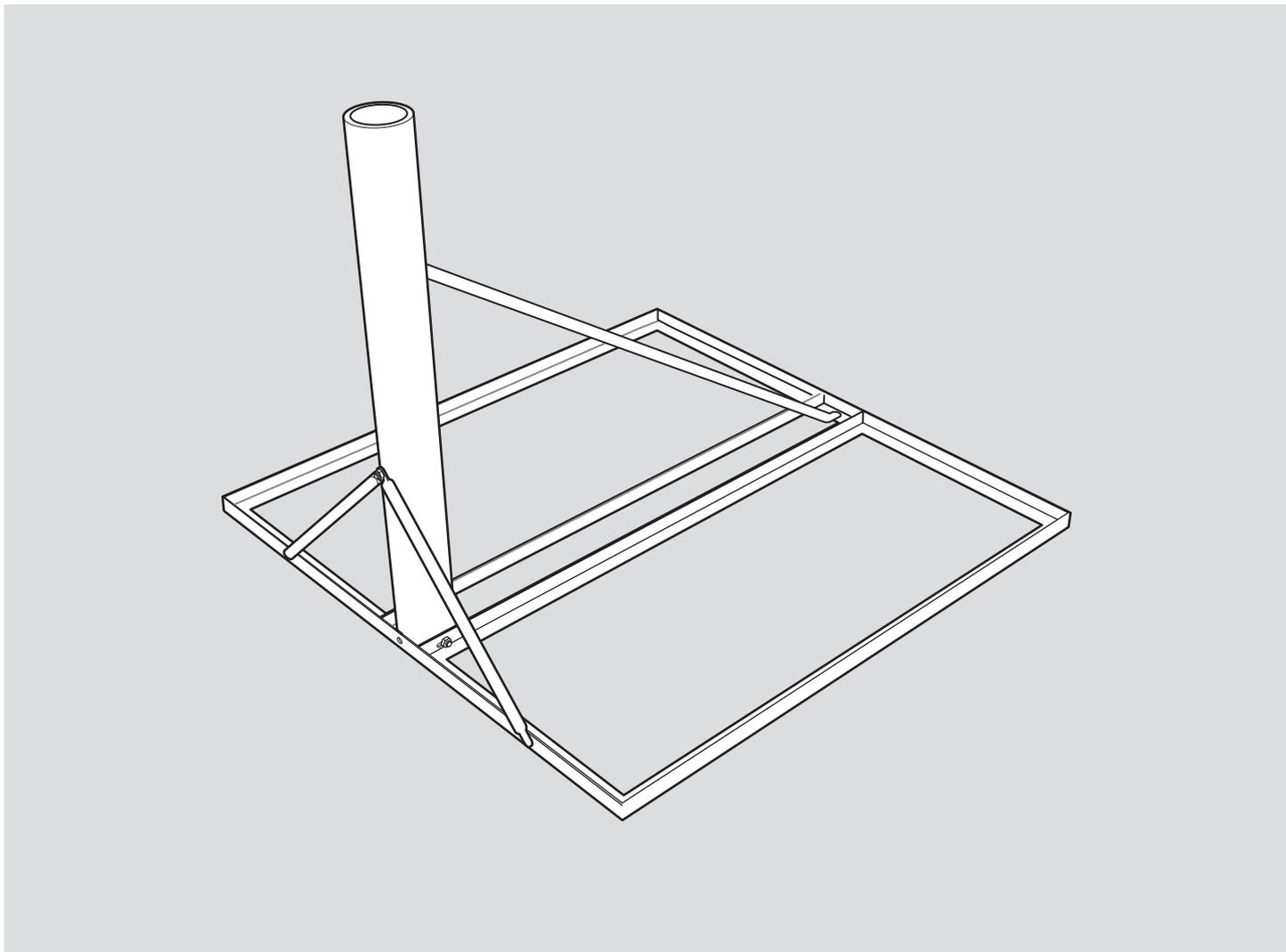


# Models 611617401 and 611617402 (36 in x 36 in with 2-3/8 in Diameter Mast) Non-Penetrating Roof Mount for 75 cm, 84E cm, 90 cm and 1.0 m Antenna Systems

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Skyware Global  
1315 Industrial Park Drive  
Smithfield, NC 27577 USA

Telephone: +1-919-934-9711

Internet: [www.skywareglobal.com](http://www.skywareglobal.com)

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## MANUAL REVISION HISTORY

DATE	DESCRIPTION	REVISION
8/06	ECN 9007509	Rev A
02/07	5065326	Rev B
04/08	5078756	Rev C
12/09	ECR 649	Rev D
05/10	ECR 755	Rev E

## WARRANTY

### Skyware Global VERY SMALL APERTURE TERMINAL (VSAT) PRODUCTS TWELVE (12) MONTH LIMITED WARRANTY

Seller warrants that all Skyware Global manufactured VSAT products are transferred rightfully and with good title; that they are free from any lawful security interest or other lien or encumbrance unknown to Buyer. Seller also warrants that for a period of twelve (12) months from the date of shipment from Seller's factory, all its VSAT products shall be free from defects in material and workmanship which arise under proper and normal use and service. Buyer's exclusive remedy hereunder is limited to Seller's correction (either at its plant or at such other place as may be agreed upon between Seller and Buyer) of any such defects by repair or replacement at no cost to Buyer, except for the costs of any transportation in connection with the return of the defective VSAT products to be replaced or repaired, and the costs to remove and/or reinstall the products, which shall be borne by Buyer. The limited warranty period shall not be extended beyond its original term with respect to any part or parts repaired or replaced by seller hereunder.

This warranty shall not apply to VSAT products which (i) have been repaired or altered in any way so as to affect stability or durability, (ii) have been subject to misuse, negligence or accident, (iii) have been damaged by severe weather conditions such as excessive wind, ice, storms, lightning, or other natural occurrences beyond Seller's control; (iv) have presented damages, defects or nonconformances caused by improper shipping, handling or storage, and (v) have not been installed, operated or maintained in accordance with Seller's instructions.

Buyer shall present any claims along with the defective VSAT product(s) to Seller immediately upon failure. Non-compliance with any part of this warranty procedure may invalidate this warranty in whole or in part.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, OTHER THAN AS SPECIFICALLY STATED ABOVE. EXPRESSLY EXCLUDED ARE ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE FOREGOING SHALL CONSTITUTE ALL OF SELLER'S LIABILITY (EXCEPT AS TO PATENT INFRINGEMENT) WITH RESPECT TO THE VSAT PRODUCTS. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY LOSS OF PROFITS OR REVENUE, LOSS OF USE, INTERRUPTION OF BUSINESS, OR INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND AS A RESULT OF THE USE OF THE PRODUCTS MANUFACTURED BY SELLER, WHETHER USED IN ACCORDANCE WITH THE INSTRUCTIONS OR NOT. UNDER NO CIRCUMSTANCES SHALL SELLER'S LIABILITY TO BUYER EXCEED THE ACTUAL SALES PRICE OF THE VSAT PRODUCTS HEREUNDER.

In some jurisdictions, Buyer may have other rights under certain statutes that may imply non-excludable warranties. No representative is authorized to assume for Seller any other liability in connection with the VSAT products.



#### DO NOT DISCARD CONTENTS

The product in this packaging was placed in the market after August 13, 2005. Its components must not be discarded with normal municipal or household waste.

Contact your local waste disposal agency for recovery, recycling, or disposal instructions.

## WARNINGS

**LAW:** Installation and installer must meet local codes and ordinances regarding safety! Installation of this product should be performed only by a professional installer and is not recommended for consumer Do-It-Yourself installations.

**DANGER:** **WATCH FOR WIRES!** Installation of this product near power lines is extremely dangerous and must never be attempted. Installation of this product near power lines can result in death or serious injury!

For your own safety, you must follow these important safety rules. Failure to follow these rules could result in death or serious injury!

1. Perform as many functions as possible on the ground.
2. Watch out for overhead power lines. Check the distance to the power lines before starting installation. Stay at least 6 meters (20 feet) away from all power lines.
3. Do not install antenna or mast assembly on a windy day.
4. If you start to drop antenna or mast assembly, move away from it and let it fall.
5. If any part of the antenna or mast assembly comes in contact with a power line, call your local power company. **DO NOT TRY TO REMOVE IT YOURSELF!** They will remove it safely.
6. Make sure that the mast assembly is properly grounded.

**WARNING:** Assembling dish antennas on windy days is extremely dangerous and must never be attempted. Due to the surface area of the reflector, even slight winds create strong forces. For example, this antenna facing a wind of 32 km/h (20 mph) can undergo forces of 269 N (60 lb). **BE PREPARED TO SAFELY HANDLE THESE FORCES AT UNEXPECTED MOMENTS. ATTEMPTING TO ASSEMBLE, MOVE OR MOUNT A DISH ON WINDY DAYS COULD RESULT IN DEATH OR SERIOUS INJURY.** Skyware Global is not responsible or liable for damage or injury resulting from antenna installations.

**WARNING:** Antennas improperly installed or installed to an inadequate structure are very susceptible to wind damage. This damage can be very serious or even life threatening. The owner and installer assumes full responsibility that the installation is structurally sound to support all loads (weight, wind and ice) and properly sealed against leaks. Skyware Global will not accept liability for any damage caused by a satellite system due to the many unknown variable applications.

## PRE INSTALLATION CONSIDERATIONS

### DESCRIPTION:

This manual covers the assembly and installation of the Skyware Global Non-Penetrating Roof Mount for use with the 46 cm through 90 cm Az/El antenna system. Information on ballast requirements is also included. Read this manual thoroughly before beginning system assembly. This system should be installed by qualified antenna installation personnel. For best results in the assembly process, perform each step in the same sequence as listed in this manual.

### TOOLS REQUIRED:

Compass	Phillips Screwdriver	10 mm Nut Driver
Clinometer	Ratchet Wrench (3/8 in Drive)	13 mm Socket (3/8 in Drive)
Torque Wrench	10 mm Socket (3/8 in Drive)	13 mm Nut Driver

### PREINSTALLATION CHECK LIST

**Grounding Rod Clamp, Grounding Block & Wire:** As required by the National Electric Code and local codes.

**Coaxial Cable:** Size and length required.

**Roofing Paper:** Two pieces 36" x 72" (to be placed between base frame of mount and roof surface).

**Solid Concrete Cap Blocks:** 3.6" x 7.6" x 15.6" (Quantity - see Ballast Requirements page 7).

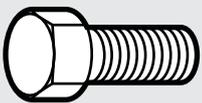
**Cable:** 1/8" diameter minimum (1200 lb minimum breaking strength) 7 x 7 or 7 x 19 construction, stainless steel or galvanized steel (length as required).

**Cable Clamps:** 6 - minimum.

## SITE SELECTION

The first and most important consideration when choosing a prospective antenna site is whether or not the area can provide an acceptable "look angle" at the satellite. A site with a clear, unobstructed view is required. Your antenna site must be selected in advance so that you will be able to receive the strongest signal available. The roof section must be flat and of sufficient area for the base of the roof mount and clear of all debris, gravel or other loose material. The roof section must also be able to withstand the weight of ballast, antenna and mount assembly (see Ballast Requirements on page 7). Distributed loads (lb/sq.ft) and total dead load are shown on page 7, for your consideration. It is the customer's responsibility to make sure distributed loads of this product do not exceed roof design load. If you do not know your roof design loads, consult a professional engineer.

## BOLT TORQUE



Apply 24 N-m (18 ft-lb)  
of Torque to M8 Bolt

### GRADE 8.8 (8G) - GOLD COLOR

M6	M8	M10	M12	M16	M20
9.5 N-m	24 N-m	43 N-m	79 N-m	195 N-m	353 N-m
7 ft-lb	18 ft-lb	32 ft-lb	58 ft-lb	144 ft-lb	260 ft-lb

### EXCEPTIONS:

M8 x 60 Round Head Square Neck Bolt (Securing antenna to Az/El cap)	16 N-m (12 ft-lb)
M6 x 20 Hex Head Bolt (Securing clamp to junction block)	5.4 N-m (4 ft-lb)
M6 x 30 Hex Head Bolt (Securing side feed legs to junction block & antenna)	5.4 N-m (4 ft-lb)

## ASSEMBLY AND INSTALLATION

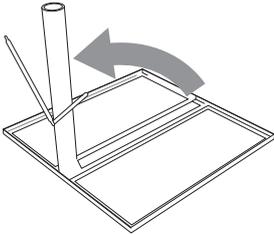
**NOTE:** 10 mm tools fit M6 hardware and 13 mm tools fit M8 hardware.

Refer to "Assembly Tools Required," on Page 3 for additional tools needed for assembly and installation. See Page 3 for a "Pre-installation Checklist."

Clear roof of all debris, gravel or other loose materials. It is recommended that a layer of roofing paper be placed under the base of the roof mount. Place roof mount on roof and swing mast up to the vertical position.

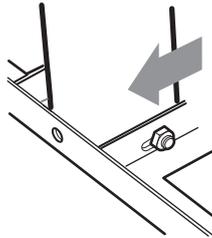
### Step 1

Swing mast upward to vertical position.



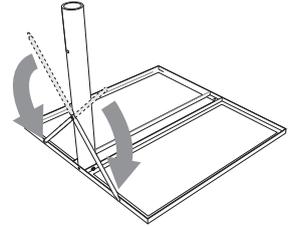
### Step 2

Loosen nuts at base of mast and slide mast securely against side of base frame. Tighten nuts securely.



### Step 3

Swing short front braces down to align with holes in base frame.



### Step 6

Secure long rear brace to mast with M8 x 80 mm hex head bolt, 5/16 washer and M8 nylon lock nut. Tighten until mast begins to elongate.

### Step 7

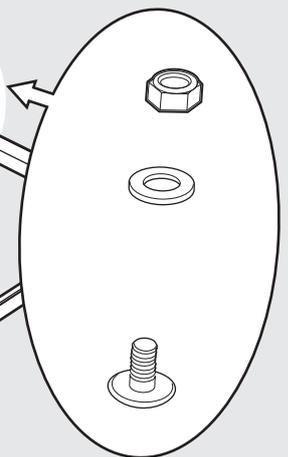
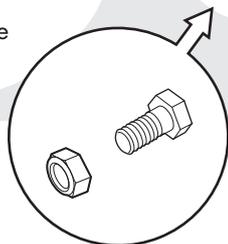
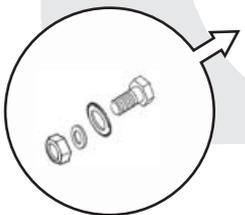
Secure long rear brace to base frame with M8 x 20 mm round head square neck bolt, 5/16 washer and M8 nylon lock nut.

### Step 4

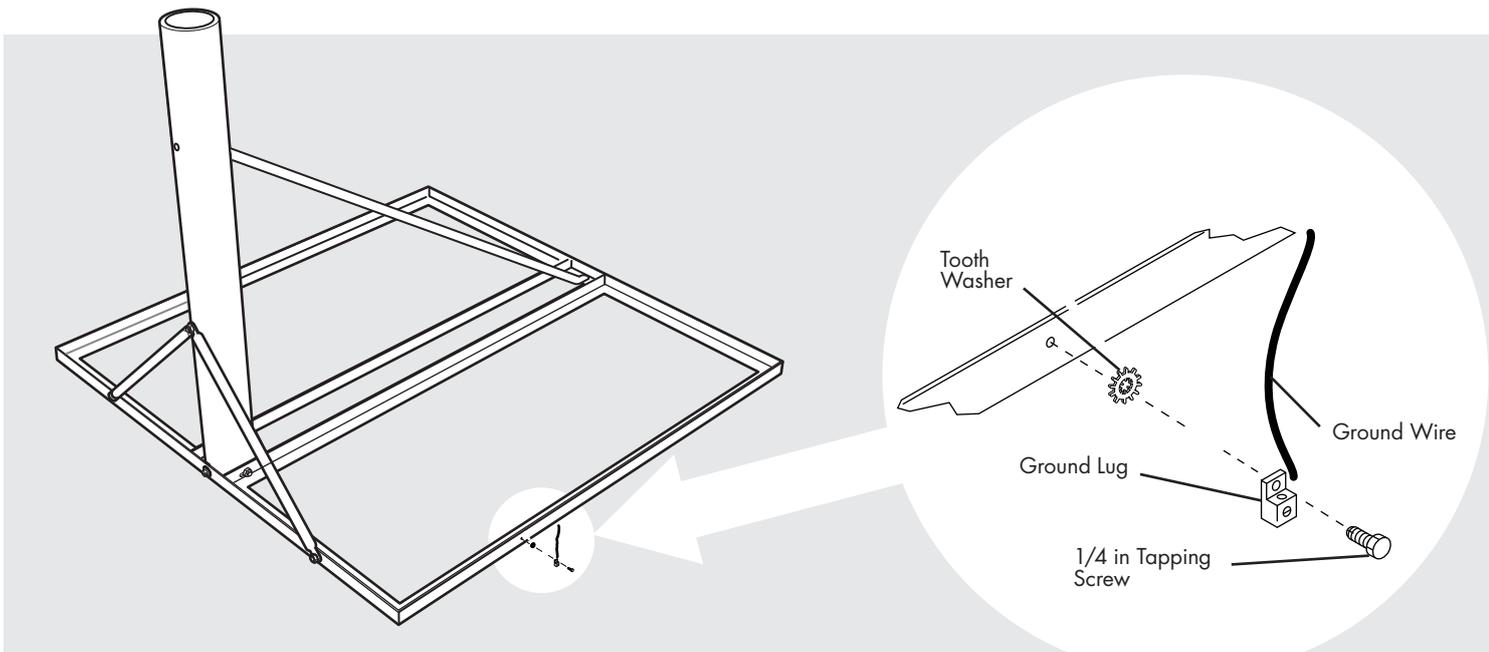
Secure mast to base frame with M8 X 20mm Hex Head Bolt and Toothwasher from inside and M8 Nylon Lock Nut and flat washer from outside

### Step 5

Secure both front braces to base frame with M8 x 20 mm hex head bolt and M8 nylon lock nut.



## GROUNDING



**NOTE: All installations to conform to latest issue of National Electric Code.**

Ground antenna mount assembly and feed cables in accordance with current National Electric Code and local electric codes. The figure above depicts typical grounding methods. Clamps that provide a solid connection between ground wire and ground source should be used. Tighten and torque all hardware as shown in torque chart on Page 3.

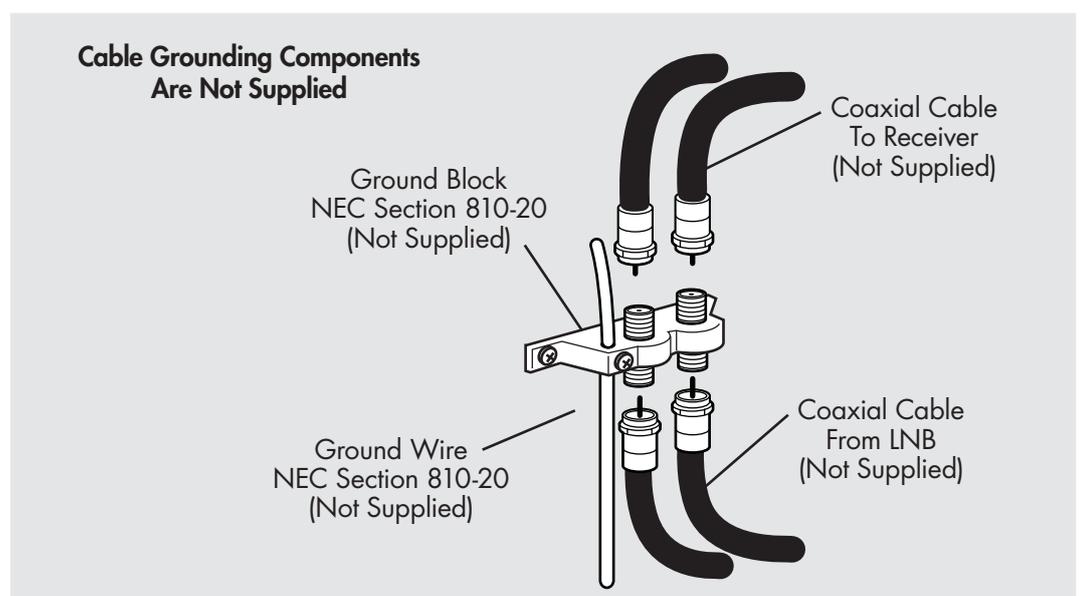
### Grounding of the NPRM Frame

Perform the following steps and ground the assembly in accordance with current National Electrical Code and local codes.

1. Install the ground lug onto the ballast tray using the Self-Tapping Hex Head Screw as shown.
2. Install 5/16 in tooth washer between M8 hex bolt and frame as shown.
3. Insert one end of the ground wire through the ground lug (see illustration).
4. Tighten the ground lug clamp screw until ground wire is secure.
5. Refer to the National Electric Code (NEC) Section 810 and local electric codes for specific instructions on grounding the remaining end of ground wire.

**NOTE:** All installations to conform to latest issue of National Electrical Code. Ground antenna mount assembly and feed cables in accordance with current National Electrical code and local codes.

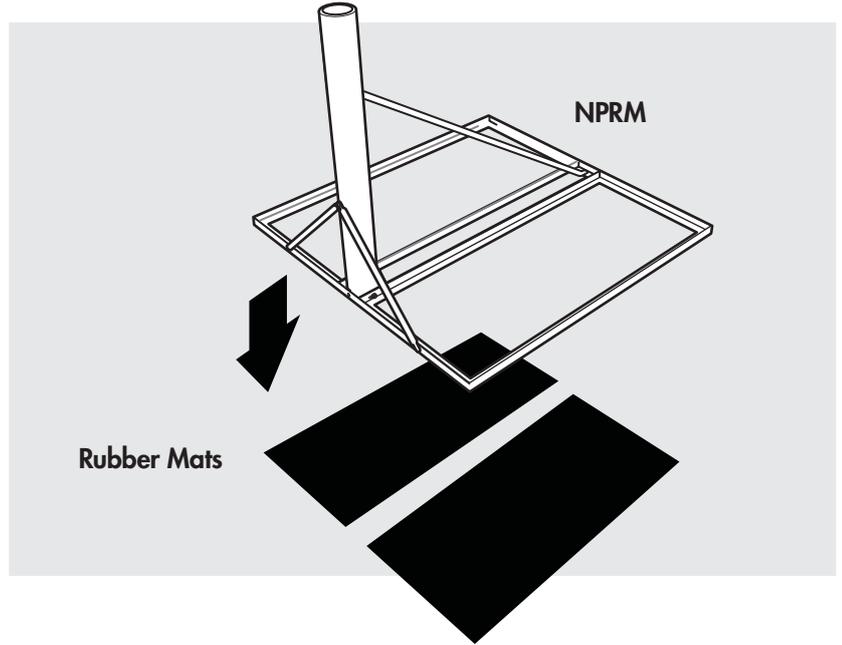
These illustrations depict typical grounding methods for the ground pole and feed cables. Clamps that provide a solid connection between ground wire and ground source should be used. Tighten and torque all hardware.



## RUBBER MATS

Place two rubber pads 18" x 38" side by side to form a 36" x 38" area. Center base frame over rubber pads as shown.

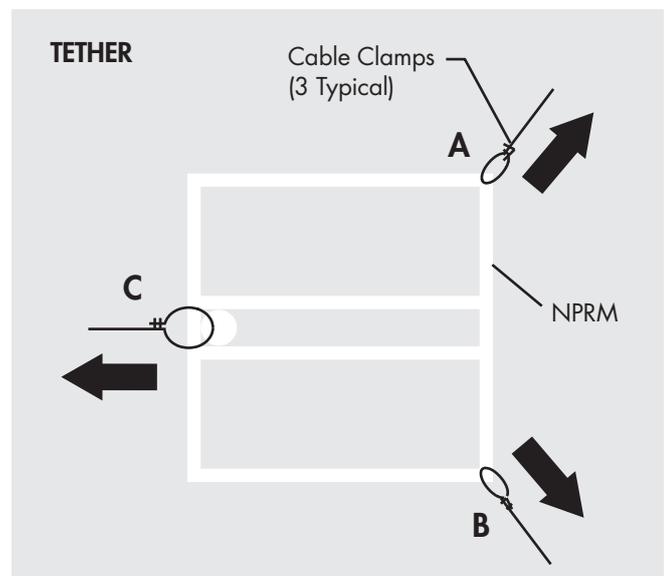
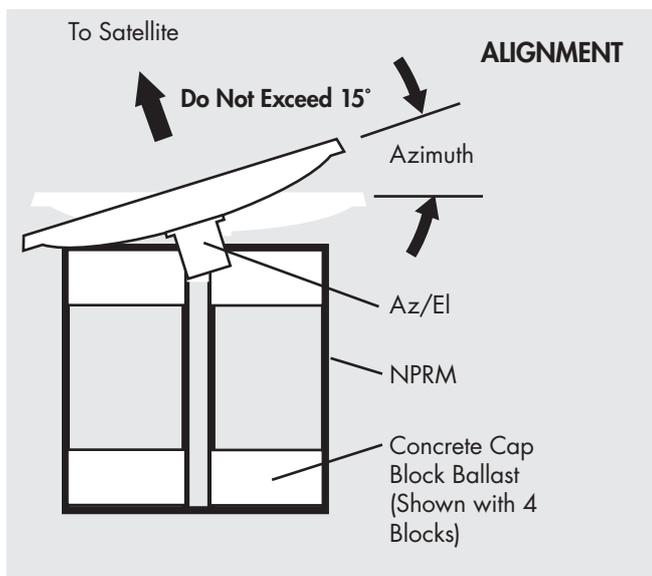
**NOTE:** Rubber pads not included on some models.



## INITIAL ALIGNMENT AND TETHER

Orient the base (and pads, if used) in the general direction towards the satellite as shown. Place four concrete blocks, one in each corner, and perform initial coarse satellite signal adjustment by moving the base. Add appropriate number of concrete blocks as required per tables on page 7. Complete fine tune signal adjustment with the AZ-EL cap per antenna and AZ-EL instruction manual.

Attach three cables as shown to fixed objects capable of supporting 200 lb. Cable must be 1/8 inch diameter minimum stainless or galvanized steel, 7 x 7 or 7 x 19, 1200 lb minimum breaking strength. As a safety precaution, it is recommended that the base frame be tethered as shown to prevent over-turning or sliding in the event allowable wind loads shown in tables on page 7 are exceeded.



# BALLAST REQUIREMENTS

## 75 cm Antenna Ballast Table

(Wind Speed Tethered per Note 5)

\* Allowable Wind Speed (mph)  
When Height From Ground To  
Center of Antenna Is:

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph)		
				15 ft	30 ft	60 ft
8	301	33.7	B	96	87	78
			C	74	68	63
10	365	40.8	B	106	96	86
			C	81	75	70
14	493	55.2	B	123	111	100
			C	94	88	81
18	621	69.5	B	-	125	112
			C	106	98	91

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 75 cm Antenna Ballast Table

(Wind Speed Untethered per Note 6)

\* Allowable Wind Speed (mph)  
When Height From Ground To  
Center of Antenna Is:

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph)		
				15 ft	30 ft	60 ft
8	301	33.7	B	77	70	62
			C	59	55	51
10	365	40.8	B	85	76	68
			C	65	60	56
14	493	55.2	B	98	88	79
			C	75	69	64
18	621	69.5	B	109	99	88
			C	83	78	72

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 84 cm Elliptical Antenna Ballast Table

(Wind Speed Tethered per Note 5)

\* Allowable Wind Speed (mph)  
When Height From Ground To  
Center of Antenna Is:

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph)		
				15 ft	30 ft	60 ft
8	303	33.9	B	80	72	64
			C	61	57	53
10	367	41.1	B	88	79	71
			C	67	62	58
14	495	55.4	B	102	92	82
			C	78	72	67
18	623	69.8	B	114	103	92
			C	87	81	75

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 84 cm Elliptical Antenna Ballast Table

(Wind Speed Untethered per Note 6)

\* Allowable Wind Speed (mph)  
When Height From Ground To  
Center of Antenna Is:

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph)		
				15 ft	30 ft	60 ft
8	303	33.9	B	74	67	60
			C	57	53	49
10	367	41.1	B	82	74	66
			C	63	58	54
14	495	55.4	B	95	86	77
			C	73	67	63
18	623	69.8	B	107	96	86
			C	82	76	70

\* Antenna and Mount Rated to 125 mph maximum wind speed

# BALLAST REQUIREMENTS

## 90 cm Antenna Ballast Table

(Wind Speed Tethered per Note 5)

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph) When Height From Ground To Center of Antenna Is:		
				15 ft	30 ft	60 ft
8	308	34.5	B	81	73	65
			C	62	58	53
10	372	41.6	B	89	80	72
			C	68	63	59
14	500	56.0	B	103	93	83
			C	79	73	68
18	628	70.3	B	116	105	93
			C	89	82	76

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 90 cm Antenna Ballast Table

(Wind Speed Untethered per Note 6)

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph) When Height From Ground To Center of Antenna Is:		
				15 ft	30 ft	60 ft
10	372	41.6	B	70	64	57
			C	54	50	46
14	500	56.0	B	81	73	66
			C	62	58	53
18	628	70.3	B	91	82	73
			C	69	64	60

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 1.0 m Antenna Ballast Table

(Wind Speed Tethered per Note 5)

Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph) When Height From Ground To Center of Antenna Is:		
				15 ft	30 ft	60 ft
8	310	34.7	B	74	67	60
			C	56	52	49
10	374	41.9	B	81	73	65
			C	62	58	53
14	502	56.2	B	94	85	76
			C	72	67	62
18	630	70.5	B	105	95	85
			C	80	75	69

\* Antenna and Mount Rated to 125 mph maximum wind speed

## 1.0 m Antenna Ballast Table

(Wind Speed Untethered per Note 6)

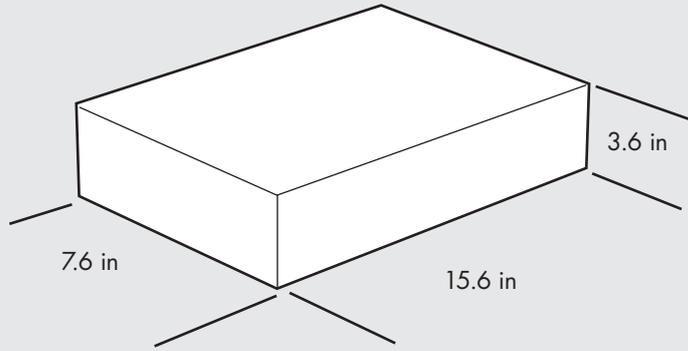
Number of Blocks	Total Weight (lb) (Ballast & Antenna)	Distributed Load (lb/sq ft)	Exposure	* Allowable Wind Speed (mph) When Height From Ground To Center of Antenna Is:		
				15 ft	30 ft	60 ft
8	310	34.7	B	58	53	47
			C	45	41	38
10	374	41.9	B	64	58	52
			C	49	45	42
14	502	56.2	B	74	67	60
			C	56	52	49
18	630	70.5	B	82	74	67
			C	63	58	54

\* Antenna and Mount Rated to 125 mph maximum wind speed

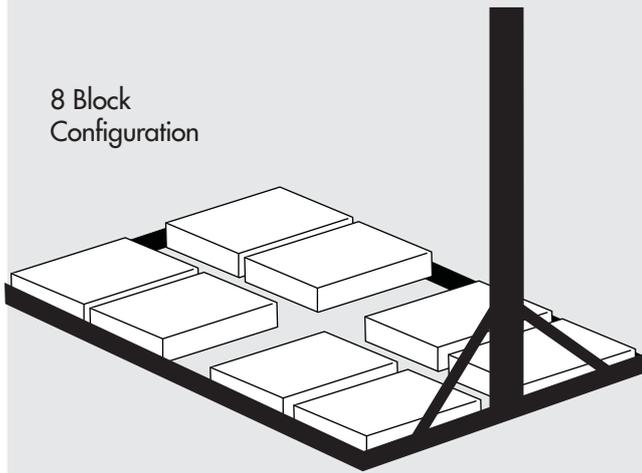
### Notes:

1. Antenna and mount survival wind velocity is 125 mph.
2. Select ballast from table 1-8 based on antenna size, tethered or untethered configuration, wind velocity, UBC exposure "B" or "C" and height above ground.
3. Ballast consists of:
  - 1) 16" x 8" x 4" solid concrete cap block with a weight of 32 lbs each plus the weights of the specified antennas and mounts.
4. Ballast calculated to meet uniform building code "B" or "C" (See tables) and 1.5 stability factor.
5. Tables 1, 3, 5, and 7 ballast based on overturning requirements with 1.5 stability; to ensure against sliding, tether as shown in tether detail.
6. Tables 2, 4, 6 and 8 ballast based on overturning requirements with 1.5 stability and tow 2mm x 18" x 38" rubber pads placed under the base frame that will provide the coefficient of friction required to resist sliding and help protect the roof membrane from puncture.
7. Clear roof of all debris, gravel or other loose materials.
8. Mount is fabricated galvanized steel and antenna is SMC thermoset-molded material.
9. Roof structure must be sufficient to support weight shown in table.
10. Installation must comply with latest revision of 8000292-01 instruction and assembly manual.

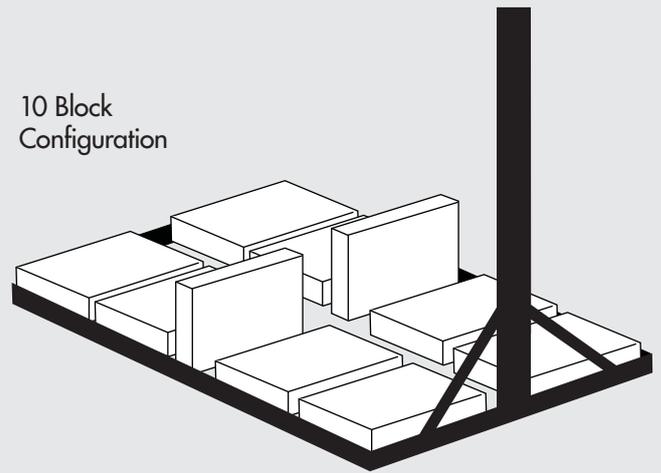
### Solid Concrete Cap Block Dimensions



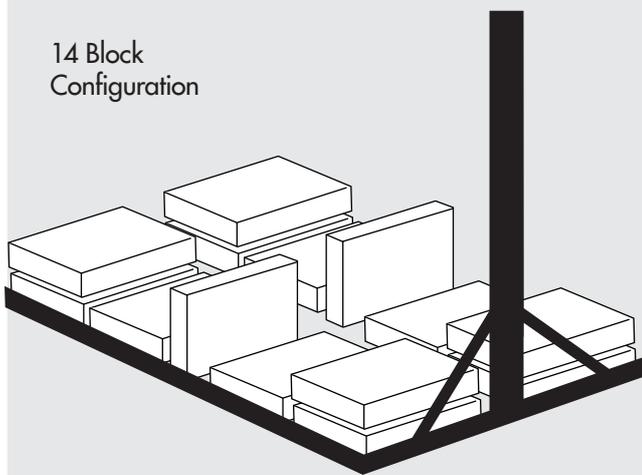
Use this chart to determine proper placement of concrete blocks.



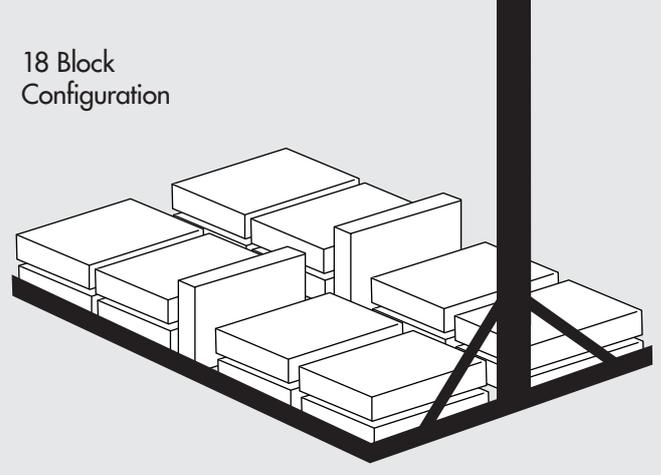
8 Block Configuration



10 Block Configuration



14 Block Configuration



18 Block Configuration

#### NOTES:

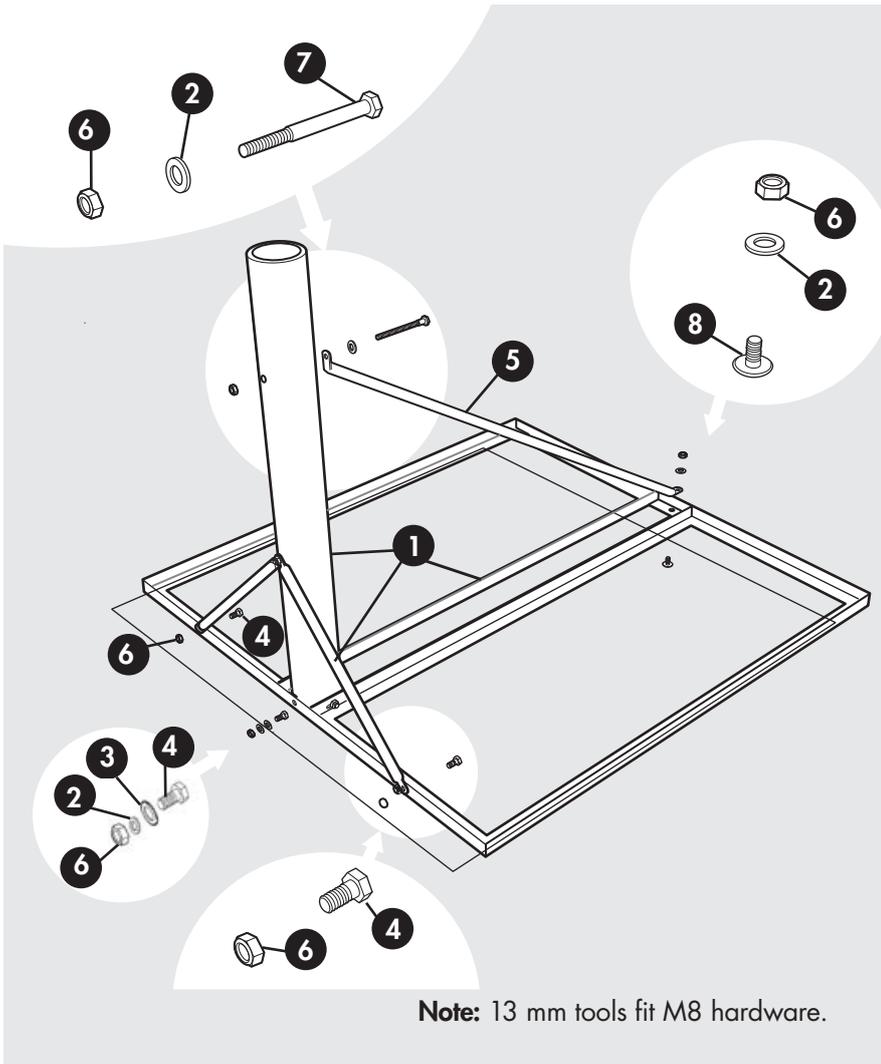
Select ballast from 75 cm, 84 cm, 90 cm or 1.0 m tables, based on wind velocity, height above ground and uniform building code Exposure B or C.

Ballast consists of 8" x 16" x 4" nominal concrete cap blocks weighing 32 lb each.

Ballasts based on overturning requirements with 1.5 stability and two 2 mm x 18" x 38" rubber pads placed under the base frame that will provide the coefficient of friction required to resist sliding and help protect the roof membrane from puncture.

Roof structure must be sufficient to support weight shown in tables.

# PARTS LIST

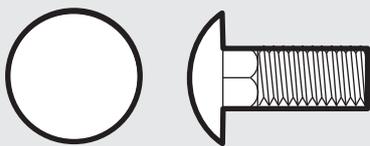


**Note:** 13 mm tools fit M8 hardware.

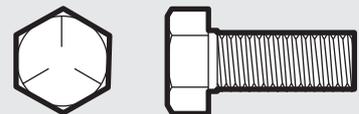
ITEM	DESCRIPTION	QTY
1	Mast / Base Assembly	1
2	Flat Washer (5/16)	3
3	Tooth Washer (5/16)	1
4	M8 x 20 mm Hex Head Bolt	3
5	Rear Brace	1
6	M8 Nylon Lock Nut	5
7	M8 x 80 mm Hex Head Bolt	1
8	M8 x 20 mm Round Head Square Neck Bolt	1

Hardware shown actual size. Place hardware on illustration to identify.

M8 x 1.25 x 80 mm Hex Head Bolt  
Item 9



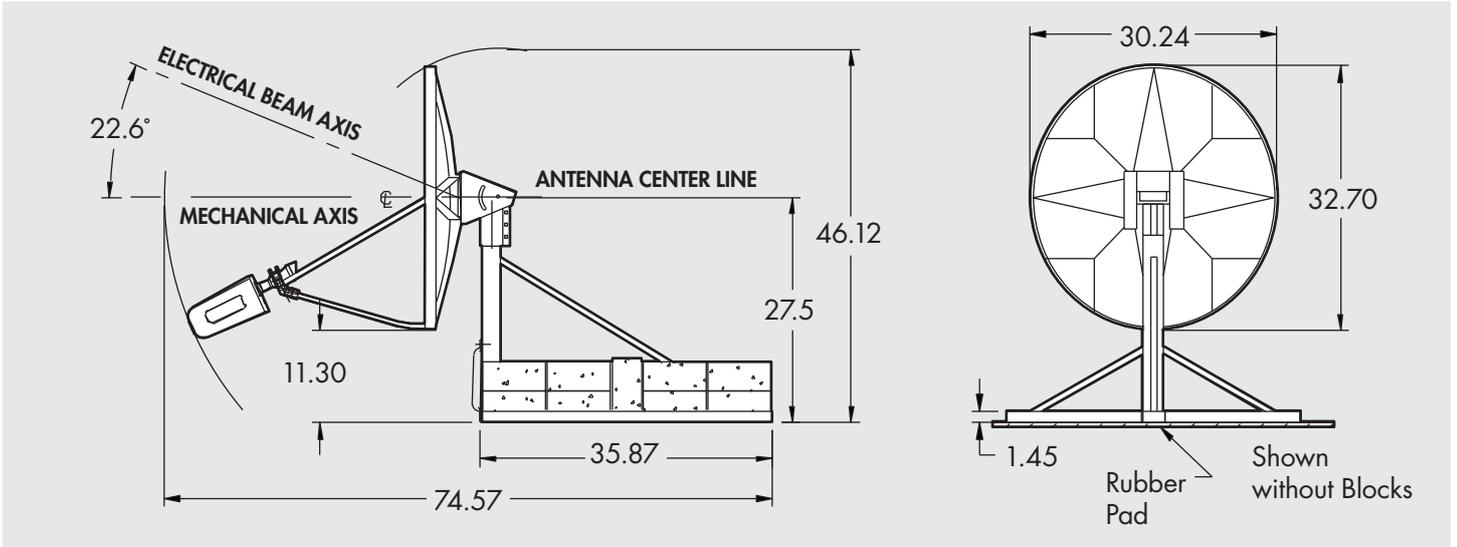
M8 x 1.25 x 20 mm Round Head Square Neck Bolt  
Item 11



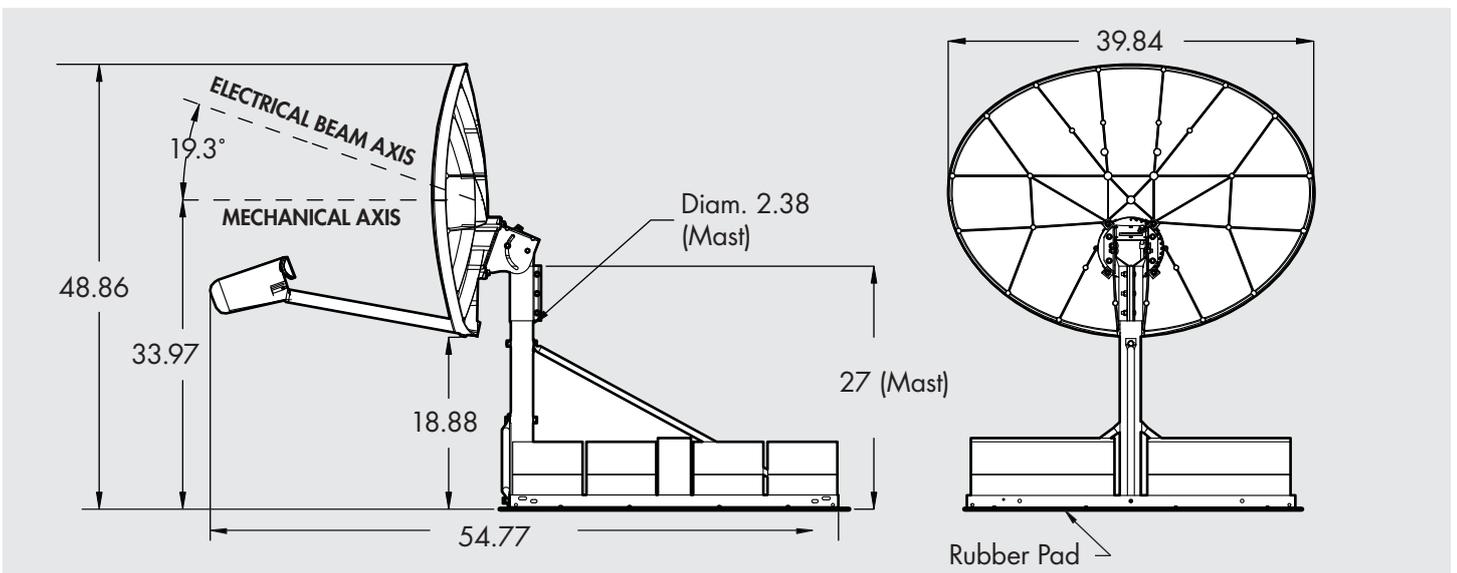
M8 x 1.25 x 20 mm Hex Head Cap Screw  
Item 4

# OUTLINE DRAWINGS AND DIMENSIONS

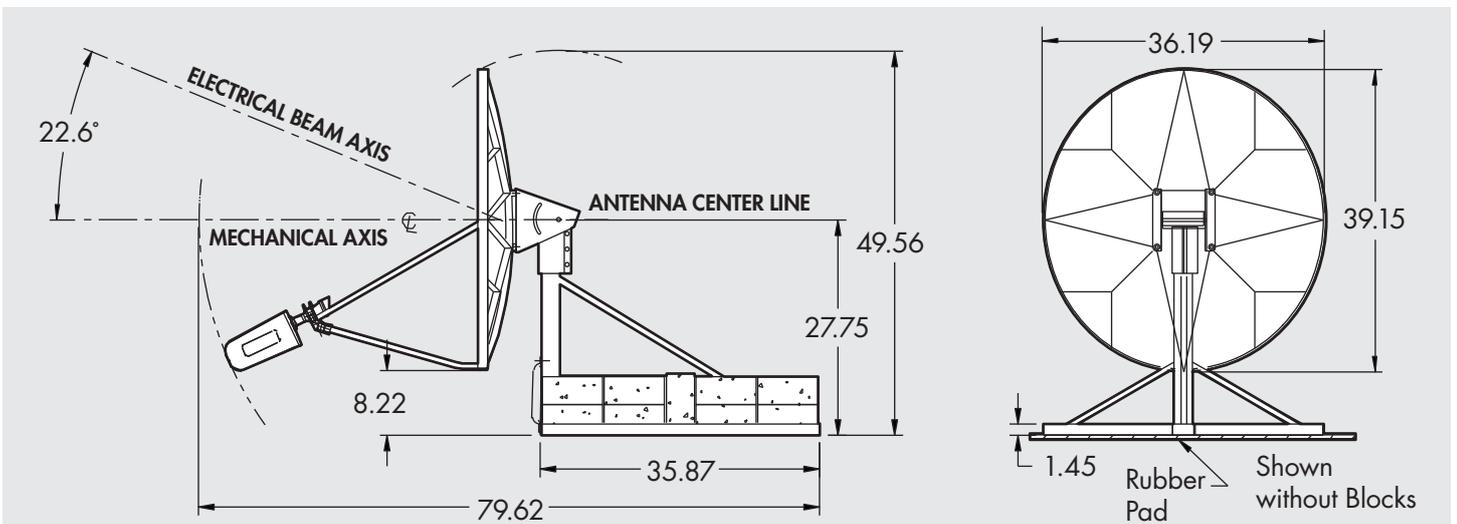
## 75 cm Antenna with 36 in x 36 in NPRM



## 84 cm Elliptical Antenna with 36 in x 36 in NPRM



## 90 cm Antenna with 36 in x 36 in NPRM



# 1.0 m Antenna with 36 in x 36 in NPRM

