Product Description

The Signal Generator/Tag (SG/T) is a transmit-only radio, with two distinct roles in the PulsON 200™ equipment family. TDC product partners will initially use the Signal Generator capability as a means to evaluate UWB propagation and co-existence with other RF devices. The SG/T will be used with laboratory equipment such as oscilloscopes and spectrum analyzers to perform a number of experiments aimed at determining the most effective applications of UWB based performance and environmental factors.

When paired with the PulsON 200™ Evaluation Kit radio, the SG/T will be capable of acting as a communications and tracking Tag. In this application, the unit can be configured to pass data packets that support UWB ranging and positioning, communications or a fusion of both types of data. The Evaluation Kit radio will use key algorithms and PulsON 200™ capabilities to "read" the tag and convert the packet into a usable form.

The unit submitted for FCC certification has the capabilities of performing either of the intended purposes, however the tag function can only be realized as part of a system with the Evaluation Kit radio

The SG/T consists of a digital module, an RF module, an antenna assembly and a housing. The digital board contains the PulsON 200™ Timer Chip, which provides precise triggers to the RF board, a Field Programmable Gate Array (FPGA) containing the control logic for the SG/T functionality, various interfaces for data collection and power, and memory. The RF module creates the pulse that will be transmitted and "flips" them to allow data to be encoded. The antenna assembly couples the BroadSpec™ Model antenna with the reverse polarity SMA connector for use on the SG/T.

The SG/T is set up for operation and controlled by software running on a host computer and communicating via the serial cable. Once configured using the host software, the SG/T can operate without being attached to the host PC in the configuration set and initialized prior to disconnecting. The software allows the user to define the mode of operation, type and structure of the transmission packets and the rate in which the packet is sent out (e.g. every 10 seconds or when commanded to by a device attached to the serial port). It will not allow the user to alter the fundamental UWB structure, nor can the user place the radio in a mode that spectrally violates the FCC regulations.