FCC Part 15 Subpart C
Transmitter Certification

Frequency Hopping Spread Spectrum Transmitter

Test Report

FCC ID: R7PTOP04

FCC Rule Part: 15.247

ACS Report Number: 05-0327-15C

Manufacturer: Cellnet Technology, Inc.
Model: Take Out Point
P/N: 26-1128

Test Begin Date: September 7, 2005
Test End Date: September 7, 2005

Report Issue Date: October 5, 2005

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612

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This report contains 23 pages

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1.0 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.

1.2 Product Description

1.2.1 General
The Take Out Point (TOP) is a data radio used in the Utility industry for controls and automatic meter reading. It is sold to utility companies for the purpose of automating the control of remote devices (relays, capacitor banks, etc.) and for collecting data from remote devices such as meters.

The TOP can be mounted on a variety of structures typically within a secure area such as a utility substation. All components are housed in a single enclosure suitable for outdoor environments and easy, straightforward installation.

1.2.2 Modifications for Compliance
The following modifications were made to the device to achieve compliance for Radiated and AC Powerline Conducted Emissions testing. The following modifications will be implemented in the final manufacturing of the device.

1) Shielded internal Ethernet cable with two Fair-Rite brand ferrites, 0444164181, with two turns each. Each of the ferrites were situated close to the cable ends.
2) Shielded external Ethernet cable with two Steward brand ferrites, 28A5776-0A2, with three turns each. Both ferrites were situated close to the EUT Ethernet connector.
3) Internal power leads, Red and Black, with one Fair-Rite brand ferrite, 0443164151, with three turns. Ferrite situated halfway between the supply board and the processor board against the inside wall.
4) Re-routed Ethernet cable

See Modification Photographs which is included in this filing.

2.0 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

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. In addition, ACS is compliant to ISO 17025 as certified by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program. The following certification numbers have been issued in recognition of these accreditations and certifications:

FCC Registration Number: 89450
Industry Canada Lab Code: IC 4175
VCCI Member Number: 1831

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

NVLAP Lab Code: 200612

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:

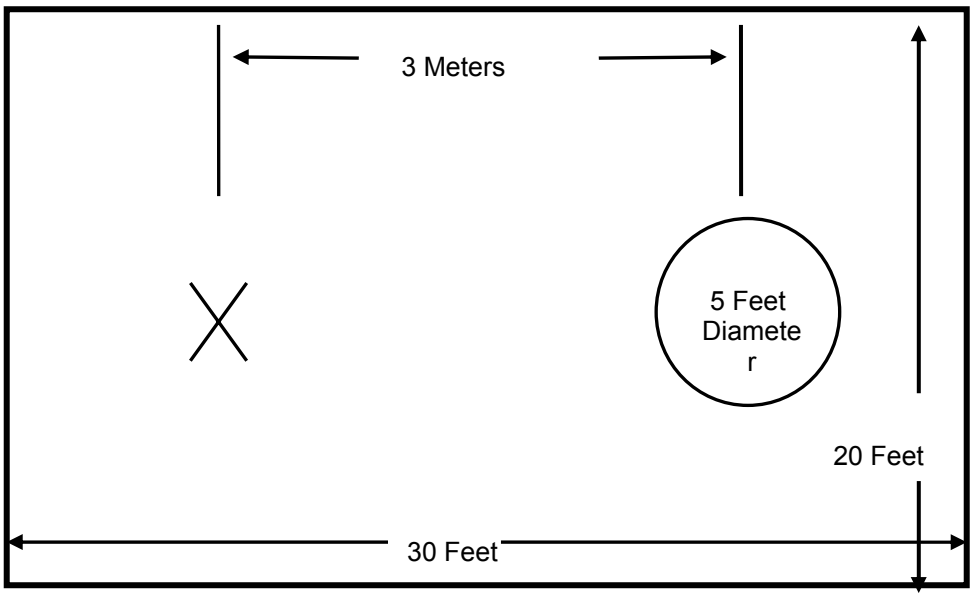

Figure 2.3-1: Semi-Anechoic Chamber Test Site

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:

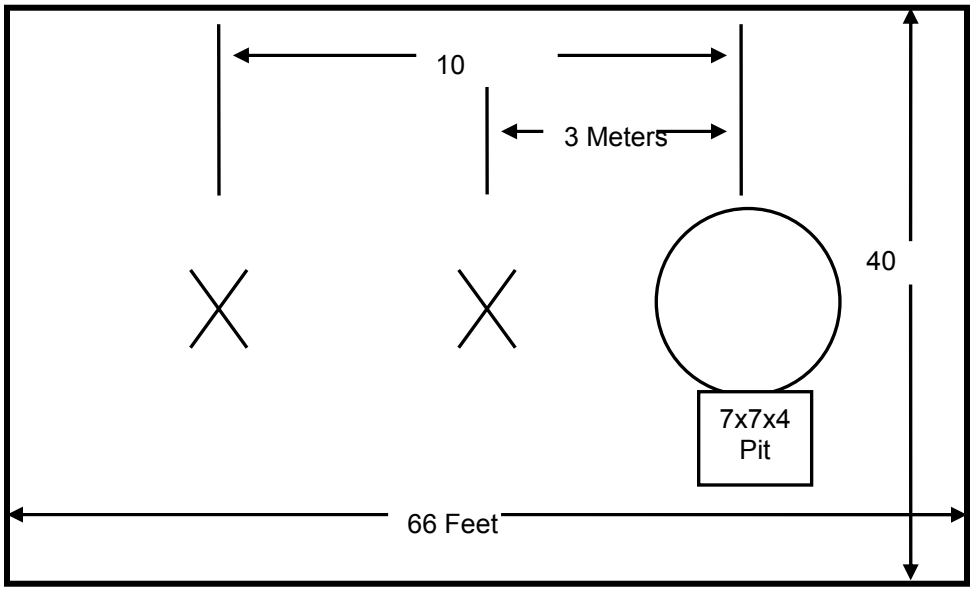

Figure 2.3-2: Open Area Test Site

2.4 Conducted Emissions Test Site Description
The AC mains conducted EMI site is a shielded room with the following dimensions:

- Height: 3.0 Meters
- Width: 3.6 Meters
- Length: 4.9 Meters

The room is manufactured by Rayproof Corporation and installed by Panashield, Inc. Earth ground is provided to the room via an 8' copper ground rod. Each panel of the room is connected electrically at intervals of 4".

Power to the room is filtered to prevent ambient noise from coupling to the EUT and measurement equipment. Filters are models 1B42-60P manufactured by Rayproof Corporation.

The room 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:

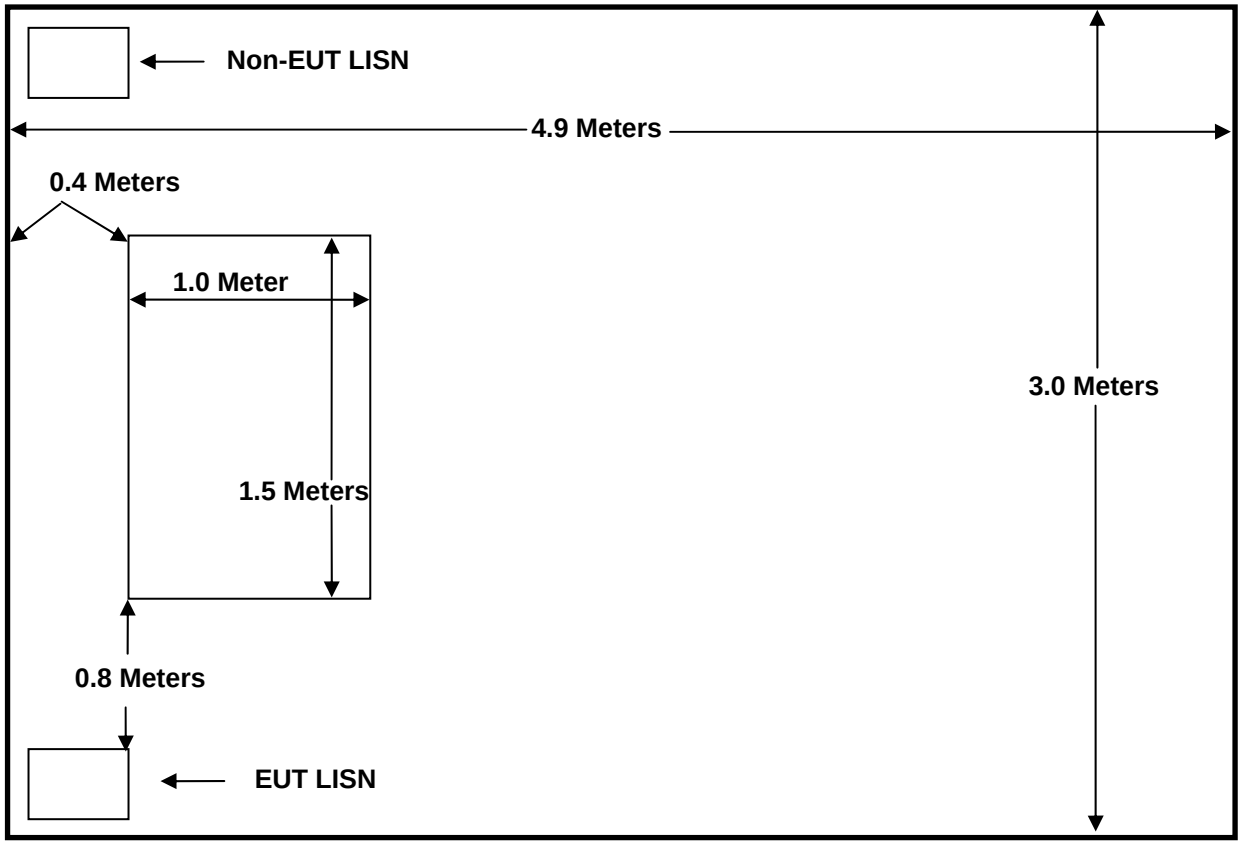

Figure 2.4-1: AC Mains Conducted EMI Site

3.0 APPLICABLE STANDARD REFERENCES
The following standards were used:

1 - ANSI C63.4-2003: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the 9 KHz to 40GHz
2 - US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators (October 2004)
3 - FCC OET Bulletin 65 Appendix C - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

4.0 LIST OF TEST EQUIPMENT

All test equipment used for regulatory testing is calibrated yearly or according to manufacturer's specifications.

Table 4.0-1: Test Equipment

Equipment Calibration Information					
ACS#	**Mfg.**	**Eq. type**	**Model**	**S/N**	**Cal. Due**
☒ 26	Chase	Bi-Log Antenna	CBL6111	1044	10/15/05
☒ 153	EMCO	LISN	3825/2	9411-2268	12/20/05
☒ 193	ACS	OATS Cable Set	RG8	193	01/07/06
☒ 225	Andrew	OATS RF cable	Heliax	225	01/06/06
☒ 165	ACS	Conducted EMI Cable Set	RG8	165	01/06/06
☒ 22	Agilent	Pre-Amplifier	8449B	3008A00526	05/06/06
☒ 73	Agilent	Pre-Amplifier	8447D	272A05624	05/18/06
☒ 30	Spectrum Technologies	Horn Antenna	DRH-0118	970102	05/09/06
☒ 105	Microwave Circuits	High Pass Filter	H1G810G1	2123-01 DC0225	06/09/06
☒ 1	Rohde & Schwarz	Receiver Display	804.8932.52	833771/007	03/07/06
☒ 2	Rohde & Schwarz	ESMI Receiver	1032.5640.53	839587/003	03/07/06
☒ 3	Rohde & Schwarz	Receiver Display	804.8932.52	839379/011	12/15/05
☒ 4	Rohde & Schwarz	ESMI Receiver	1032.5640.53	833827/003	12/15/05
☒ ---	Agilent	Spectrum Analyzer	E7402A	US41110277	11/10/05
☒ 168	Hewlett Packard	Pulse Limiter	11947A	3107A02268	01/06/06
☒ 6	Harbour Industries	HF RF Cable	LL-335	00006	03/16/06
☒ 7	Harbour Industries	HF RF Cable	LL-335	00007	03/16/06
☒ 167	ACS	Chamber EMI Cable Set	RG6	167	12/29/05
☒ 204	ACS	Chamber EMI RF cable	RG8	204	01/07/06

5.0 SUPPORT EQUIPMENT

Table 5-3: Support Equipment

Manufacturer	Equipment Type	Model Number	Serial Number	FCC ID
The EUT was tested and operates stand-alone. No Support equipment utilized.				

6.0 EQUIPMENT UNDER TEST SETUP AND BLOCK DIAGRAM

For radiated emissions the EUT was tested with the four antennas evenly spaced apart across a 1.5 meter span. It was determined that this would product worst case emissions for inter-modulation products based on the configuration required during normal operation.

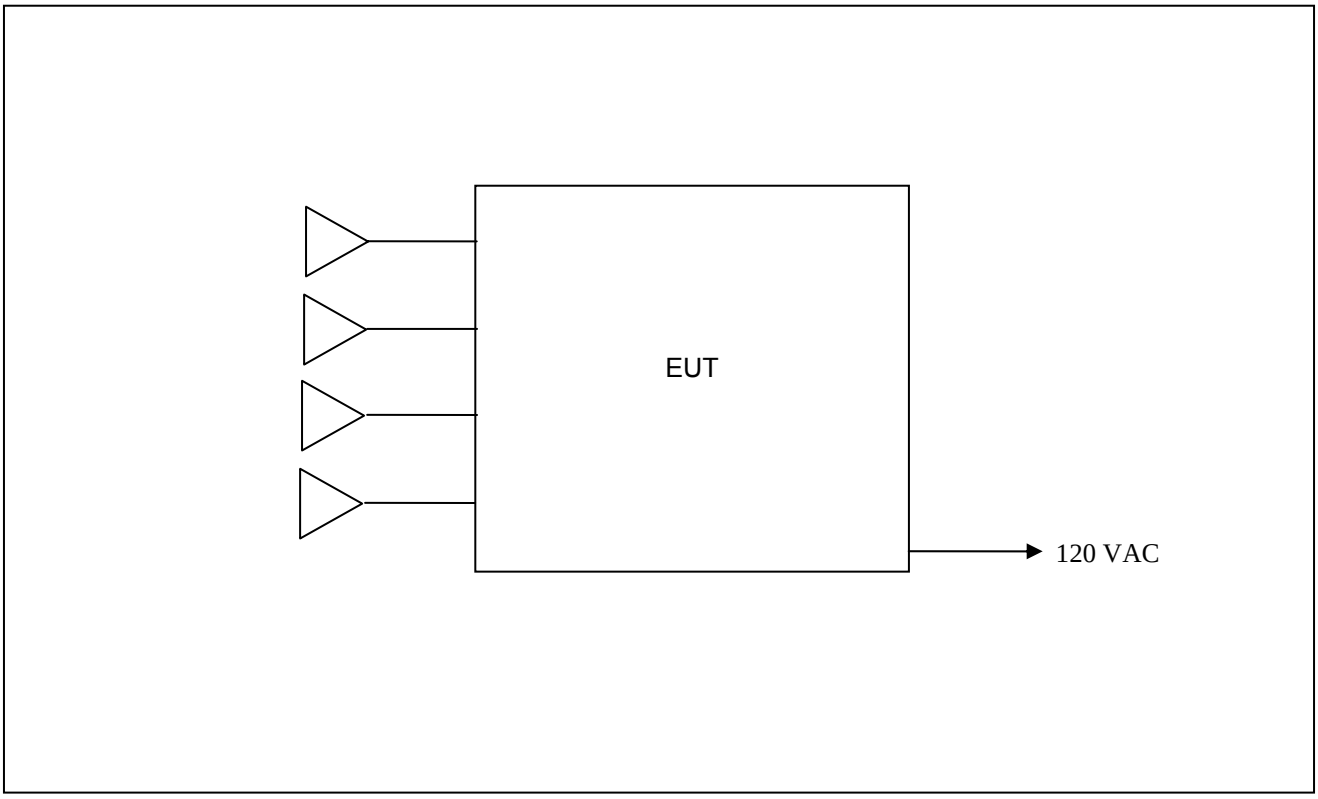

Figure 6.0-1: EUT Test Setup

7.0 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 EUT employs Standard N-Type Connectors. This equipment is designed for use by the utility industry and is not marketed to the general public and must be professionally installed. The standard connectors allow for antenna replacement by qualified service personnel.

7.2 Power Line Conducted Emissions - FCC Section 15.207

7.2.1 Test Methodology

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

Results of the test are shown below in and Tables 7.2.2-1 through 7.2.2-4 and Figure 7.2.2-1 through 7.2.2-2

7.2.2 Test Results

Table 7.2.2-1: Line 1 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer (dB)	Limit dBµV	Margin dB	Line	PE
0.156	29.1	10.0	65.6	36.4	L1	GND
0.414	24.1	9.9	57.5	33.4	L1	GND
0.828	26.7	10.0	56	29.2	L1	GND
0.99	12.6	9.9	56	43.3	L1	GND
1.092	12.4	10.0	56	43.5	L1	GND
1.098	12.2	10.0	56	43.7	L1	GND
1.650	33.1	10.0	56	22.8	L1	GND
2.478	36.9	10.0	56	19.0	L1	GND
6.198	40.1	10.1	60	19.8	L1	GND

Table 7.2.2-2: Line 1 Conducted EMI Results (Average)

Frequency MHz	Level dBµV	Transducer (dB)	Limit dBµV	Margin dB	Line	PE
0.150	21.0	10.0	56	34.9	L1	GND
0.414	26.3	9.9	47.5	21.2	L1	GND
0.828	28.8	10.0	46	17.1	L1	GND
0.990	11.9	9.9	46	34.0	L1	GND
1.092	12.3	10.0	46	33.6	L1	GND
1.146	11.4	10.0	46	34.5	L1	GND
1.650	35.0	10.0	46	10.9	L1	GND
2.478	38.8	10.0	46	7.1	L1	GND
6.198	41.8	10.1	50	8.1	L1	GND

Table 7.2.2-3: Line 2 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer (dB)	Limit dBµV	Margin dB	Line	PE
0.156	29.5	10.0	65.6	36.1	L2	GND
0.414	24.4	9.9	57.5	33.1	L2	GND
1.050	12.5	10.0	56	43.4	L2	GND
1.560	11.6	10.0	56	44.3	L2	GND
2.478	33.6	10.0	56	22.3	L2	GND
6.198	38.7	10.1	60	21.2	L2	GND
6.606	36.5	10.1	60	23.4	L2	GND
10.740	39.7	10.1	60	20.2	L2	GND
11.568	35.9	10.1	60	24.0	L2	GND

Table 7.2.2-4: Line 2 Conducted EMI Results (Average)

Frequency MHz	Level dBµV	Transducer (dB)	Limit dBµV	Margin dB	Line	PE
0.156	20.8	10.0	55.6	34.8	L2	GND
0.414	26.6	9.9	47.5	20.9	L2	GND
0.990	12.2	9.9	46	33.7	L2	GND
1.560	13.8	10.0	46	32.1	L2	GND
2.478	35.5	10.0	46	10.4	L2	GND
6.198	40.3	10.1	50	9.6	L2	GND
6.606	38.3	10.1	50	11.6	L2	GND
10.740	41.0	10.1	50	8.9	L2	GND
11.562	41.0	10.1	50	8.9	L2	GND

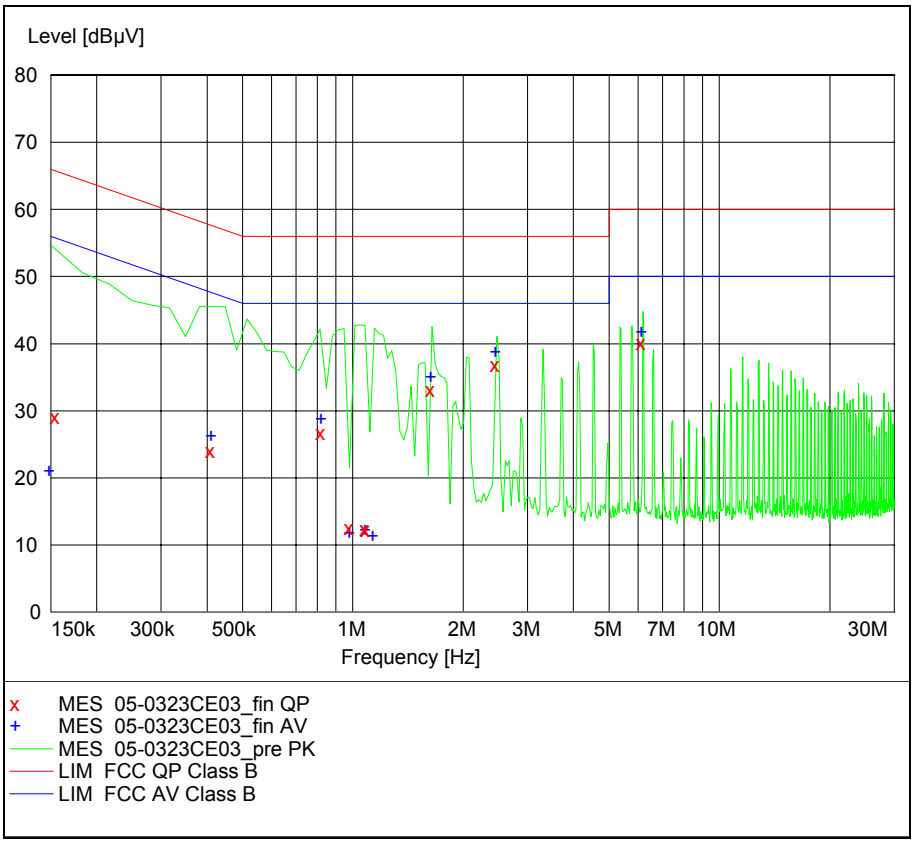

Figure 7.2.2-1: Conducted Emissions Graph – Line 1

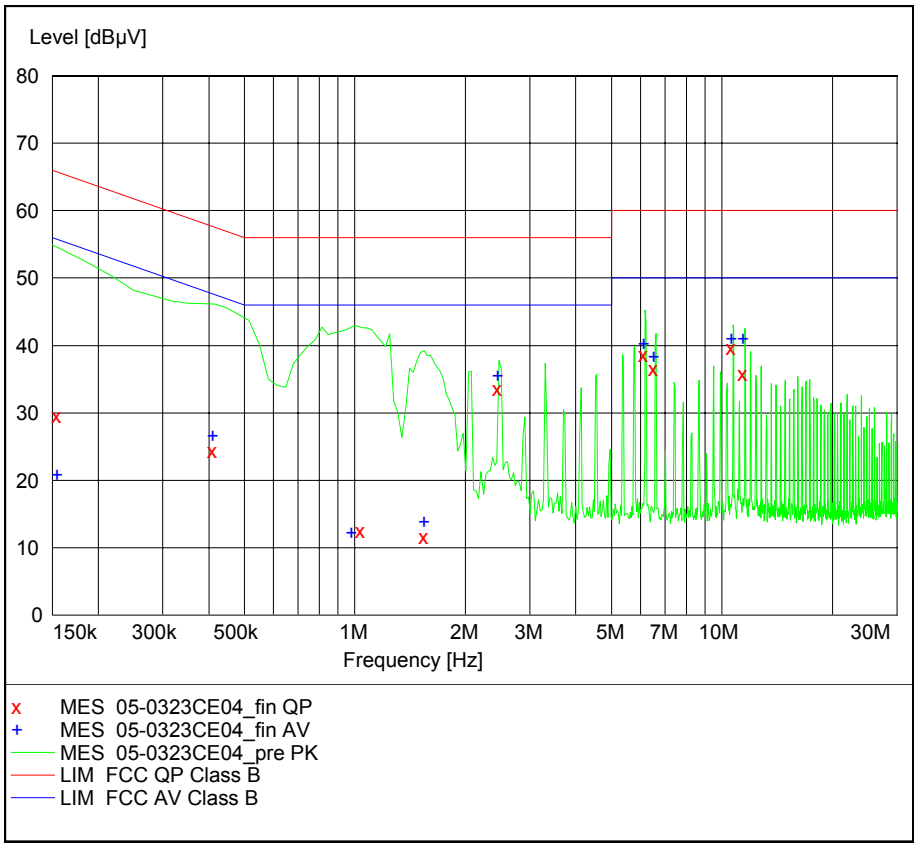

Figure 7.2.2-2: Conducted Emissions Graph – Line 2

7.3 Radiated Emissions - FCC Section 15.109(Unintentional Radiation)

7.3.1 Test Methodology

Radiated emissions tests were performed over the frequency range of 30MHz to 1 GHz. Measurements of the radiated field strength were made at a distance of 3m from the boundary of the equipment under test (EUT) and the receiving antenna. The antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. Radiated measurements were made with the Spectrum Analyzer's resolution bandwidth set to 120 KHz for measurements above 30MHz. Average measurements are taken with the RBW and VBW were set to 1MHz and 10 Hz respectively for measurements above 1000MHz.

The EUT was caused to go into a "Standby" mode of operation for this test.

7.3.2 Test Results

Results of the test are given below in Table 7.3.2-1:

Table 7.3.2-1: Radiated Emissions

Frequency (MHz)	Polarization (H/V)	Height (cm)	Azimuth (deg)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.56	VERTICAL	100	81	30.2	40	9.8
38.32	VERTICAL	96	81	30.1	40	9.9
56.72	VERTICAL	100	294	33.1	40	6.9
363.84	VERTICAL	130	189	35.7	46	10.3
399.84	VERTICAL	118	212	35.5	46	10.5
496.00	VERTICAL	110	0	39.3	46	6.7
599.84	VERTICAL	100	0	34.3	46	11.7
699.92	VERTICAL	100	12	41.4	46	4.6
799.84	VERTICAL	150	189	37.0	46	9.0
899.84	VERTICAL	110	234	37.1	46	8.9

* Note: All emissions above 899.84 MHz were attenuated at least 20 dB below the permissible limit.

7.4 Peak Output Power – FCC Section 15.247

7.4.1 Test Methodology (Conducted Method)

The 20dB bandwidth of the EUT was within the resolution bandwidth of spectrum analyzer, therefore the power measurement was made using the spectrum analyzer method. The resolution and video bandwidth were set to 3MHz. The device employs >50 channels therefore the power is limited to 1 Watt.

7.4.2 Test Results

Results are shown below in table 7.4.2-1 and the worst case was plotted and shown in figure 7.4.2-1 below:

Table 7.4.2-1: RF Output Power

Frequency [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
902.97	29.67	30	0.33
914.98	29.64	30	0.36
926.97	29.75	30	0.25

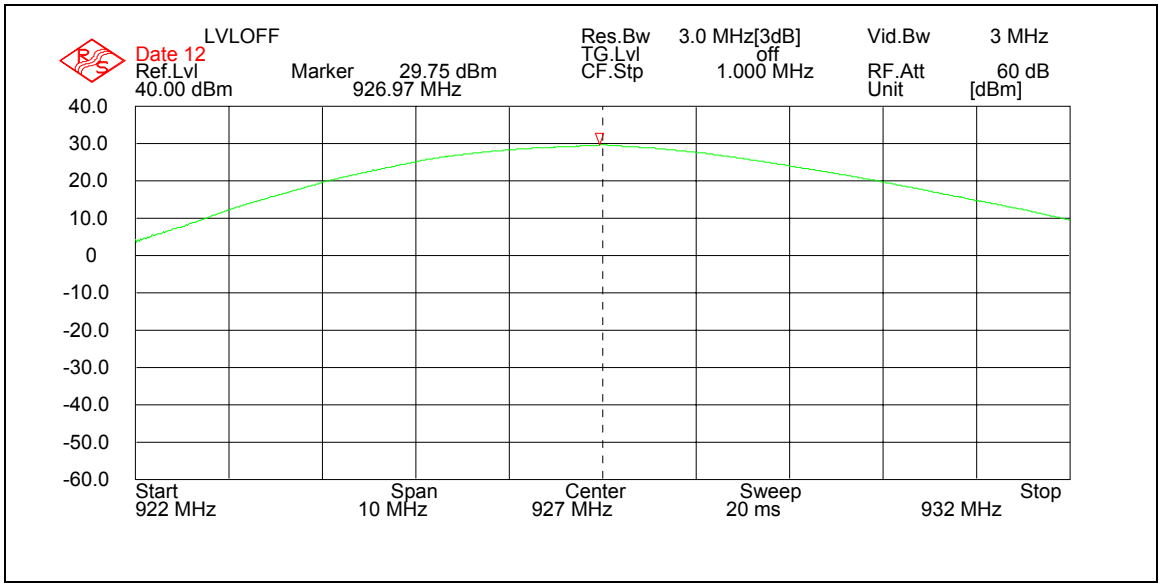

Figure 7.4.2-1: Peak Output Power

7.5 Channel Usage Requirements - FCC Section 15.247

15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

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

7.5.1 Carrier Frequency Separation

The maximum 20dB bandwidth of the hopping channel was measured to be 42.7kHz (See figure 7.5.4-1 below). The adjacent channel separation was measured to be 100kHz. Results are shown in figure 7.5.1-1 below:

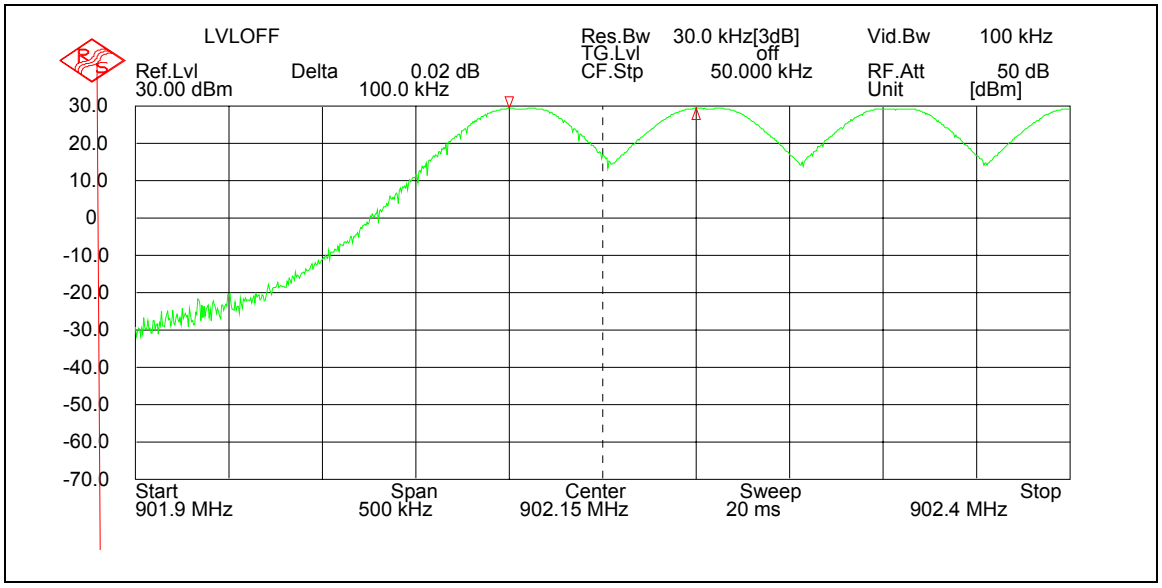

Figure 7.5.1-1: Carrier Frequency Separation

7.5.2 Number of Hopping Channels

The 20dB bandwidth of the device is less than 250 kHz. The device employs a minimum of 50 Channels and as many as 259.

7.5.3 Channel Dwell Time

The EUT employs 50 channels minimum, and has a receiver hopping rate of 700mS. Therefore, it takes a minimum of 35 seconds to cycle through the hopping sequence.

7.5.4 20dB Bandwidth

7.5.4.1 Test Methodology

The 20dB bandwidth was measured in accordance with FCC Public Notice DA-00-75. The EUT was caused to generate a continuous signal at the low, center and high channels.

7.5.4.2 Test Results

Results are shown below in table 7.5.4.2-1 and the worst case is shown in figure 7.5.4.2-1 below:

Table 7.5.4.2-1: 20dB Bandwidth

Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Result
903	42.5	500	Pass
915	42.5	500	Pass
927	42.7	500	Pass

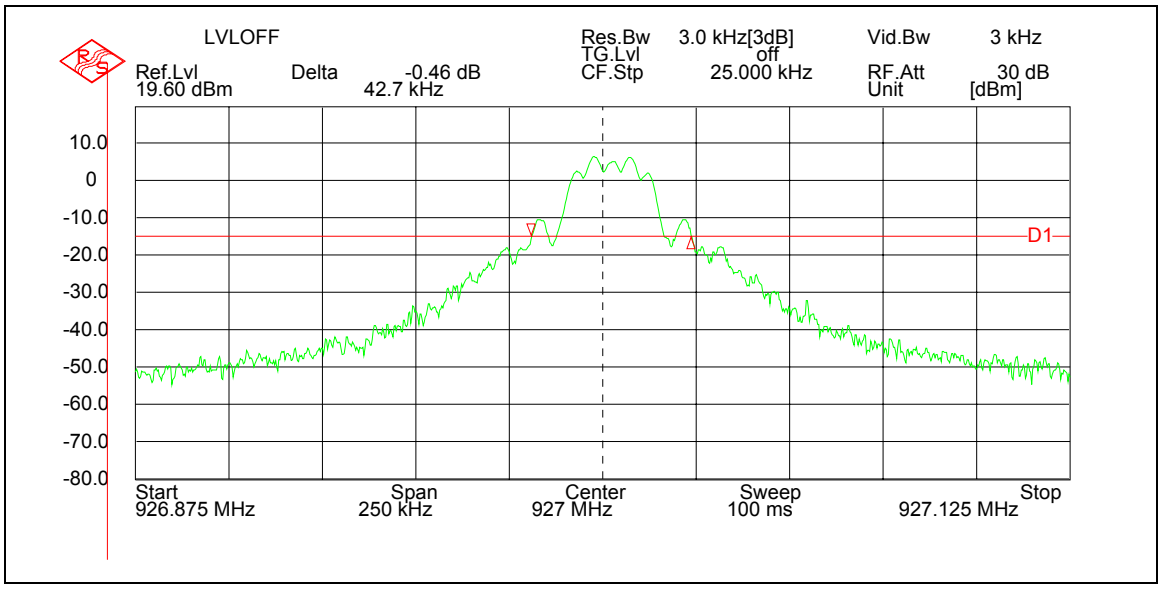

Table 7.5.4.2-1: 20dB Bandwidth

7.6 Band-Edge Compliance and Spurious Emissions

7.6.1 Band-Edge Compliance of RF Conducted Emissions

7.6.1.1 Test Methodology

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 20 kHz, which is ≥ 1% of the span, and the VBW was set to 1 MHz.

Compliance was determined using a single transmitter operating at the lower and upper most channels and using the worst case channel configuration with all transmitters operating simultaneously at the lower and upper band-edges. It was determined that channels 1, 3, 5, and 7 for the lower band-edge and channels 253, 255, 257, and 259 for the upper band-edge produced worst case emissions.

7.6.1.2 Test Results

The radio frequency power that was produced by the EUT is at least 20 dB below that in the band that contains the highest level of desired power. Band-edge compliance is displayed in Figures 7.6.1.2-1 and 7.6.1.2-4.

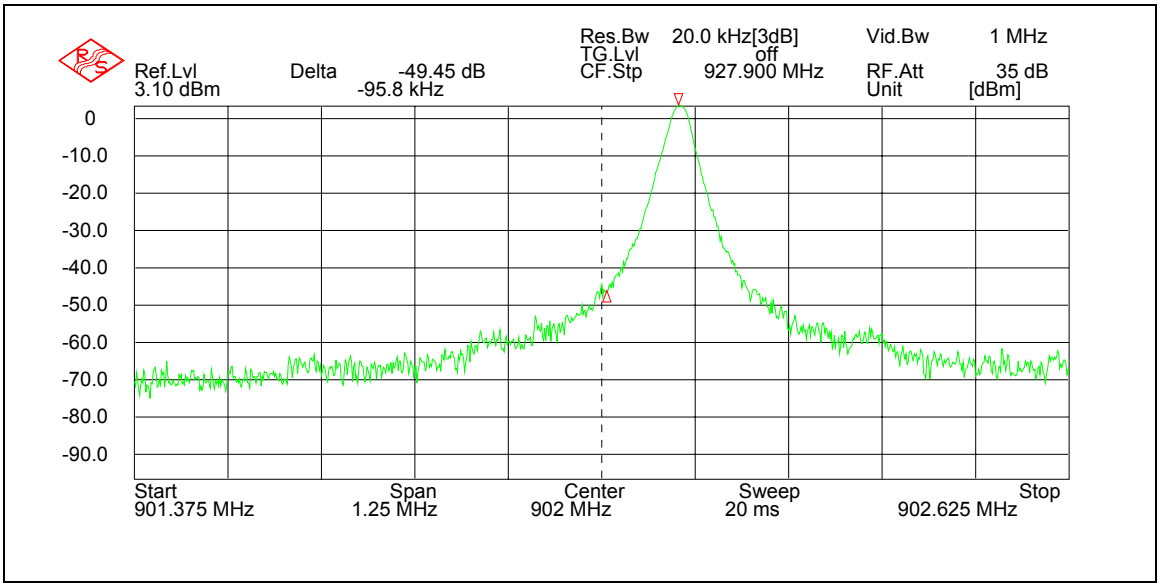

Figure 7.6.1.2-1: Lower Band-edge

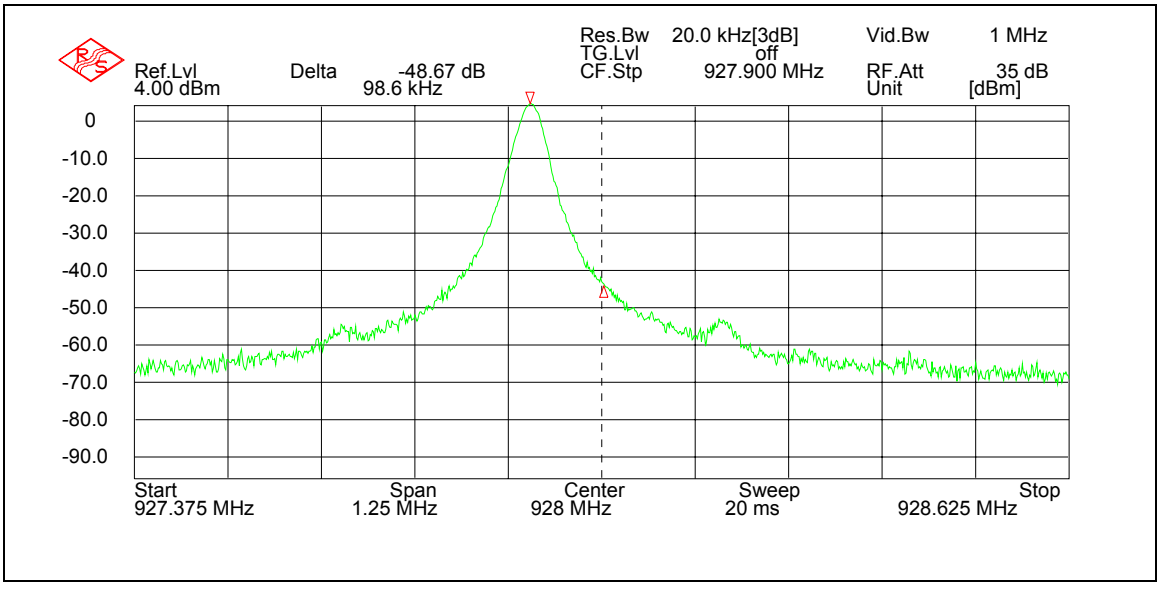

Figure 7.6.1.2-2: Upper Band-edge

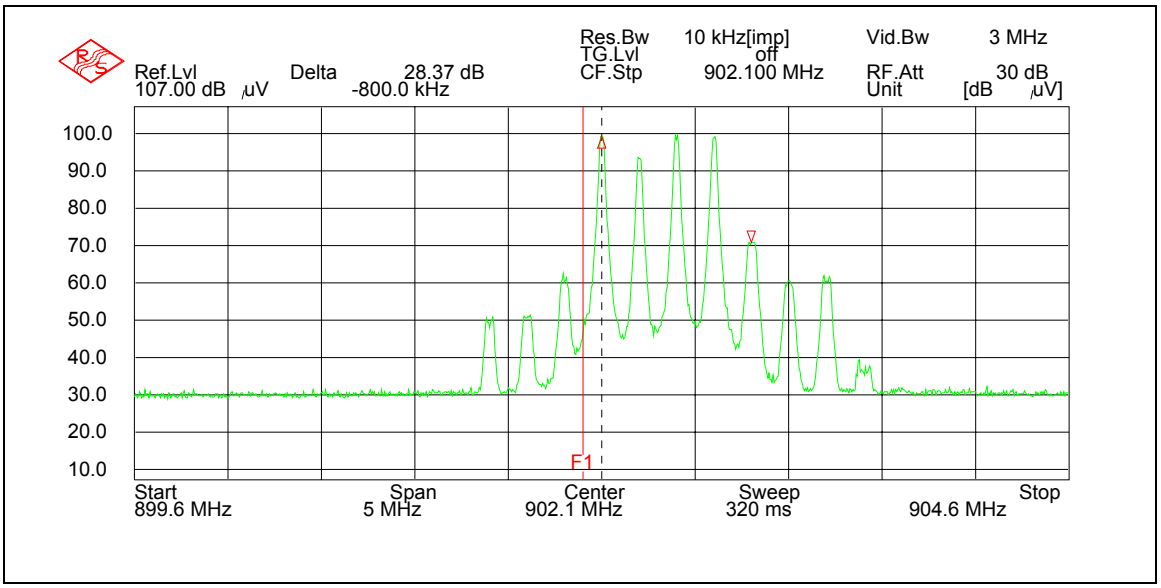

Figure 7.6.1.2-3: Lower Band-edge - IM

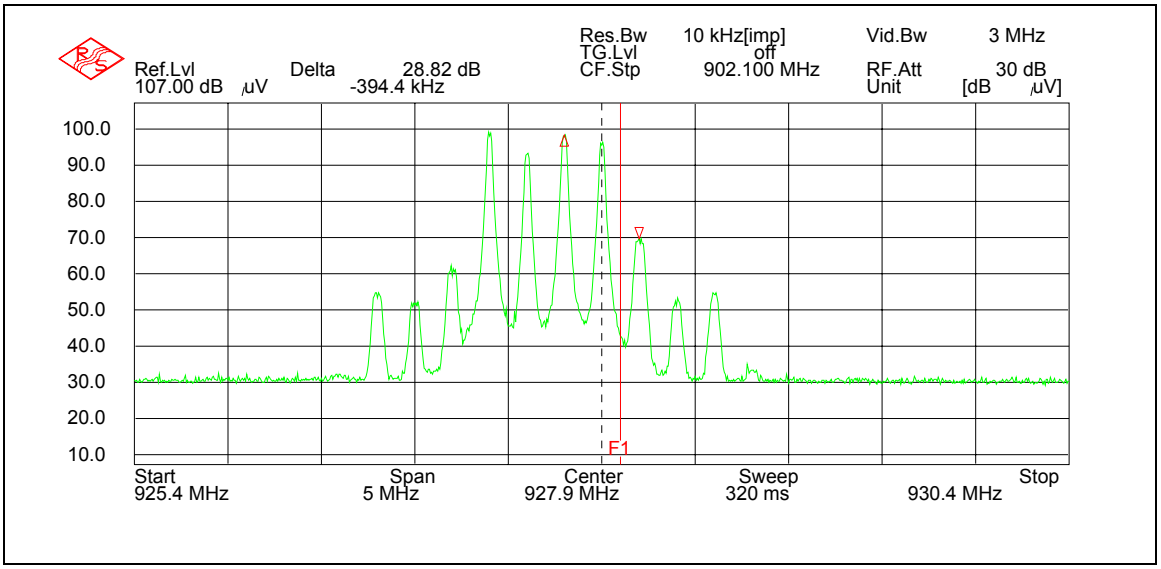

Figure 7.6.1.2-4: Upper Band-edge - IM

7.6.2 RF Conducted Spurious Emissions

7.6.2.1 Test Methodology

The RF Conducted Spurious Emissions were measured in accordance with the FCC publication "New Guidance on Measurements for Digital Transmission Systems in Section 15.247". The RF output of the equipment under test 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. For each measurement, the spectrum analyzer's RBW was set to 100 kHz and the VBW was set to 300 kHz. The peak detector and Max Hold function of the analyzer were utilized.

7.6.2.2 Test Results

In a 100 kHz bandwidth, the radio frequency power that was produced by the EUT emissions is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. RF Conducted Emissions are displayed in Figures 7.6.2.2-1 through 7.6.2.2-6.

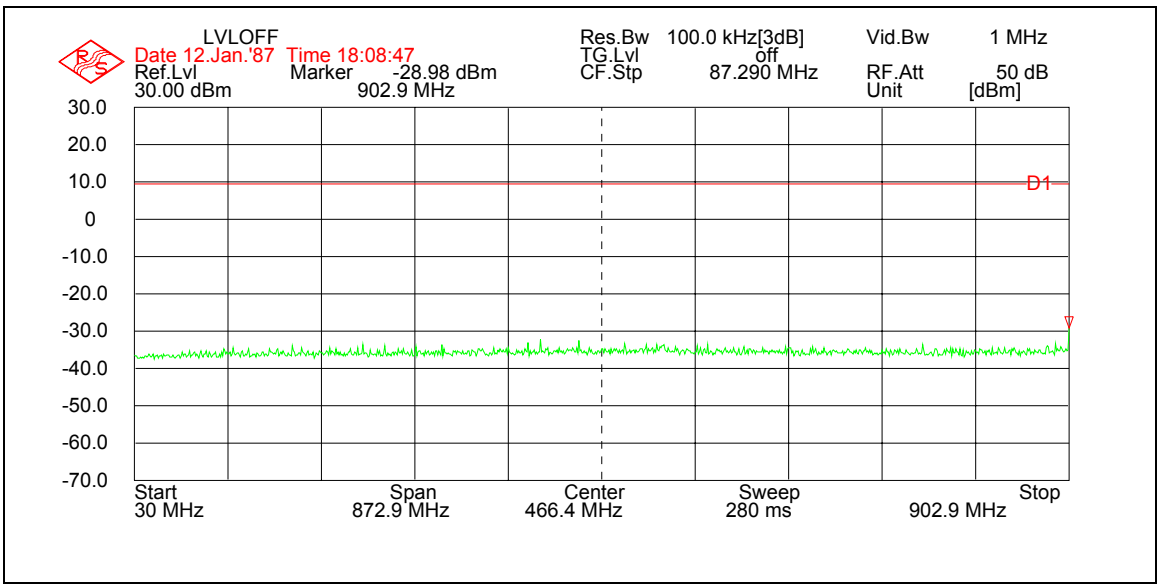

Figure 7.6.2.2-1: RF Conducted Spurious Emission – Low Channel

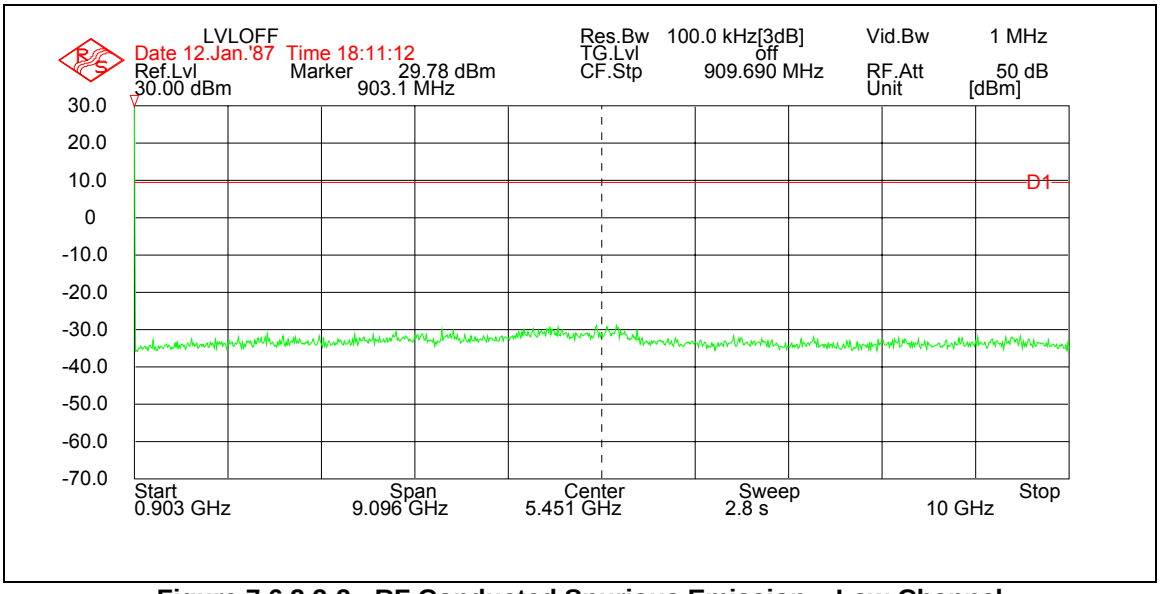

Figure 7.6.2.2-2: RF Conducted Spurious Emission – Low Channel

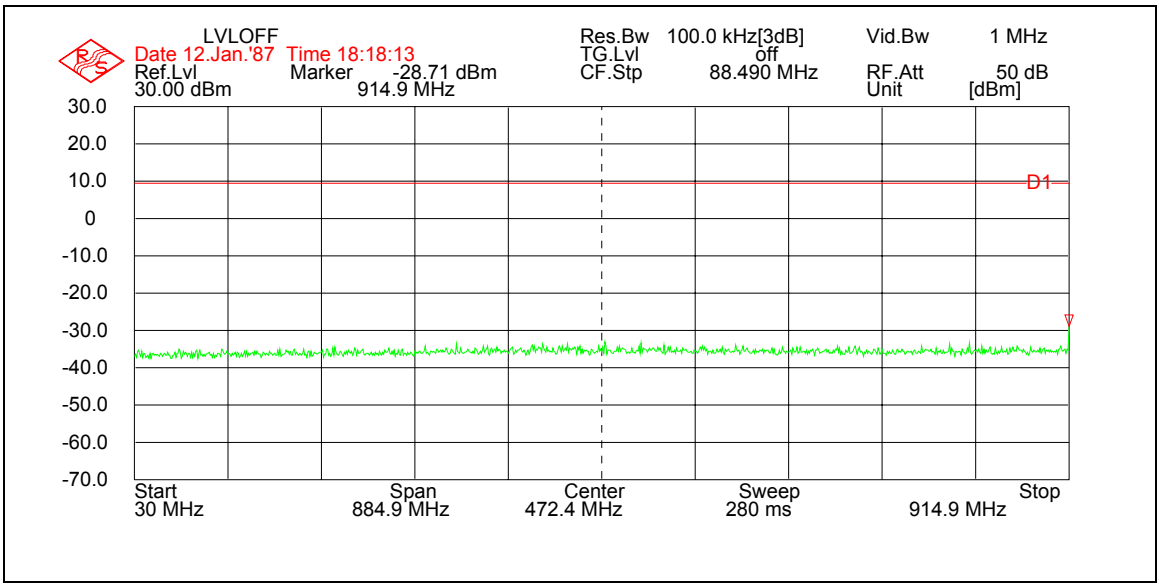

Figure 7.6.2.2-3: RF Conducted Spurious Emission – Mid Channel

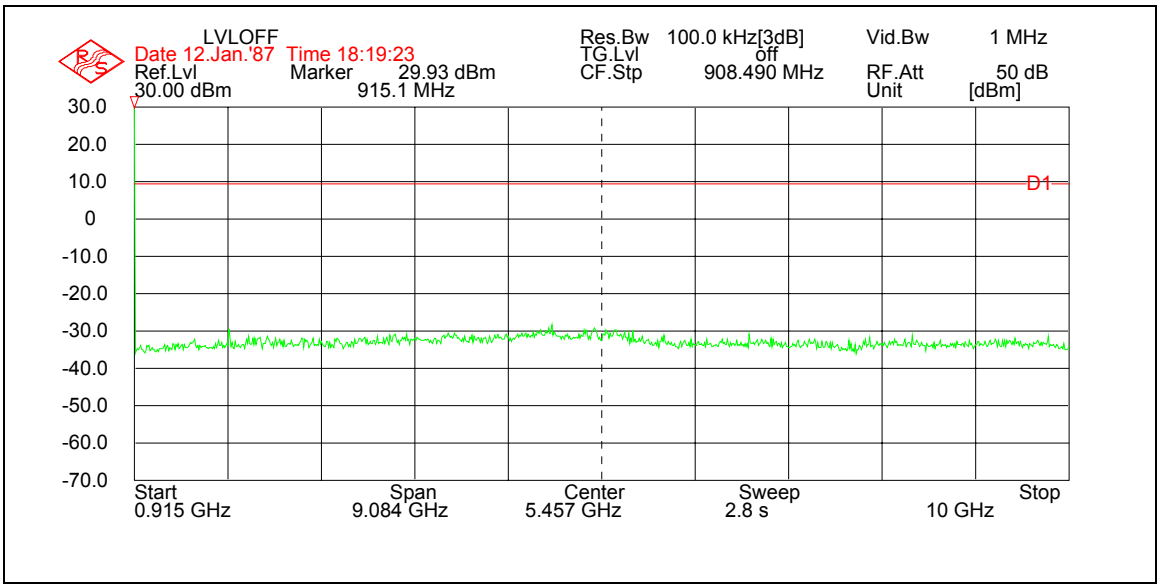

Figure 7.6.2.2-4: RF Conducted Spurious Emission – Mid Channel

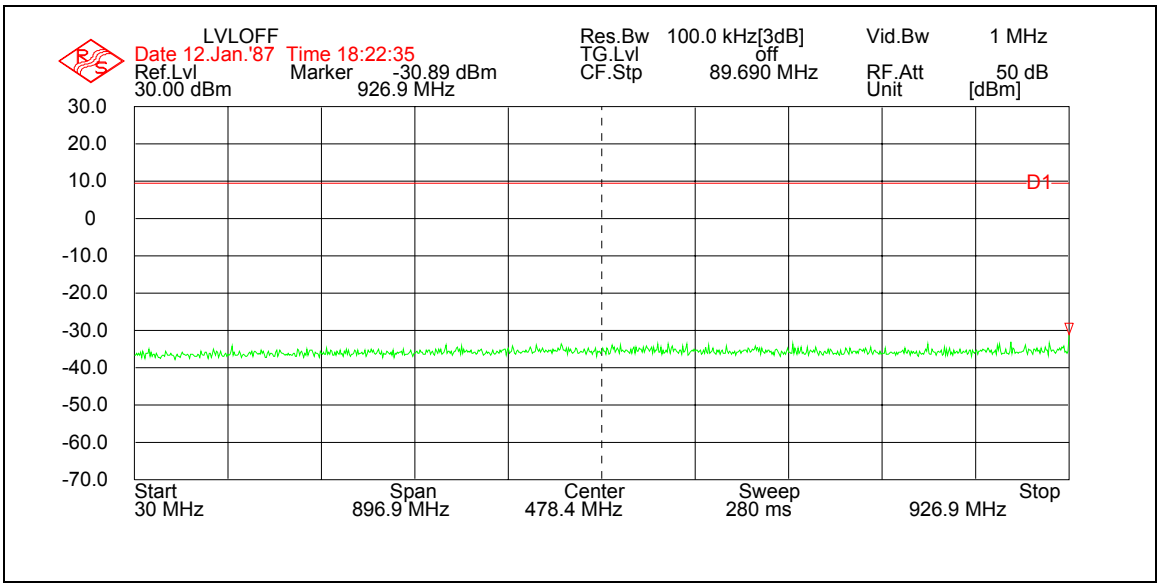

Figure 7.6.2.2-5: RF Conducted Spurious Emission – High Channel

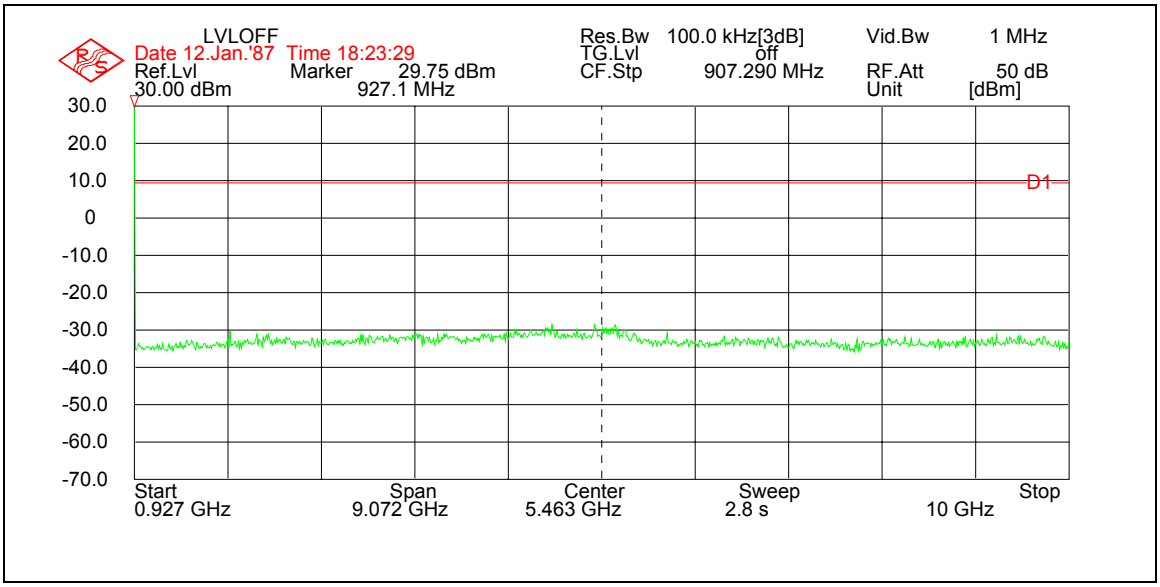

Figure 7.6.2.2-6: RF Conducted Spurious Emission – High Channel

7.6.3 Radiated Spurious Emissions (Restricted Bands) - FCC Section 15.205

7.6.3.1 Test Methodology

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 120kHz and a video bandwidth(VBW) of 300kHz. For frequencies above 1000MHz, average measurements were made using an RBW of 1MHz and a VBW of 10Hz and peak measurements were made with RBW of 1MHz and a VBW of 1MHz.

In addition to operating a single transmitter for evaluating spurious emissions, the EUT was also configured to operate all transmitters simultaneously on different adjacent channel configurations to evaluate intermodulation products caused by co-locating transmitters.

No additional out of band spurious emissions were detected from the intermodulation test configuration.

See the test setup photographs for test setup.

7.6.3.2 Test Results

Radiated spurious emissions found in the band of 30MHz to 10GHz are reported in Table 7.6.3.2-1. Each emission found to be in a restricted band as defined by section 15.205, was compared to the radiated emission limits for as defined in section 15.209.

Table 7.6.3.2-1: Radiated Spurious Emissions (Low)

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg	(H/V)	(dB)	pk	avg	pk	avg	pk	avg
Low Channel										
2706.3	43.91	31.34	H	2.28	46.19	33.62	74	54	27.81	20.38
2706.3	47.52	37.23	V	2.28	49.80	39.51	74	54	24.20	14.49
Mid Channel										
2745	46.35	35.13	H	2.40	48.75	37.53	74	54	25.25	16.47
2745	44.52	33.58	V	2.40	46.92	35.98	74	54	27.08	18.02
3660	43.73	29.79	H	5.88	49.61	35.67	74	54	24.39	18.33
High Channel										
2783.7	44.24	31.95	H	2.53	46.77	34.48	74	54	27.23	19.52
2783.7	45.56	32.87	V	2.53	48.09	35.40	74	54	25.91	18.60

7.6.3.3 Sample Calculations

$R_C = R_U + CF_T$

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 (If applicable)

Note: Duty Cycle for this EUT is 100%. No Correction applied.

Example Calculation: Peak
Corrected Level: 43.91 + 2.28 = 46.19 dBuV/m
Margin: 74dBuV/m – 46.19 dBuV/m = 27.81 dB

Example Calculation: Average
Corrected Level: 35.13 + 2.28 -0 = 37.53 dBuV/m
Margin: 54dBuV/m – 37.53 dBuV/m = 16.47 dB

8.0 CONCLUSION

In the opinion of ACS, Inc. the Take Out Point (TOP) manufactured by Cellnet Technology, Inc., meets the relevant requirements of FCC Parts 2 and 15, as required.