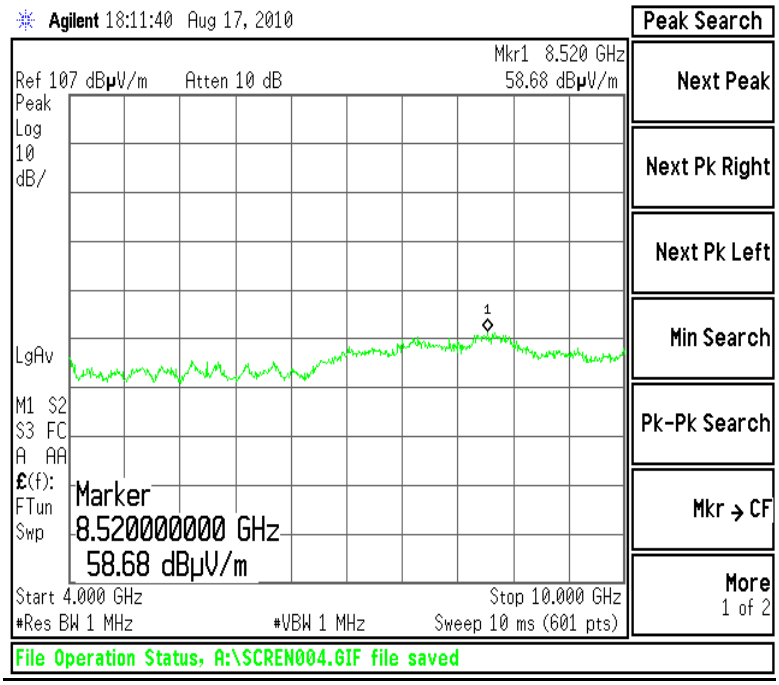
Antenna Horizontally Polarized, 1000-2000 MHz, at 3m



Antenna Horizontally Polarized, 2000-4000 MHz, at 3m

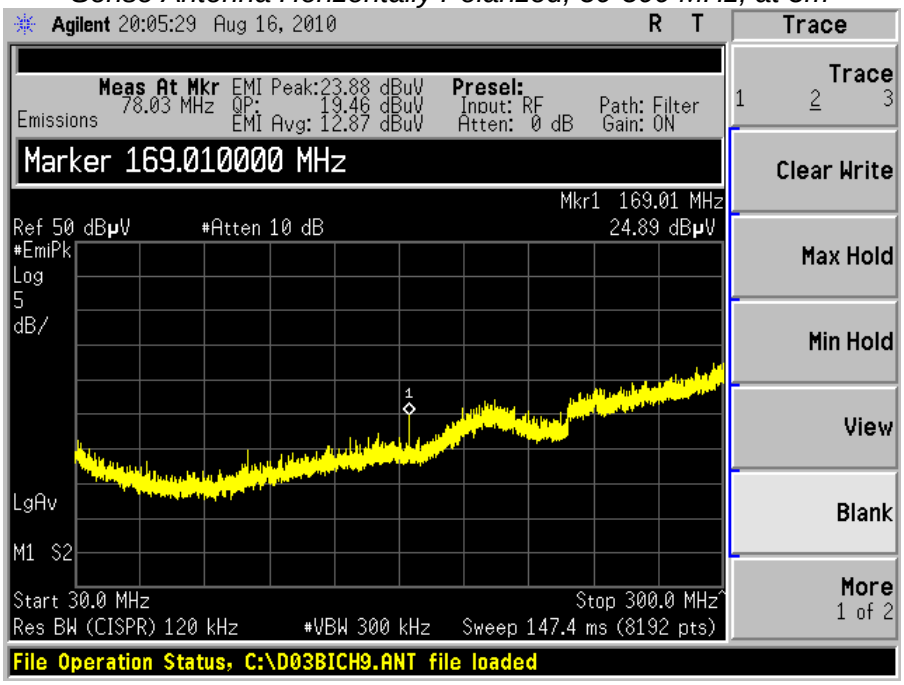


Antenna Horizontally Polarized, 4000-10000 MHz, at 1m

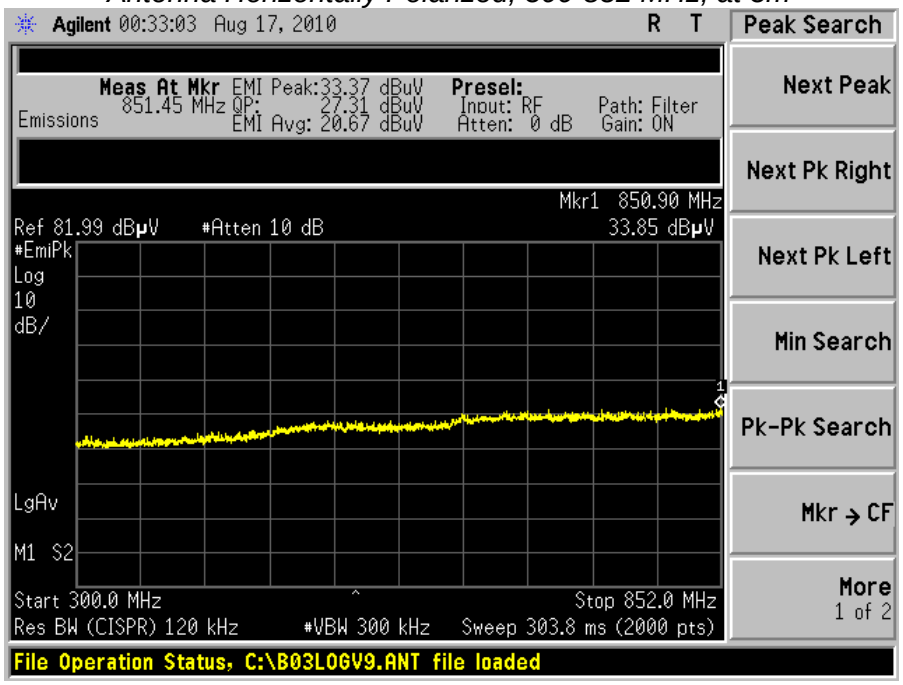


VERTICAL EUT ANTENNA, FLAT EUT POSITION

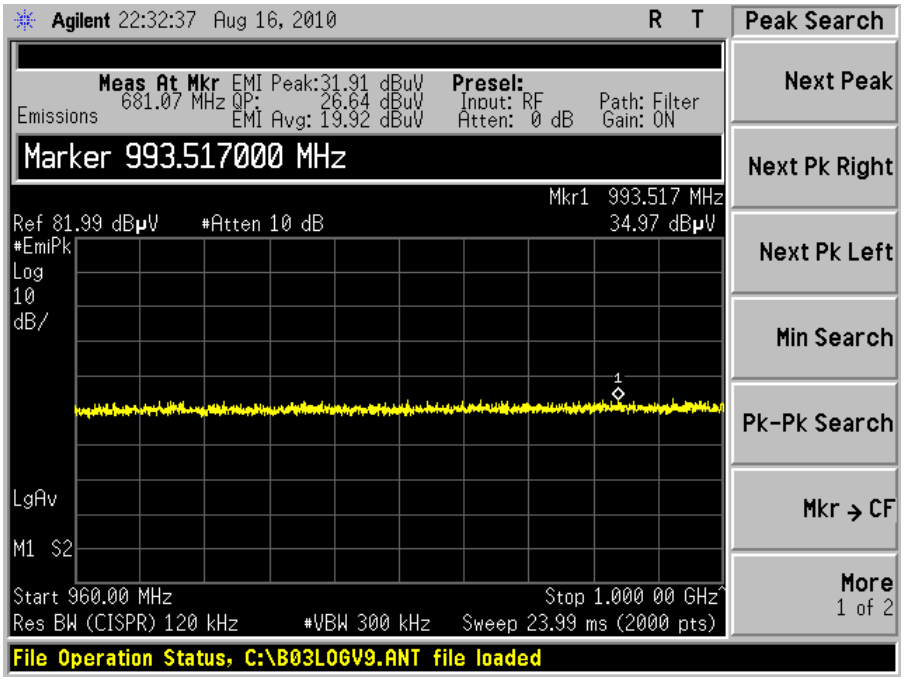
Sense Antenna Horizontally Polarized, 30-300 MHz, at 3m



Antenna Horizontally Polarized, 300-852 MHz, at 3m

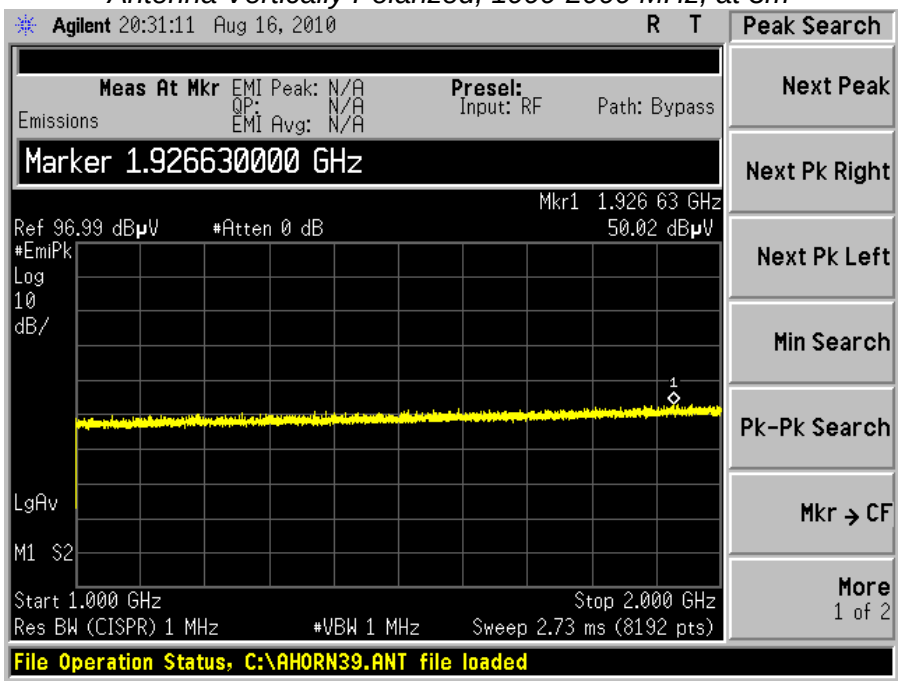


Antenna Horizontally Polarized, 960-1000 MHz, at 3m

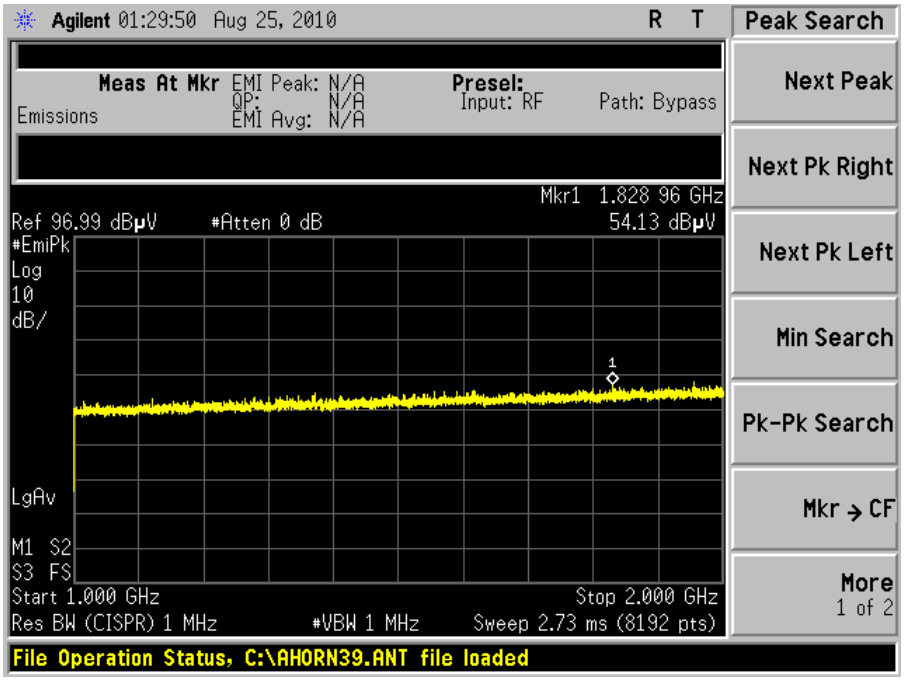


Note: The frequency range 852-902 MHz and 928-960 MHz is in the Band-edge section (Exhibit 8).

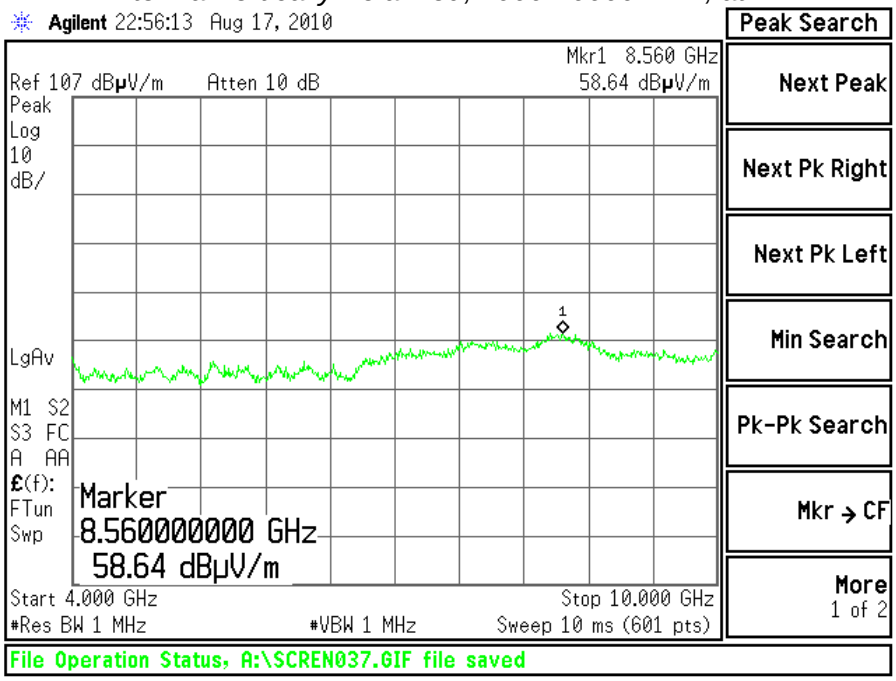
Antenna Vertically Polarized, 1000-2000 MHz, at 3m

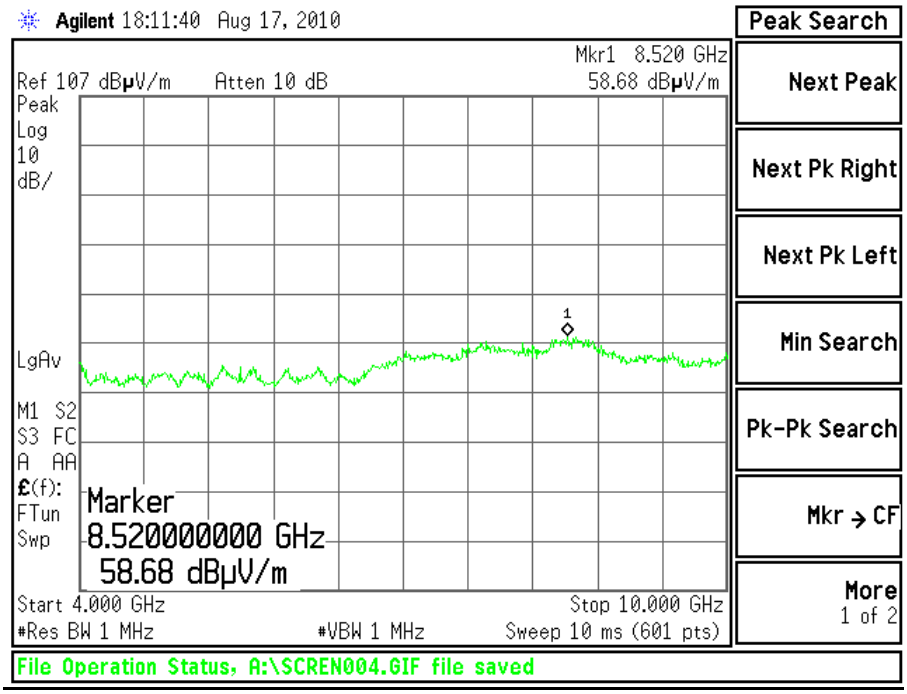


Antenna Vertically Polarized, 2000-4000 MHz, at 3m



Antenna Vertically Polarized, 4000-10000 MHz, at 1m




Agilent 18:11:40 Aug 17, 2010
Peak Search
Mkr1 8.520 GHz
Ref 107 dBµV/m
Atten 10 dB
58.68 dBµV/m
Next Peak
Peak
Log
10
dB/
Next Pk Right
Next Pk Left
1
Min Search
LgAv
M1 S2
S3 FC
A AA
£(f):
FTun
Swp
Pk-Pk Search
Marker
8.520000000 GHz
58.68 dBµV/m
Mkr → CF
More
1 of 2
Start 4.000 GHz
Stop 10.000 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 10 ms (601 pts)
File Operation Status, A:\SCREN004.GIF file saved

5.9 - Receive Mode Testing

Per the requirements of RSS-210 and CFR 47 part 15, the EUT was placed in continuous receive mode and the radiated spurious emissions were measured and compared to the limits stated in RSS-Gen Section 4.10 and CFR 47 15.109.

The test setup, procedure, and equipment utilized were identical to that described in sections 5.1, 5.2, and 5.3 of this document.

Measurement data and screen captures from the receive tests are presented below:

Frequency (MHz)	Ant./EUT Polarity	Height/ Azimuth (m / °)	Measured Peak (dBμV/m)	Measured QP or Average (dBμV/m)[1]	Limit (dBμV/m)	Margin (dB)
299.72	H/F	1.00/0	31.7	26.0	46.0	20.0
992.99	H/F	1.00/0	46.1	40.8	54.0	13.2
3150.00	H/F	1.00/0	50.0	37.8	54.0	16.2
8501.40	H/S	1.00/0	57.5	45.4	63.5	18.1
8550.00	V/S	1.00/0	58.5	45.4	63.5	18.1

Notes:

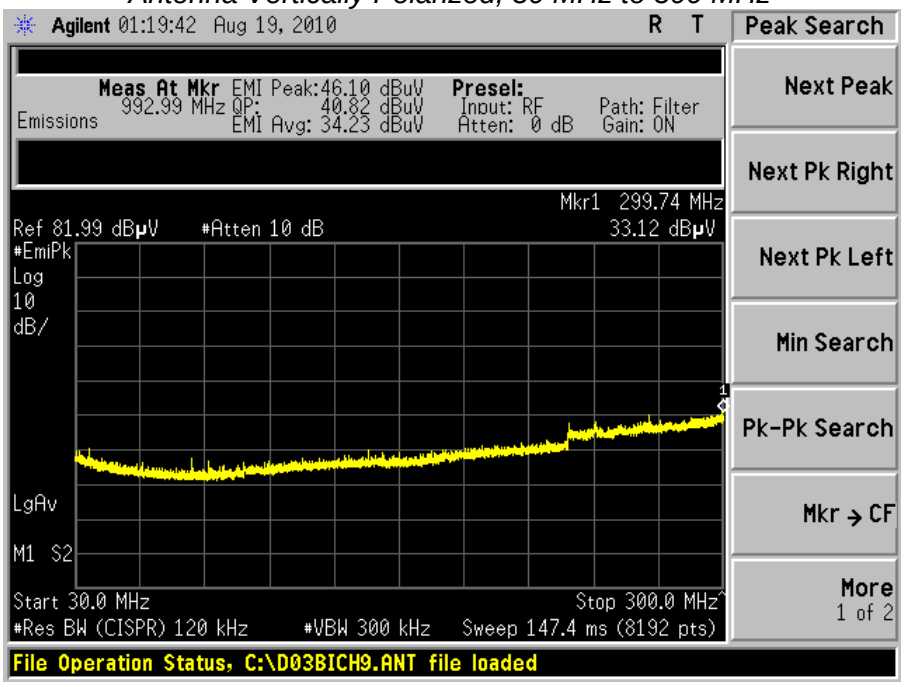
1. Below 1 GHz quasi-peak measurements are reported, above 1 GHz average measurements given
2. A Quasi-Peak Detector was used in measurements below 1 GHz. To ensure the peak emissions did not exceed 20 dB above the limits a peak detector was used. A peak detector with video averaging was used for measurements above 1 GHz.
3. Measurements above 3 GHz were made at 1 meters of separation from the EUT.
4. H: Horizontal, V: Vertical, F: Flat, S: Side.

5.10 - Screen Captures - Radiated Emissions Testing – Receive Mode

These screen captures represent Peak Emissions. For radiated emission measurements, a Quasi-Peak detector function is utilized when measuring frequencies below 1 GHz, and a video averaged Peak detector function is utilized when measuring frequencies above 1 GHz.

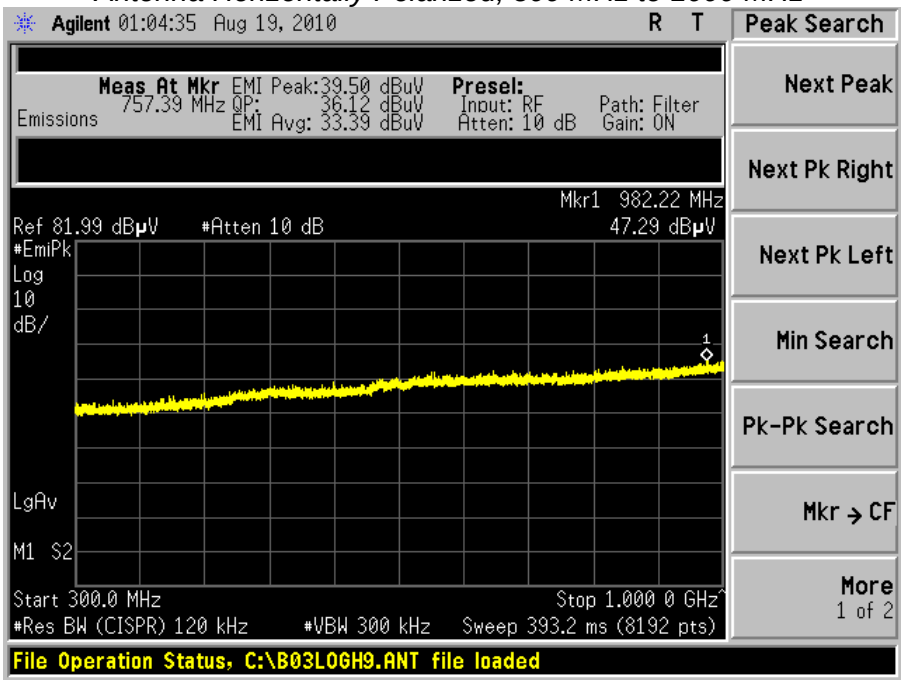
The signature scans shown here are from worst-case emissions, as measured on channels 903 MHz, 914.6 MHz, or 926.4 MHz, with the sense antenna both in vertical and horizontal polarity for worst case presentations. Worst case emissions are shown for antenna A and B, where both exhibited very similar emission characteristics.

Antenna Vertically Polarized, 30 MHz to 300 MHz

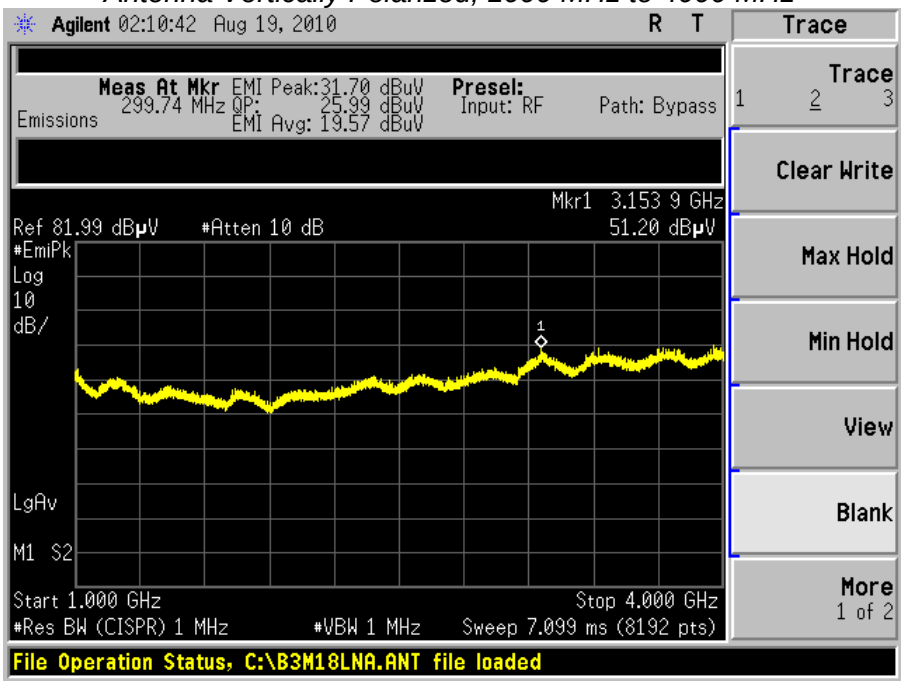


Screen Captures - Radiated Emissions Testing – Receive Mode (continued)

Antenna Horizontally Polarized, 300 MHz to 1000 MHz



Antenna Vertically Polarized, 1000 MHz to 4000 MHz



Antenna Horizontally Polarized, 4000 MHz to 10000MHz

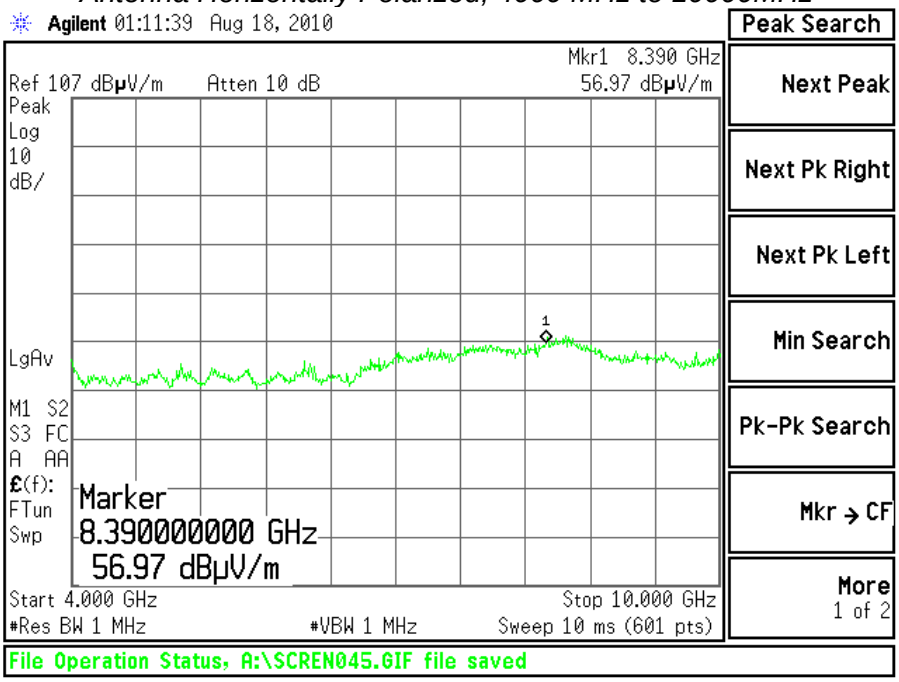


EXHIBIT 6. CONDUCTED EMISSIONS TEST, AC POWER LINE

6.1 - Test Setup

The test area and setup are in accordance with ANSI C63.4-2003 and with Title 47 CFR, FCC Part 15, Industry Canada RSS-210 and RSS GEN. The EUT was placed on a non-conductive wooden table, with a height of 80 cm above the reference ground plane. The EUT's power cable was plugged into a 50Ω (ohm), 50/250 μH Line Impedance Stabilization Network (LISN). The AC power supply of 120V was provided via an appropriate broadband EMI Filter, and then to the LISN line input. Final readings were then taken and recorded. After the EUT was setup and connected to the LISN, the RF Sampling Port of the LISN was connected to a 10 dB Attenuator-Limiter, and then to the EMI Receiver. The EMCO LISN used has the ability to terminate the unused port with a 50Ω (ohm) load when switched to either L1 (line) or L2 (neutral).

6.2 - Test Procedure

The EUT was investigated in continuous modulated transmit mode and continuous receive mode for this portion of the testing. The appropriate frequency range and bandwidths were selected on the EMI Receiver, and measurements were made. The bandwidth used for these measurements is 9 kHz, as specified in CISPR 16-1, Section 1, Table 1, for Quasi-Peak and Average detectors in the frequency range of 150 kHz to 30 MHz. Final readings were then taken and recorded.

An off-the-shelf DC power supply was used during the test to supply the EUT with the appropriate DC voltage.

6.3 - Test Equipment Utilized

A list of the test equipment and accessories utilized for the Conducted Emissions test is provided in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. Calibrations of the LISN and Limiter are traceable to N.I.S.T. All cables are calibrated and checked periodically for conformance. The emissions are measured on the EMI Receiver, which has automatic correction for all factors stored in memory and allows direct readings to be taken.

6.4 - Test Results

The EUT was found to **MEET** the Conducted Emission requirements of FCC CFR 47 Part **15.207** and **15.107**, Conducted Emissions. See the Data Charts and Graphs for more details of the test results. By virtue of meeting the requirements of FCC, the EUT also meets the requirements of IC **RSS 210** and **RSS GEN**.

6.5 - FCC Limits of Conducted Emissions at the AC Mains Ports

Frequency Range (MHz)	Class B Limits (dBµV)		Measuring Bandwidth
	Quasi-Peak	Average	
0.150 -0.50 *	66-56	56-46	RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average
0.5 – 5.0	56	46	
5.0 – 30	60	50	
* The limit decreases linearly with the logarithm of the frequency in this range.			

6.6 – Conducted Emissions Test Data Chart

Frequency Range inspected: 150 KHz to 30 MHz
Test Standard: FCC 15.207 Class B
IC RSS GEN 7.2.2

Manufacturer:	Honeywell					
Date(s) of Test:	August 25, 2010					
Project Engineer:	Peter Feilen					
Test Engineer:	Ryan Urness					
Voltage:	120VAC, Stepped down to 24VAC					
Operation Mode:	Continuous transmit and Continuous receive					
Environmental Conditions in the Lab:	Temperature: 22 ˚C Relative Humidity: 48 %					
Test Location:						Chamber
EUT Placed On:	X	40cm from Vertical Ground Plane				10cm Spacers
	X	80cm above Ground Plane				Other:
Measurements:		Pre-Compliance		Preliminary	X	Final
Detector Used:	X	Peak	X	Quasi-Peak	X	Average

Frequency (MHz)	Line	QP Readling (dBuV)	QP Limit (dBuV)	QP Margin (dB)	Ave Reading (dBuV)	Ave Limit (dBuV)	Ave Margin (dB)
0.15	L1	36.40	66.00	29.60	11.29	56.00	44.71
0.196	L1	27.50	63.77	36.27	7.65	53.77	46.12
0.166	L1	32.09	65.15	33.06	9.13	55.15	46.02
0.153	L2	34.82	65.83	31.01	10.28	55.83	45.55
0.166	L2	31.70	65.15	33.45	9.18	55.15	45.97
0.184	L2	28.96	64.30	35.34	8.08	54.30	46.22

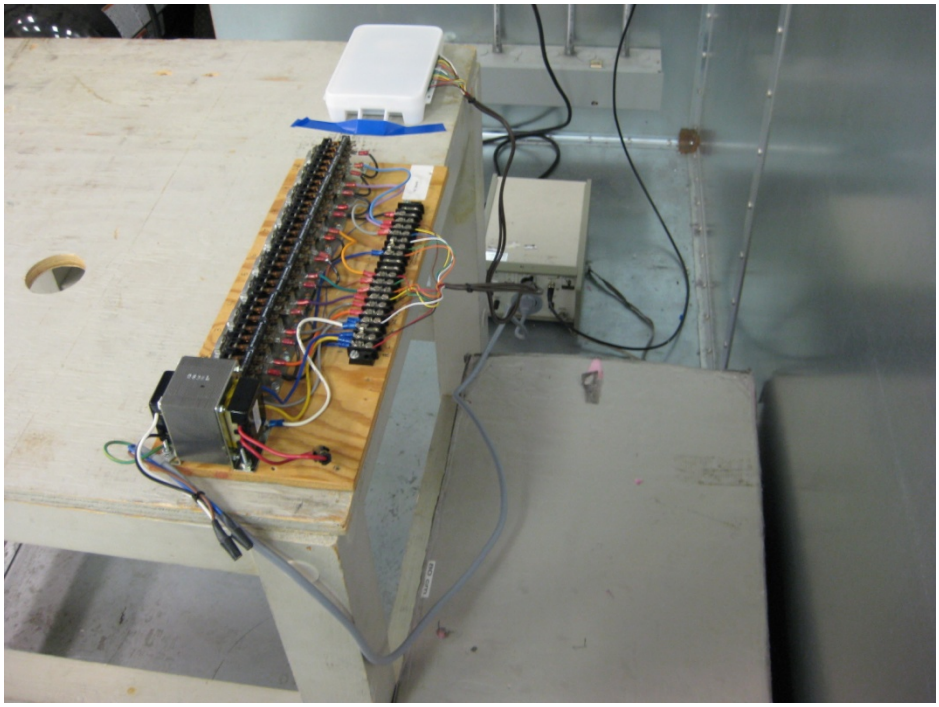
6.6.1 Transmit mode

Notes:
1) The emissions listed are characteristic of the power supply used, and did not change by the EUT.
2) All other emissions were better than 20 dB below the limits.
3) The EUT exhibited similar emissions across the Low and High channels tested.
4) Measured levels and limits are in units of dBuV/m.

6.6.2 Receive mode.

Notes:
1) The emissions listed are characteristic of the power supply used, and did not change by the EUT.
2) All other emissions were better than 20 dB below the limits.
3) The EUT exhibited similar emissions across the Low and High channels tested.
4) Measured levels and limits are in units of dBuV/m.

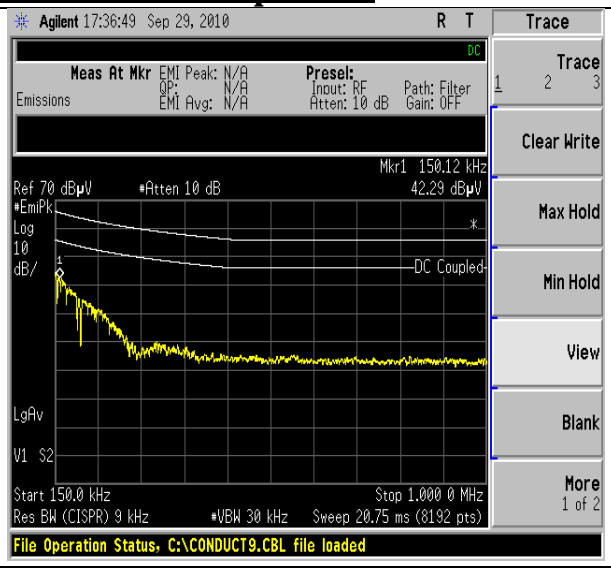
6.7 - Test Setup Photo(s) – Conducted Emissions Test



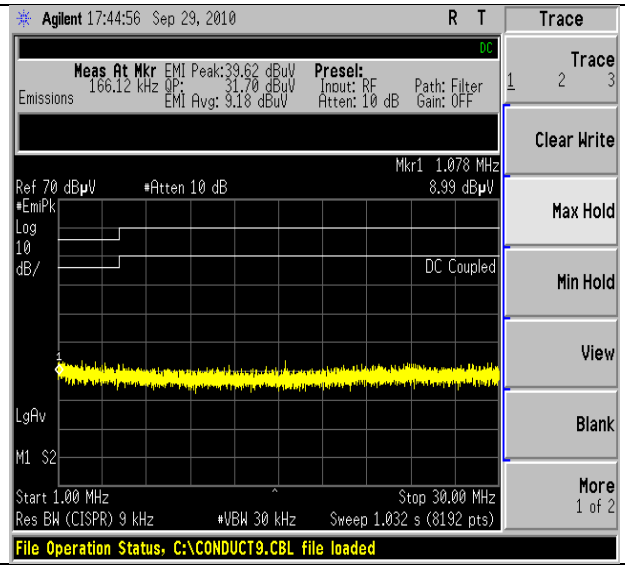
6.8 - Screen Captures – Conducted Emissions Test

These screen captures represent Peak Emissions. For conducted emission measurements, both a Quasi-Peak detector function and an Average detector function are utilized. The emissions must meet both the Quasi-peak limit and the Average limit as described in 47 CFR 15.207 and RSS GEN 7.2.2 (Table 2).
The signature scans shown here are from the middle channel chosen as being a good representative of channels.

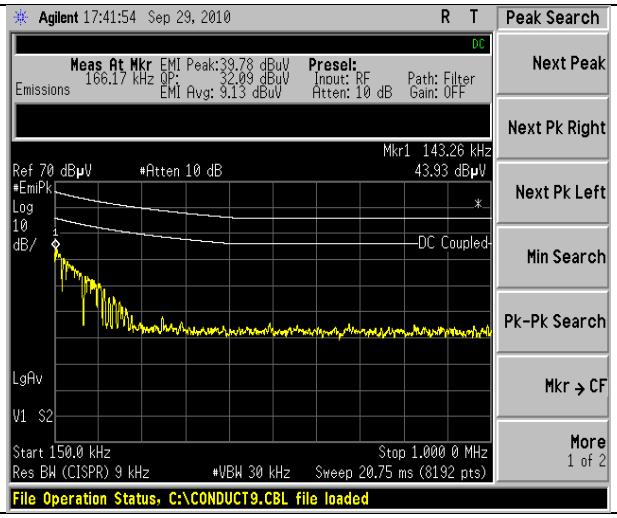
6.8.1. Screen Captures.



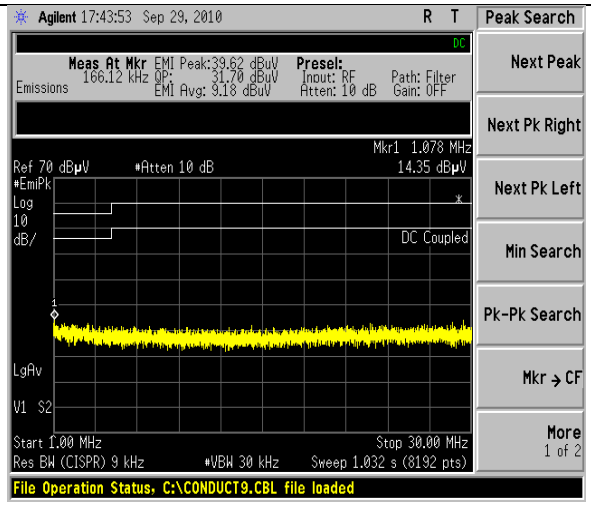
Line 1-150kHz-1MHz



Line 1-1MHz-30MHz



Line 2-150kHz-1MHz



Line 2-1MHz-30MHz

Note: TX and RX modes, across channels demonstrated similar characteristics. Worst case data is presented in this report.

EXHIBIT 7. OCCUPIED BANDWIDTH

7.1 - Limits

For a frequency Hopping system in the 902 to 928 MHz band, the 20 dB bandwidth shall not exceed 500 kHz for FCC CFR 47 15.247 (a)(1)(i) and IC RSS 210 A8.1. (c).

7.2 - Method of Measurements

The transmitter output was connected to the Spectrum Analyzer. The bandwidth of the fundamental frequency was measured with the Spectrum Analyzer using 1 kHz RBW and VBW=3 kHz.

For this portion of the tests, a direct measurement of the transmitted signal was performed at the antenna port of the EUT, via a cable connection to a spectrum analyzer. An attenuator was placed in series with the cable to protect the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings, allowing direct measurements, without the need for any further corrections. A spectrum analyzer was used with the resolution bandwidth set to 1 kHz for this portion of the tests. The EUT was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source. The spectrum analyzer was used in peak-hold mode while measurements were made, as presented in the chart below.

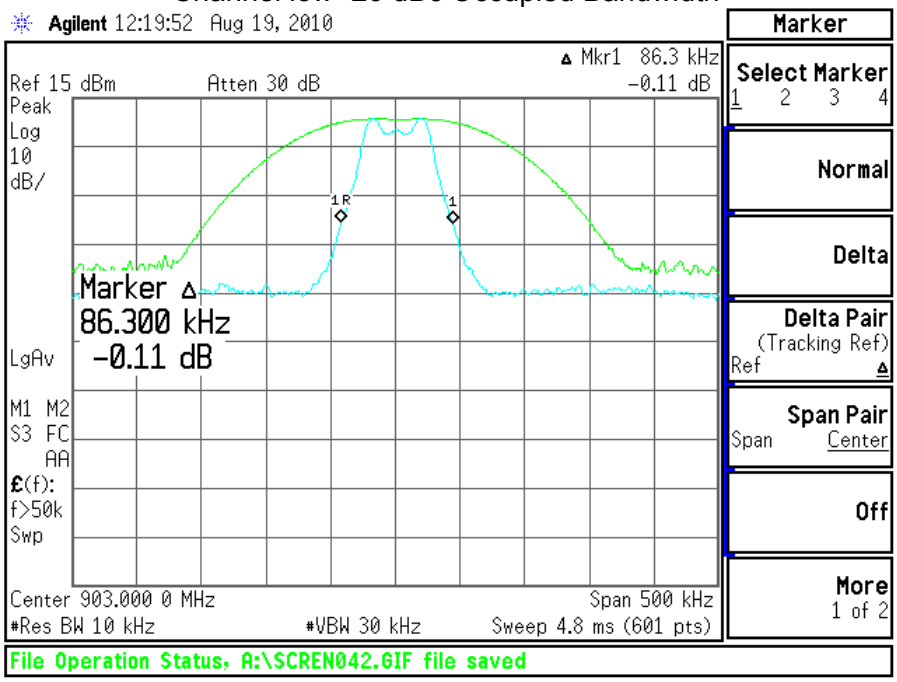
From this data, the closest measurement (20 dB bandwidth) when compared to the specified limit, is 86.5 kHz, which is below the maximum of 500 kHz.

7.3 - Test Data

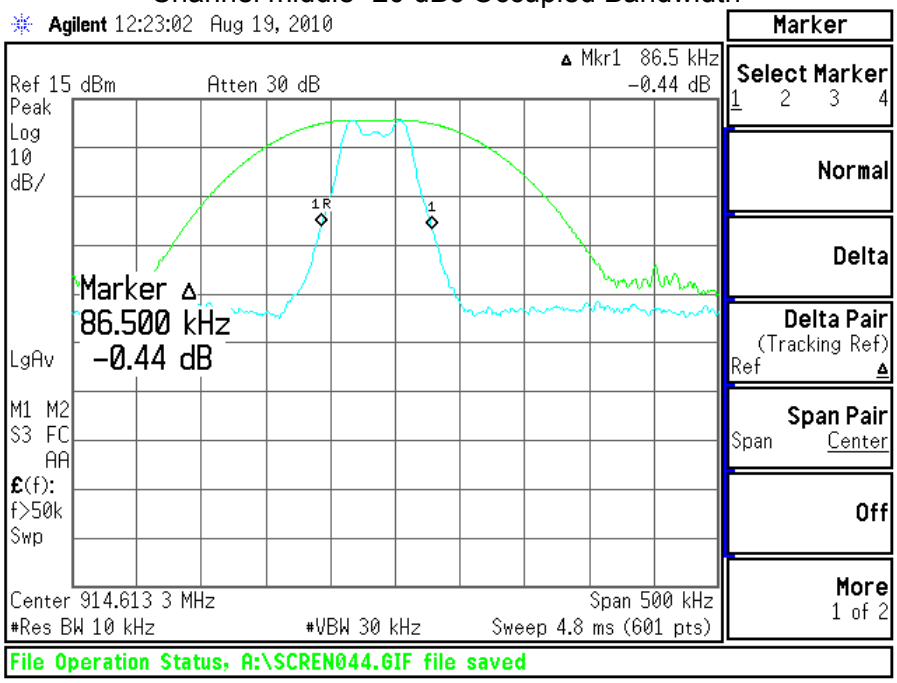
Channel	Center Frequency (MHz)	Measured -20 dBc Occ. BW (kHz)	Maximum -20 dBc Limit (kHz)	Margin (kHz)
Low	903.0	86.3	500	413.7
Middle	914.6	86.5	500	413.5
High	926.4	85.5	500	414.5

7.4 - Screen Captures - Occupied Bandwidth

Channel low -20 dBc Occupied Bandwidth



Channel middle -20 dBc Occupied Bandwidth



Channel high -20 dBc Occupied Bandwidth

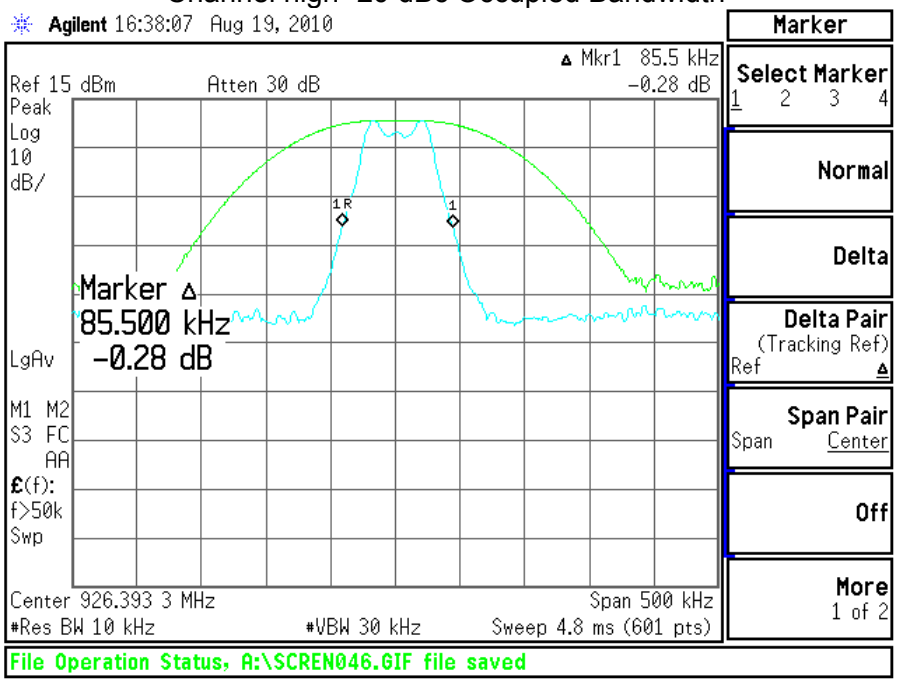


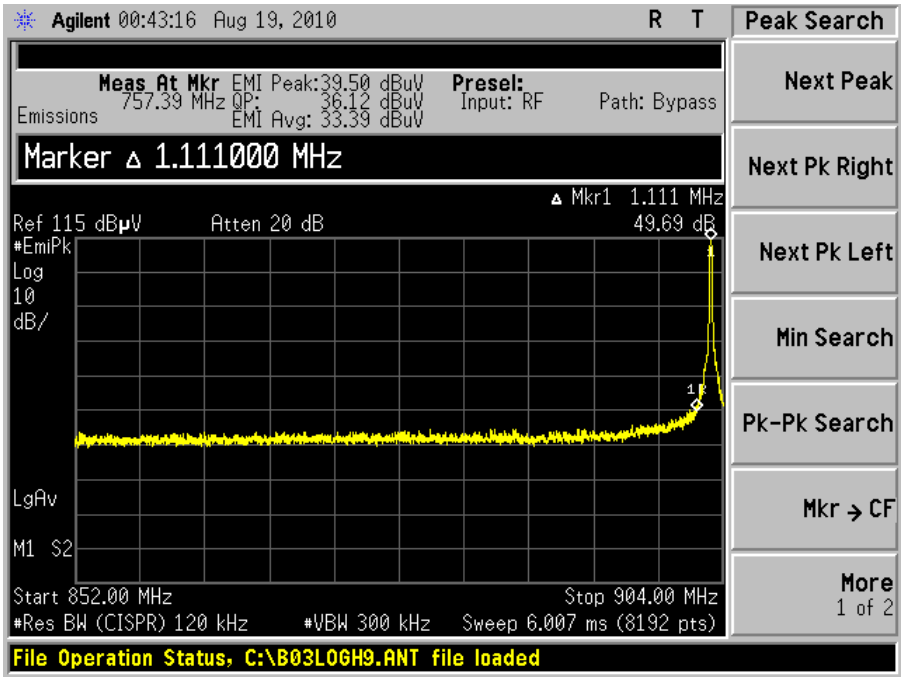
EXHIBIT 8. BAND EDGE MEASUREMENTS

8.1 - Method of Measurements

FCC 15.209(b) and 15.247(d) require a measurement of spurious emission levels to be at least 20 dB lower than the fundamental emission level, in particular at the Band-Edges where the intentional radiator operates. Also, RSS 210 Section 2.2 requires that unwanted emissions meet limits listed in tables 2 and 3 of the same standard and also to the limits in the applicable annex. The following screen captures demonstrate compliance of the intentional radiator at the 902 MHz to 928 MHz Band-Edges. The EUT was operated in continuous transmit mode with continuous modulation, with internally generated data as the modulating source. The EUT was operated at the lowest channel for the investigation of the lower Band-Edge, and at the highest channel for the investigation of the higher Band-Edge.

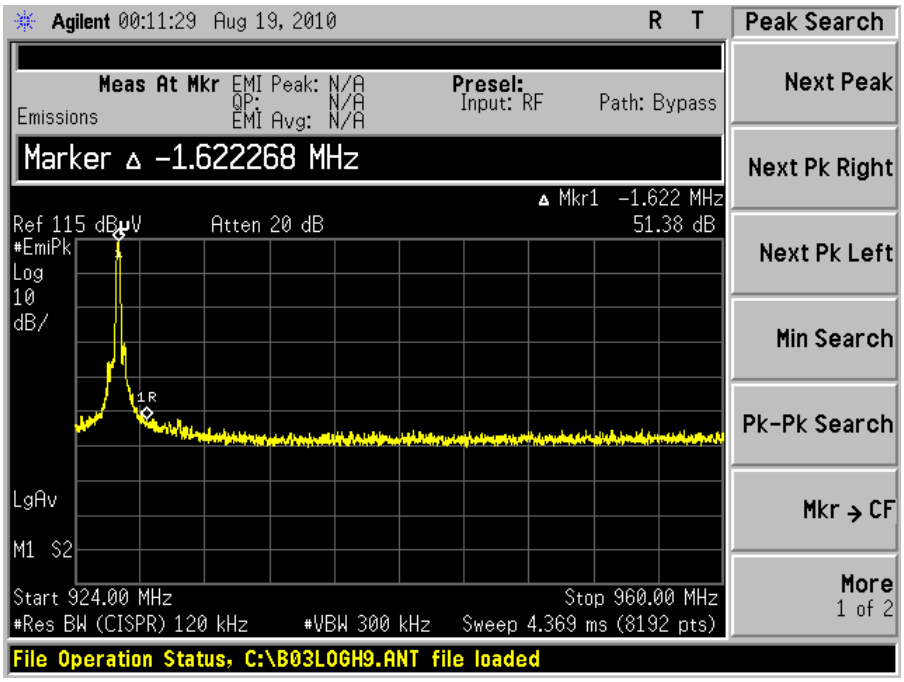
ANTENNA A:

Screen Capture Demonstrating Compliance at the Lower Band-Edge



The Lower Band-Edge limit, in this case, would be 94.3 dBuV/m at 3m, based on -20 dBc of the low channel fundamental.

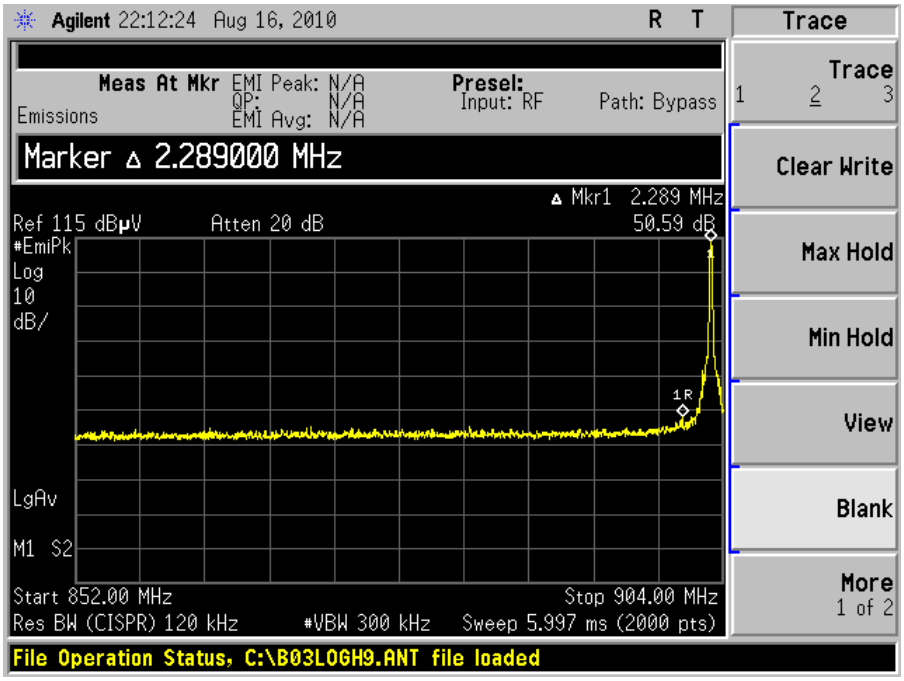
Screen Capture Demonstrating Compliance at the Higher Band-Edge



The Upper Band-Edge limit, in this case, would be 94.0 dBuV/m at 3m, based on -20 dBc from the high channel fundamental

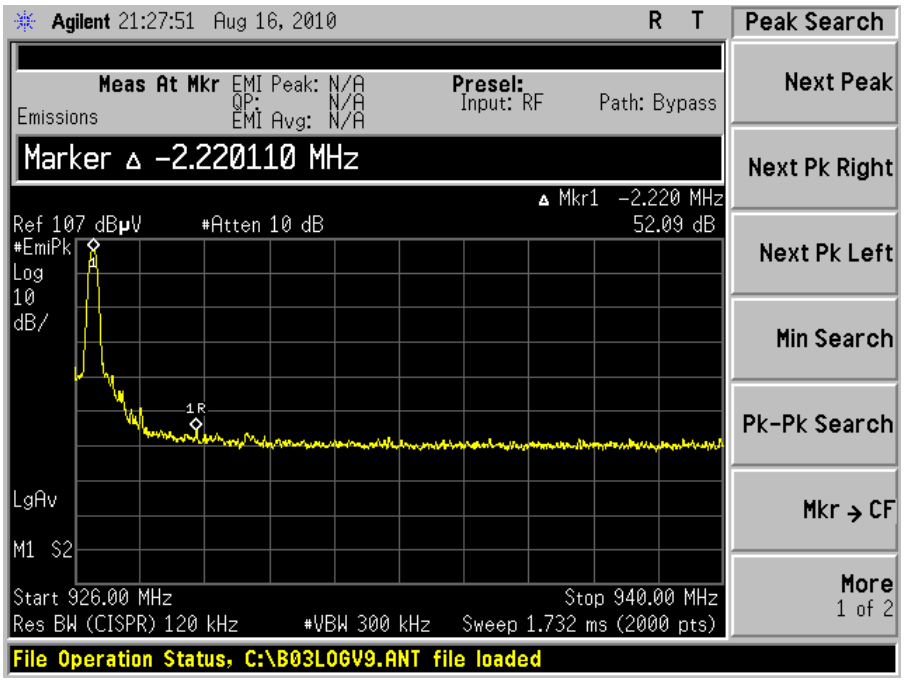
ANTENNA B:

Screen Capture Demonstrating Compliance at the Lower Band-Edge



The Lower Band-Edge limit, in this case, would be 93.7 dBuV/m at 3m, based on -20 dBc of the low channel fundamental.

Screen Capture Demonstrating Compliance at the Higher Band-Edge



The Upper Band-Edge limit, in this case, would be 92.1 dBuV/m at 3m, based on -20 dBc from the high channel fundamental

EXHIBIT 9. POWER OUTPUT (CONDUCTED)

9.1 - Method of Measurements

The conducted RF output power of the EUT was measured at the antenna port using a short RF cable along with an attenuator as protection for the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings, allowing direct measurements without the need for any further corrections. The unit was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source. The spectrum analyzer was used with resolution and video bandwidths set to 100 kHz, and a span of 100 kHz, with measurements from a peak detector presented in the chart below.

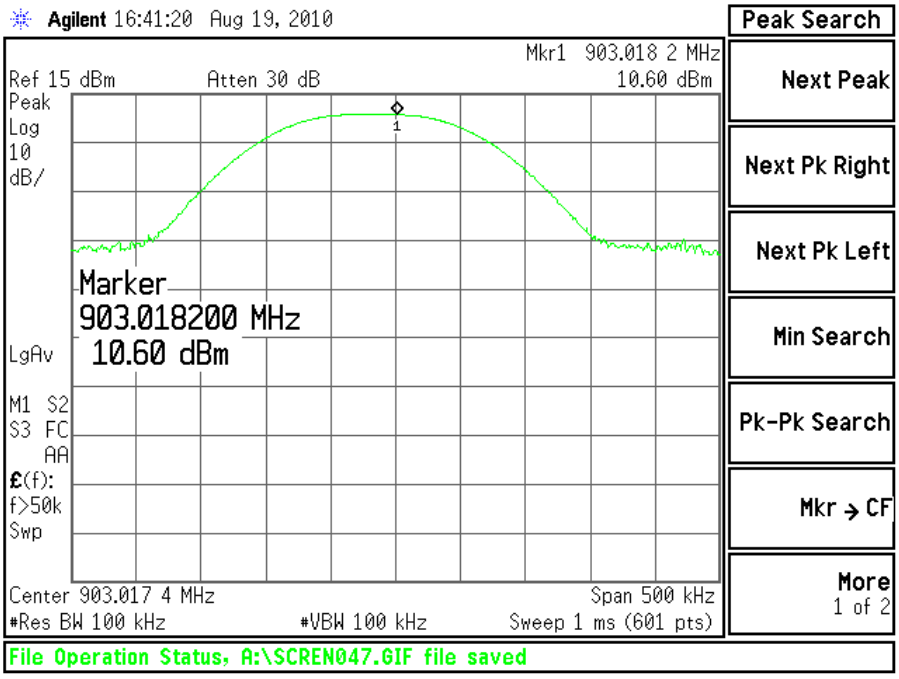
9.2 - Test Data

CENTER FREQ (MHz)	LIMIT (dBm)	MEASURED POWER (dBm)	MARGIN (dB)
903.0	30.0	10.6	19.4
914.6	30.0	10.5	19.5
926.4	30.0	10.4	19.6

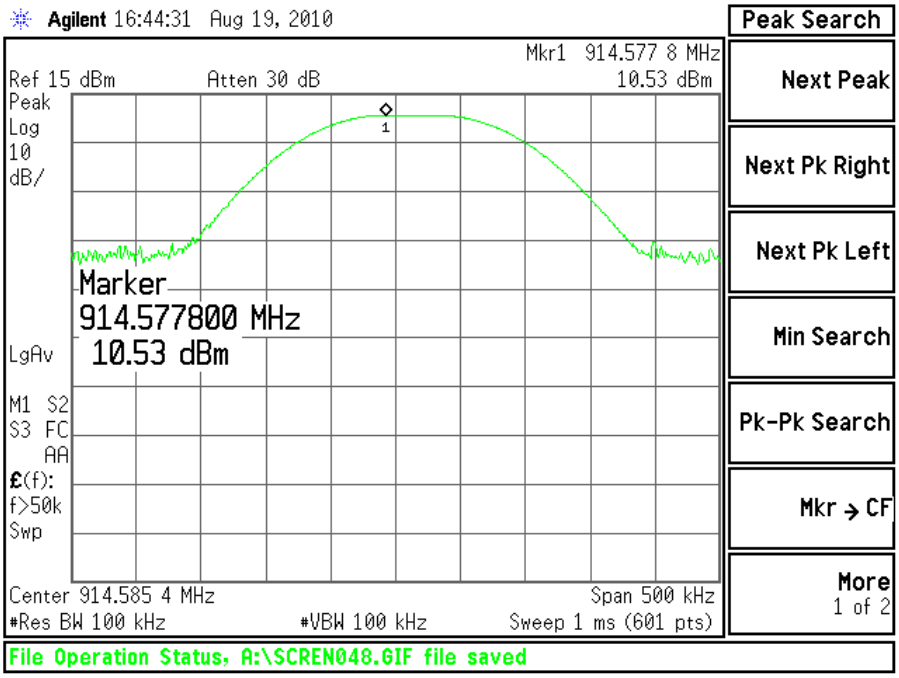
Measured RF Power Output (in Watts): 0.0114 W
Declared RF Power Output (in Watts): 0.0114 W

9.3 - Screen Captures – Power Output (Conducted)

Channel Low



Channel Middle



Channel High

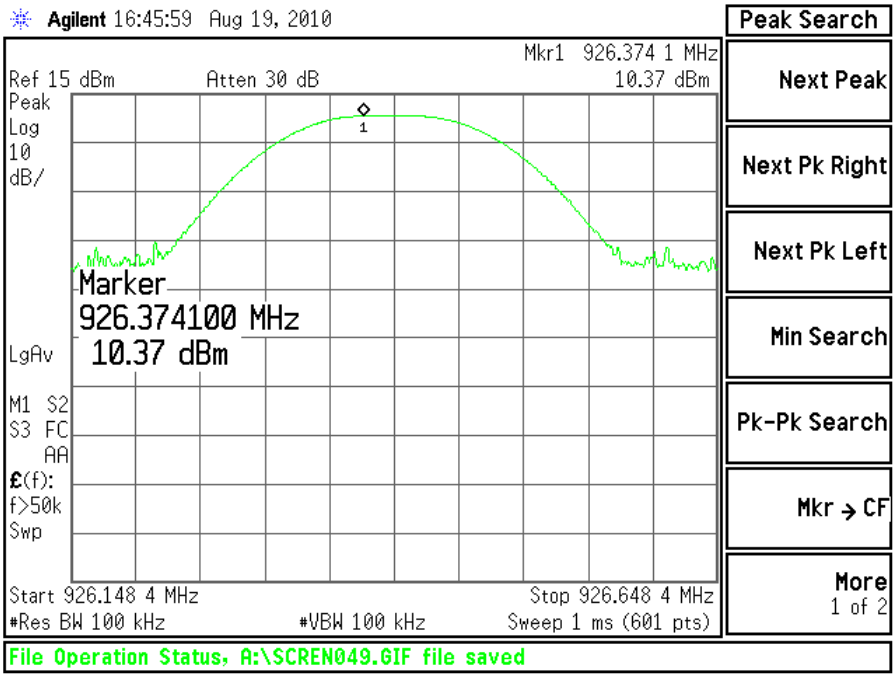


EXHIBIT 10. CONDUCTED SPURIOUS EMISSIONS: 15.247(d)

10.1 - Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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.

10.2 – Conducted Harmonic And Spurious RF Measurements

FCC Part 15.247(d) and IC RSS 210 A8.5 both require a measurement of conducted harmonic and spurious RF emission levels, as reference to the carrier level when measured in a 100 kHz bandwidth. For this test, the spurious and harmonic RF emissions from the EUT were measured at the EUT antenna port using a short RF cable along with an attenuator as protection for the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings, thereby allowing direct readings of the measurements made without the need for any further corrections. A spectrum analyzer was used with the resolution bandwidth set to 100 kHz for this portion of the tests. The unit was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source. The spectrum analyzer was used with measurements from a peak detector presented in the chart below. Screen captures were acquired and any noticeable spurious and harmonic signals were identified and measured.

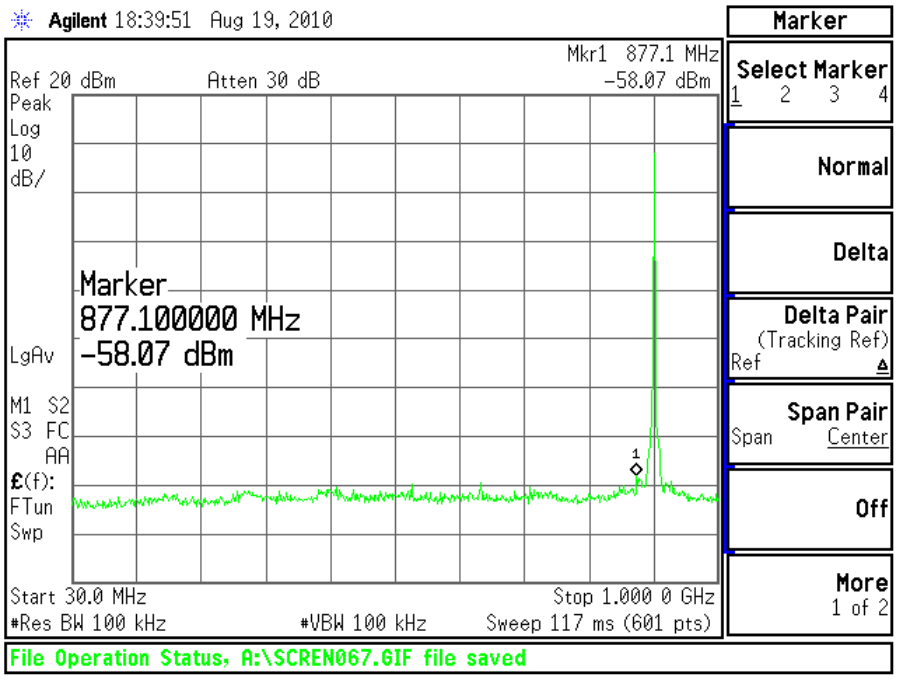
Conducted harmonics:

	Channel Low	Channel Mid	Channel High
Fundamental	10.60	10.53	10.38
2nd Harmonic	-45.22	-44.52	-45.19
3rd Harmonic	-56.36	-54.59	-57.42
4th Harmonic	-78.19	-79.02	-78.15
5th Harmonic	-78.52	-78.79	-77.89
6th Harmonic	-72.94	-70.65	-71.14
7th Harmonic	-68.59	-68.97	-68.45
8th Harmonic	-59.03	-57.81	-55.62
9th Harmonic	-74.33	-75.51	-77.88
10th Harmonic	-74.24	-70.27	-66.16

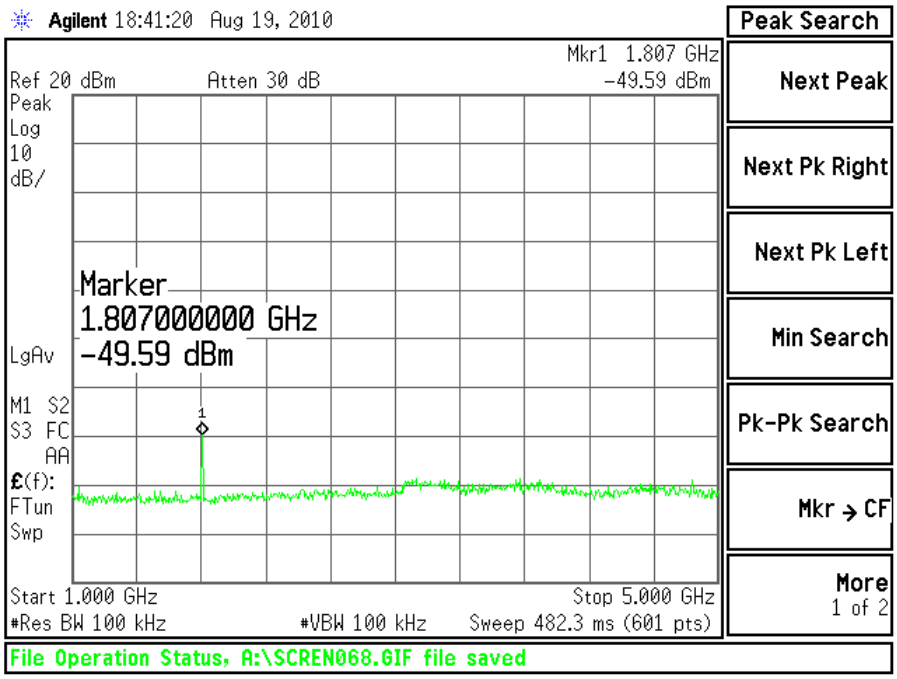
Conducted spurious emissions:

Frequency (MHz)	Host Mode	Level (dBm)
1807.00	All Channels	-49.6

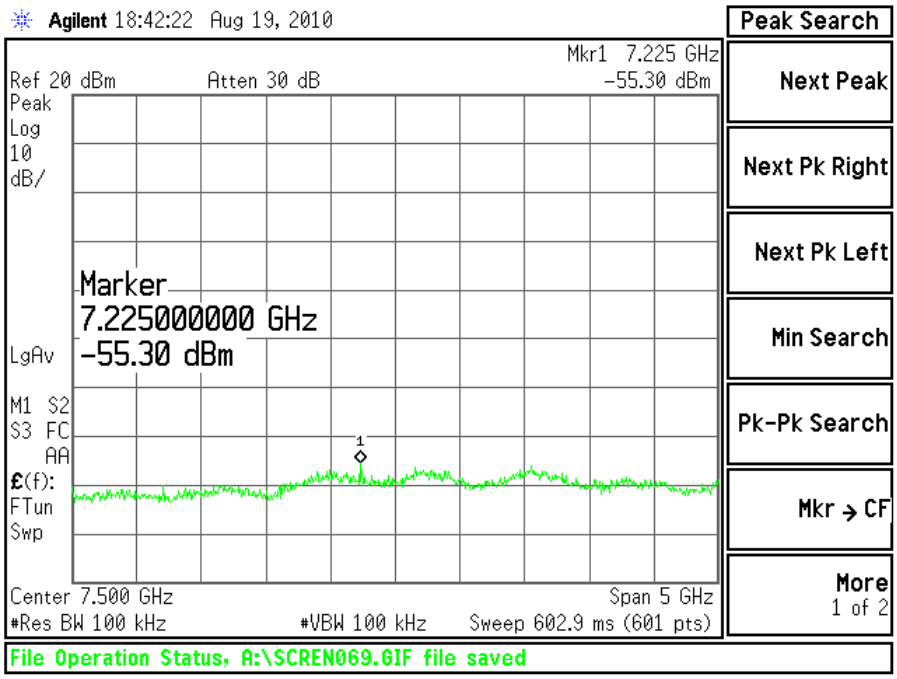
10.3- Screen Captures – Spurious Radiated Emissions



30 MHz up to 1000 MHz



1000 MHz up to 10000 MHz



10000 MHz up to 10000 MHz

EXHIBIT 11. FREQUENCY & POWER STABILITY OVER VOLTAGE VARIATIONS

For measurements of the frequency and power stability, the transmitter was powered by an external bench-type variable power supply. A Spectrum Analyzer was used to measure the frequency at the appropriate frequency markers and also the output power at the antenna port.

20.4 V		24 V		27.6 V	
Power	Frequency	Power	Frequency	Power	Frequency
(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)
10.6	903018400	10.6	902980700	10.6	903020100
10.5	914577300	10.5	914579000	10.5	914577300
10.4	926379900	10.4	926374800	10.4	926374800

The power was then cycled On/Off to observe system response. No unusual response was observed, the emission characterizes were well behaved, and the system returned to the same state of operation as before the power cycle.

Better than 100 ppm in the 902 MHz to 928 MHz band is observed

EXHIBIT 12. CHANNEL PLAN AND SEPARATION

A spectrum analyzer was used with a resolution bandwidth of 43-62 kHz (depending on span) to measure the channel separation of the EUT.

The minimum and maximum channel-separations measured for this device are 403.0 kHz and 410.0 kHz respectively. The maximum occupied bandwidth of the device, as reported in the previous section is 86.5 kHz.

The minimum channel separation limit as stated in FCC CFR 47 15.247 and IC RSS210 is 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

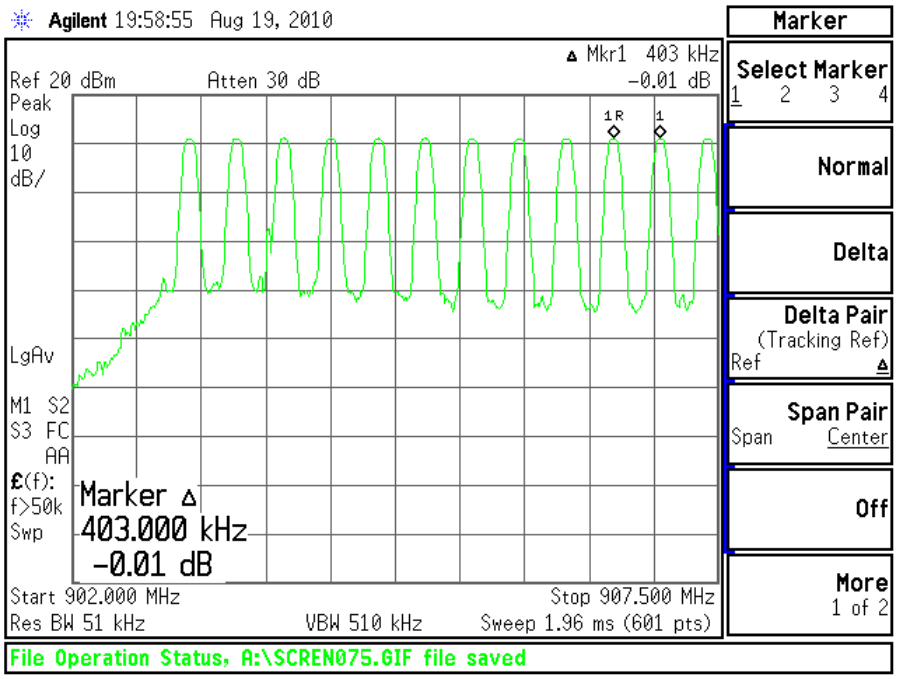
The minimum number of channels limit as stated in FCC CFR 47 15.247 and IC RSS210 is 50 channels for channel bandwidth less than 250 kHz and 25 channels for channel bandwidth greater than 250 kHz.

The following plots describe this spacing, and also establish the channel separation and plan.

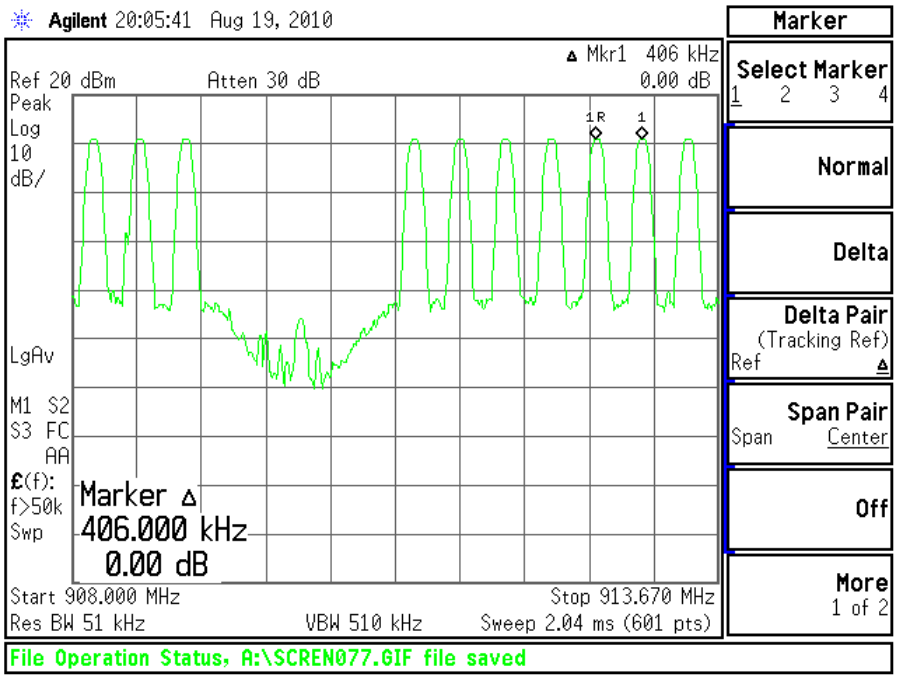
Frequency Span (MHz)	Number of Channels Shown	Minimum Separation (kHz)
902.00-907.50	12	394.00
908.00-913.67	11	397.00
913.70-920.00	12	399.00
919.00-924.00	8	392.00
923.50-928.00	7	

Total number of channels = 50

12.1 - Screen Captures – Channel Separation

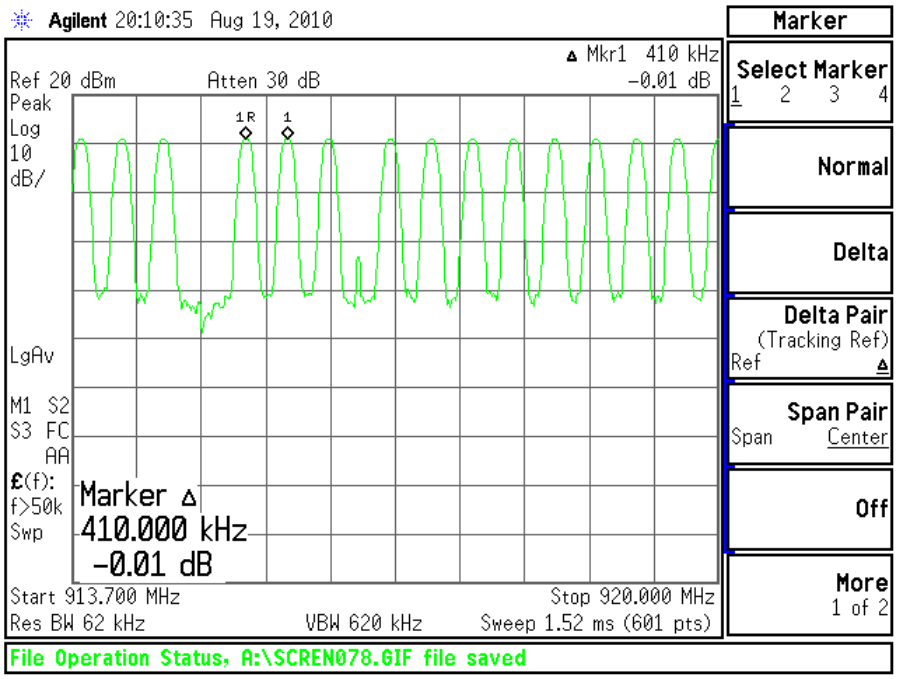


Channels 01 through 12

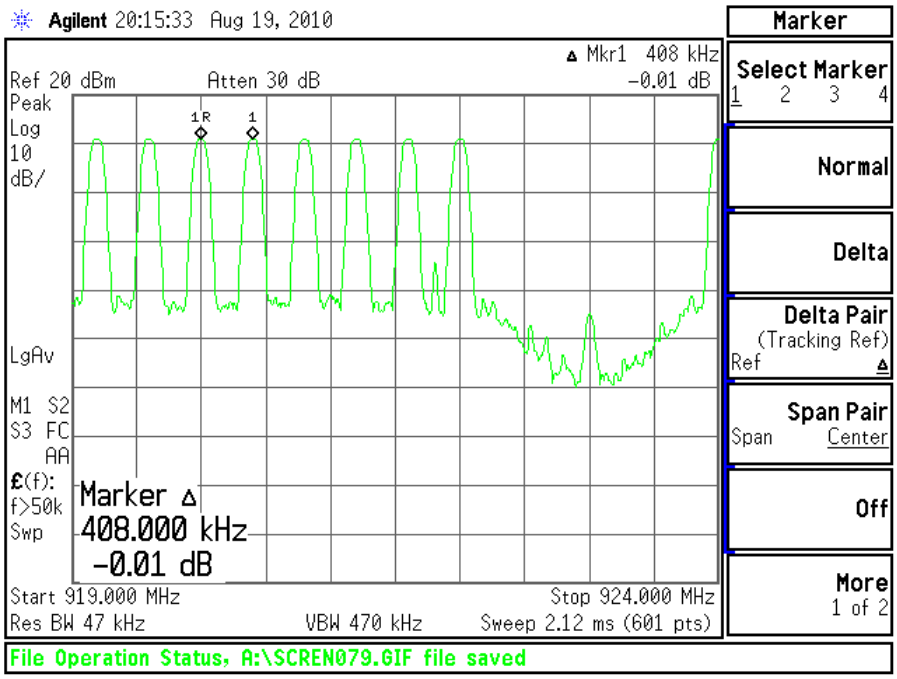


Channels 13 through 22

Screen Captures – Channel Separation *(continued)*

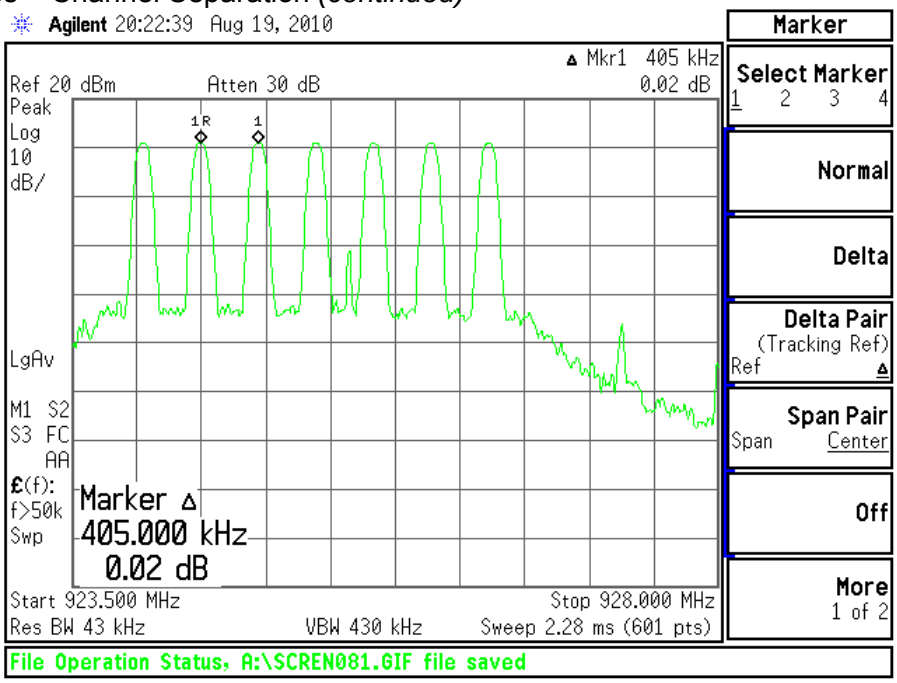


Channels 23 through 36



Channels 36 through 44
(one channel overlap)

Screen Captures – Channel Separation *(continued)*



Channels 43 through 51

EXHIBIT 13. CHANNEL OCCUPANCY

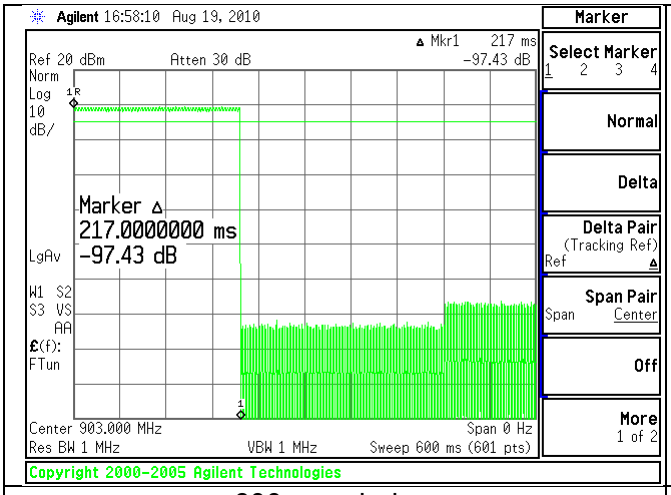
Part 15.247(a)(1) requires a channel occupancy, for this device, of no more than 400 milliseconds in a 20 second window. The channel occupancy for this EUT was measured using a spectrum analyzer, set to zero-span at the frequency of interest. With the analyzer in peak-hold mode, the transmission lengths can be measured by adjusting the sweep rate of the analyzer. A suitable sweep rate was used to measure the channel occupancy at the low, mid and high channels.

The longest time any transmission will occur on a single channel is 219.0 milliseconds. In a 20 second window, each channel has 1 transmission cycle. The maximum occupancy in a 20 second window is calculated by multiplying 1 transmission cycle by 219.0 milliseconds transmission duration per cycle, to arrive at 219.0 milliseconds total occupancy.

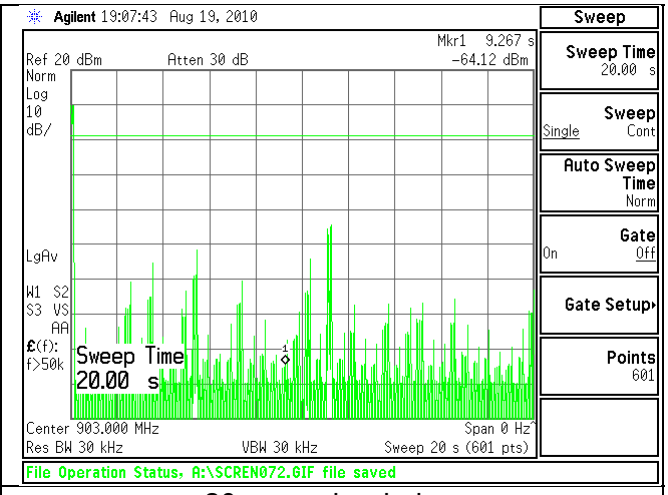
Channel	Frequency (MHz)	Total Occupancy in 20 seconds (ms)	Occupancy in 600 ms window (ms)
Low	903.0	217	217
Middle	914.6	219	219
High	926.4	219	219

Plots of Channel Occupancy

Low Channel Occupancy

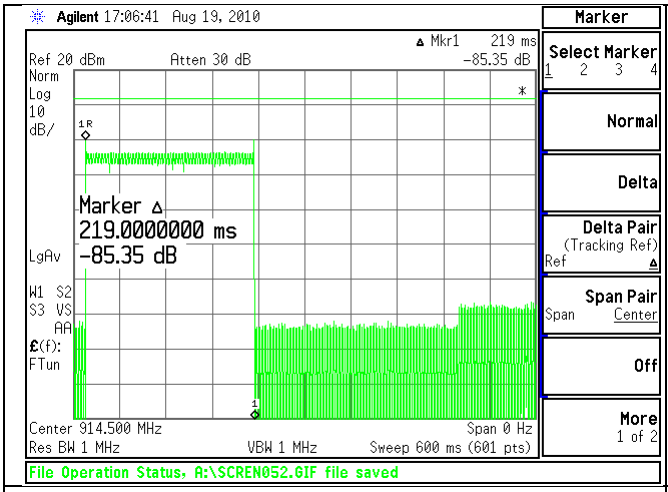


600 ms window

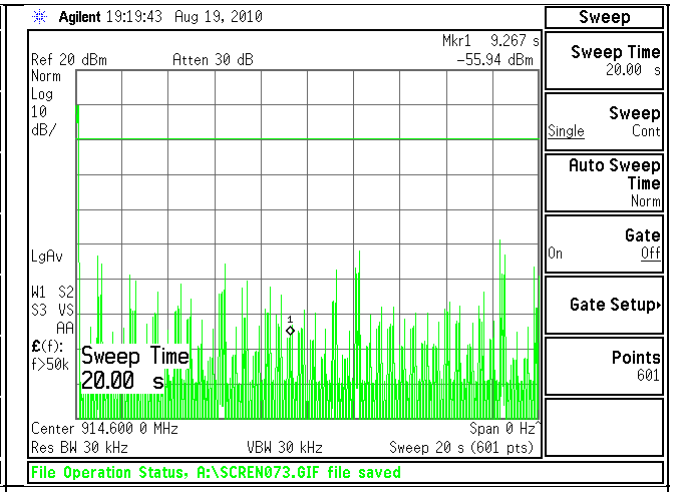


20 seconds window

Middle Channel Occupancy

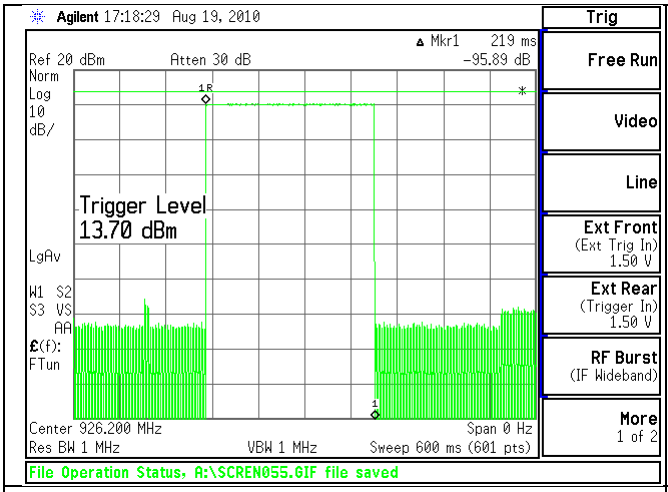


600 ms window

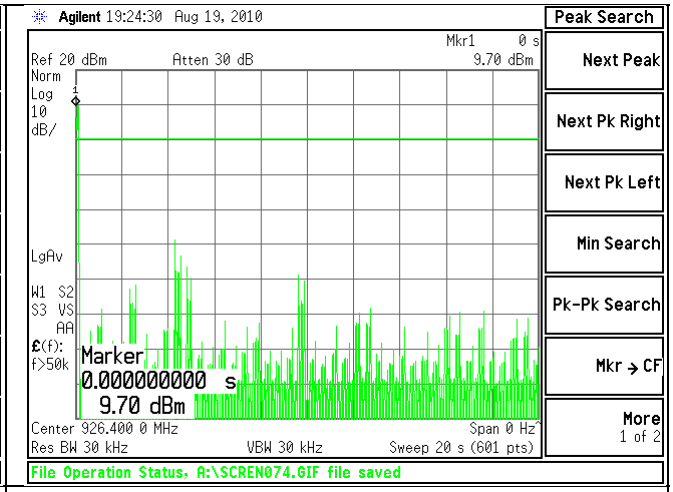


20 seconds window

Channel High Occupancy



600 ms window



20 seconds window

EXHIBIT 14. EQUAL CHANNEL USAGE AND PSEUDORANDOM HOPPING SEQUENCE.

The 50 channels generated by a pseudo random number generator are arrayed in a table which the system uses to determine the next hopping channel. The psuedo-random channel table is incorporated as a constant table of values used by the transmitter software running on board to generate the frequency.

The hop set frequency index sequence for this test is: 17, 42, 23, 48, 46, 21, 7, 32, 49, 24, 40, 15, 18, 43, 25, 0, 22, 47, 45, 20, 6, 31, 4, 29, 33, 8, 2, 27, 44, 19, 5, 30, 16, 41, 39, 14, 3, 28, 1, 26, 12, 37, 36, 11, 38, 13, 9, 34, 35, 10 and repeat. This is the hop set for Device ID 0xfff0. Device ID's 0xfff0 through 0xfffc are reserved for factory testing.

Above is a sample of the pseudo-random channel table.

Note: The information in this section is provided by the manufacturer.

EXHIBIT 15. MPE CALCULATIONS

The following MPE calculations are based on the Honeywell PCB antennas, with a measured conducted RF power of 8.71 dBm max. as presented to the antenna.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	10.60	(dBm)
Maximum peak output power at antenna input terminal:	11.482	(mW)
Antenna gain(typical):	8.71	(dBi)
Maximum antenna gain:	8.710	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	903	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm^2)
Power density at prediction frequency:	0.019895	(mW/cm^2)
Maximum allowable antenna gain:	26.4	(dBi)
Margin of Compliance at 20 cm =	17.0	dB

APPENDIX A – Test Equipment List

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 18-Aug-2010 Type Test : Channel Occupancy Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960073	Spectrum Analyzer	Agilent	E4446A	US45300564	9/17/2009	9/17/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 18-Aug-2010 Type Test : Channel Plan & Separation Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960073	Spectrum Analyzer	Agilent	E4446A	US45300564	9/17/2009	9/17/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 16-Aug-2010 Type Test : Conducted Power Output Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960073	Spectrum Analyzer	Agilent	E4446A	US45300564	9/17/2009	9/17/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 16-Aug-2010 Type Test : Occupied Bandwidth (20dB) Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960073	Spectrum Analyzer	Agilent	E4446A	US45300564	9/17/2009	9/17/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 5-Aug-2010 Type Test : Radiated Emissions (109) Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960157	3Hz-13.2GHz Spectrum Analyzer	Agilent	E4445A	MY48250225	3/17/2009	3/17/2010	Active Calibration
2	EE 960158	RF Preselecter	Agilent	N9039A	MY46520110	7/2/2009	7/2/2010	Active Calibration
3	AA 960150	Bicon Antenna	ETS	3110B	0003-3346	11/3/2009	11/3/2010	Active Calibration
4	AA 960078	Log Periodic Antenna	EMCO	93146	9701-4855	10/16/2009	10/16/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 24-Aug-2010 Type Test : Band-Edge Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960157	3Hz-13.2GHz Spectrum Analyzer	Agilent	E4445A	MY48250225	3/17/2009	3/17/2010	Active Calibration
2	EE 960158	RF Preselecter	Agilent	N9039A	MY46520110	7/2/2009	7/2/2010	Active Calibration
3	AA 960150	Bicon Antenna	ETS	3110B	0003-3346	11/3/2009	11/3/2010	Active Calibration
4	AA 960078	Log Periodic Antenna	EMCO	93146	9701-4855	10/16/2009	10/16/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 9-Aug-2010 Type Test : Radiated Emissions Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960157	3Hz-13.2GHz Spectrum Analyzer	Agilent	E4445A	MY48250225	3/17/2009	3/17/2010	Active Calibration
2	EE 960158	RF Preselecter	Agilent	N9039A	MY46520110	7/2/2009	7/2/2010	Active Calibration
3	AA 960150	Bicon Antenna	ETS	3110B	0003-3346	11/3/2009	11/3/2010	Active Calibration
4	AA 960078	Log Periodic Antenna	EMCO	93146	9701-4855	10/16/2009	10/16/2010	Active Calibration
5	AA 960007	Double Ridge Horn Antenna	EMCO	3115	9311-4138	11/10/2009	11/10/2010	Active Calibration

LS RESEARCH LLC
Wireless Product Development
Equipment Calibration

Date : 16-Aug-2010 Type Test : Conducted Emissions (107) Job # : C-967

Prepared By: Peter Customer : Honeywell Quote #: 310229

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960013	EMI Receiver	HP	8546A System	3617A00320;3448A	9/17/2009	9/17/2010	Active Calibration
2	AA 960008	LISN	EMCO	3816/2NM	9701-1057	12/15/2009	12/15/2010	Active Calibration
3	AA 960072	Transient Limiter	HP	11947A	3107A01708	9/15/2009	9/15/2010	Active Calibration

APPENDIX B – Test Standards: CURRENT PUBLICATION DATES RADIO

STANDARD #	DATE	Am. 1	Am. 2
ANSI C63.4	2009		
ANSI C63.10	2009		
CISPR 11	2009-05	2009-12 P	
CISPR 12	2007-05		
CISPR 14-1	2005-11	2008-11	
CISPR 14-2	2001-11	2001-11	2008-05
CISPR 16-1-1 Note 1	2010-01		
CISPR 16-1-2 Note 1	2003	2004-04	2006-07
CISPR 22	2008-09		
CISPR 24	1997-09	2001-07	2002-10
EN 55011	2009		
EN 55014-1	2006		
EN 55014-2	1997		
EN 55022	2006	2007	
EN 60601-1-2	2007-03		
EN 61000-3-2	2006-05		
EN 61000-3-3	2008-12		
EN 61000-4-2	2009-05		
EN 61000-4-3	2006-07	2008-05	
EN 61000-4-4	2004		
EN 61000-4-5	2006-12		
EN 61000-4-6	2009-05		
EN 61000-4-8	1994	2001	
EN 61000-4-11	2004-10		
EN 61000-6-1	2007-02		
EN 61000-6-2	2005-12		
EN 61000-6-3	2007-02		
EN 61000-6-4	2007-02		
FCC 47 CFR, Parts 0-15, 18, 90, 95	2009		
FCC Public Notice DA 00-1407	2000		
FCC ET Docket # 99-231	2002		
FCC Procedures	2007		
ICES 001	2006-06		
ICES 002	2009-08		
ICES 003	2004-02		
IEC 60601-1-2 Note 1	2007-03		
IEC 61000-3-2	2005-11	2008-03	2009-02
IEC 61000-3-3	2008-06		
IEC 61000-4-2	2008-12		
IEC 61000-4-3	2008-04	incl in 2008-04	2009-12 FD

STANDARD #	DATE	Am. 1	Am. 2
IEC 61000-4-4	2004-07	2010-10	
IEC 61000-4-5	2005-11		
IEC 61000-4-6	2008-10		
IEC 61000-4-8	2009-09		
IEC 61000-4-11	2004-03		
IEC 61000-6-1	2005-03		
IEC 61326-1	2006-06		
ISO 14982	1998-07		
MIL Std. 461E	1999-08		
RSS GEN	2007-06		
RSS 119	2007-06		
RSS 123	1999-11		
RSS 125	2000-03		
RSS 131	2003-07		
RSS 136	2002-10		
RSS 137	2009-02		
RSS 210	2007-06		
RSS 213	2005-12		
RSS 243	2010-02		
RSS 310	2007-06		

Note 1: Test not on LSR Scope of Accreditation.

APPENDIX C - Uncertainty Statement

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of k=2.

Table of Expanded Uncertainty Values, (K=2) for Specified Measurements

Measurement Type	Particular Configuration	Uncertainty Values
Radiated Emissions	3 – Meter chamber, Biconical Antenna	4.24 dB
Radiated Emissions	3-Meter Chamber, Log Periodic Antenna	4.8 dB
Radiated Emissions	10-Meter OATS, Biconical Antenna	4.18 dB
Radiated Emissions	10-Meter OATS, Log Periodic Antenna	3.92 dB
Conducted Emissions	Shielded Room/EMCO LISN	1.60 dB
Radiated Immunity	3 Volts/Meter in 3-Meter Chamber	1.128 Volts/Meter
Conducted Immunity	3 Volts level	1.0 V