



## **Compliance Testing, LLC**

Previously Flom Test Lab

EMI, EMC, RF Testing Experts Since 1963

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### **Test Report**

**Prepared for: G-Way Incorporated**

**Model: BDA-PS7W/PS8NEPS-37/37-90-C**

**Description: Public Safety 700/800 MHz Band Bi-Directional Amplifier**

**Serial Number: 16061001**

**FCC ID: Q8KPS7W83790**

**To**

**FCC Part 1.1310**

**Date of Issue: July 7, 2016**

**On the behalf of the applicant:**

**G-Way Incorporated  
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**Attention of:**

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**Greg Corbin  
Project Test Engineer**

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### Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	July 1, 2016	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/PS8NEPS-37/37-90-C**Description:** The industrial booster is a Bi-Directional amplifier (BDA), used to amplify DL and UL frequencies in the PS 700/800 MHz band.**Firmware:** N/A**Serial Number:** 16061001**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 in the Frequency ranges listed in Table 1.

System Power is 120 VAC @ 60 Hz.

Frequency - MHz	
Base to Mobile	Mobile to Base
758 - 775	788 - 805
851 - 862	806 - 817

**Antennas specified for the EUT:**

Antenna type	Model	Gain - dBi
Wideband High Gain Ceiling Antenna	TQI-4FC-5	2
Full Band Directional Antenna	TDJ-700/2500YG	8.5

**EUT Operation during Tests**

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

30 dB, 50 watt attenuators were installed on both RF ports for all tests.

MPE calculations were performed at the manufacturer's rated output of +37 dBm using an antenna with 8.5 dBi gain.

MPE calculations were performed at the manufacturer's rated output of +37 dBm +20% using an antenna with 8.5 dBi gain.

## MPE Evaluation

This is a Fixed device used in Uncontrolled Exposure environment.

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

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

## Test Data

**Uplink Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 8.5 dBi gain**

Test Frequency, MHz	758
Power, Conducted, mW (P)	5011
Antenna Gain Isotropic	8.5 dBi
Antenna Gain Numeric (G)	7.08
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm <sup>2</sup>
7.058

Power Density (S) = 7.058 mw/cm <sup>2</sup>
Limit =(from above table) = 0.505 mw/cm <sup>2</sup>

With the output power set to **manufacturer rated output power (+37 dBm)** using a 8.5 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 Fixed device used in Uncontrolled Exposure environment.

## Test Data

**Uplink Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 8.5 dBi gain**

Test Frequency, MHz	758
Power, Conducted, mW (P)	5011
Antenna Gain Isotropic	8.5 dBi
Antenna Gain Numeric (G)	7.08
Limit (L)	0.505

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
74.8 cm	5011	7.08	0.505

With the output power set to the manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 8.5 dBi gain, the minimum safe distance is 74.8 cm.

## MPE Evaluation

This is a Fixed device used in Uncontrolled Exposure environment.

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

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

## Test Data

**Uplink Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) + 20% using an antenna with 8.5 dBi gain**

Test Frequency, MHz	758
Power, Conducted, mW (P)	6013.2 (37 dBm + 20%)
Antenna Gain Isotropic	8.5 dBi
Antenna Gain Numeric (G)	7.08
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm <sup>2</sup>
8.469

Power Density (S) = 8.469 mw/cm <sup>2</sup>
Limit =(from above table) = 0.505 mw/cm <sup>2</sup>

With the output power set to **manufacturer rated output power (+37 dBm)** using a 8.5 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 Fixed device used in Uncontrolled Exposure environment.

## Test Data

**Uplink Output Power set to manufacturer's (Mfr) rated output power (+37 dBm) + 20% using an antenna with 8.5 dBi gain**

Test Frequency, MHz	758
Power, Conducted, mW (P)	6013.2 (37 dBm + 20%)
Antenna Gain Isotropic	8.5 dBi
Antenna Gain Numeric (G)	7.08
Limit (L)	0.505

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
81.9 cm	6013.2	7.08	0.505

With the output power set to the manufacturer's (Mfr) rated output power (+37 dBm) using an antenna with 8.5 dBi gain, the minimum safe distance is 81.9 cm.

END OF TEST REPORT