



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 15.249 CLASS II PERMISSIVE
CHANGE TEST REPORT
UNLICENSED INTENTIONAL RADIATOR**

Applicant	MAYFONK, INC.
Address	408 FARMINGTON DRIVE
	PLANTATION FL 33317 USA
FCC ID	2AAJO52021827
Model Number	52021827
Product Description	VERTICAL JUMP MEASUREMENT IMU DEVICE
FCC Standard Applied	47 CFR §15.249
Date Sample Received	12/16/2013
Date Tested	12/17/2013
Tested By	JOE SCOGLIO
Approved By	JOE SCOGLIO
Report Number	2169AUT13TestReport.docx
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

TABLE OF CONTENT

GENERAL REMARKS.....	3
GENERAL INFORMATION.....	4
EMC EQUIPMENT LIST	5
TEST PROCEDURES	6
RADIATION INTERFERENCE	7

APPLICANT: MAYFONK, INC.
FCC ID: 2AAJO52021827
REPORT #: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx

GENERAL REMARKS

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

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.



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:

Joe Scoglio
Engineering Project Manager

Date: 12/17/2013

APPLICANT: MAYFONK, INC.
FCC ID: 2AAJO52021827
REPORT #: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx

GENERAL INFORMATION

EUT Specification

The test results relate only to the items tested.			
Applicable Standard	Part 15.249		
EUT Description	VERTICAL JUMP MEASUREMENT IMU DEVICE		
FCC ID	2AAJO52021827		
Model Number	52021827		
Operating Frequency	TX: 2402 to 2480 MHz	RX: Same	
No. of Channels	40		
EUT 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 type="checkbox"/> Pre-Production	<input checked="" type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input checked="" type="checkbox"/> Portable
Antenna Connector	FCC Rules require that the antenna connector be unique.		
Test Facility	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
Conditions in the Test laboratory	Temperature: 26°C Relative humidity: 50%		
Test Exercise	The EUT was placed in continuous transmit mode of operation.		
Revision History of EUT			

Test Supporting Equipment

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

APPLICANT: MAYFONK, INC.
 FCC ID: 2AAJO52021827
 REPORT #: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx

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
Antenna: Passive Loop	EMC Test Systems	EMCO 6512	9706-1211	06/14/12	06/14/14
Frequency Counter	HP	5385A	2730A03025	08/22/13	08/22/15
Digital Multimeter	Fluke	FLUKE-77-3	79510405	06/20/13	06/20/15
Frequency Counter	HP	5385A	3242A07460	06/16/13	06/16/15
Antenna: Active Loop	ETS-Lindgren	6502	00062529	10/09/13	10/09/15
Antenna: Double-Ridged Horn	Electro-Metrics	RGA-180	2319	06/19/12	06/19/14
LISN	Electro-Metrics	EM-7820	2682	02/26/13	02/26/15
DC Power Supply	HP	6264B		05/06/13	05/06/15
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	12/31/11	12/31/13
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	06/13/12	06/13/14
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	05/09/13	05/09/15
Digital Multimeter	Fluke	77	35053830	08/22/13	08/22/15
Antenna: Biconnical	Eaton	94455-1	1096	05/10/13	05/10/15
Antenna: Biconnical	Eaton	94455-1	1057	06/14/13	06/14/15
Antenna: Log-Periodic	Eaton	96005	1243	05/31/13	05/31/15
EMI Test Receiver	Rhode & Schwarz	ESU 40	100320	03/21/13	03/21/15

APPLICANT: MAYFONK, INC.

FCC ID: 2AAJO52021827

REPORT #: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx

TEST 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 worst 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 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	+ CL = FS
33	20 dBuV	+ 10.36 dB	+ 0.5 = 30.86 dBuV/m @ 3m

Power Line Conducted Interference: The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The spectrum was scanned from 0.15 to 30 MHz.

Occupied Bandwidth: 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.

ANSI C63.4-2003 10.1 Measurement Procedures: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT 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.

APPLICANT: MAYFONK, INC.

FCC ID: 2AAJO52021827

REPORT: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx

RADIATION INTERFERENCE

Rules Part No.: 15.249, 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 15.249	
Fundamental 902 – 928 MHz	94.0 dB μ V/m @ 3 meters
Fundamental 2.4 – 2.4835 GHz	94.0 dB μ V/m @ 3 meters
Harmonics	54.0 dB μ V/m @ 3 meters

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dB μ V	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dB μ V/m	Margin dB
2,402.0	2,402.00	48.5	H	3.18	32.40	84.08	9.92
2,402.0	2,402.00	56.4	V	3.18	32.40	91.98	2.02
2,440.0	2,440.00	50.7	H	3.21	32.48	86.39	7.61
2,440.0	2,440.00	55.3	V	3.21	32.48	90.99	3.01
2,480.0	2,480.00	47.8	H	3.24	32.56	83.60	10.40
2,480.0	2,480.00	54.5	V	3.24	32.56	90.30	3.70

APPLICANT: MAYFONK, INC.

FCC ID: 2AAJO52021827

REPORT: M\MAYFONK\2169AUT13\2169AUT13TestReport.docx