PT 8633 Serial Digital pattern generator

To the “complex” patterns (Philips and FuBK, 625 lines) in PT8633 a moving element can be added to the pattern.

This element serves two purposes:

Firstly it is used to indicate whether a signal path is “alive” or is frozen in a framestore or similar.

Secondly, it can be used as an indication for timing differences between video and the embedded audio signal, the socalled “lip sync test”. This timing difference can occur when video and audio are separately processed, eg. in a MPEG-2 system, and later again combined.

The signal generated in the following way: In the lower textfield a longer black bar is inserted. In this field 3 pairs of markers are inserted, one pair in center of pattern and one pair on both sides. See figure. The moving element is a sine square pulse travelling from left to right and back, with a period of 3 seconds.

Figur:

Sine pulse 1 frame advance center marker 2 frame delay
The “Philips” pattern with the moving neddle (sine square pulse) and the markers.

The audio signal can be generated with an interruption (silence), called “click”, in one or both channels, Channel 2 or/and channel 1. Channel 3 and 4 are not interrupted so the can be used for level adjustments. There are clicks in audio signal “EBU”, “BBC” and “mono”. Each click is 250 ms long and is repeated every 3 seconds. See note 2 and 3.

The signal is generated so that in the field where the travelling sine square pulse, travelling from left to right, is matching the center mark, the click starts.

When later watching on a TV monitor and listen to the sound signal, the click should be heard when the sine pulse is matching the center marker. If the click is heard earlier audio is advanced compared to video, if the click is heard after the center, audio is delayed.

Left marker indicates one frame (40 ms) audio advance, the right marker indicate 2 frames (80 ms) delay. The reason for this difference is due to the fact, that we are more sensitive to advanced audio than to delayed audio. (reference til EBU norm???)

16:9 Patterns
The period time for audio click is still 3 seconds, but due to their smaller circle diameter, the moving needle takes two trips from left to right and back. There will then only be a click in audio every second time the sine pulse is crossing the center of the pattern.

Note1: Menu structure

Note2: Embedded audio is divided into 4 groups, group 1 to 4.
One group of audio consists of 4 channels. Channel 1 and 2 are one AES pair (AES1), and channel 3 and 4 are another AES pair (AES2).
One GROUP of audio is inserted.

Note 3: EBU “Click”: Is silence in channel 2 for 250 ms.
BBC “Click”: Is silence in channel 2 for 250 ms and then silence in channel 1 for 500 ms.
Mono: Is silence simultanoulsly in both channnel 1 and 2 for 250 ms