



## PRIMUS TRAINING CLASSES

Andrew Solutions | Anritsu | CITCA | Harger | Bird Technologies

A large, 3D geometric graphic composed of several interconnected planes in shades of orange, grey, and yellow. The year "2011" is printed in a large, black, sans-serif font on one of the orange planes.

2011

## Andrew Solutions

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## Teletilt® Systems – Remote Controlled Variable Electrical Downtilt Antenna

Cost: Free

### Course Description

Andrew Institute now offers a training class on RET – remote-controlled variable electrical downtilt antennas – featuring our Teletilt® system. For anyone who works with communications systems, this hands-on course is a must attend.

The half-day class covers defining downtilt through final inspection. RET training is offered in combination with a half-day class on VSWR fundamentals. Classes are scheduled at the Andrew Joliet, Illinois, facility once each month. Training and class materials are free to students who attend classes in Joliet. Andrew also provides on-site training around the world and can customize classes to meet any level of technical need.

Andrew Institute® is recognized around the world as the industry leader in telecommunication product training. Attendees learn antenna fundamentals and participate in hands-on installation of actuator, data cables, and control system. Attendees leave with a better understanding of Andrew base station antenna products.

### Attendees Should Include:

- Installers
- Project managers
- Field engineers
- Anyone who works directly or indirectly with a communications system

### Benefits of Technical Training

- Obtain the highest possible performance with every Andrew product installed
- Gain an understanding of how components work together
- Through hands-on practice

### Course Outline

- What is downtilt
- Difference between mechanical and electrical downtilt
- RET system
- System hardware components
- Antennas and system configurations
- Lightning protection
- Actuator installation
- Device configuration and operation
- Final inspection

### Become a Registered Installer

More and more, customers are mandating that technicians installing their systems complete technical training such as that offered by the Andrew Institute. Upon completion of Andrew Institute training, attendees are registered with Andrew as having completed Institute coursework and having been trained and instructed in the proper manner of handling Andrew products.

### Available Locations

Joliet, IL | Sorocaba, Brazil | Suzhou, China | and On-Site

*Please note: When attending Remote Control Variable Electrical Downtilt Antenna (Teletilt® Systems) training at our location, attendees will also be registered for our VSWR Fundamentals course.*

Cost: Free

### Course Description

Andrew customers can get the most from their communications systems with training from the Andrew Institute®. Recognized around the world as the industry leader, the Andrew Institute provides top-quality, specialized training. Andrew customers worldwide who require assistance with fitting cables and connectors or who would benefit from expanded technical training will learn all aspects of smoothwall and corrugated transmission line installation and techniques.

### Who Should Attend?

- Installers
- Project managers
- Field engineers
- Anyone who works directly or indirectly with a communications system

### Benefits of Technical Training

- Obtain the highest possible performance with every Andrew product installed
- Gain an understanding of how components work together
- Through hands-on practice, learn to properly assemble connectors and accessories
- Learn the proper techniques of installing smoothwall and corrugated cables

### Course Outline

- Overview of Cable Concepts
  - Basic RF theory
  - Product overview
- Connector Attachment
  - Foam dielectric cables - FSJ4, LDF4, FXL 780, AVA5, & AVA7
  - Positive Stop™ and EZfit® connectors
- Accessory Discussion
  - Grounding tool kit
  - SureGround™ kit
  - SureGround Plus™ kit
  - Cable preparation tools
  - Hoisting / support grip
  - Weatherproofing kit
  - Hangers

### Become a Registered Installer

More and more, customers are mandating that technicians installing their systems complete technical training such as that offered by the Andrew Institute. Upon completion of Andrew Institute training, attendees are registered with Andrew as having completed coursework and having been trained and instructed in the proper manner of handling Andrew products.

### Available Locations

Joliet, IL | Sorocaba, Brazil | Suzhou, China | and On-Site

Cost: Free

Andrew customers worldwide can improve the efficiency and effectiveness of their terrestrial microwave (TMW) systems with free specialized training on all aspects of installing and testing Andrew products. At the Andrew Institute® communications technology training workshops, we use hands-on instruction to teach the most current assembly and installation techniques. Covering topics that range from microwave as a communication medium to de-rigging and site cleanup, our new TMW communications technology training is certain to raise the expertise and effectiveness of those who attend.

#### Who Should Attend?

- Installers
- Project managers
- Field engineers
- Anyone who works directly or indirectly with a communications system

#### Benefits of Technical Training

- Obtain the highest possible performance with every Andrew product installed
- Gain an understanding of TMW systems fundamentals
- Practice proper assembly and installation of Andrew TMW antennas
- Learn the essential elements of path alignment
- See the proper techniques of installing elliptical waveguides
- Understand the theory of Dryline® dehydrator operation and how to apply it to a TMW system

#### Course Outline

##### Overview of TMW Concepts

- Basic RF theory - TMW fundamentals

##### Basic Installation Practices

- Basic rigging techniques-communication on a TMW site
- Basic knot tying - Andrew catalog and installation bulletins

##### Site Survey

- Review of documentation (scope of work, bill of materials, path data sheets, etc.)
- Importance of planning ahead/what you should look for

##### Antenna Assembly

- Uncrating antennas/material inventory
- Hands-on antenna assembly

##### Antenna Installation

- Overview of techniques with Hands-on installation

##### MTL Component Assembly and Installation

- Physical characteristics of waveguide
- Microwave transmission line component assembly
- Video on attaching elliptical waveguide connectors
- Forming elliptical waveguide
- Hoisting and installing elliptical waveguide

##### Path Alignment

- Mechanical/electrical - calculation of path loss
- Practical exercises

##### Pressurization

- Theory of DryLine® dehydrator operation
- Installation of pressurization equipment - finding air leaks

##### Completing the Installation

- Fundamentals of VSWR - use of checklists
- Ensuring an aesthetically pleasing, quality installation

#### Become a Registered Installer

More and more, customers are mandating that technicians installing their systems complete technical training such as that offered by the Andrew Institute. Upon completion of Andrew Institute training, attendees are registered with Andrew as having completed coursework and having been trained and instructed in the proper manner of handling Andrew products.

#### Available Locations

Joliet, IL | Sorocaba, Brazil | Suzhou, China | and On-Site

Cost: Free

### VSWR Fundamentals

Andrew customers worldwide can improve their overall system performance by attending the Andrew Institute® to learn sweep interpretation by using interactive presentations and hands-on exercises. During the VSWR Fundamentals course, attendees will learn definitions, testing guidelines, and plot, sweep interpretation.

### Who Should Attend?

- Installers
- Project managers
- Field engineers
- Anyone who works directly or indirectly with a communications system

### Benefits of Technical Training

- Obtain the highest possible performance with every Andrew product installed
- Gain an understanding of TMW systems fundamentals
- Learn the essential elements of path alignment

### Course Outline

- Overview of typical site configuration
- Learn definitions
- Testing guidelines
- Setup equipment and test cables for VSWR/return loss, insertion loss and DTF
- Things to consider
- Plot / sweep interpretation
- Troubleshooting

### Become a Registered Installer

More and more, customers are mandating that technicians installing their systems complete technical training such as that offered by the Andrew Institute. Upon completion of Andrew Institute training, attendees are registered with Andrew as having completed coursework and having been trained and instructed in the proper manner of handling Andrew products.

### Available Locations

Joliet, IL | Sorocaba, Brazil | Suzhou, China | and On-Site

2 Day Course from 8 a.m. to 5 p.m.

Lifetime Certification

Cost: \$1,350.00 pp

### Course Overview

This intense, hands-on course focuses on RF-line sweep theory, technology, and practical applications. Students will learn the skills necessary to install, test, and maintain RF cable feed lines and antenna systems and gain unique insights to line sweeping projects. Upon successful completion of the course, which includes a certification exam, students will receive a Site Master Certificate of Completion along with a photo identification card.

### Attendees should include:

- Wireless Carriers
- Base Station OEMs
- Tower Companies
- Field Engineers
- Installers
- Site Managers

### Students will learn:

- Technical aspects of line sweeping
- How to set up a line sweep
- How cable length, cable type and system components affect line sweep measurements
- How to use DTF to get accurate and meaningful distance to fault results
- How to identify, locate, document, and resolve cable line transmission faults

Cost: Free

These courses are offered at no charge thru Anritsu. All you need to do is register for the course(s) on Anritsu's website. Registration will give you access for 30 days and you can view the course as often as you like.

#### Site Master Line Sweep Web-Based eLearning Course

This on-line course provides training on the basics of line sweeping and operation of Site Master. A virtual Site Master is featured with an operational front panel with a working virtual display and keypad. Narration (in English), closed captioning, virtual labs and quizzes are also available within the course. *This is not a certification course.*

#### Line Sweep Interpretation Web-Based eLearning Course

On-line course that provides training on how to interpret Line Sweep data and how to use Handheld Software Tools and Master Software Tools. It includes instruction on important technical terms, how a Line Sweep measurement is made, what reflections look like and how to determine if they are in spec or not. Quizzes and a demo of Handheld Software Tools and Master Software Tools are included. *This is not a certification course.*

#### Protecting Performance eLearning Course

This on-line course provides training on maximizing the life of your handheld test equipment such as the Site Master, calibration components and power sensors. This 15 minute course will show you how to avoid common mistakes that users make that ultimately lead to damaged test equipment. The course is narrated in English and includes a short quiz. A passing score results in the opportunity to print a training certificate.

#### Site Master TMA Measurements Web-Based eLearning Course

Free on-line course that provides training on performance verification of Tower Mount Amplifiers. You will learn how to make Gain and Return Loss measurements of TMAs using Anritsu Site Master. Learn how to determine if a TMA is in working properly. The course includes quiz questions and the opportunity to print a training certificate at the end of the course if you pass the test.

#### Master Software Tools (MST) Web-based eLearning Course

This on-line course provides training on use of Master Software Tools (MST). Master Software Tools is a powerful PC software post-processing tool included with instruments and is designed to enhance the productivity of technicians in report generation and data analysis. This course covers features related to Line Sweeping.

#### Introduction to Spectrum Analysis Web-based eLearning Course

This on-line course provides training on the basics of spectrum analysis. It is a beginner level course and there are no prerequisites. A virtual spectrum analyzer is included and is used for virtual labs in a demonstration of key concepts. Narration (in English), closed captioning and quizzes are also available in the course.

All of the above courses can be accessed online at [www.anritsu.com](http://www.anritsu.com)

8 Hour Class

Cost: \$429.00 pp

### Course Overview

The Authorized Climber program is designed to prepare individuals with little or no experience to be able to safely climb and work on various types and sizes of towers. This course combines the cognitive and the psychomotor domains of training, which assures that the student will develop the knowledge base necessary to safely climb and work on towers, as well as the practical skill sets necessary to be able to safely perform his or her duty.

### Students will learn

- Regulatory safety standards
- Basic skills necessary for safe tower work
- Equipment commonly used
- engineering and work practice controls
- return demonstrations

### Upon successful completion, the student shall

- Demonstrate proper knowledge, understanding, and application of the equipment used, as well as safe practices to be employed at all time that he or she is working on the tower
- Receive a wallet certification card

### Multiple Student Discount

2-5 students (\$399 pp)

6+ students (\$379 pp)

24 Hour Class, Two 12-hr days

\$1,399 pp

### Course Overview

This course exceeds the minimum requirements set by OSHA for the tower erection industry. Course contents includes, but is not limited to: rescue training, knowledge of fall arrest systems, anchors, and Accident Reporting procedures. The course is taught by vertical rescue specialists and experts in the tower erection and rescue industry.

*Course exceeds the minimum requirements set by OSHA for the tower erection industry.*

### Upon successful completion, the student shall

- Describe situations where there should be a need for self and/or assisted rescues
- Define and describe Full Restraint Systems
- Define and describe Fall Arrest Systems
- Describe the use of all hardware and harnesses used by the AHJ Tie and define the uses of 13 different knots/hitches
- Tie and describe the uses of three types of Hasty Harnesses
- Describe what creates forces on anchors and how they can be magnified or reduced
- Define the purposes of Directionals
- Describe how rope and/or webbing are employed in anchor systems
- List suitable and unsuitable anchor points with the following areas: buildings, vehicles, environmental
- Describe circumstances where multiple anchors are needed
- Describe the concept of load sharing/self equalizing anchors
- Describe and demonstrate proper climbing techniques
- Describe the AHJ and local policy for emergency rescue
- Describe the AHJ and the local Accident Reporting and Investigation Process
- Describe the AHJ and the local Incident Command Structure for handling an emergency

### Multiple Student Discount

2-5 students (\$1,299 pp)

6+ students (\$1,099 pp)

### Course Overview

Training is a critical component in safe work practices. It is an expensive component as well. And sometimes, scheduling training around work schedules and client deadlines is nearly impossible. CITCA's Train the Trainer program gives you the opportunity to have your own employees trained as CITCA instructors, and allows you to offer CITCA's acclaimed training courses as an in-house program, using your instructors, at your facility, at your convenience, and at a substantially less cost. At the same time, upon completion, your employees still receive CITCA certification, which is recognized and accepted across the nation.

### Two Courses Offered

CITCA offers two Train the Trainer programs<sup>1</sup>:

#### **Authorized Climber Train the Trainer**

Cost: \$799

Trains the instructor to teach Authorized Climber, a one day certification course that teaches basic tower climbing and tower safety techniques.

#### **Tower Rescue / Competent Climber Train the Trainer**

Cost: \$799

Trains the instructor to teach Tower Rescue and Competent Climber, a twenty four hour course that provides training in advanced tower climbing techniques, as well as lifesaving training in techniques of self-rescue and partner rescue.

<sup>1</sup> All CITCA instructors must first hold CITCA certification in the class they are being trained to teach

8 Hour Class

Cost: \$429 pp

### Course Objectives

This 8-hour course will teach and expose the student to the basic techniques and standards necessary to erect the most common communication towers, utilizing industry standards applicable to basic tower erection.

### Referenced Standards

OSHA 1910.66 – Powered Platforms, Manlifts and Vehicle-mounted work platforms  
 OSHA 1910.183 – Helicopters  
 OSHA 1910.184 – Slings  
 OSHA 1296.550 – Cranes and Derricks  
 OSHA 1926.750 – Steel Erection  
 OSHA 1926.751 – Structural Steel Assembly  
 OSHA 1926.752 – Steel Erection – Bolting, Riveting, Fitting-up, and Plumbing-up  
 EIA/TIA 222 – Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

### Course Outline

This course, as prescribed by industry and manufacturers standards, will teach workers in the tower erection industry the preferred safest methods and techniques to erect the most common communication towers. To achieve compliance, the required course content includes:

1. Pre-Job Safety - 60 minutes
  - Pre-Job Survey
  - Hazard Identification
  - Pre-Job Inspection
  - Safety Meetings
2. Pre-Tower Erection (classroom & hands-on) - 90 minutes
  - Off-loading Tower Steel
  - Inventory and Preparation
  - Pre-assembly on Ground
  - Task Assignments
  - Tower Erection Plan
3. Life Equipment/Devices – 90 minutes
  - Powered Platforms, Manlifts
  - Vehicle-mounted Work Platforms
  - Cranes, Hoists
  - Gin Poles
  - Winches
  - Helicopters
  - Slings
4. Communications and Interfacing – 60 minutes
  - USA Standard Hand Signals
  - Radio Communications
  - Alternate Communications
5. Tower Designs – 60 minutes
  - Self-Support Towers
  - Monopole Towers
  - Guyed Towers
  - Other Tower Structures
6. Tower Assembly – 120 minutes
  - Foundations and Anchor Bolts
  - Anchor Blocks and Points
  - Single Section Assembly
  - Multiple Section Assembly
7. Final Exam

8 Hour Class

Cost: \$399 pp

### Course Objectives

This 8-hour course will teach the student industry standards applicable to most tower-related rigging techniques.

### Course Content

This course, as prescribed by The Crosby Group, Inc. provides rigging standards, uses and applications for slings, shackles, and hooks to workers in the construction industry in order to impart the most efficient and safe methods of use. To achieve compliance, the required course content includes:

1. The Basic Rigging Plan – 30 minutes
  - The Basic Rigging Standards
  - Common Rigging Problems
  - The Basic Rigging Plan
  - Rigging Gear Performance
2. Slings and Their Capacities – 60 minutes
  - The Basic Hitches
  - Sling Capacities
  - Evaluation of the Hitches
3. The Rigging Triangle – 60 minutes
  - The Center of Gravity
  - The Horizontal Sling Angle
  - Sling Loading
4. Application of Hardware – 45 minutes
  - Shackles
  - Hooks
  - Links and Rings
  - Evaluation of Hardware Connections
5. Load Control – 45 minutes
  - Rigging to Center of Gravity
  - Load Stability
  - Estimating the Center of Gravity
  - Hitches and Load Control
6. Final Exam

8 Hour Class

Cost: \$429 per person

### **Part 1: Site and Equipment Signage**

#### **Course Objectives**

This course combines RF safety and site and equipment signage, as prescribed by industry and OSHA standards, trains students in the telecommunication construction industry the recommended site and equipment associated signage and hazard communication to be utilized on the typical communications construction job site to assure personnel and equipment safety. Students are also trained in RF hazards, and ways to protect themselves from RF health and safety risks.

#### **Referenced Standards**

OSHA 1910.1200 – Hazard Communication

OSHA 1910.1201 – DOT Markings Placards and Labels

OSHA 1910.144 – Marking Physical Hazards

OSHA 1910.147 – Lockout – Tagout

DOT 49 CFR – Hazmat Regulations

### **Part 2: RF Safety**

#### **Course Content**

This course, as prescribed by industry and OSHA standards, will teach workers in the telecommunications construction industry the recommended site and equipment associated signage to be utilized on the typical communications construction job site.

#### **To achieve compliance, the required course content includes**

Construction Site Signage and Information

- Emergency Contact/Response Information
- Material Safety Data Sheets
  - Hazard Communication Labels/Signs
- Signage and Labeling
  - Workplace Safety Signage
  - Site/Work Zone Signage
  - Equipment Signage – Capacity Charts/Graphs
  - Transport Safety Signs
  - Traffic Control – Flagger Safety
  - Tower Signage – Hand Signals
  - Confined Space Signage
  - Utility Safety Signage
  - Fire Safety Signage
  - Personal Protection Signs/Symbols
- Final Exam

8 Hour Class

Cost: \$429 pp

### Course Overview

This 2 part course combines CPR/AED/First Aid with Protection From Bloodborne Pathogens. This course follows the prescribed requirements of the American Heart Association and is designed to meet the requirements of OSHA 1910.1030, the Bloodborne Pathogens standard. While it is recognized that tower erectors face minimal risk of exposure to bloodborne pathogens, they do occasionally provide basic first aid to co-workers who might be injured on the job, and require proper training to acclimate themselves to the risks, and to prevent any occupational exposure from occurring.

### Part 1: CPR/AED/First Aid

#### Course Content

This course follows the prescribed requirements of the American Heart Association. The content of this course is prescribed by the American Heart Association, and will be taught to their curriculum requirements.

### Part 2: Protection from Bloodborne Pathogens

#### Course Objectives

This course is designed to meet the requirements of OSHA 1910.1030, the Bloodborne Pathogens standard. While it is recognized that tower erectors face minimal risk of exposure to bloodborne pathogens, they do occasionally provide basic first aid to coworkers who might be injured on the job, and require proper training to acclimate themselves to the risks, and to prevent any occupational exposure from occurring.

#### To satisfy OSHA 1910.1030, upon completion of this course, the student shall

1. Understand the exposure control plan as presented, and shall be able to explain methods of compliance.
2. Be able to identify specific tasks that may result in an occupational exposure to bloodborne pathogens.
3. Understand work practice controls and engineering controls used to prevent an occupational exposure to bloodborne pathogens.
4. Identify all personal protective equipment needed, and shall demonstrate proper donning and doffing techniques.
5. Be able to explain proper disposal requirements for contaminated clothing and articles.
6. Be able to explain reporting requirement for occupational injuries, including occupational exposures to bloodborne pathogens.

10 hour course (2-days)

Cost: \$429 pp

### Course Description

This course, as prescribed by OSHA, provides safety training to workers in the construction industry in basic hazards they are normally faced with. To achieve compliance, this course includes the required OSHA course content and is instructed by OSHA certified instructors. Meets the requirement for OSHA 1926.21 for the construction industry.

### Course Content

This 10-hour two-day course, as prescribed by OSHA, provides safety training to workers in the construction industry in basic hazards they are normally faced with. To achieve compliance, required course content includes

- Introduction to OSHA
- The OSHA General Duty Clause
- Review of OSHA 1926
- Review of OSHA training requirements for the construction industry
- Hazard Communications
- Electrical Safety
- Personal Protective Equipment
- Hand and Power Tools
- Stairways and Ladders
- Fall Protection
- Motorized Vehicles and Mechanical Equipment
- Materials Handling and Safe Lifting
- Cranes, Derricks, Hoists

### Notes

For certification purposes, all courses will be taught by OSHA Outreach instructors.

100 minute presentation

Cost: Free

### Course Overview

The purpose of this presentation is to cover the approaches taken and products used for grounding wireless communication sites. Focus is placed on the different types of ground electrodes used and recommendations for difficult grounding conditions. Ultraweld exothermic connections are discussed as well as consideration for different types of ground conductors. Ground system design considerations are discussed including soil conditions and site conditions/applications such as raw land, co-locate, and rooftop. Ground test procedures are also reviewed.

### To Register

Visit Harger's website at [www.harger.com](http://www.harger.com)

## Ultraweld Exothermic Welding PowerPoint Presentation and Certification Training

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180 minutes (presentation and hands-on)

Cost: Free

### Course Overview

The purpose of this presentation is to provide an understanding of the Ultraweld exothermic welding process. The exothermic welding process is presented as a means of making permanent electrical grounding connections. The tools required to make a connection as well as the inspection process are discussed. Course includes hands-on training as part of the certification process.

### To Register

Contact Primus at (800) 435-1636. Course is available for on-site training.

2 Day Course

Cost: TBD

### Course Overview

Signal investigation techniques have never been easier with the use of portable equipment including the Bird Signal Hawk. The Signal Hawk is a hand held spectrum analyzer which will aid in understanding the RF environment in an area or the RF output of a device. Training on the Signal Hawk includes much more than the basic use of the unit; it also includes training in RF theory, communication systems and signals, noise sources, causes and interference, signal levels and power measurement, channel and adjacent power measurement, modulation types, filters, signal integrity, and a great deal more are included in the class. The class also folds in engineering math in the explanation of decibels, dBm and other measurements in relation to RF power measurement.

The class primarily focuses on the Bird Signal Hawk and its initial implementation as a spectrum analyzer. Each student will be supplied with appropriate test equipment, but are encouraged to bring their own unit and to bring any and all questions they may have on signal analysis. The class will assume all students coming in at an entry level with full explanation of basics and progressing from there. The course is designed for all levels of understanding and expertise.

### Attendees should include:

- Field Engineers
- Shop Technicians
- Design Engineers
- Communications Contractors
- Site Construction Companies
- Communication Site Managers

### Course Structure:

Class time will be a mix of open lecture and hands-on training. The course is designed to be progressive giving all technicians the skills needed for real-world applications and problem solving. Techniques used in field and shop analysis will be discussed with advanced processes given for those who will use them.

### Certification:

Upon completion of training, each participant will receive a Bird Spectrum Analyzer Certification, issued by the Bird Technologies Group that shows that the participant has acquired the skills and understanding to successfully operate the Bird Signal Hawk under field conditions covered by the course. Certification will require attendance at lecture sections and during hands-on practical applications. Testing of knowledge and skills will be part of the certification process.

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### NON-CERTIFICATION CLASS:

Non-certification classes are also available which do not include testing, but does offer familiarization training with the products and processes. Good for those needing an overview or refresher, but not in depth operational training.

2 Day Course

Cost: TBD

### Course Overview

TX RX Systems Inc., part of the Bird Technologies Group, through GES, offers specialized training in the assessment, design, installation and commissioning of RF coverage enhancement systems, as well as comprehensive, hands-on training in the operation and optimization of the TX RX Signal Booster product line. TX RX has expanded the number of features available for use in maximizing system uptime. The TX RX Signal Booster II is an easy to operate, user friendly solution for installers and maintenance technicians, and for site operators or owners, even under the most difficult installation conditions. The new Signal Booster II provides unparalleled performance and specifications making it the leader in indoor RF signal distribution products.

From caves and tourist attractions to airports and subways, TX RX Signal Boosters have found their way into critical applications that depend on maximum system uptime and operation under the most demanding of events and situations. Current societal needs for two-way communication in public safety demand 24/7, all the time operation with installations in locations such as courthouses, federal buildings, hotels, and sporting complexes. Airports, rail, subway stations and any other point of public transportation may require additional signal amplification to insure complete coverage to meet communication needs. TX RX Systems Inc. provides Signal Boosters for Private Wireless as well as Public Safety communication applications.

### Attendees should include:

- RF Site Managers
- RF Site Technicians
- RF Site Installers
- RF Field Engineers
- RF Systems Engineers

### Course Structure:

Training Agenda (2 Days): Topics will include basic RF theory, FCC rules and regulations governing Signal Booster systems, typical applications, system design and optimization, equipment set-up and use, and system maintenance. The course is designed to accommodate users across a variety of applications and at various technical levels.

### Certification:

Upon completion of training, each participant will receive Signal Booster II certification, issued by the BTG/GES that shows the participant has acquired the skills and understanding to successfully operate the Signal Booster II under the field conditions covered by the course. Signal Booster II Certification will require attendance at lecture sections and during hands-on practical applications. Testing of knowledge and skill will be part of the certification process.

2 Day Course

Cost: TBD

### Course Overview

Bird® Electronic Corporation offers specialized training for all of its Site Analyzer® (SA) family of products from the SA-1700EX, 1700-EXP, SA-2500EX and SA-6000EX. Bird has expanded the number of tools available for use in maximizing system uptime. Bird Site Analyzers® are an easy to operate, user friendly solution for installers and maintenance technicians, and for troubleshooting even the most complex antenna and feed line systems. The Site Analyzer provides sweep and match data, showing VSWR, Return Loss, or Cable Loss (Insertion Loss) depending upon the users preference, as well as distance to fault measurement for system repair and maintenance. The SA may be used with the Bird Digital Power Sensor Model 5010B in-line or the Bird Terminating Power Sensor Model 5011 series for RF Power Measurements. When connected to the Bird Wide Band Power Sensor Model 5012, the SA will provide accurate power measurement in very complex modulation types by making specific measurements such as peak power, burst average power, crest factor and CCDF.

Topics will include basic RF theory, site overview and operation, equipment set-up and use, test and measurement of feed line and antenna system characteristics, and documentation and report analysis. The course is designed to accommodate user's across a variety of applications.

### Attendees should include:

- Cell Site Manager
- Site Technicians
- Field Engineers
- Site Installers
- Cell Carriers
- Construction Companies

### Course Structure:

A full class outline and schedule are included, but much of the training centers on a practical, real-world approach to line sweeping and distance to fault measurement. Class time will include hands-on use of the Site Analyzer with actual equipment that would be installed on site. Troubleshooting and distance to fault measurement will be used to find faulty and failed equipment. Training may be customized to fit the needs of those attending.

### Certification:

Upon completion of training, each participant will receive Site Analyzer certification, issued by the Bird Electronic Corporation, that shows the participant has acquired the skills and understanding to successfully operate the Bird Site Analyzer under the field conditions covered by the course. Site Analyzer Certification will require attendance at lecture sections and during hands-on practical applications. Testing of knowledge-edge and skill will be part of the certification process.

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### NON-CERTIFICATION CLASS

Non-certification class also available which does not include testing, but does offer familiarization training with the products and processes. Good for those needing an overview or refresher, but not in depth operational training.

2 Day Course

Cost: TBD

### Course Overview

Bird® Technologies Global Educational Services offers specialized training for all of its Site Analyzer® (SA) family of products from the SA-1700EX, 1700EXP, SA-2500EX and SA-6000EX, as well as the Anritsu Site Master®. Bird has expanded the number of tools available for use in maximizing system uptime. For installers and maintenance technicians troubleshooting even the most complex antenna and feed line systems. The Site Analyzer and Site Master provide sweep and match data, showing VSWR, Return Loss, or Cable Loss (Insertion Loss) depending upon the users preference, as well as distance to fault measurement for system repair and maintenance.

Topics will include basic RF theory, site overview and operation, equipment set-up and use, test and measurement of feed line and antenna system characteristics, and documentation and report analysis. The course is designed to accommodate user's across a variety of applications.

### Attendees should include:

- Cell Site Managers
- Site Technicians
- Field Engineers
- Site Installers
- Cell Carriers
- Construction Companies

### Course Structure:

A full class outline and schedule are included, but much of the training centers on a practical, real-world approach to line sweeping and distance to fault measurement. Class time will include hands-on use of the Site Analyzer or Site Master with actual equipment that would be installed on site. Troubleshooting and distance to fault measurement will be used to find faulty and failed equipment. Training may be customized to fit the needs of those attending.

### Certification:

Upon completion of training, each participant will receive Site Analyzer or Site Master certification, issued by Bird Electronic Corporation, that shows the participant has acquired the skills and understanding to successfully operate the Bird Site Analyzer or Anritsu Site Master under the field conditions covered by the course. The Certification will require attendance at lecture sections and participation in hands-on practical applications. Testing of knowledge and skill will be part of the certification process.

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### NON-CERTIFICATION CLASS

Non-certification class also available which does not include testing, but does offer familiarization training with the products and processes. Good for those needing an overview or refresher, but not in depth operational training.