Nighthawk_{CT} Maintenance

Cohu

Benchtop Portability with ATE Performance
Course # 1200e

Automotive

Consumer

Flat Panel Display

IoT/IoV & Optoelectronics

Industrial & Medical

Wireless/RF

Mobility

Course Description

This eLearning material provides the student with the necessary skills to maintain and install the Nighthawk_{CT} Connectivity RF instrument. The training will provide the student with an overview of the instrument, the theory of operation, accessing help, the installation procedure, and field replaceable units. On completion of the course, the student will be able to describe the components of the Nighthawk; understand the theory of operation, be able to access the help documentation, install the instrument, and be able to identify the field replaceable units. This is accomplished by a combination of multimedia presentations and interactive software demonstrations

Course Outline

- Product Introduction
- Functional Blocks
- Theory of Operation
- Installation on a Diamond 10 Test System
- Field Replaceable Units (FRU)
- Using the Unison System Help

Course Length

- Self-paced – 2 hours typical depending on skill level

Prerequisites

- Three months test program experience
- Successful completion of the Unison Applications Programming class

Recommended

- C or C++ programming
- Familiarity with Linux Operating System
- English - written and spoken

- **Ultra compact RF instrument (0.18 cu.ft.)**
- **Designed to meet complete range of RF connectivity applications**
- **Easy to install - ~30 minutes**
- **Dual configurations can simultaneously test two different connectivity standards**

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Course Modules

1 - Product Introduction

This module is a foundation for the later modules, providing the student with an overview of the Nighthawk$_{CT}$. On completion of this module the student will be able to:

- State on which system types Nighthawk$_{CT}$ can be installed
- State on which device markets Nighthawk meets the test needs
- List the benefits of the Nighthawk$_{CT}$ instrument
- State over which frequencies the Nighthawk$_{CT}$ can be used
- State the intended use of the Arbitrary Waveform Generator
- Describe the number of available AWG and Digitizer resources

2 - Functional Blocks

Using block diagrams of the Nighthawk$_{CT}$ instrument, the student will have each functional component described. On completion of the module the student will be able to:

- List the seven functional blocks within the Nighthawk$_{CT}$
- Identify the purpose of each of the functional blocks
- Be able to state the number of AWG and Digitizer resources
- Be able to describe how the computer and Nighthawk$_{CT}$ instrument communicate
- Identify the output connections of the Nighthawk$_{CT}$ instrument
- Be able to describe how the Nighthawk$_{CT}$ instrument connects to the device interface hardware

3 - Theory of Operation

This module uses the block diagrams previously shown to provide an in-depth description of the Nighthawk$_{CT}$ instrument functionality. On completion of this module the student will be able to:

- Describe the operation of the synthesizer, and the central role it plays in creating the source and capturing the measure data
- Describe how the NighthawkCT creates an RF source signal
- Describe how the NighthawkCT receiver captures the device under test response
- Describe the operation of the AWG in creating modulated RF signals and baseband signals
- Describe the operation of the measure receiver, digitizer, and special features of the Nighthawk$_{CT}$
- Describe how the triggers and markers operate with the AWG and Digitizer
- Describe the operation of the low jitter clock
- State the summarized specifications for the RF Source and RF Measure
- Describe how a second Nighthawk$_{CT}$ instrument is connected to the first Nighthawk$_{CT}$

4 - Installation on a Diamond 10 Test System

Using the Diamond 10 as the example test system, the student will be shown the installation procedure for the Nighthawk$_{CT}$. The Nighthawk$_{CT}$ makes use of a modified device under test interface, with which the student must be familiar. This module explains the connections from the instrument to the device interface hardware, and some considerations when designing a new interface. On completion of this module the student will be able to:

- Identify the steps for successful installation of a Nighthawk$_{CT}$ on a Diamond 10 test system
- Identify the component parts required for a successful installation of Nighthawk$_{CT}$ on a Diamond 10 test system
- Identify the computer required to support Nighthawk$_{CT}$, and how the PCIe interface should be installed
- Identify the input and output connections from the instrument to the device under test interface
- Be able to mount the Nighthawk$_{CT}$ on a Diamond 10 test system
- Be able to connect all required power and communications cables to the Nighthawk$_{CT}$
- Be able to connect the Nighthawk DUT cable assembly
- Describe how to properly connect the Nighthawk cable assembly for best signal propagation
- Identify the location of RF connections on the prototype loadboard
- Identify the location of the connection from the 25-pin D-sub connector on the prototype loadboard
- State the importance of proper connection of cables to the interface hardware
- State the purpose of the Nighthawk ready signal
- Be able to verify correct installation of the Nighthawk$_{CT}$
- Be able to access help documentation on the Nighthawk$_{CT}$ hardware
- Be able to access the Xpedite help system

- **Ultra compact RF instrument (0.18 cu.ft.)**
- **Designed to meet complete range of RF connectivity applications**

- **Easy to install - ~30 minutes**
- **Dual configurations can simultaneously test two different connectivity standards**

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Course Modules (cont)

5 - Field Replaceable Units (FRU)

Following up the installation procedure, the student will be shown which of the components are replaceable in the field, and of those which should be returned for repair, and which should be discarded. On completion of this module the student will be able to:

- Identify the PCIe interface FRU
- Identify all cable FRUs
- Identify which FRUs should be returned for repair
- Identify which FRUs should not be returned for repair
- Identify the power supply FRUs
- Using the Diamond 10 test system, identify the location of the major FRU components

6 - Using the Unison System Help

Unison provides an extensive help system. In this module the student will become familiar with the structure of the help system, and how to navigate to those areas where Nighthawk~CT~ information can be found. On completion of this module the student will be able to:

- Launch the help system from the Operator Tool
- Navigate to the Nighthawk~CT~ instrument manuals
- Create a PDF of the Unison help documents
- Navigate to the application programming instructions (API) documentation
- Be able to determine which APIs apply to the Nighthawk~CT~

At the end of each module the student will be required to pass a test, achieving a score of 75% or more. The student is encouraged to take notes throughout the course, and repeat, or pause the presentation as needed.

Who Should Attend

- Test system maintenance engineers and technicians

Related Classes

- Unison Applications Programming
- Introduction to Unison eLearning
- Diamond Series Basic Maintenance Course #0920

Course Viewing Requirements

To view the course, you must have:

- Browser supporting HTML5
- Audio-listening capabilities (such as a headset or speakers)
- Connection speed of at least 600 kbps

Course Cost

- Free of charge for all Cohu Semiconductor Tester Customers