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Test Report

Prepared for: G-Way Microwave

Model: BDA-PS8NEPS-37/37-90-C

Description: Bi-Directional amplifier (BDA), used to amplify DL and UL frequencies in the PS 800 band.

Serial Number: 15031001

FCC ID: Q8KPS8N3790C

To

FCC Part 1.1310

Date of Issue: January 19, 2016

On the behalf of the applicant:

**G-Way Microwave
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Attention of:

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Project No: p1560002**

**Greg Corbin
Project Test Engineer**

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	June 29, 2015	Greg Corbin	Original Document
3.0	July 15, 2015	Greg Corbin	Changed all references of +36 dBm to +37 dBm.
4.0	October 5, 2015	Greg Corbin	Corrected frequency range on page 4
5.0	October 9, 2015	Greg Corbin	Updated model number and FCC ID
6.0	January 19, 2016	Greg Corbin	Updated frequency range from 806-816 to 806-817 MHz



ILAC / A2LA

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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-PS8NEPS-37/37-90-C

Description: Bi-Directional amplifier (BDA), used to amplify DL and UL frequencies in the PS 800 MHz band.

Firmware: N/A

Serial Number: 15031001

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 806 – 817 MHz (Mobile to Base) and 851 – 862 MHz (Base to Mobile).

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 Fixed device used in an **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

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

Test Frequency, MHz	806
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	Power mW (P)	Numeric Gain (G)	Distance (r ²) cm
0.997	5012	1	20

Power Density (S) = 0.997 mw/cm ²
Limit =(from above table) = 0.537 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

Test Data

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

Test Frequency, MHz	806
Power, Mfr rated, mW (P)	5012
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Limit (L)	0.537

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
27.3	5012	1	0.537

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 27.3 cm.



MPE Evaluation

This is a Fixed device used in an **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

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

Test Frequency, MHz	806
Power, Mfr rated, mW (P)	5012
Power, Mfr rated + 20%, mW (P)	6014.4 mw (5012 + 20%)
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	Power mW (P)	Numeric Gain (G)	Distance (r ²) cm
1.20	6014.4	1	20

Power Density (S) = 1.20 mw/cm ²
Limit =(from above table) = 0.537 mw/cm ²

With the Uplink 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

Test Data

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

Test Frequency, MHz	806
Power, Mfr rated, mW (P)	5012
Power, Mfr rated + 20%, mW (P)	6014.4 mw (5012 + 20%)
Antenna Gain Isotropic	0 dBi
Antenna Gain Numeric (G)	1
Limit (L)	0.537

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
29.9	6014.4	1	0.537

With the Uplink Output Power set to the manufacturer's (Mfr) rated output power (+37 dBm) + 20 % using an antenna with 0 dBi gain, the minimum safe distance is 29.9 cm.

END OF TEST REPORT