## 1. AFFECTED PRODUCTS

| Product Name | Hardware Revision | New Firmware Version | Comments |
|---|---|---|---|
| Eagle 2G | 78.1 | 3.9 | New Firmware |
| Eagle 4G | 78.2 | 2.9 | New Firmware |
| Falcon 2G | 74.3 | 3.11 | New Firmware |
| Falcon 4G | 74.4 | 2.11 | New Firmware |
| Oyster2 2G | 77.1 | 3.14 | New Firmware |
| Oyster2 4G | 77.2 | 2.14 | New Firmware |
| Remora2 2G | 62.1 | 3.16 | New Firmware |
| Remora2 4G | 62.2 | 2.16 | New Firmware |
| Remora2 3G | 62.3 | 3.16 | New Firmware |
| Yabby GPS 2G | 73.1 | 3.17 | New Firmware |
| Yabby GPS 4G | 73.2 | 2.17 | New Firmware |
| Yabby WiFi 2G | 72.1 | 3.8 | New Firmware |
| Yabby WiFi 4G | 72.2 | 2.8 | New Firmware |

The above table constitutes Digital Matter's battery powered cellular device range.

## 2. TYPE OF CHANGE

[ ] New Firmware Feature

[ X ] Improvement/Minor Bug Fix

[ ] Critical Bug Fix

[ ] New Production Firmware

[ ] Other, _____

## 3. DESCRIPTION OF CHANGE

The Under Voltage Lockout (UVLO) firmware behaviour has been adjusted to become more aggressive. This is to better protect the modem from untimely brown-outs caused by low/depleted batteries being left in the device. Brown-outs in some circumstances can damage the modem, causing it to become unresponsive, meaning the device fails and must be replaced. This change is to improve the reliability of devices and prevent potential failures.

**Previous Behaviour**:

- Upon waking up from a sleep, or on power on, the device battery voltage is sampled. If during this time the voltage dips below an acceptable level, the device will go into a deep sleep for 3 hours, to allow the batteries to recover. This can continue indefinitely if the batteries are left in the device.

**New Behaviour**

- A count of UVLO sleeps is stored in device flash.
- Should this count reach 10, the device will then start to sleep for 1 week at a time (rather than 3 hours)
- Once there is a hard reset (battery change) – the count resets.

- Additionally, if a UVLO sleep ever occurs, the "Battery Good" flag in the digital inputs (field 2) is set to '0' – meaning if the device uploads again, a low battery alert should be sent.

For further details see: Under Voltage Lockout (UVLO)

## 4. SCHEDULE

All firmware versions listed in (1) are now available.

## 5. CUSTOMER IMPACT AND RECOMMENDED ACTION

This firmware change has been brought about in response to a small number of modem failures due to brownouts. As such, it is **strongly recommended** that customers update their device firmware to the latest version to reduce their risk of a device failure. See OEM Server - Getting Started for instructions on how to update firmware.

## 6. SUPPORTING DOCUMENTATION

- Under Voltage Lockout (UVLO)
- OEM Server - Getting Started
- Device Firmware Release Notes
    - o Eagle Firmware Release Notes
    - o Falcon Firmware Release Notes
    - o Oyster2 Firmware Release Notes
    - o Remora2 Firmware Release Notes
    - o Yabby GPS Firmware Release Notes
    - o Yabby Wi-Fi Firmware Release Notes