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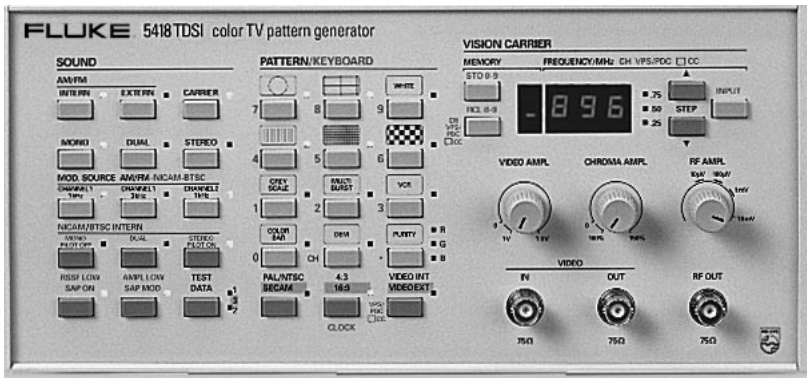
# Testing PDC video recorders

## Application Note


**More functions in TV receivers and video recorders offer increased viewing enjoyment and convenience of operation for the consumer. But at the same time they introduce additional testing requirements for manufacturers and service workshops.**
**One such function is PDC or Program Delivery Control, which simplifies the often problematical programming of video recorders and ensures that a desired program is always recorded correctly.**
**A cost-effective solution for the testing of PDC-equipped video recorders is available in a range of compact, integrated TV signal generators from Fluke.**

Video recorder programming problems like a recording of a movie which suddenly stops half-way through or extra time in a football match have become a thing of the past.
The PDC (Program Delivery Control) video recorder programming system makes programming simple. PDC ensures that TV programs really are recorded from beginning to end – even if times differ from those originally published by the broadcaster.

PDC signals are transmitted using teletext. The broadcaster transmits the signal corresponding to a particular program continuously while that program is being transmitted. This signal enables common programming mistakes to be avoided, such as missing the exciting end of a movie because the preceding program was running late.
All the desired information is recorded correctly by the video recorder. The facilities of PDC even support time variations due to time zones and summer- and wintertime.

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However, the many facilities offered by PDC are not yet fully utilized. Although a video recorder can be programmed using teletext, it is not yet possible to do this two or three days in advance. This limitation is a function of the present teletext program guide, which does not usually list more than today's and tomorrow's programs. If all programs for a whole week ahead were to be listed on teletext, then it would be possible to select any of the week's programs for automatic, unattended recording.

The currently available PDC programming facilities are of course already well known from VPS (Video Programming System), which was introduced as long ago as 1985 for operation in Germany, Austria and Switzerland. In contrast to PDC, VPS signals are not transmitted by means of teletext but by a special TV line (line 16).

At present, both PDC and VPS systems therefore offer virtually the same functions and differ only in the way their signals are transmitted. However, PDC offers a number of other benefits which are expected to be implemented by broadcasters in the near future. For example, the ability to record a complete (mini) series without missing a single episode. With VPS, the user would have to program each episode individually.

This problem is solved by PDC where each program is given its own identification (PTY, Program Type). A recording will be made whenever the selected PTY code is received, regardless of that program's PIL code (Program Identification Label, the code which indicates the starting time of a program).

**Simplifying programming by the user**

As well as its main function of recording control – ensuring correct recording of a TV program – PDC has another function: that of simplifying the task of programming by the user. This function – program preselection – works by using the video recorder's built–in teletext decoder. The information published in the teletext program guide is shown as a 'page' of text on the TV screen. The viewer can then clearly and easily select the program to be recorded using the remote control unit. The unique program reference number (PIL code) is then stored in the video recorder.

This PIL code allows the second function of PDC to be used: recording control. The video recorder waits until the broadcaster transmits the correct PIL code, and then it automatically starts recording. This means that even if a program starts late or overruns its scheduled time, the video recorder will record it completely from start to finish. If the starting time is delayed by more than 24 hours, the PIL code is updated. To do this, the broadcaster transmits a signal by teletext to change the stored PIL code. If no PIL code is present in the program guide, the video recorder relies on its normal timer control to make the recording, in the same way as under the VPT system.

PDC was developed by the EBU (European Broadcasting Union), the umbrella association of European broadcasting organizations. At present, PDC signals are transmitted by the teletext systems for example in the UK (Channel 4) and the Netherlands (all channels).

The PDC test functions which are available in Fluke's TV Signal Generators include nine preset program positions, of which five are fixed factory settings and four are user–definable. The generators have a built–in real–time clock to control test programming.

The programmable recording control information from the generator is transmitted according to the PDC standard in the Packet 8/30 format 2 data format. Additionally, Fluke's TV Signal Generators also provide full support for VPS testing.

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