



June 22, 2022

Memorandum for the Record

Re: WiFi Operation of Devices

This memorandum describes the functional operation of the Namatad, Inc. FIREFLY devices with respect to use of WiFi. The FIREFLY N1 devices contain multiple transceivers through the inclusion of a single ESP32 WROOM module, which includes both WiFi and Bluetooth transceivers that share a single 2.4 GHz antenna, and a Decawave / Qorvo UWB transceiver. Each device is provisioned with Namatad firmware that controls the operation of all device components. Functionally, all Namatad devices are provisioned to operate in one of two primary roles – either as beacons or locators. Devices provisioned to operate as locators are designed to be worn by individuals to enable location tracking within buildings. Devices that are provisioned to operate as beacons are activated and left on the floor of buildings or left hanging on door handles or other surfaces within buildings. All Namatad devices use the UWB transceiver as their primary communication mechanism and leverage BLE for backup communication.

Although all devices include a WiFi transceiver, the only mode of operation that WiFi is used is for device updates through an Over the Air (OTA) update mechanism. However, we have incorporated multiple protection mechanisms in firmware to ensure this mode can only be entered under specific conditions. More specifically, we have included an NVRAM-based device configuration parameter onboard the device that must first be set to activate the device to enable WiFi for an OTA update. The only way this can be done is using an Apple iOS device configuration mobile application that communicates with the device via BLE during device provisioning. Moreover, even after firmware detects that OTA mode should be activated, our firmware first verifies the device is stationary (e.g. not in motion as detected via the integrated IMU) before proceeding, ensuring that wearable devices on board a person never activate WiFi. This mobile device configuration application is provided for provisioning only, thus ensuring that WiFi is not activated during normal operation.

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