



## Test Report

Prepared for: JDTECK Inc.

Model: JDIR-LPCA-DR27

Description: Quad Band Industrial Digital Repeater with Remote Access

Serial Number: WBTDR27S16040002

FCC ID: SQX-DR-LCPA-27

To

FCC Part 1.1310

Date of Issue: July 20, 2016

On the behalf of the applicant:

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Attention of:

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### Test Report Revision History

<b>Revision</b>	<b>Date</b>	<b>Revised By</b>	<b>Reason for Revision</b>
1.0	June 3, 2016	Alex Macon	Original Document
3.0	June 20, 2016	Greg Corbin	Revised MPE calculations
4.0	July 20, 2016	Alex Macon	Updated AWS frequency range; Corrected FCC ID



### 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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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:** JD1R-LCPA-D27

**Description:** Quad Band Industrial Digital Repeater with Remote Access

**Firmware:** N/A

**Software:** N/A

**Serial Number:** WBTDR27S16040002

#### **Additional Information:**

The EUT is a Part 20 5 band industrial bi-directional amplifier which operates in the following frequency ranges:

Uplink	Downlink
698 - 716	728 - 746
776 - 787	746 - 757
824 - 849	869 - 894
1850 - 1915	1930 - 1995
1710 - 1755	2110 - 2155

**MPE Evaluation**

This is a Fixed device evaluated to general population (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**

The MPE calculation was performed using the highest measured output power for each band and with an antenna gain of 23 dBi. The limit was calculated for the lowest operating frequency in each band. If the MPE is over the limit, the minimum separation distance was calculated.

Test Frequency, MHz	728
Power, Conducted, mW (P)	269.1
Antenna Gain Isotropic	23 dBi
Antenna Gain Numeric (G)	199.53
Antenna Type	panel
Distance (R)	20 cm

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

Power Density (S) = 10.68
Limit =(from above table) = 0.485

The MPE limit is exceeded at 20cm separation therefore the separation distance required is 65.38 cm



Test Frequency, MHz	746
Power, Conducted, mW (P)	331.1
Antenna Gain Isotropic	23 dBi
Antenna Gain Numeric (G)	199.53
Antenna Type	panel
Distance (R)	20 cm

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

Power Density (S) = 13.14
Limit =(from above table) = 0.497

The MPE limit is exceeded at 20cm separation therefore the separation distance required is 72.5cm

Test Frequency, MHz	869
Power, Conducted, mW (P)	263
Antenna Gain Isotropic	23 dBi
Antenna Gain Numeric (G)	199.53
Antenna Type	panel
Distance (R)	20 cm

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

Power Density (S) = 10.44
Limit =(from above table) = 0.579

The MPE limit is exceeded at 20cm separation therefore the separation distance required is 64.6 cm



Test Frequency, MHz	1930
Power, Conducted, mW (P)	691.8
Antenna Gain Isotropic	23 dBi
Antenna Gain Numeric (G)	199.53
Antenna Type	panel
Distance (R)	20 cm

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

Power Density (S) = 27.46
Limit =(from above table) = 1.0

The MPE limit is exceeded at 20cm separation therefore the separation distance required is 104.8 cm

Test Frequency, MHz	2110
Power, Conducted, mW (P)	660.6
Antenna Gain Isotropic	23 dBi
Antenna Gain Numeric (G)	199.53
Antenna Type	panel
Distance (R)	20 cm

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

Power Density (S) = 26.22
Limit =(from above table) = 1.0

The MPE limit is exceeded at 20cm separation therefore the separation distance required is 102.4 cm

END OF TEST REPORT