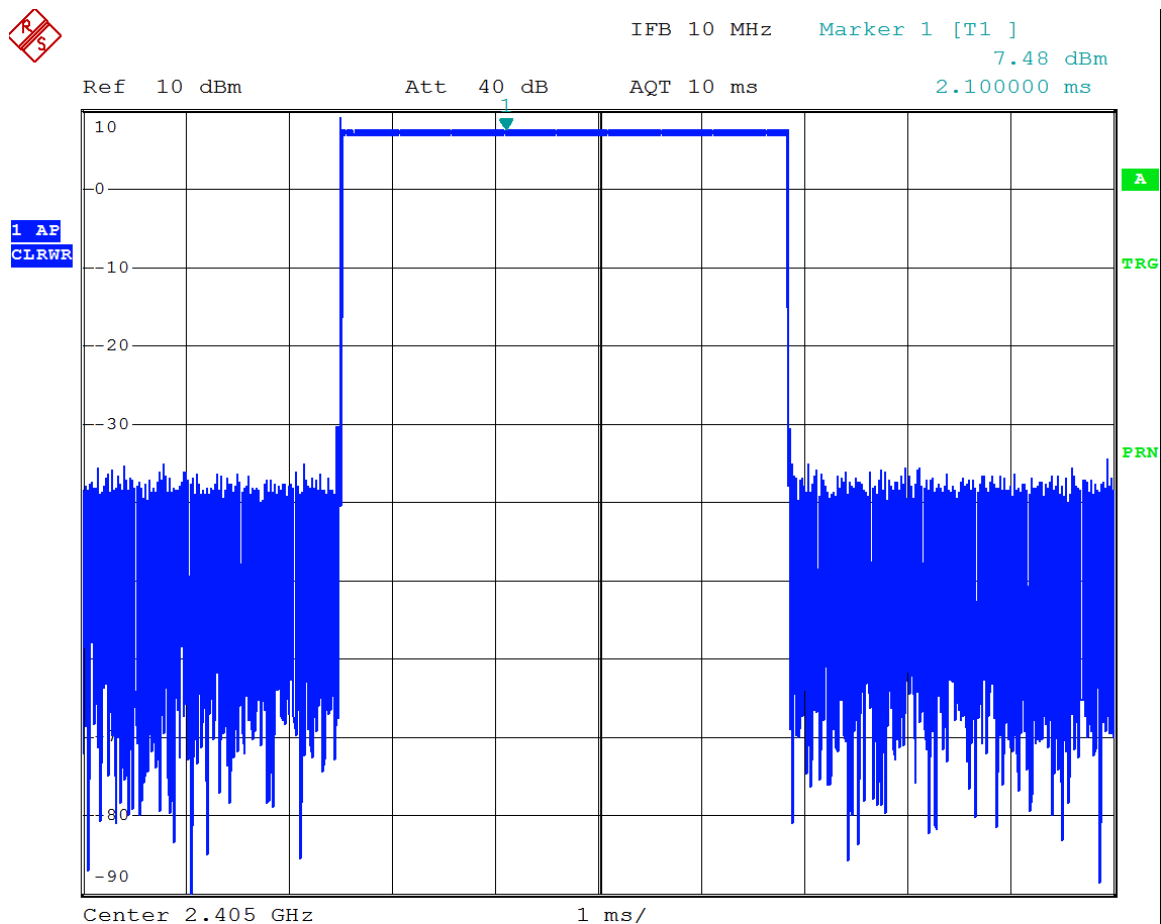


M2511 Duty Cycle Description

Dust radios operate on a TDMA time schedule that uses 10 ms timeslots. A transmit timeslot consists of 5 stages:

1. Initialization: radio is prepared for transmit (transmitter is off)
2. Ramp: transmitter is ramped to peak power
3. Transmit: 128 bytes of data maximum + 5 bytes preamble/SFD
4. Turnaround: radio is set to receive
5. Receive: radio waits in receive for ACK, then turns off

Total transmit time for a 128 byte packet plus all overhead (SFD / Preamble / Ramp) is 4.34ms, shown in the figure below:



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Maximum duty cycle is therefore:

$$4.34 \text{ ms on} / 10 \text{ ms} = 43.4 \%$$