



Test Report - FCC PART 1.1310 / MPE

Prepared For: Ameritron

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature

(YYYY-MM-DD): 2021-02-12

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

1. Customer Information

Applicant: Ameritron
Address: 300 Industrial Park Road
Starkville MS 39759

Technical Contact: Martin Jue
Telephone: 662-323-5869
Email address: mfjue@mfjenterprises.com

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: January 21, 2021 – February 12, 2021

Signature:

Name & Title: Franklin Rose, EMC Specialist

Date of Signature

(YYYY-MM-DD): 2021-02-12

Signature:

Sr. EMC Engineer
EMC-003838-NE



Name & Title: Tim Royer, EMC Engineer

Date of Signature

(YYYY-MM-DD): 2021-02-12



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

The test sample was received: January 21, 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:	HO82WUALS1406
Brief Description	Linear Amplifier
Type of Modular	n/a
Model(s) #	ALS-706
Firmware Version	n/a
Serial Number	00001

Technical Characteristics	
Technology	External RF Power Amplifier/Linear Amplifier
Frequency Range	1.8 - 54 MHz (split as appropriate to FCC Part 97)
RF O/P Power (Max.)	60.79 dBm (1200 W)
Modulation	n/a
Bandwidth & Emission Class	A1A, A3A, A3E, F1D, F3E, J1D, J3C, J3E, J3F
Duty Cycle	100%
Antenna Connector	UHF
Voltage Rating (AC or Batt.)	50 V DC

Antenna Characteristics				
Antenna Name	Frequency Range	Antenna Type	Dimensions	Antenna Gain
n/a	n/a	n/a	n/a	n/a

Note: This EUT does not include antenna(s).



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 ²)	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 ²)	<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 ²)	<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

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

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

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

Where:

S = Power density, in mW/cm²

EIRP = Equivalent Isotropic Radiated Power, in mW

D = Separation distance in cm

Power density is converted from units of mW/cm² to units of W/m² 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/cm²

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



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5. RF Exposure Results

Transmitter Type: Fixed Mount, SISO, Non-colocated TX
(1 possible RF pathway)

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)
1.8-54 MHz	20	61.70	0.00	100%	1479.11	294.259 mW/cm ²	0.2 mW/cm ²	0.516 mW/cm ²	767.15

RESULT: Passes Limit at Distance: 767.15 cm from Radiating Element



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6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_0335-21_FCC_MPE_1	1	Initial release	February 12, 2021



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END OF TEST REPORT
