



Compliance Testing, LLC

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toll-free: (866) 311-3268

fax: (480) 926-3598

<http://www.ComplianceTesting.com>

info@ComplianceTesting.com

Test Report

Prepared for: G-Wave Incorporated

Model: BDA-PS7W-37/37-90-N

Description: Bi-Directional amplifier (BDA), for the PS 700 MHz band

Serial Number: 15051004

FCC ID: Q8KPS7W3790N

To

FCC Part 1.1310

Date of Issue: January 4, 2015

On the behalf of the applicant:

**G-Wave Incorporated
38 Leuning St.
South Hackensack, NJ 07606**

Attention of:

**Greg David, VP of Engineering
Ph: (201)343-6388
Email: tech-support@gwaverf.com**

**Prepared By
Compliance Testing, LLC
1724 S. Nevada Way
Mesa, AZ 85204
(480) 926-3100 phone / (480) 926-3598 fax
www.compliancetesting.com
Project No: p1570019**

**Greg Corbin
Project Test Engineer**

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	December 3, 2015	Greg Corbin	Original Document

ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless below

Please refer to <http://www.compliancetesting.com/labscope.html> for current scope of accreditation.

Testing Certificate Number: **2152.01**



FCC Site Reg. #349717

IC Site Reg. #2044A-2

Non-accredited tests contained in this report:

N/A

EUT Description

Model: BDA-PS7W-37/37-90-N

Description: Bi-Directional amplifier (BDA), for the PS 700 MHz band

Serial Number: 15051004

Additional Information:

The EUT is classified as a Part 90 PS **Class B** industrial signal booster

The EUT is a Bi-directional Amplifier that operates from 758 - 775 MHz (Base to Mobile) and 788 - 805 MHz (Mobile to Base).

System Power is 120 VAC @ 60 Hz.

EUT Operation during Tests

The EUT was tested under normal operating conditions with the front panel attenuators set to 0 dB for all measurements.

MPE calculations were performed at the manufacturer's rated output of +37 dBm using an antenna with 0 dBi gain.

MPE calculations were performed at the manufacturer's rated output of +37 dBm +20% using an antenna with 0 dBi gain.

MPE Evaluation

This is a portable device used in **Uncontrolled** Exposure environment.

Limits Uncontrolled Exposure 47 CFR 1.1310 Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data

Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 0 dBi gain

Test Frequency, MHz	758
Power, Conducted, mW (P)	5012
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²
0.997 mw/cm ²

Power Density (S) = 0.997 mw/cm ²
Limit =(from above table) = 0.505 mw/cm ²

With the output power set to **manufacturer rated output power (+37 dBm)** using a 0 dBi antenna, the EUT does not meet the power density requirements at 20 cm, so the minimum safe distance was calculated below.

Minimum Safe Distance Evaluation

This is a mobile device used in **Uncontrolled** Exposure environment.

Test Data

Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 0 dBi gain.

Test Frequency, MHz	758
Power, Conducted, mW (P)	5012
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Limit (L)	0.505 mw/cm ²

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
28.1 cm	5012	1	0.505

With the output power set to the manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 0 dBi gain, the minimum safe distance is 28.1 cm.

Test Data

Output Power set to manufacturer's (Mfr) rated output power (+37 dBm +20%) using an antenna with 0 dBi gain

Test Frequency, MHz	758
Power, Conducted, mW (P)	5012 + 20% = 6014.4
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²
1.197 mw/cm ²

Power Density (S) = 1.197mw/cm ²
Limit =(from above table) = 0.505 mw/cm ²

With the output power set to **manufacturer rated output power (+37 dBm +20%)** using a 0 dBi antenna, the EUT does not meet the power density requirements at 20 cm, so the minimum safe distance was calculated below.

Minimum Safe Distance Evaluation

This is a mobile device used in **Uncontrolled** Exposure environment.

Test Data

Output Power set to manufacturer's (Mfr) rated output power (+37 dBm +20%) using an antenna with 0 dBi gain.

Test Frequency, MHz	758
Power, Conducted, mW (P)	5012 + 20% = 6014.4
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Limit (L)	0.505 mw/cm ²

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
30.8 cm	6014.4	1	0.505

With the output power set to the manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 0 dBi gain, the minimum safe distance is 30.8 cm.

END OF TEST REPORT