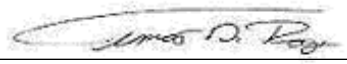
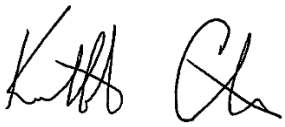
Test Report - FCC Part 1.1310/ MPE
Simultaneous Transmission
Applicant: Zaxcom, Inc

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 12/19/2024

Signature: 

Name & Title: Kristoffer Costa, EMC Technician

Date of Signature 12/19/2024

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.

Table of Contents

1. Applicant Information

Applicant:	Zaxcom, Inc
Address:	230 West Parkway Unit 9 Pompton Plains, New Jersey, 07444, 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 86th 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

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

The test sample was received: 9/26/2024

Dates of Testing: 9/30/2024 – 11/12/2024

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:	PR6VTX
Brief Description	FM/QPSK Transmitter
Model(s) #	VTX1
Firmware version	0.50
Software version	N/A
Serial Number	1006

Technical Characteristics	
Frequency Range	216-217 MHz
RF O/P Power (Max.)	100mW
Modulation	FM
Bandwidth & Emission Class	FM
Number of Channels	N/A
Duty Cycle	100%
Antenna Connector	N/A
Voltage Rating (AC or Batt.)	3.3VDC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	216-217 MHz	n/a	0 dBi

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

Identification	
FCC ID:	PR6VTX
Brief Description	FM/QPSK Transmitter
Model(s) #	N/A
Firmware version	N/A
Software version	N/A
Serial Number	N/A

Technical Characteristics	
Frequency Range	192-215 MHz
RF O/P Power (Max.)	100mW
Modulation	FM, QPSK
Bandwidth & Emission Class	FM, QPSK
Number of Channels	N/A
Duty Cycle	100%
Antenna Connector	N/A
Voltage Rating (AC or Batt.)	3.3VDC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	192-215 MHz	n/a	0 dBi

2GHz data

Identification	
FCC ID:	PR6BFI
Brief Description	ISB TRANSMITTER
Model(s) #	DTS - Digital Transmission System

Technical Characteristics	
Frequency Range	2403.0 - 2475.0 MHz
RF O/P Power (Max.)	0.14 W

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	2403.0 - 2475.0 MHz	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by the 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^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^2v)

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

192-215 MHz

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 Limt (cm)
192-215 MHz	20	20.00	0.00	100%	0.1000	0.02 mW/cm2	0.2 mW/cm2	1 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

216 – 217 MHz

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 Limt (cm)
216-217 MHz	20	17.51	0.00	100%	0.0564	0.011 mW/cm2	0.2 mW/cm2	1 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

2G data

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 Limt (cm)
2400-2483.5 MHz	20	23.60	2.14	100%	0.2291	0.046 mW/cm2	1 mW/cm2	5 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

Per KDB 447498 D01 General RF Exposure Guidance v06 Sec 7.2.

Equation: (TX1 MPE/MPE Limit 1 + TX2MPE/MPE Limit 2 + TX3MPE/MPE Limit 3)

Frequency	Power Density at separation distance	Limit	MPE Ratio	Limit
192-215 MHz	0.02 mW/cm2	0.2 mW/cm2	0.157	≤1
216 – 217 MHz	0.011 mW/cm2	1 mW/cm2		
2GHz	0.046 mW/cm2	1 mW/cm2		

6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_ TR_16398-24_FCC 1.1310/ MPE_Simultaneous Transmission_	1	Initial release	12/18/2024

END OF TEST REPORT