Norsat GLOBETrekker

User Guide

Norsat®
International Inc.

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Chapters

Preface

Topics Covered:

Norsat GLOBETrekker

Preface

Purpose and Scope of the User Guide

The user guide explains how best to assemble, operate, transport and care for the Norsat GLOBETrekker satellite terminal. It also provides guidance on how to interact efficiently with a satellite hub operator.

This user guide is specifically written for the GLOBETrekker Ku-Band Satellite Terminal (model numbers 5200-KuRAA-#W and 5200-KuEAA-#W); both come equipped with an iDirect iConnex modem. The user guide covers operation of the terminal in both SCPC and TDMA modes.

Audience

The guide will be of interest to the following personnel:

- field users
- systems administrators (or IT; Lifecycle/Sustainment Managers)

Revision History

Date	Nature of Revision	Release
July 2006	Release	1.0

READ THE MANUAL BEFORE YOU INSTALL OR OPERATE THE GLOBETREKKER

Radio Frequency Exposure

Topics Covered:

Norsat GLOBETrekker

Radio Frequency Exposure

Avoid Hazards Leading to Serious Injury or Possible Death

Danger

FCC Radio Frequency Exposure Information for Mobile Transmitting Devices

When the power is on, maintain a distance of 8.4 feet (2.6 meters) or greater from the antenna. Radio Frequency Exposure Minimum calculated separation distance between antenna and persons required is 2.56 meters.

Hazards of Microwave Radiation in Electromagnetic Fields

When the power is on, the area directly in front of the antenna is an Area of Restricted Occupancy. Observe the safety precautions which follow:

1. Limit human exposure time to the area directly in front of the main antenna assembly.
2. Never place any part of your body between the antenna and the feed horn assembly.
3. Never place any part of your body in line with the direction of the antenna transmission path. The LinkControl application provides a screen which helps users estimate the minimum clearance distance. Please refer to “Understanding clearance distance” on pages 13 and 14.
4. Locate the terminal as far as possible from ungrounded metal.

Dielectric Heating

Dielectric heating is the heating of an insulating material caused by placing it in a high frequency electric field. When a human enters a Radio Frequency (RF) field the body acts as the dielectric. If the power in the RF field exceeds 10 milliwatts per centimeter, the individual will have a noticeable rise in body temperature.

The severity of burns may vary from minor to major. Burns or other damage may result in long term injury, or even death. The vital organs of the body are highly susceptible to dielectric heating. The eyes are also highly susceptible to dielectric heating. Do not look directly into devices radiating RF energy. You must not stand directly in the path of RF radiating devices.

Frequency Coordination—FCC 25.203(c), 25.251, and 101.103

Users must ensure they co-ordinate proposed frequency and power usage with other terrestrial and satellite users prior to transmission.

Changes or Modifications to Equipment - FCC Section 15.21

Caution: Changes or modifications to this equipment, not expressly approved by the manufacturer could void the user's authority to operate the equipment.

1 Safety Basics

Topics Covered:

1 Safety Basics

YOU MUST READ THIS CHAPTER BEFORE OPERATING THE GLOBETREKKER

Observe Electrical Codes

Caution

Grounding the GLOBETrekker

In urban areas, ground the GLOBETrekker with a grounding conductor according to national and local electrical codes.

Avoid Hazards Leading to Serious Injury or Possible Death

Danger

FCC Radio Frequency Exposure Information for Mobile Transmitting Devices

When the power is on, maintain a distance of 8.4 feet (2.6 meters) or greater from the antenna. Radio Frequency Exposure Minimum calculated separation distance between antenna and persons required is 2.56 meters.

Refer also to “Understanding clearance distance” on page 13 later in this chapter.

Hazards of Microwave Radiation in Electromagnetic Fields

When the power is on, the area directly in front of the antenna is an Area of Restricted Occupancy. Observe the safety precautions which follow:

5. Limit human exposure time to the area directly in front of the main antenna assembly.
6. Never place any part of your body between the antenna and the feed horn assembly.
7. Never place any part of your body in line with the direction of the antenna transmission path. The LinkControl application provides a screen which helps users estimate the minimum clearance distance. Please refer to “Understanding clearance distance” on pages 13 and 14.
8. Locate the terminal as far as possible from ungrounded metal.

Avoid Hazards Leading to Serious Injury or Possible Death - continued

Dielectric Heating

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The eyes are also highly susceptible to dielectric heating. Do not look directly into devices radiating RF energy.

You must not stand directly in the path of RF radiating devices.

Electrical Hazards in Wet and Windy Conditions

During windy and wet weather conditions, observe the following safety precautions:

1. Check cable connectors and power cords.
2. If the GLOBETrekker is in contact with water, check for signs of electrical dangers.
3. Disconnect the GLOBETrekker from its power source before you move it.
4. Disconnect the GLOBETrekker from its power source if you suspect a power malfunction.
5. Shelter the baseband unit and its components from water.

1 Safety Basics

Federal Communications Commission (FCC) Operating Regulations

Warning

Unintentional Radio Interference—FCC 15.19, 15.21 and 15.105

This device complies with the limits for a Class A digital device according to Section 15 of the FCC Rules. These limits provide reasonable protection against harmful interference when you operate the equipment in a commercial environment.

This equipment generates, uses, and radiates radio frequency energy. If you install and use the device according to the instruction manual, the device will not cause harmful interference to radio communications.

If you operate the device in a residential area, it is likely to cause harmful interference to radio communications; you will correct the interference at your own expense.

Frequency Coordination—FCC 25.203(c), 25.251, and 101.103

Users must ensure they co-ordinate proposed frequency and power usage with other terrestrial and satellite users prior to transmission.

Understanding Clearance Distance

There is a Clearance Distance indicator screen within the LinkControl application that can help the user estimate the minimum clearance required in front of the antenna.

It is recommended the user read this entire user guide before attempting system assembly; powering up the system and laptop; or trying to access the LinkControl software.

Federal Communications Commission (FCC) Operating Regulations - continued

Understanding Clearance Distance

To access the Clearance Distance indicator screen in LinkControl:

1. Launch the LinkControl software.
2. Enter Administrator mode (this mode of operation is password-protected and is accessible to users with “administrator” level rights in LinkControl).
3. To enter Admin mode, on the Menu bar click Settings -> Enter Admin Mode.
4. Type in the Administrator password; the factory default password is “Administrator”. This password is set at the factory and meant to be changed at first use. It is recommended this password be changed and documented as soon as possible by the System Administrator.

   NOTE: Passwords are case-sensitive.

To exit Administrator mode and to enter Field mode:

1. Field mode is an end-user mode that operates without elevated rights and is only used for Auto-Acquire method of access.
2. To exist Administrator mode and enter Field mode, on the Menu bar click Settings -> Exit Admin Mode.

To view the Clearance Distance indicator screen go to Alignment tab and click the down arrow beside Clearance Distance on the right-hand side of the window. The Clearance Distance screen opens as shown in Figure 1.

The Clearance Distance screen shows the distance that different types of obstacles must be ‘away’ from the terminal when the antenna is positioned at a given elevation.

Refer to **Table 1** and **Figure1** in this chapter for more information on LinkControl Clearance Distance screen and sample calculations.

Changes or Modifications to Equipment - FCC Section 15.21
Caution: Changes or modifications to this equipment, not expressly approved by the manufacturer could void the user's authority to operate the equipment.

1 Safety Basics

Figure 1 Clearance Distance Screen

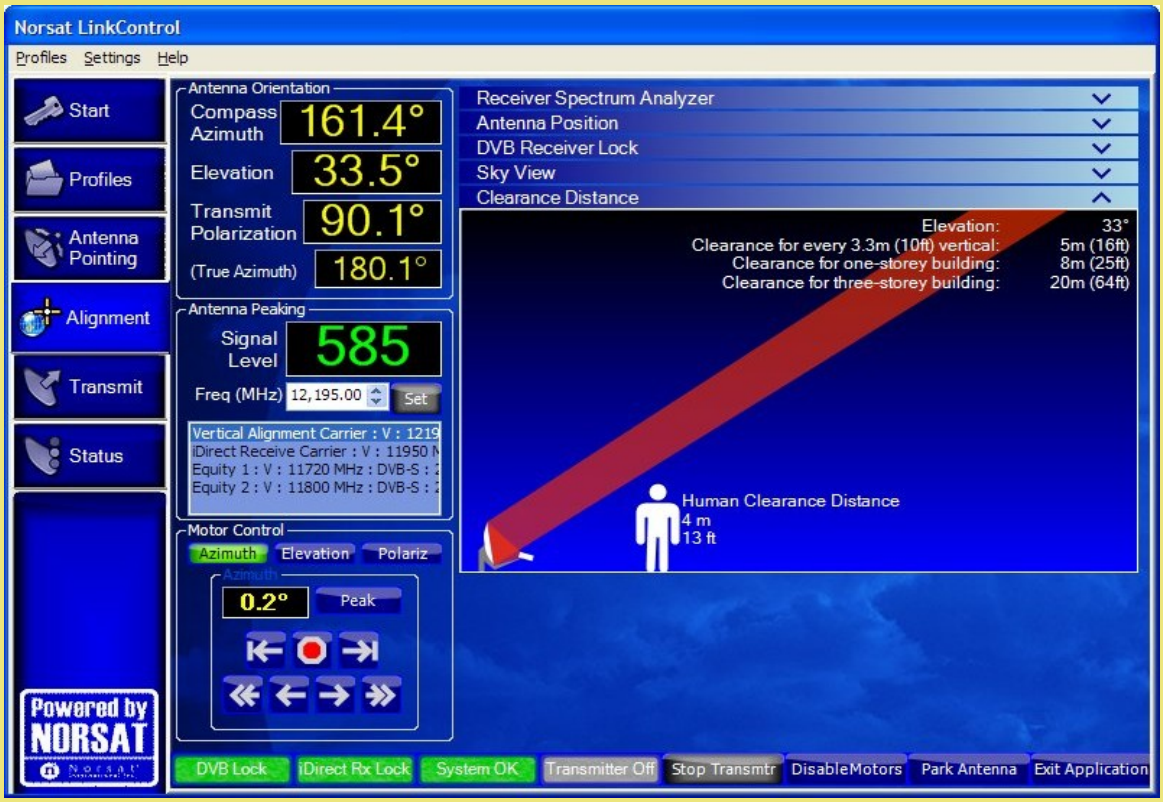


Table 1 Sample Clearance Distance Calculations	
Types of Obstacles	**Clearance Distances**
Antenna Elevation = 33°	
Clearance for every 3.3 meters (10 feet) vertical	5 meters (17 feet)
Clearance for one storey building	8 meters (25 feet)
Clearance for three storey building	20 meters (65 feet)
Human	4 meters (13 feet)

2 Getting Started

Topics Covered:

Norsat GLOBETrekker

2 Getting Started

This chapter describes what you should do when you first receive your shipment from Norsat.

Boxes Delivered

When your Norsat GLOBETrekker shipment arrives, it will come shipped in three boxes:

Box Number:	Contents:	Size:
Box 1 and Box 2 (White)	Contain the GLOBETrekker backpacks.	78cm x 57.75cm x 52cm (30 ¾" x 22 ¾" x 20 ½")
Box 3 (Pelican)	Contains the AC-DC power supply.	50.8cm x 20.3cm x 41.4cm (20" x 8" x 16 1/3 ")

The shipment should be checked for any visible damage to the boxes that may have occurred during shipping.

You should use a short, sharp object (knife or scissors) to carefully unseal the boxes.

2 Getting Started

After opening the two large white boxes, note that the GLOBETrekker is held by eight foam spacers.

The spacers are used to ensure the GLOBETrekker system is not damaged during shipping.

Note: It is recommended that the spacers and original boxes be stored and saved should you need to re-ship the GLOBETrekker.

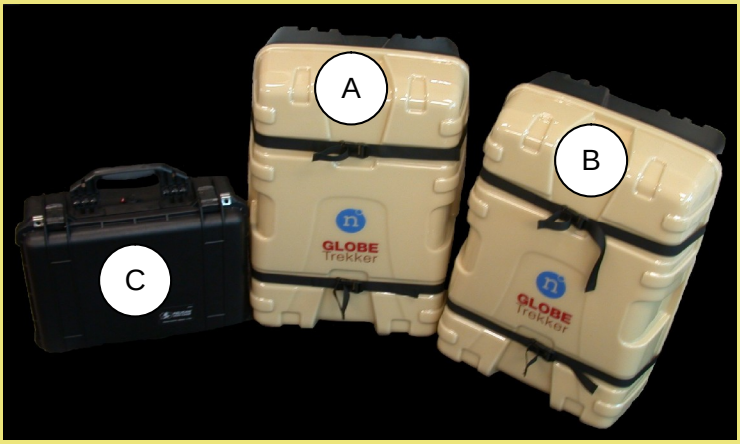
What is Inside?

Once the boxes are unpacked, you will find two backpacks (A and B) and one black transit case (C).

Backpack A – Antenna/RF

Backpack B – Baseband

Transit Case C – AC/DC Power Supply



2 Getting Started

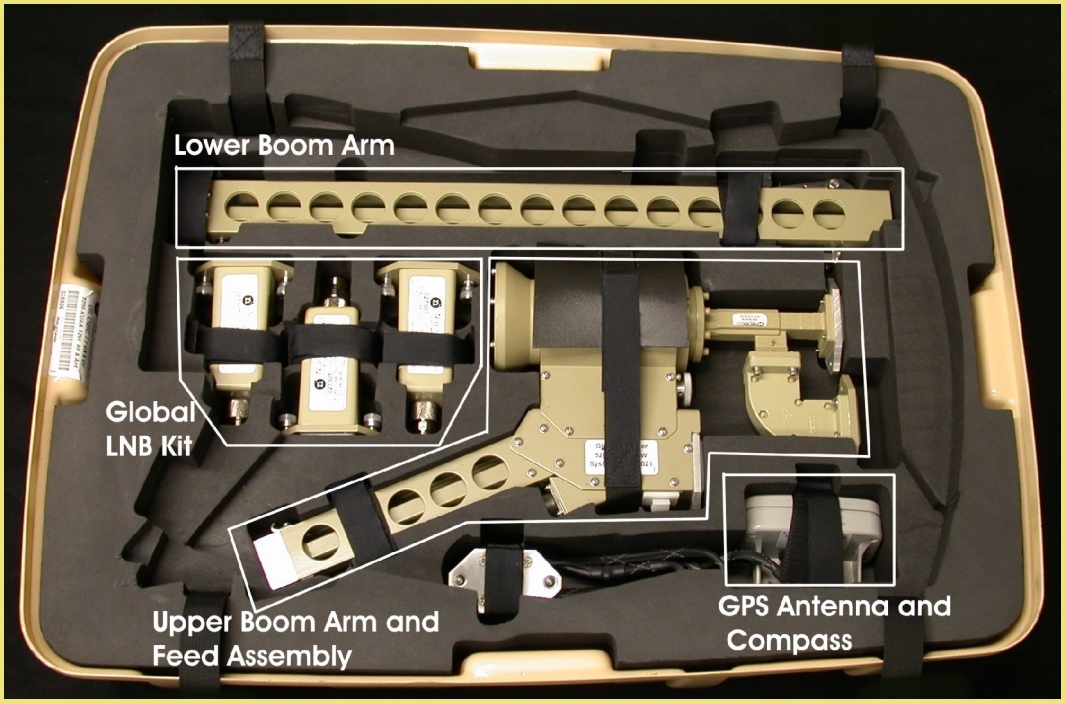
Contents by Backpack

Refer to **Table 3 Parts/Assemblies Checklist** in this chapter to ensure that your shipment is complete and is not missing any parts or assemblies. Contact the factory at Norsat immediately if there are any missing parts.

Backpack A – Antenna/RF

- ☐ Lower Boom Arm (Figure 2)
- ☐ Upper Boom Arm and Feed Assembly (Figure 2)
- ☐ Global LNB Kit (Figure 2)
- ☐ GPS Antenna and Compass (Figure 2)
- ☐ Tx Termination (optional) (Figure 2)

Figure 2 Backpack A - Antenna/RF Lid without Antenna Segments



2 Getting Started

Backpack A – Antenna/RF

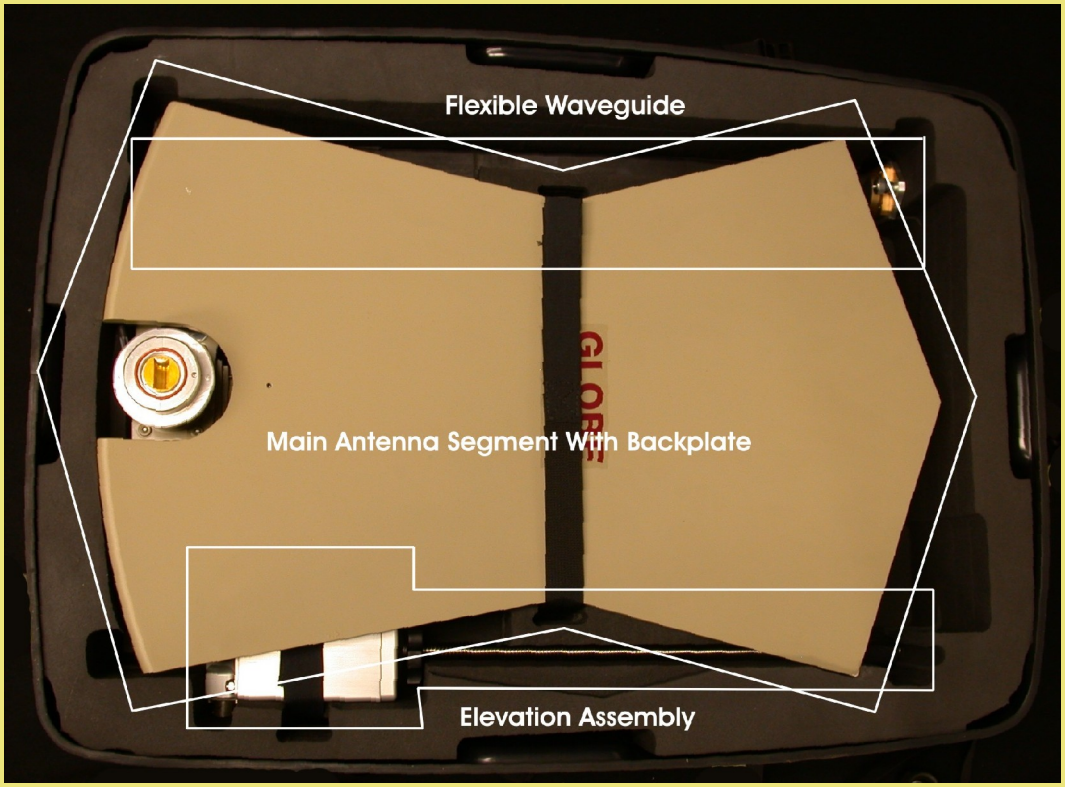
- Antenna Segment 4 (Figure 3)
- Antenna Segment 5 (Figure 3)
- Antenna Segment 6 (Figure 3)

Figure 3 Backpack A - Antenna/RF Lid with Antenna Segments

Backpack A – Antenna/RF Bottom

- Elevation Assembly (Figure 4)
- Flexible Waveguide (Figure 4)
- Main antenna segment with backplate (Figure 4)

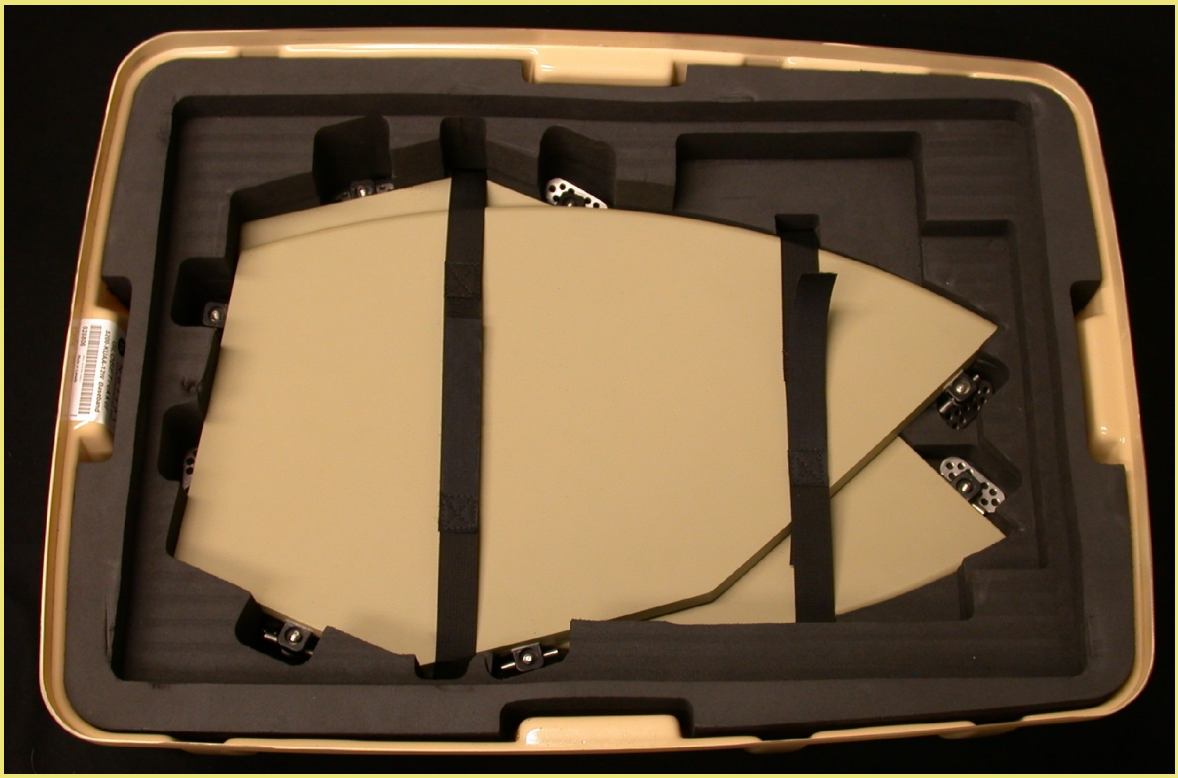
Figure 4 Backpack A - Antenna/RF Bottom



Backpack B – Baseband Lid

- Antenna Segment 2 (Figure 5)
- Antenna Segment 3 (Figure 5)

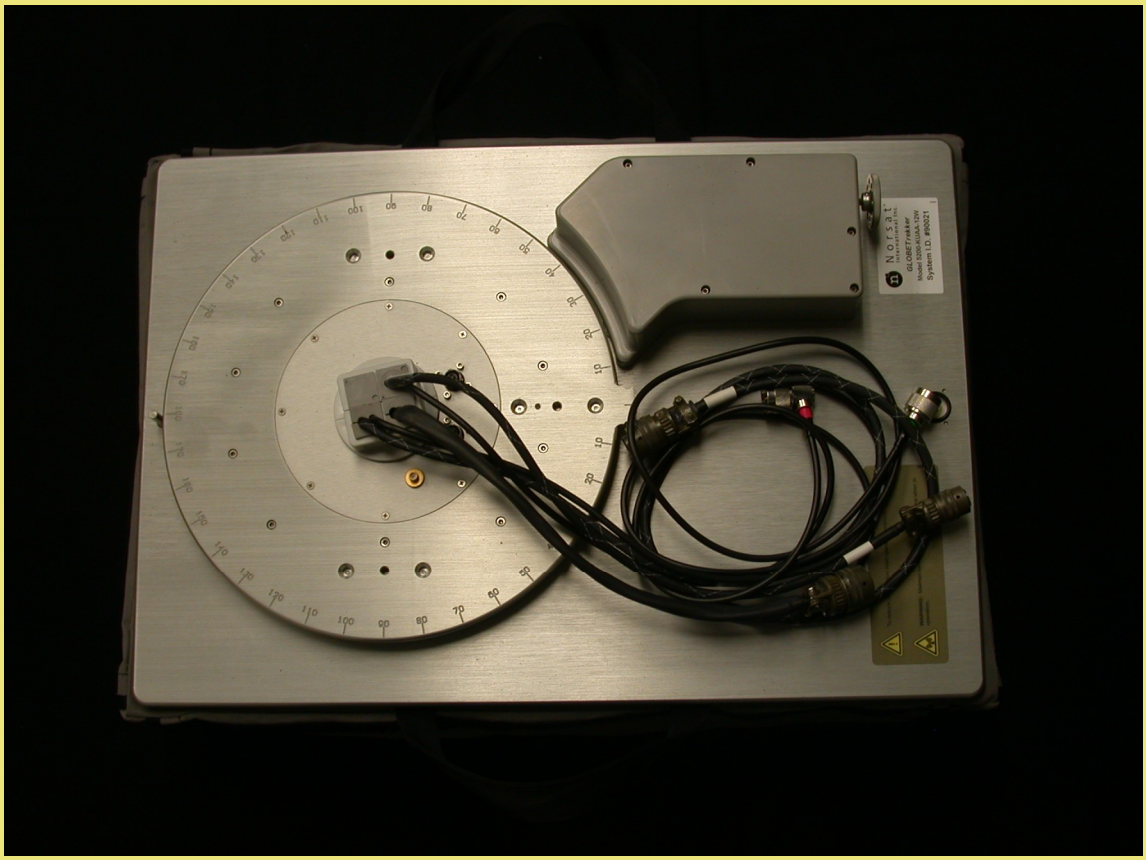
Figure 5 Backpack B - Baseband Lid



Backpack B – Baseband Bottom

- Baseband Unit (Figure 6)

Figure 6 Backpack B – Baseband Bottom



Transit Case C

- AC-DC Power Supply (Figure 7)
- AC-DC Power Supply Cables (2) (Figure 7)

Figure 7 Transit Case C - AC-DC Power Supply

2 Getting Started

Parts and Assemblies Checklist

Table 2 Parts/Assemblies Checklist		
Part Name	**Backpack**	**Part #**
☐ Main Antenna Segment with Backplate	A (Bottom)	FRU-5200-ANT
☐ Antenna Segment 2	B (Lid)	FRU-5200-ANT
☐ Antenna Segment 3	B (Lid)	FRU-5200-ANT
☐ Antenna Segment 4	A (Lid)	FRU-5200-ANT
☐ Antenna Segment 5	A (Lid)	FRU-5200-ANT
☐ Antenna Segment 6	A (Lid)	FRU-5200-ANT
☐ Lower Boom Arm	A (Lid)	FRU-5200-LBA
☐ Ku-band Upper Boom Arm and Feed Assembly	A (Lid)	FRU-5200-UBA-KUR
☐ LNB 1000HA	A (Lid)	FRU-5200-LNBA
☐ LNB 1000HB	A (Lid)	FRU-5200-LNBB
☐ LNB 1000HC	A (Lid)	FRU-5200-LNBC
☐ GPS Antenna and Compass	A (Lid)	FRU-5200-GPS
☐ Flexible Waveguide	A (Bottom)	FRU-5200-FWG
☐ Elevation Assembly	A (Bottom)	FRU-5200-EVA
☐ Baseband Unit	B (Bottom)	FRU-5200-BBI
☐ AC-DC Power Supply	C	FRU-5200-PS
☐ Power Supply Cables (2)	C	FRU-5200-PSCS
☐ Tx Termination (optional)	C	FRU-5200-WR75
☐ Spare Parts Kit	C	FRU-5200-HW

NOTE: If you ordered additional spares, they will not appear on the list above.

3 GLOBETrekker Basics

Topics Covered: