Serial Digital Pattern Generator, PT 8633, the Lip Sync Signal

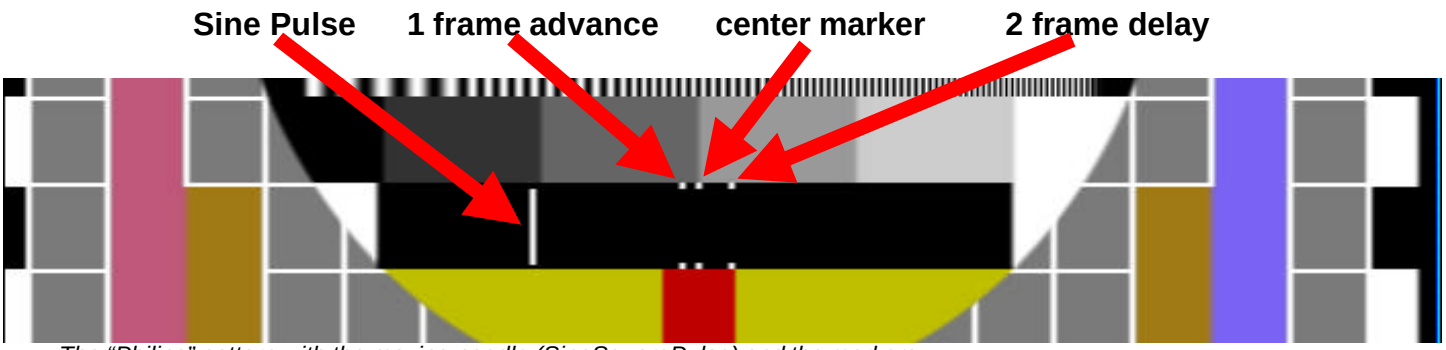
Using PT 8633, a moving element can be added to the “complex” patterns (Philips and FuBK, 625 lines).

This element serves two purposes:

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

2. It can be used as an indication for timing differences between video and the audio signal, the “lip sync test”. This timing difference can occur when video and audio are separately processed, e.g. in a MPEG-2 system and combined again at a later point in time.

The signal is generated in the following way:
A long black bar is inserted in the lower text field. Three pairs of markers are inserted in this bar - one pair at the center of the pattern and a pair on either side (see figure below). The moving element is a Sine Square Pulse travelling from left to right and back, within a period of 3 seconds.



The “Philips” pattern with the moving needle (SineSquarePulse) and the markers

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

When the Sine Square Pulse is travelling from left to right, in the field where the pulse matches the center mark, the click starts and remains for 250 ms.

Thereafter, when you are watching on a TV monitor and listening to the sound signal, the click should be heard when the Sine Pulse matches the center marker. If the click is heard earlier, audio is advanced compared to video. Similarly, if the click is heard after the center, audio is delayed.

Left marker indicates one frame (40 ms) audio advance. The right marker indicates 2 frames (80 ms) delay. This difference is due to the fact that we are more sensitive to advanced audio than to delayed audio.

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The time period for audio click remains at 3 seconds but, because of the circle in such patterns has a smaller diameter, the moving needle takes two trips from left to right and back for every click in audio. That is to say, there is a click every second time the Sine Pulse crosses the center of the pattern.

Note1: *Menu structure*

Note2: *Embedded audio is divided into 4 groups (1-4).*
One group of audio consists of 4 channels. Channels 1 and 2 are one AES pair (AES1); channels 3 and 4 are a second 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 simultaneously in both channels 1 and 2 for 250 ms

How to select the Lip Sync Signal

1. Turn on the instrument
2. A test is performed and the display looks as shown here:

GENLOCK: INTERNAL ◂ ▾ ▸
SIGNAL: ····· STATUS: ·····

3. Press ▾ button
4. Go to <SDI TPG2> by pressing the ◂ or ▸ button
5. Press the ▾ button
6. Go to <PATTERN> by pressing the ◂ or ▸ button
7. Press the ▾ button
8. Select <PHILIPS 4:3> by pressing the ▴ or ▾ button
9. Go to <SAVE> by pressing the ◂ or ▸ button
10. Press the EXECUTE button
11. Press the ▾ button
12. Select <MODIFY> by pressing the ◂ or ▸ button
13. Press the ▾ button
14. Select <MOTION> by pressing the ▴ button
15. Go to <OFF> by pressing the ◂ or ▸ button
16. Select <ON> by pressing the ▴ or ▾ button
17. Go to <SAVE> by pressing the ◂ or ▸ button
18. Press the EXECUTE button