



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
Website: www.timcoengr.com

FCC PART 15.247 TEST REPORT

DIGITAL SPREAD SPECTRUM

Applicant	RM ACQUISITION LLC
Address	9855 WOODS DRIVE SKOKIE IL 60077
FCC ID	A4C01001A
Model Number	TND 760
Product Description	802.11b, g Module
Date Sample Received	2/28/2013
Date Tested	3/25/2013
Tested By	John A. Day
Approved By	Mario de Aranzeta
Report Number	R\RM ACQUISITION\379AUT13\379AUT13TestReport.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.**



Testing 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 relate only to the items 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: 2005 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: April 10, 2013

GENERAL INFORMATION

DUT Specification

Applicable Standard	Part 15.247		
DUT Description	802.11b, g Module		
FCC ID	A4C01001A		
Operating Frequency	TX: 2412 - 2462		
Number of channels	11		
DUT Power Source	<input type="checkbox"/> 110-120Vac/50- 60Hz		
	<input checked="" type="checkbox"/> DC Power		
	<input 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 checked="" type="checkbox"/> Mobile	<input type="checkbox"/> Portable
Antenna Connector			
Antenna			
Test Facility	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
Test Conditions	Temperature: 26°C Relative humidity: 50%		
Test Exercise	The DUT was placed in continuous transmit mode of operation.		

Test Supporting Equipment

Supporting Device	Manufacturer	Model / FCC ID	Serial Number
N/A			

APPLICANT: RM ACQUISITION LLC

FCC ID: A4C01001A

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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	12/31/11	12/31/13
3-Meter OATS	TEI	N/A	N/A	12/31/11	12/31/13
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	12/31/11	12/31/13
Analyzer Open-Frame Tower Preamplifier	HP	8449B	3008A01075	07/22/09	09/15/13
Analyzer Open-Frame Tower Quasi-Peak Adapter	HP	85650A	2043A00305	10/26/09	09/15/13
Analyzer Open-Frame Tower RF Preselector	HP	85685A	3107A01282	07/22/09	09/15/13
Analyzer Open-Frame Tower Spectrum Analyzer	HP	8566B/ 85662A	2627A03154/ 2648A14276	07/22/09	09/15/13
Antenna: Active Loop	ETS-Lindgren	6502	00062529	09/23/10	09/23/13
Antenna: Biconnical	Eaton	94455-1	1096	05/04/11	05/04/13
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	06/13/12	06/13/14
Antenna: Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	12/07/11	12/07/13
Antenna: Double-Ridged Horn/ETS Horn 2	ETS-Lindgren	3117	00041534	10/05/12	10/05/14
Antenna: Log-Periodic	Eaton	96005	1243	05/31/11	05/31/13
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	05/04/11	05/04/13
Audio Generator	B&K Precision	3010	8739686	09/11/12	09/11/14
BandReject Filter	Lorch Microwave	5BR4-10525/900-S	Z1	01/17/13	01/17/15
BandReject Filter	Lorch Microwave	5BR4-2400/60-N	Z1	12/11/12	12/11/14

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PROCEDURES

Radiation Interference: ANSI C63.4-2003 using a spectrum analyzer, a preselector, a quasi-peak adapter, and an appropriate antenna. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz with an appropriate sweep speed and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. 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.

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 dBμV) to the antenna correction factor supplied by the antenna manufacturer plus the coax loss. 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	+ CL = FS
33	20 dBμV	+ 10.36 dB	+ 0.5 = 30.86 dBμV/m @ 3m

ANSI C63.4-2003 10.1 Measurement Procedures: The DUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The DUT 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. Emissions attenuated more than 20 dB below the permissible value are not reported.

RADIATION INTERFERENCE

Rules Part No.: 15.247, 15.209

Requirements:

Frequency	Limits
Part 15.209	
9 to 490 kHz	2400/F (kHz) μ V/m @ 300 meters
490 to 1705 kHz	24000/F (kHz) μ V/m @ 30 meters
1705 kHz to 30 MHz	29.54 dB μ V/m @ 30 meters
30 – 88	40.0 dB μ V/m @ 3 meters
80 – 216	43.5 dB μ V/m @ 3 meters
216 – 960	46.0 dB μ V/m @ 3 meters
Above 960	54.0 dB μ V/m @ 3 meters
Part 15.247	
Fundamental 902 – 928 MHz	127.37 dB μ V/m @ 3 meters
Fundamental 2.4 – 2.4835 MHz	127.37 dB μ V/m @ 3 meters
Harmonics	54.0 dB μ V/m @ 3 meters

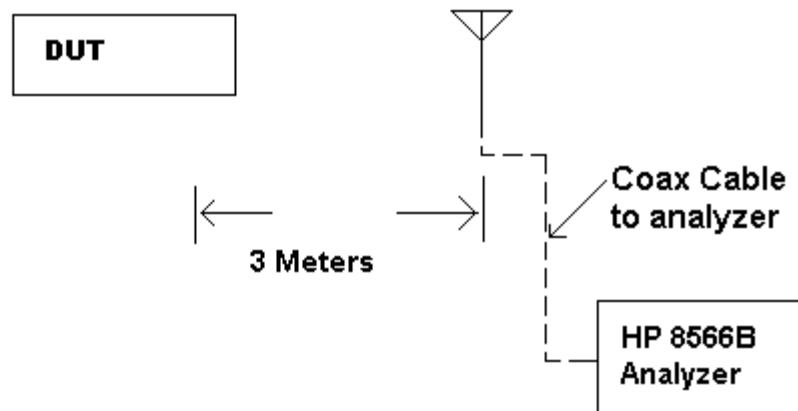
Any emissions that fall in the restricted bands (15.205) must be less than or equal to 54 dB μ V/m. Spurious emissions not in a restricted band must be 20 dBc. Emissions were checked from the lowest frequency generated or 9 kHz to the 10th harmonic.

Test Data: All values are peak unless noted.
 Items mark with an * designate a frequency in a restricted band.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
2,412.0	2,412.00	65.1	H	3.19	32.42	100.71	26.67
2,412.0	2,412.00	66.6	V	3.19	32.42	102.21	25.17
2,412.0	4,824.00	9.5	H	4.91	34.39	48.80	5.20
2,412.0	4,824.00	9.7	V	4.91	34.39	49.00	5.00
2,412.0	7,236.00	9.7	H	5.74	36.15	51.59	2.41
2,412.0	7,236.00	9.8	V	5.74	36.15	51.69	2.31
2,412.0	9,648.00	9.8	H	6.79	36.78	53.37	0.63
2,412.0	9,648.00	9.9	V	6.79	36.78	53.47	0.53
2,437.0	2,437.00	64.3	H	3.21	32.47	99.98	27.40
2,437.0	2,437.00	65.0	V	3.21	32.47	100.68	26.70
2,437.0	4,862.00	10.3	V	4.93	34.42	49.65	4.35
2,437.0	4,862.00	10.6	H	4.93	34.42	49.95	4.05
2,437.0	7,311.00	9.9	H	5.79	36.14	51.83	2.17
2,437.0	7,311.00	10.0	V	5.79	36.14	51.93	2.07
2,437.0	9,748.00	10.1	H	6.82	36.90	53.82	0.18
2,437.0	9,748.00	10.2	V	6.82	36.90	53.92	0.08
2,462.0	2,462.00	63.6	V	3.22	32.52	99.34	28.04
2,462.0	2,462.00	63.8	H	3.22	32.52	99.54	27.84
2,462.0	4,924.00	9.9	H	4.96	34.45	49.31	4.69
2,462.0	4,924.00	11.6	V	4.96	34.45	51.01	2.99
2,462.0	7,386.00	9.6	H	5.83	36.12	51.55	2.45
2,462.0	7,386.00	9.7	V	5.83	36.12	51.65	2.35
2,462.0	9,848.00	9.2	H	6.85	37.02	53.07	0.93
2,462.0	9,848.00	9.9	V	6.85	37.02	53.77	0.23

Method of Measuring Radiated Spurious Emissions

Antenna is Calibrated
and appropriate one.
Raised from 1 to 4 M.



METHOD OF MEASUREMENT: The procedure used was ANSI standard C63.4-2003 & the FCC/OET Guidance on Measurements for Spread Spectrum Systems – KDB 558074 dated March 23, 2005.