



Site Survey Report Operator's Guide

MN/MID-SURV.IOM

Revision 1



Site Survey Report Operator's Guide

Part Number MN/MID-SURV.IOM

Revision 1
August 19, 2001

Comtech EF Data 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.

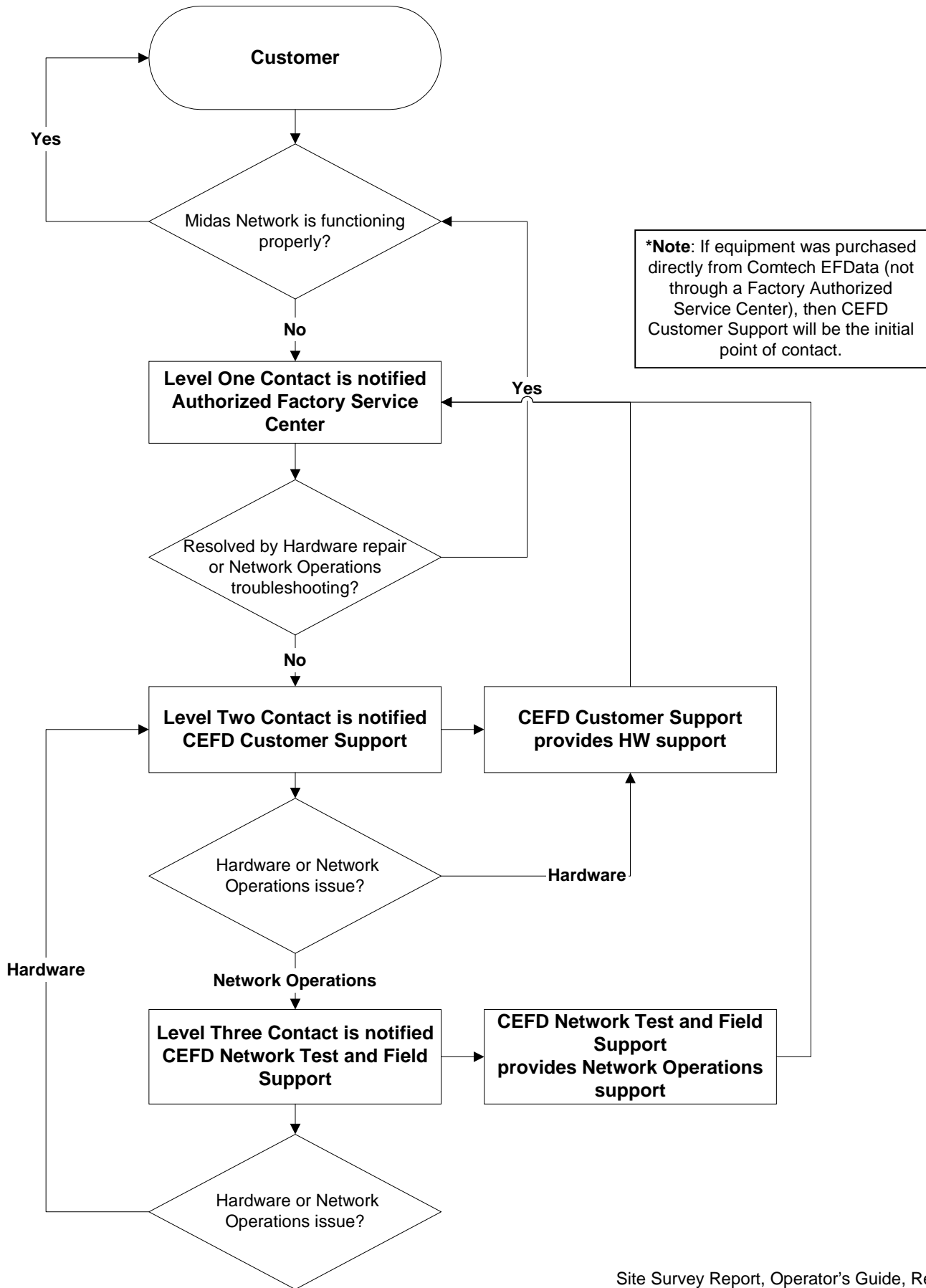
The resolution efforts will follow these levels of contact:

- **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.comtechedata.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@comtechedata.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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Table of Contents

CHAPTER 1. INTRODUCTION	1-1
CHAPTER 2. SITE INFORMATION	2-1
SITE ADDRESS AND CONTACT NAME	2-1
SITE LOCATION STATUS AND IMPROVEMENTS REQUIRED	2-2
STATION LATITUDE, LONGTITUDE, AND ELEVATION	2-3
LOCAL TRANSPORTATION, ACCESS, AND ACCOMMODATIONS	2-4
CHAPTER 3. TEST EQUIPMENT	3-1
CHAPTER 4. ANTENNA	4-1
ANTENNA LOCATION	4-1
SKETCH NORTH-SOUTH VIEW	4-3
PHOTOGRAPH NORTH-SOUTH VIEW	4-3
PHOTOGRAPH NE-SW VIEW	4-5
PHOTOGRAPH NW-SE VIEW	4-6
ANTENNA MOUNT	4-7
GROUND MOUNT	4-7
ROOF MOUNT	4-9
OTHER ANTENNA MOUNTS	4-10
REQUIRED EQUIPMENT FOR ANTENNA INSTALLATION	4-10
CHAPTER 5. SATELLITE ACCESSIBILITY	5-1

SATELLITE ACCESSIBILITY	5-1
SATELLITE IDENTIFICATION	5-1
SATELLITE ARC	5-2
VISUAL OBSTRUCTION WITHIN THE SATELLITE ARC	5-3
PHOTOGRAPH OF VISUAL OBSTRUCTIONS WITHIN THE SATELLITE ARC	5-4
PHOTOGRAPH OF VISUAL OBSTRUCTIONS WITHIN THE SATELLITE ARC	5-5
PHOTOGRAPH OF VISUAL OBSTRUCTIONS WITHIN THE SATELLITE ARC	5-6
PHOTOGRAPH OF VISUAL OBSTRUCTIONS WITHIN THE SATELLITE ARC	5-7
PHOTOGRAPH OF VISUAL OBSTRUCTIONS WITHIN THE SATELLITE ARC	5-8
RADIO FREQUENCY INTERFERENCE SCAN (20° EI).....	5-9
SKETCH OF RFI SHIELD FENCE	5-12
TRANSPONDER PLOT	5-13
CHAPTER 6. INTERFACILITY LINK CABLES	6-1
INTERFACILITY LINK CABLES	6-1
OUTSIDE CABLE ROUTING	6-2
INSIDE CABLE ROUTING	6-2
SKETCH THE INTERFACILITY LINK PATH	6-3
PHOTOGRAPH THE INTERFACILITY LINK PATH	6-4
CHAPTER 7. INDOOR EQUIPMENT	7-1
INDOOR EQUIPMENT	7-1
LOCATION OF INDOOR EQUIPMENT	7-1
OVERALL BUILDING FLOOR-PLAN LAYOUT	7-1
SKETCH THE INDOOR EQUIPMENT, POWER AND GROUND LAYOUT	7-4
PHOTOGRAPH THE INDOOR EQUIPMENT, POWER, AND GROUND LAYOUT	7-5
CHAPTER 8. POWER AND GROUND PROVISION	8-1
CHAPTER 9. DATA INTERFACE REQUIREMENTS	9-1
CHAPTER 10. CONCLUDING COMMENTS	10-1

About this Manual

This operator's guide provides a suitable location for the antenna and the indoor equipment data to be recorded.

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. Introduction

Introduction

The goal of the Site Survey is to determine a suitable location for the antenna and the indoor equipment.

Each Site Survey Report will include the following information:

Site	Site contact, Site latitude, longitude, and elevation, accommodations and access for equipment and installation vehicles
Antenna	Exact Location of the Antenna and type of mount
Arc	Satellite arc clearance analysis and Antenna look angles
Status	Indoor Equipment location including status of any existing equipment
Path	Path of the Inter-facility Link (IFL) cable runs
Grounding	Provision for grounding of Indoor Unit, RF Terminal and Antenna to station ground
Protection	Provision for grounding protection against lightning damage to lightning ground
Power	Provision for supply of primary power
Risk	Possible risk of voltage surges from the customer interface
Transportation	Transportation, access, accommodation, and any special site requirements/considerations
Sketches	Sketches and photographs
RF Interferences	RF interference analysis/measurements as needed to determine if RFI exists that may interfere with the earth station's transmit and receive signals

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2. Site Information

Site Address and Contact Name

Customer Name: _____

Site Name: _____ Site Number: _____

Date of Survey: _____

Street Location: _____

Shipping address (if different from above): _____

Primary Site Contact: _____

Telephone: _____

Alternate Contact: _____ Telephone: _____

Weekend Access: Yes ___ No ___ Evening Access: Yes ___ No ___

Escort Required: Yes ___ No ___

Site Location Status and Improvements Required

Site Location Status:

Proposed (undisturbed space) Yes ____ No ____

Ready for Preparation (cleared, no grading)..... Yes ____ No ____

Prepared (graded, access road) Yes ____ No ____

Is there an existing facility building? Yes ____ No ____

Site Improvement Requirements:

Full Clearing Required Yes ____ No ____

Grading, Shaping and Access Road Required

Specify: _____

Utilities required (water, electricity, telephone, etc.)

Specify: _____

New Facility Building Required Yes ____ No ____

Antenna Foundation Required Yes ____ No ____

General Site Description:

**Station Latitude,
Longitude, and
Elevation**

From the GPS Receiver:

Latitude: _____ Longitude: _____

Elevation: _____ feet/meters

Area Magnetic Deviation: _____(from Chart)

_____ (actual if available)

Local Transportation, Access and Accommodations

Nearest Town/Airport: _____

Nearest Highway: _____

Transportation to/from site:

Mode #1 - Surface:

Roadway (by car, truck, etc.)

Type: _____

Distance to/from: _____

Mode #2 – Air:

Airplane

Type/Airline _____

Distance to/from: _____

Frequency of scheduled flights (i.e. once a day, etc.): _____

Full fare (approximately): _____

Living Accommodations:

Type: _____

Accommodations available for how many people? _____

First Choice

Second Choice

Local Hotel: _____

Address: _____

Phone: _____

Rates: _____

3. Test Equipment

The following table identifies the test equipment required to perform a RFI Survey for either Ku-Band and C-Band surveys.

Required Test Equipment

Description	Function	Model Number
Camera	Document selected location for antenna and indoor equipment	Polaroid or equivalent
Spectrum Analyzer	C-Band and Ku-Band RFI Survey	For C-Band: HP8561E For Ku-Band: HP8593E or equivalent
C-Band standard-gain feed horn	C-Band RFI Survey	Seavey Engineering Associates, SGA-20 or equivalent
C-Band LNB	C-Band RFI Survey	Commercial LNB.
Ku-Band standard-gain feed horn	Ku-Band RFI Survey	Seavey Engineering Associates, SGA-110 or equivalent
Ku-Band LNB	Ku-Band RFI Survey	Commercial LNB.
24 VDC Power Supply	C-Band and Ku-Band RFI Survey	Adequate Power Supply for selected LNB.
DC Power leads	C-Band and Ku-Band RFI Survey	14 AWG wire
Adapter, BNC (male) to Double Banana Plug	C-Band and Ku-Band RFI Survey	Pomona, P.N. 1296 or equivalent
Adapter, BNC (female) to SMA (male)	C-Band and Ku-Band RFI Survey	Amphenol, P.N. 901-166 or equivalent
15 VDC Bias Tee (installed at Spectrum Analyzer input)	C-Band and Ku-Band RFI Survey	Mini-Circuits, P.N. ZFBT-4R2G or equivalent
RF Cable	C-Band and Ku-Band RFI Survey	RG 59/U Type (Trade number 9659) cable with Type F (male) to SMA (female) or equivalent
Adapter, Type N (male) to SMA (male)	C-Band and Ku-Band RFI Survey	Amphenol, P.N. 901-292 or equivalent

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4. Antenna

Antenna Location

The major factors that must be considered when determining the exact antenna location include:

- Locate an area, which has a clear unobstructed view of the satellite
- Identify potential RF and EMI interference sources and methods of protection

Type of Antenna (Mount):

Ground Mount (Pad) Yes ___ No ___

Ground Mount (In ground Mast) Yes ___ No ___

Non-Penetrating Mount..... Yes ___ No ___

Penetrating Mount Yes ___ No ___

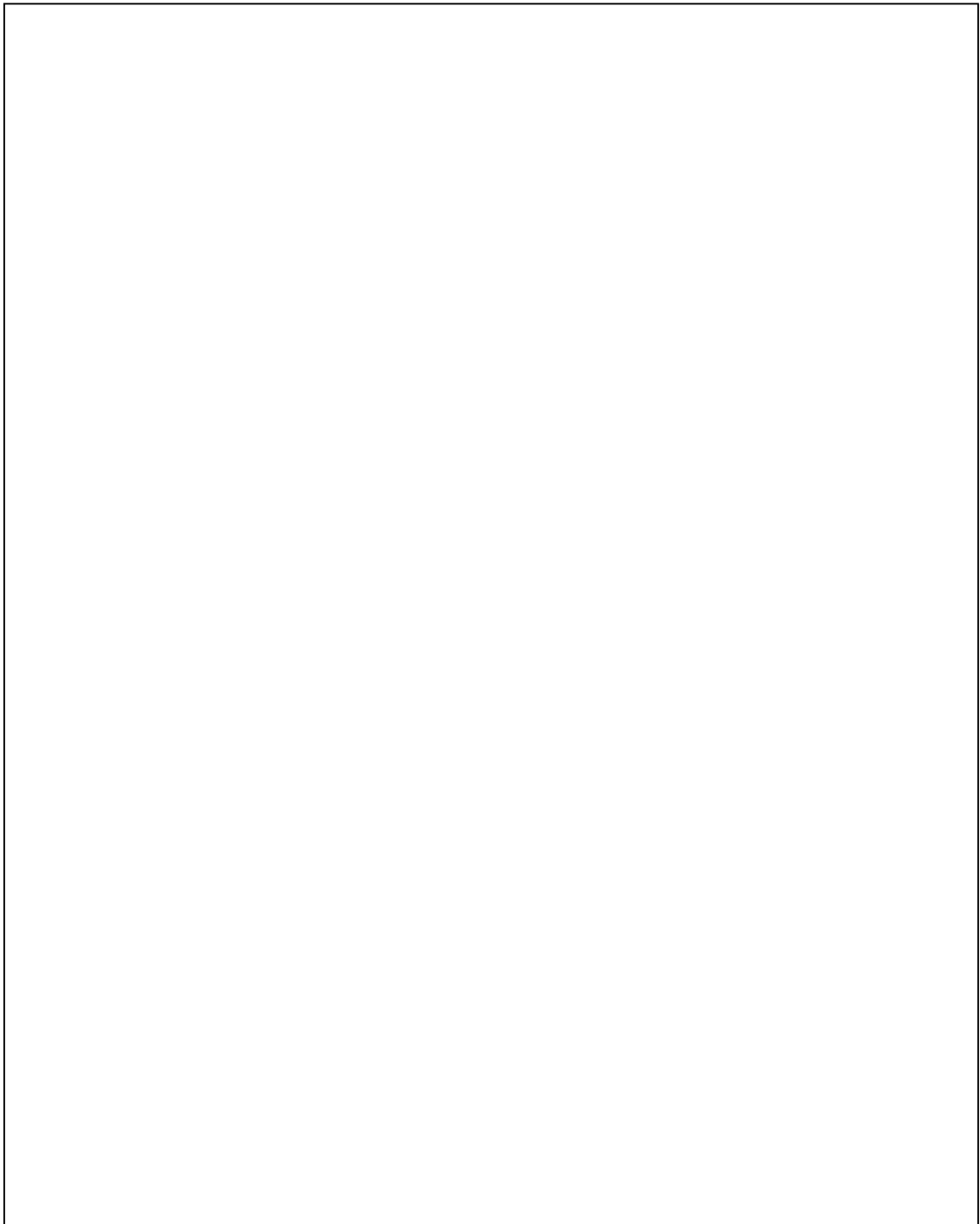
Provision for standard ground..... Yes ___ No ___

Provision for lightning ground..... Yes ___ No ___

Estimated lightning ground resistance.....<1 Ω ___ >1 Ω ___

Comments:

Sketch North-South
View:



NORTH

Photograph North-
South View:

Attach Photographs here

N-S

Photograph NE-SW
View (if potential
obstruction exists):

Attach Photograph here

NE-SW

Photograph NW-SE
View (if potential
obstruction exists):

Attach photograph here

NW-SE

Antenna Mount

Ground Mount

1. Is sufficient ground area available for antenna foundation, staging and installation areas? (Refer to the Site Preparation Document)..... Yes ___ No ___

Explanation: _____

2. Is excavation required? Yes ___ No ___

Explanation: _____

3. What does excavation cut through (e.g., paved area, parking lot, etc.)?

Explanation: _____

4. Is security fence necessary?..... Yes ___ No ___

5. Can manufacturer recommended fence-antenna clearances be met?

Yes ____ No ____.

Explanation: _____

6. Is there any indication of unstable ground (swampy ground, permafrost, etc.)?

Yes ____ No ____

7. The foundation design will be included in the Site Preparation Document.

Explanation: _____

8. Is Ground Mount feasible?Yes ____ No ____

Explanation: _____

Roof Mount

- 1.....Is sufficient roof area available for antenna mount, staging and installation areas (see manufacturer's specification for minimum required space)?.....Yes ____ No ____

Explanation: _____

2. Is there an indication that the antenna (at high winds) could overload the roof?

Yes ____ No ____

If Yes, the Customer must obtain the services of a Structural Engineer to provide a detailed analysis for roof mount requirements. This analysis shall be based on, but not limited to, the foundation specification of the antenna and the structural drawings of the roof.

Explanation: _____

3. Type of Roof:

a) Flat: _____ Made of _____

b) Peak: _____ Made of _____

c) Slope Angle: _____ Ridge above Ground: _____ (feet/meters)

d) Roof Height above Ground _____ (feet/meters)

Other Antenna Mounts

Antenna mounting on industrial structures (e.g., oil rigs):.....Yes ____ No ____

Explanation: _____

Required Equipment for Antenna Installation

Is additional labor available to assist with antenna assy? ...No____ Yes____

Contact person to arrange additional labor: _____

Phone: _____

Crane Operator Contact: _____ Phone: _____

Fork Lift Contact: _____ Phone: _____

Special Considerations: _____

5. Satellite Accessibility

Satellite Accessibility

Satellite Identification

Satellite Name	
Satellite Longitude	
Satellite Operator	
Satellite Operator Contact Phone Number	

Satellite Arc

Site-specific Azimuth and Elevation angles for points on the satellite arc specified below can be calculated. The Azimuth angle includes adjustment for the site's magnetic deviation (from true north). The Azimuth values below represent the direct magnetic compass reading.

		<u>AZIMUTH</u>	<u>ELEVATION</u>
East Limit (For Satellite	(@_____)	_____	_____
	(@_____)	_____	_____
Foundation Centerline	(@_____)	_____	_____
	(@_____)	_____	_____
West Limit (For Satellite	(@_____)	_____	_____

Is the view blocked for the above satellite arc No ____ Yes ____

If Yes list exceptions:

Visual Obstructions
within the Satellite
Arc

Survey Location Position	For Satellite @ Long	Antenna View		Objects Viewed	
		AZ (corr)	EL.	Distance	Description
_____	West Limit	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	East Limit	_____	_____	_____	_____

* ADD PHOTOS FOR SATELLITE LINE OF SIGHT.

NOTE: Add comments for the whole $\pm 90^\circ$ from foundation North-South Center Line (East Limit - West Limit). If obstruction exists, specify Satellite Long, AZ (as measured) & EL. and provide photo.

Photograph of Visual
Obstructions within
the Satellite Arc

a) At _____ degrees Azimuth

(attach photograph here)

Photograph of Visual
Obstructions within
the Satellite Arc

b) At _____ degrees Azimuth

(Attach photograph here)

Photograph of Visual
Obstructions within
the Satellite Arc

c) At _____ degrees Azimuth

(Attach photograph here)

**Photograph of
Visual
Obstructions
within the Satellite
Arc**

d) At _____ degrees Azimuth

(Attach photograph here)

Photograph of Visual
Obstructions within
the Satellite Arc

e) At _____ degrees Azimuth

(Attach photograph here)

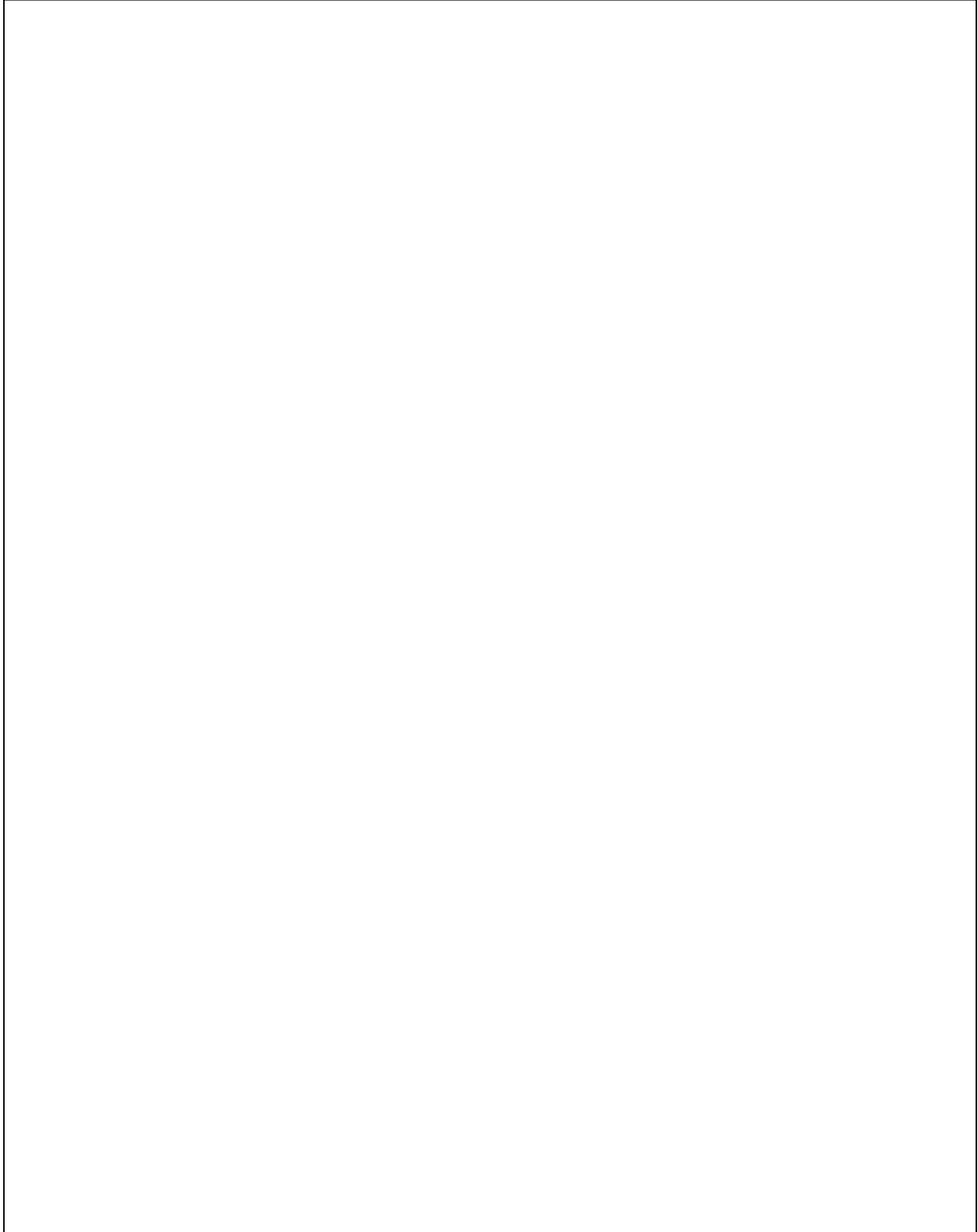
Radio Frequency Interference Scan (20° EI)

On-site Radio Frequency Interference (RFI) measurements are recommended to evaluate potential interference present in the operating frequency band. The area of least interference should be selected for the Antenna installation. Special attention to RFI and EMI should be paid in the vicinity of busy roads, ports, airports, and any facilities using radar.

BROAD BAND SWEEP (C=3.7-4.2 GHz) (Ku=10.95 TO 12.75 GHz)			
AZ. (corr)	DESCRIPTION		OTHER
	FREQUENCY	AMPLITUDE	
00			
20			
40			
60			
80			
100			
120			
140			
160			
180			
190			
200			
220			
240			
250			
260			
280			
300			
320			
340			

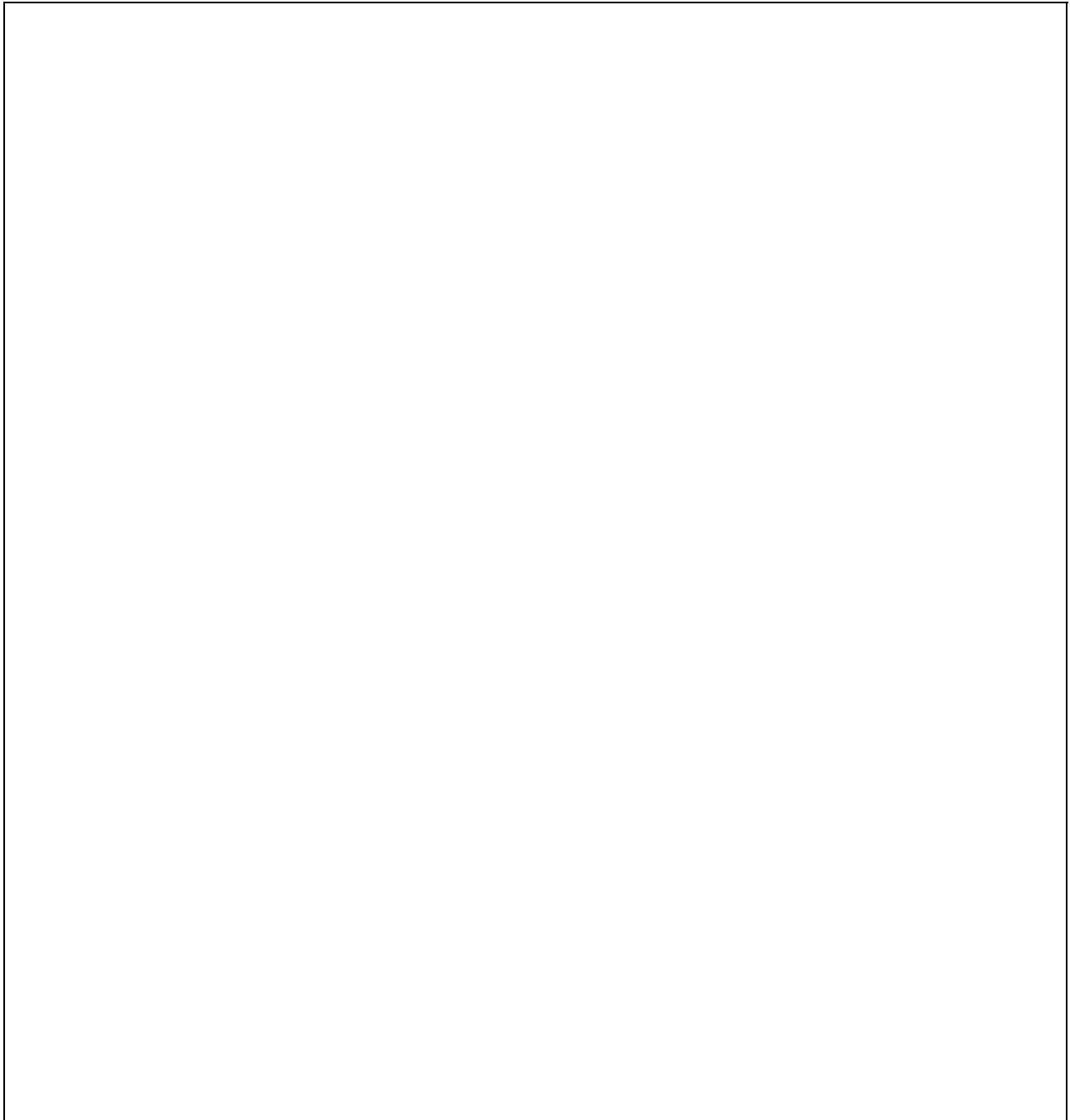
Sketch of RFI Shield
Fence

NORTH



Transponder Plot

Comtech EF Data requests a plot of the transponder in use, showing the assigned bandwidth for the service. An electronic copy, like a .jpg, .wmf, .tif, or .gif, of the plot is recommended.



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6. Interfacility Link Cables

Interfacility Link Cables

Provide a sketch of the IFL cable run from Antenna pad to indoor equipment including the following dimensions.

Approximate length of interface cable route segments:

Antenna to bldg. entrance: _____ Feet _____ Meters

Bldg. entrance to indoor equipment rack: _____ Feet _____ Meters

Total length: _____ Feet _____ Meters

Number of floors cable must traverse vertically: _____

1. Will conduit be required from the point of indoor entry to the equipment rack: Yes ___ No ___

Other:

Is there an existing cable conduit from antenna site to the building?

No ___ Yes ___

If Yes, check conduit routing and provide following information:

Purpose of existing conduit(s): _____

No. of conduits: _____

Note: 2-grounded conduits are recommended for the exclusive use of earth station power and signal cables.

**Outside Cable
Routing:**

Conduit: Type: _____ Size (dia.): _____ Length: _____

Weather Cap Type: _____ Size (dia.): _____

Pull Boxes: Quantity: _____ Size _____ Locations: _____

90° Sweeps: Quantity: _____ Locations: _____

Wall Penetration: Type: _____ Size(dia.): _____

**Inside Cable
Routing:**

Conduit: No _____ Yes _____

.....If yes; Type: _____ Size (dia.): _____ Length: _____

Pull Boxes: Quantity: _____ Size _____ Locations: _____

90° Sweeps: Quantity: _____ Locations: _____

Wall Penetration: Type: _____ Size(dia.): _____

Special Considerations:

Sketch the
Interfacility Link Path

NORTH

Photograph the
Interfacility Link Path

(Attach photographs here)

7. Indoor Equipment

Indoor Equipment

Location of Indoor Equipment

1. Describe the location of Indoor Equipment (existing building, planned, separate outdoor equipment shelter, etc...):

Explanation: _____

Overall building floor-plan layout:

- Provide a sketch of indoor facility layout including dimensions of proposed floor space and ceiling height of equipment room.
- Attach photographs from Chapter 5, Visual Obstructions within the Satellite Arc.

1. Proposed space for indoor equipment:

Telephone room: _____

Storage room: _____

Other: _____

2. Will the Indoor Equipment be located in the same room as the following customer equipment:

PABX: Yes ___ No ___

Explanation: _____

PABX Type: _____

PABX Distribution Panel (MDF): Yes ___ No ___

Specify: _____

Data Terminal Equipment: Yes ___ No ___

Specify: _____

3. IFL cable entry into the indoor equipment room from:

Floor ___ Ceiling ___ Wall ___

4. Will the equipment room have a raised floor? Yes ___ No ___

Note: _____

5. Is the equipment rack required to be bolted to the floor? Yes ___ No ___

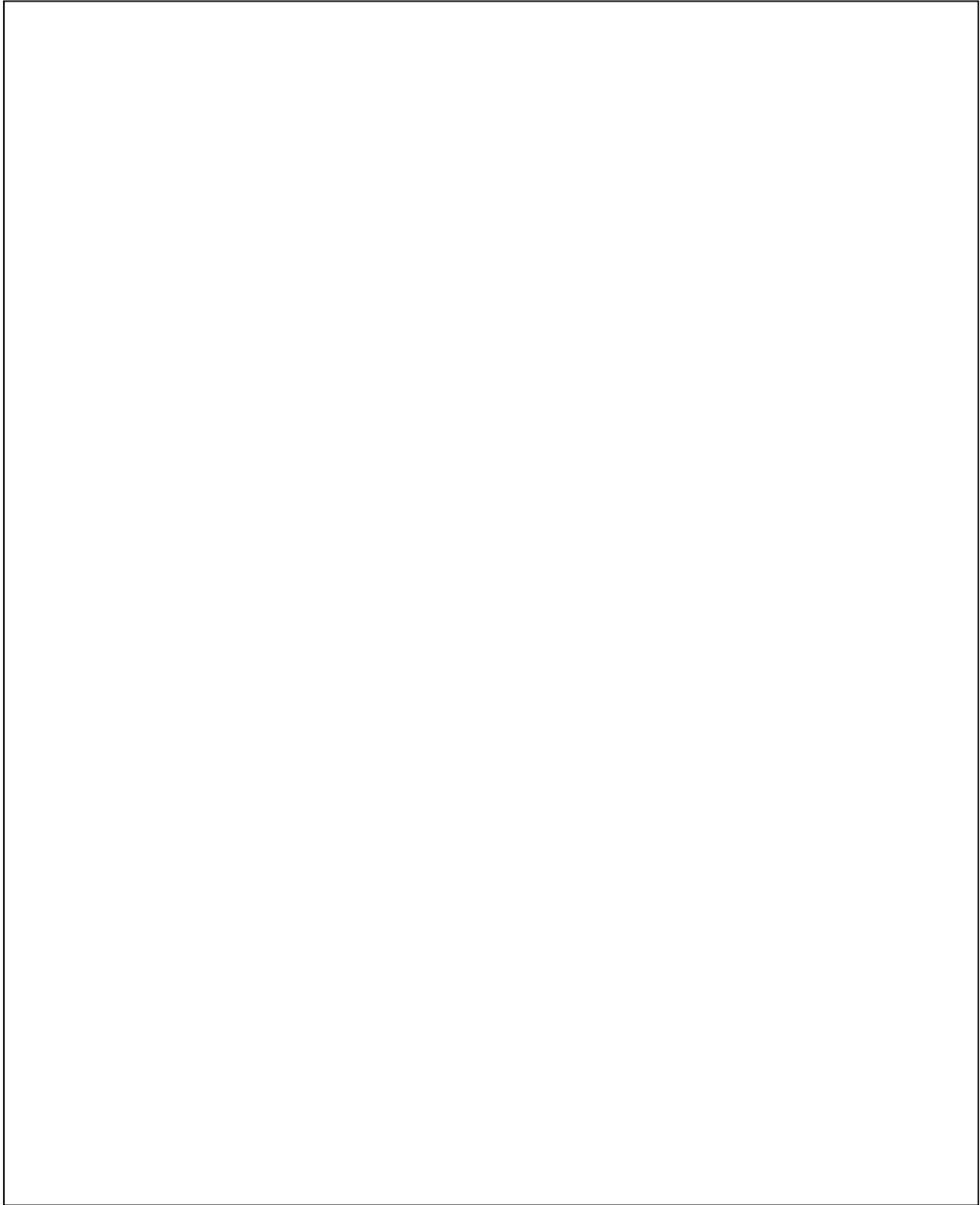
If so, what is the floor composition? _____

6. Will Customer personnel be stationed in the same room? Yes ____ No ____

Special Considerations: _____

Sketch the Indoor
Equipment, Power and
Ground Layout

NORTH



Photograph the Indoor
Equipment, Power and
Ground Layout

(Attach photographs here)

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8. Power and Ground Provision

1. Is AC Power available to equipment? Yes ____ No ____

Explanation: _____

2. Building Electrical Power:

Commercial: Yes ____ No ____

Explanation: _____

Generator: Yes ____ No ____

Explanation: _____

3. A.C. Power:

Phase(s): _____ Volts: _____

Frequency (Hz): _____ Max. Power Capacity: _____ (KVA)

4. Will UPS Power be Available: Yes ____ No ____

Explanation: _____

5. AC power dedicated or not dedicated? Yes ____ No ____

If no, what other devices are on the circuits? _____

Special Considerations: _____

6. Is lightning ground protection available:..... Yes ____ No ____

7. Is electrical ground available:..... Yes ____ No ____

8. Is Ground available: Yes ____ No ____

Grounding cable size _____ and approx. length _____ (feet/meters)

Ground resistance: _____ (ohm)

Note: The ground should have a resistance of less than 5 ohms or as per the local building code, whichever is less. The equipment ground shall be independent of lightning ground.

Special Considerations: _____

9. Data Interface Requirements

1. Approximate length of data interface cable route:

Total horizontal length _____ Feet _____ Meters

Number of floors cable must traverse vertically (if any): _____

Interface and connector type _____

Special Considerations: _____

2. Will lightning arrestors be required between customer interface cables and the equipment rack?

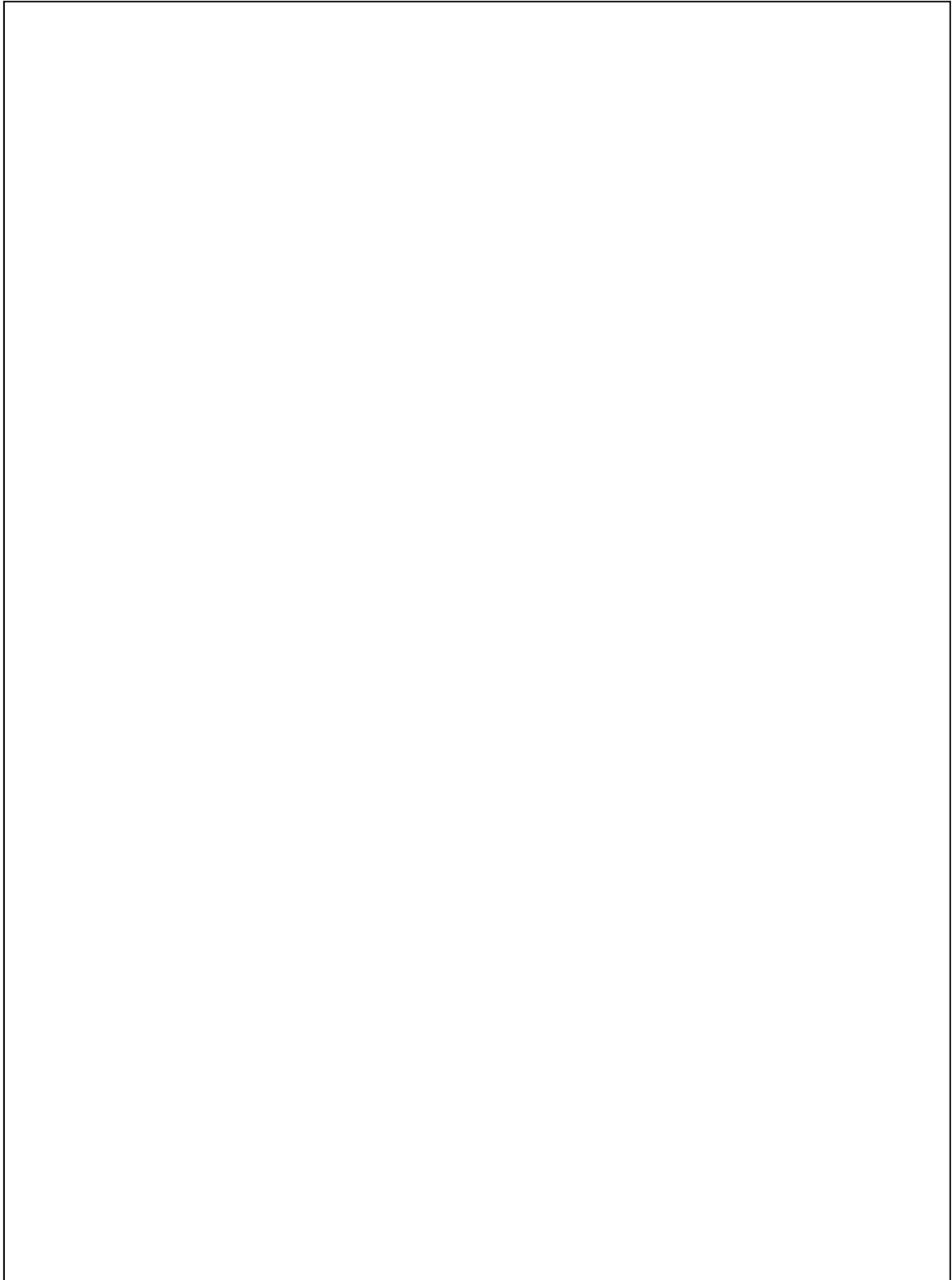
Data interface cable: Yes ___ No ___

Note: Lightning arrestors at the equipment rack entry point should be used especially when the customer interface cables are routed between buildings, in-ground or above-ground.

Other: _____

Sketch Data Cable Path

NORTH



Photograph the Data
Cable Path

(Attach photographs here)

This Site Survey was conducted either by Comtech EF Data personnel with the assistance of the customer personnel for the contracted sites or solely by customer personnel. The signatures below signify that the procedure has been completed.

Comtech EF Data (if applicable)		Customer:	
Title:		Title:	
Date:		Date:	

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	—



2114 WEST 7TH STREET TEMPE ARIZONA 85281 USA
480 • 333 • 2200 PHONE
480 • 333 • 2161 FAX