

RF Deployment Tool Guide

Overview

The RF Deployment Tool (RFDT) is a small, battery powered, easy-to-use field tool for determining the relative signal strength at a specific location and whether a properly configured endpoint is able to join an On-Ramp Total Reach Network.



The device consists of an On-Ramp Wireless reference Application Communication Module (rACM) board with a microNode housed in a polycarbonate case that is approximately 4 3/4" L x 2 1/4" W x 3 1/8" H. Four yellow LEDs provide both status and relative signal strength expressed as "dB of Margin" in four 10 dB increments. For special applications, a factory configured option is available to display the "dB of Margin" in eight, 5 dB increments using an LED blink pattern.

An ON/OFF switch is located on the opposite side of the case from the four LEDs. A 3.5 mm configuration jack is located below the ON/OFF switch for factory configuration.

The RFDT is powered by two alkaline, "C" size (R14) alkaline batteries.

NOTE: The RF Deployment Tool is not waterproof and should be protected from rain and snow.

Figure 1. RF Deployment Tool

RF Deployment Tool Operation

1. Position the device at a stationary location with the antennas pointing up.
2. Turn the device on by placing the toggle switch in the ON position.
3. Verify that the three upper LEDs light up for approximately one second followed by each of the LEDs lighting up for one second successively starting with the lower LED (labeled "=> 0 dB"). This pattern indicates that the device is scanning.
4. After an interval of up to six minutes (if an AP signal is being received), each LED will continue to light successively at twice the speed indicating that the device is tracking an AP signal.
5. Typically, after thirty seconds or less, the device joins the network and the blinking stops, leaving one of the four LEDs ON.
6. Determine the signal margin by observing the LED pattern as indicated in the tables below. The first table provides information for a factory -configured RFDT with the standard 10 dB "Margin" increments. The second table provides information for RFDTs configured with the option for 5 dB "Margin" increments.

Table 1. Standard 10 dB “Margin” Increment LED Information

LED	Blink Pattern	Signal Margin
First LED	Solid (No Blinking)	0 – <10 dB
Second LED	Solid (No Blinking)	10 – <20 dB
Third LED	Solid (No Blinking)	20 – <30 dB
Fourth LED	Solid (No Blinking)	=> 30 dB

NOTE: If none of the LEDs are on, this indicates the signal margin is less than 0 dB but the device is still joined. If you move the device a short distance, the first light will likely come on. After approximately 45 seconds with LEDs on, the device starts the scanning process again indicating a loss of the signal. The signal margin measurement is updated every 4.5 seconds after the RFDT has joined a network.

Table 2. Optional 5 dB “Margin” Increment LED Information

LED	Blink Pattern	Signal Margin
First LED	1 Second ON, ¼ Second OFF	0 – <5 dB
	Solid (No Blinking)	5 – <10 dB
Second LED	1 Second ON, ¼ Second OFF	10 – <15 dB
	Solid (No Blinking)	15 – <20 dB
Third LED	1 Second ON, ¼ Second OFF	20 – <25 dB
	Solid (No Blinking)	25 – <30 dB
Fourth LED	1 Second ON, ¼ Second OFF	30 – <35 dB
	Solid (No Blinking)	=> 35 dB

NOTE: If none of the LEDs are on, this indicates the signal margin is less than 0 dB but the device is still joined. If you move the device a short distance, the first light will likely come on. After approximately 45 seconds with LEDs on, the device starts the scanning process again indicating a loss of the signal. The signal margin measurement is updated every 4.5 seconds after the RFDT has joined a network.

- When testing is complete, turn the device OFF by placing the toggle switch in the OFF position.

Coverage Testing Process

The RF Deployment Tool is intended for testing stationary locations. It is not intended to be used for testing while a vehicle is moving and does not support handover between APs. Depending on many factors, including signal strength, the device may be able to remain joined to an AP at speeds up to 20 mph.

When moving from one location to another, the device must be turned OFF and then back ON to insure that the signal from the strongest AP is being measured. It will only rescan for the strongest AP and antenna combination after it is power cycled or when it does not receive a useable signal.

To ensure the most accurate testing, the user should place the device as close as possible to a potential endpoint location and then the user should move a few feet away.

RFDT Network Restriction

RFDTs are configured to operate on a specific customer’s network. For security reasons they are “keyed” to the customer’s network in the same manner as all other endpoint devices using On-Ramp Wireless RPMA technology and can only be used on the network for which it was configured.

Low Battery Alert

When the batteries are no longer useable, the upper and lower LEDs will turn ON and OFF followed by the two center LEDs turning ON and then OFF. All LEDs will then turn OFF for five seconds and then the pattern will repeat. Always have a pair of new “C” size (R14) alkaline batteries available.

Replacing Batteries

1. Place the device on a work surface and loosen the four Phillips screws on the case.
2. Carefully set the side of the case that contains the screws on the work surface. Be careful not to put a strain on the battery wires.
3. Remove the batteries from the battery holder and install the two new “C” size (R14) alkaline batteries.
4. Close the case, being careful not to pinch the battery wires, and tighten the four screws.

Battery Life

Many factors affect battery life. High quality alkaline batteries will typically provide approximately twenty hours of continuous operation at normal room temperature.

Support

If you have any questions regarding the operation of the RF Deployment Tool, please contact the On-Ramp Wireless Field Deployment team at support@onrampwireless.com.

Part Number

The On-Ramp Wireless part number for the RF Deployment Test Tool is 590-0038-00.