4. DIAGNOSTIC

4

This modem has a very powerful command set and facilities to test the modem itself, the telephone line and the remote side.
In this chapter you can find some basic procedures to implement the diagnostic features.

4.1. LOCAL ANALOG LOOPBACK TEST (LOOP 3)

The target of this test is to verify the modem itself and the serial link with your computer. When the modem is Off Line type the command: AT&T1.
This command forces the modem in local analog loop that means to be connected with itself. You can send single or characters strings or files and they are received from your computer. To exit from test condition type the escape sequence (+++) and then, when the response OK is displayed enter the command AT&T0.
The same operation is available with the circuit C141 (pin 18) when this feature is enabled by the command AT*T, or with the front panel key TEST when the modem is off line.

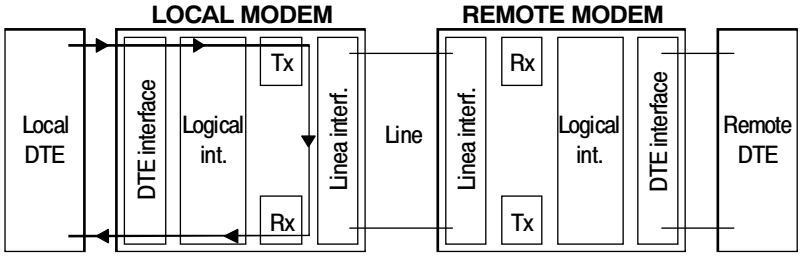

Fig. 4.1. Loop 3

4.2. LOCAL DIGITAL LOOPBACK TEST (LOOP 2 LOCAL)

This test allows the remote modem or DTE to check both local and remote modem and the telecommunication line.
When the modem is On Line type the escape sequence (+++) and then, when the response OK is displayed enter the
command AT&T3. This command forces the modem in local digital loop and any data received from telecommunication line is looped back.
To exit from test condition type the escape sequence (+++) and then, when the response OK is displayed enter the command AT&T0.

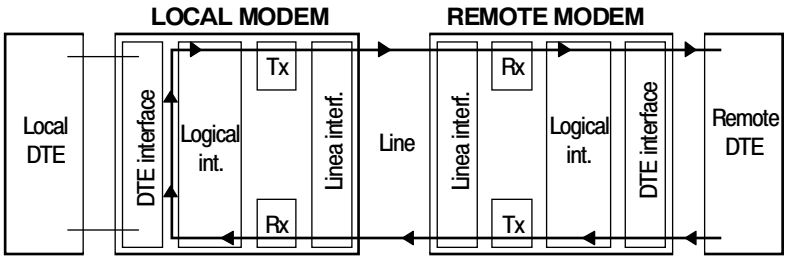

Fig. 4.2. Loop 2 local

4.3. LOCAL ANALOG LOOPBACK WITH SELFTEST

The target of this test is to verify the modem itself using an internal test pattern
When the modem is Off Line type the command: AT&T8.
This command forces the modem in local analog loop, sends a test pattern and check the receive stream. The duration ofthis test is defined from register S18.

4.4. REMOTE DIGITAL LOPBACK(LOOP 2 REMOTE)

The target of this test is to verify the complete connection.
When the modem is On Line type the escape sequence (+++) and then, when the response OK is displayed enter the command AT&T6. This command forces the remote modem in digital loop so that it will loop the data back to the local modem and DTE.
It's possible to send single or characters strings or files and to check them for

errors detection. To exit from test condition type the escape sequence (+++) and then, when the response OK is displayed enter the command AT&T0.
The same operation is available with the circuit C140 (pin 21) when this feature is enable by the command AT*T, or with the front panel key TEST when the modem is on-line.

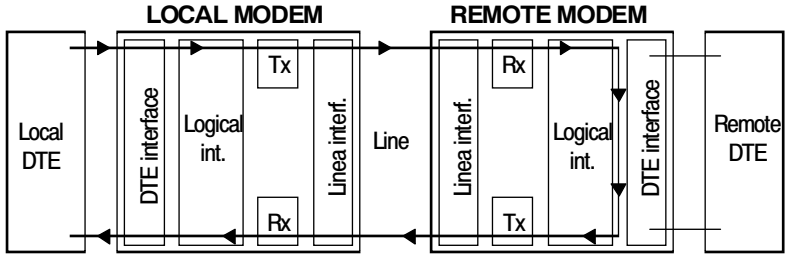

Fig. 4.2. Loop 2 remote

4.5. REMOTE DIGITAL LOOPBACK WITH SELFTEST

The target of this test is to verify the complete connection using an internal test pattern When the modem is ON line typethe escape sequence (+++) and then, when the response OK is displayed enter the command AT&T7.
This command forces the remote modem in digital loop: the local modem sends a test pattern and checks the received stream. The duration of this test is defined from register S18.

IMPORTANT
when this test is ended the modem response with the number of wrong bits.
Bit Error Rate can be easely calculated:

B.E.R= N°wrong bits/ (S18 x speed bps)

IMPORTANT
To activate the loop the modem must be set up without error correction (AT&E0).