

Hands-On

# 5ESS TLWS and Testability Live Virtual

Trunk Line Work Station



## Course Description

This Hands-On course, 5ESS TLWS and Testability, presents metallic (POTS) line testing, Digital ISDN (DSL) testing and basic Message Trunk testing via 5ESS Trunk and Line Work Station (TLWS), Supplementary Trunk and Line Work Station (STLWS) and through 5ESS Input Messages.

The 5ESS TLWS and Testability course begins by presenting electronic theory and how it pertains to telecommunications. This includes basic transmission characteristics and the local loop. The next lesson addresses the 5ESS circuitry and units that are used to perform and request tests via the TLWS, STLWS or through Input Messages. This lesson also includes translations that can impact the operation of the test circuitry. The main point of this course is the TLWS and STLWS Screens and Commands lesson. This is divided into two lessons that address all the TLWS / STLWS screens and their abilities. The first TLWS / STLWS lesson addresses customer Line Testing and the second lesson addresses Trunk Testing. This is followed with a lesson addressing Remote Testing procedures encompassing the Pair Gain Test Controller (PGTC) and Test Bus Control Unit (TBCU).

The last lesson presents 5ESS Input and Output Messages that can be used to request different tests. 5ESS documents are extensively used and referenced through this course.

The objective of 5ESS TLWS and Testability is to present 5ESS TLWS and STLWS testing capabilities, plus train maintenance personnel on testing procedures.

## Students Will Learn

- **Identify Metallic Access (MA) and Metallic Test Bus (MTB) problems based on the failing Diagnostic, Phase and Test**
- **Seize a TLWS / STLWS Test Position**
- **Seize a telephone line or a trunk via a TLWS / STLWS**
- **Perform Voltage, Resistance and Capacitance tests**
- **Perform Distance to Open tests**
- **Perform Supervision, Automatic and Transmission tests**
- **Use the Talk and Monitor on the TLWS / STLWS**
- **Ring a telephone from the TLWS / STLWS**
- **Monitor a telephone origination attempt through the TLWS / STLWS**
- **Monitor Dialed Digits via the TLWS / STLWS**
- **Describe the abilities and operation of the Pair Gain Test Controller and Test Bus Control Unit**
- **Perform line tests via 5ESS Input and Output Messages**
- **And More...**

## Prerequisites

5ESS TLWS and Testability is an entry level course. Because this is an entry level course, the only prerequisite is the willingness to participate in the entire learning experience.

## Course Outline

### Lesson 1 Overview of Basic Electronics

This lesson presents the electronic theory needed for the remainder of this course. The electronic theory presented includes voltage, resistance, capacitance, inductance and frequency. It also defines how this electronic theory pertains to telecommunications. This is followed with telecommunications transmission characteristics. The transmission characteristics are presented based on how they impact the Local Loop to the customers telephone. The lesson includes references to Alcatel-Lucent's Dyna Text 5ESS Switch support documentation and relates procedures in the lesson to the documentation.

### Lesson 2 5ESS Peripheral Units Supporting Lines, Trunks and Used For Testing

This lesson, 5ESS Testing Hardware and Translations, presents the different Peripheral Units commonly available and installed in a Switching Module. It presents their operational and functional structure, power arrangements, and their 5ESS graphical display pages. Key to this lesson is the Metallic Access (MA) circuit pack diagnostic and Metallic Test Bus (MTB) diagnostic, both down to the individual test functions. This lesson includes references to Alcatel-Lucent Dyna Text 5ESS Switch support documentation and relates topics in the lesson to the documentation.

### Lesson 3 5ESS TLWS and STLWS Line Testing

This lesson, TLWS and STLWS Screens and Commands, presents the Trunk Line Work Station (TLWS) and Supplementary Trunk Line Work Station (STLWS) Display Screens and their Commands. The screens / displays are presented based on the telephone type / entity being tested:

Analog Line,

Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) Line,

The Poke Test Commands on each screen are explained including actual examples of many of them. The lesson includes references to Alcatel-Lucent's Dyna Text 5ESS Switch support documentation and relates procedures in the lesson to the documentation.

#### Lesson 4 5ESS TLWS and STLWS Trunk Testing

This lesson, Testing Trunks TLWS and STLWS Screens and Commands, presents Trunk maintenance procedures with the emphasis placed on the testing of trunks. The lesson initially presents 5ESS Switch input and output messages associated with: the status of trunks, trunk lists, trunk tests, and how to change the operational state of a trunk. From this point, the lesson presents different trunk tests and addresses Trunk Testing from the Trunk Line Work Station (TLWS). This includes automatic and manual variations of the tests. The tests presented are: Levels (Loss), Noise, Noise With Tone, Gain Slope, Bit Error Rate Test (BERT), Wink, Quick Wink, On-Hook, Off-Hook, SS7 Signaling, 102 Test and 105 Test. Along with Trunk Testing, this lesson presents a procedure to detect looped facilities. This lesson includes references to Lucent's Dyna Text 5ESS Switch support documentation and relates procedures in the lesson to the documentation. This lesson includes references to Alcatel-Lucent's 5ESS Dyna Text support documentation.

#### Lesson 5 Remote Testing via PGTC and TBCU

This lesson, Remote Testing Capabilities, presents the 5ESS Switch testing of customer lines being served out of Pair Gain devices such as Subscriber Loop Carrier 96 (SLC 96) Remote Terminals and TR/GR 303 Remote Terminals. The lesson addresses both Non Integrated (Universal) Remote Terminal Testing and Integrated Remote Terminal Testing which includes the Pair Gain Test Controller (PGTC), both Conventional and "In-Line", and the Test Bus Control Unit (TBCU). The lesson identifies line testing via the PGTC and TBCU including the operation of both the PGTC and TBCU along with maintenance issues. Alcatel-Lucent's 5ESS Switch Dyna Text support documentation is referenced throughout this lesson.

#### Lesson 6 Additional Messages and Commands to Resolve Customer Problems

This lesson, Input / Output Messages and Testing, presents the verification and testing of customer lines in a 5ESS Switch. The testing presented in this lesson is based on operational tests involving actual calls, Trunk and Line Work Station (TLWS) functions, and Call Traces. The lesson begins by verifying (OP:CONV and Recent Change Views) Office Equipment, Services and Features assigned to a line. Next, the lesson presents Originating and Terminating Call Flow. This is followed with FX Line Testing procedures. The last topic addressed is 5ESS Call Trace procedures. Alcatel-Lucent's 5ESS Switch Dyna Text support documentation is referenced throughout this lesson.

## Delivery Method

Instructor-Led with numerous Hands-On labs and exercises.

## Equipment Requirements

**(This apply's to our hands-on courses only)**

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

## Course Length

3 Days