



Test Report - FCC Part 1.1310/ MPE  
Applicant: Crescend Technologies, LLC.

This test report relates only to the items tested as identified and is not valid for any subsequent changes or modifications made to the equipment under test.

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## 1. Applicant Information

**Applicant:** Crescend Technologies, LLC.  
**Address:** 100 High Grove Blvd.,  
Glendale Heights, Illinois, 60139, United States

## 2. Location of Testing

### 2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at IIA's permanent laboratory located at 13146 NW 86<sup>th</sup> Drive, Suite 400, Alachua, Florida 32615.

FCC test firm # 578780

FCC Designation # US1070

FCC site registration is under A2LA certificate # 0955.01

ISED Canada test site registration # 2056A

EU Notified Body # 1177

For all designations see A2LA scope # 0955.01

## 2.2 Testing was performed, reviewed by

Dates of Testing: 3/8/2024 – 4/29/2023

Signature:

Name & Title: Tim Royer, EMC EngineerDate of Signature 4/1/2024

Signature:

Name & Title: Kristoffer Costa, EMC TechnicianDate of Signature 4/1/2024

### 3. Test Sample(s) (EUT/DUT)

The test sample was received: 3/4/2024

#### 3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	CWWP25XXDE4
Brief Description	VHF P25 Amplifier
Model(s) #	P25-10DE4-C5-001
Firmware version	N/A
Software version	N/A
Serial Number	A-04

Technical Characteristics	
Frequency Range	150 MHz- 174 MHz
RF O/P Power (Max.)	11A, 150-250 W
Modulation	FM, PM_Flat Envelope Signal
Number of Channels	N/A
Duty Cycle	100%
Antenna Connector	N Type
Voltage Rating (AC or Batt.)	48 VDC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.

## 4. Test methods & Applicable Regulatory Limits

### 4.1 Test methods/Standards/Guidance:

The following guidance FCC KDB 447498 D01 General RF Exposure Guidance v06 was used for RF exposure evaluation as per FCC Part 1.1310 and FCC Part 2.1091 and part 2.1093. Full test results are available in this report.

#### 4.1.1 FCC Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
A Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
B Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

## 4.2 Equations

### POWER DENSITY

$$E(V/m) = \text{SQRT} ( 30 * P * G ) / d$$

$$Pd(W/m^2) = E^2 / 377$$

$$S = \text{EIRP} / ( 4 * \pi * D^2 )$$

Where:

S = Power density, in mW/cm<sup>2</sup>

EIRP = Equivalent Isotropic Radiated Power, in mW

D = Separation distance in cm

Power density is converted from units of mW/cm<sup>2</sup> to units of W/m<sup>2</sup> by multiplying by 10.

### DISTANCE

$$D = \text{SQRT} ( \text{EIRP} / ( 4 * \pi * S ) )$$

Where:

D = Separation distance in cm

EIRP = Equivalent Isotropic Radiated Power, in mW

S = Power density in mW/cm<sup>2</sup>

**SOURCE-BASED DUTY CYCLE** (When applicable (for example, multi-slot mobile phone applications) A duty cycle factor may be applied.)

$$\text{Source-based time-average EIRP} = ( DC / 100 ) * \text{EIRP}$$

Where:

DC = Duty Cycle in % as applicable.

EIRP = Equivalent Isotropic radiated Power, in mW

## 5. RF Exposure Results

MPE									
Frequency Band	Evaluation Distance (cm)	Max Power + Tolerance (dBm)	Antenna Gain (dBi)	Duty Cycle (%)	EIRP (W)	Power Density	Limit for Uncontrolled Exposure	Limit for Controlled Exposure	Distance Required to meet Uncontrolled Exposure Limit (cm)
150-174 MHz	20	54.40	0.00	100%	275.4229	54.794 mW/cm <sup>2</sup>	0.2 mW/cm <sup>2</sup>	1 mW/cm <sup>2</sup>	331.04

RESULT: Pass at DISTANCE 331.04 cm

## 6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_12486-24_FCC 1.1310/ MPE_	1	Initial release	4/1/2024
	2	Revised page 1	10/14/2024



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END OF TEST REPORT

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