

ALU Training Curriculum

Pinnacle Wireless

As a preferred vendor, Pinnacle Wireless has received a national contract from Alcatel Lucent, performing “Tower Top” installation Quality Assurance Support. As per this contract, Pinnacle Wireless will be auditing sites built by other general contractors ensuring that the quality of the construction was built in accordance with Alcatel Lucent, as well as Sprint’s standards. Other responsibilities include documenting and/or correcting, in accordance with the scenario at hand, any and all items - whether correct or incorrect. Employees will be required to upload documentation daily to our customer’s database. Other major site tasks include assisting Alcatel Lucent with “Tower Top” testing of the new equipment installed. If the new equipment does not operate as engineered, we will help trouble shoot, fix, or replace any and all components. This is to ensure the site will be cut over seamlessly and with minimal downtime. The ALU Training Curriculum is designed to train our employees to perform these tasks at the highest standards.

TABLE OF CONTENTS

ALU Training.....	4
Lesson Summary	4
Lesson 1: FST Paperwork	5
Objective	5
Materials.....	5
Activities/Procedures	5
Evaluation.....	5
Lesson 2: Basic Equipment	6
Objective	6
Materials.....	6
Activities/Procedures	6
Evaluation.....	6
Lesson 3: Radio Frequency (RF)	7
Objective	7
Materials.....	7
Activities/Procedures	7
Evaluation.....	7
Lesson 4: Fiber.....	8
Objective	8
Materials.....	8
Activities/Procedures	8
Evaluation.....	8
Lesson 5: Power	9
Objective	9
Materials.....	9
Activities/Procedures	9
Evaluation.....	9
Lesson 6: Scenarios	10
Objective	10
Materials.....	10
Activities/Procedures	10
Evaluation.....	10
Lesson 7: Testing	11
Objective	11
Materials.....	11
Activities/Procedures	11
Evaluation.....	11

Lesson 8: Weatherproofing & grounding	12
Objective	12
Materials	12
Activities/Procedures	12
Evaluation	12
Lesson 9: FST Paperwork (revisited)	13
Objective	13
Materials	13
Activities/Procedures	13
Evaluation	13
Lesson 10: Troubleshooting	14
Objective	14
Materials	14
Activities/Procedures	14
Evaluation	14
Lesson 11: Job Breakdown Analysis	15
Objective	15
Materials	15
Activities/Procedures	15
Evaluation	15
Method of Procedure & Daily Tasks	16
Common problems and corrected solutions	16

ALU Training

Lesson Summary

Lesson 1: FST Introduction

Employees will learn to navigate the FST website for general site information, including site address, documents for review, and GC photos by successfully completing a mock site assignment.

Lesson 2: Basic Equipment

Employees will engage in activities to identify general cellular site equipment by successfully completing a matching evaluation.

Lesson 3: Radio Frequency (RF)

In this lesson, employees identify and install the RF components of a given scenario for a specific sector of cellular site equipment by demonstrating the proper assembly procedure.

Lesson 4: Fiber

Components of fiber and various types of fiber will be addressed in this lesson. Employees learn ways to handle, clean, connect and scope fiber by completing a hands-on activity.

Lesson 5: Power

Cables are the emphasis in this lesson. Employees learn to identify color code power cables, terminate power cable, C-tap power cables, test power cables, and handle power cables.

Lesson 6: Scenarios

Employees learn to navigate the FST website to locate on-site scenarios, print and analyze for up-to-date information.

Lesson 7: Testing

Trainers instruct employees will be able to test fiber and sweep test RF components by completing an observed demonstration.

Lesson 8: Weatherproofing and grounding

Employees learn how to weatherproof connections by using the 3 approved ALU methods, differentiate between proper and improper method of weatherproofing, and properly ground all ALU components to ALU network vision standards

Lesson 9: FST Paperwork (revisited)

Employees will be able to properly complete a QA/QC form & navigate FST website to upload missing photos, upload photos of corrected issues, and upload QA/QC documents.

Lesson 10: Troubleshooting

Trainers and employees engage in a discussion outlining common and rare issues discovered. Emphasis will be placed on strategy, technique and resources to successfully troubleshoot problems in the field.

Lesson 11: Job Breakdown Analysis

Employees recognize the expectations for their daily job duties by following outlined procedures presented by trainer.

Lesson 1: FST Paperwork

Objective

Employees will be able to navigate the FST website for general site information, including site address, documents for review, and GC photos by successfully completing a mock site assignment.

Materials

- projector
- laptops
- employee login for FST
- printer
- note cards, prepared with activities

Activities/Procedures

1. Trainer will conduct a general introduction of him/herself, along with ALU background, lesson objectives and brief overview of curriculum. Trainer will present a completed binder of activities employees will have at the end of the training.
2. Trainer will show login page for FST website and demonstrate logging in using employee login and password.
3. Trainer will show example of locating a current project.
4. Trainer will demonstrate example of locating a current region.
5. Trainer will demonstrate example of locating general site information.
6. Trainer will demonstrate example of locating specific site information (initial photo checklist, uploaded photos by gen. contractor, RF data sheets, final construction documents).
7. **Note card activity:** trainer will hand out a note card to each employee. Each note card contains a task the employee must complete by using the FST website. Each employee will demonstrate the task to the class by using the laptop connected to a projector.
8. Site assignment evaluations

Evaluation

1. Trainer will observe employees during the note card activity for accurate location of information.
2. Each employee will complete a real-world assignment, locating essential information utilizing the FST website.



Safety Tip:

1. ***Make sure you check for any task updates in FST. This is where new scenarios will be listed***



BINDER ITEMS: Graded real-world assignment, along with printed PowerPoint slides (?-?)

Lesson 2: Basic Equipment

Objective

Employees will be able to identify general cellular site equipment by successfully completing a matching evaluation.

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- General cellular site equipment checklist
- Matching evaluation

Activities/Procedures

1. **Presenting equipment:** trainer will begin class by passing out the general cellular site equipment checklist.
2. Trainer will present, identify and explain individually each piece of equipment and its uses to the class.
3. Trainer will ask for uses of equipment, requiring employees to use their general cellular site equipment checklist to answer.
4. Trainer will pass around each piece of equipment for the employees to observe.
5. Upon completing presentation of equipment, trainer will ask the class to identify selected pieces by holding up and asking for name and uses.

Evaluation

1. Trainer will observe employees during the identification activity for accurate name and uses of equipment.
2. Each employee will complete a matching activity to correctly identify names of general cellular site equipment.



Safety Tip:

1. *Use proper lifting technique (legs) when handling heavy equipment.*
2. *When working at heights, make sure equipment is tied off properly*



BINDER ITEMS: Graded matching evaluation, along with printed PowerPoint slides (?-?)

Lesson 3: Radio Frequency (RF)

Objective

Employees will be able to identify and install the RF components of a given scenario for a specific sector of cellular site equipment by demonstrating the proper assembly procedure.

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- Torque wrench

Activities/Procedures

1. Trainer will review the RF components from the Basic Equipment list (lesson 2).
2. Trainer will show a completed RF scenario.
3. Trainer will discuss bend radius and support.
4. Trainer will demonstrate the proper procedure of assembling RF scenario in the correct sequence, from head (RRH) to antennae. (*scenarios may vary*)
5. Assembling activity: trainer and employees will assemble multiple RF scenarios, step-by-step, as employees follow along, assembling their own RF scenarios.

Evaluation

1. Trainer will observe employees during assembly activity.
2. On separate day, employees will be given various scenarios to which they must assemble correctly with no assistance.



Safety Tip:

1. *Make sure RF is not radiating when disconnecting jumpers, RF burn could occur.*
2. *Use RF monitor to avoid exposure to RF radiation.*



BINDER ITEMS: printed PowerPoint slides (?-?)

Lesson 4: Fiber

Objective

1. Employees will be able to identify components of fiber and various types of fiber.
2. Employees will be able to demonstrate ways to handle, clean, connect and scope fiber by completing a hands-on activity.

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- Matching evaluation
- Fiber testers

Activities/Procedures

1. **Presenting equipment:** trainer will begin class by introducing components of fiber and various types of fiber using a PowerPoint and physical fiber equipment.
2. Trainer will present and discuss a more specific, in-depth view of fiber using PowerPoint.
3. **Demonstration activity:** trainer will demonstrate strategies to handle, clean, connect and scope fiber to the class as students follow along, emulating strategies taught.

Evaluation

1. Trainer will observe employees during assembly activity.
2. On separate day, employees will be given various scenarios to which they must assemble correctly with no assistance.



Safety Tip:

1. *Do not look directly into the light – eye damage could occur.*



BINDER ITEMS: Copy of matching evaluation, along with printed PowerPoint slides (?-?)

Lesson 5: Power

Objective

Employees will be able to:

- Identify color code power cables
- Terminate power cable
- C-tap power cables
- Test power cables
- Handle power cables

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- Volt meter

Activities/Procedures

1. **Presenting equipment:** trainer will begin class by presenting a PowerPoint presentation describing proper plumbing, landing and dressing technique.
2. Trainer will demonstrate how to identify labeling of power cables.
3. Trainer will distribute actual power cables
4. Trainer will discuss termination and C-tapping strategies.
5. **Demonstration activity:** trainer will demonstrate strategies to test for proper voltage (-48) of power cables.

Evaluation

1. Trainer will observe employees during assembly activity.
2. On separate day, employees will be given various scenarios to which they must assemble correctly with no assistance.



Safety Tip:

1. *Make sure breakers are turned off while working with power to avoid electrical shock.*
2. *Verify power is turned off with your multimeter.*



BINDER ITEMS: printed PowerPoint slides (?-?)

Lesson 6: Scenarios

Objective

Employees will be able to navigate FST website to locate on-site scenarios.

Materials

- PowerPoint with images of equipment
- Projector
- Laptops
- Printer
- Scenario Location Worksheet

Activities/Procedures

1. Trainer will demonstrate navigating to FST website and logging in as employees do the same using laptops.
2. Employees will practice locating and printing scenarios as instructed by trainer.
3. Employees will complete the Scenario Location Worksheet.

Evaluation

1. Trainer will observe and score employees during scenario location activity.



Safety Tip:

1. *Check the wiring diagram for proper scenario per sector, then double-check diagram to verify.*



BINDER ITEMS: printed PowerPoint slides & printed scenarios

Lesson 7: Testing

Objective

Employees will be able to test fiber and sweep test RF components by completing an observed demonstration.

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- Fiber test gear (ODM)
- Sweep test (Anritsu)
- Equipment identification handout

Activities/Procedures

1. **Presenting equipment:** trainer will begin class by presenting and describing ODM fiber tester and all its components.
2. Trainer will present and describe Anritsu components.
3. Trainer will demonstrate connecting an ODM tester to fiber and conducting a power meter test.
4. Trainer will demonstrate connecting a fiber scope to scope the fiber tip.
5. **Demonstration activity:** trainer will demonstrate strategies to connect ODM tester and fiber scope to the class as students follow along, emulating strategies taught.
6. Trainer will demonstrate how to turn on, calibrate, set frequencies, test and save sweep tests using an Anritsu

Evaluation

1. Trainer will observe employees during Demonstration activity.
2. Employees will correctly complete the Equipment identification handout.



Safety Tip:

1. **Verify all equipment calibration being used for testing is up-to-date. Otherwise, all tests using out of date equipment could be void.**



BINDER ITEMS: Equipment identification handout and printed PowerPoint slides (?-?)

Lesson 8: Weatherproofing & grounding

Objective

Employees will be able to:

- Weatherproof connections by using the 3 approved ALU methods
- Differentiate between proper and improper method of weatherproofing
- Properly ground all ALU components to ALU network vision standards

Materials

- General cellular site equipment provided by ALU, RFS, and Pinnacle
- PowerPoint with images of equipment
- Projector
- Matching evaluation

Activities/Procedures

1. **Presenting equipment:** trainer will begin class by using PowerPoint to present proper and improper weatherproofing methods across the 3 approved methods.
2. Trainer will demonstrate the 3 approved methods to the class:
 - buttle and tape
 - magic tape and tape
 - cold shrink with foam
3. **Hands-on:** Employees will weatherproof connection using one of the three methods, as instructed by trainer.
4. Trainer will present PowerPoint presentation of proper grounding technique.
5. Trainer will demonstrate proper grounding technique.
6. **Demonstration activity:** employees will use proper grounding technique to ground a site as instructed by trainer.

Evaluation

1. Trainer will observe employees during Hands-on and Demonstration activities.
2. Employees will be given Matching Evaluation.



Safety Tip:

1. *Use proper PPE while using tools to avoid injuries.*
2. *Always cut away from your body.*



BINDER ITEMS: Matching evaluation & printed PowerPoint slides

Lesson 9: FST Paperwork (revisited)

Objective

Employees will be able to properly complete a QA/QC form & navigate FST website to:

- Upload missing photos
- Upload photos of corrected issues
- Upload QA/QC documents

Materials

- Projector
- Laptop
- QA/QC forms for evaluation

Activities/Procedures

1. Using laptop and projector, trainer will show login page for FST website and demonstrate logging in using employee login and password.
2. Trainer will show example of locating a current project.
3. Trainer will demonstrate example of locating a current region.
4. Trainer will demonstrate example of locating general site information.
5. Trainer will demonstrate example of locating specific site information (initial photo checklist, uploaded photos by gen. contractor, RF data sheets, final construction documents).
6. Trainer will demonstrate how/where to upload complete QA/QC form.

Evaluation

1. Trainer will distribute sample QA/QC forms for employees to complete and evaluate previously completed sectors. Upon completion, trainer will review forms with employees.



Safety Tip:

1. *Before leaving site, be sure all information is properly uploaded to FST*



BINDER ITEMS: printed PowerPoint slides (?-?)

Lesson 10: Troubleshooting

Objective

Trainers and employees will engage in a discussion outlining common and rare issues discovered. Emphasis will be placed on strategy, technique and resources to successfully troubleshoot problems in the field.

Materials

- PowerPoint with images of equipment
- Projector

Activities/Procedures

1. Trainer will use PowerPoint for visual aid in describing common issues in the field.
2. Trainer will encourage employees to discuss possible solutions to troubled sites.
3. Trainer will reinforce correct technique in troubleshooting.

Evaluation

1. Trainer will observe employees discussion.



Safety Tip:

1. *Be aware of your environment and what is being tested to insure you are following proper protocol.*



BINDER ITEMS: MOP and printed PowerPoint slides

Lesson 11: Job Breakdown Analysis

Objective

Employees will recognize the expectations for their daily job duties by following outlined procedures presented by trainer.

Materials

- PowerPoint with images of equipment
 - Projector
 - Handout of proper procedures
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Activities/Procedures

1. Trainer will use PowerPoint for visual aid in describing common issues in the field.
 2. Trainer will encourage employees to discuss possible solutions to troubled sites.
 3. Trainer will reinforce correct technique in troubleshooting.
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Evaluation

Trainer will observe employees discussion.



BINDER ITEMS: Method of Procedure & Daily Tasks and printed PowerPoint slides

Method of Procedure & Daily Tasks

Common problems and corrected solutions

Common problem: Pictures being uploaded to FST are commonly blurry, making it difficult to verify information.

Correct MOP:

1. Make sure you hold the camera very still while taking photographs.
2. Make sure natural light is behind you or the photo will be washed out.
3. After taking photo, review photo within the LED screen of the camera to insure clear details.

Common problem: QA forms are not being uploaded to FST.

Correct MOP:

1. After QA form(s) are completed, immediately use your issued laptop and air card to upload forms to FST site.
 2. Whether tower top test is completed or not, form **MUST** be completed **AND** uploaded to FST **before leaving site**
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