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Test Report

Prepared for: Crescend Technologies LLC

Model: P25 Series 900MHz

Description: 928-942 MHz 250W Amplifier

Serial Number: 180886798

FCC ID: CWWP25XXL3

To

FCC Part 1.1310

Date of Issue: April 26, 2019

On the behalf of the applicant:	**Crescend Technologies LLC** **140 East State Parkway** **Schaumburg, IL 60173**
Attention of:	**Steve Sokolik, Hardware Engineer** **Ph: (847)908-5400** **E-Mail: jfischler@crescendtech.com**

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Project No: p1880019

Greg Corbin
Project Test Engineer

Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	April 22, 2019	Greg Corbin	Original Document

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**

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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 dB.
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/cm²] = 100
	1.34-30 MHz:	Limit [mW/cm²] = (180/f²)
	30-300 MHz:	Limit [mW/cm²] = 0.2
	300-1500 MHz:	Limit [mW/cm²] = f/1500
	1500-100,000 MHz	Limit [mW/cm²] = 1.0

Test Data

Test Frequency, MHz	928
Power, Conducted, mW (P)	287012
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/cm²

Power Density (S) = 180.439 mw/cm²
Limit = (from above table) = 0.629 mw/cm²

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)	287012
Antenna Gain Isotropic	5 dBi
Antenna Gain Numeric (G)	3.16
Limit (L)	0.629

R=√(PG/4πL)			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
338.823 cm	287012	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)	287012
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^2

Power Density (S) = 571.009 mw/cm^2
Limit = (from above table) = 0.629 mw/cm^2

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)	287012
Antenna Gain Isotropic	10 dBi
Antenna Gain Numeric (G)	10
Limit (L)	0.629

R=√(PG/4πL)			
Distance (R) cm	Power mW (P)	Numeric Gain (G)	Limit (L)
602.740cm	287012	10	0.629

The Minimum Safe Distance is 602.7 cm with a 10 dBi antenna.

END OF TEST REPORT