EXHIBIT A
Application to the City with All Attachments

NextG Networks

EMPOWERING NEXT GENERATION WIRELESS NETWORKS

Corporate Headquarters:

NextG Networks, Inc.
2216 O'Toole Ave.
San José, California 95131

Tel: (408) 954-1580
Fax: (408) 383-5397
Web: www.nextgnetworks.net

Writer's Contact Information:

Natasha Ernst, Esq.
NextG Networks of California, Inc.

Tel: (408) 409-6606
Fax: (408) 383-5397
Email: nernst@nextgnetworks.net

VIA HAND DELIVERY

July 19, 2010

City and County of San Francisco
Department of Public Works
Bureau of Street-Use and Mapping
Attn: Rassendyll Dennis
875 Stevenson Street, Rm 460
San Francisco, CA 94103-0942

RE: Application for Personal Wireless Service Facilities Site Permit
Address: 156 27th Ave, San Francisco, CA 94121
Block & Lot: 1332 033
Node No.: SF03M3

Dear Mr. Dennis:

Please find enclosed the complete application of NextG Networks of California, Inc. ("NextG") for the above referenced site. In addition to all other required submissions, NextG has included documentation of CEQA approval and a verified statement from a qualified engineer that the proposed personal wireless service facility complies with FCC regulations.

Additionally, NextG has indicated in the appropriate location on the application that this site does not require referral to either the Planning Department or the Recreation and Park Department because it does not meet any of the criteria triggering referral as listed under San Francisco Administrative Code section 11.9(b)(2) or the Department of Public Works Order No. 117,163 sections III.D.4 or Section III.D.5.

If you have any questions or disagree with NextG's analysis of this location under the City Planning Data for Wireless Permit Project map, please contact me immediately at 408.409.6606.

Best regards,

Natasha Ernst
Director of Government Relations

City and County of San Francisco

(415) 554-5800
FAX (415) 554-5843
http://www.sfdpw.org

Department of Public Works
Bureau of Street-Use and Mapping
875 Stevenson Street, Room 460
San Francisco, CA 94103-0942

Gavin Newsom, Mayor
Edward D. Reiskin, Director

Barbara L. Moy, Bureau Manager

APPLICATION FOR A PERSONAL WIRELESS SERVICE FACILITIES SITE PERMIT

APPLICANT: NextG Networks of California, Inc AGENT: Robert Alford

MAILING ADDRESS: 2216 O'Toole Ave San Jose, Ca 95131

PHONE: 408-954-1580 FAX: 408-383-5397 E-MAIL: ralford@nextgnetworks.net

1. Pole Location (Street Segment From To / Side of the Block/ Distance from Street #1/ Pole Number):
SF3M3: PG&E streetlight (#110018137) near 156 27TH AVE on the east side of the block located mid-block between El Camino Del Mar and Lake St.

2. Personal wireless service facility to be installed at the above location (include make, model and technical specifications for all equipment to be install on utility pole).
See Sheet 4 of Exhibit E

3. Approval of the Planning Department or the Recreation and Park Department under S.F. Administrative Code § 11.9(b)(2) *Is* / *Is Not* required (circle one).

4. Check A or B or answer C:

A. The utility pole is joint pole and applicant is a member in good standing of the Northern California Joint Pole Association. Please see Exhibit A-Agreement with NextG and PG&E Streetlight Poles.

B. The utility is not a joint pole and proof that permission to install the proposed personal wireless service facility has been obtained from the owners of any existing utility pole is attached. _____

C. No permission of the utility pole owner is required for the following reason. _____

5. Check A or answer B or C:

A. CEQA approval for installation of the proposed personal wireless service facility has been obtained and proof of any required CEQA approval is attached. Please see page 9 of Exhibit B, stating that NextG's installation on existing poles will have no adverse impact under CEQA

B. CEQA approval for installation of the proposed personal wireless service facility is expected to be obtained by _____ (date) and proof of the CEQA approval will be provided at that time.

C. No CEQA approval is required for the following reason. _____

6. Check one of the following:

A. An original verified statement from a qualified engineer that the potential human exposure to radio frequency emissions from the proposed personal wireless service facility complies with FCC regulations is attached. Please see Exhibit C RF Analysis

B. A copy of both a verified statement from a qualified engineer that the potential human exposure to radio frequency emissions from the proposed personal wireless service facility complies with FCC regulations and the Department of Public Health's review of that verified statement are attached. _____

7. A location drawing of the proposed personal wireless service facility in twenty feet (20') to one inch (1") scale (20:1 scale) showing each of the following is attached: Please see attached Engineering Package Exhibit E

(a) Street name;
(b) Names of cross streets;
(c) The utility pole to be used;
(d) All existing facilities on the utility pole (if applicable); and
(e) All proposed facilities on the utility pole.

8. The following additional information is attached because the Planning Department and/or the Recreation and Park Department must approve the application:

(a) A photographic simulation of the proposed personal wireless service facility at the proposed location;
(b) A photograph of any existing personal wireless service facility located in the public rights-of-way that are within a one hundred and fifty foot (150') radius of the proposed personal wireless service facility; and
(c) A site drawing in a twenty feet (20') to one inch (1") scale (20:1 scale) showing the location of any existing personal wireless service facilities located in the public rights-of-way that are within a one hundred and fifty foot (150') radius of the proposed personal wireless service facility.

I certify that the information contained in the application is correct.

_____ 7/19/10

Signature of Applicant's Authorized Agent Date (MM/DD/YY)

Pacific Gas and Electric Company
WE DELIVER ENERGY.

Telecommunications
Business Development

US Mail:
Mail Code B26L
Pacific Gas and Electric Company
PO Box 770000
San Francisco, CA 94177-0001

Overnight Mail:
Mail Code B26L
Pacific Gas and Electric Company
77 Beale Street, 26th Floor
San Francisco, CA 94105-1814

Fax: 415.973.3884

VIA ELECTRONIC MAIL

June 30, 2008

Next G Networks
Attn: Robert Alford
2216 O Toole
San Jose, CA 95131

Re: Letter of Authorization (LOA) for Streetlight Attachments to PG&E-owned Streetlights

Dear Mr. Alford:

This letter confirms that Pacific Gas and Electric Company ("PG&E") and NextG Networks, Inc. ("Next G") have entered into a Master License Agreement (MLA) which allows NextG to apply for attachment to PG&E owned streetlights for the purpose of installing "Personal Wireless Service Facilities."

The application, engineering, and construction of all proposed facilities shall conform to all state and local laws, codes, and regulations. PG&E must review and approve each application before issuing a Notice of Approval to construct a wireless facility on a PG&E streetlight(s).

Please contact me at (415) 238-0118 if you have any questions.

Regards,

Roxanne Fong
Manager
PG&E Business Development

ALJ/JLG/sid

Mailed 1/13/2006

Decision 06-01-006 January 12, 2006

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

City and County of San Francisco,

Complainant,

vs.

NextG Networks of California, Inc. (U6754 C),

Defendant.

Case 05-03-010
(Filed March 9, 2005)

OPINION RESOLVING COMPLAINT

1. Summary

In Decision (D.) 03-01-061, we authorized NextG Networks of California, Inc. (NextG) to provide competitive local exchange services as a limited facilities-based provider. NextG provides wireless carriers certain radiofrequency transport services, which augment those carriers' geographic wireless coverage and improve system capacity. NextG sought to provide those services in San Francisco, but the City and County of San Francisco (CCSF) claimed those services were outside the authority granted by us. In today's decision, we find NextG did not violate its certificate of public convenience and necessity (CPCN), did not fail to timely exercise the authority granted in D.03-01-061, and did not misrepresent the scope of that authority.

We reaffirm that the authority granted in D.03-01-061 includes the provision of radiofrequency transport services. Our standard limited facilities-based CPCN does not mention the type of service provided by the telephone corporation. However, we have granted authority to carriers providing similar services.

In providing radiofrequency transport services, NextG installs microcells and antennas on existing utility poles. Allowing placement of microcells and antennas on existing utility poles is consistent with limited facilities-based authority, because no construction is involved. We find limited facilities-based authority for carriers providing radiofrequency transport services includes installation in or on existing utility poles.

NextG informed CCSF and other localities about the authority it was granted and the services it provides. CCSF did not rely on this information; it did not permit NextG to operate in San Francisco. Without reliance on a material fact, there is no actionable misrepresentation. NextG followed our procedures for accepting its CPCN, including requesting an extension of time. Because we reaffirm our grant of authority to NextG, we find NextG timely exercised that authority.

2. Procedural Background

CCSF claims that NextG is violating the terms of the CPCN granted in D.03-01-061, because NextG: (1) has failed to timely exercise its authority to offer competitive local exchange or interexchange services, and (2) is representing to CCSF that it is authorized to provide radiofrequency transport services, a service the Commission has not authorized it to provide. CCSF further claims that NextG is violating the terms and conditions of its CPCN because the Commission has not authorized NextG to install either (1) microcell and antenna

facilities in public rights-of-way, or (2) any equipment or facilities on existing utility poles.

On March 30, 2005, NextG moved to dismiss the complaint and to receive expedited consideration of its motion to dismiss. On April 14, 2005, CCSF filed its opposition to the motion to dismiss, its partial opposition to the motion for expedited consideration, and a motion to strike evidence submitted in support of the motion to dismiss. On April 19, 2005, NextG filed its reply. On May 20, 2005, the assigned Administrative Law Judge's (ALJ) ruling requested further briefing on the motion to dismiss. The parties submitted responses on May 27, 2005, and replies on June 9, 2005. A prehearing conference was held on June 13, 2005.

An Assigned Commissioner's ruling and scoping memo (ACR) issued on July 6, 2005. The ACR denied NextG's motion to dismiss; it was premature to find CCSF's complaint alleged no violation of law or order upon which the Commission could grant relief. The parties filed a stipulation of material facts on July 12, 2005. That stipulation is attached to this decision as an attachment. On July 13, 2005, NextG filed in this proceeding the proponent's environmental assessment it filed with its application for a CPCN. The parties filed opening and reply briefs on August 1 and 12, 2005, respectively. CCSF filed a motion to strike NextG's declarations in support of its brief that described NextG's discussions with our staff prior to filing its application. In the interest of expediting resolution of this complaint, NextG withdrew the declarations.

3. Parties' Contentions

The dispute between the parties centers on four issues:

1. Whether the Commission granted NextG the authority to place antennas and microcells on utility poles and in public rights-of-way in D.03-01-061.

2. Whether NextG misrepresented the authority granted it by the Commission in requesting to place microcells and antennas on utility poles in San Francisco and other localities.

3. Whether NextG timely exercised its authority.

4. Whether the placement of microcells and antennas on utility poles by a telephone corporation such as NextG is exempt from the California Environmental Quality Act (CEQA).

If we find NextG has violated state law or our orders or rules, CCSF requests that we revoke NextG's CPCN or order NextG to comply with the terms and conditions of its CPCN. NextG states we should deny each of CCSF's claims. We discuss each of the four issues in the following section.

4. Discussion

To resolve this complaint, we first must determine whether we granted NextG the authority to provide radiofrequency transport services as competitive local exchange services. After resolving concerns regarding the scope of the authority we granted to NextG, we then must decide whether the installation of wireless microcells and antennas on public utility poles has an adverse environmental impact under CEQA. Finally, we must resolve whether NextG timely exercised the authority we granted and/or misrepresented the scope of that authority.

4.1. Authority to Provide Radiofrequency Transport Services

In D.03-01-061, we granted NextG the authority to provide competitive local exchange and nondominant interexchange services. CCSF claims NextG has violated our rules and orders by failing to provide competitive local exchange services. CCSF asserts the radiofrequency transport services provided

by NextG are not competitive local exchange services, primarily because NextG provides those services to wireless carriers who are uncertificated. To ascertain whether NextG's provision of radiofrequency services violates the authority granted in D.03-01-061, we must reexamine that decision, including the authority requested and granted, in the context of our decisions authorizing local exchange competition.

In its application, NextG stated it would provide radiofrequency transport services. Radiofrequency transport services augment geographic wireless coverage and improve system capacity. NextG provides these services to wireless telecommunications service providers. (*See* Material Facts 1 and 2.) NextG does not provide residential or business exchange services to end users. (*See* Material Fact 3.) D.03-01-061 granted NextG a CPCN to "operate as a limited facilities-based and resale provider of competitive local exchange services." (D.03-01-061, Ordering Paragraph 1.)

We initially authorized carriers to provide facilities-based competitive local exchange telecommunications services to residential or business customers. (*See* D.95-12-056.) In establishing facilities-based local exchange services, we stated carriers providing such services must "directly own, control, operate, or manage conduits, ducts, pokes, wires, cables, instruments, switches, appurtenances, or appliances in connection with or to facilitate communications within the local exchange portion of the public switched network." (D.95-07-054, 60 CPUC 2d 611, 642, Appendix A, p. 3.)

Since authorizing facilities-based competitive local exchange services, we have extended competitive local exchange carrier (CLC) authority to other types of carriers. We have found wholesale services to be competitive local exchange services. For example, we granted Southern California Edison a CPCN as a CLC

to provide wholesale services to other CLCs and to other telecommunications providers, including wireless carriers, as a facilitator of local communications services, rather than as a competitor. (D.98-12-053, 84 CPUC 2d 468, 472-473.)

We have made no distinction between carriers providing wholesale services to wireline or wireless carriers or certificated or uncertificated providers. We have stated our rules concerning competitive services necessarily apply to all CLCs, whether they use wireline, wireless or both. (D.95-07-054, 60 CPUC 2d at 629.) Many telecommunications providers are not traditionally regulated, yet they purchase regulated telecommunications services from regulated carriers. We must focus on what we are authorizing, the authority to provide a type of telecommunications service, and not on the technology used or the customers for that service. Nonetheless, wireless carriers do register with the Commission. We also regulate the terms and conditions of wireless service.

We have granted CLC authority to carriers providing services similar to NextG's. For example, we reaffirmed Teligent Inc.'s authority to install microwave antennas as part of its limited facilities-based authority in D.01-06-019, 2001 Cal. PUC LEXIS 334, *1. We also granted a limited facilities-based CLC CPCN to Crown Castle Solutions Corp., a provider, NextG asserts is operating a distributed antenna network system almost identical to NextG's, in D.05-01-021, 2005 Cal. PUC LEXIS 21. CCSF is correct that our standard limited facilities-based CLC CPCN decision does not mention the specific service the telephone corporation is providing. (See, *e.g.*, Application of Global Internetworking, Inc., D.05-01-013, 2005 Cal. PUC LEXIX 5, *2.) Again, our focus is on the authority we are granting, limiting facilities-based CLC authority.

We further note that the CLC authority we have granted to NextG is consistent with other states' characterization of NextG's services. (*See, e.g.*, Order

No. 05-189, *In the Matter of NextG Networks of California, Inc. dba NextG Networks West,* 2005 Ore. PUC LEXIS 158, *5; *Application of NextG Networks of Illinois, Inc., d/b/a NextG Networks Central for Certification as a Competitive Local Exchange Carrier and Alternative Telecommunications Utility*, 4142-NC-100, 2005 Wisc. PUC LEXIS 282, mailed April 25, 2005; and *Application of NextG Networks Atlantic, Inc. for certificates of public convenience and necessity to provide local exchange and interexchange telecommunications services*, Case No. PUC-2004-00009, 2004 Va. PUC LEXIS 241.)

When examining whether a carrier is providing service that exceeds the authority granted by its CPCN, we have looked for any limitations to that authority. (*See, e.g.*, D.03-12-064, 2002 Cal. PUC LEXIS 1060, *10.) The underlying decision here, D.03-01-016, does not limit the authority granted to NextG.

Because we have granted other carriers similar operating authority and did not limit the authority granted to NextG in D.03-01-061, we conclude our decision grants the authority requested and authorizes NextG to provide radiofrequency transport services. Thus, NextG has not violated D.03-01-061 by providing radiofrequency transport services.

4.2. CEQA

In D.03-01-061, we stated NextG's authority was limited to installation of facilities in existing buildings or structures. (D.03-01-061, Ordering Paragraph 8.) We must determine whether that authority permits NextG to place microcells and antennas on utility poles.

The limitation to installation of facilities in existing buildings or structures is standard in our grant of limited facilities-based CLC authority. In D.99-10-025 we found no material adverse environmental impacts would result from

limited-facilities based service, utilizing equipment installed in previously existing structures, since no external construction would occur. (D.99-10-025, 2 CPUC 3rd 700, 703.) As NextG notes, in the past we have granted limited facilities-based CPCNs that approve "equipment installed solely within or on existing buildings and structures." (*See* D.00-12-009, Ordering Paragraph 1.) However, we no longer do so. A blanket extension allowing installation on existing buildings and structures without limit is too broad for a finding of no material adverse environmental impact. Although NextG's application clearly signaled its intent to install facilities on existing structures, we did not address that issue in D.03-01-061. Thus, we now must consider whether NextG's placement of equipment on existing utility poles is within the scope of its limited facilities-based authority.

NextG constructs microcellular networks that in part transport wireless carriers' voice and data traffic. NextG's network comprises a "hub," which operates like a traditional central switch in the wireline network and a system of fiber optic cables, remote nodes and small antennas attached to poles and other structures. (*See* Material Facts 9 and 10.) Fiber optic cables are strung on existing utility poles or installed in existing underground conduit. (*See* Material Fact 10.) NextG's brief includes pictures and diagrams of the remote nodes and antennas it uses. On distribution poles, directional antennas are approximately 25" long and remotes are approximately 29" long.

Allowing placement of microcells and antennas on existing utility poles is consistent with limited facilities-based authority, because no construction is involved. It is also consistent with our prior decision that installation of fiber

optic equipment on existing utility structures is categorically exempt from CEQA.[1]

CCSF's Planning Department concluded that the installation of antennas, repeaters, wiring, and equipment cabinets on existing utility poles by NextG would have no effect on land use, traffic and circulation, geology/seismicity, water, hazardous materials, biology, archeological resources or public services after ensuring no installation would impact scenic resources. (*See* NextG's Brief, p. 19, n.58.) Our review of the information provided by NextG is in accord. Thus, it can be seen with certainty that there is no possibility that the installation of antennas and microcells will have an adverse effect upon the environment. Having determined the installation of microcells and antennas on existing utility poles will not have an adverse effect, we find that their installation is permissible under limited facilities-based authority. This construction activity is within the scope of the authority granted in D.03-01-016. We conclude that a grant of limited facilities-based authority for carriers providing radiofrequency transport services includes installation in or on existing utility poles.[2]

NextG must file for additional authority, and submit to any required CEQA review, before it can construct facilities other than equipment to be

---

[1] In our Metropolitan Fiber Network Services, Inc. proceeding, we found the "installation of optical fiber and related telecommunications equipment on existing utility structures by third-party telecommunications providers . . . is categorically exempt from environmental review under the California Environmental Quality Act (CEQA)." (D.04-04-014, 2004 Cal PUC LEXIS 142, *1.)

[2] This determination does not preclude local jurisdiction from safeguarding scenic resources and from adopting conditions on installations such as those found in permits and rights-of-way agreements. (*See* Declaration of Theresa L. Mueller, Exhibits E and F.)

installed in or on existing buildings or structures. NextG recognized it would need to expand its requested authority if it needed to construct new facilities. (Proponent's Environmental Assessment, n.1.) NextG's request for additional authority should conform to authority granted to carriers with distributed antenna systems networks. NextG should contact our Energy Division in advance of filing a request for expanded authority.

4.3. Misrepresentation

CCSF asserts NextG negligently misrepresented the scope of its authority. The information NextG provided to CCSF and other localities basically derives from D.03-01-061. NextG made the following representations to CCSF: (1) NextG is a facilities-based provider of protocol-agnostic, fiber-aggregated optical-to-radio frequency conversion and microcellular repeater services; (2) NextG will make its radiofrequency transport services available to wireless carriers; (3) the Commission granted NextG a CPCN to operate as a telephone corporation; and (4) NextG will attach microcells and antennas to utility and other poles located in rights-of-way. NextG provided CCSF with a copy of its CPCN. NextG made similar representations to representatives of 67 other localities in California. (*See* Material Facts 13 and 14.) None of these representations is inaccurate. Having reaffirmed that D.03-01-061 authorized NextG to provide radiofrequency transport services, NextG's representation concerning the authority we granted also is not inaccurate.

Further, one element of actionable negligent misrepresentation is reliance on a material fact. (*See* Hydro-Mill Co., Inc., v. Hayward, Tilton, Rolapp Ins. Associates, Inc., 115 Cal. App. 4th 1145, 1154.) All of the representations NextG made to CCSF are material; however, CCSF has not proved it relied on that

Gavin Newsom, Mayor
Mitchell H. Katz, MD, Director of Health
Rajiv Bhatia, MD, MPH, Director of EH

July 28, 2010

TO: Rassendyll Dennis, Dept. of Public Works, Bureau of Street Use and Mapping

FROM: Patrick Fosdahl, Dept. Of Public Health, Environmental Health Service

RE: Review of Next G Light Pole Mounted Kathrein Model 840-10525 Antennas

As requested, I have reviewed the documentation that you and Next G have provided to me regarding the proposed installation of Kathrein Model 840-10525 antennas on light poles or similar structures located throughout the City and County of San Francisco.

I have also reviewed the July 19, 2010 report prepared by Jerrold T. Bushberg of Health and Medical Physics Consulting. The report states that the antennas will be at least 23 feet above the ground level. Due to these mounting locations, the antennas would not be accessible to the general public. It is assumed that the poles, in public right-of ways, are spaced at least six (6) feet from nearby inhabited buildings. This assumption is base on the fact that six (6) feet is the width of a typical sidewalk.

The report calculates the maximum ambient power density level due to the operation of the antenna to be less then the applicable public exposure limit at seven (7) feet or more directly in front of the antenna. The occupational exposure limit is calculated to extend 5 feet from the antenna. The maximum exposure level at the ground level will not exceed 6.7 % of the FCC public exposure standard. The three dimensional perimeter of the radio frequency (RF) levels equal to the public exposure limit is calculated to extend 7 feet directly in front of the antenna and does not reach any publicly accessible areas. The people in nearby residences would also receive significantly lower exposure due to shielding that building materials provide.

Based on the information provided in the Health and Medical Physics Consulting report, I would confirm that the Next G, Kathrein Model 840-10525, light pole installation would be in compliance with the FCC standards and would not produce exposures exceeding the FCC public exposure limits provided that no residences are located within seven (7) feet of the antennas.

Ensure that there are no normally occupied areas within 7 feet of any antenna. The antennas are directional and should be positioned in such a way that the RF energy is directed away from any nearby buildings.

Also, Next G must ensure that the equipment associated with the pole installation of these antennas does not produce a noise in excess of 45 dBA at the property plane of the nearest residential unit.

Recommendations:

- Once the antennas are installed, Next G should take RF power density measurements with the antennas operating at full power to verify the level reported by Health and Medical Physics Consulting report and to ensure that the FCC public exposure level is not exceeded in any publicly accessible area.

- Next G should be aware that the general public may have concerns about the antennas and potential RF source near their dwellings. Next G should have in place a mechanism for taking RF power density levels in nearby dwellings when requested by the members of the general public.

- Next G must comply with all requirements described in the California Public Utilities Commission General Order 95. Specifically, ensure compliance of requirements for warning signs for workers who may work on the light poles. Install signs containing appropriate contact information and indicating the stay back distance as given in the report. Signage should also include the antenna operator and FCC Category (controlled or uncontrolled). Signs should be mounted between 3 and 9 feet above ground.

- DPW should be provided annually with the list, location and current operating power of all operating and non-operating antennas.

Please note that this approval and recommendations apply only to the equipment and conditions as described. If any changes in the equipment or any increase in the effective radiated power described above are made, a new review by the Department of Public Health must be conducted.

JERROLD T. BUSHBERG Ph.D., DABMP, DABSNM
♦HEALTH AND MEDICAL PHYSICS CONSULTING♦

7784 Oak Bay Circle Sacramento, CA 95831
(800) 760-8414–jbushberg@hampc.com

Christopher D. Hourigan
NextG Networks
2216 O'Toole Ave
San Jose CA 95131

July 19, 2010

Introduction

At your request, I have reviewed the technical specifications and calculated the maximum radiofrequency, (RF), power density from the proposed NextG nodes to be located in the public right-of-way as shown in the example site configuration provided in attachment one. These nodes will be used for multiple carrier wireless telecommunications transmission and reception utilizing one (1) Kathrein 840-10525 antenna mounted to a utility pole or similar structure. The antenna used in this network is directional, with a gain of 10.7 and 12.2 dBi, associated with transmissions within a bandwidth between approximately 698-894 (LTE/Cell) and ~1,710-1,990 MHz (PCS/AWS) respectively. The distance from the antenna center to the ground is at least 23 feet and the maximum input power is 28.2 watts (LTE/Cell) and 50.2 watts (PCS/AWS). The antenna specification details are depicted in attachment two. This analysis represent the worst case of any of the proposed nodes using the antennae configuration and power input specified above.

Calculation Methodology

Calculations at the level of the antenna were made in accordance with the cylindrical model recommendations for near-field analysis contained in the Federal Communications Commission, Office of Engineering and Technology Bulletin 65 (OET 65) entitled "Evaluating Compliance with FCC-Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields." RF exposure calculations at ground level were made using equation 10 from the same OET document. Several assumptions were made in order to provide the most conservative or "worse case" projections of power densities. Calculations were made assuming that all channels were operating simultaneously at their maximum design effective radiated power. Attenuation (weakening) of the signal that would result from surrounding foliage or buildings was ignored. Buildings or other structures can reduce the signal strength by a factor of 10 (i.e., 10 dB) or more depending upon the construction material. In addition, for ground level calculations, the ground or other surfaces were considered to be perfect reflectors (which they are not) and the RF energy was assumed to overlap and interact constructively at all locations (which they would not) thereby resulting in the calculation of the maximum potential exposure. In fact, the accumulations of all these very conservative assumptions, will significantly overestimate the actual exposures that would typically be expected from such a facility. However, this method is a prudent approach that errs on the side of safety.

RF Safety Standards

The two most widely recognized standards for protection against RF field exposure are those published by the American National Standards Institute (ANSI) C95.1 and the National Council on Radiation Protection and measurement (NCRP) report #86.

The NCRP is a private, congressionally chartered institution with the charge to provide expert analysis of a variety of issues (especially health and safety recommendations) on radiations of all forms. The scientific analyses of the NCRP are held in high esteem in the scientific and regulatory community both nationally and internationally. In fact, the vast majority of the radiological health regulations currently in existence can trace their origin, in some way, to the recommendations of the NCRP.

All RF exposure standards are frequency-specific, in recognition of the differential absorption of RF energy as a function of frequency. The most restrictive exposure levels in the standards are associated with those frequencies that are most readily absorbed in humans. Maximum absorption occurs at approximately 80 MHz in adults. The NCRP maximum allowable continuous occupational exposure at this frequency is 1,000 ì W/cm^2. This compares to 5,000 ì W/cm^2 at the most restrictive of the PCS frequencies (~1,800 MHz) that are absorbed much less efficiently than exposures in the VHF TV band.

The traditional NCRP philosophy of providing a higher standard of protection for members of the general population compared to occupationally exposed individuals, prompted a two-tiered safety standard by which levels of allowable exposure were substantially reduced for "uncontrolled " (e.g., public) and continuous exposures. This measure was taken to account for the fact that workers in an industrial environment are typically exposed no more than eight hours a day while members of the general population in proximity to a source of RF radiation may be exposed continuously. This additional protection factor also provides a greater margin of safety for children, the infirmed, aged, or others who might be more sensitive to RF exposure. After several years of evaluating the national and international scientific and biomedical literature, the members of the NCRP scientific committee selected 931 publications in the peer-reviewed scientific literature on which to base their recommendations. The current NCRP recommendations limit continuous public exposure at PCS frequencies to 1,000 ì W/cm^2.

The 1992 ANSI standard was developed by Scientific Coordinating Committee 28 (SCC 28) under the auspices of the Institute of Electrical and Electronic Engineers (IEEE). This standard, entitled "IEEE Standards for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz" (IEEE C95.1-1991), was issued in April 1992 and subsequently adopted by ANSI. A complete revision of this standard (C95.1-2005) was completed in October 2005 by SCC 39 the IEEE International Committee on Electromagnetic Safety. The current version, including minor revisions, was published in March 2010. Their recommendations are similar to the NCRP recommendation for the maximum permissible exposure (MPE) to the public PCS frequencies (950 ì W/cm^2 for continuous exposure at 1,900 MHz) and incorporates the convention of providing for a greater margin of safety for public as compared with occupational exposure. Higher whole body exposures are allowed for brief periods provided that no 30 minute time-weighted average exposure exceeds these aforementioned limits.

On August 9, 1996, the Federal Communications Commission (FCC) established a RF exposure standard that is a hybrid of the current ANSI and NCRP standards. The maximum permissible exposure values used to assess environmental exposures are those of the NCRP (i.e., maximum public continuous exposure at PCS

frequencies of 1,000 ì W/cm^2). The FCC issued these standards in order to address its responsibilities under the National Environmental Policy Act (NEPA) to consider whether its actions will "significantly affect the quality of the human environment." In as far as there was no other standard issued by a federal agency such as the Environmental Protection Agency (EPA), the FCC utilized their rulemaking procedure to consider which standards should be adopted. The FCC received thousands of pages of comments over a three-year review period from a variety of sources including the public, academia, federal health and safety agencies (e.g., EPA & FDA) and the telecommunications industry. The FCC gave special consideration to the recommendations by the federal health agencies because of their special responsibility for protecting the public health and safety. In fact, the maximum permissible exposure (MPE) values in the FCC standard are those recommended by EPA and FDA. The FCC standard incorporates various elements of the 1992 ANSI and NCRP standards which were chosen because they are widely accepted and technically supportable. There are a variety of other exposure guidelines and standards set by other national and international organizations and governments, most of which are similar to the current ANSI/IEEE or NCRP standard, figure one.

The FCC standards "Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation" (Report and Order FCC 96-326) adopted the ANSI/IEEE definitions for controlled and uncontrolled environments. In order to use the higher exposure levels associated with a controlled environment, RF exposures must be occupationally related (e.g., PCS company RF technicians) and they must be aware of and have sufficient knowledge to control their exposure. All other environmental areas are considered uncontrolled (e.g., public) for which the stricter (i.e., lower) environmental exposure limits apply. All carriers were required to be in compliance with the new FCC RF exposure standards for new telecommunications facilities by October 15, 1997. These standards applied retroactively for existing telecommunications facilities on September 1, 2000.

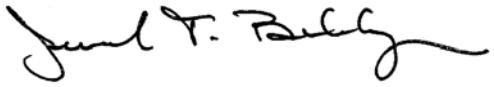
The task for the physical, biological, and medical scientists that evaluate health implications of the RF data base has been to identify those RF field conditions that can produce harmful biological effects. No panel of experts can guarantee safe levels of exposure because safety is a null concept, and negatives are not susceptible to proof. What a dispassionate scientific assessment can offer is the presumption of safety when RF-field conditions do not give rise to a demonstrable harmful effect.

Summary & Conclusions

All NextG antenna systems operating with the characteristics as specified above and observing a five (5) foot occupational and seven (7) foot public exclusion zone directly in front of and at the same elevation as the antenna, will be in full compliance with FCC RF public and occupational safety exposure standards. These transmitters, by design and operation, are low-power devices. Even under maximal exposure conditions in which all the channels are operating at full power, the maximum exposure beyond five (5) feet and seven (7) feet next to and at the elevation of the antenna will not result in RF exposures in excess of the FCC occupational and public RF safety standard respectively for these frequencies, (see appendix A-1). An caution sign, as depicted in appendix A-2, containing appropriate contact information and indicating the stay back distance beyond which the RF exposures do not exceed the occupational and public maximum permissible exposure (MPE), should be placed near the antenna. The maximum RF exposure at ground levels will not be in excess of 6.7% of the FCC public safety standard, (see appendix A-3). A chart of the electromagnetic spectrum and a comparison of RF power densities from various common sources is presented in figures two and three respectively in order to place exposures from wireless telecommunications systems in perspective.

Given the low levels of radiofrequency fields that would be generated from all NextG directional antenna installations of this configuration, (e.g., antenna specification and input power); where the center of the antenna is 23 or more feet above grade, and the occupational and public exclusion zones directly in front and at the same elevation as the antenna are observed, there is no scientific basis to conclude that harmful effects will attend the utilization of these proposed wireless telecommunications facilities. This conclusion is supported by a large numbers of scientists that have participated in standard-setting activities in the United States who are overwhelmingly agreed that RF radiation exposure below the FCC exposure limits has no demonstrably harmful effects on humans. These findings are based on my professional evaluation of the scientific issues related to the health and safety of non-ionizing electromagnetic radiation and my analysis of the technical specification as provided by NextG Networks. The opinions expressed herein are based on my professional judgement and are not intended to necessarily represent the views of any other organization or institution. Please contact me if you require any additional information.

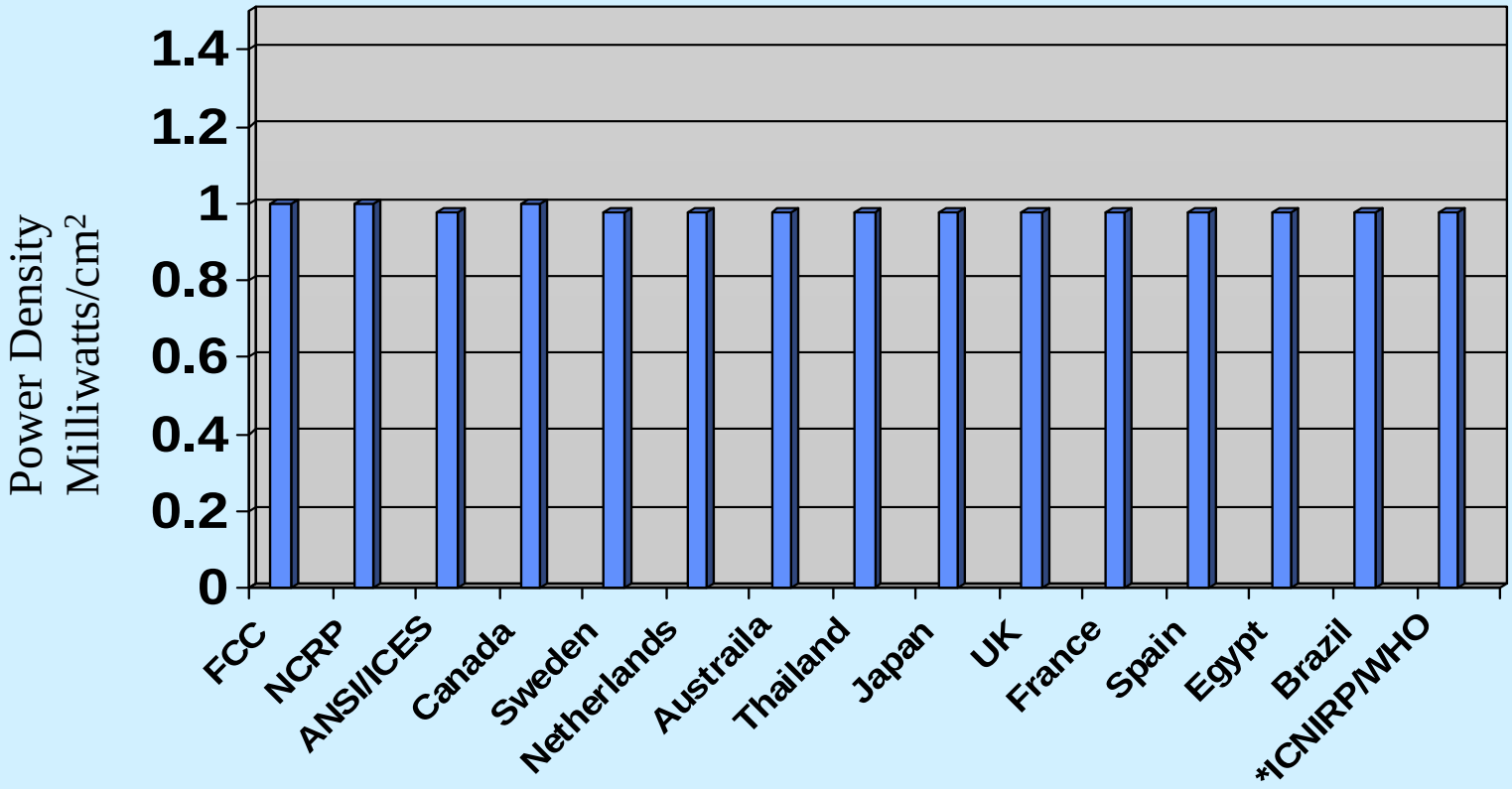
Sincerely,



Jerrold T. Bushberg Ph.D., DABMP, DABSNM
Diplomate, American Board of Medical Physics (DABMP)
Diplomate, American Board of Science in Nuclear Medicine (DABSNM)

Enclosures: Figures 1-3; Attachment 1,2; Appendix A-1, A-2, A-3 and Statement of Experience.

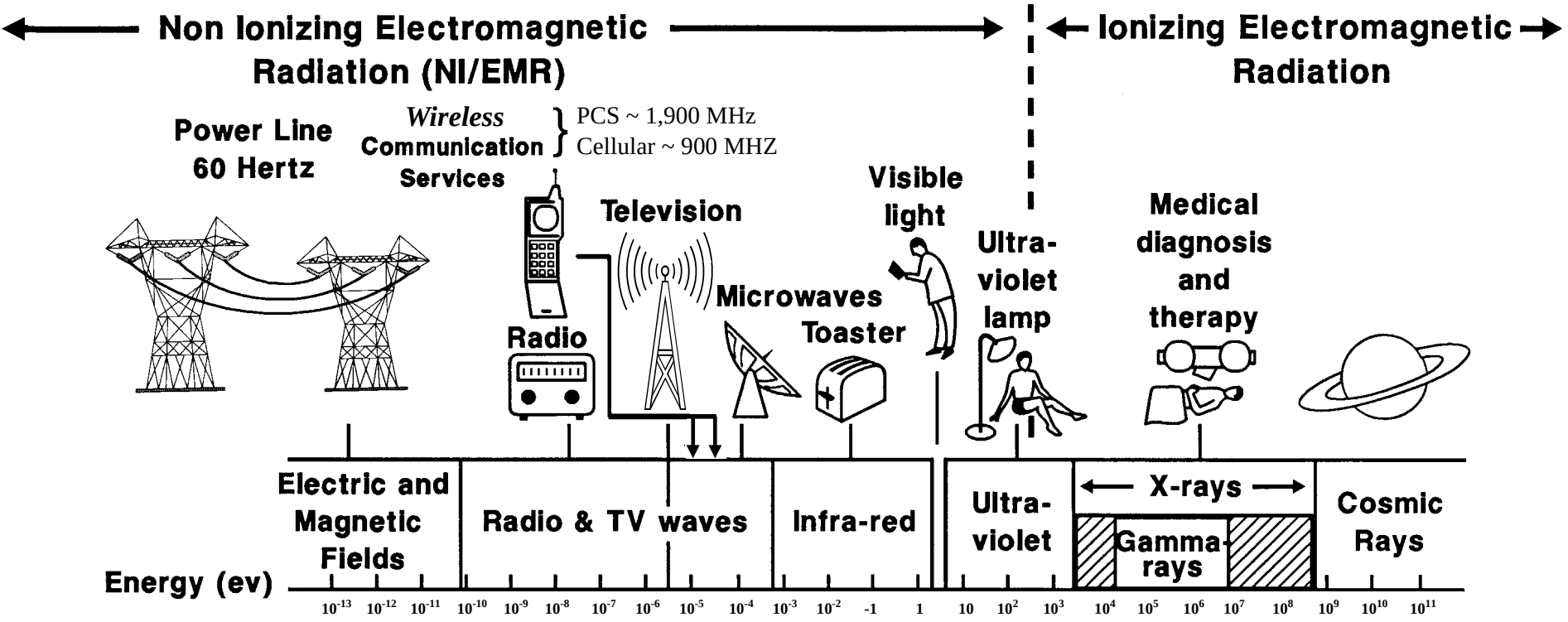
National and International Public RF Exposure Standards (PCS @ 1,950 MHz)



***International Commission on Non-Ionizing Radiation Protection (ICNIRP) Public Safety Exposure Standard. ICNIRP standard recommended by the World Health Organization (WHO). Members of the ICNIRP Scientific Committee were from:**

• Australia • Finland • France • Germany • Hungary
• Italy • Sweden • Japan • United Kingdom • United States

Figure 1



The Electromagnetic Spectrum

Figure 2

Typical Exposure from Various Radio Frequency / Microwave Sources

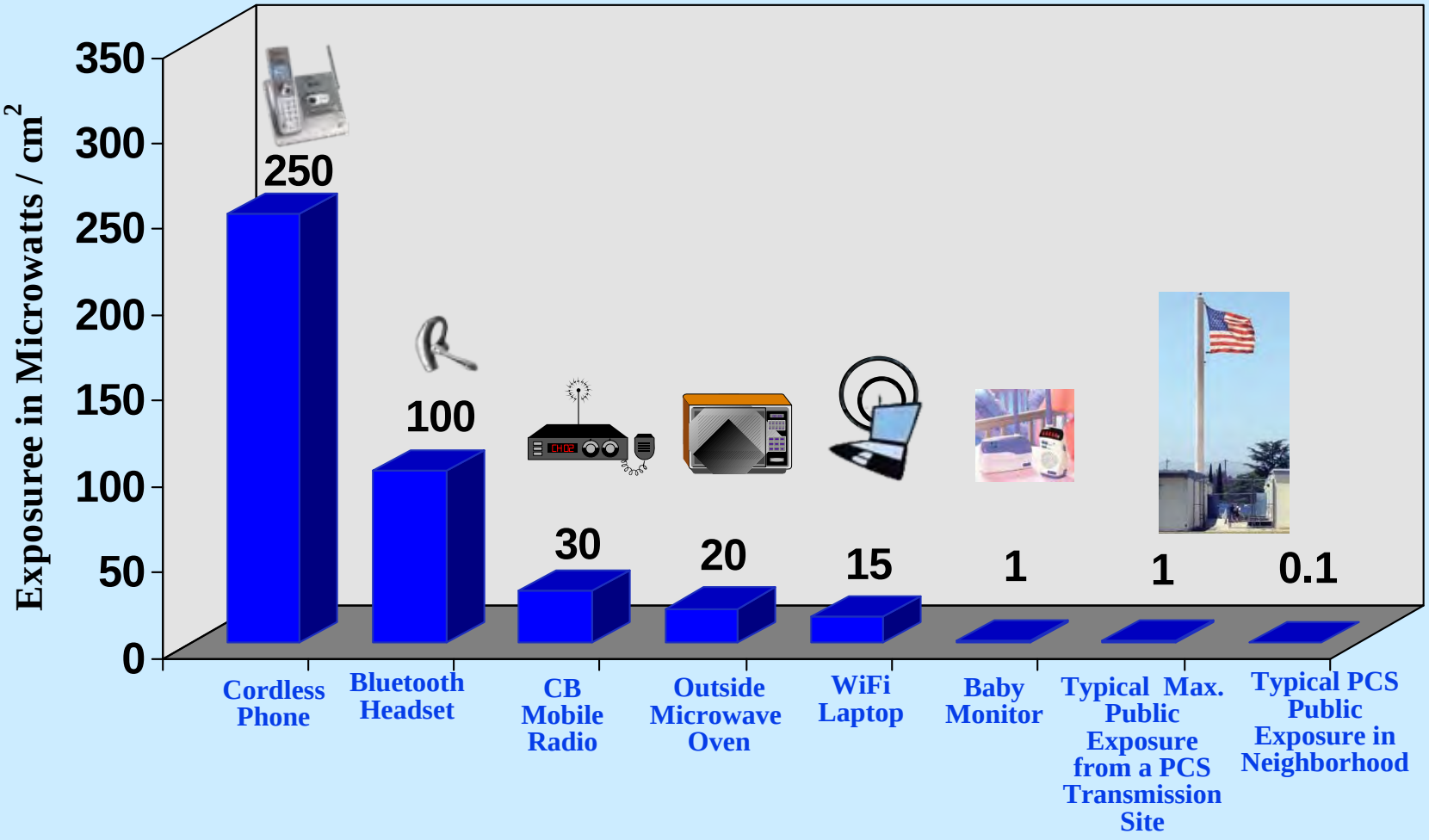


Figure 3

Attachment 1

Site Configuration

EXHIBIT A

NextG Networks of California, Inc.

SAN FRANCISCO
NODE SF01M1
463 47TH AVE.
SAN FRANCISCO, CA 94114

VICINITY MAP

Call Before you Dig!

811

Know what's **below.**
Call before you dig.
Call 811 Before you Dig!

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

1. STATE ADMINISTRATIVE CODE
2. STATE BUILDING CODE
3. ANSI/EIA-222-F LIFE SAFETY CODE NFPA-101-1990
4. STATE MECHANICAL CODE
5. STATE PLUMBING CODE
6. STATE ELECTRIC CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

CODE COMPLIANCE

PROPERTY INFORMATION

CUSTOMER:	NEXTG / AT&T
PROJECT:	SAN FRANCISCO
NODE:	SF03M1
LATITUDE:	37.779820
LONGITUDE:	-122.508430
STREET ADDRESS:	463 47TH AVE.
CITY, STATE:	SAN FRANCISCO, CA. 94114
POLE# / TYPE:	110021776 / WOOD POLE
RAD CENTER / ANTENNA HEIGHT:	36'-3" TO RAD CENTER
ANTENNA TYPE:	DIRECTIONAL
AZIMUTH FOR ANTENNA:	290°
POWER TO POLE:	EXISTING PG&E
POLE ACCESS:	STREET SIDE
POLE LOCATION & DESCRIPTION:	N/A

PROJECT SUMMARY

THE PROJECT CONSISTS OF THE INSTALLATION AND OPERATION OF ANTENNAS AND ASSOCIATED EQUIPMENT CABINETS FOR NEXTG. THE INSTALLATION OF GROUND MOUNTED EQUIPMENT CABINETS, ANTENNAS ON AN EXISTING STREET LIGHT, WOOD POLE, TRAFFIC SIGNAL AND NEW STEEL POLES.

PROJECT DESCRIPTION

INSTALL / PLACE NEW FIBER TO NEW OR EXISTING POLE. INSTALL EITHER OMNI OR PANEL ANTENNAS AND ALL ASSOCIATED BRACKETS IN ACCORDANCE TO CONSTRUCTION SPECIFICATIONS. REARRANGE ANY EXISTING FACILITIES IN ACCORDANCE TO GOVERNING CONSTRUCTION GUIDELINES.

PROJECT SCOPE

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL CONTRACTOR NOTES

SHEET	DESCRIPTION	REV.
1	TITLE SHEET	
2	UTILITY POLE EQUIPMENT PROFILES	
3	UTILITY POLE POWERING EQUIPMENT PROFILES	
4	UTILITY POLE EQUIPMENT TYPICALS	

SHEET INDEX

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:
463 47TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:
7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:
HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

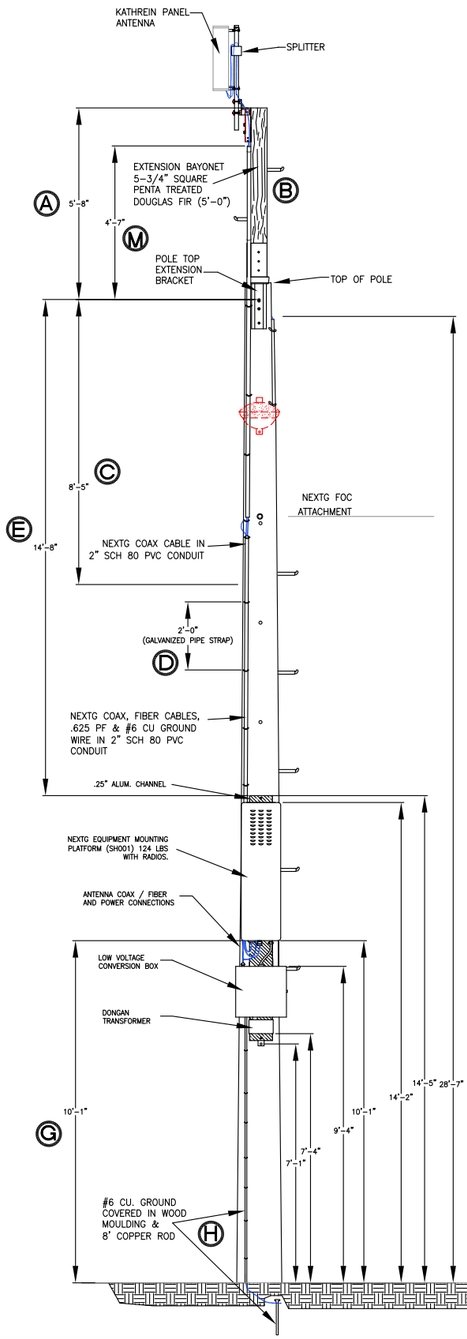
PLANS APPROVED BY:
NextG Networks of California, Inc.
REP:

COMMENTS:

SHEET TITLE:
NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF01M1

SHEET NUMBER: 1
REVISION: 1 OF 4

EXHIBIT A



MAKE READY

STEP POLE ACCORDING TO GO-95 STANDARDS.

EXISTING SIGN MAY NEED TO BE RELOCATED IN ACCORDANCE TO THE CITY OF SAN FRANCISCO STANDARDS AND GUIDELINES.

NEW CONSTRUCTION

CONSTRUCTION:
NEXTG TO ATTACH POLE TOP EXTENSION @ 29'-7"
NEXTG TO SET A NEW 2" POST AND RELOCATE STREET SIGNS ACCORDING TO CITY AND MUTCD SPECIFICATIONS.

NOTES:

TOP OF POLE 29'-7"
ANTENNA RAD CENTER: 36'-3"
PROPOSED NEXTG (PG&E) APPROVED POLE TOP EXTENSION KIT H.O.A: 29'-7"
EXISTING SECONDARY H.O.A 29'-0"
STREETLIGHT H.O.A 25'-2"
PROPOSED NEXTG FOC H.O.A 22'-8"

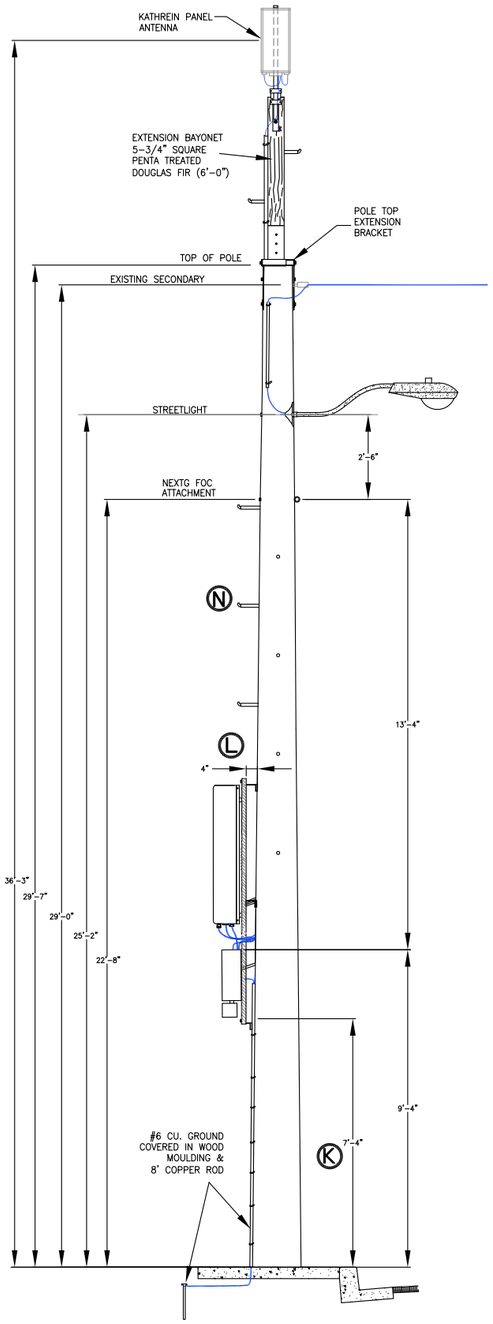
ANTENNA OUTPUT DOES NOT EXCEED GENERAL POPULATION EXPOSURE LIMITS.

RF EMISSION PLACARDS / SIGNAGE MEETING THE FCC REQUIREMENTS SHALL BE IN A LOCATION VISIBLE FROM CLIMBING SPACE AND BE AFFIXED TO THE POLE NO LOWER THAN 9'-0" ABOVE GROUND LINE & NO HIGHER THAN 3'-0" BELOW THE ANTENNA.

PLACARDS / SIGNAGE ARE UVA RESISTANT AND SHALL BE ATTACHED TO THE POLE WITH GALVANIZED NAILS OR GALVANIZED SCREWS.

- (A) – 48" MIN. CLEARANCE BETWEEN SECONDARY POWER AND LOWEST POINT OF ANTENNA ASSEMBLY.
- (B) – STEP POLE TOP EXTENSION AS PER DETAIL DWG.
- (C) – 48" MIN CLEARANCE REQ'D.
- (D) – 24" SPACING MAX. (GALVANIZED PIPE STRAP)
- (E) – 72" MIN. TO SECONDARY LEVEL.
- (F) –NOT APPLICABLE– 12" MIN. SPACING FOR EQUIP TO CURB.
- (G) – 15' MIN. (MAY BE REDUCED TO 9' WHEN NOT EXPOSED TO TRAFFIC).
- (H) – GROUND INSTALLED BY COMM COMPANY (INCLUDES 8' COPPER ROD).
- (I) –NOT APPLICABLE– 24" MIN. FROM CENTER OF POLE
- (J) –NOT APPLICABLE– 24" MIN. CLEARANCE REQ'D.
- (K) – 7' MIN. / 8' MAX. REQ'D.
- (L) – 4" MIN. CLEARANCE BETWEEN EQUIPMENT AND POLE.
- (M) – PROTECTIVE COVERING MUST EXTEND A MINIMUM OF 3'-0" BEYOND ENERGIZED 0-750 VOLTS.
- (N) – POLE STEPS TO BE INSTALLED FROM 8'-6" ABOVE GRADE TO NEXTG ATTACHMENT.

SCALE: N.T.S.	UTILITY POLE DETAIL	POLE# 110021776	LOOKING WEST	A

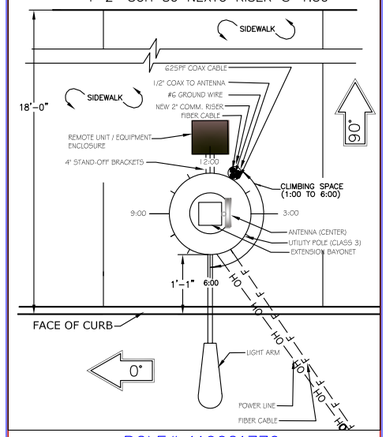


SCALE: N.T.S.	UTILITY POLE DETAIL	POLE# 110021776	LOOKING SOUTH	B

C:\customer-samples\NextG-AT&T\SF ATT NSS\SF-03M1\SF-03M1 NODE PICTURES\P6022311.JPG

SCALE: N.T.S.	SITE POLE PICTURE	C

POLE WILL BE STEPPED IN ACCORDANCE TO GO95 STANDARDS IN RESPECT TO CLIMBING SPACE.
REMOTE EQUIPMENT @ 12:00
1-2" SCH 80 NEXTG RISER @ 1:30



POLE# 110021776

SCALE: N.T.S.	RISER POLE DETAIL	D

Call Before you Dig!

811

Know what's below.
Call before you dig.
Call 811 Before you Dig!

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:

463 47TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:

7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

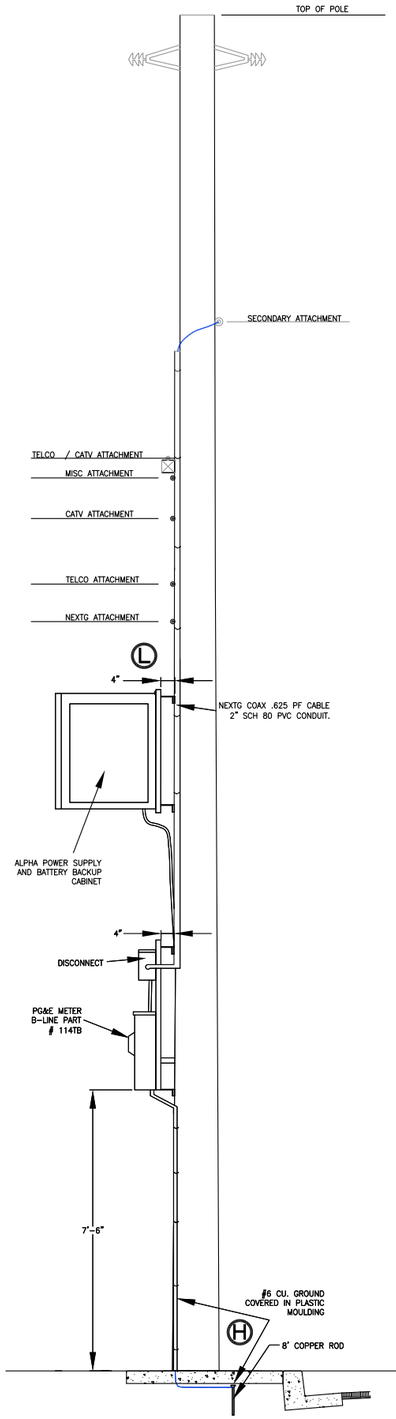
SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF01M1

SHEET NUMBER:	REVISION:
2	2 OF 4

UTILITY POLE EQUIPMENT PROFILES

EXHIBIT A



MAKE READY

QUARTER STEP POLE

EXISTING SIGN MAY NEED TO BE RELOCATED IN ACCORDANCE TO THE CITY OF SAN FRANCISCO STANDARDS AND GUIDELINES.

NEW CONSTRUCTION

INSTALL POWERING EQUIPMENT ACCORDING TO PRINT.

NEXTG TO SET A NEW 2" POST AND RELOCATE STREET SIGNS ACCORDING TO CITY AND MUTCD SPECIFICATIONS.

NOTES:

TOP OF POLE: 36'-2"
PRIMARY H.O.A: 35'-0"
SECONDARY H.O.A: 28'-0"
MISC. H.O.A: 23'-10"
CATV H.O.A: 22'-9"
TELCO H.O.A: 21'-0"
PROPOSED NEXTG H.O.A: 20'-0"

Ⓐ – –NOT APPLICABLE– 48" MIN. CLEARANCE BETWEEN SECONDARY POWER AND LOWEST POINT OF ANTENNA ASSEMBLY.

Ⓑ – –NOT APPLICABLE– STEP POLE TOP EXTENSION AS PER DETAIL DWG.

Ⓒ – 48" MIN CLEARANCE REQ'D.

Ⓓ – 24" SPACING MAX.

Ⓔ – 72" MIN. TO SECONDARY LEVEL.

Ⓕ – –NOT APPLICABLE– 12" MIN. SPACING FOR EQUIP TO CURB.

Ⓖ – 15' MIN. (MAY BE REDUCED TO 9' WHEN NOT EXPOSED TO TRAFFIC).

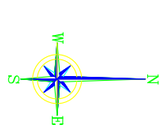
Ⓗ – GROUND INSTALLED BY COMM COMPANY (INCLUDES 8' COPPER ROD).

Ⓘ – –NOT APPLICABLE– 24" MIN. FROM CENTER OF POLE

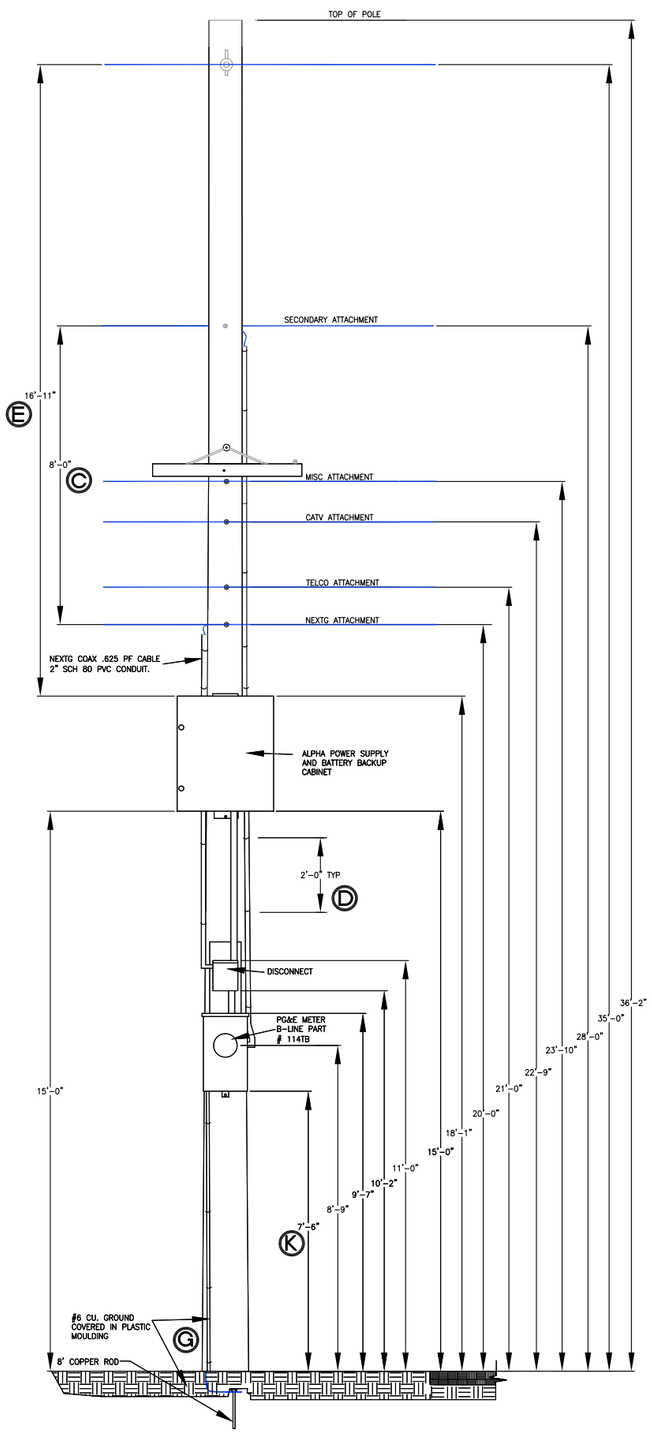
Ⓙ – –NOT APPLICABLE– 24" MIN. CLEARANCE REQ'D.

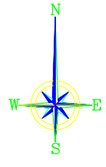
Ⓚ – 7' MIN. / 8' MAX. REQ'D.

Ⓛ – 4" MIN. CLEARANCE BETWEEN EQUIPMENT AND POLE.



SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110021777	LOOKING WEST	E



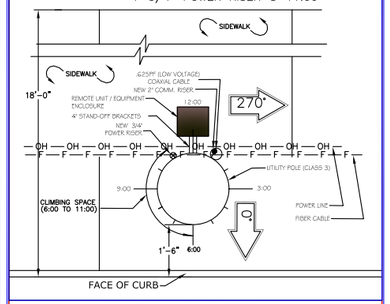


SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110021777	LOOKING NORTH	F

C:\customer-samples\NextG-AT&T\SF ATT NSS\SF-03M1\SF-03M1 BBU PICTURES\P8022316.JPG

SCALE: N.T.S.	SITE POLE PICTURE	G

POLE WILL BE STEPPED IN ACCORDANCE TO GO95 STANDARDS IN RESPECT TO CLIMBING SPACE.
1-2" NEXTG RISER @ 1:00
REMOTE EQUIPMENT @ 12:00
1-3/4" POWER RISER @ 11:00



POLE# 110021777

SCALE: N.T.S.	RISER POLE DETAIL	H

Enclosure Specifications

Dimensions	4 Battery	8 Battery
Width (in/mm):	24/610	31/788
Height (in/mm):	36/914	37/956
Depth (in/mm):	14/56	16/407
Weight (lb/kg)*:	350/158	812/368
Finish:	Powder coat white over aluminum	

* Weight dependent upon internal battery choice.
Note: The W6 enclosure is resistant to the harshest weather conditions including wind driven rain.
Backup time depends on load, battery, and operating temperature.
Optional DC Generator provides up to 100hrs backup.

SCALE: N.T.S.	POWER SUPPLY ENCLOSURE	I

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:

445 POINT LOBOS
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:

7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

Call Before you Dig!

811

Know what's below.
Call before you dig.
Call 811 Before you Dig!

SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF01M1
(POWER SUPPLY LOCATION)

SHEET NUMBER: **3** REVISION: **3 OF 4**

UTILITY POLE POWERING EQUIPMENT PROFILES

EXHIBIT A

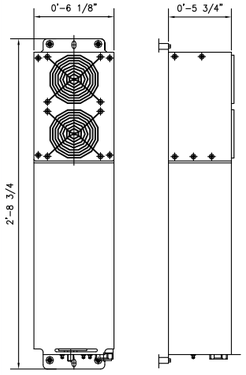
ION-M19P

ANDREW ION-19P IS A MULTI-BAND MULTI-OPERATOR REMOTE UNIT WITH VARIOUS EXTENSION UNITS.
IT IS USED IN CONJUNCTION WITH A MASTER UNIT IN THE ION OPTICAL DISTRIBUTION SYSTEM.
THIS SYSTEM TRANSPORTS MULTIPLE FREQUENCY BANDS SIMULTANEOUSLY (1900 MHZ AND 1700/2100 MHZ),
PROVIDING A COST-EFFECTIVE SOLUTION FOR DISTRIBUTING CAPACITY FROM ONE OR MORE BASE STATIONS.

ELECTRICAL	
POWER SUPPLY	
MAINS POWER, VAC	85 TO 264 115 OR 230
POWER CONSUMPTION, WATTS	350
OPTICAL	
CONNECTORS	E2000/APC 8°
OPTICAL RETURN LOSS, DB.	45 MINIMUM
FIBER TYPE, MM	SINGLE MODE E9/125
OPTICAL LINK BUDGET, DB	0 TO 10
COMPOSITE INPUT POWER	
@ OTRX MASTER SIDE, DBM.	
1900MHZ	+3 COMPOSITE
1700/2100 MHZ	+5 COMPOSITE
INTERFACE	
BTS SIDE	
NUMBER OF CONNECTORS	
1900MHZ	4
1700/2100 MHZ	4
SYSTEM OPTIMIZED FOR BTS POWER, DBM	33 43
ANTENNA PORT	
CONNECTOR	N FEMALE
OUTPUT POWER	SEE BAND SPECIFICATION
1900 MHZ	
FREQUENCY RANGE, MHZ	
UPLINK	1850 TO 1915
DOWNLINK	1930 TO 1995
OUTPUT POWER PER CARRIER*, DBM	
NUMBER OF CARRIERS	1 2 4 8
GSM	43 40 37 34
TDMA/ EDGE	43 40 37 34
CDMA/EV-DO	43 40 37 34
WCDMA/HSDPA	43 40 37 34
SPURIOUS EMISSION	<-13 DBM. / 1MHZ
DL OUTPUT TOLERANCE OVER FREQUENCY, DB	+1
DL OUTPUT TOLERANCE OVER TEMPERATURE, DB	+0.5

INPUT ICP	
ICP3 OPTIMIZED	-12
NOISE FIGURE OPTIMIZED	-18
NOISE FIGURE, DB	
ICP3 OPTIMIZED	11
NOISE FIGURE OPTIMIZED	6
1700/2100 MHZ (IN EXTENSION UNIT)	
FREQUENCY RANGE, MHZ	
UPLINK	1710 TO 1755
DOWNLINK	2110 TO 2155
OUTPUT POWER PER CARRIER*, DBM	
CDMA/EV-DO WCDMA/UMTS/HSDPA	
+43	+43 @ 1 CARRIER
+40	+40 @ 2 CARRIERS
+37	+37 @ 4 CARRIERS
+34	+34 @ 8 CARRIERS
SPURIOUS EMISSION	<- 13 DBM / 1 MHZ
ADJACENT CHANNEL POWER, DBC	-48
DL OUTPUT TOLERANCE OVER FREQ., DB	+1
DL OUTPUT TOLERANCE OVER TEMP, DB	+0.5
INPUT ICP3, DBM	
ICP3 OPTIMIZED	-12
NOISE FIGURED OPTIMIZED	-18

* APPLICABLE TO SINGLE MODULATION MODE ONLY
** WITH ACTIVE COOLING



ION-M19P MULTI-BAND, MULTI-OPERATOR REMOTE OPTICAL SYSTEM

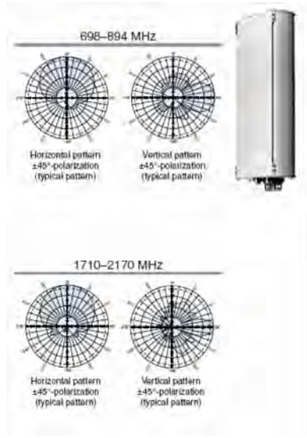
SCALE: N.T.S. — REPEATER EQUIPMENT DIMENSIONS — J

KATHREIN SCALA DIVISION

800 10510
65° Dualband Directional Antenna

Kathrein's dual band antennas are ready for 3G applications, covering all existing wireless bands as well as all spectrum under consideration for future systems, LTE, PCS and 3G/UMTS. These cross-polarized antennas offer diversity operation in the same space as a conventional 700 MHz antenna, and are mountable on our compact sector brackets

- Wide band operation.
- Exceptional intermodulation characteristics.
- Various gain, beamwidth and downtilt ranges.
- High strength pultruded fiberglass radome.



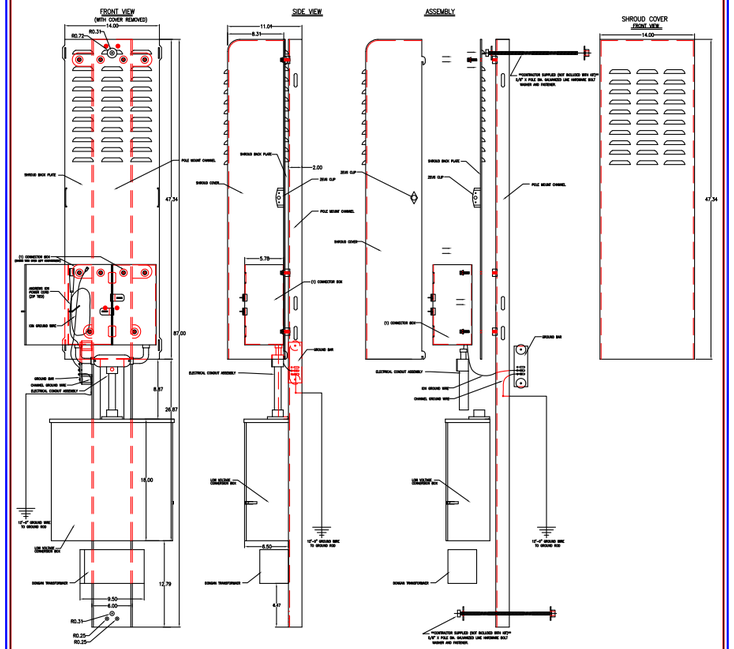
General specifications:
Frequency range 698-894 MHz1710-2170 MHz
Impedance 50 ohms
VSWR <1.5:1
Intermodulation (2x20w) IM3: <-150 dBc
Polarization +45° and -45°
Connector 4 x 7-16 DIN female
Isolation intrasystem >30 dB
Weight 15.9 lb (7.2 kg)
Dimensions 22.8 x 10.3 x 5.5 inches(579 x 262 x 139 mm)
Wind load at 93 mph (150kph)
Front/Side/Rear 23 lbf / 18 lbf / 41 lbf (100 N) / (80 N) / (180 N)
Wind survival rating* 120 mph (200 kph)
Shipping dimensions 29 x 11.9 x 7.6 inches (736 x 302 x 192 mm)
Shipping weight 19.2 lb (8.7 kg)
Mounting Fixed and tilt mount options are available for 2 to 4.6 inch (50 to 115 mm) OD masts.

Specifications: 698-806 MHz 824-894 MHz 1710-1755 MHz 1850-1990 MHz 2110-2170 MHz
Gain* 10.5 dBi 11 dBi 12.5 dBi 13.3 dBi 13.6 dBi
Front-to-back ratio >25 dB (co-polar) >25 dB (co-polar) >27 dB (co-polar) >27 dB (co-polar) >27 dB (co-polar) >27 dB (co-polar)
Maximum input power 250 watts (at 50°C) 250 watts (at 50°C) 200 watts (at 50°C) 200 watts (at 50°C) 200 watts (at 50°C)
+45° and -45° polarization 72° (half-power) 66° (half-power) 64° (half-power) 64° (half-power) 60° (half-power)horizontal beamwidth
+45° and -45° polarization 37° (half-power) 34° (half-power) 19° (half-power) 18.5° (half-power) 18° (half-power)vertical beamwidth
Cross polar ratioMain direction 0° 30 dB (typical) 25 dB (typical) 25 dB (typical) 25 dB (typical) 25 dB (typical) 25 dB (typical)Sector ±60° >10 dB >10 dB >8 dB >8 dB >8 dB >8 dB
Integrated combiner *The insertion loss is included in the given antenna gain values

Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity.
See the Engineering Section of the catalog for further details.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

SCALE: N.T.S. — ANTENNA SPECIFICATIONS — K



SCALE: N.T.S. — REPEATER EQUIPMENT AND MOUNTING CHASSIS CONFIGURATION — L

Pole-Top Extension for Wood Poles

Wood Pole-Top Extension

Notes:
1. This unit meets General Order (G.O.) 95 requirements for strength in Class 3 through Class 6 poles and therefore may be used to support equipment on these poles. It may be used on large class poles, but may not support equipment on them.

2. The unit may be guyed

3. The bracket is made to fit poles with diameters of 8" to 11". Therefore, depending upon the actual pole-top diameter, to fit poles of class 3 and smaller, a bracket adaptor may be required.

4. Units are supplied with the wood bayonet assembled.

5. A pole step kit is required.

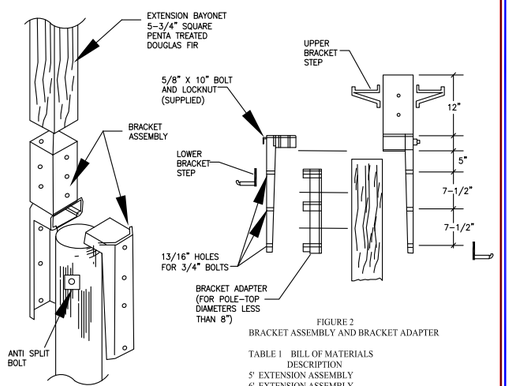


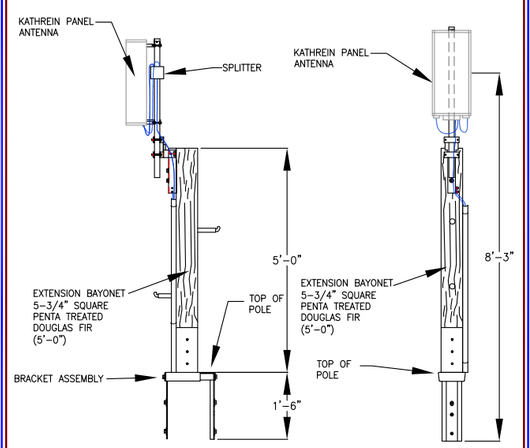
FIGURE 1
WOOD EXTENSION ASSEMBLY

FIGURE 2
BRACKET ASSEMBLY AND BRACKET ADAPTER

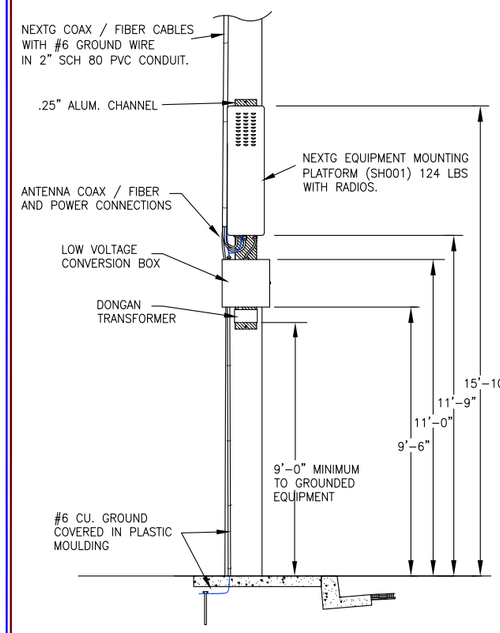
TABLE 1 BILL OF MATERIALS

DESCRIPTION
5' EXTENSION ASSEMBLY
6' EXTENSION ASSEMBLY
7' EXTENSION ASSEMBLY
BRACKET ADAPTER
3/4" X 10" MACHINE BOLTS
POLE STEP KIT (2 UPPER, 2 LOWER)

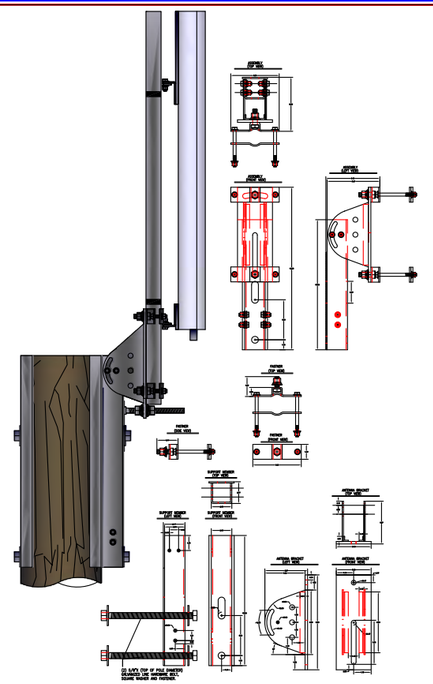
SCALE: N.T.S. — POLE TOP EXT. / BRACKET ASSEMBLY — M



SCALE: N.T.S. — POLE TOP ENTENSION CONFIGURATIONS — N



SCALE: N.T.S. — REPEATER EQUIPMENT AND MOUNTING CHASSIS CONFIGURATION — O



SCALE: N.T.S. — ANTENNA MOUNTING BRACKETS — P

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:

463 47TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE: 7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF01M1

SHEET NUMBER: 4 — REVISION: 4 OF 4

UTILITY POLE EQUIPMENT TYPICALS

Attachment 2

Antenna Specifications

EXHIBIT A
Preliminary

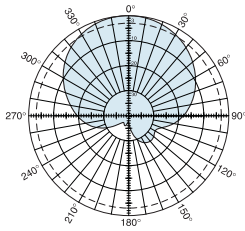
840 10525

65° Dualband Directional Antenna

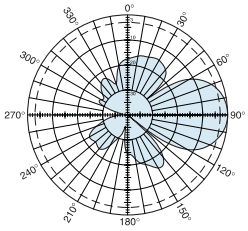
Kathrein's dual band antennas are ready for 3G applications, covering all existing wireless bands as well as all spectrum under consideration for future systems, LTE, PCS and 3G/UMTS. These cross-polarized antennas offer diversity operation in the same space as a conventional 700 MHz antenna, and are mountable on our compact sector brackets

- Wide band operation.
- Exceptional intermodulation characteristics.
- Various gain, beamwidth and downtilt ranges.
- High strength pultruded fiberglass radome.

698–894 MHz

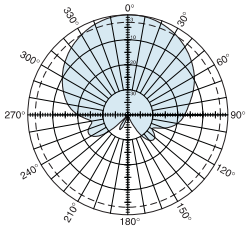


Horizontal pattern
±45°-polarization
(typical pattern)

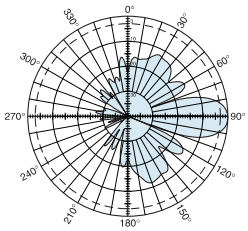


Vertical pattern
±45°-polarization
(typical pattern)

1710–2170 MHz



Horizontal pattern
±45°-polarization
(typical pattern)



Vertical pattern
±45°-polarization
(typical pattern)

General specifications:

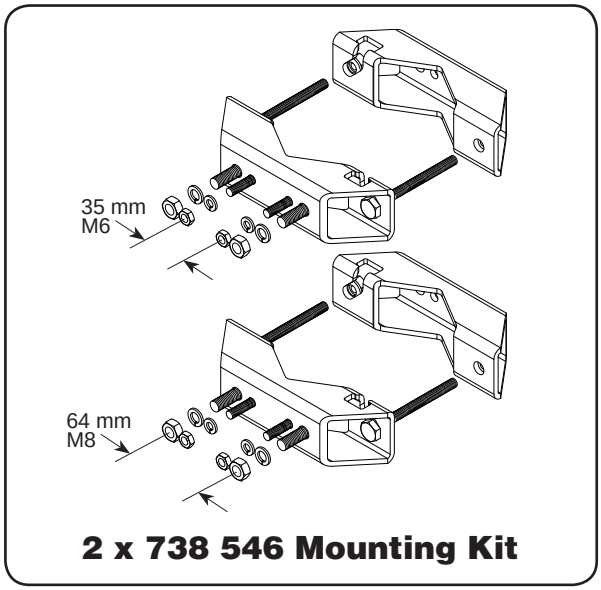
Frequency range	698–894 MHz 1710–2170 MHz
Impedance	50 ohms
VSWR	<1.5:1
Intermodulation (2x20w)	IM3: <-150 dBc
Polarization	+45° and -45°
Connector	4 x 7-16 DIN female
Isolation intrasystem	>30 dB
Weight	15.9 lb (7.2 kg)
Dimensions	22.8 x 10.3 x 5.5 inches (579 x 262 x 139 mm)
Wind load Front/Side/Rear	at 93 mph (150kph) 23 lbf / 18 lbf / 41 lbf (100 N) / (80 N) / (180 N)
Wind survival rating*	120 mph (200 kph)
Shipping dimensions	29 x 11.9 x 7.6 inches (736 x 302 x 192 mm)
Shipping weight	19.2 lb (8.7 kg)
Mounting	Fixed and tilt mount options are available for 2 to 4.6 inch (50 to 115 mm) OD masts.
See reverse for order information.	

Specifications:	**698–806 MHz**	**824–894 MHz**	**1710–1755 MHz**	**1850–1990 MHz**	**2110–2170 MHz**
Gain*	10.5 dBi	11 dBi	12.5 dBi	13.3 dBi	13.6 dBi
Front-to-back ratio	>25 dB (co-polar)	>25 dB (co-polar)	>27 dB (co-polar)	>27 dB (co-polar)	>27 dB (co-polar)
Maximum input power	250 watts (at 50°C)	250 watts (at 50°C)	200 watts (at 50°C)	200 watts (at 50°C)	200 watts (at 50°C)
+45° and -45° polarization horizontal beamwidth	72° (half-power)	66° (half-power)	64° (half-power)	64° (half-power)	60° (half-power)
+45° and -45° polarization vertical beamwidth	37° (half-power)	34° (half-power)	19° (half-power)	18.5° (half-power)	18° (half-power)
Cross polar ratio Main direction 0° Sector ±60°	 30 dB (typical) >10 dB	 25 dB (typical) >10 dB	 25 dB (typical) >8 dB	 25 dB (typical) >8 dB	 25 dB (typical) >8 dB
Integrated combiner	*The insertion loss is included in the given antenna gain values				

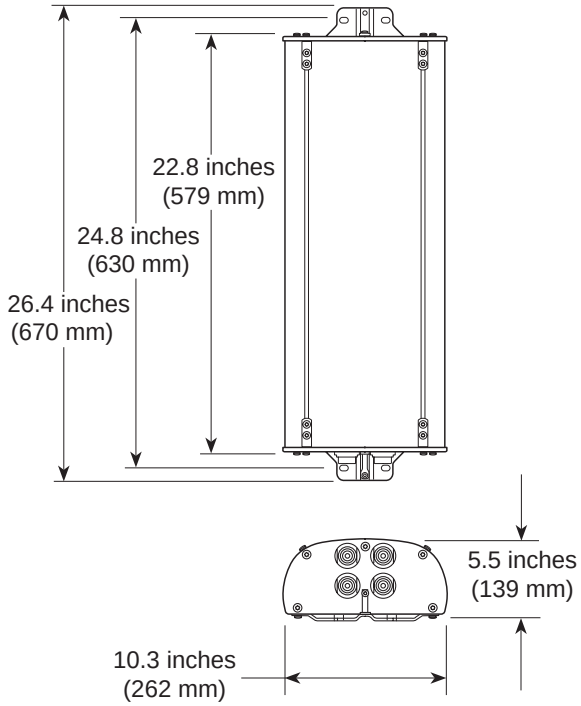
*Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

11241-FRO

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com



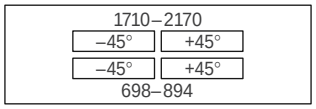
2 x 738 546 Mounting Kit



Profile PA2

Mounting Options:

Model	Description
2 x 738 546	Mounting Kit for 2 to 4.6 inch (50 to 115 mm) OD mast.
850 10013	Tilt Kit for use with the 2 x 738 546 mounting kit 0–34 degrees downtilt angle.



Order Information:

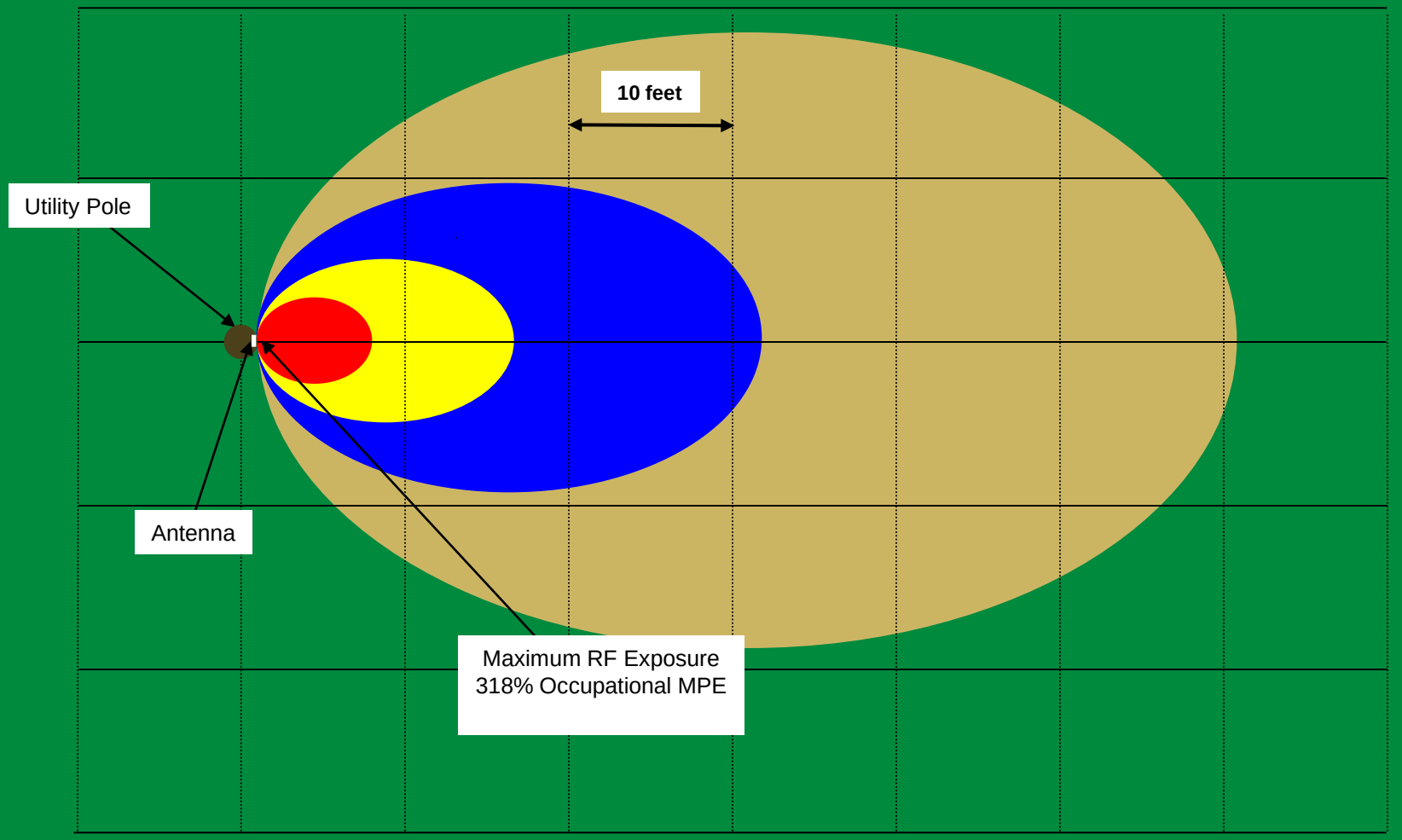
Model	Description
840 10525	Antenna with 7-16 DIN connectors

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

Appendix A-1

RF EXPOSURE AT THE LEVEL OF THE ANTENNA

RF EXPOSURE AT ELEVATION OF ANTENNA
PERCENTAGE OF FCC MAXIMUM PUBLIC & OCCUPATIONAL EXPOSURE (MPE) LIMIT



Appendix A-2

RF NOTICE SIGN

CAUTION

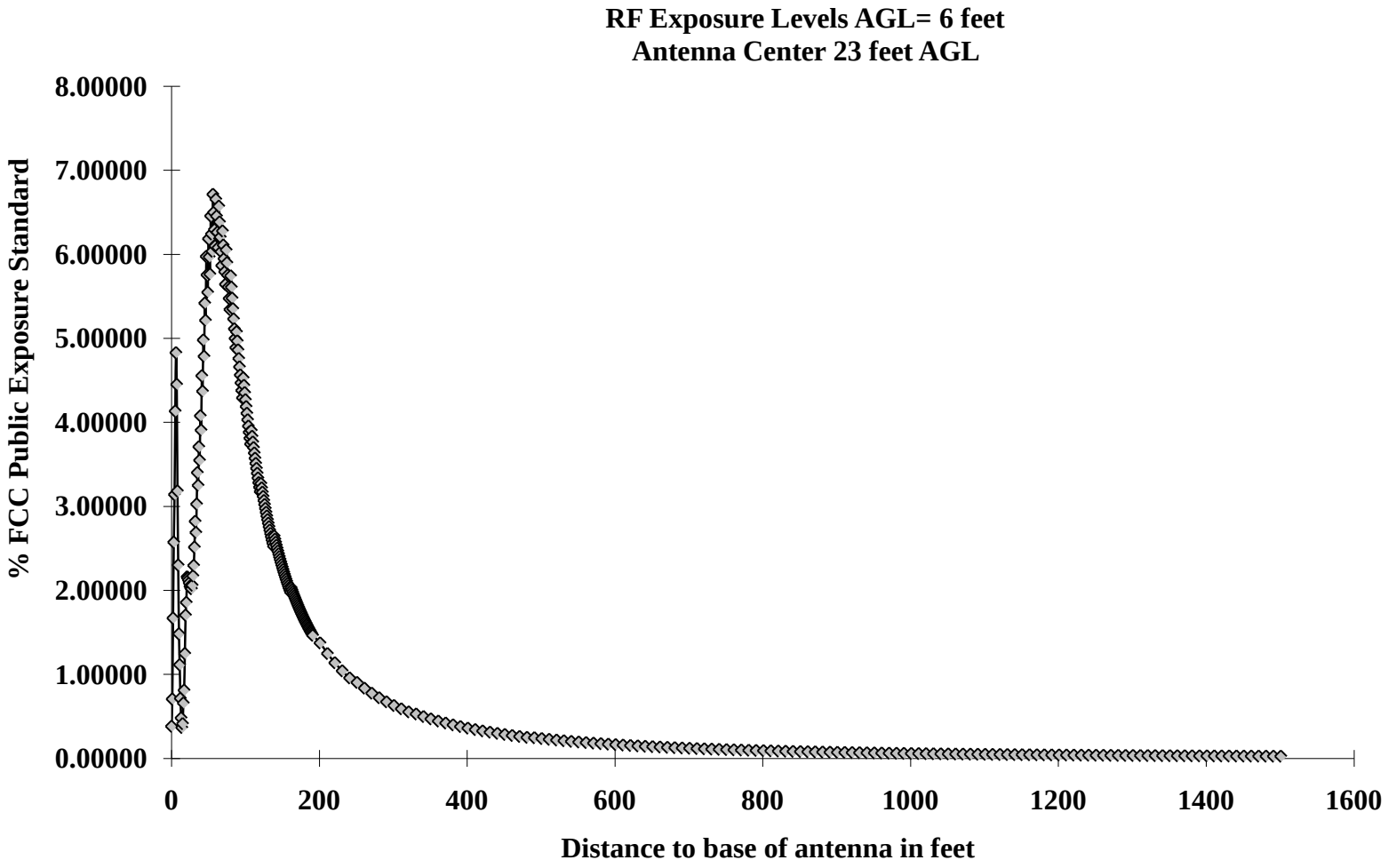
The radio frequency (RF) emissions at this site have been evaluated for potential RF exposure to personnel who may need to work near these antennae.

RF EXPOSURE AT 5 FEET OR CLOSER TO THE FACE OF THE ANTENNA *MAY EXCEED* THE FCC OCCUPATIONAL EXPOSURE LIMITS. OBEY ALL SITE RF SAFETY GUIDELINES. ONLY QUALIFIED WORKERS THAT HAVE RF SAFETY TRAINING MAY WORK NEAR THIS 5 FOOT EXCLUSION ZONE. ANYONE NEEDING TO WORK INSIDE THE EXCLUSION ZONE SHOULD CALL _____FOR INSTRUCTIONS PRIOR TO COMMENCING WORK. REFER TO SITE # _____

Reference: Federal Communications Commission (FCC) Public Exposure Standard. OET Bulletin-65, Edition 97-01, August 1997.

Appendix A-3

Kathrien 840-10525 Panel
Exposure Calculation 6.0 ft Above Grade Level (AGL)
ERP 205.1 Watts (~698-894 MHz)
ERP 678.3Watts (~1,710-1,990 MHz)
Antenna Center 23.0 ft AGL


RF Exposure Levels AGL= 6 feet
Antenna Center 23 feet AGL
% FCC Public Exposure Standard
8.00000
7.00000
6.00000
5.00000
4.00000
3.00000
2.00000
1.00000
0.00000
0
200
400
600
800
1000
1200
1400
1600
Distance to base of antenna in feet

Appendix A-3-1

Kathrien 840-10525 Panel
Exposure Calculation 6.0 ft Above Grade Level (AGL)
ERP 205.1 Watts (~698-894 MHz)
Antenna Center 23.0 ft AGL

EXHIBIT A

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
0	90.000	-21.43	-30	518.16	205.1000	0.00040	0.07385
1	86.634	-18.43	-27	519.06	409.2283	0.00079	0.14684
2	83.290	-15.63	-24.2	521.73	779.7685	0.00150	0.27693
3	79.992	-13.43	-22	526.17	1294.0935	0.00244	0.45188
4	76.759	-12.63	-21.2	532.31	1555.8426	0.00287	0.53081
5	73.610	-12.33	-20.9	540.11	1667.1154	0.00298	0.55247
6	70.560	-12.03	-20.6	549.49	1786.3463	0.00309	0.57194
7	67.620	-11.43	-20	560.37	2051.0000	0.00341	0.63142
8	64.799	-10.73	-19.3	572.67	2409.7149	0.00384	0.71033
9	62.103	-10.33	-18.9	586.29	2642.1998	0.00401	0.74308
10	59.534	-10.03	-18.6	601.16	2831.1681	0.00409	0.75733
11	57.095	-10.33	-18.9	617.17	2642.1998	0.00362	0.67058
12	54.782	-11.33	-19.9	634.25	2098.7739	0.00272	0.50437
13	52.595	-12.83	-21.4	652.30	1485.8182	0.00182	0.33758
14	50.528	-15.13	-23.7	671.25	874.9146	0.00101	0.18771
15	48.576	-19.33	-27.9	691.03	332.6333	0.00036	0.06734
16	46.736	-29.13	-37.7	711.56	34.8310	0.00004	0.00665
17	45.000	-37.33	-45.9	732.79	5.2719	0.00001	0.00095
18	43.363	-21.23	-29.8	754.65	214.7661	0.00020	0.03646
19	41.820	-15.53	-24.1	777.09	797.9316	0.00069	0.12774
20	40.365	-13.63	-22.2	800.06	1235.8497	0.00101	0.18665
21	38.991	-10.63	-19.2	823.52	2465.8444	0.00190	0.35149
22	37.694	-9.43	-18	847.43	3250.6159	0.00236	0.43758
23	36.469	-8.23	-16.8	871.75	4285.1464	0.00294	0.54511
24	35.311	-7.13	-15.7	896.44	5520.3379	0.00359	0.66408
25	34.216	-6.13	-14.7	921.48	6949.6936	0.00427	0.79121
26	33.179	-5.13	-13.7	946.84	8749.1459	0.00509	0.94343
27	32.196	-4.23	-12.8	972.50	10763.8010	0.00594	1.10024
28	31.264	-3.33	-11.9	998.42	13242.3682	0.00693	1.28421
29	30.379	-2.43	-11	1024.60	16291.6721	0.00810	1.50023
30	29.539	-1.63	-10.2	1051.01	19586.8979	0.00926	1.71417
31	28.740	-0.83	-9.4	1077.63	23548.6308	0.01059	1.96032
32	27.979	-0.03	-8.6	1104.45	28311.6813	0.01212	2.24373
33	27.255	-0.03	-8.6	1131.46	28311.6813	0.01154	2.13790
34	26.565	0.67	-7.9	1158.64	33263.3251	0.01293	2.39535
35	25.907	1.27	-7.3	1185.98	38191.4072	0.01417	2.62488
36	25.278	1.27	-7.3	1213.47	38191.4072	0.01354	2.50730

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
37	24.677	1.87	-6.7	1241.10	43849.6025	0.01486	2.75202
38	24.102	1.87	-6.7	1268.86	43849.6025	0.01422	2.63292
39	23.552	2.47	-6.1	1296.74	50346.0799	0.01563	2.89439
40	23.025	2.47	-6.1	1324.74	50346.0799	0.01498	2.77335
41	22.521	3.07	-5.5	1352.85	57805.0339	0.01649	3.05330
42	22.036	3.07	-5.5	1381.05	57805.0339	0.01582	2.92986
43	21.571	3.57	-5	1409.35	64858.3148	0.01705	3.15666
44	21.125	3.57	-5	1437.74	64858.3148	0.01638	3.03323
45	20.695	3.97	-4.6	1466.21	71115.7280	0.01727	3.19796
46	20.283	3.97	-4.6	1494.76	71115.7280	0.01662	3.07695
47	19.885	4.47	-4.1	1523.39	79793.1592	0.01795	3.32387
48	19.502	4.47	-4.1	1552.09	79793.1592	0.01729	3.20209
49	19.134	4.47	-4.1	1580.85	79793.1592	0.01667	3.08662
50	18.778	4.87	-3.7	1609.68	87491.4593	0.01763	3.26428
51	18.435	4.87	-3.7	1638.57	87491.4593	0.01701	3.15020
52	18.104	4.87	-3.7	1667.51	87491.4593	0.01643	3.04179
53	17.784	5.27	-3.3	1696.51	95932.4775	0.01740	3.22222
54	17.475	5.27	-3.3	1725.56	95932.4775	0.01682	3.11464
55	17.176	5.27	-3.3	1754.65	95932.4775	0.01627	3.01220
56	16.887	5.67	-2.9	1783.80	105187.8699	0.01726	3.19577
57	16.607	5.67	-2.9	1812.98	105187.8699	0.01671	3.09370
58	16.336	5.67	-2.9	1842.21	105187.8699	0.01618	2.99631
59	16.074	5.67	-2.9	1871.48	105187.8699	0.01568	2.90332
60	15.819	5.97	-2.6	1900.79	112710.8332	0.01629	3.01577
61	15.573	5.97	-2.6	1930.13	112710.8332	0.01579	2.92477
62	15.333	5.97	-2.6	1959.51	112710.8332	0.01532	2.83773
63	15.101	5.97	-2.6	1988.92	112710.8332	0.01487	2.75442
64	14.876	6.27	-2.3	2018.37	120771.8337	0.01548	2.86594
65	14.657	6.27	-2.3	2047.84	120771.8337	0.01503	2.78403
66	14.444	6.27	-2.3	2077.34	120771.8337	0.01461	2.70552
67	14.237	6.27	-2.3	2106.87	120771.8337	0.01420	2.63021
68	14.036	6.27	-2.3	2136.43	120771.8337	0.01381	2.55793
69	13.841	6.57	-2	2166.01	129409.3514	0.01440	2.66652
70	13.650	6.57	-2	2195.62	129409.3514	0.01401	2.59509
71	13.465	6.57	-2	2225.25	129409.3514	0.01364	2.52644
72	13.285	6.57	-2	2254.90	129409.3514	0.01329	2.46043
73	13.109	6.57	-2	2284.58	129409.3514	0.01294	2.39692
74	12.938	6.87	-1.7	2314.27	138664.6183	0.01352	2.50286
75	12.771	6.87	-1.7	2343.99	138664.6183	0.01317	2.43980
76	12.609	6.87	-1.7	2373.72	138664.6183	0.01285	2.37906
77	12.450	6.87	-1.7	2403.48	138664.6183	0.01253	2.32052

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
78	12.295	6.87	-1.7	2433.25	138664.6183	0.01223	2.26408
79	12.144	6.87	-1.7	2463.04	138664.6183	0.01193	2.20965
80	11.997	7.17	-1.4	2492.85	148581.8154	0.01248	2.31140
81	11.853	7.17	-1.4	2522.67	148581.8154	0.01219	2.25707
82	11.712	7.17	-1.4	2552.51	148581.8154	0.01190	2.20461
83	11.575	7.17	-1.4	2582.36	148581.8154	0.01163	2.15393
84	11.441	7.17	-1.4	2612.23	148581.8154	0.01137	2.10496
85	11.310	7.17	-1.4	2642.11	148581.8154	0.01111	2.05762
86	11.182	7.17	-1.4	2672.00	148581.8154	0.01086	2.01183
87	11.056	7.17	-1.4	2701.91	148581.8154	0.01062	1.96754
88	10.934	7.37	-1.2	2731.83	155584.2606	0.01088	2.01539
89	10.814	7.37	-1.2	2761.76	155584.2606	0.01065	1.97194
90	10.697	7.37	-1.2	2791.71	155584.2606	0.01042	1.92986
91	10.582	7.37	-1.2	2821.66	155584.2606	0.01020	1.88910
92	10.469	7.37	-1.2	2851.63	155584.2606	0.00999	1.84961
93	10.359	7.37	-1.2	2881.61	155584.2606	0.00978	1.81132
94	10.251	7.37	-1.2	2911.60	155584.2606	0.00958	1.77420
95	10.146	7.37	-1.2	2941.60	155584.2606	0.00939	1.73820
96	10.042	7.37	-1.2	2971.60	155584.2606	0.00920	1.70327
97	9.941	7.57	-1	3001.62	162916.7209	0.00944	1.74805
98	9.841	7.57	-1	3031.65	162916.7209	0.00925	1.71359
99	9.744	7.57	-1	3061.69	162916.7209	0.00907	1.68014
100	9.648	7.57	-1	3091.73	162916.7209	0.00890	1.64764
101	9.554	7.57	-1	3121.78	162916.7209	0.00873	1.61607
102	9.462	7.57	-1	3151.84	162916.7209	0.00856	1.58539
103	9.372	7.57	-1	3181.91	162916.7209	0.00840	1.55557
104	9.284	7.57	-1	3211.99	162916.7209	0.00824	1.52657
105	9.197	7.57	-1	3242.07	162916.7209	0.00809	1.49837
106	9.111	7.57	-1	3272.17	162916.7209	0.00794	1.47094
107	9.028	7.57	-1	3302.27	162916.7209	0.00780	1.44425
108	8.945	7.77	-0.8	3332.37	170594.7495	0.00802	1.48511
109	8.865	7.77	-0.8	3362.48	170594.7495	0.00788	1.45863
110	8.785	7.77	-0.8	3392.60	170594.7495	0.00774	1.43285
111	8.707	7.77	-0.8	3422.73	170594.7495	0.00760	1.40773
112	8.631	7.77	-0.8	3452.86	170594.7495	0.00747	1.38327
113	8.556	7.77	-0.8	3483.00	170594.7495	0.00734	1.35944
114	8.482	7.77	-0.8	3513.14	170594.7495	0.00722	1.33621
115	8.409	7.77	-0.8	3543.29	170594.7495	0.00709	1.31357
116	8.337	7.77	-0.8	3573.45	170594.7495	0.00697	1.29149
117	8.267	7.77	-0.8	3603.61	170594.7495	0.00686	1.26996
118	8.198	7.77	-0.8	3633.77	170594.7495	0.00674	1.24896

EXHIBIT A

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
119	8.130	7.77	-0.8	3663.94	170594.7495	0.00663	1.22848
120	8.063	7.77	-0.8	3694.12	170594.7495	0.00653	1.20849
121	7.997	7.97	-0.6	3724.30	178634.6323	0.00672	1.24502
122	7.933	7.97	-0.6	3754.49	178634.6323	0.00662	1.22508
123	7.869	7.97	-0.6	3784.68	178634.6323	0.00651	1.20561
124	7.806	7.97	-0.6	3814.87	178634.6323	0.00641	1.18660
125	7.745	7.97	-0.6	3845.07	178634.6323	0.00631	1.16804
126	7.684	7.97	-0.6	3875.28	178634.6323	0.00621	1.14990
127	7.624	7.97	-0.6	3905.49	178634.6323	0.00611	1.13218
128	7.565	7.97	-0.6	3935.70	178634.6323	0.00602	1.11486
129	7.507	7.97	-0.6	3965.92	178634.6323	0.00593	1.09794
130	7.450	7.97	-0.6	3996.14	178634.6323	0.00584	1.08140
131	7.394	7.97	-0.6	4026.36	178634.6323	0.00575	1.06522
132	7.339	7.97	-0.6	4056.59	178634.6323	0.00567	1.04941
133	7.284	7.97	-0.6	4086.82	178634.6323	0.00558	1.03394
134	7.230	7.97	-0.6	4117.06	178634.6323	0.00550	1.01881
135	7.177	7.97	-0.6	4147.30	178634.6323	0.00542	1.00400
136	7.125	7.97	-0.6	4177.54	178634.6323	0.00534	0.98952
137	7.074	7.97	-0.6	4207.79	178634.6323	0.00527	0.97535
138	7.023	7.97	-0.6	4238.04	178634.6323	0.00519	0.96147
139	6.973	8.17	-0.4	4268.29	187053.4232	0.00536	0.99256
140	6.923	8.17	-0.4	4298.54	187053.4232	0.00528	0.97864
141	6.875	8.17	-0.4	4328.80	187053.4232	0.00521	0.96501
142	6.827	8.17	-0.4	4359.07	187053.4232	0.00514	0.95165
143	6.780	8.17	-0.4	4389.33	187053.4232	0.00507	0.93858
144	6.733	8.17	-0.4	4419.60	187053.4232	0.00500	0.92576
145	6.687	8.17	-0.4	4449.87	187053.4232	0.00493	0.91321
146	6.642	8.17	-0.4	4480.15	187053.4232	0.00486	0.90091
147	6.597	8.17	-0.4	4510.42	187053.4232	0.00480	0.88886
148	6.553	8.17	-0.4	4540.70	187053.4232	0.00474	0.87704
149	6.509	8.17	-0.4	4570.98	187053.4232	0.00467	0.86546
150	6.466	8.17	-0.4	4601.27	187053.4232	0.00461	0.85410
151	6.423	8.17	-0.4	4631.56	187053.4232	0.00455	0.84297
152	6.382	8.17	-0.4	4661.85	187053.4232	0.00449	0.83205
153	6.340	8.17	-0.4	4692.14	187053.4232	0.00444	0.82134
154	6.299	8.17	-0.4	4722.43	187053.4232	0.00438	0.81084
155	6.259	8.17	-0.4	4752.73	187053.4232	0.00432	0.80053
156	6.219	8.17	-0.4	4783.03	187053.4232	0.00427	0.79042
157	6.180	8.17	-0.4	4813.33	187053.4232	0.00421	0.78050
158	6.141	8.17	-0.4	4843.64	187053.4232	0.00416	0.77077
159	6.103	8.17	-0.4	4873.94	187053.4232	0.00411	0.76121

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
160	6.065	8.17	-0.4	4904.25	187053.4232	0.00406	0.75183
161	6.028	8.17	-0.4	4934.56	187053.4232	0.00401	0.74262
162	5.991	8.27	-0.3	4964.87	191410.4571	0.00405	0.75067
163	5.954	8.27	-0.3	4995.19	191410.4571	0.00400	0.74159
164	5.918	8.27	-0.3	5025.50	191410.4571	0.00396	0.73267
165	5.882	8.27	-0.3	5055.82	191410.4571	0.00391	0.72391
166	5.847	8.27	-0.3	5086.14	191410.4571	0.00386	0.71530
167	5.812	8.27	-0.3	5116.47	191410.4571	0.00382	0.70685
168	5.778	8.27	-0.3	5146.79	191410.4571	0.00377	0.69854
169	5.744	8.27	-0.3	5177.12	191410.4571	0.00373	0.69038
170	5.711	8.27	-0.3	5207.44	191410.4571	0.00368	0.68236
171	5.677	8.27	-0.3	5237.77	191410.4571	0.00364	0.67449
172	5.645	8.27	-0.3	5268.10	191410.4571	0.00360	0.66674
173	5.612	8.27	-0.3	5298.44	191410.4571	0.00356	0.65913
174	5.580	8.27	-0.3	5328.77	191410.4571	0.00352	0.65165
175	5.548	8.27	-0.3	5359.11	191410.4571	0.00348	0.64429
176	5.517	8.27	-0.3	5389.45	191410.4571	0.00344	0.63706
177	5.486	8.27	-0.3	5419.79	191410.4571	0.00340	0.62994
178	5.456	8.27	-0.3	5450.13	191410.4571	0.00336	0.62295
179	5.425	8.27	-0.3	5480.47	191410.4571	0.00333	0.61607
180	5.395	8.27	-0.3	5510.81	191410.4571	0.00329	0.60930
181	5.366	8.27	-0.3	5541.16	191410.4571	0.00325	0.60265
182	5.336	8.27	-0.3	5571.51	191410.4571	0.00322	0.59610
183	5.307	8.27	-0.3	5601.86	191410.4571	0.00318	0.58966
184	5.279	8.27	-0.3	5632.21	191410.4571	0.00315	0.58332
185	5.250	8.27	-0.3	5662.56	191410.4571	0.00312	0.57709
186	5.222	8.27	-0.3	5692.91	191410.4571	0.00308	0.57095
187	5.194	8.27	-0.3	5723.26	191410.4571	0.00305	0.56491
188	5.167	8.27	-0.3	5753.62	191410.4571	0.00302	0.55896
189	5.140	8.27	-0.3	5783.98	191410.4571	0.00299	0.55311
190	5.113	8.27	-0.3	5814.33	191410.4571	0.00296	0.54735
191	5.086	8.27	-0.3	5844.69	191410.4571	0.00293	0.54168
201	4.834	8.37	-0.2	6148.35	195868.9794	0.00270	0.50090
211	4.606	8.37	-0.2	6452.12	195868.9794	0.00246	0.45484
221	4.399	8.37	-0.2	6755.98	195868.9794	0.00224	0.41485
231	4.209	8.37	-0.2	7059.92	195868.9794	0.00205	0.37990
241	4.035	8.37	-0.2	7363.93	195868.9794	0.00189	0.34918
251	3.875	8.47	-0.1	7668.01	200431.3540	0.00178	0.32953
261	3.727	8.47	-0.1	7972.14	200431.3540	0.00165	0.30487
271	3.589	8.47	-0.1	8276.32	200431.3540	0.00153	0.28287
281	3.462	8.47	-0.1	8580.54	200431.3540	0.00142	0.26317

ARL **17** ***Max gain (dBd):*** **8.57** ***Max exposure:*** **0.01794888** ***mW/cm²***

Max ERP (W): **205.1** ***Ant type:*** **Kathrein 840 10525** **Feet from site: 47**

RF Exposure Level

Feet to Ant. base	*Depress angle*	*Antenna gain*	*dB from max ERP*	*Prop dist in cm*	*Act ERP in mW*	*Level mW/cm²*	*Precent of FCC STD*
291	3.343	8.47	-0.1	8884.80	200431.3540	0.00133	0.24545
301	3.233	8.47	-0.1	9189.10	200431.3540	0.00124	0.22947
311	3.129	8.47	-0.1	9493.43	200431.3540	0.00116	0.21499
321	3.032	8.47	-0.1	9797.79	200431.3540	0.00109	0.20184
331	2.940	8.47	-0.1	10102.18	200431.3540	0.00103	0.18986
341	2.854	8.47	-0.1	10406.59	200431.3540	0.00097	0.17892
351	2.773	8.47	-0.1	10711.02	200431.3540	0.00091	0.16889
361	2.696	8.47	-0.1	11015.47	200431.3540	0.00086	0.15968
371	2.624	8.47	-0.1	11319.95	200431.3540	0.00082	0.15121
381	2.555	8.47	-0.1	11624.43	200431.3540	0.00077	0.14339
391	2.490	8.47	-0.1	11928.94	200431.3540	0.00074	0.13616
401	2.428	8.47	-0.1	12233.46	200431.3540	0.00070	0.12947
411	2.369	8.47	-0.1	12537.99	200431.3540	0.00067	0.12326
421	2.312	8.47	-0.1	12842.54	200431.3540	0.00063	0.11748
431	2.259	8.47	-0.1	13147.09	200431.3540	0.00061	0.11210
441	2.208	8.47	-0.1	13451.66	200431.3540	0.00058	0.10708
451	2.159	8.47	-0.1	13756.24	200431.3540	0.00055	0.10239
461	2.112	8.47	-0.1	14060.83	200431.3540	0.00053	0.09800
471	2.067	8.47	-0.1	14365.43	200431.3540	0.00051	0.09389
481	2.024	8.47	-0.1	14670.03	200431.3540	0.00049	0.09003
491	1.983	8.57	0	14974.65	205100.0000	0.00048	0.08842
501	1.943	8.57	0	15279.27	205100.0000	0.00046	0.08493
511	1.905	8.57	0	15583.90	205100.0000	0.00044	0.08164
521	1.869	8.57	0	15888.53	205100.0000	0.00042	0.07854
531	1.834	8.57	0	16193.17	205100.0000	0.00041	0.07561
541	1.800	8.57	0	16497.82	205100.0000	0.00039	0.07285
551	1.767	8.57	0	16802.47	205100.0000	0.00038	0.07023
561	1.736	8.57	0	17107.13	205100.0000	0.00037	0.06775
571	1.705	8.57	0	17411.79	205100.0000	0.00035	0.06540
581	1.676	8.57	0	17716.46	205100.0000	0.00034	0.06317
591	1.648	8.57	0	18021.13	205100.0000	0.00033	0.06105
601	1.620	8.57	0	18325.81	205100.0000	0.00032	0.05904
611	1.594	8.57	0	18630.49	205100.0000	0.00031	0.05712
621	1.568	8.57	0	18935.17	205100.0000	0.00030	0.05530
631	1.543	8.57	0	19239.86	205100.0000	0.00029	0.05356
641	1.519	8.57	0	19544.55	205100.0000	0.00028	0.05191
651	1.496	8.57	0	19849.24	205100.0000	0.00027	0.05032
661	1.473	8.57	0	20153.94	205100.0000	0.00026	0.04881
671	1.451	8.57	0	20458.64	205100.0000	0.00026	0.04737
681	1.430	8.57	0	20763.35	205100.0000	0.00025	0.04599
691	1.409	8.57	0	21068.05	205100.0000	0.00024	0.04467

EXHIBIT A

ARL	17	Max gain (dBd):	8.57	Max exposure:	0.01794888	mW/cm^2

Max ERP (W): 205.1 **Ant type:** Kathrein 840 10525 **Feet from site:** 47

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
701	1.389	8.57	0	21372.76	205100.0000	0.00023	0.04341
711	1.370	8.57	0	21677.47	205100.0000	0.00023	0.04219
721	1.351	8.57	0	21982.19	205100.0000	0.00022	0.04103
731	1.332	8.57	0	22286.90	205100.0000	0.00022	0.03992
741	1.314	8.57	0	22591.62	205100.0000	0.00021	0.03885
751	1.297	8.57	0	22896.34	205100.0000	0.00020	0.03782
761	1.280	8.57	0	23201.07	205100.0000	0.00020	0.03683
771	1.263	8.57	0	23505.79	205100.0000	0.00019	0.03589
781	1.247	8.57	0	23810.52	205100.0000	0.00019	0.03497
791	1.231	8.57	0	24115.25	205100.0000	0.00018	0.03409
801	1.216	8.57	0	24419.98	205100.0000	0.00018	0.03325
811	1.201	8.57	0	24724.71	205100.0000	0.00018	0.03243
821	1.186	8.57	0	25029.44	205100.0000	0.00017	0.03165
831	1.172	8.57	0	25334.18	205100.0000	0.00017	0.03089
841	1.158	8.57	0	25638.92	205100.0000	0.00016	0.03016
851	1.144	8.57	0	25943.65	205100.0000	0.00016	0.02946
861	1.131	8.57	0	26248.39	205100.0000	0.00016	0.02878
871	1.118	8.57	0	26553.14	205100.0000	0.00015	0.02812
881	1.105	8.57	0	26857.88	205100.0000	0.00015	0.02749
891	1.093	8.57	0	27162.62	205100.0000	0.00015	0.02687
901	1.081	8.57	0	27467.37	205100.0000	0.00014	0.02628
911	1.069	8.57	0	27772.11	205100.0000	0.00014	0.02571
921	1.057	8.57	0	28076.86	205100.0000	0.00014	0.02515
931	1.046	8.57	0	28381.61	205100.0000	0.00013	0.02461
941	1.035	8.57	0	28686.36	205100.0000	0.00013	0.02409
951	1.024	8.57	0	28991.11	205100.0000	0.00013	0.02359
961	1.013	8.57	0	29295.86	205100.0000	0.00012	0.02310
971	1.003	8.57	0	29600.62	205100.0000	0.00012	0.02263
981	0.993	8.57	0	29905.37	205100.0000	0.00012	0.02217
991	0.983	8.57	0	30210.12	205100.0000	0.00012	0.02173
1001	0.973	8.57	0	30514.88	205100.0000	0.00011	0.02129
1011	0.963	8.57	0	30819.64	205100.0000	0.00011	0.02087
1021	0.954	8.57	0	31124.39	205100.0000	0.00011	0.02047
1031	0.945	8.57	0	31429.15	205100.0000	0.00011	0.02007

Appendix A-3-2

Kathrien 840-10525 Panel
Exposure Calculation 6.0 ft Above Grade Level (AGL)
ERP 678.3Watts (~1,710-1,990 MHz)
Antenna Center 23.0 ft AGL

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
0	90.000	-16.22	-26.3	518.16	1590.0904	0.00309	0.30916
1	86.634	-13.62	-23.7	519.06	2893.4889	0.00561	0.56064
2	83.290	-9.62	-19.7	521.73	7268.1154	0.01394	1.39386
3	79.992	-7.72	-17.8	526.17	11256.9780	0.02123	2.12261
4	76.759	-6.72	-16.8	532.31	14171.6957	0.02611	2.61087
5	73.610	-5.22	-15.3	540.11	20018.0522	0.03582	3.58225
6	70.560	-4.32	-14.4	549.49	24627.5845	0.04258	4.25797
7	67.620	-4.62	-14.7	560.37	22983.7991	0.03821	3.82093
8	64.799	-6.32	-16.4	572.67	15538.9553	0.02473	2.47350
9	62.103	-8.12	-18.2	586.29	10266.4859	0.01559	1.55914
10	59.534	-11.22	-21.3	601.16	5028.3074	0.00726	0.72633
11	57.095	-13.12	-23.2	617.17	3246.5479	0.00445	0.44494
12	54.782	-16.12	-26.2	634.25	1627.1284	0.00211	0.21115
13	52.595	-17.52	-27.6	652.30	1178.7503	0.00145	0.14462
14	50.528	-16.32	-26.4	671.25	1553.8955	0.00180	0.18003
15	48.576	-13.22	-23.3	691.03	3172.6475	0.00347	0.34683
16	46.736	-10.22	-20.3	711.56	6330.2639	0.00653	0.65266
17	45.000	-9.02	-19.1	732.79	8344.9131	0.00811	0.81126
18	43.363	-7.02	-17.1	754.65	13225.7959	0.01212	1.21234
19	41.820	-5.62	-15.7	777.09	18256.6806	0.01578	1.57824
20	40.365	-5.12	-15.2	800.06	20484.3325	0.01671	1.67058
21	38.991	-4.52	-14.6	823.52	23519.1606	0.01810	1.81035
22	37.694	-4.52	-14.6	847.43	23519.1606	0.01710	1.70965
23	36.469	-4.62	-14.7	871.75	22983.7991	0.01579	1.57882
24	35.311	-4.82	-14.9	896.44	21949.3577	0.01426	1.42584
25	34.216	-5.12	-15.2	921.48	20484.3325	0.01259	1.25933
26	33.179	-5.52	-15.6	946.84	18681.9333	0.01088	1.08782
27	32.196	-6.02	-16.1	972.50	16650.2906	0.00919	0.91905
28	31.264	-6.52	-16.6	998.42	14839.5871	0.00777	0.77712
29	30.379	-6.92	-17	1024.60	13533.8643	0.00673	0.67299
30	29.539	-7.32	-17.4	1051.01	12343.0309	0.00583	0.58332
31	28.740	-7.32	-17.4	1077.63	12343.0309	0.00555	0.55485
32	27.979	-6.92	-17	1104.45	13533.8643	0.00579	0.57919
33	27.255	-6.92	-17	1131.46	13533.8643	0.00552	0.55187
34	26.565	-6.12	-16.2	1158.64	16271.2837	0.00633	0.63273
35	25.907	-5.02	-15.1	1185.98	20961.4739	0.00778	0.77796
36	25.278	-5.02	-15.1	1213.47	20961.4739	0.00743	0.74312

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
37	24.677	-3.72	-13.8	1241.10	28276.2503	0.00958	0.95830
38	24.102	-3.72	-13.8	1268.86	28276.2503	0.00917	0.91683
39	23.552	-2.42	-12.5	1296.74	38143.6121	0.01184	1.18415
40	23.025	-2.42	-12.5	1324.74	38143.6121	0.01135	1.13463
41	22.521	-1.02	-11.1	1352.85	52652.8419	0.01502	1.50183
42	22.036	-1.02	-11.1	1381.05	52652.8419	0.01441	1.44111
43	21.571	0.18	-9.9	1409.35	69409.9637	0.01824	1.82422
44	21.125	0.18	-9.9	1437.74	69409.9637	0.01753	1.75289
45	20.695	1.38	-8.7	1466.21	91500.1523	0.02222	2.22189
46	20.283	1.38	-8.7	1494.76	91500.1523	0.02138	2.13782
47	19.885	2.48	-7.6	1523.39	117875.0302	0.02652	2.65151
48	19.502	2.48	-7.6	1552.09	117875.0302	0.02554	2.55437
49	19.134	2.48	-7.6	1580.85	117875.0302	0.02462	2.46226
50	18.778	3.38	-6.7	1609.68	145017.9685	0.02922	2.92171
51	18.435	3.38	-6.7	1638.57	145017.9685	0.02820	2.81960
52	18.104	3.38	-6.7	1667.51	145017.9685	0.02723	2.72257
53	17.784	4.28	-5.8	1696.51	178411.0779	0.03236	3.23597
54	17.475	4.28	-5.8	1725.56	178411.0779	0.03128	3.12794
55	17.176	4.28	-5.8	1754.65	178411.0779	0.03025	3.02506
56	16.887	5.08	-5	1783.80	214497.2937	0.03519	3.51905
57	16.607	5.08	-5	1812.98	214497.2937	0.03407	3.40665
58	16.336	5.08	-5	1842.21	214497.2937	0.03299	3.29941
59	16.074	5.08	-5	1871.48	214497.2937	0.03197	3.19701
60	15.819	5.78	-4.3	1900.79	252012.3459	0.03641	3.64123
61	15.573	5.78	-4.3	1930.13	252012.3459	0.03531	3.53136
62	15.333	5.78	-4.3	1959.51	252012.3459	0.03426	3.42626
63	15.101	5.78	-4.3	1988.92	252012.3459	0.03326	3.32568
64	14.876	6.38	-3.7	2018.37	289348.8876	0.03708	3.70780
65	14.657	6.38	-3.7	2047.84	289348.8876	0.03602	3.60184
66	14.444	6.38	-3.7	2077.34	289348.8876	0.03500	3.50026
67	14.237	6.38	-3.7	2106.87	289348.8876	0.03403	3.40283
68	14.036	6.38	-3.7	2136.43	289348.8876	0.03309	3.30932
69	13.841	6.88	-3.2	2166.01	324654.7916	0.03612	3.61239
70	13.650	6.88	-3.2	2195.62	324654.7916	0.03516	3.51562
71	13.465	6.88	-3.2	2225.25	324654.7916	0.03423	3.42262
72	13.285	6.88	-3.2	2254.90	324654.7916	0.03333	3.33319
73	13.109	6.88	-3.2	2284.58	324654.7916	0.03247	3.24716
74	12.938	7.38	-2.7	2314.27	364268.6675	0.03550	3.55048
75	12.771	7.38	-2.7	2343.99	364268.6675	0.03461	3.46102
76	12.609	7.38	-2.7	2373.72	364268.6675	0.03375	3.37485
77	12.450	7.38	-2.7	2403.48	364268.6675	0.03292	3.29181

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
78	12.295	7.38	-2.7	2433.25	364268.6675	0.03212	3.21175
79	12.144	7.38	-2.7	2463.04	364268.6675	0.03135	3.13453
80	11.997	7.88	-2.2	2492.85	408716.1672	0.03433	3.43340
81	11.853	7.88	-2.2	2522.67	408716.1672	0.03353	3.35270
82	11.712	7.88	-2.2	2552.51	408716.1672	0.03275	3.27478
83	11.575	7.88	-2.2	2582.36	408716.1672	0.03200	3.19950
84	11.441	7.88	-2.2	2612.23	408716.1672	0.03127	3.12676
85	11.310	7.88	-2.2	2642.11	408716.1672	0.03056	3.05643
86	11.182	7.88	-2.2	2672.00	408716.1672	0.02988	2.98842
87	11.056	7.88	-2.2	2701.91	408716.1672	0.02923	2.92263
88	10.934	8.18	-1.9	2731.83	437947.2636	0.03063	3.06343
89	10.814	8.18	-1.9	2761.76	437947.2636	0.02997	2.99739
90	10.697	8.18	-1.9	2791.71	437947.2636	0.02933	2.93343
91	10.582	8.18	-1.9	2821.66	437947.2636	0.02871	2.87148
92	10.469	8.18	-1.9	2851.63	437947.2636	0.02811	2.81144
93	10.359	8.18	-1.9	2881.61	437947.2636	0.02753	2.75325
94	10.251	8.18	-1.9	2911.60	437947.2636	0.02697	2.69683
95	10.146	8.18	-1.9	2941.60	437947.2636	0.02642	2.64210
96	10.042	8.18	-1.9	2971.60	437947.2636	0.02589	2.58901
97	9.941	8.58	-1.5	3001.62	480199.6255	0.02782	2.78230
98	9.841	8.58	-1.5	3031.65	480199.6255	0.02727	2.72746
99	9.744	8.58	-1.5	3061.69	480199.6255	0.02674	2.67421
100	9.648	8.58	-1.5	3091.73	480199.6255	0.02622	2.62248
101	9.554	8.58	-1.5	3121.78	480199.6255	0.02572	2.57223
102	9.462	8.58	-1.5	3151.84	480199.6255	0.02523	2.52340
103	9.372	8.58	-1.5	3181.91	480199.6255	0.02476	2.47593
104	9.284	8.58	-1.5	3211.99	480199.6255	0.02430	2.42978
105	9.197	8.58	-1.5	3242.07	480199.6255	0.02385	2.38490
106	9.111	8.58	-1.5	3272.17	480199.6255	0.02341	2.34123
107	9.028	8.58	-1.5	3302.27	480199.6255	0.02299	2.29875
108	8.945	8.88	-1.2	3332.37	514543.1691	0.02419	2.41885
109	8.865	8.88	-1.2	3362.48	514543.1691	0.02376	2.37572
110	8.785	8.88	-1.2	3392.60	514543.1691	0.02334	2.33372
111	8.707	8.88	-1.2	3422.73	514543.1691	0.02293	2.29282
112	8.631	8.88	-1.2	3452.86	514543.1691	0.02253	2.25298
113	8.556	8.88	-1.2	3483.00	514543.1691	0.02214	2.21416
114	8.482	8.88	-1.2	3513.14	514543.1691	0.02176	2.17633
115	8.409	8.88	-1.2	3543.29	514543.1691	0.02139	2.13945
116	8.337	8.88	-1.2	3573.45	514543.1691	0.02103	2.10349
117	8.267	8.88	-1.2	3603.61	514543.1691	0.02068	2.06843
118	8.198	8.88	-1.2	3633.77	514543.1691	0.02034	2.03423

EXHIBIT A

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
119	8.130	8.88	-1.2	3663.94	514543.1691	0.02001	2.00087
120	8.063	8.88	-1.2	3694.12	514543.1691	0.01968	1.96831
121	7.997	9.08	-1	3724.30	538792.8416	0.02028	2.02780
122	7.933	9.08	-1	3754.49	538792.8416	0.01995	1.99533
123	7.869	9.08	-1	3784.68	538792.8416	0.01964	1.96362
124	7.806	9.08	-1	3814.87	538792.8416	0.01933	1.93266
125	7.745	9.08	-1	3845.07	538792.8416	0.01902	1.90242
126	7.684	9.08	-1	3875.28	538792.8416	0.01873	1.87288
127	7.624	9.08	-1	3905.49	538792.8416	0.01844	1.84402
128	7.565	9.08	-1	3935.70	538792.8416	0.01816	1.81582
129	7.507	9.08	-1	3965.92	538792.8416	0.01788	1.78825
130	7.450	9.08	-1	3996.14	538792.8416	0.01761	1.76131
131	7.394	9.08	-1	4026.36	538792.8416	0.01735	1.73496
132	7.339	9.08	-1	4056.59	538792.8416	0.01709	1.70920
133	7.284	9.08	-1	4086.82	538792.8416	0.01684	1.68401
134	7.230	9.08	-1	4117.06	538792.8416	0.01659	1.65937
135	7.177	9.08	-1	4147.30	538792.8416	0.01635	1.63526
136	7.125	9.08	-1	4177.54	538792.8416	0.01612	1.61166
137	7.074	9.08	-1	4207.79	538792.8416	0.01589	1.58858
138	7.023	9.08	-1	4238.04	538792.8416	0.01566	1.56598
139	6.973	9.38	-0.7	4268.29	577326.9313	0.01654	1.65428
140	6.923	9.38	-0.7	4298.54	577326.9313	0.01631	1.63107
141	6.875	9.38	-0.7	4328.80	577326.9313	0.01608	1.60835
142	6.827	9.38	-0.7	4359.07	577326.9313	0.01586	1.58609
143	6.780	9.38	-0.7	4389.33	577326.9313	0.01564	1.56430
144	6.733	9.38	-0.7	4419.60	577326.9313	0.01543	1.54294
145	6.687	9.38	-0.7	4449.87	577326.9313	0.01522	1.52202
146	6.642	9.38	-0.7	4480.15	577326.9313	0.01502	1.50152
147	6.597	9.38	-0.7	4510.42	577326.9313	0.01481	1.48143
148	6.553	9.38	-0.7	4540.70	577326.9313	0.01462	1.46174
149	6.509	9.38	-0.7	4570.98	577326.9313	0.01442	1.44244
150	6.466	9.38	-0.7	4601.27	577326.9313	0.01424	1.42351
151	6.423	9.38	-0.7	4631.56	577326.9313	0.01405	1.40495
152	6.382	9.38	-0.7	4661.85	577326.9313	0.01387	1.38676
153	6.340	9.38	-0.7	4692.14	577326.9313	0.01369	1.36891
154	6.299	9.38	-0.7	4722.43	577326.9313	0.01351	1.35140
155	6.259	9.38	-0.7	4752.73	577326.9313	0.01334	1.33423
156	6.219	9.38	-0.7	4783.03	577326.9313	0.01317	1.31738
157	6.180	9.38	-0.7	4813.33	577326.9313	0.01301	1.30084
158	6.141	9.38	-0.7	4843.64	577326.9313	0.01285	1.28461
159	6.103	9.38	-0.7	4873.94	577326.9313	0.01269	1.26869

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
160	6.065	9.38	-0.7	4904.25	577326.9313	0.01253	1.25306
161	6.028	9.38	-0.7	4934.56	577326.9313	0.01238	1.23771
162	5.991	9.58	-0.5	4964.87	604535.5113	0.01280	1.28026
163	5.954	9.58	-0.5	4995.19	604535.5113	0.01265	1.26477
164	5.918	9.58	-0.5	5025.50	604535.5113	0.01250	1.24956
165	5.882	9.58	-0.5	5055.82	604535.5113	0.01235	1.23462
166	5.847	9.58	-0.5	5086.14	604535.5113	0.01220	1.21994
167	5.812	9.58	-0.5	5116.47	604535.5113	0.01206	1.20552
168	5.778	9.58	-0.5	5146.79	604535.5113	0.01191	1.19136
169	5.744	9.58	-0.5	5177.12	604535.5113	0.01177	1.17744
170	5.711	9.58	-0.5	5207.44	604535.5113	0.01164	1.16377
171	5.677	9.58	-0.5	5237.77	604535.5113	0.01150	1.15033
172	5.645	9.58	-0.5	5268.10	604535.5113	0.01137	1.13712
173	5.612	9.58	-0.5	5298.44	604535.5113	0.01124	1.12414
174	5.580	9.58	-0.5	5328.77	604535.5113	0.01111	1.11138
175	5.548	9.58	-0.5	5359.11	604535.5113	0.01099	1.09883
176	5.517	9.58	-0.5	5389.45	604535.5113	0.01086	1.08649
177	5.486	9.58	-0.5	5419.79	604535.5113	0.01074	1.07436
178	5.456	9.58	-0.5	5450.13	604535.5113	0.01062	1.06244
179	5.425	9.58	-0.5	5480.47	604535.5113	0.01051	1.05070
180	5.395	9.58	-0.5	5510.81	604535.5113	0.01039	1.03916
181	5.366	9.58	-0.5	5541.16	604535.5113	0.01028	1.02781
182	5.336	9.58	-0.5	5571.51	604535.5113	0.01017	1.01665
183	5.307	9.58	-0.5	5601.86	604535.5113	0.01006	1.00566
184	5.279	9.58	-0.5	5632.21	604535.5113	0.00995	0.99485
185	5.250	9.58	-0.5	5662.56	604535.5113	0.00984	0.98422
186	5.222	9.58	-0.5	5692.91	604535.5113	0.00974	0.97375
187	5.194	9.58	-0.5	5723.26	604535.5113	0.00963	0.96345
188	5.167	9.58	-0.5	5753.62	604535.5113	0.00953	0.95331
189	5.140	9.58	-0.5	5783.98	604535.5113	0.00943	0.94333
190	5.113	9.58	-0.5	5814.33	604535.5113	0.00934	0.93350
191	5.086	9.58	-0.5	5844.69	604535.5113	0.00924	0.92383
201	4.834	9.78	-0.3	6148.35	633026.3922	0.00874	0.87417
211	4.606	9.78	-0.3	6452.12	633026.3922	0.00794	0.79380
221	4.399	9.78	-0.3	6755.98	633026.3922	0.00724	0.72400
231	4.209	9.78	-0.3	7059.92	633026.3922	0.00663	0.66300
241	4.035	9.78	-0.3	7363.93	633026.3922	0.00609	0.60939
251	3.875	9.88	-0.2	7668.01	647771.4711	0.00575	0.57511
261	3.727	9.88	-0.2	7972.14	647771.4711	0.00532	0.53207
271	3.589	9.88	-0.2	8276.32	647771.4711	0.00494	0.49368
281	3.462	9.88	-0.2	8580.54	647771.4711	0.00459	0.45929

EXHIBIT A

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
291	3.343	9.88	-0.2	8884.80	647771.4711	0.00428	0.42837
301	3.233	9.88	-0.2	9189.10	647771.4711	0.00400	0.40047
311	3.129	9.88	-0.2	9493.43	647771.4711	0.00375	0.37521
321	3.032	9.88	-0.2	9797.79	647771.4711	0.00352	0.35226
331	2.940	9.98	-0.1	10102.18	662860.0070	0.00339	0.33907
341	2.854	9.98	-0.1	10406.59	662860.0070	0.00320	0.31952
351	2.773	9.98	-0.1	10711.02	662860.0070	0.00302	0.30162
361	2.696	9.98	-0.1	11015.47	662860.0070	0.00285	0.28517
371	2.624	9.98	-0.1	11319.95	662860.0070	0.00270	0.27004
381	2.555	9.98	-0.1	11624.43	662860.0070	0.00256	0.25608
391	2.490	9.98	-0.1	11928.94	662860.0070	0.00243	0.24317
401	2.428	9.98	-0.1	12233.46	662860.0070	0.00231	0.23122
411	2.369	9.98	-0.1	12537.99	662860.0070	0.00220	0.22012
421	2.312	9.98	-0.1	12842.54	662860.0070	0.00210	0.20980
431	2.259	9.98	-0.1	13147.09	662860.0070	0.00200	0.20020
441	2.208	9.98	-0.1	13451.66	662860.0070	0.00191	0.19123
451	2.159	9.98	-0.1	13756.24	662860.0070	0.00183	0.18286
461	2.112	9.98	-0.1	14060.83	662860.0070	0.00175	0.17502
471	2.067	9.98	-0.1	14365.43	662860.0070	0.00168	0.16768
481	2.024	9.98	-0.1	14670.03	662860.0070	0.00161	0.16079
491	1.983	10.08	0	14974.65	678300.0000	0.00158	0.15791
501	1.943	10.08	0	15279.27	678300.0000	0.00152	0.15167
511	1.905	10.08	0	15583.90	678300.0000	0.00146	0.14580
521	1.869	10.08	0	15888.53	678300.0000	0.00140	0.14026
531	1.834	10.08	0	16193.17	678300.0000	0.00135	0.13504
541	1.800	10.08	0	16497.82	678300.0000	0.00130	0.13010
551	1.767	10.08	0	16802.47	678300.0000	0.00125	0.12542
561	1.736	10.08	0	17107.13	678300.0000	0.00121	0.12099
571	1.705	10.08	0	17411.79	678300.0000	0.00117	0.11680
581	1.676	10.08	0	17716.46	678300.0000	0.00113	0.11281
591	1.648	10.08	0	18021.13	678300.0000	0.00109	0.10903
601	1.620	10.08	0	18325.81	678300.0000	0.00105	0.10544
611	1.594	10.08	0	18630.49	678300.0000	0.00102	0.10202
621	1.568	10.08	0	18935.17	678300.0000	0.00099	0.09876
631	1.543	10.08	0	19239.86	678300.0000	0.00096	0.09566
641	1.519	10.08	0	19544.55	678300.0000	0.00093	0.09270
651	1.496	10.08	0	19849.24	678300.0000	0.00090	0.08987
661	1.473	10.08	0	20153.94	678300.0000	0.00087	0.08718
671	1.451	10.08	0	20458.64	678300.0000	0.00085	0.08460
681	1.430	10.08	0	20763.35	678300.0000	0.00082	0.08213
691	1.409	10.08	0	21068.05	678300.0000	0.00080	0.07978

EXHIBIT A

ARL	17	Max gain (dBd):	10.08	Max exposure:	0.04257969	mW/cm^2

Max ERP (W): 678.3 **Ant type:** Kathrein 840-10525 **Feet from site:** 6

RF Exposure Level

Feet to Ant. base	Depress angle	Antenna gain	dB from max ERP	Prop dist in cm	Act ERP in mW	Level mW/cm^2	Precent of FCC STD
701	1.389	10.08	0	21372.76	678300.0000	0.00078	0.07752
711	1.370	10.08	0	21677.47	678300.0000	0.00075	0.07535
721	1.351	10.08	0	21982.19	678300.0000	0.00073	0.07328
731	1.332	10.08	0	22286.90	678300.0000	0.00071	0.07129
741	1.314	10.08	0	22591.62	678300.0000	0.00069	0.06938
751	1.297	10.08	0	22896.34	678300.0000	0.00068	0.06754
761	1.280	10.08	0	23201.07	678300.0000	0.00066	0.06578
771	1.263	10.08	0	23505.79	678300.0000	0.00064	0.06409
781	1.247	10.08	0	23810.52	678300.0000	0.00062	0.06246
791	1.231	10.08	0	24115.25	678300.0000	0.00061	0.06089
801	1.216	10.08	0	24419.98	678300.0000	0.00059	0.05938
811	1.201	10.08	0	24724.71	678300.0000	0.00058	0.05792
821	1.186	10.08	0	25029.44	678300.0000	0.00057	0.05652
831	1.172	10.08	0	25334.18	678300.0000	0.00055	0.05517
841	1.158	10.08	0	25638.92	678300.0000	0.00054	0.05387
851	1.144	10.08	0	25943.65	678300.0000	0.00053	0.05261
861	1.131	10.08	0	26248.39	678300.0000	0.00051	0.05139
871	1.118	10.08	0	26553.14	678300.0000	0.00050	0.05022
881	1.105	10.08	0	26857.88	678300.0000	0.00049	0.04909
891	1.093	10.08	0	27162.62	678300.0000	0.00048	0.04799
901	1.081	10.08	0	27467.37	678300.0000	0.00047	0.04693
911	1.069	10.08	0	27772.11	678300.0000	0.00046	0.04591
921	1.057	10.08	0	28076.86	678300.0000	0.00045	0.04492
931	1.046	10.08	0	28381.61	678300.0000	0.00044	0.04396
941	1.035	10.08	0	28686.36	678300.0000	0.00043	0.04303
951	1.024	10.08	0	28991.11	678300.0000	0.00042	0.04213
961	1.013	10.08	0	29295.86	678300.0000	0.00041	0.04126
971	1.003	10.08	0	29600.62	678300.0000	0.00040	0.04041
981	0.993	10.08	0	29905.37	678300.0000	0.00040	0.03959
991	0.983	10.08	0	30210.12	678300.0000	0.00039	0.03880
1001	0.973	10.08	0	30514.88	678300.0000	0.00038	0.03803
1011	0.963	10.08	0	30819.64	678300.0000	0.00037	0.03728
1021	0.954	10.08	0	31124.39	678300.0000	0.00037	0.03655
1031	0.945	10.08	0	31429.15	678300.0000	0.00036	0.03585

STATEMENT OF EXPERIENCE

Jerrold Talmadge Bushberg, Ph.D., DABMP, DABSNM
(800) 760-8414 jbushberg@hampc.com

Dr. Jerrold Bushberg has performed health and safety analysis for RF & ELF transmissions systems since 1978 and is an expert in both health physics and medical physics. The scientific discipline of Health Physics is devoted to radiation protection, which, among other things, involves providing analysis of radiation exposure conditions, biological effects research, regulations and standards as well as recommendations regarding the use and safety of ionizing and non-ionizing radiation. In addition, Dr. Bushberg has extensive experience and lectures on several related topics including medical physics, radiation protection, (ionizing and non-ionizing), radiation biology, the science of risk assessment and effective risk communication in the public sector.

Dr. Bushberg's doctoral dissertation at Purdue University was on various aspects of the biological effects of microwave radiation. He has maintained a strong professional involvement in this subject and has served as consultant or appeared as an expert witness on this subject to a wide variety of organizations/institutions including, local governments, school districts, city planning departments, telecommunications companies, the California Public Utilities Commission, national news organizations, and the U.S. Congress. In addition, his consultation services have included detailed computer based modeling of RF exposures as well as on-site safety inspections and RF & ELF environmental field measurements of numerous transmission facilities in order to determine their compliance with FCC and other safety regulations. The consultation services provided by Dr. Bushberg are based on his professional judgement as an independent scientist, however they are not intended to necessarily represent the views of any other organization.

Dr. Bushberg is a member of the main scientific body of International Committee on Electromagnetic Safety (ICES) which reviews and evaluates the scientific literature on the biological effects of non-ionizing electromagnetic radiation and establishes exposure standards. He also serves on the ICES Risk Assessment Working Group that is responsible for evaluating and characterizing the risks of non-ionizing electromagnetic radiation. Dr. Bushberg was appointed and is serving as a member of the main scientific council of the National Council on Radiation Protection and Measurement's (NCRP). He is also a Scientific Vice-President of the NCRP, a member of the NCRP Board of Directors and chairs its committee on Radiation Protection in Medicine. In addition, Dr. Bushberg is a member of NCRP's scientific advisory committee on Non-ionizing Radiation Safety. The NCRP is the nation's preeminent scientific radiation protection organization, chartered by Congress to evaluate and provide expert consultation on a wide variety of radiological health issues. The current FCC RF exposure safety standards are based in large part on the recommendations of the NCRP. Dr. Bushberg was elected to the International Engineering in Medicine and Biology Society Committee on Man and Radiation (COMAR) which has as its primary area of responsibility the examination and interpreting the biological effects of non-ionizing electromagnetic energy and presenting its findings in an authoritative and professional manner. Dr. Bushberg is also a member of a six person U.S. expert delegation to the international scientific community on Scientific and Technical Issues for Mobile Communication Systems established by the Federal Communications Commission.

Dr. Bushberg is a full member of the Bioelectromagnetics Society, the Health Physics Society and the Radiation Research Society. Dr. Bushberg received both a Masters of Science and Ph.D. from the Department of Bionucleonics at Purdue University. Dr. Bushberg is certified by several national professional boards with specific sub-specialty certification in radiation protection and medical physics. Prior to coming to California, Dr. Bushberg was on the faculty of Yale University School of Medicine.

City and County of San Francisco EXHIBIT A

Gavin Newsom, Mayor
Edward D. Reiskin, Director

(415) 554-5810
FAX (415) 554-6161
http://www.sfdpw.com

Department of Public Works
Bureau of Street-Use and Mapping
875 Stevenson Street, Room 460
San Francisco, CA 94103-0942

Barbara L. Moy, Bureau Manager

Department of Public Health
1390 Market Street, Suite 201
San Francisco, CA 94102
Attn: Richard Lee

Date: July 21, 2010

Subject: Personal Wireless Facilities Site Permit

Under Section 11.9 of Administrative Code, The Department of Public Works requires a provider to obtain a Site Permit for the placement of Facilities (wireless arrays) in the public right-of-way (sidewalk and street). . Section 11.9(b)(2)(C) requires review by Department of Public Health to:

"... determine, if any, human exposure to radio frequency emissions from this proposed wireless facility is within the limits established by the FCC... ":

Department of Public Works has received an application from Next G requesting multiple site permits using the following facilities:

Antenna: Manufacturer: Kathrein Scala Division
Description: 65 degree Dual Band Directional Antenna
Model number: 840-10525

I have attached the manufacture's specifications as well as the Administrative Code 11.9 for your use and review. Once the Department of Public Health has made a finding of these wireless facilities, please forward your findings to the Department Public Work address to:

Department of Public Work/ Bureau of Street Use and Mapping
875 Stevenson Street, Room 460
San Francisco CA, 94103
Attn: Rassendyll Dennis

Per Administrative Code Section 11.9(b)(3)(B), the fees to the Department of Public Health shall be $135.00 (non-refundable) plus time and materials for any review that takes more than thirty (30) minutes. The applicant will forward a check to your department.

If you have any questions or comments, please contact me at 415-554-4683.

Sincerely,

Rassendyll Dennis
DPW-BSM

NextG Networks®

Photo Simulation
ATT1018 SF03M3

EXHIBIT A

NextG Networks of California, Inc.

SAN FRANCISCO
NODE SF03M3
156 27TH AVE.
SAN FRANCISCO, CA 94114

Call Before you Dig!

811

Know what's **below.**
Call before you dig.
Call 811 Before you Dig!

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

1. STATE ADMINISTRATIVE CODE
2. STATE BUILDING CODE
3. ANSI/EIA-222-F LIFE SAFETY CODE NFPA-101-1990
4. STATE MECHANICAL CODE
5. STATE PLUMBING CODE
6. STATE ELECTRIC CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

CODE COMPLIANCE

PROPERTY INFORMATION

CUSTOMER:	NEXTG / AT&T
PROJECT:	SAN FRANCISCO
NODE:	SF03M3
LATITUDE:	37.786440
LONGITUDE:	-122.487250
STREET ADDRESS:	156 27TH AVE.
CITY, STATE:	SAN FRANCISCO, CA. 94114
POLE# / TYPE:	110018137 / WOOD POLE
RAD CENTER / ANTENNA HEIGHT:	38'-4" TO RAD CENTER
ANTENNA TYPE:	DIRECTIONAL
AZIMUTH FOR ANTENNA:	300°
POWER TO POLE:	EXISTING PG&E
POLE ACCESS:	STREET SIDE
POLE LOCATION & DESCRIPTION:	N/A

PROJECT SUMMARY

VICINITY MAP

SHEET	DESCRIPTION	REV.
1	TITLE SHEET	
2	UTILITY POLE EQUIPMENT PROFILES	
3	UTILITY POLE POWERING EQUIPMENT PROFILES	
4	UTILITY POLE EQUIPMENT TYPICALS	

SHEET INDEX

THE PROJECT CONSISTS OF THE INSTALLATION AND OPERATION OF ANTENNAS AND ASSOCIATED EQUIPMENT CABINETS FOR NEXTG. THE INSTALLATION OF GROUND MOUNTED EQUIPMENT CABINETS, ANTENNAS ON AN EXISTING STREET LIGHT, WOOD POLE, TRAFFIC SIGNAL AND NEW STEEL POLES.

PROJECT DESCRIPTION

INSTALL / PLACE NEW FIBER TO NEW OR EXISTING POLE. INSTALL EITHER OMNI OR PANEL ANTENNAS AND ALL ASSOCIATED BRACKETS IN ACCORDANCE TO CONSTRUCTION SPECIFICATIONS. REARRANGE ANY EXISTING FACILITIES IN ACCORDANCE TO GOVERNING CONSTRUCTION GUIDELINES.

PROJECT SCOPE

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL CONTRACTOR NOTES

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:
156 27TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:
7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:
HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

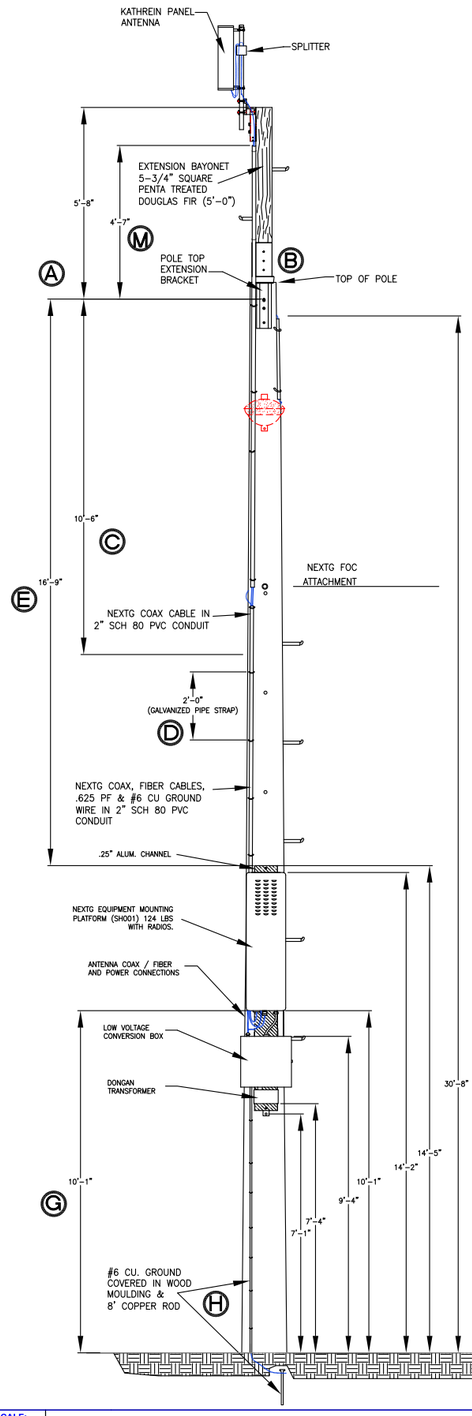
PLANS APPROVED BY:
NextG Networks of California, Inc.
REP:

COMMENTS:

SHEET TITLE:
NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF03M3

SHEET NUMBER: 1
REVISION: 1 OF 4

EXHIBIT A



MAKE READY

STEP POLE ACCORDING TO GO-95 STANDARDS.

NEW CONSTRUCTION

CONSTRUCTION:
NEXTG TO ATTACH POLE TOP EXTENSION @ 31'-8"

NOTES:

TOP OF POLE 31'-8"
ANTENNA RAD CENTER: 38'-4"
PROPOSED NEXTG (PG&E) APPROVED
POLE TOP EXTENSION KIT H.O.A: 31'-8"
EXISTING SECONDARY H.O.A 31'-1"
STREETLIGHT H.O.A 27'-4"
PROPOSED NEXTG FOC H.O.A 22'-8"

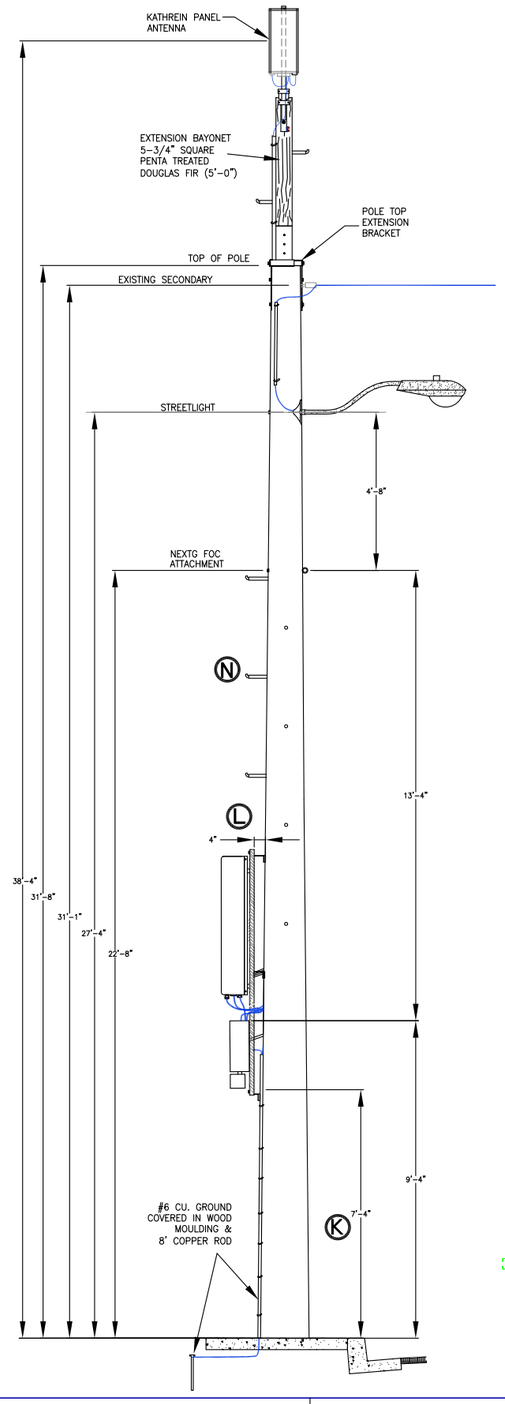
ANTENNA OUTPUT DOES NOT EXCEED GENERAL POPULATION EXPOSURE LIMITS.

RF EMISSION PLACARDS / SIGNAGE MEETING THE FCC REQUIREMENTS SHALL BE IN A LOCATION VISIBLE FROM CLIMBING SPACE AND BE AFFIXED TO THE POLE NO LOWER THAN 9'-0" ABOVE GROUND LINE & NO HIGHER THAN 3'-0" BELOW THE ANTENNA.

PLACARDS / SIGNAGE ARE UVA RESISTANT AND SHALL BE ATTACHED TO THE POLE WITH GALVANIZED NAILS OR GALVANIZED SCREWS.

- (A) – 48" MIN. CLEARANCE BETWEEN SECONDARY POWER AND LOWEST POINT OF ANTENNA ASSEMBLY.
- (B) – STEP POLE TOP EXTENSION AS PER DETAIL DWG.
- (C) – 48" MIN CLEARANCE REQ'D.
- (D) – 24" SPACING MAX. (GALVANIZED PIPE STRAP)
- (E) – 72" MIN. TO SECONDARY LEVEL. –NOT APPLICABLE–
- (F) – 12" MIN. SPACING FOR EQUIP TO CURB.
- (G) – 15' MIN. (MAY BE REDUCED TO 9' WHEN NOT EXPOSED TO TRAFFIC).
- (H) – GROUND INSTALLED BY COMM COMPANY (INCLUDES 8' COPPER ROD).
- (I) – 24" MIN. FROM CENTER OF POLE –NOT APPLICABLE–
- (J) – 24" MIN. CLEARANCE REQ'D.
- (K) – 7' MIN. / 8' MAX. REQ'D.
- (L) – 4" MIN. CLEARANCE BETWEEN EQUIPMENT AND POLE.
- (M) – PROTECTIVE COVERING MUST EXTEND A MINIMUM OF 3'-0" BEYOND ENERGIZED 0-750 VOLTS.
- (N) – POLE STEPS TO BE INSTALLED FROM 8'-6" ABOVE GRADE TO NEXTG ATTACHMENT.

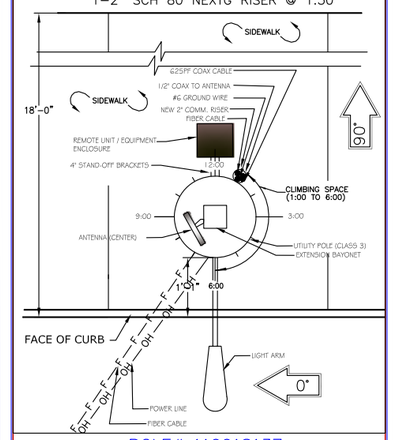
SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110018137	LOOKING WEST	A



SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110018137	LOOKING SOUTH	B

SCALE: N.T.S.	SITE POLE PICTURE	C

POLE WILL BE STEPPED IN ACCORDANCE TO GO95 STANDARDS IN RESPECT TO CLIMBING SPACE.
REMOTE EQUIPMENT @ 12:00
1-2" SCH 80 NEXTG RISER @ 1:30



POLE# 110018137

SCALE: N.T.S.	RISER POLE DETAIL	D

Call Before you Dig!

811

Know what's below.
Call before you dig.
Call 811 Before you Dig!

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954-1580

PROJECT INFORMATION:

156 27TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:

7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471-1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

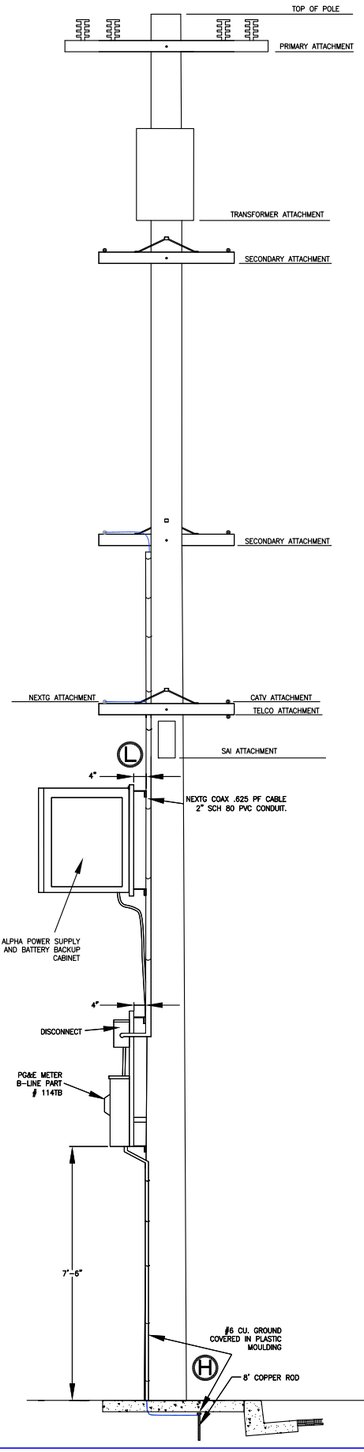
SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF03M3

SHEET NUMBER: **2** REVISION: **2 OF 4**

UTILITY POLE EQUIPMENT PROFILES

EXHIBIT A



MAKE READY

QUARTER STEP POLE

NEW CONSTRUCTION

INSTALL POWERING EQUIPMENT ACCORDING TO PRINT.

NOTES:

TOP OF POLE: 40'–11"
PRIMARY H.O.A: 39'–10"
TRANSFORMER H.O.A: 34'–10"
SECONDARY H.O.A: 25'–3" TO 33'–7"
CATV H.O.A: 20'–8"
PROPOSED NEXTG H.O.A: 20'–8"
TELCO H.O.A: 20'–2"

Ⓐ – 48" MIN. CLEARANCE BETWEEN SECONDARY POWER AND LOWEST POINT OF ANTENNA ASSEMBLY. –NOT APPLICABLE–

Ⓑ – STEP POLE TOP EXTENSION AS PER DETAIL DWG. –NOT APPLICABLE–

Ⓒ – 48" MIN CLEARANCE REQ'D.

Ⓓ – 24" SPACING MAX.

Ⓔ – 72" MIN. TO SECONDARY LEVEL.

Ⓕ – 12" MIN. SPACING FOR EQUIP TO CURB. –NOT APPLICABLE–

Ⓖ – 15' MIN. (MAY BE REDUCED TO 9' WHEN NOT EXPOSED TO TRAFFIC).

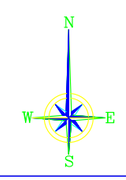
Ⓗ – GROUND INSTALLED BY COMM COMPANY (INCLUDES 8' COPPER ROD).

Ⓘ – 24" MIN. FROM CENTER OF POLE –NOT APPLICABLE–

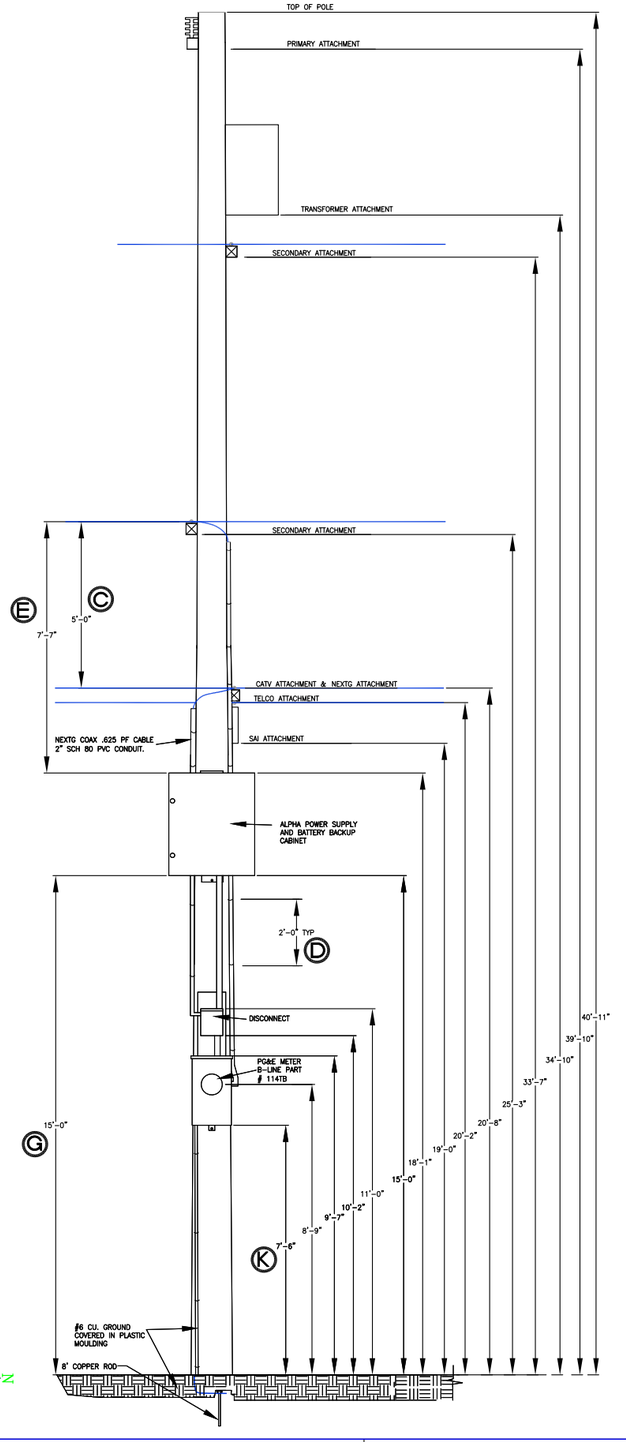
Ⓙ – 24" MIN. CLEARANCE REQ'D.

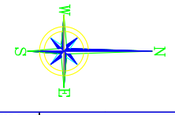
Ⓚ – 7' MIN. / 8' MAX. REQ'D.

Ⓛ – 4" MIN. CLEARANCE BETWEEN EQUIPMENT AND POLE.



SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110018138	LOOKING NORTH	E

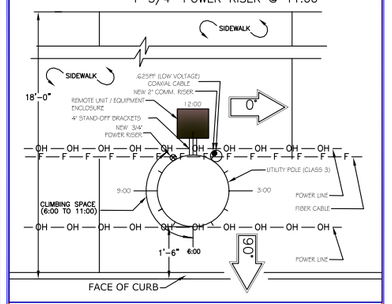




SCALE: N.T.S.	UTILITY POLE DETAIL POLE# 110018138	LOOKING WEST	F

SCALE: N.T.S.	SITE POLE PICTURE	G

POLE WILL BE STEPPED IN ACCORDANCE TO GO95 STANDARDS IN RESPECT TO CLIMBING SPACE.
1–2" NEXTG RISER @ 1:00
REMOTE EQUIPMENT @ 12:00
1–3/4" POWER RISER @ 11:00



POLE# 110018138

SCALE: N.T.S.	RISER POLE DETAIL	H

Enclosure Specifications		
Dimensions	4 Battery	8 Battery
Width (in/mm):	24/610	31/788
Height (in/mm):	36/914	37/956
Depth (in/mm):	14/56	16/407
Weight (lb/kg)*:	350/158	812/368
Finish:	Powder coat white over aluminum	

* Weight dependent upon internal battery choice.
Note: The WE enclosure is resistant to the harshest weather conditions including wind driven rain.
Backup time depends on load, battery, and operating temperature.
Optional DC Generator provides up to 100hrs backup.

SCALE: N.T.S.	POWER SUPPLY ENCLOSURE	I

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954–1580

PROJECT INFORMATION:

161 27TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE:

7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471–1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

Call Before you Dig!

811

Know what's below.
Call before you dig.
Call 811 Before you Dig!

SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF03M3
(POWER SUPPLY LOCATION)

SHEET NUMBER:	REVISION:
3	**3 OF 4**

UTILITY POLE POWERING EQUIPMENT PROFILES

EXHIBIT A

ION–M19P

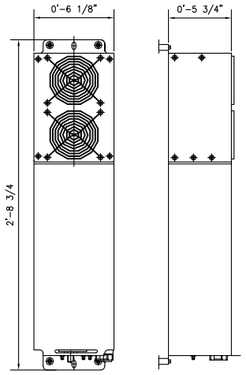
ANDREW ION–19P IS A MULTI–BAND MULTI–OPERATOR REMOTE UNIT WITH VARIOUS EXTENSION UNITS. IT IS USED IN CONJUNCTION WITH A MASTER UNIT IN THE ION OPTICAL DISTRIBUTION SYSTEM. THIS SYSTEM TRANSPORTS MULTIPLE FREQUENCY BANDS SIMULTANEOUSLY (1900 MHZ AND 1700/2100 MHZ), PROVIDING A COST–EFFECTIVE SOLUTION FOR DISTRIBUTING CAPACITY FROM ONE OR MORE BASE STATIONS.

ELECTRICAL	
POWER SUPPLY	
MAINS POWER, VAC	85 TO 264 115 OR 230
POWER CONSUMPTION, WATTS	350
OPTICAL	
CONNECTORS	E2000/APC 8°
OPTICAL RETURN LOSS, DB.	45 MINIMUM
FIBER TYPE, MM	SINGLE MODE E9/125
OPTICAL LINK BUDGET, DB	0 TO 10
COMPOSITE INPUT POWER	
@ OTRX MASTER SIDE, DBM.	
1900MHZ	+3 COMPOSITE
1700/2100 MHZ	+5 COMPOSITE
INTERFACE	
BTS SIDE	
NUMBER OF CONNECTORS	
1900MHZ	4
1700/2100 MHZ	4
SYSTEM OPTIMIZED FOR BTS POWER, DBM	33 43
ANTENNA PORT	
CONNECTOR	N FEMALE
OUTPUT POWER	SEE BAND SPECIFICATION
1900 MHZ	
FREQUENCY RANGE, MHZ	
UPLINK	1850 TO 1915
DOWNLINK	1930 TO 1995
OUTPUT POWER PER CARRIER*, DBM	

NUMBER OF CARRIERS	1	2	4	8
GSM	43	40	37	34
TDMA/ EDGE	43	40	37	34
CDMA/EV–DO	43	40	37	34
WCDMA/HSDPA	43	40	37	34

SPURIOUS EMISSION	<–13 DBM. / 1MHZ
DL OUTPUT TOLERANCE OVER FREQUENCY, DB	+1
DL OUTPUT TOLERANCE OVER TEMPERATURE, DB	+0.5
INPUT ICP	
ICP3 OPTIMIZED	–12
NOISE FIGURE OPTIMIZED	–18
NOISE FIGURE, DB	
ICP3 OPTIMIZED	11
NOISE FIGURE OPTIMIZED	6
1700/2100 MHZ (IN EXTENSION UNIT)	
FREQUENCY RANGE, MHZ	
UPLINK	1710 TO 1755
DOWNLINK	2110 TO 2155
OUTPUT POWER PER CARRIER*, DBM	
CDMA/EV–DO	WCDMA/UMTS/HSDPA
+43	+43 @ 1 CARRIER
+40	+40 @ 2 CARRIERS
+37	+37 @ 4 CARRIERS
+34	+34 @ 8 CARRIERS
SPURIOUS EMISSION	<– 13 DBM / 1 MHZ
ADJACENT CHANNEL POWER, DBC	–48
DL OUTPUT TOLERANCE OVER FREQ., DB	+1
DL OUTPUT TOLERANCE OVER TEMP, DB	+0.5
INPUT ICP3, DBM	
ICP3 OPTIMIZED	–12
NOISE FIGURED OPTIMIZED	–18

* APPLICABLE TO SINGLE MODULATION MODE ONLY
** WITH ACTIVE COOLING



ION–M19P MULTI–BAND, MULTI–OPERATOR REMOTE OPTICAL SYSTEM

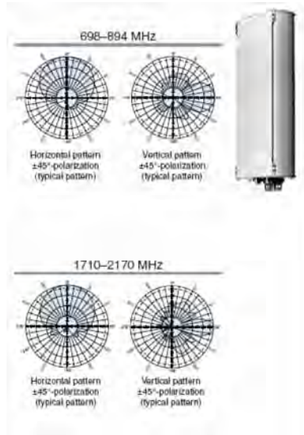
SCALE: N.T.S. — REPEATER EQUIPMENT DIMENSIONS — J

KATHREIN SCALA DIVISION

840 10525
65° Dualband Directional Antenna

Kathrein's dual band antennas are ready for 3G applications, covering all existing wireless bands as well as all spectrum under consideration for future systems, LTE, PCS and 3G/UMTS. These cross–polarized antennas offer diversity operation in the same space as a conventional 700 MHz antenna, and are mountable on our compact sector brackets

- Wide band operation.
- Exceptional intermodulation characteristics.
- Various gain, beamwidth and downtilt ranges.
- High strength pultruded fiberglass radome.



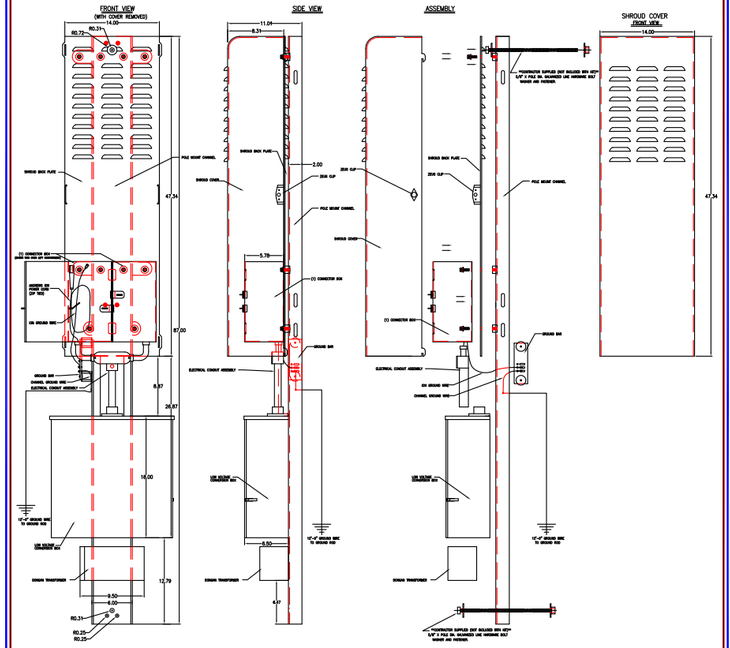
General specifications:
Frequency range 698–894 MHz1710–2170 MHz
Impedance 50 ohms
VSWR <1.5:1
Intermodulation (2x20w) IM3: <–150 dBc
Polarization +45° and –45°
Connector 4 x 7–16 DIN female
Isolation intrasystem >30 dB
Weight 15.9 lb (7.2 kg)
Dimensions 22.8 x 10.3 x 5.5 inches(579 x 262 x 139 mm)
Wind load at 93 mph (150kph)
Front/Side/Rear 23 lbf / 18 lbf / 41 lbf (100 N) / (80 N) / (180 N)
Wind survival rating* 120 mph (200 kph)
Shipping dimensions 29 x 11.9 x 7.6 inches (736 x 302 x 192 mm)
Shipping weight 19.2 lb (8.7 kg)
Mounting Fixed and tilt mount options are available for 2 to 4.6 inch (50 to 115 mm) OD masts.
See reverse for order information.

Specifications: 698–806 MHz 824–894 MHz 1710–1755 MHz 1850–1990 MHz 2110–2170 MHz
Gain* 10.5 dBi 11 dBi 12.5 dBi 13.3 dBi 13.6 dBi
Front–to–back ratio >25 dB (co–polar) >25 dB (co–polar) >27 dB (co–polar) >27 dB (co–polar) >27 dB (co–polar)
Maximum input power 250 watts (at 50°C) 250 watts (at 50°C) 200 watts (at 50°C) 200 watts (at 50°C) 200 watts (at 50°C)
+45° and –45° polarization 72° (half–power) 66° (half–power) 64° (half–power) 64° (half–power) 60° (half–power)horizontal beamwidth
+45° and –45° polarization 37° (half–power) 34° (half–power) 19° (half–power) 18.5° (half–power) 18° (half–power)vertical beamwidth
Cross polar ratioMain direction 0° 30 dB (typical) 25 dB (typical) 25 dB (typical) 25 dB (typical) 25 dB (typical)Sector ±60° >10 dB >10 dB >8 dB >8 dB >8 dB
Integrated combiner *The insertion loss is included in the given antenna gain values

* Mechanical design is based on environmental conditions as stipulated in EIA–222–F (June 1996) and/or ETS 300 019–1–4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779–6500 Fax: (541) 779–3991
Email: communications@kathrein.com Internet: www.kathrein–scala.com

SCALE: N.T.S. — ANTENNA SPECIFICATIONS — K



SCALE: N.T.S. — REPEATER EQUIPMENT AND MOUNTING CHASSIS CONFIGURATION — L

Pole–Top Extension for Wood Poles

Wood Pole–Top Extension

Notes:
1. This unit meets General Order (G.O.) 95 requirements for strength in Class 3 through Class 6 poles and therefore may be used to support equipment on these poles. It may be used on large class poles, but may not support equipment on them.

2. The unit may be guyed

3. The bracket is made to fit poles with diameters of 8" to 11". Therefore, depending upon the actual pole–top diameter, to fit poles of class 3 and smaller, a bracket adaptor may be required.

4. Units are supplied with the wood bayonet assembled.

5. A pole step kit is required.

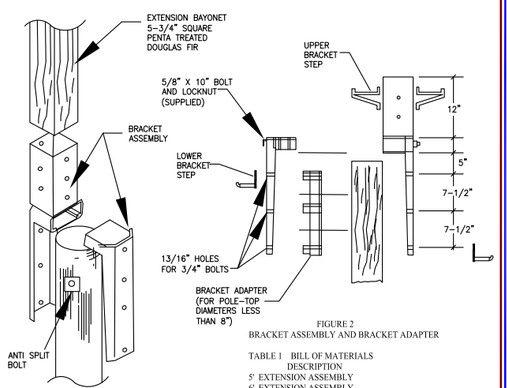


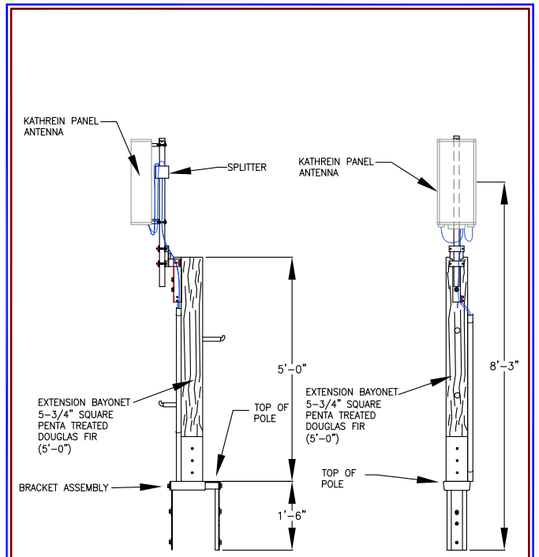
FIGURE 1
WOOD EXTENSION ASSEMBLY

FIGURE 2
BRACKET ASSEMBLY AND BRACKET ADAPTER

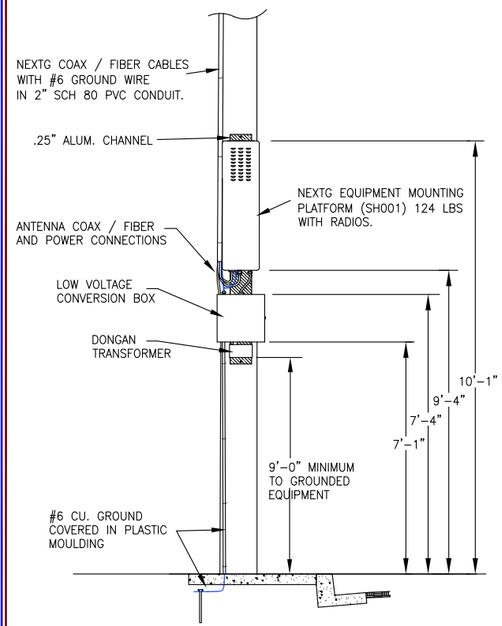
TABLE 1 BILL OF MATERIALS

DESCRIPTION
5' EXTENSION ASSEMBLY
6' EXTENSION ASSEMBLY
7' EXTENSION ASSEMBLY
BRACKET ADAPTER
3/4" X 10" MACHINE BOLTS
POLE STEP KIT (2 UPPER, 2 LOWER)

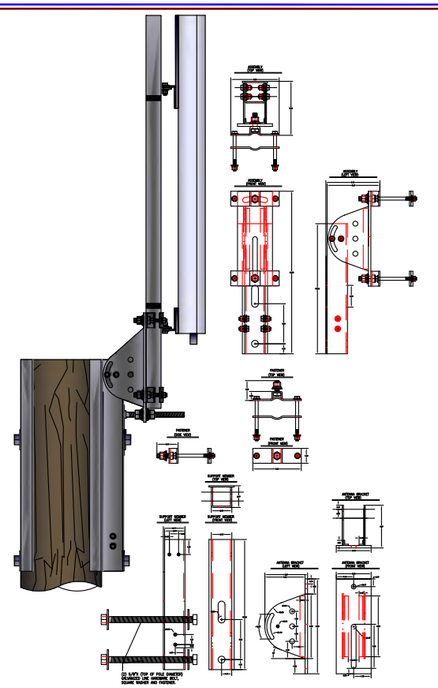
SCALE: N.T.S. — POLE TOP EXT. / BRACKET ASSEMBLY — M



SCALE: N.T.S. — POLE TOP EXTENSION CONFIGURATIONS — N



SCALE: N.T.S. — REPEATER EQUIPMENT AND MOUNTING CHASSIS CONFIGURATION — O



SCALE: N.T.S. — ANTENNA MOUNTING BRACKETS — P

NextG Networks of California, Inc.
2216 O'TOOLE AVE.
SAN JOSE, CALIFORNIA 95131
PHONE: (408) 954–1580

PROJECT INFORMATION:

156 27TH AVE.
SAN FRANCISCO, CA 94114

CURRENT ISSUE DATE: 7/7/10

PERMIT SUBMISSION:

REV.:	DATE:	DESCRIPTION:	BY:

PLANS PREPARED BY:

HP COMMUNICATIONS INC.
13341 Temescal Cyn. Rd.
Corona, CA. 92883
PHONE: (951) 471–1919

PLANS APPROVED BY:

NextG Networks of California, Inc.

REP:

COMMENTS:

SHEET TITLE:

NextG Networks of California, Inc.
AT&T NOE VALLEY NETWORK
POLE PROFILE NODE SF03M3

SHEET NUMBER: 4 REVISION: 4 OF 4

UTILITY POLE EQUIPMENT TYPICALS