



849 NW STATE ROAD 45
NEWBERRY, FL 32669 USA
PH: 888.472.2424 OR 352.472.5500
FAX: 352.472.2030
EMAIL: INFO@TIMCOENGR.COM
[HTTP://WWW.TIMCOENGR.COM](http://WWW.TIMCOENGR.COM)

FCC PART 15.227 TEST REPORT

LOW POWER UNLICENSED TRANSMITTER

Applicant	HOBBYENGINE MODEL INDUSTRIAL LTD.
Address	ROOM 619, 6/F., PENINSULA CENTRE, 67 MODY ROAD, TSIMSHATSUI EAST KOWLOON HONG KONG
FCC ID	QW70205
Product Description	27 MHZ WIRELESS R/C TOY-TX
Date Sample Received	1/7/2008
Date Tested	1/8/2008
Tested By	NAM NGUYEN
Approved By	MARIO DE ARANZETA
Timco Report No.	42UT8TestReport.doc
Test Results	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results only relate to the item tested.

Summary

The device under test does:

- ☒ fulfill the general approval requirements as identified in this test report
☐ not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669



Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 01/08/2008

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REPORT SUMMARY

Applicable Rule(s)	FCC Pt 15.227, ANSI C63.4: 2003
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TEST ENVIRONMENT

Test Facility	The test sites are located at 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition:	Temperature: 26°C Relative humidity: 50%

TEST SETUP

Test Exercise (e.g software description, test signal, etc.):	The DUT was placed in continuous transmit mode of operation.
Deviation from the standard(s)	No deviation from the standard(s)
Modification to the DUT:	No modification was made to the DUT.
Supporting Peripheral Equipment	Not applicable. The device is a stand-alone remote control radio.

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DUT SPECIFICATION

Applicant	HOBBYENGINE MODEL INDUSTRIAL LTD.		
Description	27 MHZ WIRELESS R/C TOY-TX		
FCC ID	QW70205		
Frequency Range	27.145 MHz		
DUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz		
	<input type="checkbox"/> DC Power		
	<input checked="" type="checkbox"/> Battery Operated Exclusively		
Test Item	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input checked="" type="checkbox"/> Portable

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TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/20/07	3/19/10
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/11/07	5/10/10
Antenna: Biconnical	Eaton	94455-1	1096	CAL 10/11/06	10/11/08
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 7/18/07	7/18/09
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 5/17/07	5/17/09
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 5/17/07	5/17/09
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 5/17/07	5/17/09
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/5/06	10/5/08
LISN	Electro-Metrics	EM-7820	2682	CAL 7/23/07	7/23/09
Antenna: Log-Periodic	Eaton	96005	1243	CAL 12/14/07	12/14/09

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TEST PROCEDURES

Radiated Spurious Emissions: The test procedure used was ANSI C63.4-2003 using a 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 always greater than the RBW.

Occupied Bandwidth: A small sample of the transmitter output was fed into the spectrum analyzer and the following plot was generated. The vertical scale is set to 10 dB per division.

Formula Of Conversion Factors: The field strength at 3m was established by adding the meter reading of the spectrum analyzer to the antenna correction factor supplied by the antenna manufacturer plus the coax loss. The antenna correction factors are stated in terms of dB/m. The gain of the preselector was accounted for in the spectrum analyzer reading.

Example:

Freq MHz	Meter Reading dBuV	ACF dB/m	Cable Loss dB	Field Strength dBuV/m @ 3 m
33	20	+10.36	+1.2	= 31.56

ANSI C63.4-2003 Measurement Procedures: The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. 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.

For measurements below 30 MHz, a loop antenna was used and rotated in horizontal and vertical positions to maximize emissions.

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RADIATION INTERFERENCE

Rules Part No.: 15.227

Requirements:

CARRIER FREQUENCY WILL NOT EXCEEDS 80 dBuV/m AT 3M.

Frequency MHz	Limits
30 – 88	40.0 dBuV/m measured @ 3 meters
80 – 216	43.5 dBuV/m measured @ 3 meters
216 – 960	46.0 dBuV/m measured @ 3 meters
Above 960	54.0 dBuV/m measured @ 3 meters

Test Data:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
27.15	18.0	H	0.80	34.16	52.96	27.04
27.15	28.5	V	0.80	34.16	63.46	16.54
54.29	14.9	H	1.01	10.04	25.95	14.05
54.29	17.4	V	1.01	9.48	27.89	12.11
81.44	20.3	V	1.24	8.75	30.29	9.71
81.44	22.1	H	1.24	8.65	31.99	8.01
108.58	12.8	V	1.46	10.81	25.07	18.43
108.58	14.1	H	1.46	10.29	25.85	17.65
135.73	12.0	H	1.65	14.35	28.00	15.50
135.73	22.0	V	1.65	14.95	38.60	4.90
162.87	14.4	V	1.84	17.23	33.47	10.03
162.87	14.5	H	1.84	16.26	32.60	10.90
190.02	10.4	V	2.03	14.51	26.94	16.56
190.02	13.6	H	2.03	14.11	29.74	13.76
217.16	11.0	H	2.19	11.64	24.83	21.17
217.16	14.2	V	2.19	11.44	27.83	18.17
244.31	9.2	H	2.32	12.32	23.84	22.16
244.31	18.5	V	2.32	12.36	33.18	12.82
271.45	13.5	H	2.46	13.64	29.60	16.40
271.45	14.2	V	2.46	13.53	30.19	15.81

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OCCUPIED BANDWIDTH

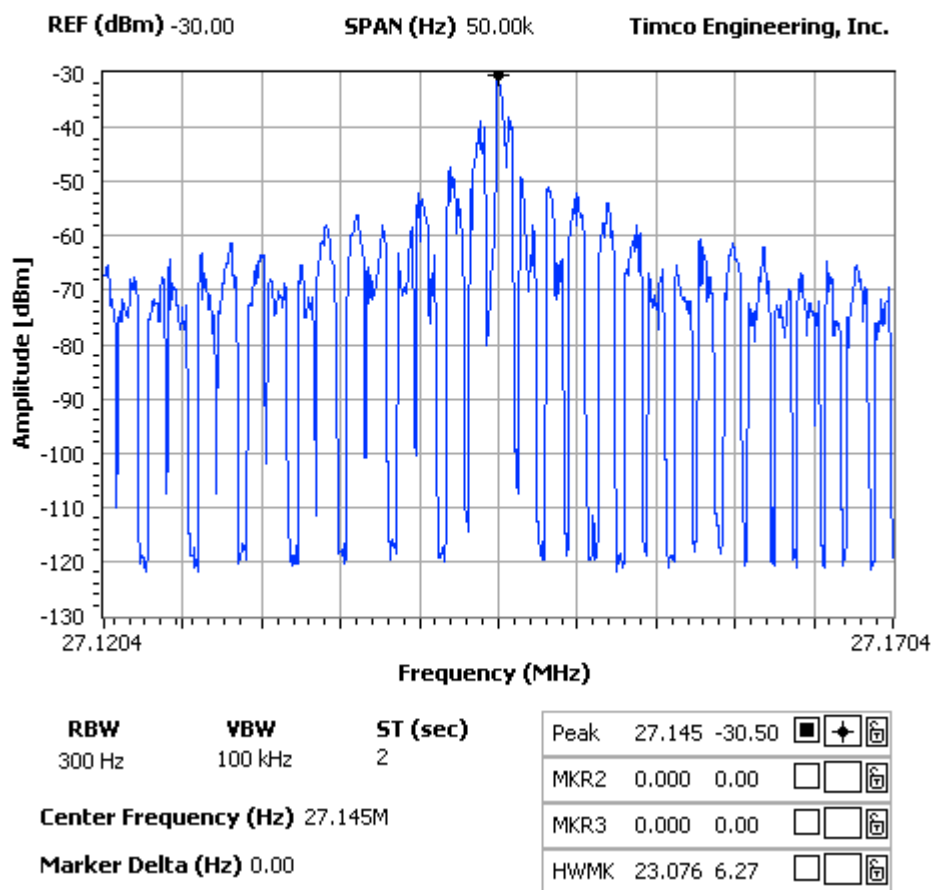
Rules Part No.: 15.227

Requirements: The field strength of any emissions appearing outside of 26.96 and 27.28MHz shall be attenuated to the general limits of 15.209.

Test Data: Please refer to the following plots.

NOTES:

HOBBYENGINE MODEL INDUSTRIAL LTD.- FCC ID: QW70205
OCCUPIED BANDWIDTH PLOT



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RADIATED EMISSIONS TEST SET UP PHOTO



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