

Technical Reference

5/22

Tektronix

**TDS 500C, TDS 600B & TDS 700C
Digitizing Oscilloscopes
Performance Verification and Specifications**

070-9874-01

Table of Contents

General Safety Summary	v
Preface	ix
Contacting Tektronix	x

Performance Verification Procedures

Performance Verification Procedures	1-1
Input Channels vs. Model	1-2
Conventions	1-2
Brief Procedures	1-5
Self Tests	1-5
Functional Tests	1-7
Performance Tests	1-15
Prerequisites	1-15
Equipment Required	1-16
TDS 600B Test Record	1-19
TDS 500C/700C Test Record	1-23
Signal Acquisition System Checks	1-27
Time Base System Checks	1-43
Trigger System Checks	1-45
Output Signal Checks	1-58
Option 05 Video Trigger Checks	1-67
Sine Wave Generator Leveling Procedure	1-84
Optical Filters Checks (TDS 500C/TDS 700C Only)	1-87

Specifications

Specifications	2-1
Product Description	2-1
User Interface	2-2
Signal Acquisition System	2-3
Horizontal System	2-3
Trigger System	2-5
Acquisition Control	2-5
On-Board User Assistance	2-6
Measurement Assistance	2-6
Storage	2-7
I/O	2-7
Display	2-8
Nominal Traits	2-9
Warranted Characteristics	2-17
Typical Characteristics	2-25

Figure 1–33: Subsequent 60 Hz Rejection test hookup	1–75
Figure 1–34: 60 Hz Rejection test result – TDS 684B shown	1–76
Figure 1–35: Line count accuracy test hookup	1–77
Figure 1–36: Line count accuracy test setup waveform – TDS 684B shown	1–78
Figure 1–37: Line count accuracy correct result waveform	1–79
Figure 1–38: Setup for sync duty cycle test	1–81
Figure 1–39: Sync duty cycle test: one-div neg pulse waveform	1–82
Figure 1–40: Sync duty cycle test: critically adjusted pulse	1–83
Figure 1–41: Sine wave generator leveling equipment setup	1–85
Figure 1–42: Equipment setup for maximum amplitude	1–86
Figure 1–43: Reference-receiver performance-verification set up ...	1–89
Figure 1–44: Optical impulse of Ch1 input from OA5022 Optical Attenuator (OIG501 / OIG502 fed into optical attenuator in Step 1)	1–91
Figure 1–45: Optical impulse response for OC–12 SONET Reference Receiver	1–94
Figure 1–46: Optical impulse response for OC–12 SONET Reference Receiver	1–95

List of Tables

Table 1-1: Test equipment	1-16
Table 1-2: DC offset accuracy (zero setting)	1-28
Table 1-3: DC Voltage measurement accuracy	1-31
Table 1-4: Analog bandwidth	1-35
Table 1-5: Delay between channels worksheet	1-42
Table 1-6: Available Filters	1-87
Table 1-7: Reference Receiver Filter Options:	1-88
Table 1-8: Option 3C and 4C Specifications	1-88
Table 1-9: Available receivers	1-88
Table 1-10: Bessel Thompson frequency response and reference receiver limits	1-96
Table 2-1: Key features of the TDS 500C, 600B and 700C oscilloscopes	2-1
Table 2-2: Record length and divisions per record vs. TDS model ..	2-4
Table 2-3: Nominal traits — Signal acquisition system	2-9
Table 2-4: Nominal traits — Time base system	2-10
Table 2-5: Nominal traits — Triggering system	2-11
Table 2-6: Nominal traits — Display system	2-13
Table 2-7: Nominal traits — GPIB interface, output ports, and power fuse	2-14
Table 2-8: Nominal traits — Data handling and reliability	2-14
Table 2-9: Nominal traits — Mechanical	2-15
Table 2-10: Warranted characteristics — Signal acquisition system	2-18
Table 2-11: Warranted characteristics — Time base system	2-19
Table 2-12: Warranted characteristics — Triggering system	2-20
Table 2-13: Warranted characteristics — Output ports, probe compensator, and power requirements	2-20
Table 2-14: Warranted characteristics — Environmental	2-22
Table 2-15: Certifications and compliances	2-24
Table 2-16: Typical characteristics — Signal acquisition system ...	2-25
Table 2-17: Typical characteristics — Triggering system	2-28