Exhibit B – Test Report

Minorplanet Systems PLC
Model AEMB100 Transmitter

Project Number: 04301-10

Prepared for:
MINORPLANET SYSTEMS PLC
1155 Kas Dr., Suite 100
Richardson, TX

By

Professional Testing (EMI), Inc.
1601 FM 1460, Suite B
Round Rock, Texas 78664

March 2004

Electromagnetic Interference
Test Report
CLASS II PERMISSIVE CHANGE

MINORPLANET SYSTEMS PLC
MODEL AEMB100 TRANSMITTER

Table of Contents

Figures

Appendices

Certificate of Compliance

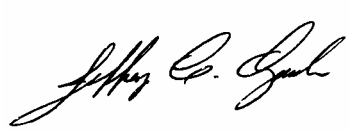
Applicant:	Minorplanet Systems PLC
Applicant's Address:	1155 Kas Dr., Suite 100 Richardson, TX 75081-1999
Model:	Model AEMB100 Transmitter
FCC ID:	QDAAEMB100
Project Number:	04301-10

The **Minorplanet Systems PLC Model AEMB100 Transmitter** was tested to and found to be in compliance with FCC Part 15.203, 15.205, 15.209, and 15.249 for Intentional Radiators.

The highest average emissions generated by the above equipments are listed below:

	Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Peak Fundamental	902.8	73.1	94	-20.9
Harmonics	1805	63.3	63.5	-0.2
Spurious	74	38.8	40	-1.2

I, Jeffrey A. Lenk, for Professional Testing (EMI), Inc., being familiar with the FCC rules and test procedures have reviewed the test setup, measured data and this report. I believe them to be true and accurate.



Jeffrey A. Lenk
President

1.0 EUT Description

The Minorplanet Systems PLC, Model AEMB100 Transmitter is a part of a radio base station transceiver used to collect data from fleet vehicles. It is powered by a 12 VDC wall transformer. It is controlled by a RS-232 interface. The antenna is detachable via a standard connection.

The EUT operates in the band of 902 MHz to 928 MHz band at a single frequency of 902.75 MHz and has been certified for compliance with 47 CFR 15.249 of the FCC rules. Specific test requirements for the devices include the following:

47 CFR 15.249	Fundamental and Harmonic Radiated Power
47 CFR 15.209	General Radiated Emission Limits
47 CFR 15.203	Antenna Requirements
47 CFR 15.205	Restricted Bands of Operation

The device was tested for Class II Permissive Change as the original antenna for this device has been substituted. The antenna for this device was changed to enhance performance, aesthetics and mounting convenience. Test results enumerated in this report have been performed with the new antenna from Webb Industries. No electronic circuitry or the related hook up were changed as a result of the new antenna.

The system tested consisted of the following:

Manufacturer & Model	**Serial #**	**FCC ID #**	**Description**
Minorplanet Systems PLC, Model AEMB100 Transmitter	250-04063-001	QDAAEMB100	RF Pulsed Modulated Transmitter used for data logging system
System Peripherals			
Dell MCM	CHWTU	None	PC
NEC JC-1736VMA	785561ED	None	Monitor VGA
Microsoft E06401COMB	X05-02473	None	PS2 Keyboard
Logitech M-S34	LZA83004371	DZL211029	PS2 Mouse

Cables and Cords:

Quantity	**Length**						
Each	**Feet**	**Meters**	**Shielded**	**Unshielded**	**Type**	**Cable**	**Cord**
1		1	X		Coaxial	X	
1		2		X	AC Power	X	
1		1.5		X	DC Power	X	
1	1		X		DB9 Serial	X	
2		2		X	Monitor and PC – AC Power	X	

1.1 EUT Operation

The **Minorplanet Systems PLC Model AEMB100 Transmitter** was tested in the following manner. The radio responded to instructions from a PC via an RS-232 link. Inquiry packets were sent from the PC through the radio to a nearby mobile unit Responses from the mobile unit were also carried back to the PC.

2.0 Electromagnetic Emissions Testing

Professional Testing (EMI), Inc. (PTI), follows the guidelines of NIST for all uncertainty calculations, estimates and expressions thereof for EMC testing. . A copy of PTI's policy for EMC Measurement Uncertainty is provided in Appendix C.

2.1 Radiated Emissions Measurements

Radiated emission measurements were made on transmitter Fundamental and Spurious Emission levels generated by the **Minorplanet Systems PLC Model AEMB100 Transmitter**.

Measurements of the maximum emission levels for the fundamental and the spurious/harmonic emissions of the transmitter were made at the Professional Testing "Open Field" Site 1, located in Marble Falls, Texas. A "Description of Measurement Facilities" has been submitted to the FCC and approved pursuant to Section 2.948 of CFR 47 of the FCC rules.

Tests of the fundamental for the device were performed to determine the worst case orientation and polarization of the device.

2.1.1 Test Procedure

The following testing procedure was applied to the EUT mentioned above.

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a motorized turntable, which allows 360-degree rotation. For measurements of the fundamental signal, a measurement antenna was positioned at a distance of 3 meters as measured from the closest point of the EUT. For spurious/harmonic measurements above 1 GHz, the measurement antenna was placed at a distance of 1 meter from the EUT. The radiated emissions were maximized by energizing the EUT and by rotating the EUT.

A Spectrum Analyzer with peak detection was used to find the maximums of the radiated emissions during the variability testing. A drawing showing the test setup is given as Figure 1.

2.1.2 Test Criteria

The table below shows FCC 15.249 radiated limits for an intentional radiator operating at 902 to 928 MHz. In addition to these requirements, the EUT must meet the restricted emission band requirements of §15.205 and §15.209. The measurements of the harmonics and spurious emissions were performed to the 5th harmonic of the fundamental.

Signal Type	Frequency (MHz)	3 m Limit Per §15.249 or§15.209	Field Strength (dBuV/m)
Fundamental	902.8	50 mV/m	94
2nd Harmonic	1805	500 μV/m	63.5
3rd Harmonic	2708	500 μV/m	63.5
4th Harmonic	3611	500 μV/m	63.5
5th Harmonic	4514	500 μV/m	63.5

Note: Radiated emissions above 1000 MHz were measured at 1 meter and the limit was increased to 63.5 dBuV/m.

2.1.3 Test Results

The radiated test data for the fundamental is included in Appendix A. The emissions were maximized at each frequency and the highest emissions identified were measured using peak detection. The EUT passed the criteria utilizing Peak detection, with no averaging correction actor applied. The radiated emissions test data for the harmonics is included in Appendix A.

The radiated emissions generated by the transmitter portion of the Minorplanet Systems PLC Model AEMB100 Transmitter are below the FCC Part 15.249 maximum emission criteria.

2.3 Occupied Bandwidth Measurements

As per §15.249 measurements of occupied bandwidth for the fundamental signal of the EUT are not required. The operating frequencies are near the center of the band. A Plot has been included in Appendix B to demonstrate the above.

3.0 Antenna Requirement

An analysis of the **Minorplanet Systems PLC Model AEMB100 Transmitter** was performed to determine compliance with Section 15.203 of the Rules. This section requires specific handling and control of antennas used for devices subject to regulations under the Intentional Radiator portions of Part 15.

3.1 Evaluation Procedure

The structure and application of the **Minorplanet Systems PLC Model AEMB100 Transmitter** were analyzed with respect to the rules. The antenna for this unit is an external antenna and requires professional installation.

3.2 Evaluation Criteria

Section 15.203 of the rules states that the subject device must meet at least one of the following criteria:

(a) Antenna be permanently attached to the unit.

(b) Antenna must use a unique type of connector to attach to the EUT.

(c) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

3.3 Evaluation Results

The **Minorplanet Systems PLC Model AEMB100 Transmitter** meets the criteria of this rule by virtue of having an external antenna that is professionally installed. The EUT is therefore compliant with §15.203.

4.0 RF Safety

The FCC safety criteria that invokes measurement of specific absorption rate (SAR), from OET Bulletin 65 Supplement C, is 300 mW for 915 MHz operating frequency. The power output of this transmitter is thus less than 1/100th of the threshold for RF safety concern, and therefore meets the requirements of FCC rules 2.1091 & 2.1093.

5.0 Receiver Portion

The **Minorplanet Systems PLC, Model AEMB100 Transmitter – Receiver Portion** was tested and found to be in compliance with FCC Part 15 for Receivers and for Class B Digital Devices.

The Receiver portion was verified for compliance with 47 CFR 15.109 and 15.111 of the FCC rules. Radiated emission measurements and conducted Antenna measurements were made on the emission levels generated by the Receiver portion of the Receiver and were found to be below maximum emission criteria. A DoC has been prepared for the receiver portion.

6.0 Modifications to Equipment

No modifications were made to the **Minorplanet Systems PLC Model AEMB100 Transmitter** during the testing process.

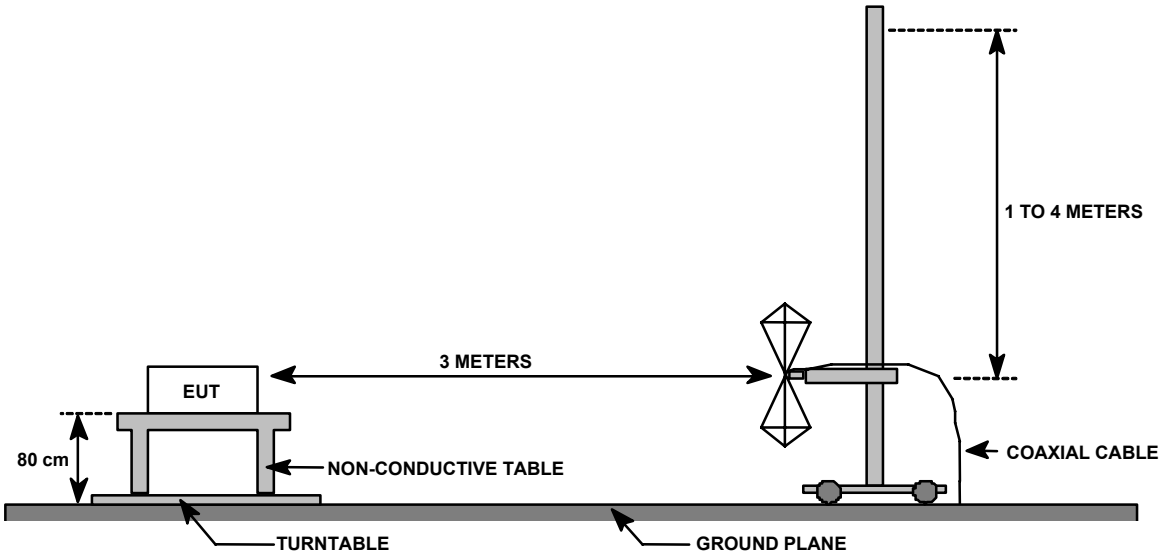
7.0 List of Test Equipment

A list of the test equipment utilized to perform the testing is given below. The date of calibration is given for each.

Electromagnetic Emissions Test Equipment

Model	Description	Calibration Due
HP8566B	Spectrum Analyzer	November 2004
HP 85650	Quasi-Peak Adapter	November 2004
EMCO 3108	Biconical Antenna	September 2004
HP 8447F	Preamplifier	November 2004
EMCO 3115	Ridge Guide Antenna	July 2004
EMCO 3146	Log Periodic Antenna	December 2004
MITEQ	20 dB Preamp	December 2004
MITEQ	30 dB Preamp	December 2004
Armored 10 meter microwave cable		June 2004
Site Cables for 3 meters (30 -1000 MHz)		December 2004

FIGURE 1: Radiated Emissions Test Setup



Appendix A Emissions Data Sheets

Fundamental Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 19, 2004
PROJECT #: 04301-10

DETECTOR FUNCTION: Peak
MEASUREMENT DISTANCE (m): 3

Antenna Polarization: Horizontal

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
902.8	71	2	57.1	26.2	24.4	10.8	66.1	94	-27.9
902.8	66	2	55	26.2	24.4	10.8	64.0	94	-30.0
902.8	68	2	54.5	26.2	24.4	10.8	63.5	94	-30.5

Antenna Polarization: Vertical

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
902.8	0	2	58.3	26.2	24.4	10.8	67.3	94	-26.7
902.8	0	1	60.3	26.2	24.4	10.8	69.3	94	-24.7
902.8	200	1.3	64.1	26.2	24.4	10.8	73.1	94	-20.9

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Comment: This data represents the worst case resulting from testing the EUT in three orthogonal axes.

Test Engineer: Jason Haley

Spurious Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 19, 2004
PROJECT #: 04301-10

DETECTOR FUNCTION: Peak
MEASUREMENT DISTANCE (m): 3

Antenna Polarization: Horizontal

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
74	86	3.4	55.3	26.7	8.1	2.1	38.8	40	-1.2
83.7	274	3.4	46.6	26.7	8.2	2.2	30.4	40	-9.6
112	148	3	50.7	26.6	10.6	2.7	37.3	43.5	-6.2
136	185	3	48	26.6	12.1	3.1	36.7	43.5	-6.8
184	90	1	47.1	26.5	12.7	3.8	37.1	43.5	-6.5
200	95	1.3	46.1	26.7	11.4	4.2	35.0	43.5	-8.6
233.1	64	1.7	48.2	26.7	10.7	4.6	36.8	46	-9.2
256	28	1.1	43.3	26.7	11.8	4.9	33.3	46	-12.7
286.3	144	1	34.3	26.7	13.5	5.3	26.3	46	-19.7
294.6	151	1	43	26.8	14.2	5.5	36.0	46	-10.0
368	227	1	35.6	26.8	14.4	6.3	29.5	46	-16.5
416	254	1	30.9	26.8	15.0	6.9	26.0	46	-20.0
432	258	1	33.4	26.8	15.3	7.2	29.1	46	-16.9
666.2	82	1	38	26.8	20.3	9.4	40.9	46	-5.1

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Comment: This data represents the worst case resulting from testing the EUT in three orthogonal axes.

Test Engineer: Jason Haley

Spurious Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 19, 2004 DETECTOR FUNCTION: Peak
PROJECT #: 04301-10 MEASUREMENT DISTANCE (m): 3

Antenna Polarization: Vertical

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
73.5	293	1	53.8	26.7	8.2	2.0	37.3	40	-2.7
136	118	1	45.8	26.6	12.1	3.1	34.5	43.5	-9.0
184	80	1	44	26.5	12.7	3.8	34.0	43.5	-9.6
200	178	1	35.9	26.7	11.4	4.2	24.8	43.5	-18.8
232	75	1	42.9	26.7	10.7	4.6	31.5	46	-14.5
240	130	1	38.7	26.7	11.1	4.7	27.8	46	-18.2
265.4	130	1	37.5	26.7	12.2	4.9	27.9	46	-18.1
272	219	1.3	38.1	26.7	12.4	5.0	28.8	46	-17.2
336	35	2	39.5	26.8	14.2	5.7	32.7	46	-13.3
368	21	2	34.8	26.8	14.4	6.3	28.7	46	-17.3
384	329	1.4	36.2	26.8	14.8	6.5	30.7	46	-15.3
432	16	1	33.5	26.8	15.3	7.2	29.2	46	-16.8
666.2	93	1	33.4	26.8	20.3	9.4	36.3	46	-9.7

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Comment: This data represents the worst case resulting from testing the EUT in three orthogonal axes.

Test Engineer: Jason Haley

Harmonics Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 22, 2004
PROJECT #: 04301-10

DETECTOR FUNCTION: Peak
MEASUREMENT DISTANCE (m): 1

Antenna Polarization: Horizontal

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/M)	Cable Loss (dB)	Corrected Level (dBuV/M)	Limit (dBuV/M)	Margin (dB)
1091	160	1	41.3	23.4	26.2	1.9	46.0	63.5	-17.5
1200	170	1	37.4	23.3	25.9	2.0	41.9	63.5	-21.6
1265	160	1	36.3	23.3	25.7	2.0	40.7	63.5	-22.8
1296	175	1	40.5	23.3	25.6	2.0	44.9	63.5	-18.6
1332	175	1	40.4	23.3	25.5	2.1	44.7	63.5	-18.8
1455	90	1	38.1	23.2	25.2	2.2	42.3	63.5	-21.2
1496	95	1	37.8	23.2	25.1	2.2	41.9	63.5	-21.6
1662	95	1	47.3	23.0	25.9	2.3	52.4	63.5	-11.1
1843	95	1	46.4	22.9	26.7	2.4	52.7	63.5	-10.8

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Comment: Emission limit over 1 GHz: 500 uV/m

Test Engineer: Jason Haley

Harmonics Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 22, 2004
PROJECT #: 04301-10

DETECTOR FUNCTION: Peak
MEASUREMENT DISTANCE (m): 1

Antenna Polarization: Vertical

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/M)	Cable Loss (dB)	Corrected Level (dBuV/M)	Limit (dBuV/M)	Margin (dB)
1099	100	1	40.8	23.4	26.1	1.9	45.5	63.5	-18.0
1199	100	1	42.2	23.3	25.9	2.0	46.7	63.5	-16.8
1295	100	1	47.6	23.3	25.6	2.0	52.0	63.5	-11.5
1332	100	1	47.3	23.3	25.5	2.1	51.6	63.5	-11.9
1496	105	1	42.1	23.2	25.1	2.2	46.2	63.5	-17.3
1532	90	1	38.3	23.2	25.3	2.2	42.6	63.5	-20.9

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Test Engineer: Jason Haley

Harmonics Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 22, 2004 DETECTOR FUNCTION: Peak
PROJECT #: 04301-10 MEASUREMENT DISTANCE (m): 1

Antenna Polarization: Horizontal

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/M)	Cable Loss (dB)	Corrected Level (dBuV/M)	Limit (dBuV/M)	Margin (dB)	EUT Orient.
1805	200	1	48.3	22.9	26.6	2.4	54.4	63.5	-9.1	Flat
1805	180	1	56.7	22.9	26.6	2.4	62.8	63.5	-0.7	Side
1805	170	1	57.2	22.9	26.6	2.4	63.3	63.5	-0.2	Edge
2708	180	1	46.2	22.6	27.1	3.0	53.7	63.5	-9.8	Flat
2708	180	1	46	22.6	27.1	3.0	53.5	63.5	-10.0	Side
2708	190	1	47.1	22.6	27.1	3.0	54.6	63.5	-8.9	Edge
3611	140	1	51.5	22.9	29.3	3.6	61.5	63.5	-2.0	Flat
3611	190	1	49	22.9	29.3	3.6	59.0	63.5	-4.5	Side
3611	170	1	48	22.9	29.3	3.6	58.0	63.5	-5.5	Edge
4514	180	1	34.1	23.2	30.3	4.1	45.3	63.5	-18.2	Flat
4514	180	1	32.4	23.2	30.3	4.1	43.6	63.5	-19.9	Side
4514	180	1	35.2	23.2	30.3	4.1	46.4	63.5	-17.1	Edge
5416	180	1	34.9	23.0	32.4	4.4	48.6	63.5	-14.9	Flat
5416	180	1	34.3	23.0	32.4	4.4	48.0	63.5	-15.5	Side
5416	180	1	33.8	23.0	32.4	4.4	47.5	63.5	-16.0	Edge
6319	180	1	39.3	22.2	32.7	5.1	54.9	63.5	-8.6	Flat
6319	180	1	41.1	22.2	32.7	5.1	56.7	63.5	-6.8	Side
6319	0	1	40.1	22.2	32.7	5.1	55.7	63.5	-7.8	Edge

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Test Engineer: Jason Haley

Harmonics Radiated Data Sheet
Minorplanet Systems PLC
Model AEMB100 Transmitter

DATE: January 22, 2004 DETECTOR FUNCTION: Peak
PROJECT #: 04301-10 MEASUREMENT DISTANCE (m): 1

Antenna Polarization: Horizontal

Freq. (MHz)	EUT Dir (Deg.)	Antenna Elevation (Meters)	Recorded Level (dBuV)	Amplifier Gain (dB)	Antenna Factor (dB/M)	Cable Loss (dB)	Corrected Level (dBuV/M)	Limit (dBuV/M)	Margin (dB)	EUT Orient.
1805	180	1	55	22.9	26.6	2.4	61.1	63.5	-2.4	Edge
1805	180	1	56.2	22.9	26.6	2.4	62.3	63.5	-1.2	Side
1805	170	1	55.8	22.9	26.6	2.4	61.9	63.5	-1.6	Flat
2708	165	1	47	22.6	27.1	3.0	54.5	63.5	-9.0	Edge
2708	170	1	44.1	22.6	27.1	3.0	51.6	63.5	-11.9	Side
2708	190	1	49.5	22.6	27.1	3.0	57.0	63.5	-6.5	Flat
3611	180	1	46.5	22.9	29.3	3.6	56.5	63.5	-7.0	Edge
3611	180	1	51.9	22.9	29.3	3.6	61.9	63.5	-1.6	Side
3611	190	1	53.2	22.9	29.3	3.6	63.2	63.5	-0.3	Flat

Corrected Level = Recorded Level - Amplifier Gain + Antenna Factor + Cable Loss

Test Engineer: Jason Haley

Appendix B Occupied Bandwidth Data

Minorplanet Systems PLC
Model AEMB100 Transmitter