TEMPEST INC.

112 Elden Street Herndon, Virginia 20170
(703) "TEMPEST" (836-7378) FAX: (703) 709-9565
http://www.tempest-inc.com
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Supplementary Information
Regarding Electromagnetic Compatibility Testing
Performed on the Model TTID-GT1 Transmitter
Sold by
International Marketing, Inc.
25 Penncraft Ave., Suite C
Chambersburg, Pennsylvania 17201

by
Louis T. Gnecco, M.S.E.E., President
Certified Electromagnetic Compatibility Engineer: Cert.# EMC-000544-NE

November 18, 2008

Abstract

As discussed in the conference call of November 13, 2008 between the cognizant FCC and industry personnel listed herein, this document presents supplementary information regarding Electromagnetic Compatibility Tests that were performed during the period of May 20 - June 10, 2008 on the Model TTID-GT1 transmitter of the TTTX system; a trailer tracking system sold by International Marketing, Inc.

List of Tables

Reference Documents:

(a) "Results of Electromagnetic Compatibility Testing Performed in Accordance with Title 47, Part 15 of the United States Code of Federal Regulations on the Model TTID-GT1 Transmitter of the Trailer Tracking Transmitter (TTTX) System, Sold by International Marketing, Inc. 25 Penncraft Ave., Suite C Chambersburg, Pennsylvania 17201"
TEMPEST INC.: June 10, 2008

1.0 Introduction.

As discussed in the conference call of November 13, 2008 among the cognizant personnel listed below, this document presents supplementary information regarding Electromagnetic Compatibility Tests performed on the Model TTID-GT1 transmitter sold by International Marketing, Inc.

1.1 Cognizant Personnel.

Ms. Katie Hawkins, Electronics Engineer
Federal Communications Commission
7435 Oakland Mills Rd. Columbia, Maryland 21046
(301) 362-3030

Mr. Alan Lesesky, President
Vehicle Enhancement Systems, Inc.
1439-10 Dave Lyle Boulevard
Rock Hill SC 29731
(440) 241-3598 ALesesky@aol.com

Louis T. Gnecco, President, TEMPEST INC.
112 Elden Street, Herndon, Virginia 20170
(703) 836-7378 e-mail: info-2008@tempest-inc.com

2.0 Details of cursory tests:

The following cursory tests were performed to identify the main lobes of the transmitter's antenna.

A test sample was first programmed to transmit continuously. While doing so, it was oriented vertically, as shown in figure 1 of reference (a,) and its transmitted signal was monitored with a spectrum analyzer while the transmitter was rotated continuously through 360 degrees.

The transmitter was then oriented horizontally and the above procedure was repeated.

Note that the model TTID-GT1 transmitters are only 2 1/2 inches high, 2 1/4 inches wide, and 1 inch thick.

3.0 Applicable Limits.

Instead of those shown in reference (a,) the applicable limits are those of 47CFR15.231(e), interpolated to the transmit frequency of 433.92 MHz. These are as follows: 72.8 dBuV/m for the intentional signal and 52.8 dBuV/m for its harmonics.

4.0 Duty cycle correction factor:

Since the transmitter operates for less than 15 milliseconds in any 100 millisecond period, in accordance with 47CFR 15.35c the measured levels will be adjusted by -16.5 dB, derived as follows:

$$\text{correction factor (dB)} = 20 \text{ Log } [\ 15/100\ ]$$

4.0 Results.

As shown in Table 2, The transmitter passed all tests.
Radiated emissions consisted of the main carrier frequency of 433.92 MHz and its first ten harmonics, all of whose field strengths were within the limits of 47CFR15.231(e).

5.0 Conclusions.

The model TTID-GT1 Transmitter that was tested complies with the requirements of 47CFR15.231(e).

Table 2: Data. (Replaces Table 2 of Ref. (a).)
Horizontal polarization, antenna height: 1 meter.
Frequency accuracy: 2% Amplitude accuracy: +/- 2 dB

Frequency MHz	Level dBm	level dBμV rms	Antenna Factor, dB	Cable loss,* dB	Level dBμV/m	-16.5 dB.***	Limit**** at 3 meters, dBμV/m
transmitter's signal & harmonics: NA/200-2G Log periodic antenna							
434	-40	67	11	1	79	62.5	72.8
868	-78	29	14	1	44	27.5	52.8
EMCO 3115 Horn antenna							
1302	-82	25	26	1	52	35.5	52.8
1736	-84	23	29	2	54	37.5	52.8
2170	-84	23	30	3	56	39.5	52.8
2604	-86	21	30	3	54	37.5	52.8
3038	-85	22	32	4	58	41.5	52.8
3472	-84	23	33	4	60	43.5	52.8
3906	-88	19	34	5	58	41.5	52.8
4340	-95**	12	34	5	51	34.5	52.8
4774	-95**	12	35	6	53	36.5	52.8
5208	-95**	12	36	6	54	37.5	52.8

*20 feet of constant-phase cable ** Detection system noise.

Typical ambient Signals - Biconical antenna - vertical polarization							
20	-80	27	14	0	31		n/a
58	-80	27	10	0	37		n/a
66	-40	67	10	0	77		n/a
70	-82	25	7	0	32		n/a
Typical ambient signals- Log Periodic Antenna - Vertical polarization							
418	-77	30	11	0	41		n/a
525	-46	61	14	0	75		n/a
1000	-78	29	14	0	43		n/a

*** Correction factor for 15% duty cycle, per 47CFR 15.35c, see para. 4.0.
**** 47CFR15.231(e), at transmit frequency of 433.92 MHz, see para. 3.0