

# Access Networks Testing on E1 links running V5 protocols with Duet

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Application Note ANDUET\_1

Testing the World's Digital Networks



TrendCommunications

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## TESTING ON E1 LINKS RUNNING V5 PROTOCOLS.

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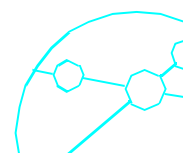
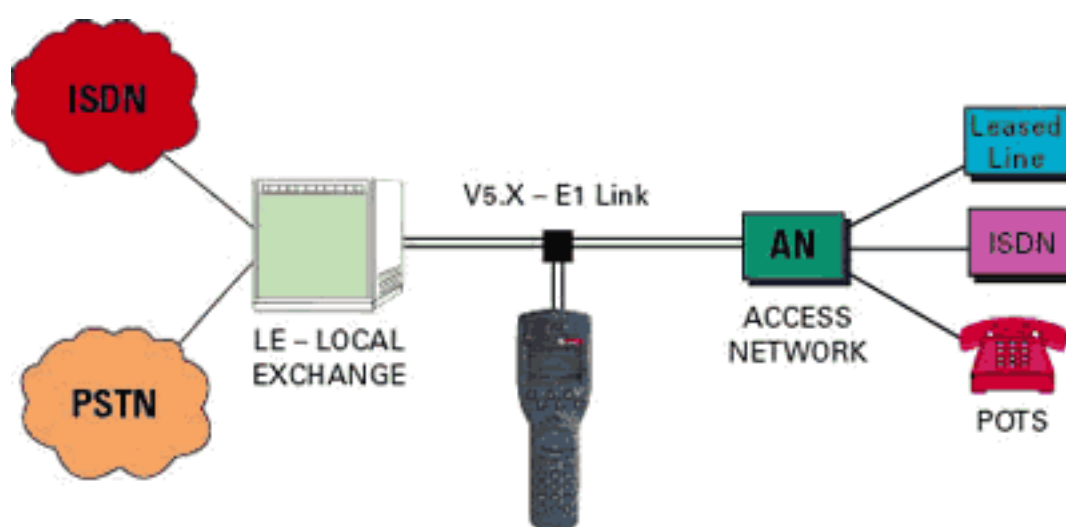
### Determining V5 link configuration - Automatic Protocol Scan on the auroraDuet

The most common problems facing the maintenance technician when confronting a V5 link in the field relate to the system configuration.

Questions that arise are:-

- Is it a V5.1 or a V5.2 link?
- Where are the C-channels?
- What type of traffic is on the link?

To provide the answer to these questions, the auroraDuet provides an automatic link protocol scan to identify C-channel protocols and LAPD signalling. V5.1 links commonly use channel 16 as the C-channel where two V5 protocols only are in use. On V5.2 links, the C-channels are typically found on channels 15, 16 and 31. Five V5 protocols may be in use spread across these C-channels.



The auroraDuet will scan any nominated timeslots on the link and identify the protocols and their locations along with any V5 encapsulated LAPD (ISDN or X.25) signalling. A V5.1 link will contain only V5 PSTN and CONTROL protocols; presence of any other V5 protocols indicates that the link is a V5.2 link.

## Identifying Link Protocol timing issues - V5 decode and filtering on auroraDuet

Synchronisation of the Access Network (AN) and Local Exchange (LE) equipment on a V5 link is essential for efficient link usage. This is particularly relevant when referring to V5.2 systems where a up to sixteen E1 links may be in use with C-channels controlling traffic across as many as 490 traffic channels.

The auroraDuet filters allow specific V5 protocols to be selected with frame timestamps. Along with the user defined display settings the non-essential trace detail can be removed to see sequences of messages and acknowledgements and any timing issues between the AN and the LE.

```
>T 14:46:07.218 Fr.1
; PSTN SIGNALLING
: RR
                                N<T 14:46:07.221 Fr.2
                                VS PSTN SIGNALLING
                                L2: RR

>T 14:46:08.508 Fr.3
; CONTROL PROTOCOL
: RR
                                N<T 14:46:08.509 Fr.4
                                VS CONTROL PROTOCOL
                                L2: RR

>T 14:46:17.161 Fr.5
; PSTN SIGNALLING
: RR
                                N<T 14:46:17.164 Fr.6
                                VS PSTN SIGNALLING
                                L2: RR

>T 14:46:18.479 Fr.7
; CONTROL PROTOCOL
: RR
                                N<T 14:46:18.481 Fr.8
```

Figure 2 shows an auroraDuet trace from a normally operating link. The detail has been removed showing just the timestamps, the sequence, the V5 protocol identifier and the layer 2



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message type. Directions 'N' represents Network (LE) and 'T' represents Terminal (AN). The messages are paired (sent message followed by received ACK); any timing issue will show an occasional loss of sequence. Physical link quality may also be assessed by the L1 statistics provided on the auroraDuet.

The functionality detailed above is available in the latest release of auroraDuet software. Please contact your Local Vendor or the Trend Communications Ltd Customer Support Hotline (tel: +44 1628 851085) for further information.

