

WFM2300 and WFM2200A
Multiformat Multistandard Portable Waveform Monitors
Release Notes

This document supports software version 2.10.3.

www.tektronix.com



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Release notes

This document describes the key features and known limitations of software version 2.10.3 of the Tektronix WFM2300 and WFM2200A Multiformat, Multistandard Portable Waveform Monitors.

Some of these notes apply only to instruments with specific options installed. You can find a list of available instrument options at www.tektronix.com.

New features

This release of the WFM2300 and WFM2200A software introduces the following new features:

AV delay and propagation time measurements (Option AVDP only)

A new software option (AVDP) is available which provides a new AV Delay Measurement display mode that allows you to perform the following two measurements:

- **AV Delay:** Measures the duration that a video system advances or delays the audio signal relative to the video content. The measurement allows facility engineers to ensure system integrity and facilitate A/V delay compliance.

In AV Delay mode, the video and audio on the SDI OUT signal are continuously cycled between being on for 0.5 seconds then set to black and muted for 4.5 seconds.

- **Propagation Time:** Measures how long it takes signal to pass through a video system. The measurement allows facility engineers to align the timing of the multiple incoming videos, check the delay of a CODEC system and/or a video signal path, including the satellite feed.

In Propagation mode, the video and audio on the SDI OUT signal are continuously cycled between being on for 0.5 seconds then set to black and muted for 9.5 seconds.

NOTE. *The amount of time that the AV Delay or Propagation Time signal cycles on and off varies slightly depending on the format of the SDI test signal output.*

When Option ADVP is enabled, you can access the new display using the MEAS button menu.

**Dolby E audio generation
(Option DBE only)**

A new feature has been added to Option DBE which allows you to generate a Dolby E audio stream from the SDI output as embedded audio or from the AES/EBU output. These signals include test tones at different levels (–18 dB, –20 dB and Multitone) with frame rates compatible with the respective video signals.

You can set the Dolby E audio frame start locations (Early, Ideal, Late, or Custom) to test the error handling ability of the signal processing equipment in the signal path. Dolby E metadata is also inserted in the test stream, which can test the performance of signal processing equipment downstream. The user can configure each of the three D’s of Dolby (dialnorm, dynamic range and downmix parameters). The Dolby E program configurations of 8x1 mono, 4x2 stereo, surround 5.1, 5.1+2 and 7.1 audio are supported.

**Generator Status display
split into two displays**

To accommodate the details of the new Dolby E audio generation metadata for Option DBE, the Generator Status display has been split into two displays: Video Generator Status and Audio Generator Status.

Similarly, the Outputs submenu in the CONFIG button menu has been split into two new submenus: Video/Gen Outputs and Audio/Gen Outputs.

**Additional test signal
patterns**

In addition to the existing 100% color bar, 75% color bar, and Pathological signals, the following new test signals can now be generated:

- SMPTE EG1 Bars
- EG432-1 Color Bar
- RP219 Color Bar
- 0% Flat Field
- 50% Flat Field
- 100% Flat Field
- 5-Step Staircase
- 10-Step Staircase
- Checkerboard
- Clean Aperture
- Production Aperture
- Convergence
- Pluge and luma
- SMPTE 303M Color Reference
- ChromaDuMonde
- Multiburst

Direction control for the Moving Picture function

The Moving Samples parameter, which controls the speed of the Moving Picture function, now allows both positive and negative values. This allows the test pattern to scroll horizontally forwards or backwards. If the Moving Samples value is set to zero, a static test pattern with no motion is output.

General limitations

This release has the following general limitations. Topics are listed in alphabetical order.

Audio

- If a video signal is connected to and disconnected from the MULTI IN input, or a low amplitude LTC signal is applied to the MULTI IN input, the instrument may record a false alarm on the SDI A input signal.
- If you notice that the lissajous gain on the Audio display is not constant during normal operation, you can remedy the situation using one of the following methods:
 - Disconnect and reconnect the cable from the audio source
 - Toggle the Audio display back and forth between full-screen and four-tile mode
 - Change another trace display to a non-trace display and then back again

Audio outputs

- High headphone volume levels can cause clipping with high audio level programs. To prevent possible ear damage, it is recommended to lower the volume before connecting headphones to the instrument.
- Test tone generation from AES output will be muted for a moment when the input video channel is switched or input video signal is connected/disconnected.

A/V delay measurement (Option AVDP only)

- The A/V delay measurement may produce CRC errors and audio glitches in sequence when Dolby E audio generation is enabled. Since it can be very difficult to detect the start of Dolby E audio, we recommend that you use standard PCM embedded or AES audio to make the A/V delay measurement.
- When embedded audio is enabled in the SDI output, the sum of all audio channels is used to measure the A/V delay.

- Cable length measurement**
- Be sure to use Belden 8281 cable to calibrate the cable length measurement. To prevent erroneous results in subsequent cable length measurements, use the Physical Layer Settings submenu in the CONFIG menu to select the cable type that best matches the cable you are using for the cable-length measurements. If the Cable Type setting does not match the cable type that you are using, the measurement results will be erroneous.
- External reference waveform display**
- The waveform in the external reference Waveform display may appear garbled if there is no SDI input and you select to view a sync signal connected to the REF IN input. If this occurs, connect an SDI input or cycle the power to fix the display of the waveform.
- LTC Waveform Display**
- The LTC waveform trace occasionally appears to be smeared and noisy. This erroneous trace pattern will be displayed regardless of whether an LTC signal is applied to one of the inputs or not. This problem can be remedied by connecting a valid external reference signal to the product (such as NTSC, PAL, or Tri-Level Sync), otherwise the unit requires power cycle.
- Generator**
- SDI generator output occasionally becomes invalid on toggling output formats. You may toggle to another format and back in case.
 - The Moving Circle feature is not included in this software release. You can use the Moving Picture feature as alternative method of identifying the signal source.
 - If the AES output is configured to output a Dolby E program, then either the SDI Output mode needs to be set to Test Signal (not Loopout Follows Input) or an SDI signal needs to be connected to the SDI A input. If neither of these conditions are met, then the Dolby E content in the AES output may not be able to be decoded.
- Genlock**
- If the reference frequency error is greater than 80 ppm, then the lock indicator may falsely indicate that the instrument is locked. In this case, the SDI OUT can be temporarily connected to the SDI input and the actual lock condition can be viewed on the Timing display using external reference.
- Propagation Time measurement (Option AVDP only)**
- When the Propagation Time measurement is initiated, it often takes 3 to 5 pulses of the measurement test pattern before a stable, valid measurement can be made (each pulse occurs about once every 10 seconds). During this settling period, the measurement readout sometimes reads “Invalid.” When performing this measurement, you should wait for a few pulses to make sure that the measurement has been done correctly.
 - When the Propagation Time measurement is made using a 3G-SDI Level B signal, the measurement readout may show an erroneous result. It is

recommended that you use a different format, such as a 3G-SDI Level A signal, to perform the measurement.

- USB**
- Always press the MAIN button and select USB Status > Unmount before you remove the USB memory device from the USB port. You risk permanent loss of any files saved on the USB device if you do not use the “Unmount” feature.
 - It is recommended that you use a well known brand to prevent a slow instrument boot-up and/or response.

- Web browser**
- We recommend using Java Runtime Engine (JRE) version 1.6 or above.