CML Semiconductor Products

Application Information

Recommendations for V.23 1200/75 bps Full Duplex Call Set-Up

V.23 recommendations do not describe how a connection is established; a procedure is described below and illustrated in Figure 1; however you should not rely on other modems following this particular flow. Note also that 1200/1200 bps half-duplex connections are not covered by this application note.

1. The calling (originating) modem should connect to the line by operating the off-hook relay.

2. Having seized the line the dial tone should be detected. The dial tone will typically appear approximately 1/3s after going off-hook. If the dial tone does not appear after 5s return to the on-hook state. If dial tone monitoring is not to be performed (blind dialling) a pause of several seconds is necessary after line seizure and before dialling begins, typically 2s.

3. Send DTMF digit sequence, tones should have ON and OFF periods of typically 100ms.

    Reference Point A.

4. Calling modem remains silent after dialling until it receives a response from the answering modem. The first response may be the V.25 answering procedure, this should be ignored until the signal returns after 75ms ± 20ms energy drop, *Reference Point B*.
    Without V.25 answering procedure reference point B will be the end of the 2s answering modem's billing delay.

5. When binary '1's (high band marks) have been detected from the answering modem for 155ms ± 50ms the calling modem can be configured ready to receive data, *Reference Point C*.
    Start timers for 456ms ± 10ms and 765ms ± 10ms.

6. When the 456ms ± 10ms timer expires start transmitting binary '1's (low band marks) to the answering modem, *Reference Point D*.

7. When the 765ms ± 10ms timer expires the calling modem can change to data transmission mode and assert the CTS handshaking line. The binary '1's (low band marks) at the transmitter should now be replaced by data, *Reference Point E*.
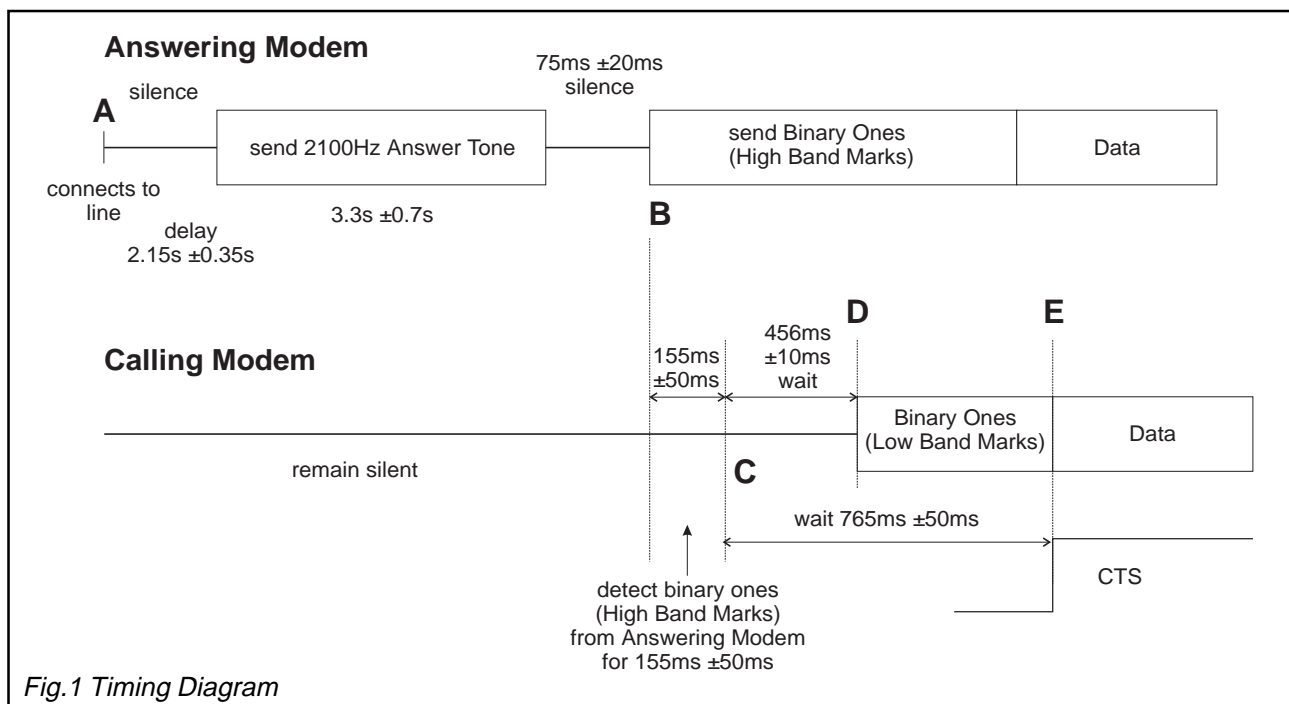

Fig.1 Timing Diagram

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