

## Getting Started with TDSHT3

You can use this side of the quick reference card to get started with the Sink Jitter Tolerance test procedure. The other side contains a complete menu tree for the TDSHT3 HDMI Compliance Test Software.

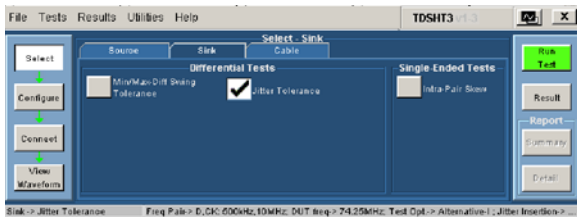
TDSHT3 enables unprecedented efficiency by providing a comprehensive range of tests, including Jitter Tolerance. Start the application by using Analyze > HDMI Compliance Test Software(1.3) or App > HDMI Compliance Test Software(1.3).

### Sink Jitter Tolerance

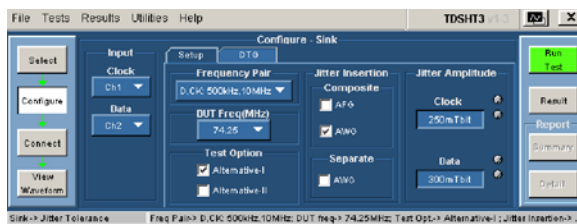
This test allows you to confirm that the maximum allowed TMDS clock jitter is supported by the Sink DUT.

You will need one supported oscilloscope, two differential probes, one digital timing generator (DTG), one arbitrary waveform generator (AWG) or arbitrary function generator (AFG), one DC power supply, 12 SMA cables, two bias-tees, one cable emulator, one GPIB controller, one HDMI EFF-TPA-R, and one HDMI EFF-TPA-P fixture.

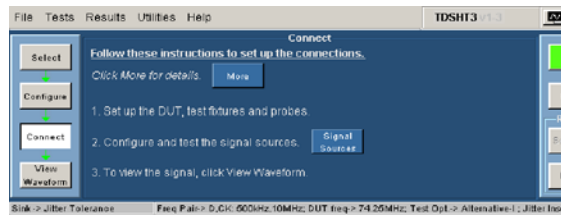
1. On the menu bar, click **Tests > Select > Sink**.
2. In the differential tests pane, select the **Jitter Tolerance** check box.



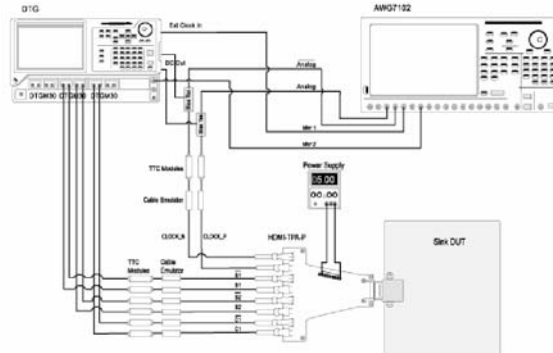
3. To change the configuration settings, click **Tests > Configure**. For most tests, you can use the factory default configuration. However, you can change the values by using the virtual keyboard or the general purpose knob on the oscilloscope front panel. You can also restore the factory defaults or save and recall your own configuration settings.



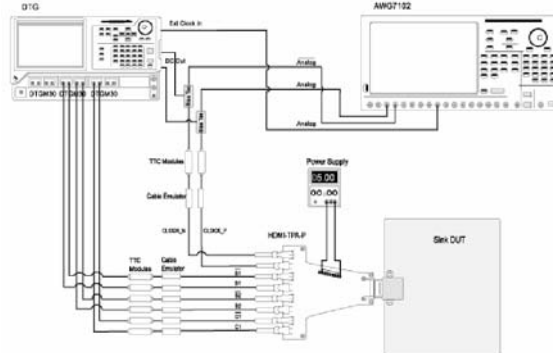
4. The software remotely controls the DTG and AWG/AFG, which must be connected by an NI GPIB-USB-B/NI-ENET-GPIB. To view connection diagrams, click **Tests > Connect**.



5. Make the connections as follows:  
To find the sink jitter tolerance using the AWG7102 composite jitter insertion method:



To find the sink jitter tolerance using the AWG7102 separate jitter insertion method:

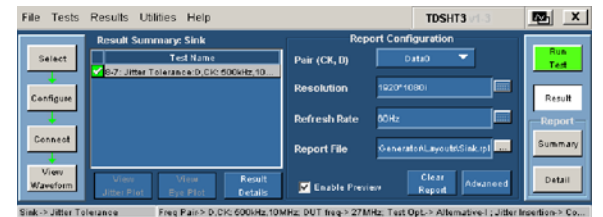


**NOTE.** In sink jitter tolerance test using the AWG710/AWG710B, for clock rates < 148.5 MHz the clock is generated directly from the AWG. For clock rates  $\geq$  148.5 MHz use the DTGM32 module to generate the clock.

6. To configure and test the GPIB connection to the DTG, click **Signal Sources**. The following screen appears.



7. To run the test successfully, ensure that the Bus Timing parameter is set to 2  $\mu$ s on your GPIB board configuration.
8. Click **Run Test** to perform the test. The TDSHT3 HDMI Compliance Test Software sets up the oscilloscope and conducts the test. Follow the on-screen instructions. Your answers might open a series of dialog boxes.
9. If you successfully run the test, the software calculates the jitter values and displays the results. The software makes **Result** available automatically and displays the result summary, the eye diagram plot, and the clock jitter plot. You can also view the report configuration details in the result pane.



10. In the result summary pane, click **Result Details** to display the results of the tests.

Test Name	Spec Range	Mean Value	Result	Remarks/Comments
0-7 Clock Jitter CK	0.07Tbit < Max Clock Jit	0.467 Tbit	Pass	Test = 1.5865Hz, VISO = 600.65mV, Mapping = 0.907Tbit, Record Length = 1.0000M, Max Hb = 6.0000mV, S.Cur = 500000, 10MHz
0-7 Data Alter CK D	0.07Tbit < Max Data Jit	0.4607 Tbit	Pass	Test = 1.5865Hz, VISO = 600.65mV, Mapping = 0.907Tbit, Record Length = 1.0000M, Max Hb = 6.0000mV, S.Cur = 500000, 10MHz

**NOTE.** For additional procedures, refer to the TDSHT3 Quick Start User Manual. For complete operating instructions, refer to the online help.

For up-to-date information on Tektronix oscilloscope solutions for HDMI Compliance Test Software, access the [www.tektronix.com](http://www.tektronix.com) Web page.

### TDSHT3 Ordering Information

This software supports the TDS6000B, TDS6000C, TDS7254/TDS7254B, TDS7404/TDS7404B, CSA7404/CSA7404B, TDS7704B, and DPO70000 series of oscilloscopes. Refer to the *Optional Applications Software on Windows-Based Oscilloscopes Installation Manual* for a list of specific models. The applications CD includes a PDF file of the online help.

To order along with oscilloscope:

- Opt. HT3 - HDMI Compliance Test Software

To order an upgrade for an existing oscilloscope:

- TDS6000B - Order TDS6BUP - Opt. HT3
- TDS7000/B - Order TDS7UP/7BUP - Opt. HT3
- CSA7000/B - Order TDS7UP/7BUP - Opt. HT3
- DPO70000 - Order DPO7UP - Opt. HT3

To order an upgrade from HDMI 1.2a to HDMI 1.3a compliance test software:

- TDS6000B - Order TDS6BUP - Opt. HT23
- TDS7000/B - Order TDS7UP/7BUP - Opt. HT23
- CSA7000/B - Order TDS7UP/7BUP - Opt. HT23
- DPO70000 - Order DPO7UP - Opt. HT23

**NOTE.** You will be provided with two TDSHT3 applications, one supporting CTS 1.2a specification, displayed as TDSHT3, and the other for CTS 1.3a specification, displayed as TDSHT3v1.3. Both applications can be loaded onto the oscilloscope, but you can run only one application at a time.

### Recommended Accessories

#### Oscilloscopes

- 16 M Record Length/Ch: Opt. 4 M or more (Eye Diagram and Jitter tests)

#### HDMI Pattern Sources

- Jitter Generation: AWG7102/AWG710/AWG710B/AFG3000 (minimum two-channel AFG) for Sink tests
- Test Pattern Generation: DTG5274/DTG5334, DTGM30 (three required), and DTGM32 (one required for AWG710/AWG710B/AFG3000) for Sink Tests

#### TDR Tests

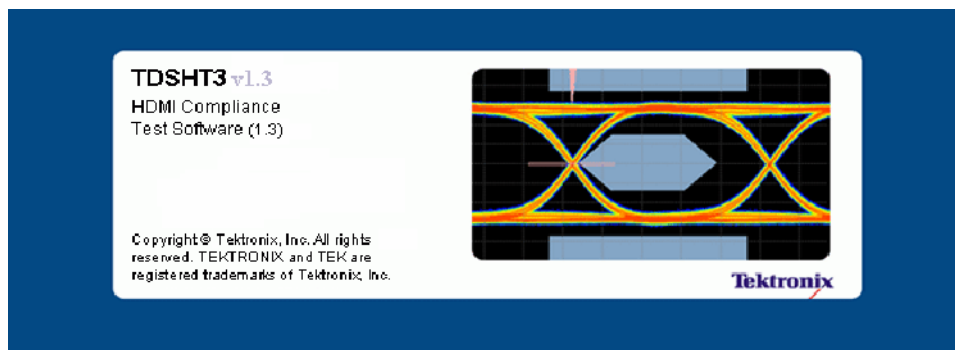
- Oscilloscope: TDS8200B/DSA8200 with 80E03 and 80E04 modules

#### Probes

- Differential Probes: P7313SMA for both single-ended and differential measurements. P7350SMA can be used for differential tests of limited resolutions.
- Active Probes: P7240 (two probes) for single-ended measurements using old fixtures.
- Probe Positioner: PPM100 Flexible Arm Probe Positioner.

#### Test Fixtures

- Plug type: EFF-HDMI-TPA-P, available from Efficere Technologies
- Receptacle type: EFF-HDMI-TPA-R, available from Efficere Technologies
- Plug type: HDMI TPA-P adapter set - 013-A013-50 (can be used for limited resolution)
- Receptacle type: HDMI TPA-R adapter set - 013-A012-50 (can be used for limited resolution)



[www.tektronix.com](http://www.tektronix.com)



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TDSHT3 Menu Tree

