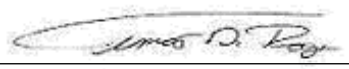
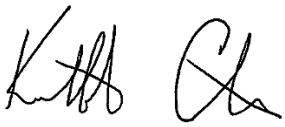
Test Report - FCC Part 1.1310/ MPE
Applicant: Cattron North America Inc

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 7/31/2024

Signature: 

Name & Title: Kristoffer Costa, EMC Technician

Date of Signature 7/31/2024

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 Content

1. Applicant Information

Applicant:	Cattron North America Inc.
Address:	655 N. River Road NW Suite A Warren, OH 44483-2254, 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: 12/15/2023

Dates of Testing: 12/18/2023 – 1/19/2024

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:	CN293450
Brief Description	N/A
Model(s) #	CBMCU/Pump Boss
Firmware version	1MCU-9391-x001
Software version	N/A
Serial Number	N/A

Technical Characteristics	
Frequency Range	2400 MHz- 2483.5 MHz
RF O/P Power (Max.)	9.33 dBm
Modulation	FM
Bandwidth & Emission Class	F1D, F1W, F1X
Number of Channels	N/A
Duty Cycle	2.2% (3.3ms per every 150ms period)
Antenna Connector	MCX
Voltage Rating (AC or Batt.)	12VDC

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^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

MPE

:y 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	9.33	0.00	100%	0.0086	0.002 mW/cm2	1 mW/cm2	5 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_11489-23_FCC 1.1310/ MPE_	1	Initial release	7/31/2024

END OF TEST REPORT