



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)

RF Radiation Safety Report

APPLICANT	WILSON ELECTRONICS, INC.
	3301 E. DESERET DRIVE
	ST. GEORGE UTAH 84790 USA
FCC ID	PWO276215
MODEL NUMBER	276215
PRODUCT DESCRIPTION	BOOSTER RADIATION SAFETY
DATE SAMPLE RECEIVED	12/7/2011
DATE TESTED	01/9/2012
TESTED BY	Sushant Kadimdivan
APPROVED BY	Mario de Aranzeta
TIMCO REPORT NO.	W\WILSON_PWO\2881UT11\2881UT11TestReport.doc
TOTAL PAGES	9
TEST RESULTS	☒ PASS ☐ FAIL

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



Certificate # 0955-01

TABLE OF CONTENTS

GENERAL REMARKS	3
GENERAL INFORMATION	4
EQUIPMENT LIST	5
TEST PROCEDURE	6
REQUIREMENTS	6
TEST DATA.....	6
CONCLUSION	7
TEST SETUP PICTURES.....	8
TEST SAMPLE PICTURES	9

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.



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: 01/12/2012

Tested by: Sushant Kadimdivan



Signature:

GENERAL INFORMATION

DUT Specification

DUT Description	BOOSTER RADIATION SAFETY
FCC ID	PWO276215
Model Number	276215
Operating Frequency	Uplink 824 – 849 MHz Downlink 869 – 894 MHz Uplink 1850 – 1910 MHz Downlink 1930 – 1990 MHz
Type of Emission	F9W (CDMA & WCDMA), GXW (GSM), F1D (AMPS), G7W (EDGE)
Modulation	CDMA, WCDMA, GSM, EDGE, FM, HSPA, EVDO, LTE
DUT Power Source	☐ 110–120Vac/50– 60Hz
	☒ DC Power 6 V
	☐ Battery Operated Exclusively
Test Item	☐ Prototype
	☐ Pre-Production
	☒ Production
Type of Equipment	☒ Fixed
	☐ Mobile
	☐ Portable
Test Conditions	The temperature was 26°C with a relative humidity of 50%.
Modification to the DUT	None
Test Exercise	The DUT was fed a CW signal from a signal generator
Applicable Standards	FCC OET BULLETIN 65
Test Facility	Timco Engineering Inc. at 849 NW State Road 45 Newberry, FL 32669 USA.

Supporting Peripheral Equipment:

Antenna, Wilson Electronics - Model # 301135

EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Signal Generator	HP	8648C	3847A04696	6/12/2011	6/12/2013
Amplifier	Mini Circuits	ZHL-42	15542	-	-
Power Meter/Sensor	Boonton	4531/51072A	11793/34647	11/12/2010	11/12/2012
Field Monitor	Amplifier Research	FM5004	22288	-	-
Field Probe	Amplifier Research	FP6001	302504	04/11/11	04/11/13

TEST PROCEDURE

The device under test consists of the Booster (model#276215) coupled with the antenna (model#301135), both manufactured by Wilson Electronics.

The CW input signal to the booster was adjusted until the maximum output power of the booster was obtained. The frequency was set to the lowest frequency in the band. The lowest frequency in the band represents the least attenuation between the antenna and a person. The antenna was connected directly to the Booster and positioned at a height of 1.5 m above the ground plane. The location for the antenna was chosen in such a way that the reflection from any nearby walls and objects is minimized.

The field strength was measured using an isotropic field probe. The field probe was positioned in front of the antenna and the height adjusted to maximize the field strength. The distance between the antenna and the field probe was varied in steps (from 6 cm to 30 cm) and the field strength recorded at each point.

REQUIREMENTS

According to the FCC OET BULLETIN 65 the maximum permissible exposure is (f/1500)mW/cm² at 869 MHz for uncontrolled environment. The limit is 1 mW/cm² at 1930 MHz for uncontrolled environment.

TEST DATA

1) Frequency 1: 1930 MHz

Antenna = model # 301135, Numeric Gain @ 1930 MHz = 11.48

Booster = 276215

Input Signal type to Booster = CW

Antenna Input Power = 30.5 dBm

Height of Antenna: 1.55 m

FCC Limit = 1 mW/cm² = 61.4 V/m

Minimum Safe Distance, experimentally measured (@30.5 dBm, 1930 MHz) = 16.5 cm

Minimum Safe Distance, estimated from FCC OET Bulletin 65 = 32 cm

Frequency = 1930 MHz		
Booster O/P power = 30.5 dBm		
Distance (cm)	Field Strength (V/m)	Plane Wave Equivalent Power Density (mW/cm ²)
6	113.0	3.39
7	100.0	2.65
8	92.7	2.27
10	86.0	1.96
14	65.8	1.15
16.5	61.1	0.99
20	53.0	0.74
30	42.7	0.48

Measured Field Strength at 1930 MHz

2) Frequency 1: 869 MHz

Antenna = model # 301135, Numeric Gain @ 869 MHz = 2.75

Booster = 276215

Input Signal type to Booster = CW

Antenna Input Power = 30.2 dBm

Height of Antenna: 1.55 m

FCC Limit = $0.579 \text{ mW/cm}^2 = 46.7 \text{ V/m}$

Minimum Safe Distance, experimentally measured (@30.2 dBm, 869 MHz) = 14 cm

Minimum Safe Distance, estimated from FCC OET Bulletin 65 = 19.9 cm

Frequency = 869 MHz		
Booster O/P power = 30.2 dBm		
Distance (cm)	Field Strength (V/m)	Plane Wave Equivalent Power Density (mW/cm ²)
6	75.2	1.50
7	67.0	1.19
8	61.5	1.00
10	55.7	0.82
14	46.0	0.56
16	41.9	0.46
20	36.0	0.34
30	28.5	0.21

Measured Field Strength at 869 MHz

CONCLUSION

At a distance equal to or greater than 16.5 cm, the measured power density was less than the maximum permissible power density for human exposure set by the FCC (worst case between the bands).

TEST SETUP PICTURES



TEST SAMPLE PICTURES

