



Test Report

Prepared for: G-Wave Incorporated

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

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

Serial Number: 15051001

FCC ID: Q8KPS7W3790C

To

FCC Part 1.1310

Date of Issue: January 4, 2016

On the behalf of the applicant:

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Attention of:

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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

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

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FCC Site Reg. #349717

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Non-accredited tests contained in this report:

N/A



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EUT Description

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

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

Serial Number: 15051001

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/cm²

Power Density (S) = 1.197 mw/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