

**Course Name:** T1/DS1 Testing with Fluke QuickBert

**Course Overview:** This course focuses on proper troubleshooting and installation practices as well as an overview of fundamentals utilizing the 635 QuickBERT. Over 60% of this course is hands-on labs and exercises.

**Course Length:** 2 days

**Who should attend:**

- Field Service Technicians
- Switch Technicians
- Design Engineers
- Managers/Field Supervisors
- Field Engineers
- Installers

**You will learn:**

- Understand the basic steps in building a DS1 Signal (Multiplexing, Framing, Coding)
- Set up, operate and interpret results on standard DS1/T1 test equipment
- Efficiently install and test new DS1/T1 transport systems
- Troubleshoot existing DS1/T1 systems to ensure signal quality
- Effectively work with DS1/T1 providers to ensure faulty systems are restored quickly and new systems are installed with standardized acceptance test.
- Describe DS1/T1 test parameters and be able to accurately interpret these parameters at multiple test access points.
- Perform channelized testing on existing systems

**Prerequisites:** None

**Course Fee:**

- 2 day course at a TESSCO Location \$950 per person
- 2 day course at your location \$6,200 for up to 10 attendees

**Customizable:** Yes

**Course Content:**

Product Overview

- Hardware Overview
- Graphical Display
- Buttons
- Connectors

- Battery
- Cables

## DS1 and Industry Standards and Industry Overview

### Building a DS1 Signal

- Muxing
- Framing
- Coding

### DS1 Network Equipment

- CSU, NIU, Span repeaters, Office repeaters,
- DSX-1, DCS, etc

### Framing

- Frame Organization
- D4/Superframing
- ESF framing
- SLC Framing
- Fractional DS1

### Line Coding

- AMI
- B8ZS

### Timing

- Clock Sources
- Timing Options

### SLA (Service Level Agreements)

- MTTR
- Availability

### Installing DS1's

- BERT
- Recommended Stress patterns
- DS1 Test Access
- DS1 loop back Testing
- Straight away testing
- Testing for misoptions

### Maintaining DS1's

- Monitoring Alarms and Errors

### Isolating Troubles

- Test Access points
- DS1 Alarms
- RAI (yellow)
- AIS (alarm indication signal)

#### Performance Monitoring

- BPV's (CV's)
- Frame Errors
- CRC's

#### Network Synchronization Testing

- Timing
- Jitter