

Message Protocol, Timing, and Duty Cycle Calculation

The data output is phase encoded Manchester which has an inherent 50% duty cycle. The transmitted data rate is 3.95 KBS +/- 0.5% i.e. each bit is 253.1 uS. in duration typical and 254.3 uS. max.

The worst case data format consists of 120 bits.
The duration of each word is 30.51 mS.

Each word is transmitted 6 times at each transmission event,
The words are separated (start to start) by 102 mS.

The total transmission time at each transmission event is 540.51 mS.

The duty cycle over a 100 mS. Measuring period is calculated as follows:

Duty Cycle = Actual RF Transmission ON time / 100 mS.

Actual RF Transmission ON time = 120 bits X 50% X 254.3 uS. = 15.26 mS.

Therefore the Duty Cycle = 15.26 mS. / 100 mS. = 15.26 %