

REVOCABLE PERMIT TO ENTER AND USE PROPERTY

by and between

CITY AND COUNTY OF SAN FRANCISCO

and

GTE MOBILNET OF CALIFORNIA LIMITED PARTNERSHIP,  
D/B/A VERIZON WIRELESS,  
Permittee

to enter and use property located at  
Zuckerberg San Francisco General Hospital and Trauma Center

Building 25

1001 Potrero Avenue,  
San Francisco, California

May 12, 2016

**CITY AND COUNTY OF SAN FRANCISCO  
REVOCABLE PERMIT  
TO ENTER AND USE PROPERTY  
(SFGH, Building 25, San Francisco)**

THIS REVOCABLE PERMIT TO ENTER AND USE PROPERTY (this "**Permit**"), dated for reference purposes only as of May 12, 2016, is made by and between the CITY AND COUNTY OF SAN FRANCISCO, a municipal corporation ("**City**") and GTE MOBILNET OF CALIFORNIA LIMITED PARTNERSHIP, a California limited partnership, D/B/A VERIZON WIRELESS ("**Permittee**").

City and Permittee agree as follows:

**1. LICENSE**

City confers to Permittee a temporary, personal, unassignable, non-exclusive and non-possessory privilege to enter upon and use that certain real property owned by City located at San Francisco General Hospital ("**SFGH**" or "**SFGH Campus**"), Building 25 (the "**Building**"), 1001 Potrero Avenue, in the City and County of San Francisco, more particularly described in Section 2 and set forth in Exhibit A attached hereto (the "**Permit Area**"), for the limited purpose and subject to the terms, conditions and restrictions set forth below. This Permit gives Permittee a license only, and notwithstanding anything to the contrary herein, this Permit does not constitute a grant by City of any ownership, leasehold, easement or other property interest or estate whatsoever in the Permit Area, or any portion thereof. The privilege given to Permittee under this Permit is effective only insofar as the rights of City in the Permit Area are concerned, and Permittee shall obtain any further permission necessary because of any other existing rights affecting the Permit Area.

**2. PERMIT AREA**

Subject to the terms, covenants and conditions set forth in this Permit, and shown on the plans attached hereto as Exhibit A (the "**Permit Area**"), Permittee shall have access to the Permit Area and portions of the common areas of SFGH Campus and the Building as provided in Section 13.1 (Permittee's Access).

As used herein, "Property" means the Permit Area, the Building, and real property upon which the Building is located and all other improvements and appurtenances to such land. In connection with its use of the Permit Area for the installation, use, and participation in the Building's distributed antenna system ("**DAS**"), owned and operated by City, City grants Permittee a nonexclusive license for the placement and use of Permittee's antennas, utility and fiber cabling, wires, conduits and other communications equipment (collectively, the "**Permittee Equipment**") reasonably necessary to connect Permittee's Equipment to the DAS, across the areas shown on the Approved Plans (as defined in Section 5.1 (Permittee Improvement Work)). Such license shall be temporary under and for the term of this Permit and shall terminate upon any termination of this Permit. City, in its sole discretion and at its sole cost and expense, may relocate the Permit Area upon sixty (60) days prior written notice to Permittee. Except as otherwise expressly permitted in this Permit, all Permittee's wires, cables, etc., that connect Permittee's Equipment located in different sites within, and on top of, any Building shall pass through existing openings in the Building's walls, floors, or ceilings unless Permittee reasonably determines that such existing openings are not usable. In such event, Permittee shall obtain the City's prior written consent to make any new penetrations through the Building walls, floors, or ceilings and roofs for any permittee cables, which consent will not be unreasonably withheld, conditioned or delayed.

To request City's consent to new penetrations, Permittee shall deliver such request to Permittee in writing, together with any information reasonably requested by City to analyze whether such proposed penetrations would negatively impact the Building's safety or structural integrity (a "**Request Notice**"). Such City-requested information may include an analysis of the impact of the proposed penetrations, prepared by a California-licensed structural engineer with reasonable experience in analyzing such issues.

### **3. USE OF PERMIT AREA**

#### **3.1 Scope of Permitted Use**

Permittee may enter and use the Permit Area for the sole purpose of constructing, installing, maintaining and participating operating Permittee's Equipment and for the transmission and reception of radio (tele) communication signals on various frequencies with Permittee's Equipment, and for no other purpose whatsoever. Permittee shall not interfere with the use and operation of the Building as a hospital and trauma center, nor the SFGH Campus.

#### **3.2 Prohibition on Co-location Without Landlord's Consent**

Co-location of facilities is prohibited except with the express written approval of landlord. A "co-located telecommunication facility" means a telecommunication or paging facility comprised of one or more antennas, dishes, or similar devices owned or used by more than one public or private entity that is not controlled by or under common control with Permittee. As used above, the term "control" shall mean **(a)** as to a corporation, the ownership of stock having the right to exercise more than fifty percent (50%) of the total combined voting power of all classes of stock of the controlled corporation, issued and outstanding, and **(b)** as to partnerships and other forms of business associations, ownership of more than fifty percent (50%) of the beneficial interest and voting control of such association. Tenant shall use its best efforts to provide City with notice in advance of any such permitted Assignment and in any event shall provide City with written notice no later than ten (10) days after the effective date of such permitted Assignment.

#### **3.3 Required Co-location**

Notwithstanding the foregoing, Permittee is on notice that Landlord may require Permittee to co-locate its facilities on the Permit Area with other facilities or providers or require Permittee to permit other facilities or providers to co-locate on Permittee's facilities.

Permittee shall cooperate and use commercially reasonable efforts to facilitate co-location of future paging and/or telecommunications facilities upon the Permit Area; provided, however, that Permittee shall not be under any such obligation if a proposed co-location causes interference with Permittee's existing use of the Permit Area. If no such interference would occur upon installation of a co-locator's equipment as reasonably determined by Landlord, then the proposed co-locator in each instance shall, as a condition precedent to any proposed co-location: **(i)** execute and deliver a co-location agreement prepared in commercially reasonable form by the proposed co-locator; **(ii)** pay all costs arising from or related to the co-location, including but not limited to any and all costs incurred by Permittee to accommodate such co-location; and **(iii)** reimburse Permittee a commercially reasonable percentage of costs and expenses (including capital expenditures) incurred by Permittee in connection with the development, use, or occupancy of the Permit Area prior to the co-location.

### **3.4 As Is**

PERMITTEE EXPRESSLY ACKNOWLEDGES AND AGREES THAT THE PERMIT AREA ARE BEING PERMITTED IN THEIR "AS IS, WITH ALL FAULTS" CONDITION, WITHOUT REPRESENTATION OR WARRANTY OF ANY KIND, AND SUBJECT TO ALL APPLICABLE LAWS, RULES AND ORDINANCES, INCLUDING, WITHOUT LIMITATION, ZONING ORDINANCES AND REGULATIONS GOVERNING THE USE, OCCUPANCY OR POSSESSION OF THE PERMIT AREA OR LICENSED AREAS. PERMITTEE REPRESENTS AND WARRANTS TO PERMITTOR THAT PERMITTEE HAS CONDUCTED A REASONABLY DILIGENT INVESTIGATION, EITHER INDEPENDENTLY OR THROUGH AGENTS OF PERMITTEE CHOOSING, OF THE CONDITION OF THE PERMIT AREA AND OF THE SUITABILITY OF THE PERMIT AREA FOR PERMITTEE'S INTENDED USE, AND PERMITTEE IS RELYING SOLELY ON ITS INDEPENDENT INVESTIGATION. PERMITTEE FURTHER REPRESENTS AND WARRANTS THAT ITS INTENDED USE OF THE PERMIT AREA IS THE USE DESCRIBED IN SECTION 3.1. PERMITTEE AGREES THAT NEITHER CITY NOR ANY OF ITS AGENTS HAVE MADE, AND CITY DISCLAIMS, ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE PHYSICAL, STRUCTURAL OR ENVIRONMENTAL CONDITION OF THE PERMIT AREA OR THE PRESENT OR FUTURE SUITABILITY OF THE PERMIT AREA OR LICENSED AREAS FOR THE CONDUCT OF PERMITTEE'S BUSINESS, OR ANY OTHER MATTER WHATSOEVER RELATING TO THE PERMIT AREA, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. FOR PURPOSES OF CALIFORNIA CIVIL CODE SECTION 1938, TO THE EXTENT APPLICABLE TO THIS PERMIT, THE BUILDING HAS NOT BEEN INSPECTED BY A CERTIFIED ACCESS SPECIALIST.

## **4. RESTRICTIONS ON USE**

Permittee shall use the Permit Area solely for such uses as are specified in Section 3 and for no other use. Permittee shall not interfere with the use and operation of the Building and SFGH Campus. Permittee agrees that, by way of example only and without limitation, the following uses of the Permit Area by Permittee or any other person claiming by or through Permittee are inconsistent with the limited purpose of this Permit and are strictly prohibited as provided below:

### **4.1 Improvements**

Except as otherwise expressly provided in this Permit, Permittee shall not construct or place any temporary or permanent structures or improvements on the Permit Area or in the Building, nor shall Permittee alter any existing structures or improvements on the Permit Area or in the Building.

### **4.2 Dumping**

Permittee shall not dump or dispose of refuse or other unsightly materials on, in, under or about the Permit Area.

#### **4.3 Hazardous Material**

Permittee shall not cause, nor shall Permittee allow any of its Agents or Invitees (as defined in Section 25 below) to cause, any Hazardous Material (as defined below) to be brought upon, kept, used, stored, generated or disposed of in, on or about the Permit Area, or transported to or from the Permit Area, other than materials commonly used in the operation of communications facilities in reasonable amounts, and stored, labeled and inventoried in conformance with state and local regulations. Permittee shall promptly notify City when Permittee learns of, or has reason to believe that, a release of Hazardous Material has occurred in, on or about the Permit Area. Permittee shall further comply with all laws requiring notice of such releases or threatened releases to governmental agencies, and shall take all action necessary to mitigate the release or minimize the spread of contamination. In the event that Permittee or its Agents or Invitees cause a release of Hazardous Material, Permittee shall, without cost to City and in accordance with all laws and regulations, return the Permit Area to the condition immediately prior to the release. In connection therewith, Permittee shall afford City a full opportunity to participate in any discussion with governmental agencies regarding any settlement agreement, cleanup or abatement agreement, consent decree or other compromise proceeding involving Hazardous Material. For purposes hereof, "Hazardous Material" means material that, because of its quantity, concentration or physical or chemical characteristics, is at any time now or hereafter deemed by any federal, state or local governmental authority to pose a present or potential hazard to public health, welfare or the environment. Hazardous Material includes, without limitation, any material or substance defined as a "hazardous substance, pollutant or contaminant" pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Sections 9601 et seq., or pursuant to Section 25316 of the California Health & Safety Code; a "hazardous waste" listed pursuant to Section 25140 of the California Health & Safety Code; any asbestos and asbestos containing materials whether or not such materials are part of the Permit Area or are naturally occurring substances in the Permit Area, and any petroleum, including, without limitation, crude oil or any fraction thereof, natural gas or natural gas liquids. The term "release" or "threatened release" when used with respect to Hazardous Material shall include any actual or imminent spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing in, on, under or about the Permit Area.

#### **4.4 No Illegal Uses or Nuisances**

Permittee shall not use or occupy any of the Permit Area, or permit the use or occupancy thereof, in any unlawful manner or for any illegal purpose, or permit to be carried on any offensive, immoral, noisy or hazardous use. Permittee shall not conduct any activities on or about the Permit Area that constitute waste, nuisance or unreasonable annoyance (including, without limitation, emission of objectionable odors, noises or lights) to City, to the owners or occupants of neighboring property or to the public. Permittee shall not advertise in any manner in areas outside the Permit Area or on or about the Building; provided, however that Permittee may place one identification plate on each antenna, and base station equipment component that comprises the Permittee's Equipment, which plate shall be no larger than two (2) inches by two (2) inches and shall be reasonably approved in advance by City, in order to identify Permittee's Equipment as belonging to Permittee.

#### **4.5 Damage**

Permittee shall not do anything about the Permit Area that will cause damage to any of City's property.

## **5. INSTALLATION OF IMPROVEMENTS**

### **5.1 Permittee Improvement Work**

Permittee may install certain improvements as more specifically depicted and described in Exhibit B attached hereto (the "Permittee Improvements") on the Permit Area only upon satisfaction of the following conditions, which are for the sole benefit of City:

Permittee shall commence to install Permittee's Equipment and other improvements on the Permit Area in accordance with the plans and specifications, which have been approved by City (such work is called the "Permittee Improvement Work" or "Permittee Improvements" and such plans and specifications are called the "Approved Plans"). A copy of the Approved Plans is attached hereto as Exhibit B. The Approved Plans may be altered, subject to the prior written and reasonable approval of City, if required in order for Permittee to obtain any permits or approvals necessary for construction of the Permittee Improvements.

Permittee shall not alter, replace, modify, or add to any of Permittee's Equipment without City's prior written consent; provided, however, that Permittee may perform maintenance, repairs, like-for-like exchanges or similar replacements of Permittee's Equipment and may make modifications within the interior of any of Permittee's Equipment without prior approval of City so long as the like-for-like exchanges or similar replacements of Permittee's Equipment are substantially similar in size and weight to the previous Permittee Equipment, do not pose any greater danger to the Building than the Permittee's Equipment to be so exchanged or replaced, will comply with Section 10.3 (Floor Load), and Permittee obtains all regulatory approvals required for such exchanges, replacements, or modifications. . Permittee acknowledges that City shall have the sole discretion in deciding whether to approve to any proposed addition to the Permittee's Equipment within the Permit Area or any proposed exchange or replacement of Permittee's Equipment that would result in any expansion of the Permit Area, including the right to condition such approval on an increase in Base Rent.

Permittee shall be responsible, at its cost, for performing the Permittee Improvement Work in accordance with the Approved Plans and otherwise in compliance with the standards contained in Section 6.1 (Permittee's Alterations). Permittee shall further be responsible, at its cost, for obtaining all permits and licenses required in connection with the Permittee Improvements and satisfy any conditions or mitigation measures approved in connection therewith. No Permittee Improvement Work shall commence until Permittee has first obtained all necessary permits and approvals for Permittee to be legally entitled to construct the Permittee Improvements.

### **5.2 Approval of Plans and Specifications**

Permittee shall install the Improvements in accordance with plans and specifications approved in advance and in writing by City.

### **5.3 Permits and Approvals**

Before beginning any work to install the Improvements ("Improvement Work"), Permittee shall obtain all permits, licenses and approvals (collectively, "approvals") of any regulatory agencies required to commence and complete the Improvements. Promptly upon receipt of such approvals, Permittee shall deliver copies of them to City. Permittee recognizes and agrees that no approval by City under this Permit for purposes of the Improvements shall be

deemed to constitute the approval of any federal, state or local regulatory authority with jurisdiction required for the Improvements, and nothing herein shall limit Permittee's obligation to obtain all such regulatory approvals, at Permittee's sole cost.

#### **5.4 Wages and Working Conditions**

Permittee agrees that any person performing labor in connection with the Improvements or with any other facilities or improvements to the Permit Area that are a "public work" as defined under San Francisco Administrative Code Section 6.22(E) or California Labor Code Section 1720 *et seq.* (which includes certain construction, alteration, demolition, installation, maintenance, repair, carpet laying, or refuse hauling work if paid for in whole or part out of public funds), shall be paid not less than the highest prevailing rate of wages consistent with the requirements of Section 6.22(E) of the San Francisco Administrative Code, and shall be subject to the same hours and working conditions, and shall receive the same benefits as in each case are provided for similar work performed in San Francisco County. Permittee shall include, in any contract for such Improvements or other facilities or improvements to the Permit Area, a requirement that all persons performing labor under such contract shall be paid not less than the highest prevailing rate of wages for the labor so performed. Permittee shall require any contractor to provide, and shall deliver to City upon request, certified payroll reports with respect to all persons performing such labor at the Permit Area.

#### **5.5 Exercise of Due Care**

Permittee shall use, and shall cause its Agents (as defined in Section 25 below) to use, due care at all times to avoid any damage or harm to City's property. Permittee shall do everything reasonably within its power, both independently and upon request by City, to prevent and suppress fires on and adjacent to the Permit Area attributable to Permittee's use hereunder.

#### **5.6 Cooperation with City Personnel**

Permittee and its Agents shall work closely with City personnel to avoid disruption (even if temporary) of City property in, under, on or about the Permit Area and City uses of the Permit Area.

#### **5.7 Work Schedule**

Permittee must begin any permitted installation work, within thirty (30) days after the commencement of the term of this Permit. Prior to the commencement of any work on the Permit Area Permittee shall notify John Applegarth (415.206.4906) of the date such work shall commence and the intended schedule. Permittee shall complete all work within forty-five (45) days after the date specified above for commencement of the work, subject to unavoidable delays. For purposes hereof, "unavoidable delays" shall mean any delays by reason of acts of God, accidents, breakage, repairs, strikes, lockouts, other labor disputes, inability to obtain labor or materials, enemy action, civil commotion, protests, riots, demonstrations, federal or state governmental restrictions, or by any other reason beyond the reasonable control of Permittee.

#### **5.8 As-Built Drawings**

Promptly upon completion of the installation of the improvements, Permittee shall furnish City with a complete copy of final as-built drawings for the Improvements.

## **5.9 Responsibility for Maintenance of Facilities**

Permittee shall be solely responsible for maintaining all facilities placed in or on the Permit Area pursuant hereto in good and safe condition, and City shall have no duty whatsoever for any maintenance of the Permit Area or any such facilities therein.

## **5.10 Revocability**

Permittee acknowledges and agrees that the installation of the facilities permitted hereunder shall not in any way whatsoever limit City's right to revoke this Permit pursuant to the terms hereof or any of City's other rights hereunder. This Permit will automatically terminate upon the execution of any lease or license involving the same Permittee Equipment and Improvements.

## **5.11 Local Hire Requirements**

Unless exempt, if the Permittee Improvement Work is estimated to cost more than \$750,000, Permittee agrees to comply with the San Francisco Local Hiring Policy set forth in San Francisco Administrative Code Section 6.22(G) in the performance of the Permittee Improvement Work. Prior to the commencement of the Permittee Improvement Work, Permittee shall contact City's Office of Economic Workforce and Development ("OEWD") to discuss the local hiring requirements issued by OEWD under the San Francisco Local Hiring Policy that apply to the Permittee Improvement Work, if any. Permittee shall comply with all OEWD requirements issued with respect to the San Francisco Local Hiring Policy and applicable to the Permittee Improvement Work.

## **5.12 Air-conditioning and Fire Suppression**

Permittee shall have the right (but not the obligation) to install and maintain at its own cost and expense a self-contained air-conditioning system and fire protection system on the Permit Area, as shown on the Approved Plans, if any. Installation of such systems shall be in compliance with Section 5.1 (Permittee Improvement Work) and Section 6.1 (Permittee's Alterations).

# **6. ALTERATIONS**

## **6.1 Permittee's Alterations**

Permittee shall not make or permit any alterations ("Alterations") to the Building or any of the heating, ventilating, air conditioning, plumbing, electrical, fire protection, life safety, security and other mechanical, electrical, and communications systems of the Building (collectively, "Building Systems"), or Permit Area except with City's prior written consent in each instance which may be withheld in City's sole discretion. All Alterations shall be done at Permittee's sole expense in accordance with plans and specifications approved by City, only by duly licensed and bonded contractors or mechanics, and subject to all other conditions which City may reasonably impose. If the cost of any Alterations to the Building (excluding any shown on the Approved Plans) is in excess of Five Thousand Dollars (\$5,000), then Permittee shall pay City an administrative fee equal to ten percent (10%) of the total "hard" costs of the work. "Hard costs" shall include the cost of materials and installation, but shall exclude any costs associated with design, such as architectural fees.

## **6.2 Title to and Removal of Permittee's Equipment**

Title to the Permittee Improvements, all permitted improvements or Permittee Equipment installed at and affixed to the Permit Area by Permittee and all of Permittee's personal property



(collectively, "Permittee's Property") shall remain the personal property of Permittee; provided, however, that any structural improvements to the Building made by Permittee shall become City's property and remain on the Permit Area. City hereby acknowledges that Permittee may grant to the vendor of the equipment to be installed at and affixed to the Permit Area a security interest in all equipment and fixtures owned by Permittee now or hereafter located at or on the Permit Area; provided no such security interest shall cover any portion of the Permit Area or the Building or City's property in, on or about the Building and further provided that any removal of such equipment or fixtures by the holder of any such security interest must be in compliance with the provisions of Section 19 (Surrender). Permittee may at any time, including any time it vacates the Permit Area (excluding the structural improvements referenced above), remove all of Permittee's Property from the Permit Area, subject to the provisions of Section 19.

Notwithstanding anything to the contrary in this Permit, City can elect at any time prior to the Expiration Date or within thirty (30) days after termination of this Permit to require Permittee to remove on the Expiration Date or any earlier termination of this Permit in accordance with Section 19 at Permittee's sole expense, all or part of any structural improvements to the Permit Area or the common areas of the Building made by City or Permittee, which were made in order to provide sufficient support for Permittee's equipment, and any antenna or tower supports, foundations, or base plates.

### **6.3 Local Hire Requirements**

Unless exempt, if the cost to make an approved Alteration is estimated to cost more than \$750,000, Permittee agrees to comply with the San Francisco Local Hiring Policy set forth in San Francisco Administrative Code Section 6.22(G) in the performance of such Alteration. Prior to the commencement of such Alteration, Permittee shall contact OEWD to discuss the local hiring requirements issued by OEWD under the San Francisco Local Hiring Policy that apply to such Alteration, if any. Permittee shall comply with all OEWD requirements issued with respect to the San Francisco Local Hiring Policy and applicable to such Alteration.

### **6.4 Taxes on Permittee's Property**

At least ten (10) days prior to delinquency, Permittee shall pay all taxes levied or assessed upon Permittee's Property and shall deliver satisfactory evidence of such payment to City promptly upon request.

## **7. CITY'S ALTERATIONS OF THE BUILDING AND BUILDING SYSTEMS**

City reserves the right at any time to make alterations, additions, repairs, deletions or improvements to all or any part of the Building, the Building Systems or the common areas of the Building, for any purpose including compliance with mandatory or voluntary controls or guidelines, subject to the following terms and conditions. In performing any such work, City shall make good faith efforts to give Permittee prior notice of such work and shall make reasonable efforts not to disrupt Permittee's normal use of Permittee's Equipment in the Permit Area. The making of any such alterations, additions, repairs, deletions or improvements shall in no event entitle Permittee to any damages, relieve Permittee of the obligation to pay the full Base Rent and Additional Charges reserved hereunder or to perform each of its other covenants hereunder or constitute or be construed as a constructive or other eviction of Permittee, provided that Permittee can still operate the Permit Area as a communications facility. During the period of any such alterations by City which materially impair Permittee's use of the Permit Area as a communications facility, Permittee shall have the right at no additional charge to bring into the Building and operate a portable generator and mobile communications facility and telescopic antennae or tower, in a mutually acceptable location and on the other terms and conditions negotiated between the parties.

## **8. REPAIRS AND MAINTENANCE**

### **8.1 City's Repairs**

City shall be responsible for maintenance of the Building and City agrees **(i)** to correct any immediately life-threatening or hazardous condition that affects any portion of the Building necessary for Permittee's use of the Permit Area as a communications facility, so long as such condition is not the result of damage or destruction discussed in Section 21 (Repair of Damage), the acts, omissions or negligence of Permittee or its Agents, such repair is not otherwise the responsibility of Permittee under Section 8.2 (Permittee's Repairs), and such condition is not disclosed to Permittee under any provision of this Permit or would not have otherwise been discovered by Permittee through a reasonably diligent inspection of the Permit Area prior to the reference date hereof, and **(ii)** to repair any condition caused by City or its permittees of the Building other than Permittee, which condition materially affects any portion of the Building necessary for Permittee's use of the Permit Area as a communications facility and is not caused by damage or destruction discussed in Section 21. Upon becoming aware of any such condition, Permittee shall give the City written notice of the need for any repair for which the City is responsible under the preceding sentence. In the event that the costs of making the corrections or repairs described in Subsections (i) or (ii) above exceed Ten Thousand Dollars (\$10,000.00), City may elect to terminate this Permit within thirty (30) days of the condition requiring correction or repair in lieu of making such corrections or repairs, provided however, that Permittee may elect to pay the portion of such costs in excess of Ten Thousand Dollars (\$10,000.00) necessary in order to make such correction or repairs, in which case City will proceed with the correction or repair.

### **8.2 Permittee's Repairs**

Permittee shall maintain all parts of its Permit Area and the Permittee Equipment at its sole expense, including without limitation, the floors, electrical wiring, fixtures and equipment, in good repair and working order and in a clean, safe and sanitary condition. Permittee shall make all repairs and replacements: **(a)** at Permittee's expense and at such time and, when required hereunder, in such manner as reasonably approved by City, **(b)** by duly licensed and bonded contractors or mechanics, **(c)** in a manner and using equipment and materials which will not interfere with or impair City's operations, use or occupation of the Building or the Building Systems, and **(d)** in accordance with any Building rules and regulations, including those set forth in Exhibit C, which shall be presented upon request by Permittee and all applicable Laws (as defined in Section 16 (Compliance with Laws)).

## **9. LIENS**

Permittee shall keep the Permit Area and the Building free from any liens arising out of any work performed, material furnished or obligations incurred by or for Permittee. In the event Permittee shall not, within thirty (30) days following the imposition of any such lien, cause the lien to be released of record by payment or posting of a proper bond, City shall have in addition to all other remedies provided herein and by law or equity the right, but not the obligation, to cause the same to be released by such means as it shall deem proper, including, but not limited to, payment of the claim giving rise to such lien. All such sums paid by City and all expenses incurred by it in connection therewith (including, without limitation, reasonable attorneys' fees) shall be payable to City by Permittee within thirty (30) days after receipt of notice. City shall have the right at all times to post and keep posted on the Permit Area any notices permitted or required by law or that City shall deem proper for the protection of City, the Permit Area, and the Building, from mechanics' and material supplier's liens. Permittee shall give to City at least fifteen (15) days' prior written notice of commencement of any repair or construction on the Permit Area except for minor and routine repair and maintenance for which Permittee is responsible hereunder. Permittee shall not create, permit or suffer any other encumbrances

affecting any portion of the Permit Area or the Building except as expressly permitted under this Lease or without first obtaining the written consent of City, which City may give or withhold in its sole discretion.

## **10. UTILITIES AND SERVICES**

### **10.1 Utilities and Services**

City shall furnish, at its cost, any and all utilities or services necessary or appropriate for Permittee's use, installation, construction and operation of its Improvements and Equipment for the DAS in the Building. Should any governmental entity promulgate or revise any statute, ordinance or building, fire or other code or impose mandatory or voluntary controls or guidelines on City or the Building or any part thereof, relating to the use or conservation of energy or electricity, or in the event City is required or elects to make alterations to any part of the Building in order to comply with such mandatory or voluntary controls or guidelines, City may charge Permittee for the difference in the utility or service charge, if any, due to any such alterations. Permittee shall not: (a) connect or use any electrical equipment that exceeds the capacity of the Building electrical system; or (b) connect any apparatus, machine or device through electrical outlets except in the manner for which such outlets are designed, except for such modifications as may be shown on the Approved Plans and for any other such modifications at Permittee's sole cost as are reasonably approved in writing in advance by City.

### **10.2 Mandatory or Voluntary Restrictions**

In the event City provides any utilities for a service charge pursuant to Section 10.1 (Utilities and Services), and any governmental entity promulgates or revises any statute, ordinance or building, fire or other code or imposes mandatory or voluntary controls or guidelines on City or the Building or any part thereof, relating to the use or conservation of energy or electricity, or in the event City is required or elects to make alterations to any part of the Building in order to comply with such mandatory or voluntary controls or guidelines, such compliance and the making of such alterations shall in no event entitle Permittee to any damages, relieve Permittee of the obligation to pay any Additional Charges reserved hereunder or to perform each of its other covenants hereunder or constitute or be construed as a constructive or other termination of this Permit, provided that Permittee can still install, maintain and operate its equipment.

### **10.3 Floor Load**

Without the prior written consent of City, which City may give or refuse in City's sole discretion, Permittee shall not place or install in the Permit Area any machine, equipment, structure or other improvement the weight of which shall exceed the normal loadbearing capacity of the floors or roof of the Building, except as may be shown in the Approved Plans. If City consents to the placement or installation of any such machine or equipment in the Permit Area, Permittee at its sole expense shall reinforce the floor(s) or roof of the Permit Area in the area of such placement or installation, pursuant to plans and specifications reasonably approved by City and otherwise in compliance with Section 6.1 (Permittee's Alterations), to the extent necessary to assure that no damage to the Permit Area or the Building or weakening of any structural supports will be occasioned thereby.

## **11. PERMIT FEES**

In consideration of the benefit to SFGH, its patients, doctors, staff and visitors, for every month that Permittee is participating in the DAS, all fees, utility charges, and rent, if any, shall be waived by the City. If and when the Building ceases to be used as Zuckerberg San Francisco General Hospital and Trauma Center, this Permit shall automatically terminate and Permittee

shall immediately remove its equipment pursuant to Section 18 (Removal or Alteration of Equipment). If Permittee ceases to participate in the DAS but does not vacate the Premises, Permittee shall pay all fees, utilities and rent.

## **12. TERM OF PERMIT**

The privilege given to Permittee pursuant to this Permit is temporary only and shall commence on the date of full execution hereof (the "Commencement Date"), and shall expire on April 30, 2017, or the date of commencement of a lease agreement between the parties, unless sooner terminated pursuant to the terms hereof (the "Term"). Without limiting any of its rights hereunder, City may at its sole option freely revoke this Permit at any time prior to such expiration date, without cause and without any obligation to pay any consideration to Permittee.

If Permittee continues to operate in the Permit Area after the expiration of the term with the express consent of City, such use shall be construed to automatically extend the term of this Permit on a month-to-month basis on the terms and conditions herein specified so far as applicable (except for those pertaining to the term). Any continued use of the Permit Area after the expiration of the term without the City's consent shall be at a monthly permit fee equal to Five Thousand Dollars (\$5,000.00) per month, and shall constitute a default by Permittee and entitle City to exercise any or all of its remedies as provided in this Permit, notwithstanding that City may elect to accept one or more payments of the monthly permit fee.

## **13. ACCESS TO PERMIT AREA**

### **13.1 Permittee's Access to the Permit Area**

City hereby grants to Permittee during the Term of this Permit and for the limited purposes and subject to the terms and conditions set forth below, a nonexclusive license in and over the following common areas of the Building to the Permit Area: areas providing physical access by personnel and equipment including ramps, loading docks, walkways, staircases, and ladders; the roof; transmitter room and, penthouse room on and in which Permittee's Equipment is installed as shown on Exhibits A and B. Use of such areas shall be subject to City's rights under Section 8.1 (City's Alterations of Building and Building Systems). The license granted to Permittee hereunder is for the sole purpose of constructing, maintaining, restoring, replacing and operating Permittee's Equipment located within the Permit Area or the common areas of the Building, including any necessary electrical and telephone conduits, in accordance with the use permitted under this Permit.

Such rights shall include the right of ingress and egress through the Building during non-business hours for access to or from the Permit Area or Permittee's Equipment, provided that Permittee shall provide City with at least forty-eight (48) hours prior written notice of any requested access (except in the event of an emergency), shall only access the Permit Area or any Permittee Equipment elsewhere in the Building while accompanied by a designated City representative, and shall comply with all reasonable requirements of such designated person with respect to Permittee's requested access. In the event of an emergency, Permittee shall have the right to enter the Permit Area (or the Building with respect to accessing any Permittee Equipment) if a designated City representative is not available to accompany Permittee at such time and following such access, Permittee promptly notifies the Key Contact for Landlord designated in Section 42.

### **13.2 City's Access to the Permit Area**

City and its designated Agents shall the right to enter the Permit Area at all times with reasonable notice (except in the event of an emergency) for any of the following purposes:

(a) To determine whether the Permit Area are in good condition and to inspect the Permit Area;

(b) To determine whether Permittee is in compliance with its obligations hereunder and to cure or attempt to cure any default in accordance with the provisions of Section 24 (City's Right to Cure Defaults) hereof;

(c) To serve, post or keep posted any notices required or allowed under any provisions of this Permit or required under any applicable law; and

(d) To do any maintenance or repairs to the Permit Area that City has the right or the obligation, if any, to perform hereunder.

(e) However, City shall not be allowed to access or handle Permittee's Equipment in any way except as set forth in Section 13.3.

### **13.3 Emergency Access**

In the event of any emergency that could result in imminent danger of bodily harm or damage to property, as reasonably determined by City, City may, at its sole option and without notice (provided that City shall make reasonable efforts to provide Permittee with notice when feasible in light of the exigent circumstances) enter the Permit Area and alter or remove Permittee's Property on or about the Permit Area. City shall have the right to use any and all means City considers appropriate to gain access to any portion of the Permit Area in an emergency. In such case, City shall not be responsible for any damage or injury to any such property, nor for the replacement of any such property and any such emergency entry shall not be deemed to be a forcible or unlawful entry onto or a detainer of, the Permit Area, or any eviction, actual or constructive, of Permittee from the Permit Area or any portion thereof.

### **13.4 No Liability**

City shall not be liable in any manner, and Permittee hereby waives any claims, for any inconvenience, disturbance, loss of business, nuisance or other damage arising out of City's entry onto the Permit Area, except damage resulting directly and exclusively from the active negligence or willful misconduct of City or its Agents and not contributed to by the acts, omissions or negligence of Permittee, its Agents or Invitees.

### **13.5 Minimize Disruption**

City shall use its reasonable good faith efforts to conduct any activities on the Permit Area allowed under this Section 13 in a manner that, to the extent practicable, will minimize any disruption to Permittee's use hereunder.

## **14. INSURANCE**

(a) Permittee shall procure and keep in effect at all times during the term of this Permit, at Permittee's expense insurance as follows (and cause its contractors and subcontractors to maintain at all times during any construction activities on the Permit Area substantially the same insurance as Permittee):

(i) Commercial General Liability Insurance with limits of Two Million Dollars (\$2,000,000) each occurrence Combined Single Limit for Bodily Injury and Property Damage and Four Million Dollars (\$4,000,000) general aggregate, including Contractual Liability, Personal and Advertising Injury, Independent Contractors, Explosion, Collapse and Underground (XCU), and Products Liability and Completed Operations;

(ii) Commercial Automobile Liability Insurance in the amount of One Million Dollars (\$1,000,000) Combined Single Limit each accident for Bodily Injury and Property Damage, covering all owned, non-owned and hired automobiles, as applicable; and

(iii) Workers' Compensation Insurance in compliance with the state of operation and Employer's Liability Coverage with limits of One Million Dollars (\$1,000,000) each accident/disease/policy limit.

(b) The commercial general liability and commercial automobile liability policies required hereunder shall: (i) include as an additional insured, the City and County of San Francisco and its officers and employees; and (ii) specify that such policies are primary insurance to any other insurance available to the additional insureds, with respect to claims arising out of this Permit and that insurance applies separately to each insured against whom claim is made or suit is brought. Such policies shall also provide for severability of interests and that an act or omission of one of the named insureds which would void or otherwise reduce coverage shall not reduce or void the coverage as to any insured, and shall afford coverage for all claims based on acts, omissions, injury or damage which occurred or arose out of the service provided under this Permit.

(c) Upon the commencement date of this Permit, Permittee shall deliver to City certificates of insurance and blanket additional insured endorsements from insurers in a form satisfactory to City, evidencing the coverages required hereunder.

(d) Upon City's request, Permittee and City shall periodically review the limits and types of insurance carried pursuant to this Section. If the general commercial practice in the City and County of San Francisco is to carry liability insurance in an amount or coverage materially greater than the amount or coverage then being evidenced by Permittee for risks comparable to those associated with the Permit Area, then City may require Permittee to increase the amounts or coverage carried by Permittee hereunder to conform to such general commercial practice.

(e) Permittee's compliance with the provisions of this Section shall in no way relieve or decrease Permittee's indemnification obligations under this Permit or any of Permittee's other obligations hereunder. Notwithstanding anything to the contrary in this Permit, this Permit shall terminate immediately, without notice to Permittee, upon the lapse of any required insurance coverage. Permittee shall be responsible, at its expense, for separately insuring Permittee's personal property.

## **15. SECURITY FOR PERFORMANCE**

At or before the date for commencement of this Permit, Permittee shall deposit with City the sum of Five Thousand Dollars \$5,000.00 (the "Security Deposit") to secure Permittee's faithful performance of all terms and conditions of this Permit, including, without limitation, its obligation to surrender the Permit Area in the condition required by this Permit. Such Security Deposit shall be in the form of cash. The amount of the security deposit shall not limit Permittee's obligations under this Permit. Permittee agrees that City may (but shall not be required to) apply the Security Deposit in whole or in part to remedy any damage to the Permit Area caused by Permittee, its Agents or Invitees, or any failure of Permittee to perform any other terms, covenants or conditions contained herein (including, but not limited to, the payment of

permit fees or other sum due hereunder either before or after a default), without waiving any of City's other rights and remedies hereunder or at law or in equity and without any obligation. Permittee waives the provisions of Section 1950.7 of the California Civil Code or any similar law, statute or ordinance now or hereafter in effect and agrees that City may retain any portion of the Security Deposit reasonably necessary to compensate City for any other foreseeable or unforeseeable loss or damage caused by the acts or omissions of Permittee, its Agents or Invitees.

Should City use any portion of the Security Deposit to cure any default by Permittee hereunder, Permittee shall replenish the Security Deposit to the original amount within thirty (30) days after receipt of an invoice from City. City's obligations with respect to the Security Deposit are solely that of debtor and not trustee. City shall not be required to keep the Security Deposit separate from its general funds, and Permittee shall not be entitled to interest on the Security Deposit. The amount of the Security Deposit shall in no way limit the liabilities of Permittee under any provision of this Permit.

## 16. COMPLIANCE WITH LAWS

Permittee shall, at its expense, conduct and cause to be conducted all activities on the Permit Area allowed hereunder in a safe and prudent manner and in compliance with all laws, regulations, codes, ordinances and orders of any governmental or other regulatory entity (including, without limitation, the Americans with Disabilities Act and any other disability access laws), whether presently in effect or subsequently adopted and whether or not in the contemplation of the parties. Permittee shall, at its sole expense, procure and maintain in force at all times during its use of the Permit Area any and all business and other licenses or approvals necessary to conduct the activities allowed hereunder. Permittee understands and agrees that City is entering into this Permit in its capacity as a property owner with a proprietary interest in the Permit Area and not as a regulatory agency with police powers. Nothing herein shall limit in any way Permittee's obligation to obtain any required regulatory approvals from City departments, boards or commissions or other governmental regulatory authorities or limit in any way City's exercise of its police powers.

Permittee, at Permittee's expense, shall promptly maintain the Permit Area, any Permittee Improvements and Permittee's Alterations and any other improvements and equipment permitted hereunder, and Permittee's use and operations thereon, in strict compliance with all present and future laws, orders and regulations of federal, state, county and municipal authorities (collectively, "**Laws**") relating to the Permit Area or the use or occupancy thereof, whether foreseen or unforeseen, ordinary as well as extraordinary. Such Laws shall include, without limitation, all Laws relating to health and safety and disabled accessibility including, without limitation, the Americans with Disabilities Act, 42 U.S.C. Section 12101 et seq. (insofar as such Act relates to Permittee's unique use) and Title 24 of the California Code of Regulations, all present and future environmental Laws, and all present and future life safety, fire sprinkler, seismic retrofit and other building code requirements. Any work or installations made or performed by or on behalf of Permittee or any person or entity claiming through or under Permittee pursuant to the provisions of this Section shall be made in conformity with and subject to the provisions of Section 8.2 (Permittee's Repairs). In making any application to City's Planning Department for the Communications Site, Permittee agrees to act as both "Applicant" and "Project Sponsor." A copy of all conditional use permits authorizing use of the Permit Area shall be copied to the Director of Property and Department of Public Health before commencement of any Permittee Improvements.

The parties acknowledge and agree that Permittee's obligation to comply with all Laws as provided herein is a material part of the bargained-for consideration under this Permit. Permittee's obligation under this Section shall include, without limitation, the responsibility of Permittee to make substantial or structural repairs and alterations to the Permit Area (including

any of the Permittee Improvements or any of Permittee's Alterations), regardless of, among other factors, the length of the then remaining Term hereof, the relative benefit of the repairs to Permittee or City, the degree to which the curative action may interfere with Permittee's use or enjoyment of the Permit Area, the likelihood that the parties contemplated the particular Law involved, and whether the Law involved is related to Permittee's particular use of the Permit Area. No occurrence or situation arising during the Term, nor any present or future Law, whether foreseen or unforeseen, and however extraordinary, shall relieve Permittee from its obligations hereunder, or shall give Permittee any right to terminate this Permit in whole or in part or to otherwise seek redress against City. Except as expressly provided herein, Permittee waives any rights now or hereafter conferred upon it by any existing or future Law to terminate this Permit, or to compel City to make any repairs to comply with any such Laws, on account of any such occurrence or situation.

Permittee understands and agrees that City is entering into this Permit in its capacity as a property owner with a proprietary interest in the Permit Area and not as a regulatory agency with police powers. Nothing in this Permit shall limit in any way Permittee's obligation to obtain any required regulatory approvals from City departments, boards or commissions having jurisdiction over the Permit Area. By entering into this Permit, City is in no way modifying or limiting Permittee's obligation to cause the Permit Area to be used and occupied in accordance with all Laws as provided above.

#### **16.1 Licenses and Approvals**

Permittee represents and warrants that it has acquired all licenses, permits, and other approvals, if any, required under all federal, state, and local laws for the operation of Permittee's Equipment on the Permit Area. Permittee shall maintain all such licenses, permits or other approvals throughout the Term of this Permit.

#### **16.2 Radiofrequency Radiation and Electromagnetic Fields**

Permittee shall comply with all present and future laws, orders and regulations of federal, state, county and municipal authorities relating to allowable presence of or human exposure to Radiofrequency Radiation ("RFs") or Electromagnetic Fields ("EMFs") on or off the Permit Area, including without limitation, all applicable standards adopted by the Federal Communications Commission ("FCC"), whether such RF or EMF presence or exposure results from Permittee's Equipment alone or from the cumulative effect of Permittee's Equipment added to all other sources in the Building. City shall not agree to allow any third party entering into an occupancy or use agreement after the Commencement Date to cause an increase in RF or EMF levels in the Building such that the cumulative levels applicable standards adopted by the Federal Communications Commission. The parties agree that RFs and EMFs are exclusively regulated at the federal level as of Commencement Date or as may change pursuant to FCC standards and regulations. If the cumulative effect of City's use of the Building taken together with Permittee's use hereunder and other Permittee(s) whose use predated the Commencement Date exceeds such standards, Permittee shall have the right to terminate this Permit without penalty upon ninety (90) days' prior written notice to City. Without limiting the provisions of Permittee's indemnity contained in Section 25 (Indemnity), Permittee, on behalf of itself and its successors and assigns, shall indemnify the "Indemnified Parties," and each of them, from and against all "Claims" incurred in connection with or arising in whole or in part from the presence of or exposure to RFs or EMFs resulting from Permittee's use of the Permit Area.



### **16.3 Compliance with City's Risk Management Requirements**

Permittee shall not do anything, or permit anything to be done, in or about the Permit Area which would create any unusual fire risk, and shall take commercially reasonable steps to protect City from any potential Permit Area liability by reason of any business operation being conducted by Permittee in the Permit Area. Permittee, at Permittee's expense, shall comply with all reasonable rules, orders, regulations or requirements of City's Risk Manager.

### **17. COVENANT TO MAINTAIN PERMIT AREA**

In connection with its use hereunder, Permittee shall at all times, at its sole cost, maintain the Permit Area in a good, clean, safe, secure, sanitary and slightly condition, so far as the Permit Area may be affected by Permittee's activities hereunder.

### **18. REMOVAL OR ALTERATION OF IMPROVEMENTS**

Without limiting any of City's other rights hereunder, Permittee shall promptly, at City's request, alter or remove at its sole expense any and all improvements or other property installed or placed in, on, under or about the Permit Area by Permittee, as may be necessary to avoid any actual or potential interference with any public utilities now or later installed in, on, under or about the Permit Area, with the maintenance or repair thereof, or otherwise with any public trust uses or any other municipal operations or uses by City. In the event of an emergency City may, at its sole option and without notice, alter, remove or protect at Permittee's sole expense, any and all facilities, improvements, plantings or other property installed or placed in, on, under or about the Permit Area by Permittee.

### **19. SURRENDER**

Upon the expiration of this Permit or within forty-five (45) days after any revocation or other termination of this Permit, if the Permittee and the City have not entered into a Lease Agreement, Permittee shall surrender the Permit Area in the same condition as received, and broom clean, free from hazards, and clear of all debris. At such time, Permittee shall remove all of its property from the Permit Area and any signs or any other improvements permitted hereunder, and shall repair, at its cost, any damage to the Permit Area caused by such removal. Permittee's obligations under this Section shall survive any termination of this Permit.

### **20. WAIVER OF CLAIMS; WAIVER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES**

(a) Neither City nor any of its commissions, departments, boards, officers, agents or employees shall be liable for any damage to the property of Permittee, its officers, agents, employees, contractors or subcontractors, or their employees, or for any bodily injury or death to such persons, resulting or arising from the condition of the Permit Area or its use by Permittee.

(b) Permittee acknowledges that this Permit is freely revocable by City and in view of such fact, Permittee expressly assumes the risk of making any expenditures in connection with this Permit, even if such expenditures are substantial. Without limiting any indemnification obligations of Permittee or other waivers contained in this Permit and as a material part of the consideration for this Permit, Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against, and covenants not to sue, City, its departments, commissions, officers, directors and employees, and all persons acting by, through or under each of them, under any present or future laws, statutes, or regulations, including, but not limited to, any claim for inverse condemnation or the payment of just compensation under the law of eminent domain, or otherwise at equity, in the event that City exercises its right to revoke or terminate this Permit.

(c) Permittee acknowledges that it will not be a displaced person at the time this Permit is terminated or revoked or expires by its own terms, and Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against, and covenants not to sue, City, its departments, commissions, officers, directors and employees, and all persons acting by, through or under each of them, under any present or future laws, statutes, or regulations, including, without limitation, any and all claims for relocation benefits or assistance from City under federal and state relocation assistance laws.

Permittee expressly acknowledges and agrees that the fees payable hereunder do not take into account any potential liability of City for any consequential or incidental damages including, but not limited to, lost profits and business interference arising out of disruption to the facilities or Permittee's uses hereunder. City would not be willing to give this Permit in the absence of a complete waiver of liability for consequential or incidental damages due to the acts or omissions of City or its Agents, and Permittee expressly assumes the risk with respect thereto. Accordingly, without limiting any indemnification obligations of Permittee or other waivers contained in this Permit and as a material part of the consideration for this Permit, Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against for consequential and incidental damages (including without limitation, lost profits and business interference), and covenants not to sue for such damages, City, its departments, commissions, officers, directors and employees, and all persons acting by, through or under each of them, arising out of this Permit or the uses authorized hereunder, including, without limitation, any interference with uses conducted by Permittee pursuant to this Permit, regardless of the cause, and whether or not due to the negligence of City or its Agents, except for the active negligence or willful misconduct of City or its Agents.

(d) In connection with the foregoing releases, Permittee acknowledges that it is familiar with Section 1542 of the California Civil Code, which reads:

**A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor.**

Permittee acknowledges that the releases contained herein includes all known and unknown, disclosed and undisclosed, and anticipated and unanticipated claims. Permittee realizes and acknowledges that it has agreed upon this Permit in light of this realization and, being fully aware of this situation, it nevertheless intends to waive the benefit of Civil Code Section 1542, or any statute or other similar law now or later in effect. The releases contained herein shall survive any termination of this Permit.

## **21. REPAIR OF DAMAGE**

If any portion of the Permit Area or any property of City located on or about the Permit Area is damaged by any of the activities conducted by Permittee hereunder, Permittee shall promptly, at its sole cost, repair any and all such damage and restore the Permit Area or property to its previous condition.

## **22. SIGNS**

Permittee shall not place, erect or maintain any sign, advertisement, banner or similar object on or about the Permit Area, except for any temporary sign that is necessary for Permittee's use so long as Permittee first obtains City's written consent, which City may give or withhold in its sole discretion.

**23. CITY'S RIGHT TO CURE DEFAULTS BY PERMITTEE**

If Permittee fails to perform any of its obligations under this Permit, to restore the Permit Area or repair damage, or if Permittee defaults in the performance of any of its other obligations under this Permit, then City may, at its sole option, remedy such failure for Permittee's account and at Permittee's expense by providing Permittee with three (3) days' prior written or oral notice of City's intention to cure such default (except that no such prior notice shall be required in the event of an emergency as determined by City). Such action by City shall not be construed as a waiver of any rights or remedies of City under this Permit, and nothing herein shall imply any duty of City to do any act that Permittee is obligated to perform. Permittee shall pay to City within thirty (30) days after receipt of notice, all costs, damages, expenses or liabilities incurred by City, including, without limitation, reasonable attorneys' fees, in remedying or attempting to remedy such default. Permittee's obligations under this Section shall survive the termination of this Permit.

**24. NO COSTS TO CITY**

Permittee shall bear all costs or expenses of any kind or nature in connection with its use of the Permit Area.

**25. INDEMNITY**

Permittee shall indemnify, defend and hold harmless City, its officers, agents, employees and contractors, and each of them, from and against any and all demands, claims, legal or administrative proceedings, losses, costs, penalties, fines, liens, judgments, damages and liabilities of any kind (collectively, "Losses"), arising in any manner out of (a) any injury to or death of any person or damage to or destruction of any property occurring in, on or about the Permit Area, or any part thereof, whether the person or property of Permittee, its officers, agents, employees, contractors or subcontractors (collectively, "Agents"), its invitees, guests or business visitors (collectively, "Invitees"), or third persons, relating in any manner to any use or activity by Permittee, its Agents or Invitees under this Permit, (b) any failure by Permittee to faithfully observe or perform any of the terms, covenants or conditions of this Permit, (c) the use of the Permit Area or any activities conducted thereon by Permittee, its Agents or Invitees, or (d) any release or discharge, or threatened release or discharge, of any Hazardous Material caused or allowed by Permittee, its Agents or Invitees, on, in, under or about the Permit Area, any improvements permitted thereon, or into the environment; except solely to the extent of Losses resulting directly from the active negligence or willful misconduct of City or City's authorized representatives. The foregoing indemnity shall include, without limitation, reasonable attorneys' and consultants' fees, investigation and remediation costs and all other reasonable costs and expenses incurred by the indemnified parties, including, without limitation, damages for decrease in the value of the Permit Area and claims for damages or decreases in the value of adjoining property. Permittee specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnity provision even if such allegation is or may be groundless, fraudulent or false, which obligation arises at the time such claim is tendered to Permittee by City and continues at all times thereafter. Permittee's obligations under this Section shall survive the expiration or other termination of this Permit.

**26. "AS IS" CONDITION OF PERMIT AREA; DISABILITY ACCESS; DISCLAIMER OF REPRESENTATIONS**

Permittee accepts the Permit Area in its "AS IS" condition, without representation or warranty of any kind by City, its officers, agents or employees, including, without limitation, the suitability, safety, or duration of availability of the Permit Area or any facilities on the Permit Area for Permittee's use. Without limiting the foregoing, this Permit is made subject to all

applicable laws, rules and ordinances governing the use of the Permit Area, and to any and all covenants, conditions, restrictions, easements, encumbrances, claims of title and other title matters affecting the Permit Area, whether foreseen or unforeseen, and whether such matters are of record or would be disclosed by an accurate inspection or survey. It is Permittee's sole obligation to conduct an independent investigation of the Permit Area and all matters relating to its use of the Permit Area hereunder, including, without limitation, the suitability of the Permit Area for such uses. Permittee, at its own expense, shall obtain such permission or other approvals from any third parties with existing rights as may be necessary for Permittee to make use of the Permit Area in the manner contemplated hereby.

Under California Civil Code Section 1938, to the extent applicable to this Permit, Permittee is hereby advised that the Permit Area has undergone inspection by a Certified Access Specialist ("CASp") to determine whether it meets all applicable construction-related accessibility requirements.

Permittee is hereby advised that the CASp found the Permit Area meets all applicable construction-related accessibility requirements pursuant to California Civil Code Section 55.53.

**27. NO ASSIGNMENT**

This Permit is personal to Permittee and shall not be assigned, conveyed or otherwise transferred by Permittee under any circumstances. Any attempt to assign, convey or otherwise transfer this Permit shall be null and void and cause the immediate termination and revocation of this Permit.

**28. CESSATION OF USE**

Permittee will not terminate its activities on the Permit Area pursuant hereto without prior written notice to City.

**29. NO JOINT VENTURES OR PARTNERSHIP; NO AUTHORIZATION**

This Permit does not create a partnership or joint venture between City and Permittee as to any activity conducted by Permittee on, in or relating to the Permit Area. Permittee is not a State actor with respect to any activity conducted by Permittee on, in, or under the Permit Area. The giving of this Permit by City does not constitute authorization or approval by City of any activity conducted by Permittee on, in or relating to the Permit Area.

**30. MACBRIDE PRINCIPLES - NORTHERN IRELAND**

The provisions of San Francisco Administrative Code §12F are incorporated herein by this reference and made part of this Agreement. By signing this Permit, Permittee confirms that Permittee has read and understood that City urges companies doing business in Northern Ireland to resolve employment inequities and to abide by the MacBride Principles, and urges San Francisco companies to do business with corporations that abide by the MacBride Principles.

**31. NON-DISCRIMINATION**

**31.1 Covenant Not to Discriminate**

In the performance of this Permit, Permittee agrees not to discriminate against any employee of, any City employee working with Permittee, or applicant for employment with Permittee, or against any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations, on the

basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age, height, weight, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status), or association with members of such protected classes, or in retaliation for opposition to discrimination against such classes.

### **31.2 Subcontracts**

Permittee shall include in all subcontracts relating to the Permit Area a non-discrimination clause applicable to such subcontractor in substantially the form of Subsection 31.1 above. In addition, Permittee shall incorporate by reference in all subcontracts the provisions of Sections 12B.2(a), 12B.2(c)-(k), and 12C.3 of the San Francisco Administrative Code and shall require all subcontractors to comply with such provisions. Permittee's failure to comply with the obligations in this Subsection shall constitute a material breach of this Permit.

### **31.3 Non-Discrimination in Benefits**

Permittee does not as of the date of this Permit and will not during the term of this Permit, in any of its operations in San Francisco, on real property owned by City, or where the work is being performed for the City or elsewhere within the United States, discriminate in the provision of bereavement leave, family medical leave, health benefits, membership or membership discounts, moving expenses, pension and retirement benefits or travel benefits, as well as any benefits other than the benefits specified above, between employees with domestic partners and employees with spouses, and/or between the domestic partners and spouses of such employees, where the domestic partnership has been registered with a governmental entity pursuant to state or local law authorizing such registration, subject to the conditions set forth in Section 12B.2(b) of the San Francisco Administrative Code.

### **31.4 Condition to Permit**

As a condition to this Permit, Permittee shall execute the "Chapter 12B Declaration: Nondiscrimination in Contracts and Benefits" form (Form CMD-12B-101) with supporting documentation and secure the approval of the form by the San Francisco Contract Monitoring Division (the "CMD"). Permittee hereby represents that prior to execution of this Permit, Permittee executed and submitted to the CMD Form CMD-12B-101 with supporting documentation.

### **31.5 Incorporation of Administrative Code Provisions by Reference**

The provisions of Chapters 12B and 12C of the San Francisco Administrative Code relating to non-discrimination by parties contracting for the use of City property are incorporated in this Section by reference and made a part of this Agreement as though fully set forth herein. Permittee shall comply fully with and be bound by all of the provisions that apply to this Permit under such Chapters of the Administrative Code, including but not limited to the remedies provided in such Chapters. Without limiting the foregoing, Permittee understands that pursuant to Section 12B.2(h) of the San Francisco Administrative Code, a penalty of Fifty Dollars (\$50) for each person for each calendar day during which such person was discriminated against in violation of the provisions of this Permit may be assessed against Permittee and/or deducted from any payments due Permittee.

## **32. TROPICAL HARDWOODS AND VIRGIN REDWOOD BAN**

The City and County of San Francisco urges companies not to import, purchase, obtain or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product, except as expressly permitted by the application of

Sections 802(b) and 803(b) of the San Francisco Environment Code. Permittee agrees that, except as permitted by the application of Sections 802(b) and 803(b), Permittee shall not use or incorporate any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product in the performance of this Permit.

### **33. NOTIFICATION OF LIMITATIONS ON CONTRIBUTIONS**

Through its execution of this Permit, Permittee acknowledges that it is familiar with Section 1.126 of the San Francisco Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the selling or leasing of any land or building to or from the City whenever such transaction would require the approval by a City elective officer, the board on which that City elective officer serves, or a board on which an appointee of that individual serves, from making any campaign contribution to (1) the City elective officer, (2) a candidate for the office held by such individual, or (3) a committee controlled by such individual or candidate, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. Permittee acknowledges that the foregoing restriction applies only if the contract or a combination or series of contracts approved by the same individual or board in a fiscal year have a total anticipated or actual value of \$50,000 or more. Permittee further acknowledges that the prohibition on contributions applies to each Permittee; each member of Permittee's board of directors, and Permittee's chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than twenty percent (20%) in Permittee; any subcontractor listed in the contract; and any committee that is sponsored or controlled by Permittee. Additionally, Permittee acknowledges that Permittee must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126. Permittee further agrees to provide to City the names of each person, entity or committee described above.

### **34. POSSESSORY INTEREST TAXES**

Permittee recognizes and understands that this Permit may create a possessory interest subject to property taxation and that Permittee may be subject to the payment of property taxes levied on such interest under applicable law. Permittee agrees to pay taxes of any kind, including possessory interest taxes, if any, that may be lawfully assessed on Permittee's interest under this Permit or use of the Permit Area pursuant hereto and to pay any other taxes, excises, licenses, permit charges or assessments based on Permittee's usage of the Permit Area that may be imposed upon Permittee by applicable law. Permittee shall pay all of such charges when they become due and payable and before delinquency.

### **35. PESTICIDE PROHIBITION**

Permittee shall comply with the provisions of Section 308 of Chapter 3 of the San Francisco Environment Code (the "Pesticide Ordinance") which (a) prohibit the use of certain pesticides on City property, (b) require the posting of certain notices and the maintenance of certain records regarding pesticide usage and (c) require Permittee to submit to the Department of Health an integrated pest management ("IPM") plan that (i) lists, to the extent reasonably possible, the types and estimated quantities of pesticides that Permittee may need to apply to the Permit Area during the term of this Permit, (ii) describes the steps Permittee will take to meet the City's IPM Policy described in Section 300 of the Pesticide Ordinance and (iii) identifies, by name, title, address and telephone number, an individual to act as the Permittee's primary IPM contact person with the City. In addition, Permittee shall comply with the requirements of Sections 303(a) and 303(b) of the Pesticide Ordinance.

Through City, Permittee may seek a determination from the City's Commission on the

Environment that Permittee is exempt from complying with certain portions of the Pesticide Ordinance with respect to this Permit, as provided in Section 307 of the Pesticide Ordinance. City shall reasonably cooperate with Tenant, at Tenant's sole cost and expense, if Tenant seeks in good faith an exemption under the Pesticide Ordinance.

### **36. PROHIBITION OF TOBACCO SALES AND ADVERTISING**

Permittee acknowledges and agrees that no sale or advertising of cigarettes or tobacco products is allowed on the Permit Area. This advertising prohibition includes the placement of the name of a company producing, selling or distributing cigarettes or tobacco products or the name of any cigarette or tobacco product in any promotion of any event or product. This advertising prohibition does not apply to any advertisement sponsored by a state, local, nonprofit or other entity designed to (a) communicate the health hazards of cigarettes and tobacco products, or (b) encourage people not to smoke or to stop smoking.

### **37. PROHIBITION OF ALCOHOLIC BEVERAGE ADVERTISING**

Permittee acknowledges and agrees that no advertising of alcoholic beverages is allowed on the Permit Area. For purposes of this section, "alcoholic beverage" shall be defined as set forth in California Business and Professions Code Section 23004, and shall not include cleaning solutions, medical supplies and other products and substances not intended for drinking. This advertising prohibition includes the placement of the name of a company producing, selling or distributing alcoholic beverages or the name of any alcoholic beverage in any promotion of any event or product. This advertising prohibition does not apply to any advertisement sponsored by a state, local, nonprofit or other entity designed to (a) communicate the health hazards of alcoholic beverages, (b) encourage people not to drink alcohol or to stop drinking alcohol, or (c) provide or publicize drug or alcohol treatment or rehabilitation services.

### **38. CONFLICTS OF INTEREST**

Through its execution of this Permit, Permittee acknowledges that it is familiar with the provisions of Section 15.103 of the San Francisco Charter, Article III, Chapter 2 of City's Campaign and Governmental Conduct Code, and Sections 87100 et seq. and Sections 1090 et seq. of the Government Code of the State of California, and certifies that it does not know of any facts which would constitute a violation of said provision, and agrees that if Permittee becomes aware of any such fact during the term of this Permit, Permittee shall immediately notify the City.

### **39. FOOD SERVICE WASTE REDUCTION**

Permittee agrees to comply fully with and be bound by all of the applicable provisions of the Food Service Waste Reduction Ordinance, as set forth in the San Francisco Environment Code, Chapter 16, including the remedies provided therein, and implementing guidelines and rules. The provisions of Chapter 16 are incorporated herein by reference and made a part of this Permit as though fully set forth herein. Accordingly, Permittee acknowledges that City contractors and lessees may not use Disposable Food Service Ware that contains Polystyrene Foam in City Facilities and while performing under a City contract or lease, and shall instead use suitable Biodegradable/Compostable or Recyclable Disposable Food Service Ware. This provision is a material term of this Permit.

#### **40. FIRST SOURCE HIRING AGREEMENT**

City has adopted a First Source Hiring Program (San Francisco Administrative Code Sections 83.1 et seq.) which establishes specific requirements, procedures and monitoring for first source hiring of qualified economically disadvantaged individuals for entry-level positions as those terms are defined by the ordinance. Permittee acknowledges receiving and reviewing the First Source Hiring Program materials and requirements and agrees to comply with all requirements of the ordinance as implemented by City, including without limitation, notification of vacancies throughout the Term and entering into a First Source Hiring Agreement, if applicable. Permittee acknowledges and agrees that it may be subject to monetary penalties for failure to comply with the ordinance or a First Source Hiring Agreement and that such non-compliance shall be default of this Permit.

#### **41. CRIMINAL HISTORY INQUIRIES FOR EMPLOYMENT**

(a) Unless exempt, Permittee agrees to comply with and be bound by all of the provisions of San Francisco Administrative Code Chapter 12T (Criminal History in Hiring and Employment Decisions; "Chapter 12 T"), which are hereby incorporated as may be amended from time to time, with respect to applicants and employees of Permittee who would be or are performing work at the Permit Area.

(b) Permittee shall incorporate by reference the provisions of Chapter 12T in all sublicenses of some or all of the Permit Area, and shall require all sublicensees to comply with such provisions. Permittee's failure to comply with the obligations in this subsection shall constitute a material breach of this Permit.

(c) Permittee and sublicensees shall not inquire about, require disclosure of, or if such information is received base an Adverse Action on an applicant's or potential applicant for employment, or employee's: (1) Arrest not leading to a Conviction, unless the Arrest is undergoing an active pending criminal investigation or trial that has not yet been resolved; (2) participation in or completion of a diversion or a deferral of judgment program; (3) a Conviction that has been judicially dismissed, expunged, voided, invalidated, or otherwise rendered inoperative; (4) a Conviction or any other adjudication in the juvenile justice system; (5) a Conviction that is more than seven years old, from the date of sentencing; or (6) information pertaining to an offense other than a felony or misdemeanor, such as an infraction.

(d) Permittee and sublicensees shall not inquire about or require applicants, potential applicants for employment, or employees to disclose on any employment application the facts or details of any conviction history, unresolved arrest, or any matter identified in subsection (c) above. Permittee and sublicensees shall not require such disclosure or make such inquiry until either after the first live interview with the person, or after a conditional offer of employment.

(e) Permittee and sublicensees shall state in all solicitations or advertisements for employees that are reasonably likely to reach persons who are reasonably likely to seek employment with Permittee or subPermittee at the Permit Area, that the Permittee and sublicensees will consider for employment qualified applicants with criminal histories in a manner consistent with the requirements of Chapter 12T.

(f) Permittee and sublicensees shall post the notice prepared by the Office of Labor Standards Enforcement ("OLSE"), available on OLSE's website, in a conspicuous place at the Permit Area and at other workplaces within San Francisco where interviews for job opportunities at the Permit Area occur. The notice shall be posted in English, Spanish, Chinese, and any language spoken by at least 5% of the employees at the Permit Area or other workplace at which it is posted.



(g) Permittee and sublicensees understand and agree that upon any failure to comply with the requirements of Chapter 12T, the City shall have the right to pursue any rights or remedies available under Chapter 12T or this Permit, including but not limited to a penalty of \$50 for a second violation and \$100 for a subsequent violation for each employee, applicant or other person as to whom a violation occurred or continued, termination or suspension in whole or in part of this Permit.

(h) If Permittee has any questions about the applicability of Chapter 12T, it may contact the City's Real Estate Division for additional information. City's Real Estate Division may consult with the Director of the City's Office of Contract Administration who may also grant a waiver, as set forth in Section 12T.8.

#### 42. NOTICES

Except as otherwise expressly provided herein, any notices given under this Permit shall be effective only if in writing and given by sending it first class mail or certified mail, with a return receipt requested, or overnight courier, return receipt requested, with postage prepaid, addressed as follows:

City: Real Estate Division  
City and County of San Francisco  
25 Van Ness Avenue, Suite 400  
San Francisco, California 94102  
Attn: Director of Property  
Re: SFGH, Building 25  
Verizon

And to: Department of Public Health  
101 Grove Street  
San Francisco, CA 94102  
Attn: Director of Public Health  
Re: SFGH – 1001 Potrero, Building 25  
Verizon

Permittee: GTE Mobilnet of California Limited Partnership,  
d/b/a Verizon Wireless  
1800 Washington Valley Road  
Bedminster, New Jersey 07921  
Attn: Network Real Estate  
(Re: San Francisco General Hospital)

Notices herein shall be deemed given two (2) business days after the date when it shall have been mailed if sent by first class, certified or overnight courier.

#### 43. SEVERABILITY

If any provision of this Permit or the application thereof to any person, entity or circumstance shall be invalid or unenforceable, the remainder of this Permit, or the application of such provision to persons, entities or circumstances other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each other provision of this Permit shall be valid and be enforceable to the fullest extent permitted by law, except to the extent that enforcement of this Permit without the invalidated provision would be unreasonable or inequitable under all the circumstances or would frustrate a fundamental purpose of this Permit.

**44. COUNTERPARTS**

This Permit may be executed in two or more counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

**45. COOPERATIVE DRAFTING**

This Permit has been drafted through a cooperative effort of both parties, and both parties have had an opportunity to have the Permit reviewed and revised by legal counsel. No party shall be considered the drafter of this Permit, and no presumption or rule that an ambiguity shall be construed against the party drafting the clause shall apply to the interpretation or enforcement of this Permit.

**46. GENERAL PROVISIONS**

(a) This Permit may be amended or modified only by a writing signed by City and Permittee. (b) No waiver by any party of any of the provisions of this Permit shall be effective unless in writing and signed by an officer or other authorized representative, and only to the extent expressly provided in such written waiver. (c) All approvals and determinations of City requested, required or permitted hereunder may be made in the sole and absolute discretion of the Director of Property or other authorized City official. (d) This instrument (including the exhibit(s) hereto) contains the entire agreement between the parties and all prior written or oral negotiations, discussions, understandings and agreements are merged herein. (e) The section and other headings of this Permit are for convenience of reference only and shall be disregarded in the interpretation of this Permit. (f) Time is of the essence. (g) This Permit shall be governed by California law and the City's Charter. (h) If either party commences an action against the other or a dispute arises under this Permit, the prevailing party shall be entitled to recover from the other reasonable attorneys' fees and costs. For purposes hereof, reasonable attorneys' fees of City shall be based on the fees regularly charged by private attorneys in San Francisco with comparable experience. (i) If Permittee consists of more than one person then the obligations of each person shall be joint and several. (j) Permittee may not record this Permit or any memorandum hereof. (k) Subject to the prohibition against assignments or other transfers by Permittee hereunder, this Permit shall be binding upon and inure to the benefit of the parties and their respective heirs, representatives, successors and assigns. (l) In the event City sells or otherwise conveys the property burdened by this Permit this Permit shall automatically be revoked.

*[SIGNATURES ON FOLLOWING PAGE]*

Permittee represents and warrants to City that it has read and understands the contents of this Permit and agrees to comply with and be bound by all of its provisions.

PERMITTEE:

GTE Mobilnet of California Limited Partnership,  
a California limited partnership,  
d/b/a Verizon Wireless

By: Cellco Partnership, its general partner

By:  \_\_\_\_\_

Name: Jacob Hamilton

Its: Director -Network Date:

CITY:

CITY AND COUNTY OF SAN FRANCISCO,  
a municipal corporation

By:  \_\_\_\_\_

John Updike  
Director of Property  
(Pursuant to San Francisco Administrative  
Code Section 23.31)

APPROVED AS TO FORM:

DENNIS J. HERRERA, City Attorney

By:  \_\_\_\_\_

VIRGINIA DARIO ELIZONDO  
Deputy City Attorney



**EXHIBIT A**

**Description/Depiction of Permit Area**





# SF GENERAL HOSPITAL iDAS

PS NO. 291710 / PSP NO. 2014099812  
995 POTRERO AVE  
SAN FRANCISCO, CA 94110

### CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITY. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LOCAL CODES.

3013 CALIFORNIA BUILDING CODE (\*13 CBC)  
3013 CALIFORNIA FIRE CODE (\*13 CFC)  
3013 CALIFORNIA ELECTRIC CODE (\*13 CEC)  
3013 CALIFORNIA WELDRING CODE (\*13 CWC)  
3013 SAN FRANCISCO FIRE CODE (SFFC SIFC)  
2012 NFPA 72 NATIONAL FIRE ALARM CODE

### PROJECT TEAM

#### CIVIL ENGINEER:

INFRA ENGINEERING  
25455 SANCHEZ PARKWAY SOUTH  
LAKE FOREST, CA 92039  
CONTACT: DAN CONNELL  
(949) 753-8877  
dconnell@infra.com

#### SITE ACQUISITION:

MODUS, INC.  
715 NATOMA STREET, 3RD FLOOR  
SAN FRANCISCO, CA 94105  
LEGGING & DESIGN CONTACT: SHARATHA PUNJ  
PHONE: (415) 648-7922  
E-MAIL: shunp@modus-inc.com

### PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A MODIFICATION TO AN EXISTING VERIZON WIRELESS ANTENNA FACILITY. MODIFICATIONS INCLUDE:

- ADD DAS RACK MOUNTED EQUIPMENT IN AN EXISTING 15' RACK IN THE HEAD END EQUIPMENT ROOM
- ADD CD MOUNTS IN THE 1500 END EQUIPMENT ROOM
- TO NEW DAS EQUIPMENT INTO THE EXISTING ELECTRICAL BREAKER BOXES
- SUPPLY TELCO TO THE DAS EQUIPMENT RACK

### DRIVING DIRECTIONS

START ON GOING SOUTHWEST ON MITCHELL DR. TOWARD W MOUNTAIN TURN LEFT ONTO W HERRICK TAKE THE 2ND RIGHT ONTO TONAWO VALLEY BL. TONAWO VALLEY BL BECOMES WILSON AVE MERGE ONTO CA-24 W TOWARD OAKLAND. TAKE EXIT 208 TOWARD S-SAN FRANCISCO/HAYWARD. MERGE ONTO I-580 W. MERGE ONTO I-880 W VIA EXIT 18A ON THE LEFT (POSTING TOLL). MERGE ONTO I-580 W. BECOMES LICK FRY S RA. EXIT 1A ON THE LEFT TOWARD SAN JOSE TAKE THE C CHAVEZ ST EXIT, EXIT 432. KEEP RIGHT TO TAKE THE POTRERO AVE/C CHAVEZ ST W RAMP. MERGE ONTO POTRERO AVE. THE SITE IS ON THE RIGHT.

### SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET, SITE INFORMATION AND VICINITY MAP
T-2	GENERAL CONSTRUCTION NOTES, GENERAL NOTES, ABBREVIATIONS & LEGEND
C-1	GENERAL SURVEY
C-2	ENLARGED ROOFTOP SURVEY
A-1	OVERALL SITE PLAN
A-2	EQUIPMENT / HEAD END ROOM - MPOC ROOM HAZRD
A-3	EQUIPMENT ELEVATIONS - HEAD END ROOM - MPOC ROOM HAZRD
A-4	EQUIPMENT RACK DETAILS
D-1	DETAILS, BILL OF MATERIALS & SPEC SHEETS
D-2	SPEC SHEETS
Z-1	ELECTRICAL ROUTING / HEAD END ROOM - MPOC ROOM HAZRD
E-2	SINGLE LINE DIAGRAM

### PROJECT INFORMATION

#### APPLICANT

VERIZON WIRELESS  
2785 MITCHELL DRIVE  
WALNUT CREEK, CA 94595  
ELDA WUNDER  
(925) 279-6767

#### OWNER

CITY OF SAN FRANCISCO  
29 VAN NESS AVE  
SAN FRANCISCO, CA 94102  
CONTACT: -  
PHONE: -

SITE ADDRESS: 995 POTRERO AVE  
SAN FRANCISCO, CA 94110

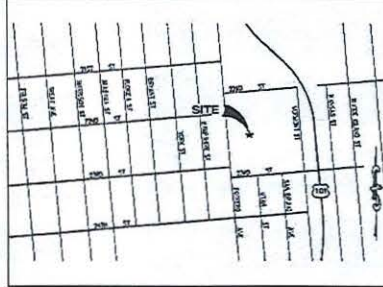
JURISDICTION: THE CITY OF SAN FRANCISCO

OCCUPANT TYPE: GROUP B

CONST. TYPE: V-A

APR: 4099-002

### VICINITY MAP (NOT TO SCALE)

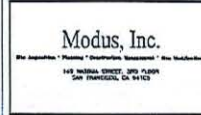


### GENERAL CONTRACTOR NOTES

**DO NOT SCALE DRAWINGS**  
CONTRACTOR SHALL VERIFY ALL PLANS WITH EXISTING CONDITIONS AND CONDITIONS ON THE JOB SITE SHALL IMMEDIATELY NOTIFY THE PROJECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



PROJECT INFORMATION:  
**SF GENERAL HOSPITAL  
iDAS**  
PS NO.291710 / PSP NO.2014099812  
995 POTRERO AVE.  
SAN FRANCISCO, CA 94110



CURRENT ISSUE DATE:  
**05/17/16**

ISSUED FOR:  
**100% CD**

REV.	DATE	DESCRIPTION	BY
4	05/17/16	100% CD	JR
3	05/06/16	100% CD	JR
2	03/30/16	100% CD	JR
1	03/09/16	100% CD	JR
0	02/15/16	90% CD	HL

CIVIL ENGINEER:  
**INFINIGY** Design, Build, Deliver.  
20455 BRANCHO PRUNY, SOUTH  
LAKE FOREST, CA 92650  
OFFICE: (949) 763-8887  
FAX: (949) 753-8833

DRAWN BY: HL, JR  
CHKD BY: APV

LICENSER:

SHEET TITLE:  
TITLE SHEET, SITE INFORMATION  
AND VICINITY MAP

SHEET NUMBER:  
**T-1**



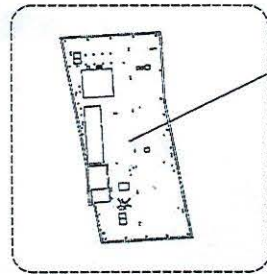


22ND STREET

POTRERO AVE

VERMONT STREET

23RD STREET



(1) HOSPITAL BUILDING - LOCATION OF  
 (2) VERIZON EQUIPMENT AREA LOCATED  
 IN THE SPACE ABOVE HISSO - LOCATION  
 OF HOSPITAL MEDICAL WASTE DMS

1  
 X-2

APN: 4154-001  
 OWNER(S): CITY OF SAN FRANCISCO  
 APN: 4154-001



PROJECT INFORMATION:  
**SF GENERAL HOSPITAL**  
**IDAS**  
 PS NO.201710 / PGP NO.20140906812  
 595 POTRERO AVE.  
 SAN FRANCISCO, CA 94110

**Modus, Inc.**  
 Modus, Inc. - Planning / Distribution / Equipment / New Substation  
 145 LAUREL STREET, 2ND FLOOR  
 SAN FRANCISCO, CA 94102

CURRENT ISSUE DATE:  
**05/17/16**

ISSUED FOR:  
**100% CD**

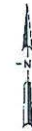
REV.	DATE	DESCRIPTION	BY
4	05/17/16	100% CD	JR
3	05/06/16	100% CD	JR
2	03/30/16	100% CD	JR
1	03/09/16	100% CD	JR
0	02/15/16	90% CD	HL

CIVIL ENGINEER:  
**INFINIGY** Design, Build, Deliver.  
 20455 RANCHO PRIMO, SOUTH  
 SAN JOSE, CA 95128  
 OFFICE # (415) 753-8877  
 FAX # (415) 753-8823

DRAWN BY: HL      CHK: JR      APV:  
 LICENSER:

SHEET TITLE:  
**OVERALL SITE PLAN**

SHEET NUMBER:  
**A-1**





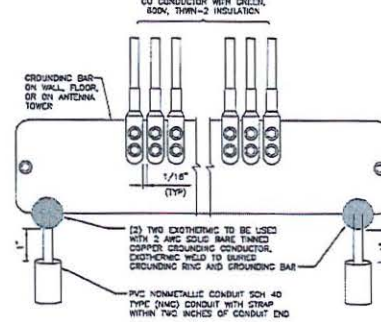
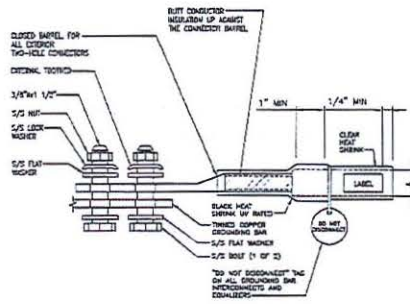












NOTUSED

SCALE: 4 EXTERIOR TWO HOLE LUG

SCALE: 3 GROUNDING BUSS BAR

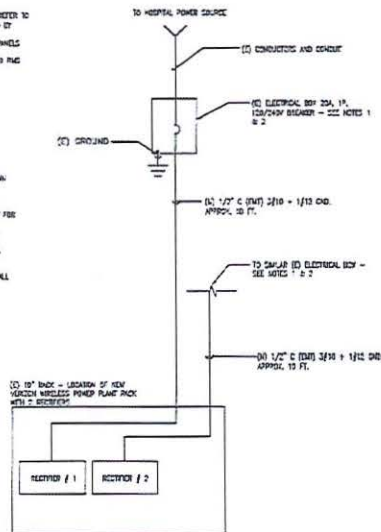
SCALE: 2

**NOTES**

- FOR COMPLETE WIRING AND CONNECTIONS, REFER TO SOURCE (SEE MATERIALS USED, PROVIDED) AND INSTALLED BY OTHER CONTRACTORS.
- PROVIDE A MIN. 12" VENT CLEARANCE IN FRONT OF PANELS AND CONDUIT TERMINALS.
- ALL BREAKERS IN THE PANEL ARE TO BE RATED 42,000 RMS TRANSFORMER AMP, 250V AC, 75°C.
- ALL WIRING SHALL BE RATED FOR 75°C.
- CONDUIT REQUIREMENTS (TYPE, SIZE):
  - UNDERGROUND: PVC SCH. 40 OR SCH. 40E
  - INDOOR: EMT (EFC IN TRAFFIC AREAS)
  - OUTDOOR: HDPE, GRC, PVC

**CONCRETE NOTES**

- UTILITY POINTS OF SERVICE AND WORK/MATERIALS SHOWN ARE BASED UPON INFORMATION PROVIDED BY THE UTILITY COMPANIES AND ARE FOR NO PURPOSES ONLY.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND OBTAIN NECESSARY PERMITS, REQUIREMENTS, AND CONCURRENCE TO UTILITY COMPANY REQUIREMENTS. PLUMBING AND CONDUITING SHALL BE INSTALLED PRIOR TO CONCRETE POURING AND REPAIR. ALL CONDUIT SHALL BE PROTECTED FROM DAMAGE. CONCRETE DEPENDENT OF CONDUIT IS REQUIRED. TRANSFORMER PAD, BATTERIES, PUMP SYSTEMS, TRINCHING, BENCHES, AND ALL UTILITY EQUIPMENT SHALL INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.



**NOTES**

- GROUND/WIRELESS WIRING SHALL FURNISH AND PROVIDE AS THEIR COST TO 250V. CONDUITING AND TRINCHING SHALL BE PROVIDED FOR EACH APPLICATION (SPECIAL REQUIREMENTS) BOTH FOR 250V AND 50V. WIRE AND WIRE LUTZ. MICROENCLOSURE, AN ELECTRICAL DRAWING BEFORE INSTALLATION, TO PROVIDE AND OBTAIN ALL CONDUITING FOR PROTECTION AND PROTECTION FOR THE SAME AS NOTED SHALL BE THROUGH W. LUTZ.
- NO WIRETAPING TO THE SYSTEM OR BREAKERS AND ALIQUOT. IF WIRELESS REQUIRES POWER OTHER THAN THAT IS AVAILABLE, SPECIAL CONSTRUCTION SHALL BE REQUIRED FOR A NEW CIRCUIT PANEL. BEFORE THE W. LUTZ. (SEEING TO BEYOND ACCESSIBLE AND REMOVABLE, SUCH ACTION WOULD REQUIRE COORDINATION AND INSPECTION WITH W. LUTZ. BEFORE AND WITH FACILITIES ELECTRICAL DEPARTMENT. SUBJECT TO ADDITIONAL INSPECTION AND APPROVAL AS PROVIDED. NOTES LEAD IS LIMITED TO LESS THAN OR EQUAL TO 150A FOR EACH STRAINING POINT.

SINGLE LINE DIAGRAM

SCALE: 5 NOT USED

SCALE: 1



**PROJECT INFORMATION:**  
**SF GENERAL HOSPITAL IDAS**  
 PS NO.291718 / PSP NO.2914899852  
 895 POTRERO AVE.  
 SAN FRANCISCO, CA 94110

**Modus, Inc.**  
 144 JARVIS STREET, 3RD FLOOR  
 SAN FRANCISCO, CA 94102

**CURRENT ISSUE DATE:**  
 05/17/16

**ISSUED FOR:**  
 100% CD

REV.	DATE	DESCRIPTION	BY
4	05/17/16	100% CD	JR
3	05/26/16	100% CD	JR
2	03/30/16	100% CD	JR
1	03/09/16	100% CD	JR
0	02/15/16	90% CD	HL

**CIVIL ENGINEER:**  
**INFINIGY8** Design & Build  
 25455 RANCHO PINOY, SOUTH  
 LAKE FOREST, CA 92533  
 OFFICE: (949) 754-8887  
 FAX: (949) 754-8833

**DRAWN BY:** C-HK, APV, HL, JR

**LICENSER:**

**SHEET TITLE:**  
 SINGLE LINE DIAGRAM

**SHEET NUMBER:**  
 E-2



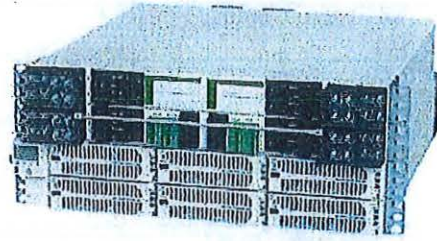
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**EXHIBIT B**

**Approved Plans/Specifications**

# Infinity S-Flex System

Infinity S-Flex may be configured as a -48V voltage power system. Infinity S-Flex is configurable from 150A with a single rectifier shelf and single distribution (4 Circuit Breaker Load & 12GMT Fuses with 2 Bulk Battery inputs) up to 250A with two rectifier shelves and any combination of distributions. The system includes optional low voltage battery disconnect.



## Applications

- Wireless Telecom Networks
- C-RAN
- Small Cell
- Indoor/Outdoor Wireless
- Remote Radio Sites
- DAS
- Backhaul
- Enterprise Applications

## Key Features

- Redundant fan cooling
- Front panel LED indicators
- 1U height, hi power density
- 277/220/110 V AC input
- Digital load sharing
- Hot pluggable
- RoHS 6 compliant

## Specifications

INPUT	MIN	TYP	MAX
Voltage Range			
- High-Line	175Vac	220Vac	305Vac
- Low-Line	85Vac	110Vac	140Vac
Frequency	45Hz	60Hz	66Hz
Power Factor	98%	99.5%	
Total Harmonic Distortion	5%		

### PRIMARY OUTPUT

Nominal Voltage	-48Vdc
Output (Power / Current)	250A / 13.5kW
Vo Setpoint (factory)	-54.5Vdc ±1%
Vo Range	-42Vdc to -58Vdc
Regulation	±0.5%

### MECHANICAL

Height (in. /mm)	3.5 / 89 (Base System with 1 power shelf)
Width (in. /mm)	19 / 484 (System Only) 23 / 584 (Mounted in Frame)
Depth (in. /mm)	16.75 / 425 (No AC Cover) 18.75 / 476 (With AC Cover)
Weight (lb / Kg)	18 / 8.2 (Base System with 1 power shelves)

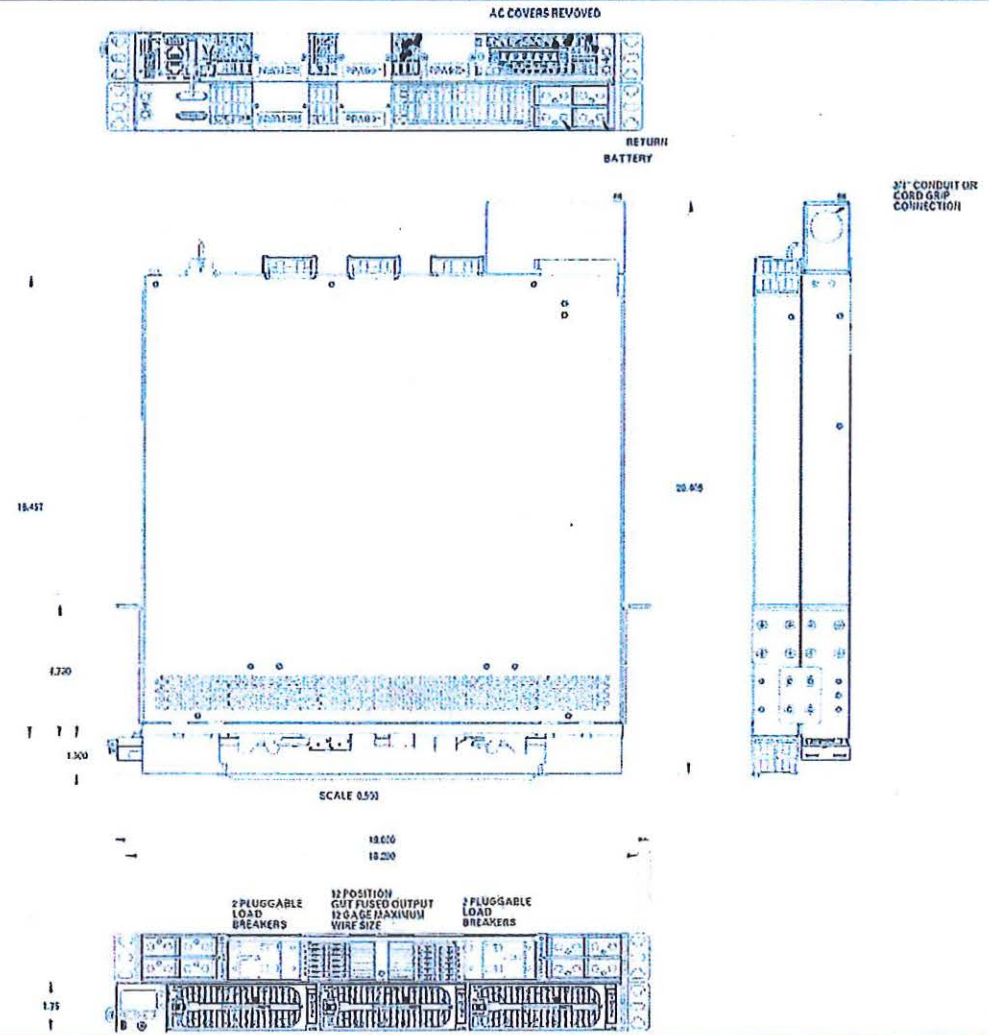
### ENVIRONMENTAL

Operating Temperature	-40°C to +75°C (-40°F to 167°F)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Relative Humidity	95% max, non-condensing
Altitude	4000M (for altitudes above 2000M, peak operating temperature de-rates 0.656°C / 100M; 4000M peak temperature rating is 62°C)

SAFETY AND STANDARDS COMPLIANCE	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63-CORE and GR1089-CORE [Level 3]
Safety	CSA C22.2 No. 60950-1-07, 2nd Ed. + A1:2001 (MOD) Certified for Canada and U.S.; UL60950-1 2nd Ed.
RoHS	Compliant to RoHS EU Directive 2002/95/EC RoHS 5/6
EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE

AGENCY CERTIFICATIONS	
CSA	CSA C22.2 No 60950-1-07, 2nd Ed. + A1:2001 (MOD) and UL 60950-1 2nd Ed
EMI/EMC	European Directive 2004/108/EC; EN55022 (CISPR22) Class A; EN55024 (CISPR24)
NEBS LEVEL 3	GR1089-CORE Special equipment room cooling may be needed - heat dissipation exceeds values of GR-63 Table 4-5

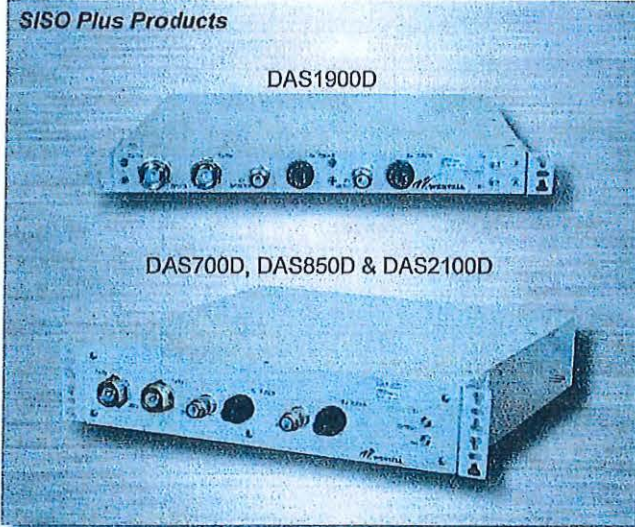
**OUTLINE DRAWING (FOR VISUAL REFERENCE ONLY)**





# DAS Interface Panels

DAS850/1900/700/2100 MHz



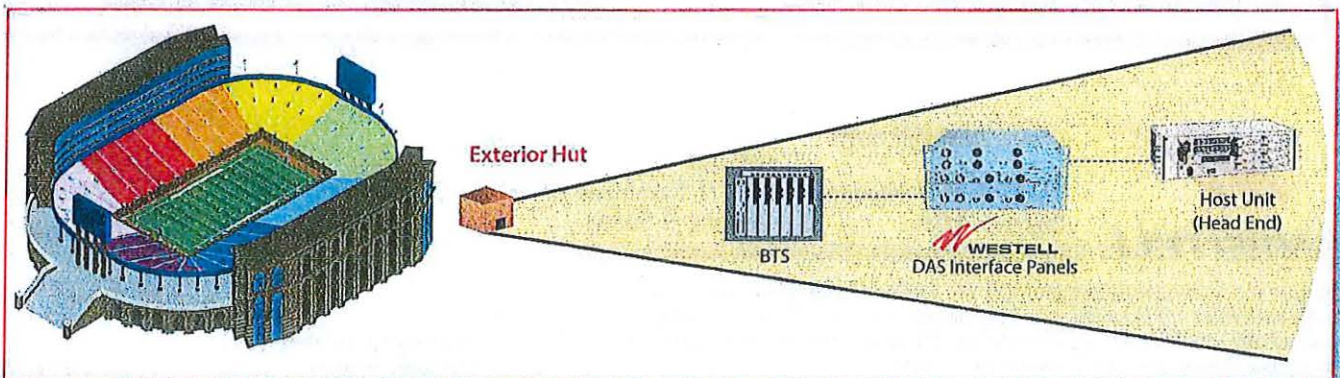
Many smartphone users in a concentrated area can quickly cripple the network's data throughput. Examples of this can be experienced at venues such as stadiums, convention centers, hospitals and college campuses. Service providers are increasingly implementing a distributed antenna system (DAS) to create a small cell infrastructure that will relieve the burden on the macro network. A critical component in a fiber-fed DAS is the head end where RF signals are converted to optical signals. Carriers must ensure the RF power levels are appropriately adjusted for the DAS head end equipment. Westell, a trusted partner to service providers for more than 30 years, has developed a DAS interface panel that will ensure RF power is safely delivered throughout the system.



Westell's DAS interface panels reduce installation time, require minimal rack space, are convection cooled, require no AC or DC power and provide RF power adjustments without interrupting service.

The DAS interface trays are located between the base transceiver station (BTS) and the head end of the DAS. The DAS850/1900/700/2100 provides the proper power levels for the downstream DAS equipment and can be connected to two BTSs simultaneously. Both transmit and receive power levels can be monitored and adjusted without disconnecting from the BTS or the DAS head end.

The 1900 is a 1RU model, while the 850, 700 and 2100 are 2RU models. The 850 covers the cellular band, the 1900 is for the PCS band, the 700 is for the upper/lower 700 MHz band, and the 2100 covers the AWS band.



# DAS Interface Panels

## Product Specifications<sup>1</sup>

Feature	Order Number <sup>2</sup> A90-DAS850D-D <sup>3</sup> A90-DAS850D-S	Order Number <sup>2</sup> A90-DAS700D-D <sup>3</sup> A90-DAS700D-S	Order Number <sup>2</sup> B90-DAS1900D-D <sup>3</sup> A90-DAS1900D-S	Order Number <sup>2</sup> A90-DAS2100D-D <sup>3</sup> A90-DAS2100D-S	Order Number <sup>2</sup> A90-DAS700DMI-D <sup>3</sup> A90-DAS700DMI-S	Order Number <sup>2</sup> A90-DAS2100DMI-D <sup>3</sup> A90-DAS2100DMI-S
<b>Electrical</b>						
Type	SISO Plus Products				MIMO or Dual SISO Products	
Operating Frequency Range	Cellular Band	700 MHz Bands	PCS Band	AWS Band	700 MHz Bands	AWS Band
Power Handling (7/16" DIN)	60 watts/port at 55°C (131°F) 40 watts/port at 65°C (149°F)				65 watts/port at 55°C (131°F) 60 watts/port at 65°C (149°F)	
IMD at TX/RX port in RX Band (typical)	-118dBm or -161dBc (two +43dBm input signals)					
Peak Power	1 KW					
Min Isolation	70 dB					
TX Insertion Loss (typ.)	20 dB				15 dB	
RX Insertion Loss (typ.)	5.5 dB				2 dB	
Adjustable Tx Power	Attenuates from 0-50 dB (1 dB increments)					
Adjustable Rx Power	Attenuates from 0-50 dB (1 dB increments)					
<b>Mechanical</b>						
BTS Inputs	7/16" DIN (Female)					
DAS or Head End Connections	Female: QMA or SMA (specified by ordering #)					
Tx & Rx Monitoring Ports	N-type (Female)					
Dimensions (depth includes front panel knobs)	2RU H x 17" W x 19.91" D (Depth excluding front knobs 18.43")	2RU H x 17" W x 18.14" D (Depth excluding front knobs 16.65")	1RU H x 17" W x 23.92" D (Depth excluding front knobs 22.46")	2RU H x 17" W x 18.14" D (Depth excluding front panel knobs 16.65")		
Weight	25 lbs				30 lbs	
<b>Environmental</b>						
Operating Temp. Range	-40° C to +65° C					

1) Specifications subject to change. 2) Provided with QMA connectors for DAS head end connections. 3) Provided with SMA connectors for DAS head end connections.

### Feature Highlights

- 1 or 2 rack unit (RU) height
- Universal mounting brackets are included to enable mounting in 19" and 23" racks
- Temperature hardened for outdoor applications
- Sturdy aluminum construction with powder-coated enamel painted face plate
- Flush mount or 5" projection
- Other models available; contact Westell for details



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1302IARIJ

**DRAFT**

Alcatel-Lucent 

# 7705 Chassis-Environmental-Power Specifications



Kamlesh Patel (VZW CT)

March 26, 2009

*(Based on R2.0 Installation Guide)*

## 7705 Chassis Specifications

Parameter	Description
Dimensions (without mounting brackets)	(3.5 x 17.5 x 9.8 in.) (H x W x D) (8.9 x 44.4 x 25 cm)
Chassis weight (unpopulated)	8.4 lbs (3.8 kg)
Chassis weight (FAM, 2 x CSM, 2 x Ethernet cards, 4 x ASAP cards)	16 lbs (7.3 kg)
Adapter card slots	6
Fan module slots	1
CSM slots	2
Mounting	Mount in a recommended 19-inch equipment rack Rack-mount brackets are factory-installed for 19-inch NEBS mounting



## 7705 Environmental Specs

---

Parameter	Description
Normal operating temperature	41 to 113°F (5 to 45°C) or -40° to 149°F (-40° to 65°C – extended temperature range)
Short-term operating temperature <sup>(1)</sup>	23 to 131°F (-5 to 55°C) or -40° to 149°F
Cold-start temperature	-4°F (-20°C)
Relative humidity	5 to 85% (non-condensing)
Short-term relative humidity <sup>(1)</sup>	5 to 95%, not to exceed 0.024 lb of water per 1.0 lb of air (35 g of water per 1.0 cubic meter of air)

## 7705 Environmental Specifications (continued)

Parameter	Description
Altitude range	Between 197 ft. (60 m) below sea level and 5906 ft (1800 m) above sea level (70kPa to 106kPa) (4000 meters is supported up to 42°C)
Shock and vibration	Very low levels for continuous duration disturbance (similar to modern office building, for example) Shock: 3 g half sine 11 ms Vibration: 0.1 g from 5 to 100 Hz
Earthquake	Suitable for high risk areas (Zone 4/California, for short duration disturbance)
Pollution degree <sup>(2)</sup>	2
Rated voltage (DC)	-48/-60 VDC (-60 VDC is for various European countries) or +24 VDC
Operating voltage range (DC)	-40 to -75 VDC or +20.0 to +28.3 VDC
Heat dissipation (worst case configuration)	190 W
Acoustic noise level	73.5 dBA

**Notes:**

1. Short-term is a period of less than 96 consecutive hours and a total of no more than 15 days per year. This is equivalent to 360 hours per year, with short-term periods occurring no more than 15 times per year.
2. Pollution degree is as defined in IEC 60950.

## Card Specifications

### Adapter Card Specifications (T1 card and Ethernet Card)

Parameter	Description
Dimensions (H x W x D)	(6.7 x 0.9 x 8.7 in.) (17.0 x 2.24 x 22.0 cm)
Weight	0.84 lbs (0.38 kg) (16-port T1/E1 ASAP card) 0.77 lbs (0.35 kg) (8-port Ethernet card)

### CSM Card Specifications

Parameter	Description
Dimensions (H x W x D)	(6.7 x 0.9 x 8.7 in.) (17.0 x 2.24 x 22.0 cm)
Weight	0.88 lbs (0.4 kg)

### Fan Module Card Specifications

Parameter	Description
Dimensions (H x W x D)	(6.7 x 0.9 x 8.7 in.) (8.43 x 2.24 x 22.0 cm)
Weight	0.81 lbs (0.37 kg)

## Component Power Consumption

Component	Power (Watts) (conservative estimate)
Chassis <sup>(1)</sup> (no fans, no cards)	0 W
Fan module	28 W
CSM	17 W
Adapter cards	
16-port T1/E1 ASAP Adapter card (a16-chds1)	17 W
8-port Ethernet Adapter card (a8-eth)	20 W
8-port Ethernet Adapter card, version 2 (a8-ethv2)	20 W
4-port OC3/STM1 Clear Channel Adapter card	21 W

Note:

1. The chassis itself consumes no power because it has no power dissipating components once the fans and cards are removed.

## SAR-8 Power Consumption

### SAR-8

- ▣ Rated voltage (DC): -48 or +24 VDC
- ▣ Operating voltage range (DC): Specified on slide 4
- ▣ Circuit breaker or fuse with the following recommended rating must be provided:
  - for -48v systems: 5A (min) and 10A (max)
  - for +24v systems: 10A (min) and 20 A (max)
- ▣ Worst Case configuration power consumption: 182W (with available cards today)

#### 7705 Config #4: Power Consumption

7705 Component	Watts	Qty	Power Usage
CSM	17	2	34
Fan Module	28	1	28
Ethernet Card	20	2	40
Total power consumption			<b>102</b>
Amps needed at -48v			3
Amps needed at -40v			3
Amps needed at +24v			5

#### 7705 Config #1: Power Consumption

7705 Component	Watts	Qty	Power Usage
CSM	17	1	17
Fan Module	28	1	28
T1 Card	17	1	17
Ethernet Card	20	1	20
Total power consumption			<b>82</b>
Amps needed at -48v			2
Amps needed at -40v			3
Amps needed at +24v			4

#### 7705 Config #2: Power Consumption

7705 Component	Watts	Qty	Power Usage
CSM	17	1	17
Fan Module	28	1	28
Ethernet Card	20	2	40
Total power consumption			<b>85</b>
Amps needed at -48v			2
Amps needed at -40v			3
Amps needed at +24v			4

#### 7705 Config #3: Power Consumption

7705 Component	Watts	Qty	Power Usage
CSM	17	2	34
Fan Module	28	1	28
T1 Card	17	1	17
Ethernet Card	20	1	20
Total power consumption			<b>99</b>
Amps needed at -48v			3
Amps needed at -40v			3
Amps needed at +24v			5

## Power Recommendation

---

- ❑ -48v power feeds, 7705 draws 3.8 amps for a fully loaded chassis. After factoring in 125% safety factor, VZW would need 7.5 Amps breakers/fuses (next available breaker/fuse size).
- ❑ +24v power feeds, 7705 draws 7.58 amps for a fully loaded chassis. After factoring in 125% safety factor, VZW would need 10 Amps breakers/fuses.
- ❑ VZW may implement 10 amps breakers/fuses for any cell site (-48v or +24v) for consistency and breaker/fuses availability reasons.

## Monitoring Temperature

---

The operation of the fans in the version 2 fan modules (introduced in Release 2.0) are controlled by software and hardware based on the following temperature monitoring.

- The air temperature inside the 7705 SAR-8 is continually monitored by a hardware-controlled temperature switch on the fan module. Fans turn ON when the temperature at the switch exceeds 107°F (42°C) and OFF when the temperature drops below 89°F (32°C). This temperature monitoring is present even in the absence of the CSMs.
- During normal operation, the CSMs and adapter card temperatures are monitored by temperature sensors on each card. Fans are forced ON if any of the sensors exceeds 131°F (55°C). Fans will remain forced on (regardless of what the hardware-controlled temperature switch on the fan module indicates) until all the card temperatures reach or drop below 50°F (10°C).

An overheat alarm is raised if any card sensor temperature reaches or exceeds 167°F (75°C).

## Card Temperatures

---

Each CSM and adapter card has temperature sensors to continuously monitor its own temperature and report the temperature to the CSM. The CSM continuously monitors the temperature reported from any card that is in the system abnormal temperature state.

- If the temperature of any adapter card exceeds 185°F (85°C), the card is rebooted by software. When the card comes up, it will display as being in the failed state, with the reason “Card has overheated”. Once the temperature drops to 158°F (70°C) or below, the card will go into the “booting” state and complete its reboot cycle.
- If the temperature of any card exceeds 243°F (117°C), the card is shut down until the temperature drops to an operationally safe temperature. At that point, the card will automatically reboot and be brought back into service.



# Remote Radio Unit Description

## mRRUS 12

---

### DESCRIPTION

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## Remote Radio Unit Description

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# 1 Introduction

This document describes the micro Remote Radio Unit multi-Standard (mRRUS) 12, which is a small Remote Radio Units (RRU) with an integrated Power Supply Unit (PSU) and optionally an integrated antenna.

**Note:** RRU is often used as a generic expression for a remotely installed Radio Unit (RU). It is also the name of models prior to the RRUS versions described in this document, for example Remote Radio Unit Wideband (RRUW).

## 1.1 Warranty Seal

The unit is equipped with a warranty seal sticker.

**Note:** Seals implemented by Ericsson must not be broken or removed, as it otherwise voids warranty.



## 2 Product Overview

The mRRUS expands coverage and performance in denser urban areas, where the use of small handheld devices demand high capacity on the operators networks. The mRRUS is designed to be located below roof level in cities and in demanding radio environments. Requirements include Power Line Disturbance (PLD) and blocking and receiver sensitivity.

The mRRUS is adapted for mobile broadband in Heterogeneous Network configurations in urban environments, characteristic that is not presently available with the conventional RRUS. The mRRUS can be connected in a star or cascade configuration using optical cable links.

A fiber optic cable connects the mRRUS to the main unit, as shown in Figure 1, or to an expanded macro RBS.

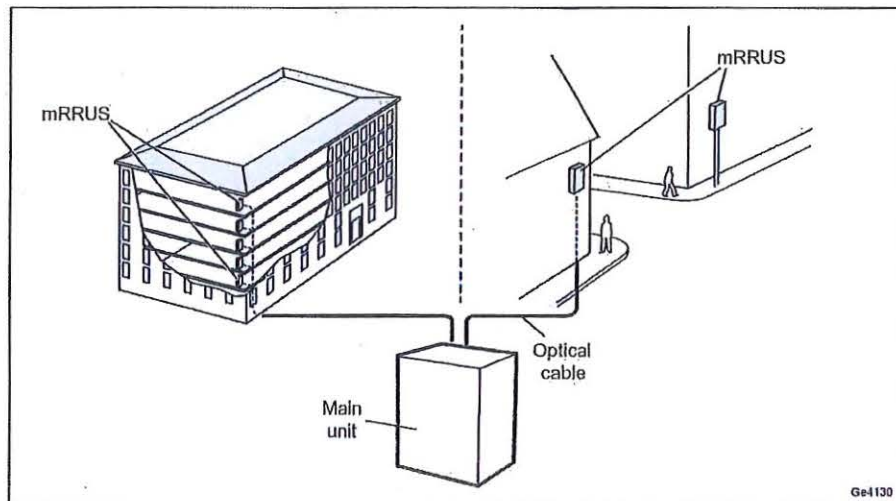


Figure 1 mRRUSs Connected to a Main Unit

The mRRUS is available in the following four variants:

- Integrated AC-PSU and integrated antenna
- Integrated DC-PSU and integrated antenna
- Integrated AC-PSU and external antenna ports
- Integrated DC-PSU and external antenna ports



## 2.1 Main Features

The mRRUS supports Wideband Code Division Multiple Access (WCDMA) and Long Term Evolution (LTE); detailed information about each band can be found in Section 3.1 on page 4.

The mRRUS has duplex transmitter/receiver (2TX/2RX) branches.

The mRRUS supports up to 5 Gbit/s CPRI (optical).

The mRRUS complies with 3GPP base station classes Medium Range (MR) and Local Area (LA); relevant standards are listed in Section 6.1.4 on page 36.

For LTE and WCDMA configurations with dual TX RRUSs, redundancy can be achieved by cross-connecting the antenna feeders between the mRRUS and the antenna. For more information, refer to *Cross-Sector Antenna Sharing Redundancy and Antenna System Equipment*.

## 2.2 Optional Equipment

The optional equipment for the mRRUS is the following:

- Wall or pole installation equipment
- TX-monitor equipment
- Semi-integrated omni antenna equipment

For information on how to install the wall or pole installation equipment, see *Installing mUnit Base Mount*, *Installing mUnit Small Clamps*, and *Installing mUnit Hose Plate*.

For information on how to install the TX-monitor equipment, see *Quick Guide (TX Monitor Package, mRRUS 12)*.

For information on how to install the semi-integrated omni antenna equipment, see *Installing mUnit Omni Support*.



## 3 Technical Data

This section describes the physical characteristics, environmental data, and power supply of the mRRUS.

### 3.1 Dimensions

This section provides technical data and dimensions for the mRRUS.

Table 1 and Table 2 list technical data and Figure 2 shows the dimensions for the mRRUS.

*Table 1 mRRUS Technical Data*

<b>Description</b>	<b>Value</b>
Maximum nominal output power	2x5 W
Number of carriers	WCDMA and LTE: One to four carriers (subject to license handling)





Description	Value	
Frequency <sup>(1)</sup>	1,920 to 1,980 MHz uplink 2,110 to 2,170 MHz downlink B1 for LTE and WCDMA	
	1,850 to 1,910 MHz uplink 1,930 to 1,990 MHz downlink B2 for LTE and WCDMA	
	1,710 to 1,785 MHz uplink 1,805 to 1,880 MHz downlink B3 for LTE and WCDMA	
	1,710 to 1,755 MHz uplink 2,110 to 2,155 MHz downlink B4 for LTE and WCDMA	
	2,500 to 2,570 MHz uplink 2,620 to 2,690 MHz downlink B7 for LTE	
	699 to 715 MHz uplink 729 to 745 MHz downlink B12 for LTE <sup>(2)</sup>	
	777 to 787 MHz uplink 746 to 756 MHz downlink B13 for LTE <sup>(3)</sup>	
	CPRI line rate	Up to 5 Gbit/s
	<b>Dimensions with Solar Shield, Handle, and Feet</b>	
Height	460 mm	
Width	265 mm	
Depth	140 mm	
<b>Dimensions without Solar Shield, Handle, or Feet</b>		
Height	380 mm	
Width	240 mm	
Depth	121 mm	



Description	Value
<b>Weight</b>	
mRRUS	10 kg
<b>Color</b>	
White	

(1) Information about Instantaneous Bandwidth (IBW) can be found in the document RBS Configurations.

(2) B12 supports up to 15 MHz LTE, 1-4 carriers. In single carrier operation with E-UTRA, 1.4 MHz or 3 MHz carriers is not used. 1.4 MHz and 3 MHz is only used in multicarrier operation together with a wider carrier (UTRA or E-UTRA). For E-UTRA 1.4 MHz and 3 MHz, the requirements on output power accuracy and sensitivity must not be fulfilled at band edge. They are to be fulfilled in any multicarrier configuration with 1.4 MHz or 3 MHz carrier center frequency set at  $\geq 2.5$  MHz offset from band edge.

(3) B13 only supports 5 and 10 MHz LTE, that is one or two carriers.

Table 2 mRRUS Output Power

Standard	Maximum Number of Carriers per Branch	Configurable Output Power per Branch	Minimum Configurable Carrier Output Power
WDCMA single RAT mode	4	125 mW to 5 W	125 mW/4 (15 dBm) <sup>(1)</sup>
LTE single standard mode	4	For 1 carrier: 125 mW to 5 W	125 mW/4 (15 dBm)
		For >1 carrier: 1 W to 5 W	1 W/4 = 250 mW (24 dBm) <sup>(1)</sup>
Mixed mode	4	1 W to 5 W	1 W/4 = 250 mW (24 dBm) <sup>(1)</sup>

(1) According to the four carrier case. Note that the mRRUS dynamic range is dimensioned for one carrier out of four activated.

Figure 2 shows the mRRUS dimensions with solar shield.

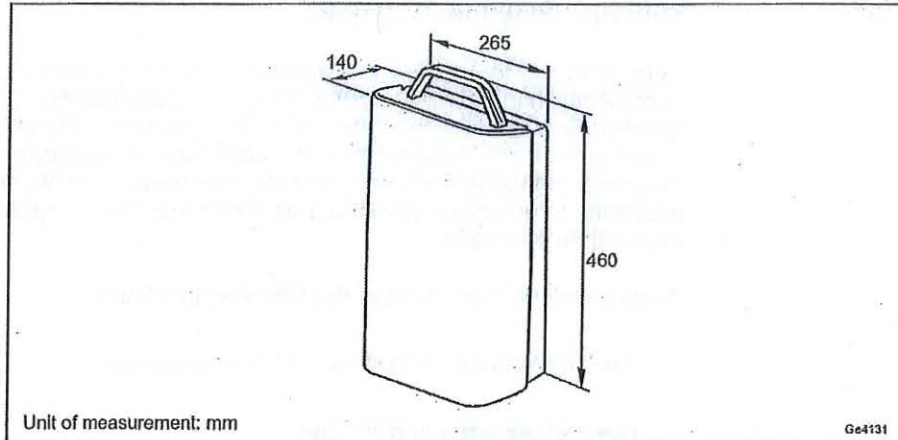


Figure 2 mRRUS Dimensions with Solar Shield

## 3.2 Installation Recommendations

To ensure reliable operation and maximum performance, an appropriate installation location must be chosen.

### 3.2.1 Indoor Locations to Avoid

Although the unit is designed for outdoor use, it can be used indoors. For indoor locations Ericsson recommends to operate according to ETSI 300 019-1-3 class 3.1 and 3.3. This does not cover installation with heat traps or installation in lofts, where air ventilation does not exist. To ensure smooth performance, avoid installing the unit in a potential microclimate location, for example, places with unventilated lofts, with heat traps, or where the product is exposed to direct sunlight through windows. Avoid installing the equipment under glass covers or skylight windows without proper ventilation.



### 3.2.2 Outdoor Locations to Avoid

Although Ericsson declares this product suitable for outdoor environments, avoid installing the unit in a potential microclimate location. Typical examples of microclimate locations are sites where the product is not only exposed to the actual surrounding temperature, but additional temperature as heat coming from dark colored planes, for example, reflections from the floor or walls. The additional temperature can generate heat traps with temperatures up to 10°C higher than expected.

Avoid installing equipment in the following locations:

- Near the exhaust of building ventilation systems
- Near the exhaust of chimneys
- Opposite large surfaces made of glass or new concrete

If the unit is to be installed outdoors but not under a roof, avoid installing the unit belly down when using the integrated antenna.

If the unit is to be placed in an environment subjected to lightning strike, an external Surge Protection Device (SPD) is needed.

### 3.2.3 Horizontal Installation under a Roof

Under exceptional conditions, the mRRUS can be installed horizontally beneath a roof with the side facing a wall.

In this type of installation, the unit should be mounted at least 10 cm from the roof with the rear solar shield removed, otherwise the unit backs off and shuts off before achieving the temperatures of 45°C and 55°C, respectively. Also ensure that the space between the side of the unit and the wall is not less than 0.2 m.

### 3.2.4 Other Considerations

Installing the mRRUS close to other electronic equipment can cause interferences.

### 3.2.5 Painting Limitations

Ericsson does not recommend painting the RRU as it may affect radio performance of the unit.

Ericsson will apply limitations to the warranty and service contract if the RRU is painted.



### 3.2.5.1 Technical Limitations

If the RRU is painted, be aware of the technical limitations below:

- Sunlight on dark paint may increase the temperature of the RRU causing it to shut down.
- The plastic surfaces and the plastic covers are suited for painting with normal commercially available one or two component paints.
- Never use metallic paint or paint containing metallic particles.
- Ensure that ventilation and drainage holes are free from paint.
- Ensure proper adhesion of the paint.

### 3.2.5.2 Commercial Limitations

If the RRU is painted, the commercial limitations below apply:

- Failure modes directly related to overheating due to painting are not valid for repair within the scope of the warranty or standard service contract.
- Product failures related to paint contamination of components of the unit are not valid for repair within the scope of warranty or standard service contract.
- When a painted unit is repaired, it will be restored to the standard color before being returned to the market. It is not possible to guarantee the same unit being sent back to the same place. This is also valid for units repaired under a service contract.
- For repairs within the warranty period or a standard service contract, the customer will be charged the additional costs for replacing all painted parts of the unit or the complete unit.

## 3.3 Space Requirements

This section describes the space requirements for installing the mRRUS.

The mRRUS can be installed in any of the following main installation alternatives:

- On a wall
- Under a roof
- On a pole or mast

All the installation alternatives can be used indoors or outdoors.

Figure 3 shows the main installation alternatives.

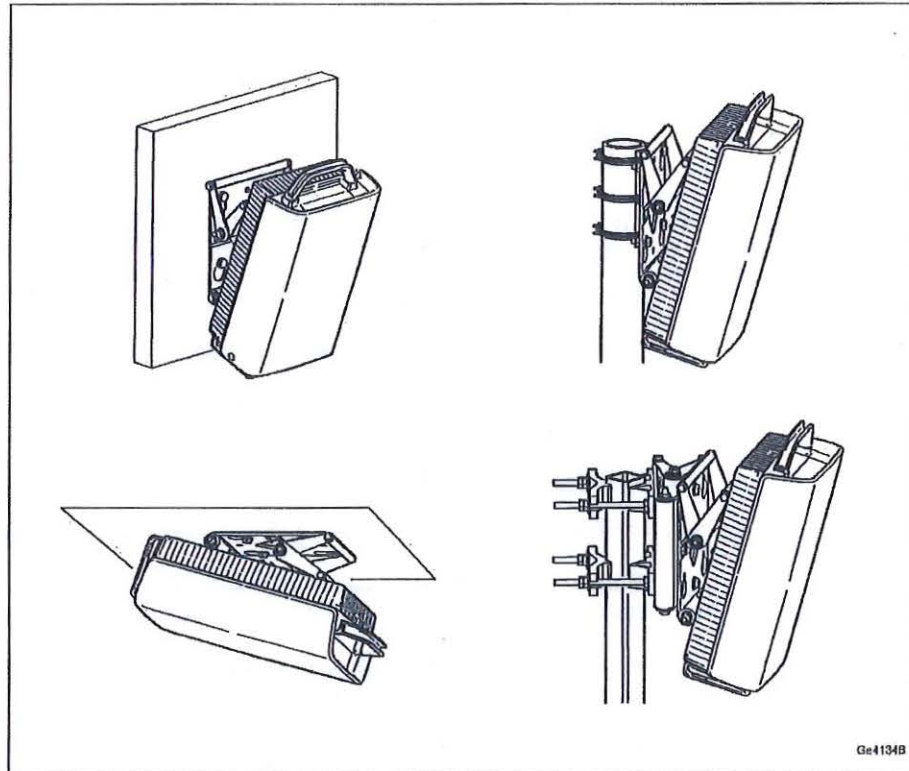


Figure 3 Main Installation Alternatives

For more information on installation alternatives, see *Installing mUnit Base Mount*, *Installing mUnit Small Clamps*, and *Installing mUnit Hose Plate*.

For installation requirements to comply with limitations on Radio Frequency (RF) Electromagnetic Fields (EMF) exposure, see Section 3.4 on page 14.

### 3.3.1 Generic Requirements

To ensure sufficient working space, allow a minimum of 1 m free space in front of the mRRUS.

### 3.3.2 Wall or Roof Installation

The wall or roof must be even within 5 mm/m. The installation requirements are shown in Figure 4.

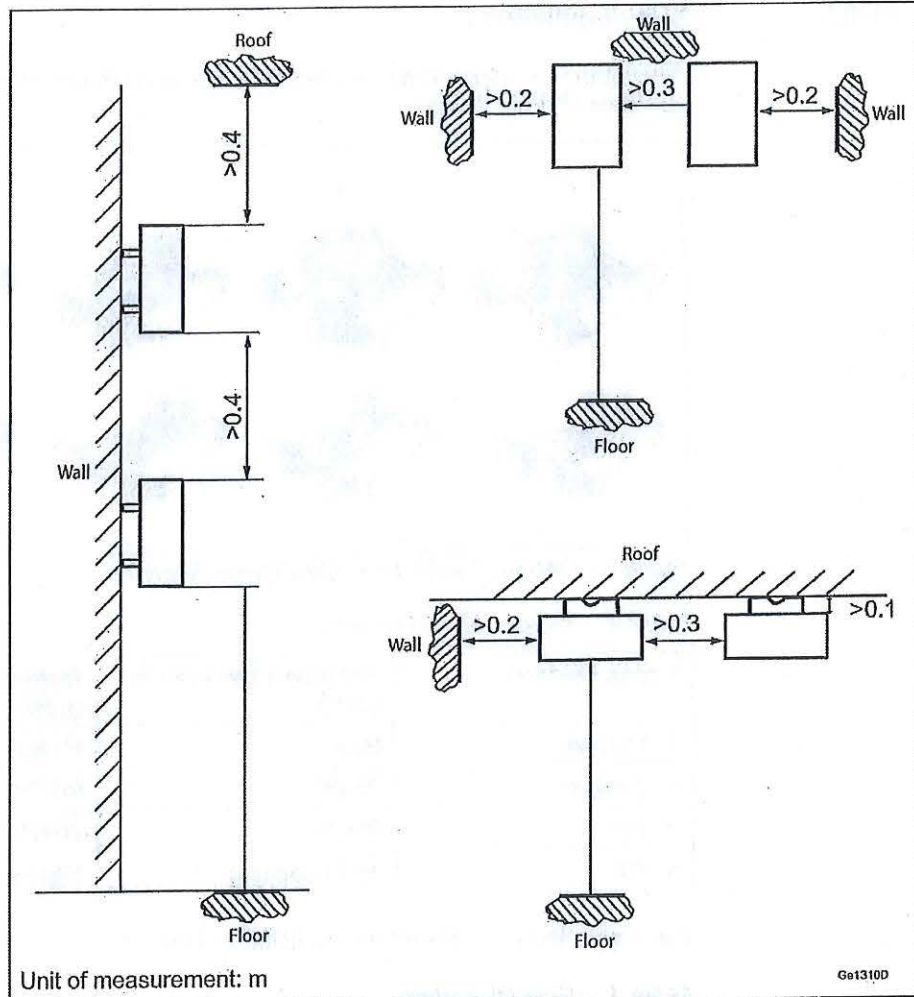


Figure 4 Wall or Roof Installation

### 3.3.2.1

#### Site Layout

To ensure adequate airflow between the units, allow a minimum of 0.4 m free space between the mRRUS and the roof, and between mRRUSs installed on a wall, on top of one another.

Allow a minimum of 0.3 m free space between mRRUSs installed side by side on a wall, as well as between mRRUSs installed on a roof, and a minimum of 0.1 m between the roof and the mRRUS.

The minimum distance between the mRRUS and a wall must be 0.2 m.



### 3.3.3 Pole Installation

The alternative pole or mast variants are shown in Figure 5 and their dimensions are described in Table 3.

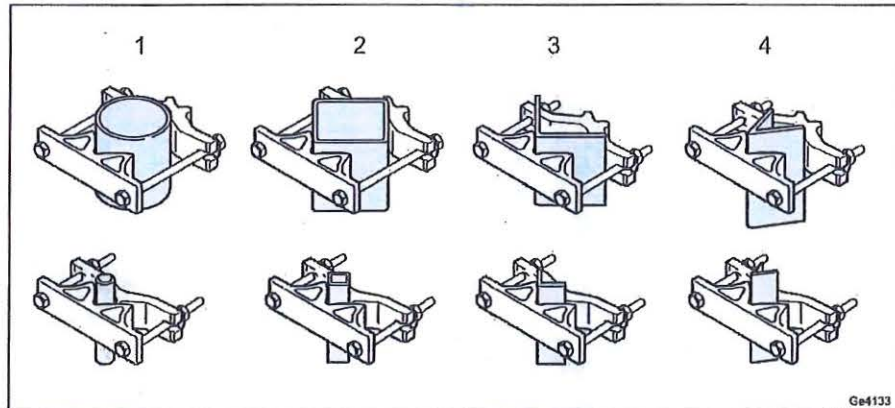


Figure 5 Alternative Pole or Mast Cross Sections

Table 3 Pole or Mast Dimensions

Cross Section	Minimum Dimension (mm)	Maximum Dimension (mm)
1. Circular	Ø25	Ø120
2. Square	35x35	90x90
3. 90°	35x35	90x90
4. 60°	40 in opening	100 in opening

The supported pole diameters are listed in Table 4.

Table 4 Pole Diameters

Mounting Equipment	Pole Diameter
Single fixture	60–120 mm
Mounting bracket	35–155 mm

#### 3.3.3.1 Site Layout

To ensure adequate airflow between the units, allow a minimum of 0.4 m free space above and below each mRRUS. Allow a minimum of 0.3 m free space between mRRUSs installed side by side.





### 3.3.4

#### Wall or Pole Installation with a Semi-Integrated Omni Antenna

The wall must be even within 5 mm/m. The installation requirements are shown in Figure 6.

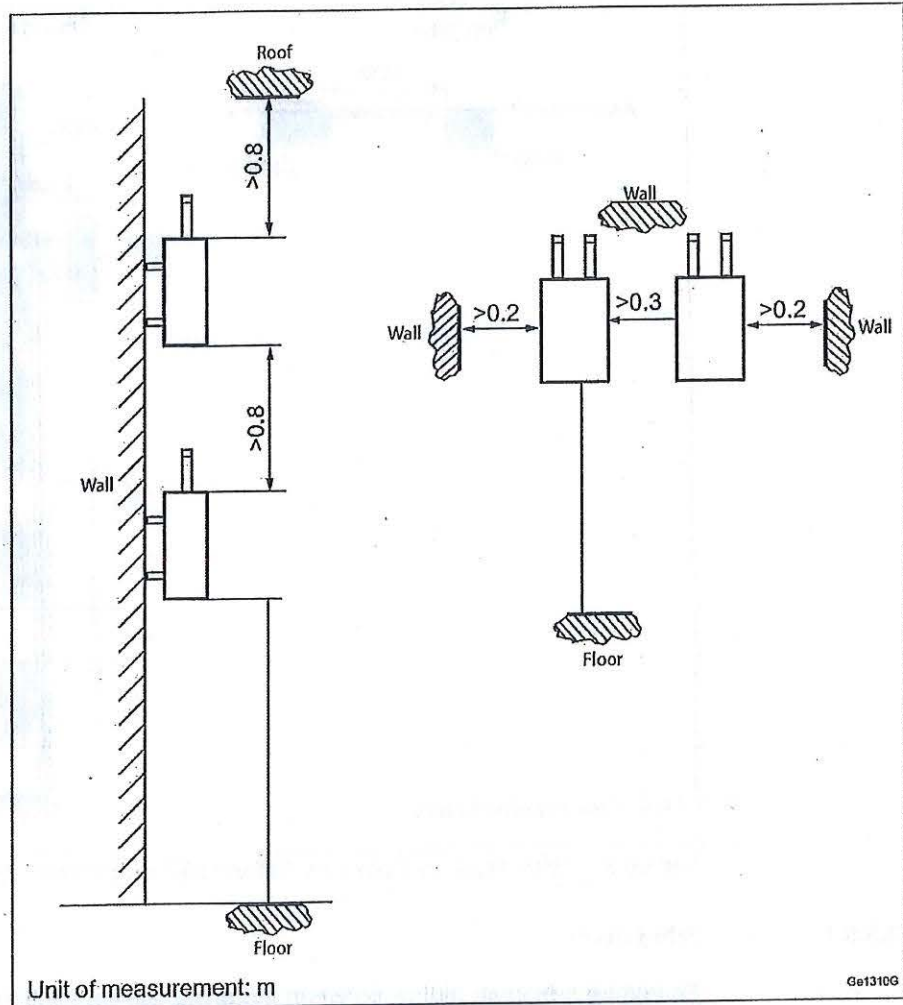


Figure 6 Wall or Pole Installation with a Semi-Integrated Omni Antenna

#### 3.3.4.1

##### Site Layout

To ensure adequate space between the units and the semi-integrated omni antennas, allow a minimum of 0.8 m free space between the mRRUS and the roof, and between mRRUSs installed on a wall, on top of one another.

Allow a minimum of 0.3 m free space between mRRUSs installed side by side.



### 3.3.5 Wall, Roof, or Pole Installations with an External Antenna

Install the mRRUS below the external antenna. The installation requirements are shown in Figure 7.

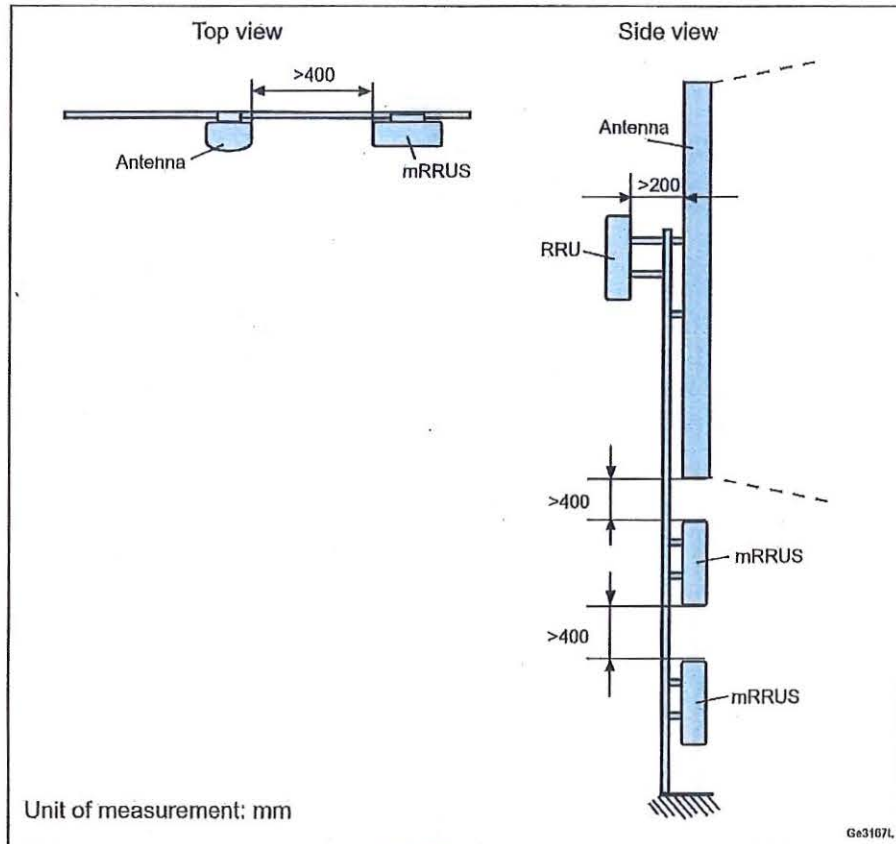


Figure 7 Wall, Roof, or Pole Installations with an External Antenna

#### 3.3.5.1 Site Layout

To ensure adequate airflow between the units, allow a minimum of 400 mm free space between mRRUSs installed vertically on a pole. Allow a minimum vertical distance of 400 mm between mRRUS and antenna, if installed above or below an antenna. Allow a minimum of 200 mm free space between mRRUSs installed side by side. The minimum distance from the bottom of the mRRUS to the floor is 300 mm.

**Note:** An mRRUS can not be installed in the uppermost top position of a pole or mast.

If the antenna azimuth is in the direction of the mRRUS, the distance between the antenna and the mRRUS needs to be increased.



## 3.4 Radio Frequency Electromagnetic Exposure

This product contains a low-power radio transmitter which emits RF EMF during operation. Limits on exposure to RF EMF are specified in international safety guidelines which are developed by organizations such as ICNIRP (International Commission on Non-Ionizing Radiation Protection) and IEEE (The Institute of Electrical and Electronics Engineers). These limits have been adopted in standards and regulations applicable to radio communication products.

There are installation requirements that need to be followed for this product to comply with the limitations on RF EMF exposure to the general public that are applicable within the European Union (EU Recommendation 1999/519/EC), the United States (FCC CFR title 47, part 1.1310) and other markets. The product has been tested in accordance with the relevant technical standards and procedures specified by CENELEC, IEEE, ITU and the FCC to determine RF EMF limit compliance distances and boundaries. A compliance boundary is the volume around the product (or antenna connected to the product) outside of which the exposure is below the applicable limits. The compliance boundary is described as a cylinder or a box.

This product shall be installed so that the general public does not have access to the volume specified by the compliance boundary. Information about compliance boundaries for this product, including different radio access and antenna configurations, is provided in *Radio Frequency Electromagnetic Exposure*.

General information on RF EMF exposure from the RBS 6000 family of products can be found in *Radio Frequency Electromagnetic Fields*.

## 3.5 Acoustic Noise

The mRRUS does not generate acoustic noise.

## 3.6 Environmental Characteristics

This section contains mRRUS operating environment data.

### 3.6.1 Operating Environment

The following is a list of values for the mRRUS normal operating environment:

Temperature	-40 to +55°C
Solar radiation	≤ 1,120 W/m <sup>2</sup>
Relative humidity	5 to 100%
Absolute humidity	0.26 to 40 g/m <sup>3</sup>



Maximum temperature change	1.0°C/min
Maximum wind load at 50 m/s (pole installed single case)	430 N (front)

### 3.6.2 Heat Dissipation

The mRRUS is convection cooled. Table 5 shows the heat dissipation values when the unit is installed alone or around other mRRUSs. The values represent the maximum power heat dissipation of an mRRUS, taking into account optional equipment and future expansions.

Table 5 mRRUS Heat Dissipation

Unit	Output Power	Maximum Heat Dissipation
mRRUS	2x5 W	140 W

For information on power consumption, see *Power Consumption Guideline for RBS 6000*.

### 3.6.3 Vibration

This section describes the mRRUS tolerance to vibrations. The mRRUS operates reliably during seismic activity as specified by test method IEC 60 068-2-57 Ff.

Maximum level of Required Response Spectrum (RRS)	50 m/s <sup>2</sup> within 2-5 Hz for DR=2%
Frequency range	1–35 Hz
Time history signal	Verteq II

The mRRUS operates reliably during random vibration as specified by test method IEC 60 068-2-64 Fh method 1

Random vibration, normal operation	0.5 m <sup>2</sup> /s <sup>3</sup>
------------------------------------	------------------------------------

The mRRUS operates reliably during shock as specified by test method IEC 60 068-2-27 Ea

Peak acceleration	40 m/s <sup>2</sup>
Duration	22 ms



### 3.6.4 Materials

All Ericsson products fulfill the legal and market requirements regarding:

- Material declaration
- Fire resistance of material (components, wires, and cables)
- Recycling
- Restricted and banned material use

## 3.7 Mains Supply Characteristics

This section describes the power supply requirements, power consumption, and fuse and circuit breaker recommendations for the mRRUS.

The power for the mRRUSs can be provided from an AC or a DC power supply.

### 3.7.1 AC Power Supply Characteristics

The power supply voltage range for the mRRUS is 85 to 275 V AC. The power supply requirements are listed in Section 6.1.2 on page 34.

*Table 6 mRRUS AC Power Supply Requirements*

Normal Voltage Range	Tolerance Range
100 to 250 V	85 to 275 V AC
Connection	Phase-neutral, phase-phase
Frequency range	50 to 60 Hz
Voltage harmonics	< 10% at full load <sup>(1)</sup>
Shut-off allowance	At undervoltage or overvoltage
Inrush current peak	< 8 A
Inrush current duration	< 100 ms

*(1) Must comply with IEC 61000-3-2*

### Fuse and Circuit Breaker Recommendations

Table 7 shows external fuse and circuit breaker capabilities for the mRRUS.

The recommendations given in this section are based on peak power consumption and do not provide information on power consumption during normal operation.

The recommended melting fuse type is gG-gL-gD in accordance with IEC 60 269-1. Circuit breakers must comply with at least Curve 3 tripping characteristics, in accordance with IEC 60 934.



Table 7 mRRUS Fuse or Circuit Breaker Recommendations

Unit (AC powered)	Output Power	Minimum Fuse Rating	Maximum Allowed Fuse Rating <sup>(1)</sup>
mRRUS	2x5 W	<ul style="list-style-type: none"> <li>• 4 A (100 to 127 V AC)</li> <li>• 4 A (200 to 250 V AC)</li> </ul>	32 A

(1) The absolute maximum fuse class in accordance with mRRUS design restrictions.

### 3.7.2 DC Power Supply Characteristics

The power supply voltage for the mRRUS is -48 V DC. The power supply requirements are listed in Table 8.

Table 8 mRRUS DC Power Supply Requirements

Conditions	Values and Ranges
Nominal voltage	-48 V DC
Normal voltage range at mRRUS input connector	-58.5 to -38.0 V DC
Non-destructive range	0 to -60 V DC

### Fuse and Circuit Breaker Recommendations

Table 9 shows the external fuse and circuit breaker capabilities for the mRRUS.

The recommendations given in this section are based on peak power consumption and do not provide information on power consumption during normal operation.

The recommended melting fuse type is gG-gL-gD in accordance with IEC 60 269-1. Circuit breakers must comply with at least Curve 3 tripping characteristics, in accordance with IEC 60 934.

Table 9 mRRUS Fuse or Circuit Breaker Recommendations

Unit (DC powered)	Output Power	Minimum Fuse Rating	Maximum Allowed Fuse Rating <sup>(1)</sup>
mRRUS	2x5 W	6 A	32 A

(1) The absolute maximum fuse class in accordance with mRRUS design restrictions.

### 3.7.3 Power Consumption

For information on power consumption, see *Power Consumption Guideline for RBS 6000*.



## 3.8 System Characteristics

This section describes the system characteristics of the unit.

### 3.8.1 Software

Information on software dependencies can be found in *Compatibilities for Hardware and Software*.

### 3.8.2 Radio Configurations

Information about available radio configurations can be found in *RBS Configurations*.



## 4 Hardware Architecture

This section describes the mRRUS hardware structure regardless of configuration or frequency. The mRRUS components are shown in Figure 8 and described in Table 10.

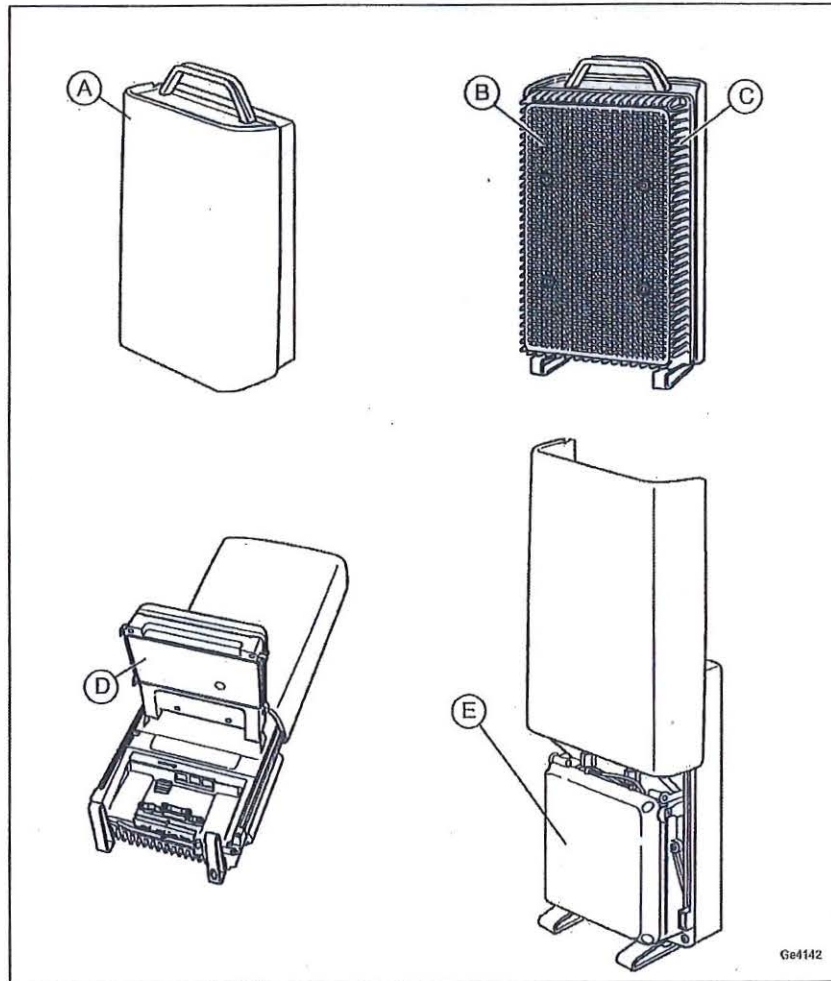


Figure 8 mRRUS Components

Table 10 Key to mRRUS Components

Position	Component
A	Front solar shield
B	Rear solar shield





Position	Component
C	Heatsink
D	Installation hatch
E	Integrated antenna

The mRRUS contains most of the radio processing hardware. The following sections describe the component units of the mRRUS.

## 4.1 Solar Shield

The mRRUS has two types of solar shield: a front solar shield, and a rear solar shield; as shown in Figure 8 and Table 10.

The solar shield protects the mRRUS from solar radiation and is part of the cooling design.

**Note:** To prevent the rear solar shield to block convention cooling airflows, the rear solar shield should be dissembled when the mRRUS is installed in confined spaces without ambient airflow (under rooftops, outdoor boxes, or similar locations).

## 4.2 Heatsink

The heatsink is a cast of aluminium for cooling the unit.

## 4.3 Installation Hatch

The installation hatch hides the optical indicators, the maintenance button, and the connectors.

For more information about optical indicators, maintenance button, and connectors; see Section 5 on page 22.

## 4.4 Integrated Antenna

The integrated antenna is located on the lower half of the mRRUS seen in a vertical position, as shown in Figure 8.



## 5 Connection Interfaces

This section contains information about the mRRUS interfaces shown in Figure 9, Figure 10, and listed in Table 11.

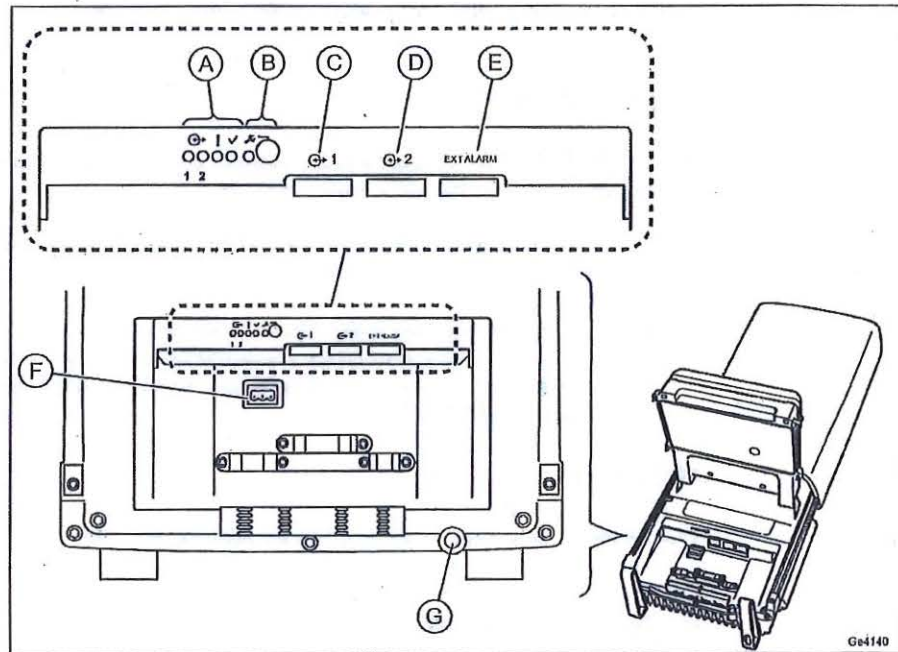


Figure 9 mRRUS Connection Interfaces

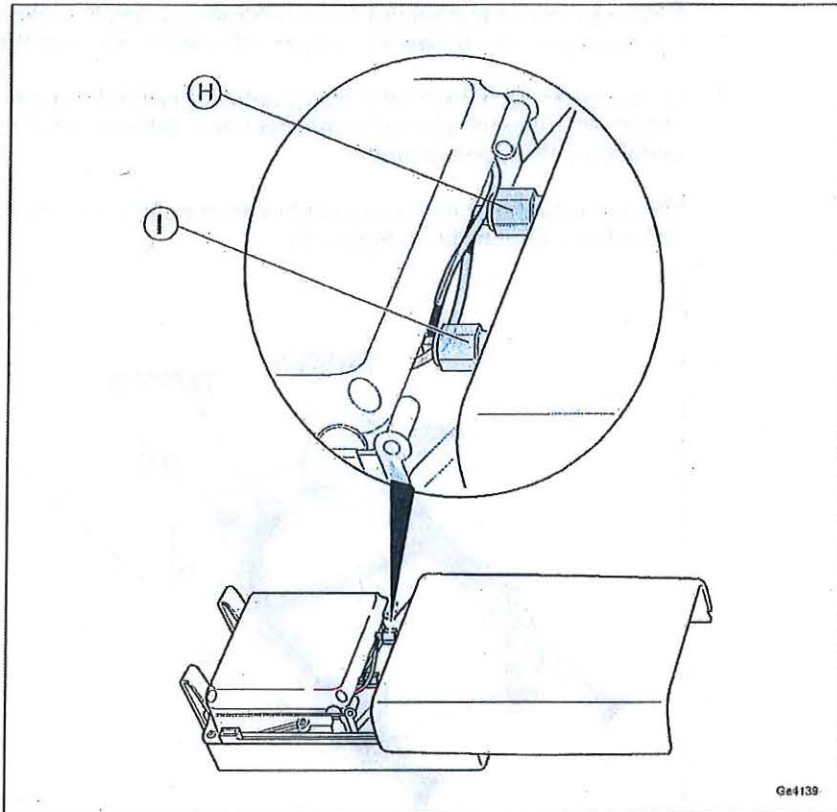


Figure 10 mRRUS Antenna Connection Interfaces

Table 11 mRRUS Connection Interfaces

Position	Description	Marking
A	Optical indicators	⊙1, ⊙2 !, ✓, ✗
B	Maintenance button	✗
C	Optical cable 1	⊙1
D	Optical cable 2	⊙2
E	External alarm	EXT ALARM
F	AC power supply interface	L, L/N, ⊥
	DC power supply interface	-48, RTN, ⊥
G	Grounding	⏏
H	Antenna A	A ⏏ interface
I	Antenna B	B ⏏ interface



When an integrated antenna is not included, antenna jumper cables with N-connectors can be used to connect the unit to an external antenna.

If it is necessary to open the hatch without disconnecting the antenna jumper cables, 1/4" angled connectors are required, otherwise 1/2" with straight connectors are recommended.

The antenna interfaces connected to antenna jumper cables with 1/4" angled connectors are shown in Figure 11.

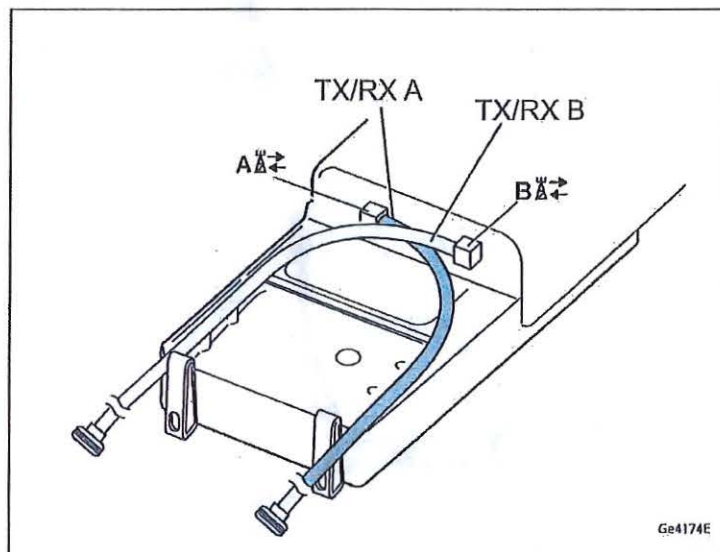


Figure 11 Antenna Jumper Cables with 1/4" Angled Connectors

## 5.1 Position A, Optical Indicators

The mRRUS is equipped with optical indicators that show system status. The optical indicators are located under the installation hatch. Table 12 describes how to interpret the optical indicators for mRRUS when WCDMA and LTE controlled.

Table 12 mRRUS Optical Indicators WCDMA or LTE Controlled

Marking	Indicator	Color	Mode	Indicates
!	Fault	Red	Off	No fault detected in mRRUS
			On	Fault detected in mRRUS



Marking	Indicator	Color	Mode	Indicates
✓	Operational	Green	Off	mRRUS not operational
			On	Power present
			Blink (2 Hz)	Load or testing in progress
			Blink (0.5 Hz)	Dependent resource missing
🔧	Maintenance	Blue <sup>(1)</sup>	Off	mRRUS not in maintenance mode
			On	mRRUS in maintenance mode
			Blink (0.5 Hz)	Shutdown in progress
⊕1, ⊕2	Interface	Green	Off	Disconnected
			On	Connected
<b>Button:</b>				
🔧	Maintenance	-	-	Switch mRRUS mode between Remote and Maintenance

(1) The color can also be yellow. The yellow optical indicator can blink busy.

More information about optical indicators can be found in *Indicators, Buttons, and Switches*.

## 5.2 Position B, Maintenance Button

The maintenance button is located on the right of the 🔧 symbol.

**Note:** Use a pointed object, for instance a screwdriver or a pencil tip, to press the maintenance button.

For more information about the maintenance button, see *Indicators, Buttons, and Switches*.

## 5.3 Position C and D, Interface for Optical Cable to Main Unit

The interfaces ⊕ 1 and ⊕ 2 provide connections to optical cables for traffic and timing signals between the mRRUS and the main unit. A Small Form-Factor Pluggable (SFP) is used to connect the optical cable to the mRRUS.



**Note:** The mRRUS uses SFP modules for optical transmission and optical radio interfaces on Data 1 (optical cable 1 in) and Data 2 (optical cable 2 out).

Only use SFP modules approved and supplied by Ericsson. These modules fulfill the following:

- Compliance with Class 1 laser product safety requirements defined in standard IEC 60 825-1
- Certification according to general safety requirements defined in standard IEC 60 950-1
- Functional and performance verified to comply with RBS specifications

## 5.4 Position E, External Alarm Interface

Two external alarms can be connected to the mRRUS external alarm port.

## 5.5 Position F, Power Supply Interface

Depending on the version of the product, the power supply for the mRRUS can be AC or DC.

### 5.5.1 AC Power Supply Interface

The AC power connection is made through a connector. The connector accepts cables with the limiting values listed in Table 13.

*Table 13 AC Power Supply Cable Diameter Tolerances*

Cable Length	Recommended Cross-Sectional Area of Each Conductor	Outer Diameter over Sheath
0 to 100 m	2.5 mm <sup>2</sup>	9±1 mm

The power cable has a wire for Line (L), a wire for Line/Neutral (L/N), and a wire for Protective Earth (PE) conductors. The wire color code for wires is market dependent.

All cables must be shielded. The shielding must be properly connected both to the power connector and to the grounding interface in the power supply equipment, otherwise the mRRUS overvoltage does not function properly.



### 5.5.2 DC Power Supply Interface

The -48 V DC power connection is made through a connector. The connector accepts cables with the limiting values listed in Table 14.

*Table 14 -48 V DC Power Supply Cable Diameter Tolerances*

Cable Length	Recommended Cross-Sectional Area of Each Conductor	Outer Diameter over Sheath
0 to 60 m	2.5 mm <sup>2</sup>	9±1 mm

The power cable conductor has a wire for 0 V, a wire for -48 V conductors. The wire color code is market dependent.

All cables must be shielded. The shielding must be properly connected both to the power connector and to the grounding interface in the power supply equipment, otherwise the mRRUS overvoltage does not function properly.

### 5.6 Position G, Grounding Interface

To protect the mRRUS from overvoltage and lightning strikes, it must be grounded. The grounding interface shown in Figure 12 accepts a small cable lug on a short, coated cable.

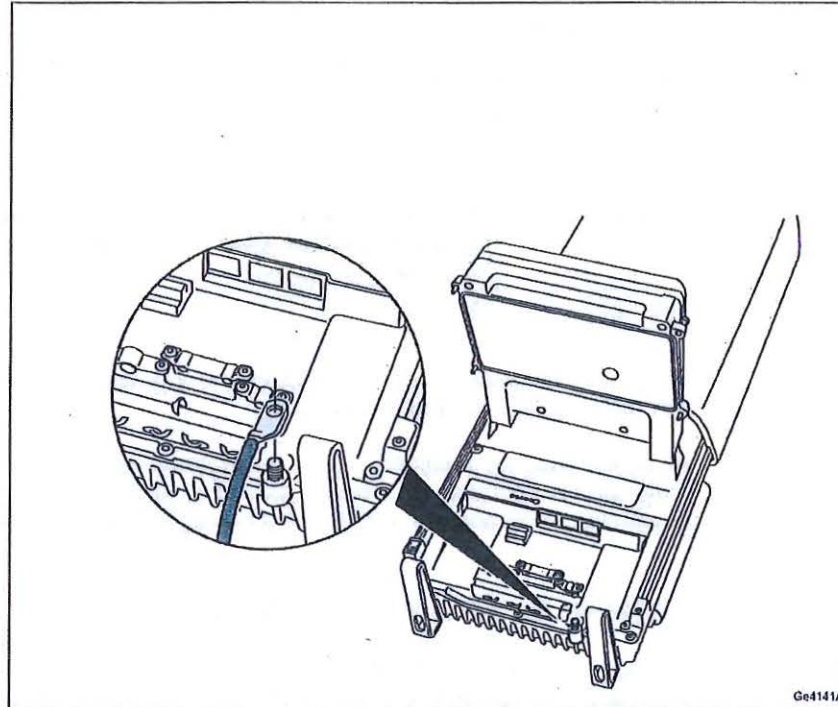


Figure 12 mRRUS Grounding Interface

## 5.7 Position H and I, Antenna Connection Interfaces

The antenna interfaces provide mRRUS connections to antennas. Antenna cables connect the mRRUS to the antennas.

The characteristics of the antenna connection interfaces and cable types are described in Table 15.

Table 15 mRRUS Antenna Connection Interfaces Characteristics

Connector Type	RF Cable Type	Cable Connector Type
N-type insert-receiver	50 $\Omega$ coaxial	N-type insert-type on both ends

Table 16 shows how to connect the antenna cables.

Table 16 mRRUS Antenna Cable Connectors

mRRUS Connectors	Antenna Connectors
A $\overleftrightarrow{\text{A}}$ (Antenna A)	TX/RX
B $\overleftrightarrow{\text{B}}$ (Antenna B)	TX/RX





## 5.8 Supported Cable Dimensions

The cable dimensions supported by the mRRUS are described in Table 17.

**Note:** To ensure the performance in outdoor locations, the cables must be concentric and the power and alarm cables must be shielded. The shield must be properly connected to the grounding interface for the overvoltage to function properly.

Table 17 Supported Cable Dimensions

Cable Type	Maximum Cable Length (m)	Recommended Cross-sectional Area of Each Conductor (mm <sup>2</sup> )	Outer Diameter over Jacket (mm)
AC cable	100	2.5	8–9
DC cable	60	2.5	8–9
Optical cables (2 SFP)	500	–	4.4–6.0
External alarm cable	–	0.14–0.25	4.4–6.0

## 5.9 Optional Equipment Interfaces

The following equipment is optional and can be ordered separately.

### 5.9.1 TX-Monitor (Optional)

The TX-monitor facilitates to monitor output power from the mRRUS at any time during the operation, and without interrupting service. The monitoring interface is situated in the optional monitoring port. The TX-monitor components are shown in Figure 13 and listed in Table 18.

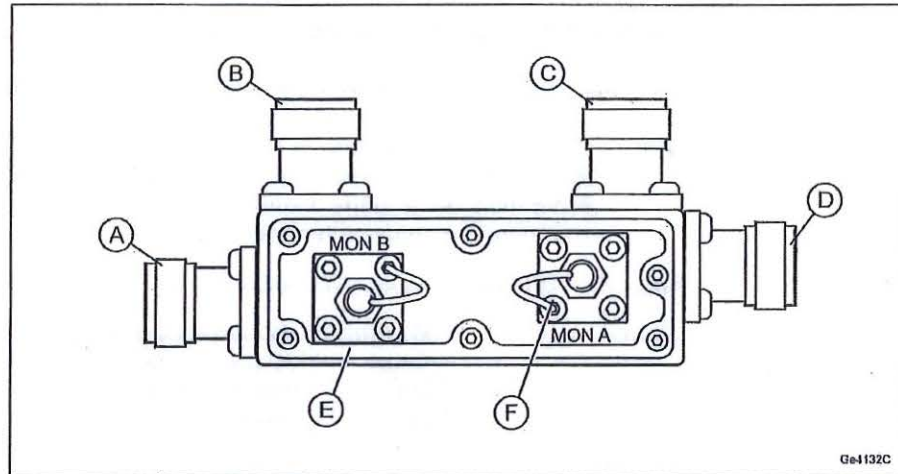


Figure 13 TX-Monitor Components

Table 18 TX-Monitor Overview

Position	Interface
A	RBS 2 N-type connector used for connecting to $A_{\Delta}$ or $B_{\Delta}$ interface
B	ANT A N-type connector for connecting the antenna cable
C	ANT B N-type connector for connecting the antenna cable
D	RBS 1 N-type connector used for connecting to $A_{\Delta}$ or $B_{\Delta}$ interface
E	MON B N-type or SMA connector for TX-port
F	MON A N-type or SMA connector for TX-port

Before connecting, the TX-monitor needs to be mounted on a bracket specially designed to hold it.

For information on how to install the TX-monitor, see *Quick Guide (TX Monitor Package, mRRUS 12)*.



**5.9.1.1 TX-Monitor (Optional) and Integrated Antenna (Optional)**

To install the TX-monitor to an integrated antenna, the integrated antenna must be rotated 180° from its original position, as shown in Figure 14.

**Note:** To protect the TX-monitor from getting in contact with the ground if the unit is in the vertical position, spacers must be installed above the support feet.

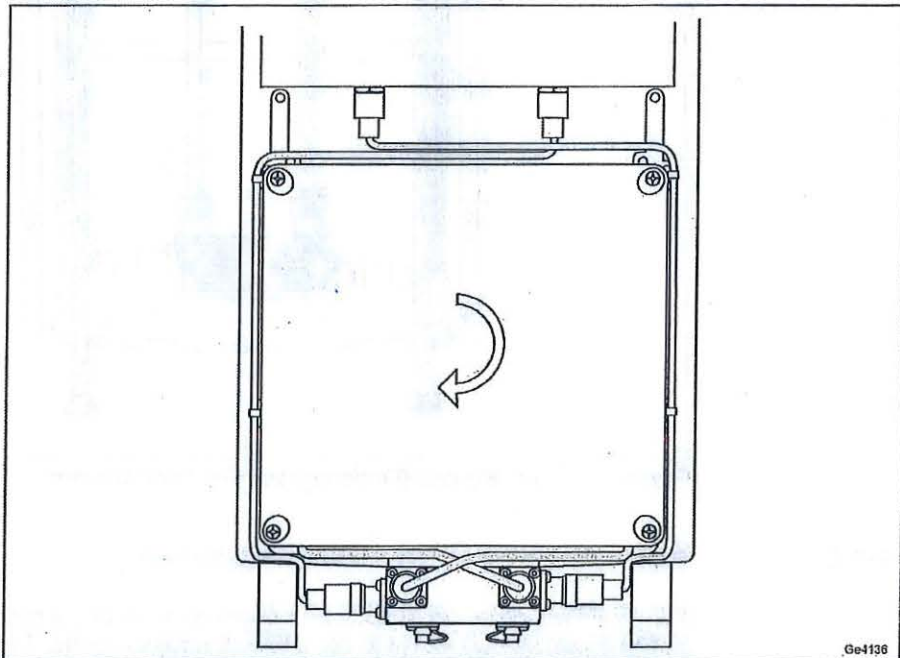


Figure 14 TX-Monitor (Optional) and Integrated Antenna (Optional)

**5.9.1.2 TX-Monitor (Optional) and External Antenna**

The TX-monitor can be placed on the antenna interface that is a transmitter port, which means **A** and **B** for mRRUS. The monitoring ports of the TX-monitor must be connected to the external antenna using antenna jumper cables, as shown in Figure 15.

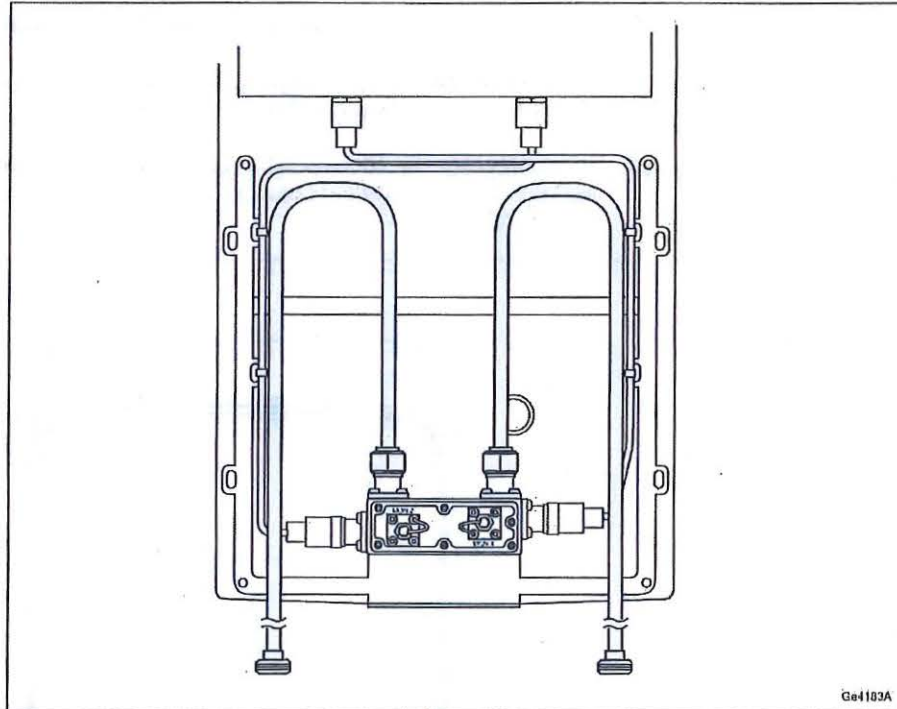


Figure 15 TX-Monitor (Optional) and External Antenna

## 5.9.2

### Semi-Integrated Omni Antenna (Optional)

If the mRRUS does not include an integrated antenna, a semi-integrated omni antenna can be connected to the external antenna ports. The semi-integrated omni antenna is mounted on a bracket specially designed to be attached to the mRRUS.

For information on how to install the antenna on the bracket, see *Installing mUnit Omni Support*.

Semi-integrated omni antennas are available in the following two variants:

- Semi-integrated omni antenna for high bands
- Semi-integrated omni antenna for low bands

For information on installation alternatives, and how to install a semi-integrated omni antenna, see *Installing Remote Radio Units*.

#### 5.9.2.1

### Semi-Integrated Omni Antenna for High Bands

A semi-integrated omni antenna for high bands, mounted on top of an mRRUS that stands in vertical position, is shown in Figure 16.

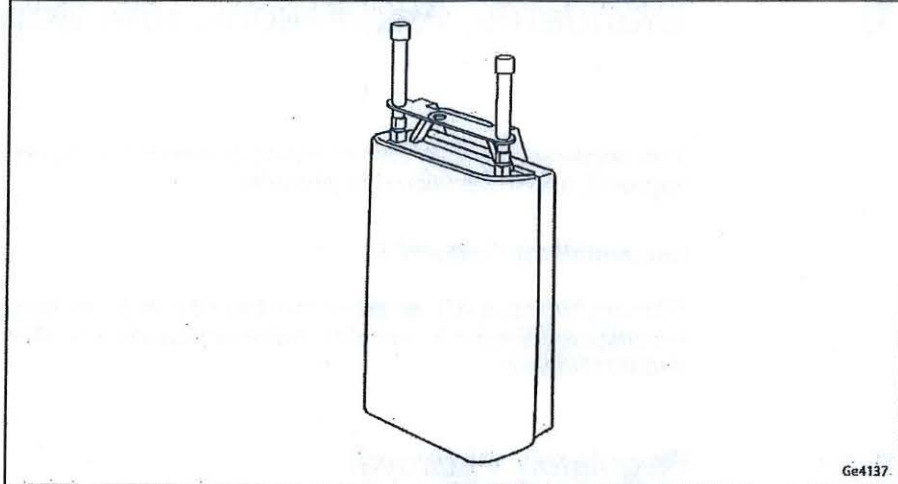


Figure 16 *Semi-Integrated Omni Antenna for High Bands*

**Note:** A semi-integrated omni antenna for high bands can be also mounted on top of an mRRUS that stands in horizontal position.

### 5.9.2.2

#### **Semi-Integrated Omni Antenna for Low Bands**

A semi-integrated omni antenna for low bands, mounted on top of an mRRUS that stands in horizontal position, is shown in Figure 17.

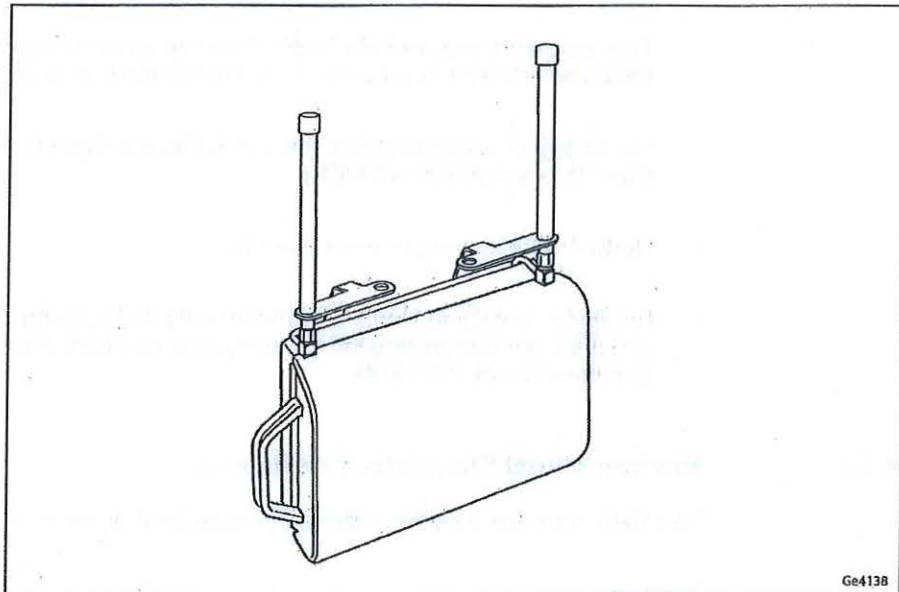


Figure 17 *Semi-Integrated Omni Antenna for Low Bands*



## 6 Standards, Regulations, and Dependability

This section presents a brief overview of standards, regulatory product approval, and declaration of conformity.

### Declaration of Conformity

*"Hereby, Ericsson AB, declares that this RBS is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC and 2011/65/EU."*

### 6.1 Regulatory Approval

The RBS complies with the following market requirement:

- EC (European Community) market requirements, R&TTE Directive 1999/5/EC

**CE0168** Alert Mark (Class 2 equipment). Restrictions to use the apparatus may apply in some countries or geographic areas. Individual license to use the specific radio equipment may be required.

The apparatus may include Radio Transceivers with support for frequency bands not allowed or not harmonized within the European Community (EC).

- Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive (2011/65/EU).
- North American market requirements.
- Products containing Radio Equipment outside North America and in countries not recognizing the CE-mark may be labeled according to national requirements or standards.

#### 6.1.1 Environmental Standards Compliance

The RBS complies with the following environmental standard:

##### Europe

- EN 50 581 (RoHS)



## 6.1.2 Safety Standards Compliance

In accordance with market requirements, the RBS complies with the following product safety standards and directives:

### International

- IEC 60 215
- IEC 60 950-1 Ed2 with amendment A1

### Europe

- EN 50 385
- EN 60 215
- EN 60 950-1 Ed2 with amendment A1

### North America

- FCC CFR 47 Part 1.1310
- FCC CFR 47 Part 2.1091
- Health Canada Safety Code 6
- IC RSS-102
- UL 60 950-1
- CSA-C22.2 No. 60 950-1-07 with amendment A1

## 6.1.2.1 Outdoor Specific Requirements

The RBS complies with the following outdoor specific requirements:

### International

- IEC 60 529 (IP55)
- IEC 60 950-22

### Europe

- EN 60 529 (IP55)
- EN 60 950-22



#### **North America**

- CSA-C22.2 No. 60950-22-07
- UL 50E
- UL 60950-22

### **6.1.3 EMC Standards Compliance**

The RBS complies with the following Electromagnetic Compatibility (EMC) standards:

#### **International**

- 3GPP TS25.113
- 3GPP TS36.113
- 3GPP TS37.113

#### **Europe**

- ETSI EN 301 489-1
- ETSI EN 301 489-8
- ETSI EN 301 489-23
- ETSI EN 301 489-50

#### **North America**

- FCC CFR 47 Part 15 B
- IC ICES-003 B

### **6.1.4 Radio Standards Compliance**

The RBS complies with the following radio standards:

#### **International**

- 3GPP TS25.141
- 3GPP TS36.141
- 3GPP TS37.141
- 3GPP TS51.021





### Europe

- ETSI EN 301 502
- ETSI EN 301 908-1
- ETSI EN 301 908-3
- ETSI EN 301 908-14
- ETSI EN 301 908-18

### North America

- FCC CFR 47 Part 22, 24, and 27 (USA frequency dependent)
- FCC CFR 47 Part 2 (USA)
- IC RSS-130, 132, 133, 139, and 199 (Canada frequency dependent)
- IC RSS-Gen (Canada)

## 6.1.5

### Marking

To show compliance with legal requirements the product is marked with the following labels:

#### Europe

- CE mark

#### North America

- usETL/cETL
- FCC CFR 47 Part 15 Statement
- IC ICES-003 Statement
- FCC ID (located on mRRUS)
- IC ID (located on mRRUS)

## 6.2

### Other Standards and Regulations

The standards and regulations in this section are not regulatory approved.



**6.2.1 Dependability**

The RRUS is designed for a MTBF of 50 years at 20°C (24-hour operation).

**6.2.2 Spare Parts**

This RRUS complies with the Ericsson Serviceability and Spare Parts Strategy.

**6.2.3 Surface Quality**

The surface quality of the RRUS is in accordance with Ericsson standard class A3.

**6.2.4 Vandal Resistance**

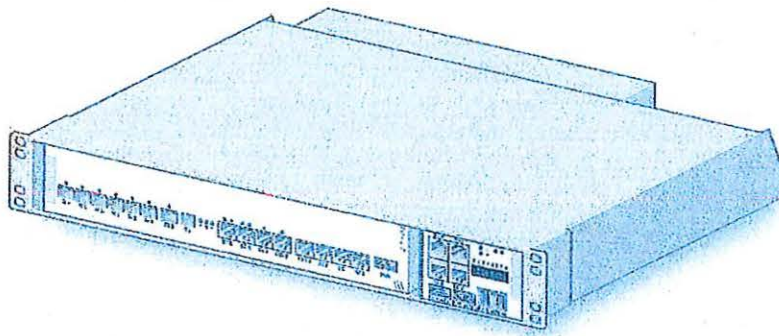
Unauthorized access is not possible without damaging the unit.

# Main Unit Description

RBS 6601

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## DESCRIPTION



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Main Unit Description



# 1 Introduction

This document is a description of the RBS 6601 main unit.

# 2 Product Overview

The RBS 6601 main unit consists of a support system installed with either of the following:

- One or two Digital Units (DUs) for GSM, WCDMA or LTE, or
- One DU and one Transport Connectivity Unit (TCU), or
- One DU and one Auxiliary Multiplexing Unit (XMU).

The support system for the main unit is available in the following variants:

- Variant 1
- Variant 2

Figure 1 shows support systems, variant 1 and variant 2.

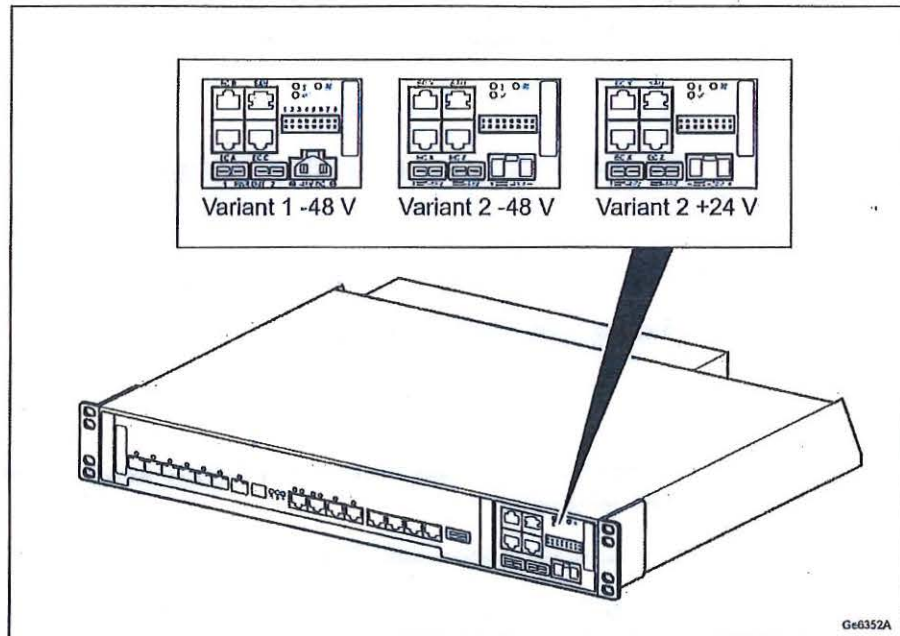


Figure 1 Support Systems, Variant 1 and Variant 2

The main unit facilitates a scalable, modular RBS with one or several indoor main units and a number of Remote Radio Units (RRUs) or Antenna Integrated Radio (AIR) units. Figure 2 shows the main unit installed in an RBS and connected to external radios.

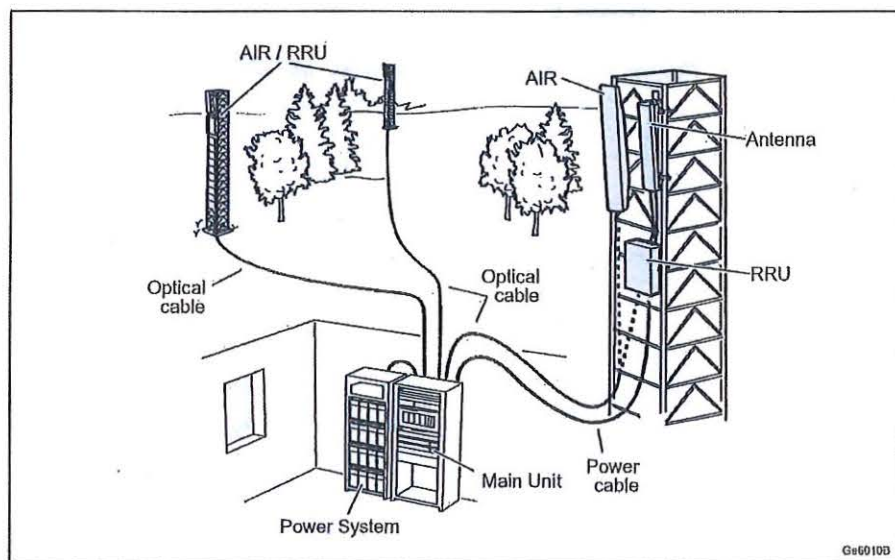


Figure 2 RBS Connected to External Radios





An overview of RBS 6601 can be found in *RBS Description*.

## 2.1 Main Features

This section describes the main features of the main unit.

**Note:** Not all features are supported by all configurations. Current radio configurations can be found in *RBS Configurations*.

The following are the main features of the main unit:

- Facilitates a modular, scalable system, with one or several main units and external radios, that can be configured to meet the current demand.
- Can be installed in a 19-inch rack or cabinet.
- Supports RRUs installed near the antennas, to decrease cable signal loss.
- -48 V DC or +24 V DC power supplies.
- Supports synchronization from Global Navigation Satellite System (GNSS) or over the transport network.
- Supports integrated external alarms.

## 3 Technical Data

This section describes the physical characteristics, environmental data, and power solution of the main unit.

### 3.1 Dimensions

Table 1 lists the dimensions, weight, and color of the main unit.

*Table 1 Dimensions, Weight, and Color*

Dimensions	
Height	66 mm (1.5 U)
Width	483 mm (19-inch)
Depth	355 mm
For more information about dimensions, refer to Figure 3.	



<b>Weight</b>	
Fully equipped main unit	< 10 kg
<b>Color</b>	
White	

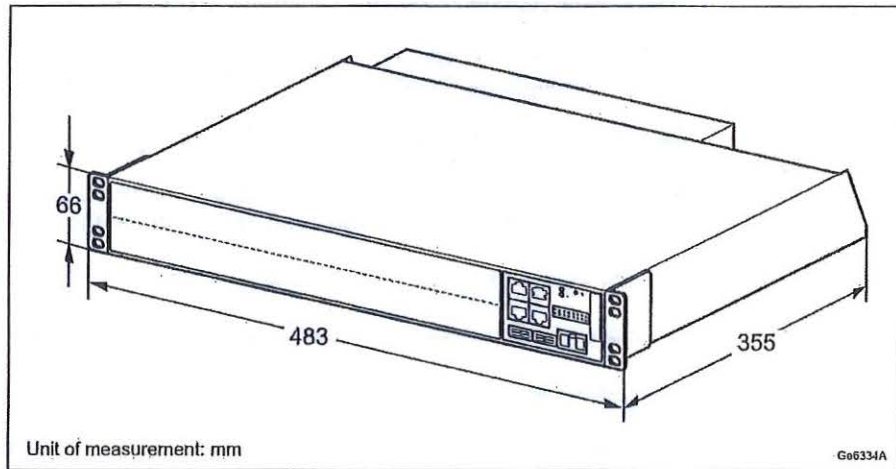


Figure 3 Dimensions

## 3.2 Space Requirements

This section describes the space requirements for installing the main unit in a 19-inch rack.

### 3.2.1 Installation Requirements

The main unit is 1.5 U high and can be installed in a 19-inch rack that complies with IEC 60297. It can also be installed in a cabinet. The rack or cabinet can be free-standing, without contact with other racks or cabinets, against a wall, back-to-back, or side-by-side with other racks or cabinets. Two or more main units can be installed in the same rack, and must be installed directly on top of each other, without space in between to maintain sufficient airflow.

The minimum distance between the rear of the main unit and the rear rack wall is 50 mm, to make room for the exhaust air. If the rack is equipped with a door, the minimum distance between the front of the main unit and the door is 50 mm, to provide space for cables and air intake. The movable brackets of the main unit can be adjusted up to 80 mm horizontally to place the main unit in the best position in the rack.

The main unit is intended for installation in a restricted access area. Access is gained through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.



### 3.3 Environmental Characteristics

This section describes the environmental characteristics of the main unit.

For more information about environmental characteristics, refer to *Environment Requirements*.

To achieve reliable operation and maximum performance; and to minimize the risk of unit malfunction, an appropriate installation location must be chosen. The main unit is an indoor unit which implies that the environmental characteristics are similar to that of inside an outdoor RBS. The main unit operating environment must be a temperature-controlled enclosed location suitable for sensitive data and telecommunication equipment, with very low levels of airborne particles.

The operating environment must comply with the following standards:

- IEC 60721-3-3 classes 3K3/3Z2/3Z4/3B1/3C2(3C1)/3S2/3M2, and
- ETSI EN 300 019-1-3 Class 3.1, except for the main unit operation temperature.

An appropriate installation location must have an adequate air conditioning system that provides the installation locations with the following:

- Controlled level of particles in the air, according to Table 2.
- Controlled air temperature, according to Table 3 in Section 3.3.1 on page 6.
- Controlled air humidity, according to Table 3 in Section 3.3.1 on page 6.

*Table 2 Air Particle Limitations*

Particles	Maximum Value	Unit
Salt Mist	0	cm <sup>3</sup> /m <sup>3</sup>
Sand	30	mg/m <sup>3</sup>
Dust (Suspension)	0.5	mg/m <sup>3</sup>
Dust (Sedimentation)	1.5	mg/m <sup>2</sup> h

**Note:** The main unit can be equipped with the optional front cover with filter to increase protection against particles.

The main unit cannot be installed in locations that do not meet the environmental criteria in this document. The following are examples of such unsuitable locations:

- Do not install the main unit where adequate air conditioning systems do not exist.
- Do not install the main unit where it is exposed to unfiltered outdoor air.



- Do not install the main unit where it is exposed to salt mist, sand, dust, or other particles.

### 3.3.1 Operating Environment

This section describes operating environment parameters for main unit operation.

There are three operating environments for the main unit: normal, exceptional, and non-destructive.

- Normal: Under normal conditions, all units function as specified.
- Exceptional: Under an exceptional environmental stress outside of normal operating limits, all units continue to function but with reduced performance or capacity. When conditions return to normal, the systems resume "Normal operation" status.
- Non-destructive: Under a non-destructive environmental stress beyond exceptional limits, no equipment function is guaranteed, and performance may degrade in an unspecified manner. However, the equipment still fulfills legal requirements and does not become hazardous to people. When conditions return to normal, no on-site intervention is needed to restore full RBS performance.

Table 3 gives the values for the main unit operating environment.

Table 3 Operating Environments

Operating Environment	Temperature (°C)	Relative Humidity (%)	Absolute Humidity (g/m <sup>3</sup> )	Change of Temperature (°C/min)
Normal	+5 to +50	5–85	1–25	0.5
Exceptional	0 to +50	5–90	1–25	0.5
Non-Destructive	–10 to +55	5–90	1–25	0.5

### 3.3.2 Heat Dissipation

Check the operating temperature 12 hours after power up to take the heat dissipation of the units into account.

Any increase in temperature because of heat dissipation must be added to changes in temperature throughout the year. In areas where the temperature during the warm time of year is significantly higher than the rest of the year, the accumulated temperature can exceed the maximum allowed operating temperature. The operating environment must have sufficient air-conditioning.



For information on heat dissipation for different DUs, refer to Section 4.8 on page 18 .

### 3.3.3 Acoustic Noise Summary

Table 4 shows the sound pressure level corresponding to a free-standing (not built in) main unit according to EN ISO 11205, calculated according to EN ISO 11203.

Table 4 Maximum Sound Power Level

Temperature (°C)	Sound Power Level (dBA)
+20	58
+25	58
+30	58
+45	60

### 3.3.4 Vibration

This section describes the tolerance to vibrations.

The main unit operates reliably during seismic activity as specified by test method IEC 60 068-2-57 Ff.

Maximum level of Required Response Spectrum (RRS)	50 m/s <sup>2</sup> within 2–5 Hz for DR=2%
Frequency range	1–35 Hz
Time history signal	VERTEQ II

The main unit operates reliably during random vibration as specified by test method IEC 60 068-2-64 Fh method 1.

Random vibration, normal operation	0.04 m <sup>2</sup> /s <sup>3</sup>
Random vibration, safe operation	0.15 m <sup>2</sup> /s <sup>3</sup>
Random vibration, non-destructive operation	0.2 m <sup>2</sup> /s <sup>3</sup>

The main unit operates reliably during shock as specified by test method IEC 60 068-2-27 Ea.

Peak acceleration	50 m/s <sup>2</sup>
Duration	11 ms



### 3.3.5 Earthquake Requirements

To fulfill earthquake requirements, follow the instructions in the manual for the rack.

### 3.3.6 Materials

The materials in the main unit are managed through the Ericsson lists of banned and restricted substances based on legal and market requirements.

## 3.4 Power Supply Characteristics

This section describes the power supply, power consumption, and fuse and circuit breaker recommendations.

### 3.4.1 DC Power Supply Characteristics

The main unit, depending on the support system variant used, is available with a  $-48$  V DC or  $+24$  V DC power interface.

Power characteristics for  $-48$  V DC power are listed in Table 5.

*Table 5  $-48$  V DC Power Characteristics*

Condition	Value
Nominal voltage	$-48$ V DC
Operating voltage range	$-40.0$ to $-58.5$ V DC
Non-destructive voltage range	$0$ to $-60$ V DC

Power characteristics for  $+24$  V DC power are listed in Table 6.

*Table 6  $+24$  V DC Power Characteristics*

Condition	Value
Nominal voltage	$+24$ V DC
Operating voltage range	$+20.5$ V to $+29.0$ V DC
Non-destructive voltage range	$0$ V to $+32$ V DC

### 3.4.2 Power Consumption

The following factors affect the power consumption:

- Main unit configuration, both HW and SW
- Operating conditions, traffic-related and environment-related

**EXHIBIT C**

**Building Access Rules**





## **Zuckerberg San Francisco General Hospital and Trauma Center**

### **Access for Telecommunications Equipment Installation and Maintenance**

1. Telecommunication company staff (Vendor) access to ZSFG buildings requires check in at the power plant located off of 22nd St., east of Potrero Ave.
2. No equipment can be added without prior approval from both ZSFG IT and Facilities departments.
3. Vendors must notify Chief Engineer of any known safety concerns prior to obtaining approval of equipment (i.e., transmitting signal hazards).
4. Notice: 48 hour minimum notice to ZSFG Facilities Department is required prior to vendor/consultant/subcontractor access to any ZSFG campus building.
5. ZSFG reserves the right to secure power to any equipment if deemed necessary.
6. Vendors must carry an official company ID to identify themselves and wear a ZSFG Facilities ID badge to gain access to the building.
7. Vendors will be required to sign a ZSFG campus orientation sheet which informs them of safety protocols.
8. No free parking is provided.

