

Model 781SA Smart Antenna Theory of Operation

The 781SA provides a remote radio link between an Emerson Gateway and wireless field sensors to transmit data to a user host system. It has an intrinsically safe (I.S.) option for users to place their radio/antenna in different zones of their plant to improve the performance of their networks.

The 781SA consists of 2 boards, A connector board (00781-1117-XXXX) and feature board (00781-1114-XXXX). The two-board solution helped with the IS design, along with ease of manufacturing of the unit.

The feature board uses the LTM5850 radio which is an IEEE 802.15.4 type radio in employing Wireless HART Industrial Communication Technology. It uses a QPSK modulation type in the frequency range of 2405-2475MHz and a raw data rate of 250kbs. The LTM5850 radio uses up to 15 channels in a pseudo-random hopping sequence spaced at 5MHz intervals while also deploying a DSSS 2.5MHz wide occupied bandwidth per channel modulation. This combination of a FHSS and DSSS system qualifies as a Hybrid transmitter under the FCC 15.247 and RSS-247 rules. The LTM5850 is a transceiver operating at a maximum duty cycle is 20%

The 781SA unit is completely sealed when assembled and has a cable with a 4-wire connection attached for ease of connection to a gateway. This cable provides power (10-30VDC) and a GAPP (RS-485) communication interface to the unit.