

Cidco FCC ID: HOLCL980

Duty Cycle corrections can be determined by T1 and T2 from table 3 of the following page.
Given by:

$$T_{on} = 1.975\text{msec}$$

$$T_{off} = 2.025\text{msec}$$

Duty Cycle calculation:

$$\text{Correction Factor (dB)} = 10 \log(T_{on} / (T_{off} + T_{on})) \text{ dB}$$

$$= 10 \log (1.975 / (2.025 + 1.975)) \text{ dB}$$

$$= 10 \log (0.494) \text{ dB}$$

$$= 3.06 \text{ dB}$$

Applying the Duty Cycle:

$$E \text{ (field strength)} = 122 \text{ dBuV/m @ 3 meters}$$

$$122\text{dBuV/m} - 3.06 \text{ dB} = 119 \text{ dBuV/m @ 3 meters}$$

$$P \text{ (Power)} = (E_d)^2 / 30 \text{ Watts}$$

$$\text{Corresponds to } 238\text{mWatts}$$

The Power is less than 300mWatts (corrected) and thus **SAR testing is not necessary** for this device.

Chips per Bit

The Chips per bit is determined by T7 and T13 of table 3 on the following page.

$$T7 \text{ Data frame time} = 133 \text{ bits wide} \times 12.5 \text{ usec per bit}$$

$$T13 \text{ Chip time} = 1.041\text{usec}$$

$$\text{chips per bit} = 12.5 \text{ usec per bit} / 1.041 \text{ usec per chip} = 12.01 \text{ chips/bit}$$

This illustrates a rate of **12.01 Chips Per Bit**. This rate is greater than the minimum required rate of 11 Chips Per Bit. Timing diagrams are also provided on the following page.

RF Modem Control Timing

Figure 4 and Figure 5 show the timing relationship of TXRX, TXEN, RXEN and the baseband transmit signal (TXDATA) and received signals (RXI, RXQ). Table 3 lists the timing parameters.

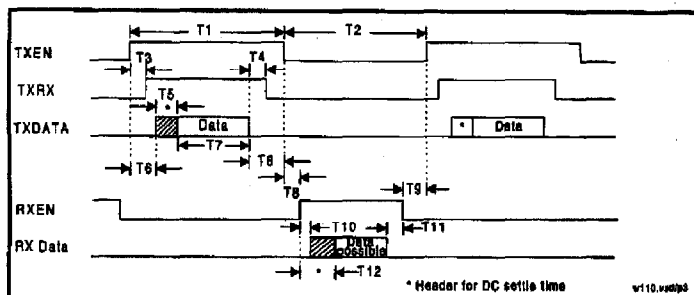


Figure 4. RF Timing Diagram

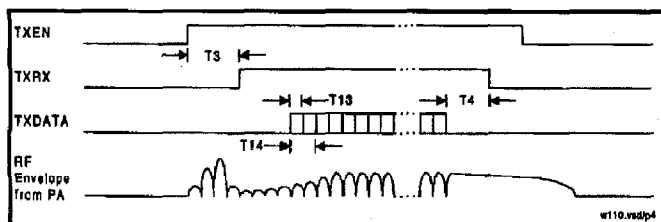


Figure 5. RF Envelope Timing Diagram

Table 3. RF Modem Timing Parameters

Name	Description	Value
T1	TXEN-On Time	1.975 ms
T2	TXEN-Off Time	2.025 ms
T3	TXEN-On to TXRX-On	8.3 μ s
T4	Data-Off to TXRX-Off	8.3 μ s
T5	DC Settling Time	$23 \times 12.5 \mu$ s
T6	TXEN-On to Data-On and Data-Off to TXEN-Off	12.5 μ s
T7	Data Frame Time	$133 \times 12.5 \mu$ s
T8	TXEN-Off to RXEN-On	12.5 μ s
T9	RXEN-Off to TXEN-On	> 0 μ s
T10	RXEN-On to Expected RX Data	$\geq 12.5 \mu$ s
T11	RX Data-Off to RXEN-Off	12.5 μ s
T12	RXEN-On to RX Data DC and Gain Settle	< 300 μ s
T13	Chlp Time	1.041 μ s (1/960 KHz)
T14	TX Settling	< 300 μ s*

*T12 includes settling of TX data from other transmitter (T13). Total settling must occur during settle bit header in RX data stream.