



# RF Exposure Evaluation Report

|                            |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| <b>APPLICANT</b>           | CATTRON NORTH AMERICA INC.                                             |
| <b>ADDRESS</b>             | 655 N. RIVER ROAD NW<br>SUITE A<br>WARREN, OH 44483-2254 USA           |
| <b>FCC ID</b>              | CN290275                                                               |
| <b>IC</b>                  | 1007A-90275                                                            |
| <b>MODEL NUMBER</b>        | 90275 TRX                                                              |
| <b>PRODUCT DESCRIPTION</b> | IR LRMII 900 MHZ/2400MHZ MODULE                                        |
| <b>FINAL TEST DATE</b>     | 3/13/2020                                                              |
| <b>PREPARED BY</b>         | Tim Royer                                                              |
| <b>TEST RESULTS</b>        | <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL |

| Report Number              | Report Version | Description   | Issue Date |
|----------------------------|----------------|---------------|------------|
| 519AUT20<br>MPETestReport_ | Rev1           | Initial Issue | 5/26/2020  |

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

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## GENERAL REMARKS

### Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

### Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

**Timco Engineering Inc.**  
**849 NW State Road 45**  
**Newberry, FL 32669**  
**Designation #: US1070**

**Prepared by:**

A blue ink signature is written over a circular purple stamp. The stamp contains the text "TIMCO ENGINEERING, INC." around the perimeter and "05/26/2020" in the center.

**Name and Title** Tim Royer, Project Manager / EMC Engineer

**Date** 5/26/2020

Applicant: CATTRON NORTH AMERICA INC.  
FCC ID: CN290275  
IC: 1007A-90275  
Report: 519AUT20 MPE\_TestReport\_Rev1

## GENERAL INFORMATION

|                                |                                                                                              |                                                        |                                           |
|--------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------|
| <b>EUT Description</b>         | IR LRMII 900 MHZ/2400MHZ MODULE                                                              |                                                        |                                           |
| <b>Model Number</b>            | 90275 TRX                                                                                    |                                                        |                                           |
| <b>EUT Power Source</b>        | <input checked="" type="checkbox"/> 110-120Vac, 50-60Hz                                      | <input checked="" type="checkbox"/> DC Power (3.3 VDC) | <input type="checkbox"/> Battery Operated |
| <b>Test Item</b>               | <input type="checkbox"/> Engineering Prototype                                               | <input checked="" type="checkbox"/> Pre-Production     | <input type="checkbox"/> Production       |
| <b>Type of Equipment</b>       | <input checked="" type="checkbox"/> Fixed                                                    | <input type="checkbox"/> Mobile                        | <input type="checkbox"/> Portable         |
| <b>Antenna Connector</b>       | Internal                                                                                     |                                                        |                                           |
| <b>Test Conditions</b>         | The temperature was 26°C<br>Relative humidity of 50%.                                        |                                                        |                                           |
| <b>Modification to the EUT</b> | No Modification to EUT.                                                                      |                                                        |                                           |
| <b>Applicable Standards</b>    | FCC CFR 47 Part 2.1091                                                                       |                                                        |                                           |
| <b>Test Facility</b>           | Timco Engineering Inc. at 849 NW State Road 45 Newberry, FL 32669 USA. Designation #: US1070 |                                                        |                                           |

## ANTENNA INFORMATION

| Antenna is Provided | Type | Max Gain (dBi) |
|---------------------|------|----------------|
| No                  | n/a  | 0.0            |

## RF POWER OUTPUT

| Tuned Frequency (MHz) | Power Output (dBm) | Power Output (mW) |
|-----------------------|--------------------|-------------------|
| 902.1                 | -4.82              | 0.33              |

## MPE CALCULATION

The minimum separation distance is calculated as follows:

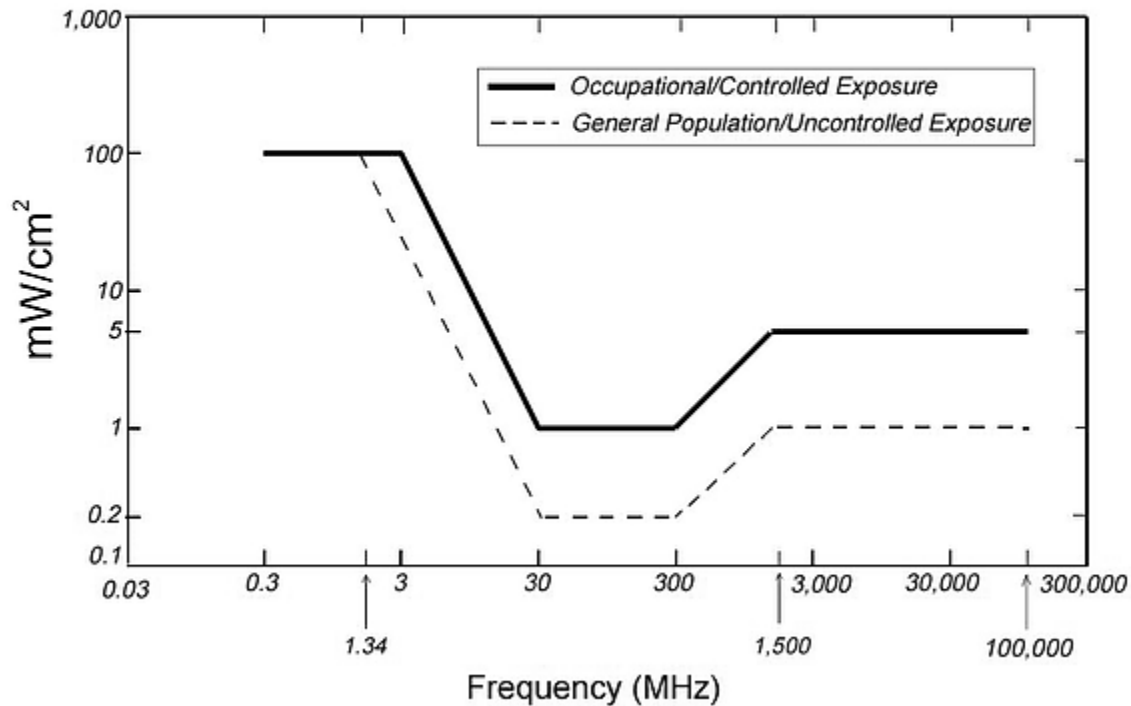
$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

## MPE LIMITS

**Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)**

*Plane-wave Equivalent Power Density*



## Table

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--|--|--|---------------------|--|--|
| KDB 447498 D01 General RF Exposure Guidance v05r02                                                                                                                                                                                                                                                                                                                                                                                                                |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| 4.3.1. Standalone SAR test exclusion considerations                                                                                                                                                                                                                                                                                                                                                                                                               |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| 100 MHz to 6 GHz at separation distance less than or equal to 50 mm                                                                                                                                                                                                                                                                                                                                                                                               |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| SAR Test Exclusion Calculator for Portable Devices                                                                                                                                                                                                                                                                                                                                                                                                                |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| Insert values in yellow highlighted boxes to determine SAR Exclusion                                                                                                                                                                                                                                                                                                                                                                                              |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| Max Power                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.33   | mW                                                  | When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. |  |  |  |                     |  |  |
| Min Separation                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5      | mm                                                  |                                                                                                                     |  |  |  |                     |  |  |
| Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.9021 | GHz                                                 |                                                                                                                     |  |  |  |                     |  |  |
| Answer                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.06   | Must be less than or equal to 3.0 for SAR Exclusion |                                                                                                                     |  |  |  | 7.5 for extremities |  |  |
| KDB 388624 D02Permit But Ask List v15r03, Item II. A. 5.                                                                                                                                                                                                                                                                                                                                                                                                          |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| PBA is required if:                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| General Population: The Answer is equal to or greater than 24 (8x threshold)                                                                                                                                                                                                                                                                                                                                                                                      |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| Controlled Use: The Answer is equal to or greater than 60 (20x threshold)                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| and, when published RF exposure KDB procedures are <u>not</u> established for SAR testing or when SAR data is not provided to support compliance.                                                                                                                                                                                                                                                                                                                 |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |
| Please also note the following: [FCC KDB quote] These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface. [End quote] |        |                                                     |                                                                                                                     |  |  |  |                     |  |  |