

# RADIODETECTION – Application Note

## PROOF TESTING OF CATV CABLE INSTALLATIONS

The T631 was specifically designed for testing coaxial cable and incorporates key features for the purpose. It features short pulse widths, return loss measurement, automatic fault location and fully interfaces with the X600 TRACEability PC display and archive software.

**Return loss measurement** is an important feature for testing of CATV cables, particularly for commercial reasons. Cable installation is often carried out by contractors, who may need to offer proof of a minimum standard of installation to their customers. It is also a benefit that a TDR record of the installation is kept by both installer and customer for the benefit of comparison in the event of a fault later on. The comparison will lead to fast location of the fault & minimum customer service lost. T631 performs the above function, displaying the return loss of any trace event the operator wishes to select.

**X600 TRACEability** is used to store and display TDR traces having extracted them from the instrument memory. Traces can be downloaded to PC via X600, where extra notes can be added and traces stored or added to documentation.

**Pulse widths** incorporated into T631 are 2ns, 10ns, 30ns, 100ns, 300ns and 1200ns. They are selected automatically or manually dependent on application and the benefit of using these short pulse widths is threefold.

Firstly, when examining installed CATV cable for installation flaws or faults, it is useful to use a pulse width which approximates to the actual operating frequency of the system. This is in order to highlight cable problems which would have an effect at the system operating frequency. For example, the shortest pulse from T631 is transmitted from the output port at 2ns and this approximates to 250MHz operating frequency. Wider pulse widths may not show faults which could affect the CATV system.

Secondly, when fault locating, the narrow pulses give excellent trace event resolution. For example, when searching for a fault close to a joint, the T631 can resolve this down to within 0.3m using the 2ns transmit pulse.

Thirdly, short pulse widths give short transmit dead zones. Measuring the minimum dead zone of the T631 we get 0.3 m, or only 10% of the test lead length.



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**Automatic fault find** facility allows the instrument to search the cable for a fault at the press of a single dedicated key. The cursor will move down the cable to the first significant trace event and stop. The instrument will have calculated suitable gain, range and pulse width to best display the event. Subsequent and successive depression of the key will move the cursor on to the next significant event. This is a fast and effective method by which any operator of any skill level may quickly get results from a coax network, particularly when searching for faults and taps.

The T631 is proving to be of considerable benefit to our customers. Not only is the T631 a superb fault finding instrument, it can also be used as a proof tester ensuring that the installer has completed successfully the task he was required to perform. Using the X600 TRACEability software the information acquired can be used later for comparison fault finding.

