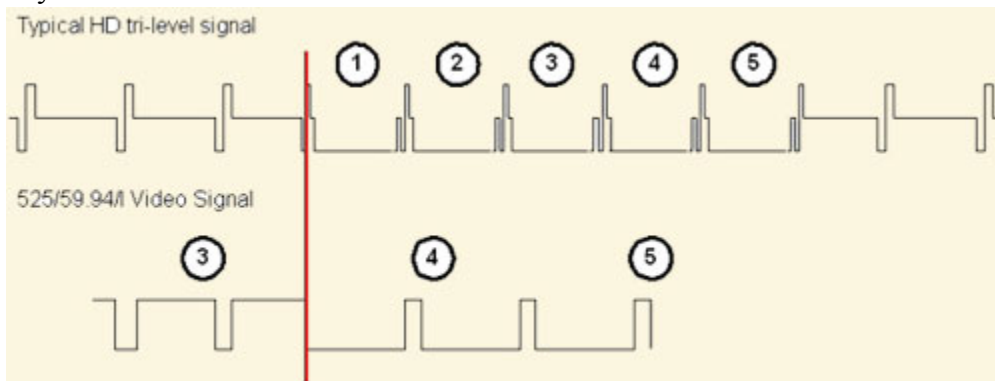


System Timing in a mixed SD / HD facility

With more and more stations biting the bullet and getting on with DTV expansion projects, the issue of system timing comes up quite often in discussion. Concerns usually center on what sort of reference signal the HD equipment needs and how to integrate this signal into an existing reference system.

HD equipment will require either a standard composite reference signal such as black burst, or a tri-level reference signal at a line rate that matches the format you have chosen for your facility. The simplest approach to adding a tri-level reference is to purchase a slave generator that locks to NTSC or PAL composite video. If at all possible, provide the slave generator with a reference signal that can be timed independently of your existing house sync system. Most modern Master SPG's provide several "black" outputs that can be steered independently.

Once the new slave generator is in installed and cabled, use a dual channel scope to look at both your existing SD reference and the new HD tri-level reference. Set the scope up so that you can see the vertical interval of both signals. You want the start of SD line 4 to be coincident with the start of HD line 1, per RP168-2002. Move the black output from the Master SPG that is feeding the HD slave generator around to obtain this relationship if it is not already correct.



With vertical timing issues now resolved, you may find that standard definition sources converted to HD, or HD sources converted to HD-SDI with A/D converters fall outside of the auto-timing window of your production switcher or HD Master Control. The use of separate black or tri-level reference signal segments will provide a means to steer these problem devices so that they fall within available timing window.

These suggestions when will help avoid some of the common pitfalls that occur when grafting a DTV addition onto your existing reference system. NVISION makes inexpensive slave sync generator cards for the 4000 series that you may find useful when laying out your reference system.