

# Online interactive course GVF 521

# Practical Technique for VSAT Installers

GVF521 completes the knowledge training requirements for GVF Advanced VSAT Installer Certification. The course covers issues that field technicians face, such as using a compass, calculating levels in dB, voltage drops, cable lengths, using a spectrum analyzer, grounding, basic IP networking, safety issues, and troubleshooting.

**Voltage drop on cable**

Now you try a different example.

Calculate the voltage drop and the voltage at the ODU.  
Enter your answers in the boxes and click NEXT to check your results.

Ohms law and calculating voltage drip are explained with animation. Students practice their skills with interactive exercises.

A fully-functional spectrum analyzer simulator enables students to learn and explore the principles of C/N measurement. All analyzer controls are functional in the simulator.

**Compass exercise**

Try your skill at finding the correct bearing to a satellite. Use the parameters at right.

► Drag the face of the compass to rotate it.  
► Press the Turn Left and Turn Right buttons to rotate your body.  
Try to get within 10°. Press the Done key to check your results.

**PARAMETERS:**  
Satellite azimuth from this location: 193.6 deg  
Magnetic variation: 11.8 deg East

**RESULTS:**

Students learn magnetic variation and practice compass skills with an interactive simulator.

**Installing crimp connectors on RG-6 quad-shield cable**

Use the green arrow buttons to step through this tutorial.

**Push the connector on**

Now push the connector onto the coax until the foam is even with the bottom surface of the connector. You may need to hold the connector with a pair of pliers and firmly push the cable into it.

- Why proper termination is important
- RG-6 quad cable
- Connectors
- Tools: Cable cutter
- Tools: Cable trimmer
- Tools: Crimper
- Cut the cable square
- Trim the cable
- Strip the cable
- Fold back braids and outer foil
- Push connector on
- Crimp
- Cut center conductor
- Inspect your work
- Weatherproofing
- Finished

Connector attachment technique is reviewed with 3-D animations.



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The association of the global satellite industry.

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Animated, interactive technically-accurate online training for satellite professionals.

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## GVF Certification

GVF's award-winning VSAT Installation Certification training program is delivered via a combination of online, interactive, simulator-driven training modules developed by SatProf, Inc. ([www.satprof.com](http://www.satprof.com)) and formal hands-on skills testing, all managed through the GVF training portal at [www.gvf.org/training](http://www.gvf.org/training). Hands-on skills testing and supplementary classroom sessions are supported by GVF Instructors and Regional Training Centers located in every major region of the world.

## GVF 521 Course Specifications

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**Summary:** As the follow-on course to GVF510 (Core Skills) and GVF520 (Satcom Fundamentals theory), GVF521 covers the range of knowledge, techniques, and practical tips that every field technician and installer needs to know in order to perform a high-quality, reliable VSAT installation job.

**Prerequisites:** Courses GVF510 and GVF520.

**Duration:** Approximately 300 pages, requiring 5-15 hours online study.

**Delivery:** Animated & interactive HTML/Flash, self-paced, on-line format. Requires Internet access while studying the course material. High speed access is preferred but is NOT required. Student's computer must be capable of running the Adobe Flash player, version 10.

### Contents:

1. Learning system orientation.
2. Course introduction, including review of GVF Certification requirements.
3. Site survey and planning, including compass skills with interactive exercises, clearance calculations, antenna mounts, and safety issues.
4. IFL planning, incl. dB theory, cable loss calculations, DC loop resistance, voltage drop, return loss, and VSWR.
5. Tools and test equipment, including a real-time interactive spectrum analyzer simulator and tutorial on measurement of C/N.
6. Outdoor equipment assembly, including waveguide flange identification and mating, OMT port identification, and impact of antenna assembly errors.
7. IFL installation, covering building entry points, cable dressing, and review of crimp and compression connector attachment.
8. Grounding, including lightning discharge concepts, power grounding, and grounding techniques.
9. Peak and pol review, with a review of the accurate antenna pointing and cross pol alignment methods covered in GVF510 and interactive 3-D simulator exercises.
10. Carrier lineup and link test, reviewing mandatory and optional tests required before activating a VSAT for transmit.
11. Data networking, including Ethernet, IP addressing, routing, DHCP, DNS, NAT and the ping and tracert tools.
12. Safety, covering potential hazards to the technician and the public, proper equipment, and technique.
13. Troubleshooting and maintenance, including common and unusual problems, fade margin and sidelobe checks, interference, and preventive maintenance.
14. Finishing the job, covering review, pictures, and cleanup.

### Learning Objectives:

Understand typical installation instructions and specifications. Describe practical configurations for VSAT indoor and outdoor hardware. Proper site selection and cable routing choices. Describe cable resistance & calculate DC voltage drops. Define splitter RF losses and calculate IF level changes through cables and splitters. Describe the proper mounting of VSAT antennas. Identify proper connector and cable entry waterproofing techniques. List the proper techniques and etiquette for activating a VSAT on a satellite. List the required tools for VSAT installation and describe their proper use. List the test equipment used for VSAT installation (VOM, signal meter, spectrum analyzer) and describe their proper use. Describe how to a field technician should properly interface with a customer. Troubleshoot basic IP networking problems using *ping* and *tracert*. Demonstrate correct technique for accurately pointing a VSAT antenna. Demonstrate correct technique for accurately aligning polarization in a VSAT antenna. Describe the proper installation of indoor equipment. Describe proper grounding technique for VSATs. List the key safety issues for VSAT field technicians. Describe troubleshooting methods for VSAT links. List the main preventive maintenance tasks for a VSAT.



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