Excellence in Compliance Testing

Certification Test Report

FCC ID: SJS-400099WH
IC: 5379A-400099WH

FCC Rule Part: 15.247
ISED Canada Radio Standards Specification: RSS-247

ACS Report Number: 16-0481.W06.1C

Manufacturer: Mars Company
Models: 400099WH

Test Begin Date: January 18, 2017
Test End Date: January 23, 2017

Report Issue Date: January 17, 2018

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

For Scope of Accreditation Under Certificate Number: AT-2021

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

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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 Innovation, Science, and Economic Development Canada's Radio Standards Specification RSS-247 Certification.

1.2 Product description

The MARS MKIV (Model: 400099WH) radio was designed as a stand-alone radio transceiver to read water meter encoders and transmit this reading to client receivers. The MARS MKIV operates in the 900MHz ISM Band as a frequency hopping spread spectrum device. The application of the MARS MKIV is to be connected to a water meter encoder outside of a pit configuration.

This test report covers the Frequency Hopping Spread Spectrum mode of operation only. All other modes of operation declared in the Theory of Operations accompanying this certification filing are disabled in the software of the device.

Technical Details:

Detail	Description
Frequency Range	905 - 925 MHz
Number of Channels	50
Modulation Format	FSK
Data Rates	38k baud
Operating Voltage	3Vdc
Antenna Type(s) / Gain(s)	Planar F Type Antenna / -0.6dBi

Manufacturer Information:
Mars Company
3925 SW 13th Street
Ocala, FL 34474

EUT Serial Numbers: 3 (Radiated), 1 (RF Conducted)

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

1.3 Test Methodology and Considerations

All modes of operation, including all available data rates, were evaluated. The data presented in this report represents the worst case where applicable.

The EUT utilizes multiple hopping tables of 50 channels for each hopping table. Data was collected using multiple hopping tables to show compliance for all possible operating conditions (i.e. hopping band-edge at extreme operating band-edges).

A DC power supply was used for testing purposes for all tests documented in this report. See Section 5 and Section 6 for more information.

For Radiated Emissions, the EUT was programmed to generate a pseudo-random modulated signal on for 37ms over a period of 67ms. The EUT was evaluated in an orientation typical of installation. See test setup photos for more information.

For RF Conducted Emissions, the EUT was modified with a temporary SMA connector to facilitate connection to the test equipment. The EUT was programmed to generate a pseudo-random modulated signal on for 37ms over a period of 67ms.

The EUT is a battery powered device with no provisions for connection to the public utilities, therefore the evaluation of power line conducted emissions was not performed.

Software power settings during test: 8F; High Power Bit Set

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 ANSI-ASQ National Accreditation Board/ANAB accreditation program, and has been issued certificate number AT-2021 in recognition of this accreditation. 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, Innovation, Science, and Economic Development Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

FCC Registration Number: 391271
Innovation, Science, and Economic Development 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:

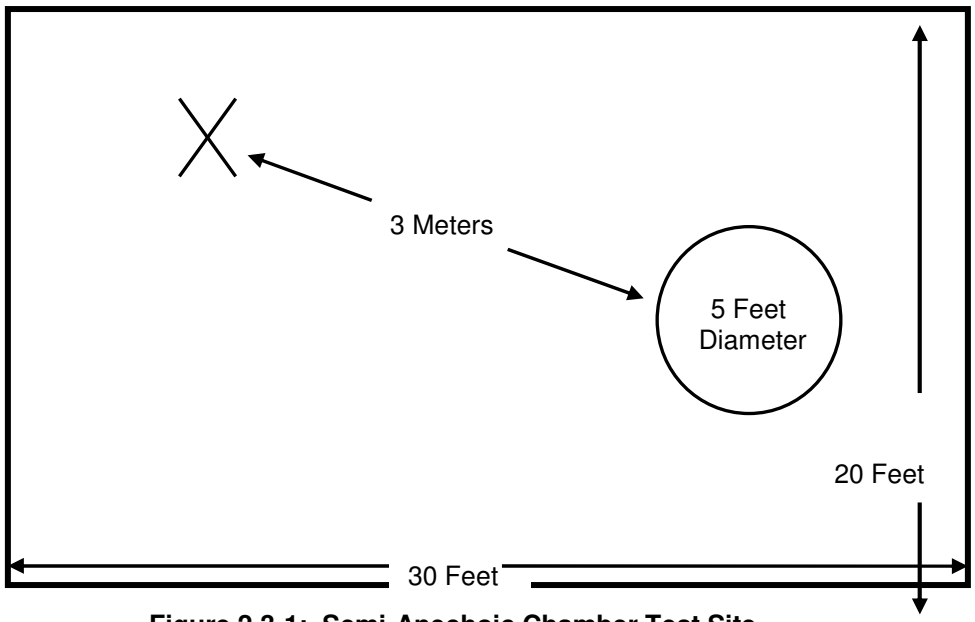


Figure 2.3-1: Semi-Anechoic Chamber Test Site

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:

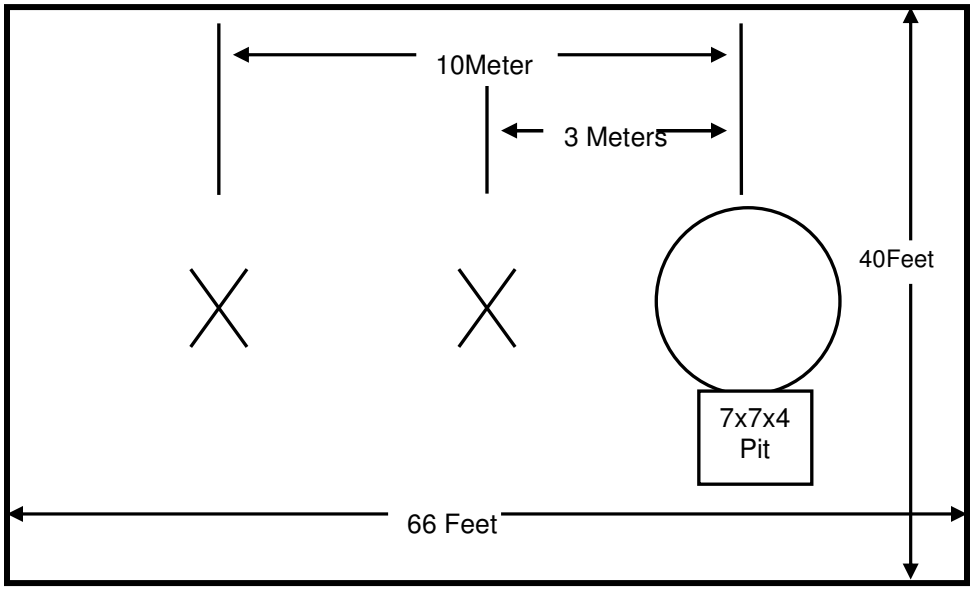


Figure 2.3-2: Open Area Test Site

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 ANSI C63.4.

A diagram of the room is shown below in figure 2.4-1:

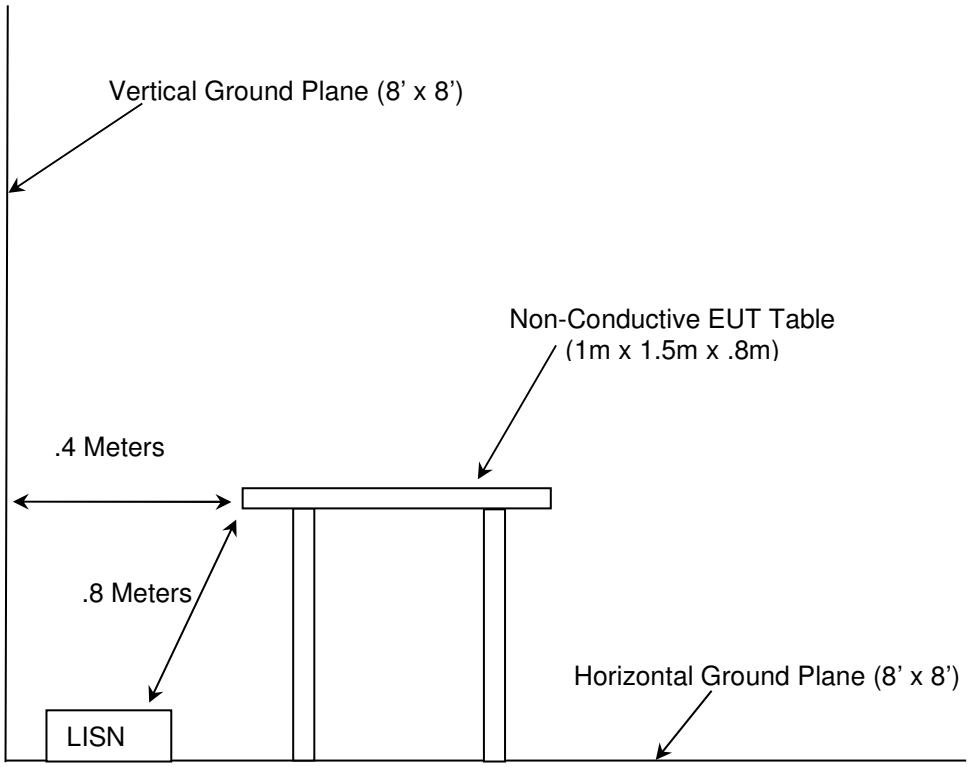


Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2014: American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40GHz.
- 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, 2017
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2017
- ISED Canada Radio Standards Specification: RSS-247 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices, Issue 1, May 2015
- ISED Canada Radio Standards Specification: RSS-GEN – General Requirements and Information for the Certification of Radiocommunication Equipment, 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
30	Spectrum Technologies	DRH-0118	Antennas	970102	4/30/2015	4/30/2017
40	EMCO	3104	Antennas	3211	2/10/2015	2/10/2017
73	Agilent	8447D	Amplifiers	2727A05624	7/21/2016	7/21/2017
167	ACS	hamber EMI Cable S	Cable Set	167	9/30/2016	9/30/2017
267	Agilent	N1911A	Meters	MY45100129	8/24/2015	8/24/2017
268	Agilent	N1921A	Sensors	MY45240184	8/13/2015	8/13/2017
331	Microwave Circuits	H1G513G1	Filters	31417	5/13/2016	5/13/2017
338	Hewlett Packard	8449B	Amplifiers	3008A01111	8/21/2015	8/21/2017
340	Aeroflex/Weinschel	AS-20	Attenuators	7136	7/12/2016	7/12/2017
412	Electro Metrics	LPA-25	Antennas	1241	8/8/2016	8/8/2018
422	Florida RF	SMS-200AW-72.0-SMR	Cables	805	10/27/2016	10/27/2017
616	Florida RF Cables	SMRE-200W-12.0-SMRE	Cables	N/A	9/2/2016	9/2/2017
622	Rohde & Schwarz	FSV40	Analyzers	101338	7/15/2016	7/15/2018
628	EMCO	6502	Antennas	9407-2877	2/11/2016	2/11/2018
676	Florida RF Labs	SMS-290AW-480.0-SMS	Cables	MFR2Y194	11/4/2016	11/4/2017
RE619	Rhode & Schwarz	ESU26	Spectrum Analyzers	1302.6005K26 Ser. 100190	11/5/2014	3/5/2017

5 SUPPORT EQUIPMENT

Table 5-1: Support Equipment

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	Bench Power Supply	Hewlett Packard	E3630A	KR64308603

Table 5-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	DC Power Wires (Twisted Pair)	200 cm	No	EUT – 1
B	AC Power Cable	150 cm	No	1 – AC Mains

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

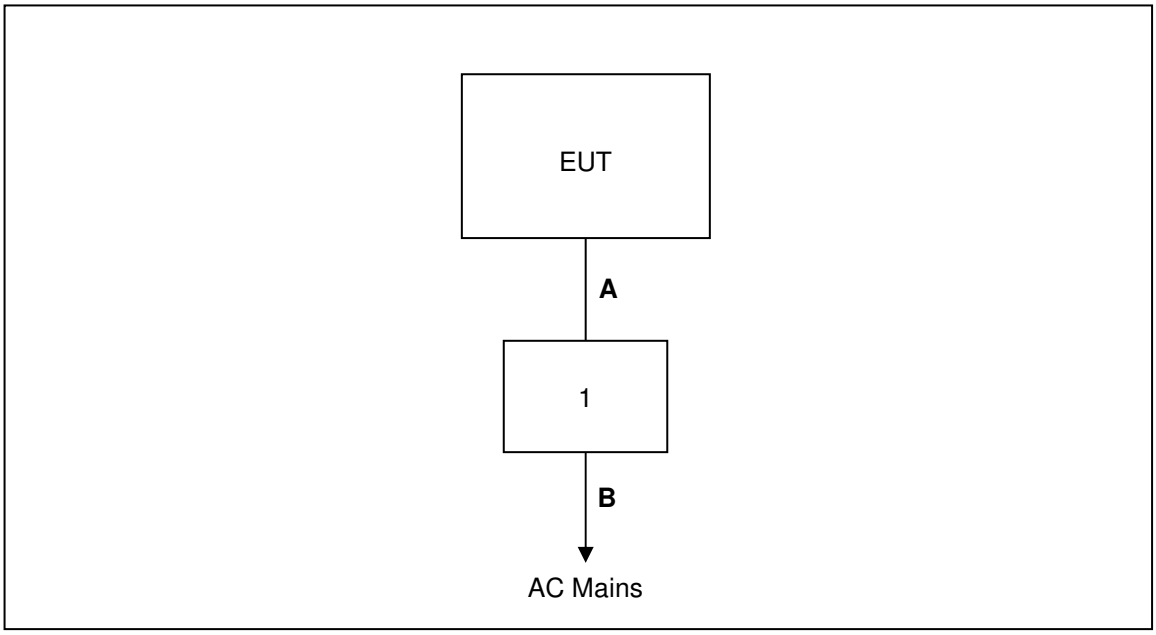


Figure 6-1: Test Setup Block Diagram

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 used is a Planar F Type with -0.6dBi gain. The antenna is non-detachable from the EUT, therefore satisfying the requirements of Section 15.203.

7.2 Power Line Conducted Emissions – FCC: Section 15.207; ISED Canada: RSS-GEN 8.8

7.2.1 Measurement Procedure

The EUT is a battery powered device with no provisions for connection to the public utilities, therefore power line conducted emissions was not performed.

7.3 Peak Output Power – FCC: Section 15.247(b)(2); ISED Canada: RSS-247 5.4(1)

7.3.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of a power meter using suitable attenuation. The device employs >= 50 channels at any given time therefore the power is limited to 1 Watt.

7.3.2 Measurement Results

Table 7.3.2-1: Maximum Conducted Peak Output Power

Frequency [MHz]	Level [dBm]
905	19.03
915	18.96
925	18.85

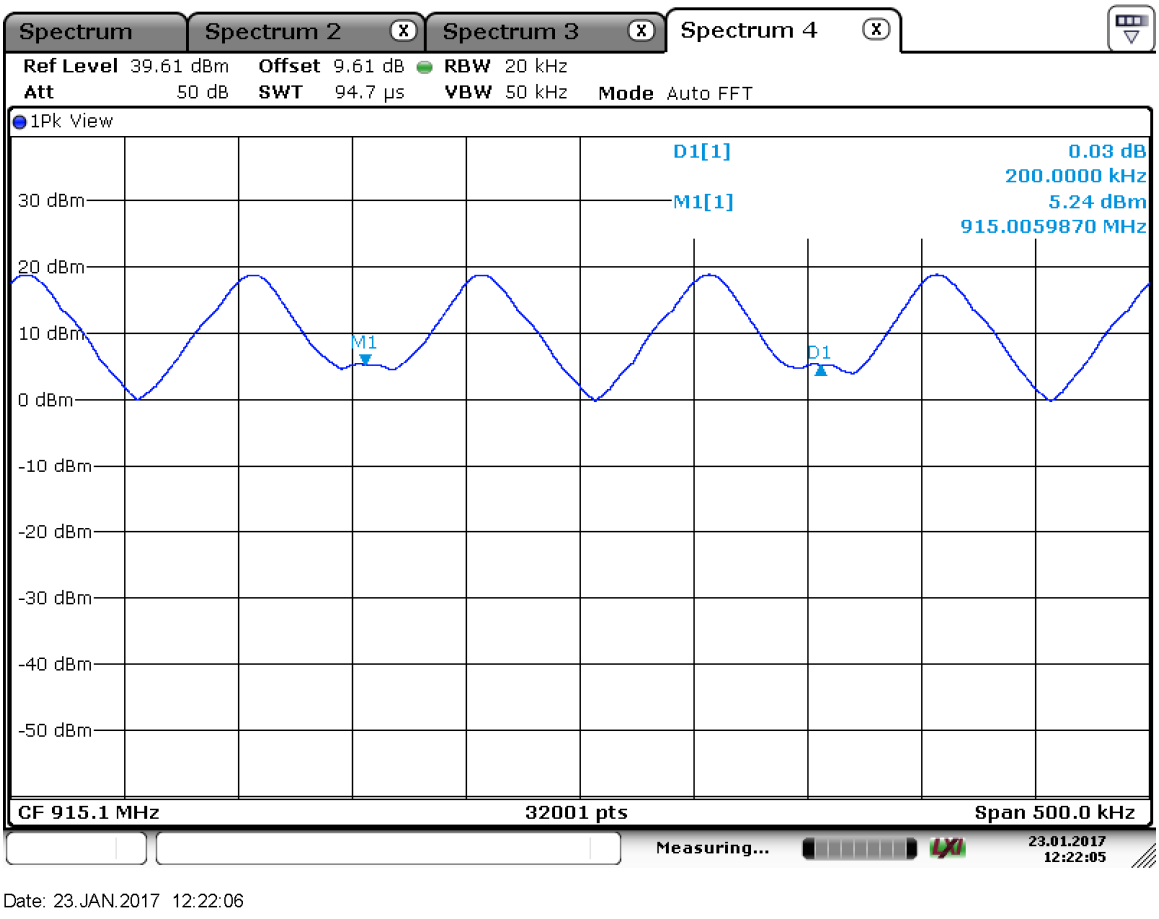
7.4 Channel Usage Requirements

7.4.1 Carrier Frequency Separation – FCC: Section 15.247(a)(1); ISED Canada: RSS-247 5.1(2)

7.4.1.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. The span of the spectrum analyzer was set wide enough to capture two adjacent peaks. The RBW was set to approximately 30% of the channel spacing and adjusted as necessary to best identify the center of each channel. The VBW was set > RBW.

7.4.1.2 Measurement Results



Date: 23.JAN.2017 12:22:06

Figure 7.4.1.2-1: Frequency Separation

7.4.2 Number of Hopping Channels – FCC: Section 15.247(a)(1)(i); ISED Canada: RSS-247 5.1(3)

7.4.2.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. The span of the spectrum analyzer was set wide enough to capture the frequency band of operation. The RBW was set to < 30% of the channel spacing and VBW set to ≥ RBW.

7.4.2.2 Measurement Results

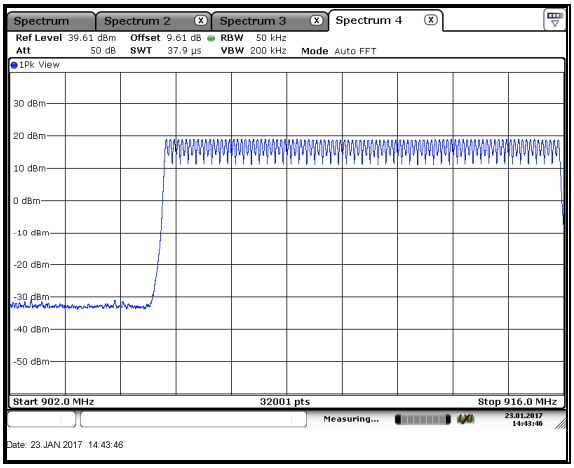


Figure 7.4.2.2-1: No. of Hopping Channels – Lower

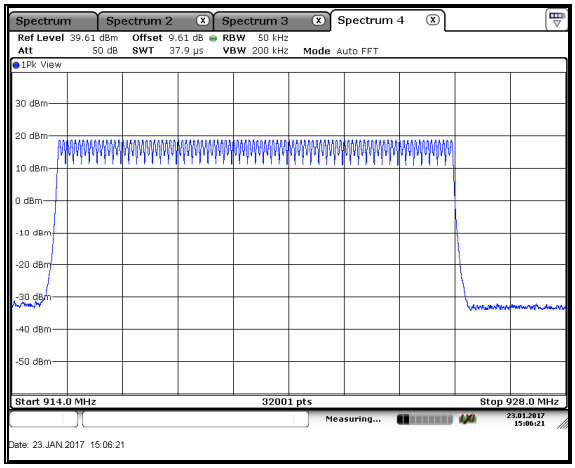


Figure 7.4.2.2-2: No. of Hopping Channels – Upper

7.4.3 Channel Dwell Time – FCC: Section 15.247(a)(1)(i); ISED Canada: RSS-247 5.1(3)

7.4.3.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. The span of the spectrum analyzer display was set 0 Hz centered on a hopping channel. The RBW of the spectrum analyzer was set to ≤ the EUT channel spacing and VBW set to ≥ RBW. The Marker Delta function of the analyzer was utilized to determine the dwell time.

7.4.3.2 Measurement Results

Table 7.4.3.2-1: Channel Dwell Time

Single Occurrence [ms]	Number of Occurrences / 20s	Total Dwell Time [ms]
3.648	1	3.648

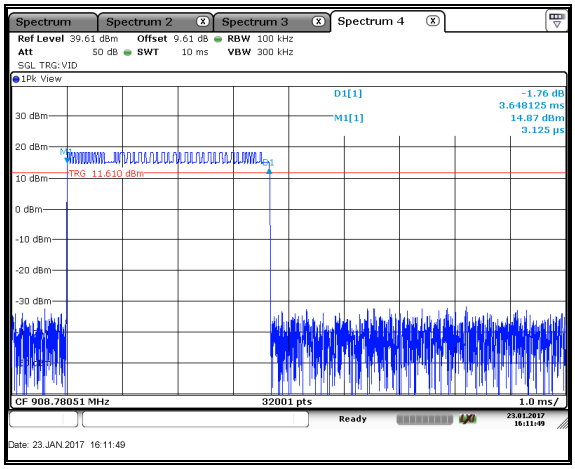


Figure 7.4.3.2-1: Dwell Time – 10ms

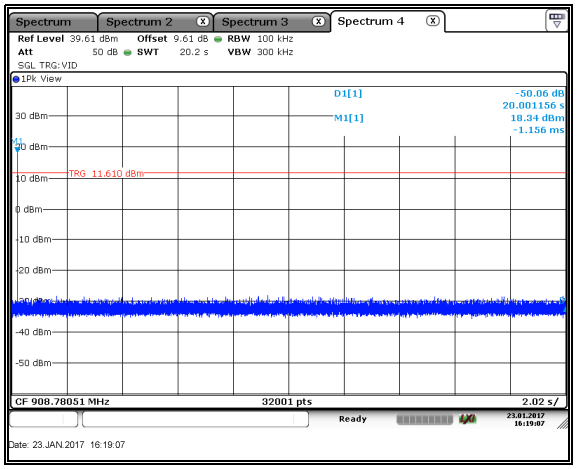


Figure 7.4.3.2-1: Dwell Time – 20s

7.4.4 20dB / 99% Bandwidth – FCC: Section 15.247(a)(1)(i); ISED Canada: RSS-247 5.1(3)

7.4.4.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. 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 marker delta measurement function of the analyzer was utilized to determine the 20 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.

7.4.4.2 Measurement Results

Table 7.4.4.2-1: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
905	161.917	171.104
915	161.964	176.994
925	161.729	167.760

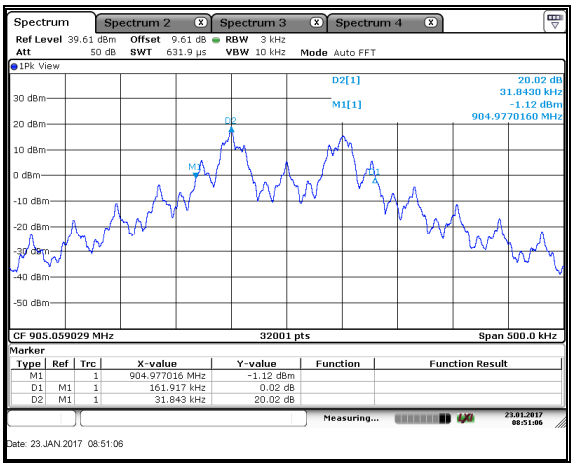


Figure 7.4.4.2-1: 20dB BW Low Channel

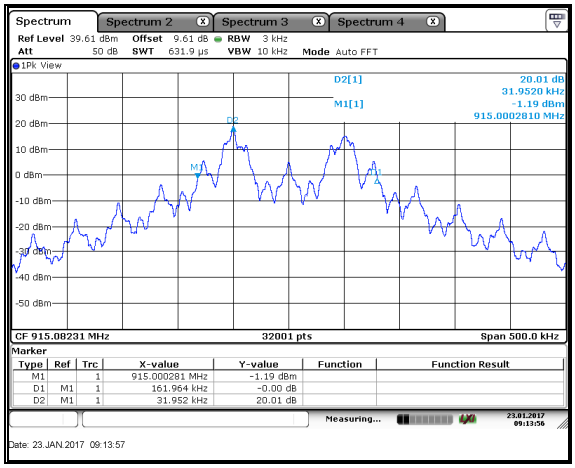


Figure 7.4.4.2-2: 20dB BW Mid Channel

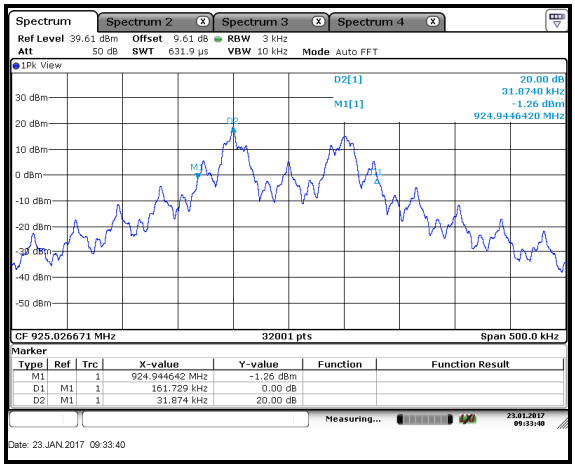


Figure 7.4.4.2-3: 20dB BW High Channel

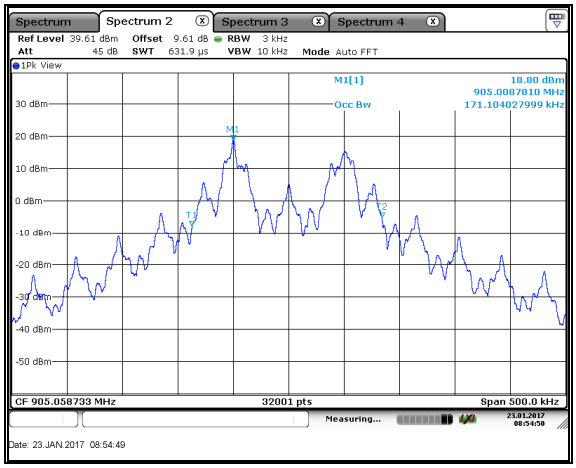


Figure 7.4.4.2-4: 99% BW Low Channel

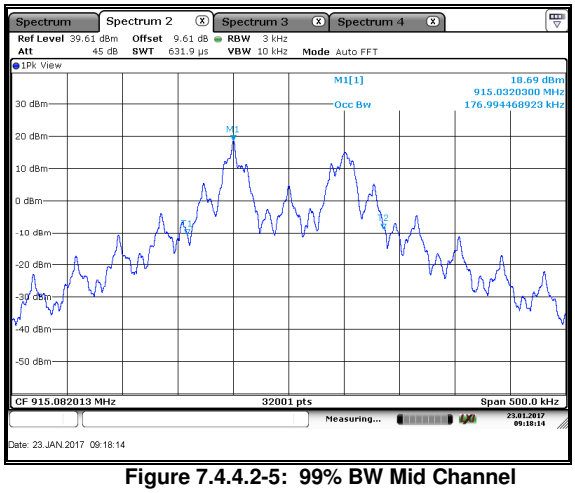


Figure 7.4.4.2-5: 99% BW Mid Channel

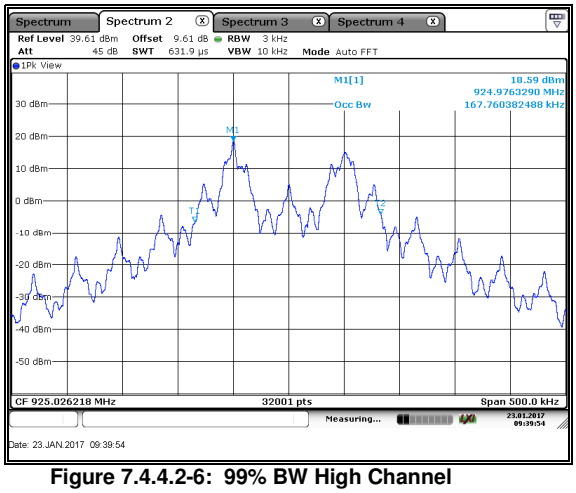


Figure 7.4.4.2-6: 99% BW High Channel

7.5 Band-Edge Compliance and Spurious Emissions

7.5.1 Band-Edge Compliance of RF Conducted Emissions – FCC: Section 15.247(d); ISED Canada: RSS-247 5.5

7.5.1.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. 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, and the VBW was set to 300 kHz.

7.5.1.2 Measurement Results

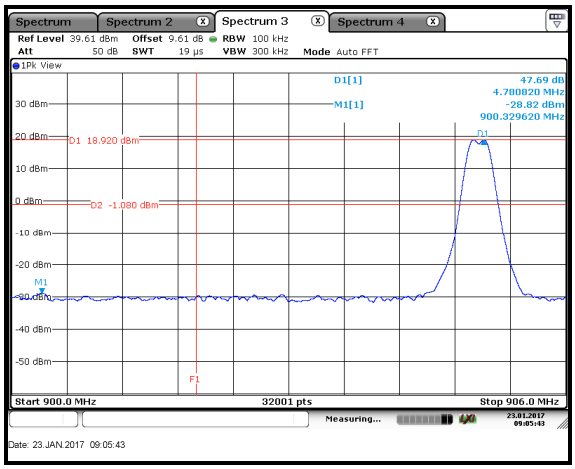


Figure 7.5.1.2-1: Lower BE

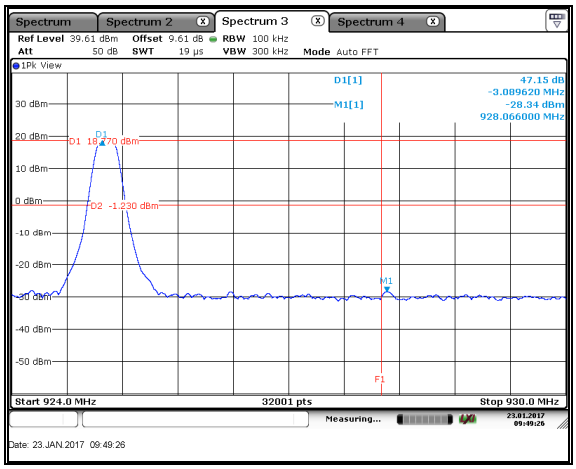


Figure 7.5.1.2-2: Upper BE

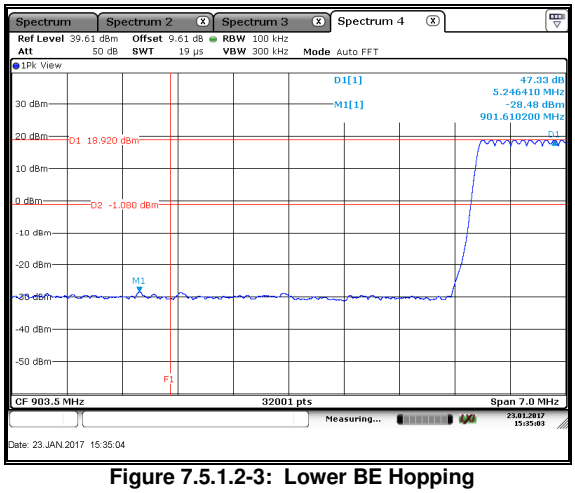


Figure 7.5.1.2-3: Lower BE Hopping

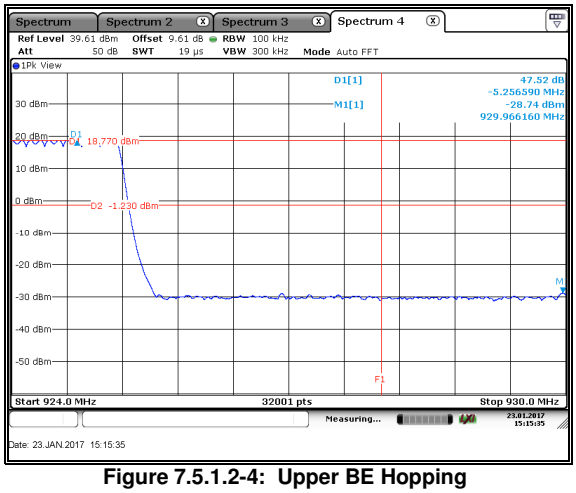


Figure 7.5.1.2-4: Upper BE Hopping

7.5.2 RF Conducted Spurious Emissions – FCC: Section 15.247(d); ISED Canada: RSS-247 5.5

7.5.2.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer using suitable attenuation. 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

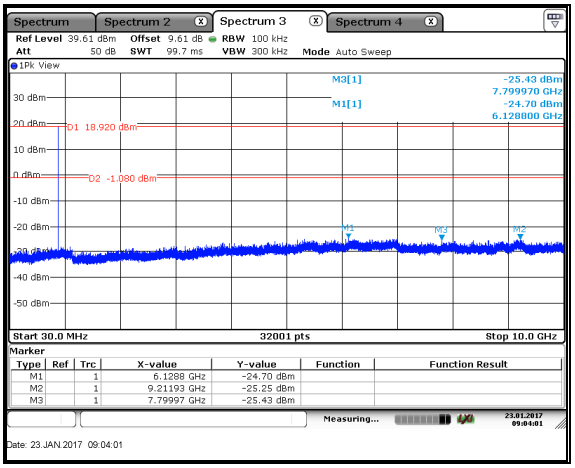


Figure 7.5.2.2-1: 30 MHz – 10 GHz – LCH

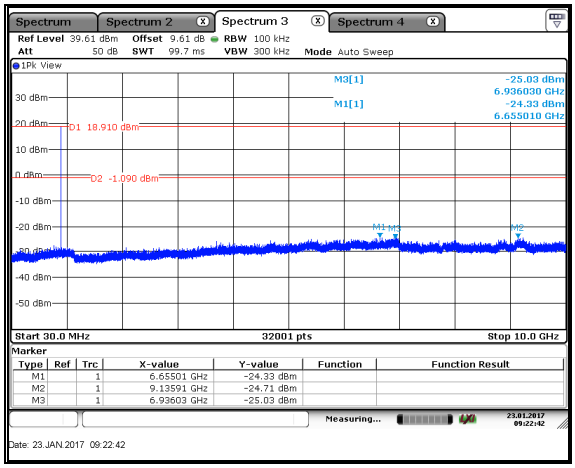


Figure 7.5.2.2-2: 30 MHz – 10 GHz – MCH

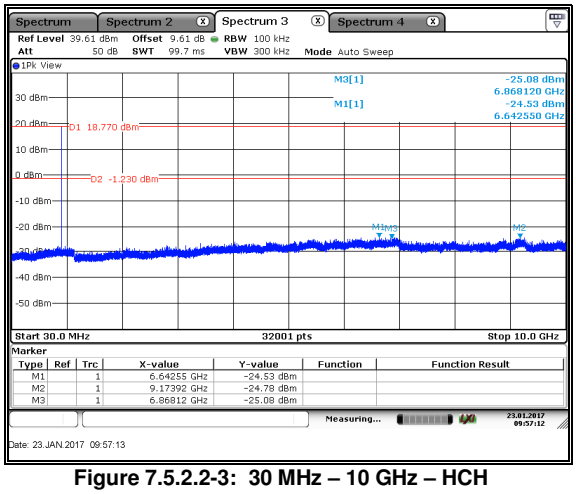


Figure 7.5.2.2-3: 30 MHz – 10 GHz – HCH

7.5.3 Radiated Spurious Emissions – FCC: Section 15.205, 15.209; ISED Canada: RSS-Gen 8.9/8.10

7.5.3.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 9 kHz to 10 GHz, 10 times the highest fundamental frequency. 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.

Measurements below 30 MHz were performed in a semi-anechoic chamber with a 3 meter separation distance between the EUT and measurement antenna. The EUT was rotated 360° to maximize each emission. The magnetic loop receiving antenna was positioned with its lowest point 1 meter above the ground.

The spectrum analyzer's resolution and video bandwidth was set to 200 Hz and 1 kHz respectively for frequencies below 150 kHz and 9 kHz and 30 kHz respectively for frequencies above 150 kHz and below 30 MHz. For measurements in the frequency bands 9-90 kHz and 110-490 kHz, an average detector was used. When average measurements are specified, the peak emissions were also compared to a limit corresponding to 20 dB above the maximum permitted average limit according to Part 15.35. All other emissions were measured using a Quasi-peak detector.

Measurements above 30 MHz were performed in a semi-anechoic chamber with a 3 meter separation distance between the EUT and measurement antenna. The EUT was rotated through 360° and the receive antenna height was varied from 1 meter to 4 meter so that the maximum radiated emissions level would be detected. For frequencies below 1000 MHz, quasi-peak measurements were made using a resolution bandwidth (RBW) of 120 kHz and a video bandwidth (VBW) of 300 kHz. For frequencies above 1000 MHz, peak and average measurements were made using a resolution bandwidth (RBW) of 1 MHz and a video bandwidth (VBW) of 3 MHz.

7.5.3.2 Duty Cycle Correction

For average radiated measurements, using a 3.648% duty cycle, the measured level was reduced by a factor 28.76dB. The duty cycle correction factor is determined using the formula: 20log (3.648/100) = -28.76dB. See Section 7.4.3 for dwell time and duty cycle measurements.

7.5.3.3 Measurement Results

Table 7.5.3.3-1: 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										
2715	57.00	53.90	H	-3.89	53.11	21.25	74.0	54.0	20.9	32.7
2715	64.50	63.10	V	-3.89	60.61	30.46	74.0	54.0	13.4	23.5
3620	57.50	54.20	H	-0.94	56.56	24.50	74.0	54.0	17.4	29.5
3620	58.30	55.50	V	-0.94	57.36	25.80	74.0	54.0	16.6	28.2
4525	55.30	51.40	H	0.58	55.88	23.22	74.0	54.0	18.1	30.8
4525	55.70	51.50	V	0.58	56.28	23.32	74.0	54.0	17.7	30.7
5430	54.00	49.50	H	3.45	57.45	24.19	74.0	54.0	16.5	29.8
5430	52.80	47.00	V	3.45	56.25	21.69	74.0	54.0	17.7	32.3
8145	62.00	57.80	H	8.03	70.03	37.08	74.0	54.0	4.0	16.9
8145	55.20	49.70	V	8.03	63.23	28.98	74.0	54.0	10.8	25.0
9050	49.50	40.20	H	8.86	58.36	20.30	74.0	54.0	15.6	33.7
9050	49.70	38.40	V	8.86	58.56	18.50	74.0	54.0	15.4	35.5
Middle Channel										
2745	63.10	61.50	H	-3.80	59.30	28.94	74.0	54.0	14.7	25.1
2745	68.00	67.10	V	-3.80	64.20	34.54	74.0	54.0	9.8	19.5
3660	56.60	52.90	H	-0.80	55.80	23.34	74.0	54.0	18.2	30.7
3660	57.80	54.90	V	-0.80	57.00	25.34	74.0	54.0	17.0	28.7
4575	55.00	50.80	H	0.74	55.74	22.78	74.0	54.0	18.3	31.2
4575	54.40	49.80	V	0.74	55.14	21.78	74.0	54.0	18.9	32.2
7320	62.50	60.40	H	7.68	70.18	39.32	74.0	54.0	3.8	14.7
7320	53.20	47.20	V	7.68	60.88	26.12	74.0	54.0	13.1	27.9
8235	59.60	53.90	H	8.16	67.76	33.30	74.0	54.0	6.2	20.7
8235	54.20	46.50	V	8.16	62.36	25.90	74.0	54.0	11.6	28.1
9150	52.00	42.80	H	8.91	60.91	22.95	74.0	54.0	13.1	31.0
9150	51.40	42.60	V	8.91	60.31	22.75	74.0	54.0	13.7	31.2
High Channel										
2775	60.40	57.90	H	-3.72	56.68	25.42	74.0	54.0	17.3	28.6
2775	66.00	64.40	V	-3.72	62.28	31.92	74.0	54.0	11.7	22.1
3700	53.50	47.00	H	-0.65	52.85	17.59	74.0	54.0	21.2	36.4
3700	54.30	48.70	V	-0.65	53.65	19.29	74.0	54.0	20.4	34.7
4625	51.50	43.60	H	0.90	52.40	15.74	74.0	54.0	21.6	38.3
4625	51.20	42.50	V	0.90	52.10	14.64	74.0	54.0	21.9	39.4
7400	64.10	62.70	H	7.76	71.86	41.70	74.0	54.0	2.1	12.3
7400	53.40	47.50	V	7.76	61.16	26.50	74.0	54.0	12.8	27.5
8325	56.70	50.10	H	8.29	64.99	29.63	74.0	54.0	9.0	24.4
8325	52.00	44.10	V	8.29	60.29	23.63	74.0	54.0	13.7	30.4

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 – Low Channel

Corrected Level: 57.00 - 3.89 = 53.11dBuV/m
Margin: 74dBuV/m – 53.11dBuV/m = 20.9dB

Example Calculation: Average – Low Channel

Corrected Level: 53.90 - 3.89 - 28.76 = 21.25dBuV
Margin: 54dBuV – 21.25dBuV = 32.7dB

8 CONCLUSION

In the opinion of ACS, Inc. the 400099WH, manufactured by Mars Company meets the requirements of FCC Part 15 subpart C and Innovation, Science and Economic Development Canada's Radio Standards Specification RSS-247.

END REPORT