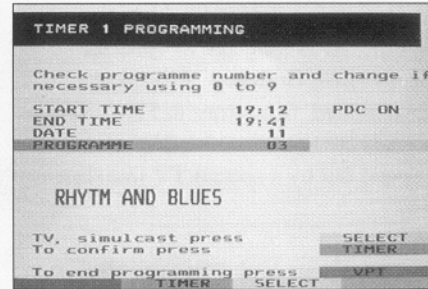
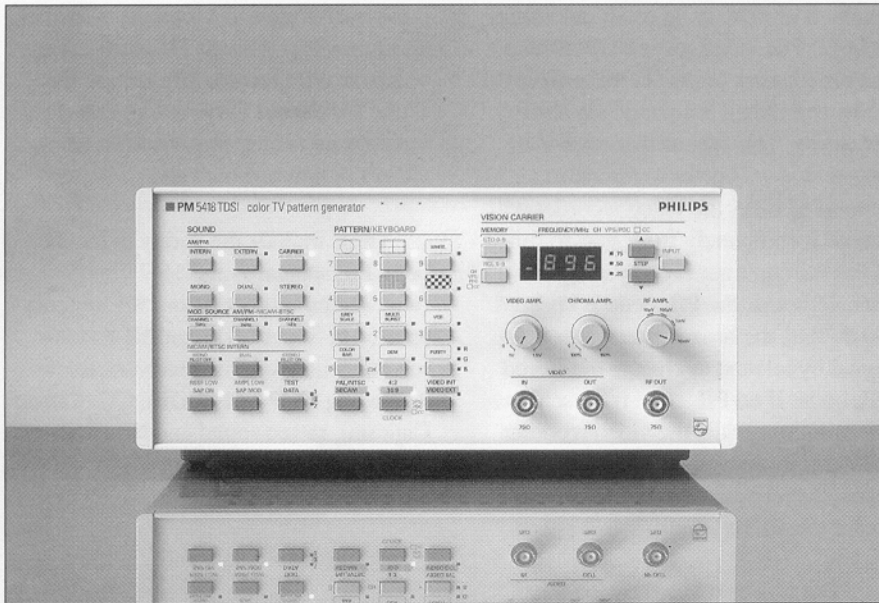


Testing new PDC video recorders.

Program Delivery Control makes VCR programming easy but adds extra testing complexity.



latest 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.

New 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 new 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 new range of compact, integrated TV signal generators.

Video recorder programming problems like a recording of a movie which suddenly stops half-way through or extra time in a football match have recently become a thing of the past. The

PDC signals are transmitted by 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.

Testing new PDC video recorders

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 - 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 in the UK (Channel 4) and the Netherlands (all channels). Broadcasting organizations in other countries, including Germany, Austria and Switzerland, are also expected to adopt the system in the near future.

The PDC test functions which are available as an option in Fluke's PM 5410 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, the PM 5410 series also provides full support for VPS testing.

Keeping pace with the latest developments

As well as PDC/VPS testing, other new functions have also been added to these instruments to keep pace with the latest developments in TV receivers and video cassette recorders, enabling the Fluke TV Signal Generators to meet virtually all testing requirements on today's and tomorrow's sets.

These include the ability to handle both 4:3 (standard) and 16:9 (widescreen) aspect ratios; Y/C outputs as used in Super-VHS and Hi-8 video recorders and satellite receivers; teletext (including TOP and FLOF), CC (Closed Caption), stereo sound and NICAM digital sound.

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