FCC Part 24
Transmitter Certification

Test Report

FCC ID: DNY0A1MINIM1900

FCC Rule Part: CFR 47 Part 24E

ACS Report Number: 06-0115-24E

Manufacturer: EMS Technologies, Inc.
Model: EkoMini M1.9

Test Begin Date: May 31, 2006
Test End Date: August 4, 2006

Report Issue Date: August 15, 2006

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.

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This report contains 17 pages

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1.0 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 2 Subpart J and Part 24 Subpart E of the FCC's Code of Federal Regulations.

1.2 Product Description

1.2.1 General

The EkoMini M1.9 is a bi-directional amplifier unit and was designed to provide enhanced RF coverage for wireless systems in small facilities. Usage includes providing coverage in retail stores, offices, warehouses, restaurants, homes, etc. The EkoMini is housed in an indoor mountable enclosure, and is powered with a regulated wall mountable power supply.

Included with the bi-directional amplifier function, the EkoMini also contains an integrated wireless CDMA modem module. The IPWMM (IP connected wireless modem module) allows the user to monitor the operation of the repeater (bi-directional amplifier) and control some of its functions remotely. The modem connects through a CDMA network and looks and acts like an IP connection. Although the CDMA modem module is designed for dual band operation (cellular and PCS), it is only operational in the PCS band for this application.

Detailed photographs of the EUT are filed separately with this filing.

Manufacturer Information:
EMS Technologies, Inc.
2850 Colonnades Court NW
Norcross, GA 30071

1.2.2 Intended Use

The EkoMini M1.9 is a bi-directional amplifier unit and was designed to provide enhanced RF coverage for wireless systems in small facilities.

1.3 Test Methodology and Considerations

The bi-directional amplifier (Signal Booster) section and the CDMA modem module have been tested and certified separately under their own unique FCC identifiers. The purpose of this report is to provide supplemental data to show compliance when configured as combined equipment. The characteristics likely affected by the combination of these devices were tested and provided in this report. All other data should be referenced from the original test reports for both the bi-directional amplifier (Signal Booster) and CDMA modem module. Those reports will accompany the application for equipment authorization.

Although the CDMA modem module is designed for dual band operation (cellular and PCS), it is only operational in the PCS band for this application, therefore data supplied represents PCS operation only.

The combined device will carry its own unique FCC identifier.

1.4 EUT Operating Configuration and Test Conditions

The EUT was configured and tested utilizing the maximum input drive level resulting in maximum gain conditions for all tests with regard the signal booster section. If the maximum input drive level is exceeded on the signal booster, internal attenuators are activated to produce a level RF output and eliminate the device from operating beyond the maximum RF output power that is below the saturated RF output power.

The integrated CDMA modem section was operated at the highest maximum power available.

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: 200612-0

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:

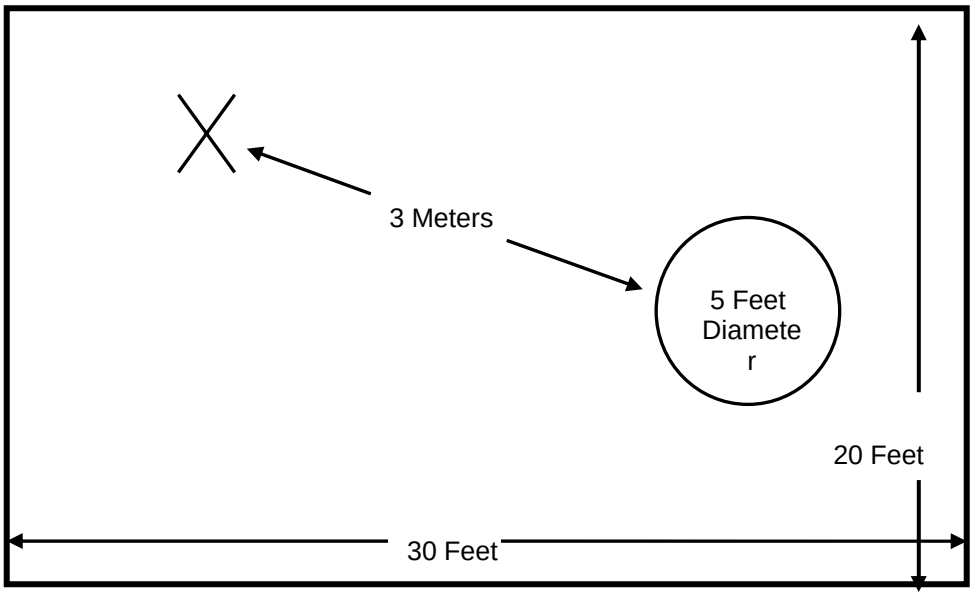

Figure 2.3-1: Semi-Anechoic Chamber Test Site

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:

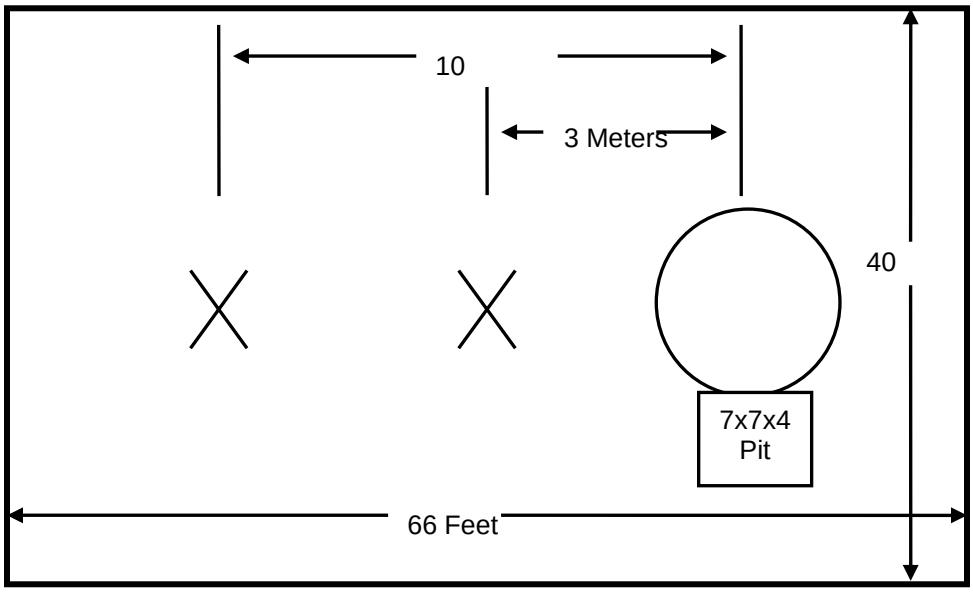

Figure 2.3-2: Open Area Test Site

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 group 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:

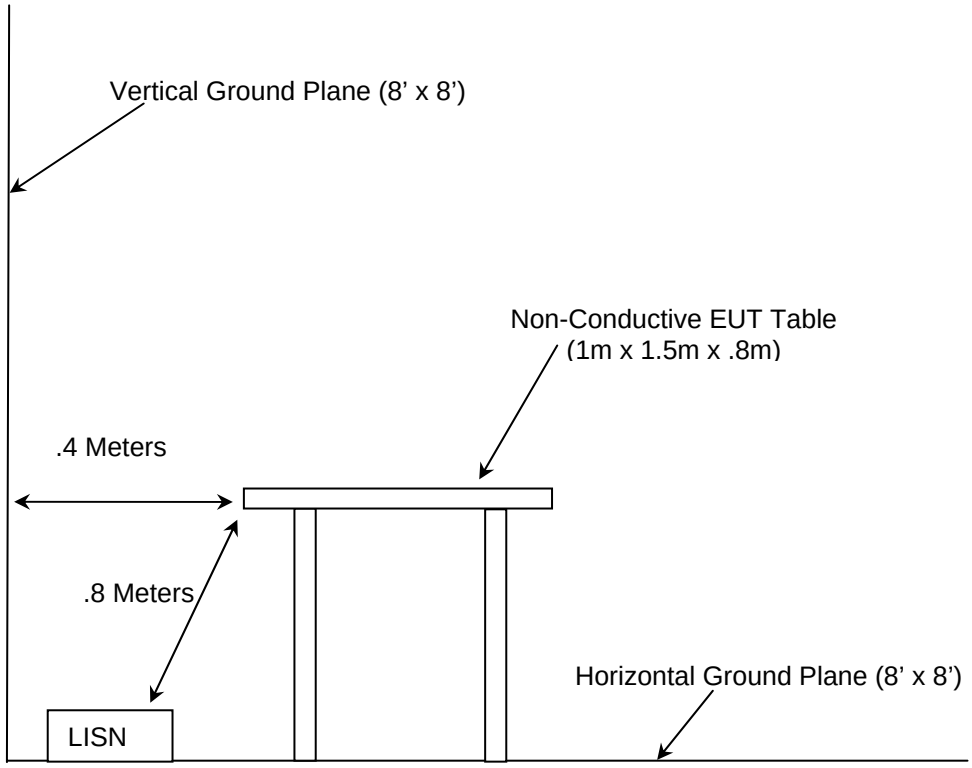

Figure 2.4-1: AC Mains Conducted EMI Site

3.0 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 9KHz to 40GHz
2 - US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures - 2005
3 - US Code of Federal Regulations (CFR): Title 47, Part 24, Subpart E: Broadband PCS - 2005

4.0 LIST OF TEST EQUIPMENT

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

Table 4-1: Test Equipment

Equipment Calibration Information					
ACS#	**Mfg.**	**Eq. type**	**Model**	**S/N**	**Cal. Due**
☒ 25	Chase	Bi-Log Antenna	CBL6111	1043	5/30/07
☒ 152	EMCO	LISN	3825/2	9111-1905	2/8/07
☒ 168	Hewlett Packard	Pulse Limiter	11947A	3107A02268	3/7/07
☒ 165	ACS	Conducted EMI Cable Set	RG8	165	3/07/07
☒ 22	Agilent	Pre-Amplifier	8449B	3008A00526	5/06/07
☒ 73	Agilent	Pre-Amplifier	8447D	272A05624	5/18/07
☒ 30	Spectrum Technologies	Horn Antenna	DRH-0118	970102	5/12/07
☒ NA	EMCO	Horn Antenna	3115	9512-4636	NA
☒ 282	Microwave Circuits	High Pass Filter	H3G020G4	74541	3/10/07
☒ 1	Rohde & Schwarz	Receiver Display	804.8932.52	833771/007	3/01/07
☒ 2	Rohde & Schwarz	ESMI Receiver	1032.5640.53	839587/003	3/01/07
☒ 3	Rohde & Schwarz	Receiver Display	804.8932.52	839379/011	11/02/06
☒ 4	Rohde & Schwarz	ESMI Receiver	1032.5640.53	833827/003	11/02/06
☒ 283	Rohde & Schwarz	Spectrum Analyzer	FSP40	100033	3/24/07
☒ 290	Florida RF Labs	HF RF Cable	SMSE-200-72.0-SMRE	NA	5/08/07
☒ 291	Florida RF Labs	HF RF Cable	SMRE-200W-12.0-SMRE	NA	5/08/07
☒ 292	Florida RF Labs	HF RF Cable	SMR-280AW-480.0-SMR	NA	5/24/07
☒ 176	Weinschel	30 dB Attenuator	46-30-34	BN4922	1/10/06
☒ NA	Termaline	Coaxial Resistor 50W	8085	13328	N/A
☒ N/A	Termaline	Coaxial Resistor 100W	8164	7655	N/A
☒ 237	Gigatronics	Signal Generator	900	282706	1/10/07
☒ 267	Agilent	Power Meter	N1911A	MY45100129	10/30/06
☒ 268	Agilent	Sensor	N1921A	MY45240184	10/10/06
☒ 167	ACS	Chamber EMI Cable Set	RG6	167	1/7/07
☒ 16	ACS	Conducted Emission Cable	Cable	16	5/10/07
☒ NA	Agilent	Signal Generator	E4437B	US39260478	10/05/07

5.0 SUPPORT EQUIPMENT AND ACCESSORIES

Table 5-1: Support Equipment and Accessories

Diagram Item	Manufacturer	Equipment Type	Model Number	Serial Number	FCC ID
1	Agilent	Signal Generator	E4437B	US39260478	NA

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6.0 EQUIPMENT UNDER TEST SETUP AND BLOCK DIAGRAM

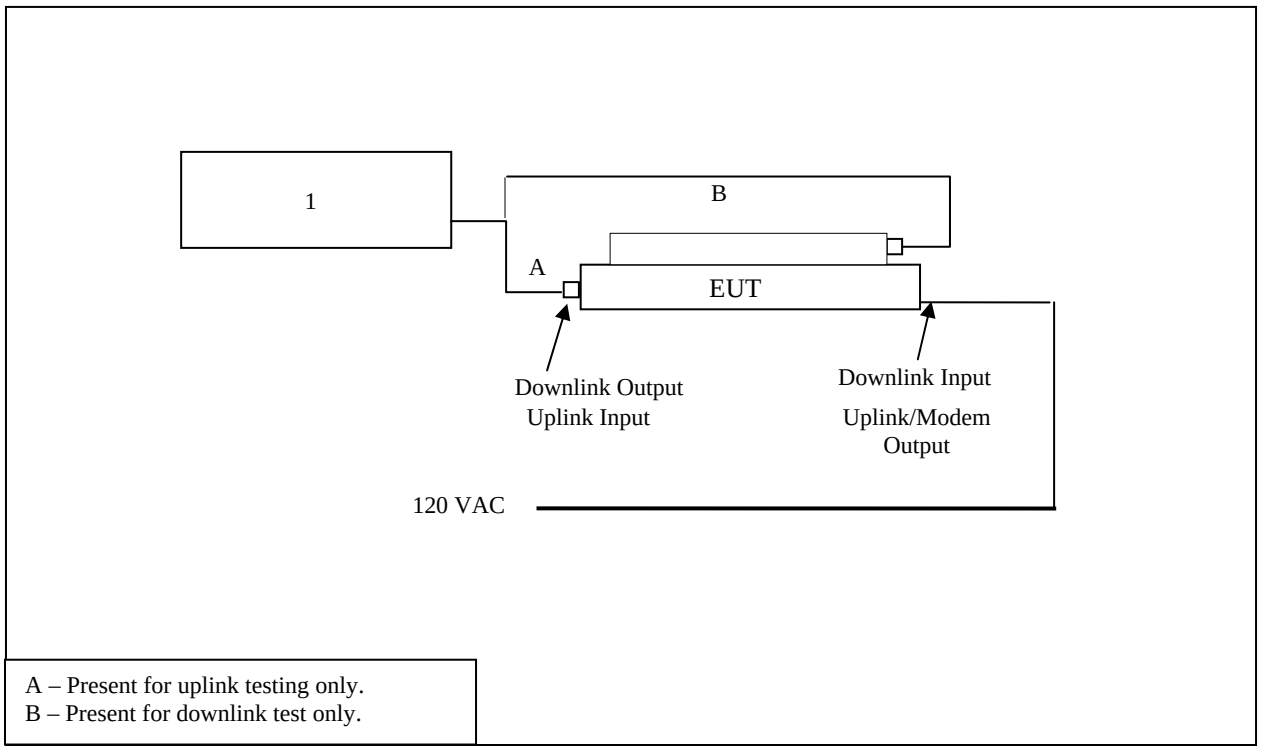

Figure 6-1: EUT Test Setup

7.0 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document. Data plots can be found in the test report appendix 06-0115-24E-A.

7.1 RF POWER OUTPUT

7.1.1 Measurement Procedure

The RF output of the equipment under test was directly connected to the input of the Spectrum Analyzer. The resolution and video bandwidths of the spectrum analyzer were set at sufficient levels, >> emission bandwidth, to produce accurate results. The analyzer was set for Max Hold using a peak detector. Results are shown below in Table 7.1-1.

7.1.2 Measurement Results

Table 7.1-1: Peak Output Power

Configuration	Modulation	Channel	Frequency (MHz)	RF Power Output (dBm)
Uplink	CDMA	Low	1851.25	20.47
Uplink	CDMA	Middle	1880.0	22.81
Uplink	CDMA	High	1908.75	19.87
Uplink	TDMA	Low	1850.04	20.96
Uplink	TDMA	Middle	1879.98	21.94
Uplink	TDMA	High	1909.92	18.43
Uplink	GSM	Low	1850.2	20.15
Uplink	GSM	Middle	1880.0	19.31
Uplink	GSM	High	1909.8	17.04
Downlink	CDMA	Low	1931.25	19.93
Downlink	CDMA	Middle	1960.0	26.69
Downlink	CDMA	High	1988.75	25.58
Downlink	TDMA	Low	1930.04	20.39
Downlink	TDMA	Middle	1959.98	22.76
Downlink	TDMA	High	1989.92	21.47
Downlink	GSM	Low	1930.2	20.67
Downlink	GSM	Middle	1960.0	20.16
Downlink	GSM	High	1989.8	20.37
Modem	CDMA	Low	1851.25	15.79
Modem	CDMA	Middle	1880.00	16.27
Modem	CDMA	High	1908.75	15.49

7.2 SPURIOUS EMISSIONS AT ANTENNA TERMINAL / INTER-MODULATION PRODUCTS

7.2.1 Measurement Procedure

The RF output of the equipment under test was directly connected to the input of the Spectrum Analyzer. For out of band spurious emissions the spectrum analyzer resolution and video bandwidths were set to 1 MHz according to Section 24.238 (b). The spectrum was investigated for the 30 MHz to 20 GHz in accordance to CFR 47 Part 2.1057. The analyzer was set for Max Hold using a peak detector.

For inter-modulation products the three tone method was used with the device operating at maximum drive levels. Two tones were generated from the bi-directional amplifier and the third tone from the integrated CDMA modem module. The two tones from the bi-directional amplifier where placed at the upper band-edge and the single tone from the integrated CDMA modem placed at the lower band-edge. The tones were adjusted in frequency such that the third order harmonics were maximized. Inter-modulation products were tested with the two tones at the upper band edge using TDMA, CDMA, and CW signals while the single tone at the lower band-edge utilized CDMA modulation only. This was done because the modem module only generates CDMA modulation. CW covers FM (GSM and F1D) for inter-modulation products. The spectrum analyzer resolution and video bandwidths were set to 1% the emission bandwidth.

7.2.2 Measurement Results

Emission plots are listed Tables 7.2-1 and 7.2-2 and supplied in the test report appendix 06-0115-24E-A.

Table 7.2-1: Spurious Emissions - Uplink

Modulation	Channel	Frequency Range (MHz)	Plot Reference
Signal Booster			
CDMA*	3 Tone IM	In Band	Figure 1.
CDMA*	3 Tone IM	30 – 2500	Figure 2.
CDMA*	3 Tone IM	2500 – 20000	Figure 3.
CDMA	Low	30 – 2500	Figure 4.
CDMA	Low	2500 – 20000	Figure 5.
CDMA	Middle	30 – 2500	Figure 6.
CDMA	Middle	2500 – 20000	Figure 7.
CDMA	High	30 – 2500	Figure 8.
CDMA	High	2500 – 20000	Figure 9.
TDMA*	3 Tone IM	In Band	Figure 10.
TDMA*	3 Tone IM	30 – 2500	Figure 11.
TDMA*	3 Tone IM	2500 – 20000	Figure 12.
TDMA	Low	30 – 2500	Figure 13.
TDMA	Low	2500 – 20000	Figure 14.
TDMA	Middle	30 – 2500	Figure 15.
TDMA	Middle	2500 – 20000	Figure 16.
TDMA	High	30 – 2500	Figure 17.
TDMA	High	2500 – 20000	Figure 18.
CW*	3 Tone IM	In Band	Figure 19.
CW*	3 Tone IM	30 – 2500	Figure 20.
CW*	3 Tone IM	2500 – 20000	Figure 21.
GSM	Low	30 – 2500	Figure 22.
GSM	Low	2500 – 20000	Figure 23.
GSM	Middle	30 – 2500	Figure 24.
GSM	Middle	2500 – 20000	Figure 25.
GSM	High	30 – 2500	Figure 26.
GSM	High	2500 – 20000	Figure 27.

* Note: Two tones generated by/input to the bi-directional amplifier. The third tone generated by the CDMA modem module is CDMA modulation only. IM = Inter-modulation

Table 7.2-2: Spurious Emissions - Downlink

Modulation	Channel	Frequency Range (MHz)	Plot Reference
Signal Booster			
CDMA	Low	30 – 2500	Figure 28.
CDMA	Low	2500 - 20000	Figure 29.
CDMA	Middle	30 – 2500	Figure 30.
CDMA	Middle	2500 - 20000	Figure 31.
CDMA	High	30 – 2500	Figure 32.
CDMA	High	2500 - 20000	Figure 33.
TDMA	Low	30 – 2500	Figure 34.
TDMA	Low	2500 - 20000	Figure 35.
TDMA	Middle	30 – 2500	Figure 36.
TDMA	Middle	2500 - 20000	Figure 37.
TDMA	High	30 – 2500	Figure 38.
TDMA	High	2500 - 20000	Figure 39.
GSM	Low	30 – 2500	Figure 40.
GSM	Low	2500 - 20000	Figure 41.
GSM	Middle	30 – 2500	Figure 42.
GSM	Middle	2500 - 20000	Figure 43.
GSM	High	30 – 2500	Figure 44.
GSM	High	2500 - 20000	Figure 45.

Table 7.2-3: Spurious Emissions – CDMA Modem

Modulation	Channel	Frequency Range (MHz)	Plot Reference
Modem			
CDMA	Low	30 – 2500	Figure 46.
CDMA	Low	2500 - 20000	Figure 47.
CDMA	Middle	30 – 2500	Figure 48.
CDMA	Middle	2500 - 20000	Figure 49.
CDMA	High	30 – 2500	Figure 50.
CDMA	High	2500 - 20000	Figure 51.

7.3 FIELD STRENGTH OF SPURIOUS EMISSIONS

7.3.1 Measurement Procedure

The equipment under test is placed on the Semi-Anechoic Chamber (described in section 2.3.1) on a wooden table at the turntable center. For each spurious emission, the antenna mast is raised and lowered from one (1) to four (4) meters and the turntable is rotated 360º and the maximum reading on the spectrum analyzer is recorded. This repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. The signal generator's frequency is set to that of the spurious emission recorded from the equipment under test. The antenna mast is raised and lowered from one (1) to four (4) meters to obtain a maximum reading on the spectrum analyzer. The output of the signal generator is then adjusted until the reading on the spectrum analyzer matches that obtained from the equipment under test. The signal generator level is recorded.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for the cable loss and gain of the substitution antenna referenced to a dipole. The spectrum was investigated in accordance to CFR 47 Part 2.1057. A CW was used for low, middle and high channels when evaluating the bi-directional amplifier (signal booster). Standard CDMA modulation was used for testing spurious emissions from the integrated CDMA modem.

Inter-modulation products where also evaluated using the three tone test method described in section 7.2. No additional spurious emissions where detected from inter-modulation products.

7.3.2 Measurement Results

Results of the test are shown below in Table 7.3-1. The EUT was tested by exercising both the uplink and downlink ports of the bi-directional amplifier (signal booster) with maximum signal gain and the integrated CDMA modem.

No spurious emissions were detected from the bi-directional amplifier portion of the EUT. Only spurious emissions were detected when the integrated CDMA modem module was exercised.

Table 7.3-1: Field Strength of Spurious Emissions

Frequency (MHz)	Spectrum Analyzer Level (dBm)	Generator Level (dBm)	Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Position (o)	Correction Factors (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
Low Channel									
3702.5	-45.04	-39.00	H	137.00	150.00	5.85	-33.15	-13.00	20.15
3702.5	-43.66	-38	V	137	94	5.77	-32.23	-13.00	19.23
5553.75	-52.43	-44	H	120	278	5.78	-38.22	-13.00	25.22
5553.75	-51.97	-43	V	122	71	5.59	-37.41	-13.00	24.41
7405	-56.95	-46	H	106	271	5.12	-40.88	-13.00	27.88
7405	-56.82	-44	V	176	318	5.20	-38.80	-13.00	25.80
Middle Channel									
3760	-42.58	-37	H	100	139	5.82	-31.18	-13.00	18.18
3760	-40.34	-35	V	127	84	5.72	-29.28	-13.00	16.28
5640	-50.42	-41	H	121	76	5.84	-35.16	-13.00	22.16
5640	-45.52	-37	V	123	102	5.67	-31.33	-13.00	18.33
7520	-58.73	-51	H	110	277	5.21	-45.79	-13.00	32.79
7520	-59.13	-51	V	145	92	5.30	-45.70	-13.00	32.70
High Channel									
3817.5	-40.31	-35	H	146	109	5.79	-29.21	-13.00	16.21
3817.5	-38.51	-31	V	143	87	5.66	-25.34	-13.00	12.34
5726.25	-49.3	-40	H	138	106	5.90	-34.10	-13.00	21.10
5726.25	-45.29	-36	V	111	190	5.75	-30.25	-13.00	17.25
7635	-56.29	-47	H	107	126	5.30	-41.70	-13.00	28.70
7635	-56.47	-48	V	113	270	5.37	-42.63	-13.00	29.63

7.4 RADIATED EMISSIONS (UNINTENTIONAL RADIATORS) - FCC SECTION 15.109

7.4.1 Measurement Procedure

The equipment under test is placed on the Open Area Test Site (described in section 2.1) on a wooden table at the turntable center. For each radiated emission, the antenna mast is raised and lowered from one (1) to four (4) meters and the turntable is rotated 360º to obtain a maximum peak reading on the spectrum analyzer. The radiated emissions are then measured using an EMI receiver employing a CISPR quasi-peak detector for frequencies below 1000 MHz and an Average detector function for frequencies above 1000 MHz. This repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

Field Strength (dBuV/m) = EMI Receiver Level (dBuV) + Cable Loss (dB) – Amplifier Gain (dB) + Antenna Correction Factor (1/m)

Results of the test are shown below in Table 7.4.-1.

7.4.2 Measurement Results

Table 7.4-1: Radiated Emissions Tabulated Data

Frequency (MHz)	Level (dBµV/m)	Transducer (dB)	Limit dBµV/m	Margin (dB)	Height (cm)	Azimuth (deg)	Polarization (H/V)
31.04	29.2	-7.6	40	10.8	100	80	V
72.40	29.8	-19.8	40	10.2	170	200	V
353.92	24.1	-8.2	46	21.9	159	2	V
450.00	39.9	-7.0	46	6.1	170	219	H
500.08	45.9	-5.6	46	0.1	159	318	H
700.08	35.9	-2.0	46	10.1	100	186	H
756.64	25.9	-1.3	46	20.1	100	0	H
775.04	32.2	-1.3	46	13.8	130	134	V
850.08	31.9	0.7	46	14.1	100	252	H
900.16	44.1	0.8	46	1.9	130	191	H

7.5 POWER LINE CONDUCTED EMISSIONS - FCC SECTION 15.107

7.5.1 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

7.5.2 Measurement Results

Results of the test are shown below in and Tables 7.5-1 through 7.5-4 and Figure 7.5-1 through 7.5-2.

Table 7.5-1: Line 1 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.210	36.5	9.7	63.2	26.6	L1	GND
0.624	30.0	9.7	56	25.9	L1	GND
1.596	28.4	9.7	56	27.5	L1	GND
3.600	28.0	9.7	56	27.9	L1	GND
3.882	27.8	9.7	56	28.1	L1	GND
10.044	32.8	9.6	60	27.1	L1	GND
10.254	33.2	9.6	60	26.7	L1	GND
10.320	33.3	9.6	60	26.6	L1	GND
10.530	34.1	9.6	60	25.8	L1	GND

Table 7.5-2: Line 1 Conducted EMI Results (Average)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.210	33.8	9.7	53.2	19.3	L1	GND
0.624	29.8	9.7	46	16.1	L1	GND
1.596	28.0	9.7	46	17.9	L1	GND
3.600	27.4	9.7	46	18.5	L1	GND
3.882	27.1	9.7	46	18.8	L1	GND
10.044	30.7	9.6	50	19.2	L1	GND
10.254	29.8	9.6	50	20.1	L1	GND
10.320	30.3	9.6	50	19.6	L1	GND
10.530	31.3	9.6	50	18.6	L1	GND

Table 7.5-3: Line 2 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.210	37.3	9.7	63.2	25.8	L2	GND
0.552	28.8	9.7	56	27.1	L2	GND
3.120	28.6	9.7	56	27.3	L2	GND
3.324	28.4	9.7	56	27.5	L2	GND
3.396	29.0	9.7	56	26.9	L2	GND
3.600	27.5	9.7	56	28.4	L2	GND
3.882	28.8	9.7	56	27.1	L2	GND
4.086	28.3	9.7	56	27.6	L2	GND
4.434	28.6	9.7	56	27.3	L2	GND
10.950	32.5	9.6	60	27.5	L2	GND

Table 7.5-4: Line 2 Conducted EMI Results (Average)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.210	35.7	9.7	53.2	17.4	L2	GND
0.552	28.5	9.7	46	17.4	L2	GND
3.120	27.9	9.7	46	18.0	L2	GND
3.324	26.2	9.7	46	19.7	L2	GND
3.396	28.7	9.7	46	17.2	L2	GND
3.600	26.2	9.7	46	19.7	L2	GND
3.882	28.0	9.7	46	17.9	L2	GND
4.086	26.5	9.7	46	19.4	L2	GND
4.434	26.5	9.7	46	19.4	L2	GND
10.950	29.5	9.6	50	20.4	L2	GND

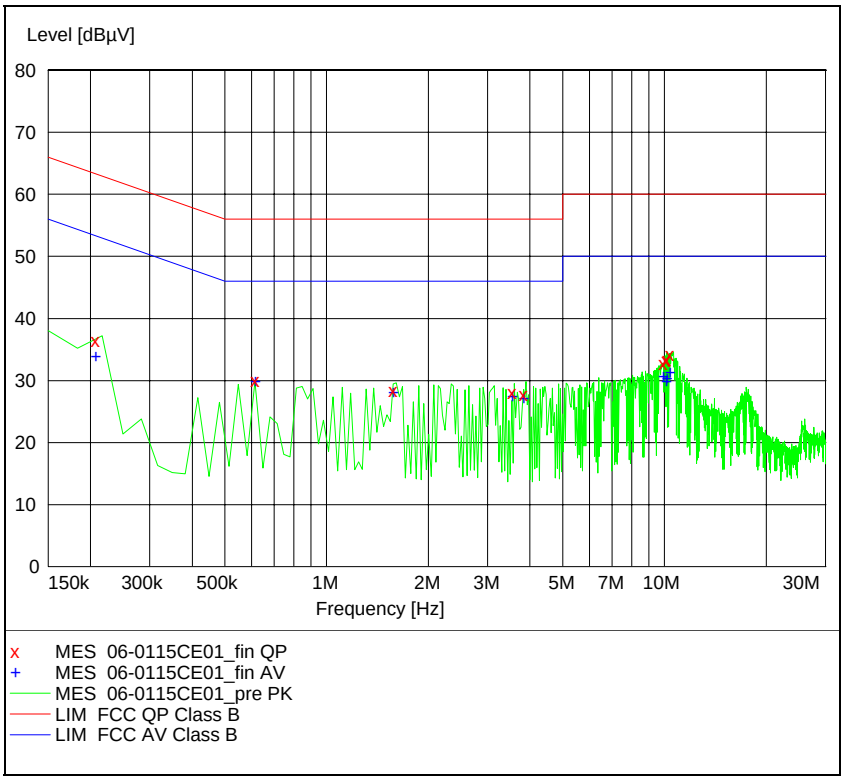

Figure 7.5-1: Conducted Emissions Graph – Line 1

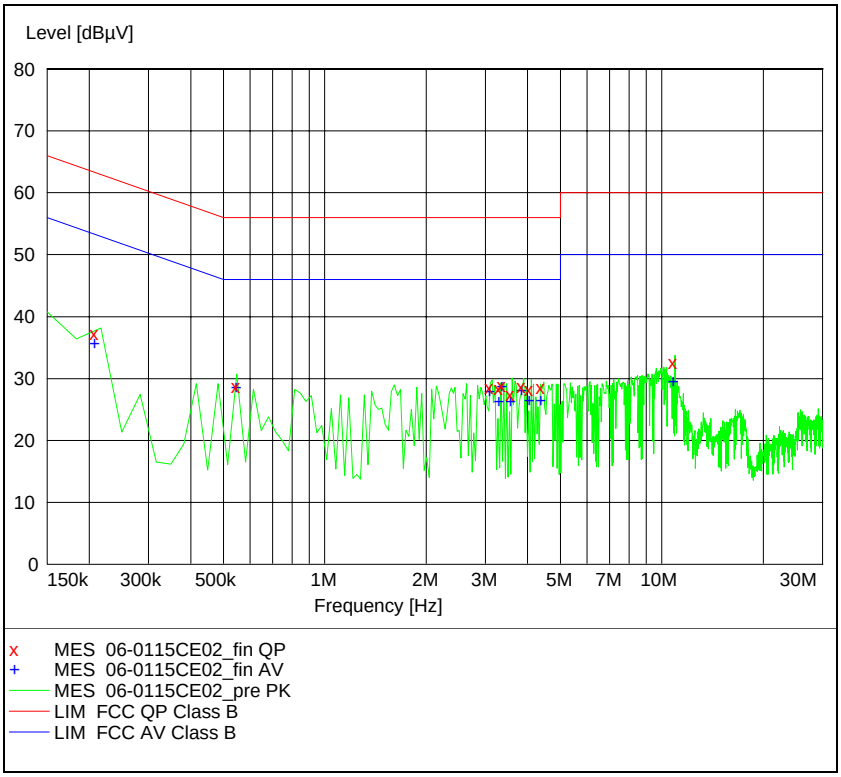

Figure 7.5-2: Conducted Emissions Graph – Line 2

8.0 CONCLUSION

In the opinion of ACS, Inc. the EkoMini M1.9, manufactured by EMS Technologies, Inc. meets the requirements of CFR 47 Part 2 Subpart J and Part 24 Subpart E.

END Report