2 Theory of Operations

2.1 I²C Command Protocol

Before your tester writes I²C commands to T112, slave address must be set at 50h. The timing sequence can be shown as below. After 4 cycles, the tester can get started IIC commands. SDA(A3) can affect slave address. Set low for 40h. Set high for 50h.
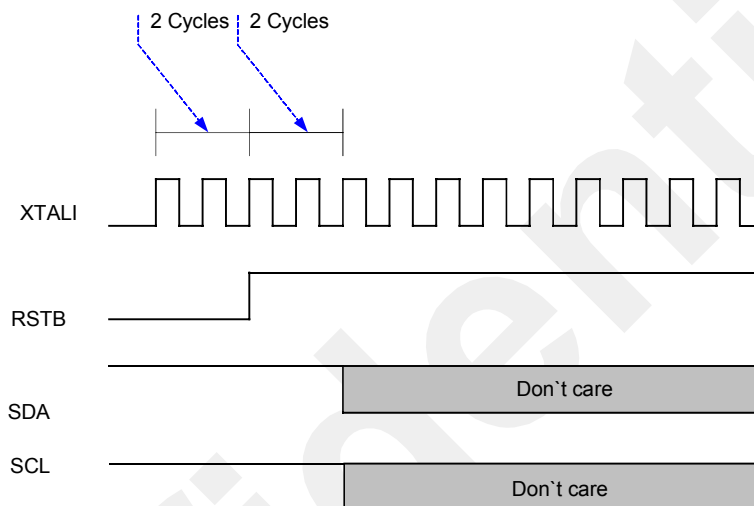

Figure 2-1 Power-up initialization

When tester issues commands to the T112, the only way the user can program the T112 is using the 2-wire serial bus protocol. This section describes the 2-wire serial bus protocol. Data transfers on the 2-wire serial bus are initiated with a START condition and are terminated with a STOP condition. Normal data on the SDA line must be stable during the high period of the SCL. The transition on the SDA is only allowed while SCL is low. The START condition is unique case and is defined by a high-to-low transition on the SDA while the SCL is high. The STOP condition is a unique case and is defined by a low-to-high transition on the SDA while the SCL is high. Each data packet on the 2-wire serial bus consists of 8 bits of data followed by an ACK bit. Data is transferred with MSB first. The transmitter releases the SDA line during the ACK bit and the receiver of data transfer must drive the SDA line low during the ACK bit to acknowledge receipt of the data. The frequency of SCL can be from 50 Khz up to 1 Mhz.
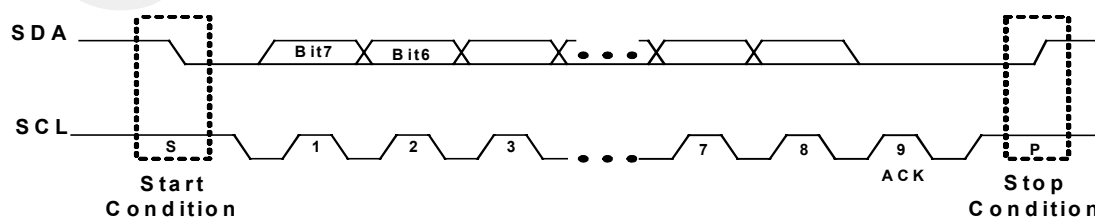

Figure 2-2 2-wire serial bus Protocol

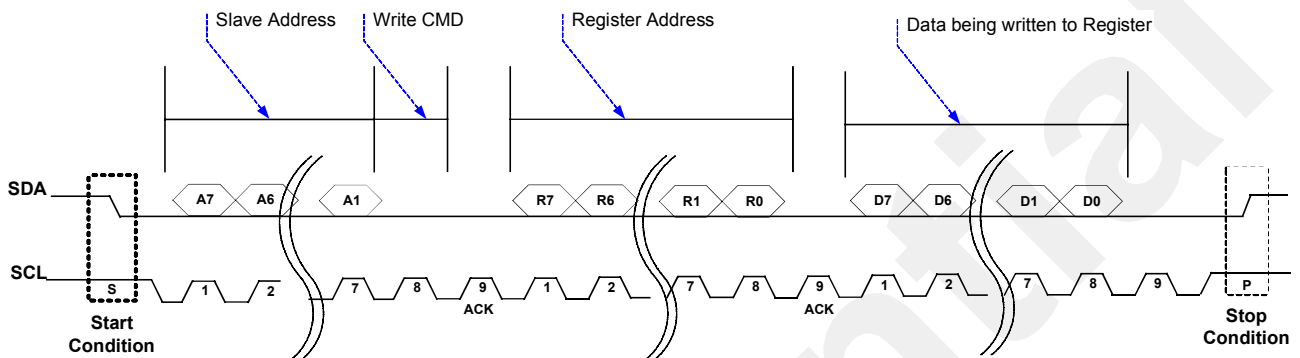The timing below shows a typical T112 IIC single byte write command,

Figure 2-3 T112 IIC single byte write command

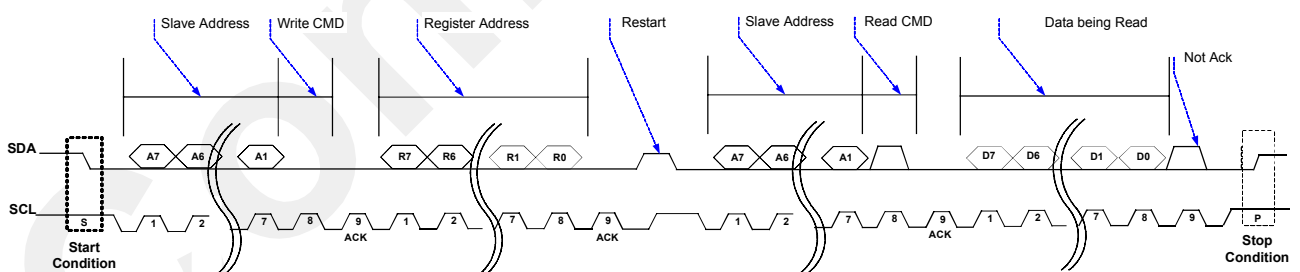The timing below shows a typical T112 IIC single byte read command,

Figure 2-4 T112 IIC single byte read command

2.2 Analog Front End

T112 contains 2 ADCs in Analog Front End. Each channel of ADCs can digitalize SDTV signals from analog to digital. The figure shown below can describe how to select a SDTV signal from 2 inputs prior to ADCs.