

TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: sid@timcoengr.com



Test Report

Product Name: T60 MIDI TRANSMITTER

FCC ID: ONFT60TX-0XSTL

Applicant:

**TELERADIO AB
DATAVAGAN 21
GOTEBORG S043632
SWEDEN**

Date Receipt: 7/14/2005

Date Tested: 7/14/2005

APPLICANT: TELERADIO AB

FCC ID: ONFT60TX-0XSTL

REPORT #: T\TELERADIO_ONF\1401ZUT5\1401ZUT5TestReport.doc

COVER SHEET

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EXHIBIT INCLUDING:

LETTER CONFIRMING MODIFICATIONS
BLOCK DIAGRAM
SCHEMATIC
INSTRUCTION MANUAL
LABEL SAMPLE
LABEL LOCATION
EXTERNAL PHOTOGRAPHS
INTERNAL PHOTOGRAPHS
OPERATIONAL DESCRIPTION
TEST SET UP PHOTOGRAPH

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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	1057	CAL 3/18/03	3/18/05
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	2620A00294	CAL 4/27/04	4/27/06
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/05	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 5/8/03	5/8/05

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was 98.3°F with a humidity of 40%.

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. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

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.

Measurements were made by TIMCO ENGINEERING INC. at the registered open field test site located at 849 N.W. State Road 45, Newberry, FL 32669.

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APPLICANT: TELERADIO AB
FCC ID: ONFT60TX-0XSTL
NAME OF TEST: RADIATION INTERFERENCE
RULES PART NO.: 15.231

REQUIREMENTS:

Fundamental Frequency MHz	Field Strength of Fundamental dBuV	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94	51.48 to 61.94
470 and above	81.94	61.94

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE FUNDAMENTAL FREQUENCY = 80.82 dBuV/m. NO FUNDAMENTAL IS ALLOWED IN THE RESTRICTED BANDS.

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE HARMONICS AND SPURIOUS FREQUENCIES = 60.82 dBuV/m. SPURIOUS IN THE RESTRICTED BANDS MUST BE LESS THAN 54 dBuV/m OR 15.209.

TEST DATA:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarit y	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
433.9	433.9	60.1	H	1.23	16.70	78.03	2.79
433.9	433.9	62.7	V	1.23	16.28	80.21	0.61
433.9	433.9	56.5	V	1.23	16.28	74.01	6.81
433.9	433.9	61.6	H	1.23	16.70	79.53	1.29
433.9	433.9	61.0	H	1.23	16.70	78.93	1.89
433.9	433.9	61.9	V	1.23	16.28	79.41	1.41
433.9	1,301.70	19.1	H	2.34	27.84	49.28	4.72
433.9	1,301.70	20.6	V	2.34	27.84	50.78	3.22
433.9	1,301.70	19.5	H	2.34	27.84	49.68	4.32
433.9	1,301.70	19.5	V	2.34	27.84	49.68	4.32
433.9	1,301.70	19.8	V	2.34	27.84	49.98	4.02
433.9	1,301.70	19.8	H	2.34	27.84	49.98	4.02

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APPLICANT: TELERADIO AB
FCC ID: ONFT60TX-0XSTL
NAME OF TEST: RADIATION INTERFERENCE CONTINUED

The transmitter ceases transmitting when the button is released.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: NAM NGUYEN

DATE TESTED: 7/15/05

APPLICANT: TELERADIO AB
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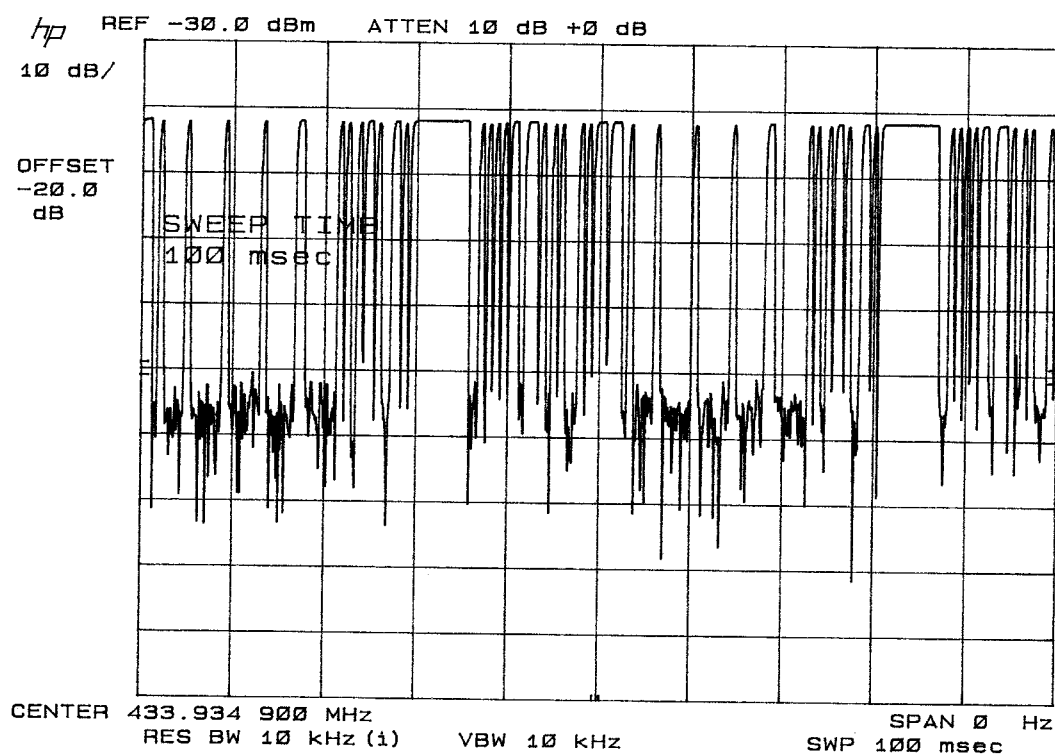
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APPLICANT: TELERADIO AB

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CALCULATION OF DUTY CYCLE: 100%



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APPLICANT: TELERADIO AB

FCC ID: ONFT60TX-0XSTL

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.231(C)

REQUIREMENTS: The bandwidth of the emission shall be no wider than .25% of the center frequency for devices operating between 70 and 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

$$433.90 \text{ MHz} * .0025 = 1.08 \text{ MHz}$$
$$1.08 \text{ MHz} / 2 = +/- 540.00$$

THE FOLLOWING PLOT REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the plot in exhibit 9 was generated. The vertical scale is set to 10 dB per division: the horizontal scale is set to 20 kHz per division.

TEST RESULTS: The unit meets the FCC requirements.

PERFORMED BY: NAM NGUYEN

DATE: JULY 15, 2005

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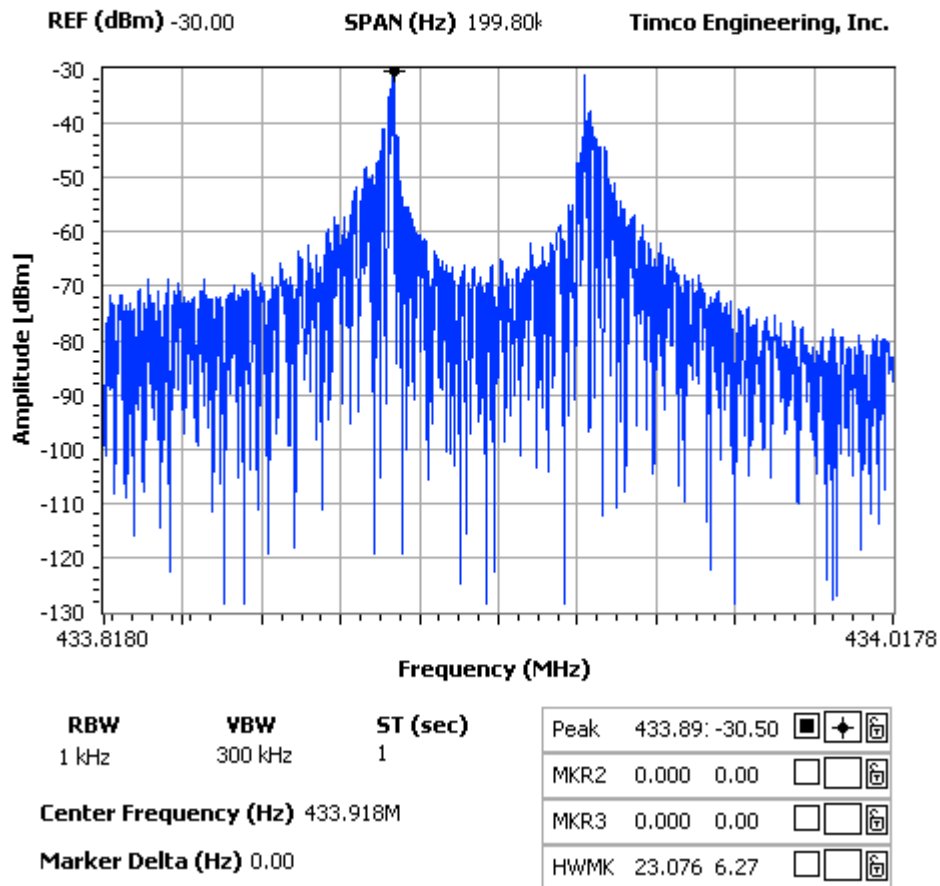
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APPLICANT: TELERADIO AB
FCC ID: ONFT60TX-0XSTL
NAME OF TEST: Occupied Bandwidth

NOTES:

TELERADIO AB - FCC ID: ONFT60
OCCUPIED BANDWIDTH PLOT



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