Exhibit B – Measurement Report
Electronic Tracking Systems
LPRS Transmitter

Project Number: 03083-10

Prepared for:

ELECTRONIC TRACKING SYSTEMS
2545 Tarpley Road.
Carrollton, TX 75006

By

Professional Testing (EMI), Inc.
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November 2002

CERTIFICATION
Electromagnetic Interference
Test Report

ELECTRONIC TRACKING SYSTEMS
LPRS Transmitter
(Intentional Radiator Portion)

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Certificate of Compliance

Applicant:	Electronic Tracking Systems
Applicant's Address:	2545 Tarpley Road Carrollton, TX 75006
Model:	LPRS Transmitter
Serial Number:	None
Project Number:	03083-10

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.

The **Electronic Tracking Systems LPRS Transmitter** was tested to and found to be in compliance with FCC Part 2 and 95 for an Intentional Radiator.

The highest emissions generated by the above equipment are listed below:

	Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Fundamental	216.48	99.8	N/A	N/A
Spurious	793.78	47.9	69.2	-21.3

	Frequency (MHz)	Measured Power	Power Requirement
RF Power Output	216.48	57.63 mW	100 mW

	Frequency (MHz)	Measured Bandwidth	Bandwidth Requirement
Occupied Bandwidth	216.48	5.09 kHz	25.0 kHz

	AM Percent
Modulation	52.7

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Jeffrey A. Lenk
President

1.0 EUT Description

The Equipment Under Test (EUT) is the **Electronic Tracking Systems LPRS Transmitter**. The **LPRS Transmitter** is a billpack currency TRAC PAC II beacon transmitter, which consists of a miniature radio frequency transmitter, battery assembly, battery disconnect switch, magnetic reed switch, and flexible printed circuit antenna, all of which are concealed between two or more currency bills. The unit is stored in cash drawers resting on a magnetic hold-off plate. The transmitter is activated when the TAG assembly is removed from the magnetic hold-off plate assembly. The unit then transmits until it is returned to a magnetic hold-off plate or until the battery is depleted. The maximum transmitter operating time is 1 hour for a thin battery pack and 2.5 hours for a thicker battery pack. The EUT operates at 216.48 MHz and is designed for compliance with 47 CFR 2.201 of the FCC rules. Specific test requirements for this device include the following:

47 CFR 2.1046 (a)	Fundamental Transmit Power
47 CFR 2.1051, 2.1053, & 95.635	Spurious Radiated Power
47 CFR 2.1049(h) & 95.629	Occupied Bandwidth (2.989 used as Procedural Reference)
47 CFR 3.1055 (a) 1 (b) (d) 2	Frequency Stability

The system tested consisted of the following:

Manufacturer & Model	**Serial #**	**FCC ID #**	**Description**
Electronic Tracking Systems, TRAC PAC II Beacon	None	NBI-MTAG216A1	LPRS Transmitter

1.1 EUT Operation

The **LPRS Transmitter** was operated in the normal transmit mode. A switch on the flexible PWB afforded the ability to turn the transmitter on and off for testing purposes. The transmitter was turned on for all measurements with the standard currency battery pack installed. The EUT was powered on using a 9-Volt battery. The EUT consists of six silver oxide buttons cells wired in series and covered in a shrink-wrap exterior to prevent shorts. The color-coded pigtails terminated in a connector pin, plug–in to mating contacts on the Flex Antenna PWB. The battery assembly is secured to a copper pad on the Flex Antenna PWB with double-sided tape. The frequency of the transmitting signal is 216.48 MHz.

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.

Radiated emission measurements were made of the fundamental and spurious emission levels for the **LPRS Transmitter**. The equipment's occupied bandwidth was also measured.

Measurements of the maximum emission levels for the fundamental and the spurious/harmonic emissions of the **LPRS Transmitter** were made at the Professional Testing "Open Field" Site 3, located in Round Rock, Texas to determine the radio noise radiated from the EUT.

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. The fundamental emissions of the device were measured with the measurement antenna both vertical and horizontal, and with the EUT rotated while being held in each of three orthogonal planes.

2.1 Test Procedure

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 10 meters as measured from the closest point of the EUT. The EUT was also positioned in each of its three orthogonal planes. For spurious/harmonic measurements above 1 GHz, the measurement antenna was placed 1 meter from the EUT. The radiated emissions were maximized by positioning the EUT and by rotating the EUT.

2.2 Test Criteria

The table below shows FCC Part 2 and 95 radiated limits for an intentional radiator operating at 216.48 MHz. The unintentional radiated emission limits of §95.635 for 216.48 MHz radiator is –30 dBc from 12.5 kHz to 22.5 kHz. Emission greater than 22.5 kHz away from the channel center frequency will be at least 43 + 10 times the log of the carrier power in watts. The peak power measured from the EUT was 57.63 mW. The calculated limit is 69.2 dBuV/mat 10 meters. The spurious and harmonic emissions were measured to the 10th harmonic of the carrier frequency. The reference distance for each limit is also shown in this table.

Signal Type	Test Distance (Meters)	Field Strength (µV/m)	(dBµV/m)
Fundamental (216.48 MHz)	10	N/A	N/A
2nd Harmonic (432.97 MHz)	10	2884.0	69.2
3rd Harmonic (649.44 MHz)	10	2884.0	69.2
4th Harmonic (865.92 MHz)	3	9660.5	79.7
5th Harmonic (1082.43 MHz)	1	28840.3	89.2
6th Harmonic (1298.92 MHz)	1	28840.3	89.2
7th Harmonic (1515.33 MHz)	1	28840.3	89.2
8th Harmonic (1731.90 MHz)	1	28840.3	89.2
9th Harmonic (1948.38 MHz)	1	28840.3	89.2
10th Harmonic (2164.87 MHz)	1	28840.3	89.2

2.3 Test Results

The radiated test data for the fundamental is included in Appendix A. The radiated emission test data for the harmonics is included in Appendix B. The emissions were maximized at each frequency and the highest emissions identified were measured using peak detection. The radiated emissions generated by the **LPRS Transmitter** were recorded and used to set the limit for spurious and harmonic radiation. The radiated spurious and harmonic emissions were below the limit specified in FCC Part 95.635.

3.0 Occupied Bandwidth Measurements

Measurements of the occupied bandwidth for the fundamental signals of the EUT in compliance with FCC Part 95.629 were made at the Professional Testing's Round Rock, Texas laboratory. All measurements were made in a controlled indoor environment in a configuration, which did not present measurement distortion or ambient interference.

3.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the floor. The measurement was preformed by connecting the spectrum analyzer thru a short cable to the transmitter's output. Peak detection was used for all tests. The occupied bandwidth was based on a 26 dB criteria (26 dB down either side of the emission from the nominal center of the emission).

3.2 Test Criteria

Measurement of the occupied bandwidth was performed to verify that the emission bandwidth from the EUT did not exceed 25 kHz.

3.3 Test Results

The plot of the occupied bandwidth is included in Appendix C. The **LPRS Transmitter** transmitter's occupied bandwidth at 216.48 MHz is 5.09 kHz.

4.0 Frequency Stability

An analysis of the **LPRS Transmitter** was performed to determine compliance with Section 2.1055 (a) 1 (b), and (d) 2 of the Rules. Frequency measurements were made at the extremes of the temperature range and at 10-degree intervals from –30 to +50 degrees C. Sufficient time was allowed for components to stabilize at the temperature. Frequency measurements were made at 7 and 9.5 V DC supplied power.

4.1 Test Procedure

The EUT was placed in a Thermotron S1-2C temperature chamber. The EUT was connected through a short cable to the EIP 545 frequency counter. The temperature was changed in 10-degree increments and a measurement was made after allowing time at each new temperature for the frequency to stabilize. For the voltage stability part of the test, the temperature was held at 22 degrees C. and frequency readings were taken while the DC voltage was changed from 7-volts

to 9.5-volts using a bench power supply, instead of a battery. The results of the above tests were recorded and are shown in a table in Appendix D with the frequency variations calculated in parts per million.

4.2 Test Criteria

The frequency tolerance of the carrier was maintained within +/-50 PPM of the operating frequency over a temperature range from –30 to +50 degrees C at normal supply voltage, and from 7 to 9.5 -volts DC at 22 degrees C.

4.3 Test Results

The **LPRS Transmitter** meets the criteria of 47 CFR 2.1055. The worst-case stability was at –30 degrees C and was –12.8 PPM.

5.0 RF Power Output

Measurement of the RF Power output for the fundamental of the LPRS Transmitter was made at the Professional Testing Round Rock, Texas laboratory. All measurements were made in a controlled indoor environment, which did not present measurement distortion or ambient interference.

5.1 Test Procedure

The EUT was placed on a nonconductive table .8 meters above the floor. The measurement was performed by connecting the spectrum analyzer through a short cable and an attenuator to the transmitter output. Peak detection was used for the measurement.

5.2 Test Criteria

Measurement of the RF Power output was performed to verify that the power was less than 100 milliwatts.

5.3 Test Results

The plot of the RF Power output is included in Appendix C. The LPRS Transmitter RF Power output was measured at 57.63 milliwatts.

6.0 Modulation Characteristics

Measurement of the RF Power output for the fundamental of the LPRS Transmitter was made at the Professional Testing Round Rock, Texas laboratory. All measurements were made in a controlled indoor environment, which did not present measurement distortion or ambient interference.

6.1 Test Procedure

The EUT was placed on a nonconductive table .8 meters above the floor. The modulation analyzer was calibrated with its internal calibrator. The measurement was performed by connecting the LPRS transmitter through a short cable to the modulation analyzer. The amount of AM modulation was read off of the LED readout.

6.2 Test Results

The AM modulation depth for the LPRS transmitter was measured at 52.7 percent.

7.0 Modifications to Equipment

There were no modifications made on the **LPRS Transmitter** during the performance of the test program in order to meet the FCC criteria.

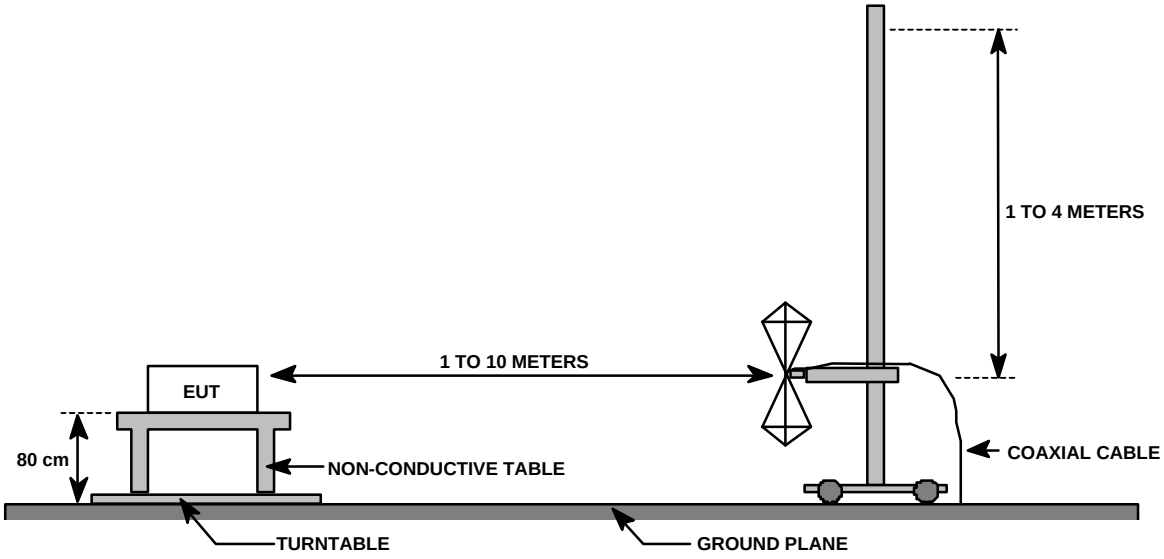
8.0 List of Test Equipment

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

Device	Description	Calibration Due
HP 8447D	Preamplifier	October 2002
Compliance Design B-100	Biconical Antenna	November 2002
EMCO 3146	Log Antenna	November 2002
EMCO 3115	Microwave Antenna	July 2002
MITEQ	Preamplifier	January 2003
Cond. EMI Cable	RG-223	November 2002
RF Power Output		
Advantest R3265	Spectrum Analyzer	March 2003
HP 8941B-20	20 dB Attenuator	August 2003
Modulation		
HP 8901	Modulation Analyzer	At Use
Frequency Stability		
Fluke 8840A	Multimeter	May 2003
KEPCO Labs	Power Supply	Not Required
EIP 548A	Frequency Counter	At Use
Austron	Frequency Standard	Not Required
Thermotron 51.2c	Environmental Chamber	June 2003

Figure 1: Radiated Emission Test Setup



Appendix A Radiated Emission Data Sheets

Fundamental Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 8, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 10
DETECTOR FUNCTION: Quasi-Peak

Antenna Horizontal

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

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)	EUT Orientation
216.487	190	3.0	77.3	0.0	11.6	5.9	94.8	Flat
216.487	300	1.6	59.3	0.0	11.6	5.9	76.8	On End
216.487	0	3.0	82.3	0.0	11.6	5.9	99.8	On Edge

Antenna Vertical

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

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)	EUT Orientation
216.487	270	4.0	66.6	0.0	11.6	5.9	84.1	Flat
216.487	270	3.5	68.5	0.0	11.6	5.9	86.0	On Edge
216.487	0	1.0	79.5	0.0	11.6	5.9	97.0	On End

TEST ENGINEER: Bob Ripley

Appendix B Spurious Radiated Emissions Data Sheets

Spurious Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 8, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 10
ANTENNA POLARIZATION: Horizontal
DETECTOR FUNCTION: Peak

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

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 Orientation
144.325	0	4.0	32.7	0.0	11.9	4.8	49.4	69.2	-19.8	Flat
288.650	200	4.0	61.1	26.9	14.7	6.9	55.8	69.2	-13.4	Flat
360.812	240	2.5	49.0	27.1	15.5	7.6	45.0	69.2	-24.2	Flat
505.137	280	1.3	47.5	27.0	17.4	9.2	47.2	69.2	-22.0	Flat
144.325	0	4.0	30.5	26.6	11.9	4.8	20.6	69.2	-48.6	Edge
288.650	0	4.0	56.7	26.9	14.7	6.9	51.4	69.2	-17.8	Edge
360.812	0	2.5	41.8	27.1	15.5	7.6	37.8	69.2	-31.4	Edge
505.137	320	1.5	35.1	27.0	17.4	9.2	34.8	69.2	-34.4	Edge
577.300	275	1.0	41.5	26.9	17.9	9.9	42.4	69.2	-26.8	Edge
721.625	0	1.2	35.2	26.4	21.8	11.1	41.6	69.2	-27.6	Edge
793.787	180	1.0	40.9	26.2	22.1	11.9	48.7	69.2	-20.5	Edge
288.65	30	4.0	47.3	26.9	14.7	6.9	42.0	69.2	-27.2	End
360.812	270	2.7	39.4	27.1	15.5	7.6	35.4	69.2	-33.8	End
505.137	270	1.1	41.2	27.0	17.4	9.2	40.9	69.2	-28.3	End

TEST ENGINEER: Bob Ripley

Spurious Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 8, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 10
ANTENNA POLARIZATION: Vertical
DETECTOR FUNCTION: Peak

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

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 Orientation
144.325	300	4.0	28.6	0.0	11.9	4.8	45.3	69.2	-23.9	Flat
288.650	290	4.0	41.9	26.9	14.7	6.9	36.6	69.2	-32.6	Flat
360.812	315	3.8	34.9	27.1	15.5	7.6	30.9	69.2	-38.3	Flat
144.325	0	1.0	32.2	26.6	11.9	4.8	22.3	69.2	-46.9	Edge
288.650	45	1.0	42.2	26.9	14.7	6.9	36.9	69.2	-22.3	Edge
360.812	0	1.0	38.0	27.1	15.5	7.6	34.0	69.2	-35.2	Edge
505.137	315	3.3	43.4	27.0	17.4	9.2	43.1	69.2	-26.1	Edge
144.325	200	1.0	27.6	0.0	11.9	4.8	44.3	69.2	-24.9	End
288.650	120	4.0	48.7	26.9	14.7	6.9	43.4	69.2	-25.8	End
360.812	0	4.0	42.1	27.1	15.5	7.6	38.1	69.2	-31.1	End
505.137	120	2.1	35.2	27.0	17.4	9.2	34.9	69.2	-34.3	End
577.300	210	2.6	40.0	26.9	17.9	9.9	40.9	69.2	-28.3	End
793.787	180	0.8	40.1	26.2	22.1	11.9	47.9	69.2	-21.3	End

TEST ENGINEER: Bob Ripley

Appendix C Harmonic Radiated Emissions Data Sheets

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 8, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 10
ANTENNA POLARIZATION: Horizontal
DETECTOR FUNCTION: Peak

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

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 Orientation
432.975	260	2.2	55.1	27.3	16.4	8.4	52.6	69.2	-16.6	Flat
432.975	20	2.0	49.1	27.3	16.4	8.4	46.6	69.2	-22.6	Edge
649.462	280	1.0	53.3	27.0	19.8	10.6	56.7	69.2	-12.5	Edge
432.975	315	2.0	51.4	27.3	16.4	8.4	48.9	69.2	-20.3	End
649.480	45	1.2	45.6	27.0	19.8	10.6	49.0	69.2	-20.2	End

TEST ENGINEER: Bob Ripley

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 8, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 10
ANTENNA POLARIZATION: Vertical
DETECTOR FUNCTION: Peak

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

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 Orientation
432.975	210	2.9	43	27.3	16.4	8.4	40.5	69.2	-28.7	Flat
649.480	210	1.9	42.1	27.0	19.8	10.6	45.5	69.2	-23.7	Flat
432.975	0	3.4	49.5	27.3	16.4	8.4	47.0	69.2	-22.2	Edge
432.975	45	4	48.6	27.3	16.4	8.4	46.1	69.2	-23.1	End
649.480	120	1.9	49.1	27.0	19.8	10.6	52.5	69.2	-16.7	End

TEST ENGINEER: Bob Ripley

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 4, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 1
ANTENNA POLARIZATION: Horizontal
DETECTOR FUNCTION: Peak

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

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 Orientation
865.920	0	1	26.6	0	22.6	1.6	50.8	79.7	-28.9	Flat
1082.437	180	1	56.8	20.7	26.2	1.9	64.1	89.2	-25.1	Flat
1298.920	0	1	59.7	20.8	25.6	2.0	66.5	89.2	-22.7	Flat
1515.333	180	1	53.1	20.9	25.2	2.2	59.5	89.2	-29.7	Flat
1731.900	350	1	52.5	21.6	26.2	2.3	59.4	89.2	-29.8	Flat
1948.380	250	1	49.2	22.3	27.3	2.5	56.6	89.2	-32.6	Flat
2164.870	160	1	52.5	22.3	27.2	2.6	60.1	89.2	-29.1	Flat
865.920	0	1	29.5	0	22.6	1.6	53.7	79.7	-26.0	Edge
1082.437	330	1	60.0	20.7	26.2	1.9	67.3	89.2	-21.9	Edge
1298.920	275	1	59.5	20.8	25.6	2.0	66.3	89.2	-22.9	Edge
1515.333	330	1	55.8	20.9	25.2	2.2	62.2	89.2	-27.0	Edge
1731.900	45	1	53.9	21.6	26.2	2.3	60.8	89.2	-28.4	Edge
1948.380	330	1	57.2	22.3	27.3	2.5	64.6	89.2	-24.6	Edge
2164.870	10	1	54.4	22.3	27.2	2.6	62.0	89.2	-27.2	Edge

Note: The 4th harmonic was measured at 3 meters, in a semi-anechoic chamber due to a local cellular ambient.

TEST ENGINEER: Bob Ripley

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 4, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 1
ANTENNA POLARIZATION: Horizontal
DETECTOR FUNCTION: Peak

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

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 Orientation
865.920	0	1	20.7	0	22.6	1.6	44.9	79.7	-34.8	End
1082.437	0	1	58.1	20.7	26.2	1.9	65.4	89.2	-23.8	End
1298.920	330	1	60.0	20.8	25.6	2.0	66.8	89.2	-22.4	End
1515.333	200	1	59.3	20.9	25.2	2.2	65.7	89.2	-23.5	End
1731.900	200	1	55.2	21.6	26.2	2.3	62.1	89.2	-27.1	End
1948.380	10	1	55.8	22.3	27.3	2.5	63.2	89.2	-26.0	End
2164.870	350	1	59.1	22.3	27.2	2.6	66.7	89.2	-22.5	End

Note: The 4th harmonic was measured at 3 meters, in a semi-anechoic chamber due to a local cellular ambient.

TEST ENGINEER: Bob Ripley

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 4, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 1
ANTENNA POLARIZATION: Vertical
DETECTOR FUNCTION: Peak

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

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 Orientation
865.920	0	1	20.4	0	22.6	1.6	44.6	79.7	-35.1	Flat
1082.437	75	1	56.2	20.7	26.2	1.9	63.5	89.2	-25.7	Flat
1298.920	280	1	62.1	20.8	25.6	2.0	68.9	89.2	-20.3	Flat
1515.333	270	1	59.5	20.9	25.2	2.2	65.9	89.2	-23.3	Flat
1731.900	270	1	62.1	21.6	26.2	2.3	69.0	89.2	-20.2	Flat
1948.380	270	1	62.7	22.3	27.3	2.5	70.1	89.2	-19.1	Flat
2164.870	300	1	59.1	22.3	27.2	2.6	66.7	89.2	-22.5	Flat
865.920	0	1	20.5	0	22.6	1.6	44.7	79.7	-35.0	Edge
1082.437	340	1	59.1	20.7	26.2	1.9	66.4	89.2	-22.8	Edge
1298.920	350	1	60.0	20.8	25.6	2.0	66.8	89.2	-22.4	Edge
1515.333	45	1	59.1	20.9	25.2	2.2	65.5	89.2	-23.7	Edge
1731.900	255	1	55.9	21.6	26.2	2.3	62.8	89.2	-26.4	Edge
1948.380	120	1	57.7	22.3	27.3	2.5	65.1	89.2	-24.1	Edge
2164.870	315	1	58.7	22.3	27.2	2.6	66.3	89.2	-22.9	Edge

Note: The 4th harmonic was measured at 3 meters, in a semi-anechoic chamber due to a local cellular ambient.

TEST ENGINEER: Bob Ripley

Harmonic Radiated Data Sheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 4, 2002
PROJECT #: 03083-10

MEASUREMENT DISTANCE (m): 1
ANTENNA POLARIZATION: Vertical
DETECTOR FUNCTION: Peak

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

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 Orientation
865.920	0	1	27.5	0	22.6	1.6	51.7	79.7	-28.0	End
1082.437	30	1	60.6	20.7	26.2	1.9	67.9	89.2	-21.3	End
1298.920	0	1	61.5	20.8	25.6	2.0	68.3	89.2	-20.9	End
1515.333	90	1	60.4	20.9	25.2	2.2	66.8	89.2	-22.4	End
1731.900	30	1	58.6	21.6	26.2	2.3	65.5	89.2	-23.7	End
1948.380	40	1	57.9	22.3	27.3	2.5	65.3	89.2	-23.9	End
2164.870	0	1	59.7	22.3	27.2	2.6	67.3	89.2	-21.9	End

Note: The 4th harmonic was measured at 3 meters, in a semi-anechoic chamber due to a local cellular ambient.

TEST ENGINEER: Bob Ripley

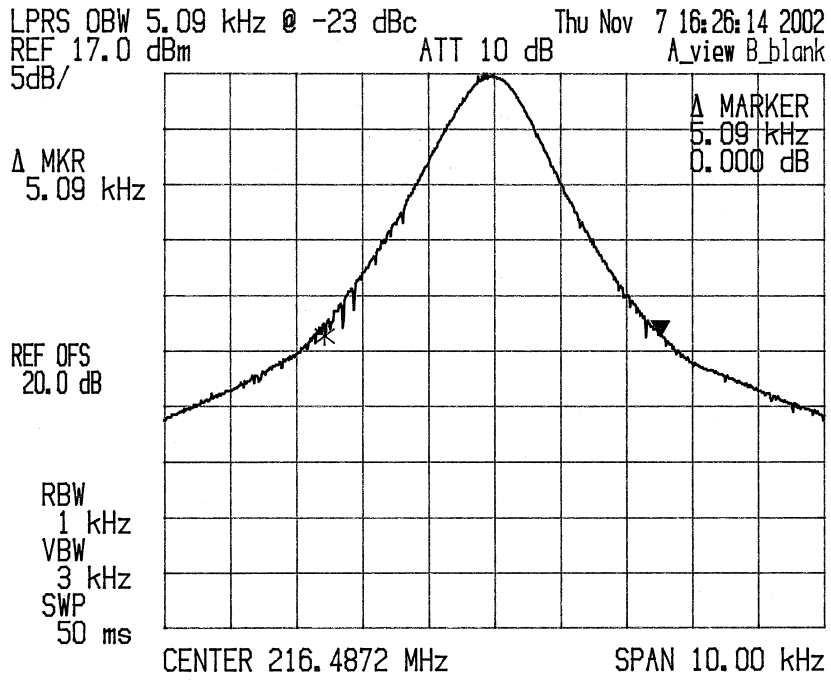
Appendix D Occupied Bandwidth Data Sheets

Occupied Bandwidth Datasheet

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 7, 2002
PROJECT #: 03083-10

CONDUCTED MEASUREMENT
DETECTOR FUNCTION: Peak



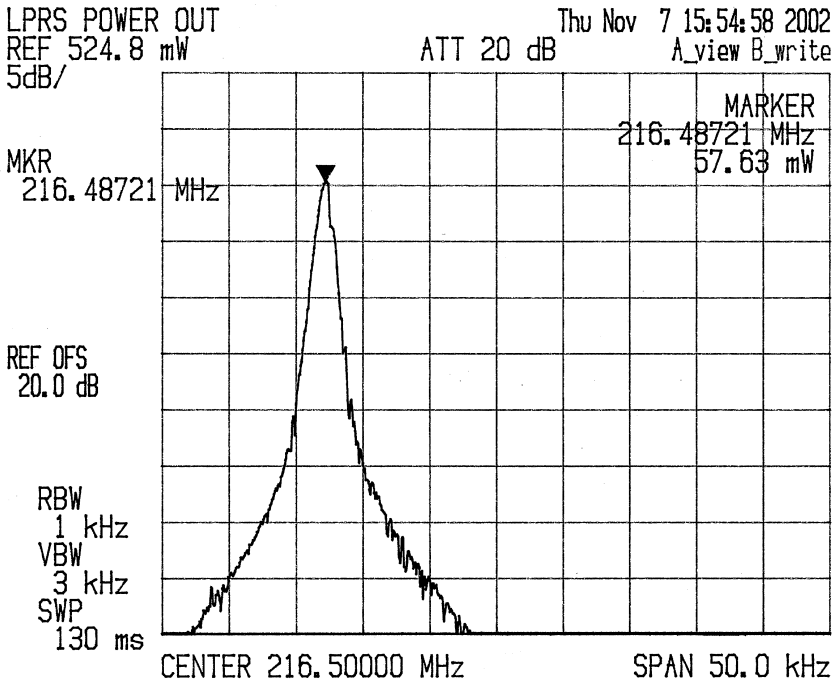
TEST ENGINEER: Bob Ripley

RF Power Output Plot

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 7, 2002

ANTENNA CONDUCTED MEASUREMENT
PROJECT #: 03083-10

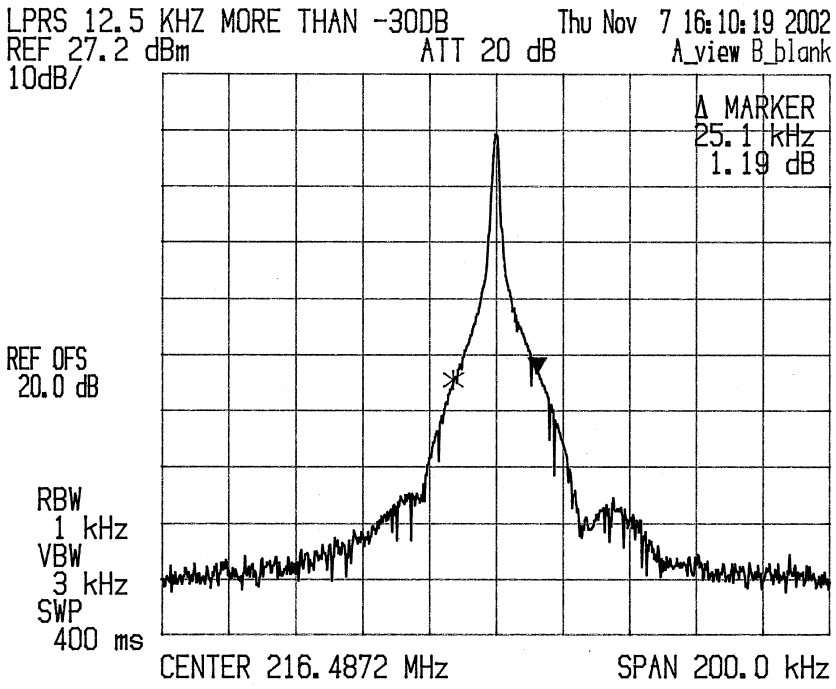


Close In Spurious Plot

Electronic Tracking Systems
LPRS Transmitter

SERIAL #: None
DATE: November 7, 2002

ANTENNA CONDUCTED MEASUREMENT
PROJECT #: 03083-10



Appendix E Frequency Stability

CFR 47, 2.1055
Frequency Stability Datasheet
Electronic Tracking Systems
LPRS Transmitter

Date: November 8, 2002
Project: 03083-10
Model: LPRS Transmitter

Applicant: Electronic Tracking Systems
Supervisor: David Rahe
Technician: Bob Ripley

Channel Center Frequency 216.4875 MHz Error Limit: 50 PPM

Degree Celsius	Measured Frequency	Time	Freq. Error Hz	Error PPM
-30	216.484726	5:40	-2774	-12.8
-20	216.486096	5:45	-1404	-6.5
-10	216.487103	5:54	-397	-1.8
0	216.487570	6:02	70	.3
10	216.487865	6:10	115	.5
20	216.487800	6:15	300	1.4
30	216.487635	6:23	135	.6
40	216.487482	6:33	-18	-.08
50	216.487534	6:52	34	.16
22°C, 7 volts	216.487580	10:30	80	.37
22°C, 9.5 volts	216.487557	10:33	57	.26

Comments: Temperature run performed with fresh battery.
Pass

TEST ENGINEER: Bob Ripley