Verizon SNAP
Close Out Requirements
and
Construction Quality Standards

Verizon Deployment - CTX

Networks Division | Samsung Electronics America

Introduction

Suggestion additions:

Standardize RF Jumper color codes (from Verizon)

Standardize CPRI color codes (from Verizon)

References:

GC Installation Checklist

TC Installation Checklist

Revisit Avoidance ALERTS

Close Out Checklist (from Mark McKane) subject to vendor management

Table of Contents

Antennas

TMAs & Diplexers

RRUs

Table of Contents

Table of Contents

Antennas

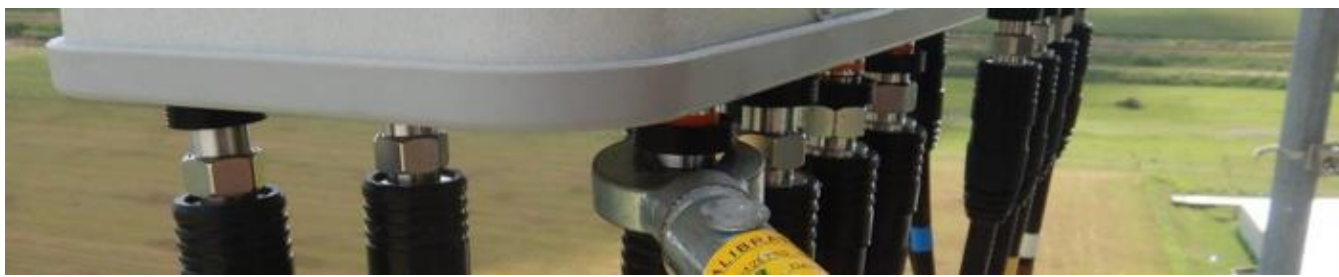| JMA part number	Image	Hex width	Torque specifications	Compatible interfaces
TQ-78-F8		0.875 in. 22 mm	8.0 +0.8/-0.0 lbf·ft 10.85 +1.08/-0.00 N·m	4.1-9.5 (Mini-DIN) 4.3-10
TQ-114-F18		1.250 in. 32 mm	18.0 +1.8/-0.0 lbf·ft 24.4 +2.44/-0.00 N·m	7-16 DIN

Installation

- Time and date stamped photos are required to show that antennas were assembled per the manufacturer's installation instructions and excess threaded rod was cut and cold-galved.
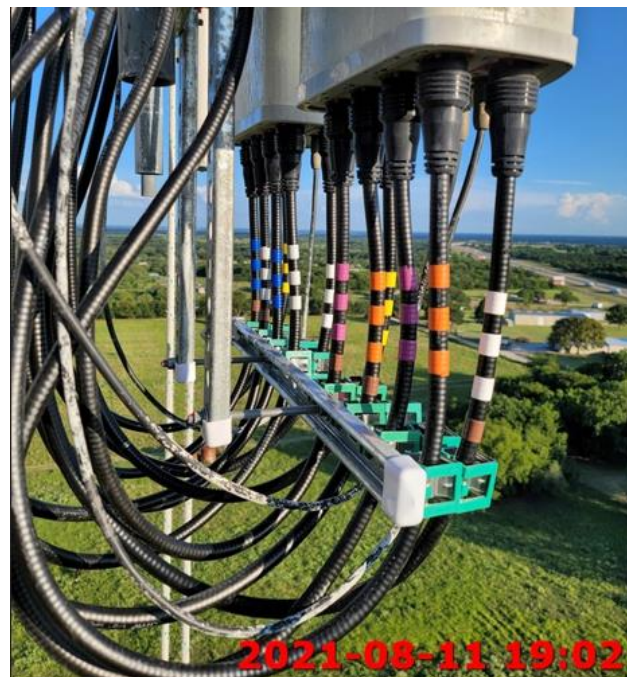 - Commscope, Quintel, Cellmax

Serial numbers with label

- Time and date stamped photos are required to show antenna S/N and model with a label showing site name/ID, sector, position, and technology or frequency. Do not use "HI" or "LO" on the label. Instead use "2100/1900" or "850/700". The use of marker is prohibited.
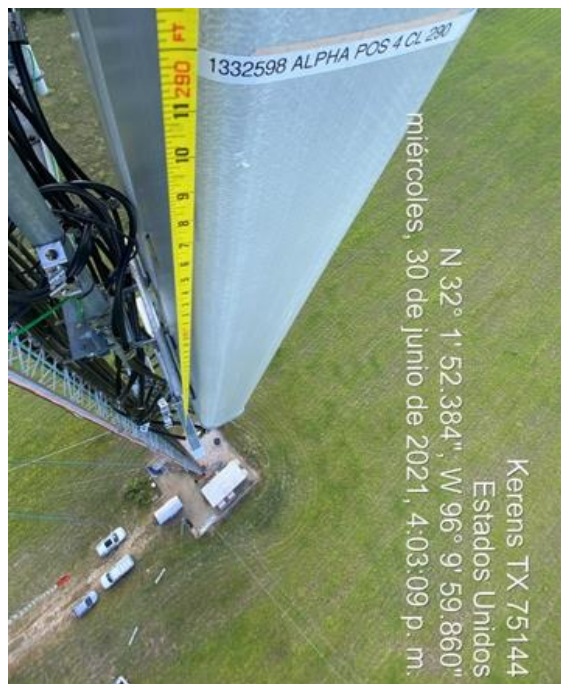
RF Jumpers

- Time and date stamped photos are required to show RF Jumpers were installed properly.
  - RF jumpers should *__only__* be tightened using a calibrated torque wrench.
  - All RF jumpers (hand-made or factory-made) will need to have been PIM tested and line swept prior to installation.
  - RF jumpers should have a minimum of six inches of straight from the connector.
  - Thread protectors should be used in conjunction with weather-proof boots.
  - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
  - Color-code should be wrapped around the RF jumper a minimum of three times and have 3/4" spacing in between bands.
  - Only one RF jumper may be supported by a single snap-in.
  - Support should not cover color-code or factory labels.
  - RF jumpers should not exceed maximum bend radius or be routed through grating.

Azimuth

- Time and date stamped photos are required to show that azimuth was properly attained.
  - Alignment tool was mounted to the antenna per the tool manufacturer's user manual and with the tool's specific accessories (i.e., mount and straps) with a label showing site name/ID, sector, position, and target azimuth.
  - Line of sight of the antenna with alignment tool mounted with a label showing site name/ID, sector, position, and target azimuth.
  - Alignment tool's screen showing site name/ID, sector, position, and the actual and target azimuth.
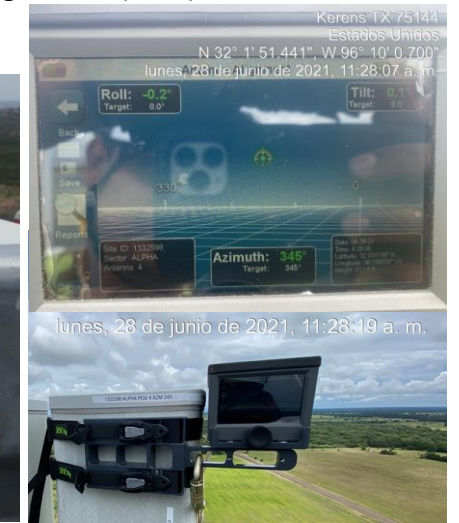
Tape-Drop

- Time and date stamped photos are required to show antenna is at center-line.
  - Center-line with a label showing site name/ID, sector, position, and target center-line.
  - Antenna tip with a label showing site name/ID, sector, and position.
  - Fiberglass tape pulled tight along side the antenna and going to the ground.

Plumb

- Time and date stamped photos are required to show a digital level flush against the side of the antenna with a reading at 90° (± .5°) and a label with site name/ID, sector, position, and "PLUMB".

MDT

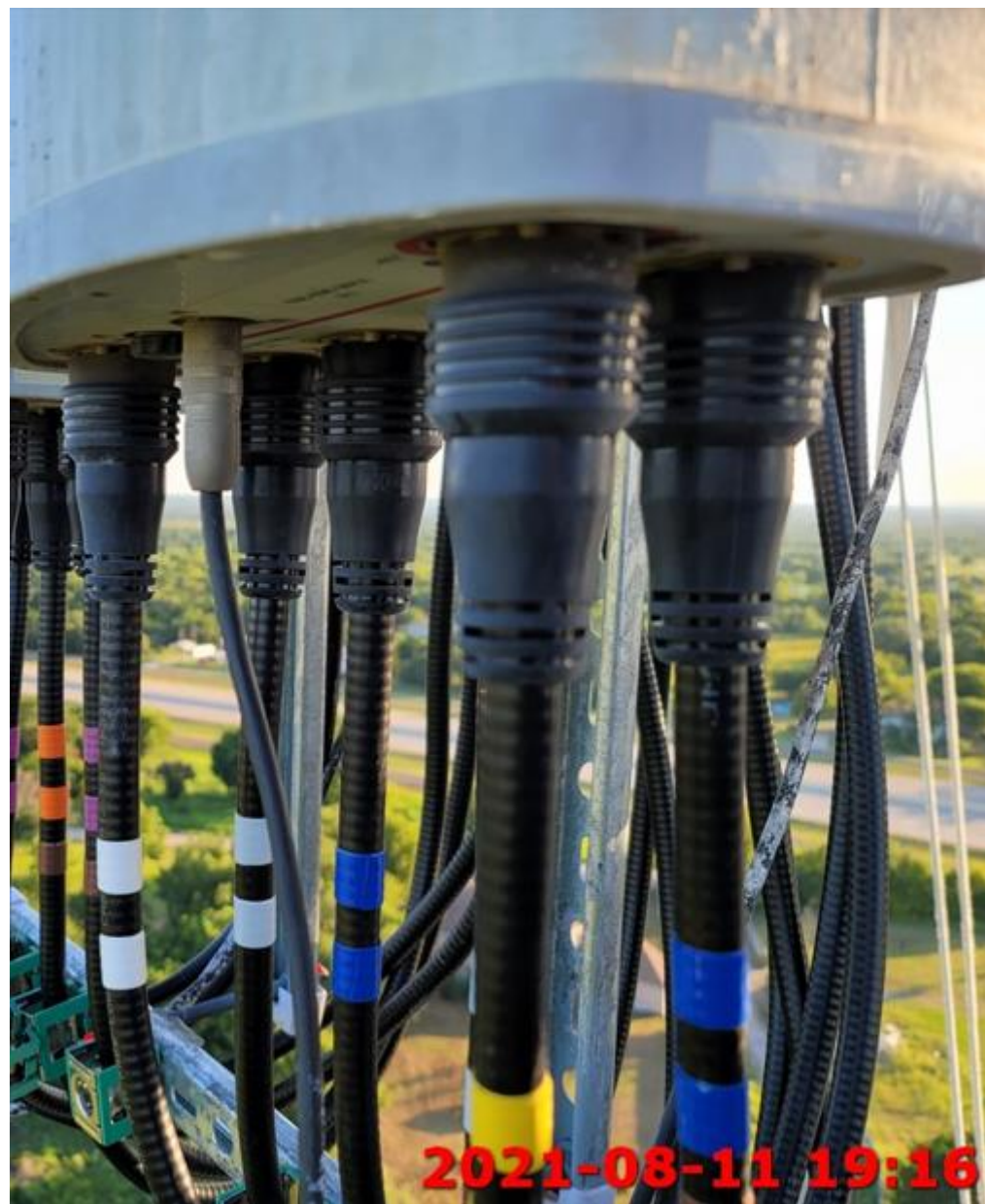- Time and date stamped photos are required to show a digital level flush against the back of the antenna with a reading congruent with the target MDT (± .5°) and a label with site name/ID, sector, position, and "MDT".

2021-08-11 19:16

RET cables

- Antennas with internal Bias-T configured **should not have RET cables installed**.

- Dielectric grease should be added to connector pins before the connection is made to the antenna.

- Connections should be hand tightened only. Over-tightening can shear pins off of internal components of equipment.

- Time and date stamped photos are required to show that the RET cables were installed correctly.

  - Do not attempt to weather-proof or use water-proof taping on the connections.

  - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.

  - Color-code should be wrapped around the RET cable a minimum of three times and have 3/4" spacing in between bands.

  - Unused RET ports must have RET caps in place.

  - Service coils are permitted for dress-in purposes and to help reduce excessively long RET cables. Service coils need two supports with grommets 180° apart. Do not use zip-ties or skinny tape on service coils.

TMAs & Diplexers

Installation

- Time and date stamped photos are required to show that TMAs and diplexers were assembled per manufacturer's installation instructions.

Serial numbers with label

- Time and date stamped photos are required to show TMA/diplexer's S/N and model with a label showing site name/ID, sector.

RF jumpers

- Time and date stamped photos are required to show that the RF jumpers were installed correctly.
  - RF jumpers should **_only_** be tightened an appropriately calibrated torque wrench.
  - All RF jumpers (hand-made or factory-made) will need to have been PIM tested and line swept prior to installation.
  - RF jumpers should have a minimum of six inches of straight from the connector.
  - Thread protectors should be used in conjunction with weather-proof boots.
  - If weather-proofing manually use self amalgamating tape as the base layer with a minimum of two layers making the final pass going toward the sky (i.e., shingle taping). Repeat the process for an additional two layers using black UV rated vinyl tape and on your final pass cut the vinyl tape from the roll with a razor, attach it to RF jumper/RF connector, then secure the final wrap with a zip-tie to prevent flagging.
  - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
  - Color-code should be wrapped around the RF jumper a minimum of three times and have 3/4" spacing in between bands.
  - Only one RF jumper may be supported by a single snap-in.
  - Support should not cover color-code or factory labels.
  - RF jumpers should not exceed maximum bend radius or be routed through grating.

TMAs & Diplexers

Grounding

- Time and date stamped photos are required to show TMAs and diplexers are properly grounded to a ground bar.

  - Windowless ground lugs are needed for outdoor applications. Windowed lugs are needed for indoor applications (i.e., diplexers and quadplexers in shelter).

  - Anti-oxidant compound "No-ox" is to be applied under all lugs and must be visible in the photo. Do not use excessive No-ox.

  - On the tower ground leads are to be supported with zip-ties (cut flush) or nylon snap-ins. In the shelter ground leads are to be supported with wax string.

  - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.

  - All hardware is to be present and made of stainless steel.

  - Flat washers are not to overlap.

  - A minimum of three threads need to be visible after tightening grounding hardware.

  - Ensure ground lead is not stressed coming off the lug (three inches of straight wire is best).

  - Lug landings on tarnished/dirty ground bars need to be burnished with abrasive cloth before landing ground lugs. Double lugging is prohibited.

RRUs

~ Example ~

Unit Bracket Hook

Mounting Bracket_Front Hook Groove

M10 Hex. Bolt (washer assembly)

- N RICHLAND HILLS
- ALPHA AWS/PCS

CRMTZ00FRA
LBSTAIS527110489

SAMSUNG
Product: RRU (RFV01U)
Model: RFV01U-D1A
Yen Phong Industrial Zone, Yen Trung Commune,
Yen Phong District, Bac Ninh Province, Vietnam
MADE IN VIETNAM

RFV01U-D1A   01

SLS-BR0497EAEX   SS27110489   32.85748, -97.22168, 178.2m
06/11/2021 10:56:53 AM

Installation

- Time and date stamped photos are required to show that RRUs were assembled per Samsung's installation instructions for the desired configuration and excess threaded rod was cut and cold-galved.

Serial numbers with label

- Time and date stamped photos are required to show RRU S/N and model with a label showing site name/ID, sector, technology or frequency. Do not use "HI-HI" or "LO-LO" on the label. Instead use "AWS/PCS", "2100/1900", or "850/700".

Green-lights

- Time and date stamped photos are required to show all four green-lights with a label showing site name/ID, sector, technology or frequency. Do not use "HI-HI" or "LO-LO" on the label. Instead use "2100/1900" and "850/700".

RF jumpers

- Time and date stamped photos are required to show that the RF jumpers were installed correctly.
  - RF jumpers should **_only_** be tightened an appropriately calibrated torque wrench.
  - Thread protectors should be used in conjunction with weather-proof boots.
  - All RF jumpers (hand-made or factory-made) will need to have been PIM tested and line swept prior to installation.
  - RF and jumpers should have a minimum of six inches of straight from the connector.
  - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
  - Color-code should be wrapped around the RF jumper a minimum of three times and have 3/4" spacing in between bands.
  - Only one RF jumper may be supported by a single snap-in.
  - Support should not cover color-code or factory labels.
 - RF jumpers should not exceed maximum bend radius or be routed through grating.

RRUs

RET cables

- Antennas with internal Bias-T configured should not have RET cables installed.
- Dielectric grease should be added to connector pins before the connection is made to the antenna.
- Connections should be hand tightened only. Over-tightening can shear pins off of internal components of equipment.
- Time and date stamped photos are required to show that the RET cables were installed correctly.
    - Do not attempt to weather-proof or use water-proof taping on the connections.
    - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
    - Color-code should be wrapped around the RET cable a minimum of three times and have 3/4" spacing in between bands.
    - When using RETs , caps need to be waxed string to RET connector.
    - Service coils are permitted for dress-in purposes and to help reduce excessively long RET cables. Service coils need two supports with grommets 180° apart. Do not use zip-ties or skinny tape on service coils.

Fiber jumpers

- Time and date stamped photos are required to show that the fiber jumpers were installed correctly.
    - Fiber jumpers needs to be supported in their own grommet and snap-in or a grommet that has a standalone hole designed to support a fiber jumper independently.
    - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
    - Color-code should be wrapped around the fiber jumper a minimum of three times and have 3/4" spacing in between bands.
    - Service coils are permitted for dress-in purposes and to help reduce excessively long fiber jumpers. Service coils need two supports with grommets 180° apart. Do not use zip-ties or skinny tape on service coils.
    - Fiber jumpers should not exceed maximum bend radius or be routed through grating.

~ Example ~
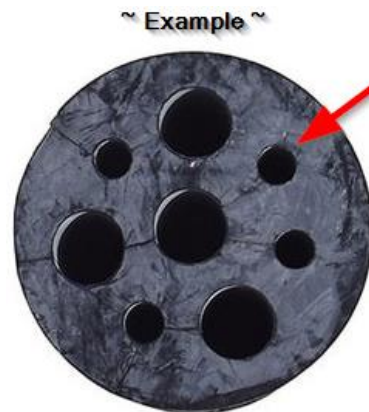
RRUs

Grounding

- If there are no ground bars a new ground bar will need to be installed. If the tower is less than 200' the site CM will need to be notified.
- Time and date stamped photos are required to show RRUs are properly grounded to a ground bar.
    - Windowless ground lugs are needed for outdoor applications. Windowed lugs are needed for indoor applications.
    - Anti-oxidant compound "No-ox" is to be applied under all lugs and must be visible in the photo. Do not use excessive No-ox.
    - On the tower ground leads are to be supported with zip-ties (cut flush) or nylon snap-ins. In the shelter/cabinet ground leads are to be supported with wax string.
    - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
    - All hardware is to be present and made of stainless steel.
    - Flat washers are not to overlap.
    - A minimum of three threads need to be visible after tightening grounding hardware.
    - Ensure ground lead is not stressed coming off the lug (three inches of straight wire is best).
    - Lug landings on tarnished/dirty ground bars need to be burnished with abrasive cloth before landing ground lugs. Double lugging is prohibited.

OVP
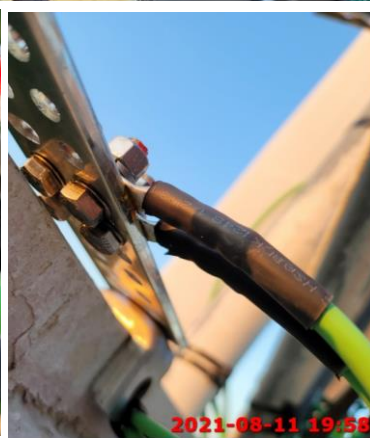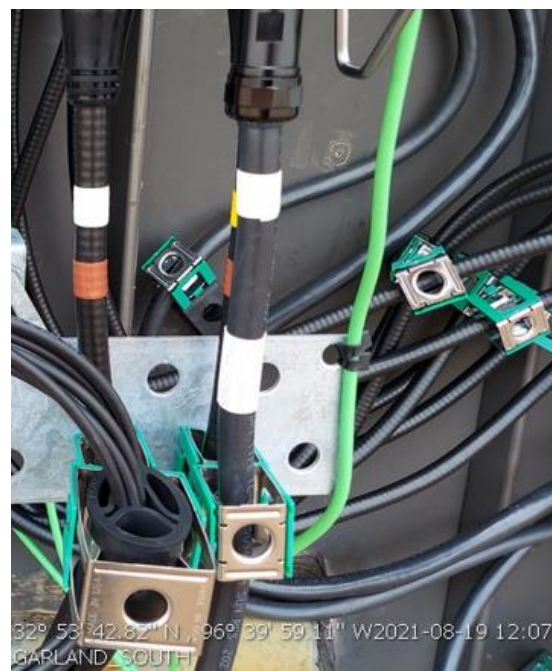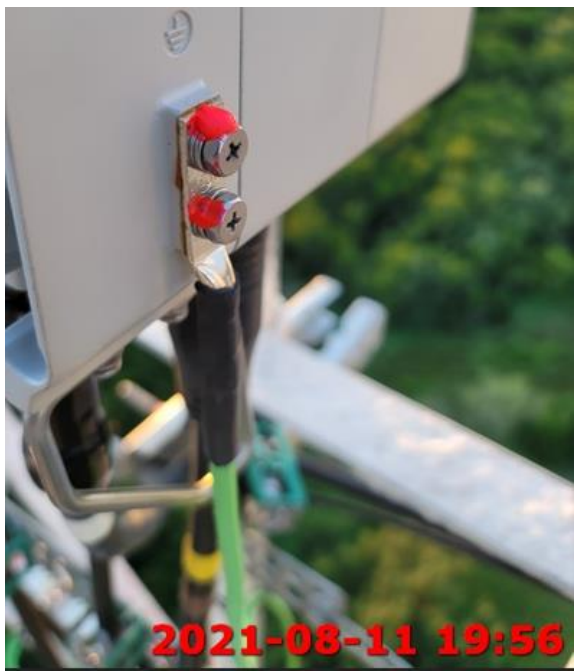
A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 **Option 1: Pole Mount**
Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 **Option 2: Unistrut**

4.4 **Option 3: Monopole**
Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

- Pole Mount
- Unistrut
- Monopole

Installation

- Time and date stamped photos are required to show that the OVP was installed per the manufacturer's installation instructions.

Power side

- Ensure power connectors are free of shiners greater than 1/8".
- Ensure power cables are properly labeled (technology or frequency, position of breaker, voltage/breaker amperage). Return cables labeled (technology or frequency, RRU#, position of breaker, "RTN").
- Ensure power and return cables are supported with wax-string.
- Ensure the Strikesorb modules are properly labeled (technology or frequency, 1 or 2, RRU#).
- Ensure hybrid cable is grounded properly to one of the four grounding points within the OVP.
- Ensure voltage monitor connections are properly landed and without shiners.
- Ensure the alarm board and cables are installed, terminated, and supported.

Fiber side

- Ensure fiber pairs are neatly coiled around the cable guides, use velcro if needed.
- Ensure fiber pairs are properly seated in the fiber connection bar.
- Ensure fiber pairs are properly labeled (site name/ID, sector, technology or frequency, and OPT-1 or OPT-2).

Exterior

- Ensure the OVP's enclosure lid is properly aligned and labeled (e.g., OVP-1), all clamps are latched, and the lid is tethered to its base using the attached lanyard.
- Ensure power jumpers, fiber jumpers, and hybrid cable penetrate the OVP using the proper gland to provide proper weather-proofing.
- The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
- Color-code should be wrapped around the power/fiber/hybrid cable a minimum of three times and have 3/4" spacing in between bands.

OVP

Grounding

- Ensure the OVP is grounded to a ground bar using the windowed lug provided with the unit on the OVP side and a windowless lug on the ground bar side.

- Use anti-oxidant compound "No-ox" under the lugs, stainless steel hardware, and black heat-shrink.
    - Do not use excessive No-ox.
    - Ensure that flat washers do not overlap.

- Ensure ground lead is not stressed coming off the lugs (three inches of straight wire is best).

- The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.

- On the tower ground leads are to be supported with zip-ties (cut flush) or nylon snap-ins.

- Lug landings on tarnished/dirty ground bars need to be burnished with abrasive cloth before landing ground lugs. Double lugging is prohibited.
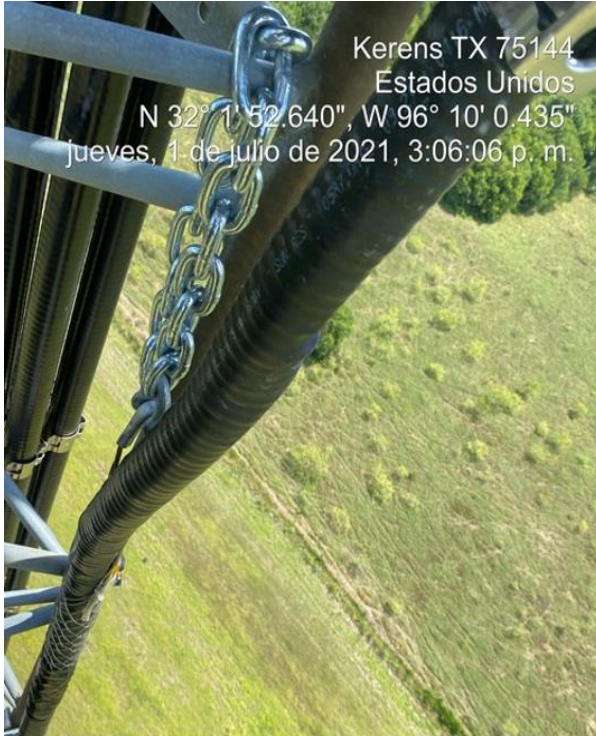
Hybrid Cable

Support

- Ensure hoisting grip is secured to the tower.
  - Shackled to the tower leg with screw pin clear of hybrid cable or hung on a j-hook (i.e., monopoles). Do not hang the hybrid to an angle adapter.
- Ensure that the hybrid cable is snapped-in down the waveguide ladder.
- Ensure that the hybrid cable snapped-in on the trapeze.

Penetration

- Ensure that the hybrid drip-loops and is weather-proofed (or weather-proof boot is used) before penetrating the shelter/cabinet.
- Ensure that the hybrid cable is grounded properly.

Routing and support

- Ensure hybrid cable is routed and supported neatly in the shelter using proper stitching (i.e., Box Stitch).
- Ensure the all waterfalls from the cable ladder or J-hooks have fish-paper under them.

OVP (Rack-mounted)

Installation

- Time and date stamped photos are required to show that OVP was installed per the manufacturer's installation instructions.
  - Ensure support brackets were properly installed with correct hardware.
  - Ensure the front of the OVP is labeled and green-lights are present

Routing and Support

- Ensure power/ground/alarm cables are supported with wax-string and proper stitching (i.e., Kansas City Stitch, Chicago Stitch, or Box Stitch).
- The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
- Ensure OVP is properly grounded to the ground bar with the shortest path possible.

Termination

- Ensure windowed lugs, anti-oxidant compound "No-ox" under the lugs, stainless steel hardware, and clear heat-shrink is used.
  - Do not use excessive No-ox.
  - Ensure that flat washers do not overlap.
  - Double lugging is prohibited.
- A minimum of three threads need to be visible after tightening lug hardware.
- Ensure power and ground cables are not stressed coming off the lugs (three inches of straight wire is best).
- Burnish ground bars before landing ground lugs to ensure proper grounding.
- Ensure there are flag labels on both ends of power/ground/alarm cables.

PowerShift

Installation

- Time and date stamped photos are required to show that the Powershift was installed per the manufacturer's installation instructions.
    - Ensure PowerShift shelf support brackets were properly installed using correct hardware.
    - Ensure GUI is displaying proper voltage and no alarms are present on modules.
    - Ensure alarm cable is supported, labeled, and terminated on both ends.

Power cables

- Power cables should be routed and supported neatly using proper stitching (i.e., Kansas City Stitch or Chicago Stitch).
- Bundling should be limited to 12 cables, maintain at least ½" spacing between bundles, and avoid running bundles near equipment that emits heat.
- Ensure all power cables are terminated with lugs, anti-oxidant compound "No-ox" under the lugs, stainless steel hardware, and clear heat-shrink. Do not use excessive No-ox.
- Ensure all power cables are flag labeled. Do not use p-tags.

Grounding

- Ensure PowerShift shelf is properly grounded to the ground bar with the shortest path possible.
- Ensure windowed lugs, anti-oxidant compound "No-ox" under the lugs, stainless steel hardware, and clear heat-shrink is used. Do not use excessive No-ox. Ensure that flat washers do not overlap. Double lugging is prohibited.
- A minimum of three threads need to be visible after tightening grounding hardware.
- Ensure ground lead is not stressed coming off the lug (three inches of straight wire is best).
- Ensure ground is supported with wax-string and proper stitching (i.e., Box Stitch).
- The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
- Ensure there are labels on both ends of the ground wire showing "TO" (where the ground wire is going).
- Burnish ground bars before landing ground lugs to ensure proper grounding.

Rectifiers/ DC Distribution

- Time and date stamped photos are required to show rectifiers and DC Distribution.
  - Ensure there are no visible alarms on rectifiers or power-bay door.

Power cables

- Ensure all power cables are terminated with windowed lugs, anti-oxidant compound "No-ox" is under the lugs, stainless steel hardware, and clear heat-shrink. Do not use excessive No-ox.
- Ensure all power cables are flag labeled. Do not use p-tags.
- Ensure power cables are routed and supported neatly using proper stitching (i.e., Kansas City Stitch, Chicago Stitch, or Box Stitch).
- The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
- Bundling should be limited to 12 cables, maintain at least ½" spacing between bundles, and avoid running bundles near equipment that emits heat.
- Ensure all waterfalls from the cable ladder or J-hooks have fish-paper under them.

Breakers

- Ensure that all breakers, in the PDU or in the power bay, are correct amperage and labeled (or labeled on the breaker schedule).

CDU30/FSU and Fiber Tray

CDU30/FSU Installation

- Time and date stamped photos are required to show that the CDU30 and FSU were assembled per the manufacturer's installation instructions.
- Ensure support brackets were properly installed with correct hardware.

Routing, supporting, and Labeling

- Ensure power, UDA, backhaul, CPRI, and GPS cables are present, labeled, routed, and supported properly.
    - The first support is required at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.
    - Ensure fiber is supported with velcro and everything else is supported with wax-string.
    - Ensure there are labels on both ends of the power, UDA, backhaul, CPRI, and GPS cables.
    - Ensure all link lights are on and included in the photos.

Fiber tray Installation

- Time and date stamped photos are required to show that the fiber tray was assembled per the manufacturer's installation instructions.
    - Ensure Support brackets were properly installed with correct hardware.
    - No need to label the fiber tray.

Routing and Supporting

- Ensure fiber is bundled and supported using velcro.
- The first support outside of fiber tray needs to be in split tube and supported at 18", thereafter support is required every two feet on horizontal runs and three feet on vertical runs.

Grounding

- Ensure proper grounding to the ground bar.
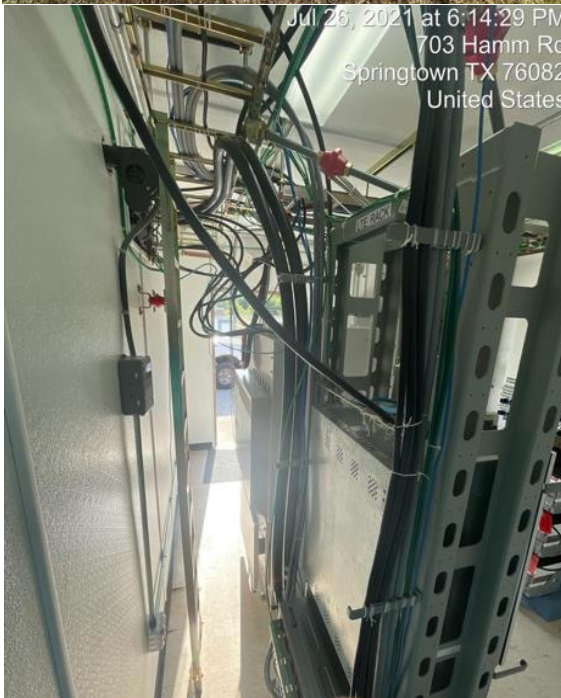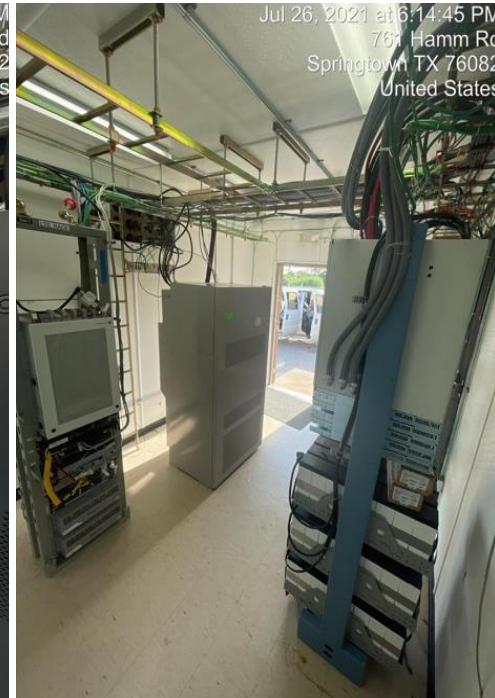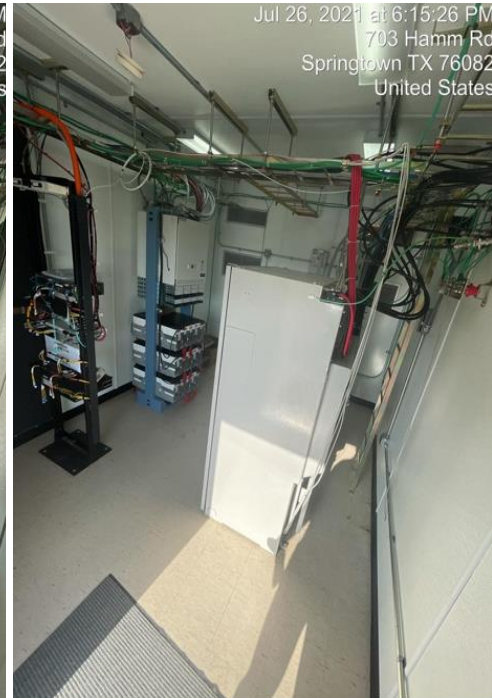
Housekeeping

Compound cleanliness

- Time and date stamped photos are required to show that the compound is free of trash, decommissioned equipment, building materials, and tools.

Shelter cleanliness

- Time and date stamped photos are required to show that the shelter is free of trash, decommissioned equipment, building materials, and tools.

VERIZON COLOR CODE FOR ALPHA SECTOR

SECTOR	TECHNOLOGY	PORT #						Sector ID #	Technology
ALPHA	700 LTE	1	RED	WHITE				1	700 LTE
ALPHA	700 LTE	2	RED	RED	WHITE			1	700 LTE
ALPHA	700 LTE	3	RED	RED	RED	WHITE		1	700 LTE
ALPHA	700 LTE	4	RED	RED	RED	RED	WHITE	1	700 LTE
ALPHA	850 LTE	1	RED	ORANGE				16	850 LTE
ALPHA	850 LTE	2	RED	RED	ORANGE			16	850 LTE
ALPHA	850 LTE	3	RED	RED	RED	ORANGE		16	850 LTE
ALPHA	850 LTE	4	RED	RED	RED	RED	ORANGE	16	850 LTE
ALPHA	1900 LTE	1	RED	YELLOW				14,15	PCS1, PCS2
ALPHA	1900 LTE	2	RED	RED	YELLOW			14,15	PCS1, PCS2
ALPHA	1900 LTE	3	RED	RED	RED	YELLOW		14,15	PCS1, PCS2
ALPHA	1900 LTE	4	RED	RED	RED	RED	YELLOW	14,15	PCS1, PCS2
ALPHA	2100 LTE	1	RED	VIOLET				12,18	AWS,AWS3
ALPHA	2100 LTE	2	RED	RED	VIOLET			12,18	AWS,AWS3
ALPHA	2100 LTE	3	RED	RED	RED	VIOLET		12,18	AWS,AWS3
ALPHA	2100 LTE	4	RED	RED	RED	RED	VIOLET	12,18	AWS,AWS3

VERIZON COLOR CODE FOR BETA SECTOR

SECTOR	TECHNOLOGY	PORT #							Sector ID #	Technology
BETA	700 LTE	1	BLUE	WHITE					2	700 LTE
BETA	700 LTE	2	BLUE	BLUE	WHITE				2	700 LTE
BETA	700 LTE	3	BLUE	BLUE	BLUE	WHITE			2	700 LTE
BETA	700 LTE	4	BLUE	BLUE	BLUE	BLUE	WHITE		2	700 LTE
BETA	850 LTE	1	BLUE	ORANGE					26	850 LTE
BETA	850 LTE	2	BLUE	BLUE	ORANGE				26	850 LTE
BETA	850 LTE	3	BLUE	BLUE	BLUE	ORANGE			26	850 LTE
BETA	850 LTE	4	BLUE	BLUE	BLUE	BLUE	ORANGE		26	850 LTE
BETA	1900 LTE	1	BLUE	YELLOW					24,25	PCS1, PCS2
BETA	1900 LTE	2	BLUE	BLUE	YELLOW				24,25	PCS1, PCS2
BETA	1900 LTE	3	BLUE	BLUE	BLUE	YELLOW			24,25	PCS1, PCS2
BETA	1900 LTE	4	BLUE	BLUE	BLUE	BLUE	YELLOW		24,25	PCS1, PCS2
BETA	2100 LTE	1	BLUE	VIOLET					22,28	AWS,AWS3
BETA	2100 LTE	2	BLUE	BLUE	VIOLET				22,28	AWS,AWS3
BETA	2100 LTE	3	BLUE	BLUE	BLUE	VIOLET			22,28	AWS,AWS3
BETA	2100 LTE	4	BLUE	BLUE	BLUE	BLUE	VIOLET		22,28	AWS,AWS3

VERIZON COLOR CODE FOR GAMMA SECTOR

SECTOR	TECHNOLOGY	PORT #								Sector ID #	Technology
GAMMA	700 LTE	1		GREEN	WHITE					3	700 LTE
GAMMA	700 LTE	2		GREEN	GREEN	WHITE				3	700 LTE
GAMMA	700 LTE	3		GREEN	GREEN	GREEN	WHITE			3	700 LTE
GAMMA	700 LTE	4		GREEN	GREEN	GREEN	GREEN	WHITE		3	700 LTE
GAMMA	850 LTE	1		GREEN	ORANGE					26	850 LTE
GAMMA	850 LTE	2		GREEN	GREEN	ORANGE				26	850 LTE
GAMMA	850 LTE	3		GREEN	GREEN	GREEN	ORANGE			26	850 LTE
GAMMA	850 LTE	4		GREEN	GREEN	GREEN	GREEN	ORANGE		26	850 LTE
GAMMA	1900 LTE	1		GREEN	YELLOW					34,35	PCS1, PCS2
GAMMA	1900 LTE	2		GREEN	GREEN	YELLOW				34,35	PCS1, PCS2
GAMMA	1900 LTE	3		GREEN	GREEN	GREEN	YELLOW			34,35	PCS1, PCS2
GAMMA	1900 LTE	4		GREEN	GREEN	GREEN	GREEN	YELLOW		34,35	PCS1, PCS2
GAMMA	2100 LTE	1		GREEN	VIOLET					32,38	AWS,AWS3
GAMMA	2100 LTE	3		GREEN	GREEN	VIOLET				32,38	AWS,AWS3
GAMMA	2100 LTE	4		GREEN	GREEN	GREEN	VIOLET			32,38	AWS,AWS3
GAMMA	2100 LTE	1		GREEN	GREEN	GREEN	GREEN	VIOLET		32,38	AWS,AWS3

MMU C-Band Color Code

Alpha
POWER
RED/SLATE
FIBER
L0-RED/SLATE
L1-RED/RED/SLATE
L2-RED/RED/RED/SLATE

BETA
POWER
BLUE/SLATE
FIBER
L0-BLUE/SLATE
L1-BLUE/BLUE/SLATE
L2-BLUE/BLUE/BLUE/SLATE

GAMMA
POWER
GREEN/SLATE
FIBER
L0-GREEN/SLATE
L1-GREEN/GREEN/SLATE
L2-GREEN/GREEN/GREEN/SLATE

CBRS Color Code

ALPHA
POWER
RED/ORANGE
FIBER
L0-RED/ORANGE
L1-RED/ORANGE/BROWN

BETA
POWER
BLUE/ORANGE
FIBER
L0-BLUE/ORANGE
L1-BLUE/ORANGE/BROWN

GAMMA
POWER
GREEN/ORANGE
FIBER
L0-GREEN/ORANGE
L1-GREEN/ORANGE/BROWN

We have following courses in our Samsung deployment program that cover the installation of these site configurations:

1. Samsung Hardware Certification Training for Tower Crews - **Macro Cell** (1-day)
2. Samsung Hardware Certification Training for Field Techs – (1 day)
3. Samsung Hardware Certification Training for Tower Crews - **Outdoor Small Cell** (1-day), next session December 15
4. Samsung Hardware Certification Training for **In-Building Small Cell** (1-day)
5. Samsung Hardware Certification for **C-Band MMU** Installation (1-day), next session December 16

For scheduling, contact Kevin Grover.   k.grover1@samsung.com

Comments

1)_____

2)_____

3)_____

4)_____

5)_____

6)_____

7)_____

8)_____

9)_____

10)_____