



Site Preparation Requirements Operator's Guide

Part Number MN/MID-SITE.IOM Revision 2



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Revision 2
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Comtech EFData is an ISO 9001
Registered Company.



Network Customer Support

The Network Customer Support Plan identifies the steps to be followed in resolving the Customer's concern.

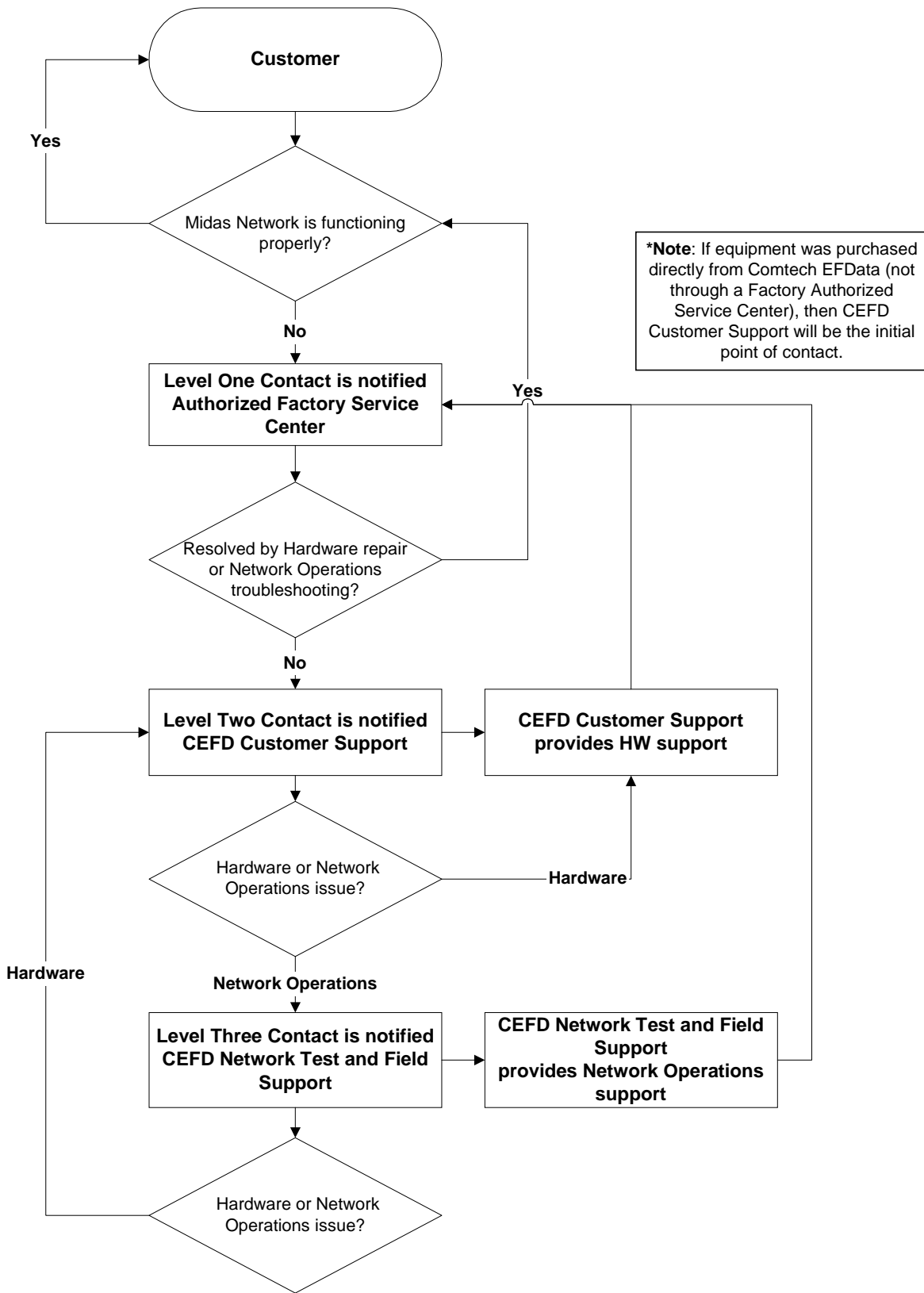
The resolution efforts will follow these levels of contact:

- **Level One Contact** – Factory Authorized Service Center.
- **Level Two Contact** – Comtech EF Data Customer Support.
- **Level Three Contact** – Network Test and Field Support

Procedural Steps

| Step | Procedure |
|------|---|
| 1 | The Customer raises a concern with the Level One Contact . |
| 2 | The Level One Contact will perform <i>Hardware</i> repairs and <i>Network Operations</i> troubleshooting in accordance with the Comtech EF Data Service Center agreement. |
| 3 | If the Level One Contact is unable to resolve the concern, then the Level One Contact will inform the Level Two Contact of the concern in accordance with the instructions found within the attached Comtech EF Data Customer Support Department's document. |
| 4 | The Level Two Contact will enter the concern into the Comtech EF Data database and determine whether the concern is a <i>Hardware</i> concern or a <i>Network Operations</i> concern |
| 5 | The Level Two Contact will interface with the Level One Contact and provide the appropriate hardware support and enter all correspondence into the Comtech EF Data database. |
| 6 | If the Level Two Contact determines that the concern is a <i>Network Operations</i> concern, then the Level Two Contact will inform the Level Three Contact . |
| 7 | The Level Three Contact will interface with the Level One Contact and provide the appropriate support and enter all correspondence into the Comtech EF Data database. |
| 8 | If the Level Three Contact determines that there is a <i>Hardware</i> failure then the Level Three Contact will inform the Level Two Contact . Go to Step 5. |

Network Support Customer Plan



See the Comtech EF Data website at <http://www.comtechefdata.com> for contact information for a Factory Authorized Service Center. Contact the Factory Authorized Service Center for:

- Product support
- Information on upgrading or returning a product

Contact the Comtech EF Data Customer Support Department for:

- Product support or training
- Information on upgrading or returning a product

A Customer Support representative may be reached at:

Comtech EF Data
Attention: Customer Support Department
2114 West 7th Street
Tempe, Arizona 85281 USA

480.333.2200 (Main Comtech EF Data Number)
480.333.4357 (Customer Support Desk)
480.333.2500 FAX

or, E-Mail can be sent to the Customer Support Department at:

service@comtechefdata.com

1. To return a Comtech EF Data product (in-warranty and out-of-warranty) for repair or replacement:
2. Request a Return Material Authorization (RMA) number from the Comtech EF Data Customer Support Department.
3. Be prepared to supply the Customer Support representative with the model number, serial number, and a description of the problem.
4. To ensure that the product is not damaged during shipping, pack the product in its original shipping carton/packaging.
5. Ship the product back to Comtech EF Data. (Shipping charges should be prepaid.)

Contact the Comtech EF Data Network Test and Field Support

- System level Network Operations support
- Information on upgrading Network Operation software
- Reporting comments or suggestions concerning manuals

A Network Test and Field Support representative may be reached at:

Comtech EF Data
Attention: Network Test and Field Support
2114 West 7th Street
Tempe, Arizona 85281 USA

480.225.2200 (Main Comtech EF Data Number)
480.225.3693 (Network Test and Field Support)
480.333.2161 FAX

or, E-Mail can be sent to the Network Test and Field Support Department at:

<mailto:midasfss@comtechefdata.com>

Contact us via the web at www.comtechefdata.com.

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About this Manual

This operator's guide details the requirements of suitable equipment locations, the requirements for the equipment installation and requirements of the civil works to be completed prior to the installation of the Comtech EF Data provided equipment.

This document does not implicitly or explicitly contain any engineering design specifications, such as but not limited to antenna pad design, antenna superstructure, or facility modifications.

Conventions and References

Metric Conversion

Metric conversion information is located on the inside back cover of this manual. This information is provided to assist the operator in cross-referencing English to Metric conversions.

Trademarks

Product names mentioned in this manual may be trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Reporting Comments or Suggestions Concerning this Manual

Comments and suggestions regarding the content and design of this manual will be appreciated. To submit comments, please contact the Comtech EF Data Technical Publications Department: techpub@comtechefdata.com

Disclaimer

Comtech EF Data has reviewed this manual thoroughly in order that it will be an easy-to-use guide to your equipment. All statements, technical information, and recommendations in this manual and in any guides or related documents are believed reliable, but the accuracy and completeness thereof are not guaranteed or warranted, and they are not intended to be, nor should they be understood to be, representations or warranties concerning the products described.

Further, Comtech EF Data reserves the right to make changes in the specifications of the products described in this manual at any time without notice and without obligation to notify any person of such changes.

If you have any questions regarding your equipment or the information in this manual, please contact either:

Comtech EF Data Customer Support Department at: service@comtechefdata.com

Comtech EF Data Technical Publications Department at: techpub@comtechefdata.com

1. Government Permits

Government Permits

All government permits to construct, install, and operate the Earth Station shall be completed prior to installation of the Comtech EF Data provided equipment.

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2. Indoor Equipment

Indoor Equipment

Select a location for the indoor equipment that is away from the AC power-generating equipment and other electromagnetic interference (EMI) and radio frequency interference (RFI) sources such as an elevator or nearby radio communications equipment.

Workstations

Operator Workstation Location

The Operator Workstation and MIDAS Controller monitor can be placed upon a table measuring 36 x 72 inches (91.44 x 182.88 cm), capable of supporting equipment weighting 150 pounds (67.95 kg).

The Workstation needs direct access to the server for the Local Area Network (LAN) cable connection. Standard cable length is 10 feet (30.5 m) maximum.

Alternately, the Operator Workstation can be placed upon an equipment shelf within the equipment rack.

Modem and Network Server Location

The modem and network server equipment is installed into a customer provided standard 19-inch (48.26 cm) equipment rack which has a minimum depth of 30.75 inches (78.1 cm). The equipment rack shall provide adequate ventilation to disperse the heat generated by the equipment and secured to the floor as required by ITU-T Recommendation K.27, International Telecommunication Union Publication.

The required Rack Unit (RU) for the Comtech EF Data provided equipment is detailed in the applicable Product Data Sheet.

In addition to providing floor space for the equipment rack, a minimum of 3 feet (91.44 cm) is required in the front and in the rear of the rack to access the equipment.

Indoor Requirements

Indoor Equipment Environmental Conditions

The location of the indoor equipment must provide temperature and humidity controls and filtered air flow for the removal of dust particles.

Power dissipation, temperature, and humidity specifications for the Comtech EF Data furnished equipment are referenced in the applicable Product Data Sheet.

Indoor Equipment Power

The station equipment shall be placed on dedicated AC line circuits. Observe the following:

| | |
|---|---|
| Redundant System | Customer shall provide separate circuits for Side A and Side B. The AC line circuits shall be protected with circuit breakers and integral ground protection, lightning, and surge protector(s). An uninterruptable power supply (UPS) and/or line conditioner is recommended where power is subject to outages, surges, or unstable or noisy conditions. |
| Table Top Installation of the Operator's Workstation | Ther power receptacles shall be located at the equipment. |
| Equipment Rack Installation | The length of the power cable shall be sufficient to terminate inside the equipment rack. |
| RFI/EMI Protective Measure | The indoor equipment shall be connected to a station ground. |
| Seaparate Utility Service (AC) Power Outlets | Shall be provided at the indoor equipment locations for installation hand tools and test equipment. |
| Power Consumption | Refer to the applicable Product Data Sheet. |

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3. Interfacility Link Cabling

Interfacility Link Cabling



Allowing the IFL cables to be bent greater than their maximum bend radius specification will damage the cable and deteriorate the signal.

Cable Ways and/or Cable Ladders

The Interfacility Link (IFL) cables shall be placed into cableways for that portion of the cabling installed inside the facility. As a RFI and EMI preventive measure, metal cable way shall be connected to station ground. The signal cables must be separate from any power cables at a minimum of 12 inches (30.5 cm).

Computer Floor

If the indoor equipment is installed on a raised computer floor, then cableways are not required for that portion of the IFL cables under the computer floor.

The signal cables must be separated from any power cables at a minimum of 12 inches (30.5 cm). As a RFI and EMI preventive measure, the computer floor shall be connected to station ground.

The opening through the computer floor into the equipment rack shall be large enough for all electrical, signal, and data cables to pass as well as provide ample ventilation for the equipment rack.

Conduit

The IFL cables may consist of two signal cables and one RF Terminal Monitor and Control cable as required per individual site design. The IFL cables shall be placed into a conduit of adequate size for that portion of the cabling installed outside the facility.

- To prevent ground loops and RFI/EMI interferences, metal conduit shall be connected to station ground.
- The signal cables and power cables shall be installed in separate conduits.

The end of the conduit at the antenna location shall have a weather head installed and sealed with a protective sealant to prevent moisture from entering the conduit. The conduit shall be mounted in such a manner that the conduit will be stabilized under severe weather conditions.

Interfacility Link Cable

The IFL cables shall be pulled from the location of the outdoor equipment to the inside of the equipment rack to be used for the Comtech EF Data supplied equipment.

4. RF Terminal Equipment

RF Terminal Equipment

RF Terminal Location

The RF Terminal can be located on the antenna's pedestal, boom, or inside the antenna's hub. The actual location should be specified in the network design.

RF Terminal Environmental Conditions

The outside temperature and humidity is specified in the applicable Product Data Sheet.



If the outside temperature varies beyond the specified range, then additional climate control will be required.

RF Terminal Power

The RF Terminal shall be positioned on dedicated AC line circuits.

| | |
|---|---|
| Redundant System | Customer shall provide separate circuits for Side A and Side B. The AC line circuits shall be protected with circuit breakers and integral ground protection, lightning, and surge protector(s). An uninterruptible power supply (UPS) and/or line conditioner is recommended where power is subject to outages, surges, or unstable or noisy conditions. |
| To Prevent Ground Loops and RFI/EMI Interference | The power receptacles shall be located at the equipment. |
| Separate Utility Service (AC) Power Outlets | Shall be provided at the RF Terminal equipment for installation hand tools and test equipment. |
| Power Consumption | Refer to the applicable Product Data Sheet. |

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5. Antenna Installation

Antenna Installation



When designing the antenna pad or the antenna superstructure, observe the following:

- 1. Refer to the OEM installation requirements for all antenna-engineering specifications.*
- 2. Refer to the building's structural engineer for all building specifications.*
- 3. Refer to government installation requirements for all government rules, regulations, and permits.*

Antenna Power

Observe the following:

| | |
|--|---|
| To Prevent Ground Loops and RFI/EMI Interference | The antenna support structure shall be connected to a station ground. |
| Lightning Preventive Measure | The lightning rod of the antenna shall be connected to a lightning ground. |
| Antenna Equipped with Tracking System and/or de-icing heaters | The AC power requirements shall be provided at the antenna in accordance with manufacturer's specifications. |
| Separate Utility Service (AC) Power | AC power shall be provided at the antenna for power hand tools and test equipment for use during the installation and testing of the antenna. |

Antenna Installation and Pointing

The antenna, tracking system (if applicable), and/or de-icing heaters (if applicable) shall be installed and operational. The antenna shall be pointed towards the applicable satellite.

6. Telephone Service

Telephone Service

Telephone service with international access is required to be provided at the indoor equipment location and at the antenna location.

This service will be used during the installation and testing of the equipment.

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7. Grounding

Grounding

Figure 7-1 shows a typical grounding plan for an earth station.



For appropriate station and lightning grounding information for the site, refer to the ITU-T Recommendation K.27, International Union Publication.

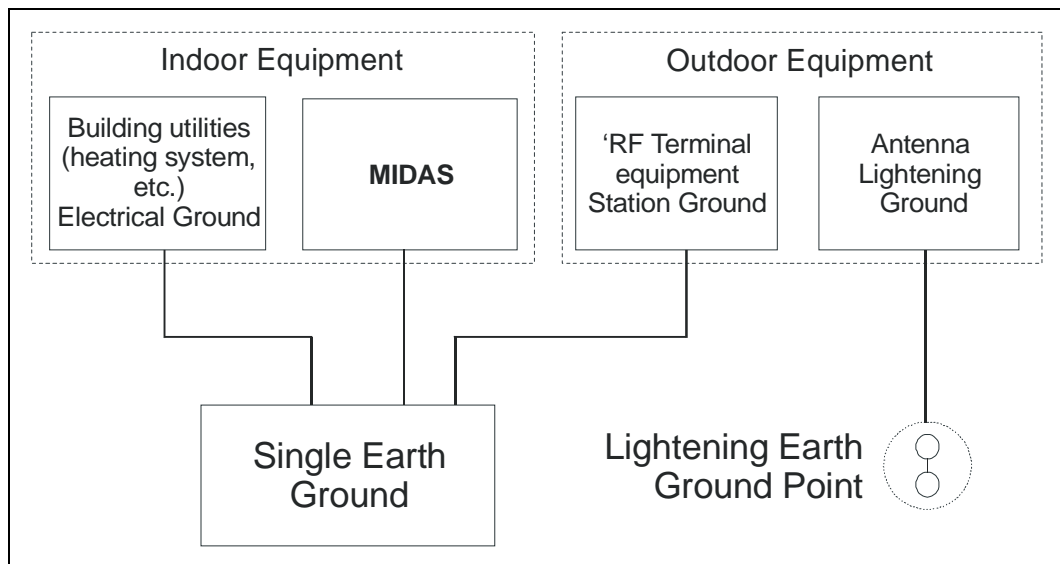


Figure 7-1. Typical Grounding Plan for an Earth Station

Station Ground

The earth station shall be grounded prior to initial power on of equipment. Improper grounding can affect system operation and may damage electronic equipment or components. Connecting electrical (earth) ground to the station ground will avoid ground loops. The station ground shall have an impedance of $\leq 5\Omega$.

Lightning Ground

The lightning ground shall have an impedance of $\leq 1\Omega$.



The lightning ground cables shall be separated from other ground cables, power cables, and signal cables. The lightning ground cables shall not run parallel to these cables.

METRIC CONVERSIONS

Units of Length

| Unit | Centimeter | Inch | Foot | Yard | Mile | Meter | Kilometer | Millimeter |
|--------------|---------------------|---------------------|---------------------|---------------------|------------------------|---------------------|-----------|------------|
| 1 centimeter | — | 0.3937 | 0.03281 | 0.01094 | 6.214×10^{-6} | 0.01 | — | — |
| 1 inch | 2.540 | — | 0.08333 | 0.2778 | 1.578×10^{-5} | 0.254 | — | 25.4 |
| 1 foot | 30.480 | 12.0 | — | 0.3333 | 1.893×10^{-4} | 0.3048 | — | — |
| 1 yard | 91.44 | 36.0 | 3.0 | — | 5.679×10^{-4} | 0.9144 | — | — |
| 1 meter | 100.0 | 39.37 | 3.281 | 1.094 | 6.214×10^{-4} | — | — | — |
| 1 mile | 1.609×10^5 | 6.336×10^4 | 5.280×10^3 | 1.760×10^3 | — | 1.609×10^3 | 1.609 | — |
| 1 mm | — | 0.03937 | — | — | — | — | — | — |
| 1 kilometer | — | — | — | — | 0.621 | — | — | — |

Temperature Conversions

| Unit | ° Fahrenheit | ° Centigrade |
|--------------------|--------------|-----------------------|
| 32° Fahrenheit | — | 0 (water freezes) |
| 212° Fahrenheit | — | 100 (water boils) |
| -459.6° Fahrenheit | — | 273.1 (absolute 0) |

| Formulas |
|------------------------|
| $C = (F - 32) * 0.555$ |
| $F = (C * 1.8) + 32$ |

Units of Weight

| Unit | Gram | Ounce Avoirdupois | Ounce Troy | Pound Avoir. | Pound Troy | Kilogram |
|--------------|-------------------|-------------------|------------|--------------|------------|----------|
| 1 gram | — | 0.03527 | 0.03215 | 0.002205 | 0.002679 | 0.001 |
| 1 oz. avoir. | 28.35 | — | 0.9115 | 0.0625 | 0.07595 | 0.02835 |
| 1 oz. troy | 31.10 | 1.097 | — | 0.06857 | 0.08333 | 0.03110 |
| 1 lb. avoir. | 453.6 | 16.0 | 14.58 | — | 1.215 | 0.4536 |
| 1 lb. Troy | 373.2 | 13.17 | 12.0 | 0.8229 | — | 0.3732 |
| 1 kilogram | 1.0×10^3 | 35.27 | 32.15 | 2.205 | 2.679 | — |



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