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**United States of America**
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# MPE REPORT

| | |
|---|---|
| **Manufacturer:** | **Petropower, LLC**<br>**3003 East 37th Street North, Suite 100**<br>**Wichita, Kansas 67219 USA** |
| **Applicant:** | **Same as Above** |
| **Product Name:** | **T-Rex Smart Controller** |
| **Product Description:** | Edge compute platform used for oil field telemetry and control applications. |
| **Model(s):** | **50003***<br>**Denotes actual model tested as worst-case representative of product family that includes models T-Rex Smart Controller 50003 and Well-EQ Uplink 11111. Model 11111 does not have BLE, NFC, or AC/DC power supply.* |
| **FCC ID:** | **2BGG6PP11** |
| **Testing Commenced:** | 2024-05-29 |
| **Testing Ended:** | 2024-09-12 |
| **Test Results:** | **In Compliance**<br><br>The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant. |

**Standards**:

- **KDB447498**
- **FCC 1.1310**

**Evaluation Conducted by:**

Julius Chiller, Senior Wireless Project Engineer

**Report Reviewed by:**

Ken Littell, Vice President of Operations

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# 1 ADMINISTRATIVE INFORMATION

## 1.1 Measurement Location:

F2 Labs in Middlefield, Ohio.

Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

Site description and attenuation data are on file with the Certification and Engineering Bureau, Industry Canada, Site Number 4730B.

## 1.2 Measurement Procedure:

All measurements were performed according to:

- KDB558074
- FCC 15.209

## 1.4 Document History

| Document Number | Description | Issue Date | Approved By |
|---|---|---|---|
| F2P32071A-02E | First Issue | 2024-09-19 | K. Littell |

## 2 SUMMARY OF TEST RESULTS

| Test Name | Standard(s) | Results |
|---|---|---|
| RF Exposure for Device >20cm from Human | KDB447498 FCC 1.1310 | Complies |

| Modifications Made to the Equipment |
|---|
| None |

## 3 ENGINEERING STATEMENT

This report has been prepared on behalf of Petropower, LLC to provide documentation for the calculations described herein, based on the measurements taken in supporting Test Reports. This equipment has been tested and calculations were found to comply with KDB447498 and FCC 1.1310. The test results found in this test report relate only to the item(s) tested.

# 4 EUT INFORMATION AND DATA

## 4.1 Equipment Under Test:

| | |
|---|---|
| Product: | **T-Rex Smart Controller** |
| Model(s): | **50003*** |
| | **Denotes actual model tested as worst-case representative of product family that includes models T-Rex Smart Controller 50003 and Well-EQ Uplink 11111. Model 11111 does not have BLE, NFC, or AC/DC power supply.* |
| Serial No(s).: | CGGSEL |
| Firmware Version: | 111 |
| Hardware Version: | 46066002 |
| FCC ID: | **2BGG6PP11** |

## 4.2 Trade Name: Petropwer, LLC

## 4.3 Power Supply: 120V/60 Hz

## 4.4 Applicable Rules:

- KDB 447498
- FCC 1.1310

## 4.5 Antenna: Integral

## 4.6 Accessories: None

## 4.7 Test Item Condition:

The equipment to be tested was received in good condition.

## 5. RF EXPOSURE FOR DEVICE >20cm FROM HUMAN

### 5.1 Requirements: Distance used is 20cm

**Bluetooth module with Laird Mini-Directional Antenna, Model MD24-12**

| | |
|---|---|
| **Limit:** | 1mW/cm$^2$ |
| **Formula used for result:** | $\frac{\text{E.I.R.P.}}{4\ \pi\ R2}$ |
| **Results:** | E.I.R.P. = 110.41mW at the 2480 MHz High Channel (highest)<br><br>$\frac{110.41mW}{4\ \pi\ R^2} = \frac{110.41mW}{5026.55} = 0.022mW/cm2$<br><br>$\frac{0.022mW/cm^2}{1mW/cm2}$ = **0.022 Ratio** |

**Cellular Modem FCC ID: XMR201903EG25G**

| | |
|---|---|
| **Limit:** | 0.55mW/cm$^2$ |
| **Formula used for result:** | $\frac{\text{E.I.R.P.}}{4\ \pi\ R2}$ |
| **Results:** | E.I.R.P. = 1850mW at the 824.2 - 848.8 MHz Band (highest)<br><br>$\frac{1850mW}{4\ \pi\ R^2} = \frac{1850mW}{5026.55} = 0.368mW/cm2$<br><br>$\frac{0.368mW/cm^2}{0.55mW/cm^2}$ = **0.67 Ratio** |

| |
|---|
| **Limit:** 0.98mW/cm$^2$ (180/f$^2$) |
| **Formula used for result:**<br>$P(dBm)=E(dBuVm)+20LOG(d)-G-104.77$ = - 92.33dBm $which\ is$ 0.0000000006$mW$<br>$\mathbf{12.44 + 0 + 0 - 104.77 = 92.33}$<br><br>$\frac{\text{E.I.R.P.}}{4\ \pi\ R2}$ |
| **Results:** E.I.R.P. = 0.0000000006mW at the 13.56 MHz<br><br>$\frac{0.0000000006}{4\ \pi\ R2} = \frac{0.0000000006}{5026.55} = \frac{1.1937e\text{-}13}{0.98}$ = **1.2180e-13 Ratio** |

**Combined Ratio = 0.022 + 0.67 + 0.000000000001 = 0.70 and is less than 1.**