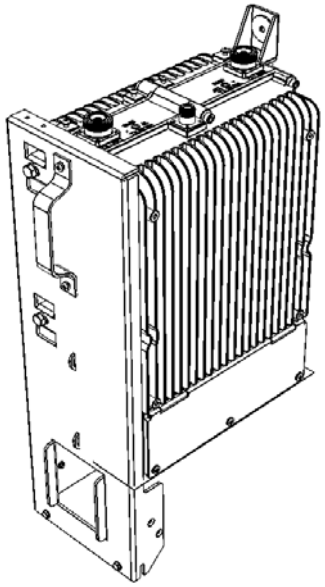


Alcatel-Lucent 7310
DC Metro Cell AWS (B4) Kit
MC-DBR1, MC-DBR2, MC-DBR3, MC-DBR4, MC-DBR5
Installation Manual

Alcatel·Lucent

Document Information

Identification

Alcatel-Lucent DC Metro Cell AWS (B4) Installation Instructions
1000023159 Rev 01 7/14

Before You Begin

How to Get Assistance

If you need help with your Alcatel-Lucent products, contact one of our TAC Engineers at 866-582-3688.

Packaging Inspection

If the shipping container shows evidence of rough handling, inspect the equipment carefully for shipping damage. If damage is found, notify the carrier immediately, and annotate the damage on the bill of lading.

Product Summary

The Alcatel-Lucent DC Metro Cell kit provides parts and instructions to field-install the second DC Metro Cell in an MC-DBR1, MC-DBR2, MC-DBR3, MC-DBR4, or MC-DBR5 cabinet.

For Use With

This document is intended for use with the Alcatel-Lucent DC Metro Cell AWS (B4) Field-installed Kit, PN 3MV00489AC.

Associated Documentation

Name	Part Number
Alcatel-Lucent 7310 Metro Cell Cabinet Installation Manual	1000021514
Alcatel-Lucent 7310 Metro Cell Cabinet Installation Manual	1000023131

Revision History

Revision	ECO	Description of Change	Approvals	
00		Original release. 3/12/14.	ME	M.S.
			EE	M.B.
			PM	E.B.
01		Customer redlines; clarified SAR-W port information; added information to re-secure MC and SAR-W to bracket; added MC-DBR2 RF cable installation information and references to MC-DBR4 and MC-DBR5. 7/28/14.	ME	M.S.
			EE	M.B.
			PM	E.B.

Warnings and Cautions

This cabinet and its equipment might not be suitable for use in corrosive environments that can be present in agricultural buildings. See NEC 547 or CEC 2-400.

Your equipment may be damaged and the warranty voided if:

- Components (including cables and equipment) are connected or disconnected while power is applied to them
- Incorrect wire connections are made
- Battery polarity is reversed
- Battery voltage rating is too high

The following precautions must be observed during all phases of installing an ALP cabinet and equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual risks personal injury and violates safety standards of design, manufacture, and intended use of the equipment. Alcatel-Lucent is not responsible for any equipment damage or poor operating performance when these guidelines are not followed or when noncertified installers perform the work.

Type of Precaution	Precaution
General	**Safety** Observe all general safety precautions against personal injury and equipment damage. Keep bystanders away. Ensure all site personnel know emergency procedures in case of an injury and the location of the first-aid kit.
	Codes The procedures in this manual are only recommended guidelines. Follow all national and local electrical codes.
	Security Never leave the cabinet unattended. When leaving the site, close and secure the cabinet.
	Service Personnel It is safe to have a second person assist when servicing or adjusting internal parts.
Electrical	**Proper Ground** The equipment must be connected to an electrical ground to minimize shock hazard. Consult NFPA 70 (NEC) and local codes for grounding requirements.
	Explosive Atmosphere Do not operate the equipment in the presence of flammable gases, fumes, or dust. Operation of this equipment in such an environment constitutes a safety hazard.
	Live Circuits Operation personnel must not remove equipment covers or panels. Component replacement and internal adjustments must be made only by qualified maintenance personnel. Do not replace components with power applied. To avoid injuries, always disconnect power and allow the circuit to discharge before performing repair procedures.
	Lightning Storms Do not service or repair equipment during a lightning storm.
	Voltage Detector Always use a noncontact voltage detector when approaching a cabinet to verify there are no leaks or shorts on the external body.

Type of Precaution	Precaution
Equipment	**General** Follow manufacturer's recommended mounting, installation, and operation procedures to ensure proper equipment operation, avoid damage, and maintain warranty. In most cases, a certified installer for such equipment is required. Conform to jurisdictional codes and construction covenants.
	Removing Components Remove individual components only after power is disconnected. This includes both AC line power and backup battery power.
	Specifications The equipment is designed to operate within specified design parameters. Do not exceed the specifications.
	Substituting Parts or Making Modifications Do not install substitute parts or perform any modifications to factory-installed equipment without permission from Alcatel-Lucent.
	Moving Cabinet Factor in the combined weight of all materials in the cabinet before engineering a lifting apparatus; consult a site engineer to verify adequate support. Ensure the doors are closed before the cabinet is lifted. **Do not lift the cabinet with optional equipment or batteries installed. The cabinet may bend from excessive weight. If the batteries are damaged, a potentially hazardous material spill may occur.** Follow any moving instructions from the manufacturer of installed equipment. These may include not installing the equipment until the cabinet is mounted.

This manual contains safety labels in the form of DANGER, WARNING, and CAUTION. The labels—generic here but specific in the manual—have the following definitions.

	**DANGER:** Danger indicates that the described activity or situation may result in serious personal injury or death; for example, high voltage or electric shock hazards.
	**WARNING:** Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.
	**CAUTION:** Caution indicates that the described activity or situation may, or will, cause service interruption.
The safety alert symbol ⚠ is used on product labels and in this guide to alert the user to important operating and maintenance instructions.	

Notes

Introduction

These instructions describe how to install a DC Metro Cell AWS (B4) into the 7310 Metro Cell (MC-DBR1, MC-DBR2, MC-DBR3, MC-DBR4, and MC-DBR5) cabinet.

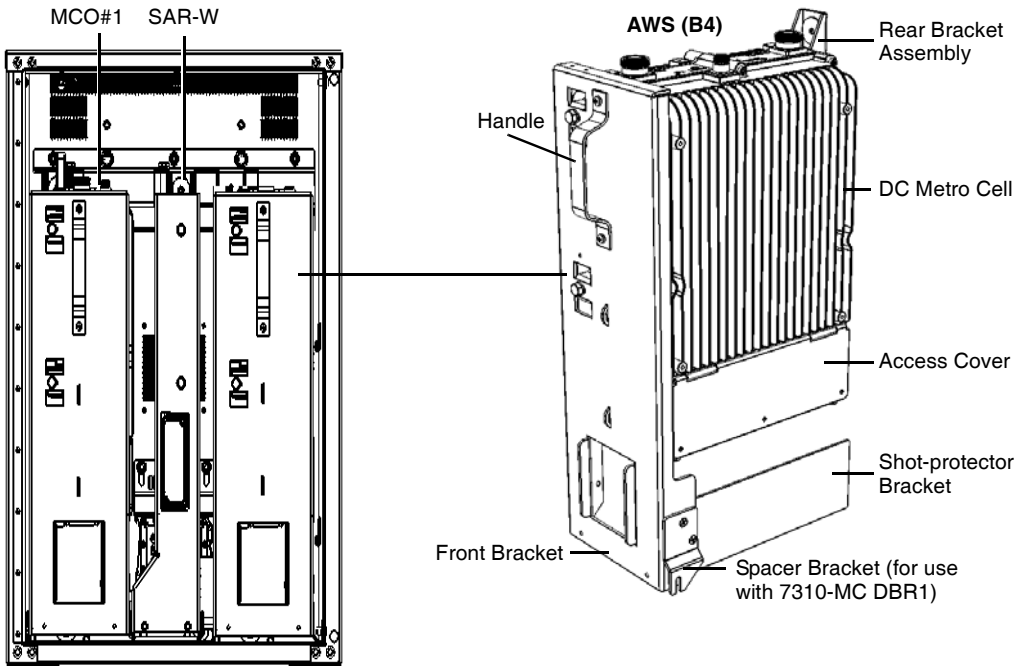


Table of Contents

Kit Contents

- (1) Front bracket
- (1) Rear bracket assembly
- (1) Shot-protector bracket
- (1) Handle
- (1) GPS cable
- (1) Power cable
- (1) Fiber cable
- (1) Tether with detachable link
- (1) Spacer bracket
- (2) 5.3mm plugs
- (1) Locking nut
- (1) Gland assembly (body, sealing gland, compression nut)
- (1) MCO#2 front antenna cable (PN 4000013492, MC-DBR1, MC-DBR3, or MC-DBR4)
- (1) MCO#2 rear antenna cable (PN 4000013489 MC-DBR1, MC-DBR3, or MC-DBR4)
- (20) 8-in. cable ties
- (5) M5x10mm screws
- (2) M6x16mm hex bolts
- (2) M6 split-lock washers
- (2) M8 30mm hex bolts
- (2) M8 14mm hex bolts
- (4) M8 split-lock washers
- (2) M8 flat washers
- (2) 12-24 self-tapping screws
- (2) 10-32 screws
- (2) #10 split-lock washers
- (1) 3/8-16 3 1/2-in. hex bolt
- (1) 3/8-in. split-lock washer
- (1) MCO#2 front antenna cable (PN 4000014441, MC-DBR2 or MC-DBR5)
- (1) MCO#2 rear antenna cable (PN 4000014442, MC-DBR2 or MC-DBR5)

Tools and Materials Required

- DC Metro Cell
- Standard tools
- T20 and T25 Torx bit screwdrivers
- Medium-strength thread-lock
- ESD wrist strap
- Oxide-inhibiting, electrically-conductive grease

Precautions

DANGER

- Cabinet and equipment must be grounded to minimize shock hazard. Follow national and local codes, and best practices.
- Wear appropriate personal protection equipment, and follow safe electrical work practices. See NFPA 70E.
- Do not install equipment showing any physical damage.
- Reattach all devices, doors, and covers before switching on power to the cabinet.

Failure to follow these precautions will result in death or serious injury!

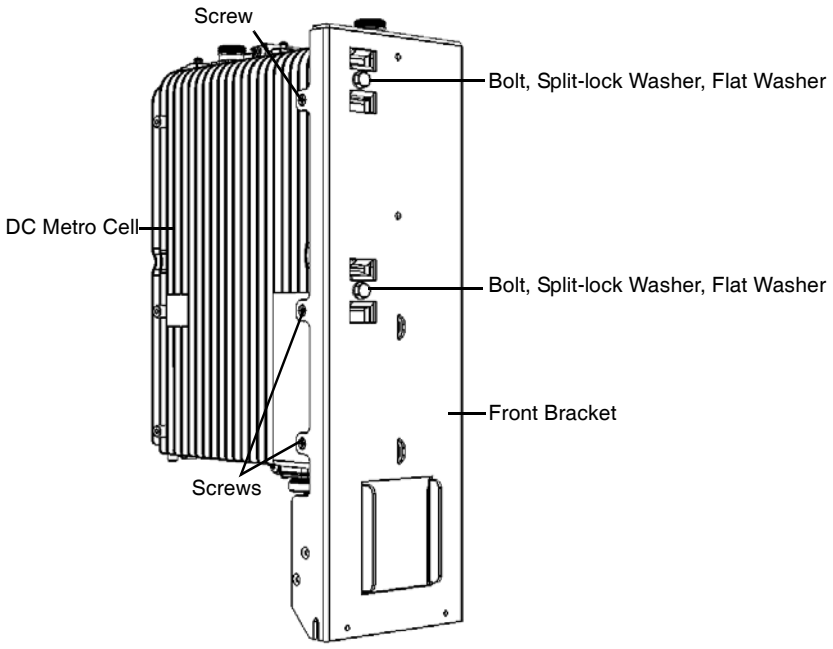
Threat Releases

The on-site technician is responsible for acquiring threat releases before work begins. Neither Alcatel-Lucent nor its representatives will start any work without site management approval.

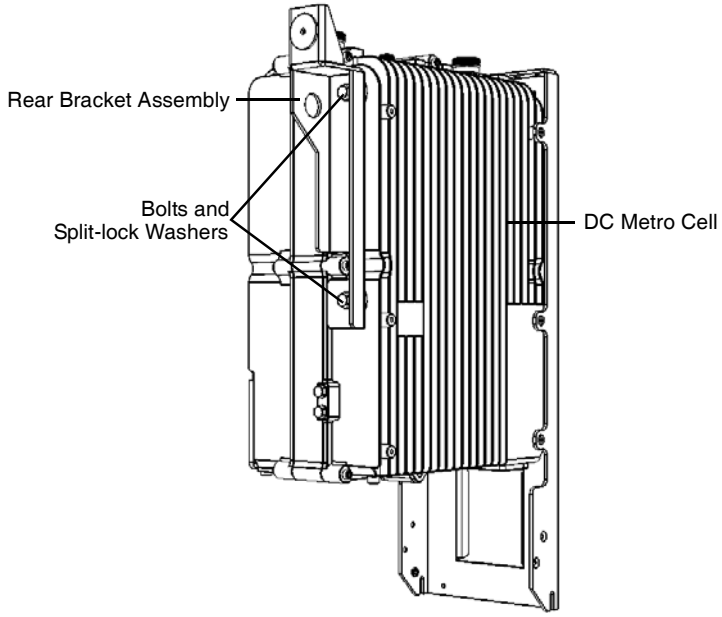
Assemble the DC Metro Cell AWS (B4)

To assemble the DC Metro Cell AWS (B4)

1 Install the front bracket onto the DC Metro Cell. Apply medium strength thread-lock to the screw threads. Secure the front bracket to the DC Metro Cell with (2) M8 30mm hex bolts, (2) M8 split-lock washers, (2) M8 flat washers, and (3) M5x10mm screws. Torque screws first to 25 in-lb. Torque bolts second to 40 in-lb.

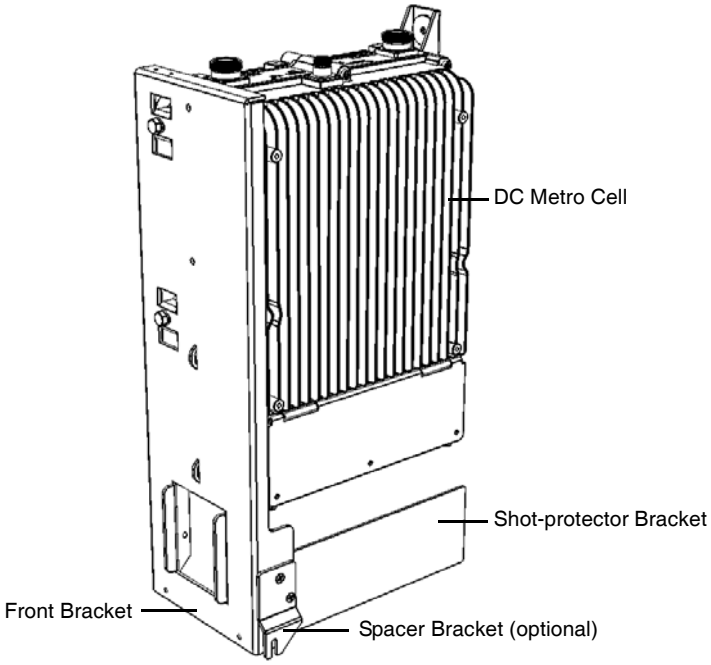


2 Install the rear bracket assembly onto the DC Metro Cell. Secure the rear bracket assembly to the DC Metro Cell with (2) M8 14mm hex bolts and (2) M8 split-lock washers. Torque hardware to 40 in-lb.

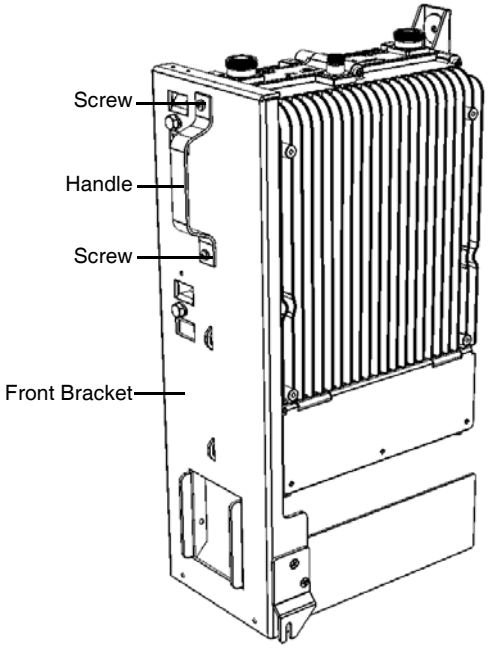


3 Install the shot-protector bracket onto the DC Metro Cell. Secure the shot-protector bracket to the DC Metro Cell with (2) M5x10mm screws. Torque to 25 in-lb.

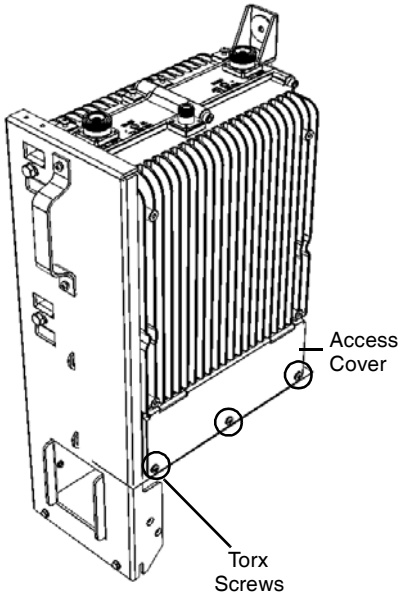
Note *Install spacer bracket onto the front bracket on model 7310 MC-DBR1. Secure with shot-protector bracket hardware and torque as listed above.*



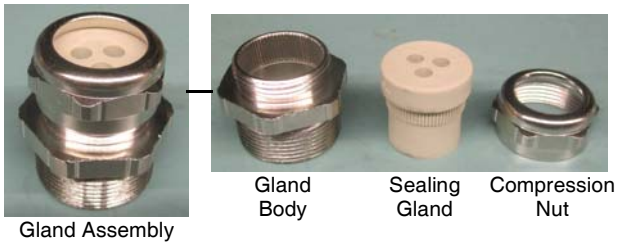
4 Install the handle onto the front bracket. Secure the handle to the front bracket with (2) 10-32 screws and (2) #10 split-lock washers. Torque to 25 in-lb.

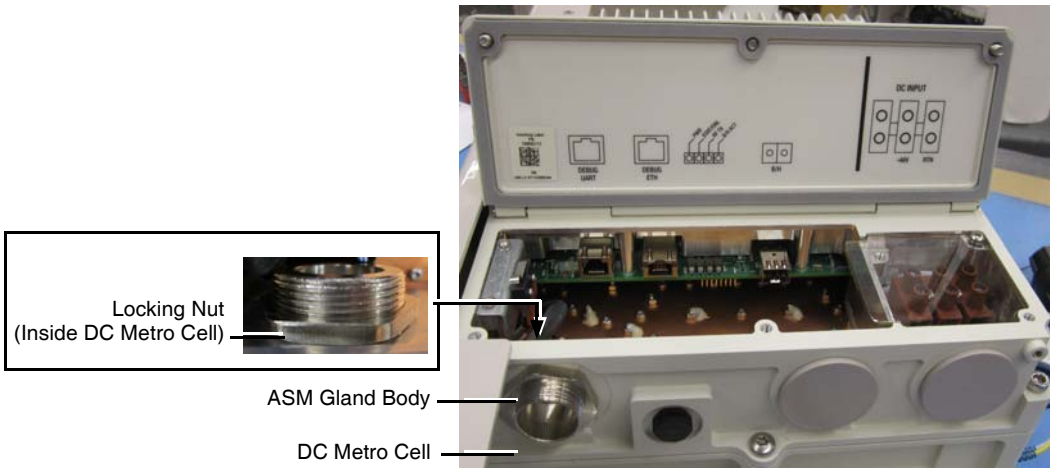


5 Use a T25 Torx bit screwdriver to loosen the 3 Torx screws on the DC Metro Cell access cover. Open the access cover. Remove and discard the knock-out assembly illustrated below.



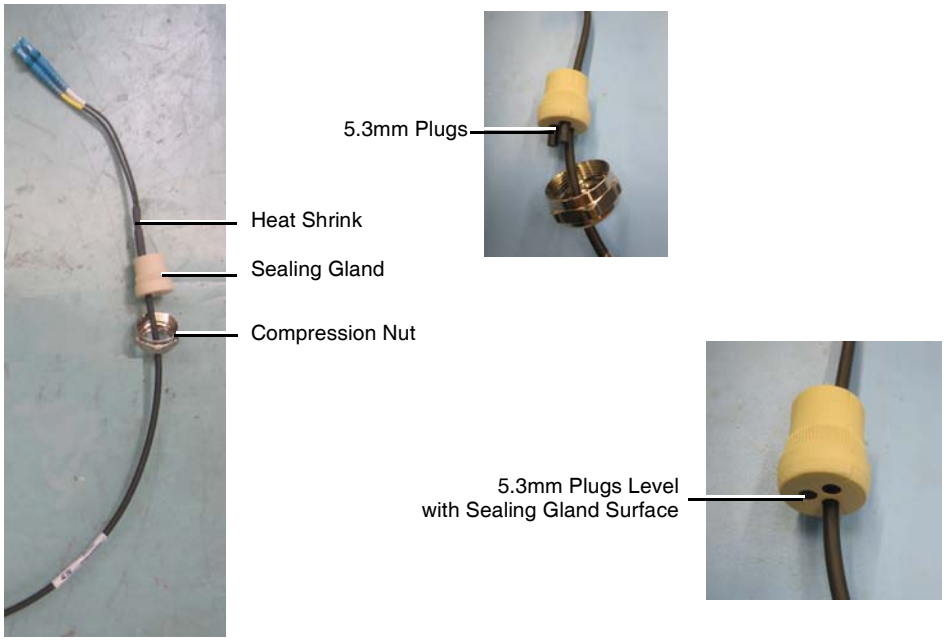
6 Locate the gland assembly in the kit. Remove the compression nut and sealing gland from the gland body. Set the sealing gland and compression nut aside. Install the gland body into the knock-out hole from the outside. Secure the gland body to the DC Metro Cell with (1) locking nut. Torque to 10 ft-lb.





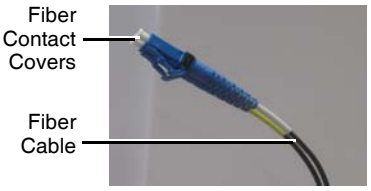
7 Route the fiber cable through the compression nut. Install the sealing gland onto the fiber cable. Install (2) 5.3mm plugs into the empty holes in the sealing gland.

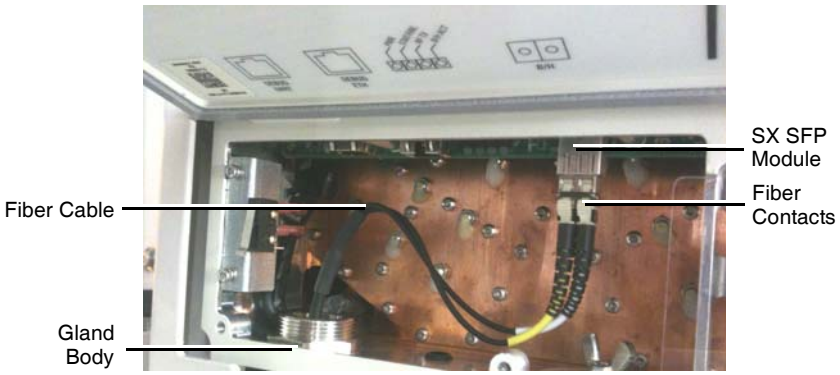
Note *Ensure the 5.3mm plugs are fitted and level with the sealing gland surface*



8 Route the fiber cable through the gland body into the DC Metro Cell. Remove and discard the 2 fiber contact covers to expose the fiber contacts. Install the fiber cable connector into the SX SFP module.

Important *Do not touch the fiber contacts. Inspect the fiber cable end and carefully clean if necessary.*

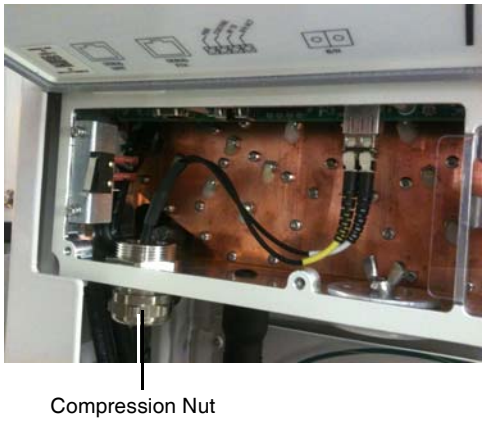




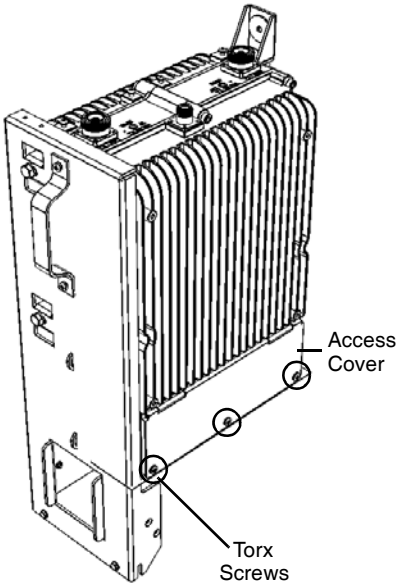
9 Install the sealing gland into the gland body. Secure the sealing gland in the gland body by tightening the compression nut with a tool until the sealing gland compresses slightly.

Note *The fiber cable should not move in the sealing gland. If it does, tighten the compression nut a little more.*

Sealing Gland in Gland Assembly (View from Below)



10 Close the DC Metro Cell access cover. Use a T25 Torx bit screwdriver to secure the access cover with the 3 Torx screws. Torque to 25 in-lb.



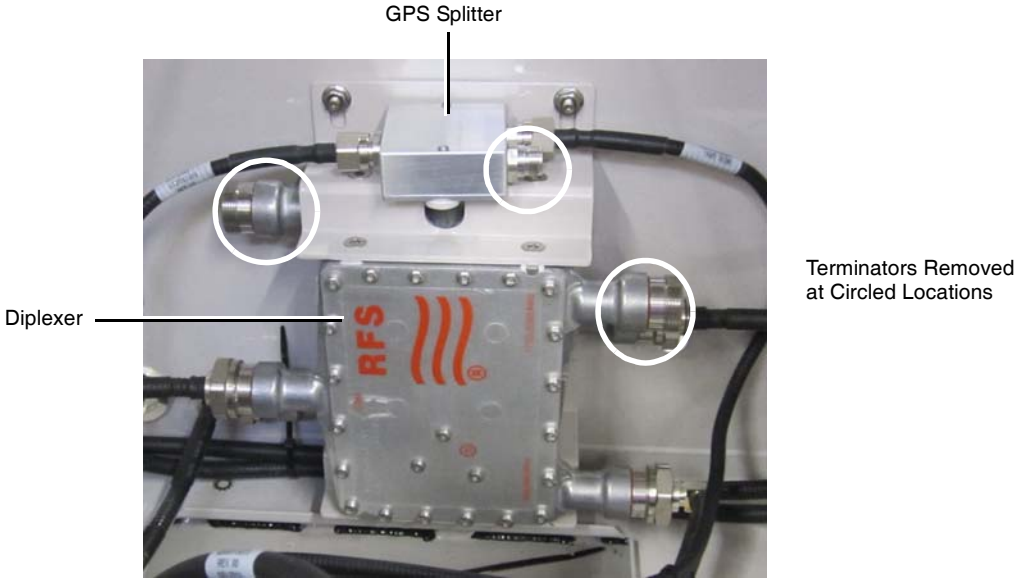
MC-DBR1, MC-DBR3, or MC-DBR4 Installation

(for use with RF cable PNs 4000013492 and 4000013489)

To connect the RF cables

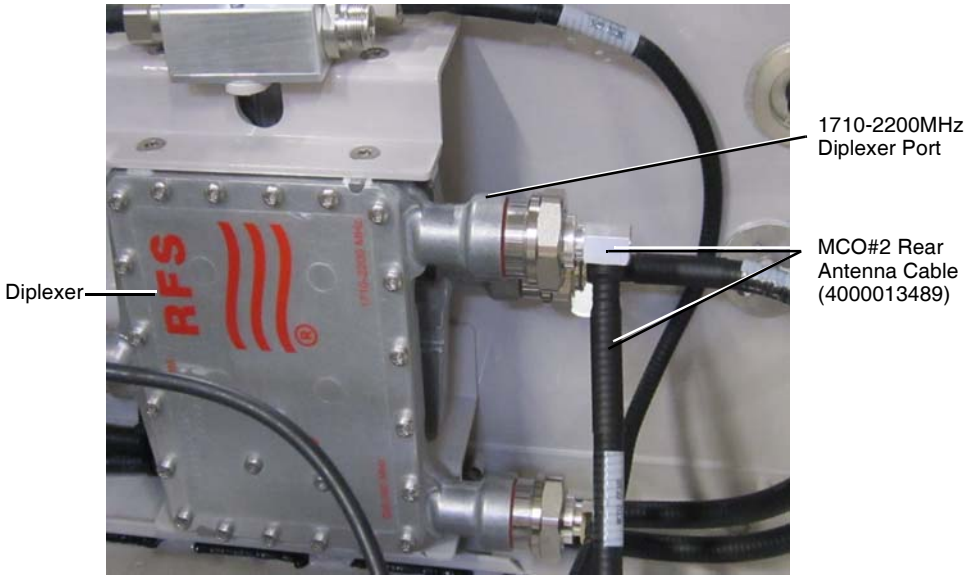
1 Open the rectifier door and then open equipment cabinet door.

2 Remove the 7/16-in. DIN terminators from the diplexer and the N-type terminator from the GPS splitter.



3 Install the MCO#2 rear antenna cable (PN 4000013489) onto the diplexer port (labelled 1710-2200MHz) as illustrated. Torque to 20 ft-lb.

Note *Ensure rear antenna cable is positioned downward as illustrated.*

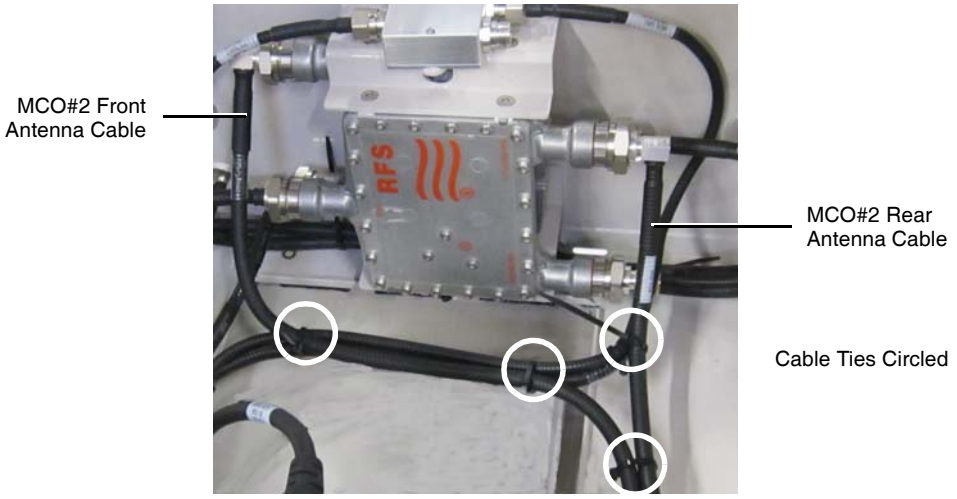


4 Install the MCO#2 front antenna cable (PN 4000013492) onto the diplexer port (labelled 1710-2200MHz) as illustrated. Torque to 20 ft-lb.

Note *Ensure front antenna cable is positioned downward as illustrated.*

5 Secure both MCO#2 antenna cables with (4) 8-in. cable ties as illustrated.

Important *Ensure cables are not kinked or twisted. Do not bend the cable within 2 in. of the DC Metro Cell connector. The bend radius must not be less than 1 in.*



6 If installed, remove the AWS (B4) fuse from position 3 on the rectifier front panel.

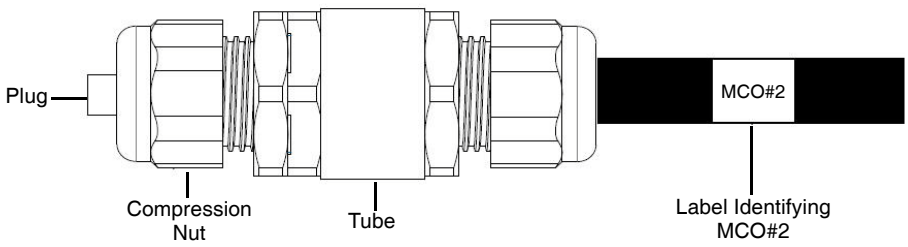
Note *It is not necessary to turn off cabinet power to install the AWS (B4) kit.*

Position	Fuse Value	Equipment
1	7.5A	MCO#1
2	5A	SAR-W
3	***7.5A***	***AWS (B4)***
4	1.5A	NID (External)
5	-	Unused
6	-	Unused

7 Locate the MCO#2 power feed in-line connector.

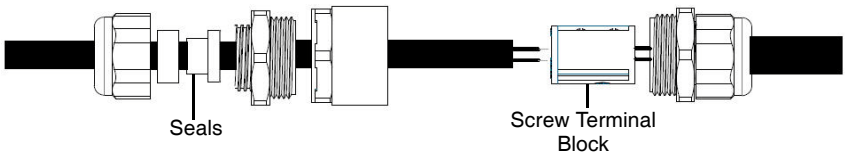
8 Remove the compression nut and tube.

9 Cut the power cable to desired length.



10 Remove the sealing plug from the in-line connector and discard.

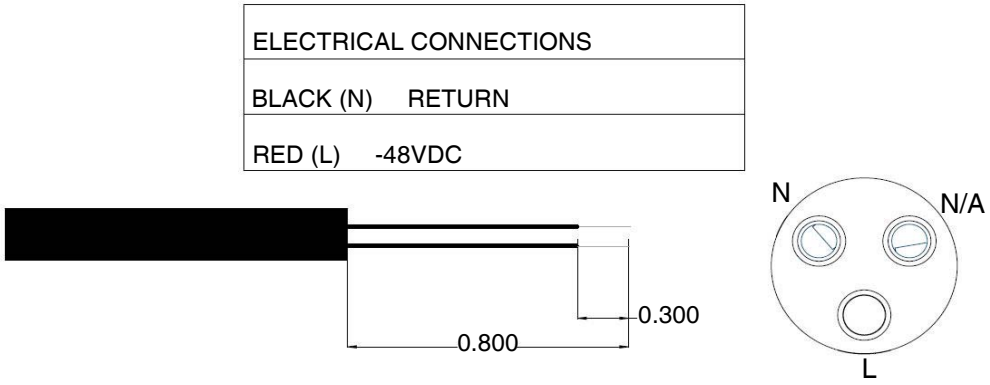
11 Reinstall the compression nit and tube onto the cable as illustrated below.



12 Insert the power cable through the nut, selected seal(s), and tube.

13 Install the electrical connections onto the screw terminal block. Torque the screws to 5 in-lb.

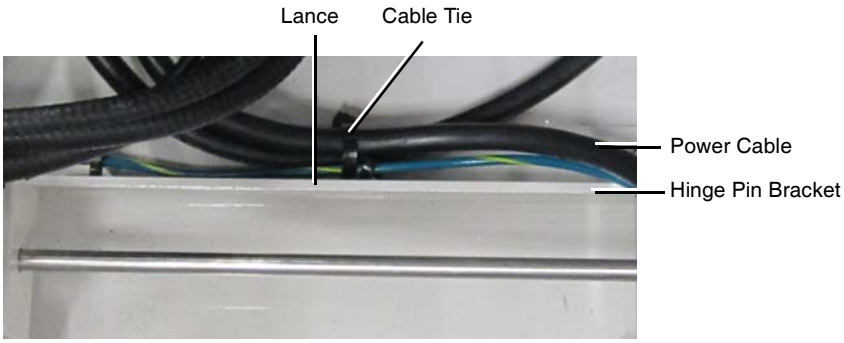
- RED (L) is -48VDC
- BLACK (N) is RETURN



14 Reassemble the in-line connector.

Note *Ensure the assembly is tightened to 22 in-lb to provide a good cable entry seal.*

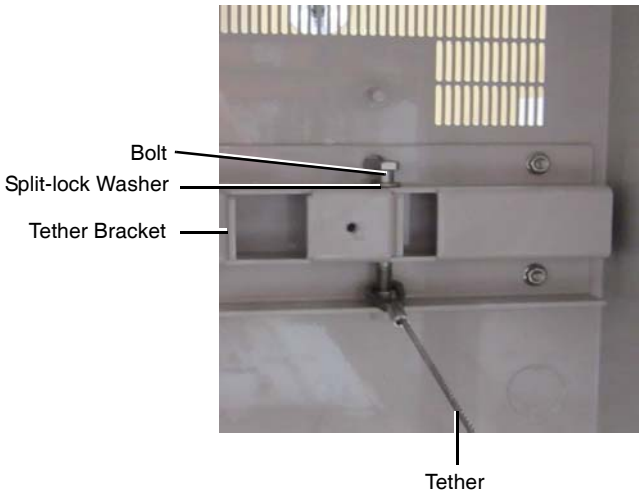
15 Secure the power cable to the lance on the rear of the hinge pin bracket with 1 cable tie.



Install the DC Metro Cell

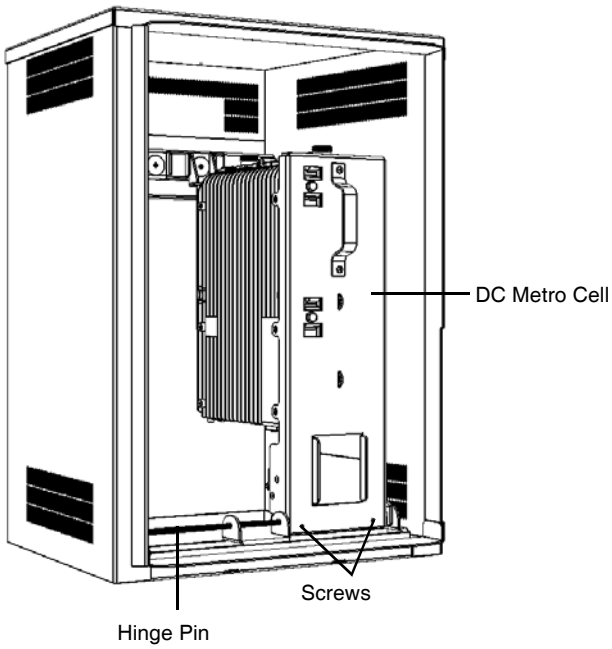
To install the DC Metro Cell

1 Install the tether onto the tether bracket. Secure the tether to the tether bracket with (1) (3/8-16) 3 1/2-in. hex bolt and (1) 3/8-in. split-lock washer. Hand-tighten the bolt with a tool until the split-lock washer compresses.

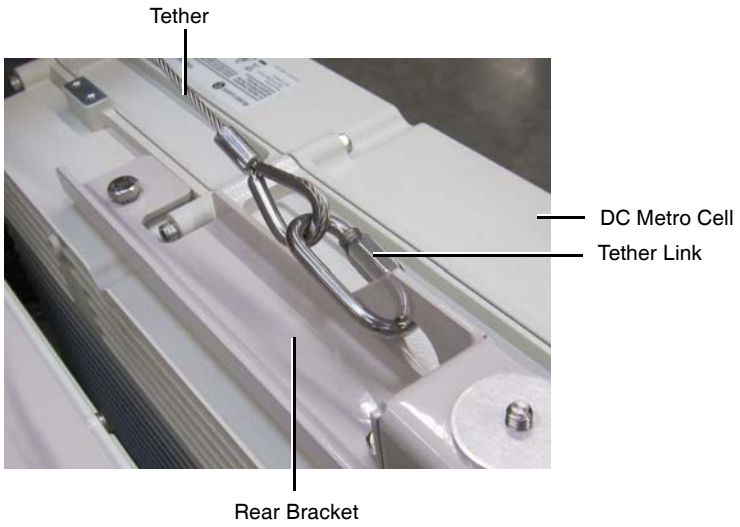


2 Feed the MCO#2 antenna cables through the front bracket opening from the rear of the DC Metro Cell.

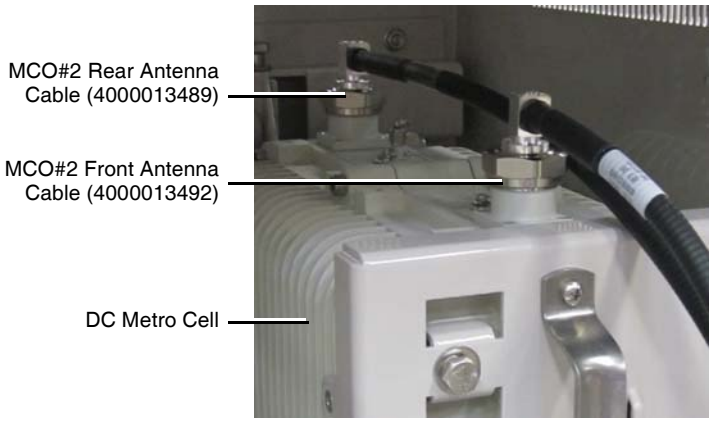
3 Install the DC Metro Cell onto the hinge pin. Secure the DC Metro Cell to the hinge pin with (2) 12-24 self-tapping screws as illustrated. Torque 25 in-lb.



4 Install the tether link and tether onto the rear bracket. Apply medium-strength thread-lock to tether link threads. Torque to 25 in-lb.

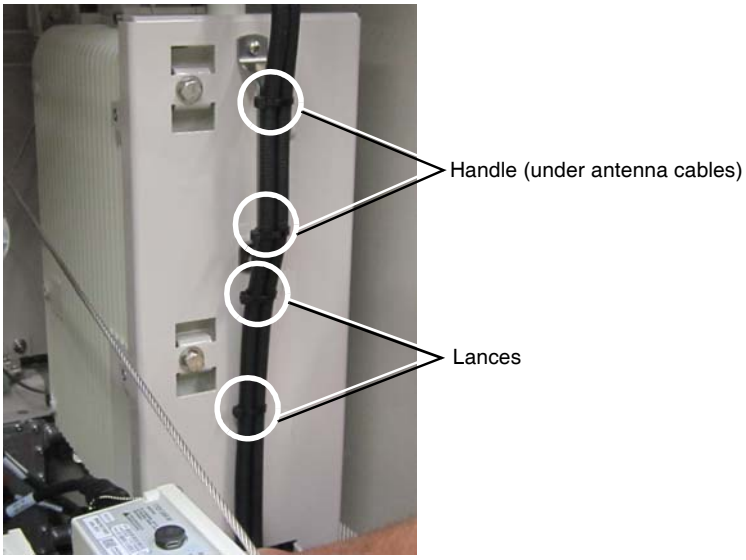


5 Install the MCO#2 antenna cables onto the top of the DC Metro Cell as illustrated. Torque MCO#2 antenna cable connectors to 20 ft-lb.

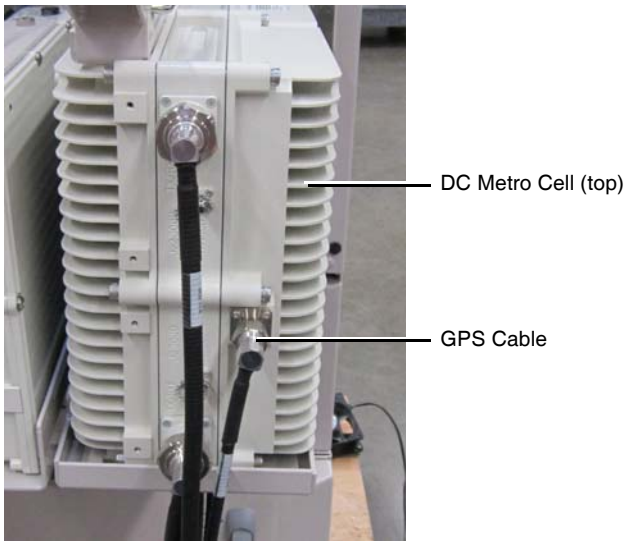


6 Secure the antenna cables to the handle and lances with (4) 8-in. cable ties as illustrated.

Important *Ensure the cables are not kinked or twisted. Do not bend the cable within 2 in. of the DC Metro Cell connector. The bend radius must not be less than 1 in.*

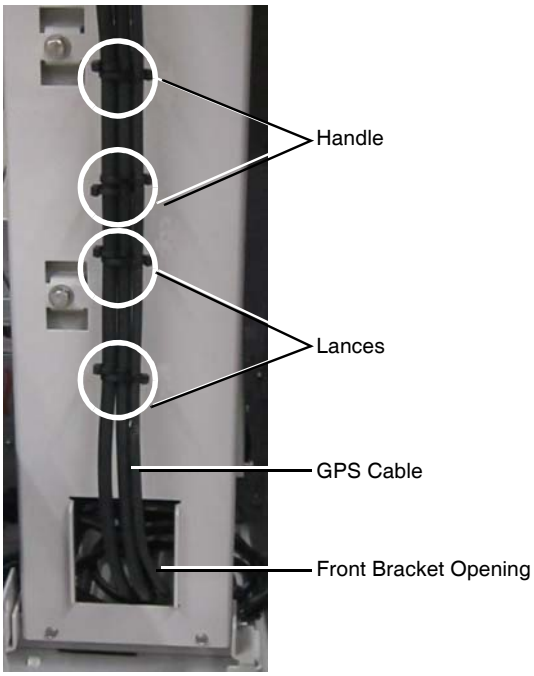


7 Install the GPS cable onto the top of the DC Metro Cell. Torque the GPS cable connector to 20 in-lb.

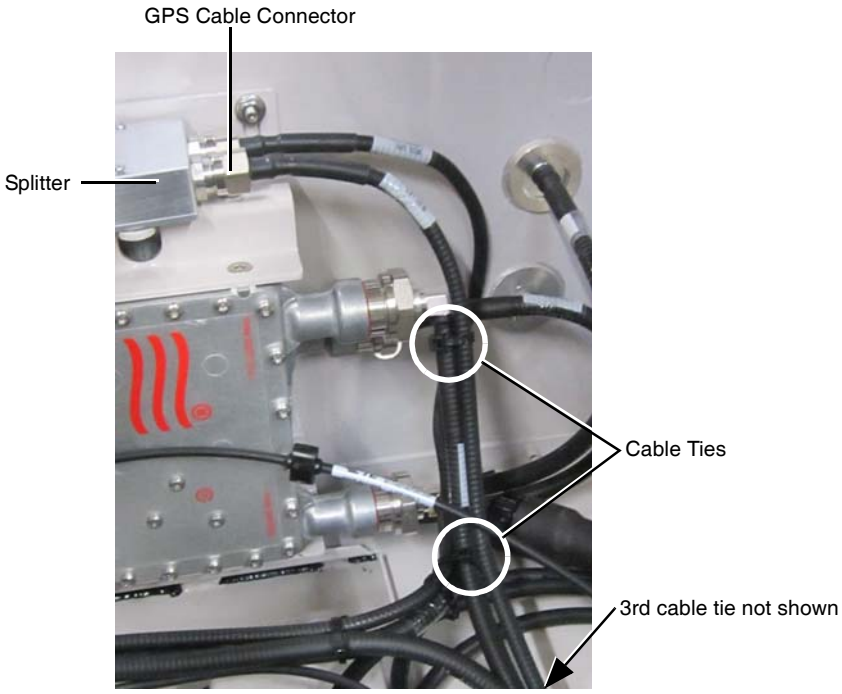


8 Secure the GPS cable to handle, lances, and antenna cables with (4) 8-in. cable ties and feed through the front bracket opening as illustrated.

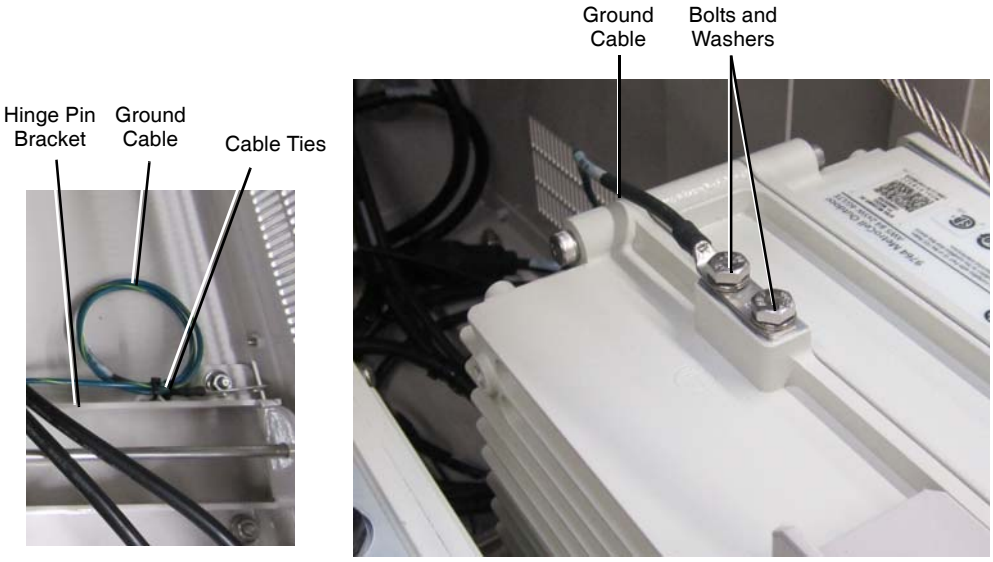
Important *Ensure cables are not kinked or twisted. Do not bend the cable within 2 in. of the DC Metro Cell connector. The bend radius must not be less than 1 in.*



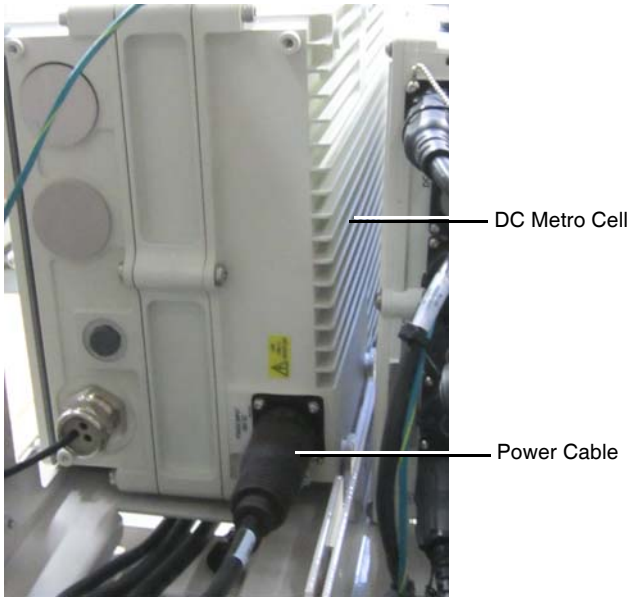
9 Install GPS cable connector onto the splitter as illustrated. Torque to 20 in-lb. Secure the GPS cable to the other cables with (3) 8-in. cable ties as illustrated.



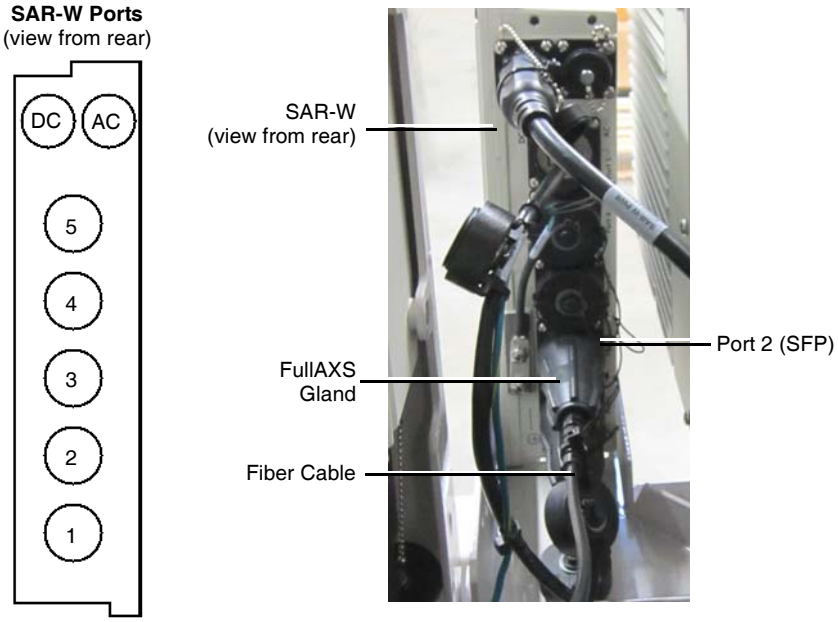
10 Carefully cut the cable ties securing the MCO#2 ground cable to the rear of the hinge pin bracket. Apply oxide-inhibiting, electrically-conductive grease to the flat side of the ground cable lug. Install the ground cable onto the rear of the DC Metro Cell as illustrated. Secure the ground cable to the DC Metro Cell with (2) M6x16mm hex bolts and (2) M6 split-lock washers. Torque to 40 in-lb.



11 Install the power cable onto the DC Metro Cell as illustrated.



12 Remove the cover from Port 2 (SFP) on the bottom of the SAR-W. Install the fiber cable into Port 2. Secure the FullAXS gland to the SAR-W.



13 Reinsert the fuse into location 3 on the rectifier front panel.

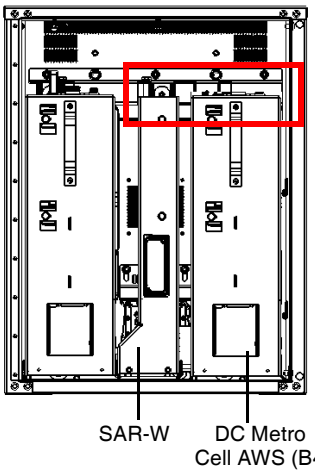
WARNING

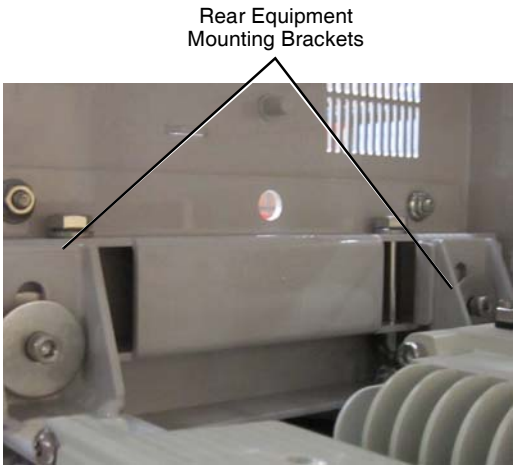
The cabinets and cables are live once the 48VDC power is applied.

14 Commission the DC Metro Cell AWS (B4) per the instructions in the cabinet installation manual (PN 1000021514 or 1000023131).

15 Return the DC Metro Cell AWS (B4) and SAR-W to their upright position.

16 Use a 3/16-in. Allen wrench to hand-tighten the hardware securing the DC Metro Cell AWS (B4) and SAR-W rear-equipment mounting brackets to the cabinet.





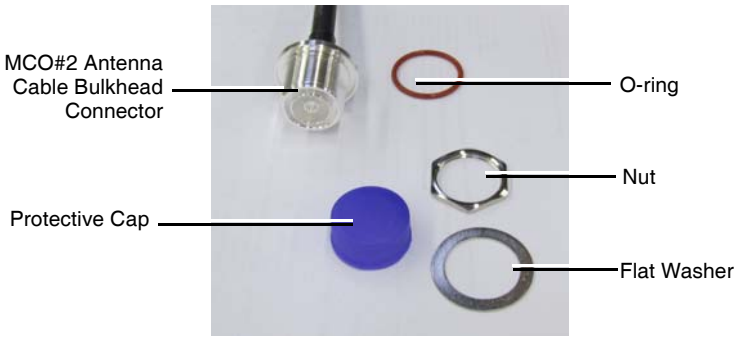
17 Installation is complete.

MC-DBR2 or MC-DBR5 Installation

(for use with RF cable PNs 4000014441 and 4000014442)

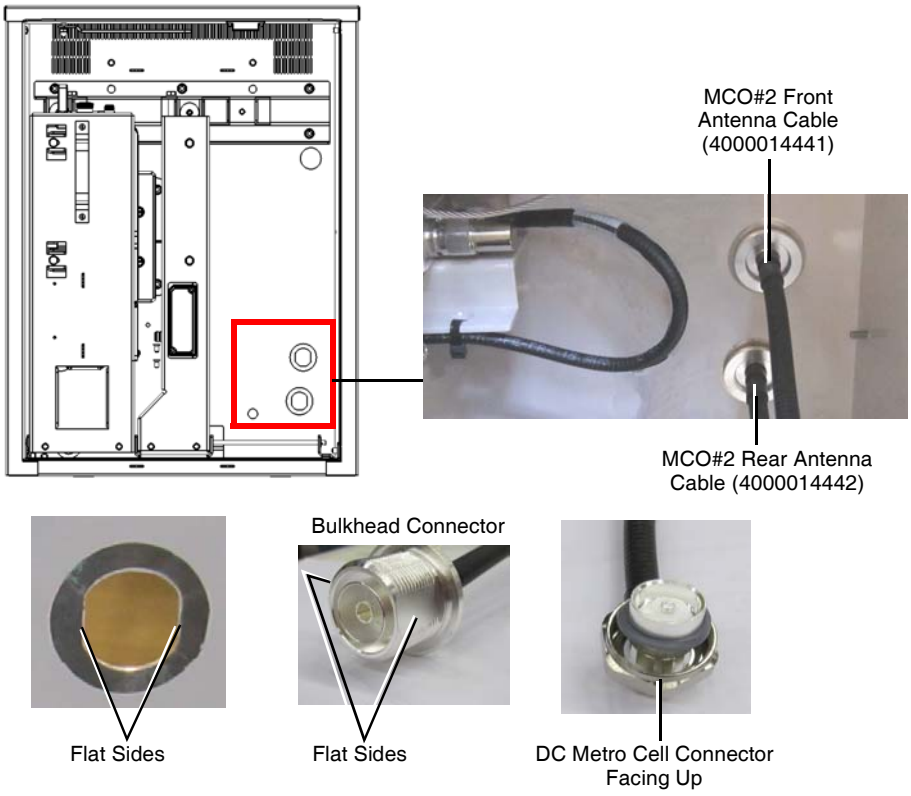
To connect the RF cables

1 Remove the protective cap, nut, flat washer, and o-ring (if present) from both MCO#2 antenna cable bulkhead connectors. Retain the protective cap, nuts, and washers; discard the o-ring.

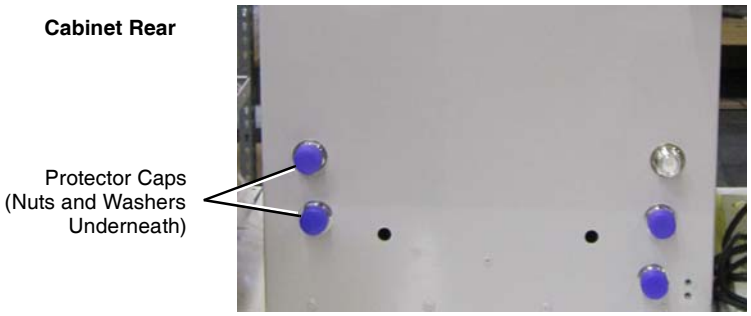


2 Install the MCO#2 front (PN 4000014441) and rear (PN 4000014442) antenna cable bulkhead connectors into the upper and lower openings in the cabinet as illustrated. Secure each cable with a nut and washer on the outside of the cabinet. Torque to 10 ft-lb.

Important *Align the flat edges on the bulkhead connector with the flat edges of the cabinet opening so the DC Metro Cell connector on the opposite end faces up as illustrated.*



3 Reinstall the protector caps onto the bulkhead connectors outside the cabinet.



4 If installed, remove the AWS (B4) fuse from position 3 on the rectifier front panel.

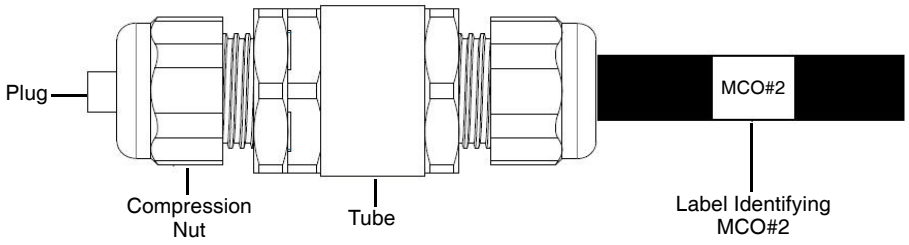
Note *It is not necessary to turn off cabinet power to install the AWS (B4) kit.*

Position	Fuse Value	Equipment
1	7.5A	MCO#1
2	5A	SAR-W
3	***7.5A***	***AWS (B4)***
4	1.5A	NID (External)
5	-	Unused
6	-	Unused

5 Locate the MCO#2 power feed in-line connector.

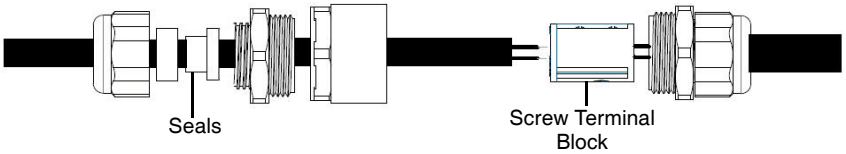
6 Remove the compression nut and tube.

7 Cut the power cable to desired length.



8 Remove the sealing plug from the in-line connector and discard.

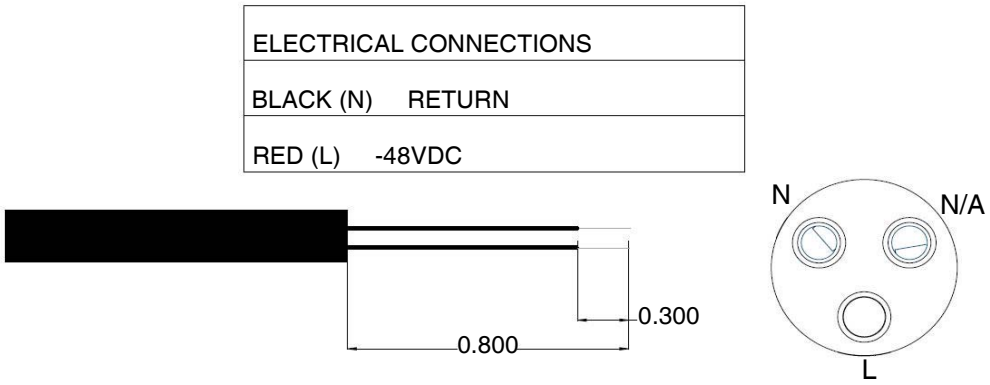
9 Reinstall the compression nit and tube onto the cable as illustrated below.



10 Insert the power cable through the nut, selected seal(s), and tube.

11 Install the electrical connections onto the screw terminal block. Torque the screws to 5 in-lb.

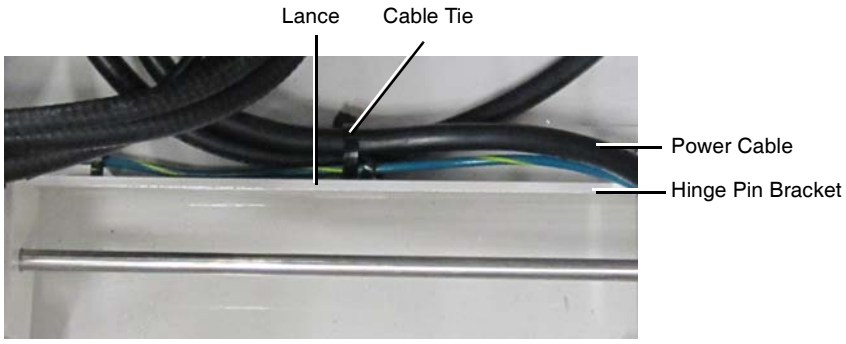
- RED (L) is -48VDC
- BLACK (N) is RETURN



12 Reassemble the in-line connector.

Note *Ensure the assembly is tightened to 22 in-lb to provide a good cable entry seal.*

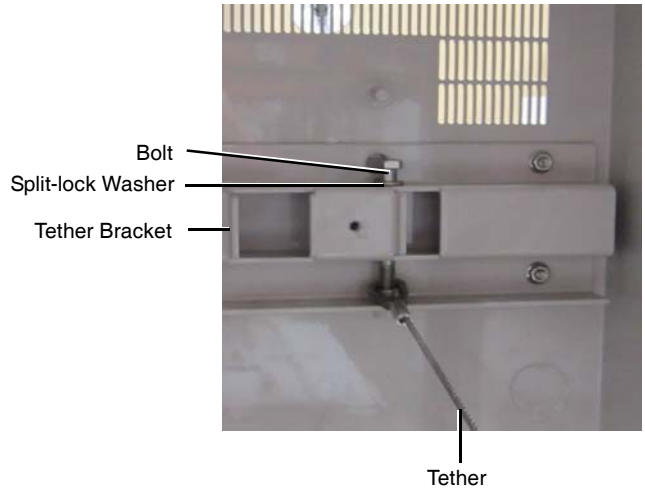
13 Secure the power cable to the lance on the rear of the hinge pin bracket with 1 cable tie.



Install the DC Metro Cell

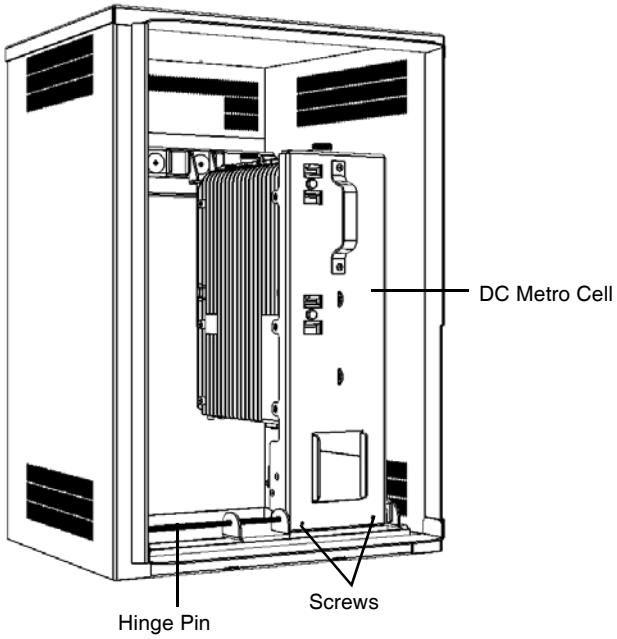
To install the DC Metro Cell

1 Install the tether onto the tether bracket. Secure the tether to the tether bracket with (1) 3/8-16 3 1/2-in. hex bolt and (1) 3/8-in. split-lock washer. Hand-tighten the bolt until the split-lock washer compresses.

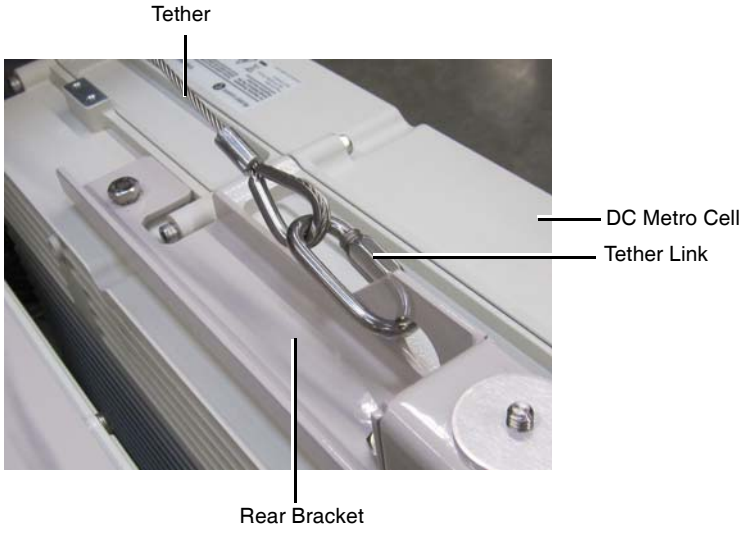


2 Feed the MCO#2 antenna cables through the front bracket opening from the rear of the DC Metro Cell.

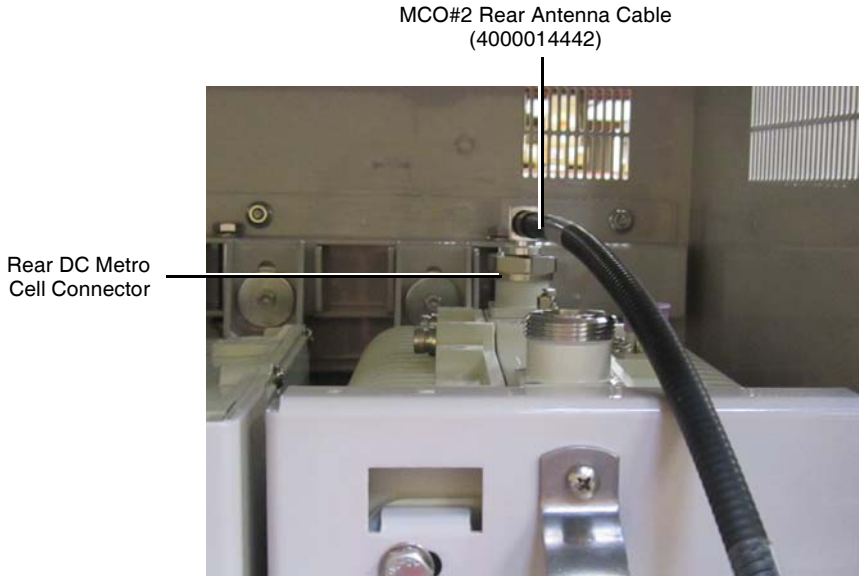
3 Install the DC Metro Cell onto the hinge pin. Secure the DC Metro Cell to the hinge pin with (2) 12-24 self-tapping screws as illustrated. Torque 25 in-lb.



4 Install the tether link and tether onto the rear bracket. Apply medium-strength thread-lock to tether link threads. Torque to 25 in-lb.

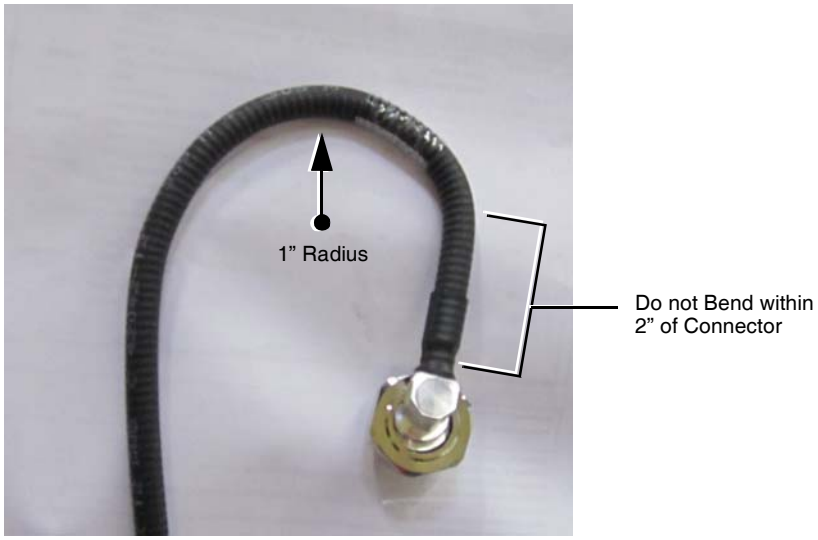


5 Install the MCO#2 rear antenna cable (4000014442) onto the rear DC Metro Cell connector as illustrated. Finger-tighten; cable will be torqued at a later step.



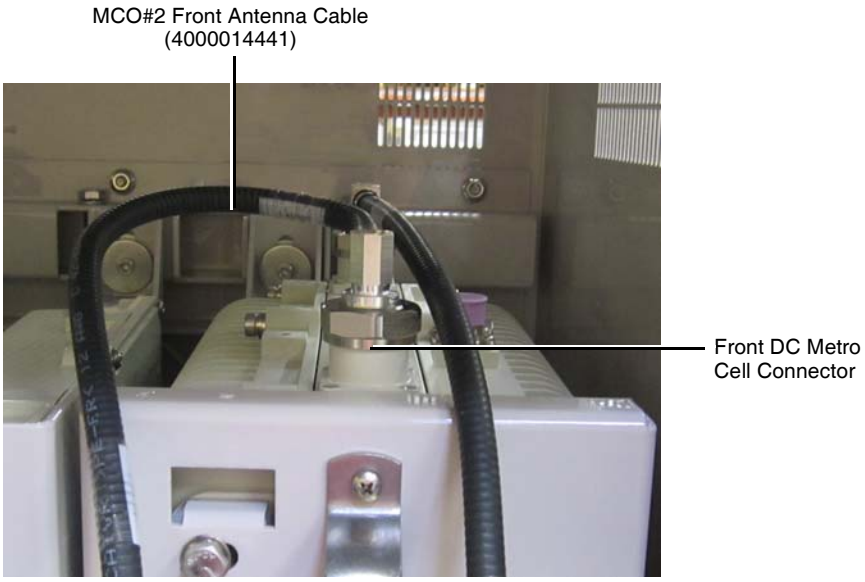
6 Carefully bend the front MCO#2 antenna cable (4000014441) as illustrated.

Important *Ensure the cable is not kinked or twisted. Do not bend the cable within 2 in. of the DC Metro Cell connector. The bend radius must not be less than 1 in.*

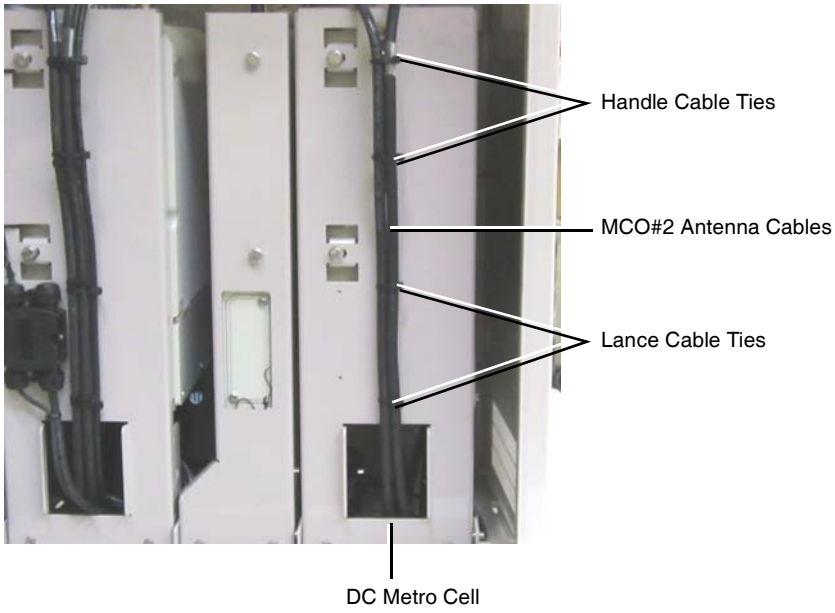


MCO#2 Front Antenna Cable
(4000014441)

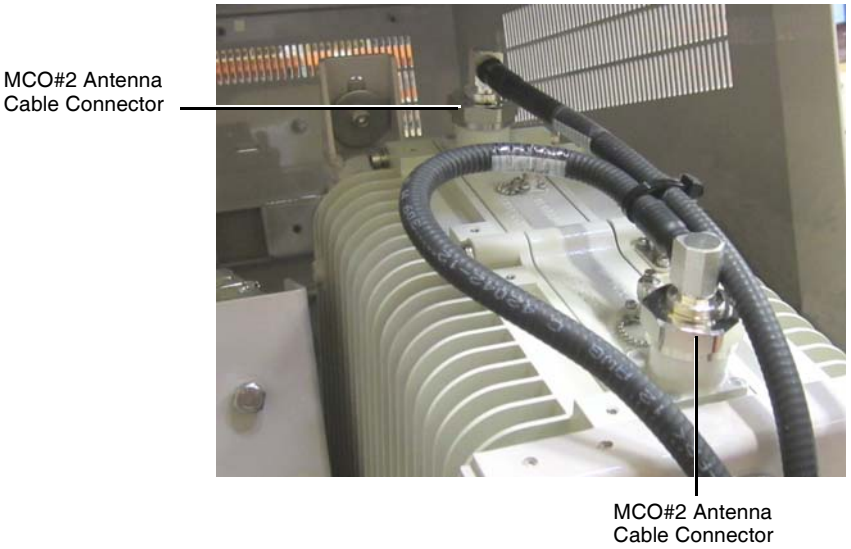
7 Install the MCO#2 front antenna cable (4000014441) onto the front DC Metro Cell connector as illustrated. Finger-tighten; cable will be torqued in a later step.



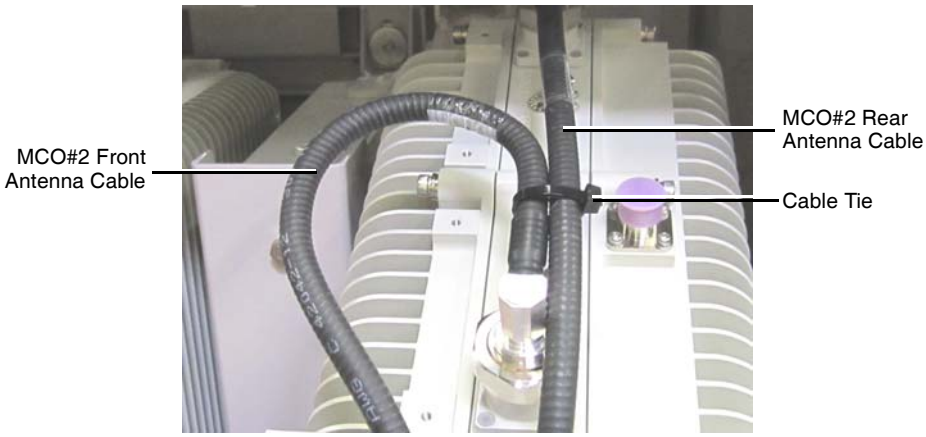
8 Secure both MCO#2 antenna cables to the Metro Cell handle lances with 4 cable ties.



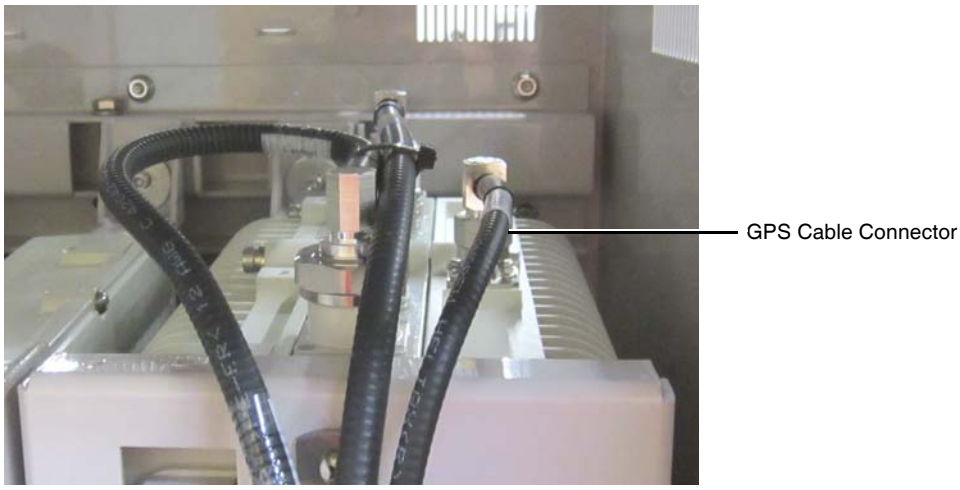
9 Torque the MCO#2 antenna cable connectors to 20 ft-lb.



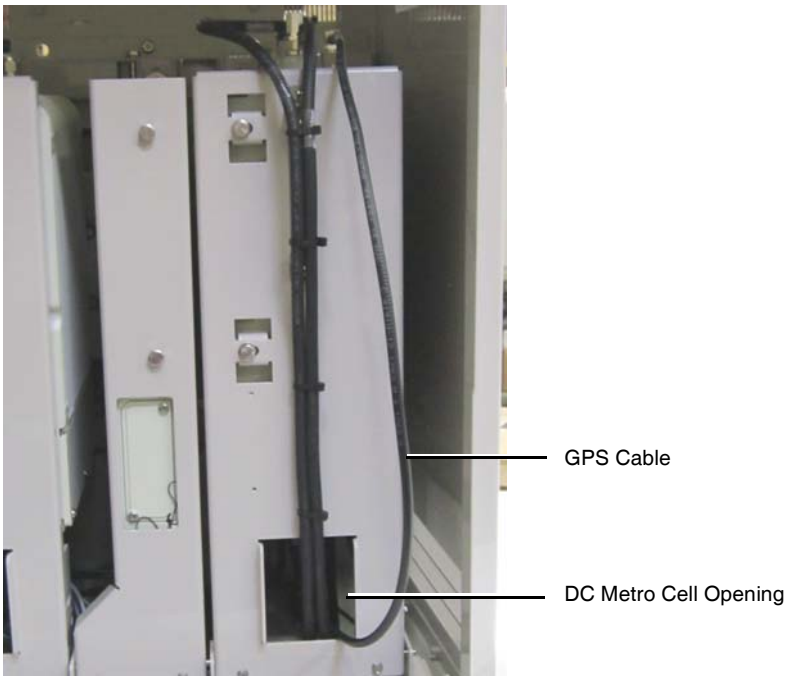
10 Secure the MCO#2 front antenna cable to the MCO#2 rear antenna cable with 1 cable tie as illustrated.



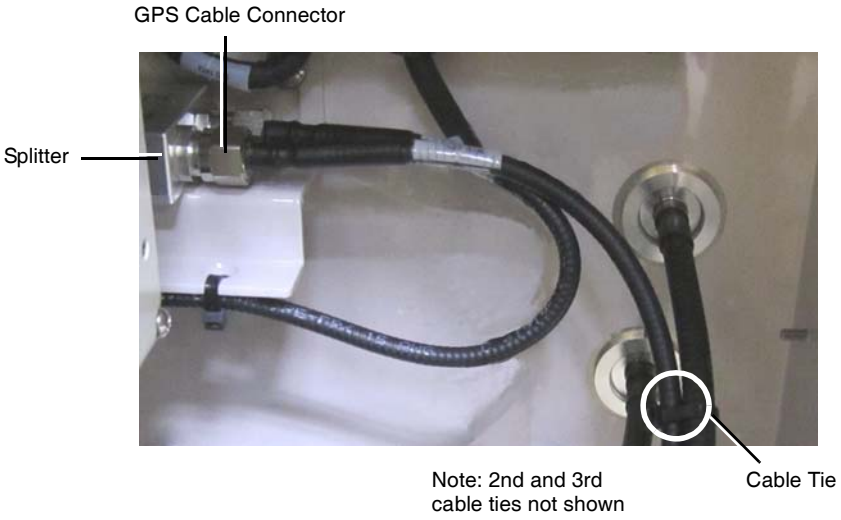
11 Install the GPS cable connector onto the Metro Cell as illustrated. Torque to 20 in-lb.



12 Feed the GPS cable through the Metro Cell opening.

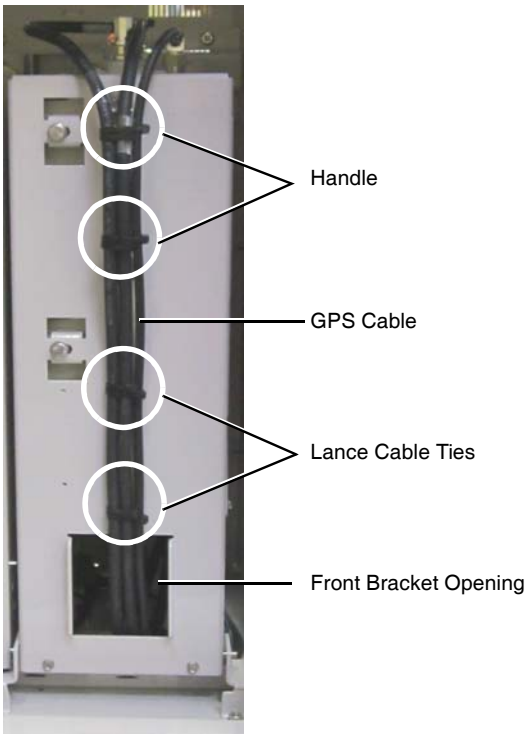


13 Install the GPS cable connector onto the splitter as illustrated. Torque to 20 in-lb. Secure the GPS cable to the other cables with (3) 8-in. cable ties as illustrated.

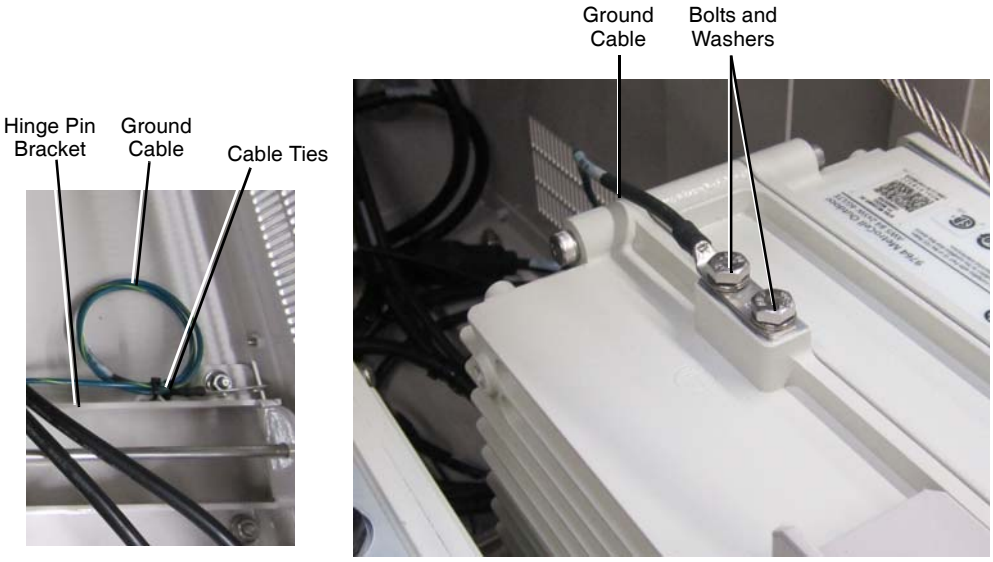


14 Secure the GPS cable to the Metro Cell handle, lances, and antenna cables with (4) 8-in. cable ties and feed through the front bracket opening as illustrated.

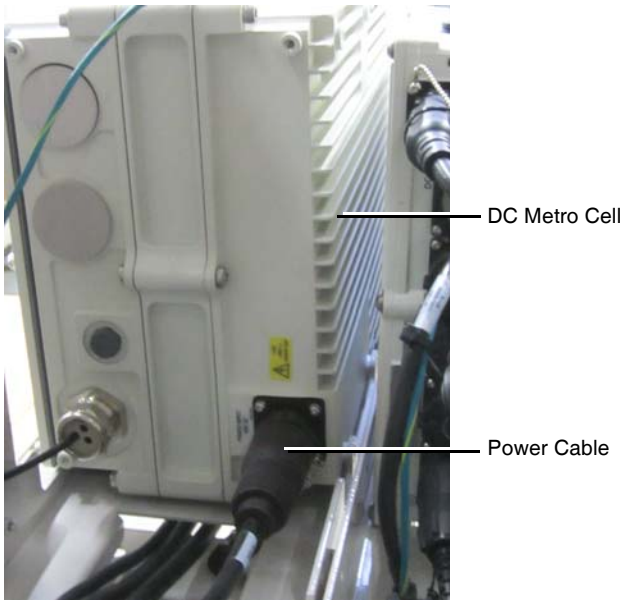
Important *Ensure cables are not kinked or twisted. Do not bend the cable within 2 in. of the DC Metro Cell connector. The bend radius must not be less than 1 in.*



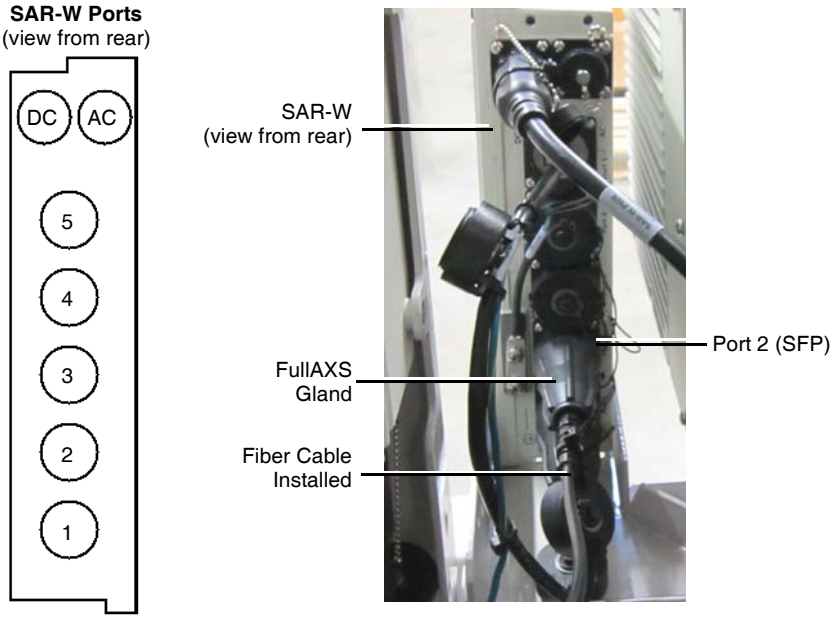
15 Carefully cut the cable ties securing the MCO#2 ground cable to the rear of the hinge pin bracket. Apply oxide-inhibiting, electrically-conductive grease to the flat side of the ground cable lug. Install the ground cable onto the rear of the DC Metro Cell as illustrated. Secure the ground cable to the DC Metro Cell with (2) M6x16mm hex bolts and (2) M6 split-lock washers. Torque to 40 in-lb.



16 Install the power cable onto the DC Metro Cell as illustrated.



17 Remove the cover from Port 2 (SFP) on the bottom of the SAR-W. Install the fiber cable into Port 2. Secure the FullAXS gland to the SAR-W.



18 Reinsert the fuse into location 3 on the rectifier front panel.

WARNING

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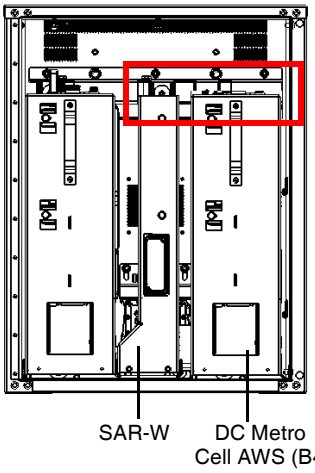
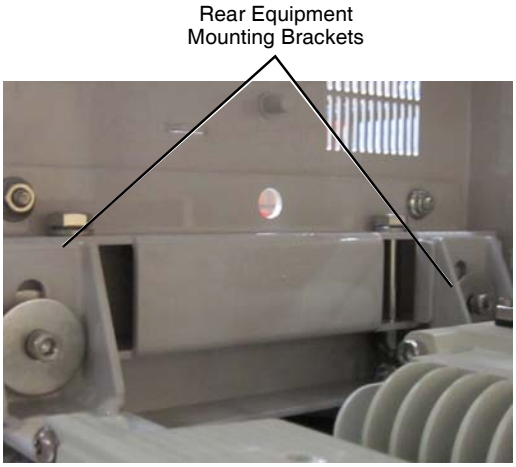
19 Commission the DC Metro Cell AWS (B4) per the instructions in the cabinet installation manual (PN 1000021514 or 1000023131).

20 Return the DC Metro Cell AWS (B4) and SAR-W to their upright position.

21 Use a 3/16-in. Allen wrench to hand-tighten the hardware securing the DC Metro Cell AWS (B4) and SAR-W rear-equipment mounting brackets to the cabinet.





22 Installation is complete.