



Compliance Testing, LLC

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Test Report

Prepared for: G-Wave Incorporated

Model: BDA-LTE/LABC-33/33-90-AB

Description: Commercial/Industrial Booster LTE Unit (700 MHz)

Serial Number: 18091002

FCC ID: Q8KLABC3390AB

To

FCC Part 1.1310

Date of Issue: April 30, 2019

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	April 28, 2019	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-LTE/LABC-33/33-90-AB

Description: Commercial/Industrial Booster LTE Unit (700 MHz unit)

Serial Number: 18091002

Additional Information:

The EUT is a CRMS Part 27 industrial signal booster that operates in the frequency band listed in Table 1.

Table 1 - Antennas specified for the EUT:

Port	Frequency Range (MHz)	Antenna Model	Gain (dBi)	Gain (unitless)
Uplink	698 - 716	TDJ-700/2500YG	7.5	5.62
Downlink	728 – 746	TQI-4FC-5	2.0	1.58

EUT Operation during Tests

Uplink MPE calculations were performed at the manufacturer's rated output of +33 dBm using an antenna with 7.5 dBi gain.

Downlink MPE calculations were performed at the manufacturer's rated output of +33 dBm using an antenna with 2 dBi gain.

The lowest frequency in each band was used to compute the "worst case" limit.



Minimum Safe Distance Evaluation - Limits

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 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

Test Frequency, MHz	698
Power, Conducted, mW (P)	2000
Antenna Gain Isotropic	7.5 dBi
Antenna Gain Numeric (G)	5.62
Distance (R)	20 cm

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

Power Density (S) = 2.236 mw/cm ²
Limit = (from above table) = 0.465 mw/cm ²

With the output power set to **manufacturer rated output power (+33 dBm)** using a 7.5 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

Test Data - Uplink

Test Frequency, MHz	698
Power, Conducted, mW (P)	2000
Antenna Gain Isotropic	7.5 dBi
Antenna Gain Numeric (G)	5.62
Limit (L)	0.465 mw/cm ²

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
43.8	2000	5.62	0.465

With the output power set to the manufacturer's (Mfr) rated output power (+33 dBm) using an antenna with 7.5 dBi gain, the minimum safe distance is 43.8 cm.



Test Data - Downlink

Test Frequency, MHz	728
Power, Conducted, mW (P)	2000
Antenna Gain Isotropic	2.0 dBi
Antenna Gain Numeric (G)	1.58
Distance (R)	20 cm

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

Power Density (S) = 0.629 mw/cm ²
Limit = (from above table) = 0.485 mw/cm ²

With the output power set to **manufacturer rated output power (+33 dBm)** using a 2.0 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 - Downlink

Test Frequency, MHz	728
Power, Conducted, mW (P)	2000
Antenna Gain Isotropic	2.0 dBi
Antenna Gain Numeric (G)	1.58
Limit (L)	0.485 mw/cm ²

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
22.8	2000	1.58	0.485

With the output power set to the manufacturer's (Mfr) rated output power (+33 dBm) using an antenna with 2.0 dBi gain, the minimum safe distance is 22.8 cm.

END OF TEST REPORT