



# Test Report - FCC PART 1.1310 / MPE

## Prepared For: C SPEED, LLC

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature

(YYYY-MM-DD): 2021-06-17

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Timco Engineering, Inc., an IIA Company  
849 NW State Road 45, Newberry, Florida 32669  
(352) 472-5500 / [testing@timcoengr.com](mailto:testing@timcoengr.com)

## 1. Customer Information

Applicant: C SPEED, LLC  
Address: 316 Commerce Blvd.  
Liverpool, New York, 13088

## 2. Location of Testing

### 2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

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



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## 2.2 Testing was performed, reviewed by

Dates of Testing: May 19, 2021 – June 15, 2021

Signature:

Sr. EMC Engineer  
EMC-003838-NE



Name & Title: Tim Royer, EMC Engineer

Date of Signature

(YYYY-MM-DD): 6/17/2021



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

The test sample was received: 5/7/2021

#### 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:	2AXEILWRLP288310
Brief Description	LightWave Radar
Type of Modular	n/a
Model(s) #	LWRLP
Trade name	n/a
Firmware version	XCV (34)
Software version	CTL (1.0.0.63)
Serial Number	001

Technical Characteristics	
Technology	FM Chirp Pulsed Radar
Frequency Range	2.88 – 3.1 GHz
RF O/P Power (Max.)	1000 w
Modulation	Pulse w/ no modulated information
Bandwidth & Emission Class	5M25Q3N, 26M0Q3N
Number of Channels	n/a
Duty Cycle	n/a
Antenna Connector	N connector
Voltage Rating (AC or Batt.)	AC 120 V



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Test Modes				
Band	Mode (#)	Test Frequencies	BW (nominal)	Modulation
2.7 – 2.9 GHz	Part 87	2880, 2883 MHz	13.79 MHz	Pulse
2.9 – 3.1 GHz	Part 90	2940 MHz	41.95 MHz	Pulse



#### 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)
<b>A Limits for Occupational/Controlled Exposure</b>				
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>B Limits for General Population/Uncontrolled Exposure</b>				
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

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

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

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

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

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

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.)

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

Where:

DC = Duty Cycle in % as applicable.

EIRP = Equivalent Isotropic radiated Power, in mW





## 5. RF Exposure Results

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)
2880-3100	20	60.00	0.00	100%	1000.00	198.944 mW/cm <sup>2</sup>	1 mW/cm <sup>2</sup>	5 mW/cm <sup>2</sup>	282.09

RESULT: Pass at DISTANCE 282.09cm



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## 6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_2195-21-21_FCC_MPE_1	1	Initial release	May 7, 2021
TR_2195-21-21_FCC_MPE_2	2	Clerical Updates	June 23, 2021
TR_2195-21-21_FCC_MPE_3	3	Clerical Updates	July 20, 2021



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END OF TEST REPORT

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