

Fixed Links Testing with Sonata

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Application Note ANSON_4

Testing the World's Digital Networks



When testing private BRI or PRI ISDN networks on customer premises, there may be no need to use the D-channel protocol to establish and -take-down- calls, particularly on dedicated links between PBX's or to dedicated applications equipment. For example a link could just be dedicated to sending data with only one source and receiver - effectively a private leased line.

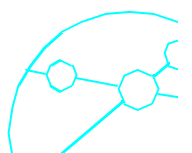
In this case, a fixed link test can check the physical integrity of the line. The test involves setting up one end NT or TE to be clock master and the other end to behave as a slave. One end then transmits a 64k bit BER pattern to be looped back for measurement or measured at the far end. This pattern operates a straight data on the line. It has no D-channel protocol running to control its progress and the data is not confined to a channel, as none exists.

There are instances where the physical conditions of the line itself rather than the operation of the protocol, may be causing problems. It is possible that taps, bridges, cable insulation or degradation of the line may be impairing transmission quality or allowing cross-talk or similar and induce errors.

- Running a BER test to an NT (or an NT replacement), which responds to EOC commands by establishing a loop on the end of the U interface, will enable to verify whether the link is error free.

- The overall attenuation of the line can be verified to be within the link specification by using a 40kHz tone. This value is deemed suitable for proving a 2 wire 2B1Q local loop.

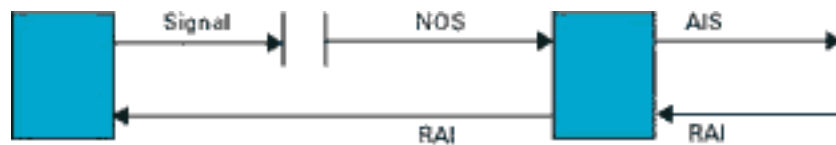
- The physical characteristic of the 2M link can be checked by running an unframed 2M datastream and by measuring bit errors. This will prove the physical quality of the line and also proves if the full bandwidth specified can be supported. Some line problems i.e. poor insulation, degrading connections,



water ingress etc may only become apparent through errors occurring when a line is fully loaded.

More serious fault conditions, which manifest themselves by causing losses of framing or signal, can be identified during these tests by looking for the Layer 1 alarms.

As shown in the network elements diagram below NOS, AIS, and RAI indicate that a loss of signal has occurred and also indicate where the problem originated.



LOS : Loss of Frame synchronisation indicates that data is present but it is being severely degraded by line condition, cross talk, excess distance etc.

RAI : A remote alarm indication is returned from a network element which has received an AIS. As can be seen from the diagram, if you receive an RAI on the receive leg of a pair it means that the break is on the transit side.

The functionality detailed above is available in the latest release of Aurora Sonata software. Please contact your Local Vendor or Trend Communications Ltd

