



# Compliance Testing, LLC

Previously Flom Test Lab

EMI, EMC, RF Testing Experts Since 1963

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## Test Report

Prepared for: Crescend Technologies LLC

Model: P25-XXL3-PS1-C8-001

Description: 928-942 MHz 250W Amplifier

Serial Number: 180886798

FCC ID: CWWP25XXL3

To

FCC Part 1.1310

Date of Issue: April 25, 2019

On the behalf of the applicant:

Crescend Technologies LLC  
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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 22, 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:** P25-XXL3-PS1-C8-001

**Description:** 928-942 MHz 250W Amplifier

**Serial Number:** 180886798

### **Additional Information:**

The power amplifier is classified as an ERFPA (External Radio Frequency Power Amplifier) and is used to amplify the output of licensed transmitters in the frequency range of 928 – 942 MHz. The output is variable from 50 – 250 watts and can be adjusted via potentiometer located on the front panel.

The lowest frequency and highest measured power was used to calculate the worst case RF exposure. The user manual states the nominal antenna gain to be 5 dBi with a table listing antenna gains from 3 – 10 dBi.

The RF Exposure was calculated with 5 and 10 dBi antenna gains.

## MPE Evaluation

The EUT is a amplifier that connects directly to a base station and is 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

Test Frequency, MHz	928
Power, Conducted, mW (P)	283792
Antenna Gain Isotropic	5 dBi
Antenna Gain Numeric (G)	3.16
Distance (R)	20 cm

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

Power Density (S) = 178.415 mw/cm <sup>2</sup>
Limit = (from above table) = 0.629 mw/cm <sup>2</sup>

With a 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

Test Frequency, MHz	928
Power, Conducted, mW (P)	283792
Antenna Gain Isotropic	5 dBi
Antenna Gain Numeric (G)	3.16
Limit (L)	0.629

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
336.9 cm	283792	3.16	0.629

**The Minimum Safe Distance is 338.8 cm with a 5 dBi antenna.**



**Test Data**

Test Frequency, MHz	928
Power, Conducted, mW (P)	283792
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Distance (R)	20 cm

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

Power Density (S) = 564.6 mw/cm <sup>2</sup>
Limit = (from above table) = 0.629 mw/cm <sup>2</sup>

With a 10 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**

Test Frequency, MHz	928
Power, Conducted, mW (P)	283792
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Limit (L)	0.629

$R = \sqrt{(PG/4\pi L)}$			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
599.3 cm	283792	10	0.629

**The Minimum Safe Distance is 599.3 cm with a 10 dBi antenna.**

END OF TEST REPORT