Charles Universal Broadband Enclosure
SHRD52-991xXGN1
General Description and Installation

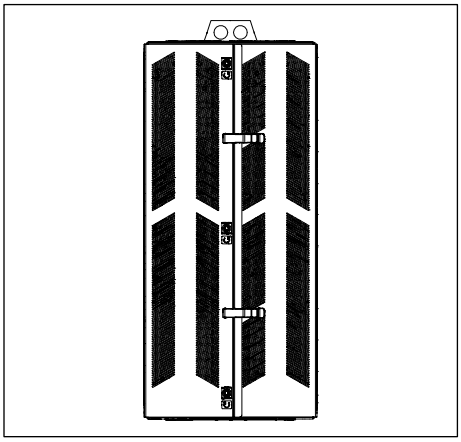

Figure 1 Front View of the SHRD52

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides general information for the SHRD52-991xXGN1 universal backplane radio shroud. Figure 1 shows a closed front view of the enclosure.

-NOTE-
Hereafter, the Charles Universal Broadband Enclosure SHRD52-991xXGN1 will be referred to as the "SHRD52."

1.2. Product Purpose

This SHRD52 provides outdoor mounting for any preferred radio configuration. The universal backplane can accommodate brackets designed to hold any specified radio equipment. Bracket kits are ordered separately. 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). 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 bracket kits (purchased separately). The customer installs the brackets and the customer supplied radio equipment onto the backplane.

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

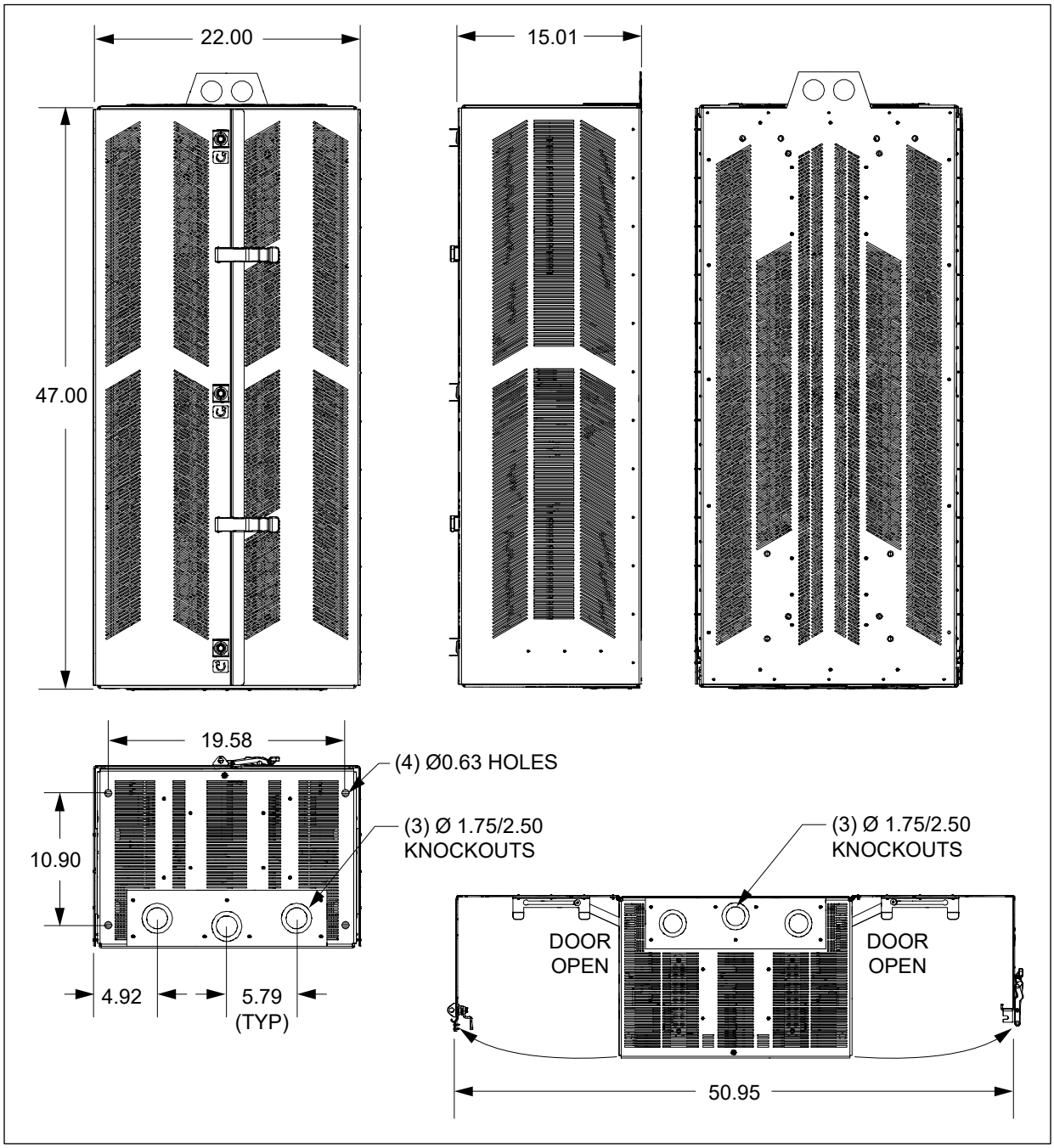

Figure 2 SHRD52 Dimensions (in inches)

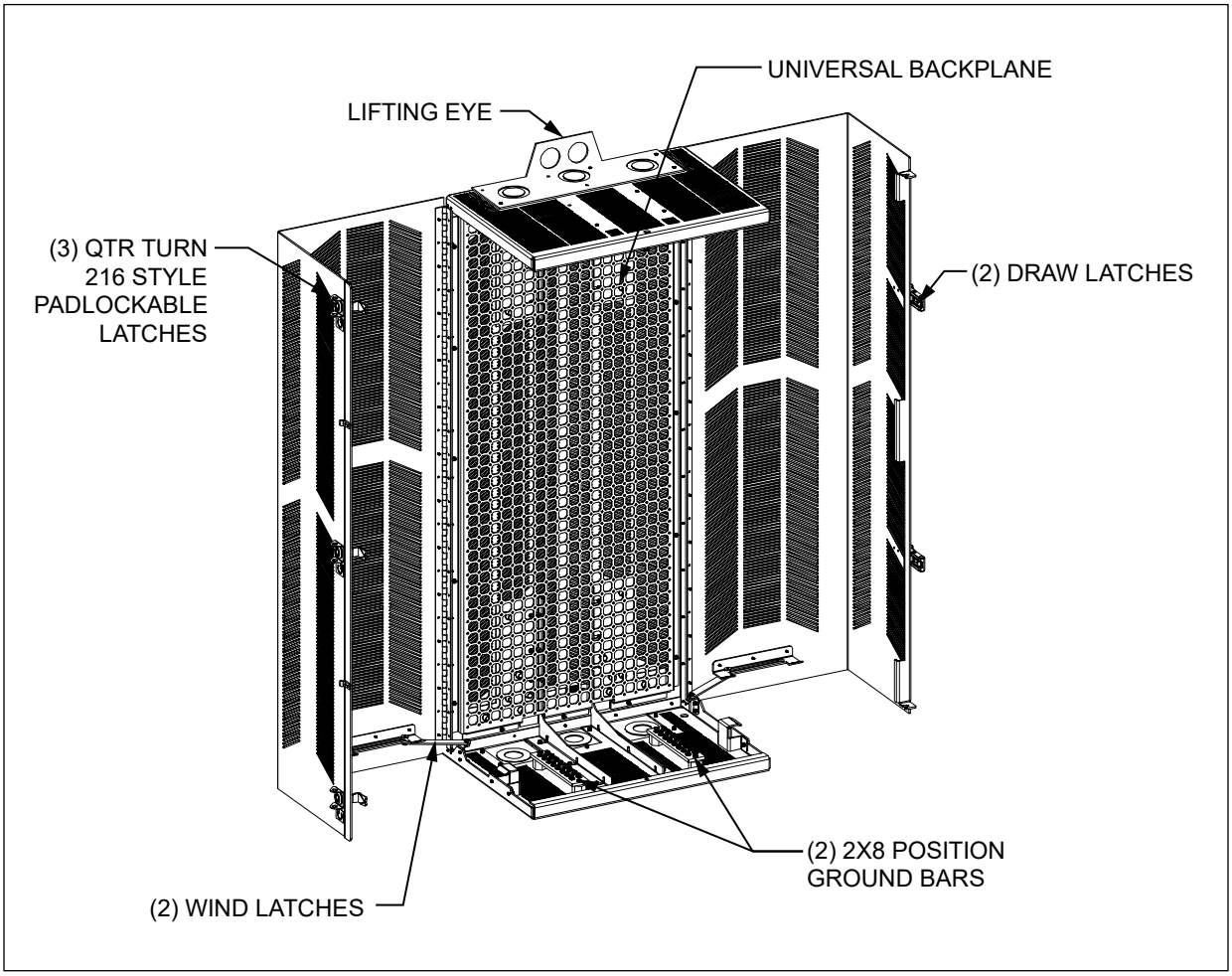

Figure 3 SHRD52 Components

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

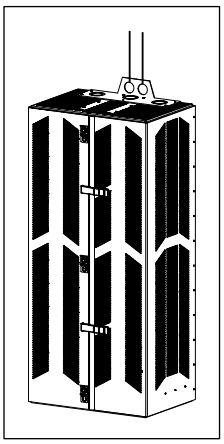

Figure 4
Lifting the SHRD52

See Table 1 for SHRD52 weight. See Table 2 for mounting kit weights. 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.

3.5.2. Warnings and Specific Safety Precautions

⚠	**WARNING**	**Improper hoisting equipment and unsafe lifting procedures can result in serious injury or death**

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 (kits are purchased separately). See Table 2 for a list of these mounting kits. Use the 3/8" hex screws with lock washers and flat washers included with the kits to attach the kit to the SHRD52 (Figures 5 and 6). Mount the kit and SHRD52 onto the pole using customer supplied straps or bolts.

Some mounting kits are sold with electrical equipment attached to the mounting brackets. The installer connects this equipment to the SHRD52 during installation. If mounting a kit with an AC load center, first remove the center knockout from the bottom of the SHRD52. Then remove the hex nut from the load center conduit fitting. When mounting the kit to the SHRD52, ensure that the load center fitting enters the SHRD52 through the center knockout on the bottom of the SHRD52. Then secure the fitting using the hex nut on the inside of the SHRD52 (Figure 7).

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%

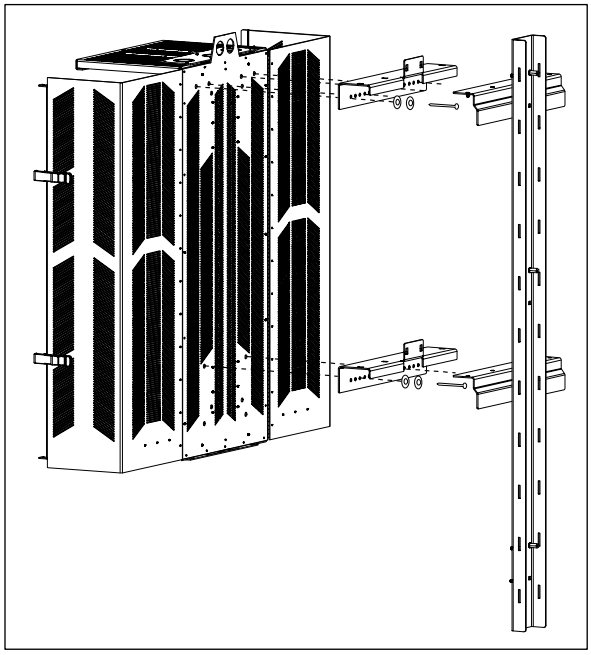

Figure 5
Mounting with Kits
97-002572x-A or 97-002190-A

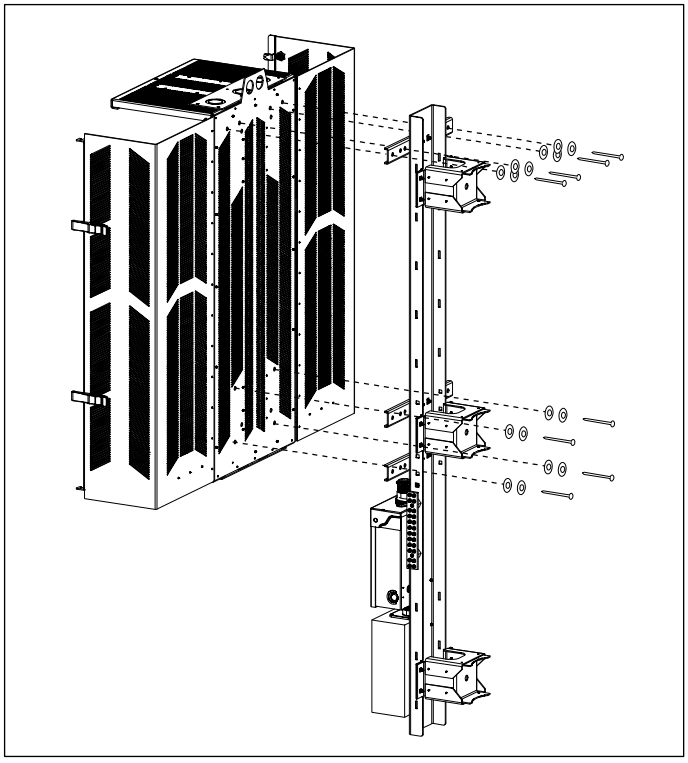

Figure 6
Mounting with Kits
97-SH52CHN4 Series or 97-SH52CHN6 Series

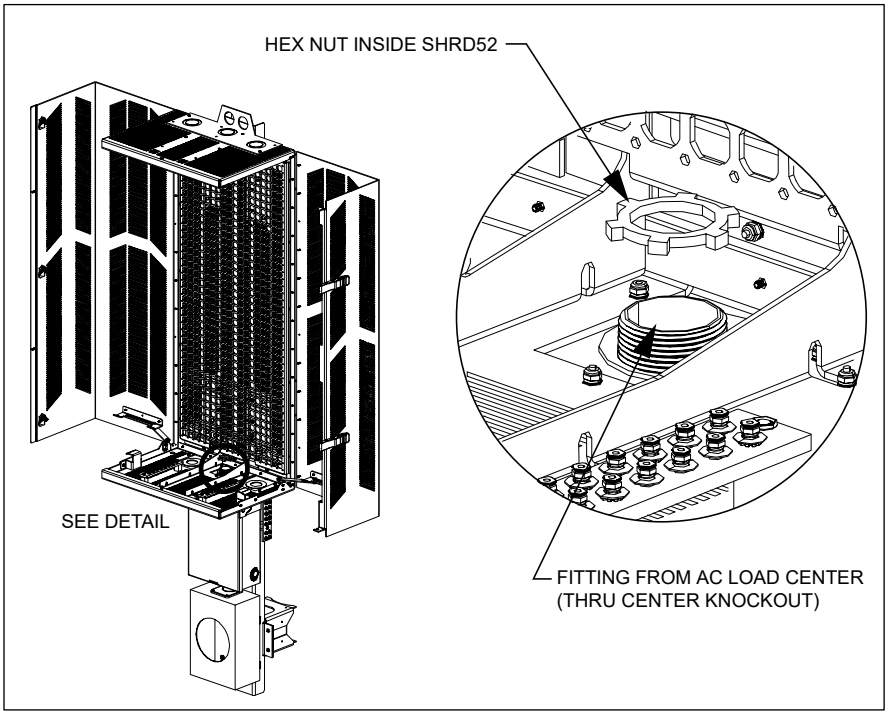

Figure 7 AC Load Center Fitting
(97-SH52CHN4DWP/SCE and 97-SH52CHN6DWP/SCE Only)

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.

⚠	WARNING	Perform all bonding and grounding connections prior to any electrical and communications connections.

Two of the mounting kit options have AC load centers (see Table 2). Figures 8 and 9 show basic electrical diagrams for these kits. This schematic is also included on the inside of the AC load center door.

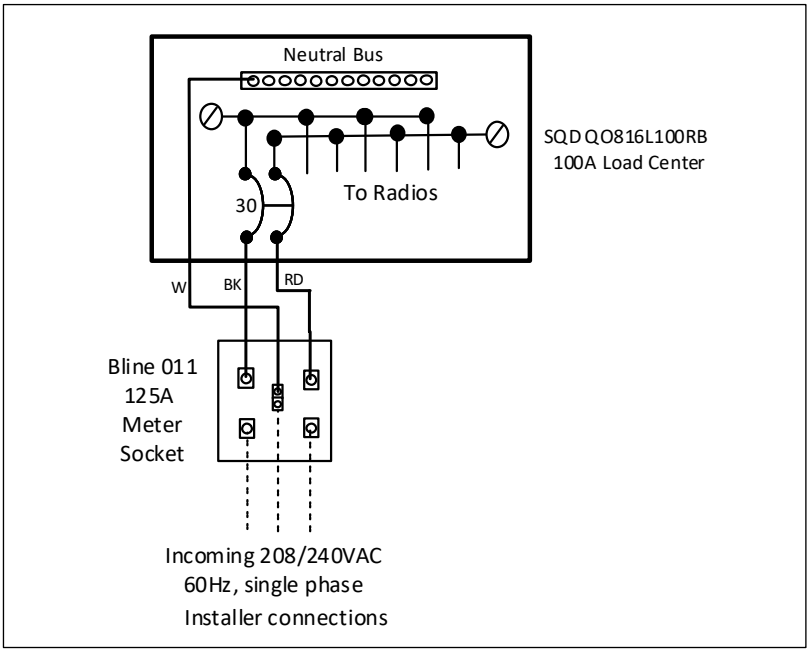

Figure 8 97-SH52CHNLDWPx Electrical Diagram

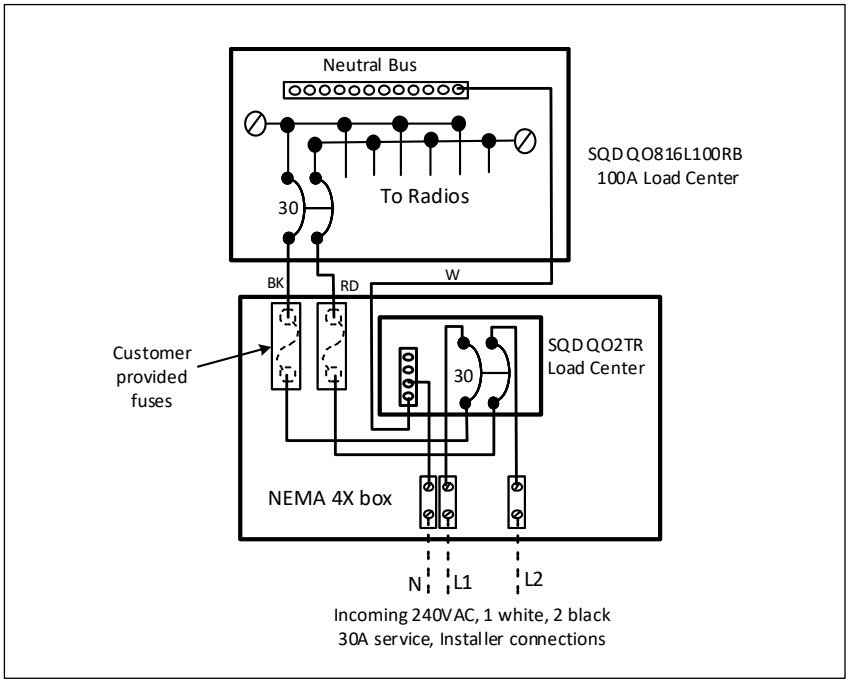

Figure 9 97-SH52CHNLSCEx Electrical Diagram

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 CUBE 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. 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 11 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.

⚠	**CAUTION**	**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.**

The following sections show the backplane for each radio configuration. Each section provides a view of the backplane with the brackets mounted in the correct location for all customer equipment.

For all configurations that include diplexers, the 97-DPLXSHRD521 bracket is required for mounting. This bracket has no mounting holes in it, making it a universal bracket. Prior to mounting, it is necessary to drill mounting holes into the bracket that are suitable for the diplexer in use.

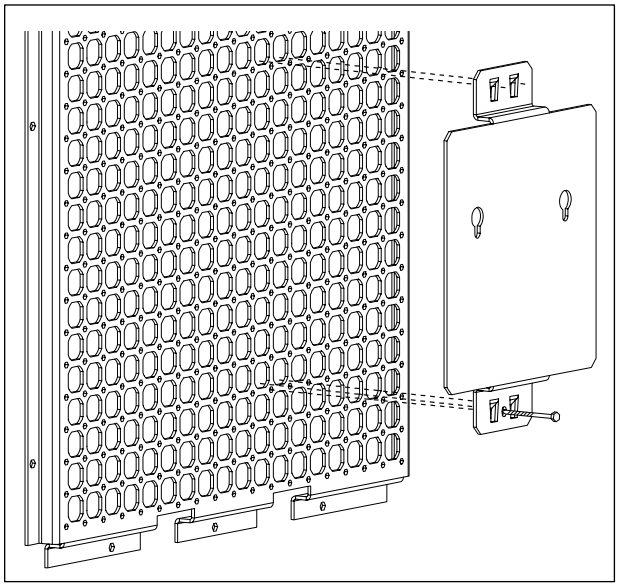

Figure 11
Mounting Brackets Onto Backplane

3.8.1. Configuration 1

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

(1) Nokia FWHR radio (front facing)	(1) 97-NFWHRSHRD521	E30, F30, E40, and F40

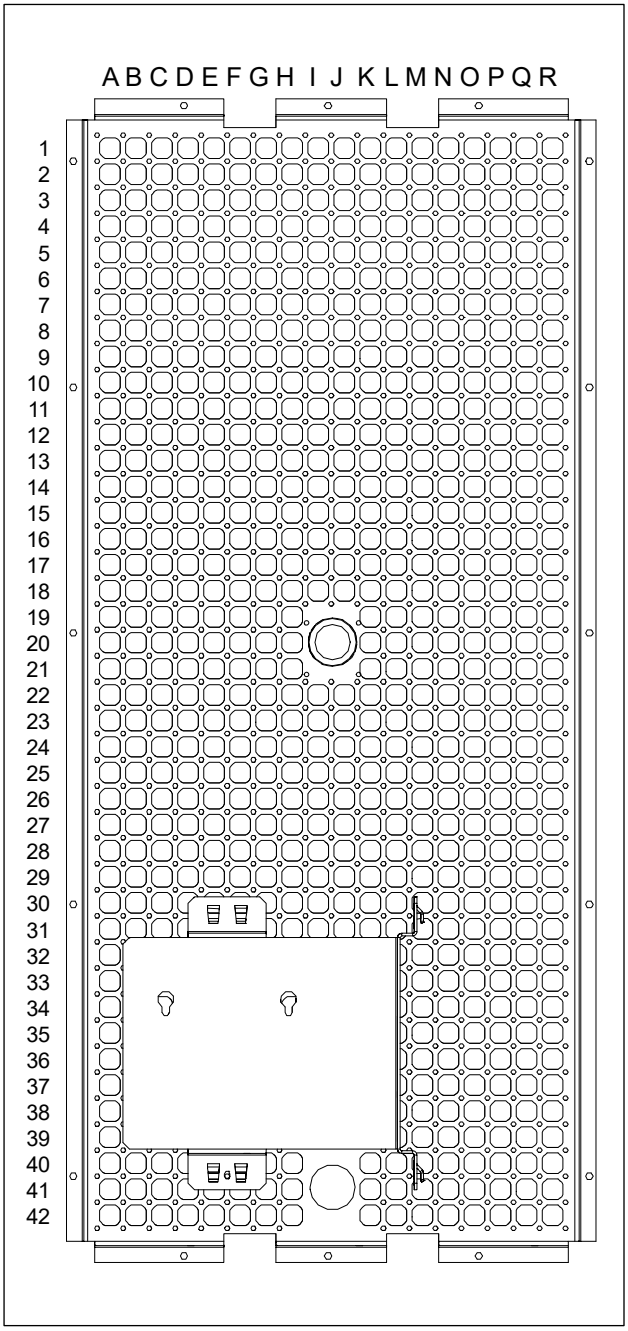

Figure 12
Mounting Location For Configuration 1

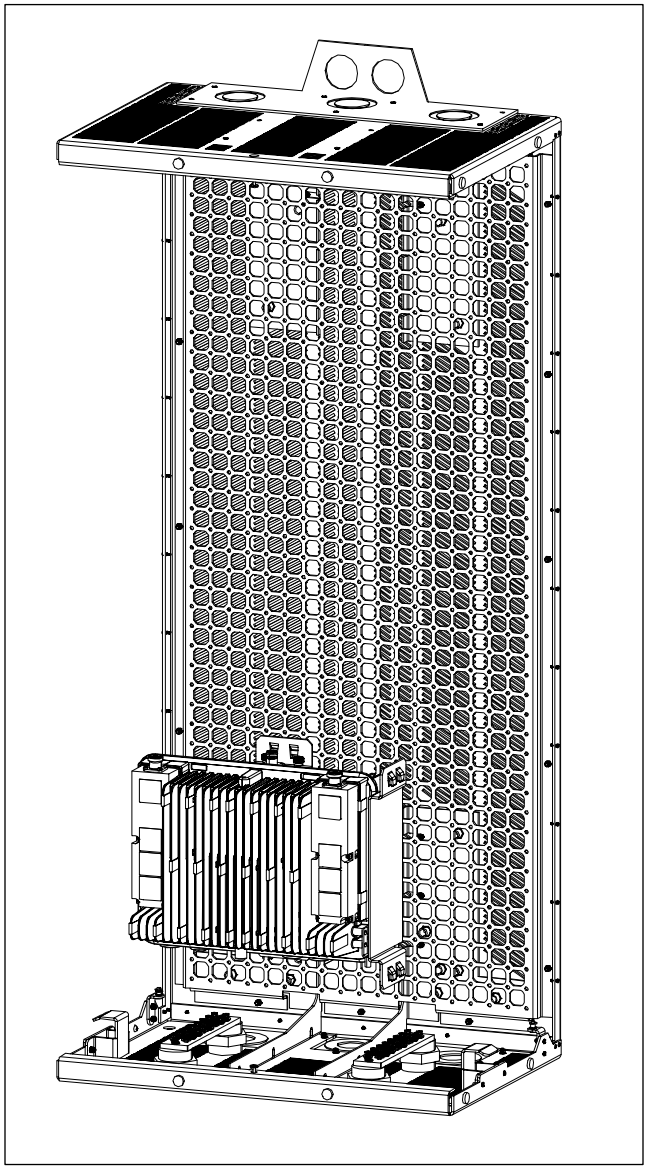

Figure 13
Configuration 1 with Customer Equipment

3.8.2. Configuration 2

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

(1) Nokia FWHR radio (side facing)	(1) 97-NFWHRSHRD522	I1, J1, I11, J11
(2) ION M radio	(2) 97-CIONMSHRD521	Upper left ION bracket: A2, D2, A18, D18 Lower left ION bracket: A30, D30, A36, D36 Upper right ION bracket: O2, R2, O18, R18 Lower right ION bracket: N30, R30, Q36, Q36
(2) Diplexers	(1) 97-DPLXSHRD521	G31, I31, G39, I39

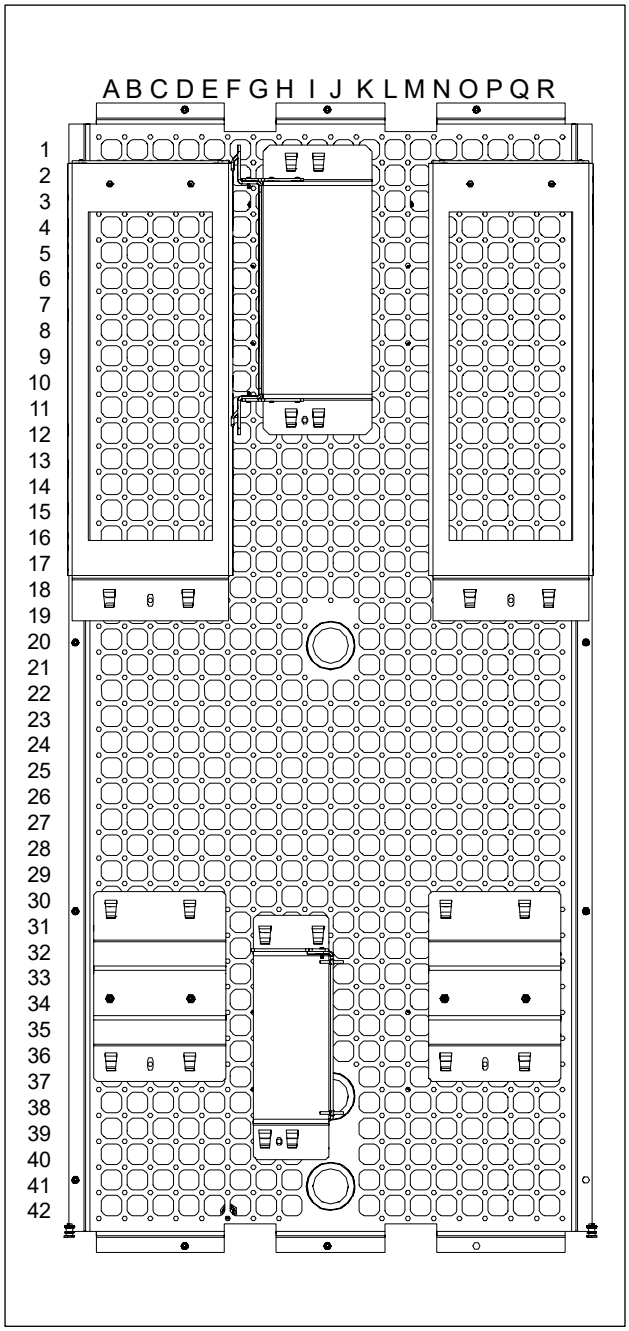

Figure 14
Mounting Locations For Configuration 2

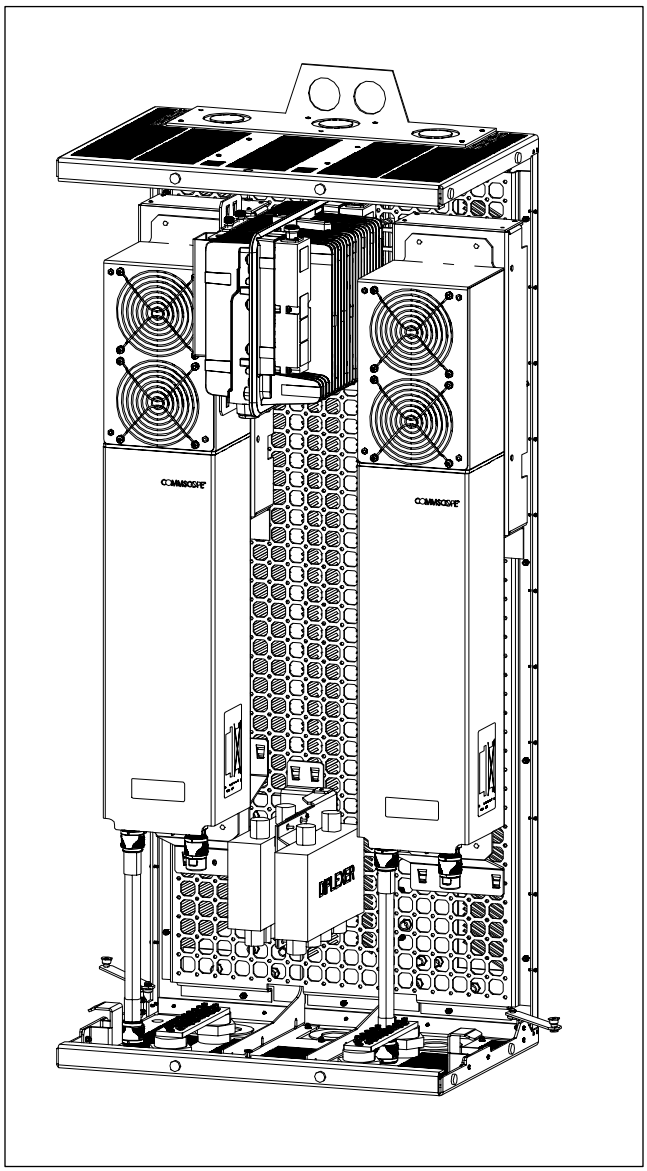

Figure 15
Configuration 2 with Customer Equipment

3.8.3. Configuration 3

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

(1) Nokia FWHR radio (side facing)	(1) 97-NFWHRSHRD522	H7, I7,, H17, I17
(1) ION M radio	(1) 97-CIONMSHRD521	Upper ION bracket: O2, R2, O18, R18 Lower ION bracket: O30, R30, O36, R36
(1) Ericsson 4455 radio	(1) 97-E4455SHRD521	B9, E9, B22, E22
(2) Ericsson 220x radios (1) Ericsson 2208 radio	(3) 97-E220xSHRD521	I24, J24, I31, J31 C35, D35, C42, D42 G35, H35, G42, H42

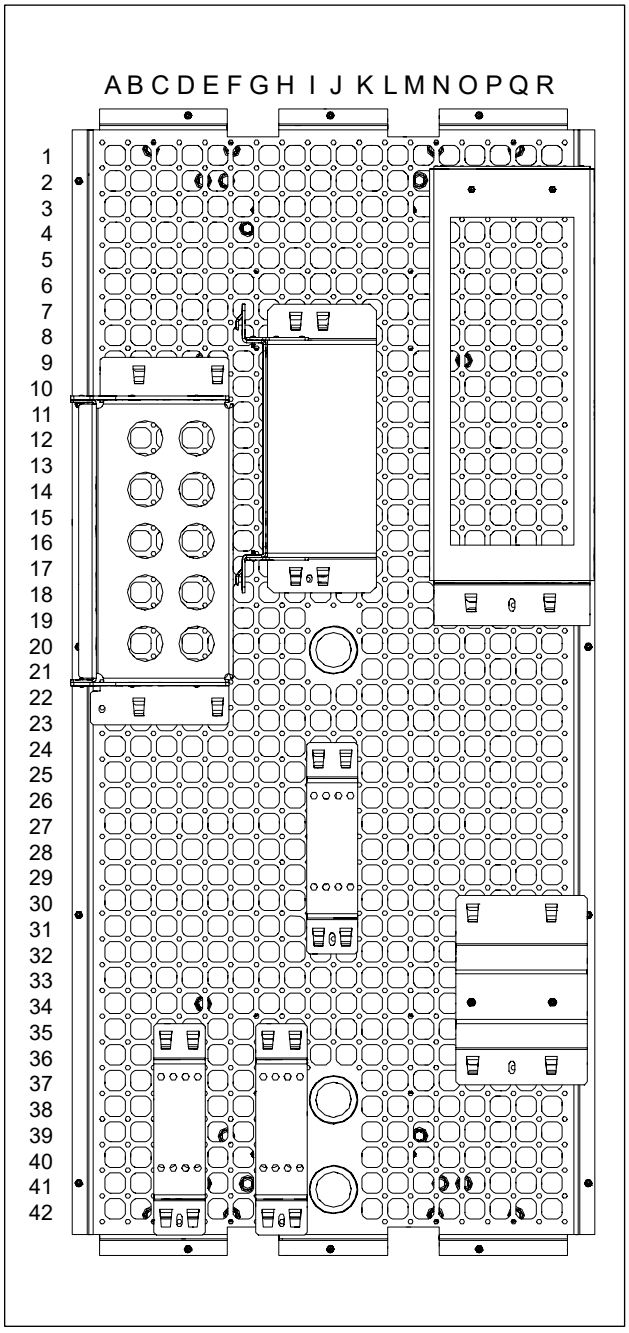

Figure 16
Mounting Locations For Configuration 3

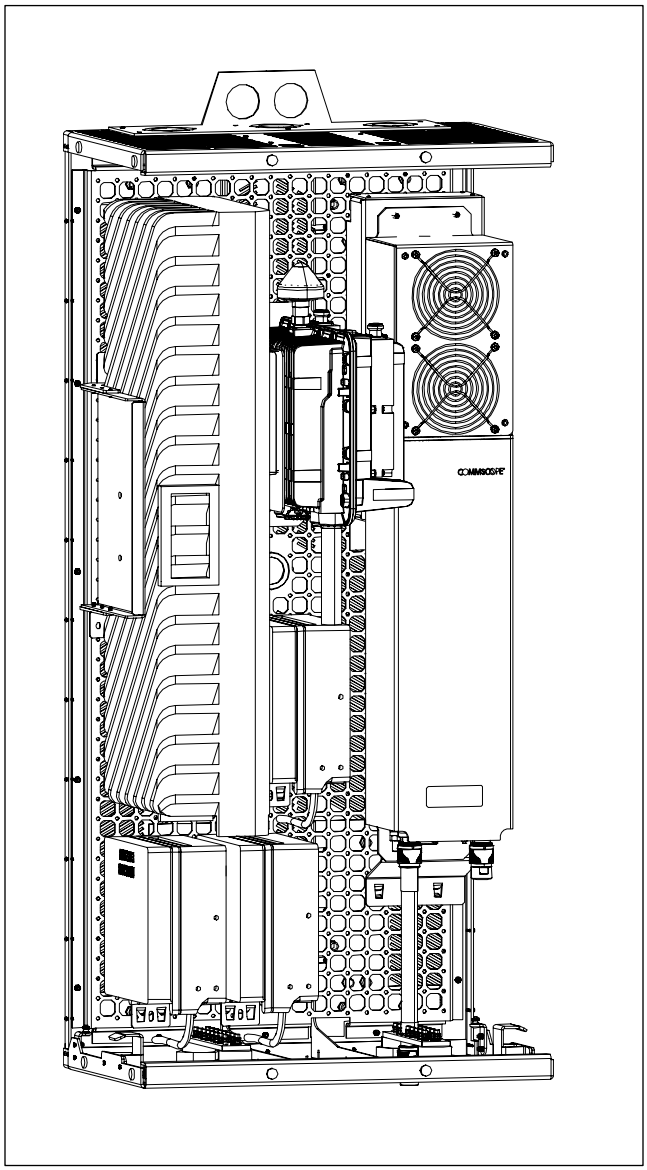

Figure 17
Configuration 3 with Customer Equipment

3.8.4. Configuration 4

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

(1) Nokia FWHR radio (side facing)	(1) 97-NFWHRSHRD522	L3, M3, L13, M13
(1) Ericsson 4455 radio	(1) 97-E4455SHRD521	B10, E10, B23, E23
(2) Ericsson 220x OR 4408 radios	(3) 97-E220xSHRD521	M18, N18, M25, N25 Q18, R18, Q25, R25 Q32, R32, Q39, R39
(1) Ericsson 2208 radio		
(2) Diplexers	(1) 97-DPLXSHRD521	G32, I32, G40, H40

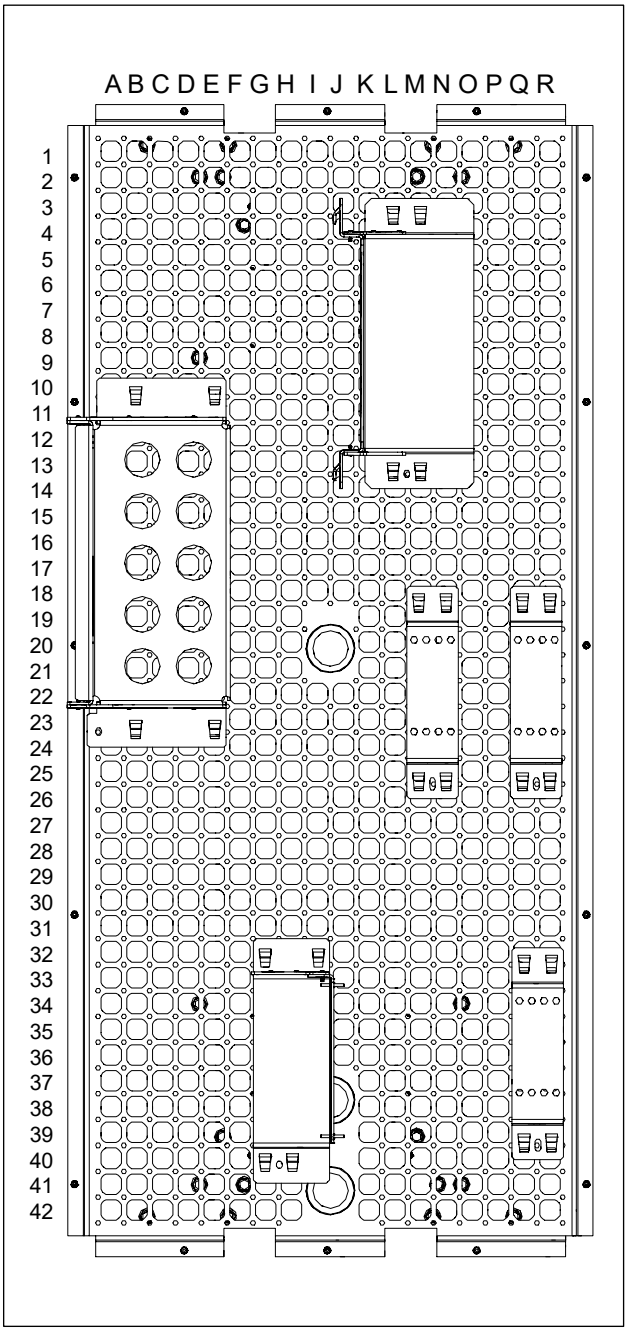

Figure 18
Mounting Locations For Configuration 4

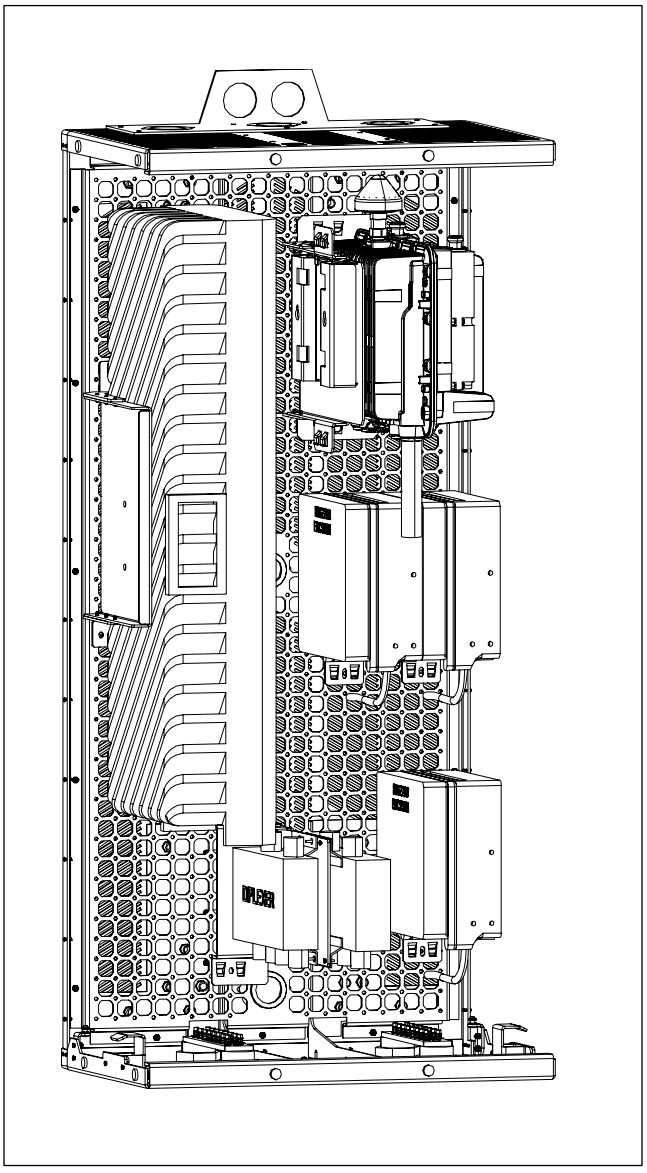

Figure 19
Configuration 4 with Customer Equipment

3.8.5. Configuration 5

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

(1) Nokia FWHR radio (side facing)	(1) 97-NFWHRSHRD522	O1, P1, O11, P11
(2) BTI 40W radio	(2) 97-BTI40SHRD521	A5, B5, A26, B26 F5, G5, F26, G26
(2) Diplexers	(1) 97-DPLXSHRD521	K18, M18, K26, M26

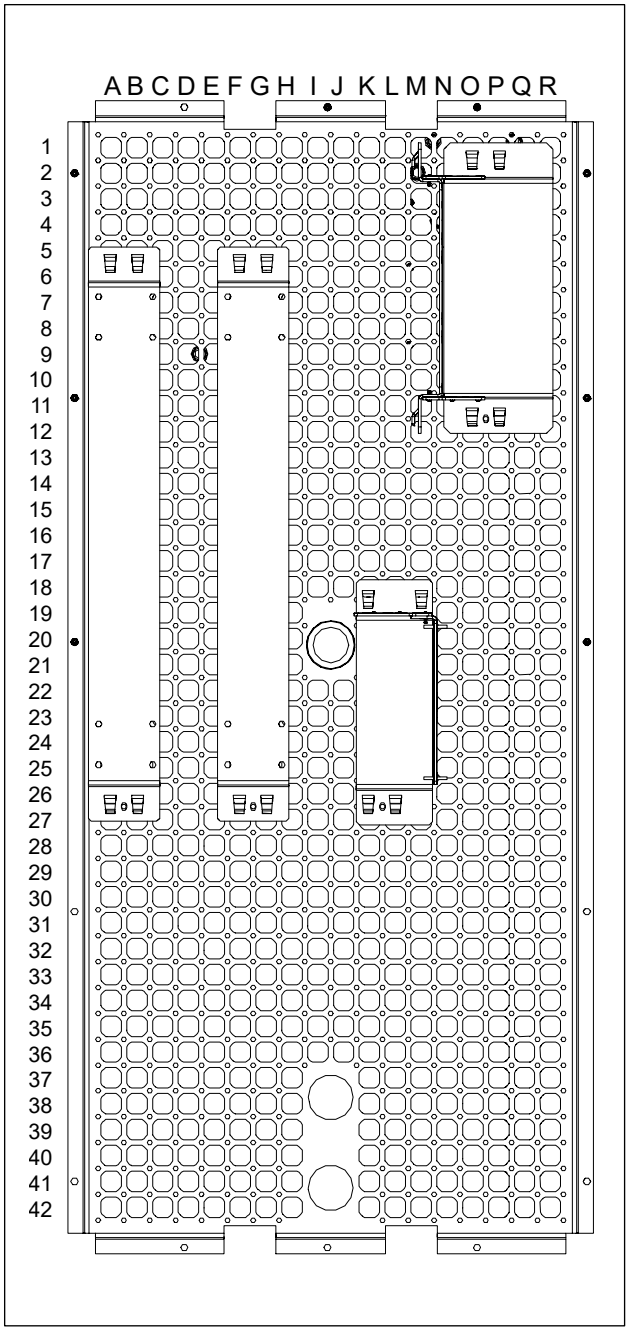

Figure 20
Mounting Locations For Configuration 5

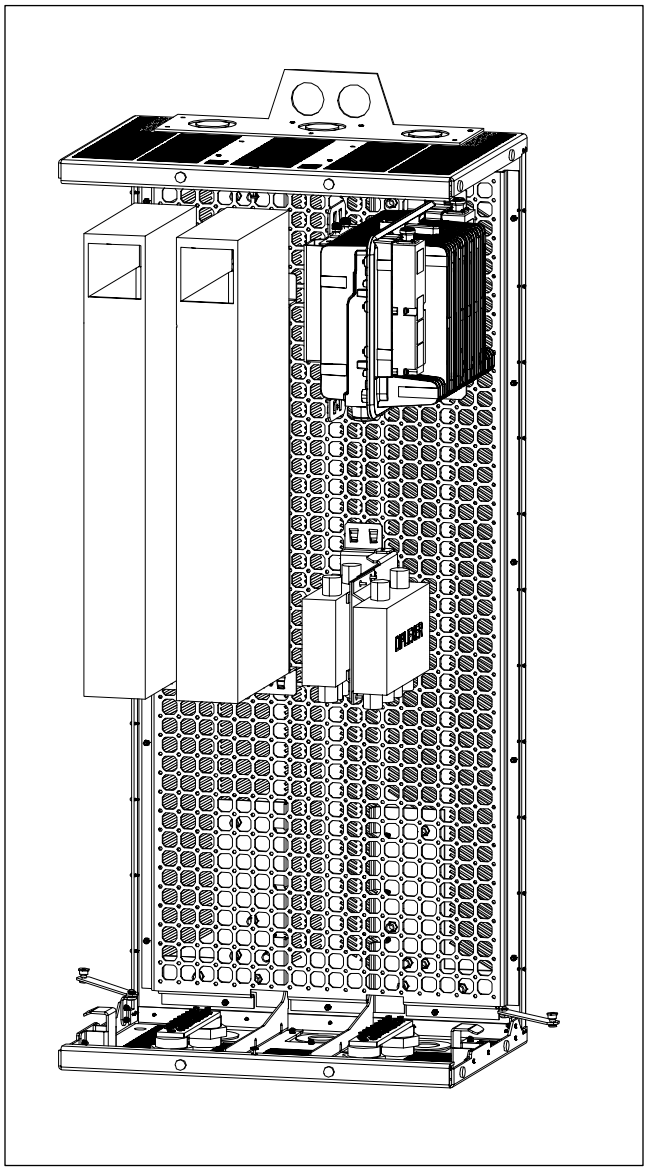

Figure 21
Configuration 5 with Customer Equipment

3.8.6. Configuration 6

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

(1) Nokia FWHR radio (side facing)	(1) 97-NFWHRSHRD522	I1, J1, I11, J11
(2) Ericsson 4415 radios	(2) 97-E4415SHRD521	A9, C9, A19, C19 P9, R9, P19, R19
(2) Ericsson 220x radios	(2) 97-E220xSHRD521	K21, L21, K28, L28 L35, M35, L42, M42
(1) Ericsson 6302 power supply	(1) 97-E4415SHRD521	A31, C31, A41, C41
(1) Ericsson 6387 WDM	(1) 97-E220xSHRD521	Q35, R35, Q42, R42
(4) Diplexers	(2) 97-DPLXSHRD521	E21, F21, E29, F29 D31, E31, D39, E39

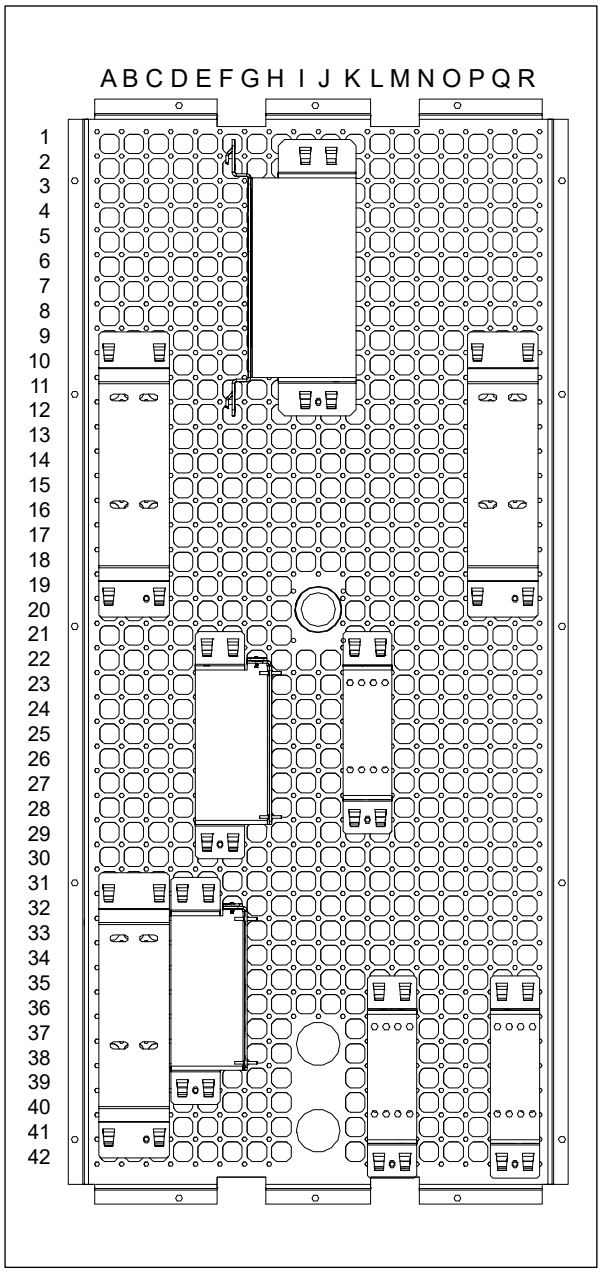

Figure 22
Mounting Locations For Configuration 6

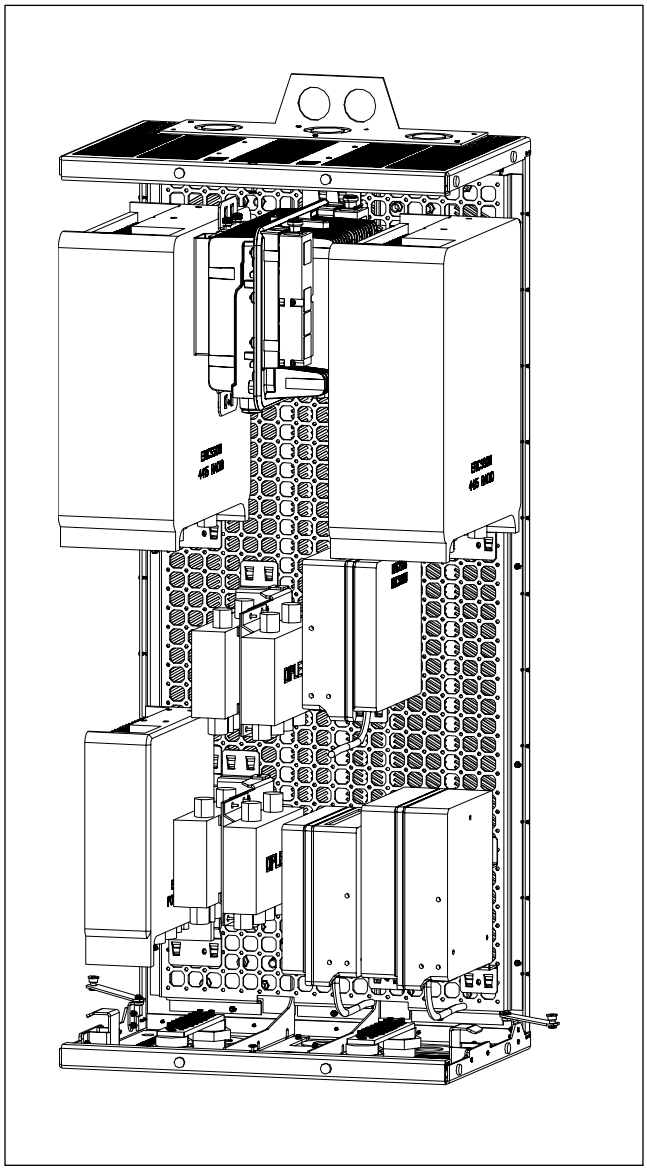

Figure 23
Configuration 6 with Customer Equipment

3.8.7. Configuration 7

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

(1) Samsung 160W or 320W dual band radio	(1) 97-SAMDBSHRD521	E1, I1, E18, I18

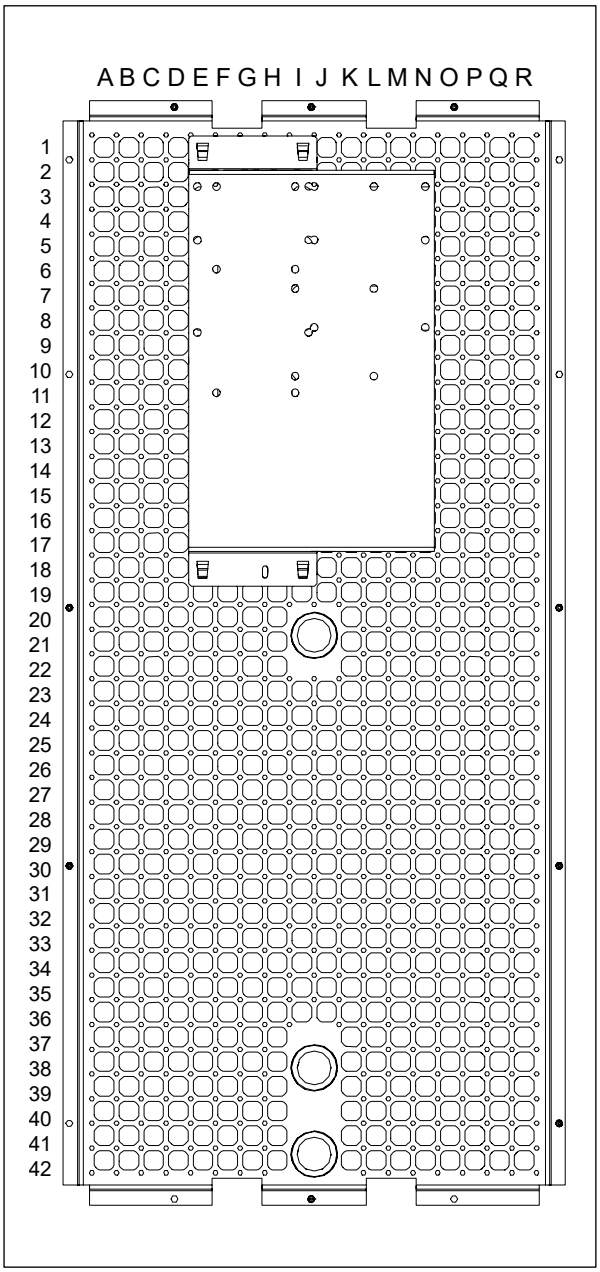

Figure 24
Mounting Locations For Configuration 7

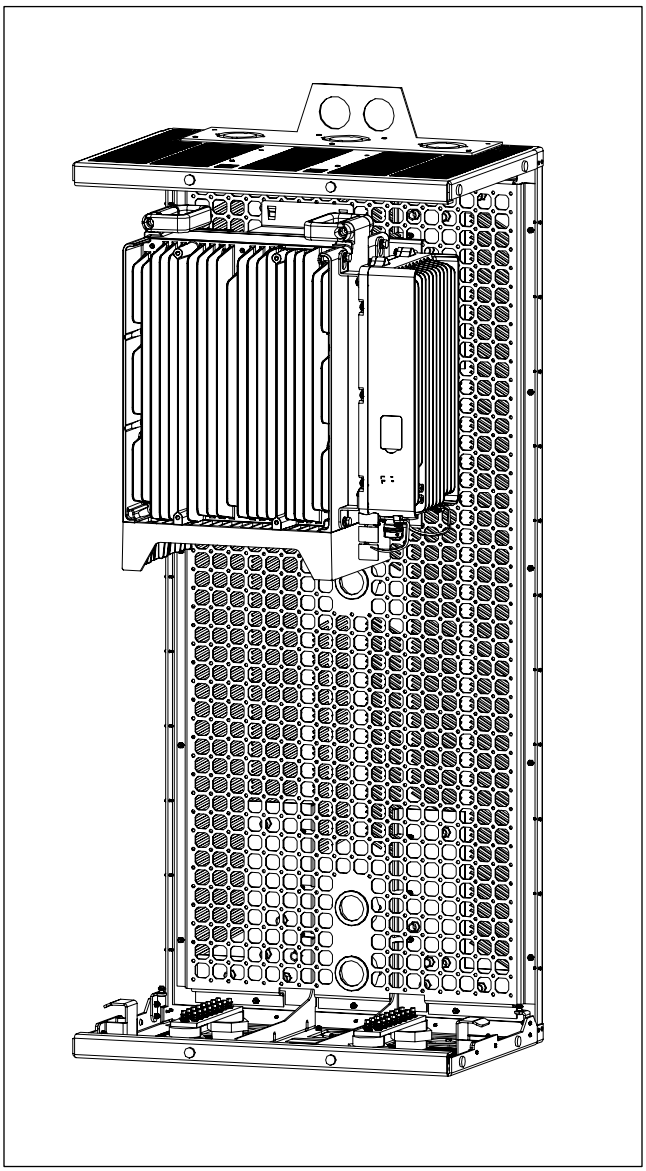

Figure 25
Configuration 7 with Customer Equipment

3.8.8. Configuration 8

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

(1) Nokia AHxxx dual band radio	(1) 97-NAHDBSHRD521	B3, E3, B21, E21
(1) Delta 2kW power supply	(1) 97-DL2KWSHRD521	M27, N27, M41, N41

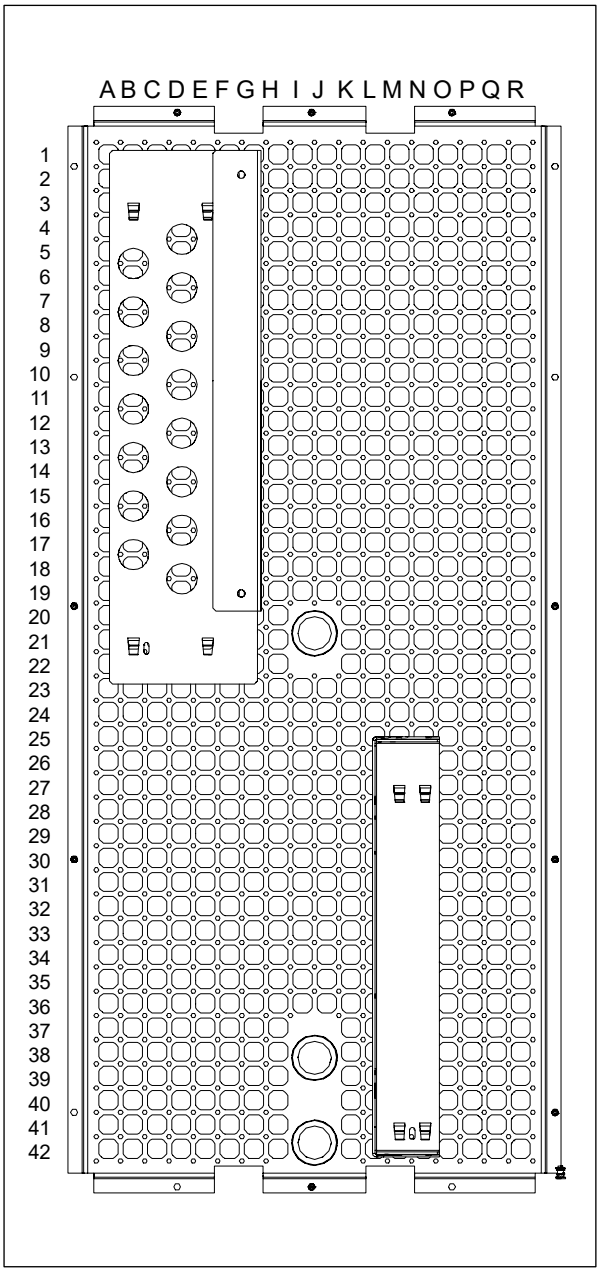

Figure 26
Mounting Locations For Configuration 8

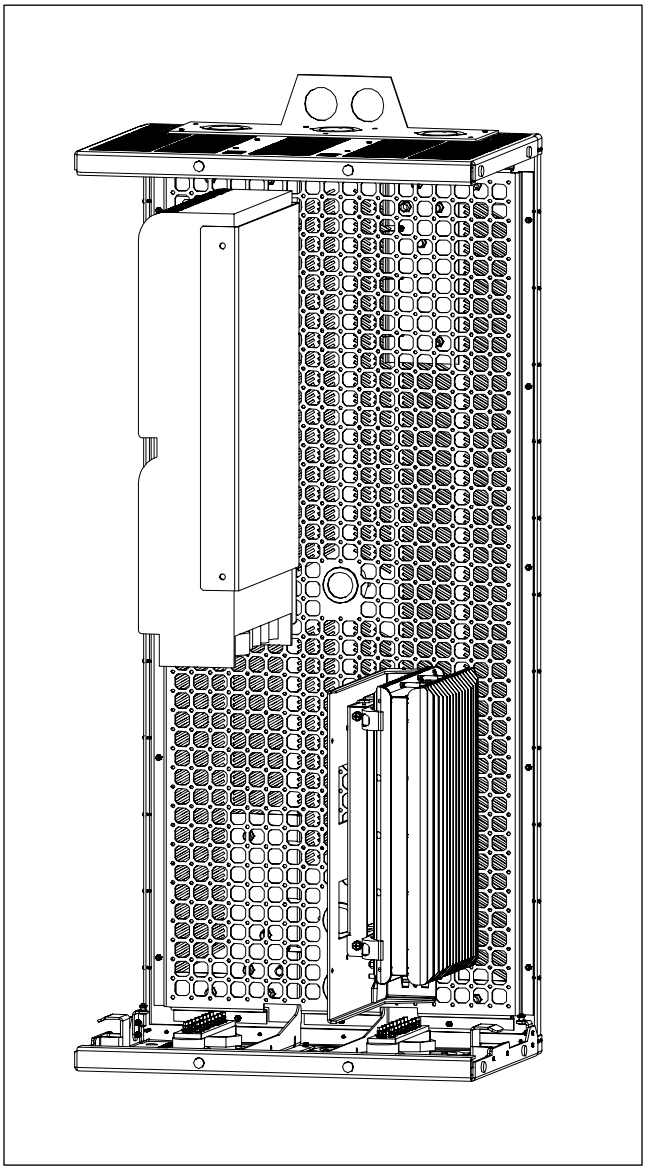

Figure 27
Configuration 8 with Customer Equipment

3.8.9. Configuration 9

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

(1) Nokia B66 radio	A8, D8, A26, D26
(1) Nokia 1830-VLM radio	I3, J3, I17, J17
(1) Nokia B25 radio	O3, R3, O21, R21
(1) Nokia Airscale Micro radio	H23, I23, H35, I35
(1) Charles CFTT fiber box	C32, C41
(1) Ericsson 220x/440x radio	N33, O33, N40, O40
(1) Delta 2kW power supply	Q27, R27, Q41, R41

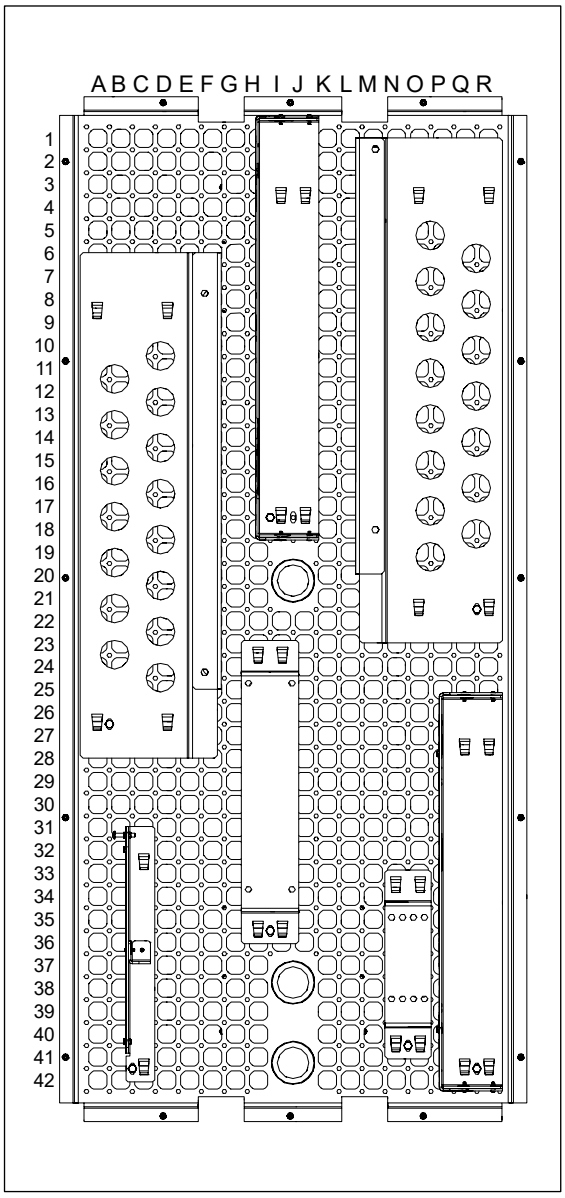

Figure 28
Mounting Locations For Configuration 9

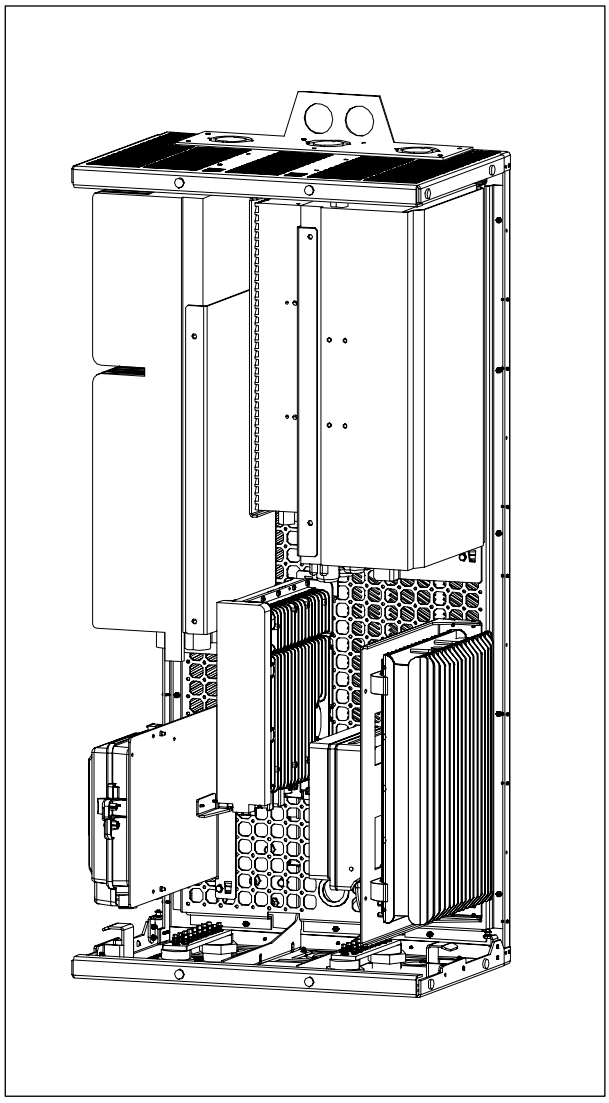

Figure 29
Configuration 9 with Customer Equipment

3.8.10. Configuration 10

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

(1) Ericsson 8843, 4449, 4478, 4426, or 4415 radio	(1) 97-E8844SHRD521	L4, O4, L19, O19
(1) Ericsson 4455 radio	(1) 97-E4455SHRD521	B16, E16, B29, E29
(2) Ericsson AC-08 power supplies	(2) 97-EAC08SHRD521	K28, K36 O28, O36

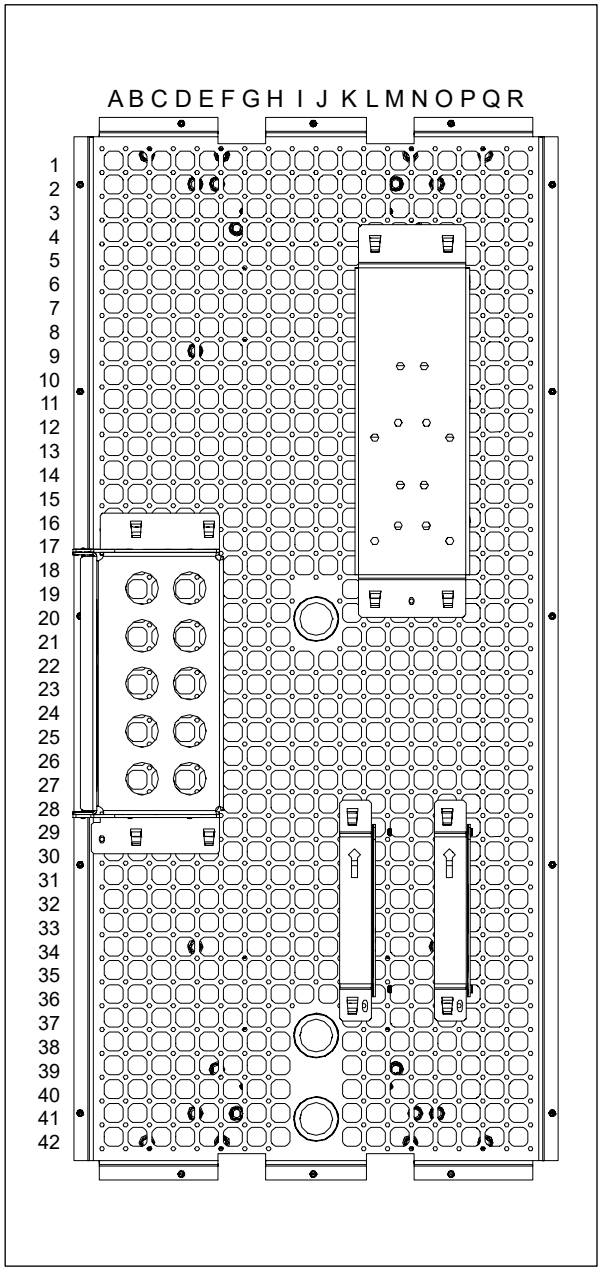

Figure 30
Mounting Locations For Configuration 10

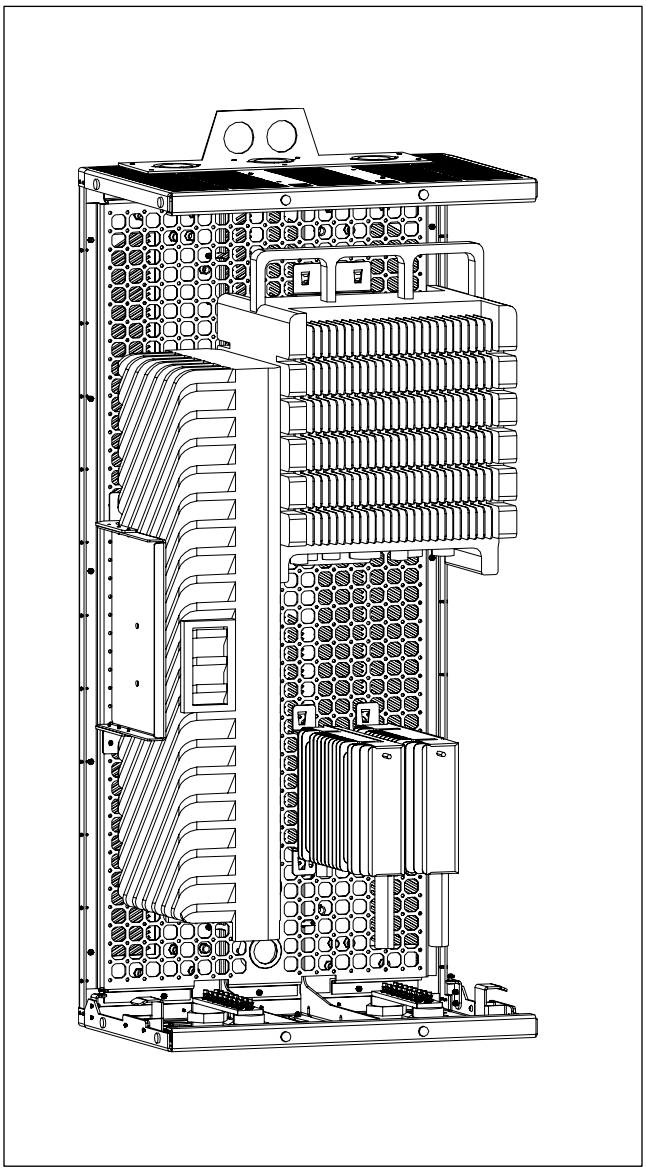

Figure 31
Configuration 10 with Customer Equipment
(8843 Radios Shown)

3.8.11. Configuration 11

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

(1) Ericsson 8863 radio	(1) 97-E8863SHRD521	K9, N9, K29, N19
(1) Ericsson 4455 radio	(1) 97-E4455SHRD522	I22, Q22, I32, Q32
(1) Ericsson 6304 power supply	(1) 97-E4415SHRD521	B6, C6, B16, C16
(1) Ericsson FrontHaul 6585	(1) 97-EDWDMSHRD521	F32, F40
(2) Commscope CBC1726T-4310 diplexers	(1) 97-DPLXSHRD521	A22, C22, A30, C30

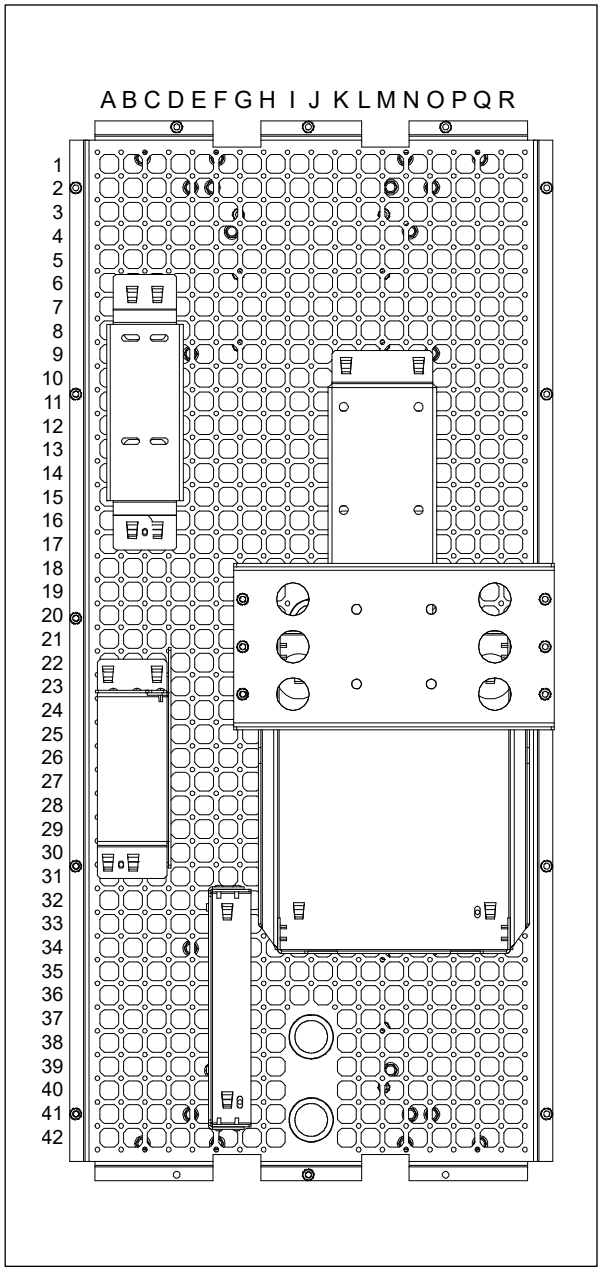

Figure 32
Mounting Locations For Configuration 11

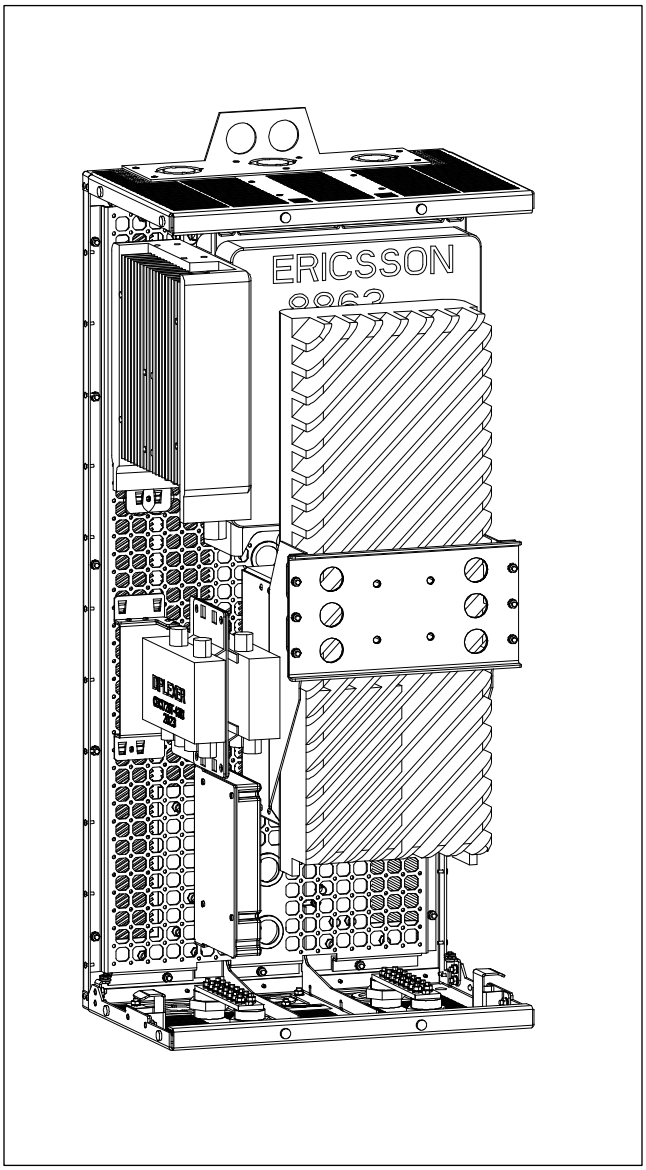

Figure 33
Configuration 11 with Customer Equipment

3.9. Conduit Seals

All conduit openings on the SHRD52 must be completely sealed with a duct seal compound to prevent moisture from entering the SHRD52. Use a moldable, flame-retardant putty style duct seal material. Do not use an expanding foam seal. Mold the putty so that the open space around the wire or conduit is completely sealed, as shown in Figure 32. If the openings must be accessed at any time, remove the putty and set it aside. When work is complete, re-mold the putty to re-seal the opening.

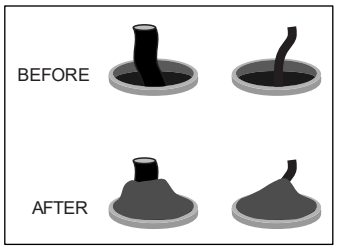

Figure 32 Applying Putty Seal

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 (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 which 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

7. SPECIFICATIONS

Physical	
Dimensions and Weight	47”Hx22”Wx15”D, Approx. 78 lbs. as shipped
Materials	Enclosure: 0.125” aluminum Backplane: 12GA steel
Electrical	
Bonding and Grounding	(2) 2x8 position ground bars
Cable Entry	See Figure 2 and section 3.7.3
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

Mounting Kit	Description	Approx. Weight
97-002190-A	Pole Mounting Kit with 3” Offset	41 lbs.
97-002572-A	Pole Mounting Kit with 6” Offset	47 lbs.
97-SH52CHN4DWPx	Wood Pole Mounting Kit with 4” Offset, AC Load Center, Meter Socket	90 lbs.
97-SH52CHN4SCEx	Wood Pole Mounting Kit with 4” Offset, AC Load Center, AC Disconnect, Fuses	113 lbs.
97-SH52CHN4XXXx	Wood Pole Mounting Kit with 4” Offset	58 lbs.
97-SH52CHN6DWPx	Wood Pole Mounting Kit with 6” Offset, AC Load Center, Meter Socket	91 lbs.
97-SH52CHN6SCEx	Wood Pole Mounting Kit with 6” Offset, AC Load Center, AC Disconnect, Fuses	114 lbs.
97-SH52CHN6XXXx	Wood Pole Mounting Kit with 6” Offset	59 lbs.

Table 2 Mounting Bracket Kits and Weights

Part Number	Color	Touch-up Paint
SHRD52-991AXGN1	Off-white	02-000290-0
SHRD52-991DXGN1	Classic Texture Gray	02-000629-0
SHRD52-991FXGN1	Onyx Black	02-000611-0
SHRD52-991GXGN1	National Park Brown	02-000626-0
97-SH52CHNxDWPA	Off-white	02-000290-0
97-SH52CHNxDWPD	Classic Texture Gray	02-000629-0
97-SH52CHNxDWPF	Onyx Black	02-000611-0
97-SH52CHNxDWPG	National Park Brown	02-000626-0
97-SH52CHNxSCEA	Off-white	02-000290-0
97-SH52CHNxSCED	Classic Texture Gray	02-000629-0
97-SH52CHNxSCEF	Onyx Black	02-000611-0
97-SH52CHNxSCEG	National Park Brown	02-000626-0
97-SH52CHNxXXXA	Off-white	02-000290-0
97-SH52CHNxXXXD	Classic Texture Gray	02-000629-0
97-SH52CHNxXXXF	Onyx Black	02-000611-0
97-SH52CHNxXXXG	National Park Brown	02-000626-0

Table 3 Color Options

Configuration Number	Supported Equipment	Brackets Required	Approx. Configured Weight (lbs)
1	(1) Nokia FWHR radio (front facing)	(1) 97-NFWHRSHRD521	106
2	(1) Nokia FWHR radio (side facing) (2) ION M radio (2) Diplexers	(1) 97-NFWHRSHRD522 (2) 97-CIONMSHRD521 (1) 97-DPLXSHRD521	312
3	(1) Nokia FWHR radio (side facing) (1) ION M radio (1) Ericsson 4455 radio (2) Ericsson 220x radios (1) Ericsson 2208 radio	(1) 97-NFWHRSHRD522 (1) 97-CIONMSHRD521 (1) 97-E4455SHRD521 (3) 97-E220xSHRD521	316
4	(1) Nokia FWHR radio (side facing) (1) Ericsson 4455 radio (2) Ericsson 220x OR 4408 radios (1) Ericsson 2208 radio (2) Diplexers	(1) 97-NFWHRSHRD522 (1) 97-E4455SHRD521 (3) 97-E220xSHRD521 (1) 97-DPLXSHRD521	298
5	(1) Nokia FWHR radio (side facing) (2) BTI 40W radio (2) Diplexers	(1) 97-NFWHRSHRD522 (2) 97-BTI40SHRD521 (1) 97-DPLXSHRD521	273
6	(1) Nokia FWHR radio (side facing) (2) Ericsson 4415 radios (2) Ericsson 220x radios (1) Ericsson 6302 power supply (1) Ericsson 6387 WDM (4) Diplexers	(1) 97-NFWHRSHRD522 (3) 97-E4415SHRD521 (3) 97-E220xSHRD521 (2) 97-DPLXSHRD521	362
7	(1) Samsung 160W or 320W dual band radio	(1) 97-SAMDBSHRD521	116 (for 160W) or 165 (for 320W)
8	(1) Nokia AHxxx radio (1) Delta 2kW power supply	(1) 97-NAHDBSHRD521 (1) 97-DL2KWSHRD521	183
9	(1) Nokia B66 radio (1) Nokia 1830 TLU/PMU (1) Nokia B25 radio (1) Nokia Airscale Micro radio (1) Ericsson 220x/440x radio (1) Delta 2kW power supply (1) Charles CFTT fiber box	(1) 96-CRNBAW52CFG1 (brackets for this kit are installed at the factory)	305
10	(1) Ericsson 8843, 4449, 4478, 4426, or 4415 radio (1) Ericsson 4455 radio (2) Ericsson AC-08 power supplies	(1) 97-E8844SHRD521 (1) 97-E4455SHRD521 (2) 97-EAC08SHRD521	242 (heaviest radios used to calculate value, some radios are lighter)
11	(1) Ericsson 8863 radio (1) Ericsson 4455 radio (1) Ericsson 6304 power supply (1) Ericsson FrontHaul 6585 (2) Commscope CBC1726T-4310 diplexers	(1) 97-E8863SHRD521 (1) 97-E4455SHRD522 (1) 97-E4415SHRD521 (1) 97-EDWDMSHRD521 (1) 97-DPLXSHRD521	156

Table 4 Available Configurations

These configurations have been thermally verified by Charles Industries.

Supported Equipment	Kit Part Number
Ericsson 6585 DWDM	97-EDWDMSHRD521
Nokia Airscale Micro radio	97-NKASMSHRD521
Samsung CBRS radio	97-SCBRSSHRD521
Nokia FWHR radio	97-NFWHRSHRD521
ION M radio	97-CIONMSHRD521
Diplexers	97-DPLXSHRD521
Ericsson 4455 radio	97-E4455SHRD521
Ericsson 220x radio	97-E220xSHRD521
BTI 40W radio	97-BTI40SHRD521
Ericsson 4415 radio	97-E4415SHRD521
Samsung 160W or 320W dual band radio	97-SAMDBSHRD521
Nokia AHxxx radio	97-NAHDBSHRD521
Delta 2kW power supply	97-DL2KWSHRD521
Ericsson 8843, 4449, 4478, 4426, or 4415 radio	97-E8844SHRD521
Ericsson AC-08 power supplies	97-EAC08SHRD521

Table 5 Available Bracket Kits

Configurations created from any combination of these brackets must be thermally verified by Charles Industries if they differ from the configurations listed in Table 4.