
**DESIGN/DEVELOPMENT REVIEW COMMISSION
URBAN DESIGN REVIEW DISTRICT**

Appendix for Cases # 4-8

ADDRESS: Public right-of-way near 2101 Blossom Street, 720 Pavilion Street, 1918 Blossom Street, 2020 College Street, and 1008 Harden Street

APPLICANT: Ann Brooks, Crown Castle

TAX MAP REFERENCE: N/A

USE OF PROPERTY: Public right-of-way; existing SCE&G poles

REVIEW DISTRICT: Five Points Urban Design District

Appendix includes:

(This is information that pertains to each location, so as not to include it in the packet 5 times.)

- Section 17-283 Wireless Communication Facilities (cell tower) from the City of Columbia Code of Ordinances
- Order from the Public Service Commission
- Crown Castle name change certificate
- LLC Certificate
- SCE&G attachment agreement
- Microlab quadraplexer cut sheets and photos
- Specifications for panel antenna
- Specifications for Power Supply Units (PSUs)
- Photo simulations of panel antenna and canister antenna
- Correspondence from Crown Castle that includes photos of various installations in other communities

Sec. 17-283. - Wireless communication facilities (cell tower).

- (a) *Intent.* It is the intent of this section to provide a definition of wireless communication facilities and to provide regulations for placement of them.
- (b) *Definitions.* For the purposes of this section, the following words or phrases shall have the following meanings:
- (1) Co-location means the placement of two or more provider's wireless communication antenna upon the same wireless communication facility.
 - (2) A *communication tower* is a guy-wire communication tower, a lattice communication tower, or a monopole communication tower only.
 - (3) *DDRC* is an abbreviation for "design development review commission".
 - (4) A *guy-wire communication tower* is a ground-mounted tower supported by guys extending from various points upon the tower to anchors at the base of the tower that supports wireless communication antenna.
 - (5) A *lattice communication tower* is a ground-mounted, many-legged, self-supporting tower created by the joining of structural members that supports wireless communication antenna.
 - (6) *Monopole communication tower* is a ground-mounted, pole-shaped, self-supporting tower that supports wireless communication antenna.
 - (7) A *stealth wireless communication facility* is a structure fabricated in a manner that aesthetically masks its appearance as a wireless communication facility, including but not limited to a flagpole, tree, light standard, and bell tower.
 - (8) A *support structure* is a structure that supports wireless communication antenna and/or an equipment building or cabinet including but not limited to an existing structure, guy-wire communication tower, lattice communication tower, a monopole communication tower, and stealth communication facility.
 - (9) *Wireless communication antenna* is the one or more components of a wireless communication facility that directly radiate and/or receive any signal related to AM, FM, two-way, private, and commercial-free radio services; to television services; to telephone, pager, and beeper services; and to data or internet services.
 - (10) An *equipment building or cabinet* is an accessory structure that contains equipment necessary for the proper operation of wireless communication antenna and in all other ways conforms to the definition of Accessory Building or Use within section 17-55.
 - (11) A *wireless communication facility* is the principal use that consists of a wireless communication antenna, support structure, and/or an equipment building or cabinet, also commonly known as a cell tower.
 - (12) *WCF* is an abbreviation for "wireless communication facility," also commonly known as a cell tower.
- (c) *Districts where permitted, height, and setbacks.* WCFs may be located in accordance with, and built to a height outlined within, Table 3, "Permissibility of and Bulk Requirements for Wireless Communication Facilities According to Support Structure," except that:
- (1) Where a new communication tower or a new stealth WCF would be visible from property listed

within the National Register of Historic Places, the South Carolina State Historic Preservation Officer must issue a letter stating that the design would have no adverse effect before the zoning administrator or his or her designee shall issue a zoning permit;

- (2) Where a new communication tower or a new stealth WCF would be visible from property listed within a locally designated architectural conservation district, historic commercial district, or landmark district, the DDRC must review and approve the design of the structure against the standards outlined within subsection (e) below before the zoning administrator or his or her designee shall issue a zoning permit;
- (3) Where a new communication tower or a new stealth WCF would be visible from property designated as a local landmark, the DDRC must review and approve the design of the structure against the standards outlined within subsection (e) below before the zoning administrator or his or her designee shall issue a zoning permit; and
- (4) Where the above sub-sections would require a "no adverse effect" letter from the State Historic Preservation Officer and review and approval by the DDRC, both requirements shall be fulfilled before the zoning administrator or his or her designee shall issue a zoning permit.
- (5) Procedure to determine "visible." To determine whether or not a proposed WCF would be visible as the term is used within subsections (c)(1)—(3) above, apply a line of site six feet above grade from the property line of any property that would be within a 1,000-foot radius from the proposed WCF. To be certain, stealth WCFs are considered visible in totality even though the associated wireless communication antenna and/or equipment building or cabinet may not be easily discernable.
- (6) Applicability of supplementary districts. Any permissibility, location, or height restrictions of a supplementary district located within Division 9 of this Article shall supersede Table 3, except for WCFs located within DD "Design Development" "5P" (Five Points), "ID" (Innovista Design), "NC" (North Main Corridor) and DP "Design Preservation" areas which are included within Table 3.
- (7) Expansion of nonconformity. Notwithstanding section 17-201 et seq., which regulates nonconformities, no WCF proposed upon an existing structure permitted in accordance with Table 3 shall be construed to expand or otherwise exacerbate an existing nonconformity.
- (8) Stability of nonconforming structures. Notwithstanding section 17-201 et seq., which regulates nonconformities, where an applicant proposing to use an existing structure for a WCF provides documentation from a certified structural engineer that the existing structure cannot support the WCF, and where the existing structure does not comply with the use or bulk requirements (i.e. height, setbacks) of the zoning ordinance, the applicant may request a special exception from the board of zoning appeals to demolish the existing structure and rebuild it. To grant such a special exception, the board of zoning appeals shall find that the new structure is similar in all outwardly appearances to the original structure. To be certain, this provision does not negate any reviews and approvals that would otherwise be required by Table 3 of this section, and this provision does not authorize an increase in or additional height to the existing structure except as allowed within Table 3 of this section.

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TABLE 3.

PERMISSIBILITY OF BULK REQUIREMENT FOR WIRELESS COMMUNICATION FACILITIES
ACCORDING TO SUPPORT STRUCTURE

Support Structure (Number for Reference Only)	Zoning Districts	Article I. Permitted?	Maximum Height in Feet	Minimum Setback from Single-Family Residential Districts in Feet (See Note 1)	Minimum Setback from General Residential Districts in Feet (See Note 2)	Minimum Setback from Public ROW in feet (See <u>17-283</u> (m))
1. New guy-wire communication tower or new lattice communication tower	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	No	n/a			
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD					
	C-1, C-2, C-3, C-3A, MX-1					
	C-4, C-5, C-6, MX-2					
	M-1, M-2	Yes	225	500	500	1' for every 1' of structure height
		By special exception and subject to <u>17-283(d)(1)</u>	300	500	500	1' for every 1' of structure height
	Any with DD, ID, 5P, NC or DP Appendage	No	n/a			
	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD,	No	n/a			

2. New monopole communication Tower	RD-2					
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	No	n/a			
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283</u> (d)(1)	180	300	300	50
	C-4, C-5, C-6, MX-2	Yes	225	300	300	0
	M-1, M-2	Yes	225	300	300	0
	Any with DD, ID, 5P, NC or DP appendage	No	n/a			

Support Structure (Number for Reference Only)	Zoning Districts	Article II. Permitted?	Maximum Height in Feet	Minimum Setback from Single-Family Residential Districts in Feet (See Note 1)	Minimum Setback from General Residential Districts in Feet (See Note 2)	Minimum Setback from Public ROW in feet (See <u>17-283</u> (m))
3. New LOW-PROFILE stealth wireless communication facility (aka cell tower)	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	By special exception and subject to <u>17-283</u> (d)(1) and (2)	60	District minimum yard setback (see note 3)		District minimum front yard setback (see note 3)
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	By special exception and subject to <u>17-283</u> (d)(1) and (2)	80			
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283</u> (d)(1) and (2)	100 (see note 4)			
	C-4, C-5, C-6, MX-2					
	M-1, M-2					

	Any with DD, ID, 5P, NC or DP appendage	By special exception subject to <u>17-283(d)(1)</u> , and subject to review and approval by DDRC in accordance with <u>17-283(e)</u>	Same height and setback requirements as underlying zoning district			
4. New HIGH-PROFILE stealth wireless communication facility (aka cell tower)	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	No	n/a			
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	By special exception and subject to <u>17-283(d)(1)</u> and (2)	180	300	n/a	District minimum front yard setback (see note 3)
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283(d)(1)</u> and (2)		300	150	
	C-4, C-5, C-6, MX-2			150	150	
	M-1, M-2			150	150	
	Any with DD, ID, 5P, NC or DP appendage	By special exception subject to <u>17-283(d)(1)</u> , and subject to review and approval by DDRC in accordance with <u>17-283(e)</u>	Same height and setback requirements as underlying zoning district			

Support Structure (Number for Reference Only)	Zoning Districts	Article III. Permitted?	Maximum Height in Feet	Minimum Setback from Single-Family Residential Districts in Feet (See Note 1)	Minimum Setback from General Residential Districts in Feet (See Note 2)	Minimum Setback from Public ROW in feet (See <u>17-283(m)</u>)
	D-1, RS-1, RS-1A, RS-	By special exception				

5. Existing structures ≤ 40' high and increase or add height ≤ 10'	1B, RS-2, RS-3, RD, RD-2	and subject to <u>17-283</u> (d)(1) and (2)	Support structure ≤ 10' above height of existing structure	n/a	0
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	By special exception and subject to <u>17-283</u> (d)(1) and (2)			
	C-1, C-2, C-3, C-3A, MX-1	Yes			
	C-4, C-5, C-6, MX-2				
	M-1, M-2				
	Any with DD, ID, 5P, NC or DP appendage	When underlying zoning district is "yes" of by "special exception," DDRC approval also required (17-283(e))			
6. Existing structure > 40' high and increase or add height ≤ 10'	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	Yes for co-location upon existing communication towers and no increase to height of tower; all others by special exception and subject to <u>17-283(d)(1)</u>	Support structure ≤ 10' above height of existing structure	n/a	0
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	Yes for co-location upon existing communication towers and no increase to height of tower; all others by special exception and subject to <u>17-283(d)(1)</u>			
	C-1, C-2, C-3, C-3A, MX-1	Yes			
	C-4, C-5, C-6, MX-2				
	M-1, M-2				
	Any with DD, ID, 5P, NC or DP appendage	When underlying zoning district is "yes" of by "special exception," DDRC approval also required			

	(17-283(e))	
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Support Structure (Number for Reference Only)	Zoning Districts	Article IV. Permitted?	Maximum Height in Feet	Minimum Setback from Single-Family Residential Districts in Feet (See Note 1)	Minimum Setback from General Residential Districts in Feet (See Note 2)	Minimum Setback from Public ROW in feet (See 17-283(m))
7. Existing structure ≤ 40' high and increase or add height > 10' and ≤ 20'	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	No	n/a			
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	By special exception and subject to <u>17-283</u> (d)(1) and (2)	Support structure ≤ 20'	n/a		0
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283</u> (d)(1)	above height of existing structure			
	C-4, C-5, C-6, MX-2					
	M-1, M-2					
	Any with DD, ID, 5P, NC or DP appendage	When underlying zoning district is "yes" or by "special exception," DDRC approval also required (17-283(e))	Same height and setback requirements as underlying zoning district			
8. Existing structure	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	By special exception and subject to <u>17-283</u> (d)(1)	Support structure ≤ 20' above height of	n/a		0
	RG-1, RG-1A, RG-1B, RG-2,	By special exception and subject to <u>17-283</u> (d)(1) and (2)				

> 40' high and increase or add height > 10' and ≤ 20'	RG-3, UTD	Yes	existing structure		
	C-1, C-2, C-3, C-3A, MX-1				
	C-4, C-5, C-6, MX-2				
	M-1, M-2				
	Any with DD, ID, 5P, NC or DP appendage	When underlying zoning district is "yes" of by "special exception," DDRC approval also required (17-283(e))	Same height and setback requirements as underlying zoning district		

Support Structure (Number for Reference Only)	Zoning Districts	Article V. Permitted?	Maximum Height in Feet	Minimum Setback from Single-Family Residential Districts in Feet (See Note 1)	Minimum Setback from General Residential Districts in Feet (See Note 2)	Minimum Setback from Public ROW in feet (See 17-283(m))
9. Existing structure ≤ 40' high and increase or add height > 20'	D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3, RD, RD-2	No	na			
	RG-1, RG-1A, RG-1B, RG-2, RG-3, UTD	No	n/a			
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283(d)(1) and (2)</u>	Support structure ≤ 1 times the height of existing structure	n/a		0
	C-4, C-5, C-6, MX-2					
	M-1, M-2					
	Any with DD, ID, 5P, NC or	When underlying zoning district is "yes" of by "special exception,"	Same height and setback requirements as			

	DP appendage	DDRC approval also required (17-283(e))	underlying zoning district		
10. Existing structure > 40' high and increase or add height > 20'	D-1, RS-1, RS-1A, RS- 1B, RS-2, RS-3, RD, RD-2	No	na		
	RG-1, RG- 1A, RG-1B, RG-2, RG-3, UTD	By special exception and subject to <u>17-283</u> (d)(1) and (2)	Support structure ≤ 40'	n/a	0
	C-1, C-2, C-3, C-3A, MX-1	By special exception and subject to <u>17-283</u> (d)(1)	above height of existing structure		
	C-4, C-5, C-6, MX-2				
	M-1, M-2				
	Any with DD, ID, 5P, NC or DP appendage	When underlying zoning district is "yes" of by "special exception," DDRC approval also required (17-283(e))	Same height and setback requirements as underlying zoning district		

Notes:	
(1)	Includes property zoned similarly within Richland or Lexington Counties as well as PUD-R where land use is single- or two-family residential.
(2)	Includes property zoned similarly within Richland or Lexington Counties as well as PUD-R where land use residential other than single- or two-family residential.
(3)	See <u>17-275</u> , Table 2. Schedule of Major Height and Area Requirements as well as <u>§ 17-276</u> and <u>§ 17-278</u> for determination of appropriate setback from property line and/or public right-of-way.
(4)	Height may be increased by 30 feet only where the applicant demonstrates to the board of zoning appeals that (a) the additional height is necessary to accommodate co-location and (b) the structure is designed and engineered to accommodate additional wireless communication facilities.

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(d) *Special exception criteria.*

- (1) *Standards for approval.* In addition to the criteria for special exceptions set forth in section 17-112(2), the board of zoning appeals shall, in considering any applications for special exceptions relating to WCF's find that:
 - a. The proposed WCF would not endanger the safety of residents, employees, or travelers, including but not limited to the likelihood of the failure of such structure;
 - b. The proposed WCF would not be located where it would substantially detract from aesthetics and neighborhood character or impair the use of neighboring properties;
 - c. The proposed WCF, if a communication tower is not located within 1,000 feet of another communication tower;
 - d. The proposed user has attempted to co-locate upon existing WCFs and
 - e. The proposed user will allow other users to co-locate upon the WCF in the future subject to the engineering capabilities of the structure.
- (2) *Additional standards for approval for stealth WCFs and certain existing WCFs upon existing structures.* In addition to the criteria for special exceptions set forth in section 17-112(2) and section 17-283(d)(1) above, the board of zoning appeals shall, in considering applications for special exceptions for stealth WCFs and certain WCFs upon existing structures, find that:
 - a. The proposed WCF would emulate an architectural or landscape feature typical of, or appropriate to, the surrounding area;
 - b. The proposed WCF would respect, and to the extent possible compliment, the style, height, bulk, mass, material and color of existing buildings, structures, vegetation or uses within the surrounding area;
 - c. The proposed WCF would preserve existing vegetation;
 - d. The proposed WCF would preserve scenic view sheds;
 - e. The proposed WCF would respect existing topography, including minimizing the extent to which the proposed WCF would be a dominant feature upon a hill, crest, ridgeline or other topographical high point.
 - f. Where the proposed WCF would be located within or within 300 feet of a D-1, RS-1, RS-1A, RS-1B, RS-2, RS-3 or RD, RD-2 zoning district, the applicant shall conduct a neighborhood information meeting at least 14 calendar days prior to the public hearing at the board of zoning appeals. At least 14 calendar days prior to the neighborhood information meeting, the applicant shall distribute flyers to the neighborhood president, if such person is registered with the Columbia Council of Neighborhoods, and all property owners within 1,000 feet of the proposed location, informing said persons of the date, time location and general topic of the meeting.
 - g. The applicant for a special exception under this section shall send a notice of the public hearing by certified mail return receipt requested, to all property owners of parcels that are located within 1,000 ft. of the lot to contain the wireless communication facility (cell tower) at least 14 calendar days prior to the hearing date. Addresses used for the mailing shall be the

most current listed with the Richland County Tax Assessor. This notice shall contain the following information:

1. The date, time and place of the hearing.
2. A description to inform the public of the location of the property for which the special exception is requested, including the street address and the tax map reference.
3. The description of the request to include the type and height of the facility (cell tower) requested.

(3) *Site plan and other documentation.* A site plan, elevation drawing, photographs and other appropriate documentation must be submitted with any application for special exception for a WCF including but not limited to the following information:

- a. The site plan must include the location of the WCF, guy anchors (if any), the equipment building or cabinet and other accessory uses, parking access, fences, and adjacent land use. Landscaping and required buffering must also be shown.
- b. Elevation drawings must clearly show the design of the WCF and materials to be used.
- c. Photographs must show the proposed site and the immediate area.
- d. Submittal of other detailed information which supports the request, such as "before" and "after" images, topography, and aerial views, is encouraged at the option of the applicant.

(e) *Standards for DDRC approvals for WCFs.* Where charged with review and approval, the DDRC shall, in considering applications for WCFs, find that:

- (1) The proposed WCF would emulate an architectural or landscape feature typical of, or appropriate to, the surrounding area.
- (2) The proposed WCF would respect, and to the extent possible compliment, the style, height, bulk mass, material, and color of existing buildings, structures, vegetation or uses within the surrounding area;
- (3) The proposed WCF would preserve existing vegetation;
- (4) The proposed WCF would preserve scenic view sheds; and
- (5) The proposed WCF would respect existing topography, including minimizing the extent to which the proposed WCF would be a dominant feature upon a hill, crest, ridgeline or other topographical high point.

(f) *Landscaping and fencing.* Landscaping and fencing are to be provided as follows:

- (1) Eight-foot-high fencing shall be provided around any communication tower and associated equipment building or cabinet. Concertina wire, barbed wire, or other like security devices are expressly prohibited unless the devices are screened entirely and year round with landscaping that achieves the required screening at the time the landscaping is installed. Any existing concertina wire, barbed wire, or other like security fencing shall be either removed within one year of the date of adoption of this amendment to the zoning ordinance or screened entirely and year round with landscaping that achieves the required screening at the time the landscaping is installed.
- (2) Around the base of any communication tower, outside of the fencing, at least one row of evergreen shrubs forming a continuous hedge at least five feet in height shall be provided, with individual plantings spaced not more than five feet apart. Additional landscaping, to include that

associated with parking, is to be provided as required by all other relevant provisions of this article.

- (g) *Illumination.* WCFs shall be illuminated only to the extent required by applicable federal or state statute or regulation.
- (h) *Signage.* No signage is permitted, except:
 - (1) As is required by applicable state or federal law, rule, or regulation;
 - (2) As is required by standard industry practice for the purpose of identification, warning, emergency function or contact; and
 - (3) Stealth WCFs that serve as or provide a public amenity may have up to six square feet of signage only for the purpose of dedication and/or announcing corporate sponsorship.
- (i) *Abandonment.* A WCF that is no longer used for communication purposes must be removed within 120 days of the date it is taken out of service.
- (j) *Permit required.* A zoning permit is required prior to the beginning of any site work or WCF construction.
- (k) *Co-location.* At the time of the zoning permit application for a new communication tower, satisfactory evidence shall be submitted that alternative towers, buildings, or other structures are not available for use within the applicant's communication tower site search area that are structurally capable of supporting the intended wireless communication antenna or meeting the applicant's necessary height criteria, or provide a location free of interference from other communication towers.
- (l) *Color.* New communication towers shall be light gray, except as otherwise required by applicable federal or state statute or regulation.
- (m) *Fall zone letter required.* A new communication tower, a new stealth communication WCF, or the support structure necessary to increase the height of an existing structure by more than 20 feet must be designed such that, in the event the WCF may fail structurally, it would not fall within a public ROW. The zoning administrator or his or her designee shall not issue a zoning permit for the support structures listed within this subsection until such time that the applicant provides a signed letter from a registered professional structural engineer certifying that the proposed WCF is designed as required above.

(Ord. No. 95-44, 9-6-95; Ord. No. 99-011, § 2, 4-21-99; Ord. No. 2000-024, § 3, 3-29-00; Ord. No. 2004-065, 7-21-04; Ord. No. 2008-025, 6-18-08; Ord. No. 2009-036, 6-3-09; Ord. No. 2009-131, 3-17-10; Ord. No. 2010-110, 7-28-10; Ord. No. 2011-034, 5-24-11)

Note— Formerly numbered as 17-280.

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2006-305-C - ORDER NO. 2007-81
FEBRUARY 1, 2007

IN RE: Application of NextG Networks of NY, Inc.	)	ORDER GRANTING
for a Certificate of Public Convenience and	)	CERTIFICATE AND
Necessity to Provide Resold and Facilities-	)	APPROVING FLEXIBLE
Based Local Exchange and Interexchange	)	REGULATION
Telecommunications Services in the State of	)	
South Carolina and for Flexible Regulation	)	

This matter comes before the Public Service Commission of South Carolina ("Commission") by way of the Application of NextG Networks of NY, Inc. ("NextG" or the "Company") requesting a Certificate of Public Convenience and Necessity authorizing it to provide resold and facilities-based local exchange and interexchange telecommunications services within the State of South Carolina. The Company's Application was filed pursuant to S.C. Code Ann. §58-9-280 (Supp. 2006) and the rules and regulations of the Commission. By its Application, NextG also requests flexible regulation of its local exchange service offerings pursuant to Order No. 98-165 in Docket No. 1997-467-C, and waiver of certain Commission regulations.

The Commission's Docketing Department instructed NextG to publish, one time, a Notice of Filing in newspapers of general circulation in the areas of the state affected by the Application. The purpose of the Notice of Filing was to inform interested parties of the Application of NextG and of the manner and time in which to file the appropriate

pleadings for participation in the proceeding. NextG complied with this instruction and provided the Commission with proof of publication of the Notice of Filing. A Petition to Intervene was filed by the South Carolina Telephone Coalition (“SCTC”). Subsequent to the intervention, NextG and SCTC reached a Stipulation, attached hereto as Order Exhibit 2.

Subsequently, NextG and ORS filed a Settlement Agreement attached hereto as Order Exhibit 1. A hearing was convened on January 16, 2007 at 11:30 a.m. in the offices of the Commission in Columbia, South Carolina, before David Butler, Hearing Examiner. NextG was represented by John J. Pringle, Jr., Esquire and T. Scott Thompson, Esquire. The Office of Regulatory Staff (“ORS”) was represented by Nanette S. Edwards, Esquire. The South Carolina Telephone Coalition did not appear at the hearing.

Robert L. Delsman, Vice-President, Government Relations and Regulatory Affairs appeared and testified in support of the Company’s Application. The record reveals that NextG is incorporated in Delaware and has registered to transact business in South Carolina as a foreign corporation. According to Mr. Delsman, the Company seeks authority both as a reseller and facilities-based provider of local services and interexchange services. Mr. Delsman explained the Company’s request for authority, and the record further reveals the Company’s services, operations, and marketing procedures. The Company’s primary market is as a carrier’s carrier. NextG will offer transport of voice and data signals via fiber optic lines, initially focused on serving wireless providers. NextG’s “RF transport services” use fiber optic technology, including multi-wavelength optical technology over dedicated transport facilities, to provide

telecommunications companies with more efficient transport and greater overall network service options, according to Mr. Delsman. The Company has no plans to offer services to residential or business end-users at this time.

Mr. Delsman also discussed NextG's technical, financial, and managerial resources to provide the services for which it seeks authority. Mr. Delsman offered that NextG possesses sufficient financial resources to support its operations in South Carolina.

With regard to management and technical capabilities, the Company's Application and Mr. Delsman's testimony both evidence that NextG's management has extensive experience in telecommunications, information technology, regulatory matters, and accounting and finance. Mr. Delsman also testified that NextG will operate in accordance with Commission rules, regulations, guidelines, and Commission Orders. Mr. Delsman offered that approval of NextG's Application would serve the public interest.

Mr. Delsman, on behalf of the Company, requests a waiver of 26 S.C. Code Ann. Regs. 103-610, since the Company's books are maintained in California. Further, the Company requests an exemption from record keeping policies that require maintenance of financial records in conformance with the Uniform System of Accounts ("USOA"). NextG maintains its books in accordance with Generally Accepted Accounting Principles ("GAAP"). In addition, the Company requests that it not be required to publish local exchange directories or furnish operating area maps, and therefore requests waivers of 26 S.C. Code Ann. Regs. 103-631 and 103-612.2.3, respectively.

After full consideration of the applicable law, the Company's Application, and the evidence presented at the hearing, the Commission hereby issues its findings of fact and conclusions of law:

FINDINGS OF FACT

1. NextG is incorporated under the laws of the State of Delaware and is authorized to do business as a foreign corporation in South Carolina by the Secretary of State.

2. NextG desires to operate as a provider of resold and facilities-based local and interexchange services in South Carolina.

3. We find that NextG possesses the managerial experience and capability to operate as a provider, through resale or on a facilities basis, of local services and interexchange services in South Carolina.

4. We find, based on the financial statements submitted by the Company and the testimony at the hearing, that NextG possesses sufficient financial resources to provide the services as described in its Application and testimony.

5. We find that the issuance of a Certificate of Public Convenience and Necessity to NextG to operate as a facilities-based and/or reseller of local exchange telecommunications and interexchange services in South Carolina would be in the best interest of the citizens of South Carolina by providing more innovative services as a carrier's carrier in South Carolina.

6. NextG requests a waiver of 26 S.C. Code Ann. Regs. 103-610. The Commission finds NextG's requested waiver reasonable and understands the potential

difficulty presented to NextG should the waiver not be granted. Further, we find that a waiver of 26 S.C. Code Ann. Regs. 103-610 to be in the public interest. We also believe that exemption from the policies that would require the Company to keep its records under the USOA is reasonable. Additionally we find that a waiver of 26 S.C. Code Ann. Regs. 103-631 and 103-612.2.3 is reasonable and in the public interest.

7. The Company has the managerial, technical, and financial resources to provide the services as described in its Application. S.C. Code Ann. Section 58-9-280 (B) (1) (Supp. 2006).

8. The Commission finds that the Company's "provision of service will not adversely impact the availability of affordable local exchange service." S.C. Code Ann. Section 58-9-280 (B) (3) (Supp. 2006).

9. The Commission finds that the Company will support universally available telephone service at affordable rates. S.C. Code Ann. Section 58-9-280 (B) (4) (Supp. 2006).

10. The Commission finds that services to be provided by the Company will meet the service standards of the Commission. S.C. Code Ann. Section 58-9-280 (B) (2) (Supp. 2006).

11. The Commission finds that the provision of local exchange service by the Company "does not otherwise adversely impact the public interest." S.C. Code Ann. Section 58-9-280(B)(5) (Supp. 2006).

12. Following execution of a Stipulation with intervenor South Carolina Telephone Coalition ("SCTC"), the SCTC withdrew its opposition to the Application.

CONCLUSIONS OF LAW

1. The Commission concludes that NextG possesses the managerial, technical, and financial resources to provide the telecommunications services as described in its Application.

2. The Commission concludes that NextG will participate in the support of universally available telephone service at affordable rates to the extent that NextG may be required to do so by the Commission.

3. The Commission concludes that NextG will provide services which will meet the service standards of the Commission.

4. The Commission concludes that approval of NextG's Application to provide intrastate telecommunications services within South Carolina will serve the public interest by providing for efficient use of existing telecommunications resources.

5. The Commission concludes that the provision of telecommunications service by NextG will not adversely impact the public interest.

6. The Commission concludes that the issuance of the authority to provide intrastate local exchange and interexchange telecommunications services as requested by NextG and as set forth in its Application and Mr. Delsman's testimony is in the best interests of the citizens of the State of South Carolina.

7. The Commission concludes that a Certificate of Public Convenience and Necessity should be granted to NextG to provide resold and facilities-based intrastate local exchange telecommunications services and intrastate interexchange telecommunications services.

8. The Commission adopts a rate design for NextG for its interexchange services, should it offer services to end-users, which includes maximum rate levels for each tariff charge. A rate structure incorporating maximum rate levels with the flexibility for adjustment below the maximum rate levels has been previously adopted by the Commission. In Re: Application of GTE Sprint Communications Corporation, etc., Order No. 84-622, issued in Docket No. 84-10-C (August 2, 1984). The Commission concludes, however, that the Company's rates shall normally be designated by contract.

9. NextG shall not adjust its residential interexchange rates below the approved maximum level without notice to the Commission and to the public, should the Company offer its services to end-users. NextG shall file its proposed rate changes, publish its notice of such changes, and file affidavits of publication with the Commission two weeks prior to the effective date of the changes. However, the public notice requirement is waived, and therefore not required, for reductions below the maximum cap in instances which do not affect the general body of subscribers or do not constitute a general rate reduction. In Re: Application of GTE Sprint Communications, etc., Order No. 93-638, issued in Docket No. 84-10-C (July 16, 1993). Any proposed increase in the maximum rate level for residential interexchange services reflected in the tariff which would be applicable to the general body of the Company's subscribers shall constitute a general ratemaking proceeding and will be treated in accordance with the notice and hearing provisions of S.C. Code Ann. §58-9-540 (Supp.2006).

10. The Commission concludes the Company's local exchange telecommunications services shall be regulated in accordance with the principles and

procedures established for flexible regulation first granted to NewSouth Communications by Order No. 98-165 in Docket No. 97-467-C. Specifically, the Commission adopts for the Company's competitive intrastate local exchange services a rate structure incorporating maximum rate levels with the flexibility for adjustment below the maximum rate levels approved by the Commission. Further, the Company's local exchange service tariff filings are presumed valid upon filing, subject to the Commission's right within thirty (30) days to institute an investigation of the tariff filing, in which case the tariff filing would be suspended pending further Order of the Commission. Further, any such tariff filings will be subject to the same monitoring process as similarly situated competitive local exchange carriers.

11. We conclude that NextG's request for waiver of 26 S.C. Code Ann. Regs. 103-610 should be granted as strict compliance with the regulation would potentially cause undue hardship on that Company. We also grant exemption from the policies requiring the use of USOA. In addition, we grant waiver of 26 S.C. Code Ann. Regs. 103-631 which requires publication of a local telephone directory and 26 S.C. Code Ann. Regs. 103-612.2.3, which requires the filing of operating area maps.

12. The Stipulation and Settlement Agreement between the various parties should be approved.

IT IS THEREFORE ORDERED, ADJUDGED, AND DECREED THAT:

1. A Certificate of Public Convenience and Necessity should be granted to NextG to provide intrastate interLATA service and to originate and terminate toll traffic within the same LATA, as set forth herein, through resale of intrastate Wide Area

Telecommunications Services (“WATS”), Message Telecommunications Service (“MTS”), Foreign Exchange Service, Private Line Service, or any other services authorized for resale by tariffs of carriers approved by the Commission, as well as to provide facilities-based or resold local exchange telecommunications services within the State of South Carolina. The Company is also specifically authorized to provide facilities-based and resold inbound and outbound interexchange telecommunications services.

2. The Company’s rate designs for its products shall conform to those designs described in Conclusions of Law above.

3. If it has not already done so by the date of issuance of this Order, NextG shall file its revised tariff, if any, and an accompanying price list for any applicable rates within thirty (30) days of receipt of this Order. The revised tariff shall be consistent with the findings of this Order and shall be consistent with the Commission’s Rules and Regulations, as well as the provisions of the NextG-ORS Settlement Agreement.

4. To the extent applicable, NextG is subject to access charges pursuant to Commission Order No. 86-584, in which the Commission determined that for access purposes resellers and facilities-based interexchange carriers should be treated similarly.

5. With regard to the Company’s resale of service, an end-user should be able to access another interexchange carrier or operator service provider if the end-user so desires.

6. NextG shall resell the services of only those interexchange carriers or LECs authorized to do business in South Carolina by this Commission. If NextG changes underlying carriers, it shall notify the Commission in writing.

7. With regard to the origination and termination of toll calls within the same LATA, NextG shall comply with the terms of Order No. 93-462, Order Approving Stipulation and Agreement, in Docket Nos. 92-182-C, 92-183-C, and 92-200-C (June 3, 1993), with the exception of the 10-XXX intraLATA dialing requirement, which has been rendered obsolete by the toll dialing parity rules established by the FCC pursuant to the Telecommunications Act of 1996 (See, 47 CFR 51.209). Specifically, NextG shall comply with the imputation standard as adopted by Order No. 93-462 and more fully described in paragraph 4 of the Stipulation and Appendix B approved by Order No. 93-462.

8. NextG shall file annual financial information in the form of annual reports and gross receipts reports as required by the Commission. The annual report and the gross receipt report will necessitate the filing of intrastate information. Therefore, NextG shall keep financial records on an intrastate basis for South Carolina to comply with the annual report and gross receipts filings. The proper form for filing annual financial information can be found at the Commission's website at www.psc.sc.gov/forms.asp or at the ORS's website at www.regulatorystaff.sc.gov. The title of this form is "Telecommunications Company Annual Report." This form shall be utilized by the Company to file annual financial information with the Commission and ORS and shall be filed no later than **April 1st**.

Commission gross receipts forms are due to be filed with the Commission and ORS no later than **August 31st** of each year. The proper form for filing gross receipts information can be found at the ORS website at www.regulatorystaff.sc.gov, and the appropriate form is entitled “Gross Receipts Form.”

Each telecommunications company certified in South Carolina is required to file annually with the ORS the Intrastate Universal Service Fund (“USF”) worksheet, which may be found on the ORS’s website at www.regulatorystaff.sc.gov. This worksheet provides ORS information required to determine each telecommunications company’s liability to the State USF fund. The Intrastate USF worksheet is due to be filed annually no later than **August 15th** with the Commission and ORS.

9. The Company shall, in compliance with Commission regulations, designate and maintain an authorized utility representative who is prepared to discuss, on a regulatory level, customer relations (complaint) matters, engineering operations, tests and repairs. In addition, the Company shall provide to the Commission and ORS in writing the name of the authorized representative to be contacted in connection with general management duties as well as emergencies which occur during non-office hours. NextG shall file the names, addresses and telephone numbers of these representatives with the Commission within thirty (30) days of receipt of this Order. The “Authorized Utility Representative Information” form can be found at the Commission’s website at www.psc.sc.gov/forms.asp; this form shall be utilized for the provision of this information to the Commission and ORS. Further, the Company shall promptly notify the Commission and ORS in writing if the representatives are replaced.

10. The Company is directed to comply with all Rules and Regulations of the Commission, unless a regulation is specifically waived by the Commission.

11. At the hearing, NextG requested a waiver of 26 Code Ann. Regs. 103-610 (Supp. 2006), which requires that records required by the Commission's Rules and Regulations be maintained in South Carolina. The Commission finds NextG's requested waiver reasonable and understands the potential difficulty presented to NextG should the waiver not be granted. The Commission therefore grants the requested waiver. However, NextG shall make available its books and records at all reasonable times upon request by the Office of Regulatory Staff, and NextG shall promptly notify the Commission and ORS if the location of its books and records changes.

12. NextG also requests that it be exempt from record keeping policies that require a carrier to maintain its financial records in conformance with the Uniform System of Accounts. The USOA was developed by the FCC as a means of regulating telecommunications companies subject to rate base regulation. As a competitive carrier, NextG maintains its book of accounts in accordance with Generally Accepted Accounting Principles. GAAP is used extensively by interexchange carriers and other providers. Accordingly, NextG requests an exemption from the USOA requirements. We grant the Company's request for the reasons stated above.

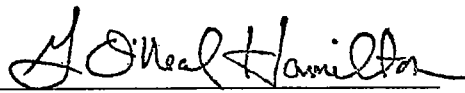
13. Should the Company offer applicable service in the future, NextG is required to comply with Title 23, Chapter 47 of the South Carolina Code Annotated, which governs the establishment and implementation of a "Public Safety Communications Center," which is more commonly known as a "911" system or "911

service.” Services available through a 911 system include law enforcement, fire, and emergency medical services. In recognition of the necessity of quality 911 services being provided to the citizens of South Carolina, the Commission hereby instructs NextG to contact the appropriate authorities regarding 911 service in the counties and cities where the Company will be operating, should the Company become interconnected to the public switched telephone network. Contact with the appropriate 911 service authorities is to be made before beginning local telephone service in South Carolina. Accompanying this Order is a memo from the State 911 Office of the Office of Research & Statistics of the South Carolina Budget and Control Board. This memo provides information about contacting County 911 Coordinators. By this Order and prior to providing local telephone services in South Carolina, NextG shall contact the 911 coordinator in each county (and city where the city has its own 911 system) and shall provide information regarding the Company’s operations as required by the 911 system.

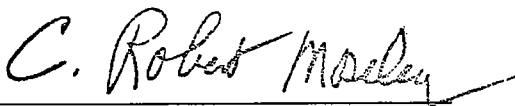
14. The Stipulation and Settlement Agreement between the various parties are hereby approved.

15. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:


G. O'Neal Hamilton, Chairman

ATTEST:


C. Robert Moseley, Vice Chairman

(SEAL)

Delaware

PAGE 1

The First State

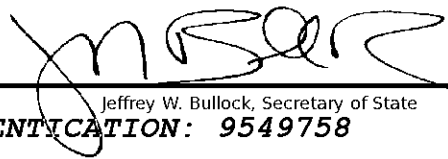
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "NEXTG NETWORKS OF NY, INC.", CHANGING ITS NAME FROM "NEXTG NETWORKS OF NY, INC." TO "CROWN CASTLE NG EAST INC.", FILED IN THIS OFFICE ON THE THIRD DAY OF MAY, A.D. 2012, AT 7:27 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

3587157 8100

120509186




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 9549758

DATE: 05-04-12

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
NEXTG NETWORKS OF NY, INC.

NextG Networks of NY, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Company") DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said Corporation by Unanimous Written Consent has adopted a resolution that the Corporation amend Article 1 of its Certificate of Incorporation as on file with the Secretary of State of Delaware to read in its entirety as set forth below:

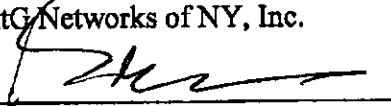
1. This corporation's name is Crown Castle NG East Inc. (the "Company").

SECOND: That the amendment has been consented to and authorized by all the holders of the issued and outstanding capital stock of the Corporation by written consent given in accordance with the provisions of section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said NextG Networks of NY, Inc. has caused this Certificate to be signed this 3rd day of May, 2012.

NextG Networks of NY, Inc.

By 

E. Blake Hawk
Executive Vice President

Delaware

PAGE 1

The First State

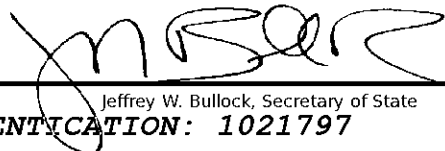
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF CONVERSION OF A DELAWARE CORPORATION UNDER THE NAME OF "CROWN CASTLE NG EAST INC." TO A DELAWARE LIMITED LIABILITY COMPANY, CHANGING ITS NAME FROM "CROWN CASTLE NG EAST INC." TO "CROWN CASTLE NG EAST LLC", FILED IN THIS OFFICE ON THE TWENTY-FOURTH DAY OF DECEMBER, A.D. 2013, AT 1:43 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF CONVERSION IS THE THIRTY-FIRST DAY OF DECEMBER, A.D. 2013, AT 11:59 O'CLOCK P.M.

3587157 8100V

131473409




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 1021797

DATE: 12-30-13

**Certificate of Conversion
of
Crown Castle NG East Inc.
to
Crown Castle NG East LLC**

Pursuant to Section 18-214 of the Limited Liability Company Act

Crown Castle NG East Inc., a Delaware corporation ("Company"), does hereby certify that:

1. **Name of Corporation to be Converted.** The name of the Company immediately prior to conversion is Crown Castle NG East Inc., and the name under which the Company was originally formed was NextG Networks of NY, Inc.

2. **Original Date and Jurisdiction of Incorporation.** The original certificate of incorporation of the Company was filed on November 4, 2002 with the Secretary of State of the State of Delaware.

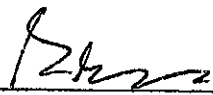
3. **Name of Limited Liability Company.** The name of the limited liability company into which the Company will be converted is Crown Castle NG East LLC.

4. **Approval of Conversion.** This conversion has been approved by the board of directors and sole stockholder of the Company.

5. **Effective Time.** The conversion of the Company to a limited liability company shall be effective at 11:59 p.m. on December 31, 2013.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Conversion as of December 19, 2013.

Crown Castle NG East Inc.

By: 

E. Blake Hawk

Executive Vice President

19 Dec 2013

Delaware

PAGE 2

The First State

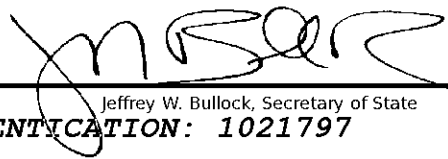
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF CERTIFICATE OF FORMATION OF "CROWN CASTLE NG EAST LLC" FILED IN THIS OFFICE ON THE TWENTY-FOURTH DAY OF DECEMBER, A.D. 2013, AT 1:43 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF FORMATION IS THE THIRTY-FIRST DAY OF DECEMBER, A.D. 2013, AT 11:59 O'CLOCK P.M.

3587157 8100V

131473409




Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 1021797

DATE: 12-30-13

Certificate of Formation
of
Crown Castle NG East LLC

This Certificate of Formation of Crown Castle NG East LLC ("LLC"), dated as of December 19, 2013, has been duly executed and is being filed by E. Blake Hawk, as an authorized person, to form a limited liability company under the Delaware Limited Liability Company Act (6 Del.C. §18-101, et seq.)

1. The name of the limited liability company is Crown Castle NG East LLC.
2. The address of the registered office of the LLC in the State of Delaware is c/o The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, in the City of Wilmington, County of New Castle.
3. The name and address of the registered agent for service of process of the LLC in the State of Delaware is The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, in the City of Wilmington, County of New Castle, Delaware.
4. This Certificate of Formation shall be effective at 11:59 p.m. on December 31, 2013.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation of Crown Castle NG East LLC as of the date first written above.



E. Blake Hawk, Authorized Person
19 Dec 2013

Pole Attachment License Agreement

Between

South Carolina Electric & Gas Company

And

Crown Castle NG East LLC

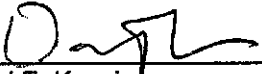
CLP #	15142
RCVD	

30. ENTIRE LICENSE AGREEMENT

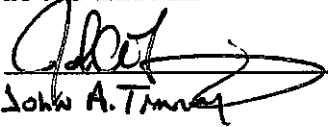
This is the entire agreement between the Parties and supersedes all prior agreements, proposals, communications and understandings between the Parties. All Appendices are hereby incorporated by reference.

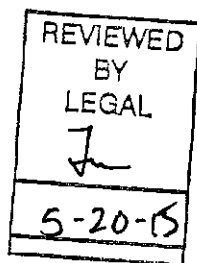
IN WITNESS WHEREOF, the Parties hereto have caused this License Agreement to be duly executed on the date first above written.

South Carolina Electric & Gas Company

Signature: 
Printed Name: Daniel F. Kassir
Title: Vice President of Customer Service
Date: 05/22/15

Crown Castle NG East LLC

Signature: 
Printed Name: John A. Timney
Title: VP-SCW
Date: 05/05/15



\$ Saver Product Line

- ◆ Combines LTE-700, GSM-850, PCS and AWS services
- ◆ 50 dB Input Isolation
- ◆ High Power Design
- ◆ Minimal RF Insertion Loss
- ◆ Rugged, High Reliability
- ◆ Low Passive IM., PIM
- ◆ RoHS compliant Design



The BK-96 Quadraplexer has been designed using passive, proprietary techniques to ensure minimal loss and very high reliability. It allows efficient combining or division of the standard cellular bands for use in a base station, coaxial distributed in-building cellular network or DAS. (03/14)

Frequency Bands:

Input 1:	LTE-700 Bands:	698 - 806 MHz
Input 2:	GSM-850 band:	824 - 896 MHz
Input 3:	PCS 1900 Band:	1850 -2000MHz
Input 4:	AWS Band (Rx/Tx):	1710 - 1755 and 2110 - 2170 MHz

Return Loss:	>18 dB, all ports
Interband Isolation:	>50 dB
Insertion Loss:	<0.5 dB all paths
Passband Ripple:	<0.3 dB typical
Input Power:	250W/input max.
Impedance:	50Ω nominal
Intermod. (PIM):	<-153 dBc, <-156 dBc typical (2 tones of 20W, at downlink band)

DC/AISG:

Connection:	Factory Configurable at time of order
Max. Current:	2A continuous; 4A peak
Max Voltage:	±33V
OOK Insertion Loss:	<0.8 dB at 2170 MHz
OOK Return Loss:	>12 dB
Environment:	-33° - +65°C, IP67 (ETSI EN 300 019 class 4.1)
Lightening Protection:	±5 kA, 8/20μs
Altitude:	2000 m max. (~6500 ft.)
MTBF:	>500,000 hours
EMC:	ETS 300 342-3

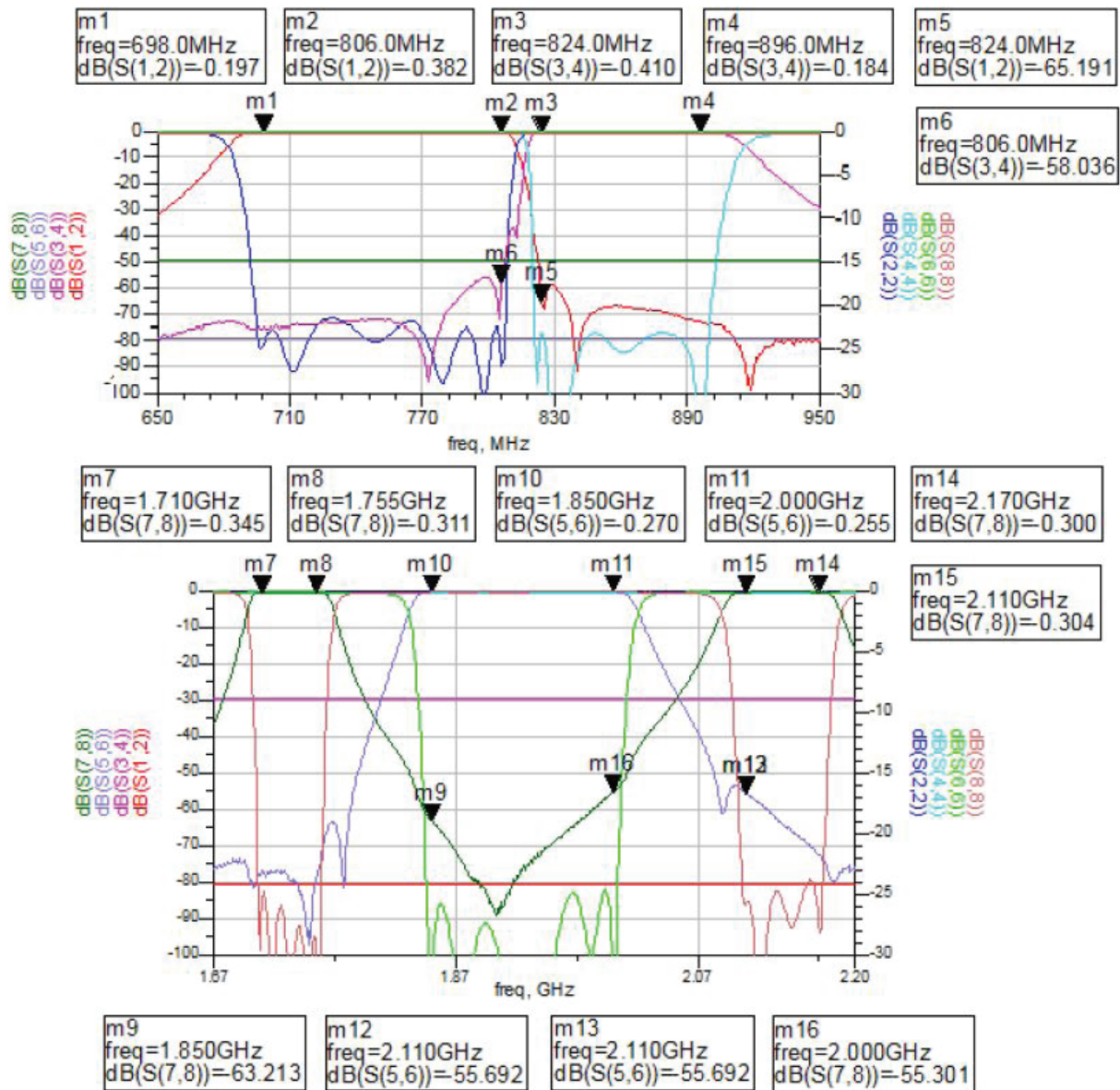
Order Options: Model No. DC Pass to:

Standard Unit:	BK-96D	All ports
Specials to order:	BK-96D1	None
	BK-96D2	AWS only
	BK-96D3	PCS only
	BK-96D4	GSM-850 only
	BK-96D5	LTE-700 only
	BK-96D6	All except AWS
	BK-96D7	All except PCS
	BK-96D8	All except GSM-850
	BK-96D9	All except LTE-700

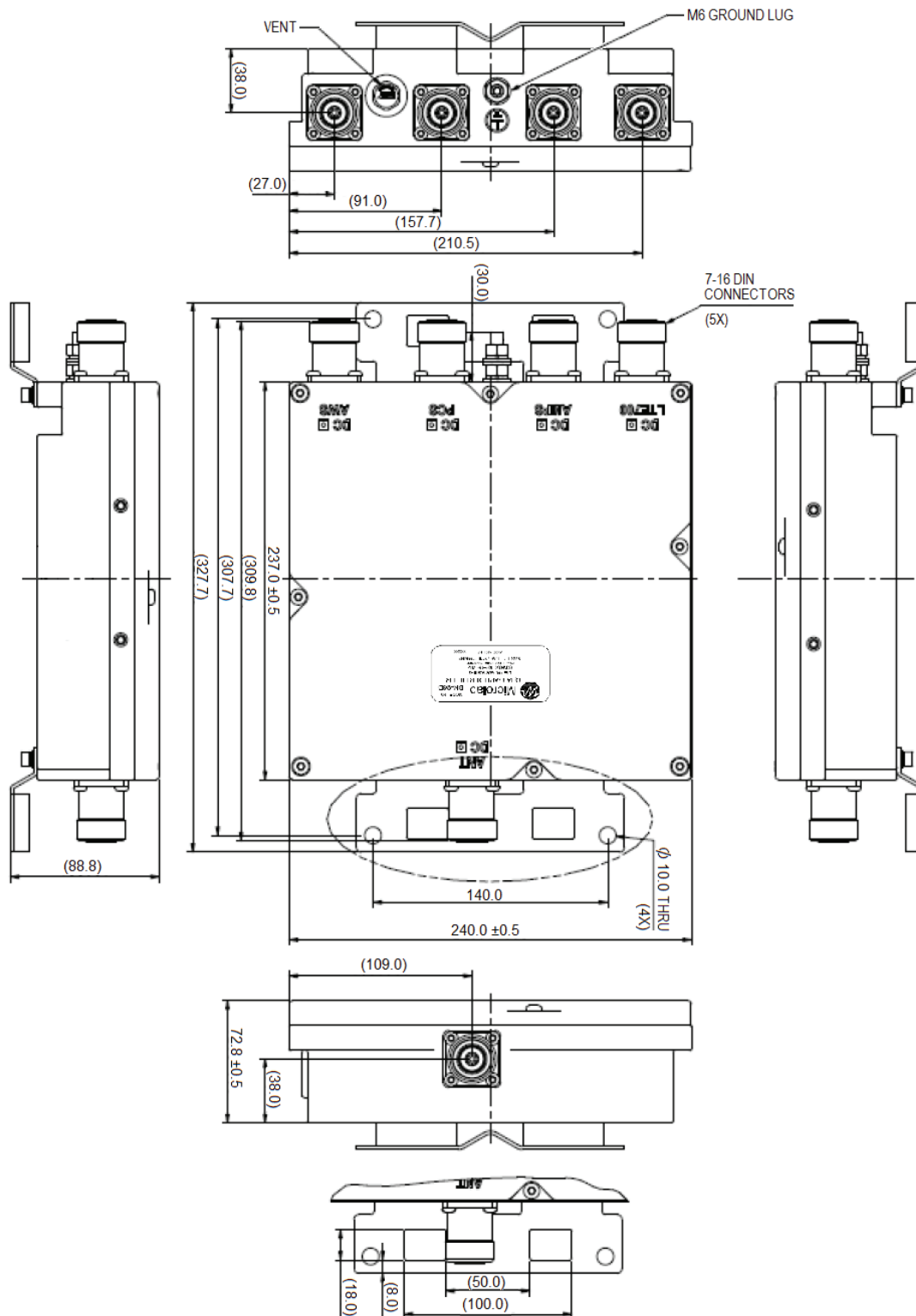
All other combinations with special part number

Housing:	Powder Coating
Connectors:	DIN 7/16 (f) Long Neck
Bracket:	Stainless steel 304
Mounting:	Pole/wall bracket option with 2 metal clamps for poles >46 mm.
Protection Ground:	M6 screw (SS 304)
Weight, nom:	9.2 lbs (4.2 kg) Single unit 10.2 lbs (4.6 kg) Single & bracket 19.4 lbs (8.8 kg) Dual & bracket

BK-96D Test Plots



Outline BK-96D





ANT
□

DC
□ AWS

DC
□ PCS

DC
□ 850

DC
□ LTE700

MicroLab
MODEL NO. BK-96D
QUADRAPLEXER FILTER
LTE-700: 698-806 MHz
GSM-850: 824-894 MHz
PCS 1900: 1850-2000 MHz
AWS: 1710-1755 / 2110-2170 MHz
MADE IN CHINA

QAD





DB380
Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas.
Includes 2 clamp sets and double nuts.

General Specifications

Antenna Brand	Andrew®
Mount Type	Pipe mounts
Application	Outdoor
Includes	Brackets Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	114.3 mm 4.5 in
Compatible Diameter, minimum	61.0 mm 2.4 in
Net Weight	2.8 kg 6.2 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system





DB5083
Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

General Specifications

Antenna Brand	Andrew®
Mount Type	Downtilt mounts
Application	Outdoor
Includes	Brackets Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	114.3 mm 4.5 in
Compatible Diameter, minimum	61.0 mm 2.4 in
Net Weight	2.2 kg 4.9 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



PSU Description

DESCRIPTION

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1 Product Overview

This document describes the Power Supply Units (PSUs) that are located in the power subrack or at the back of the Remote Radio Unit (RRU).

PSUs and other power units that can be attached to the RRU are described in *Remote Radio Unit Description*.

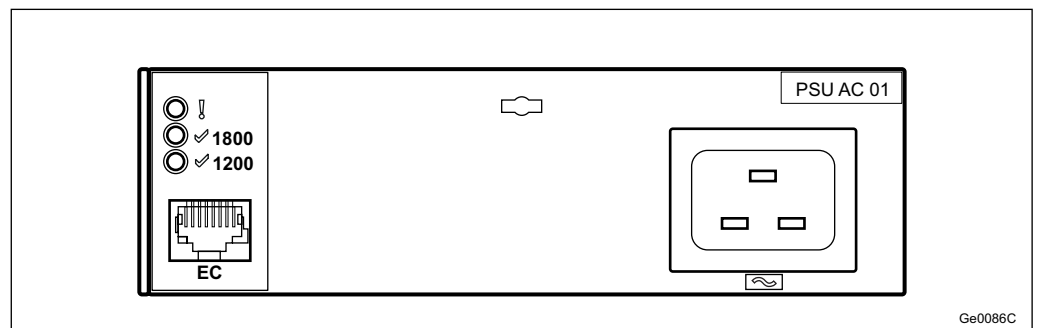
1.1 Purpose

The main function of the PSU is to convert incoming voltage to -48 V DC system voltage.

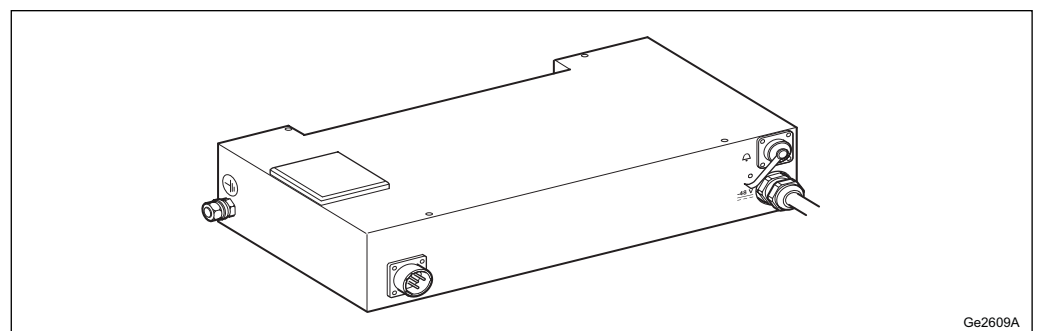
1.2 Variants

The following variants are available:

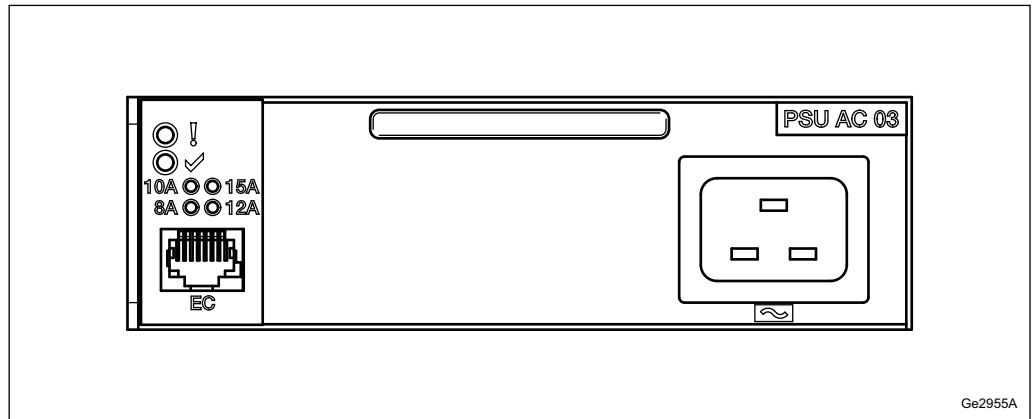
- PSU AC 01 (100-250 V AC)



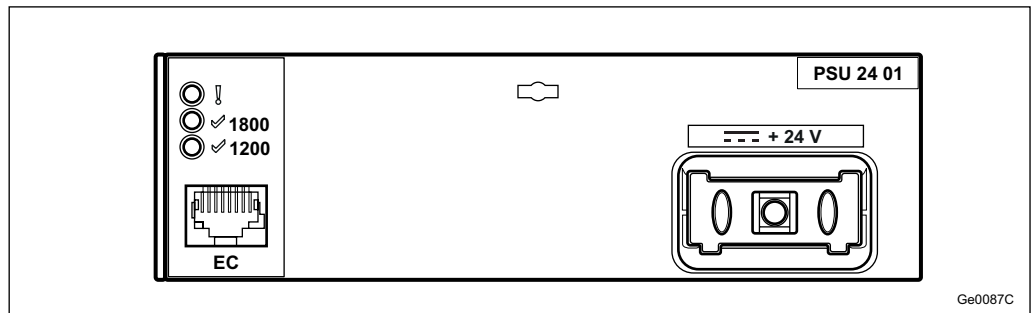
- PSU AC 02 (100-250 V AC)



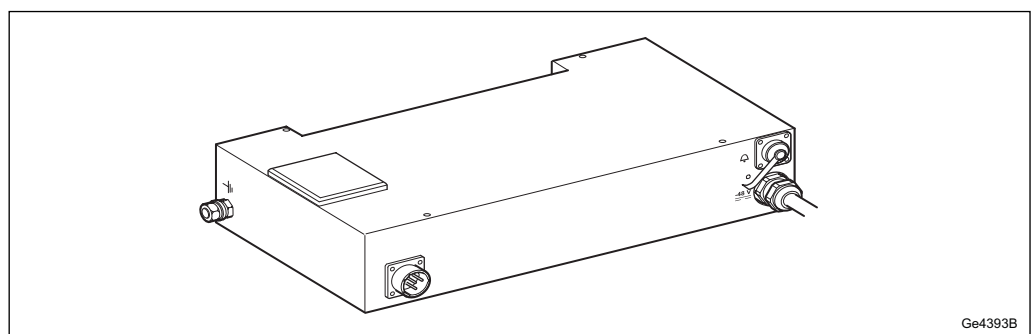
- PSU AC 03 (100-250 V AC)



- PSU 24 01 (+24 V DC)



- PSU 48 02 (-48 V DC 3-wire)





2 Function Description

The PSUs have the following functions:

- Converting incoming power to -48 V DC system voltage
Note: PSU 48 02 convert incoming power to -48 V DC 2-wire.
- Selecting output power between 1,200 W and 1,800 W (see Section 2.1 on page 3)
Note: Applicable for PSU AC 01 and PSU 24 01.
- Limiting input current between 8, 10, 12.5, and 15 A (see Section 2.2 on page 4)
Note: Applicable for PSU AC 03.
- Software-controlled functions (Not applicable for PSU AC 02 or PSU 48 02):
 - Controlling remote on/off
 - Measuring voltage and currents
 - Measuring hotspot temperatures
 - Indicating input voltage failures and output voltage failures
 - Indicating faulty units
 - Controlling optical indicators
 - Controlling output voltage (Not applicable for PSU 24 01)
 - Providing unit identification
 - Controlling active load sharing

2.1 Output Power Switch (PSU AC 01 and PSU 24 01 Only)

Output power is selectable between 1,200 W or 1,800 W.

Output power is set using a switch on the left-hand side of the PSU. When the vertical switch is in the upper position, 1,800 W is selected.

The power chosen is indicated with an optical indicator on the front (shown in Section 1.2 on page 1) and it is also readable from the Main Processor (MP).

2.2 Input Current Limit Switch (PSU AC 03 Only)

The input current can be limited to 8, 10, 12.5, or 15 A to adjust it to the feeding fuse. The input current is set using a switch on the left-hand side of the PSU.

The input current chosen is indicated with an optical indicator on the front (shown in Section 1.2 on page 1) and it is also readable from the MP.

2.3 PSU AC 01

The PSU AC 01 converts AC power to -48 V DC power.

Figure 1 shows the block diagram of the PSU AC 01.

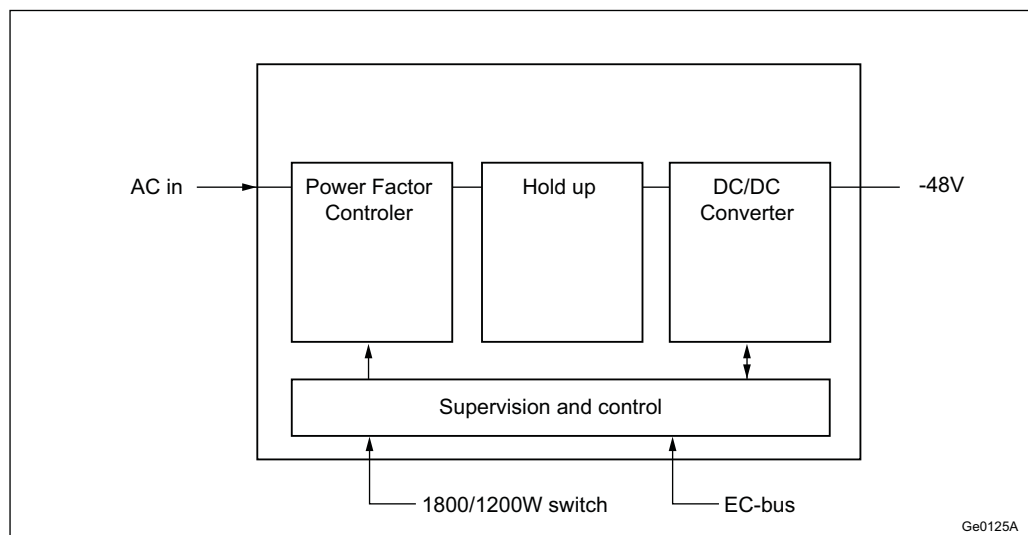


Figure 1 PSU AC 01 Block Diagram

2.4 PSU AC 02

The PSU AC 02 converts AC power to -48 V DC power.

Figure 2 shows the block diagram of the PSU AC 02.

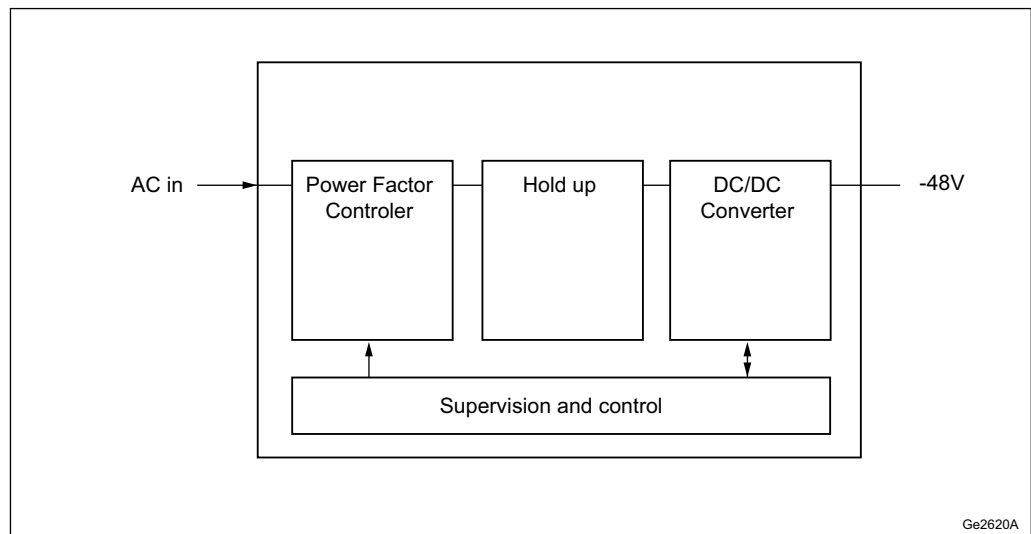


Figure 2 PSU AC 02 Block Diagram

2.5

PSU AC 03

The PSU AC 03 converts AC power to -48 V DC power.

Figure 3 shows the block diagram of the PSU AC 03.

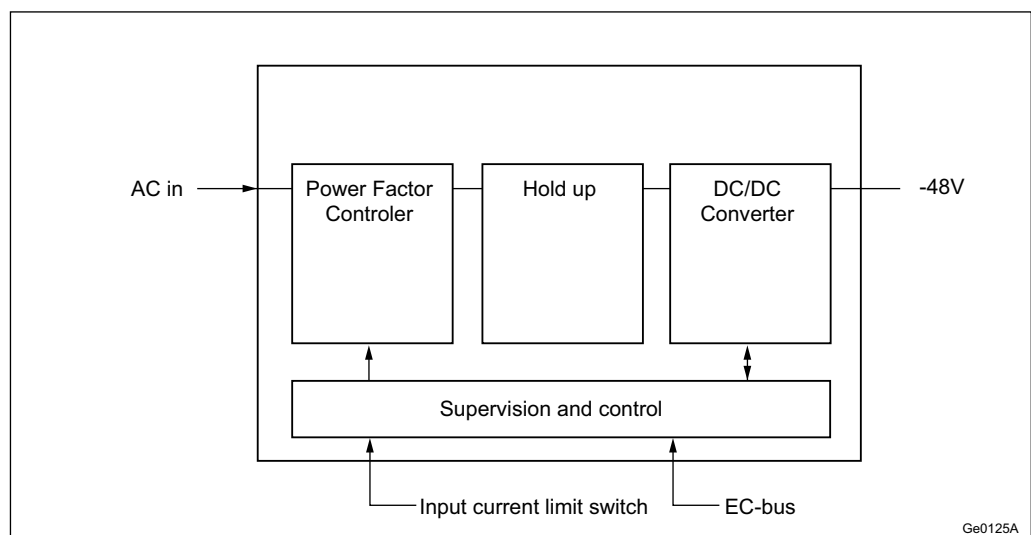


Figure 3 PSU AC 03 Block Diagram

2.6

PSU 24 01

The PSU 24 01 converts +24 V DC power to -48 V DC power.

Figure 4 shows the block diagram of the PSU 24 01.

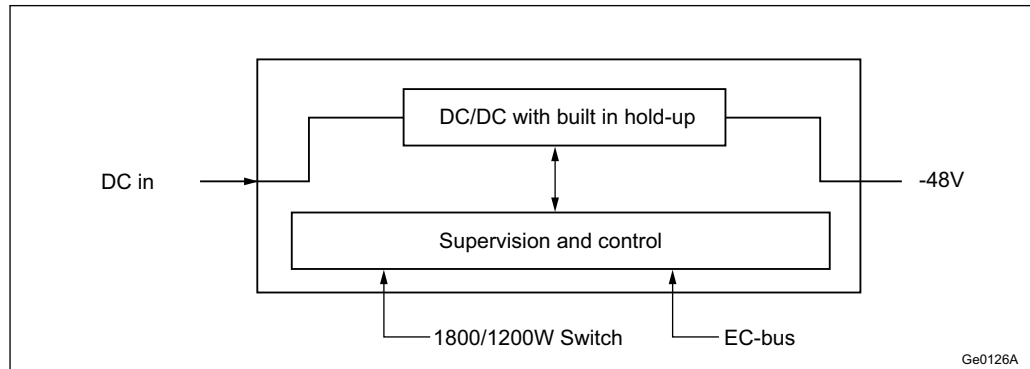


Figure 4 PSU 24 01 Block Diagram

2.7

PSU 48 02

The PSU 48 02 converts -48 V DC 3-wire to -48 V DC 2-wire.

Figure 5 shows the block diagram of the PSU 48 02.

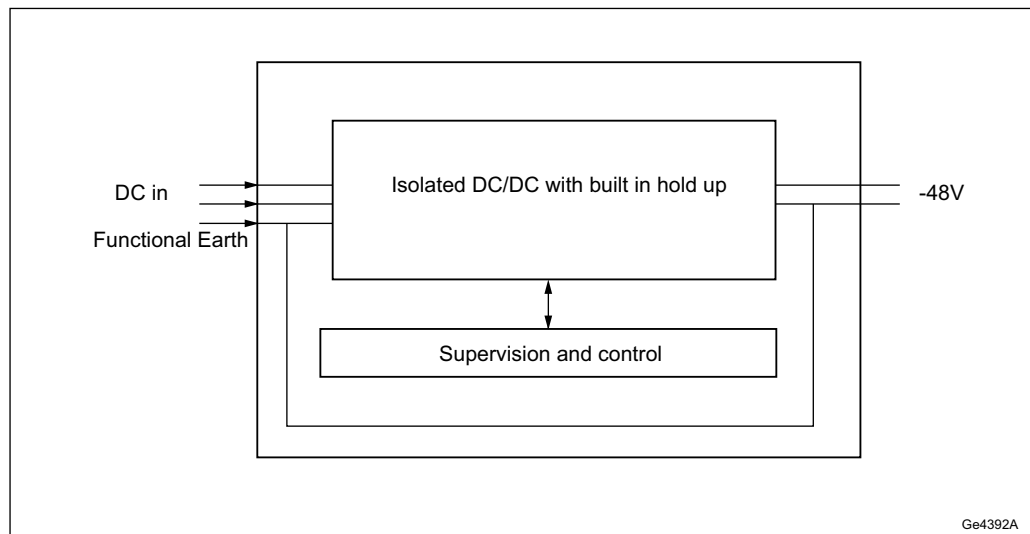


Figure 5 PSU 48 02 Block Diagram

Note: Functional earth shown in Figure 5 is the shielding of the DC cable.



3 Technical Data

Table 1 lists the technical data of the PSU variants.

Table 1 PSU Technical Data

Technical Data		PSU AC 01	PSU AC 02	PSU AC 03	PSU 24 01	PSU 48 02
Maximum power dissipation (W)		200	70	175	200	55
Temperature range (°C)	Range	-40 to +70	-40 to +55	-40 to +70	-40 to +70	-40 to +55
	Limited performance (cold start-up)	-40 to -10	-40 to -33	-40 to -10	-40 to -10	-40 to -33
	Limited performance (power derating)	+55 to +70	N/A	+55 to +70	+55 to +70	N/A
Input Characteristics	Nominal input voltage	100-250 V AC	100-250 V AC	100-250 V AC	27.2 V DC	-54.5 V DC
	Rated operating voltage range	85-275 V AC	90-275 V AC	85-275 V AC	19.5 to +30.0 V DC	-38.0 to -58.5 V DC
	External input fuse	10 A/phase at 1,200 W ⁽¹⁾ 16 A/phase at 1,800 W ⁽¹⁾	For 700 W output power: ⁽¹⁾ 12 A at 100 V AC 6 A at 200 V AC	10 A/phase at 8 A input current⁽¹⁾ 12.5 A (25 A/2×PSU) /phase at 10 A input current⁽¹⁾ 15 or 16 A/phase at 12.5 A input current⁽¹⁾ 20 A/phase or 16 A Hydraulic magnetic circuit breaker at 15 A input current⁽¹⁾	80 A for 1,200 W ⁽²⁾ 125 A for 1,800 W ⁽²⁾	For 700 W output power: ⁽²⁾ Min 25 A Max 80 A
	Input current rating	9 A at 1,200 W 14 A at 1,800 W	9 A at 100 V AC 4.5 A at 200 V AC	8, 10, 12.5, and 15 A ⁽³⁾	80 A at 1,200 W 100 A at 1,800 W	≤ 20 A
Output Characteristics	Default output voltage	-54.5 V DC	-54.5 V DC	-54.5 V DC	-54.5 V DC	-54.5 V DC
	Voltage range	-42.0 to -58.5 V DC	-54.0 to -55.0 V DC	-42.0 to -58.5 V DC	-53.0 to -56.0 V DC	-54.0 to -55.0 V DC
	Output power	1,200 or 1,800 W	700 W	See Table 2.	1,200 or 1,800 W	700 W

**Table 1 PSU Technical Data**

Technical Data		PSU AC 01	PSU AC 02	PSU AC 03	PSU 24 01	PSU 48 02
Dimensions	Height	43 mm	68 mm	43 mm	43 mm	68 mm
	Width	145 mm	330 mm	145 mm	145 mm	330 mm
	Depth	225 mm	179 mm	225 mm	225 mm	179 mm
	Weight	< 2.2 kg	5.2 kg	< 2.3 kg	< 2.2 kg	5.2 kg

(1) The cabinet's external AC power fusing must meet the characteristic fuse, type gL-gG-gD in accordance with IEC/EN 60 269-1 and UL 248-8 and characteristic circuit breaker in accordance with IEC 60 947-2 and UL 489.

(2) The cabinet's external DC power fusing must meet the characteristic fuse, type gL-gG-gD in accordance with IEC/EN 60 269-1 and UL 248-8 and characteristic circuit breaker in accordance with IEC 60 947-2 and UL 489A.

(3) Selectable by switch

Table 2 PSU AC 03 Output Power

Input Current Rating (A)	Input Voltage (V AC)	Output Power (W)
8	> 250	1800
	180	linear derated to 1300
10	> 250	2300
	180	linear derated to 1600
12.5	> 215	2500
	180	linear derated to 2100
15	> 180	2500



4 Signal and Power Interfaces

This section describes the interfaces of the different PSU variants.

4.1 PSU AC 01

Table 3 lists details for the external interfaces of PSU AC 01.

Table 3 PSU AC 01 Interfaces

Marking	Description	Connector	Location
	AC in	IEC 60 320-1 Type C20	Front
	Optical indicator, red	N/A	Front
 1800	Optical indicator, green	N/A	Front
 1200	Optical indicator, green	N/A	Front
EC	ECB	RJ-45	Front
1800 W 1200 W	1,200 / 1,800 W selector	Hardware selector	Left-hand side

4.2 PSU AC 02

Table 4 lists details for the external interfaces of PSU AC 02.

Table 4 PSU AC 02 Interfaces

Marking	Description	Location
	AC in	Front
	DC Out	Front
	Interface for future use	Front
	Grounding interface	Left-hand side



4.3 PSU AC 03

Table 5 lists details for the external interfaces of PSU AC 03.

Table 5 PSU AC 03 Interfaces

Marking	Description	Connector	Location
	AC in	IEC 60 320-1 Type C20	Front
	Optical indicator, red	N/A	Front
	Optical indicator, green	N/A	Front
8A	Optical indicator, green	N/A	Front
10A	Optical indicator, green	N/A	Front
12A	Optical indicator, green	N/A	Front
15A	Optical indicator, green	N/A	Front
EC	ECB	RJ-45	Front
8A 10A 12A 15A	Input current limit selector	Hardware selector	Left-hand side

4.4 PSU 24 01

Table 6 lists details for the external interfaces of PSU 24 01.

Table 6 PSU 24 01 Interfaces

Marking	Description	Connector	Location
 + 24 V	DC in	FCI 51939-219 LF E	Front
	Optical indicator, red		Front
 1800	Optical indicator, green		Front
 1200	Optical indicator, green		Front



Marking	Description	Connector	Location
EC	ECB	RJ-45	Front
1800 W 1200 W	1,200/1,800 W selector	Hardware selector	Left-hand side

4.5

PSU 48 02

Table 7 lists details for the external interfaces of PSU 48 02.

Table 7 PSU 48 02 Interfaces

Marking	Description	Location
- 48 V --- In	3-wire DC input	Front
- 48 V --- Out	2-wire DC Output	Front
	Interface for future use	Front
	Grounding interface	Left-hand side

Photo Simulation

FPSC-005

Proposed DAS Antennas and
Associated Equipment Installed
on Existing Light Pole

Created by:



Version 2, January 7, 2016



Photo Simulation

FPSC-005

Proposed DAS Antennas and
Associated Equipment Installed
on Existing Light Pole

Created by:



Version 2, January 7, 2016



From: [Brooks, Ann](#)
To: [Statler, Lucinda S](#)
Cc: [Lemnah, Michael](#); [Hagy, Jason](#); [Fellows, John S](#); [Cook, K Brian](#)
Subject: Crown Castle, City of Columbia, installation options
Date: Wednesday, January 06, 2016 2:43:55 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)

Hi Lucinda, I hope your marathon meetings are going smoothly today. Per our discussion yesterday, I've attached some photos of installations we've completed on existing utility poles from around the region. I am also pursuing photo sims of the installation type we are requesting in Columbia, and will provide when I receive.

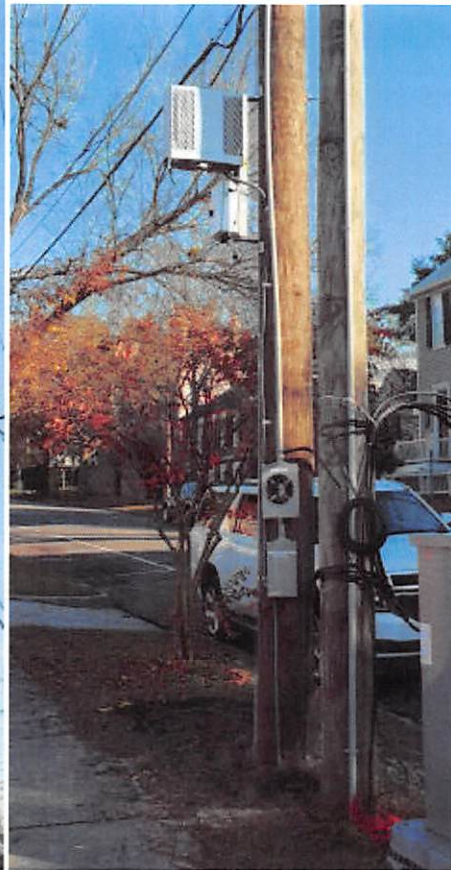
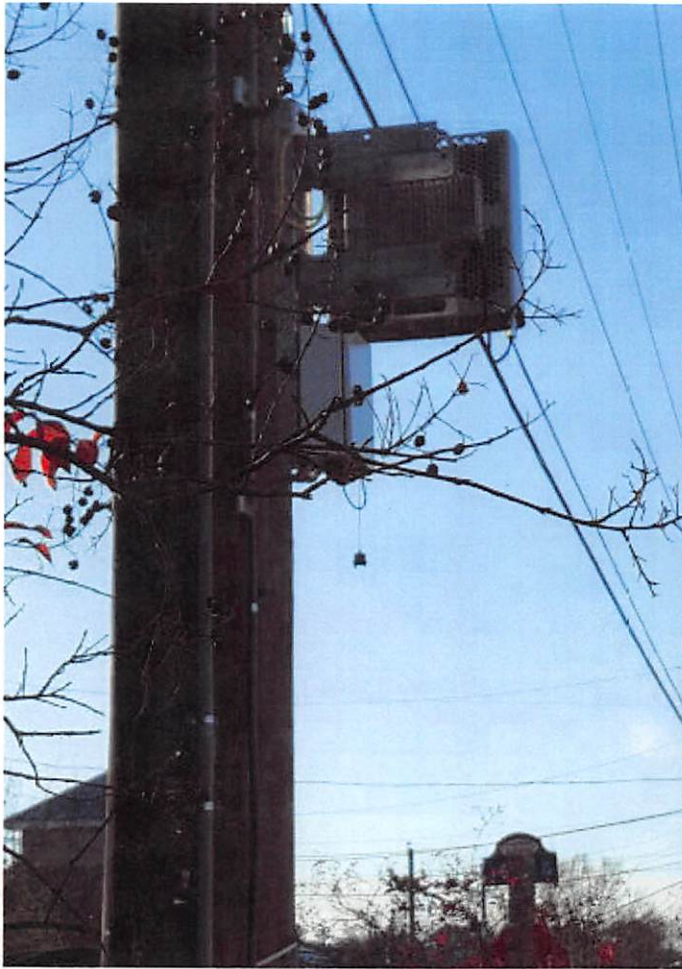
I am happy to join you and your colleagues in Columbia when you have the time to discuss our requests, to talk about small cells in general and the future plans in the City of Columbia.

I can send these photos to you as individual files, the files are very large.

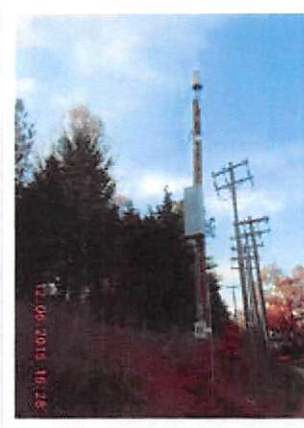
Installation on an existing wood utility pole in the historic district in Wilmington NC. PLEASE NOTE: the ground-mounted cabinet you see in the first photo does NOT belong to Crown Castle. Our installation is limited to the antenna at the top, the radio, and the meter, all mounted to the pole.

From left to right: photo 1. entire pole installation; photo 2. radio mounted directly to pole; photo 3. equipment installation (not including antenna)





Installation on an existing wood utility pole in Charlotte NC. This features all the equipment located inside a shroud mounted to the pole. PLEASE NOTE: we have discussed this option with SCE&G, but it is not currently approved for installation. In order for us to install this type of configuration we would have to first gain approval from SCE&G. The meter is outside the shroud.



Installation on wooden utility pole, with ground-mounted cabinet (I believe this installation is in Jacksonville NC).



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