

TIMCO ENGINEERING INC.

849 NW State Road 45
Newberry, Florida 32669
<http://www.timcoengr.com>
888.472.2424 F 352.472.2030 email: tei@timcoengr.com



Test Report

Product Name: TRANSMITTER-MODULAR APPROVAL

FCC ID: TE6DM1800

Applicant:

**RF MONOLITHICS, INC.
4441 SIGMA ROAD
DALLAS TX 75244
USA**

Date Receipt: 11/8/2005

Date Tested: 11/16/2005

APPLICANT: RF MONOLITHICS, INC.
FCC ID: TE6DM1800
REPORT #: R\RF MONOLITHICS TE6\2260AUT5\2260AUT5TestReport.doc

COVER SHEET

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PAGE 8.....OCCUPIED BANDWIDTH
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EXHIBIT INCLUDED:

REQUEST FOR CONFIDENTIALITY LETTER
COVER LETTER REQUESTING MODULAR APPROVAL
BLOCK DIAGRAM
SCHEMATIC
USERS MANUAL
LABEL SAMPLE
LABEL LOCATION
PHOTOGRAPHS
OPERATIONAL DESCRIPTION
TEST SET UP PHOTOGRAPH

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MODULAR REQUIREMENTS

1. The modular transmitter must have its own RF shielding.
All of the transceiver RF portions are in a hermetically sealed case on the top surface of the module.
2. The modular transmitter must have buffered modulation data inputs.
The transmitter has a modulated buffer amplifier for data transmission. See the operational description exhibit.
3. The modular transmitter must have its own power supply regulation.
The schematic for this unit shows on-board regulators.
4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c).
The module is being certified with a helically wound wire resonate antenna at 916.4 MHz. It will be sold with it placed vertically on the board and horizontally on the board. It was tested in both configurations and the data is included in the test report.
5. The modular transmitter must be tested in a stand-alone configuration.
The DM1800 was tested in a stand alone configuration. See the test setup photographs.
6. The modular transmitter must be labeled with its own FCC ID number.
The FCC ID Label Sample and Label Location are included in the exhibits.

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MODULAR REQUIREMENTS CONTD.

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter.
The DM1800 meets all of the requirements per FCC Rules Part 15.249 and data is included in the report.
8. The modular transmitter must comply with any applicable RF exposure requirements.
The unit is of such low power it meets all RF Exposure requirements.

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EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 8/3/05	8/3/07
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/05	5/8/07

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. The UUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the UUT was 74.3°F with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	METER READING + ACF = FS
33	20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

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APPLICANT: RF MONOLITHICS, INC.

FCC ID: TE6DM1800

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NUMBER: 15.249, 15.209

REQUIREMENTS:

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental: 902-928 MHz 2.4-2.4835 GHz 94 dBuV/m @3m	of Harmonics 54 dBuV/m @3m	30 - 88 MHz 40 dBuV/m @3M 88 - 216 MHz 43.5 216 - 960 MHz 46 ABOVE 960 MHz 54dBuV/m

TEST RESULTS: This unit DOES meet the FCC requirements.

TEST DATA WITH ANTENNA ON SAMPLE IN VERTICLE POSITION:

Emission Frequency MHz	Meter Reading dBuV	Ant. Pol.	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
916.40	70.1	V	1.97	22.59	6.19	88.47	5.53
916.40	71.7	H	1.97	23.43	6.19	90.91	3.09
1,832.80	19.1	H	2.77	30.20	6.19	45.88	8.12
1,832.80	19.3	V	2.77	30.20	6.19	46.08	7.92
2,749.20	13.9	H	3.42	32.90	6.19	44.03	9.97
2,749.20	14.5	V	3.42	32.90	6.19	44.63	9.37
3,665.60	9.8	H	4.20	33.43	6.19	41.24	12.76
3,665.60	10.4	V	4.20	33.43	6.19	41.84	12.16

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TEST DATA WITH ANTENNA ON SAMPLE IN HORIZONTAL POSITION:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
916.40	67.1	V	1.97	22.59	6.19	85.47	8.53
916.40	73.6	H	1.97	23.43	6.19	92.81	1.19
1,832.80	18.5	V	2.77	30.20	6.19	45.28	8.72
2,749.20	13.8	H	3.42	32.90	6.19	43.93	10.07
2,749.20	14.1	V	3.42	32.90	6.19	44.23	9.77
3,665.60	9.6	H	4.20	33.43	6.19	41.04	12.96
3,665.60	10.0	V	4.20	33.43	6.19	41.44	12.56

TEST PROCEDURE: ANSI STANDARD C63.4-2003. The bandwidth of spectrum analyzer was 100 kHz with an appropriate sweep speed. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

DUTY CYCLE FACTOR: This device operates with a worse case duty cycle factor of 50%. $DCF = 20\log(.50)$ or -6 dB.

PERFORMED BY: JOSEPH SCOGLIO

DATE: 11/22/2005

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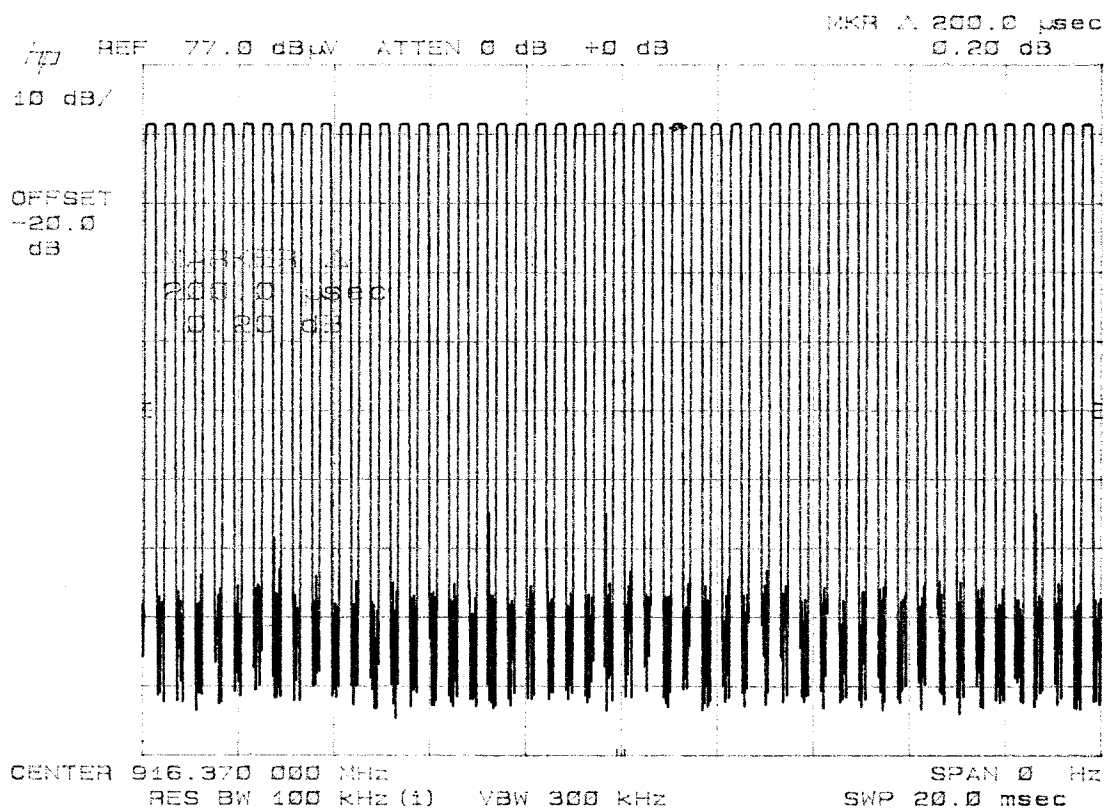
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FCC ID: TE6DM1800

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.249

REQUIREMENTS: The field strength of any emissions appearing outside the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.209.

THE PLOT ON THE NEXT PAGE REPRESENTS THE EMISSIONS TAKEN FOR THIS DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 50 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: JOSEPH SCOGLIO

DATE: 11/8/2005

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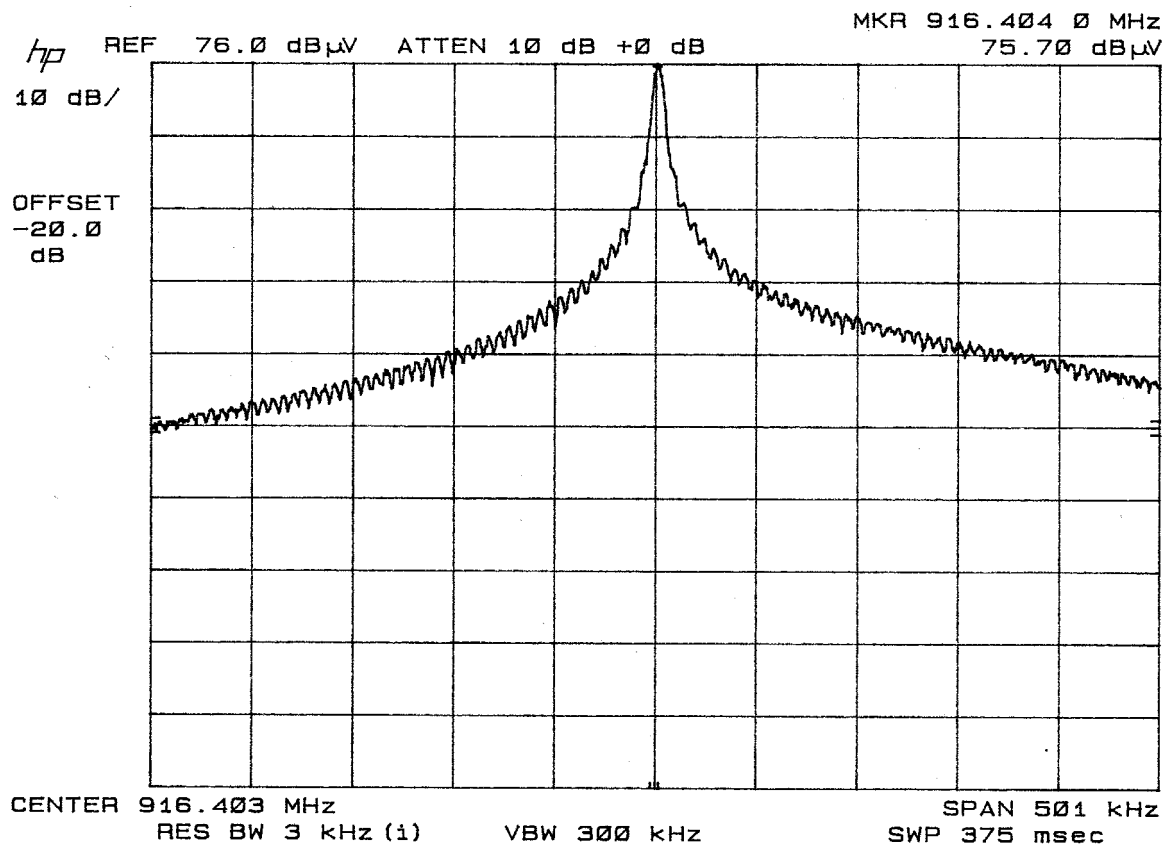
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