Excellence in Compliance Testing

Certification Test Report

FCC ID: U9O-RF300

FCC Rule Part: 15.247

ACS Report Number: 10-0403.W06.1A

Manufacturer: Synapse Wireless, Inc.
Model: RF300

Test Begin Date: December 7, 2010
Test End Date: December 9, 2010

Report Issue Date: April 27, 2012

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612-0

This report is not be used to claim certification, approval, or endorsement by NVLAP, NIST or any government agency.

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 RF300 is a low power, frequency hopping modular transmitter in the ISM 915MHz frequency band. The RF300 modules are intended to be used by OEM and Integrators in order to add RF wireless communication to their products. The modules are plugged in to a host board which then provides the OEM with the ability to wirelessly communicate between their different host board products.

Technical Details:

Band of operation:	902.4-927.6 MHz
Number of hopping channels:	25 (Subset of available 64)
Channel spacing	400 KHz
Data rate:	150 Kbps
Modulation format:	GFSK
RF connector:	RPSMA
Antenna:	Quarter-wave Dipole, 0.47dBi gain

Manufacturer Information:
Synapse Wireless, Inc.
500 Discovery Drive
Huntsville, AL 35806

Test Sample Serial Numbers: 1

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

1.3 Test Methodology and Considerations

The RF300 was powered by an external DC power supply via a test evaluation board. A laptop PC was used to provide programming for test commands but removed from the radiated emissions test environment after programming.

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-1
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:

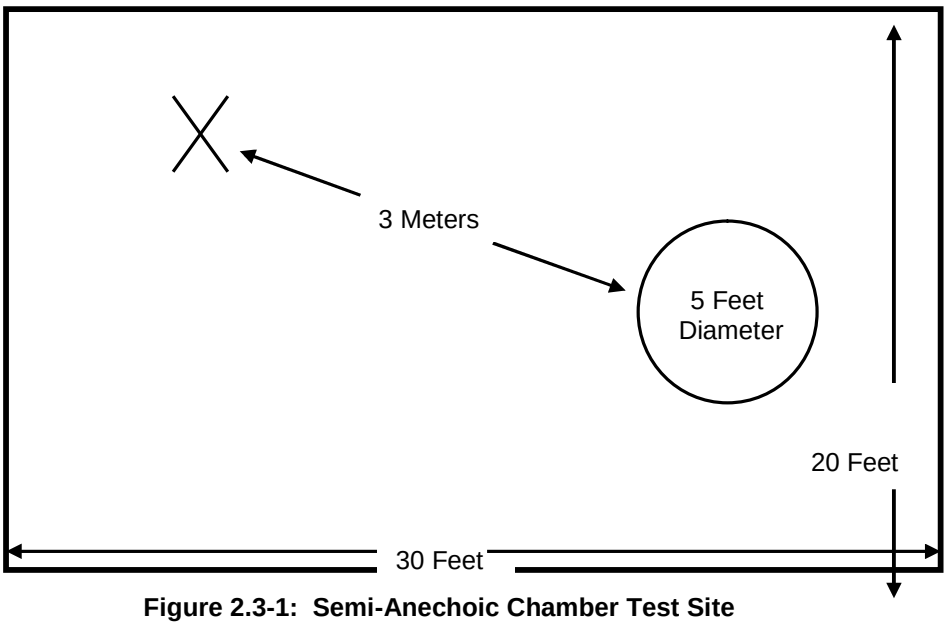

Figure 2.3-1: Semi-Anechoic Chamber Test Site

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:

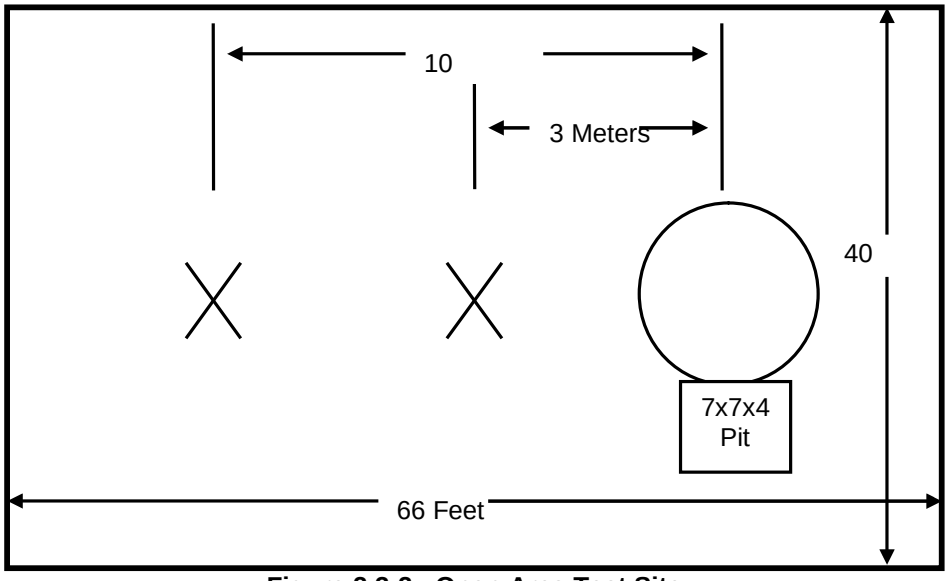

Figure 2.3-2: Open Area Test Site

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 2.4-1:

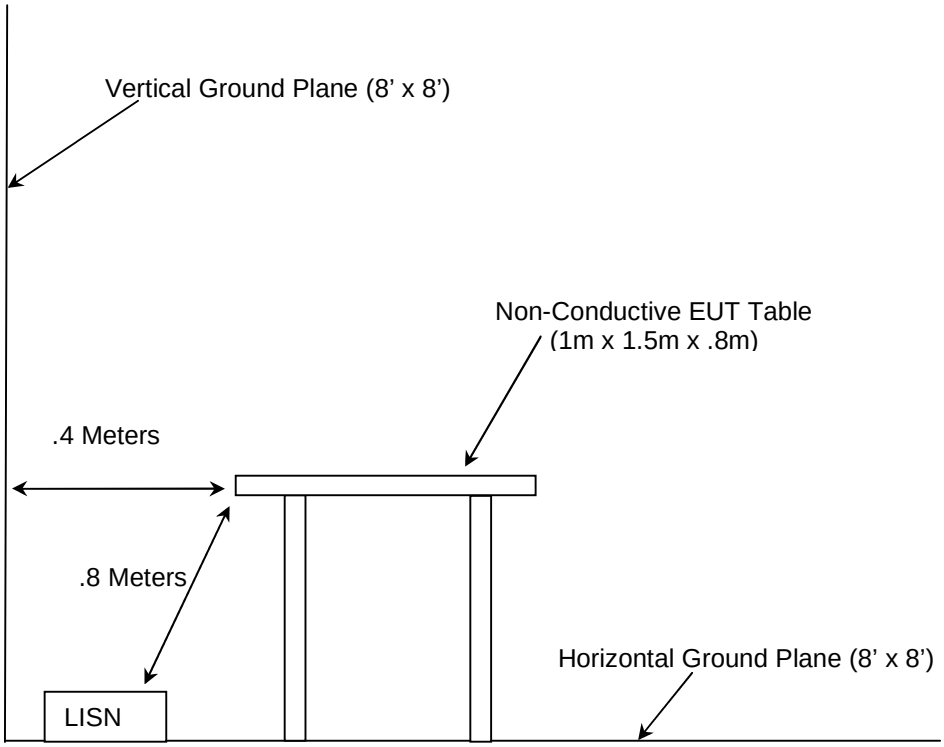

Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2009: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2012
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2012
- FCC Public Notice DA 00-705 – Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems, March 30, 2000
- Industry Canada Radio Standards Specification: RSS-210 – Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, Issue 8, December 2010
- Industry Canada Radio Standards Specification: RSS-GEN – General Requirements and Information for the Certification of Radiocommunication Equipment, Issue 3, December 2010.

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	9/23/2010	9/23/2012
2	Rohde & Schwarz	ESMI-Receiver	Spectrum Analyzers	839587/003	9/23/2010	9/23/2012
3	Rohde & Schwarz	ESMI - Display	Spectrum Analyzers	839379/011	2/2/2009	2/2/2011
4	Rohde & Schwarz	ESMI - Receiver	Spectrum Analyzers	833827/003	2/2/2009	2/2/2011
25	Chase	CBL6111	Antennas	1043	9/13/2010	9/13/2012
30	Spectrum Technologies	DRH-0118	Antennas	970102	5/8/2009	5/8/2011
73	Agilent	8447D	Amplifiers	2727A05624	5/26/2010	5/26/2011
153	EMCO	3825/2	LISN	9411-2268	1/11/2009	1/11/2011
167	ACS	hamber EMI Cable S	Cable Set	167	1/25/2010	1/25/2011
168	Hewlett Packard	11947A	Attenuators	44829	2/4/2010	2/4/2011
283	Rohde & Schwarz	FSP40	Spectrum Analyzers	1000033	8/31/2010	8/31/2011
291	Florida RF Cables	RE-200W-12.0-SM	Cables	None	12/7/2010	12/7/2011
292	Florida RF Cables	R-290AW-480.0-SI	Cables	None	12/7/2010	12/7/2011
324	ACS	Belden	Cables	8214	7/9/2010	7/9/2011
333	Fluke	8010A	Meters	3385330	NCR	NCR
334	Rohde&Schwarz	3160-10	Antennas	45576	11/4/2010	NCR
337	Microwave Circuits	H1G513G1	Filters	282706	7/16/2010	7/16/2011
338	Hewlett Packard	8449B	Amplifiers	3008A01111	10/29/2010	10/29/2011

5 SUPPORT EQUIPMENT

Table 5-1: Support Equipment

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	Eval Board - Base	Synapse Wireless, Inc	500202.01A	NA
2	AC Adaptor – 9 VDC	Tamuracorp	318AS09035	NA

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

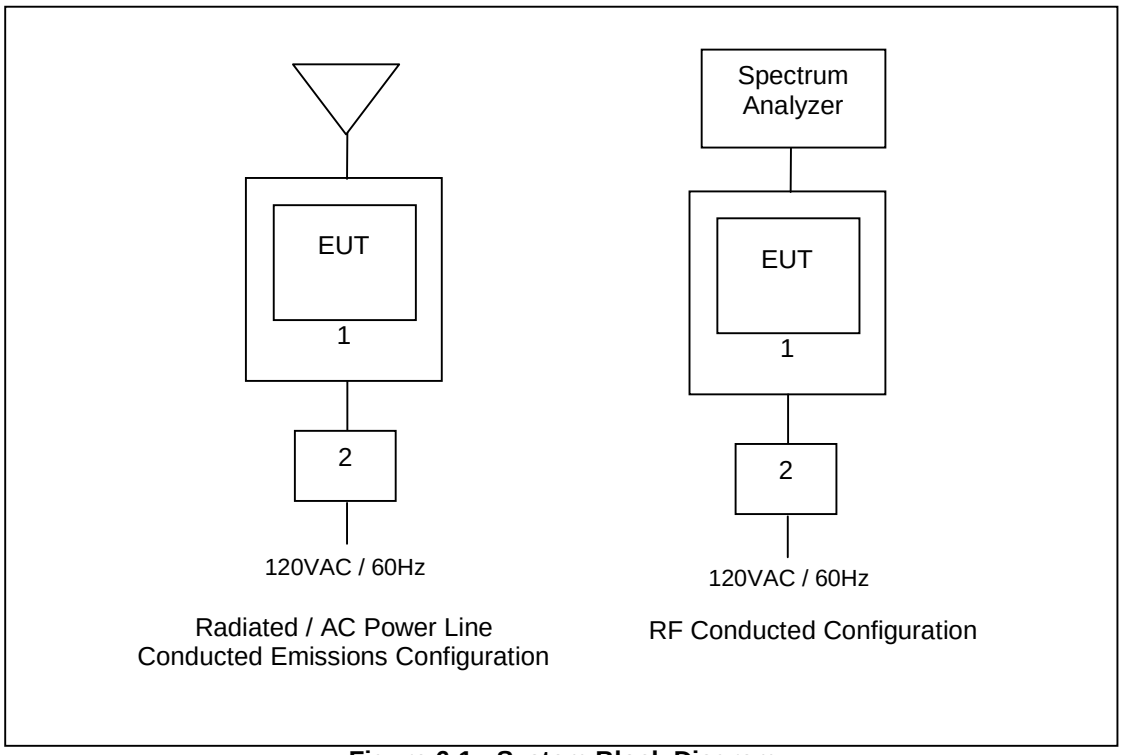

Figure 6-1: System Block Diagram

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: Section 15.203

The antenna is a ¼ wavelength dipole antenna and the antenna coupling is RPSMA which meets the requirements set forth in FCC Section 15.203.

7.2 Power Line Conducted Emissions – FCC: Section 15.207 IC: RSS-Gen 7.2.4

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 and Tables 7.2.2-1 to 7.2.2-2.

Table 7.2.2-1: Conducted EMI Results – Line 1

Frequency (MHz)	Level (dBuV)	Transducer (dB)	Limit (dBuV)	Margin (dB)	Line	PE	Detector
0.198	32	9.9	64	31.7	L1	FLO	QP
0.324	25	10	60	34.6	L1	FLO	QP
0.522	22.8	10	56	33.2	L1	FLO	QP
0.57	20.3	10	56	35.7	L1	FLO	QP
0.618	17.9	10	56	38.1	L1	FLO	QP
0.768	19.4	10.1	56	36.6	L1	FLO	QP
0.978	22.4	10	56	33.6	L1	FLO	QP
1.248	16.3	10	56	39.7	L1	FLO	QP
1.386	18.3	10	56	37.7	L1	FLO	QP
1.44	18.6	10	56	37.4	L1	FLO	QP
0.228	9.8	9.9	53	42.7	L1	FLO	AVG
0.324	8.4	10	50	41.2	L1	FLO	AVG
0.492	8.1	10	46	38.1	L1	FLO	AVG
0.51	8	10	46	38	L1	FLO	AVG
0.672	7.4	10	46	38.6	L1	FLO	AVG
0.78	7.6	10.1	46	38.4	L1	FLO	AVG
1.008	7.8	10	46	38.2	L1	FLO	AVG
1.296	7.1	10	46	38.9	L1	FLO	AVG
1.458	7.7	10	46	38.3	L1	FLO	AVG
1.476	7.2	10	46	38.8	L1	FLO	AVG

Table 7.2.2-2: Conducted EMI Results – Line 2

Frequency (MHz)	Level (dBuV)	Transducer (dB)	Limit (dBuV)	Margin (dB)	Line	PE	Detector
0.234	32.1	9.9	62	30.2	L2	FLO	QP
0.36	27.5	10	59	31.2	L2	FLO	QP
0.504	26.2	10	56	29.9	L2	FLO	QP
0.666	24.6	10	56	31.4	L2	FLO	QP
0.678	24.3	10	56	31.7	L2	FLO	QP
0.744	21.5	10.1	56	34.5	L2	FLO	QP
0.81	17.3	10.1	56	38.7	L2	FLO	QP
1.008	16.5	10	56	39.5	L2	FLO	QP
1.38	15.6	10	56	40.4	L2	FLO	QP
1.446	16.6	10	56	39.4	L2	FLO	QP
0.264	9.7	10	51	41.6	L2	FLO	AVG
0.36	8.8	10	49	39.9	L2	FLO	AVG
0.522	8.4	10	46	37.6	L2	FLO	AVG
0.654	8.2	10	46	37.8	L2	FLO	AVG
0.702	8	10.1	46	38	L2	FLO	AVG
0.792	7.4	10.1	46	38.6	L2	FLO	AVG
0.858	7.1	10	46	38.9	L2	FLO	AVG
1.026	7.1	10	46	38.9	L2	FLO	AVG
1.332	7	10	46	39	L2	FLO	AVG
1.458	7.7	10	46	38.3	L2	FLO	AVG

7.3 Peak Output Power - FCC Section 15.247(b)(2) IC: RSS-210 A8.4(1)

7.3.1 Measurement Procedure (Conducted Method)

The RF output of the equipment under test was directly connected to the input of the spectrum analyzer via the appropriate match pad and attenuators. The spectrum analyzer RBW was set such that RBW >> EBW. Data was collected with the EUT operating at maximum power per channelization.

The EUT uses 25 hopping changes therefore the maximum peak conducted output power does not exceed 0.25 W.

7.3.2 Measurement Results

Results are shown below in Table 7.3.2-1 below:

Table 7.3.2-1: RF Output Power

Frequency [MHz]	Level [dBm]
902.4	20.35
914.8	20.19
927.6	19.93

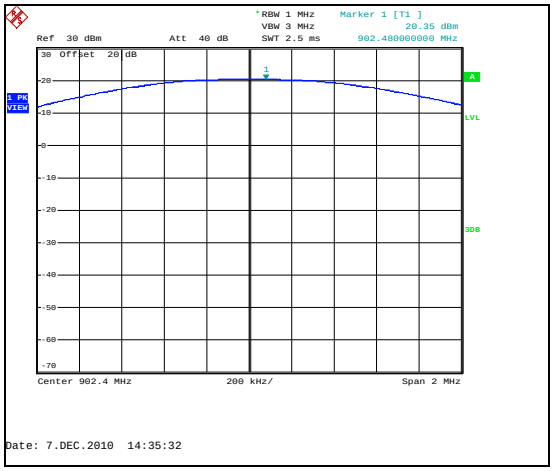

Figure 7.3.2-1: Output Power – LCH

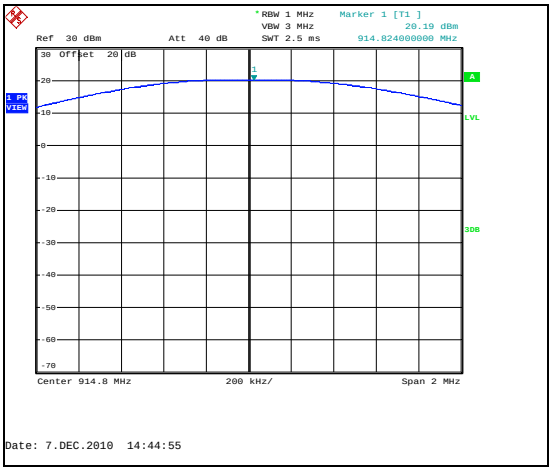

Figure 7.3.2-2: Output Power – MCH

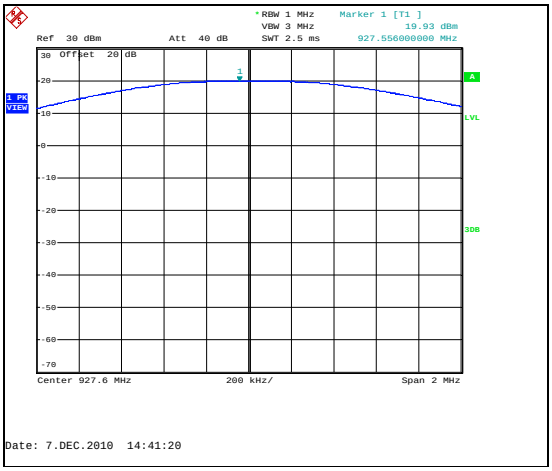

Figure 7.3.2-3: Output Power – HCH

7.4 Channel Usage Requirements

7.4.1 Carrier Frequency Separation – FCC: Section 15.247(a)(1) IC: RSS-210 A8.1(b)

7.4.1.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The span of the spectrum analyzer was set wide enough to capture two adjacent peaks and the RBW and VBW were set to ≥ 1% of the span.

7.4.1.2 Measurement Results

The adjacent channel separation was measured to be 400 kHz. Results are shown below in Figure 7.4.1.2-1.

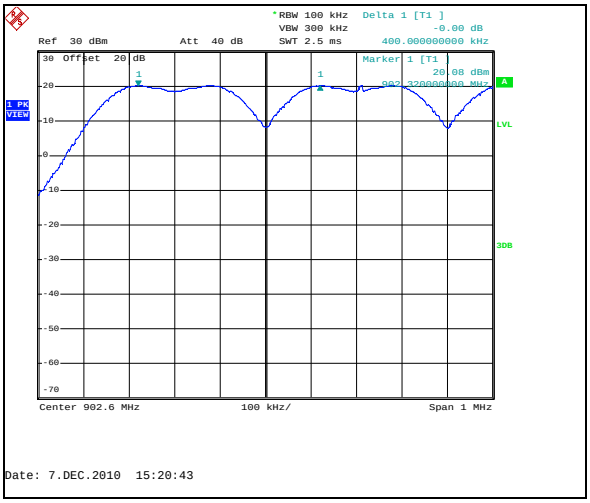

Figure 7.4.1.2-1: Channel Separation

7.4.1.3 Number of Hopping Channels – FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

The device employs 25 hopping channels at a time, which are selected from an available 64. Results are shown below in Figures 7.4.2-1 to 7.4.2-2 for hopping channel tables at the lower and upper extremes of the band of operation.

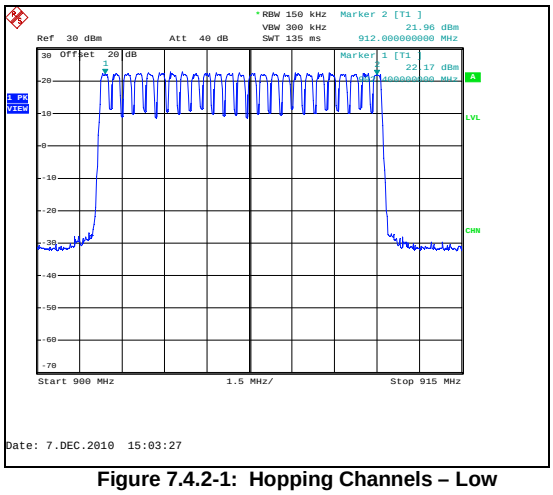

Figure 7.4.2-1: Hopping Channels – Low

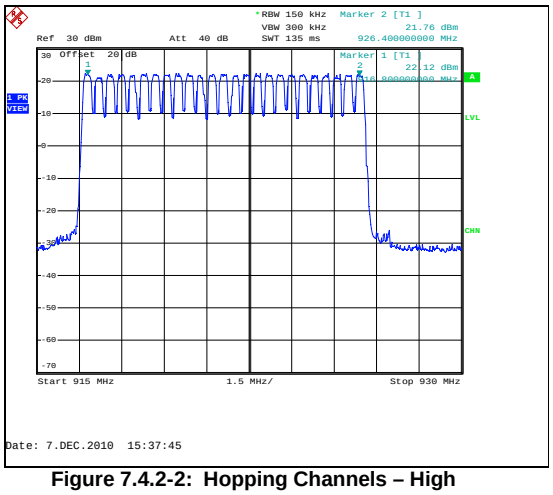

Figure 7.4.2-2: Hopping Channels – High

7.4.2 Channel Dwell Time – FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

7.4.2.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The hopping channel is centered on the analyzer and the span set to 0 Hz. The RBW was set to 1 MHz and the VBW to 3 MHz. Sweep time was adjusted to capture the burst duration of the emission. The marker–delta function of the analyzer was employed to measure the burst duration and repetition.

7.4.2.2 Measurement Results

The duration of the RF transmission was measured as 12.24 ms. The same channel is occupied 13 times in a 10 second period therefore the maximum time of occupancy on any one channel in a 10 second period is 159.2 ms. A single transmission and the transmission repetition are shown in figures 7.4.2.2-1 to 7.4.2.2-3 below.

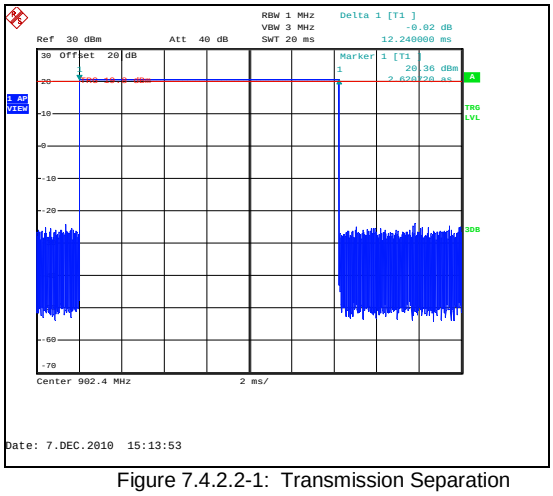

Figure 7.4.2.2-1: Transmission Separation

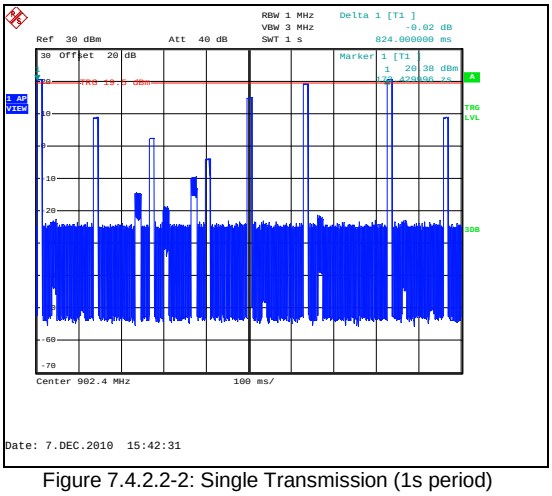

Figure 7.4.2.2-2: Single Transmission (1s period)

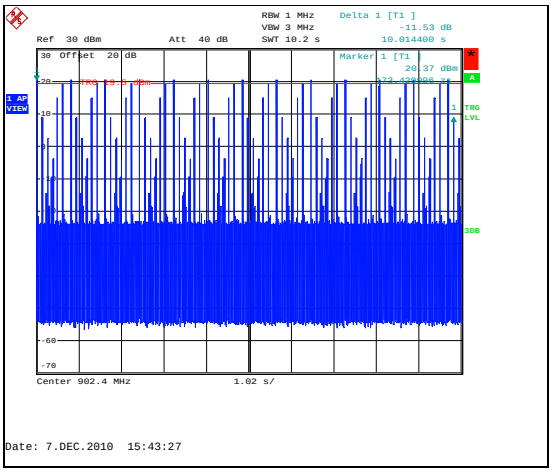

Figure 7.4.2.2-3: Maximum Transmission (10s period)

7.4.3 20dB / 99% Bandwidth - FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(c)

7.4.3.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The span of the spectrum analyzer display was set between two times and five times the occupied bandwidth (OBW) of the emission. The RBW of the spectrum analyzer was set to approximately 1 % to 5 % of the OBW. The trace was set to max hold with a peak detector active. The Delta function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

The occupied bandwidth measurement function of the analyzer was used for the 99% bandwidth. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth was set to ~ 1% of the selected span. The video bandwidth shall be set to 3 times the resolution bandwidth.

7.4.3.2 Measurement Results

Results are shown below in Table 7.4.3.2-1 and Figures 7.4.3.2-1 through 7.4.3.2-6.

Table 7.4.3.2-1: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
902.54	283.2	288.4
914.94	283.2	285.6
927.74	284.4	285.6

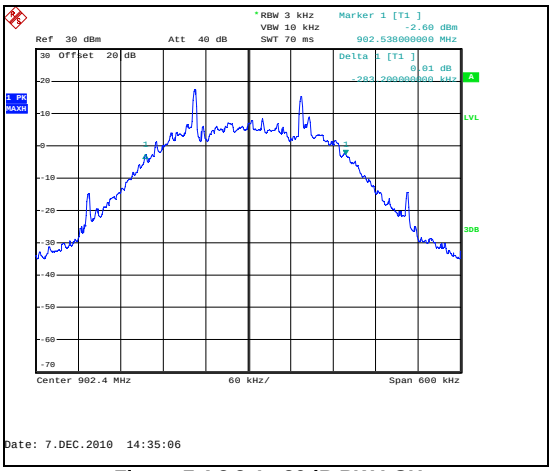

Figure 7.4.3.2-1: 20dB BW LCH

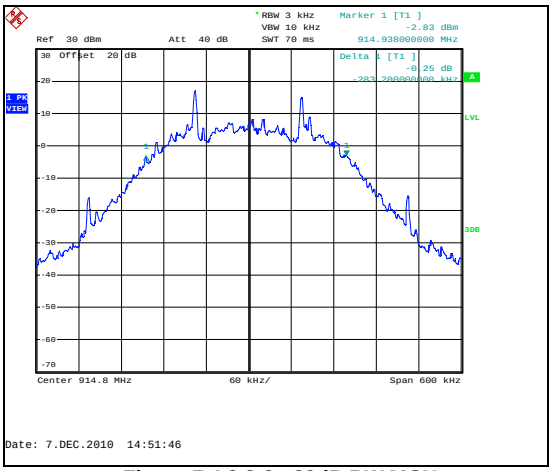

Figure 7.4.3.2-2: 20dB BW MCH

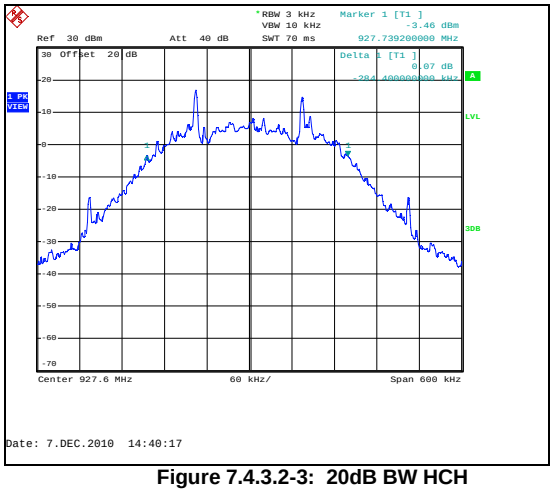

Figure 7.4.3.2-3: 20dB BW HCH

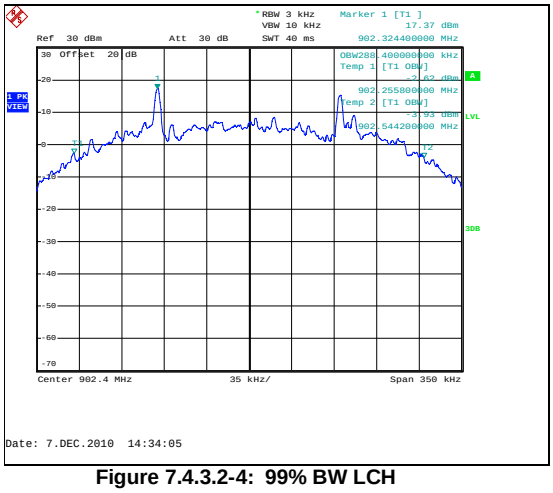

Figure 7.4.3.2-4: 99% BW LCH

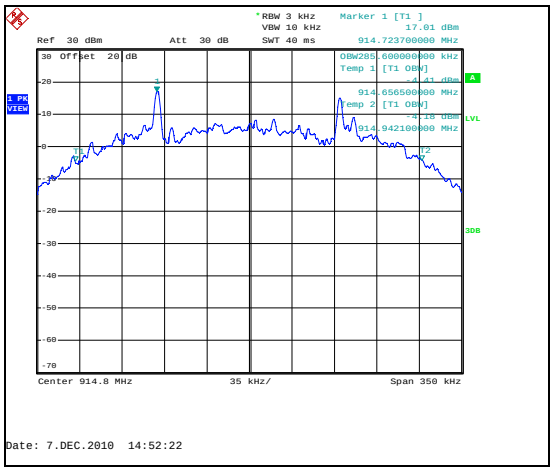

Figure 7.4.3.2-5: 99% BW MCH

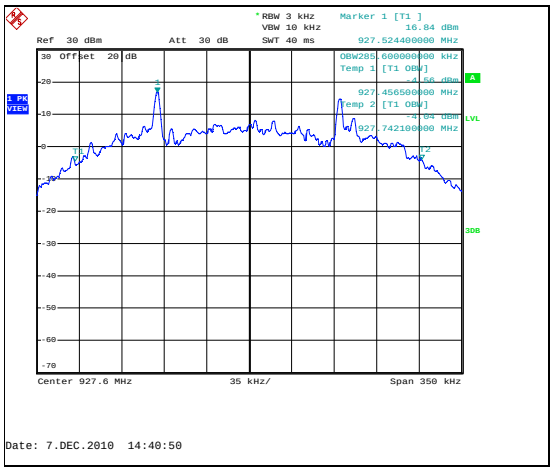

Figure 7.4.3.2-6: 99% BW HCH

7.5 Band-Edge Compliance and Spurious Emissions-FCC 15.247(d) IC: RSS-210 A8.5

7.5.1 Band-Edge Compliance of RF Conducted Emissions

7.5.1.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. For each measurement the spectrum analyzer's RBW was set to 100 kHz, which is ≥ 1% of the span, and the VBW was set to 300kHz.

Band-edge was evaluated for both hopping and non-hopping modes.

7.5.1.2 Measurement Results

Results are shown in the figures 7.5.1.2-1 to 7.5.1.2-4 below.

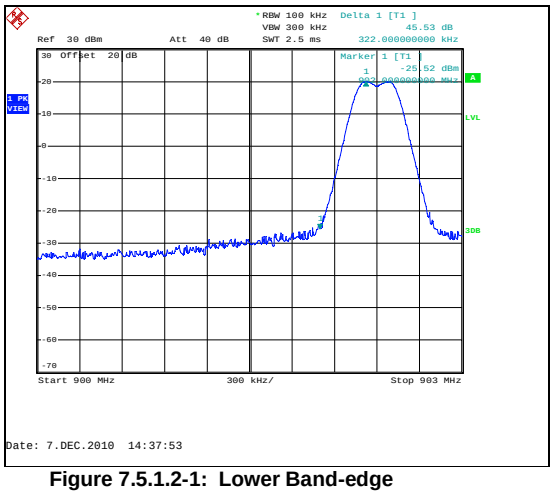

Figure 7.5.1.2-1: Lower Band-edge

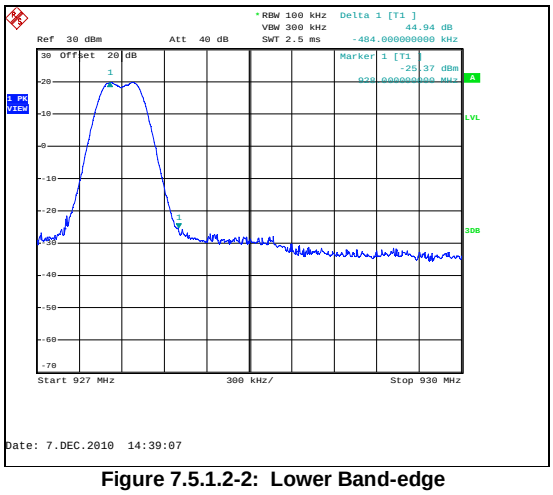

Figure 7.5.1.2-2: Lower Band-edge

HOPPING MODE:

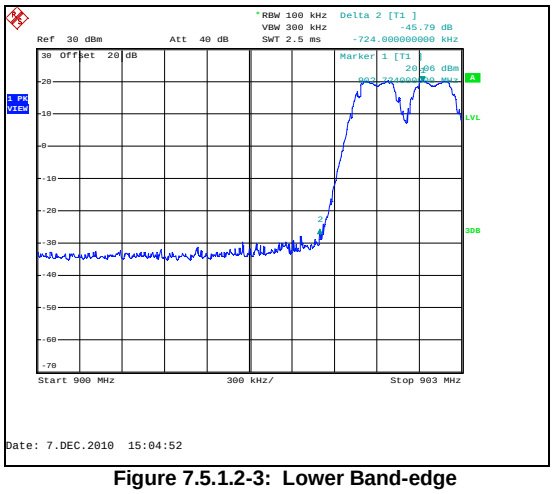

Figure 7.5.1.2-3: Lower Band-edge

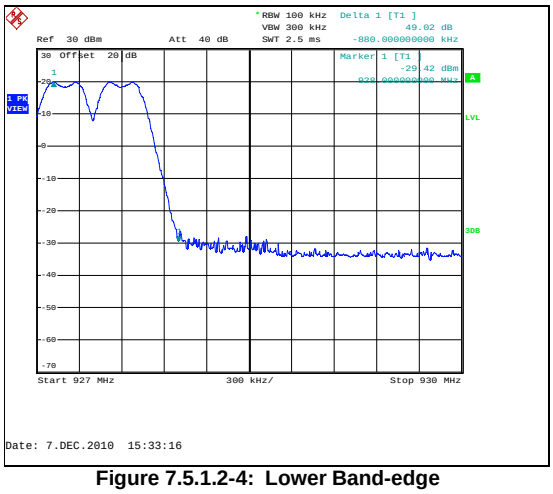

Figure 7.5.1.2-4: Lower Band-edge

7.5.2 RF Conducted Spurious Emissions

7.5.2.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The EUT was investigated for conducted spurious emissions from 30MHz to 10GHz, 10 times the highest fundamental frequency. Measurements were made at the low, center and high channels of the EUT. For each measurement, the spectrum analyzer's RBW was set to 100kHz. A peak detector function was used with the trace set to max hold.

7.5.2.2 Measurement Results

Results are shown below in Figures 7.5.2.2-1 to 7.5.2.2-6:

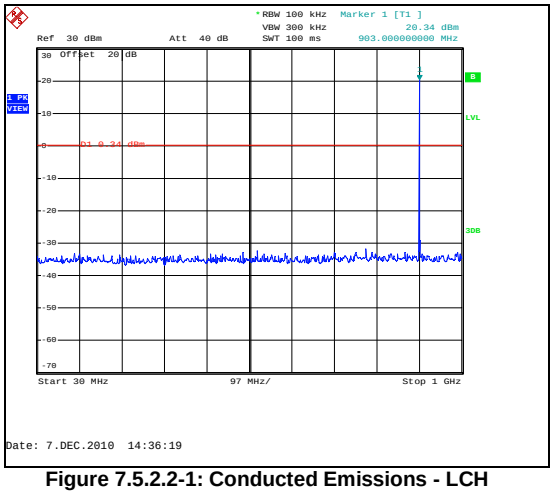

Figure 7.5.2.2-1: Conducted Emissions - LCH

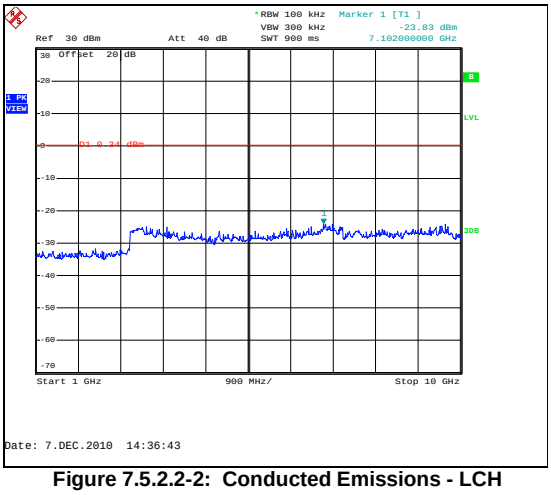

Figure 7.5.2.2-2: Conducted Emissions - LCH

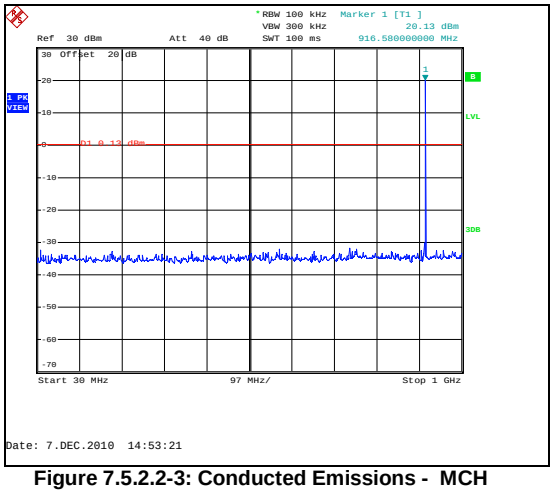

Figure 7.5.2.2-3: Conducted Emissions - MCH

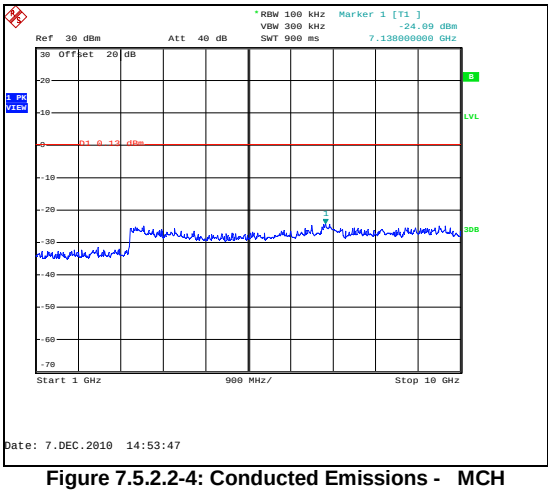

Figure 7.5.2.2-4: Conducted Emissions - MCH

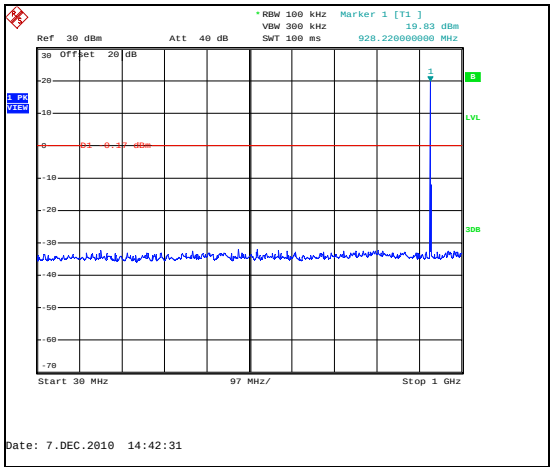

Figure 7.5.2.2-5: Conducted Emissions - HCH

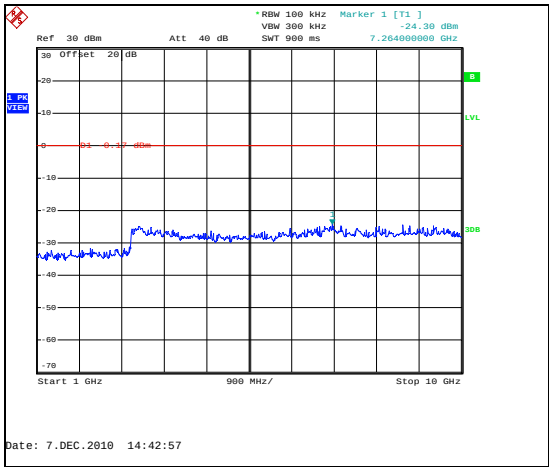

Figure 7.5.2.2-6: Conducted Emissions - HCH

7.5.3 Radiated Spurious Emissions - FCC Section 15.205 IC: RSS-210 2.6

7.5.3.1 Measurement Procedure

Radiated emissions tests were made 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 3MHz respectively.

The EUT was caused to generate a continuous carrier signal on the hopping channel.

7.5.3.2 Duty Cycle Correction

The device operates with a 12.24% duty cycle, therefore for average radiated measurements the measured level was reduced by a factor 18.24dB. The duty cycle correction factor is determined using the formula: 20log (12.24/100) = -18.24dB.

A detailed analysis of the duty cycle timing is provided in the Theory of Operation accompanying this report.

7.5.3.3 Measurement Results

Radiated spurious emissions found in the band of 30MHz to 10GHz are reported in the Table 7.5.3.2-1 below.

Table 7.5.3.2-1: Radiated Spurious Emissions Tabulated Data

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										
2707.2	53.77	48.97	H	-3.70	50.07	27.03	74.0	54.0	23.9	27.0
2707.2	57.28	54.13	V	-3.70	53.58	32.19	74.0	54.0	20.4	21.8
3609.6	52.92	46.43	H	-0.92	52.00	27.26	74.0	54.0	22.0	26.7
3609.6	55.04	50.32	V	-0.92	54.12	31.15	74.0	54.0	19.9	22.8
4512	49.13	39.50	H	1.25	50.38	22.50	74.0	54.0	23.6	31.5
4512	49.01	39.43	V	1.25	50.26	22.43	74.0	54.0	23.7	31.6
5414.4	50.12	44.17	V	3.79	53.91	29.71	74.0	54.0	20.1	24.3
Middle Channel										
2744.25	55.09	51.77	H	-3.61	51.48	29.92	74.0	54.0	22.5	24.1
2744.25	57.81	55.22	V	-3.61	54.20	33.37	74.0	54.0	19.8	20.6
3659	53.70	48.11	H	-0.74	52.96	29.13	74.0	54.0	21.0	24.9
3659	58.01	54.79	V	-0.74	57.27	35.81	74.0	54.0	16.7	18.2
4573.75	48.16	38.92	H	1.44	49.60	22.11	74.0	54.0	24.4	31.9
4573.75	50.22	43.11	V	1.44	51.66	26.30	74.0	54.0	22.3	27.7
7318	49.00	40.47	V	7.26	56.26	29.49	74.0	54.0	17.7	24.5
High Channel										
2782.8	54.03	50.07	H	-3.52	50.51	28.31	74.0	54.0	23.5	25.7
2782.8	60.55	58.62	V	-3.52	57.03	36.86	74.0	54.0	17.0	17.1
3710.4	55.07	51.23	H	-0.55	54.52	32.43	74.0	54.0	19.5	21.6
3710.4	60.02	57.51	V	-0.55	59.47	38.71	74.0	54.0	14.5	15.3
4638	49.08	40.39	H	1.63	50.71	23.78	74.0	54.0	23.3	30.2
4638	50.42	44.12	V	1.63	52.05	27.51	74.0	54.0	21.9	26.5
7420.8	50.75	42.42	V	7.38	58.13	31.56	74.0	54.0	15.9	22.4

7.5.3.4 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
Corrected Level: 53.77 - 3.70 = 50.07dBuV/m
Margin: 74dBuV/m – 50.07dBuV/m = 23.9dB

Example Calculation: Average
Corrected Level: 48.97 - 3.70 – 18.24 = 27.03dBuV
Margin: 54dBuV – 27.03dBuV = 27.0dB

8 CONCLUSION

In the opinion of ACS, Inc. the RF300, manufactured by Synapse Wireless, Inc., meets the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-210.

END REPORT