2 Safety

Overview

Purpose

This chapter presents the safety precautions that apply to the product.

In regions such as North America and the European Union, the statements that are required are determined primarily by national or multinational regulations. However, in some regions, contract terms determine which statements are required.

The presence of the statement indicates that the product does comply with that statement wherever it is required to do so.

Contents

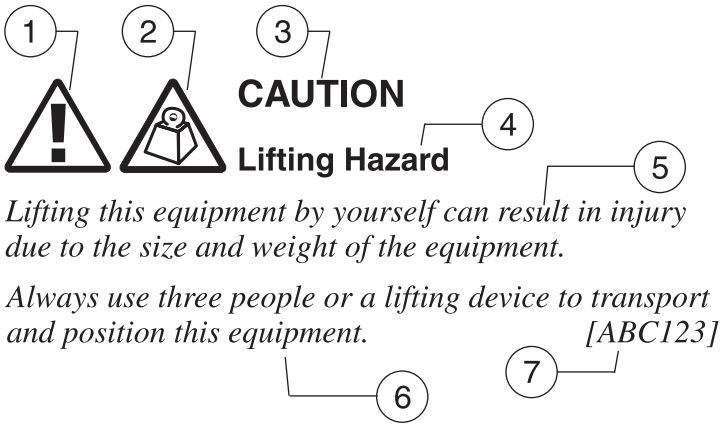
Structure of hazard statements

Overview

Hazard statements describe the safety risks relevant while performing tasks on Alcatel-Lucent products during deployment and/or use. Failure to avoid the hazards may have serious consequences.

General structure

Hazard statements include the following structural elements:



Item	Structure element	Purpose
1	Personal-injury symbol	Indicates the potential for personal injury (optional)
2	Hazard-type symbol	Indicates hazard type (optional)
3	Signal word	Indicates the severity of the hazard
4	Hazard type	Describes the source of the risk of damage or injury
5	Damage statement	Consequences if protective measures fail
6	Avoidance message	Protective measures to take to avoid the hazard
7	Identifier	The reference ID of the hazard statement (optional)

Signal words

The signal words identify the hazard severity levels as follows:

Signal word	Meaning
DANGER	Indicates an imminently hazardous situation (high risk) which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation (medium risk) which, if not avoided, could result in death or serious injury.
CAUTION	*When used with the personal injury symbol:* Indicates a potentially hazardous situation (low risk) which, if not avoided, may result in personal injury. *When used without the personal injury symbol:* Indicates a potentially hazardous situation (low risk) which, if not avoided, may result in property damage, such as service interruption or damage to equipment or other materials.

Within this IP, the safety label typically includes additional information such as the hazard type, a description of the damage that can be caused, and the steps that should be taken to avoid the hazard.

□

Safety - General precautions for installation procedures

Overview

This topic reviews general precautions for installation.

WARNING

Failure to observe these safety precautions may result in personal injury or damage to equipment.

- *Read and understand all instructions.*
- *Follow all warnings and instructions marked on this product.*
- *Installation and maintenance procedures must be followed and performed by trained personnel only.*
- *The equipment is intended for installation in restricted access locations where access is controlled or where access can only be gained by service personnel with a key or tool. Access to this equipment is restricted to qualified service personnel only.*
- *Grounding and circuit continuity is vital for safe operation of the equipment. Never operate the equipment with grounding/bonding conductor disconnected.*
- *Install only equipment identified in the product's installation manual. Use of other equipment may result in an improper connection, which could lead to fire or injury.*
- *Use caution when installing or modifying telecommunications lines.*
- *The telecommunication interfaces should not leave the building premises unless connected to telecommunication devices providing primary and secondary protection, as applicable.*
- *The product has multiple power inputs. Before servicing, disconnect all inputs to reduce the risk of energy hazards.*
- *For continued protection against risk of fire, all fuses used in this product must be replaced only with fuses of the same type and rating.*
- *Never install telecommunications wiring during a lightning storm.*
- *Never install telecommunications connections in wet locations.*
- *Never touch uninsulated telecommunications wiring or terminals unless the telecommunications line has been disconnected at the interface.*
- *Never push objects of any kind into the product through slots, as they may touch dangerous voltage points or short-out parts that could result in a fire or an electrical shock.*
- *Never spill liquids of any kind on the product.*
- *Slots and openings in the product are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered. The product should not be placed in a built-in installation unless proper ventilation is provided.*

□

Safety - specific hazards

Overview

This topic reviews specific hazards for installation.

DANGER

Lightning Strikes!

Lightning strikes are possible during stormy weather, and could result in death or severe injury.

Do not work on the installation itself, or on the power supply lines, or antenna feeders of a BTS 8420 radio cabinet during stormy weather.

WARNING

Energy Hazard!

Some parts of all electrical installations are energized. Failure to observe this fact and the safety warnings may lead to bodily injury and property damage.

For this reason, only trained and qualified personnel may install or service the installation.

WARNING

Energy Hazard!

The power supply lines to the network element are energized. Short circuits can cause burns to the face and hands.

Open the load disconnect switch in the distribution box to completely de-energize the network element.

WARNING

Beryllium Oxide Poisoning Hazard!

The transmitter units include components which contain beryllium oxide (BeO). In this form, BeO ceramics do not constitute a hazardous material as long as this material is not destroyed by external mechanical forces.

In the event that repair work is carried out by the customer or by third parties, the following regulations must be observed:

- *Applicable version of the Regulation on Hazardous Materials in the Workplace*
- *Appropriate accident prevention regulations.*

The following must be specifically observed:

- *Eating, drinking, and smoking are not permitted in workplaces where BeO ceramic components are being worked on.*
- *Wash your hands carefully under running water after working with BeO ceramic components.*

If the following symptoms occur, contact a physician:

- *Irritation of the respiratory organs*
- *Difficulty breathing or skin irritation.*

CAUTION

Condensation may cause a short circuit!

Sudden changes in the weather may lead to the formation of condensation on components. Operating the unit when condensation moisture is present can destroy the unit.

Units which show signs of condensation must be dried before installation.

CAUTION

Electrostatically Sensitive Components!

Semiconductor elements can be damaged by static discharges.

The following rules must be complied with when handling any module containing semiconductor components:

- *Wear conductive or antistatic work clothes (for example, coat made of 100% cotton).*
- *Wear grounded ESD wrist strap.*
- *Wear shoes with conductive soles.*
- *Leave the modules in their original packaging until ready for use.*
- *Make sure there is no difference in potential between yourself, the workplace, and the package before removing, unpacking, or packing a module.*
- *Hold the module only by the grip without touching the connection pins, tracks, or components.*
- *Place modules removed from the equipment on a conductive surface.*
- *Test or handle the module only with grounded tools on grounded equipment.*
- *Handle defective modules exactly like new ones to avoid causing further damage.*

□

Product safety

Compliance statement

The BTS 8420/AWS 8420 is UL Listed, Information Technology Equipment. The UL Listing applies to both the USA and Canada and is Marked on the Equipment main nameplate label. Should the local Authority Having Jurisdiction (AHJ) require prior or additional verification of this Listing, a Product Certificate of Compliance from Underwriters Laboratories can be obtained by contacting the Alcatel-Lucent Global Product Compliance Laboratory located at 600-700 Mountain Avenue, Murray Hill, NJ 07974. Any modifications to this equipment are not permitted without review and official authorization from the Alcatel-Lucent Global Product Compliance Laboratory. Modifications or changes authorized by official CN/CNN are assumed to have received prior approval from this Lab.

Equipment safety

Safety information for this equipment can be found on various Caution, Warning, Danger, information labels or instructions affixed to or included with the BTS 8420/AWS 8420, its internal assemblies or included within this document. Informational and cautionary labels may appear near the item they address or may be grouped in a single location on the equipment. Warnings are typically adjacent to the hazard that is noted on the label. The instructions, cautions and warnings found on these labels must be understood and observed by all personnel involved with the equipment installation and maintenance.

This equipment is to be installed in accordance with all National, State (Provincial), and Local Safety Codes for the US and Canada, and National Laws, Codes, etc. for other countries. All AC/DC powered equipments MUST BE properly grounded, in accordance with theses codes.

Important! Refer to the ″Specific -- safety hazards″ section for definitions of safety labels.

□

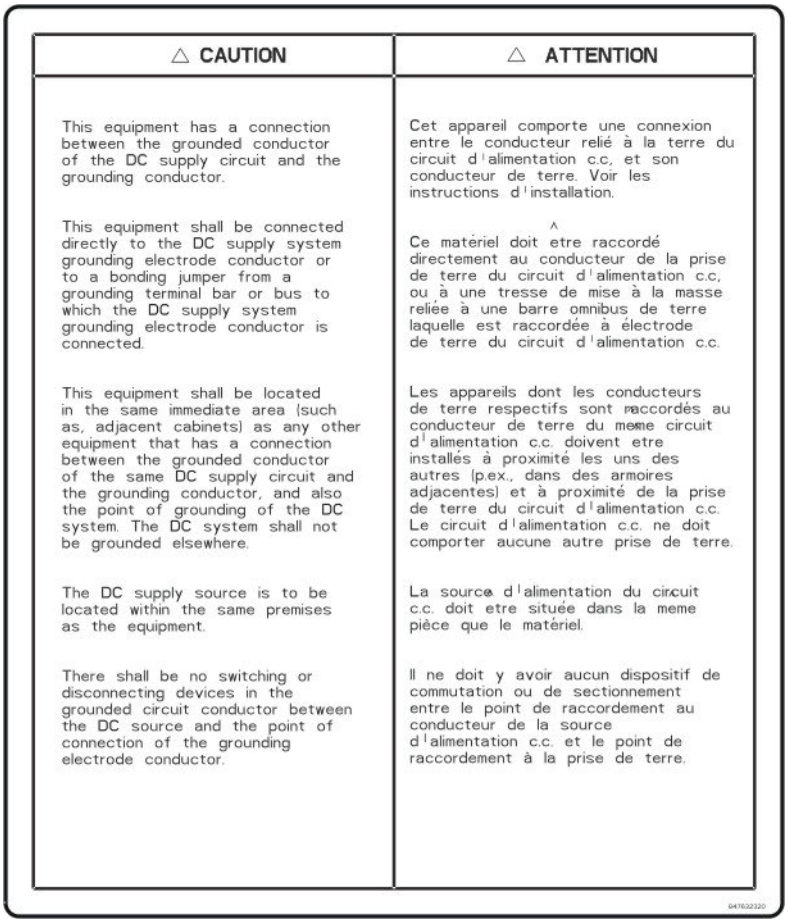
Safety labels on cabinet

Overview

This section illustrates the safety labels, which are located on the BTS 8420/AWS 8420 radio cabinet.

Safety labels on BTS 8420/AWS 8420 radio cabinet

GROUNDING CAUTION

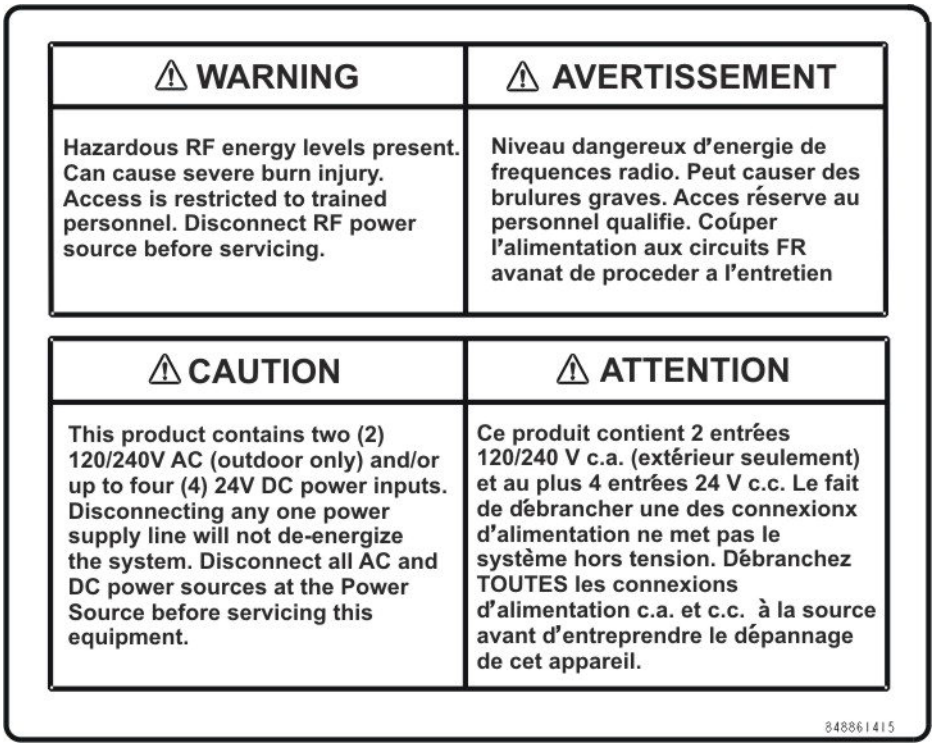


△ CAUTION	△ ATTENTION
This equipment has a connection between the grounded conductor of the DC supply circuit and the grounding conductor.	Cet appareil comporte une connexion entre le conducteur relié à la terre du circuit d'alimentation c.c, et son conducteur de terre. Voir les instructions d'installation.
This equipment shall be connected directly to the DC supply system grounding electrode conductor or to a bonding jumper from a grounding terminal bar or bus to which the DC supply system grounding electrode conductor is connected.	Ce matériel doit etre raccordé directement au conducteur de la prise de terre du circuit d'alimentation c.c, ou à une tresse de mise à la masse reliée à une barre omnibus de terre laquelle est raccordée à électrode de terre du circuit d'alimentation c.c.
This equipment shall be located in the same immediate area (such as, adjacent cabinets) as any other equipment that has a connection between the grounded conductor of the same DC supply circuit and the grounding conductor, and also the point of grounding of the DC system. The DC system shall not be grounded elsewhere.	Les appareils dont les conducteurs de terre respectifs sont raccordés au conducteur de terre du meme circuit d'alimentation c.c. doivent etre installés à proximité les uns des autres (p.ex., dans des armoires adjacentes) et à proximité de la prise de terre du circuit d'alimentation c.c. Le circuit d'alimentation c.c. ne doit comporter aucune autre prise de terre.
The DC supply source is to be located within the same premises as the equipment.	La source d'alimentation du circuit c.c. doit etre située dans la meme pièce que le matériel.
There shall be no switching or disconnecting devices in the grounded circuit conductor between the DC source and the point of connection of the grounding electrode conductor.	Il ne doit y avoir aucun dispositif de commutation ou de sectionnement entre le point de raccordement au conducteur de la source d'alimentation c.c. et le point de raccordement à la prise de terre.

EXTERNAL ALARM PROTECTION WARNING

RF ENERGY WARNING AND +24 VDC POWER CAUTION

The following label is present only on +24 VDC radio cabinets.



3 Tools, materials, and checklist

Overview

Purpose

This chapter provides general instructions for anchor installation and cabinet handling. Also included are the procedures for cabinet placement, anchoring, and grounding.

Contents

Preparatory information

Overview

Purpose

This section presents information and procedures that are relevant before the individual cabinets and frames are placed, anchored, and grounded.

Also included in this section is information for verifying that site preparation requirements have been met so that installation of the product can begin properly.

Reference documents

Further information on cabinet clearances and anchor holes can also be found in the *Alcatel-Lucent CDMA Base Station BTS 8420/AWS 8420 Indoor Site Preparation Guidelines*, 401-703-443.

Refer to the site-specific layout information for details on where the equipment must be positioned.

This document also contains all necessary information on how to mark the positions of the anchor holes and how to drill them.

Contents

Tools, supplies, and parts required (master list)

Overview

This section provides a master list of all tools, materials, and parts required to perform the installation. If additional items are needed to perform a specific task, they are listed in the applicable chapter.

Tools

CAUTION

Personnel injury or equipment damage

If the installation is performed with energized DC circuits, be sure to use tools that are properly insulated.

The following is a master list, in alphabetical order, of all tools that may be utilized during installation.

- Adjustable open-end wrench (or set of fixed open-end wrenches)
- Antioxidant compound
- B connecting links, or equivalent (quantity: 3)
- Bolt anchor setting tool
- Bonding clamps for facility and phone line cables (normally provided by telephone company)
- Box cutter or equivalent, to open packaging
- Chalk line
- Channel-lock pliers [for 2-1/2 inch nuts, max. 19 mm (3/4 inch) wide]
- Channel-lock pliers (standard)
- Crimping tools, 5-120 mm2 (22-16 and 10-4/0 AWG), for installation of terminal lugs and C-Taps
- Derrick, capable of lifting 680-kg (1500 lb)
- DIN connector stripping tool: part numbers
- For Huber Suhner cable/connector: 74Z-0-12-15
- For Andrew cable/connectors: ITE-7189
- For RFS cable/connectors: TRIM-L12-A
- Drill and drill bits [including 16 mm (5/8 inch) and 18 mm (11/16 inch) for drilling anchor holes)
- Drill - Pneumatic Hammer (R-5006)

- Roto-Stop Hammer Kit (R-4416) with 12 mm (1/2 inch) chuck for drilling anchor holes
- Ear protection gear
- Electrical conduit installation equipment and materials
- Electrical tape
- ESD wrist strap
- Eye-bolts (M10/R-ITE-6111), for lifting cabinet
- Eye protection gear
- Fish tape
- Floor punch, for cutting asbestos floor tile prior to drilling
- Floor tile puller, for raised floor tiles
- Forklift, Hoist, Rol-A-Lift, or equivalent lift (non-tilt) capable of lifting and moving the cabinets into final position (minimum lifting capacity 1500 lb)
- Galvanizing paint
- Gloves - Low voltage rubber lineman's gloves (R-4285)
- Hammer, 0.5 kg (16 oz) for anchor installation, etc.
- Heat gun for heat shrink tubing
- Insulated gloves
- Insulated hand tools (for completing electrical connections)
- Ladder or work stand/stool so installer can access top of the cabinet and ladder rack. Most connections are elevated. Two work platforms are required so two installers can work efficiently.
- Level 1.5 meter (4 foot), steel
- Marker, to mark floor for lineup and drilling
- Measuring tape
- Nut driver set (decimal) with 10 inch extension
- Nut driver set (metric) with 250 mm extension
- Ohmmeter (Multimeter, volt/ohmmeter, or equivalent)
- Pliers
- Plumb line
- Pry bar
- Punchdown impact tool (comcode 407974849, AMP 552714-1) for 110ANA block T1/E1 and alarms
- Safety goggles or glasses (R-3055)
- Screwdrivers (power and manual), flat-blade, Phillips
- Silicone caulk
- Socket set - Metric, 10-19 mm

- Socket sets (decimal and metric) various drives
- Stripping tool (for LDF4 antenna jumper cables) part number 74Z-0-12-15
- Tools for preparing cables
- Torque wrenches, 4-34 Nm (35-300 in-lb)
- Torque wrenches, 6-200 Nm (4.4-150 ft-lb)
- Vacuum cleaner or equivalent, as required for clearing debris from anchor holes
- Wire cutter (capable of cutting up to 1/0 AWG)
- Wire stripper
- Wire rope slings, 11 mm (7/16 inch), 2 meters (7 feet) long, minimum (quantity: 2)
- Wrench - Adjustable, 20 mm (3/4 inch) open-end wrench (or set of fixed open-end wrenches)
- Wrench - Flare Nut or Box Wrench, 12 mm (1/2 inch), required for installing seismic anchors.
- Z-IDC punchdown tool: ITE No. R-6097 (KRONE).

Supplies needed

The following is an alphabetical master list of all supplies that are required for installation of the various cabinets, frames and stands.

- Antioxidant compound (provided)
- Lacing cord, waxed #50 or cable ties
- Red tape or tags - 145C or equivalent, for tagging DC power cables
- Shims for leveling and final placement of cabinet (some are provided with anchoring kit)
- Tags - 145C or equivalent, for tagging DC power cables
- Tape - Electrical tape
- Tape - Masking tape, for protecting open anchor holes
- Tie wraps
- Eyebolt tool (M10/R-ITE-6111)
- Twine.

Parts and/or kits needed

The following is a master list of all parts and kits that are required for installation of the various cabinets, frames and stands.

For Base Station 8420 radio cabinets:

- External user alarm interface kit
- GPS antenna jumper cable
- RF antenna jumper cables.

- Anchor kit - type as required per earthquake zone
- T1/E1 interface kit
- DC cable kit, 1/0 AWG (one feed, one return) - Quantity: 1.

For the first or second EZBFi battery frame:

- Anchor kit - Quantity as required per earthquake zone
- Batteries - Quantity as required per site specification. Batteries include interconnecting bars and connecting hardware
- Battery frame DC feeder cable kit(s).

□

Torque requirements

Overview

This section provides mechanical torque requirements. Refer to the table below.

Torque requirements for mechanical connections

The table below identifies the torque requirements to be followed when making mechanical connections.

Item Description	Torque	
	Newton Meters	Inch Pounds
Antenna jumper cable connections (7/16 inch DIN)	25	221
GPS antenna jumper cable connection (N) at radio cabinet	1.7	15
GPS antenna jumper cable connection (DIN) at room hatchplate	25	221
M6 x 16 mm thread rolling screw	4	30
All other M6 fasteners (nuts, hex-head bolts, etc.)	4	30
All M5 fasteners (pan-head screws, hex nut, etc.)	4	30
All M4 fasteners (pan-head screws, hex nut, etc.)	1.5	14

Generic torque requirements for electrical connections

Important! The table below must not be used for spanner head self-tapping screws, in or on cabinets. It is to be used exclusively for electrical connections. Refer to the previous table for mechanical connections.

The table below identifies the torque requirements to be followed when making electrical connections.

Metric Screw Size	SAE Screw Size	Torque - in-lb [or ft-lb] and (Nm)					
		Wire Connections		Head Tightened		Nut Tightened	
		Slotted Machine	Hex or Socket Cap	Slotted Machine	Hex or Socket Cap	Slotted Machine	Hex or Socket Cap
M4	8-32	15 (1.7)	15 (1.7)	19 (2.1)	19 (2.1)	19 (2.1)	23 (2.6)
M5	10-24	21 (2.4)	21 (2.4)	27 (3.1)	27 (3.1)	27 (3.1)	33 (3.7)

Metric Screw Size	SAE Screw Size	Torque - in-lb [or ft-lb] and (Nm)					
		Wire Connections		Head Tightened		Nut Tightened	
		Slotted Machine	Hex or Socket Cap	Slotted Machine	Hex or Socket Cap	Slotted Machine	Hex or Socket Cap
M6	1/4-20	50 (5.6)	50 (5.6)	65 (7.3)	65 (7.3)	65 (7.3)	80 (9.0)
M8*	5/16-18	-	100 (11.3)	-	135 (15.3)	135 (15.3)	165 (18.6)
M10	3/8-16	-	180 (20.3)	-	240 (27.1)	240 (27.1)	290 (32.8)
M12	7/16-14	-	280 (31.6)	-	385 (43.5)	385 (43.5)	465 (52.5)
M14	1/2-13	-	500 (56.5)	-	585 (66.1)	585 (66.1)	710 (80.2)
M16	5/8-11	-	[71] (96.3)	-	[97] (131.5)	[97] (131.5)	[118] (160.0)
M20	3/4-10	-	[125] (169.5)	-	[172] (233.2)	[172] (233.2)	[209] (283.4)

Notes:

1. *Do not use 7.3 Nm (65 in-lb) or 9.0 Nm (80 in-lb) for battery connections. Use the value given in Chapter 5 for the appropriate battery.

Torque requirements for terminal blocks

The table below provides torque requirements for the terminal blocks on the radio cabinet.

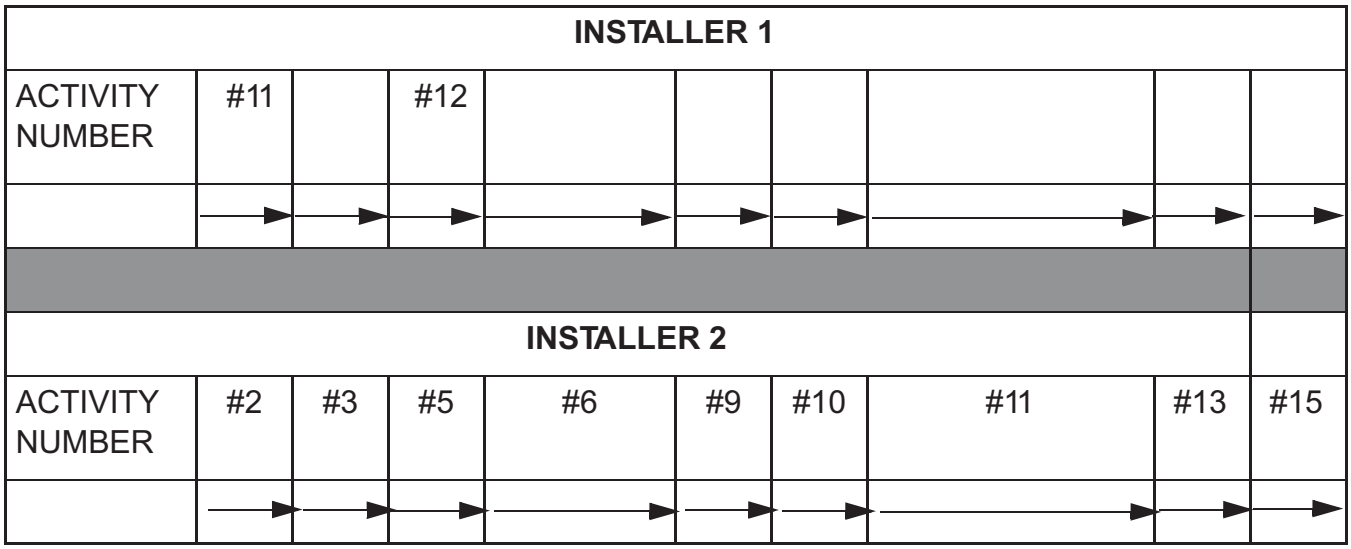
Terminal block	Minimum torque Nm (in-lb)	Maximum torque Nm (in-lb)
AC terminal block	1.5 (13.1)	1.8 (15.8)
DC terminal block	3.2 (28)	3.7(32.4)

□

Physical installation process

Physical installation process chart

The chart shown below assigns the concurrent installation activities for each of two installers. The specific activities are listed in the table that follows. The table represents the activities required to install an indoor radio cabinet.



Physical installation process table

The following table assumes that two installers are working concurrently.

ACTIVITIES	INSTALLER ACTIVITY ASSIGNMENT	
	INSTALLER 1	INSTALLER 2
1. Check parts inventory	X	
2. Place the BTS 8420 radio cabinet and 3GP24i power cabinet mounting plates and anchor them through the retaining bars at the rear		X
3. Place the BTS 8420 radio cabinet and 3GP24i power cabinet on the mounting plates	X	X
4. Anchor the front of the primary cabinet and 3GP24i power cabinet	X	
5. Ground the BTS 8420 radio cabinet and 3GP24i power cabinet		X

ACTIVITIES	INSTALLER ACTIVITY ASSIGNMENT	
	INSTALLER 1	INSTALLER 2
6. Route six RF antenna cable jumpers and one GPS antenna cable (connect GPS antenna jumper cable only)	X	X
7. Connect and route the T1/E1and user alarm cables from the primary cabinet to the location of the punchdown blocks	X	
8. Punch down the T1/E1, user alarm and Power Alarm cables to the punchdown blocks	X	
9. Route the Power Alarm cable from the 3GP24i power cabinet to the BTS 8420 radio cabinet and connect it		X
10. Install rectifiers in the 3GP24i power cabinet		X
11. Install the DC cables from the 3GP24i power cabinet to the BTS 8420 radio cabinet and install circuit breakers in the 3GP24i power cabinet	X	X
12. Route and connect the AC feed to the 3GP24i power cabinet	X	
13. Clean up		X
14. Turn on and check power	X	
15. Connect six RF antenna cable jumpers		X

Verify site preparation completed

Overview

This topic describes what must be done to verify that the site preparation is complete so that installation procedures can begin.

If some of the requirements are not met, the installer must do so now.

Verify site preparation

Before installation of the cabinet site can begin, site preparation should have been completed in accordance with the *Alcatel-Lucent CDMA Base Station BTS 8420/AWS 8420 Indoor Site Preparation Guidelines,* 401-703-443

This unit is only to be installed in restricted access locations.

The following site preparation requirements must be met before the installation of the cabinet can begin:

- Adequate clearance must be provided for service access.
- AC electric service must be installed as described later in the document.
- T1/E1 and user alarm facilities must be installed as described in later in the document.
- Z-IDC punchdown blocks for indoor T1/E1 and User Alarm facilities must be installed, as described later in this document.
- Balun Box must be installed (if required).
- Grounding system (supplementary ground for frame grounding; bus bar for CO grounding) must be installed.
- RF and GPS antenna runs must be installed.
- Surge protection for antennas must be installed (if required).
- Tower light power must be installed (if required).
- Tower light alarm must be installed (if required).
- Cabinet anchor holes must be drilled.
- The environment must comply with limits listed on page 1-3 (indoor)
- Cable supports and racks must be installed (indoor).
- 3/4 inch conduit for AC
- Cable supports and racks must be installed.

□

4 Transport, mount, and ground cabinet

Overview

Purpose

This chapter provides general instructions for anchor installation and cabinet handling, as well as cabinet placement, anchoring and grounding. Included are instructions for all indoor cabinets, including the EZBFi battery base modules.

Important! These units are only to be installed in restricted access locations.

Contents

General information

Overview

Purpose

This section provided general information about clearances and layout requirements.

Contents

Clearances and layout requirements

Purpose

Minimum clearances must be maintained from the cabinets to the surrounding cabinets and building parts. The clearances are needed so that the cabinets and frames can be installed and maintained.

The positions of the cabinets, frames, modules, and stands should be marked, and the anchor holes should be drilled during site preparation. However, installers should be aware of this information in case the marks are erased, the holes have not been drilled, or in case last-minute positioning decisions must be made.

Planning guidelines

The following constraints must be considered for cabinet clearances:

- In lineups where battery frames may be required, footprint allocation must be made in advance
- The battery frames must be installed adjacent to the power cabinet
- The positions of all cabinets should permit the RF/GPS antenna jumper cables to reach the termination point for the GPS cable and the RF antenna cables.

Reference documents

Refer to the site-specific layout information for details on where the equipment must be positioned.

For complete details on site layout, refer to the following document:

- *Alcatel-Lucent CDMA Base Station BTS 8420/AWS 8420 Indoor Site Preparation Guidelines,* 401-703-443

That document also contains all necessary information on how to mark the positions of the anchor holes, and how to drill them.

Clearances

The following table provides the recommended minimum clearances for the indoor cabinets to adjacent cabinets or building parts. Refer to the previous figure for space requirements.

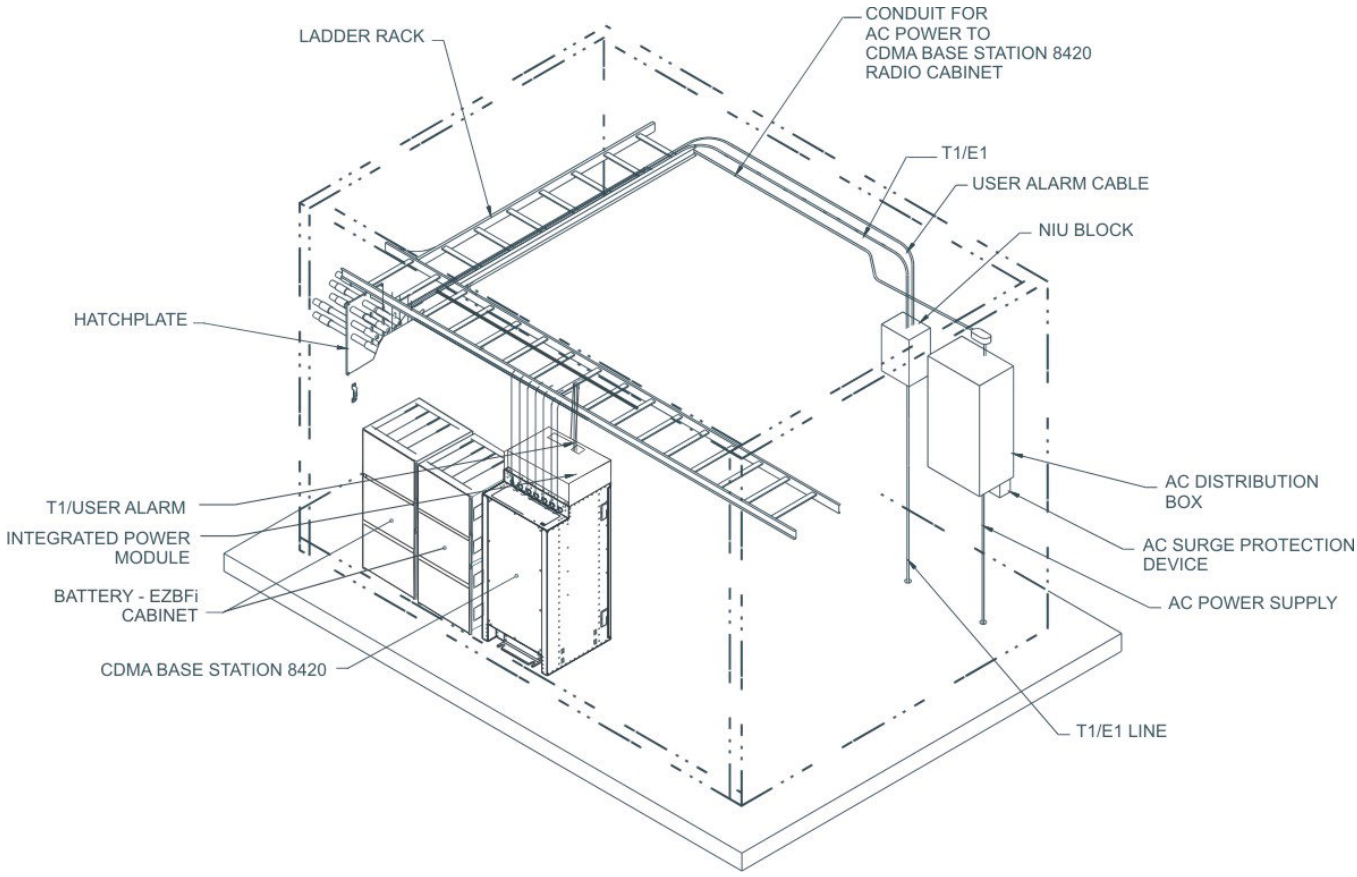
Parameters	Minimum Clearances
Cabinets rear panel to wall	0
Radio cabinet to EZBFi battery frame	58 mm (2.3 in) minimum to 116 mm (4.6 in) maximum

Parameters	Minimum Clearances
First EZBFi battery frame to second EZBFi battery frame	58 mm (2.3 in) minimum to 116 mm (4.6 in) maximum
EZBFi battery frame right side panel to wall	0 (if no second battery frame planned). Some clearance recommended.
In front of the cabinet (for installation and service access)	914 mm (36 in)
Side of radio cabinet to other cabinets, as applicable	0
Radio cabinet right side panel to wall (door open 90 degrees).	152.4 mm (6 in)

Layouts - indoor

Refer to the following figure for a typical installation of the BTS 8420 radio cabinet.

The figure below shows a BTS 8420 radio cabinet next to two EZBFi frames.


LADDER RACK
CONDUIT FOR
AC POWER TO
CDMA BASE STATION 8420
RADIO CABINET
T1/E1
USER ALARM CABLE
NIU BLOCK
HATCHPLATE
AC DISTRIBUTION
BOX
T1/USER ALARM
INTEGRATED POWER
MODULE
AC SURGE PROTECTION
DEVICE
BATTERY - EZBFi
CABINET
AC POWER SUPPLY
CDMA BASE STATION 8420
T1/E1 LINE

How to prepare for cabinet or frame placement

Overview

Purpose

This section shows how to determine anchor requirements, drill anchor holes, install radio cabinet mounting plates, and preset certain anchors, if applicable.

[If anchor holes were not been drilled in site preparation, they should be drilled now for all radio cabinets, power frames, and battery stands during installation.]

Power frame and battery stands require that seismic Zone 0-1 and 2-3 anchors be *preset* before placement of the frame or stand instead of installing anchors after placement of the frame or stand.

WARNING

Hazards to ears, eyes, hands, and feet

The noise of a drill can damage hearing. The moving parts of a drill can damage the body, especially the hands and eyes. The use of a drill can raise dust and small objects that may be hazardous. The use of a drill can also damage the legs and feet.

Wear safety gloves, safety shoes, ear protection, and eye protection when using a drill.

Contents

Anchor specifications

Overview

Cabinet anchoring must meet all requirements of the local codes, taking into consideration the seismic zone of the installation site.

Anchor specifications

Use the following table to determine the specific anchor to use, and the hole size and depth required.

Type of cabinet	Seismic Zone(s)	Type of anchor	Bit diameter / Depth of hole	Anchor seated before or after placement of unit?
Radio cabinet	0, 1, 2	(4) 1/2 inch, drop in*	16 mm (5/8 inch) diameter bit / 50 mm (2 inches) min. deep hole*	Before or after
Radio cabinet	3, 4**	(2) 12 mm expansion stud (Rear)	18 mm (11/16 inch) diameter bit / 75 mm min. (3 inches min.) deep hole	After
		(2) 12 mm expansion stud (Front)	18 mm (11/16 inch) diameter bit / 100 mm (4 inches) min. deep hole	After

Notes:

1. * 1-1/2 inch bolts are supplied in the kit for the retaining bar (rear) anchors, as well as for the front anchors on specific cabinets.
2. ** When installing a second add-on module in Zone 4, you must install a Zone 4 anchoring kit.

□

How to drill anchor holes and install the mounting plate for BTS 8420/AWS 8420 radio cabinet

Overview

This section provides instructions for the installation of mounting plates for the radio cabinet. Also included are instructions for marking and drilling anchor holes, if the holes were not drilled during site preparation.

Note that indoor cabinets/frames may be mounted directly on a concrete pad. Procedures for the preparation of other types of mounting surfaces are the responsibility of the customer.

Important! Radio cabinets that are equipped with an integrated power module (or that are going to be subsequently equipped with an integrated power module) cannot be installed with zero clearance to a wall. Access to the rear of the cabinet must be provided.

Before you begin

If anchor holes have been drilled during site preparation, skip to “Place and level the mounting plate and torque the rear anchors” (p. 4-10) to continue the installation.

Position the BTS 8420/AWS 8420 radio cabinet mounting plate for anchor hole marking

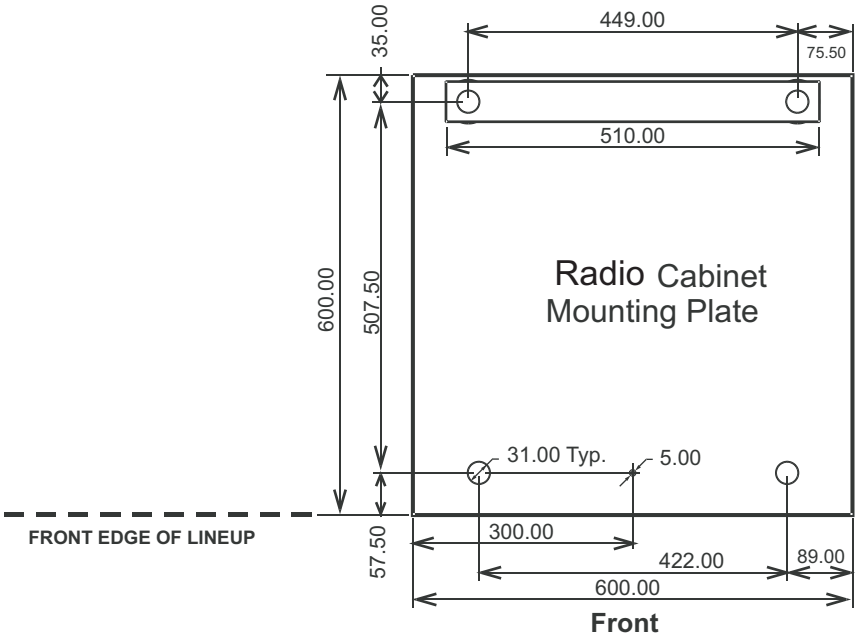
To position the radio cabinet mounting plate, perform the following steps:

1. Check that the floor is free of debris and is properly marked with the front edge footprint of the cabinet to be installed. Also check that when the cabinet(s) are subsequently mounted in position, there will be adequate surrounding clearance. See “Layouts - indoor” (p. 4-4).

   Important! When performing the next step, note that there is a small (5 mm) hole along the front edge of the mounting plate. Also, the anchor holes in the rear of the mounting plate are farther apart than the anchor holes in the front of the mounting plate.

2. Rotate the mounting plate as needed until it is oriented correctly.

3. Position the mounting plate with the front edge of the mounting plate on the front line of the lineup. Refer to the figure below.



4 Proceed to the next page to mark and drill the anchor holes.

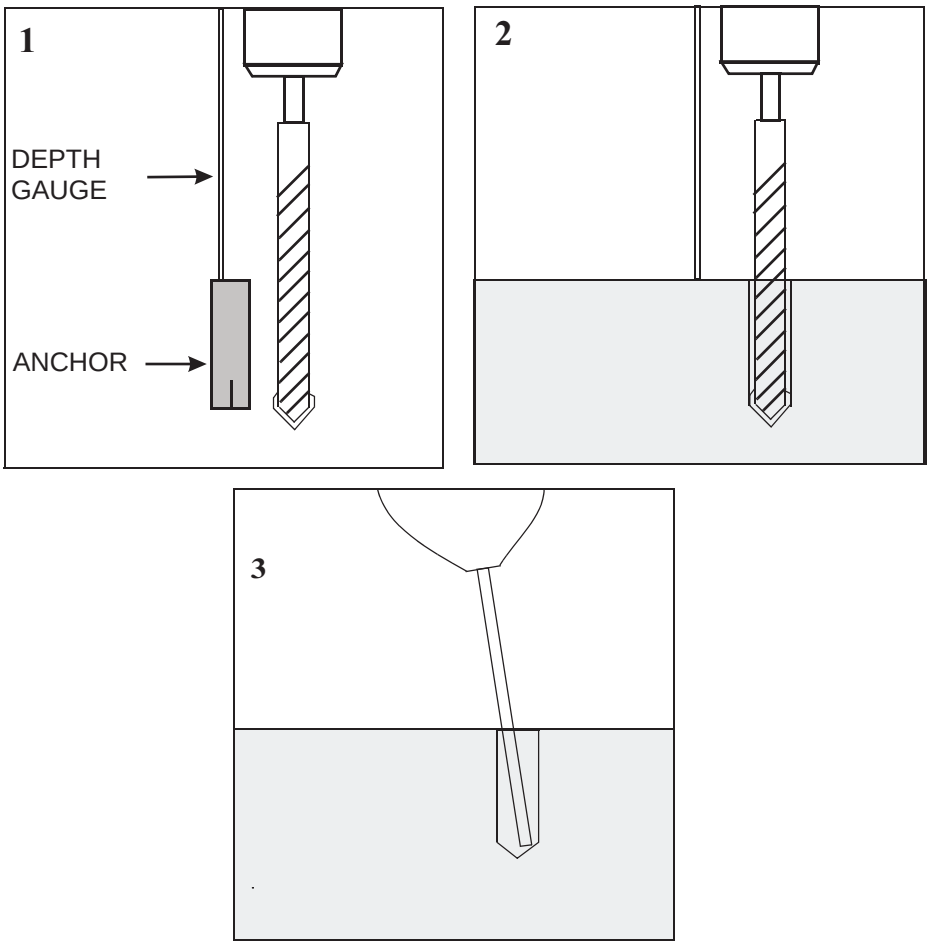
END OF STEPS

Mark and drill the anchor holes (if required)

If the anchor holes were not drilled during site preparation, perform the following steps to mark and drill the anchor holes.

1 Mark the anchor hole locations through the holes of the mounting plate(s) and remove the mounting plate(s).

2 Drill the anchor holes to the proper size and depth as specified in "Anchor specifications" (p. 4-7). Refer to the figure below for the anchor hole drilling method.



3 Vacuum the holes. You may need to reach into the hole with a tool to remove excess dust.

END OF STEPS

Place and level the mounting plate and torque the rear anchors

Use the following procedure to place and level the mounting plate, as well as torque the rear anchors.

1 If installing Zone 0, 1, or 2 anchors (1/2- inch diameter drop-in), set the anchors according to the procedure in the *EZBFi Modular Battery Installation Manual for +24V and -48V*, 401-703-507.

2 Place the mounting plate in position over the holes.

3 Position the retaining bar across the middle of the rear of the plate with the protrusions on the ends facing down. Then center the retaining bar over the holes in the plate and over the anchor holes.

Important! *Skip the next two steps if installing 12 mm anchor assemblies.*

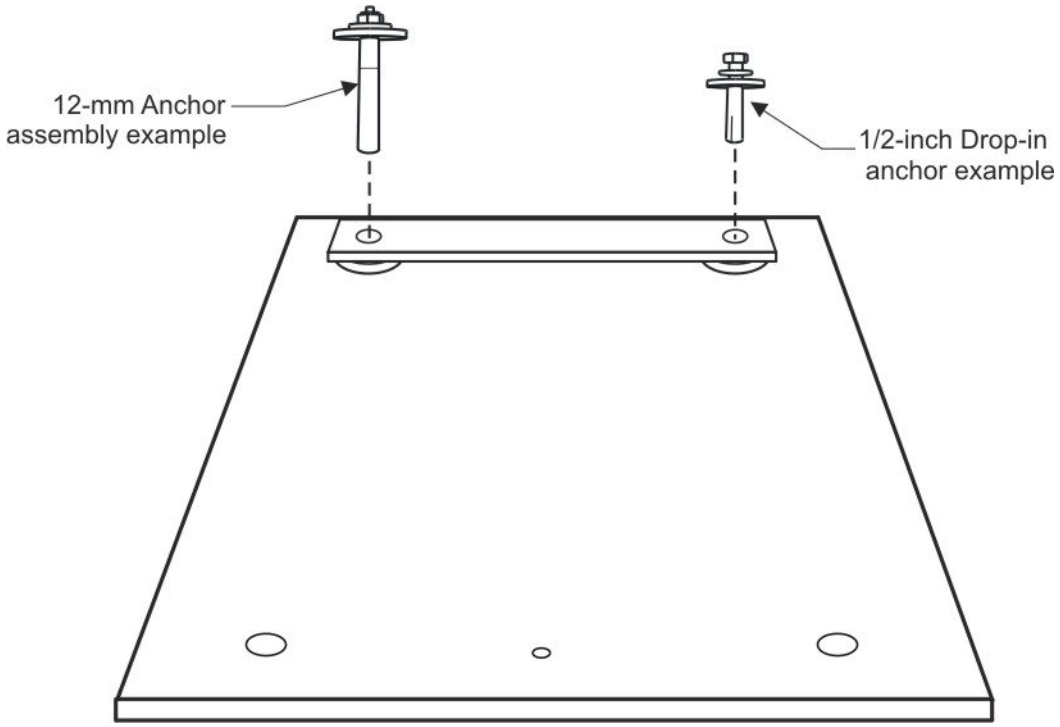
4 Loosely insert (with washers) the longer (1-1/2 inch) of the rear anchor bolts through the retaining bar to hold the mounting plate in position while it is being leveled. Do not tighten the bolts.

Important! *Skip the next two steps if installing 1/2 inch diameter drop-in anchors.*

5 If installing Zone 3 and 4 anchors (12 mm anchor assemblies), tighten the nut and firmly place the rear anchor bolt assemblies into the anchor holes through the retaining bar and the mounting plate. Do not tighten them. Refer to the figure below.

Important! When performing the next step, use a 1/4 inch socket to protect the head of the threaded rod if it is necessary to tap the anchor assembly into place. Note that the black shouldered spacer and red cap, included in each 12 mm anchor kit, are not used.

6 Tap the anchor assembly into the hole until the large washer is flush with the retaining bar.

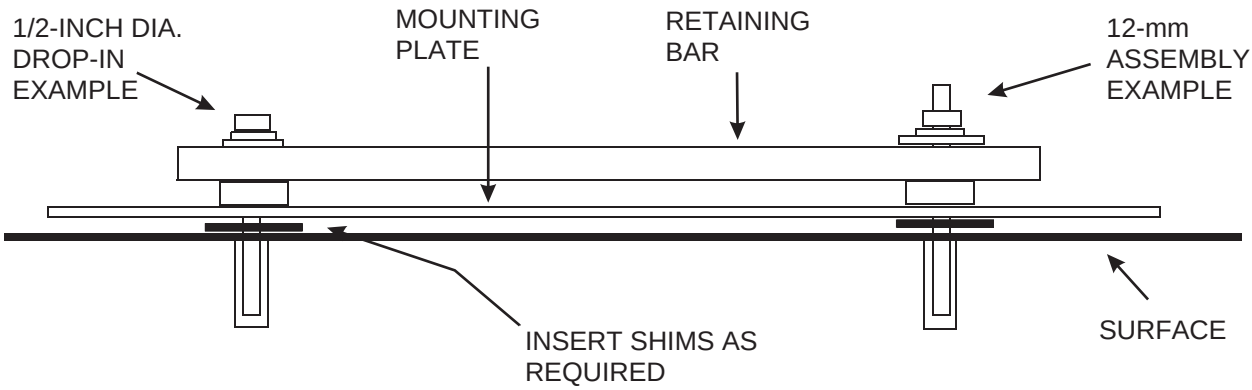


Important! When performing the next step, note that each shim has a slot that is designed to fit around the body of the anchor bolt. Keep the slot properly aligned when performing this step so that the anchor bolts can later be set.

7 Insert combinations of shims under the corners of the plate to perform the leveling process.

Important! When performing the next step, note that the mounting plate must support the cabinet in a perfectly vertical position, so that the sides will line up correctly between a radio cabinet and a 3GP24i power cabinet.

8 Check the level from front to rear, and side to side. Refer to figure below. Correct as required.



REAR VIEW SHOWN: LEVEL ALL FOUR CORNERS

9 Torque the anchor bolts as follows:

- 1/2 inch diameter drop-in anchor bolts: 24 Nm (18 ft-lb)
- 12 mm anchor assemblies: 79 Nm (58 ft-lb).

10 Once all required mounting plates are in place and leveled and anchored, proceed to "" (p. 4-14) to continue the installation.

END OF STEPS

□

Lifting and moving cabinets

Purpose

Radio cabinets are usually shipped to the customer via truck and delivered to the installation site. During installation, it may be necessary to lift the radio cabinet and move it to a new location. This section describes how to safely lift a radio cabinet. Perform the procedures in this chapter to lift and move the radio cabinet.

Lifting machinery

To lift the cabinet, do one of the following:

- Use a forklift with forks that are at least 4 feet long to lift a cabinet that is attached to a pallet, from the bottom.
- Install lifting eyebolts on the top of the cabinet, and use a derrick and slings to lift the cabinet from its top.

Safety precautions for using lifting machinery

WARNING

Personnel injury or equipment damage

Cabinets are too heavy to move without appropriate lifting devices.

Derrick equipment or a forklift must be used to lift the cabinet. Do not attempt to move the cabinet manually, or remove it from the pallet manually.

Comply with the following guidelines when using lifting machinery:

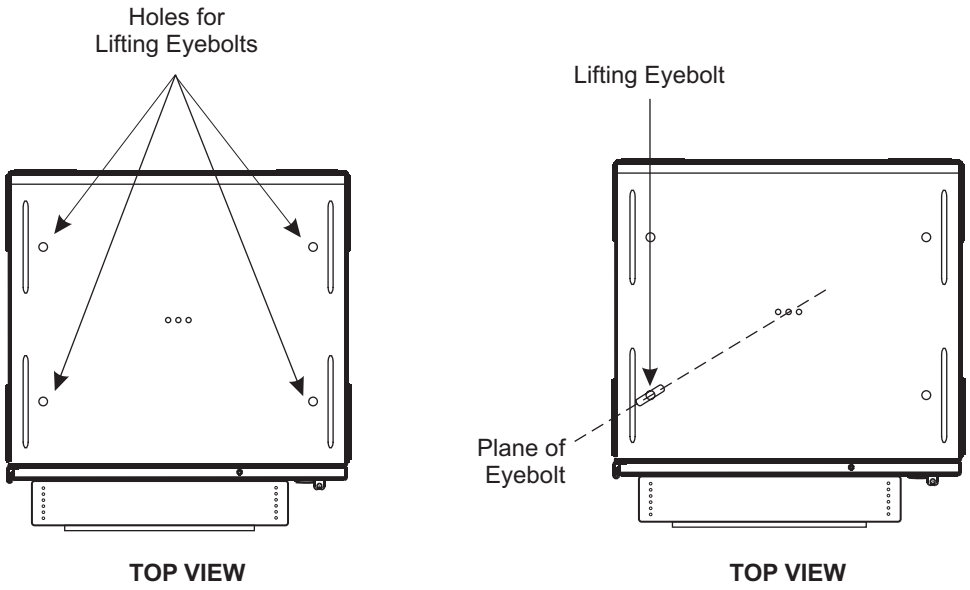
- Only operators who are specifically trained and meet company requirements should be permitted to operate derrick or forklift equipment.
- All persons working with derricks or forklifts must wear standard safety headgear, footwear, eye protection, and insulated gloves (if required).
- Do not operate a derrick until both stabilizers are extended and firmly supported. Do not extend stabilizers after a load is suspended from the derrick.
- While raising the derrick from the stowed position, be alert for overhead obstructions, such as power lines, that may interfere.
- At all times, keep bystanders away from the work area.
- Operators must not suspend loads over people, nor can any person be permitted to work, stand, or pass under a suspended load.
- When a cabinet is being lifted with slings, it is unsafe to lift the cabinet when lifting sling angle is less than 45 degrees to the top of the cabinet.

Guidelines for using a derrick

When a derrick is used to move a cabinet, lifting eyebolts and slings are used to attach the cabinet to the derrick.

Lifting eyebolts

Four R-ITE-6110 M12 lifting eyebolts are screwed into the eyebolt holes on the top of the cabinet, as shown in the following figure.



Position each lifting eyebolt so that the plane of the eyebolt points at the center of the top of the cabinet, as shown in the previous figure. When this is done, and the load is applied, the plane of the eyebolt will align with the load. Eyebolts that are not aligned with the load can bend as the load pulls on them sideways.

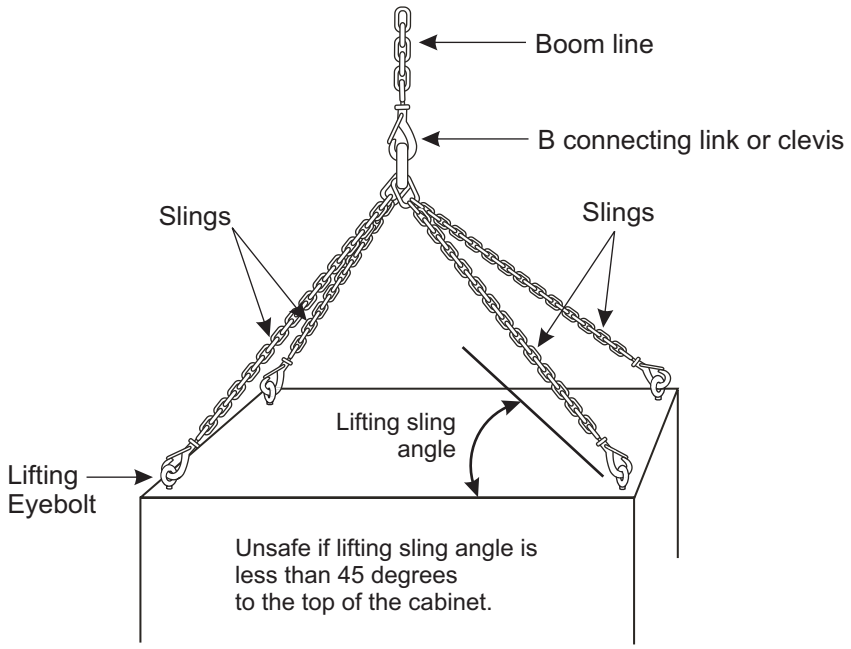
Observe the following guidelines about lifting eyebolts:

- The eyebolts screw into factory-installed nuts on top of the cabinet. These nuts must be held in position while the lifting eyebolt is screwed in. If this is not done, the nut can become loose and allow water to leak into the cabinet.
- Do not overtighten the lifting eyebolt.
- The shoulder of the lifting eyebolt must be properly seated (should bear firmly against the mating part). If it is not, the working loads must be reduced substantially. A steel washer or spacer may be required for proper seating.
- Tightness and seating must be checked after initial load.
- Lifting eyebolts should never be painted or otherwise coated, because such coatings will cover up flaws.

Slings

Attach the slings to the boom line with a B connecting link or clevis. Attach the other ends of the slings to the lifting eyebolts with a B connecting link or clevis.

When a cabinet is being lifted with slings, it is unsafe to lift the cabinet when the lifting sling angle is less than 45 degrees to the top of the cabinet. At closer than 45 degrees, there is too much side stress on the lifting eyebolts. Use slings that are long enough to keep the lifting sling angle at greater than 45 degrees from the top of the cabinet.



Control the cabinet while it is being lifted

CAUTION

When Moving Cabinet

When moving a cabinet in the following procedures, do not tilt the cabinet beyond 30 degrees from vertical. Do not stand under the cabinet.

A rope tied to the pallet attached to the cabinet should be used to guide the cabinet while it is being lifted. The rope must be sufficiently long. As the cabinet is being lifted and transported, use the rope to guide the cabinet and prevent the cabinet from tilting or swinging.

Always lift cabinets carefully, and keep the boom line tight to prevent the cabinet from tipping while it is moving. At the end of the lift, slowly place the cabinet on the ground.

How to place, anchor, and ground cabinets, frames, or stands

Overview

Purpose

This section provides the following instructions.

- Placement, anchoring and grounding the indoor Base Station 8420 radio cabinet.
- Placement, anchoring and grounding the EZBFi battery base module, both first and second.

Contents

Anchor and torque requirements

Anchor and torque requirements for radio cabinet

The following table provides anchor type and anchor bolt torque requirements for the radio cabinet.

Seismic Zone(s)	Anchor Type	Wrench	Torque	
			Newton Meters	Foot Pounds
0, 1, 2	(4) 1/2 inch diameter drop in	3/4 inch	24 Nm	18 ft-lb
3, 4*	(4) 12 mm expansion studs	19 mm	79 Nm	58 ft-lb

Placement, anchoring, and grounding of the indoor radio cabinet

Overview

This procedure module provides instructions for placement, anchoring, and grounding of the radio cabinet.

Move/lift the cabinet into position on the mounting plate

Use the following procedure to move/lift the cabinet into position.

1 **WARNING**

Personnel injury or equipment damage

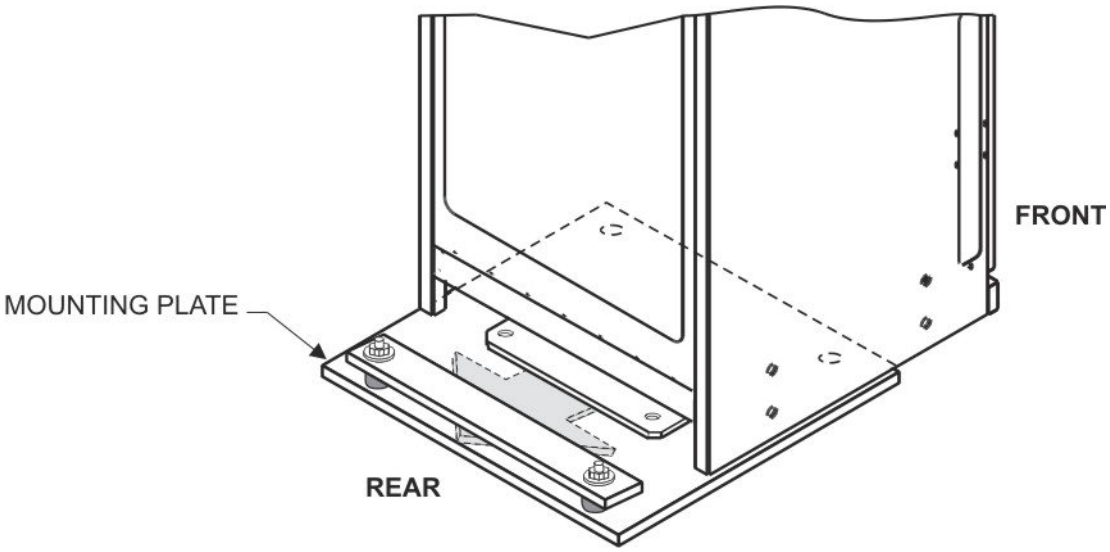
Cabinets are too heavy to move without appropriate lifting devices. When moving the cabinet, always use appropriate lifting devices and a sufficient number of personnel.

Important! When handling a radio cabinet, care must be taken not to grasp the removable filter cover, located at the top of the front door of the radio cabinet.

Remove tape and any debris covering the front anchor holes

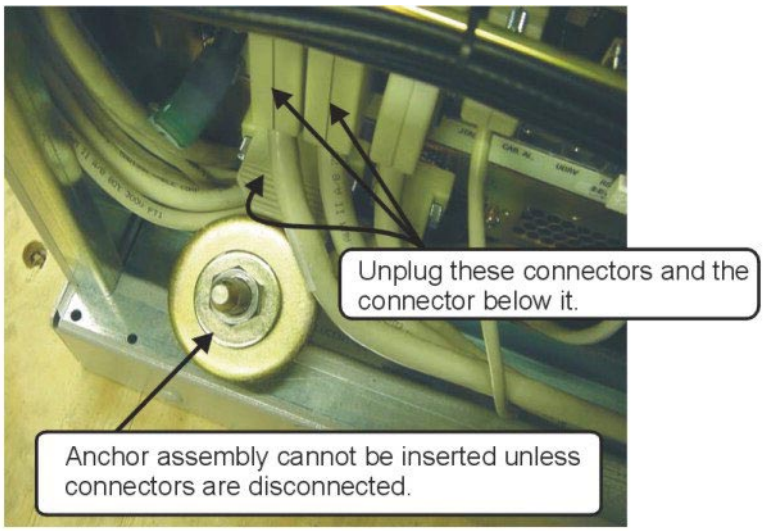
2 Place the cabinet on the front of the mounting plate.

3 Slide the cabinet to the rear of the plate. Make sure that the tongue at the rear of the cabinet goes under the retaining bar. Refer to the figure below.



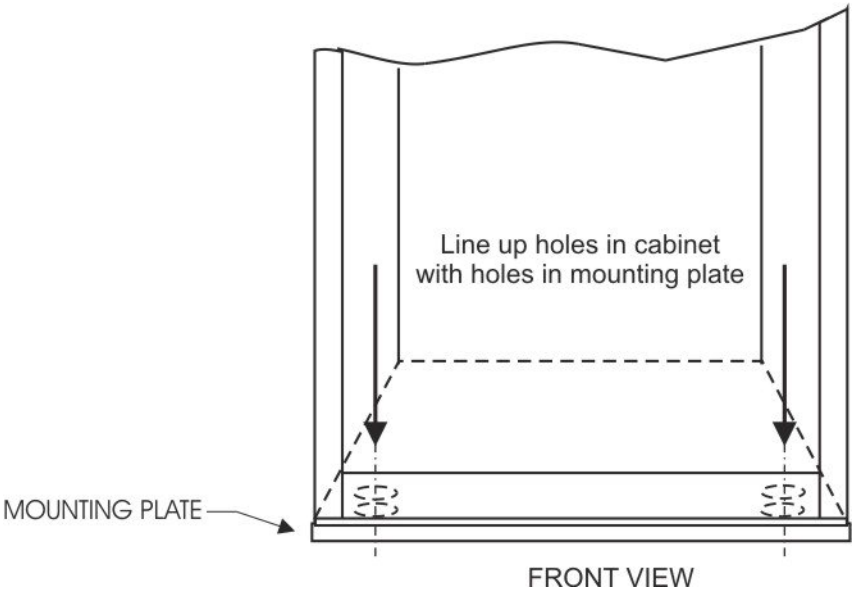
4 Open the front door of the cabinet to view the front mounting holes.

5 Mark for identification, and unplug the three lower left connectors shown in the figure below.



NOTE THAT A SEISMIC ZONE 3 AND 4 ANCHOR IS SHOWN. SEISMIC ZONE 0, 1, AND 2 ALSO REQUIRE UNPLUGGING OF THE CONNECTORS

6 Align the cabinet mounting holes with the set anchors or anchor holes, as applicable. Refer to the figure below.



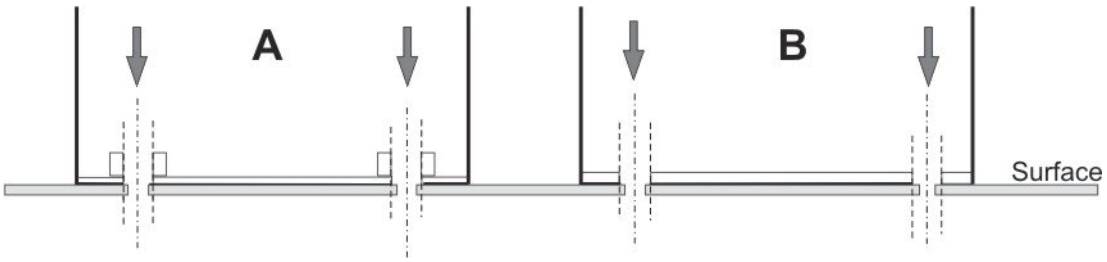
END OF STEPS

Install front anchoring bolts or anchor assemblies

Use the following procedure to install the front anchoring bolts or anchor assemblies.

1 Install the front anchor bolts as follows.

- *Seismic Zones 0, 1, and 2:*
  1. If the anchors have *not* been set, tap in the anchors and set them using the setting tool.
  2. If the anchors have *already been set*, insert the *shorter* of the anchor bolts provided (1 inch) with two washers each.
  3. Torque the bolts to 18 ft lb (24 Nm).



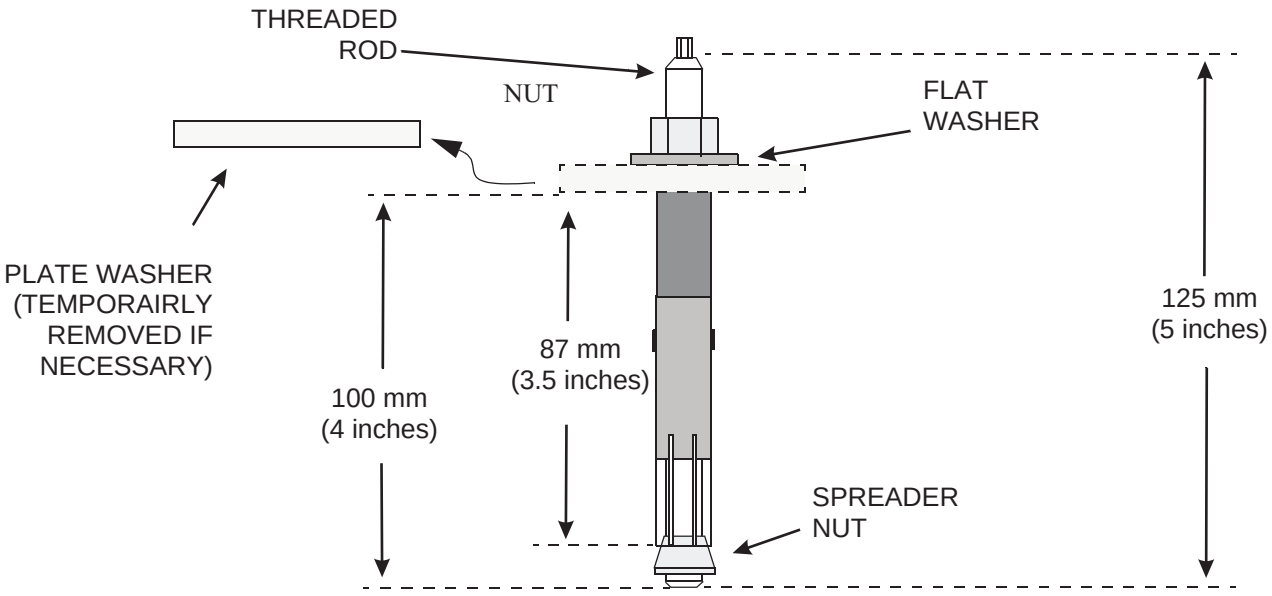
- *Seismic Zones 3 and 4:*

  Note that the black shouldered spacer and red cap, included in each Zone 3 and 4 anchor kit, are not used.

  1. Tighten the nut and then insert the entire anchor assembly (12 mm expansion stud assembly) into each hole.

     Note that if the assembly cannot be inserted with the large (plate) washer, temporarily remove the washer and *replace and retighten* the nut.

     When tapping the anchor assembly into place when performing the next step, use a 1/4 inch socket to protect the head of the threaded rod.
  2. Tap the anchors into the front mounting holes until the washer is flush with the bottom of the cabinet.
  3. Skip the next step if the plate washer has *not* been removed.
  4. Remove the nut and flat washer, then replace the plate washer, flat washer, and nut in the order shown below. Retighten the nut.
  5. Torque the nut to *58* ft lb. (79 Nm) using a ratchet and 19 mm deep socket.



Important! The connectors unplugged in Step 5 must be reconnected at this time.

2 Reconnect the connectors unplugged in Step 5.

END OF STEPS

Attach grounding cables to the BTS 8420/AWS 8420 radio cabinet without integrated power

Important! If installing a BTS 8420/AWS 8420 radio cabinet, skip this procedure and go to next procedure, Attach grounding cables to the BTS 8420/AWS 8420 radio cabinet with integrated power.

Perform the following steps to attach the grounding cables.

1 Verify that power is not connected to the power cabinet.

Important! When performing the next step, if a supplementary ground is not present, and one is not going to be installed at the present time, the two cabinet ground cables must have sufficient length to reach the main bus bar.

2 Prepare two 6 AWG grounding cables of sufficient length to reach from the supplementary ground wire, at the cable rack, to the top of the BTS 8420/AWS 8420 radio cabinet.

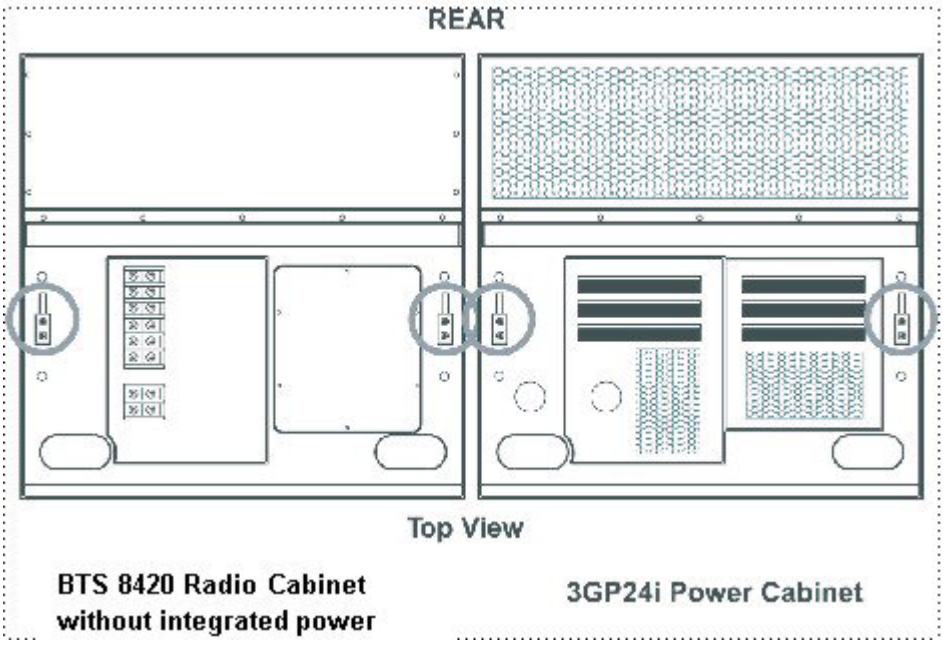
3 Strip approximately 13 mm (1/2 inch) of insulation from both ends of each grounding cable.

Important! When performing the next step, if a supplementary ground is not present, the two cabinet ground cables must be directly attached to the main bus bar. Do not attach the cabinet grounding cables to the halo ground under any circumstances.

4 Connect each of the grounding cables to the supplementary ground, using a c-tap or terminal lug.

5 Remove the four lifting eye bolts.

6 Remove the double-hole grounding lug from the *top* of the BTS 8420/AWS 8420 radio cabinet. Refer to the figure below.

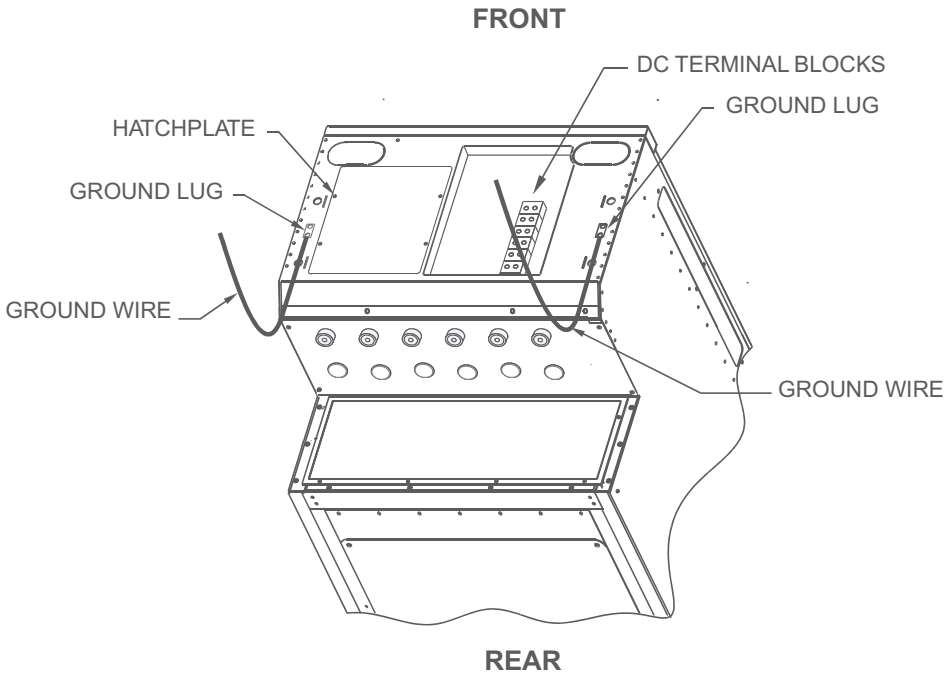


7 Verify that the cabinet grounding lug location is free of paint and polish, if required.

8 Insert the grounding cable into the grounding lug and crimp the lug in two places to secure the grounding cable. Repeat for the other cable.

Important! When performing the next step, the lock washer must be installed between the M6 flat washer and the nut

9 Use antioxidant compound and reinstall the lug on the cabinet using the supplied M6 washers, lock washers, and nuts. Repeat for the other cable. Refer to the figure below.



GROUNDING OF THE 3GP24i POWER CABINET (NOT SHOWN) IS IDENTICAL TO THE GROUNDING OF THE PRIMARY CABINET

10 Torque the cabinet grounding connections to 6 Nm (54 in-lb).

11 Repeat steps 1 through 10 for the 3GP24i power cabinet, if applicable.

END OF STEPS

Attach grounding cables to the BTS 8420/AWS 8420 radio cabinet with integrated power

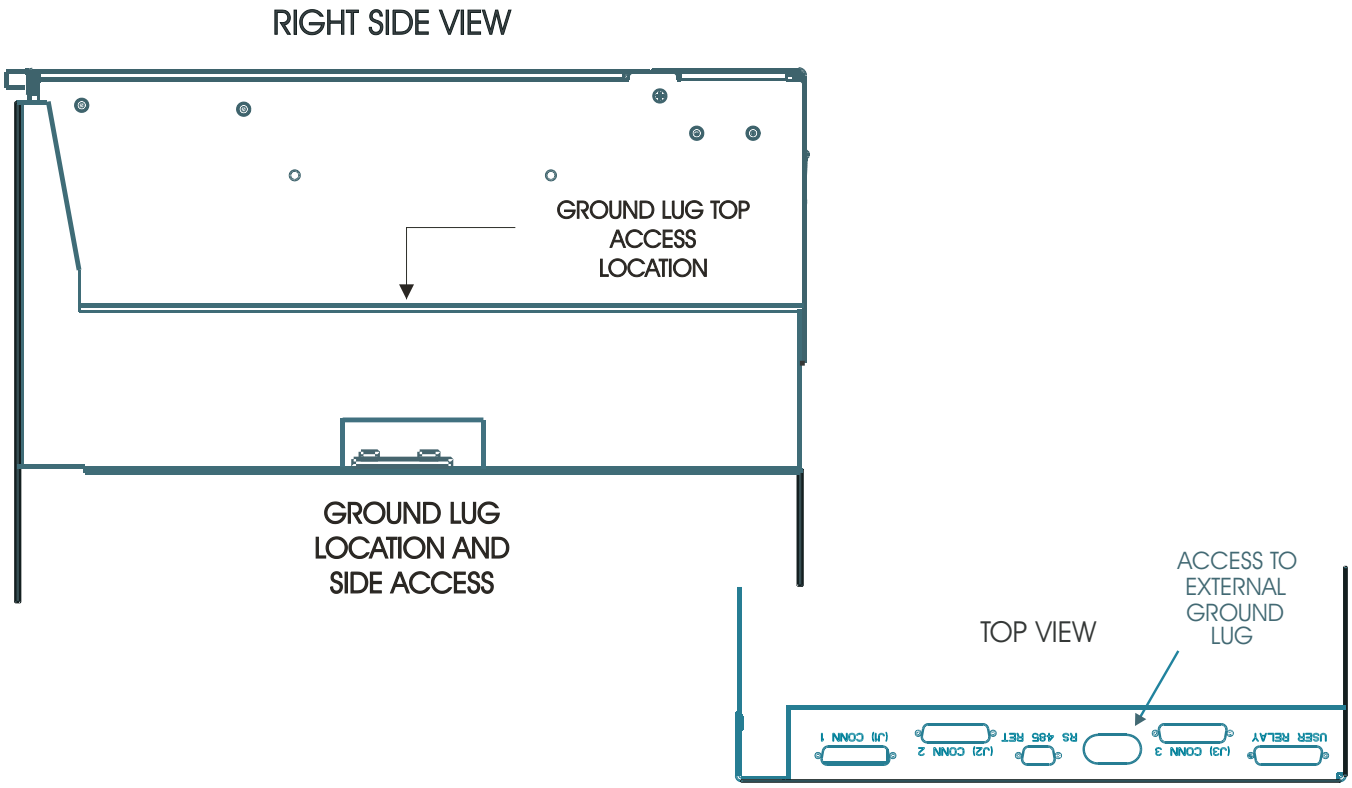
Important! Verify that the power is not connected to the cabinet.

Perform the following steps to attach the grounding cables.

1 Prepare two 6 AWG grounding cables of sufficient length to reach from the supplementary ground wire, at the cable rack, to the top of the radio cabinet.

2 Strip approximately 12 mm (1/2 inch) of insulation from both ends of each grounding cable. Connect the grounding cables to the supplementary ground, or other grounding system, using a C-tap or terminal lug.

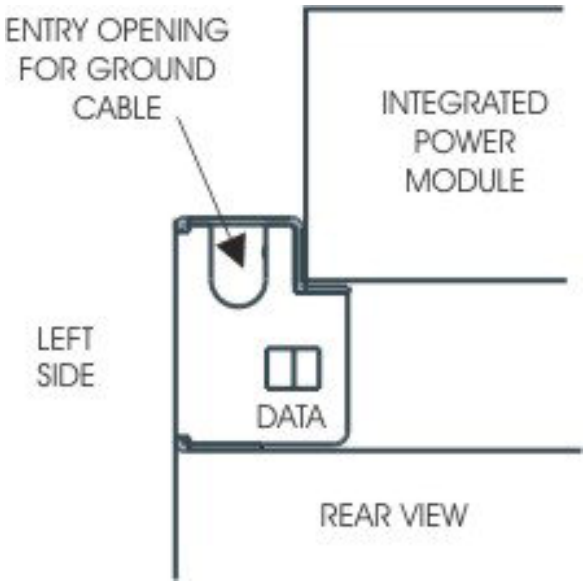
3 Remove the double-hole grounding lug from the *top right* of the radio cabinet. Refer to the figure below.



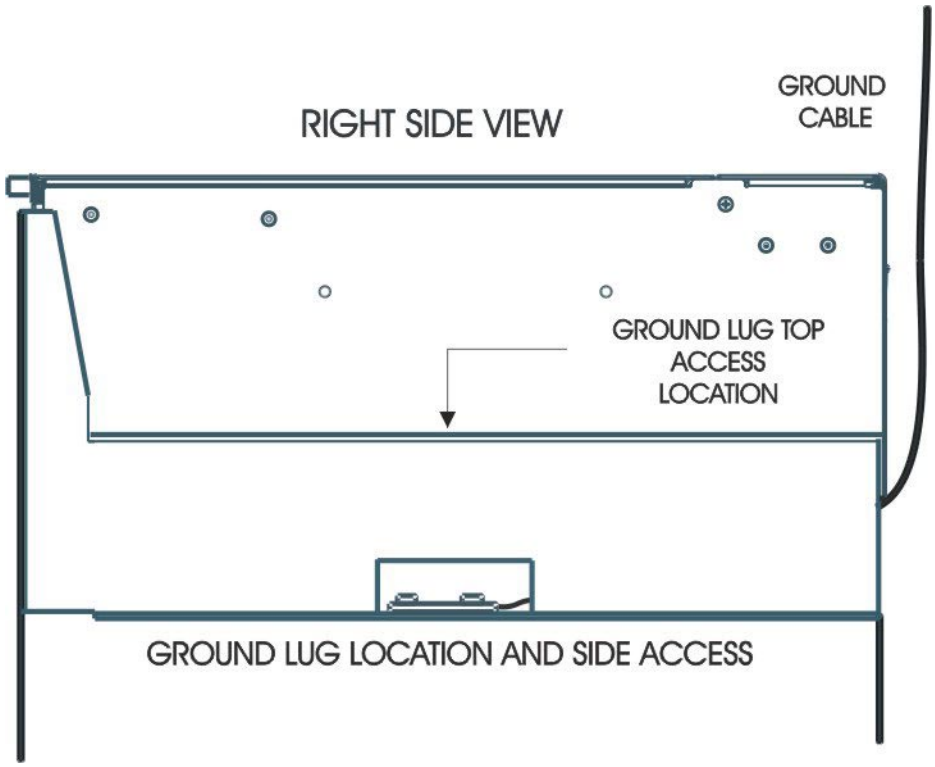
4 Verify that the cabinet grounding lug location is free of paint and polish, if required.

5 Insert a grounding cable into a grounding lug and crimp the lug in two places to secure the grounding cable.

6 Insert the grounding cable through the rear opening in the left integrated power module frame. Refer to the figure below.



7 Reinstall the lug on the cabinet using the supplied M6 washers, lock washers, and nuts. Refer to the figure below.



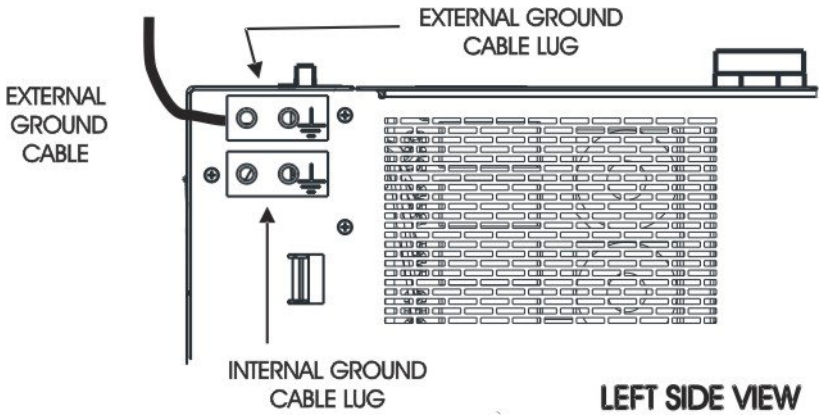
8 Torque the cabinet grounding connection to 6 Nm (54 in-lb).

9 Remove the double-hole grounding lug from the *left rear* of the integrated power module. There are two lugs. Remove the one not in use. Refer to the figure below.

10 Verify that the cabinet grounding lug location is free of paint and polish, if required.

11 Insert the remaining grounding cable into a grounding lug and crimp the lug in two places to secure the grounding cable.

12 Reinstall the lug on the cabinet using the supplied M6 washers, lock washers, and nuts. Refer to the figure below.



13 Torque the cabinet grounding connection to 6 Nm (54 in-lb).

END OF STEPS

□

5 Connecting cables to BTS 8420/AWS 8420 radio cabinet

Overview

Purpose

This chapter provides instructions for connecting the GPS antenna jumper cable, T1/E1 cables, external User Alarm cable, and Power Alarm cable to the Base Station 8420/AWS 8420 radio cabinet.

Contents

How to connect the GPS antenna jumper cable

Overview

Purpose

This procedure module provides instructions for connecting the GPS antenna jumper cable in an indoor installation.

Description of GPS antenna cable

The indoor BTS 8420/AWS 8420 radio cabinet is supplied with a connector for one GPS antenna jumper cable. The GPS antenna jumper cable is terminated at one end with an N-type male connector. The end with the N-type male connector is connected to the Universal Hatchplate on the BTS 8420/AWS 8420 radio cabinet without integrated power and to the IPM on the BTS 8420/AWS 8420 radio cabinet with integrated power. A DIN connector is installed at the other end of the GPS antenna jumper cable. This end is connected to the surge protector at the room hatchplate or customer's DAS.

Important! Refer to *Alcatel-Lucent CDMA Base Station BTS 8420/AWS 8420 Indoor Site Preparation Guidelines*, 401-703-443, to verify correct installation of the GPS antenna.

Contents

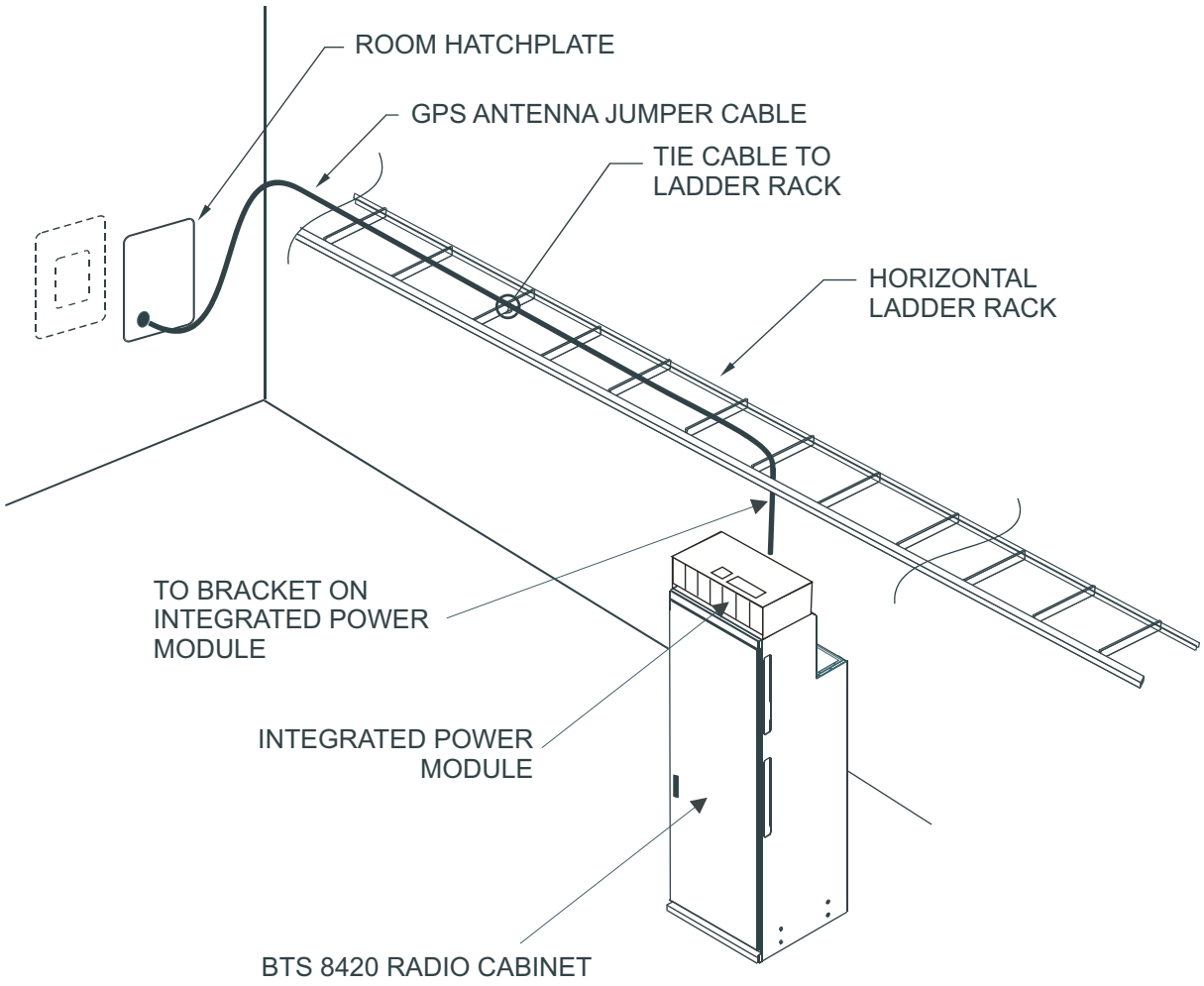
Connecting GPS antenna jumper cable

Important! The GPS antenna jumper cable must be connected before initial start-up and testing can take place. DO NOT connect RF (Tx and Rx) jumper cables at this time.

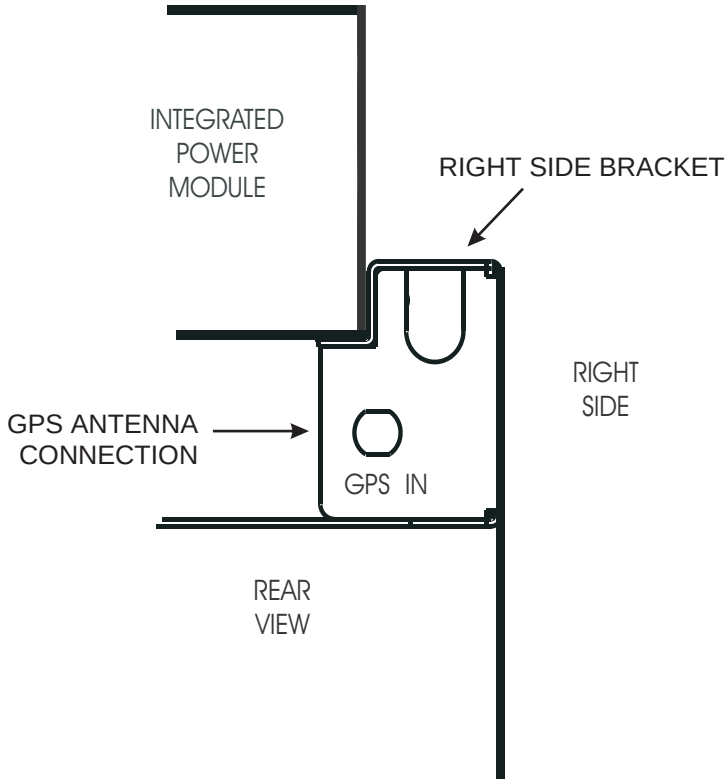
Connecting GPS antenna jumper cable to BTS 8420/AWS 8420 radio cabinet with integrated power

Use the following procedure to connect the GPS antenna jumper cable to the BTS 8420/AWS 8420 radio cabinet with integrated power. (The GPS antenna jumper cable is connected to the Integrated Power Module (IPM) on the radio cabinet.)

1 Label both ends of the GPS antenna jumper cable with "GPS." The end of the GPS antenna jumper cable, with the N-type connector, is connected to the radio cabinet. Route the other end of the GPS antenna jumper cable over the ladder rack and to the customer's DAS. Refer to the figure below. This figure applies to both the BTS 8420 and AWS 8420 radio cabinet.



2 Connect the N-type connector to the “GPS IN” connector at the top-rear of the Integrated Power Module. See the figure below.



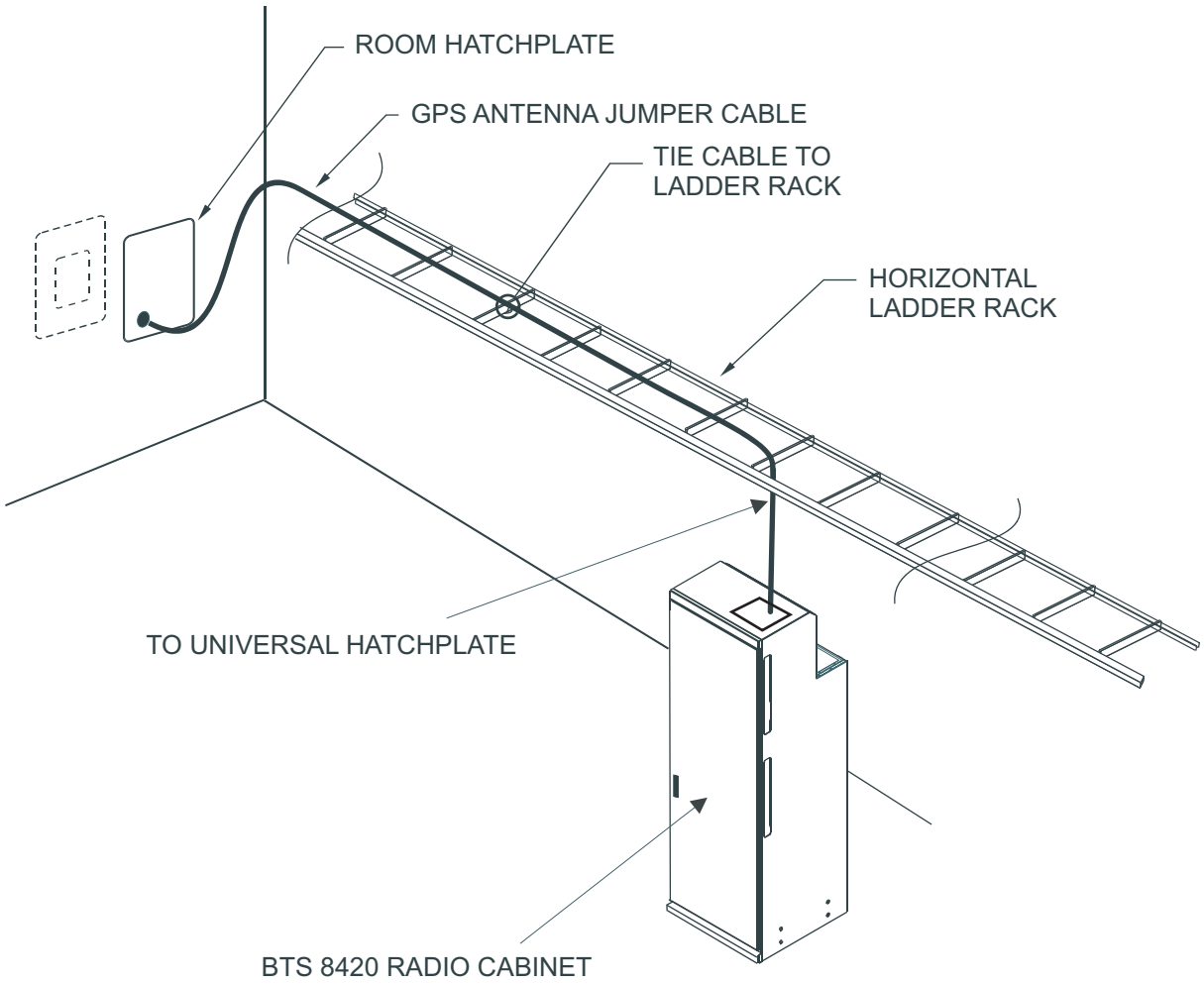
3 Torque the GPS antenna jumper cable N-type connector to 1.7 Nm (15 in-lb) .

END OF STEPS

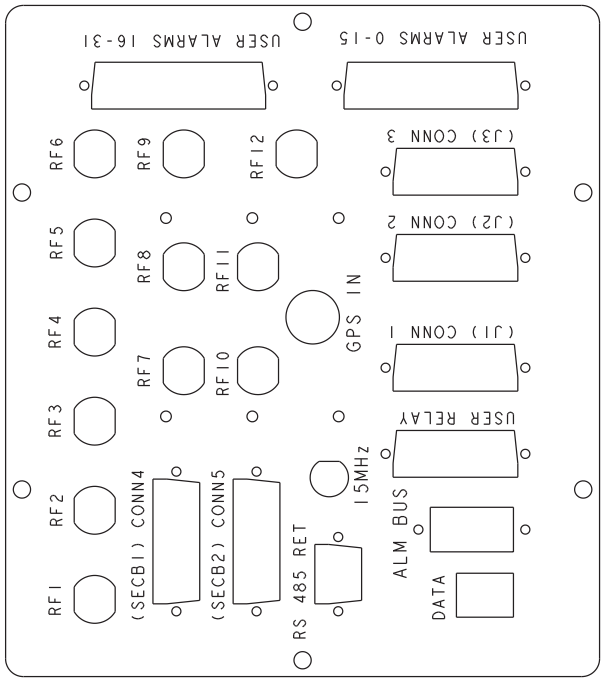
Connecting GPS antenna jumper cable to BTS 8420/AWS 8420 radio cabinet without integrated power

Use the following procedure to connect the GPS antenna jumper cable to the BTS 8420/AWS 8420 radio cabinet without integrated power. (The GPS antenna jumper cable is connected to the Universal Hatchplate on the BTS 8420/AWS 8420 radio cabinet.)

1 Label both ends of the GPS antenna jumper cable with “GPS.” The end of the GPS antenna jumper cable, terminated with a N-type connector, is connected to the BTS 8420/AWS 8420 radio cabinet. Route the other end of the GPS antenna jumper cable over the ladder rack and to the room hatchplate. Refer to the figure below. (The figure below shows a typical room hatchplate and applies to both the BTS 8420 and AWS 8420 radio cabinet.)



2 Connect the N-type connector to the “GPS IN” connector on the Universal Hatchplate, on top of the BTS 8420/AWS 8420 radio cabinet. See the figure below.



FRONT

3 Torque the GPS antenna jumper cable N-type connector to 1.7 Nm (15 in-lb).

END OF STEPS

Connect GPS antenna jumper cable to GPS surge protector at customer's DAS

Use the following procedure to connect the GPS antenna jumper cable to the GPS surge protector at the room hatchplate.

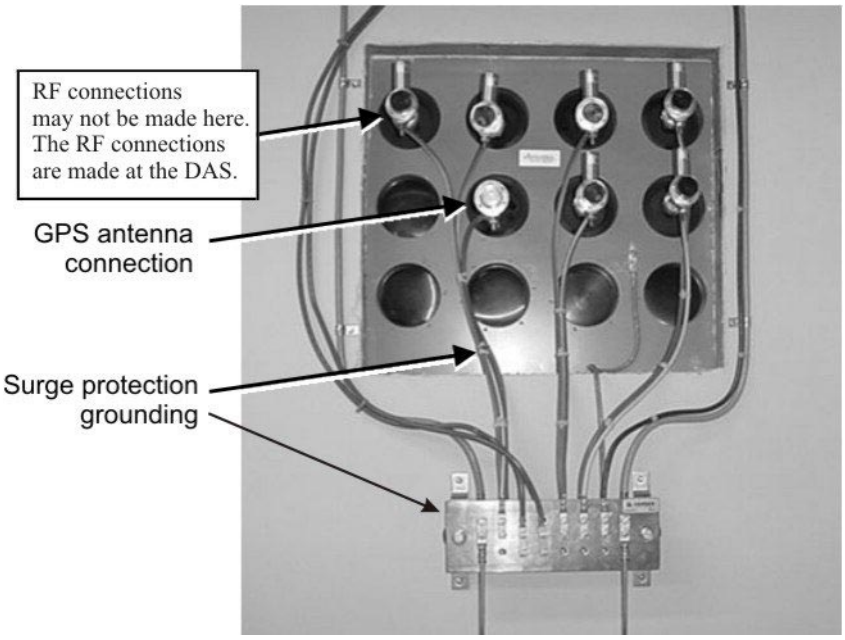
1 **Important!** Skip the first two steps of this procedure if the GPS antenna jumper cable is already terminated at the hatchplate.

Cut the cable to the correct length, allowing plenty of slack.

Important! Be sure to remark the GPS antenna jumper cable if the marking at the end of the cable is missing.

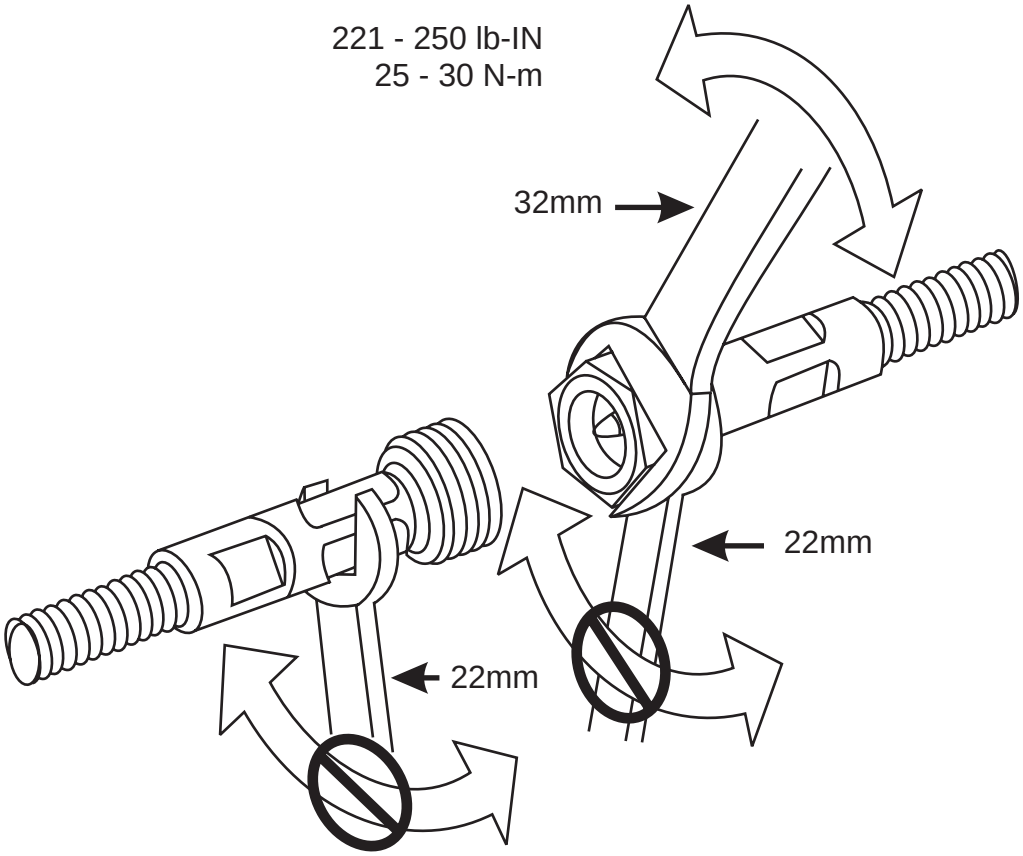
2 Strip the end of the GPS antenna jumper cable with the stripping tool (part number provided in Chapter 3). Terminate the GPS antenna jumper cable with the supplied 7/16 inch DIN connector.

3 Connect the GPS antenna jumper cable to the GPS cable surge protector at the room hatchplate (see figure below).



Important! When connecting the GPS antenna jumper cable to the 7/16 DIN female connector or disconnecting the GPS antenna jumper cable from the 7/16 DIN female connector, it is recommended that the jumper cable be connected or disconnected as shown in the figure below. Note that the mating connector must be supported with a wrench. Two wrenches are required to preform this operation. The 7/16 DIN male connector has a captive, rotating coupling nut.

4 Torque the GPS antenna jumper cable at the room hatchplate to 25 Nm (221 in-lb) using the method shown in the figure below.



Important! When performing the next step, secure the cable to the ladder rack using standard procedures, including the use of cable ties.

5 Tie the GPS antenna cable to the ladder rack. “Connecting GPS antenna jumper cable to BTS 8420/AWS 8420 radio cabinet with integrated power” (p. 5-3)

END OF STEPS

□

How to connect T1/E1 lines and external alarm cables

Overview

Purpose

The following instructions assume that associated wiring and punchdown blocks have been provided as part of site preparation, according to the following document:

- *Alcatel-Lucent CDMA Base Station BTS 8420/AWS 8420 Indoor Site Preparation Guidelines,* 401-703-443

The following wiring interfaces to the radio cabinet are covered in this section.

- T1/E1
- External alarms.

The following punchdown block is covered in this section.

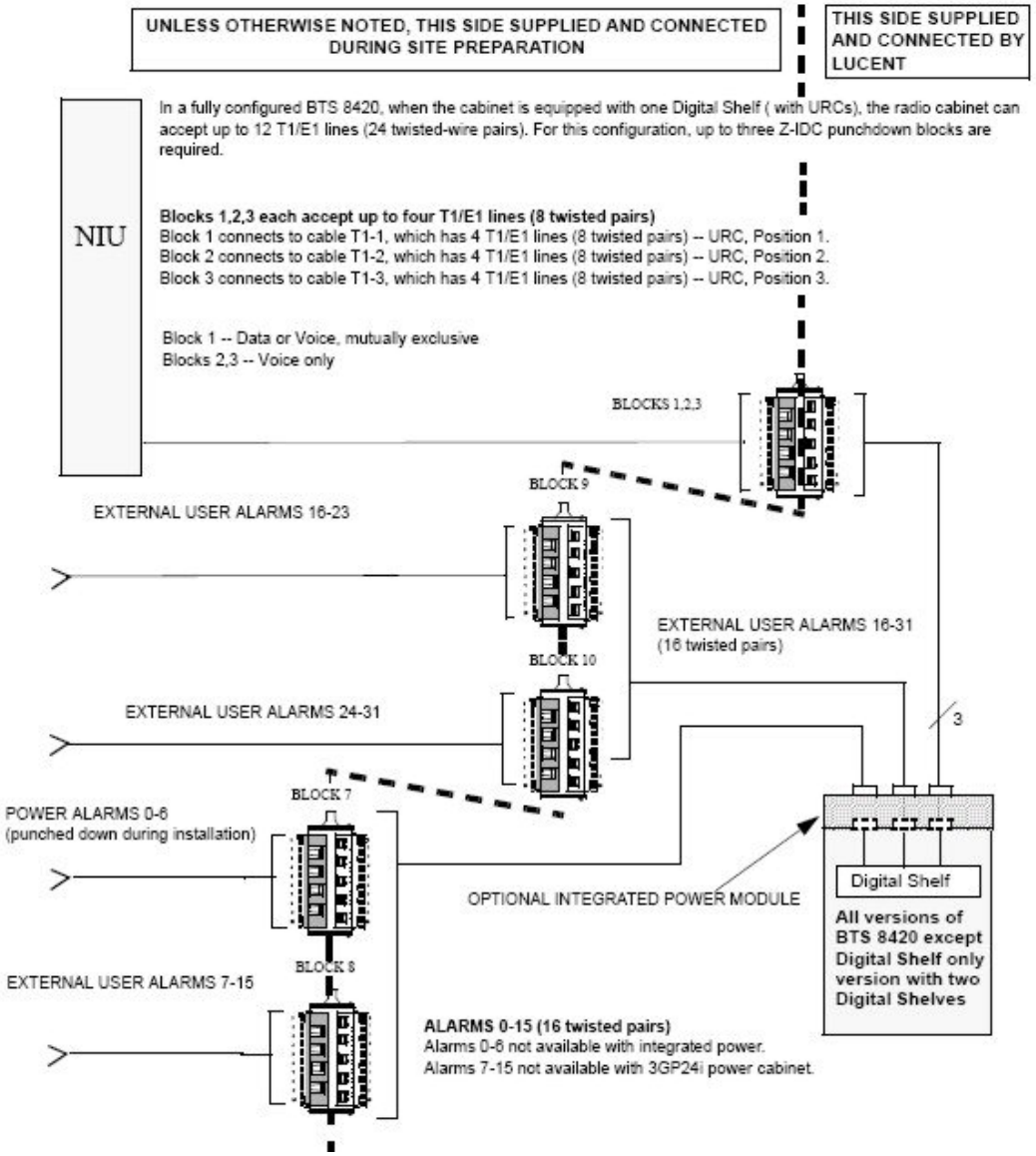
- Z-IDC.

The BTS 8420 radio cabinet can contain one or two Digital Shelves. Each Digital Shelf can accept up to 12 T1/E1 lines.

Overview wiring block diagram for T1/E1 lines and external User Alarms to Z-IDC punchdown blocks for AWS 8420 and all BTS 8420 versions except Digital Only version with two Digital Shelves

Refer to the figure below for an overview wiring block diagram of the T1/E1 and external User Alarm wiring to the Z-IDC punchdown blocks for all versions of the BTS 8420 (except the Digital Only version with two Digital Shelves) and the three sector and six sector versions of the AWS 8420.

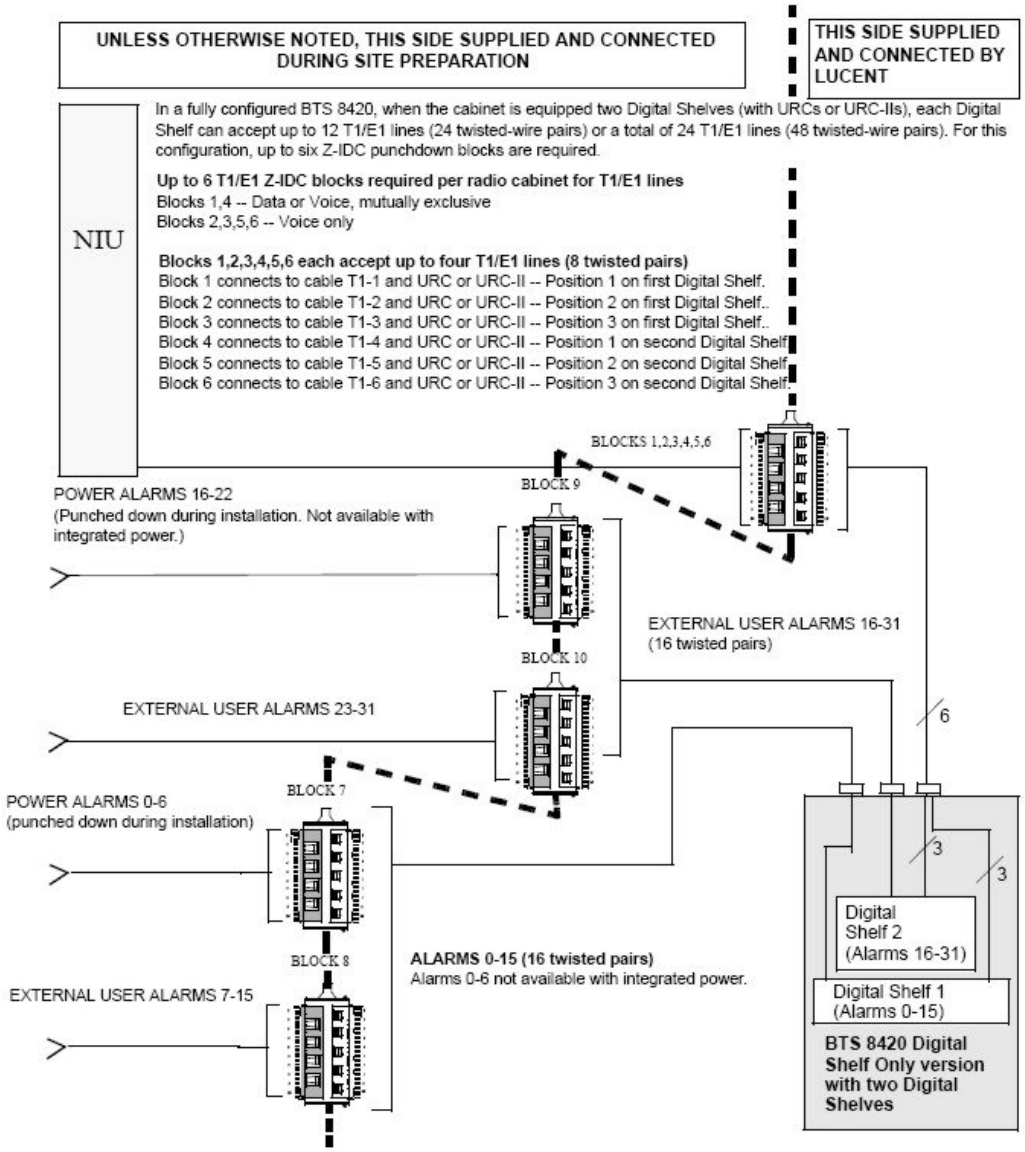
Important! The Z-IDC punchdown block module and mounting bracket are used only if the network interface unit (NIU) is located more than the 10 meter (33 foot) cable length from the BTS 8420 radio cabinet. The customer may also use the Z-IDC to collect alarm cables from various locations.



Overview wiring block diagram for T1/E1 lines and external User Alarms to Z-IDC punchdown blocks for BTS 8420 Digital Only version with two Digital Shelves

Refer to the figure below for an overview wiring block diagram of the T1/E1 and external User Alarm wiring to the Z-IDC punchdown blocks for the Digital Only version with two Digital Shelves.

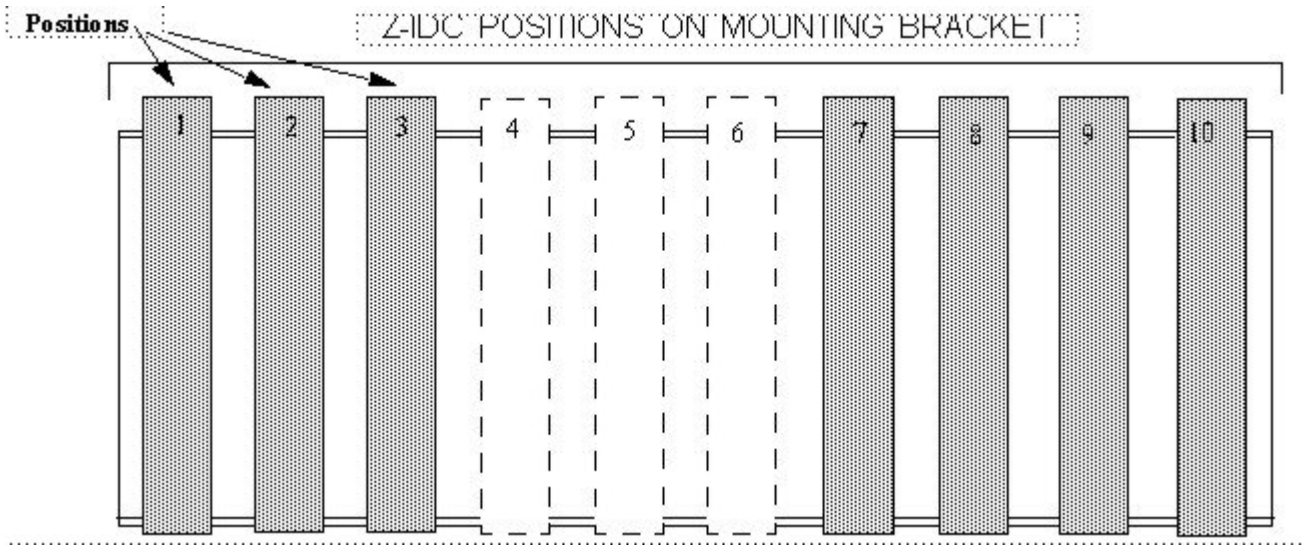
Important! The Z-IDC punchdown block module and mounting bracket are used only if the network interface unit (NIU) is located more than the 10 meter (33 foot) cable length from the BTS 8420 radio cabinet. The customer may also use the Z-IDC to collect alarm cables from various locations.



Layout of Z-IDC punchdown blocks

Important! The Z-IDC punchdown block module and mounting bracket are used only if the network interface unit (NIU) or wall mounting bracket is located more than the 10 meter (33 foot) cable length from the BTS 8420/AWS 8420 radio cabinet.

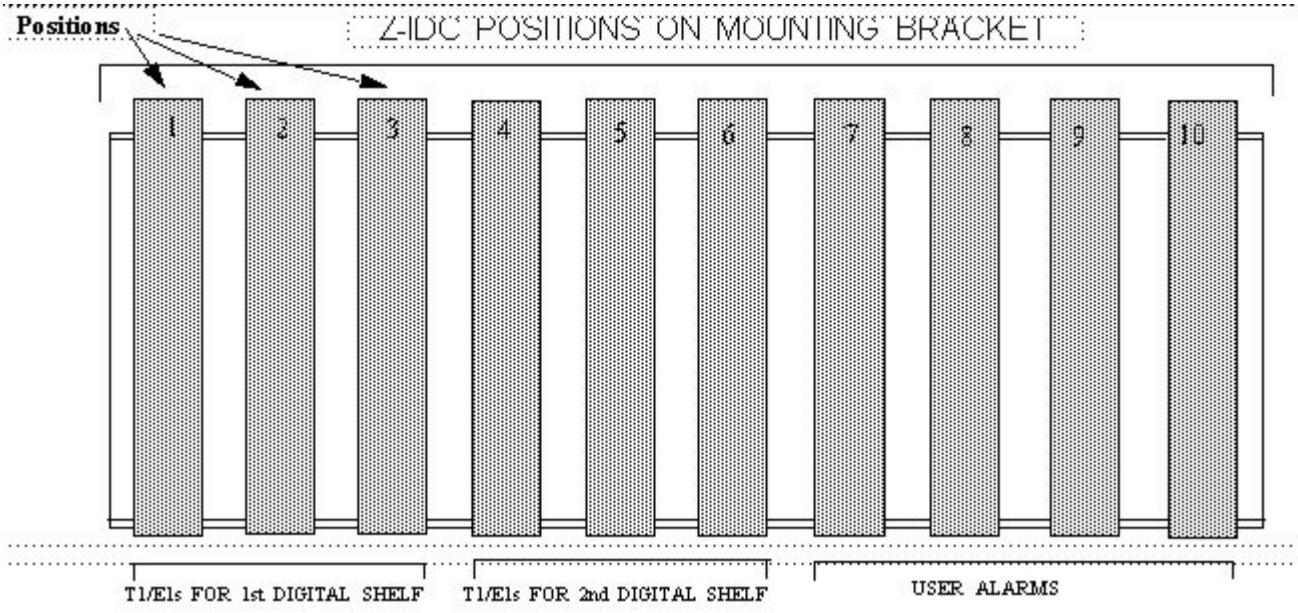
The figure and table below apply to all versions of the BTS 8420 and AWS 8420 except the Digital Only version with two Digital Shelves. The figure below shows the position numbers of the Z-IDC punchdown blocks on the wall mounting bracket or NIU. The table below the figure lists the position number of the URC (or URC-II) on the Digital Shelf and the position number of the Z-IDC block on the wall mounting bracket or NIU that corresponds to it. Also, shown is the function assigned to each position number.



Z-IDC block mounting position	URC (or URC-II) position number on Digital Shelf	Z-IDC block function
1	URC or URC-II Position 1	DATA (One to four T1/E1 Lines, as available) *or* VOICE (One to four T1/E1 Lines). (Mutually exclusive.)
2	URC or URC-II Position 2	VOICE ONLY (One to four T1/E1 Lines)
3	URC or URC-II Position 3	VOICE ONLY (One to four T1/E1 Lines)
4	N/A	BLANK (Possible future T1/E1 lines)
5	N/A	BLANK (Possible future T1/E1 lines)
6	N/A	BLANK (Possible future T1/E1 lines)
7	N/A	USER ALARMS 0 to 6 (Non-Alcatel-Lucent Power Alarms only.)

Z-IDC block mounting position	URC (or URC-II) position number on Digital Shelf	Z-IDC block function
8	N/A	USER ALARMS 7 to 15
9	N/A	USER ALARMS 16 to 23
10	N/A	USER ALARMS 24 to 31

The figure and table below apply only to the BTS 8420 Digital Only version with two Digital Shelves. The figure below shows the position numbers of the Z-IDC punchdown blocks on the wall mounting bracket or NIU. The table below the figure lists the position number of the URC (or URC-II) on the Digital Shelf and the position number of the Z-IDC block on the wall mounting bracket or NIU that corresponds to it. Also, shown is the function assigned to each position number.



Z-IDC block mounting position	URC (or URC-II) position number on Digital Shelf	Z-IDC block function
1	URC or URC-II Position 1 on first Digital Shelf	DATA (One to four T1/E1 Lines, as available) *or* VOICE (One to four T1/E1 Lines). (Mutually exclusive.)
2	URC or URC-II Position 2 on first Digital Shelf	VOICE ONLY (One to four T1/E1 Lines)
3	URC or URC-II Position 3 on first Digital Shelf	VOICE ONLY (One to four T1/E1 Lines)

Z-IDC block mounting position	URC (or URC-II) position number on Digital Shelf	Z-IDC block function
4	URC or URC-II Position 1 on second Digital Shelf	DATA (One to four T1/E1 Lines, as available) *or* VOICE (One to four T1/E1 Lines). (Mutually exclusive.)
5	URC or URC-II Position 2 on second Digital Shelf	VOICE ONLY (One to four T1/E1 Lines)
6	URC or URC-II Position 3 on second Digital Shelf	VOICE ONLY (One to four T1/E1 Lines)
7	N/A	USER ALARMS 0 to 6 (Non-Alcatel-Lucent Power Alarms only.)
8	N/A	USER ALARMS 7 to 15
9	N/A	USER ALARMS 16 to 22 (Non-Alcatel-Lucent Power Alarms only.)
10	N/A	USER ALARMS 23 to 31

Contents

How to route and connect T1/E1 cables to BTS 8420/AWS 8420 radio cabinet

Overview

This procedure module provides instructions for the routing and connecting T1/E1 cables to the indoor radio cabinet. This applies to radio cabinets with and without integrated power.

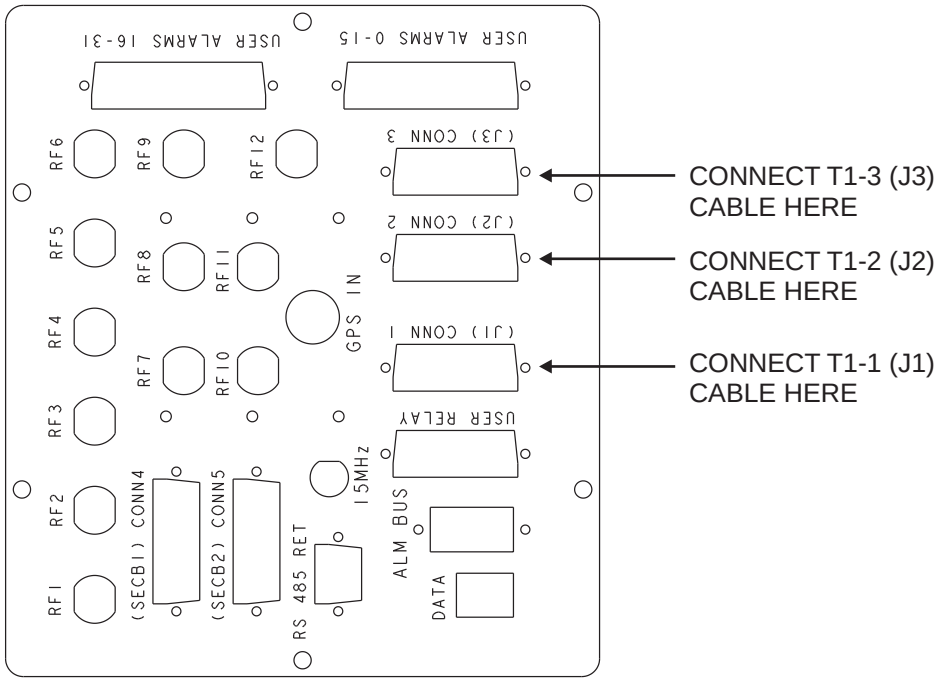
Connect T1/E1 cables to BTS 8420/AWS 8420 radio cabinet

Perform the following steps to connect the T1/E1 cables to the BTS 8420/AWS 8420 radio cabinet.

1 **Important!** Skip this step if the BTS 8420/AWS 8420 radio cabinet has integrated power and go to Step 2.

Locate the T1/E1 cables that are shipped with the BTS 8420/AWS 8420 radio cabinet.

For the AWS 8420 and all versions of the BTS 8420 except the Digital Only version with two Digital Shelves, ensure both ends of the cables are marked “T1-1,” “T1-2,” and “T1-3” (as applicable) and connect them to the hatchplate on the BTS 8420/AWS 8420 radio cabinet. Refer to the figure below.



FRONT

For the Digital Only version with two Digital Shelves, ensure both ends of the cables are labeled “T1-1 for Digital Shelf 1”, “T1-2 for Digital Shelf 1,” “T1-3 for Digital Shelf 1,” “T1-4 for Digital Shelf 2,” “T1-5 for Digital Shelf 2,” and “T1-6 for Digital Shelf 2,” as applicable, and connect them to hatchplate on the BTS 8420 radio cabinet. The figure below shows the hatchplate with original labels.