

**TG700**  
**TV Signal Generator Platform**  
**Release Notes**

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# Release Notes

This document describes new features, improvements, and limitations of firmware version 5.5 for the TG700 TV Signal Generator Platform.

## New Features

This release adds many new features to the HD3G7 3 Gb/s SDI Video Generator Module, and adds support for 720p50 tri-level sync to the genlock input of the AGL7 Analog Genlock Module.

### HD3G7 Module

The HD3G7 module includes the following new features:

- Support for all 720 and 1080 line HD-SDI formats at 1.485 Mb/s per SMPTE 292. This makes the module a dual-rate SDI generator for both HD-SDI and 3G-SDI formats.
- Support for all 720 line formats for 3G-SDI from SMPTE 425, including 4:4:4 RGB/YCbCr formats of 3G Level A and 2×720p “dual stream” formats of 3G Level B.
- Many new test signals, available for all 3G and HD-SDI formats:
  - SMPTE EG1 Color Bars
  - 75% Color Bars (75% White)
  - SMPTE EG431-1 Color Accuracy
  - SMPTE 303M Color Reference (also known as GretagMacbeth ColorChecker®)
  - Pluge and Luma Reference
  - Black-White and Black-Dark Gray Step Scales (per SMPTE EG432-1)
  - Checkerboard
  - Production Aperture and Clean Aperture
  - Convergence (enhanced)
  - 10 Step Staircase
  - Valid Ramp, Y Valid Ramp, B-Y Valid Ramp, and R-Y Valid Ramp
  - Limit Ramp
  - Shallow Ramp Matrix and Color Ramp Matrix
  - Co-siting Pulse
  - Color Pulses

- Real-time control to enable/disable edge filtering on any test signal, as appropriate for television broadcast or digital cinema display applications. Previously, the HD3G7 module had a separate “Projector Test Patterns” mode for selected test signals that did not have edge filtering. Now all test signals can be generated with or without edge filtering as appropriate.
- Addition of a submenu under the TIMING menu to select the relative point for output timing adjustments. The two choices are relative to the serial data stream (0H timing) or relative to an analog signal with an assumed DAC offset. This submenu is available only for HD-SDI formats; 3G-SDI formats always use 0H timing. The Analog (DAC) selection is for compatibility with timing adjustment settings of the HDVG7 module.

### **AGL7 Module**

The AGL7 module now supports 720p50 tri-level sync as genlock input signal. Previously, the AGL7 supported only 720p50 tri-level sync as an output format.

## **General Limitations**

This release has the following general limitations:

### **TG700 Mainframe Requirements for This Release**

Firmware release version 5.5 must be installed on a TG700 mainframe with at least 32 MB of memory. A 16 MB system can be upgraded to 64 MB by ordering the FP (Frame Picture) upgrade kit. (Tektronix part number 040-1698-xx).

### **TG7 Setup Software**

In setting signal formats for the Black 2 and Black 3 outputs of the AGL7 module, do not select Black 2 = HD sync (same as Black 3) and Black 3 = BB (same as Black 2) simultaneously, while Frame Reset 1 is set to 2.997 Hz. This operation makes the Frame Reset 1 unstable. If this is the case, reset the system by recalling the Power On Default setting or a preset.

### **TG7 Comm Software**

Do not change or delete any file names or folder names other than those downloaded by users (signal files, sequence files, and preset files). Doing so can cause the instrument to operate in an unexpected manner.

You can change the names of user files (signal files, sequence files, and preset files) after you have downloaded them into the TG700 mainframe. Remove and reapply power to see the updated names on the mainframe.

### **Resetting an Output Signal**

When the instrument rereads or resets signal data, such as format changing, preset recall, or signal-button assignment, a signal output interruption or synchronization shock may occur.

- Setting the Genlock Source** If you change the frame reset period in the AGL7 module after the genlock source is set to CW, the frame reset may not be selected properly. If this is the case, set the frame reset to CW.
- Assigning a Signal and Frame Picture to a Front-Panel Button** When you assign a downloaded signal to a front-panel button, do not assign different format signals to the same button.
- Do not assign a signal set to a signal button of the signal that is currently being output. Also, do not assign a signal set to a signal button while the message “No Signal Set Assigned” is displayed. If you reassign a signal set to the OTHER button, perform the reassignment while a signal that is assigned to a button other than the OTHER button is output.
- Embedded Audio Samples for 3G-SDI Formats** When using the HD3G7 module with exactly three groups of embedded audio, the audio data from the same sample period may sometimes be split into adjacent lines. This behavior happens only with formats with a field or frame rate of 29.97 or 30 Hz, and not with formats with a field or frame rate of 23.98, 24, 25, 50, 59.94, or 60 Hz. Use one, two, or four groups of embedded audio to force audio sample data for all groups to be located on the same line.
- Embedded Audio of the HDVG7 Module**
- Embedded audio for 720 23.98p/24p formats are not supported for the HDVG7 module, even though they can be selected in the menus.
  - The first user data word in the audio control packet (containing the Audio Frame value) has incorrect parity when the frame count is 1, 2, or 4.
- Y to GBR Converter Mode of the HDLG7 Module** If the output format is 2K and the Converter mode is set to Y to GBR, changing operating mode by selecting a test signal will cause an unexpected black and white signal to be generated. To correct the test signal, press the OTHER button until Normal is selected, and then press the test signal button.
- 25/29.97/30 Hz Segmented Frame Format for the HDLG7 Module** The HDLG7 module does not have format selections for 1080PsF at 25 Hz, 29.97 Hz, or 30 Hz. These formats are almost identical to 1080i (interlaced) formats at 50 Hz, 59.94 Hz, and 60 Hz respectively; these format settings can be used with progressive segmented signals. However, note that the SMPTE 352M payload identifier for the output signal will show an interlaced signal format, even when the HDLG7 module is converting a single link progressive segmented input signal to dual link.
- Multiple Timecode Formats** Frequent changes to output formats can result in instability on those outputs. Disturbances to PAL output signals can be prevented by setting any output to PAL as a power-on preset, and then keeping any output set to PAL at all times.

### **Converter Mode of the HD3G7 Module**

- Infrequently, the module will fail to up-convert the input HD-SDI signal. If no output is seen, the problem can be corrected by selecting a different test signal and then switching back to converter mode.
- The trigger output cannot generate a frame pulse or line pulse when the module is in converter mode.
- The moving picture and video component functions do not apply to up-converted output signals.

### **Embedded Audio of the HD3G7 Module in Converter Mode**

When a Level B format is selected for the up-converted 3 Gb/s output signal, embedded audio from the input HD-SDI signal will be copied into both virtual links. Therefore, up to 32 channels of embedded audio can appear on the 3 Gb/s output.

### **Time of Day Changes for Timecode Outputs**

When the time-of-day changes, such as when scheduled daylight savings adjustments are made or when the internal time is set from the front panel, there can be a delay before that change is reflected on timecode outputs.

This delay may be a small number of frames (fraction of a second) when all timecode output formats are based on the same clock rate (for example, NTSC black burst and 1080i 59.94 HD tri-level on black outputs in addition to 30 fps drop-frame on LTC outputs), or up to several seconds when timecode formats based on different clock rates are used (for example, 29.97 fps and 24 fps on different outputs).

### **Closed Caption Data with the HD3G7 Module in Converter Mode**

- The HD3G7 module does not re-format SMPTE 334 Caption Distribution Packets in converter mode. Therefore, when up-converting from 1080i 59.94 Hz to 1080p 59.94 Hz, for example, the output will contain CDP data in alternate frames, each with 40 bytes of caption data, instead of CDP data in every frame, each with 20 bytes of caption data.
- Up-conversion to a Level B fast progressive format may result in mis-ordered Caption Distribution Packets in the stream of output frames.

### **SDI Equalizer Test Signal of the HD3G7 Module**

Per SMPTE RP198 for HD-SDI, a polarity change word is used to ensure equal probabilities of the DC bias for the equalizer test pattern. However, some 3G SDI formats still exhibit an unequal bias. Enabling a dynamic bit stream in the output signal, such as embedded audio or timecode data, will result in both DC levels appearing in the output signal.

### **Changing Output Formats with Open Menus**

Some front-panel menus and status displays are dependent on the frame rate of the currently selected output format. If you open a submenu and press the FORMAT button to change the frame rate, the submenu will not be refreshed until it is exited and reopened.

**Test Signal Files of the HD3G7 Module**

The HD3G7 module now uses file-based test signal definitions. If you modify a signal file from the factory version, unpredictable results may occur. To recover from this situation, reload the factory version of the signal file from the *TG700 Software Library and Documentation DVD* that was supplied with the instrument.

**HD3G7 Module Presets**

- If you select either the 3G-Level B (2xHD 1080) or 3G-Level B (2xHD 720) output mode, the current format (frame rate) will not be saved in a preset file.
- If a preset was made with an earlier version of the HD3G7 module and recalled with version 5.5, the test signal selection is not restored. All other settings are restored normally.

**32 Channels of Embedded Audio**

If 32 channels of embedded audio are enabled for the HD3G7 module (using both virtual links of 3G-Level B formats), the 32nd channel will contain a DC level instead of a tone with the selected amplitude and frequency.

**Timing Range of AGL7 Module**

The TIMING menu for the AGL7 module will allow output timing adjustment beyond  $\pm \frac{1}{2}$  frame of the current format.