Excellence in Compliance Testing

Certification Test Report

FCC ID: 2AB8BARX900
IC: 11944A-ARX900

FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210

ACS Report Number: 15-0031.W06.1A

Manufacturer: AirNetix, LLC
Model: ARX-900

Test Begin Date: January 30, 2015
Test End Date: February 19, 2015

Report Issue Date: March 10, 2015

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Reviewed by:
Kirby Munroe
Director, Wireless Certifications
ACS, Inc.

This report contains 23 pages

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Industry Canada's Radio Standards Specification RSS-210 for Certification.

1.2 Product Description

The ARX-900 is an AiRocks Wireless Audio Repeater and is a component of the AiRocks Pro digital wireless audio system designed to provide significantly extended coverage area, ultra-reliable audio distribution for pro-audio sound reinforcement applications. The ARX-900 is used to transport audio from a single source to multiple powered speakers within its range. The ARX-900 will typically be deployed in indoor and outdoor music venues, sports arenas, or other areas where the wide area of audio distribution is required.

Technical Information:

Detail	Description
Frequency Range	906 – 924 MHz
Number of Channels	10
Modulation Format	GFSK
Data Rate(s)	1MB/s
Operating Voltage	120 VAC / 60Hz
Number of Inputs/Outputs	2 (Port 1 - TX/RX, Port 2 RX)
Antenna Type / Gain	Dipole / 2dBi Yagi / 14dBi

Manufacturer Information:
AirNetix, LLC
2218 Edgartown Lane
Smyrna, GA 30080

EUT Serial Numbers: 271400141

Test Sample Condition: The test samples were provided in good working order with no visible defects.

1.3 Test Methodology and Considerations

For radiated emissions the EUT was tested in an orientation and configuration typical of final installation. The EUT is only capable of transmitting from antenna port 1. Antenna port 2 is used for RX diversity with the dipole antennas and terminated when the yagi antenna is used on port 1.

For power-line conducted emissions the EUT was tested in three different configurations for all different modes of operation: The ARX-900 configuration with AC power provided directly to the ARX-900. The ARX-900 with Breakout Box configuration was tested on the breakout box with the ARX-900 getting power over the Ethernet cable. The ARX-900 with Breakout Box configuration was tested on the PC because the breakout box can be used as a computer peripheral when connected to a computer over USB.

EUT power settings during testing: Tx Power = 20, FEM Tx Gain Cal = 29.

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions
5015 B.U. Bowman Drive
Buford, GA 30518
Phone: (770) 831-8048
Fax: (770) 831-8598

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 200612-0. Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

The Semi-Anechoic Chamber Test Site, Open Area Test Site (OATS) and Conducted Emissions Site have been fully described, submitted to, and accepted by the FCC, Industry Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

FCC Registration Number: 511277
Industry Canada Lab Code: IC 4175A
VCCI Member Number: 1831

- VCCI OATS Registration Number R-1526
- VCCI Conducted Emissions Site Registration Number: C-1608

2.3 Radiated Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The Semi-Anechoic Chamber Test Site consists of a 20' x 30' x 18' shielded enclosure. The chamber is lined with Toyo Ferrite Grid Absorber, model number FFG-1000. The ferrite tile grid is 101 x 101 x 19mm thick and weighs approximately 550 grams. These tiles are mounted on steel panels and installed directly on the inner walls of the chamber.

The turntable is 150cm in diameter and is located 160cm from the back wall of the chamber. The chamber is grounded via 1 - 8' copper ground rod, installed at the center of the back wall, it is bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is all steel, flush mounted table installed in an all steel frame. The table is remotely operated from inside the control room located 25' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Behind the turntable is a 3' x 6' x 4' deep shielded pit used for support equipment if necessary. The pit is equipped with 1 - 4" PVC chases from the turntable to the pit that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3-1 below:

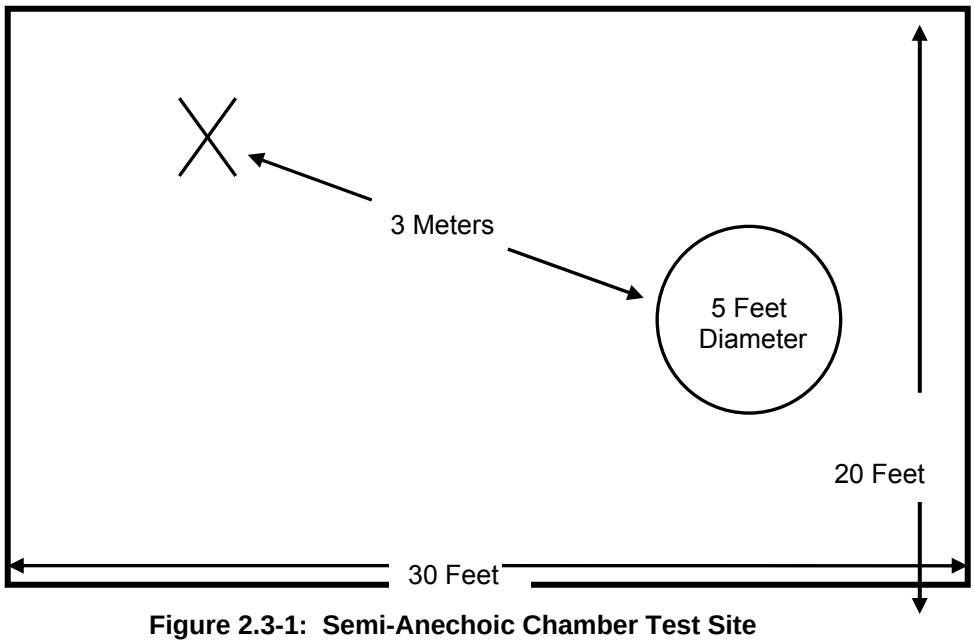

Figure 2.3-1: Semi-Anechoic Chamber Test Site

2.3.2 Open Area Tests Site (OATS)

The open area test site consists of a 40' x 66' concrete pad covered with a perforated electro-plated galvanized sheet metal. The perforations in the sheet metal are 1/8" holes that are staggered every 3/16". The individual sheets are placed to overlap each other by 1/4" and are riveted together to provide a continuous seam. Rivets are spaced every 3" in a 3 x 20 meter perimeter around the antenna mast and EUT area. Rivets in the remaining area are spaced as necessary to properly secure the ground plane and maintain the electrical continuity.

The entire ground plane extends 12' beyond the turntable edge and 16' beyond the antenna mast when set to a 10 meter measurement distance. The ground plane is grounded via 4 - 8' copper ground rods, each installed at a corner of the ground plane and bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is an all aluminum 10' flush mounted table installed in an all aluminum frame. The table is remotely operated from inside the control room located 40' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Adjacent to the turntable is a 7' x 7' square and 4' deep concrete pit used for support equipment if necessary. The pit is equipped with 5 - 4" PVC chases from the pit to the control room that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit. The pit is covered with 2 sheets of 1/4" diamond style re-enforced steel sheets. The sheets are painted to match the perforated steel ground plane; however the underside edges have been masked off to maintain the electrical continuity of the ground plane. All reflecting objects are located outside of the ellipse defined in ANSI C63.4.

A diagram of the Open Area Test Site is shown in Figure 2.3-2 below:

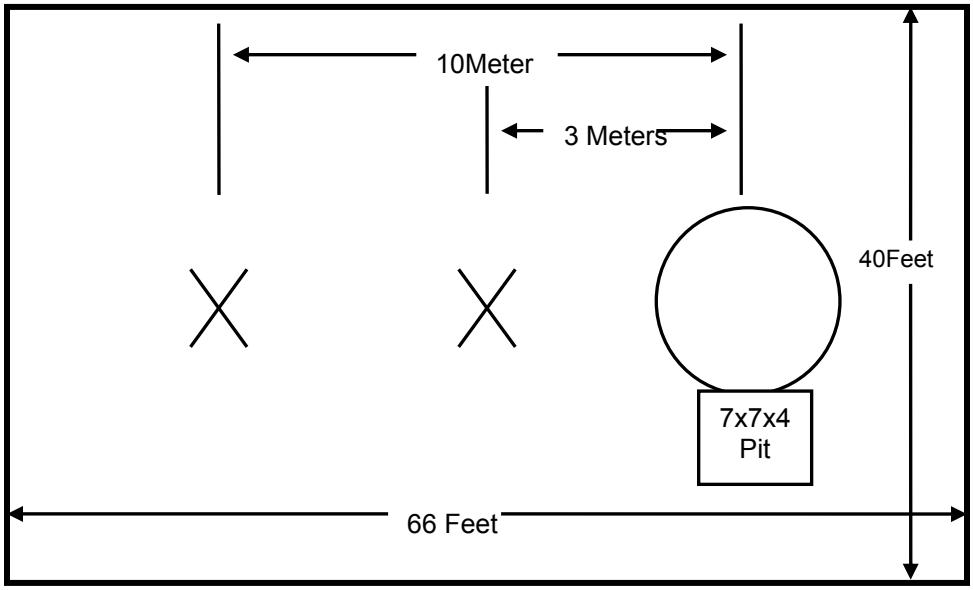

Figure 2.3-2: Open Area Test Site

2.4 Conducted Emissions Test Site Description

The AC mains conducted EMI site is located in the main EMC lab. It consists of an 8' x 8' solid aluminum horizontal ground reference plane (GRP) bonded every 3" to an 8' X 8' vertical ground plane.

The site is of sufficient size to test table top and floor standing equipment in accordance with section 6.1.4 of ANSI C63.4.

A diagram of the room is shown below in figure 4.1.3-1:

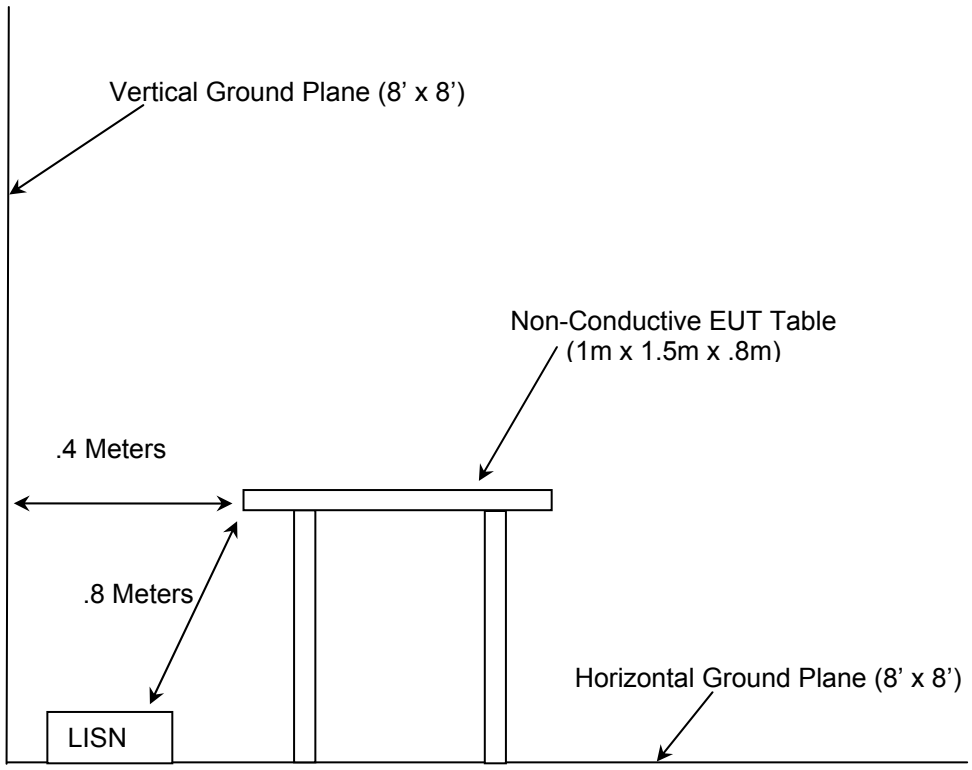

Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2015
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2015
- FCC KDB 558074 D01 DTS Meas Guidance v03r02 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247, June 5, 2014
- Industry Canada Radio Standards Specification: RSS-210 - Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, Issue 8, Dec 2010
- Industry Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 4, Nov 2014.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
1	Rohde & Schwarz	ESMI - Display	Spectrum Analyzers	833771/007	7/11/2014	7/11/2015
2	Rohde & Schwarz	ESMI-Receiver	Spectrum Analyzers	839587/003	7/11/2014	7/11/2015
30	Spectrum Technologies	DRH-0118	Antennas	970102	4/23/2013	4/23/2015
73	Agilent	8447D	Amplifiers	2727A05624	7/15/2014	7/15/2015
167	ACS	Chamber EMI Cable Set	Cable Set	167	10/28/2014	10/28/2015
168	Hewlett Packard	11947A	Attenuators	44829	1/19/2015	1/19/2016
267	Agilent	N1911A	Meters	MY45100129	7/30/2013	7/30/2015
268	Agilent	N1921A	Sensors	MY45240184	7/30/2013	7/30/2015
292	Florida RF Cables	SMR-290AW-480.0-SMR	Cables	None	3/17/2014	3/17/2015
316	Rohde Schwarz	ESH3-Z5	LISN	861189-010	10/30/2014	10/30/2015
324	ACS	Belden	Cables	8214	6/4/2014	6/4/2015
331	Microwave Circuits	H1G513G1	Filters	31417	6/2/2014	6/2/2015
338	Hewlett Packard	8449B	Amplifiers	3008A01111	7/30/2013	7/30/2015
340	Aeroflex/Weinschel	AS-20	Attenuators	7136	7/14/2014	7/14/2015
412	Electro Metrics	LPA-25	Antennas	1241	7/24/2014	7/24/2016
422	Florida RF	SMS-200AW-72.0-SMR	Cables	805	11/5/2014	11/5/2015
544	ETS Lindgren	3110B	Antennas	3361	11/22/2013	11/22/2015
616	Florida RF Cables	SMRE-200W-12.0-SMRE	Cables	N/A	9/10/2014	9/10/2015
622	Rohde & Schwarz	FSV40	Analyzers	101338	7/12/2014	7/12/2015
RE361	Agilent	AT/E7405A	Analyzers	MY42000089	5/30/2014	5/30/2015

5 SUPPORT EQUIPMENT

Table 5-1: Support Equipment

Item	Equipment Type (Host)	Manufacturer	Model Number	Serial Number
1	Microphone	Shure	BG1.0	ACS #14
2	XLR Load	N/A	N/A	ACS #11 ACS #9
3	Breakout Box	AirNetix	ARX-200-BOB	ACS #2
4	Microphone	Sennheiser	e835 S	ACS #13
5	Laptop Computer	Dell	Latitude E6330 PP18L	CN-0YRP01-12961-37S-00E5-A00 CN-0TD761-12961-68G-3200
6	Laptop Power Supply	Dell	LA90PM111 PA-1650-05D2	CN-0Y4M8K-72438-36P-1180-A01 CN-0F7970-71615-55M-6BF4
7	Battery Pack	N/A	N/A	ACS #3
8	Headphones	N/A	N/A	N/A
9	USB Mouse	Inland	296335	120801069

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

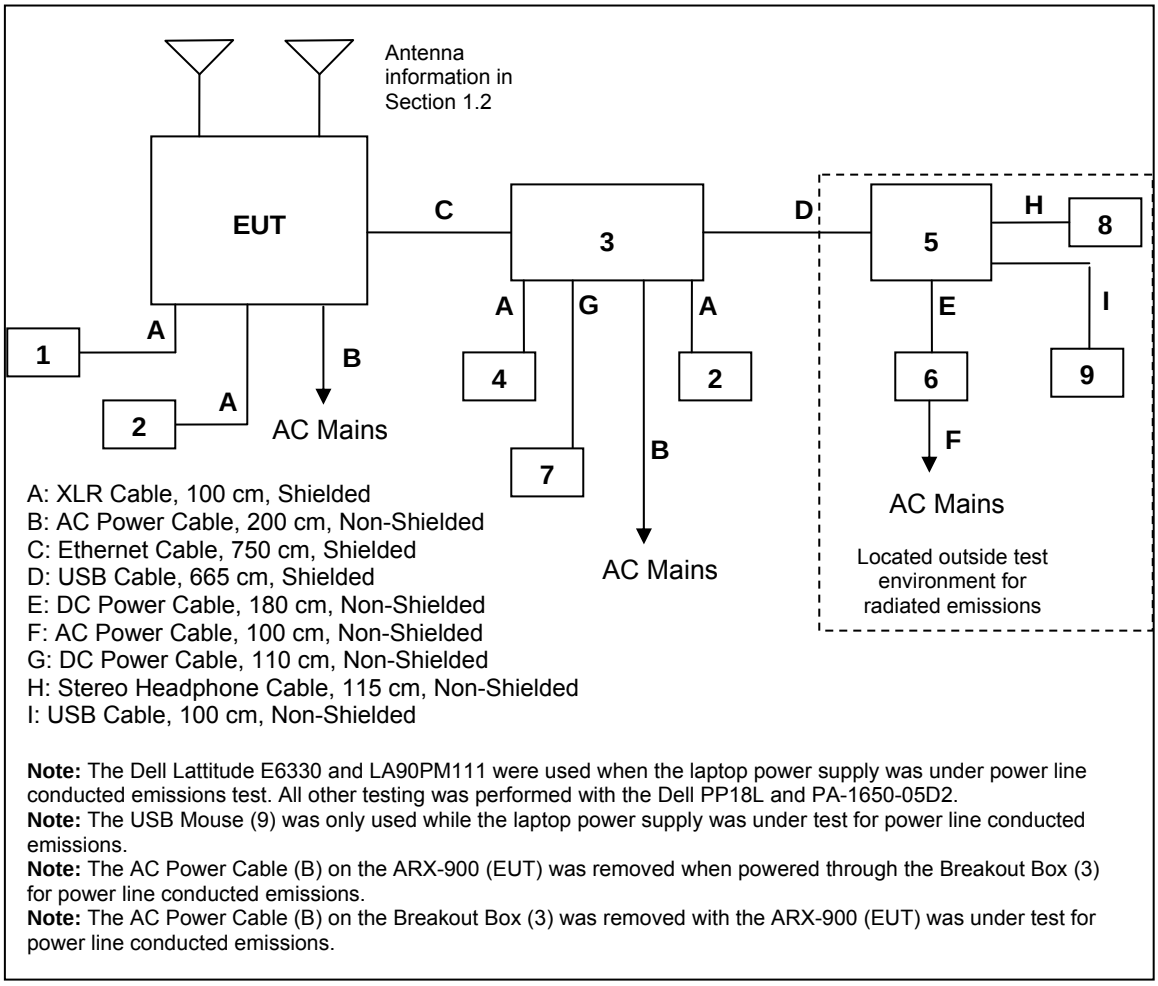

Figure 6-1: EUT Test Setup – Radiated and Conducted Emissions

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC 15.203

The EUT utilizes a detachable antenna with N-Type coupling therefore professional installation is required.

7.2 Power Line Conducted Emissions – FCC 15.207, IC: RSS-Gen 8.8

7.2.1 Measurement Procedure

ANSI C63.4 sections 6 and 7 were the guiding documents for this evaluation. Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Applicable Limit - Corrected Reading

7.2.2 Measurement Results

Results of the test are shown below in Tables 7.2.2-1 through 7.2.2-6.

Table 7.2.2-1: Conducted EMI Results Line 1 – AiRocks Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
19.119	30.994	25.595	11.068	42.062	36.663	60	50	17.938	13.337
18.5818	29.934	24.06	11.078	41.012	35.138	60	50	18.988	14.862
13.1644	32.522	27.798	10.777	43.299	38.575	60	50	16.701	11.425
7.71246	33.308	22.661	10.451	43.759	33.112	60	50	16.241	16.888
7.43066	30.844	25.35	10.443	41.287	35.793	60	50	18.713	14.207
0.451	38.83	29.85	10.19	49.02	40.04	56.86	46.86	7.8	6.8

Table 7.2.2-2: Conducted EMI Results Line 2 – AiRocks Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
17.9984	33.305	25.705	10.628	43.933	36.333	60	50	16.067	13.667
12.412	33.468	27.411	10.297	43.765	37.708	60	50	16.235	12.292
10.9195	33.641	27.631	10.243	43.884	37.874	60	50	16.116	12.126
0.485	39.62	28.88	10.20	49.82	39.08	56.25	46.25	6.4	7.2
0.488	39.44	28.79	10.20	49.64	38.99	56.20	46.20	6.6	7.2
0.441	39.6	29.51	10.19	49.79	39.70	57.04	47.04	7.3	7.3
0.779	31.09	18.33	10.25	41.34	28.58	56.00	46.00	14.7	17.4

Table 7.2.2-3: Conducted EMI Results Line 1 – Breakout Box Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
5.98	34.69	26.81	10.40	45.09	37.21	60.00	50.00	14.9	12.8
6.05	37.65	30.76	10.38	48.03	41.14	60.00	50.00	12.0	8.9
5.64	34.2	25.91	10.38	44.58	36.29	60.00	50.00	15.4	13.7
11.19	38.28	30.61	10.62	48.90	41.23	60.00	50.00	11.1	8.8
0.495	39.11	32.59	10.20	49.31	42.79	56.08	46.08	6.8	3.3
0.468	38.16	31.24	10.19	48.35	41.43	56.55	46.55	8.2	5.1

Table 7.2.2-4: Conducted EMI Results Line 2 – Breakout Box Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
10.9	35.295	28.55	10.242	45.537	38.793	60	50	14.463	11.207
6.14138	34.195	27.987	10.227	44.422	38.214	60	50	15.578	11.786
5.95	35.59	25.58	10.40	45.99	35.98	60.00	50.00	14.0	14.0
5.60858	35.574	28.628	10.219	45.793	38.847	60	50	14.207	11.153
0.494	38.65	29.9	10.20	48.85	40.10	56.10	46.10	7.2	6.0
0.496	38.85	29.97	10.20	49.05	40.17	56.07	46.07	7.0	5.9
0.799	32.98	23.41	10.25	43.23	33.66	56.00	46.00	12.8	12.3

Table 7.2.2-5: Conducted EMI Results Line 1 – Breakout Box Computer Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
4.04467	18.586	12.75	10.423	29.008	23.173	56	46	26.992	22.827
4.01997	19.599	13.048	10.421	30.02	23.469	56	46	25.98	22.531
2.21803	18.217	12.241	10.323	28.54	22.564	56	46	27.46	23.436
1.71584	22.422	20.21	10.299	32.72	30.508	56	46	23.28	15.492
0.226538	23.393	15.235	10.22	33.613	25.455	63.813	53.813	30.2	28.358
0.150506	32.29	19.026	10.22	42.51	29.246	65.986	55.986	23.476	26.739

Table 7.2.2-6: Conducted EMI Results Line 2 – Breakout Box Computer Configuration

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
4.25684	18.118	11.752	10.415	28.533	22.167	56	46	27.467	23.833
3.97628	19.875	12.589	10.399	30.274	22.988	56	46	25.726	23.012
1.87987	21.738	19.333	10.303	32.04	29.636	56	46	23.96	16.364
0.50365	13.472	9.207	10.24	23.712	19.447	56	46	32.288	26.553
0.431825	24.827	24.132	10.233	35.06	34.365	57.948	47.948	22.888	13.583
0.150034	31.659	16.93	10.22	41.879	27.15	65.999	55.999	24.12	28.849

7.3 6dB / 99% Bandwidth – FCC 15.247(a)(2), IC: RSS-210 A8.2(a)

7.3.1 Measurement Procedure

The 6dB bandwidth was measured in accordance with the FCC KDB 558074 D01 DTS Meas Guidance v03r02. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 100 kHz. The Video Bandwidth (VBW) was set to ≥ 3 times the RBW. The trace was set to max hold with a peak detector active. The marker-delta function of the spectrum analyzer was utilized to determine the 6 dB bandwidth of the emission.

The occupied bandwidth measurement function of the spectrum analyzer was used to measure the 99% bandwidth. The span of the analyzer was set to capture all products of the modulation process, including the emission sidebands. The resolution bandwidth was set to 1% to 5% of the occupied bandwidth. The video bandwidth was set to 3 times the resolution bandwidth. A peak detector was used.

7.3.2 Measurement Results

Table 7.3.2-1: 6dB / 99% Bandwidth

Frequency [MHz]	6dB Bandwidth [kHz]	99% Bandwidth [kHz]
906.0	753.81	1197.29
914.0	758.64	1196.13
924.0	753.14	1197.29

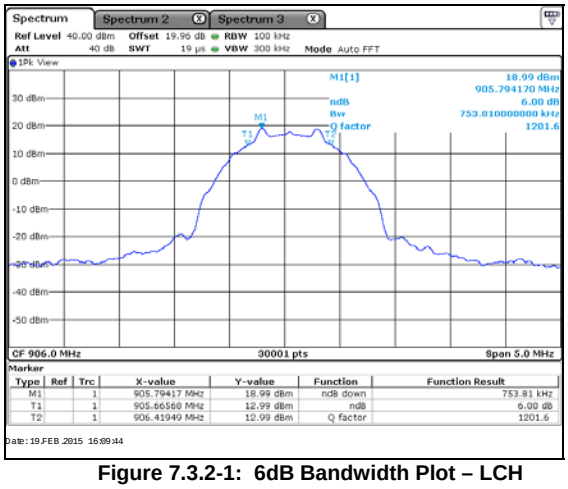

Figure 7.3.2-1: 6dB Bandwidth Plot – LCH

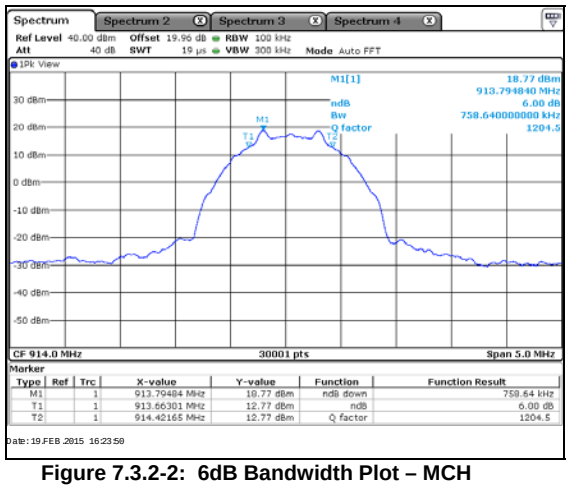

Figure 7.3.2-2: 6dB Bandwidth Plot – MCH

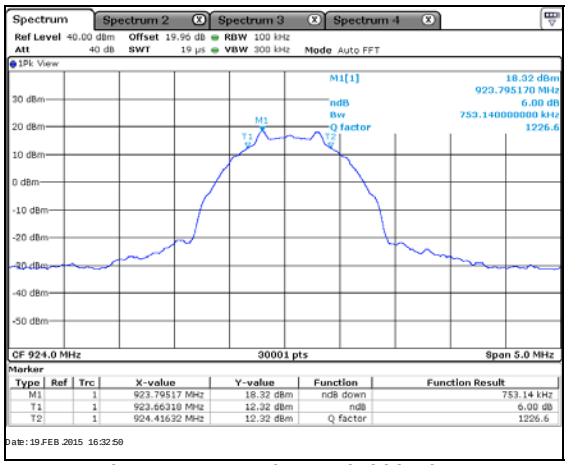

Figure 7.3.2-3: 6dB Bandwidth Plot – HCH

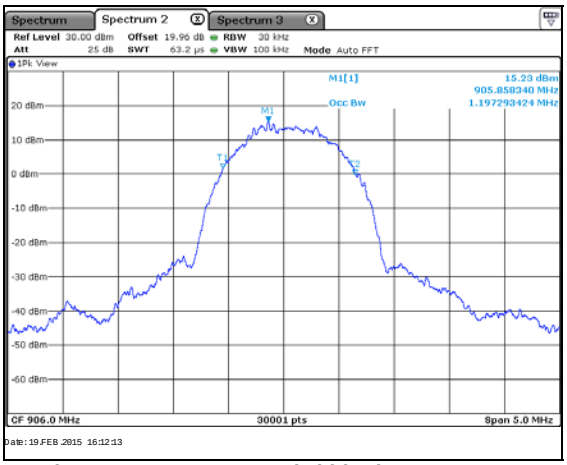

Figure 7.3.2-4: 99% Bandwidth Plot – LCH

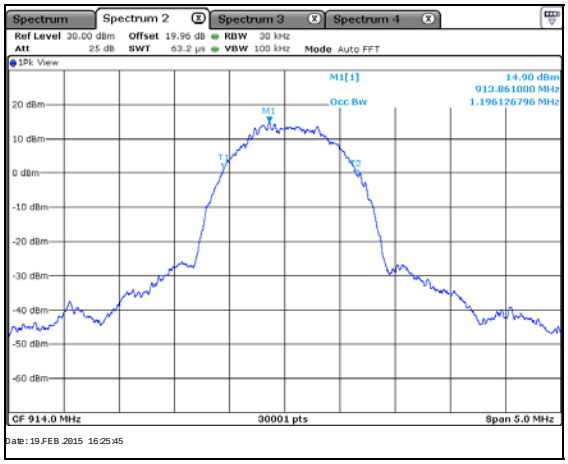

Figure 7.3.2-5: 99% Bandwidth Plot – MCH

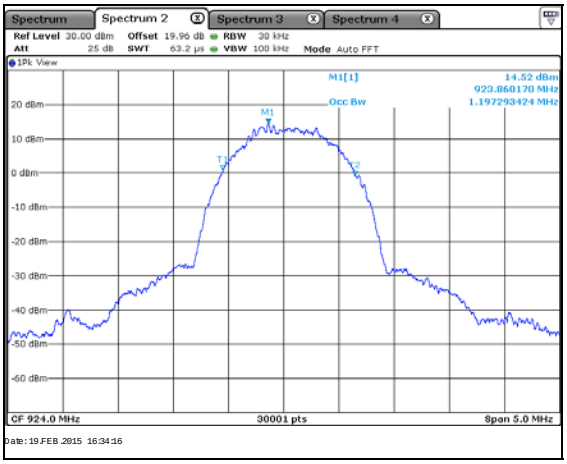

Figure 7.3.2-6: 99% Bandwidth Plot – HCH

7.4 Fundamental Emission Output Power – FCC 15.247(b)(3), IC: RSS-210 A8.4(4)

7.4.1 Measurement Procedure

The maximum peak conducted output power was measured in accordance with FCC KDB 558074 D01 DTS Meas Guidance v03r02 utilizing the PKPM1 Peak power meter method. The RF output of the equipment under test was directly connected to the input of the power meter applying suitable attenuation.

7.4.2 Measurement Results

Table 7.4.2-1: Maximum Peak Conducted Output Power

Frequency [MHz]	Level [dBm]
906.0	20.58
914.0	20.24
924.0	19.73

7.5 Emission Levels – FCC 15.247(d), 15.205, 15.209; IC RSS-210 2.2/A8.5, RSS-Gen 8.9

7.5.1 Emissions into Non-restricted Frequency Bands

7.5.1.1 Measurement Procedure

The unwanted emissions into non-restricted bands were measured conducted in accordance with FCC KDB 558074 D01 DTS Meas Guidance v03r02. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 100 kHz. The Video Bandwidth (VBW) was set to ≥ 300 kHz. Span was set to 1.5 times the DTS bandwidth. The trace was set to max hold with a peak detector active. The resulting spectrum analyzer peak level was used to determine the reference level with respect to the 20 dBc limit. The spectrum span was then adjusted for the measurement of spurious emissions from 30MHz to 10GHz, 10 times the highest fundamental frequency.

Band-edge compliance was determined using the conducted marker-delta method in which the radio frequency power that is produced by the EUT is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power.

7.5.1.2 Measurement Results

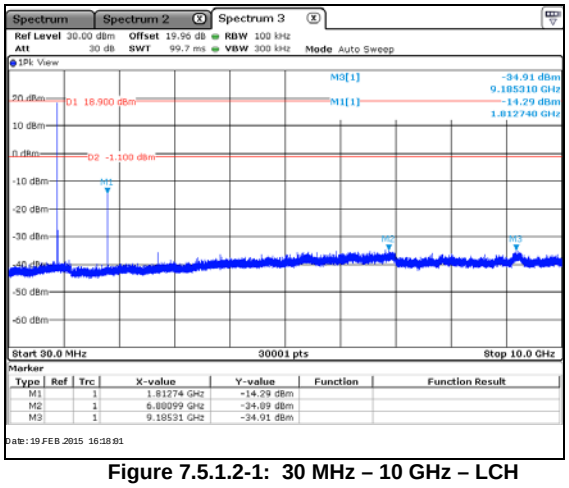

Figure 7.5.1.2-1: 30 MHz – 10 GHz – LCH

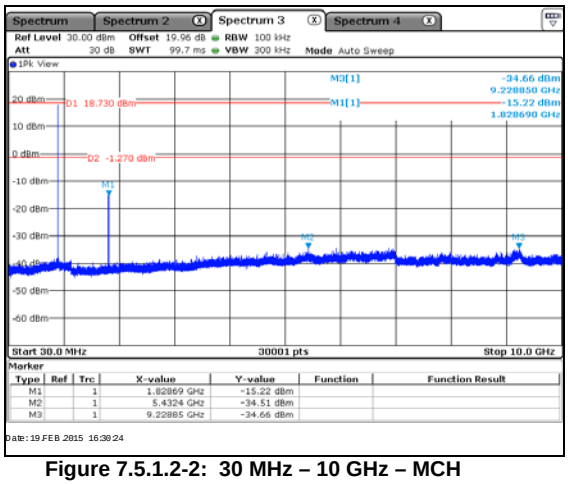

Figure 7.5.1.2-2: 30 MHz – 10 GHz – MCH

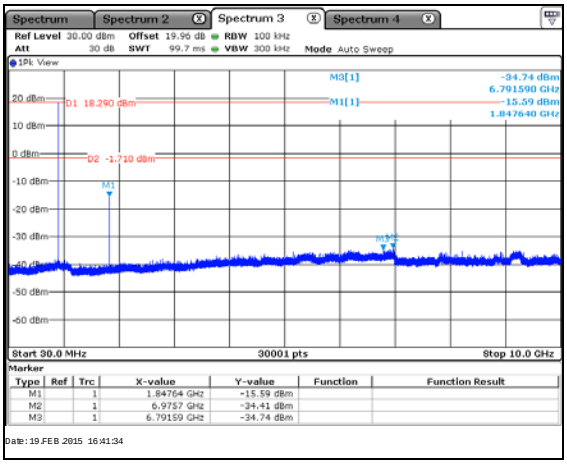

Figure 7.5.1.2-3: 30 MHz – 10 GHz – HCH

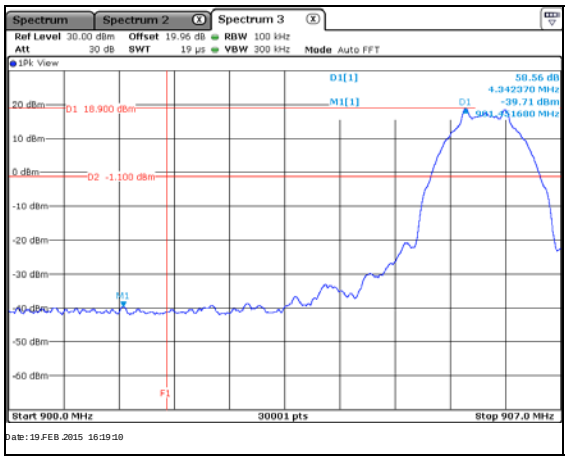

Figure 7.5.1.2-4: Lower Band-edge - LCH

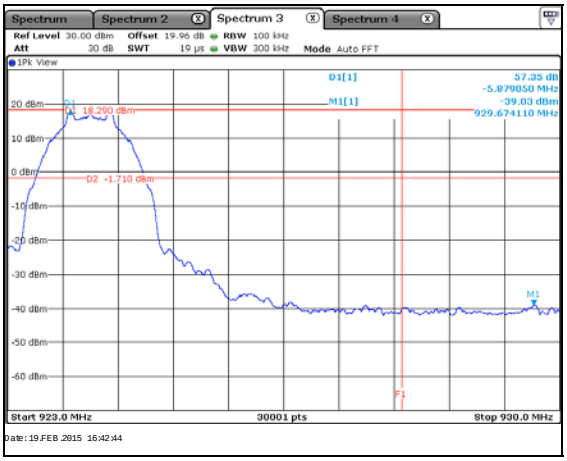

Figure 7.5.1.2-5: Upper Band-edge - HCH

7.5.2 Emissions into Restricted Frequency Bands

7.5.2.1 Measurement Procedure

The unwanted emissions into restricted bands were measured radiated over the frequency range of 30MHz to 10GHz, 10 times the highest fundamental frequency.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000MHz, peak and average measurements were made with RBW and VBW of 1 MHz and 3 MHz respectively.

Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in section 15.209.

7.5.2.2 Duty Cycle Correction

For average radiated measurements, using a 18% duty cycle, the measured level was reduced by a factor 14.89dB. The duty cycle correction factor is determined using the formula: 20log (18/100) = -14.89dB.

A detailed analysis of the duty cycle timing is provided in the Theory of Operation accompanying the original application for certification.

7.5.2.3 Measurement Results

Table 7.5.2.3-1: Radiated Spurious Emissions Tabulated Data – Dipole Antenna

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel										
960	33.34	28.64	H	2.00	---------	30.64	--------	46.0	---------	15.4
960	40.11	35.73	V	2.00	---------	37.73	--------	46.0	---------	8.3
970	34.79	30.55	H	1.20	---------	31.75	--------	54.0	---------	22.3
970	43.12	39.21	V	1.20	---------	40.41	--------	54.0	---------	13.6
2718	55.70	48.14	H	-4.63	51.07	28.62	74.0	54.0	22.9	25.4
2718	64.62	58.17	V	-4.63	59.99	38.65	74.0	54.0	14.0	15.4
Middle Channel										
960	38.77	34.63	H	2.00	---------	36.63	--------	46.0	---------	9.4
960	40.09	35.52	V	2.00	---------	37.52	--------	46.0	---------	8.5
978	37.94	34.08	H	1.12	---------	35.20	--------	54.0	---------	18.8
978	39.01	35.04	V	1.12	---------	36.16	--------	54.0	---------	17.8
2742	55.19	47.42	H	-4.53	50.66	27.99	74.0	54.0	23.3	26.0
2742	63.73	57.02	V	-4.53	59.20	37.59	74.0	54.0	14.8	16.4
High Channel										
960	33.83	29.00	H	2.00	---------	31.00	--------	46.0	---------	15.0
960	40.17	36.01	V	2.00	---------	38.01	--------	46.0	---------	8.0
988.1	32.04	26.61	H	1.34	---------	27.95	--------	54.0	---------	26.0
988.1	36.31	31.92	V	1.34	---------	33.26	--------	54.0	---------	20.7
2772	52.15	43.01	H	-4.41	47.74	23.71	74.0	54.0	26.3	30.3
2772	60.05	52.55	V	-4.41	55.64	33.25	74.0	54.0	18.4	20.8

Table 7.5.2.3-2: Radiated Spurious Emissions Tabulated Data – Yagi Antenna

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel										
2718	55.70	48.14	H	-4.63	51.07	28.62	74.0	54.0	22.9	25.4
2718	64.62	58.17	V	-4.63	59.99	38.65	74.0	54.0	14.0	15.4
Middle Channel										
960	40.27	35.80	H	2.00	---------	37.80	--------	46.0	---------	8.2
960	42.15	37.71	V	2.00	---------	39.71	--------	46.0	---------	6.3
978.206	41.49	37.91	H	1.12	---------	39.03	--------	54.0	---------	15.0
978.206	45.66	35.96	V	1.12	---------	37.08	--------	54.0	---------	16.9
2742	59.21	51.84	H	-4.53	54.68	32.41	74.0	54.0	19.3	21.6
2742	65.02	58.42	V	-4.53	60.49	38.99	74.0	54.0	13.5	15.0
High Channel										
960	41.26	37.05	H	2.00	---------	39.05	--------	46.0	---------	7.0
960	43.07	39.46	V	2.00	---------	41.46	--------	46.0	---------	4.5
987.855	40.65	36.81	H	1.34	---------	38.15	--------	54.0	---------	15.9
987.855	45.76	42.00	V	1.34	---------	43.34	--------	54.0	---------	10.7
2772	54.81	46.26	H	-4.41	50.40	26.96	74.0	54.0	23.6	27.0
2772	58.65	51.31	V	-4.41	54.24	32.01	74.0	54.0	19.8	22.0

7.5.2.4 Sample Calculation:

$R_C = R_U + CF_T$

Where:

CF_T = Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U = Uncorrected Reading
R_C = Corrected Level
AF = Antenna Factor
CA = Cable Attenuation
AG = Amplifier Gain
DC = Duty Cycle Correction Factor

Example Calculation: Peak (Yagi Antenna)

Corrected Level: 55.70 - 4.63 = 51.07dBuV/m
Margin: 74.0dBuV/m – 51.07dBuV/m = 22.9dB

Example Calculation: Average (Yagi Antenna)

Corrected Level: 48.14 - 4.63 - 14.89 = 28.62dBuV
Margin: 54.0dBuV – 28.62dBuV =25.4dB

7.6 Maximum Power Spectral Density in the Fundamental Emission – FCC 15.247(e) IC: RSS-210 A8.2(b)

7.6.1 Measurement Procedure

The power spectral density was measured in accordance with the FCC KDB 558074 D01 DTS Meas Guidance v03r02 utilizing the PKPSD (peak PSD) method. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 3 kHz. The Video Bandwidth (VBW) was set to 10 kHz. Span was set to 1.5 times the occupied bandwidth. The trace was set to max hold with a peak detector active.

7.6.2 Measurement Results

Table 7.6.2-1: Peak Power Spectral Density

Frequency (MHz)	PSD Level (dBm)
906.0	5.29
914.0	5.00
924.0	4.66

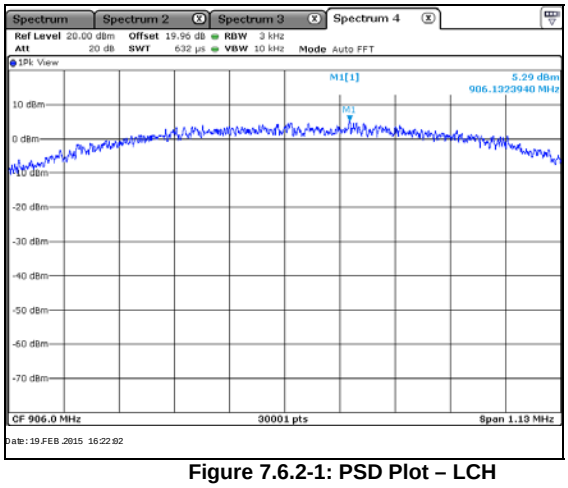

Figure 7.6.2-1: PSD Plot – LCH

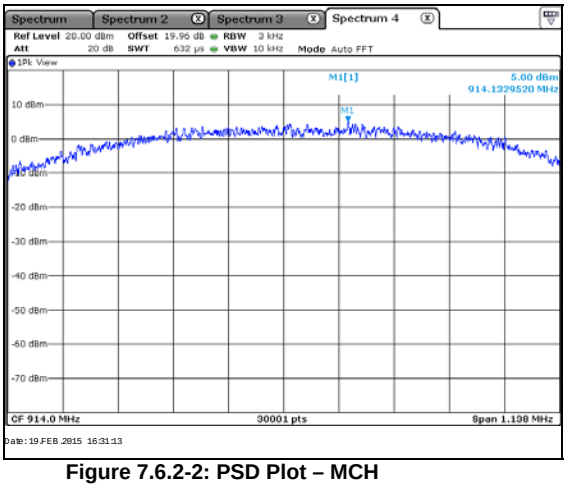

Figure 7.6.2-2: PSD Plot – MCH

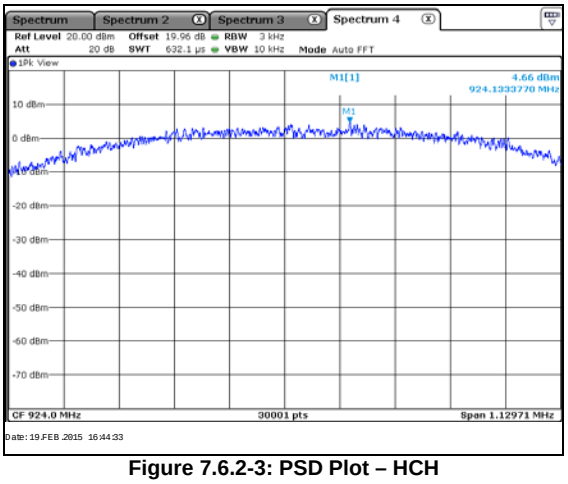

Figure 7.6.2-3: PSD Plot – HCH

8 CONCLUSION

In the opinion of ACS, Inc. the ARX-900, provided by AirNetix, LLC meets the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-210.

END REPORT