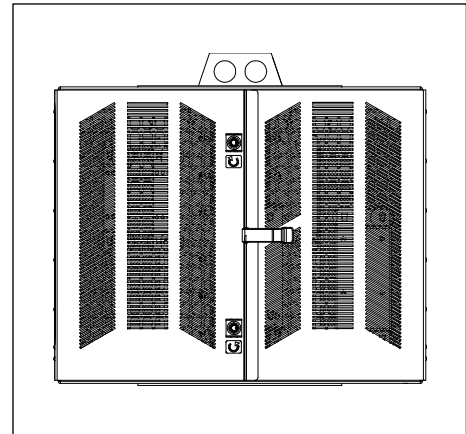


# Charles Universal Broadband Enclosure

## SH52-243024xNER

### General Description and Installation

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**Figure 1 Front View of the SHRD52**

## 1. GENERAL INTRODUCTION

### 1.1. Document Purpose

This document provides general information for the SH52-243024xNER universal backplane radio shroud. Figure 1 shows a closed front view of the enclosure.

-NOTE-

*Hereafter, the Charles Universal Broadband Enclosure SH52-243024xNER shroud will be referred to as the “SHRD52.”*

### 1.2. Product Purpose

This SHRD52 provides outdoor mounting for radio equipment. Brackets for the specified configuration ship with the SHRD52. All radio equipment is customer supplied.

### 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 SHRD52 is to be mounted on a pole (using a pole-mount bracket kit, purchased separately). The installer connects the power, fiber, and copper connections. Detailed mounting and installation information is covered in Section 3.

## 2. PRODUCT DESCRIPTION

The SHRD52 is a vented radio enclosure with a universal backplane that accommodates Charles radio mounting brackets. The customer installs the radio equipment onto the backplane.

Figure 2 shows the SHRD52 dimensions. Figure 3 shows the main components of the SHRD52.

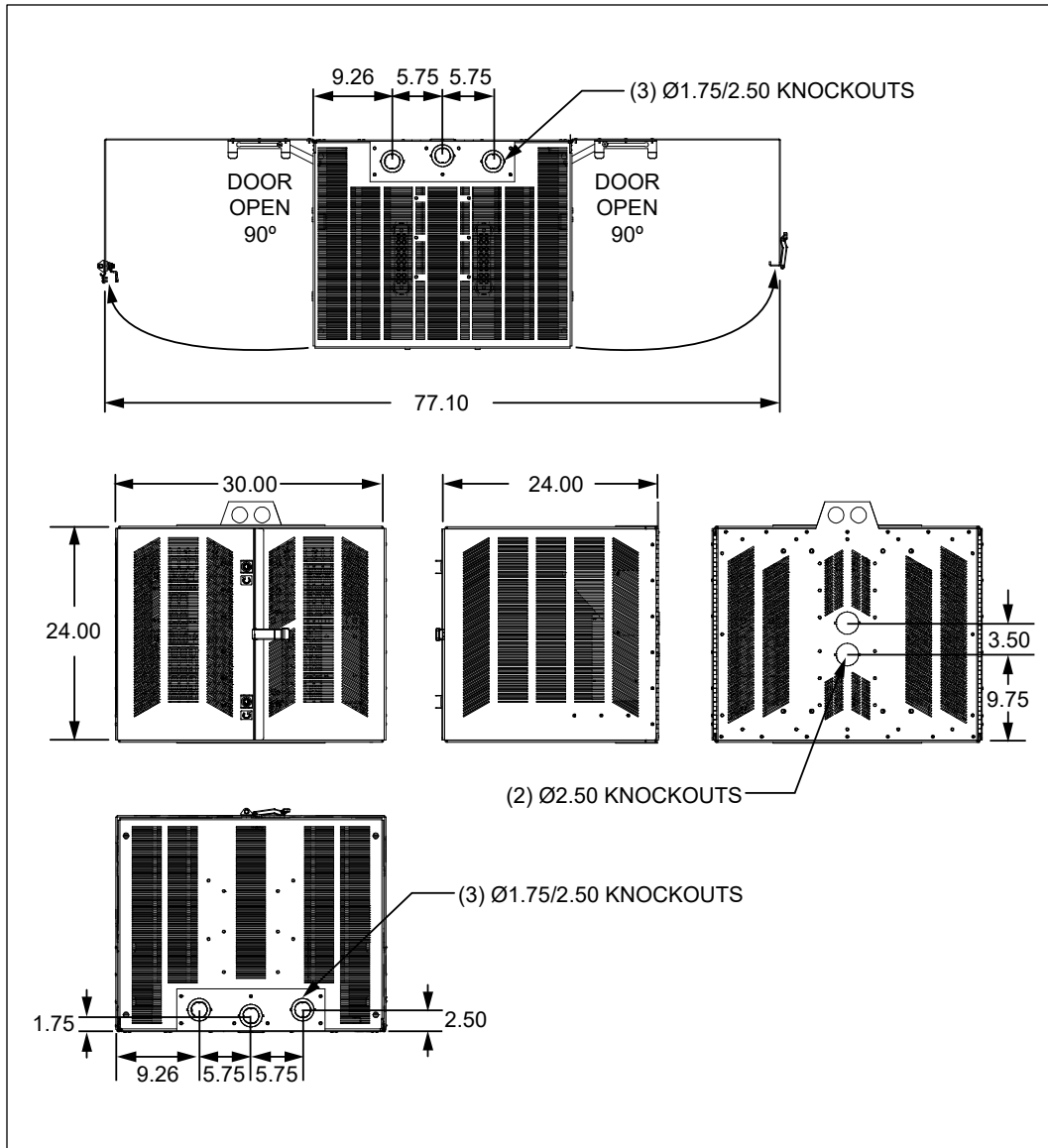
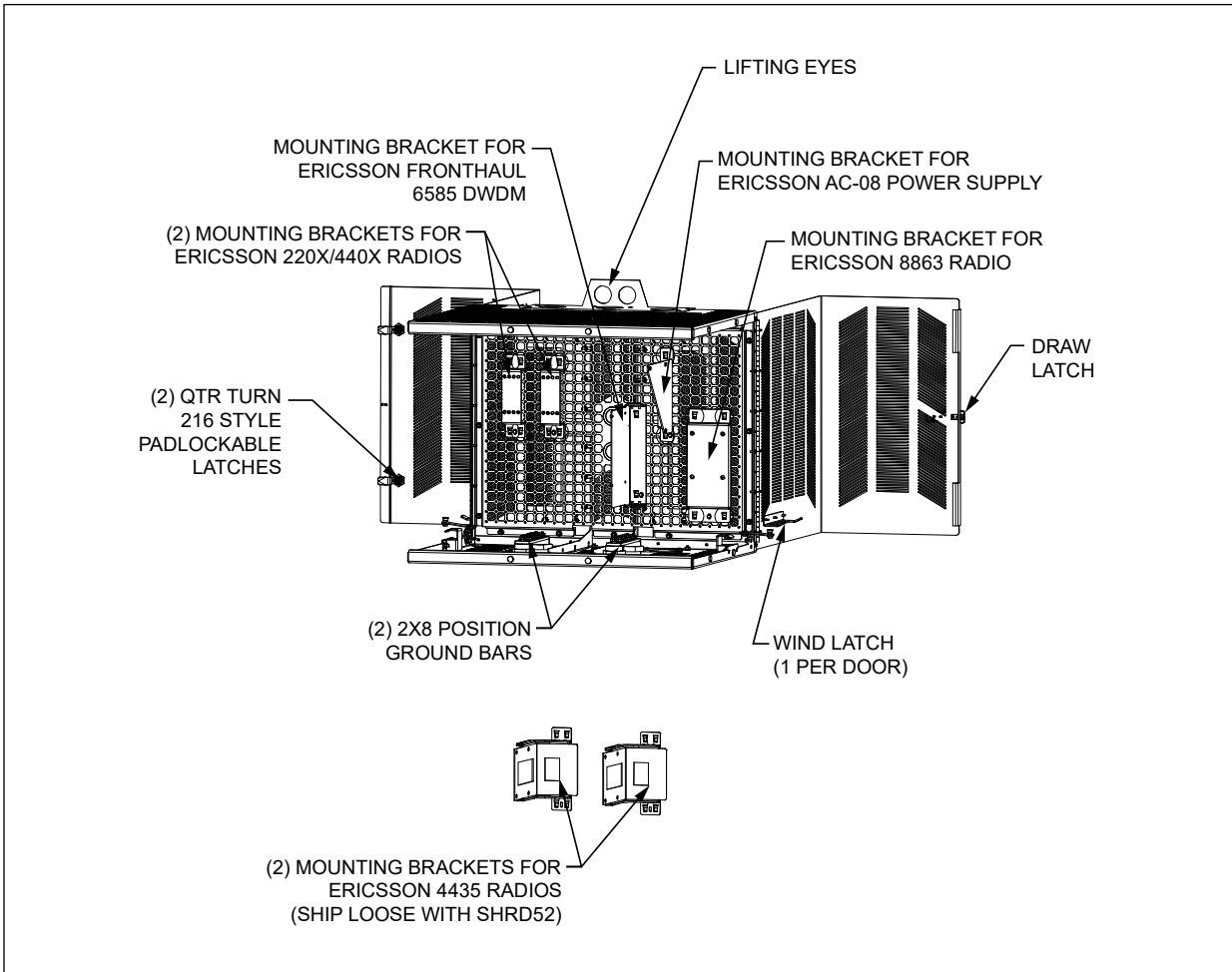


Figure 2 SHRD52 Dimensions (in inches)



**Figure 3 SHRD52 Components**

### 3. INSTALLATION

#### 3.1. Inspecting the Product

The SHRD52 is shipped lying down 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 SHRD52.
- In windy conditions, be sure to engage the door latches to secure the door in a stationary position.

#### 3.3. Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the SHRD52.

- Sufficient length and quantities of fiber cable (or pigtails)
- Cable scoring, opening, and cutting tools for cable sheathing, shields, wrappings, strength members and buffer tubes
- Wire strippers
- Crimpers
- Cable, tube, wire, and fiber cleaning materials
- Protective and/or insulated work gloves
- Safety glasses
- Tape measure
- Marking utensil
- #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)
- Can wrench (216 type tool)
- Derrick for lifting
- Level

#### 3.4. Preparing the Installation Site

Observe the following site preparation recommendations.

- Leave adequate horizontal and vertical space between multiple installations to allow for proper cable access, as well as enough room around the enclosure to open the door(s).
- 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 SHRD52 and the mounting bracket kit.
- Run all fiber and copper facilities to the site.

### 3.5. Lifting the SHRD52

See Table 1 for SHRD52 weight. Charles recommends the following procedure for lifting the SHRD52.

#### 3.5.1. Required Equipment

- One derrick (crane) capable of lifting the SHRD52
- Two lifting slings or chains with each having a 2,500 lbs. capacity
- Connecting links to attach slings to the SHRD52's lifting brackets
- 75-ft. long tagline rope

Insert the lifting sling connecting links securely through each of the lifting brackets as shown in Figure 4.

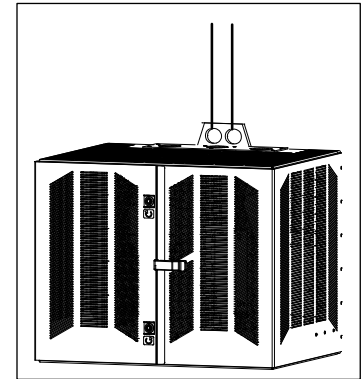



Figure 4  
Lifting the SHRD52

#### 3.5.2. Warnings and Specific Safety Precautions

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

- Keep the SHRD52 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 SHRD52.
- 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 stabilizer 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.

### 3.6. Mounting the SHRD52

Mount the SHRD52 on a pole using a Charles offset pole-mount kit (97-002321x-A, purchased separately). Use the 3/8" hex screws with lock washers and flat washers included with the kit to attach the kit to the SHRD52. Mount the kit and SHRD52 onto the pole using customer supplied straps or bolts.

#### 3.6.1. 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%

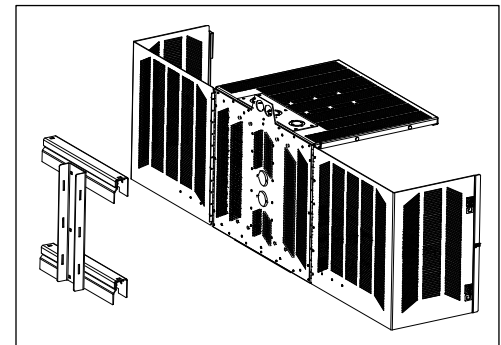


Figure 5  
Attach the Mounting Kit

### 3.7. SHRD52 Wiring and Equipment

After the SHRD52 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.

	<b>WARNING</b>	<b>Perform all bonding and grounding connections prior to any electrical and communications connections.</b>
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#### 3.7.1. Ground Connection

Use the two 2x8 position ground bars provided inside the SHRD52 for all grounding of internal equipment and for connecting a site ground wire.

#### 3.7.2. Fiber and Copper Entry

The SHRD52 has three Ø1.75/2.5 knockouts on the top and three more on the bottom. These knockouts accommodate Ø1.25/2.00 conduit fittings. It also has two Ø2.50 knockouts on the back. See Figure 2 for knockout locations.

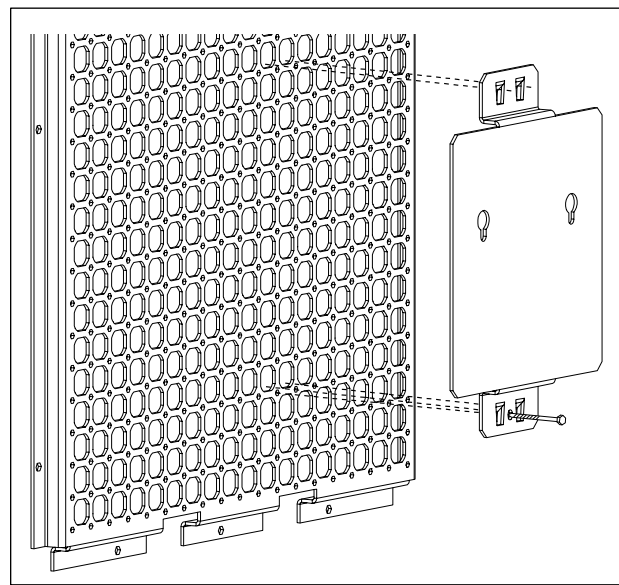
### 3.8. Customer Equipment Mounting

The universal backplane consists of a grid of large and small holes. Brackets designed for the SHRD52 are equipped with hooks and slots for mounting screws. See Figure 6 for an example of a bracket installation.

1. Mount the equipment onto the bracket first, using customer supplied hardware.
2. Mount the bracket onto the backplane by inserting the hooks into the large holes on the backplane.
3. Secure into place using a screw (included with bracket) through the small hole on the bottom of the bracket into a small hole on the backplane.

	<b>CAUTION</b>	<b>Install brackets in the approved locations on the backplane in order to ensure proper thermal performance. If another configuration is needed, contact Charles for a new thermal analysis.</b>
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The following section shows the backplane for the specified radio configuration. Equipment is shown in the arrangement that gives the best thermal performance. SHRD52 doors are hidden for clarity.

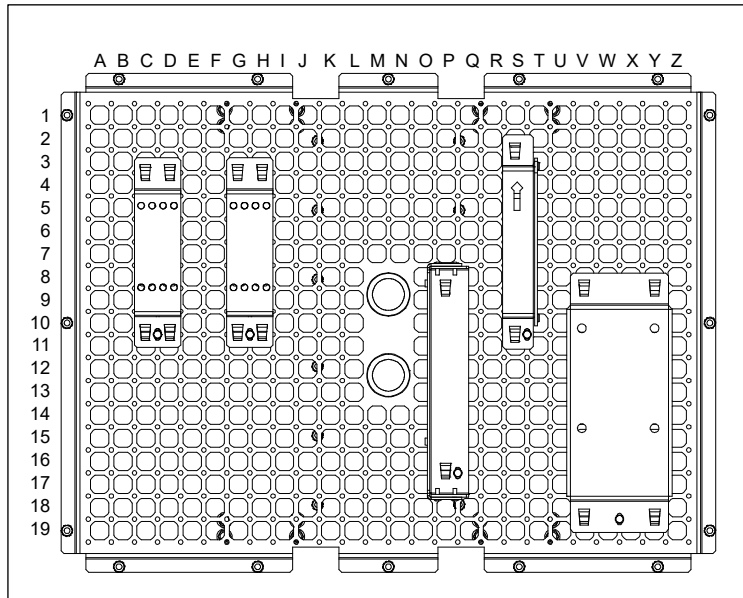


**Figure 6**  
**Mounting Brackets Onto Backplane**

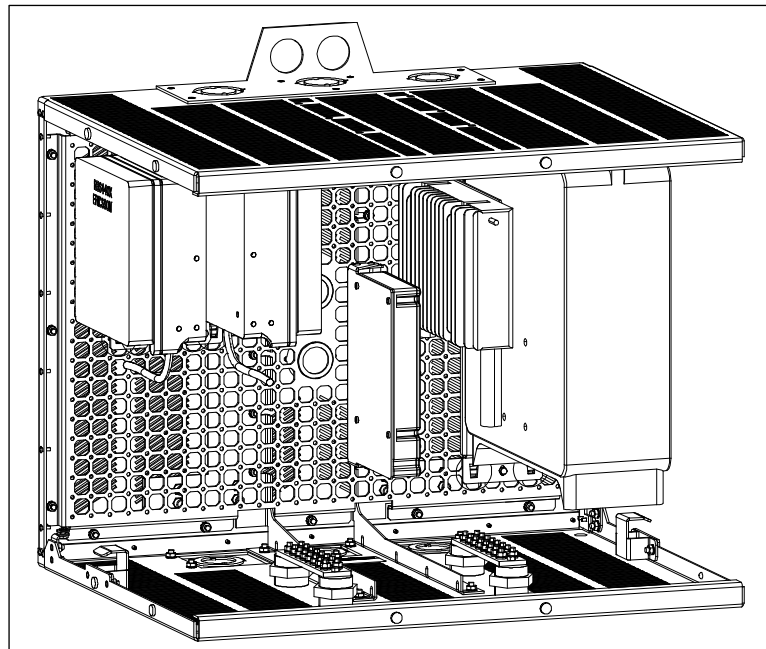
**3.8.1. SHRD52-243024xNER – Configuration 1**

This configuration includes the following brackets. Coordinates for the bracket hooks are shown in the table and figure below.

(2) Ericsson 220x/440x radios	C3, D3, C10, D10 G3, H3, G10, H10
(1) Ericsson 8863 radio	V8, V8, U18, Y18
(1) Ericsson AC-08 power supply	S2, S10
(1) Ericsson FrontHaul 6585 DWDM	P8, P16



**Figure 7 Mounting Locations**

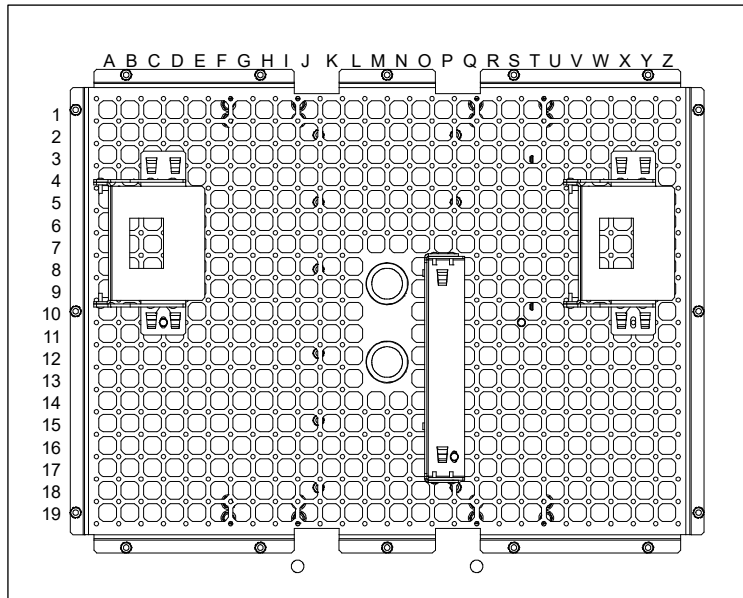


**Figure 8 Configuration with Customer Equipment**

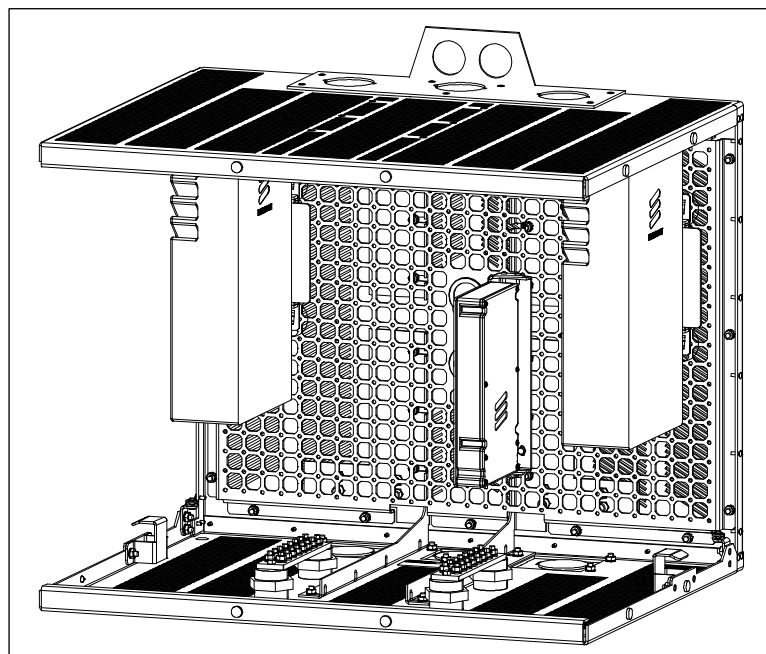
**3.8.2. SHRD52-243024xNER – Configuration 2**

This configuration includes the following brackets. Coordinates for the bracket hooks are shown in the table and figure below.

(2) Ericsson 4435 radios	C3, D3, C10, D10 X3, Y4, X10, Y10
(1) Ericsson FrontHaul 6585 DWDM	P8, P16



**Figure 9 Mounting Locations**



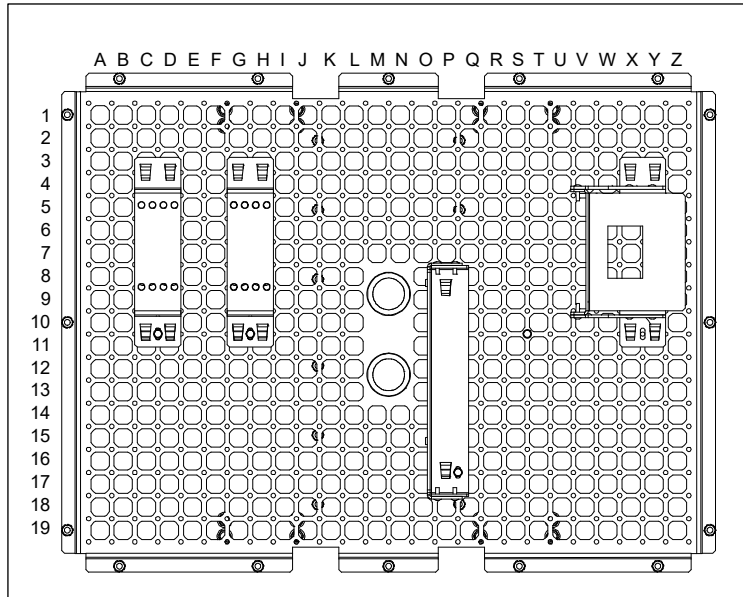
**Figure 10 Configuration with Customer Equipment**



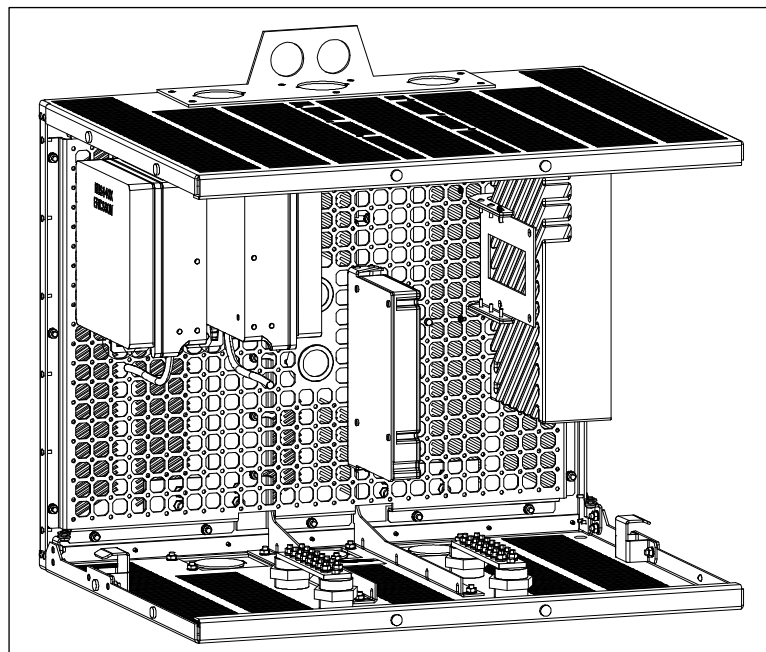
**3.8.3. SHRD52-243024xNER – Configuration 3**

This configuration includes the following brackets. Coordinates for the bracket hooks are shown in the table and figure below.

(2) Ericsson 220x/440x radios	C3, D3, C10, D10 G3, H3, G10, H10
(1) Ericsson 4435 radio	X3, Y4, X10, Y10
(1) Ericsson FrontHaul 6585 DWDM	P8, P16



**Figure 11 Mounting Locations**



**Figure 12 Configuration with Customer Equipment**

#### 4. PERIODIC MAINTENANCE

In the event that the enclosure must be opened in freezing conditions, use a narrow, pointed metallic object such as a screwdriver or chisel, along with a non-metallic device like a rubber mallet, to remove excessive ice buildup around the door and locking mechanism. A commercial aerosol de-icer spray can be used to free up locks and latches if needed. Use protective gloves and safety glasses when applying de-icer sprays.

#### 5. 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](mailto:techserv@charlesindustries.com) (email)  
<http://www.charlesindustries.com/techserv.htm>

#### 6. WARRANTY & CUSTOMER SERVICE

Charles Industries LLC offers a one-year warranty on the SHRD52 product. The Charles warranty is limited to the operation of the SHRD52 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](mailto:mktserv@charlesindustries.com) (email)  
[http://www.charlesindustries.com/main/telecom\\_sales\\_support.htm](http://www.charlesindustries.com/main/telecom_sales_support.htm)

#### 7. SPECIFICATIONS

Physical	
Dimensions	24"Hx30"Wx24"D
Weight	Configuration 1: Approx. 78 lbs. as shipped; 170 lbs. with equipment Configuration 2: Approx. 78 lbs. as shipped; 120 lbs. with equipment Configuration 3: Approx. 78 lbs. as shipped; 126 lbs. with equipment
Materials	Enclosure: 0.125" aluminum Backplane: 12GA steel
Electrical	
Bonding and Grounding	(2) 2x8 position ground bars
Supported Equipment	(2) Ericsson 220x/440x radios (1) Ericsson 8863 radio (1) Ericsson AC-08 power supply (1) Ericsson FrontHaul 6585 DWDM
Cable Entry	See Figure 2 and section 3.7.2
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)
Kits and Replacement Parts	
216 Type Security Tool	07-002070-0
1/4 Turn Latch with Padlock Hasp	39-000311-0
Padlockable Draw Latch	39-300363-0

Table 1 SHRD52 Specifications

Part Number	Mounting Kit	Color	Touch-up Paint
SH52-243024ANER	97-002123A-A	Off-white	02-000290-0
SH52-243024DNER	97-002123D-A	Classic Texture Gray	02-000629-0
SH52-243024FNER	97-002123F-A	Onyx Black	02-000611-0
SH52-243024GNER	97-002123G-A	National Park Brown	02-000626-0

Table 2 Color Options