

Operational Description

The EUT serves as a wireless power and data hub for an array of ultra-low power sensors. During normal operation, the EUT performs three main functions. First, it provides a BLE link between itself and a sensor array for the purpose of retrieving data from the sensors. Second, the EUT provides a Wi-Fi connection to an existing wide-area data network at the installation location. Finally, with the custom DTS radio the EUT provides data, radio power, and system identification (ID) to the sensors and to a diagnostic tool used by field technicians.

To enable the main functions of the EUT, the following three transceivers are employed. All three radios may be active at the same time in normal operation

- (1) The EUT includes a pre-certified modular BLE transceivers operating in the 2.4 GHz frequency band: (FCC ID: 2AA9B04, IC: 12208A-04). The main function of the BLE transceiver is to transfer data from the sensors to the EUT.
- (2) The EUT includes a pre-certified modular WLAN transceiver operating in the 2.4 GHz frequency band: (FCC ID: O7P-362, IC: 10147A-362). The WLAN transceiver follows the IEEE 802.11b/g/n protocols. The purpose of the WLAN transceiver is to transfer data from the EUT to the local network at the installation site. It also allows the for a remote network connection to the EUT.
- (3) The EUT employs a custom DTS transceiver with twenty (20) 2 MHz wide channels from 2402 MHz to 2440 MHz and follows the IEEE 802.15.4 protocols. This transceiver is used to continuously send data and RF power to an array of sensors in its vicinity. The signal is a DSSS O-QPSK signal with a 250 kbps data rate. Both the modulation and data rate are fixed.