

Charles Pole-Top Radio Shroud

SHRD5-2818, SHRD5-6018, and SHRD5-6418

General Description and Installation

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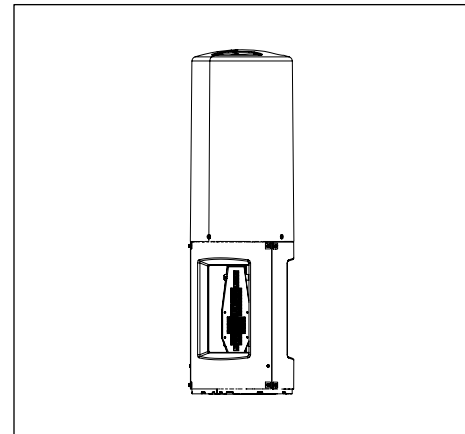


Figure 1 Front View of the SHRD5

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides general information for the SHRD5-2818RxUxL, SHRD5-6018RUUxL, and SHRD5-6418RUUxL pole-top radio shrouds. Figure 1 shows the SHRD5-6018.

-NOTE-

Hereafter, the Charles pole-top radio shroud SHRD5-2818RxUxL, SHRD5-6018RUUxL, and SHRD5-6418RUUxL will be referred to by individual part numbers or collectively as the “SHRD5.”

1.2. Product Purpose

The SHRD5 consists of a protective enclosure (shroud) that supports and conceals 5G radios and antennas.

1.3. Product Mounting and Location

This enclosure is suitable for outside plant-type (OSP) locations and those that may require NEC compliance. The outdoor, weather resistant SHRD5 is to be mounted on the top of a pole. The installer connects the power and fiber connections. Detailed mounting and installation information is covered in Section 3. If mounting on a wood pole, a mounting kit is required (97-002356x-A or 97-002385x-A, sold separately). The Charles SKRT1-0718 and SKRT1-3218 concealment skirts (sold separately) are available to conceal the radio cables as they enter the SHRD5.

2. PRODUCT DESCRIPTION

The SHRD5 consists of a cylindrical mast assembly with removable curved panels for accessing the radios and cabling. This assembly supports two or three customer supplied 5G radios (see Table 2 for supported radio models). For models that support three radios, the radio brackets are spaced 120° apart. For models with two radios, the angle between the radios (azimuth) can vary. See Table 2 for a full list of available models, including the number of supported radios and the azimuth angle.

The SHRD5-6018 and SHRD5-6418 also support a customer supplied Amphenol 2C4U3MT360X06FXYS0 or 4U3MT360X06FXCYS4 canister style 4G antenna, and they include a removable Radome antenna shroud.

Figure 2 shows the SHRD5 dimensions. Figure 3 shows the main components of the SHRD5.

Note: the images in this document show the SHRD5-6018. There are minor differences in appearance across the other models. Except where noted, the images and procedures are similar across all models.

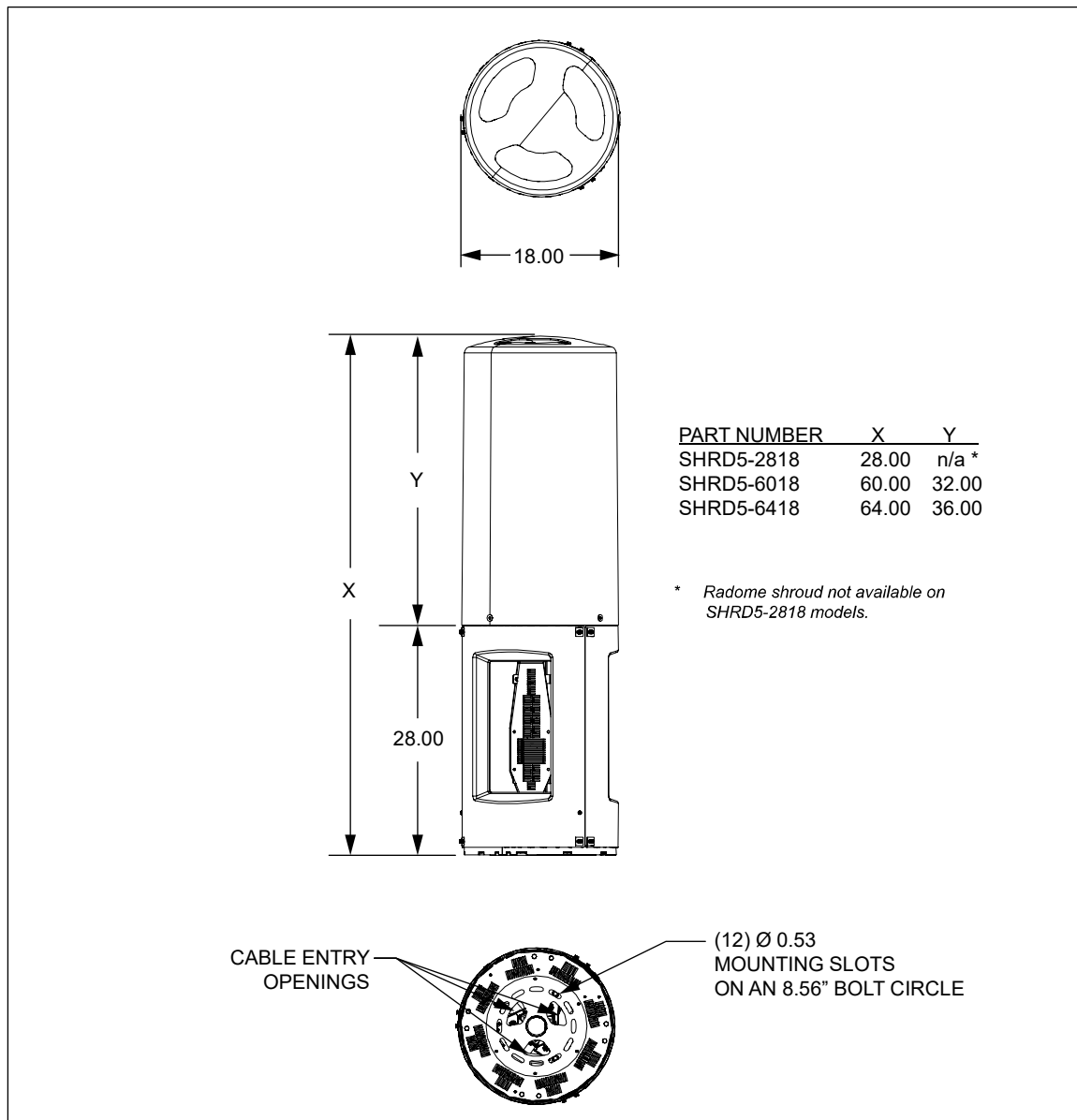


Figure 2 SHRD5 Dimensions (in inches)

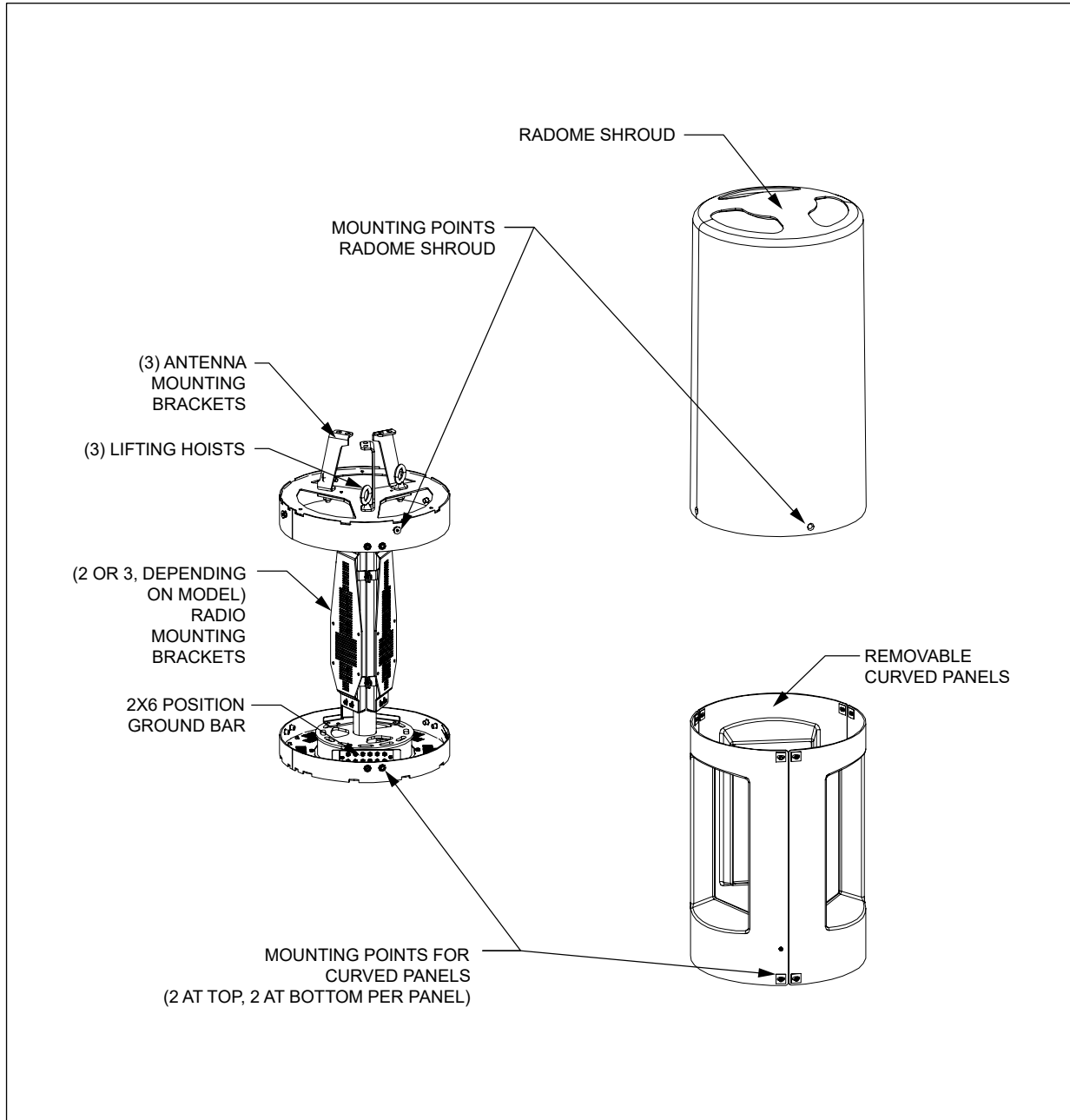


Figure 3 SHRD5 Components

The Radome shroud is not available on the SHRD5-2818. This model does not support an antenna, and the openings at the top of the mast assembly are covered.

Appearance of radio mounting brackets may vary by model.

Antenna mounting brackets are available on select models and ship loose with the SHRD5.

3. INSTALLATION

3.1. Inspecting the Product

The SHRD5 is shipped mounted upright on a skid. Remove the bolts, unpack the unit, and dispose of the packaging material.

-INSPECTION NOTE-

Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the extent of the damage to the transportation company.

3.2. Following and Using Safety Precautions

Read the following site and safety tips, cautions, and warnings, then proceed with the paragraphs that follow.

- For installation, follow all National Electrical Codes (NEC) ANSI/NFPA 70, local, environmental, workplace, and company codes, safety procedures, and practices.
- Minimum spacing between the accessories and components and the housing for ITE equipment shall be maintained for safe operation of the equipment when installed in accordance with NEC ANSI/NFPA 70.
- Read all instructions, warnings and cautions on the equipment and in the documentation shipped with the product.
- Always connect ground connections first.
- Do not place this product on weak or unstable surfaces which may allow the product to fall, resulting in potentially serious damage(s) to persons or product.
- Only authorized trained personnel shall install the SHRD5.

3.3. Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the SHRD5.

- Protective and/or insulated work gloves
- Safety glasses
- #6 ground wire or rod and earth ground materials
- Bond strap (optional, from cable bond clamp to bond post)
- Any exterior cable strain relief, per company practice
- Slotted, hex, and Phillips screwdrivers
- Torque wrench
- Assorted cable ties, clips, or fasteners (optional)
- Derrick for lifting
- Level

3.4. Preparing the Installation Site

Observe the following site preparation recommendations.

- The site must meet minimal personnel and equipment safety requirements.
- The distance from the cable entry point should be consistent with local installation practices.
- The pole must be able to support the weight of the SHRD5.

3.5. Torque Requirements

Torque all hardware as shown below (unless otherwise noted). These values apply to SAE Grade 1 & 2 Low Carbon Steel, ASTM A307 Low Carbon Steel, and Stainless Steel Grade 18-8.

Thread Size	In-lbs	Ft-lbs
4-40	4±10%	
6-32	8±10%	
8-32	16±10%	
10-32	26±10%	
12-24	50±10%	
1/4-20/M6	60±5%	5±5%
5/16-18	125±5%	10.4±5%
3/8-16	180±5%	15.0±5%
1/2-13	500±2%	41.7±2%
5/8-11	1000±1%	83.3±1%

3.6. Removing the Curved Panels

Each curved radio panel is secured to the SHRD5 main assembly with four screws and washers (number of panels varies by model). Some models have filler panels between the curved radio panels. To distinguish between radio and filler panels, note that radio panels have an opening for the radio face, while filler panels are solid.

Remove the curved radio panels by removing the screws and washers at the corners of the panels (Figure 3). Save the curved radio panels and hardware for later re-installation. It is not necessary to remove the filler panels to access the radios and cables.

The panels are tethered to the main assembly for safety, with one tether per curved radio panel. Remove the tethers from the main assembly (do not detach the tethers from the curved panels). Retain the tether hardware for later re-installation.

While the SHRD5 is still on the ground level, install the radios.

3.7. Radio Mounting

The main assembly has mounting locations for two or three 5G radios, depending on the model number (see Table 2 for a full list of available models).

Appearance of the radio mounting brackets and the hardware may vary by model.

1. Remove the mounting bracket from the main assembly by removing the hardware at the top and bottom (Figure 4). Save all hardware.
2. Attach the bracket to the back of the radio using customer supplied hardware.
3. Mount the radio/bracket assembly back into position on the SHRD5 main assembly using the hardware removed previously (Figure 4).

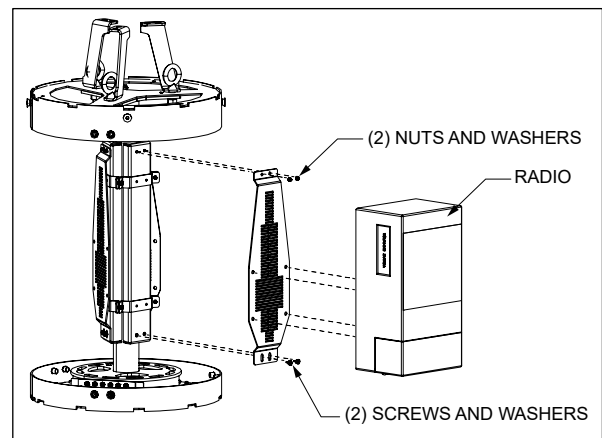


Figure 4 Mount Radio

3.7.1. Modifying the Azimuth Angle

This section only applies to models with two radios (see Table 2).

The SHRD5 is shipped with the radio brackets mounted on the mast assembly at the angle indicated in Table 2. However, the orientation can be modified in the field. The azimuth angle will remain the same, but the orientation will be at the mirror image of how the SHRD5 was shipped.

If performing this modification, it is necessary to re-orient the radio mounting brackets, curved radio panels, and filler panels so that the radio panels are both still aligned with the directions of the radios. See Figure 5 for an example (a 150° angle is shown; other angles are modified similarly).

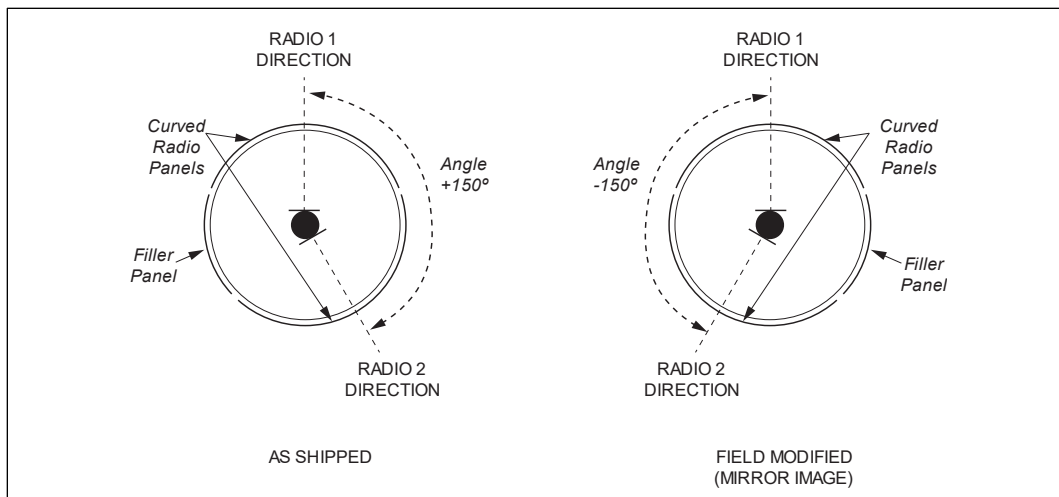


Figure 5 (Optional) Modify Radio Orientation to Mirror Image (Top View)

3.8. Lifting the SHRD5

See Table 1 for SHRD5 weight.

If mounting on a wood pole, use Charles mounting kit 97-002356x-A or 97-002385x-A (sold separately). Install the kit brackets onto the pole prior to lifting the SHRD5. See the documentation that ships with the kit for instructions for mounting the kit onto the pole.

The SHRD5 has three lifting hoists on top. Connect lifting slings to these hoists and use a derrick (crane) to lift the SHRD5 above the pole (Figure 6). Carefully lower the SHRD5 so that the mounting plate sits on the top of the pole (or on the wood pole top plate, if using the wood pole mounting kit).

3.8.1. Warnings and Specific Safety Precautions

	WARNING	Improper hoisting equipment and unsafe lifting procedures can result in serious injury or death
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Observe the following local safety procedures when performing the tasks in this section.

- Keep the SHRD5 away from any power lines.
- Keep bystanders away from the work operations at all times.
- Only trained operators shall operate the crane for lifting and setting the SHRD5.
- Do not suspend loads over people or equipment.
- All persons working with hoisting equipment shall wear standard safety gear according to local practices including safety helmets and steel-toed shoes.
- Do not operate the hoisting equipment until all stabilizers are extended and in firm contact with the ground or adequate support structure.
- Do not attempt to retract or extend the stabilizers while a load is suspended.

3.9. Mounting the SHRD5 Onto the Pole

The bottom of the SHRD5 has a bottom plate for mounting on the pole. This plate has twelve mounting slots, each with up to 30° of continuous rotation possible (Figure 7). Only six slots are required for mounting. The remaining slots are used to reposition the SHRD5 at 90° increments.

Use 1/2" Grade 8 galvanized steel, customer supplied bolts and washers to attach the SHRD5 to the pole. Adjust the rotation as needed before tightening the screws.

3.10. Antenna Mounting

This section only applies to the SHRD5-6018 and SHRD5-6418 models that support a top-mounted antenna.

The SHRD5 has three brackets on top that support an Amphenol antenna. The antenna has threaded mounting studs on the bottom. Set the antenna on top of these brackets so that the threaded studs enter the mounting holes on the tops of the brackets. Secure the studs from underneath using hardware that ships with the antenna (Figure 8).

Note: the antenna brackets on the SHRD5-6418 are taller than those on the SHRD5-6018. This allows more space for routing antenna cables into the main assembly.

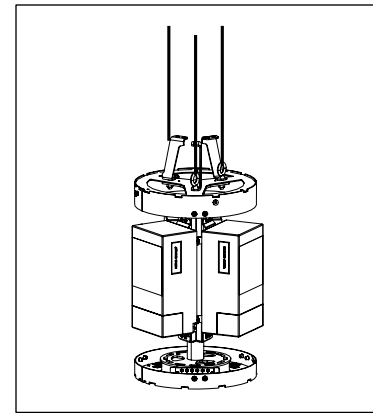


Figure 6 Lifting the SHRD5

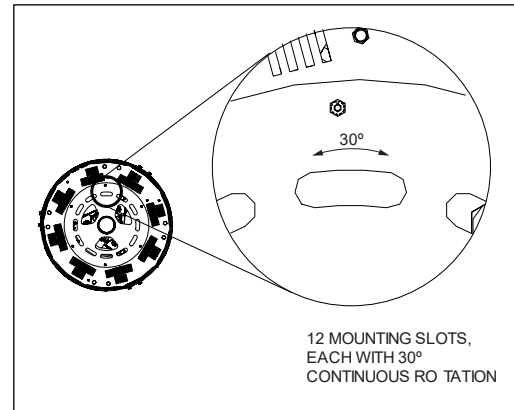


Figure 7 Mounting Plate

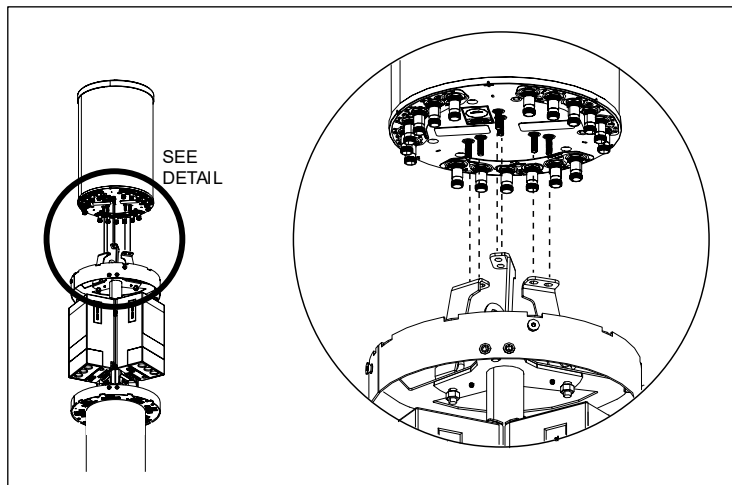



Figure 8 Antenna Mounting

3.11. SHRD5 Wiring and Equipment

After the SHRD5 is properly mounted in the desired location, apply No-Ox where bus bar and other 2-hole lug connections will be made. Install ground and power connections. Always ground the equipment first, before making any other connections.

	WARNING	Perform all bonding and grounding connections prior to any electrical and communications connections.
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3.11.1. Ground Connection

Use the 2x6 position ground bar provided on the mast assembly for all grounding of internal equipment and for creating an earth ground.

3.11.2. Fiber and Copper Entry

Metal Pole Mounting. Fiber and power cables exit the pole through an egress point near the top of the pole and enter the SHRD5 through the slots on the mast base. See Figure 2 for slot locations.

Wood Pole Mounting. Wood poles do not have an egress hole for cables. Run cables up the length of the pole and into the SHRD5 through the slots on the mast base. See Figure 2 for slot locations.

3.12. Completing the Installation

Lift the curved panels up to the mast assembly. Fasten the tethers to the bottom plate using the hardware removed previously. When tethers are secure, replace the SHRD5 curved panels to the mast assembly by securing each panel with the four screws removed previously (Section 3.6).

For models that include an antenna, secure the Radome shroud to the top of the mast assembly, over the antenna. See Figure 3 for the mounting points for the Radome. The complete SHRD5 assembly is shown in Figure 9.

4. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500

techserv@charlesindustries.com (email)

<http://www.charlesindustries.com/techserv.htm>

5. WARRANTY & CUSTOMER SERVICE

Charles Industries LLC offers a one-year warranty on the SHRD5 product. The Charles warranty is limited to the operation of the SHRD5 hardware as described in this documentation and does not cover equipment that may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

847-806-6300

mktserv@charlesindustries.com (email)

http://www.charlesindustries.com/main/telecom_sales_support.htm

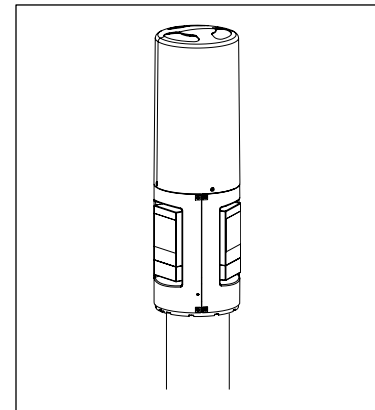


Figure 9 Complete Installation

6. SPECIFICATIONS

Physical	
Dimensions	SHRD5-2818RxUxx: 28"H, Ø18" SHRD5-6018RUUxL: 60"H, Ø18" SHRD5-6418RUUxL: 64"H, Ø18"
Weight	SHRD5-2818RXUxL: 3 6705 radios: 66 lbs. as shipped, 120 lbs. with customer equipment SHRD5-2818RXUxR, 3 1652/1672 radios: 75 lbs. as shipped, 117 lbs. with customer equipment SHRD5-2818RxUxL, 2 radios: 64 lbs. as shipped, 99 lbs. with customer equipment SHRD5-6018RUUxL: Approx. 80 lbs. as shipped, 240 lbs. with customer equipment SHRD5-6418RUUxL: Approx. 80 lbs. as shipped, 240 lbs. with customer equipment
Materials	Mast assembly and radio mounting brackets: steel Top and bottom panels and filler panels: aluminum Curved radio panels: fiberglass composite Radome: fiberglass composite (not available on the SHRD5-2818)
Electrical	
Supported Equipment	All models: 2 or 3 Ericsson 5G/C-band radios (see Table 2 for radio models) SHRD5-6018 and SHRD5-6418 Only: Amphenol 2C4U3MT360X06FXYS0 or 4U3MT360X06FCYS4 4G antenna
Bonding and Grounding	(1) 2x6 ground bar
Cable Entry	See Figure 2
Environmental	
Operating Temp. Range, Outside Enclosure	-40° to +115°F, -40° to 46°C
Operating Temp Range, Inside Enclosure	-40° to +131°F, -40° to 55°C
Humidity	0 to 95% (non-condensing)
Altitude	Up to 2,000 meters (6560 feet)
Maximum Wind Rating	130 mph
Kits and Replacement Parts	
Wood Pole Mounting Kit	97-002356x-A or 97-002385x-A
Cable Concealment Skirt	SKRT1-0718ATVxX for metal pole installations SKRT1-3218ATVxX for wood pole installations

Table 1 SHRD5 Specifications

Part Number	Number of Radios	Angle Between Radios	Color	Touch-up Paint	Supported Radio
SHRD5-2818RXUDL	3	120°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818RXUFL	3	120°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818RXUGL	3	120°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818RXUDR	3	120°	Classic Texture Gray	02-000629-0	Ericsson Air 1652 or AIR 1672 C-band
SHRD5-2818RXUFR	3	120°	Onyx Black	02-000611-0	Ericsson Air 1652 or AIR 1672 C-band
SHRD5-2818RXUGR	3	120°	National Park Brown	02-000626-0	Ericsson Air 1652 or AIR 1672 C-band
SHRD5-2818R0UDV	2	180°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R0UFV	2	180°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R0UGV	2	180°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R1UDV	2	175°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R1UFV	2	175°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R1UGV	2	175°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R2UDV	2	170°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R2UFV	2	170°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R2UGV	2	170°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R3UDV	2	165°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R3UFV	2	165°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R3UGV	2	165°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R4UDV	2	160°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R4UFV	2	160°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R4UGV	2	160°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R5UDV	2	155°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R5UFV	2	155°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R5UGV	2	155°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G

Part Number	Number of Radios	Angle Between Radios	Color	Touch-up Paint	Supported Radio
SHRD5-2818R6UDV	2	150°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R6UFV	2	150°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R6UGV	2	150°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R7UDV	2	145°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R7UFV	2	145°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R7UGV	2	145°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R8UDV	2	140°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R8UFV	2	140°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R8UGV	2	140°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818R9UDV	2	135°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818R9UFV	2	135°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818R9UGV	2	135°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818RZUDV	2	130°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818RZUFV	2	130°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818RZUGV	2	130°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818RYUDV	2	125°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818RYUFV	2	125°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818RYUGV	2	125°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-2818RWUDV	2	120°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-2818RWUFV	2	120°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-2818RWUGV	2	120°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-6018RWUDL	3	120°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-6018RUUFL	3	120°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-6018RUUGL	3	120°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G
SHRD5-6418RUUDL	3	120°	Classic Texture Gray	02-000629-0	Ericsson Street Macro 6705 5G
SHRD5-6418RUUFL	3	120°	Onyx Black	02-000611-0	Ericsson Street Macro 6705 5G
SHRD5-6418RUUGL	3	120°	National Park Brown	02-000626-0	Ericsson Street Macro 6705 5G

Table 2 SHRD5 Available Models