Timco Test Report # TR_2117-21_FCC_MPE_1
Revision: 1
Issue Date: June 10, 2021
Final Test Date: June 7, 2021

CERT #0955.01

TIMCO ENGINEERING, Inc.

An IIA Company

Test Report - FCC PART 1.1310 / MPE
Prepared For: Fiplex Communications Inc.

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager
Date of Signature (YYYY-MM-DD): 2021-06-03

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1. Customer Information

Applicant: Fiplex Communications Inc.
Address: 2101 NW 79th Ave.
Miami FL 33122

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

2.2 Testing was performed, reviewed by

Dates of Testing: April 28, 2021 – May 19, 2021

Signature:  Sr. EMC Engineer
EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer
Date of Signature
(YYYY-MM-DD): 2021-06-11

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

The test sample was received: May 03, 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:	P3TDH14-9B, PT3DH14-9A
Brief Description	Enterprise DAS VHF/UHF HP - Master Unit
Type of Modular	n/a
Model(s) #	DH14EA-E4-AVUT-NDND-3037
Serial Number	20213254FU

Technical Characteristics	
Technology	DAS Industrial Signal Booster Master Unit
Frequency Range	150 – 174 MHz; and 450 - 512 MHz
Modulation	n/a
Bandwidth & Emission Class	11K3F3E, 8K10F1D, 8K10F1E, 8K10F1W, 9K80F1D, 9K80F1E, 9K81D7W
Number of Channels	Variable.
Duty Cycle	100%
Antenna Connector	n/a
Voltage Rating (AC or Batt.)	0 dBi

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

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) = SQRT (30 * P * G) / d

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

S = EIRP / (4 * Pi * D^2)

Where:

S = Power density, in mW/cm^2
EIRP = Equivalent Isotropic Radiated Power, in mW
D = Separation distance in cm

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

DISTANCE

D = SQRT (EIRP / (4 * Pi * S))

Where:

D = Separation distance in cm
EIRP = Equivalent Isotropic Radiated Power, in mW
S = Power density in mW/cm^2

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

Source-based time-average EIRP = (DC / 100) * EIRP

Where:

DC = Duty Cycle in % as applicable.
EIRP = Equivalent Isotropic radiated Power, in mW

5. RF Exposure Results

VHF, Uplink

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 Limt (cm)
150.8-174 MHz	20	24.23	0.00	100%	0.26	0.053 mW/cm2	0.2 mW/cm2	1 mW/cm2	20.00

UHF, Uplink

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 Limt (cm)
450-512 MHz	20	27.69	0.00	100%	0.59	0.117 mW/cm2	0.3 mW/cm2	1.5 mW/cm2	20.00

VHF, Downlink

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 Limt (cm)
150.8-174 MHz	20	30.31	0.00	100%	1.07	0.214 mW/cm2	0.2 mW/cm2	1 mW/cm2	20.67

UHF, Downlink

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 Limt (cm)
450-512 MHz	20	38.71	0.00	100%	7.43	1.478 mW/cm2	0.3 mW/cm2	1.5 mW/cm2	44.40

RESULT: Passes Limit at Distance: 44.4 cm

6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_2117-21_FCC_MPE_1	1	Initial release	June 11, 2021

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END OF TEST REPORT